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Process Automation

Products for Weighing Technology

Catalog WT 10

Edition 2020

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



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Products for Weighing Technology

Process Automation



Catalog WT 10 · 2020

Supersedes:

Catalog WT 10 · 2018

Refer to the Industry Mall for current updates of this catalog:

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For comfortable, fast and error free product selection you will get support in our PIA Life Cycle Portal:

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The products contained in this catalog can also be found in the Interactive Catalog CA 01.

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Please contact your local Siemens branch.

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The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with DIN EN ISO 9001. The certificate is recognized by all IQNet countries.

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.



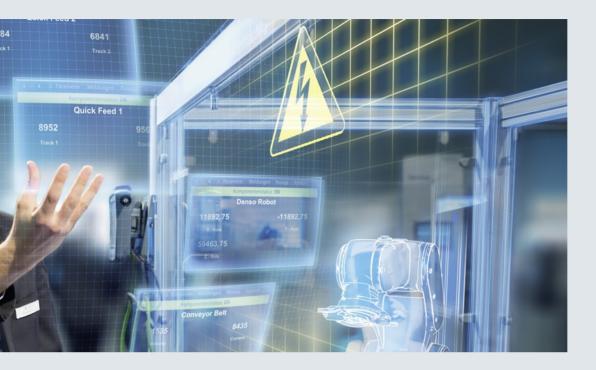
Boost efficiency

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 costeffective 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

The smart configurator for the entire Siemens automation portfolio

Prime reasons for the TIA Selection Tool



Quick, easy and secure

Components can be selected, configured and ordered quickly, easily and securely from the Siemens automation portfolio



Intelligent

Intelligent selection wizards check the compatibility of the configured components and enable error-free ordering



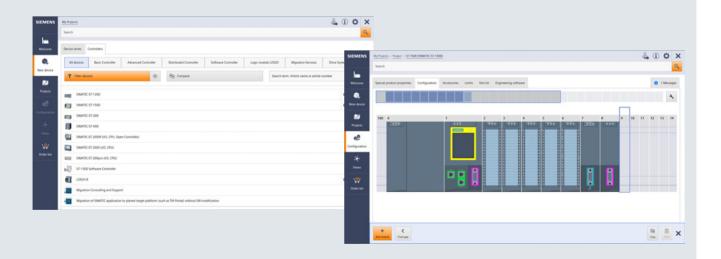
Clear

Required modules, devices and networks are automatically generated and clearly compared to one another



Time-saving

Time savings of 80% in design – thanks to ease of use and intelligent support



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



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How to meet all your weighing and dosing requirements





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.





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.



SIWAREX WP231

- Weighing module for level monitor-ing of silos and bunkers, use in platform scales as well as for 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



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, stand-alone 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 WP251

- Electronic weighing system for completely independent control of dosing and filling tasks
- Trace function: All saved process values and corresponding states can be displayed, analyzed and, if required, edited in spreadsheet programs with SIWATOOL V7
- Full integration into SIMATIC S7-1200 and TIA Portal, stand-alone 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



SIWAREX WP321

- 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 via dedicated add-on package



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: the single-channel design SIWAREX WP521 ST for onescale systems, and the 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
- · 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 degrees of protection (IP)
- · Certified in accordance with OIML R-60



Digital junction box



SIWAREX DB NEW

- 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

Weighing terminals



SIWAREX WT231

- Combination of powerful SIWAREX WP231 weighing electronics and Touch Panel with application-specific user interface in one product
- Stand-alone solution independent of automation solution and therefore ready
- All settings and parameters for applications in the areas of level measurement and platform weighing machines can be made via the Touch Panel
- · Comprehensive diagnostics options, such as checking the weight course and monitoring and reporting limits
- Diverse factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces



SIWAREX WT241

- · Combination of flexible, high-resolution belt scale weighing module and Touch Panel with application-specific user interface
- Stand-alone solution independent of automation system and therefore ready to use
- Simulation mode allows for complete application test - even without a connected belt scale or speed sensor
- Flexible parameterization of digital inputs and outputs for a wide range of functions
- Diverse factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces









Integrators for dynamic weighing systems

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

- 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 weighfeeders. Easy and comfortable operating and programming can be performed by the integrated keypad.
- BW500 and 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.

- SIWAREX FTC is a SIMATIC based integrator for belt scales and solids flowmeter with high functionality, fully integrated into SIMATIC and PCS 7 by S7-300 or ET 200M.
 Programming and visualization can be done by existing HMIs of the PLC or by Notebook.
- SIWAREX WP241 is a SIMATIC S7-1200 based integrator with high functionality for belt scales, fully integrated into PLC. Programming and visualization can be done by existing HMIs of the PLC or by Notebook.



Belt scales

Milltronics MSI is an extremely robust, single-idler precision belt scale that provides continuous weighing of a variety of products in both the primary and secondary industries.

- Milltronics belt scales weigh raw materials, check inventories and monitor 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



Weighfeeders

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



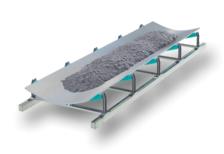
Solids flowmeters

- · Dust tight inline-weighing
- For continuous measurement of the throughput of dry bulk materials, free-flowing powders, or granulates
- 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.

Convevor 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.

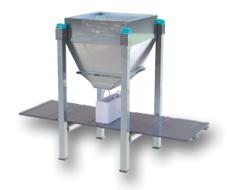
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- SIWAREX WT231 weighing electronics
- SIWAREX WP231 weighing electronics
- SIWAREX WP321 weighing electronics
- SIWAREX WP521 ST / WP522 ST weighing electronics
- SIWAREX WP351 weighing electronics
- SIWAREX CS weighing electronics
- SIWAREX U weighing electronics
- SIWAREX FTA weighing electronics

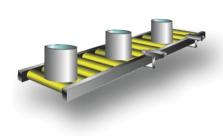
- SIWAREX load cells and mounting
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- SIWAREX WP321 weighing electronics
- SIWAREX WP521 ST / WP522 ST weighing electronics
- SIWAREX WP351 weighing electronics
- SIWAREX CS weighing electronics
- SIWAREX U weighing electronics
- SIWAREX FTA weighing electronics

- Milltronics belt scales
- Belt speed sensors
- Milltronics BW500 and BW500/L
- SIWAREX WT241 weighing electronics
- SIWAREX WP241 weighing electronics
- SIWAREX FTC weighing electronics

... 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 SI-WAREX is very scalable and integrated in SIMATIC, single-component and multicomponent 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 SIMA-TIC 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 weighing electronics
- SIWAREX WP351 weighing electronics
- SIWAREX FTA weighing electronics
- SIWAREX load cells and mounting units
- SIWAREX WP251 weighing electronics
- SIWAREX WP351 weighing electronics
- SIWAREX FTA weighing electronics
- SIWAREX load cells and mounting units
- SIWAREX WP251 weighing electronics
- SIWAREX WP351 weighing electronics
- SIWAREX FTA weighing electronics

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 quarantee 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-inweight 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 weighbridge 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 weighing electronics
- SIWAREX load cells and mounting
- SIWAREX FTC weighing electronics
- SITRANS weighfeeders
- Milltronics BW500 transmitters
- SIWAREX FTC weighing electronics
- SIWAREX WP241 weighing electronics



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Siemens WT 10 · 2020

Introduction

Overview

Automation with integral weighing and proportioning 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

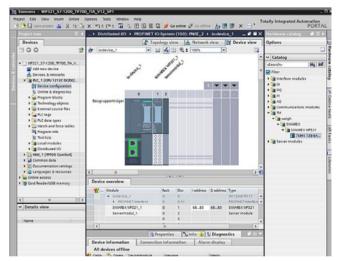
Distribution of weighing functions within automation system

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)
- Flexibility
- Standardization



Hardware configuration in the TIA Portal with SIWAREX WP321 weighing electronics

Application-compatible implementation leads to the following three aspects:

• The demands for 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.

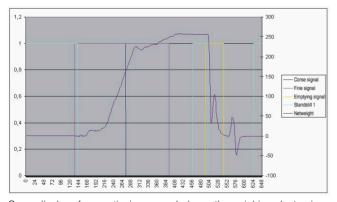
Introduction

Overview (continued)

- 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 timecritical 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 protected).
- 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. and meet the demands for uniformity, ease of use and flexibility on the basis of existing standards.
- This solution means that the component architecture can be central or distributed. In a distributed network configuration, i.e. 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 proportioning, recorded over the weighing electronics using SIWAREX FTA

SIWAREX weighing systems in automation

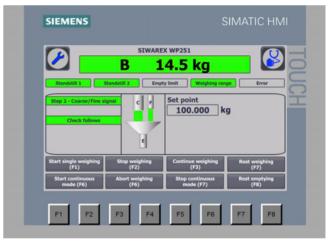
Totally Integrated Automation plays an essential role in SIWAREX weighing systems.

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

Dosing control



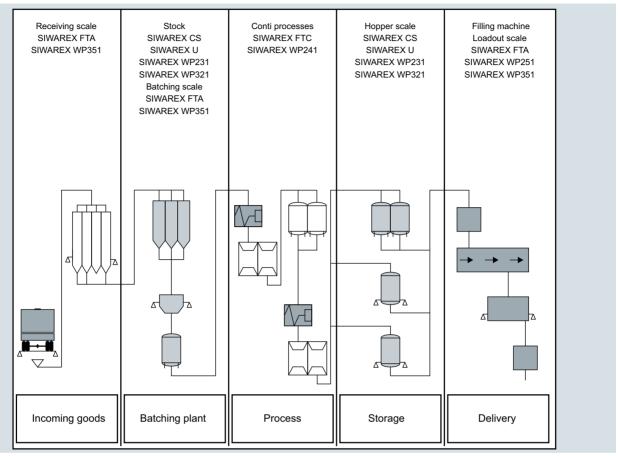
Visualization of dosing with SIMATIC HMI

SIWAREX - weighing electronics - uniform SIMATIC system hasis

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 hierarchic levels from the human-machine interface to the PROFIBUS DP or PROFINET fieldbus. 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.

Introduction

Overview (continued)



Applications of SIWAREX weighing technology in the production process

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 station 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.

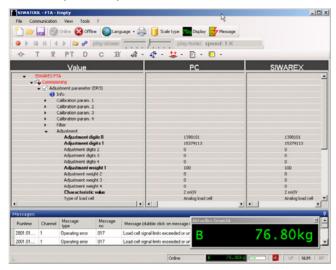
By using standard hardware (SIMATIC components) and standard software (STEP 7/TIA Portal), freely programmable, modular weighing systems are available which can be inexpensively adapted to specific plant requirements, e.g. by means of:

- 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
- 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

Overview (continued)



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 fault, 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).

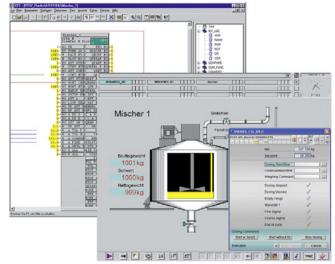
Since SIWAREX weighing systems are comprised solely of standard components (e.g. SIWAREX weighing modules, SIMATIC digital input/outputs, etc.), spare parts inventories are very easy to handle.

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 are usually integrated into the system with the typical PLC programming languages STL (Statement List), LAD (Ladder diagram), FBD (Function Block Diagram) or SCL, the configuration in the SIMATIC PCS 7 process control system is usually 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

Overview (continued)

SIWAREX application table

Application	Examples	Selection	For PLC	See page
Static weight measurements	Platform scales, hopper scales, vehicle scales, silos	SIWAREX WP321	ET 200SP	2/17
		SIWAREX WP231 (OIML R-76)	S7-1200	2/12 2/70
		SIWAREX WP521 ST	S7-1500 and ET 200MP	2/8
		SIWAREX WP522 ST	S7-1500 and ET 200MP	2/8
		SIWAREX U	S7-300 and ET 200M	2/24
		SIWAREX FTA (OIML R-76)	S7-300 and ET 200M	2/36
		SIWAREX WP351 (OIML R-76)*	ET 200SP	2/29
Force measurement	Rolling mills, monitoring of loads	AI 2xGS 4/6-wire HS	ET 200SP	2/64
	and belt tensions, overload protec- tion, torque measurements	SIWAREX WP231	S7-1200	2/12 2/70
		SIWAREX WP521 ST	S7-1500 and ET 200MP	2/8
		SIWAREX WP522 ST	S7-1500 and ET 200MP	2/8
		SIWAREX FTC	S7-300 and ET 200M	2/47 2/54
Proportioning	Batching plants, batch processes,	SIWAREX WP251 (OIML R-51)	S7-1200	2/32 2/96
	proportioning recipes, single-scale	SIWAREX FTA (OIML R-51)	S7-300 and ET 200M	2/36
	and multi-scale systems	SIWAREX WP351 (OIML R-51)*	ET 200SP	2/29
Dosing (continuous)	Batching plants, in continuous operation	SIWAREX FTC (loss-in-weight scale operating mode)	S7-300 and ET 200M	2/47 2/54
Filling, bagging	Filling machines, weighing and	SIWAREX WP251 (OIML R-51/R-61)	S7-1200	2/32 2/96
	sack filling machines, big bag	SIWAREX FTA (OIML R-51/R-61)	S7-300 and ET 200M	2/36
		SIWAREX WP351 (OIML R-51/R-61)	* ET 200SP	2/29
Loading	Loading scales for receiving and load operations	SIWAREX FTA (OIML R-107)	S7-300 and ET 200M	2/36
		SIWAREX WP251 (OIML R-107)	S7-1200	2/32 2/96
		SIWAREX WP351 (OIML R-107)*	ET 200SP	2/29
Check weighers (static)	weighers (static) Automatic weight control in static mode, e.g. following filling	SIWAREX FTA (OIML R-51)	S7-300 and ET 200M	2/36
		SIWAREX WP351 (OIML R-51)*	ET 200SP	2/29
-				
Flow measurement	Solids flowmeter (baffle plate)	SIWAREX FTC (solids flowmeter operating mode)	S7-300 and ET 200M	2/47 2/54
Belt scales	Measurement of belt load,	SIWAREX WP241	S7-1200	2/43 2/79
	conveyed quantity, loading according to setpoint	SIWAREX FTC (belt scale operating mode)	S7-300 and ET 200M	2/47 2/54
* Cartificates in proparation		· · - · - · · · · · · · · · · ·		

^{*} Certificates in preparation.

SIWAREX weighing electronics for SIMATIC Plattform 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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP521 / WP522 ST

Overview



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

SIWAREX WP521 ST / 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 RS485 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 standard mounting 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 plat-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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP521 / WP522 ST

Function (continued)

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 possibly worldwide by means of SIWATOOL . Please refer to the information at http://www.siemens.com/industrialsecurity

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



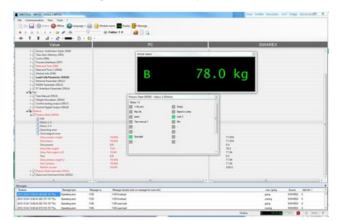
Software SIWATOOL V7

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 trouble-shooting. 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

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP521 / WP522 ST

Technical specifications

SIWAREX WP521 ST / WP522 ST	
Weighing modes	Non-automatic scales, e.g. platform and hopper scales
Ports	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	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	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	Low-pass filter 0.05 50 HzAverage value filter
Weighing functions	
Weight values	 Gross Net Tare
Limit values	• 2 × min/max • 1 × empty
Zeroing	Per command
Tare	Per command
Tare specification	Per command

SIWAREX WP521 ST / WP522 ST		
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} • R _{Lmax}	> 40 Ω < 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	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 DIN EN 60529; IEC 60529	IP20	
Climatic requirements		
$T_{\min(\text{IND})} \cdots T_{\max(\text{IND})}$ (operating temperature)		
Horizontal installationVertical installation	-10 +60 °C (14 140 °F) -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 weighing electronics for SIMATIC
Plattform and hopper scales

SIWAREX WP521 / WP522 ST

Selection and ordering data	Article No.		Article No.
Weighing module TM	7MH4980-1AA01	Accessories	
SIWAREX WP521 ST Single-channel, for platform scales		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
or hopper scales with analog load cells (1 - 4 mV/V), $1 \times LC$, $4 \times DQ$, $3 \times DI$, $1 \times RS$ 485, Ethernet port, including shielding set.		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
Weighing module TM SIWAREX WP522 ST	7MH4980-2AA01	SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
Two-channel, for two separate plat- form scales or hopper scales with		For connecting up to 4 load cells in parallel.	
analog load cells (1 - 4 mV/V), per channel 1 \times LC, 4 \times DQ, 3 \times DI, 1 \times RS 485, Ethernet port, including		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
shielding set.		For parallel connection of up to 4 load cells (for zone allocation, see	
SIMATIC S7-1500, front connector with screw-type terminals	6ES7592-1AM00-0XB0	manual or type-examination certificate).	
40-pin, for 35 mm wide modules,		SIWAREX IS Ex interface	
including 4 jumper links and cable ties		For intrinsically-safe connection of	
SIMATIC S7-1500, front connector with push-in technology	6ES7592-1BM00-0XB0	load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compati-	
40-pin, for 35 mm wide modules,		bility of load cells must be checked separately.	
including 4 jumper links and cable ties		• Short-circuit current < 199 mA DC	7MH4710-5BA
SIWATOOL V4 & V7	7MH4900-1AK01	• Short-circuit current < 137 mA DC	7MH4710-5CA
Service and commissioning		Cable (optional)	
software for SIWAREX weighing modules		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	For connecting SIWAREX electronic	
For connecting SIWAREX WP52x ST to a PC (SIWATOOL V7 or Mod- bus TCP/IP)		weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible.	
Remote display (optional)		External diameter:	
The digital remote displays can be connected directly to the SIWAREX WP231 via the RS 485		approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
interface.		Sold by the meter.	
Suitable remote display: S102		Sheath color: orange	7MH4702-8AG
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn		 For hazardous atmospheres. Sheath color: blue. 	7MH4702-8AF
Tel.: +49 6806/980-0		Commissioning	
Fax: +49 6806/980-999 https://www.siebert-group.com/en/		Commissioning charge for one static scale with SIWAREX	9LA1110-8SN50-0AA0
Detailed information is available		module	
from the manufacturer.		(Flat charge for travel and setup must be ordered separately)	
		Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Static adjustment of the scale	
		Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
		Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP231

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 / NTEP Class III / III L
- 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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP231

Function (continued)

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.



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

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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP231

Technical specifications

SIWAREX WP231	
Integration in automation systems	
S7-1200	SIMATIC S7-1200 system bus
Operator panel and/or automation systems from other vendors	Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	SIMATIC S7-1200 backplane bus SS 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	Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU
Measuring accuracy	
EU type approval as non-automatic weighing instrument, trade class III	3000 d \geq 0.5 $\mu\text{V/e}$
Error limit according to DIN 1319-1 of full-scale value at 20 °C \pm 10 K (68 °F \pm 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Measuring frequency	100 / 120 Hz
Digital filter	Variable adjustable low-pass and average filter
Typical applications	Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors
Weighing functions	
Weight values	 Gross Net Tare
Limit values	• 2 × min/max • Empty
Zeroing	Per command
Tare	Per command
Tare specification	Per command

SIWAREX WP231		
Load cells	Full-bridge 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} • R _{Lmax}	> 50 Ω < 4 100 Ω	
Load cell characteristic	1 4 mV/V	
Permissible range of the measure- ment 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	ATEX Zone 2 UL EAC KCC RCM OIML R-76 Design approval 2009/23/EC (NAWI) NTEP Class III / III L	
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 DIN EN 60529; IEC 60529	IP20	
Climatic requirements		
$T_{\min(IND)} \dots T_{\max(IND)}$ (operating temperature)		
Vertical installation Legizantal installation	-10 +40 °C (14 104 °F)	
Horizontal installation	-10 +55 °C (14 131 °F)	
EMC requirements	According to EN 45501	
Dimensions	$70 \times 75 \times 100 \text{ mm}$ (2.76 × 2.95 × 3.94 inch)	

Weighing Electronics
SIWAREX weighing electronics for SIMATIC
Plattform and hopper scales

SIWAREX WP231

Selection and ordering data	Article No.		Article No.
SIWAREX WP231	7MH4960-2AA01	Remote display (optional)	
weighing module 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.		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	
SIWAREX S7-1200 Equipment Manual		D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999	
Available in a range of languages		https://www.siebert-group.com/en/	
Free download on the Internet at:		Detailed information is available	
http://www.siemens.com/weighing/do	cumentation	from the manufacturer.	
SIWAREX WP231 "Ready for use"		Accessories	
Complete software package for non-automatic weighing instrument		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
(for S7-1200 and a directly connected operator panel).		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
Free download on the Internet at:	oumontation.	SIWAREX JB junction box,	7MH5001-0AA00
http://www.siemens.com/weighing/do	cumentation	stainless steel housing	
SIWAREX WP231 "Ready for use - legal-for-trade"		For connecting up to 4 load cells in parallel.	
Software package for non-auto- matic weighing instruments for S7- 1200 requiring official calibration.		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
Free download on the Internet at:		For parallel connection of up to 4 load cells (for zone allocation, see	
http://www.siemens.com/weighing/doo	cumentation	manual or type-examination certifi-	
Software SecureDisplay		cate).	784115004 0 4 DOO
Software for a legal trade display on Windows CE-based Panel. SIMATIC Basic and Key Panels are excluded.		SIWAREX DB digital junction box For enhanced diagnostics and monitoring options in conjunction with SIWAREX WP electronics.	7MH5001-0AD20
Free download on the Internet at:		SIWAREX IS Ex interface	
http://www.siemens.com/weighing/do	cumentation	For intrinsically-safe connection of	
SIWATOOL V4 & V7	7MH4900-1AK01	load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX elec-	
Service and commissioning software for SIWAREX weighing modules		tronic weighing systems. Compatibility of load cells must be checked separately. • Short-circuit current < 199 mA DC	7MH4710-5BA
Calibration set for SIWAREX WP2xx	7MH4960-0AY10	• Short-circuit current < 137 mA DC	7MH4710-5CA
Valid for SIWAREX WP231 and SIWAREX WP251.		Cable Li2Y 1 × 2 × 0.75 ST + 2 ×	
For verification of up to 3 scales, comprising: • 3 × inscription foils for ID label		(2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box	
1 × protective film		(JB), extension box (EB) and Ex interface or between two EBs. For	
3 × calibration protection plates		permanent installation. Occasional bending is possible.	
Guidelines for verification, certifi-		External diameter:	
cates and approvals, editable la- bel, SIWAREX WP		approx. 10.8 mm (0.43 inch)	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
For connecting SIWAREX WP231 to		Sold by the meter. • Sheath color: orange	7MH4702-8AG
a PC (SIWATOOL), SIMATIC CPU, panel, etc.		For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
		Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP231

Selection and ordering data	Article No.
Commissioning	
Commissioning charge for one static scale with SIWAREX module	9LA1110-8SN50-0AA0
(Flat charge for travel and setup must be ordered separately)	
Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Static adjustment of the scale	
Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP321

Overview



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

The electronic weighing system is integrated in the SIMATIC ET 200SP series and uses all the features of a modern automation system, such as integrated communication, operator control and monitoring, diagnostic system and configuration tools in the TIA Portal, SIMATIC STEP 7, WinCC flexible and PCS 7.

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 PCS7
- 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 hoppers
- 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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP321

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.

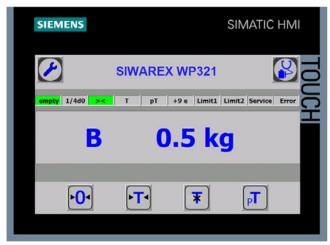
The SIWAREX WP321 is calibrated in the factory. This not only permits automatic calibration of the scales (without the need for calibration weights), but also the replacement of modules without the need for recalibration.

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.



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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP321

Technical specifications

SIWAREX WP321	
Integration in automation systems	
SIMATIC S7-300, S7-400, S7-1200 and S7-1500	Via SIMATIC ET 200SP interface module (PROFIBUS or PROFINET)
Other manufacturers (with restrictions)	Via SIMATIC ET 200SP interface mod ule (PROFIBUS or PROFINET)
Communication interfaces	SIMATIC ET 200SP backplane bus RS 485 (SIWATOOL, Siebert remote display)
Commissioning options	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)	0.05%
Internal resolution	± 2 million parts
Measuring frequency	100 / 120 / 600 Hz
Digital filter	Variable adjustable low-pass and average filter
Typical applications	Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors
Weighing functions	
Weight values	 Gross Net Tare
Limit values	• 2 × min/max • Empty
Zeroing	Via command by controller or HMI
Tare	Via command by controller or HMI
External tare specification	Via command by controller or HMI
Calibration commands	Via command by controller or HMI

SIWAREX WP321			
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)	4.85 V DC ±2%		
Permissible load resistance			
• R _{Lmin} • R _{Lmax}	> 40 Ω < 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	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	ATEX Zone 2 UL FM EAC KCC IECEX RCM		
Auxiliary power supply			
Rated voltage	24 V DC		
Max. power consumption	Typ. 0.1 A @ 24 V DC (0.2 A max.)		
Max. power consumption SIMATIC Bus	30 mA		
IP degree of protection to DIN EN 60529; IEC 60529	IP20		
Climatic requirements			
$T_{\min(\text{IND})} \dots T_{\max(\text{IND})}$ (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)		

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 ElectronicsSIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX WP321

Selection and ordering data	Article No.		Article No.
TM SIWAREX WP321 weighing module Single-channel, for platform scales or hopper scales with analog load cells (1 - 4 mV/V), 1 x LC, 1 x RS	7MH4138-6AA00-0BA0	SIWAREX IS Ex interface For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compati-	
485. SIWAREX WP321 Equipment		bility of load cells must be checked separately.	
Manual Available in a range of languages		Approved for use in the EU • Short-circuit current < 199 mA DC	7MH4710-5BA
Free download on the Internet at:		Short-circuit current < 137 mA DC	7MH4710-5CA
http://www.siemens.com/weighing/do	cumentation	Cable (optional)	
SIWAREX WP321 "Ready for use"		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
TIA Portal and SIMATIC Manager sample configuration		For connecting SIWAREX electronic weighing systems to junction box	
Free download on the Internet at:		(JB), extension box (EB) and Ex	
http://www.siemens.com/weighing/doc	cumentation	interface or between two EBs. For permanent installation. Occasional	
SIWATOOL V4 & V7	7MH4900-1AK01	bending is possible.	
Service and commissioning soft- ware for SIWAREX weighing mod- ules		External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks	7MH4900-1AK61	Sold by the meter. Sheath color: orange For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF
for: • SIWAREX U			
SIWAREX FTA SIWAREX FTC_B (belt scale) SIWAREX WP321		RS485/USB interface converter Commercially available interface converter with FTDI chip, e.g. USB-	
Classic faceplate and function block for:		Nano from CTI	ovtov/LICD Nano 405
SIWAREX FTC_L (Loss-in-weight)		http://www.cti-shop.com/RS485-Konve	erter/OSB-Nario-465
Accessories (mandatory requirement)		The Siebert S102 and S302 remote digital displays can be directly con-	
BaseUnit (Type A0 – one BaseUnit required for each WP321)		nected to the SIWAREX FTA via an RS 485 interface.	
For opening a new potential group		Siebert Industrieelektronik GmbH PO Box 1180D-65565 Eppelborn,	
- BU15P-16+A0+2D - BU15P-16+A10+2D	6ES7193-6BP00-0DA0 6ES7193-6BP20-0DA0	Germany Tel: +49 6806/980-9 Fax: +49 6806/980-999	
 For continuing the potential group 		Internet:	
- BU15P-16+A0+2B - BU15P-16+A10+2B	6ES7193-6BP00-0BA0 6ES7193-6BP20-0BA0	https://www.siebert-group.com/en/ Detailed information is available	
Shielded connection for BaseUnit (5 units / for 5 scales)	6ES7193-6SC00-1AM0	from the manufacturer. Commissioning	
For laying the load cell cable		Commissioning charge for one	9LA1110-8SN50-0AA0
Accessories (optional)		static scale with SIWAREX	3EA 1 110-03N30-0AA0
SIWAREX JB junction box, aluminum housing	7MH5001-0AA20	module (Flat charge for travel and setup must be ordered separately)	
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.		Scope: Recording of data	
SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00	 Checking of mechanical installation of the scale Checking of electrical wiring and 	
For connecting up to 4 load cells in parallel.		function • Static adjustment of the scale	
SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01	Requirements: • Mechanical design functional • Modules electrically wired and	
For parallel connection of up to 4 load cells		tested • Calibration weights available	
(for zone allocation, see manual or type-examination certificate).		Free access to scale Flat charge for travel and setup in	9LA1110-8RA10-0AA0
SIWAREX DB digital junction box	7MH5001-0AD20	Germany	
For enhanced diagnostics and monitoring options in conjunction with SIWAREX WP electronics.			

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX CS

Overview



SIWAREX CS is a versatile weighing module for all simple weighing and force measuring tasks. The compact module is easy to install in all SIMATIC automation systems. Data can be accessed directly in the SIMATIC.

Benefits

SIWAREX CS offers the following key advantages:

- Uniform design technology and consistent communication in SIMATIC
- Uniform configuration with SIMATIC
- Use in distributed plant concept through connection to PROFIBUS DP or PROFINET via ET 200S
- Measurement of weight or force with a high resolution of 65 000 parts and an accuracy of 0.05%
- Direct connection of a remote display to the TTY interface
- Simple adjustment of the scale using the SIWATOOL CS program via the RS 232 interface
- Supports theoretical adjustment without calibration weights
- Supports replacement of module without recalibration of scales
- For use in Ex zone 2, intrinsically-safe load cell powering for zone 1 over Ex interface

Application

SIWAREX CS 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 CS applications:

- Non-automatic weighing instruments
- Fill level monitoring of silos and hoppers
- Measuring of crane and cable loads
- Load measuring for industrial elevators and rolling mills
- Weighing in potentially explosive areas (Zone 2 direct, Zone 1 using Ex interface SIWAREX IS)
- Monitoring of belt tension
- Force measuring, hopper scales, platform scales and crane scales

Design

SIWAREX CS is a compact function module (FM) in the SIMATIC ET 200S and can be plugged directly into a terminal module. The power supply is connected through a power module and the internal power rail.

The load cells and serial interfaces are connected via the ports of the terminal module. Using the terminal module means it can be replaced without detaching the connecting cables.

Function

The primary task of SIWAREX CS is the measurement of sensor voltage and the conversion of this measurement into a weight value. Up to 3 interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

As well as determining weights, the SIWAREX CS monitors two freely programmable limits (min./max. as required) and notifies SIMATIC if these values are exceeded.

The SIWAREX CS 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.

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

Reading of the process data from the SIWAREX CS via the distributed I/O is possible with all head modules. In the case of PROFIBUS head modules that support the DP V1 protocol and PROFINET head modules, the data record communication can additionally be used for reading out the data and making settings.

Group diagnostics and hardware interrupts are possible with all PROFIBUS head modules with DP V1 and PROFINET modules. Head modules with DP V0 support group diagnostics, but not the hardware interrupts.

The SIWAREX CS has two serial interfaces. The TTY interface serves to connect digital remote displays. The remote displays can show the weight value with status information.

To parameterize the SIWAREX CS, a PC can be connected over the RS 232 interface.

SIWAREX CS can be integrated in the plant software using the classic PLC programming languages STL (Statement List), LAD (Ladder Diagram), FBD (Function Block Diagram) or SCL (Structured Control Language).

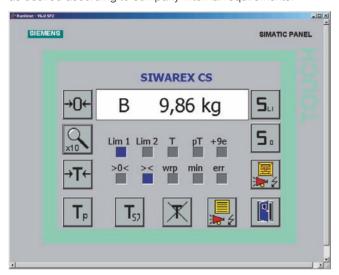
SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX CS

Function (continued)

In contrast to serially linked electronic weighing systems, SIWAREX CS does not need costly additional modules to link it to SIMATIC.

With SIWAREX CS, it is possible to configure freely programmable, modular weighing systems in SIMATIC that can be adapted as desired according to company-internal requirements.



Scale faceplate in the SIWAREX CS "Getting Started" software

In addition to the configuration package, the ready-made SIWAREX CS "Getting Started" software is 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 implement the scale very easily with an operator panel connected directly to the SIMATIC CPU.

Using the SIWATOOL CS software, the SIWAREX weighing modules offer Windows convenience and are quick to get into operation. Screen forms allow all user-definable parameters of the weighing modules to be specified, saved and printed for plant documentation.

The diverse diagnostics options provided by SIWATOOL CS ensure fast fault locating in online mode.

The SIWAREX CS weighing module can be used in hazardous areas (zone 2). It can also be used in zone 1 by implementing an optional Ex interface, whereby SIWAREX CS must be installed in a safe area.

Technical specifications

SIWAREX CS	
Integration in automation systems	
• \$7-400, \$7-300, C7	Through ET 200S
IM151-7 CPUAutomation systems from other man-	Through backplane bus Through ET 200S
ufacturers (possible with limitations)	111100g11
Communication interfaces	SIMATIC S7 (ET 200S backplane bus), RS 232, TTY
Connection of remote display (via serial TTY interface)	Display for weight value
Scale adjustment	Using SIMATIC S7 IM151-7 CPU or SIWATOOL CS PC parameter assignment software (RS 232)
Measuring accuracy	
Error limit according to DIN 1319-1 of full-scale value at 20 °C \pm 10 K (68 °F \pm 10 K)	0.05%
Internal resolution Data format of weight values	65 535 2 byte (fixed-point)
Number of measurements/second	50
Digital filter	0.05 5 Hz (in 7 steps), mean value
Digital into	filter
Weighing functions	
Weight values	Gross, net
Limit values	2 (min./max.)
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 $U_{\rm S}$ (rated value)	6 V DC typ.
Max. supply current	≤ 68 mA
Permissible load resistance • R _{Lmin}	> 87 Ω
• R _{Lmax}	< 4 010 Ω
With SIWAREX IS Ex interface:	
• R _{Lmin}	> 87 Ω
• R _{Lmax}	< 4 010 Ω
Load cell characteristic	1 mV/V bis 4 mV/V
Permissible range of measuring signal (at greatest set characteristic value)	-2.4 +26.4 mV
Max. distance of load cells	1 000 m
Intrinsically-safe load cell powering	Optional (SIWAREX IS Ex interface)
External load cell powering	Possible up to 24 V
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	150 mA
IP degree of protection to DIN EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{\text{min (IND)}} \dots T_{\text{max (IND)}}$ (operating temperature)	
Horizontal installation	-10 +60 °C (14 140 °F)
Vertical installation	-10 +40 °C (14 104 °F)
EMC requirements	According to EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	$80 \times 125 \times 130 \text{ mm}$ (3.15 × 4.92 × 5.12 inch)

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX CS

			SIWARLA CC
Selection and ordering data	Article No.		Article No.
SIWAREX CS		Accessories	
Weighing electronics for scales in SIMATIC ET 200S	7MH4910-0AA01	SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
SIWAREX CS Equipment Manual		For connecting up to 4 load cells in	
Available in a range of languages		parallel, and for connecting multiple junction boxes.	
Free download on the Internet at:		SIWAREX JB junction box,	7MH5001-0AA00
http://www.siemens.com/weighing/do	cumentation	stainless steel housing	
SIWAREX CS "Getting Started"		For connecting up to 4 load cells in parallel.	
Sample software shows beginners now to program the scales in STEP 7.		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
Free download on the Internet at:		For parallel connection of up to 4	
http://www.siemens.com/weighing/do	cumentation	load cells (for zone allocation, see manual or type-examination certifi-	
SIWATOOL V4 & V7	7MH4900-1AK01	cate).	
Service and commissioning soft-	7WI14900-TAICOT	Ex interface SIWAREX IS	
ware for SIWAREX weighing mod- ules		For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX elec-	
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	tronic weighing systems. Compatibility of load cells must be checked separately. • With short-circuit current	7MH4710-5BA
Installation material (mandatory)		< 199 mA DC	7WIT47 TO-3BA
Terminal module	6ES7193-4CG20-0AA0	 With short-circuit current 137 mA DC 	7MH4710-5CA
M-E 30 mm (1.18 inch) wide	Or compatible	Cable (optional)	
(required for each SIWAREX module)	Or compatible	Cable (optional) Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY	
Shield connection element	6ES7193-4GA00-0AA0	For connecting SIWAREX electronic	
Contents 5 units, sufficient for 5 cables		weighing systems to junction box (JB), extension box (EB) and Ex	
Shield connection clamp	6ES7193-4GB00-0AA0	interface or between two EBs. For permanent installation. Occasional	
Contents: 5 units, sufficient for 5 cables		bending is possible. External diameter:	
Note: one shield connection clamp is required each for the		approx. 10.8 mm (0.43 inch) Permissible ambient temperature	
scales connection and		-40 +80 °C (-40 +176 °F) Sold by the meter.	
TTY interface or		Sheath color: orange	7MH4702-8AG
RS 232 interface		For hazardous atmospheres.	7MH4702-8AF
N busbar, zinc-plated	8WA2842	Sheath color: blue.	
3×10 mm (0.12 \times 0.39 inch), 1.0 m (3.28 ft) long			
Feeder terminal for N busbar	8WA2868		
Remote displays (option)			
The digital remote displays can be connected directly to the SIWAREX CS through the TTY interface.			
0.11.1			

Suitable remote display: S102

Internet:

Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999

https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX U

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 DB/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 MS 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.

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX U

Technical specifications

SIWAREX U		
Integration in automation systems		
• S7-300	Direct integration	
• S7-1500	Through ET 200M	
• S7-400 (H)	Through ET 200M	
• PCS 7 (H)	Through ET 200M	
 Automation systems from other vendors 	Through ET 200M	
Stand-alone (without SIMATIC CPU)	Possible with IM 153-1	
Communication interfaces	• 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 \pm 10 K (68 °F \pm 10 K)	0.05%	
Internal resolution ADC	65 535	
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 $U_{\rm S}$ (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} • R _{Lmax}	$>$ 87 Ω per channel $<$ 4 010 Ω	

SIWAREX U	
Permissible load cell characteristic	Up to 4 mV/V
Max. distance of load cells	500 m ²⁾ 150/500 m for gas group IIC 500 m ²⁾ 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 DIN EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{\min \text{ (IND)}} \dots T_{\max \text{ (IND)}}$ (operating temperature)	
 Horizontal installation 	0 +60 °C (32 140 °F)
 Vertical installation 	0 +40 °C (32 104 °F)
EMC requirements according to	According to NAMUR NE21, Part 1; EN 61326
Dimensions	40 × 125 × 130 mm (1.58 × 4.92 × 5.12 inch)

 $^{^{\}rm 1)}$ Load cell supply changed to 6 V DC as compared to 7MH4601-1AA01 and 7MH4601-1BA01.

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

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX U

Selection and ordering data	Article No.		Article No.
SIWAREX U		Accessories (optional)	
For SIMATIC S7 and ET 200M, incl. bus connector, weight 0.3 kg (0.661 lb)		Labeling strips (10 units, spare part)	6ES7392-2XX00-0AA0
Single-channel version ¹⁾	7MH4950-1AA01	Remote displays (option)	
for connecting one scale Two-channel version ²⁾ for connecting two scales	7MH4950-2AA01	The digital remote displays can be connected directly to SIWAREX U through a TTY interface.	
SIWATOOL V4 & V7	7MH4900-1AK01	The following remote displays can	
Service and commissioning soft- ware for SIWAREX weighing mod- ules		be used: S102, S302 Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn	
SIWAREX U configuration package for PCS 7, version 8.0	7MH4950-3AK62	Tel.: +49 6806/980-0 Fax: +49 6806/980-999	
Suitable for 7MH4950-xAA01 • Function block for CFC • Faceplate • Manual		Internet: https://www.siebert-group.com/en/ Detailed information is available	
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0	7MH4900-1AK61	from the manufacturer. SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
Supports PROFINET APL faceplates and function blocks for:		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
SIWAREX USIWAREX FTASIWAREX FTC_B (belt scale)		SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
SIWAREX WP321 Classic faceplate and function Italy face.		For connecting up to 4 load cells in parallel.	
block for:SIWAREX FTC_L (Loss-in-weight)		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
SIWATOOL connection cable	7MH4607-8CA	For parallel connection of up to 4	
From SIWAREX U/CS with serial PC interface, for 9-pin PC interfaces (RS 232), length 3 m (9.84 ft)		load cells (for zone allocation, see manual or type-examination certificate).	
Installation material (mandatory)		SIWAREX IS Ex interface	
20-pin front connector with screw contacts Required for each SIWAREX module	6ES7392-1AJ00-0AA0	For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX elec- tronic weighing systems. Compati- bility of load cells must be checked	
Shield connection element Sufficient for two SIWAREX U mod- ules	6ES7390-5AA00-0AA0	separately. • With short-circuit current < 199 mA DC	7MH4710-5BA
Shield connection clamp	6ES7390-5CA00-0AA0	 With short-circuit current 137 mA DC 	7MH4710-5CA
Contents: 2 units (suitable for cable with diameter		Cable (optional)	
4 13 mm / 0.16 0.51 inch)		Cable Li2Y 1 x 2 x 0.75 ST + 2 x	
Note:		(2 x 0.34 ST) – CY	
One shield connection clamp is required for each of the following: • Scale connection • RS 485 interface • RS 232 interface S7 DIN rail		For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible.	
• 160 mm (6.30 inch)	6ES7390-1AB60-0AA0	External diameter:	
• 480 mm (18.90 inch)	6ES7390-1AE80-0AA0	approx. 10.8 mm (0.43 inch) Permissible ambient temperature	
530 mm (20.87 inch)830 mm (32.68 inch)	6ES7390-1AF30-0AA0 6ES7390-1AJ30-0AA0	-40 +80 °C (-40 +176 °F)	
• 2 000 mm (78.74 inch)	6ES7390-1BC00-0AA0	Sold by the meter. • Sheath color: orange	7MH4702-8AG
		 Sneam color: orange For hazardous atmospheres. Sheath color: blue. 	7MH4702-8AF

SIWAREX weighing electronics for SIMATIC Plattform and hopper scales

SIWAREX U

Selection and ordering data Commissioning Commissioning charge for one static scale with SIWAREX module 9LA1110-8SN50-0AA0 (Flat charge for travel and setup must be ordered separately) Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function.

Article No.

function

• Static adjustment of the scale

- Requirements:
 Mechanical design functional
 Modules electrically wired and
- Calibration weights available
- Free access to scale

9LA1110-8RA10-0AA0

Flat charge for travel and setup in Germany

¹⁾ Compatible with 7MH4601-1AA01; supply of load cells changed to

²⁾ Compatible with 7MH4601-1BA01; supply of load cells changed to

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

Introduction

Overview



Dosing, filling, bagging scales and check weighers

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.

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, check weigher, bagging and filling scale.

All operating 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 $3 \times 6\,000$ 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 check weighers, requiring official calibration*/not requiring official calibration
- Automatic dynamic check weighers, 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 is 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.

Certificates in preparation

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX WP351

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 PROFIBUS as of GSD version/GSD revision PROFINET as of GSD version/GSD revision	Configurable as of V15 using HSP0281 GSD V04.02.41	
revision		
Supply voltage		
Load voltage L+ • Rated value (DC) • Permissible range, low limit, static (DC) • Permissible range, high limit, static (DC)	24 V 19.2 V 28.8 V	
static (DC) • Permissible range, low limit,	18.5 V	
dynamic (DC)Permissible range, high limit, dynamic (DC)	30.2 V	
Reverse polarity protection Non-periodic overvoltages	Yes 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 Outputs	32 bytes 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		
Error limit according to DIN 1319-1 at 20 °C (-4 °F) +/-10 K	≤ 0.002% v.E.	
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		
ClassResolution (d=e)Error percentage piStep voltage	III 3 x 6000 d 0.4 0.5 µV/e	

SIWAREX WP351	
Accuracy delivery state	Typ. 0.1% v.E.
The accuracy is relevant for module exchange or theoretical adjustment	, , , , , , , , , , , , , , , , , , ,
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
With SIWAREX IS Ex-i interface	Lower impedance by means of external supply possible 87 Ω @ type 7MH4710-5BA 180 Ω @ type 7MH4710-5CA
Max. DMS resistance	4 100 Ω
Temperature coefficient range	≤ ±5 ppm/K
Temperature coefficient zero point	≤ ±0.015 μV/K
Linearity error	≤ 0.0025%
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 • Sense line	Typ. $8*10^6\Omega$ Typ. $300*10^6\Omega$
Cable length • When using SIWAREX cable 7MH4702-8AG	Max. 500 m
Ambient conditions	
Ambient temperature in operation • Horizontal mounting position *	Min30 °C Max. +60 °C
Vertical mounting position *	Min30 °C Max. +50 °C
Storage and transport temperature	-40 +70 °C (-40 +158 °F)

* At a height of more than 2 000 meters 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.

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX WP351

Selection and ordering data	Article No.		Article No.
TM SIWAREX WP351	7MH4138-6BA00-0CU0	Cable (optional)	
weighing module SIMATIC ET 200SP,		Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY	
TM SIWAREX WP351 HF, legal-for- trade weighing module for automatic dosing and filling scales, check weighers and totalizing weighing instruments		For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending	
SIWAREX WP351 Equipment Manual		is possible. External diameter:	
Available in a range of languages		approx. 10.8 mm (0.43 inch)	
Free download on the Internet at:		Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
http://www.siemens.com/weighing/do	cumentation	Sold by the meter.	
SIWAREX WP351 "Getting Started"		Sheath color: orange	7MH4702-8AG
sample project Sample software shows beginners		 For hazardous atmospheres. Sheath color: blue. 	7MH4702-8AF
how to program the scales in TIA Por- tal V15.1		Commissioning	
Free download on the Internet at:		Commissioning charge for one static scale with SIWAREX module	9LA1110-8SN50-0AA0
http://www.siemens.com/weighing/do	cumentation	(Flat charge for travel and setup must	
ET 200SP BaseUnit type U0		be ordered separately)	
 For constructing a new potential group (white) 	6ES7193-6BP00-0DU0	Scope: Recording of data	
For continuing an existing potential group (gray)	6ES7193-6BP00-0BU0	 Checking of mechanical installation of the scale Checking of electrical wiring and 	
Shield connection for ET 200SP	6ES7193-6SC00-1AM0	function	
Includes 5 shield connections		Static adjustment of the scale	
SIWAREX JB junction box, aluminum housing	7MH5001-0AA20	Requirements: • Mechanical design functional • Modules electrically wired and	
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.		tested Calibration weights available Free access to scale	
SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00	Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0
For connecting up to 4 load cells in parallel.			
SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01		
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).			
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. • With short-circuit current	7MH4710-5RΔ		
▼ vviiti Shori-carcall CuffeIII	/ IVII 14/ TU-DDA		

 With short-circuit current < 199 mA DC

• With short-circuit current < 137 mA DC 7MH4710-5BA

7MH4710-5CA

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX WP251

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 R-76, R-51, R-61 and R-107
- 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:

- Automatic catchweighing instruments (ACI) legal-for-trade in accordance with OIML R-51
- Automatic gravimetric filling instruments (AGFI) legal-fortrade in accordance with OIML R-61
- Non-automatic weighing instruments (NAWI) legal-for-trade in accordance with OIML R-76
- Discontinuous totalizing automatic weighing instruments (DTAWI) — legal-for-trade in accordance with OIML R-107

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 W-LAN 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.

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX WP251

Function (continued)

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 fully controlled 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.

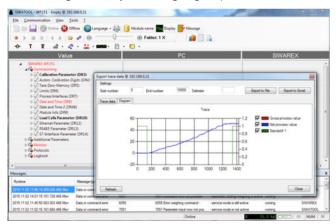
Software

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



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

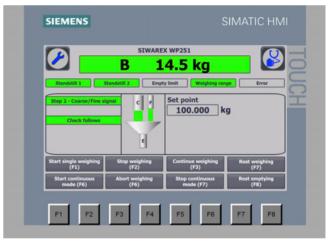
An additional program function can be used to download a new firmware version onto the SIWAREX WP251 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

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.



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.

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX WP251

Technical specifications

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SIWAREX WP251	
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} • R _{Lmax}	> 40 Ω < 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 measure- ment 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	• ATEX Zone 2 • UL • KCC • EAC • RCM
Calibration approvals	EU type-examination certificate 2014/31/EU (NAWI) according to OIML R-76 EU type-examination certificate 2014/32/EU (MID) according to OIML R-61 and OIML R-51 EU type-examination certificate 2014/32/EU (MID) according to OIML R-107
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 DIN EN 60529; IEC 60529	IP20
Climatic requirements T _{min(IND)} T _{max(IND)} (operating temperature) • Vertical installation • Horizontal installation	-10 +40 °C (14 104 °F) -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 ElectronicsSIWAREX weighing electronics for SIMATIC
Dosing/filling/bagging and checking scales

SIWAREX WP251

Selection and ordering data	Article No.		Article No.
SIWAREX WP251	7MH4960-6AA01	Accessories	
weighing module Single-channel, legal-for-trade, for		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
automatic dosing and filling scales (AGFI, ACI, NAWI) with analog load cells / full-bridge strain gauges (1 - 4 mV/V), 1 × LC, 4 × DQ,		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
4 × DI, 1 × AQ, 1 × RS 485, Ethernet port.		SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
SIWAREX WP251 Equipment Manual		For connecting up to 4 load cells in parallel.	
Available in a range of languages		SIWAREX JB junction box,	7MH5001-0AA01
Free download on the Internet at:		stainless steel housing (ATEX)	
http://www.siemens.com/weighing/do	cumentation	For parallel connection of up to 4 load cells (for zone allocation, see	
SIWAREX WP251 "Ready for use"		manual or type-examination certificate).	
Free download on the Internet at:		SIWAREX IS Ex interface	
http://www.siemens.com/weighing/do	cumentation	For intrinsically-safe connection of	
SIWATOOL V4 & V7	7MH4900-1AK01	load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX	
Service and commissioning software for SIWAREX weighing modules		electronic weighing systems. Compatibility of load cells must be checked separately.	
Calibration set for	7MH4960-0AY10	 Short-circuit current 199 mA DC 	7MH4710-5BA
SIWAREX WP2xx Valid for SIWAREX WP231 and		Short-circuit current < 137 mA DC	7MH4710-5CA
SIWAREX WP251.		Cable (optional)	
For verification of up to 3 scales, comprising: • 3 × inscription foils for ID label		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
• 1 × protective film		For connecting SIWAREX elec-	
• 3 × calibration protection plates		tronic weighing systems to junction box (JB), extension box (EB)	
Guidelines for verification, certificates and approvals, editable label, SIWAREX WP		and Ex interface or between two EBs. For permanent installation. Occasional bending is possible.	
Ethernet cable patch cord 2 m	6XV1850-2GH20	External diameter: approx. 10.8 mm (0.43 inch)	
(7 ft)		Permissible ambient temperature	
For connecting SIWAREX WP251 to a PC (SIWATOOL),		-40 +80 °C (-40 +176 °F)	
SIMATIC CPU, panel, etc.		Sold by the meter. • Sheath color: orange	7MH4702-8AG
Remote display (optional) The digital remote displays can be		For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
connected directly to the SIWAREX WP251 via the RS 485 interface		Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Suitable remote display: S102		Commissioning	
Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn		Commissioning charge for one static scale with SIWAREX module	9LA1110-8SN50-0AA0
Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet:		(Flat charge for travel and setup must be ordered separately)	
https://www.siebert-group.com/en/		Scope:	
Detailed information is available from the manufacturer.		Recording of dataChecking of mechanical installa-	
nom the manufacturer.		tion of the scale Checking of electrical wiring and	
		function • Static adjustment of the scale	
		Requirements: • Mechanical design functional • Modules electrically wired and tested • Collegation uning the pupillable	
		Calibration weights availableFree access to scale	
		Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX FTA

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 x 6 000d, legal-for-trade according to OIML R-76, R-51, R-61 and R-107
- Use with analog strain gauge load cells of types SIWAREX R and SIWAREX WL200
- 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 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 R-76
- AGFI (automaticgravimetric filling instrument) according to OIML R-61
- ACI (automaticc atchweighing instrument) according to OIML R-51
- DTAWI (discontinuous totalizing automatic weighing instrument (Totalizing Hopper Weigher)) according to OIML R-107

Monitoring and control of the load cell signals and statuses

SIWAREX weighing electronics for SIMATIC

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

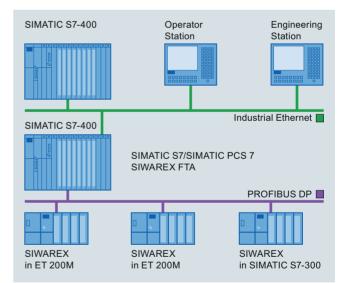
Integration in SIMATIC

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

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX FTA

Function (continued)

Software

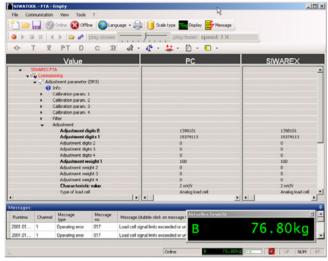
SIWATOOL FTA commissioning software

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



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.

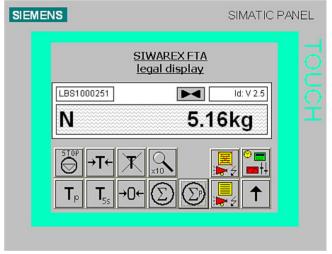
SIWAREX FTA - simple configuration

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 SI-MATIC 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 Secure-Display 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.



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.

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC
Dosing/filling/bagging and checking scales

SIWAREX FTA

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		
EU type approval as non-automatic weighing instrument, trade class III	$3 \times 6\ 000\ d \ge 0.5\ \mu V/e$	
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 machine	OIML R-76	
Automatic weighing machine	OIML R-51, R-61, R-107	
Load cells	Strain gages in 4-wire or 6-wire system	
3 characteristic value ranges	1, 2 or 4 mV/V	
Load cell powering		
Supply voltage $U_{\rm S}$ (rated value)	10.3 V DC	
Max. supply current	184 mA	
Permissible load cell resistance		
• R _{Lmin}	> 56 Ω	
• R	> 87 Ω with Ex interface \leq 4 010 Ω	
R _{Lmax} Max. distance of load cells	⊇ T U I U 22	
When using the recommended cable:		
Standard	1 000 m (3 280 ft)	
In hazardous area ¹⁾ • For gases of group IIC • For gases of group IIB	300 m (984 ft) 1000 m (3 280 ft)	

SIWAREX FTA	
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 rangeUpdating rate	0/4 20 mA 100 Hz
Approvals	EU type approval (CE, OIML R-76)
	EU prototype test according to MID (OIML R-51, R-61, R-107)
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{\min (IND)} \cdots T_{\max (IND)}$ (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	$80 \times 125 \times 130 \text{ mm}$ (3.15 × 4.92 × 5.12 inch)
Weight	600 g (0.44 lb)

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

SIWAREX weighing electronics for SIMATIC Dosing/filling/bagging and checking scales

SIWAREX FTA

Selection and ordering data	Article No.		Article No.
SIWAREX FTA Legal-for-trade weighing electronics for automatic scales for S7-300 and ET 200M. EU type approval 3 x 6000 d Applications: proportioning, filling, bagging, loading. Note: Observe approval conditions for applications requiring official calibration. We recommend using our calibration set and contacting	7MH4900-2AA01	Front connector, 40-pin Required for each SIWAREX module • With screw contacts • With spring-loaded terminals Shield connection element Sufficient for one SIWAREX FTA module	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0 6ES7390-5AA00-0AA0
our SIWAREX hotline.		Shield connection clamp Contents: 2 units	6ES7390-5CA00-0AA0
SIWAREX FTA Equipment Manual		(suitable for cable with diameter 4 13 mm / 0.16 0.51 inch)	
Available in a range of languages		Note:	
Free download on the Internet at:		One shield connection clamp is	
http://www.siemens.com/weighing/doc	cumentation	required for each of the following: • Scale connection	
SIWAREX FTA "Getting Started"		RS 485 interface RS 232 interface	
Sample software shows beginners how to program the scales in		S7 DIN rail	
STEP 7. Free download on the Internet at:		• 160 mm (6.30 inch) • 480 mm (18.90 inch)	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0
http://www.siemens.com/weighing/doc	cumentation	• 530 mm (20.87 inch)	6ES7390-1AF30-0AA0
SIWATOOL V4 & V7	7MH4900-1AK01	830 mm (32.68 inch)2 000 mm (78.74 inch)	6ES7390-1AJ30-0AA0 6ES7390-1BC00-0AA0
Service and commissioning soft- ware for SIWAREX weighing mod- ules		MMC memory For data recording up to 32 MB, only for legal-for-trade applications	7MH4900-2AY21
Configuration package SIWAREX FTA for SIMATIC PCS 7, Version 8.0 on CD-ROM • HSP hardware support package for integrating SIWAREX FTA/FTC in STEP 7	7MH4900-2AK63	R76, R51 and R107 Remote displays (option) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTA via an	
Function block for CFCFaceplateManual		RS 485 interface. Siebert Industrieelektronik GmbH PO Box 1180	
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks	7MH4900-1AK61	D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999	
for: SIWAREX U SIWAREX FTA SIWAREX FTC_B (belt scale) SIWAREX WP321		Internet: https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.	
Classic faceplate and function block for:		SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in	7MH5001-0AA20
SIWAREX FTC_L (Loss-in-weight)		parallel, and for connecting several	
Calibration set for SIWAREX FTA For verification of up to 5 scales	7MH4900-2AY10	junction boxes SIWAREX JB junction box,	7MH5001-0AA00
 omprising: 3 × inscription foils for ID label 1 × protective film Guidelines for verification, verifi- 		stainless steel housing For connecting up to 4 load cells in parallel.	/WII 1000 I -OAA00
cation certificates and approvals, editable label, SIWAREX FTA Equipment Manual on CD-ROM		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
SIWATOOL connection cable		For parallel connection of up to 4 load cells (for zone allocation, see	
From SIWAREX FTA with serial PC interface, for 9-pin PC interfaces		manual or type-examination certificate).	
(RS 232) • 2 m long (6.56 ft)	7MH4702-8CA	Ex interface SIWAREX IS	
• 5 m long (16.40 ft)	7MH4702-8CB	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.	78414740 FD A
		 With short-circuit current 199 mA DC 	7MH4710-5BA
		With short-circuit current < 137 mA DC	7MH4710-5CA

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC
Dosing/filling/bagging and checking scales

SIWAREX FTA

Selection and ordering data	Article No.
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 EBs. 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 For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF
Commissioning	
Commissioning charge for one static scale with SIWAREX module	9LA1110-8SN50-0AA0
(Flat charge for travel and setup must be ordered separately)	
Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Static adjustment of the scale	
Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	

SIWAREX weighing electronics 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.

