



Catalog
WT 10

Edition
2022

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SIMATIC PCS 7 Process Control System
Vol. 2: Technology components

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Industrial Controls

SIRIUS

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Process Automation

Components for Continuous Emission Monitoring

AP 11

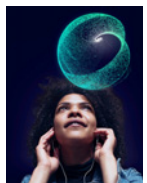
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SITRAIN

Digital Industry Academy

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SIMATIC

ST PCS 7
SIMATIC PCS 7 Process Control System
Vol. 1: System components

ST PCS 7

E86060-K4678-A111-C7-7600



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SIMATIC

SIMATIC PCS 7
Process Control System
Vol. 3: Add-ons for SIMATIC PCS 7

ST PCS 7 AO

PDF (E86060-K4678-A121-B5-7600)



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Products for Weighing Technology

Process Automation



Catalog WT 10 · 2022

Supersedes:
Catalog WT 10 · 2020

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DIN EN ISO 9001 (Certified Registration
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nized by all IQNet countries.

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Digital Enterprise

The building blocks that ensure everything works together perfectly in the digital enterprise

Digitalization is already changing all areas of life and existing business models. It is placing greater pressure on industry while at the same time creating new business opportunities. Today, thanks to scalable solutions from Siemens, companies can already become a digital enterprise and ensure their competitiveness.



Industry faces tremendous challenges



Reduce time-to-market

Today manufacturers have to bring products to market at an ever-increasing pace despite the growing complexity of these products. In the past, a major manufacturer would push aside a small one, but now it is a fast manufacturer that overtakes a slow one.



Boost flexibility

Consumers want customized products, but at a price they would pay for a mass-produced item. That only works if production is more flexible than ever before.



Improve quality

To ensure a high level of quality while meeting legal requirements, companies have to establish closed quality loops and enable the traceability of products.



Boost efficiency

Today the product itself needs to be sustainable and environmentally friendly, while energy efficiency in production has become a competitive advantage.



Increase security

Increasing networking escalates the threat to production facilities of cyberattacks. Today more than ever, companies need suitable security measures.



The digital enterprise has already become a reality

To fully benefit from all the advantages of digitalization, companies first have to achieve complete consistency of their data. Fully digitally integrated business processes, including those of suppliers, can help to create a digital representation of the entire value chain. This requires

- the integration of industrial software and automation,
- expansion of the communication networks,
- security in automation,
- and the use of business-specific industrial services.

MindSphere

The cloud-based open IoT operating system from Siemens

With MindSphere, Siemens offers a cost-effective and scalable cloud platform as a service (PaaS) for the development of applications. The platform, designed as an open operating system for the Internet of Things, makes it possible to improve the efficiency of plants by collecting and analyzing large volumes of production data.

Totally Integrated Automation (TIA) Where digitalization becomes reality

Totally Integrated Automation (TIA) ensures the seamless transition from the virtual to the real world. It already encompasses all the necessary conditions for transforming the benefits of digitalization into true added value. The data that will form the digital twin for actual production is generated from a common base.

Digital Plant

Learn more about the digital enterprise for the process industry
www.siemens.com/digitalplant

Digital Enterprise Suite

Learn more about the digital enterprise for the discrete industry
www.siemens.com/digital-enterprise-suite

TIA Selection Tool – quick, easy, smart configuration

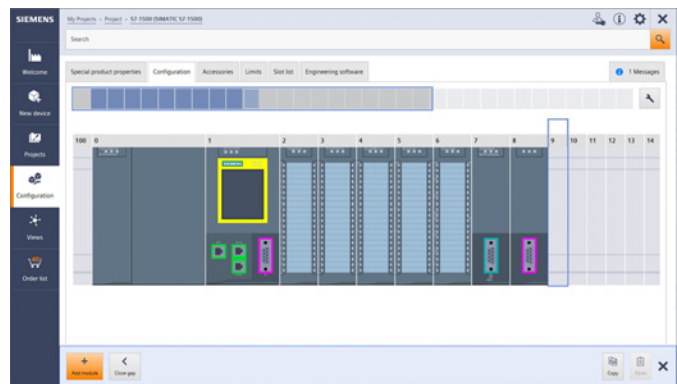
For you to get the most out of our portfolio quickly and easily.

Do you always need the optimum configuration for planning your project?

For your application we offer the TIA Selection Tool to support all project planners, beginners and experts alike.

No detailed portfolio knowledge is necessary.

TIA Selection Tool is available for download as a free desktop version or a cloud variant.



Your Advantages

Quick

- Configure a complete project with just a few entries – without a manual, without special knowledge
- Import and export of hardware configuration to TIA Portal or other systems
- Ideal visualization of the projects to be configured

Easy

- Tool download either as desktop version or web-based cloud version
- Technically always up-to-date about product portfolio and innovative approaches
- Highly flexible, secure, cross-team work in the cloud
- Direct ordering in the Siemens Industry Mall

Smart

- Smart selection wizard for error-free configuration and ordering
- Configuration options can be tested and simulated in advance
- Library for archiving sample configurations

The TIA Selection Tool is a completely paperless solution.

Download it now:

www.siemens.com/tst

For more
information,
scan the
QR code




Weighing Technology



1/3	First-class solutions for almost any weighing task
1/4	Available for all requirements: Electronic weighing systems
1/5	End-to-end automation
1/6	Load cells
1/6	Digital junction box
1/6	Weighing terminals
1/6	IIoT Weighing solutions
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1/9	Checking scales
1/10	Solids flowmeters
1/10	Loss-in-weight scales
1/10	Weighfeeders





First-class solutions for almost any weighing task

Weighing and dosing processes are of great significance in many areas of industrial production. Whether for filling food and beverage containers or preparing recipes for chemicals and pharmaceutical products: With our solutions, you can count on absolute reliability and highest precision.

Available for all requirements

The flexible design of our products makes it possible to implement weighing solutions from simple platform scales and gravimetric level measurement up to highly complex automatic scales with minimal conversion costs. Using SIWAREX load cells and electronic modules for weighing systems together with Siemens Milltronics belt scales and SITRANS weigh feeders and solids flowmeters, you can design an optimal system for practically every task.



TM SIWAREX WP351 HF – ultra-compact weighing electronic for maximum precision

- Ultra-compact: 20 mm wide, 65 mm high
- Precise: resolution $\pm 20,000,000$ increments
- Seamlessly integrated in ET 200SP system; works with S7-300, 400, 1200 and 1500 controllers
- Fast: 1,000 Hz sampling rate, digital output response time < 1 ms
- Intelligent firmware enables the weighing process to be controlled and optimized entirely from the weighing module
- Possible weighing applications include filling, bagging, checking, dosing and totalizing
- Certified according OIML R-51, R-61, R-76 and R-107
- Seamlessly integrated into PCS 7 by ET 200SP or ET 200SP HA and dedicated add-on library

End-to-end automation

Whether central or distributed: Our electronic weighing systems set standards. We offer integrated solutions for seamless integration into the SIMATIC automation system under the name SIWAREX. The weighing system can be easily adapted to meet your individual requirements with the SIMATIC standard components. Moreover, standardized interfaces, integrated functions and uniform tools allow for cost-effective configuration. Whatever your choice, you can count on a high degree of precision with SIWAREX and benefit from certifications according to OIML as well as a finely graded range of functions.



TM SIWAREX WP321 ST

- For level measurements in silos and bunkers; convenient and seamless integration of platform scales directly into the automation environment
- Up to 600 Hz sample rate
- Technology module for the SIMATIC ET 200SP distributed I/O system
- Easy commissioning by HMI or by SIWATOOL (no prior knowledge of SIMATIC required)
- The ready-to-use sample application enables fast development and implementation of customer- and industry-specific solutions
- Seamless integration into PCS 7 by ET 200SP or ET 200SP HA and dedicated add-on library



SIWAREX WP251

- Electronic weighing system for completely independent control of dosing and filling tasks
- Full integration into SIMATIC S7-1200 and TIA Portal; standalone operation without SIMATIC CPU is possible
- Factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces
- Certified according to OIML R-51, R-61, R-76 and R-107 – legal for trade as NAWI, AGFI, ACI, DTI
- Multi-range/multi-interval scale with up to 3x3000d



SIWAREX WP241

- Electronic weighing system especially designed for belt scale applications
- Simulation mode allows for a full function test even without a connected belt scale
- Full integration into SIMATIC
- S7-1200 and TIA Portal; standalone operation without SIMATIC CPU is possible
- Factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces



SIWAREX WP231

- Weighing module for level monitoring of silos and bunkers, use in platform scales and weighing in hazardous areas
- Can be fully integrated into SIMATIC S7-1200 and therefore also programmed in the TIA Portal
- Can be operated without SIMATIC CPU
- Certified according to OIML R-76 – legal for trade as NAWI



TM SIWAREX WP521 ST/WP522 ST

- Optimal for use in platform scales as well as for level monitoring of silos and bunkers and in hazardous areas
- Technology module for the SIMATIC S7-1500 Advanced Controller family
- Two versions: TM SIWAREX WP521 ST single-channel design for one-scale systems and TM SIWAREX WP522 ST two-channel design for two-scale systems

Load cells

The field-proven SIWAREX WL200 load cells are the perfect choice for reliable weight measurements. A wide range of designs, capacities and certificates guarantee a perfect fit for all requirements.



SIWAREX WL200 load cells

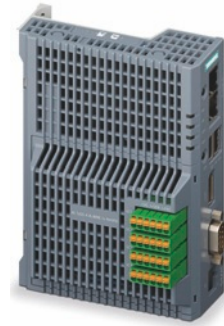
- Suitable for operation in hazardous areas
- Large measuring range from 0.3 kg to 500 t
- Hermetically sealed for maximum service life
- Options with redundant design and for high temperature ranges are available
- Smart-design fastening parts for simple and safe installation
- High degree of protection (IP)
- Certified in accordance with OIML R-60

Digital junction box



SIWAREX DB

- Simplification of service via remote diagnostics for individual load cell
- Connection to SIMATIC automation system via SIWAREX WP weighing electronics
- Comprehensive monitoring of the weighing process down to the single load cells
- Access to specific error states such as wire break, overload, etc.
- Connection of up to four standard strain gauge load cells per scale
- Digitalization of proven strain gauge technology
- Rugged due to IP66
- Retrofit of existing plants easily possible by exchanging analog junction box against SIWAREX DB



IIOT Weighing solutions

SIMATIC IOT 2000 SG-Shield offers an easy way to digitalize your weighing application, also for very specific industries with special requirements. Values measured by strain gauge cells can easily be viewed via remote. The system digitalizes the analog data and sends it to the cloud via the SIMATIC IOT2050 gateway. At the same time, the recorded measured values can be saved in MindSphere, our cloud-based, open IoT operating system, and retrieved using an app, such as SITRANS store IQ. For OEMs, SIMATIC IOT2000 SG-Shield is optionally also available with an RS 485 interface with standard protocol.

Weighing terminals



SIWAREX WT231/ WT 241

- Standalone solution independent of automation solution and therefore ready to use
- Touch panel with application-specific user interface
- Diverse factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces

Milltronics integrators for dynamic weighing systems

Our electronic transmitters process the sensor signals into operating data for continuous in-line weighing and material flow measurements.



- Milltronics BW500/L and SIWAREX WT241 offer economical and basic operation for belt scales, including display of flow rate, load, speed and totalized material for belt scales and weigh feeders. The integrated keypad allows easy and convenient operation and programming.
- Milltronics BW500 and Milltronics SF500 (for solids flowmeter) are advanced integrators with additional control functions such as PID or batch controllers. BW500 also offers legal-for-trade options for belt scales like MID or NTEP.
- TM SIWAREX WP341 HF is a SIMATIC ET 200SP based weighing electronics for belt weighers, weigh-feeders and solids flowmeters.
- SIWAREX WP241 is a SIMATIC S7-1200-based integrator with high functionality for belt scales, fully integrated into PLC. Programming and visualization can take place via existing HMIs of the PLC or by notebook.



Belt scales

Milltronics conveyor belt scales are the best choice for reliable, continuous in-line weighing of bulk solids.

- Weighing of raw materials, inventory checking and monitoring of production processes
- Market-leading performance under harsh conditions
- Easy installation and low maintenance overhead (no moving parts)
- Repeatable accuracy in productive operation, as well as minimal hysteresis and maximum linearity independent of horizontal forces thanks to unique parallelogram design of the load cells
- Integrated overload protection for the load cells
- More approvals than any other belt scale in the world



Weigh feeders

- Maximum weighing accuracy for optimization of mixing, process sequences and balance calculations
- Reliable and continuous performance
- Virtually maintenance-free
- Various designs engineered to customer requirements



Solids flowmeters

- Dust-tight inline weighing
- For continuous measurement of dry bulk materials, free-flowing powders or granulates throughput
- Also for critical functions such as batch loading processes and mixing processes

Not just products ...



Platform scales

Platform scales are seen frequently in all branches of industry. Irrespective of the load to be weighed, whether trucks, containers or loose goods, Siemens offers a comprehensive range of load cells and electronic weighing systems to set up platform scales in an inexpensive way.

The weighing data can be processed simply with the SIWAREX weighing processors. The SIWAREX U, CS, WP521 ST, WP522 ST or WP321 electronic systems are suitable for simple applications. SIWAREX WP231, SIWAREX WP351 or SIWAREX FTA are recommended for use in legal-for-trade plants.

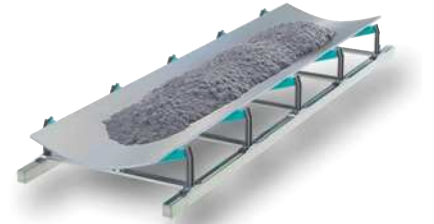


Hopper scales

Liquids, powders, bulk goods or gases are usually produced and stored in tanks or containers. To guarantee the availability of these goods, it is necessary to know the exact fill level of the container.

Independent of the type of the measured goods – corrosive, foamy, high/low dielectric constants or dusty – the use of weighing solutions from Siemens enables reliable measurement of the level.

To avoid sources of error caused by lateral force inclusions (e.g. pipe connections), the use of SIWAREX mounting units is recommended. In this way, the load cells can be installed quickly and easily.



Conveyor belt scales

Belt scales contribute to optimal use of raw materials, control of inventory, monitoring of production processes and manufacture of high-quality products. Siemens conveyor belt scales combine simple installation and low maintenance costs (no moving parts) with high reproducibility for productive operation. With minimum hysteresis and high linearity, lateral forces have no influence on measuring accuracy.

All load cells are protected against overload. Approvals for hazardous areas and trade requiring official calibration mean that the Siemens belt scales can be used in practically every industrial environment or application. In conjunction with a Milltronics BW500 transmitter or a SIWAREX WP241 or FTC weighing module, Siemens conveyor belt scales, with their tried-and-tested technology, enable reliable performance. Versions for high accuracy, light loads and high load rating are available.

- SIWAREX load cells and mounting components
- SIWAREX WT231 (stand-alone)
- SIWAREX WP231 for SIMATIC S7-1200
- SIWAREX WP321 for SIMATIC ET 200SP
- TM SIWAREX WP521 / WP522 ST for SIMATIC S7-1500 / ET 200MP
- TM SIWAREX WP351 HF for SIMATIC ET 200SP
- SIWAREX U for SIMATIC S7-300 / ET 200M
- SIWAREX FTA for SIMATIC S7-300 / ET 200M

- SIWAREX load cells and mounting components
- SIWAREX WT231 (stand-alone)
- SIWAREX WP231 for SIMATIC S7-1200
- SIWAREX WP321 for SIMATIC ET 200SP
- TM SIWAREX WP521 / WP522 ST for SIMATIC S7-1500 / ET 200MP
- TM SIWAREX WP351 HF for SIMATIC ET 200SP
- SIWAREX U for SIMATIC S7-300 / ET 200M
- SIWAREX FTA for SIMATIC S7-300 / ET 200M

- Milltronics belt scales
- Belt speed sensors
- Milltronics BW500 and BW500/L
- SIWAREX WT241 (stand-alone)
- SIWAREX WP241 for SIMATIC S7-1200
- SIWAREX FTC for SIMATIC S7-300 / ET 200M
- TM SIWAREX WP341 HF for SIMATIC ET 200SP

... but solutions.



Dosing

Successful, high-quality products require exact dosing of their components. Precise and reliable measuring devices meet these requirements.

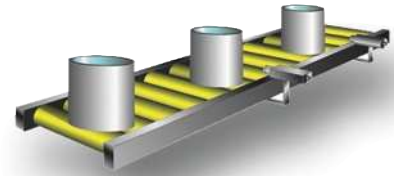
With SIWAREX electronic weighing systems and load cells, you can achieve optimum results for the precise and fast control of coarse and fine flows as well as for filling and emptying. Because SIWAREX is very scalable and integrated in SIMATIC, single-component and multi-component systems can be automated easily with just one SIMATIC automatic station.



Filling and bagging

Filling, bagging and big bag systems are used in a wide variety of production processes. Filling of solid or liquid substances must be precise and fast. SIWAREX is an excellent choice here. These electronic weighing systems offer high resolution and high accuracy, as well as being legal-for-trade.

Furthermore, the seamless integration in the SIMATIC automation systems enables optimum communication of the weighing system with the automation environment.



Checking scales

The checking scale checks the correct weight of the package contents. In addition to the mechanical design, the electronic weighing system is of key importance for the functionality of the checking scale.

Modern SIWAREX electronic weighing systems provide high resolution and high precision. They can be configured for a wide variety of applications with checking scales. SIWAREX electronic systems enable seamless integration in the SIMATIC automation system. With SIWAREX electronic systems, complete control stations for controlling the checking scales, including image processing, proximity switches or motion control, can be formed easily based on the weighing module.

- SIWAREX load cells and mounting units
- SIWAREX WP251 for SIMATIC S7-1200
- TM SIWAREX WP351 HF for SIMATIC ET 200SP
- SIWAREX FTA for SIMATIC S7-300 / ET 200M

- SIWAREX load cells and mounting units
- SIWAREX WP251 for SIMATIC S7-1200
- TM SIWAREX WP351 HF for SIMATIC ET 200SP
- SIWAREX FTA for SIMATIC S7-300 / ET 200M

- SIWAREX load cells and mounting units
- SIWAREX WP251 for SIMATIC S7-1200
- TM SIWAREX WP351 HF for SIMATIC ET 200SP
- SIWAREX FTA for SIMATIC S7-300 / ET 200M

With optimal cost/benefit ratio.



Solids flowmeters

Solids flowmeters optimize control of your process and ensure excellent product quality. The heavy-duty, low-maintenance Siemens solids flowmeters (with baffle plates) enable continuous throughput measurement of free-flowing bulk goods, powders or granules. The system is completed by a stand-alone SF500 transmitter or SIWAREX FTC weighing module for processing the sensor signals and calculating throughput capacity and total quantity.

All versions guarantee precise, reproducible results and can be used for difficult tasks, such as loading and mixing processes. Overload protection for the fuse is available as standard. All versions are constructed encapsulated and dust-proof from painted, mild steel. Versions in stainless steel and for installation in hazardous areas can also be provided.



Loss-in-weight scales

A loss-in-weight system contributes to fulfilling the accuracy requirements called for in continuous dosing processes. With the SIWAREX FTC weighing modules, it is easy to set and integrate the loss-in-weight scale. The auto-setup function facilitates commissioning of the scale. The module determines the most important parameters such as dosing performance and PID and stability parameters. During operation, the parameters are continuously optimized by SIWAREX FTC.

SIWAREX FTC allows for high measurement resolution, real-time signal processing, recording and filtering of signals, and thus very high dosing accuracy. Via HMI, PC connection or the control system, the operator has the option to control the system manually.



Weighfeeders

A weighfeeder is a customer-specific belt conveyor that integrates a weigh-bridge and a speed sensor. The material flow is controlled by a servo-drive based on a setpoint specification made in the Milltronics BW500 transmitter or with a PLC via SIWAREX electronics. In this way, the weighfeeder supplies high accuracy in weighing and optimizes mixing, process sequences and balance calculations.

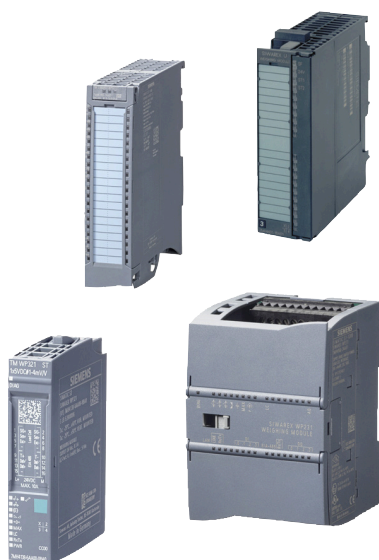
Weighfeeders are essential in automated production processes that require continuous weighing and dosing. Their practically maintenance-free design is a guarantee of high performance. The belt width and belt conveyor length are tailored to the requirements of the application.

- SITRANS WF100 solids flowmeters
- SITRANS WF200 solids flowmeters
- SITRANS WF300 solids flowmeters
- SITRANS WFS300 sensor heads
- Milltronics SF500 transmitters
- SIWAREX FTC for SIMATIC S7-300 / ET 200M

- SIWAREX load cells and mounting components
- SIWAREX FTC for SIMATIC S7-300 / ET 200M

- SITRANS weighfeeders
- Milltronics BW500 transmitters
- SIWAREX FTC for SIMATIC S7-300 / ET 200M
- SIWAREX WP241 for SIMATIC S7-1200
- SIWAREX WT241 (stand-alone)
- TM SIWAREX WP341 HF for SIMATIC ET 200SP

Weighing Electronics



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Overview

Automation with integral weighing and batching technology

In addition to the accuracy when weighing and proportioning, incorporation of weighing technology into modern automation systems serves to increase the sustained success of a company.

Requirements on scales in industrial processes

The weighing and proportioning system is of significant importance in many industrial processes, where many different weighing tasks have to be handled. Both programmable controllers (PLC) and process control systems (PCS) are used to automate production processes.

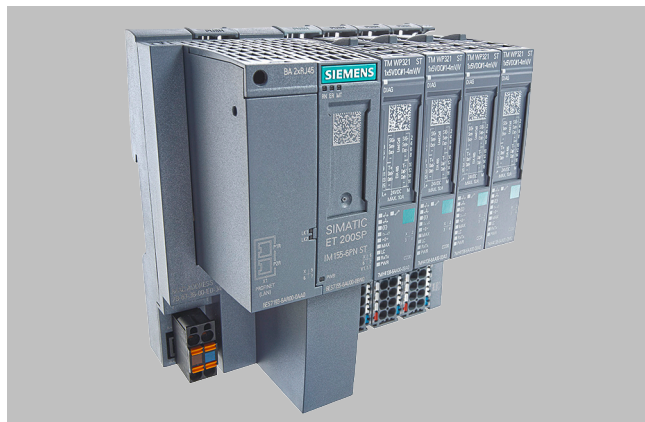
There are many different types of scales that work together with automation systems, depending on requirements. Production automation places the following demands on weighing technology:

- Flexibility with respect to typical scale functions
- Simple expansion of the weighing system
- Adaptability to the automation task, and
- Integrated communications concept

Scales that are able to satisfy these demands can be classified as part of the automation system. In this sense, the scale is an intelligent automation object comprising:

- Sensor technology
- Closed-loop control
- Actuator technology

The scale carries out its tasks according to the definitions of the control system.



SIWAREX WP321 electronic weighing system in the SIMATIC ET 200SP system

Distribution of weighing functions within automation system

The distribution of weighing functions within automation systems has been subject to constant change in recent years. The reasons for this can be found in the search for an efficient solution for weighing tasks in the automation environment. The performance of hardware components is no longer the only reason for deciding to use a specific solution architecture. The demands placed on a modern weighing solution include the following scale-related requirements:

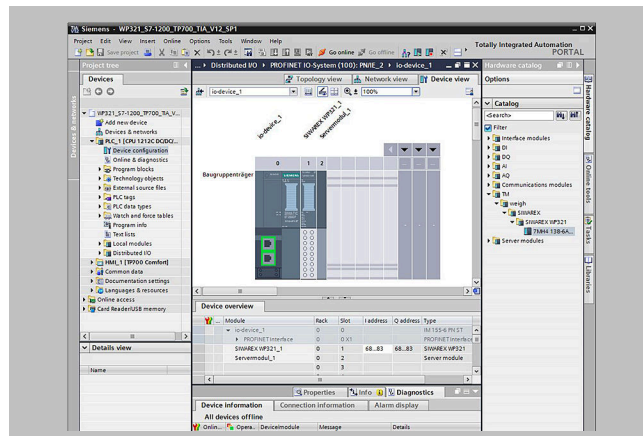
- High operational reliability
- Simple operation
- Very good reproducibility
- High accuracy

as well as the requirements associated with the following automation properties:

- Integration (hardware/software)

Overview (Continued)

- Flexibility
- Standardization



Hardware configuration in the TIA Portal with the SIWAREX WP321 electronic weighing system

Application-compatible implementation leads to the following three aspects:

- The demands relating to accuracy and reproducibility require the use of special, high-quality function units for signal recording, signal conditioning, A/D conversion and preprocessing, as well as open-loop and closed-loop control functions. The task means that the weighing signals must be resolved in up to 16 million digitization steps. During proportioning and filling, material flows must be controlled over binary scale signals with a time resolution of up to less than one millisecond.
- A whole range of other application-specific functions are also required to perform the overall task. It is therefore essential to take into account the complete value chain in the production process. These might include the automatic filling of supply hoppers or the unloading of the final product - so that a system is required that supports simple implementation of the necessary functions.
- It is also necessary to ensure full integration of the weighing systems into the total automation technology wherever possible. This covers not only communication, but also requires functional integration and the engineering of all automation functions using standard tools.

These aspects result in the following solution, which easily satisfies all requirements:

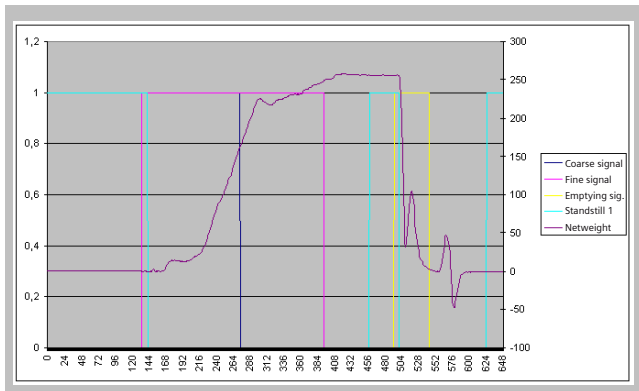
- Function or technology modules for weighing systems that contain the required hardware and firmware as standard, in order to satisfy the high accuracy requirements and time-critical tasks. These modules feature all the characteristics of the standard automation system and are therefore completely compatible.
- Use of standard automation systems for the implementation of application-specific tasks. This not only enables the use of the standards already generally applied for engineering, visualization, archiving etc., but also supports full integration into the total automation technology without the need for any further adaptation. Sector-specific and application-specific solutions can be implemented particularly flexibly in this case. Special weighing and process methods or recipes can be protected from access by third-parties by means of software protection (know-how protection).

Weighing Electronics

Introduction

Overview (Continued)

- This concept sees the weighing system as an automation object integrated in the total automation solution. The aforementioned total compatibility means that the standard automation functions and the weighing functions combine to form an homogeneous entity for the user. The demands for uniformity, ease of use and flexibility on the basis of existing standards are fulfilled.
- This solution means that the component architecture can be central or distributed. In a distributed configuration, i.e. when components are integrated into the scale, the weighing system is easily transformed into an autonomous "field device", connected to the automation technology through the open PROFIBUS or PROFINET.



Curve display of dosing, recorded over the electronic weighing system using SIWAREX FTA

SIWAREX weighing systems in automation

Totally Integrated Automation plays an essential role in SIWAREX weighing systems.

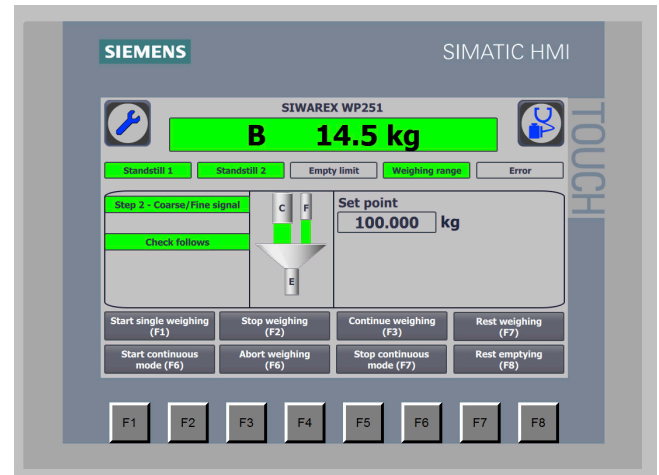
A key feature is the total integration of SIWAREX into the SIMATIC world.

This means:

- Implementation of central automation concepts by direct integration in SIMATIC S7
- Implementation of distributed automation concepts by means of connection to SIMATIC ET 200
- Integration in the SIMATIC PCS 7 process control system
- Operator control and monitoring through SIMATIC HMI
- Uniform configuring and programming through SIMATIC software

Overview (Continued)

Dosing control



Visualization of dosing with SIMATIC HMI

SIWAREX - electronic weighing system - uniform SIMATIC system basis

By investing in SIWAREX weighing modules, you are investing in the uniform SIMATIC system basis on which the automation components of the entire production process can build – from incoming goods (upstream area) to the production process (mainstream area) down to the filling machine at the end of the production chain (downstream area) – a system basis which encompasses all hierarchical levels from the human-machine interface to the PROFIBUS DP fieldbus or PROFINET. Why use specialized technology for each weighing or proportioning problem when a uniform basis is available for all individual problem solutions? With SIWAREX, Siemens has created this uniform basis.

Integrated automation solutions with weighing technology

SIWAREX weighing modules are ideally suited to integrated automation solutions using weighing technology. SIWAREX can be used for every SIMATIC solution regardless of whether it is integrated into the SIMATIC S7 automation system in the form of a module or used as a distributed I/O with the SIMATIC S7.

The highlight: SIWAREX modules are integrated into the automation system with the same engineering tools as all other automation components. This is an excellent solution which reduces engineering costs and training expenses!

The ET 200 I/O device is designed as a modular system. The weighing electronics are selected from the module catalog and placed in the rack of the modular I/O station. The software addresses the weighing electronics as if they were modules plugged into the central controller of an automation system.

By using standard hardware (SIMATIC components) and standard software (STEP 7/TIA Portal), freely programmable, modular weighing systems are available which can be inexpensively adapted to specific plant requirements, e.g. by means of:

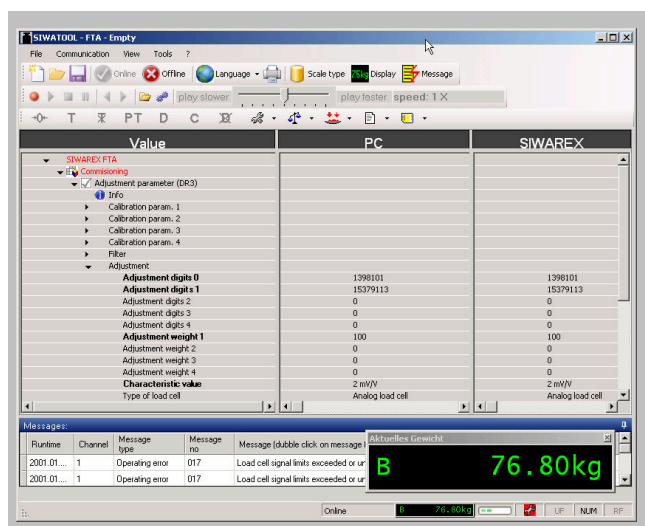
- Additional SIMATIC digital outputs for controlling a mixer, heater, agitator, etc.
- Additional functions implemented in STEP 7 for determining and controlling the material flow or for correcting the setpoint based on material moisture.

The advantages of direct integration at a glance:

- Low-cost system integration because no additional coupling modules are required
- Low configuration costs due to the integrated system design

Overview (Continued)

- System-compatible module behavior (diagnostics interrupts, hardware interrupts, command output disables, etc.)
- Tailor-made, low-cost weighing systems due to expansion with standard SIMATIC components
- High plant availability
- Easy installation thanks to snap-on technique
- Low space requirements due to compact design



Scales can also be adjusted without an automation system.

High plant availability – to ensure that production does not come to a halt

Apart from the advantage that configuration know-how is only required for a single system, there are also enormous advantages in terms of plant availability.

In the SIMATIC S7, for example, faults (measuring range exceeded, proportioning fault, sensor fault, etc.) are reported to the automation system via diagnostic interrupts without the need to input a single line of programming code.

Error messages from the weighing electronics are automatically transferred to the automation system. The diagnostic information enables easy location of the module from which the message originated.

Additional diagnostic options are available when the load cells are connected via SIWAREX DB. The single channel monitoring that is thus possible identifies wire breaks, impedances and the current utilization of each and every load cell in a targeted manner.

Using a programmer or the plant visualization, operating personnel are then able to localize the error, display its cause and, if necessary, replace the defective module.

A replaced module is automatically detected by the automation system. Thanks to the transparent data management, the scales parameters saved in the automation system can then be transferred to the new weighing electronics. The scales are immediately available again for weighing tasks – no need to readjust with control weights (except applications requiring official calibration).

Since SIWAREX weighing systems are comprised solely of standard components (e.g. SIWAREX weighing modules, SIMATIC digital input/outputs, etc.), spare parts inventories are very easy to handle.

Standard programming in the SIMATIC PCS 7 process control system as in the SIMATIC S7 automation system

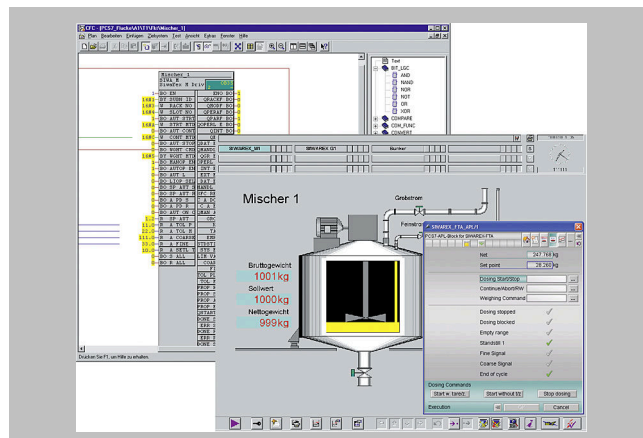
While the weighing modules used with the SIMATIC S7 automation system should preferably be integrated into the system with the typical PLC programming languages STL (Statement List), LAD (Lad-

Overview (Continued)

der Diagram), FBD (Function Block Diagram) or SCL, the configuration in the SIMATIC PCS 7 process control system is implemented by means of graphic interconnection in the CFC (Continuous Function Chart). Configuration is used instead of programming.

The scales are displayed in the ES (engineering system) as "technology blocks" in the CFC. At the OS (operator station), however, faceplates are used to display the scales in the WinCC visualization system.

The faceplates can be used to monitor the weight values and operate the scales.



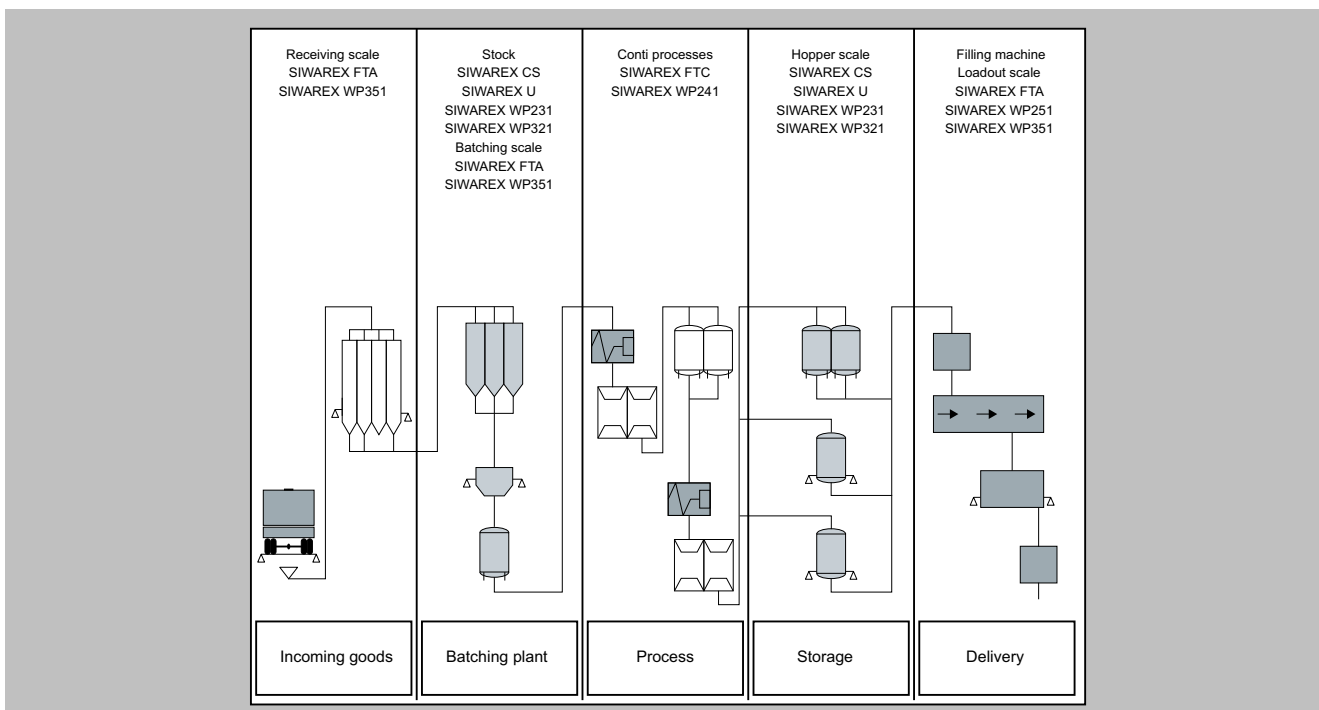
Scales displayed in the ES engineering system (on the left) and on the OS operator station (on the right)

Weighing Electronics

Introduction

Application

Applications of SIWAREX weighing technology in the production process



SIWAREX application table

Application	Selection	For PLC
Static weight measurements e.g. platform scales, hopper scales, vehicle scales, silos	SIWAREX WP321 SIWAREX WP231 (OIML R-76) SIWAREX WP521 ST SIWAREX WP522 ST SIWAREX U SIWAREX FTA (OIML R-76) SIWAREX WP351 (OIML R-76)*	ET 200SP S7-1200 S7-1500 and ET 200MP S7-1500 and ET 200MP S7-300 and ET 200M S7-300 and ET 200M ET 200SP
Force measurement e.g. rolling mills, monitoring of loads and belt tensions, overload protection, torque measurements	AI 2xGS 4/6-wire HS SIWAREX WP231 SIWAREX WP522 ST SIWAREX WP522 ST SIWAREX FTC	ET 200SP S7-1200 S7-1500 and ET 200MP S7-1500 and ET 200MP S7-300 and ET 200M
Dosing e.g. batching plants, batch processes, proportioning recipes, single-scale and multi-scale systems	SIWAREX WP251 (OIML R-51) SIWAREX FTA (OIML R-51) SIWAREX WP351 (OIML R-51)*	S7-1200 S7-300 and ET 200M ET 200SP
Dosing (continuous) e.g. batching plants, in continuous operation	SIWAREX FTC (loss-in-weight scale operation mode)	S7-300 and ET 200M
Filling, bagging e.g. filling machines, weighing and sack filling machines, big bag	SIWAREX WP251 (OIML R-51/R-61) SIWAREX FTA (OIML R-51/R-61) SIWAREX WP351 (OIML R-51/R61)*	S7-1200 S7-300 and ET 200M ET 200SP
Loading e.g. loading scales for receiving and load operations	SIWAREX FTA (OIML R-107) SIWAREX WP251 (OIML R-107) SIWAREX WP351 (OIML R-107)*	S7-300 and ET 200M S7-1200 ET 200SP
Checking scales (static) e.g. automatic weight control in static mode, e.g. following filling	SIWAREX FTA (OIML R-51) SIWAREX WP351 (OIML R-51)*	S7-300 and ET 200M ET 200SP

Application (Continued)

Application	Selection	For PLC
Flow measurement e.g. solid flow meter (baffle plate)	SIWAREX FTC (solid flow meter operation mode)	S7-300 and ET 200M
Belt scales e.g. measurement of belt load, conveyed quantity, loading according to setpoint	SIWAREX WP241 SIWAREX FTC (belt scale operation mode)	S7-1200 S7-300 and ET 200M

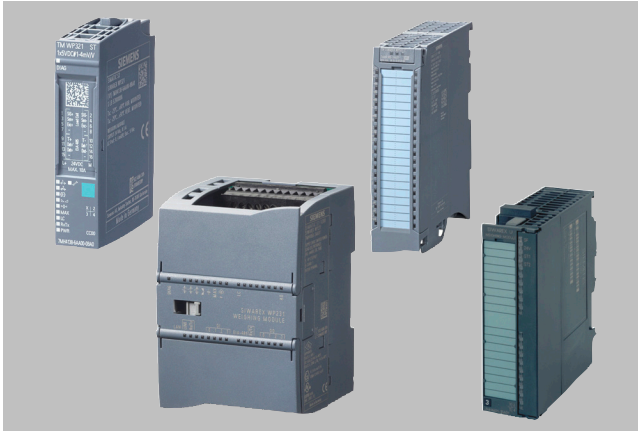
* certificates available soon

Weighing Electronics

SIWAREX for SIMATIC

Platform and hopper scales / Introduction

Overview



Platform and hopper scales

Weighing silos, vessels or platforms is a standard task in industry. The comprehensive SIWAREX electronics properties and functions can fulfil all requirements.

Platform scales

In the various branches of industry the use of platform scales is bound to very different requirements, in particular with regard to the load classes.

While platform scales are also used for small loads, road vehicle and track scales are especially suited for heavy loads.

Hopper scales

In almost every industry, liquids, powders, bulk goods or gases are produced and stored in funnels or vessels. To ensure their availability, the exact fill levels of these vessels must be known.

Overview



Weighing electronics TM SIWAREX WP521 ST (left) and TM SIWAREX WP522 ST (right)

The TM SIWAREX WP521 ST and WP522 ST (ST = Standard) are versatile weighing modules for the SIMATIC S7-1500 Advanced Controller family. With these electronic weighing systems, simple weighing applications, such as platform or hopper scales, can be seamlessly integrated into the S7-1500 automation environment.

Benefits

SIWAREX WP521 ST and WP522 ST offer the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1500
- Uniform configuration with TIA Portal
- Single (WP521 ST) and dual-channel (WP522 ST) variants are available
- Operation possible without or with failed SIMATIC CPU
- Optional direct connection of an operator panel via Ethernet port (Modbus TCP/IP)
- Optional direct connection of a remote display via RS 485 interface
- Modbus TCP/IP interface
- Modbus RTU interface
- Three digital inputs and four digital outputs
- Measurement of weight or force with a high resolution of up to ± 4 million parts and a measurement rate of 100/120 Hz
- Simple commissioning by means of HMI/CPU or PC software SIWATOOL V7 via the Ethernet interface
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Module can be replaced without renewed adjustment of scale
- Automatic impedance monitoring of the connected load cells
- Direct use in hazardous area zone 2
- Up to eight 350 ohm load cells can be connected per channel
- High EMC resistance

Application

SIWAREX WP521 ST and WP522 ST are the optimum solution for the integration of non-automatic scales, such as platform or hopper scales, into the SIMATIC S7-1500 automation environment. The two modules have the basic weighing functions: zeroing, taring and tare specification. Three limit values can also be freely defined and, if required, also output via the digital outputs. All further available status information can also be flexibly linked to the outputs. The digital inputs can be used for the direct wiring of pushbuttons, for example. All weighing functions (e.g. zeroing) can be freely and flexibly assigned to each input.

Design

SIWAREX WP521 ST and WP522 ST are technology modules of the SIMATIC S7-1500 Advanced Controller family and therefore communicate directly with the SIMATIC S7-1500 controller via the system bus. Additional expensive communication cards are therefore not required when using SIWAREX weighing technology.

The compact, 35 mm wide weighing modules can be mounted directly on the SIMATIC DIN rail. Assembly is therefore extremely easy and consistent with the remaining automation.

The modules are delivered ex works with a shielding set, comprising a shield clamp, shielding bracket and 24 V DC supply element with screw-type terminals. This set is assembled with an appropriate front connector (must be ordered separately, see accessories and ordering data) and therefore guarantees optimum hardware design and EMC immunity.

The power supply, load cells, RS 485 interface and the digital inputs/outputs are also connected via the removable front connector. An RJ45 port is available on the bottom of the module for the Ethernet connection (SIWATOOL and Modbus TCP/IP).

Function

SIWAREX WP521 ST and WP522 ST provide simple weighing applications such as platform or hopper scales (ST = Standard). The basic functions zeroing, taring and tare specification can easily be issued by the CPU/HMI via the ready-made function block or alternatively via a 24 V signal at one of the three digital inputs.

The ready-made function block provides full access to all parameters. Commissioning, maintenance and operation of the scales can be performed fully from the CPU or HMI – without additional programming work. The free "Ready-for-use" software (can be downloaded in the Siemens Online Support) also contains fully fledged HMI configuration, which can be transferred to your own project as you wish and freely edited. Customer- and plant-specific weighing applications can therefore be realized in an instant. In addition, languages can be added easily and quickly with the help of the corresponding functions of the TIA Portal.

As an alternative to the CPU/HMI, the module can also be put into operation and maintained conveniently and without a knowledge of SIMATIC via the PC software SIWATOOL V7. This simplifies work considerably for the service staff as no interventions in the controller are required.

The automatic impedance monitoring of the module also increases plant safety and availability. The total impedance of the connected cells is determined as the reference value during commissioning. You can also freely define from which percentage deviation from the reference value a corresponding status bit is to be set. In the event of an error (e.g. severing of a load cell cable), this bit can generate corresponding alarms in the controller and initiate measures. The impedance is continuously monitored every 100 ms. Up to eight 350-ohm load cells switched in parallel can be connected per scale (per channel).

The modules can be integrated into the plant network via the Ethernet interface of the modules, so that during servicing, remote access is easily possible worldwide by means of SIWATOOL. Please refer to the information at <http://www.siemens.com/industrialsecurity>

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / TM SIWAREX WP521 ST and WP522 ST weighing electronics

Function (Continued)

A firmware update of the modules can be performed via the TIA Portal (MMC card or by file selection) or SIWATOOL V7.

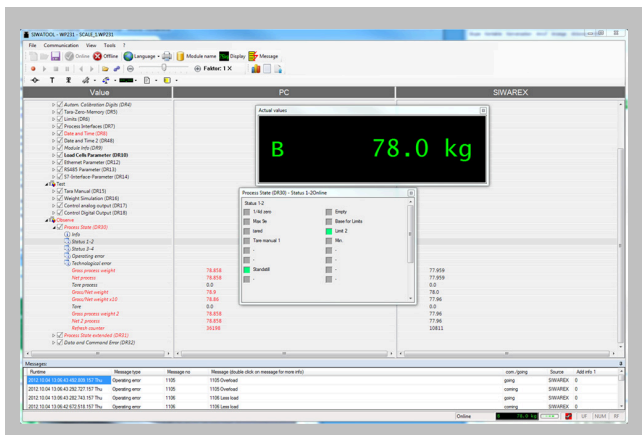


Software SIWATOOL V7

The software SIWATOOL V7 for Windows operating systems is optionally available for commissioning and servicing. The software is free of charge and part of the configuration package (see accessories).

The program enables the scales to be parameterized and commissioned without the need for prior knowledge of the automation system. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading the power fail-safe diagnostics buffer is also a useful feature for troubleshooting. A trace can also be started and read. This trace records all the weight values and status information in 10 ms intervals. The data can be read out using SIWATOOL V7 and exported to spreadsheet programs, thus enabling highly granular investigation and optimization. The following are just some of the tasks that can be carried out using SIWATOOL V7:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Recording and analysis of weighing sequence (trace)
- Firmware update
- Creation/loading of external backup files



SIWATOOL V7, layout of the program windows

Selection and ordering data

	Article No.
Weighing electronics TM SIWAREX WP521 ST Single-channel, for platform scales or hopper scales with analog load cells (1 - 4 mV/V), 1 × LC, 4 × DQ, 3 × DI, 1 × RS 485, Ethernet port, including shielding set.	7MH4980-1AA01
Weighing electronics TM SIWAREX WP522 ST Two-channel, for two separate platform scales or hopper scales with analog load cells (1 - 4 mV/V), per channel 1 × LC, 4 × DQ, 3 × DI, 1 × RS 485, Ethernet port, including shielding set.	7MH4980-2AA01
SIMATIC S7-1500, front connector with screw-type terminals 40-pin, for 35 mm wide modules, including 4 jumper links and cable ties	6ES7592-1AM00-0XB0
SIMATIC S7-1500, front connector with push-in technology 40-pin, for 35 mm wide modules, including 4 jumper links and cable ties	6ES7592-1BM00-0XB0
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP52x ST to a PC (SIWATOOL V7 or Modbus TCP/IP)	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	• Short-circuit current < 199 mA DC 7MH4710-5BA • Short-circuit current < 137 mA DC 7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch)	

Selection and ordering data (Continued)

	Article No.
Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• Sheath color (for hazardous atmospheres): blue	7MH4702-8AF
Remote display (optional) The digital remote displays can be connected directly to the SIWAREX WP231 via the RS 485 interface. Suitable remote display: S102 Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP521 ST / WP522 ST	
Weighing modes	<ul style="list-style-type: none"> Non-automatic scales, e.g. platform and hopper scales
Ports	<ul style="list-style-type: none"> 1 × SIMATIC S7-1500 system bus 1 × Ethernet (SIWATOOL, Modbus TCP/IP) 1 × RS 485 per channel (Modbus RTU or remote display) 3 × digital inputs per channel (24 V DC) 4 × digital outputs (24 V DC short-circuit proof) per channel
Functions	<ul style="list-style-type: none"> 3 limits Zeroing Tare Tare specification Zero adjustment Trace function for signal analysis Internal restore point SIMATIC S7-1500 integrated and/or stand-alone operation
Parameter assignment	<ul style="list-style-type: none"> Using function block in SIMATIC S7-1500 and HMI Using SIWATOOL V7 Using Modbus TCP/IP Using Modbus RTU
Remote display (see accessories)	
Connection	Via RS 485
Display	Additional display for weight value
Measuring accuracy	
Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Number of measurements/second	100 or 120 (selectable)
Filter	<ul style="list-style-type: none"> Low-pass filter 0.05 ... 50 Hz Average value filter
Weighing functions	

Technical specifications (Continued)

SIWAREX WP521 ST / WP522 ST	
Weight values	<ul style="list-style-type: none"> Gross Net Tare
Limit values	<ul style="list-style-type: none"> 2 × min/max 1 × empty
Zeroing	Per command
Tare	Per command
Tare specification	Per command
Compatible sensors	Analog load cells / full-bridge strain gauges (1-4 mV/V) in 4-wire or 6-wire system
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance	
• R_{Lmin}	> 40 Ω
• R_{Lmax}	< 4 100 Ω
With SIWAREX IS Ex interface	
• R_{Lmin}	> 50 Ω
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of the measurement signal (with 4 mV/V sensors)	-21.3 ... +21.3 mV
Max. distance of load cells	800 m (2 624 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Certificates	<ul style="list-style-type: none"> ATEX Zone 2 UL KCC EAC RCM FM IECEX
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption WP521 ST / WP522 ST	120 mA / 200 mA
Max. power consumption SIMATIC Bus	35 mA @ 15 V
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements T_{min} (IND) ... T_{max} (IND) (operating temperature)	
• Horizontal installation	-10 ... +60 °C (14 ... 140 °F)
• Vertical installation	-10 ... +40 °C (14 ... 104 °F)
EMC requirements	According to IEC 61000-6-2:2004; IEC 61000-6-4:2007+A1:2011
Dimensions (W × H × D)	35 × 147 × 129 mm (1.38 × 5.79 × 5.08 inch)

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / SIWAREX WP231 weighing electronics

Overview



SIWAREX WP231 is a versatile, legal for trade weighing module for all simple weighing and force measuring tasks. The compact module is easy to install in the SIMATIC S7-1200 automation system. It can also be operated without a SIMATIC CPU.

Benefits

SIWAREX WP231 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Legal-for-trade according to OIML R-76
- Operation without SIMATIC CPU possible
- Direct connection of an operator panel via Ethernet
- Direct connection of a remote display via RS 485 interface
- Modbus TCP/IP interface
- Modbus RTU interface
- Four digital inputs and outputs, one analog output
- Measurement of weight or force with a high resolution of up to ± 4 million parts and an accuracy of 0.05%
- Simple adjustment of scale using the SIWATOOL V7 program via the Ethernet interface
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Supports replacement of module without recalibration of scales
- Use in hazardous area zone 2
- Connection of digital force compensation load cells from WIPOTEC and Mettler-Toledo (type WM and PBK)

Application

SIWAREX WP231 is the optimum solution wherever load cells are used for measuring tasks. The following are typical SIWAREX WP231 applications:

- Non-automatic weighing instruments, also legal for trade
- Fill level monitoring of silos and bunkers
- Measuring of crane and cable loads
- Load measuring for industrial lifts and rolling mills
- Scales in zone 2 hazardous areas
- Force measuring, hopper scales, platform scales and crane scales

Design

SIWAREX WP231 is a compact technology module in the SIMATIC S7-1200 and can be connected directly via the system bus with S7-1200 components. The rail mounting of the 70 mm (2.76 inch) wide weighing module means that it is extremely easy to mount/wire.

The power supply, load cells, the RS 485, digital input/outputs and the analog output are used for the weight calculation. The signal can also be digitally filtered if required.

Function

The primary task of SIWAREX WP231 is the measurement and conversion of sensor voltage into a weight value. Up to three interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

Weighing functions

There are commands available for zeroing and taring. Up to three different tare default values can be activated for this.

SIWAREX WP231 is factory-calibrated. This means the scale can be automatically adjusted without adjustment weights, and modules can be replaced without the need to readjust the scale.

Monitoring and control of the scale signals and states

In addition to weight determination, the SIWAREX WP231 monitors two freely programmable limits (optionally min/max) as well as the empty range. It signals violations of the limits.

Consistent and uniform communication between all system components enables fast, reliable and cost-effective integration and diagnostics in process plants.

Integration in the plant environment

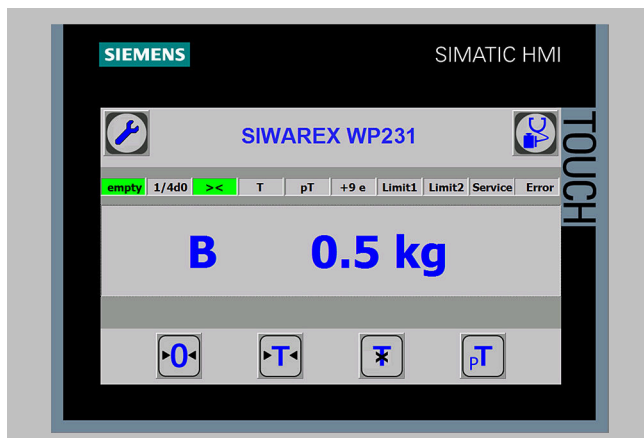
SIWAREX WP231 is directly integrated into the SIMATIC S7-1200 via the SIMATIC bus. All scale parameters can be read and edited by the CPU. Therefore a complete commissioning of the scales by the CPU or by a connected HMI device is possible. A wide variety of connection options are provided via the RS 485 and Ethernet interface. Via Modbus TCP/IP or Modbus RTU, control panels can be connected and it is also possible to communicate with various automation systems. A remote display can also be connected to the RS 485.

A PC for configuring the SIWAREX WP231 can be connected to the Ethernet interface.

Weight value, status, tare, commands and messages are transmitted via the SIMATIC I/O area. The parameters of the data records can be set via SIWATOOL or with an operator panel connected directly to the weighing electronics.

SIWAREX WP231 can be integrated into the plant software with the aid of a ready-made function block. In contrast to serially linked weighing electronics, SIWAREX WP231 does not need costly additional modules to link it to SIMATIC.

Used in conjunction with SIWAREX WP231, it is possible to configure freely programmable, modular weighing systems in SIMATIC, which can be adapted to company-specific requirements as needed.

Function (Continued)


In addition to the configuration package, a fully-featured SIWAREX WP231 "Ready-for-use" software is also available free-of-charge. It shows beginners how to integrate the module in a TIA Portal program and offers a basis for application programming. This allows you to connect the scale application very easily to an operator panel either connected to the SIMATIC CPU or connected directly to the SIWAREX WP231.

A "Ready-for-use" example program is available in the TIA Portal for applications requiring official calibration. This is designed so that it can be used directly with the legal trade SecureDisplay software. Required is a Windows CE-based operating panel (for example, SIMATIC Comfort Touch series). SIMATIC Basic and Key Panels cannot be used for applications requiring official calibration.

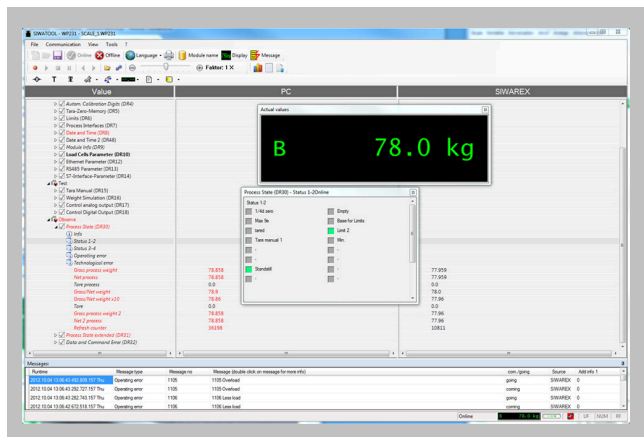
Software

SIWATOOL V7 is a special program for commissioning and servicing and runs with Windows operating systems.

The program enables the user to perform scale calibration without requiring automation engineering skills. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading the diagnostics buffer from the SIWAREX WP231 is extremely helpful when analyzing events.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Recording and analysis of weighing sequence



SIWATOOL V7 calibration software, layout of the individual program windows

Function (Continued)

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters from the module in a backup file.

Trace mode is provided to optimize the weighing sequences in the SIWAREX WP231 weighing module. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP231 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Selection and ordering data

	Article No.
SIWAREX WP231 weighing electronics Single-channel, legal-for-trade, for NAWI non-automatic weighing instruments (e.g. platform scales or hopper scales) with analog load cells (1–4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 RS 485, Ethernet port	7MH4960-2AA01
SIWAREX S7-1200 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP231 "Ready-for-use" Complete software package for non-automatic weighing instrument (for S7-1200 and a directly connected operator panel) Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP231 "Ready-for-use - legal-for-trade" Software package for non-automatic weighing instruments for S7-1200 requiring official calibration Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Software SecureDisplay Software for a legal trade display on Windows CE-based Panel. SIMATIC Basic and Key Panels are excluded Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Calibration set for SIWAREX WP2xx Valid for SIWAREX WP231 and SIWAREX WP251. For verification of up to 3 scales, comprising: <ul style="list-style-type: none"> • 3 × inscription foils for ID label • 1 × protective film • 3 × calibration protection plates 	7MH4960-0AY10

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / SIWAREX WP231 weighing electronics

Selection and ordering data (Continued)

	Article No.
<ul style="list-style-type: none"> Guidelines for verification, certificates and approvals, editable label, SIWAREX WP 	
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP231 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX DB digital terminal box For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics	7MH5001-0AD20
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately. <ul style="list-style-type: none"> Short-circuit current < 199 mA DC Short-circuit current < 137 mA DC 	7MH4710-5BA 7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter. <ul style="list-style-type: none"> Sheath color: orange Sheath color (for hazardous atmospheres): blue 	7MH4702-8AG 7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Remote display (optional) The digital remote displays can be connected directly to the SIWAREX WP231 via the RS 485 interface. Suitable remote display: S102	

Selection and ordering data (Continued)

	Article No.
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP231	
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	<ul style="list-style-type: none"> SIMATIC S7-1200 backplane bus RS 485 (Modbus RTU, Siebert remote display) Ethernet (SIWATOOL V7, Modbus TCP/IP) Analog output 0/4 ... 20 mA 4 × digital outputs 24 V DC, floating, short-circuit proof 4 × digital inputs 24 V DC, floating
Commissioning options	<ul style="list-style-type: none"> Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU
Measuring accuracy EC type approval as non-automatic weighing instrument, trade class III Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K) Internal resolution Measuring frequency	3000 d ± 0.5 µV/e 0.05% Up to ± 4 million parts 100 / 120 Hz
Digital filter	Variable adjustable low-pass and average filter
Typical applications	<ul style="list-style-type: none"> Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors
Weighing functions Weight values Limit values Zeroing Tare Tare specification	<ul style="list-style-type: none"> Gross Net Tare 2 × min/max Empty Per command Per command Per command
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering Supply voltage (regulated via feedback) Permissible load resistance • R _{Lmin} • R _{Lmax} With SIWAREX IS Ex interface • R _{Lmin}	4.85 V DC > 40 Ω < 4 100 Ω > 50 Ω

Technical specifications (Continued)

SIWAREX WP231	
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of the measurement signal (with 4 mV/V sensors)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface (compatibility of the load cells must be checked)
Approvals/certificates	<ul style="list-style-type: none"> • ATEX Zone 2 • UL • EAC • KCC • RCM • OIML R76 • Type approval 2009/23/EC (NAWI)
Calibration approval	EC type approval OIML R76
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	200 mA
Max. power consumption SIMATIC Bus	3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min(IND)}$... $T_{max(IND)}$ (operating temperature)	
• Vertical installation	-10 ... +40 °C (14 ... 104 °F)
• Horizontal installation	-10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / TM SIWAREX WP321 ST weighing electronics

Overview



SIWAREX WP321 is a versatile and flexible weigh beam for the seamless integration of a static scale into the SIMATIC automation environment.

The weighing electronics are integrated within the SIMATIC ET 200SP system series and use all the features of a modern automation system, such as integrated communication, operator control and monitoring, diagnostics units and the project planning tools in the TIA portal, SIMATIC Step 7, WinCC flexible and PCS7.

In conjunction with the digital SIWAREX DB junction box, up to four connected load cells can be diagnosed separately. This enables the weigh beam module to detect the failure of individual load cells and, in the event of an error, to provide relevant load cell data such as order number and location designation directly in the CPU or at the HMI. This increases the operational reliability of the scale, reduces downtimes, makes commissioning easier and simplifies servicing.

All messages and process values of the individual load cell channels are of course available in the SIMATIC controller.

Benefits

The electronic weighing system described here is characterized by decisive advantages:

- Uniform design technology and consistent communication in SIMATIC ET 200SP
- Compact design with only 15 mm module width
- Parameterization of the scales via the control panel, CPU or PC
- Flexible configuration options in SIMATIC TIA Portal, SIMATIC STEP 7 and PCS 7
- Measuring of weights and forces with a resolution of up to +/- 2 million parts
- 100/120/600 Hz measurement rate
- Internal scale monitoring of freely definable limit values
- Easy commissioning using the SIWATOOL software
- Automatic calibration is possible without the need for calibration weights
- Modules can be replaced without recalibrating the scale
- Direct use in ATEX Zone 2 possible
- Wide range of status and diagnostic information
- "Ready-for-use" sample program

Application

SIWAREX WP321 is the optimum solution wherever analog load cells are used for measuring tasks.

The SIWAREX WP321 is suitable for the following applications:

- Non-automatic weighing instrument (NAWI), e.g. platform and hopper scales
- Fill-level monitoring of silos and bins
- Measuring of crane and cable loads
- Force measurements
- Monitoring of belt tensions
- Setup of scales in hazardous areas

Design

SIWAREX WP321 is a technology module (TM) of the SIMATIC ET 200SP series and is thus linked to the controller in a distributed manner by means of an ET 200SP interface module (PROFIBUS/PROFINET).

The following BaseUnits (Type A0) can be used for integration:

For opening a new potential group:

BU15P-16+A10+2D (6ES7193-6BP20-0DA0)

BU15P-16+A0+2D (6ES7193-6BP00-0DA0)

For continuing the potential group:

BU15P-16+A10+2B (6ES7193-6BP20-0BA0)

BU15P-16+A0+2B (6ES7193-6BP00-0BA0)

The load cells or force sensors are connected to the terminals of the BaseUnits. This means that modules can be replaced quickly, easily and without any wiring work.

Function

The primary task of the weighing electronics is to determine the current weight and force values on the basis of signals supplied by the connected sensors. Thanks to the seamless integration into the SIMATIC environment, values can be processed directly and in any available programming language of the CPU. If the freely selectable and internally monitored values are exceeded or undershot, this is reported directly to the controller. A variety of status and diagnostic information can also be read out and evaluated in the CPU without difficulty.

The SIWAREX WP321 is calibrated in the factory. This not only permits automatic calibration of the scales (without the need for calibration weights), but also the replacement of modules without the need for recalibration.

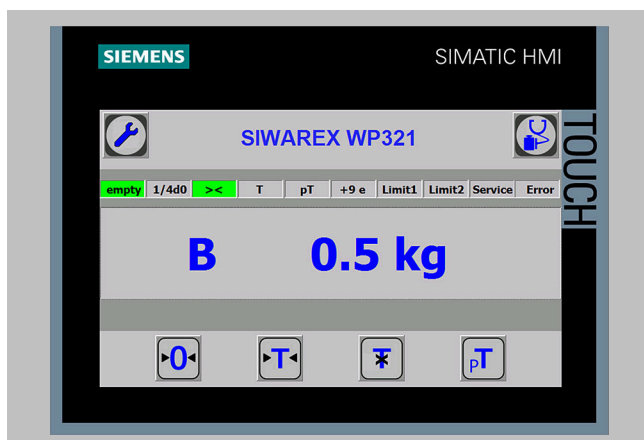
Via the integral RS 485 interface, a PC can be connected for setting the parameters of the weighing electronics using the "SIWATOOL" software. A USB-RS 485 interface converter is required for this purpose.

Thanks to its seamless integration into the SIMATIC environment, the use of SIWAREX weighing electronics does not require any complicated or expensive communication drivers for the scales.

Programmable weighing applications tailored to any situation can be created and then adapted or extended at any time in combination with the functionalities of the TIA Portal and of the SIMATIC Manager and WinCC flexible.

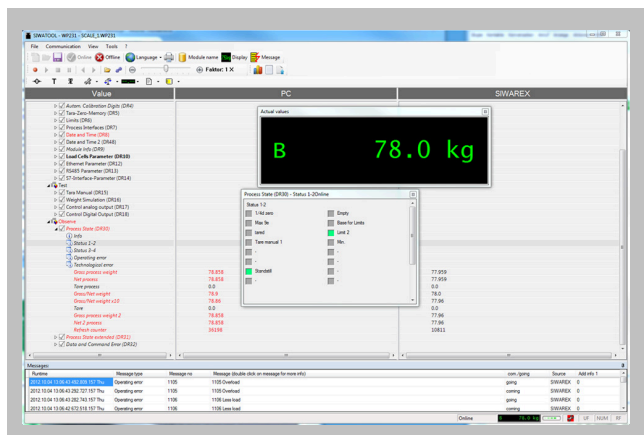
Likewise, WP321 enables scales to be set up in hazardous areas. Depending on the zone and the load cells used, the use of the SIWAREX IS Ex interface may also be necessary.

Function (Continued)



SIWAREX WP321 Ready-for-use

For an easy introduction to the integration of the module into the TIA Portal and SIMATIC Manager, a "Ready-for-use" sample project is available free of charge. This project demonstrates the integration of the module into the hardware configuration and contains the function block for communication between the CPU and SIWAREX. It also contains a ready-made data block that contains all the parameters for the scales. The "Ready for Use" project is rounded off with a touch panel configuration feature, which not only permits complete commissioning of the scales from the panel, but also includes an "operator view" that can be used to show the normal operation of the scales.



SIWAREX WP321 SIWATOOL

SIWATOOL is a service software tool which enables you to calibrate the module quickly and efficiently on site, set or reset parameters, or perform diagnostics in the event of a fault. Furthermore, complete backup files can be created for the scales, which can be uploaded to a new module with a few mouse clicks, so that the module continues to operate exactly as it did before the backup, without the need for any recalibration. It is even possible to upload configuration files that were created offline, or to read out the error buffer. No special SIMATIC knowledge is required to use SIWATOOL. It is connected via the RS 485 port of the module which requires the use of a USB-RS 485 interface converter. Please refer to the SIWAREX WP321 Equipment Manual for further recommendations.

Selection and ordering data

	Article No.
TM SIWAREX WP321 weighing electronics Single-channel, for platform scales or hopper scales with analog load cells (1 ... 4 mV/V), 1 × LC, 1 × RS 485	7MH4138-6AA00-0BA0
SIWAREX WP321 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP321 "Ready-for-use" TIA Portal and SIMATIC Manager sample configuration Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 Supports PROFINET APL faceplates and function blocks for: <ul style="list-style-type: none"> • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: <ul style="list-style-type: none"> • SIWAREX FTC_L (Loss-in-weight) 	7MH4900-1AK61
Accessories (mandatory requirement)	
BaseUnit (Type A0 – one BaseUnit required for each WP321) For opening a new potential group <ul style="list-style-type: none"> • BU15P-16+A0+2D 	6ES7193-6BP00-0DA0
<ul style="list-style-type: none"> • BU15P-16+A10+2D 	6ES7193-6BP20-0DA0
For continuing the potential group <ul style="list-style-type: none"> • BU15P-16+A0+2B 	6ES7193-6BP00-0BA0
<ul style="list-style-type: none"> • BU15P-16+A10+2B 	6ES7193-6BP20-0BA0
Shield connection for BaseUnit (5 units / for 5 scales) For laying the load cell cable	6ES7193-6SC00-1AM0
Accessories (optional)	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum enclosure For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel enclosure For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel enclosure (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / TM SIWAREX WP321 ST weighing electronics

Selection and ordering data (Continued)

	Article No.
SIWAREX DB digital junction box For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics Enclosure made of: <ul style="list-style-type: none"> Aluminum Stainless steel 	 7MH5001-0AD20 7MH5001-0AD01
SIWAREX IS Ex interface For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately. Approved for use in the EU <ul style="list-style-type: none"> Short-circuit current < 199 mA DC Short-circuit current < 137 mA DC 	 7MH4710-5BA 7MH4710-5CA
Cable (optional) Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter. <ul style="list-style-type: none"> Sheath color: orange Sheath color (for hazardous atmospheres): blue 	 7MH4702-8AG 7MH4702-8AF
RS 485/USB interface converter Commercially available interface converter with FTDI chip, e.g. USB-Nano from CTI https://www.cti-shop.com/en/rs485-converter/usb-nano-485	
Remote display The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX WP321 via an RS 485 interface. http://www.siebert-industrietechnik.com Siebert Industrieelektronik GmbH PO Box 1180D-65565 Eppelborn, Germany Tel: +49 6806/980-9 Fax: +49 6806/980-999 http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP321	
Integration in automation systems SIMATIC S7-300, S7-400, S7-1200 and S7-1500 Other manufacturers (with restrictions)	Via SIMATIC ET 200SP interface module (PROFIBUS or PROFINET) Via SIMATIC ET 200SP interface module (PROFIBUS or PROFINET)
Communication interfaces	<ul style="list-style-type: none"> SIMATIC ET 200SP backplane bus RS 485 (SIWATOOL, Siebert remote display)
Commissioning options	<ul style="list-style-type: none"> Using SIWATOOL V7 Using function block in SIMATIC CPU / Touch Panel
Measuring accuracy According to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K) Internal resolution Measuring frequency	0.05% ± 2 million parts 100 / 120 / 600 Hz
Digital filter	Variable adjustable low-pass and average filter
Typical applications	<ul style="list-style-type: none"> Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors
Weighing functions Weight values Limit values Zeroing Tare External tare specification Calibration commands	<ul style="list-style-type: none"> Gross Net Tare <ul style="list-style-type: none"> 2 × min/max Empty Via command by controller or HMI Via command by controller or HMI Via command by controller or HMI Via command by controller or HMI
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering Supply voltage (value applies at sensor, cable-related voltage drops of up to 5 V are controlled) Permissible load resistance <ul style="list-style-type: none"> R_{Lmin} R_{Lmax} With SIWAREX IS Ex interface <ul style="list-style-type: none"> R_{Lmin} R_{Lmax} 	4.85 V DC ±2% > 40 Ω < 4 100 Ω > 50 Ω < 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of measuring signal (at greatest set characteristic value)	-21.3 ... +21.3 mV
Max. distance of load cells	1000 m (459.32 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface (compatibility of the load cells must be checked)
Approvals/certificates	<ul style="list-style-type: none"> ATEX Zone 2 UL FM EAC KCC IECEx RCM
Auxiliary power supply Rated voltage Max. power consumption Max. power consumption SIMATIC Bus	24 V DC Typ. 0.1 A @ 24 V DC (0.2 A max.) 30 mA

Technical specifications (Continued)

SIWAREX WP321	
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements <i>T_{min}</i> (IND) ... <i>T_{max}</i> (IND) (operating temperature)	
• Vertical installation in SIMATIC S7 ¹⁾	-25 ... +50 °C (-13 ... 122 °F)
• Horizontal installation in SIMATIC S7 ¹⁾	-25 ... +60 °C (-13 ... 140 °F)
EMC requirements	According to IEC 61000-6-2, IEC 61000-6-4, OIML R76-1
Dimensions (width)	15 mm (0.6 inch)

¹⁾ The S7 standard modules may not be operated at temperatures below 0 °C (32 °F). For operating conditions below 0 °C (32 °F), SIMATIC modules from the SIPLUS series must be used.

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / SIWAREX U weighing electronics

Overview



SIWAREX U is a versatile weighing module for all simple weighing and force measuring tasks. The compact module can be integrated into SIMATIC automation systems without any problems. Complete data access is then possible via the SIMATIC.

Benefits

SIWAREX U offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC
- Implementation in a distributed system concept thanks to connection to PROFIBUS DP/PROFINET via ET 200M
- Measurement of weight or force with a high resolution of 65 000 parts and 0.05% accuracy
- Space saving through use of two-channel version for two scales
- Direct connection of a remote display to the TTY interface
- Simple adjustment of scale using the SIWATOOL U program
- Supports theoretical adjustment without adjustment weights
- Supports replacement of module without recalibration of scales
- Can be used in Ex applications

Application

SIWAREX U is the optimum solution wherever strain gage sensors, such as load cells, force sensors or torque measuring shafts, are used for measuring tasks. The typical applications of SIWAREX U are:

- Fill level monitoring of silos and bunkers
- Monitoring of loads on cranes and cables
- Measuring the loading on conveyor belts
- Overload protection of industrial elevators or rolling mills
- Balances in hazardous areas (using an Ex interface)
- Monitoring of belt tension

Design

SIWAREX U is a compact SIMATIC S7-300 function module (FM) and can be directly snapped onto the SIMATIC S7-300 or ET 200M backplane bus. The snap-on system for DIN rails greatly simplifies the installation/cabling work.

The load cells, power supply and serial interfaces are connected via the 20-pin standard front connector.

Operation of SIWAREX U in SIMATIC ensures that the weighing system is completely integrated into the automation system.

Function

SIWAREX U is available with either one or two measuring channels. One measuring channel is required for each set of scales.

The primary task of SIWAREX U is the measurement of sensor voltage and the conversion of this measurement into a weight value. The signal can also be digitally filtered if required.

As well as determining weights, the SIWAREX U monitors two freely programmable limits (min./max. as required).

The SIWAREX U comes factory-calibrated. This means that theoretical adjustment of the scale is possible without adjustment weights, and that modules can be replaced without the need to readjust the scale. When using "active bus modules", replacement is also possible during operation.

Consistent and uniform communication between all system components enables fast, reliable and cost-effective integration and diagnosis in industrial processes.

The SIWAREX U has two serial interfaces. The TTY interface serves to connect up to four digital remote displays. In addition to the two weight values of weighing channels 1 and 2, another two values can be set via SIMATIC and indicated on the remote displays.

A PC for adjusting the scale can be connected through the RS 232 interface.

SIWAREX U can not only be integrated in the plant software using the classic PLC programming languages; STL (Statement List), LD (Ladder Diagram) SFC (Sequential Function Chart) or SCL (Structured Control Language), it can also be integrated by means of graphical configuration with CFCs (Continuous Function Chart), where faceplates are provided in PCS 7 for visualization of the scales.

In contrast to serially linked weighing electronics, SIWAREX U does not need costly additional modules to link it to SIMATIC.

Integration in SIMATIC produces freely-programmable, modular weighing systems which can be modified according to operational requirements.

Using the SIWATOOL U software, the SIWAREX weighing modules can be set up with the convenience of Windows independently of the automation system. Input masks allow all parameters for the weighing modules to be specified, saved and printed for plant documentation.

The diverse diagnostic options provided by SIWATOOL U ensure fast fault locating in online mode.

The SIWAREX U weighing module can be used for hazardous areas (zone 2). The load cells can be provided with an intrinsically-safe power supply through an optional Ex interface.

Selection and ordering data

	Article No.
SIWAREX U For SIMATIC S7 and ET 200M, incl. bus connector, weight 0.3 kg (0.661 lb)	
Single-channel version ¹⁾ for connecting one scale	7MH4950-1AA01
Two-channel version ²⁾ for connecting two scales	7MH4950-2AA01
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
SIWAREX U configuration package for PCS 7, version 8.0 Suitable for 7MH4950-xAA01	7MH4950-3AK62
• Function block for CFC	
• Faceplate	
• Manual	

Selection and ordering data (Continued)

	Article No.
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 Supports PROFINET APL faceplates and function blocks for: <ul style="list-style-type: none"> • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: <ul style="list-style-type: none"> • SIWAREX FTC_L (Loss-in-weight) 	7MH4900-1AK61
SIWATOOL connection cable From SIWAREX U/CS with serial PC interface, for 9-pin PC interfaces (RS 232), length 3 m (9.84 ft)	7MH4607-8CA
Installation material (mandatory)	
20-pin front connector with screw contacts Required for each SIWAREX module	6ES7392-1AJ00-0AA0
Shield connection element Sufficient for two SIWAREX U modules	6ES7390-5AA00-0AA0
Shield connection clamp Content: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: <ul style="list-style-type: none"> • Scale connection • RS 485 interface • RS 232 interface 	6ES7390-5CA00-0AA0
S7 DIN rail <ul style="list-style-type: none"> • 160 mm (6.30 inch) • 480 mm (18.90 inch) • 530 mm (20.87 inch) • 830 mm (32.68 inch) • 2 000 mm (78.74 inch) 	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0 6ES7390-1AJ30-0AA0 6ES7390-1BC00-0AA0
Accessories (optional)	
Labeling strips (10 units, spare part)	6ES7392-2XX00-0AA0
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	

Selection and ordering data (Continued)

	Article No.
<ul style="list-style-type: none"> • With short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> • With short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter. <ul style="list-style-type: none"> • Sheath color: orange • Sheath color (for hazardous atmospheres): blue 	7MH4702-8AG 7MH4702-8AF
Remote displays (optional)	
The digital remote displays can be connected directly to SIWAREX U through a TTY interface. The following remote displays can be used: S102, S302 Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

- 1) Compatible with 7MH4601-1AA01; supply of load cells changed to 6 V DC.
 2) Compatible with 7MH4601-1BA01; supply of load cells changed to 6 V DC.

Technical specifications

SIWAREX U	
Integration in automation systems <ul style="list-style-type: none"> • S7-300 • S7-1500 • S7-400 (H) • PCS 7 (H) • Automation systems from other vendors • Stand-alone (without SIMATIC CPU) 	Direct integration Through ET 200M Through ET 200M Through ET 200M Through ET 200M Possible with IM 153-1
Communication interfaces	<ul style="list-style-type: none"> • SIMATIC S7 (P bus) • RS 232 • TTY
Connection of remote display (via serial TTY interface)	Gross, channel 1, 2 or default value 1, 2
Scale adjustment	Through SIMATIC (P bus) or PC using SIWATOOL U (RS 232)
Measuring properties	
Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	0.05%
Internal resolution ADC	65 535

Weighing Electronics

SIWAREX for SIMATIC

Plattform and hopper scales / SIWAREX U weighing electronics

Technical specifications (Continued)

SIWAREX U	
Data format weight values	2 bytes (fixed-point)
Number of measurements/second	50
Digital filter	0.05 ... 5 Hz (in 7 steps), mean value filter
Weighing functions	
Weight values	Gross
Limit values	2 (min./max.)
Zero-setting function	Per command
Load cells	Strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage U_s (rated value)	6 V DC ¹⁾
Max. supply current	≤ 150 mA per channel
Permissible load resistance	
• R_{Lmin}	> 40 Ω per channel
• R_{Lmax}	< 4 010 Ω
With Ex(i) interface	
• R_{Lmin}	> 87 Ω per channel
• R_{Lmax}	< 4 010 Ω
Permissible load cell characteristic	Up to 4 mV/V
Max. distance of load cells	<ul style="list-style-type: none"> • 500 m²⁾ • 150/500 m for gas group IIC • 500 m²⁾ for gas group IIB (see SIWAREX IS Manual)
Intrinsically-safe load cell powering	Optional (Ex interface) with SIWAREX IS
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	150 mA (single-channel) / 240 mA (dual-channel)
Current consumption on backplane bus	≤ 100 mA
Certification	ATEX 95, FM, cUL _{US} Haz. Loc.
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements	
T_{min} (ND) ... T_{max} (ND) (operating temperature)	
• Horizontal installation	0 ... +60 °C (32 ... 140 °F)
• Vertical installation	0 ... +40 °C (32 ... 104 °F)
EMC requirements	According to NAMUR NE21, Part 1; EN 61326
Dimensions	40 × 125 × 130 mm (1.58 × 4.92 × 5.12 inch)

¹⁾ Load cell supply changed to 6 V DC as compared to 7MH4601-1AA01 and 7MH4601-1BA01.

²⁾ Possible up to 1 000 m under certain conditions when using the recommended cable (accessories).

Overview



Typical requirements in many industries are high-precision mixing and dosing, and packing and filling at high speed. The corresponding SIWAREX electronics offer comprehensive properties and functions that fulfill all requirements - including for legal-for-trade operation.

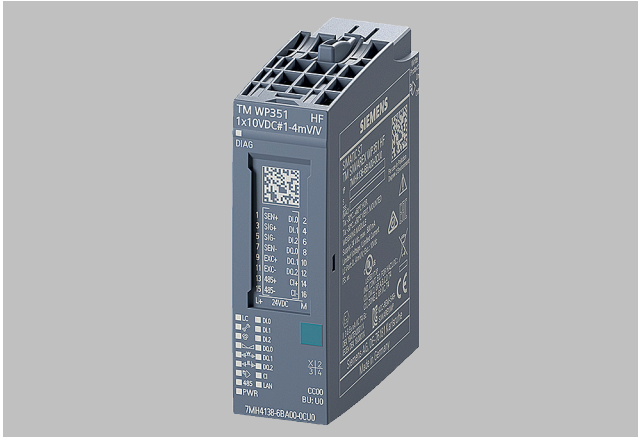
The dosing process used in production operations depends on a variety of factors: Depending on the type and quantity of materials weighed, different dosing systems and weighing processes are required. It must be possible to fill liquid or solid goods quickly and precisely.

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / TM SIWAREX WP351 HF weighing electronics

Overview



The SIWAREX WP351 is a compact, precise weighing module in the SIMATIC ET 200SP format. With a width of just 20 mm it is one of the slimmest weighing modules on the market, yet its firmware includes the functionalities of an automatic totalizing weighing instrument and checking, bagging and filling scale. All operation modes are part of the firmware and certified according to OIML R-51, R-61, R-76 and R-107. This means the WP351 can be used in both scales requiring official calibration and those that do not, where demands are high regarding speed and accuracy.

Benefits

- Low space requirements with only 20 mm module width
- Seamless integration into SIMATIC ET 200SP
- 1 000 Hz sampling rate und processing time
- Installation of legal-for-trade multi-interval/multi-range scales with up to 3 × 6 000 d
- Operation with SIMATIC S7-300, S7-400, S7-1200 and S7-1500 controllers
- Operation in Ethernet IP or Modbus TCP-based systems using ET 200SP multi-field bus IM
- Three digital inputs and outputs each ex works
- High degree of scalability in connection with all available SIMATIC standard components
- Open SIWAREX concept – all settings and parameters accessible, no encapsulated black box in the field
- Unrestricted access to all scale parameters and functions from the SIMATIC S7 Controller / HMI
- Internal, legal-for-trade protocol memory for up to 1 000 000 entries
- Commissioning and maintenance from HMI or module-internal web server
- Legal-for-trade main display integrated in the SIMATIC HMI

Application

SIWAREX WP351 offers a compact and extremely versatile solution for automatic and non automatic scale applications with high requirements for accuracy and performance.

Typical areas of application include:

- Silo, hopper and platform scales, requiring official calibration/not requiring official calibration
- Totalizing automatic weighing instruments, requiring official calibration/not requiring official calibration
- Filling scales, requiring official calibration/not requiring official calibration
- Static checking scales, requiring official calibration/not requiring official calibration
- Automatic dynamic checking scales, not requiring official calibration
- Recipe-controlled batch/mixing scales

Design

The SIWAREX WP351 is a technology module of the SIMATIC ET 200SP distributed I/O system.

Installation is on a type U0 BaseUnit. The load cells, serial RS 485 interface and digital inputs/outputs are wired directly on the BaseUnit with user-friendly push-in terminals. This makes it quick and easy to replace modules without any wiring effort. The web server is addressed via an Ethernet interface in the module. Should more interfaces and I/O be required, they can be added with the ET 200SP system components.

Function

The weighing module controls automatic proportioning, checking and loading processes completely autonomously. The intelligence required is contained in the module firmware, thus representing a standard. Dosing signals can be controlled directly via the three digital outputs – typically coarse flow/fine flow and emptying. Internal control algorithms and signal filters continually optimize and adjust the weighing process. The controller only transfers the desired setpoint, as well as other material-specific parameters, to the module via the WP351 function block. A start command initiates the dosing process, which is executed by the weighing module independently of the cycle time of the main controller with maximum accuracy. Finally the WP351 carries out a tolerance check and signals the result to the controller. In addition, the result is included in the statistics calculated in the background, which can be called up at any time from the controller. Depending on the operating mode, a log is generated in the internal protocol memory, either automatically or initiated by the user. If the scales are calibrated, the log conforms to the requirements of the Weights and Measures Act. The open and standardized SIWAREX concept means that the plant operator can service the scales themselves if necessary.

Selection and ordering data

	Article No.
TM SIWAREX WP351 HF weighing electronics SIMATIC ET 200SP, TM SIWAREX WP351 HF, legal-for-trade weighing module for automatic dosing, filling and checking scales and totalizing weighing instruments	7MH4138-6BA00-0CU0
SIWAREX WP351 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP351 "Getting Started" sample project Sample software shows beginners how to program the scales in TIA Portal V15.1 Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Calibration set SIWAREX WP351 For verification of up to 3 scales, comprising: <ul style="list-style-type: none"> • 3 × inscription foil for ID label • 1 × protective film • 3 × unlocking protection • 6 × screw For applications requiring official calibration, follow the calibration regulations of the country of destination.	7MH4138-6BA00-0AY0
ET 200SP BaseUnit type U0 <ul style="list-style-type: none"> • For constructing a new potential group (white) • For continuing an existing potential group (gray) Shield connection for ET 200SP Includes 5 shield connections	6ES7193-6BP00-0DU0 6ES7193-6BP00-0BU0 6ES7193-6SC00-1AM0
SIWAREX EB extension box For extending sensor cables.	7MH4710-2AA
SIWAREX JB junction box, aluminum enclosure For connecting up to 4 load cells in parallel, and for connecting multiple terminal boxes.	7MH5001-0AA20
SIWAREX JB junction box, stainless steel enclosure For connecting up to 4 load cells in parallel.	7MH5001-0AA00
SIWAREX JB junction box, stainless steel enclosure (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or prototype test certificate).	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately. <ul style="list-style-type: none"> • With short-circuit current < 199 mA DC • With short-circuit current < 137 mA DC 	7MH4710-5BA 7MH4710-5CA

Selection and ordering data (Continued)

	Article No.
Cable (optional) Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter. <ul style="list-style-type: none"> • Sheath color: orange • Sheath color (for hazardous atmospheres): blue 	7MH4702-8AG 7MH4702-8AF

Technical specifications

SIWAREX WP351	
Firmware version	V1.0
• FW update possible	Yes
Usable BaseUnits	BU type U0
Reliability	
Mean time between failures (MTBF)	62 years @ TA = 40 °C
Product function	
I&M data	Yes, I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal can be configured/integrated	Configurable as of V15 using HSP0281
• PROFIBUS as of GSD version/GSD revision	GSD V04.02.41
• PROFINET as of GSD version/GSD revision	GSDML V2.34
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Permissible range, low limit, static (DC)	19.2 V
• Permissible range, high limit, static (DC)	28.8 V
• Permissible range, low limit, dynamic (DC)	18.5 V
• Permissible range, high limit, dynamic (DC)	30.2 V
• Reverse polarity protection	Yes
• Non-periodic overvoltages	35 V DC for 500 ms with a recovery time of 50 s
Input current	
Current consumption, max.	Max. 140 mA @ 24 V DC + [DQ 3 × 0.5 A]
Power loss	
Typical power loss	1.7 W
Address range	
Assigned address range	
• Inputs	32 bytes
• Outputs	32 bytes
Power supply from SIMATIC S7 backplane bus	
Current consumption from ET 200SP backplane bus	Max. 27 mA @ 3.5 V (SBK4)
Analog load cell interface connection	

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / TM SIWAREX WP351 HF weighing electronics

Technical specifications (Continued)

SIWAREX WP351	
Error limit according to DIN 1319-1 at 20 °C (-4 °F) +/-10 K	≤ 0.002% of end value
Relative accuracy (absolute accuracy can only be achieved with local calibration using calibration standards)	
Measuring accuracy in accordance with OIML R76-1:2006/EN 45501:2015	
• Class	III
• Resolution (d=e)	3 × 6000 d
• Error percentage pi	0.4
• Step voltage	0.4 μV/e
Accuracy delivery state The accuracy is relevant for module exchange or theoretical adjustment	Typ. 0.1% of end value
Sampling rate	1.024 ms
Input signal resolution	± 20 000 000
Measuring ranges	0 ... ±1 mV/V 0 ... ±2 mV/V 0 ... ±4 mV/V
Common mode voltage range	+2.8 ... 7.7 V
Strain gauge supply (constant voltage)	10 V DC (+1 % / -3 %) at the EXC terminals
Short-circuit and overload protection	Yes
Connection	6-wire or 4-wire (parameterizable)
Sensor voltage monitoring	Typ. ≤ 5.0 V
Min. strain gauge input resistance per channel	
• Without SIWAREX IS Ex-i interface	56 Ω Lower impedance by means of external supply possible
• With SIWAREX IS Ex-i interface	87 Ω @ type 7MH4710-5BA 180 Ω @ type 7MH4710-5CA
Max. strain gauge resistance	4 100 Ω
Temperature coefficient range	≤ ±5 ppm/K
Temperature coefficient zero point	≤ ±0.015 μV/K
Linearity error	≤ 0.001%
Measured value filtering	Low-pass and average value filter configurable (DR3)
Galvanic isolation	500 V AC
50 Hz / 60 Hz noise suppression CMRR	> 80 dB
Input resistance	
• Signal line	Typ. 8*10 ⁶ Ω
• Sense line	Typ. 300*10 ⁶ Ω
Cable length	
• When using SIWAREX cable 7MH4702-8AG	Max. 500 m
Ambient conditions	
Ambient temperature in operation	
• Horizontal mounting position *	Min. -30 °C Max. +60 °C
• Vertical mounting position *	Min. -30 °C Max. +50 °C
Storage and transport temperature	-40 ... +70 °C (-40 ... +158 °F)

* At a height of more than 2 000 m above sea level, a derating of the ambient temperature of -1 °C / 100 m has to be adhered to. The maximum permissible height is 5 000 meters above sea level. At over 0.6 A total current of the digital outputs DQ, a derating of the ambient temperature of -1 °C per 100 mA has to be adhered to. The max. permissible total current is 1.5 A.

Overview



SIWAREX WP251 is a flexible weighing module for dosing and filling processes. The compact module can be installed seamlessly in the SIMATIC S7-1200 automation system. It can also be used without a SIMATIC CPU in stand-alone mode.

Benefits

SIWAREX WP251 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Legal-for-trade according to OIML R76, R51, R61 and R107
- Internal alibi memory for up to 550 000 entries
- Operation without SIMATIC CPU possible
- Ethernet port ex works (Modbus TCP/IP / SIWATOOL)
- RS 485 interface ex works (Modbus RTU / remote display)
- Four digital inputs and outputs, one analog output ex works
- Measurement of weight and force with a high resolution of up to ± 4 million parts and an accuracy of 0.05%
- Simple adjustment of scale using the SIWATOOL V7 program via the Ethernet interface
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Supports replacement of module without recalibration of scales
- Direct use in hazardous area zone 2

Application

SIWAREX WP251 is the optimum solution wherever fast and precise dosing and filling are required. The following are typical SIWAREX WP251 applications:

- Catchweighing instruments (CWI) - legal-for-trade in accordance with OIML R51
- Gravimetric filling instruments (GFI) - legal-for-trade in accordance with OIML R61
- Non automatic weighing instrument (NAWI) - legal-for-trade in accordance with OIML R76
- Discontinuous totalizing automatic weighing instrument (DTI) - legal-for-trade in accordance with OIML R107

Design

SIWAREX WP251 is a compact technology module in the SIMATIC S7-1200, and communicates directly via the system bus with the SIMATIC S7-1200 controller.

The compact weighing module has a width of 70 mm (2.76 inch) and is installed using a DIN rail. This is extremely user-friendly.

The connections for the power supply, load cells, RS 485 interface, digital inputs/outputs, and the analog outputs are located on removable screw connector blocks. An RJ45 port is available for the Ethernet connection (SIWATOOL and Modbus TCP/IP).

Function

SIWAREX WP251 controls dosing and filling processes completely autonomously. The dosing valves (coarse/fine flow) can be controlled directly via the four digital outputs of the module. This achieves maximum accuracy since the weighing process is controlled completely independently of the CPU and its cycle time.

The CPU can be used to manage recipes and material parameters. These parameters and the desired setpoint are then transferred to SIWAREX WP251 by function block, and the dosing process is started. SIWAREX WP251 automatically optimizes the shut-off points, generates statistics, and logs every dosing task in the internal protocol memory that is also accessible from the CPU and can be read out by the CPU.

Diverse options are available for commissioning. The SIWAREX WP251 function block enables full access to all parameters of the SIWAREX WP251. The downloadable example application "Ready-for-use" provides full data access to the weighing module, calibration options and operation of the scale - without any additional programming effort. Further, the PC service software SIWATOOL V7 that communicates via Ethernet with the SIWAREX module can be used for commissioning. Access using WLAN is thus also possible by means of a WIFI access point. Consequently, remote access via the Internet is also no problem. For servicing purposes, centralized access to all scales from a single location is possible - worldwide. In addition, there is full access to all parameters and commands, via both the RS 485 interface (Modbus RTU) and the Ethernet interface (Modbus TCP/IP), meaning that full commissioning and operation can also take place via these channels.

Weighing functions

SIWAREX WP251 provides the weighing modes NAWI (non-automatic weighing instrument), ACI (automatic catchweighing instrument) and AGFI (automatic gravimetric filling instrument).

In the operating modes NAWI and ACI, there is a choice between filling mode and emptying mode. The entire filling or dosing process is controlled fully from SIWAREX WP251. It is only necessary to transfer a setpoint and a start command to the module. The coarse flow, fine flow and empty signals can be switched directly via the digital outputs of the module.

Data regarding the weight, as well as all scale and dosing status bits, are available cyclically in the program code in the PLC for further evaluation. If stand-alone mode of the module is activated, there is an additional guarantee that dosing and operation of the scales can continue even in the event of a CPU stop.

Software

SIWATOOL V7 is a special program for commissioning and servicing and runs with Windows operating systems.

The program enables the user to perform scale calibration without requiring automation engineering skills. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading the diagnostics buffer from SIWAREX WP251 is extremely helpful when analyzing events.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

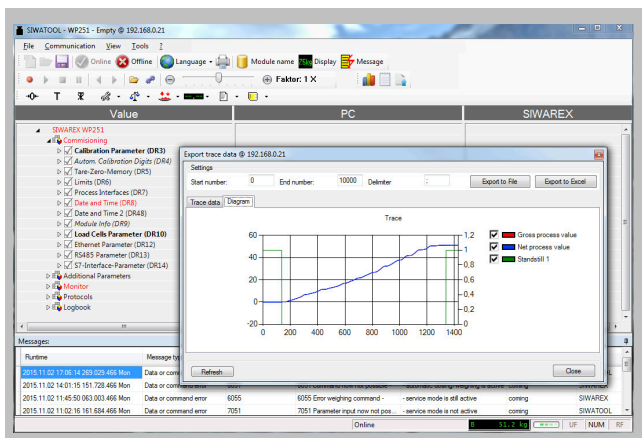
- Parameter assignment and calibration of the scale
- Testing of scale properties
- Recording and analysis of weighing sequence

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / SIWAREX WP251 weighing electronics

Function (Continued)



Software SIWATOOL V7, layout of the program windows

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters from the module in a backup file.

Trace mode is provided to optimize the weighing sequences in the SIWAREX WP251 weighing module. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP251 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

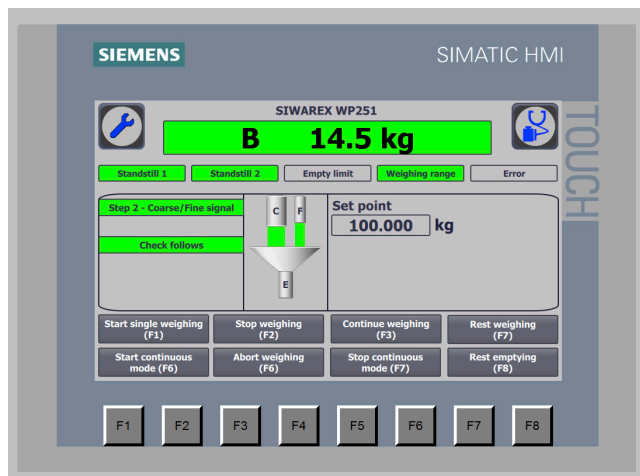
Integration

Integration into the automation environment

SIWAREX WP251 is part of the SIMATIC S7-1200 Basic Controller range, and is integrated seamlessly into the TIA Portal. The free function block enables full access to all parameters, actual values, setpoints, weight values and status information (e.g. limits, coarse flow signal, fine flow signal, empty signal) conveniently and without programming effort. Customized operator interfaces can thus be created in conjunction with SIMATIC HMI touch panels. Management of several languages can also be easily implemented and organized.

The example project "Ready-for-Use SIWAREX WP251" is available free of charge to help you to get started quickly and simply. This TIA Portal project contains both the function block and a fully fledged visualization system for operating and monitoring the SIWAREX WP251. The visualization can be freely edited and adapted, or transferred completely into an existing HMI project.

Integration (Continued)



Stand-alone mode

Alternatively, SIWAREX WP251 can also be used without a SIMATIC CPU. In this case, the module is connected with a supply voltage of 24 V DC only. In this case, a PC (using an OPC server, for example) or a Modbus-enabled operator panel can be used for operator input. Both Modbus interfaces of SIWAREX WP251 (TCP/IP and RTU) enable access to all parameters, actual values, setpoints, weight values and status information. A customized and plant-specific operator interface can thus be created on the PC or the Modbus-enabled operator panel. Integration into third-party systems is also no problem via the Modbus interfaces.

Selection and ordering data

	Article No.
SIWAREX WP251 weighing electronics Single-channel, legal-for-trade, for automatic dosing and filling scales (AGFI, ACI, NAWI) with analog load cells / full-bridge strain gauges (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port	7MH4960-6AA01
SIWAREX WP251 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP251 "Ready-for-use" Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Calibration set for SIWAREX WP2xx Valid for SIWAREX WP231 and SIWAREX WP251. For verification of up to 3 scales, comprising: <ul style="list-style-type: none"> • 3 × inscription foils for ID label • 1 × protective film • 3 × calibration protection plates 	7MH4960-0AY10

Selection and ordering data (Continued)

	Article No.
<ul style="list-style-type: none"> Guidelines for verification, certificates and approvals, editable label, SIWAREX WP 	
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP251 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> Short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> Short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> Sheath color (for hazardous atmospheres): blue 	7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Remote display (optional) The digital remote displays can be connected directly to the SIWAREX WP251 via the RS 485 interface Suitable remote display: S102	

Selection and ordering data (Continued)

	Article No.
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP251	
Weighing modes	<ul style="list-style-type: none"> Non automatic weighing instrument (NAWI) (filling + removal) (legal-for-trade in accordance with OIML R76) Catchweighing instrument (CWI) (filling + removal) (legal-for-trade in accordance with OIML R51) Gravimetric filling instrument (GFI) (legal-for-trade in accordance with OIML R61) Discontinuous totalizing automatic weighing instrument (DTI) - (legal-for-trade in accordance with OIML R107)
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Ports	<ul style="list-style-type: none"> 1 × SIMATIC S7-1200 system bus 1 × Ethernet (SIWATOOL and Modbus TCP/IP) 1 × RS 485 (Modbus RTU or remote display) 1 × analog output (0/4 - 20 mA) 4 × digital inputs (24 V DC, floating) 4 × digital outputs (24 V DC, floating, short-circuit proof)
Functions	<ul style="list-style-type: none"> 3 limits Tare Tare specification Zeroing Zero adjustment Statistics Automatic correction of the shut-off points Internal protocol memory for 550 000 entries Trace function for signal analysis Internal restore point Stand-alone mode or SIMATIC S7-1200 integrated
Parameter assignment	<ul style="list-style-type: none"> Full access using function block in SIMATIC S7-1200 Full access using Modbus TCP/IP Full access using Modbus RTU
Remote display Connection	Via RS 485
Scale adjustment	PC software SIWATOOL (Ethernet), S7-1200 function block and touch panel or directly connected operator panel (Modbus)
Measuring accuracy Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Number of measurements/second	100 or 120 (selectable)

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / SIWAREX WP251 weighing electronics

Technical specifications (Continued)

SIWAREX WP251	
Filter	<ul style="list-style-type: none"> • Low-pass filter 0.1 ... 50 Hz • Average value filter
Load cells	Strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance	
• R_{Lmin}	> 40 Ω
• R_{Lmax}	< 4 100 Ω
With SIWAREX IS Ex interface	
• R_{Lmin}	> 50 Ω
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of the measurement signal (with 4 mV/V sensors)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Certificates	<ul style="list-style-type: none"> • ATEX Zone 2 • UL • KCC • EAC • RCM
Calibration approvals	<ul style="list-style-type: none"> • EU type-examination certificate 2014/31/EU (NAWI) according to OIML R76 • EU type-examination certificate 2014/32/EU (MID) according to OIML R61 and OIML R51 • EU type-examination certificates 2014/32/EU (MID) according to OIML R107
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	200 mA
Max. power consumption SIMATIC Bus	3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min(IND)}$... $T_{max(IND)}$ (operating temperature)	
• Vertical installation	-10 ... +40 °C (14 ... 104 °F)
• Horizontal installation	-10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Overview



SIWAREX FTA (Flexible Technology, Automatic Weighing Instrument) is a versatile and flexible weighing module for industrial use. It can be used in both non-automatic and automatic weighing operation, for example the production of mixtures, and for filling, loading, monitoring and bag filling. It has the corresponding scale approvals and is also suitable for weighing systems requiring official calibration. The SIWAREX FTA function module is integrated in SIMATIC S7/PCS 7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

Benefits

SIWAREX FTA is characterized by the following features:

- Uniform design and totally integrated communication in SIMATIC S7 and SIMATIC PCS 7
- Uniform configuration with SIMATIC
- Direct use in the SIMATIC automation system
- Use in distributed plant concept through connection to PROFIBUS DP/PROFINET using ET 200M
- Measurement of weight or force with high resolution of 16 million intervals
- High accuracy $3 \times 6\,000d$, legal-for-trade according to OIML R-76, R-51, R-61 and R-107
- For use with analog strain gauge load cells
- Alternative option of connecting individual load cells from the manufacturers METTLER TOLEDO, Wipotec and PESA
- Legal-for-trade display with Windows-based Panels, e.g. SIMATIC Comfort Panels
- Stepless or stepped dosing control
- Exact switching of dosing signals ($< 1\text{ ms}$)
- Parameterizable inputs and outputs
- Parameterizable for highly versatile applications
- Flexible adaptation to different requirements with SIMATIC
- Simple adjustment of scale using the SIWATOOL FTA program
- Theoretical adjustment without calibration weights
- Replacement of module without renewed adjustment of scale
- Recording of weighing sequence
- Alibi memory with calibration capability
- Can be used in Ex applications

Application

The SIWAREX FTA weighing module is the optimum solution wherever high demands are placed on accuracy and speed. Thanks to its outstanding measuring properties, weights can be measured with extreme accuracy in up to three ranges. SIWAREX FTA can be used to design legal-for-trade dosing systems, such as filling plants, loading stations, bagging stations, rotopackers, mixers or test stations.

Typical fields of application include:

- Filling of liquids
- Bagging of solid matter (also big bag)
- Proportioning as deduction weighing or fill weighing
- Checking of individual quantities
- Loading or receiving of materials
- Static checking scale
- Check weigher (in combination with Wipotec load cells)

Design

SIWAREX FTA is a function module of SIMATIC S7-300 which can be directly snapped onto the SIMATIC S7-300 or ET 200M backplane bus. The rail mounting of the 80 mm wide weighing module means that it is extremely easy to mount/wire.

The load cells, the RS 485 serial interface, the analog output and the digital inputs and outputs are connected by means of the 40-pin standard front connector, the PC (RS 232) by means of a 9-pin SUB-D connector and the power supply by means of a separate 2-pin connector.

Operation of SIWAREX FTA in SIMATIC enables the weighing system to be completely integrated into the automation system.

Function

The main tasks of the SIWAREX FTA are the high-precision measurement of the current weight in up to three measuring ranges, and exact control of the weighing procedures.

The weighing module controls the weighing procedures fully automatically. However, integration in SIMATIC means that it is also possible to directly influence the weighing procedures using a PLC program. This means that the tasks can be sensibly divided: The very fast weighing functions are implemented in the SIWAREX FTA, the interlocking and logic functions in the SIMATIC CPU.

Weighing functions

The SIWAREX FTA is easy to parameterize for the various automatic weighing functions.

The following legal-for-trade weighing functions can be parameterized:

- NAWI (Non-Automatic Weighing Instrument) according to OIML R76
- AGFI (Automatic Gravimetric Filling Instrument) according to OIML R61
- ACI (Automatic Catchweighing Instrument) according to OIML R51
- DTAWI (Discontinuous Totalizing Automatic Weighing Instrument (Totalizing Hopper Weigher)) according to OIML R107

Monitoring and control of the load cell signals and statuses

During the weighing procedure, the SIWAREX FTA weighing module monitors and controls the load cell signals and statuses. The optimized exchange of data within SIMATIC permits direct evaluation of the load cell signals and statuses in the PLC program.

The SIWAREX FTA can easily be adapted to changes in the system technology thanks to the PLC's influence on the weighing process. The SIWAREX FTA is already factory-calibrated. This means that the theoretical adjustment of the scale is possible without calibration weights, and that modules can be replaced without readjustment of

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / SIWAREX FTA weighing electronics

Function (Continued)

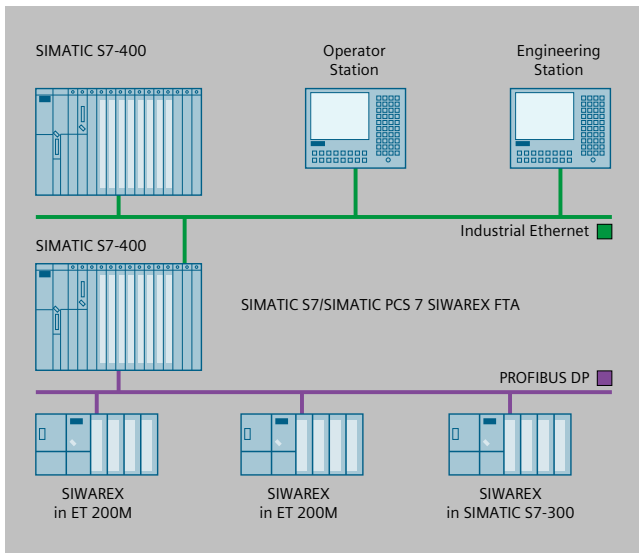
the scale. When using "active bus modules", replacement is also possible during operation.

Integration in SIMATIC

SIWAREX FTA is completely integrated into the SIMATIC S7 and SIMATIC PCS 7. Users can freely configure their automation solution – including the weighing application.

The right combination of SIMATIC components can produce optimum solutions for small, medium-size and large plants. The scales are operated and monitored using SIMATIC standard operator panels. Needless to say, these operator panels can also be simultaneously used for the operator control and monitoring of the plant. Customized or sector-specific solutions can be developed extremely quickly using the configuration package and example applications for SIMATIC. The following Figure shows a typical configuration of a medium-size plant.

The ready-to-use function blocks for the automation system and the faceplates for the operator station are used for the configuration in SIMATIC PCS 7.



SIMATIC S7/PCS 7 configuration with SIWAREX FTA

Software

SIWATOOL FTA commissioning software

SIWATOOL FTA is a special program for commissioning and servicing and runs with Windows operating systems.

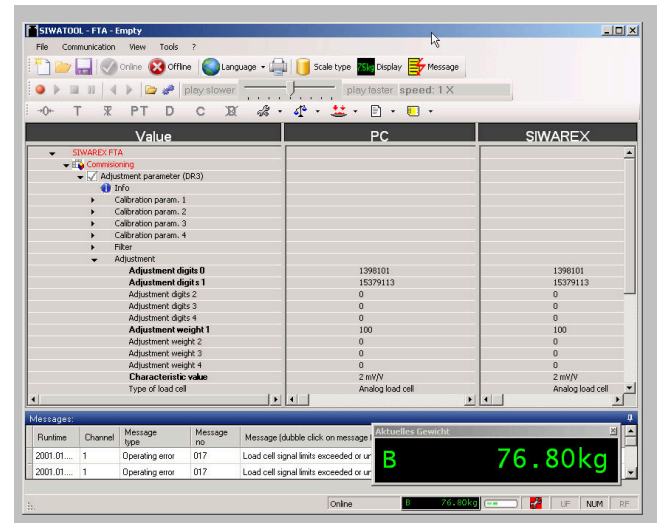
The program enables the scales to be set without the need for prior knowledge of the automation system. During servicing, the technician can use a PC to analyze and test the procedures in the scale.

Reading out the diagnostics buffer from the SIWAREX FTA is extremely helpful when analyzing events.

The following are just some of the tasks that can be carried out using SIWATOOL FTA:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Saving and printing scale data
- Recording and analysis of weighing sequence

Function (Continued)



Settings in SIWAREX FTA software

It is extremely helpful to analyze the diagnostics buffer, which can be saved together with the parameters from the module in a backup file.

The SIWAREX FTA weighing module includes a trace mode for optimization of weighing sequences. The recorded weight values and associated statuses can be displayed as traces using SIWATOOL FTA and MS Excel.

Upgrading firmware

A further program function can be used to download a new firmware version onto the SIWAREX FTA on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Reading out of weighing reports

The weighing reports are saved on an MMC (Micro Memory Card) inserted in the SIWAREX FTA for the duration specified by the Weights and Measures Act. If complaints are received concerning a particular weighing procedure, the associated data can be read out of the MMC using SIWATOOL.

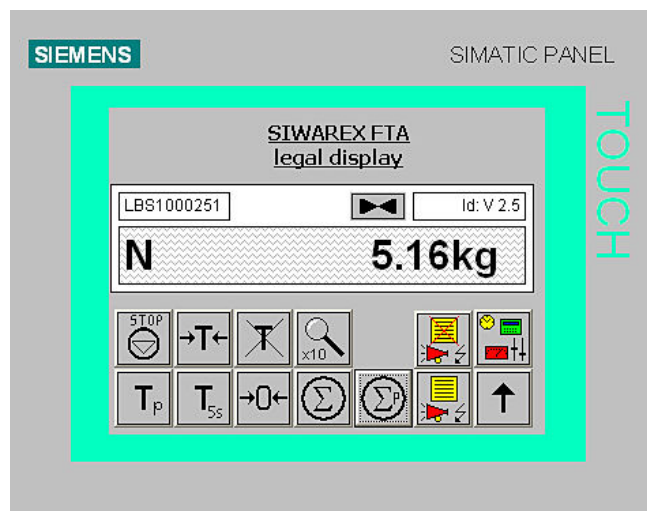
SIWAREX FTA – simple configuration

Integration in SIMATIC results in freely-programmable, modular weighing systems which can be modified according to operational requirements.

The ready-to-use SIWAREX FTA software "Getting Started" is also available free-of-charge. It shows beginners how to integrate the module into a STEP 7 program and offers a basis for application programming. This allows you to connect the scale very easily to an operator panel connected directly to the SIMATIC CPU.

Configuring the legal trade display on the panel

The software SecureOCX is available in systems running WinCC flexible. It provides a function for configuration of the legal trade display directly in WinCC flexible. In the TIA Portal, the SecureDisplay software is used. This is installed directly on a Windows CE-based panel (for example, SIMATIC Comfort Touch series). There is a separate "Getting Started" for using this software in the TIA Portal. This solution requires a SIMATIC CPU with an Ethernet port. SIMATIC Basic and Key Panels cannot be used.

Function (Continued)


Scale faceplate in the SIWAREX FTA "Getting Started" software

In addition, the STEP 7 program SIWAREX FTA Multiscale provides a professional basis for the implementation of batching or filling plants.

Selection and ordering data (Continued)
Selection and ordering data

	Article No.
SIWAREX FTA Legal-for-trade electronic weighing systems for automatic scales for S7-300 and ET 200M. EC type approval 3 × 6000 d Applications: Dosing, filling, bagging, loading. Note: Observe approval conditions for applications requiring official calibration. We recommend using our calibration set and contacting our SIWAREX hotline.	7MH4900-2AA01
SIPLUS FTA SIPLUS FTA -10 ... +60 °C with conformal coating based on 7MH4900-2AA01 Legal-for-trade electronic weighing system for automatic scales for S7-300 and ET 200M. EU type approval 3 × 6000 d Applications: Dosing, filling, bagging, loading. Note: Observe approval conditions for applications requiring official calibration. We recommend using our calibration set and contacting our SIWAREX hotline.	6AG1900-2AA01-4AA0
SIWAREX FTA Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTA "Getting Started" Sample software shows beginners how to program the scales in STEP 7. Free download on the Internet at: http://www.siemens.com/weighing/documentation	

	Article No.
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Configuration package SIWAREX FTA for SIMATIC PCS 7, Version 8.0 on CD-ROM <ul style="list-style-type: none"> HSP hardware support package for integrating SIWAREX FTA/FTC in STEP 7 Function block for CFC Faceplate Manual 	7MH4900-2AK63
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 Supports PROFINET APL faceplates and function blocks for: <ul style="list-style-type: none"> SIWAREX U SIWAREX FTA SIWAREX FTC_B (belt scale) SIWAREX WP321 Classic faceplate and function block for: <ul style="list-style-type: none"> SIWAREX FTC_L (Loss-in-weight) 	7MH4900-1AK61
Calibration set for SIWAREX FTA For verification of up to 5 scales comprising: <ul style="list-style-type: none"> 3 × inscription foils for ID label 1 × protective film Guidelines for verification, verification certificates and approvals, editable label, SIWAREX FTA Equipment Manual on CD-ROM 	7MH4900-2AY10
SIWATOOL connection cable From SIWAREX FTA with serial PC interface, for 9-pin PC interfaces (RS 232) <ul style="list-style-type: none"> 2 m long (6.56 ft) 5 m long (16.40 ft) 	7MH4702-8CA 7MH4702-8CB
Front connector, 40-pin Required for each SIWAREX module <ul style="list-style-type: none"> With screw contacts With spring-loaded terminals 	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0
Shield connection element Sufficient for one SIWAREX FTA module	6ES7390-5AA00-0AA0
Shield connection clamp Content: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: <ul style="list-style-type: none"> Scale connection RS 485 interface RS 232 interface 	6ES7390-5CA00-0AA0
S7 DIN rail <ul style="list-style-type: none"> 160 mm (6.30 inch) 480 mm (18.90 inch) 530 mm (20.87 inch) 830 mm (32.68 inch) 2 000 mm (78.74 inch) 	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0 6ES7390-1AJ30-0AA0 6ES7390-1BC00-0AA0

Weighing Electronics

SIWAREX for SIMATIC

Dosing, filling, bagging and checking scales / SIWAREX FTA weighing electronics

Selection and ordering data (Continued)

	Article No.
MMC memory For data logging up to 32 MB, only for legal-for-trade applications R76, R51 and R107	7MH4900-2AY21
Accessories	
SIWAREX EB extension box For extending sensor cables.	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting several junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	7MH5001-0AA01
Ex interface SIWAREX IS For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
• With short-circuit current < 199 mA DC	7MH4710-5BA
• With short-circuit current < 137 mA DC	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• Sheath color (for hazardous atmospheres): blue	7MH4702-8AF
Remote displays (optional) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTA via an RS 485 interface.	
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX FTA	
Use in automation systems	
S7-300	Directly or via ET 200M
S7-1500	Through ET 200M
S7-400 (H)	Through ET 200M
PCS 7 (H)	Through ET 200M
Communication interfaces	
S7	Through backplane bus
RS 232	For SIWATOOL or printer connection
RS 485	For remote display or digital load cell
Module parameterization	Using SIMATIC S7 Using SIWATOOL FTA software (RS 232)
Measuring properties	
EC type approval as non automatic weighing instrument, trade class III	3 × 6 000 d ≥ 0.5 µV/e
Internal resolution	16 million parts
Internal/external updating rate	400/100 Hz
Several parameterizable digital filters	Critically dampened, Bessel, Butterworth (0.05 ... 20 Hz), mean-value filter
Weighing functions	
Non automatic weighing instrument	OIML R76
Automatic weighing machine	OIML R51, R61, R107
Load cells	Strain gauges in 4-wire or 6-wire system
3 characteristic value ranges	1, 2 or 4 mV/V
Load cell powering	
Supply voltage U_s (rated value)	10.3 V DC
Max. supply current	184 mA
Permissible load cell resistance	
• R_{Lmin}	> 56 Ω
	> 87 Ω with Ex interface
• R_{Lmax}	≤ 4 010 Ω
Max. distance of load cells	
When using the recommended cable:	
Standard	1 000 m (3 280 ft)
In hazardous area ¹⁾	
• For gases of group IIC	300 m (984 ft)
• For gases of group IIB	1000 m (3 280 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approvals zone 2 and safety	ATEX 95, FM, cUL _{US} Haz. Loc.
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	500 mA
Current consumption on backplane bus	Typ. 55 mA
Inputs/outputs	
Digital inputs	7 DI electrically isolated
Digital outputs	8 DO electrically isolated
Counter input	Up to 10 kHz
Analog output	
• Current range	0/4 ... 20 mA
• Updating rate	100 Hz
Approvals	EC type approval (CE, OIML R76) EU type-examination certificate according to MID (OIML R51, R61, R107)
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements $T_{min}(IND) \dots T_{max}(IND)$ (operating temperature)	
• Horizontal installation	-10 ... 60 °C (14 ... 140 °F)
• Vertical installation	-10 ... 40 °C (14 ... 104 °F)
EMC requirements	EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	80 × 125 × 130 mm (3.15 × 4.92 × 5.12 inch)

Technical specifications (Continued)

SIWAREX FTA	
Weight	600 g (0.44 lb)

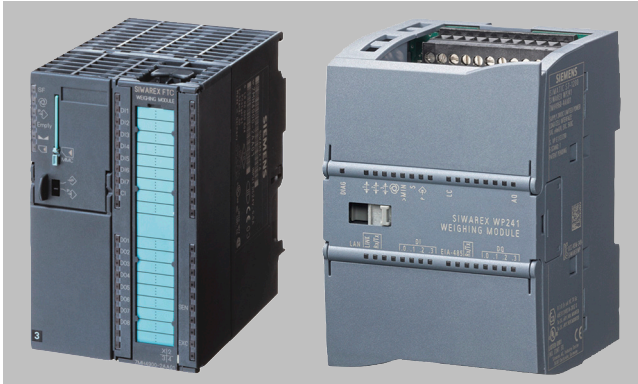
¹⁾ For further details, see Ex interface, type SIWAREX IS.

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / Introduction

Overview



Belt scales

The gravel, cement, coal, recycling and mining industries require exact weight measurement of the material to be conveyed using belt scales. The comprehensive SIWAREX electronics properties and functions can fulfil all requirements.

The Milltronics belt scales from Siemens combine simple installation and low maintenance costs (no moving parts) with higher reproducibility. This results in high productivity. With minimum hysteresis and maximum linearity, lateral forces have no influence on measuring accuracy. All load cells are equipped with overload protection. The installation of belt scales in danger zones is also available as option. Various versions are available for high accuracy, small loads and heavy loads.

Overview



The SIWAREX WP341 is a compact, precise weighing electronics in the SIMATIC ET 200SP format. With a width of just 20 mm it is one of the slimmest weighing electronics on the market, yet its firmware includes the functionalities of a continuous belt weighing electronics. Optionally the WP341 can be used for operation of solids flowmeters. The load cells and the speed sensor are directly connected to the ET 200SP Base Unit (type U0) and therefore the complete system is directly integrated into the automation system.

Benefits

- Low space requirements with only 20 mm module width
- Seamless integration into SIMATIC ET 200SP
- 1 000 Hz sampling rate und processing time
- Dedicated firmware for continuous belt weighing applications
- Operation with SIMATIC S7-300, S7-400, S7-1200 and S7-1500 controllers
- Operation in Ethernet IP or Modbus TCP-based systems using ET 200SP multi-field bus IM
- Three digital inputs and outputs each ex works
- High degree of scalability in connection with all available SIMATIC standard components
- Open SIWAREX concept – all settings and parameters accessible, no encapsulated black box in the field
- Unrestricted access to all scale parameters and functions from the SIMATIC S7 Controller / HMI
- Internal, protocol memory for up to 1 000 000 entries
- Commissioning and maintenance from HMI or weighing electronics-internal web server
- Advanced diagnostic features in combination with SIWAREX DB

Application

SIWAREX WP341 offers a compact and extremely versatile solution for continuous belt weighing applications with high requirements for accuracy and performance.

Typical areas of application include:

- Belt weighers in recycling, mining, aggregate, cement, chemical and food industries
- Easy and completely integrated realization of weigh feeding applications
- Operation with solids flowmeters

Design

The SIWAREX WP341 is a technology module of the SIMATIC ET 200SP distributed I/O system. Installation is on a type U0 BaseUnit. The load cells, serial RS 485 interface and digital inputs/outputs are wired directly on the BaseUnit with user-friendly push-in terminals. This makes it quick and easy to replace weighing electronics without any wiring effort. The web server is addressed via an Ethernet interface in the weighing electronics. Should more interfaces and I/O be required, they can be added with the ET 200SP system components.

Function

The load cells of the belt scale as well as the speed sensor are directly wired to the BaseUnit. The weighing electronics internally calculates the current flow rate based on the current weight and speed signal. Six individual totalizers are available and can be easily read out of the weighing electronics into the connected CPU. The totalizers are resettable by software command or alternatively by a 24 V signal connected to one of the on board digital inputs. Different methods of commissioning are supported: by test weight, by test chain, by material batch or based on load cell data. A correction factor calculated by a material test can be applied. Additionally a correction factor curve based on different belt load levels can be defined. Digital signal filters for speed and load offer the possibility to optimize the results of the weighing process. A logging function for all calibration actions with time stamp provide a transparent and secure operation of the scale. In combination with the digital junction box SIWAREX DB up to four connected load cells can be individually monitored and diagnosed down from the single sensor up into the MES level. The free of charge function block and HMI visualization give full access to all available data and parameters of the WP341 from the controller / HMI. Therefore the belt weighing application can be easily integrated into existing HMI visualizations and allow an intuitive operation and service of the scale.

Selection and ordering data

	Article No.
TM SIWAREX WP341 weighing electronics SIMATIC ET 200SP, TM SIWAREX WP341 HF, weighing electronics for continuous belt weighing applications	7MH4138-6CA00-0CU0
SIWAREX WP341 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP341 "Getting Started" sample project Sample software shows beginners how to program the scales in TIA Portal V16 Free download on the Internet at: http://www.siemens.com/weighing/downloads	
ET 200SP BaseUnit type U0	
• For opening a new potential group (white)	6ES7193-6BP00-0DU0
• For continuing an existing potential group (gray)	6ES7193-6BP00-0BU0
• Shield connection for ET 200SP incl. 5 shield connections	6ES7193-6SC00-1AM0

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / TM SIWAREX WP341 HF weighing electronics

Selection and ordering data (Continued)

	Article No.
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum enclosure For connecting up to 4 load cells in parallel, and for connecting multiple terminal boxes.	7MH5001-0AA20
SIWAREX JB junction box, stainless steel enclosure For connecting up to 4 load cells in parallel.	7MH5001-0AA00
SIWAREX JB junction box, stainless steel enclosure (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or prototype test certificate).	7MH5001-0AA01
SIWAREX DB digital junction box For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics. Enclosure made of:	
• Aluminum	7MH5001-0AD20
• Stainless steel incl. ATEX and IECEx approval II 3 G Ex ec IIC T4 Gc and II 3 D Ex tc IIC T120 °C Dc	7MH5001-0AD01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX weighing electronics. Compatibility of load cells must be checked separately.	
• With short-circuit current < 199 mA DC	7MH4710-5BA
• With short-circuit current < 137 mA DC	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• Sheath color (for hazardous atmospheres): blue	7MH4702-8AF

Technical specifications

Article number	7MH4138-6CA00-0CU0
General information	
Product type designation	TM SIWAREX WP341 HF
• Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• Adjustment of measuring range	Yes; ±0 ... 4 mV/V
• Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V16
• STEP 7 configurable/integrated from version	- / -
• PROFIBUS from GSD version/GSD revision	GSD as of Revision 5
• PROFINET from GSD version/GSD revision	GSDML V2.34
Supply voltage	
• Load voltage L+	
• Rated value (DC)	24 V
• Short-circuit protection	Yes
• Reverse polarity protection	Yes
Digital inputs	
Number of digital inputs	3
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
• Input voltage	
• Type of input voltage	24 V DC
• Rated value (DC)	24 V
• for signal "0"	< 5 V DC
• for signal "1"	+11 to +30V
• permissible voltage at input, min.	-30 V
• permissible voltage at input, max.	30 V
• Input current	
• for signal "1", typ.	1.6 mA
• Input delay (for rated value of input voltage)	
• for technological functions	
• parameterizable	Yes
Digital outputs	
Number of digital outputs	3
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
• Digital output functions, parameterizable	
• Freely usable digital output	Yes
• Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• Output voltage	
• Type of output voltage	DC
• Output delay with resistive load	
• "0" to "1", typ.	20 µs
• "1" to "0", typ.	30 µs

Technical specifications (Continued)

Article number	7MH4138-6CA00-0CU0
• Parallel switching of two outputs	
• for uprating	No
• Switching frequency	
• with resistive load, max.	500 Hz
• Total current of the outputs	
• Current per channel, max.	0.5 A; the total current of all outputs ≥ 0.6 A, the ambient temperature is reduced by -1 °C per 100 mA
• Current per module, max.	1.5 A; Observe derating
Encoder	
• Connection of signal encoders	
• For strain gauges (full bridges) with 4-conductor connection	Yes
• For strain gauges (full bridges) with 6-conductor connection	Yes
• Resistance of full bridge, min.	56 Ω ; when using SIWAREX IS 87 ohm for 7MH4710-5BA; 180 ohm when using 7MH4710-5CA
• Resistance of full bridge, max.	4 100 Ω
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.001 %
Error limit according to DIN 1319-1 Accuracy class	0.002 %; of full-scale value III
Temperature coefficient, zero point	$\leq \pm 0.015$ $\mu\text{V/K}$
Temperature coefficient, span	$\leq \pm 5$ ppm/K
1. Interface	
• Interface types	
• RS 485	Yes; Terminated internally with 390 Ω / 220 Ω / 390 Ω
2. Interface	
• Interface types	
• RJ 45 (Ethernet)	Yes; 10/100 Mbit/s
• Number of ports	1
• Protocols	
• IP protocol	Yes; IPv4
• Web server	Yes
Interface types	
• RJ 45 (Ethernet)	
• Autonegotiation	Yes
• Autocrossing	Yes
• RS 485	
• Transmission rate, max.	115.2 kbit/s
• Cable length, max.	1 000 m; ≤ 115 kbps, shielded cable
Protocols	
• Web server	
• HTTP	Yes
• HTTPS	Yes
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Diagnostic alarm
Substitute values connectable	No
• Alarms	
• Diagnostic alarm	Yes; Parameterizable

Technical specifications (Continued)

Article number	7MH4138-6CA00-0CU0
• Hardware interrupt	Yes; Parameterizable
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• Group error	Yes; green/red DIAG LED
Diagnostics indication LED	
• ERROR LED	Yes; green/red DIAG LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
Integrated Functions	
Counter	Yes
• Number of counters	1
• Counting frequency, max.	8 kHz
Load cell	
• permissible input signal per verification interval, min.	0.4 $\mu\text{V/e}$
• Sampling rate	1 024 Hz
• Resolution of input signal	± 20 000 000 parts at 0 ... 4 mV/V
• Common mode voltage, min.	2.8 V
• Common mode voltage, max.	7.7 V
• input resistance of signal line, typ.	8 M Ω
• input resistance of sense line, typ.	300 M Ω
• Cable length, max.	500 m; when using the SIWAREX 7MH4702-8AG cable
Measuring functions	
Measuring range	
• -1 mV/V to +1 mV/V	Yes
• -2 mV/V to +2 mV/V	Yes
• -4 mV/V to +4 mV/V	Yes
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	50 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m; more than 2 000 m above sea level, the ambient temperature is reduced by -1 °C per 100 m
• Ambient air temperature-barometric pressure-altitude	1 080 ... 533 hPa (-1 000 ... 5 000 m above sea level)
Decentralized operation	
to SIMATIC S7-300	Yes
to SIMATIC S7-400	Yes
to SIMATIC S7-1200	Yes
to SIMATIC S7-1500	Yes
to standard PROFIBUS master	Yes
to standard PROFINET controller	Yes
Dimensions	
Width	20 mm

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / TM SIWAREX WP341 HF weighing electronics

Technical specifications (Continued)

Article number	7MH4138-6CA00-0CU0
Height	57 mm
Depth	72 mm
Weights	
Weight, approx.	50 g

Overview



SIWAREX WP241 is a flexible weighing module for belt scales. The compact module is easy to install in the SIMATIC S7-1200 automation system. It can also be operated as a stand-alone module, i.e. without a SIMATIC CPU.

Benefits

SIWAREX WP241 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Operation without SIMATIC CPU possible
- Direct connection of an operator panel via Ethernet
- Four digital inputs and outputs, one analog output
- Measurement of weight with a high resolution of ± 4 million parts
- Simple adjustment of belt scales using the SIWATOOL V7 program via the Ethernet interface - even without knowledge of SIMATIC
- Replacement of module possible without renewed calibration of the scale
- Use in hazardous area zone 2
- Different calibration methods: With test weights, test chain, automatically or via material batch.
- Specification of belt inclination angle
- 6 totalization memories
- Simulation of speed and belt load for test purposes
- Comprehensive diagnostics functions

Application

SIWAREX WP241 is the optimal solution wherever belt scales are used that demand high accuracy, high user-friendliness, and flexible system integration. The typical applications of the SIWAREX WP241 are determining the current material flow rate, belt load, and belt speed. Furthermore, 6 totalizers are available for evaluating the amount of material conveyed.

Design

SIWAREX WP241 is a compact technology module in the SIMATIC S7-1200, and it allows direct connection to S7-1200 components via a sliding connector. The rail mounting of the 70 mm (2.76 inch) wide weighing module means that it is extremely easy to mount/wire.

The power supply, load cells, RS 485 interface, digital input/outputs and the analog output are connected via the screw plug of the weighing module. An RJ45 plug is used for the Ethernet connection.

Function

The primary task of the SIWAREX WP241 is to measure the speed of the belt, to measure and convert the sensor voltage to a weight value, and to precisely calculate the amount of material conveyed or material flow rate.

The volume of material conveyed can be recorded in 6 totalization memories: The accumulated totalization memory determines the conveyed material over the entire operating time of the scale (can only be reset by loading the factory settings). The overall total and the four remaining totalization memories are available for use as required. For example, for recording the daily or weekly totals. Four different options are available for rapid commissioning:

- **Automatic calibration**
The calibration is calculated automatically using the load cell parameters entered. Only the zero point has to be calculated at the actual plant.
- **Calibration with calibration weights or test weights**
Test weights are secured to the weighing equipment and the conveyor belt is started. The calibration values are determined while the belt is running. The zero point must also be calculated.
- **Calibration with test chain**
Instead of test weights, a chain of a known weight can be placed on the measuring points of the belt. The calibration values are calculated as for calibration with test weights.
- **Calibration via material batch**
This method can be used if a volume of material is available, but neither test weights nor a chain are available. The material can either be preweighed or weighed afterwards. It is conveyed over the belt scale. Then the weighing module calculates the calibration characteristic automatically.

If "Automatic set to zero" is active, the electronic weighing system automatically executes a "set to zero" procedure when the belt reaches the "set to zero" area.

Extensive diagnostics functions are available. Diagnostic messages are output to the different interfaces. In simulation mode, both the speed and the belt load can be specified by the user. This makes it possible to test many functions in advance without operating belt scales. Both the digital inputs/outputs and the analog output can also be simulated for test purposes. The "Trace" function is extremely helpful for optimizing the plant or when troubleshooting. It records the weighing history stored in the internal module memory (e.g. material flow rate, belt load, speed) and exports it to Excel in a graphical format.

Monitoring the scale signals and states

The SIWAREX WP241 monitors the belt load, the material flow rate, and the belt speed, and it signals if the limits are exceeded. The respective limits can be parameterized as required.

Consistent and uniform communication between all system components enables fast, reliable and cost-effective integration and diagnosis in industrial processes.

Integration in the plant environment

SIWAREX WP241 can be directly integrated into the SIMATIC S7-1200 via the SIMATIC bus. Standalone operation without SIMATIC is also possible.

A wide variety of connection options are provided via the RS 485 and Ethernet interface. Via Modbus TCP/IP or Modbus RTU, control panels can be connected and it is also possible to communicate with various automation systems. A PC for programming the SIWAREX WP241 via SIWATOOL can be connected to the Ethernet interface.

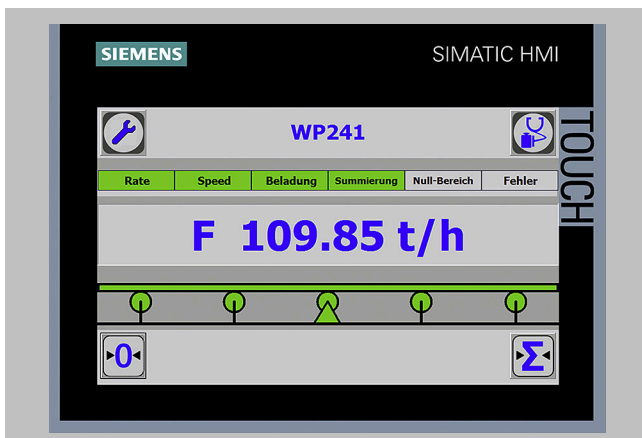
SIWAREX WP241 can be integrated into the system software using all standard PLC programming languages from the TIA Portal. In contrast to serially linked weighing electronics, SIWAREX WP241 does not need costly additional modules to link it to SIMATIC. Used in conjunction with SIWAREX WP241, it is possible to configure freely programmable, modular weighing systems in SIMATIC, which can be adapted to company-specific requirements as needed.

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / SIWAREX WP241 weighing electronics

Function (Continued)



SIWAREX WP241 "Ready-for-use"

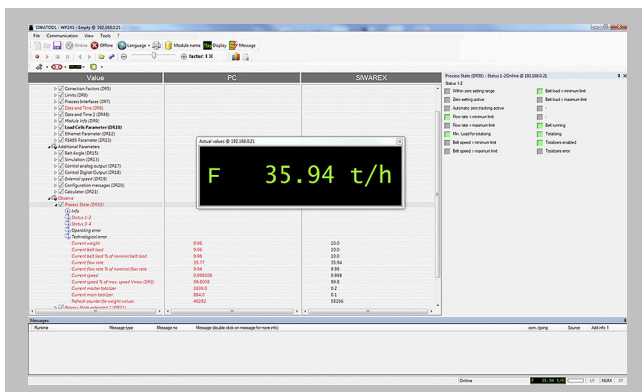
In addition to the configuration package, fully-featured SIWAREX WP241 "Ready-for-use" software is also available free-of-charge. It shows beginners how to integrate the module in a STEP 7 program and offers a basis for application programming. This allows you to connect the scale to an operator panel either connected to the SIMATIC CPU or connected directly to the SIWAREX WP241.

Software

There is also the option of using a Windows PC for commissioning and servicing. The program SIWATOOL enables the belt scales to be set without prior knowledge of the automation system, as required. During servicing, the technician can use a PC to quickly and simply analyze and test the procedures in the scale.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

- Parameterization and calibration of the scale
- Testing/Simulation of scale properties
- Recording, analysis and export of scale traces ("Trace")
- Creation of backup files for rapidly replacing modules without calibration



SIWAREX WP241 SIWATOOL

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters following reading out from the module.