SIWAREX weighing electronics for SIMATIC

Belt scales

SIWAREX WP241

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.

SIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX WP241

Function (continued)

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.

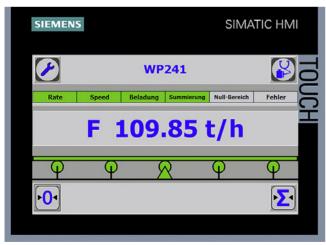
Integration in the plant environment

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 electronic weighing systems, 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.



SIWAREX WP241 "Ready for use"

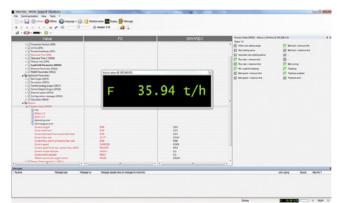
In addition to the configuration package, fully-featured SIWAREX WP241 "Ready for use" software is also available free-of-charge. It shows beginners how to integrate the module in a STEP 7 program and offers a basis for application programming. This allows you to connect the scale to an operator panel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

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.

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX WP241

Technical specifications

reclinical specifications	
SIWAREX WP241	
Integration in automation systems	
S7-1200	SIMATIC S7-1200 system bus
Operator panel and/or automation systems from other vendors	Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	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	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 \pm 10 K (68 °F \pm 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Measuring frequency	100 / 120 Hz
Digital filter	Separate, variable adjustable low-pass and average filter for loading and speed
Filter for conveyor load	Low-pass filter (limit frequency 0.05 50 Hz)
Filter for belt speed	Low-pass filter (limit frequency 0.05 50 Hz)
Weighing functions	
Readout data	Weight Belt load Material flow rate Accumulated total Main total Free totals 1 4 Belt speed
Limits (min/max)	Belt loadMaterial flow rateBelt speed
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system

SIWAREX WP241	
Load cell powering	
Supply voltage (regulated via feedback)	4.85 V DC
Permissible load resistance • R _{Lmin} • R _{Lmax}	> 40 Ω < 4 100 Ω
With SIWAREX IS Ex interface R _{Lmin} R _{Lmax}	> 50 Ω < 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 inter- face (compatibility of the load cells must be checked)
Approvals/certificates	ATEX Zone 2 UL EAC KCC RCM
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 DIN EN 60529; IEC 60529	IP20
Climatic requirements	
T _{min(IND)} ··· T _{max(IND)} (operating temperature) • Vertical installation • Horizontal installation	-10 +40 °C (14 104 °F) -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 ElectronicsSIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX WP241

Selection and ordering data	Article No.		Article No.
SIWAREX WP241	7MH4960-4AA01	Cable (optional)	
weighing module Single-channel, legal-for-trade, for automatic proportioning and filling		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
scales (GFI, CWI, NAWI) with analog load cells / full-bridge strain gauge (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port.		For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible.	
SIWAREX S7-1200 Equipment Manual		External diameter: approx. 10.8 mm (0.43 inch)	
Available in a range of languages		Permissible ambient temperature	
Free download on the Internet at:		-40 +80 °C (-40 +176 °F)	
http://www.siemens.com/weighing/do	ocumentation	Sold by the meter. • Sheath color: orange	7MH4702-8AG
SIWAREX WP241 "Ready for use"		For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
Complete software package for belt scale (for S7-1200 and a directly connected operator panel)		Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Free download on the Internet at:		Commissioning	
http://www.siemens.com/weighing/do	ocumentation	Commissioning charge for one	9LA1110-8SM50-0AA0
SIWATOOL V4 & V7	7MH4900-1AK01	belt scale with SIWAREX module	
Service and commissioning software for SIWAREX weighing modules		(Flat charge for travel and setup must be ordered separately) Scope:	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	Recording of data Checking of mechanical installation of the scale	
For connecting SIWAREX WP241 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.		 Checking of electrical wiring and function Dynamic adjustment of the scale 	
Accessories		Requirements:	
SIWAREX JB junction box, aluminum housing	7MH5001-0AA20	 Mechanical design functional Modules electrically wired and tested 	
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.		Calibration weights available Free access to scale Flat charge for travel and setup	9LA1110-8RA10-0AA0
SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00	in Germany	SEATTIO-DIATO-DANG
For connecting up to 4 load cells in parallel.			
SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01		
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).			
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		

SIWAREX weighing electronics for SIMATIC

Belt scales

SIWAREX FTC

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 x 6 000 d
- Use with analog strain gauge load cells of types SIWAREX R and SIWAREX WL200
- 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" 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.

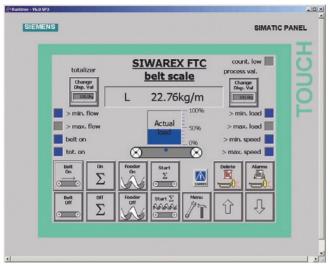
Belt scale / weighfeeder

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.

SIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX FTC

Function (continued)



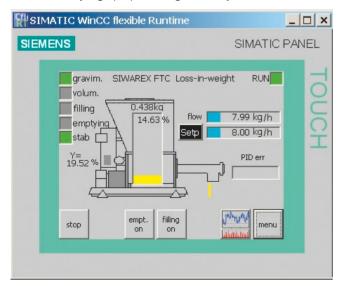
Scale faceplate of a belt scale

Loss-in-weight scale

The typical functions of a loss-in-weight scale are implemented in this operating mode. The actual weight of the container is measured and the flowrate is regulated according to the preset setpoint.

Application-specific parameters, such as proportioning parameters, 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.

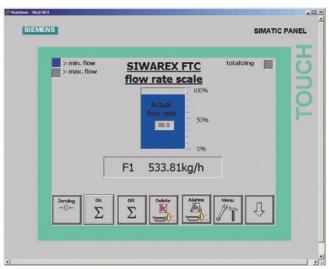
The high measurement resolution, real-time signal processing, detection and filtering of signals in the weighing electronics enable extremely high proportioning accuracy.



Scale faceplate of a loss-in-weight scale

Solids flowmeter

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

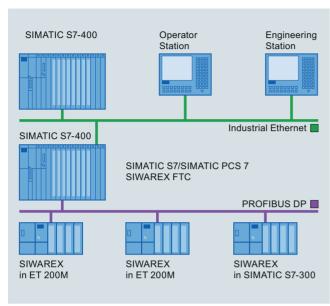
The right combination of SIMATIC components can produce optimum solutions for small, medium-size and large plants. The scales are operated and monitored using SIMATIC standard operator panels. Needless to say, these operator panels can also be simultaneously used for the operator control and monitoring of the plant.

SIWAREX FTC

Function

Customized or sector-specific solutions can be developed extremely quickly using the configuration package and example applications for SIMATIC.

Article No.



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

Software

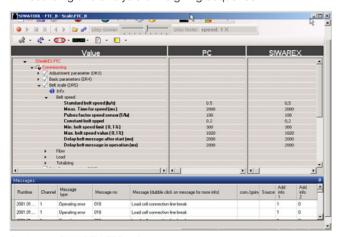
Adjustment of the scale using SIWATOOL FTC

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



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 SI-WATOOL 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.

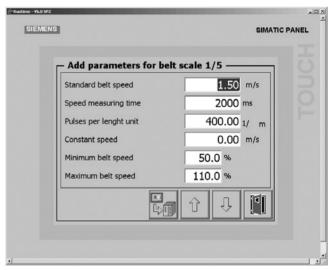
Reading out of weighing reports

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 lossin-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 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.



Scale faceplate in the SIWAREX FTC "Getting Started" software

SIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX FTC

Technical specifications

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SIWAREX FTC	
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 FTC software (RS 232)
Measuring properties	
Accuracy according to EN 45501	$3 \times 6~000~d \ge 0.5~\mu\text{V/e}$
Internal resolution	+/- 8 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 machine, force measurement
	Belt scale
	Loss-in-weight scale
	Solids flowmeter
Load cells	Strain gages in 4-wire or 6-wire system
3 characteristic value ranges	1, 2 or 4 mV/V
Load cell powering	
Supply voltage $U_{\mathbb{S}}$ (rated value)	10.3 V DC
Max. supply current	184 mA
Permissible load cell resistance	
• R _{Lmin}	$> 56 \Omega$ > 87 Ω with Ex interface
• R _{Lmax}	≤ 4 010 Ω

1 000 m (3 280 ft)
,
300 m (984 ft)
1 000 m (3 280 ft)
Optionally via SIWAREX IS Ex interface
ATEX 95, FM, cUL _{US} Haz. Loc.
24 V DC
500 mA
Typ. 55 mA
7, electrically isolated
8, electrically isolated
Up to 10 kHz
0/4 20 mA
100 Hz
IP20
-10 60 °C (14 140 °F)
-10 40 °C (14 104 °F)
EN 61326, EN 45501, NAMUR NE21, Part 1
80 × 125 × 130 mm
$(3.15 \times 4.92 \times 5.12 \text{ inch})$

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

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX FTC

Selection and ordering data	Article No.		Article No.
SIWAREX FTC	7MH4900-3AA01	SIWAREX PCS 7 AddOn Library	7MH4900-1AK61
Electronic weighing system for S7-300 and ET 200M.		for PCS7 V8.x and V9.0Supports PROFINET	
Applications: Belt scales, force measurement, loss-in-weight scales and solids flowmeters		APL faceplates and function blocks for: • SIWAREX U • SIWAREX FTA	
SIWAREX FTC_B Equipment Manual for belt scales		SIWAREX FTC_B (belt scale) SIWAREX WP321	
Available in a range of languages		Classic faceplate and function	
Free download on the Internet at:		block for: • SIWAREX FTC L (Loss-in-weight)	
http://www.siemens.com/weighing/doc	cumentation	SIWATOOL connection cable	
SIWAREX FTC_L Equipment Manual for solids flowmeters and loss-in-weight scales		from SIWAREX FTC with serial PC interface, for 9-pin PC interfaces (RS 232)	
Available in a range of languages		• 2 m long (6.56 ft)	7MH4702-8CA
Free download on the Internet at:		• 5 m long (16.40 ft)	7MH4702-8CB
http://www.siemens.com/weighing/doc	sumantation	40-pin front connector with screw contacts	
SIWAREX FTC "Getting Started"	currentation	Required for each SIWAREX mod-	
for belt scales		ule .	CEO7000 4 AMOD 0 A A O
Sample software shows beginners how to program the scales in		With screw contacts With spring-loaded terminals	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0
STEP 7 for belt scale mode		Shield connection element Sufficient for one SIWAREX FTC	6ES7390-5AA00-0AA0
Free download on the Internet at:	aum antation	module	
http://www.siemens.com/weighing/doc	currentation	Shield connection clamp	6ES7390-5CA00-0AA0
for solids flowmeters		Contents: 2 units (suitable for cable with diameter	
Sample software shows beginners how to program the scales in STEP 7 for solids flowmeter mode		4 13 mm / 0.16 0.51 inch) Note:	
Free download on the Internet at:		One shield connection clamp is required for each of the following:	
http://www.siemens.com/weighing/doo	cumentation	Scale connectionRS 485 interface	
SIWAREX FTC "Getting Started" for loss-in-weight scales		RS 232 interface	
Sample software shows beginners how to program the scales in STEP 7 for loss-in-weight scale mode		S7 DIN rail • 160 mm (6.30 inch) • 480 mm (18.90 inch) • 530 mm (20.87 inch)	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0
Free download on the Internet at:		• 830 mm (32.68 inch)	6ES7390-1AJ30-0AA0
http://www.siemens.com/weighing/doo	cumentation	• 2 000 mm (78.74 inch)	6ES7390-1BC00-0AA0
SIWATOOL V4 & V7	7MH4900-1AK01	MMC memory For data recording up to 16 MB	7MH4900-2AY20
Service and commissioning soft- ware for SIWAREX weighing mod-		Remote display (optional)	
ules		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: https://www.siebert-group.com/en/	
		Detailed information is available from the manufacturer.	
		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
		SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
		For connecting up to 4 load cells in parallel.	

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC Belt scales

SIWAREX FTC

Selection and ordering data	
SIWAREX JB junction box, stain- less steel housing (ATEX)	7MH5001-0AA01
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	
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 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 EBs. 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 For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF
Commissioning	
Commissioning charge for one belt scale with SIWAREX module	9LA1110-8SM50-0AA0
(Flat charge for travel and setup must be ordered separately)	
Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Dynamic adjustment of the scale	
Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
Flat charge for travel and setup in	9LA1110-8RA10-0AA0

SIWAREX weighing electronics for SIMATIC Loss-in-weight scales

Introduction

Overview



SIWAREX FTC weighing module

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

SIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

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 x 6 000 d
- Use with analog strain gauge load cells of types SIWAREX R and SIWAREX WL200
- 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" 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.

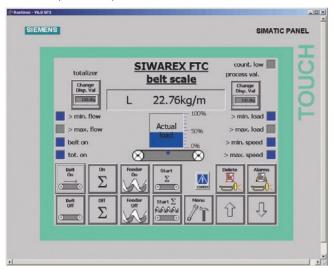
Belt scale / weighfeeder

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.

SIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

Function (continued)



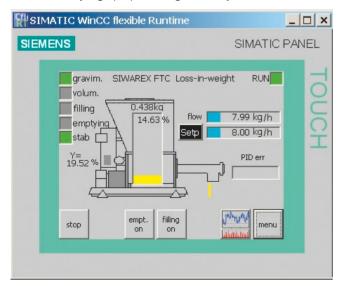
Scale faceplate of a belt scale

Loss-in-weight scale

The typical functions of a loss-in-weight scale are implemented in this operating mode. The actual weight of the container is measured and the flowrate is regulated according to the preset setpoint.

Application-specific parameters, such as proportioning parameters, 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.

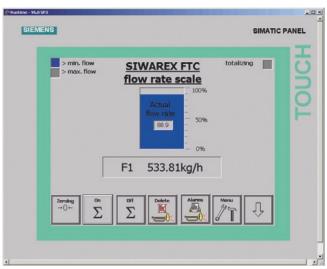
The high measurement resolution, real-time signal processing, detection and filtering of signals in the weighing electronics enable extremely high proportioning accuracy.



Scale faceplate of a loss-in-weight scale

Solids flowmeter

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

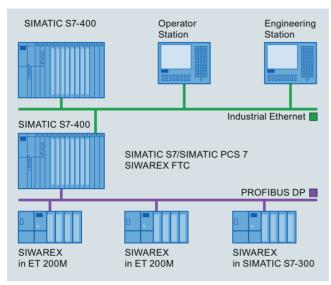
The right combination of SIMATIC components can produce optimum solutions for small, medium-size and large plants. The scales are operated and monitored using SIMATIC standard operator panels. Needless to say, these operator panels can also be simultaneously used for the operator control and monitoring of the plant.

SIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

Function (continued)

Customized 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

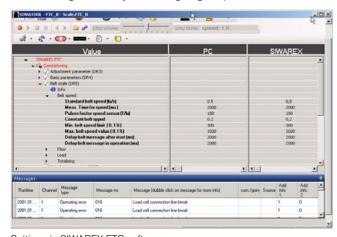
Adjustment of the scale using SIWATOOL FTC

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



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 SI-WATOOL 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.

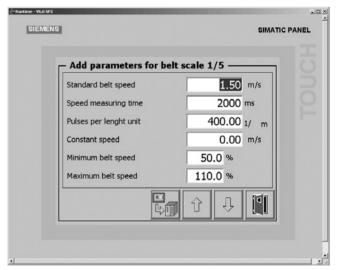
Reading out of weighing reports

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 flow-meter and loss-in-weight scale 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.



Scale faceplate in the SIWAREX FTC "Getting Started" software

SIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

Directly or via ET 200M Through ET 200M	
· ·	
Through ET 200M	
Through ET 200M	
Through backplane bus	
For SIWATOOL or printer connection	
For remote display or digital load cel	
Using SIMATIC S7	
Using SIWATOOL FTC software (RS 232)	
$3 \times 6\ 000\ d \ge 0.5\ \mu V/e$	
+/- 8 million parts	
400/100 Hz	
Critically dampened, Bessel, Butterworth (0.05 20 Hz), mean-value filter	
Non-automatic weighing machine, force measurement	
Belt scale	
Loss-in-weight scale	
Solids flowmeter	
Strain gages in 4-wire or 6-wire system	
1, 2 or 4 mV/V	
10.3 V DC	
184 mA	
$> 56 \Omega$ > 87 Ω with Ex interface $\leq 4 010 \Omega$	

SIWAREX FTC		
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, 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, electrically isolated	
Digital outputs	8, electrically isolated	
Counter input	Up to 10 kHz	
Analog output		
Current range	0/4 20 mA	
Updating rate	100 Hz	
Degree of protection according to EN 60529; IEC 60529	IP20	
Climatic requirements		
$T_{\min \text{ (IND)}} \cdots T_{\max \text{ (IND)}}$ (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)	
Weight	600 g (0.44 lb)	

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

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

SIWAREX FIC			
Selection and ordering data	Article No.		Article No.
SIWAREX FTC Electronic weighing system for	7MH4900-3AA01	SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 • Supports PROFINET	7MH4900-1AK61
S7-300 and ET 200M. Applications: Belt scales, force measurement, loss-in-weight scales and solids flowmeters		APL faceplates and function blocks for: SIWAREX U SIWAREX FTA	
SIWAREX FTC_B Equipment Manual for belt scales		SIWAREX FTASIWAREX FTC_B (belt scale)SIWAREX WP321	
Available in a range of languages		Classic faceplate and function block for:	
Free download on the Internet at:		• SIWAREX FTC_L (Loss-in-weight)	
http://www.siemens.com/weighing/do	cumentation	SIWATOOL connection cable from SIWAREX FTC with serial PC	
SIWAREX FTC_L Equipment Manual for solids flowmeters and loss-in-weight scales		interface, for 9-pin PC interfaces (RS 232) • 2 m long (6.56 ft)	7MH4702-8CA
Available in a range of languages		• 5 m long (16.40 ft)	7MH4702-8CB
Free download on the Internet at:		40-pin front connector with screw	
http://www.siemens.com/weighing/do	cumentation	contacts	
SIWAREX FTC "Getting Started" for belt scales		Required for each SIWAREX module	
Sample software shows beginners how to program the scales in		With screw contactsWith spring-loaded terminals	6ES7392-1AM00-0AA0 6ES7392-1BM01-0AA0
STEP 7 for belt scale mode Free download on the Internet at:		Shield connection element Sufficient for one SIWAREX FTC module	6ES7390-5AA00-0AA0
http://www.siemens.com/weighing/do	cumentation	Shield connection clamp	6ES7390-5CA00-0AA0
SIWAREX FTC "Getting Started" for solids flowmeters		Contents: 2 units (suitable for cable with diameter	0E3/390-3CA00-0AA0
Sample software shows beginners how to program the scales in STEP 7 for solids flowmeter mode		4 13 mm / 0.16 0.51 inch) Note:	
Free download on the Internet at:		One shield connection clamp is required for each of the following:	
http://www.siemens.com/weighing/do	cumentation	Scale connection RS 485 interface	
SIWAREX FTC "Getting Started" for loss-in-weight scales		• RS 232 interface S7 DIN rail	
Sample software shows beginners how to program the scales in STEP 7 for loss-in-weight scale mode		160 mm (6.30 inch) 480 mm (18.90 inch) 530 mm (20.87 inch)	6ES7390-1AB60-0AA0 6ES7390-1AE80-0AA0 6ES7390-1AF30-0AA0
Free download on the Internet at:		• 830 mm (32.68 inch)	6ES7390-1AJ30-0AA0
http://www.siemens.com/weighing/do	cumentation	• 2 000 mm (78.74 inch)	6ES7390-1BC00-0AA0
SIWATOOL V4 & V7 Service and commissioning soft-	7MH4900-1AK01	MMC memory For data recording up to 16 MB	7MH4900-2AY20
ware for SIWAREX weighing mod-		Remote display (optional)	
ules		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: https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.	
		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
		SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
		For connecting up to 4 load cells in parallel.	

Weighing ElectronicsSIWAREX weighing electronics for SIMATIC Loss-in-weight scales

SIWAREX FTC

Selection and ordering data	Article No.
SIWAREX JB junction box, stain- less steel housing (ATEX)	7MH5001-0AA01
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	
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	7MH4710-5BA
< 199 mA DC • With short-circuit current	7MH4710-5CA
< 137 mA DC	/WIN4/10-5CA
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 EBs. 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 • For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF
Commissioning	
Commissioning charge for one belt scale with SIWAREX module	9LA1110-8SM50-0AA0
(Flat charge for travel and setup must be ordered separately)	
Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Dynamic adjustment of the scale	
Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

SIWAREX weighing electronics for SIMATIC Force/torque measurements

Introduction

Overview



Al 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.

SIWAREX weighing electronics for SIMATIC Force/torque measurements

SIWAREX CF

Overview



When measuring force, the designed incorporation of force measuring technology is a significant feature in modern automation systems in addition to the accuracy.

The force measuring modules are based on the same concept for measuring technology incorporation on the automation as the weighing modules. The description concerning this is found in the "Weighing electronics" chapter.

SIWAREX CF is a transmitter for connecting strain-gauge sensors for tasks such as measuring force and torque. The compact module is easy to install in all SIMATIC automation systems. Complete data access to the current measured values is then possible via the SIMATIC.

Benefits

SIWAREX CF offers the following key advantages:

- Uniform design technology and consistent communication thanks to integration in SIMATIC
- Uniform configuration with SIMATIC
- Use in distributed plant concept through connection to PROFIBUS DP/PROFINET using ET 200S
- Bidirectional measurement with a resolution of 16 000 parts and an accuracy of 0.15%

Application

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

- · Monitoring of crane and cable loads
- Measuring the loading on conveyor belts
- · Overload protection in rolling mills
- Monitoring of belt tension
- · Force measurement in testing machines
- Torque and pressure measurement

Design

SIWAREX CF is a compact function module (FM) of the SIMATIC S7 and can be directly snapped onto the ET 200S backplane bus. Assembly and wiring are also greatly simplified by using rails with snap-on technology.

The sensors and the power supply are connected via the standard connection block.

SIWAREX weighing electronics for SIMATIC Force/torque measurements

SIWAREX CF

Function

SIWAREX CF provides the voltage supply required to operate the EMS. The force produces a corresponding measuring signal, which is then further processed in the SIWAREX CF module.

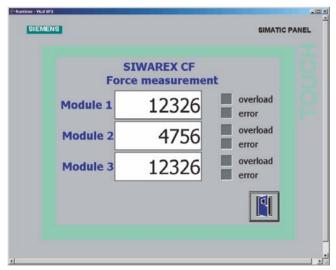
The signal is amplified, coarse-filtered, and then converted to a digital value. A connectable digital filter can additionally reduce noise on the measuring signal.

The digital value is available to the user internally in SIMATIC and can be processed in the control program. For example, the user could further suppress noise through averaging in the SIMATIC CPU or perform a conversion to physical units. The result can be displayed on an operator panel according to requirements.

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

SIWAREX CF can be integrated into the plant software using the classic PLC programming languages STL (Statement List), LAD (Ladder Diagram), FBD (Function Block Diagram) or SCL (Structured Control Language).

Integration into SIMATIC can result in freely-programmable, modular force measuring systems which can be modified according to operational requirements. The ready-to-use SIWAREX CF software "Getting Started" is available free-of-charge and shows beginners how to integrate the module into a STEP 7 program and offers a basis for application programming. This supports the display of the measured values in a SIMATIC panel.



Measured values from three modules in the SIWAREX CF "Getting Started" software

In contrast to analog or digitally connected transmitters, SIWAREX CF does not need costly additional modules to link it to SIMATIC.

After the module has been configured in SIMATIC and installed, it is ready for immediate operation. An additional parameterization tool is not required.

The current data are read into the SIMATIC via the I/O area.

SIWAREX CF	
Integration in automation systems	
S7-400, S7-300, C7	Through ET 200S
Automation systems from other vendors	Possible through ET 200S with IM 151-1
Communication interfaces	SIMATIC S7 (ET 200S backplane bus), 8 bytes, I/O area
Module parameterization	Not required (module is pre-parameterized)
Measuring properties	
Error limit to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	≤ 0.15%
Signal resolution	14 bits plus 1 bit sign
Number of measurements/second	50
Low-pass filter	Without or 2 Hz
Sensors	In accordance with the principle of expansion measurement (full bridge) 4-wire connection
Sensor feed	
Supply voltage, short-circuit-proof	6 V DC ± 5%
Permissible sensor resistance	
• R _{Lmin} • R _{Lmax}	> 250 Ω < 4 010 Ω
Permissible sensor cell coefficient	Up to 4 mV/V
Permissible measurement signal	-25.2 +25.2 mV
range	20.2 120.2 !!!
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	150 mA
Current consumption on backplane bus	Typ. 10 mA
Connection to sensors in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approval zone 2 and safety	ATEX 95, cUL _{us} Haz. Loc.
IP degree of protection to DIN EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{\text{min(IND)}} \dots T_{\text{max(IND)}}$ (operating temperature)	
Vertical installation	0 +60 °C (32 +140 °F)
Horizontal installation	0 +40 °C (32 104 °F)
EMC requirements according to	NAMUR NE21, Part 1 89/386/EEC
Dimensions	$30 \times 80 \times 50 \text{ mm}$ (1.18 × 3.15 × 1.97 inch)

Weighing Electronics
SIWAREX weighing electronics for SIMATIC
Force/torque measurements

SIWAREX CF

Selection and ordering data	Article No.		Article No.
SIWAREX CF	7MH4920-0AA01	Accessories	
Weighing module for strain gauge		SIWAREX EB extension box	7MH4710-2AA
sensors in SIMATIC ET 200S		For extending sensor cables	
(SIWAREX CF configuration package not required)		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
SIWAREX CF Equipment Manual • German • English		For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	
Free download on the Internet at:		SIWAREX JB junction box,	7MH5001-0AA00
http://www.siemens.com/weighing/do	cumentation	stainless steel housing	
SIWAREX CF "Getting Started"		For connecting up to 4 load cells in parallel.	
Sample software shows beginners how to program in STEP 7.		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
Free download on the Internet at:		For parallel connection of up to 4	
http://www.siemens.com/weighing/do	cumentation	load cells (for zone allocation, see manual or type-examination certifi-	
Installation material (mandatory)		cate).	
Terminal module	6ES7193-4CG20-0AA0	Ex interface SIWAREX IS	
TM-E 30 mm (1.18 inch) wide (required for each SIWAREX mod- ule)	Or compatible	For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compati-	
Shield connection element	6ES7193-4GA00-0AA0	bility of load cells must be checked	
Contents 5 units, sufficient for 5 cables		separately. • With short-circuit current < 199 mA DC	7MH4710-5BA
Shield connection clamp	6ES7193-4GB00-0AA0	With short-circuit current	7MH4710-5CA
Contents: 5 units, sufficient for 5 cables		< 137 mA DC Cable (optional)	
One shield connection clamp is required per sensor cable		Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY	
N busbar, zinc-plated	8WA2842	For connecting SIWAREX electronic	
$3 \times 10 \text{ mm}$ (0.12 x 0.39 inch), 1.5 m (4.92 ft) long		weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For	
Feeder terminal for N busbar	8WA2868	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 • For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF

SIWAREX weighing electronics for SIMATIC Force/torque measurements

AI 2xSG 4/6-wire HS

Overview



ET 200SP analog input module for force and torque sensors

SIMATIC ET 200SP, analog input module, AI 2xSG 4-, 6-wire high speed		
General information		
Product type designation	Al 2xSG 4-/6-wire HS	
Product function I&M data Measuring range scalable Measured values scalable Measuring range adaptation	Yes, I&M0 to I&M3 Yes No Yes; ± 0.5 320 mV/V	
Engineering with STEP 7 TIA Portal can be configured/integrated as of version STEP 7 can be configured/integrated as of version		
PROFIBUS as of GSD version/GSD revision PROFINET as of GSD version/GSD revision	V03.01.105 GSDML V2.33	
Operating mode Oversampling MSI	Yes; 2 channels per module 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 • Values per cycle, max. • Resolution, min.	Yes 14 100 μs	
Input ranges • Strain gauge (full bridge)	Yes	
Cable length • Shielded, max.	500 m	

SIMATIC ET 200SP, analog input mod	Juie, Ai 2330 4-, 6-wire high speed
Generation of analog input values	
Measuring principle	Sigma delta
Integration and conversion time/res- olution per channel	
Resolution with overrange (bits including sign), max. Configurable integration time Interference voltage suppression for interference frequency f1 in Hz Conversion time (per channel)	28 bits; 16 bits with oversampling Yes 60 / 50 Hz / no 100 µs
Measured value smoothing	
IIR low-pass filter frequency IIR low-pass filter ordinal number Notch filter frequency Notch filter quality Average value filter	0.01 600 Hz 1 4 0.1 1 000 Hz 5.00 250.00 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.Resistance of full bridge max.	80 W 5 000 W
Errors/accuracies	
Temperature coefficient zero point	≤ ±0.25 mV/K
Temperature coefficient, span	≤ ±5 ppm/K
4-wire connection (in relation to end value)	
Temperature coefficient, span	≤±10 ppm/K
6-wire connection (in relation to end value)	
Basic error limit	
(operational limit at 25 °C) • Voltage, related to input range, (+/-)	0.05%; see manual for details

SIWAREX weighing electronics for SIMATIC Force/torque measurements

AI 2xSG 4/6-wire HS

Technical specifications (continued)

Yes
87 μs
125 µs
Yes
Yes
Yes, two high and two low limits
Yes
Yes; green PWR LED
Yes; green LED
Yes; red LED
Yes; green/red DIAG LED
Yes
707 V DC (type test)
No
-25 °C
60 °C
-25 °C
50 °C
$T_{\rm min}$ $T_{\rm max}$ at 1 140 hPa 795 hP (-1 000 m +2 000 m)
$T_{\text{min}} \dots (T_{\text{max}} - 1 \text{ K/100 m})$ at
795 hPa 701 hPa (+2 000 m +3 000 m)
(+2 000 m +3 000 m)
(+2 000 m +3 000 m) 15 mm 73 mm
(+2 000 m +3 000 m) 15 mm
(+2 000 m +3 000 m) 15 mm 73 mm

Selection and ordering data	Article No.
SIMATIC ET 200SP analog input module, AI 2xSG 4-, 6-wire high speed	7MH4134-6LB00-0DA0
Suitable for BU type A0 color code CC00, channel diagnostics, 28/16-bit, +/- 0.05% for full-bridge strain gauges	
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 × 117 mm (1.57 x 7.09 in)	6ES7193-6BP00-0BA0
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)	6ES7193-6BP00-0DA0
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 × 141 mm (1.57 x 7.09 in)	6ES7193-6BP20-0BA0
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 × 141 mm (1.57 x 7.09 in)	6ES7193-6BP20-0DA0

6ES7193-6SC00-1AM0

SIMATIC ET 200SP, 5 shield

connection clamps and 5 shield supports, for direct connection

SIWAREX weighing electronics 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.

SIWAREX weighing electronics for SIMATIC Ex-Interfaces

SIWAREX IS

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.

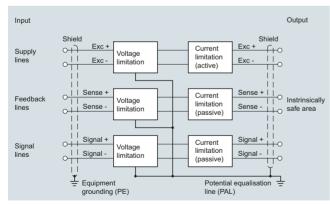
The SIWAREX IS only interferes with the load cell signal to a very small extent and is therefore approved for scales requiring official calibration.

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

Technical specifications

Ex interface, type SIWAREX IS	Standard	Low-current version
Non-intrinsically-safe ci	rcuits	
Load cell powering		
Rated voltage Un1	10 V DC	
Permissible error voltage	250 V AC	
Internal resistance of load cells depending on input voltage	$\geq 8.7 \ \Omega/V$	\geq 18 Ω/V
Total	$<$ 4 010 Ω	
Sensor line		
Rated voltage $U_{\rm n2}$	10 V DC	
Permissible error voltage	250 V AC	
Measuring signal line		
Rated voltage $U_{\rm n3}$	10 40 mV DC	
Permissible error voltage	250 V AC	

Intrinsically safe circuits

Load cell powering		
No-load voltage U_{01}	≤ 13.1 V DC	
Voltage against equipotential bonding cond.	≤ 6.6 V DC	
Short-circuit current I _{K1}	≤ 120 mA	≤ 58 mA
Sensor line		
No-load voltage U_{02}	≤ 14.4 V DC	
Voltage against equipotential bonding cond.	≤ 7.2 V DC	
Short-circuit current $I_{\rm K2}$	≤ 25 mA	
Measuring signal line		
No-load voltage U_{03}	≤ 12.8 V DC	
Voltage against equipotential bonding cond.	≤ 6.4 V DC	
Short-circuit current I _{K3}	≤ 54 mA	
Total connection load		
(when circuits are connected together)		
No-load voltage U_0	≤ 14.4 V DC	
Short-circuit current $I_{\rm K}$	≤ 199 mA	≤ 137 mA
Power P _O	≤ 1.835 W	≤ 1.025 W
For gas group II C		
Max. permissible external capacitance $C_{\rm a3}$	500 nF	450 nF
Max. permissible external inductance L_a	0.15 mH	0.5 mH
For gas group II B		
Max. permissible external capacitance $C_{\rm a3}$	2 000 nF	
Max. permissible external inductance $L_{\rm a}$	1 mH	2 mH

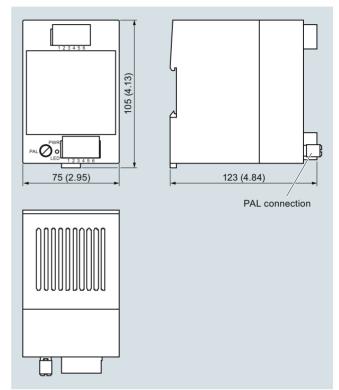
SIWAREX weighing electronics for SIMATIC Ex-Interfaces

SIWAREX IS

Technical specifications (continued)

Ex interface, type SIWAREX IS	Standard	Low-current version
General data		
Weight, approx.	500 g	
Permissible ambient temperature • During operation • During operation for legal-for-trade medium accuracy weighing machines	-10 +40 °C (14	140 °F) (for vertical mounting) 104 °F) (for vertical mounting)
 During transportation and storage 	-40 +85 °C (-40	+185 °F)
Permissible relative humidity	≤ 95%	
Degree of protection	IP20	
Approvals		
EC type test certificates No.	TÜV 01 ATEX 1722 X	
Type of explosion protection	Intrinsic safety "i" II (2) G [Ex ibGb] IIC	
IEC certification	or II (2) D [EX ib Db] IIII IECEX TUN 06.0002 [Ex ib Gb] IIC or [Ex ib Db] IIIC	
Calibration approval (German Testing Labora- tory test certificate) according to	EN 45501, OIML R76	6-1, 90/384/EEC

Dimensional drawings



SIWAREX IS Ex interface, dimensions in mm (inch)

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.

• With short-circuit current < 199 mA DC

• With short-circuit current < 137 mA DC

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 EBs. 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.
- For hazardous atmospheres. Sheath color: blue.

7MH4710-5BA

7MH4710-5CA

7MH4702-8AG 7MH4702-8AF

Stand-alone electronics Platform and hopper scales

Introduction

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.

Stand-alone electronics
Platform and hopper scales

SIWAREX WP231

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 / NTEP Class III / III L
- 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.

Stand-alone electronics Platform and hopper scales

SIWAREX WP231

Function (continued)

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.



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).

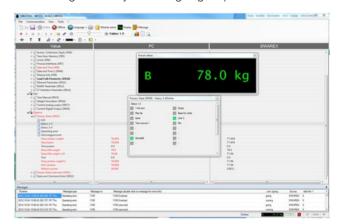
SIMATIC Basic and Key Panels cannot be used for applications requiring official calibration.

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

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.

Stand-alone electronics
Platform and hopper scales

SIWAREX WP231

SIWAREX WP231		
Integration in automation systems		
S7-1200	SIMATIC S7-1200 system bus	
Operator panel and/or automation systems from other vendors	Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)	
Communication interfaces	SIMATIC S7-1200 backplane bus SS 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	Using SIWATOOL V7 Using function block in SIMATIC S7-1200 CPU / Touch Panel Using Modbus TCP/IP Using Modbus RTU	
Measuring accuracy		
EU type approval as non-automatic weighing instrument, trade class III	3000 d \geq 0.5 μ V/e	
Error limit according to DIN 1319-1 of full-scale value at 20 °C \pm 10 K (68 °F \pm 10 K)	0.05%	
Internal resolution	Up to ± 4 million parts	
Measuring frequency	100 / 120 Hz	
Digital filter	Variable adjustable low-pass and average filter	
Typical applications	Non-automatic weighing instruments Force measurements Fill-level monitoring Belt tension monitors	
Weighing functions		
Weight values	 Gross Net Tare	
Limit values	• 2 × min/max • Empty	
Zeroing	Per command	
Tare	Per command	
Tare specification	Per command	

SIWAREX WP231		
Load cells	Full-bridge 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	. 50.0	
• R _{Lmin} • R _{Lmax}	> 50 Ω < 4 100 Ω	
Load cell characteristic	1 4 mV/V	
	·	
Permissible range of the measure- ment 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 inter- face (compatibility of the load cells must be checked)	
Approvals/certificates	ATEX Zone 2 UL EAC KCC RCM OIML R-76 Design approval 2009/23/EC (NAWI) NTEP Class III / III L	
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 DIN EN 60529; IEC 60529	IP20	
Climatic requirements		
$T_{\min(\text{IND})} \dots T_{\max(\text{IND})}$ (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	$70 \times 75 \times 100 \text{ mm}$ (2.76 × 2.95 × 3.94 inch)	

Weighing Electronics Stand-alone electronics Platform and hopper scales

SIWAREX WP231

Selection and ordering data	Article No.		Article No.
SIWAREX WP231	7MH4960-2AA01	Remote display (optional)	
weighing module 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		The digital remote displays can be connected directly to the SIWAREX WP231 via the RS 485 interface. Suitable remote display: S102 Siebert Industrieelektronik GmbH	
port.		PO Box 1180 D-66565 Eppelborn	
SIWAREX S7-1200 Equipment Manual		Tel.: +49 6806/980-0 Fax: +49 6806/980-999	
Available in a range of languages		https://www.siebert-group.com/en/	
Free download on the Internet at:		Detailed information is available from the manufacturer.	
http://www.siemens.com/weighing/doc	cumentation	Accessories	
SIWAREX WP231 "Ready for use"		SIWAREX JB junction box,	7MH5001-0AA20
Complete software package for non-automatic weighing instrument (for S7-1200 and a directly connected operator panel).		aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple	,
Free download on the Internet at:		junction boxes. SIWAREX JB junction box,	7MH5001-0AA00
http://www.siemens.com/weighing/dod	cumentation	stainless steel housing	/WINSOUT-UAAUU
SIWAREX WP231 "Ready for use - legal-for-trade"		For connecting up to 4 load cells in parallel.	
Software package for non-auto- matic weighing instruments for S7-1200 requiring official calibra-		SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01
tion. Free download on the Internet at:		For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certifi-	
http://www.siemens.com/weighing/doo	cumentation	cate).	
Software SecureDisplay		SIWAREX DB digital junction box	7MH5001-0AD20
Software for a legal trade display on Windows CE-based Panel. SIMATIC Basic and Key Panels are		For enhanced diagnostics and monitoring options in conjunction with SIWAREX WP electronics.	
excluded.		SIWAREX IS Ex interface	
Free download on the Internet at:		For intrinsically-safe connection of	
http://www.siemens.com/weighing/doc		load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX elec-	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	7MH4900-1AK01	tronic weighing systems. Compatibility of load cells must be checked separately. Short-circuit current < 199 mA DC	7MH4710-5BA
Calibration set	7MH4960-0AY10	Short-circuit current < 137 mA DC	7MH4710-5CA
for SIWAREX WP2xx		Cable (optional)	
Valid for SIWAREX WP231 and SIWAREX WP251.		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
For verification of up to 3 scales, comprising:		For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex	
• 3 × inscription foils for ID label		interface or between two EBs. For	
• 1 × protective film		permanent installation. Occasional bending is possible.	
3 × calibration protection plates Cuidelines for verification, partification, partifica		External diameter:	
 Guidelines for verification, certificates and approvals, editable label, SIWAREX WP 		approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	Sold by the meter. • Sheath color: orange	7MH4702-8AG
For connecting SIWAREX WP231 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.		For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
pa.ioi, oto.		Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11

Stand-alone electronics
Platform and hopper scales

SIWAREX WP231

Selection and ordering data	Article No.
Commissioning	
Commissioning charge for one static scale with SIWAREX module	9LA1110-8SN50-0AA0
(Flat charge for travel and setup must be ordered separately)	
Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Static adjustment of the scale	
Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

Stand-alone electronics Platform and hopper scales

SIWAREX WT231

Overview



SIWAREX WT231 weighing module

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 hoppers
- 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 preinstalled 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

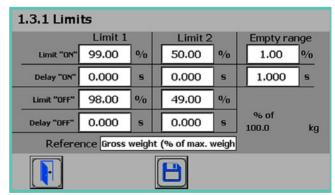
The primary task of SIWAREX WT231 is the measurement and conversion of sensor voltage into a weight value. Up to three interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

Weighing functions

There are commands available for zeroing and taring. Up to three different tare default values can be activated. The SI-WAREX 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.



SIWAREX WT231 operating view "Limit values"

Stand-alone electronics
Platform and hopper scales

SIWAREX WT231

Function (continued)

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 und one analog output are also available. Direct, straightforward further processing of alarms or status messages is thus made possible.

SIWAREX WT231	
Enclosure	Stainless steel enclosure (1.4301) with the interfaces:
	• 1 × wall bushing for power supply
	 4 × wall bushing for load cell con- nection with EMC screw connection
	• 4 x 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 4 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) 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" oper- ating software
Calibration approval	No
Internal resolution	Up to ± 4 million parts
Number of measurements/second (internal)	100 Hz
Filter	Low-pass filter 0.1 50 Hz Average value filter
Weighing functions	
Weight values	 Gross Net Tare
Limit values	Min/maxEmpty
Zero-setting function	Per command
Tare function	Per command
Tare specification	Per command

SIWAREX WT231		
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	-21.3 +21.3 mV	
signal (at greatest set characteristic value		
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 DIN 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	$264 \times 185 \times 97 \text{ mm}$ (10.39 × 7.28 × 3.82 inch)	
Weight	4 kg (8.82 lb)	

Weighing Electronics Stand-alone electronics Platform and hopper scales

SIWAREX WT231

Selection and ordering data	Article No.		Article No.
SIWAREX WT231	7MH4965-2AA01	Cable (optional)	
Weighing terminal for industrial scales		Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY	
SIWAREX WT231 Equipment Manual		For connecting SIWAREX electronic	
In various languages.		weighing systems to junction box (JB), extension box (EB) and Ex	
Free download on the Internet at:		interface or between two EBs. For permanent installation. Occasional	
http://www.siemens.com/weighing/do	cumentation	bending is possible.	
Accessories		External diameter:	
SIWATOOL V4 & V7	7MH4900-1AK01	approx. 10.8 mm (0.43 inch) Permissible ambient temperature	
Service and commissioning		-40 +80 °C (-40 +176 °F)	
software for SIWAREX weighing		Sold by the meter.	
modules		Sheath color: orange	7MH4702-8AG
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	 For hazardous atmospheres. Sheath color: blue. 	7MH4702-8AF
For connecting SIWAREX WT231 to		Commissioning	
a PC (SIWATOOL), SIMATIC CPU, panel, etc.		Commissioning charge for one static scale with SIWAREX	9LA1110-8SN50-0AA0
Spare parts		module	
Connection board SIWAREX WT2x1	A5E46650277	(Flat charge for travel and setup must be ordered separately)	
Connection board for connection of load cells and speed sensor in SIWAREX WT2x1 as spare part		Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Static adjustment of the scale	
		Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
		Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

Stand-alone electronics Belt scales

Introduction

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.

Stand-alone electronics

Belt scales

SIWAREX WP241

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.

Stand-alone electronics Belt scales

SIWAREX WP241

Function (continued)

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.

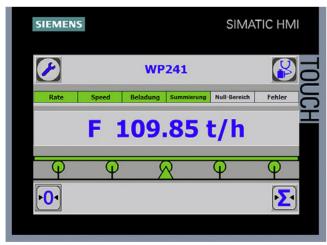
Integration in the plant environment

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 electronic weighing systems, 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.



SIWAREX WP241 "Ready for use"

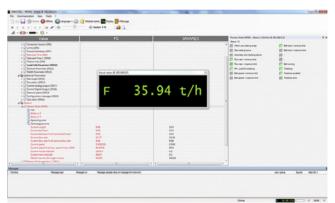
In addition to the configuration package, fully-featured SIWAREX WP241 "Ready for use" software is also available free-of-charge. It shows beginners how to integrate the module in a STEP 7 program and offers a basis for application programming. This allows you to connect the scale to an operator panel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

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.

recillical specifications	
SIWAREX WP241	
Integration in automation systems	
S7-1200	SIMATIC S7-1200 system bus
Operator panel and/or automation systems from other vendors	Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)
Communication interfaces	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	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 \pm 10 K (68 °F \pm 10 K)	0.05%
Internal resolution	Up to ± 4 million parts
Measuring frequency	100 / 120 Hz
Digital filter	Separate, variable adjustable low-pass and average filter for loading and speed
Filter for conveyor load	Low-pass filter (limit frequency 0.05 50 Hz)
Filter for belt speed	Low-pass filter (limit frequency 0.05 50 Hz)
Weighing functions	
Readout data	Weight Belt load Material flow rate Accumulated total Main total Free totals 1 4 Belt speed
Limits (min/max)	Belt loadMaterial flow rateBelt speed
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system

SIWAREX WP241		
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 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	ATEX Zone 2 UL EAC KCC RCM	
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 DIN EN 60529; IEC 60529	IP20	
Climatic requirements		
T _{min(IND)} T _{max(IND)} (operating temperature) • Vertical installation • Horizontal installation	-10 +40 °C (14 104 °F) -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 electronics Belt scales

SIWAREX WP241

Selection and ordering data	Article No.		Article No.
SIWAREX WP241	7MH4960-4AA01	Cable (optional)	
weighing module Single-channel, legal-for-trade, for automatic proportioning and filling		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
scales (GFI, CWI, NAWI) with analog load cells / full-bridge strain gauge (1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485, Ethernet port.		For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible.	
SIWAREX S7-1200 Equipment Manual		External diameter: approx. 10.8 mm (0.43 inch)	
Available in a range of languages		Permissible ambient temperature	
Free download on the Internet at:		-40 +80 °C (-40 +176 °F)	
http://www.siemens.com/weighing/do	cumentation	Sold by the meter. • Sheath color: orange	7MH4702-8AG
SIWAREX WP241 "Ready for use"		For hazardous atmospheres. Sheath color: blue.	7MH4702-8AF
Complete software package for belt scale (for S7-1200 and a directly connected operator panel)		Ground terminal for connecting the load cell cable shield to the grounded DIN rail	6ES5728-8MA11
Free download on the Internet at:		Commissioning	
http://www.siemens.com/weighing/do	ocumentation	Commissioning charge for one	9LA1110-8SM50-0AA0
SIWATOOL V4 & V7	7MH4900-1AK01	belt scale with SIWAREX module	
Service and commissioning software for SIWAREX weighing modules		(Flat charge for travel and setup must be ordered separately) Scope:	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	Recording of data Checking of mechanical installation of the scale	
For connecting SIWAREX WP241 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.		 Checking of electrical wiring and function Dynamic adjustment of the scale 	
Accessories		Requirements:	
SIWAREX JB junction box, aluminum housing	7MH5001-0AA20	 Mechanical design functional Modules electrically wired and tested 	
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.		Calibration weights available Free access to scale Flat charge for travel and setup	9LA1110-8RA10-0AA0
SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00	in Germany	SEATTIO-DIATO-DANG
For connecting up to 4 load cells in parallel.			
SIWAREX JB junction box, stainless steel housing (ATEX)	7MH5001-0AA01		
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).			
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		

Stand-alone electronics
Belt scales

SIWAREX WT241

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 can be 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.

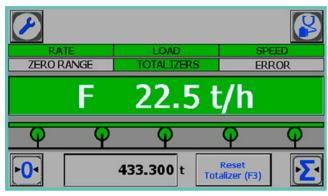
Stand-alone electronics Belt scales

SIWAREX WT241

Function (continued)

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.



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.

Weighing Electronics Stand-alone electronics Belt scales

SIWAREX WT241

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 x 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" oper- ating 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	
Limits (min./max.)	Belt loadMaterial flow rateBelt speed	
Zero-setting function	On command or automatic set to zero	

SIWAREX WT241	
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	-21.3 +21.3 mV
signal (at greatest set characteristic value	e)
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 DIN EN 60529; IEC 60529	IP65
Climatic requirements	
$T_{\min(\text{IND})} \dots T_{\max(\text{IND})}$ (operating temperature)	
 Vertical installation 	0 +40 °C (32 104 °F)
EMC requirements according to	EN 45501
Dimensions	$264 \times 185 \times 97 \text{ mm}$ (10.39 × 7.28 × 3.82 inch)
Weight	4 kg (8.82 lb)
	· ,

Weighing Electronics
Stand-alone electronics Belt scales

SIWAREX WT241

Selection and ordering data	Article No.		Article No.
SIWAREX WT241 Weighing terminal for belt scales	7MH4965-4AA01	Cable (optional)	
SIWAREX WT241 Equipment Manual		Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY	
In various languages.		For connecting SIWAREX electronic weighing systems to junction box	
Free download on the Internet at:		(JB), extension box (EB) and Ex interface or between two EBs.	
http://www.siemens.com/weighing/do	ocumentation	For permanent installation. Occa- sional bending is possible.	
Accessories SIWATOOL V4 & V7	7MH4900-1AK01	External diameter: approx. 10.8 mm (0.43 inch)	
Service and commissioning software for SIWAREX weighing		Permissible ambient temperature -40 +80 °C (-40 +176 °F)	
modules		Sold by the meter.	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20	Sheath color: orange For hazardous atmospheres. Sheath color: blue.	7MH4702-8AG 7MH4702-8AF
For connecting SIWAREX WT241 to a PC (SIWATOOL), SIMATIC CPU,		Commissioning	
panel, etc.		Commissioning charge for one	9LA1110-8SM50-0AA0
Spare parts		belt scale with SIWAREX module	
Connection board SIWAREX WT2x1	A5E46650277	(Flat charge for travel and setup must be ordered separately)	
Connection board for connection of load cells and speed sensor in SIWAREX WT2x1 as spare part		Scope: Recording of data Checking of mechanical installation of the scale Checking of electrical wiring and function Dynamic adjustment of the scale	
		Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	
		Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

Stand-alone electronics
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
- Inclinometer input with optional analog I/O card to compensate for conveyor slope
- Suitable for belt scale custody approval
- Measurement Canada, OIML, MID, EAC, 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 weigh-feeders - 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
Ratio blending and batching	Standard	N/A
Moisture and incline compensation	With optional I/O card, orParameter 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

Stand-alone electronics Belt scales

Milltronics BW500 and BW500/L

reclifical specifications	
Milltronics BW500 and BW500/L	
Mode of operation	
Measuring principle	Belt scale integrator
Typical application	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	O 5 V low, 5 15 V high 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	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	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
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

Milltronics BW500 and BW500/L		
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 • 100 240 V AC, ± 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo DC version	
	• 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	Two RS 232 portsOne RS 485 portSmartLinx compatible	
mA I/O board		
Inputs	2 programmable 0/4 \dots 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 \dots 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, CSA _{US/C} , FM, Measurement Canada, NTEP, MID, OIML, GOST, RCM, EAC, SABS, STAMEQ, KCC	
BW500/L	CE, $CSA_{US/C}$, FM, RCM, EAC, KCC	
Options	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.

Weighing Electronics Stand-alone electronics Belt scales

Y15

C11

Y77 Y78 G21

S50

A11 A12

A13 A14 A15

A35

Order code

Milltronics BW500 and BW500/L

Selection and ordering data	Article No.	
Milltronics BW500 and BW500/L Integrator	7MH7152-	Further designs
Full-feature, powerful integrator designed for use with both belt scales and weighfeeders.		Please add "-Z" to article no. and specify order code(s).
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		Stainless steel tag (69 x 50 mm), Measuring-point number/identification (max 27 characters), specify in
Input voltage		plain text.
AC voltage	2	Manufacturer's test certificate: According to EN 10204-2.2
DC voltage	3	OIML/MID approval additional nameplate
Auxiliary input/output board		(submit application data with order)
None Board with 2 analog inputs and 2 analog outputs ¹⁾	A B	NTEP approval additional nameplate (submit application data with order)
Feature software	_ •	LVDT conditioner card mounted and connected for
		use with LVDT belt scales
BW500, 1 6 load cell input (advanced feature set) BW500/L, 1 2 load cell input ²⁾ (basic feature set)	A B	Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is
	-	field mounted with enclosure)
Auxiliary memory None	0	Stainless steel enclosure, 304 (1.4301), [406 x 305 x 152 mm (16 x 12 x 6 inch), Nema/Type
Data communications ³⁾		4X, IP66; (finished unit is mounted inside enclosure)] • With window
SmartLinx ready	0	With window Without window
SmartLinx PROFIBUS DP module	2	Painted mild steel, [406 x 305 x 152 mm
SmartLinx DeviceNet module	3	(16 x 12 x 6 inch), Nema/Type 4, IP65; (finished unit is mounted inside enclosure)]
SmartLinx PROFINET module	4	With window
SmartLinx EtherNet/IP module	5	Without window
SmartLinx Modbus TCP/IP module	6	Painted mild steel, anti-vibration enclosure with view-
Enclosures		ing window [406 x 305 x 203 mm (16 x 12 x 8 inch), Nema/Type 4, IP66; (finished unit is mounted inside
Standard enclosure, no entry holes	1	enclosure)]
Standard enclosure, 4 entries, for M20 glands	2	Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F); finished unit is
Trade approval stickers		mounted inside enclosure 483 x 584 x 203 mm
No trade approval sticker	A	(19 x 23 x 8 inch)
Not legal for Canadian and EU trade sticker	В	Instruction manuals
Legal for Canadian trade ⁴⁾⁵⁾⁶⁾	С	All literature is available to download for free, in a range of languages, at
Legal for U.S. trade (NTEP) ⁴⁾⁵⁾⁶⁾	D	http://www.siemens.com/weighing/documentation
Legal for World trade (OIML), European trade (MID) ⁴⁾⁵⁾⁶⁾	E	
Approvals		

CE, $CSA_{US/C}$, FM, RCM, EAC, KCC

Stand-alone electronics Belt scales

Milltronics BW500 and BW500/L

Selection and ordering data	Article No.
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
SIMATIC Touch panel 277, 6 inch	6AV6643-0AA01- 1AX0
SIMATIC Touch panel TP277B, 6 inch	6AV6642-0BA01- 1AX1
SIMATIC Multi-panel MP277, 8 inch	6AV6643-0CB01- 1AX1
Programmed MMC for SIMATIC panel TP277	7MH7726-1AW
Programmed MMC for SIMATIC panel TP177B	7MH7726-1AX
Programmed MMC for SIMATIC panel MP277	7MH7726-1AY
SITRANS RD100 Remote displays, see RD100 on page 2/106	7ML5741
SITRANS RD150 Remote displays, see RD150 on page 2/109	7ML5742
SITRANS RD200 Remote displays, see RD200 on page 2/113	7ML5740
SITRANS RD300 Remote displays, see RD300 on page 2/117	7ML5744
SITRANS RD500 web, datalogging, alarming, Ethernet, and modem support for instrumentation, see page 2/121	7ML5750-1AA00-0
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
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) Described for DID sectors and relies and libraries associated	

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.

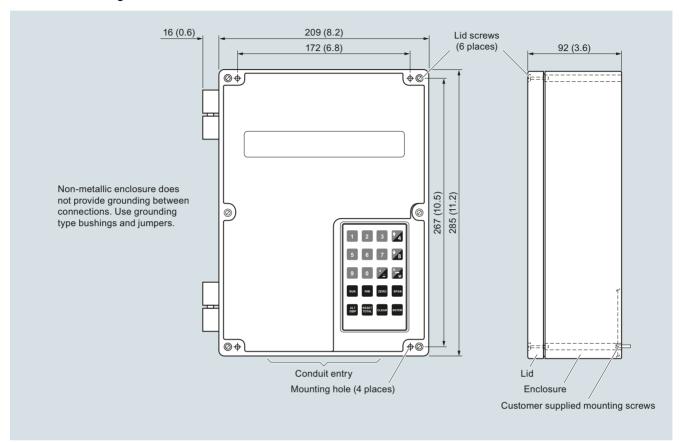
⁵⁾ Complete specification data sheet and submit with order (see Application Questionnaire at http://www.siemens.com/weighing/application-questionnaires)

⁶⁾ Available with feature software option A only.

Weighing Electronics Stand-alone electronics Belt scales

Milltronics BW500 and BW500/L

Dimensional drawings

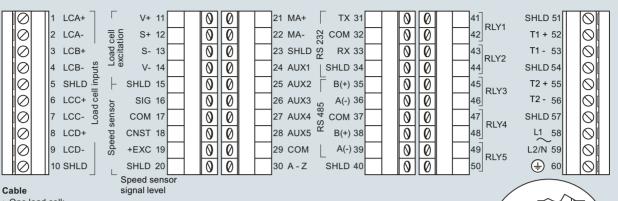


Milltronics BW500 and BW500/L, dimensions in mm (inch)

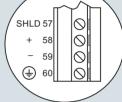
Stand-alone electronics Belt scales

Milltronics BW500 and BW500/L

Circuit diagrams



- · 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.



DC version

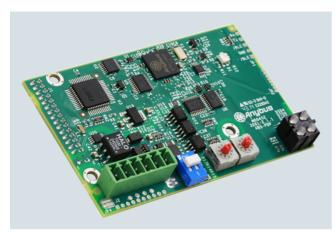
Milltronics BW500 and BW500/L connections

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

Weighing Electronics Stand-alone electronics 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
- Scaleable 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.

Stand-alone electronics Belt scales

SmartLinx module

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	 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	MultiRanger 200 HMIHydroRanger 200 HMI

Module type	PROFINET IO module
Interface	RJ 45 female
Transmission rate	10/100 Mbits/s
Address	IP address though dip switches or via DCP or DHCP
Connection	Slave/server
SmartLinx module compatibility	 MultiRanger 200 HMI HydroRanger 200 HMI Milltronics BW500, BW500/L Milltronics SF500

Module type	Modbus TCP/IP, EtherNet/IP
Interface	RJ 45 female
Transmission rate	10/100 Mbits/s
Address	IP address though dip switches or via DCP or DHCP
Connection	Slave/server
SmartLinx module compatibility	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	MultiRanger 200 HMIMultiRanger 100/200HydroRanger 200 HMIHydroRanger 200

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	

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

http://www.siemens.com/weighing/documentation

Stand-alone electronics Dosing/filling/bagging and checking scales

Introduction

Overview



SIWAREX WP251 electronic weighing module

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.

Stand-alone electronics

Dosing/filling/bagging and checking scales

SIWAREX WP251

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 R-76, R-51, R-61 and R-107
- 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:

- Automatic catchweighing instruments (ACI) legal-for-trade in accordance with OIML R-51
- Automatic gravimetric filling instruments (AGFI) legal-fortrade in accordance with OIML R-61
- Non-automatic weighing instruments (NAWI) legal-for-trade in accordance with OIML R-76
- Discontinuous totalizing automatic weighing instruments (DTAWI) — legal-for-trade in accordance with OIML R-107

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 SI-WAREX module can be used for commissioning. Access using W-LAN 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.

Stand-alone electronics

Dosing/filling/bagging and checking scales

SIWAREX WP251

Function (continued)

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 fully controlled 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



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

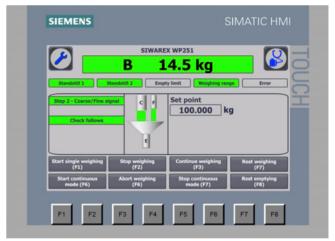
An additional program function can be used to download a new firmware version onto the SIWAREX WP251 on site. This means that firmware upgrades can be carried out on site as required anywhere in the world.

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.



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.

Stand-alone electronics
Dosing/filling/bagging and checking scales

SIWAREX WP251

Technical specifications

Non-automatic weighing instrument (NAWI) (filling + removal) (legal-for- trade in accordance with OIML R-76'	
Automatic catchweighing instru- ments (ACI) (filling + removal) (le- gal-for-trade in accordance with OIML R-51)	
Automatic gravimetric filling instru- ments (AGFI) (legal-for-trade in ac- cordance with OIML R-61)	
Discontinuous totalizing automatic weighing instruments (DTAWI) — legal-for-trade in accordance with OIML R-107	
SIMATIC S7-1200 system bus	
Via Ethernet (Modbus TCP/IP) or RS 485 (Modbus RTU)	
1 × SIMATIC S7-1200 system bus 1 × Ethernet (SIWATOOL and Modbus TCP/IP) 1 × RS 485 (Modbus RTU or remote display) 1 x analog output (0/4 - 20 mA) 4 × digital inputs (24 V DC, floating) 4 × digital outputs (24 V DC, floating, short-circuit proof)	
 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 	
Full access using function block in SIMATIC S7-1200 Full access using Modbus TCP/IP Full access using Modbus RTU	
Via RS 485	
PC software SIWATOOL (Ethernet), S7-1200 function block and touch panel or directly connected operator panel (Modbus)	
, ,	
0.05%	
Up to ± 4 million parts	
Up to ± 4 million parts 100 or 120 (selectable)	

SIWAREX WP251	
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} • R _{Lmax}	> 40 Ω < 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 measure- ment 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	• ATEX Zone 2 • UL • KCC • EAC • RCM
Calibration approvals	EU type-examination certificate 2014/31/EU (NAWI) according to OIML R-76 EU type-examination certificate 2014/32/EU (MID) according to OIML R-61 and OIML R-51 EU type-examination certificate 2014/32/EU (MID) according to OIML R-107
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 DIN EN 60529; IEC 60529	IP20
Climatic requirements T _{min(IND)} T _{max(IND)} (operating temperature) • Vertical installation • Horizontal installation	-10 +40 °C (14 104 °F) -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 electronics Dosing/filling/bagging and checking scales

SIWAREX WP251

			SIWARLA WF251
Selection and ordering data	Article No.		Article No.
SIWAREX WP251	7MH4960-6AA01	Accessories	
weighing module Single-channel, legal-for-trade, for		SIWAREX JB junction box, aluminum housing	7MH5001-0AA20
automatic dosing and filling scales		•	
(AGFI, ACI, NAWI) with analog load cells / full-bridge strain gauges		For connecting up to 4 load cells in parallel, and for connecting multi-	
(1 - 4 mV/V), 1 × LC, 4 × DQ, 4 × DI, 1 × AQ, 1 × RS 485,		ple junction boxes.	
Ethernet port.		SIWAREX JB junction box, stainless steel housing	7MH5001-0AA00
SIWAREX WP251 Equipment Manual		For connecting up to 4 load cells in parallel.	
Available in a range of languages		SIWAREX JB junction box,	7MH5001-0AA01
Free download on the Internet at:		stainless steel housing (ATEX)	
http://www.siemens.com/weighing/do	cumentation	For parallel connection of up to 4 load cells (for zone allocation, see	
SIWAREX WP251		manual or type-examination certifi-	
"Ready for use"		cate).	
Free download on the Internet at:	aumontation	SIWAREX IS Ex interface	
http://www.siemens.com/weighing/do	7MH4900-1AK01	For intrinsically-safe connection of load cells. With ATEX approval (not	
	7MH4900-1AR01	UL/FM). Suitable for SIWAREX	
Service and commissioning software for SIWAREX weighing		electronic weighing systems. Compatibility of load cells must be	
modules		checked separately. • Short-circuit current	7MH4710-5BA
Calibration set for SIWAREX WP2xx	7MH4960-0AY10	< 199 mA DC	/WITH/10-3BA
Valid for SIWAREX WP231 and SIWAREX WP251.		Short-circuit current 137 mA DC	7MH4710-5CA
For verification of up to 3 scales,		Cable (optional)	
comprising: • 3 × inscription foils for ID label		Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	
• 1 × protective film		For connecting SIWAREX electronic weighing systems to junc-	
• 3 × calibration protection plates		tion box (JB), extension box (EB)	
Guidelines for verification, certifi-		and Ex interface or between two EBs. For permanent installation.	
cates and approvals, editable la- bel, SIWAREX WP		Occasional bending is possible.	
Ethernet cable patch cord 2 m	6XV1850-2GH20	External diameter: approx. 10.8 mm (0.43 inch)	
(7 ft)		Permissible ambient temperature	
For connecting SIWAREX WP251 to a PC (SIWATOOL),		-40 +80 °C (-40 +176 °F)	
SIMATIC CPU, panel, etc.		Sold by the meter. • Sheath color: orange	7MH4702-8AG
Remote display (optional)		 For hazardous atmospheres. 	7MH4702-8AF
The digital remote displays can be		Sheath color: blue.	0505700 08444
connected directly to the SIWAREX WP251 via the RS 485		Ground terminal for connecting the load cell cable shield to the	6ES5728-8MA11
interface		grounded DIN rail	
Suitable remote display: \$102		Commissioning	
Siebert Industrieelektronik GmbH PO Box 1180		Commissioning charge for one static scale with SIWAREX	9LA1110-8SN50-0AA0
D-66565 Eppelborn Tel.: +49 6806/980-0		module	
Fax: +49 6806/980-999		(Flat charge for travel and setup must be ordered separately)	
Internet: https://www.siebert-group.com/en/		Scope:	
Detailed information is available		Recording of dataChecking of mechanical installa-	
from the manufacturer.		tion of the scale	
		 Checking of electrical wiring and function Static adjustment of the scale 	
		Requirements:	
		Mechanical design functionalModules electrically wired and	
		tested	
		Calibration weights availableFree access to scale	
		Flat charge for travel and setup in Germany	9LA1110-8RA10-0AA0

Stand-alone electronics Solids flowmeters

Milltronics SF500

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 electronics

Solids flowmeters

Milltronics SF500

Technical specifications

Flowmeter integrator 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 O 45 mV DC per load cell or LVDT interface card Auto zero Dry contact from external device MA See optional mA I/O board See optional mA I/O board 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 \(\Omega \text{ load ad max.} \) (see optional mA I/O board) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. 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 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 S 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	Milltronics SF500	
Compatible with SITRANS solids flowmeters or equivalent 1 or 2 load cell models	Mode of operation	
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 O 45 mV DC per load cell or LVDT interface card Dry contact from external device MA See optional mA I/O board See optional mA I/O board 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) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. 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 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	Measuring principle	Flowmeter integrator
Auto zero Auto zero Dry contact from external device 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) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Remote totalizer 1 • 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 • 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 From A relay contact rated 240 V AC/DC, 100 mA max. • Max. contact on-resistance = 36 ohms • Max. off-state leakage = 1 uA From A relay contact rated 240 V AC/DC, 100 mA max. • Max. contact on-resistance = 36 ohms • Max. off-state leakage = 1 uA From A relay contact rated 240 V AC/DC, 100 mA max. • Max. contact on-resistance = 36 ohms • Max. off-state leakage = 1 uA From 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	Typical application	flowmeters or equivalent 1 or 2 load cell models • Compatible with LVDT equipped solids flowmeters, with use of optional interface board (remotely
Auto zero Pry contact from external device See optional mA I/O board See optional mA I/O board 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) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Pcontact 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 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 Felay output Salarm/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 Output Programmable 0/4 20 mA, for rate, optically isolated, 0.1 % of 20 mA resolution for strain gauge type, 2 cells max., (see optional mA I/O board) 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Contact closure 10 300 ms duration Solid state relay contact rated 240 V AC/DC, 100 mA max. Accontact on-resistance = 36 ohms Accontact on-resistance = 36 ohms	Input	
See optional mA I/O board 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 optiona mA I/O board) 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Permote totalizer 1 • 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 Permote totalizer 2 • 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 Permote totalizer 2 • 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 Permote totalizer 2 • 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 Permote totalizer 2	Load cell/LVDT	
Soliscrete 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 optiona mA I/O board) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Pcontact 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 Pcontact 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 Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max. off-state leakage = 1 uA Pax contact on-resistance = 36 ohms Max contact on-resistance = 36 ohms	Auto zero	Dry contact from external device
tacts, 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 optiona mA I/O board) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Permote totalizer 1 • 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 • 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	mA	See optional mA I/O board
Programmable 0/4 20 mA, for rate, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max. (see optiona mA I/O board) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Remote totalizer 1 • 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 • 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. 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	Auxiliary	tacts, each programmable for either: display scrolling, totalizer 1 reset, zero, span, multi-span, print, batch reset, PID function, or on-line calibra-
optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max. (see optiona mA I/O board) Load cell/LVDT conditioner card 10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max. Remote totalizer 1 • 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 • 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	Output	
strain gauge type, 2 cells max., 150 mA max. • 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 • 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. 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	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)
tion 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 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	Load cell/LVDT conditioner card	strain gauge type, 2 cells max.,
Remote totalizer 2 • 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	Remote totalizer 1	 Solid state relay contact 30 V DC, 100 mA max. Max. contact on-resistance = 36 ohms
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	Remote totalizer 2	 Contact closure 10 300 ms duration Solid state relay contact rated 240 V AC/DC, 100 mA max. Max. contact on-resistance = 36 ohms
Resolution 0.02 % of full scale	Relay output	Form A relay contact per relay, rated 5 A at 250 V AC, non-inductive or
	Measuring accuracy	
Accuracy 0.1 % of full scale	Resolution	0.02 % of full scale
	Accuracy	0.1 % of full scale

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 • 100 240 V AC ± 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo
	DC version • 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 stored in non-volatile FLASH ROM Parameters stored in battery backed RAM, 3 V NEDA 5003LC or equivalent, 10 year life
Communications	Two RS 232 ports
	One RS 485 port
	SmartLinx compatible
Approvals	CE, CSA _{US/C} , FM, RCM, EAC, KCC
Options	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 emith LVDT based solids flowmeters emither 20 may for PID control or online calibration, optically isolated, 0.1 % 20 mA resolution, 200 Ω input impedance emitted output; 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

Stand-alone electronics Solids flowmeters

Milltronics SF500

Selection and ordering data	Article No.				Order code		
Milltronics SF500 Integrator	7MH7156-			Further designs			
Full feature, powerful integrator designed for use with solids flowmeters.		П	-	ı		Please add "-Z" to article no. and specify order code(s).	
→ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						Stainless steel tag (69 x 50 mm), Measuring-point number/identification (max 27 characters), specify in	Y15
Input voltage						plain text.	
AC voltage	2					Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is	S50
DC voltage	3					field mounted with enclosure)	
Auxiliary input/output boards ¹⁾						Manufacturer's test certificate:	C11
None	Α					According to EN 10204-2.2	
Board with 2 analog inputs and 2 analog outputs	В					LVDT conditioner card mounted and connected for use with LVDT flowmeters	G21
Feature software						Stainless steel enclosure, 304 (1.4301),	
Standard	Α	١				[406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4X, IP66; (finished unit is mounted inside enclosure)]	
Auxiliary memory	_					With window	A11
None		0				Without window	A12
Data communications ²⁾	_					Painted mild steel, [406 x 305 x 152 mm	
SmartLinx Ready		0				(16 x 12 x 6 inch), Type 4, IP65; (finished unit is mounted inside enclosure)]	
SmartLinx PROFIBUS DP module		2				With window	A13
SmartLinx DeviceNet module		3				Without window	A14
SmartLinx PROFINET module		4				Painted mild steel, anti-vibration enclosure with -viewing window [406 x 305 x 203 mm (16 x 12 x 8 inch),	A15
SmartLinx EtherNet/IP module		5				Nema/Type 4, IP66; (finished unit is mounted inside	
SmartLinx Modbus TCP/IP module		6				enclosure)]	
Enclosures	-					Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F) (finished unit is	A35
Standard enclosure, no entry holes			1			mounted inside enclosure) 483 x 584 x 203 mm	
Standard enclosure, 4 entries, for M20 glands			2			(19 x 23 x 8 inch)	
Trade approval stickers	- 11					Instruction manuals	
No trade approval sticker				Α		All literature is available to download for free, in a range of languages, at	
Not legal for Canadian and EU trade sticker				В		http://www.siemens.com/weighing/documentation	
Approvals						,	
CE, CSAUS/C, FM, RCM, EAC, KCC					Δ		
				1			

¹⁾ Required for PID control and online calibration.

Siemens WT10 · 2020

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

Weighing Electronics Stand-alone electronics Solids flowmeters

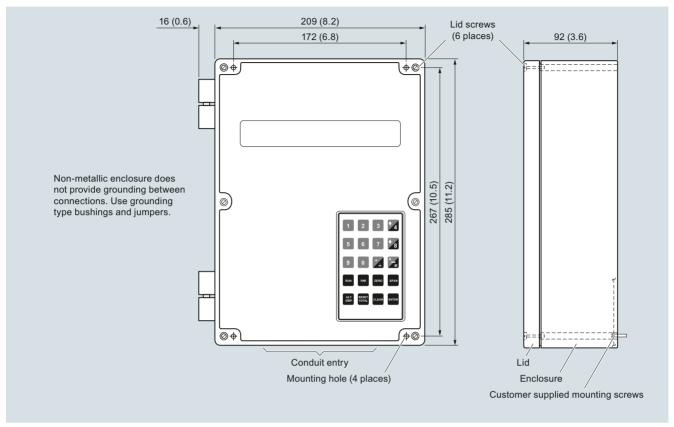
Milltronics SF500

Selection and ordering data	Article No.
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
Cables to connect BW500/SF500 keypad to motherboard	7MH7723-1CB
SITRANS RD100 Remote displays, see RD100 on page 2/106	7ML5741
SITRANS RD150 Remote displays, see RD150 on page 2/109	7ML5742
SITRANS RD200 Remote displays, see RD200 on page 2/113	7ML5740
SITRANS RD300 Remote displays, see RD300 on page 2/117	7ML5744
SITRANS RD500 web, datalogging, alarming, Ethernet, and modem support for instrumentation, see on page 2/121	7ML5750-1AA00-0
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, 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

Stand-alone electronics Solids flowmeters

Milltronics SF500

Dimensional drawings

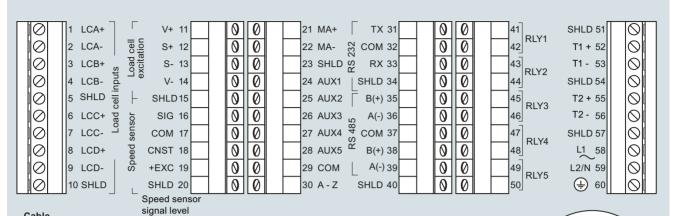


Milltronics SF500, dimensions in mm (inch)

Stand-alone electronics Solids flowmeters

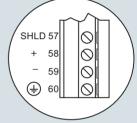
Milltronics SF500

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.
- - 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

Supplementary components Displays

SITRANS RD100

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 $^{\circ}\text{C}$ (-40 to +185 $^{\circ}\text{F}$), 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.

Technical specifications

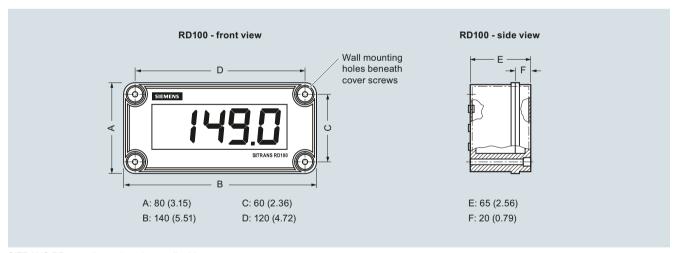
SITRANS RD100	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring range	4 20 mA
Measuring points	1 instrument only
Accuracy	± 0.1 % of span ± 1 count
Rated operating conditions	
Ambient conditions	
Operating temperature range	-40 +85 °C (-40 +185 °F)
Design	
Weight	340 g (12 oz)
Material (enclosure)	Impact-resistant glass filled polycar- bonate body and clear polycarbonate cover
Degree of protection	NEMA 4X, IP67
Power supply	
External loop power supply	30 V DC max.
Display	• 1.0 inch (2.54 cm) high LCD
	• Numeric range from -1 000 +1 999
Certificates and approvals	
Non-hazardous	CE
Hazardous	
Intrinsically Safe	 CSA/FM Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G T4
Non-incendive	 CSA/FM Class I, Zone 0, Group IIC 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	 2 inch (5.08 cm) pipe mounting kit (zinc plated or stainless steel) Panel mounting kit
	3 .

Supplementary components
Displays

SITRANS RD100

Selection and ordering data	Article No.							
SITRANS RD100 Display	7ML5741-							
Remote digital display for process instruments. 2-wire, loop powered, NEMA 4X enclosure.	A 0 0 - 0							
Conduit hole location (½ inch)								
None	1							
Bottom	2							
Rear	3							
Тор	4							
Approvals								
FM/CSA	A							
CE	В							
Operating Instructions								
All literature is available to download for free, in a range of languages, at								
http://www.siemens.com/weighing/documentation								
Accessories								
Panel mount kit	7ML1930-1BN							
2 inch (5.08 cm) pipe mounting kit (zinc plated seal)	7ML1930-1BP							
2 inch (5.08 cm) pipe mounting kit (stainless steel, Type 304, EN 1.4301)	7ML1930-1BQ							

Dimensional drawings

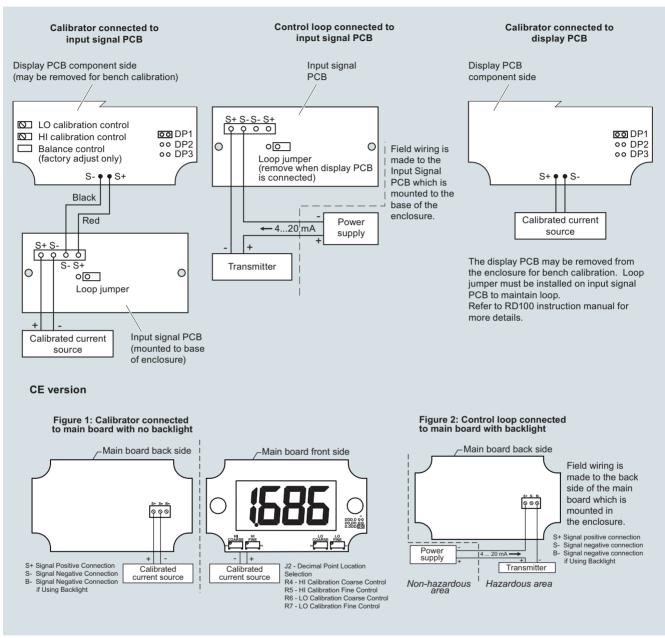


SITRANS RD100, dimensions in mm (inch)

Supplementary components Displays

SITRANS RD100

Circuit diagrams



SITRANS RD100 connections

Supplementary components
Displays

SITRANS RD150

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.

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)
Design	
Weight • Plastic housing • Aluminum housing • Stainless steel housing	0.35 kg (0.772 lb) 0.7 kg (1.543 lb) 2.0 kg (4.409 lb)
Material (enclosure) • Plastic housing • Aluminum housing	Plastic PBT (Polyester) Aluminum die-casting AlSi10Mg, powder-coated (basis: Polyester)
Stainless steel housing	316L precision casting, blasted
Degree of protection Plastic housing Housing for panel mounting (mounted)	IEC 60529 IP66/IP 67, NEMA Type 4X 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	Panel MountingCarrier rail mountingPipe mounting

Weighing Electronics

Supplementary components Displays

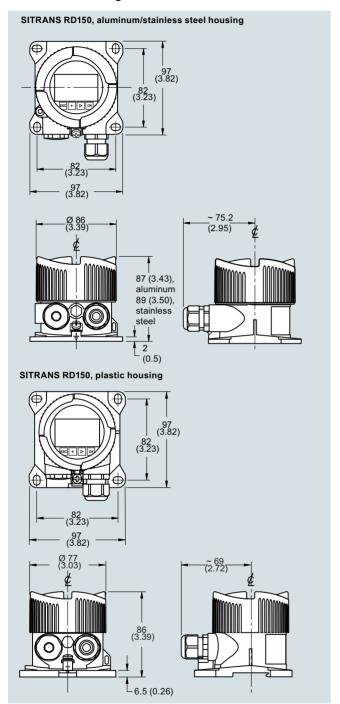
SITRANS RD150

Selection and ordering data	Artic	cle No).		Article No.	
SITRANS RD150 Display	7ML	5742-		SITRANS RD150 Display	7ML5742-	
Remote digital display with configuration for process instruments. HART or 4 to 20 mA loop display, metal and plastic field mount enclosures.	ī	A = =		Remote digital display with configuration for process instruments. HART or 4 to 20 mA loop display, metal and plastic field mount enclosures.	- A	
				Display Without		A
Approvals				Mounted		В
For Ex-free area	0 A			Mounting		
ATEX II 1G, 2G Ex ia IIC T6 Ga, Gb ⁴⁾	0 C			For wall mounting with aluminum or stainless steel		Δ
ATEX II 2G Ex db IIC T6 Gb ⁹⁾¹⁰⁾	0 F			housing		
IEC Ex ia IIC T6 Ga, Gb ⁴⁾	0 J			For carrier rail and wall mounting with plastic		В
IEC Ex db IIC T6 Gb ⁹⁾¹⁰⁾	о м			housing		
_C CSA _{US} (IS) Class I, Div. 1, Groups A, B, C, D ¹²⁾	0 N			For carrier rail with aluminum or stainless steel housing		С
CCSA _{US} (XS) Class I, Div. 1, Groups A, B, C, D ⁹⁾¹¹⁾	0 R			For tube mounting (29 60 mm) incl. mounting		D
Electronics				material		
Two-wire 4 20 mA/HART				For panel mounting		E
Housing				Certificates		
Plastic ¹⁾⁴⁾⁶⁾		0		None		
Aluminum ²⁾⁴⁾⁷⁾		1		3.1 Certificate/Instrument with test data		1
Stainless steel (precision casting) ²⁾⁴⁾⁷⁾		2		Quality and Test plan		2
For panel mounting (72 x 72 mm) ³⁾⁵⁾⁸⁾		3		Operating Instructions		
Housing protection				All literature is available to download for free, in a		
IP66/IP67 NEMA 4X		0		range of languages, at		
IP66/IP68 NEMA 6P (0.2 bar)		1		http://www.siemens.com/weighing/documentation		
IP40 NEMA 2		2		Accessories		
IP40 Type 1		3		USB communicator		
Cable entry				1) Available only with Housing protection option 0.		
M20 x 1.5/Cable gland PA black (ø5 9 mm),			0	2) Available only with Housing protection option 1.		
standard				 Available only with Housing protection option 2. Available only with Cable entry options 0, 2, 4, a 	and E	
M20 x 1.5/Cable gland brass nickel plated			1	5) Available only with Cable entry options 0, 2, 4, a	na 5.	
(ø6 12 mm)				Available only with Carrier rail and Tube mount N	Mounting option	S.
M20 x 1.5/Blind plug			2	7) Available only with Wall mount, Carrier rail with a		
M20 x 1.5/Threaded fitting brass nickel-plated; for shielded cable (ø9 13 mm)			3	housing, and Tube mount Mounting options.		
½" NPT/Blind plug			4	 Available only with Panel mounting option. Available only with Housing options 1 and 2. 		
½" NPT/Cable gland PA black (ø5 9 mm)			5	¹⁰⁾ Available only with Cable entry options 2, 3, 4, a	ınd 7.	
½" NPT/Threaded fitting brass nickel plated (ø6 12 mm)			6	 Available only with Cable entry options 2, 3, 4, 6 Not available with Cable entry option 1. 		
½" NPT/Threaded fitting brass nickel plated; for shielded cable (ø9 13 mm)			7	2. 2. and o min dable only option in		
Without			8			

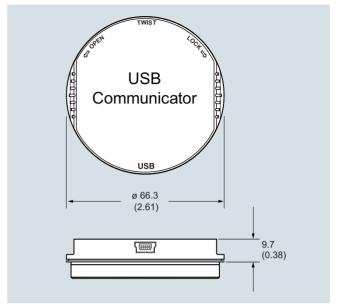
Supplementary components Displays

SITRANS RD150

Dimensional drawings





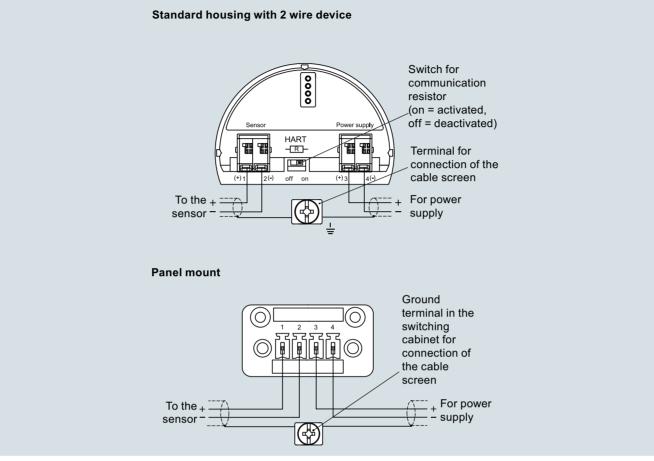


USB Communicator, dimensions in mm (inch)

Supplementary components Displays

SITRANS RD150

Circuit diagrams



SITRANS RD150 connections

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.

Supplementary components Displays

SITRANS RD200

Technical specifications

SITRANS RD200	
Mode of operation	
Measuring principle	Analog to digital conversion
Measuring points	 1 instrument Remote monitoring of 100 instruments with PC and RD software
Input	
Measuring range • Current • Voltage	• 4 20 mA, 0 20 mA • 0 V DC 10 V DC, 1 5 V, 0 5 V
Thermocouple temperature	• 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)
RTD temperature	• 100 Ω RTD: -200 +750 °C (-328 +1 382 °F)
Output signal	
Output	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	 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	\pm 0.05 % of span \pm 1 count, square root: 10 100 % FS
Thermocouple temperature input	 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	• 100 Ω RTD: ± 1 °C (± 1 °F)
Rated operating conditions	
Ambient conditions • Storage temperature range • Operating temperature range	-40 +85 °C (-40 +185 °F) -40 +65 °C (-40 +149 °F)
Design	, , , , , ,
Weight	269 g (9.5 oz) (including options)
Material (enclosure)	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

SITRANS RD200	
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)
Single power supplyDual power supplies	One 24 V DC \pm 10 % at 200 mA max. Two 24 V DC \pm 10 % at 200 mA and 40 mA max.
External loop power supply	35 V DC max.
Output loop resistance	 24 V DC, 10 700 Ω max. 35 V DC (external), 100 1 200 Ω max.
Displays and controls	
Display	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	Non-volatileStores settings for minimum of 10 years if power is lost
Programming	Primary: front panelSecondary: meter copy or PC with SITRANS RD software
Certificates and approvals	CE, UL, _C UL
Options	
Enclosures	Plastic, steel, and stainless steel (Type 304, EN 1.4301) NEMA 4 and 4X enclosures
Mounting	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)

Weighing Electronics
Supplementary components . Displays

SITRANS RD200

Selection and ordering data	,	۱rt	ic	le	No) .		
SITRANS RD200 Display	7	ML	_5	74	0-			Ī
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.	•	•	-	-	-	-	Α	
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		Α						
Single 24 V DC transmitter supply ¹⁾		В						
Dual 24 V DC transmitter supply ¹⁾²⁾		С						
Output								
None			A					
2 relays			В					
4 20 mA output			С					
Communication								
Modbus RTU				0				
Approvals								
CE, UL, _C UL					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.

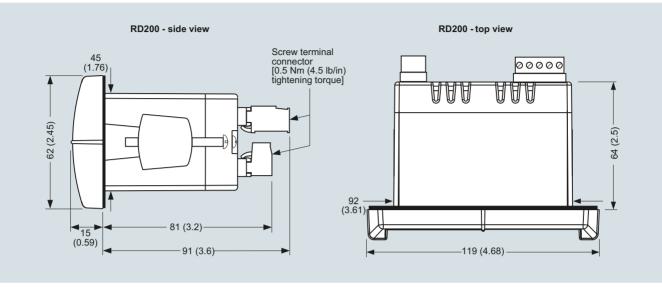
	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at	
http://www.siemens.com/weighing/documentation	
Accessories	
SITRANS RD200 copy cable 2.1 m (7 ft)	7ML1930-1BR
SITRANS RD200 RS 232 serial adapter (copy cable included)	7ML1930-1BS
SITRANS 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 7ML1930-1CJ
For use with 3 displays For use with 4 displays	7ML1930-1CJ 7ML1930-1CK
For use with 5 displays	7ML1930-1CL
For use with 6 displays	7ML1930-1CM
Stainless steel enclosure (Type 304, EN 1.4301)	
For use with 1 display	7ML1930-1CN
For use with 2 displays For use with 3 displays	7ML1930-1CP 7ML1930-1CQ
For use with 4 displays	7ML1930-1CQ 7ML1930-1CR
For use with 5 displays	7ML1930-1CS
For use with 6 displays	7ML1930-1CT
Steel enclosure	
For use with 1 display	7ML1930-1CU
For use with 2 displays	7ML1930-1CV
For use with 3 displays For use with 4 displays	7ML1930-1CW 7ML1930-1CX
For use with 5 displays	7ML1930-1CX 7ML1930-1CY
For use with 6 displays	7ML1930-1DA

²⁾ Available with output option C only.

Supplementary components Displays

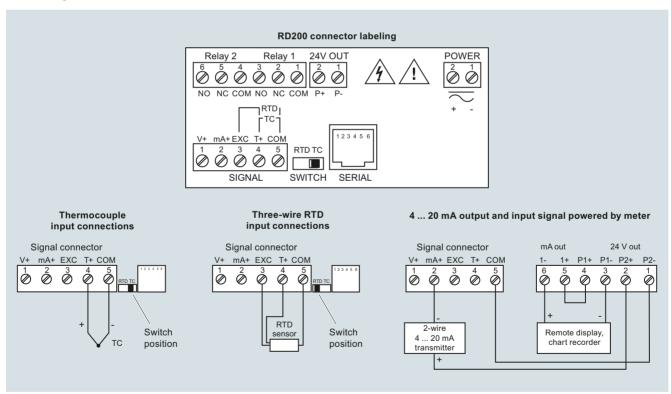
SITRANS RD200

Dimensional drawings



SITRANS RD200, dimensions in mm (inch)

Circuit diagrams



SITRANS RD200 connections

Supplementary components
Displays

SITRANS RD300

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.

Supplementary components Displays

SITRANS RD300

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	• 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 resis- tive load; 1/14 HP (50 W) at 125/ 250 V AC for inductive loads (optional)
Communications	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 Operating temperature range	-40 +85 °C (-40 +185 °F) -40 +65 °C (-40 +149 °F)
Design	
Weight	269 g (9.5 oz) (including options)
Material (enclosure)	1/8 DIN, high impact plastic, UL94V-0, color: gray Optional plastic, steel and stainless steel (Type 304, EN 1.4301)NEMA 4 encl osures
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

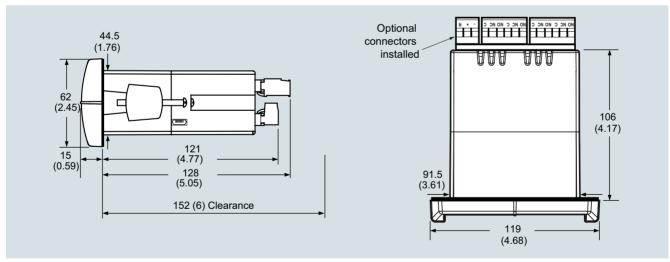
SITRANS RD300	
Power supply	
Input voltage option	85 265 V AC, 50/60 Hz; 90 265 V DC, 20 W max. or jumper selectable 12/24 V DC ± 10 %, 15 W max.
Transmitter power supply	Terminals P+ & P-: 24 V DC ± 10 %, 12/24 V DC powered models selectable for 24, 10, or 5 V DC supply (internal jumper J4), 85 265 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	 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	Non-volatileStores settings for minimum of 10 years if power is lost
Programming	Primary: front panel Secondary: Meter Copy or PC with SITRANS RD Software
Certificates and approvals	CE, UL, _C UL
Options	
Enclosures	Plastic, steel and stainless steel (Type 304, EN 1.4301) NEMA 4 and 4X enclosures

Supplementary components
Displays

SITRANS RD300

Selection and ordering data	Article No.		Article No.
SITRANS RD300 Display	7ML5744-	Operating Instructions	
Remote digital panel mount process display with current or voltage inputs. Two input, multi-line display, totalizer and pump control.	0 A	All literature is available to download for free, in a range of languages, at	
✓ Click on the Article No. for the online configuration		http://www.siemens.com/weighing/documentation	
in the PIA Life Cycle Portal.		DIN-Rail Mounting Kit	7ML1930-6AB
Input voltage		4 Relays Expansion Module	7ML1930-6AC
85 265 V AC, 50/60 Hz; 90 265 V DC, 20 W max.	1	4 Digital I/O Module	7ML1930-6AD
12 36 V DC; 12 24 V AC, 6 W max.	2	9 .	
Output		Dual output 4 20 mA expansion module for dual input meter	7ML1930-6AP
None	Α	Meter Copy Cable	7ML1930-6AE
2 Relays	В	RD300 RS 232 Serial Adapter	7ML1930-6AF
4 Relays	С	RD300 RS 422/485 Serial Adapter	7ML1930-6AG
4 20 mA output	D	RD300 USB Serial Adapter	7ML1930-6AJ
2 Relays and 4 20 mA output	E	USB to BS 232 Converter	7ML1930-6AK
4 Relays and 4 20 mA output	F	RS 232 to RS 422/485 isolated converter	7ML1930-0AK
Туре		RS 232 to RS 422/485 non-isolated converter	7ML1930-1BV
Single input process and flow rate/totalizer Mtr	Α	,	
Dual input process Mtr	В	USB to RS 422/485 isolated converter	7ML1930-1BX
Display	-	USB to RS 422/485 non-isolated converter	7ML1930-1BY
Standard	O	Snubber	7ML1930-6AL
SunBright	1	Plastic enclosure For 1 meter	7ML1930-6AM
		For 1 meter For 2 meters	7ML1930-6AM 7ML1930-6AN
Approvals		For 4 meters	7ML1930-1CK
UL, C-UL and CE	0	For 5 meters	7ML1930-1CL
		For 6 meters	7ML1930-1CM

Dimensional drawings



SITRANS RD300, dimensions in mm (inch)

Supplementary components Displays

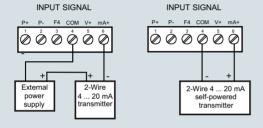
SITRANS RD300

Circuit diagrams

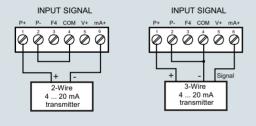
Connector labeling for fully loaded single input meter



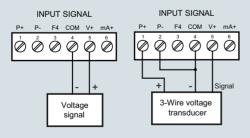
Transmitter powered by external supply or self-powered



Transmitter powered by internal supply



Voltage Input Connections



SITRANS RD300 connections

Supplementary components
Remote data manager

SITRANS RD500

Overview



The SITRANS RD500 is a remote data manager providing remote monitoring through integrated web access, alarm event handling, and data capture for instrumentation and other devices.

Benefits

- RD500 supports report and alarm events via email, SMS, and FTP transfer
- Web provides worldwide access to instrument data and RD500 configuration and setup
- Simple configuration using a standard web browser, no programming or additional software required.
- Offers scalability with optional I/O modules for current (4 to 20 mA), voltage (0 to 10 V), thermocouple (TC), resistance temperature detector (RTD), and digital input, output and counter
- 10 base-TI 100 Base-TX Ethernet and support for GSM, GPRS, 3G, and PSTN provide flexible remote communications options
- Supports up to 128 devices with the flexible I/O modules and supports addressing for Modbus serial devices via RS 232 and RS 485 serial ports
- Integrated FTP server and client support FTP data synchronization to central servers
- Compact flash slot supports up to 2 gigabytes of expandable memory for data capture and storage, 1 gigabyte industrial compact flash card included
- Log files formats are CSV (comma separated values) for data files and HTML for report files
- Supports Modbus TCP via Ethernet and GPRS for easy integration into control systems
- Optional cellular modem offers VPN support

Application

The RD500 is an easy-to-use remote data monitoring solution, using a web-based application and hardware modules. The unique modular approach allows a variety of process signals to be monitored, while the serial ports allow data to be collected from Modbus RTU devices and Modbus TCP via EtherNet.

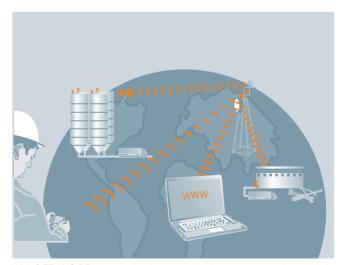
The RD500 comprises a master communications module, and up to 16 slave modules. Various module types are available, allowing up to a maximum of 128 conventional inputs and outputs. The RD500's serial ports can support addressing for Modbus RTU slave devices including field instruments.

The RD500's built-in web server, FTP, and email client allows the process to be monitored remotely. Alarm notifications are communicated through email and SMS text messages to one or more recipients to ensure that appropriate actions are taken by personnel.

The RD500 supports modems, providing flexibility for applications in which cellular or landline connectivity is desired.

The RD500 is configured via a web-based interface - a standard browser is all the software you need to configure your system.

 Key Applications: remote monitoring of inventory, process, and maintenance applications, with web access to field instrumentation



With SITRANS RD500, monitor inventory levels, process, environmental, and remote maintenance applications, and get web access to most types of field instrumentation, including flow, level, pressure, temperature measurement, and weighing

Supplementary components Remote data manager

SITRANS RD500

Technical specifications

SITRANS RD500	
Mode of operation	
Measuring principle	Remote data monitor
Measuring points	Up to 128 standard inputs (conventional IO, see optional IO modules) Addressing for Modbus devices (Modbus RTU and Modbus TCP)
Input	See SITRANS RD500 module specifications table
Output	See SITRANS RD500 module specifications table
Accuracy	See SITRANS RD500 module specifications table
Rated operating conditions	
Storage temperature range	-30 +70 °C (-22 +158 °F)
Operating temperature	0 50 °C (32 122 °F)
Operating and storage humidity	80 % max relative humidity, non-condensing, from 0 50 °C (32 122 °F)
Design	
Material (enclosure)	High impact plastic and stainless steel
Installation category	I
Pollution degree	2
Weight	456.4 g (15.1 oz)
Mounting	Snaps onto standard DIN style top hat (T) profile mounting rails accord- ing to EN 50022 – 35 x 7.5 and – 35 x 15
Power	24 V DC ± 10 %
	400 mA min. (1 module)
	3.5 amps max. (16 modules)
	Must use Class 2 or SELV-rated power supply

STS - status LED indicates condition of master TX/RX - transmit/receive LEDs show serial activity Ethernet - link and activity LEDs CF - CompactFlash LED indicates card status and read/write activity					
4 MB of non-volatile Flash memory					
2 MB					
CompactFlash Type II slot for Type and Type II cards; 1 GB (optional 2 GB)					
UL listed to U.S. and Canadian safe- ty standards for use in Class I, II, and III, Division 1 and 2 hazardous locations CE, RCM					
Adheres to USB specifications 1.1. Device only using Type B connection.					
Format and baud rates for each port are individually software programmable up to 115, 200 baud					
RS 232 port via RJ12					
RS 422/485 port via RJ45 and RS 232 port via RJ12					
10 BASE-T/100 BASE-TX; RJ45 jack is wired as a NIC (Network Interface Card)					

Supplementary components
Remote data manager

SITRANS RD500

Technical specifications (continued)

SITRANS RD500 Module Specifications

	8 inputs, 6 solid state outputs	8 inputs, 6 relay outputs	8 channel, 4 20 mA	8 channel ± 10 V	6 channel, RTD	8 channel thermo- couple module
Order number	7ML1930-1ES	7ML1930-1ER	7ML1930-1EP	7ML1930-1EQ	7ML1930-1ET	7ML1930-1EU
Application	8 inputs, 6 outputs used to monitor con- tact or sensor inputs	8 inputs, 6 outputs used to monitor con- tact or sensor inputs	16 bit analog input module provides high density signal mea- surement for data monitoring applica- tions and accepts 0/ 4 20 mA process signals	16 bit analog input module provides high density signal mea- surement for data monitoring applica- tions and accepts ± 10 V process sig- nals	16 bit analog input module provides high-density signal measurement for data acquisition applications and accepts various RTD inputs	16 bit thermocouple input module provides high density signal measurement for data acquisition applications and accepts wide range of thermocouple types
Accuracy	Not applicable	Not applicable	± 0.1 % of span	± 0.1 % of span	± (0.2 % of span, 1 °C) 0 50 °C (32 122 °F); ± (0.1 % of span, 1 °C) 18 28 °C (64 82 °F); includes NIST confor- mity, A/D conversion errors, temperature coefficient and linear- ization conformity at 23 °C after 20 minutes warm-up	tion conformity at 23 °C after 20 minute
Mounting	Snaps onto standard	DIN style top hat (T) pr	ofile mounting rails acc	ording to EN 50022 – 3	5 x 7.5 and - 35 x 15	
Inputs	Dip switch select- able for sink or source	Dip switch selectable for sink or source max. voltage: 30 V DC, reverse polarity protected Off voltage: < 1.2 V On voltage: > 3.8 V Input frequency: - Filter switch on: 50 Hz - Filter switch off: 300 Hz	8 single-ended ranges: 0 20 mA or 4 20 mA resolution: full 16-bit Sample time: 50 400 ms depending on number of enabled inputs	8 single-ended ranges: 0 10 V DC or ± 10 V DC resolution: full 16-bit Sample time: 50 400 ms depending on number of enabled inputs	6 single-ended resolution: full 16-bit Sample time: 7 400 ms depending on number of enabled inputs	8 single-ended resolution: full 16-bit Sample time: 50 400 ms depending on number of enabled inputs
Outputs	Solid state output, switched DC, con- tact rating 1 A DC max.	Form A, NO pairs share common terminals: 1&2, 3&4, 5&6 Current rating by pair: 3 Amps at 30 V DC/ 125 V AC resistive 1/10 HP at 125 V AC	Not applicable	Not applicable	Not applicable	Not applicable

Nota:

note.

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 only form one element of such a concept. For more information about industrial security, http://www.siemens.com/industrialsecurity

Supplementary components Remote data manager

SITRANS RD500

rovides integrated web server, alarm event handling with email, and data logging for 4 to 20 mA, digital, ITD, TC, and Modbus instrumentation. Ethernet and relilular with FTP and Modbus TCP communications. 7 Click on the Article No. for the online configuration in the PIA Life Cycle Portal. 8 Communications Connection 8 St 485 Modbus RTU and Modbus TCP 8 Input configuration modules 10 Insuration modules	Selection and ordering data		Article No.					
A communications connection To Cand Modbus instrumentation. Ethernet and dellular with FTP and Modbus TCP communications. Colick on the Article No. for the online configuration in the PIA Life Cycle Portal. Communications Connection Thernet Can Boson Supports 16 input modules To Colock 8 channel 0 (4) 20 mA input module To Colock 8 digital inputs/pulse counters, 6 relay outputs To Colock 8 digital inputs/pulse counters, 6 solid state To Coloc 8 channel input, RTD module To Coloc 8 channel input, RTD module To Coloc 8 channel thermocouple module To Coloc 8 channel 10 chann	SITRANS RD500 Remote data manager		7ML5750-					
in the PIA Life Cycle Portal. Communications Connection thernet 1) Digital Communications to Instruments IS 485 Modbus RTU and Modbus TCP Input configuration modules Idea one RD500 supports 16 input modules Idea one RD500 supports 16 input module Idea one RD500 supports 16 input mod	Provides integrated web server, alarm event handling with email, and data logging for 4 to 20 mA, digital, RTD, TC, and Modbus instrumentation. Ethernet and Cellular with FTP and Modbus TCP communications.	•	•	A	0 (0 -	0	
thernet ¹⁾ Digital Communications to Instruments IS 485 Modbus RTU and Modbus TCP A Input configuration modules Idote: one RD500 supports 16 input modules Idote: one RD500 supports 16 input modules Idote: one RD500 supports 16 input module Ido500 8 channel ± 10 V input module Ido500 8 digital inputs/pulse counters, 6 relay outputs Idodule Ido500 8 digital inputs/pulse counters, 6 relay outputs Ido500 8 digital inputs/pulse counters, 6 solid state Ido500 8 digital inputs/pulse counters, 6 solid state Ido500 8 channel input, RTD module Ido500 8 channel input, RTD module Ido500 8 channel thermocouple module Ido500 8 channel thermoc	Click on the Article No. for the online configuration in the PIA Life Cycle Portal.							
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### Topin ### To	Note: one RD500 supports 16 input modules maximum							
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module ### ### ### ### ### ### ### ### ### #	RD500 8 channel ± 10 V input module	7ML1930-1EQ			Q			
#D500 6 channel input, RTD module #D500 8 channel thermocouple module #D500 1GJ #D500 1GJ #D500 Spare End terminator #D5	RD500 8 digital inputs/pulse counters, 6 relay outputs module	7ML1930-1ER						
### Topional equipment Internal cellular modem Internal modem card with antenna Industrial CompactFlash card, 2 GB Industrial CompactFlash card, 1 GB Industrial to terminal block RS 232 Industrial to terminal block RS 232 Industrial to terminal block RS 485 Industrial to terminal block RS 232 Industrial to terminal block RS 232 Industrial to terminal block RS 232 Industrial CompactFlash card, 1 GB Industrial CompactFlash card, 2 GB Industri	RD500 8 digital inputs/pulse counters, 6 solid state outputs module ¹⁾	7ML1930-1ES						
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xternal cellular modem xternal modem card with antenna thernal modem card with antenna TML1930-1GJ TML1930-1EY TML1930-1FB TML1930-1FB TML1930-1FC TML1930-1FF TML1930-1FF TML1930-1FG TML1930-1FH TML1930-1FM TML1930-1FM TML1930-1FM TML1930-1FM TML1930-1FN TML1930-1FN	RD500 8 channel thermocouple module	7ML1930-1EU		EU				
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Andustrial CompactFlash card, 1 GB AND 11 serial to terminal block RS 232 AND 1930-1FD AND 15 serial to terminal block RS 485 AND 1930-1FE AND 1930-1FE AND 1930-1FF AND 1930-1FG AND 1930-1FG AND 1930-1FH AND 1930-1FH AND 1930-1FH AND 1930-1FM	Internal modem card with antenna		7ML1930-1EY					
AU11 serial to terminal block RS 232 7ML1930-1FD AU45 serial to terminal block RS 485 7ML1930-1FE Modem antenna 7ML1930-1FF MD500 Spare Module base 7ML1930-1FG MD500 Spare End terminator 7ML1930-1FH Thernet Cat 5e Red X/O cable for configuration, .52 m (5 ft) 7ML1930-1FN 7ML1930-1FN	Industrial CompactFlash card, 2 GB	7ML1930-1FB		В				
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lemote mount external antenna 17 ft (5 m) 7MI 1930-1FY	ISB cable type A/B		ML	.19	30)-1F	N	
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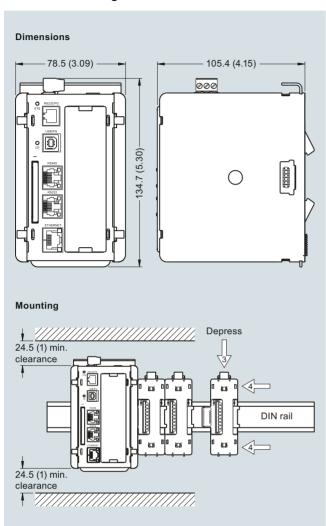
	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at	
http://www.siemens.com/weighing/documentation	
Accessories	
SITRANS RD100, loop powered display - see page 2/106	7ML5741
SITRANS RD200, universal input display with Modbus conversion - see page 2/113	7ML5740
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see page 2/117	7ML5744

¹⁾ Configuration limited to 16 modules.

Supplementary components
Remote data manager

SITRANS RD500

Dimensional drawings

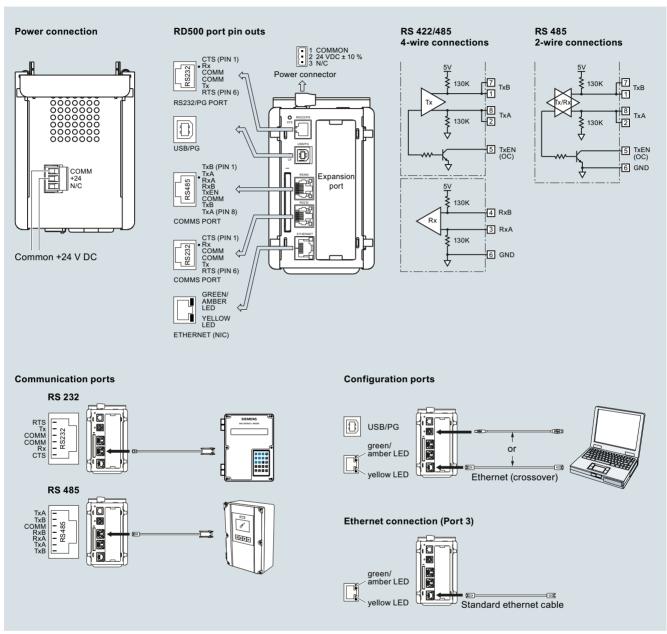


SITRANS RD500, dimensions in mm (inch)

Supplementary components Remote data manager

SITRANS RD500

Circuit diagrams



SITRANS RD500 connections

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 electronic weighing system as easy and convenient as conceivably possible.

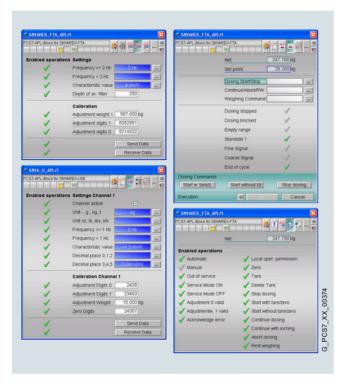
Tools and add-ons for Siemens weighing components

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.

Software

SIMATIC PCS 7 Add-ons

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.

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 scales / level measurements)	SIWAREX U (1-channel), in design of ET 200M	7MH4950-1AA01	
 SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design 	SIWAREX U (2-channel), in design of ET 200M	7MH4950-2AA01	
Configuration package SIWAREX U for SIMATIC PCS 7 V8.x, PCS 7 Standard Library design			
SIWAREX FTA (automatic dosing and filling scales)	SIWAREX FTA, in design of ET 200M	7MH4900-2AA01	
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 FTC_B (belt scales)	SIWAREX FTC, with ET 200M design	7MH4900-3AA01	
SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design			
SIWAREX FTC_L (loss-in-weight scales)			
 SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design 			
SIWAREX WP321 (platform scales / level measurements)	SIWAREX WP321, in design of ET 200SP	7MH4138-6AA00-0BA0	Na sergia (Si Mediment
SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design			

Software

SIMATIC PCS 7 Add-ons

Selection and ordering data	Article No.
SIWAREX PCS 7 AddOn Library	
SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0 Consisting of function blocks, face-plates and manual, 2 languages (English, German), engineering license for SIWAREX weighing modules, single license for 1 installation • APL faceplates and function blocks for - SIWAREX U - SIWAREX FTA - SIWAREX FTC_B (conveyor scales) - SIWAREX WP321 • Classic faceplate and function block for - SIWAREX FTC_L (loss in weight) Engineering and runtime software, software class A Type of delivery: Software and elec-	7MH4900-1AK61
tronic documentation on CD, engineering license (certificate of license)	
Associated hardware	
SIWAREX U weighing controller • 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, face- plate 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 elec- tronic documentation on CD, engi- neering license (certificate of license)	7MH4900-2AK63
/	

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

More information

Siemens AG Process Industries and Drives Process Automation Process Instrumentation, Weighing Technology

Tel.: +49 721 595-2811 Fax: +49 721 595-2901

E-mail: hotline.siwarex@siemens.com

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

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 offline 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.
0.11/4=0.01.1/4.0.1/=	

SIWATOOL V4 & V7	7MH4900-1AK01
Service and commissioning software for SIWAREX weighing modules	
Ethernet cable patch cord 2 m (7 ft)	6XV1850-2GH20
For connection of SIWAREX WP2xx and 5xx to a PC	
SIWATOOL connection cable	7MH4607-8CA
For connecting SIWAREX U/CS to a PC (RS 232), length 3 m (9.84 ft)	
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





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3/4 3/4 3/5 3/5 3/6 3/6 3/7 3/7 3/8 3/8 3/9 3/9 3/10	Single point load cells Product overview SIWAREX WL260 SP-S AA - Load cell SIWAREX WL260 SP-S AB - Load cell SIWAREX WL260 SP-S AE - Load cell SIWAREX WL260 SP-S SA - Load cell SIWAREX WL260 SP-S SB - Load cell SIWAREX WL260 SP-S SC - Load cell
3/12 3/12 3/13 3/13 3/15 3/17 3/20	Bending beam load cells Product overview SIWAREX WL230 BB-S SA - Load cell - Mounting unit - Elastomer bearing - Base plate
3/21 3/21 3/22 3/22 3/24 3/26 3/28 3/29 3/29 3/31	Shear beam load cells Product overview SIWAREX WL230 SB-S SA - Load cell - Mounting unit - Base plate with elastomer bearing - Load foot SIWAREX WL230 SB-S CA - Load cell - Load foot
3/32 3/32 3/33 3/33 3/35 3/37	Double shear beam load cells Product overview SIWAREX WL290 DB-S CA - Load cell - Silo-mounting unit - Mounting unit for vehicles
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3/41 3/41 3/42 3/42 3/44 3/47 3/48 3/50 3/51 3/52 3/52 3/57	Compression load cells Product overview SIWAREX WL270 CP-S SA - Load cell - Mounting unit with guide element - Pressure piece set with adapter plates SIWAREX WL270 CP-S SB - Load cell - Mounting unit - Pressure piece set SIWAREX WL270 K-S CA - Load cell - Self-centering bearing unit
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3/75 3/75 3/78 3/80 3/82	Load cell accessories SIWAREX DB junction box SIWAREX JB junction box SIWAREX EB extension boxes Cable
3/83 3/83 3/84 3/85 3/86	Configuration examples Introduction Configuration example 1 Configuration example 2 Configuration example 3

Introduction

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 modules 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 medium accuracy weighing machines requiring official calibration in accordance with EN 45501 and conform to OIML R-60.

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

Design

Load cells are sensors that convert a mechanical variable (i.e. weight) into an electrical signal, usually a voltage.

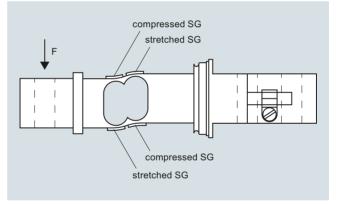
They work according to different measuring principles. Siemens SIWAREX WL200 load cells utilize so-called strain gauges. These are specially formed electrical conductors which are insulated by means of a suitable material. The strain gauges are attached to the basic element, a specially formed spring 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.