The SIWAREX WP241 weighing module includes a trace mode for optimization of weighing sequences. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Function (Continued)

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP241 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Selection and ordering data

	Article No.
SIWAREX WP241 weighing electronics Single-channel, for belt scales with analog load cells / full-bridge strain gauges (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port	7MH4960-4AA01
SIWAREX S7-1200 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP241 "Ready-for-use" Complete software package for belt scale (for S7-1200 and a directly connected operator panel) Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP241 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> • Short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> • Short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	

Selection and ordering data (Continued)

	Article No.
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> Sheath color (for hazardous atmospheres): blue 	7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6E55728-8MA11

Technical specifications

SIWAREX WP241	
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	<ul style="list-style-type: none"> SIMATIC S7-1200 backplane bus RS 485 (Modbus RTU) Ethernet (SIWATOOL V7, Modbus TCP/IP) Analog output 0/4 - 20 mA 4 × digital outputs, 24 V DC, floating, short-circuit proof 4 × digital inputs 24 V DC, floating
Commissioning options	<ul style="list-style-type: none"> Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU
Measuring accuracy Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K) Internal resolution Measuring frequency	0.05% Up to ± 4 million parts 100 / 120 Hz
Digital filter Filter for conveyor load Filter for belt speed	Separate, variable adjustable low-pass and average filter for loading and speed Low-pass filter (limit frequency 0.05 ... 50 Hz) Low-pass filter (limit frequency 0.05 ... 50 Hz)
Weighing functions Readout data Limits (min/max)	<ul style="list-style-type: none"> Weight Belt load Material flow rate Accumulated total Main total Free totals 1 ... 4 Belt speed Belt load Material flow rate Belt speed

Technical specifications (Continued)

SIWAREX WP241	
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering Supply voltage (regulated via feedback) Permissible load resistance	4.85 V DC > 40 Ω < 4 100 Ω
With SIWAREX IS Ex interface	<ul style="list-style-type: none"> R_{Lmin} > 50 Ω R_{Lmax} < 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible measurement signal range	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface (compatibility of the load cells must be checked)
Approvals/certificates	<ul style="list-style-type: none"> ATEX Zone 2 UL EAC KCC RCM
Auxiliary power supply Rated voltage Max. power consumption Max. power consumption SIMATIC Bus	24 V DC 200 mA 3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements T _{min} (IND) ... T _{max} (IND) (operating temperature)	<ul style="list-style-type: none"> Vertical installation -10 ... +40 °C (14 ... 104 °F) Horizontal installation -10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / SIWAREX FTC weighing electronics

Overview



The SIWAREX FTC (Flexible Technology for Continuous Weighing) is a versatile and flexible weighing module for belt scales, loss-in-weight feeders and solids flowmeters. It can also be used to record weights and measure force. The SIWAREX FTC function module is integrated in SIMATIC S7/PCS 7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

Benefits

SIWAREX FTC is characterized by the following features:

- Uniform design and totally integrated communication in SIMATIC S7 and SIMATIC PCS 7
- Uniform configuration with SIMATIC
- Direct use in the SIMATIC automation system
- Use in distributed plant concept through connection to PROFIBUS DP/PROFINET using ET 200M
- Measurement of weight or force with high resolution of 16 million intervals
- High accuracy $3 \times 6\,000\,d$
- For use with analog strain gauge load cells
- Alternative option of connecting individual load cells from the manufacturers METTLER TOLEDO, WIPOTEC and PESA
- Display with SIMATIC standard operator panels
- Parameterizable inputs and outputs
- Parameterizable for highly versatile applications
- Flexible adaptation to different requirements with SIMATIC
- Simple adjustment of scale using the SIWATOOL FTC program
- Theoretical adjustment without calibration weights
- Replacement of module without renewed adjustment of scale
- Recording of weighing sequence
- 8 totalization memories with different digit intervals
- Can be used in Ex applications

Application

The SIWAREX FTC weighing module is the optimum solution wherever high demands are placed on continuous weighing procedures. Thanks to its outstanding measuring properties, weights can be measured with extreme accuracy in up to three ranges. In the case of force measurements, the value can be measured bidirectionally.

Typical applications for SIWAREX FTC include:

- Flowrate/flow measurement
- Belt volume measurement
- Material loading, summation
- Flowrate/flow control
- Belt load measurement
- Belt scale / weighfeeder
- Loss-in-weight scale
- Force measurement

Design

SIWAREX FTC is a function module of SIMATIC S7-300 which can be directly snapped onto the SIMATIC S7-300 or ET 200M backplane bus. The rail mounting of the 80 mm wide weighing module means that it is extremely easy to mount/wire.

The load cells, the RS 485 serial interface, the analog output and the digital inputs and outputs are connected by means of the 40-pin standard front connector, the PC (RS 232) by means of a 9-pin SUB-D connector and the power supply by means of a separate 2-pin connector.

Operation of SIWAREX FTC in SIMATIC enables the belt scale to be completely integrated into the automation system.

Function

The main tasks of SIWAREX FTC are the high-precision measurement of the current weight, and the exact calculation of the conveyed quantity or flow. In "Force measurement" operation mode, SIWAREX FTC measures the force in both directions.

The conveyed quantity can be recorded in 8 totalization memories. Through integration in SIMATIC it is also possible to directly control scale operation by means of a PLC program. This means that the tasks can be sensibly divided: The weighing functions are implemented in the SIWAREX FTC and the interlocking and logic functions for the plant control in the SIMATIC CPU.

Weighing functions

The following operating modes can be set:

Weight measurement and force measurement

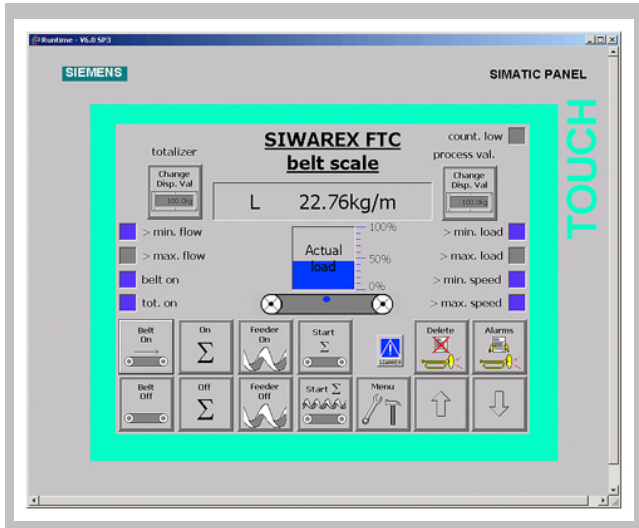
In this operating mode, the weight value or the force is determined, processed in the PLC and then displayed.

For this purpose, the configuration package can be selected.

Belt scale / weighfeeder

The functions of a belt scale are implemented in this operating mode. Calculations are performed for the typical process values; belt load, flowrate and belt speed. Commands can be used to control the belt and display the required values. A weighfeeder can be implemented by activating the SIMATIC PID controller.

Function (Continued)

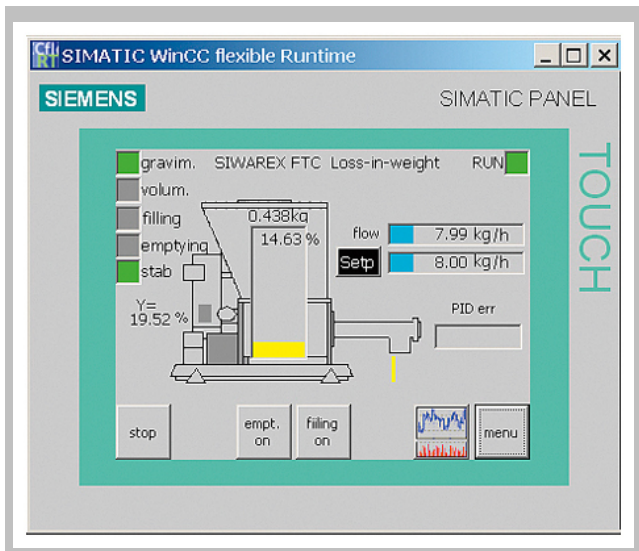


Scale faceplate of a belt scale

Loss-in-weight scale

The typical functions of a loss-in-weight scale are implemented in this operating mode. The actual weight of the vessel is measured and the flowrate is regulated according to the preset setpoint. Application-specific parameters, such as proportioning parameters, and device and material characteristics, can be set directly in SIWAREX FTC. Various commands are available that have been fine-tuned to the requirements of the loss-in-weight scales, such as proportioning (manual, automatic, gravimetric, volumetric), filling and emptying.

The high measurement resolution, real-time signal processing, detection and filtering of signals in the electronic weighing system enable extremely high proportioning accuracy.



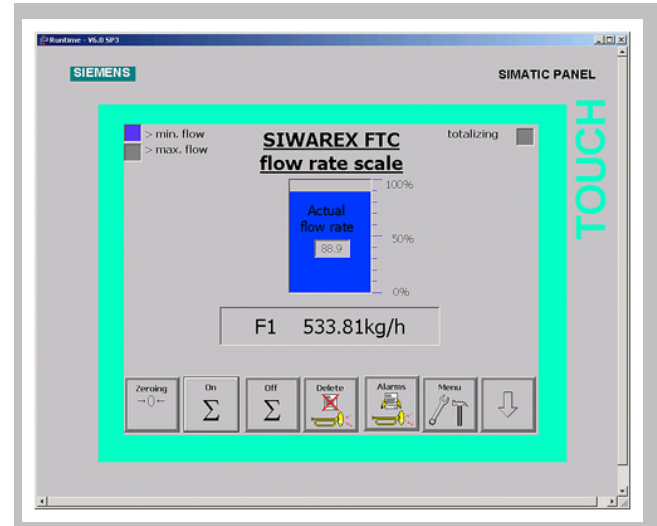
Scale faceplate of a loss-in-weight scale

Solids flowmeter

The typical functions of a solids flowmeter are implemented in this operating mode. The calculations for the typical process values;

Function (Continued)

flow and conveyed quantity, are performed in the SIWAREX module. Application-specific parameters for setting the scales and commands for their operation are also available.



View of a solids flowmeter

Monitoring and control of the load cell signals and statuses

The SIWAREX FTC weighing module monitors the statuses during the weighing process, and informs the operator of any irregularities. The optimized exchange of data within SIMATIC permits direct evaluation of the load cell signals in the PLC program.

Influencing of the weighing sequences by the PLC means that the SIWAREX FTC can be easily adapted to any modifications in system technology.

A module can be replaced without recalibrating the scales. When using "active bus modules", replacement is also possible during operation.



Applications of SIWAREX FTC

Integration in SIMATIC

SIWAREX FTC is completely integrated into the SIMATIC S7 and SIMATIC PCS 7. Users can freely configure their automation solution – including the weighing application.

The right combination of SIMATIC components can produce optimum solutions for small, medium-size and large plants. The scales are operated and monitored using SIMATIC standard operator panels.

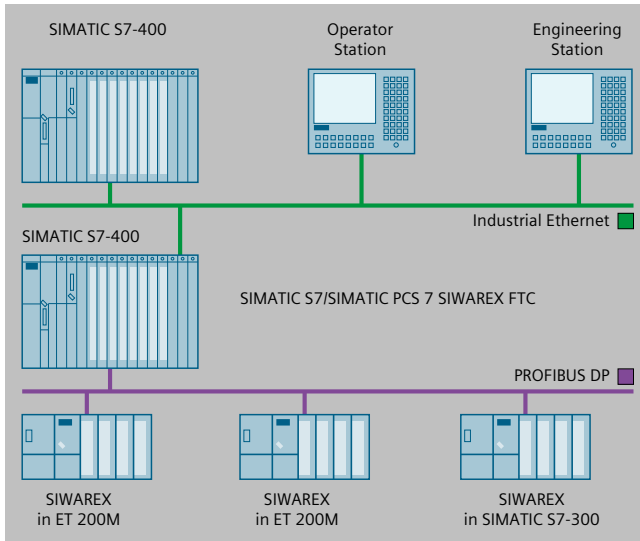
Weighing Electronics

SIWAREX for SIMATIC

Belt scales / SIWAREX FTC weighing electronics

Function (Continued)

Needless to say, these operator panels can also be simultaneously used for the operator control and monitoring of the plant. Custom design or sector-specific solutions can be developed extremely quickly using the configuration package and example applications for SIMATIC.



SIMATIC S7/PCS 7 configuration with SIWAREX FTC (medium-sized plants)

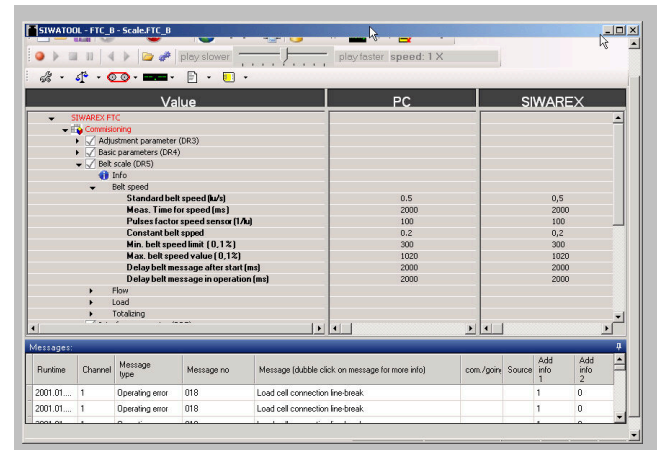
Software

Adjustment of the scale using SIWATOOL FTC

SIWATOOL FTC is a special program for adjusting and servicing the scale and runs with Windows operating systems. The program enables the scales to be commissioned without the need for prior knowledge of the automation system. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading out the diagnostics buffer from the SIWAREX FTC is extremely helpful when analyzing events. The following are just some of the tasks that can be carried out using SIWATOOL FTC:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Saving and printing scale data
- Recording and analysis of weighing sequence

Function (Continued)



Settings in SIWAREX FTC software

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters following reading out from the module.

The SIWAREX FTC weighing module includes a trace mode for checking of weighing sequences. The recorded weight values and associated statuses can be displayed as traces using SIWATOOL FTC and MS Excel.

Upgrading firmware

A further program function can be used to download a new firmware version onto the SIWAREX FTC on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

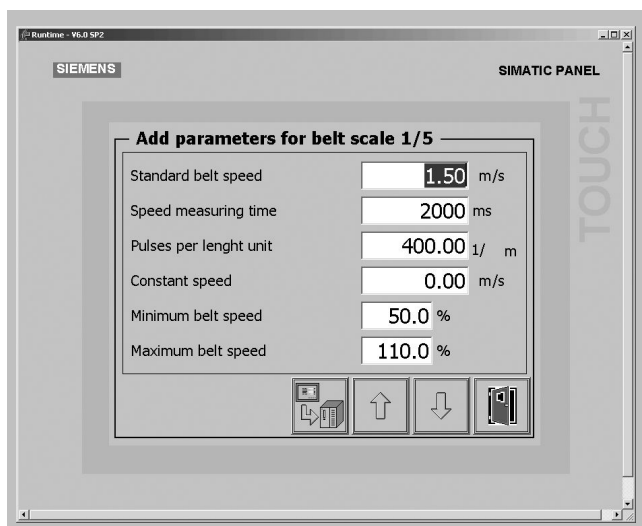
Reading out of weighing reports

The totalization memories can be saved on a MMC (Micro Memory Card) inserted into the SIWAREX FTC.

SIWAREX FTC – simple configuring

Integration in SIMATIC means that freely-programmable, modular weighing systems for belt scales, solids flowmeters and loss-in-weight scales can be created and modified to meet individual operational requirements.

A free version of the ready-to-use SIWAREX FTC "Getting Started" software is also available for the belt scale, solids flowmeter and loss-in-weight scale operation modes. It shows beginners how to integrate the module into the STEP 7 program and provides a basis for application programming. This allows you to implement the belt scale very easily with an operator panel connected directly to the SIMATIC CPU.

Function (Continued)


Scale faceplate in the SIWAREX FTC "Getting Started" software

Selection and ordering data (Continued)

	Article No.
SIWAREX FTC "Getting Started" for loss-in-weight scales Sample software shows beginners how to program the scales in STEP 7 for loss-in-weight scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: <ul style="list-style-type: none"> • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: <ul style="list-style-type: none"> • SIWAREX FTC_L (Loss-in-weight) 	7MH4900-1AK61
SIWATOOL connection cable from SIWAREX FTC with serial PC interface, for 9-pin PC interfaces (RS 232) <ul style="list-style-type: none"> • 2 m long (6.56 ft) • 5 m long (16.40 ft) 	7MH4702-8CA 7MH4702-8CB
40-pin front connector with screw contacts Required for each SIWAREX module <ul style="list-style-type: none"> • With screw contacts • With spring-loaded terminals 	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0
Shield connection element Sufficient for one SIWAREX FTC module	6ES7390-5AA00-0AA0
Shield connection clamp Content: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: <ul style="list-style-type: none"> • Scale connection • RS 485 interface • RS 232 interface 	6ES7390-5CA00-0AA0
S7 DIN rail <ul style="list-style-type: none"> • 160 mm (6.30 inch) • 480 mm (18.90 inch) • 530 mm (20.87 inch) • 830 mm (32.68 inch) • 2 000 mm (78.74 inch) 	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0 6ES7390-1AJ30-0AA0 6ES7390-1BC00-0AA0
MMC memory For data logging up to 32 MB, only for legal-for-trade applications R76, R51 and R107	7MH4900-2AY21
Accessories	
SIWAREX EB extension box For extending sensor cables.	7MH4710-2AA

Selection and ordering data

	Article No.
SIWAREX FTC Electronic weighing system for S7-300 and ET 200M. Applications: Belt scales, force measurement, loss-in-weight scales and solids flowmeters	7MH4900-3AA01
SIWAREX FTC_B Equipment Manual for belt scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC_L Equipment Manual for solids flowmeters and loss-in-weight scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for belt scales Sample software shows beginners how to program the scales in STEP 7 for belt scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for solids flowmeters Sample software shows beginners how to program the scales in STEP 7 for solids flowmeter mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	

Weighing Electronics

SIWAREX for SIMATIC

Belt scales / SIWAREX FTC weighing electronics

Selection and ordering data (Continued)

	Article No.
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	7MH5001-0AA01
Ex interface SIWAREX IS For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> With short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> With short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> For hazardous atmospheres. Sheath color: blue 	7MH4702-8AF
Remote display (optional) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTC via an RS 485 interface. (not suitable for belt scale mode) Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX FTC	
Use in automation systems S7-300 S7-1500 S7-400 (H) PCS 7 (H)	Directly or via ET 200M Through ET 200M Through ET 200M Through ET 200M
Communication interfaces S7 RS 232 RS 485	Through backplane bus For SIWATOOL or printer connection For remote display or digital load cell
Module parameterization	Using SIMATIC S7 Using SIWATOOL FTC software (RS 232)
Measuring properties Accuracy according to EN 45501 Internal resolution Internal/external updating rate	3 × 6 000 d ≥ 0.5 µV/e +/- 8 million parts 400/100 Hz
Several parameterizable digital filters	Critically damped, Bessel, Butterworth (0.05 ... 20 Hz), mean-value filter
Weighing functions	<ul style="list-style-type: none"> Non automatic weighing instrument, force measurement Belt scale Loss-in-weight scale Solids flowmeters
Load cells 3 characteristic value ranges	Strain gauges in 4-wire or 6-wire system 1, 2 or 4 mV/V
Load cell powering Supply voltage U_s (rated value) Max. supply current Permissible load cell resistance	10.3 V DC 184 mA <ul style="list-style-type: none"> R_{Lmin} > 56 Ω > 87 Ω with Ex interface R_{Lmax} ≤ 4 010 Ω
Max. distance of load cells When using the recommended cable:	
Standard	1 000 m (3 280 ft)
In hazardous area ¹⁾	
<ul style="list-style-type: none"> For gases of group IIC 	300 m (984 ft)
<ul style="list-style-type: none"> For gases of group IIB 	1 000 m (3 280 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approvals zone 2 and safety	ATEX 95, FM, cULus Haz. Loc.
Auxiliary power supply Rated voltage Max. power consumption Current consumption on backplane bus	24 V DC 500 mA Typ. 55 mA
Inputs/outputs Digital inputs Digital outputs Counter input Analog output	7, electrically isolated 8, electrically isolated Up to 10 kHz
<ul style="list-style-type: none"> Current range Updating rate 	0/4 ... 20 mA 100 Hz
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements $T_{min(IND)} ... T_{max(IND)}$ (operating temperature)	
<ul style="list-style-type: none"> Horizontal installation Vertical installation 	-10 ... 60 °C (14 ... 140 °F) -10 ... 40 °C (14 ... 104 °F)
EMC requirements	EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	80 × 125 × 130 mm (3.15 × 4.92 × 5.12 inch)

Technical specifications (Continued)

SIWAREX FTC	
Weight	600 g (0.44 lb)

¹⁾ For further details, see Ex interface, type SIWAREX IS.

Weighing Electronics

SIWAREX for SIMATIC

Loss-in-weight scales / Introduction

Overview



SIWAREX FTC weighing electronics

The very demanding task of differential dosing can be mastered without difficulty using SIWAREX FTC. The electronic weighing system provides extensive functionalities and can be commissioned in only 15 minutes using the auto setup function. The module automatically determines the most important parameters, such as dosing power, measurement time, stability and PID parameters and saves them. The parameters are continuously optimized during operation. The standard operator control and monitoring components from Siemens provide options for operating and calibrating the scales, as well as for error diagnostics. Both single components and applications for multi-component dosing can be implemented in relation to one another.

Benefits

- High metering accuracy
- High reproducibility
- Real-time signal processing
- Openness and user freedom enable individual optimization by the company's own personnel or specialists

Overview



The SIWAREX FTC (Flexible Technology for Continuous Weighing) is a versatile and flexible weighing module for belt scales, loss-in-weight feeders and solids flowmeters. It can also be used to record weights and measure force. The SIWAREX FTC function module is integrated in SIMATIC S7/PCS 7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

Benefits

SIWAREX FTC is characterized by the following features:

- Uniform design and totally integrated communication in SIMATIC S7 and SIMATIC PCS 7
- Uniform configuration with SIMATIC
- Direct use in the SIMATIC automation system
- Use in distributed plant concept through connection to PROFIBUS DP/PROFINET using ET 200M
- Measurement of weight or force with high resolution of 16 million intervals
- High accuracy $3 \times 6\,000\,d$
- For use with analog strain gauge load cells
- Alternative option of connecting individual load cells from the manufacturers METTLER TOLEDO, WIPOTEC and PESA
- Display with SIMATIC standard operator panels
- Parameterizable inputs and outputs
- Parameterizable for highly versatile applications
- Flexible adaptation to different requirements with SIMATIC
- Simple adjustment of scale using the SIWATOOL FTC program
- Theoretical adjustment without calibration weights
- Replacement of module without renewed adjustment of scale
- Recording of weighing sequence
- 8 totalization memories with different digit intervals
- Can be used in Ex applications

Application

The SIWAREX FTC weighing module is the optimum solution wherever high demands are placed on continuous weighing procedures. Thanks to its outstanding measuring properties, weights can be measured with extreme accuracy in up to three ranges. In the case of force measurements, the value can be measured bidirectionally.

Typical applications for SIWAREX FTC include:

- Flowrate/flow measurement
- Belt volume measurement
- Material loading, summation
- Flowrate/flow control
- Belt load measurement
- Belt scale / weighfeeder
- Loss-in-weight scale
- Force measurement

Design

SIWAREX FTC is a function module of SIMATIC S7-300 which can be directly snapped onto the SIMATIC S7-300 or ET 200M backplane bus. The rail mounting of the 80 mm wide weighing module means that it is extremely easy to mount/wire.

The load cells, the RS 485 serial interface, the analog output and the digital inputs and outputs are connected by means of the 40-pin standard front connector, the PC (RS 232) by means of a 9-pin SUB-D connector and the power supply by means of a separate 2-pin connector.

Operation of SIWAREX FTC in SIMATIC enables the belt scale to be completely integrated into the automation system.

Function

The main tasks of SIWAREX FTC are the high-precision measurement of the current weight, and the exact calculation of the conveyed quantity or flow. In "Force measurement" operation mode, SIWAREX FTC measures the force in both directions.

The conveyed quantity can be recorded in 8 totalization memories. Through integration in SIMATIC it is also possible to directly control scale operation by means of a PLC program. This means that the tasks can be sensibly divided: The weighing functions are implemented in the SIWAREX FTC and the interlocking and logic functions for the plant control in the SIMATIC CPU.

Weighing functions

The following operating modes can be set:

Weight measurement and force measurement

In this operating mode, the weight value or the force is determined, processed in the PLC and then displayed.

For this purpose, the configuration package can be selected.

Belt scale / weighfeeder

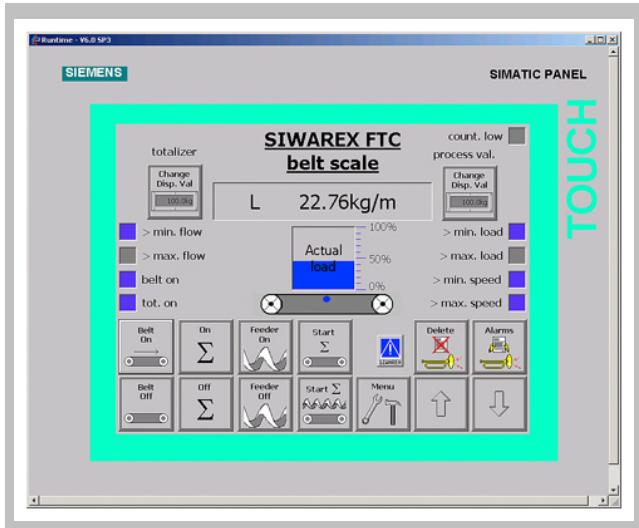
The functions of a belt scale are implemented in this operating mode. Calculations are performed for the typical process values; belt load, flowrate and belt speed. Commands can be used to control the belt and display the required values. A weighfeeder can be implemented by activating the SIMATIC PID controller.

Weighing Electronics

SIWAREX for SIMATIC

Loss-in-weight scales / SIWAREX FTC weighing electronics

Function (Continued)

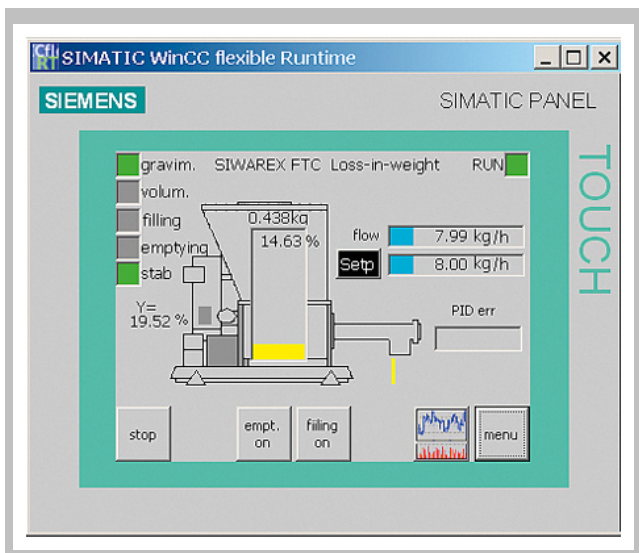


Scale faceplate of a belt scale

Loss-in-weight scale

The typical functions of a loss-in-weight scale are implemented in this operating mode. The actual weight of the vessel is measured and the flowrate is regulated according to the preset setpoint. Application-specific parameters, such as proportioning parameters, and device and material characteristics, can be set directly in SIWAREX FTC. Various commands are available that have been fine-tuned to the requirements of the loss-in-weight scales, such as proportioning (manual, automatic, gravimetric, volumetric), filling and emptying.

The high measurement resolution, real-time signal processing, detection and filtering of signals in the electronic weighing system enable extremely high proportioning accuracy.



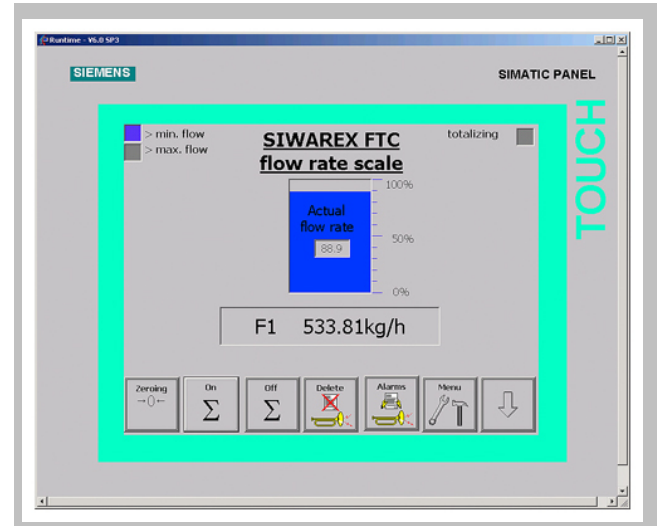
Scale faceplate of a loss-in-weight scale

Solids flowmeter

The typical functions of a solids flowmeter are implemented in this operating mode. The calculations for the typical process values;

Function (Continued)

flow and conveyed quantity, are performed in the SIWAREX module. Application-specific parameters for setting the scales and commands for their operation are also available.



View of a solids flowmeter

Monitoring and control of the load cell signals and statuses

The SIWAREX FTC weighing module monitors the statuses during the weighing process, and informs the operator of any irregularities. The optimized exchange of data within SIMATIC permits direct evaluation of the load cell signals in the PLC program.

Influencing of the weighing sequences by the PLC means that the SIWAREX FTC can be easily adapted to any modifications in system technology.

A module can be replaced without recalibrating the scales. When using "active bus modules", replacement is also possible during operation.



Applications of SIWAREX FTC

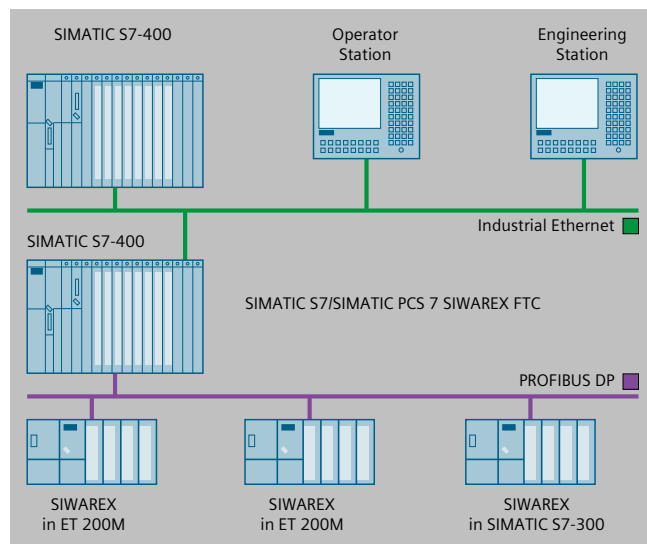
Integration in SIMATIC

SIWAREX FTC is completely integrated into the SIMATIC S7 and SIMATIC PCS 7. Users can freely configure their automation solution – including the weighing application.

The right combination of SIMATIC components can produce optimum solutions for small, medium-size and large plants. The scales are operated and monitored using SIMATIC standard operator panels.

Function (Continued)

Needless to say, these operator panels can also be simultaneously used for the operator control and monitoring of the plant. Custom design or sector-specific solutions can be developed extremely quickly using the configuration package and example applications for SIMATIC.



SIMATIC S7/PCS 7 configuration with SIWAREX FTC (medium-sized plants)

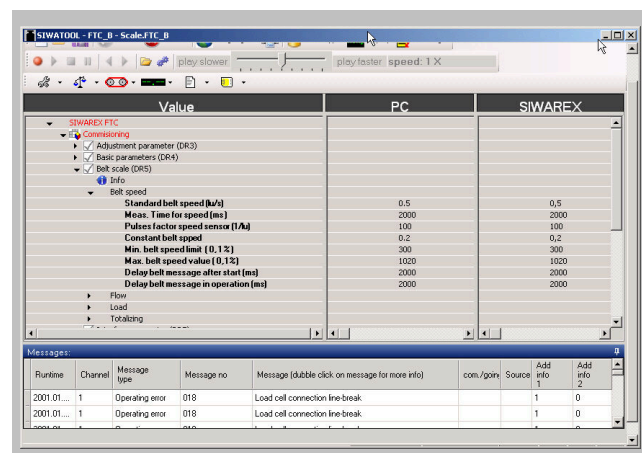
Software

Adjustment of the scale using SIWATOOL FTC

SIWATOOL FTC is a special program for adjusting and servicing the scale and runs with Windows operating systems. The program enables the scales to be commissioned without the need for prior knowledge of the automation system. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading out the diagnostics buffer from the SIWAREX FTC is extremely helpful when analyzing events. The following are just some of the tasks that can be carried out using SIWATOOL FTC:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Saving and printing scale data
- Recording and analysis of weighing sequence

Function (Continued)



Settings in SIWAREX FTC software

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters following reading out from the module.

The SIWAREX FTC weighing module includes a trace mode for checking of weighing sequences. The recorded weight values and associated statuses can be displayed as traces using SIWATOOL FTC and MS Excel.

Upgrading firmware

A further program function can be used to download a new firmware version onto the SIWAREX FTC on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Reading out of weighing reports

The totalization memories can be saved on a MMC (Micro Memory Card) inserted into the SIWAREX FTC.

SIWAREX FTC – simple configuring

Integration in SIMATIC means that freely-programmable, modular weighing systems for belt scales, solids flowmeters and loss-in-weight scales can be created and modified to meet individual operational requirements.

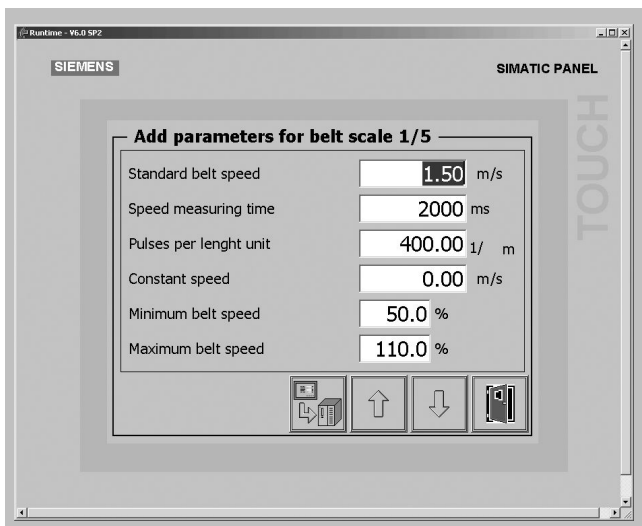
A free version of the ready-to-use SIWAREX FTC "Getting Started" software is also available for the belt scale, solids flowmeter and loss-in-weight scale operation modes. It shows beginners how to integrate the module into the STEP 7 program and provides a basis for application programming. This allows you to implement the belt scale very easily with an operator panel connected directly to the SIMATIC CPU.

Weighing Electronics

SIWAREX for SIMATIC

Loss-in-weight scales / SIWAREX FTC weighing electronics

Function (Continued)



Scale faceplate in the SIWAREX FTC "Getting Started" software

Selection and ordering data (Continued)

	Article No.
SIWAREX FTC "Getting Started" for loss-in-weight scales Sample software shows beginners how to program the scales in STEP 7 for loss-in-weight scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: <ul style="list-style-type: none"> • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: <ul style="list-style-type: none"> • SIWAREX FTC_L (Loss-in-weight) 	7MH4900-1AK61
SIWATOOL connection cable from SIWAREX FTC with serial PC interface, for 9-pin PC interfaces (RS 232) <ul style="list-style-type: none"> • 2 m long (6.56 ft) • 5 m long (16.40 ft) 	7MH4702-8CA 7MH4702-8CB
40-pin front connector with screw contacts Required for each SIWAREX module <ul style="list-style-type: none"> • With screw contacts • With spring-loaded terminals 	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0
Shield connection element Sufficient for one SIWAREX FTC module	6ES7390-5AA00-0AA0
Shield connection clamp Content: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: <ul style="list-style-type: none"> • Scale connection • RS 485 interface • RS 232 interface 	6ES7390-5CA00-0AA0
S7 DIN rail <ul style="list-style-type: none"> • 160 mm (6.30 inch) • 480 mm (18.90 inch) • 530 mm (20.87 inch) • 830 mm (32.68 inch) • 2 000 mm (78.74 inch) 	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0 6ES7390-1AJ30-0AA0 6ES7390-1BC00-0AA0
MMC memory For data logging up to 32 MB, only for legal-for-trade applications R76, R51 and R107	7MH4900-2AY21
Accessories	
SIWAREX EB extension box For extending sensor cables.	7MH4710-2AA

Selection and ordering data

	Article No.
SIWAREX FTC Electronic weighing system for S7-300 and ET 200M. Applications: Belt scales, force measurement, loss-in-weight scales and solids flowmeters	7MH4900-3AA01
SIWAREX FTC_B Equipment Manual for belt scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC_L Equipment Manual for solids flowmeters and loss-in-weight scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for belt scales Sample software shows beginners how to program the scales in STEP 7 for belt scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for solids flowmeters Sample software shows beginners how to program the scales in STEP 7 for solids flowmeter mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	

Selection and ordering data (Continued)

	Article No.
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	7MH5001-0AA01
Ex interface SIWAREX IS For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> With short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> With short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> For hazardous atmospheres. Sheath color: blue 	7MH4702-8AF
Remote display (optional) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTC via an RS 485 interface. (not suitable for belt scale mode)	
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX FTC	
Use in automation systems S7-300 S7-1500 S7-400 (H) PCS 7 (H)	Directly or via ET 200M Through ET 200M Through ET 200M Through ET 200M
Communication interfaces S7 RS 232 RS 485	Through backplane bus For SIWATOOL or printer connection For remote display or digital load cell
Module parameterization	Using SIMATIC S7 Using SIWATOOL FTC software (RS 232)
Measuring properties Accuracy according to EN 45501 Internal resolution Internal/external updating rate	3 × 6 000 d ≥ 0.5 µV/e +/- 8 million parts 400/100 Hz
Several parameterizable digital filters	Critically damped, Bessel, Butterworth (0.05 ... 20 Hz), mean-value filter
Weighing functions	<ul style="list-style-type: none"> Non automatic weighing instrument, force measurement Belt scale Loss-in-weight scale Solids flowmeters
Load cells 3 characteristic value ranges	Strain gauges in 4-wire or 6-wire system 1, 2 or 4 mV/V
Load cell powering Supply voltage U_s (rated value) Max. supply current Permissible load cell resistance	10.3 V DC 184 mA <ul style="list-style-type: none"> R_{Lmin} > 56 Ω > 87 Ω with Ex interface R_{Lmax} ≤ 4 010 Ω
Max. distance of load cells When using the recommended cable:	
Standard	1 000 m (3 280 ft)
In hazardous area ¹⁾	
• For gases of group IIC	300 m (984 ft)
• For gases of group IIB	1 000 m (3 280 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approvals zone 2 and safety	ATEX 95, FM, cULus Haz. Loc.
Auxiliary power supply Rated voltage Max. power consumption Current consumption on backplane bus	24 V DC 500 mA Typ. 55 mA
Inputs/outputs Digital inputs Digital outputs Counter input Analog output	7, electrically isolated 8, electrically isolated Up to 10 kHz
<ul style="list-style-type: none"> Current range Updating rate 	0/4 ... 20 mA 100 Hz
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements $T_{min(IND)} ... T_{max(IND)}$ (operating temperature)	
• Horizontal installation	-10 ... 60 °C (14 ... 140 °F)
• Vertical installation	-10 ... 40 °C (14 ... 104 °F)
EMC requirements	EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	80 × 125 × 130 mm (3.15 × 4.92 × 5.12 inch)

Weighing Electronics

SIWAREX for SIMATIC

Loss-in-weight scales / SIWAREX FTC weighing electronics

Technical specifications (Continued)

SIWAREX FTC	
Weight	600 g (0.44 lb)

¹⁾ For further details, see Ex interface, type SIWAREX IS.

Overview



AI 2xSG 4-/6-wire HS, ET 200SP analog input module for force and torque sensors

Automation with integral force measuring technology

In addition to accuracy when measuring force, incorporating force measuring technology in modern automation systems is also a significant feature.

Due to the direct connection of the force sensor to the SIMATIC-integrated evaluation electronics, there is no need for costly, difficult-to-integrate external interface converters. In addition, the measuring accuracy of SIMATIC-based solutions is increased enormously, because only one A/D conversion takes place before the measured value is available in the automation system. These properties facilitate the integration of a final product test and other tests into the SIMATIC environment.

Weighing Electronics

SIWAREX for SIMATIC

Force and torque measurements / AI 2xSG 4/6-wire HS

Overview



ET 200SP analog input module for force and torque sensors

Selection and ordering data

	Article No.
SIMATIC ET 200SP analog input module, AI 2xSG 4-, 6-wire high speed Suitable for BU type A0 color code CC00, channel diagnostics, 28/16-bit, +/- 0.05% for full-bridge strain gauges	7MH4134-6LB00-0DA0
Accessories SIMATIC ET 200SP, BaseUnit BU15-P16+A0+2B, BU type A0, push-in terminals, without AUX terminals, bridged to the left, W x H: 15 x 117 mm (1.57 x 7.09 in)	6ES7193-68P00-0BA0
SIMATIC ET 200SP, BaseUnit BU15-P16+A0+2D, BU type A0, push-in terminals, without AUX terminals, new load group, W x H: 15 x 117 mm (1.57 x 7.09 in)	6ES7193-68P00-0DA0
SIMATIC ET 200SP, BaseUnit BU15-P16+A10+2B, BU type A0, push-in terminals, with 10 AUX terminals, bridged to the left, W x H: 15 x 141 mm (1.57 x 7.09 in)	6ES7193-68P20-0BA0
SIMATIC ET 200SP, BaseUnit BU15-P16+A10+2D, BU type A0, push-in terminals, with 10 AUX terminals, new load group, W x H: 15 x 141 mm (1.57 x 7.09 in)	6ES7193-68P20-0DA0
SIMATIC ET 200SP, 5 shield connection clamps and 5 shield supports, for direct connection	6ES7193-65C00-1AM0

Technical specifications

SIMATIC ET 200SP, analog input module, AI 2xSG 4-, 6-wire high speed

General information	
Product type designation	AI 2xSG 4-/6-wire HS
Product function	
• I&M data	Yes, I&M0 to I&M3
• Measuring range scalable	Yes
• Measured values scalable	No
• Measuring range adaptation	Yes; ± 0.5 ... 320 mV/V
Engineering with	
• STEP 7 TIA Portal can be configured/integrated as of version	V14 SP1
• STEP 7 can be configured/integrated as of version	V5.6
• PROFIBUS as of GSD version/GSD revision	V03.01.105
• PROFINET as of GSD version/GSD revision	GSDML V2.33
Operating mode	
• Oversampling	Yes; 2 channels per module
• MSI	No
CIR – Configuration in RUN	
Parameter reassignment possible in RUN	Yes
Calibration possible in RUN	No
Supply voltage	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Analog inputs	
No. of analog inputs	2; differential inputs
Cycle time (all channels), min.	100 µs
Analog input with oversampling	Yes
• Values per cycle, max.	14
• Resolution, min.	100 µs
Input ranges	
• Strain gauge (full bridge)	Yes
Cable length	
• Shielded, max.	500 m
Generation of analog input values	
Measuring principle	Sigma delta
Integration and conversion time/resolution per channel	
• Resolution with overrange (bits including sign), max.	28 bits; 16 bits with oversampling
• Configurable integration time	Yes
• Interference voltage suppression for interference frequency f1 in Hz	60 / 50 Hz / no
• Conversion time (per channel)	100 µs
Measured value smoothing	
• IIR low-pass filter frequency	0.01 ... 600 Hz
• IIR low-pass filter ordinal number	1 ... 4
• Notch filter frequency	0.1 ... 1 000 Hz
• Notch filter quality	5.00 ... 250.00
• Average value filter	0.1 ... 655.3 ms
Encoders	
Connection of sensors	
• For strain gauge (full bridge) with 4-wire connection	Yes
• For strain gauge (full bridge) with 6-wire connection	Yes
• Resistance of full bridge min.	80 W
• Resistance of full bridge max.	5 000 W

Technical specifications (Continued)

SIMATIC ET 200SP, analog input module, AI 2xSG 4-, 6-wire high speed	
Errors/accuracies	
Temperature coefficient zero point	$\leq \pm 0.25$ mV/K
Temperature coefficient, span 4-wire connection (in relation to end value)	$\leq \pm 5$ ppm/K
Temperature coefficient, span 6-wire connection (in relation to end value)	$\leq \pm 10$ ppm/K
Basic error limit (operational limit at 25 °C)	
• Voltage, related to input range, (+/-)	0.05%; see manual for details
Isochronous mode	
Isochronous mode (application synchronized up to terminal)	Yes
Filter and processing (TWE), min.	87 μ s
Bus cycle time (TDP), min.	125 μ s
Interrupts/diagnostics/status information	
Diagnostic function	Yes
Interrupts	
• Diagnostic interrupt	Yes
• Limit alarms	Yes, two high and two low limits
Diagnostic messages	
• Monitoring of supply voltage	Yes
• Wire break	Yes
• Short circuit	Yes
• Group error	Yes
• Overflow/underflow	Yes
Diagnostics LED	
• Monitoring of supply voltage (PWR LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• For channel diagnostics	Yes; red LED
• For module diagnostics	Yes; green/red DIAG LED
Galvanic isolation Galvanic isolation of channels	
• Between the channels and backplane bus	Yes
Insulation	
Insulation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions Ambient temperature in operation	
• Horizontal mounting, min.	-25 °C
• Horizontal mounting, max.	60 °C
• Vertical mounting, min.	-25 °C
• Vertical mounting, max.	50 °C
Operating height in relation to sea level	
• With reference to ambient temperature, air pressure and altitude	$T_{\min} \dots T_{\max}$ at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) $T_{\min} \dots (T_{\max} - 1 \text{ K}/100 \text{ m})$ at 795 hPa ... 701 hPa (+2 000 m ... +3 000 m)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weight	
Weight, approx.	45 g

Weighing Electronics

SIWAREX for SIMATIC

Ex-Interfaces / Introduction

Overview



SIWAREX IS, Ex interface

Additional parts are required aside from the weighing modules in order to construct scales. Special interface modules are used for scales in hazardous areas. The recommended cable and connection lengths are listed together with the weighing modules.

Overview



SIWAREX IS New Generation

The Ex interface SIWAREX IS can be used for SIWAREX weighing modules. It comprises six safety barriers and has been granted the approvals stated in the technical data. The Ex interface must be installed outside the potentially explosive area. It is installed inside the control cabinet, preferably under the electronic weighing system, and fixed using a 35 mm mounting rail.

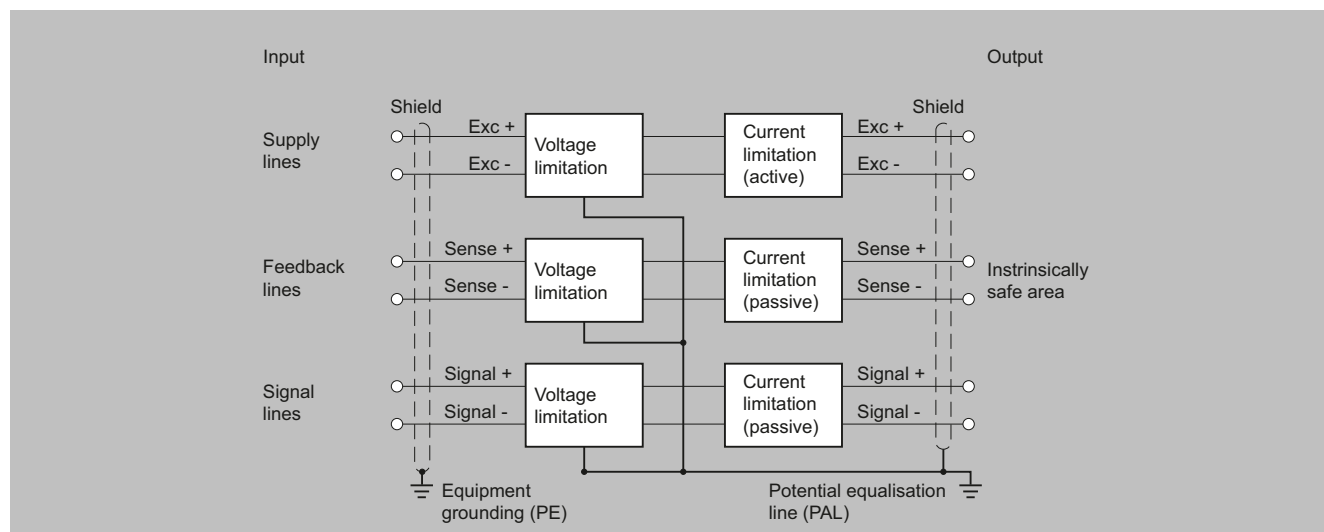
The SIWAREX IS only interferes with the load cell signal to a very small extent and is therefore approved for scales requiring official calibration.

The connection is made at the front using two clamp-type plugs. A separate screw terminal is available for connection of the equipotential bonding conductor (EBC).

Function

Operating principle

The safety barriers limit current and voltage in the supply, sensor and measured signal cables of load cells that are installed in hazardous areas.



Function diagram

Weighing Electronics

SIWAREX for SIMATIC

Ex-Interfaces / SIWAREX IS Ex interface

Selection and ordering data

	Article No.
Ex interface SIWAREX IS For intrinsically-safe connection of load cells. Suitable for SIWAREX electronic weighing systems. The compatibility of the load cells must be checked.	
<ul style="list-style-type: none"> With short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> With short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional) Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> Sheath color (for hazardous atmospheres): blue 	7MH4702-8AF

Technical specifications

Ex interface, type SIWAREX IS	Standard	Low-current version
Non-intrinsically-safe circuits		
Load cell powering		
Rated voltage U_{n1}	10 V DC	10 V DC
Permissible error voltage	250 V AC	250 V AC
Internal resistance of load cells depending on input voltage	$\geq 8.7 \Omega/V$	$\geq 18 \Omega/V$
Total	$< 4\,010 \Omega$	$< 4\,010 \Omega$
Sensor line		
Rated voltage U_{n2}	10 V DC	10 V DC
Permissible error voltage	250 V AC	250 V AC
Measuring signal line		
Rated voltage U_{n3}	10 ... 40 mV DC	10 ... 40 mV DC
Permissible error voltage	250 V AC	250 V AC
Intrinsically safe circuits		
Load cell powering		
No-load voltage U_{01}	$\leq 13.1 \text{ V DC}$	$\leq 13.1 \text{ V DC}$
Voltage against equipotential bonding cond.	$\leq 6.6 \text{ V DC}$	$\leq 6.6 \text{ V DC}$
Short-circuit current I_{K1}	$\leq 120 \text{ mA}$	$\leq 58 \text{ mA}$
Sensor line		
No-load voltage U_{02}	$\leq 14.4 \text{ V DC}$	$\leq 14.4 \text{ V DC}$
Voltage against equipotential bonding cond.	$\leq 7.2 \text{ V DC}$	$\leq 7.2 \text{ V DC}$
Short-circuit current I_{K2}	$\leq 25 \text{ mA}$	$\leq 25 \text{ mA}$
Measuring signal line		
No-load voltage U_{03}	$\leq 12.8 \text{ V DC}$	$\leq 12.8 \text{ V DC}$
Voltage against equipotential bonding cond.	$\leq 6.4 \text{ V DC}$	$\leq 6.4 \text{ V DC}$
Short-circuit current I_{K3}	$\leq 54 \text{ mA}$	$\leq 54 \text{ mA}$

Technical specifications (Continued)

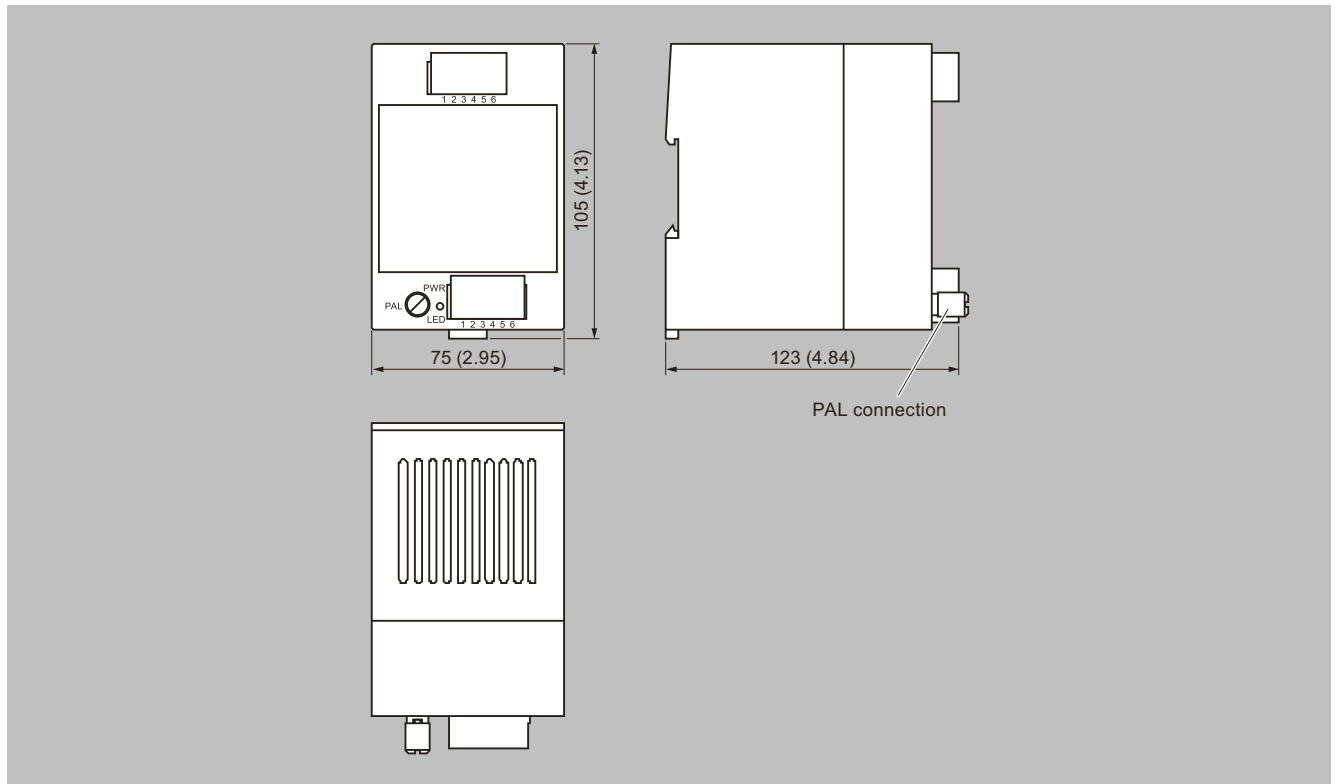
Ex interface, type SIWAREX IS	Standard	Low-current version
Total connection load (when circuits are connected together)		
No-load voltage U_0	≤ 14.4 V DC	≤ 14.4 V DC
Short-circuit current I_k	≤ 199 mA	≤ 137 mA
Power P_0	≤ 1.835 W	≤ 1.025 W
<u>For gas group II C</u>		
Max. permissible external capacitance C_{a3}	500 nF	450 nF
Max. permissible external inductance L_a	0.15 mH	0.5 mH
<u>For gas group II B</u>		
Max. permissible external capacitance C_{a3}	2 000 nF	2 000 nF
Max. permissible external inductance L_a	1 mH	2 mH
General data		
Weight, approx.	500 g	500 g
Permissible ambient temperature		
• During operation	-10 ... +60 °C (14 ... 140 °F) (for vertical mounting)	-10 ... +60 °C (14 ... 140 °F) (for vertical mounting)
• During operation for legal-for-trade weighing machines	-10 ... +40 °C (14 ... 104 °F) (for vertical mounting)	-10 ... +40 °C (14 ... 104 °F) (for vertical mounting)
• During transportation and storage	-40 ... +85 °C (-40 ... +185 °F)	-40 ... +85 °C (-40 ... +185 °F)
Permissible relative humidity	$\leq 95\%$	$\leq 95\%$
Degree of protection	IP20	IP20
Approvals		
EC type test certificates No.	TÜV 01 ATEX 1722 X	TÜV 01 ATEX 1722 X
Type of explosion protection	Intrinsic safety "i" II (2) G [Ex ibGb] IIC or II (2) D [EX ib Db] IIIC	Intrinsic safety "i" II (2) G [Ex ibGb] IIC or II (2) D [EX ib Db] IIIC
IEC certification	IECEX TUN 06.0002 X [Ex ib Gb] IIC or [Ex ib Db] IIIC	IECEX TUN 06.0002 X [Ex ib Gb] IIC or [Ex ib Db] IIIC
Calibration approval (German Testing Laboratory test certificate) according to	EN 45501, OIML R76-1, 90/384/EEC	EN 45501, OIML R76-1, 90/384/EEC

Weighing Electronics

SIWAREX for SIMATIC

Ex-Interfaces / SIWAREX IS Ex interface

Dimensional drawings



SIWAREX IS Ex interface, dimensions in mm (inch)

Overview

Stand-alone platform and hopper scales

Weighing silos, vessels or platforms is a standard task in industry. The comprehensive SIWAREX electronics properties and functions can fulfil all requirements.

Platform scales

In the various branches of industry the use of platform scales is bound to very different requirements, in particular with regard to the load classes.

While platform scales can also be used for small loads, road vehicle and track scales are especially suitable for heavy loads.

Hopper scales

In almost every industry, liquids, powders, bulk goods or gases are produced and stored in vessels. To ensure their availability, the exact fill levels of these vessels must be known.

Weighing Electronics

Stand-alone

Platform and hopper scales / SIWAREX WP231 weighing electronics

Overview



SIWAREX WP231 is a versatile, legal for trade weighing module for all simple weighing and force measuring tasks. The compact module is easy to install in the SIMATIC S7-1200 automation system. It can also be operated without a SIMATIC CPU.

Benefits

SIWAREX WP231 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Legal-for-trade according to OIML R-76
- Operation without SIMATIC CPU possible
- Direct connection of an operator panel via Ethernet
- Direct connection of a remote display via RS 485 interface
- Modbus TCP/IP interface
- Modbus RTU interface
- Four digital inputs and outputs, one analog output
- Measurement of weight or force with a high resolution of up to ± 4 million parts and an accuracy of 0.05%
- Simple adjustment of scale using the SIWATOOL V7 program via the Ethernet interface
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Supports replacement of module without recalibration of scales
- Use in hazardous area zone 2
- Connection of digital force compensation load cells from WIPOTEC and Mettler-Toledo (type WM and PBK)

Application

SIWAREX WP231 is the optimum solution wherever load cells are used for measuring tasks. The following are typical SIWAREX WP231 applications:

- Non-automatic weighing instruments, also legal for trade
- Fill level monitoring of silos and bunkers
- Measuring of crane and cable loads
- Load measuring for industrial lifts and rolling mills
- Scales in zone 2 hazardous areas
- Force measuring, hopper scales, platform scales and crane scales

Design

SIWAREX WP231 is a compact technology module in the SIMATIC S7-1200 and can be connected directly via the system bus with S7-1200 components. The rail mounting of the 70 mm (2.76 inch) wide weighing module means that it is extremely easy to mount/wire.

The power supply, load cells, the RS 485, digital input/outputs and the analog output are connected via the screw connector of the weighing module. An RJ45 plug is used for the Ethernet connection.

Function

The primary task of SIWAREX WP231 is the measurement and conversion of sensor voltage into a weight value. Up to three interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

Weighing functions

There are commands available for zeroing and taring. Up to three different tare default values can be activated for this.

SIWAREX WP231 is factory-calibrated. This means the scale can be automatically adjusted without adjustment weights, and modules can be replaced without the need to readjust the scale.

Monitoring and control of the scale signals and states

In addition to weight determination, the SIWAREX WP231 monitors two freely programmable limits (optionally min/max) as well as the empty range. It signals violations of the limits.

Consistent and uniform communication between all system components enables fast, reliable and cost-effective integration and diagnostics in process plants.

Integration in the plant environment

SIWAREX WP231 is directly integrated into the SIMATIC S7-1200 via the SIMATIC bus. All scale parameters can be read and edited by the CPU. Therefore a complete commissioning of the scales by the CPU or by a connected HMI device is possible. A wide variety of connection options are provided via the RS 485 and Ethernet interface. Via Modbus TCP/IP or Modbus RTU, control panels can be connected and it is also possible to communicate with various automation systems. A remote display can also be connected to the RS 485.

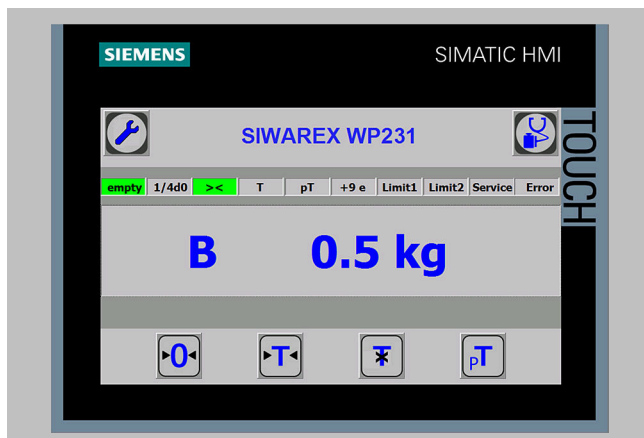
A PC for configuring the SIWAREX WP231 can be connected to the Ethernet interface.

Weight value, status, tare, commands and messages are transmitted via the SIMATIC I/O area. The parameters of the data records can be set via SIWATOOL or with an operator panel connected directly to the weighing electronics.

SIWAREX WP231 can be integrated into the plant software with the aid of a ready-made function block. In contrast to serially linked weighing electronics, SIWAREX WP231 does not need costly additional modules to link it to SIMATIC.

Used in conjunction with SIWAREX WP231, it is possible to configure freely programmable, modular weighing systems in SIMATIC, which can be adapted to company-specific requirements as needed.

Function (Continued)



In addition to the configuration package, a fully-featured SIWAREX WP231 "Ready-for-use" software is also available free-of-charge. It shows beginners how to integrate the module in a TIA Portal program and offers a basis for application programming. This allows you to connect the scale application very easily to an operator panel either connected to the SIMATIC CPU or connected directly to the SIWAREX WP231.

A "Ready-for-use" example program is available in the TIA Portal for applications requiring official calibration. This is designed so that it can be used directly with the legal trade SecureDisplay software. Required is a Windows CE-based operating panel (for example, SIMATIC Comfort Touch series). SIMATIC Basic and Key Panels cannot be used for applications requiring official calibration.

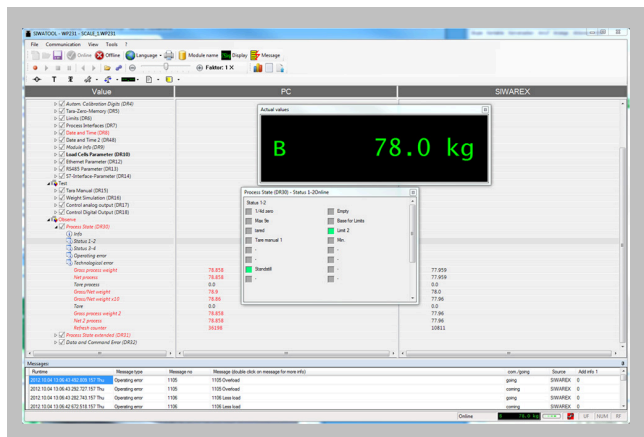
Software

SIWATOOL V7 is a special program for commissioning and servicing and runs with Windows operating systems.

The program enables the user to perform scale calibration without requiring automation engineering skills. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading the diagnostics buffer from the SIWAREX WP231 is extremely helpful when analyzing events.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

- Parameter assignment and calibration of the scale
- Testing of scale properties
- Recording and analysis of weighing sequence



SIWATOOL V7 calibration software, layout of the individual program windows

Function (Continued)

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters from the module in a backup file.

Trace mode is provided to optimize the weighing sequences in the SIWAREX WP231 weighing module. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP231 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Selection and ordering data

	Article No.
SIWAREX WP231 weighing electronics Single-channel, legal-for-trade, for NAWI non-automatic weighing instruments (e.g. platform scales or hopper scales) with analog load cells (1–4 mV/V), 1 x LC, 4 x DQ, 4 x DI, 1 x AQ, 1 RS 485, Ethernet port	7MH4960-2AA01
SIWAREX S7-1200 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP231 "Ready-for-use" Complete software package for non-automatic weighing instrument (for S7-1200 and a directly connected operator panel) Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP231 "Ready-for-use - legal-for-trade" Software package for non-automatic weighing instruments for S7-1200 requiring official calibration Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Software SecureDisplay Software for a legal trade display on Windows CE-based Panel. SIMATIC Basic and Key Panels are excluded Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Calibration set for SIWAREX WP2xx Valid for SIWAREX WP231 and SIWAREX WP251. For verification of up to 3 scales, comprising: • 3 x inscription foils for ID label • 1 x protective film • 3 x calibration protection plates	7MH4960-0AY10

Weighing Electronics

Stand-alone

Platform and hopper scales / SIWAREX WP231 weighing electronics

Selection and ordering data (Continued)

	Article No.
<ul style="list-style-type: none"> Guidelines for verification, certificates and approvals, editable label, SIWAREX WP 	
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP231 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX DB digital terminal box For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics	7MH5001-0AD20
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately. <ul style="list-style-type: none"> Short-circuit current < 199 mA DC Short-circuit current < 137 mA DC 	7MH4710-5BA 7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter. <ul style="list-style-type: none"> Sheath color: orange Sheath color (for hazardous atmospheres): blue 	7MH4702-8AG 7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Remote display (optional) The digital remote displays can be connected directly to the SIWAREX WP231 via the RS 485 interface. Suitable remote display: S102	

Selection and ordering data (Continued)

	Article No.
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP231	
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	<ul style="list-style-type: none"> SIMATIC S7-1200 backplane bus RS 485 (Modbus RTU, Siebert remote display) Ethernet (SIWATOOL V7, Modbus TCP/IP) Analog output 0/4 ... 20 mA 4 × digital outputs 24 V DC, floating, short-circuit proof 4 × digital inputs 24 V DC, floating
Commissioning options	<ul style="list-style-type: none"> Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU
Measuring accuracy EC type approval as non-automatic weighing instrument, trade class III Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K) Internal resolution Measuring frequency	3000 d ± 0.5 µV/e 0.05% Up to ± 4 million parts 100 / 120 Hz
Digital filter	Variable adjustable low-pass and average filter
Typical applications	<ul style="list-style-type: none"> Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors
Weighing functions Weight values Limit values Zeroing Tare Tare specification	<ul style="list-style-type: none"> Gross Net Tare 2 × min/max Empty Per command Per command Per command
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering Supply voltage (regulated via feedback) Permissible load resistance • R _{Lmin} • R _{Lmax} With SIWAREX IS Ex interface • R _{Lmin}	4.85 V DC > 40 Ω < 4 100 Ω > 50 Ω

Technical specifications (Continued)

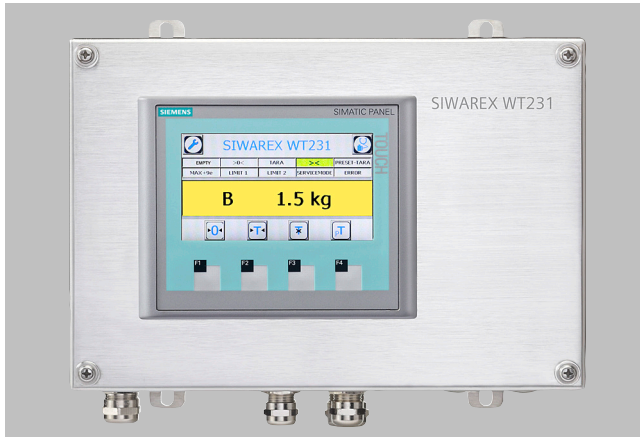
SIWAREX WP231	
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of the measurement signal (with 4 mV/V sensors)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface (compatibility of the load cells must be checked)
Approvals/certificates	<ul style="list-style-type: none"> • ATEX Zone 2 • UL • EAC • KCC • RCM • OIML R76 • Type approval 2009/23/EC (NAWI)
Calibration approval	EC type approval OIML R76
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	200 mA
Max. power consumption SIMATIC Bus	3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min(IND)}$... $T_{max(IND)}$ (operating temperature)	
• Vertical installation	-10 ... +40 °C (14 ... 104 °F)
• Horizontal installation	-10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Weighing Electronics

Stand-alone

Platform and hopper scales / SIWAREX WT231 weighing terminal

Overview



SIWAREX WT231 weighing terminal

The SIWAREX WT231 is a weighing terminal for industrial use. Siemens standard components are installed in a stainless steel enclosure with numerous connection options. This ensures the tried and tested SIWAREX quality for stand-alone solutions and is also ideal for hopper scales and platform scales.

Benefits

SIWAREX WT231 offers the following key advantages:

- Complete solution – no configuration in SIMATIC required
- Fast and easy commissioning due to intuitive operating concept
- Stainless steel enclosure permits applications in many diverse environments
- Integrated terminals for up to 4 load cells (1 ... 4 mV/V)
- Flexible connection to different systems through diverse choice of interfaces:
 - Four digital inputs (24 V DC)
 - Four digital outputs (24 V DC)
 - One analog output (0/4 ... 20 mA)
 - RS 485 interface and Modbus RTU
- High resolution of load cell signal of up to ± 4 million parts
- Comprehensive diagnostics functions
- All diagnostic and error messages, as well as all scale parameters, in plain text
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Simulation mode
- Three freely programmable limit values

Application

SIWAREX WT231 is the optimum solution wherever strain gauge sensors, such as load cells, force sensors or torque measuring shafts, are used for measuring tasks. The following are typical SIWAREX WT231 applications:

- Non-automatic weighing instruments
- Fill-level monitoring of silos and bins
- Measuring of crane and cable loads
- Load measuring for industrial elevators and rolling mills
- Force measuring, hopper scales, platform scales and crane scales

Design

SIWAREX WT231 is a stand-alone weighing terminal based on the tried and tested Siemens SIWAREX WP231 products and the Siemens SIMATIC KTP 400 touch display. Along with a connection board and a wide-range power supply, these components are pre-installed in a compact, stainless steel enclosure.

The enclosure can be wall mounted and has 9 cable entries, of which 5 are equipped with cable glands at the factory. A variety of interfaces support the integration into the plant environment. The SIWAREX WT231 is preconfigured with the SIWAREX "Ready-for-use" software. This means that no further commissioning is required in SIMATIC.

Function

The primary task of SIWAREX WT231 is the measurement and conversion of sensor voltage into a weight value. Up to three interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

Weighing functions

There are commands available for zeroing and taring. Up to three different tare default values can be activated. The SIWAREX WT231 is calibrated at the factory. This means the scale can be automatically adjusted without adjustment weights, and modules can be replaced without the need to readjust the scale.

Monitoring and control of the scale signals and states

In addition to weight determination, the SIWAREX WT231 monitors two freely programmable limits (optionally min/max) as well as the empty range. A violation of the limit values is signaled.

1.3.1 Limits					
	Limit 1		Limit 2		Empty range
Limit "ON"	99.00	%	50.00	%	1.00 %
Delay "ON"	0.000	s	0.000	s	1.000 s
Limit "OFF"	98.00	%	49.00	%	% of 100.0 kg
Delay "OFF"	0.000	s	0.000	s	
Reference	Gross weight (% of max. weigh)				

SIWAREX WT231 operating view "Limit values"

Software

The touch panel is preconfigured with the SIWAREX "Ready-for-use" software. This gives the user interface a clear structure and makes it intuitive to operate: English, German, French and Chinese versions are available. The structured menu-based operation facilitates the operation of the scale and supports the user through guided commissioning.

A variety of diagnostics options is also offered: Using the trace function, weighing histories can be recorded and exported. A further option also makes it possible to simulate the behavior of the scale. The service tool "SIWATOOL V7", which is included in the optional configuration package, is required for reading out this trace data. In addition, using SIWATOOL a scale backup can be created and reimported whenever required. This means that in the event of a fault, the WT231 can be replaced within seconds, without the need for recalibration.

Integration

Integration in the plant environment

Using the onboard RS 485 interface and the Modbus RTU protocol, the SIWAREX WT231 can be connected to a wide range of different automation systems or to a PC.

Four digital inputs, four digital outputs and one analog output are also available. Direct, straightforward further processing of alarms or status messages is thus made possible.

Selection and ordering data

	Article No.
SIWAREX WT231 Weighing terminal for industrial scales	7MH4965-2AA01
SIWAREX WT231 Equipment Manual In various languages. Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Accessories	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WT231 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Protective film 4" widescreen For KTP400 Basic 1 st Generation, KTP400 Basic 2 nd Generation and KTP400 Comfort	6AV2124-6DJ00-0AX0
Spare parts	
Connection board SIWAREX WT2x1 For connecting load cells and speed sensor in SIWAREX WT2x1 as spare part	A5E46650277
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• Sheath color (for hazardous atmospheres): blue	7MH4702-8AF

Technical specifications

SIWAREX WT231	
Enclosure	Stainless steel enclosure (1.4301) with the interfaces: <ul style="list-style-type: none"> • 1 × wall bushing for power supply • 4 × wall bushing for load cell connection with EMC screw connection • 4 × wall bushing with blanking plugs • Ground connection bolt
Connection board	Internal connection board <ul style="list-style-type: none"> • Connection of up to 4 load cells • Device version of analog output • 24 V direct voltage design
Integration in automation systems Any automation systems	Via RS 485 (Modbus RTU)
Communication interfaces	<ul style="list-style-type: none"> • RS 485 (Modbus RTU) • 4 digital outputs (24 V DC) • 4 digital inputs (24 V DC) • 1 analog output (0/4 ... 20 mA)
Commissioning options for the scale	Directly via the color touch panel and the preinstalled "Ready-for-use" operating software
Calibration approval	No
Internal resolution	Up to ± 4 million parts
Number of measurements/second (internal)	100 Hz
Filter	<ul style="list-style-type: none"> • Low-pass filter 0.1 ... 50 Hz • Average value filter
Weighing functions	
Weight values	<ul style="list-style-type: none"> • Gross • Net • Tare
Limit values	<ul style="list-style-type: none"> • Min/max • Empty
Zero-setting function	Per command
Tare function	Per command
Tare specification	Per command
Load cells	Strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance	
• R_{Lmin}	> 40 Ω
• R_{Lmax}	< 4 100 Ω
With SIWAREX IS Ex interface	
• R_{Lmin}	> 50 Ω
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of measuring signal (at greatest set characteristic value)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Auxiliary power supply	
Rated voltage	100 ... 240 V AC
Line frequency	50 ... 60 Hz
Max. power consumption	0.12 A
IP degree of protection to EN 60529; IEC 60529	IP65
Climatic requirements T_{min} (IND) ... T_{max} (IND) (operating temperature)	
• Vertical installation	0 ... +40 °C (32 ... 104 °F)
EMC requirements according to	EN 45501
Dimensions	264 × 185 × 97 mm (10.39 × 7.28 × 3.82 inch)

Weighing Electronics

Stand-alone

Platform and hopper scales / SIWAREX WT231 weighing terminal

Technical specifications (Continued)

SIWAREX WT231

Weight	4 kg (8.82 lb)
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Overview



Stand-alone belt scales

The gravel, cement, coal, recycling and mining industries require exact weight measurement of the material to be conveyed using belt scales. The comprehensive SIWAREX electronics properties and functions can fulfil all requirements.

The Milltronics belt scales from Siemens combine simple installation and low maintenance costs (no moving parts) with higher reproducibility. This results in high productivity. With minimum hysteresis and maximum linearity, lateral forces have no influence on measuring accuracy. All load cells are equipped with overload protection. The installation of belt scales in danger zones is also available as option. Various versions are available for high accuracy, small loads and heavy loads.

Weighing Electronics

Stand-alone

Belt scales / SIWAREX WP241 weighing electronics

Overview



SIWAREX WP241 is a flexible weighing module for belt scales. The compact module is easy to install in the SIMATIC S7-1200 automation system. It can also be operated as a stand-alone module, i.e. without a SIMATIC CPU.

Benefits

SIWAREX WP241 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Operation without SIMATIC CPU possible
- Direct connection of an operator panel via Ethernet
- Four digital inputs and outputs, one analog output
- Measurement of weight with a high resolution of ± 4 million parts
- Simple adjustment of belt scales using the SIWATOOL V7 program via the Ethernet interface - even without knowledge of SIMATIC
- Replacement of module possible without renewed calibration of the scale
- Use in hazardous area zone 2
- Different calibration methods: With test weights, test chain, automatically or via material batch.
- Specification of belt inclination angle
- 6 totalization memories
- Simulation of speed and belt load for test purposes
- Comprehensive diagnostics functions

Application

SIWAREX WP241 is the optimal solution wherever belt scales are used that demand high accuracy, high user-friendliness, and flexible system integration. The typical applications of the SIWAREX WP241 are determining the current material flow rate, belt load, and belt speed. Furthermore, 6 totalizers are available for evaluating the amount of material conveyed.

Design

SIWAREX WP241 is a compact technology module in the SIMATIC S7-1200, and it allows direct connection to S7-1200 components via a sliding connector. The rail mounting of the 70 mm (2.76 inch) wide weighing module means that it is extremely easy to mount/wire.

The power supply, load cells, RS 485 interface, digital input/outputs and the analog output are connected via the screw plug of the weighing module. An RJ45 plug is used for the Ethernet connection.

Function

The primary task of the SIWAREX WP241 is to measure the speed of the belt, to measure and convert the sensor voltage to a weight value, and to precisely calculate the amount of material conveyed or material flow rate.

The volume of material conveyed can be recorded in 6 totalization memories: The accumulated totalization memory determines the conveyed material over the entire operating time of the scale (can only be reset by loading the factory settings). The overall total and the four remaining totalization memories are available for use as required. For example, for recording the daily or weekly totals. Four different options are available for rapid commissioning:

• Automatic calibration

The calibration is calculated automatically using the load cell parameters entered. Only the zero point has to be calculated at the actual plant.

• Calibration with calibration weights or test weights

Test weights are secured to the weighing equipment and the conveyor belt is started. The calibration values are determined while the belt is running. The zero point must also be calculated.

• Calibration with test chain

Instead of test weights, a chain of a known weight can be placed on the measuring points of the belt. The calibration values are calculated as for calibration with test weights.

• Calibration via material batch

This method can be used if a volume of material is available, but neither test weights nor a chain are available. The material can either be preweighed or weighed afterwards. It is conveyed over the belt scale. Then the weighing module calculates the calibration characteristic automatically.

If "Automatic set to zero" is active, the electronic weighing system automatically executes a "set to zero" procedure when the belt reaches the "set to zero" area.

Extensive diagnostics functions are available. Diagnostic messages are output to the different interfaces. In simulation mode, both the speed and the belt load can be specified by the user. This makes it possible to test many functions in advance without operating belt scales. Both the digital inputs/outputs and the analog output can also be simulated for test purposes. The "Trace" function is extremely helpful for optimizing the plant or when troubleshooting. It records the weighing history stored in the internal module memory (e.g. material flow rate, belt load, speed) and exports it to Excel in a graphical format.

Monitoring the scale signals and states

The SIWAREX WP241 monitors the belt load, the material flow rate, and the belt speed, and it signals if the limits are exceeded. The respective limits can be parameterized as required.

Consistent and uniform communication between all system components enables fast, reliable and cost-effective integration and diagnosis in industrial processes.

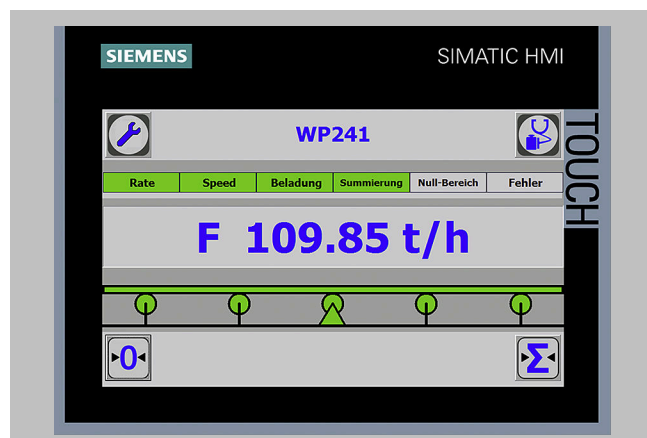
Integration in the plant environment

SIWAREX WP241 can be directly integrated into the SIMATIC S7-1200 via the SIMATIC bus. Standalone operation without SIMATIC is also possible.

A wide variety of connection options are provided via the RS 485 and Ethernet interface. Via Modbus TCP/IP or Modbus RTU, control panels can be connected and it is also possible to communicate with various automation systems. A PC for programming the SIWAREX WP241 via SIWATOOL can be connected to the Ethernet interface.

SIWAREX WP241 can be integrated into the system software using all standard PLC programming languages from the TIA Portal. In contrast to serially linked weighing electronics, SIWAREX WP241 does not need costly additional modules to link it to SIMATIC. Used in conjunction with SIWAREX WP241, it is possible to configure freely programmable, modular weighing systems in SIMATIC, which can be adapted to company-specific requirements as needed.

Function (Continued)



SIWAREX WP241 "Ready-for-use"

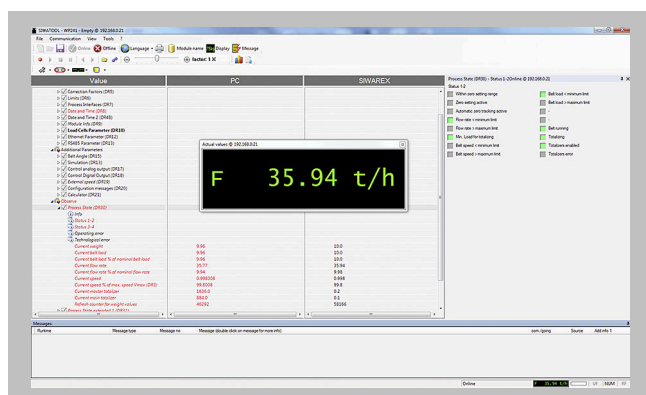
In addition to the configuration package, fully-featured SIWAREX WP241 "Ready-for-use" software is also available free-of-charge. It shows beginners how to integrate the module in a STEP 7 program and offers a basis for application programming. This allows you to connect the scale to an operator panel either connected to the SIMATIC CPU or connected directly to the SIWAREX WP241.

Software

There is also the option of using a Windows PC for commissioning and servicing. The program SIWATOOL enables the belt scales to be set without prior knowledge of the automation system, as required. During servicing, the technician can use a PC to quickly and simply analyze and test the procedures in the scale.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

- Parameterization and calibration of the scale
- Testing/Simulation of scale properties
- Recording, analysis and export of scale traces ("Trace")
- Creation of backup files for rapidly replacing modules without calibration



SIWAREX WP241 SIWATOOL

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters following reading out from the module.

The SIWAREX WP241 weighing module includes a trace mode for optimization of weighing sequences. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Function (Continued)

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP241 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

Selection and ordering data

	Article No.
SIWAREX WP241 weighing electronics Single-channel, for belt scales with analog load cells / full-bridge strain gauges (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port	7MH4960-4AA01
SIWAREX S7-1200 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP241 "Ready-for-use" Complete software package for belt scale (for S7-1200 and a directly connected operator panel) Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP241 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> • Short-circuit current < 199 mA DC 	7MH4710-5BA
<ul style="list-style-type: none"> • Short-circuit current < 137 mA DC 	7MH4710-5CA
Cable (optional)	

Weighing Electronics

Stand-alone

Belt scales / SIWAREX WP241 weighing electronics

Selection and ordering data (Continued)

	Article No.
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange 	7MH4702-8AG
<ul style="list-style-type: none"> Sheath color (for hazardous atmospheres): blue 	7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6E55728-8MA11

Technical specifications

SIWAREX WP241	
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	<ul style="list-style-type: none"> SIMATIC S7-1200 backplane bus RS 485 (Modbus RTU) Ethernet (SIWATOOL V7, Modbus TCP/IP) Analog output 0/4 - 20 mA 4 × digital outputs, 24 V DC, floating, short-circuit proof 4 × digital inputs 24 V DC, floating
Commissioning options	<ul style="list-style-type: none"> Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU
Measuring accuracy Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K) Internal resolution Measuring frequency	0.05% Up to ± 4 million parts 100 / 120 Hz
Digital filter Filter for conveyor load Filter for belt speed	Separate, variable adjustable low-pass and average filter for loading and speed Low-pass filter (limit frequency 0.05 ... 50 Hz) Low-pass filter (limit frequency 0.05 ... 50 Hz)
Weighing functions Readout data Limits (min/max)	<ul style="list-style-type: none"> Weight Belt load Material flow rate Accumulated total Main total Free totals 1 ... 4 Belt speed Belt load Material flow rate Belt speed

Technical specifications (Continued)

SIWAREX WP241	
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering Supply voltage (regulated via feedback) Permissible load resistance	4.85 V DC > 40 Ω < 4 100 Ω
With SIWAREX IS Ex interface	<ul style="list-style-type: none"> R_{Lmin} > 50 Ω R_{Lmax} < 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible measurement signal range	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface (compatibility of the load cells must be checked)
Approvals/certificates	<ul style="list-style-type: none"> ATEX Zone 2 UL EAC KCC RCM
Auxiliary power supply Rated voltage Max. power consumption Max. power consumption SIMATIC Bus	24 V DC 200 mA 3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements T _{min} (IND) ... T _{max} (IND) (operating temperature)	<ul style="list-style-type: none"> Vertical installation -10 ... +40 °C (14 ... 104 °F) Horizontal installation -10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Overview



The SIWAREX WT241 is a weighing terminal for belt scales. Siemens standard components are installed in a stainless steel enclosure with numerous connection options. This ensures the tried and tested SIWAREX quality as standalone solution and is ideal for belt scales.

Benefits

SIWAREX WT241 offers the following key advantages:

- Complete solution – no configuration in SIMATIC required
- Fast and easy commissioning due to intuitive operating concept
- Stainless steel enclosure permits applications in many diverse environments
- Integrated terminals for up to 4 load cells (1 ... 4 mV/V)
- Flexible connection to different systems through diverse interfaces
 - Four digital inputs (24 V DC)
 - Four digital outputs (24 V DC)
 - One analog output (0/4 ... 20 mA)
 - RS 485 interface and Modbus RTU
- High resolution of load cell signal of up to ± 4 million parts
- Comprehensive diagnostics functions
- All diagnostic and error messages, as well as all scale parameters, in plain text
- Recovery point for simple restoration of all parameters
- Multiple calibration methods: using test weights, test chain, automatically or via material batch
- Specification of belt inclination angle
- 6 separately resettable totalization memories
- Simulation of speed and belt load for test purposes
- Parameterizable pulse signal (24 V DC) for external totalizer
- Correction of material flow rate by means of correction factor

Application

SIWAREX WT241 is the optimal solution wherever belt scales are used that demand high accuracy, high user-friendliness, and comprehensive adjustment options.

The typical applications of the SIWAREX WT241 are determining the current material flow rate, belt load, and belt speed. Furthermore, 6 totalizers are available for evaluating the amount of material conveyed.

Design

SIWAREX WT241 is a stand-alone weighing terminal based on the tried and tested Siemens SIWAREX WP241 products and the Siemens SIMATIC KTP 400 touch display. Supplemented with a connection board and a wide-range power supply, these components are preinstalled in a compact stainless steel enclosure. The enclosure can be wall mounted and has nine cable entries, of which five are equipped with cable glands at the factory. A variety of interfaces support the integration into the plant environment.

The integrated connection board permits the direct connection of the belt scales and of the speed sensor.

The SIWAREX WT241 is preconfigured with the SIWAREX "Ready for Use" software. This means that no further commissioning is required in SIMATIC.

Function

The main tasks of the SIWAREX WT241 are:

- To measure the belt speed
- To measure and convert the sensor voltage into a weight value
- To calculate material quantities and flow rates.

The volume of material conveyed is recorded in 6 totalization memories.

Four different options are available for rapid commissioning:

- Automatic calibration
 - The calibration is calculated automatically using the load cell parameters entered. Only the zero point has to be calculated at the actual plant.
- Calibration with calibration weights or test weights
 - Test weights are secured to the weighing equipment and the conveyor belt is started. The calibration values are determined while the belt is running. The zero point must also be calculated.
- Calibration with test chain
 - Instead of test weights, a chain of a known weight can be placed on the measuring points of the belt. The calibration values are calculated as for calibration with test weights.
- Calibration via material batch
 - This method can be used if a volume of material is available, but neither test weights nor a chain are available. The material can either be preweighed or weighed afterwards. It is conveyed over the belt scale. Then the weighing module calculates the calibration characteristic automatically.

If "Automatic set to zero" is active, the electronic weighing system automatically executes a "set to zero" procedure when the belt reaches the "set to zero" area.

Extensive diagnostics functions are available. Diagnostic messages are output to the different interfaces. In simulation mode, both the speed and the belt load can be specified by the user. This makes it possible to test many functions in advance without operating belt scales. Both the digital inputs/outputs and the analog output can also be simulated for test purposes. The "Trace" function is extremely helpful for optimizing the plant or when troubleshooting. It records the weighing history stored in the internal module memory (e.g. material flow rate, belt load, speed) and exports it to Excel in a graphical format.

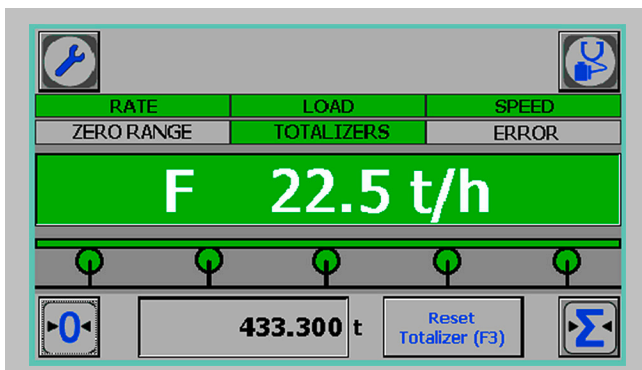
The service tool "SIWATOOL V7", which is included in the optional configuration package, is required for reading out this trace data. In addition, using SIWATOOL a scale backup can be created and reimported whenever required. This means that in the event of a fault, the WT241 can be replaced within seconds, without the need for recalibration.

Weighing Electronics

Stand-alone

Belt scales / SIWAREX WT241 weighing terminal

Function (Continued)



SIWAREX WT241 weighing terminal operating view

Monitoring the scale signals and states

Using the onboard RS 485 interface and the Modbus RTU protocol, the SIWAREX WT241 can be connected to a wide range of different automation systems or to a PC.

Furthermore, 4 digital inputs, 4 digital outputs, and an analog output are available. Direct, straightforward further processing of alarms or status messages is thus made possible.

Software

The touch panel is preconfigured with the SIWAREX "Ready-for-use" software. This gives the user interface a clear structure and makes it intuitive to operate: English, German, French and Chinese versions are available. The structured menu-based operation facilitates the operation of the scale and supports the user through guided commissioning.

Furthermore, a variety of diagnostics options are offered. Using the trace function, weighing histories can be recorded and exported, for example. It is also possible to simulate the behavior of the scale.

Selection and ordering data

Selection and ordering data	Article No.
SIWAREX WT241 Weighing terminal for belt scales	7MH4965-4AA01
SIWAREX WT241 Equipment Manual In various languages. Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Accessories	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WT241 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Protective film 4" widescreen For KTP400 Basic 1 st Generation, KTP400 Basic 2 nd Generation and KTP400 Comfort	6AV2124-6DJ00-0AX0
Spare parts	
Connection board SIWAREX WT2x1 For connecting load cells and speed sensor in SIWAREX WT2x1 as spare part	A5E46650277

Selection and ordering data (Continued)

Selection and ordering data	Article No.
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• Sheath color (for hazardous atmospheres): blue	7MH4702-8AF

Technical specifications

SIWAREX WT241	
Enclosure	Stainless steel enclosure (1.4301) with the interfaces: • 1 × wall bushing for power supply • 4 × wall bushing for load cell connection with EMC screw connection • 4 × wall bushing with blanking plugs • Ground connection bolt
Connection board	Internal connection board • Connection of up to 4 load cells • Device version of analog output • Connection of speed sensor • 24 V direct voltage design
Integration in automation systems Any automation systems	Via RS 485 (Modbus RTU)
Communication interfaces	• RS 485 (Modbus RTU) • 4 digital outputs (24 V DC) • 3 digital inputs (24 V DC) • 1 speed sensor input (24 V DC, up to 5 kHz) • 1 analog output (0/4 ... 20 mA)
Commissioning options for the scale	Directly via the color touch panel and the preinstalled "Ready-for-use" operating software
Calibration approval	No
Internal resolution	Up to ± 4 million parts
Number of measurements/second (internal)	100 Hz
Updating time for material flow rate	100 ms
Filter	
Filter for material flow rate	Low-pass filter 0.1 ... 50 Hz
Filter for weight values	Low-pass filter 0.1 ... 50 Hz
Filter for belt speed	Low-pass filter 0.1 ... 50 Hz
Weighing functions	
Readout data	• Weight • Belt load • Material flow rate • Accumulated total • Main total • Free totals 1 ... 4 • Belt speed

Technical specifications (Continued)

SIWAREX WT241	
Limits (min./max.)	<ul style="list-style-type: none"> • Belt load • Material flow rate • Belt speed
Zero-setting function	On command or automatic set to zero
Load cells	Strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance	
• R_{Lmin}	> 40 Ω
• R_{Lmax}	< 4 100 Ω
With SIWAREX IS Ex interface	
• R_{Lmin}	> 50 Ω
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of measuring signal (at greatest set characteristic value)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Auxiliary power supply	
Rated voltage	100 ... 240 V AC
Line frequency	50 ... 60 Hz
Max. power consumption	0.12 A
IP degree of protection to EN 60529; IEC 60529	IP65
Climatic requirements	
T_{min} (IND) ... T_{max} (IND) (operating temperature)	
• Vertical installation	0 ... +40 °C (32 ... 104 °F)
EMC requirements according to	EN 45501
Dimensions	264 × 185 × 97 mm (10.39 × 7.28 × 3.82 inch)
Weight	4 kg (8.82 lb)

Weighing Electronics

Stand-alone

Belt scales / Milltronics BW500 and BW500/L

Overview



Milltronics BW500 is a full feature integrator for use with both belt scales and weighfeeders.

Milltronics BW500/L is an integrator for use in basic belt scale or weighbelt applications.

Benefits

- Automatic zero and electronic span calibration
- Alarms for rate, load, speed, or diagnostic error
- On-board Modbus and optional: PROFIBUS DP, Modbus TCP/IP, PROFINET, EtherNet/IP, and DeviceNet
- Comprehensive weighfeeder control functions
- PID control and on-line calibration with optional analog I/O card
- Differential speed detection with second speed sensor
- Moisture meter input with optional analog I/O card for calculation of dry weight
- Inclinator input with optional analog I/O card to compensate for conveyor slope
- Suitable for belt scale custody approval
- Measurement Canada, OIML, MID, PAC Russia, and NTEP approved

Application

Milltronics BW500 and BW500/L operate with a belt scale and a speed sensor. Belt load and speed signals are processed for accurate flow rate and totalized weight of bulk solids.

BW500 can take on lower level control functions traditionally handled by other devices, and it supports popular industrial communication buses. Its proven load cell balance function eliminates matching of load cells.

The PID function may be used for rate control on shearing weighfeeders - where belt loading is constant - but can also control pre-feeding devices. Operating in tandem with two or more weighfeeders, the BW500 may be used for ratio blending and controlling additives. Batching, load out, and alarm functions are also provided by the BW500.

Integrator selection guide

	BW500 (advanced feature set)	BW500/L (basic feature set)
PID control	With optional I/O card	N/A
Differential speed detection	Standard	N/A
Online calibration	Standard	N/A
Trade approval (OIML, MID, Measurement Canada, GOST, NTEP)	Optional	N/A
SmartLinx communications (DeviceNet, PROFINET, Modbus, TCP/IP, EtherNet/IP, and PROFIBUS DP)	Optional	Optional
Modbus	Standard	Standard

Application (Continued)

	BW500 (advanced feature set)	BW500/L (basic feature set)
Ratio blending and batching	Standard	N/A
Moisture and incline compensation	<ul style="list-style-type: none"> • With optional I/O card, or • Parameter set 	Parameter set
Multi Span	Standard	N/A
RD500 connectivity	Standard	Standard
Relay output	5	2
Time/date stamped printing	Standard	N/A
mA output	3 ¹⁾	1
mA input	2 ¹⁾	0

¹⁾ mA input/output for BW500 is based on I/O card

Selection and ordering data

Milltronics BW500 and BW500/L Integrator Full-feature, powerful integrator designed for use with both belt scales and weighfeeders.	Article No. 7MH7152- ● ● ● ● ● - ● ● ●									
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.										
Input voltage										
AC voltage					2					
DC voltage					3					
Auxiliary input/output board										
None							A			
Board with 2 analog inputs and 2 analog outputs ¹⁾							B			
Feature software										
BW500, 1 ... 6 load cell input (advanced feature set)								A		
BW500/L, 1 ... 2 load cell input ²⁾ (basic feature set)								B		
Auxiliary memory										
None								0		
Data communications³⁾										
SmartLinX ready									0	
SmartLinX PROFIBUS DP module									2	
SmartLinX DeviceNet module									3	
SmartLinX PROFINET module									4	
SmartLinX EtherNet/IP module									5	
SmartLinX Modbus TCP/IP module									6	
Enclosures										
Standard enclosure, no entry holes										1
Standard enclosure, 4 entries, for M20 glands										2
Trade approval stickers										
No trade approval sticker										A
Not legal for Canadian and EU trade sticker										B
Legal for Canadian trade ⁴⁾⁵⁾⁶⁾										C
Legal for U.S. trade (NTEP) ⁴⁾⁵⁾⁶⁾										D
Legal for World trade (OIML), European trade (MID) ⁴⁾⁵⁾⁶⁾										E
Legal for Russian Trade (PAC) ⁴⁾⁶⁾										F
Approvals										
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, cCSA _{US} , FM, RCM, EAC, KC										A

Weighing Electronics

Stand-alone

Belt scales / Milltronics BW500 and BW500/L

Selection and ordering data (Continued)

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag (69 x 50 mm), Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Manufacturer's test certificate: According to EN 10204-2.2	C11
OIML/MID approval additional nameplate (submit application data with order)	Y77
NTEP approval additional nameplate (submit application data with order)	Y78
LVDT conditioner card mounted and connected for use with LVDT belt scales	G21
Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is field mounted with enclosure)	S50
Stainless steel enclosure, 304 (1.4301), [406 x 305 x 152 mm (16 x 12 x 6 inch), Nema/Type 4X, IP66; (finished unit is mounted inside enclosure)]	
• With window	A11
• Without window	A12
Painted mild steel, [406 x 305 x 152 mm (16 x 12 x 6 inch), Nema/Type 4, IP66; (finished unit is mounted inside enclosure)]	
• With window	A13
• Without window	A14
Painted mild steel, anti-vibration enclosure with viewing window [406 x 305 x 203 mm (16 x 12 x 8 inch), Nema/Type 4, IP66; (finished unit is mounted inside enclosure)]	A15
Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F); finished unit is mounted inside enclosure 483 x 584 x 203 mm (19 x 23 x 8 inch)	A35
Instruction manuals	Article No.
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Optional equipment	
Auxiliary I/O card spare	7MH7723-1BJ
LVDT Conditioners in Nema 4 enclosure (to interface LVDT Flowmeter/Belt scale without internal pre-amplifier)	7MH7723-1AJ
Supply voltage regulators, 120 V AC, 60 Hz	7MH7726-1AN
Cables to connect BW500, BW500/L, and SF500 keypad to -motherboard	7MH7723-1CB
SITRANS RD100 Remote displays, see SITRANS RD100 catalog page: https://support.industry.siemens.com/cs/document/109765059	7ML5741-.....
SITRANS RD200 Remote displays, see SITRANS RD200 catalog page: https://support.industry.siemens.com/cs/document/109765328	7ML5742-.....
SITRANS RD300 Remote displays, see SITRANS RD300 catalog page: https://support.industry.siemens.com/cs/document/109765138	7ML5744-.....
Large LED display, 150 mm (6 inch) high characters	A5E31871009
Spare parts	
Display card	7MH7723-1AF
BW500 motherboard, AC	A5E34320772
BW500/L motherboard, AC	A5E34320773
BW500 motherboard, DC	A5E34320774
BW500/L motherboard, DC	A5E34320775
Fuse, 2 A, 250 V, BW500, BW500/L, and SF500, spare	7MH7723-1DG
Lid with overlay and keypad for BW500	7MH7723-1AK

Selection and ordering data (Continued)

Selection and Ordering data	Order code
Lid with overlay and keypad for trade approved BW500	7MH7723-1HN
Lid with overlay and keypad for BW500/L	A5E34699647
Keypads spare for BW500, BW500/L, and SF500	7MH7723-1CD
LVDT card spare, internal to BW500	A5E34699664
Modbus TCP/IP, EtherNet/IP module	7ML1830-1PN
PROFINET IO module	7ML1830-1PM
PROFIBUS DP module	7ML1830-1HR
DeviceNet module	7ML1830-1HT

- 1) Required for PID control and online calibration, available with feature software option A only.
- 2) Available with auxiliary I/O option A, and trade approval stickers A, B only.
- 3) Required for industrial communications. SmartLinX PROFINET module is certified per standard V2.2.4.
- 4) Requires use with applicable certified MSI or MMI.
- 5) Complete specification data sheet found on the MSI/MMI catalog page and submit with order: <https://support.industry.siemens.com/cs/document/109764828>
- 6) Available with feature software option A only.

Technical specifications

Milltronics BW500 and BW500/L	
Mode of operation	
Measuring principle	Belt scale integrator
Typical application	<ul style="list-style-type: none"> • Compatible with Milltronics belt scales or equivalent 1, 2, 4¹⁾, or 6¹⁾ load cell scales • Compatible with LVDT equipped scales, with use of optional interface board (remotely mounted)
Inputs	
Load cell	0 ... 45 mV DC per load cell
Speed sensor	
• Pulse train	<ul style="list-style-type: none"> • 0 ... 5 V low, 5 ... 15 V high 1 ... 3 000 Hz, or • Open collector switch, or • Relay dry contact
Auto zero	Dry contact from external device
mA	See optional mA I/O board ¹⁾
Auxiliary	5 discrete inputs for external contacts, each programmable for either: display scrolling, totalizer 1 reset, zero, span, multi-span, print, batch reset, PID function or online calibration, 2nd speed sensor
Outputs (load and speed)	
mA	Programmable 0/4 ... 20 mA, for rate, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max. (see optional mA I/O board)
Load cell	10 V DC compensated excitation for strain gauge type, 6 cells max, 150 mA max.
Speed sensor(s)	12 V DC, 150 mA max. excitation
Remote totalizer 1	<ul style="list-style-type: none"> • Contact closure 10 ... 300 ms duration • Solid state relay contact 30 V DC, 100 mA max. • Max. contact on-resistance = 36 ohms • Max. off-state leakage = 1 uA
Remote totalizer 2	<ul style="list-style-type: none"> • Contact closure 10 ... 300 ms duration • Solid state relay contact rated 240 V AC/DC, 100 mA max. • Max. contact on-resistance = 36 ohms • Max. off-state leakage = 1 uA
Relay output	5 alarm/control relays, 1 SPST Form A relay contact per relay, rated 5 A at 250 V AC, non-inductive or 30 V DC
Measuring accuracy	
Resolution	0.02 % of full scale
Accuracy	0.1 % of full scale

Technical specifications (Continued)

Milltronics BW500 and BW500/L	
Rated operating conditions	
Ambient conditions	
Location	Indoor/outdoor
Ambient temperature	-20 ... +50 °C (-5 ... +122 °F)
Relative humidity/ingress protection	Suitable for outdoor/Type 4X/NEMA 4X/IP65
Installation category	II
Pollution degree	4
Design	
Material (enclosure)	Polycarbonate
Dimensions	209 W x 285 H x 92 D mm (8.2 W x 11.2 H x 3.6 D inch)
Weight	2.6 kg (5.7 lb)
Power supply	
Standard	AC version <ul style="list-style-type: none"> • 100 ... 240 V AC, ± 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo DC version <ul style="list-style-type: none"> • 10 ... 30 V DC, 26 W max. • Fuse FU2 = 3.75 A resettable (not user replaceable)
Controls and displays	
Displays	Illuminated 5 x 7 dot matrix liquid crystal display with 2 lines of 40 characters each
Programming	Via local keypad
Memory	Program and parameters stored in non-volatile Flash memory
Communications	<ul style="list-style-type: none"> • Two RS 232 ports • One RS 485 port • SmartLinX compatible
mA I/O board	
Inputs	2 programmable 0/4 ... 20 mA for PID control and on-line calibration, optically isolated, 0.1 % of 20 mA resolution, 200 Ω input impedance
Outputs	2 programmable 0/4 ... 20 mA for PID control, rate, load, and speed output, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max
Output supply	Isolated 24 V DC at 50 mA, short circuit protected
Approvals	
BW500	CE, UKCA, cCSA _{US} , FM, Measurement Canada, NTEP, MID, OIML, PAC Russia, RCM, EAC, SABS, STAMEQ, KC

Weighing Electronics

Stand-alone

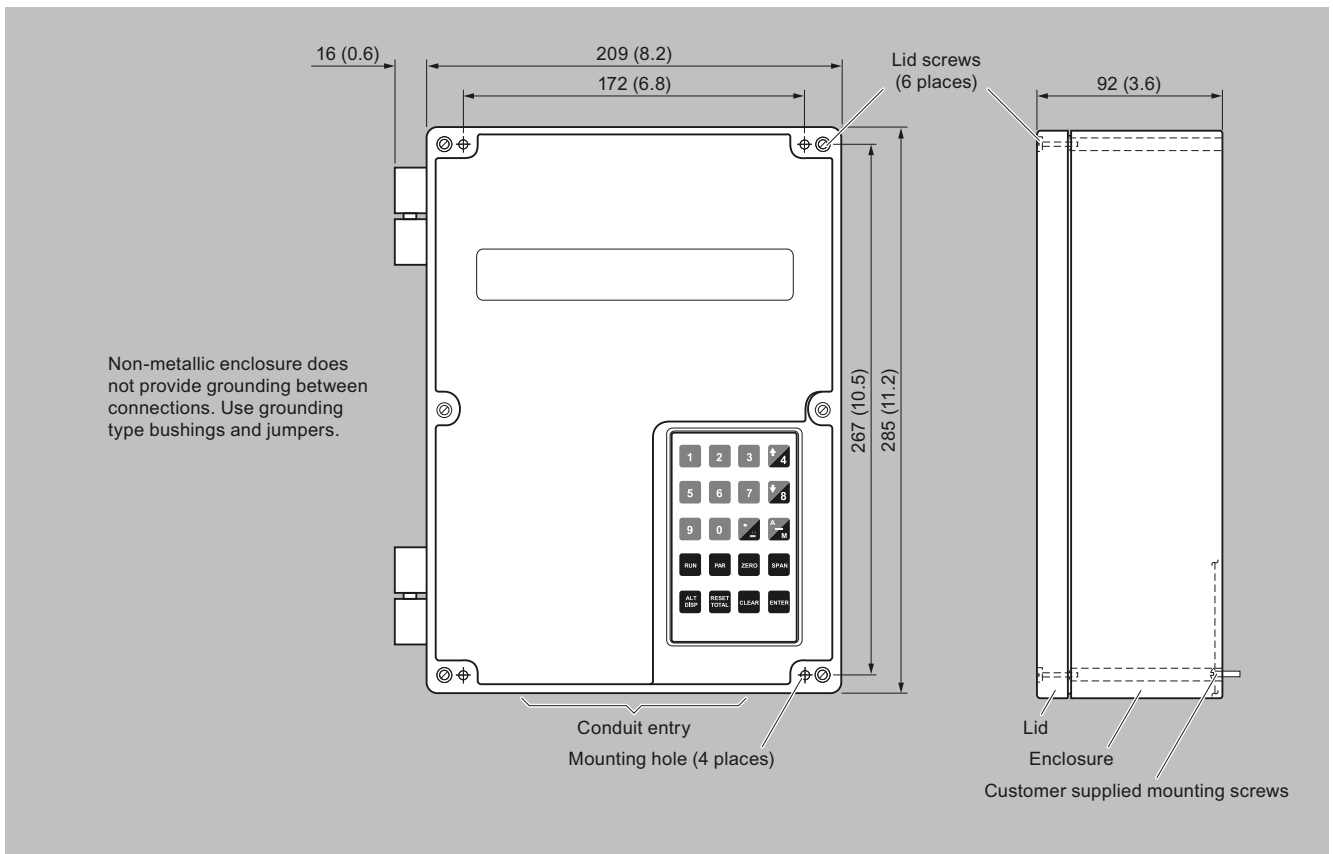
Belt scales / Milltronics BW500 and BW500/L

Technical specifications (Continued)

Milltronics BW500 and BW500/L	
BW500/L	CE, UKCA, cCSA _{US} , FM, RCM, EAC, KC
Options	<ul style="list-style-type: none"> Speed sensor: MD-36/36A, MD-256, SITRANS WS300, TASS, or RBSS, or compatible SmartLinx Modules: protocol specific modules for interface with popular industrial communications systems. Refer to product documentation. LVDT interface card: for interface with LVDT based scales

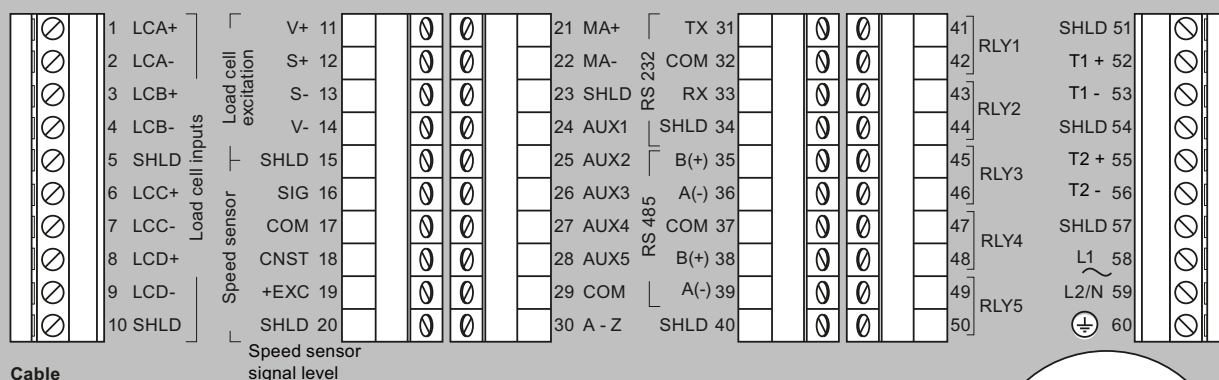
1) BW500 only

Dimensional drawings



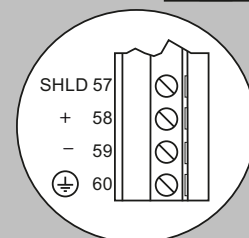
Milltronics BW500 and BW500/L, dimensions in mm (inch)

Circuit diagrams

**Cable**

- One load cell:
 - Non-sensing: Belden 8404, 4 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - Sensing: Belden 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1 000 ft) max.
- Two/four/six¹⁾ load cells:
 - Non-sensing: Belden 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - Sensing: Belden 8418, 8 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1 000 ft) max.
- Speed sensor: Belden 8770, 3 wire shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft)
- Auto zero: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.
- Remote total: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.

¹⁾ For four/six load cell scale, run two separate cables of two load cell configuration



DC version

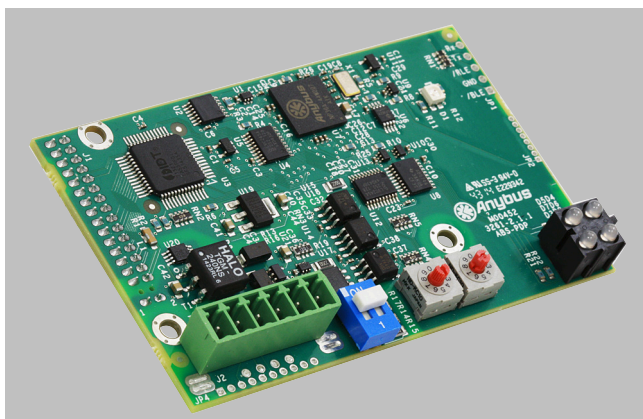
Milltronics BW500 and BW500/L connections

Weighing Electronics

Stand-alone

Belt scales / SmartLinx module

Overview



SmartLinx modules provide direct digital connection to popular industrial communications buses with true plug-and-play compatibility with products manufactured by Siemens.

Benefits

- Fast, easy installation
- Direct connection: no additional installation required
- Scalable application layer allows for optimized network bandwidth and memory requirements (for PROFIBUS DP-V0 and DeviceNet only)
- Modules available for PROFIBUS DP-V0, PROFIBUS DP-V1, PROFINET, DeviceNet, Modbus TCP/IP, and EtherNet/IP

Application

With the addition of a SmartLinx module, Siemens instruments can be connected to a variety of industrial communications networks. They're fast and easy to install, and can be added at any time. The module simply plugs into the socket on any SmartLinx enabled product. They require no secondary private buses or gateways and no separate wiring. There are no extra boxes to connect to your network so there's a minimum load on engineering and maintenance staff.

SmartLinx provides all data from the instrument, including measurement and status, and allows changes to operation parameters to be done over the bus or telemetry link. The user can select which data in the application layer to transfer over the bus. This selection saves bandwidth and memory and optimizes data throughput and speeds up the network, enabling you to connect more instruments to your network.

Selecting a communications module: PROFIBUS DP-V0 versus PROFIBUS DP-V1

The PROFIBUS DP-V1 card was added to MultiRanger 200 HMI and HydroRanger 200 HMI to provide acyclic communication and SIMATIC PDM support over PROFIBUS and PROFINET. For backward compatibility, the PROFIBUS DP-V0 card can also be used with MultiRanger 200 HMI and HydroRanger 200 HMI.

MultiRanger 100/200, HydroRanger 200, BW500/L, and SF500 are compatible only with the PROFIBUS DP-V0 module.

Selection and ordering data

Selection and Ordering data	Article No.
SmartLinx modules provide direct digital connection to popular industrial communications buses with true plug-and-play compatibility with products manufactured by Siemens.	
SmartLinx PROFIBUS DP-V0 module	7ML1830-1HR
SmartLinx PROFIBUS DP-V1 module	A5E35778741
SmartLinx DeviceNet module	7ML1830-1HT
SmartLinx PROFINET IO module ¹⁾	7ML1830-1PM
SmartLinx Modbus TCP/IP, EtherNet/IP module	7ML1830-1PN
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

¹⁾ SmartLinx PROFINET module is certified per standard V2.2.4.

Technical specifications

Module type	PROFIBUS DP-V0
Interface	RS 485 (PROFIBUS standard)
Transmission rate	All valid PROFIBUS DP rates from 9 600 Kbps ... 12 Mbps
Slave address	0 ... 99
Connection	Slave
SmartLinx module compatibility	<ul style="list-style-type: none"> • MultiRanger 200 HMI • MultiRanger 100/200 • HydroRanger 200 HMI • HydroRanger 200 • Milltronics BW500, BW500/L • Milltronics SF500

Module type	PROFIBUS DP-V1
Interface	RS 485 (PROFIBUS standard)
Transmission rate	All valid PROFIBUS DP rates from 9 600 Kbps ... 12 Mbps
Slave address	0 ... 99
Connection	Slave
SmartLinx module compatibility	<ul style="list-style-type: none"> • MultiRanger 200 HMI • HydroRanger 200 HMI

Module type	PROFINET IO module
Interface	RJ 45 female
Transmission rate	10/100 Mbits/s
Address	IP address through dip switches or via DCP or DHCP
Connection	Slave/server
SmartLinx module compatibility	<ul style="list-style-type: none"> • MultiRanger 200 HMI • HydroRanger 200 HMI • Milltronics BW500, BW500/L • Milltronics SF500

Technical specifications (Continued)

Module type	Modbus TCP/IP, EtherNet/IP
Interface	RJ 45 female
Transmission rate	10/100 Mbits/s
Address	IP address through dip switches or via DCP or DHCP
Connection	Slave/server
SmartLinx module compatibility	<ul style="list-style-type: none"> • MultiRanger 200 HMI • HydroRanger 200 HMI • Milltronics BW500, BW500/L • Milltronics SF500

Module type	DeviceNet
Interface	DeviceNet physical layer
Transmission rate	125, 250, 500
MAC address	0 ... 63
Connection	Slave (group 2)
SmartLinx module compatibility	<ul style="list-style-type: none"> • MultiRanger 200 HMI • MultiRanger 100/200 • HydroRanger 200 HMI • HydroRanger 200 • Milltronics BW500, BW500/L • Milltronics SF500

Weighing Electronics

Stand-alone

Dosing, filling, bagging and checking scales / Introduction

Overview



SIWAREX WP251 weighing electronics

Typical requirements in many industries are high-precision mixing and dosing, and packing and filling at high speed. The comprehensive SIWAREX electronics properties and functions can fulfil all requirements.

The dosing process used in production operations depends on a variety of factors: Depending on the type and quantity of materials weighed, different dosing systems and weighing processes are required. It must be possible to fill liquid or solid goods, such as cement, quickly and precisely.

Overview



SIWAREX WP251 is a flexible weighing module for dosing and filling processes. The compact module can be installed seamlessly in the SIMATIC S7-1200 automation system. It can also be used without a SIMATIC CPU in stand-alone mode.

Benefits

SIWAREX WP251 offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC S7-1200
- Uniform configuration with TIA Portal
- Legal-for-trade according to OIML R76, R51, R61 and R107
- Internal alibi memory for up to 550 000 entries
- Operation without SIMATIC CPU possible
- Ethernet port ex works (Modbus TCP/IP / SIWATOOL)
- RS 485 interface ex works (Modbus RTU / remote display)
- Four digital inputs and outputs, one analog output ex works
- Measurement of weight and force with a high resolution of up to ± 4 million parts and an accuracy of 0.05%
- Simple adjustment of scale using the SIWATOOL V7 program via the Ethernet interface
- Recovery point for simple restoration of all parameters
- Automatic calibration is possible without the need for calibration weights
- Supports replacement of module without recalibration of scales
- Direct use in hazardous area zone 2

Application

SIWAREX WP251 is the optimum solution wherever fast and precise dosing and filling are required. The following are typical SIWAREX WP251 applications:

- Catchweighing instruments (CWI) - legal-for-trade in accordance with OIML R51
- Gravimetric filling instruments (GFI) - legal-for-trade in accordance with OIML R61
- Non automatic weighing instrument (NAWI) - legal-for-trade in accordance with OIML R76
- Discontinuous totalizing automatic weighing instrument (DTI) - legal-for-trade in accordance with OIML R107

Design

SIWAREX WP251 is a compact technology module in the SIMATIC S7-1200, and communicates directly via the system bus with the SIMATIC S7-1200 controller.

The compact weighing module has a width of 70 mm (2.76 inch) and is installed using a DIN rail. This is extremely user-friendly.

The connections for the power supply, load cells, RS 485 interface, digital inputs/outputs, and the analog outputs are located on removable screw connector blocks. An RJ45 port is available for the Ethernet connection (SIWATOOL and Modbus TCP/IP).

Function

SIWAREX WP251 controls dosing and filling processes completely autonomously. The dosing valves (coarse/fine flow) can be controlled directly via the four digital outputs of the module. This achieves maximum accuracy since the weighing process is controlled completely independently of the CPU and its cycle time.

The CPU can be used to manage recipes and material parameters. These parameters and the desired setpoint are then transferred to SIWAREX WP251 by function block, and the dosing process is started. SIWAREX WP251 automatically optimizes the shut-off points, generates statistics, and logs every dosing task in the internal protocol memory that is also accessible from the CPU and can be read out by the CPU.

Diverse options are available for commissioning. The SIWAREX WP251 function block enables full access to all parameters of the SIWAREX WP251. The downloadable example application "Ready-for-use" provides full data access to the weighing module, calibration options and operation of the scale - without any additional programming effort. Further, the PC service software SIWATOOL V7 that communicates via Ethernet with the SIWAREX module can be used for commissioning. Access using WLAN is thus also possible by means of a WIFI access point. Consequently, remote access via the Internet is also no problem. For servicing purposes, centralized access to all scales from a single location is possible - worldwide. In addition, there is full access to all parameters and commands, via both the RS 485 interface (Modbus RTU) and the Ethernet interface (Modbus TCP/IP), meaning that full commissioning and operation can also take place via these channels.

Weighing functions

SIWAREX WP251 provides the weighing modes NAWI (non-automatic weighing instrument), ACI (automatic catchweighing instrument) and AGFI (automatic gravimetric filling instrument).

In the operating modes NAWI and ACI, there is a choice between filling mode and emptying mode. The entire filling or dosing process is controlled fully from SIWAREX WP251. It is only necessary to transfer a setpoint and a start command to the module. The coarse flow, fine flow and empty signals can be switched directly via the digital outputs of the module.

Data regarding the weight, as well as all scale and dosing status bits, are available cyclically in the program code in the PLC for further evaluation. If stand-alone mode of the module is activated, there is an additional guarantee that dosing and operation of the scales can continue even in the event of a CPU stop.

Software

SIWATOOL V7 is a special program for commissioning and servicing and runs with Windows operating systems.

The program enables the user to perform scale calibration without requiring automation engineering skills. During servicing, the technician can use a PC to analyze and test the procedures in the scale. Reading the diagnostics buffer from SIWAREX WP251 is extremely helpful when analyzing events.

The following are just some of the tasks that can be carried out using SIWATOOL V7:

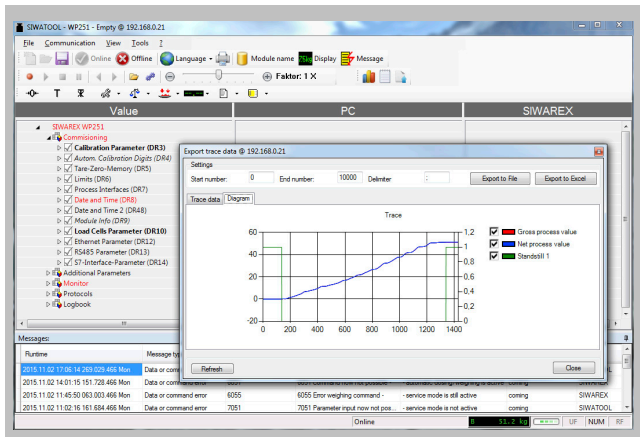
- Parameter assignment and calibration of the scale
- Testing of scale properties
- Recording and analysis of weighing sequence

Weighing Electronics

Stand-alone

Dosing, filling, bagging and checking scales / SIWAREX WP251 weighing electronics

Function (Continued)



Software SIWATOOL V7, layout of the program windows

It is also extremely helpful to analyze the diagnostics buffer which can be saved together with the parameters from the module in a backup file.

Trace mode is provided to optimize the weighing sequences in the SIWAREX WP251 weighing module. The recorded weight values and associated states can be displayed as trends using SIWATOOL V7 and MS Excel.

Upgrading firmware

An additional program function can be used to download a new firmware version onto the SIWAREX WP251 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

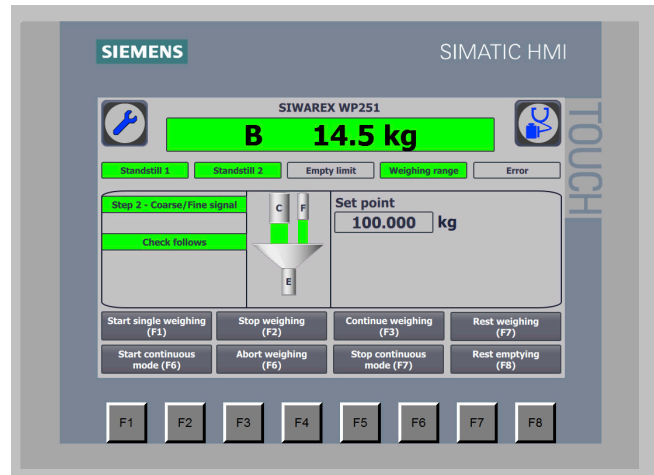
Integration

Integration into the automation environment

SIWAREX WP251 is part of the SIMATIC S7-1200 Basic Controller range, and is integrated seamlessly into the TIA Portal. The free function block enables full access to all parameters, actual values, setpoints, weight values and status information (e.g. limits, coarse flow signal, fine flow signal, empty signal) conveniently and without programming effort. Customized operator interfaces can thus be created in conjunction with SIMATIC HMI touch panels. Management of several languages can also be easily implemented and organized.

The example project "Ready-for-Use SIWAREX WP251" is available free of charge to help you to get started quickly and simply. This TIA Portal project contains both the function block and a fully fledged visualization system for operating and monitoring the SIWAREX WP251. The visualization can be freely edited and adapted, or transferred completely into an existing HMI project.

Integration (Continued)



Stand-alone mode

Alternatively, SIWAREX WP251 can also be used without a SIMATIC CPU. In this case, the module is connected with a supply voltage of 24 V DC only. In this case, a PC (using an OPC server, for example) or a Modbus-enabled operator panel can be used for operator input. Both Modbus interfaces of SIWAREX WP251 (TCP/IP and RTU) enable access to all parameters, actual values, setpoints, weight values and status information. A customized and plant-specific operator interface can thus be created on the PC or the Modbus-enabled operator panel. Integration into third-party systems is also no problem via the Modbus interfaces.

Selection and ordering data

	Article No.
SIWAREX WP251 weighing electronics Single-channel, legal-for-trade, for automatic dosing and filling scales (AGFI, ACI, NAWI) with analog load cells / full-bridge strain gauges (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port	7MH4960-6AA01
SIWAREX WP251 Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX WP251 "Ready-for-use" Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Calibration set for SIWAREX WP2xx Valid for SIWAREX WP231 and SIWAREX WP251. For verification of up to 3 scales, comprising: <ul style="list-style-type: none"> • 3 × inscription foils for ID label • 1 × protective film • 3 × calibration protection plates 	7MH4960-0AY10

Selection and ordering data (Continued)

	Article No.
<ul style="list-style-type: none"> Guidelines for verification, certificates and approvals, editable label, SIWAREX WP 	
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WP251 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	6XV1850-2GH20
Accessories	
SIWAREX EB extension box For extending sensor cables	7MH4710-2AA
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate)	7MH5001-0AA01
SIWAREX IS Ex interface For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
<ul style="list-style-type: none"> Short-circuit current < 199 mA DC Short-circuit current < 137 mA DC 	7MH4710-5BA 7MH4710-5CA
Cable (optional)	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic to junction box (JB), extension box (EB), digital junction box (DB), Ex interface (IS) or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
<ul style="list-style-type: none"> Sheath color: orange Sheath color (for hazardous atmospheres): blue 	7MH4702-8AG 7MH4702-8AF
Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Remote display (optional) The digital remote displays can be connected directly to the SIWAREX WP251 via the RS 485 interface Suitable remote display: S102	

Selection and ordering data (Continued)

	Article No.
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert-group.com/en Detailed information is available from the manufacturer.	

Technical specifications

SIWAREX WP251	
Weighing modes	<ul style="list-style-type: none"> Non automatic weighing instrument (NAWI) (filling + removal) (legal-for-trade in accordance with OIML R76) Catchweighing instrument (CWI) (filling + removal) (legal-for-trade in accordance with OIML R51) Gravimetric filling instrument (GFI) (legal-for-trade in accordance with OIML R61) Discontinuous totalizing automatic weighing instrument (DTI) - (legal-for-trade in accordance with OIML R107)
Integration in automation systems S7-1200 Operator panel and/or automation systems from other vendors	SIMATIC S7-1200 system bus Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Ports	<ul style="list-style-type: none"> 1 × SIMATIC S7-1200 system bus 1 × Ethernet (SIWATOOL and Modbus TCP/IP) 1 × RS 485 (Modbus RTU or remote display) 1 × analog output (0/4 - 20 mA) 4 × digital inputs (24 V DC, floating) 4 × digital outputs (24 V DC, floating, short-circuit proof)
Functions	<ul style="list-style-type: none"> 3 limits Tare Tare specification Zeroing Zero adjustment Statistics Automatic correction of the shut-off points Internal protocol memory for 550 000 entries Trace function for signal analysis Internal restore point Stand-alone mode or SIMATIC S7-1200 integrated
Parameter assignment	<ul style="list-style-type: none"> Full access using function block in SIMATIC S7-1200 Full access using Modbus TCP/IP Full access using Modbus RTU
Remote display Connection	Via RS 485
Scale adjustment	PC software SIWATOOL (Ethernet), S7-1200 function block and touch panel or directly connected operator panel (Modbus)
Measuring accuracy Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Number of measurements/second	100 or 120 (selectable)

Weighing Electronics

Stand-alone

Dosing, filling, bagging and checking scales / SIWAREX WP251 weighing electronics

Technical specifications (Continued)

SIWAREX WP251	
Filter	<ul style="list-style-type: none"> • Low-pass filter 0.1 ... 50 Hz • Average value filter
Load cells	Strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance	
• R_{Lmin}	> 40 Ω
• R_{Lmax}	< 4 100 Ω
With SIWAREX IS Ex interface	
• R_{Lmin}	> 50 Ω
• R_{Lmax}	< 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
Permissible range of the measurement signal (with 4 mV/V sensors)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Certificates	<ul style="list-style-type: none"> • ATEX Zone 2 • UL • KCC • EAC • RCM
Calibration approvals	<ul style="list-style-type: none"> • EU type-examination certificate 2014/31/EU (NAWI) according to OIML R76 • EU type-examination certificate 2014/32/EU (MID) according to OIML R61 and OIML R51 • EU type-examination certificates 2014/32/EU (MID) according to OIML R107
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	200 mA
Max. power consumption SIMATIC Bus	3 mA
IP degree of protection to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min(IND)}$... $T_{max(IND)}$ (operating temperature)	
• Vertical installation	-10 ... +40 °C (14 ... 104 °F)
• Horizontal installation	-10 ... +55 °C (14 ... 131 °F)
EMC requirements	According to EN 45501
Dimensions	70 × 75 × 100 mm (2.76 × 2.95 × 3.94 inch)

Overview



Milltronics SF500 is a full feature integrator for use with solids flowmeters.

Benefits

- Automatic zero and electronic span calibration
- Alarms for rate or diagnostic error
- On-board Modbus and optional: PROFIBUS DP, PROFINET, Modbus TCP/IP, EtherNet/IP, and DeviceNet
- On-line calibration and dual PID control with optional analog I/O card
- Multi-point linearizer for high turn down accuracy
- Up to 8 multi-spans for application of more than one flow condition and/or material
- Moisture meter input with optional analog I/O card for calculation of dry weight

Application

Milltronics SF500 operates with any solids flowmeter with up to two strain gauge load cells or LVDT sensor. The SF500 processes sensor signals for accurate flow rate and totalized weight of bulk solids. It can take on lower level control functions traditionally handled by other devices, and it supports popular industrial communication buses. Its proven load cell balance function eliminates matching of load cells.

The PID function may be used for rate control of pre-feeding devices and/or control of additives with two internal PID controllers. Operating in tandem with two or more solids flowmeters or weighfeeders, the SF500 may be used for ratio blending and controlling additives. Batching, load out, and alarm functions are also provided by the SF500.

Weighing Electronics

Stand-alone

Solids flowmeters / Milltronics SF500

Selection and ordering data

		Article No.									
Milltronics SF500 Integrator		7MH7156- ● ● ● ● ● - ● ● ●									
Full feature, powerful integrator designed for use with solids flowmeters.											
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Input voltage											
AC voltage		2									
DC voltage		3									
Auxiliary input/output boards¹⁾											
None		A									
Board with 2 analog inputs and 2 analog outputs		B									
Feature software											
Standard		A									
Auxiliary memory											
None		0									
Data communications²⁾											
SmartLinX Ready		0									
SmartLinX PROFIBUS DP module		2									
SmartLinX DeviceNet module		3									
SmartLinX PROFINET module		4									
SmartLinX EtherNet/IP module		5									
SmartLinX Modbus TCP/IP module		6									
Enclosures											
Standard enclosure, no entry holes		1									
Standard enclosure, 4 entries, for M20 glands		2									
Trade approval stickers											
No trade approval sticker		A									
Not legal for Canadian and EU trade sticker		B									
Approvals											
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, cCSAus, FM, RCM, EAC, KC		A									

¹⁾ Required for PID control and online calibration.

²⁾ Required for industrial communications. SmartLinX PROFINET module is certified per standard V2.2.4.

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag (69 x 50 mm), Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is field mounted with enclosure)	S50
Manufacturer's test certificate: According to EN 10204-2.2	C11
LVDT conditioner card mounted and connected for use with LVDT flowmeters	G21
Stainless steel enclosure, 304 (1.4301), [406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4X, IP66; (finished unit is mounted inside enclosure)]	
• With window	A11
• Without window	A12
Painted mild steel, [406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4, IP66; (finished unit is mounted inside enclosure)]	
• With window	A13
• Without window	A14
Painted mild steel, anti-vibration enclosure with -viewing window [406 x 305 x 203 mm (16 x 12 x 8 inch), Nema/Type 4, IP66; (finished unit is mounted inside enclosure)]	A15

Selection and ordering data (Continued)

Further designs	Order Code
Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F) (finished unit is mounted inside enclosure) 483 x 584 x 203 mm (19 x 23 x 8 inch)	A35
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Optional equipment	Article No.
Auxiliary I/O card spare	7MH7723-1BJ
LVDT Conditioners in NEMA 4 enclosure (to interface LVDT Flowmeter/Belt scale without internal pre-amplifier)	7MH7723-1AJ
Cables to connect BW500/SF500 keypad to motherboard	7MH7723-1CB
SITRANS RD100 Remote displays, see SITRANS RD100 catalog page: https://support.industry.siemens.com/cs/document/109765059	7ML5741-.....
SITRANS RD200 Remote displays, see SITRANS RD200 catalog page: https://support.industry.siemens.com/cs/document/109765328	7ML5740-.....
SITRANS RD300 Remote displays, see SITRANS RD300 catalog page: https://support.industry.siemens.com/cs/document/109765138	7ML5744-.....
Spare parts	
Display card	7MH7723-1AF
Lid with overlay and keypad	7MH7723-1AG
SF500 motherboard, AC	A5E34320776
SF500 motherboard, DC	A5E34320778
Fuse, 2 A, 250 V, BW500, BW500/L, and SF500, spare	7MH7723-1DG
Keypad spare for BW500, BW500/L, and SF500	7MH7723-1CD
LVDT card spare kit, internal to SF500	A5E34699664
PROFINET IO module	7ML1830-1PM
Modbus TCP/IP, EtherNet/IP module	7ML1830-1PN
PROFIBUS DP module	7ML1830-1HR
DeviceNet module	7ML1830-1HT

Technical specifications

Milltronics SF500	
Mode of operation	
Measuring principle	Flowmeter integrator
Typical application	<ul style="list-style-type: none"> Compatible with SITRANS solids flowmeters or equivalent 1 or 2 load cell models Compatible with LVDT equipped solids flowmeters, with use of optional interface board (remotely mounted)
Input	
Load cell/LVDT	0 ... 45 mV DC per load cell or LVDT interface card
Auto zero	Dry contact from external device
mA	See optional mA I/O board
Auxiliary	5 discrete inputs for external contacts, each programmable for either: display scrolling, totalizer 1 reset, zero, span, multi-span, print, batch reset, PID function, or on-line calibration
Output	
mA	Programmable 0/4 ... 20 mA, for rate, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max. (see optional mA I/O board)

Technical specifications (Continued)

Milltronics SF500	
Load cell/LVDT conditioner card	10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max.
Remote totalizer 1	<ul style="list-style-type: none"> Contact closure 10 ... 300 ms duration Solid state relay contact rated 30 V DC, 100 mA max. Max. contact on-resistance = 36 ohms Max. off-state leakage = 1 uA
Remote totalizer 2	<ul style="list-style-type: none"> Contact closure 10 ... 300 ms duration Solid state relay contact rated 240 V AC/DC, 100 mA max. Max. contact on-resistance = 36 ohms Max. off-state leakage = 1 uA
Relay output	5 alarm/control relays, 1 SPST Form A relay contact per relay, rated 5 A at 250 V AC, non-inductive or 30 V DC
Measuring accuracy	
Resolution	0.02 % of full scale
Accuracy	0.1 % of full scale

Weighing Electronics

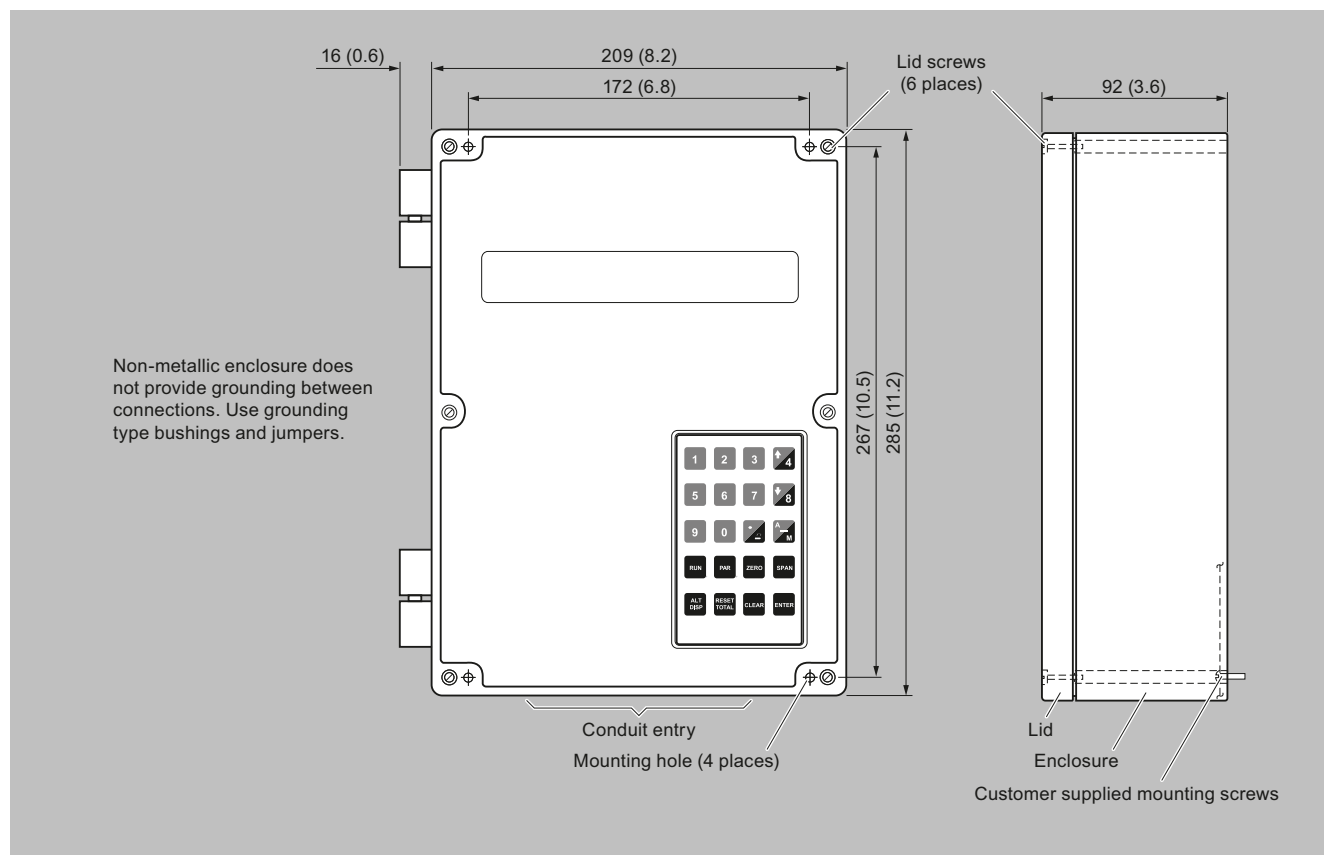
Stand-alone

Solids flowmeters / Milltronics SF500

Technical specifications (Continued)

Milltronics SF500	
Rated operating conditions	
Ambient conditions	
Location	Indoor/outdoor
Ambient temperature	-20 ... +50 °C (-5 ... +122 °F)
Relative humidity/ingress protection	Suitable for outdoor/Type 4X/NEMA 4X/IP65
Installation category	II
Pollution degree	4
Design	
Material (enclosure)	Polycarbonate
Dimensions	209 W x 285 H x 92 D mm (8.2 W x 11.2 H x 3.6 D inch)
Weight	2.6 kg (5.7 lb)
Power supply	
Standard	AC version <ul style="list-style-type: none"> • 100 ... 240 V AC \pm 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo DC version <ul style="list-style-type: none"> • 10 ... 30 V DC, 26 W max. • Fuse FU2 = 3.75 A resettable (not user replaceable)
Controls and displays	
Display	Illuminated 5 x 7 dot matrix liquid crystal display with 2 lines of 40 characters each
Programming	Via local keypad
Memory	Program and parameters stored in non-volatile Flash memory
Communications	Two RS 232 ports One RS 485 port SmartLinX compatible
Approvals	
CE, UKCA, cCSAus, FM, RCM, EAC, KC	
Options	
<ul style="list-style-type: none"> • SmartLinX modules: protocol specific modules for interface with popular industrial communications systems. Refer to associated product documentation. • LVDT interface card: for interface with LVDT based solids flowmeters • mA I/O board <ul style="list-style-type: none"> - Inputs: 2 programmable 0/4 ... 20 mA for PID control or online calibration, optically isolated, 0.1 % ... 20 mA resolution, 200 Ω input impedance - Outputs: 2 programmable 0/4 ... 20 mA for PID control or rate output, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max - Output supply: isolated 24 V DC at 50 mA, short circuit protected 	

Dimensional drawings



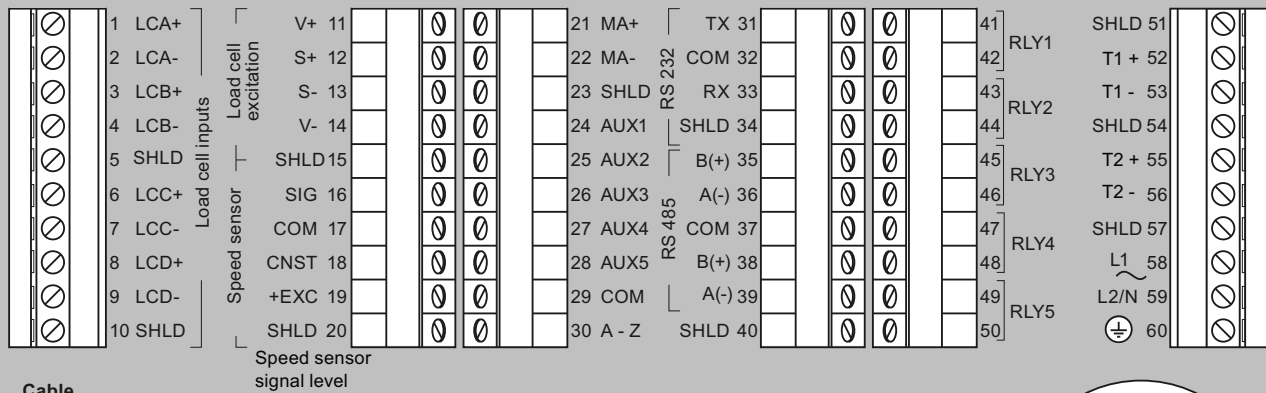
Milltronics SF500, dimensions in mm (inch)

Weighing Electronics

Stand-alone

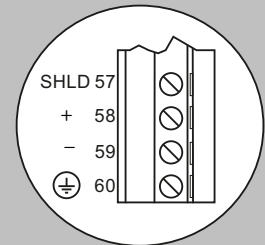
Solids flowmeters / Milltronics SF500

Circuit diagrams



Cable

- One load cell:
 - Non-sensing: Belden 8404, 4 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - Sensing: Belden 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1 000 ft) max.
- Two load cells:
 - Non-sensing: Belden 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - Sensing: Belden 8418, 8 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1 000 ft) max.
- Auto zero: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.
- Remote total: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.