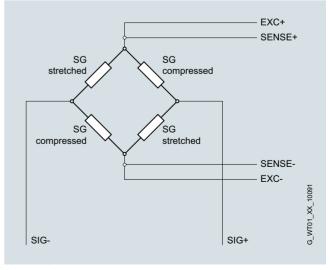
For each load cell, at least four strain gauges are connected together to form a complete Wheatstone bridge. The stretched or compressed strain gauges are connected so that the positive or negative resistance changes are added together to form a total imbalance in the bridge.

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 load cell, loaded



Principle of a Wheatstone bridge

Mounting components

Introduction

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.

Single point load cells

Product overview

Overview

Туре	Rated load	Accuracy class	Features	Material
SIWAREX WL260 SP-S AA	3100 kg (6.61 220.46 lb)	C3 ¹⁾ Legal-for-trade	Small platform scales with one load cell Small belt scales Class III medium accuracy weighing machines	Aluminum
SIWAREX WL260 SP-S AB	50 500 kg (110.23 1 102.31 lb)	• C3 ²⁾	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)	• F _{comb} = ± 0.015 % C _n	Miniature loads and high-resolution scales Small belt scales	Aluminum
SIWAREX WL260 SP-S SA	5 200 kg (11.02 440.92 lb)	C3 Legal-for-trade	Small to medium-size platform scales with one load cell Small belt scales Class III medium accuracy weighing machines Available with or without explosion protection	Stainless steel EN 1.4542
SIWAREX WL260 SP-S SB	6 60 kg (13.23 132.28 lb)	C3 Legal-for-trade	Small platform scales Small belt scales Class III medium accuracy weighing machines	Stainless steel EN 1.4542
SIWAREX WL260 SP-S SC	10 500 kg (22.05 1 102.31 lb)	C3C3 MRC4 MR (high-precision)Legal-for-trade	Platform scales Belt scales Class III medium accuracy weighing machines Suitable for food and beverages industry, or pharmaceuticals	Stainless steel EN 1.4542

Available in C4 with Y = 20 000 upon request.
 SIWAREX WL260 SP-S AB is not approved for legal-for-trade operation.

Load Cells Single point load cells SIWAREX WL260 SP-S AA

Load cell

7MH5102-

■ ■ D 0 0

1 P

2 A

2 G

2 P

Overview



The load cell is suitable for small platform scales with one load cell and a max. platform size 400 x 400 mm (15.75 x 15.75 inch) as well as for use in medium accuracy weighing machines of Class III with a max. scale verification intervals $n_{max} = 3000d$.

Design

The load cell is hermetically sealed.

Technical specifications

SIWAREX WL260 SP-S AA		
Possible applications	Platform scales	
	Small belt scales	
Type of construction	Single point load cell	
Loads		
Rated load E _{max} .	• 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 $L_{\rm U}$	150% E _{max}	
Breaking load $L_{\rm D}$	300% E _{max}	
Safe side load L _{la}	100% E _{max}	

Measurement characteristic values

< 0.6 mm (0.024 inch)
$2.0 \pm 0.2 \mathrm{mV/V}$
$< \pm 2 \% C_{n}$
3 000
E _{max} /12 000
± 0.02% C _n
\pm 0.017 % $C_{\rm n}$
± 0.02% <i>C</i> _n
0.017% <i>C</i> _n /5 K 0.014% <i>C</i> _n /5 K

Electrical characteristic values

Recommended reference voltage U_{ref}	5 12 V DC
Input resistance $R_{\rm e}$	$409~\Omega \pm 6~\Omega$
Output resistance R _a	350 Ω ± 3 Ω
Insulation resistance R_{is}	5 000 M Ω at 50 V DC

Connection and environmental

Rated	tomno
Rated	tempe

conditions -10 ... +40 °C (14 ... 104 °F) erature range Btn -35 ... +65 °C (-31 ... 149 °F) Operating temperature range Btu Storage temperature range Bts -35 ... +65 °C (-31 ... 149 °F) Sensor material (DIN) Aluminum

SIWAREX WL260 SP-S AA	
Maximum tightening torque of the fixing screws	15 20 Nm
Degree of protection to EN 60529; IEC 60529	IP65
Cable connection	
Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Sense + (sensor cable +) Sense - (sensor cable -) Shield (not connected to the load cell body)	Color Red Black Green White Blue Brown Transparent
Certificates and approvals	
Accuracy class according to OIML R-60	C3

Selection and ordering data Article No.

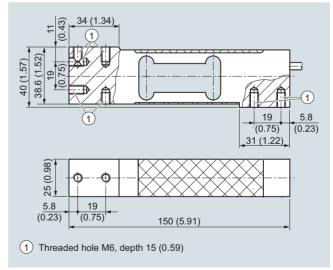
Load cell, type WL 260 SP-S AA Legal-for-trade according to OIML R-60 up to 3 000d, connecting cable 3 m (9.84 ft)

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Rated load

- 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)

Dimensional drawings



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

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 x 600 mm (23.62 x 23.62 inch) as well as for use in medium accuracy weighing machines of Class III with a max. division $n_{\text{max}} = 3\ 000\text{d}.$

Design

The load cell is hermetically sealed.

Technical specifications

Possible applications	Platform scales
. occibie applicatione	Belt scales
Type of construction	Single point load cell
Loads	
Rated load E _{max.}	• 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 _{lq}	100% E _{max}
Measurement characteristic valu	es
Deflection h_n at E_{max}	< 1.22 mm (0.048 inch)
Rated characteristic value C_n	$2.0 \pm 0.2 \mathrm{mV/V}$
Tolerance D_0 of zero signal	< ± 2 % C _n
Maximum scale interval n_{lc}	3 000
Minimum scale interval V_{min}	E _{max} /10 000
Combined error F _{comb}	\pm 0.02% $C_{\rm n}$
Repeatability $F_{\rm v}$	\pm 0.017 % $C_{\rm n}$
Creep error F _{cr} ■ 30 min	± 0.02% <i>C</i> _n
Temperature coefficient Zero signal T _{Ko} Characteristic value T _{Kc}	0.017% <i>C</i> _R /5 K 0.014% <i>C</i> _n /5 K
Electrical characteristic values	
Recommended input voltage	5 12 V DC
Input resistance R _e	409 Ω ± 6 Ω
Output resistance R _a	350 Ω ± 3 Ω
Insulation resistance Ris	5 000 M Ω at 50 V DC

Aluminum

35 ... 40 Nm

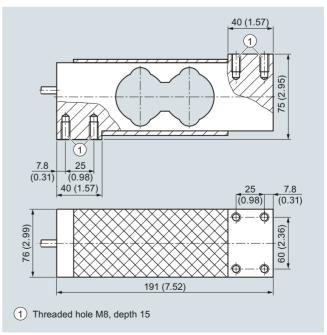
-10 ... +40 °C (14 ... 104 °F)

SIWAREX WL260 SP-S AB	
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	IP65
Cable connection	
Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Sense + (sensor cable +) Sense - (sensor cable -) Shield (not connected to the load cell body)	Color Red Black Green White Blue Brown Transparent
Certificates and approvals	
Accuracy class according to OIML R-60	C3 ¹⁾

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

Article No. Selection and ordering data Load cell, type WL260 SP-S AB 7MH5103-Connecting cable 3 m (9.84 ft) ■ ■ 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

Dimensional drawings



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

fixing screws

Sensor material (DIN)

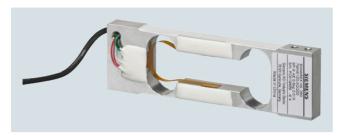
Maximum tightening torque of the

Rated temperature range $B_{\rm tn}$

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 \times 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.

Technical specifications

SIWAREX WL260 SP-S AE		
Possible applications	Small platform scales	
	Small belt scales	
Type of construction	Platform load cell	
Loads		
Rated load $E_{ m max.}$	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)	

Measurement characteristic values

modelarioni ondraotoriono valdoo	
Deflection $h_{\rm n}$ at $E_{\rm max}$ • $E_{\rm max}$ = 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	$0.9 \pm 0.1 \mathrm{mV/V}$
Combined error F _{comb}	± 0.015 % <i>C</i> _n
Repeatability $F_{\rm V}$	± 0.017 % C _n
Creep error F _{cr} ◆ 30 min	± 0.015 % <i>C</i> _n
Temperature coefficient • Zero signal T _{Ko} • Characteristic value T _V	0.03% <i>C</i> _n /10 K 0.03% <i>C</i> -/10 K

Electrical characteristic values

Recommended reference voltage U_{ref}	6 12 V DC
Input resistance $R_{\rm e}$	383 Ω ± 6 Ω
Output resistance R _a	351 Ω ± 3 Ω
Insulation resistance Ris	5 000 M Ω at 50 V DC

SIWAREX WL260 SP-S AE Connection and environmental conditions Rated temperature range B_{tn} -10 ... +40 °C (14 ... 104 °F) Operating temperature range Btu -20 ... +50 °C (-4 ... 122 °F) Storage temperature range Bts -20 ... +50 °C (-4 ... 122 °F) Sensor material (DIN) Aluminum Degree of protection acc. to EN 60529 IP65 Cable connection

unction		
EXC +	(supply +)	

• EXC – (supply -) • SIG + (measured signal +) • SIG – (measured signal -)

• Shield (not connected to the load cell body)

Color Red

Black Green

White

Transparent

7MH5120-

Q 0 0

0 K

0 Q

1 A

1 B

1 E

1 K

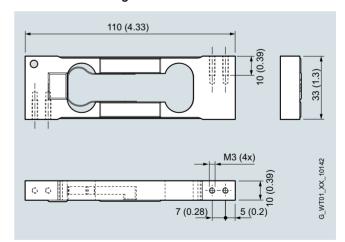
Selection and ordering data Article No.

Load cell of the type WL260 SP-S AE Connecting cable 0.4 m (14.4 inch), accuracy člass 0.015 %

configuration in the PIA Life Cycle Portal.

- 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)

Dimensional drawings



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

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 x 400 mm (15.75 x 15.75 inch) as well as for use in medium accuracy weighing machines of Class III with a max. division $n_{\text{max}} = 3\ 000\text{d}.$

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

Design

The load cell is hermetically sealed.

Technical specifications

SIWAREX WL260 SP-S SA		
Possible applications	Platform scales	
	Small belt scales	
Type of construction	Single point load cell	
Loads		
Rated load $E_{\rm max.}$	• 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 $L_{\rm u}$	150% E _{max}	
Breaking load L_d	300% E _{max}	
Safe side load L_{lq}	100% E _{max}	
Measurement characteristic value	S	
Deflection h_n at E_{max}	$0.27 \pm 0.05 \text{ mm} (0.01 \pm 0.002 \text{ inch})$	
Rated characteristic value C_n	$2.0 \pm 0.2 \mathrm{mV/V}$	
Tolerance D_0 of zero signal	$<$ ± 1% $C_{\rm n}$	
Maximum scale interval $n_{\rm lc}$	3 000	
Minimum scale interval V_{\min}	E _{max} /9 000	
Combined error F _{comb}	\pm 0.02% $C_{\rm n}$	
Repeatability $F_{\rm v}$	\pm 0.017 % $C_{\rm n}$	
Creep error F _{cr} ■ 30 min	± 0.02% <i>C</i> _n	
Temperature coefficient • Zero signal <i>T</i> _{Ko} • Characteristic value <i>T</i> _{Kc}	0.017% <i>C</i> _n /5 K 0.014% <i>C</i> _n /5 K	
Electrical characteristic values		
Recommended input voltage	5 12 V DC	
Input resistance $R_{\rm e}$	383 Ω ± 6 Ω	
Output resistance Ra	351 $\Omega \pm 3 \Omega$	
Insulation resistance R_{is}	5 000 M Ω at 50 V DC	
Connection and ambient condition	ns	
Sensor material (DIN)	Stainless steel EN 1.4542	

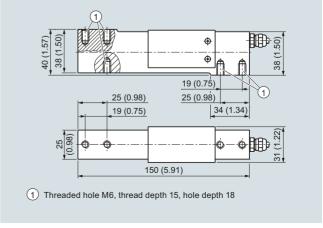
SIWAREX WL260 SP-S SA	
Maximum tightening torque of the fixing screws	
• E _{max} = 3 100 kg (6.61 220.46 lb)	14 Nm
• $E_{\text{max}} = 200 \text{ kg } (440.92 \text{ lb})$	16 Nm
Rated temperature range B _{tn}	-10 +40 °C (14 104 °F)
Operating temperature range B _{tu}	-35 +65 °C (-31 +149 °F)
Storage temperature range B _{ts}	-40 +70 °C (-40 +158 °F)
Degree of protection according to EN 60529, IEC 60529	IP67
Cable connection	
Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Sense + (sensor cable +) Sense - (sensor cable -) Shield (not connected to the load cell body)	Color Green Black White Red Blue Yellow Transparent
Certificates and approvals	
Accuracy class according to	C3 ¹⁾

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

Selection and ordering data		Article No.			
Load cell, type WL260 SP-S SA	71	ИΗ	5104	1-	
Legal-for-trade according to OIML R-60 up to 3 000d, 1 m connecting cable (3.28 ft)		П	D ()	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
• 5 kg (11.02 lb)	1	Р			
• 10 kg (22.05 lb)	2	Α			
• 20 kg (44.09 lb)	2	G			
• 50 kg (110.23 lb)	2	Р			
• 100 kg (220.46 lb)	3	Α			
• 200 kg (440.92 lb)	3	G			
Explosion protection				T	
Without					0
Explosion protection for zones 0, 1, 2, 20, 21, 22					1

Dimensional drawings

OIML R-60



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 x 350 mm (13.78 x 13.78 inch). It is approved for use in Class III commercial scales 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.

Technical specifications

SIWAREX WL260 SP-S SB	
Possible applications	Platform scales
	Small belt scales
Type of construction	Single point load cell
Loads	
Rated load E _{max}	 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 $L_{\rm u}$	150% E _{max}
Breaking load L_d	300% E _{max}
Safe side load L _{Iq}	100% E _{max}
Measurement characteristic valu	ies

Breaking load L _d	300% E _{max}
Safe side load L_{lq}	100% E _{max}
Measurement characteristic values	
Deflection h_n at E_{max} • $E_{max} = 6 \text{ kg } (13.23 \text{ lb})$ • $E_{max} = 12 \text{ kg } (26.46 \text{ lb})$ • $E_{max} = 30 \text{ kg } (66.14 \text{ lb})$ • $E_{max} = 60 \text{ kg } (123.28 \text{ lb})$ Rated characteristic value C_n	0.24 ± 0.02 mm $(0.009 \pm 0.0008$ in) 0.19 ± 0.01 mm $(0.008 \pm 0.0004$ in) 0.15 ± 0.01 mm $(0.006 \pm 0.0004$ in) 0.22 ± 0.03 mm $(0.009 \pm 0.0011$ in) 2.0 ± 0.2 mV/V
Tolerance D_{O} of zero signal	< ± 2.0% C _n
Maximum scale interval n _{lc} Minimum scale interval V _{min} • At E _{max} = 6 60 kg (13.23 132.28 lb)	3 000 E _{max} /15 000
Combined error F _{comb}	≤ ± 0.02% Cn
Repeatability $F_{\rm v}$	≤ ± 0.02% Cn
Creep error F _{Cr} ◆ 30 min	≤ ± 0.025% Cn
Temperature coefficient	

0.009% Cn/10 °C (50 °F)

0.009% Cn/10 °C (50 °F)

ullet Characteristic value $T_{\rm Kc}$ Electrical characteristic values

• Zero signal T_{Ko}

Recommended reference voltage U_{ref} 5 ... 12 V DC Input resistance Re $400 \Omega \pm 20 \Omega$ Output resistance Ra $350~\Omega\pm3.5~\Omega$ Insulation resistance Ris 5 000 M Ω at 50 V DC

SIWAREX WL260 SP-S SB Connection and environmental conditions Sensor material (DIN) Stainless steel EN 1.4542 Maximum tightening torque of the 10 Nm fixing screws Cable connection Function Color • EXC + (supply +) Green • EXC – (supply -) Black White • SIG + (measured signal +) • SIG - (measured signal -) Red • Sense + (sensor cable +) Yellow • Sense - (sensor cable -) Blue · Shield (not connected to the load Transparent cell body) -10 ... +40 °C (14 ... 104 °F) Rated temperature range B_{tn} -35 ... +65 °C (-31 ... +149 °F) Operating temperature range Btu Storage temperature range Bts -35 ... +65 °C (-31 ... +149 °F) Degree of protection according to IP68 EN 60529; IEC 60529

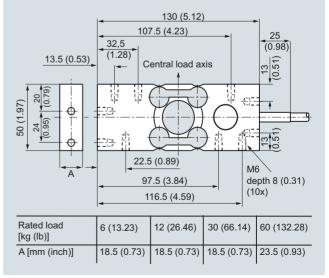
Certificates and approvals

Accuracy class according to

СЗ

Selection and ordering data	Article No.
Load cell, type WL260 SP-S SB	7MH5117-
Legal-for-trade according to OIML R-60 up to 3 000d, connecting cable 6 m (19.69 ft)	D 0 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

Dimensional drawings



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

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 medium accuracy 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 x 400 mm (15.75 x 15.75 inches) for load cells rated for 10 ... 50 kg (22.05 ... 110.23 lb). The platform size can be up to 800 x 800 mm (31.50 x 31.50 inches) for load cells rated for 100 ... 500 kg (220.46 ... 1102.31 lb).

Technical specifications

SIWAREX WL260 SP-S SC	
Possible applications	Platform scales
	Small belt scales
Type of construction	Single point load cell
Loads	
Rated load $E_{\rm max.}$	• 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 Emin	0% E _{max}
Maximum working load $L_{\rm u}$	150% E _{max}
Breaking load L _d	300% E _{max}
Safe side load L_{lq}	100% E _{max}
Moseuromont characteristic values	

bare side load Elq	100 /0 Zmax
Measurement characteristic values	
Deflection 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 (1 102.31 lb)	0.19 mm (0.008 inch)
Rated characteristic value C_{n}	$2.0 \pm 0.2 \mathrm{mV/V}$
Tolerance $D_{\mathbb{O}}$ of zero signal	$<\pm$ 2.0% $C_{\rm n}$
Maximum scale interval n _{lc}	
• At E_{max} = 10 500 kg (22.05 1 102.31 lb) and accuracy classes C3, C3 MR	3 000

4 000

SIWAREX WL260 SP-S SC	
Minimum scale interval <i>V</i> _{min} • At <i>E</i> _{max} = 10 500 kg (22.05 1 102.31 lb)	C3: <i>E</i> _{max} /10 000 C3 MR: <i>E</i> _{max} /20 000
• At E_{max} = 10 50 kg (22.05 110.23 lb)	C4 MR: $E_{\text{max}}/40~000$
Combined error F _{comb}	\leq ± 0.02% C _n
Repeatability F _v	\leq ± 0.02% C_n
Creep error F _{cr} ■ 30 min	≤ ± 0.025% C _n
Temperature coefficient Zero signal T _{Ko} Characteristic value T _{Kc}	0.014% C _n /10 °C (50 °F) 0.01% C _n /10 °C (50 °F)
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) 100 500 kg (220.46 1 102.31 lb)	$380~\Omega \pm 15~\Omega$ $350~\Omega \pm 3.5~\Omega$
Output resistance R _a	$350 \Omega \pm 3.5 \Omega$
Insulation resistance Ris	5 000 M Ω 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) 100 500 kg (220.46 1 102.31 lb)	10 Nm 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 EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Sense + (sensor cable +) Sense - (sensor cable -) Shield (not connected to the load cell body)	Color Red Black Green White Blue ¹⁾ Yellow ¹⁾ Transparent

Certificates and approvals

Available accuracy	classes acc. to
OIML R-60 at rated	load

• 10 ... 500 kg (22.05 ... 110.23 lb) C3, C3 MR • 10 ... 50 kg (220.46 ... 1 102.31 lb) C4 MR

At E_{max} = 10 ... 50 kg (22.05 ... 110.23 lb) and accuracy class C4 MR

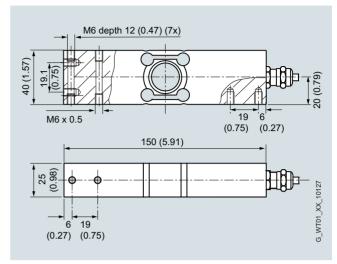
¹⁾ Only with 10, 20 and 50 kg (22.05, 44.09 lb and 110.23 lb) variants.

Single point load cells SIWAREX WL260 SP-S SC

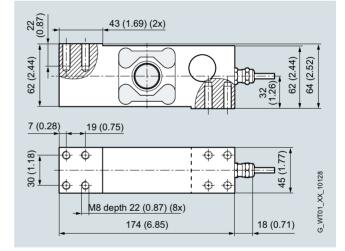
Load cell

Selection and ordering data Article No. Load cell, type WL260 SP-S SC 7MH5118-Legal-for-trade according to OIML R-60 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) G D 0 • 50 kg (110.23 lb) P D 0 • 100 kg (220.46 lb) A D 0 G D 0 • 200 kg (440.92 lb) • 300 kg (661.91 lb) K D 0 • 400 kg (881.85 lb) 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 R-60 up to 3 000d and $V_{\min} = E_{\max}/20\ 000$ In accuracy class C4 MR E 5 Legal-for-trade according to OIML R-60 up to 4 000d and $V_{\text{min}} = E_{\text{max}}/40\,000$; only for $E_{\text{max}} = 10$, 20, 50 kg (22.05, 44.09, 110.23 lb)

Dimensional drawings



SIWAREX WL260 SP-S SC load cell, 10 \dots 50 kg (22.05 \dots 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)

Bending beam load cells

Product overview

Overview

туре	Hated load	Accuracy	reatures	Material
SIWAREX WL230 BB-S SA	10 500 kg (22.05 1 102.3 lb)	C3 Legal-for-trade	Small hopper and platform scales	Stainless steel EN 1.4542
THE REAL PROPERTY OF THE PARTY			Class III medium accuracy weighing machines Available with or without explosion protection	

Bending beam load cells SIWAREX WL230 BB-S SA

Load cell

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.

Technical specifications

SIWAREX WL230 BB-S SA				
Possible applications	Hopper scales			
	Belt scales			
	Platform scales			
Type of construction	Bending beam load cell			
Loads				
Rated load E_{max}	• 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% <i>E</i> _{max}			
Maximum working load Lu	150% E _{max}			
Breaking load $L_{\rm d}$	300% E _{max}			
Safe side load L_{lq}	100% E _{max}			
Measurement characteristic values				
Deflection h_n at E_{max}	0.3 mm			
Rated characteristic value C_n	$2.0 \pm 0.02\% \text{ mV/V}$			
Tolerance $D_{\mathbb{O}}$ of zero signal	$< \pm 1.0\% C_{\rm n}$			
Maximum scale interval $n_{\rm LC}$	3 000 ¹⁾			
Minimum scale interval V_{\min}	E _{max} /15 000			
Minimum application range R _{min(LC)}	20%			
Combined error F _{comb}	≤ 0.02% <i>C</i> _n			
Repeatability $F_{\rm V}$	\leq 0.017% $C_{\rm n}$			
Creep error F _{cr} ■ 30 min	≤ ± 0.02% <i>C</i> _n			
Temperature coefficient • Zero signal T _{Ko} • Characteristic value T _{Kc}	\leq ± 0.017% $C_{\rm D}/5$ K \leq ± 0.014% $C_{\rm D}/5$ K			

SIWAREX WL230 BB-S SA	
Electrical characteristic values	
Recommended reference voltage $U_{\rm ref}$	5 10 V DC
Input resistance $R_{\rm e}$	$460~\Omega \pm 50~\Omega$
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 (22.05 440.92 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 -)SIG + (measured signal +)	Black 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	

1) Higher accuracy class available on request.

Accuracy class according to

OIML R-60

СЗ

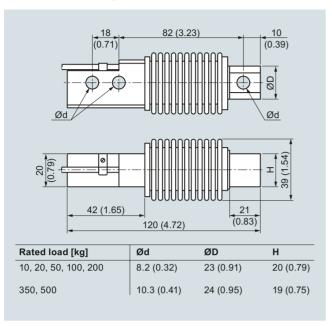
Selection and ordering data	A	rtic	:le	No	١.
Load cell, type WL230 BB-S SA	71	ИH	510	6-	
Legal-for-trade according to OIML R-60 up to 3 000d, connecting cable 3 m (9.84 ft)	-		D	0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Rated load					
• 10 kg (22.05 lb)	2	Α			
• 20 kg (44.09 lb)	2	G			
• 50 kg (110.23 lb)	2	Р			
• 100 kg (220.46 lb)	3	Α			
• 200 kg (440.92 lb)	3	G			
• 350 kg (771.62 lb)	3	L			
• 500 kg (1102.31 lb)	3	Р			
Explosion protection					
Without					0
Explosion protection for zones 0, 1, 2, 20, 21, 22					1

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

Bending beam load cells SIWAREX WL230 BB-S SA

Load cell

Dimensional drawings



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

Bending beam load cells SIWAREX WL230 BB-S SA

Mounting unit

Overview



The self-centering mounting 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 inch). 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 startup in a container, by braking or accelerating forces in a roller conveyor, or though 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



Guide element for mounting units of the SIWAREX WL230 BB-S SA series

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 the top plate	2 2.5 mm (0.08 0.10 inch)	2 2.5 mm (0.12 0.14 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 inch)		
Permissible lateral force ¹⁾	2,5 kN		

¹⁾ The values apply to one guide element.

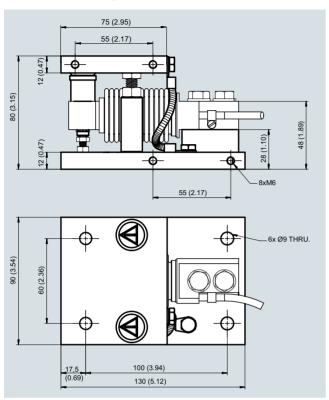
Selection and ordering data	Article No.
Compact mounting units	
For load cells of the SIWAREX WL230 BB-S SA series	
Material: Stainless steel EN 1.4301 and EN 1.4112	
For load cells with a rated load of	
• 10 200 kg (22.05 440.92 lb) ¹⁾	7MH5706-3GA00
• 350, 500 kg (771.61, 1 102.3 lb) ¹⁾	7MH5706-3PA00
Guide elements (optional)	
For 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)	
10 500 kg (22.01 1 102.31 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)	
• 10 200 kg (22.05 440.92 lb); Contents: 16 units, each 0.5 mm thick	7MH5713-3JG00

¹⁾ The load cell is not included in the scope of delivery.

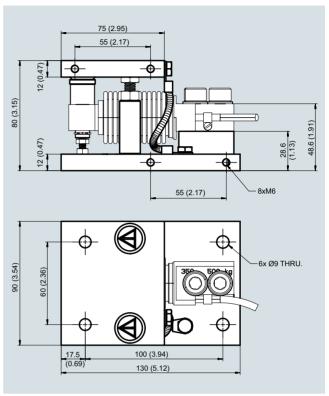
Bending beam load cells SIWAREX WL230 BB-S SA

Mounting unit

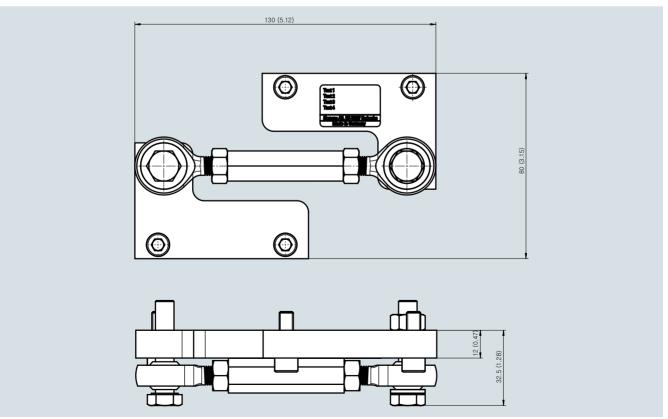
Dimensional drawings



Mounting unit for SIWAREX WL230 BB-S SA, 10 ... 200 kg (22.05 ... 440.92 lb), dimensions in mm (inch)



Mounting unit for SIWAREX WL230 BB-S SA, 350 and 500 kg (771.62 and 1 102.31 lb), dimensions in mm (inch)



Guide element for load cells SIWAREX WL230 BB-S SA, 10 ... 500 kg (22.01 ... 1 102.31 lb), dimensions in mm (inch)

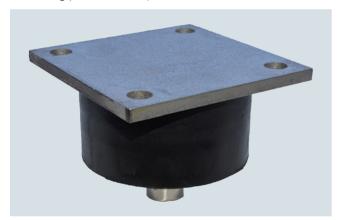
Bending beam load cells SIWAREX WL230 BB-S SA

Elastomer bearing

Overview



Elastomer bearings for load cells of the SIWAREX WL230 BB-S SA series, 10 \dots 200 kg (22.05 \dots 440.93 lb)



Elastomer bearings for load cells of the SIWAREX WL230 BB-S SA series, 350 and 500 kg (771.62 and 1 102.31 lb)

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.

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)
Maximum permissible lateral deflection	± 4 mm (0.16 inch)						
Vertical rigidity	0.89 kN/mm	3.8 kN/mm	3.8 kN/mm				
Horizontal rigidity	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

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.

Bending beam load cells SIWAREX WL230 BB-S SA

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)

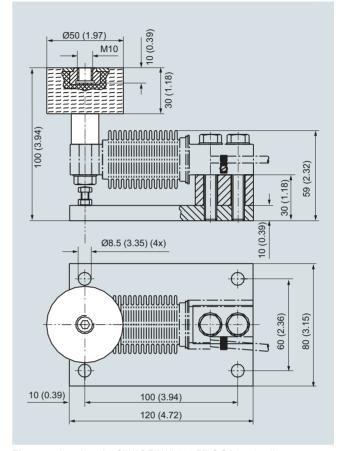
• 350, 500 kg (771.61, 1 102.31 lb)

7MH4133-3DE11 7MH5706-0PC00

• 330, 300 kg (771.01, 1 102.31 lb)

The load cell is not included in the scope of delivery.
 It is highly recommendable to use a grounding cable (7MH3701-1AA1) in order to protect the load cell.

Dimensional drawings

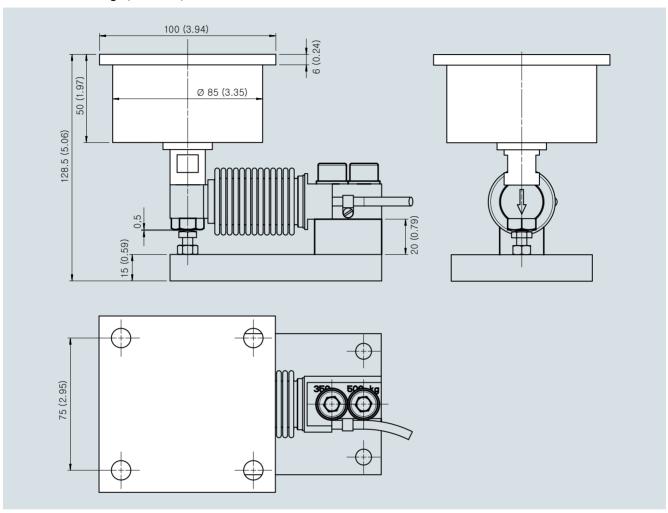


Elastomer bearings for SIWAREX WL230 BB S SA load cells, 10 ... 200 kg (22.05 lb ... 440.92 lb), dimensions in mm (inch)

Load Cells Bending beam load cells SIWAREX WL230 BB-S SA

Elastomer bearing

Dimensional drawings (continued)



Elastomer bearings for SIWAREX WL230 BB S SA load cells, 350 und 500 kg (771.61 and 1 102.31 lb), dimensions in mm (inch)

Bending beam load cells SIWAREX WL230 BB-S SA

Base plate

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)
- 350, 500 kg (771.62, 1 102.31 lb)

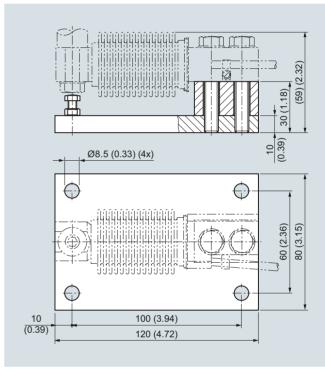
7MH4133-3DG11

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 CellsShear beam load cells

Product overview

Overview

Туре	Rated load	Accuracy	Features	Material
SIWAREX WL230 SB-S SA	500 kg 5 t (1 102.31 lb 4.92 tn. L.)	C3 Legal-for-trade	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.) ¹⁾	• C3 • C4 • C5 • Legal-for-trade	Platform scales Hopper scales	Nickel-plated steel

¹⁾ The 100 kg and 250 kg load classes are bending beams.

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.

Technical specifications

SIWAREX WL230 SB-S SA				
Possible applications	Hopper scales			
	Belt scales			
	Overhead rail scales			
	Platform scales			
Type of construction	Shear beam load cell			
Loads				
Rated load/maximum load $E_{\rm max.}$	• 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 $L_{\rm u}$	150% E _{max.}			
Breaking load L_d	300% E _{max.}			
Safe side load L_{lq}	100% E _{max}			
Measurement characteristic values				
Deflection h_n at \bullet $E_{max} = 500$ kg (1 102.31 lb) \bullet $E_{max} = 1$ t (0.98 tn. l.) \bullet $E_{max} = 2$ t (1.97 tn. l.) \bullet $E_{max} = 5$ t (4.92 tn. l.)	0.13 mm 0.21 mm 0.29 mm 0.38 mm			
Rated characteristic value $C_{\rm n}$	$2.0 \pm 0.002 \text{mV/V}$			
Tolerance D_0 of zero signal	\leq ± 1.0% C_{n}			
Max. scale interval $n_{\rm LC}$	3 000			
Min. scale interval V_{min} at • $E_{max} = 500 \text{ kg (1 102.31 lb)}$ • $E_{max} = 1 \dots 5 \text{ t (0.98 } \dots 4.92 \text{ tn. l.)}$	E _{max} /10 000 E _{max} /15 000			
$\begin{aligned} & \text{Minimum application range } R_{\text{min(LC)}} \text{ at} \\ & \bullet \ E_{\text{max}} = 500 \text{ kg (1 102.31 lb)} \\ & \bullet \ E_{\text{max}} = 1 \dots 5 \text{ t (0.98 \dots 4.92 tn. l.)} \end{aligned}$	30% 20%			
Combined error F _{comb}	\pm 0.02% $C_{\rm n}$			
Repeatability $F_{\rm v}$	\pm 0.02% $C_{\rm n}$			
Creep error F _{cr} ■ 30 min	$\leq \pm 0.02\% C_{\rm n}$			
Temperature coefficient • Zero signal t _{Ko} • Characteristic value t _{Kc}	0.023% <i>C</i> _n /5 K 0.017% <i>C</i> _n /5 K			

SIWAREX WL230 SB-S SA	
Electrical characteristic values	
Recommended reference voltage U_{ref}	5 12 V DC
Input resistance R _e	1 000 \pm 10 Ω
Output resistance R _a	1 004 \pm 5 Ω
Insulation resistance Ris	5 000 $\text{M}\Omega$ 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 $B_{\rm ts}$	-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.) • E _{max} = 5 t (4.92 tn. l.)	150 Nm ¹⁾ 550 Nm ¹⁾
Cable connection	
Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Shield (not connected to the load cell body)	Color Green Black White Red Transparent
Certificates and approvals	
Accuracy class according to	C3

¹⁾ The tightening torque is to be selected according to the strength class of the screws

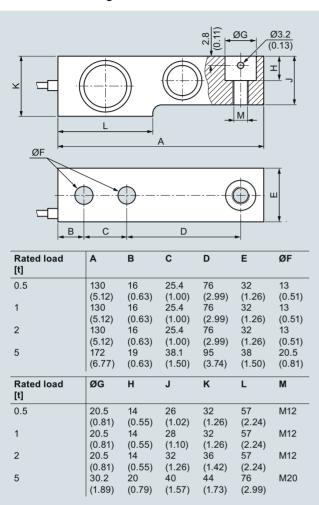
OIML R-60

Selection and ordering data	Article No.						
Load cell, type WL230 SB-S SA			7MH5107-				
Legal-for-trade according to OIML R-60 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.).			D	0			
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.							
Rated load							
• 500 kg (1 102.31 lb)	3	Р					
• 1 t (0.98 tn. l.)	4	Α					
• 2 t (1.97 tn. l.)	4	G					
• 5 t (4.92 tn. l.)	4	Р					
Explosion protection							
Without					0		
Explosion protection for zones 0, 1, 2, 20, 21, 22					1		

Load Cells Shear beam load cells SIWAREX WL230 SB-S SA

Load cell

Dimensional drawings



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

Shear beam load cells SIWAREX WL230 SB-S SA

Mounting unit

Overview



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

Design

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

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.

Prior to installation, the load cell is inserted with the pendulum bolt 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 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.

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 the top plate	3 mm (0.12 inch)	3 mm (0.12 inch)			
Restoring force per milli- meter 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			

Selection and ordering data			Article No.					
Mounting unit			7MH5707-					
For load cells of the SIWAREX WL230 SB-S SA series			Α	0	0			
Material: Stainless steel EN 1.4301 and EN 1.4112								
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.)								
• 2 t (1.97 tn. l.)		G						
• 5 t (4.92 tn. l.)		P						
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, 1 t, 2 t (1 102.31 lb, 0.98 tn. l., 1.97 tn. l.) Content: 16 units, each 0.5 mm thick			571)0	13-				
• 5 t (4.92 tn. l.) Content: 4 units, each 0.5 mm thick, 16 units each 1 mm thick			7MH5713- 4PG00					

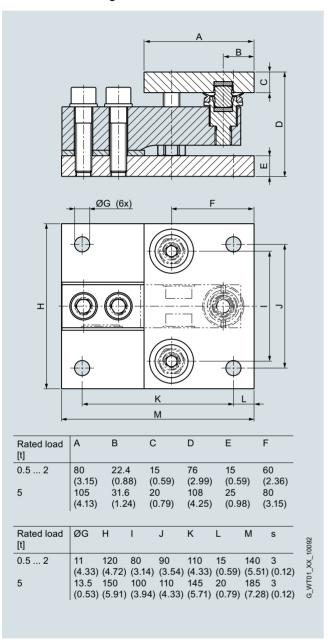
¹⁾ The load cell is not included in the scope of delivery.

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

Mounting unit

Dimensional drawings



Mounting unit for SIWAREX WL230 SB-S SA load cells, dimensions in mm (inch)

Shear beam load cells SIWAREX WL230 SB-S SA

Base plate with elastomer bearing

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			MH5707-			
For load cells of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4301			-	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.)		Α	В			
• 2 t (1.97 tn l.)		G	В			
• 5 t (4.92 tn. l.)		Р	В			
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.)		Α	С			
• 2 t (1.97 tn l.)		G	С			
• 5 t (4.92 tn. l.)		Р	С			

¹⁾ The load cell is not included in the scope of delivery.

Technical specifications

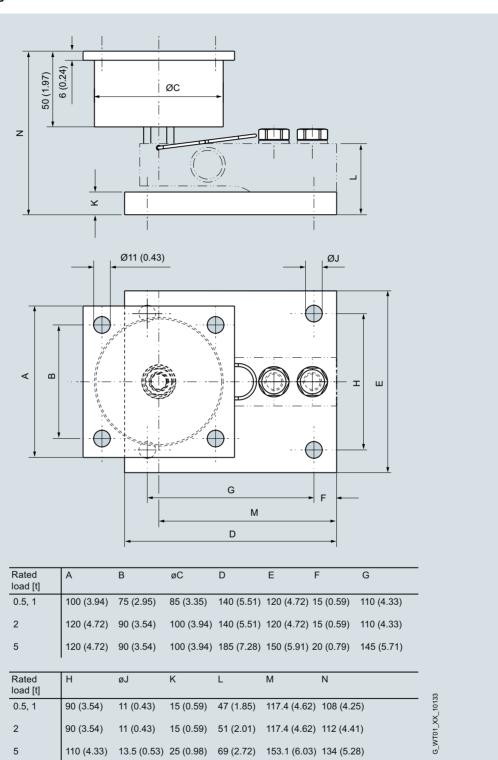
Base plate with elastomer bearing for SIWAREX WL230 SB-S SA load cells					
Rated load	500 kg (1 102.31 lb)	1 t (0.98 tn. l.)	2 t (1.97 tn. l.)	5 t (4.92 tn. l.)	
Maximum permissible lateral deflection	± 4 mm (0.16 inch)				
Vertical rigidity	5.9 kN/mm	5.9 kN/mm	29.98 kN/mm	29.98 kN/mm	
Horizontal rigidity	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)	

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

Dimensional drawings



Base plate with elastomer bearing for SIWAREX WL230 SB-S SA load cells, dimensions in mm (inch)

Shear beam load cells SIWAREX WL230 SB-S SA

Load foot

Overview



Load foot for SIWAREX WL230 SB-S SA load cells

This self-aligning load foot for SIWAREX WL230 SB-S SA load cells can be used for the quick and easy construction of platform and hopper scales.

The load foot transmits the force directly into the load cell.

The load foot is designed for rated load cell ranges from 500 kg to 5 t (0.49 \dots 4.92 tn. l.).

Design

Height compensation is possible using the screw thread.

Together with the pressure piece which is screwed into the load cell, this facilitates an oscillation function which prevents stresses in the load cells. 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.

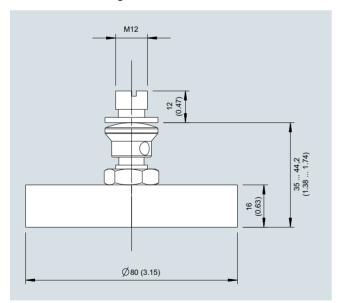
Technical specifications

Load foot for SIWAREX	Load foot for SIWAREX WL230 SB-S SA load cells					
Rated load	500 kg 2 t (1 102.31 lb 1.97 tn l.)	5 t (4.92 tn. l.)				
Maximum permissible lateral deflection	± 1 mm (0.04 inch)	± 1 mm (0.04 inch)				
Maximum vertical load	30 kN	70 kN				
Torques						
 Tightening torques of pressure piece for load cell 	100 110 Nm	100 110 Nm				
 Tightening torques of fixing screws for load cell 	M12: 100 Nm	M20: 450 Nm				
Tightening torques of locknut for load foot	10 15 Nm	10 15 Nm				

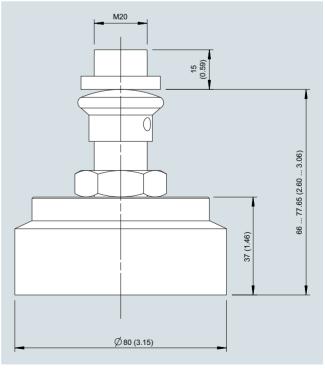
Selection and ordering data				Article No.			
Load foot				7MH5707-			
For load cells of the SIWAREX WL230 SB-S SA series Material: Stainless steel EN 1.4542, NBR: Nitrile rubber			Н	0	0		
7 Click on the Article No. for the online configuration in the PIA Life Cycle Portal.							
For load cells with a rated load of 1)							
• 0.5 2 t (0.49 1.97 tn. l.)							
• 5 t (4.92 tn. l.)		P					

¹⁾ The load cell is not included in the scope of delivery.

Dimensional drawings



SIWAREX WL230 SB-S SA load foot, 0.5 ... 2 t (0.49 ... 1.97 tn. l.), dimensions in mm (inch)



SIWAREX WL230 SB-S SA load foot, 5 t (4.92 tn. l.), dimensions in mm (inch)

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 R-60. 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.

Technical specifications

Tolerance D_0 of zero signal

SIWAREX WL230 SB-S CA	
Possible applications	Platform scales
	Hopper scales
Type of construction	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 $E_{\rm max.}$	• 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 $L_{\rm u}$	150% E _{max.}
Breaking load $L_{\rm d}$	300% E _{max.}
Safe side load L_{Iq}	100% E _{max}
Measurement characteristic values	
Deflection h_n at E_{max} • $E_{max} = 100$ kg (220.46 lb) • $E_{max} = 250$ kg (551.16 lb) • $E_{max} = 500$ kg (1 102.31 lb) • $E_{max} = 1$ t (0.98 tn. l.) • $E_{max} = 2$ t (1.97 tn. l.) • $E_{max} = 3$ t (2.95 tn. l.) • $E_{max} = 5$ t (4.92 tn. l.) • $E_{max} = 10$ t (9.84 tn. l.) Rated characteristic value C_n	0.17 mm 0.15 mm 0.32 mm 0.63 mm 1.2 mm 0.9 mm 0.6 mm 0.8 mm 3.0 ± 0.003 mV/V

 \leq ± 1.0% C_{n}

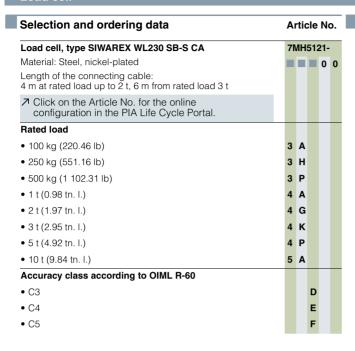
SIWAREX WL230 SB-S CA	
Max. scale interval n _{LC}	
For accuracy class OIML C3	3 000
For accuracy class OIML C4 For accuracy class OIML C5	4 000
For accuracy class OIML C5	5 000
Min. scale interval V _{min}	F /10 000
• At E _{max} 100 kg 10 t (220.46 lb 9.84 tn. l.)	$E_{\text{max}}/10\ 000$
and accuracy class OIML C3	
• At E _{max} 100 kg 10 t (220.46 lb 9.84 tn. l.)	E _{max} /15 000
and accuracy class OIML C4	
• At E _{max} 100 kg 2 t	E _{max} /20 000
(220.46 lb 1.97 tn. l.) and accuracy class OIML C5	
• At E _{max} 3 t 10 t (2.95 9.84 tn. l.)	E _{max} /18 000
and accuracy class OIML C5	
Combined error F_{comb}	0.0009/ C
 For accuracy class OIML C3 For accuracy class OIML C4 	$\leq \pm 0.023\% C_{\rm n}$ $\leq \pm 0.018 \% C_{\rm n}$
For accuracy class OIML C5	$\leq \pm 0.016 \% C_{\rm n}$ $\leq \pm 0.014 \% C_{\rm n}$
Creep error Fcr	"
• 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 $R_{\rm e}$	$350 \pm 3.5 \Omega$
Output resistance R_a	$350 \pm 3.5 \Omega$
Insulation resistance R_{is}	≥ 5 000 MΩ at 50 V DC
Connection and ambient conditions	2 0 000 W12 at 00 V DO
	-10 +40 °C
Rated temperature range B_{tn}	
Operating temperature range B_{tu}	-35 +65 °C
Storage temperature range B_{ts}	-40 +80 °C
Sensor material (DIN)	Steel, nickel-plated
Degree of protection acc. to EN 60529	IP67
Recommended tightening torque of	
• For M12	75 Nm
• For M18	500 Nm
• For M24	750 Nm
Length of the connecting cable	
(four-core)	Longth 4 m (12 1 ft)
 For rated loads up to 2 t For rated loads more than 2 t 	Length 4 m (13.1 ft) Length 6 m (19.7 ft)
Diameter of the connecting cable	5 mm
Degree of protection acc. to	IP67
EN 60529	11 07
Cable connection	
Function	Color
• EXC + (supply +) • EXC - (supply -)	Red Black
• SIG + (measured signal +)	Green
• SIG – (measured signal -)	White
 Shield (not connected to the load cell body) 	Transparent
ATEX	
Certificates and approvals	
os unoutos una approvais	

C3, C4, C5

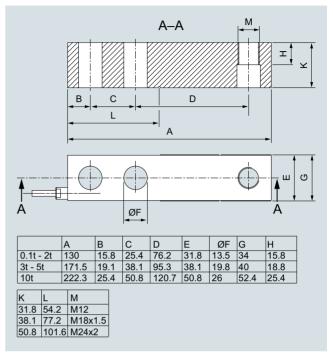
Accuracy class according to OIML R-60

Shear beam load cells SIWAREX WL230 SB-S CA

Load cell



Article No. Dimensional drawings



SIWAREX WL230 SB-S CA load cell, dimensions in mm (inch)

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 selfcentering 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

The load foot is screwed into the load cell. The foot element possesses a ball joint with an oscillation function

which prevents stresses in the load cells. 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.

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			

Selection and ordering data

Article No.

Load foot

For SIWAREX WL230 SB-S CA load cells

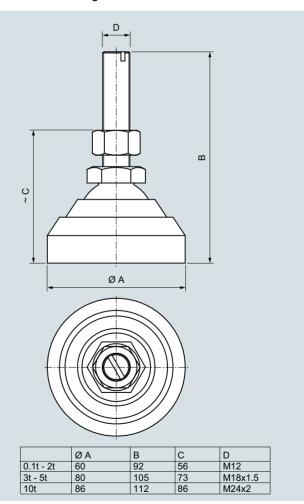
Material: Steel, nickel-plated, NBR (nitrile butadiene rubber)

For load cells with a rated load of 1)

- 100 kg ... 2 t (220.46 lb ... 1.97 tn. l)
- 3 ... 5 t (2.95 ... 4.92 tn. l.)
- 10 t (9.842 tn. l.)

7MH5721-4GH10 7MH5721-4PH10 7MH5721-5AH10

1) The load cell is not included in the scope of delivery.



SIWAREX WL230 SB-S CA load foot

Double shear beam load cells

Product overview

Overview

Туре	Rated load	Accuracy	Features	Material
SIWAREX WL290 DB-S CA	2.3 113 t (2.26 111.22 tn. L.)	C3 Legal-for-trade	Large platform and hopper scalesScales in vehicles	Nickel-plated steel

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 R-60. 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.

Technical specifications

SIWAREX WL290 DB-S CA	
Possible applications	Platform scales
	Hopper scales
	Vehicle scales
Type of construction	Double cutter
Loads	
Rated load/maximum load $E_{ m max.}$	• 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	150% E _{max}
Breaking load L _d	300% E _{max}
Measurement characteristic values	
Deflection h_n at E_{max} • $E_{max} = 2.3$ t (2.26 tn. l.) • $E_{max} = 4.5$ t (4.43 tn. l.) • $E_{max} = 9.1$ t (8.96 tn. l.) • $E_{max} = 13.6 \dots 23$ t (13.39 22.24 tn. l.) • $E_{max} = 27$ t (26.77 tn. l.) • $E_{max} = 34 \dots 68$ t (33.46 66.93 tn. l.) • $E_{max} = 91$, 113 t (89.56, 111.22 tn. l.)	0.5 mm 0.6 mm 1.1 mm 0.5 mm 0.6 mm 0.5 mm
Rated characteristic value C_{n}	$3.0 \pm 0.008 \text{mV/V}$
Tolerance D_0 of zero signal	\leq ± 1.0% $C_{\rm n}$
Max. scale interval n _{LC}	3 000
Min. scale interval V _{min}	E _{max} /10 000
Combined error F _{comb}	$\leq \pm 0.023\% \ C_{n}$
Creep error 30 min F _{cr}	≤ ± 0.015% <i>C</i> _n

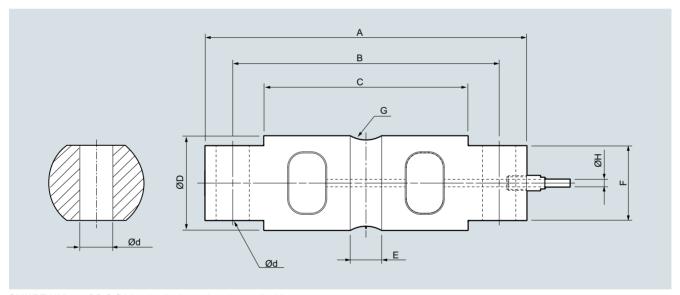
SIWAREX WL290 DB-S CA	
Electrical characteristic values	
Recommended supply voltage	5 12 V DC
Maximum supply voltage	18 V DC
Input resistance $R_{\rm e}$	700 \pm 7 Ω
Output resistance R _a	700 \pm 7 Ω
Insulation resistance Ris	$\geq 5~000~\text{M}\Omega$ at 50 V DC
Connection and environmental conditions	
Rated temperature range B_{tn}	-10 +40 °C (14 104 °F)
Operating temperature range B_{tu}	-35 +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.) • 13.6 113 t (13.39 111.22 tn. l.)	5 mm 8 mm
Function EXC + EXC - SIG + SIG - Shield (not connected to the load cell body) ATEX	Color Red Black Green White Transparent
Certificates and approvals	
Accuracy class according to OIML R-60	С3

Double shear beam load cells SIWAREX WL290 DB-S CA

Load cell

Selection and ordering data	Article No.						
SIWAREX WL290 DB-S CA load cell	7MH5122-						
Material: Steel, nickel-plated			D	0	0		
Length of the connecting cable: 9 m							
Accuracy class C3 according to OIML R-60							
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	Α					

Dimensional drawings



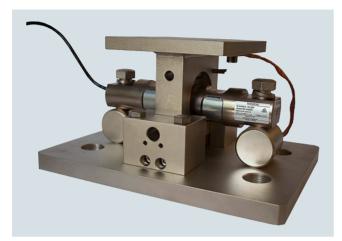
SIWAREX WL290 DB-S CA load cell, dimensions in mm (inch)

Rated load t (tn. l.)	Α	В	С	Ød	ØD	E	F	G	ØН
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)

Double shear beam load cells SIWAREX WL290 DB-S CA

Silo mounting unit

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.

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 t n. l.)			
Maximum lateral deflection	+/- 5 mm (0.2 inch	+/- 5 mm (0.2 inch)							
Lifting path of top plate	1.43 mm (0.056 inch)	1.26 mm (0.050 inch)	1.07 mm (0.042 inch)	1.69 mm (0.06 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	t e							

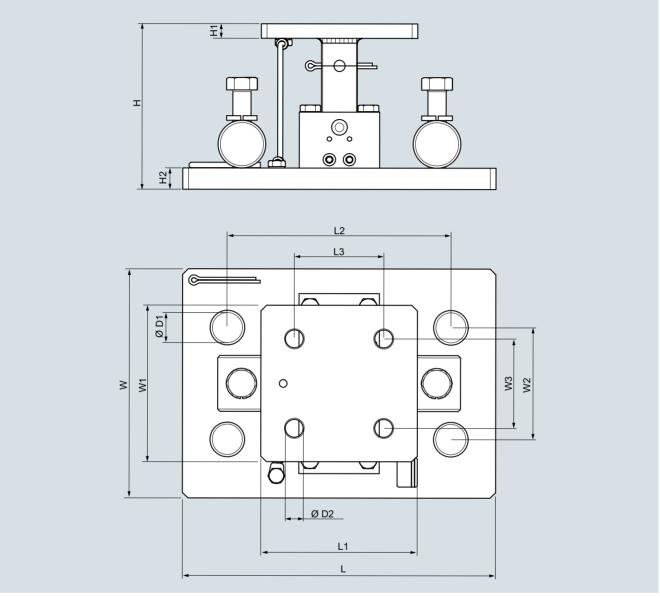
Selection and ordering data	Article No.					
Silo mounting unit	7MH5722-					
For load cells of the SIWAREX WL290 DB-S CA series Material: Steel, nickel-plated			A	1	0	
For load cells with a rated load of 1)						
• 2.3 9.1 t (2.26 8.96 tn. l.)	4	U				
• 13.6 34 t (13.39 33.46 tn. l.)	5	L				
• 45 t (44.29 tn. l.)	5	N				
• 68 t (66.93 tn. l.)	5	R				
• 91 113 t (88.58 111.22 tn. l.)	6	Α				

¹⁾ The load cell is not included in the scope of delivery.

Double shear beam load cells SIWAREX WL290 DB-S CA

Silo mounting unit

Dimensional drawings



Silo mounting unit for SIWAREX WL290 DB-S CA load cell (dimensions in mm)

Rated load t (tn. l.)	Н	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

Double shear beam load cells SIWAREX WL290 DB-S CA

Mounting unit for vehicles

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.

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 plate	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					

Selection and ordering data

Article No.

Mounting unit

For load cells of the SIWAREX WL290 DB-S CA series

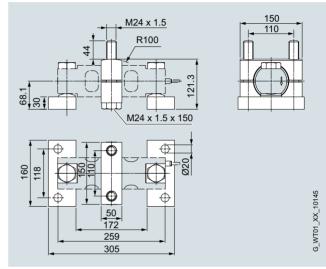
Material: Steel, nickel-plated

For load cells with a rated load of 1)

• 13.6 ... 34 t (13.39 ... 33.46 tn. l.)

7MH5722-5LA11

Dimensional drawings



Mounting unit for SIWAREX WL290 DB-S CA load cell, dimensions in mm

¹⁾ The load cell is not included in the scope of delivery.

S-Type load cells

Product overview

Overview

Туре	Rated load	Accuracy	Features	Material		
SIWAREX WL250 ST-S SA	50 kg 10 t (110.23 lb 9.84 tn. L.)	C3 Legal-for-trade	Voltage and pressure applications Suspended scales Hopper scales Hybrid weighing machines	Stainless steel EN 1.4542		
SERVEY W. 256 DERMITE W. 256 DER SA VICE SERVEY A STREET SERVEY A STREET SERVEY SE			Available with or without explosion protection			

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.