DC version

Milltronics SF500 connections

Overview

The SITRANS RD100 is a 2-wire loop powered, NEMA 4X enclosed remote digital display for process instrumentation.

Benefits

- Easy setup
- Approved for hazardous locations
- NEMA 4X, IP67 impact-resistant enclosure
- Simple two-step calibration
- Two modes of input allow for easy servicing, with no interruption of loop required

Application

The RD100 is very versatile. It can be installed indoors or outdoors, in hot or cold environments, and in safe or hazardous areas. It has been approved by FM and CSA as Intrinsically Safe and non-incendive, and operates from -40 to +85 °C (-40 to +185 °F), adding only 1 V to the loop. Calibration consists of a quick two-step process involving the adjustment of only two non-interacting potentiometers.

- Key Applications: remotely displays process variables in level, flow, pressure, temperature, and weighing applications, in a 4 to 20 mA loop.

Selection and ordering data

		Article No.											
SITRANS RD100 Display Remote digital display for process instruments. 2-wire, loop powered, NEMA 4X enclosure.		7	M	L	5	7	4	1	-	0	0	-	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.													
Conduit hole location (½ inch)													
None						1							
Bottom						2							
Rear						3							
Top						4							
Approvals													
FM/CSA								A					
CE								B					

Weighing Electronics

Supplementary components

Displays / SITRANS RD100

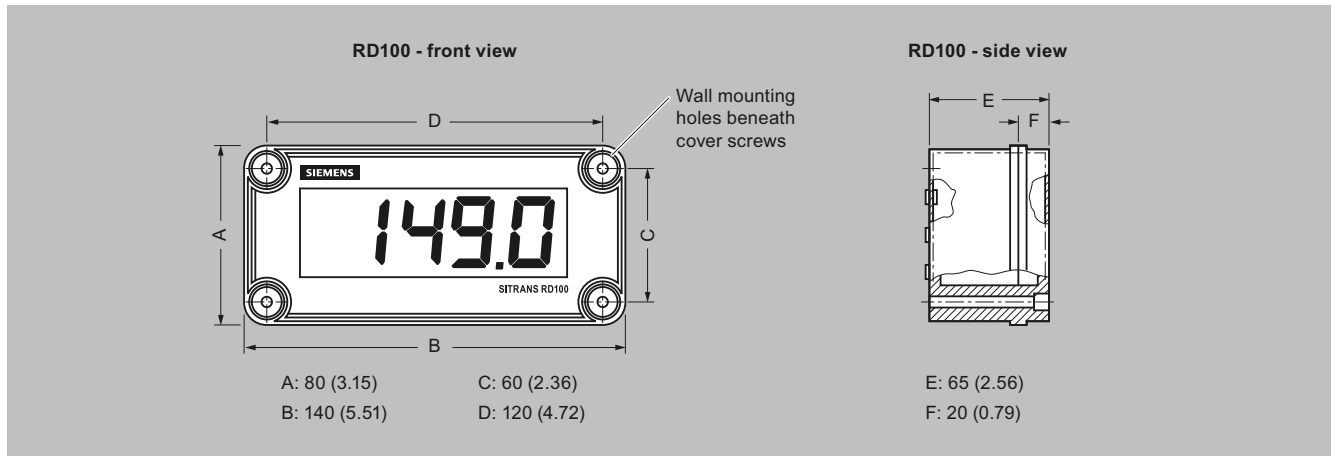
Selection and ordering data (Continued)

Selection and Ordering data	Article No.
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories Panel mount kit 2 inch (5.08 cm) pipe mounting kit (zinc plated seal) 2 inch (5.08 cm) pipe mounting kit (stainless steel, Type 304, EN 1.4301)	7ML1930-1BN 7ML1930-1BP 7ML1930-1BQ

Technical specifications

SITRANS RD100	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring range	4 ... 20 mA
Measuring points	1 instrument only
Accuracy	± 0.1 % of span ± 1 count
Rated operating conditions	
Ambient conditions	
• Operating temperature range	-40 ... +85 °C (-40 ... +185 °F)
• Storage temperature	-40 ... +85 °C (-40 ... +185 °F)
Design	
Weight	340 g (12 oz)
Material (enclosure)	Impact-resistant glass filled polycarbonate body and clear polycarbonate cover
Degree of protection	NEMA 4X, IP67
Power supply	
External loop power supply	30 V DC max.
Display	<ul style="list-style-type: none"> 1.0 inch (2.54 cm) high LCD Numeric range from -1 000 ... +1 999
Certificates and approvals	
Non-hazardous	CE
Hazardous	
• Intrinsically Safe	<ul style="list-style-type: none"> CSA/FM Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G T4 CSA/FM Class I, Zone 0, Group IIC
• Non-incendive	<ul style="list-style-type: none"> CSA/FM Class I, Div. 2, Groups A, B, C, D CSA/FM Class II and III, Div. 2, Groups F and G
Options	
Mounting	<ul style="list-style-type: none"> 2 inch (5.08 cm) pipe mounting kit (zinc plated or stainless steel) Panel mounting kit

Dimensional drawings



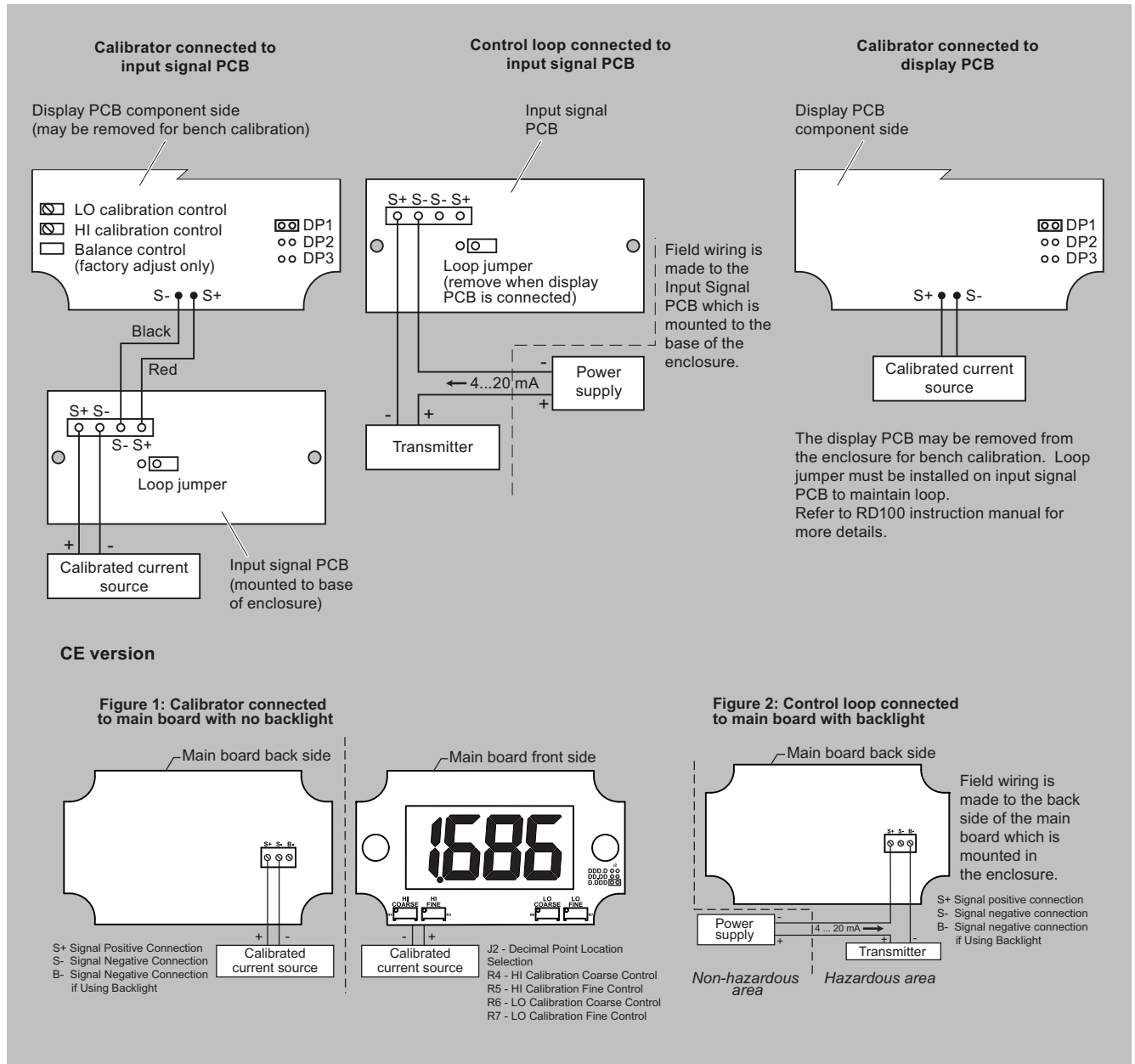
SITRANS RD100, dimensions in mm (inch)

Weighing Electronics

Supplementary components

Displays / SITRANS RD100

Circuit diagrams



SITRANS RD100 connections

Overview



The SITRANS RD150 is a remote display for 4 to 20 mA and HART devices.

Benefits

- Ease of use through 4 button menu driven display
- Backlit display
- HART communications
- Flexible mounting options
- Plastic, stainless steel or aluminum housings up to IP68
- Full configuration of connected sensors with optional USB Communicator and PC
- Support for multiple HART sensors with HART Multi-drop

Application

The versatile SITRANS RD150 can be installed remotely from your instrument, providing 4/20 mA or multiple HART variable readings in a safe and convenient location.

Easy to use, 4 button, menu driven, display for configuration of HART instruments via standard HART commands and full configuration of connected instruments via USB and computer.

- Key Applications: remotely displays process variables in level, flow, pressure, temperature, and weighing applications, in a 4 to 20 mA HART loop.

Weighing Electronics

Supplementary components

Displays / SITRANS RD150

Selection and ordering data

		Article No.									
		7ML5742- ● ● ● ● ● - ● ● ● ●									
SITRANS RD150 Display Remote digital display with configuration for process instruments. HART or 4 to 20 mA loop display, metal and plastic field mount enclosures.											
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Approvals											
For Ex-free area		0	A								
ATEX II 1G, 2G Ex ia IIC T6 Ga, Gb ⁴⁾		0	C								
ATEX II 2G Ex db IIC T6 Gb ⁹⁾¹⁰⁾		0	F								
IEC Ex ia IIC T6 Ga, Gb ⁴⁾		0	J								
IEC Ex db IIC T6 Gb ⁹⁾¹⁰⁾		0	M								
cCSA _{US} (IS) Class I, Div. 1, Groups A, B, C, D ¹²⁾		0	N								
cCSA _{US} (XP) Class I, Div. 1, Groups A, B, C, D ⁹⁾¹¹⁾		0	R								
Electronics											
Two-wire 4 ... 20 mA/HART									A		
Two-wire 4 ... 20 mA without HART									B		
Housing											
Plastic ¹⁾⁴⁾⁶⁾										0	
Aluminum ²⁾⁴⁾⁷⁾										1	
Stainless steel (precision casting) ²⁾⁴⁾⁷⁾										2	
For panel mounting (72 x 72 mm) ³⁾⁵⁾⁸⁾										3	
Housing protection											
IP66/IP67 NEMA 4X										0	
IP66/IP68 NEMA 6P (0.2 bar)										1	
IP40 NEMA 2										2	
IP40 Type 1										3	
Cable entry											
M20 x 1.5/Cable gland PA black (ø5 ... 9 mm), standard											0
M20 x 1.5/Cable gland brass nickel plated (ø6 ... 12 mm)											1
M20 x 1.5/Blind plug											2
M20 x 1.5/Threaded fitting brass nickel-plated; for shielded cable (ø9 ... 13 mm)											3
½" NPT/Blind plug											4
½" NPT/Cable gland PA black (ø5 ... 9 mm)											5
½" NPT/Threaded fitting brass nickel plated (ø6 ... 12 mm)											6
½" NPT/Threaded fitting brass nickel plated; for shielded cable (ø9 ... 13 mm)											7
Without											8
Display											
Without											A
Mounted											B
Mounting											
For wall mounting with aluminum or stainless steel housing											A
For carrier rail and wall mounting with plastic housing											B
For carrier rail with aluminum or stainless steel housing											C
For tube mounting (29 ... 60 mm) incl. mounting material											D
For panel mounting											E
Certificates											
None											0
3.1 Certificate/Instrument with test data											1
Quality and Test plan											2
Operating Instructions											
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation											
Accessories											
USB communicator		A5E35192015									
SITRANS LG/SITRANS RD150 sensor display module		A5E34143449									

1) Available only with Housing protection option 0.

2) Available only with Housing protection option 1.

3) Available only with Housing protection option 2.

4) Available only with Cable entry options 0, 2, 4, and 5.

5) Available only without Cable entry option 8.

6) Available only with Carrier rail and Tube mount Mounting options.

7) Available only with Wall mount, Carrier rail with aluminum or stainless steel housing, and Tube mount Mounting options.

Selection and ordering data (Continued)

- 8) Available only with Panel mounting option.
 9) Available only with Housing options 1 and 2.
 10) Available only with Cable entry options 2, 3, 4, and 7.
 11) Available only with Cable entry options 2, 3, 4, 6, and 7.
 12) Not available with Cable entry option 1.

Technical specifications

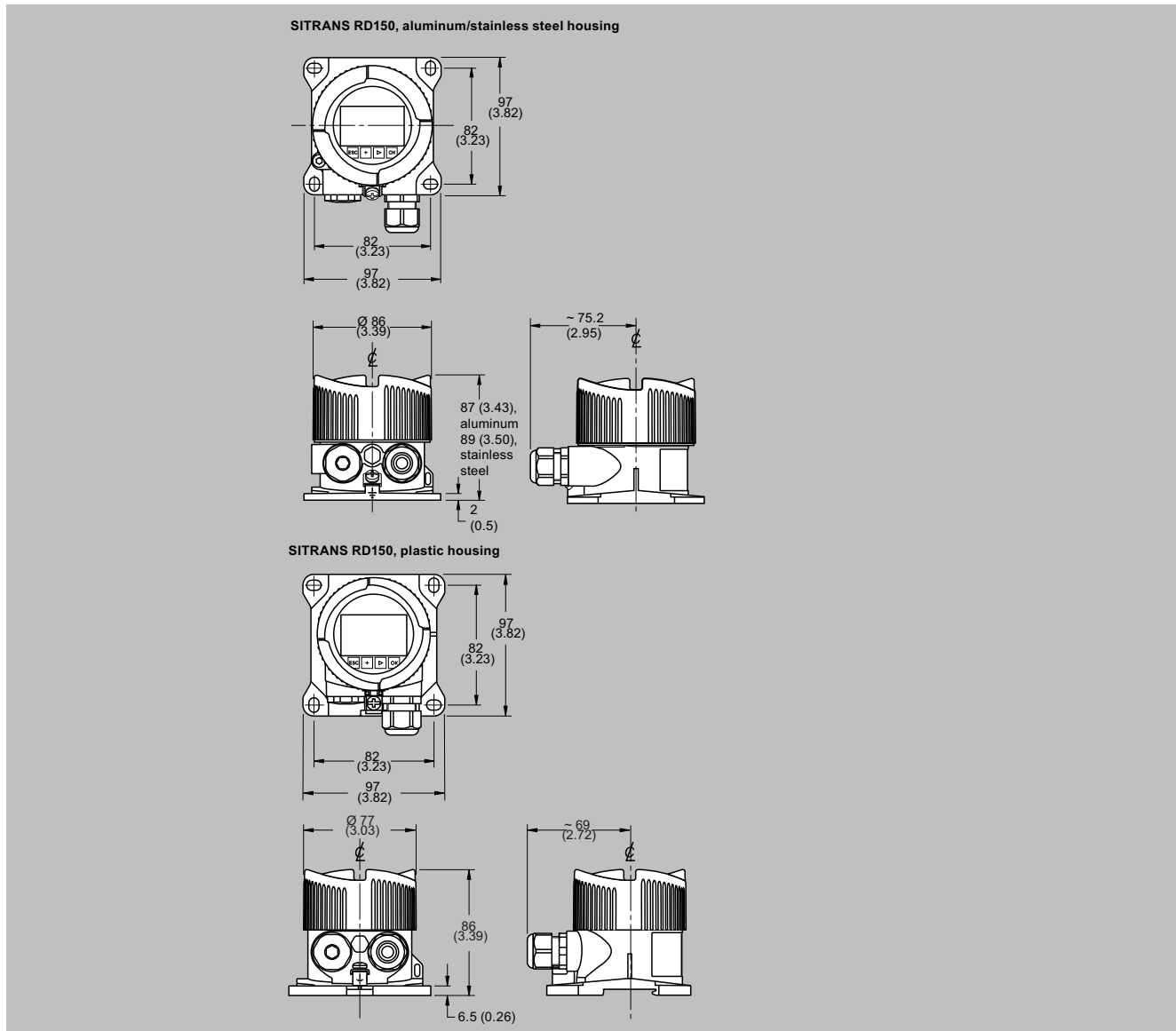
SITRANS RD150	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring range	3.5 ... 22.5 mA
Measuring points	HART multi-drop support
Accuracy	± 0.1 % of 20 mA
Rated operating conditions	
Without display and adjustment module	-40 ... +80 °C (-40 ... +176 °F)
With display and adjustment module	-20 ... +70 °C (-4 ... +158 °F)
Storage temperature	-40 ... +80 °C (-40 ... +176 °F)
Design	
Weight	
• Plastic housing	0.35 kg (0.772 lb)
• Aluminum housing	0.7 kg (1.543 lb)
• Stainless steel housing	2.0 kg (4.409 lb)
Material (enclosure)	
• Plastic housing	Plastic PBT (Polyester)
• Aluminum housing	Aluminum die-casting AlSi10Mg, powder-coated (basis: Polyester)
• Stainless steel housing	316L precision casting, blasted
Degree of protection	
• Plastic housing	IEC 60529 IP66/IP 67, NEMA Type 4X
• Housing for panel mounting (mounted)	IEC 60529 IP40, NEMA Type 1
• Aluminum/stainless steel housing	IEC 0529 IP66/IP68 (0.2 bar), NEMA Type 6P
Power supply	
External loop power supply	35 V DC max.
Display	
Number of digits	5
Digit size	7 x 13 mm (0.28 x 0.51 inch)
Certificates and approvals	
See the online PIA configuration tool for details.	
Options	
Mounting	<ul style="list-style-type: none"> • Panel Mounting • Carrier rail mounting • Pipe mounting

Weighing Electronics

Supplementary components

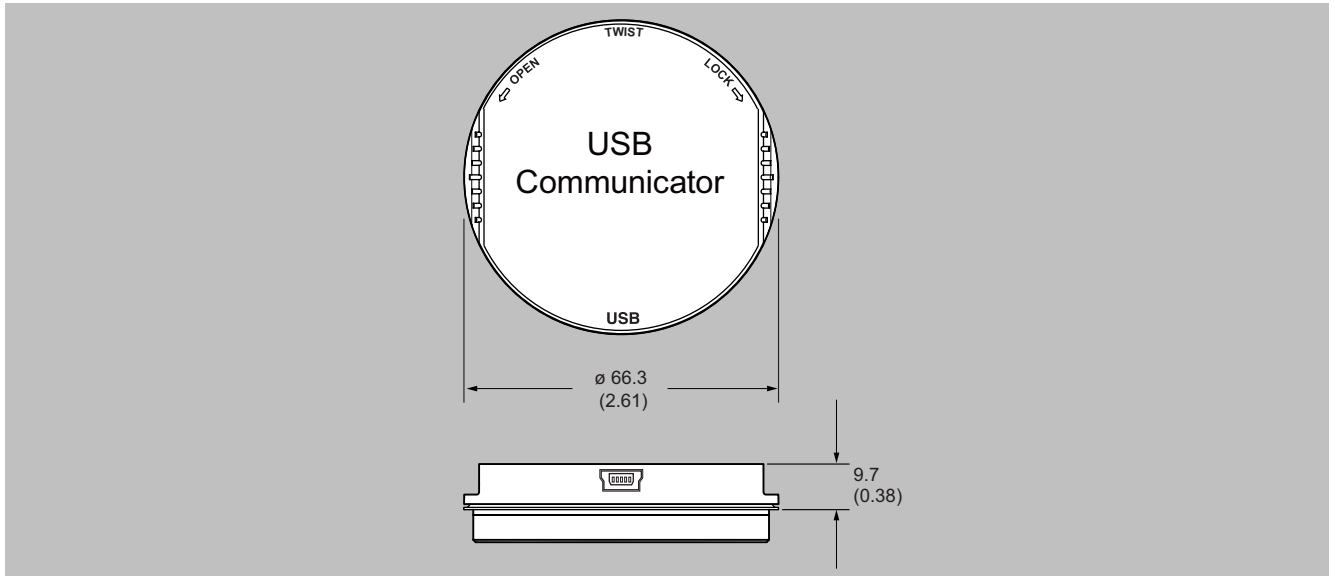
Displays / SITRANS RD150

Dimensional drawings



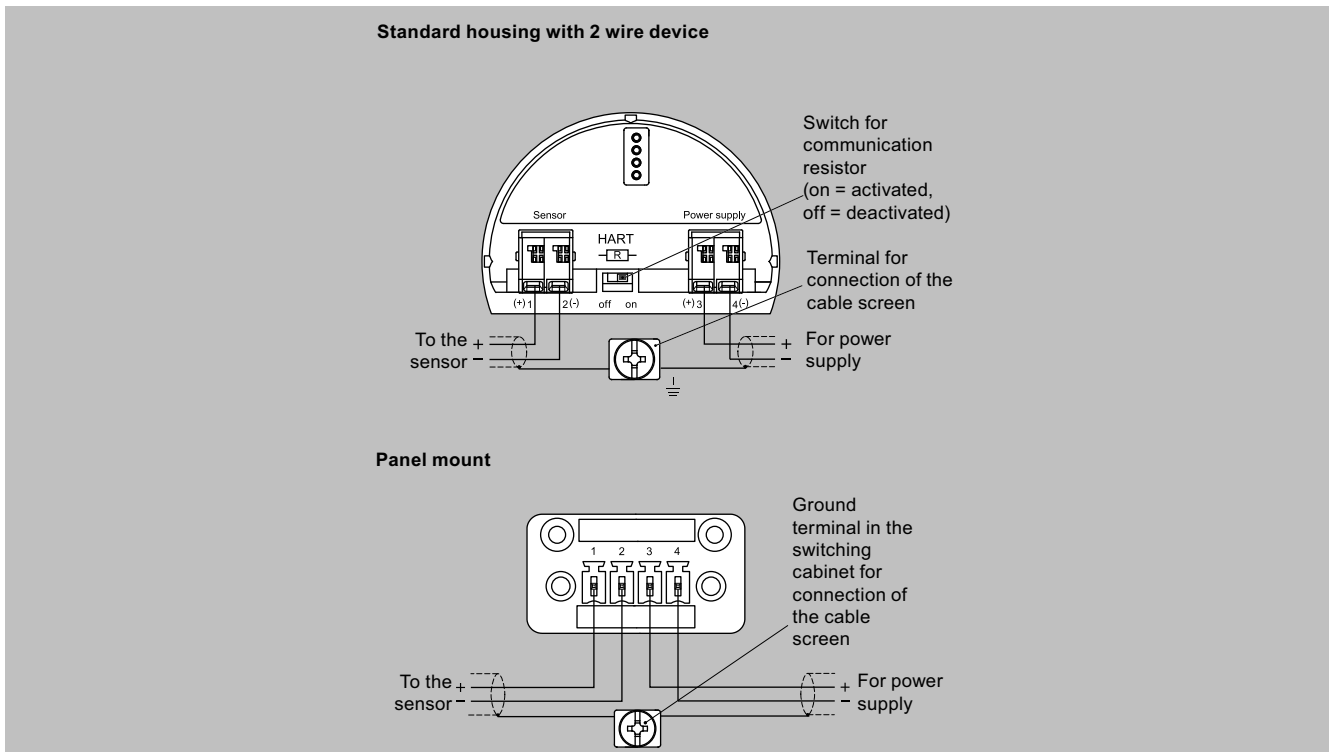
SITRANS RD150, dimensions in mm (inch)

Dimensional drawings (Continued)



USB Communicator, dimensions in mm (inch)

Circuit diagrams



SITRANS RD150 connections

Weighing Electronics

Supplementary components

Displays / SITRANS RD200

Overview



The SITRANS RD200 is a universal input, panel mount remote digital display for process instrumentation.

Benefits

- Easy setup and programming via front panel buttons or remotely using RD software
- Display readable in sunlight
- Universal input: accepts current, voltage, thermocouple, and RTD signals
- Single or dual 24 V DC transmitter power supply
- Serial communication using built in protocol or Modbus RTU
- Two optional relays for alarm indication or process control applications
- Linear or square root function supported
- Meter Copy feature to reduce setup time, cost, and errors
- RD software supports remote configuration, monitoring, and logging for up to 100 displays
- Other features include: 4 to 20 mA analog output option, pump alternation control, and optional NEMA 4 and 4X field enclosures
- 2X option for 30.5 mm (1.2 inch) high, red LED display

Application

The RD200 is a universal remote display for level, flow, pressure, temperature, weighing, and other process instruments. Data can be remotely collected, logged and presented from as many as 100 displays on your local computer using the free downloadable RD Software.

The display accepts a single input of current, voltage, thermocouple, and RTD. This makes the RD200 an ideal fit for use with most field instruments.

The RD200 can be set up as a standard panel mount, or combined with optional enclosures to allow it to house up to 6 displays.

- Key Applications: tank farms, pump alternation control, local or remote display of level, temperature, flow, pressure and weighing instrument values, PC monitoring, and data logging with RD Software.

Selection and ordering data

		Article No.	
SITRANS RD200 Display Remote digital display for process instruments. With 4 to 20 mA, 0 to 10 V, RTD, and TC inputs and pump control. Panel mount with field mount enclosure options.		7ML5740- ● ● ● ● ● - ● A	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Input voltage			
85 ... 265 V AC, 50/60 Hz; 90 ... 265 V DC, 20 W max.		1	
12 ... 36 V DC; 12 ... 24 V AC, 6 W max.		2	
Transmitter supply			
None		A	
Single 24 V DC transmitter supply ¹⁾		B	
Dual 24 V DC transmitter supply ¹⁾²⁾		C	
Output			
None		A	
2 relays		B	
4 ... 20 mA output		C	
Communication			
Modbus RTU			0
Approvals			
CE, UL, cUL			1
Display Size			
Standard			0
2X option for 30.5 mm (1.2 inch) high, red LED			1

¹⁾ Available with input voltage option 1 only.

²⁾ Available with output option C only.

Selection and Ordering data	Article No
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
SITRANS RD200 copy cable 2.1 m (7 ft)	7ML1930-1BR
SITRANS RD200 RS 232 serial adapter (copy cable included)	7ML1930-1BS
SITRANS RD200 RS 422/485 serial adapter (copy cable included)	7ML1930-1BT
RS 232 to RS 422/485 isolated converter	7ML1930-1BU
RS 232 to RS 422/485 non-isolated converter	7ML1930-1BV
SITRANS RD200 RS 232 and RS 485 isolated multi-input adapter board	7ML1930-1BW
USB to RS 422/485 isolated converter	7ML1930-1BX
USB to RS 422/485 non-isolated converter	7ML1930-1BY
RD200 USB serial adapter	7ML1930-6AH
USB to RS 232 converter	7ML1930-6AK
RD Software CD for 1 ... 100 displays	7ML1930-1CC
Low cost polycarbonate plastic enclosure for 1 display	7ML1930-1CF
2 inch (5.08 cm) pipe mounting kit (zinc plated seal) only available with 7ML1930-1CF	7ML1930-1BP
2 inch (5.08 cm) pipe mounting kit (stainless steel, Type 304, EN 1.4301) only available with 7ML1930-1CF	7ML1930-1BQ
Thermoplastic enclosure	
For use with 1 display	7ML1930-1CG
For use with 2 displays	7ML1930-1CH
For use with 3 displays	7ML1930-1CJ
For use with 4 displays	7ML1930-1CK
For use with 5 displays	7ML1930-1CL
For use with 6 displays	7ML1930-1CM

Weighing Electronics

Supplementary components

Displays / SITRANS RD200

Selection and ordering data (Continued)

Selection and Ordering data	Article No
<u>Stainless steel enclosure (Type 304, EN 1.4301)</u>	
For use with 1 display	7ML1930-1CN
For use with 2 displays	7ML1930-1CP
For use with 3 displays	7ML1930-1CQ
For use with 4 displays	7ML1930-1CR
For use with 5 displays	7ML1930-1CS
For use with 6 displays	7ML1930-1CT
<u>Steel enclosure</u>	
For use with 1 display	7ML1930-1CU
For use with 2 displays	7ML1930-1CV
For use with 3 displays	7ML1930-1CW
For use with 4 displays	7ML1930-1CX
For use with 5 displays	7ML1930-1CY
For use with 6 displays	7ML1930-1DA

Technical specifications

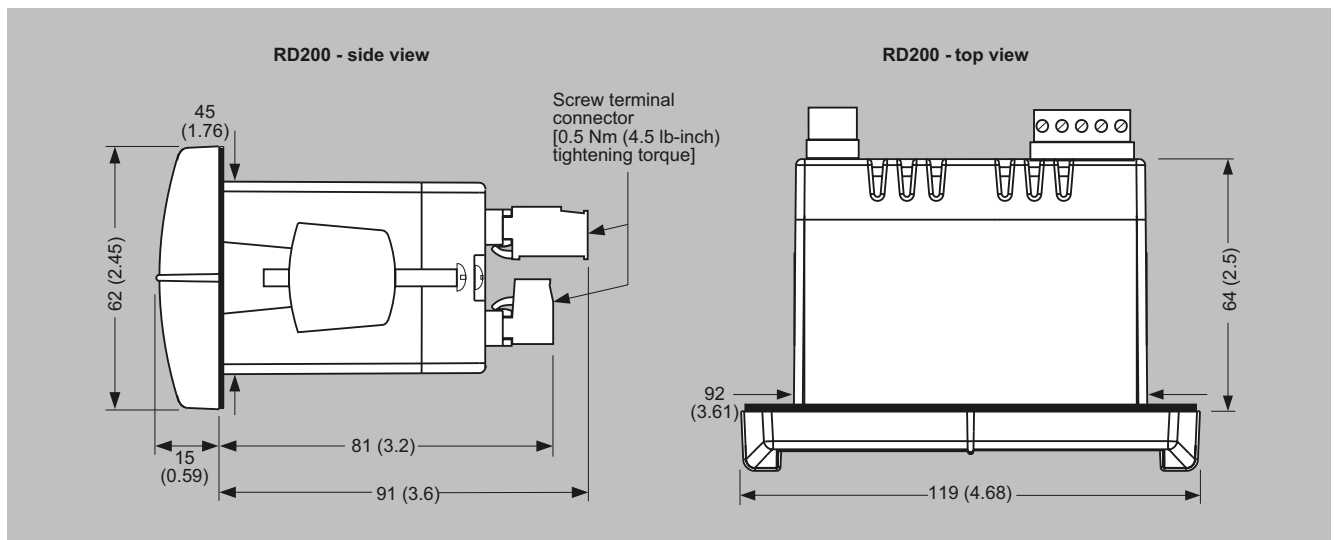
SITRANS RD200	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring points	<ul style="list-style-type: none"> 1 instrument Remote monitoring of 100 instruments with PC and RD software
Input	
Measuring range	
<ul style="list-style-type: none"> Current Voltage Thermocouple temperature 	<ul style="list-style-type: none"> 4 ... 20 mA, 0 ... 20 mA 0 V DC ... 10 V DC, 1 ... 5 V, 0 ... 5 V Type J: -50 ... +750 °C (-58 ... +1 382 °F) Type K: -50 ... +1 260 °C (-58 ... +2 300 °F) Type E: -50 ... +870 °C (-58 ... +1 578 °F) Type T: -180 ... +371 °C (-292 ... +700 °F) Type T, 0.1° resolution: -180.0 ... +371 °C (-199.9 ... +700 °F)
<ul style="list-style-type: none"> RTD temperature 	<ul style="list-style-type: none"> 100 Ω RTD: -200 ... +750 °C (-328 ... +1 382 °F)
Output signal	
Output	<ul style="list-style-type: none"> 4 ... 20 mA (optional) Modbus RTU
Relays	2 SPDT Form C relays, rated 3 A at 30 V DC or 3 A at 250 V AC, non-inductive, auto-initializing (optional)
Communications	<ul style="list-style-type: none"> RS 232 with PDC or Modbus RTU RS 422/485 with PDC or Modbus RTU
Accuracy	
4 ... 20 mA optional output	± 0.1 % FS ± 0.004 mA
Process input	± 0.05 % of span ± 1 count, square root: 10 ... 100 % FS
Thermocouple temperature input	<ul style="list-style-type: none"> Type J: ± 1 °C (± 2 °F) Type K: ± 1 °C (± 2 °F) Type E: ± 1 °C (± 2 °F) Type T: ± 1 °C (± 2 °F) Type T, 0.1° resolution: ± 1 °C (± 1.8 °F)
RTD temperature input	<ul style="list-style-type: none"> 100 Ω RTD: ± 1 °C (± 1 °F)
Rated operating conditions	
Ambient conditions	
<ul style="list-style-type: none"> Storage temperature range 	-40 ... +85 °C (-40 ... +185 °F)

Technical specifications (Continued)

SITRANS RD200	
<ul style="list-style-type: none"> Operating temperature range 	-40 ... +65 °C (-40 ... +149 °F)
Design	
Weight	269 g (9.5 oz) (including options)
Material (enclosure)	<ul style="list-style-type: none"> 1/8 DIN, high impact plastic, UL94V-0, color: gray Optional plastic, steel and stainless steel (Type 304, EN 1.4301) NEMA 4 enclosures
Degree of protection	Type 4X, NEMA 4X, IP65 (front cover); panel gasket provided
Electrical connection	
mA output signal	2-core copper conductor, twisted, shielded, 0.82 ... 3.30 mm ² (18 ... 12 AWG), Belden 8 760 or equivalent is acceptable
Electrical connection and relay connection	Copper conductor according to local requirements, rated 3 A at 250 V AC
Power supply	
Input voltage option 1	85 ... 265 V AC, 50/60 Hz; 90 ... 265 V DC, 20 W max.
Input voltage option 2	12 ... 36 V DC; 12 ... 24 V AC, 6 W max.
Transmitter power supply	One or two isolated transmitter power supplies (optional)
<ul style="list-style-type: none"> Single power supply Dual power supplies 	<ul style="list-style-type: none"> One 24 V DC ± 10 % at 200 mA max. Two 24 V DC ± 10 % at 200 mA and 40 mA max.
External loop power supply	35 V DC max.
Output loop resistance	<ul style="list-style-type: none"> 24 V DC, 10 ... 700 Ω max. 35 V DC (external), 100 ... 1 200 Ω max.
Displays and controls	
Display	<ul style="list-style-type: none"> 14 mm (0.56 inch) high LED 2X option for 30.5 mm (1.2 inch) high, red LED Numeric range from -1 999 ... +9 999 Four digits, automatic lead zero blanking Eight intensity levels
Memory	<ul style="list-style-type: none"> Non-volatile Stores settings for minimum of 10 years if power is lost
Programming	<ul style="list-style-type: none"> Primary: front panel Secondary: meter copy or PC with SITRANS RD software
Certificates and approvals	
	CE, UL, cUL

Technical specifications (Continued)

SITRANS RD200	
Options	
Enclosures	Plastic, steel, and stainless steel (Type 304, EN 1.4301) NEMA 4 and 4X enclosures
Mounting	<ul style="list-style-type: none"> • 2 inch (5.08 cm) pipe mounting kit (zinc plated seal) • 2 inch (5.08 cm) pipe mounting kit (stainless steel, Type 304, EN 1.4301)

Dimensional drawings


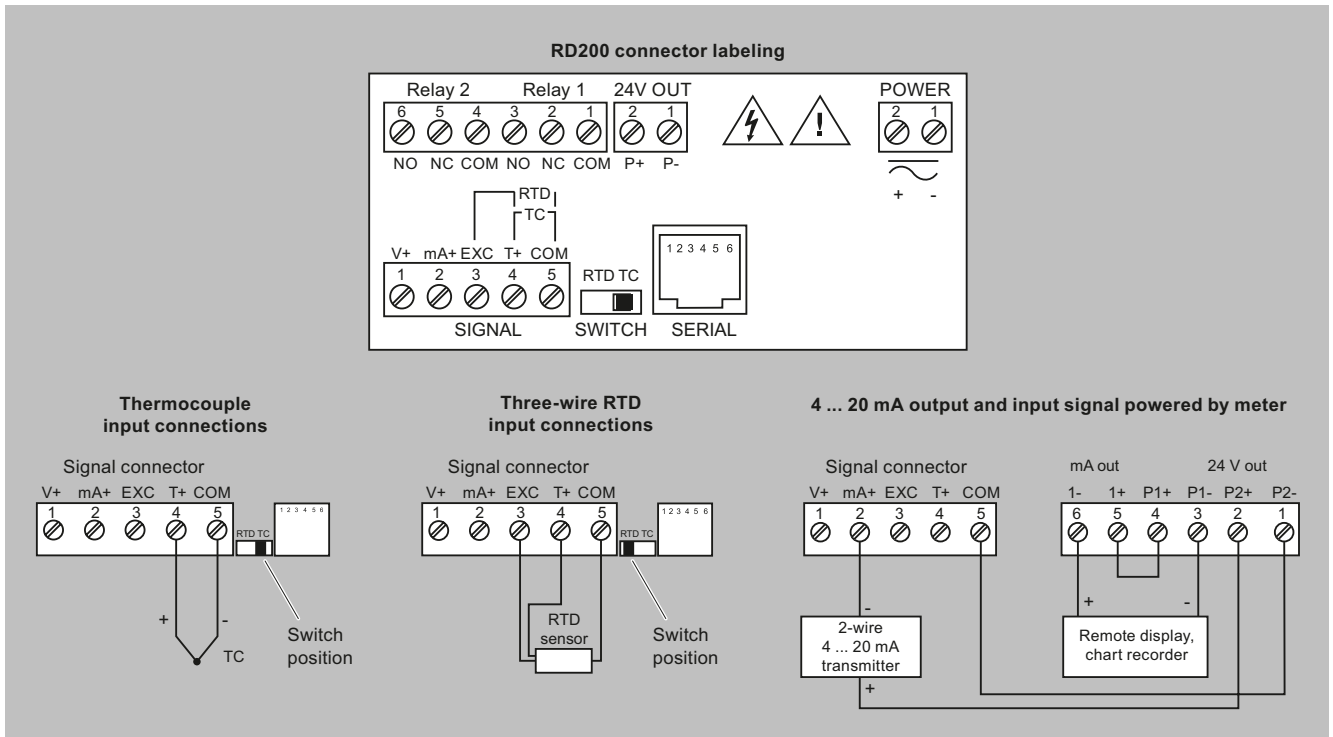
SITRANS RD200, dimensions in mm (inch)

Weighing Electronics

Supplementary components

Displays / SITRANS RD200

Circuit diagrams



SITRANS RD200 connections

Overview



The SITRANS RD300 is a panel mount remote digital display for process instrumentation and acts as a multi-purpose, easy to use, rate/totalizer ideal for flow rate, total, and control applications.

Benefits

- Easy setup and programming via front panel buttons or using free RD software available via USB drive
- Display readable in sunlight
- Input: accepts current and voltage
- Single or dual 24 V DC transmitter power supply
- Serial communication using built in protocol or Modbus RTU
- Supports up to 8 relays and 8 digital I/O for process control and alarming
- 32-Point linearization, square root or exponential linearization
- Multi-pump alternation control
- Supports total, grand total or non-resettable grand total
- 9-digit totalizer with total overflow feature
- Large dual-line, 6-digit display
- Configure, monitor, and datalog from a PC
- Dual-input option with math functions: addition, difference, average, multiplication, division, minimum, maximum, weighted average, ratio, concentration

Application

The RD300 is a remote display for level, flow, pressure, weighing, and other process instruments. This display also acts as a multi-purpose, easy to use rate/totalizer ideal for flow rate, total, and control applications.

Data can be remotely collected, logged and presented on your local computer using the free RD software available via USB drive.

The display accepts a single or dual input of current and voltage. This makes the RD300 an ideal fit for use with most field instruments.

The RD300 can be set up as a standard panel mount, or combined with optional enclosures to allow it to house up to 6 displays.

- Key Applications: tank farms, pump alternation control, local or remote display of level, flow, pressure and weighing instrument values, PC monitoring and data logging with RD Software.

Weighing Electronics

Supplementary components

Displays / SITRANS RD300

Selection and ordering data

		Article No.						
SITRANS RD300 Display		7ML5744- ● ● ● ● ● - 0 A						
Remote digital panel mount process display with current or voltage inputs.								
Two input, multi-line display, totalizer and pump control.								
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.								
Input voltage								
85 ... 265 V AC, 50/60 Hz; 90 ... 265 V DC, 20 W max.		1						
12 ... 36 V DC; 12 ... 24 V AC, 6 W max.		2						
Output								
None			A					
2 Relays			B					
4 Relays			C					
4 ... 20 mA output			D					
2 Relays and 4 ... 20 mA output			E					
4 Relays and 4 ... 20 mA output			F					
Type								
Single input process and flow rate/totalizer Mtr				A				
Dual input process Mtr				B				
Display								
Standard					0			
SunBright					1			
Approvals								
UL, C-UL and CE						0		

Selection and Ordering data	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
DIN-Rail Mounting Kit	7ML1930-6AB
4 Relays Expansion Module	7ML1930-6AC
4 Digital I/O Module	7ML1930-6AD
Dual output 4 ... 20 mA expansion module for dual input meter	7ML1930-6AP
Meter Copy Cable	7ML1930-6AE
RD300 RS 232 Serial Adapter	7ML1930-6AF
RD300 RS 422/485 Serial Adapter	7ML1930-6AG
RD300 USB Serial Adapter	7ML1930-6AJ
USB to RS 232 Converter	7ML1930-6AK
RS 232 to RS 422/485 isolated converter	7ML1930-1BU
RS 232 to RS 422/485 non-isolated converter	7ML1930-1BV
USB to RS 422/485 isolated converter	7ML1930-1BX
USB to RS 422/485 non-isolated converter	7ML1930-1BY
Snubber	7ML1930-6AL
Plastic enclosure	
For 1 meter	7ML1930-6AM
For 2 meters	7ML1930-6AN
For 4 meters	7ML1930-1CK
For 5 meters	7ML1930-1CL
For 6 meters	7ML1930-1CM

Technical specifications

SITRANS RD300	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring points	1 or 2 instruments
Input	
Measuring range	
• Current	4 ... 20 mA, 0 ... 20 mA
• Voltage	0 V DC ... +10 V DC, 1 ... 5 V, 0 ... 5 V
Output signal	
Output	<ul style="list-style-type: none"> • 4 ... 20 mA (optional) • Modbus RTU
Relays	2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A at 30 V DC and 125/250 V AC resistive load; 1/14 HP (50 W) at 125/250 V AC for inductive loads (optional)
Communications	<ul style="list-style-type: none"> • RS 232 with Modbus RTU • RS 422/485 with Modbus RTU • USB configuration and monitoring port
Accuracy	
4 ... 20 mA optional output	± 0.1 % FS ± 0.004 mA
Process input	± 0.05 % of span ± 1 count, square root: 10 ... 100 % FS
Rated operating conditions	
Ambient conditions	
• Storage temperature range	-40 ... +85 °C (-40 ... +185 °F)
• Operating temperature range	-40 ... +65 °C (-40 ... +149 °F)
Design	
Weight	269 g (9.5 oz) (including options)
Material (enclosure)	<ul style="list-style-type: none"> • 1/8 DIN, high impact plastic, UL94V-0, color: gray • Optional plastic, steel and stainless steel (Type 304, EN 1.4301) NEMA 4 enclosures
Degree of protection	Type 4X, NEMA 4X, IP65 (front cover); panel gasket provided
Electrical connection	
mA output signal	2-core copper conductor, twisted, shielded, 0.82 ... 3.30 mm ² (18 ... 12 AWG), Belden 8 760 or equivalent is acceptable
Electrical connection and relay connection	Copper conductor according to local requirements, rated 3 A at 250 V AC
Power supply	
Input voltage option	85 ... 265 V AC, 50/60 Hz; 90 ... 265 V DC, 20 W max. or jumper selectable 12/24 V DC ± 10 %, 15 W max.
Transmitter power supply	Terminals P+ & P-: 24 V DC ± 10 %, 12/24 V DC powered models selectable for 24, 10, or 5 V DC supply (internal jumper J4), 85 ... 265 V AC models rated at 200 mA max, 12/24 V DC powered models rated at 100 mA max., at 50 mA max. for 5 or 10 V DC supply.
External loop power supply	35 V DC max.
Output loop resistance	<ul style="list-style-type: none"> • 24 V DC, 10 ... 700 Ω max. • 35 V DC (external), 100 ... 1 200 Ω max.
Displays and controls	
Main display	0.6 inch (15 mm) high, red LEDs
Second display	0.46 inch (12 mm) high, red LEDs, 6-digits: each (-99 999 ... 999 999)
Memory	<ul style="list-style-type: none"> • Non-volatile • Stores settings for minimum of 10 years if power is lost
Programming	<ul style="list-style-type: none"> • Primary: front panel • Secondary: Meter Copy or PC with SITRANS RD Software
Certificates and approvals	
CE, UL, cUL	

Technical specifications (Continued)

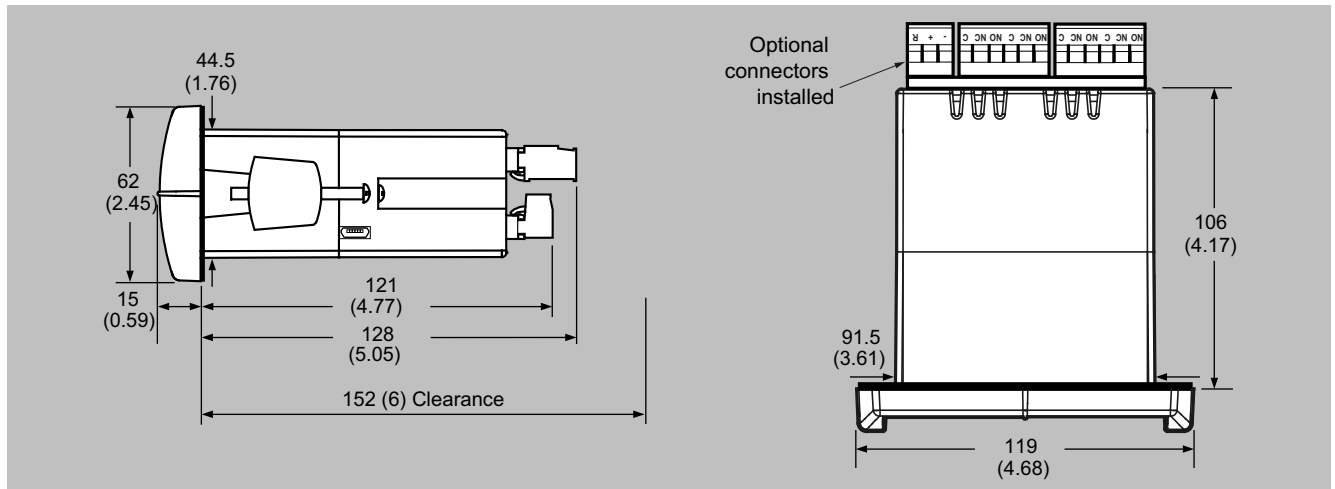
SITRANS RD300	
Options	
Enclosures	Plastic, steel and stainless steel (Type 304, EN 1.4301) NEMA 4 and 4X enclosures

Weighing Electronics

Supplementary components

Displays / SITRANS RD300

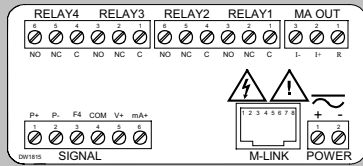
Dimensional drawings



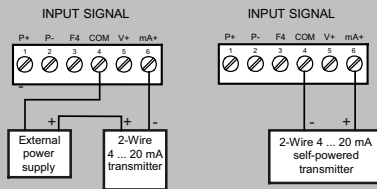
SITRANS RD300, dimensions in mm (inch)

Circuit diagrams

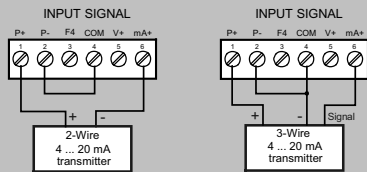
Connector labeling for fully loaded single input meter



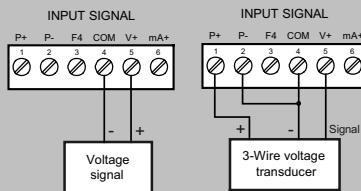
Transmitter powered by external supply or self-powered



Transmitter powered by internal supply



Voltage Input Connections



SITRANS RD300 connections

Weighing Electronics

Software

Introduction

Overview



Configuration software for easy integration

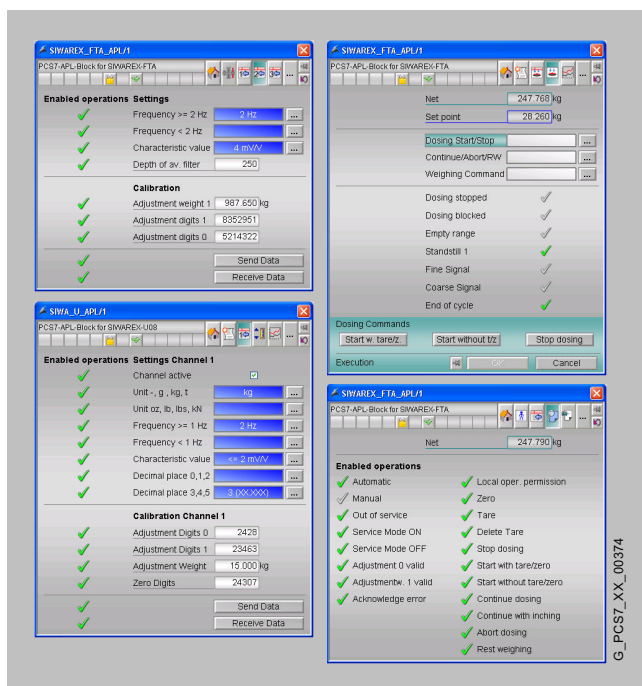
For fast, simple integration of our weighing modules, we offer configuration packages for the SIMATIC S7 automation system and the SIMATIC PCS 7 process control system.

As well as the operating tools, both PCS 7 faceplates and function blocks make the commissioning and control of the SIWAREX weighing electronics as easy and convenient as conceivably possible.

Tools and add-ons for Siemens weighing components

Our configuration packages enable straightforward data exchange between the SIMATIC S7 or SIMATIC PCS 7 automation system and our weighing modules. Integrated signaling behavior and maintenance functions such as the reading or writing of all weighing parameters enable high plant availability and correspondingly low downtimes.

Overview



Level, proportioning, belt, and loss-in-weight scales in process engineering applications can be quickly and efficiently configured using pre-configured weighing blocks. The uniform design of the SIWAREX weighing controllers matching that of SIMATIC ET 200M or ET 200SP also enables easy and consistent wiring in the control cabinet.

For the SIMATIC PCS 7 process control system, Siemens offers the **SIWAREX PCS 7 AddOn Library** with function blocks for the SIWAREX U, SIWAREX FTA, SIWAREX FTC and SIWAREX WP321 weighing controllers. These weighing blocks are suitable for both standard and fault-tolerant automation systems. In high-availability automation systems, the singularly installed SIWAREX U/FTA/FTC/WP321 can be accessed via both subsystems.

The weighing blocks supplied with the faceplate not only allow the rational integration of the SIWAREX U/FTA/FTC/WP321 weighing controllers into the engineering system, they also enable user-friendly operation and commissioning of the scales via the SIMATIC PCS 7 operator stations. Integrated signaling behavior and maintenance functions such as the reading or writing of all scale parameters ensure short standstill times and help to increase the availability.

The pixel-graphics engineering with the CFC editor is very clear and easy to use. The use of prepared blocks also eliminates possible sources of errors and reduces the configuration costs.

The SIWAREX PCS 7 AddOn Library also supports communication via PROFINET.

Note:

The function blocks and faceplates for the weighing controllers can be used together with SIMATIC PCS 7 V8.x and V9.0.

For SIMATIC PCS 7 V8.x, configuration packages are still available in the style of the PCS 7 Standard Library for SIWAREX U and SIWAREX FTA.


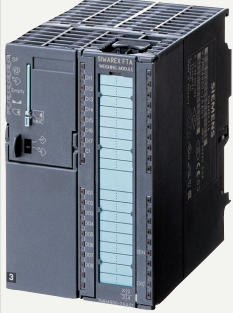
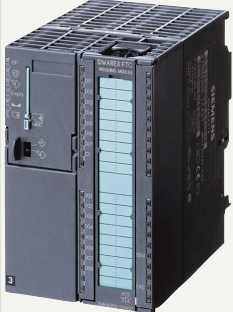
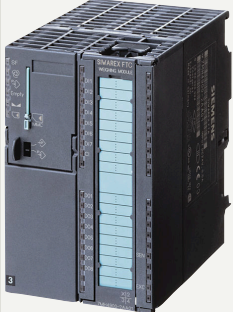

Weighing Electronics

Software

SIMATIC PCS 7 Add-ons

Design

Product overview SIWAREX configuration packages for SIMATIC PCS 7 and the associated weighing controller

Configuration packages, variants	Associated hardware (SIWAREX weighing controller)	Article number	
SIWAREX U (platform weighing machine/level measurement) <ul style="list-style-type: none"> SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design Configuration package SIWAREX U for SIMATIC PCS 7 V8.x, PCS 7 Standard Library design 	SIWAREX U (1-channel), in design of ET 200M SIWAREX U (2-channel), in design of ET 200M	7MH4950-1AA01 7MH4950-2AA01	
SIWAREX FTA (automatic dosing and filling scales) <ul style="list-style-type: none"> SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design SIWAREX FTA configuration package for SIMATIC PCS 7 V8.x, PCS 7 Standard Library design 	SIWAREX FTA, in design of ET 200M	7MH4900-2AA01	
SIWAREX FTC_B (conveyor scales) <ul style="list-style-type: none"> SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design 	SIWAREX FTC, with ET 200M design	7MH4900-3AA01	
SIWAREX FTC_L (differential proportioning weigher) <ul style="list-style-type: none"> SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design 	SIWAREX FTC, with ET 200M design	7MH4900-3AA01	
SIWAREX WP321 (platform weighing machine/level measurement) <ul style="list-style-type: none"> SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design 	SIWAREX WP321, in design of ET 200SP	7MH4138-6AA00-0BA0	

Selection and ordering data

SIWAREX PCS 7 AddOn Library	
SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0 Consisting of function blocks, faceplates and manual, 2 languages (English, German), engineering license for SIWAREX weighing modules, single license for 1 installation <ul style="list-style-type: none"> • APL faceplates and function blocks for <ul style="list-style-type: none"> - SIWAREX U - SIWAREX FTA - SIWAREX FTC_B (conveyor scales) - SIWAREX WP321 • Classic faceplate and function block for <ul style="list-style-type: none"> - SIWAREX FTC_L (loss in weight) Engineering and runtime software, software class A Type of delivery: Software and electronic documentation on CD, engineering license (certificate of license)	7MH4900-1AK61
Associated hardware	
SIWAREX U weighing controller <ul style="list-style-type: none"> • SIWAREX U (1-channel)¹⁾ • SIWAREX U (2-channel)¹⁾ 	7MH4950-1AA01 7MH4950-2AA01
SIWAREX FTA weighing controller SIWAREX FTA ¹⁾	7MH4900-2AA01
SIWAREX FTC weighing controller SIWAREX FTC ¹⁾	7MH4900-3AA01
SIWAREX WP321 weighing controller SIWAREX WP321 ¹⁾	7MH4138-6AA00-0BA0
Configuration packages in PCS 7 Standard Library design for SIMATIC PCS 7 V8.x	
Configuration package SIWAREX FTA for SIMATIC PCS 7 V8.x Consisting of function block, faceplate and manual, 2 languages (English, German), engineering license for SIWAREX FTA, single license for 1 installation Engineering and runtime software, software class A Type of delivery: Software and electronic documentation on CD, engineering license (certificate of license)	7MH4900-2AK63

¹⁾ For further accessories (ground terminal, etc.), refer to the corresponding Equipment Manual.

More information

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 You can find additional information on the Internet at:
<http://www.siemens.com/weighing-technology>

Weighing Electronics

Software

SIWATOOL

Overview

SIWATOOL is a service software tool which enables you to calibrate the module quickly and efficiently on site, set or reset parameters, and perform diagnostics in the event of a fault. Furthermore, complete backup files can be created for the scales before module replacement. These can be uploaded to the new module with a few mouse clicks, so that it operates exactly the same as at the point of backup of the old module without the need for any recalibration. It is even possible to upload configuration files that were created off-line and to read out the error buffer. No special SIMATIC knowledge is required to use SIWATOOL.

Benefits

- No special SIMATIC knowledge is required
- Fast adjustment and definition of parameters

Selection and ordering data

	Article No.
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01
Ethernet cable patch cord 2 m (7 ft) For connection of SIWAREX WP2xx and 5xx to a PC	6XV1850-2GH20
SIWATOOL connection cable For connecting SIWAREX U/CS to a PC (RS 232), length 3 m (9.84 ft)	7MH4607-8CA
SIWATOOL connection cable For connection of SIWAREX FTx to a PC (RS 232)	
• Length: 2 m (6.56 ft)	7MH4702-8CA
• Length: 5 m (16.40 ft)	7MH4702-8CB

IIoT Weighing Solutions



3/2	SIMATIC IOT2000 SG-Shield
3/4	SITRANS store IQ
3/6	SIMATIC IOT2050

IIoT Weighing Solutions

SIMATIC IOT2000 SG-Shield

Overview



The SIMATIC IOT2000 SG-Shield is the simple solution for remotely viewing measured values from load cells based on strain gauges. The load cell cable simply connects directly to the shield. The system digitizes the analog data and sends it to the cloud via the SIMATIC IOT2050 Gateway. This allows you to retrieve the filling levels from your customers at any time and adjust your delivery routes accordingly.

Benefits

- Multiple communication options in conjunction with SIMATIC IOT2050
- High flexibility enabled by Node-RED software
- Easy setup of MindSphere thanks to ready-to-use MindConnect Library
- High accuracy at +/- 1 000 000 parts resolution

Application

The SIMATIC IOT2000 SG-Shield is supplied with a node-RED software example and all necessary interfaces. This means the system can be put into operation via the Node-RED Dashboard and connected to the cloud. At the same time, the measured values recorded can be stored in MindSphere, our cloud-based, open IoT operating system, for example, and retrieved again with our SITRANS Store IQ app, for example. Of course, you can also connect higher-level office business systems or individual applications for monitoring fill levels, for example to automate order processes or your delivery route planning.

The actual interface to the cloud is provided by our SIMATIC IOT2000 gateway family. The SIMATIC IOT2000 SG-Shield is simply plugged into the device, the necessary software image is loaded onto the Micro SD Card, and your connection to the Internet of Things is already established.

Thanks to integrated open source (Node-RED for connecting IoT components), the measured values do not remain trapped in a closed system, but can also be integrated into any manufacturer-independent system with little programming effort. This offers the user maximum flexibility and openness.

For the OEM sector we have a special variant, which is equipped with an RS 485 interface.

Selection and ordering data

	Article No.
SIMATIC IOT2000 SG-Shield	7MH4647-0KK00-0AA2
Scope of delivery:	
• 1 × SIMATIC IOT2000 SG-Shield	
• 1 × mounting terminal made of metal	
• 3 × mounting terminal made of plastic	
• 1 × cover	
SG-Shield OEM	7MH4647-0AA01
SIMATIC IOT2050	
2 × GB Ethernet RJ45; display port;	
2 × USB2.0; 24 V DC industrial power supply	
• Standard version	6ES7647-0BA00-0YA2
• Version with 16 GB eMMC	6ES7647-0BA00-1YA2

Technical specifications

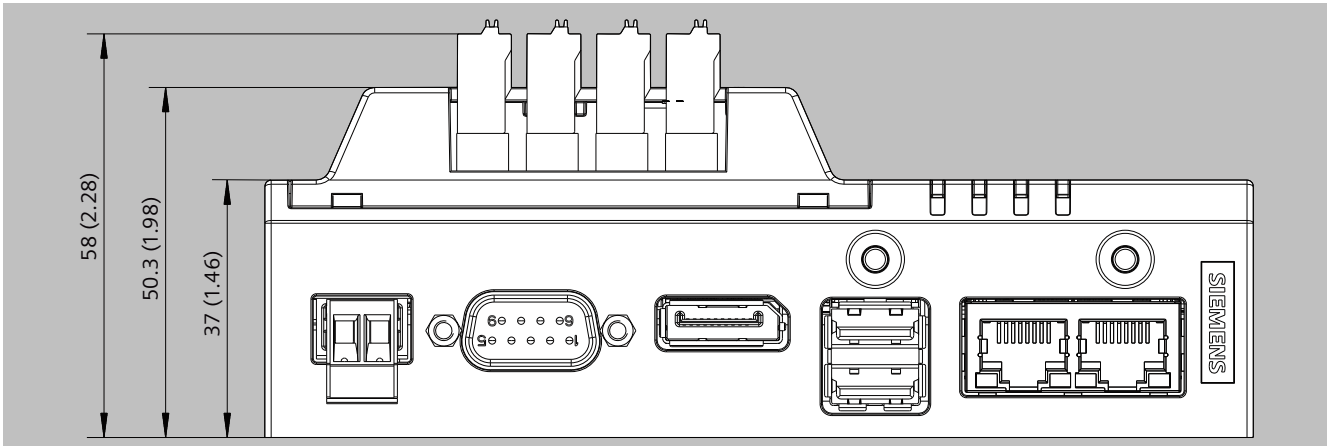
Because the SIMATIC IOT2000 SG-Shield is inserted into the SIMATIC IOT2050, the same technical specifications apply as for SIMATIC IOT2050:

- Degree of protection: IP20 in accordance with IEC 60529
- Electromagnetic compatibility
- Ambient conditions

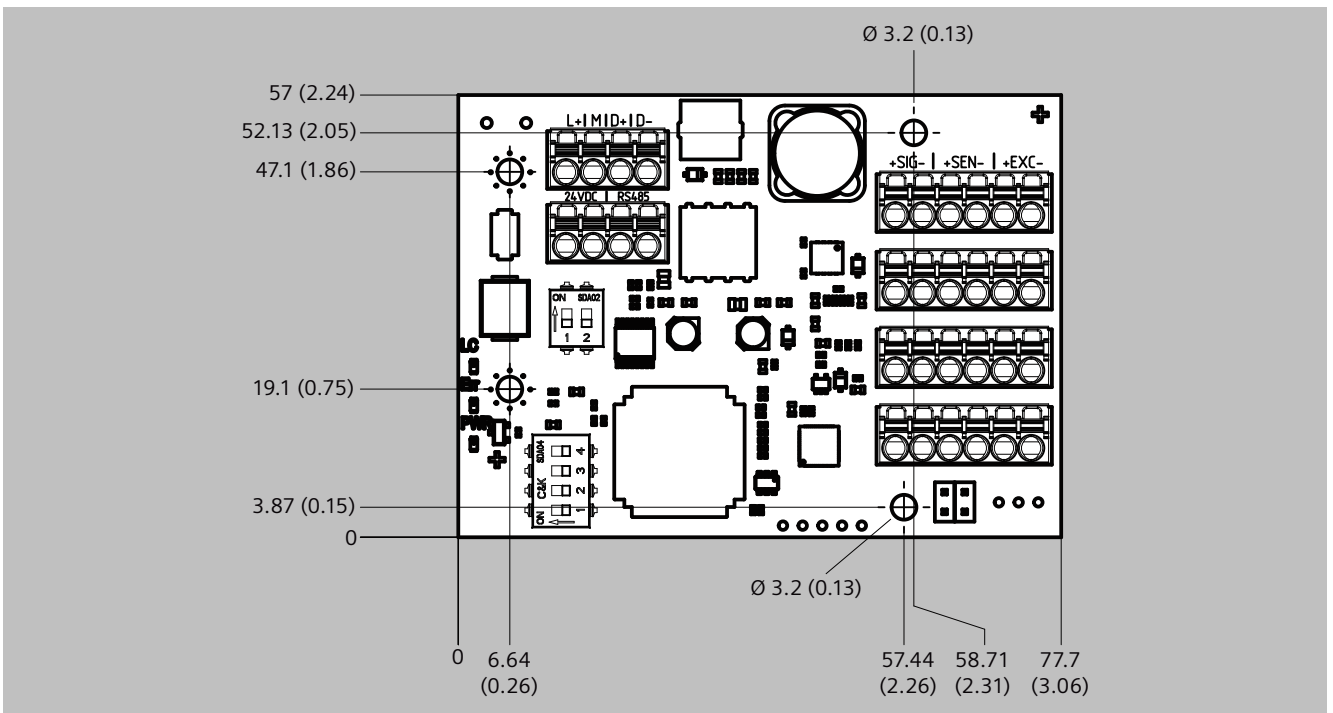
Load cell interface

Accuracy	0.05%
Input signal resolution	± 1 000 000
Measuring range	± 4 mV/V
Supply of the full bridge	4.85 V DC +2/-3%
Connection	4-wire or 6-wire
Strain gauge input resistance	50 ... 4 100 Ω
Galvanic isolation	500 V AC
Communications interface	
• SIMATIC IOT2000 SG-Shield	Arduino pin layout compatible with SIMATIC IOT2050
• SG-Shield OEM	RS 485

Dimensional drawings



SIMATIC IOT2000 SG-Shield, dimensions in mm (inch)



SG-Shield OEM, dimensions in mm (inch)

IIoT Weighing Solutions

SITRANS store IQ

Overview

SITRANS store IQ is a Siemens MindSphere based application used to monitor and manage inventories in process and discrete industries.

Benefits

- Manage entire inventory network from a central location.
- Reduce overhead required to monitor and plan stock levels.
- Avoid unnecessary downtime and cost associated with unexpected shortages.
- Increase transparency of measurement reliability.

Application

Inventory management is a necessary task in virtually every value chain. Inventories are required whenever material is processed, produced, or assembled. SITRANS store IQ is an inventory management app based on Siemens MindSphere, that records measurements and data from various types of instrumentation, including a level device at a process tank or scales mounted in storage shelves.

SITRANS store IQ also monitors auxiliary measurements, helping to better characterize inventories, for example, with temperature readings or binaries.

SITRANS store IQ records readings and visualizes them in a customizable way, offering structuring with hierarchies, map views, and graph views. The acquired data can be used to create proactive alarms via email or SMS, exactly as required for your application. The SITRANS store IQ app can be used on a desktop computer or mobile device.

Design

- A reliable and accurate record of inventory data from anywhere.
- A flexible structure for configuring an inventory network of any size.
- Provides a visualization of an inventory mix, with material breakdown.
- KPI thresholds to easily assess inventory levels.
- Custom alarms for proactive notifications.
- Based on MindSphere and MindSphere connectivity solutions.
- Open to virtually every measurement technology.
- Ability to monitor any process values, including humidity, temperature, digital inputs.

The following standard SITRANS store IQ packages are available:

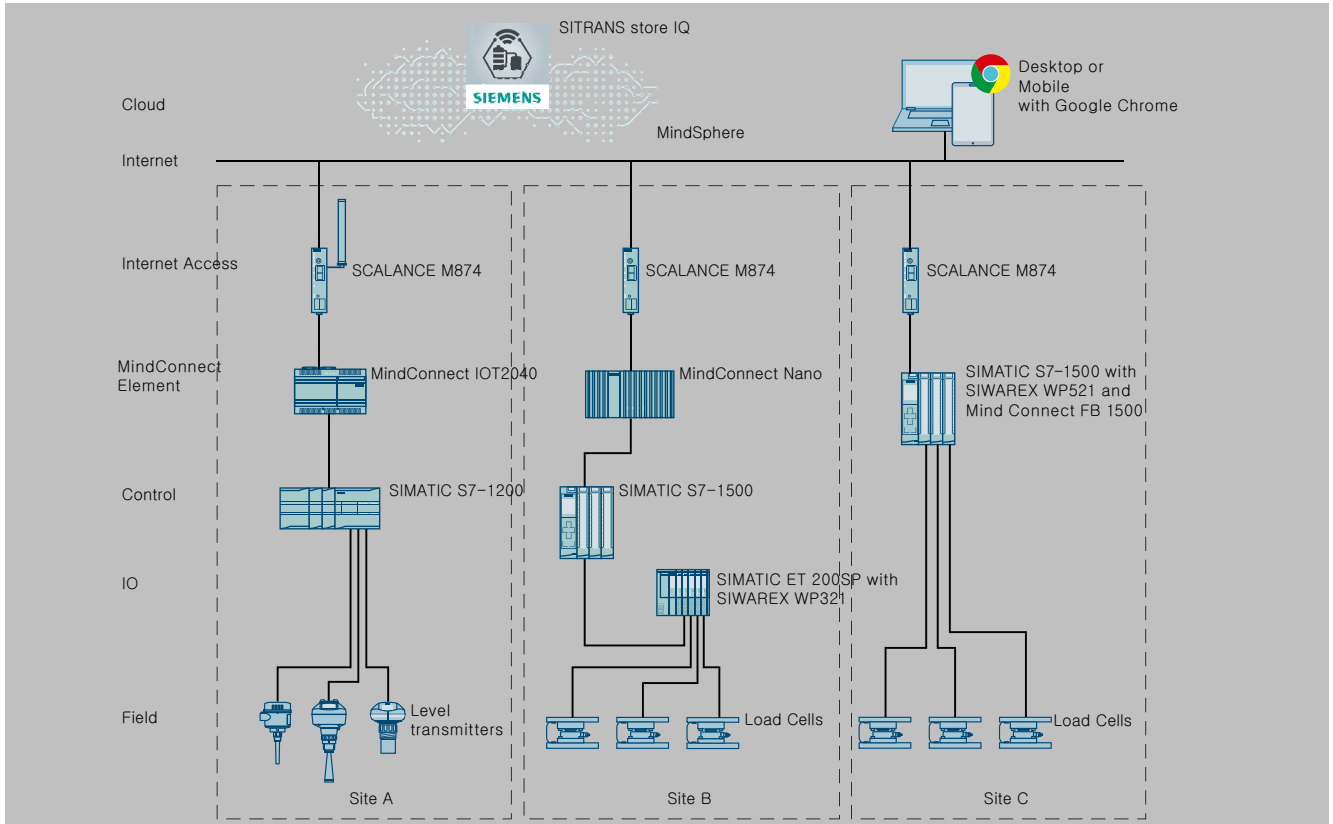
SITRANS store IQ is distributed via the MindSphere Digital Exchange: <https://www.dex.siemens.com>

Software packages	Entry	Small	Medium
MindSphere base tenant includes:	✓	✓	✓
MindSphere users	2	2	5
Agents	1	2	10
Data ingest rate	0.01 kB/s	0.05 kB/s	0.1 kB/s
Data storage	0.5 GB	0.5 GB	5 GB
SITRANS store IQ application includes:			
Monitored assets	3	10	100
License type	Subscription with 12-month initial subscription term. The 12 month subscription will renew automatically if not cancelled 60 days before the end of the first subscription term.		

Design (Continued)

License upgrade options	
Asset upgrade	
Additional monitored assets	10
Additional data ingest rate	0.1 kB/s
Additional data storage	0.5 GB

Integration



IIoT Weighing Solutions

SIMATIC IOT2050

Overview

The SIMATIC IOT2050 is the reliable, open platform designed for the acquisition, processing and transfer of data directly in the production environment.

It is ideally suited for use as a gateway between the cloud or company IT level and production.

The openness of the system in supporting numerous communication protocols and programming in high-level languages enables tailored solutions.

Openness for industrial IOT applications

- Wide range of options for programming in high-level languages
 - Implementation of flexible communication solutions with different protocols, from Modbus RTU, OPC UA to cloud protocols such as MQTT/AMQP
 - Use of open source application examples and libraries
 - SIMATIC Industrial OS, via OSD + free "ISAR" Debian via download
- Additional information is available on the Internet at:
<http://siemens.com/iot2000>

Benefits

- Highly flexible connection options
 - Variety of interfaces on-board for simple connection
 - Simple and extremely flexible facilities with Arduino Shields and mPCIe cards
- High degree of ruggedness for continuous operation in industrial environments
 - Designed for continuous operation at ambient temperatures up to 50 °C and tough environmental conditions
 - Compact enclosure with diagnostics LEDs
 - Standard rail mounting for easy installation in the control cabinet
- Deterministic response and performance for industrial applications
 - Battery-backed real-time clock for assigning data to relevant time stamp
 - TI ARM SoC, 64-bit processor including x86 deterministic response and security feature such as Secure Boot

Application

The combined utilization of machine and production data opens up a wide range of possible applications – the SIMATIC IOT2050 as a freely-programmable data gateway can establish the interface between the field and the IT/cloud. It can harmonize communication between the various sources of data before analyzing it and forwarding it to the appropriate recipients.

The SIMATIC IOT2050 can constitute an easy to retrofit, cost-efficient solution. This easy-to-implement solution facilitates the realization of future-oriented production concepts on already existing systems.

Application examples:

- Connection of additional sensors, and data collection and transfer in existing systems in order to identify optimization potential
- Acquisition of machine data, such as motor performance indicators, for analysis in order to derive preventive maintenance concepts
- Coherence and harmonization of communication from and between different machines and automation components

Design

Basic design

- Plastic enclosure, resistant to vibration and shock, also for high electromagnetic compatibility
- Isolated power supply:
 - 24 V DC (12 ... 32 V)
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbps Ethernet interface (RJ45)
 - 2 x USB V2.0
 - 1 x COM (RS232 / 485)
- Fieldbus
 - TSN and ProfiNet@TSN capability above standard Ethernet interface
- Processor:
 - TI ARM SoC, 64-bit, 2 cores (approx. 5k DMIPs)
 - TI ARM SoC, 64-bit, 4 cores (approx. 10k DMIPs)
- Main memory configuration:
 - 1 GB RAM / 2 GB RAM
- Hardware expansion:
 - 1 x mPCIe slot x 1
 - ARDUINO UNO R3 Shield interface
- Drives:
 - Micro SD card / Storage internal eMMC and Micro SD card
- Operating system as download:
 - SIMATIC Industrial OS / free "ISAR" Debian via download

Selection and ordering data

SIMATIC IOT2050	
2 x GB Ethernet RJ45; Display Port; 2x USB 2.0; SD CARD slot; 24 V DC industrial power supply	
• Hard disk: 1x microSD card slot; memory: DDR4-SDRAM 1 GB	6ES7647-0BA00-0YA2
• Hard disk: 16 GB eMMC 1x microSD card slot; memory: DDR4-SDRAM 2 GB	6ES7647-0BA00-1YA2

Technical specifications

Article number	6ES7647-0BA00-0YA2	6ES7647-0BA00-1YA2
General information		
Product type designation	IOT2050	IOT2050
Installation type/mounting		
Design	IoT Gateway, built-in unit	IoT Gateway, built-in unit
Supply voltage		
Type of supply voltage	12/24 V DC	12/24 V DC
• Mains buffering		
• Mains/voltage failure stored energy time	5 ms	5 ms
Processor		
Processor type	ARM TI AM6528 GP	ARM TI AM6548 HS
Graphic		
Graphics controller	Integrated	Integrated
Drives		
Slot for drives	1x microSD card slot	1x microSD card slot
Memory		
Type of memory	DDR4	DDR4
Main memory	1 GB RAM	2 GB RAM
Hardware configuration		
• Slots		
• free slots	1x Arduino, 1x mPCIe	1x Arduino, 1x mPCIe
Digital inputs		
Number of digital inputs	20	20
• Input voltage		
• Type of input voltage	DC	DC
Digital outputs		
Number of digital outputs	20	20
• Output voltage		
• Type of output voltage	DC	DC
• permissible voltage at output, min.	3.3 V	3.3 V
• permissible voltage at output, max.	5 V	5 V
Analog inputs		
Number of analog inputs		6
• Input ranges		
• Voltage		Yes; 0 ... 5 V
Interfaces		
PROFIBUS/MPI	can be implemented with plug-in card	can be implemented with plug-in card
Number of industrial Ethernet interfaces	2	2
Number of PROFINET interfaces	2	2
USB port	2x USB 2.0	2x USB 2.0
Connection for keyboard/mouse	USB	USB
serial interface	1x COM (1x RS 232 / 422 / 485)	1x COM (1x RS 232 / 422 / 485)
• Video interfaces		
• Graphics interface	1x DisplayPort	1x DisplayPort
• Industrial Ethernet		
• Industrial Ethernet interface	2x Ethernet (RJ45)	2x Ethernet (RJ45)
• 100 Mbps	Yes	Yes
• 1000 Mbps	Yes	Yes
Integrated Functions		
• Monitoring functions		
• Temperature monitoring	Yes	Yes
• Watchdog	Yes	Yes
• Status LEDs	Yes	Yes

IIoT Weighing Solutions

SIMATIC IOT2050

Technical specifications (Continued)

Article number	6ES7647-0BA00-0YA2	6ES7647-0BA00-1YA2
EMC		
<ul style="list-style-type: none"> Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity 	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
<ul style="list-style-type: none"> Interference immunity against high-frequency electromagnetic fields Interference immunity against high frequency radiation 	10 V/m for 80 ... 1 000 MHz, 80 % AM according to IEC 61000-4-3; 3 V/m for 1.4 ... 6 GHz, 80 % AM according to IEC 61000-4-3	10 V/m for 80 ... 1 000 MHz, 80 % AM according to IEC 61000-4-3; 3 V/m for 1.4 ... 6 GHz, 80 % AM according to IEC 61000-4-3
<ul style="list-style-type: none"> Interference immunity to cable-borne interference Interference immunity on supply cables 	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
<ul style="list-style-type: none"> Interference immunity on signal cables >30m 	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
<ul style="list-style-type: none"> Interference immunity on signal cables < 30m 	±1 kV acc. to IEC 61000-4-4, Burst	±1 kV acc. to IEC 61000-4-4, Burst
<ul style="list-style-type: none"> Interference immunity against voltage surge asymmetric interference symmetric interference 	±2 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-5, surge symmetric	±2 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-5, surge symmetric
Degree and class of protection		
IP (all-round)	IP20	IP20
Standards, approvals, certificates		
CE mark	Yes	Yes
UL approval	Yes	Yes
cULus	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
KC approval	Yes	Yes
EAC (formerly Gost-R)	Yes	Yes
FCC	Yes	Yes
EMC	CE, EN 61000-6-4:2007 +A1:2011, EN 61000-6-2:2005, CE, EN IEC 61000-6-4:2019, EN IEC 61000-6-2:2019	CE, EN 61000-6-4:2007 +A1:2011, EN 61000-6-2:2005, CE, EN IEC 61000-6-4:2019, EN IEC 61000-6-2:2019
Ambient conditions		
<ul style="list-style-type: none"> Altitude during operation relating to sea level Installation altitude above sea level, max. 	2 000 m	2 000 m
<ul style="list-style-type: none"> Relative humidity Relative humidity Operation, max. 	5 ... 85 % at 30 °C, no condensation 85 %	5 ... 85 % at 30 °C, no condensation 85 %
<ul style="list-style-type: none"> Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 	tested according to IEC 60068-2-6: 10 cycles; 5 to 8.4 Hz: deflection 3.5 mm; 8.4 to 200 Hz: acceleration 9.8 m/s ²	tested according to IEC 60068-2-6: 10 cycles; 5 to 8.4 Hz: deflection 3.5 mm; 8.4 to 200 Hz: acceleration 9.8 m/s ²
<ul style="list-style-type: none"> Shock testing Shock load during operation 	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems		
pre-installed operating system	No	SIMATIC Industrial OS
without operating system	Yes	No
Mechanics/material		
Enclosure material (front)	plastic	plastic
<ul style="list-style-type: none"> Plastic Aluminum Stainless steel 	Yes Yes Yes	Yes Yes Yes

Technical specifications (Continued)

Article number	6ES7647-0BA00-0YA2	6ES7647-0BA00-1YA2
• Glass	No	No
Dimensions		
Width	37 mm	37 mm
Height	142 mm	142 mm
Depth	100 mm	100 mm

More information

More information is available on the internet at:
<http://siemens.com/iot2000>

Load Cells



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4/7	Introduction to mounting components
4/8	Single point load cells
4/8	SIWAREX WL260 SP-S AA Load cell
4/10	SIWAREX WL260 SP-S AB Load cell
4/12	SIWAREX WL260 SP-S AE Load cell
4/14	SIWAREX WL260 SP-S SA Load cell
4/17	SIWAREX WL260 SP-S SB Load cell
4/20	SIWAREX WL260 SP-S SC Load cell
4/23	Bending beam load cells
4/23	SIWAREX WL230 BB-S SA Load cell
4/25	SIWAREX WL230 BB-S SA Mounting unit
4/29	SIWAREX WL230 BB-S SA Elastomer bearing
4/31	SIWAREX WL230 BB-S SA Base plate
4/32	Shear beam load cells
4/32	SIWAREX WL230 SB-S SA Load cell
4/34	SIWAREX WL230 SB-S SA Mounting unit with guide element
4/37	SIWAREX WL230 SB-S SA Base plate with elastomer bearing
4/39	SIWAREX WL230 SB-S SA Load foot
4/42	SIWAREX WL230 SB-S CA Load cell
4/44	SIWAREX WL230 SB-S CA Load foot
4/46	Double shear beam load cells
4/46	SIWAREX WL290 DB-S CA Load cell
4/49	SIWAREX WL290 DB-S CA Silo-mounting unit
4/51	SIWAREX WL290 DB-S CA Mounting unit for vehicles
4/52	S-Type load cells
4/52	SIWAREX WL250 ST-S SA Load cell
4/55	SIWAREX WL250 ST-S SA Lifting eye bolt
4/57	Compression load cells
4/57	SIWAREX WL270 CP-S SA Load cell
4/59	SIWAREX WL270 CP-S SA Mounting unit with guide element
4/62	SIWAREX WL270 CP-S SA Pressure piece set with adapter plates
4/65	SIWAREX WL270 CP-S SB Load cell
4/67	SIWAREX WL270 CP-S SB Mounting unit
4/69	SIWAREX WL270 CP-S SB Pressure piece set
4/70	SIWAREX WL270 K-S CA Load cell
4/76	SIWAREX WL270 K-S CA Self-centering bearing unit
4/78	Ring torsion load cells
4/78	SIWAREX WL280 RN-S SA Load cell
4/87	SIWAREX WL280 RN-S SA Self-aligning bearing
4/90	SIWAREX WL280 RN-S SA Elastomer bearing
4/92	SIWAREX WL280 RN-S SA Mounting unit with guide element
4/94	Load cell accessories
4/94	SIWAREX DB digital junction box
4/98	SIWAREX JB analog junction box
4/100	SIWAREX EB extension box



4/102	Cable
4/103	Configuration examples
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4/104	Configuration example 1
4/105	Configuration example 2
4/106	Configuration example 3

Overview



Siemens offers load cells in the SIWAREX WL200 series. All load cells are equipped with strain gauges. They are used for static and dynamic weight measurements.

The wide range of different designs available enables SIWAREX load cells to be used in a variety of applications: from single point load cells to bending and shear beams, up to S-type, compression and ring-torsion load cells.

The different load cell series cover rated load ranges from 0.3 kg (0.66 lb) to 500 t (492.10 tn. l.).

The variety of modules available and their characteristics, including:

- predominantly stainless steel for high anti-corrosion protection
- predominantly hermetically sealed housing enabling use even in hostile or corrosive environments
- compact frame sizes for easy installation

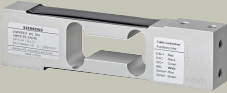
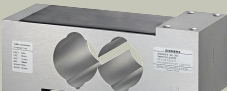


make SIWAREX load cells suitable for virtually all applications in industrial weighing, e.g. hopper scales and bin weighing equipment, platform scales, vehicle scales, hybrid weighing machines etc.

Almost all series have been approved for use with Class III weighing machines requiring official calibration in accordance with EN 45501 and conform to OIML R60.

Of course, load cells can also be supplied for other rated loads, higher accuracy, and/or Ex approval, depending on requirements.

Application

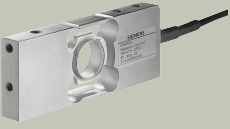

Single point load cells

Type	Rated load	Accuracy class	Applications	Material
 SIWAREX WL260 SP-S AA	3 ... 100 kg (6.61 ... 220.46 lb)	<ul style="list-style-type: none"> • C3¹⁾ • Legal-for-trade 	<ul style="list-style-type: none"> • Small platform scales with one load cell • Small belt scales • Class III weighing machines 	Aluminum
 SIWAREX WL260 SP-S AB	50 ... 500 kg (110.23 ... 1 102.31 lb)	<ul style="list-style-type: none"> • C3²⁾ 	<ul style="list-style-type: none"> • Small to medium-size platform scales with one load cell • Belt scales 	Aluminum
 SIWAREX WL260 SP-S AE	0.3 ... 3 kg (0.66 ... 6.61 lb)	<ul style="list-style-type: none"> • $F_{comb} = \pm 0.015 \% C_n$ 	<ul style="list-style-type: none"> • Miniature loads and high-resolution scales • Small belt scales 	Aluminum
 SIWAREX WL260 SP-S SA	5 ... 200 kg (11.02 ... 440.92 lb)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Small to medium-size platform scales with one load cell • Small belt scales • Class III weighing machines • Available with or without explosion protection 	Stainless steel EN 1.4542

Load Cells

Introduction


Application (Continued)

Type	Rated load	Accuracy class	Applications	Material
 SIWAREX WL260 SP-S SB	6 ... 60 kg (13.23 ... 132.28 lb)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Small platform scales • Small belt scales • Class III weighing machines 	Stainless steel EN 1.4542
 SIWAREX WL260 SP-S SC	10 ... 500 kg (22.05 ... 1 102.31 lb)	<ul style="list-style-type: none"> • C3 • C3 MR • C4 MR (high-precision) • Legal-for-trade 	<ul style="list-style-type: none"> • Platform scales • Belt scales • Class III weighing machines • Suitable for food and beverages industry, or pharmaceuticals. 	Stainless steel EN 1.4542



1) Available in C4 with Y = 20 000 upon request.

2) SIWAREX WL260 SP-S AB is not approved for legal-for-trade operation.

Bending beam load cells

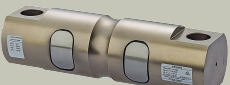
Type	Rated load	Accuracy class	Applications	Material
 SIWAREX WL230 BB-S SA	10 ... 500 kg (22.05 ... 1 102.3 lb)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Small hopper and platform scales • Class III medium accuracy weighing machines • Available with or without explosion protection 	Stainless steel EN 1.4542

Shear beam load cells

Type	Rated load	Accuracy class	Applications	Material
 SIWAREX WL230 SB-S SA	500 kg ... 5 t (1 102.31 lb ... 4.92 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Hopper, overhead rail and platform scales • Available with or without explosion protection 	Stainless steel EN 1.4542
 SIWAREX WL230 SB-S CA	100 kg ... 10 t (220.46 lb ... 9.84 tn. l.) ³⁾	<ul style="list-style-type: none"> • C3 • C4 • C5 • Legal-for-trade 	<ul style="list-style-type: none"> • Platform scales • Hopper scales 	Nickel-plated steel


3) The 100 kg and 250 kg load classes are bending beams.

Double shear beam load cells




Type	Rated load	Accuracy class	Applications	Material
 SIWAREX WL290 DB-S CA	2.3 ... 113 t (2.26 ... 111.22 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Large platform and hopper scales • Scales in vehicles 	Nickel-plated steel

Application (Continued)

S-type load cells

Type	Rated load	Accuracy class	Applications	Material
SIWAREX WL250 ST-S SA 	50 kg ... 10 t (110.23 lb ... 9.84 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Voltage and pressure applications • Suspended scales • Hopper scales • Hybrid weighing machines • Available with or without explosion protection 	Stainless steel EN 1.4542

Compression load cells

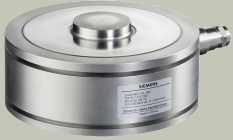
Type	Rated load	Accuracy class	Applications	Material
SIWAREX WL270 CP-S SA 	500 kg, 50 t (1 102.3 lb, 49.21 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Vehicle scales • Overhead rail scales • Hopper scales • Available with or without explosion protection 	Stainless steel EN 1.4542
SIWAREX WL270 CP-S SB 	100 t (98.42 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Hopper scales • Bin weighing equipment • Vehicle scales • Available with or without explosion protection 	Stainless steel EN 1.4542
SIWAREX WL270 K-S CA 	2.8 ... 500 t (2.76 ... 492.10 tn. l.)	<ul style="list-style-type: none"> • 0.1% of rated load 	<ul style="list-style-type: none"> • Hopper scales • Bin weighing equipment • For high temperature range (optional) • With double bridge (optional) 	Painted steel

Load Cells

Introduction

Application (Continued)

Ring torsion load cells

Type	Rated load	Accuracy class	Applications	Material
SIWAREX WL280 RN-S SA 	60 kg ... 60 t (132.28 lb ... 59.05 tn. l.)	<ul style="list-style-type: none"> • C3 • Legal-for-trade 	<ul style="list-style-type: none"> • Hopper, belt, platform and roller table scales • Available with or without explosion protection • Low mounting height • Integrated overload protection (up to 13 t rated load) 	Stainless steel EN 1.4542

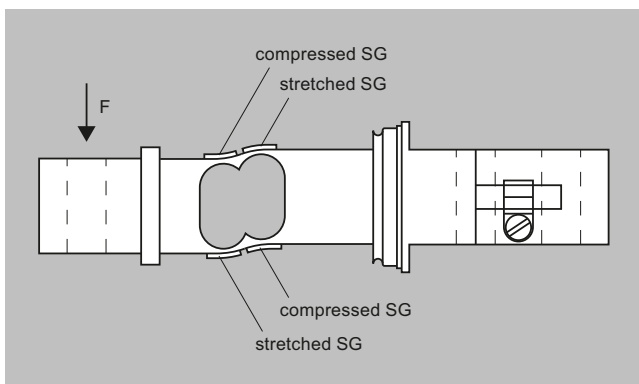
Design

Load cells are sensors that convert a mechanical variable (i.e. weight) into an electrical signal, usually a voltage. They work according to different measuring principles. Siemens SIWAREX WL200 load cells utilize so-called strain gauges. These are specially formed electrical conductors which are insulated by means of a suitable material. The strain gauges are attached to the basic element, a specially formed spring body, by friction locking. Under the influence of a weight force F , the spring body is deformed (see schematic presentation) and as a result the strain gauge deforms elastically. Due to the change in the external shape of the strain gauge, the ohmic resistance of its conductor also changes. The top left and bottom right strain gauges are compressed, their resistance films are shortened and the ohmic resistance is reduced accordingly. The top right and bottom left strain gauges are stretched, their resistance films are extended and the ohmic resistance is increased.

For each load cell, at least four strain gauges are connected together to form a complete Wheatstone bridge. The stretched or compressed strain gauges are connected so that the positive or negative resistance changes are added together to form a total imbalance in the bridge.

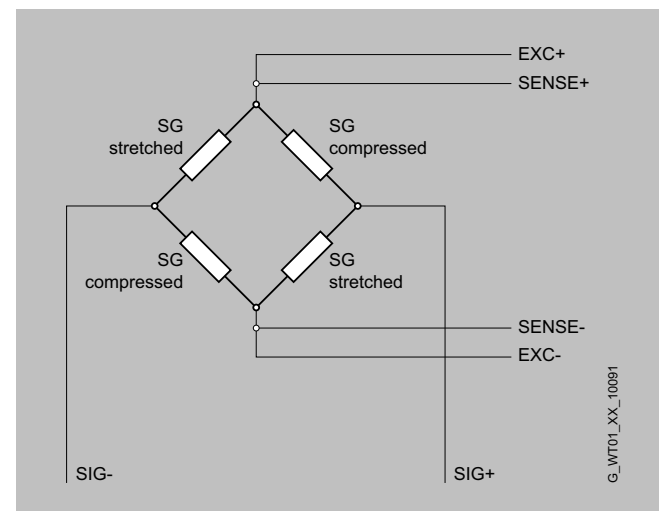
On one bridge diagonal, the power voltage is applied (with 6-conductor technique, also the sensor voltage, SENSE) and on the other diagonal, the measured voltage is tapped.

With a constant power voltage (EXC), the measured voltage (SIG) changes proportionally to the introduced load.



Principle of a bending beam load cell, loaded

Design (Continued)



Principle of a Wheatstone bridge

G_WT01_XX_10091

Overview



The use of SIWAREX WL200 installation accessories avoids incorrect loading such as eccentric load introduction, torsion torques etc. on the load cells. enables full exploitation of the measuring accuracy of the load cells.

The standardized SIWAREX WL200 installation components are always coordinated precisely to the requirements of the respective load cell design. This ensures that the force to be measured is directed to the load cells in the best possible way.

At the same time the mounting elements simplify the installation of the load cells and increase safety during installation work. The wide variety of mounting components permits implementation of all key applications used with industrial weighing technology. In addition to the mounting components listed below, a wide range of special accessories is available for special requirements.

Load Cells

Single point load cells

SIWAREX WL260 SP-S AA Load cell

Overview



The load cell is suitable for small platform scales with one load cell and a max. platform size 400 × 400 mm (15.75 × 15.75 inch) as well as for use in weighing machines of Class III with a max. scale verification intervals $n_{\max} = 3\ 000d$.

Design

The load cell is hermetically sealed.

Selection and ordering data

Load cell, type WL 260 SP-S AA Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 3 m (9.84 ft)	Article No. 7MH5102-				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	●	●	D	0	0
Rated load					
• 3 kg (6.61 lb)	1	K			
• 5 kg (11.02 lb)	1	P			
• 10 kg (22.05 lb)	2	A			
• 20 kg (44.09 lb)	2	G			
• 50 kg (110.23 lb)	2	P			
• 100 kg (220.46 lb)	3	A			

Technical specifications

SIWAREX WL260 SP-S AA	
Possible applications	<ul style="list-style-type: none"> Platform scales Small belt scales
Type of construction	Single point load cell
Loads	
Rated load E_{\max}	<ul style="list-style-type: none"> 3 kg (6.61 lb) 5 kg (11.02 lb) 10 kg (22.05 lb) 20 kg (44.09 lb) 50 kg (110.23 lb) 100 kg (220.46 lb)
Minimum initial loading E_{\min}	0% E_{\max}
Maximum working load L_U	150% E_{\max}
Breaking load L_d	300% E_{\max}
Safe side load L_{lq}	100% E_{\max}
Measurement characteristic values	
Rated displacement h_n at E_{\max}	< 0.6 mm (0.024 inch)
Rated characteristic value C_n	2.0 ± 0.2 mV/V
Tolerance D_0 of zero signal	< ± 2 % C_n
Maximum scale interval n_{LC}	3 000
Minimum scale interval V_{\min}	$E_{\max}/12\ 000$
Combined error F_{comb}	± 0.02% C_n
Repeatability F_v	± 0.01 % C_n
Creep error F_{cr}	

Technical specifications (Continued)

SIWAREX WL260 SP-S AA	
• 30 min	± 0.02% C_n
Temperature coefficient	
• Zero signal T_{K_0}	0.02% $C_n/10\ K$
• Characteristic value T_{K_c}	0.0175% $C_n/10\ K$
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 12 V DC
Input resistance R_e	409 Ω ± 6 Ω
Output resistance R_s	350 Ω ± 3 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{Tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-35 ... +65 °C (-31 ... +149 °F)
Sensor material (DIN)	Aluminum
Maximum tightening torque of the fixing screws	15 ... 20 Nm
Degree of protection to EN 60529; IEC 60529	IP65
Cable connection	
<u>Function</u>	<u>Color</u>
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green

Technical specifications (Continued)

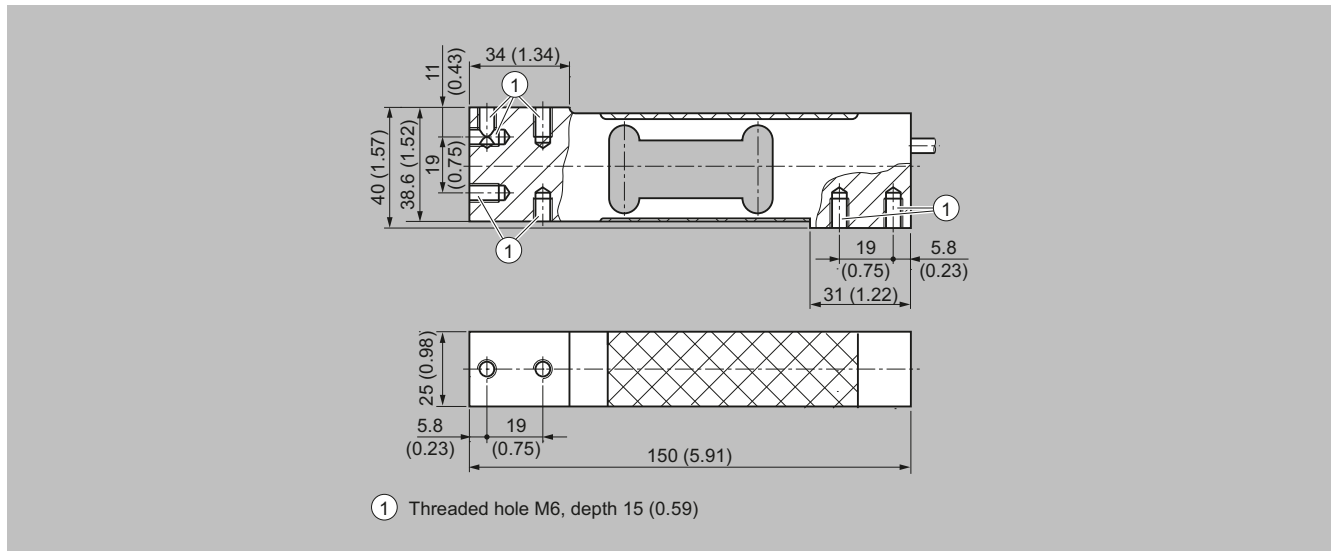
SIWAREX WL260 SP-S AA

• SIG – (measured signal -)	White
• Sense + (sensor cable +)	Blue
• Sense - (sensor cable -)	Brown
• Shield (not connected to the load cell body)	Transparent

Certificates and approvals

Accuracy class according to OIML R60	C3
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Dimensional drawings



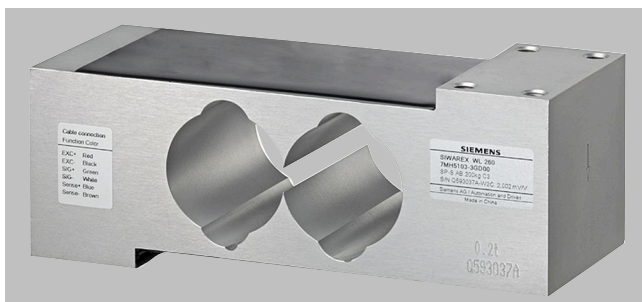
SIWAREX WL 260 SP-S AA load cell, dimensions in mm (inch)

Load Cells

Single point load cells

SIWAREX WL260 SP-S AB Load cell

Overview



The load cell is suitable for small to medium platform scales with one load cell and platform size up to 600 × 600 mm (23.62 × 23.62 inch) as well as for use in weighing machines of Class III with a max. division $n_{\max} = 3\ 000d$.

Design

The load cell is hermetically sealed.

Selection and ordering data

Load cell, type WL260 SP-S AB Connecting cable 3 m (9.84 ft)	Article No. 7MH5103-				
	●	●	D	0	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
• 50 kg (110.23 lb)	2	P			
• 75 kg (165.35 lb)	2	S			
• 100 kg (220.46 lb)	3	A			
• 150 kg (330.69 lb)	3	E			
• 200 kg (440.92 lb)	3	G			
• 300 kg (661.37 lb)	3	K			
• 500 kg (1102.31 lb)	3	P			

Technical specifications

SIWAREX WL260 SP-S AB	
Possible applications	<ul style="list-style-type: none"> Platform scales Belt scales
Type of construction	Single point load cell
Loads	
Rated load E_{\max}	<ul style="list-style-type: none"> 50 kg (110.23 lb) 75 kg (165.35 lb) 100 kg (220.46 lb) 150 kg (330.69 lb) 200 kg (440.92 lb) 300 kg (661.37 lb) 500 kg (1 102.31 lb)
Minimum initial loading E_{\min}	0 kg
Maximum working load L_u	150% E_{\max}
Breaking load L_d	300% E_{\max}
Safe side load L_{sq}	100% E_{\max}
Measurement characteristic values	
Rated displacement h_n at E_{\max}	< 1.22 mm (0.048 inch)
Rated characteristic value C_n	2.0 ± 0.2 mV/V
Tolerance D_0 of zero signal	± 2 % C_n
Maximum scale interval n_{LC}	3 000

Technical specifications (Continued)

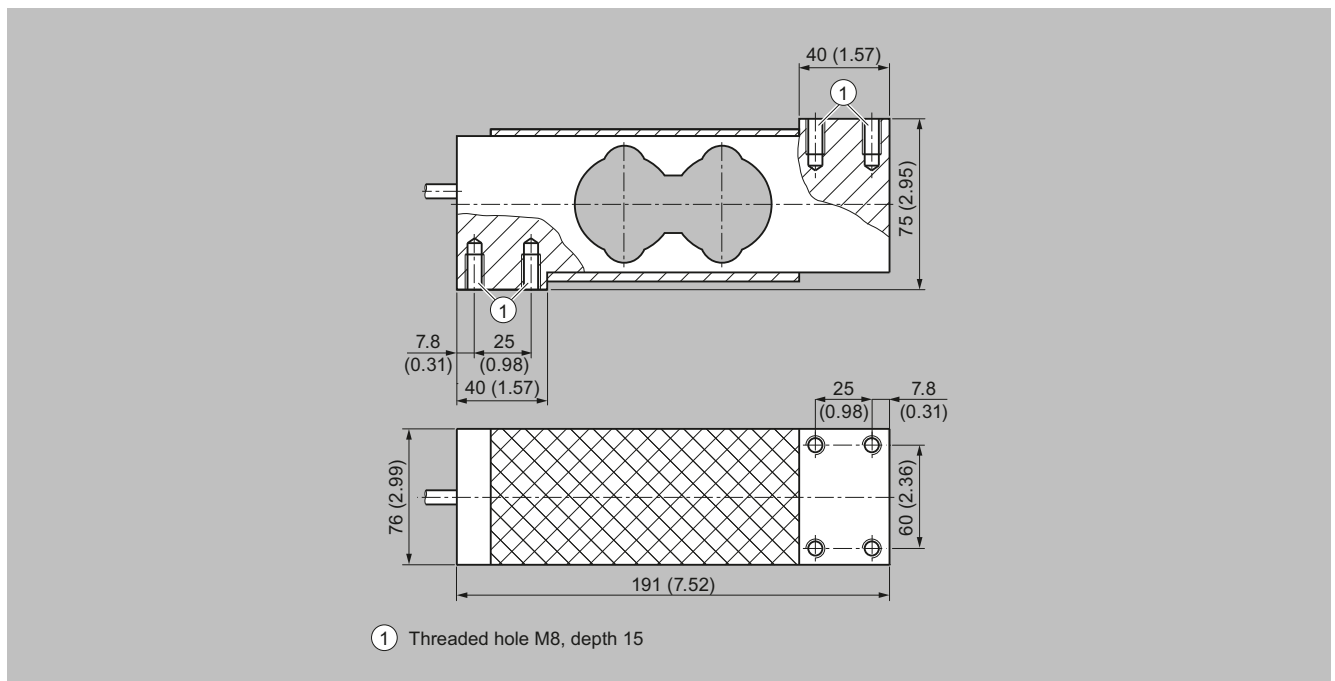
SIWAREX WL260 SP-S AB	
Minimum scale interval V_{\min}	$E_{\max}/10\ 000$
Combined error F_{comb}	± 0.02% C_n
Repeatability F_v	± 0.017 % C_n
Creep error F_{cr}	
• 30 min	± 0.02% C_n
Temperature coefficient	
• Zero signal T_{K_0}	0.017% $C_n/10\ K$
• Characteristic value T_{K_C}	0.014% $C_n/10\ K$
Electrical characteristic values	
Recommended input voltage	5 ... 12 V DC
Input resistance R_e	409 Ω ± 6 Ω
Output resistance R_s	350 Ω ± 3 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and ambient conditions	
Sensor material (DIN)	Aluminum
Maximum tightening torque of the fixing screws	35 ... 40 Nm
Rated temperature range B_{tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{ts}	-35 ... +65 °C (-31 ... +149 °F)

Technical specifications (Continued)

SIWAREX WL260 SP-S AB	
Degree of protection according to EN 60529, IEC 60529	IP65
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green
• SIG - (measured signal -)	White
• Sense + (sensor cable +)	Blue
• Sense - (sensor cable -)	Brown
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Accuracy class according to OIML R60	C3 ¹⁾

¹⁾ SIWAREX WL260 SP-S AB is not approved for legal-for-trade operation.

Dimensional drawings



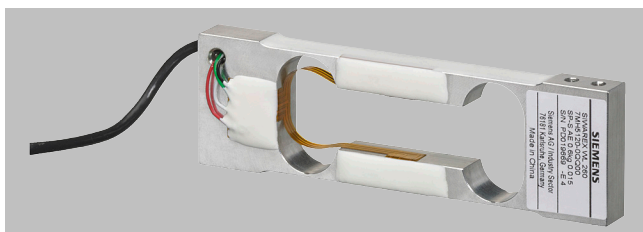
SIWAREX WL 260 SP-S AB load cell, dimensions in mm (inch)

Load Cells

Single point load cells

SIWAREX WL260 SP-S AE Load cell

Overview



The SIWAREX WL260 SP-S AE single point load cell is suitable for the smallest load ranges from 0.3 kg to 3 kg and platform sizes up to 200 mm x 200 mm (7.87 × 7.87 inch). The load cell can be used in high resolution scales. The error amounts to a maximum of 0.015% in relation to the rated characteristic value.

Design

The measurement element is a spring body made of aluminum. Due to IP65 degree of protection, the load cell is suitable for cleaning with water jets.

Selection and ordering data

Load cell of the type WL260 SP-S AE Connecting cable 0.4 m (14.4 inch), accuracy class 0.015 %	Article No. 7MH5120-
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	● ● Q 0 0
Rated load	
• 0.3 kg (0.66 lb)	0 K
• 0.6 kg (1.32 lb)	0 Q
• 1 kg (2.20 lb)	1 A
• 1.2 kg (2.64 lb)	1 B
• 1.5 kg (3.31 lb)	1 E
• 3 kg (6.61 lb)	1 K

Technical specifications

SIWAREX WL260 SP-S AE	
Possible applications	<ul style="list-style-type: none"> • Small platform scales • Small belt scales
Type of construction	Platform load cell
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> • 0.3 kg (0.66 lb) • 0.6 kg (1.32 lb) • 1 kg (2.20 lb) • 1.2 kg (2.64 lb) • 1.5 kg (3.31 lb) • 3 kg (6.61 lb)
Maximum working load L_u	120% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{lq}	250% E_{max}
Measurement characteristic values	
Rated displacement h_n at E_{max}	
• $E_{max} = 0.3$ kg (0.66 lb) and 0.6 kg (1.32 lb)	0.25 mm (0.01 inch)
• $E_{max} = 1.2, 3$ kg (2.64 ... 6.61 lb)	0.22 mm (0.009 inch)
Rated characteristic value C_n	0.9 ± 0.1 mV/V
Combined error F_{comb}	± 0.015 % C_n
Repeatability F_v	± 0.017 % C_n
Creep error F_{cr}	

Technical specifications (Continued)

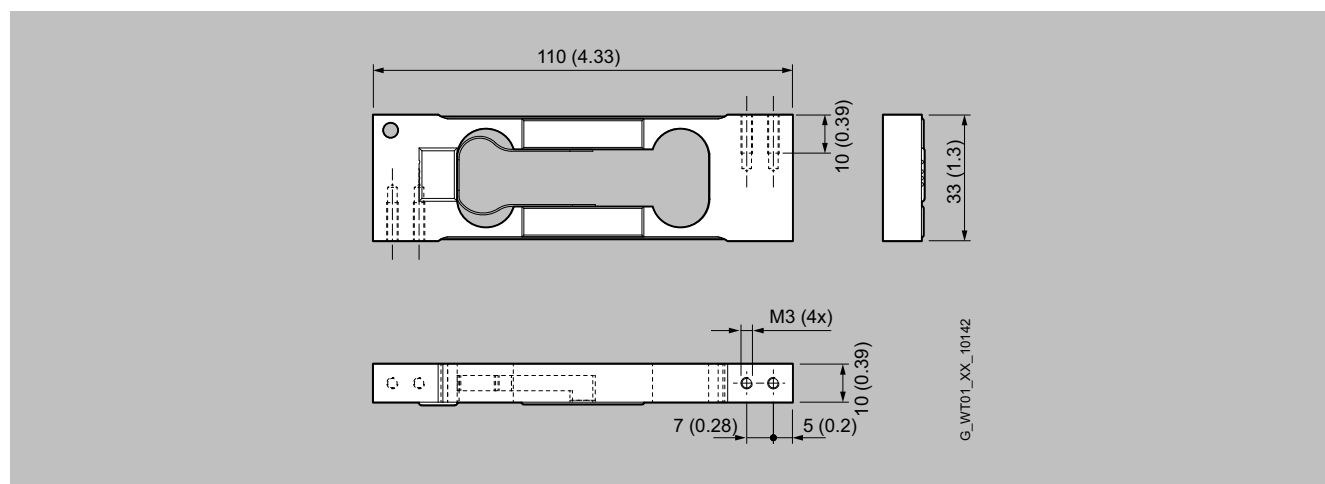
SIWAREX WL260 SP-S AE	
• 30 min	± 0.015 % C_n
Temperature coefficient	
• Zero signal T_{K0}	0.03% $C_n/10$ K
• Characteristic value T_{Kc}	0.03% $C_n/10$ K
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 12 V DC
Input resistance R_e	406 Ω ± 6 Ω
Output resistance R_s	350 Ω ± 3 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-20 ... +50 °C (-4 ... +122 °F)
Storage temperature range B_{ts}	-20 ... +50 °C (-4 ... +122 °F)
Sensor material (DIN)	Aluminum
Degree of protection acc. to EN 60529	IP65
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green

Technical specifications (Continued)

SIWAREX WL260 SP-S AE

• SIG – (measured signal -)	White
• Shield (not connected to the load cell body)	Transparent

Dimensional drawings



SIWAREX WL260 SP-S AE load cell, dimensions in mm (inch)

Load Cells

Single point load cells

SIWAREX WL260 SP-S SA Load cell

Overview



The load cell is suitable for small to medium platform scales with one load cell and platform size up to 400 × 400 mm (15.75 × 15.75 inch) as well as for use in weighing machines of Class III with a max. division $n_{\max} = 3\,000d$.

It is made of stainless steel and therefore also suitable for use in harsh environments.

Design

The load cell is hermetically sealed.

Selection and ordering data

Load cell, type WL260 SP-S SA Legal-for-trade according to OIML R60 up to 3 000d, 1 m connecting cable (3.28 ft)	Article No. 7MH5104-			
	●	●	D	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Rated load				
• 5 kg (11.02 lb)	1	P		
• 10 kg (22.05 lb)	2	A		
• 20 kg (44.09 lb)	2	G		
• 50 kg (110.23 lb)	2	P		
• 100 kg (220.46 lb)	3	A		
• 200 kg (440.92 lb)	3	G		
Explosion protection				
Without				0
Explosion protection				1

Technical specifications

SIWAREX WL260 SP-S SA	
Possible applications	<ul style="list-style-type: none"> Platform scales Small belt scales
Type of construction	Single point load cell
Loads	
Rated load E_{\max}	<ul style="list-style-type: none"> 5 kg (11.02 lb) 10 kg (22.05 lb) 20 kg (44.09 lb) 50 kg (110.23 lb) 100 kg (220.46 lb) 200 kg (440.92 lb)
Minimum initial loading E_{\min}	0% E_{\max}
Maximum working load L_u	150% E_{\max}
Breaking load L_d	300% E_{\max}
Safe side load L_{iq}	100% E_{\max}
Measurement characteristic values	
Rated displacement h_n at E_{\max}	0.27 ± 0.05 mm (0.01 ± 0.002 inch)
Rated characteristic value C_n	2.0 ± 0.2 mV/V
Tolerance D_0 of zero signal	< ± 1% C_n
Maximum scale interval n_{LC}	3 000

Technical specifications (Continued)

SIWAREX WL260 SP-S SA	
Minimum scale interval V_{\min}	$E_{\max}/9\,000$
Combined error F_{comb}	± 0.02% C_n
Repeatability F_v	± 0.017 % C_n
Creep error F_{cr}	
• 30 min	± 0.02% C_n
Temperature coefficient	
• Zero signal T_{K0}	0.017% $C_n/10\,K$
• Characteristic value T_{Kc}	0.014% $C_n/10\,K$
Electrical characteristic values	
Recommended input voltage	5 ... 12 V DC
Input resistance R_e	383 Ω ± 6 Ω
Output resistance R_a	351 Ω ± 3 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and ambient conditions	
Sensor material (DIN)	Stainless steel EN 1.4542
Maximum tightening torque of the fixing screws	
• $E_{\max} = 3 \dots 100\,kg$ (6.61 ... 220.46 lb)	14 Nm

Technical specifications (Continued)

SIWAREX WL260 SP-S SA	
• $E_{max} = 200 \text{ kg}$ (440.92 lb)	16 Nm
Rated temperature range B_{rn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{ts}	-40 ... +70 °C (-40 ... +158 °F)
Degree of protection according to EN 60529, IEC 60529	IP67
Cable connection	
<u>Function</u>	<u>Color</u>
• EXC + (supply +)	Green
• EXC – (supply -)	Black
• SIG + (measured signal +)	White
• SIG – (measured signal -)	Red
• Sense + (sensor cable +)	Blue
• Sense - (sensor cable -)	Yellow
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Accuracy class according to OIML R60	C3 ¹⁾
Explosion protection	<ul style="list-style-type: none"> • EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc • USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc • Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc • China: <ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

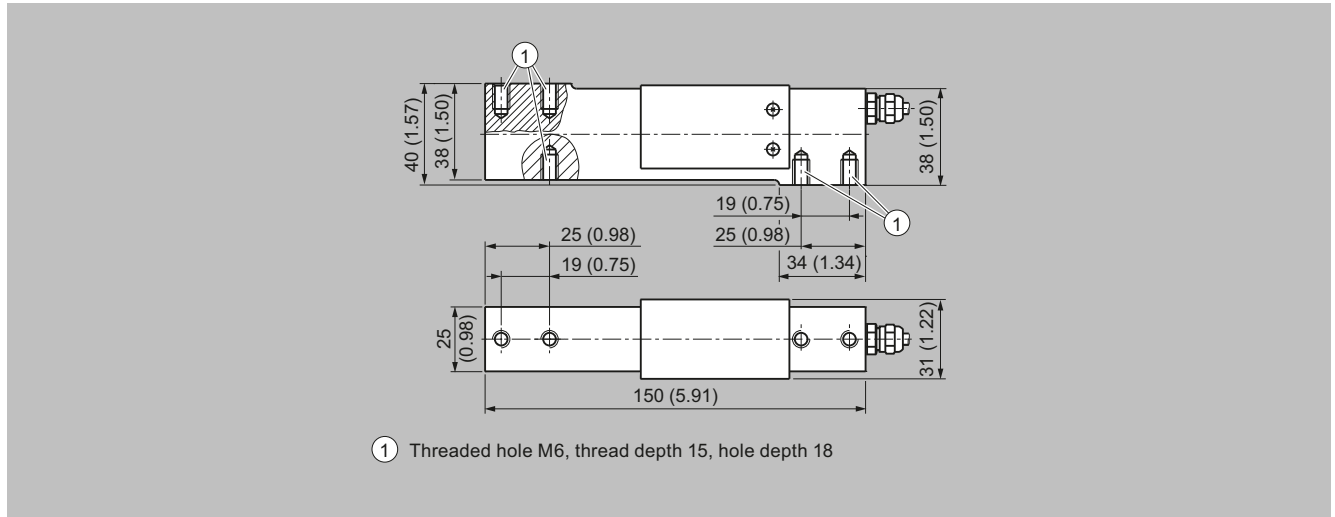
¹⁾ SIWAREX WL260 SP-S SA 5 kg (11.02 lb) is not approved for legal-for-trade operation.

Load Cells

Single point load cells

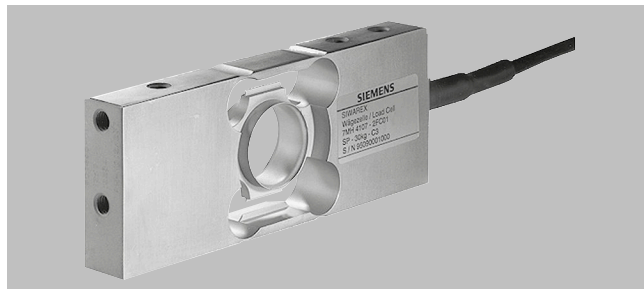
SIWAREX WL260 SP-S SA Load cell

Dimensional drawings



SIWAREX WL 260 SP-S SA load cell, dimensions in mm (inch)

Overview



The SIWAREX WL260 SP-S SB platform load cell is excellently suited for use in platform scales with dimensions up to and including 350 × 350 mm (13.78 × 13.78 inch). It is approved for use in Class III weighing machines with maximum divisions of n_{\max} to 3 000d.

Design

The load cell is made of stainless steel and is hermetically sealed. The load cell meets the IP68 degree of protection.

Selection and ordering data

Load cell, type WL260 SP-S SB Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 6 m (19.69 ft)	Article No. 7MH5117-				
	●	●	D	0	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
• 6 kg (13.23 lb)	1	Q			
• 12 kg (26.45 lb)	2	B			
• 30 kg (66.14 lb)	2	K			
• 60 kg (132.28 lb)	2	Q			
Explosion protection					
Without					0
Explosion protection					1

Technical specifications

SIWAREX WL260 SP-S SB	
Possible applications	<ul style="list-style-type: none"> Platform scales Small belt scales
Type of construction	Single point load cell
Loads	
Rated load E_{\max}	<ul style="list-style-type: none"> 6 kg (13.23 lb) 12 kg (26.46 lb) 30 kg (66.14 lb) 60 kg (132.28 lb)
Minimum initial loading E_{\min}	0% E_{\max}
Maximum working load L_u	150% E_{\max}
Breaking load L_d	300% E_{\max}
Safe side load L_{lq}	100% E_{\max}
Measurement characteristic values	
Rated displacement h_n at E_{\max}	
• $E_{\max} = 6$ kg (13.23 lb)	0.24 ± 0.02 mm (0.009 ± 0.0008 in)
• $E_{\max} = 12$ kg (26.46 lb)	0.19 ± 0.01 mm (0.008 ± 0.0004 in)
• $E_{\max} = 30$ kg (66.14 lb)	0.15 ± 0.01 mm (0.006 ± 0.0004 in)
• $E_{\max} = 60$ kg (123.28 lb)	0.22 ± 0.03 mm (0.009 ± 0.0011 in)
Rated characteristic value C_n	2.0 ± 0.2 mV/V

Technical specifications (Continued)

SIWAREX WL260 SP-S SB	
Tolerance D_0 of zero signal	< ± 2.0% C_n
Maximum scale interval n_{LC}	3 000
Minimum scale interval V_{\min}	
• At $E_{\max} = 6 \dots 60$ kg (13.23 ... 132.28 lb)	$E_{\max}/15\ 000$
Combined error F_{comb}	≤ ± 0.02% C_n
Repeatability F_v	≤ ± 0.02% C_n
Creep error F_{cr}	
• 30 min	≤ ± 0.025% C_n
Temperature coefficient	
• Zero signal T_{K0}	0.009% $C_n/10$ K
• Characteristic value T_{Kc}	0.009% $C_n/10$ K
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 12 V DC
Input resistance R_e	400 Ω ± 20 Ω
Output resistance R_a	350 Ω ± 3.5 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and environmental conditions	
Sensor material (DIN)	Stainless steel EN 1.4542
Maximum tightening torque of the fixing screws	10 Nm

Load Cells

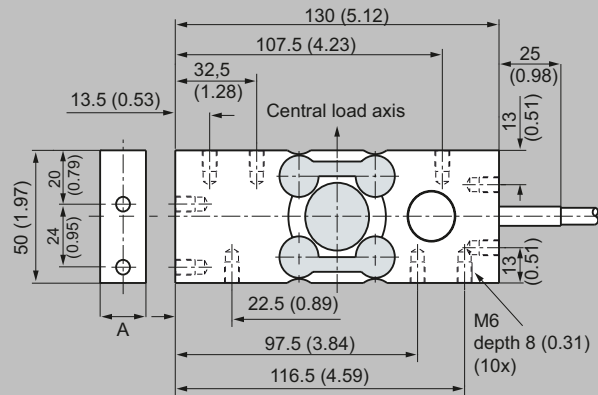
Single point load cells

SIWAREX WL260 SP-S SB Load cell

Technical specifications (Continued)

SIWAREX WL260 SP-S SB	
Cable connection	
Function	Color
• EXC + (supply +)	Green
• EXC – (supply -)	Black
• SIG + (measured signal +)	White
• SIG – (measured signal -)	Red
• Sense + (sensor cable +)	Yellow
• Sense - (sensor cable -)	Blue
• Shield (not connected to the load cell body)	Transparent
Rated temperature range B_{rn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{ts}	-35 ... +65 °C (-31 ... +149 °F)
Degree of protection according to EN 60529; IEC 60529	IP68
Certificates and approvals	
Accuracy class according to OIML R60	C3
Explosion protection	<ul style="list-style-type: none"> • EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc • USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc • Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc • China: <ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

Dimensional drawings



Rated load [kg (lb)]	6 (13.23)	12 (26.46)	30 (66.14)	60 (132.28)
A [mm (inch)]	18.5 (0.73)	18.5 (0.73)	18.5 (0.73)	23.5 (0.93)

SIWAREX WL260 SP-S SB load cell, dimensions in mm (inch)

Load Cells

Single point load cells

SIWAREX WL260 SP-S SC Load cell

Overview



The SIWAREX WL260 SP-S SC load cells are designed for use in legal-for-trade platform scales. It is approved for use in Class III weighing machines with maximum divisions of n_{\max} to 4 000d. A C4 MR variant with a $Y = 40\,000$ is available for high-precision applications. The use of stainless steel and the high IP68/IP69K degree of protection make the SIWAREX WL260 SP-S SC highly suitable for use in the food, beverages and tobacco industries or pharmaceutical industry.

Design

The load cell is made of stainless steel and is hermetically sealed. The platform size can be up to 400 × 400 mm (15.75 × 15.75 inches) for load cells rated for 10 ... 50 kg (22.05 ... 110.23 lb). The platform size can be up to 800 × 800 mm (31.50 × 31.50 inches) for load cells rated for 100 ... 500 kg (220.46 ... 1102.31 lb).

Selection and ordering data

Selection and ordering data	Article No.				
Load cell, type WL260 SP-S SC	7MH5118-				
Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 3 m (9.84 ft)	●	●	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
In accuracy class C3					
• 10 kg (22.05 lb)	2	A	D	0	
• 20 kg (44.09 lb)	2	G	D	0	
• 50 kg (110.23 lb)	2	P	D	0	
• 100 kg (220.46 lb)	3	A	D	0	
• 200 kg (440.92 lb)	3	G	D	0	
• 300 kg (661.91 lb)	3	K	D	0	
• 400 kg (881.85 lb)	3	M	D	0	
• 500 kg (1102.31 lb)	3	P	D	0	
Options					
In accuracy class C3 MR				D	5
Legal-for-trade according to OIML R60 up to 3 000d and $V_{\min} = E_{\max}/20\,000$					
In accuracy class C4 MR				E	5
Legal-for-trade according to OIML R60 up to 4 000d and $V_{\min} = E_{\max}/40\,000$; only for $E_{\max} = 10, 20, 50$ kg (22.05, 44.09, 110.23 lb)					
Explosion protection					
Without					0
Explosion protection					1

Technical specifications

SIWAREX WL260 SP-S SC	
Possible applications	<ul style="list-style-type: none"> Platform scales Small belt scales
Type of construction	Single point load cell
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> 10 kg (22.05 lb) 20 kg (44.09 lb) 50 kg (110.23 lb) 100 kg (220.46 lb) 200 kg (440.92 lb) 300 kg (661.39 lb) 400 kg (881.85 lb) 500 kg (1102.31 lb)
Minimum initial loading E_{min}	0% E_{max}
Maximum working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{Lq}	100% E_{max}
Measurement characteristic values	
Rated displacement s_{nom} for	
• 10 kg (22.05 lb)	0.03 mm (0.001 inch)
• 20 kg (44.09 lb)	0.08 mm (0.003 inch)
• 50 kg (110.23 lb)	0.15 mm (0.006 inch)
• 100 kg (220.46 lb)	0.12 mm (0.005 inch)
• 200 kg (440.92 lb)	0.15 mm (0.006 inch)
• 300 kg (661.39 lb)	0.18 mm (0.007 inch)
• 400 kg (881.85 lb)	0.17 mm (0.007 inch)
• 500 kg (1102.31 lb)	0.19 mm (0.008 inch)
Rated characteristic value C_n	2.0 ± 0.2 mV/V
Tolerance D_0 of zero signal	< ± 2.0% C_n
Maximum scale interval n_{LC}	
• At $E_{max} = 10 \dots 500$ kg (22.05 ... 1102.31 lb) and accuracy classes C3, C3 MR	3 000
• At $E_{max} = 10 \dots 50$ kg (22.05 ... 110.23 lb) and accuracy class C4 MR	4 000
Minimum scale interval V_{min}	
• At $E_{max} = 10 \dots 500$ kg (22.05 ... 1102.31 lb)	C3: $E_{max}/10\ 000$ C3 MR: $E_{max}/20\ 000$
• At $E_{max} = 10 \dots 50$ kg (22.05 ... 110.23 lb)	C4 MR: $E_{max}/40\ 000$
Combined error F_{comb}	≤ ± 0.02% C_n
Repeatability F_v	≤ ± 0.02% C_n
Creep error F_{cr}	
• 30 min	≤ ± 0.025% C_n
Temperature coefficient	
• Zero signal T_{K0}	0.014% $C_n/10$ K
• Characteristic value T_{Kc}	0.01% $C_n/10$ K
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 12 V DC
Input resistance R_e with	
• 10 ... 50 kg (22.05 ... 110.23 lb)	380 Ω ± 15 Ω
• 100 ... 500 kg (220.46 ... 1102.31 lb)	350 Ω ± 3.5 Ω
Output resistance R_s	350 Ω ± 3.5 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and environmental conditions	
Material of the load cell (DIN)	Stainless steel EN 1.4542
Maximum tightening torque of the fixing screws with	
• 10 ... 50 kg (22.05 ... 110.23 lb)	10 Nm

Technical specifications (Continued)

SIWAREX WL260 SP-S SC	
• 100 ... 500 kg (220.46 ... 1102.31 lb)	20 Nm
Rated temperature range B_{Tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-35 ... +65 °C (-31 ... +149 °F)
Degree of protection according to EN 60529; IEC 60529	IP68, IP69K
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green
• SIG - (measured signal -)	White
• Sense + (sensor cable +)	Blue ¹⁾
• Sense - (sensor cable -)	Yellow ¹⁾
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Available accuracy classes acc. to OIML R60 at rated load	
• 10 ... 500 kg (22.05 ... 110.23 lb)	C3, C3 MR
• 10 ... 50 kg (220.46 ... 1102.31 lb)	C4 MR
Explosion protection	<ul style="list-style-type: none"> EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc China: <ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

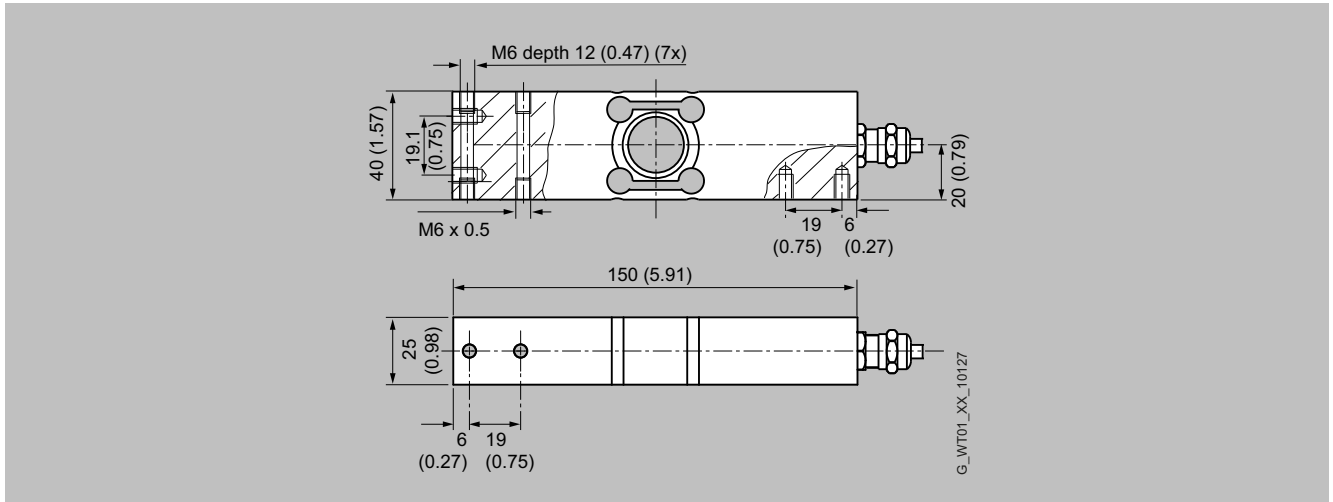
¹⁾ Only with 10, 20 and 50 kg (22.05, 44.09 lb and 110.23 lb) variants.

Load Cells

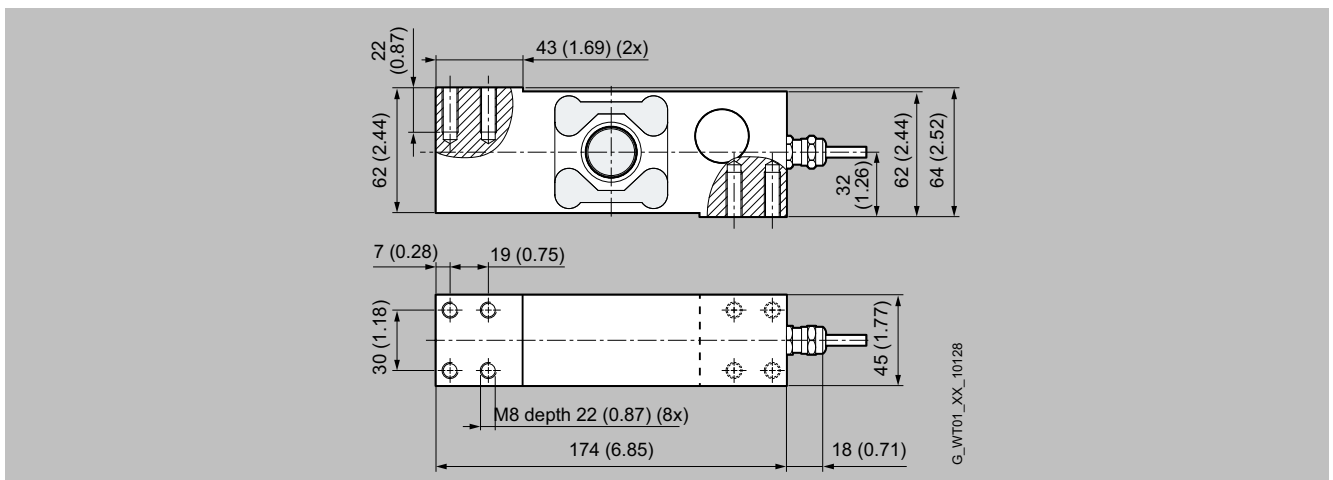
Single point load cells

SIWAREX WL260 SP-S SC Load cell

Dimensional drawings

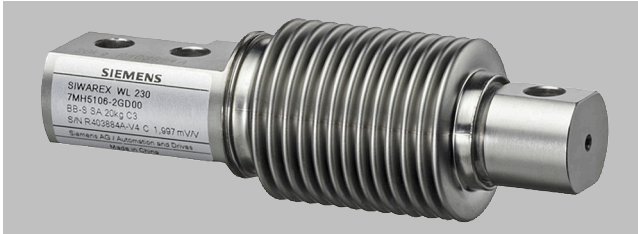


SIWAREX WL260 SP-S SC load cell, 10 ... 50 kg (22.05 ... 110.23 lb), dimensions in mm (inch)



SIWAREX WL260 SP-S SC load cell 100 ... 500 kg (220.46 ... 1102.31 lb), dimensions in mm (inch)

Overview



The bending beam load cell is particularly suitable for use in small hopper and platform scales.

Design

The measuring element is a double bending beam made of stainless steel to which 4 strain gauges are applied.

The strain gauges are arranged so that two are stretched and two are compressed.

Under the influence of the load acting in the measuring direction, the spring bodies and therefore the friction-locked strain gauges are elastically deformed. This generates a measuring signal voltage that is proportional to the load.