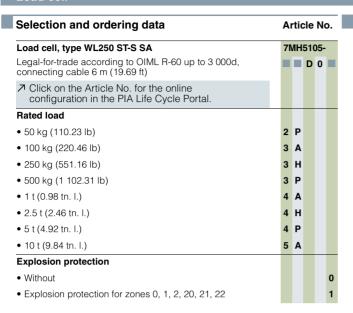
Technical specifications

SIWAREX WL 250 ST-S SA	
Possible applications	 Voltage and pressure applications
	 Suspended scales
	 Hopper scales
	Hybrid weighing machines
Type of construction	S-type load cell
Rated load $E_{ m max}$	• 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 R-60	C3
Max. scale interval n_{lc}	3 000
Min. scale interval V _{min}	
• $E_{\text{max}} = 50$, 100 kg (110.23 lb, 220.46 lb)	$E_{\text{max}}/7~000$
• $E_{\text{max}} = 0.25, 0.5, 1, 2.5 \text{ t}$ • $E_{\text{max}} = 5, 10 \text{ t}$	$E_{\text{max}}/10\ 000$ $E_{\text{max}}/12\ 000$
Combined error F_{comb}	$\pm 0.02\% C_{\rm n}$
Repeatability F_{v}	$\pm 0.02\% C_{\rm n}$
Creep error F _{cr}	
• 30 min	± 0.02% C _n
Temperature coefficient	
• Zero signal t _{K0}	0.017% C _n /5 K
Characteristic value t _{Kc}	0.014% <i>C</i> _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_{lq}	100% E _{max}
Deflection h_n • $E_{max} = 50$, 100 kg (110.23 lb, 220.46 lb) • $E_{max} = 250$, 500 kg (551.16 lb, 1 102.31 lb) • $E_{max} = 250$	0.18 mm 0.24 mm
• <i>E</i> _{max} = 1 t • <i>E</i> _{max} = 2.5, 5 t	0.8 mm
• E _{max} = 10 t	0.57 mm
Rated characteristic value C_{n}	$3.0 \pm 0.008 \text{ mV/V}$
Tolerance D_0 of zero signal	± 1.0% C _n
Input resistance $R_{\rm e}$	$430~\Omega \pm 4~\Omega$
Output resistance R _a	$350~\Omega\pm3.5~\Omega$
Insulation resistance Ris	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
Maximum tightening torque of the fixing screws	
• E _{max} = 50, 100 kg (110.23 lb, 220.46 lb) • E _{max} = 250, 500 kg, 1 t (551.16 lb, 1 102.31 lb, 0.98 tn. l.) • E _{max} = 2.5, 5 t	25 Nm 75 Nm 450 Nm
• $E_{\text{max}} = 10 \text{ t}$	1 450 Nm
Degree of protection to EN 60529; IEC 60529	IP67
Cable connection	
Function • EXC + (supply +)	<u>Color</u> Red

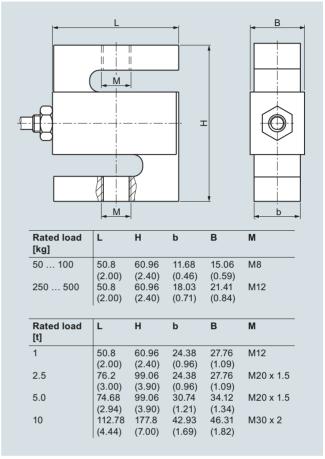
Cable Connection	
Function	Color
• EXC + (supply +)	Red
 EXC – (supply -) 	Black
 SIG + (measured signal +) 	Green
 SIG – (measured signal -) 	White
 Shield (not connected to the load cell body) 	Transparent

S-Type load cells SIWAREX WL250 ST-S SA

Load cell



Dimensional drawings



SIWAREX WL 250 ST-S SA load cell, dimensions in mm (inch)

Load CellsCompression load cells

Product overview

Overview

Туре	Rated load	Accuracy	Features	Material
SIWAREX WL270 CP-S SA	500 kg 50 t (1 102.3 lb 49.21 tn. L.)	C3 Legal-for-trade	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.)	C3 Legal-for-trade	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.)	0.1% of rated load	Hopper scales Bin weighing equipment For high temperature range (optional) With double bridge (optional)	Painted steel

Compression load cells SIWAREX WL270 CP-S SA

Load cell

Overview



The can compression 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.

Technical specifications

SIWAREX WL270 CP-S SA	
Possible applications	Vehicle scales, overhead rail scales, hopper scales
Type of construction	Can compression cell
Rated load/maximum load $E_{ m max.}$	• 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 R-60	C3 ¹⁾
Max. scale interval $n_{\rm lc}$	3 000
Min. scale interval V_{\min}	E _{max} /10 000
Minimum application range $R_{\min(lc)}$	30%
Combined error F _{comb}	\pm 0.02% $C_{\rm n}$
Repeatability F_{V}	Not applicable
Creep error F _{cr} ◆ 30 min	± 0.023% <i>C</i> _n
Temperature coefficient • Zero signal T_{Ko} • Characteristic value T_{KC}	0.023% <i>C</i> _n /5 K 0.017% <i>C</i> n/5 K
Min. dead load E_{\min}	0 kg
Max. working load $L_{\rm u}$	150% E _{max}
Breaking load L _d	300% E _{max}
Safe side load L _{Iq}	75% E _{max}
Deflection h_n at E_{max}	0.5 mm
Recommended supply voltage (range)	5 12 V DC
Rated characteristic value C_n	$2.0 \pm 0.02 \text{mV/V}$
Tolerance D_{O} of zero signal	≤ ± 1.0% <i>C</i> _n
Input resistance $R_{\rm e}$	700 Ω ± 7 Ω
Output resistance Ra	700 Ω ± 7 Ω
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	Stainless steel EN 1.4542
Degree of protection according to EN 60529; IEC 60529	IP68
Cable semestics	

Cable connection

<u>Function</u>	Color
• EXC + (supply +)	Red
 EXC – (supply -) 	Black
 SIG + (measured signal +) 	Green
 SIG – (measured signal -) 	White
Shield (not connected to the load soll body)	Transparer

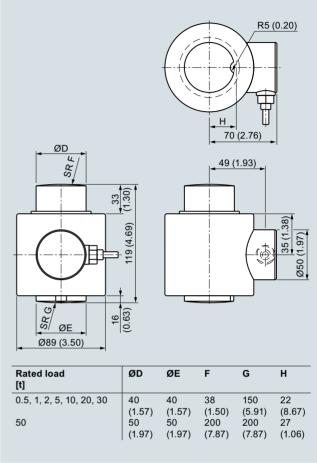
 $^{^{1)}}$ SIWAREX WL270 CP-S SA 0.5 ... 5 t (0.49 ... 4.42 tn. l.) are not approved for legal-for-trade operation.

Compression load cells SIWAREX WL270 CP-S SA

Load cell

Selection and ordering data Article No. 7MH5108-Load cell, type WL270 CP-S SA Legal-for-trade according to OIML R-60 up to 3 000d, 15 m connecting cable (49.21 ft) ■ ■ 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) G • 5 t (4.92 tn. l.) 1) 4 P • 10 t (9.84 tn. l.) 5 A 5 G • 20 t (19.68 tn. l.) • 30 t (29.63 tn. l.) 5 K • 50 t (49.21 tn. l.) 5 P **Explosion protection** Without • Explosion protection for zones 0, 1, 2, 20, 21, 22

Dimensional drawings



SIWAREX WL270 CP-S SA load cell, dimensions in mm (inch)

¹⁾ SIWAREX WL270 CP-S SA 0.5 ... 5 t (0.49 ... 4.42 tn. l.) are not approved for legal-for-trade operation.

Compression load cells SIWAREX WL270 CP-S SA

Mounting unit with guide element

Overview



The self-centering mounting 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 mounting 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 though 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.

Load Cells Compression load cells SIWAREX WL270 CP-S SA

Mounting unit with guide element

Technical specifications

Mounting unit for load cells of the SIWAREX WL2	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 the 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.

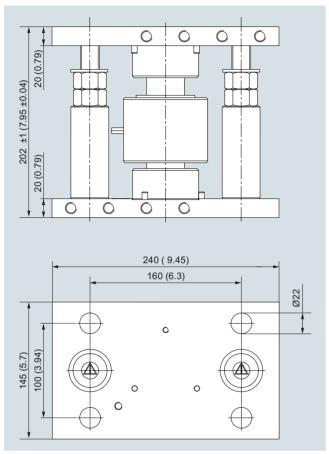
Selection and ordering data			Article No.			
Mounting unit			7MH5708-			
For load cells of the SIWAREX WL270 CP-S SA series Material: Stainless steel FN 1.4301 and FN 1.4112	5		A	0	1	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
For load cells with a rated load of 1)						
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.)		K				
• 50 t (49.21 tn. l.)		Р				
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)						
0.5 1 t (0.49 0.98 tn. l.); Permissible lateral force: 2.5 kN	-	/IH	570 00	8-		
• 2 5 t (1.97 5.92 tn. l.); Permissible lateral force: 5 kN	-	/H	570 00	8-		
• 10 13 t (9.84 19.68 tn. l.); Permissible lateral force: 10 kN		/H	570 00	8-		
30 t (29.53 tn. l.) Permissible lateral force: 15 kN		/H	570 00	8-		
50 t (49.21 tn. l.) Permissible lateral force: 25 kN		/IH	570)0	8-		
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)						
• 0.5 50 t (1.97 29.53 tn. l.); Content: 4 units, each 0.5 mm; 20 units, each 1 mm	-	/IH	570 00	8-		

¹⁾ The load cell and guide elements are not included in the scope of delivery.

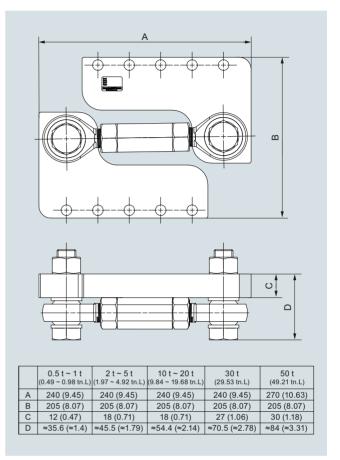
Compression load cells SIWAREX WL270 CP-S SA

Mounting unit with guide element

Dimensional drawings



Mounting unit for SIWAREX WL270 CP-S SA load cells, dimensions in mm (in)



Guide element for SIWAREX WL270 CP-S SA load cells, dimensions in mm (in)

Load Cells ression 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.

Technical specifications

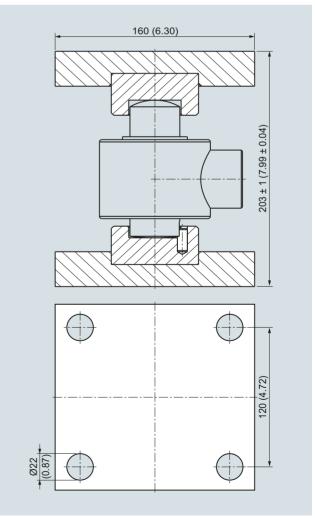
Pressure piece set for the individual installation of load cells of the SIWAREX WL270 CP-S SA series				
Rated load	0.5, 1, 2, 5, 10, 20, 30 t (0.49, 0.98, 1.97, 5.92, 9.84, 19.68, 29.53 tn. l)	50 t (49.21 tn. l)		
Maximum lateral deflection with load cell	± 3 mm (0.12 inch)	± 3 mm (0.12 inch)		
Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell	0.5%/mm	2%/mm		

Selection and ordering data Article No. Pressure piece sets¹⁾ 7MH5708-For the individual installation of load cells of the SIWAREX WL270 CP-S SA series 5 D 0 0 Material: Stainless steel EN 1.4112 ∠ Click on the Article No. for the online configuration in the PIA Life Cycle Portal. For load cells with a rated load of²⁾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.) κ • 50 t (49.21 tn. l.) Р Adapter plate 7MH5708-For adapting the SIWAREX WL270 CP-S SA 5 B 0 0 The package item consists of plate. Material: Stainless steel EN 1.4301

- 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.

Dimensional drawings

For load cells with a rated load of²⁾³⁾
• 0.5 ... 50 t (0.49 ... 49.21 tn. l.)



Pressure piece set and adapter plates for SIWAREX WL270 CP-S SA load cells (installation state), dimensions in mm (inch)

Compression load cells SIWAREX WL270 CP-S SB

Load cell

Overview



The compression load cell is particularly suitable for implementation in container, hopper 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.

Technical specifications

SIWAREX WL270 CP-S SB	
Possible applications	Hopper scales
Type of construction	Can compression cell
Rated load/maximum load $E_{\rm max.}$	100 t
Accuracy class according to OIML R-60	C3
Max. scale interval <i>n</i> _{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	± 0.023% <i>C</i> _n
Temperature coefficient • Zero signal T _{Ko} • Characteristic value T _{Kc}	0.023% <i>C</i> _n /5 K 0.017% <i>C</i> n/5 K
Min. dead load E _{min}	0 kg
Max. working load $L_{ m u}$	150% E _{max}
Breaking load L _D	300% E _{max}
Safe side load L _{lq}	10% E _{max}
Deflection h _n at E _{max}	0.36 mm
Recommended supply voltage (range)	5 12 V DC
Rated characteristic value C_{n}	$2.0 \pm 0.02 \mathrm{mV/V}$
Tolerance D_0 of zero signal	\leq ± 1.0% $C_{\rm n}$
Input resistance R _e	700 Ω ± 7 Ω
Output resistance R _a	700 Ω ± 7 Ω
Insulation resistance R _{is}	5 000 M Ω at 50 V DC
Rated temperature range $B_{ m tn}$	-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	Stainless steel EN 1.4542
Degree of protection according to EN 60529; IEC 60529	IP68
Cable connection	
Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Sense + (sensor cable +) Sense - (sensor cable -) Shield (not connected to the load cell body)	Color Green Black White Red Yellow Blue Transparent

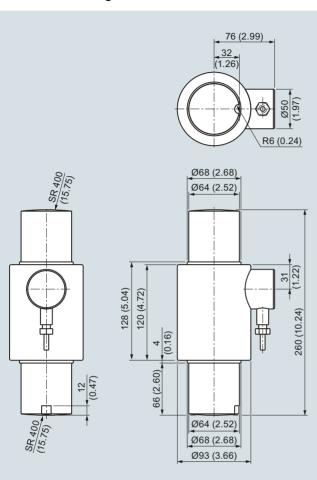
Selection and ordering data

Load cell, type WL270 CP-S SB	71	ИΗ	571	0-	
Legal-for-trade according to OIML R-60 up to 3 000d, 20 m connecting cable			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	Α			
Explosion protection					
• Without					0
 Explosion protection for zones 0, 1, 2, 20, 21, 22 					1

Load Cells Compression load cells SIWAREX WL270 CP-S SB

Load cell

Dimensional drawings



SIWAREX WL 270 CP-S SB load cell, dimensions in mm (inch)

Compression load cells SIWAREX WL270 CP-S SB

Mounting unit

Overview



The self-centering mounting unit for SIWAREX WL270 CP-S SA load cells is particularly suitable for implementation in container scales.

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.

Technical specifications

Mounting unit for load cells of the S	IWAREX WL270 CP-S SB series
Rated load	100 t (98.42 tn. I)
Maximum lateral deflection with load cell	± 8 mm (0.12 inch)
Lifting path of the 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	50 kN

Selection and ordering data

top plate with fixed top plate

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

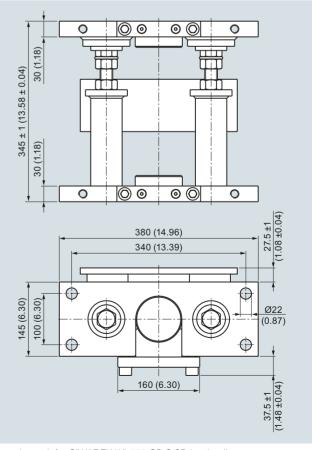
For load cells with a rated load of 1)2)

• 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.

Dimensional drawings



Mounting unit for SIWAREX WL270 CP-S SB load cells (installation state), dimensions in mm (inch)

Compression load cells SIWAREX WL270 CP-S SB

Pressure piece set

Overview



In combination with a pressure piece set, the SIWAREX WL270 CP-S SA load cell produces a self-centering self-aligning bearing. This unit is particularly suitable for installation in container, hopper 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 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.

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

± 8 mm (0.12 inch)

with load cell

Restoring force per millimeter of lateral deflection of the top plate in % of the applied load with load cell

0.5%/mm

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

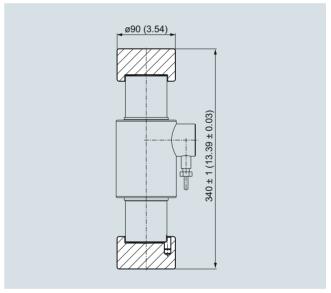
For load cells with a rated load of 1)2)

7MH5710-6AD00

• 100 t (98.42 tn. l.)

- 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.

Dimensional drawings



Pressure piece for SIWAREX WL270 CP-S SB load cells, dimensions in mm (inch)

Compression load cells SIWAREX WL270 K-S CA

Load cell

Overview



This can compression cell is particularly suitable for use in hopper scales and bin weighing equipment.

Design

The measuring element is a cylinder made of stainless 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 measuring 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.).

Technical specifications

SIWAREX WL270 K-S CA			
Possible applications	Hopper scales		
	Bin weighing equipment		
Type of construction	Can compression cell		
Loads			
Rated load $E_{\rm max}$	• 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 $L_{\rm u}$	120% E _{max}		
Breaking load L _d	300% E _{max}		
Safe side load $L_{\rm lq}$	10% E _{max}		

SIWAREX WL270 K-S CA			
Measurement characteristic values			
Deflection 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)		
• 130 t (127.95 tn. l.)	1.81 mm (0.07 inch)		
 280 t (275.58 tn. l.) 350 t (344.47 tn. l.) 	2.66 mm (0.10 inch) 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 ± 1.5% $C_{\rm n}$		
Tolerance $D_{\rm C}$ of characteristic value	± 0.5%		
Combined error F _{comb}	≤ ± 0.1%		
Repeatability F _v	≤ ± 0.1%		
Creep error F _{CR}			
30 min	\leq ± 0.06%		
Temperature coefficient			
 Zero signal T_{Ko} 	\leq ± 0.25% $C_{\rm n}/5$ K		
 Characteristic value T_{Kc} 	\leq ± 0.25% $C_{\rm n}/5$ K		

Technical specifications (continued)

SIWAREX WL270 K-S CA		SIWAREX WL270 K-S CA	
Electrical characteristic values	Connection and environmental		
Recommended reference voltage $U_{\rm ref}$	6 12 V DC	conditions	
Supply voltage U_{sr} (reference value)	6 V	Sensor material (DIN)	Steel, painted
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.) • 350, 500 t (344.47, 492.10 tn. l.)	$275~\Omega \pm 50~\Omega$ $840~\Omega \pm 30~\Omega$	Function EXC + (supply +) EXC - (supply -) SIG + (measured signal +) SIG - (measured signal -) Shield	Color Red White Black Blue Transparent
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.)	$245~\Omega\pm0.2~\Omega$	(not connected to the load cell body) Rated temperature range B_{tn} Operating temperature range B_{tu}	-10 +40 °C (14 104 °F) -20 +70 °C (-4 +158 °F)
• 350, 500 t (344.47, 492.10 tn. l.)	Degree of protection according		-30 +70 °C (-22 +158 °F)
Insulation resistance R _{is}	≥ 5 000 MΩ	EN 60529; IEC 60529 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.) • 28 t (27.56 tn. l.) • 60 t (59.05 tn. l.)	1.5 ± 0.02 mV/V 1.9 ± 0.02 mV/V 1.8 ± 0.02 mV/V	1.5 ± 0.1 mV/V 1.9 ± 0.2 mV/V 1.8 ± 0.2 mV/V	1.5 ± 0.1 mV/V 1.9 ± 0.2 mV/V 1.8 ± 0.2 mV/V
Tolerance D_0 of zero signal	≤ ± 1.0% <i>C</i> _n	≤ ± 1.5% <i>C</i> _n	≤ ± 3% <i>C</i> _n
Measurement characteristic values			
Combined error F _{comb}	≤ ± 0.3%	≤ ± 0.5%	≤ ± 5 %
Repeatability F _v	\leq ± 0.3%	\leq ± 0.5%	≤ ± 5 %
Creep error F _{CR}			
30 min	≤ ± 0.3%	≤ ± 0.4%	≤ ± 4 %
Temperature coefficient • Zero signal $T_{\rm Ko}$ • Characteristic value $T_{\rm Kc}$	$\leq \pm 0.25\% \ C_{n}/5 \ K$ $\leq \pm 0.25\% \ C_{n}/5 \ K$	$\leq \pm 0.25\% \ C_{\rm n}/5 \ {\rm K}$ $\leq \pm 0.5\% \ C_{\rm n}/5 \ {\rm K}$	$\leq \pm 0.5\% \ C_{\rm n}/5 \ {\rm K}$ $\leq \pm 0.5\% \ C_{\rm n}/5 \ {\rm K}$
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.) • 350, 500 t (344.47, 492.10 tn. l.)	$275~\Omega \pm 7~\Omega$ $840~\Omega \pm 30~\Omega$	$275 \Omega \pm 15 \Omega$ $840 \Omega \pm 30 \Omega$	$275 \Omega \pm 15 \Omega$ $840 \Omega \pm 30 \Omega$
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.) • 350, 500 t (344.47, 492.10 tn. l.)	$245 \Omega \pm 0.5 \Omega$ $703 \Omega \pm 5 \Omega$	$245 \Omega \pm 1 \Omega$ $703 \Omega \pm 5 \Omega$	$245 \Omega \pm 1 \Omega$ $703 \Omega \pm 5 \Omega$
Insulation resistance R _{is}	≥ 5 000 MΩ		
Connection and environmental conditions			
Rated temperature range B _{tn}	-30 +180 °C (-22 +356 °	°F)	
Operating temperature range B_{tu}	-30 +250 °C (-22 +482 °	PF)	
Storage temperature range B _{ts}	-30 +250 °C (-22 +482 °	,	

Compression load cells SIWAREX WL270 K-S CA

Load cell

Selection and ordering data SIWAREX WL270 K-S CA load cell			Article No.					
			7MH5114-					
Accuracy class 0.1%				L				
Heat-resistant connecting cable ¹⁾								
Click on the Article N configuration in the F								
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	Р					
Explosion protection								
• Without					0	0		
• Explosion protection for zones 2, 22					0	1		
Options								
Double bridge ²⁾					6	0		
Load cell, redundant des	ign, without explosion protection							
High temperature ²⁾					7	C		
Double bridge and high	temperature ²⁾				8	C		
over temperature range, of	ell, temperature range +482 °F), accuracy varies cables and components designed thout explosion protection.							

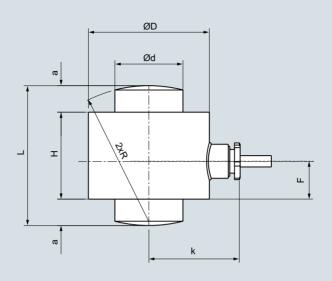
¹⁾ Heat-resistant cable: -60 ... +180 °C (-76 ... +356 °F) The cable for high temperatures versions is heat resistant to 250 °C (238 °F).

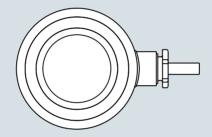
 $^{^{\}rm 2)}$ Can be ordered from 13 t (12.79 tn. l.).

Load Cells Compression load cells SIWAREX WL270 K-S CA

Load cell

Dimensional drawings





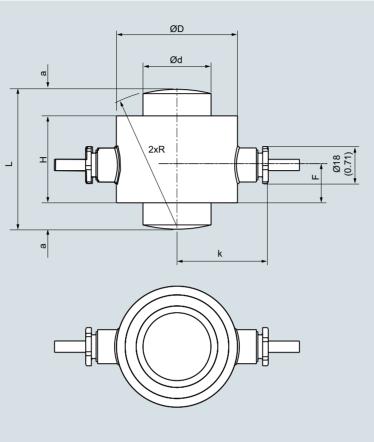
Rated load [t (tn. L.)]	а	ød	øD	F	Н	k	L	R
2.8, 6 (2.76, 5.91) 13 (12.79) 28 (27.56) 60 (59.05) 130 (127.95) 280 (275.58) 350 (344.47) 500 (492.10)	8 (0.31) 12 (0.47) 14 (0.55) 20 (0.78) 26 (1.02) 45 (1.77) 40 (1.58) 47 (1.85)	16.7 (0.65) 24.5 (0.96) 36 (1.41) 52.7 (2.07) 77.5 (3.05) 114 (4.48) 132 (5.20) 155 (6.10)	45 (1.77) 55 (2.16) 64 (2.51) 90 (3.54) 121 (4.76) 165 (6.5) 192 (7.95) 236 (9.29)	20 (0.59) 20 (0.59) 20 (0.59) 20 (0.59) 20 (0.59) 20 (0.59) 50.5 (1.97) 99.5 (1.97)	40 (1.57) 44 (1.73) 46 (1.81) 50 (1.96) 64 (2.51) 90 (3.14) 139 (6.30) 164 (7.13)	40.5 (1.59) 45.5 (1.79) 50 (1.89) 63 (2.48) 78.5 (3.09) 100.5 (3.96) 124 (5.00) 146 5.67)	56 (2.2) 68 (2.67) 74 (2.91) 90 (3.54) 116 (4.56) 170 (6.7) 240 (9.45) 275 (10.83)	50 (1.96) 66 (2.6) 72 (2.83) 100 (3.93) 125 (4.92) 183 (7.2) 325 (12.80) 450 (17.72)

SIWAREX WL270 K-S CA load cell, dimensions in mm (inch)

Compression load cells SIWAREX WL270 K-S CA

Load cell

Dimensional drawings (continued)



Rated load [t (tn.L.)]	а	ød	øD	F	Н	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)

SIWAREX WL270 K-S CA load cell, with double bridge, dimensions in mm (inch)

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 in container and hopper scales.

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.

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 measuring path 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)		

Compression load cells SIWAREX WL270 K-S CA

Self-centering bearing unit

Selection and ordering data

Article No.

Pressure plate¹⁾²⁾

For SIWAREX WL270 K-S CA load cells

For constructing a self-aligning bearing, two pressure plates are required, one at the top and one at the bottom

Material: Steel, painted

For load cells with a rated load of

- 2.8 ... 6 t (2.76 ... 5.91 tn. l.)
- 13 t (12.79 tn. l.)
- 28 t (27.56 tn. l.)
- 201 (27.00 11.1.
- 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.)
- 7MH3115-2CA1
 - 7MH5714-6LD10 7MH5714-6PD10

7MH3115-3AA1

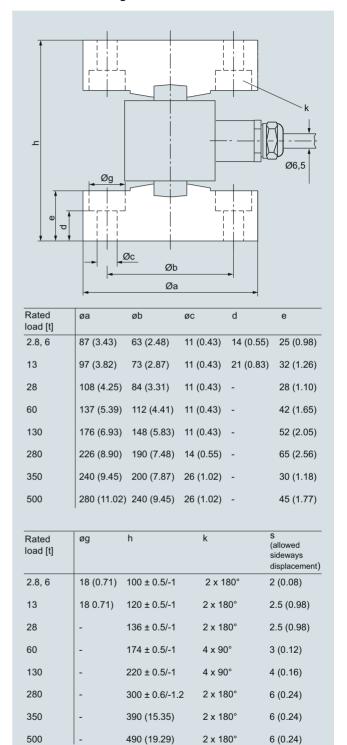
7MH3115-1BA1

7MH3115-2BA1

7MH3115-3BA1

7MH3115-1CA1

Dimensional drawings



Self-aligning bearing for SIWAREX WL270 K-S CA load cells, dimensions in mm (") $\,$

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.

Ring torsion load cells

Product overview

Overview

Туре	Rated load	Accuracy	Features	Material
SIWAREX WL280 RN-S SA	60 kg 60 t (132.28 lb 59.05 tn. L)	C3 Legal-for-trade	Hopper, belt, platform and roller table scales	Stainless steel EN 1.4542
			Available with or without explosion protection	
			 Low mounting height 	
The state of the s			• Integrated overload protection (up to 13 t rated load)	

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 (DMS) are applied to the upper and lower faces of the ring respectively. The spring element is deformed by the load acting centrically 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.

Load Cells Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Technical specifications

SIWAREX WL280 RN-S SA load cells			
	Linear lealt alatteres and called an		
Possible applications	Hopper, belt, platform and roller cor	nveyor scales	
Type of construction	Ring torsion load cell • 60 kg (132.28 lb) • 130 kg (286.60 lb) • 280 kg (617.29 lb)	• 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.)	• 13 t (12.80 tn. l.) • 28 t (27.56 tn. l.) • 60 t (59.05 tn. l.)
Accuracy class according to OIML R-60	C3	10 (0.01 all l.)	
Max. scale interval $n_{\rm LC}$	3 000		
Min. scale interval V_{\min}	E _{max} /16 000	E _{max} /17 500	
Minimum application range $R_{min(I,C)}$	19 %	17 %	
Combined error F _{comb}	$\leq \pm 0.023\% C_{\rm p}$		
Repeatability F _v	$\leq \pm 0.01 \% C_{\rm p}$		
Return of zero signal	$\leq \pm 0.0167 \% C_n^{-1}$		
Creep error Fcr • 30 min • 20 30 min	$\leq \pm 0.0245 \% C_n^{(1)}$ $\leq \pm 0.0053 \% C_n^{(1)}$		
Temperature coefficient ■ Zero signal T _{Ko} ■ Characteristic value T _{Kc}	$\leq \pm 0.004 \% C_{n}/5K$ $\leq \pm 0.004 \% C_{n}/5K$		
Min. dead load E_{\min}	\geq ± 0 % E_{max}		
Max. working load $L_{\rm u}$	200 % E _{max}	150% E _{max}	
Breaking load L _d	500 % E _{max}	300% E _{max}	300% E _{max}
Safe side load L_{Iq}	75 % E _{max}	100% E _{max}	75 % E _{max}
Deflection h _n at E _{max}	0.07 mm	$0.1 \pm 0.02 \text{mm}$	0.11 0.2 mm
Overload protection	Integrated	Integrated	Integrated at 13 t
Supply voltage $U_{\rm Sr}$ (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 $D_{\rm C}$ 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 ± 1.0% $C_{\rm n}$		
Input resistance $R_{\rm e}$	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		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	$1~020~\Omega \pm 0.5~\Omega$	$1~025~\Omega \pm 25~\Omega$	13 t: 1 000 $\Omega \pm 0.5 \Omega$ 28 t: 930 $\Omega \pm 0.5 \Omega$ 60 t: 1 175 $\Omega \pm 0.5 \Omega$
Insulation resistance R_{is}	$\geq 5~000~M\Omega$	$\geq 5~000~M\Omega$	$\geq 5~000~\text{M}\Omega$
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		
Ex protection to ATEX (optional)	II 1 G Ex ia IIC T4 Ga		
	II 1 D Ex ia IIIC T73 °C Da		
	II 3 G Ex ic IIC T4 Gc		
	II 3 G Ex nA IIC T4 Gc		
Oakla assurantian	II 3 G Ex tc IIIC T63 °C Dc		
Cable connection Function	Color		
	1 4 111 11		

 Cable connection
 Color Pink

 € EXC +
 Pink

 € EXC Gray

 • SIG +
 Brown

 • SIG White

 • Shield (not connected to the load cell body)
 Transparent

 $^{^{1)}}$ 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.

Ring torsion load cells SIWAREX WL280 RN-S SA

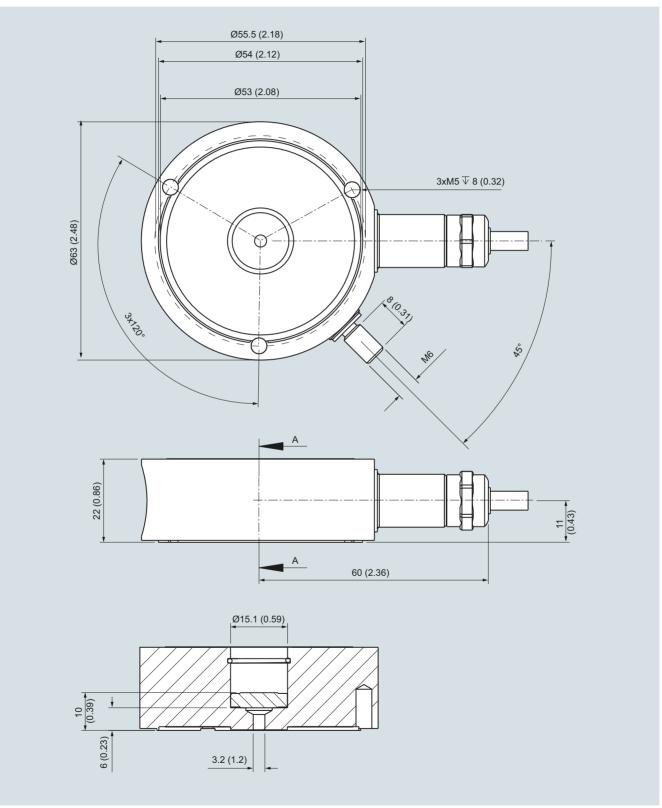
Load cell

Selection and ordering data					rticle No.				
SIWAREX WL280 RN-S SA load cell Stainless steel EN 1.4542, low mounting height, IP66/68					13- 0	-			
Accuracy class C3 according to OIML R-60 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	Р						
• 1 t (0.98 tn. l.)	3 m (9.84 ft)	4	Α						
• 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	Α						
• 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 for	zones 1, 2, 20, 21, 22					1			

Load Cells Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings

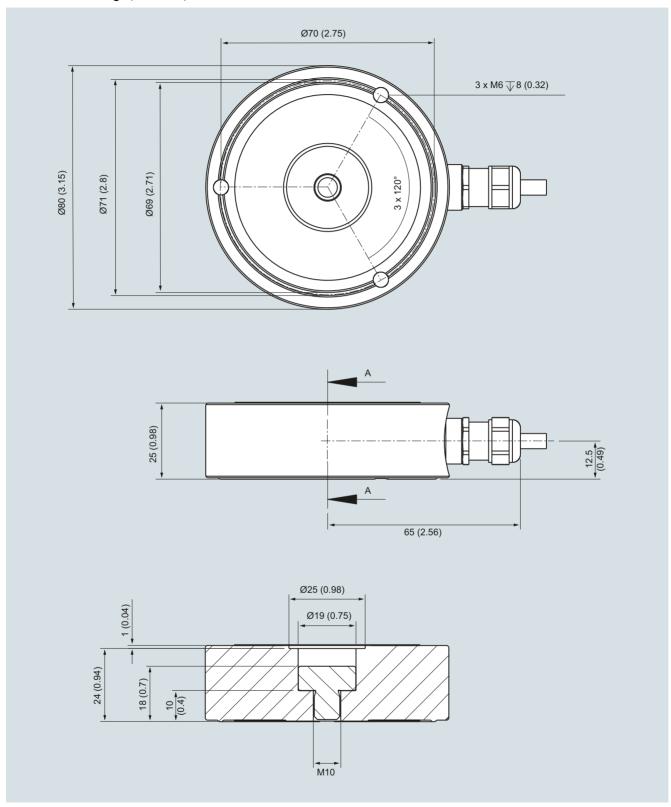


SIWAREX WL280 RN-S SA load cell 60 ... 280 kg (132.28 ... 617.29 lb), dimensions in mm (inch)

Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings (continued)

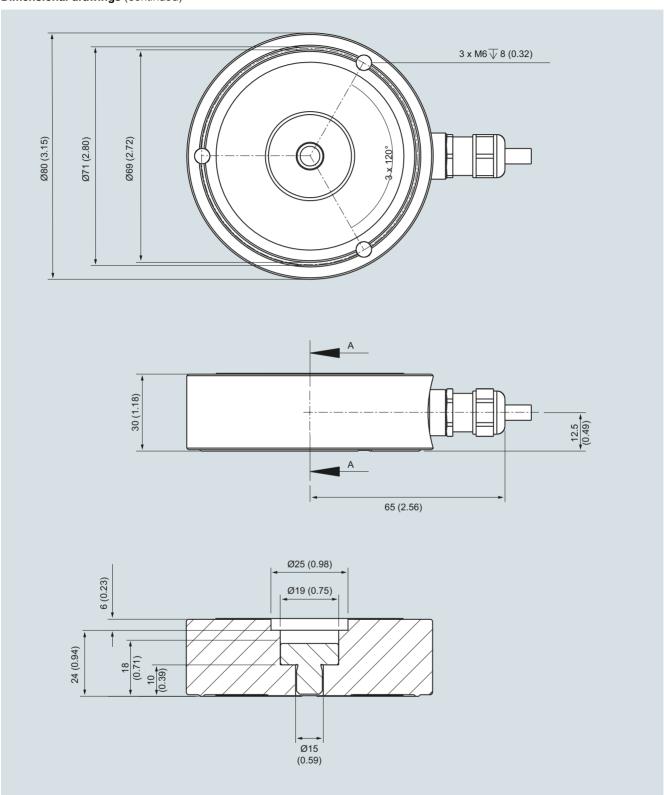


SIWAREX WL280 RN-S SA load cell, 0.5 and 1 t (0.49 and 0.98 tn. l.), dimensions in mm (inch)

Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings (continued)

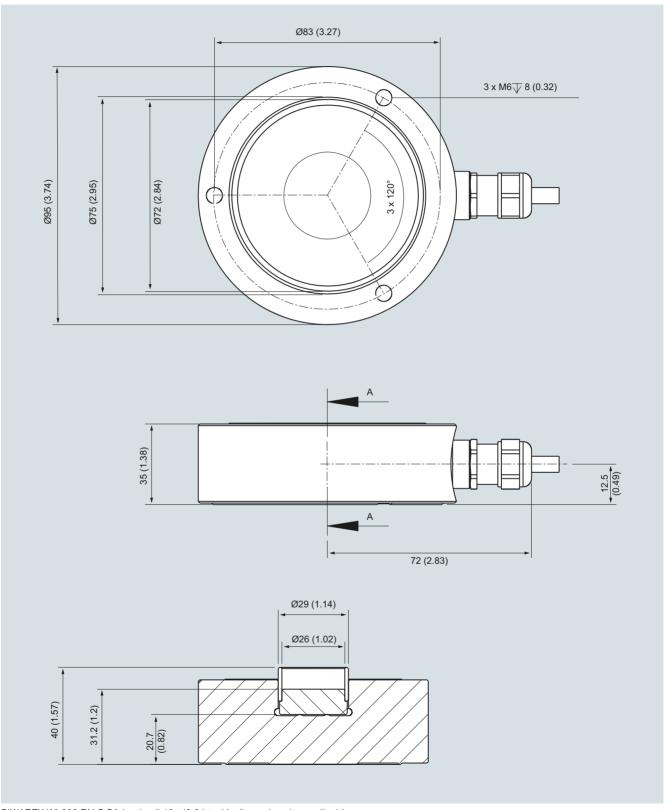


SIWAREX WL280 RN-S SA load cell, 2 ... 5 t (1.97 ... 4.92 tn. l.), dimensions in mm (inch)

Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings (continued)

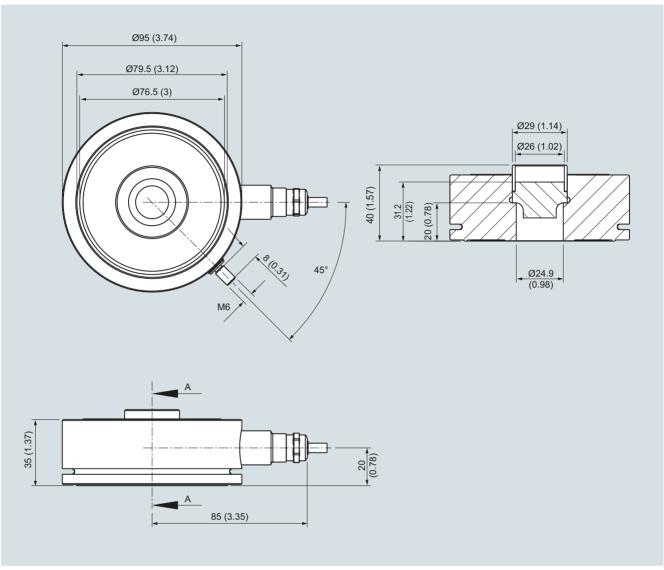


SIWAREX WL280 RN-S SA load cell 10 t (9.84 tn. l.), dimensions in mm (inch)

Load Cells Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings (continued)

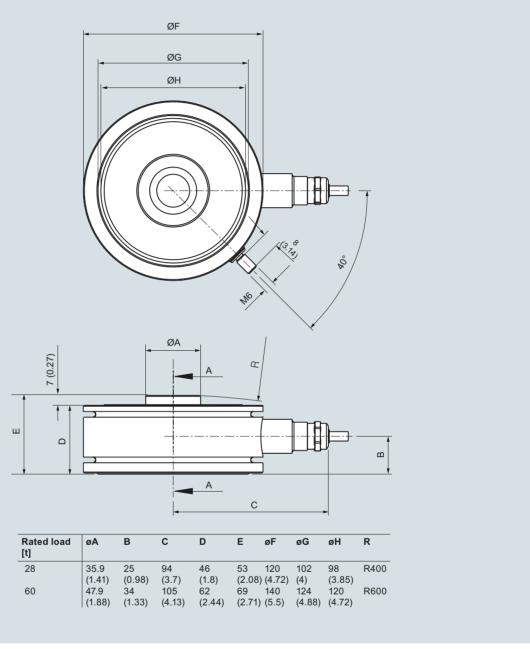


SIWAREX WL280 RN-S SA load cell 13 t (12.79 tn. l.), dimensions in mm (inch)

Ring torsion load cells SIWAREX WL280 RN-S SA

Load cell

Dimensional drawings (continued)



SIWAREX WL280 RN-S SA load cell, 28 and 60 t (27.56 and 59.05 tn. l.), dimensions in mm (inch)

Ring torsion load cells SIWAREX WL280 RN-S SA

Self-aligning bearing

7MH4115-5GB11

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.

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)			

Selection and ordering data

Article No.

Self-aligning bearing top part 1)2)

For SIWAREX WL280 RN-S SA load cells comprising: Top plate with seal holder and sealing ring, top plate pressure piece, 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

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

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• 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
• 28 t (27.56 tn. l.)	7MH4115-5DC11
• 60 t (59.05 tn. l.)	7MH4115-5GC11

Accessories

Pressure piece set

• 60 t (59.05 tn. l.)

For SIWAREX WL280 RN-S SA load cells

Comprising pressure piece and pendulum support. The pressure piece set enables customer-specific installation requirements to be implemented.

Material: Stainless steel EN 1.4112

For load cells with a rated load of 1)

60 ... kg (132.28 ... 617.29 lb)
 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)
 7MH5713-3JD00
 7MH5713-4AD00

Shims (accessories)

For self-aligning bearing base parts Material: Stainless steel EN 1.4301

For load cells with a rated load of 1)

• 10, 13 t (9.84, 12.80 tn. l.) Content: 16 units, each 0.5 mm thick

28, 60 t (27.56, 59.05 tn. II.)
 Content: 4 units each 0.5 mm thick,
 20 units each 1 mm thick

7MH5713-3JG00

7MH5713-5DG00

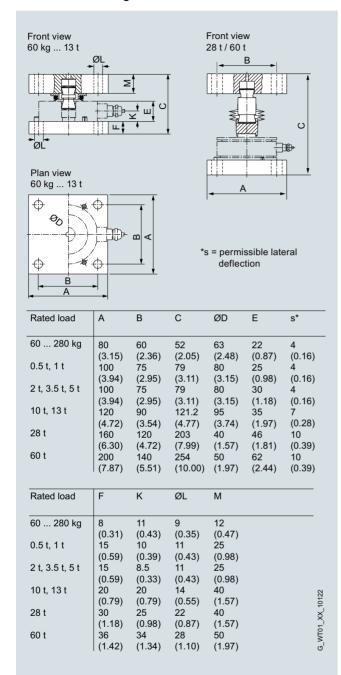
¹⁾ The load cell is not included in the scope of delivery.

²⁾ The self-aligning bearing base part is not included in the scope of delivery.

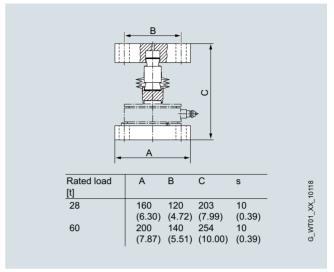
Ring torsion load cells SIWAREX WL280 RN-S SA

Self-aligning bearing

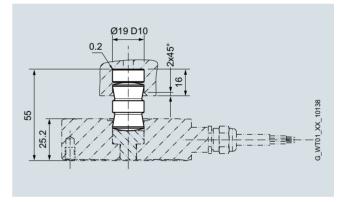
Dimensional drawings



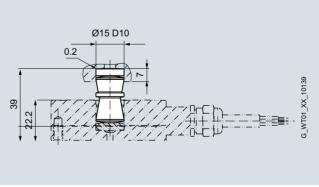
Self-aligning bearing for SIWAREX WL280 RN-S SA load cells, for 0.06 \dots 13 t (0.07 \dots 14.33 tn. l.), dimensions in mm (inch)



Self-aligning bearing for SIWAREX WL280 RN-S SA load cells, for 28 ... 60 t (27.56 ... 59.05 tn. l.), dimensions in mm (inch)



Pressure piece set for SIWAREX WL280 RN-S SA, for 0.5, 1 t (0.49 \dots 0.98 tn. I.), 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)

3

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.

Technical specifications

Elastomer bearing	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.)
Maximum 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)	± 4 mm (0.16 inch)	± 6 mm (0.24 inch)	± 6 mm (0.24 inch)
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

Selection and ordering data

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)

• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)

• 2 ... 5 t (1.97 ... 4.92 tn. l.) • 10, 13 t (9.84, 12.80 tn. l.) 7MH4130-3EE11

Article No.

7MH4130-4AE11

7MH4130-4KE11 7MH4130-5CE11

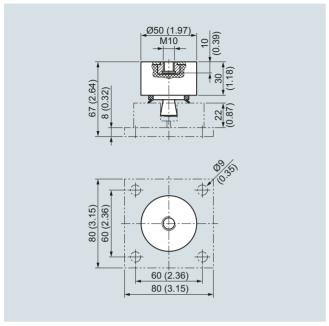
^{1) 6} mm (0.24 inch) with a rated load of 10 t (9.84 tn. l.) or 13 t (12.80 tn. l.).

¹⁾ The load cell and the self-aligning bearing base part are not included in the scope of delivery.

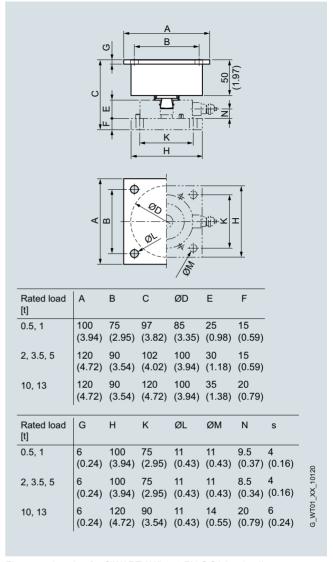
Ring torsion load cells SIWAREX WL280 RN-S SA

Elastomer bearing

Dimensional drawings



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 60 ... 280 kg (132.28 ... 617.30 lb), dimensions in mm (inch)



Elastomer bearing for SIWAREX WL280 RN-S SA load cells, 0.5 \dots 13 t (0.49 \dots 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.

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 though 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.

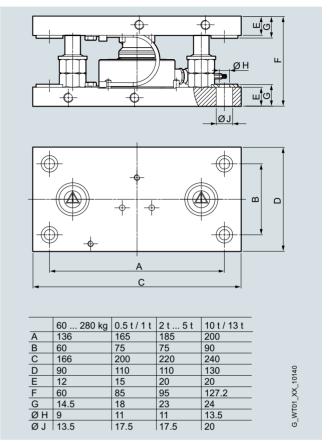
Ring torsion load cells SIWAREX WL280 RN-S SA

Mounting unit with guide element

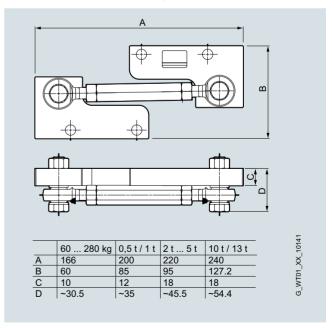
Selection and ordering data	Article No.
Mounting unit	
For SIWAREX WL280 RN-S SA load cells	
Material: Stainless steel EN 1.4301 and EN 1.4112	
For load cells with a rated load of 1)	
• 60 280 kg (132.28 617.29 lb)	7MH5713-3JA00
• 500 kg, 1 t (1 102.31 lb, 0.98 tn. l.)	7MH5713-4AA00
• 2 5 t (1.97 4.92 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 1)	
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	
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



SIWAREX WL280 RN-S SA guide element, dimensions in mm

Load cell accessories

SIWAREX DB junction box

Overview



SIWAREX DB is a digital junction box for enhanced diagnostics and monitoring options in conjunction with SIWAREX WP 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 utilization of individual load cells: Change of focus 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 is a digital junction box with a die-cast aluminum housing. The enclosure is dust-protected and splashproof according to 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.

Load cell accessories

SIWAREX DB junction box

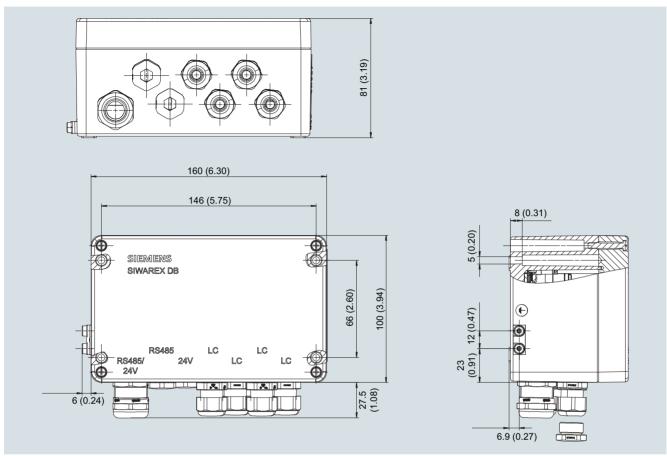
Technical specifications	
SIWAREX DB digital junction box	
Integration in SIMATIC S7-1200 and S7-1500 automation systems	SIWAREX WP electronic weighing system
	• SIWAREX WP231 (7MH4960-2AA01)
	• SIWAREX WP321 (7MH4138-6AA00-0BA0)
Communication interfaces	RS 485 (connection to SIWAREX WP electronic weighing 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	
• R _{Lmin}	$> 330~\Omega$
• 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	
For load cells	4 × M16
• For signal cables / power supplies	1 × M20
Auxiliary power supply	
Nominal voltage	24 V DC
Max. power consumption	100 mA at 24 V DC

SIWAREX DB digital junction box	7MH5001-0AD20
For enhanced diagnostics and monitoring options in conjunction with SIWAREX WP electronics.	
Accessories	
EMC gland	7MH5002-0AA30
For SIWAREX junction boxes	
Contents: • 4 × EMC cable glands M16 • 2 × blanking plugs M16	
Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY	7MH4702-8AG
For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs.	
For permanent installation. Occasional bending is possible.	
External diameter: approx. 10.8 mm (0.43 inch)	
Permissible ambient temperature: -40 +80 °C (-104 +176 °F).	
Sold by the meter.	

Load cell accessories

SIWAREX DB junction box

Dimensional drawings



SIWAREX DB digital junction box (7MH5001-0AD20), dimensions in mm (inch)

Load cell accessories

SIWAREX JB 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

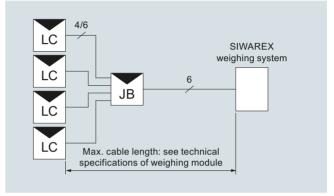
The junction box of die-cast aluminum consists of a lower section and cover. The enclosure is dust-protected and splashproof according to IP66 degree of protection. The cables are fed in through metric cable glands. In the enclosure, screw terminals are fixed onto a connection board.

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, two jumpers must also be separated.

Connection examples

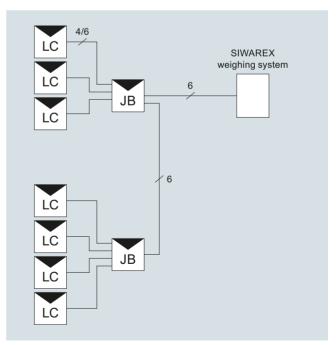
4 load cells



LC: Load cell

JB: Junction box in aluminum or stainless steel

7 load cells



LC: Load cell

JB: Only for junction boxes in aluminum

Load cell accessories

SIWAREX JB junction box

Technical specifications

SIWAREX JB junction box, aluminum and stainless steel enclosure

Cable glands

• Of load cells 4 × M16 • Of signal cable 1 × M20

Permissible ambient temperature

• During operation

• During operation for legal-for-trade -10 ... +40 °C (14 ... 104 °F) medium accuracy weighing

machines

Degree of protection

Vibration resistance of terminals according to DIN VDE 0611 11/77 -50 ... +80 °C (-58 ... 176 °F)

-50 ... +100 °C (-58 ... +212 °F) • During transportation and storage

IP66 to EN 60529

10 Hz and 150 Hz, amplitude 0.35 mm

7MH5001-0AA20

7MH5001-0AA00

7MH5001-0AA01

7MH5002-0AA30

7MH5002-0AB30

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

SIWAREX JB junction box, stainless steel housing

For connecting up to 4 load cells in parallel Material: Stainless steel EN 1.4301

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)

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

4 × EMC cable glands M16

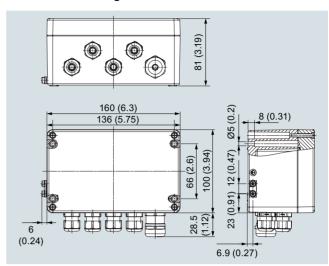
2 × blanking plugs M16

Extension set for SIWAREX JB, aluminum

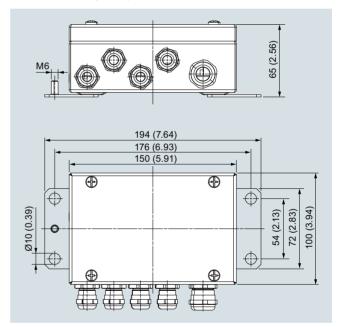
1 × EMC cable gland M20

1 × adapter, M16 to M20

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 cell accessories

SIWAREX EB extension boxes

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 \times 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

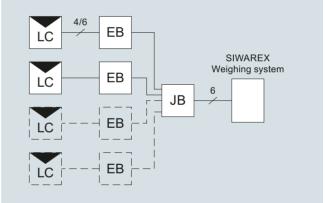
Connecting one load cell



LC: Load cell

EB Extension box

Connecting multiple load cells



LC: Load cell

EB Extension box

JB: Junction box

Technical specifications

Cable glands	
Of load cell cable	M16 × 1.5
 Of signal cable 	M20 × 1.5
Permissible ambient temperature	
During operation	-30 +85 °C (-22 185 °F)
 During operation for legal-for-trade medium accuracy 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	$\geq 10^{12} \Omega$
Dimensions (W \times H \times D) in mm	$80 \times 75 \times 57$

Load cell accessories

SIWAREX EB extension boxes

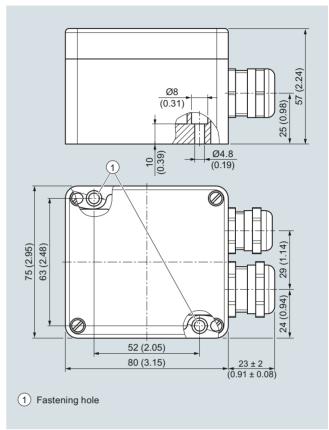
Selection and ordering data Article No. Accessories SIWAREX EB extension box, aluminum enclosure For extending the connecting cable of load cells Cable (optional) Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) - CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (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.

7MH4702-8AG 7MH4702-8AF

• Sheath color: orange

• For hazardous atmospheres. Sheath color: blue.

Dimensional drawings



SIWAREX EB extension box (7MH4 710-2AA), dimensions in mm (inch)

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

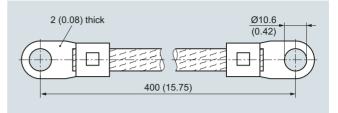
Article No.

Grounding cable made of copper

For discharging parasitic currents 400 mm long

7MH3701-1AA1

Dimensional drawings



Grounding cable, dimensions in mm (inch)

Configuration examples

Introduction

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.).

Configuration examples

Configuration example 1

More information

Example 1: Container weighing

The total center of gravity ${\bf S}$ 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

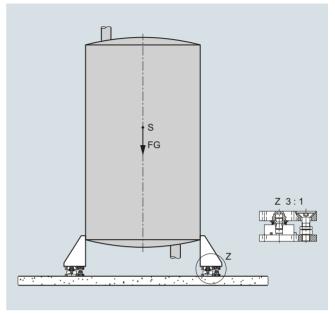
The three-point bearing of the container is statically determined and represents a stable state (see comment in the introduction).

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.)	7MH5713-4AA00	Ensures anti-lift functionality in addition to the oscillation function with oscillation limitation.	4
	Material: Stainless steel		Incl. grounding cable for dissipation of unwanted electrical current.	

Configuration examples

Configuration example 2

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 three lugs, has an empty weight (total 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 to approx. 55 °C (131 °C).

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 load cell was selected.

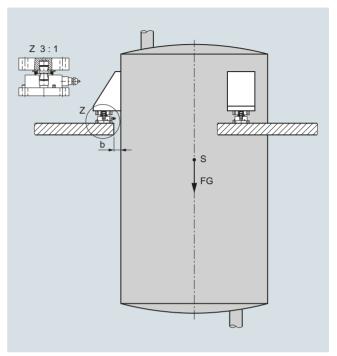
Self-centering self-aligning bearings are used as mounting components as the container is suspended and cannot lift up from the self-aligning bearing.

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 \pm 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

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 brackets, has an empty weight (dead load) of $2.8\,t$ ($2.76\,t$ n. I.) and a maximum capacity of $4.5\,t$ ($4.43\,t$ n. I.). 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

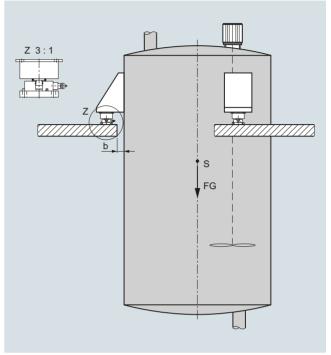
We recommend using 3 SIWAREX WL280 RN-S SA load cells with a rated load of 3.5 t (3.45 tn. l.) because the high-quality WL280 RN-S SA precision load cell has an extremely low constructional height (for determination of rated load, please refer to introduction).

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 \pm 4 mm (0.16 inch).

An oscillation limitation is not necessary because there is a small gap of $b=3\,\text{mm}$ (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	Elastomeric 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

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4

Belt Weighing



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4/4	Belt scales
4/4	Milltronics MLC
4/9	Milltronics MUS
4/14	Milltronics MCS
4/19	Milltronics MSI and MMI
4/28	Milltronics WD600
4/31	Speed sensors
4/31	Milltronics TASS
4/33	Milltronics RBSS
4/36	SITRANS WS300
4/41	Accessories
4/41	Calibration weight lifter Milltronics MWL
4/46	Milltronics flat bar calibration weights
4/47	Test chain
4/51	Test chain storage reel
4/54	Bend pulleys
4/58	Belt scale peripherals

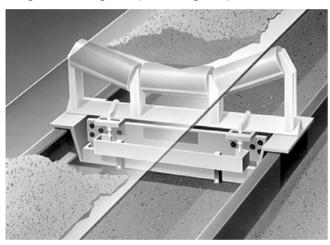
Introduction

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 weight x speed = rate.

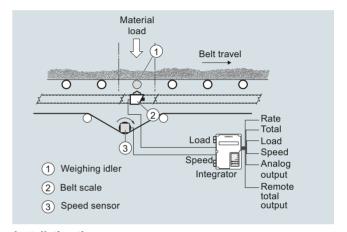


Belt scale operation

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.



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.

Belt Weighing Introduction

Mode of operation (continued)

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 \pm 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 induction. Use terminal blocks, shielded cable, and grounded metal conduit for all wiring.

Technical specifications

						Accuracy ¹⁾		
Criteria	Typical industries	Typical applications	Maximum capacity	Maximum belt speed	Loading range	Value	Specified range	Approvals
Milltronics MLC	Animal feedFertilizersFood processingTobacco	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	AggregatesAgriculturalMiningCement	AggregatesMedium- 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	Mobile crushersAggregatesScreening plantsHeavy-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	Cement Chemicals Coal Food processing Mineral processing Mining	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	Cement Chemicals Coal Food processing Mineral processing Mining	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 %	NTEP, MID, OIML, Measurement Canada, CE, CSA/FM, ATEX, IECEx, RCM, EAC
Milltronics WD600	 Food Pharmaceutical and tobacco industries 	 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 proces- sors, RCM, EAG

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 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 prefeed control system for extruders, cookers and de-hydrators.

Milltronics MLC

Technical specifications

Strain gauge load cell measuring load on flat belt conveyor idler
Monitor fertilizer, tobacco, animal feed pellets, sugar, cereal
± 0.5 1.0 % of totalization over 25 100 % operating range
± 0.1 %
85 °C (185 °F)
• 450 1 200 mm • 18 48 inch
2.0 m/s (400 fpm) maximum ²⁾
Up to 50 t/h (55 STPH) ²⁾
 ± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy
Horizontal
50 or 60 mm (1.90 or 2.30 inch)
0.5 1.5 m (1.6 5.0 ft)

Milltronics MLC	
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	• -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, RCM, EAC, KCC

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 (http://www.automation.siemens.com/aspa_appe) ration of higher values.

Belt scales

Milltronics MLC

Selection and ordering data	Article No.		Order Code
Milltronics MLC Belt scale	7MH7126-	Further designs	
Accuracy is ± 0.5 1.0 % of totalization over		Please add "-Z" to article no. and specify order code(s).	
25 100 % operating range with capacity up to 50 t/h (55 STPH). ✓ Click on the Article No. for the online		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
configuration in the PIA Life Cycle Portal.		Application Eng. reference number	Y31
Belt width/Scale construction		(max. 15 characters), specify in plain text.	
C5-M rated polyester painted mild steel		Manufacturer's test certificate: according to	C11
18 inch (457 mm)	1 A	EN 10204-2.2	1404
24 inch (610 mm)	1 B	FDA compliant version. Conduit and fittings designed for food applications conforming to FDA/USDA	K01
30 inch (762 mm)	1 C	standards	
36 inch (914 mm)	1 D	Operating instructions	
42 inch (1 067 mm)	1 E	All literature is available to download for free,	
48 inch (1 219 mm)	1 F	in a range of languages, at http://www.siemens.com/weighing/documentation	
500 mm (20 inch)	1 G	Spare parts	Article No.
650 mm (26 inch)	1 H	Load cell, 10 lb (4.55 kg), 17-4 PH (1.4568) stainless	PBD-23900244
800 mm (32 inch)	1 J	steel construction with 304 (1.4301) stainless steel	. 55 200002 11
1 000 mm (39 inch)	1 K	cover, includes hardware	
1 200 mm (47 inch)	1 L	Load cell, 20 lb (9.09 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel	PBD-23900245
450 mm (18 inch)	1 M	cover, includes hardware	
Stainless steel 304 (1.4301), bead blast finish		Conduit replacement kit	7MH7723-1NA
(1 6 μm, 40 240 μin)		FDA conduit replacement kit	7MH7723-1QL
18 inch (457 mm)	2 A	Spare load cell hardware kit	A5E44809390
24 inch (610 mm)	2 B	Milltronics MLC calibration weight	
30 inch (762 mm)	2 C	[Stainless Steel 304 (1.4301)]	
36 inch (914 mm)	2 D	For scales with belt width of 18 inch or 500 mm or 450 mm	
42 inch (1 067 mm)	2 E	1.05 lb (0.47 kg)	7MH7724-1AL
48 inch (1 219 mm)	2 F	1.63 lb (0.73 kg)	7MH7724-1AM
500 mm (20 inch)	2 G	2.35 lb (1.06 kg) 3.21 lb (1.45 kg)	7MH7724-1AN 7MH7724-1AP
650 mm (26 inch)	2 H	For scales with belt width of 24 inch or 650 mm	
800 mm (32 inch)	2 J	1.38 lb (0.62 kg)	7MH7724-1AQ
1 000 mm (39 inch)	2 K	2.15 lb (0.97 kg)	7MH7724-1AR
1 200 mm (47 inch)	2 L	3.11 lb (1.41 kg) 4.24 lb (1.91 kg)	7MH7724-1AS 7MH7724-1AT
450 mm (18 inch)	2 M	· • • • • • • • • • • • • • • • • • • •	/WIII//24-IAI
Load cell capacity		For scales with belt width of 30 inch or 800 mm 1.72 lb (0.77 kg)	7MH7724-1AU
10 lb (4.55 kg)	Α	2.67 lb (1.21 kg)	7MH7724-1AV
20 lb (9.09 kg)	В	3.85 lb (1.73 kg)	7MH7724-1AW
Not specified ¹⁾	x	5.26 lb (2.37 kg)	7MH7724-1AX
Weighing idler dimensions		For scales with belt width of 36 inch or 1 000 mm 2.05 lb (0.92 kg)	7MH7724-1AY
50 mm (1.96 inch) ²⁾	1	3.19 lb (1.44 kg)	7MH7724-1BA
60 mm (2.40 inch) ³⁾	2	4.56 lb (2.07 kg)	7MH7724-1BB
1.90 inch (48.2 mm) ⁴⁾	5	6.29 lb (2.83 kg)	7MH7724-1BC
		For scales with belt width of 42 inch or 1 000 mm	7MU7704 4DD
		2.38 lb (1.07 kg) 3.71 lb (1.67 kg)	7MH7724-1BD 7MH7724-1BE
		5.35 lb (2.41 kg)	7MH7724-1BF
		7.31 lb (3.29 kg)	7MH7724-1BG
		For scales with belt width of 48 inch or 1 200 mm	
		2.72 lb (1.22 kg)	7MH7724-1BH

Note: calibration accessories should be ordered as a

2.72 lb (1.22 kg)

4.23 lb (1.92 kg)

6.06 lb (2.75 kg)

8.34 lb (3.75 kg)

separate item on the order.

7MH7724-1BH

7MH7724-1BJ

7MH7724-1BK

7MH7724-1BL

¹⁾ Only for quotation purposes, not a valid ordering option.

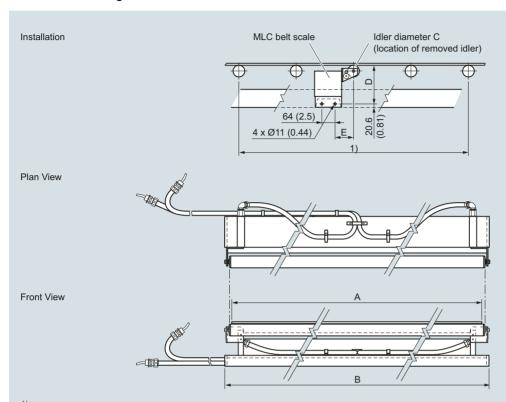
²⁾ Available with Belt width/Scale construction options 1G ... 1M and 2G ... 2M only.

 $^{^{\}rm 3)}$ Available with Belt width/Scale construction options 1G \dots 1M only.

⁴⁾ Available with Belt width/Scale construction options 1A ... 1F and 2A ... 2F only.

Milltronics MLC

Dimensional drawings



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.

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)

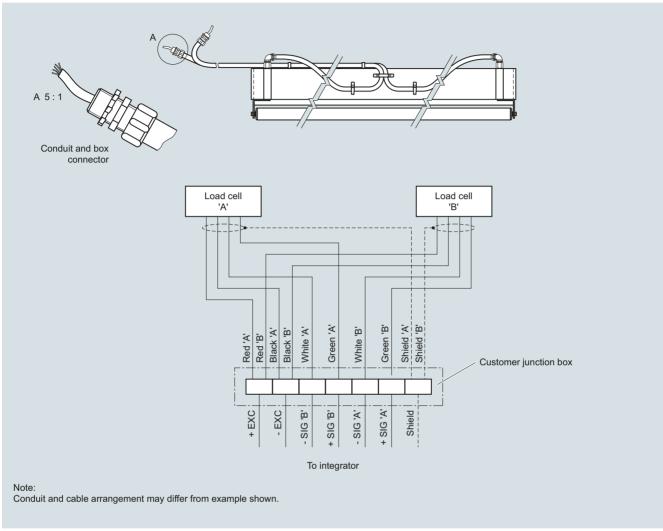
Scale size	'A' roller width	'B' dimension	'C' dimension	'D' dimension	'E' dimensior
450 (17.72)	450 (17.72)	500 (19.69)	50 (1.97)	158 (6.22)	96 (3.78)
500 (19.69)	500 (19.69)	550 (21.65)	50 (1.97)	158 (6.22)	96 (3.78)
650 (25.59)	650 (25.59)	700 (27.56)	50 (1.97)	158 (6.22)	96 (3.78)
800 (31.50)	800 (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)

Belt scales

Milltronics MLC

Circuit diagrams



MLC connections

Belt scales

Milltronics MUS

Overview



Milltronics MUS is a modular designed, medium- to heavy-duty belt scale for process indication.

Idler not included with belt scale.

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.

Belt scales

Milltronics MUS

Technical specifications

Milltronics MUS	
Mode of operation	
Measuring principle	Heavy duty strain gauge load cells measuring load on belt conveyor idlers
Typical applications	 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	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	 ± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy³⁾
Idlers	
Idler profile	 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)

Milltronics MUS				
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 • Standard duty ranges • Heavy-duty ranges	20, 30, 50, 75, 100 kg (44, 66, 110, 165, 220 lb) 50, 100, 150, 200, 500 kg			
- Fleavy daty ranges	(110, 220, 330, 440, 1 100 lb)			
Overload	150 % of rated capacity, ultimate 200 % of rated capacity			
Temperature	 -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)	 < 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, RCM, EAC, CMC, KCC			

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 (http://www.automation.siemens.com/aspa_app) for consideration of higher values.

³⁾ Review by Siemens required (http://www.automation.siemens.com/aspa_app).

Belt scales

Milltronics MUS

Article No.

Selection and ordering data	Article No.
Milltronics MUS Belt scale	7MH7123-
Accuracy is \pm 2 % of totalization over 25 100 % operating range with capacity up to 5 000 t/h (5 512 STPH).	0
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	
Standard Duty Scale Load Cell	
20 kg (44.1 lb) ¹⁾	AA
30 kg (66.1 lb) ¹⁾	АВ
50 kg (110.2 lb) ¹⁾	A C
75 kg (165.3 lb) ¹⁾	A D
100 kg (220.4 lb) ¹⁾	AE
Not specified ²⁾	ХX
Heavy-Duty Scale Load Cell	
50 kg (110.2 lb) ³⁾	ВА
100 kg (220.4 lb) ³⁾	ВВ
150 kg (330.7 lb) ³⁾	ВС
200 kg (440.9 lb) ³⁾	B D
300 kg (661.4 lb) ³⁾	BE
500 kg (1 102.3 lb) ³⁾	BF
Fabrication	
C5-M rated polyester painted mild steel	1
Further designs	Order Code
Please add " -Z " to article no. and specify order code(s).	Y15
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number / identification (max. 27 characters), specify in plain text.	Y31
Application Eng. reference number (max. 15 characters), specify in plain text.	C11
Operating instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

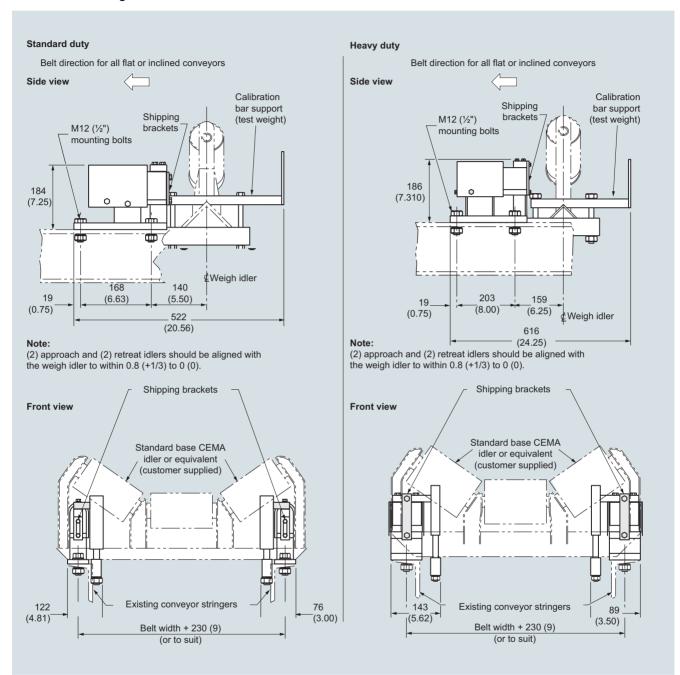
Spare parts	
Standard Duty Scale Load Cell	
20 kg (44.1 lb)	A5E00826934
30 kg (66.1 lb)	A5E00826935
50 kg (110.2 lb)	A5E00826936
75 kg (165.3 lb)	A5E00826938
100 kg (220.5 lb)	A5E00826939
Heavy-Duty Scale Load Cell	
50 kg (110.2 lb)	A5E00826941
100 kg (220.5 lb)	A5E00826942
150 kg (330.7 lb)	A5E00826943
200 kg (440.9 lb) 300 kg (661.4 lb)	A5E00826944 A5E00826945
500 kg (1 120.3 lb)	A5E00826945 A5E00826946
O (
Rock Guard, MUS Standard Duty Scale, spare	7MH7723-1DM
Conduit replacement kit	7MH7723-1NA
Spare load cell hardware kit	A5E44809390
Calibration weights	
Milltronics flat bar calibration weights, see page 4/53.	
Note: calibration accessories should be ordered as a separate item on the order.	
1) Facility and a second second second section of section	

- 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 scales

Milltronics MUS

Dimensional drawings

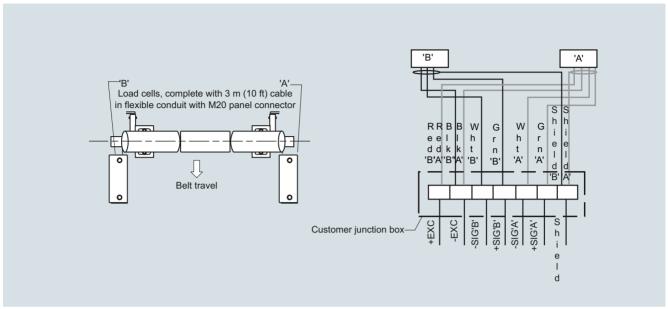


MUS, dimensions in mm (inch)

Belt scales

Milltronics MUS

Circuit diagrams

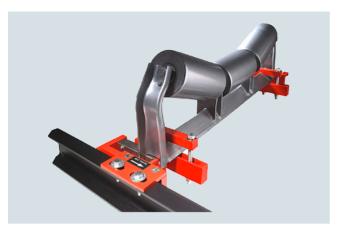


MUS connections

Belt scales

Milltronics MCS

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.

Milltronics MCS

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⁾	 ± 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	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	 ± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy³⁾
Idlers	
Idler profile	 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
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	• -50 +75 °C (-58 +167 °F) operating range • -40 +65 °C (-40 +150 °F) compensated

Milltronics MCS					
Weight	Up to 20 kg (44 lb), 10 kg (22 lb) per side				
Interconnection wiring (to integrator)	 < 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 and Class III ATEX II 2D, Ex tD A21 IP65 T90 °C EAC Ex IEC Ex, Ex tD A21 IP65 T90 °C CE, RCM, EAC, KCC, RTN 				

- 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 (http://www.automation.siemens.com/aspa_app) for consideration of higher values.
- Review by Siemens required (http://www.automation.siemens.com/aspa_app).

Milltronics MCS

Selection and ordering data		Article No.			
illtronics MCS Belt scale		ИH	71	25-	
Accuracy is \pm 0.5 1 % of totalization over 25 100 % operating range with capacity up to 2 400 t/h (2 640 STPH).	-	١	ĺ	0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Scale construction					
Standard duty, CE, RCM, EAC, KCC	1				
Hazardous Duty CSA/FM Class II, Div. 1, Groups E, F, G and Class III, ATEX II 2D, IECEx, EAC Ex, CE, RCM, EAC, KCC	2				
Load cell capacity					
50 lb (22.7 kg) (use not recommended for mobile crushers)		A	Δ		
100 lb (45.5 kg) (use not recommended for mobile crushers)		A	В		
250 lb (113.6 kg)		A	С		
500 lb (226.8 kg)		A	D		
25 lb (11.3 kg) (use not recommended for mobile crushers)		A	Ε		
Not specified ¹⁾		В	В		
Fabrication					
C5-M rated polyester painted mild steel			ŀ	1	
C5-M rated polyester painted mild steel, for use with flat bar or MWL calibration			:	2	
Further designs	Or		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			
anufacturer's test certificate: ccording 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					

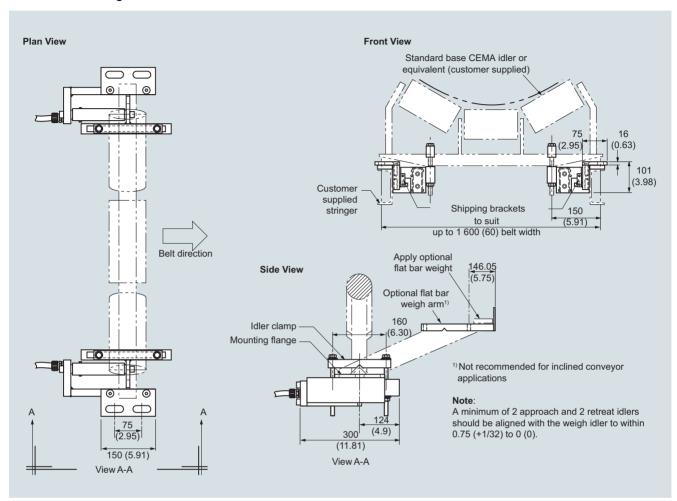
Spare parts	
Stainless steel load cell	
[17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover]	
25 lb (11.3 kg)	A5E01673047
50 lb (22.7 kg)	A5E01135823
100 lb (45.4 kg)	A5E01135824
250 lb (113.4 kg) 500 lb (226.8 kg)	A5E01135825 A5E01135826
Spare load cell hardware kit	A5E44809390
·	7021100000
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
Milltronics flat bar calibration weights, see page 4/53.	
Note: calibration accessories should be ordered as a separate item on the order.	

Article No.

¹⁾ Only for quotation purposes, not a valid ordering option.

Milltronics MCS

Dimensional drawings

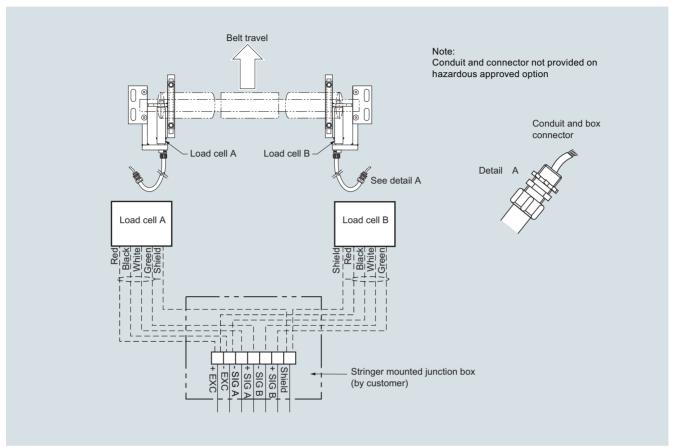


MCS, dimensions in mm (inch)

Belt scales

Milltronics MCS

Circuit diagrams



MCS connections

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.

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

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.

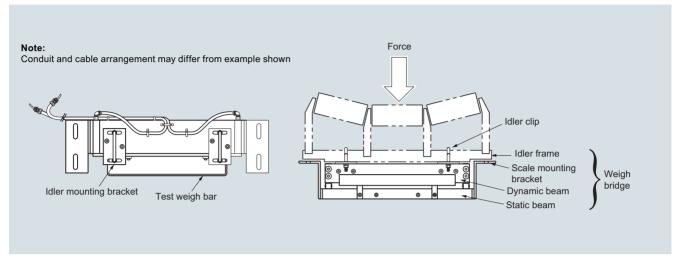
The MMI's proven use of parallelogram-style load cells results in fast reaction to vertical forces, ensuring instant response to product loading. This enables it to provide outstanding accuracy and repeatability even with uneven or light loading, short idler spacing and fast belt speeds. Operating with 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.

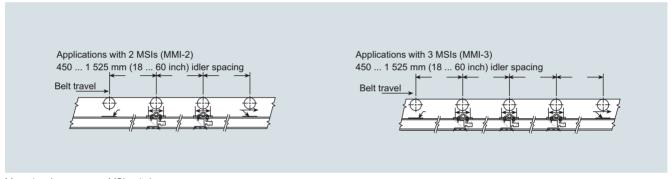
Milltronics MSI and MMI

Design

Mounting



MSI/MMI mounting



Mounting (two or more MSI units)

Л

Belt Weighing Belt scales

Milltronics MSI and MMI

Technical specifications

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	\pm 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	over 25 100 % operating range
Repeatability	± 0.1 %
Medium conditions	
Material temperature	-50 +200 °C (-58 +392 °F)
Belt design	
Belt width	 18 96 inch in CEMA sizes Equivalent to 500 2 000 mm in metric size 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	± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy ³⁾
Idlers	
Idlar profila	• Flat to 35°
Idler profile	 Up to 45° with reduced accuracy³⁾
Idler diameter	 Up to 45° with reduced accuracy³⁾ 50 180 mm (2 7 inch)

Marin and a Marin Marin	
Milltronics MSI/MMI	
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	• -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
Interconnection wiring (to integrator, per MSI)	< 150 m (500 ft) 18 AWG (0.75 mm²) 6 conductor shielded cable
	> 150 m 300 m (500 ft 1 000 ft) 18 22 AWG (0.75 0.34 mm²), 8 conductor shielded cable
Approvals	CSA/FM Class 1, Div. 1, Groups A, B, C, Class II, Div. 1, Groups E, F, G, and Class III ATEX II 1GD, Ex ia IIC T4 Ga, Ex ia IIIC T135 °C Da, ATEX I M1, Ex ia I Ma ATEX II 2D Ex tD A21 IP65 T90 °C EAC Ex IEC Ex 1G Ex ia IIC T4 Ga, Ex ia IIIC T135 °C Da M1, Ex ia I Ma MSHA CE, RCM, EAC, KCC, 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 (http://www.automation.siemens.com/aspa_app) for consideration of higher values.

³⁾ Review by Siemens required (http://www.automation.siemens.com/aspa_app).

⁴⁾ MSI only.

⁵⁾ MMI only.

Belt scales

Milltronics MSI and MMI

Selection and ordering data	Article No.		Article No.
Milltronics MSI Belt scale	7MH7122-	Milltronics MSI Belt scale	7MH7122-
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).		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).	
✓ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		55 inch, 'A' = 64 inch (1 626 mm)	BS
Scale construction		56 inch, 'A' = 65 inch (1 651 mm)	BT
Standard duty, CE, RCM, EAC, KCC	1	57 inch, 'A' = 66 inch (1 676 mm)	BU
Hazardous Duty	2	58 inch, 'A' = 67 inch (1 702 mm)	BV
CSA/FM Class II, Div. 1, Groups E, F, G and Class III, ATEX II 2D, EAC Ex, IECEx, CE, RCM		59 inch, 'A' = 68 inch (1 727 mm) 60 inch, 'A' = 69 inch (1 753 mm)	B W C A
CSA/FM Class I, Div. 1, Groups A, B, C, D,	3	61 inch, 'A' = 70 inch (1 778 mm)	СВ
Class II, Div. 1, Groups E, F, G and Class III,		62 inch, 'A' = 71 inch (1 803 mm)	CC
ATEX II 1GD IEC Ex 1GD	4	63 inch, 'A' = 72 inch (1 829 mm)	CD
MSHA, ATEX I M1, IEC Ex I M1 Belt width and 'A' dimension	-1	64 inch, 'A' = 73 inch (1 854 mm)	CE
18 inch, 'A' = 27 inch (686 mm)	AA	65 inch, 'A' = 74 inch (1 880 mm)	CF
19 inch, 'A' = 28 inch (711 mm)	AB	66 inch, 'A' = 75 inch (1 905 mm)	C G
20 inch, 'A' = 29 inch (737 mm)	AC	67 inch, 'A' = 76 inch (1 930 mm)	СН
21 inch, 'A' = 30 inch (762 mm)	AD	68 inch, 'A' = 77 inch (1 956 mm)	CJ
22 inch, 'A' = 31 inch (787 mm)	AE	69 inch, 'A' = 78 inch (1 981 mm)	ск
23 inch, 'A' = 32 inch (813 mm)	AF	70 inch, 'A' = 79 inch (2 007 mm)	CL
24 inch, 'A' = 33 inch (838 mm)	A G	71 inch, 'A' = 80 inch (2 032 mm)	СМ
25 inch, 'A' = 34 inch (864 mm)	AH	72 inch, 'A' = 81 inch (2 057 mm)	C N
26 inch, 'A' = 35 inch (889 mm)	AJ	73 inch, 'A' = 82 inch (2 083 mm)	C P
27 inch, 'A' = 36 inch (914 mm)	AK	74 inch, 'A' = 83 inch (2 108 mm)	C Q
28 inch, 'A' = 37 inch (940 mm)	AL	75 inch, 'A' = 84 inch (2 134 mm)	C R
29 inch, 'A' = 38 inch (965 mm)	AM	76 inch, 'A' = 85 inch (2 159 mm)	cs
30 inch, 'A' = 39 inch (991 mm)	AN	77 inch, 'A' = 86 inch (2 184 mm)	СТ
31 inch, 'A' = 40 inch (1 016 mm)	AP	78 inch, 'A' = 87 inch (2 210 mm)	CU
32 inch, 'A' = 41 inch (1 041 mm)	A Q	79 inch, 'A' = 88 inch (2 235 mm)	c v
33 inch, 'A' = 42 inch (1 067 mm)	AR	80 inch, 'A' = 89 inch (2 261 mm)	cw
34 inch, 'A' = 43 inch (1 092 mm)	AS	81 inch, 'A' = 90 inch (2 286 mm)	D A
35 inch, 'A' = 44 inch (1 118 mm)	AT	82 inch, 'A' = 91 inch (2 311 mm)	D B
36 inch, 'A' = 45 inch (1 143 mm)	A U	83 inch, 'A' = 92 inch (2 337 mm)	D C
37 inch, 'A' = 46 inch (1 168 mm)	AV	84 inch, 'A' = 93 inch (2 362 mm)	D D
38 inch, 'A' = 47 inch (1 194 mm)	AW	85 inch, 'A' = 94 inch (2 388 mm)	DE
39 inch, 'A' = 48 inch (1 219 mm)	ВА	86 inch, 'A' = 95 inch (2 413 mm)	DF
40 inch, 'A' = 49 inch (1 245 mm)	ВВ	87 inch, 'A' = 96 inch (2 438 mm)	D G
41 inch, 'A' = 50 inch (1 270 mm)	ВС	88 inch, 'A' = 97 inch (2 464 mm)	DH
42 inch, 'A' = 51 inch (1 295 mm)	B D	89 inch, 'A' = 98 inch (2 489 mm)	DJ
43 inch, 'A' = 52 inch (1 321 mm)	BE	90 inch, 'A' = 99 inch (2 515 mm)	D K
44 inch, 'A' = 53 inch (1 346 mm)	BF	91 inch, 'A' = 100 inch (2 540 mm)	DL
45 inch, 'A' = 54 inch (1 372 mm)	B G	92 inch, 'A' = 101 inch (2 565 mm)	D M
46 inch, 'A' = 55 inch (1 397 mm)	ВН	93 inch, 'A' = 102 inch (2 591 mm)	DN
47 inch, 'A' = 56 inch (1 422 mm)	BJ	94 inch, 'A' = 103 inch (2 616 mm)	DP
48 inch, 'A' = 57 inch (1 448 mm)	B K	95 inch, 'A' = 104 inch (2 642 mm)	D Q
49 inch, 'A' = 58 inch (1 473 mm)	BL	96 inch, 'A' = 105 inch (2 667 mm)	DR
50 inch, 'A' = 59 inch (1 499 mm)	BM		
51 inch, 'A' = 60 inch (1 524 mm)	BN		
52 inch, 'A' = 61 inch (1 549 mm)	BP		
53 inch, 'A' = 62 inch (1 575 mm)	BQ		
54 inch, 'A' = 63 inch (1 600 mm)	BR		

Belt Weighing Belt scales

Milltronics MSI and MMI

Selection and ordering data	Article No				Article No.
Milltronics MSI Belt scale	7MH7122-			Milltronics MSI Belt scale	7MH7122-
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).				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).	
Load cell capacity				Galvanized, for belt width scales:	
Not specified ¹⁾	0			(compatible with MWL or flat bar weight system)	
25 lb (11.3 kg)	9		L 1 A	18 29 inch (457.2 736.6 mm)	4 2
50 lb (22.7 kg)	1			30 41 inch (762 1 041.4 mm)	4 3
100 lb (45.4 kg)	2			42 53 inch (1 066.8 1 346.2 mm)	4 4
250 lb (113.4 kg)	3			54 65 inch (1 371.6 1 651 mm)	4 5
500 lb (226.8 kg)	4			66 77 inch (1 676.4 1 955.8 mm)	4 6
750 lb (340.2 kg)	5			78 89 inch (1 981.2 2 260.6 mm)	4 7
1 000 lb (453.6 kg)	6			90 96 inch (2 786 2 438.4 mm)	4 8
1 250 lb (567 kg) ²⁾	7			System specification	
1 500 lb (680.4 kg) ²⁾	8			Standard MSI and MMI	A
2 000 lb (907.2 kg)	9		L 1 B	NTEP Certified MMI ³⁾⁴⁾⁵⁾	В
Fabrication				OIML/MID Certified ⁴⁾⁵⁾	С
C5-M rated polyester painted mild steel	1	1		MSI for MMI-3 ± 0.125 % accuracy ⁶⁾	D
Electro-galvanized mild steel:				Further designs	Order Code
18 29 inch (457.2 736.6 mm)	1	2		Please add "-Z" to article no. and specify order	
30 41 inch (762 1 041.4 mm)	1	3		code(s).	
42 53 inch (1 066.8 1 346.2 mm)	1	4		Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number / identification	Y15
54 65 inch (1 371.6 1 651 mm)	1	5		(max 27 characters), specify in plain text.	
66 77 inch (1 676.4 1 955.8 mm)	1	6		Application Eng. reference number	Y31
78 89 inch (1 981.2 2 260.6 mm)	1	7		(max. 15 characters), specify in plain text.	C11
90 96 inch (2 286 2 438.4 mm)	1	8		Manufacturer's test certificate: According to EN 10204-2.2	CII
Stainless steel 304 (1.4301), bead blast finish (1 6 µm, 40 240 µin) for belt width scales:				Factory calibration certificate	Y33
18 29 inch (457.2 736.6 mm)	2	1		OIML/MID approval additional nameplate (submit application data with order) ⁵⁾	Y77
30 41 inch (762 1 041.4 mm)	2	2		NTEP approval additional nameplate	Y78
42 53 inch (1 066.8 1 346.2 mm)	2	3		(submit application data with order) ⁵⁾	
54 65 inch (1 371.6 1 651 mm)	2	4		Extended cable length (For spare part pricing and	A08
66 77 inch (1 676.4 1 955.8 mm)	2	5		part number consult factory) Load cell with 15 m (49.2 ft) cable length	
78 89 inch (1 981.2 2 260.6 mm)	2	6		[standard is 3 m (9.8 ft)]	_
90 96 inch (2 786 2 438.4 mm)	2	7		High temp load cell (For spare part pricing and part number consult factory)	T50
Stainless steel 316 (1.4401), bead blast finish				Load cell suitable for high temp up to 175 °C	
(1 6 μm, 40 240 μin) for belt width scales: 18 29 inch (457.2 736.6 mm)	3	1		(347 °F) [standard is 75 °C (167 °F)] ⁷⁾	1150
30 41 inch (762 1 041.4 mm)	3	2		Load cell with 316 (1.4401) cover (For spare part pricing and part number consult factory)	H53
42 53 inch (1 066.8 1 346.2 mm)	3	3		Load cell cover is constructed from 316 (1.4401) -stainless steel [standard is 304 (1.4301)]	
54 65 inch (1 371.6 1 651 mm)	3	1		FDA compliant version	K01
66 77 inch (1 676.4 1 955.8 mm)	3	5		Conduit and fittings designed for food	KOT
, ,	3	6		applications -conforming to FDA/USDA standards	A .: 1 A1
78 89 inch (1 981.2 2 260.6 mm) 90 96 inch (2 786 2 438.4 mm)	3	7		Operating instructions	Article No.
C5-M rated polyester painted mild steel (compati-	4	1		MSI Manuals	7141 4000 FOV04
ble with MWL or flat bar weight calibration system)	4			• English	7ML1998-5CY04
				Note: the operating instructions should be ordered as a separate item on the order.	
				All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Belt scales

Milltronics MSI and MMI

Selection and ordering data	Article No.		Article No.
Spare parts		Load cell, high temperature up to 175 °C (347 °F)	
Flat bar/MWL retrofit kit	7MH7723-1FW	25 lb (11.3 kg)	PBD-25851-A8T50
Conduit replacement kit	7MH7723-1NA	50 lb (22.7 kg)	PBD-25851-A0T50
FDA conduit replacement kit	7MH7723-1QL	100 lb (45.4 kg)	PBD-25851-A1T50
MWL calibration weight support brackets -galva-	7MH7723-1JT	250 lb (113.4 kg)	PBD-25851-A2T50
nized		500 lb (226.8 kg)	PBD-25851-A3T50
Ground cable	7MH3701-1AA1	750 lb (340.2 kg)	PBD-25851-A4T50
Stainless steel load cells		1 000 lb (453.6 kg)	PBD-25851-A5T50
Standard load cell with 304 (1.4301) stainless steel cover		1 250 lb (567 kg)	PBD-25851-A6T50
25 lb (11.3 kg)	A5E35801457	1 500 lb (680.4 kg)	PBD-25851-A7T50
50 lb (22.7 kg)	PBD-23900246	2 000 lb (907.2 kg)	PBD-25851-A9T50
100 lb (45.4 kg)	PBD-23900247	Load cell, high temperature up to 175 °C (347 °F) with 316 (1.4401) stainless steel cover	
250 lb (113.4 kg)	PBD-23900248		PBD-25851-A8TH
500 lb (226.8 kg)	PBD-23900249	25 lb (11.3 kg) 50 lb (22.7 kg)	PBD-25851-A0TH
750 lb (340.2 kg)	PBD-23900250	100 lb (45.4 kg)	PBD-25851-A1TH
1 000 lb (453.6 kg)	PBD-23900251	250 lb (113.4 kg)	PBD-25851-A1TH
1 250 lb (567 kg)	A5E02235671	500 lb (226.8 kg)	PBD-25851-A3TH
1 500 lb (680.4 kg)	A5E02239623	750 lb (340.2 kg)	PBD-25851-A4TH
2 000 lb (907.2 kg)	A5E35801460	1 000 lb (453.6 kg)	PBD-25851-A5TH
25 lb (11.3 kg), NTEP, OIML/MID	A5E35801462	1 250 lb (567 kg)	PBD-25851-A6TH
50 lb (22.7 kg), NTEP, OIML/MID	A5E03324790	1 500 lb (680.4 kg)	PBD-25851-A7TH
100 lb (45.4 kg), NTEP, OIML/MID	PBD-23900261	2 000 lb (907.2 kg)	PBH-25851-A9TH
250 lb (113.4 kg), NTEP, OIML/MID	PBD-23900262	Load cell with 15 m (49.2 ft) cable length	
500 lb (226.8 kg), NTEP, OIML/MID	PBD-23900263	25 lb (11.3 kg)	PBD-25851-A8A08
750 lb (340.2 kg), NTEP, OIML/MID	PBD-23900264	50 lb (22.7 kg)	PBD-25851-A0A08
1 000 lb (453.6 kg), NTEP, OIML/MID	PBD-23900265	100 lb (45.4 kg)	PBD-25851-A1A08
1 250 lb (567 kg), NTEP, OIML/MID	A5E02235672	250 lb (113.4 kg)	PBD-25851-A2A08
1 500 lb (680.4 kg), NTEP, OIML/MID	A5E02239620	500 lb (226.8 kg)	PBD-25851-A3A08
2 000 lb (907.2 kg), NTEP, OIML/MID	A5E35801463	750 lb (340.2 kg)	PBD-25851-A4A08
Load cell with 316 (1.4401) stainless steel cover		1 000 lb (453.6 kg)	PBD-25851-A5A08
25 lb (11.3 kg)	PBD-25851-A8H53	1 250 lb (567 kg)	PBD-25851-A6A08
50 lb (22.7 kg)	PBD-25851-A0H53	1 500 lb (680.4 kg)	PBD-25851-A7A08
100 lb (45.4 kg)	PBD-25851-A1H53	2 000 lb (907.2 kg)	PBD-25851-A9A08
250 lb (113.4 kg)	PBD-25851-A2H53	100 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B1A08
500 lb (226.8 kg)	PBD-25851-A3H53	250 lb (113.4 kg), NTEP, OIML/MID	PBD-25851-B2A08
750 lb (340.2 kg)	PBD-25851-A4H53	500 lb (226.8 kg), NTEP, OIML/MID	PBD-25851-B3A08
1 000 lb (453.6 kg)	PBD-25851-A5H53	750 lb (340.2 kg), NTEP, OIML/MID	PBD-25851-B4A08
1 250 lb (567 kg)	PBD-25851-A6H53	1 000 lb (45.4 kg), NTEP, OIML/MID	PBD-25851-B5A08
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		

Belt scales

Milltronics MSI and MMI

Selection and ordering data	Article No.
Load cell with 15 m (49.2 ft) cable length and 316 (1.4401) stainless steel cover	
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
Load cell, high temperature up to 175 °C (347 °F) with 15 m (49.2 ft) cable length	
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
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	
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
Chara load call bardware hit	AFE44000000

Spare load cell hardware kit

A5E44809390

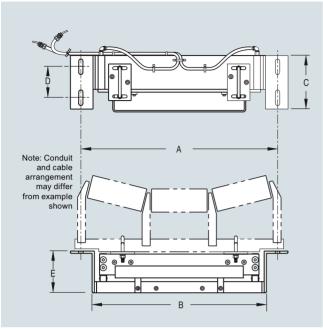
	Article No.
Idler clips	
5 inch (127 mm) for 27 62 inch (686 1 575 mm) "A" dimensions	7MH7723-1BT
7 inch (178 mm) for 63 74 inch (1 600 1 880 mm) "A" dimensions	7MH7723-1DF
Calibration weights	
6.0 lb/ 2.7 kg	7MH7724-1AB
18 lb/ 8.2 kg	7MH7724-1AA
18 lb/ 8.2 kg certified weight	A5E32423812
Milltronics flat bar calibration weights, see page 4/53	
Note: calibration accessories should be ordered	
as a separate line order	
Intrinsically safe barriers for use with IS mining approvals ⁸⁾	
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.
- $^{\rm 3)}$ 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 and submit with order "legal for trade" version (see Application Questionnaire at http://www.siemens.com/weighing/application-questionnaires)
- 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.

Belt scales

Milltronics MSI and MMI

Dimensional drawings



MSI dimensions

Conveyor belt width	Mounting scale width	Minimum drop-in width B	С	D	E	Weight (approx.)
18 inch	27 inch	23.25 inch	9.5 inch	5.5 inch	7 inch	82 lb
(457 mm)	(686 mm)	(591 mm)	(241 mm)	(140 mm)	(178 mm)	(37 kg)
20 inch	29 inch	25.25 inch	9.5 inch	5.5 inch	7 inch	85 lb
(508 mm)	(737 mm)	(641 mm)	(241 mm)	(140 mm)	(178 mm)	(39 kg)
24 inch	33 inch	29.25 inch	9.5 inch	5.5 inch	7 inch	90 lb
(610 mm)	(838 mm)	(743 mm)	(241 mm)	(140 mm)	(178 mm)	(41 kg)
30 inch	39 inch	35.25 inch	9.5 inch	5.5 inch	7 inch	99 lb
(762 mm)	(991 mm)	(895 mm)	(241 mm)	(140 mm)	(178 mm)	(45 kg)
36 inch	45 inch	41.25 inch	9.5 inch	5.5 inch	7 inch	107 lb
(914 mm)	(1 143 mm)	(1 048 mm)	(241 mm)	(140 mm)	(178 mm)	(49 kg)
42 inch	51 inch	47.25 inch	9.5 inch	5.5 inch	7 inch	116 lb
(1 067 mm)	(1 295 mm)	(1 200 mm)	(241 mm)	(140 mm)	(178 mm)	(53 kg)
48 inch	57 inch	53.25 inch	9.5 inch	5.5 inch	7 inch	125 lb
(1 219 mm)	(1 448 mm)	(1 353 mm)	(241 mm)	(140 mm)	(178 mm)	(57 kg)
54 inch	63 inch	59.25 inch	12 inch	8 inch	7 inch	175 lb
(1 372 mm)	(1 600 mm)	(1 505 mm)	(305 mm)	(203 mm)	(178 mm)	(79 kg)
60 inch	69 inch	65.25 inch	12 inch	8 inch	7 inch	193 lb
(1 524 mm)	(1 753 mm)	(1 657 mm)	(305 mm)	(203 mm)	(178 mm)	(88 kg)
66 inch	75 inch	71.25 inch	12 inch	8 inch	8 inch	229 lb
(1 676 mm)	(1 905 mm)	(1 810 mm)	(305 mm)	(203 mm)	(203 mm)	(104 kg)
72 inch	81 inch	77.25 inch	12 inch	8 inch	8 inch	247 lb
(1 829 mm)	(2 057 mm)	(1 962 mm)	(305 mm)	(203 mm)	(203 mm)	(112 kg)

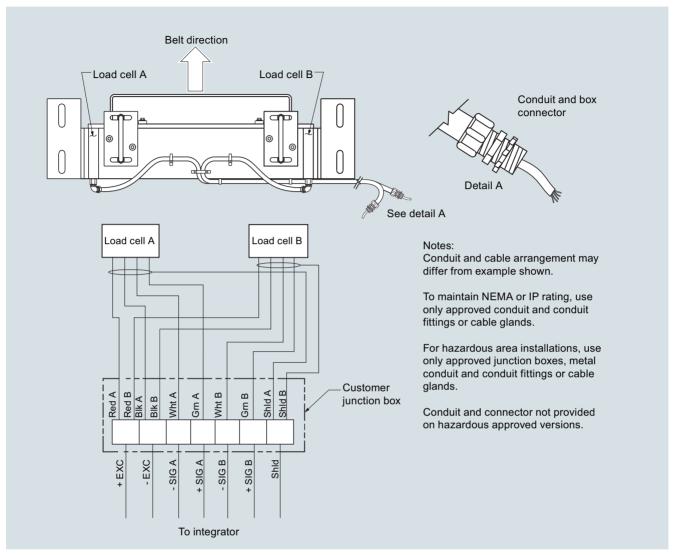
Other widths available - check configuration information. Sizes are from 18 inch (457 mm) to 96 inch (2 438 mm) in 1 inch (25.4 mm) increments.

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).

Belt scales

Milltronics MSI and MMI

Circuit diagrams



MSI/MMI connections

More information

NTEP/Measurement Canada/OIML & MID Specification Data

Please complete and submit the relevant details listed below when ordering NTEP, Measurement Canada, or OIML & MID approval options	Value	Please complete and submit the relevant details listed below when ordering NTEP, Measurement Canada, or OIML & MID approval options	Value
NTEP		OIML & MID	
Maximum rated capacity (TPH)		Totalization scale interval (tonnes)	
Minimum rated capacity (TPH)		Belt speed max/min (m/s)	
Belt speed (FPM)		Maximum flow rate (MTPH)	
Scale division (tons)		Minimum flow rate (MTPH)	
Maximum loading (lb/ft)		Minimum totalized load (tonnes)	
Measurement Canada		Product to be weighed	
Rate		Maximum capacity (tonnes)	
Speed (min/max m/s, FPM)		Weigh length (m)	
Test load (kg/m, lb/ft)		Ratio between minimum net load and maximum capacity	
		Zero testing should have a duration of at least () revolutions	

Belt scales

Milltronics WD600

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.

Technical specifications

Millanning WDCCC	
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	± 20° from horizontal, fixed incline Up to ± 30° with reduced accuracy ³⁾
Conveyor idler/slider profile	Horizontal
Loading	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	Stainless steel: IP68Nickel 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	 -40 +65 °C (-40 +149 °F) operating range -10 +40 °C (14 104 °F) compensated
Scale construction	 Stainless steel construction, bead blast finish (1 6 μm, 40 240 μin) Acetal sliders
Hazardous locations	Consult the factory
Approvals	CE, meets FDA/USDA requirements for food processing, RCM, EAC, KCC

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 (http://www.automation.siemens.com/aspa_app) for consideration of higher values.

Review by Siemens required (http://www.automation.siemens.com/aspa_app).

Belt Weighing Belt scales

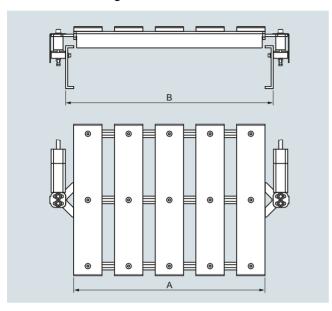
Milltronics WD600

Article No.

Selection and ordering data	Article No.
Milltronics WD600	7MH7185-
Belt scale: accuracy is \pm 0.5 1 % totalization over 25 100 % operating range with capacity up to 100 t/h (110 STPH).	A 0
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	
Nickel plated	
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
Stainless steel	
6 kg (13.2 lb)	н
12 kg (26.4 lb)	J
30 kg (66.2 lb)	К
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
Operating instructions	
All literature is available to download for free, in a range of languages, at	
http://www.siemens.com/weighing/documentation	

	7
Spare parts	
Load cells	
Stainless steel	
6 kg (13.2 lb)	7MH7725-1EG
12 kg (26.4 lb)	7MH7725-1EH
30 kg (66.2 lb)	7MH7725-1EJ
Nickel plated	
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 middle UHMW PE (for old style WD600)	7MH7723-1KF
Slider bar side UHMW PE (for old style WD600)	7MH7723-1KE
Slider bar acetal	7MH7723-1KG
Test chain 1.62 lb/ft (2.41 kg/m), 60 inch	7MH7723-1NF
Spare load cell hardware kit	A5E44809390
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.	

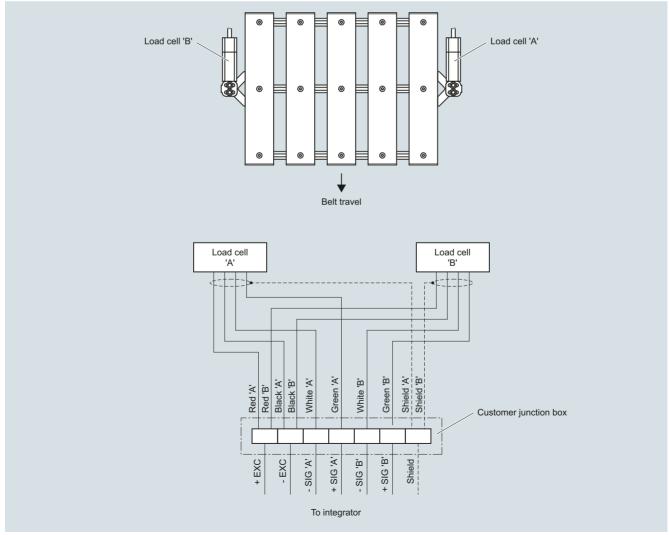
Dimensional drawings



Belt width	Α	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)	26.25 (667)	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

4

Belt WeighingSpeed 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

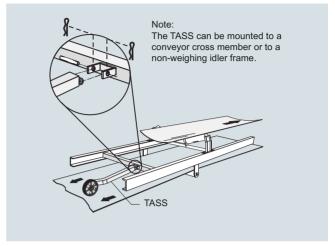
Application

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

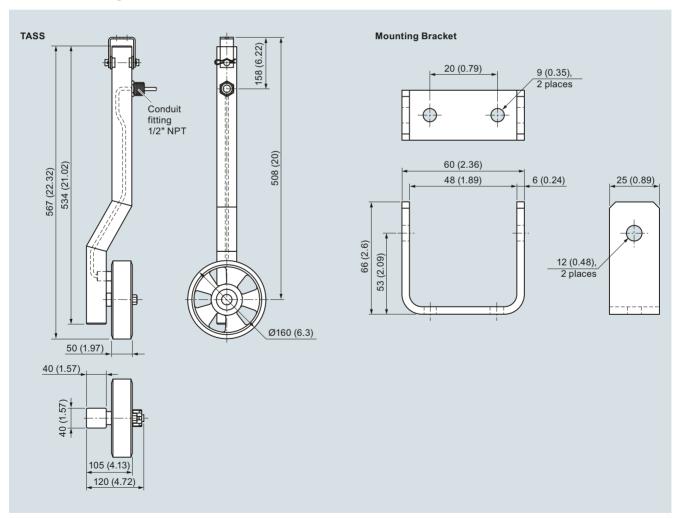
Technical specifications

Milltronics TASS	
Mode of operation	
Measuring principle	Inductive proximity sensor provides pulse to integrator
Typical application	Mobile crusher
Input	Bi-directional wheel rotation 25 350 rpm
Output	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)	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, RCM, EAC, KCC

Milltronics TASS

Selection and ordering data	Article No.		Order Code
Milltronics TASS Speed sensor	7MH7131-	Further designs	
Return belt mounted, 25 350 rpm, with 9.947 pulses/m (3.03 pulses/ft).		Please add "-Z" to article no. and specify order code(s).	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		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
Model		77 1 7 1	
5 pulses per revolution	1	Manufacturer's test certificate: According to EN 10204-2.2	C11
Fabrication		Operating instructions	
Standard, C5-M rated polyester painted mild steel	Α	All literature is available to download for free.	
Stainless steel 304 (1.4301), bead blast finish (1 6 μm, 40 240 μin)	В	in a range of languages, at http://www.siemens.com/weighing/documentation	
Note: wheel is aluminum for all versions		Spare parts	Article No.
Mounting options		TASS wheel	7MH7723-1AN
Complete with standard mounting kit	A	TASS proximity switch	7MH7723-1AF
Approvals		TASS wheel, stainless steel sealed bearing	7MH7723-1GV
CE, RCM, EAC, KCC	1	Conduit replacement kit	7MH7723-1NA

Dimensional drawings



TASS, dimensions in mm (inch)

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Belt WeighingSpeed sensors

Milltronics RBSS

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

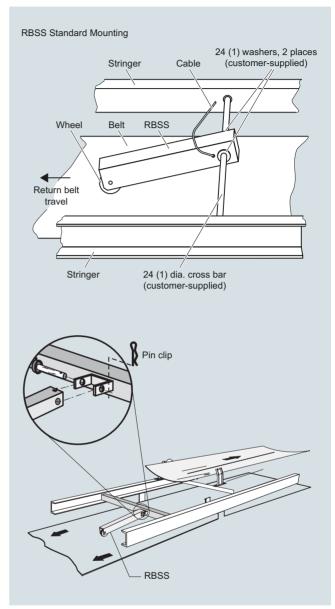
Application

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)

Speed sensors

Milltronics RBSS

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	60 pulses per revolution, 2 450 Hz, 150.4 pulses/m (4.58 pulses/ft) RBSS: open collector, NPN sinking output, max. 17 mA RBSS IS: NAMUR NC, load current, 0 15 mA
Rated operating conditions	
Ambient temperature	• RBSS: -40 +105 °C (-40 +220 °F) • RBSS IS: -25 +100 °C (-14 +212 °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 RBSS IS: 5 25 V DC from IS switch isolator
Interconnection wiring (to integrator)	RBSS: 3 m, 3 conductor 22 AWG shielded cable 300 m (1 000 ft) maximum cable run RBSS IS: 2 m, 2 conductor 26 AWG PVC covered cable 300 m (1 000 ft) maximum cable run to IS switch isolator 300 m (1 000 ft) maximum cable run from IS switch isolator and integrator
Approvals	
RBSS	CE, RCM, EAC, KCC ¹⁾
RBSS IS (with suitable IS switch isolator or switch amplifier) ²⁾	ATEX II 1G Eex ia IIC T6 ATEX II 1D Ex iaD 20 T 108 °C CSA/UL: Class I, Div. 1, Groups A, B, C, and D; Class II, Div. 1, Groups E, F, and G; Class III, Div. 1, EAC Ex CE, RCM, EAC, KCC ²
Proximity switch approval ratings (Pepperl+Fuchs #NJ0.8-5GM-N)	ATEX II 1G EEx ia IIC T6 ATEX II 1D Ex iaD 20 T 108 °C CE, CSA, UL ²)
Optional switch isolator (required for RBSS IS) ³⁾ • Pepperl+Fuchs #KFA5-SOT2-Ex2 or #KFA6-SOT2-Ex2	ATEX II (1) G [EEX ia] IIC CSA/UL: Class 1, Div. 1, Groups A, B, C, and D. Class II, Div. 1, Groups E, F, and G, Class III, EAC EX CE, RCM, EAC, KCC ²

1)	EMC	performance	available	upon	request.

²⁾ Approvals for RBSS IS are based on internally mounted NAMUR slotted proximity switch (Pepperl+Fuchs #NJ0.8-5GM-N) and use of suitable IS switch isolator (amplifier). Please see RBSS operating Instructions for more information.

Selection and ordering data	Article No.		
Milltronics RBSS Speed sensor	7MH7134-		
Return belt mounted, 2 450 rpm, with 150.4 pulses/m (4.58 pulses/ft).			
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	Α		
Mounting options			
With mounting kit	В		
Approvals			
CE, RCM, KCC, ATEX II 1G, Ex ia IIC T6, ATEX II 1D Ex iaD 20 T108 °C, CSA/UL Class I, Div. 1, Groups A, B, C, and D; Class II, Div. 1, Groups E, F, and G; Class III, Div. 1, EAC Ex ⁶⁾	2		
CE, RCM, EAC, KCC	3		
Switch isolator			
Not required	0		
115 V AC ⁴⁾	1		
230 V AC ⁴⁾	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		
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 diapolyurethane, sealed bearing	7MH7723-1FX		
Magnetic proximity switch	7MH7723-1GA		
Switch, inductive, NJ0.8-5GM-N (approvals option 2) ⁴⁾	7MH7723-1AS		
P & F switch isolator, 115 V AC ⁴⁾	7MH7723-1EB		
P & F switch isolator, 230 V AC ⁴⁾	7MH7723-1EC		
Wheel and shaft, 152 mm dia. ⁵⁾	7MH7723-1EN		
60 tooth gear ⁵⁾	7MH7723-1EQ		
Bearing (two required) ⁵⁾	7MH7723-1ER		
Accessories			
	7MH7723-1E		

⁴⁾ Required with RBSS IS.

³⁾ Approval ratings for the proximity switch and IS switch isolator are the property of Pepperl+Fuchs. Copies of these Approval Certificates may be obtained at http://www.siemens.com/processautomation.