Selection and ordering data

Load cell, type WL230 BB-S SA Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 3 m (9.84 ft)	Article No. 7MH5106-			
	●	●	D 0	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Rated load				
• 10 kg (22.05 lb)	2	A		
• 20 kg (44.09 lb)	2	G		
• 50 kg (110.23 lb)	2	P		
• 100 kg (220.46 lb)	3	A		
• 200 kg (440.92 lb)	3	G		
• 350 kg (771.62 lb)	3	L		
• 500 kg (1102.31 lb)	3	P		
Explosion protection				
Without				0
Explosion protection				1

Load Cells

Bending beam load cells

SIWAREX WL230 BB-S SA Load cell

Technical specifications

SIWAREX WL230 BB-S SA	
Possible applications	<ul style="list-style-type: none"> Hopper scales Belt scales Platform scales
Type of construction	Bending beam load cell
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> 10 kg (22.05 lb) 20 kg (44.09 lb) 50 kg (110.23 lb) 100 kg (220.46 lb) 200 kg (440.92 lb) 350 kg (771.62 lb) 500 kg (1 102.3 lb)
Minimum initial loading E_{min}	0% E_{max}
Maximum working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{Lq}	100% E_{max}
Measurement characteristic values	
Rated displacement h_n at E_{max}	0.3 mm
Rated characteristic value C_n	$2.0 \pm 0.02\%$ mV/V
Tolerance D_0 of zero signal	$< \pm 1.0\%$ C_n
Maximum scale interval n_{LC}	3 000 ¹⁾
Minimum scale interval V_{min}	$E_{max}/15\ 000$
Minimum application range $R_{min(LC)}$	20%
Combined error F_{comb}	$\leq 0.02\%$ C_n
Repeatability F_v	$\leq 0.017\%$ C_n
Creep error F_{cr}	<ul style="list-style-type: none"> 30 min $\leq \pm 0.02\%$ C_n
Temperature coefficient	
• Zero signal T_{K0}	$\leq \pm 0.017\%$ $C_n/5\ K$
• Characteristic value T_{Kc}	$\leq \pm 0.014\%$ $C_n/5\ K$
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 10 V DC
Input resistance R_e	$460\ \Omega \pm 50\ \Omega$
Output resistance R_a	$350\ \Omega \pm 3.5\ \Omega$
Insulation resistance R_{is}	5 000 M Ω at 50 V DC
Current calibration	Standard
Connection and environmental conditions	
Sensor material (DIN)	Stainless steel EN 1.4542
Max. tightening torque of the fixing screws	
• $E_{max} = 10, 200\ kg (22.05 \dots 440.92\ lb)$	23 Nm ²⁾
• $E_{max} = 350, 500\ kg (771.62, 1\ 102.31\ lb)$	70 Nm ²⁾
Function	
	Color
• EXC + (supply +)	Green
• EXC - (supply -)	Black
• SIG + (measured signal +)	White
• SIG - (measured signal -)	Red
• Shield (not connected to the load cell body)	Transparent
Rated temperature range B_{Tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-35 ... +65 °C (-31 ... +149 °F)
Degree of protection according to EN 60529; IEC 60529	IP68
Certificates and approvals	
Accuracy class according to OIML R60	C3

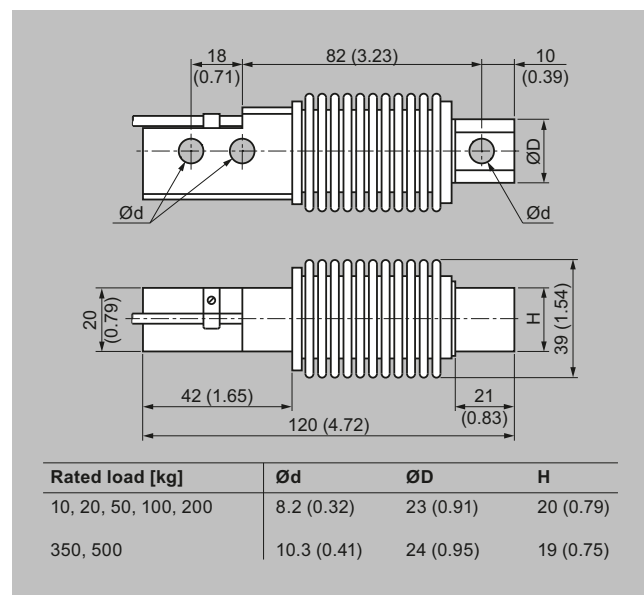
Technical specifications (Continued)

SIWAREX WL230 BB-S SA	
Explosion protection	<ul style="list-style-type: none"> EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C D-a - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc China: <ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

1) Higher accuracy class available on request.

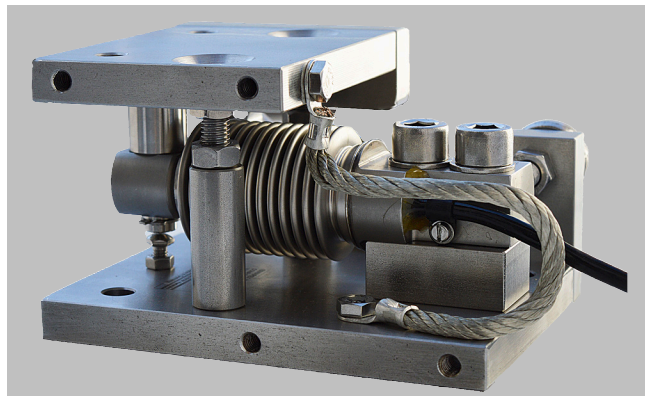
2) The tightening torque is to be selected according to the strength class of the screws.

Dimensional drawings



SIWAREX WL230 BB-S SA load cell, dimensions in mm (inch)

Overview



The self-centering installation unit for SIWAREX WL230 BB-S SA load cells is particularly suitable for implementation in small-scale container, platform and roller table scales.

Design

The mounting unit comprises a base plate and a top plate, a pendulum bolt, two countersunk screws and overload protection.

A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. On both sides of the base and top plate there are threaded holes for the later flange-fitting of guide elements.

The top plate is aligned and fixed above the base plate with the two countersunk screws. This results in a stable unit. The height of the top plate can be adjusted so that it is two millimeters above the installation height with load cell.

In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs.

The load cell is inserted with the pendulum bolt into the mounting unit. The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting. After the mounting unit has been mounted in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded.

Finally, the load bearing implement is lowered by loosening the two hexagon nuts under the top plate. The weight now rests on the load cells.

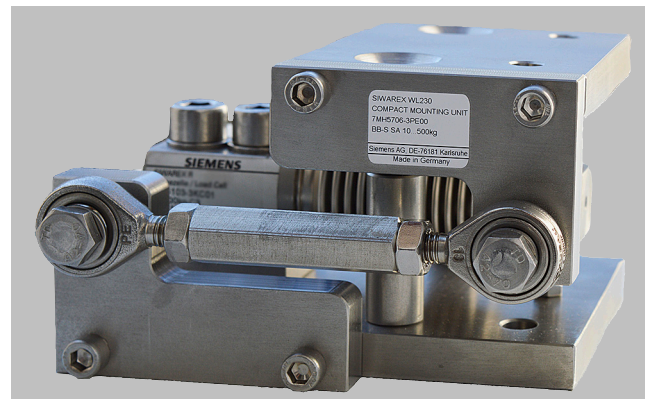
In this state the load cell and the pressure pieces together form a self-centering unit. The mounting unit permits sideways displacement of the top plate, and hence of the load bearing implement, by up to 2 mm (0.079 in). The countersunk head screws prevent the load bearing implement from being lifted off or tipping.

The overload protection is set so that the load cell cannot be loaded beyond the limit load.

Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy. For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. After loosening the clamping washers, it can then easily be replaced. Guide elements are used if the lateral movement of a load bearing implement is to be prevented. Lateral movements can be initiated by agitator start-up in a container, by braking or accelerating forces in a roller conveyor, or through forces exerted by the wind on outdoor silos. A guide element consists of two flanges and one clamping screw. The clamping screw is adjusted to the correct length. The guide element is attached to the operational mounting unit. A guide element can be mounted on the front or rear of the mounting unit. If necessary, two guide elements can be used in parallel in order to double the transferrable lateral force. In the case of scales with four load cells, only three mounting units may be equipped with guide elements. Shims are used to compensate for angular errors and delays in the lug plates. If more

Design (Continued)

than three load cells are used, the shims are also used to adjust the height of the lugs.



Guide element for SIWAREX WL230 BB-S SA mounting units

Selection and ordering data

	Article No.
Compact mounting units For load cells of the SIWAREX WL230 BB-S SA series Material: Stainless steel EN 1.4301 and EN 1.4112 For load cells with a rated load of <ul style="list-style-type: none"> • 10 ... 200 kg (22.05 ... 440.92 lb)¹⁾ • 350, 500 kg (771.61, 1 102.3 lb)¹⁾ 	7MH5706-3GA00 7MH5706-3PA00
Guide elements (optional) For load cells of the SIWAREX WL230 BB-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾ <ul style="list-style-type: none"> 10 ... 500 kg (22.05 ... 1102.3 lb); permissible lateral force: 2.5 kN 	7MH5706-3PE00
Shims (accessories) For compact mounting units of the SIWAREX WL230 BB-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾ <ul style="list-style-type: none"> • 10 ... 200 kg (22.05 ... 440.92 lb); Content: 16 units, each 0.5 mm thick 	7MH5713-3JG00

¹⁾ The load cell is not included in the scope of delivery.

Load Cells

Bending beam load cells

SIWAREX WL230 BB-S SA Mounting unit

Technical specifications

Mounting unit for load cells of the SIWAREX WL230 BB-S SA series

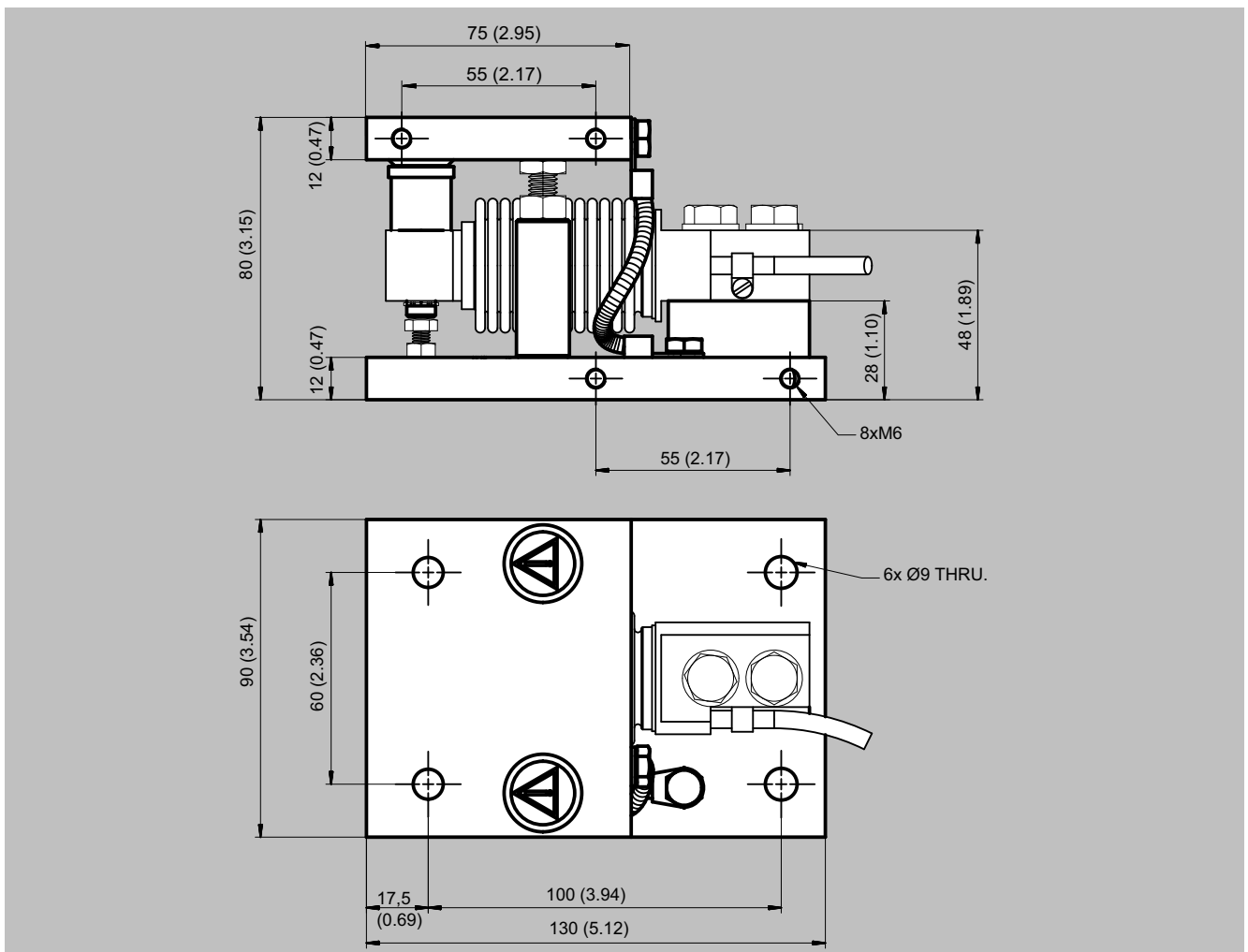
Rated load	10 ... 200 kg (22.01 ... 440.92 lb)	350, 500 kg (771.62, 1 102.31 lb)
Permissible lateral deflection:	± 2 mm (0.08 inch)	± 2 mm (0.08 inch)
Lifting path of top plate	2 ... 2.5 mm (0.08 ... 0.10 inch)	2 ... 2.5 mm (0.18 ... 0.10 inch)
Max. lateral force	1.7 kN	2.5 kN
Max. lifting force	2.5 kN	2.5 kN

Stainless steel guide element

Size	Values with rated load
	10 ... 500 kg (22.01 ... 1 102.31 lb)
Permissible lateral force ¹⁾	2.5 kN

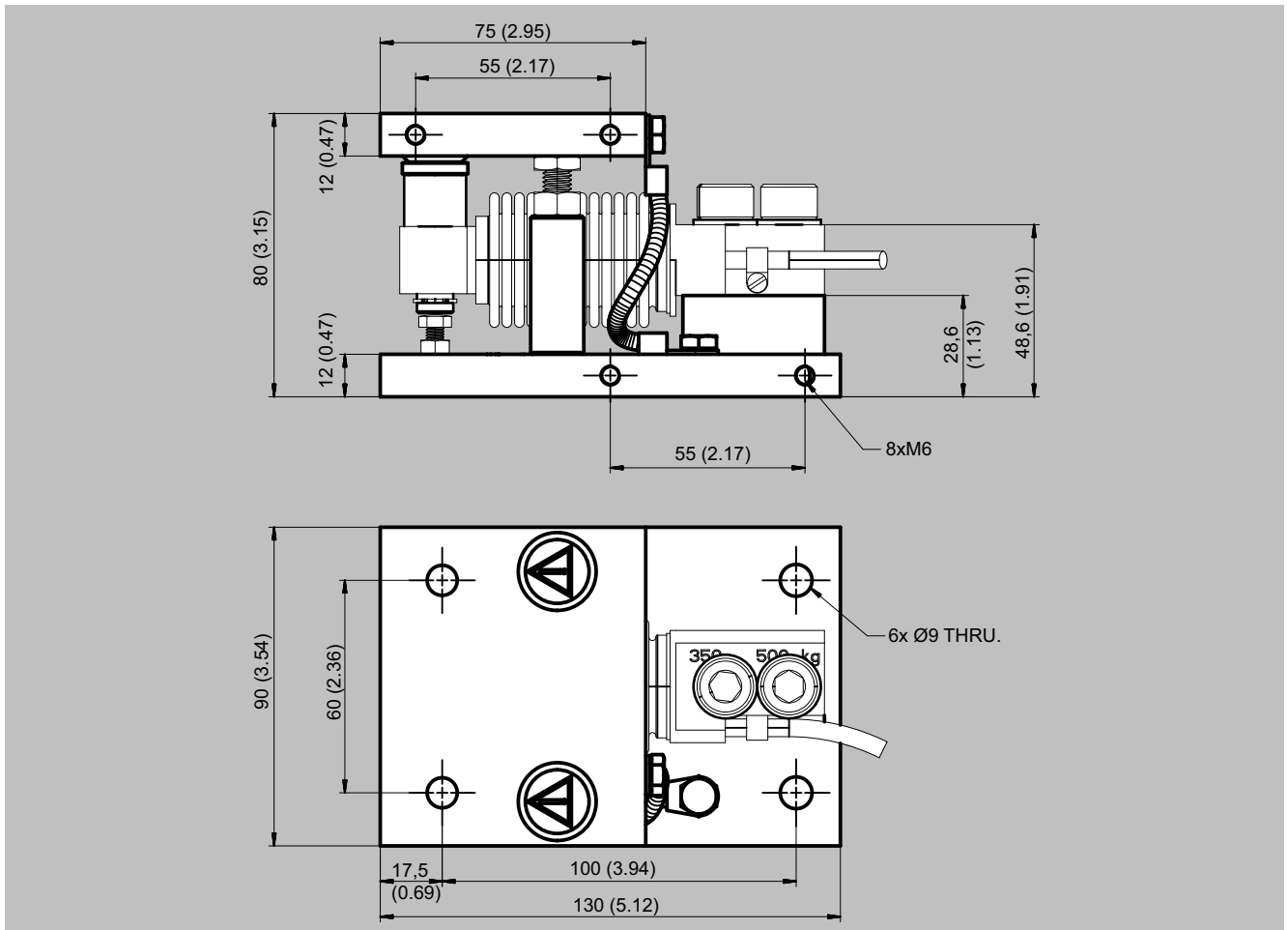
¹⁾ The values apply to one guide element.

Dimensional drawings



Mounting unit for SIWAREX WL230 BB-S SA load cells, 10 ... 200 kg (22.05 ... 440.92 lb), dimensions in mm (inch)

Dimensional drawings (Continued)



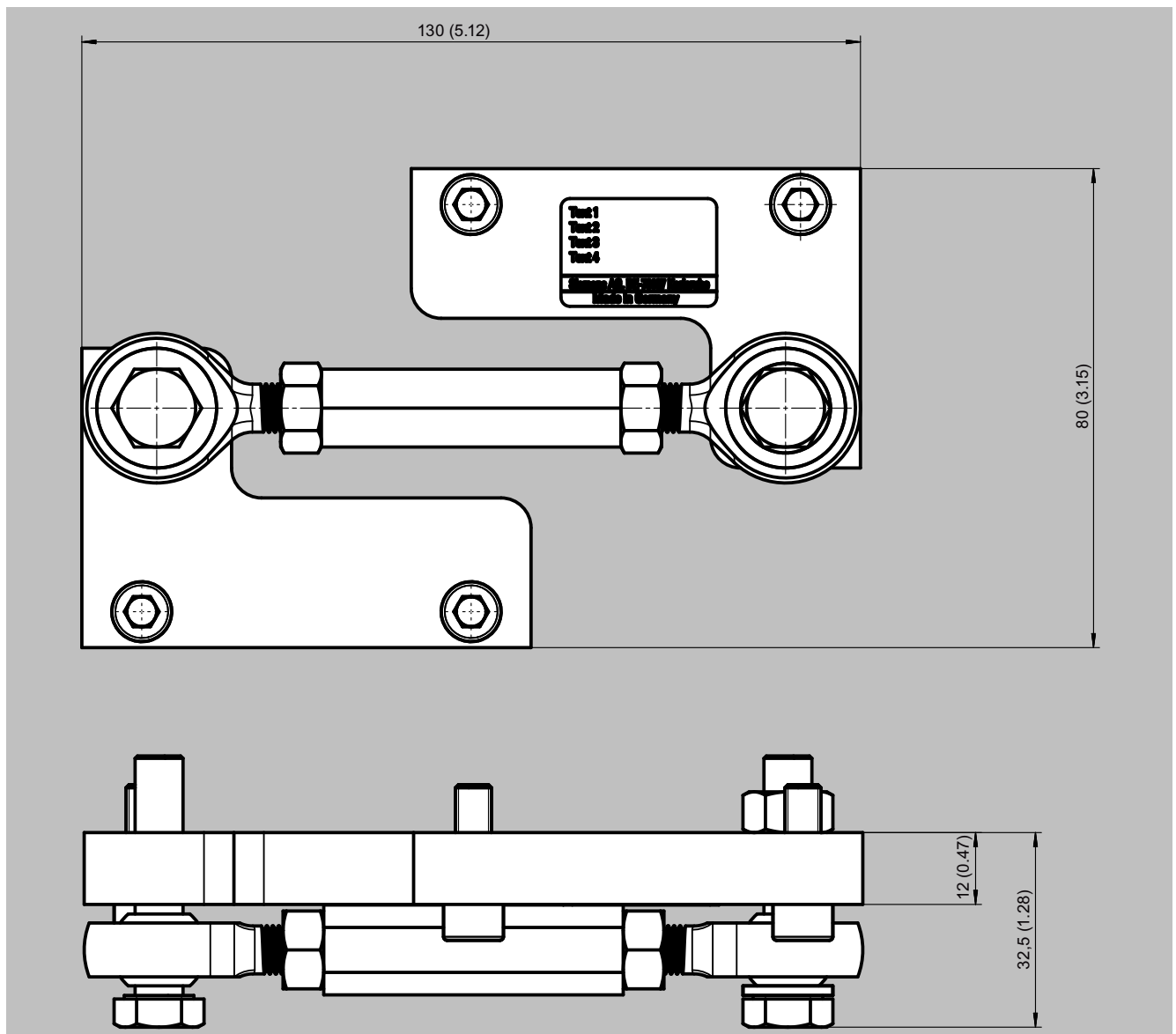
Mounting unit for SIWAREX WL230 BB-S SA load cells, 350 and 500 kg (771.62 and 1 102.31 lb), dimensions in mm (inch)

Load Cells

Bending beam load cells

SIWAREX WL230 BB-S SA Mounting unit

Dimensional drawings (Continued)

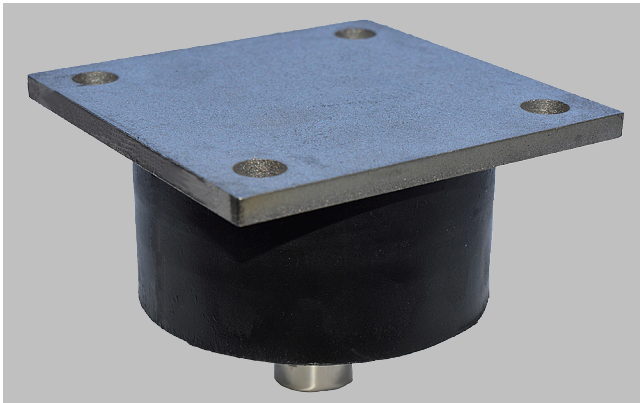


Guide element for SIWAREX WL230 BB-S SA load cells, 10 ... 500 kg (22.01 ... 1 102.31 lb), dimensions in mm (inch)

Overview



Elastomer bearing for load cells of the SIWAREX WL230 BB-S SA, 10 ... 200 kg (22.05 ... 440.93 lb) series



Elastomer bearing for load cells of the SIWAREX WL230 BB-S SA, 350 und 500 kg (771.62 and 1 102.31 lb) series

The self-centering elastomer bearing for load cells of the SIWAREX WL230 BB-S SA series is the ideal load introduction element for scales without guide elements. It serves to damp vibrations and shocks.

Design

Elastomer bearings are rubber-metal composites made of neoprene and stainless steel. They ensure large spring excursions (i.e. a high degree of damping) despite small dimensions.

If the load bearing implement is displaced by more than 4 mm (0.16 inch) in the horizontal direction, measures for restricting sideways play (e.g. in the form of guide elements) must be provided in the construction of the load bearing implement.

In combination with the base plate and integral overload protection, it is ensured that the load cell is not damaged by static overloading with vertical forces of up to 5 kN.

The load cell and the base plate are not included in the scope of delivery of the elastomer bearing.

Selection and ordering data

	Article No.
Elastomer bearings	
For load cells of the SIWAREX WL230 BB-S SA series	
Material: Neoprene, stainless steel EN 1.4301	
For load cells with a rated load of ¹⁾²⁾	
• 10 ... 200 kg (22.05 ... 440.92 lb)	7MH4133-3DE11
• 350, 500 kg (771.61, 1 102.31 lb)	7MH5706-0PC00

¹⁾ The load cell is not included in the scope of delivery.

²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Load Cells

Bending beam load cells

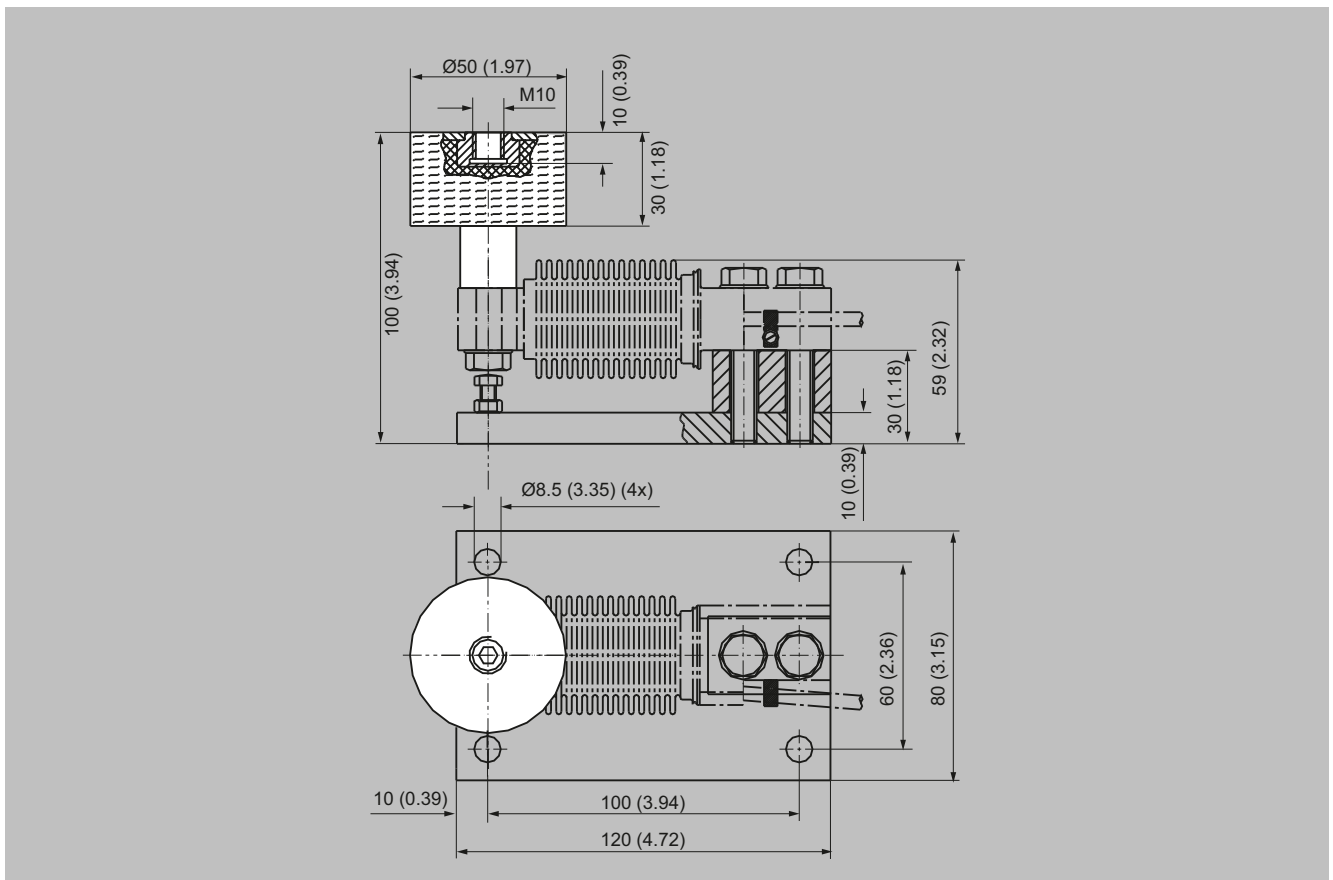
SIWAREX WL230 BB-S SA Elastomer bearing

Technical specifications

Elastomer bearings for load cells of the SIWAREX WL230 BB-S SA series

Rated load	10 kg (22.05 lb)	20 kg (44.09 lb)	50 kg (110.23 lb)	100 kg (220.46 lb)	200 kg (440.93 lb)	350 kg (771.62 lb)	500 kg (1 102.31 lb)
Max. permissible lateral deflection	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)
Vertical rigidity	0.89 kN/mm	0.89 kN/mm	0.89 kN/mm	0.89 kN/mm	0.89 kN/mm	3.8 kN/mm	3.8 kN/mm
Horizontal rigidity	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.1 kN/mm	0.1 kN/mm
Spring compression at rated load	0.10 mm	0.20 mm	0.50 mm	1.10 mm	2.10 mm	0.68 mm	1.28 mm

Dimensional drawings



Elastomer bearings for SIWAREX WL230 BB S SA load cells, 10 ... 200 kg (22.05 lb ... 440.92 lb), dimensions in mm (inch)

Overview



The base plate with integral overload protection for load cells of the SIWAREX WL230 BB-S SA series ensures easy, correct installation of the load cell.

Design

The integrated overload protection ensures that the load cell is not damaged by static overloading with vertical forces of up to 5 kN. The load cells can be installed on the base plate and aligned even before final installation of the scales. This ensures that the permissible spring excursion of the load cell is precisely set, up to contact with the overload protection.

The load cell is not included in the scope of delivery of the base plate with overload protection.

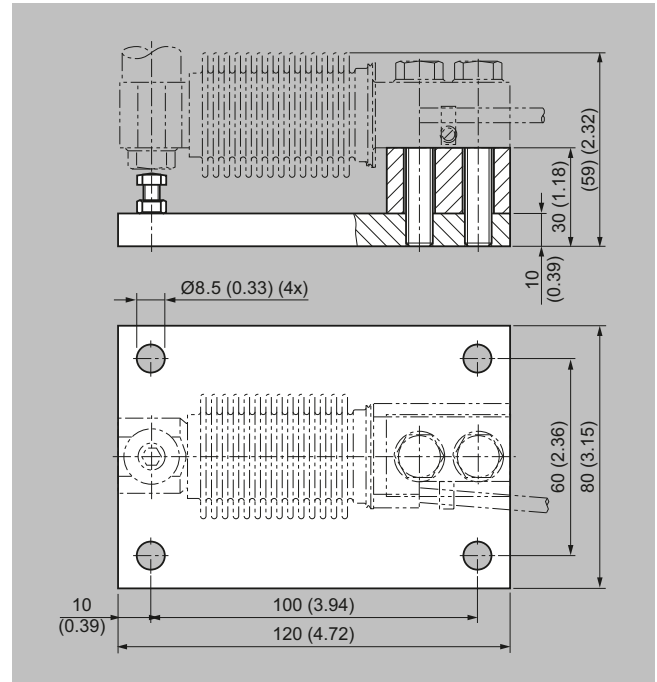
Selection and ordering data

	Article No.
Base plate with overload protection	
For load cells of the SIWAREX WL230 BB-S SA series	
Material: Stainless steel EN 1.4301	
For load cells with a rated load of ¹⁾²⁾	
• 10 ... 200 kg (22.05 ... 440.92 lb)	7MH4133-3DG11
• 350, 500 kg (771.62, 1 102.31 lb)	7MH4133-3KG11

¹⁾ The load cell is not included in the scope of delivery.

²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Dimensional drawings



Elastomer bearing and base plate with overload protection for SIWAREX WL230 BB-S SA load cells, 10 ... 200 kg (22.05 ... 440.92 lb), dimensions in mm (inch)

Load Cells

Shear beam load cells

SIWAREX WL230 SB-S SA Load cell

Overview



The shear beam load cell is particularly suitable for use in hopper, overhead rail and platform scales.

Design

The measuring element is a shear tension spring made of stainless steel to which the strain gauges are applied. The strain gauges are arranged at 45° to the longitudinal axis on the side of the spring body and are therefore subject to shear forces. Under the influence of the load acting in the measuring direction, the spring bodies and therefore the friction-locked strain gauges are elastically deformed. This generates a measuring signal voltage that is proportional to the load.

Selection and ordering data

Load cell, type WL230 SB-S SA	Article No.
Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 3 m (9.84 ft) at 500 kg (1 102.31 lb) up to 1 t (0.98 tn. l.), connecting cable 6 m (19.68 ft) at 2 t (1.97 tn. l.) up to 5 t (4.92 tn. l.).	7MH5107-●●D0●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Rated load	
• 500 kg (1 102.31 lb)	3 P
• 1 t (0.98 tn. l.)	4 A
• 2 t (1.97 tn. l.)	4 G
• 5 t (4.92 tn. l.)	4 P
Explosion protection	
Without	0
Explosion protection	1

Technical specifications

SIWAREX WL230 SB-S SA	
Possible applications	<ul style="list-style-type: none"> Hopper scales Belt scales Overhead rail scales Platform scales
Type of construction	Shear beam load cell
Loads	
Rated load/maximum load E_{max}	<ul style="list-style-type: none"> 500 kg (1 102.31 lb) 1 t (0.98 tn. l.) 2 t (1.97 tn. l.) 5 t (4.92 tn. l.)
Minimum initial loading E_{min}	0 kg
Max. working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{lq}	100% E_{max}
Measurement characteristic values	
Rated displacement h_n at	
• $E_{max} = 500$ kg (1 102.31 lb)	0.13 mm

Technical specifications (Continued)

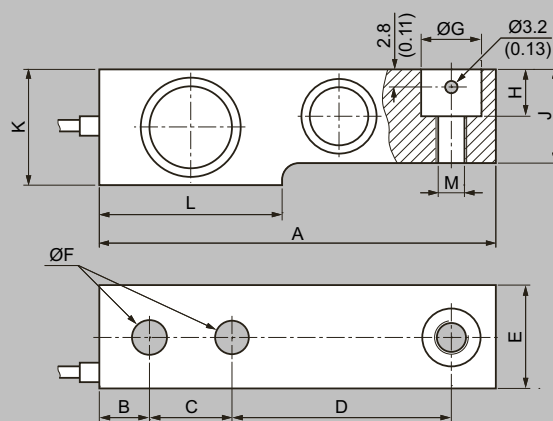
SIWAREX WL230 SB-S SA	
• $E_{max} = 1$ t (0.98 tn. l.)	0.21 mm
• $E_{max} = 2$ t (1.97 tn. l.)	0.29 mm
• $E_{max} = 5$ t (4.92 tn. l.)	0.38 mm
Rated characteristic value C_n	2.0 ± 0.002 mV/V
Tolerance D_o of zero signal	$\leq \pm 1.0\%$ C_n
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min} at	
• $E_{max} = 500$ kg (1 102.31 lb)	$E_{max}/10\ 000$
• $E_{max} = 1 \dots 5$ t (0.98 ... 4.92 tn. l.)	$E_{max}/15\ 000$
Minimum application range $R_{min(LC)}$ at	
• $E_{max} = 500$ kg (1 102.31 lb)	30%
• $E_{max} = 1 \dots 5$ t (0.98 ... 4.92 tn. l.)	20%
Combined error F_{comb}	$\pm 0.02\%$ C_n
Repeatability F_v	$\pm 0.02\%$ C_n
Creep error F_{cr}	
• 30 min	$\leq \pm 0.02\%$ C_n
Temperature coefficient	

Technical specifications (Continued)

SIWAREX WL230 SB-S SA	
• Zero signal t_{k0}	0.023% $C_n/5$ K
• Characteristic value t_{kc}	0.017% $C_n/5$ K
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 ... 12 V DC
Input resistance R_e	1 000 ± 10 Ω
Output resistance R_s	1 004 ± 5 Ω
Insulation resistance R_{is}	5 000 MΩ at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{Tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-35 ... +65 °C (-31 ... +149 °F)
Sensor material (DIN)	Stainless steel EN 1.4542
Degree of protection according to EN 60529; IEC 60529	IP68
Recommended tightening torque of the fixing screws	
• $E_{max} = 500$ kg ... 2 t (1 102.31 lb ... 1.97 tn. l.)	150 Nm ¹⁾
• $E_{max} = 5$ t (4.92 tn. l.)	550 Nm ¹⁾
Cable connection	
Function	Color
• EXC + (supply +)	Green
• EXC - (supply -)	Black
• SIG + (measured signal +)	White
• SIG - (measured signal -)	Red
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Accuracy class according to OIML R60	C3
Explosion protection	<ul style="list-style-type: none"> • EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C D-a - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc • USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc • Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc • China: <ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

¹⁾ The tightening torque is to be selected according to the strength class of the screws.

Dimensional drawings



Rated load [t]	A	B	C	D	E	ØF
0.5	130 (5.12)	16 (0.63)	25.4 (1.00)	76 (2.99)	32 (1.26)	13 (0.51)
1	130 (5.12)	16 (0.63)	25.4 (1.00)	76 (2.99)	32 (1.26)	13 (0.51)
2	130 (5.12)	16 (0.63)	25.4 (1.00)	76 (2.99)	32 (1.26)	13 (0.51)
5	172 (6.77)	19 (0.63)	38.1 (1.50)	95 (3.74)	38 (1.50)	20.5 (0.81)
Rated load [t]	ØG	H	J	K	L	M
0.5	20.5 (0.81)	14 (0.55)	26 (1.02)	32 (1.26)	57 (2.24)	M12
1	20.5 (0.81)	14 (0.55)	28 (1.10)	32 (1.26)	57 (2.24)	M12
2	20.5 (0.81)	14 (0.55)	32 (1.26)	36 (1.42)	57 (2.24)	M12
5	30.2 (1.89)	20 (0.79)	40 (1.57)	44 (1.73)	76 (2.99)	M20

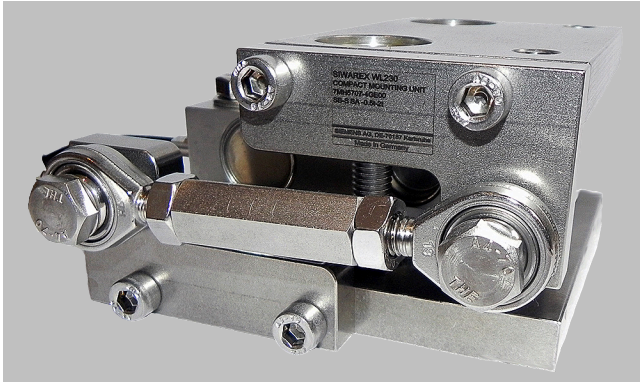
SIWAREX WL230 SB-S SA load cell, dimensions in mm (inch)

Load Cells

Shear beam load cells

SIWAREX WL230 SB-S SA Mounting unit with guide element

Overview



The self-centering mounting unit for SIWAREX WL230 SB-S SA load cells is particularly suitable for implementation in container, platform and roller conveyor scales.

Design

The mounting unit comprises a base plate and a top plate, a pendulum bolt and two countersunk screws.

A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. On both sides of the base and top plate there are threaded holes for the later flange-fitting of guide elements.

The top plate is aligned and fixed above the base plate with the two countersunk screws. This results in a stable unit. The height of the top plate is adjusted so that it is three millimeters above the installation height with load cell.

In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs.

The load cell is inserted with the pendulum bolt into the mounting unit. The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting. After the mounting unit has been mounted in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded.

Finally, the load bearing implement is lowered by loosening the two hexagon nuts under the top plate. The weight now rests on the load cells.

In this state the load cell and the pressure pieces together form a self-centering unit. The mounting unit permits sideways displacement of the top plate, and hence of the load bearing implement, by up to three millimeters.

The countersunk head screws prevent the load bearing implement from being lifted off or tipping.

Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy. For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. After loosening the fixing screws, it can be replaced easily.

Guide element

Guide elements are used if the lateral movement of a load bearing implement is to be prevented.

Lateral motions may be associated with the following factors: Start-up of an agitator in a container, braking or acceleration forces of a roller conveyor, or wind forces in the case of outdoor silos.

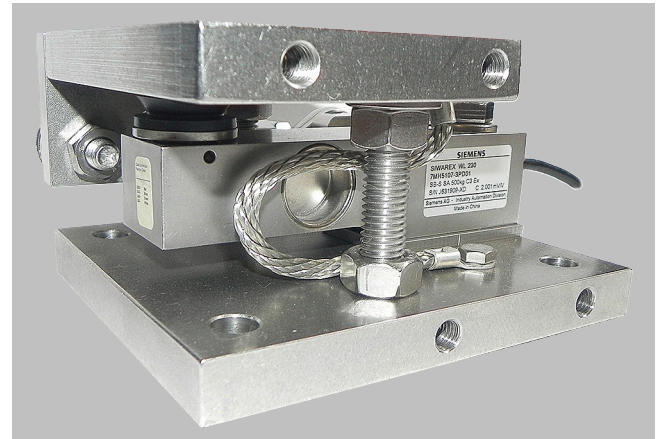
A guide element consists of two flanges and one clamping screw. The clamping screw is adjusted to the correct length. The guide element is attached to the operational mounting unit. A guide element can be mounted on the front or rear of the mounting unit. If necessary, two guide elements can be used in parallel in order to double the transferrable lateral force.

In the case of scales with four load cells, only three mounting units may be equipped with guide elements.

Design (Continued)

Shim

Shims are used to compensate for angular errors and delays in the lug plates. If more than three load cells are used, the shims are also used to adjust the height of the lugs.



Mounting unit with guide element, rear view

SIWAREX WL230 SB-S SA Mounting unit with guide element

Selection and ordering data

Mounting unit For load cells of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4301 and EN 1.4112	Article No. 7MH5707- 4 ● A 0 1
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
For load cells with a rated load of¹⁾	
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	A
• 2 t (1.97 tn. l.)	G
• 5 t (4.92 tn. l.)	P

Selection and ordering data	Article No.
Guide elements (optional) For mounting units of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾	
• 500 kg ... 2 t (1 102.31 lb ... 1.97 tn. l.); permissible lateral force: 3 kN	7MH5707-4GE00
• 5 t (4.92 tn. l.); permissible lateral force: 5 kN	7MH5707-4PE00
Shims (accessories) For mounting units of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾	
• 500 kg ... 2 t (1 102.31 lb ... 1.97 tn. l.); Content: 16 units, each 0.5 mm thick	7MH5713-3JG00
• 5 t (4.92 tn. l.); Content: 4 units, each 0.5 mm thick, 16 units each 1 mm thick	7MH5713-4PG00

¹⁾ The load cell is not included in the scope of delivery.

Technical specifications

Mounting unit for load cells of the SIWAREX WL230 SB-S SA series		
Rated load	0.5 ... 2 t (0.49 ... 1.97 tn. l.)	5 t (4.92 tn. l.)
Maximum lateral deflection with load cell	± 3 mm (0.12 inch)	± 3 mm (0.12 inch)
Lifting path of top plate	3 mm (0.12 inch)	3 mm (0.12 inch)
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	13 %/mm	10 %/mm
Permissible supporting load with fixed top plate	25 kN	35 kN
Permissible lifting force on the top plate	25 kN	50 kN
Permissible lateral force on the top plate with fixed top plate	3 kN	5 kN

Guide element		
Rated load	0.5 ... 2 t (0.49 ... 1.97 tn. l.)	5 t (4.92 tn. l.)
Permissible lateral force ¹⁾	3 kN	5 kN

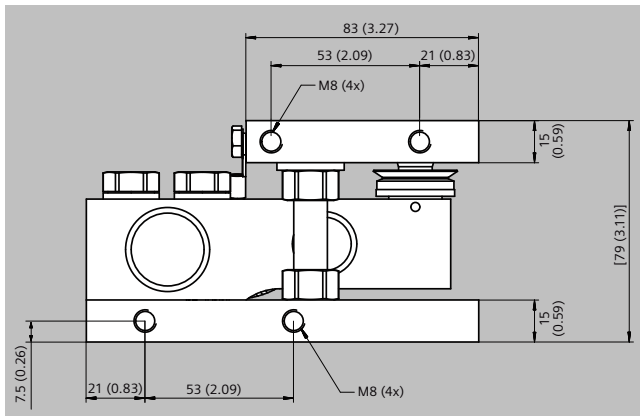
¹⁾ The values apply to one guide element.

Load Cells

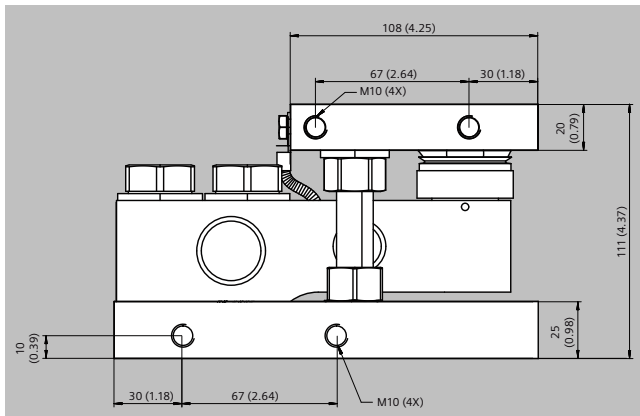
Shear beam load cells

SIWAREX WL230 SB-S SA Mounting unit with guide element

Dimensional drawings

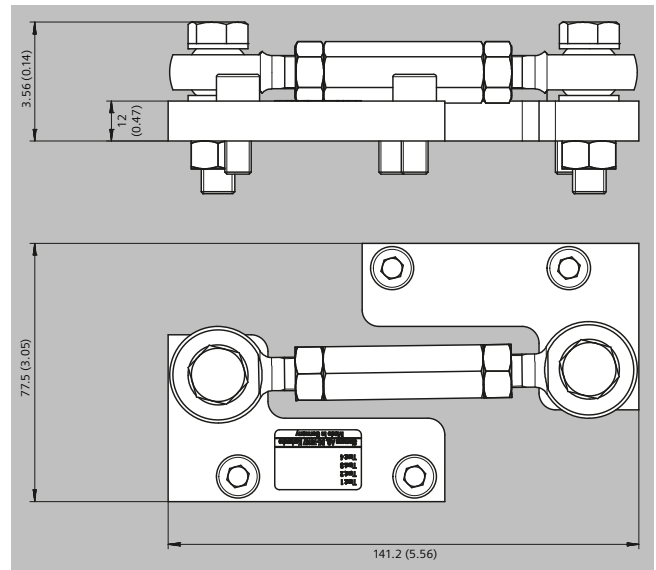


Compact mounting unit for SIWAREX WL230 SB-S SA load cells, mounting state with built-in load cells 0.5 to 2 t (0.49 ... 1.97 tn. l.), dimensions in mm (inch)

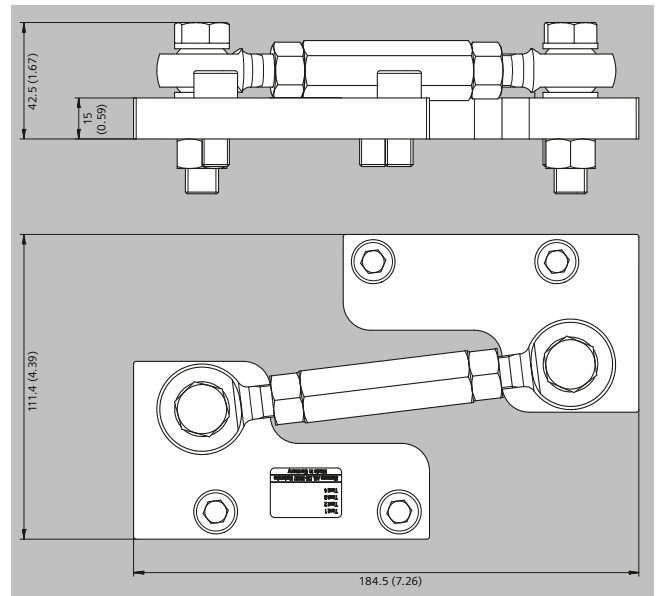


Compact mounting unit for SIWAREX WL230 SB-S SA load cells, mounting state with built-in load cell 5 t (4.92 tn. l.), dimensions in mm (inch)

Dimensional drawings (Continued)

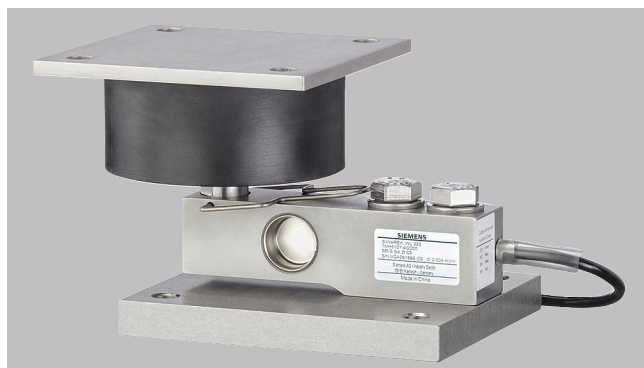


Compact mounting unit for SIWAREX WL230 SB-S SA load cells, guide elements 0.5 to 2 t (0.49 ... 1.97 tn. l.), dimensions in mm (inch)



Compact mounting unit for SIWAREX WL230 SB-S SA load cells, guide element 5 t (4.92 tn. l.), dimensions in mm (inch)

Overview



The base plate and the elastomer bearing form a self-centering bearing unit together with the load cells of the SIWAREX WL230 SB-S SA series. It suppresses oscillations and shocks to a certain extent.

Design

Elastomer bearings are rubber-metal composites made of neoprene and stainless steel. Their special design means that lateral movement of the load bearing implement does not result in high transverse force on the load cell.

If the load bearing implement is displaced by more than 4 mm (0.16 inch) in the horizontal direction, measures for restricting sideways play (e.g. stops) must be provided in the construction of the load bearing implement.

The base plate of stainless steel is used for suitable fixing of the load cell on the base.

The load cell is not included in the scope of delivery of the base plate or elastomer bearing.

Selection and ordering data

	Article No.	
Base plate For load cells of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4301	7MH5707- 4 ● ● 0 0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
For load cells with a rated load of ¹⁾²⁾		
• 500 kg, 1 t (1 102.31 lb, 0.98 tn l.)	A	B
• 2 t (1.97 tn l.)	G	B
• 5 t (4.92 tn l.)	P	B
Elastomer bearings For load cells of the SIWAREX WL230 SB-S SA series Material: Neoprene, stainless steel EN 1.4301		
For load cells with a rated load of ¹⁾²⁾		
• 500 kg, 1 t (1 102.31 lb, 0.98 tn l.)	A	C
• 2 t (1.97 tn l.)	G	C
• 5 t (4.92 tn l.)	P	C

¹⁾ The load cell is not included in the scope of delivery.

²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Load Cells

Shear beam load cells

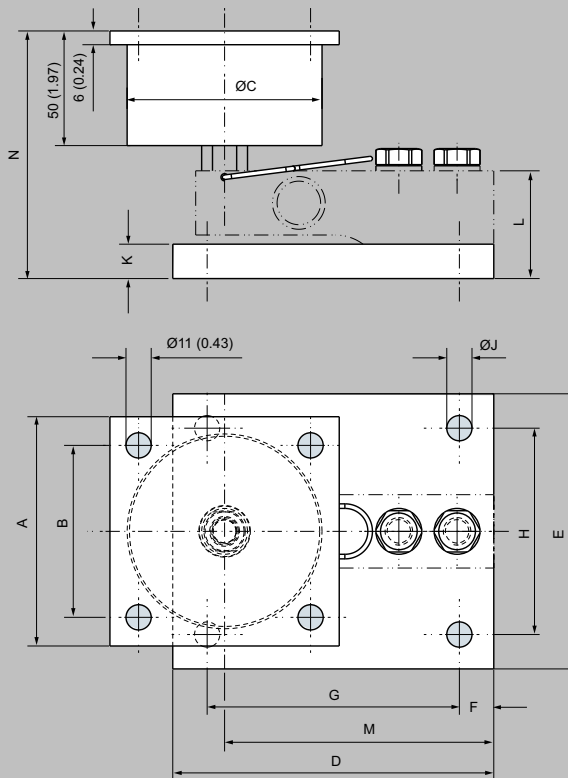
SIWAREX WL230 SB-S SA Base plate with elastomer bearing

Technical specifications

Base plate with elastomer bearing for SIWAREX WL230 SB-S SA load cells

Rated load	500 kg (1 102.31 lb)	1 t (0.98 tn. l.)	2 t (1.97 tn. l.)	5 t (4.92 tn. l.)
Maximum permissible lateral deflection	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)	± 4 mm (0.16 inch)
Vertical rigidity	5.9 kN/mm	5.9 kN/mm	29.98 kN/mm	29.98 kN/mm
Horizontal rigidity	0.16 kN/mm	0.16 kN/mm	0.54 kN/mm	0.54 kN/mm
Compression at rated load	0.68 mm (0.037 inch)	1.28 mm (0.050 inch)	0.62 mm (0.024 inch)	1.46 mm (0.057 inch)

Dimensional drawings



Rated load [t]	A	B	øC	D	E	F	G
0,5, 1	100 (3.94)	75 (2.95)	85 (3.35)	140 (5.51)	120 (4.72)	15 (0.59)	110 (4.33)
2	120 (4.72)	90 (3.54)	100 (3.94)	140 (5.51)	120 (4.72)	15 (0.59)	110 (4.33)
5	120 (4.72)	90 (3.54)	100 (3.94)	185 (7.28)	150 (5.91)	20 (0.79)	145 (5.71)

Rated load [t]	H	øJ	K	L	M	N
0,5, 1	90 (3.54)	11 (0.43)	15 (0.59)	47 (1.85)	117.4 (4.62)	108 (4.25)
2	90 (3.54)	11 (0.43)	15 (0.59)	51 (2.01)	117.4 (4.62)	112 (4.41)
5	110 (4.33)	13.5 (0.53)	25 (0.98)	69 (2.72)	153.1 (6.03)	134 (5.28)

G_WT01_XX_10133

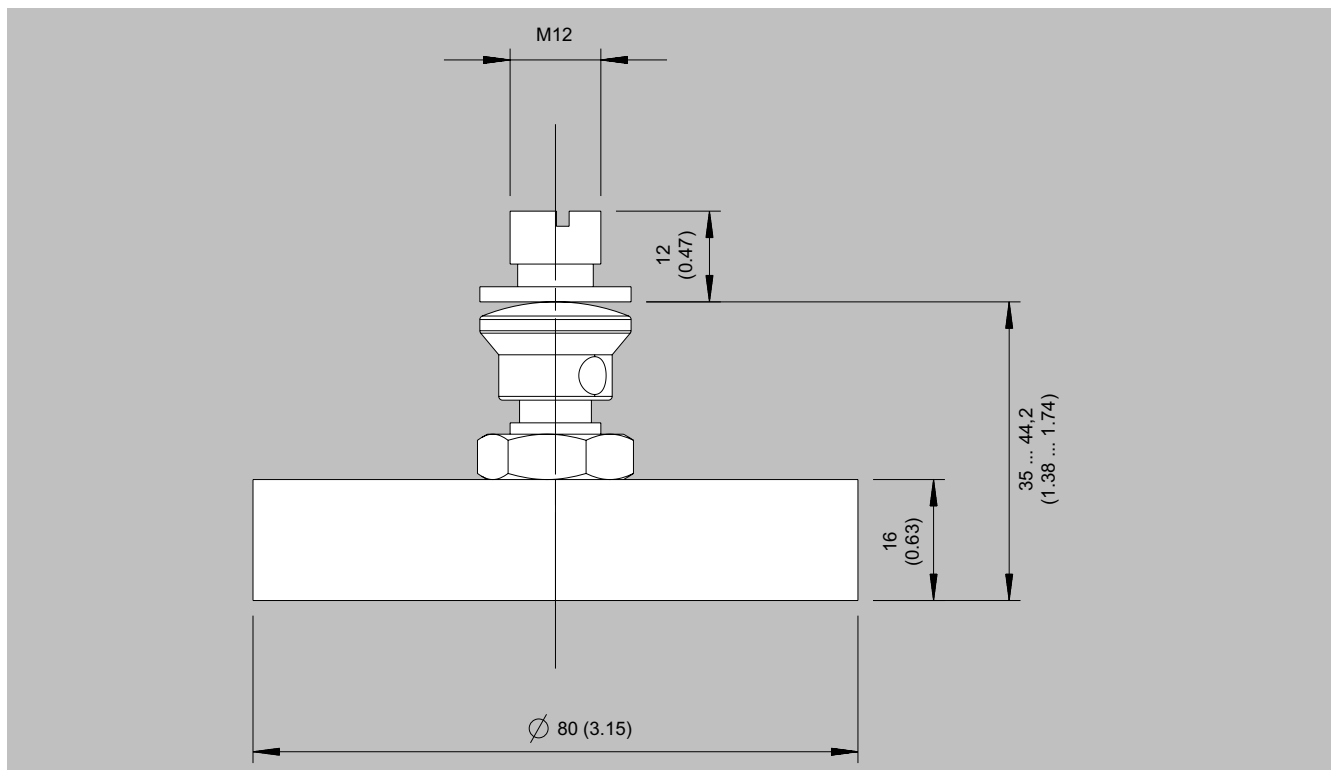
Base plate with elastomer bearing for SIWAREX WL230 SB-S SA load cells, dimensions in mm (inch)

Load Cells

Shear beam load cells

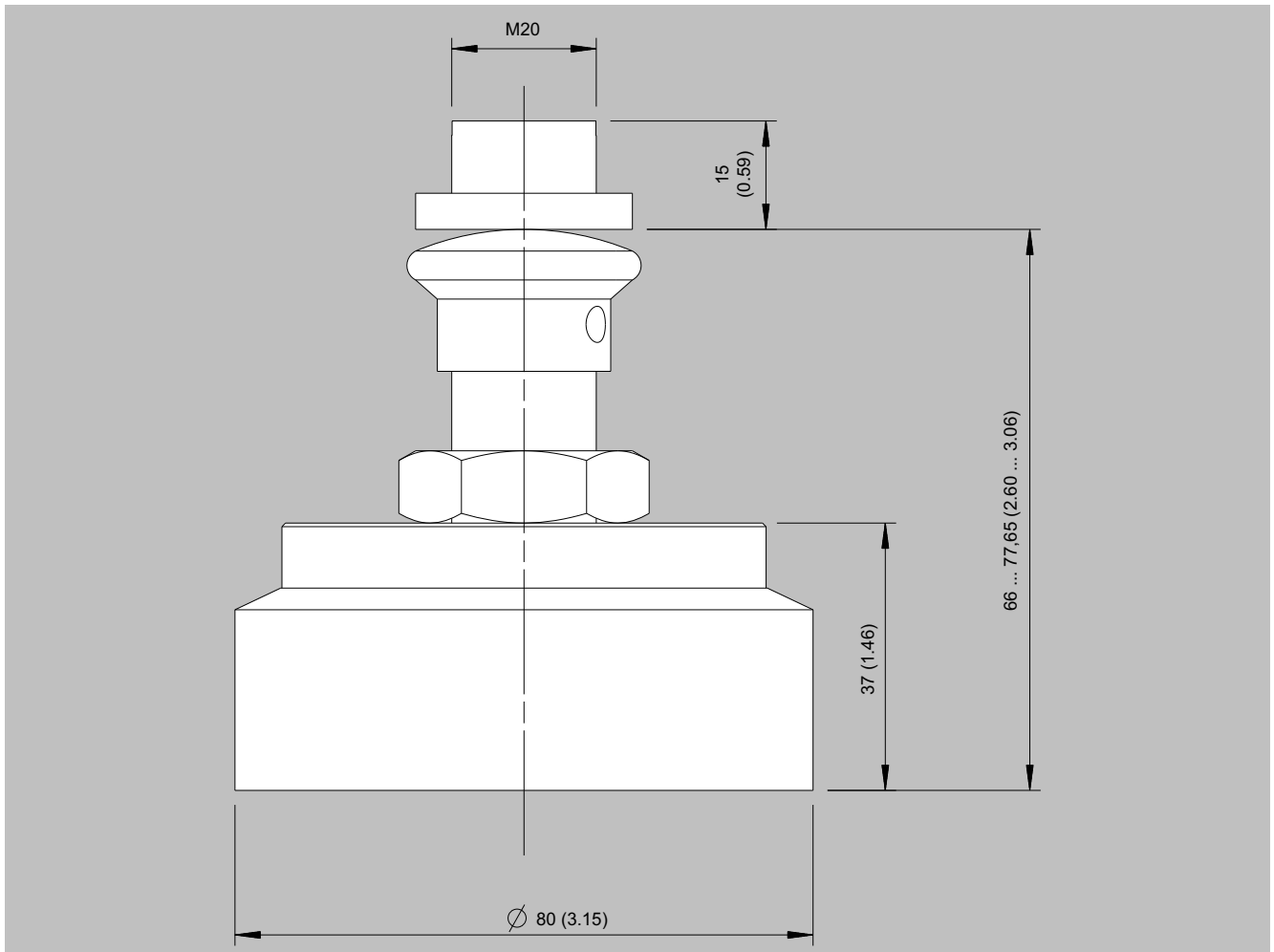
SIWAREX WL230 SB-S SA Load foot

Dimensional drawings



SIWAREX WL230 SB-S SA load foot, 0.5 ... 2 t (0.49 ... 1.97 tn. l.), dimensions in mm (inch)

Dimensional drawings (Continued)



SIWAREX WL230 SB-S SA load foot, 5 t (4.92 tn. l.), dimensions in mm (inch)

Load Cells

Shear beam load cells

SIWAREX WL230 SB-S CA Load cell

Overview



The SIWAREX WL230 SB-S CA shear beam load cell is made of special nickel-plated steel. The 100 kg (220.46 lb) and 250 kg (551.16 lb) load classes are implemented as bending beams.

The WL230 SB-S CA load cells are especially suited for platform scales and hopper scales where it is easy to introduce the load into the load cell by means of an adjustable foot. The load cell is available in rated loads from 100 kg to 10 t (220.46 lb ... 0.98 tn l.). This means that scales with multiple weighing ranges can be equipped with a single cell type.

The load cells are legal-for-trade according to OIML R60. They are available in accuracy classes C3, C4 and 5.

Design

The measuring element is a spring body made of special steel. Due to the galvanic coating of nickel and the IP67 degree of protection it is suitable for use in harsh environments.

Selection and ordering data

Load cell, type SIWAREX WL230 SB-S CA	Article No.			
Material: Steel, nickel-plated	7MH5121-			
Length of the connecting cable: 4 m at rated load up to 2 t, 6 m from rated load 3 t	●	●	●	0 0
Click the Article No. for online configuration in the PIA Life Cycle Portal.				
Rated load				
• 100 kg (220.46 lb)	3	A		
• 250 kg (551.16 lb)	3	H		
• 500 kg (1 102.31 lb)	3	P		
• 1 t (0.98 tn. l.)	4	A		
• 2 t (1.97 tn. l.)	4	G		
• 3 t (2.95 tn. l.)	4	K		
• 5 t (4.92 tn. l.)	4	P		
• 10 t (9.84 tn. l.)	5	A		
Accuracy class according to OIML R60				
• C3			D	
• C4			E	
• C5			F	

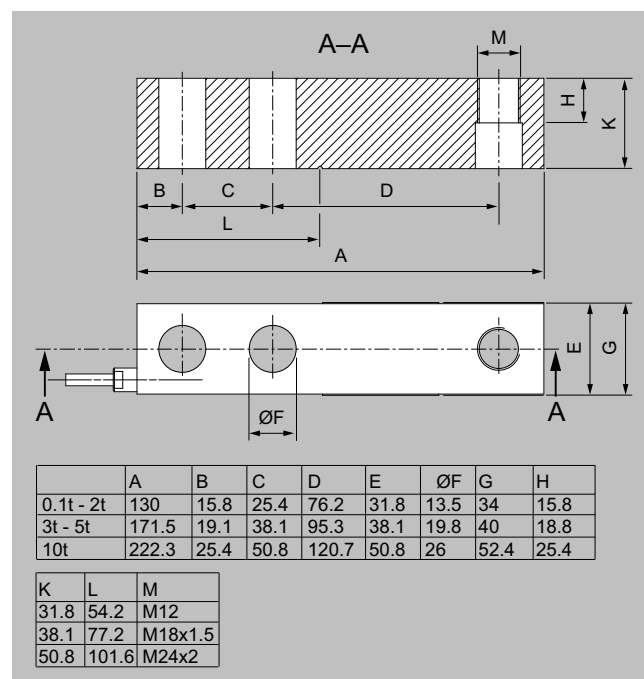
Technical specifications

SIWAREX WL230 SB-S CA	
Possible applications	<ul style="list-style-type: none"> Platform scales Hopper scales
Type of construction	<ul style="list-style-type: none"> Bending beam up to rated load 250 kg (551.16 lb) Shear beam from rated load 500 kg (1 102.31 lb)
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> 100 kg (220.46 lb) 250 kg (551.16 lb) 500 kg (1 102.31 lb) 1 t (0.98 tn. l.) 2 t (1.97 tn. l.) 3 t (2.95 tn. l.) 5 t (4.92 tn. l.) 10 t (9.84 tn. l.)
Minimum initial loading E_{min}	0 kg
Max. working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{iq}	100% E_{max}
Measurement characteristic values	
Rated displacement h_n at E_{max}	
• $E_{max} = 100$ kg (220.46 lb)	0.17 mm
• $E_{max} = 250$ kg (551.16 lb)	0.15 mm
• $E_{max} = 500$ kg (1 102.31 lb)	0.32 mm
• $E_{max} = 1$ t (0.98 tn. l.)	0.63 mm
• $E_{max} = 2$ t (1.97 tn. l.)	1.2 mm
• $E_{max} = 3$ t (2.95 tn. l.)	0.9 mm
• $E_{max} = 5$ t (4.92 tn. l.)	0.6 mm
• $E_{max} = 10$ t (9.84 tn. l.)	0.8 mm
Rated characteristic value C_n	3.0 ± 0.003 mV/V
Tolerance D_0 of zero signal	$\pm 1.0\%$ C_n
Max. scale interval n_{LC}	
• For accuracy class OIML C3	3 000
• For accuracy class OIML C4	4 000
• For accuracy class OIML C5	5 000
Min. scale interval V_{min}	
• At E_{max} 100 kg ... 10 t (220.46 lb ... 9.84 tn. l.) and accuracy class OIML C3	$E_{max}/10\ 000$
• At E_{max} 100 kg ... 10 t (220.46 lb ... 9.84 tn. l.) and accuracy class OIML C4	$E_{max}/15\ 000$
• At E_{max} 100 kg ... 2 t (220.46 lb ... 1.97 tn. l.) and accuracy class OIML C5	$E_{max}/20\ 000$
• At E_{max} 3 t ... 10 t (2.95 ... 9.84 tn. l.) and accuracy class OIML C5	$E_{max}/18\ 000$
Combined error F_{comb}	
• For accuracy class OIML C3	$\leq \pm 0.023\%$ C_n
• For accuracy class OIML C4	$\leq \pm 0.018\%$ C_n
• For accuracy class OIML C5	$\leq \pm 0.014\%$ C_n
Creep error F_{cr}	
• 30 min	$\leq \pm 0.015\%$ C_n
Electrical characteristic values	
Recommended supply voltage	5 ... 12 V DC
Maximum supply voltage	18 V DC
Input resistance R_e	350 ± 3.5 Ω
Output resistance R_a	350 ± 3.5 Ω
Insulation resistance R_{is}	$\geq 5\ 000$ M Ω at 50 V DC

Technical specifications (Continued)

SIWAREX WL230 SB-S CA	
Connection and ambient conditions	
Rated temperature range B_{Tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{Tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{Ts}	-40 ... +80 °C (-40 ... +176 °F)
Sensor material (DIN)	Steel, nickel-plated
Degree of protection acc. to EN 60529	IP67
Recommended tightening torque of the fixing screws	
• For M12	75 Nm
• For M18	500 Nm
• For M24	750 Nm
Length of the connecting cable (four-core)	
• For rated loads up to 2 t	Length 4 m (13.1 ft)
• For rated loads more than 2 t	Length 6 m (19.7 ft)
Diameter of the connecting cable	5 mm
Degree of protection acc. to EN 60529	IP67
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green
• SIG - (measured signal -)	White
• Shield (not connected to the load cell body)	Transparent
ATEX	-
Certificates and approvals	
Accuracy class according to OIML R60	C3, C4, C5

Dimensional drawings



SIWAREX WL230 SB-S CA load cell, dimensions in mm (inch)

Load Cells

Shear beam load cells

SIWAREX WL230 SB-S CA Load foot

Overview



Load foot for SIWAREX WL230 SB-S CA

The self-centering load foot for SIWAREX WL230 SB-S CA load cells can be used for the quick and easy assembly of platform and hopper scales. Together with the load cell it forms a self-centering bearing unit. The load foot transmits the force directly into the load cell. The load foot is suitable for rated load cell ranges from 100 kg up to 10 t (220.46 lb up to 9.84 tn. l.).

Design



SIWAREX WL230 SB-S CA with load foot

You can adjust the height of the load cell with the threaded shaft on the load foot. The foot element has a ball joint with an oscillation function which is often used in weighing technology. Stresses can arise during installation or when the length of the load bearing implement changes due to thermal expansion. The rubber cap prevents the load foot from slipping.

Selection and ordering data

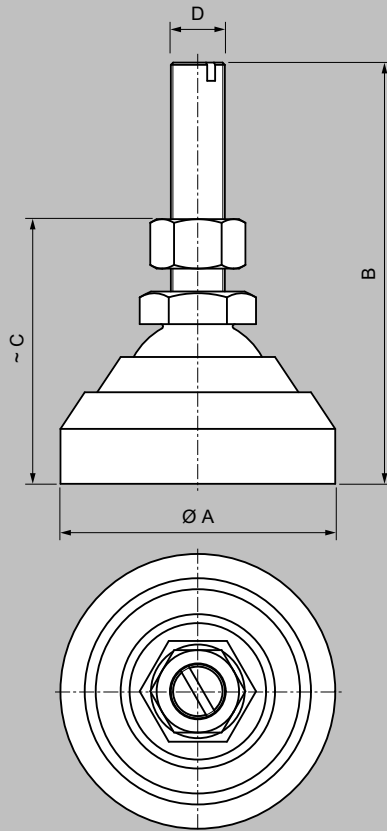
	Article No.
Load foot	
For SIWAREX WL230 SB-S CA load cells	
Material: Steel, nickel-plated, NBR (nitrile butadiene rubber)	
For load cells with a rated load of ¹⁾	
• 100 kg ... 2 t (220.46 lb ... 1.97 tn. l.)	7MH5721-4GH10
• 3 ... 5 t (2.95 ... 4.92 tn. l.)	7MH5721-4PH10
• 10 t (9.842 tn. l.)	7MH5721-5AH10

¹⁾ The load cell is not included in the scope of delivery.

Technical specifications

Load foot for SIWAREX WL230 SB-S CA load cells			
Rated load	100 kg ... 2 t (220.46 lb ... 1.97 tn. l.)	3 ... 5 t (2.95 ... 4.92 tn. l.)	10 t (9.842 tn. l.)
Maximum lateral deflection	± 1 mm (0.04 inch)	± 1 mm (0.04 inch)	± 1 mm (0.04 inch)
Maximum vertical load	30 kN	70 kN	130 kN

Dimensional drawings



	Ø A	B	C	D
0.1t - 2t	60	92	56	M12
3t - 5t	80	105	73	M18x1.5
10t	86	112	86	M24x2

SIWAREX WL230 SB-S CA load foot

Load Cells

Double shear beam load cells

SIWAREX WL290 DB-S CA Load cell

Overview



The SIWAREX WL290 DB-S CA double shear beam load cell is made of nickel-plated specialty steel. WL290 DB-S CA load cells are especially suited for large platform and hopper scales. A special mounting unit makes them particularly suitable for assembling scales in vehicles. The double shear beam load cell is installed without oscillation or elastomer force-transmitting mechanisms since transverse forces do not result in the otherwise usual oscillating or deflection effects in the load cell. The load cells are legal-for-trade according to OIML R60. They are available in accuracy class C3.

Design

The measuring element is a spring body made of special steel. Due to the galvanic coating of nickel and the IP67 degree of protection it is suitable for use in harsh environments.

Selection and ordering data

SIWAREX WL290 DB-S CA load cell Material: Steel, nickel-plated Length of the connecting cable: 9 m Accuracy class C3 according to OIML R60	Article No. 7MH512-	
	● ● D 0 ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Rated load		
• 2.3 t (2.26 tn. l.)	4	G
• 4.5 t (4.43 tn. l.)	4	N
• 9.1 t (8.96 tn. l.)	4	U
• 13.6 t (13.39 tn. l.)	5	D
• 18 t (17.81 tn. l.)	5	F
• 23 t (22.24 tn. l.)	5	G
• 27 t (26.77 tn. l.)	5	J
• 34 t (33.46 tn. l.)	5	L
• 45 t (44.29 tn. l.)	5	N
• 68 t (66.93 tn. l.)	5	R
• 91 t (89.56 tn. l.)	5	U
• 113 t (111.22 tn. l.)	6	A
Explosion protection		
Without		0
Explosion protection		1

Technical specifications

SIWAREX WL290 DB-S CA	
Possible applications	<ul style="list-style-type: none"> Platform scales Hopper scales Scales in vehicles
Type of construction	Double cutter
Loads	
Rated load/maximum capacity E_{max}	<ul style="list-style-type: none"> 2.3 t (2.26 tn. l.) 4.5 t (4.43 tn. l.) 9.1 t (8.96 tn. l.) 13.6 t (13.39 tn. l.) 18 t (17.81 tn. l.) 23 t (22.24 tn. l.) 27 t (26.77 tn. l.) 34 t (33.46 tn. l.) 45 t (44.29 tn. l.) 68 t (66.93 tn. l.) 91 t (89.56 tn. l.) 113 t (111.22 tn. l.)
Min. dead load E_{min}	0 kg
Max. working load L_u	150% E_{max}
Breaking load L_d	300% E_{max}
Measurement characteristic values	
Rated displacement h_n at E_{max}	
• $E_{max} = 2.3$ t (2.26 tn. l.)	0.5 mm
• $E_{max} = 4.5$ t (4.43 tn. l.)	0.6 mm
• $E_{max} = 9.1$ t (8.96 tn. l.)	1.1 mm
• $E_{max} = 13.6 \dots 23$ t (13.39 ... 22.24 tn. l.)	0.5 mm
• $E_{max} = 27$ t (26.77 tn. l.)	0.6 mm
• $E_{max} = 34 \dots 68$ t (33.46 ... 66.93 tn. l.)	0.5 mm
• $E_{max} = 91, 113$ t (89.56, 111.22 tn. l.)	0.9 mm
Rated characteristic value C_n	3.0 ± 0.008 mV/V
Tolerance D_0 of zero signal	≤ ± 1.0% C_n
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min}	$E_{max}/10\ 000$
Combined error F_{comb}	≤ ± 0.023% C_n
Creep error 30 min F_{cr}	≤ ± 0.015% C_n
Electrical characteristic values	
Recommended supply voltage	5 ... 12 V DC
Maximum supply voltage	18 V DC
Input resistance R_e	700 ± 7 Ω
Output resistance R_a	700 ± 7 Ω
Insulation resistance R_{is}	≥ 5 000 MΩ at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{rn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +60 °C (-31 ... +140 °F)
Storage temperature range B_{ts}	-40 ... +80 °C (-40 ... +176 °F)
Sensor material (DIN)	Steel, nickel-plated
Degree of protection according to EN 60529; IEC 60529	IP67
Cable connection	
Length of the connecting cable (four-core)	9 m
Diameter of the connecting cable	
• 2.3 ... 9.1 t (2.26 ... 8.96 tn. l.)	5 mm
• 13.6 ... 113 t (13.39 ... 111.22 tn. l.)	8 mm
Function	Color
• EXC +	Red
• EXC -	Black
• SIG +	Green

Technical specifications (Continued)

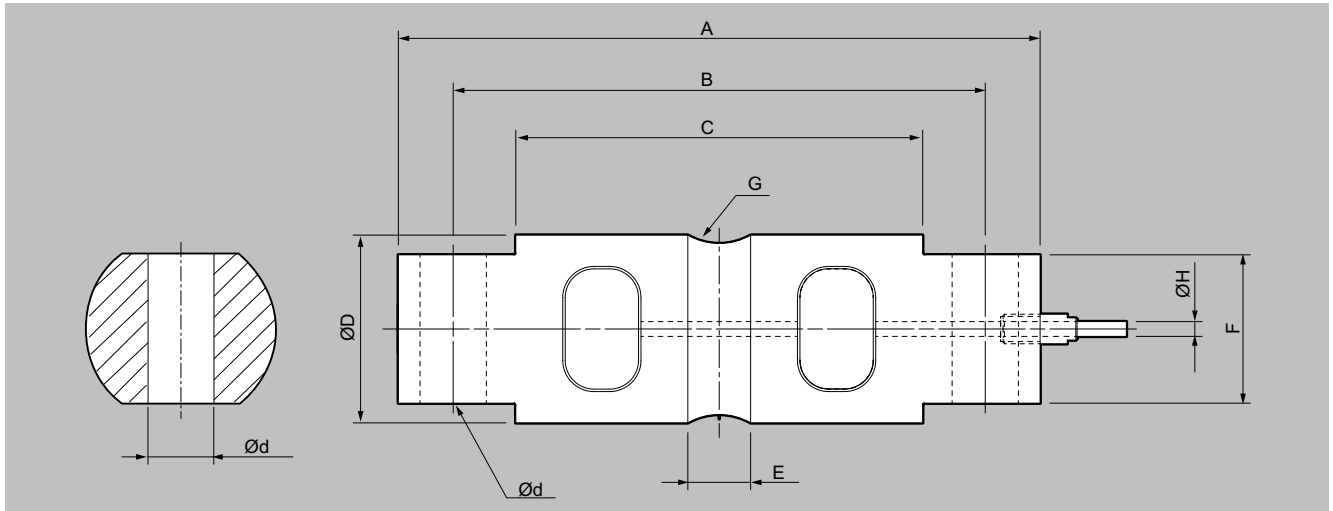
SIWAREX WL290 DB-S CA	
• SIG -	White
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Accuracy class according to OIML R60	C3
Explosion protection	<ul style="list-style-type: none"> EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc

Load Cells

Double shear beam load cells

SIWAREX WL290 DB-S CA Load cell

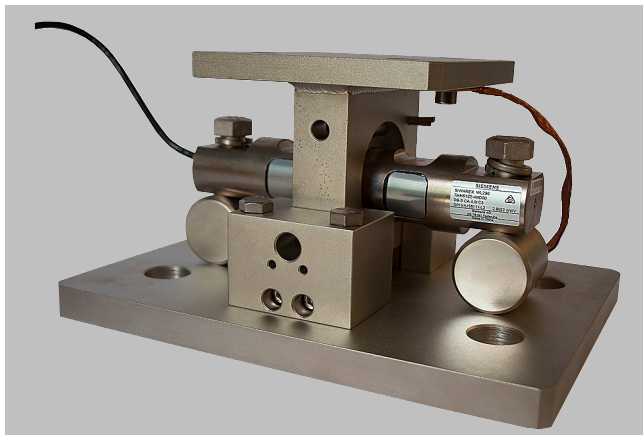
Dimensional drawings



SIWAREX WL290 DB-S CA load cell, dimensions in mm (inch)

Rated load t (tn. l.)	A	B	C	Ød	ØD	E	F	G	ØH
2.3 ... 4.5 (2.26 ... 4.43)	206.2 (8.12)	174.6 (6.87)	133.1 (5.24)	16.7 (0.66)	43.2 (1.70)	15.7 (0.62)	28.4 (1.12)	12.7 (0.50)	5 (0.20)
9.1 (8.96)	206.2 (8.12)	174.6 (6.87)	133.1 (5.24)	16.7 (0.66)	49.5 (1.95)	21.3 (0.84)	28.4 (1.12)	12.7 (0.50)	5 (0.20)
13.6 ... 34 (13.39 ... 33.46)	260.4 (10.25)	215.9 (8.50)	165.1 (6.50)	26.9 (1.06)	76.2 (3.00)	25.4 (1.00)	60.2 (2.37)	25.4 (1.00)	8 (0.31)
45 (44.29)	285.8 (11.25)	241.3 (9.50)	190.2 (7.49)	26.9 (1.06)	88.9 (3.50)	31.0 (1.22)	63.5 (2.50)	38.1 (1.50)	8 (0.31)
68 (66.93)	285.8 (11.25)	241.3 (9.50)	190.2 (7.49)	26.9 (1.06)	99.1 (3.90)	31.0 (1.22)	71.1 (2.80)	38.1 (1.50)	8 (0.31)
91 ... 113 (89.56 ... 111.22)	408.9 (16.10)	330.3 (13.00)	254 (10.00)	39.6 (1.56)	136.6 (5.38)	31.7 (1.25)	116.8 (4.60)	50.8 (2.00)	8 (0.31)

Overview



Silo mounting unit for SIWAREX WL290 DB-S CA load cells

This self-centering mounting unit for SIWAREX WL290 DB-S CA load cells is particularly suitable for implementation in hopper, platform, vehicle and roller conveyor scales. It was specially developed for installation in silos.

The mounting unit transmits the force directly into the load cell and is designed for load cell rated loads from 2.3 t to 113 t.

Design

It comprises a base plate onto which the load cell is attached with the help of a support and two screws, and a top plate which ensures the force is directed into the load cell. A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. Specially designed blocks fix the top plate over the base plate. In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs. The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting.

After the mounting unit has been mounted in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded.

The weight only rests on the load cells once the dummy blocks have been removed. The dummy blocks can be mounted onto the base plate to limit the pendulum movements. This also means they are safely stored for later use in servicing jobs.

Together with the load cell, the mounting unit ensures lift-off protection.

Another benefit is that the mounting unit and load cell adapt to the circumstances during thermal expansion.

Selection and ordering data

Silo mounting unit For load cells of the SIWAREX WL290 DB-S CA series Material: Steel, nickel-plated		Article No. 7MH5722-	
		● ● A 1 0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
For load cells with a rated load of¹⁾			
• 2.3 ... 9.1 t (2.26 ... 8.96 tn. l.)		4	U
• 13.6 ... 34 t (13.39 ... 33.46 tn. l.)		5	L
• 45 t (44.29 tn. l.)		5	N
• 68 t (66.93 tn. l.)		5	R
• 91 ... 113 t (88.58 ... 111.22 tn. l.)		6	A

¹⁾ The load cell is not included in the scope of delivery.

Load Cells

Double shear beam load cells

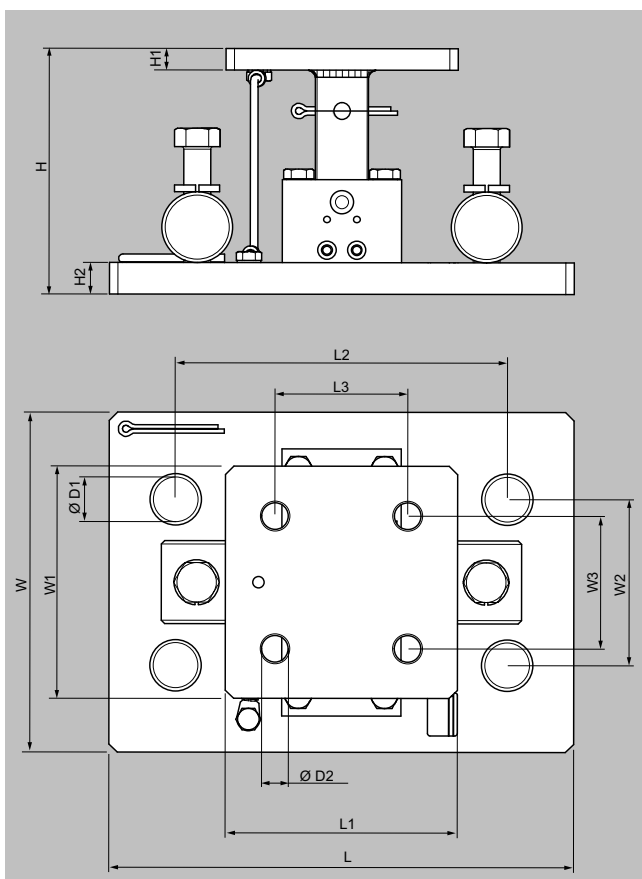
SIWAREX WL290 DB-S CA Silo-mounting unit

Technical specifications

Silo mounting unit for load cells of the SIWAREX WL290 DB-S CA series

Rated load	2.3 ... 4.5 t (2.26 ... 4.43 tn. l.)	9.1 t (8.96 tn. l.)	13.6 ... 34 t (13.39 ... 33.46 tn. l.)	45 t (44.29 tn. l.)	68 t (66.93 tn. l.)	91 ... 113 t (88.58 ... 111.22 tn. l.)
Maximum lateral deflection	+/- 5 mm (0.2 inch)	+/- 5 mm (0.2 inch)	+/- 5 mm (0.2 inch)	+/- 5 mm (0.2 inch)	+/- 5 mm (0.2 inch)	+/- 5 mm (0.2 inch)
Lifting path of top part	1.43 mm (0.056 inch)	1.26 mm (0.050 inch)	1.07 mm (0.042 inch)	1.69 mm (0.066 inch)	1.69 mm (0.067 inch)	0.97 mm (0.038 inch)
Permissible lateral force with load cell	18 kN	18 kN	68 kN	90 kN	136 kN	226 kN
Permissible lateral force as dummy	10 kN	10 kN	21 kN	41 kN	41 kN	68 kN
Permissible lifting force	15 kN	15 kN	50 kN	75 kN	75 kN	310 kN
Tightening torque of mounting bolts for load cells	20 Nm	20 Nm	25 Nm	25 Nm	25 Nm	30 Nm
Material	Steel, nickel-plated					

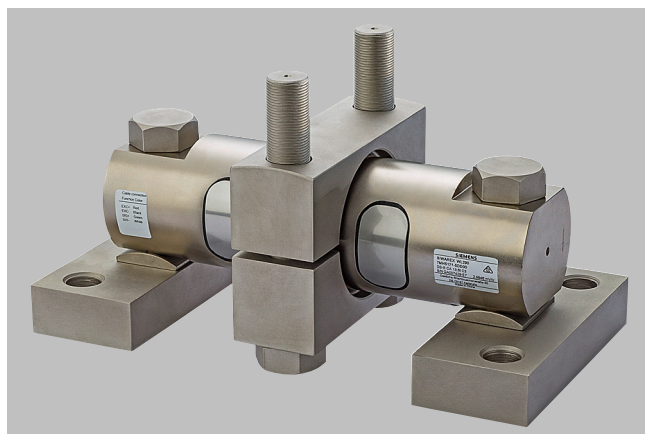
Dimensional drawings



Silo mounting unit for SIWAREX WL290 DB-S CA load cell (dimensions in mm)

Rated load t (tn. l.)	H	H1	H2	L	L1	L2	L3	W	W1	W2	W3	ØD1	ØD2
2.3 ... 9.1 (2.26 ... 8.96)	148	13	19	280	140	200	80	205	140	100	80	27	16
13.6 ... 34 (13.39 ... 33.46)	219	19	25	380	205	290	130	255	205	150	130	31	19
45 (44.29)	257	32	32	460	255	355	190	305	255	230	190	36	21
68 (66.93)	269	32	32	460	255	355	190	305	255	230	190	36	21
90 ... 113 (88.58 ... 111.22)	412	51	51	660	305	510	230	455	305	280	230	48	28

Overview



SIWAREX WL290 DB-S CA load cell with mounting unit

The mounting unit for the SIWAREX WL290 DB-S CA load cells makes setting up platform and hopper scales easy and safe. Since the load cell is securely bolted onto the bearing plates, it is particularly suitable for use in scales in vehicles. The mounting unit transmits the force directly into the load cell and absorbs any lateral and lifting forces which occur. The mounting unit covers load cell rated loads from 13.6 to 34 t (13.39 to 33.46 tn. l.).

Design

The load cell is bolted onto the bearing plates. By using a two-part bearing collar, the load bearing implement is also firmly connected to the load cell and without play. The bearing collar transfers the weight force centered into the load cell. Since all connections are tight, possible acceleration forces, caused for example by a container on a vehicle, are directed to the chassis from the load cell and mounting unit. Additional latching mechanisms are not required. Due to the zero play mounting of the load cell no wear can occur, making any maintenance measures superfluous.

Selection and ordering data

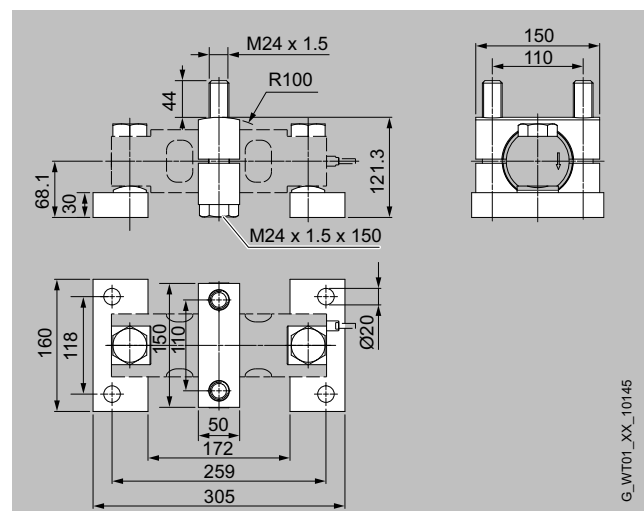
	Article No.
Mounting unit For load cells of the SIWAREX WL290 DB-S CA series Material: Steel, nickel-plated For load cells with a rated load of ¹⁾ • 13.6 ... 34 t (13.39 ... 33.46 tn. l.)	7MH5722-5LA11

¹⁾ The load cell is not included in the scope of delivery.

Technical specifications

Mounting unit for load cells of the SIWAREX WL290 DB-S CA series	
Rated load	13.6 ... 34 t (13.39 ... 33.46 tn. l.)
Maximum lateral deflection	0 mm
Lifting path of top part	0 mm
Permissible lateral force	20 kN
Permissible lifting force	35 kN
Tightening torque of mounting bolts for load cells	650 Nm
Tightening torque of mounting bolts for clamp collars	650 Nm
Material	Steel, nickel-plated

Dimensional drawings



Mounting unit for SIWAREX WL290 DB-S CA load cell, dimensions in mm

Load Cells

S-Type load cells

SIWAREX WL250 ST-S SA Load cell

Overview



The load cell is ideal for use in tank weighing, hybrid weighing machines or suspended container weighing. It is made of stainless steel and therefore also suitable for use in harsh environments. The SIWAREX WL250 ST-S SA is suitable for both s-type tension and compression loads. The preferred direction of measurement is tension, with factory calibration for the load cells. For compression applications, adherence to the characteristic values and error limits cannot be guaranteed.

Design

The measuring element is hermetically encapsulated and has a calibrated output current.

Selection and ordering data

Load cell, type WL250 ST-S SA Legal-for-trade according to OIML R60 up to 3 000d, connecting cable 6 m (19.69 ft)	Article No. 7MH5105- ● ● D 0 ●			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Rated load				
• 50 kg (110.23 lb)	2	P		
• 100 kg (220.46 lb)	3	A		
• 250 kg (551.16 lb)	3	H		
• 500 kg (1 102.31 lb)	3	P		
• 1 t (0.98 tn. l.)	4	A		
• 2.5 t (2.46 tn. l.)	4	H		
• 5 t (4.92 tn. l.)	4	P		
• 10 t (9.84 tn. l.)	5	A		
Explosion protection				
• Without				0
• Explosion protection				1

Technical specifications

SIWAREX WL 250 ST-S SA	
Possible applications	<ul style="list-style-type: none"> • Voltage and pressure applications • Suspended scales • Hopper scales • Hybrid weighing machines
Type of construction	S-type load cell
Rated load E_{max}	<ul style="list-style-type: none"> • 50 kg (110.23 lb) • 100 kg (220.46 lb) • 250 kg (551.16 lb) • 500 kg (1 102.31 lb) • 1 t (0.98 tn. l.) • 2.5 t (2.46 tn. l.) • 5 t (4.92 tn. l.) • 10 t (9.84 tn. l.)
Accuracy class according to OIML R60	C3
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min}	
• $E_{max} = 50, 100$ kg (110.23 lb, 220.46 lb)	$E_{max}/7\ 000$
• $E_{max} = 0.25, 0.5, 1, 2.5$ t	$E_{max}/10\ 000$
• $E_{max} = 5, 10$ t	$E_{max}/12\ 000$
Combined error F_{comb}	$\pm 0.02\% C_n$
Repeatability F_v	$\pm 0.02\% C_n$
Creep error F_{cr}	
• 30 min	$\pm 0.02\% C_n$
Temperature coefficient	
• Zero signal t_{x0}	0.017% $C_n/5$ K
• Characteristic value t_{kc}	0.014% $C_n/5$ K
Min. dead load E_{min}	0 kg
Max. working load L_U	150% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{Iq}	100% E_{max}
Rated displacement h_n	
• $E_{max} = 50, 100$ kg (110.23 lb, 220.46 lb)	0.18 mm
• $E_{max} = 250, 500$ kg (551.16 lb, 1 102.31 lb)	0.24 mm
• $E_{max} = 1$ t	0.37 mm
• $E_{max} = 2.5, 5$ t	0.8 mm
• $E_{max} = 10$ t	0.57 mm
Rated characteristic value C_n	3.0 ± 0.008 mV/V
Tolerance D_0 of zero signal	$\pm 1.0\% C_n$
Input resistance R_e	$430 \Omega \pm 4 \Omega$
Output resistance R_b	$350 \Omega \pm 3.5 \Omega$
Insulation resistance R_{is}	5 000 M Ω at 50 V DC
Rated temperature range B_{in}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{is}	-35 ... +65 °C (-31 ... +149 °F)
Sensor material (DIN)	Stainless steel EN 1.4542
Maximum tightening torque of the fixing screws	
• $E_{max} = 50, 100$ kg (110.23 lb, 220.46 lb)	25 Nm
• $E_{max} = 250, 500$ kg, 1 t (551.16 lb, 1 102.31 lb, 0.98 tn. l.)	75 Nm
• $E_{max} = 2.5, 5$ t	450 Nm
• $E_{max} = 10$ t	1 450 Nm
Degree of protection to EN 60529; IEC 60529	IP67
Cable connection	
Function	Color
• EXC + (supply +)	Red

Technical specifications (Continued)

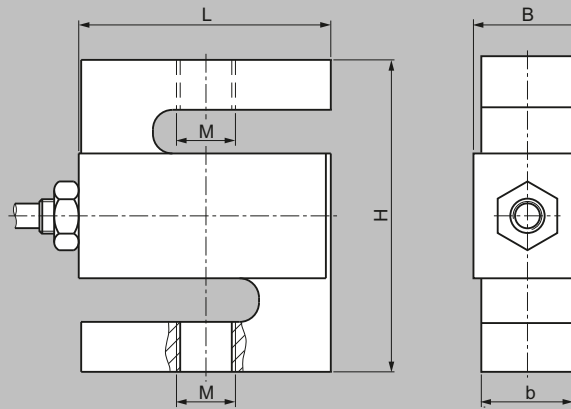
SIWAREX WL 250 ST-S SA	
• EXC – (supply -)	Black
• SIG + (measured signal +)	Green
• SIG – (measured signal -)	White
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Explosion protection	<ul style="list-style-type: none"> • EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc • USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc • Canada: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc

Load Cells

S-Type load cells

SIWAREX WL250 ST-S SA Load cell

Dimensional drawings



Rated load [kg]	L	H	b	B	M
50 ... 100	50.8 (2.00)	60.96 (2.40)	11.68 (0.46)	15.06 (0.59)	M8
250 ... 500	50.8 (2.00)	60.96 (2.40)	18.03 (0.71)	21.41 (0.84)	M12

Rated load [t]	L	H	b	B	M
1	50.8 (2.00)	60.96 (2.40)	24.38 (0.96)	27.76 (1.09)	M12
2.5	76.2 (3.00)	99.06 (3.90)	24.38 (0.96)	27.76 (1.09)	M20 x 1.5
5.0	74.68 (2.94)	99.06 (3.90)	30.74 (1.21)	34.12 (1.34)	M20 x 1.5
10	112.78 (4.44)	177.8 (7.00)	42.93 (1.69)	46.31 (1.82)	M30 x 2

SIWAREX WL 250 ST-S SA load cell, dimensions in mm (inch)

Overview



The lifting eye bolt for SIWAREX WL250 ST-S SA load cells makes it easier to install the cell.

The lifting eye bolt is suitable for rated load cell ranges from 50 kg up to 5 t (110.23 lb up to 4.92 tn. l.).

Design

The lifting eye bolt is screwed into the load cell.

Selection and ordering data

WL250 ST-S SA lifting eye bolts Material: Steel	Article No. 7MH5705-				
	●	●	J	1	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
• 50 kg (110.23 lb)	2	P			
• 100 kg (220.46 lb)	3	A			
• 250 kg (551.16 lb)	3	H			
• 500 kg (1 102.31 lb)	3	P			
• 1 t (0.98 tn. l.)	4	A			
• 2.5 t (2.46 tn. l.)	4	H			
• 5 t (4.92 tn. l.)	4	P			

Technical specifications

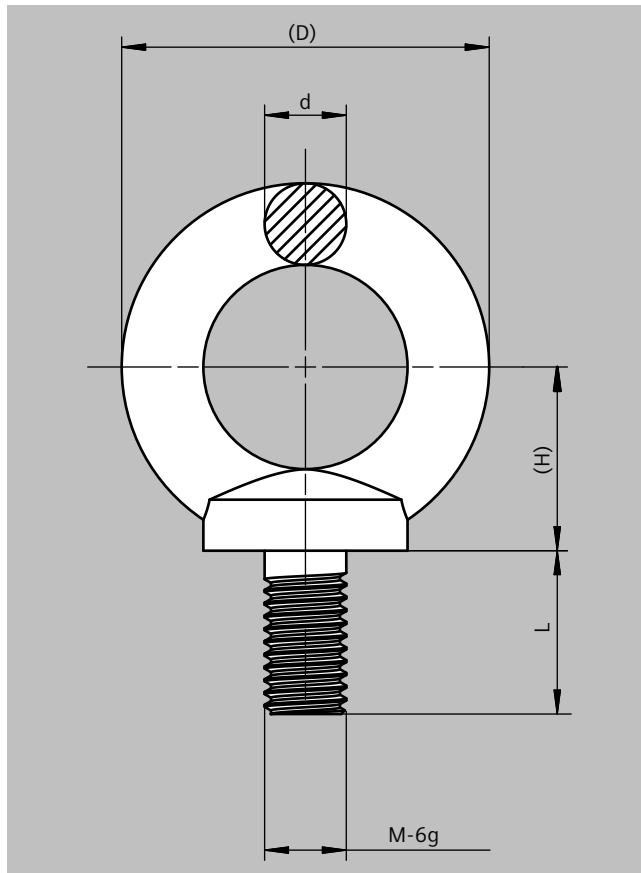
SIWAREX WL250 ST-S SA lifting eye bolt							
Material	Steel						
Rated load	50 kg (110.23 lb)	100 kg (220.46 lb)	250 kg (551.16 lb)	500 kg (1 102.31 lb)	1 t (0.98 tn. l.)	2.5t (2.46 tn. l.)	5 t (4.92 tn. l.)
Lifting capacity (static)	0.16 t (0.16 tn. l.)	0.25 t (0.24 tn. l.)	0.4 t (0.39 tn. l.)	1 t (0.98 tn. l.)	1.6 t (1.57 tn. l.)	4 t (3.94 tn. l.)	6.3 t (6.2 tn. l.)

Load Cells

S-Type load cells

SIWAREX WL250 ST-S SA Lifting eye bolt

Dimensional drawings



Rated load	Dimensions in mm (in)		H	Ø	M × P × L
	D	d			
50 kg (110.23 lb)	36 (1.42)	9.1 (0.36)	18 (0.71)	17.8 (0.70)	M8 × 1.25 × 16
100 kg (220.46 lb)	44 (1.73)	11.1 (4.37)	22 (0.87)	21.8 (0.86)	M10 × 1.5 × 16
250 kg (551.16 lb)	52 (2.05)	13.1 (0.52)	26 (1.02)	25.8 (1.02)	M12 × 1.75 × 16
500 kg (1 102.31 lb)	62 (2.44)	15.2 (0.60)	31 (1.22)	31.6 (1.24)	M12 × 1.75 × 22
1 t (0.98 tn. l.)	72 (2.83)	17.4 (0.69)	36 (1.42)	37.2 (1.46)	M12 × 1.75 × 22
2.5 t (2.46 tn. l.)	104 (4.09)	25.7 (1.01)	53 (2.09)	52.6 (2.07)	M20 × 1.5 × 32
5 t (4.92 tn. l.)	123 (4.84)	30 (1.18)	63 (2.48)	63 (2.48)	M20 × 1.5 × 35

Overview



The compression load cell is particularly suitable for implementation in hopper scales, bin weighing equipment and vehicle scales.

Design

The measuring element is a solid cylinder made of stainless steel to which 4 strain gauges are applied. The load which acts centrally in the measuring direction causes the spring bodies and therefore the friction-locked strain gauges to be elastically deformed. This generates a measuring signal voltage that is proportional to the load.

Selection and ordering data

Load cell, type WL270 CP-S SA Legal-for-trade according to OIML R60 up to 3 000d, 15 m connecting cable (49.21 ft)	Article No. 7MH5108-			
	●	D	0	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Rated load				
• 0.5 t (0.49 tn. l.) ¹⁾	3	P		
• 1 t (0.98 tn. l.) ¹⁾	4	A		
• 2 t (1.97 tn. l.) ¹⁾	4	G		
• 5 t (4.92 tn. l.) ¹⁾	4	P		
• 10 t (9.84 tn. l.)	5	A		
• 20 t (19.68 tn. l.)	5	G		
• 30 t (29.63 tn. l.)	5	K		
• 50 t (49.21 tn. l.)	5	P		
Explosion protection				
• Without				0
• Explosion protection				1

¹⁾ SIWAREX WL270 CP-S SA 0.5 ... 5 t (0.49 ... 4.42 tn. l.) are not approved for legal-for-trade operation.

Load Cells

Compression load cells

SIWAREX WL270 CP-S SA Load cell

Technical specifications

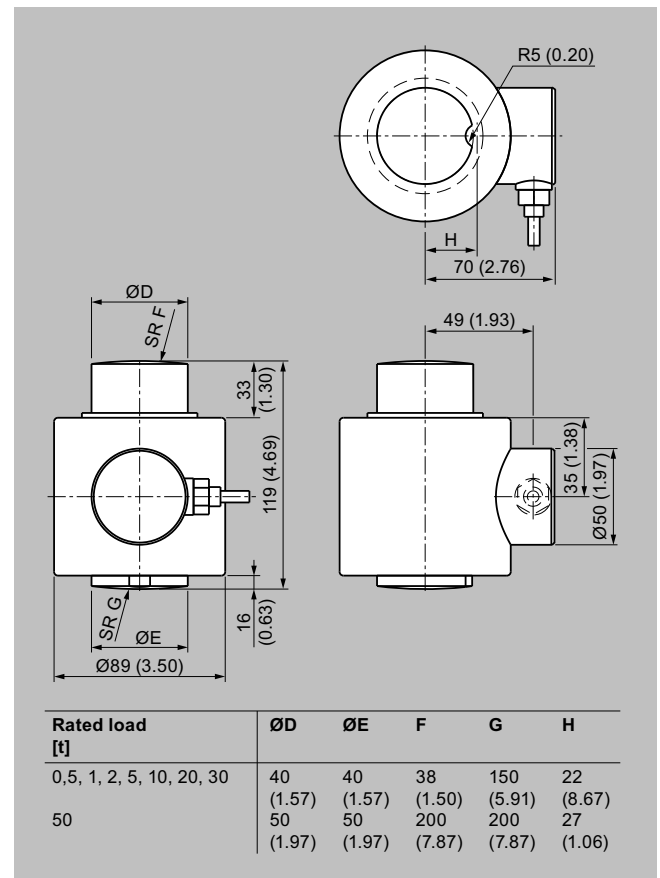
SIWAREX WL270 CP-S SA	
Possible applications	Vehicle scales, overhead rail scales, hopper scales
Type of construction	Compression load cell
Rated load/maximum load E_{max}	<ul style="list-style-type: none"> • 0.5 t (0.49 tn. l.) • 1 t (0.98 tn. l.) • 2 t (1.97 tn. l.) • 5 t (4.42 tn. l.) • 10 t (9.84 tn. l.) • 20 t (19.68 tn. l.) • 30 t (29.53 tn. l.) • 50 t (49.21 tn. l.)
Accuracy class according to OIML R60	C3 ¹⁾
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min}	$E_{max}/10\ 000$
Minimum application range $R_{min(c)}$	30%
Combined error F_{comb}	$\pm 0.02\% C_n$
Repeatability F_v	Not applicable
Creep error F_{cr}	<ul style="list-style-type: none"> • 30 min $\pm 0.023\% C_n$
Temperature coefficient	
• Zero signal T_{K0}	$0.023\% C_n/5\ K$
• Characteristic value T_{Kc}	$0.017\% C_n/5\ K$
Min. dead load E_{min}	0 kg
Max. working load L_u	$150\% E_{max}$
Breaking load L_d	$300\% E_{max}$
Safe side load L_{iq}	$75\% E_{max}$
Rated displacement h_n at E_{max}	0.5 mm
Recommended supply voltage (range)	5 ... 12 V DC
Rated characteristic value C_n	$2.0 \pm 0.02\ mV/V$
Tolerance D_0 of zero signal	$\pm 1.0\% C_n$
Input resistance R_e	$700\ \Omega \pm 7\ \Omega$
Output resistance R_a	$700\ \Omega \pm 7\ \Omega$
Insulation resistance R_{is}	5 000 M Ω at 50 V DC
Rated temperature range B_{rn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{ts}	-35 ... +65 °C (-31 ... +149 °F)
Sensor material (DIN)	Stainless steel EN 1.4542
Degree of protection according to EN 60529; IEC 60529	IP68
Cable connection	
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	Black
• SIG + (measured signal +)	Green
• SIG - (measured signal -)	White
• Shield (not connected to the load cell body)	Transparent
Certificates and approvals	
Explosion protection	<ul style="list-style-type: none"> • EU/UK: <ul style="list-style-type: none"> - ATEX/UKEX II 1 G Ex ia IIC T4 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da - ATEX/UKEX II 3 G Ex ic IIC T4 Gc - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc - ATEX/UKEX II 3 G Ex ec T4 IIC Gc • USA: <ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, AEx ia IIC T4 Ga - Zone 20, AEx ia IIIC T135°C Da

Technical specifications (Continued)

SIWAREX WL270 CP-S SA	
	<ul style="list-style-type: none"> - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - IS CL I, ZN 2, AEx ic IIC T4 Gc
• Canada:	<ul style="list-style-type: none"> - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4 - IS CL I, ZN 0, Ex ia IIC T4 Ga - Ex ia IIIC T135°C Da
	<ul style="list-style-type: none"> - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4 - CL 1, ZN 2, GP IIC T4 - Ex ic IIC T4 Gc
• China:	<ul style="list-style-type: none"> - NEPSI Ex ia IIC T6 Ga; Ex ia D 20 T80

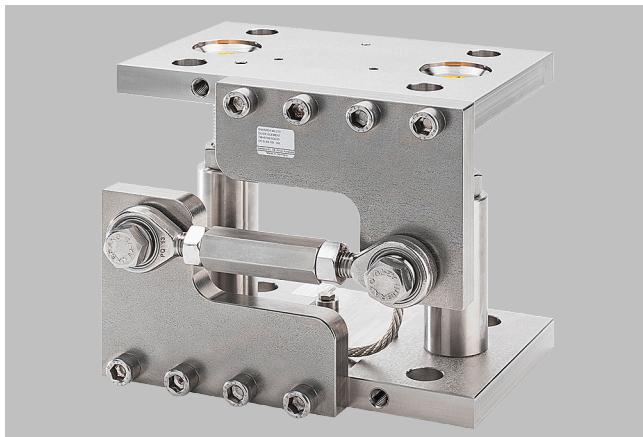
¹⁾ SIWAREX WL270 CP-S SA 0.5 ... 5 t (0.49 ... 4.42 tn. l.) are not approved for legal-for-trade operation.

Dimensional drawings



SIWAREX WL270 CP-S SA load cell, dimensions in mm (inch)

Overview



The self-centering installation unit for SIWAREX WL270 CP-S SA load cells is particularly suitable for implementation in container, platform, vehicle and roller table scales. The guide elements prevent containers, for example, from moving sideways due to an external lateral force. The guide elements can be mounted on one or both sides of the compact installation unit.

Design

The mounting unit comprises a base plate and a top plate, two pressure pieces and two countersunk screws. A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. On both sides of the base and top plate there are threaded holes for the later flange-fitting of guide elements.

The top plate is aligned and fixed above the base plate with the two countersunk screws. This results in a stable unit. The height of the top plate is adjusted so that it is three millimeters above the installation height with load cell.

In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs.

The load cell can be inserted into the mounting unit together with the two pressure pieces. Load cell and pressure piece are secured with clamping washers.

The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting.

After the mounting unit has been mounted in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded.

Finally, the load bearing implement is lowered by loosening the two hexagon nuts under the top plate. The weight now rests on the load cells.

In this state the load cell and the pressure pieces together form a self-centering unit. The mounting unit permits sideways displacement of the top plate, and hence of the load bearing implement, by up to three millimeters in all directions. The countersunk head screws prevent the load bearing implement from being lifted off or tipping.

Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy.

For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. After loosening the clamping washers, it can then easily be replaced.

Guide elements are used if the lateral movement of a load bearing implement is to be prevented. Lateral movements can be initiated by agitator start-up in a container, by braking or accelerating forces in a roller conveyor, or through forces exerted by the wind on outdoor silos.

Design (Continued)

A guide element consists of two flanges and one clamping screw. The clamping screw is adjusted to the correct length. The guide element is attached to the operational mounting unit. A guide element can be mounted on the front or rear of the mounting unit. If necessary, two guide elements can be used in parallel in order to double the transferrable lateral force.

In the case of scales with four load cells, only three mounting units may be equipped with guide elements.

Shims are used to compensate for angular errors and delays in the lug plates. If more than three load cells are used, the shims are also used to adjust the height of the lugs.

Load Cells

Compression load cells

SIWAREX WL270 CP-S SA Mounting unit with guide element

Selection and ordering data

Mounting unit For load cells of the SIWAREX WL270 CP-S SA series Material: Stainless steel EN 1.4301 and EN 1.4112	Article No. 7MH5708- 5 ● A 0 1
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. For load cells with a rated load of ¹⁾	
<ul style="list-style-type: none"> 0.5, 1, 2, 5, 10, 20, 30 t (0.49, 0.98, 1.97, 5.92, 9.84, 19.68, 29.53 tn. l.) 50 t (49.21 tn. l.) 	K P

Selection and ordering data	Article No.
Guide elements (optional) For mounting units of the SIWAREX WL270 CP-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾ <ul style="list-style-type: none"> 0.5 ... 1 t (0.49 ... 0.98 tn. l.); Permissible lateral force: 2.5 kN 2 ... 5 t (1.97 ... 5.92 tn. l.); Permissible lateral force: 5 kN 10 ... 13 t (9.84 ... 19.68 tn. l.); Permissible lateral force: 10 kN 30 t (29.53 tn. l.) Permissible lateral force: 15 kN 50 t (49.21 tn. l.) Permissible lateral force: 25 kN 	7MH5708-4AE00 7MH5708-4PE00 7MH5708-5GE00 7MH5708-5KE00 7MH5708-5PE00
Shims (accessories) For mounting units of the SIWAREX WL270 CP-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾ <ul style="list-style-type: none"> 0.5 ... 50 t (0.49 ... 49.21 tn. l.); Content: 4 units, each 0.5 mm; 20 units, each 1 mm 	7MH5708-5PG00

¹⁾ The load cell and guide elements are not included in the scope of delivery.

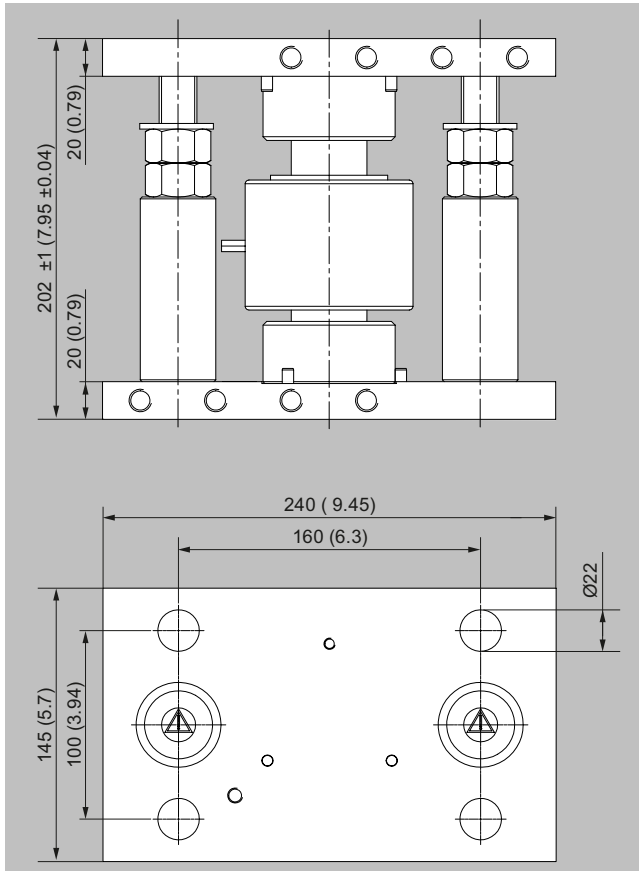
Technical specifications

Mounting unit for load cells of the SIWAREX WL270 CP-S SA series		
Rated load	0.5, 1, 2, 5, 10, 20, 30 t (0.49, 0.98, 1.97, 4.92, 9.84, 19.68, 29.53 tn. l.)	50 t (49.21 tn. l.)
Maximum lateral deflection with load cell	± 3 mm (0.12 inch)	± 3 mm (0.12 inch)
Lifting path of top plate	3 mm (0.12 inch)	3 mm (0.12 inch)
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	0.5%/mm	2%/mm
Permissible supporting load with fixed top plate	70 kN	70 kN
Permissible lifting force on the top plate	70 kN	70 kN
Permissible lateral force on the top plate with fixed top plate	30 kN	30 kN

Stainless steel guide element					
Size	Values with rated load				
	0.5, 1 t (0.49, 0.98 tn. l.)	2, 5 t (1.97, 4.92 tn. l.)	10, 20 t (9.84, 19.68 tn. l.)	30 t (29.53 tn. l.)	50 t (49.21 tn. l.)
Permissible lateral force ¹⁾	2.5 kN	5 kN	10 kN	15 kN	25 kN

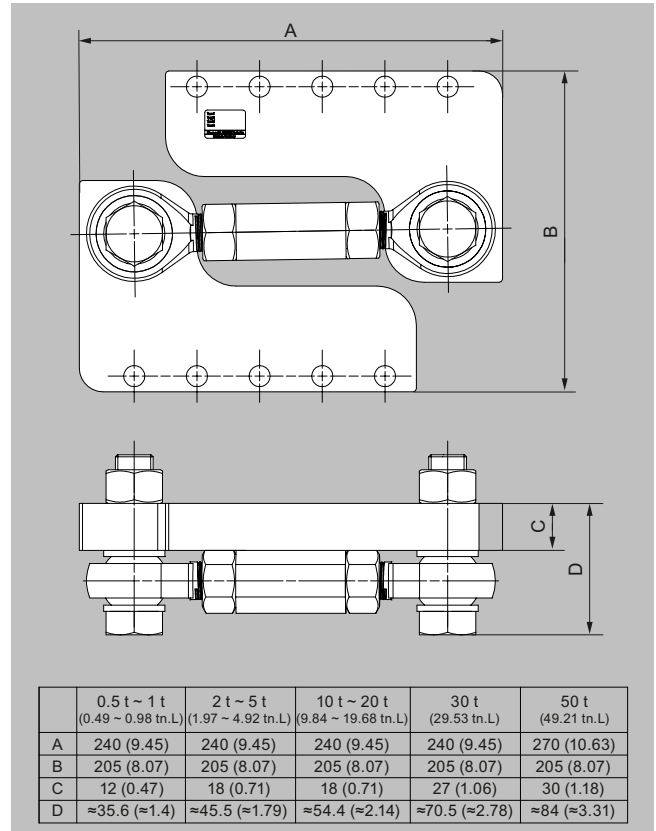
¹⁾ The values apply to one guide element.

Dimensional drawings



Mounting unit for SIWAREX WL270 CP-S SA load cells, dimensions in mm (inch)

Dimensional drawings (Continued)



Guide element for SIWAREX WL270 CP-S SA load cells, dimensions in mm (inch)

Load Cells

Compression load cells

SIWAREX WL270 CP-S SA Pressure piece set with adapter plates

Overview



In combination with a pressure piece set and adapter plate, the SIWAREX WL270 CP-S SA load cell produces a self-aligning bearing. This unit is particularly suitable for installation in hopper scales, bin weighing equipment and vehicle scales.

Design

The pressure piece set consists of an upper and lower pressure piece. Together with the load cell the pressure piece set forms a self-centering unit with integrated torsion guard. Two adapter plates serve to hold the pressure pieces and complete the unit to form a self-aligning bearing. The adapter plates can be screwed directly to the load bearing implement using the existing holes. The self-centering, self-aligning bearing thus formed allows the load bearing element to follow horizontal displacements (e.g. due to temperature fluctuations) In this case the construction of the self-aligning bearing creates a restoring force which is dependent on the size of the displacement and the applied load. If the load bearing implement is displaced by more than 3 mm in the horizontal direction, measures for restricting sideways play (e.g. in the form of endstops or guide elements) must be provided in the construction of the load bearing implement. Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement. The load cell must be ordered separately. The delivery unit of the adapter plate consists of one unit.

SIWAREX WL270 CP-S SA Pressure piece set with adapter plates

Selection and ordering data

Pressure piece sets¹⁾ For the individual installation of load cells of the SIWAREX WL270 CP-S SA series Material: Stainless steel EN 1.4112	Article No. 7MH5708- 5 ● D 0 0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. For load cells with a rated load of ²⁾³⁾ • 0.5, 1, 2, 5, 10, 20, 30 t (0.49, 0.98, 1.97, 5.92, 9.84, 19.68, 29.53 tn. l.) • 50 t (49.21 tn. l.)	K P

Adapter plate For adapting the SIWAREX WL270 CP-S SA The package item consists of one plate. Material: Stainless steel EN 1.4301	Article No. 7MH5708- 5 ● B 0 0
For load cells with a rated load of ²⁾³⁾ • 0.5 ... 50 t (0.49 ... 49.21 tn. l.)	P

¹⁾ The principles of general mechanical engineering and safety must be observed.

²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

³⁾ The load cell is not included in the scope of delivery.

Technical specifications

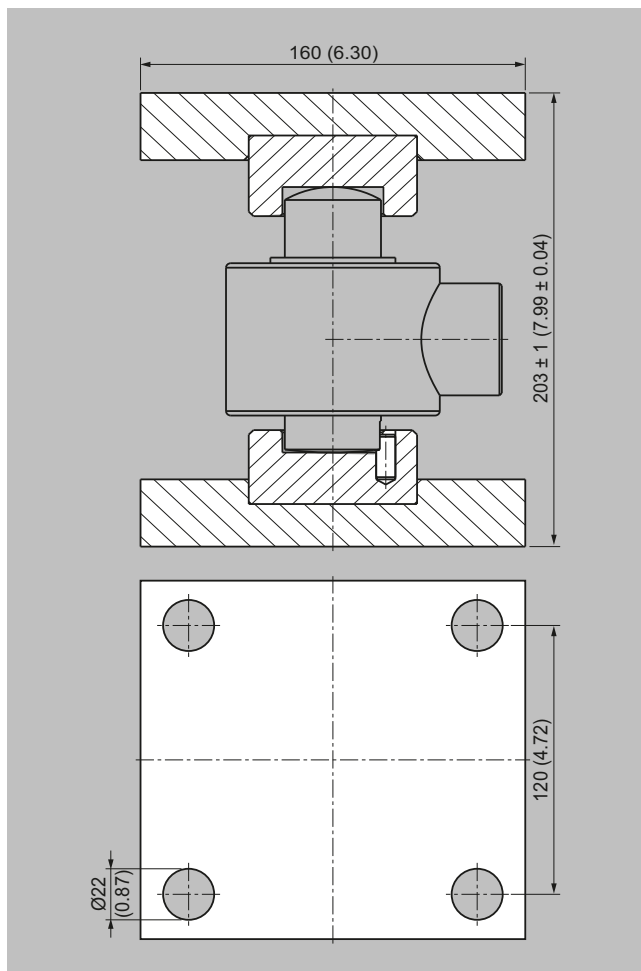
Pressure piece set for the individual installation of load cells of the SIWAREX WL270 CP-S SA series		
Rated load	0.5, 1, 2, 5, 10, 20, 30 t (0.49, 0.98, 1.97, 5.92, 9.84, 19.68, 29.53 tn. l.)	50 t (49.21 tn. l.)
Maximum lateral deflection with load cell	± 3 mm (0.12 inch)	± 3 mm (0.12 inch)
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	0.5%/mm	2%/mm

Load Cells

Compression load cells

SIWAREX WL270 CP-S SA Pressure piece set with adapter plates

Dimensional drawings



Pressure piece set and adapter plates for SIWAREX WL270 CP-S SA load cells (installation state), dimensions in mm (inch)

Overview



The compression load cell is particularly suitable for implementation in hopper scales, bin weighing equipment and vehicle scales.

Design

The measuring element is a solid cylinder made of stainless steel to which 4 strain gauges are applied. The load which acts centrally in the measuring direction causes the spring bodies and therefore the friction-locked strain gauges to be elastically deformed. This generates a measuring signal voltage that is proportional to the load.

Selection and ordering data

Load cell, type WL270 CP-S SB Legal-for-trade according to OIML R60 up to 3 000d, 20 m connecting cable	Article No. 7MH5110-			
	●	●	D	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Rated load				
• 100 t (98.42 tn. l.)	6	A		
Explosion protection				
• Without				0
• Explosion protection				1

Technical specifications

SIWAREX WL270 CP-S SB	
Possible applications	Hopper scales
Type of construction	Compression load cell
Rated load/maximum load E_{max}	100 t
Accuracy class according to OIML R60	C3
Max. scale interval n_{LC}	3 000
Min. scale interval V_{min}	
• $E_{max} = 100$ t	$E_{max}/9\ 000$
Minimum application range $R_{min(LC)}$	33%
Combined error F_{comb}	$\pm 0.02\% C_n$
Repeatability F_v	$\pm 0.02\% C_n$
Creep error F_{cr}	
• 30 min	$\pm 0.023\% C_n$
Temperature coefficient	
• Zero signal T_{K0}	$0.023\% C_n/5$ K
• Characteristic value T_{Kc}	$0.017\% C_n/5$ K
Min. dead load E_{min}	0 kg

Technical specifications (Continued)

SIWAREX WL270 CP-S SB	
Max. working load L_u	$150\% E_{max}$
Breaking load L_d	$300\% E_{max}$
Safe side load L_{iq}	$10\% E_{max}$
Rated displacement h_n at E_{max}	0.36 mm
Recommended supply voltage (range)	5 ... 12 V DC
Rated characteristic value C_n	2.0 ± 0.02 mV/V
Tolerance D_0 of zero signal	$\leq \pm 1.0\% C_n$
Input resistance R_e	$700 \Omega \pm 7 \Omega$
Output resistance R_s	$700 \Omega \pm 7 \Omega$
Insulation resistance R_{is}	5 000 M Ω at 50 V DC
Rated temperature range B_{tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-35 ... +65 °C (-31 ... +149 °F)
Storage temperature range B_{ts}	-35 ... +65 °C (-31 ... +149 °F)
Sensor material (DIN)	Stainless steel EN 1.4542
Degree of protection according to EN 60529; IP68 IEC 60529	

Load Cells

Compression load cells

SIWAREX WL270 CP-S SB Load cell

Technical specifications (Continued)

SIWAREX WL270 CP-S SB

Cable connection

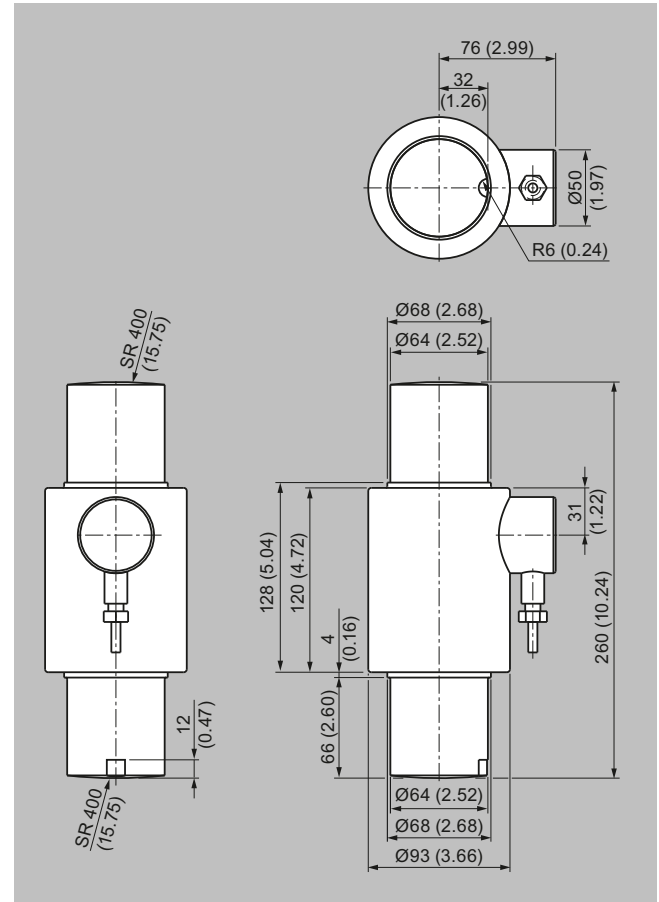
Function	Color
• EXC + (supply +)	Green
• EXC - (supply -)	Black
• SIG + (measured signal +)	White
• SIG - (measured signal -)	Red
• Sense + (sensor cable +)	Yellow
• Sense - (sensor cable -)	Blue
• Shield (not connected to the load cell body)	Transparent

Certificates and approvals

Explosion protection

- EU/UK:
 - ATEX/UKEX II 1 G Ex ia IIC T4
 - ATEX/UKEX II 1 D Ex ia IIIC T200 135°C - Da
 - ATEX/UKEX II 3 G Ex ic IIC T4 Gc
 - ATEX/UKEX II 3 D Ex tc IIIC T73°C Dc
 - ATEX/UKEX II 3 G Ex ec T4 IIC Gc
- USA:
 - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4
 - IS CL I, ZN 0, AEx ia IIC T4 Ga
 - Zone 20, AEx ia IIIC T135°C Da
 - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4
 - CL 1, ZN 2, GP IIC T4
 - IS CL I, ZN 2, AEx ic IIC T4 Gc
- Canada:
 - IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G; T4
 - IS CL I, ZN 0, Ex ia IIC T4 Ga
 - Ex ia IIIC T135°C Da
 - CL I, II, III, DIV 2, GP A, B, C, D, E, F, G; T4
 - CL 1, ZN 2, GP IIC T4
 - Ex ic IIC T4 Gc
- China:
 - NEPSI Ex ia IIC T6 Ga; Ex iaD 20 T80

Dimensional drawings



SIWAREX WL 270 CP-S SB load cell, dimensions in mm (inch)

Overview



The self-centering installation unit for SIWAREX WL270 CP-S SB load cells is particularly suitable for implementation in container scales.

Technical specifications

Mounting unit for load cells of the SIWAREX WL270 CP-S SB series

Rated load	100 t (98.42 tn. l.)
Maximum lateral deflection with load cell	± 8 mm (0.12 inch)
Lifting path of top plate	3 ... 5 mm (0.12 ... 0.20 inch)
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	0.5%/mm
Permissible supporting load with fixed top plate	140 kN
Permissible lifting force on the top plate	140 kN
Permissible lateral force on the top plate with fixed top plate	50 kN

Design

The mounting unit comprises a base plate and a top plate, two pressure pieces, two clamping pieces and two centering sleeves. There are threaded holes in the base plate and top plate for the subsequent flange-fitting of guide elements.

The top plate is aligned and fixed above the base plate with the two centering sleeves. This results in a stable unit. The height of the top plate is adjusted so that it is five millimeters above the installation height with load cell.

Two pressure pieces are used to mount the load cell. They are fastened flush with the head plate and base plate using the clamping pieces.

In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs.

Prior to installation, the load cell is inserted into the mounting unit. Then the complete unit is installed in the scales. As a result, the load bearing implement and the mounting units are aligned. The load cells are not yet loaded.

Finally, the load bearing implement is lowered by loosening the two hexagon nuts under the centering sleeves. The weight now rests on the load cells.

In this state the load cell and the pressure pieces together form a self-centering unit. The mounting unit permits sideways displacement of the top plate, and hence of the load bearing implement, by up to eight millimeters in all directions. Two countersunk screws prevent the load bearing implement from being lifted off or toppling off.

Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy.

For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. Replacement of the load cell is then easy after the clamping pieces are released.

Selection and ordering data

	Article No.
Mounting unit For load cells of the SIWAREX WL270 CP-S SB series Material: Stainless steel EN 1.4301 and EN 1.4112 For load cells with a rated load of ¹⁾²⁾ • 100 t (98.42 tn. l.)	7MH5710-6AA00

¹⁾ The load cell is not included in the scope of delivery.

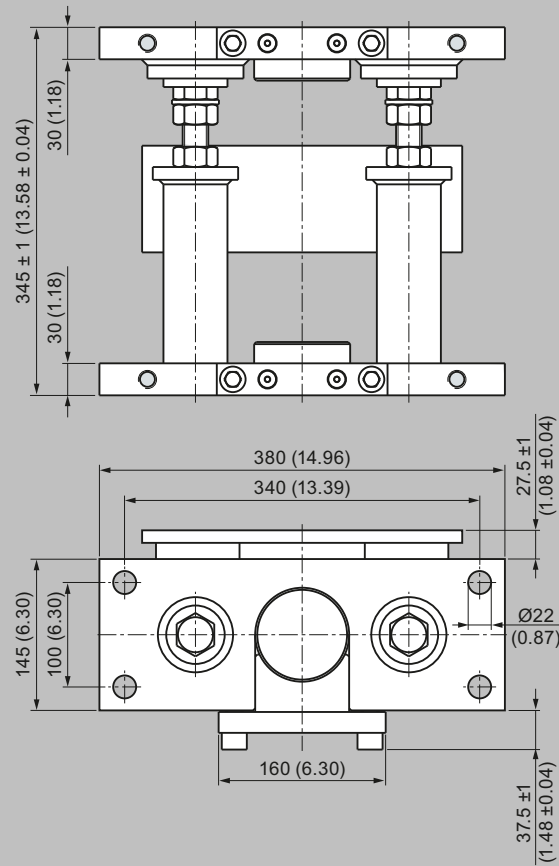
²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Load Cells

Compression load cells

SIWAREX WL270 CP-S SB Mounting unit

Dimensional drawings



Installation unit for SIWAREX WL270 CP-S SB load cells (installation state), dimensions in mm (inch)

Overview



In combination with a pressure piece set, the SIWAREX WL270 CP-S SB load cell produces a self-centering self-aligning bearing. This unit is particularly suitable for installation in hopper scales, bin weighing equipment and vehicle scales.

Design

The pressure piece set consists of an upper and lower pressure piece. Together with the load cell the pressure piece set forms a self-centering unit with integrated torsion guard.

The self-centering, self-aligning bearing thus formed allows the load bearing element to follow horizontal displacements (e.g. due to temperature fluctuations) In this case the construction of the self-aligning bearing creates a restoring force which is dependent on the size of the displacement and the applied load.

If the load bearing implement is displaced by more than 8 mm (0.32 inch) in the horizontal direction, measures for restricting side-ways play (e.g. in the form of endstops or guide elements) must be provided in the construction of the load bearing implement. Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement. The load cell must be ordered separately.

Selection and ordering data

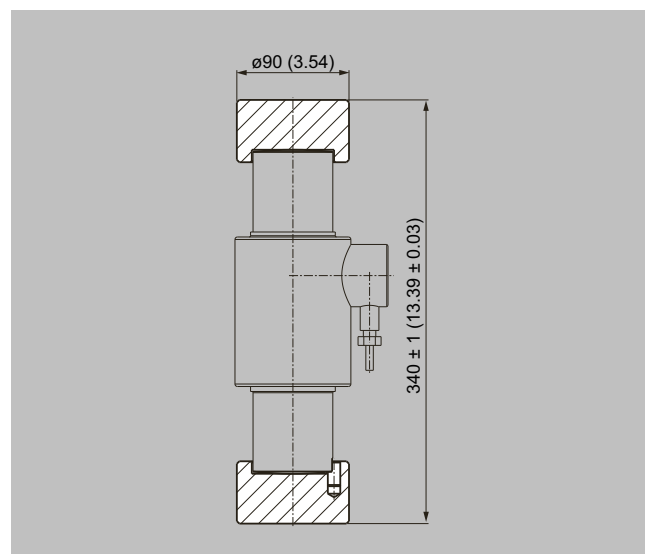
	Article No.
Pressure piece sets¹⁾ For the individual installation of load cells from the SIWAREX WL270 CP-S SB series Material: Stainless steel EN 1.4112 For load cells with a rated load of ¹⁾²⁾	
<ul style="list-style-type: none"> • 100 t (98.42 tn. l.) 	7MH5710-6AD00

- ¹⁾ The principles of general mechanical engineering and safety must be observed.
- ²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.
- ³⁾ The load cell is not included in the scope of delivery.

Technical specifications

Pressure piece set for the individual installation of load cells of the type SIWAREX WL270 CP-S SB	
Rated load	100 t (98.42 tn. l.)
Maximum lateral deflection with load cell	± 8 mm (0.12 inch)
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	0.5%/mm

Dimensional drawings



Pressure piece for SIWAREX WL270 CP-S SB load cells, dimensions in mm (inch)

Load Cells

Compression load cells

SIWAREX WL270 K-S CA Load cell

Overview



This compression load cell is particularly suitable for use in hopper scales and bin weighing equipment.

Design

The measuring element is a cylinder made of steel to which 4 strain gauges are applied.

The load which acts centrally in the measuring direction elastically deforms the spring body and thus the force-fitted strain gauges.

This generates a measuring signal voltage that is proportional to the load. The load cell's rated displacement path depends on the rated load and is between 0.23 and 3.11 mm (0.01 and 0.12 in).

An enclosure made from painted steel protects the strain gauge from environmental influences. The load cell is fitted with a heat-resistant cable as standard.

Heavy load versions

Heavy load versions with a rated load of 350 and 500 t (344.47 and 492.10 tn. l.) are available for extreme requirements.

Option: Two measuring circuits for your plant safety

In especially sensitive applications such as cranes, enhanced safety is required. This is also true of measurement plants. Using double bridges in load cells achieves the equivalent of a redundant configuration. Both measuring bridges supply consistent measured values. If one bridge fails, the other takes over.

This option can be ordered for all load classes from 13 t (12.79 tn. l.).

Selection and ordering data

SIWAREX WL270 K-S CA load cell Accuracy class 0.1% Heat-resistant connecting cable ¹⁾		Article No. 7MH5114- ● ● L ● ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Rated load	Cable length		
• 2.8 t (2.76 tn. l.)	6 m (19.68 ft)	4	J
• 6 t (5.91 tn. l.)	6 m (19.68 ft)	4	Q
• 13 t (12.79 tn. l.)	15 m (49.21 ft)	5	D
• 28 t (27.56 tn. l.)	15 m (49.21 ft)	5	J
• 60 t (59.05 tn. l.)	15 m (49.21 ft)	5	Q
• 130 t (127.95 tn. l.)	20 m (65.62 ft)	6	D
• 280 t (275.58 tn. l.)	20 m (65.62 ft)	6	J
• 350 t (244.47 tn. l.)	25 m (82.02 ft)	6	L
• 500 t (492.10 tn. l.)	25 m (82.02 ft)	6	P
Explosion protection			
• Without			0 0
• Explosion protection for zones 2, 22			0 1
Options			
Double bridge²⁾ Load cell, redundant design, without explosion protection		6	0
High temperature²⁾ Temperature range -30 °C ... +250 °C (-22 °F ... +482 °F), accuracy varies over temperature range, cables and components designed for temperature range, without explosion protection.		7	0
Double bridge and high temperature²⁾ Redundant design load cell, temperature range -30 °C ... +250 °C (-22 °F ... +482 °F), accuracy varies over temperature range, cables and components designed for temperature range, without explosion protection.		8	0

1) Heat-resistant cable: -60 ... +180 °C (-76 ... +356 °F) The cable for high temperatures versions is heat resistant to 250 °C (238 °F).

2) Can be ordered from 13 t (12.79 tn. l.).

Technical specifications

SIWAREX WL270 K-S CA	
Possible applications	<ul style="list-style-type: none"> Hopper scales Bin weighing equipment
Type of construction	Compression load cell
Loads	
Rated load E_{max}	<ul style="list-style-type: none"> 2.8 t (2.76 tn. l.) 6 t (5.91 tn. l.) 13 t (12.79 tn. l.) 28 t (27.56 tn. l.) 60 t (59.05 tn. l.) 130 t (127.95 tn. l.) 280 t (275.58 tn. l.) 350 t (344.47 tn. l.) 500 t (492.10 tn. l.)
Minimum initial loading E_{min}	0% E_{max}
Maximum working load L_u	120% E_{max}
Breaking load L_d	300% E_{max}
Safe side load L_{lq}	10% E_{max}
Measurement characteristic values	
Rated displacement h_n at E_{max}	
• 2.8 t (2.76 tn. l.)	0.23 mm (0.009 inch)
• 6 t (5.91 tn. l.)	0.38 mm (0.015 inch)
• 13 t (12.79 tn. l.)	0.54 mm (0.02 inch)
• 28 t (27.56 tn. l.)	0.82 mm (0.03 inch)
• 60 t (59.05 tn. l.)	1.19 mm (0.05 inch)

Load Cells

Compression load cells

SIWAREX WL270 K-S CA Load cell

Technical specifications (Continued)

SIWAREX WL270 K-S CA	
• 130 t (127.95 tn. l.)	1.81 mm (0.07 inch)
• 280 t (275.58 tn. l.)	2.66 mm (0.10 inch)
• 350 t (344.47 tn. l.)	2.73 mm (0.11 inch)
• 500 t (492.10 tn. l.)	3.11 mm (0.12 inch)
Rated characteristic value C_n	1.5 mV/V
Tolerance D_0 of zero signal	$\leq \pm 1.5\% C_n$
Tolerance D_c of characteristic value	$\pm 0.5\%$
Combined error F_{comb}	$\leq \pm 0.1\%$
Repeatability F_v	$\leq \pm 0.1\%$
Creep error F_{CR}	
30 min	$\leq \pm 0.06\%$
Temperature coefficient	
• Zero signal T_{K0}	$\leq \pm 0.25\% C_n/5 K$
• Characteristic value T_{Kc}	$\leq \pm 0.25\% C_n/5 K$
Electrical characteristic values	
Recommended reference voltage U_{ref}	6 ... 12 V DC
Supply voltage U_{sr} (reference value)	6 V
Input resistance R_e	
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	275 $\Omega \pm 50 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	840 $\Omega \pm 30 \Omega$
Output resistance R_a	
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	245 $\Omega \pm 0.2 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	703 $\Omega \pm 5 \Omega$
Insulation resistance R_{is}	$\geq 5\,000 M\Omega$
Connection and environmental conditions	
Sensor material (DIN)	Steel, painted
Function	Color
• EXC + (supply +)	Red
• EXC - (supply -)	White
• SIG + (measured signal +)	Black
• SIG - (measured signal -)	Blue
• Shield (not connected to the load cell body)	Transparent
Rated temperature range B_{tn}	-10 ... +40 °C (+14 ... +104 °F)
Operating temperature range B_{tu}	-20 ... +70 °C (-4 ... +158 °F)
Storage temperature range B_{ts}	-30 ... +70 °C (-22 ... +158 °F)
Degree of protection according to EN 60529; IEC 60529	IP66
Accuracy class	0.1%

High temperature versions

Some technical data of the high temperature versions change according to the temperature range. For this reason, values are given for three different temperature ranges.