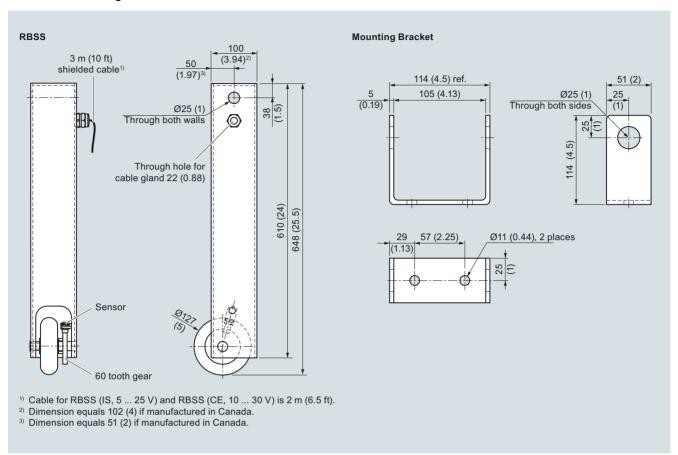
⁵⁾ For use with old style RBSS PBD-51033452.

⁶⁾ Switch isolator required.

Belt WeighingSpeed sensors

Milltronics RBSS

Dimensional drawings



RBSS, dimensions in mm (inch)

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.

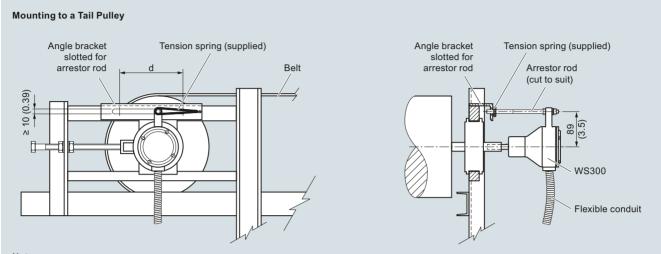
It is directly coupled to a rotating tail or bend pulley shaft to ensure accurate belt-travel readout, eliminating problems caused by belt slippage or material build-up. The WS300 converts shaft rotation into a pulse train of 32, 256, 1 000, or 2 000 pulses per revolution using a high precision rotatry 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

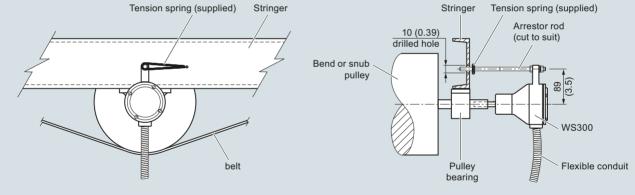


Notes:

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

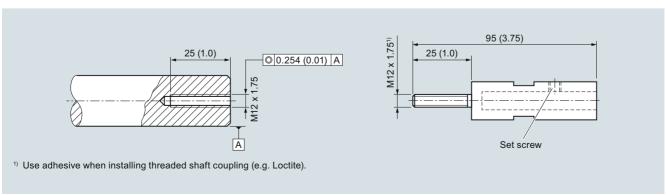


Notes:

When mounting to a bend or a snub pulley only, a 10 mm (0.39 inch) drilled hole is required for the arrestor rod.

SITRANS WS300, dimensions in mm (inch)

Mounting using optional threaded shaft coupling



WS300 mounting using threaded shaft coupling, dimensions in mm (inch)

Speed sensors

SITRANS WS300

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	 Unidirectional open collector, NPN, sinking output Standard: 1030 V DC, 25 mA max. IS: NAMUR NC, load current, 015 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
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	Rated NEMA 4X, Type 4X, IP65Painted aluminumStainless steel (optional)
Power supply	 Standard: 10 30 V DC, 60 mA max. IS: 5 16 V DC, 25 mA max. (from IS switch isolator)
Cable	
Recommended	 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)

SITRANS WS300	
Approvals	
WS300 Standard	
General	• CE, RCM, EAC, KCC
Hazardous	CSA/FM Class II, Div. 1, Groups E, F, G; Class III ATEX I M1, ATEX II 2D Ex tD A21 IP65 T70 °C MSHA EAC Ex, RTN IEC Ex, Ex tD A21 IP65 T70 °C
WS300 IS (with suitable IS switch isolator or switch amplifier) ¹⁾	ATEX II 1G EEx ia IIC T6 ATEX II 1D Ex iaD 20 T 108 °C CSA/UL: Class I, Div. 1, Groups A, B, C, and D; Class II, Div. 1, Groups E, F, and G; Class III, Div. 1 CE, RCM ²)
Proximity switch approval ratings (Pepperl+Fuchs #NJ0.8-5GM-N)	ATEX II 1G EEx ia IIC T6 ATEX II 1D Ex iaD 20 T 108 °C CSA, UL CE ²⁾
Optional switch isolator (required for WS300 IS) ³⁾ • Pepperl+Fuchs #KFA5-SOT2-Ex2 or #KFA6-SOT2-Ex2	ATEX II (1) G [EEX ia] IIC CSA/UL: Class 1, Div. 1, Groups A, B, C, and D. Class II, Div. 1, Groups E, F, and G, Class III CE ²)
4)	

- 1) Approvals for WS300 IS are based on internally mounted NAMUR proximity switch (Pepperl+Fuchs #NJ0.8-5GM-N) and use of suitable IS switch isolator (amplifier). Please see WS300 operating instructions for more information
- 2) Approvals for WS300 IS are based on internally mounted NAMUR slotted proximity switch (Pepperl+Fuchs #NJ0.8-5GM-N) and use of suitable IS switch isolator (amplifier). Please see WS300 operating instructions for more information.
- 3) Approval ratings for the proximity switch and IS switch isolator are the property of Pepperl+Fuchs. Copies of these approval certificates may be obtained at http://www.siemens.com/processautomation.

Belt WeighingSpeed sensors

SITRANS WS300

Selection and ordering data	Α	rti	cl	e I	No			
SITRANS WS300 Speed sensor	7MH7177-							
Shaft mounted, 0.3 2 000 rpm, with up to 2 000 pulses per revolution.	-					0		
\[\times \text{Click on the Article No. for the online configuration in the PIA Life Cycle Portal.} \]								
Resolution (pulses per revolution)								
32	1							
256	2							
1 000	3							
2 000	4							
Enclosure								
C5-M rated polyester painted aluminum, NEMA 4X		Α						
304 (1.4301) stainless steel, vibra finish NEMA 4X		В						
Approvals								
CSA/FM Class II, Div. 1, Groups E, F, G Class III ATEX II 2D, Ex tD A21 IP65 T70 °C, EAC Ex CE, RCM, IEC Ex, Ex tD A21 IP65 T70 °C			A					
CSA/UL Class I, Div. 1, Groups A, B, C, and D; Class II, Div. 1, Groups E, F, and G; Class III, Div. 1 ATEX II 1G, EEx ia IIC T6, ATEX II 1D Ex iaD 20 T108 °C, CE, RCM ¹⁾²⁾			В					
CE, RCM, EAC, KCC			D					
ATEX I, II M1,1GD, 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 ATEX I M1, IEC Ex M1, MSHA 4 ²⁾			E					
Connections								
Standard, up to 2 integrators				1				
Multiple, up to 10 integrators				2				
Switch isolator								
Not required					0			
115 V AC ³⁾					1			
230 V AC ³⁾					2			
Further designs	0	rd	er	С	ode	Э		
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	Y	17						
Manufacturer's test certificate: According to EN 10204-2.2	С	11						

	Article No.
Operating instructions	
English	7ML1998-5ML01
Note: the operating instructions should be ordered as a separate item on the order.	
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation	
Spare parts	
Circuit card 32 PPR, up to 2 integrators	7MH7723-1GL
Circuit card 32 PPR, up to 10 integrators	7MH7723-1GK
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
Arrestor 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) ⁴⁾	7MH7723-1JP
Cable for IS speed sensor connection to termination box 3 cond, 22G (order per meter) ⁴⁾	7MH7723-1JQ
Pepperl+Fuchs IS switch isolator, 115 V AC	7MH7723-1EB
Pepperl+Fuchs IS switch isolator, 230 V AC	7MH7723-1EC
1)	10

¹⁾ The Approval Ratings for the Proximity Switch and the IS switch isolator are the property of Pepperl+Fuchs. For current approvals, go to: https://intranet.entry.siemens.com.

²⁾ Approval option B and 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.

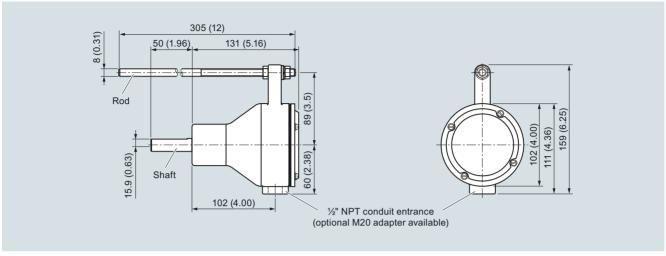
 $^{^{\}rm 3)}$ For use with IS approval option B and E.

⁴⁾ Cable length orders exceeding 150 m (500 ft) may not be supplied as a continuous length.

Speed sensors

SITRANS WS300

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	2	3	4	GND
	+V	CW	CCW	Cmn	
Milltronics BW500	19	16	16	17	N/C
SIWAREX FTC	CI+, 1L+	CI-	CI-	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

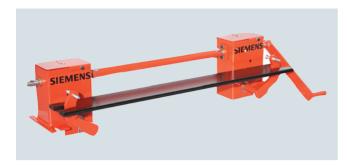
W300 IS	IS Switch Isolator Terminal	Milltronics BW500	SIWAREX FTC	SIWAREX WP241
1	3			
2	1			
	7	16	1L+	1L+
	8	17	CI+	CI+

Connect CI- to Common

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.

Technical specifications

Milltronics MWL weight lifter						
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	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 98/37/EC, CE, RCM					
Motorized option	CE, RCM, EAC, KCC, $\mathrm{CSA}_{\mathrm{C/US}}$					

Accessories

Calibration weight lifter Milltronics MWL

Milltronics MWL Calibration weight lifter Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales ✓ Click on the Article No. for the online	7MH7218-	Milltronics MWL Calibration weight lifter	
with MSI, MMI, MCS, and MUS belt scales ✓ Click on the Article No. for the online		Militionics MWL Calibration weight lifter	7MH7218-
	Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales		
(' '' ' I DIAL'(O I D I I		65 inch, 'A'=74 inch (1 880 mm)	CF
configuration in the PIA Life Cycle Portal.		66 inch, 'A'=75 inch (1 905 mm)	C G
Actuation		67 inch, 'A'=76 inch (1 930 mm)	СН
Manually	1	68 inch, 'A'=77 inch (1 956 mm)	Cl
Belt width and 'A' dimension		69 inch, 'A'=78 inch (1 981 mm)	СК
18 inch, 'A'=27 inch (686 mm) 19 inch, 'A'=28 inch (711 mm)	A A A B	70 inch, 'A'=79 inch (2 007 mm)	CL
20 inch, 'A'=29 inch (737 mm)	AC	71 inch, 'A'=80 inch (2 032 mm)	СМ
21 inch, 'A'=30 inch (762 mm)	A D	72 inch, 'A'=81 inch (2 057 mm)	CN
22 inch, 'A'=31 inch (787 mm)	AE	73 inch, 'A'=82 inch (2 083 mm)	CP
23 inch, 'A'=32 inch (813 mm)	A F	74 inch, 'A'=83 inch (2 108 mm)	CQ
24 inch, 'A'=33 inch (838 mm)	A G	75 inch, 'A'=84 inch (2 134 mm)	CR
25 inch, 'A'=34 inch (864 mm)	ΑH	76 inch, 'A'=85 inch (2 159 mm)	CS
26 inch, 'A'=35 inch (889 mm)	ΑJ	77 inch, 'A'=86 inch (2 184 mm)	СТ
27 inch, 'A'=36 inch (914 mm)	AK	78 inch, 'A'=87 inch (2 210 mm)	CU
28 inch, 'A'=37 inch (940 mm)	A L	79 inch, 'A'=88 inch (2 235 mm) 80 inch, 'A'=89 inch (2 261 mm)	C V
29 inch, 'A'=38 inch (965 mm)	A M	81 inch, 'A'=90 inch (2 286 mm)	DA
30 inch, 'A'=39 inch (991 mm)	A N	82 inch, 'A'=91 inch (2 311 mm)	DB
31 inch, 'A'=40 inch (1 016 mm)	AP	83 inch, 'A'=92 inch (2 337 mm)	DC
32 inch, 'A'=41 inch (1 041 mm)	A Q	84 inch, 'A'=93 inch (2 362 mm)	D D
33 inch, 'A'=42 inch (1 067 mm)	AR	85 inch, 'A'=94 inch (2 388 mm)	DE
34 inch, 'A'=43 inch (1 092 mm)	AS	86 inch, 'A'=95 inch (2 413 mm)	DF
35 inch, 'A'=44 inch (1 118 mm)	A T	87 inch, 'A'=96 inch (2 438 mm)	DG
36 inch, 'A'=45 inch (1 143 mm)	A U	88 inch, 'A'=97 inch (2 464 mm)	DH
37 inch, 'A'=46 inch (1 168 mm)	A V	89 inch, 'A'=98 inch (2 489 mm)	DJ
38 inch, 'A'=47 inch (1 194 mm)	A W	90 inch, 'A'=99 inch (2 515 mm)	DK
39 inch, 'A'=48 inch (1 219 mm)	ВА	91 inch, 'A'=100 inch (2 540 mm)	DL
40 inch, 'A'=49 inch (1 245 mm)	ВВ	92 inch, 'A'=101 inch (2 565 mm)	D M
41 inch, 'A'=50 inch (1 270 mm)	ВС	93 inch, 'A'=102 inch (2 591 mm)	DN
42 inch, 'A'=51 inch (1 295 mm)	B D	94 inch, 'A'=103 inch (2 616 mm)	DP
43 inch, 'A'=52 inch (1 321 mm)	BE	95 inch, 'A'=104 inch (2 642 mm)	D Q
44 inch, 'A'=53 inch (1 346 mm)	BF	96 inch, 'A'=105 inch (2 667 mm)	DR
45 inch, 'A'=54 inch (1 372 mm)	B G	No width parts ³⁾	хх
46 inch, 'A'=55 inch (1 397 mm)	ВН	Weight type	
47 inch, 'A'=56 inch (1 422 mm)	BJ	None	0 0
48 inch, 'A'=57 inch (1 448 mm)	B K	For use with flat bar weights (weights not ncluded)	1 1
49 inch, 'A'=58 inch (1 473 mm)	BL	Width based on belt width	
50 inch, 'A'=59 inch (1 499 mm)	B M	3 inch integrated round bar weight	3 1
51 inch, 'A' =60 inch (1 524 mm)	BN	(18 29 inch, 15.9 22.7 kg) 3 inch integrated round bar weight	3 2
52 inch, 'A' =61 inch (1 549 mm)	BP	(30 41 inch, 26.8 33.6 kg)	3 2
53 inch, 'A'=62 inch (1 575 mm) 54 inch, 'A'=63 inch (1 600 mm)	B Q B R	3 inch integrated round bar weight	3 3
54 inch, 'A'=63 inch (1 600 mm) 55 inch, 'A'=64 inch (1 626 mm)	BS	(42 53 inch, 37.7 44.5 kg)	
56 inch, 'A'=65 inch (1 626 mm)	ВТ	3 inch integrated round bar weight (54 65 inch, 48.6 58.6 kg)	3 4
57 inch, 'A'=66 inch (1 676 mm)	BU	3 inch integrated round bar weight	3 5
58 inch, 'A'=67 inch (1 702 mm)	ВV	(66 77 inch, 59.5 69.5 kg)	
59 inch, 'A'=68 inch (1 727 mm)	ВW	3 inch integrated round bar weight (78 89 inch, 70.4 80.4 kg)	3 6
60 inch, 'A'=69 inch (1 753 mm)	CA	3 inch integrated round bar weight	3 7
61 inch, 'A'=70 inch (1 778 mm)	СВ	(90 96 inch, 81.3 86.8 kg)	
62 inch, 'A'=71 inch (1 803 mm)	cc	4 inch integrated round bar weight	4 1
63 inch, 'A'=72 inch (1 829 mm)	CD	(18 29 inch, 23.3 34.3 kg)	
64 inch, 'A'=73 inch (1 854 mm)	CE		

Accessories

Calibration weight lifter Milltronics MWL

Selection and ordering data	Article No.
Milltronics MWL Calibration weight lifter	7MH7218-
Mechanical calibration weight lifter designed for use with MSI, MMI, MCS, and MUS belt scales	
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
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.	

	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 instruction	
All literature is available to download for free, in a range of languages, at	
https://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) 0 1000 1 1000 1 1000 1	

¹⁾ One MWL is required for each scale (MMI-2 requires 2 MWL).

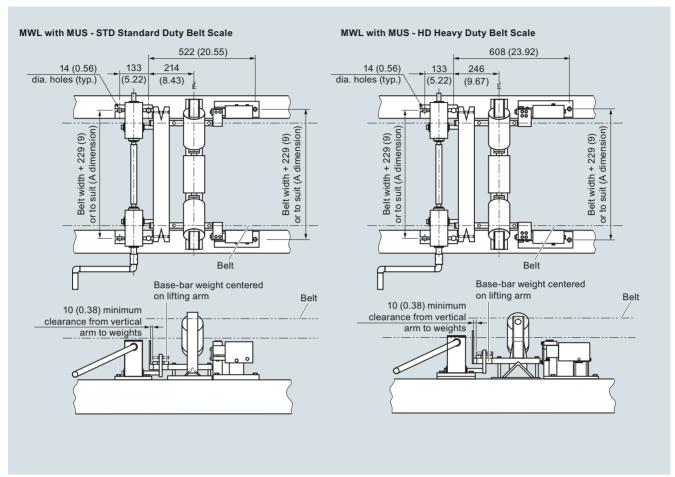
²⁾ Select motor mounting, order code options M30 or M31.

³⁾ Available with weight type option 00 only.

Accessories

Calibration weight lifter Milltronics MWL

Dimensional drawings

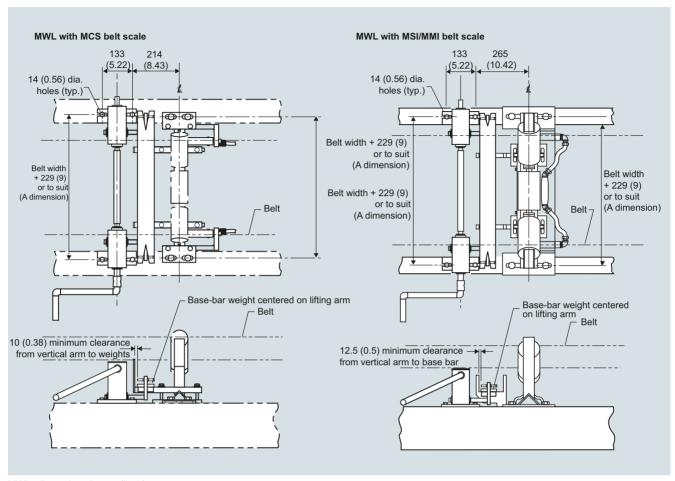


MWL, dimensions in mm (inch)

Accessories

Calibration weight lifter Milltronics MWL

Dimensional drawings (continued)



MWL, dimensions in mm (inch)

Accessories

Milltronics flat bar calibration weights

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	Α	rti	cle	1 (lo.			_
Milltronics Flat bar calibration weights.	71	MH	171	12	7-			
Designed for use with Milltronics belt scales.								
\ \times Click on the Article No. for the online configuration in the PIA Life Cycle Portal.								
Bar width, belt width and A dimension, weight							П	
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	В	D					
3 inch, 48 inch, A=57 inch (1 448 mm), 10.41 kg	1	В	K					
3 inch, 54 inch, A=63 inch (1 600 mm), 11.57 kg	1	В	R					
3 inch, 60 inch, A=69 inch (1 753 mm), 12.73 kg	1	С	A					
3 inch, 66 inch, A=75 inch (1 905 mm), 13.89 kg	1	С	G					
3 inch, 72 inch, A=81 inch (2 057 mm), 15.05 kg	1	С	N					
3 inch, 78 inch, A=87 inch (2 210 mm), 16.21 kg	1	С	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	В	D					
4 inch, 48 inch, A=57 inch (1 448 mm), 13.89 kg	2	В	K					
4 inch, 54 inch, A=63 inch (1 600 mm), 15.42 kg	2	В	R					
4 inch, 60 inch, A=69 inch (1 753 mm), 16.97 kg	2	С	A					
4 inch, 66 inch, A=75 inch (1 905 mm), 18.52 kg	2	С	G					
4 inch, 72 inch, A=81 inch (2 057 mm), 20.07 kg	2	С	N					
4 inch, 78 inch, A=87 inch (2 210 mm), 21.62 kg	2	С	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				

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.

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
ldler	Flat to 45° troughed idlers
Max belt speed	5 m/s 1 000 fpm
Mounting Connected to conveyor at s end of chain at both sides for loading.	
	Storage and application with test chain storage reel.
Approvals	CE, RCM, EAC, KCC

Accessories

Test chain

Selection and ordering data	ļ	۱۲	ic	le l	No		
Test chain	7	M	Н7	16	1-		Test chain
Roller test chains are used for belt scale calibration when material tests are not practical.	C	•	ı		0		Roller test chains ar when material tests
							25 lb/ft (37.2 kg/m),
5 lb/ft (7.4 kg/m), 6 inch pitch		H		H			4 7 ft (1.2 2.1 r
4 7 ft (1.2 2.1 m)		,		۱ 1			8 11 ft (2.4 3.4
8 11 ft (2.4 3.4 m)				2			12 15 ft (3.7 4.
12 15 ft (3.7 4.6 m)		,		3			16 19 ft (4.9 5.
16 19 ft (4.9 5.8 m)		4		4			20 23 ft (6.1 7.
20 23 ft (6.1 7.0 m)		,		5 ا			24 27 ft (7.3 8.
24 27 ft (7.3 8.2 m)		,		ه ۱			28 31 ft (8.5 9.
28 31 ft (8.5 9.4 m)		4	4	7			32 35 ft (9.8 10 30 lb/ft (44.6 kg/m),
32 35 ft (9.8 10.7 m)		4	4	8			4 7 ft (1.2 2.1 r
7.5 lb/ft (11.2 kg/m), 6 inch pitch	7						8 11 ft (2.4 3.4
4 7 ft (1.2 2.1 m)		E	3 E	3 1			12 15 ft (3.7 4.
8 11 ft (2.4 3.4 m)		E	BE	3 2			16 19 ft (4.9 5.
12 15 ft (3.7 4.6 m)		E	3 E	3			20 23 ft (6.1 7.
16 19 ft (4.9 5.8 m)		E	3 E	3 4			24 27 ft (7.3 8.
20 23 ft (6.1 7.0 m)		E	3 E	3 5			28 31 ft (8.5 9.
24 27 ft (7.3 8.2 m)		E	3 E	3 6			32 35 ft (9.8 10
28 31 ft (8.5 9.4 m)		E	3 E	3 7			35 lb/ft (52.1 kg/m),
32 35 ft (9.8 10.7 m)		E	3 E	8			4 7 ft (1.2 2.1 r
10 lb/ft (14.9 kg/m), 4 inch pitch							8 11 ft (2.4 3.4
4 7 ft (1.2 2.1 m)				1			12 15 ft (3.7 4.
8 11 ft (2.4 3.4 m)				2			16 19 ft (4.8 5.
12 15 ft (3.7 4.6 m)				3			20 23 ft (6.1 7.
16 19 ft (4.9 5.8 m)				4			24 27 ft (7.3 8.
20 23 ft (6.1 7.0 m)				5			28 31 ft (8.5 9.
24 27 ft (7.3 8.2 m)				6			32 35 ft (9.8 10
28 31 ft (8.5 9.4 m)				7			40 lb/ft (59.5 kg/m),
32 35 ft (9.8 10.7 m)	4	١		8 \$			4 7 ft (1.2 2.1 r
15 lb/ft (22.3 kg/m), 4 inch pitch		l,		1			8 11 ft (2.4 3.4
4 7 ft (1.2 2.1 m) 8 11 ft (2.4 3.4 m)				2			12 15 ft (3.7 4.
12 15 ft (3.7 4.6 m)							16 19 ft (4.9 5.
16 19 ft (4.9 5.8 m)				3 4			20 23 ft (6.1 7.
20 23 ft (6.1 7.0 m)				5			24 27 ft (7.3 8.
24 27 ft (7.3 8.2 m)				6			28 31 ft (8.5 9.
28 31 ft (8.5 9.4 m)				7			32 35 ft (9.8 10
32 35 ft (9.8 10.7 m)				8 (45 lb/ft (67.0 kg/m),
20 lb/ft (29.8 kg/m), 4 inch pitch	-						4 7 ft (1.2 2.1 r
4 7 ft (1.2 2.1 m)		E	E	1			8 11 ft (2.4 3.4
8 11 ft (2.4 3.4 m)				2			12 15 ft (3.7 4. 16 19 ft (4.9 5.
12 15 ft (3.7 4.6 m)				3			20 23 ft (6.1 7.
16 19 ft (4.9 5.8 m)		E	E	4			24 27 ft (7.3 8.
20 23 ft (6.1 7.0 m)		E	E	5			28 31 ft (8.5 9.
24 27 ft (7.3 8.2 m)		E	E	6			32 35 ft (9.8 10
28 31 ft (8.5 9.4 m)		E	E	7			00 // (0.0 //
32 35 ft (9.8 10.7 m)		E	E	8			
			1				

Test chain 7MH7161-7 Roller test chains are used for belt scale calibration when material tests are not practical. 0 ■ ■ 0 25 lb/ft (37.2 kg/m), 4 inch pitch FF 1 4 7 ft (1.2 2.1 m) FF 2 12 15 ft (3.7 4.6 m) FF 3 16 19 ft (4.9 5.8 m) FF 4 20 23 ft (6.1 7.0 m) FF 5 24 27 ft (7.3 8.2 m) FF 6 28 31 ft (8.5 9.4 m) FF 7 30 lb/ft (44.6 kg/m), 4 inch pitch FF 7 4 7 ft (1.2 2.1 m) GG 1 8 11 ft (2.4 3.4 m) GG 2 12 15 ft (3.7 4.6 m) GG 3 16 19 ft (4.9 5.8 m) GG 4 20 23 ft (6.1 7.0 m) GG 5 24 27 ft (7.3 8.2 m) GG 6 28 31 ft (8.5 9.4 m) GG 7 29 35 ft (9.8 10.7 m) GG 6 28 31 ft (8.5 9.4 m) HH 1 4 7 ft (1.2 2.1 m) HH 1 8 11 ft (2.4 3.4 m) HH 2 12 15 ft (3.7 4.6 m) HH 4 10 19 ft (4.9 5.8 m) HH		A	rti	cl	e No		
when material tests are not practical. 25 lb/ft (37.2 kg/m), 4 inch pitch 4 7 ft (1.2 2.1 m) 8 11 ft (2.4 3.4 m) 15	Test chain	7MH7161-					
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	32 35 ft (9.8 10.7 m)		K	K	8		

Belt Weighing Accessories

Test chain

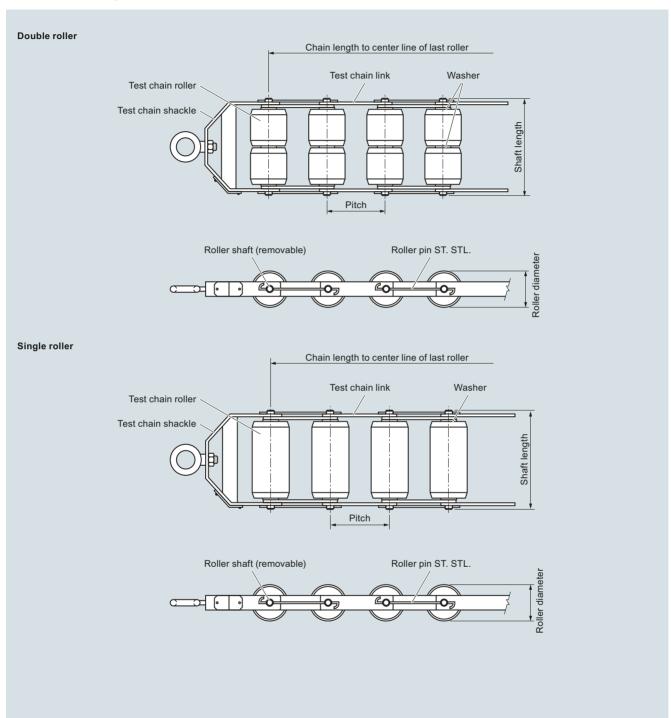
Selection and ordering data	Article No.
Test chain	7MH7161-
Roller test chains are used for belt scale calibration when material tests are not practical.	0 = = 0
✓ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
50 lb/ft (74.4 kg/m), 4 inch pitch	
4 7 ft (1.2 2.1 m)	LL1
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
60 lb/ft (89.3 kg/m), 6 inch pitch	
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
70 lb/ft (104.2 kg/m), 6 inch pitch	
4 7 ft (1.2 2.1 m)	PP1
8 11 ft (2.4 3.4 m)	PP2 PP3
12 15 ft (3.7 4.6 m)	PP3
16 19 ft (4.9 5.8 m) 20 23 ft (6.1 7.0 m)	PP5
24 27 ft (7.3 8.2 m)	PP6
28 31 ft (8.5 9.4 m)	PP7
32 35 ft (9.8 10.7 m)	P P 8
80 lb/ft (119.1 kg/m), 6 inch pitch	- ' ' ' '
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
90 lb/ft (133.9 kg/m), 6 inch pitch	
4 7 ft (1.2 2.1 m)	RR1
8 11 ft (2.4 3.4 m)	RR2
12 15 ft (3.7 4.6 m)	RR3
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)	RR6
28 31 ft (8.5 9.4 m)	RR7
32 35 ft (9.8 10.7 m)	R R 8

Article No.					
Test chain	7MH7161-				
Roller test chains are used for belt scale calibration when material tests are not practical.	0 = = 0				
100 lb/ft (148.8 kg/m), 6 inch pitch					
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				
Further models	Order Code				
Please add "- \mathbf{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 https://www.siemens.com/weighing/documentation					

Accessories

Test chain

Dimensional drawings

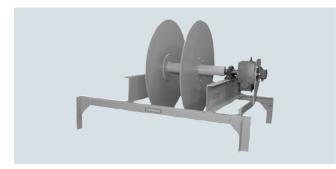


Milltronics test chain dimensions

Accessories

Test chain storage reel

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

Technical specifications

Test chain storage reel	
Medium conditions	
Operating temperature	-10 +60 °C (14 140 °F)
Design	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, RCM, EAC, KCC

Selection and ordering data

Article No. 7MH7163-

Test chain storage reelsTest chain storage reels are used to store roller test chains.

∠ 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)

6 inch (152 mm) for chain sizes: 7.5 lb/ft (11.2 kg/m)

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)

8 inch (203 mm) for chain sizes: 30 lb/ft (44.6 kg/m), 35 lb/ft (52.1 kg/m)

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)

12 inch (305 mm) for chain sizes:55 lb/ft (81.9 kg/m),

13 inch (330 mm) for chain sizes: 70 lb/ft (104.2 kg/m)

14 inch (356 mm) for chain sizes: 80 lb/ft (119.1 kg/m), 100 lb/ft (148.8 kg/m)

16 inch (406 mm) for chain sizes: 90 lb/ft (133.9 kg/m)

C dimension

54 inch (1 372 mm)

55 inch (1 397 mm)

25 inch (635 mm) 26 inch (660 mm) 27 inch (686 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 G 31 inch (787 mm) A G 32 inch (813 mm) A J 34 inch (838 mm) A J 35 inch (889 mm) A L 36 inch (914 mm) A M 37 inch (940 mm) A N 38 inch (965 mm) A P 39 inch (991 mm) A Q 40 inch (1 016 mm) A T 41 inch (1 041 mm) A C 41 inch (1 041 mm) A C 42 inch (1 188 mm) A C 43 inch (1 198 mm) A C 45 inch (1 143 mm) A C 46 inch (1 143 mm) A C 47 inch (1 194 mm) B B C 48 inch (1 219 mm) B C 49 inch (1 245 mm) 50 inch (1 225 mm) B G S S inch (1 321 mm) B G S inch (1 321 mm) B G	26 inch (660 mm) 27 inch (686 mm) 28 inch (711 mm) 29 inch (737 mm) 30 inch (762 mm) 31 inch (787 mm) 32 inch (813 mm) 33 inch (838 mm) 34 inch (864 mm) 35 inch (864 mm) 36 inch (914 mm) 37 inch (940 mm) 38 inch (965 mm) 39 inch (1016 mm) 40 inch (1 016 mm) 41 inch (1 041 mm) 42 inch (1 041 mm) 43 inch (1 092 mm) 44 inch (1 118 mm) 45 inch (1 118 mm) 46 inch (1 118 mm) 47 inch (1 194 mm) 48 inch (1 219 mm) 49 inch (1 219 mm) 40 inch (1 219 mm) 41 inch (1 245 mm) 42 inch (1 295 mm) 43 inch (1 295 mm) 44 inch (1 295 mm) 45 inch (1 295 mm) 46 inch (1 295 mm) 47 inch (1 295 mm) 48 inch (1 295 mm) 49 inch (1 295 mm) 40 inch (1 295 mm) 41 inch (1 295 mm) 42 inch (1 321 mm) 43 inch (1 295 mm) 44 inch (1 295 mm) 45 inch (1 295 mm) 46 inch (1 295 mm) 47 inch (1 295 mm) 48 inch (1 295 mm) 49 inch (1 295 mm) 49 inch (1 295 mm) 49 inch (1 321 mm) 40 inch (1 321 mm) 41 inch (1 321 mm) 42 inch (1 321 mm) 43 inch (1 321 mm) 44 inch (1 321 mm) 45 inch (1 321 mm) 46 inch (1 321 mm) 47 inch (1 321 mm) 48 inch (1 321 mm) 49 inch (1 321 mm) 40				
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BJ

ВК

Accessories

Test chain storage reel

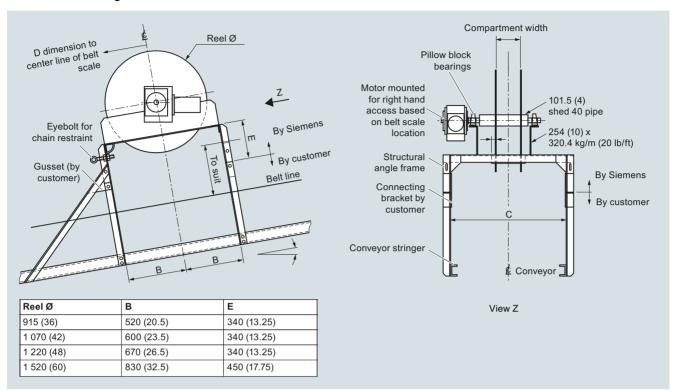
rest chain storage reel	
Selection and ordering data	Article No.
Test chain storage reels	7MH7163-
Test chain storage reels are used to store roller test chains.	
56 inch (1 422 mm)	BL
57 inch (1 448 mm)	ВМ
58 inch (1 473 mm)	BN
59 inch (1 499 mm)	ВР
60 inch (1 524 mm)	B Q
61 inch (1 549 mm)	BR
62 inch (1 575 mm)	BS
63 inch (1 600 mm)	ВТ
64 inch (1 626 mm)	BU
65 inch (1 651 mm)	BV
66 inch (1 676 mm)	BW
67 inch (1 702 mm)	C A
68 inch (1 727 mm)	СВ
69 inch (1 753 mm)	СС
70 inch (1 778 mm)	C D
71 inch (1 803 mm)	CE
72 inch (1 829 mm)	CF
73 inch (1 854 mm)	C G
74 inch (1 880 mm)	СН
75 inch (1 905 mm)	CJ
76 inch (1 930 mm)	CK
77 inch (1 956 mm)	CL
78 inch (1 981 mm)	C M
79 inch (2 007 mm)	C N C P
80 inch (2 032 mm) 81 inch (2 057 mm)	CQ
82 inch (2 083 mm)	CR
83 inch (2 108 mm)	cs
84 inch (2 134 mm)	СТ
85 inch (2 159 mm)	CU
86 inch (2 184 mm)	cv
87 inch (2 210 mm)	cw
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)	DE
93 inch (2 362 mm)	D F
94 inch (2 388 mm)	D G
95 inch (2 413 mm)	DH
96 inch (2 438 mm)	DJ
97 inch (2 464 mm)	DK
98 inch (2 489 mm)	DL
99 inch (2 515 mm)	DM
100 inch (2 540 mm)	D N
101 inch (2 565 mm)	D P D Q
102 inch (2 591 mm) 103 inch (2 616 mm)	DR
104 inch (2 642 mm)	DS
105 inch (2 667 mm)	DT
• /	

		Article No.							
Test chain storage reels	7	MH	1710	33.					
Test chain storage reels are used to store roller test chains.		-		ı	ľ				
3 Phase motor voltage							П		
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				O)				
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)							Α		
1 HP (0.75 kW)							В		
1.5 HP (1.12 kW)							С		
2 HP (1.5 kW)							D		
3 HP (2.24 kW)							Ε		
5 HP (3.73 kW)							F		
7.5 HP (5.59 kW)							G		
10 HP (7.5 kW)							н		
15 HP (11.19 kW)							J		
20 HP (14.91 kW)							K		
Operating instructions									
All literature is available to download for free, in a range of languages, at									
https://www.siemens.com/weighing/documentation									
Accessories									
Local operator station: forward, reverse, e-stop, off/on	7	MH	177	23.	-1,	JΥ			
Note: motor starter and voltage transformer required for use with controller, 120 V AC required for controller									

Accessories

Test chain storage reel

Dimensional drawings



Milltronics test chain storage reel, dimension in mm (inch)

4/53

Accessories

Bend pulleys

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.

Technical specifications

Milltronics 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 (1/4 inch) rubber lagged option
Bearings	 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, RCM, EAC, KCC

Accessories

Bend pulleys

Selection and ordering data	Article No.		Article No.
Bend pulleys, 4.5/6 inch design	7MH7170-	Bend pulleys, 6.5 inch design	7MH7171-
Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 4.5 inch or 6 inch diameter.	o	Return belt driven pulley provides rotation for shaft-driven speed sensors. Available in 6.5 inch diameter.	0
Size		Size	
4.5 inch diameter self cleaning ¹⁾	1	6 inch diameter with 1/4 inch lagging	3
6 inch diameter	2	Belt width and 'A' dimension	
Belt width and 'A' dimension		18 inch, A=27 29.5 inch (686 749 mm),	Α
18 inch, A=27 29.5 inch (686 749 mm), 20 inch, A=29 inch (737 mm)	Α	20 inch, A=29 inch (737 mm) 24 inch, A=33 35.5 inch (838 901 mm)	В
24 inch, A=33 35.5 inch (838 901 mm)	В	30 inch, A=39 41.5 inch (991 1 054 mm)	C
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
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
42 inch, A=51 inch (1 295 mm)	G	48 inch, A=57 59.5 inch (1 448 1 511 mm)	Н
48 inch, A=57 59.5 inch (1 448 1 511 mm)	Н	54 inch, A=63 65.5 inch (1 600 1 663 mm)	K
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1 200 mm, A=56.6 59.2 inch (1 440 1 504 mm)	т	1 400 mm, A=64.6 67.1 inch (1 640 1 704 mm)	U
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
1 450 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
1 600 mm, A=72.4 74.9 inch (1 840 1 904 mm)	w	Finish	
Finish		Standard, C5-M rated polyester painted mild steel	A
Standard, C5-M rated polyester painted mild steel ²⁾	Α	316 (1.4401) stainless steel	В
316 (1.4401) stainless steel ³⁾	В	316 (1.4401) stainless steel with corrosion resistant	С
316 (1.4401) stainless steel ⁴⁾	С	bearings	_
Epoxy painted ⁵⁾	D	Bearings	
Epoxy painted, with corrosion resistant bearings ⁵⁾	E	Imperial size	0
Bearings		Metric size	1
Imperial size	0	No bearings	2
Metric size	1	Operating instructions	
No bearings	2	All literature is available to download for free, in a range of languages, at	
Operating instructions		https://www.siemens.com/weighing/documentation	
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation		 Available with belt width and "A" dimension options Not painted with 4.5 inch diameter model. 316 (1.4401) stainless steel shaft on 4.5 inch diame 	

N ... T 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.

Accessories

Bend pulleys

Selection and ordering data	Article No.	
Bend pulleys, 8 inch design	7MH7187-	Bend pulleys, 8.5 inch design
Return belt driven pulley provides rotation for shaft- driven speed sensors. Available in 8 inch diameter.	0	Return belt driven pulley provides rotation for shaft- driven speed sensors. Available in 8.5 inch diamete
		Click on the Article No. for the online configuration in the PIA Life Cycle Portal.
Size		Size
8 inch diameter	4	8 inch diameter with 1/4 inch lagging
Belt width and 'A' dimension		Belt width and 'A' dimension
48 inch, A=57 59.5 inch (1 447.8 1 511 mm)	Α	48 inch, A=57 59.5 inch (1 447.81 511 mm)
54 inch, A=63 65.5 inch (1 600.2 1 663 mm)	В	54 inch, A=63 65.5 inch (1 600.2 1 663 mm)
60 inch, A=69 71.5 inch (1 752.6 1 816 mm)	С	60 inch, A=69 71.5 inch (1 752.6 1 816 mm)
66 inch, A=75 77.5 inch (1 905 1 968 mm)	E	66 inch, A=75 77.5 inch (1 905 1 968 mm)
72 inch, A=81 83.5 inch (2 057 2 121 mm)	G	72 inch, A=81 83.5 inch (2 057 2 121 mm)
78 inch, A=87 89.5 inch (2 210 2 273 mm)	н	78 inch, A=87 89.5 inch (2 210 2 273 mm)
84 inch, A=93 95.5 inch (2 362 2 426 mm)	J	84 inch, A=93 95.5 inch (2 362 2 426 mm)
90 inch, A=99 101.5 inch (2 515 2 578 mm)	K	90 inch, A=99 101.5 inch (2 515 2 578 mm)
96 inch, A=105 107.5 inch (2 667 2 731 mm)	L	96 inch, A=105 107.5 inch (2 667 2 731 mm)
1 200 mm, A=56.6 59.2 inch (1 440 1 504 mm)	М	1 200 mm, A=56.6 59.2 inch (1 440 1 504 mm)
1 400 mm, A=64.6 67.1 inch (1 640 1 704 mm)	N	1 400 mm, A=64.6 67.1 inch (1 640 1 704 mm)
1 450 mm, A=66.5 69.0 inch (1 690 1 754 mm)	P	1 450 mm, A=66.5 69.0 inch (1 690 1 754 mm)
1 600 mm, A=72.4 74.9 inch (1 840 1 904 mm)	Q	1 600 mm, A=72.4 74.9 inch (1 840 1 904 mm)
1 800 mm, A=80.3 82.8 inch (2 040 2 104 mm)	R	1 800 mm, A=80.3 82.8 inch (2 040 2 104 mm)
2 000 mm, A=88.2 90.7 inch (2 240 2 304 mm)	s	2 000 mm, A=88.2 90.7 inch (2 240 2 304 mm)
2 200 mm, A=96.1 98.6 inch (2 440 2 504 mm)	Т	2 200 mm, A=96.1 98.6 inch (2 440 2 504 mm)
2 400 mm, A=103.9 106.4 inch (2 640 2 704 mm)	U	2 400 mm, A=103.9 106.4 inch (2 640 2 704 mm)
2 500 mm, A=107.9 110.4 inch (2 740 2 804 mm)	V	2 500 mm, A=107.9 110.4 inch (2 740 2 804 mm)
Finish		Finish
Standard, C5-M rated polyester painted mild steel	A	Standard, C5-M rated polyester painted mild steel
316 (1.4401) stainless steel	В	316 (1.4401) stainless steel
316 (1.4401) stainless steel with corrosion resistant bearings	С	316 (1.4401) stainless steel with corrosion resistant bearings
Epoxy painted	D	Bearings
Epoxy painted with corrosion resistant bearings	E	Imperial size
Bearings		Metric size
Imperial size	0	No bearings
Metric size	1	Operating instructions
No bearings	2	All literature is available to download for free,
Operating instructions		in a range of languages, at https://www.siemens.com/weighing/documentation
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation		po.,, www.sichiono.com, weigning/documentation

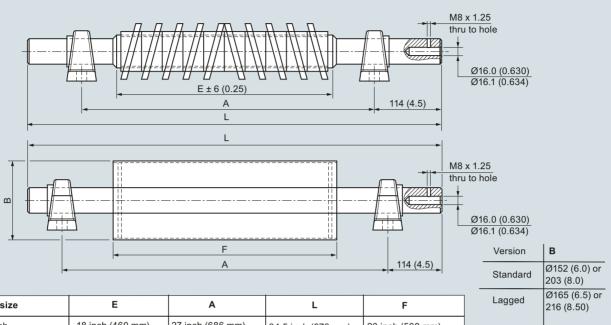
Bend pulleys, 8.5 inch design	7MH7188-
Return belt driven pulley provides rotation for shaft- driven speed sensors. Available in 8.5 inch diameter.	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Size	
8 inch diameter with ¼ inch lagging	5
Belt width and 'A' dimension	
48 inch, A=57 59.5 inch (1 447.81 511 mm)	Α
54 inch, A=63 65.5 inch (1 600.2 1 663 mm)	В
60 inch, A=69 71.5 inch (1 752.6 1 816 mm)	С
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)	н
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)	М
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)	Т
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	В
316 (1.4401) stainless steel with corrosion resistant bearings	С
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	
in a range of languages, at	

Article No.

Accessories

Bend pulleys

Dimensional drawings



Belt size	E	Α	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)	98.5 inch (2 502 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 inch)	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)		103.5 inch (2 630 mm)	89.6 inch (2 275 mm)
2 400 mm		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)

Accessories

Belt scale peripherals

Selection and ordering	data	
Description	Article No.	
Totalizer		3
150 x 150 x 100D NEMA 4 /IP65 enclosure	7MH7723-1GG	
Panel mount totalizer	7MH7726-1AU	B
		7.54
		-
Ticket printers	714117700 4 4 17	(4900)
Ticket printer, TM-U295, 100 240 V	7MH7726-1AK	
Ribbon Ink EPSON TM-U295	7MH7723-1GE	
Printer cables		
Printer cables for	7MH7726-1AH	
TM-U295 and TMU220B, RS 232, DB25 open end		
RS 485 RS 232 DB25 male converters for	7MH7726-1AJ	
TMU295 and TMU220B		
printer		
Portable Printer FastMark M4DT, USB/BT	A5E36716278	
Tastivian M4D1, OSD/D1	A3L30710270	
Roll printer		
Roll printer, TMU220B, 100 240 V	7MH7726-1AT	
(required for German and		EPEON
Spanish printing)		
Chart recorder		SIEMENS
Totalizer with Hi/Low alarm	7MH7726-1AL	
lights, 584 x 483 x 203D NEMA 4 /IP65 enclosure		
		0
		A.II.IIIIIIII
SIREC D200 display	7ND41211AA011	
recorder	AA2	STREET
		Pro g monditum;
		Mark Contraction of the Contract

Description	Article No.	
Terminal box 1, 2, or 4 load cell(s) / speed sensor, 150 x 200 x 100 NEMA 4 /IP65 enclosure		(CO
Mild steel	7MH7723-1ND	
Stainless steel	7MH7723-1NE	
Termination board spare	A5E03623963	
Note: For MMI-3, 2 terminal boxes are required		
Belt scale connection cable	7MH7723-1JR	
6 cond, 20 G (order per meter)		
Note: 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).		
Cable length orders exceeding 150 m (500 ft) may not be supplied as a continuous length.		
Belt scale installation kit	7MH7723-1KC	
Note: Comes with idler shims, alignment wire, and spacer blocks for idler alignment		
Inclinometer	7MH7726-1AP	
Celesco model IT9420		

Accessories

Belt scale peripherals

Selection and ordering data

Selection and ordering	uala	
Description	Article No.	
Belt scale spare load cells		
For Milltronics Torque shaft belt scale (MTS), model CD or CFT, mounting hardware included		I I I I I I I I I I I I I I I I I I I
50 lb (22.7 kg)	7MH7725-1BA	
75 lb (34 kg)	7MH7725-1BB	
100 lb (45.4 kg)	7MH7725-1BC	
150 lb (68 kg)	7MH7725-1BD	
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	
For MSI belt scale with round static beam, low-profile, mounting hardware included, model 60048-XXX-0137 or 60048-XXX-0129		
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	
For retrofitting current and older version of MSI with Group 4, mounting hardware included, sensortronics 60048-xxx-0138, or RTI. Model 6500		
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	
For retrofitting older version of MSI C462 (transducers incorporated), mounting hardware included		
50 lb (22.7 kg)	PBD-23900005	
100 lb (45.4 kg)	PBD-23900010	
250 lb (113.4 kg)	PBD-23900012	

Description	Article No.	
For retrofitting older MMW & MCS belt scales that do not have a conduit adaptor, belt scale mounting hardware included		Fine g
50 lb	7MH7725-1BN	9
100 lb	7MH7725-1BP	6
250 lb	7MH7725-1BQ	
For retrofitting older MIC belt scale, mounting hardware included	Replace with 50 lb	Ť
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	
For MUS HD aluminum model 7MH71202, mounting hardware included		
50 kg (110.2 lb)	7MH7725-1BW	
100 kg (220.4 lb)	7MH7725-1BX	
150 kg (330.7 lb)	7MH7725-1BY	
200 kg (440.9 lb)	7MH7725-1CA	
300 kg (661.4 lb)	7MH7725-1CB	
500 kg (1 102.3 lb)	7MH7725-1CC	
For WD600 model 7MH7185		
25 lb (11.3 kg)	PBD-23900224	110
50 lb (22.7 kg)	PBD-23900225	0

Notes

5

Weighfeeders



5/2	Introduction
5/4	SITRANS WW100
5/4	Introduction
5/6	Ordering data
5/9	Dimensional drawings and schematics
5/11	SITRANS WW200
5/11	Introduction
5/13	Open style
5/22	Enclosed style
5/40	Accessories and spare parts
5/44	Dimensional drawings and schematics
5/46 5/46	Weighfeeder accessories Weighfeeder peripherals

Weighfeeders

Introduction

Overview

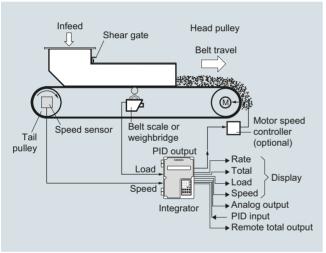
SITRANS weighfeeders from Siemens can improve the accuracy of processing, blend consistencies, accountability, and record keeping. All weighfeeders come standard with a belt weigh bridge and speed sensor. An integrator is required to complete the system.

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.

Weighfeeders Introduction

Technical specifications

Criteria	SITRANS WW100	SITRANS WW200	
See page	5/4	5/11	
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	 Stainless steel options meet FDA requirements for 	 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.

Introduction

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.

Introduction

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 Non-linearity Non-repeatability	2 mV/V ± 0.02 % of rated output ± 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: IP64Stainless 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 or driven pulley
Belt speed	0.005 0.36 m/s (1 70 fpm)
Belt support	Slider bed frame

SITRANS WW100	
Belting	Polyester carcass with polyurethane
Detailing	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) 10/2011 and (EC) 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 (EU) 10/2011 and (EC) 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)
Belt cleaning	PE-HD blade type with counter- weight at the head pulley for cleaning product side of belt Return plow
Servomotor	SIMOTICS Servomotor; optionally including SINAMICS \$120 drive, PROFIBUS DP or ProfiNet option, length of motor and communication cables customizable.
Standard gearmotor	Helical-worm geared motor, AC, Efficiency class IE1, IEC or UL-R/ CSA, IP55, incl. PTC, RAL7031, C2 coating acc. EN12944.
Food grade gearmotor	Helical-worm geared motor, AC, Efficiency class IE3, IEC or UL-R/ CSA, IP66, including PTC, corrosion resistant Aluminium housing, sealed surface treatment nsd tupH, 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, D0 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

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.

Ordering data

Selection and ordering data	Article No.		Article No.
SITRANS WW100 Weighfeeder	7MH7180-	SITRANS WW100 Weighfeeder	7MH7180-
Accuracy is \pm 0.25 0.5 %, with capacity up to 25 m³/h (880 ft³/h).		Accuracy is \pm 0.25 0.5 %, with capacity up to 25 m ³ /h (880 ft ³ /h).	
✓ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		Drive configuration SIMOTICS Servomotor incl. SINAMICS control unit	
Add order code Y71 Y73 for all models to specify design data.		with PROFIBUS DP, BOP and power module 200 240 V 1 ph ²⁾	0 A
Frame and enclosure construction		380 480 V 3 ph ²⁾	0 B
304 stainless steel open style	0 B	200 240 V 1 ph, with 5 m (16.4 ft)	1 A
316L stainless steel open style	0 D	communication and power cables	
304 stainless steel enclosed style with painted mild steel enclosure	1 B	380 480 V 3 ph, with 5 m (16.4 ft) communication and power cables	1 B
304 stainless steel enclosed style with 304 stainless steel enclosure	1 D	200 240 V 1 ph, with 10 m (33 ft) communication and power cables	2 A
316L stainless steel enclosed style with painted mild steel enclosure	1 G	380 480 V 3 ph, with 10 m (33 ft) communication and power cables	2 B
316L stainless steel enclosed style with 304 stainless steel enclosure	1 J	200 240 V 1 ph, with 25 m (82 ft) communication and power cables	3 A
316L stainless steel enclosed style with 316L stainless steel enclosure	1 M	380 480 V 3 ph, with 25 m (82 ft) communication and power cables	3 B
Material containment construction		200 240 V 1 ph, with 50 m (164 ft) communication and power cables	4 A
Add order code Y74 and plain text: "Arc radius in inches XX.XXX inch" for options A H		380 480 V 3 ph, with 50 m (164 ft) communication and power cables	4 B
Shear gate inlet and skirtboards 304 stainless steel Shear gate inlet and skirtboards 304 stainless steel	A B	200 240 V 1 ph, with 100 m (328 ft) communication and power cables	5 A
with cover Shear gate inlet and skirtboards 304 stainless steel,	c	380 480 V 3 ph, with 100 m (328 ft) communication and power cables	5 B
#4 polished Shear gate inlet and skirtboards 304 stainless steel,	D	Standard AC gearmotor without drive (Drive required for desired belt speed)	-
#4 polished with cover		Add order code Y76 for electrical style:	
Shear gate inlet and skirtboards 316L stainless steel	E	IEC, UL-R/CSA or CCC. Add order code Y75 reduction ratio in plain text:	
Shear gate inlet and skirtboards 316L stainless steel with cover		"X:1".	
Shear gate inlet and skirtboards 316L stainless steel, #4 polished	G	220 240/380 480 V 3 ph 50/60 Hz AC 575 V 3 ph 60 Hz AC	6 A 6 B
Shear gate inlet and skirtboards 316L stainless steel, #4 polished with cover	н	Food grade AC gearmotor without drive (Drive required for desired belt speed)	
Horseshoe inlet 304 stainless steel 1)	J	Add order code Y76 for electrical style:	
Horseshoe inlet 304 stainless steel, #4 polished ¹⁾	К	IEC, UL-R/CSA or CCC. Add order code Y75 reduction ratio in plain text:	
Horseshoe inlet 316L stainless steel ¹⁾	L	"X:1".	
Horseshoe inlet 316L stainless steel, #4 polished ¹⁾	_ M	220 240/380 480 V 3 ph 50/60 Hz AC food grade gearmotor	7 A
Load cell		575 V 3 ph 60 Hz AC food grade gearmotor	7 B
6 kg (13.2 lb) stainless steel, hermetically sealed	4	SIMOTICS servomotor without accessories	-1
12 kg (26.5 lb) stainless steel, hermetically sealed	5	Control unit, BOP, power module and input choke as	8 A
30 kg (66.1 lb) stainless steel, hermetically sealed Speed sensor	6	well as power and communication cables should be ordered separately.	
1 000 PPR shaft mounted optical encoder	1	Calibration Method	
2 500 PPR shaft mounted optical encoder	2	None	A
1 000 PPR shaft mounted optical encoder, stainless steel	4	1 calibration chain strand approx. 2.41 kg/m (1.62 lb/ft)	В
2 500 PPR shaft mounted optical encoder, stainless steel	5	2 calibration chain strands approx. 4.82 kg/m (3.24 lb/ft)	С
		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

Article No.

Ordering data

Selection and ordering data	Order Code
	0.00.000
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	
https://www.siemens.com/weighing/documentation	

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
10 kg (22 lb) nickel plated steel load cell	7MH7725-1EK
15 kg (33.1 lb) nickel plated steel load cell	7MH7725-1EL
20 kg (44 lb) nickel plated steel load cell	7MH7725-1EM
500 PPR optical encoder ⁴⁾	6FX2001-2PA50
1 000 PPR optical encoder ⁴⁾	6FX2001-2PB00
2 500 PPR optical encoder ⁴⁾	6FX2001-2PC50
30 kg (66.2 lb) nickel plated steel load cell	7MH7725-1EN
500 PPR optical encoder	6FX2001-4QA50
1 000 PPR optical encoder	6FX2001-4QB00
2 500 PPR optical encoder	6FX2001-4QC50
Optical encoder connector	6FX2003-0SU12
Speed encoder plug-in with 3 m cable ⁵⁾	7MH7723-1KM
Optical encoder connector with 20 ft (6 m) of cable ⁶⁾	7MH7723-1KD
Speed Encoder, 1 000 PPR, stainless steel	7MH7723-1HH
Speed Encoder, 2 500 PPR, stainless steel	7MH7723-1HJ
Polyurethane sealing, white	7MH7723-1SF
Polyurethane sealing, blue	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	

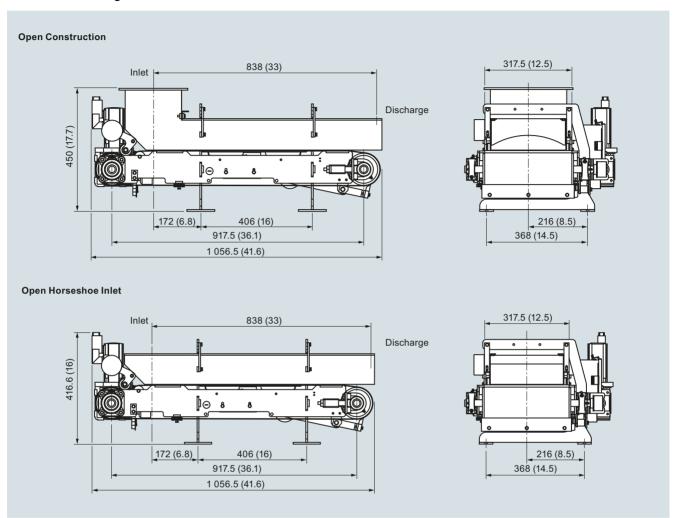
Ordering data

Selection and ordering data	Article No.
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	7MH7723-1SH
Gravimetric tensioning device	7MH7723-1SJ
Telescopers 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 0B ... 0D only.
- ²⁾ Communication and power cables required.
- ³⁾ Available with Material Containment options A ... H only.
- $^{\rm 4)}$ For use with 5 V DC supply from RS 422 circuit card.
- 5) For use with PPR optical encoders: 6FX20012PA50, 6FX20012PB00, 6FX20012PC50.
- 6) For use with PPR optical encoders: 6FX20014QA50, 6FX20014QB00, 6FX20014QC5.
- Available for WW100 weighfeeder, made in Canada prior to 2016; specify Y75 reduction ratio on the order.