SIWAREX WL270 K-S CA, high temperature versions	-30 ... +150 °C (-22 ... +238 °F)	150 ... 180 °C (238 ... 356 °F)	180 ... 250 °C (356 ... 482 °F)
Rated characteristic value C_n			
• 2.8 ... 13; 130 ... 500 t (2.76 ... 12.79; 127.95 ... 492.10 tn. l.)	1.5 \pm 0.02 mV/V	1.5 \pm 0.1 mV/V	1.5 \pm 0.1 mV/V
• 28 t (27.56 tn. l.)	1.9 \pm 0.02 mV/V	1.9 \pm 0.2 mV/V	1.9 \pm 0.2 mV/V
• 60 t (59.05 tn. l.)	1.8 \pm 0.02 mV/V	1.8 \pm 0.2 mV/V	1.8 \pm 0.2 mV/V
Tolerance D_0 of zero signal	$\leq \pm 1.0\% C_n$	$\leq \pm 1.5\% C_n$	$\leq \pm 3\% C_n$

Technical specifications (Continued)

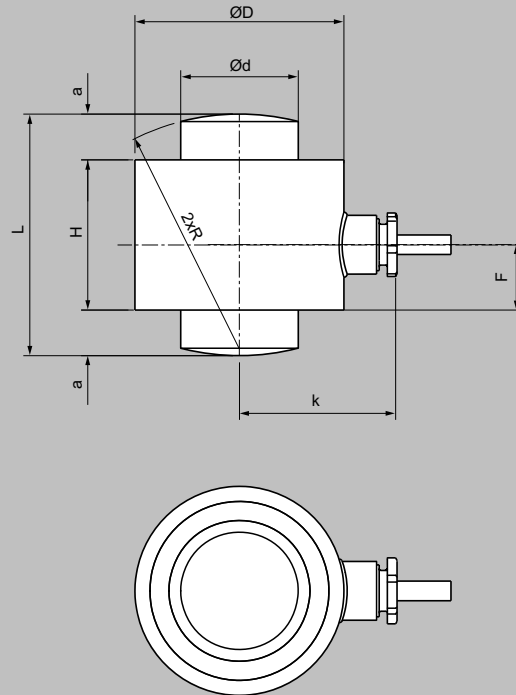
SIWAREX WL270 K-S CA, high temperature versions	-30 ... +150 °C (-22 ... +238 °F)	150 ... 180 °C (238 ... 356 °F)	180 ... 250 °C (356 ... 482 °F)
Measurement characteristic values			
Combined error F_{comb}	$\leq \pm 0.3\%$	$\leq \pm 0.5\%$	$\leq \pm 5\%$
Repeatability F_v	$\leq \pm 0.3\%$	$\leq \pm 0.5\%$	$\leq \pm 5\%$
Creep error F_{CR} 30 min	$\leq \pm 0.3\%$	$\leq \pm 0.4\%$	$\leq \pm 4\%$
Temperature coefficient			
• Zero signal T_{K0}	$\leq \pm 0.25\% C_n/5 K$	$\leq \pm 0.25\% C_n/5 K$	$\leq \pm 0.5\% C_n/5 K$
• Characteristic value T_{Kc}	$\leq \pm 0.25\% C_n/5 K$	$\leq \pm 0.5\% C_n/5 K$	$\leq \pm 0.5\% C_n/5 K$
Electrical characteristic values			
Input resistance R_e			
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	275 $\Omega \pm 7 \Omega$	275 $\Omega \pm 15 \Omega$	275 $\Omega \pm 15 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	840 $\Omega \pm 30 \Omega$	840 $\Omega \pm 30 \Omega$	840 $\Omega \pm 30 \Omega$
Output resistance R_a			
• 2.8, 6, 13, 28, 60, 130, 280 t (2.76, 5.91, 12.79, 27.56, 59.05, 127.95, 275.58 tn. l.)	245 $\Omega \pm 0.5 \Omega$	245 $\Omega \pm 1 \Omega$	245 $\Omega \pm 1 \Omega$
• 350, 500 t (344.47, 492.10 tn. l.)	703 $\Omega \pm 5 \Omega$	703 $\Omega \pm 5 \Omega$	703 $\Omega \pm 5 \Omega$
Insulation resistance R_{is}	$\geq 5\,000 M\Omega$		
Connection and environmental conditions			
Rated temperature range B_{tr}	-30 ... +180 °C (-22 ... +356 °F)		
Operating temperature range B_{tu}	-30 ... +250 °C (-22 ... +482 °F)		
Storage temperature range B_{ts}	-30 ... +250 °C (-22 ... +482 °F)		

Load Cells

Compression load cells

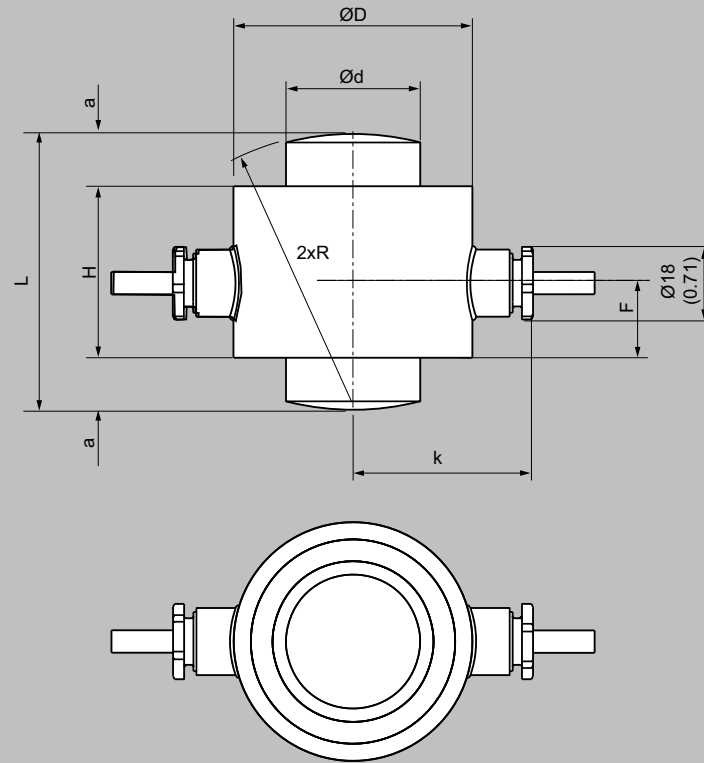
SIWAREX WL270 K-S CA Load cell

Dimensional drawings



Rated load [t (tn. L.)]	a	ød	øD	F	H	k	L	R
2,8, 6 (2.76, 5.91)	8 (0.31)	16,7 (0.65)	45 (1.77)	20 (0.59)	40 (1.57)	40,5 (1.59)	56 (2.2)	50 (1.96)
13 (12.79)	12 (0.47)	24,5 (0.96)	55 (2.16)	20 (0.59)	44 (1.73)	45,5 (1.79)	68 (2.67)	66 (2.6)
28 (27.56)	14 (0.55)	36 (1.41)	64 (2.51)	20 (0.59)	46 (1.81)	50 (1.89)	74 (2.91)	72 (2.83)
60 (59.05)	20 (0.78)	52,7 (2.07)	90 (3.54)	20 (0.59)	50 (1.96)	63 (2.48)	90 (3.54)	100 (3.93)
130 (127.95)	26 (1.02)	77,5 (3.05)	121 (4.76)	20 (0.59)	64 (2.51)	78,5 (3.09)	116 (4.56)	125 (4.92)
280 (275.58)	45 (1.77)	114 (4.48)	165 (6.5)	20 (0.59)	90 (3.14)	100,5 (3.96)	170 (6.7)	183 (7.2)
350 (344.47)	40 (1.58)	132 (5.20)	192 (7.95)	50.5 (1.97)	139 (6.30)	124 (5.00)	240 (9.45)	325 (12.80)
500 (492.10)	47 (1.85)	155 (6.10)	236 (9.29)	99.5 (1.97)	164 (7.13)	146 (5.67)	275 (10.83)	450 (17.72)

Dimensional drawings (Continued)



Rated load [t (tn.L.)]	a	Ød	ØD	F	H	k	L	R
13 (12.79)	12 (0.47)	24,5 (0.96)	55 (2.16)	20 (0.79)	44 (1.73)	45,5 (1.79)	68 (2.67)	66 (2.6)
28 (27.56)	14 (0.55)	36 (1.41)	64 (2.51)	20 (0.79)	46 (1.81)	50 (1.88)	74 (2.91)	72 (2.83)
60 (59.05)	20 (0.78)	52,7 (2.07)	90 (3.54)	20 (0.79)	50 (1.96)	63 (2.48)	90 (3.54)	100 (3.93)
130 (127.95)	26 (1.02)	77,5 (3.05)	121 (4.76)	20 (0.79)	64 (2.51)	78,5 (3.09)	116 (4.56)	125 (4.92)
280 (275.58)	45 (1.77)	114 (4.48)	165 (6.5)	20 (0.79)	90 (3.14)	100.5 (3.96)	170 (6.7)	183 (7.2)
350 (344.47)	40 (1.58)	132 (5.20)	192 (7.95)	50.5 (1.97)	139 (6.30)	124 (5.00)	240 (9.45)	325 (12.80)
500 (492.10)	47 (1.85)	155 (6.10)	236 (9.29)	99.5 (1.97)	164 (7.13)	146 (5.67)	275 (10.83)	450 (17.72)

Load Cells

Compression load cells

SIWAREX WL270 K-S CA Self-centering bearing unit

Overview



The self-centering self-aligning bearing for SIWAREX WL270 K-S CA load cells is particularly suitable for use hopper scales and bin weighing equipment.

Design

The self-aligning bearing comprises two pressure plates. Together with the load cell, the pressure plates form a self-centering unit. This allows the top plate, and thus the load bearing implement, to accommodate horizontal displacements (e.g. due to temperature fluctuations). The design of the self-aligning bearing creates a restoring force which is dependent on the size of the displacement and the applied load.

If the load bearing implement is displaced by more than value s (see dimensional drawing table) in the horizontal direction, measures for restricting sideways play (e.g. stops) must be provided in the construction of the load bearing implement. Lifting of the load bearing implement must be prevented by suitable measures provided in the construction of the load bearing implement.

The load cell is not included in the scope of delivery of the self-aligning bearing.

Heavy load versions

Suitable mounting units are also available for heavy load cells with 350 and 500 t (344.47 and 492.10 tn. l.) rated loads. These are also designed as self-centering, self-aligning bearings.

Selection and ordering data

	Article No.
Pressure plate¹⁾²⁾ For SIWAREX WL270 K-S CA load cells For constructing a self-aligning bearing, each load cell requires two pressure plates, one at the top and one at the bottom. The Article No. includes one pressure plate. Material: Steel, painted For load cells with a rated load of	
• 2.8 ... 6 t (2.76 ... 5.91 tn. l.)	7MH3115-3AA1
• 13 t (12.79 tn. l.)	7MH3115-1BA1
• 28 t (27.56 tn. l.)	7MH3115-2BA1
• 60 t (59.05 tn. l.)	7MH3115-3BA1
• 130 t (127.95 tn. l.)	7MH3115-1CA1
• 280 t (275.58 tn. l.)	7MH3115-2CA1
• 350 t (344.47 tn. l.)	7MH5714-6LD10
• 500 t (492.10 tn. l.)	7MH5714-6PD10

¹⁾ The load cell is not included in the scope of delivery.

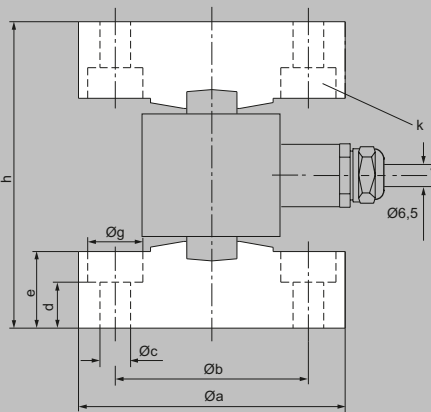
²⁾ It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Technical specifications

Pressure plate for load cell type SIWAREX WL270 K-S CA

Rated load t (tn. l.)	2.8 (2.76)	6 (5.91)	13 (12.80)	28 (27.56)	60 (59.10)	130 (127.95)	280 (275.88)
Permissible lateral deflection in mm (inch):	2 (0.08)	2 (0.08)	2.5 (0.10)	2.5 (0.10)	3 (0.12)	4 (0.16)	6 (0.24)
Rated displacement h_n at E_{max} mm (inch)	0.23 (0.009)	0.35 (0.014)	0.53 (0.021)	0.80 (0.032)	1.22 (0.048)	1.85 (0.073)	2.67 (0.11)

Dimensional drawings



Rated load [t]	øa	øb	øc	d	e
2,8, 6	87 (3.43)	63 (2.48)	11 (0.43)	14 (0.55)	25 (0.98)
13	97 (3.82)	73 (2.87)	11 (0.43)	21 (0.83)	32 (1.26)
28	108 (4.25)	84 (3.31)	11 (0.43)	-	28 (1.10)
60	137 (5.39)	112 (4.41)	11 (0.43)	-	42 (1.65)
130	176 (6.93)	148 (5.83)	11 (0.43)	-	52 (2.05)
280	226 (8.90)	190 (7.48)	14 (0.55)	-	65 (2.56)
350	240 (9.45)	200 (7.87)	26 (1.02)	-	30 (1.18)
500	280 (11.02)	240 (9.45)	26 (1.02)	-	45 (1.77)

Rated load [t]	øg	h	k	s (allowed sideways displacement)
2,8, 6	18 (0.71)	100 ± 0,5/-1	2 x 180°	2 (0.08)
13	18 0.71)	120 ± 0,5/-1	2 x 180°	2.5 (0.98)
28	-	136 ± 0,5/-1	2 x 180°	2.5 (0.98)
60	-	174 ± 0,5/-1	4 x 90°	3 (0.12)
130	-	220 ± 0,5/-1	4 x 90°	4 (0.16)
280	-	300 ± 0,6/-1,2	2 x 180°	6 (0.24)
350	-	390 (15.35)	2 x 180°	6 (0.24)
500	-	490 (19.29)	2 x 180°	6 (0.24)

Self-aligning bearing for SIWAREX WL270 K-S CA load cells, dimensions in mm (")

Load Cells

Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

Overview



The ring torsion load cell is particularly suitable for use in hopper, belt, platform and roller conveyor scales.

Design

The measurement element is a ring torsion spring made of stainless steel. Two strain gauge spirals are applied to the upper and lower faces of the ring respectively. The spring element is deformed by the load acting centrally in the measurement direction. This compresses the strain gauge of the upper face of the ring and extends the strain gauge on the lower face of the ring. This causes a change in the electrical resistance of the force-locked strain gauge, which is detected by means of a bridge circuit.

All load cells with a rated load of up to 13 t (12.79 tn. l.) are equipped with integrated overload protection.

Selection and ordering data

SIWAREX WL280 RN-S SA load cell Stainless steel EN 1.4542, low mounting height, IP66/68 Accuracy class C3 according to OIML R60		Article No. 7MH5113- ● ● D 0 ●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Rated load	Cable length	
• 60 kg (132.28 lb)	3 m (9.84 ft)	2 Q
• 130 kg (286.60 lb)	3 m (9.84 ft)	3 D
• 280 kg (617.29 lb)	3 m (9.84 ft)	3 J
• 500 kg (1 102.31 lb)	3 m (9.84 ft)	3 P
• 1 t (0.98 tn. l.)	3 m (9.84 ft)	4 A
• 2 t (1.97 tn. l.)	6 m (19.68 ft)	4 G
• 3.5 t (3.44 tn. l.)	6 m (19.68 ft)	4 L
• 5 t (4.92 tn. l.)	6 m (19.68 ft)	4 P
• 10 t (9.84 tn. l.)	15 m (49.21 ft)	5 A
• 13 t (12.79 tn. l.)	15 m (49.21 ft)	5 D
• 28 t (27.56 tn. l.)	15 m (49.21 ft)	5 J
• 60 t (59.05 tn. l.)	15 m (49.21 ft)	5 Q
Explosion protection		
• Without		0
• Explosion protection		1

Technical specifications

SIWAREX WL280 RN-S SA			
Possible applications	Hopper, belt, platform and roller conveyor scales		
Type of construction	Ring torsion load cell		
Rated load/maximum capacity E_{max}	<ul style="list-style-type: none"> • 60 kg (132.28 lb) • 130 kg (286.60 lb) • 280 kg (617.29 lb) 	<ul style="list-style-type: none"> • 0.5 t (0.49 tn. l.) • 1 t (0.98 tn. l.) • 2 t (1.97 tn. l.) • 3.5 t (3.45 tn. l.) • 5 t (4.92 tn. l.) • 10 t (9.84 tn. l.) 	<ul style="list-style-type: none"> • 13 t (12.80 tn. l.) • 28 t (27.56 tn. l.) • 60 t (59.05 tn. l.)
Accuracy class according to OIML R60	C3		
Max. scale interval n_{LC}	3 000		
Min. scale interval V_{min}	$E_{max}/16\ 000$	$E_{max}/17\ 500$	
Minimum application range $R_{min(LC)}$	19%	17%	
Combined error F_{comb}	$\leq \pm 0.023\% C_n$		
Repeatability F_v	$\leq \pm 0.01\% C_n$		
Return of zero signal	$\leq \pm 0.0167\% C_n^{(1)}$		
Creep error F_{cr}			
• 30 min	$\leq \pm 0.0245\% C_n^{(1)}$		
• 20 ... 30 min	$\leq \pm 0.0053\% C_n^{(1)}$		
Temperature coefficient			
• Zero signal T_{K0}	$\leq \pm 0.004\% C_n/5K$		
• Characteristic value T_{Kc}	$\leq \pm 0.004\% C_n/5K$		
Min. dead load E_{min}	$\geq \pm 0\% E_{max}$		
Max. working load L_u	200% E_{max}	150% E_{max}	
Breaking load L_d	500% E_{max}	300% E_{max}	300% E_{max}
Safe side load L_{lq}	75% E_{max}	100% E_{max}	75% E_{max}
Rated displacement h_n at E_{max}	0.07 mm	0.1 ± 0.02 mm	0.11 ... 0.2 mm
Overload protection	Integrated	Integrated	Integrated at 13 t
Supply voltage U_{sr} (reference value)	15 V	10 V	15 V
Supply voltage (range)	5 ... 30 V+		
Rated characteristic value C_n	1 mV/V	2 mV/V	2 mV/V
Tolerance D_c of characteristic value	Up to 500 kg (1 102.31 lb): 0.01 mV/V From 500 kg (1 102.31 lb): 0.1 mV/V		
Tolerance D_0 of zero signal	$\leq \pm 1.0\% C_n$		
Input resistance R_e	60 kg (132.28 lb): 1 260 Ω ± 100 Ω 130 kg (286.60 lb): 1 260 Ω ± 100 Ω 280 kg (617.29 lb): 1260 Ω ± 250 Ω	1 100 Ω ± 100 Ω	13 t: 1 200 Ω ± 100 Ω 28 t: 1 075 Ω ± 100 Ω 60 t: 1 350 Ω ± 200 Ω
Output resistance R_a	1 020 Ω ± 0.5 Ω	1 025 Ω ± 25 Ω	13 t: 1 000 Ω ± 0.5 Ω 28 t: 930 Ω ± 0.5 Ω 60 t: 1 175 Ω ± 0.5 Ω
Insulation resistance R_{is}	≥ 5 000 MΩ	≥ 5 000 MΩ	≥ 5 000 MΩ
Rated temperature range B_{tn}	-10 ... +40 °C (14 ... 104 °F)		
Operating temperature range B_{tu}	-35 ... +70 °C (-31 ... 158 °F)		
Storage temperature range B_{ts}	-50 ... +90 °C (-58 ... 194 °F)		
Sensor material (DIN)	Stainless steel EN 1.4542		
Degree of protection according to EN 60529; IEC 60529	IP66/68		
Recommended tightening torque of the fixing screws	8 Nm	14 Nm (0.5 ... 5 t) 10 Nm (10 t)	-
Current calibration ²⁾	Standard		
Cable connection			
<u>Function</u>	<u>Color</u>		
• EXC +	Pink		
• EXC -	Gray		
• SIG +	Brown		

Load Cells

Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

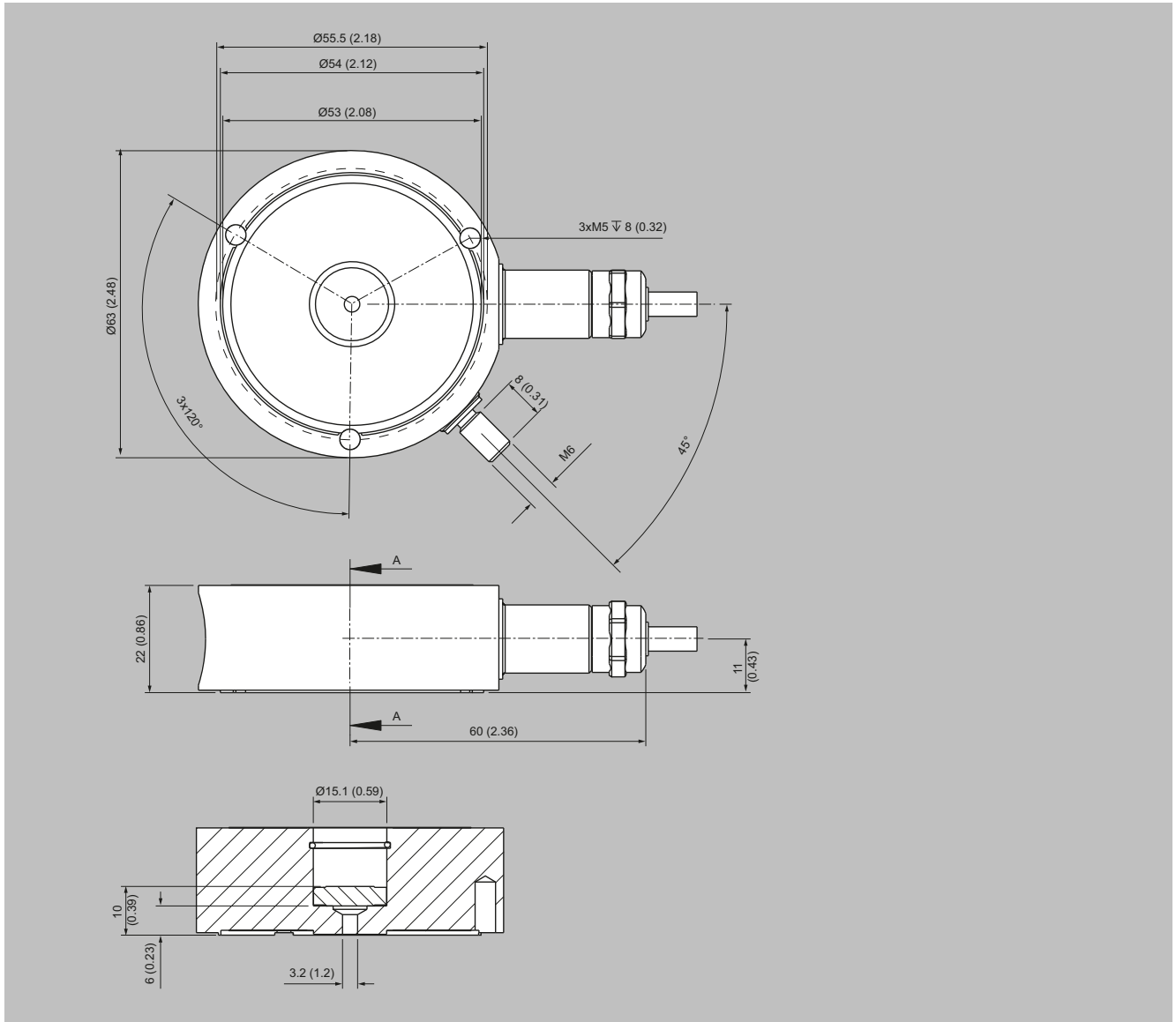
Technical specifications (Continued)

SIWAREX WL280 RN-S SA	
<ul style="list-style-type: none"> • SIG - • Shield (not connected to the load cell body) 	<ul style="list-style-type: none"> White Transparent
Certificates and approvals Explosion protection	<ul style="list-style-type: none"> • ATEX/IECEX II 1 G Ex ia IIC T4 Ga • ATEX/IECEX II 1 D Ex ia IIIC T73°C Da • ATEX/IECEX II 3 G Ex ic IIC T4 Gc • ATEX/IECEX II 3 G Ex nA IIC T4 Gc • ATEX/IECEX II 3 D Ex tc IIIC T63°C Dc

¹⁾ For rated temperature -10 ... +40 °C (14 ... 104 °F).

²⁾ Current calibration: rated characteristic value and output resistance are adjusted so that the output current is calibrated within 0.05% of a reference value. This makes it easier to connect several load cells in parallel.

Dimensional drawings



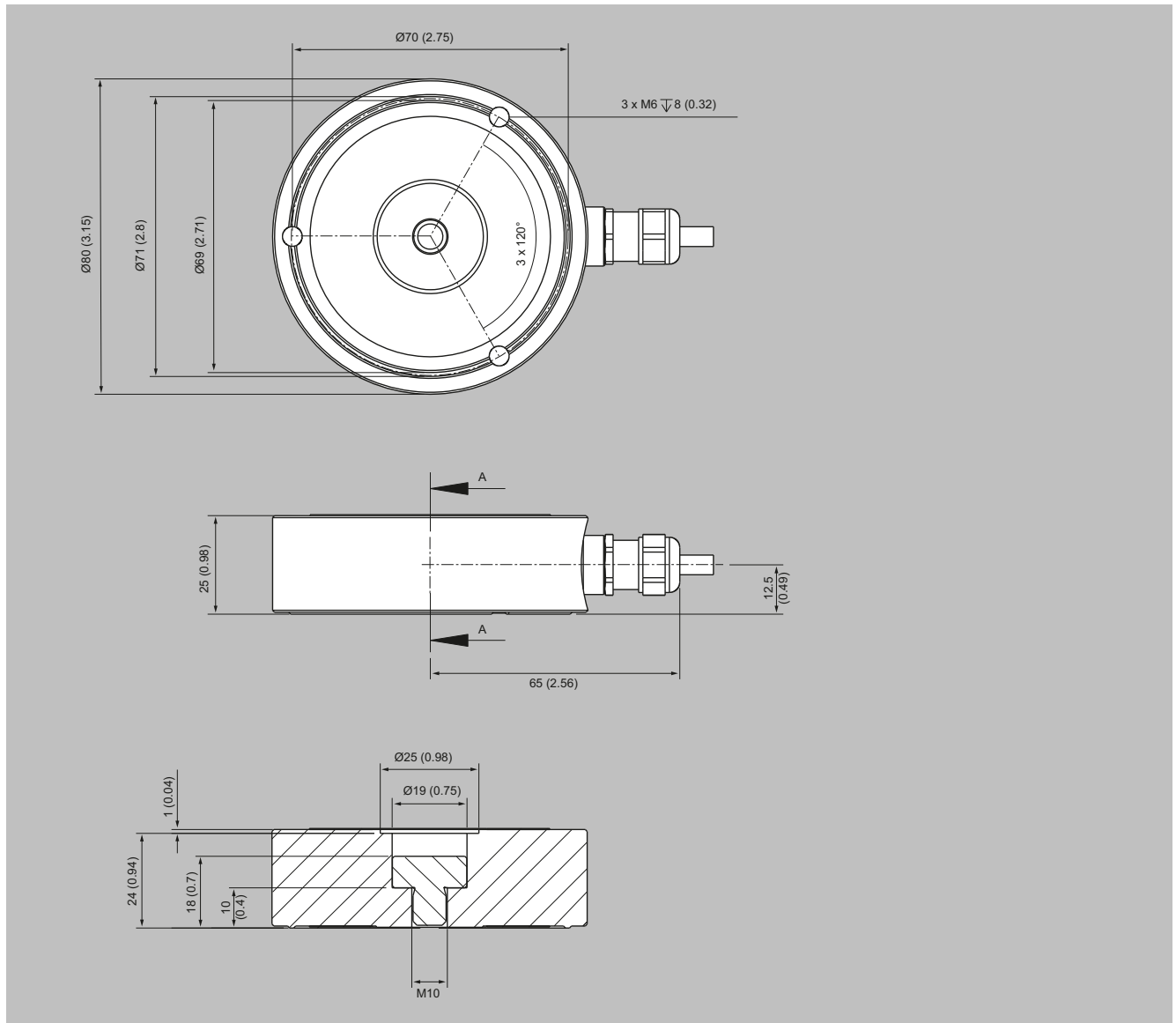
SIWAREX WL280 RN-S SA load cell 60 ... 280 kg (132.28 ... 617.29 lb), dimensions in mm (inch)

Load Cells

Ring torsion load cells

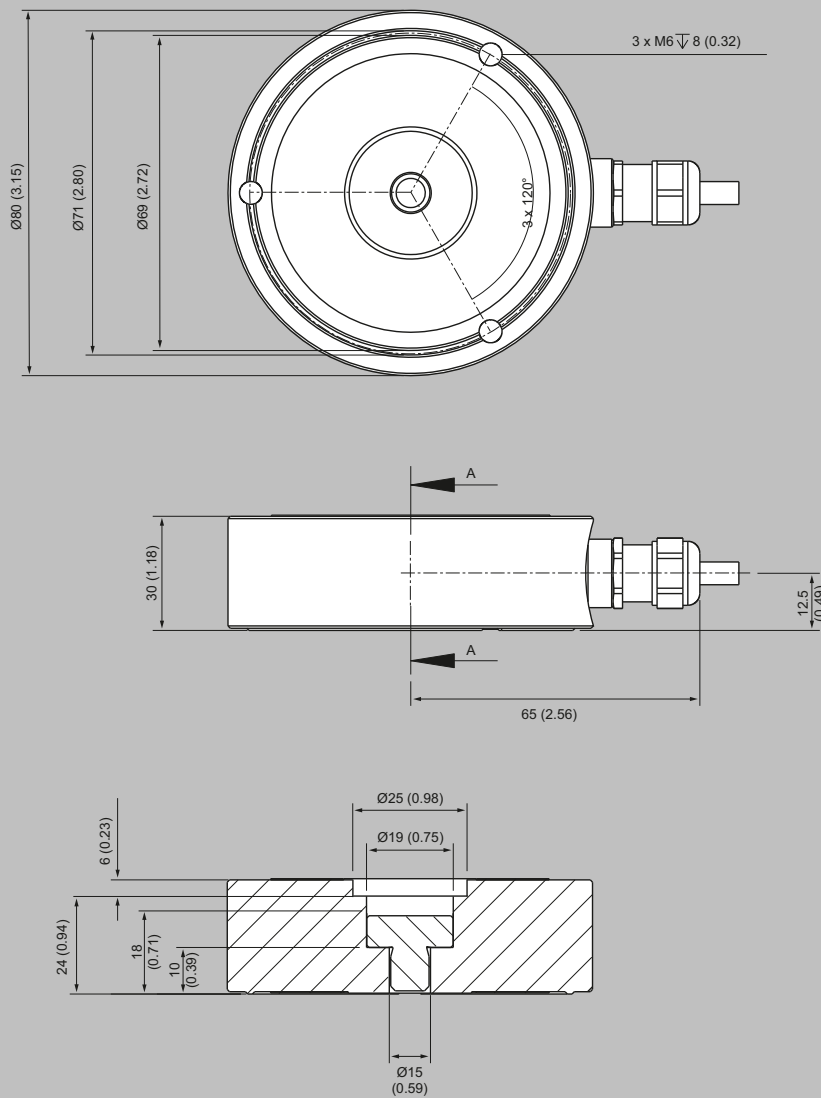
SIWAREX WL280 RN-S SA Load cell

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA load cell, 0.5 and 1 t (0.49 and 0.98 tn. l.), dimensions in mm (inch)

Dimensional drawings (Continued)



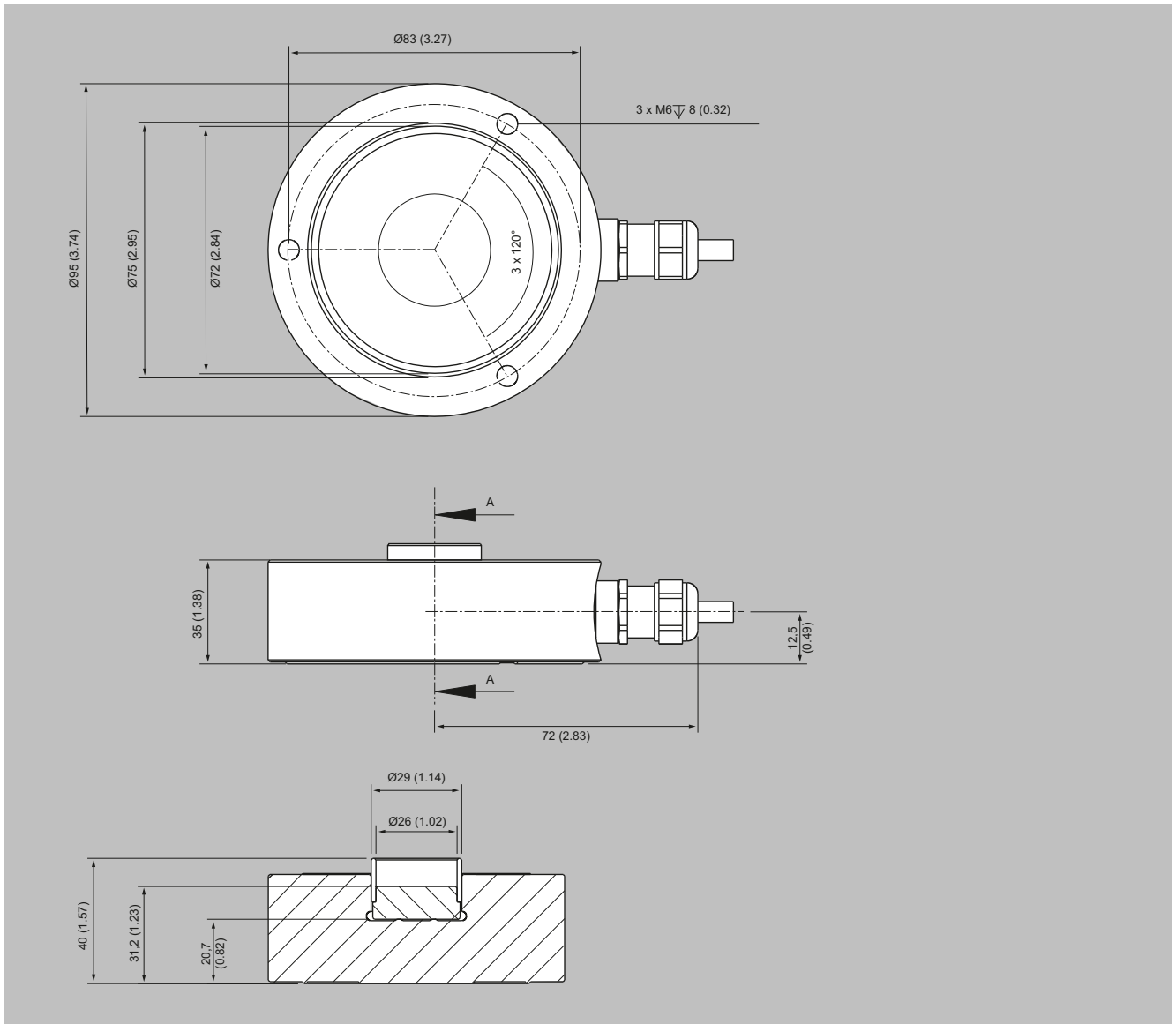
SIWAREX WL280 RN-S SA load cell, 2 ... 5 t (1.97 ... 4.92 tn. l.), dimensions in mm (inch)

Load Cells

Ring torsion load cells

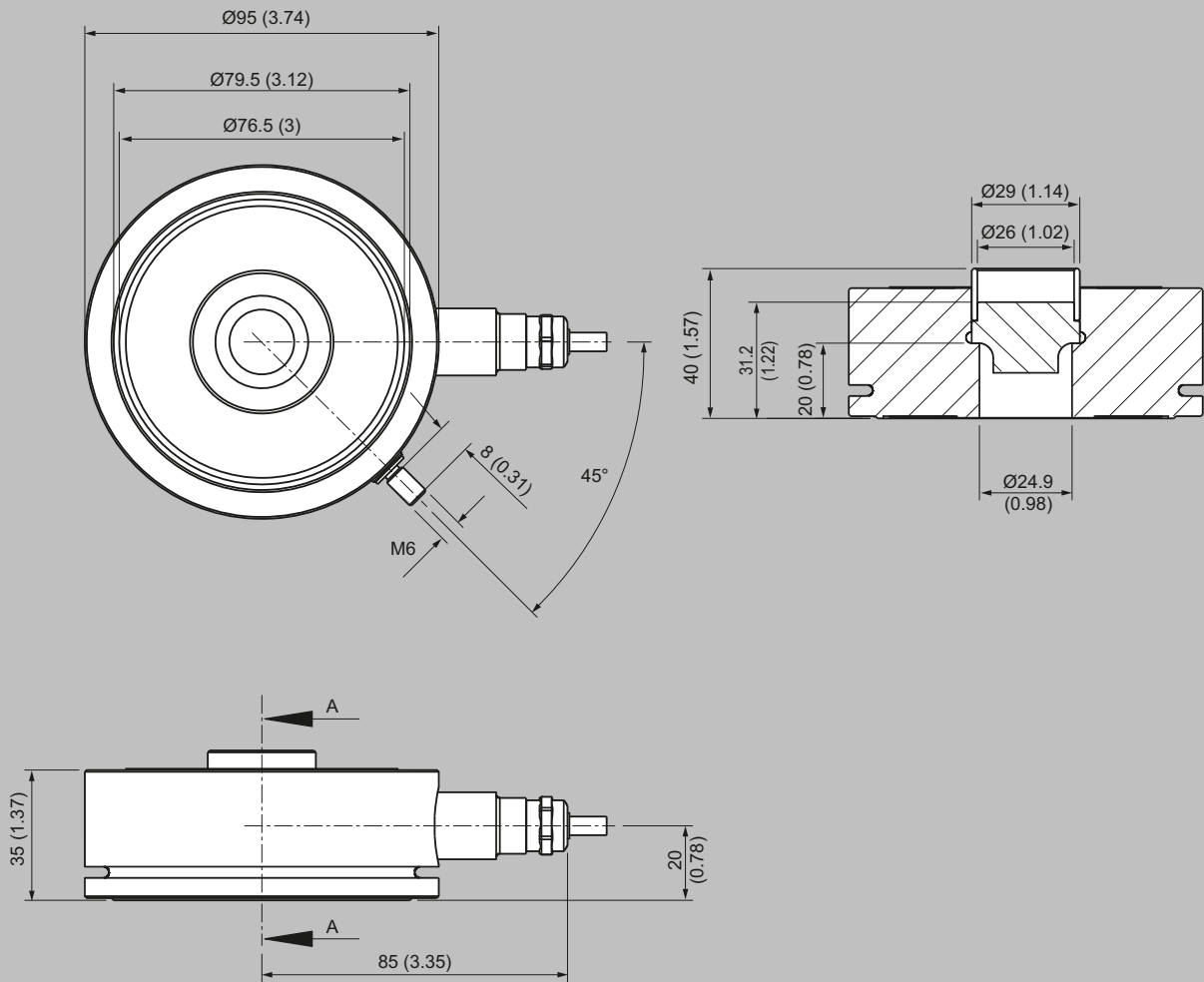
SIWAREX WL280 RN-S SA Load cell

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA load cell 10 t (9.84 tn. l.), dimensions in mm (inch)

Dimensional drawings (Continued)



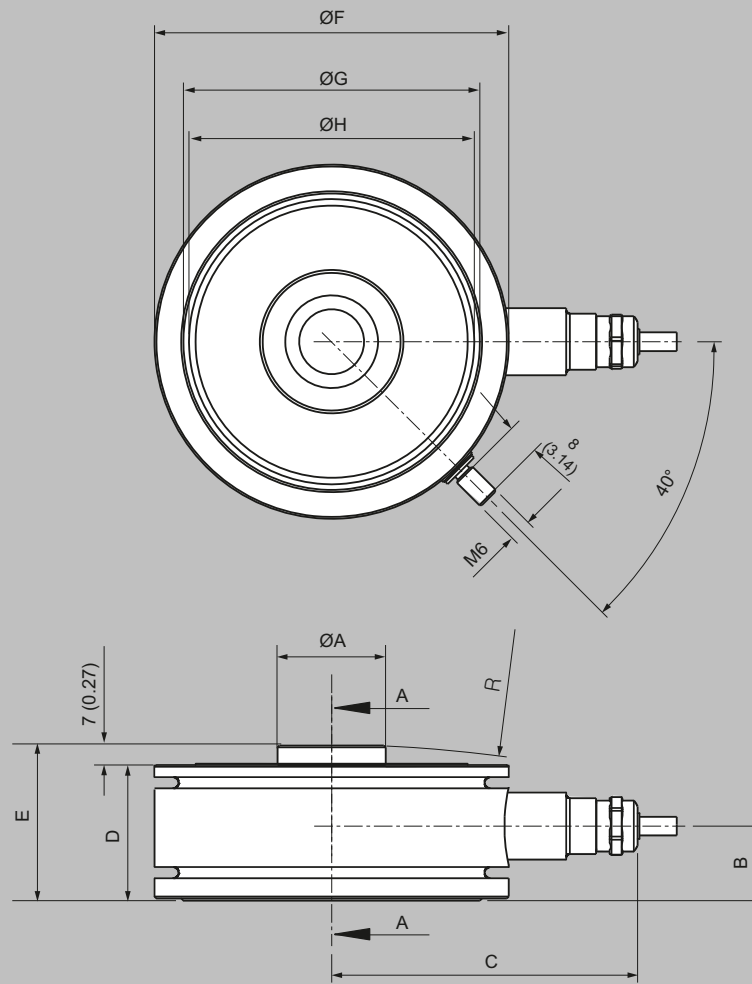
SIWAREX WL280 RN-S SA load cell 13 t (12.79 tn. l.), dimensions in mm (inch)

Load Cells

Ring torsion load cells

SIWAREX WL280 RN-S SA Load cell

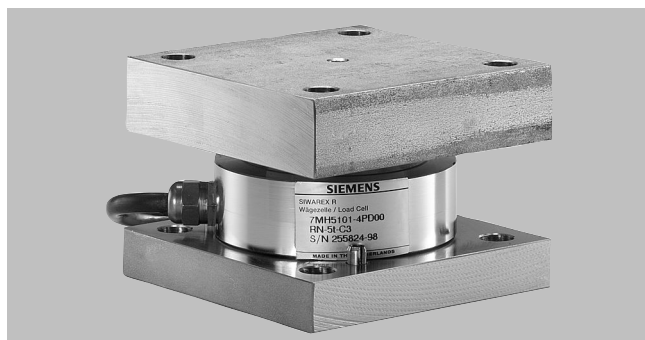
Dimensional drawings (Continued)



Rated load [t]	øA	B	C	D	E	øF	øG	øH	R
28	35.9 (1.41)	25 (0.98)	94 (3.7)	46 (1.8)	53 (2.08)	120 (4.72)	102 (4)	98 (3.85)	R400
60	47.9 (1.88)	34 (1.33)	105 (4.13)	62 (2.44)	69 (2.71)	140 (5.5)	124 (4.88)	120 (4.72)	R600

SIWAREX WL280 RN-S SA load cell, 28 and 60 t (27.56 and 59.05 tn. l.), dimensions in mm (inch)

Overview



The self-centering self-aligning bearing for SIWAREX WL280 RN-S SA load cells is particularly suitable for container and platform scales due to its low mounting height.

Design

The self-aligning bearing comprises a pendulum bolt, a top plate (self-aligning bearing, top part) and a base plate (self-aligning bearing, base part).

The self-aligning pendulum bolt enables the top plate, and thus the load bearing implement, to follow horizontal displacements (e.g. due to temperature fluctuations). The design of the pendulum bolt creates a restoring force, which is dependent on the size of the displacement and the applied load.

Measures for restricting sideways play must be provided in the load bearing implement (e.g. in the form of guide elements) if the load bearing implement is displaced in the horizontal direction by:

- > 4 mm (0.16 inch) to 5 t (4.92 tn. l.) Rated load
- > 7 mm (0.28 inch) to 13 t (12.80 tn. l.) Rated load
- > 10 mm (0.39 inch) to 60 t (59.05 tn. l.) Rated load

Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement.

The load cell is not included in the scope of delivery of the self-aligning bearing.

Selection and ordering data

	Article No.
Self-aligning bearing top part¹⁾²⁾ For SIWAREX WL280 RN-S SA load cells comprising: Top plate with seal holder and sealing ring, top plate pressure plate, pendulum bolt, cell pressure piece (not for 28 t and 60 t) Material: Stainless steel EN 1.4301 and EN 1.4112	
For load cells with a rated load of	
• 60 ... 280 kg (132.28 ... 617.29 lb)	7MH4115-3DB11
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH4132-4AK11
• 2 ... 5 t (1.97 ... 4.92 tn. l.)	7MH4132-4KK11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4115-5BB11
• 28 t (27.56 tn. l.)	7MH4115-5DB11
• 60 t (59.05 tn. l.)	7MH4115-5GB11
Self-aligning bearing base part¹⁾ For SIWAREX WL280 RN-S SA load cells comprising: Base plate, 3 tension pins Material: Stainless steel EN 1.4301	
For load cells with a rated load of	
• 60 ... 280 kg (132.28 ... 617.29 lb)	7MH4115-3DC11
• 500 kg ... 5 t (1 102.31 lb ... 4.92 tn. l.)	7MH4132-4AG11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4115-5BC11

Selection and ordering data (Continued)

	Article No.
• 28 t (27.56 tn. l.)	7MH4115-5DC11
• 60 t (59.05 tn. l.)	7MH4115-5GC11
Accessories	
Pressure plate set For SIWAREX WL280 RN-S SA load cells. Comprising pressure plate and pendulum support. The pressure plate set enables custom design installation requirements to be implemented. Material: Stainless steel FN 1 4117 For load cells with a rated load of ¹⁾	
• 60 ... 280 kg (132.28 ... 617.29 lb)	7MH5713-3JD00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH5713-4AD00
Shims (accessories) For mounting units of the SIWAREX WL280 RN-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ¹⁾	
• 60 ... 280 kg (132.28 ... 617.29 lb); Content: 16 units, each 0.5 mm thick	7MH5713-3JG00
• 500 kg ... 1 t (1 102.31 lb ... 0.98 tn. l.); Content: 24 units, each 0.5 mm thick	7MH5713-4AG00
• 2 ... 5 t (1.97 ... 4.92 tn. l.); Content: 4 units each 0.5 mm thick, 16 units each 1 mm thick	7MH5713-4PG00
• 10, 13 t (9.84, 12.80 tn. l.) Content: 4 units each 0.5 mm thick, 20 units each 1 mm thick	7MH5713-5DG00

¹⁾ The load cell is not included in the scope of delivery.

²⁾ The self-aligning bearing base part is not included in the scope of delivery.

Load Cells

Ring torsion load cells

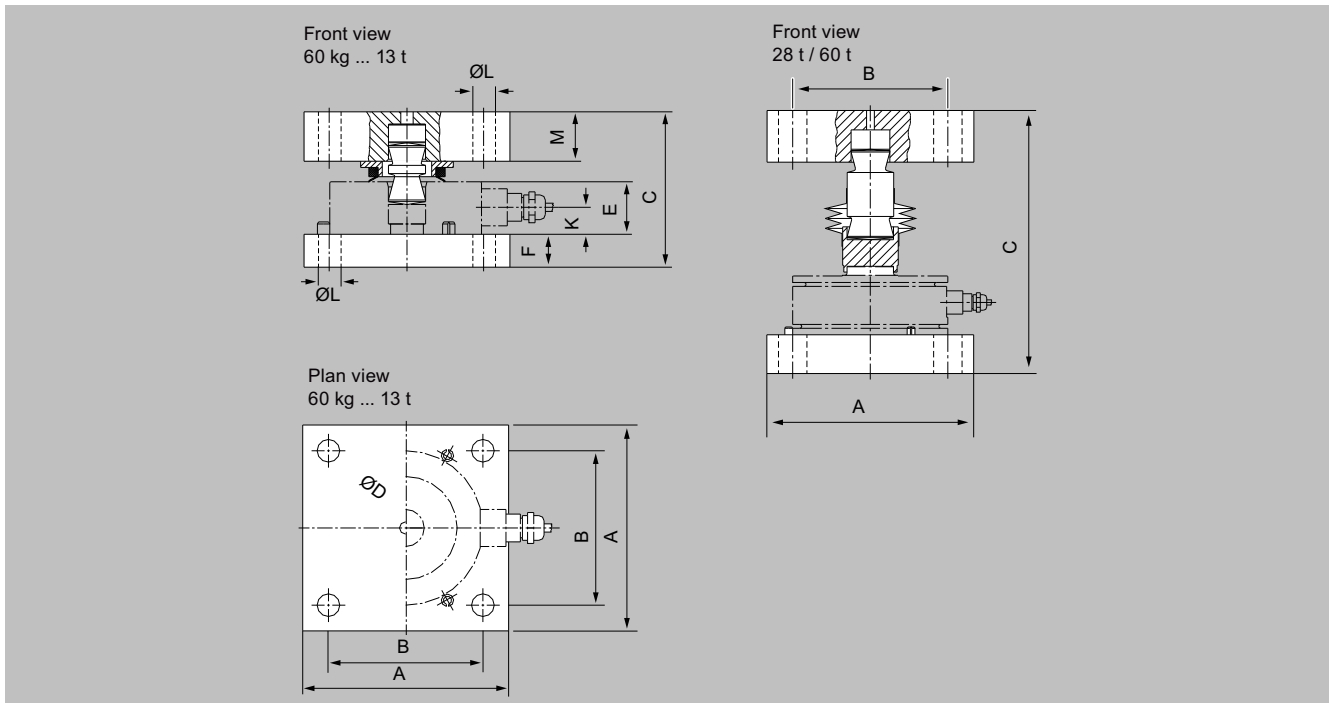
SIWAREX WL280 RN-S SA Self-aligning bearing

Technical specifications

Self-aligning bearing for SIWAREX WL280 RN-S SA load cells

Rated load t (tn. l.)	0.06 ... 5 (0.06 ... 4.92)	10 ... 13 (9.84 ... 12.80)	28 ... 60 (27.56 ... 59.02)
Permissible lateral deflection in mm (inch):	± 4 (0.16)	± 7 (0.28)	± 10 (0.39)

Dimensional drawings

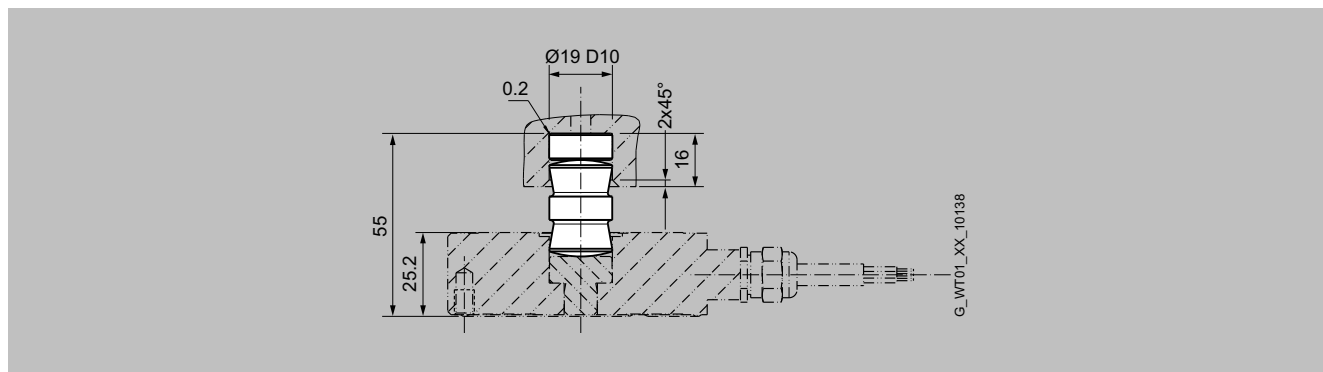


Self-aligning bearing for SIWAREX WL280 RN-S SA load cells, for 0.06 ... 60 t (0.06 ... 59.05 tn. l.), dimensions in mm (inch)

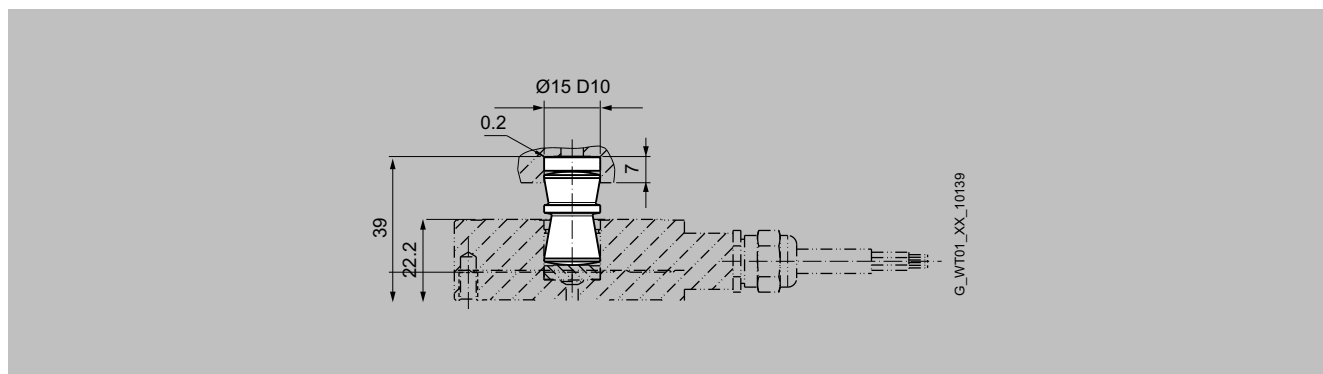
Rated load	A	B	C	ØD	E	F	K	ØL	M	s*
60 ... 280 kg	80 (3.15)	60 (2.36)	52 (2.05)	63 (2.48)	22 (0.87)	8 (0.31)	11 (0.43)	9 (0.35)	12 (0.47)	4 (0.16)
0.5, 1 t	100 (3.94)	75 (2.95)	79 (3.11)	80 (3.15)	25 (0.98)	15 (0.59)	10 (0.39)	11 (0.43)	25 (0.98)	4 (0.16)
2, 3.5, 5 t	100 (3.94)	75 (2.95)	79 (3.11)	80 (3.15)	30 (1.18)	15 (0.59)	8.5 (0.33)	11 (0.43)	25 (0.98)	4 (0.16)
10, 13 t	120 (4.72)	90 (3.54)	121.2 (4.77)	95 (3.74)	35 (1.97)	20 (0.79)	20 (0.79)	14 (0.55)	40 (1.57)	7 (0.28)
28 t	160 (6.30)	120 (4.72)	203 (7.99)	40 (1.57)	46 (1.81)	30 (1.18)	25 (0.98)	22 (0.87)	40 (1.57)	10 (0.39)
60 t	200 (7.87)	140 (5.51)	254 (10.0)	50 (1.97)	62 (2.44)	36 (1.42)	34 (1.34)	28 (1.10)	50 (1.97)	10 (0.39)

* Permissible lateral deflection

Dimensional drawings (Continued)



Pressure piece set SIWAREX WL280 RN-S SA, for 0.5 and 1 t (0.49 and 0.98 tn. l.), dimensions in mm (inch)



Pressure piece set for SIWAREX WL280 RN-S SA, for 60 ... 280 kg (132.28 ... 617.29 lb), dimensions in mm (inch)

Load Cells

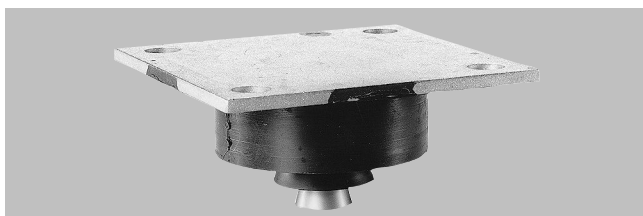
Ring torsion load cells

SIWAREX WL280 RN-S SA Elastomer bearing

Overview



Elastomer bearings for SIWAREX WL280 RN-S SA load cells, 60 ... 280 kg (132.28 ... 617.29 lb)



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 0.5 ... 13 t (0.49 ... 12.80 lb)

Used in combination with the self-aligning bearing base part, the self-centering elastomer bearing for SIWAREX WL280 RN-S SA load cells is the ideal load introduction element for scales without guide elements. It is used in container, platform and roller table scales and dampens vibrations and shocks.

Design

Elastomer bearings are rubber-metal composites made of neoprene and stainless steel. They ensure large spring excursions (i.e. a high degree of damping) despite small dimensions.

If the load bearing implement is displaced by more than 4 mm (0.16 inch) in the horizontal direction ¹⁾, measures for restricting sideways play (e.g. in the form of guide elements) must be provided in the construction of the load bearing implement. Lifting of the load support must be prevented by suitable measures provided in the construction of the load bearing implement.

The load cell and the self-aligning bearing base part are not included in the scope of delivery of the elastomer bearing.

¹⁾ 6 mm (0.24 inch) with a rated load of 10 t (9.84 tn. l.) or 13 t (12.80 tn. l.).

Selection and ordering data

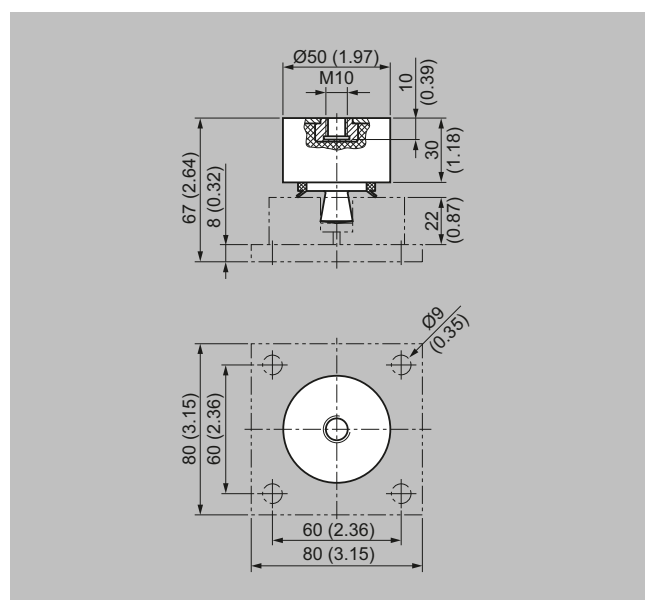
	Article No.
Elastomer bearings¹⁾	
For SIWAREX WL280 RN-S SA load cells	
Comprising: Elastomer package with fixing plate, force transfer, seal	
Material: Neoprene, stainless steel EN 1.4301	
For load cells with a rated load of	
• 60 ... 280 kg (132.28 ... 617.29 lb)	7MH4130-3EE11
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH4130-4AE11
• 2 ... 5 t (1.97 ... 4.92 tn. l.)	7MH4130-4KE11
• 10, 13 t (9.84, 12.80 tn. l.)	7MH4130-5CE11

¹⁾ The load cell and the self-aligning bearing base part are not included in the scope of delivery.

Technical specifications

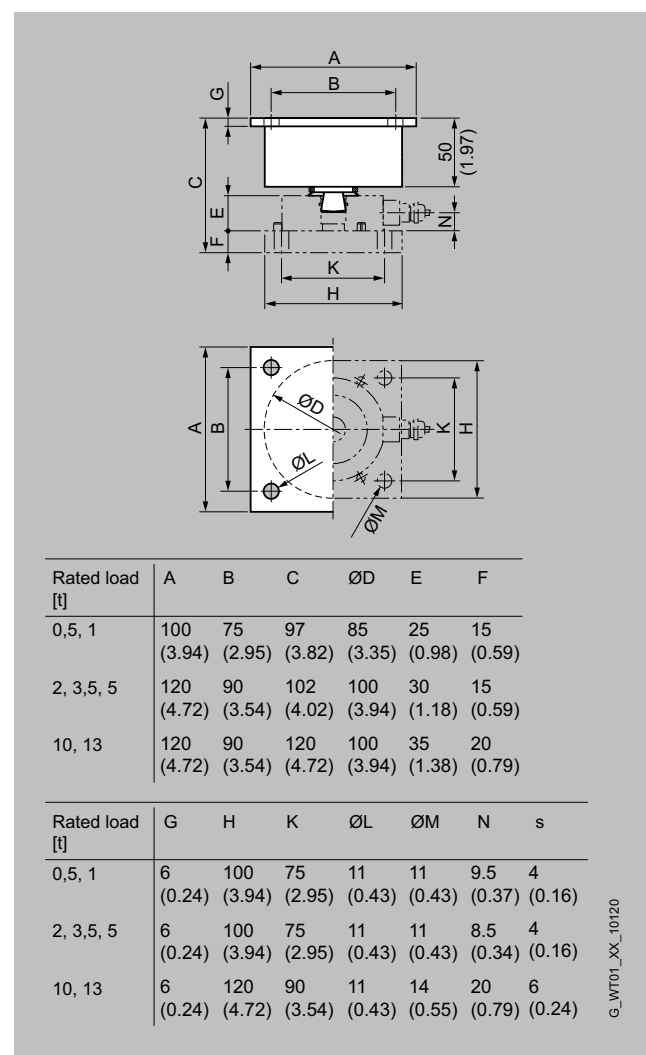
Elastomer bearings for load cells of the type SIWAREX WL280 RN-S SA										
Rated load	60 kg (132.28 lb)	130 kg (286.60 lb)	280 kg (617.29 lb)	500 kg (1 102.31 lb)	1 t (0.98 tn. l.)	2 t (1.97 tn. l.)	3.5 t (3.44 tn. l.)	5 t (4.92 tn. l.)	10 t (9.84 tn. l.)	13 t (12.79 tn. l.)
Max. permissible lateral deflection	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 4 (0.16)	± 6 (0.24)	± 6 (0.24)
Vertical rigidity	0.89 kN/mm	0.89 kN/mm	0.89 kN/mm	5.9 kN/mm	5.9 kN/mm	27.3 kN/mm	27.3 kN/mm	27.3 kN/mm	58.07 kN/mm	58.07 kN/mm
Horizontal rigidity	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.16 kN/mm	0.57 kN/mm	0.57 kN/mm	0.57 kN/mm	0.62 kN/mm	0.62 kN/mm
Spring compression at rated load	0.65 mm	1.40 mm	2.85 mm	0.68 mm	1.28 mm	0.62 mm	1.04 mm	1.46 mm	1.72 mm	2.24 mm

Dimensional drawings



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 60 ... 280 kg (132.28 ... 617.30 lb), dimensions in mm (inch)

Dimensional drawings (Continued)



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 0.5 ... 13 t (0.49 ... 12.80 tn. l.), dimensions in mm (inch)

Load Cells

Ring torsion load cells

SIWAREX WL280 RN-S SA Mounting unit with guide element

Overview



SIWAREX WL280 RN-S SA mounting unit with guide element, front



SIWAREX WL280 RN-S SA mounting unit with guide element, rear

The mounting unit, together with the load cells of the SIWAREX WL280 RN-S SA series, forms a self-centering unit. The guide elements prevent containers, for example, from moving sideways due to an external lateral force. The guide elements can be mounted on one or both sides of the mounting unit.

Design

The mounting unit comprises a base plate and a top plate, a pressure piece with a flat gasket and a pendulum support. A highly flexible grounding cable between the top and base plate conducts any fault currents past the load cell. The top plate is connected to the base plate by means of two countersunk head screws. On both sides of the base and top plate there are threaded holes for the later flange-fitting of guide elements.

The top plate is fixed above the base plate by means of two countersunk head screws. This results in a single unit that is easily handled. The top plate must be precisely aligned above the base plate. The height of the top plate is set so that it is 2 mm (for 60 ... 280 kg versions) or 3 mm (for 0.5 ... 13 t versions) above the installation height with load cell.

In this state, the mounting unit serves as an installation aid and can be used as a dummy for light installation jobs.

The load cell, together with the pendulum support and the pressure piece, can be inserted into the mounting unit. Load cell and pressure piece are secured with clamping washers.

The load cell can be inserted in the scale before mounting the mounting unit. It is also possible to insert the load cell in the mounting unit after mounting.

The fixing holes of the mounting unit are 6 mm wider in diameter than the necessary fixing screws. This means that a greater tolerance error is permissible in the connection measurements. The mounting unit is clamped tightly using the washers supplied.

Design (Continued)

After the mounting units have been installed in the scale, the load bearing implement is ideally aligned. The load cells are not yet loaded. Finally, the load bearing implement is lowered by loosening the hexagon nuts under the top plate. The weight now rests on the load cells.

In this state, the load cell and the mounting unit together form a self-centering bearing unit. The mounting unit allows the top plate (and thus the load bearing implement) to be displaced up to 2 mm (for the 60 ... 280 kg (132.28 ... 617.29 lb) versions) or 3 mm (for the 0.5 ... 13 t (1 102.31 lb, 0.98 tn. l.) versions) to the side in all directions. The countersunk head screws prevent the load bearing implement from being lifted off or tipping. The countersunk head screws secure the load bearing implement against sharp lateral movement on the occurrence of sporadic lateral forces.

Using the mounting unit as an installation aid results in optimum alignment of the load cells. This is essential to enable the load cells to perform at their best in terms of accuracy. For maintenance or troubleshooting purposes, the load cell can be relieved again by tightening the hexagon nuts. After loosening the clamping washers, it can then easily be replaced.

Guide elements are used if the lateral movement of a load bearing implement is to be prevented. Lateral movements can be initiated by agitator start-up in a container, by braking or accelerating forces in a roller conveyor, or through forces exerted by the wind on outdoor silos.

A guide element consists of two flanges and one clamping screw. The clamping screw is adjusted to the correct length. The guide element is attached to the operational mounting unit. A guide element can be mounted on the front or rear of the mounting unit. If necessary, two guide elements can be used in parallel in order to double the transferrable lateral force.

In the case of scales with four load cells, only three mounting units may be equipped with guide elements.

Shims are used to compensate for angular errors and delays in the lug plates. If more than three load cells are used, the shims are also used to adjust the height of the lugs.

Selection and ordering data

	Article No.
Mounting unit For SIWAREX WL280 RN-S SA load cells Material: Stainless steel EN 1.4301 and EN 1.4112 For load cells with a rated load of ^{f1})	
• 60 ... 280 kg (132.28 ... 617.29 lb)	7MH5713-3JA00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH5713-4AA00
• 2 ... 5 t (1.97 ... 4.92 tn. l.)	7MH5713-4PA00
• 10, 13 t (9.84, 12.80 tn. l.)	7MH5713-5DA00
Guide elements (optional) For mounting units of the SIWAREX WL280 RN-S SA series Material: Stainless steel EN 1.4301 For load cells with a rated load of ^{f1})	
• 60 ... 280 kg (132.28 ... 617.29 lb); Permissible lateral force: 1.5 kN	7MH5713-3JE00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.); Permissible lateral force: 2.5 kN	7MH5713-4AE00
• 2 ... 5 t (1.97 ... 4.92 tn. l.); Permissible lateral force: 5 kN	7MH5713-4PE00
• 10, 13 t (9.84, 12.80 tn. l.); Permissible lateral force: 10 kN	7MH5713-5DE00
Shims (accessories) For mounting units of the SIWAREX WL280 RN-S SA series Material: Stainless steel EN 1.4301	

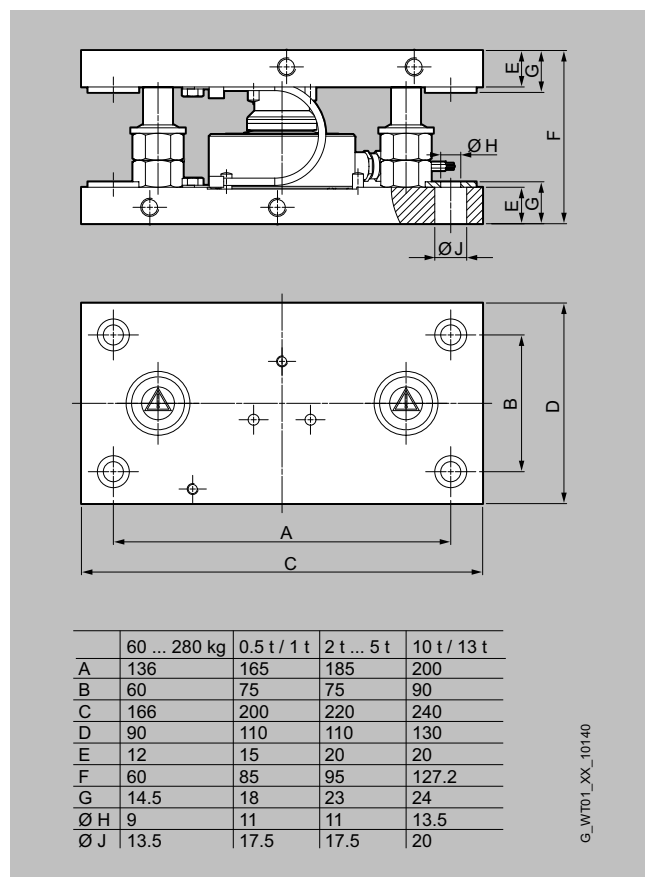
SIWAREX WL280 RN-S SA Mounting unit with guide element

Selection and ordering data (Continued)

	Article No.
For load cells with a rated load of ¹⁾	
• 60 ... 280 kg (132.28 ... 617.29 lb); Content: 16 units, each 0.5 mm thick	7MH5713-3JG00
• 500 kg ... 1 t (1 102.31 lb ... 0.98 tn.l.); Content: 24 units, each 0.5 mm thick	7MH5713-4AG00
• 2 ... 5 t (1.97 ... 4.92 tn.l.); Content: 4 units each 0.5 mm thick, 16 units each 1 mm thick	7MH5713-4PG00
• 10, 13 t (9.84, 12.80 tn.l.); Content: 4 units each 0.5 mm thick, 20 units each 1 mm thick	7MH5713-5DG00

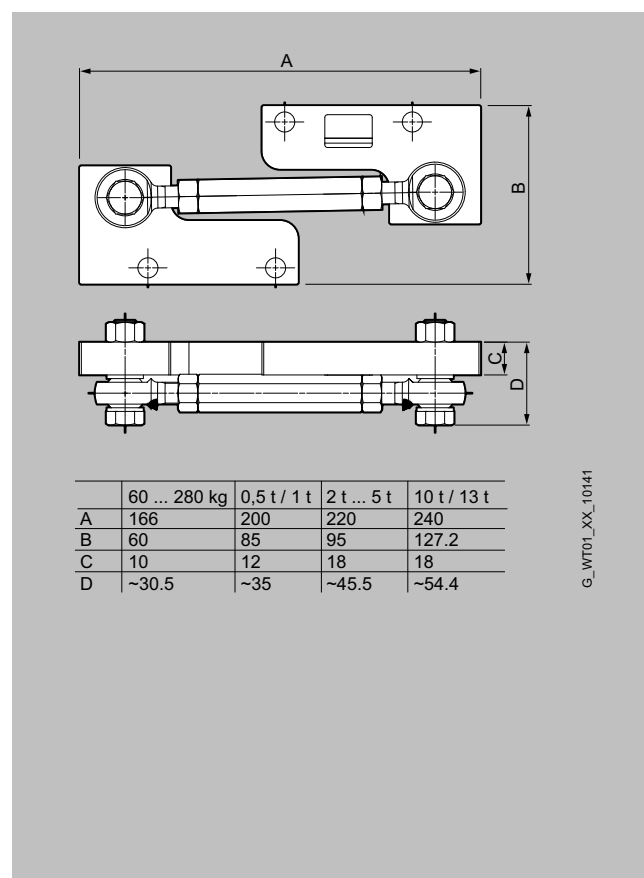
¹⁾ The load cell and guide elements are not included in the scope of delivery.

Dimensional drawings



SIWAREX WL280 RN-S SA mounting unit, dimensions in mm

Dimensional drawings (Continued)



SIWAREX WL280 RN-S SA guide element, dimensions in mm

G_WTD01_XX_10141

G_WTD01_XX_10140

Load Cells

Load cell accessories

SIWAREX DB digital junction box

Overview



SIWAREX DB digital junction box in stainless steel and aluminum

SIWAREX DB is a digital junction box for enhanced diagnostics and monitoring options in conjunction with SIWAREX WP weighing electronics.

Thanks to individual channel monitoring, error states such as wire break and overload can be identified in a targeted manner. Connecting SIWAREX DB to a SIWAREX WP electronic weighing system ensures seamless integration in the SIMATIC world.

Benefits

SIWAREX DB offers the following key advantages:

- Additional diagnostics options due to evaluation of individual load cells
 - Integration in SIMATIC by connection to SIWAREX WP electronic weighing system
 - Seamless communication between control and field levels supports retention of order number and location designation
 - Easy replacement of analog junction boxes:
 - Suitable for use in harsh environments thanks to IP66
 - Simplified service: multimeter no longer required
 - Rapid initial diagnostics with LEDs
- Advantages of single channel evaluation:
- Wire break signal: load cell no longer correctly connected
 - Impedance monitoring: change in load cell resistance
 - Monitoring of overload/underload
 - Current load factor of each load cell: determination of the center of gravity is possible

Application

SIWAREX DB is the optimum solution wherever strain-gauge sensors such as load cells, force sensors and torque measuring shafts are used for measuring in the SIMATIC environment and optimum diagnostics options are needed.

SIWAREX DB is suitable for all weighing applications, particularly level measurement, platform weighing and proportioning. SIWAREX DB can be connected to the following SIWAREX WP electronic weighing systems:

- SIWAREX WP231 (7MH4960-2AA01)
- SIWAREX WP321 (7MH4138-6AA00-0BA0)

Design



Internal view of SIWAREX DB

The SIWAREX DB digital junction box has a die-cast aluminum or stainless steel enclosure. The enclosure is dust-protected and splashproof according to the IP66 degree of protection. Cables are fed in through metric cable glands. Plug-in terminals reduce wiring effort during commissioning. Connection to SIWAREX WP electronic weighing systems is via the RS 485 interface.

Function

In order to avoid incorrect measurements, such as for filling levels, weighing modules must work precisely. A prerequisite is complete transparency about the device states. With SIWAREX DB it is possible to connect scales with up to four load cells, offering maximum versatility for system planning.

A special feature is the individual channel monitoring. Wire break, impedances as well as the current utilization of each and every load cell can be identified in a targeted manner and rectified if required. For direct connection to a SIMATIC S7 CPU, the SIWAREX WP231 is available for the SIMATIC S7-1200 system. SIWAREX WP321 should be selected for the SIMATIC ET 200SP distributed I/O system. Seamless communication between SIWAREX und SIMATIC ensure reduced overhead during commissioning.

The SIWAREX DB can also replace the structurally identical analog SIWAREX JB junction box in existing installations. This enables older systems to be retained and given a digital retrofit with a minimum of effort.

SIWAREX DB supplies diagnostic data which can be completely integrated in the SIMATIC world. Error messages are displayed centrally on the SIMATIC Controller and the HMI. The seamless connection between the control unit and the SIWAREX modules enables instant diagnostics, thereby simplifying and accelerating servicing and minimizing downtimes.

Selection and ordering data

	Article No.
SIWAREX DB digital junction box For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics. Enclosure made of: <ul style="list-style-type: none"> Aluminum Stainless steel incl. ATEX and IECEx approval II 3 G Ex ec IIC T4 Gc and II 3 D Ex tc IIIC T120 °C Dc 	7MH5001-0AD20 7MH5001-0AD01
Spare part	
SIWAREX DB printed-circuit board and plug SIWAREX DB printed-circuit board incl. plug for connecting load cells to SIWAREX WP electronic weighing systems as a spare part.	A5E50551831
Accessories	
EMC gland For SIWAREX aluminum junction boxes. Content: <ul style="list-style-type: none"> 4 × EMC cable glands M16 2 × blanking plugs M16 	7MH5002-0AA30
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. Suitable for both aluminum and stainless steel variants. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature: -40 ... +80 °C (-40 ... +176 °F). Sold by the meter.	7MH4702-8AG

Technical specifications

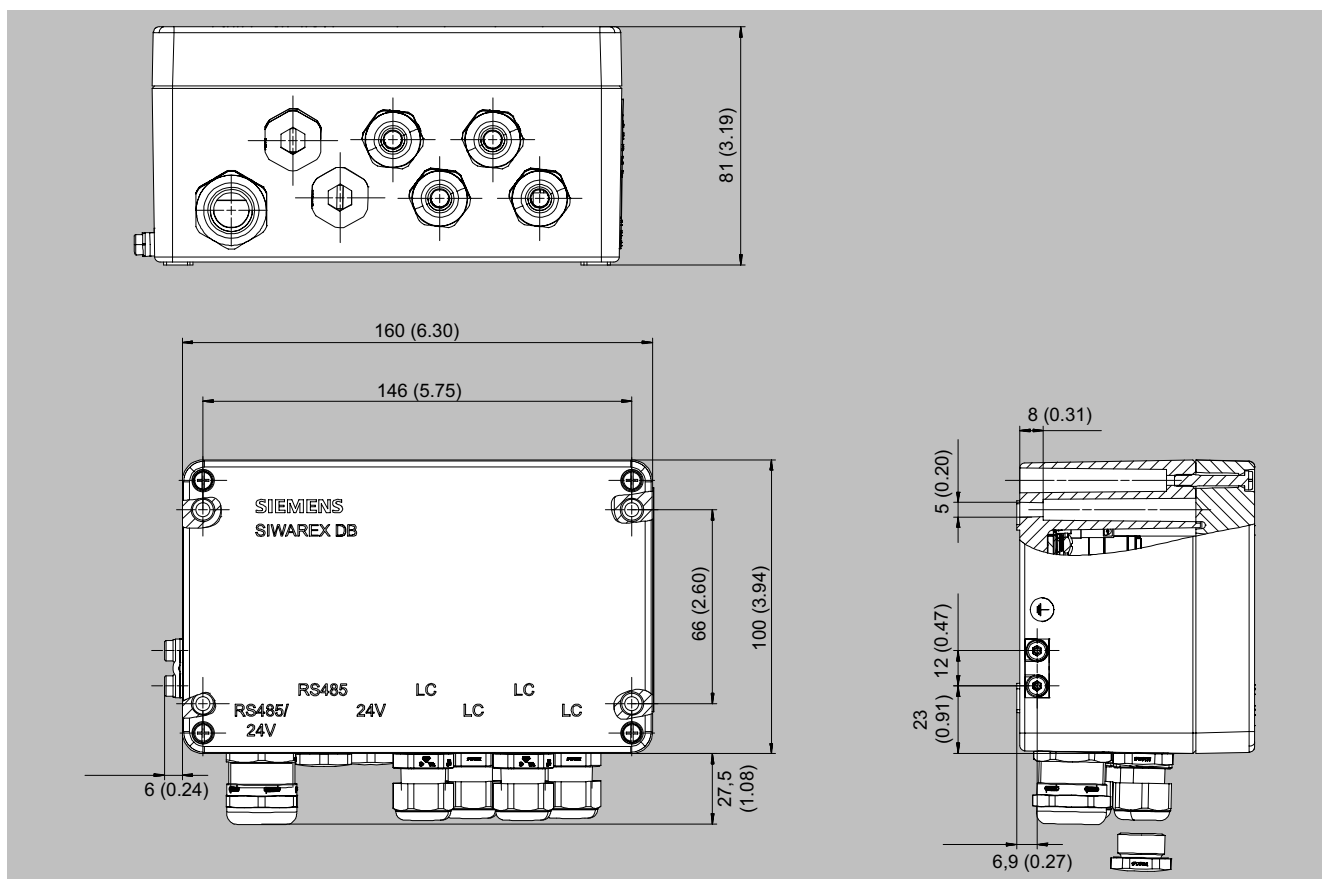
SIWAREX DB digital junction box	
Integration in SIMATIC S7-1200 and S7-1500 automation systems	SIWAREX WP electronic weighing system <ul style="list-style-type: none"> SIWAREX WP231 (7MH4960-2AA01) SIWAREX WP321 (7MH4138-6AA00-0BA0)
Communication interfaces	RS 485 (connection to SIWAREX WP electronic weighing system)
Measuring accuracy	See SIWAREX WP electronic weighing system
Measuring frequency	100 / 120 Hz
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
Load cell powering	
Supply voltage	4.85 V DC
Permissible load resistance	<ul style="list-style-type: none"> R_{Lmin} > 330 Ω R_{Lmax} < 4 100 Ω
Load cell characteristic	1 ... 4 mV/V
IP degree of protection to EN 60529	IP66
Permissible ambient temperature	-20 ... 80 °C
Cable glands	
<ul style="list-style-type: none"> For load cells For signal cables / power supplies 	4 × M16 1 × M20
Auxiliary power supply	
Nominal voltage	24 V DC
Max. power consumption	100 mA at 24 V DC

Load Cells

Load cell accessories

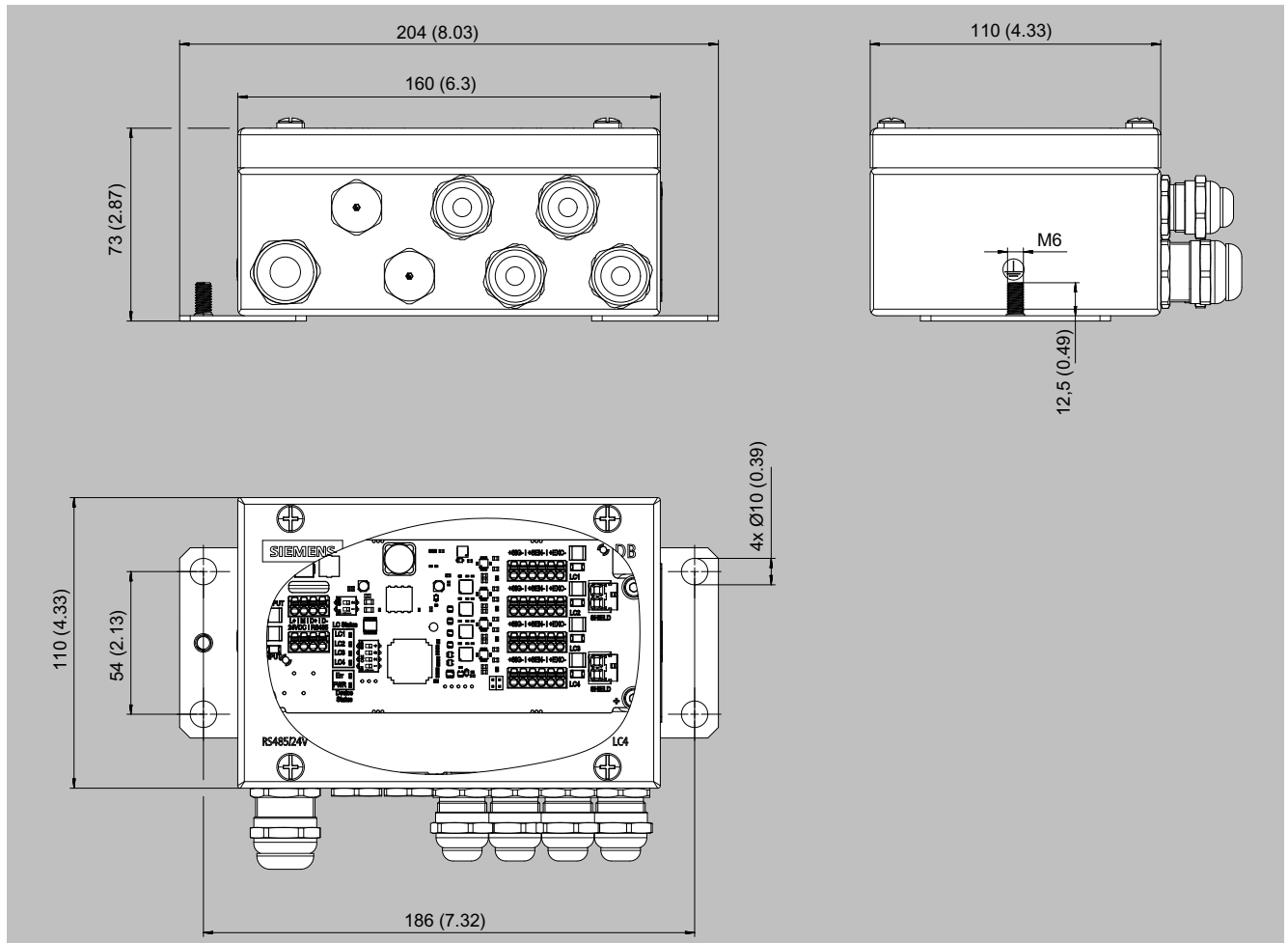
SIWAREX DB digital junction box

Dimensional drawings



SIWAREX DB digital junction box (7MH5001-0AD20), aluminum, dimensions in mm (in)

Dimensional drawings (Continued)



SIWAREX DB digital junction box (7MH5001-0AD01), stainless steel, dimensions in mm (in)

Load Cells

Load cell accessories

SIWAREX JB analog junction box

Overview



SIWAREX JB junction box, in aluminum



SIWAREX JB junction box, in stainless steel

The JB junction box in aluminum or in stainless steel is required for parallel connection of load cells. A maximum of 4 load cells can be connected in parallel in one junction box.

Only for junction boxes in aluminum:

If more than 4 load cells are to be connected, a second junction box must be connected in parallel via a cross connection. An expansion set is required for this purpose. The cross-connection can be used to connect up to three load cells in the first junction box. Up to four load cells can be connected in the second junction box.

Design

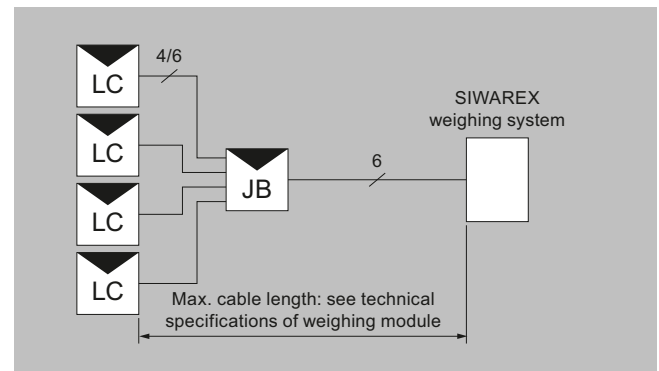
The junction box of die-cast aluminum consists of a lower section and cover. The enclosure is dust-protected and splashproof according to IP66 degree of protection. The cables are fed in through metric cable glands. In the enclosure, screw terminals are fixed onto a connection board.

The internal resistance, characteristic value and rated load of all parallel-switched load cells must be identical. The value of these variables is not limited by the junction box. Load cells can be connected in 4-wire or 6-wire systems.

For 6-wire systems, 2 jumpers must also be separated.

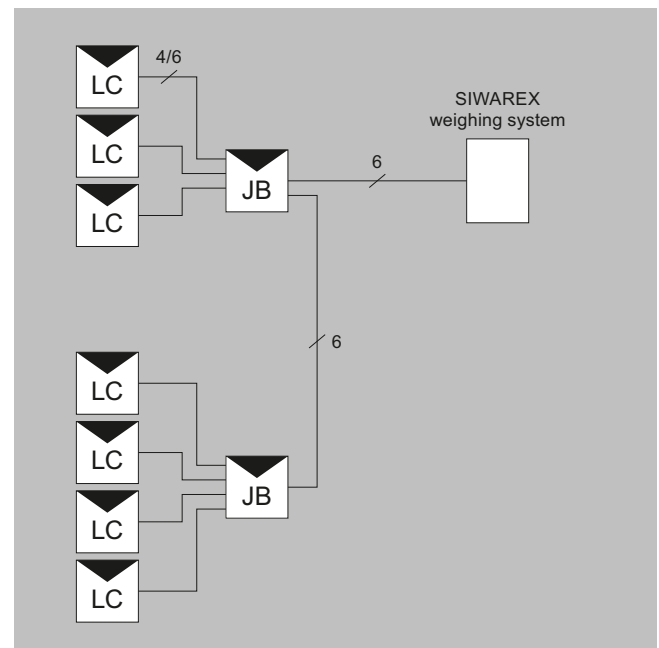
Connection examples

4 load cells



LC: Load cell

7 load cells



LC: Load cell

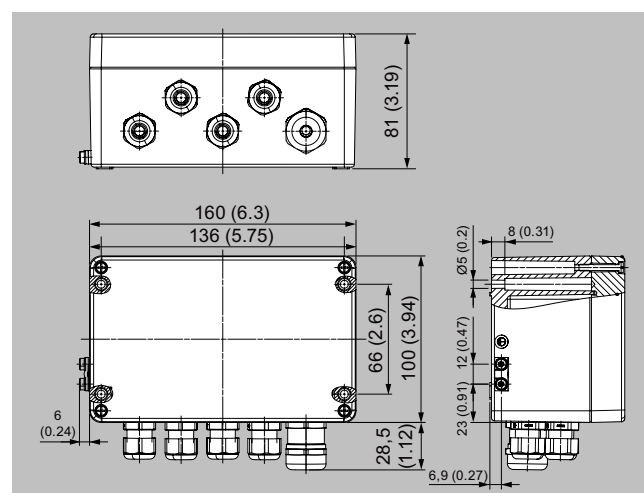
Selection and ordering data

	Article No.
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting several junction boxes	7MH5001-0AA20
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel Material: Stainless steel EN 1.4301	7MH5001-0AA00
SIWAREX JB junction box, stainless steel housing (ATEX) For connecting up to 4 load cells in parallel Material: Stainless steel EN 1.4301 (For zone allocation, see manual or type examination certificate)	7MH5001-0AA01
Accessories (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
EMC cable glands for SIWAREX JB, aluminum Content: 4 x EMC cable glands M16 2 x blanking plugs M16	7MH5002-0AA30
Extension set for SIWAREX JB, aluminum Content: 1 x EMC cable gland M20 1 x adapter, M16 to M20	7MH5002-0AB30

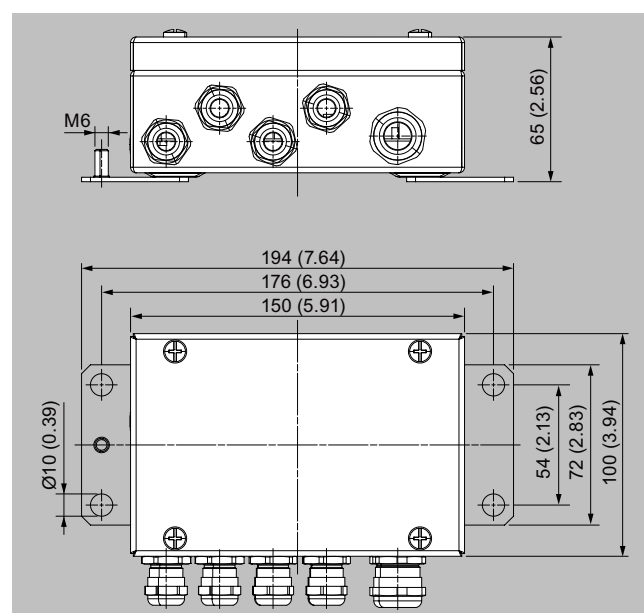
Technical specifications

SIWAREX JB junction box, aluminum and stainless steel enclosure	
Cable glands	
• Of load cells	4 x M16
• Of signal cable	1 x M20
Permissible ambient temperature	
• During operation	-40 ... +80 °C (-58 ... +176 °F)
• During operation for legal-for-trade weighing machines	-10 ... +40 °C (+14 ... +104 °F)
• During transportation and storage	-40 ... +100 °C (-58 ... +212 °F)
Degree of protection	IP66 to EN 60529
Vibration resistance of terminals according to DIN VDE 0611 11/77	10 Hz and 150 Hz, amplitude 0.35 mm

Dimensional drawings



SIWAREX JB junction box in aluminum (7MH5001-0AA20), dimensions in mm (inches)



SIWAREX JB junction box in stainless steel (7MH5001-0AA00), dimensions in mm (inches)

Load Cells

Load cell accessories

SIWAREX EB extension box

Overview



The EB extension box is used to lengthen load cell connecting cables.

Load cells can be connected in 4-wire or 6-wire systems. The cable connection to the weighing module or to the JB junction box must always be implemented in 6-wire systems. The 7MH4 702-8AG or ...-8AF SIWAREX connection cable is recommended for this purpose. If load cell cables are extended to a JB junction box, the M16 x 1.5 cable glands on the box must be replaced. The following is required for each load cell:

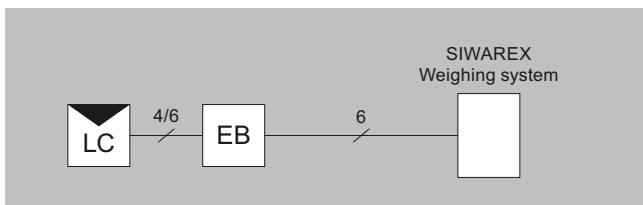
- 1 EMC cable gland M20 x 1.5
- 1 extension M16 x 1.5 male thread to M20 x 1.5 female thread.

Design

The EB extension box consists of a housing made of die-cast aluminum. It is protected against dust and spray water according to IP66. The cables are fed in through metric EMC cable glands and laid in spring-loaded terminals. A vibration-resistant and maintenance-free connection is achieved through the use of spring-loaded terminals. For connecting load cells in a 4-wire system, two bridge elements are inserted for feedback of the sense signal.

Connection examples

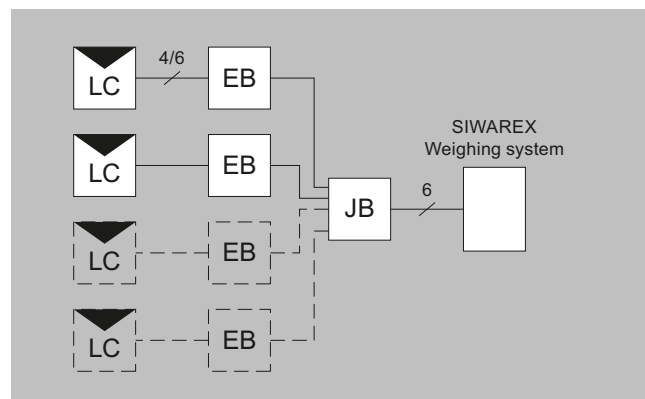
Connecting one load cell



LC: Load cell

Design (Continued)

Connecting multiple load cells



LC: Load cell

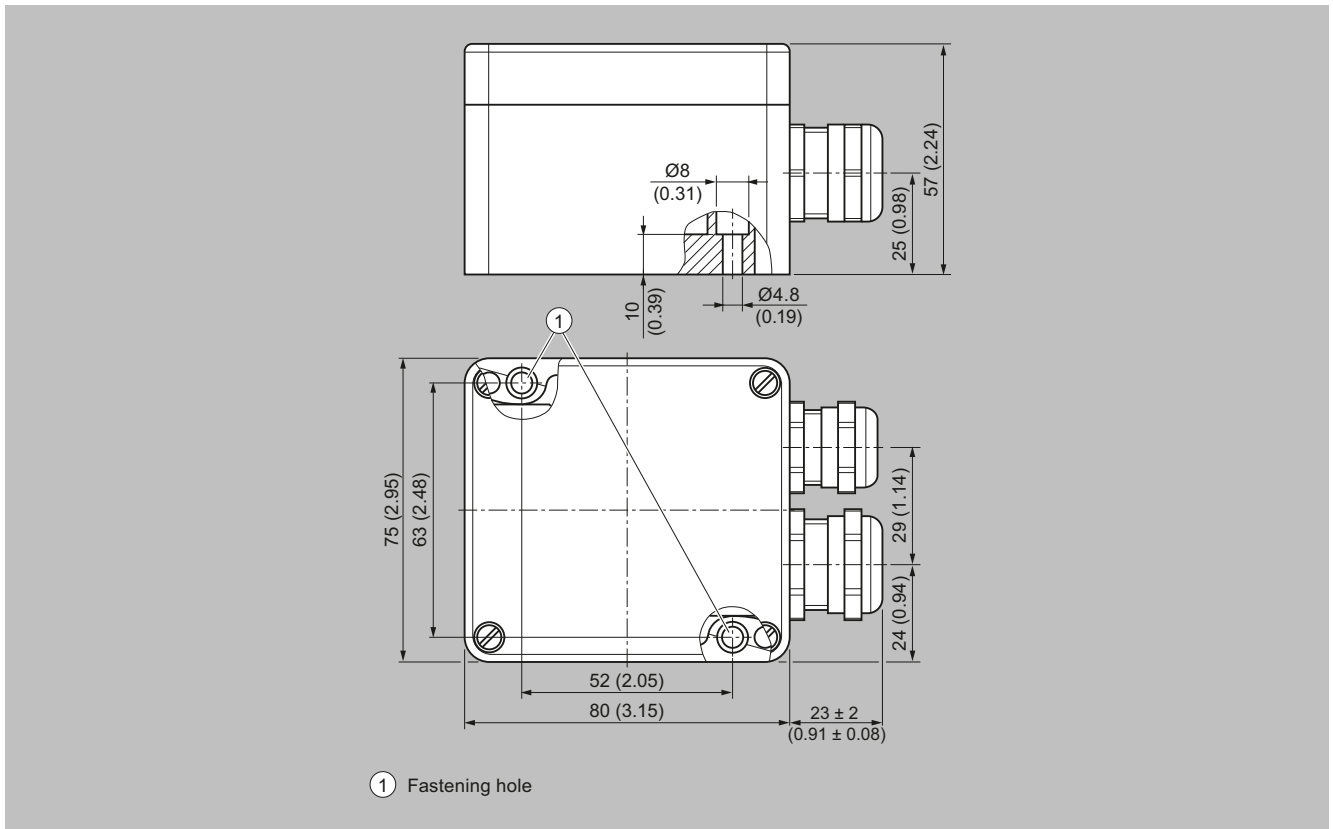
Selection and ordering data

	Article No.
Accessories	
SIWAREX EB extension box, aluminum enclosure For extending the connecting cable of load cells	7MH4710-2AA
Cable (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two extension boxes. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	7MH4702-8AG
• For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF

Technical specifications

Cable glands	
• Of load cell cable	M16 x 1.5
• Of signal cable	M20 x 1.5
Permissible ambient temperature	
• During operation	-30 ... +85 °C (-22 ... 185 °F)
• During operation for legal-for-trade weighing machines	-10 ... +40 °C (14 ... 104 °F)
• During transportation and storage	-40 ... +90 °C (-40 ... 194 °F)
Degree of protection acc. to EN 60529	IP66
Vibration resistance of terminals to DIN VDE 0611 11/77	12 Hz and 50 Hz, amplitude 1 mm
Insulation resistance of the terminals	≥ 10 ¹² Ω
Dimensions (W x H x D) in mm	80 x 75 x 57

Dimensional drawings



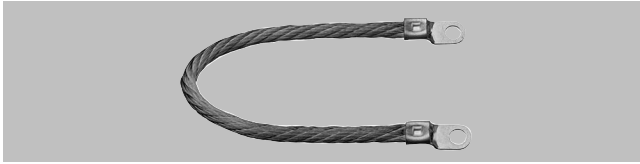
SIWAREX EB extension box (7MH4 710-2AA), dimensions in mm (inch)

Load Cells

Load cell accessories

Cable

Overview



The ultra-flexible grounding cable is for discharging parasitic currents.

Design

The grounding cable is 400 mm long and is an electrical shunt. It protects the load cell from undesired voltages such as those that occur during welding or lightning strikes.

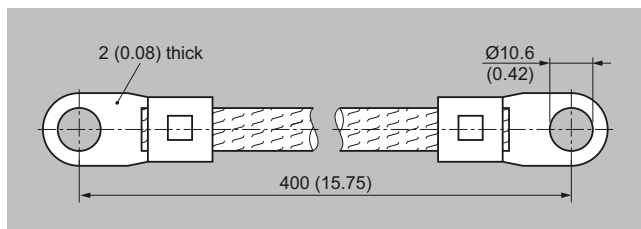
We recommend using one grounding cable per load cell.

The load cell and/or other mounting components are not included in the scope of delivery of the grounding cable.

Selection and ordering data

	Article No.
Grounding cable made of copper For discharging parasitic currents 400 mm long	7MH3701-1AA1

Dimensional drawings



Grounding cable , dimensions in mm (inch)

Overview**Number of load cells**

The three-point bearing is statically determined and offers a stable setup for any application.

If there are more than three bearing points, the load is likely to be unevenly positioned and, in extreme cases, that two diagonally positioned load cells would have to accommodate the entire load. Three-point bearing should therefore be used wherever possible. To exclude the possibility of an uneven base, in the case of a bearing with more than three load cells, the prevailing weight distribution on the relevant load cells should be checked and a height adjustment performed if necessary. This can be achieved by using a suitable support to raise the load cells which are carrying less weight.

Force bypass

Force bypasses are produced if a partial load is transferred past the load cells into the base.

There are various reasons for a force bypass (e.g. third-party supports, frictional forces, stresses, etc.).

Force bypasses must be avoided at all costs as they lead to measuring errors.

Rated load of load cells

The rated load is selected under maximum load, taking into account centers of gravity and load distribution on the individual load cells. The rated load is generally selected according to the most heavily loaded load cell. A check also needs to be performed to see if any dynamic forces are superimposed on the static load of the load cell. In this case, the rated load of the load cell must be calculated from the sum of the static load and the peak dynamic force.

Example (please also refer to configuration example 1)

Even load distribution, without dynamic influences	
Number of load cells	4
Container empty weight	1.2 t (1.18 tn. l.)
Maximum capacity	1.8 t (1.77 tn. l.)
Total load	3 t (2.95 tn. l.)

The 4 load cells are each loaded with 0.75 t (0.74 tn. l.) in order to ensure even load distribution. During configuration and selection of load cells, approx. 20% should be added to the calculated rated load for safety reasons. This produces a required load cell rated load of $0.75 \text{ t} \times 1.2 = 0.9 \text{ t}$ ($0.74 \text{ tn. l.} \times 1.2 = 0.89 \text{ tn. l.}$).

It therefore follows that it is necessary to select the next highest rated load level, with 1 t (0.98 tn. l.).

Load Cells

Configuration examples

Configuration example 1

More information

Example 1: Container weighing

The total center of gravity **S** of the suspended container lies above the level of the load cells.

It is supported on 4 lugs (container manufacturer specification), has an empty weight (dead load) of 1.2 t (1.18 tn. l.), and a maximum capacity of 1.8 t (1.77 tn. l.). The load is evenly distributed across all 4 load cells.

Note

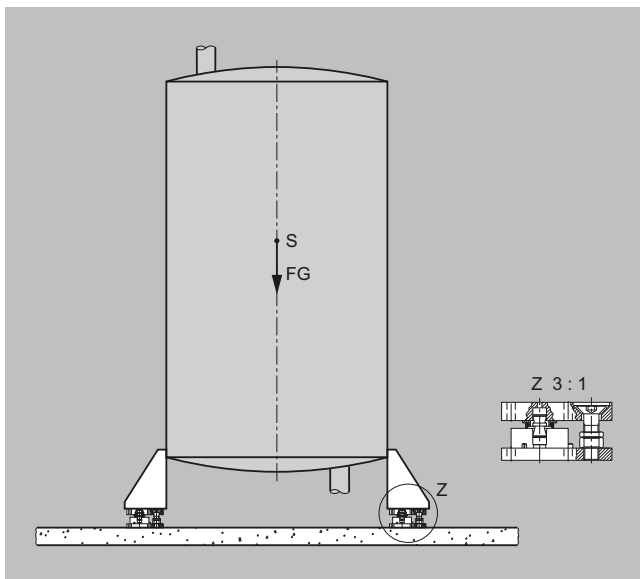
The three-point bearing of the container is statically determined and represents a stable state (see comment in the introduction).

Selection of load cells and mounting components

The determination of the rated load, as described in the introduction, results in a rated load of 1 t (0.98 tn. l.).

For the example above, 4 SIWAREX WL280 RN-S SA load cells were used with a rated load of 1 t (0.98 tn. l.) since the construction height of the high-quality WL280 RN-S SA precision load cells is extremely low.

Self-centering compact mounting units are used as mounting components because, in addition to their oscillation function and oscillation limitation, they are also fitted with anti-lift protection. The anti-lift protection can absorb a maximum vertical force of 4.2 kN. In the event of greater lifting forces (e.g. due to wind load), the container must be safeguarded with additional catastrophe protection.



Container on SIWAREX WL280 RN-S SA load cells and compact mounting units

Configurator for container weighing (basic configuration)

Item	Description	Article No.	Selection criterion	Number in example
1	SIWAREX WL280 RN-S SA, rated load 1 t (0.98 tn. l.), C3	7MH5113-4AD00	High-quality ring-torsion load cells with low structure height, ideal for container weighing.	4
2	Compact mounting unit for SIWAREX WL280 RN-S SA load cell, rated load 0.5 / 1 t (0.49 / 0.98 tn. l.) Material: Stainless steel	7MH5713-4AA00	Ensures anti-lift functionality in addition to the oscillation function with oscillation limitation. Incl. grounding cable for dissipation of unwanted electrical current.	4

More information

Example 2: Container weighing

The combined center of gravity S of the suspended container lies below the level of the load cells. It is mounted on 3 lugs, has an empty weight (dead load) of 1.2 t and a maximum capacity of 1.8 t. The container has a diameter of 1 m (3.3 ft). Weighing of the individual components produces a chemical reaction that raises the temperature of the container with contents from approx. 18 °C (64.4 °F) to approx. 55 °C (131 °F).

Selection of load cells and mounting components

We recommend using 3 SIWAREX WL280 RN-S SA load cells with a rated load of 2 t (1.97 tn. l.) (for determination of the rated load: please refer to introduction). Due to its low constructional height, the WL280 RN-S SA load cell was selected.

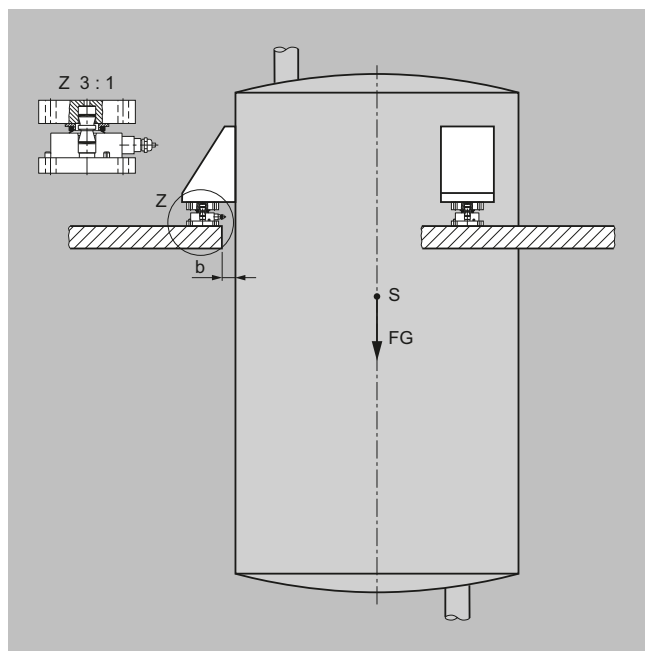
Self-centering self-aligning bearings are used as mounting components as the container is suspended and cannot lift up from the self-aligning bearing.

The 37 K temperature rise will cause the diameter of the container to increase by 0.4 mm (0.02 inch).

The self-aligning bearing permits a maximum oscillation path of ± 4 mm (0.16 inch) and is therefore able to accommodate the temperature expansion of the container.

An oscillation limitation is not necessary because there is a small gap of $b = 3$ mm (0.12 inch) between the container and the platform. In this case, the platform acts as an oscillation limitation.

For wider gaps in other applications, either compact mounting units have to be used (instead of the self-aligning bearings) or external pendulum limiters must be provided as an alternative.



Container weighing with SIWAREX WL280 RN-S SA load cells and self-aligning bearing

Configurator for container weighing (basic configuration)

Item	Description	Article No.	Selection criterion	Number in example
1	SIWAREX WL280 RN-S SA, rated load 2 t (1.97 tn. l.), C3	7MH5113-4GD00	High-quality ring-torsion load cells with low structure height, ideal for container weighing.	3
2	Self-aligning bearing base part for SIWAREX WL280 RN-S SA load cell, rated load 2 t (1.97 tn. l.) Material: Stainless steel	7MH4132-4AG11	Allows the load cells to follow temperature expansions without conducting disruptive reaction forces into the load cells.	3
3	Self-aligning bearing top part for SIWAREX WL280 RN-S SA load cell, rated load 2 t (1.97 tn. l.) Material: Stainless steel	7MH4132-4KK11		3
4	Grounding cable	7MH3701-1AA1	For diverting unwanted currents.	3

Load Cells

Configuration examples

Configuration example 3

More information

Example 3: Mixer weighing

The combined center of gravity S of the suspended container lies below the level of the load cells.

It is supported on 3 lugs, has an empty weight (dead load) of 2.8 t (2.76 tn. l.) and a maximum capacity of 4.5 t (4.43 tn. l.). To improve mixing of the individual components, an agitator is mounted on the container, which also operates during the weighing process.

To improve mixing of the individual components, an agitator is mounted on the container which also operates during the weighing process.

Selection of load cells and mounting components

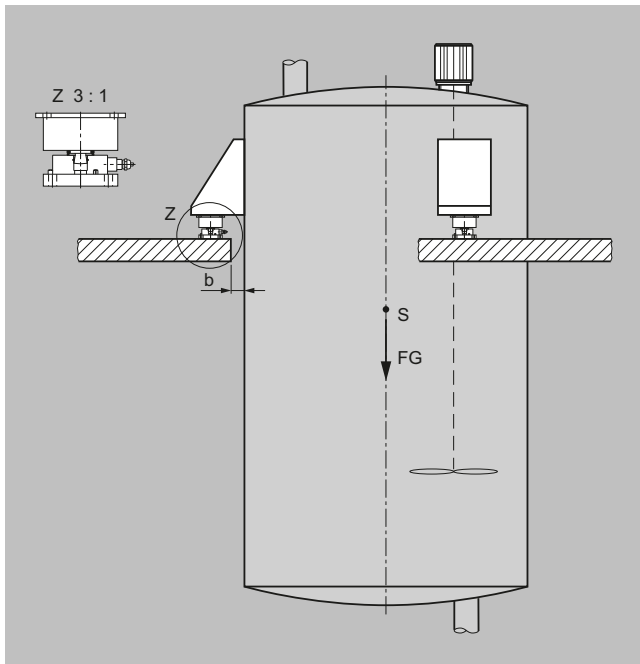
We recommend using 3 SIWAREX WL280 RN-S SA load cells with a rated load of 3.5 t (3.45 tn. l.) because the high-quality WL280 RN-S SA precision load cell has an extremely low constructional height (for determination of rated load, please refer to introduction).

Self-centering elastomer bearings are used as the mounting components to minimize the vibrations caused by the mixer.

The elastomer bearing permits a maximum oscillation path of ± 4 mm (0.16 inch).

An oscillation limitation is not necessary because there is a small gap of $b = 3$ mm (0.12 inch) between the container and the platform.

For wider gaps in other applications, endstops or external pendulum limiters must be provided.



Container with agitator on SIWAREX WL280 RN-S SA load cell and elastomer bearing

Mixed weighing processes configurator (basic configuration)

Item	Description	Article No.	Selection criterion	Number in example
1	SIWAREX WL280 RN-S SA, rated load 3.5 t, C3, without EEx	7MH5113-4LD00	High-quality ring-torsion load cells with low structure height, ideal for container weighing.	3
2	Self-aligning bearing base part for SIWAREX WL280 RN-S SA load cell, rated load 2 t (1.97 tn. l.) Material: Stainless steel	7MH4132-4AG11		3
3	Elastomer bearing for SIWAREX WL280 RN-S SA load cell, rated load 2 t (1.97 tn. l.) Material: neoprene and stainless steel	7MH4130-4KE11	Enables the damping of vibrations, thereby minimizing the influences on the load cells.	3
4	Grounding cable	7MH3701-1AA1	For diverting unwanted currents.	3

Belt Weighing



5/2	Introduction
5/4	Belt scales
5/4	Milltronics MLC
5/10	Milltronics MUS
5/15	Milltronics MCS
5/20	Milltronics MSI and MMI
5/33	Milltronics WD600
5/38	Speed sensors
5/38	Milltronics TASS
5/41	Milltronics RBSS
5/44	SITRANS WS300
5/50	Accessories
5/50	Calibration weight lifter Milltronics MWL
5/57	Milltronics flat bar calibration weights
5/58	Test chain
5/63	Test chain storage reel
5/67	Bend pulleys
5/72	Belt scale peripherals

Belt Weighing

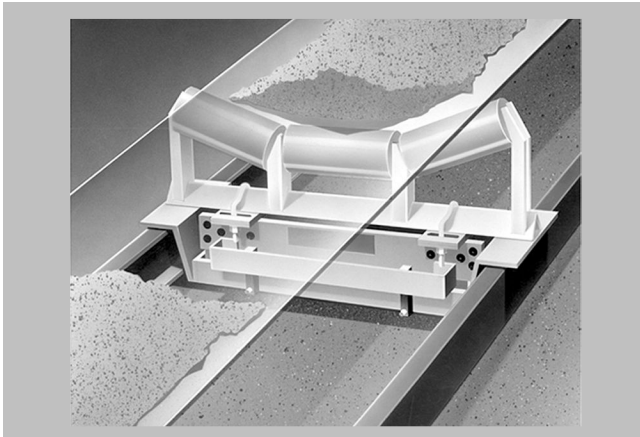
Introduction

Overview

Belt scales help maximize the use of raw materials, control inventories, and aid in the manufacturing of a consistent product. Belt scales from Siemens are easy to install and require little maintenance. They produce repeatable, accurate results. These belt scales show minimal hysteresis and superior linearity, and ignore side loading. Load cell overload protection is a feature of the belt scale design.

Typical system

A typical belt scale system has a weigh bridge structure supported on load cells, an electronic integrator, and a belt speed sensor. The load cells measure the material weight on the belt, and send a signal to the integrator. The integrator also receives input in the form of electrical pulses from a belt speed sensor connected to a tail or bend pulley. Using these two sources of data, the integrator calculates the rate of material transferred along the belt using the equation $\text{weight} \times \text{speed} = \text{rate}$.



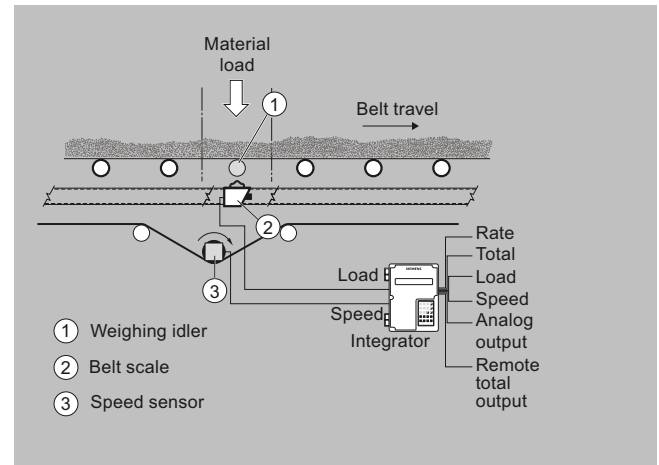
Belt scale operation

Mode of operation

Siemens belt scales only measure the vertical component of the applied force. As material moves down the conveyor belt and travels over the belt scale, it exerts a force proportional to the material load through the suspended idler directly to the load cells. The resulting force applied in each load cell is sensed by its strain gauges. When the strain gauges are excited by voltage from the electronic integrator, they produce an electrical signal proportional to belt loading, which is then applied to the integrator.

The vertical movement of the load cells is limited by the positive overload stop incorporated into the design of the belt scale or load cells. The stops protect the load cells from failure in the event of extreme overload forces.

Mode of operation (Continued)



Installation tips

Position the scale

Locate the scale close to the tail section of the conveyor belt where tension is minimal and more consistent. Mount the scale on rigid mountings, away from equipment that may produce measurement disturbing vibrations. Avoid variable tension points, transition points, or slope change. The ideal location is a horizontal, even belt section, but you can achieve good results on slopes if the idlers are properly aligned. If the conveyor curves, locate the scale a proper distance from the tangent points of the curve. For concave curved conveyors, the recommended minimum distance is 12 m (40 ft) from the tangent points of the curve. With convex conveyors, the minimum distance is 6 m (20 ft) on the approach side, and 12 m (40 ft) on the retreat side. Be sure to install the scale a sufficient distance from the infeed section (at least one idler space) so the material has time to settle properly on the belt.

Reduce variable belt tension

With temperature variations, load, and other circumstances, the belt tension will change. To maintain proper tension, a gravity take-up is recommended. This is a weight designed to take up slack on the belt. A gravity take-up should move freely and place consistent tension on the belt. The use of screw take-ups should be limited to conveyors with pulley centers to 18.3 m (60 ft) or less. The amount of weight should conform to the conveyor design specifications.

Align the idlers

Precise idler alignment is essential. At least two idlers on each side of the scale should be aligned with the belt scale; use three or more for high accuracy applications. To check alignment, use wire, string, or fishing line across the top outer edges of the rollers and tighten enough to eliminate sag. Adjust the height of the rollers with shims until they are all even, or at least within ± 0.8 mm (1/32 inch). All of the scale-area idlers should be the same type (size, diameter, style, trough angle, and manufacture) and should be spaced at equal distances. Locate training idlers a minimum of 9 m (30 ft) from the belt scale idler.

Install speed sensors

The speed sensor should be attached to the tail pulley or bend pulley shaft so the connection does not slip. It is important that the speed sensor be properly mounted as described in the Operating Instructions and free of excessive vibration. Whenever possible, mount the speed sensor on a solid face pulley. The use of wing- or beater-type pulleys is not recommended.

Wheel driven speed sensors, that are applied to the return strand of the belt, should be located close to a return idler to ensure a stable drive surface.

Wire the scale

Follow good instrumentation wiring practices to protect the load cell and speed sensor signals from radio frequency interference and

Mode of operation (Continued)

induction. Use terminal blocks, shielded cable, and grounded metal conduit for all wiring.

Technical specifications

Criteria	Typical industries	Typical applications	Maximum capacity	Maximum belt speed	Loading range	Accuracy ¹⁾		Approvals
						Value	Specified range	
Milltronics MLC	<ul style="list-style-type: none"> Animal feed Fertilizers Food processing Tobacco 	Secondary industries	50 t/h (55 STPH) at max. belt speed	2.0 m/s (400 fpm)	Light	± 0.5 ... 1 %	25 ... 100 %	CE, RCM, EAC
Milltronics MUS	<ul style="list-style-type: none"> Aggregates Agricultural Mining Cement 	<ul style="list-style-type: none"> Aggregates Medium- to heavy-duty 	5 000 t/h (5 500 STPH) at max. belt speed	3.0 m/s (600 fpm)	Light to heavy	± 0.5 ... 1 %	25 ... 100 %	CE, RCM, EAC
Milltronics MCS	Aggregates	<ul style="list-style-type: none"> Mobile crushers Aggregates Screening plants Heavy-duty 	2 400 t/h (2 640 STPH) at max. belt speed	3.0 m/s (600 fpm)	Light to heavy	± 0.5 ... 1 %	25 ... 100 %	CE, CSA/FM, ATEX, IECEx, RCM, EAC
Milltronics MSI	<ul style="list-style-type: none"> Cement Chemicals Coal Food processing Mineral processing Mining 	<ul style="list-style-type: none"> Industrial heavy-duty Custody transfer 	12 000 t/h (13 200 STPH) at max. belt speed	5.0 m/s (984 fpm)	Moderate to heavy	± 0.5 % or better	20 ... 100 %	SABS, MID, OIML, Measurement Canada, CE, CSA/FM, ATEX, IECEx, RCM, EAC
Milltronics MMI	<ul style="list-style-type: none"> Cement Chemicals Coal Food processing Mineral processing Mining 	<ul style="list-style-type: none"> Industrial heavy-duty Custody transfer 	12 000 t/h (13 200 STPH) at max. belt speed	5.0 m/s (984 fpm)	Moderate to heavy	MMI-2 (2 idler): ± 0.25 % or better MMI-3 (3 idler): ± 0.125 % or better	20 ... 100 % 25 ... 10 %	NTEP, MID, OIML, Measurement Canada, CE, CSA/FM, ATEX, IECEx, RCM, EAC
Milltronics WD600	<ul style="list-style-type: none"> Food Pharmaceutical and tobacco industries 	<ul style="list-style-type: none"> Process and load-out control Light- to medium-duty 	Up to 100 t/h	2.0 m/s (400 fpm) maximum	Light to moderate	± 0.5 ... 1 %	25 ... 100 %	CE, meets FDA/USDA requirements for food processors, RCM, EAC

¹⁾ Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Belt Weighing

Belt scales

Milltronics MLC

Overview



Milltronics MLC is a low-capacity scale for light belt loading.

Benefits

- Unique parallelogram style load cell design
- Designed for light product loading
- Compact and easy to install
- System includes weighing idler
- Stainless steel option
- Low cost of ownership

Application

The MLC is suitable for monitoring such products as fertilizer, tobacco, animal feed pellets, or sugar.

The MLC's proven use of parallelogram style load cells results in fast reaction to vertical forces, ensuring instant response to product loading. This enables it to provide outstanding accuracy and repeatability even with very light loading. The MLC may be easily installed in existing flat belt conveyors or belt feeders.

Operating with Milltronics BW500, SIWAREX WT241, WP241, or FTC microprocessor-based integrators, the MLC provides indication of flow rate, total weight, belt load and belt speed of bulk solids materials on a belt conveyor. A speed sensor monitors conveyor belt speed for input to the integrator. When used in conjunction with Milltronics BW500 integrator with PID controller, the MLC may also be used in the food industry as part of a pre-feed control system for extruders, cookers and de-hydrators.

Selection and ordering data

	Article No.		
Milltronics MLC Belt scale	7MH7126-	●	● ●
Accuracy is $\pm 0.5 \dots 1.0$ % of totalization over 25 ... 100 % operating range with capacity up to 50 t/h (55 STPH).			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Belt width/Scale construction			
<u>C5-M rated polyester painted mild steel</u>			
18 inch (457 mm)	1	A	
24 inch (610 mm)	1	B	
30 inch (762 mm)	1	C	
36 inch (914 mm)	1	D	
42 inch (1 067 mm)	1	E	
48 inch (1 219 mm)	1	F	
500 mm (20 inch)	1	G	
650 mm (26 inch)	1	H	
800 mm (32 inch)	1	J	
1 000 mm (39 inch)	1	K	
1 200 mm (47 inch)	1	L	
450 mm (18 inch)	1	M	
<u>Stainless steel 304 (1.4301), bead blast finish (1 ... 6 μm, 40 ... 240 μm)</u>			
18 inch (457 mm)	2	A	

Selection and ordering data (Continued)

Milltronics MLC Belt scale Accuracy is $\pm 0.5 \dots 1.0$ % of totalization over 25 ... 100 % operating range with capacity up to 50 t/h (55 STPH).	Article No. 7MH712- 6-			
24 inch (610 mm)	2	B		
30 inch (762 mm)	2	C		
36 inch (914 mm)	2	D		
42 inch (1 067 mm)	2	E		
48 inch (1 219 mm)	2	F		
500 mm (20 inch)	2	G		
650 mm (26 inch)	2	H		
800 mm (32 inch)	2	J		
1 000 mm (39 inch)	2	K		
1 200 mm (47 inch)	2	L		
450 mm (18 inch)	2	M		
Load cell capacity				
10 lb (4.55 kg)			A	
20 lb (9.09 kg)			B	
Not specified ¹⁾			X	
Weighing idler dimensions				
50 mm (1.96 inch) ²⁾				1
60 mm (2.40 inch) ³⁾				2
1.90 inch (48.2 mm) ⁴⁾				5

Selection and ordering data	Order code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/ identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: according to EN 10204-2.2	C11
FDA compliant version. Conduit and fittings designed for food applications conforming to FDA/USDA standards	K01
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	Article No.
Load cell, 10 lb (4.55 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover	PBD-23900244
Load cell, 20 lb (9.09 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover	PBD-23900245
Load cell, 10 lb (4.55 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover, includes hardware	7MH7725-1AA

Belt Weighing

Belt scales

Milltronics MLC

Selection and ordering data (Continued)

Selection and ordering data	Order code
Load cell, 20 lb (9.09 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover, includes hardware	7MH7725-1AB
Conduit replacement kit	7MH7723-1NA
FDA conduit replacement kit	7MH7723-1QL
Milltronics MLC calibration weight [Stainless Steel 304 (1.4301)]	
<u>For scales with belt width of 18 inch or 500 mm or 450 mm</u>	
1.05 lb (0.47 kg)	7MH7724-1AL
1.63 lb (0.73 kg)	7MH7724-1AM
2.35 lb (1.06 kg)	7MH7724-1AN
3.21 lb (1.45 kg)	7MH7724-1AP
<u>For scales with belt width of 24 inch or 650 mm</u>	
1.38 lb (0.62 kg)	7MH7724-1AQ
2.15 lb (0.97 kg)	7MH7724-1AR
3.11 lb (1.41 kg)	7MH7724-1AS
4.24 lb (1.91 kg)	7MH7724-1AT
<u>For scales with belt width of 30 inch or 800 mm</u>	
1.72 lb (0.77 kg)	7MH7724-1AU
2.67 lb (1.21 kg)	7MH7724-1AV
3.85 lb (1.73 kg)	7MH7724-1AW
5.26 lb (2.37 kg)	7MH7724-1AX
<u>For scales with belt width of 36 inch or 1 000 mm</u>	
2.05 lb (0.92 kg)	7MH7724-1AY
3.19 lb (1.44 kg)	7MH7724-1BA
4.56 lb (2.07 kg)	7MH7724-1BB
6.29 lb (2.83 kg)	7MH7724-1BC
<u>For scales with belt width of 42 inch or 1 000 mm</u>	
2.38 lb (1.07 kg)	7MH7724-1BD
3.71 lb (1.67 kg)	7MH7724-1BE
5.35 lb (2.41 kg)	7MH7724-1BF
7.31 lb (3.29 kg)	7MH7724-1BG
<u>For scales with belt width of 48 inch or 1 200 mm</u>	
2.72 lb (1.22 kg)	7MH7724-1BH
4.23 lb (1.92 kg)	7MH7724-1BJ
6.06 lb (2.75 kg)	7MH7724-1BK
8.34 lb (3.75 kg)	7MH7724-1BL
Note: calibration accessories should be ordered as a separate item on the order.	

- 1) Only for quotation purposes, not a valid ordering option.
- 2) Available with Belt width/Scale construction options 1G ... 1M and 2G ... 2M only.
- 3) Available with Belt width/Scale construction options 1G ... 1M only.
- 4) Available with Belt width/Scale construction options 1A ... 1F and 2A ... 2F only.

Technical specifications

Milltronics MLC	
Technical specifications	
Mode of operation	
Measuring principle	Strain gauge load cell measuring load on flat belt conveyor idler
Typical application	Monitor fertilizer, tobacco, animal feed pellets, sugar, cereal
Performance	
Accuracy ¹⁾	± 0.5 ... 1.0 % of totalization over 25 ... 100 % operating range
Repeatability	± 0.1 %
Medium conditions	
Max. material temperature	85 °C (185 °F)
Belt design	
Belt width	<ul style="list-style-type: none"> • 450 ... 1 200 mm • 18 ... 48 inch
Belt speed	2.0 m/s (400 fpm) maximum ²⁾
Capacity	Up to 50 t/h (55 STPH) ²⁾
Conveyor incline	<ul style="list-style-type: none"> • ± 20° from horizontal, fixed incline • Up to ± 30° with reduced accuracy
Idlers	
Conveyor idler	Horizontal
Idler diameter	50 or 60 mm (1.90 or 2.30 inch)
Idler spacing	0.5 ... 1.5 m (1.6 ... 5.0 ft)
Load cell	
Construction	17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover Strain gauge protection: polybutadiene
Degree of protection	IP67
Cable length	3 m (10 ft)
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V excitation at rated load cell capacity
Non-linearity	0.03 % of rated output
Hysteresis	0.05 % of rated output
Non-repeatability	0.03 % of rated output
Capacity	10 or 20 lb
Overload	150 % of rated capacity, ultimate 300 % of rated capacity
Temperature	<ul style="list-style-type: none"> • -40 ... +85 °C (-40 ... +185 °F) operating range • -10 ... +60 °C (14 ... 140 °F) compensated
Mounting dimensions	Identical for all capacities
Hazardous locations	Consult the factory
Approvals	CE, UKCA, RCM, EAC, KC

¹⁾ Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

²⁾ Contact Siemens () ration of higher values. http://www.automation.siemens.com/aspa_app

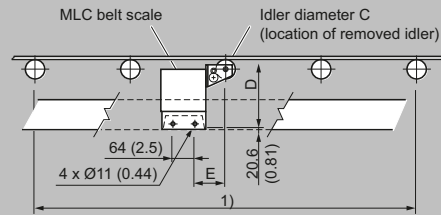
Belt Weighing

Belt scales

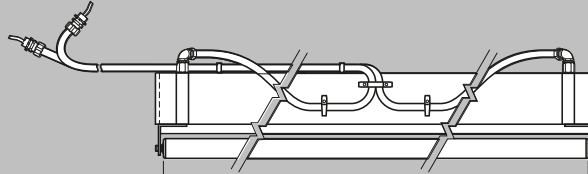
Milltronics MLC

Dimensional drawings

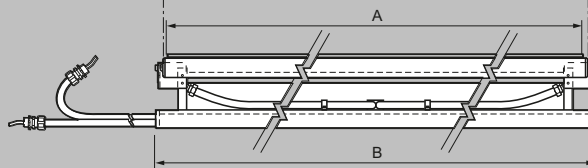
Installation



Plan View



Front View



1) For pan supported belts, the belt should be cut out to allow the MLC and at least two (preferably four) other idlers to be installed.

Imperial designs [dimensions in inch (mm)]

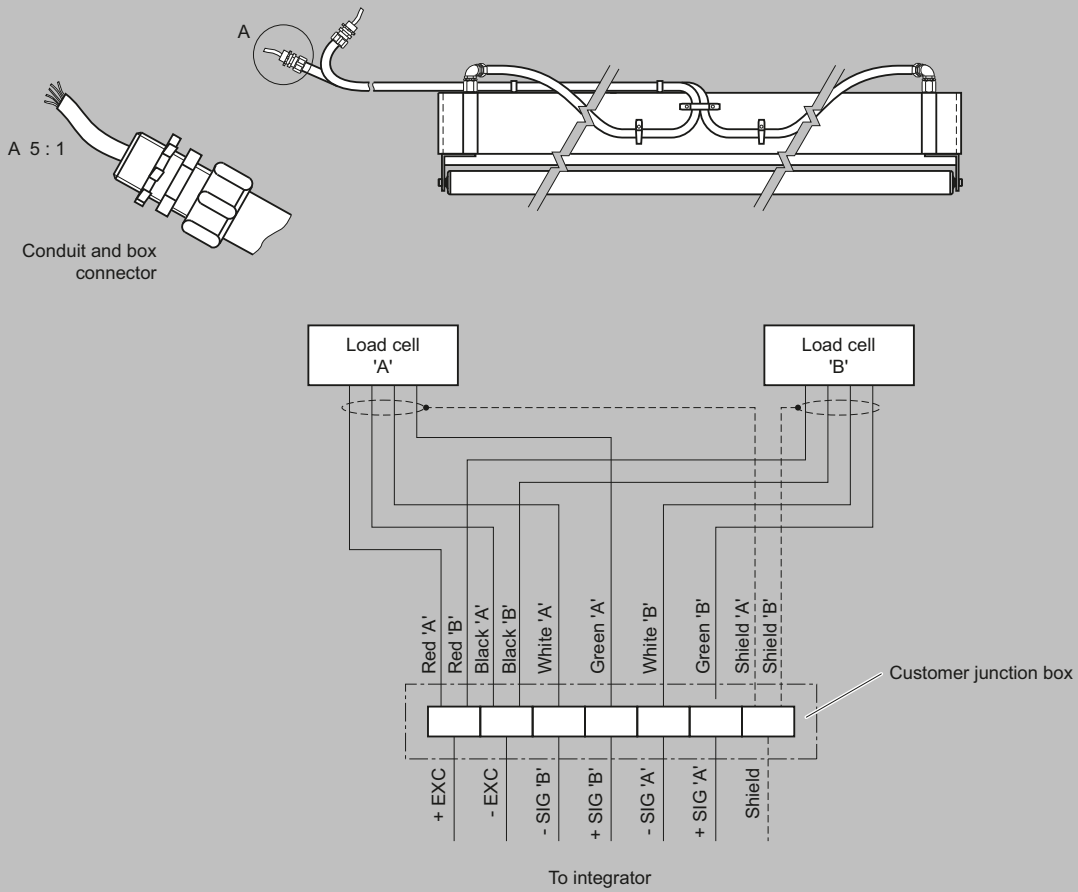
Scale size	'A' roller width	'B' dimension	'C' dimension	'D' dimension	'E' dimension
18 (457)	18 (457)	19 (483)	1.90 (48.3)	6.19 (157)	3.5 (89)
24 (610)	24 (610)	25 (635)	1.90 (48.3)	6.19 (157)	3.5 (89)
30 (762)	30 (762)	31 (787)	1.90 (48.3)	6.19 (157)	3.5 (89)
36 (914)	36 (914)	37 (940)	1.90 (48.3)	6.19 (157)	3.5 (89)
42 (1 067)	42 (1 067)	43 (1 092)	1.90 (48.3)	6.19 (157)	3.5 (89)
48 (1 219)	48 (1 219)	49 (1 245)	1.90 (48.3)	6.19 (157)	3.5 (89)

Metric designs [dimensions in mm (inch)]

Scale size	'A' roller width	'B' dimension	'C' dimension	'D' dimension	'E' dimension
450 (17.72)	450 (17.72)	500 (19.69)	50 (1.97)	158 (6.22)	96 (3.78)
500 (19.69)	500 (19.69)	550 (21.65)	50 (1.97)	158 (6.22)	96 (3.78)
650 (25.59)	650 (25.59)	700 (27.56)	50 (1.97)	158 (6.22)	96 (3.78)
800 (31.50)	800 (31.50)	850 (33.46)	50 (1.97)	158 (6.22)	96 (3.78)
1 000 (39.37)	1 000 (39.37)	1 050 (41.34)	60 (2.36)	158 (6.22)	96 (3.78)
1 200 (47.24)	1 200 (47.24)	1 250 (49.21)	60 (2.36)	158 (6.22)	96 (3.78)

MLC dimensions, in mm (inch)

Circuit diagrams



Note:
Conduit and cable arrangement may differ from example shown.

MLC connections

Belt Weighing

Belt scales

Milltronics MUS

Overview



Milltronics MUS is a modular designed, medium- to heavy-duty belt scale for process indication.

Benefits

- Unique modular design
- Simple installation
- Low cost
- Easy retrofit

Application

Milltronics MUS operates with products like aggregates, sand, or minerals, providing continuous in-line weighing at a minimal cost. With no cross bridge, this versatile unit will fit most conveyor widths and standard idlers, and product build-up is reduced. The construction and easy assembly of the MUS ensures quick delivery to meet even the tightest of schedules. Where scales are moved from conveyor to conveyor, the MUS also provides unmatched flexibility.

Operating with Milltronics BW500, SIWAREX WT241, WP241, or FTC microprocessor-based integrators, the MUS provides indication of flow rate, total weight, belt load, and speed of bulk solids materials on a belt conveyor. A speed sensor monitors conveyor belt speed for input to the integrator.

Selection and ordering data

	Article No.					
Milltronics MUS Belt scale	7MH7123-	•	•	•	•	0
Accuracy is $\pm 2\%$ of totalization over 25 ... 100 % operating range with capacity up to 5 000 t/h (5 512 STPH).						
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Scale construction						
Standard for belt width up to 1 000 mm (42 inch), nickel plated steel load cells		1				
Heavy-duty for belt width up to 1 524 mm (60 inch), nickel plated steel load cells		2				
Load cell capacity						
<u>Standard Duty Scale Load Cell</u>						
20 kg (44.1 lb) ¹⁾			A	A		
30 kg (66.1 lb) ¹⁾			A	B		
50 kg (110.2 lb) ¹⁾			A	C		
75 kg (165.3 lb) ¹⁾			A	D		
100 kg (220.4 lb) ¹⁾			A	E		
Not specified ²⁾			X	X		
<u>Heavy-Duty Scale Load Cell</u>						
50 kg (110.2 lb) ³⁾			B	A		
100 kg (220.4 lb) ³⁾			B	B		
150 kg (330.7 lb) ³⁾			B	C		
200 kg (440.9 lb) ³⁾			B	D		
300 kg (661.4 lb) ³⁾			B	E		
500 kg (1 102.3 lb) ³⁾			B	F		
Fabrication						
C5-M rated polyester painted mild steel						1

Selection and ordering data (Continued)

Selection and ordering data	Order code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number / identification (max. 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	
<u>Standard Duty Scale Load Cell</u>	
20 kg (44.1 lb)	A5E00826934
30 kg (66.1 lb)	A5E00826935
50 kg (110.2 lb)	A5E00826936
75 kg (165.3 lb)	A5E00826938
100 kg (220.5 lb)	A5E00826939
<u>Standard Duty Scale Load Cell, includes mounting hardware</u>	
20 kg (44.1 lb)	7MH7725-1CP
30 kg (66.1 lb)	7MH7725-1CQ
50 kg (110.2 lb)	7MH7725-1CR
75 kg (165.3 lb)	7MH7725-1CS
100 kg (220.5 lb)	7MH7725-1CT
<u>Heavy-Duty Scale Load Cell</u>	
50 kg (110.2 lb)	A5E00826941
100 kg (220.5 lb)	A5E00826942
150 kg (330.7 lb)	A5E00826943
200 kg (440.9 lb)	A5E00826944
300 kg (661.4 lb)	A5E00826945
500 kg (1 120.3 lb)	A5E00826946
<u>Heavy-Duty Scale Load Cell, includes mounting hardware</u>	
50 kg (110.2 lb)	7MH7725-1CU
100 kg (220.5 lb)	7MH7725-1CV
150 kg (330.7 lb)	7MH7725-1CW
200 kg (440.9 lb)	7MH7725-1CX
300 kg (661.4 lb)	7MH7725-1CY
500 kg (1 120.3 lb)	7MH7725-1DA
Rock Guard, MUS Standard Duty Scale, spare	7MH7723-1DM
Conduit replacement kit	7MH7723-1NA
Calibration weights	
See Milltronics flat bar calibration weights catalog page: https://support.industry.siemens.com/cs/document/109813400	
Note: calibration accessories should be ordered as a separate item on the order.	

1) For use with scale construction option 1 only.

2) Only for quotation purposes, not a valid ordering option.

3) For use with scale construction option 2 only.

Belt Weighing

Belt scales

Milltronics MUS

Technical specifications

Milltronics MCS	
Technical specifications	
Mode of operation	
Measuring principle	Heavy duty strain gauge load cells measuring load on belt conveyor idlers
Typical applications	<ul style="list-style-type: none"> Monitor fractionated stone on secondary surge belts and recirculating loads Track daily production totals
Measurement accuracy	
Accuracy ¹⁾	± 0.5 ... 1 % of totalization over 25 ... 100 % operating range, application dependent
Repeatability	± 0.1 %
Medium conditions	
Max. material temperature	65 °C (150 °F)
Belt design	
Belt width	<ul style="list-style-type: none"> Standard duty up to 1 000 mm (CEMA width up to 42 inch) Heavy-duty up to 1 524 mm (CEMA width up to 60 inch) Refer to dimensional drawing
Belt speed	Up to 3.0 m/s (600 fpm) ²⁾
Capacity	Up to 5 000 t/h at maximum belt speed ²⁾
Conveyor incline	<ul style="list-style-type: none"> ± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy³⁾
Idlers	
Idler profile	<ul style="list-style-type: none"> Flat to 35° To 45° with reduced accuracy³⁾
Idler diameter	50 ... 180 mm (2 ... 7 inch)
Idler spacing	0.6 ... 1.5 m (2.0 ... 5.0 ft)
Load cell	
Construction	Nickel plated alloy steel Strain gauge protection: silicon
Degree of protection	IP66
Cable length	3 m (10 ft)
Excitation	10 V DC nominal, 15 V DC max.
Output	2 mV/V excitation at rated load cell capacity
Non-linearity and hysteresis	0.02 % of rated output
Non-repeatability	0.01 % of rated output
Capacity	<ul style="list-style-type: none"> Standard duty ranges 20, 30, 50, 75, 100 kg (44, 66, 110, 165, 220 lb) Heavy-duty ranges 50, 100, 150, 200, 500 kg (110, 220, 330, 440, 1 100 lb)
Overload	150 % of rated capacity, ultimate 200 % of rated capacity
Temperature	<ul style="list-style-type: none"> -40 ... +65 °C (-40 ... +150 °F) operating range -10 ... +40 °C (15 ... 105 °F) compensated
Weight	Standard duty up to 44 lb (20 kg), 22 lb (10 kg) per side Heavy-duty up to 64 lb (30 kg), 32 lb (15 kg) per side
Interconnection wiring (to integrator)	<ul style="list-style-type: none"> < 150 m (500 ft) 18 AWG (0.75 mm²) 6 conductor shielded cable > 150 m ... 300 m (500 ... 1 000 ft) 18 ... 22 AWG (0.75 ... 0.34 mm²) 8 conductor shielded cable
Hazardous locations	Consult the factory
Approvals	CE, UKCA, RCM, EAC, CMC, KC

¹⁾ Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Technical specifications (Continued)

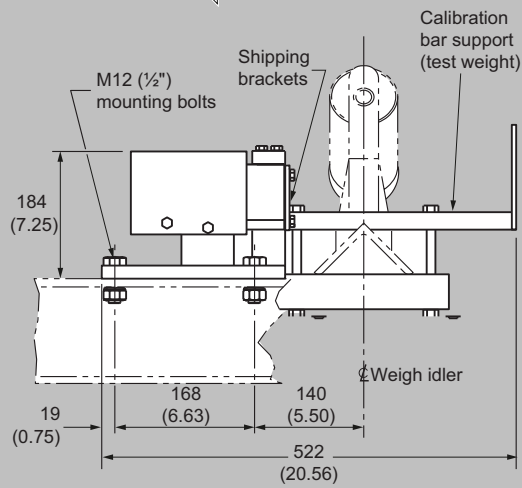
- ²⁾ Contact Siemens () for consideration of higher values.http://www.automation.siemens.com/aspa_app
³⁾ Review by Siemens required ().http://www.automation.siemens.com/aspa_app

Dimensional drawings

Standard duty

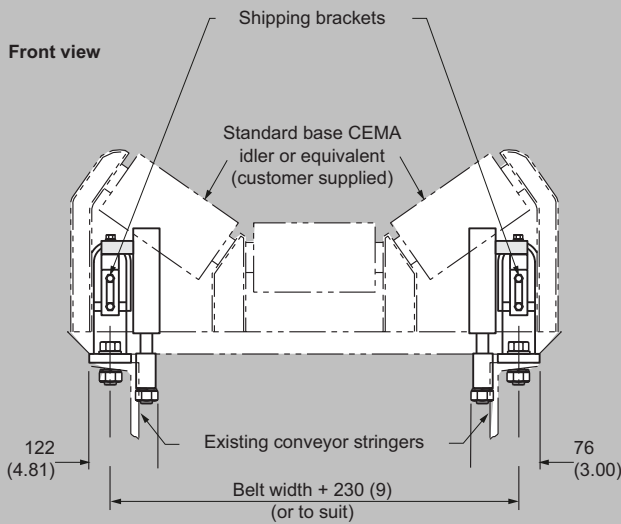
Belt direction for all flat or inclined conveyors

Side view



Note:
(2) approach and (2) retreat idlers should be aligned with the weigh idler to within 0.8 (+1/3) to 0 (0).

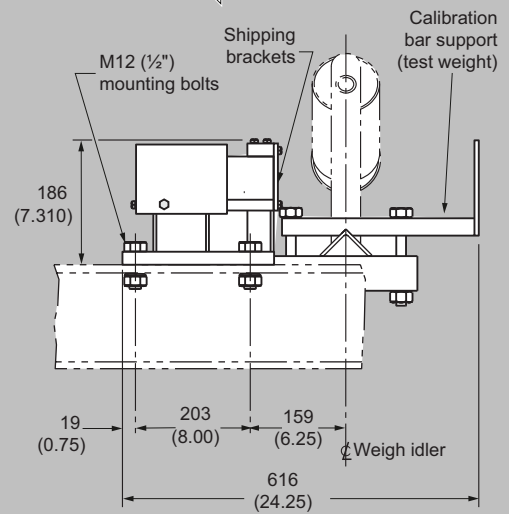
Front view



Heavy duty

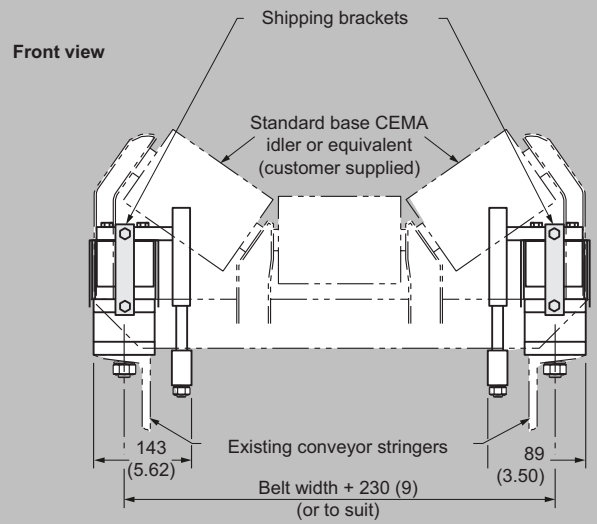
Belt direction for all flat or inclined conveyors

Side view



Note:
(2) approach and (2) retreat idlers should be aligned with the weigh idler to within 0.8 (+1/3) to 0 (0).

Front view



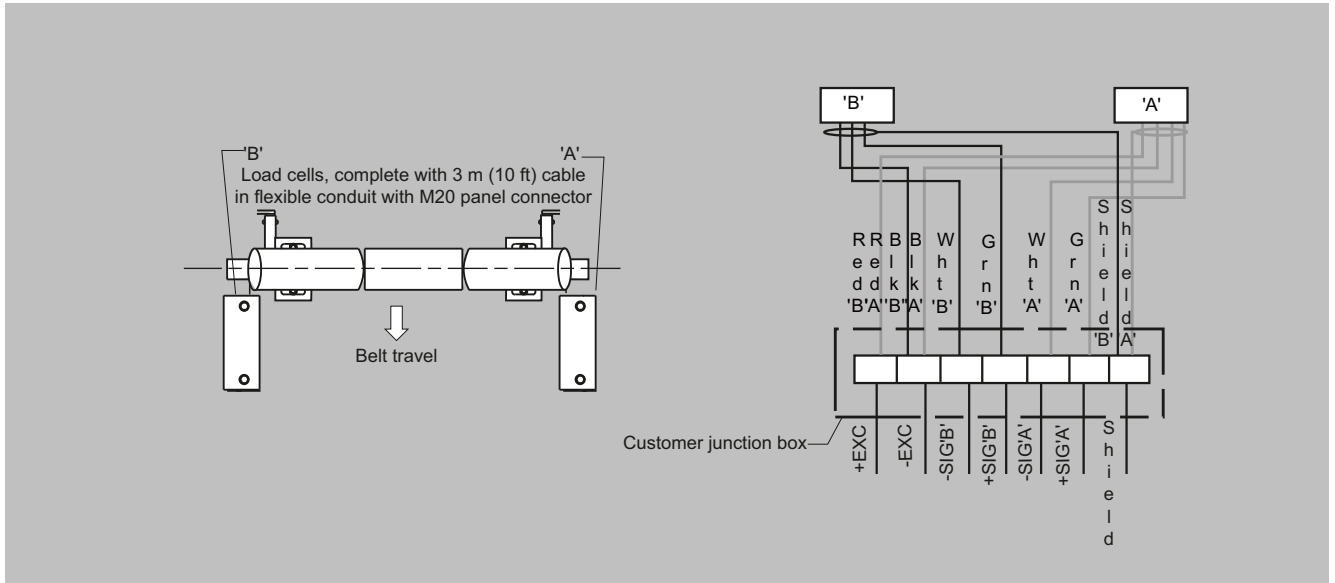
MUS, dimensions in mm (inch)

Belt Weighing

Belt scales

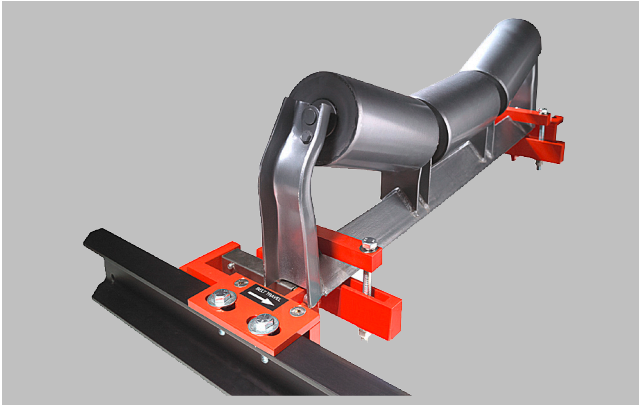
Milltronics MUS

Circuit diagrams



MUS connections

Overview



Milltronics MCS is a compact, rugged, modular, heavy-duty belt scale for use in mobile crushers and aggregate screening plants. Idler not included with belt scale.

Benefits

- Rugged design
- Low profile
- Easy retrofit
- Low cost
- Stainless steel load cells

Application

Milltronics MCS provides continuous, in-line weighing at minimal cost. The stainless steel load cells ensure long-term, consistent, reliable measurement. The modular construction and easy assembly of the MCS ensures quick delivery to meet even the tightest of schedules.

Operating with Milltronics BW500, SIWAREX WT241, WP241, or FTC microprocessor-based integrators, the MCS provides indication of flow rate, total weight, belt load, and belt speed of bulk solids materials on a belt conveyor.

To complete the weighing system, include a speed sensor to monitor conveyor belt speed for input to the integrator. On mobile crushing equipment, the TASS speed sensor is a compact, rugged speed sensor designed for use with the MCS.

Belt Weighing

Belt scales

Milltronics MCS

Selection and ordering data

Milltronics MCS Belt scale		Article No.				
Accuracy is $\pm 0.5 \dots 1$ % of totalization over 25 ... 100 % operating range with capacity up to 2 400 t/h (2 640 STPH).		7MH725- ● ● ● ● ●				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Scale construction						
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC, KC		1				
CSA/FM Class II, Div. 1, Groups E, F, G, Class III; ATEX II 2D Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; UKEX II 2D Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; IECEX Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; EAC Ex Ex tD A21 IP65 T90°C X; CE, UKCA, RCM, EAC, KC		2				
Load cell capacity						
50 lb (22.7 kg) (use not recommended for mobile crushers)		A				
100 lb (45.5 kg) (use not recommended for mobile crushers)		A				
250 lb (113.6 kg)		A				
500 lb (226.8 kg)		A				
25 lb (11.3 kg) (use not recommended for mobile crushers)		A				
Not specified ¹⁾		B				
Fabrication						
C5-M rated polyester painted mild steel		1				
C5-M rated polyester painted mild steel, for use with flat bar or MWL calibration		2				
System specification						
Standard		0				
PAC Russia		1				

Selection and ordering data	Order code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number / identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
PAC Russia approval additional nameplate (submit application data with order) ²⁾	Y79
Operating instructions	
All literature is available to download for free, in a range of languages, at: http://www.siemens.com/weighing/documentation	
Spare parts	
Stainless steel load cell	
[17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover]	
25 lb (11.3 kg)	A5E01673047
50 lb (22.7 kg)	A5E01135823
100 lb (45.4 kg)	A5E01135824
250 lb (113.4 kg)	A5E01135825
500 lb (226.8 kg)	A5E01135826
Stainless steel load cell	
[17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover], mounting hardware included	
25 lb (11.3 kg)	7MH725-1DR
50 lb (22.7 kg)	7MH725-1DH
100 lb (45.4 kg)	7MH725-1DJ
250 lb (113.4 kg)	7MH725-1DK
500 lb (226.8 kg)	7MH725-1DS
25 lb (11.3 kg), CSA/FM/ATEX/IECEX	7MH725-1DQ

Selection and ordering data (Continued)

Selection and ordering data	Order code
50 lb (22.7 kg), CSA/FM/ATEX/IECEX	7MH7725-1DL
100 lb (45.4 kg), CSA/FM/ATEX/IECEX	7MH7725-1DM
250 lb (113.4 kg), CSA/FM/ATEX/IECEX	7MH7725-1DN
500 lb (226.8 kg), CSA/FM/ATEX/IECEX	7MH7725-1DP
Conduit replacement kit	7MH7723-1NA
Calibration weights	
Flat bar/MWL retrofit kit	7MH7723-1HA
Calibration test arm assembly, c/w one 8.2 kg (18 lb) calibration weight	7MH7723-1FR
Calibration test arm assembly, c/w two 8.2 kg (18 lb) calibration weights	7MH7723-1FS
MCS calibration arm c/w idler clip [holds up to two 8.2 kg (18 lb) weights]	7MH7726-1AD
Calibration weight, 18 lb (8.2 kg)	7MH7724-1AA
Calibration weight, 6 lb (2.7 kg)	7MH7724-1AB
See Milltronics flat bar calibration weights catalog page: https://support.industry.siemens.com/cs/document/109813400	
Note: calibration accessories should be ordered as a separate item on the order.	

¹⁾ Only for quotation purposes, not a valid ordering option.

²⁾ Complete specification data sheet and submit with order "legal for trade" version (see Application Questionnaire at <https://assets.new.siemens.com/siemens/assets/api/uuid:35272d97-6289-4291-ac8a-03398eb9315c/questionnaire-beltscale-en.pdf>)

Technical specifications

Milltronics MCS	
Mode of operation	
Measuring principle	Strain gauge load cells measuring load on belt conveyor idlers
Typical application	Mobile crusher systems
Measurement accuracy	
Accuracy ¹⁾	<ul style="list-style-type: none"> ± 0.5 ... 1 % of totalization over 25 ... 100 % operating range, application dependent ± 2 % of totalization over 25 ... 100 % operating range on mobile crusher applications
Repeatability	± 0.1 %
Belt design	
Belt width	<ul style="list-style-type: none"> Up to 1 600 mm (60 inch CEMA) width Refer to the outline dimension section
Belt speed	Up to 4 m/s (800 fpm) ²⁾
Capacity	Up to 2 400 t/h (2 640 STPH) at maximum belt speed ²⁾
Conveyor incline	<ul style="list-style-type: none"> ± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy³⁾
Idlers	
Idler profile	<ul style="list-style-type: none"> Flat to 35° To 45° with reduced accuracy³⁾
Idler diameter	100 ... 150 mm (4 ... 6 inch)
Idler spacing	0.6 ... 1.2 m (2.0 ... 4.0 ft)
Load cell	
Construction	17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover Strain gauge protection: polybutadiene
Degree of protection	IP67, IP65 on hazardous approved models
Cable length	3 m (10 ft)
Excitation	10 V DC nominal, 15 V maximum
Output	2 mV/V excitation at rated load cell capacity

Technical specifications (Continued)

Milltronics MCS	
Non-linearity and hysteresis	0.02 % of rated output
Non-repeatability	0.01 % of rated output
Capacity	25, 50, 100, 250, 500 lb stainless steel
Overload	150 % of rated capacity, ultimate 300 % of rated capacity
Temperature	<ul style="list-style-type: none"> -50 ... +75 °C (-58 ... +167 °F) operating range -40 ... +65 °C (-40 ... +150 °F) compensated
Weight	Up to 20 kg (44 lb), 10 kg (22 lb) per side
Interconnection wiring (to integrator)	<ul style="list-style-type: none"> < 150 m (500 ft) 18 AWG (0.75 mm²) 6 conductor shielded cable > 150 m (500 ft) to 300 m (1 000 ft) 18 ... 22 AWG (0.75 ... 0.34 mm²), 8 conductor shielded cable
Approvals	CSA/FM Class II, Div. 1, Groups E, F, G, Class III; ATEX II 2D Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; UKEX II 2D Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; IECEX Ex tb IIIC T90°C Db, Tamb = -40°C to +75°C; EAC Ex Ex tD A21 IP65 T90°C X; CE, UKCA, RCM, EAC, RTN
Metrological approvals	PAC Russia

¹⁾ Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

²⁾ Contact Siemens () for consideration of higher values.http://www.automation.siemens.com/aspa_app

³⁾ Review by Siemens required ().http://www.automation.siemens.com/aspa_app

Belt Weighing

Belt scales

Milltronics MCS

Technical specifications (Continued)

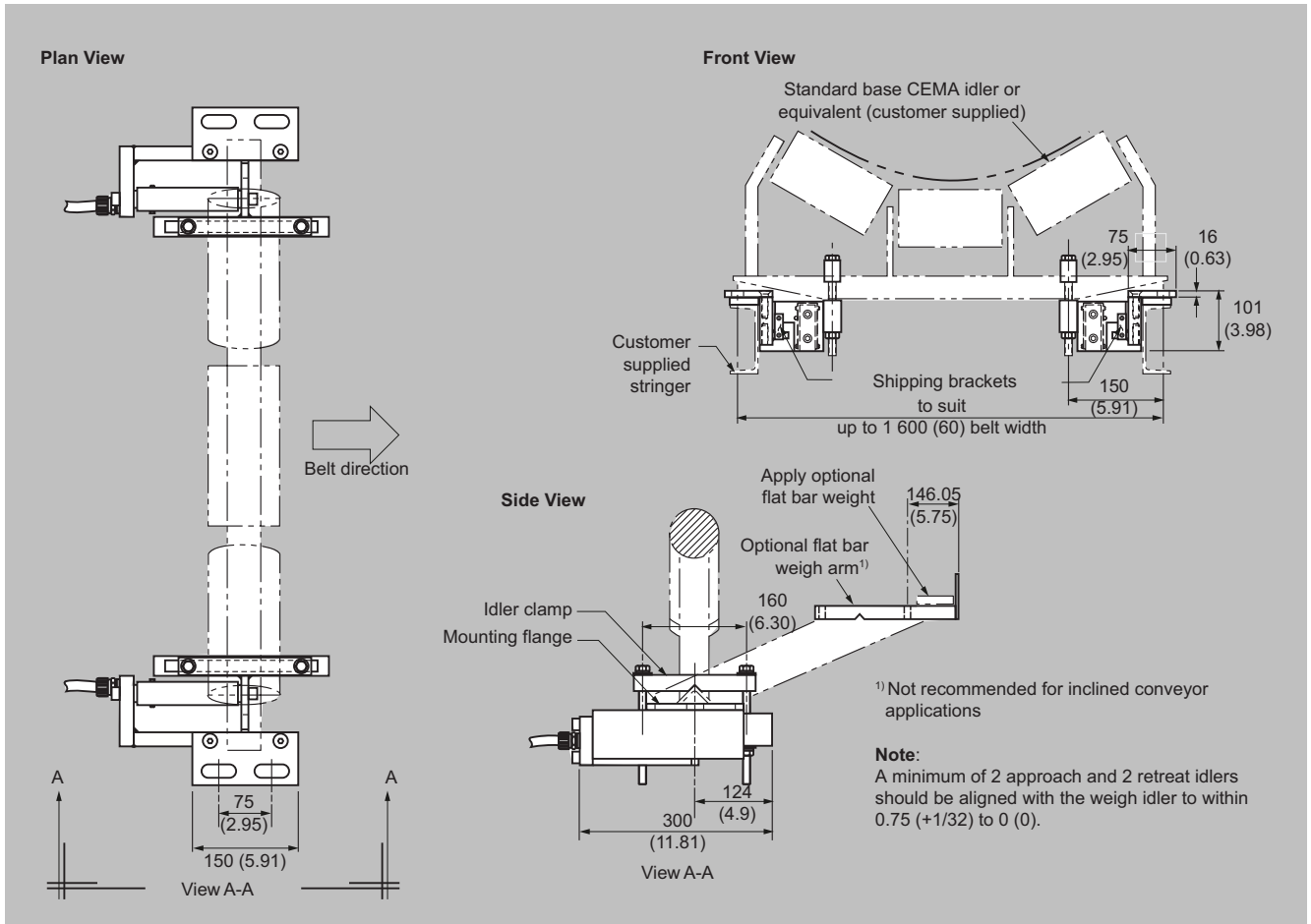
PAC Russia specification data

Accuracy limits (%)

Highest linear density (kg/m)

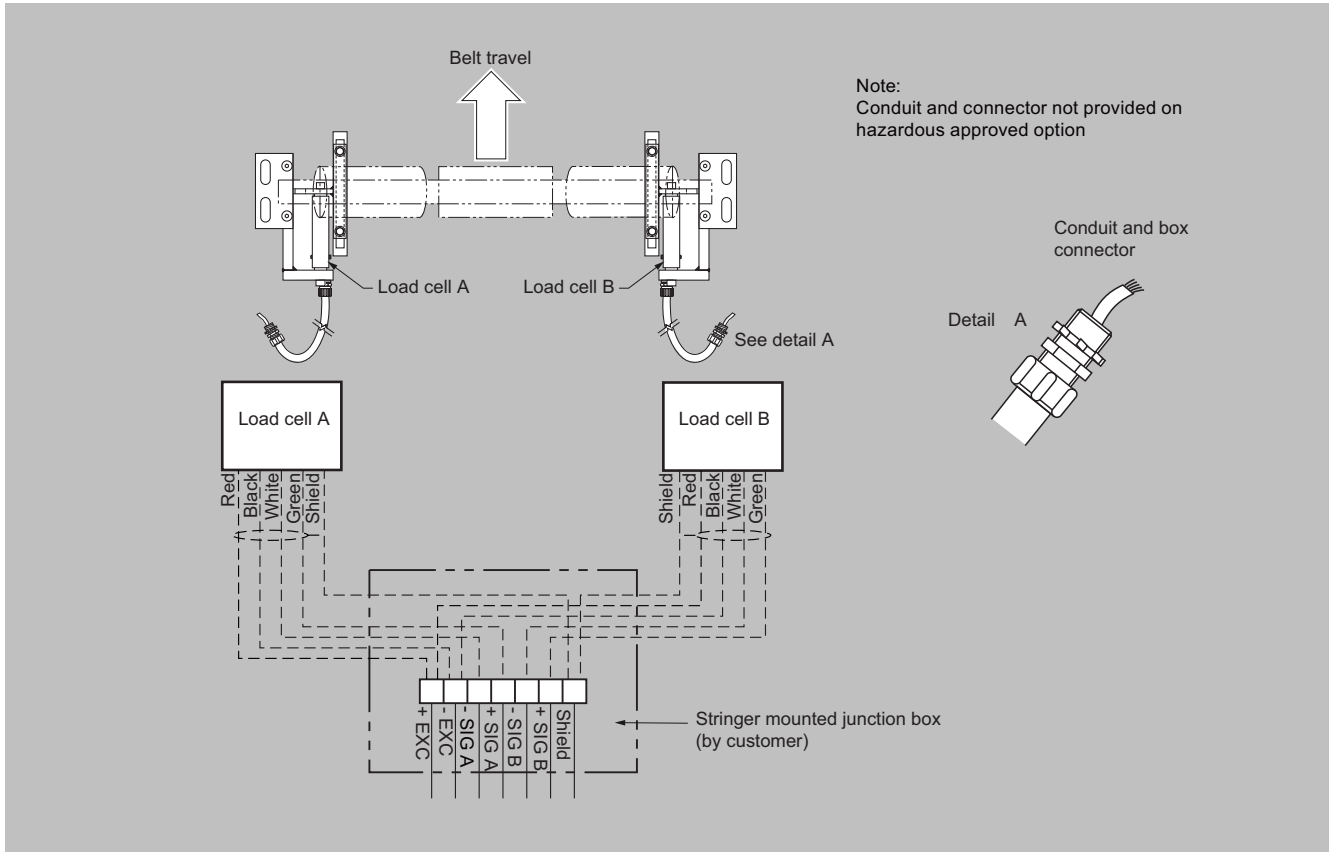
Lowest linear density (kg/m)

Dimensional drawings



MCS, dimensions in mm (inch)

Circuit diagrams



MCS connections

Belt Weighing

Belt scales

Milltronics MSI and MMI

Overview



Milltronics MSI is a heavy-duty, high accuracy full-frame single idler belt scale used for process and load-out control. Idler not included with belt scale.



Milltronics MMI is a heavy-duty, high accuracy multiple idler belt scale used for critical process and load-out control. Idler not included with belt scale.

Application

Milltronics MSI belt scale

Milltronics MSI belt scale provides continuous in-line weighing on a variety of products in primary and secondary industries. It is proven in a wide range of tough applications from extraction (in mines, quarries and pits), to power generation, iron and steel, food processing and chemicals. The MSI is suitable for monitoring such diverse products as sand, flour, coal, or sugar.

The MSI's proven use of parallelogram-style load cells results in fast reaction to vertical forces, ensuring instant response to product loading. This enables it to provide outstanding accuracy and repeatability even with uneven loading and fast belt speeds.

Operating with Milltronics BW500, SIWAREX WT241, WP241, or FTC microprocessor-based integrators, the MSI provides indication of flow rate, totalized weight, belt load, and belt speed of bulk solid materials. A speed sensor monitors conveyor belt speed for input to the integrator.

The MSI is installed in a simple drop-in operation and may be secured with just four bolts. An existing idler is then attached to the MSI dynamic beam. With no moving parts, maintenance is kept to a minimum, with just periodic calibration checks required.

Milltronics MMI belt scale

Milltronics MMI belt scale consists of two or more MSI single idler belt scales installed in series. It provides high accuracy continuous in-line weighing on a variety of products in primary and secondary industries. The MMI system is proven in a wide range of tough applications from extraction to power generation, iron and steel, food processing and chemicals. The MMI is suitable for monitoring such diverse products as fertilizer, sand, grain, flour, coal, or sugar. The MMI's proven use of parallelogram-style load cells results in fast reaction to vertical forces, ensuring instant response to product loading. This enables it to provide outstanding accuracy and repeatability even with uneven or light loading, short idler spacing and fast belt speeds. Operating with Milltronics BW500 integrator (for custody transfer applications), the MMI provides indication of flow rate, total weight, belt load and belt speed of bulk solids materials on a belt conveyor. A speed sensor monitors conveyor belt speed for input to the integrator.

The MMI is installed in a simple drop-in operation and may be secured with just eight bolts and existing idler sets, secured to the dynamic beam. With no moving parts, maintenance is kept to a minimum, with just periodic calibration checks required.

Benefits

Milltronics MSI belt scale

- Outstanding accuracy and repeatability
- Unique parallelogram style load cell design
- Fast reaction to product loading; capable of monitoring fast moving belts
- Rugged construction
- SABS approval (South Africa), OIML, MID, and Measurement Canada

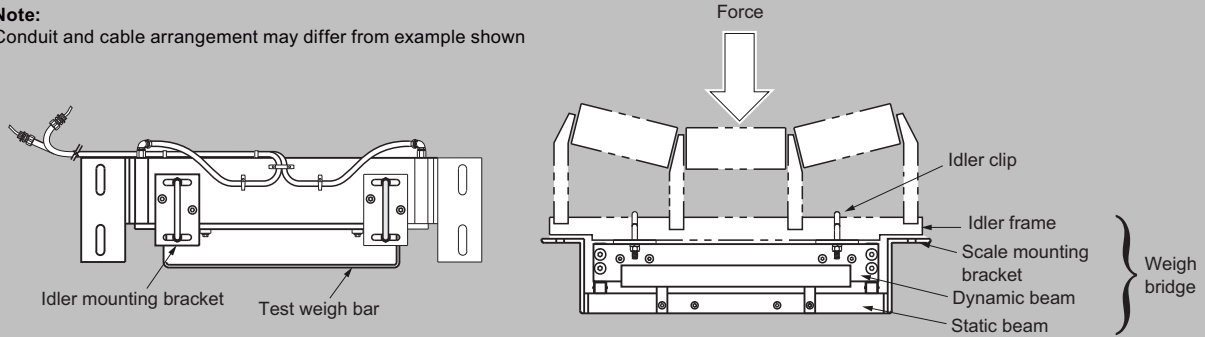
Milltronics MMI belt scale

- Exceptional accuracy and repeatability
- Unique parallelogram style load cell design
- Suitable for uneven or light product loading
- Capable of monitoring fast moving belts
- Low cost of ownership
- NTEP, OIML, MID, and Measurement Canada approved

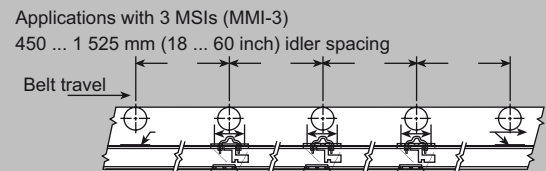
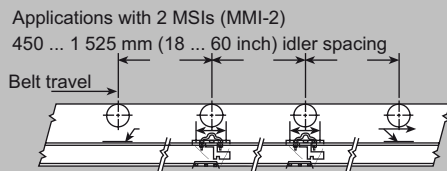
Design

Mounting

Note:
Conduit and cable arrangement may differ from example shown



MSI/MMI mounting



Mounting (two or more MSI units)

Belt Weighing

Belt scales

Milltronics MSI and MMI

Selection and ordering data

Milltronics MSI Belt scale	Article No.	
Accuracy is ± 0.5 % or better of totalization over 20 ... 100 % operating range with capacity up to 12 000 t/h (13 200 STPH).	7MH7122- ● ● ● ● ● - ● ● ● ● ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Scale construction		
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC, KC	1	
CSA/FM Class II, Div. 1, Groups E, F, G, Class III; ATEX II 2 D Ex tb IIIC T90°C Db; UKEX II 2 D Ex tb IIIC T90°C Db; IECEX Ex tb IIIC T90°C Db; EAC Ex Ex td A21 IP65 T90°C X; KCs Ex td A21 IP65 T90°C; CE, UKCA, RCM	2	
CSA/FM Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III; ATEX II 1 GD Ex ia IIC T4 Ga, ATEX II 1 GD Ex ia IIIC T135°C Da; UKEX II 1 GD Ex ia IIC T4 Ga, UKEX II 1 GD Ex ia IIIC T135°C Da; IECEX Ex ia IIC T4 Ga, IECEX Ex ia IIIC T135°C Da;	3	
ATEX I M1, ATEX II 1 GD Ex ia I Ma; UKEX I M1, UKEX II 1 GD Ex ia I Ma; IECEX Ex ia I Ma; MSHA	4	
Belt width and 'A' dimension		
Belt widths from 18 ... 30 inch		
18 inch, 'A' = 27 inch (686 mm)	A	A
19 inch, 'A' = 28 inch (711 mm)	A	B
20 inch, 'A' = 29 inch (737 mm)	A	C
21 inch, 'A' = 30 inch (762 mm)	A	D
22 inch, 'A' = 31 inch (787 mm)	A	E
23 inch, 'A' = 32 inch (813 mm)	A	F
24 inch, 'A' = 33 inch (838 mm)	A	G
25 inch, 'A' = 34 inch (864 mm)	A	H
26 inch, 'A' = 35 inch (889 mm)	A	J
27 inch, 'A' = 36 inch (914 mm)	A	K
28 inch, 'A' = 37 inch (940 mm)	A	L
29 inch, 'A' = 38 inch (965 mm)	A	M
30 inch, 'A' = 39 inch (991 mm)	A	N
Belt widths from 31 ... 50 inch		
31 inch, 'A' = 40 inch (1 016 mm)	A	P
32 inch, 'A' = 41 inch (1 041 mm)	A	Q
33 inch, 'A' = 42 inch (1 067 mm)	A	R
34 inch, 'A' = 43 inch (1 092 mm)	A	S
35 inch, 'A' = 44 inch (1 118 mm)	A	T
36 inch, 'A' = 45 inch (1 143 mm)	A	U
37 inch, 'A' = 46 inch (1 168 mm)	A	V
38 inch, 'A' = 47 inch (1 194 mm)	A	W
39 inch, 'A' = 48 inch (1 219 mm)	B	A
40 inch, 'A' = 49 inch (1 245 mm)	B	B
41 inch, 'A' = 50 inch (1 270 mm)	B	C
42 inch, 'A' = 51 inch (1 295 mm)	B	D
43 inch, 'A' = 52 inch (1 321 mm)	B	E
44 inch, 'A' = 53 inch (1 346 mm)	B	F
45 inch, 'A' = 54 inch (1 372 mm)	B	G
46 inch, 'A' = 55 inch (1 397 mm)	B	H
47 inch, 'A' = 56 inch (1 422 mm)	B	J
48 inch, 'A' = 57 inch (1 448 mm)	B	K
49 inch, 'A' = 58 inch (1 473 mm)	B	L
50 inch, 'A' = 59 inch (1 499 mm)	B	M
Belt widths from 51 ... 69 inch		
51 inch, 'A' = 60 inch (1 524 mm)	B	N
52 inch, 'A' = 61 inch (1 549 mm)	B	P
53 inch, 'A' = 62 inch (1 575 mm)	B	Q

Selection and ordering data (Continued)

Milltronics MSI Belt scale Accuracy is $\pm 0.5\%$ or better of totalization over 20 ... 100 % operating range with capacity up to 12 000 t/h (13 200 STPH).	Article No.																			
	7	M	H	7	1	2	-													
54 inch, 'A' = 63 inch (1 600 mm)						B					R									
55 inch, 'A' = 64 inch (1 626 mm)						B					S									
56 inch, 'A' = 65 inch (1 651 mm)						B					T									
57 inch, 'A' = 66 inch (1 676 mm)						B					U									
58 inch, 'A' = 67 inch (1 702 mm)						B					V									
59 inch, 'A' = 68 inch (1 727 mm)						B					W									
60 inch, 'A' = 69 inch (1 753 mm)						C					A									
61 inch, 'A' = 70 inch (1 778 mm)						C					B									
62 inch, 'A' = 71 inch (1 803 mm)						C					C									
63 inch, 'A' = 72 inch (1 829 mm)						C					D									
64 inch, 'A' = 73 inch (1 854 mm)						C					E									
65 inch, 'A' = 74 inch (1 880 mm)						C					F									
66 inch, 'A' = 75 inch (1 905 mm)						C					G									
67 inch, 'A' = 76 inch (1 930 mm)						C					H									
68 inch, 'A' = 77 inch (1 956 mm)						C					J									
69 inch, 'A' = 78 inch (1 981 mm)						C					K									
Belt widths from 70 ... 89 inch																				
70 inch, 'A' = 79 inch (2 007 mm)						C					L									
71 inch, 'A' = 80 inch (2 032 mm)						C					M									
72 inch, 'A' = 81 inch (2 057 mm)						C					N									
73 inch, 'A' = 82 inch (2 083 mm)						C					P									
74 inch, 'A' = 83 inch (2 108 mm)						C					Q									
75 inch, 'A' = 84 inch (2 134 mm)						C					R									
76 inch, 'A' = 85 inch (2 159 mm)						C					S									
77 inch, 'A' = 86 inch (2 184 mm)						C					T									
78 inch, 'A' = 87 inch (2 210 mm)						C					U									
79 inch, 'A' = 88 inch (2 235 mm)						C					V									
80 inch, 'A' = 89 inch (2 261 mm)						C					W									
81 inch, 'A' = 90 inch (2 286 mm)						D					A									
82 inch, 'A' = 91 inch (2 311 mm)						D					B									
83 inch, 'A' = 92 inch (2 337 mm)						D					C									
84 inch, 'A' = 93 inch (2 362 mm)						D					D									
85 inch, 'A' = 94 inch (2 388 mm)						D					E									
86 inch, 'A' = 95 inch (2 413 mm)						D					F									
87 inch, 'A' = 96 inch (2 438 mm)						D					G									
88 inch, 'A' = 97 inch (2 464 mm)						D					H									
89 inch, 'A' = 98 inch (2 489 mm)						D					J									
Belt widths from 90 ... 96 inch																				
90 inch, 'A' = 99 inch (2 515 mm)						D					K									
91 inch, 'A' = 100 inch (2 540 mm)						D					L									
92 inch, 'A' = 101 inch (2 565 mm)						D					M									
93 inch, 'A' = 102 inch (2 591 mm)						D					N									
94 inch, 'A' = 103 inch (2 616 mm)						D					P									
95 inch, 'A' = 104 inch (2 642 mm)						D					Q									
96 inch, 'A' = 105 inch (2 667 mm)						D					R									
Load cell capacity																				
Not specified ¹⁾											0									
25 lb (11.3 kg)											9			L		1				A
50 lb (22.7 kg)											1									
100 lb (45.4 kg)											2									
250 lb (113.4 kg)											3									
500 lb (226.8 kg)											4									
750 lb (340.2 kg)											5									
1 000 lb (453.6 kg)											6									
1 250 lb (567 kg) ²⁾											7									
1 500 lb (680.4 kg) ²⁾											8									
2 000 lb (907.2 kg)											9			L		1				B

Belt Weighing

Belt scales

Milltronics MSI and MMI

Selection and ordering data (Continued)

		Article No.																		
		7MH7122- ● ● ● ● ● - ● ● ● ● ●																		
Milltronics MSI Belt scale Accuracy is $\pm 0.5\%$ or better of totalization over 20 ... 100 % operating range with capacity up to 12 000 t/h (13 200 STPH).																				
Fabrication																				
C5-M rated polyester painted mild steel										1	1									
Electro-galvanized mild steel:																				
18 ... 29 inch (457.2 ... 736.6 mm)										1	2									
30 ... 41 inch (762 ... 1 041.4 mm)										1	3									
42 ... 53 inch (1 066.8 ... 1 346.2 mm)										1	4									
54 ... 65 inch (1 371.6 ... 1 651 mm)										1	5									
66 ... 77 inch (1 676.4 ... 1 955.8 mm)										1	6									
78 ... 89 inch (1 981.2 ... 2 260.6 mm)										1	7									
90 ... 96 inch (2 286 ... 2 438.4 mm)										1	8									
Stainless steel 304 (1.4301), bead blast finish (1 ... 6 μm, 40 ... 240 μin) for belt width scales:																				
18 ... 29 inch (457.2 ... 736.6 mm)										2	1									
30 ... 41 inch (762 ... 1 041.4 mm)										2	2									
42 ... 53 inch (1 066.8 ... 1 346.2 mm)										2	3									
54 ... 65 inch (1 371.6 ... 1 651 mm)										2	4									
66 ... 77 inch (1 676.4 ... 1 955.8 mm)										2	5									
78 ... 89 inch (1 981.2 ... 2 260.6 mm)										2	6									
90 ... 96 inch (2 286 ... 2 438.4 mm)										2	7									
Stainless steel 316 (1.4401), bead blast finish (1 ... 6 μm, 40 ... 240 μin) for belt width scales:																				
18 ... 29 inch (457.2 ... 736.6 mm)										3	1									
30 ... 41 inch (762 ... 1 041.4 mm)										3	2									
42 ... 53 inch (1 066.8 ... 1 346.2 mm)										3	3									
54 ... 65 inch (1 371.6 ... 1 651 mm)										3	4									
66 ... 77 inch (1 676.4 ... 1 955.8 mm)										3	5									
78 ... 89 inch (1 981.2 ... 2 260.6 mm)										3	6									
90 ... 96 inch (2 286 ... 2 438.4 mm)										3	7									
C5-M rated polyester painted mild steel (compatible with MWL or flat bar weight calibration system)										4	1									
Galvanized, for belt width scales: (compatible with MWL or flat bar weight system)																				
18 ... 29 inch (457.2 ... 736.6 mm)										4	2									
30 ... 41 inch (762 ... 1 041.4 mm)										4	3									
42 ... 53 inch (1 066.8 ... 1 346.2 mm)										4	4									
54 ... 65 inch (1 371.6 ... 1 651 mm)										4	5									
66 ... 77 inch (1 676.4 ... 1 955.8 mm)										4	6									
78 ... 89 inch (1 981.2 ... 2 260.6 mm)										4	7									
90 ... 96 inch (2 286 ... 2 438.4 mm)										4	8									
System specification																				
Standard MSI and MMI																				A
NTEP Certified MMI ⁽³⁾⁽⁴⁾⁽⁵⁾																				B
OIML/MID Certified ⁽⁴⁾⁽⁵⁾																				C
MSI for MMI-3 $\pm 0.125\%$ accuracy ⁽⁶⁾																				D

Selection and ordering data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number / identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Factory test certificate	Y33
OIML/MID approval additional nameplate (submit application data with order) ⁽⁵⁾	Y77

Selection and ordering data (Continued)

Selection and ordering data	Order Code
NTEP approval additional nameplate (submit application data with order) ⁵⁾	Y78
Extended cable length (For spare part pricing and part number consult factory) Load cell with 15 m (49.2 ft) cable length [standard is 3 m (9.8 ft)]	A08
High temp load cell (For spare part pricing and part number consult factory) Load cell suitable for high temp up to 175 °C (347 °F) [standard is 75 °C (167 °F)] ⁷⁾	T50
Load cell with 316 (1.4401) cover (For spare part pricing and part number consult factory) Load cell cover is constructed from 316 (1.4401) -stainless steel [standard is 304 (1.4301)]	H53
FDA compliant version Conduit and fittings designed for food applications -conforming to FDA/USDA standards	K01
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	
Flat bar/MWL retrofit kit	7MH7723-1FW
Conduit replacement kit	7MH7723-1NA
FDA conduit replacement kit	7MH7723-1QL
MWL calibration weight support brackets -galvanized	7MH7723-1JT
Ground cable	7MH3701-1AA1
Stainless steel load cells	
<u>Standard load cell with 304 (1.4301) stainless steel cover</u>	
25 lb (11.3 kg)	A5E35801457
50 lb (22.7 kg)	PBD-23900246
100 lb (45.4 kg)	PBD-23900247
250 lb (113.4 kg)	PBD-23900248
500 lb (226.8 kg)	PBD-23900249
750 lb (340.2 kg)	PBD-23900250
1 000 lb (453.6 kg)	PBD-23900251
1 250 lb (567 kg)	A5E02235671
1 500 lb (680.4 kg)	A5E02239623
2 000 lb (907.2 kg)	A5E35801460
100 lb (45.4 kg), NTEP, OIML/MID	PBD-23900261
250 lb (113.4 kg), NTEP, OIML/MID	PBD-23900262
500 lb (226.8 kg), NTEP, OIML/MID	PBD-23900263
750 lb (340.2 kg), NTEP, OIML/MID	PBD-23900264
1 000 lb (453.6 kg), NTEP, OIML/MID	PBD-23900265
<u>Standard load cell with 304 (1.4301) stainless steel cover, includes mounting hardware</u>	
50 lb (22.7 kg)	7MH7725-1AC
100 lb (45.4 kg)	7MH7725-1AD
250 lb (113.4 kg)	7MH7725-1AE
500 lb (226.8 kg)	7MH7725-1AF
750 lb (340.2 kg)	7MH7725-1AG
1 000 lb (453.6 kg)	7MH7725-1AH
1 250 lb (567 kg)	7MH7725-1EA
1 500 lb (680.4 kg)	7MH7725-1EB
100 lb (45.4 kg), NTEP, OIML/MID	7MH7725-1DB
250 lb (113.4 kg), NTEP, OIML/MID	7MH7725-1DC
500 lb (226.8 kg), NTEP, OIML/MID	7MH7725-1DD
750 lb (340.2 kg), NTEP, OIML/MID	7MH7725-1DE

Belt Weighing

Belt scales

Milltronics MSI and MMI

Selection and ordering data (Continued)

Selection and ordering data	Order Code
1 000 lb (453.6 kg), NTEP, OIML/MID	7MH7725-1DF
50 lb (22.7 kg), CSA/FM/ATEX/IECEX	7MH7725-1DT
100 lb (45.4 kg), CSA/FM/ATEX/IECEX	7MH7725-1DU
250 lb (113.4 kg), CSA/FM/ATEX/IECEX	7MH7725-1DV
500 lb (226.8 kg), CSA/FM/ATEX/IECEX	7MH7725-1DW
750 lb (340.2 kg), CSA/FM/ATEX/IECEX	7MH7725-1DX
1 000 lb (453.6 kg), CSA/FM/ATEX/IECEX	7MH7725-1DY
1 250 lb (567 kg), CSA/FM/ATEX/IECEX	7MH7725-1EE
1 500 lb (680.4 kg), CSA/FM/ATEX/IECEX	7MH7725-1EF
<u>Load cell with 316 (1.4401) stainless steel cover</u>	
25 lb (11.3 kg)	PBD-25851-A8H53
50 lb (22.7 kg)	PBD-25851-A0H53
100 lb (45.4 kg)	PBD-25851-A1H53
250 lb (113.4 kg)	PBD-25851-A2H53
500 lb (226.8 kg)	PBD-25851-A3H53
750 lb (340.2 kg)	PBD-25851-A4H53
1 000 lb (453.6 kg)	PBD-25851-A5H53
1 250 lb (567 kg)	PBD-25851-A6H53
1 500 lb (680.4 kg)	PBD-25851-A7H53
2 000 lb (907.2 kg)	PBD-25851-A9H53
100 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B1H53
250 lb (113.4 kg), NTEP, OIML/MID	PBD-25851-B2H53
500 lb (226.8 kg), NTEP, OIML/MID	PBD-25851-B3H53
750 lb (340.2 kg), NTEP, OIML/MID	PBD-25851-B4H53
1 000 lb (453.6 kg), NTEP, OIML/MID	PBD-25851-B5H53
<u>Load cell, high temperature up to 175 °C (347 °F)</u>	
25 lb (11.3 kg)	PBD-25851-A8T50
50 lb (22.7 kg)	PBD-25851-A0T50
100 lb (45.4 kg)	PBD-25851-A1T50
250 lb (113.4 kg)	PBD-25851-A2T50
500 lb (226.8 kg)	PBD-25851-A3T50
750 lb (340.2 kg)	PBD-25851-A4T50
1 000 lb (453.6 kg)	PBD-25851-A5T50
1 250 lb (567 kg)	PBD-25851-A6T50
1 500 lb (680.4 kg)	PBD-25851-A7T50
2 000 lb (907.2 kg)	PBD-25851-A9T50
<u>Load cell, high temperature up to 175 °C (347 °F) with 316 (1.4401) stainless steel cover</u>	
25 lb (11.3 kg)	PBD-25851-A8TH
50 lb (22.7 kg)	PBD-25851-A0TH
100 lb (45.4 kg)	PBD-25851-A1TH
250 lb (113.4 kg)	PBD-25851-A2TH
500 lb (226.8 kg)	PBD-25851-A3TH
750 lb (340.2 kg)	PBD-25851-A4TH
1 000 lb (453.6 kg)	PBD-25851-A5TH
1 250 lb (567 kg)	PBD-25851-A6TH
1 500 lb (680.4 kg)	PBD-25851-A7TH
2 000 lb (907.2 kg)	PBD-25851-A9TH
<u>Load cell with 15 m (49.2 ft) cable length</u>	
25 lb (11.3 kg)	PBD-25851-A8A08
50 lb (22.7 kg)	PBD-25851-A0A08
100 lb (45.4 kg)	PBD-25851-A1A08
250 lb (113.4 kg)	PBD-25851-A2A08
500 lb (226.8 kg)	PBD-25851-A3A08

Selection and ordering data (Continued)

Selection and ordering data	Order Code
750 lb (340.2 kg)	PBD-25851-A4A08
1 000 lb (453.6 kg)	PBD-25851-A5A08
1 250 lb (567 kg)	PBD-25851-A6A08
1 500 lb (680.4 kg)	PBD-25851-A7A08
2 000 lb (907.2 kg)	PBD-25851-A9A08
100 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B1A08
250 lb (113.4 kg), NTEP, OIML/MID	PBD-25851-B2A08
500 lb (226.8 kg), NTEP, OIML/MID	PBD-25851-B3A08
750 lb (340.2 kg), NTEP, OIML/MID	PBD-25851-B4A08
1 000 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B5A08
<u>Load cell with 15 m (49.2 ft) cable length and 316 (1.4401) stainless steel cover</u>	
25 lb (11.3 kg)	PBD-25851-A8AH
50 lb (22.7 kg)	PBD-25851-A0AH
100 lb (45.4 kg)	PBD-25851-A1AH
250 lb (113.4 kg)	PBD-25851-A2AH
500 lb (226.8 kg)	PBD-25851-A3AH
750 lb (340.2 kg)	PBD-25851-A4AH
1 000 lb (453.6 kg)	PBD-25851-A5AH
1 250 lb (567 kg)	PBD-25851-A6AH
1 500 lb (680.4 kg)	PBD-25851-A7AH
2 000 lb (907.2 kg)	PBD-25851-A9AH
100 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B1AH
250 lb (113.4 kg), NTEP, OIML/MID	PBD-25851-B2AH
500 lb (226.8 kg), NTEP, OIML/MID	PBD-25851-B3AH
750 lb (340.2 kg), NTEP, OIML/MID	PBD-25851-B4AH
1 000 lb (453.6 kg), NTEP, OIML/MID	PBD-25851-B5AH
<u>Load cell, high temperature up to 175 °C (347 °F) with 15 m (49.2 ft) cable length</u>	
25 lb (11.3 kg)	PBD-25851-A8TA
50 lb (22.7 kg)	PBD-25851-A0TA
100 lb (45.4 kg)	PBD-25851-A1TA
250 lb (113.4 kg)	PBD-25851-A2TA
500 lb (226.8 kg)	PBD-25851-A3TA
750 lb (340.2 kg)	PBD-25851-A4TA
1 000 lb (453.6 kg)	PBD-25851-A5TA
1 250 lb (567 kg)	PBD-25851-A6TA
1 500 lb (680.4 kg)	PBD-25851-A7TA
2 000 lb (907.2 kg)	PBD-25851-A9TA
<u>Load cell, high temperature up to 175 °C (347 °F) with 15 m (49.2 ft) cable length and 316 (1.4401) stainless steel cover</u>	
25 lb (11.3 kg)	PBD-25851-A8AHT
50 lb (22.7 kg)	PBD-25851-A0AHT
100 lb (45.4 kg)	PBD-25851-A1AHT
250 lb (113.4 kg)	PBD-25851-A2AHT
500 lb (226.8 kg)	PBD-25851-A3AHT
750 lb (340.2 kg)	PBD-25851-A4AHT
1 000 lb (453.6 kg)	PBD-25851-A5AHT
1 250 lb (567 kg)	PBD-25851-A6AHT
1 500 lb (680.4 kg)	PBD-25851-A7AHT
2 000 lb (907.2 kg)	PBD-25851-A9AHT
Idler clips	
5 inch (127 mm) for 27 ... 62 inch (686 ... 1 575 mm) "A" dimensions	7MH7723-1BT

Belt Weighing

Belt scales

Milltronics MSI and MMI

Selection and ordering data (Continued)

Selection and ordering data	Order Code
7 inch (178 mm) for 63 ... 74 inch (1 600 ... 1 880 mm) "A" dimensions	7MH7723-1DF
Calibration weights	
6.0 lb/ 2.7 kg	7MH7724-1AB
18 lb/ 8.2 kg	7MH7724-1AA
See Milltronics flat bar calibration weights catalog sheet: https://support.industry.siemens.com/cs/document/109813400	
Note: calibration accessories should be ordered as a separate line order.	
Intrinsically safe barriers for use with IS mining approvals	
Mild steel enclosure 115 V AC P+F barrier	A5E39271483
Mild steel enclosure 230 V AC P+F barrier	A5E39271487
Stainless steel enclosure 115 V AC P+F barrier	A5E39271485
Stainless steel enclosure 230 V AC P+F barrier	A5E39271489

- 1) Only for quotation purposes, not a valid ordering option.
- 2) Available with Fabrication options 11 ... 18 and 41 ... 48 only, and with System specification option A only.
- 3) Two MSI are required to make the NTEP approved MMI.
- 4) Approval available with load cell options 2 ... 6 only and applicable BW500.
- 5) Complete specification data sheet on page 4/27 and submit with order "legal for trade" version.
- 6) Includes metrological approved load cells.
- 7) Not available with construction option 2, or system specification options B, C, D.
- 8) Barrier contains connections for MMI-2 and speed sensor.

Technical specifications

Milltronics MSI and MMI	
Mode of operation	
Measuring principle	Strain gauge load cells measuring load on belt conveyor idler(s)
Typical application	
• MSI	Control in fractionated stone blending tunnels
• MMI	Custody transfer
Measurement accuracy	
Accuracy ¹⁾	
• MSI	± 0.5 % or better of totalization over 20 ... 100 % operating range
• MMI-2 (2 idler)	± 0.25 % or better of totalization over 20 ... 100 % operating range
• MMI-3 (3 idler)	± 0.125 % or better of totalization over 25 ... 100 % operating range
Note: available with system specification option D only	
Repeatability	± 0.1 %
Medium conditions	
Material temperature	-50 ... +200 °C (-58 ... +392 °F)
Belt design	
Belt width	<ul style="list-style-type: none"> • 18 ... 96 inch in CEMA sizes²⁾ • Equivalent to 500 ... 2 400 mm in metric size²⁾ • Refer to dimensions section
Belt speed	Up to 5 m/s (1 000 fpm) ²⁾
Capacity	Up to 12 000 t/h (13 200 STPH) at maximum belt speed. Please contact a Siemens representative for higher rates. ²⁾
Conveyor incline	<ul style="list-style-type: none"> • ± 20° from horizontal, fixed incline • Up to ± 30° with reduced accuracy³⁾

Technical specifications (Continued)

Milltronics MSI and MMI	
Idlers	
Idler profile	<ul style="list-style-type: none"> • Flat to 35° • Up to 45° with reduced accuracy³⁾
Idler diameter	50 ... 180 mm (2 ... 7 inch)
Idler spacing	0.5 ... 1.5 m (1.5 ... 5.0 ft)
Load cell	
Construction	Stainless steel construction with 304 (1.4301) stainless steel cover Strain gauge protection: polybutadiene
Degree of protection	IP67, IP65 on hazardous approved models
Cable length	3 m (10 ft) Note: to calculate installation cable length subtract 3 048 mm (120 inch) from the "A" dimension
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 ± 0.002 mV/V excitation (nominal) at rated load cell capacity
Non-linearity and hysteresis	0.02 % of rated output
Non-repeatability	0.01 % of rated output
Capacity	
• Maximum ranges	25, 50, 100, 250, 500, 750, 1 000, 1 250, 1 500, 2 000 lb
Overload	150 % of rated capacity, ultimate 300 % of rated capacity
Temperature	<ul style="list-style-type: none"> • -50 ... +75 °C (-58 ... +167 °F) operating range, optional -50 ... +175 °C (-58 ... 347 °F) • -40 ... +65 °C (-40 ... +150 °F) compensated • -10 ... +40 °C (14 ... 104 °F) compensated on trade approved versions
Weight	See dimensions section

Technical specifications (Continued)

Milltronics MSI and MMI	
Interconnection wiring (to integrator, per MSI)	< 150 m (500 ft) 18 AWG (0.75 mm ²) 6 conductor shielded cable > 150 ... 300 m (500 ... 1 000 ft) 18 ... 22 AWG (0.75 ... 0.34 mm ²), 8 conductor shielded cable
Approvals	<ul style="list-style-type: none"> • CSA/FM Class II, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III; • ATEX I M1 Ex ia I Ma, ATEX II 1 GD Ex ia IIC T4 Ga, ATEX II 1 GD Ex ia IIIC T135°C Da, ATEX II 2 D Ex tb IIIC T90°C Db; • UKEX I M1 Ex ia I Ma, UKEX II 1 GD Ex ia IIC T4 Ga, UKEX II 1 GD Ex ia IIIC T135°C Da, UKEX II 2 D Ex tb IIIC T90°C Db; • IECEx Ex ia I Ma, IECEx Ex ia IIC T4 Ga, IECEx Ex ia IIIC T135°C Da, IECEx Ex tb IIIC T90°C Db; • EAC Ex Ex tD A21 IP65 T90°C X; • KCs Ex tD A21 IP65 T90°C; • MSHA; • CE, UKCA, RCM, EAC, KC, CMC, RTN
Metrology approvals	Measurement Canada, MID, OIML, SABS ⁴ , NTEP ⁵ , STAMEQ, GOST

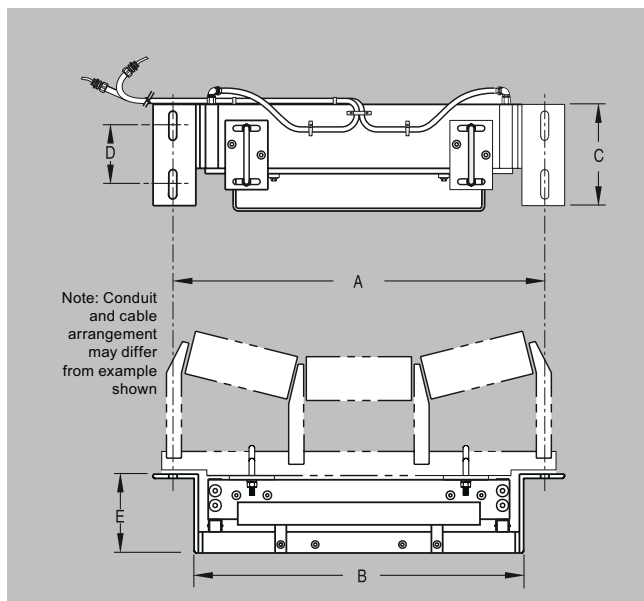
- 1) Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.
- 2) Contact Siemens () for consideration of higher values.http://www.automation.siemens.com/aspa_app
- 3) Review by Siemens required ().http://www.automation.siemens.com/aspa_app
- 4) MSI only.
- 5) MMI only.

Belt Weighing

Belt scales

Milltronics MSI and MMI

Dimensional drawings



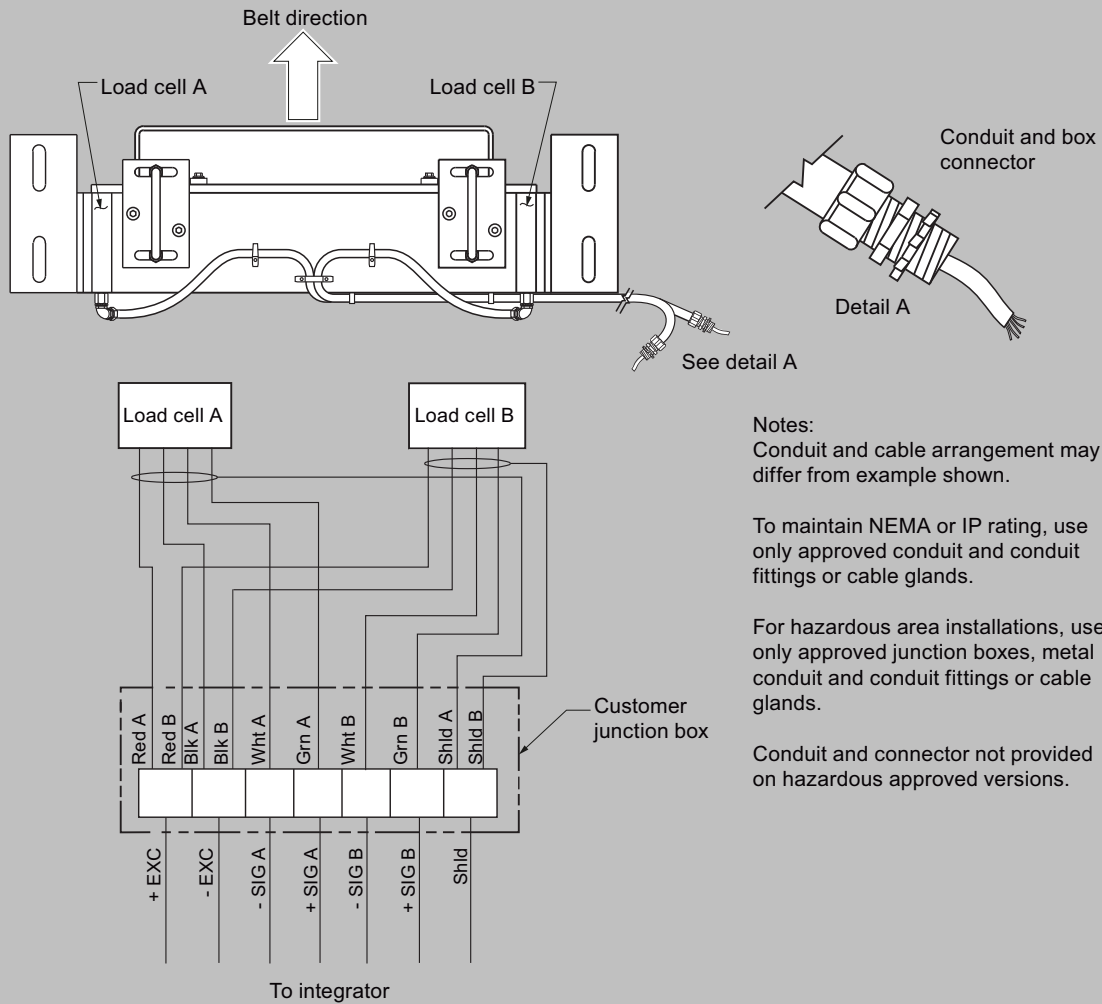
MSI dimensions

Conveyor belt width	Mounting scale width A	Minimum drop-in width B	C	D	E	Weight (approx.)
18 inch (457 mm)	27 inch (686 mm)	23.25 inch (591 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	82 lb (37 kg)
20 inch (508 mm)	29 inch (737 mm)	25.25 inch (641 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	85 lb (39 kg)
24 inch (610 mm)	33 inch (838 mm)	29.25 inch (743 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	90 lb (41 kg)
30 inch (762 mm)	39 inch (991 mm)	35.25 inch (895 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	99 lb (45 kg)
36 inch (914 mm)	45 inch (1 143 mm)	41.25 inch (1 048 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	107 lb (49 kg)
42 inch (1 067 mm)	51 inch (1 295 mm)	47.25 inch (1 200 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	116 lb (53 kg)
48 inch (1 219 mm)	57 inch (1 448 mm)	53.25 inch (1 353 mm)	9.5 inch (241 mm)	5.5 inch (140 mm)	7 inch (178 mm)	125 lb (57 kg)
54 inch (1 372 mm)	63 inch (1 600 mm)	59.25 inch (1 505 mm)	12 inch (305 mm)	8 inch (203 mm)	7 inch (178 mm)	175 lb (79 kg)
60 inch (1 524 mm)	69 inch (1 753 mm)	65.25 inch (1 657 mm)	12 inch (305 mm)	8 inch (203 mm)	7 inch (178 mm)	193 lb (88 kg)
66 inch (1 676 mm)	75 inch (1 905 mm)	71.25 inch (1 810 mm)	12 inch (305 mm)	8 inch (203 mm)	8 inch (203 mm)	229 lb (104 kg)
72 inch (1 829 mm)	81 inch (2 057 mm)	77.25 inch (1 962 mm)	12 inch (305 mm)	8 inch (203 mm)	8 inch (203 mm)	247 lb (112 kg)

Other widths available - check configuration information. Sizes are from 18 inch (457 mm) to 96 inch (2 438 mm) in 1 inch (25.4 mm) increments. All sizes are nominal.

Note: dimension B must be approx. 3/8 inch or 10 mm less than Y dimension of the conveyor (see Application Questionnaire at <http://www.siemens.com/weighing/application-questionnaires>).

Circuit diagrams



MSI/MMI connections

Belt Weighing

Belt scales

Milltronics MSI and MMI

More information

NTEP/Measurement Canada/OIML & MID Specification Data

Please complete and submit the Value relevant details listed below when ordering NTEP, Measurement Canada, or OIML & MID approval options

NTEP	
Maximum rated capacity (TPH)	
Minimum rated capacity (TPH)	
Belt speed (FPM)	
Scale division (tons)	
Maximum loading (lb/ft)	
Measurement Canada	
Rate	
Speed (min/max m/s, FPM)	
Test load (kg/m, lb/ft)	
OIML & MID	
Totalization scale interval (tonnes)	
Belt speed max/min (m/s)	
Maximum flow rate (MTPH)	
Minimum flow rate (MTPH)	
Minimum totalized load (tonnes)	
Product to be weighed	
Maximum capacity (tonnes)	
Weigh length (m)	
Ratio between minimum net load and maximum capacity	
Zero testing should have a duration of at least () revolutions	

Overview



Milltronics WD600 is a light- to medium-duty slider bed belt scale used for process and load-out control in manufacturing, including the food, pharmaceutical and tobacco industries.

Benefits

- Simple installation
- Long weigh span for more retention time on load cells

Application

WD600 works with an existing flat belt conveyor and the selected Siemens integrator. As material is moving along the conveyor belt and travels over the belt scale, it exerts a force proportional to the material load through the suspended weighbridge to the load cells. WD600 reacts only to the vertical component of the applied force. The resulting movement in each load cell is sensed by its strain gauges. When the strain gauges are excited by voltage from the electronic integrator, they produce an electrical signal proportional to weight, which is then applied to the integrator.

The vertical movement of the load cells is limited by the positive overload stop incorporated into the design of the load cell mount.

Selection and ordering data

Milltronics WD600 Belt scale: accuracy is $\pm 0.5 \dots 1 \%$ totalization over 25 ... 100 % operating range with capacity up to 100 t/h (110 STPH).	Article No. 7MH7185-	●	●	A	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Belt width					
12 inch (300 mm)		1			
18 inch (450 mm)		2			
24 inch (600 mm)		3			
30 inch (750 mm)		4			
36 inch (900 mm)		5			
42 inch (1 000 mm)		6			
48 inch (1 200 mm)		7			
Load cell capacity					
<u>Nickel plated</u>					
10 kg (22 lb)				D	
15 kg (33.1 lb)				E	
20 kg (44 lb)				F	
30 kg (66.2 lb)				G	
50 kg (110 lb)				L	
<u>Stainless steel</u>					
6 kg (13.2 lb)				H	
12 kg (26.4 lb)				J	
30 kg (66.2 lb)				K	

Belt Weighing

Belt scales

Milltronics WD600

Selection and ordering data (Continued)

Selection and ordering data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)]. Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	
Load cells	Article No.
<u>Stainless steel</u>	
6 kg (13.2 lb)	7MH7725-1EG
12 kg (26.4 lb)	7MH7725-1EH
30 kg (66.2 lb)	7MH7725-1EJ
<u>Nickel plated</u>	
10 kg (22 lb)	7MH7725-1EK
15 kg (33.1 lb)	7MH7725-1EL
20 kg (44 lb)	7MH7725-1EM
30 kg (66.2 lb)	7MH7725-1EN
50 kg (110 lb)	7MH7725-1EP
Slider bar UHMW PE	7MH7723-1KF
Test chain 1.62 lb/ft (2.41 kg/m), 60 inch	7MH7723-1NF
Calibration Hanger Weights	
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
3 500 g (7.7 lb)	7MH7724-1BQ
5 000 g (11 lb)	7MH7724-1AK
7 500 g (16.5 lb)	7MH7724-1BR
8 500 g (18.7 lb)	7MH7724-1BS
10 000 g (22 lb)	7MH7724-1BT
12 000 g (26.5 lb)	7MH7724-1BU
15 000 g (33.1 lb)	7MH7724-1BV
Note: calibration accessories should be ordered as a separate item on the order.	

Technical specifications

Milltronics WD600	
Accuracy ¹⁾	± 0.5 ... 1 % totalization over 25 ... 100 % operating range, application dependent
Repeatability	± 0.1 %
Belt width	12, 18, 24, 30, 36, 42, 48 inch (300, 450, 600, 750, 900, 1 000, 1 200 mm)
Belt speed	2.0 m/s (400 fpm) maximum ²⁾
Capacity	Up to 100 t/h ²⁾
Conveyor incline	<ul style="list-style-type: none"> • ± 20° from horizontal, fixed incline • Up to ± 30° with reduced accuracy³⁾
Conveyor idler/slider profile	Horizontal
Loading	<ul style="list-style-type: none"> • Minimum 1.0 kg/m (0.6 lb/ft) • Maximum 76 kg/m (51 lb/ft)
Load cell	
Construction	17-4 PH (1.4568) stainless steel or nickel plated alloy steel Strain gauge protection: silicon (nickel plated version only)
Degree of protection	<ul style="list-style-type: none"> • Stainless steel: IP68 • Nickel plated alloy steel: IP66
Cable length	3 m (10 ft)
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V
Non-linearity	0.02 % of rated output
Non-repeatability	0.01 % of rated output
Capacity	Stainless steel range: 6, 12, 30 kg Nickel-plated range: 10, 15, 20, 30, 50 kg
Overload	150 % of rated capacity
Temperature	<ul style="list-style-type: none"> • -40 ... +65 °C (-40 ... +149 °F) operating range • -10 ... +40 °C (14 ... 104 °F) compensated
Scale construction	<ul style="list-style-type: none"> • Stainless steel construction, bead blast finish (1 ... 6 µm, 40 ... 240 µin) • UHMW PE sliders
Hazardous locations	Consult the factory
Approvals	CE, UKCA, meets FDA/USDA requirements for food processing, RCM, EAC, KC

¹⁾ Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

²⁾ Contact Siemens () for consideration of higher values.http://www.automation.siemens.com/aspa_app

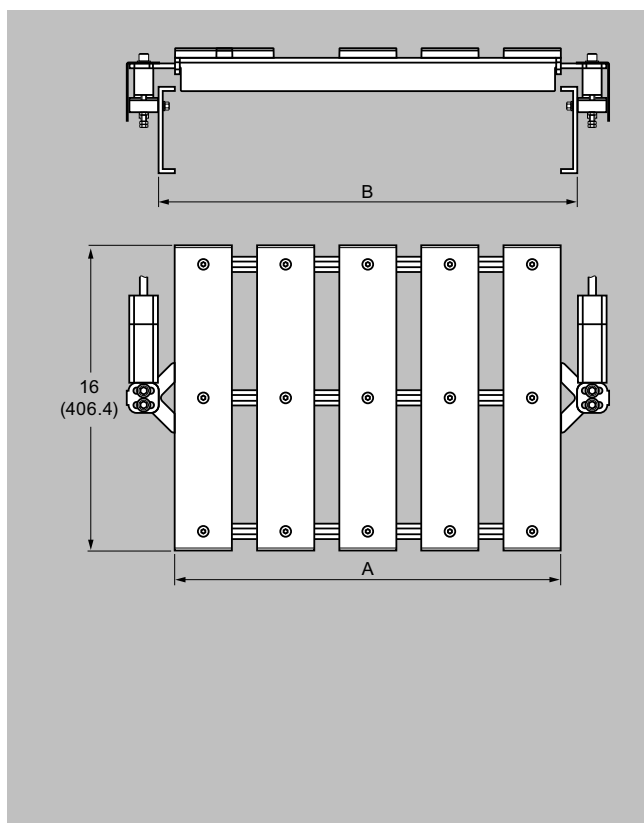
³⁾ Review by Siemens required ().http://www.automation.siemens.com/aspa_app

Belt Weighing

Belt scales

Milltronics WD600

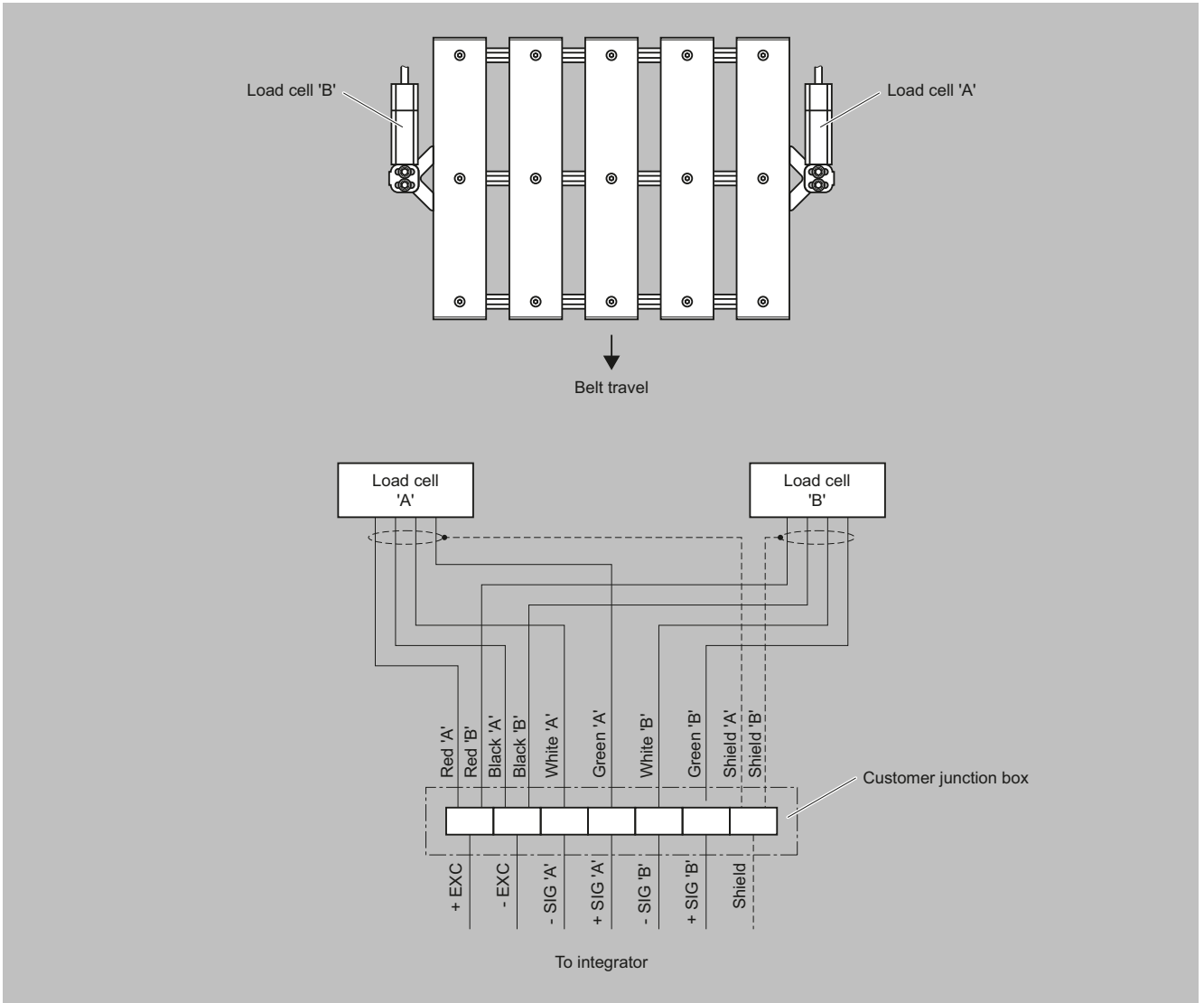
Dimensional drawings



Belt with	A	B (min.)	B (max.)
12 (300)	14.25 (362)	15 (381)	16.5 (419)
18 (450)	20.25 (514)	21 (533)	22.5 (572)
24 (600)	20.25 (514)	27 (686)	28.5 (724)
30 (750)	32.25 (819)	33 (838)	34.5 (876)
36 (900)	38.25 (972)	39 (991)	40.5 (1 029)
42 (1 000)	44.25 (1 124)	45 (1 143)	46.5 (1 181)
48 (1 200)	50.25 (1 276)	51 (1 295)	52.5 (1 334)

WD600, dimensions in inch (mm)

Circuit diagrams



WD600 connections

Belt Weighing

Speed sensors

Milltronics TASS

Overview



Milltronics TASS is a compact low-profile, wheel-driven return belt speed sensor, ideal for use on mobile crushers and in constricted spaces.

Benefits

- Rugged design
- Easy, low cost installation
- Compact, low-profile speed sensor
- IP67 rated

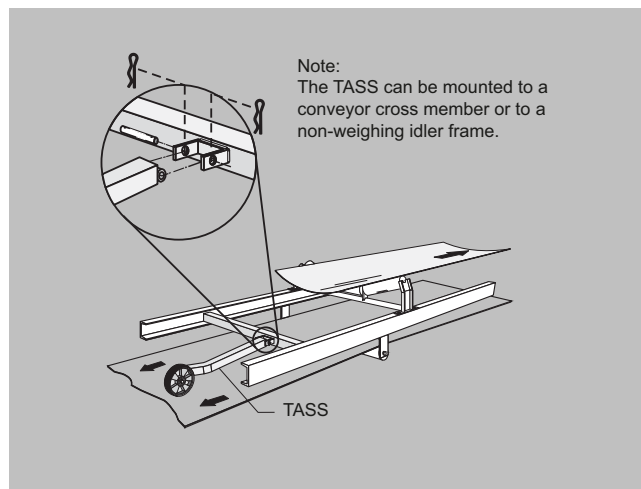
Application

Milltronics TASS speed sensor operates in conjunction with a conveyor belt scale, providing signals to an integrator (Milltronics BW500, or SIWAREX FTC) which computes the rate of material being conveyed. The trailing arm speed sensor monitors conveyor belt speed, with the output signal transmitted by cable connection to the integrator.

Easily installed close to the belt scale assembly, the TASS provides a signal generated as the wheel rotates on the return belt. Pulses are generated by the internal proximity switch detecting the rotation of the five spoked wheel. The TASS is mounted to the static beam of the belt scale or to a structural cross member via a pivoting bracket assembly.

The TASS is a compact, low-profile, rugged speed sensor, most often used on mobile crusher applications where space is limited. The TASS output can be applied to any Milltronics belt scale integrator.

Design



TASS Installation

Selection and ordering data

Milltronics TASS Speed sensor Return belt mounted, 25 ... 350 rpm, with 9.947 pulses/m (3.03 pulses/ft).		Article No. 7MH7131- ● ● ● ● 0				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Model						
5 pulses per revolution	1					
Fabrication						
Standard, C5-M rated polyester painted mild steel			A			
Stainless steel 304 (1.4301), bead blast finish (1 ... 6 μm, 40 ... 240 μin)			B			
Note: wheel is aluminum for all versions						
Mounting options						
Complete with standard mounting kit				A		
Approvals						
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC, KC						1

Selection and ordering data (Continued)

Selection and ordering data	Order Code
Further designs Please add "-Z" to article no. and specify order code(s). Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)]. Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Manufacturer's test certificate: According to EN 10204-2.2	C11
Operating instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	Article No.
TASS wheel	7MH7723-1AN
TASS proximity switch	7MH7723-1AP
TASS wheel, stainless steel sealed bearing	7MH7723-1GW
Conduit replacement kit	7MH7723-1NA

Technical specifications

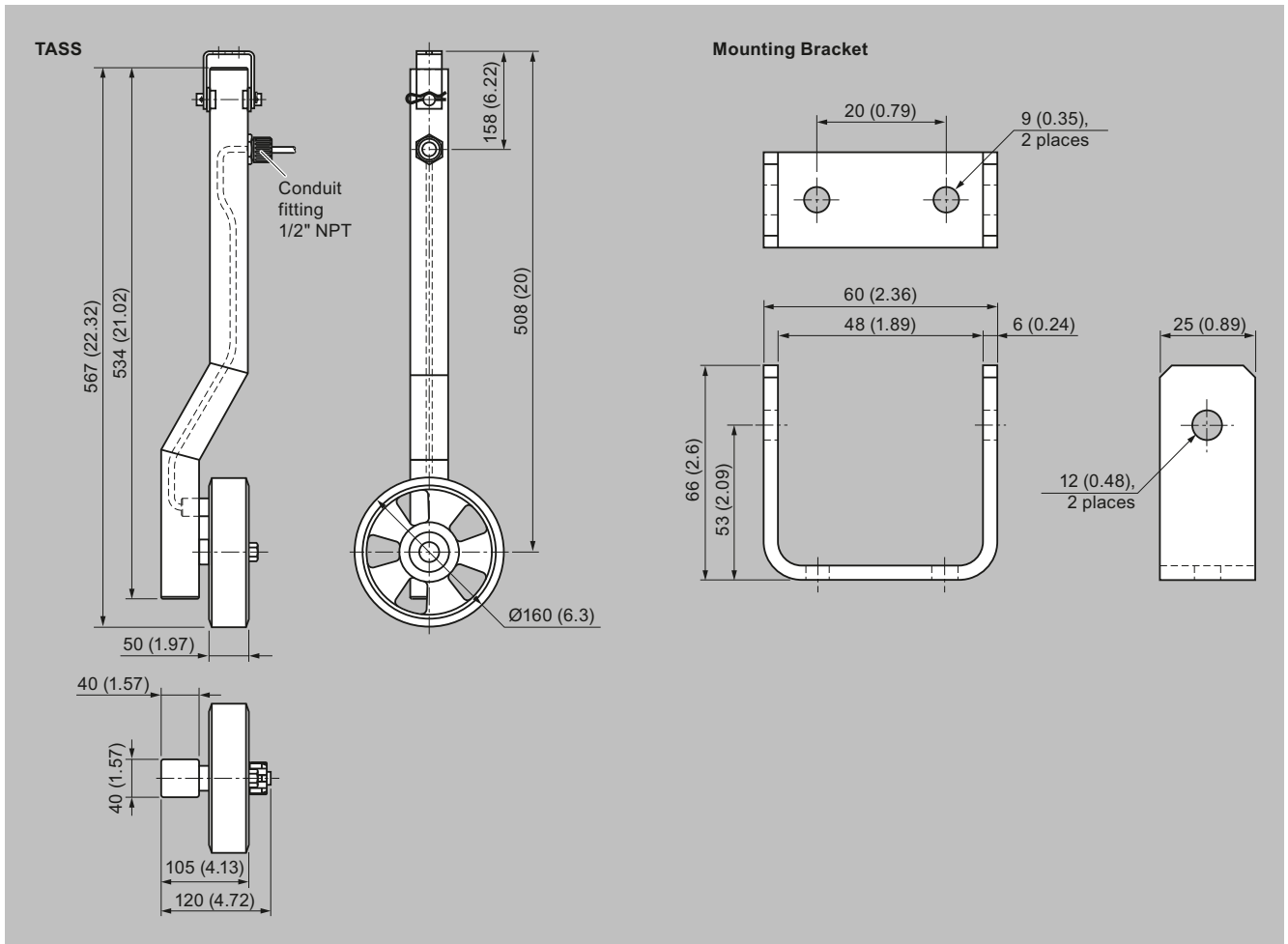
Milltronics TASS	
Mode of operation	
Measuring principle	Inductive proximity sensor provides pulse to integrator
Typical application	Mobile crusher
Input	<ul style="list-style-type: none"> • Bi-directional wheel rotation • 25 ... 350 rpm
Output	<ul style="list-style-type: none"> • Inductive proximity sensor • Open collector, NPN, sinking output, max. 200 mA • Pulses: 5 per revolution • 9.947 pulses/m, 3.03 pulses/ft
Rated operating conditions	
Operating temperature	-25 ... +70 °C (-13 ... +158 °F)
Max. belt speed	3 m/s (590 fpm)
Degree of protection	IP67
Design	
Trailing arm assembly	Painted mild steel
Wheel	160 mm (6.3 inch) diameter cast aluminum with polyurethane tread
Power supply	10 ... 35 V DC, 15 mA at 24 V DC maximum
Wiring	
Brown	+ Excitation (10 ... 35 V DC)
Black	+ Signal
Blue	- Common
Interconnection wiring (to integrator)	<ul style="list-style-type: none"> • 5 m, 3 conductor shielded PVC cable, 3 x 0.25 mm² (23 AWG), protected with 1 000 mm of flexible conduit • 300 m (1 000 ft) maximum cable run
Approvals	CE, UKCA, RCM, EAC, KC

Belt Weighing

Speed sensors

Milltronics TASS

Dimensional drawings



TASS, dimensions in mm (inch)

Overview



Milltronics RBSS is a high resolution, wheel-driven return belt speed sensor.

Benefits

- Rugged design
- IP67 rated
- Easy, low cost installation
- Accurate belt speed detection

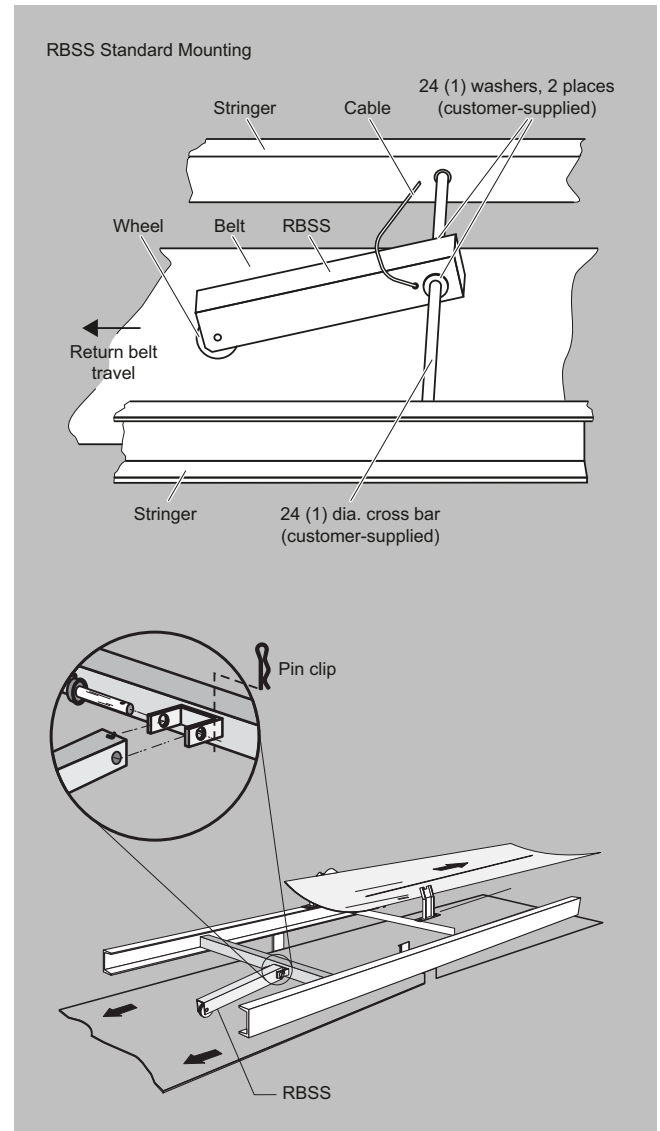
Application

Milltronics RBSS monitors conveyor belt speed, with the output signal transmitted by cable connection to the integrator (Milltronics BW500, or SIWAREX FTC).

Easily installed close to the belt scale assembly, the RBSS provides a signal generated as the wheel on the sensor rotates on the return belt. To secure this cost-effective unit in place, position a cross bar between stringers - either just before or after a return belt idler, or use the optional mounting bracket. The weight of the RBSS ensures positive rotation of the wheel in the middle of the return belt, and pulses from the magnetic sensor are generated by the rotation of the 60 toothed speed sprocket driven by the wheel.

The RBSS output can be applied to any belt scale integrator.

Design



RBSS installation, dimensions in mm (inch)

Belt Weighing

Speed sensors

Milltronics RBSS

Selection and ordering data

Milltronics RBSS Speed sensor Return belt mounted, 2 ... 450 rpm, with 150.4 pulses/m (4.58 pulses/ft).	Article No.				
	7MH7134-	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Model					
60 pulses per revolution		2			
Fabrication					
Standard, C5-M rated polyester painted mild steel			A		
Mounting options					
With mounting kit				B	
Approvals					
CE, UKCA, RCM, EAC, KC					3

Selection and ordering data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)]. Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Manufacturer's test certificate: According to EN 10204-2.2	C11
Operating instructions	
All literature is available to download for free, in a range of languages, at: http://www.siemens.com/weighing/documentation	
Spare parts	Article No.
Wheel, 127 diapolurethane, sealed bearing	7MH7723-1FX
Magnetic proximity switch	7MH7723-1GA
Wheel and shaft, 152 mm dia. ²⁾	7MH7723-1EN
60 tooth gear ²⁾	7MH7723-1EQ
Bearing (two required) ²⁾	7MH7723-1ER
Accessories	
Conduit kit	7MH7723-1NA

²⁾ For use with old style RBSS PBD-51033452.

Technical specifications

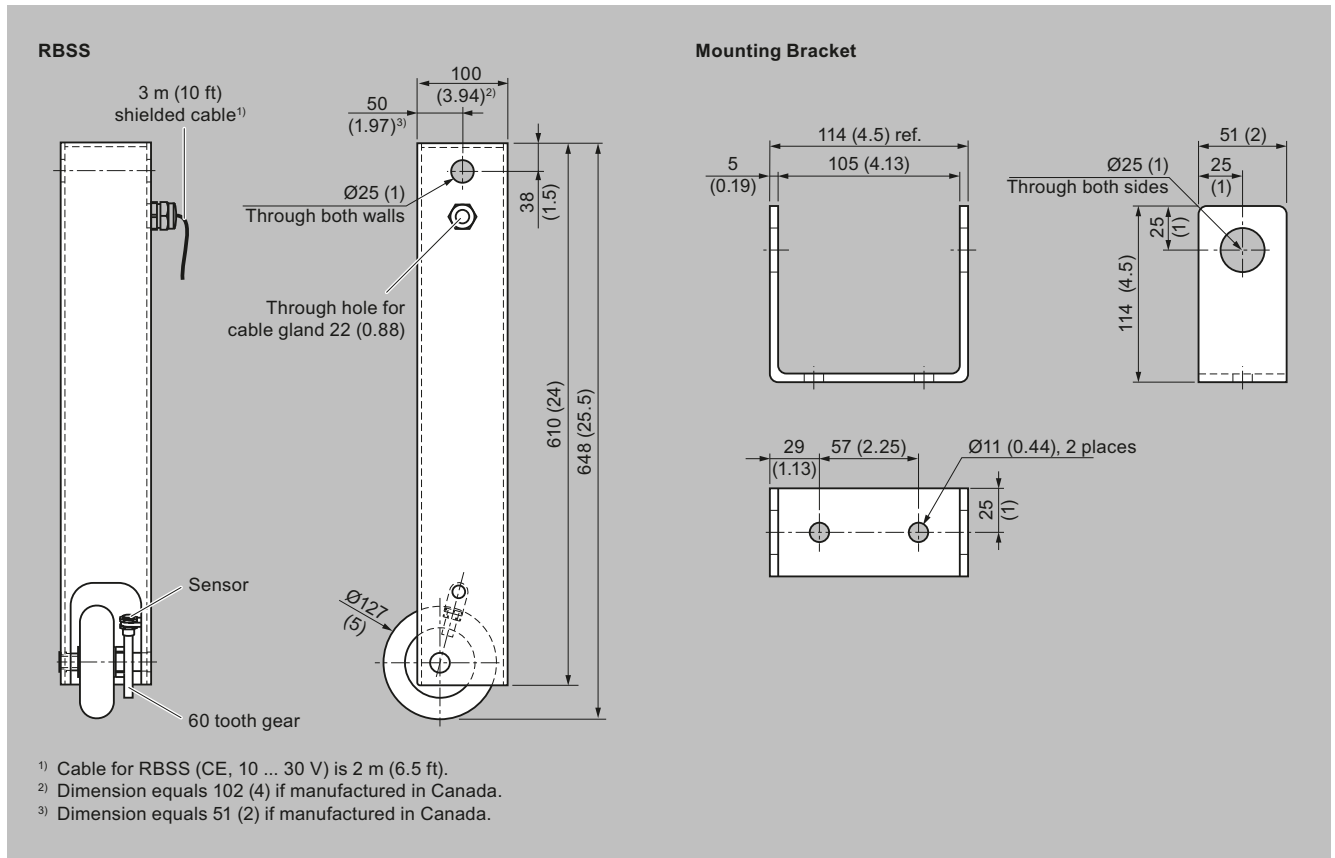
Milltronics RBSS	
Mode of operation	
Measuring principle	Magnetic proximity sensor provides pulse to integrator
Typical application	Aggregate belt conveyors
Input	Wheel rotation 2 ... 450 rpm, bi-directional
Output	<ul style="list-style-type: none"> 60 pulses per revolution, 2 ... 450 Hz, 150.4 pulses/m (4.58 pulses/ft) RBSS: open collector, NPN sinking output, max. 17 mA
Rated operating conditions	
Ambient temperature	RBSS: -40 ... +105 °C (-40 ... +220 °F)
Max. belt speed	3 m/s (590 fpm)
Degree of protection	IP67
Design	
Trailing arm	Painted mild steel
Sensor wheel	127 mm (5 inch) diameter, polyurethane tread
Power supply	RBSS: 4.5 ... 28 V DC, 16 mA
Interconnection wiring (to integrator)	<ul style="list-style-type: none"> RBSS: 3 m, 3 conductor, 22 AWG shielded cable - 300 m (1 000 ft) maximum cable run

Technical specifications (Continued)

Milltronics RBSS	
Approvals	
RBSS	CE, UKCA, RCM, EAC, KC ¹⁾

¹⁾ EMC performance available upon request.

Dimensional drawings



RBSS, dimensions in mm (inch)

Belt Weighing

Speed sensors

SITRANS WS300

Overview



SITRANS WS300 is a low- to high-resolution shaft-driven speed sensor.

Benefits

- Compact and economical
- Easy, low-cost installation
- Accurate belt speed detection
- Optional resolutions for measurement over a range of belt speeds
- Corrosion resistant

Application

SITRANS WS300 speed sensor operates in conjunction with a conveyor belt scale, providing a signal to an integrator which computes the rate of material being conveyed. At only 1.22 kg (2.68 lb), it is one of the lightest and most durable units ever developed for monitoring conveyor belt speed. With its rugged cast aluminum housing, it is suitable for outdoor installation, and its low weight prolongs bearing life.

It is directly coupled to a rotating tail or bend pulley shaft to ensure accurate belt-travel readout, eliminating problems caused by belt slippage or material build-up. The WS300 converts shaft rotation into a pulse train of 32, 256, 1 000, or 2 000 pulses per revolution using a high precision rotary optical encoder. The digital signal is transmitted as speed input to any Siemens integrator for calculation of belt speed, flow rate and totalized weight.

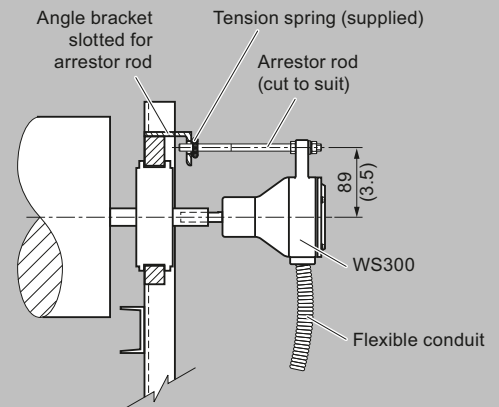
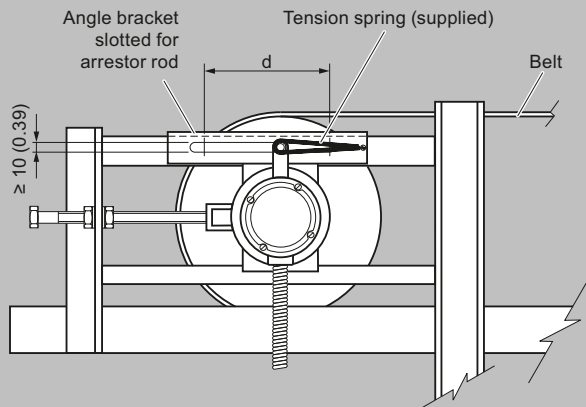
This low- to high-resolution speed sensor provides a frequency signal proportional to the shaft speed, enabling a range of speeds to be read accurately. The quadrature type shaft encoder prevents erroneous speed signals due to vibration or shaft oscillation. The WS300 is easily mounted and is bi-directional for either clockwise or counter-clockwise belt travel.

The IS version uses an inductive proximity switch detecting rotating targets.

Design

Mounting

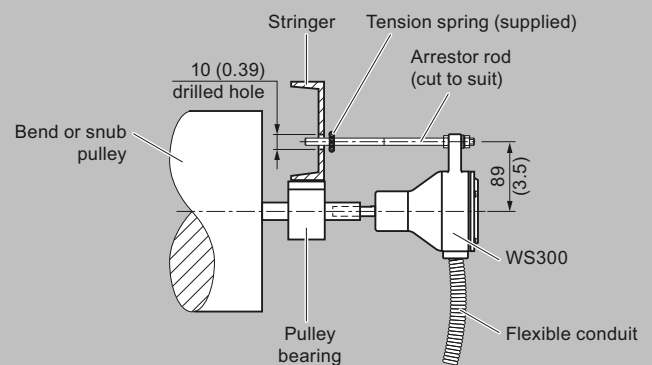
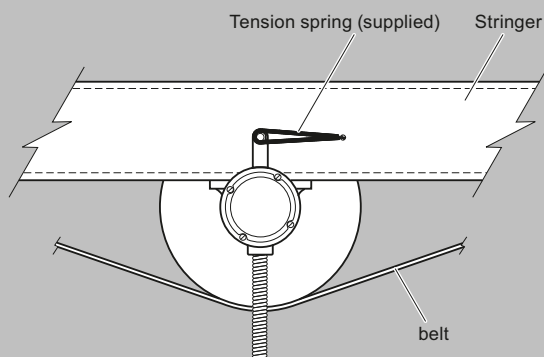
Mounting to a Tail Pulley

**Notes:**

Distance 'd' is the take-up travel on the tail pulley.

When adjusting the belt take-up, ensure that there is play on the arrestor rod. If the arrestor rod is pushed against the end of its travel slot, premature bearing wear may result.

Mounting to a Bend or Snub Pulley

**Notes:**

When mounting to a bend or a snub pulley only, a 10 mm (0.39 inch) drilled hole is required for the arrestor rod.

WS300 mounting, dimensions in mm (inch)

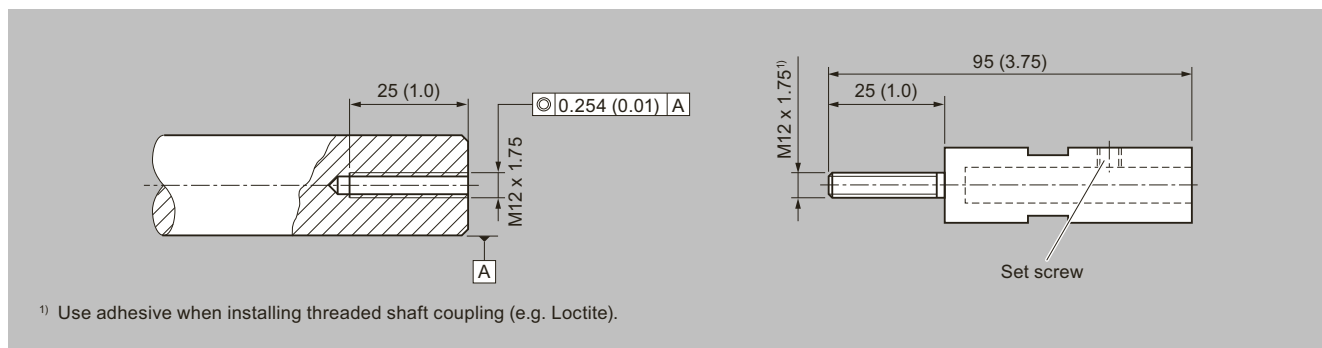
Belt Weighing

Speed sensors

SITRANS WS300

Design (Continued)

Mounting using optional threaded shaft coupling



WS300 mounting using threaded shaft coupling, dimensions in mm (inch)

Selection and ordering data

SITRANS WS300 Speed sensor Shaft mounted, 0.3 ... 2 000 rpm, with up to 2 000 pulses per revolution.	Article No.					
	7MH7177-	●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Resolution (pulses per revolution)						
32				1		
256				2		
1 000				3		
2 000				4		
Enclosure						
C5-M rated polyester painted aluminum, NEMA 4X				A		
304 (1.4301) stainless steel, vibra finish NEMA 4X				B		
Approvals						
CSA/FM Class II, Div. 1, Groups E, F, G, Class III; ATEX II 2D, Ex tb IIIC T70°C Db; UKEX II 2D, Ex tb IIIC T70°C Db; IECEX Ex tb IIIC T70°C Db; EAC Ex Ex tb IIIC T70°C Db X; NEPSI Ex tD A21 IP65 T70°C; CCC, RCM, KC					A	
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC, KC					D	
ATEX I M1, II 1 GD, Ex ia I Ma, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da, Ex h I Ma, Ex h IIC T4 Ga, Ex h IIIC T135°C Da; UKEX I M1, II 1 GD, Ex ia I Ma, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da, Ex h I Ma, Ex h IIC T4 Ga, Ex h IIIC T135°C Da; IECEX Ex ia I Ma, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da; EAC Ex P0 Ex ia I Ma X; MSHA, RCM, KC ¹⁾					E	
Connections						
Standard, up to 2 integrators					1	
Multiple, up to 10 integrators					2	
Switch isolator						
Not required						0
115 V AC ²⁾						1
230 V AC ²⁾						2

Selection and Ordering Data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: measuring-point number/identification (max. 16 characters), specify in plain text	Y17
Manufacturer's test certificate: according to EN 10204-2.2	C11
Operating instructions	

Selection and ordering data (Continued)

Selection and Ordering Data	Order Code
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	Article No.
Circuit card 32 PPR, up to 2 integrators	7MH7723-1GK
Circuit card 32 PPR, up to 10 integrators	7MH7723-1GL
Circuit card 256 PPR, up to 2 integrators	7MH7723-1GM
Circuit card 256 PPR, up to 10 integrators	7MH7723-1GN
Circuit card 1 000 PPR, up to 2 integrators	7MH7723-1GP
Circuit card 1 000 PPR, up to 10 integrators	7MH7723-1GQ
Circuit card 2 000 PPR, up to 2 integrators	7MH7723-1JL
Circuit card 2 000 PPR, up to 10 integrators	7MH7723-1JM
Circuit card 32 PPR, IS	7MH7723-1HC
Rubber coupling	7MH7723-1CM
Coupling hub for 32, 256 PPR versions	7MH7723-1CN
Coupling hub for 1 000, 2 000 PPR versions	7MH7723-1GR
Enclosure cover	7MH7723-1CJ
Enclosure cover, stainless steel	7MH7723-1GS
Enclosure bearing assembly, stainless steel	7MH7723-1GT
Threaded shaft coupling	7MH7723-1GH
Arrester rod	7MH7723-1FV
Arrester rod tension spring	7MH7723-1CP
WS300 mounting bracket for MD-36 retrofit	7MH7723-1NB
WS300 mounting bracket SS for MD-36 retrofit	7MH7723-1NC
Cable for speed sensor connection to termination box 3 cond, 18G (order per meter) ³⁾	7MH7723-1JP
Cable for IS speed sensor connection to termination box 3 cond, 22G (order per meter) ³⁾	7MH7723-1JQ
Pepperl+Fuchs IS switch isolator, 115 V AC	7MH7723-1EB
Pepperl+Fuchs IS switch isolator, 230 V AC	7MH7723-1EC

¹⁾ Approval option E requires use of switch isolator to interface with the belt scale integrator, and is available with Resolution option 1, and Connections option 1 only.

²⁾ For use with approval option E.

³⁾ Cable length orders exceeding 150 m (500 ft) may not be supplied as a continuous length.

Technical specifications

SITRANS WS300	
Mode of operation	
Measuring principle	Standard: pulse from shaft rotation using high precision rotary optical encoder IS: pulse from inductive proximity switch
Typical application	When a low- to high-resolution speed sensor is required
Input	Shaft rotation 0.3 ... 2 000 rpm, bi-directional, resolution dependent
Output	<ul style="list-style-type: none"> Unidirectional open collector, NPN, sinking output Standard: 10 ... 30 V DC, 25 mA max. IS: NAMUR NC, load current, 0 ... 15 mA 32, 256, 1 000, or 2 000 pulses per revolution (ppr) 32 ppr: 2 000 max. rpm, 1 066 Hz 256 ppr: 2 000 max. rpm, 8 530 Hz 1 000 ppr: 900 max. rpm, 15 000 Hz 2 000 ppr: 450 max. rpm, 15 000 Hz

Technical specifications (Continued)

SITRANS WS300	
Rated operating conditions	
Ambient temperature	Standard: -40 ... +70 °C (-40 ... +158 °F) IS: -25 ... +100 °C (-13 ... +212 °F)
Degree of protection	NEMA 4X, Type 4X, IP65
Design	
Enclosure	<ul style="list-style-type: none"> Rated NEMA 4X, Type 4X, IP65 Painted aluminum Stainless steel (optional)
Power supply	<ul style="list-style-type: none"> Standard: 10 ... 30 V DC, 60 mA max. IS: 5 ... 16 V DC, 25 mA max. (from IS switch isolator)
Cable	
Recommended	<ul style="list-style-type: none"> Standard: 3-wire shielded, 0.82 mm² (18 AWG) IS: 2-wire shielded 0.324 mm² (22 AWG) Max. run 305 m (1 000 ft)

Belt Weighing

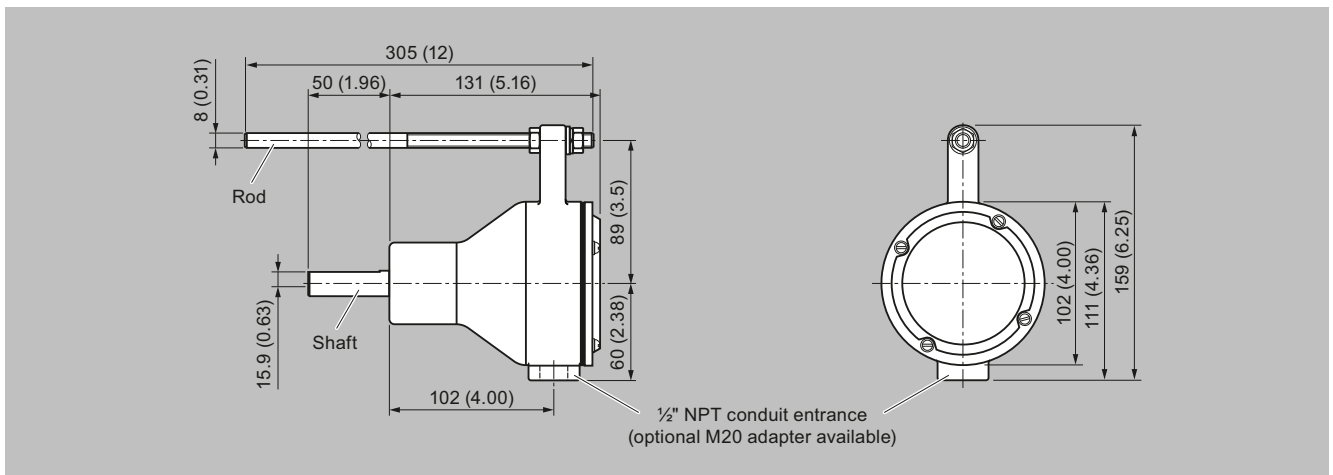
Speed sensors

SITRANS WS300

Technical specifications (Continued)

SITRANS WS300	
Approvals	
WS300 Standard	<ul style="list-style-type: none"> • CE, UKCA, RCM, EAC, KC
• General	
Hazardous	<ul style="list-style-type: none"> • CSA/FM Class II, Div. 1, Groups E, F, G; Class III • ATEX I M1, ATEX II 2D, Ex tb IIIC T70°C Db • UKEX I M1, UKEX II 2D, Ex tb IIIC T70°C Db • MSHA • EAC Ex, RTN • IECEx Ex tb IIIC T70°C Db
Optional switch isolator (required for WS300 IS)	
<ul style="list-style-type: none"> • Pepperl+Fuchs #KFA5-SOT2-Ex2, #KFA6-SOT2-Ex2, or #KFD2-SOT2-Ex2 	<ul style="list-style-type: none"> • ATEX II 1G [Ex ia] IIC • ATEX II 1D [Ex ia] IIIC • CSA/UL: Class 1, Div. 1, Groups A, B, C, and D. Class II, Div. 1, Groups E, F, and G, Class III • CE, UKCA

Dimensional drawings



WS300, dimensions in mm (inch)

Circuit diagrams

Connections (Standard)

Description	Terminal
10 ... 30 V DC	1
Speed out-CW	2
Speed out-CCW	3
Common	4
Ground	GND

- Determine the pulley shaft rotation on the end of the pulley shaft to which the WS300 is attached.
- If the pulley shaft is rotating clockwise, connect the appropriate wire to terminal 2. If the pulley shaft is rotating counter-clockwise, connect the appropriate wire to terminal 3.
- Do not connect terminals 2 and 3 at the same time.
- Connection between the WS300 standard unit and the integrator should be made with three-wire shielded, 0.82 mm² (18 AWG) cable.
- Ground shield of cable at integrator only.
- Connect shield to appropriate terminal at the integrator.

Terminal Connections to integrator

WS300	1 +V	2 CW	3 CCW	4 Cmn	GND
Milltronics BW500	19	16	16	17	N/C
SIWAREX FTC	Cl+, 1L+	Cl-	Cl-	1M	N/C
SIWAREX WP241	1L+	DI.0	DI.0	2M, 1M	N/C

Connections (IS)

Description	Terminal
5 ... 16 V DC, 25 mA max. (from IS Switch Isolator)	1
Speed out	2
Ground	GND

- Only terminals 1 and 2 are required; rotation in a clockwise or counter-clockwise direction is not required.
- To connect the switch isolator, use two-wire shielded 0.324 mm² (22 AWG) cable. Use the same cable to connect the switch isolator to the integrator.
- Ground shield of cable at integrator only.
- Connect shield to appropriate terminal at the integrator.

Terminal Connections to integrator

W300 IS	IS Switch Isolator Terminal	Milltronics BW500	SIWAREX FTC	SIWAREX WP241
1	3			
2	1			
	7	16	1L+	1L+
	8	17	Cl+	Cl+

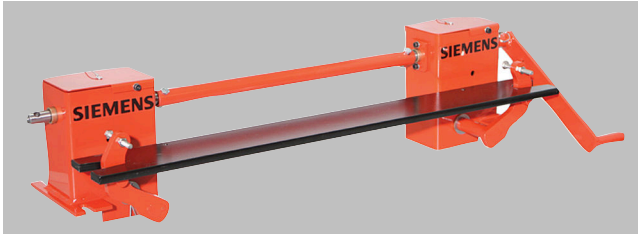
Connect Cl- to Common

Belt Weighing

Accessories

Calibration weight lifter Milltronics MWL

Overview



Milltronics MWL weight lifter is a mechanical calibration weight lifter for MCS, MSI, MMI, and MUS belt scales.

Benefits

- Safe and easy application of belt scale reference weights with the operator remaining external to the conveyor
- Modular construction, easily adaptable to different conveyor widths
- Low profile allowing easy fit into belt conveyor
- Easy to install and apply
- Easy to store drive handle that can be applied to left or right side of MWL
- Security pin used to ensure safe storage of weight
- Can be used with new and existing applications

Application

Milltronics MWL mechanically raises and lowers the static weights and then stores the weights securely above the belt scale calibration arms, and allows the operator to lower and apply them safely without having to lean into the conveyor. The MWL is manually operated, and uses a high mechanical advantage to enable weights up to 340 kg (750 lb) to be applied with very limited effort. The crank handle uses twelve rotations for full range of motion, and can be removed and stored for safety with the locking ball-pin which secures the MWL when it is not in use.

Two lifting arms support a base-bar weight above the calibration (test) weight brackets of the belt scale: either flat bar or round bar style calibration weights are applicable. Locating notches in the base-bar weight engage the calibration weights securely on the lifting arms in the stored position, and the gear drive locks the lifting arms in place.

Installation is easy, just four bolt holes to drill after locating the MWL gear modules (LH and RH) on the conveyor with respect to the belt scale. After running the MWL empty to ensure proper alignment, and then tightening mounting bolts, you are ready for the loading of the calibration weights. This is the last time that they will have to be lifted by hand.

Selection and ordering data

Milltronics MWL Calibration weight lifter Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales		Article No. 7MH7218- ● ● ● ● ● - ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Actuation			
Manually		1	
Belt width and 'A' dimension			
18 inch, 'A'=27 inch (686 mm)		A	A
19 inch, 'A'=28 inch (711 mm)		A	B
20 inch, 'A'=29 inch (737 mm)		A	C
21 inch, 'A'=30 inch (762 mm)		A	D
22 inch, 'A'=31 inch (787 mm)		A	E
23 inch, 'A'=32 inch (813 mm)		A	F
24 inch, 'A'=33 inch (838 mm)		A	G
25 inch, 'A'=34 inch (864 mm)		A	H
26 inch, 'A'=35 inch (889 mm)		A	J
27 inch, 'A'=36 inch (914 mm)		A	K
28 inch, 'A'=37 inch (940 mm)		A	L
29 inch, 'A'=38 inch (965 mm)		A	M
30 inch, 'A'=39 inch (991 mm)		A	N
31 inch, 'A'=40 inch (1 016 mm)		A	P
32 inch, 'A'=41 inch (1 041 mm)		A	Q
33 inch, 'A'=42 inch (1 067 mm)		A	R
34 inch, 'A'=43 inch (1 092 mm)		A	S
35 inch, 'A'=44 inch (1 118 mm)		A	T
36 inch, 'A'=45 inch (1 143 mm)		A	U
37 inch, 'A'=46 inch (1 168 mm)		A	V
38 inch, 'A'=47 inch (1 194 mm)		A	W
39 inch, 'A'=48 inch (1 219 mm)		B	A
40 inch, 'A'=49 inch (1 245 mm)		B	B
41 inch, 'A'=50 inch (1 270 mm)		B	C
42 inch, 'A'=51 inch (1 295 mm)		B	D
43 inch, 'A'=52 inch (1 321 mm)		B	E
44 inch, 'A'=53 inch (1 346 mm)		B	F
45 inch, 'A'=54 inch (1 372 mm)		B	G
46 inch, 'A'=55 inch (1 397 mm)		B	H
47 inch, 'A'=56 inch (1 422 mm)		B	J
48 inch, 'A'=57 inch (1 448 mm)		B	K
49 inch, 'A'=58 inch (1 473 mm)		B	L
50 inch, 'A'=59 inch (1 499 mm)		B	M
51 inch, 'A'=60 inch (1 524 mm)		B	N
52 inch, 'A'=61 inch (1 549 mm)		B	P
53 inch, 'A'=62 inch (1 575 mm)		B	Q
54 inch, 'A'=63 inch (1 600 mm)		B	R
55 inch, 'A'=64 inch (1 626 mm)		B	S
56 inch, 'A'=65 inch (1 651 mm)		B	T
57 inch, 'A'=66 inch (1 676 mm)		B	U
58 inch, 'A'=67 inch (1 702 mm)		B	V
59 inch, 'A'=68 inch (1 727 mm)		B	W
60 inch, 'A'=69 inch (1 753 mm)		C	A
61 inch, 'A'=70 inch (1 778 mm)		C	B
62 inch, 'A'=71 inch (1 803 mm)		C	C
63 inch, 'A'=72 inch (1 829 mm)		C	D
64 inch, 'A'=73 inch (1 854 mm)		C	E
65 inch, 'A'=74 inch (1 880 mm)		C	F
66 inch, 'A'=75 inch (1 905 mm)		C	G
67 inch, 'A'=76 inch (1 930 mm)		C	H
68 inch, 'A'=77 inch (1 956 mm)		C	J
69 inch, 'A'=78 inch (1 981 mm)		C	K
70 inch, 'A'=79 inch (2 007 mm)		C	L

Belt Weighing

Accessories

Calibration weight lifter Milltronics MWL

Selection and ordering data (Continued)

Milltronics MWL Calibration weight lifter Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales	Article No. 7MH7218- ● ● ● ● ● - ●	
71 inch, 'A'=80 inch (2 032 mm)	C	M
72 inch, 'A'=81 inch (2 057 mm)	C	N
73 inch, 'A'=82 inch (2 083 mm)	C	P
74 inch, 'A'=83 inch (2 108 mm)	C	Q
75 inch, 'A'=84 inch (2 134 mm)	C	R
76 inch, 'A'=85 inch (2 159 mm)	C	S
77 inch, 'A'=86 inch (2 184 mm)	C	T
78 inch, 'A'=87 inch (2 210 mm)	C	U
79 inch, 'A'=88 inch (2 235 mm)	C	V
80 inch, 'A'=89 inch (2 261 mm)	C	W
81 inch, 'A'=90 inch (2 286 mm)	D	A
82 inch, 'A'=91 inch (2 311 mm)	D	B
83 inch, 'A'=92 inch (2 337 mm)	D	C
84 inch, 'A'=93 inch (2 362 mm)	D	D
85 inch, 'A'=94 inch (2 388 mm)	D	E
86 inch, 'A'=95 inch (2 413 mm)	D	F
87 inch, 'A'=96 inch (2 438 mm)	D	G
88 inch, 'A'=97 inch (2 464 mm)	D	H
89 inch, 'A'=98 inch (2 489 mm)	D	J
90 inch, 'A'=99 inch (2 515 mm)	D	K
91 inch, 'A'=100 inch (2 540 mm)	D	L
92 inch, 'A'=101 inch (2 565 mm)	D	M
93 inch, 'A'=102 inch (2 591 mm)	D	N
94 inch, 'A'=103 inch (2 616 mm)	D	P
95 inch, 'A'=104 inch (2 642 mm)	D	Q
96 inch, 'A'=105 inch (2 667 mm)	D	R
No width parts ³⁾	X	X
Weight type		
None		0 0
For use with flat bar weights (weights not included)		1 1
<u>Width based on belt width</u>		
3 inch integrated round bar weight (18 ... 29 inch, 15.9 ... 22.7 kg)		3 1
3 inch integrated round bar weight (30 ... 41 inch, 26.8 ... 33.6 kg)		3 2
3 inch integrated round bar weight (42 ... 53 inch, 37.7 ... 44.5 kg)		3 3
3 inch integrated round bar weight (54 ... 65 inch, 48.6 ... 58.6 kg)		3 4
3 inch integrated round bar weight (66 ... 77 inch, 59.5 ... 69.5 kg)		3 5
3 inch integrated round bar weight (78 ... 89 inch, 70.4 ... 80.4 kg)		3 6
3 inch integrated round bar weight (90 ... 96 inch, 81.3 ... 86.8 kg)		3 7
4 inch integrated round bar weight (18 ... 29 inch, 23.3 ... 34.3 kg)		4 1
4 inch integrated round bar weight (30 ... 41 inch, 42.7 ... 53.7 kg)		4 2
4 inch integrated round bar weight (42 ... 53 inch, 62.1 ... 73.1 kg)		4 3
4 inch integrated round bar weight (54 ... 65 inch, 81.5 ... 99.3 kg)		4 4
4 inch integrated round bar weight (66 ... 77 inch, 100.9 ... 118.6 kg)		4 5
4 inch integrated round bar weight (78 ... 89 inch, 120.3 ... 138.0 kg)		4 6
4 inch integrated round bar weight (90 ... 96 inch, 139.6 ... 149.3 kg)		4 7
5 inch integrated round bar weight (18 ... 29 inch, 32.9 ... 49.3 kg)		5 1
5 inch integrated round bar weight (30 ... 41 inch, 63.2 ... 79.6 kg)		5 2
5 inch integrated round bar weight (42 ... 53 inch, 93.5 ... 109.9 kg)		5 3
5 inch integrated round bar weight (54 ... 65 inch, 123.7 ... 151.5 kg)		5 4
5 inch integrated round bar weight (66 ... 77 inch, 154.0 ... 181.8 kg)		5 5
5 inch integrated round bar weight (78 ... 89 inch, 184.3 ... 212.1 kg)		5 6
5 inch integrated round bar weight (90 ... 96 inch, 214.6 ... 229.7 kg)		5 7
6 inch integrated round bar weight (18 ... 29 inch, 44.5 ... 67.6 kg)		6 1
6 inch integrated round bar weight (30 ... 41 inch, 88.2 ... 111.2 kg)		6 2
6 inch integrated round bar weight (42 ... 53 inch, 131.8 ... 154.8 kg)		6 3
6 inch integrated round bar weight (54 ... 65 inch, 175.4 ... 215.3 kg)		6 4
6 inch integrated round bar weight (66 ... 77 inch, 219.0 ... 258.9 kg)		6 5

Selection and ordering data (Continued)

		Article No.						
Milltronics MWL Calibration weight lifter Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales		7	M	H	7	2	1	8
6 inch integrated round bar weight (78 ... 89 inch, 262.6 ... 302.5 kg)						6	6	
6 inch integrated round bar weight (90 ... 96 inch, 306.2 ... 328.0 kg)						6	7	
Fabrication								
Standard, C5-M rated polyester painted mild steel								1
Electro galvanized mild steel								2
Other materials available upon request.								

Selection and ordering data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)]: measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Manufacturer's test certificate: according to EN 10204-2.2	C11
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	Article No.
MWL handle shaft extension, 3.75 inch (95 mm)	7MH7726-1AM
MWL module LH unit	7MH7723-1GU
MWL module RH unit	7MH7723-1GV
MWL handle	7MH7723-1GX
MWL retrofit kit (for Milltronics MSI, MMI belt scales)	7MH7723-1FW
MWL retrofit kit galvanized (for Milltronics MSI, MMI belt scales)	7MH7723-1JT
MWL retrofit kit (for Milltronics MCS belt scales)	7MH7723-1HA
MWL handle shaft extension galvanized [3.75 inch (95 mm)]	7MH7223-1JS
MWL module LH unit galvanized	7MH7723-1HK
MWL module RH unit galvanized	7MH7723-1HL
MWL handle galvanized	7MH7723-1HM

- ¹⁾ One MWL is required for each scale (MMI-2 requires 2 MWL).
- ²⁾ Select motor mounting, order code options M30 or M31.
- ³⁾ Available with weight type option 00 only.

Belt Weighing

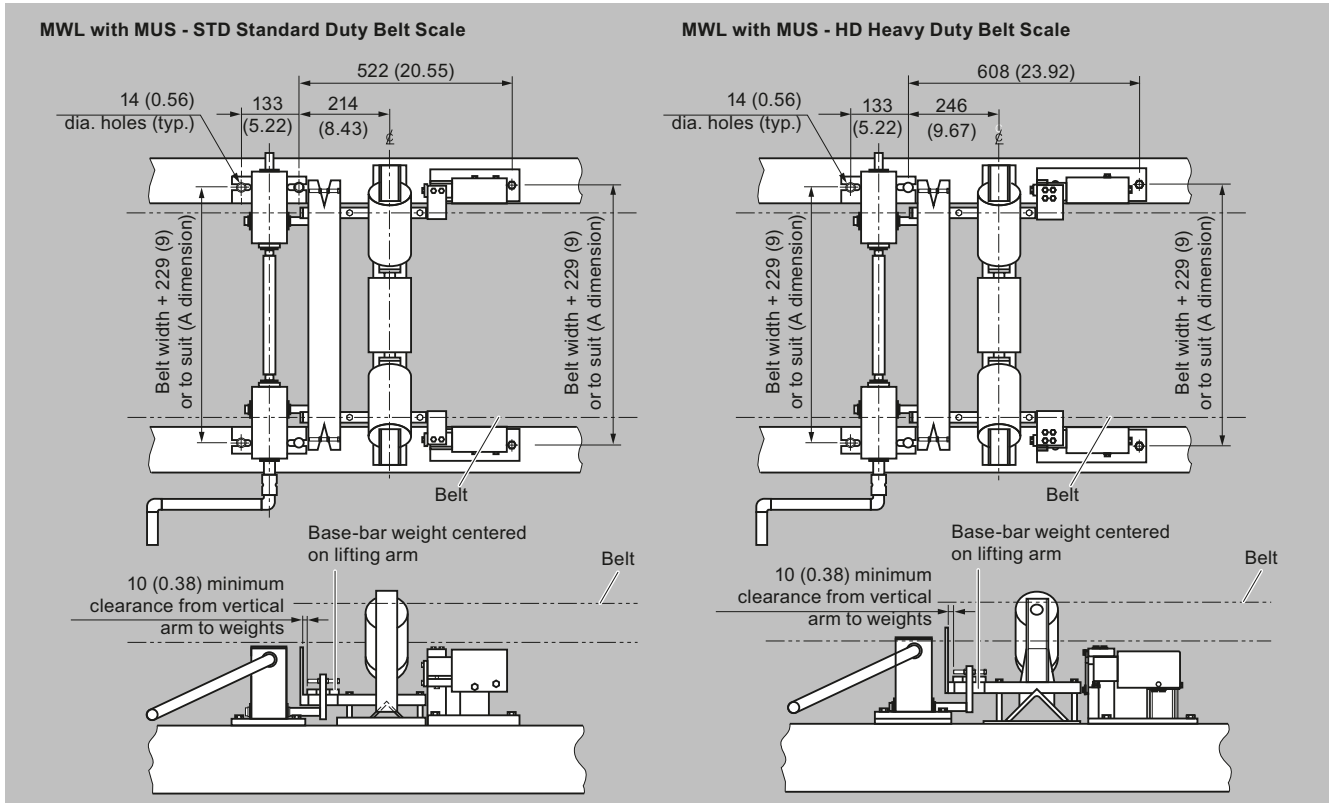
Accessories

Calibration weight lifter Milltronics MWL

Technical specifications

Calibration weight lifter Milltronics MWL	
Mode of operation	
Principle of operation	Mechanical gear drive
Typical application	Belt scale calibration
Medium conditions	
Max. ambient temperature	75 °C (167 °F)
Belt design	
Belt width	<ul style="list-style-type: none"> • MCS: up to 1 600 mm (60 inch) CEMA width • MUS-STD standard duty: up to 1 000 mm (42 inch) CEMA width • MUS-HD heavy-duty: up to 1 600 mm (60 inch) CEMA width • MSI: 18 ... 96 inch CEMA belt width
Conveyor incline	± 15° from horizontal
Idlers	20° or more troughed idlers
Idler spacing	Minimum of 610 mm (24 inch)
Calibration weight capacity	Up to 340 kg (750 lb)
Crank arm	
Mechanical advantage	20:1
Number of revolutions required for raising or lowering	12
Mounting dimensions	See reverse for standard and heavy-duty MUS, MCS, and MSI/MMI belt scales
Approvals	The MWL is in compliance with directive 2006/42/EC, CE, UKCA, RCM
Motorized option	CE, UKCA, RCM, EAC, KC, cCSA _{US}

Dimensional drawings



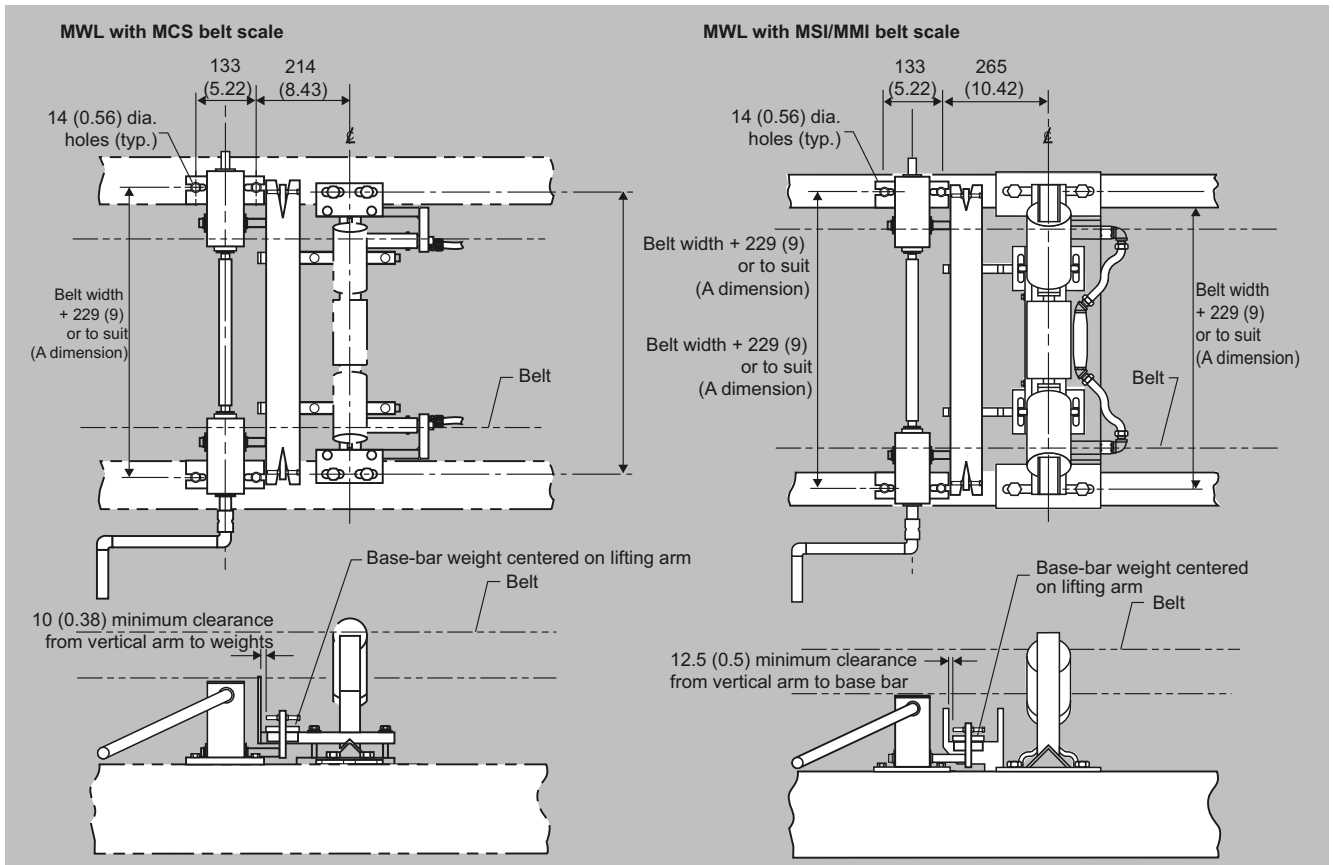
MWL, dimensions in mm (inch)

Belt Weighing

Accessories

Calibration weight lifter Milltronics MWL

Dimensional drawings (Continued)



MWL, dimensions in mm (inch)

Overview

Roller test chains are used for belt scale calibration when material tests are not practical. All test chains are bushed. Minimum length is 4 feet (1.2 m).

Selection and ordering data

Milltronics Flat bar calibration weights. Designed for use with Milltronics belt scales.	Article No. 7MH7127- ● ● ● ●			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Bar width, belt width and A dimension, weight				
3 inch, 18 inch, A=27 inch (686 mm), 4.63 kg	1	A	A	
3 inch, 24 inch, A=33 inch (838 mm), 5.78 kg	1	A	G	
3 inch, 30 inch, A=39 inch (991 mm), 6.94 kg	1	A	N	
3 inch, 36 inch, A=45 inch (1 143 mm), 8.10 kg	1	A	U	
3 inch, 42 inch, A=51 inch (1 295 mm), 9.25 kg	1	B	D	
3 inch, 48 inch, A=57 inch (1 448 mm), 10.41 kg	1	B	K	
3 inch, 54 inch, A=63 inch (1 600 mm), 11.57 kg	1	B	R	
3 inch, 60 inch, A=69 inch (1 753 mm), 12.73 kg	1	C	A	
3 inch, 66 inch, A=75 inch (1 905 mm), 13.89 kg	1	C	G	
3 inch, 72 inch, A=81 inch (2 057 mm), 15.05 kg	1	C	N	
3 inch, 78 inch, A=87 inch (2 210 mm), 16.21 kg	1	C	U	
3 inch, 84 inch, A=93 inch (2 362 mm), 17.37 kg	1	D	D	
3 inch, 90 inch, A=99 inch (2 515 mm), 18.53 kg	1	D	K	
3 inch, 96 inch, A=105 inch (2 667 mm), 19.69 kg	1	D	R	
4 inch, 18 inch, A=27 inch (686 mm), 6.17 kg	2	A	A	
4 inch, 24 inch, A=33 inch (838 mm), 7.71 kg	2	A	G	
4 inch, 30 inch, A=39 inch (991 mm), 9.26 kg	2	A	N	
4 inch, 36 inch, A=45 inch (1 143 mm), 10.80 kg	2	A	U	
4 inch, 42 inch, A=51 inch (1 295 mm), 12.34 kg	2	B	D	
4 inch, 48 inch, A=57 inch (1 448 mm), 13.89 kg	2	B	K	
4 inch, 54 inch, A=63 inch (1 600 mm), 15.42 kg	2	B	R	
4 inch, 60 inch, A=69 inch (1 753 mm), 16.97 kg	2	C	A	
4 inch, 66 inch, A=75 inch (1 905 mm), 18.52 kg	2	C	G	
4 inch, 72 inch, A=81 inch (2 057 mm), 20.07 kg	2	C	N	
4 inch, 78 inch, A=87 inch (2 210 mm), 21.62 kg	2	C	U	
4 inch, 84 inch, A=93 inch (2 362 mm), 23.17 kg	2	D	D	
4 inch, 90 inch, A=99 inch (2 515 mm), 24.72 kg	2	D	K	
4 inch, 96 inch, A=105 inch (2 667 mm), 26.27 kg	2	D	R	
Fabrication				
Standard, C5-M rated polyester painted mild steel				1

Belt Weighing

Accessories

Test chain

Overview



Roller test chains are used for belt scale calibration when material tests are not practical. All test chains are bushed. Minimum length is 4 feet (1.2 m).

Benefits

- Heavy-duty design for rugged applications and long life
- Precision machined components for accurate calibration
- Bushed rollers to ensure rotation during calibration
- Alternative to material tests when they are not possible

Application

Milltronics calibration test chains provide simulated material flow on a conveyor belt for use with belt scale calibration. Designed for use in environments where material tests cannot be performed, test chains come in a variety of capacity options for use in any application. They ensure constant and uniform belt loading similar to material being conveyed, and can be stored on a storage reel for quick and easy application. The use of a calibration test chain ensures that production totals are guaranteed.

Selection and ordering data

Test chain	Article No.				
Roller test chains are used for belt scale calibration when material tests are not practical.	7MH7161-	0	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Test chain: roller test chains are used for belt scale calibration when material tests are not practical.					
<u>5 lb/ft (7.4 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			A	A	1
8 ... 11 ft (2.4 ... 3.4 m)			A	A	2
12 ... 15 ft (3.7 ... 4.6 m)			A	A	3
16 ... 19 ft (4.9 ... 5.8 m)			A	A	4
20 ... 23 ft (6.1 ... 7.0 m)			A	A	5
24 ... 27 ft (7.3 ... 8.2 m)			A	A	6
28 ... 31 ft (8.5 ... 9.4 m)			A	A	7
32 ... 35 ft (9.8 ... 10.7 m)			A	A	8
<u>7.5 lb/ft (11.2 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			B	B	1
8 ... 11 ft (2.4 ... 3.4 m)			B	B	2
12 ... 15 ft (3.7 ... 4.6 m)			B	B	3
16 ... 19 ft (4.9 ... 5.8 m)			B	B	4
20 ... 23 ft (6.1 ... 7.0 m)			B	B	5
24 ... 27 ft (7.3 ... 8.2 m)			B	B	6
28 ... 31 ft (8.5 ... 9.4 m)			B	B	7
32 ... 35 ft (9.8 ... 10.7 m)			B	B	8
<u>10 lb/ft (14.9 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			C	C	1

Selection and ordering data (Continued)

Test chain	Article No.				
Roller test chains are used for belt scale calibration when material tests are not practical.	7MH7161-	0	●	●	●
		0	●	●	0
8 ... 11 ft (2.4 ... 3.4 m)			C	C	2
12 ... 15 ft (3.7 ... 4.6 m)			C	C	3
16 ... 19 ft (4.9 ... 5.8 m)			C	C	4
20 ... 23 ft (6.1 ... 7.0 m)			C	C	5
24 ... 27 ft (7.3 ... 8.2 m)			C	C	6
28 ... 31 ft (8.5 ... 9.4 m)			C	C	7
32 ... 35 ft (9.8 ... 10.7 m)			C	C	8
<u>15 lb/ft (22.3 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			D	D	1
8 ... 11 ft (2.4 ... 3.4 m)			D	D	2
12 ... 15 ft (3.7 ... 4.6 m)			D	D	3
16 ... 19 ft (4.9 ... 5.8 m)			D	D	4
20 ... 23 ft (6.1 ... 7.0 m)			D	D	5
24 ... 27 ft (7.3 ... 8.2 m)			D	D	6
28 ... 31 ft (8.5 ... 9.4 m)			D	D	7
32 ... 35 ft (9.8 ... 10.7 m)			D	D	8
<u>20 lb/ft (29.8 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			E	E	1
8 ... 11 ft (2.4 ... 3.4 m)			E	E	2
12 ... 15 ft (3.7 ... 4.6 m)			E	E	3
16 ... 19 ft (4.9 ... 5.8 m)			E	E	4
20 ... 23 ft (6.1 ... 7.0 m)			E	E	5
24 ... 27 ft (7.3 ... 8.2 m)			E	E	6
28 ... 31 ft (8.5 ... 9.4 m)			E	E	7
32 ... 35 ft (9.8 ... 10.7 m)			E	E	8
<u>25 lb/ft (37.2 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			F	F	1
8 ... 11 ft (2.4 ... 3.4 m)			F	F	2
12 ... 15 ft (3.7 ... 4.6 m)			F	F	3
16 ... 19 ft (4.9 ... 5.8 m)			F	F	4
20 ... 23 ft (6.1 ... 7.0 m)			F	F	5
24 ... 27 ft (7.3 ... 8.2 m)			F	F	6
28 ... 31 ft (8.5 ... 9.4 m)			F	F	7
32 ... 35 ft (9.8 ... 10.7 m)			F	F	8
<u>30 lb/ft (44.6 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			G	G	1
8 ... 11 ft (2.4 ... 3.4 m)			G	G	2
12 ... 15 ft (3.7 ... 4.6 m)			G	G	3
16 ... 19 ft (4.9 ... 5.8 m)			G	G	4
20 ... 23 ft (6.1 ... 7.0 m)			G	G	5
24 ... 27 ft (7.3 ... 8.2 m)			G	G	6
28 ... 31 ft (8.5 ... 9.4 m)			G	G	7
32 ... 35 ft (9.8 ... 10.7 m)			G	G	8
<u>35 lb/ft (52.1 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			H	H	1
8 ... 11 ft (2.4 ... 3.4 m)			H	H	2
12 ... 15 ft (3.7 ... 4.6 m)			H	H	3
16 ... 19 ft (4.8 ... 5.8 m)			H	H	4
20 ... 23 ft (6.1 ... 7.0 m)			H	H	5
24 ... 27 ft (7.3 ... 8.2 m)			H	H	6
28 ... 31 ft (8.5 ... 9.4 m)			H	H	7
32 ... 35 ft (9.8 ... 10.7 m)			H	H	8
<u>40 lb/ft (59.5 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			J	J	1
8 ... 11 ft (2.4 ... 3.4 m)			J	J	2
12 ... 15 ft (3.7 ... 4.6 m)			J	J	3
16 ... 19 ft (4.9 ... 5.8 m)			J	J	4

Belt Weighing

Accessories

Test chain

Selection and ordering data (Continued)

Test chain	Article No.				
Roller test chains are used for belt scale calibration when material tests are not practical.	7MH7161-	0	●	●	●
		0	●	●	0
20 ... 23 ft (6.1 ... 7.0 m)			J	J	5
24 ... 27 ft (7.3 ... 8.2 m)			J	J	6
28 ... 31 ft (8.5 ... 9.4 m)			J	J	7
32 ... 35 ft (9.8 ... 10.7 m)			J	J	8
<u>45 lb/ft (67.0 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			K	K	1
8 ... 11 ft (2.4 ... 3.4 m)			K	K	2
12 ... 15 ft (3.7 ... 4.6 m)			K	K	3
16 ... 19 ft (4.9 ... 5.8 m)			K	K	4
20 ... 23 ft (6.1 ... 7.0 m)			K	K	5
24 ... 27 ft (7.3 ... 8.2 m)			K	K	6
28 ... 31 ft (8.5 ... 9.4 m)			K	K	7
32 ... 35 ft (9.8 ... 10.7 m)			K	K	8
<u>50 lb/ft (74.4 kg/m), 4 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			L	L	1
8 ... 11 ft (2.4 ... 3.4 m)			L	L	2
12 ... 15 ft (3.7 ... 4.6 m)			L	L	3
16 ... 19 ft (4.9 ... 5.8 m)			L	L	4
20 ... 23 ft (6.1 ... 7.0 m)			L	L	5
24 ... 27 ft (7.3 ... 8.2 m)			L	L	6
28 ... 31 ft (8.5 ... 9.4 m)			L	L	7
32 ... 35 ft (9.8 ... 10.7 m)			L	L	8
<u>60 lb/ft (89.3 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			N	N	1
8 ... 11 ft (2.4 ... 3.4 m)			N	N	2
12 ... 15 ft (3.7 ... 4.6 m)			N	N	3
16 ... 19 ft (4.9 ... 5.8 m)			N	N	4
20 ... 23 ft (6.1 ... 7.0 m)			N	N	5
24 ... 27 ft (7.3 ... 8.2 m)			N	N	6
28 ... 31 ft (8.5 ... 9.4 m)			N	N	7
32 ... 35 ft (9.8 ... 10.7 m)			N	N	8
<u>70 lb/ft (104.2 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			P	P	1
8 ... 11 ft (2.4 ... 3.4 m)			P	P	2
12 ... 15 ft (3.7 ... 4.6 m)			P	P	3
16 ... 19 ft (4.9 ... 5.8 m)			P	P	4
20 ... 23 ft (6.1 ... 7.0 m)			P	P	5
24 ... 27 ft (7.3 ... 8.2 m)			P	P	6
28 ... 31 ft (8.5 ... 9.4 m)			P	P	7
32 ... 35 ft (9.8 ... 10.7 m)			P	P	8
<u>80 lb/ft (119.1 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			Q	Q	1
8 ... 11 ft (2.4 ... 3.4 m)			Q	Q	2
12 ... 15 ft (3.7 ... 4.6 m)			Q	Q	3
16 ... 19 ft (4.9 ... 5.8 m)			Q	Q	4
20 ... 23 ft (6.1 ... 7.0 m)			Q	Q	5
24 ... 27 ft (7.3 ... 8.2 m)			Q	Q	6
28 ... 31 ft (8.5 ... 9.4 m)			Q	Q	7
32 ... 35 ft (9.8 ... 10.7 m)			Q	Q	8
<u>90 lb/ft (133.9 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			R	R	1
8 ... 11 ft (2.4 ... 3.4 m)			R	R	2
12 ... 15 ft (3.7 ... 4.6 m)			R	R	3
16 ... 19 ft (4.9 ... 5.8 m)			R	R	4
20 ... 23 ft (6.1 ... 7.0 m)			R	R	5
24 ... 27 ft (7.3 ... 8.2 m)			R	R	6
28 ... 31 ft (8.5 ... 9.4 m)			R	R	7

Selection and ordering data (Continued)

Test chain	Article No.				
Roller test chains are used for belt scale calibration when material tests are not practical.	7MH7161-	0	●	●	●
32 ... 35 ft (9.8 ... 10.7 m)			R	R	8
<u>100 lb/ft (148.8 kg/m), 6 inch pitch</u>					
4 ... 7 ft (1.2 ... 2.1 m)			S	S	1
8 ... 11 ft (2.4 ... 3.4 m)			S	S	2
12 ... 15 ft (3.7 ... 4.6 m)			S	S	3
16 ... 19 ft (4.9 ... 5.8 m)			S	S	4
20 ... 23 ft (6.1 ... 7.0 m)			S	S	5
24 ... 27 ft (7.3 ... 8.2 m)			S	S	6
28 ... 31 ft (8.5 ... 9.4 m)			S	S	7
32 ... 35 ft (9.8 ... 10.7 m)			S	S	8

Selection and ordering data	Order Code
Further models	
Please add "-Z" to article no. and specify order codes(s)	
Total length	
Enter the total length in plain text description: Y01: Total length ... mm (must be equivalent to whole feet, e.g. 1 ft = 304.8 mm)	Y01
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Technical specifications

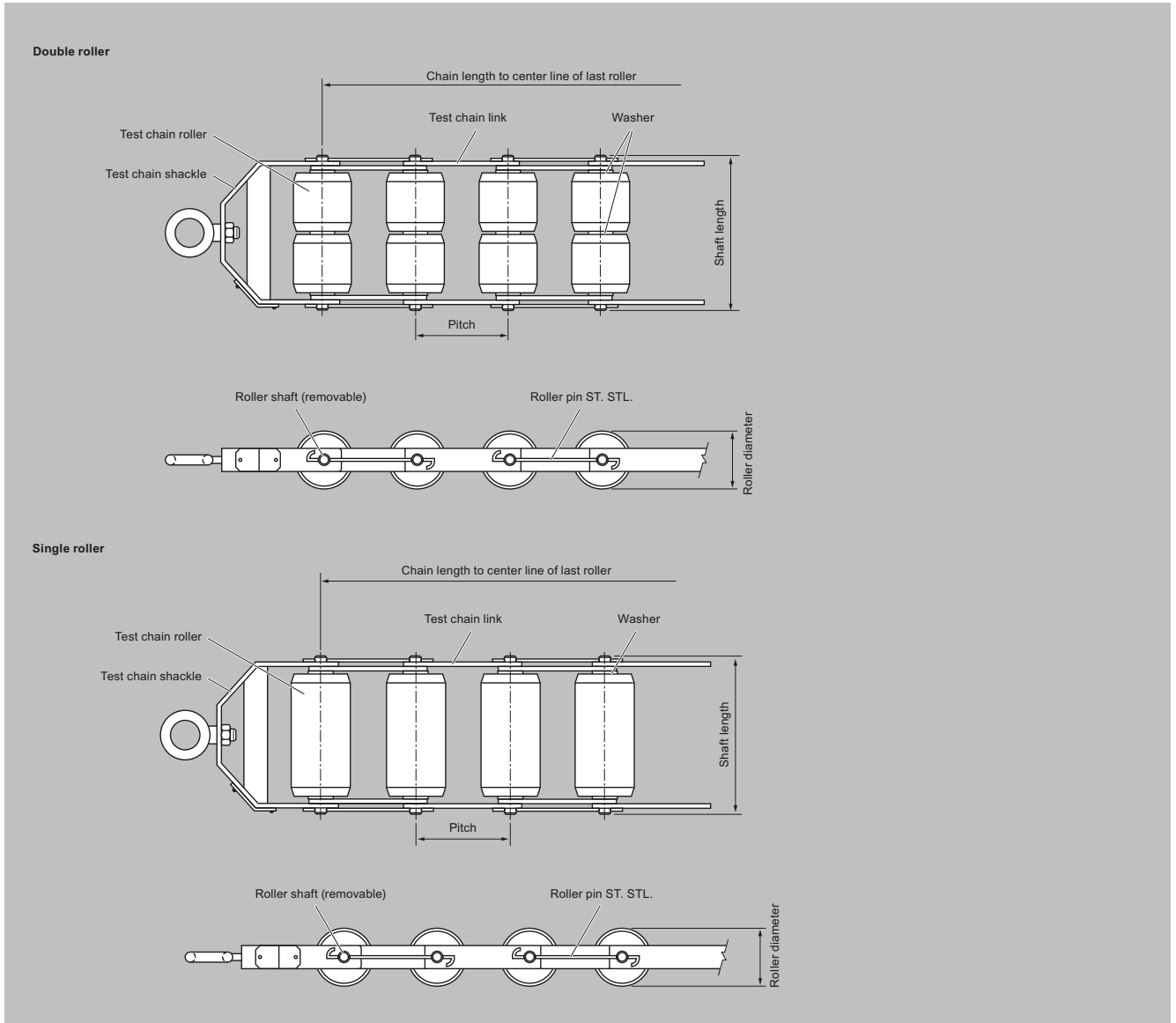
Test chain	
Mode of operation	
Principle of operation	Rides on carrying side of belt to simulate material loading
Medium conditions	
Max. ambient temperature	65 °C (150 °F)
Design	
Belt loading to meet any application	5 lb/ft (7.4 kg/m) ... 100 lb/ft (148.8 kg/m)
Length	Made to suit conveyor design
Idler	Flat to 45° troughed idlers
Max belt speed	5 m/s 1 000 fpm
Mounting	Connected to conveyor at start and end of chain at both sides for uniform loading. Storage and application with test chain storage reel.
Approvals	CE, UKCA, RCM, EAC, KC

Belt Weighing

Accessories

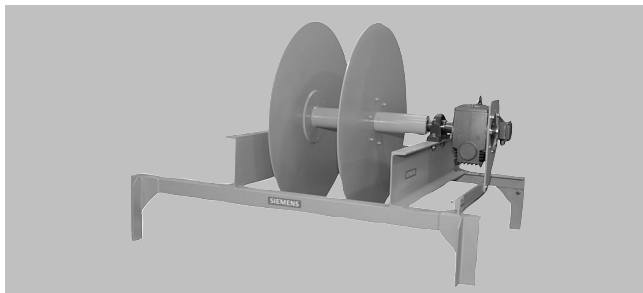
Test chain

Dimensional drawings



Milltronics test chain dimensions

Overview



Test chain storage reels are used to store roller test chains. All test chain storage reels come with a geared brake motor.

Benefits

- Mounts to existing conveyor structure above belt
- Motorized application and retraction of test chains for calibration
- Fast and easy calibration

Application

Milltronics calibration test chain storage reels provide motorized application and retraction of test chains. Complete with an AC motorized storage reel, test chain reels ensure safe and quick use of calibration test chains. Designed for use in environments where material tests cannot be performed, test chain storage reels are available in any belt width to meet existing customer conveyor geometry. For linearity tests dual compartment reels are available for different chain weight calibration. Test chain storage reels have a brake integral to the motor ensuring that test chains do not un-reel during power outages or material running.

Selection and ordering data

Test chain storage reels	Article No.	
Test chain storage reels are used to store roller test chains.	7MH7163- ● ● ● ● ● - ● ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Compartment size		
5 inch (127 mm) for chain sizes: 5 lb/ft (7.4 kg/m), 10 lb/ft (14.9 kg/m)	0	
6 inch (152 mm) for chain sizes: 7.5 lb/ft (11.2 kg/m)	1	
7 inch (178 mm) for chain sizes: 15 lb/ft (22.3 kg/m), 20 lb/ft (29.8 kg/m), 25 lb/ft (37.2 kg/m)	2	
8 inch (203 mm) for chain sizes: 30 lb/ft (44.6 kg/m), 35 lb/ft (52.1 kg/m)	3	
11 inch (279 mm) for chain sizes: 40 lb/ft (59.5 kg/m), 45 lb/ft (67.0 kg/m), 50 lb/ft (74.4 kg/m)	4	
12 inch (305 mm) for chain sizes: 55 lb/ft (81.9 kg/m), 60 lb/ft (89.3 kg/m)	5	
13 inch (330 mm) for chain sizes: 70 lb/ft (104.2 kg/m)	6	
14 inch (356 mm) for chain sizes: 80 lb/ft (119.1 kg/m), 100 lb/ft (148.8 kg/m)	7	
16 inch (406 mm) for chain sizes: 90 lb/ft (133.9 kg/m)	8	
C dimension		
25 inch (635 mm)	A	A
26 inch (660 mm)	A	B
27 inch (686 mm)	A	C
28 inch (711 mm)	A	D
29 inch (737 mm)	A	E
30 inch (762 mm)	A	F
31 inch (787 mm)	A	G
32 inch (813 mm)	A	H
33 inch (838 mm)	A	J
34 inch (864 mm)	A	K
35 inch (889 mm)	A	L
36 inch (914 mm)	A	M
37 inch (940 mm)	A	N

Belt Weighing

Accessories

Test chain storage reel

Selection and ordering data (Continued)

Test chain storage reels Test chain storage reels are used to store roller test chains.	Article No. 7MH7163- ● ● ● ● ● - ● ●						
38 inch (965 mm)			A	P			
39 inch (991 mm)			A	Q			
40 inch (1 016 mm)			A	R			
41 inch (1 041 mm)			A	S			
42 inch (1 067 mm)			A	T			
43 inch (1 092 mm)			A	U			
44 inch (1 118 mm)			A	V			
45 inch (1 143 mm)			A	W			
46 inch (1 168 mm)			B	A			
47 inch (1 194 mm)			B	B			
48 inch (1 219 mm)			B	C			
49 inch (1 245 mm)			B	D			
50 inch (1 270 mm)			B	E			
51 inch (1 295 mm)			B	F			
52 inch (1 321 mm)			B	G			
53 inch (1 346 mm)			B	H			
54 inch (1 372 mm)			B	J			
55 inch (1 397 mm)			B	K			
56 inch (1 422 mm)			B	L			
57 inch (1 448 mm)			B	M			
58 inch (1 473 mm)			B	N			
59 inch (1 499 mm)			B	P			
60 inch (1 524 mm)			B	Q			
61 inch (1 549 mm)			B	R			
62 inch (1 575 mm)			B	S			
63 inch (1 600 mm)			B	T			
64 inch (1 626 mm)			B	U			
65 inch (1 651 mm)			B	V			
66 inch (1 676 mm)			B	W			
67 inch (1 702 mm)			C	A			
68 inch (1 727 mm)			C	B			
69 inch (1 753 mm)			C	C			
70 inch (1 778 mm)			C	D			
71 inch (1 803 mm)			C	E			
72 inch (1 829 mm)			C	F			
73 inch (1 854 mm)			C	G			
74 inch (1 880 mm)			C	H			
75 inch (1 905 mm)			C	J			
76 inch (1 930 mm)			C	K			
77 inch (1 956 mm)			C	L			
78 inch (1 981 mm)			C	M			
79 inch (2 007 mm)			C	N			
80 inch (2 032 mm)			C	P			
81 inch (2 057 mm)			C	Q			
82 inch (2 083 mm)			C	R			
83 inch (2 108 mm)			C	S			
84 inch (2 134 mm)			C	T			
85 inch (2 159 mm)			C	U			
86 inch (2 184 mm)			C	V			
87 inch (2 210 mm)			C	W			
88 inch (2 235 mm)			D	A			
89 inch (2 261 mm)			D	B			
90 inch (2 286 mm)			D	C			
91 inch (2 311 mm)			D	D			
92 inch (2 337 mm)			D	E			
93 inch (2 362 mm)			D	F			
94 inch (2 388 mm)			D	G			
95 inch (2 413 mm)			D	H			

Selection and ordering data (Continued)

Test chain storage reels	Article No.									
Test chain storage reels are used to store roller test chains.	7	M	H	7	1	6	3	-	•	•
96 inch (2 438 mm)			D	J						
97 inch (2 464 mm)			D	K						
98 inch (2 489 mm)			D	L						
99 inch (2 515 mm)			D	M						
100 inch (2 540 mm)			D	N						
101 inch (2 565 mm)			D	P						
102 inch (2 591 mm)			D	Q						
103 inch (2 616 mm)			D	R						
104 inch (2 642 mm)			D	S						
105 inch (2 667 mm)			D	T						
3 Phase motorvoltage										
230/460 V 60 Hz								1		
200/400 V 50 Hz								2		
575 V 60 Hz								3		
Reel type										
Single compartment for 1 calibration test chain								0		
Double compartment for 2 calibration test chains								1		
Reel diameter/motor mount location										
36 inch (914 mm) / right hand access										0
42 inch (1 067 mm) / right hand access										1
48 inch (1 219 mm) / right hand access										2
60 inch (1 372 mm) / right hand access										3
36 inch (914 mm) / left hand access										4
42 inch (1 067 mm) / left hand access										5
48 inch (1 219 mm) / left hand access										6
60 inch (1 372 mm) / left hand access										7
Motor power										
0.75 HP (0.56 kW)										A
1 HP (0.75 kW)										B
1.5 HP (1.12 kW)										C
2 HP (1.5 kW)										D
3 HP (2.24 kW)										E
5 HP (3.73 kW)										F
7.5 HP (5.59 kW)										G
10 HP (7.5 kW)										H
15 HP (11.19 kW)										J
20 HP (14.91 kW)										K

Selection and ordering data	Article No.
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Accessories	
Local operator station: forward, reverse, e-stop, off/onNote: motor starter and voltage transformer required for use with controller, 120 V AC required for controller	7MH7723-1JY

Belt Weighing

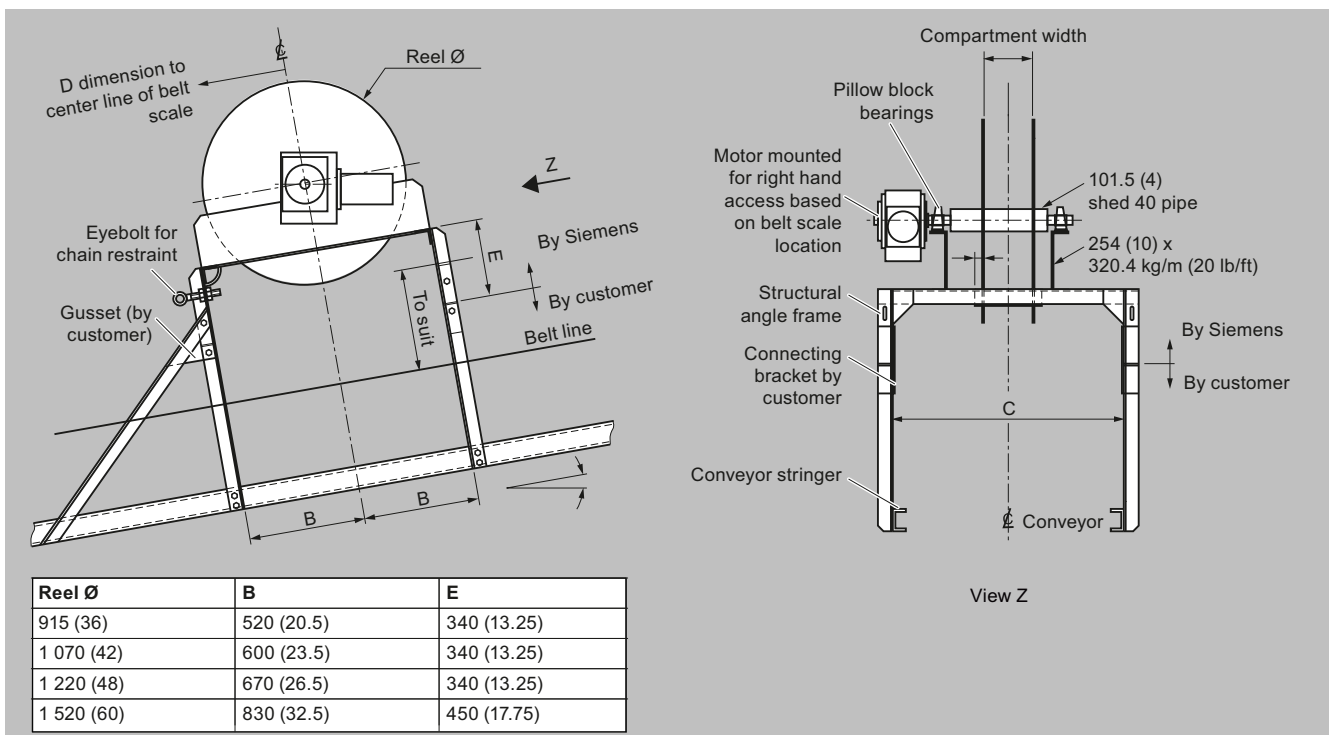
Accessories

Test chain storage reel

Technical specifications

Milltronics Test chain storage reels	
Medium conditions	
Operating temperature	-10 ... +60 °C (14 ... 140 °F)
Design	<ul style="list-style-type: none"> • C5-M rated polyester painted structural steel • 10 mm (3/8 inch) galvanized rope provided for chain spooling • Self-aligning pillow block bearings
Reel	Up to 1 524 mm (60 inch) Chain application at 7 ... 10 RPM
Drive motor	TEFC, AC, three phase motor with shaft mounted helical bevel gear reducer
Approvals	CE, UKCA, RCM, EAC, KC

Dimensional drawings



Milltronics test chain storage reel, dimension in mm (inch)

Overview



Return belt driven pulley provides rotation for shaft-driven speed sensors. 4.5 inch size is self-cleaning.

Benefits

- Heavy-duty design for high belt tension
- Self-cleaning 114 mm (4.5 inch) diameter option
- Steel drum 152 mm (6 inch) diameter option
- Steel drum 152 mm (6 inch) with 6 mm (¼ inch) rubber lagged option
- Spherical self-aligning pillow block bearings
- Fast installation, easy maintenance

Application

Milltronics bend pulleys provide constant belt contact for use with Siemens speed sensors. Designed for use in rugged operating environments common to mining, aggregates, cement, minerals, and other process industries. They ensure concentric speed sensor rotation to reduce pre-mature bearing failure. The use of a bend pulley driven speed sensor ensures no modification is required on any existing conveyor shaft. Options include stainless steel construction, epoxy painting, polymer bearings, self-cleaning style, and lagged style.

Selection and ordering data

		Article No.				
Bend pulleys, 4.5/6 inch design		7	M	H	7	1
Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 4.5 inch or 6 inch diameter.		0				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Size						
4.5 inch diameter self cleaning ¹⁾					1	
6 inch diameter					2	
Belt width and 'A' dimension						
18 inch, A=27 ... 29.5 inch (686 ... 749 mm), 20 inch, A=29 inch (737 mm)						A
24 inch, A=33 ... 35.5 inch (838 ... 901 mm)						B
30 inch, A=39 ... 41.5 inch (991 ... 1 054 mm)						C
36 inch, A=45 ... 47.5 inch (1 143 ... 1 206 mm)						E
42 inch, A=51 inch (1 295 mm)						G
48 inch, A=57 ... 59.5 inch (1 448 ... 1 511 mm)						H
54 inch, A=63 ... 65.5 inch (1 600 ... 1 663 mm)						K
60 inch, A=69 ... 71.5 inch (1 753 ... 1 816 mm)						L
66 inch, A=75 ... 77.5 inch (1 905 ... 1 968 mm)						M
500 mm, A=29 ... 31.5 inch (740 ... 800 mm)						N
650 mm, A=35 ... 37.6 inch (890 ... 954 mm)						P
800 mm, A=41 ... 43.5 inch (1 040 ... 1 104 mm)						Q
800 mm, A=43 ... 45.4 inch (1 090 ... 1 154 mm)						R
1 000 mm, A=48.8 ... 51.3 inch (1 240 ... 1 304 mm)						S
1 200 mm, A=56.6 ... 59.2 inch (1 440 ... 1 504 mm)						T
1 400 mm, A=64.6 ... 67.1 inch (1 640 ... 1 704 mm)						U
1 450 mm, A=66.5 ... 69.0 inch (1 690 ... 1 754 mm)						V
1 600 mm, A=72.4 ... 74.9 inch (1 840 ... 1 904 mm)						W
Finish						
Standard, C5-M rated polyester painted mild steel ²⁾						A
316 (1.4401) stainless steel ³⁾						B
316 (1.4401) stainless steel ⁴⁾						C

Belt Weighing

Accessories

Bend pulleys

Selection and ordering data (Continued)

Bend pulleys, 4.5/6 inch design Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 4.5 inch or 6 inch diameter.		Article No. 7MH7170- ● ● ● ● 0				
Epoxy painted ¹⁾					D	
Epoxy painted, with corrosion resistant bearings ⁵⁾					E	
Bearings						
Imperial size						0
Metric size						1
No bearings						2
Operating instructions						
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation						

- 1) Available with belt width and "A" dimension options A ... H and N ... T only.
- 2) Not painted with 4.5 inch diameter model.
- 3) 316 (1.4401) stainless steel shaft on 4.5 inch diameter models only.
- 4) With corrosion resistant bearings, 316 (1.4401) stainless steel shaft on 4.5 inch diameter models only.
- 5) For 6 inch diameter models only.

Bend pulleys, 6.5 inch design Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 6.5 inch diameter.		Article No. 7MH7171- ● ● ● ● 0				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Size						
6 inch diameter with 1/4 inch lagging						3
Belt width and 'A' dimension						
18 inch, A=27 ... 29.5 inch (686 ... 749 mm), 20 inch, A=29 inch (737 mm)					A	
24 inch, A=33 ... 35.5 inch (838 ... 901 mm)					B	
30 inch, A=39 ... 41.5 inch (991 ... 1 054 mm)					C	
36 inch, A=45 ... 47.5 inch (1 143 ... 1 206 mm)					E	
42 inch, A=51 ... 53.5 inch (1 295 ... 1 358 mm)					G	
48 inch, A=57 ... 59.5 inch (1 448 ... 1 511 mm)					H	
54 inch, A=63 ... 65.5 inch (1 600 ... 1 663 mm)					K	
60 inch, A=69 ... 71.5 inch (1 753 ... 1 816 mm)					L	
66 inch, A=75 ... 77.5 inch (1 905 ... 1 968 mm)					M	
500 mm, A=29 ... 31.5 inch (740 ... 800 mm)					N	
650 mm, A=35 ... 37.6 inch (890 ... 954 mm)					P	
800 mm, A=41 ... 43.5 inch (1 040 ... 1 104 mm)					Q	
800 mm, A=43 ... 45.4 inch (1 090 ... 1 154 mm)					R	
1 000 mm, A=48.8 ... 51.3 inch (1 240 ... 1 304 mm)					S	
1 200 mm, A=56.6 ... 59.2 inch (1 440 ... 1 504 mm)					T	
1 400 mm, A=64.6 ... 67.1 inch (1 640 ... 1 704 mm)					U	
1 450 mm, A=66.5 ... 69.0 inch (1 690 ... 1 754 mm)					V	
1 600 mm, A=72.4 ... 74.9 inch (1 840 ... 1 904 mm)					W	
Finish						
Standard, C5-M rated polyester painted mild steel						A
316 (1.4401) stainless steel						B
316 (1.4401) stainless steel with corrosion resistant bearings						C
Bearings						
Imperial size						0
Metric size						1
No bearings						2
Operating instructions						
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation						

Selection and ordering data (Continued)

Bend pulleys, 8 inch design		Article No.					
Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 8 inch diameter.		7MH7187-	●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.							
Size							
8 inch diameter		4					
Belt width and 'A' dimension							
48 inch, A=57 ... 59.5 inch (1 447.8 ... 1 511 mm)				A			
54 inch, A=63 ... 65.5 inch (1 600.2 ... 1 663 mm)				B			
60 inch, A=69 ... 71.5 inch (1 752.6 ... 1 816 mm)				C			
66 inch, A=75 ... 77.5 inch (1 905 ... 1 968 mm)				E			
72 inch, A=81 ... 83.5 inch (2 057 ... 2 121 mm)				G			
78 inch, A=87 ... 89.5 inch (2 210 ... 2 273 mm)				H			
84 inch, A=93 ... 95.5 inch (2 362 ... 2 426 mm)				J			
90 inch, A=99 ... 101.5 inch (2 515 ... 2 578 mm)				K			
96 inch, A=105 ... 107.5 inch (2 667 ... 2 731 mm)				L			
1 200 mm, A=56.6 ... 59.2 inch (1 440 ... 1 504 mm)				M			
1 400 mm, A=64.6 ... 67.1 inch (1 640 ... 1 704 mm)				N			
1 450 mm, A=66.5 ... 69.0 inch (1 690 ... 1 754 mm)				P			
1 600 mm, A=72.4 ... 74.9 inch (1 840 ... 1 904 mm)				Q			
1 800 mm, A=80.3 ... 82.8 inch (2 040 ... 2 104 mm)				R			
2 000 mm, A=88.2 ... 90.7 inch (2 240 ... 2 304 mm)				S			
2 200 mm, A=96.1 ... 98.6 inch (2 440 ... 2 504 mm)				T			
2 400 mm, A=103.9 ... 106.4 inch (2 640 ... 2 704 mm)				U			
2 500 mm, A=107.9 ... 110.4 inch (2 740 ... 2 804 mm)				V			
Finish							
Standard, C5-M rated polyester painted mild steel				A			
316 (1.4401) stainless steel				B			
316 (1.4401) stainless steel with corrosion resistant bearings				C			
Epoxy painted				D			
Epoxy painted with corrosion resistant bearings				E			
Bearings							
Imperial size						0	
Metric size						1	
No bearings						2	
Operating instructions							
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation							

Bend pulleys, 8.5 inch design		Article No.					
Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 8.5 inch diameter.		7MH7188-	●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.							
Size							
8 inch diameter with ¼ inch lagging		5					
Belt width and 'A' dimension							
48 inch, A=57 ... 59.5 inch (1 447.8 ... 1 511 mm)				A			
54 inch, A=63 ... 65.5 inch (1 600.2 ... 1 663 mm)				B			
60 inch, A=69 ... 71.5 inch (1 752.6 ... 1 816 mm)				C			
66 inch, A=75 ... 77.5 inch (1 905 ... 1 968 mm)				E			
72 inch, A=81 ... 83.5 inch (2 057 ... 2 121 mm)				G			
78 inch, A=87 ... 89.5 inch (2 210 ... 2 273 mm)				H			
84 inch, A=93 ... 95.5 inch (2 362 ... 2 426 mm)				J			
90 inch, A=99 ... 101.5 inch (2 515 ... 2 578 mm)				K			
96 inch, A=105 ... 107.5 inch (2 667 ... 2 731 mm)				L			
1 200 mm, A=56.6 ... 59.2 inch (1 440 ... 1 504 mm)				M			
1 400 mm, A=64.6 ... 67.1 inch (1 640 ... 1 704 mm)				N			
1 450 mm, A=66.5 ... 69.0 inch (1 690 ... 1 754 mm)				P			

Belt Weighing

Accessories

Bend pulleys

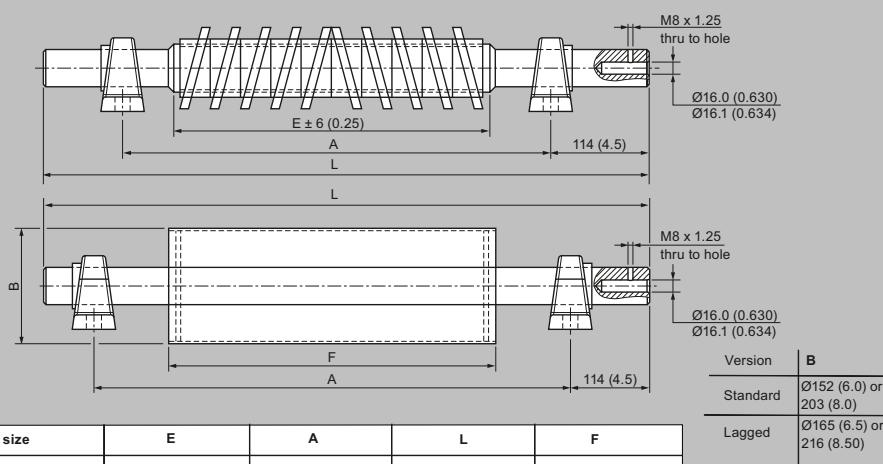
Selection and ordering data (Continued)

Bend pulleys, 8.5 inch design Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 8.5 inch diameter.		Article No. 7MH718- ● ● ● ● 0 8-				
1 600 mm, A=72.4 ... 74.9 inch (1 840 ... 1 904 mm)				Q		
1 800 mm, A=80.3 ... 82.8 inch (2 040 ... 2 104 mm)				R		
2 000 mm, A=88.2 ... 90.7 inch (2 240 ... 2 304 mm)				S		
2 200 mm, A=96.1 ... 98.6 inch (2 440 ... 2 504 mm)				T		
2 400 mm, A=103.9 ... 106.4 inch (2 640 ... 2 704 mm)				U		
2 500 mm, A=107.9 ... 110.4 inch (2 740 ... 2 804 mm)				V		
Finish						
Standard, C5-M rated polyester painted mild steel					A	
316 (1.4401) stainless steel					B	
316 (1.4401) stainless steel with corrosion resistant bearings					C	
Bearings						
Imperial size						0
Metric size						1
No bearings						2
Operating instructions						
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation						

Technical specifications

Bend pulleys	
Typical application	Mining, aggregates, cement, minerals, and other process industries
Medium conditions	
Operating temperature	-40 ... +110 °C (-40 ... +230 °F)
Shaft material	Mild steel 316 (1.44) stainless steel, option
Pulleys	
Self-cleaning rubber disc style	114 mm (4.5 inch) diameter
Steel drum	152 mm (6 inch) diameter
Steel drum	152 mm (6 inch) diameter with 6 mm (¼ inch) rubber lagged option
Bearings	<ul style="list-style-type: none"> Heavy-duty self-aligning pillow block bearings, standard Polymer self-aligning pillow block bearings option
Belt speed	
Self-cleaning	1.79 m/s (350 fpm) max.
Drum	3 m/s (600 fpm)
Approvals	CE, UKCA, RCM, EAC, KC

Dimensional drawings



Belt size	E	A	L	F
18 inch, 20 inch	18 inch (460 mm), 20 inch (508 mm)	27 inch (686 mm), 29 inch (737 mm)	34.5 inch (876 mm)	20 inch (508 mm)
24 inch	24 inch (610 mm)	33 inch (838 mm)	40.5 inch (1 029 mm)	26 inch (660 mm)
30 inch	30 inch (762 mm)	39 inch (991 mm)	46.5 inch (1 181 mm)	32 inch (812 mm)
36 inch	36 inch (915 mm)	45 inch (1 143 mm)	52.5 inch (1 334 mm)	38 inch (965 mm)
42 inch	42 inch (1 066 mm)	51 inch (1 295 mm)	58.5 inch (1 486 mm)	44 inch (1 118 mm)
48 inch	48 inch (1 220 mm)	57 inch (1 448 mm)	64.5 inch (1 638 mm)	51 inch (1 296 mm)
54 inch	54 inch (1 371 mm)	63 inch (1 600 mm)	70.5 inch (1 791 mm)	57 inch (1 448 mm)
60 inch	60 inch (1 524 mm)	69 inch (1 753 mm)	76.5 inch (1 943 mm)	63 inch (1 600 mm)
66 inch	66 inch (1 676 mm)	75 inch (1 905 mm)	82.5 inch (2 096 mm)	69 inch (1 752 mm)
72 inch	72 inch (1 828 mm)	81 inch (2 057 mm)	88.5 inch (2 248 mm)	75 inch (1 905 mm)
78 inch	78 inch (1 981 mm)	87 inch (2 210 mm)	94.4 inch (2 400 mm)	81 inch (2 057 mm)
84 inch	84 inch (2 133 mm)	93 inch (2 362 mm)	100.5 inch (2 553 mm)	87 inch (2 210 mm)
90 inch	90 inch (2 286 mm)	99 inch (2 515 mm)	106.5 inch (2 705 mm)	93 inch (2 362 mm)
96 inch	96 inch (2 438 mm)	105 inch (2 667 mm)	112.5 inch (2 858 mm)	99 inch (2 515 mm)
500 mm	500 mm (19.7 inch)	737 mm (29 inch)	34.8 inch (884 mm)	551 mm (21.7 inch)
650 mm	650 mm (25.6 inch)	890 mm (35 inch)	40.7 inch (1 034 mm)	701 mm (27.6 inch)
800 mm	800 mm (31.5 inch)	1 040 mm (41 inch)	46.6 inch (1 184 mm)	851 mm (33.5 inch)
800 mm	800 mm (31.5 inch)	1 090 mm (43 inch)	48.6 inch (1 234 mm)	851 mm (33.5 inch)
1 000 mm	1 000 mm (39.4 inch)	1 240 mm (48.8 inch)	56.3 inch (1 430 mm)	1 052 mm (41.4 inch)
1 200 mm	1 200 mm (47.2 inch)	1 540 mm (60.6 inch)	64.2 inch (1630 mm)	1 275 mm (50.2 inch)
1 400 mm	1 400 mm (55.1 inch)	1 650 mm (65 inch)	72.0 inch (1 830 mm)	1 476 mm (58.1 inch)
1 450 mm	1 450 mm (57.1 inch)	1 702 mm (67 inch)	74.0 inch (1 880 mm)	1 527 mm (60.1 inch)
1 600 mm	1 600 mm (63.0 inch)	1 940 mm (76.4 inch)	79.9 inch (2 030 mm)	1 676 mm (66 inch)
1 800 mm	1 800 mm (70.7 inch)	80.3 inch (2 040 mm)	87.8 inch (2 230 mm)	73.8 inch (1 875 mm)
2 000 mm	2 000 mm (78.7 inch)	88.2 inch (2 240 mm)	95.7 inch (2 430 mm)	81.7 inch (2 075 mm)
2 200 mm	2 200 mm (86.6 inch)	96.1 inch (2 440 mm)	103.5 inch (2 630 mm)	89.6 inch (2 275 mm)
2 400 mm	2 400 mm (94.5 inch)	103.9 inch (2 640 mm)	111.9 inch (2 830 mm)	97.4 inch (2 475 mm)
2 500 mm	2 500 mm (94.2 inch)	107.9 inch (2 740 mm)	115.4 inch (2 930 mm)	101.4 inch (2 575 mm)








Bend pulley, dimensions in mm (inch)

Belt Weighing

Accessories

Belt scale peripherals

Selection and ordering data

Milltronics belt scale peripherals	Article No.	
Totalizer 150 x 150 x 100D Nema 4 /IP65 enclosure Panel mount totalizer	7MH7723-1GG 7MH7726-1AU	
Ticket printers Ticket printer, TM-U295, 100 ... 240 V Ribbon Ink EPSON TM-U295	7MH7726-1AK 7MH7723-1GE	
Printer cables Printer cables for TM-U295 and TMU220B, RS 232, DB25 ... open end RS 485 ... RS 232 DB25 male converters for TMU295 and TMU220B printer	7MH7726-1AH 7MH7726-1AJ	
Portable Printer FastMark M4DT, USB/BT	A5E36716278	
Roll printer Roll printer, TMU220B, 100 ... 240 V (required for German and Spanish printing)	7MH7726-1AT	
Chart recorder Totalizer with Hi/Low alarm lights, 584 x 483 x 203D Nema 4 /IP65 enclosure SIREC D200 display recorder	7MH7726-1AL 7ND41211AA011AA2	
Terminal box 1, 2, or 4 load cell(s) / speed sensor, 150 x 200 x 100 NEMA 4 /IP65 enclosure Mild steel Stainless steel Termination board spare Note: <i>For MMI-3, 2 terminal boxes are required</i>	7MH7723-1ND 7MH7723-1NE A5E03623963	
Belt scale connection cable 6 cond, 20 G (order per meter) Note: <i>For use with 1 or 2 load cell belt scales, for 4 or 6 load cell belt scales use 2 cables. This cable is intended for less than 150 m (500 ft).</i> <i>Cable length orders exceeding 150 m (500 ft) may not be supplied as a continuous length.</i>	7MH7723-1JR	
Beltscale alignment kit Note: <i>Comes with idler shims, alignment wire, and spacer blocks for idler alignment</i>	7MH7723-1KC	
Inclinometer Celesco model IT9420	7MH7726-1AP	
Belt scale spare load cells <u>For Milltronics Torque shaft belt scale (MTS), model CD or CFT, mounting hardware included</u> 50 lb (22.7 kg) 75 lb (34 kg) 100 lb (45.4 kg) 150 lb (68 kg)	7MH7725-1BA 7MH7725-1BB 7MH7725-1BC 7MH7725-1BD	

Selection and ordering data (Continued)


Milltronics belt scale peripherals	Article No.
300 lb (136.1 kg)	7MH7725-1BE
500 lb (226.8 kg)	7MH7725-1BF
750 lb (340.2 kg)	7MH7725-1BG
1 000 lb (453.6 kg)	7MH7725-1BH
1 500 lb (680.4 kg)	7MH7725-1BJ
<u>For MSI belt scale with round static beam, low-profile, mounting hardware included, model 60048-XXX-0137 or 60048-XXX-0129</u>	
25 lb (11.3 kg)	7MH7725-1AJ
50 lb (22.7 kg)	7MH7725-1AK
100 lb (45.4 kg)	7MH7725-1AL
200 lb (90.7 kg)	7MH7725-1AM
400 lb (181.4 kg)	7MH7725-1AN
500 lb (226.8 kg)	7MH7725-1AP
1 000 lb (453.6 kg)	7MH7725-1AQ
<u>For retrofitting current and older version of MSI with Group 4, mounting hardware included, sensortronics 60048-xxx-0138, or RTI. Model 6500</u>	
50 lb (22.7 kg)	7MH7725-1AC
100 lb (45.4 kg)	7MH7725-1AD
250 lb (113.4 kg)	7MH7725-1AE
500 lb (226.8 kg)	7MH7725-1AF
750 lb (340.2 kg)	7MH7725-1AG
1 000 lb (453.6 kg)	7MH7725-1AH
<u>For retrofitting older version of MSI C462 (transducers incorporated), mounting hardware included</u>	
50 lb (22.7 kg)	PBD-23900005
100 lb (45.4 kg)	PBD-23900010
250 lb (113.4 kg)	PBD-23900012
<u>For retrofitting older MMW & MCS belt scales that do not have a conduit adaptor, belt scale mounting hardware included</u>	
50 lb	7MH7725-1BN
100 lb	7MH7725-1BP
250 lb	7MH7725-1BQ
<u>For retrofitting older MIC belt scale, mounting hardware included</u>	
25 lb	Replace with 50 lb
50 lb (22.7 kg)	PBD-61009735
100 lb (45.4 kg)	PBD-61009731
250 lb (113.4 kg)	PBD-61009732
500 lb (226.8 kg)	PBD-61009733
1 000 lb (453.6 kg)	PBD-61009734
Kit, 2 idler cable suspension	PBD-61010081
Kit, 2 idler cable suspension, heavy duty	PBD-61010082
Kit, 4 idler cable suspension, heavy duty	PBD-61010742
Kit, 4 idler cable suspension, magnum	PBD-61010743
Kit, 4 idler cable suspension, standard	PBD-61010741
Shock washers	PBD-54000161
Bearing flange 1 3/16	PBD-20250015

Belt Weighing

Accessories

Belt scale peripherals

Selection and ordering data (Continued)

Milltronics belt scale peripherals	Article No.
For MUS HD aluminum model 7MH71202, use SIWAREX WL260 SP-S AB, customer to supply M8-1.25 x 30 mm and M8 split washer mounting hardware	
50 kg (110.2 lb)	7MH5103-2PD00
100 kg (220.4 lb)	7MH5103-3AD00
150 kg (330.7 lb)	7MH5103-3ED00
200 kg (440.9 lb)	7MH5103-3GD00
300 kg (661.4 lb)	7MH5103-3KD00
300 kg (661.4 lb)	7MH5103-3PD00
500 kg (1 102.3 lb)	
For WD600 model 7MH7185	PBD-23900224
25 lb (11.3 kg)	PBD-23900224
50 lb (22.7 kg)	PBD-23900225

Weighfeeders



6/2	Introduction
6/4	SITRANS WW100
6/12	SITRANS WW200
6/51	Accessories
6/51	Weighfeeder peripherals

Weighfeeders

Introduction

Overview

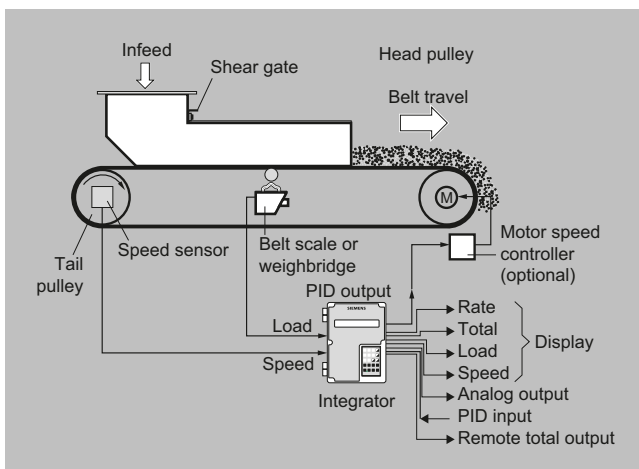
SITRANS weighfeeders from Siemens can improve the accuracy of processing, blend consistencies, accountability, and record keeping. All weighfeeders come standard with a belt weigh bridge and speed sensor. An integrator is required to complete the system.

Mode of operation

The weighfeeder is used to deliver an accurate mass flow rate of material. In the majority of applications, material is profiled by an adjustable mechanical shear gate, which fixes the correct material bed depth for a given particle size.

The feed rate is then maintained and adjusted by varying the speed of the belt. However, in some cases the belt speed is constant with rate control (if any) done by a pre-feeding device.

The system consists of three components: weight and speed sensing, integration and control, and the mechanical conveying system. Using the belt load and the belt speed signals, small incremental totals of weight per time are measured by the integrator and then the flow rate is calculated. The measured flowrate is compared against the desired flowrate and the on-board PID controller makes necessary corrections to the belt speed.



Weighfeeder operation

Design and Applications

SITRANS WW100

The platform weigh bridge mounts directly to a corrosion-resistant platform load cell. The direct load design eliminates all intermediate mechanical suspension and allows material weight to be directly applied to the load cell.

This design minimizes zero drift normally caused by intermediary suspension components and allows for the use of a very sensitive precision platform load cell. Load cell size and construction are chosen for each specific application.

SITRANS WW200

A stainless steel platform weighdeck with a PD-HD slider bar assembly mounts directly to two corrosion-resistant, sealed platform load cells. The direct load design eliminates all intermediate mechanical suspension and allows material weight to be directly applied to the load cells. The frame of the WW200 is sturdy and rigid, ensuring stable and repeatable results, maximizing resolution and weighing accuracy.

Technical specifications

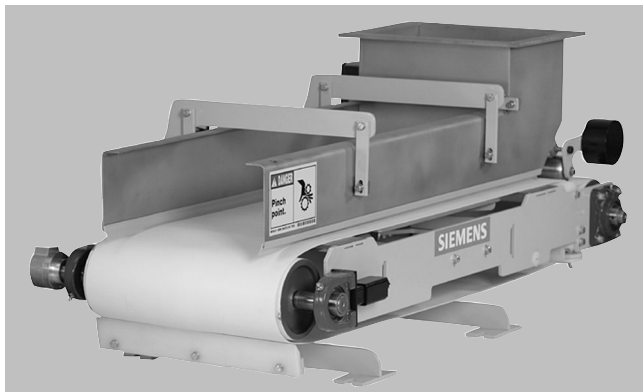
Criteria	SITRANS WW100	SITRANS WW200
Typical industries	Bulk chemicals, tobacco, food, water treatment	Bulk chemicals, tobacco, food, recycling
Typical applications	High-accuracy, low-capacity for minor ingredient additives	Low- to medium-capacity for minor ingredient additives
Design rate range	45 kg/h ... 18 t/h (100 lb/h ... 20 STPH)	0.45 ... 100 t/h (1 000 lb/h ... 110 STPH)
Belt speed	0.005 ... 0.36 m/s (1 ... 70 fpm)	0.005 ... 0.36 m/s (1 ... 70 fpm)
Accuracy ¹⁾	± 0.5 % or better	± 0.5 % or better
Specified range	10 ... 100 % based on speed	10 ... 100 % based on speed
Sensing element	Long length platform weigh bridge Single load cell	Platform weigh bridge Dual load cells
Approvals	<ul style="list-style-type: none"> • Declaration of incorporation of partly completed machinery acc. directive 2006/42/EC. • Stainless steel options meet FDA requirements for food processing. • Hazardous approvals per configuration options (WW200 only). 	

¹⁾ Accuracy subject to: On factory approved installations the weigh feeder system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Weighfeeders

SITRANS WW100

Overview



SITRANS WW100 is a high-accuracy, low-capacity weighfeeder used for minor ingredient additives.

Benefits

- High accuracy
- High turn down ratio; 100 to 10 % of capacity
- Corrosion resistant components
- Fast and easy belt removal for replacement or cleaning
- Simple installation, easy to clean and maintain
- Available with gear or servomotor

Application

SITRANS WW100 is one of the most accurate in-motion weighing systems on the market. It is specially designed for high accuracy on light loading processes. The design eliminates material buildup to ensure accurate, reliable measurement.

The unique long length platform weigh bridge mounts directly to a corrosion-resistant platform load cell. An adjustable mechanical shear gate profiles the material and fixes the correct material bed depth for a given material particle size. The belt speed can be automatically adjusted to attain the correct feed rate.

Standard components include an anti-static food grade belt, gravity tensioned roller, tail pulley driven belt for maximum weighing accuracy, belt tracking rollers, belt scraper and plow for self-cleaning.

Selection and ordering data

		Article No.								
SITRANS WW100 Weighfeeder Accuracy is $\pm 0.25 \dots 0.5 \%$, with capacity up to $25 \text{ m}^3/\text{h}$ ($880 \text{ ft}^3/\text{h}$).		7MH7180-	●	●	●	●	-	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. Add order code Y71 ... Y73 for all models to -specify design data.										
Frame and enclosure construction										
304 stainless steel open style		0	B							
316L stainless steel open style		0	D							
304 stainless steel enclosed style with painted mild steel enclosure		1	B							
304 stainless steel enclosed style with 304 stainless steel enclosure		1	D							
316L stainless steel enclosed style with painted mild steel enclosure		1	G							
316L stainless steel enclosed style with 304 stainless steel enclosure		1	J							
316L stainless steel enclosed style with 316L stainless steel enclosure		1	M							
Material containment construction										
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options A ... H										
Shear gate inlet and skirtboards 304 stainless steel							A			

Selection and ordering data (Continued)

SITRANS WW100 Weighfeeder		Article No.	
Accuracy is ± 0.25 ... 0.5 %, with capacity up to 25 m ³ /h (880 ft ³ /h).		7MH7180- ● ● ● ● ● - ● ● ●	
Shear gate inlet and skirtboards 304 stainless steel with cover		B	
Shear gate inlet and skirtboards 304 stainless steel, #4 polished		C	
Shear gate inlet and skirtboards 304 stainless steel, #4 polished with cover		D	
Shear gate inlet and skirtboards 316L stainless steel		E	
Shear gate inlet and skirtboards 316L stainless steel with cover		F	
Shear gate inlet and skirtboards 316L stainless steel, #4 polished		G	
Shear gate inlet and skirtboards 316L stainless steel, #4 polished with cover		H	
Horseshoe inlet 304 stainless steel ¹⁾		J	
Horseshoe inlet 304 stainless steel, #4 polished ¹⁾		K	
Horseshoe inlet 316L stainless steel ¹⁾		L	
Horseshoe inlet 316L stainless steel, #4 polished ¹⁾		M	
Load cell			
6 kg (13.2 lb) stainless steel, hermetically sealed		4	
12 kg (26.5 lb) stainless steel, hermetically sealed		5	
30 kg (66.1 lb) stainless steel, hermetically sealed		6	
Speed sensor			
1 000 PPR shaft mounted optical encoder		1	
2 500 PPR shaft mounted optical encoder		2	
1 000 PPR shaft mounted optical encoder, stainless steel		4	
2 500 PPR shaft mounted optical encoder, stainless steel		5	
Drive configuration			
SIMOTICS Servomotor incl. SINAMICS control unit with PROFIBUS DP, BOP and power module			
200 ... 240 V 1 ph ²⁾		0	A
380 ... 480 V 3 ph ²⁾		0	B
200 ... 240 V 1 ph, with 5 m (16.4 ft) communication and power cables		1	A
380 ... 480 V 3 ph, with 5 m (16.4 ft) communication and power cables		1	B
200 ... 240 V 1 ph, with 10 m (33 ft) communication and power cables		2	A
380 ... 480 V 3 ph, with 10 m (33 ft) communication and power cables		2	B
200 ... 240 V 1 ph, with 25 m (82 ft) communication and power cables		3	A
380 ... 480 V 3 ph, with 25 m (82 ft) communication and power cables		3	B
200 ... 240 V 1 ph, with 50 m (164 ft) communication and power cables		4	A
380 ... 480 V 3 ph, with 50 m (164 ft) communication and power cables		4	B
200 ... 240 V 1 ph, with 100 m (328 ft) communication and power cables		5	A
380 ... 480 V 3 ph, with 100 m (328 ft) communication and power cables		5	B
Standard AC gearmotor without drive (Drive required for desired belt speed)			
Add order code Y76 for electrical style: IEC, UL-R/CSA or CCC. Add order code Y75 reduction ratio in plain text: "X:1".			
220 ... 240/380 ... 480 V 3 ph 50/60 Hz AC		6	A
575 V 3 ph 60 Hz AC		6	B
Food grade AC gearmotor without drive (Drive required for desired belt speed)			
Add order code Y76 for electrical style: IEC, UL-R/CSA or CCC. Add order code Y75 reduction ratio in plain text: "X:1".			
220 ... 240/380 ... 480 V 3 ph 50/60 Hz AC food grade gearmotor		7	A
575 V 3 ph 60 Hz AC food grade gearmotor		7	B
SIMOTICS servomotor without accessories			
Control unit, BOP, power module and input choke as well as power and communication cables should be ordered separately.			
		8	A
Calibration Method			
None			A
1 calibration chain strand approx. 2.41 kg/m (1.62 lb/ft)			B

Weighfeeders

SITRANS WW100

Selection and ordering data (Continued)

								Article No.		
SITRANS WW100 Weighfeeder								7MH7180-●●●●●-●●●		
Accuracy is ± 0.25 ... 0.5 %, with capacity up to 25 m ³ /h (880 ft ³ /h).										
2 calibration chain strands approx. 4.82 kg/m (3.24 lb/ft)								C		
3 calibration chain strands approx. 7.23 kg/m (4.86 lb/ft)								D		
Belt change access side (looking from inlet to discharge)										
Left hand								0		
Right hand								1		

Selection and ordering data	Order Code
Further Designs	
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ³⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1).	Y75
AC gearmotor electrical style: IEC, UL-R/CSA or CCC	Y76
Manufacturer's test certificate: according to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: measuring-point number/identification (max. 27 characters) specify in plain text.	Y15
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ³⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Low weight belt for light loading, low rate applications (recommended for under 1 t/h). Anti-static, FDA approved.	G15
High temp belt for hot material applications (product temp up to 177 °C (350 °F). High temp silicone, FDA approved.	G17
SINAMICS control unit with ProfiNet (only available with drive configuration options 0A ... 5B)	G21
Food grade Polyurethane sealing at infeed area	G22
Discharge dust hood, painted mild steel with de-dust port ¹⁾	H50
Discharge dust hood, 304 stainless steel with de-dust port ¹⁾	H51
Discharge dust hood, 316L stainless steel with de-dust port ¹⁾	H52
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Spare parts	
6 kg (13.2 lb) stainless steel load cell	Article No. 7MH5117-1QD00
12 kg (26.4 lb) stainless steel load cell	7MH5117-2BD00
30 kg (66.2 lb) stainless steel load cell	7MH5117-2KD00
1 000 PPR optical encoder ⁴⁾	6FX2001-2PB00
2 500 PPR optical encoder ⁴⁾	6FX2001-2PC50
Optical encoder connector	6FX2003-0SU12

Selection and ordering data (Continued)

Selection and ordering data	Order Code
Speed encoder plug-in with 3 m cable ⁵⁾	A5E50846036003
Speed Encoder, 1 000 PPR, stainless steel	A5E50846036001
Speed Encoder, 2 500 PPR, stainless steel	A5E50846036002
Skirtboard seals, white, 2 m length	7MH7723-1SF
Skirtboard seals, blue, 2 m length	7MH7723-1SG
Calibration chain, approx. 2.41 kg/m (1.62 lb/ft)	7MH7723-1HP
Calibration chain, approx. 4.82 kg/m (3.24 lb/ft)	7MH7723-1HQ
Calibration chain, approx. 7.23 kg/m (4.86 lb/ft)	7MH7723-1HR
Customers interested in servomotor and drive spares and peripherals should consult a local sales person. For more information, please visit http://www.automation.siemens.com/aspa_app	
Standard belt, white	7MH7723-1SA
Standard belt, blue	7MH7723-1SB
Low capacity belt, white	7MH7723-1SC
Low capacity belt, blue	7MH7723-1SD
High temperature belt, white	7MH7723-1SE
Skirtboard sealing	7MH7723-1SG
Guide rollers, set of 2	7MH7723-1SH
Gravimetric tensioning device	7MH7723-1SJ
Telescopes for WW100, stainless steel	7MH7723-1SY
Circuit board for termination box	A5E03623963
Bearing replacement kit, 2 bearings each for headpulley and tailpulley	7MH7723-1HV
Pulley replacement kit, for head and tailpulley, crowned, with lagging	7MH7723-1HY
Belt cleaning kit	7MH7723-1HW
Spare brush, 12 inch belt width	7MH7723-1SN
Accessories	
Start, Stop, Hand/Off/Auto, speed pot local operator station	7MH7723-1JA
CLS100 plugged discharge chute retrofit kit (includes CLS100, material hood)	7MH7723-1JE

- 1) Available with Frame Construction options OB ... OD only.
- 2) Communication and power cables required.
- 3) Available with Material Containment options A ... H only.
- 4) For use with 5 V DC supply from RS 422 circuit card.
- 5) For use with PPR optical encoders: 6FX20012PA50, 6FX20012PB00, 6FX20012PC50.

Weighfeeders

SITRANS WW100

Technical specifications

SITRANS WW100	
Mode of operation	
Measuring principle	Strain gauge load cell and digital speed sensor
Typical application	Control and monitor feed rates and blending in bulk chemicals, tobacco, food, and water treatment
Measuring accuracy	
Accuracy ¹⁾	± 0.25 ... 0.5 %
Repeatability	± 0.1 %
Specified range	10 ... 100 % based on speed
Design rate range	45 kg/h ... 18 t/h (100 lb/h ... 20 STPH)
Max volumetric flow	25 m ³ /h (880 ft ³ /h)
Medium conditions	
Operating temperature	-10 ... +55 °C (10 ... 131 °F)
Material	Stainless steel [304 (1.4301) or 316L (1.4404)], bead blast finish (1 ... 6 µm, 40 ... 240 µin)
Load cells	
Construction	17-4 PH (1.4568) stainless steel
Degree of protection	IP68
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V
• Non-linearity	± 0.02 % of rated output
• Non-repeatability	± 0.01 % of rated output
Capacity	Stainless steel range: 6, 12, 30 kg
Overload	150 % of rated capacity
Temperature	• Operating range: -40 ... +65 °C (-40 ... +149 °F) • Compensated: -10 ... +40 °C (14 ... 104 °F)
Speed sensors	
Optical encoder output	• RS 422 (TTL) 5 V DC, 150 mA max. • 1 000 or 2 500 pulses per revolution (ppr)
Degree of protection	• Standard: IP64 • Stainless steel: IP66
Temperature	-10 ... +70 °C (14 ... 158 °F)
Framework	• Precision machined, stainless [304 (1.4301) or 316L (1.4404)] or mild steel • Cantilevered design for easy belt replacement
Pulleys	115 mm (4.5 inch) diameter, crowned and lagged
Bearings	• 4-bolt flange mount on drive pulley • 2-bolt threaded base pillow block on driven pulley
Belt speed	0.005 ... 0.36 m/s (1 ... 70 fpm)
Belt support	Slider bed frame
Belting	• Polyester carcass with polyurethane top cover and static control with vulcanized endless finger splice for max. weighing consistency (standard); optionally available in blue and as low capacity belt; product temperature up to 100 °C (212 °C) • Belt properties in compliance with food safety Regulation (EU) No. 10/2011 and Regulation (EU) No. 1935/2004 • Meets FDA 21CFR and Halal • HACCP concept supported: resistant to hot water and ideal for frequent cleaning cycles • Silicone high temp belt for hot material applications [product temperature up to 177 °C (350 °F)], in compliance with Regulation (EU) No. 10/2011 and Regulation (EU) No. 1935/2004, meets FDA 21CFR
Belt tension	• Counter-weighted stainless steel [304 (1.4301) or 316L (1.4404)] tensioning idler for consistent tension, required for high accuracy weighing • Screw type, telescoper module with 25 mm (1 inch) travel, stainless steel 304 (1.4301)

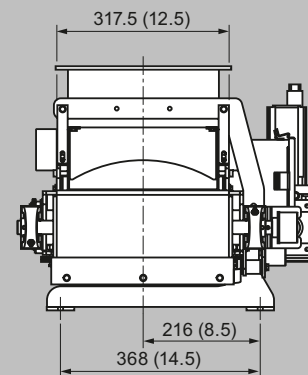
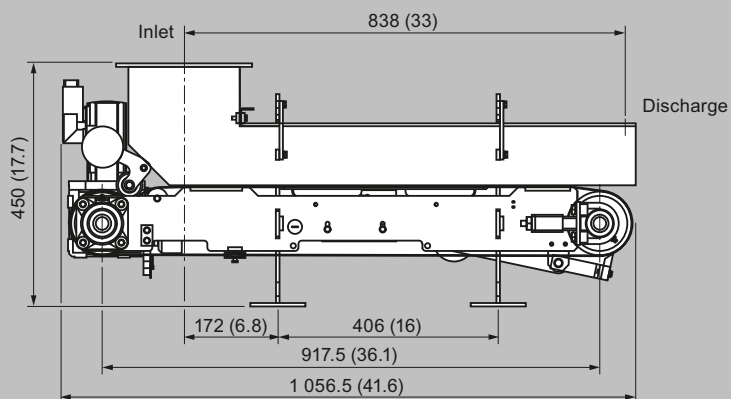
Technical specifications (Continued)

SITRANS WW100	
Belt cleaning	• PE-HD blade type with counterweight at the head pulley for cleaning product side of belt • Return plow
Servomotor	SIMOTICS Servomotor; optionally including SINAMICS S120 drive, PROFIBUS DP or ProfiNet option, length of motor and communication cables customizable.
Standard gear-motor	Helical-worm geared motor, AC, Efficiency class IE1, IEC or UL-R/CSA, IP55, incl. PTC, RAL7031, C2 coating acc. EN12944.
Food grade gear-motor	Helical-worm geared motor, AC, Efficiency class IE3, IEC or UL-R/CSA, IP66, including PTC, corrosion resistant Aluminium housing, sealed surface treatment nsd tpuH, complies with FDA.
Variable frequency drive: SINAMICS S120 servomotor controller (included with supply of WW100 based on ordering options)	• 1 ph, 200 ... 240 V or 3 ph, 380 ... 480 V • BOP for local control • External 24 V DC power supply • RS 232 connection port • 4 DI, DO • PROFIBUS DP, optionally ProfiNet
Shipping weight	91 kg (200 lb) ... 181 kg (400 lb) maximum
Approvals	• Declaration of incorporation of partly completed machinery acc. directive 2006/42/EC. • Meets FDA requirements for food processing

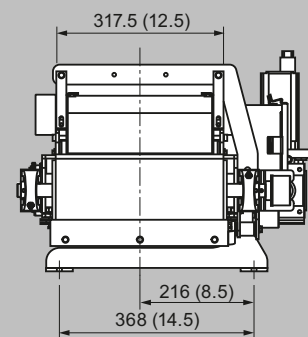
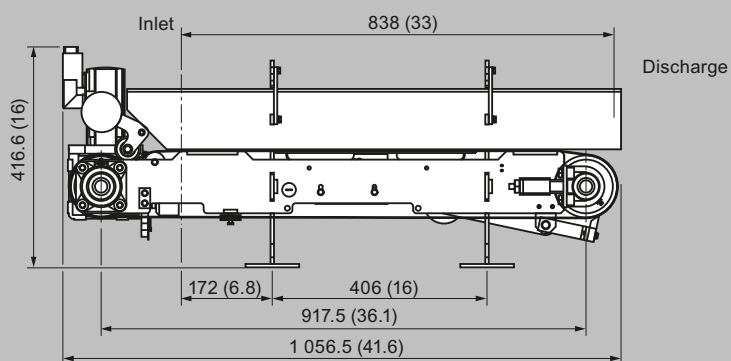
¹⁾ Accuracy subject to: on factory approved installations the weigh feeder system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Dimensional drawings

Open Construction



Open Horseshoe Inlet

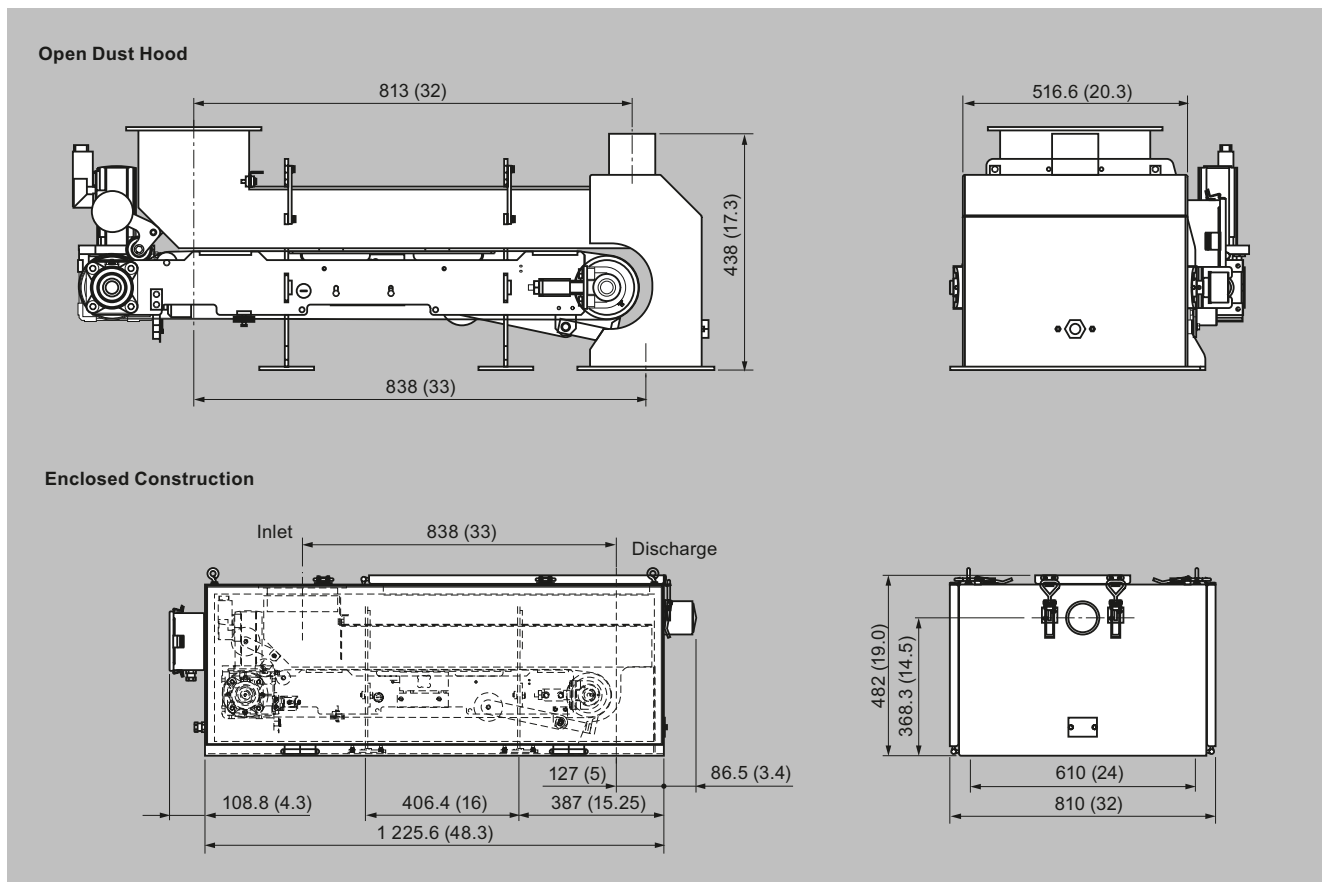


SITRANS WW100, dimensions in mm (inch)

Weighfeeders

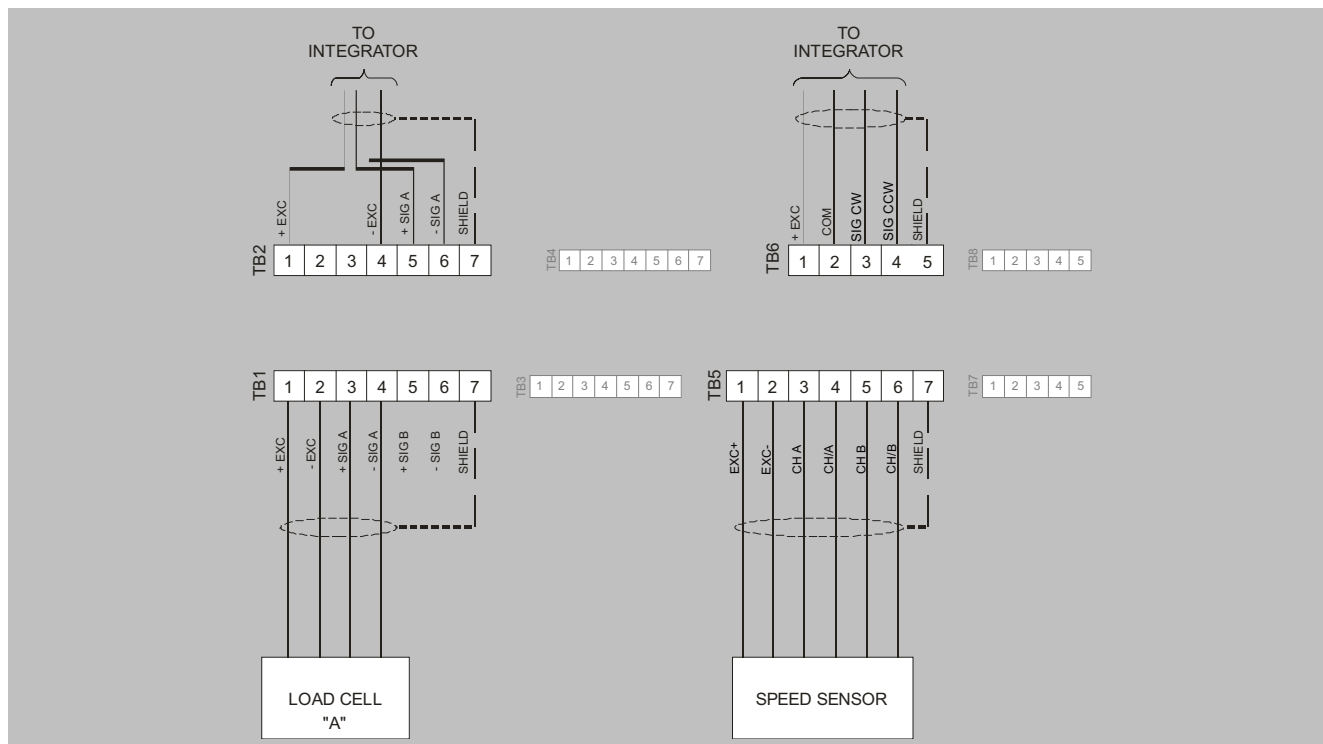
SITRANS WW100

Dimensional drawings (Continued)



SITRANS WW100, dimensions in mm (inch)

Circuit diagrams



SITRANS WW100 connections

Weighfeeders

SITRANS WW200

Overview



SITRANS WW200 is a low- to medium-capacity weighfeeder used for minor ingredient additives.

Benefits

- High accuracy
- Ideal for low- to medium-capacity loads
- Fast installation, easy to clean and maintain
- Flexible, rugged design allows configurations to suit many applications
- Quick delivery on standard units
- Outboard mounted load cells with protective cover

Application

SITRANS WW200 has been field tested and proven in hundreds of applications.

The unit can be customized to meet exact application needs. Stainless or mild steel units are available in open or enclosed styles. Custom lengths, belt types, inlet configurations, drives, and other options are available to meet your requirements.

Its cantilevered mechanical design provides for quick belt removal and easy maintenance. It is designed to eliminate material build-up, ensuring high accuracy and reliability. The unique weigh system reduces dead load and applies live load directly to two platform load cells. Load cells are externally mounted for easy access and maintenance.

Standard components include an anti-static food grade belt option, horizontal slider bars for self-cleaning and minimal product build up, belt tracking rollers, belt scraper, and plow for self-cleaning.

Selection and ordering data

	Article No.										
SITRANS WW200 Weighfeeder, painted mild steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m³/h (4 237 ft³/h).	7MH7300-	•	•	•	•	•	-	•	•	•	•
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Add order code Y71 ... Y76 for all models to -specify design data.											
Painted mild steel, open style, with C/L infeed to C/L discharge											
<u>12 inch (305 mm) belt width</u>											
52 inch (1 321 mm)	0	A									
60 inch (1 524 mm)	0	B									
68 inch (1 727 mm)	0	C									
76 inch (1 930 mm)	0	D									
84 inch (2 134 mm)	0	E									
92 inch (2 337 mm)	0	F									
100 inch (2 540 mm)	0	G									
108 inch (2 743 mm)	0	H									
116 inch (2 946 mm)	0	J									
<u>18 inch (457 mm) belt width</u>											
52 inch (1 321 mm)	1	A									
60 inch (1 524 mm)	1	B									

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, painted mild steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	Article No. 7MH7300- ● ● ● ● ● - ● ● ● ●										
68 inch (1 727 mm)	1	C									
76 inch (1 930 mm)	1	D									
84 inch (2 134 mm)	1	E									
92 inch (2 337 mm)	1	F									
100 inch (2 540 mm)	1	G									
108 inch (2 743 mm)	1	H									
116 inch (2 946 mm)	1	J									
<u>24 inch (610 mm) belt width</u>											
52 inch (1 321 mm)	2	A									
60 inch (1 524 mm)	2	B									
68 inch (1 727 mm)	2	C									
76 inch (1 930 mm)	2	D									
84 inch (2 134 mm)	2	E									
92 inch (2 337 mm)	2	F									
100 inch (2 540 mm)	2	G									
108 inch (2 743 mm)	2	H									
116 inch (2 946 mm)	2	J									
<u>30 inch (762 mm) belt width</u>											
52 inch (1 321 mm)	3	A									
60 inch (1 524 mm)	3	B									
68 inch (1 727 mm)	3	C									
76 inch (1 930 mm)	3	D									
84 inch (2 134 mm)	3	E									
92 inch (2 337 mm)	3	F									
100 inch (2 540 mm)	3	G									
108 inch (2 743 mm)	3	H									
116 inch (2 946 mm)	3	J									
<u>36 inch (914 mm) belt width</u>											
52 inch (1 321 mm)	4	A									
60 inch (1 524 mm)	4	B									
68 inch (1 727 mm)	4	C									
76 inch (1 930 mm)	4	D									
84 inch (2 134 mm)	4	E									
92 inch (2 337 mm)	4	F									
100 inch (2 540 mm)	4	G									
108 inch (2 743 mm)	4	H									
116 inch (2 946 mm)	4	J									
<u>42 inch (1 067 mm) belt width</u>											
52 inch (1 321 mm)	5	A									
60 inch (1 524 mm)	5	B									
68 inch (1 727 mm)	5	C									
76 inch (1 930 mm)	5	D									
84 inch (2 134 mm)	5	E									
92 inch (2 337 mm)	5	F									
100 inch (2 540 mm)	5	G									
108 inch (2 743 mm)	5	H									
116 inch (2 946 mm)	5	J									
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)	6	A									
60 inch (1 524 mm)	6	B									
68 inch (1 727 mm)	6	C									
76 inch (1 930 mm)	6	D									
84 inch (2 134 mm)	6	E									
92 inch (2 337 mm)	6	F									
100 inch (2 540 mm)	6	G									
108 inch (2 743 mm)	6	H									
116 inch (2 946 mm)	6	J									

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, painted mild steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7300- ● ● ● ● ● - ● ● ● ●									
Material containment construction											
None											A
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options D ... L.											
Shear gate inlet											
Skirtboards 304 stainless steel											D
Skirtboards 304 stainless steel, with cover											E
Skirtboards 304 stainless steel, #4 polished											F
Skirtboards 304 stainless steel, #4 polished with cover											G
Skirtboards 316L stainless steel											H
Skirtboards 316L stainless steel, with cover											J
Skirtboards 316L stainless steel, #4 polished											K
Skirtboards 316L stainless steel, #4 polished with cover											L
Horseshoe inlet											
304 stainless steel											M
304 stainless steel, #4 polished											N
316L stainless steel											P
316L stainless steel, #4 polished											Q
Load cell											
<u>Stainless steel, hermetically sealed</u>											
6 kg (13.2 lb)											5
12 kg (26.5 lb)											6
30 kg (66.1 lb)											7
60 kg (132.3 lb)											8
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder											1
2 500 PPR optical encoder											2
1 000 PPR optical encoder, stainless steel											4
2 500 PPR optical encoder, stainless steel											5
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									0		D
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		G
1 HP (0.75 kW) 575 V 3 ph 60 Hz									0		H
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		A
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz									4		B
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									4		D
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		E
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz									4		F
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		G
1 HP (0.75 kW) 575 V 3 ph 60 Hz									4		H
Belting											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved											A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											B
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved											D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved											K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											M
Belt change access side (looking from inlet to discharge)											
Left hand											0
Right hand											1

Selection and ordering data (Continued)

Selection and ordering data	Order Code
Further Designs	
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100	G12
Capacitance switch for plugged discharge chute detection	
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, out-boarded installation	G22
Discharge dust hood, painted mild steel with de-dust port	H50
Discharge dust hood, 304 stainless steel with de-dust port	H51
Discharge dust hood, 316L stainless steel with de-dust port	H52
Custom design	Y99
Specify quote reference when ordering	
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options D ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with drive configuration standard motor options only, all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	Article No. 7MH7301- ● ● ● ● ● - ● ● ● ●		
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Add order code Y71 ... Y76 for all models to -specify design data.			
304 stainless steel, open style, with C/L infeed to C/L discharge			
<u>12 inch (305 mm) belt width</u>			
52 inch (1 321 mm)	0	A	
60 inch (1 524 mm)	0	B	
68 inch (1 727 mm)	0	C	
76 inch (1 930 mm)	0	D	
84 inch (2 134 mm)	0	E	
92 inch (2 337 mm)	0	F	
100 inch (2 540 mm)	0	G	
108 inch (2 743 mm)	0	H	
116 inch (2 946 mm)	0	J	
<u>18 inch (457 mm) belt width</u>			
52 inch (1 321 mm)	1	A	
60 inch (1 524 mm)	1	B	
68 inch (1 727 mm)	1	C	
76 inch (1 930 mm)	1	D	
84 inch (2 134 mm)	1	E	
92 inch (2 337 mm)	1	F	
100 inch (2 540 mm)	1	G	
108 inch (2 743 mm)	1	H	
116 inch (2 946 mm)	1	J	
<u>24 inch (610 mm) belt width</u>			
52 inch (1 321 mm)	2	A	
60 inch (1 524 mm)	2	B	
68 inch (1 727 mm)	2	C	
76 inch (1 930 mm)	2	D	
84 inch (2 134 mm)	2	E	
92 inch (2 337 mm)	2	F	
100 inch (2 540 mm)	2	G	
108 inch (2 743 mm)	2	H	
116 inch (2 946 mm)	2	J	
<u>30 inch (762 mm) belt width</u>			
52 inch (1 321 mm)	3	A	
60 inch (1 524 mm)	3	B	
68 inch (1 727 mm)	3	C	
76 inch (1 930 mm)	3	D	
84 inch (2 134 mm)	3	E	
92 inch (2 337 mm)	3	F	
100 inch (2 540 mm)	3	G	
108 inch (2 743 mm)	3	H	
116 inch (2 946 mm)	3	J	
<u>36 inch (914 mm) belt width</u>			
52 inch (1 321 mm)	4	A	
60 inch (1 524 mm)	4	B	
68 inch (1 727 mm)	4	C	
76 inch (1 930 mm)	4	D	
84 inch (2 134 mm)	4	E	
92 inch (2 337 mm)	4	F	
100 inch (2 540 mm)	4	G	
108 inch (2 743 mm)	4	H	
116 inch (2 946 mm)	4	J	
<u>42 inch (1 067 mm) belt width</u>			
52 inch (1 321 mm)	5	A	
60 inch (1 524 mm)	5	B	
68 inch (1 727 mm)	5	C	

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel, open style Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	Article No. 7MH7301- ● ● ● ● ● - ● ● ● ●								
76 inch (1 930 mm)	5	D							
84 inch (2 134 mm)	5	E							
92 inch (2 337 mm)	5	F							
100 inch (2 540 mm)	5	G							
108 inch (2 743 mm)	5	H							
116 inch (2 946 mm)	5	J							
<u>48 inch (1 219 mm) belt width</u>									
52 inch (1 321 mm)	6	A							
60 inch (1 524 mm)	6	B							
68 inch (1 727 mm)	6	C							
76 inch (1 930 mm)	6	D							
84 inch (2 134 mm)	6	E							
92 inch (2 337 mm)	6	F							
100 inch (2 540 mm)	6	G							
108 inch (2 743 mm)	6	H							
116 inch (2 946 mm)	6	J							
Material containment construction									
None				A					
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX" for options D ... L									
<u>Shear gate inlet</u>									
Skirtboards 304 stainless steel				D					
Skirtboards 304 stainless steel, with cover				E					
Skirtboards 304 stainless steel, #4 polished				F					
Skirtboards 304 stainless steel, #4 polished with cover				G					
Skirtboards 316L stainless steel				H					
Skirtboards 316L stainless steel, with cover				J					
Skirtboards 316L stainless steel, #4 polished				K					
Skirtboards 316L stainless steel, #4 polished with cover				L					
<u>Horseshoe inlet</u>									
304 stainless steel				M					
304 stainless steel, #4 polished				N					
316L stainless steel				P					
316L stainless steel, #4 polished				Q					
Material containment construction									
None				A					
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX" for options D ... L									
<u>Shear gate inlet</u>									
Skirtboards 304 stainless steel				D					
Skirtboards 304 stainless steel, with cover				E					
Skirtboards 304 stainless steel, #4 polished				F					
Skirtboards 304 stainless steel, #4 polished with cover				G					
Skirtboards 316L stainless steel				H					
Skirtboards 316L stainless steel, with cover				J					
Skirtboards 316L stainless steel, #4 polished				K					
Skirtboards 316L stainless steel, #4 polished with cover				L					
<u>Horseshoe inlet</u>									
304 stainless steel				M					
304 stainless steel, #4 polished				N					
316L stainless steel				P					
316L stainless steel, #4 polished				Q					
Load cell									
<u>Stainless steel, hermetically sealed</u>									
6 kg (13.2 lb)							5		
12 kg (26.5 lb)							6		
30 kg (66.1 lb)							7		
60 kg (132.3 lb)							8		

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).										Article No. 7MH7301- ● ● ● ● ● - ● ● ● ●									
Speed sensor																			
<u>Shaft mounted</u>																			
1 000 PPR optical encoder										1									
2 500 PPR optical encoder										2									
1 000 PPR optical encoder, stainless steel										4									
2 500 PPR optical encoder, stainless steel										5									
Drive configuration																			
Add order code Y75 (reduction ratio) and Y76 (electrical style).																			
<u>Standard AC motor</u>																			
0.5 HP (0.37 kW)										0 C									
220 ... 240/380 ... 480 V 3 ph 50/60 Hz																			
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										0 D									
1 HP (0.75 kW)										0 G									
220 ... 240/380 ... 480 V 3 ph 50/60 Hz																			
1 HP (0.75 kW) 575 V 3 ph 60 Hz										0 H									
<u>Food grade AC motor</u>																			
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4 A									
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz										4 B									
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4 C									
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										4 D									
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4 E									
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz										4 F									
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4 G									
1 HP (0.75 kW) 575 V 3 ph 60 Hz										4 H									
Belting																			
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved										A									
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls										B									
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls										C									
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved										D									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved										K									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls										L									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls										M									
Belt change access side (looking from inlet to discharge)																			
Left hand										0									
Right hand										1									

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch)	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: According to EN 10204-2.2	C11

Selection and ordering data (Continued)

Further designs	Order Code
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G11
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, outboarded installation	G22
Discharge dust hood, painted mild steel with de-dust port	H50
Discharge dust hood, 304 stainless steel with de-dust port	H51
Discharge dust hood, 316L stainless steel with de-dust port	H52
Custom design	Y99
Specify quote reference when ordering	
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

Further designs	Order Code
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- 1) Available with material containment options D ... L only.
- 2) 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.
- 3) Available with Drive Configuration standard motor options only, all motors. suitable for 400 V operation only.
- 4) Available only with Belting options A, B, and C.

SITRANS WW200 Weighfeeder, 316L stainless steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)	Article No.														
	7MH7302-	●	●	●	●	●	-	●	●	●	●	●	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.															
Add order code Y71 ... Y76 for all models to -specify design data.															
316L stainless steel, open style, with C/L infeed to C/L discharge															
<u>12 inch (305 mm) belt width</u>															
52 inch (1 321 mm)	0	A													
60 inch (1 524 mm)	0	B													
68 inch (1 727 mm)	0	C													
76 inch (1 930 mm)	0	D													
84 inch (2 134 mm)	0	E													
92 inch (2 337 mm)	0	F													
100 inch (2 540 mm)	0	G													
108 inch (2 743 mm)	0	H													
116 inch (2 946 mm)	0	J													
<u>18 inch (457 mm) belt width</u>															
52 inch (1 321 mm)	1	A													
60 inch (1 524 mm)	1	B													
68 inch (1 727 mm)	1	C													
76 inch (1 930 mm)	1	D													
84 inch (2 134 mm)	1	E													
92 inch (2 337 mm)	1	F													
100 inch (2 540 mm)	1	G													
108 inch (2 743 mm)	1	H													
116 inch (2 946 mm)	1	J													
<u>24 inch (610 mm) belt width</u>															
52 inch (1 321 mm)	2	A													
60 inch (1 524 mm)	2	B													
68 inch (1 727 mm)	2	C													
76 inch (1 930 mm)	2	D													
84 inch (2 134 mm)	2	E													
92 inch (2 337 mm)	2	F													
100 inch (2 540 mm)	2	G													
108 inch (2 743 mm)	2	H													
116 inch (2 946 mm)	2	J													
<u>30 inch (762 mm) belt width</u>															
52 inch (1 321 mm)	3	A													
60 inch (1 524 mm)	3	B													
68 inch (1 727 mm)	3	C													
76 inch (1 930 mm)	3	D													
84 inch (2 134 mm)	3	E													
92 inch (2 337 mm)	3	F													
100 inch (2 540 mm)	3	G													
108 inch (2 743 mm)	3	H													
116 inch (2 946 mm)	3	J													
<u>36 inch (914 mm) belt width</u>															
52 inch (1 321 mm)	4	A													
60 inch (1 524 mm)	4	B													
68 inch (1 727 mm)	4	C													
76 inch (1 930 mm)	4	D													
84 inch (2 134 mm)	4	E													
92 inch (2 337 mm)	4	F													

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel, open style Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)	Article No. 7MH7302- ● ● ● ● ● - ● ● ● ●										
100 inch (2 540 mm)	4	G									
108 inch (2 743 mm)	4	H									
116 inch (2 946 mm)	4	J									
<u>42 inch (1 067 mm) belt width</u>											
52 inch (1 321 mm)	5	A									
60 inch (1 524 mm)	5	B									
68 inch (1 727 mm)	5	C									
76 inch (1 930 mm)	5	D									
84 inch (2 134 mm)	5	E									
92 inch (2 337 mm)	5	F									
100 inch (2 540 mm)	5	G									
108 inch (2 743 mm)	5	H									
116 inch (2 946 mm)	5	J									
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)	6	A									
60 inch (1 524 mm)	6	B									
68 inch (1 727 mm)	6	C									
76 inch (1 930 mm)	6	D									
84 inch (2 134 mm)	6	E									
92 inch (2 337 mm)	6	F									
100 inch (2 540 mm)	6	G									
108 inch (2 743 mm)	6	H									
116 inch (2 946 mm)	6	J									
Material containment construction											
None									A		
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options H ... L											
<u>Shear gate inlet</u>											
Skirtboards 316L stainless steel									H		
Skirtboards 316L stainless steel, with cover									J		
Skirtboards 316L stainless steel, #4 polished									K		
Skirtboards 316L stainless steel, #4 polished with cover									L		
<u>Horseshoe inlet</u>											
316L stainless steel									P		
316L stainless steel, #4 polished									Q		
Load cell											
<u>Stainless steel, hermetically sealed</u>											
6 kg (13.2 lb)										5	
12 kg (26.5 lb)										6	
30 kg (66.1 lb)										7	
60 kg (132.3 lb)										8	
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder											1
2 500 PPR optical encoder											2
1 000 PPR optical encoder, stainless steel											4
2 500 PPR optical encoder, stainless steel											5
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										0	C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										0	D
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										0	G
1 HP (0.75 kW) 575 V 3 ph 60 Hz										0	H
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	A
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz										4	B
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										4	D

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel, open style Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)		Article No. 7MH7302- ● ● ● ● ● - ● ● ● ● ●											
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	E		
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz										4	F		
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	G		
1 HP (0.75 kW) 575 V 3 ph 60 Hz										4	H		
Belting													
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved													A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls													B
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls													C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved													D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved													K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls													L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls													M
Belt change access side (looking from inlet to discharge)													
Left hand													0
Right hand													1

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: According to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12

Selection and ordering data (Continued)

Further designs	Order Code
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, out-boarded installation	G22
Discharge dust hood, painted mild steel with de-dust port	H50
Discharge dust hood, 304 stainless steel with de-dust port	H51
Discharge dust hood, 316L stainless steel with de-dust port	H52
Custom design Specify quote reference when ordering	Y99
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options H ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

SITRANS WW200 Weighfeeder, painted mild steel, enclosed style	Article No.										
Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)	7MH7303-	●	●	●	●	●	-	●	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Add order code Y71 ... Y76 for all models to -specify design data.											
Painted mild steel frame with painted mild steel enclosure style with CL infeed to CL discharge											
<u>12 inch (305 mm) belt width</u>											
52 inch (1 321 mm)	0	A									
60 inch (1 524 mm)	0	B									
68 inch (1 727 mm)	0	C									
76 inch (1 930 mm)	0	D									
84 inch (2 134 mm)	0	E									
92 inch (2 337 mm)	0	F									
100 inch (2 540 mm)	0	G									
108 inch (2 743 mm)	0	H									
116 inch (2 946 mm)	0	J									
<u>18 inch (457 mm) belt width</u>											
52 inch (1 321 mm)	1	A									
60 inch (1 524 mm)	1	B									
68 inch (1 727 mm)	1	C									
76 inch (1 930 mm)	1	D									
84 inch (2 134 mm)	1	E									
92 inch (2 337 mm)	1	F									
100 inch (2 540 mm)	1	G									
108 inch (2 743 mm)	1	H									
116 inch (2 946 mm)	1	J									
<u>24 inch (610 mm) belt width</u>											
52 inch (1 321 mm)	2	A									
60 inch (1 524 mm)	2	B									
68 inch (1 727 mm)	2	C									
76 inch (1 930 mm)	2	D									
84 inch (2 134 mm)	2	E									
92 inch (2 337 mm)	2	F									

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, painted mild steel, enclosed style Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)	Article No. 7MH7303- ● ● ● ● ● - ● ● ● ●								
100 inch (2 540 mm)	2	G							
108 inch (2 743 mm)	2	H							
116 inch (2 946 mm)	2	J							
<u>30 inch (762 mm) belt width</u>									
52 inch (1 321 mm)	3	A							
60 inch (1 524 mm)	3	B							
68 inch (1 727 mm)	3	C							
76 inch (1 930 mm)	3	D							
84 inch (2 134 mm)	3	E							
92 inch (2 337 mm)	3	F							
100 inch (2 540 mm)	3	G							
108 inch (2 743 mm)	3	H							
<u>36 inch (914 mm) belt width</u>									
52 inch (1 321 mm)	4	A							
60 inch (1 524 mm)	4	B							
68 inch (1 727 mm)	4	C							
76 inch (1 930 mm)	4	D							
84 inch (2 134 mm)	4	E							
92 inch (2 337 mm)	4	F							
100 inch (2 540 mm)	4	G							
108 inch (2 743 mm)	4	H							
116 inch (2 946 mm)	4	J							
<u>42 inch (1 067 mm) belt width</u>									
52 inch (1 321 mm)	5	A							
60 inch (1 524 mm)	5	B							
68 inch (1 727 mm)	5	C							
76 inch (1 930 mm)	5	D							
84 inch (2 134 mm)	5	E							
92 inch (2 337 mm)	5	F							
100 inch (2 540 mm)	5	G							
108 inch (2 743 mm)	5	H							
116 inch (2 946 mm)	5	J							
<u>48 inch (1 219 mm) belt width</u>									
52 inch (1 321 mm)	6	A							
60 inch (1 524 mm)	6	B							
68 inch (1 727 mm)	6	C							
76 inch (1 930 mm)	6	D							
84 inch (2 134 mm)	6	E							
92 inch (2 337 mm)	6	F							
100 inch (2 540 mm)	6	G							
108 inch (2 743 mm)	6	H							
116 inch (2 946 mm)	6	J							
Material containment construction									
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options D ... L									
<u>Shear gate inlet</u>									
Skirtboards 304 stainless steel								D	
Skirtboards 304 stainless steel, with cover								E	
Skirtboards 304 stainless steel, #4 polished								F	
Skirtboards 304 stainless steel, #4 polished with cover								G	
Skirtboards 316L stainless steel								H	
Skirtboards 316L stainless steel, with cover								J	
Skirtboards 316L stainless steel, #4 polished								K	
Skirtboards 316L stainless steel, #4 polished with cover								L	
Load cell									
<u>Stainless steel, hermetically sealed</u>									
6 kg (13.2 lb)								5	
12 kg (26.5 lb)								6	

Selection and ordering data (Continued)

		Article No.									
SITRANS WW200 Weighfeeder, painted mild steel, enclosed style		7MH7303- ● ● ● ● ● - ● ● ● ● ●									
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h)											
30 kg (66.1 lb)		7									
60 kg (132.3 lb)		8									
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder		1									
2 500 PPR optical encoder		2									
1 000 PPR optical encoder, stainless steel		4									
2 500 PPR optical encoder, stainless steel		5									
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		0 C									
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz		0 D									
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		0 G									
1 HP (0.75 kW) 575 V 3 ph 60 Hz		0 H									
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		4 A									
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz		4 B									
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		4 C									
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz		4 D									
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		4 E									
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz		4 F									
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz		4 G									
1 HP (0.75 kW) 575 V 3 ph 60 Hz		4 H									
Belting											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved		A									
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls		B									
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls		C									
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved		D									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved		K									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls		L									
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls		M									
Belt change access side (looking from inlet to discharge)											
Left hand		0									
Right hand		1									

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

Further designs	Order Code
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, out-boarded installation	G22
Custom design	Y99
Specify quote reference when ordering	
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options D ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

	Article No.										
SITRANS WW200 Weighfeeder, 304 stainless steel frame with painted mild steel enclosure Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	7MH7304-	●	●	●	●	●	-	●	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Add order code Y71 ... Y76 for all models to -specify design data.											
304 stainless steel frame with painted mild steel enclosure style with C/L infeed to C/L discharge											
12 inch (305 mm) belt width											
52 inch (1 321 mm)	0	A									
60 inch (1 524 mm)	0	B									
68 inch (1 727 mm)	0	C									
76 inch (1 930 mm)	0	D									
184 inch (2 134 mm)	0	E									
92 inch (2 337 mm)	0	F									
100 inch (2 540 mm)	0	G									
108 inch (2 743 mm)	0	H									
116 inch (2 946 mm)	0	J									

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel frame with painted mild steel enclosure Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7304- ● ● ● ● ● - ● ● ● ●									
<u>18 inch (457 mm) belt width</u>											
52 inch (1 321 mm)		1	A								
60 inch (1 524 mm)		1	B								
68 inch (1 727 mm)		1	C								
76 inch (1 930 mm)		1	D								
84 inch (2 134 mm)		1	E								
92 inch (2 337 mm)		1	F								
100 inch (2 540 mm)		1	G								
108 inch (2 743 mm)		1	H								
116 inch (2 946 mm)		1	J								
<u>24 inch (610 mm) belt width</u>											
52 inch (1 321 mm)		2	A								
60 inch (1 524 mm)		2	B								
68 inch (1 727 mm)		2	C								
76 inch (1 930 mm)		2	D								
84 inch (2 134 mm)		2	E								
92 inch (2 337 mm)		2	F								
100 inch (2 540 mm)		2	G								
108 inch (2 743 mm)		2	H								
116 inch (2 946 mm)		2	J								
<u>30 inch (762 mm) belt width</u>											
52 inch (1 321 mm)		3	A								
60 inch (1 524 mm)		3	B								
68 inch (1 727 mm)		3	C								
76 inch (1 930 mm)		3	D								
84 inch (2 134 mm)		3	E								
92 inch (2 337 mm)		3	F								
100 inch (2 540 mm)		3	G								
108 inch (2 743 mm)		3	H								
116 inch (2 946 mm)		3	J								
<u>36 inch (91 mm) belt width</u>											
52 inch (1 321 mm)		4	A								
60 inch (1 524 mm)		4	B								
68 inch (1 727 mm)		4	C								
76 inch (1 930 mm)		4	D								
84 inch (2 134 mm)		4	E								
92 inch (2 337 mm)		4	F								
100 inch (2 540 mm)		4	G								
108 inch (2 743 mm)		4	H								
116 inch (2 946 mm)		4	J								
<u>42 inch (1 067 mm) belt width</u>											
52 inch (1 321 mm)		5	A								
60 inch (1 524 mm)		5	B								
68 inch (1 727 mm)		5	C								
76 inch (1 930 mm)		5	D								
84 inch (2 134 mm)		5	E								
92 inch (2 337 mm)		5	F								
100 inch (2 540 mm)		5	G								
108 inch (2 743 mm)		5	H								
116 inch (2 946 mm)		5	J								
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)		6	A								
60 inch (1 524 mm)		6	B								
68 inch (1 727 mm)		6	C								
76 inch (1 930 mm)		6	D								
84 inch (2 134 mm)		6	E								
92 inch (2 337 mm)		6	F								

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

		Article No.									
		7MH7304- ● ● ● ● ● - ● ● ● ●									
SITRANS WW200 Weighfeeder, 304 stainless steel frame with painted mild steel enclosure											
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).											
100 inch (2 540 mm)		6	G								
108 inch (2 743 mm)		6	H								
116 inch (2 946 mm)		6	J								
Material containment construction											
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options D ... L											
<u>Shear gate inlet</u>											
Skirtboards 304 stainless steel										D	
Skirtboards 304 stainless steel, with cover										E	
Skirtboards 304 stainless steel, #4 polished										F	
Skirtboards 304 stainless steel, #4 polished with cover										G	
Skirtboards 316L stainless steel										H	
Skirtboards 316L stainless steel, with cover										J	
Skirtboards 316L stainless steel, #4 polished										K	
Skirtboards 316L stainless steel, #4 polished with cover										L	
Load cell											
<u>Stainless steel, hermetically sealed</u>											
6 kg (13.2 lb)											5
12 kg (26.5 lb)											6
30 kg (66.1 lb)											7
60 kg (132.3 lb)											8
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder											1
2 500 PPR optical encoder											2
1 000 PPR optical encoder, stainless steel											4
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									0		D
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		G
1 HP (0.75 kW) 575 V 3 ph 60 Hz									0		H
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		A
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz									4		B
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									4		D
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		E
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz									4		F
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		G
Belting											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved											A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											B
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved											D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved											K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											M
Belt change access side (looking from inlet to discharge)											
Left hand											0
Right hand											1

Selection and ordering data (Continued)

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, outboarded installation	G22
Custom design	Y99
Specify quote reference when ordering	
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options D ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with Drive Configuration standard motor options only; all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	Article No. 7MH7305- ● ● ● ● ● - ● ● ● ●		
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. Add order code Y71 ... Y76 for all models to -specify design data.			
304 stainless steel frame with 304 stainless steel enclosure style with C/L infeed to C/L -discharge			
<u>12 inch (305 mm) belt width</u>			
52 inch (1 321 mm)	0	A	
60 inch (1 524 mm)	0	B	
68 inch (1 727 mm)	0	C	
76 inch (1 930 mm)	0	D	
84 inch (2 134 mm)	0	E	
92 inch (2 337 mm)	0	F	
100 inch (2 540 mm)	0	G	
108 inch (2 743 mm)	0	H	
116 inch (2 946 mm)	0	J	
<u>18 inch (457 mm) belt width</u>			
52 inch (1 321 mm)	1	A	
60 inch (1 524 mm)	1	B	
68 inch (1 727 mm)	1	C	
76 inch (1 930 mm)	1	D	
84 inch (2 134 mm)	1	E	
92 inch (2 337 mm)	1	F	
100 inch (2 540 mm)	1	G	
108 inch (2 743 mm)	1	H	
116 inch (2 946 mm)	1	J	
<u>24 inch (610 mm) belt width</u>			
52 inch (1 321 mm)	2	A	
60 inch (1 524 mm)	2	B	
68 inch (1 727 mm)	2	C	
76 inch (1 930 mm)	2	D	
84 inch (2 134 mm)	2	E	
92 inch (2 337 mm)	2	F	
100 inch (2 540 mm)	2	G	
108 inch (2 743 mm)	2	H	
116 inch (2 946 mm)	2	J	
<u>30 inch (762 mm) belt width</u>			
52 inch (1 321 mm)	3	A	
60 inch (1 524 mm)	3	B	
68 inch (1 727 mm)	3	C	
76 inch (1 930 mm)	3	D	
84 inch (2 134 mm)	3	E	
92 inch (2 337 mm)	3	F	
100 inch (2 540 mm)	3	G	
108 inch (2 743 mm)	3	H	
116 inch (2 946 mm)	3	J	
<u>36 inch (914 mm) belt width</u>			
52 inch (1 321 mm)	4	A	
60 inch (1 524 mm)	4	B	
68 inch (1 727 mm)	4	C	
76 inch (1 930 mm)	4	D	
84 inch (2 134 mm)	4	E	
92 inch (2 337 mm)	4	F	
100 inch (2 540 mm)	4	G	
108 inch (2 743 mm)	4	H	
116 inch (2 946 mm)	4	J	
<u>42 inch (1 067 mm) belt width</u>			
52 inch (1 321 mm)	5	A	
60 inch (1 524 mm)	5	B	

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7305- ● ● ● ● ● - ● ● ● ●									
68 inch (1 727 mm)	5	C									
76 inch (1 930 mm)	5	D									
84 inch (2 134 mm)	5	E									
92 inch (2 337 mm)	5	F									
100 inch (2 540 mm)	5	G									
108 inch (2 743 mm)	5	H									
116 inch (2 946 mm)	5	J									
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)	6	A									
60 inch (1 524 mm)	6	B									
68 inch (1 727 mm)	6	C									
76 inch (1 930 mm)	6	D									
84 inch (2 134 mm)	6	E									
92 inch (2 337 mm)	6	F									
100 inch (2 540 mm)	6	G									
108 inch (2 743 mm)	6	H									
Material containment construction											
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options D ... L											
<u>Shear gate inlet</u>											
Skirtboards 304 stainless steel										D	
Skirtboards 304 stainless steel, with cover										E	
Skirtboards 304 stainless steel, #4 polished										F	
Skirtboards 304 stainless steel, #4 polished with cover										G	
Skirtboards 316L stainless steel										H	
Skirtboards 316L stainless steel, with cover										J	
Skirtboards 316L stainless steel, #4 polished										K	
Skirtboards 316L stainless steel, #4 polished with cover										L	
Load cell											
<u>Stainless steel, hermetically sealed</u>											
6 kg (13.2 lb)										5	
12 kg (26.5 lb)										6	
30 kg (66.1 lb)										7	
60 kg (132.3 lb)										8	
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder										1	
2 500 PPR optical encoder										2	
1 000 PPR optical encoder, stainless steel										4	
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									0		D
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									0		G
1 HP (0.75 kW) 575 V 3 ph 60 Hz									0		H
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		A
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz									4		B
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		C
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz									4		D
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		E
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz									4		F
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz									4		G
Belting											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved											A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											B

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure									
Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).									
Article No. 7MH7305- ● ● ● ● ● - ● ● ● ●									
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls									C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved									D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved									K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls									L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls									M
Belt change access side (looking from inlet to discharge)									
Left hand									0
Right hand									1

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Siemens start/stop, auto/manual, speed control, hand held operator	G13
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18

Selection and ordering data (Continued)

Further designs	Order Code
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, out-boarded installation	G22
Custom design Specify quote reference when ordering	Y99
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

- 1) Available with material containment options D ... L only.
- 2) 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.
- 3) Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.
- 4) Available only with Belting options A, B, and C.

SITRANS WW200 Weighfeeder, 316L stainless steel frame with painted mild steel enclosure Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7306- ● ● ● ● - ● ● ● ●	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. Add order code Y71 ... Y76 for all models to -specify design data.			
316L stainless steel frame with painted mild steel enclosure style with C/L infeed to C/L discharge			
<u>12 inch (305 mm) belt width</u>			
52 inch (1 321 mm)	0	A	
60 inch (1 524 mm)	0	B	
68 inch (1 727 mm)	0	C	
76 inch (1 930 mm)	0	D	
84 inch (2 134 mm)	0	E	
92 inch (2 337 mm)	0	F	
100 inch (2 540 mm)	0	G	
108 inch (2 743 mm)	0	H	
116 inch (2 946 mm)	0	J	
<u>18 inch (457 mm) belt width</u>			
52 inch (1 321 mm)	1	A	
60 inch (1 524 mm)	1	B	
68 inch (1 727 mm)	1	C	
76 inch (1 930 mm)	1	D	
84 inch (2 134 mm)	1	E	
92 inch (2 337 mm)	1	F	
100 inch (2 540 mm)	1	G	
108 inch (2 743 mm)	1	H	
116 inch (2 946 mm)	1	J	
<u>24 inch (610 mm) belt width</u>			
52 inch (1 321 mm)	2	A	
60 inch (1 524 mm)	2	B	
68 inch (1 727 mm)	2	C	
76 inch (1 930 mm)	2	D	
84 inch (2 134 mm)	2	E	
92 inch (2 337 mm)	2	F	
100 inch (2 540 mm)	2	G	
108 inch (2 743 mm)	2	H	
116 inch (2 946 mm)	2	J	
<u>30 inch (762 mm) belt width</u>			
52 inch (1 321 mm)	3	A	
60 inch (1 524 mm)	3	B	
68 inch (1 727 mm)	3	C	

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel frame with painted mild steel enclosure Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7306- ● ● ● ● ● - ● ● ● ●									
76 inch (1 930 mm)	3	D									
84 inch (2 134 mm)	3	E									
92 inch (2 337 mm)	3	F									
100 inch (2 540 mm)	3	G									
108 inch (2 743 mm)	3	H									
116 inch (2 946 mm)	3	J									
<u>36 inch (914 mm) belt width</u>											
52 inch (1 321 mm)	4	A									
60 inch (1 524 mm)	4	B									
68 inch (1 727 mm)	4	C									
76 inch (1 930 mm)	4	D									
84 inch (2 134 mm)	4	E									
92 inch (2 337 mm)	4	F									
100 inch (2 540 mm)	4	G									
108 inch (2 743 mm)	4	H									
116 inch (2 946 mm)	4	J									
<u>42 inch (1 067 mm) belt width</u>											
52 inch (1 321 mm)	5	A									
60 inch (1 524 mm)	5	B									
68 inch (1 727 mm)	5	C									
76 inch (1 930 mm)	5	D									
84 inch (2 134 mm)	5	E									
92 inch (2 337 mm)	5	F									
100 inch (2 540 mm)	5	G									
108 inch (2 743 mm)	5	H									
116 inch (2 946 mm)	5	J									
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)	6	A									
60 inch (1 524 mm)	6	B									
68 inch (1 727 mm)	6	C									
76 inch (1 930 mm)	6	D									
84 inch (2 134 mm)	6	E									
92 inch (2 337 mm)	6	F									
100 inch (2 540 mm)	6	G									
108 inch (2 743 mm)	6	H									
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX" for options H ... L											
<u>Shear gate inlet</u>											
Skirtboards 316L stainless steel										H	
Skirtboards 316L stainless steel, with cover										J	
Skirtboards 316L stainless steel, #4 polished										K	
Skirtboards 316L stainless steel, #4 polished with cover										L	
<u>Load cell</u>											
Stainless steel, hermetically sealed											
6 kg (13.2 lb)										5	
12 kg (26.5 lb)										6	
30 kg (66.1 lb)										7	
60 kg (132.3 lb)										8	
<u>Speed sensor</u>											
<u>Shaft mounted</u>											
1 000 PPR optical encoder										1	
2 500 PPR optical encoder										2	
1 000 PPR optical encoder, stainless steel										4	
2 500 PPR optical encoder, stainless steel										5	
<u>Drive configuration</u>											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										0	C

Selection and ordering data (Continued)

		Article No.											
SITRANS WW200 Weighfeeder, 316L stainless steel frame with painted mild steel enclosure		7MH7306- ● ● ● ● ● - ● ● ● ●											
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).													
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										0	D		
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										0	G		
<u>Food grade AC motor</u>													
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	A		
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz										4	B		
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	C		
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz										4	D		
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	E		
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz										4	F		
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz										4	G		
1 HP (0.75 kW) 575 V 3 ph 60 Hz										4	H		
Belting													
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved													A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls													B
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls													C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved													D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved													K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls													L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls													M
Belt change access side (looking from inlet to discharge)													
Left hand													0
Right hand													1

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: According to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

Further designs	Order Code
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, out-boarded installation	G22
Custom design Specify quote reference when ordering	Y99
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

1) Available with material containment options H ... L only.

2) 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

3) Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.

4) Available only with Belting options A, B, and C.

	Article No.									
SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure	7	M	H	7	3	0	7	-		
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).										
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.										
Add order code Y71 ... Y76 for all models to -specify design data.										
316L stainless steel frame with 304 stainless steel enclosure style with C/L infeed to C/L -discharge										
<u>12 inch (305 mm) belt width</u>										
52 inch (1 321 mm)	0									A
60 inch (1 524 mm)	0									B
68 inch (1 727 mm)	0									C
76 inch (1 930 mm)	0									D
84 inch (2 134 mm)	0									E
92 inch (2 337 mm)	0									F
100 inch (2 540 mm)	0									G
108 inch (2 743 mm)	0									H
116 inch (2 946 mm)	0									J
<u>18 inch (457 mm) belt width</u>										
52 inch (1 321 mm)	1									A
60 inch (1 524 mm)	1									B
68 inch (1 727 mm)	1									C
76 inch (1 930 mm)	1									D
84 inch (2 134 mm)	1									E
92 inch (2 337 mm)	1									F
100 inch (2 540 mm)	1									G
108 inch (2 743 mm)	1									H
116 inch (2 946 mm)	1									J
<u>24 inch (610 mm) belt width</u>										

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Article No. 7MH7307- ● ● ● ● ● - ● ● ● ●	
52 inch (1 321 mm)	2	A	
60 inch (1 524 mm)	2	B	
68 inch (1 727 mm)	2	C	
76 inch (1 930 mm)	2	D	
84 inch (2 134 mm)	2	E	
92 inch (2 337 mm)	2	F	
100 inch (2 540 mm)	2	G	
108 inch (2 743 mm)	2	H	
116 inch (2 946 mm)	2	J	
<u>30 inch (762 mm) belt width</u>			
52 inch (1 321 mm)	3	A	
60 inch (1 524 mm)	3	B	
68 inch (1 727 mm)	3	C	
76 inch (1 930 mm)	3	D	
84 inch (2 134 mm)	3	E	
92 inch (2 337 mm)	3	F	
100 inch (2 540 mm)	3	G	
108 inch (2 743 mm)	3	H	
116 inch (2 946 mm)	3	J	
<u>36 inch (914 mm) belt width</u>			
52 inch (1 321 mm)	4	A	
60 inch (1 524 mm)	4	B	
68 inch (1 727 mm)	4	C	
76 inch (1 930 mm)	4	D	
84 inch (2 134 mm)	4	E	
92 inch (2 337 mm)	4	F	
100 inch (2 540 mm)	4	G	
108 inch (2 743 mm)	4	H	
116 inch (2 946 mm)	4	J	
<u>42 inch (1 067 mm) belt width</u>			
52 inch (1 321 mm)	5	A	
60 inch (1 524 mm)	5	B	
68 inch (1 727 mm)	5	C	
76 inch (1 930 mm)	5	D	
84 inch (2 134 mm)	5	E	
92 inch (2 337 mm)	5	F	
100 inch (2 540 mm)	5	G	
108 inch (2 743 mm)	5	H	
116 inch (2 946 mm)	5	J	
<u>48 inch (1 219 mm) belt width</u>			
52 inch (1 321 mm)	6	A	
60 inch (1 524 mm)	6	B	
68 inch (1 727 mm)	6	C	
76 inch (1 930 mm)	6	D	
84 inch (2 134 mm)	6	E	
92 inch (2 337 mm)	6	F	
100 inch (2 540 mm)	6	G	
108 inch (2 743 mm)	6	H	
Material containment construction			
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options H ... L			
Shear gate inlet and skirtboards 316L stainless steel			H
Shear gate inlet and skirtboards 316L stainless steel, with cover			J
Shear gate inlet and skirtboards 316L stainless steel, #4 polished			K
Shear gate inlet and skirtboards 316L stainless steel, #4 polished with cover			L
Load cell			
<u>Stainless steel, hermetically sealed</u>			
6 kg (13.2 lb)			5

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

	Article No.									
SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	7	M	H	7	3	0	7	-		
12 kg (26.5 lb)									6	
30 kg (66.1 lb)									7	
60 kg (132.3 lb)									8	
Speed sensor										
1 000 PPR shaft mounted optical encoder									1	
2 500 PPR shaft mounted optical encoder									2	
1 000 PPR shaft mounted optical encoder, stainless steel									4	
2 500 PPR shaft mounted optical encoder, stainless steel									5	
Drive configuration Add order code Y75 (reduction ratio) and Y76 (electrical style).										
<u>Standard AC motor</u>										
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								0	C	
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz								0	D	
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								0	G	
1 HP (0.75 kW) 575 V 3 ph 60 Hz								0	H	
<u>Food grade AC motor</u>										
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								4	A	
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz								4	B	
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								4	C	
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz								4	D	
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								4	E	
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz								4	F	
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz								4	G	
Belting										
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved										A
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls										B
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (5 mm) corrugated side walls										C
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved										D
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved										K
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls										L
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls										M
Belt change access side (looking from inlet to discharge)										
Left hand										0
Right hand										1

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11

Selection and ordering data (Continued)

Further designs	Order Code
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, outboarded installation	G22
Custom design Specify quote reference when ordering	Y99
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options H ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	Article No.										
Click on the Article No. for the online configuration in the PIA Life Cycle Portal. Add order code Y71 ... Y76 for all models to -specify design data.	7MH7308-	●	●	●	●	●	-	●	●	●	●
316L stainless steel frame with 316L stainless steel enclosure style with C/L infeed to C/L discharge											
12 inch (305 mm) belt width											
52 inch (1 321 mm)	0	A									
60 inch (1 524 mm)	0	B									
68 inch (1 727 mm)	0	C									
76 inch (1 930 mm)	0	D									
84 inch (2 134 mm)	0	E									
92 inch (2 337 mm)	0	F									
100 inch (2 540 mm)	0	G									
108 inch (2 743 mm)	0	H									
116 inch (2 946 mm)	0	J									

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure	Article No.										
Accuracy is $\pm 0.5\%$ or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	7MH7308-	●	●	●	●	●	-	●	●	●	●
<u>18 inch (457 mm) belt width</u>											
52 inch (1 321 mm)	1	A									
60 inch (1 524 mm)	1	B									
68 inch (1 727 mm)	1	C									
76 inch (1 930 mm)	1	D									
84 inch (2 134 mm)	1	E									
92 inch (2 337 mm)	1	F									
100 inch (2 540 mm)	1	G									
108 inch (2 743 mm)	1	H									
116 inch (2 946 mm)	1	J									
<u>24 inch (610 mm) belt width</u>											
52 inch (1 321 mm)	2	A									
60 inch (1 524 mm)	2	B									
68 inch (1 727 mm)	2	C									
76 inch (1 930 mm)	2	D									
84 inch (2 134 mm)	2	E									
92 inch (2 337 mm)	2	F									
100 inch (2 540 mm)	2	G									
108 inch (2 743 mm)	2	H									
116 inch (2 946 mm)	2	J									
<u>30 inch (762 mm) belt width</u>											
52 inch (1 321 mm)	3	A									
60 inch (1 524 mm)	3	B									
68 inch (1 727 mm)	3	C									
76 inch (1 930 mm)	3	D									
84 inch (2 134 mm)	3	E									
92 inch (2 337 mm)	3	F									
100 inch (2 540 mm)	3	G									
108 inch (2 743 mm)	3	H									
116 inch (2 946 mm)	3	J									
<u>36 inch (914 mm) belt width</u>											
52 inch (1 321 mm)	4	A									
60 inch (1 524 mm)	4	B									
68 inch (1 727 mm)	4	C									
76 inch (1 930 mm)	4	D									
84 inch (2 134 mm)	4	E									
92 inch (2 337 mm)	4	F									
100 inch (2 540 mm)	4	G									
108 inch (2 743 mm)	4	H									
116 inch (2 946 mm)	4	J									
<u>42 inch (1 067 mm) belt width</u>											
52 inch (1 321 mm)	5	A									
60 inch (1 524 mm)	5	B									
68 inch (1 727 mm)	5	C									
76 inch (1 930 mm)	5	D									
84 inch (2 134 mm)	5	E									
92 inch (2 337 mm)	5	F									
100 inch (2 540 mm)	5	G									
108 inch (2 743 mm)	5	H									
116 inch (2 946 mm)	5	J									
<u>48 inch (1 219 mm) belt width</u>											
52 inch (1 321 mm)	6	A									
60 inch (1 524 mm)	6	B									
68 inch (1 727 mm)	6	C									
76 inch (1 930 mm)	6	D									
84 inch (2 134 mm)	6	E									
92 inch (2 337 mm)	6	F									

Selection and ordering data (Continued)

SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure		Article No.									
Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		7MH7308- ● ● ● ● ● - ● ● ● ● ●									
100 inch (2 540 mm)		6	G								
108 inch (2 743 mm)		6	H								
Material containment construction											
Add order code Y74 and plain text: "Arc radius in inches ... XX.XXX inch" for options H ... L											
<u>Shear gate inlet</u>											
Skirtboards 316L stainless steel											
Skirtboards 316L stainless steel, with cover											
Skirtboards 316L stainless steel, #4 polished											
Skirtboards 316L stainless steel, #4 polished with cover											
Load cell											
<u>Stainless steel, hermetically sealed</u>											
6 kg (13.2 lb)											
12 kg (26.5 lb)											
30 kg (66.1 lb)											
60 kg (132.3 lb)											
Speed sensor											
<u>Shaft mounted</u>											
1 000 PPR optical encoder											
2 500 PPR optical encoder											
1 000 PPR optical encoder, stainless steel											
Drive configuration											
Add order code Y75 (reduction ratio) and Y76 (electrical style).											
<u>Standard AC motor</u>											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz											
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
1 HP (0.75 kW) 575 V 3 ph 60 Hz											
<u>Food grade AC motor</u>											
0.25 HP (0.18 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz											
0.5 HP (0.37 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz											
0.75 HP (0.55 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
0.75 HP (0.55 kW) 575 V 3 ph 60 Hz											
1 HP (0.75 kW) 220 ... 240/380 ... 480 V 3 ph 50/60 Hz											
1 HP (0.75 kW) 575 V 3 ph 60 Hz											
Belting											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											
Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved											
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved											
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls											
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls											
Belt change access side (looking from inlet to discharge)											
Left hand											
Right hand											

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

Further designs	Order Code
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71
Enter design speed (ft/m, m/s)	Y72
Enter design capacity/rate	Y73
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76
Center material bed depth	Y77
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01
Manufacturer's test certificate: according to EN 10204-2.2	C11
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	Y15
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX/UKEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX/UKEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93
Note: weighfeeder does not carry hazardous approval, only motor, loadcells, speed encoder, and tracking switches; approval not available with load cell options 0 ... 4 or motor options 4C ... 4H ³⁾	
Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Food grade Polyurethane sealing at infeed area, outboarded installation	G22
Custom design	Y99
Specify quote reference when ordering	
Operating instructions	
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation	

¹⁾ Available with material containment options H ... L only.

²⁾ 575 V versions meet 4:1 ct inverter rating, all other voltages meet 10:1.

³⁾ Available with Drive Configuration standard motor options only, all motors suitable for 400 V operation only.

⁴⁾ Available only with Belting options A, B, and C.

Accessories	Article No.
Test chain 1.62 lb/ft, 2.41 kg/m - 60 inches long	7MH7723-1NF
Test chain 1.62 lb/ft, 2.41 kg/m - 1 000 mm long	7MH7723-1SK
Start, Stop, Hand/Off/Auto, speed pot local -operator station	7MH7723-1JA

Selection and ordering data (Continued)

Accessories	Article No.
CLS100 plugged discharge chute retrofit kit (includes CLS100, material hood)	7MH7723-1JE
<u>Calibration hanger weights</u>	
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
3 500 g (7.7 lb)	7MH7724-1BQ
5 000 g (11 lb)	7MH7724-1AK
7 500 g (16.5 lb)	7MH7724-1BR
8 500 g (18.7 lb)	7MH7724-1BS
10 000 (22 lb)	7MH7724-1BT
12 000 g (26.5 lb)	7MH7724-1BU
15 000 g (33.1 lb)	7MH7724-1BV
Note: calibration accessories should be ordered as a separate item on the order.	
Spare parts	
6 kg (13.2 lb) stainless steel load cell	7MH5117-1QD00
12 kg (26.4 lb) stainless steel load cell	7MH5117-2BD00
30 kg (66.2 lb) stainless steel load cell	7MH5117-2KD00
60 kg (132.3 lb) stainless steel load cell	7MH5117-2QD00
500 PPR optical encoder	6FX20012PA50
1 000 PPR optical encoder	6FX20012PB00
2 500 PPR optical encoder	6FX20012PC50
Optical encoder connector	6FX20030SU12
Speed encoder plug-in with cable	A5E50846036003
Speed Encoder, 1 000 PPR, stainless steel	A5E50846036001
Speed Encoder, 2 500 PPR, stainless steel	A5E50846036002
Magnetic proximity switch	7MH7723-1GA
Motor mounted sensor flange 56C	7MH7723-1RB
Termination board for Junction Box	A5E03623963
Belt tracking switch	3SE5112-0CR01
Belt tracking switch, ATEX II 2D	A5E50846042001
WW200 outline approval drawing	7MH7726-1BU
Head bearing replacement kit mild steel (includes 2 bearings) ¹⁾	7MH7723-1QM
Tail bearing replacement kit mild steel (includes 2 bearings) ¹⁾	7MH7723-1QN
Head bearing replacement kit stainless steel (includes 2 bearings)	7MH7723-1QP
Tail bearing replacement kit stainless steel (includes 2 bearings)	7MH7723-1QQ
Skirtboard seal replacement kit, 7 meters	7MH7723-1QR
<u>Pulleys</u>	
Head pulley, 12 inch belt width	A5E50668260001
Head pulley, 18 inch belt width	A5E50668260002
Head pulley, 24 inch belt width	A5E50668260003
Head pulley, 30 inch belt width	A5E50668260004
Head pulley, 36 inch belt width	A5E50668260005
Head pulley, 42 inch belt width	A5E50668260006
Head pulley, 48 inch belt width	A5E50668260007
Tail pulley, 12 inch belt width	A5E50668340001
Tail pulley, 18 inch belt width	A5E50668340002
Tail pulley, 24 inch belt width	A5E50668340003
Tail pulley, 30 inch belt width	A5E50668340004
Tail pulley, 36 inch belt width	A5E50668340005

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

Accessories	Article No.
Tail pulley, 42 inch belt width	A5E50668340006
Tail pulley, 48 inch belt width	A5E50668340007
Enclosure latches stainless steel (includes 5 latches)	7MH7723-1QT
Polyurethane sealing, white	7MH7723-1SF
Polyurethane sealing, blue	7MH7723-1SG
Guide rollers	7MH7723-1SM
Spare Brush, 12 inch belt width	7MH7723-1SN
Spare Brush, 18 inch belt width	7MH7723-1SP
Spare Brush, 24 inch belt width	7MH7723-1SQ
Spare Brush, 30 inch belt width	7MH7723-1SR
Spare Brush, 36 inch belt width	7MH7723-1SS
Spare Brush, 42 inch belt width	7MH7723-1ST
Spare Brush, 48 inch belt width	7MH7723-1SU
Weighdeck Slider bar, PE-HD, 1 piece	7MH7723-1SV
Telescopers, set of 2, mild steel	7MH7723-1SW
Telescopers, set of 2, stainless steel	7MH7723-1SX
Spare scraper blade, 12 inch belt width	7MH7723-1TA
Spare scraper blade, 18 inch belt width	7MH7723-1TB
Spare scraper blade, 24 inch belt width	7MH7723-1TC
Spare scraper blade, 30 inch belt width	7MH7723-1TD
Spare scraper blade, 36 inch belt width	7MH7723-1TE
Spare scraper blade, 42 inch belt width	7MH7723-1TF
Spare scraper blade, 48 inch belt width	7MH7723-1TG

Hazardous rated electrical spare parts	Article No.
<u>Load cells</u>	
6 kg (13.2 lb) stainless steel load cell, ATEX II 3D	7MH5117-1QD01
12 kg (26,4 lb) stainless steel load cell, ATEX II 3D	7MH5117-2BD01
30 kg (66.2 lb) stainless steel load cell, ATEX II 3D	7MH5117-2KD01
60 kg (132.3 lb) stainless steel load cell, ATEX II 3D	7MH5117-2QD01
6 kg (13.2 lb) stainless steel load cell, ATEX II 1D	A5E50846035001
12 kg (26,4 lb) stainless steel load cell, ATEX II 1D	A5E50846035002
30 kg (66.2 lb) stainless steel load cell, ATEX II 1D	A5E50846035003
60 kg (132.3 lb) stainless steel load cell, ATEX II 1D	A5E50846035004
<u>Optical encoders</u>	
500 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	A5E50846040001
1 000 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	A5E50846040002
2 500 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	A5E50846040003
1 000 PPR optical encoder, ATEX II 2D	7MH7723-1QX
2 000 PPR optical encoder, ATEX II 2D	7MH7723-1QY
Encoder, 1 000 ppr, ATEX II 2D, aluminum	A5E50846041001
Encoder, 2 500 ppr, ATEX II 2D, aluminum	A5E50846041002
Encoder, 1 000 ppr, ATEX II 2D, stainless steel	A5E50846041003
Encoder, 2 500 ppr, ATEX II 2D, stainless steel	A5E50846041004
Encoder, 1 000 ppr, ATEX II 3D, aluminum	A5E50846041005
Encoder, 2 500 ppr, ATEX II 3D, aluminum	A5E50846041006

¹⁾ Suitable for weighfeeders made in CA prior to 2016.

Selection and ordering data (Continued)

SITRANS WW200 Spare Belts Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position	Article No. 7MH7204- ● ● ● ●			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Belt size				
<u>12 inch (305 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder; total belt length 3 305 mm (130.1 inch)	0	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder; total belt length 3 715 mm (146.3 inch)	0	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder; total belt length 4 120 mm (162.2 inch)	0	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder; total belt length 4 525 mm (178.2 inch)	0	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder; total belt length 4 935 mm (194.3 inch)	0	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder; total belt length 5 340 mm (210.2 inch)	0	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder; total belt length 5 745 mm (226.2 inch)	0	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder; total belt length 6 150 mm (242.1 inch)	0	H		
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder; total belt length 6 560 mm (258.3 inch)	0	J		
<u>18 inch (610 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	1	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	1	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	1	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	1	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder	1	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	1	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	1	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	1	H		
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder	1	J		
<u>24 inch (610 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	2	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	2	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	2	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	2	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder	2	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	2	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	2	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	2	H		

Weighfeeders

SITRANS WW200

Selection and ordering data (Continued)

SITRANS WW200 Spare Belts Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position	Article No. 7MH7204- ● ● ● ●	●	●	●
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder	2	J		
<u>30 inch (762 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	3	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	3	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	3	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	3	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder	3	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	3	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	3	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	3	H		
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder	3	J		
<u>36 inch (914 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	4	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	4	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	4	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	4	D		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	4	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	4	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	4	H		
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder	4	J		
<u>42 inch (1 067 mm) belt width</u>				
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	5	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	5	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	5	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	5	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder	5	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	5	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	5	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	5	H		
116 inch (2 946 mm) C/L Infeed to C/L Discharge, 118.5 inch (3 010 mm) pulley C/L to C/L per weighfeeder	5	J		
<u>48 inch (1 219 mm) belt width</u>				

Selection and ordering data (Continued)

SITRANS WW200 Spare Belts Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position	Article No. 7MH7204- ● ● ● ●			
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 inch (1 384 mm) pulley C/L to C/L per weighfeeder	6	A		
60 inch (1 524 mm) C/L Infeed to C/L Discharge, 62.5 inch (1 588 mm) pulley C/L to C/L per weighfeeder	6	B		
68 inch (1 727 mm) C/L Infeed to C/L Discharge, 70.5 inch (1 791 mm) pulley C/L to C/L per weighfeeder	6	C		
76 inch (1 930 mm) C/L Infeed to C/L Discharge, 78.5 inch (1 994 mm) pulley C/L to C/L per weighfeeder	6	D		
84 inch (2 134 mm) C/L Infeed to C/L Discharge, 86.5 inch (2 197 mm) pulley C/L to C/L per weighfeeder	6	E		
92 inch (2 337 mm) C/L Infeed to C/L Discharge, 94.5 inch (2 400 mm) pulley C/L to C/L per weighfeeder	6	F		
100 inch (2 540 mm) C/L Infeed to C/L Discharge, 102.5 inch (2 604 mm) pulley C/L to C/L per weighfeeder	6	G		
108 inch (2 743 mm) C/L Infeed to C/L Discharge, 110.5 inch (2 807 mm) pulley C/L to C/L per weighfeeder	6	H		
Belt type Polyurethane anti static, 1,35 mm thick, FDA approved, white Polyurethane anti static, 1,35 mm thick, FDA approved, blue Polyurethane anti static, 2.9 mm thick, 2 ply FDA approved, white Silicone, High temp. belt 180 °C (350 °F); 2 ply, antistatic, FDA approved			A B C E	
Belt design Standard 6 mm B-section flange walls 50 mm (2 inch) corrugated side walls				1 2 3

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s). Select next longest option and specify infeed CL to Discharge CL per weighfeeder in plain text (indicated inches or millimeters) Note: Y01 order code info indicates special length on weighfeeder.	Y01
Operating instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Weighfeeders

SITRANS WW200

Technical specifications

SITRANS WW200	
Mode of operation	
Measuring principle	Strain gauge load cells and digital speed sensor
Typical application	Control and monitor feed rates and blending of minerals or powdered additives into a process
Measuring accuracy	
Accuracy ¹⁾	± 0.5 % or better
Repeatability	± 0.1 %
Specified range	10 ... 100 % based on speed
Design rate range	0.45 ... 100 t/h (1 000 lb/h ... 110 STPH)
Max volumetric flow	120 m ³ /h (4 237 ft ³ /h)
Medium conditions	
Operating temperature	-10 ... +55 °C (14 ... 131 °F)
Material	Mild steel or stainless steel [304 (1.4301) or 316L (1.4404)], bead blast finish (1 ... 6 µm, 40 ... 240 µin)
Load cells	
Construction	17-4 PH (1.4568) stainless steel
Degree of protection	Stainless steel: IP68
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V
• Non-linearity	± 0.02 % of rated output
• Non-repeatability	± 0.01 % of rated output
Capacity	Stainless steel range: 6, 12, 30, 60 kg
Overload	150 % of rated capacity
Temperature	• Operating range: -40 ... +65 °C (-40 ... +150 °F) • Compensated: -10 ... +40 °C (15 ... 105 °F)
Speed sensor	
Optical encoder output	RS 422 (TTL) 5 V DC, 150 mA max. 1 000 or 2 000 ppr
Temperature	-10 ... +70 °C (14 ... 158 °F)
Degree of protection	• Standard: IP64 • Stainless steel: IP67
Belt tracking switch	
Aluminum spring rod (un-wired)	• 1 NO, 1 NC switch blocks • Rated operating voltage 600 V AC max.
Temperature	-30 ... +85 °C (-22 ... +185 °F)
Degree of protection	IP67
Framework	• Precision machined, stainless [304 (1.4301) or 316L (1.4404)] or mild steel • Cantilevered design for easy belt replacement
Pulleys	152 mm (6 inch) diameter with 6 mm (¼ inch) NBR white nitrile lagging
Belt speed	0.005 ... 0.36 m/s (1 ... 70 fpm)
Belt support	Edge of flat bar eliminates material buildup
Bearings	• 2-bolt flange mount on drive pulley • 2-bolt threaded base pillow block on driven pulley
Belting	• Polyester carcass with polyurethane top cover and static control with vulcanized endless finger splice for maximum weighing consistency (standard); optionally available in blue • Maximum rated material temperature 82 °C (180 °F) • Silicone HT belt rated for max. material temp. of 177 °C (350 °F)
Belt tension	Screw type, telescoper module with 150 mm (6 inch) travel - mild or stainless steel 304 (1.4301)

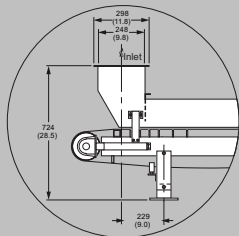
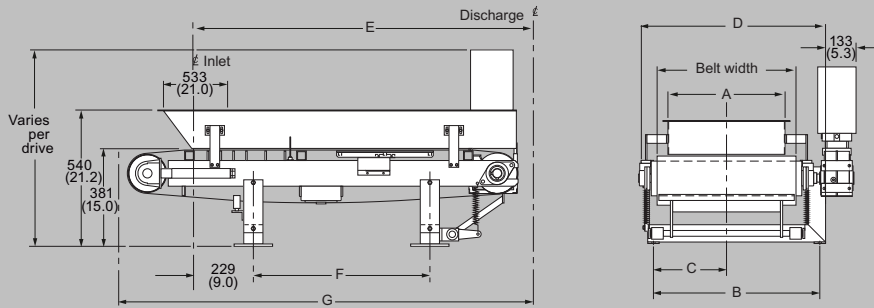
Technical specifications (Continued)

SITRANS WW200	
Belt cleaning	<ul style="list-style-type: none"> • PE-HD blade type with spring tensioning at head pulley • Return plow • Cleaning brush, optional
Drive motor	<ul style="list-style-type: none"> • AC gearmotor: helical-worm geared motor, IE1, IP55, C2 coating. • Optional food grade style: helical-worm geared motor, IE3, IP66, sealed surface treatment, meets FDA requirements.
Shipping weight	280 kg (600 lb) minimum
Approvals	<ul style="list-style-type: none"> • Declaration of incorporation of partly completed machinery acc. directive 2006/42/EC. • Stainless steel options meet FDA requirements for food processing. • Belt properties in compliance with food safety Regulation (EU) No. 10/2011 and Regulation (EU) No. 1935/2004. • Meets FDA 21CFR and Halal. • HACCP concept supported: resistant to hot water and ideal for frequent cleaning cycles. • Hazardous approvals per configuration options. <p>Note: weighfeeder as a whole is not approved for hazardous locations only electrical components.</p>

¹⁾ Accuracy subject to: on factory approved installations the weigh feeder system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.

Dimensional drawings

Open Construction

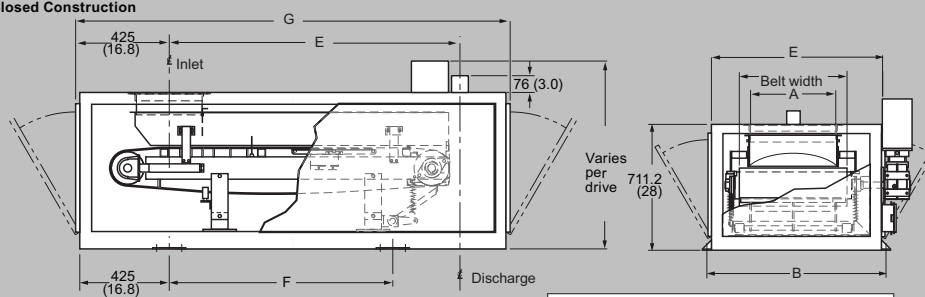


Shear gate infeed version

Open Construction					
Belt width	A	B	C	D	Weight (STD)
305 (12)	203 (8)	425 (16.8)	257 (10.1)	516 (20.3)	600 lb/272 kg
457 (18)	356 (14)	578 (22.8)	333 (13.1)	668 (26.3)	700 lb/318 kg
610 (24)	508 (20)	730 (28.8)	409 (16.1)	820 (32.3)	800 lb/363 kg
762 (30)	660 (26)	883 (34.8)	486 (19.1)	973 (38.3)	900 lb/408 kg
915 (36)	813 (32)	1 035 (40.8)	562 (22.1)	1 125 (44.3)	1 000 lb/453 kg
1 067 (42)	965 (38)	1 187 (46.8)	638 (25.1)	1 278 (50.3)	1 100 lb/499 kg
1 219 (48)	1 118 (44)	1 340 (52.8)	714 (28.1)	1 430 (56.3)	1 200 lb/544 kg

Length adder	E	F	G
STD	1 321 (52)	698 (27.5)	1 676 (66)
203 (8)	1 524 (60)	902 (35.5)	1 880 (74)
406 (16)	1 727 (68)	1 105 (43.5)	2 083 (82)
610 (24)	1 930 (76)	1 308 (51.5)	2 286 (90)
813 (32)	2 134 (84)	1 511 (59.5)	2 489 (98)

Closed Construction



Closed Construction				
Belt width	A	B	C	Weight (STD)
305 (12)	203 (8)	737 (29)	686 (27)	600 lb/272 kg
457 (18)	356 (14)	864 (89)	838 (33)	700 lb/318 kg
610 (24)	508 (20)	1 041 (41)	991 (39)	800 lb/363 kg
762 (30)	660 (26)	1 194 (47)	1 143 (45)	900 lb/408 kg
915 (36)	813 (32)	1 346 (53)	1 295 (51)	1 000 lb/453 kg
1 067 (42)	965 (38)	1 499 (59)	1 448 (57)	1 100 lb/499 kg
1 219 (48)	1 118 (44)	1 651 (65)	1 600 (63)	1 200 lb/544 kg

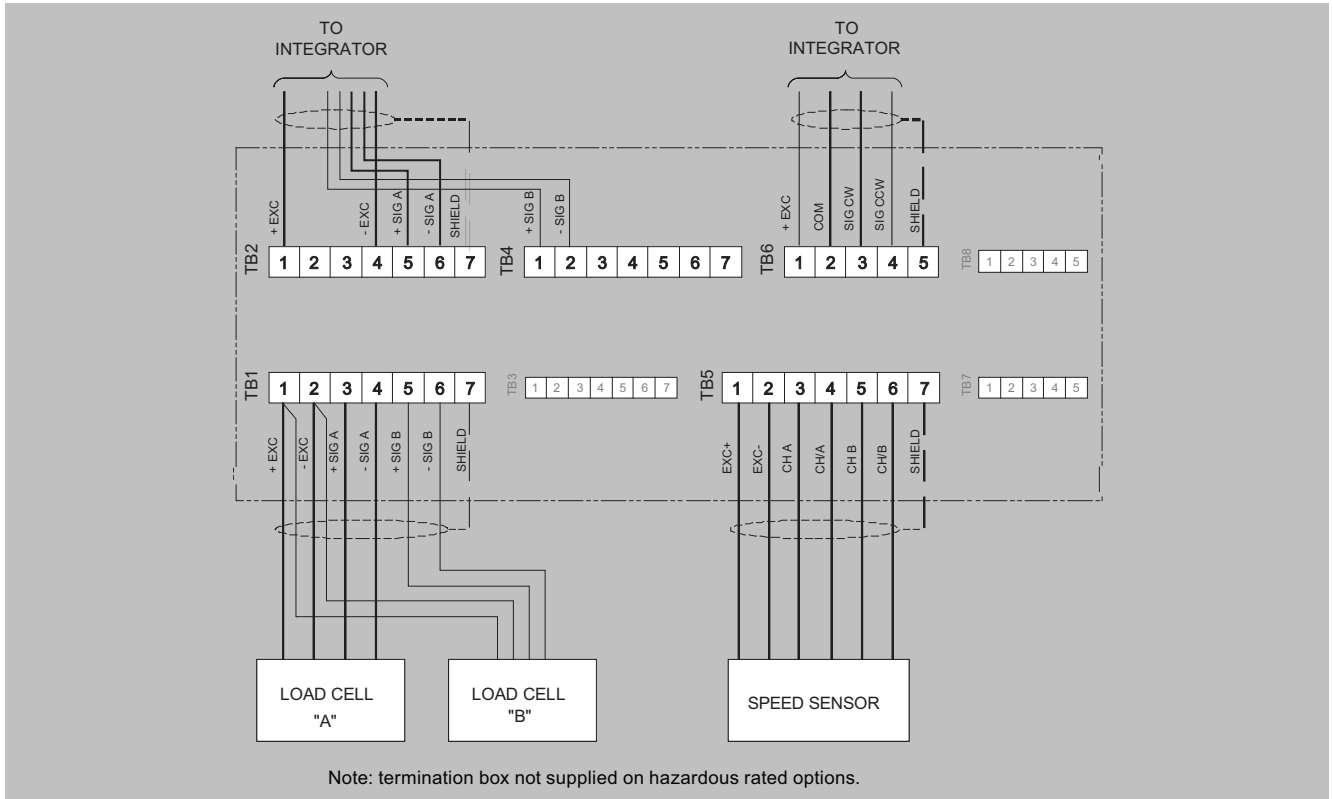
Length adder	E	F	G
STD	1 321 (52)	698 (27.5)	1 676 (66)
203 (8)	1 524 (60)	902 (35.5)	1 880 (74)
406 (16)	1 727 (68)	1 105 (43.5)	2 083 (82)
610 (24)	1 930 (76)	1 308 (51.5)	2 286 (90)
813 (32)	2 134 (84)	1 511 (59.5)	2 489 (98)

SITRANS WW200, dimensions in mm (inch)

Weighfeeders

SITRANS WW200

Circuit diagrams



SITRANS WW200 connections

Selection and ordering data

SITRANS weighfeeder peripherals	Article No.
Milltronics Weighfeeder 400, 600, and 800 SITRANS WW200 spare load cells <u>For aluminum model, use nickel plated alloy steel</u> Nickel plated, standard duty	
10 kg (22 lb)	7MH7725-1EK
15 kg (33.1 lb)	7MH7725-1EL
20 kg (44 lb)	7MH7725-1EM
30 kg (66.2 lb)	7MH7725-1EN
Stainless steel	
6 kg (13.2 lb)	7MH7725-1EG
12 kg (26.4 lb)	7MH7725-1EH
30 kg (66.2 lb)	7MH7725-1EJ
25 lb (11.3 kg)	PBD-23900224
50 lb (22.7 kg)	PBD-23900225
100 lb (45.4 kg)	PBD-23900242
Milltronics Weighfeeder 1200/ SITRANS WW300 and WW310 spare load cells Nickel plated, standard duty	
10 kg (22 lb)	7MH7725-1EK
15 kg (33.1 lb)	7MH7725-1EL
20 kg (44 lb)	7MH7725-1EM
30 kg (66.2 lb)	7MH7725-1EN
50 kg (110.2 lb)	7MH7725-1EP
75 kg (165 lb)	7MH7725-1CS
100 kg (220 lb)	7MH7725-1CT
Nickel plated, heavy duty	
50 kg (110.2 lb)	7MH7725-1CU
100 kg (220.5 lb)	7MH7725-1CV
150 kg (330.7 lb)	7MH7725-1CW
200 kg (440.9 lb)	7MH7725-1CX
Stainless steel	
<u>Stainless steel load cell [17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover</u>	
50 lb (22.7 kg)	7MH7725-1AC
100 lb (45.4 kg)	7MH7725-1AD
250 lb (113.4 kg)	7MH7725-1AE
500 lb (226.8 kg)	7MH7725-1AF
11 kg (25 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DQ
23 kg (50 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DL
45 kg (100 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DM
113 kg (250 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DN
227 kg (500 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DP
6 kg (13.2 lb)	7MH7725-1EG
12 kg (26.5 lb)	7MH7725-1EH
30 kg (66.1 lb)	7MH7725-1EJ
24 kg (50 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DT
45 kg (100 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DU
113 kg (250 lb), CSA/FM/ATEX/IEC EX	7MH7725-1DV
Calibration hanger weights	
200 g (0.4 lb)	7MH7724-1AF

Weighfeeders

Accessories

Weighfeeder peripherals

Selection and ordering data (Continued)

SITRANS weighfeeder peripherals	Article No.
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
3 500 g (7.7 lb)	7MH7724-1BQ
5 000 g (11 lb)	7MH7724-1AK
7 500 g (16.5 lb)	7MH7724-1BR
8 500 g (18.7 lb)	7MH7724-1BS
10 000 g (22 lb)	7MH7724-1BT
12 000 g (26.5 lb)	7MH7724-1BU
15 000 g (33.1 lb)	7MH7724-1BV
SITRANS WW300 and WW310 spare parts and accessories	
Start, Stop, Hand/Off/Auto, speed pot local operator station	7MH7723-1JA
500 PPR optical encoder	6FX2001-2PA50
1 000 PPR optical encoder	6FX2001-2PB00
2 500 PPR optical encoder	6FX2001-2PC50
Optical encoder connector	6FX2003-0SU12
Siemens encoder connector with 20 ft cable	7MH7723-1KM
Belt tracking switch	3SE5112-0CR01
Belt tracking switch, ATEX II 2D/Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	7MH7723-1RA
Pull cord switch	3SE7120-2DD01
Pull cord switch cable	3SE7910-3AA
Pull cord switch cable clamp	3SE7941-1AC
Termination box 1, 2, 4 load cell and speed sensor, mild steel	7MH7723-1ND
Termination box 1, 2, 4 load cell and speed sensor, stainless steel	7MH7723-1NE
Bearing, flange, NTN, UCF2, 1 ... 15/16 inch, 4-bolt	A5E01213250
Bearing, flange, NTN, UCF2, 2 ... 15/16 inch, 4-bolt	A5E03856041
Bearing, PB, UCP, 1 ... 7/16 inch	A5E01213243
Bearing, PB, UCP, 2 ... 7/16 inch	PBD-24191273

Solid Flowmeters



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7/17	SITRANS WF300 series
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7/39	Solids flowmeters peripherals

Solid Flowmeters

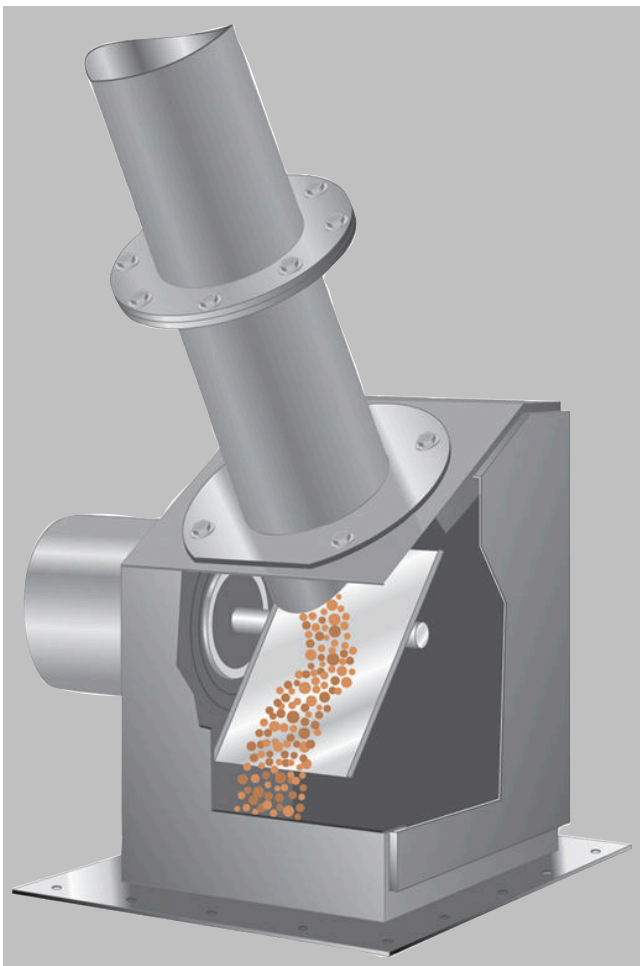
Introduction

Overview

SITRANS WF solids flowmeters monitor the rate of bulk material flow in a process. They continuously measure the impact force of the material under gravity feed conditions, and convert this signal into a flow rate used to control the rate into a process or blending operation. Solids flowmeters can function in standalone measuring operations, or they can interface to a facility's process control system using industry standard protocols.

Applications

SITRANS WF flowmeters measure any dry material from powders to granulates. Material densities range from puffed wheat to iron ore, while fluidity covers the spectrum from fluidized powder, such as fly-ash, to sluggish flowing material such as lathe turnings. Typical materials monitored include cement, gravel, coke, coal, minerals, wood chips, cereals, seeds, grains, soybean and rice hulls, unshelled peanuts, starch, sugar, potato flakes, grain tailings and screenings, and plastic pellets.



Solids flowmeter with sensing plate detail

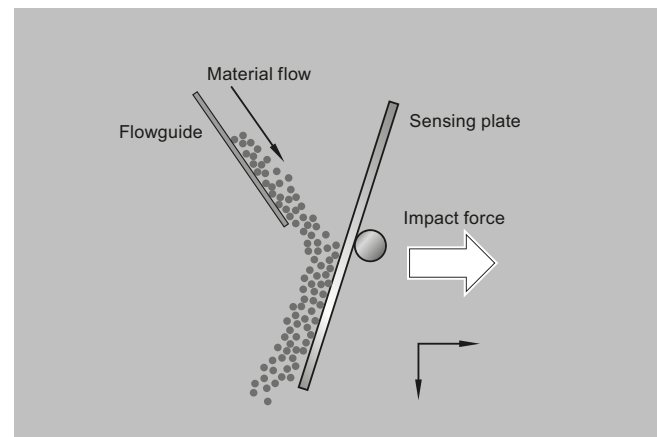
Mode of operation

Flowmeters are installed in a gravity fed process. Entering the flowmeter through the flowguide, the material flow produces a mechanical deflection as it strikes the flowmeter's sensing plate. The SITRANS WF flowmeter converts the deflection into an electrical signal that feeds into an accompanying integrator, which instantaneously provides the flow rate and totalizes the weight.

SITRANS WF flowmeters measure only the horizontal force component of material flow striking the sensing plate. The horizontal force is dependent on particle mass and velocity, angle of particle impact against the plate, and the energy absorbing characteristics of the particle. The flowmeters respond to the mass or weight of the material striking the plate.

Because SITRANS WF flowmeter measures only the horizontal force, they are unaffected by vertical force changes caused by material buildup on the non-impact area of the sensing plate. Consequently, there is no zero drift, which in turn eliminates the need for frequent recalibration.

Siemens SITRANS WF product portfolio includes two basic types of impact flowmeters: the linear variable differential transformer (LVDT), and the strain gauge load cell. Each uses a different sensor to convert the horizontal force on the sensing plate to flow rate. The totally enclosed design of SITRANS WF heavy-duty solids flowmeters eliminates product waste or contamination, and reduces plant maintenance. The dust-tight design creates a healthier work environment, especially when monitoring hazardous substances.



Mode of operation

Technical specifications

Solids flowmeter selection guide

Criteria	SITRANS WF100	SITRANS WF200	SITRANS WF250	SITRANS WF330	SITRANS WF340	SITRANS WF350
Typical industries	Food, grain, milling, animal feed, plastics, glass	Aggregates, grain, cement	Cement, mineral processing	Food, grain, milling, animal feed, chemicals, plastics, glass, cement, mineral processing	Food, grain, milling, animal feed, chemicals, plastics, glass, cement, mineral processing	Cement, mineral processing, mining
Typical applications	Monitoring of food ingredients, pet food blending, plastic pellet production, silica sand in glass making	Grinding mill rejects in cement, load-out of grains and seeds	Cement in aerated gravity conveyor	Fly-ash, lime dosing, cement flow and control in mining, flour stream monitoring	Fly-ash load-out, lime dosing, gypsum flow	Powders and granulates conveyed by aerated gravity conveyors, fly-ash load-out, precipitator dust
Typical capacity	3 ... 200 t/h (4 ... 220 STPH)	200 ... 900 t/h (220 ... 990 STPH)	200 ... 900 t/h (220 ... 990 STPH)	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.
Volumetric capacity	90 m ³ /h (3 178 ft ³ /h)	500 m ³ /h (17 657 ft ³ /h)	600 m ³ /h (21 189 ft ³ /h)	40 t/h: 90 m ³ /h (3 178 ft ³ /h) 300 t/h: 290 m ³ /h (10 241 ft ³ /h)	40 t/h: 96 m ³ /h (3 390 ft ³ /h) 300 t/h: 230 m ³ /h (8 122 ft ³ /h)	40 t/h: 178 m ³ /h (6 286 ft ³ /h) 300 t/h: 545 m ³ /h (19 246 ft ³ /h)
Maximum particle size	13 mm (0.5 inch)	25 mm (1 inch)	25 mm (1 inch)	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.
Ambient temperature	-20 ... +65 °C (-4 ... +150 °F)	-40 ... +65 °C (-40 ... +150 °F)	-40 ... +65 °C (-40 ... +150 °F)	-40 ... +60 °C (-40 ... +140 °F)	-40 ... +60 °C (-40 ... +140 °F)	-40 ... +60 °C (-40 ... +140 °F)
Maximum process temperature	65 °C (150 °F)	100 °C (212 °F)	100 °C (212 °F)	232 °C (450 °F)	232 °C (450 °F)	232 °C (450 °F)
Inlet sizes	100 ... 250 mm (4 ... 10 inch) in universal ANSI/DIN flanges	305 x 533 mm (12 x 21 inch) 305 x 635 mm (12 x 26 inch)	406 x 635 mm (16 x 25 inch) 508 x 940 mm (20 x 37 inch)	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.	Sensing element dependent, see 'Sensing element' chart in Technical specifications.
Accuracy¹⁾	± 1 % (33 ... 100 % of rate)	± 1 % (33 ... 100 % of rate)	± 1 % (33 ... 100 % of rate)	± 1 % (33 ... 100 % of rate)	± 1 % (33 ... 100 % of rate)	± 1 % (33 ... 100 % of rate)
Repeatability	± 0.2 %	± 0.2 %	± 0.2 %	± 0.2 %	± 0.2 %	± 0.2 %
Options	304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing)	304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing)	304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing)	<ul style="list-style-type: none"> 304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing) Food grade epoxy coating on sensing head 	<ul style="list-style-type: none"> 304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing) Food grade epoxy coating on sensing head 	<ul style="list-style-type: none"> 304 or 316 stainless steel, bead blast finish (1 ... 6 µin, 4 ... 240 µin) construction (meets FDA and USDA requirements for food processing) Food grade epoxy coating on sensing head
Sensing element	One triple beam parallelogram style, stainless steel, strain gauge load cell	Two triple beam parallelogram style, stainless steel, strain gauge load cells	Two triple beam parallelogram style, stainless steel, strain gauge load cells	Deflection measurement using LVDT (linear variable differential transformer)	Deflection measurement using LVDT (linear variable differential transformer)	Deflection measurement using LVDT (linear variable differential transformer)
Sensing plate	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel 	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel 	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel 	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel 	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel 	<ul style="list-style-type: none"> 304 stainless steel Option: 316 stainless steel
Liners	<ul style="list-style-type: none"> PTFE Polyurethane 	<ul style="list-style-type: none"> Polyurethane Alumina ceramic 	<ul style="list-style-type: none"> Polyurethane Alumina ceramic 	<ul style="list-style-type: none"> Plasma A/R PTFE Polyurethane Alumina ceramic 	<ul style="list-style-type: none"> Plasma A/R PTFE Polyurethane Alumina ceramic 	<ul style="list-style-type: none"> Plasma A/R PTFE Polyurethane Alumina ceramic
Approvals	CE, RCM, CSA, FM, ATEX, IEC Ex, EAC	CE, RCM, CSA, FM, ATEX, IEC Ex, EAC	CE, RCM, CSA, FM, ATEX, IEC Ex, EAC	CE, RCM, EAC	CE, RCM, EAC	CE, RCM, EAC

¹⁾ Accuracy subject to: on factory approved installations the flowmeter system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for at least ten minutes running time.

Solid Flowmeters

Introduction

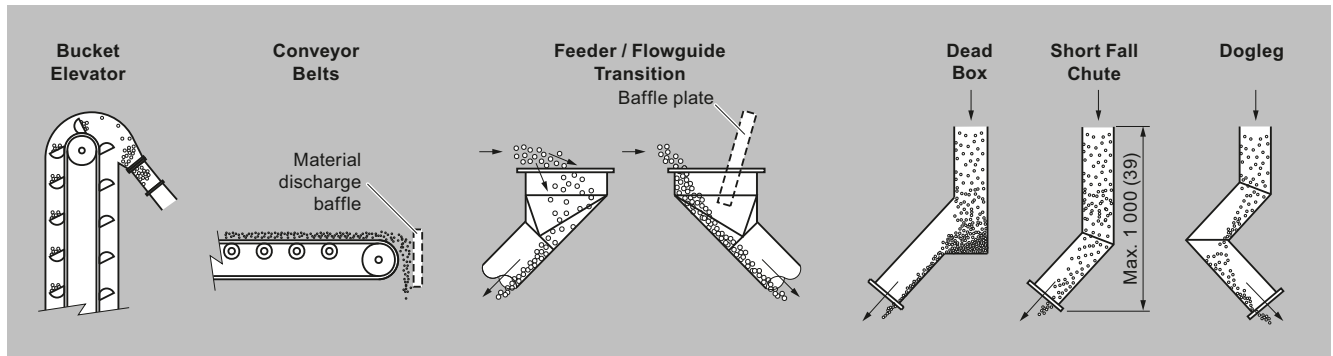
Technical specifications (Continued)

Sensing element

	SITRANS WF330	SITRANS WF340	SITRANS WF350
Capacity range			
- SITRANS WFS300	0.2 ... 40 t/h (0.2 ... 44 STPH)	0.2 ... 40 t/h (0.2 ... 44 STPH)	0.2 ... 40 t/h (0.2 ... 44 STPH)
- SITRANS WFS320	20 ... 300 t/h (22 ... 330 STPH)	20 ... 300 t/h (22 ... 330 STPH)	20 ... 300 t/h (22 ... 330 STPH)
Particle size (max.)			
- SITRANS WFS300	12 mm (0.5 inch)	12 mm (0.5 inch)	3 mm (0.13 inch)
- SITRANS WFS320	25 mm (1 inch)	25 mm (1 inch)	3 mm (0.13 inch)
Inlet sizes			
- SITRANS WFS300	50 ... 250 mm (2 ... 10 inch) (ASME or DIN flanges)	<ul style="list-style-type: none"> • 76 x 152 mm (3 x 6 inch) • 102 x 254 mm (4 x 10 inch) • 127 x 305 mm (5 x 12 inch) 	<ul style="list-style-type: none"> • 203 x 203 mm (8 x 8 inch) • 203 x 305 mm (8 x 12 inch)
- SITRANS WFS320	150 ... 400 mm (6 ... 16 inch) (ASME or DIN flanges)	<ul style="list-style-type: none"> • 127 x 406 mm (5 x 16 inch) • 152 x 508 mm (6 x 20 inch) 	<ul style="list-style-type: none"> • 305 x 254 mm (12 x 10 inch) • 305 x 356 mm (12 x 14 inch) • 305 x 508 mm (12 x 20 inch)

Common flowmeter infeed types

A solids flowmeter's performance will be as repeatable and consistent as the flow of material it is measuring. The following arrangements are typical of pre-feed chute configurations used to ensure consistent flow patterns. Arrangements will vary depending on the upstream equipment or chute work. Applications should be reviewed by a Siemens solids flowmeter specialist to achieve best results. During initial setup, use pre-weighing or post-weighing of material samples to calibrate the flowmeter and verify accuracy using the material sample weights.



Solids Flowmeters, dimensions in mm (inch)

Overview



SITRANS WF100 flowmeter is a low to medium capacity flowmeter for various product sizes, densities, and fluidities in restricted spaces.

Benefits

- Flowrates from 3 to 200 t/h (4 to 220 STPH)
- Continuous monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

WF100 is unaffected by corrosive, abrasive, or hot materials. Handling various product sizes, densities, and fluidities including fine powders such as sugar, the WF100 helps to improve final product, increase operating efficiency, and realize significant cost savings. Dry bulk solids enter the flow guide producing a mechanical deflection as they strike the flowmeter sensing plate before continuing through the process un-hindered. The WF100 converts the deflection into an electrical signal that feeds into an accompanying integrator, which instantaneously displays the flow rate and totalizes the weight.

- Key applications: cement, wood chips, cereals, seeds, grains, soybean and rice hulls, unshelled peanuts, starch, sugar, potato flakes, grain tailings and screenings, and plastic pellets

Solid Flowmeters

SITRANS WF100

Selection and ordering data

SITRANS WF100 Solids flowmeter		Article No.	
Impact solids flowmeter for low to medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 200 t/h (220 STPH).		7MH7186- ● ● ● ● ● - ● A	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Flowguide size (Universal flat-faced flange fits ASME/DIN flanges)			
4 inch (100 mm) Available with fabrication options A ... E and sensing plate options 10 ... 15 only	1		
6 inch (150 mm) Available with fabrication options F ... K and sensing plate options 20 ... 25 only	2		
8 inch (200 mm) Available with fabrication options L ... Q and sensing plate options 30 ... 35 only	3		
10 inch (250 mm) Available with fabrication options R ... V and sensing plate options 40 ... 45 only	4		
Fabrication			
Mild steel, painted 4 inch (100 mm) flowguide		A	
AISI 304 stainless steel 4 inch (100 mm) flowguide		B	
AISI 304 stainless steel with PTFE coated infeed 4 inch (100 mm) flowguide		C	
AISI 316 stainless steel 4 inch (100 mm) flowguide		D	
AISI 316 stainless steel with PTFE coated infeed 4 inch (100 mm) flowguide		E	
Mild steel, painted 6 inch (150 mm) flowguide		F	
AISI 304 stainless steel 6 inch (150 mm) flowguide		G	
AISI 304 stainless steel with PTFE coated infeed 6 inch (150 mm) flowguide		H	
AISI 316 stainless steel 6 inch (150 mm) flowguide		J	
AISI 316 stainless steel with PTFE coated infeed 6 inch (150 mm) flowguide		K	
Mild steel, painted 8 inch (200 mm) flowguide		L	
AISI 304 stainless steel 8 inch (200 mm) flowguide		M	
AISI 304 stainless steel with PTFE coated infeed 8 inch (200 mm) flowguide		N	
AISI 316 stainless steel 8 inch (200 mm) flowguide		P	
AISI 316 stainless steel with PTFE coated infeed 8 inch (200 mm) flowguide		Q	
Mild steel, painted 10 inch (250 mm) flowguide		R	
AISI 304 stainless steel 10 inch (250 mm) flowguide		S	
AISI 304 stainless steel with PTFE coated infeed 10 inch (250 mm) flowguide		T	
AISI 316 stainless steel 10 inch (250 mm) flowguide		U	
AISI 316 stainless steel with PTFE coated infeed 10 inch (250 mm) flowguide		V	
Load cell, stainless steel [17-4 PH (1.4568) construction with 304 (1.4301) stainless steel cover]			
2 lb (0.9 kg)		A	
5 lb (2.3 kg)		B	
10 lb (4.5 kg)		C	
20 lb (9.1 kg)		D	
Not specified (Only for quotation purposes, not a valid ordering option)		X	
Sensing plate fabrication			
4 inch (100 mm) AISI 304 stainless steel			1 0
4 inch (100 mm) AISI 304 stainless steel with PTFE coating			1 1
4 inch (100 mm) AISI 304 stainless steel with polyurethane coating			1 2
4 inch (100 mm) AISI 316 stainless steel			1 3
4 inch (100 mm) AISI 316 stainless steel with PTFE coating			1 4
4 inch (100 mm) AISI 316 stainless steel with polyurethane coating			1 5
6 inch (150 mm) AISI 304 stainless steel			2 0
6 inch (150 mm) AISI 304 stainless steel with PTFE coating			2 1
6 inch (150 mm) AISI 304 stainless steel with polyurethane coating			2 2
6 inch (150 mm) AISI 316 stainless steel			2 3
6 inch (150 mm) AISI 316 stainless steel with PTFE coating			2 4
6 inch (150 mm) AISI 316 stainless steel with polyurethane coating			2 5
8 inch (200 mm) AISI 304 stainless steel			3 0
8 inch (200 mm) AISI 304 stainless steel with PTFE coating			3 1
8 inch (200 mm) AISI 304 stainless steel with polyurethane coating			3 2
8 inch (200 mm) AISI 316 stainless steel			3 3
8 inch (200 mm) AISI 316 stainless steel with PTFE coating			3 4
8 inch (200 mm) AISI 316 stainless steel with polyurethane coating			3 5
10 inch (250 mm) AISI 304 stainless steel			4 0
10 inch (250 mm) AISI 304 stainless steel with PTFE coating			4 1
10 inch (250 mm) AISI 304 stainless steel with polyurethane coating			4 2

Selection and ordering data (Continued)

SITRANS WF100 Solids flowmeter Impact solids flowmeter for low to medium capacity applications. Accuracy is ± 1 % or better, with capacity up to 200 t/h (220 STPH).	Article No. 7MH7186- ● ● ● ● ● - ● A									
10 inch (250 mm) AISI 316 stainless steel							4	3		
10 inch (250 mm) AISI 316 stainless steel with PTFE coating							4	4		
10 inch (250 mm) AISI 316 stainless steel with polyurethane coating							4	5		
Approvals										
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC										0
CSA/FM Class II, Div. 1, Groups E, F, G, Class III; ATEX II 2D Ex tb IIIC T80 °C Db IP65, Ta = -40 °C to +65 °C; UKEX II 2D Ex tb IIIC T80 °C Db IP65, Ta = -40 °C to +65 °C; IECEX Ex tb IIIC T80 °C Db IP65, Ta = -40 °C to +65 °C; EAC Ex, 0Ex tb IIIC T80 °C Db X; CE, UKCA, RCM										1

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Inspection certificate type 3.1 per EN 10204 Not available with fabrication options A, F, L, R	C12
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Calibration hanger weights	Article No.
20 g (0.04 lb)	7MH7724-1AC
50 g (0.1 lb)	7MH7724-1AD
100 g (0.2 lb)	7MH7724-1AE
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
5 000 g (11 lb)	7MH7724-1AK
Note: calibration accessories should be ordered as a separate item on the order.	
Spare parts	
WF100 4 inch (100 mm) sensing plate 304 standard	7MH7723-1KN
WF100 6 inch (150 mm) sensing plate 304 standard	7MH7723-1KN
WF100 8 inch (200 mm) sensing plate 304 standard	7MH7723-1KQ
WF100 10 inch (250 mm) sensing plate 304 standard	7MH7723-1KR
WF100 4 inch (100 mm) sensing plate 316 standard	7MH7723-1KS
WF100 6 inch (150 mm) sensing plate 304 PTFE lined	7MH7723-1KT
WF100 8 inch (200 mm) sensing plate 316 standard	7MH7723-1KU
WF100 10 inch (250 mm) sensing plate 316 standard	7MH7723-1KV
WF100 4 inch (100 mm) sensing plate 304 PTFE lined	7MH7723-1KW
WF100 6 inch (150 mm) sensing plate 304 PTFE lined	7MH7723-1KX
WF100 8 inch (200 mm) sensing plate 304 PTFE lined	7MH7723-1KY
WF100 10 inch (250 mm) sensing plate 304 PTFE lined	7MH7723-1LA
WF100 4 inch (100 mm) sensing plate 316 PTFE lined	7MH7723-1LB
WF100 6 inch (150 mm) sensing plate 316 PTFE lined	7MH7723-1LC

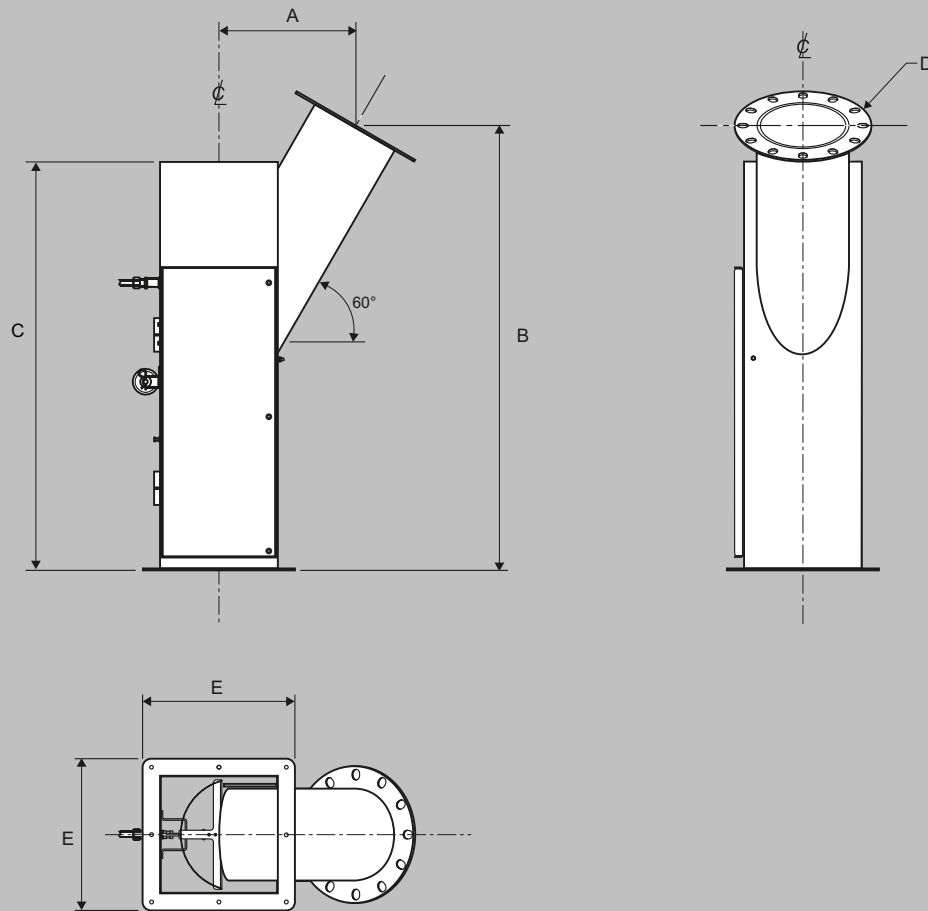
Solid Flowmeters

SITRANS WF100

Selection and ordering data (Continued)

WF100 8 inch (200 mm) sensing plate 316 PTFE lined	7MH7723-1LD
WF100 10 inch (250 mm) sensing plate 316 PTFE lined	7MH7723-1LE
WF100 4 inch (100 mm) sensing plate 304 polyurethane lined	7MH7723-1LF
WF100 6 inch (150 mm) sensing plate 304 polyurethane lined	7MH7723-1LG
WF100 8 inch (200 mm) sensing plate 304 polyurethane lined	7MH7723-1LH
WF100 10 inch (250 mm) sensing plate 304 polyurethane lined	7MH7723-1LJ
WF100 4 inch (100 mm) sensing plate 316 polyurethane lined	7MH7723-1LK
WF100 6 inch (150 mm) sensing plate 316 polyurethane lined	7MH7723-1LL
WF100 8 inch (200 mm) sensing plate 316 polyurethane lined	7MH7723-1LM
WF100 10 inch (250 mm) sensing plate 316 polyurethane lined	7MH7723-1LN
WF100 load cell spare 2 lb	PBD-23900176
WF100 load cell spare 5 lb	PBD-23900177
WF100 load cell spare 10 lb	PBD-23900244
WF100 load cell spare 20 lb	PBD-23900245
WF calibration pulley with hardware and cable spare	7MH7723-1LT

Dimensional drawings



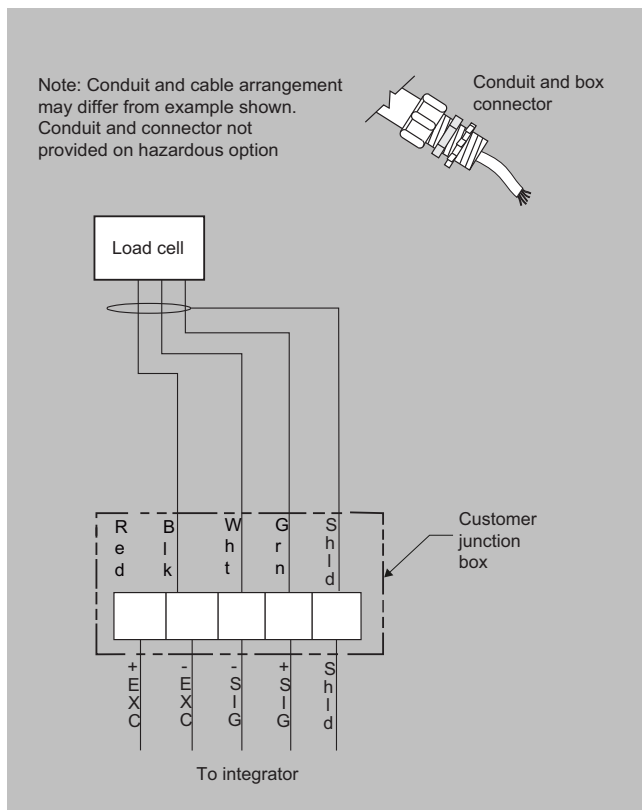
	A	B	C	D (flange)	E	F (x 8)
4 inch (100 mm)	8 inch (203.2 mm)	23.5 inch (596.9 mm)	21.87 inch (555.5 mm)	Ø ASME 4 inch DIN 100 mm	11.25 inch (285.8 mm)	Ø 0.43 inch (11 mm)
6 inch (150 mm)	10 inch (254 mm)	33 inch (838.2 mm)	31.12 inch (790.4 mm)	Ø ASME 6 inch DIN 150 mm	13.35 inch (339.1 mm)	Ø 0.43 inch (11 mm)
8 inch (200 mm)	14 inch (355.6 mm)	46 inch (1 168.4 mm)	42.62 inch (1 082.5 mm)	Ø ASME 8 inch DIN 200 mm	16.5 inch (419.1 mm)	Ø 0.43 inch (11 mm)
10 inch (250 mm)	16 inch (406.4 mm)	52 inch (1 320.8 mm)	48.74 inch (1 238.1 mm)	Ø ASME 10 inch DIN 250 mm	19 inch (482.6 mm)	Ø 0.43 inch (11 mm)

SITRANS WF100, dimensions

Solid Flowmeters

SITRANS WF100

Circuit diagrams



SITRANS WF100 connections

Overview



SITRANS WF200 and WF250 flowmeters are medium to high capacity flowmeters for various product sizes, densities, and fluidities.

Benefits

- For specialized pre-feed applications
- Sensing element mounted outside process
- Flowrates from 200 to 900 t/h (220 to 990 STPH)
- Continuously monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

Operating with a microprocessor based integrator package, the WF200 series flowmeters display flow rate, totalized flow, and rate alarms. Outputs are 0/4 to 20 mA proportional to rate and contact closure for remote totalization. Dry bulk solids enter the flowmeter before continuing through the process unhindered. The load cells convert the horizontal force of the deflection into an electrical signal. The integrator processes this into flowrate and integrated total weight. The sensing process is immune to the effect of product build-up as only the horizontal force is measured.

With load cells located externally to the process, the WF200 series flowmeters measure high capacities with a maximum rate of 900 t/h (990 STPH). For high capacity aerated gravity conveyor pre-feed, the WF250 has a maximum rate of 900 t/h (990 STPH).

- Key applications: aggregates, grain, cement, mineral processing

Solid Flowmeters

SITRANS WF200 series

Selection and ordering data

SITRANS WF200 series Solids flowmeters		Article No.						
Impact solids flowmeter for medium to high capacity applications. Accuracy is ± 1 % or better, with capacity up to 900 t/h (990 STPH).		7MH7115-	●	●	●	●	-	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.								
Model								
SITRANS WF200								
500 t/h maximum design capacity								1
900 t/h maximum design capacity								2
SITRANS WF250, aerated style								
500 t/h maximum design capacity								3
900 t/h maximum design capacity								4
Construction								
Painted mild steel								
						A		
Sensing plate liner								
None (standard 304 stainless steel)								
							A	
<u>Polyurethane</u>								
For model options 1 and 3								
							B	
For model options 2 and 4								
							C	
<u>Alumina ceramic tiles</u>								
For model options 1 and 3								
							D	
For model options 2 and 4								
							E	
Load cell								
50 lb								
								1
100 lb								
								2
Not specified (for quotation purposes only, not a valid ordering option)								
								0
Approvals								
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, RCM, EAC								
								1
CSA/FM Class II, Div. 1, Groups E, F, G; Class III;								
ATEX II 2D Ex tb IIIC T80 °C Db IP65, Ta =								
-40 °C to +65 °C;								
UKEX II 2D Ex tb IIIC T80 °C Db IP65, Ta =								
-40 °C to +65 °C;								
IECEX Ex tb IIIC T80 °C Db IP65, Ta =								
-40 °C to +65 °C;								
EAC Ex, 0Ex tb IIIC T80 °C Db X;								
CE, UKCA, RCM								

1) Not available with construction option A.

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max.15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Inspection certificate type 3.1 per EN 10204 ¹⁾	C12
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Spare parts	Article No.
Calibration hanger weights	
Note: calibration accessories should be ordered as a separate item on the order.	
20 g (0.04 lb)	7MH7724-1AC
50 g (0.1 lb)	7MH7724-1AD

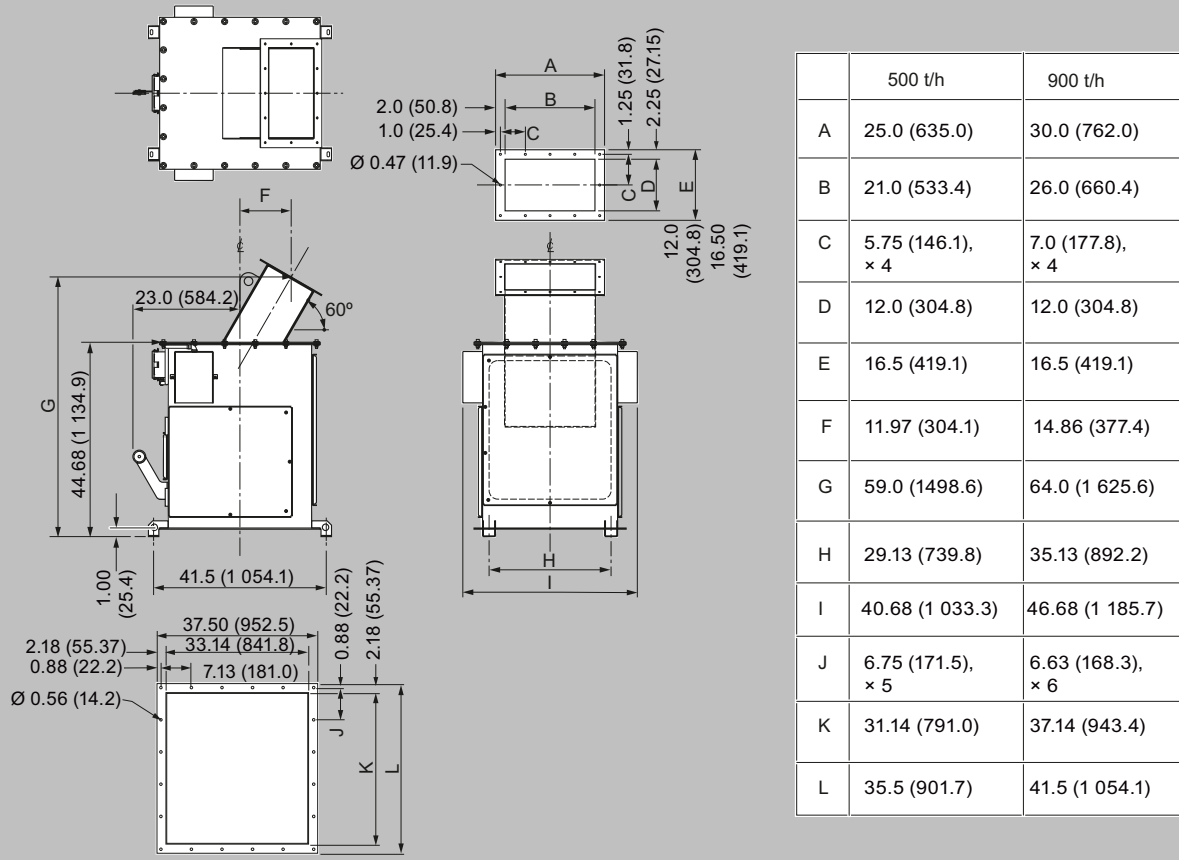
Selection and ordering data (Continued)

Spare parts	Article No.
100 g (0.2 lb)	7MH7724-1AE
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
5 000 g (11 lb)	7MH7724-1AK
Load cell, 50 lb, stainless steel	PBD-23900246
Load cell, 100 lb, stainless steel	PBD-23900247
WF calibration pulley with hardware and cable spare	7MH7723-1LT
WF200 series bearing with plate mount shaft, standard, spare	7MH7723-1LU
WF200 series bearing with plate mount shaft, stainless steel, spare	7MH7723-1LV
WF200 series sensing plate support cables, spare	7MH7723-1LW
WF250 series sensing plate support cables, spare	7MH7723-1LX
WF200 sensing plate 500 TPH 304, standard	7MH7723-1LY
WF200 sensing plate 900 TPH 304, standard	7MH7723-1MA
WF250 sensing plate 500 TPH 304, standard	7MH7723-1MB
WF250 sensing plate 900 TPH 304, standard	7MH7723-1MC
WF200 sensing plate 500 TPH 304, polyurethane lined	7MH7723-1MD
WF200 sensing plate 900 TPH 304, polyurethane lined	7MH7723-1ME
WF250 sensing plate 500 TPH 304, polyurethane lined	7MH7723-1MF
WF250 sensing plate 900 TPH 304, polyurethane lined	7MH7723-1MG
WF200 sensing plate 500 TPH 304, ceramic lined	7MH7723-1MH
WF200 sensing plate 900 TPH 304, ceramic lined	7MH7723-1MJ
WF250 sensing plate 500 TPH 304, ceramic lined	7MH7723-1MK
WF250 sensing plate 900 TPH 304, ceramic lined	7MH7723-1ML

Solid Flowmeters

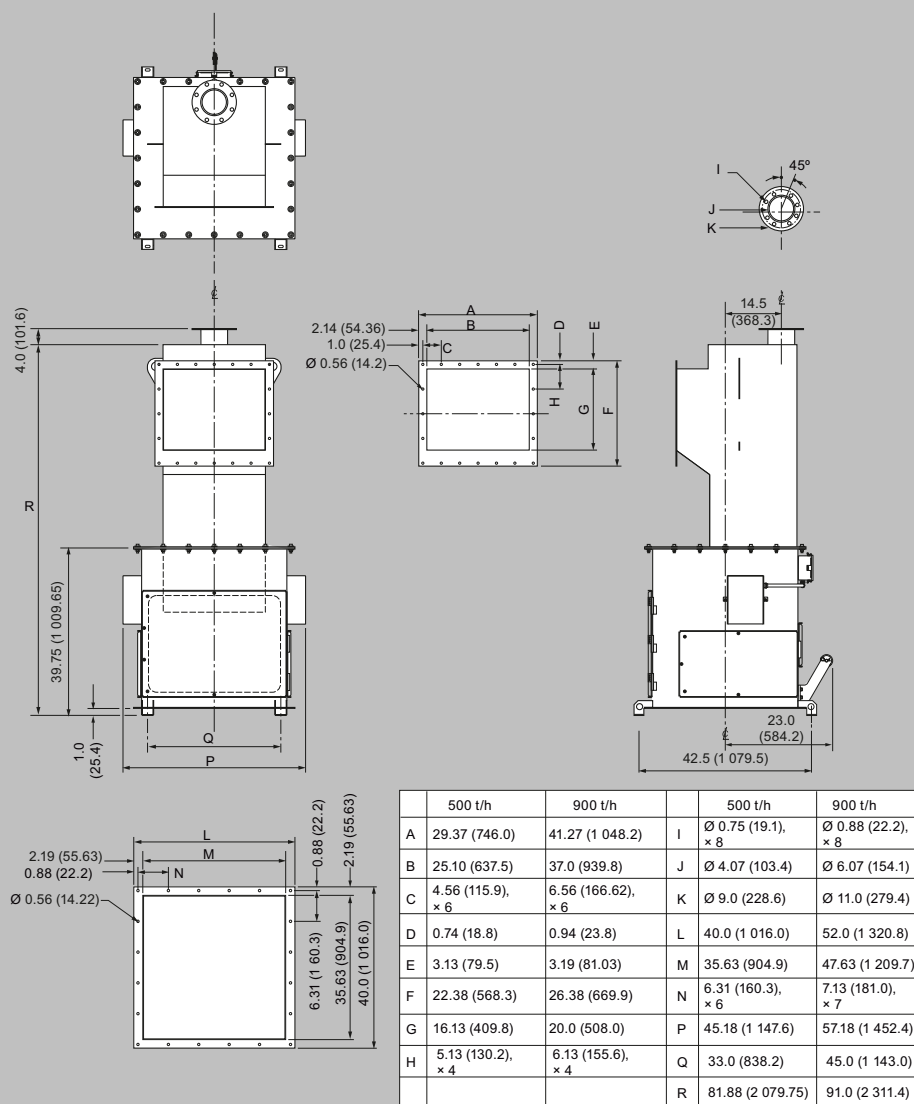
SITRANS WF200 series

Dimensional drawings



SITRANS WF200, dimensions in inch (mm)

Dimensional drawings (Continued)



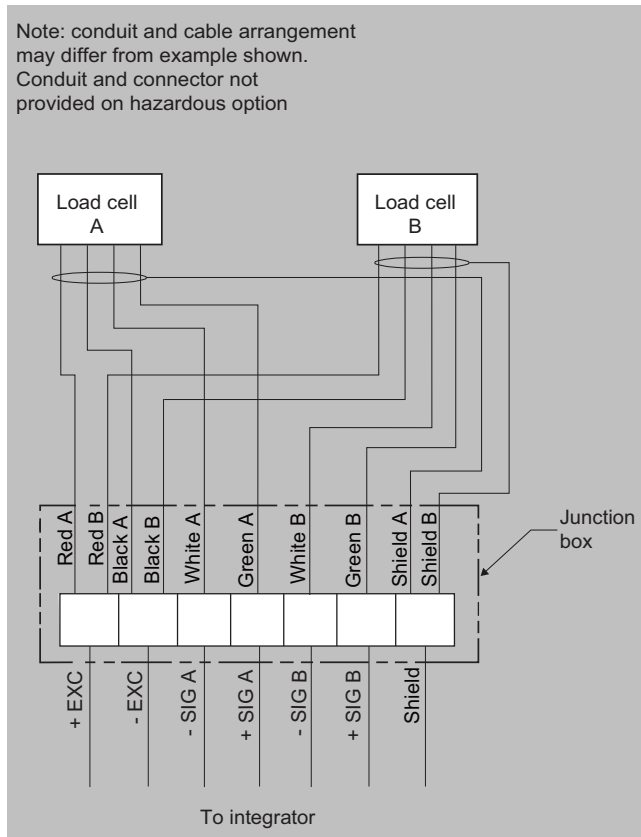
SITRANS WF250, dimensions in inch (mm)

Solid Flowmeters

SITRANS WF200 series

Circuit diagrams

Note: conduit and cable arrangement may differ from example shown.
Conduit and connector not provided on hazardous option



SITRANS WF200 series connections

Overview



SITRANS WF300 series are low to medium capacity flowmeters for various product sizes, densities, and fluidities.

Benefits

- For specialized pre-feed applications
- Sensing element mounted outside process
- Flowrates from 0.2 to 300 t/h (0.2 to 330 STPH)
- Continuously monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

With weighing mechanics located externally, the WF300 series solids flowmeters are unaffected by corrosive, abrasive, or hot materials. Handling a wide range of product sizes, densities, and fluidities including fine powders such as cement, they operate at process temperatures to 230 °C (450 °F). The flowmeters help to improve final product, increase operating efficiency, and realize significant cost savings.

Operating with the appropriate SITRANS WFS sensing head and a micro-processor-based integrator package, the WF300 series flowmeters provide a display of the flow rate, totalized flow, and alarms. Outputs are 0/4 to 20 mA proportional to rate, and open collector output for remote totalization.

Dry bulk solids enter the flow guide producing a mechanical deflection as they strike the flowmeter sensing plate before continuing through the process unhindered. The LVDT in the sensing head converts the deflection of the horizontal force into an electrical signal. The integrator processes this signal into a display of flowrate and integrated total weight. The weighing process is immune to the effect of product build-up as only the horizontal force is measured. SITRANS WF330 flowmeters are totally enclosed, with external weighing mechanics, operating with corrosive, abrasive or hot materials. SITRANS WF350 series operates with aerated gravity conveyors, and includes integral vents and baffles for air separation. For applications with little available headroom, the SITRANS WF340 series flowmeters provide the answer.

Solid Flowmeters

SITRANS WF300 series

Selection and ordering data

SITRANS WF330 Solids flowmeter, general purpose design Impact solids flowmeter for low to medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 300 t/h (330 STPH).		Article No. 7MH7102- ● ● ● ● 0				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Model						
Base mount, 40 t/h (44 STPH) maximum design capacity					1	
Side mount, 40 t/h (44 STPH) maximum design capacity					2	
Base mount, 300 t/h (330 STPH) maximum design capacity					3	
Flowguide size						
No flowguide					A	
2 inch ASME flange pattern ¹⁾					B	
4 inch ASME flange pattern ¹⁾					C	
6 inch ASME flange pattern ²⁾					D	
8 inch ASME flange pattern ²⁾					E	
10 inch ASME flange pattern ²⁾					F	
12 inch ASME flange pattern ³⁾					G	
14 inch ASME flange pattern ³⁾					H	
16 inch ASME flange pattern ³⁾					J	
DN 50 flange pattern ¹⁾					K	
DN 100 flange pattern ¹⁾					L	
DN 150 flange pattern ²⁾					M	
DN 200 flange pattern ²⁾					N	
DN 250 flange pattern ²⁾					P	
DN 300 flange pattern ³⁾					Q	
DN 350 flange pattern ³⁾					R	
DN 400 flange pattern ³⁾					S	
Flowguide construction						
No flowguide					A	
Mild steel, C5-M rated polyester painted					B	
Mild steel, epoxy painted with zinc primer ¹⁾					C	
Mild steel, epoxy painted with zinc primer ³⁾					D	
304 (1.4301) stainless steel ¹⁾					E	
304 (1.4301) stainless steel ³⁾					F	
316 (1.4401) stainless steel ¹⁾					G	
316 (1.4401) stainless steel ³⁾					H	
Cabinet construction						
Mild steel, C5-M rated polyester painted					1	
Mild steel, epoxy painted with zinc primer ¹⁾					2	
Mild steel, epoxy painted with zinc primer ³⁾					3	
304 (1.4301) stainless steel ¹⁾					4	
304 (1.4301) stainless steel ³⁾					5	
316 (1.4401) stainless steel ¹⁾					6	
316 (1.4401) stainless steel ³⁾					7	

Further designs	Order Code
Please add "-Z" to Article No. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max. 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Inspection certificate type 3.1 per EN 10204 ⁴⁾	C12
Note: not available with cabinet construction option 1	
Instruction manuals	
All literature is available to download for free, in a range of languages, at	
http://www.siemens.com/weighing/documentation	

Selection and ordering data (Continued)

- 1) For versions 1 and 2 only.
- 2) For versions 1, 2 or 3.
- 3) For version 3 only.
- 4) Not available with cabinet construction options 1, 2, 3.

Spare parts	Article No.
<u>40 TPH, mild steel flowguide</u>	
2 inch ASME	PBD:20377-111
4 inch ASME	PBD:20377-211
6 inch ASME	PBD:20377-311
8 inch ASME	PBD:20377-411
10 inch ASME	PBD:20377-511
<u>40 TPH, mild steel-epoxy flowguide</u>	
2 inch ASME	PBD:20377-112
4 inch ASME	PBD:20377-212
6 inch ASME	PBD:20377-312
8 inch ASME	PBD:20377-412
10 inch ASME	PBD:20377-512
<u>40 TPH, 304 (1.4301) stainless steel flowguide</u>	
2 inch ASME	PBD:20377-114
4 inch ASME	PBD:20377-214
6 inch ASME	PBD:20377-314
8 inch ASME	PBD:20377-414
10 inch ASME	PBD:20377-514
<u>40 TPH, 316 (1.4401) stainless steel flowguide</u>	
2 inch ASME	PBD:20377-115
4 inch ASME	PBD:20377-215
6 inch ASME	PBD:20377-315
8 inch ASME	PBD:20377-415
10 inch ASME	PBD:20377-515
<u>300 TPH, mild steel flowguide</u>	
6 inch ASME	PBD:20388-111
8 inch ASME	PBD:20388-211
10 inch ASME	PBD:20388-311
12 inch ASME	PBD:20388-411
14 inch ASME	PBD:20388-511
16 inch ASME	PBD:20388-611
<u>300 TPH, mild steel-epoxy flowguide</u>	
6 inch ASME	PBD:20388-112
8 inch ASME	PBD:20388-212
10 inch ASME	PBD:20388-312
12 inch ASME	PBD:20388-412
14 inch ASME	PBD:20388-512
16 inch ASME	PBD:20388-612
<u>300 TPH, 304 (1.4301) stainless steel flowguide</u>	
6 inch ASME	PBD:20388-114
8 inch ASME	PBD:20388-214
10 inch ASME	PBD:20388-314
12 inch ASME	PBD:20388-414
14 inch ASME	PBD:20388-514
16 inch ASME	PBD:20388-614
<u>300 TPH, 316 (1.4401) stainless steel flowguide</u>	
6 inch ASME	PBD:20388-115
8 inch ASME	PBD:20388-215
10 inch ASME	PBD:20388-315

Solid Flowmeters

SITRANS WF300 series

Selection and ordering data (Continued)

Spare parts	Article No.
12 inch ASME	PBD:20388-415
14 inch ASME	PBD:20388-515
16 inch ASME	PBD:20388-615
<u>40 TPH, mild steel flowguide</u>	
2 inch DIN	PBD:20377-121
4 inch DIN	PBD:20377-221
6 inch DIN	PBD:20377-321
8 inch DIN	PBD:20377-421
10 inch DIN	PBD:20377-521
<u>40 TPH, mild steel-epoxy flowguide</u>	
2 inch DIN	PBD:20377-122
4 inch DIN	PBD:20377-222
6 inch DIN	PBD:20377-322
8 inch DIN	PBD:20377-422
10 inch DIN	PBD:20377-522
<u>40 TPH, 304 (1.4301) stainless steel flowguide</u>	
2 inch DIN	PBD:20377-124
4 inch DIN	PBD:20377-224
6 inch DIN	PBD:20377-324
8 inch DIN	PBD:20377-424
10 inch DIN	PBD:20377-524
<u>40 TPH, 316 (1.4401) stainless steel flowguide</u>	
2 inch DIN	PBD:20377-125
4 inch DIN	PBD:20377-225
6 inch DIN	PBD:20377-325
8 inch DIN	PBD:20377-425
10 inch DIN	PBD:20377-525
<u>300 TPH, mild steel flowguide</u>	
6 inch DIN	PBD:20388-121
8 inch DIN	PBD:20388-221
10 inch DIN	PBD:20388-321
12 inch DIN	PBD:20388-421
14 inch DIN	PBD:20388-521
16 inch DIN	PBD:20388-621
<u>300 TPH, mild steel-epoxy flowguide</u>	
6 inch DIN	PBD:20388-122
8 inch DIN	PBD:20388-222
10 inch DIN	PBD:20388-322
12 inch DIN	PBD:20388-422
14 inch DIN	PBD:20388-522
16 inch DIN	PBD:20388-622
<u>300 TPH, 304 (1.4301) stainless steel flowguide</u>	
6 inch DIN	PBD:20388-124
8 inch DIN	PBD:20388-224
10 inch DIN	PBD:20388-324
12 inch DIN	PBD:20388-424
14 inch DIN	PBD:20388-524
16 inch DIN	PBD:20388-624
<u>300 TPH, 316 (1.4401) stainless steel flowguide</u>	
6 inch DIN	PBD:20388-125
8 inch DIN	PBD:20388-225
10 inch DIN	PBD:20388-325
12 inch DIN	PBD:20388-425
14 inch DIN	PBD:20388-525

Selection and ordering data (Continued)

Spare parts	Article No.
16 inch DIN	PBD:20388-625

SITRANS WF340 Solids flowmeter, compact design Impact solids flowmeter for low to medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 300 t/h (330 STPH).		Article No.			
		7MH7104-	●	●	● ● 0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Version					
Base mount, 40 t/h (44 STPH) max. design -capacity				1	
Side mount, 40 t/h (44 STPH) max. design capacity				2	
Base mount, 300 t/h (330 STPH) max. design -capacity				3	
Flowguide size					
No flowguide (5 x 16 inch model)					A
3 x 6 inch (76 x 152 mm) ¹⁾					B
4 x 10 inch (102 x 254 mm) ¹⁾					C
5 x 12 inch (127 x 305 mm) ¹⁾					D
5 x 16 inch (127 x 406 mm) ²⁾					E
6 x 20 inch (152 x 508 mm) ²⁾					F
No flowguide (WF340-300 6 x 20 inch model)					G
Flowguide construction					
No flowguide					A
Mild steel, C5-M rated polyester painted					B
304 (1.4301) stainless steel ¹⁾					C
304 (1.4301) stainless steel ²⁾					D
316 (1.4401) stainless steel ¹⁾					E
316 (1.4401) stainless steel ²⁾					F
Mild steel, C5-M rated polyester painted with PTFE liner					G
Mild steel, C5-M rated polyester painted with abrasion resistant liner					H
304 (1.4301) stainless steel, with PTFE liner ¹⁾					J
304 (1.4301) stainless steel, with PTFE liner ²⁾					K
Mild steel, epoxy paint with zinc primer ¹⁾					L
Mild steel, epoxy paint with zinc primer ²⁾					M
Other flowguide materials available upon request					
Cabinet construction					
Mild steel, painted					1
304 (1.4301) stainless steel ¹⁾					2
304 (1.4301) stainless steel ²⁾					3
316 (1.4401) stainless steel ¹⁾					4
316 (1.4401) stainless steel ²⁾					5
Mild steel, epoxy paint with zinc primer ¹⁾					6
Mild steel, epoxy paint with zinc primer ²⁾					7

¹⁾ For versions 1 and 2 only.

²⁾ For version 3 only.

³⁾ Not available with cabinet construction option 1.

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max.15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Inspection certificate type 3.1 per EN 10204 ³⁾	C12

Solid Flowmeters

SITRANS WF300 series

Selection and ordering data (Continued)

Further designs	Order Code
Instruction manual All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

- 1) For versions 1 and 2 only.
- 2) For version 3 only.
- 3) Not available with cabinet construction option 1.

Spare parts	Article No.
<u>40 TPH, mild steel flowguide</u>	
3 x 6 inch	PBD:20401-100
4 x 10 inch	PBD:20395-100
5 x 12 inch	PBD:20405-100
<u>40 TPH, mild steel-epoxy flowguide</u>	
3 x 6 inch	PBD:20401-200
4 x 10 inch	PBD:20395-200
5 x 12 inch	PBD:20405-200
<u>40 TPH, 304 (1.4301) stainless steel flowguide</u>	
3 x 6 inch	PBD:20401-300
4 x 10 inch	PBD:20395-300
5 x 12 inch	PBD:20405-300
<u>40 TPH, 316 (1.4401) stainless steel flowguide</u>	
3 x 6 inch	PBD:20401-400
4 x 10 inch	PBD:20395-400
5 x 12 inch	PBD:20405-400
<u>40 TPH, mild steel-PTFE flowguide</u>	
3 x 6 inch	PBD:20401-500
4 x 10 inch	PBD:20395-500
5 x 12 inch	PBD:20405-500
<u>40 TPH, 304 (1.4301) stainless steel-PTFE -flowguide</u>	
3 x 6 inch	PBD:20401-600
4 x 10 inch	PBD:20395-600
5 x 12 inch	PBD:20405-600
<u>40 TPH, mild steel-AR flowguide</u>	
3 x 6 inch	PBD:20401-700
4 x 10 inch	PBD:20395-700
5 x 12 inch	PBD:20405-700
<u>300 TPH, mild steel flowguide</u>	
5 x 16 inch	PBD:20455-10
6 x 20 inch	PBD:20458-10
<u>300 TPH, mild steel-epoxy flowguide</u>	
5 x 16 inch	PBD:20455-20
6 x 20 inch	PBD:20458-20
<u>300 TPH, 304 (1.4301) stainless steel flowguide</u>	
5 x 16 inch	PBD:20455-30
6 x 20 inch	PBD:20458-30
<u>300 TPH, 304 (1.4301) stainless steel-PTFE flowguide</u>	
5 x 16 inch	PBD:20455-40
6 x 20 inch	PBD:20458-40
<u>300 TPH, 316 (1.4401) stainless steel flowguide</u>	
5 x 16 inch	PBD:20455-50
6 x 20 inch	PBD:20458-50
<u>300 TPH, mild steel-PTFE flowguide</u>	

Selection and ordering data (Continued)

Spare parts	Article No.
5 x 16 inch	PBD:20455-60
6 x 20 inch	PBD:20458-60
<u>300 TPH, mild steel-AR flowguide</u>	
5 x 16 inch	PBD:20455-70
6 x 20 inch	PBD:20458-70

SITRANS WF350 Solids flowmeter, aerated infeed design Impact solids flowmeter for low to medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 300 t/h (330 STPH).	Article No.			
	7MH7106-	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Version				
40 t/h (44 STPH) maximum design capacity	1			
300 t/h (330 STPH) maximum design capacity	2			
Flowguide size				
8 inch (203 mm), 40 t/h (0.2 to 44 STPH) version		B		
10 inch (254 mm), 300 t/h		C		
12 inch (305 mm), 40 t/h (0.2 to 44 STPH) version		D		
14 inch (356 mm), 300 t/h		E		
20 inch (508 mm), 300 t/h		F		
Flowguide construction				
Mild steel, C5-M rated polyester painted			B	
304 (1.4301) stainless steel			D	
316 (1.4401) stainless steel			E	
Cabinet construction				
Mild steel, C5-M rated polyester painted				1
304 (1.4301) stainless steel				3
316 (1.4401) stainless steel				4
Venting flange				
ASME flange pattern				1
DIN flange pattern				2

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max. 27 characters), specify in plain text.	Y15
Application Eng. reference number (max.15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Inspection certificate type 3.1 per EN 10204 Not available with cabinet construction option 1	C12
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

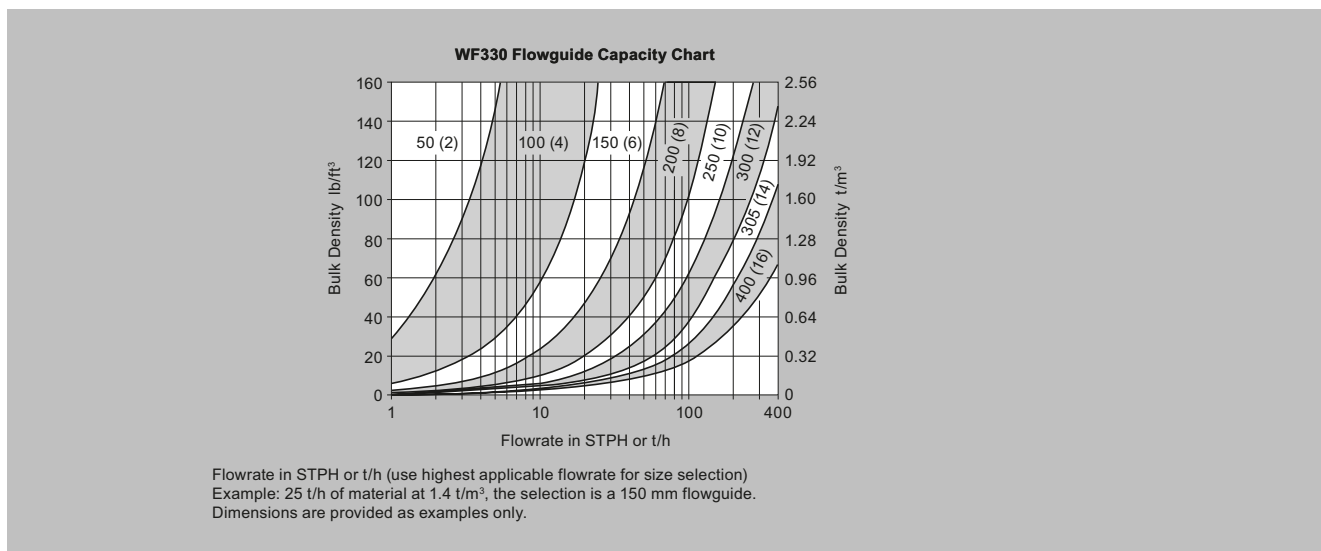
Solid Flowmeters

SITRANS WF300 series

Selection and ordering data (Continued)

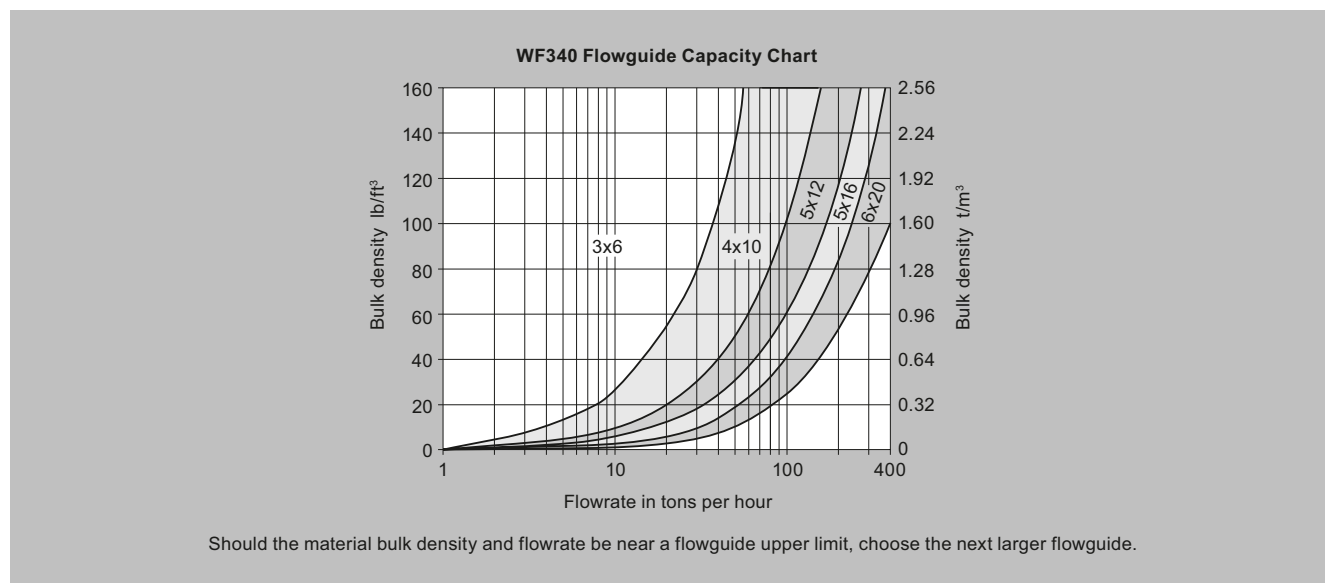
Spare Parts	
<u>40 TPH, mild steel flowguide</u>	
8 inch	PBD:22520-1A0
12 inch	PBD:22520-2A0
<u>40 TPH, 304 (1.4301) stainless steel flowguide</u>	
8 inch	PBD:22520-1B0
12 inch	PBD:22520-2B0
<u>40 TPH, 316 (1.4401) stainless steel flowguide</u>	
8 inch	PBD:22520-1C0
12 inch	PBD:22520-2C0
<u>300 TPH, mild steel flowguide</u>	
10 inch	PBD:22519-1A0
14 inch	PBD:22519-2A0
20 inch	PBD:22519-3A0
<u>300 TPH, 304 (1.4301) stainless steel flowguide</u>	
10 inch	PBD:22519-1B0
14 inch	PBD:22519-2B0
20 inch	PBD:22519-3B0
<u>40 TPH, 316 (1.4401) stainless steel flowguide</u>	
10 inch	PBD:22519-1C0
14 inch	PBD:22519-2C0
20 inch	PBD:22519-3C0

Characteristic curves



SITRANS WF330 flowguide capacity chart

Characteristic curves (Continued)

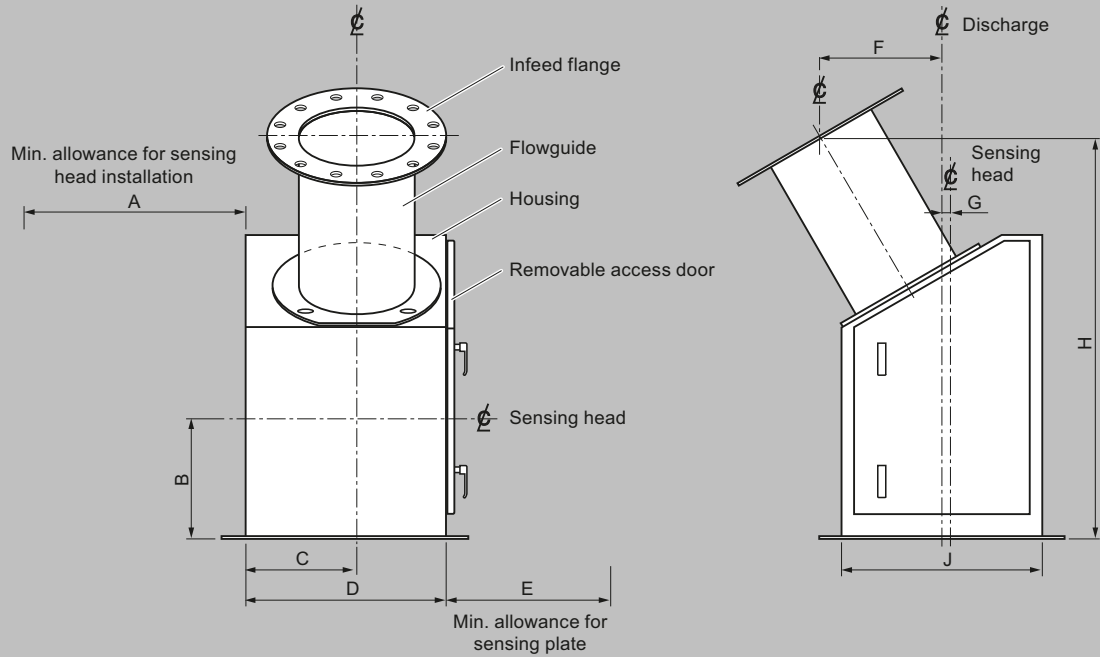


SITRANS WF340 flowguide capacity chart

Solid Flowmeters

SITRANS WF300 series

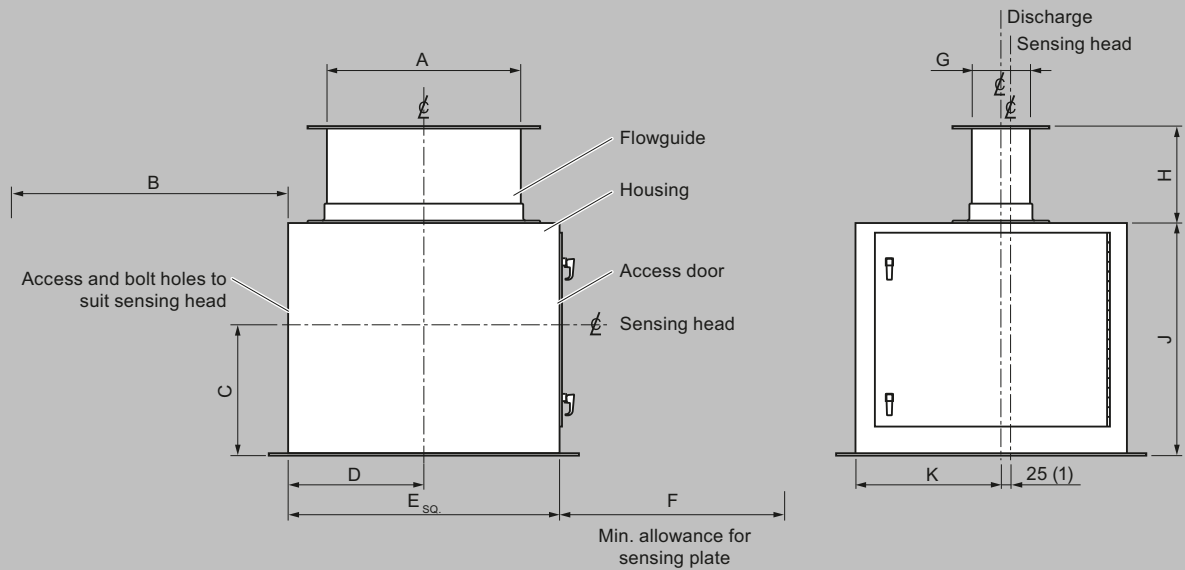
Dimensional drawings



Model	A	B	C	D	E	F	G	H	J
40 t/h (44 STPH)	686 (27)	356 (14)	254 (10)	457 (18)	610 (24)	279 (11)	25 (1)	914 (36)	457 (18)
300 t/h (330 STPH)	1 042 (41)	457 (18)	305 (12)	610 (24)	610 (24)	330 (13)	38 (1.5)	1 270 (50)	610 (24)
40 t/h version inlet sizes									
51 (2)	102 (4)		152 (6)		203 (8)		254 (10)		
300 t/h version inlet sizes									
152 (6)	203 (8)		254 (10)		305 (12)		356 (14)		406 (16)

SITRANS WF300, dimensions in mm (inch)

Dimensional drawings (Continued)



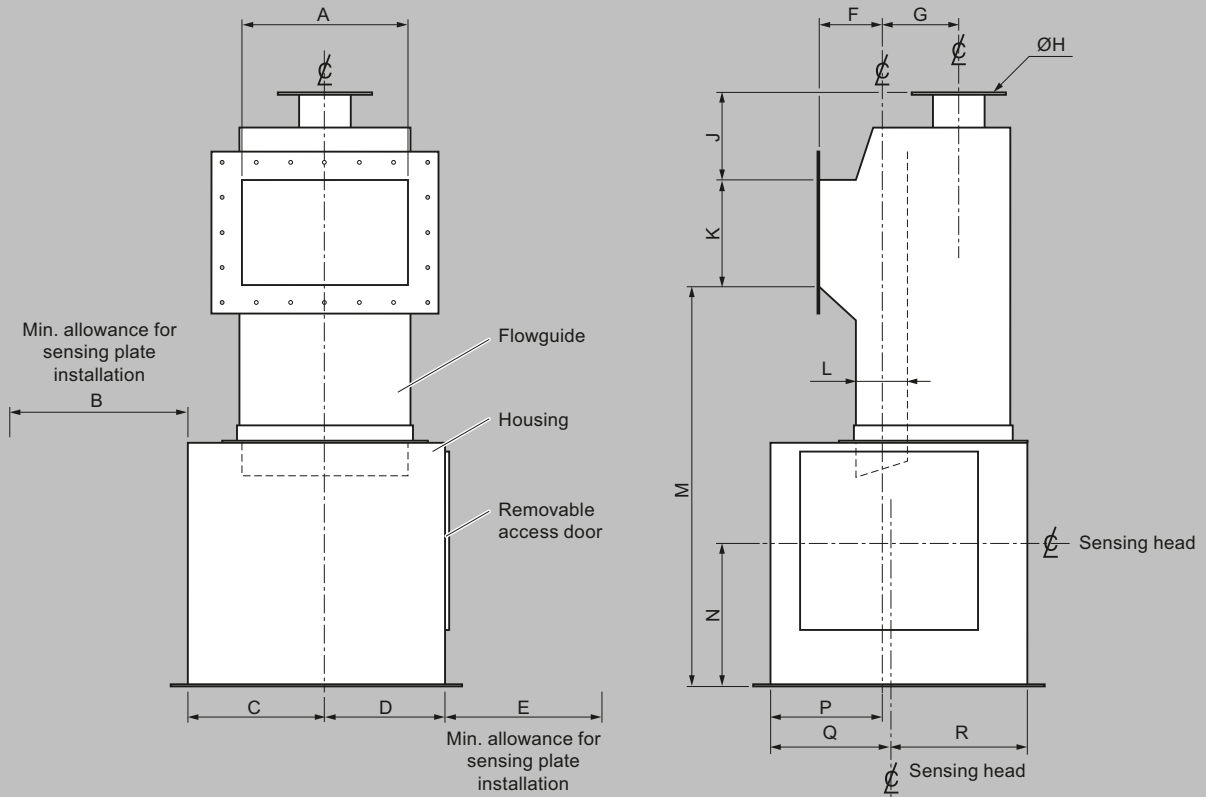
Size	A	B	C	D	E	F	G	H	J	K
40 t/h (44 STPH)	152 (6)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	76 (3)	203 (8)	508 (20)	254 (10)
40 t/h (44 STPH)	254 (10)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	102 (4)	203 (8)	508 (20)	254 (10)
40 t/h (44 STPH)	305 (12)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	127 (5)	203 (8)	508 (20)	254 (10)
300 t/h (330 STPH)	406 (16)	1 041 (41)	343 (13.5)	305 (12)	610 (24)	762 (30)	127 (5)	254 (10)	610 (24)	330 (13)
300 t/h (330 STPH)	508 (20)	1 041 (41)	343 (13.5)	356 (14)	711 (28)	762 (30)	152 (6)	254 (10)	610 (24)	381 (15)

SITRANS WF340, dimensions in mm (inch)

Solid Flowmeters

SITRANS WF300 series

Dimensional drawings (Continued)

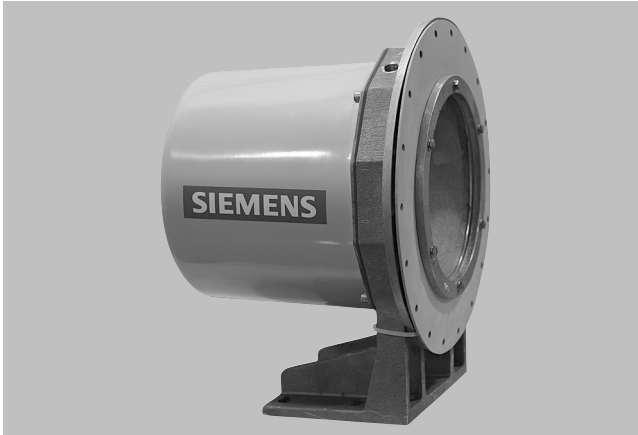


Size	A	B	C	D	E	F	G	H
40 t/h (44 STPH)	203 (8)	686 (27)	305 (12)	254 (10)	711 (28)	127 (5)	203 (8)	102 (4)
40 t/h (44 STPH)	305 (12)	686 (27)	305 (12)	254 (10)	711 (28)	127 (5)	203 (8)	102 (4)
300 t/h (330 STPH)	254 (10)	1 041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)
300 t/h (330 STPH)	356 (14)	1 041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)
300 t/h (330 STPH)	508 (20)	1 041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)

Size	J	K	L	M	N	P	Q	R
40 t/h (44 STPH)	229 (9)	203 (8)	76 (3)	914 (36)	305 (12)	229 (9)	229 (9)	330 (13)
40 t/h (44 STPH)	229 (9)	203 (8)	102 (4)	914 (36)	305 (12)	229 (9)	229 (9)	330 (13)
300 t/h (330 STPH)	254 (10)	305 (12)	127 (5)	1 168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)
300 t/h (330 STPH)	254 (10)	305 (12)	152 (6)	1 168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)
300 t/h (330 STPH)	254 (10)	305 (12)	178 (7)	1 168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)

SITRANS WF350, dimensions in mm (inch)

Overview



SITRANS WFS300 and WFS320 sensing heads are out-of-the process sensing elements for SITRANS WF300 series solids flowmeters.

Benefits

- Easy installation with modular assembly
- $\pm 1\%$ accuracy (or better) with high repeatability
- Totally enclosed, dust-tight, flow metering of bulk solids
- Sensing mechanism is outside the process, protected from contamination
- No zero drift, due to unique sensing mechanism
- Low maintenance; only the sensing plate is in the process
- No restriction of product flow

Application

SITRANS WFS300 and WFS320 sensing heads are used in applications such as product rationing, batch load-out, and process feed rate control, the WFS series of sensing heads has been field-proven in thousands of applications with some units providing over a quarter century of reliable performance.

The WFS sensing heads use only the horizontal force created by impact of product upon the sensing plate and then apply the horizontal deflection to a highly reliable linear variable differential transformer (LVDT).

Friction-less pivots exclude the vertical force from the sensing process and the LVDT travel range is controlled by a coil spring selected for the specified full-scale flow rate. A viscous fluid damper provides mechanical damping in the event of pulsating flows.

The LVDT converts the horizontal movement, proportional to the impact forces into an electrical signal, which is converted by the integrator to time-based flow rate indication and totaling. This method of sensing material flow has been proven best in thousands of applications all over the world.

Solid Flowmeters

SITRANS WFS300 sensing heads

Selection and ordering data

SITRANS WFS300 Sensing head Impact solids flowmeter for low to medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 40 t/h (44 STPH).	Article No. 7MH7110- ● ● ● ● ●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Mounting	
Base - Ordinary Locations/General Purpose (Non-Ex)	0
Side - Ordinary Locations/General Purpose (Non-Ex)	1
Base CSA/FM Class I, Div. 1, Groups C, D, Class II, Div. 1, Groups E, F, G; ATEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; UKEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; ATEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; UKEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; IECEX Ex tb IIIC T70°C Db, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$, IP64; IECEX Ex ec IIC T6 Gc, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$; EAC Ex Ex tb IIIC T70°C Db X; EAC Ex Ex nA IIC T6 Gc X; RCM, EAC, KC	3
Side CSA/FM Class I, Div. 1, Groups C, D, Class II, Div. 1, Groups E, F, G; ATEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; UKEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; ATEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; UKEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64; IECEX Ex tb IIIC T70°C Db, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$, IP64; IECEX Ex ec IIC T6 Gc, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$; EAC Ex Ex tb IIIC T70°C Db X; EAC Ex Ex nA IIC T6 Gc X; RCM, EAC, KC	4
Note: Externally mounted LVDT Conditioner in NEMA 4 enclosure required for use with SF500 or SIWAREX FTC and mounting options 3 and 4. See optional equipment.	
Range (Range spring size/leaf spring thickness/viscosity of damping fluid)	
C2/A2/1 000	A
C3/A2/1 000	B
C4/A2/1 000	C
C5/A2/1 000	D
C6/A2/1 000	E
C7/A2/1 000	F
C8/A2/3 000	G
C9/A2/3 000	H
C10/A2/3 000	J
C11/A3/5 000	K
C12/A3/5 000	L
C13/A3/5 000	M
C14/A3/5 000	N
C0/A2/500	P
C0/A3/500	Q
C10/A3/3 000	R
Gasketing	
Silicone	A
Silicone, light duty	B
PTFE	E
Coating (process side only)	
None, standard aluminum	0
Epoxy - white/aluminum, external castings only	1
Sensing head mounted LVDT conditioner	
None ¹⁾	0
Included, required for use with SF500 or SIWAREX FTC integrator ²⁾	1

¹⁾ For use with Compu Series integrators or when externally mounted LVDT conditioner required.

²⁾ Applicable for mounting options 0 and 1 only.

Selection and ordering data (Continued)

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max. 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	
Calibration hanger weights	
20 g (0.04 lb)	Article No. 7MH7724-1AC
50 g (0.1 lb)	7MH7724-1AD
100 g (0.2 lb)	7MH7724-1AE
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
5 000 g (11 lb)	7MH7724-1AK
Note: calibration accessories should be ordered as a separate item on the order.	

Spare parts	Article No.
LDVT conditioner in NEMA 4 enclosure (to interface SF500 or SIWAREX FTC and LVDT sensor)	7MH7723-1AJ
Silicone inner diaphragm	7MH7723-1DN
Silicone outer diaphragm	7MH7723-1DP
PTFE inner diaphragm	7MH7723-1AL
PTFE outer diaphragm	7MH7723-1AM
LVDT transformer and core, standard spare	7MH7723-1DS
Encapsulated LVDT replacement kit	7MH7723-1DE
Damping fluid, 1 000 CS, 1 lb bottle	7MH7723-1EU
Damping fluid, 3 000 CS, 1 lb bottle	7MH7723-1EV
Damping fluid, 5 000 CS, 1 lb bottle	7MH7723-1EW
Range spring assembly, C2	7MH7723-1EX
Range spring assembly, C3	7MH7723-1EY
Range spring assembly, C4	7MH7723-1FA
Range spring assembly, C5	7MH7723-1FB
Range spring assembly, C6	7MH7723-1FC
Range spring assembly, C7	7MH7723-1FD
Range spring assembly, C8	7MH7723-1FE
Range spring assembly, C9	7MH7723-1FF
Range spring assembly, C10	7MH7723-1FG
Range spring assembly, C11	7MH7723-1FH
Range spring assembly, C12	7MH7723-1FJ
Range spring assembly, C13	7MH7723-1FK
Range spring assembly, C14	7MH7723-1FL
Leaf spring, A2, kit	7MH7723-1BN
Leaf spring, A3, kit	7MH7723-1BP
WFS300 calibration wheel kit	7MH7723-1KB
Circuit card, LVDT, conditioner, internal to sensing head	7MH7723-1ET
WFS300 replacement O-ring kit	7MH7723-1DC
Side mount gasket replacement	7MH7723-1FT

Solid Flowmeters

SITRANS WFS300 sensing heads

Selection and ordering data (Continued)

SITRANS WFS320 Sensing head Impact solids flowmeter for medium capacity applications. Accuracy is $\pm 1\%$ or better, with capacity up to 300 t/h (330 STPH).		Article No. 7MH7112- ● ● ● ● ●				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Classification						
Ordinary Locations/General Purpose (Non-Ex)						
CSA/FM Class I, Div. 1, Groups C, D, Class II, Div. 1, Groups E, F, G;						
ATEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64;						
UKEX II 2D Ex tb IIIC T70°C Db, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64;						
ATEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64;						
UKEX II 3G Ex ec IIC T6 Gc, $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$, IP64;						
IECEX Ex tb IIIC T70°C Db, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$, IP64;						
IECEX Ex ec IIC T6 Gc, $\text{Ta} = -40^{\circ}\text{C}$ to $+60^{\circ}\text{C}$;						
EAC Ex Ex tb IIIC T70°C Db X;						
EAC Ex Ex nA IIC T6 Gc X						
Note: Externally mounted LVDT conditioner in NEMA 4 enclosure required for use with SF500 or SIWAREX FTC and classification option 2. See calibration hanger weights.						
Range (range spring size/viscosity of damping fluid)						
D1/1 000 Position 1					1	
D1/1 000 Position 2					2	
D1/1 000 Position 3						
D2/1 000 Position 1						
D2/1 000 Position 2						
D2/1 000 Position 3						
D3/3 000 Position 1						
D3/3 000 Position 2						
D3/3 000 Position 3						
D4/5 000 Position 1						
D4/5 000 Position 2						
D4/5 000 Position 3						
D5/5 000 Position 1						
D5/5 000 Position 2						
D5/5 000 Position 3						
Gasketing						
Silicone				A		
PTFE				D		
Other gasketing available upon request						
Coating (process side only)						
None, standard aluminum					0	
Epoxy - white/aluminum, external castings only					1	
Other coatings available upon request.						
Sensing head mounted LVDT conditioner						
None ¹⁾					0	
Included, required for use with SF500 or SIWAREX FTC integrator ²⁾					1	

¹⁾ For use with Compu series integrators or when externally mounted LVDT conditioner required. See Note under Classification.

²⁾ Available with classification option 1 only.

Further Designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max. 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
Instruction manual	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Selection and ordering data (Continued)

Further Designs	Order Code
Calibration hanger weights	Article No.
20 g (0.04 lb)	7MH7724-1AC
50 g (0.1 lb)	7MH7724-1AD
100 g (0.2 lb)	7MH7724-1AE
200 g (0.4 lb)	7MH7724-1AF
500 g (1.1 lb)	7MH7724-1AG
1 000 g (2.2 lb)	7MH7724-1AH
2 000 g (4.4 lb)	7MH7724-1AJ
5 000 g (11 lb)	7MH7724-1AK
Note: calibration accessories should be ordered as a separate item on the order.	

Spare Parts	Article No.
LVDT conditioner in NEMA 4 enclosure to interface SF500 and LVDT sensor	7MH7723-1AJ
Silicone inner diaphragm	7MH7723-1DQ
Silicone outer diaphragm	7MH7723-1DR
PTFE inner diaphragm	7MH7723-1BA
PTFE outer diaphragm	7MH7723-1BB
LVDT transformer and core, standard spare	7MH7723-1DS
Encapsulated LVDT replacement kit	7MH7723-1DE
Damping fluid, 1 000 CS, 1 lb bottle	7MH7723-1EU
Damping fluid, 3 000 CS, 1 lb bottle	7MH7723-1EV
Damping fluid, 5 000 CS, 1 lb bottle	7MH7723-1EW
Range spring assembly, D1	7MH7723-1FM
Range spring assembly, D2	7MH7723-1FN
Range spring assembly, D3	7MH7723-1FP
Range spring assembly, D4	7MH7723-1FQ
Range spring assembly, D5	7MH7723-1GJ
Leaf spring kit	7MH7723-1BQ
Circuit card, LVDT, conditioner, internal to sensing head	7MH7723-1ET
WFS320 calibration wheel kit	7MH7723-1KA
WFS320 replacement o-ring kit	7MH7723-1DD
WFS320 Taper Pin, spare	7MH7723-1GD

Solid Flowmeters

SITRANS WFS300 sensing heads

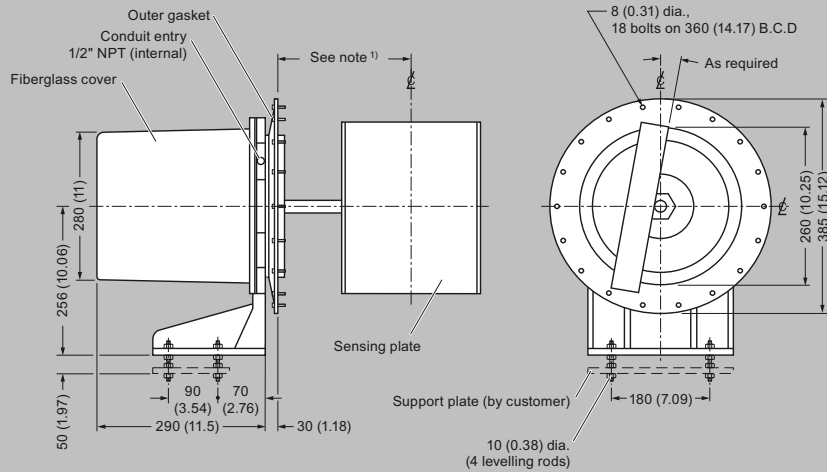
Technical specifications

	WFS300	WFS320
Mode of operation		
Measuring principle	Deflection measurement using LVDT (linear variable differential transformer)	Deflection measurement using LVDT (linear variable differential transformer)
Typical application	For use in all WF300 series flowmeters	For use in all WF300 series flowmeters
Flow input		
Maximum particle size	13 mm (0.5 inch)	25 mm (1 inch)
Minimum flow rate	0 ... 0.2 t/h (0 ... 0.2 STPH)	0 ... 20 t/h (0 ... 22 STPH)
Maximum flow rate	0 ... 40 t/h (0 ... 44 STPH)	0 ... 300 t/h (0 ... 330 STPH)
Performance		
Accuracy ¹⁾	± 1 % or better of full scale, higher accuracy with linearizing features offered by integrators	± 1 % or better of full scale, higher accuracy with linearizing features offered by integrators
Repeatability	± 0.2 %	± 0.2 %
Specified range	33 ... 100 %	33 ... 100 %
Medium conditions		
Ambient temperature		
• Without internally mounted LVDT card	-40 ... +60 °C (-40 ... +140 °F)	-40 ... +60 °C (-40 ... +140 °F)
• With optional internally mounted LVDT card	-40 ... +50 °C (-40 ... +122 °F)	-40 ... +50 °C (-40 ... +122 °F)
Maximum product temperature	232 °C (450 °F)	232 °C (450 °F)
Design		
	IP64 Aluminum body, fiberglass cover, 304 (1.4306) stainless steel sensing plate	IP64 Aluminum body, fiberglass cover, 304 (1.4306) stainless steel sensing plate
Options		
	<ul style="list-style-type: none"> Epoxy paint coating of external aluminum casting surfaces Internally mounted LVDT conditioner card for use with SF500 integrator Externally mounted LVDT conditioner card in NEMA 4 (IP65) enclosure for use with Milltronics SF500 or SIWAREX FTC integrator when sensing head is mounted in hazardous areas or with high ambient temperatures 	
Approvals		
	CE, UKCA, RCM, CSA, FM, EAC, KC, ATEX, UKEX, IECEx, EAC Ex	CE, UKCA, RCM, CSA, FM, EAC, KC, ATEX, UKEX, IECEx, EAC Ex

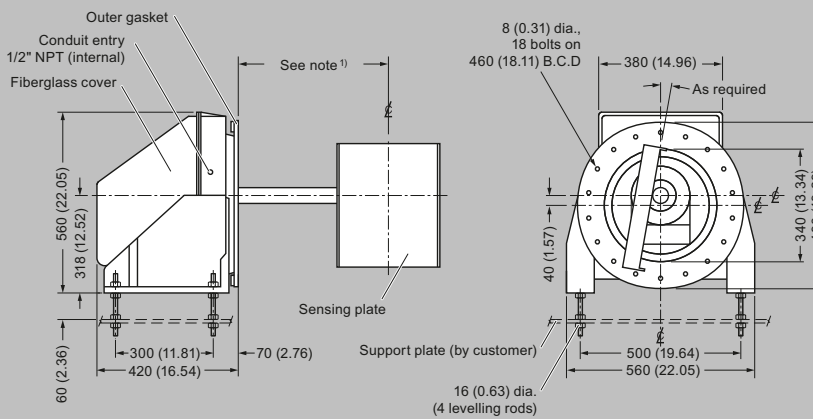
¹⁾ Accuracy subject to: On factory approved installations the flowmeter system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for at least ten minutes running time.

Dimensional drawings

WFS300 Sensing Head



WFS320 Sensing Head



Notes:

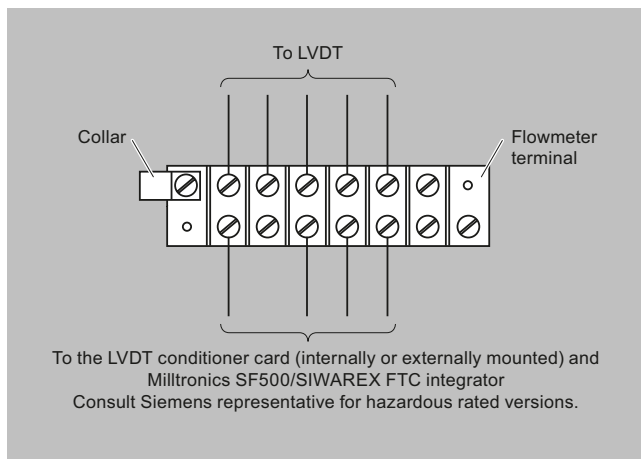
- ¹⁾ Refer to flowmeter drawing for sensing head mounting hole to flowguide centerline dimension.
- ²⁾ Sensing head support plate should be rigid and independent of flowmeter housing.
- ³⁾ Ensure outer gasket seals dust tight to flowmeter housing wall.

SITRANS WFS300 sensing heads, dimensions in mm (inch)

Solid Flowmeters

SITRANS WFS300 sensing heads

Circuit diagrams



SITRANS WFS300 sensing heads connections

Overview



The sensing plate transfers the impact force to the sensing head of the flowmeter.

Selection and ordering data

SITRANS Flowmeter sensing plates Sensing plates transfer the impact force to the sensing head of the flowmeter.		Article No. 7MH7114- ● ● ● ● 0				
Version						
WF330, 40 t/h, base mount or side mount			1			
WF340, 40 t/h, base mount or side mount			3			
WF350, 40 t/h, base mount or side mount			4			
WF330, 300 t/h			5			
WF340, 300 t/h			6			
WF350, 300 t/h			7			
C-40			8			
Plate size						
18 x 10 inch (457.2 x 254 mm), for version option 1 with 2, 4 or 6 inch (50.8, 101.6 or 152.4 mm) flowguide ¹⁾				A		
20 x 12 inch (508 x 304.8 mm), for version option 1 with 8 inch (203.2 mm) flowguide ¹⁾				B		
20 x 14 inch (508 x 355.6 mm), for version option 1 with 10 inch (254 mm) flowguide ¹⁾				C		
22 x 12 inch (558.8 x 304.8 mm), for version option 5 with 6 or 8 inch (152.4 or 203.2 mm) flowguide ¹⁾				D		
24 x 16 inch (609.6 x 406.4 mm), for version option 5 with 10 or 12 inch (254 or 304.8 mm) flowguide ¹⁾				E		
24 x 20 inch (609.6 x 508 mm), for version option 5 with 14 or 16 inch (355.6 or 406.4 mm) flowguide ¹⁾				F		
12 x 12 inch (304.8 x 304.8 mm), for version option 4 with 8 inch (203.2 mm) flowguide ²⁾				G		
16 x 14 inch (406.4 x 355.6 mm), for version option 4 with 12 inch (304.8 mm) flowguide ²⁾				H		
14 x 18 inch (355.6 x 457.2 mm), for version option 7 with 10 inch (254 mm) flowguide ²⁾				J		
18 x 20 inch (457.2 x 508 mm), for version option 7 with 14 inch (355.6 mm) flowguide ²⁾				K		
24 x 22 inch (609.6 x 558.8 mm), for version option 7 with 20 inch (508 mm) flowguide ²⁾				L		
12 x 10 inch (304.8 x 254 mm), for version option 3 with 3 x 6 inch (76.2 x 152.4 mm) flowguide ³⁾				M		
14 x 14 inch (355.6 x 355.6 mm), for version option 3 with 4 x 10 inch (101.6 x 254 mm) flowguide ³⁾				N		
16 x 16 inch (406.4 x 406.4 mm), for version option 3 with 5 x 12 inch (127 x 304.8 mm) flowguide ³⁾				P		
18 x 20 inch (457.2 x 508 mm), for version option 6 with 5 x 16 inch (127 x 406.4 mm) flowguide ³⁾				Q		
20 x 24 inch (508 x 609.6 mm), for version option 6 with 6 x 20 inch (152.4 x 508 mm) flowguide ³⁾				R		
12 x 12 inch (304.8 x 304.8 mm), for C-40 with 6 inch (152.4 mm) flowguide ⁴⁾				S		
12 x 14 inch (304.8 x 355.6 mm), for C-40 with 10 inch (254 mm) flowguide ⁴⁾				T		
Plate material						
304 (1.4301) stainless steel ⁵⁾				A		
304 (1.4301) stainless steel ⁶⁾				B		
316 (1.4401) stainless steel ⁷⁾				C		
316 (1.4401) stainless steel ⁶⁾				D		
304 (1.4301) stainless steel, heavy-duty ⁷⁾				E		
304 (1.4301) stainless steel, heavy-duty ⁶⁾				F		
316 (1.4401) stainless steel, light-duty ⁸⁾				G		

Solid Flowmeters

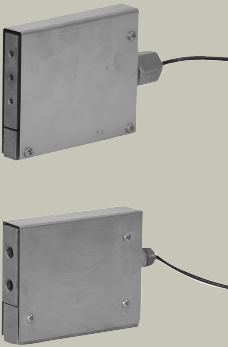
Sensing plates

Selection and ordering data (Continued)

SITRANS Flowmeter sensing plates Sensing plates transfer the impact force to the sensing head of the flowmeter.		Article No. 7MH7114- ● ● ● ● 0				
316 (1.4401) stainless steel, heavy-duty ⁷⁾				H		
316 (1.4401) stainless steel, heavy-duty ⁶⁾				J		
Plate liner						
No liner						1
Polyurethane ⁷⁾						2
Polyurethane ^{6) 9)}						3
PTFE ⁷⁾						4
PTFE ⁶⁾						5
Alumina ceramic tiles ⁷⁾						6
Alumina ceramic tiles ⁶⁾						7

Selection and ordering data	Order Code
Further designs Please add "-Z" to article no. and specify order code(s).	
Inspection certificate type 3.1 per EN 10204	C12
Instruction manuals All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighting/documentation	

- 1) See 7MH7102: [.https://support.industry.siemens.com/cs/document/109765182](https://support.industry.siemens.com/cs/document/109765182)
- 2) See 7MH7106: [.https://support.industry.siemens.com/cs/document/109765182](https://support.industry.siemens.com/cs/document/109765182)
- 3) See 7MH7104: [.https://support.industry.siemens.com/cs/document/109765182](https://support.industry.siemens.com/cs/document/109765182)
- 4) Available as spare part only.
- 5) Available with flowmeter version 1 ... 4 and 8 only.
- 6) Available with flowmeter version 5 ... 7 only.
- 7) Available with flowmeter version 1 ... 4 only.
- 8) Available with flowmeter version 1, 2 and 3 only.
- 9) Maximum material temperature: 85 °C (185 °F).

Description	Order No.	
Flowmeter spare load cells		
Millflo flowmeters stainless steel, with hardware		
1 lb (0.5 kg)	Replace with 2 lb	
2 lb (0.9 kg)	PBD-23900176	
5 lb (2.3 kg)	PBD-23900177	
10 lb (4.6 kg)	7MH7725-1AA	
20 lb (9.2 kg)	7MH7725-1AB	
Millflo L, M, and MA series flowmeters stainless steel, with hardware		
50 lb (22.7 kg)	7MH7725-1AC	
100 lb (45.4 kg)	7MH7725-1AD	

Selection and ordering data

Flowmeter spare load cells	Article No.	
Millflo flowmeters stainless steel, with hardware		
1 lb (0.5 kg)	Replace with 2 lb	
2 lb (0.9 kg)	PBD-23900176	
5 lb (2.3 kg)	PBD-23900177	
10 lb (4.6 kg)	7MH7725-1AA	
20 lb (9.2 kg)	7MH7725-1AB	
Millflo L, M, and MA series flowmeters - stainless steel, with hardware		
50 lb (22.7 kg)	7MH7725-1AC	
100 lb (45.4 kg)	7MH7725-1AD	

Appendix



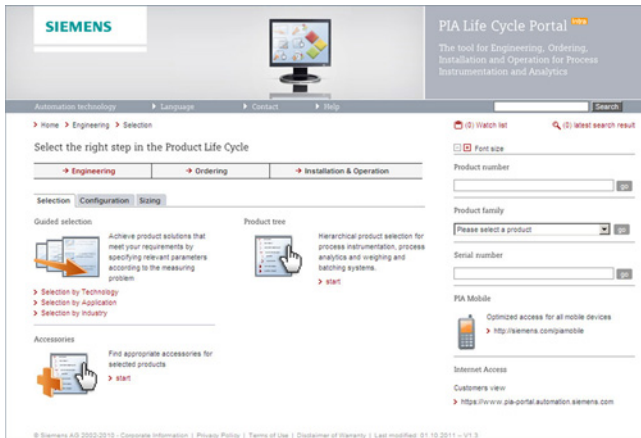
8/2	PIA Life Cycle Portal
8/2	Engineering, Ordering, Installation and Operation Tool
8/3	Partners at Siemens
8/4	Siemens Partner Program
8/5	Product documentation
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Appendix

PIA Life Cycle Portal

Engineering, Ordering, Installation and Operation Tool

Overview



The PIA Life Cycle Portal provides the appropriate functionality in all stages of the Product Life Cycle for products of Process Instrumentation, Process Analytics and Weighing Technology.

The application guides you through Engineering & Selection, supports you at the Order and provides tools and information for Installation and Operation.

- **Phase 1:** Selection & Planning
- **Phase 2:** Ordering
- **Phase 3:** Installation & Operation
- **Additional features:** e. g. PIA Mobile

Phase 1: Selection & Planning



Selection

Achieve product solutions that meet your requirements by specifying relevant parameters according to the measuring point by using the *guided selection* or select the product directly in the *product and accessories tree*.



Configuration

Configure a selected product step by step and use the integrated configuration knowledge to avoid errors. Product configurations which cannot be ordered are blocked.



Sizing & calculation

Sizing & calculation tools for Gas Analyzers, Weighing and Batching Systems and Flow measurement instruments.

Phase 2: Ordering



Bulk upload

Verify several part numbers in one step by uploading a simple text file.



Watchlist & projects

Collect products in a *watch list* and save it as a *project* for later use.



Interface to the Industry Mall

Order the selected products with the ordering system for Siemens' automation and drive solutions.

Phase 3: Installation & Operation



Spare parts

Find appropriate *spare parts* for selected products or corresponding product families.



After sales support

Go to the *Service and Support Portal* to access manuals, certificates and further information concerning service & support.



Device information and history

Serial number specific product information for installed devices

Additional features



Personalize

Register in order to customize the application to your personal needs.



PIA Mobile

Use the product *selection, configuration and device information and history* with the version optimized for mobile devices.
www.siemens.com/piamobile



Product details

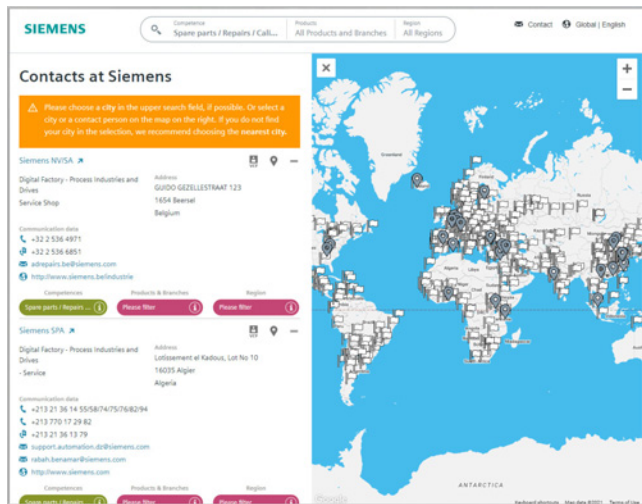
Find all relevant product information at a single glance: commercial and technical data, certificates, images and documents etc.

More information

PIA Life Cycle Portal
Ostliche Rheinbrückenstraße 50
76187 Karlsruhe, Germany
Tel.: +49 (721) 595 2114
E-Mail: support.pia-portal@siemens.com
www.siemens.com/pia-portal

Overview

Partners at Siemens



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Siemens.

Your partner can be found in our Personal Contacts Database at: www.siemens.com/automation-contact

You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

Appendix

Partners at Siemens

Siemens Partner Program

Overview

Siemens Solution and Approved Partner – Partners for your success



Highest competence in automation and drive technology

Siemens works closely together with selected partner companies around the world in order to ensure that customer requirements for all aspects of automation and drives are fulfilled as best as possible – wherever you are, and whatever the time.

We place great value on our customers acting in accordance with the same ideals which characterize Siemens as a whole: Competence, professionalism and quality. That is why continuous development through qualification and certification measures in line with global standards is a central aspect of our Partner Program. This means that with our partners, you benefit from the same high quality standards all over the world. The partner emblem is the symbol for tried and tested quality.

The partner network for industry

The Siemens Partner Program offers you expertise and experience close at hand.

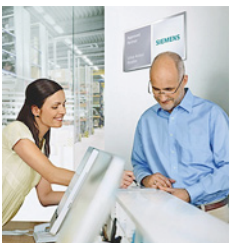
Within our global network, we distinguish between Solution Partners and Approved Partners. We currently work with more than 1,500 Solution Partners around the world. Our network of over 150 Approved Partners continues to grow. In more than 80 countries worldwide.

Siemens Solution Partner – Automation Drives



At present we are working with more than 1,500 Solution Partners worldwide. They are characterized by extensive application, system and sector knowledge, as well as proven project experience, and are able to implement future-proof tailored solutions of the highest quality, based on our product and system portfolio.

Siemens Approved Partner – Value Added Reseller



With their detailed technical knowledge, Siemens Approved Partners – Value Added Resellers offer a combination of products and services that range from specialist technologies and customized modifications to the provision of high-quality system and product packages. They also provide qualified technical support and assistance.

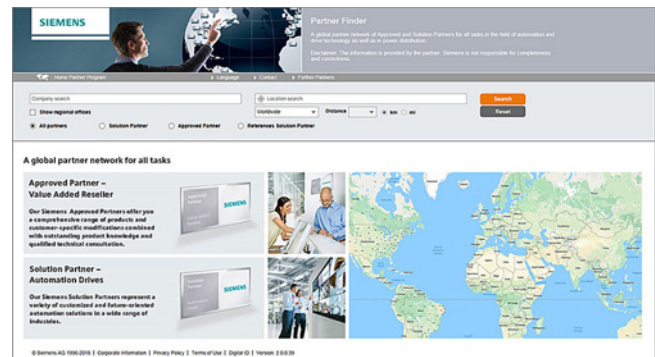
Siemens Approved Partner – Industry Services



Siemens Approved Partner – Industry Services put their unique expertise entirely at the service of enhancing your productivity and can be instrumental in ensuring the availability of your plants.

Partner Finder

The ideal partner for your task is just a mouse click away!



In the Siemens global Solution Partner Program, customers are certain to find the optimum partner for their specific requirements – with no great effort. The Partner Finder is basically a comprehensive database that showcases the profiles of all our partners.

Easy selection:

Set filters in the search screen form according to the criteria that are relevant to you. You can also directly enter the name of an existing partner.

Skills at a glance:

Gain a quick insight into the specific competencies of any particular partner with the reference reports.

Direct contact option:

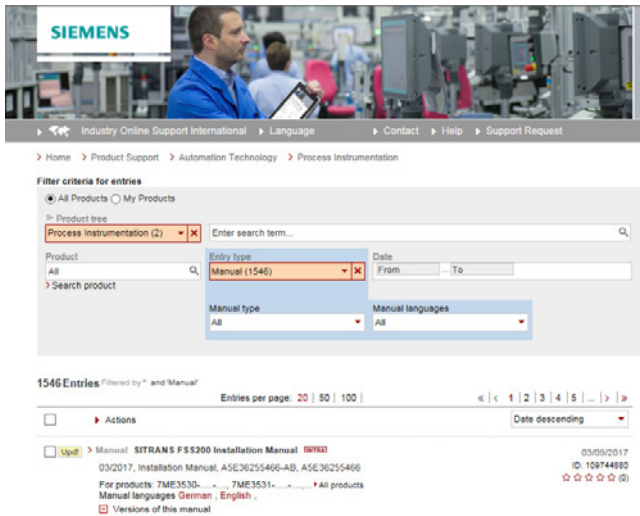
Use our electronic query form:

www.siemens.com/partnerfinder

Additional information of the Siemens Partners for industry is available online at:

www.siemens.com/partnerprogram

Siemens Industry Online Support Portal (SIOS)



For the complete portfolio, customers can download product documentation for free using the following QR code to our Siemens Industry Online Support Portal (SIOS):

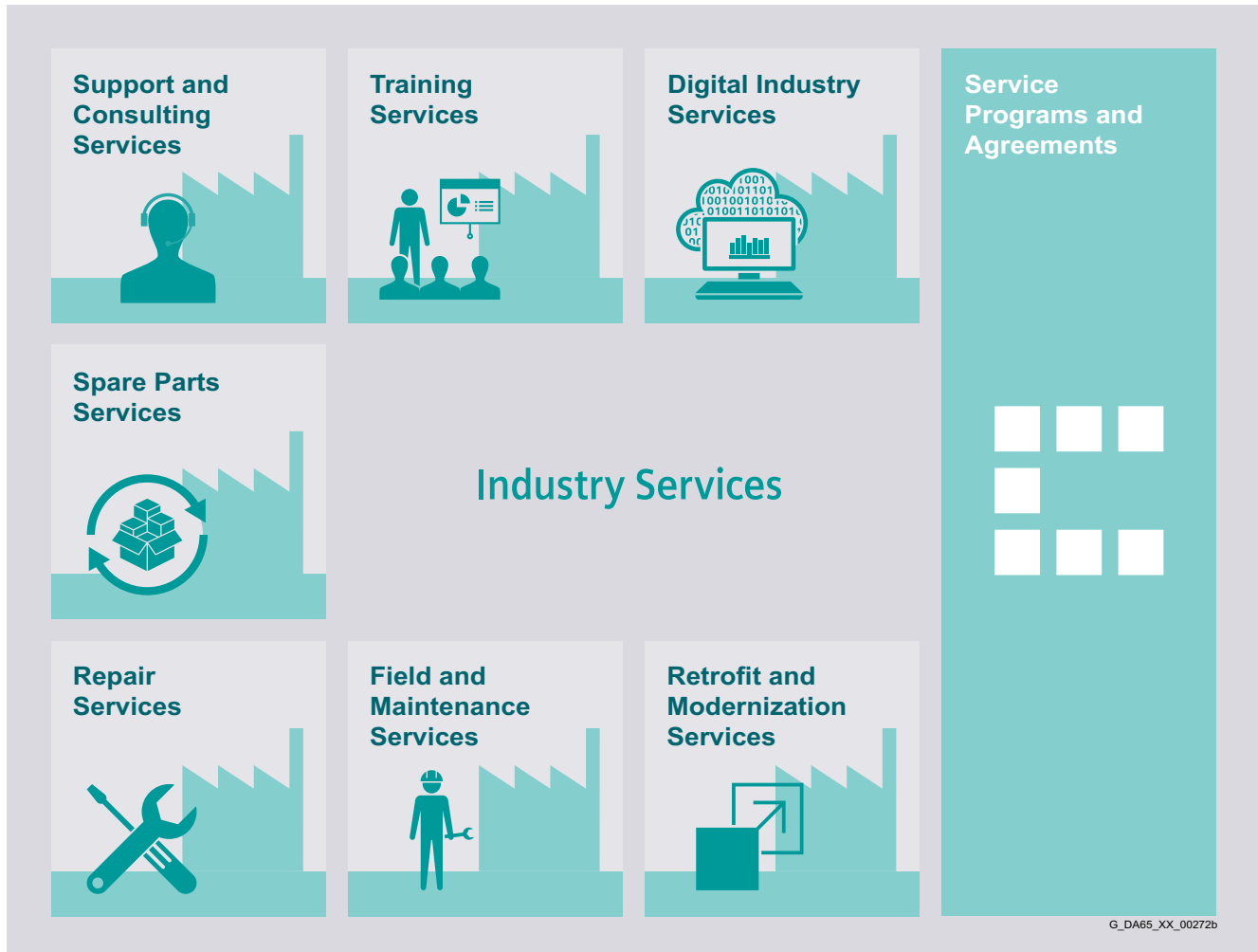


By entering the product names as **Search term** and selecting the field **Entry type**, you can find all operating instructions, current catalogs and brochures, certificates, product software (EDDs, calculation tools), product notes and other useful information.

Appendix

Industry Services

Overview



Keep your business running and shaping your digital future – with Industry Services

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

www.siemens.com/industryservices

Overview

Digital Industry Services



Digital Industry Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.

www.siemens.com/global/en/products/services/industry/digital-industry-services.html

Support and Consulting Services



Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

Information & Consulting Services, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.

<https://support.industry.siemens.com/cs/ww/en/sc/2235>

Training Services



From the basics and advanced to specialist skills, SITRAIN courses provide expertise right from the manufacturer – and encompass the entire spectrum of Siemens products and systems for the industry.

Worldwide, SITRAIN courses are available wherever you need a training course in more than 170 locations in over 60 countries.

<https://support.industry.siemens.com/cs/ww/en/sc/2226>

Spare Parts Services



Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.

<https://support.industry.siemens.com/cs/ww/en/sc/2110>

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.

<https://support.industry.siemens.com/cs/ww/en/sc/2154>

Appendix

Industry Services

Industry Services – Portfolio overview

Overview (continued)

Repair Services



Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.

<https://support.industry.siemens.com/cs/ww/en/sc/2154>

Retrofit and Modernization Services

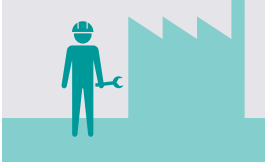


Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.

<https://support.industry.siemens.com/cs/ww/en/sc/2286>

Field and Maintenance Services

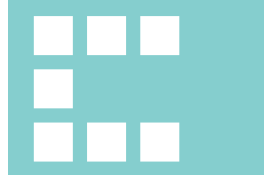


Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.

<https://support.industry.siemens.com/cs/ww/en/sc/2265>

Service Programs and Agreements



A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.

<https://support.industry.siemens.com/cs/ww/en/sc/2275>

Overview

Online Support – fast, intuitive, whenever you want, wherever you need



Web



www.siemens.com/online-support

App



SIEMENS



Scan the QR code for information on our Online Support app.



	FAQ / Application examples
	Information about industrial products, programming and configuration as well as application examples
	Technical information
	Videos, documentation, manuals, updates, product notes, compatibility tool, certificates, planning data such as dimensional drawings, product data, 3D models
	Forum
	Exchange information and experience with other users and experts

Online Support for Siemens Industry Products

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

Appendix

Siemens Automation Cooperates with Education (SCE)

Teaching made easy - Comprehensive support on the way to Industry 4.0

Knowledge & technology – the keystones to success in digitalization



Digitalization is quickly and radically changing our world. What does this mean for education?

In the world of Industry 4.0, companies can expect a host of new opportunities and challenges. New systems are verified on the spot through simulations. Automated mass production processes can make every product on the conveyor belt a unique product.



New products are now market-ready much faster. Siemens is shaping this transformation as a technology leader in the field of automation and process lifecycle management (PLM).

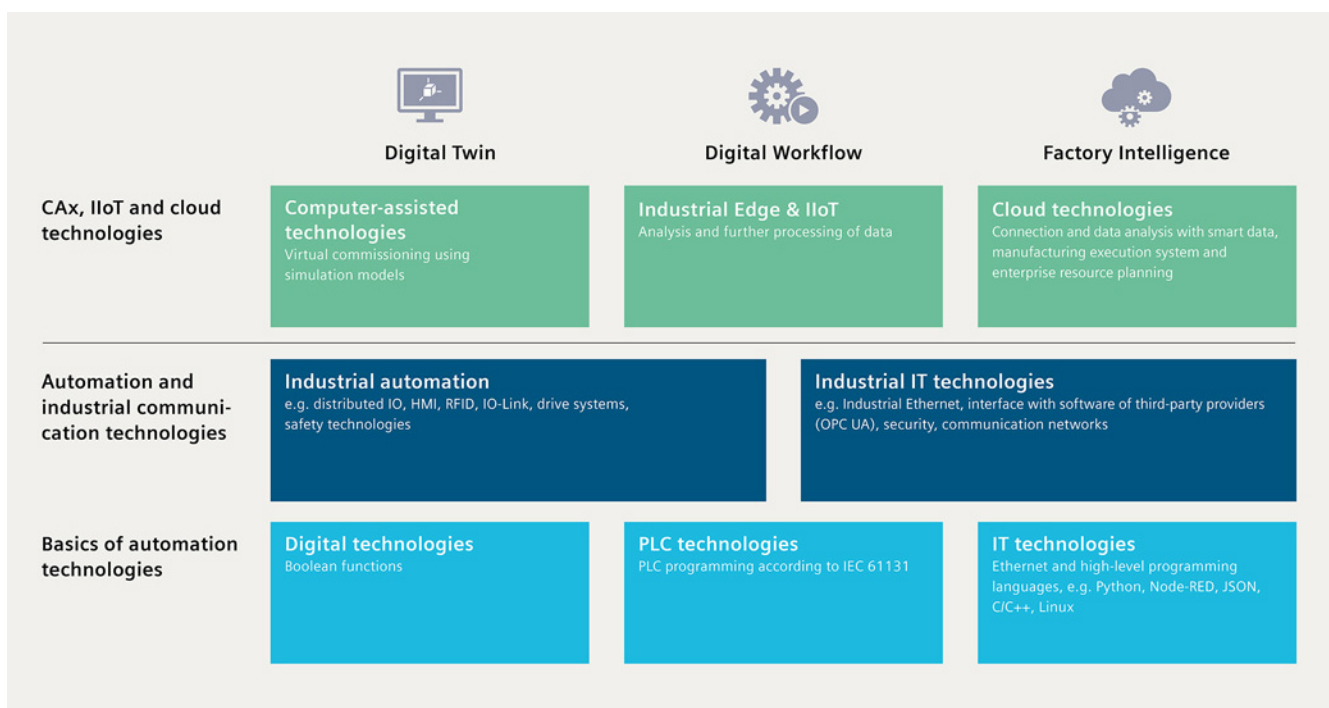
These new digitalization processes are changing the know-how requirements for employees. Many educational institutions are facing the challenge of conveying Industry 4.0 know-how as part of their teaching and training. The Siemens Automation Cooperates with Education (SCE) program is supporting educators on the way to Industry 4.0.

The SCE digitalization concept for educators

The SCE digitalization concept presented here shows how digitalization can be implemented in educational institutions – from vocational schools to universities.

Digitalization (or Industry 4.0) know-how is now introduced through computer aided technology, Industrial Edge and IIoT as well as Cloud technologies. It is founded on the basics of automation, such as digital technologies, PLC and information technologies, and on advanced automation and industrial communication technologies.

The level of digitalization knowledge can be weighted, depending on the vocational field or branch of study – e.g. mechanical engineering, automation engineering or computer science.



The SCE digitalization concept for educators (continued)

As part of their project work, students at Vocational School 2 in Wolfsburg, Germany, have implemented the three levels of the SCE Industry 4.0 concept. A virtual twin created with the Siemens NX Mechatronics Designer (MCD) CAD software was used for the design and virtual commissioning. This enables fast and efficient assembly of the real automation system, e.g. with SIMATIC S7-1500/ET 200SP/RFID, for use in classes. Production data, such as the number of bottles filled, production date and system parameters, are uploaded to a cloud using SIMATIC IOT2000.

[siemens.com/sce/iot2000](https://www.siemens.com/sce/iot2000)

[siemens.com/nx](https://www.siemens.com/nx)

The SCE offers**Learning and training documents**

More than 100 didactically prepared learning and training documents are available through SCE and incorporate the digitalization concept. They are designed for use in classes, but can also be customized or used for individual study. These documents are available for free download, most of them in 7 languages.

[siemens.com/sce/documents](https://www.siemens.com/sce/documents)

Educator courses

Excellent teaching content is needed to introduce students to digitalization. For this purpose, SCE holds educator courses in certain regions. Based on our learning and training documents and through practical exercises, educators acquire the latest Industry 4.0 know-how.

[siemens.com/sce/courses](https://www.siemens.com/sce/courses)

**Trainer packages**

The 90 SCE trainer packages help educators teaching and implementing the SCE digitalization concept. Trainer packages comprise specially compiled, genuine Siemens hardware and software products. The trainer packages are based on the learning and training documents and are offered to schools, colleges and universities at special terms.

[siemens.com/sce/tp](https://www.siemens.com/sce/tp)

Support for your projects / textbooks

We support you on selected projects with advice and assistance from SCE contact partners.

As a special service, we support textbook authors. We maintain a list of textbooks on the SCE website.

[siemens.com/sce/contact](https://www.siemens.com/sce/contact)

[siemens.com/sce/books](https://www.siemens.com/sce/books)

Appendix

Siemens Automation Cooperates with Education (SCE)

Teaching made easy - Comprehensive support on the way to Industry 4.0

Partnerships for proliferation of Industry 4.0 in education



Partnership with WorldSkills

As a technology powerhouse, we support vocational training of students around the world. Since 2010, we have partnered with WorldSkills as a Global Industry Partner in order to amplify this cause.

WorldSkills is an international organization whose mission is to raise the profile and recognition of skilled people, and show how important vocational skills are in achieving economic growth and personal success. Every two years, WorldSkills hosts the world championships of skills.

Siemens provides the competitors with automation products, such as SIMATIC S7-1500 and LOGO!, for the disciplines: industrial control, electrical installations, Polymechanics/Automation and manufacturing technology.

Additionally, we support selected continental and regional competitions.

[siemens.com/worldskills](https://www.siemens.com/worldskills)

Partnerships with educators

We provide support to educators and educational organizations in the form of one-on-one advice through SCE contact partners and Siemens experts as well as long-term cooperation.

[siemens.com/sce/contact](https://www.siemens.com/sce/contact)

Partnerships with producers of learning systems

For practical training in classrooms and labs, numerous producers of learning systems offer a wide range of complete didactic solutions based on SCE trainer packages.

[siemens.com/sce/learningsystems](https://www.siemens.com/sce/learningsystems)



Information portal



To facilitate your teaching assignment and/or for selfstudy, we offer educators and students a comprehensive SCE information portal. At this portal you have quick access to all SCE offers, e.g. learning and training documents including projects, Getting Started information, videos, manuals, trial software and newsletters.

[siemens.com/sce](https://www.siemens.com/sce)

Global
Industry
Partner

worldskills

Introduction


SITRAIN – DIGITAL INDUSTRY ACADEMY

The Future of Learning starts **now**

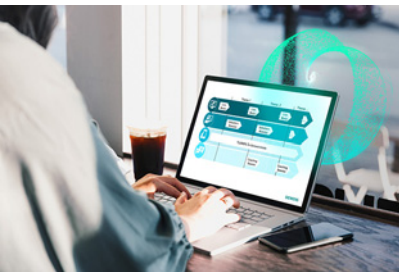
The Future of Learning starts now

Globalization, digitalization, new work, Internet of Things, new business models – our way of working, living and learning is changing rapidly. With SITRAIN, the future of learning begins today: SITRAIN stands for a modern learning culture that focuses on the needs of learners and the demands of innovative companies.

With SITRAIN – Digital Industry Academy, the future of learning is yours.

Face-to-face training or digital training, location-independent, 24/7, on-demand or learning at fixed dates and course times?

With a personal learning consultant, in a team, or on your own responsibility? Everything is possible. SITRAIN offers a wide range of different learning options with the "Learning Journey", "Learning Membership" and "Learning Event".

The three learning formats of SITRAIN – Digital Industry Academy

Learning Journey

The combination for sustainable learning success

- The optimal mix of self-study units and guided live modules
- Includes a Learning Membership to work through the self-study modules and access on-demand content
- The SITRAIN learning consultant is available for questions and one-on-one consultations
- Ideal integration into the daily work routine and adaptation to one's own learning pace.


Learning Membership

Securing knowledge through continuous learning on your own responsibility

- With access to the comprehensive and constantly growing range of self-study units on SITRAIN access, the digital learning platform
- Search and find specific learning content or simply have a look around – anytime and anywhere
- A modern learning culture through continuous learning on your own responsibility and transparency about your learning success in the team or company.


Learning Event

Acquire theoretical and practical knowledge in a compact and guided format

- You achieve a defined learning goal in the shortest possible time
- The learning consultant guides you through the practical exercises and is also exclusively available to you during the theoretical sessions for the entire duration
- Focused learning, outside of the daily work routine, in a protected learning environment – virtually, in the training center, or at your company.

Appendix

SITRAIN – Digital Industry Academy

Course offer

Overview

Course offer for Weighing Technology

Name	Training type	Internet	Duration	Training-ID
Weighing and Dosing System				
Basics Electronic Commissioning	Online	go to the website ^{EN}	3 hours	SC-WT-BEC
Advanced Electronic Commissioning	Online	go to the website ^{EN}	3 hours	SC-WT-AEC
Basics Mechanical Commissioning	Online	go to the website ^{EN}	3 hours	SC-WT-BMC
Basics of a Belt Scale	Online	go to the website ^{EN}	3 hours	SC-WT-BON
Basics of Dosing with SIWAREX WP351	Online	go to the website ^{EN}	3 hours	SC-WT-DON
Weighing Technologies, Belt Scales, Weighfeeder	Face-to-face	go to the website ^{EN}	2 days	SC-WT-BELE
Weighing Technology for Dosing Scales	Face-to-face	go to the website ^{EN}	3 days	SC-WT-DOSE
Mechanical Weighing Technology	Face-to-face	go to the website ^{EN}	1 day	SC-WT-MECE
SIWAREX Sensor System and Electronics FTC-L	Face-to-face	go to the website ^{EN}	2 days	SC-WT-FTCE
Static Weighing Technology	Face-to-face	go to the website ^{EN}	3 days	SC-WT-STAE
Weighing and Dosing System (only for Siemens employees)				
Weighing Technologies, Belt Scales, Weighfeeder	Face-to-face	go to the website ^{EN}	2 days	SC-WT-BELI
Weighing Technology for Dosing Scales	Face-to-face	go to the website ^{EN}	3 days	SC-WT-DOSI
Static Weighing Technology	Face-to-face	go to the website ^{EN}	3 days	SC-WT-STAI

Course offer for Process Instrumentation

Find out more about course details and dates here

Name	Internet
Offer overview	
Pressure- and Temperature Measurement, Positioner	https://www.sitrain-learning.siemens.com/DE/en/rw8687/Pressure-Temperature-Measurement-Positioner
Level Measurement	https://www.sitrain-learning.siemens.com/DE/en/rw43484/Level-Measurement
Flow Measurement	https://www.sitrain-learning.siemens.com/DE/en/rw33922/Flow-Measurement
Fundamentals and Service	https://www.sitrain-learning.siemens.com/DE/en/rw43394/Fundamentals-and-Service
Ex Protection	https://www.sitrain-learning.siemens.com/DE/en/rw78627/Ex-Protection
Course offer only for Siemens employees	
Pressure- and Temperature Measurement, Positioner	https://www.sitrain-learning.siemens.com/DE/en/rw70599/Pressure-Temperature-Measurement-Positioner-only-for-Siemens-employees
Level Measurement	https://www.sitrain-learning.siemens.com/DE/en/rw44825/Level-Measurement-only-for-Siemens-employees
Flow Measurement	https://www.sitrain-learning.siemens.com/DE/en/rw89081/Flow-Measurement-only-for-Siemens-employees
Fundamentals and Service	https://www.sitrain-learning.siemens.com/DE/en/rw16204/Fundamentals-and-Service-only-for-Siemens-employees
Weighing and Dosing System	https://www.sitrain-learning.siemens.com/DE/en/rw9501/Weighing-and-Dosing-System-only-for-Siemens-employees
Ex Protection	https://www.sitrain-learning.siemens.com/DE/en/rw74771/Ex-Protection-only-for-Siemens-employees

Custom and tailor-made training

Additionally to our standard technical, industry and sales training we offer our customers the possibility of custom and tailor-made training out of our broad range of options.

We deliver training worldwide either in one of our training centers around the world or at a custom location on-site.

Be it a service training delivering the needed skills for commissioning, diagnosing, or repairing parts of our product portfolio, a general introduction into our portfolio including showcasing applications, use cases and serviced industries, or a deep dive into specific technologies with experts that know every nut, bolt

and screw of our products and their applications - it is your wishes and needs we want to serve!

Feel free to contact us with your wishes!

More information

You will find further information on the Internet at:

<https://www.sitrain-learning.siemens.com/DE/en/rw27322/Process-Instrumentation>

Overview

Software types

Software requiring a license is categorized into types. The following software types have been defined:

- Engineering software
- Runtime software

Engineering software

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

Runtime software

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of supply can be found in the readme file supplied with the relevant product(s).

License types

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

Floating license

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started.

A license is required for each concurrent user.

Single license

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

Rental license

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).

One license is required for each installation of the software.

Rental floating license

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Trial license

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

Demo license

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

Demo floating license

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Certificate of License (CoL)

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

Downgrading

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

Delivery versions

Software is constantly being updated.

The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

PowerPack

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.

A separate PowerPack must be purchased for each original license of the software to be replaced.

Upgrade

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.

The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.

A separate upgrade must be purchased for each original license of the software to be upgraded.

Appendix

Software licenses

Overview

ServicePack

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

License key

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

Software Update Service (SUS)

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in European Union

For customers with a seat or registered office in European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"¹⁾ and/or
- for consulting services the "Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland" (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services ("BL")"¹⁾ and/or
- for other supplies the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾.

In case such supplies should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾, a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside European Union

For customers with a seat or registered office outside European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for consulting services the "Standard Terms and Conditions for Consulting Services of the Division DF for Customers with a Seat or Registered Office Outside of Germany"¹⁾ and/or
- for other services the "International Terms & Conditions for Services"¹⁾ supplemented by "Software Licensing Conditions"¹⁾ and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"¹⁾ supplemented by "Software Licensing Conditions"¹⁾

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials.

A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

¹⁾ The text of the Terms and Conditions of Siemens AG can be downloaded at https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

Appendix

Conditions of sale and delivery

4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations. Products labeled with "AL" unequal "N" are subject to European / national export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Products without label, with label "AL:N" / "ECCN:N", or label "AL:9X9999" / "ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-)export control regulations. In any event of such transfer of goods, works and services you shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by us to a third party you shall in particular check and guarantee by appropriate measures that

- there will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargoes;
- such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- the regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

If required to enable authorities or us to conduct export control checks, you, upon request by us, shall promptly provide us with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by us, as well as any export control restrictions existing.

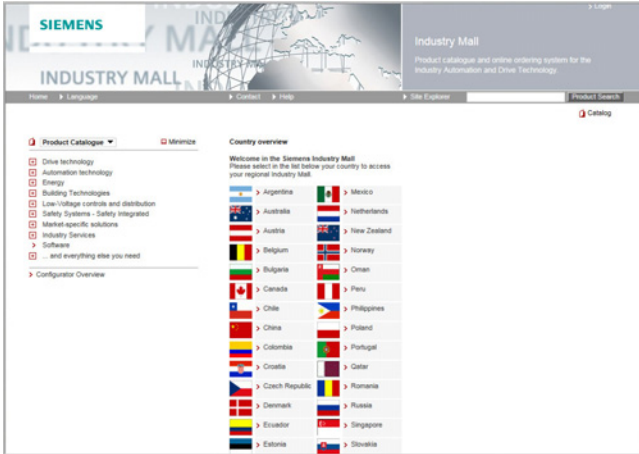
You acknowledge that under the EU embargo regulations against Iran, Syria and Russia respectively the sale of certain listed goods and related services is subject to authorization by the competent export control authorities of the European Union. If (i) the goods or services ordered by you are destined for Iran, Syria or Russia, and (ii) the contract for our supplies and/or services is subject to prior authorization of the competent export control authorities of the European Union, the contract between you and us shall come into force in this respect only upon granting of such authorization.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

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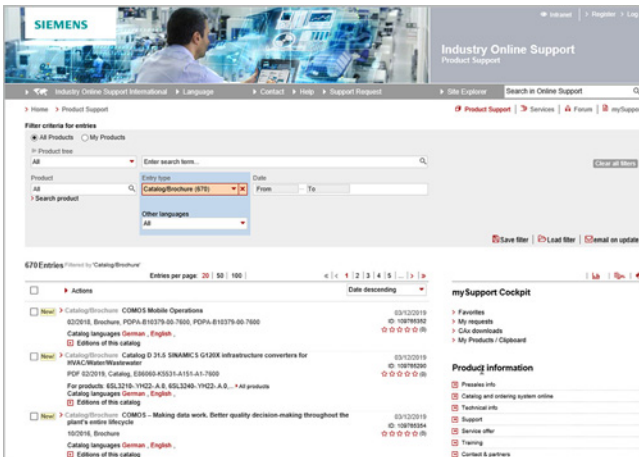
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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

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Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

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