Dimensional drawings and schematics

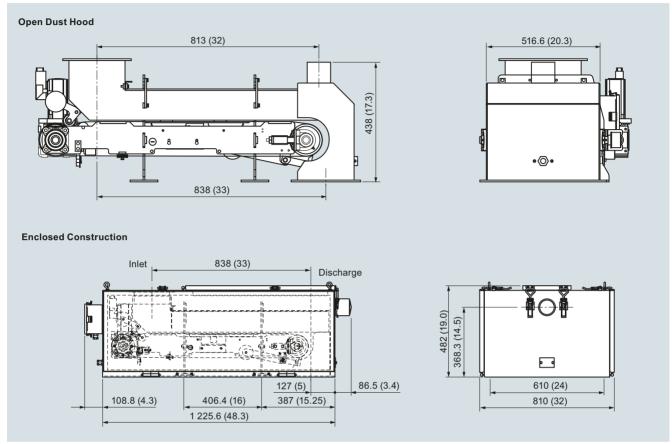
Dimensional drawings



SITRANS WW100, dimensions in mm (inch)

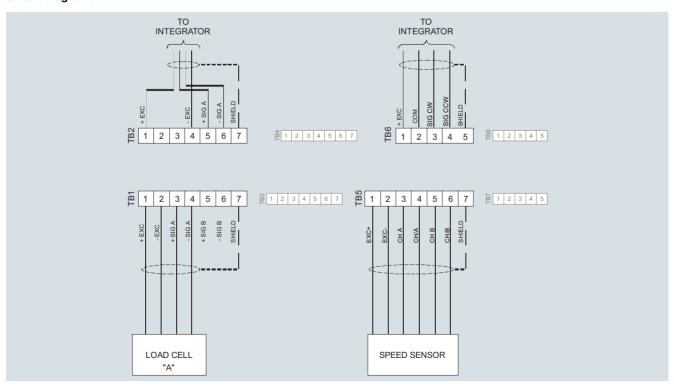
Dimensional drawings and schematics

Dimensional drawings



SITRANS WW100, dimensions in mm (inch)

Circuit diagrams



SITRANS WW100 connections

5

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.

Introduction

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 or nickel plated alloy steel
Degree of protection	Stainless steel: IP68Nickel plated alloy steel: IP66
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V
Non-linearityNon-repeatability	± 0.02 % of rated output ± 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	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: IP64Stainless 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

CITD AND WILLIAM	
SITRANS WW200	
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 (1/4 inch) neoprene 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)
Belt cleaning	 PE-HD blade type with spring tensioning at head pulley Return plow Cleaning brush, optional
Drive motor	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	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) 10/2011 and (EC) 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. Note: weighfeeder as a whole is not approved for hazardous locations only electrical components.

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.

Selection and ordering data	Α	rti	cle	No) .		_
SITRANS WW200 Weighfeeder,	7	MF	173	00-			
painted mild steel, open style Accuracy is ± 0.5 % or better,		۵			-	۵	
with capacity up to 120 m³/h (4 237 ft³/h).							
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							
12 inch (305 mm) belt width							
52 inch (1 321 mm)	0	Α					
60 inch (1 524 mm)	0	В					
68 inch (1 727 mm)	0	С					
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	н					
116 inch (2 946 mm)	0	J					
18 inch (457 mm) belt width							
52 inch (1 321 mm)	1	Α					
60 inch (1 524 mm)	1	В					
68 inch (1 727 mm)	1	С					
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	Н					
116 inch (2 946 mm)	1	J					
24 inch (610 mm) belt width							
52 inch (1 321 mm)	2	Α					
60 inch (1 524 mm)	2	В					
68 inch (1 727 mm)	2	С					
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	Н					
116 inch (2 946 mm)	2	J					
30 inch (762 mm) belt width							
52 inch (1 321 mm)	3	Α					
60 inch (1 524 mm)	3	В					
68 inch (1 727 mm)	3	С					
76 inch (1 930 mm)	3	D					
84 inch (2 134 mm)	3	Ε					
92 inch (2 337 mm)	3	F					
100 inch (2 540 mm)	3	G					
108 inch (2 743 mm)	3	Н					
116 inch (2 946 mm)	3	J					

	Arti	cle No.
SITRANS WW200 Weighfeeder, painted mild steel, open style		17300-
Accuracy is ± 0.5 % or better,		
with capacity up to 120 m ³ /h (4 237 ft ³ /h).		
36 inch (914 mm) belt width		
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	
42 inch (1 067 mm) belt width		
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	
48 inch (1 219 mm) belt width		
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	

Selection and ordering data	Article No.		Article No.
SITRANS WW200 Weighfeeder, painted mild steel, open style Accuracy is ± 0.5 % or better,	7MH7300-	SITRANS WW200 Weighfeeder, painted mild steel, open style Accuracy is ± 0.5 % or better,	7MH7300-
with capacity up to 120 m ³ /h (4 237 ft ³ /h).		with capacity up to 120 m³/h (4 237 ft³/h).	
Material containment construction		Drive configuration	
None	A	Add order code Y75 (reduction ratio) and Y76 (electrical style).	
Add order code Y74 and plain text: "Arc radius in inches XX.XXX inch" for options D L.		Standard AC motor	
Shear gate inlet		0.5 HP (0.37 kW)	0 C
Skirtboards 304 stainless steel	D	220 240/380 480 V 3 ph 50/60 Hz	
Skirtboards 304 stainless steel, with cover	E	0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	0 D
Skirtboards 304 stainless steel, #4 polished	F	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	0 G
Skirtboards 304 stainless steel,	G	1 HP (0.75 kW) 575 V 3 ph 60 Hz	0 Н
#4 polished with cover Skirtboards 316L stainless steel	н	Food grade AC motor	
Skirtboards 316L stainless steel, with cover	J	0.25 HP (0.18 kW) 220 240/380 480 V 3 ph	4 A
Skirtboards 316L stainless steel, with cover	К	50/60 Hz 0.25 HP (0.18 kW) 575 V 3 ph 60 Hz	4 B
Skirtboards 316L stainless steel, #4 pointined	î	0.5 HP (0.37 kW) 220 240/380 480 V 3 ph	4 C
44 polished with cover		50/60 Hz	40
lorseshoe inlet		0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	4 D
04 stainless steel	M	0.75 HP (0.55 kW) 220 240/380 480 V 3 ph	4 E
04 stainless steel, #4 polished	N	50/60 Hz	4 -
16L stainless steel	P	0.75 HP (0.55 kW) 575 V 3 ph 60 Hz	4 F
16L stainless steel, #4 polished	Q	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 G
oad cell		1 HP (0.75 kW) 575 V 3 ph 60 Hz	4 H
lickel plated steel		Belting	-1 1 1 1
0 kg (22 lb)	0	Polyurethane, 1.35 mm, anti-static, 2 ply,	A
5 kg (33 lb)	1	FDA approved	
0 kg (44 lb)	2	Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	В
0 kg (66 lb)	3	Polyurethane, 1.35 mm, anti-static, 2 ply,	C
0 kg (110 lb)	4	FDA approved, with 2 inch (50 mm) corrugated side	Ĭ
stainless steel, hermetically sealed		walls	
kg (13.2 lb)	5	Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved	D
2 kg (26.5 lb)	6	Polyurethane, 2.9 mm, anti-static, 2 ply,	к
30 kg (66.1 lb)	7	FDA approved	
Speed sensor		Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	L
Shaft mounted		Polyurethane, 2.9 mm, anti-static, 2 ply,	м
000 PPR optical encoder	1	FDA approved, with 2 inch (50 mm) corrugated side	NI NI
2 500 PPR optical encoder	2	walls	_
000 PPR optical encoder, stainless steel	4	Belt change access side (looking from inlet to discharge)	
2 500 PPR optical encoder, stainless steel	5	Left hand	
		Right hand	

Open style

Selection and ordering data	Order Code		Order Code
Further Designs		Further Designs	
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text	Y31	Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications 1)	G11
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute	G12
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	detection	
Enter design speed (ft/m, m/s)	Y72	Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt	G14
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with	G19
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	integrator)	
Center material bed depth	Y77	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Custom length: Select next longest option and	Y01	Food grade Polyurethane sealing at infeed area	G22
specify infeed CL to discharge CL in plain text (indicated inches or millimeters)		Discharge dust hood, painted mild steel with de-dust port	H50
Manufacturer's test certificate: according to EN 10204-2.2	C11	Discharge dust hood, 304 stainless steel with de-dust port	H51
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	Discharge dust hood, 316L stainless steel with de-dust port	H52
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components;	E90	Custom design Specify quote reference when ordering	Y99
without junction boxes		Operating instructions	
ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation	
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	 Available with material containment options D L 575 V versions meet 4:1 ct inverter rating, all other 	,
ATEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93	 Available with drive configuration standard motor of suitable for 400 V operation only. Available only with Belting options A, B, and C. 	-

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 ... $4H^3$)

- Available only with Belting options A, B, and C.

Selection and ordering data	Α	rti	cle	No).		_
SITRANS WW200 Weighfeeder,	71	ИΗ	730	1-			
304 stainless steel, open style 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.							Ī
304 stainless steel, open style, with C/L infeed to C/L discharge							
12 inch (305 mm) belt width							
52 inch (1 321 mm)	0	Α					
60 inch (1 524 mm)		В					
68 inch (1 727 mm)	0	С					
76 inch (1 930 mm)	0	D					
84 inch (2 134 mm)	0	Е					
92 inch (2 337 mm)	0	F					
100 inch (2 540 mm)	0	G					
108 inch (2 743 mm)	0	н					
116 inch (2 946 mm)	0	J					
18 inch (457 mm) belt width							
52 inch (1 321 mm)	1	Α					
60 inch (1 524 mm)	1	В					
68 inch (1 727 mm)	1	С					
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	Н					
116 inch (2 946 mm)	1	J					
24 inch (610 mm) belt width							
52 inch (1 321 mm)	2	A					
60 inch (1 524 mm)	2	В					
68 inch (1 727 mm)	2	С					
76 inch (1 930 mm)	2	D					
84 inch (2 134 mm)		Ε					
92 inch (2 337 mm)	2	F					
100 inch (2 540 mm)	2	G					
108 inch (2 743 mm)		Н					
116 inch (2 946 mm)	2	J					
30 inch (762 mm) belt width							
52 inch (1 321 mm)		Α					
60 inch (1 524 mm)		В					
68 inch (1 727 mm)		C					
76 inch (1 930 mm)		D -					
84 inch (2 134 mm)		E					
92 inch (2 337 mm)		F					
100 inch (2 540 mm)		G					
108 inch (2 743 mm)		н					
116 inch (2 946 mm)	3	J					

Article No.								
7MH7301-								
4 A								
4 B								
4 C								
4 D								
4 E								
4 F								
4 G								
4 H								
4 J								
5 A								
5 B								
5 C								
5 D								
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6 H								
6 J								

Weighfeeders SITRANS WW200

Open style

Selection and ordering data	Article No.		Article No.
SITRANS WW200 Weighfeeder, 304 stainless steel, open style	7MH7301-	SITRANS WW200 Weighfeeder, 304 stainless steel, open style	7MH7301-
Accuracy is \pm 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).	
Material containment construction		Drive configuration	
None	A	Add order code Y75 (reduction ratio) and Y76 (electrical style).	
Add order code Y74 and plain text: "Arc radius in inches XX.XXX" for options D L		Standard AC motor	
Shear gate inlet		0.5 HP (0.37 kW)	0 C
Skirtboards 304 stainless steel	D	220 240/380 480 V 3 ph 50/60 Hz	
Skirtboards 304 stainless steel, with cover	E	0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	0 D
Skirtboards 304 stainless steel, #4 polished	F	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	0 G
Skirtboards 304 stainless steel, #4 polished with cover	G	1 HP (0.75 kW) 575 V 3 ph 60 Hz	0 Н
Skirtboards 316L stainless steel	н	Food grade AC motor	
Skirtboards 316L stainless steel, with cover	j.	0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 A
Skirtboards 316L stainless steel, #4 polished	K	0.25 HP (0.18 kW) 575 V 3 ph 60 Hz	4 B
Skirtboards 316L stainless steel, #4 polished with cover	1	0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 C
Horseshoe inlet		0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	4 D
304 stainless steel	М	0.75 HP (0.55 kW)	4 E
304 stainless steel, #4 polished	N	220 240/380 480 V 3 ph 50/60 Hz	
316L stainless steel	P	0.75 HP (0.55 kW) 575 V 3 ph 60 Hz	4 F
316L stainless steel, #4 polished	Q	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 G
Load cell		1 HP (0.75 kW) 575 V 3 ph 60 Hz	4 H
6 kg (13.2 lb) stainless steel, hermetically sealed	5	Belting	
12 kg (26.5 lb) stainless steel, hermetically sealed	6	Polyurethane, 1.35 mm, anti-static, 2 ply,	А
30 kg (66.1 lb) stainless steel, hermetically sealed	7	FDA approved	
Speed sensor		Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	В
Shaft mounted		Polyurethane, 1.35 mm, anti-static, 2 ply,	С
1 000 PPR optical encoder	1	FDA approved, with 2 inch (50 mm) corrugated side walls	
2 500 PPR optical encoder	2		ь.
1 000 PPR optical encoder, stainless steel	4	Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved	, , , , , , , , , , , , , , , , , , ,
2 500 PPR optical encoder, stainless steel	5	Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved	κ
		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	М
		Belt change access side (looking from inlet to discharge)	

Left hand Right hand

Open style

Selection and ordering data	Order Code	
Further designs		Further designs
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31	Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch)	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	detection
Enter design speed (ft/m, m/s)	Y72	Belt cleaner, stainless steel, nylon brush, mounted under belt plow, cleaning dirty side of belt
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	integrator)
Center material bed depth	Y77	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)
Custom length: Select next longest option and	Y01	Food grade Polyurethane sealing at infeed area
specify infeed CL to discharge CL in plain text (indicated inches or millimeters)		Discharge dust hood, painted mild steel with de-dust port
Manufacturer's test certificate: According to EN 10204-2.2	C11	Discharge dust hood, 304 stainless steel with de-dust port
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	Discharge dust hood, 316L stainless steel with de-dust port
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components;	E90	Custom design Specify quote reference when ordering
without junction boxes		Operating instructions
ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	 Available with material containment options D L 575 V versions meet 4:1 ct inverter rating, all other
ATEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93	 3) Available with Drive Configuration standard motor of suitable for 400 V operation only. 4) Available only with Belting options A, B, and C.
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)		, , , , , , , , , , , , , , , , , , ,

- L only.
- er voltages meet 10:1.
- options only, all motors.

Order Code

G12

G11 G18 G19

G20 G22 H50 H51 H52 Y99

Selection and ordering data	Article No.
SITRANS WW200 Weighfeeder, 316L stainless steel, open style	7MH7302-
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h)	
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	11111
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
18 inch (457 mm) belt width	
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
24 inch (610 mm) belt width	
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
30 inch (762 mm) belt width	
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

	A	rtic	le	No	•		
SITRANS WW200 Weighfeeder,	7	МН	730	2-			
316L stainless steel, open style Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h)		1	•	-	-	8	ľ
36 inch (914 mm) belt width		П					
52 inch (1 321 mm)	4	Α					
60 inch (1 524 mm)	4	В					
68 inch (1 727 mm)	4	С					
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	н					
116 inch (2 946 mm)	4	J					
42 inch (1 067 mm) belt width							
52 inch (1 321 mm)	5	Α					
60 inch (1 524 mm)	5	В					
68 inch (1 727 mm)	5	С					
76 inch (1 930 mm)	5	D					
84 inch (2 134 mm)	5	Е					
92 inch (2 337 mm)	5	F					
100 inch (2 540 mm)	5	G					
108 inch (2 743 mm)	5	н					
116 inch (2 946 mm)	5	J					
48 inch (1 219 mm) belt width							
52 inch (1 321 mm)	6	Α					
60 inch (1 524 mm)	6	В					
68 inch (1 727 mm)	6	С					
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	н					
116 inch (2 946 mm)	6	J					

Selection and ordering data	Αı	tic	е	No			_
SITRANS WW200 Weighfeeder,	71	/H7	'30	2-			
316L stainless steel, open style Accuracy is ± 0.5 % or better,					-		
with capacity up to 120 m³/h (4 237 ft³/h)							
Material containment construction							
None		A					
Add order code Y74 and plain text: "Arc radius in inches XX.XXX inch" for options H L							
Shear gate inlet							
Skirtboards 316L stainless steel		Н					
Skirtboards 316L stainless steel, with cover		J					
Skirtboards 316L stainless steel, #4 polished		Κ.					
Skirtboards 316L stainless steel, #4 polished with cover		-					
Horseshoe inlet							
316L stainless steel		P					
316L stainless steel, #4 polished		G)				
Load cell							
6 kg (13.2 lb) stainless steel, hermetically sealed			5				
12 kg (26.5 lb) stainless steel, hermetically sealed			6				
30 kg (66.1 lb) stainless steel, hermetically sealed			7				
Speed sensor							
Shaft mounted 1 000 PRR entired encoder				1			
1 000 PPR optical encoder 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).							
Standard AC motor							
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz					0	С	
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	н	
Food grade AC motor							
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	В	
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz					4	С	
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	н	

	Article No.
SITRANS WW200 Weighfeeder, 316L stainless steel, open style	7MH7302-
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/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	В
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	С
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	К
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	1
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	М
Belt change access side (looking from inlet to discharge)	
Left hand	0
Right hand	1

Selection and ordering data	Order Code		Order Code
Further designs		Further designs	
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).	
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31	Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾	G11
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute detection	G12
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	Belt cleaner, stainless steel, nylon brush, mounted	G14
Enter design speed (ft/m, m/s)	Y72	under belt plow, cleaning dirty side of belt	
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾	G18
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)	G19
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)	G20
Center material bed depth	Y77	Food grade Polyurethane sealing at infeed area	G22
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text (indicated inches or millimeters)	Y01	Discharge dust hood, painted mild steel with de-dust port	H50
Manufacturer's test certificate: According to EN 10204-2.2	C11	Discharge dust hood, 304 stainless steel with de-dust port	H51
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification	Y15	Discharge dust hood, 316L stainless steel with de-dust port	H52
(max. 27 characters) specify in plain text		Custom design Specify quote reference when ordering	Y99
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components;	E90	Operating instructions	
without junction boxes ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation	
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	 Available with material containment options H L 575 V versions meet 4:1 ct inverter rating, all other Available with Drive Configuration standard motor 	voltages meet 10:1.
ATEX II 3D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E93	suitable for 400 V operation only. 4) Available only with Belting options A, B, and C.	· · · · · · · · · · · · · · · · · · ·
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⁾			

Selection and ordering data	Article No.
SITRANS WW200 Weighfeeder,	7MH7303-
painted mild steel, enclosed style Accuracy is ± 0.5 % or better,	
with capacity up to 120 m ³ /h (4 237 ft ³ /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.	
Painted mild steel frame with painted mild steel enclosure style with C/L infeed to C/L discharge	11111
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
18 inch (457 mm) belt width	
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
24 inch (610 mm) belt width	
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
30 inch (762 mm) belt width	2.4
52 inch (1 321 mm)	3 A
60 inch (1 524 mm)	3 B 3 C
68 inch (1 727 mm)	3 C
76 inch (1 930 mm) 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
.55511 (2.7.15 11111)	

	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)	
36 inch (914 mm) belt width	
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
42 inch (1 067 mm) belt width	
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
48 inch (1 219 mm) belt width	
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

Enclosed style

Selection and ordering data	Article No.		Article No.
SITRANS WW200 Weighfeeder, painted mild steel, enclosed style	7MH7303-	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)		Accuracy is \pm 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h)	
Material containment construction		Drive configuration	
Add order code Y74 and plain text: "Arc radius in nches XX.XXX inch" for options D L		Add order code Y75 (reduction ratio) and Y76 (electrical style).	
Shear gate inlet		Standard AC motor	
Skirtboards 304 stainless steel	D	0.5 HP (0.37 kW)	0 C
Skirtboards 304 stainless steel, with cover	E	220 240/380 480 V 3 ph 50/60 Hz	
Skirtboards 304 stainless steel, #4 polished	F	0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	0 D
Skirtboards 304 stainless steel, #4 polished with cover	G	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	0 G
Skirtboards 316L stainless steel	н	1 HP (0.75 kW) 575 V 3 ph 60 Hz	0 H
Skirtboards 316L stainless steel, with cover	ij	Food grade AC motor	
Skirtboards 316L stainless steel, #4 polished	ĸ	0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 A
Skirtboards 316L stainless steel,		0.25 HP (0.18 kW) 575 V 3 ph 60 Hz	4 B
#4 polished with cover		0.5 HP (0.37 kW)	4 C
Load cell		220 240/380 480 V 3 ph 50/60 Hz	
Nickel plated steel		0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	4 D
10 kg (22 lb)	0	0.75 HP (0.55 kW)	4 E
15 kg (33 lb)	1	220 240/380 480 V 3 ph 50/60 Hz	
20 kg (44 lb)	2	0.75 HP (0.55 kW) 575 V 3 ph 60 Hz	4 F
30 kg (66 lb)	3	1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 G
50 kg (110 lb)	4	1 HP (0.75 kW) 575 V 3 ph 60 Hz	4 H
Stainless steel		Belting	
6 kg (13.2 lb) hermetically sealed	5	Polyurethane, 1.35 mm, anti-static, 2 ply,	A
12 kg (26.5 lb) hermetically sealed	6	FDA approved	
30 kg (66.1 lb) hermetically sealed	7	Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	В
Speed sensor		Polyurethane, 1.35 mm, anti-static, 2 ply,	c
Shaft mounted		FDA approved, with 2 inch (50 mm) corrugated	
1 000 PPR optical encoder	1	side walls	
2 500 PPR optical encoder	2	Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved	D
1 000 PPR optical encoder, stainless steel	4	Polyurethane, 2.9 mm, anti-static, 2 ply,	к
2 500 PPR optical encoder, stainless steel	5	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	N

Left hand Right hand

•	
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 II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX 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⁾	

	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
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	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 https://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.
- $^{\rm 4)}$ Available only with Belting options A, B, and C.

Selection and ordering data	Α	rtic	le I	۷o.			
SITRANS WW200 Weighfeeder, 304 stainless steel frame with painted	7	МН	730	4-			
mild steel enclosure			П	•	-	П	ľ
Accuracy is \pm 0.5 % or better, with capacity up to 120 m 3 /h (4 237 ft 3 /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.							
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	Α					
60 inch (1 524 mm)	0	В					
68 inch (1 727 mm)	0	С					
76 inch (1 930 mm)	0	D					
184 inch (2 134 mm)	0	Е					
92 inch (2 337 mm)	0	F					
100 inch (2 540 mm)	0	G					
108 inch (2 743 mm)	0	н					
116 inch (2 946 mm)	0	J					
18 inch (457 mm) belt width							
52 inch (1 321 mm)	1	Α					
60 inch (1 524 mm)	1	В					
68 inch (1 727 mm)	1	С					
76 inch (1 930 mm)	1	D					
84 inch (2 134 mm)	1	Е					
92 inch (2 337 mm)	1	F					
100 inch (2 540 mm)	1	G					
108 inch (2 743 mm)	1	н					
116 inch (2 946 mm)	1	J					
24 inch (610 mm) belt width	_						
52 inch (1 321 mm)	2	Α					
60 inch (1 524 mm)	2	В					
68 inch (1 727 mm)	2	С					
76 inch (1 930 mm)	2	D					
84 inch (2 134 mm)	2	Е					
92 inch (2 337 mm)	2	F					
100 inch (2 540 mm)	2	G					
108 inch (2 743 mm)		н					
116 inch (2 946 mm)	2	J					
30 inch (762 mm) belt width	_						
52 inch (1 321 mm)	3	Α					
60 inch (1 524 mm)		в					
68 inch (1 727 mm)	3	С					
76 inch (1 930 mm)	3	D					
84 inch (2 134 mm)	3						
92 inch (2 337 mm)	3						
100 inch (2 540 mm)	3	G					
` '							
108 inch (2 743 mm)	3						

	Α	rti	cle	No).		
SITRANS WW200 Weighfeeder,	7	МН	730)4-			
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).							
36 inch (91 mm) belt width							Ī
52 inch (1 321 mm)	4	Α					
60 inch (1 524 mm)	4	В					
68 inch (1 727 mm)	4	С					
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	н					
116 inch (2 946 mm)	4	J					
42 inch (1 067 mm) belt width							
52 inch (1 321 mm)	5	Α					
60 inch (1 524 mm)	5	В					
68 inch (1 727 mm)	5	С					
76 inch (1 930 mm)	5	D					
84 inch (2 134 mm)	5	Е					
92 inch (2 337 mm)	5	F					
100 inch (2 540 mm)	5	G					
108 inch (2 743 mm)	5	н					
116 inch (2 946 mm)	5	J					
48 inch (1 219 mm) belt width							
52 inch (1 321 mm)	6	Α					
60 inch (1 524 mm)	6	В					
68 inch (1 727 mm)	6	С					
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	н					
116 inch (2 946 mm)	6	J					

Weighfeeders

SITRANS WW200

Selection and ordering data	Article No.							
SITRANS WW200 Weighfeeder,	7MH7304-							
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).								
Material containment construction		П						
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			Ε					
Skirtboards 304 stainless steel, #4 polished			F					
Skirtboards 304 stainless steel, #4 polished with cover			G					
Skirtboards 316L stainless steel			Н					
Skirtboards 316L stainless steel, with cover		Н	J					
Skirtboards 316L stainless steel, #4 polished			K					
Skirtboards 316L stainless steel, #4 polished with cover			L					
Load cell								
6 kg (13.2 lb) stainless steel, hermetically sealed				5				
12 kg (26.5 lb) stainless steel, hermetically sealed				6				
30 kg (66.1 lb) stainless steel, hermetically sealed				7				
Speed sensor								
Shaft mounted								
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).								
Standard AC motor								
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						0	С	
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	Н	
Food grade AC motor								
0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	Α	
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz						4	В	
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	С	
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	Н	

	Article No.
SITRANS WW200 Weighfeeder, 304 stainless steel frame with painted mild steel enclosure	7MH7304-
Accuracy is \pm 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/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	В
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	С
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	К
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	1 1 1 1 1
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	М
Belt change access side (looking from inlet to discharge)	
Left hand	0
Right hand	1

Selection and ordering data	Order Code	
Further designs		Further designs
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31	Plastic shear curtain to control dust at the infeed floodable materials and dusty applications 1)
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute detection
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	Belt cleaner, stainless steel, nylon brush, mount
Enter design speed (ft/m, m/s)	Y72	under belt plow, cleaning dirty side of belt
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approve
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integr
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)
Center material bed depth	Y77	Food grade Polyurethane sealing at infeed area
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text	Y01	Custom design Specify quote reference when ordering
(indicated inches or millimeters)		Operating instructions
Manufacturer's test certificate: according to EN 10204-2.2	C11	All literature is available to download for free, in range of languages, at
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	https://www.siemens.com/weighing/documentat 1) Available with material containment options E
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90	 575 V versions meet 4:1 ct inverter rating, all Available with Drive Configuration standard n suitable for 400 V operation only.
ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	4) Available only with Belting options A, B, and
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	
ATEX 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)		

	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
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	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 https://www.siemens.com/weighing/documentation	

D ... L only.

all other voltages meet 10:1.

motor options only; all motors

C.

Selection and ordering data	A	rti	cle	e N	О			_
SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure				305				
Accuracy is \pm 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /h).		١					ľ	
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.						Ī		
304 stainless steel frame with 304 stainless steel enclosure style with C/L infeed to C/L -discharge								
12 inch (305 mm) belt width								
52 inch (1 321 mm)	0	Α						
60 inch (1 524 mm)	0	В						
68 inch (1 727 mm)	0	С						
76 inch (1 930 mm)	0	D						
84 inch (2 134 mm)	0	Ε						
92 inch (2 337 mm)	0	F						
100 inch (2 540 mm)	0	G						
108 inch (2 743 mm)	0	н						
116 inch (2 946 mm)	0	J						
18 inch (457 mm) belt width								
52 inch (1 321 mm)	1	Α						
60 inch (1 524 mm)	1	В						
68 inch (1 727 mm)	1	С						
76 inch (1 930 mm)	1	D						
84 inch (2 134 mm)	1	Ε						
92 inch (2 337 mm)	1	F						
100 inch (2 540 mm)	1	G						
108 inch (2 743 mm)	1	н						
116 inch (2 946 mm)	1	J						
24 inch (610 mm) belt width								
52 inch (1 321 mm)	2	Α						
60 inch (1 524 mm)	2	В						
68 inch (1 727 mm)	2	С						
76 inch (1 930 mm)	2	D						
84 inch (2 134 mm)	2	Ε						
92 inch (2 337 mm)	2	F						
100 inch (2 540 mm)	2	G						
108 inch (2 743 mm)	2	Н						
116 inch (2 946 mm)	2	J						
30 inch (762 mm) belt width								
52 inch (1 321 mm)	3	Α						
60 inch (1 524 mm)	3	В						
68 inch (1 727 mm)	3	С						
76 inch (1 930 mm)	3	D						
84 inch (2 134 mm)	3	Ε						
92 inch (2 337 mm)	3	F						
100 inch (2 540 mm)	3	G						
108 inch (2 743 mm)	3	н						
116 inch (2 946 mm)	3	J						

	Article No.
SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure	7MH7305-
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	
36 inch (914 mm) belt width	
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
42 inch (1 067 mm) belt width	
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
48 inch (1 219 mm) belt width	
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

Selection and ordering data	Article	No.
SITRANS WW200 Weighfeeder,	7MH730	5-
304 stainless steel frame and enclosure Accuracy is ± 0.5 % or better,		
with capacity up to 120 m³/h (4 237 ft³/h).		
Material containment construction		
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	н	
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		
6 kg (13.2 lb) stainless steel, hermetically sealed	5	
12 kg (26.5 lb) stainless steel, hermetically sealed	6	
30 kg (66.1 lb) stainless steel, hermetically sealed	7	
Speed sensor		
Shaft mounted		
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).		
Standard AC motor		
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
Food grade AC motor		
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

	Article N	о.
SITRANS WW200 Weighfeeder, 304 stainless steel frame and enclosure	7MH7305	
Accuracy is \pm 0.5 % or better, with capacity up to 120 m 3 /h (4 237 ft 3 /h).		Ш
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		В
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls		С
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		К
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		М
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) 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 II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX 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)	

	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
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
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	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 https://www.siemens.com/weighing/documentation	

- $^{\rm 1)}$ Available with material containment options D \dots 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.
- $^{\rm 4)}$ Available only with Belting options A, B, and C.

Selection and ordering data	Article No.	
SITRANS WW200 Weighfeeder,	7MH7306-	
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).		
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		
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 Н	
116 inch (2 946 mm)	0 J	
18 inch (457 mm) belt width		
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	
24 inch (610 mm) belt width		
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	
30 inch (762 mm) belt width		
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	

	A	rtic	cle	No).		
SITRANS WW200 Weighfeeder,	7	МН	730)6-			
316L stainless steel frame with painted mild steel enclosure		۵	E		- 1		
Accuracy is \pm 0.5 % or better, with capacity up to 120 m 3 /h (4 237 ft 3 /h).							
36 inch (914 mm) belt width							Ī
52 inch (1 321 mm)	4	Α					
60 inch (1 524 mm)	4	В					
68 inch (1 727 mm)	4	С					
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	н					
116 inch (2 946 mm)	4	J					
42 inch (1 067 mm) belt width							
52 inch (1 321 mm)	5	Α					
60 inch (1 524 mm)	5	В					
68 inch (1 727 mm)	5	С					
76 inch (1 930 mm)	5	D					
84 inch (2 134 mm)	5	Е					
92 inch (2 337 mm)	5	F					
100 inch (2 540 mm)	5	G					
108 inch (2 743 mm)	5	н					
116 inch (2 946 mm)	5	J					
48 inch (1 219 mm) belt width							
52 inch (1 321 mm)	6	Α					
60 inch (1 524 mm)	6	В					
68 inch (1 727 mm)	6	С					
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	н					
116 inch (2 946 mm)	6	J					

Selection and ordering data	Article No.							
SITRANS WW200 Weighfeeder,	7	MI	17	30	6-			
316L stainless steel frame with painted mild steel enclosure						-	۵	
Accuracy is \pm 0.5 % or better, with capacity up to 120 m 3 /h (4 237 ft 3 /h).								
Add order code Y74 and plain text: "Arc radius in inches XX.XXX" for options H L								
Shear gate inlet								
Skirtboards 316L stainless steel			Н					
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								
6 kg (13.2 lb) stainless steel, hermetically sealed				5				
12 kg (26.5 lb) stainless steel, hermetically sealed				6				
30 kg (66.1 lb) stainless steel, hermetically sealed				7				
Speed sensor								
Shaft mounted								
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).								
Standard AC motor								
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						0	С	
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	Н	
Food grade AC motor								
0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	Α	
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz						4	В	
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	С	
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	Ε	
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	Н	

	Article No.						
SITRANS WW200 Weighfeeder, 316L stainless steel frame with painted mild steel enclosure	7MH7306-						
Accuracy is \pm 0.5 % or better, with capacity up to 120 m 3 /h (4 237 ft 3 /h).							
Belting							
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved	А						
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	В						
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	С						
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	М						
Belt change access side (looking from inlet to discharge)							
Left hand	0						
Right hand	1						

Selection and ordering data	Order Code	
Further designs		Further designs
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31	Plastic shear curtain to control dust at the infeed folloodable materials and dusty applications ¹⁾
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute detection
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	Belt cleaner, stainless steel, nylon brush, mounted
Enter design speed (ft/m, m/s)	Y72	under belt plow, cleaning dirty side of belt
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approved
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrate
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)
Center material bed depth	Y77	Food grade Polyurethane sealing at infeed area
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text	Y01	Custom design Specify quote reference when ordering
(indicated inches or millimeters)		Operating instructions
Manufacturer's test certificate: According to EN 10204-2.2	C11	All literature is available to download for free, in a range of languages, at
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification	Y15	https://www.siemens.com/weighing/documentation 1) Available with material containment options H
(max. 27 characters) specify in plain text		2) 575 V versions meet 4:1 ct inverter rating, all ot
Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups F and G, approved electrical components; without junction boxes	E90	3) Available with Drive Configuration standard mos suitable for 400 V operation only.
ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	4) Available only with Belting options A, B, and C.
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	
ATEX 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⁾		

	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
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	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 https://www.siemens.com/weighing/documentation	
1)	

- ... L only.
- other voltages meet 10:1.
- otor options only, all motors

Selection and ordering data	Article No.
SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure	7MH7307-
Accuracy is ± 0.5 % or better, with capacity up to 120 m ³ /h (4 237 ft ³ /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	111111
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
18 inch (457 mm) belt width	
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
24 inch (610 mm) belt width	
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
30 inch (762 mm) belt width	
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

	Article No.
SITRANS WW200 Weighfeeder,	7MH7307-
316L stainless steel frame with	7MH7307-
304 stainless steel enclosure Accuracy is ± 0.5 % or better,	1-1-1
with capacity up to 120 m 3 /h (4 237 ft 3 /h).	
36 inch (914 mm) belt width	
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
42 inch (1 067 mm) belt width	
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
48 inch (1 219 mm) belt width	
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

Selection and ordering data	Article No	-		Article No.
SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure	7MH7307-		SITRANS WW200 Weighfeeder, 316L stainless steel frame with 304 stainless steel enclosure	7MH7307-
Accuracy is \pm 0.5 % or better, with capacity up to 120 m^3/h (4 237 ft^3/h).			Accuracy is \pm 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	
Material containment construction			Food grade AC motor	
Add order code Y74 and plain text: "Arc radius in inches XX.XXX inch" for options H L			0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 A
Shear gate inlet and skirtboards 316L stainless steel	н		0.25 HP (0.18 kW) 575 V 3 ph 60 Hz	4 B
Shear gate inlet and skirtboards 316L stainless steel, with cover	J		0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 C
Shear gate inlet and skirtboards	K		0.5 HP (0.37 kW) 575 V 3 ph 60 Hz	4 D
316L stainless steel, #4 polished Shear gate inlet and skirtboards	L		0.75 HP (0.55 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 E
316L stainless steel, #4 polished with cover	-		0.75 HP (0.55 kW) 575 V 3 ph 60 Hz	4 F
6 kg (13.2 lb) stainless steel, hermetically sealed	5		1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz	4 G
12 kg (26.5 lb) stainless steel, hermetically sealed	6		1 HP (0.75 kW) 575 V 3 ph 60 Hz	4 H
30 kg (66.1 lb) stainless steel, hermetically sealed	7		Belting	
Speed sensor			Polyurethane, 1.35 mm, anti-static, 2 ply,	Α
1 000 PPR shaft mounted optical encoder	1		FDA approved	
2 500 PPR shaft mounted optical encoder	2		Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	В
1 000 PPR shaft mounted optical encoder, stainless steel	4		Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (5 mm) corrugated	С
2 500 PPR shaft mounted optical encoder,	5		side walls	
stainless steel	-		Silicone, HT 177 °C (350 °F), anti-static 45 PIW, 2 ply, FDA approved	D
Drive configuration Add order code Y75 (reduction ratio) and Y76 (electrical style).			Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved	к
Standard AC motor			Polyurethane, 2.9 mm, anti-static, 2 ply,	
		0 C	FDA approved, with B-section flange walls Polyurethane, 2.9 mm, anti-static, 2 ply,	м
0.5 HP (0.37 kW) 575 V 3 ph 60 Hz		0 D	FDA approved, with 2 inch (50 mm) corrugated side walls	
1 HP (0.75 kW) 220 240/380 480 V 3 ph 50/60 Hz		0 G	Belt change access side (looking from inlet to discharge)	
1 HP (0.75 kW) 575 V 3 ph 60 Hz		0 H	Left hand	
			Right hand	

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 II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92
ATEX 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)	

	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
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	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 \dots 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.

Selection and ordering data	Article No.		
SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure	7MH7308-		
Accuracy is \pm 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	Ш		
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 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		
18 inch (457 mm) belt width			
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		
24 inch (610 mm) belt width			
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		
30 inch (762 mm) belt width			
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		

	A	rtic	le l	No.		
SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure	7	МН	730	8-		
Accuracy is ± 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).		7	Г	-	I	ľ
36 inch (914 mm) belt width		Ī			T	
52 inch (1 321 mm)	4	Α				
60 inch (1 524 mm)	4	В				
68 inch (1 727 mm)	4	С				
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	н				
116 inch (2 946 mm)	4	J				
42 inch (1 067 mm) belt width						
52 inch (1 321 mm)	5	Α				
60 inch (1 524 mm)	5	В				
68 inch (1 727 mm)	5	С				
76 inch (1 930 mm)	5	D				
84 inch (2 134 mm)	5	Е				
92 inch (2 337 mm)	5	F				
100 inch (2 540 mm)	5	G				
108 inch (2 743 mm)	5	н				
116 inch (2 946 mm)	5	J				
48 inch (1 219 mm) belt width						
52 inch (1 321 mm)	6	Α				
60 inch (1 524 mm)	6	В				
68 inch (1 727 mm)	6	С				
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	н				
116 inch (2 946 mm)	6	J				

Selection and ordering data	Α	rti	cl	e I	No).					
SITRANS WW200 Weighfeeder,	7MH7308-										
316L stainless steel frame and enclosure Accuracy is ± 0.5 % or better,		۵				-					
with capacity up to 120 m 3 /h (4 237 ft 3 /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											
Skirtboards 316L stainless steel			Н								
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											
6 kg (13.2 lb) stainless steel, hermetically sealed				5							
12 kg (26.5 lb) stainless steel, hermetically sealed				6							
30 kg (66.1 lb) stainless steel, hermetically sealed				7							
Speed sensor											
Shaft mounted											
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).											
Standard AC motor											
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						0	С				
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	Н				
Food grade AC motor											
0.25 HP (0.18 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	Α				
0.25 HP (0.18 kW) 575 V 3 ph 60 Hz						4	В				
0.5 HP (0.37 kW) 220 240/380 480 V 3 ph 50/60 Hz						4	С				
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	Н				

	Article No.
SITRANS WW200 Weighfeeder, 316L stainless steel frame and enclosure	7MH7308-
Accuracy is \pm 0.5 % or better, with capacity up to 120 m³/h (4 237 ft³/h).	1-11-1
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	В
Polyurethane, 1.35 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	С
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	κ
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with B-section flange walls	11111
Polyurethane, 2.9 mm, anti-static, 2 ply, FDA approved, with 2 inch (50 mm) corrugated side walls	М
Belt change access side (looking from inlet to discharge)	
Left hand	0
Right hand	1

Order Code

G11

G12 G14 G18 G19 G20

G22 Y99

Enclosed style

Selection and ordering data	Order Code	
Further designs		Further designs
Please add "-Z" to article no. and specify order code(s).		Please add "-Z" to article no. and specify order code(s).
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31	Plastic shear curtain to control dust at the infeed for floodable materials and dusty applications ¹⁾
Shear gate arc radius: Enter shear gate arc radius in inches (xxx.xx inch) ¹⁾	Y74	Pointek CLS100 Capacitance switch for plugged discharge chute detection
Enter design units (TPH, MTPH, lb/h, kg/h)	Y71	Belt cleaner, stainless steel, nylon brush, mounted
Enter design speed (ft/m, m/s)	Y72	under belt plow, cleaning dirty side of belt
Enter design capacity/rate	Y73	Blue colored belt, anti-static, 2 ply, FDA approved ⁴⁾
AC gearmotor reduction ratio: Enter reduction ratio in plain text (X:1)	Y75	Secondary speed encoder at motor (not for hazardous areas; not suitable for use with integrator)
AC gearmotor electrical style: enter IEC, UL-R/CSA or CCC style	Y76	Motor corrosion protection C5 acc. EN 12944 (available with standard AC motor)
Center material bed depth		Food grade Polyurethane sealing at infeed area
Custom length: Select next longest option and specify infeed CL to discharge CL in plain text	Y01	Custom design Specify quote reference when ordering
(indicated inches or millimeters)		Operating instructions
Manufacturer's test certificate: according to EN 10204-2.2	C11	All literature is available to download for free, in a range of languages, at
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:	Y15	https://www.siemens.com/weighing/documentation
Measuring-point number/identification (max. 27 characters) specify in plain text		1) Available with material containment options H L
Class I, Div. 1, Groups C and D; Class II, Div. 1,	E90	2) 575 V versions meet 4:1 ct inverter rating, all other
Groups F and G, approved electrical components; without junction boxes	E90	3) Available with Drive Configuration standard motor suitable for 400 V operation only.
ATEX II 2D approved electrical components; only available with speed encoder option 1 and 2; with Aluminum junction boxes	E91	4) Available only with Belting options A, B, and C.
ATEX II 2D approved electrical components; only available with speed encoder option 4 and 5; with Stainless steel junction boxes	E92	
ATEX 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 ... $4H^3$)

range of languages, at	
https://www.siemens.com/weighing/documentation	

- L only. er voltages meet 10:1.
- or options only, all motors

Accessories and spare parts

Selection and ordering data	Article No.
- Selection and Ordering data	Aiticle No.
Accessories	
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
CLS100 plugged discharge chute retrofit kit (includes CLS100, material hood)	7MH7723-1JE
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 (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
10 kg (22 lb) nickel plated steel load cell	7MH7725-1EK
15 kg (33.1 lb) nickel plated steel load cell	7MH7725-1EL
20 kg (44 lb) nickel plated steel load cell	7MH7725-1EM
30 kg (66.2 lb) nickel plated steel load cell	7MH7725-1EN
50 kg (110.2 lb) nickel plated steel load cell	7MH7725-1EP
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	7MH7723-1KM
Encoder, Stainless steel, 500 PPR	7MH7723-1HG
Speed Encoder, 1 000 PPR, stainless steel	7MH7723-1HH
Speed Encoder, 2 500 PPR, stainless steel	7MH7723-1HJ
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/Class I, Div. 1,Groups C and D, Class II, Div. 1, Groups F and G	7MH7723-1RA
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

	Article No.
Accessories	
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	7MH7726-1TA
Spare scraper blade, 18 inch belt width	7MH7726-1TB
Spare scraper blade, 24 inch belt width	7MH7726-1TC
Spare scraper blade, 30 inch belt width	7MH7726-1TD
Spare scraper blade, 36 inch belt width	7MH7726-1TE
Spare scraper blade, 42 inch belt width	7MH7726-1TF
Spare scraper blade, 48 inch belt width	7MH7726-1TG
Hazardous rated electrical spare parts	
Optical encoders	
500 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	7MH7723-1QU
1 000 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	7MH7723-1QV
2 500 PPR optical encoder, Class I, Div. 1, Groups C and D, Class II, Div. 1, Groups F and G	7MH7723-1QW
1 000 PPR optical encoder, ATEX II 2D	7MH7723-1QX
2 000 PPR optical encoder, ATEX II 2D	7MH7723-1QY
1) 0 italia famorialifa adam anada in 04 milant	

¹⁾ Suitable for weighfeeders made in CA prior to 2016.

Accessories and spare parts

Selection and ordering data	Article No.			
SITRANS WW200 Spare Belts	7MH7204-			
Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position				
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Belt size				
12 inch (305 mm) belt width				
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	В	
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	С	
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	Н	
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	
18 inch (610 mm) belt width				
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	Α	
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	В	
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	С	
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	

	Article No.	
SITRANS WW200 Spare Belts Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position	7MH7204- I	
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		I 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		Н
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
24 inch (610 mm) belt width		
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
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	2 J

Accessories and spare parts							
Selection and ordering data	Article No.				Article No.		
SITRANS WW200 Spare Belts	7MH7204-		П	SITRANS WW200 Spare Belts	7MH7204-		
Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position				Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position			
30 inch (762 mm) belt width				42 inch (1 067 mm) belt width			
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	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		3	В	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		3	С	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		3	D	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		3	Ε	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		3	F	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		3	G	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		3	Н	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		3	J	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	
36 inch (914 mm) belt width							
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	В				
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	С				
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				

4 E

4 F

4 G

4 H

4 J

weighfeeder

weighfeeder

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

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

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

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

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

Accessories and spare parts

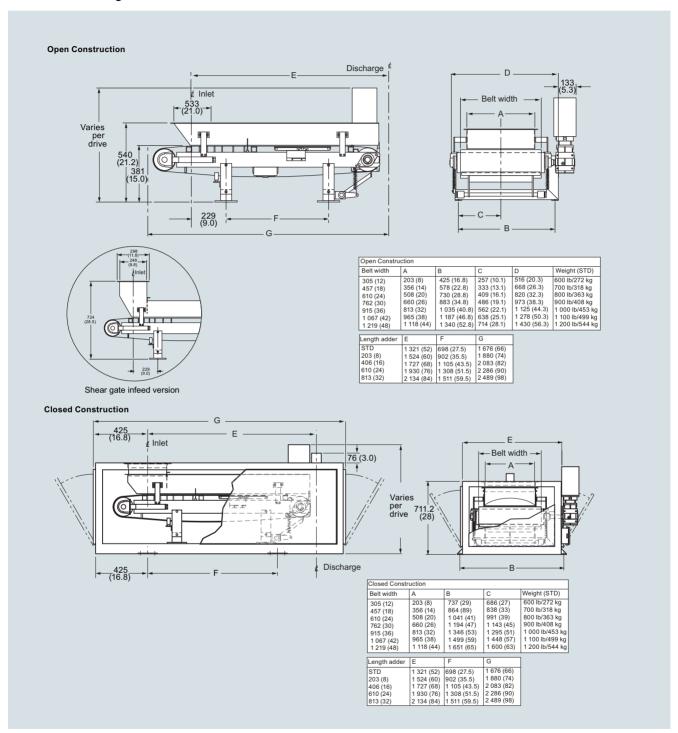
Selection and ordering data	Article No.				
SITRANS WW200 Spare Belts	7MH7204-				
Endless belt for use with WW200 weighfeeders 7MH7300 to 7MH7308; pulley CL data based on telescoper in fully retracted position					
48 inch (1 219 mm) belt width					
52 inch (1 321 mm) C/L Infeed to C/L Discharge, 54.5 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	В		
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	С		
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	Н		
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		6	J		
Belt type					
Polyurethane anti static, 1,35 mm thick, FDA approved, white				A	
Polyurethane anti static, 1,35 mm thick, FDA approved, blue				В	
Polyurethane anti static, 2.9 mm thick, 2 ply FDA approved, white				С	
Silicone, High temp. belt 180 °C (350 °F); 2 ply, antistatic, FDA approved				E	
Belt design					
Standard					1
6 mm B-section flange walls					2
50 mm (2 inch) corrugated side walls					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)	Y01				
Note: Y01 order code info indicates special length on weighfeeder.					
Operating instructions					
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation					

Weighfeeders

SITRANS WW200

Dimensional drawings and schematics

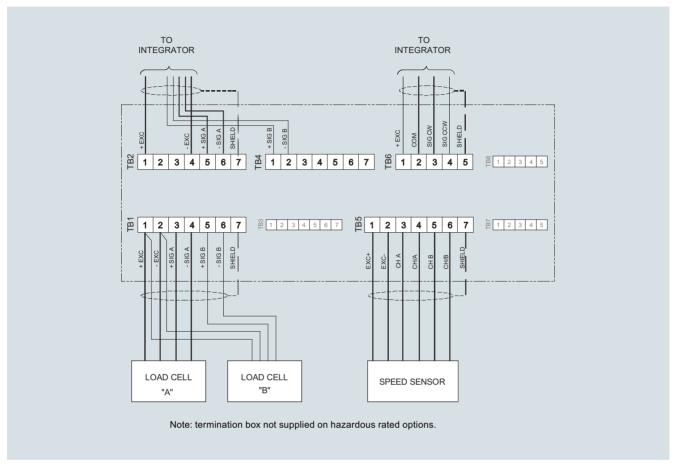
Dimensional drawings



SITRANS WW200, dimensions in mm (inch)

Dimensional drawings and schematics

Circuit diagrams



SITRANS WW200 connections

Weighfeeders

Weighfeeder accessories

Weighfeeder peripherals

Selection and ordering data

Milltronics Weighfeeder 400, 600, and 800						
	Article No.					
For aluminum model, use nickel plated alloy steel						
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	4				
12 kg (26.4 lb)	7MH7725-1EH					
30 kg (66.2 lb)	7MH7725-1EJ	0				
11.3 kg (25 lb)	PBD-23900224					
22.7 kg (50 lb)	PBD-23900225					
45.4 kg (100 lb)	PBD-23900242					

Milltronics Weighfeeder 1200,

	Article No.	
Nickel plated, standard duty		
10 kg (22 lb)	7MH7725-1EK	
15 kg (33.1 lb)	7MH7725-1EL	Estate and the
20 kg (44 lb)	7MH7725-1EM	50
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		
Stainless steel load cell [17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover		
22.7 kg (50 lb)	7MH7725-1AC	
45.4 kg (100 lb)	7MH7725-1AD	1
113.4 kg (250 lb)	7MH7725-1AE	•
226.8 kg (500 lb)	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	

Calibration hanger weight	ts	
	Article No.	
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	

SITRANS WW300 and WW310 spare parts and accessories

Article No.	
7MH7723-1JA	
6FX2001-2PA50	
6FX2001-2PB00	
6FX2001-2PC50	
6FX2003-0SU12	
7MH7723-1KM	
3SE5112-0CR01	
7MH7723-1RA	
3SE7120-2DD01	
3SE7910-3AA	
3SE7941-1AC	
7MH7723-1ND	
7MH7723-1NE	
A5E01213250	
A5E03856041	
A5E01213243	
PBD-24191273	
	7MH7723-1JA 6FX2001-2PA50 6FX2001-2PB00 6FX2001-2PC50 6FX2003-0SU12 7MH7723-1KM 3SE5112-0CR01 7MH7723-1RA 3SE7120-2DD01 3SE7910-3AA 3SE7941-1AC 7MH7723-1ND 7MH7723-1NE A5E01213250 A5E03856041 A5E01213243

113 kg (250 lb), CSA/FM/ATEX/IEC EX

7MH7725-1DV

6

Solid Flowmeters



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6/5	LVDT flowmeters					
6/5	SITRANS WF100					
6/10	SITRANS WF200 series					
6/16	TRANS WF300 series					
6/26	Sensing heads					
6/26	SITRANS WFS300 series sensing heads					
6/33	Sensing plates					
6/33	SITRANS flowmeter sensing plates					
6/34	Solids flowmeters accessories					
6/34	Solids flowmeter peripherals					

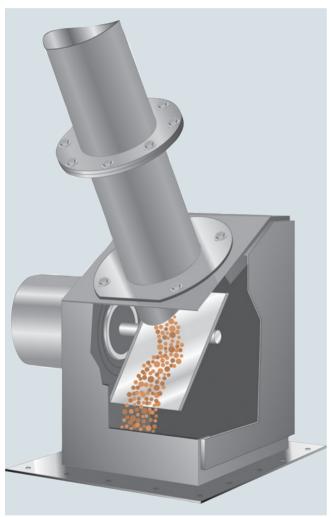
Introduction

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

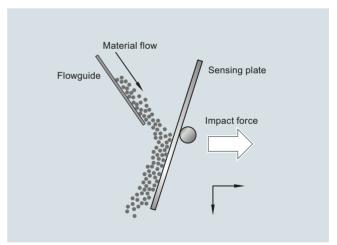
Flowmeters are installed in a gravity fed process. Entering the flowmeter through the flowguide, the material flow produces a mechanical deflection as it strikes the flowmeter's sensing plate. The SITRANS WF flowmeter converts the deflection into an electrical signal that feeds into an accompanying integrator, 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

Solid Flowmeters Introduction

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, chemi- cals, plastics, glass, cement, mineral processing	Cement, mineral processing, mining	
Typical applications	Monitoring of food ingredients, pet food blending, plastic pellet produc- tion, 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	1 200 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, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	
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, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	
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, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	Sensing element dependent, see 'Sensing element' chart, page 6/4.	
Accuracy ¹⁾	± 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)	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	• 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	• 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 measure- ment using LVDT (linear variable differential trans- former)	Deflection measure- ment using LVDT (linear variable differential trans- former)	Deflection measure- ment using LVDT (linear variable differential trans- former)	
Sensing plate	304 stainless steelOption: 316 stainless steel	• 304 stainless steel • Option: 316 stainless steel	• 304 stainless steel • Option: 316 stainless steel		• 304 stainless steel • Option: 316 stainless steel	• 304 stainless steel • Option: 316 stainless steel	
Liners	PTFEPolyurethane	Polyurethane Alumina ceramic	Polyurethane Alumina ceramic	Plasma A/RPTFEPolyurethaneAlumina ceramic	Plasma A/RPTFEPolyurethaneAlumina ceramic	Plasma A/RPTFEPolyurethaneAlumina 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	

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.

Introduction

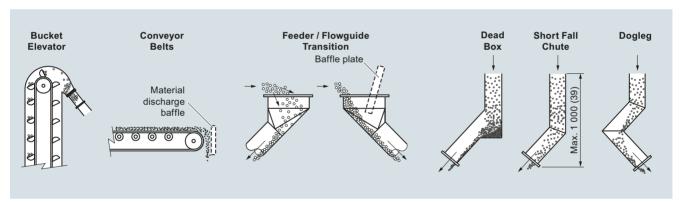
Technical specifications

Sensing element

	SITRANS WF330	SITRANS WF340	SITRANS WF350
Capacity range - SITRANS WFS300 - SITRANS WFS320	0.2 40 t/h (0.2 44 STPH) 20 300 t/h (22 330 STPH)	0.2 40 t/h (0.2 44 STPH) 20 300 t/h (22 330 STPH)	0.2 40 t/h (0.2 44 STPH) 20 300 t/h (22 330 STPH)
Particle size (max.) - SITRANS WFS300 - SITRANS WFS320	12 mm (0.5 inch) 25 mm (1 inch)	12 mm (0.5 inch) 25 mm (1 inch)	3 mm (0.13 inch) 3 mm (0.13 inch)
Inlet sizes - SITRANS WFS300	50 250 mm (2 10 inch) (ASME or DIN flanges)	 76 x 152 mm (3 x 6 inch) 102 x 254 mm (4 x 10 inch) 127 x 305 mm (5 x 12 inch) 	• 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)	• 127 x 406 mm (5 x 16 inch) • 152 x 508 mm (6 x 20 inch)	 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)

LVDT flowmeters

SITRANS WF100

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

LVDT flowmeters

SITRANS WF100

Selection and ordering data	Article No.
SITRANS WF100 Solids flowmeter	7MH7186-
Impact solids flowmeter for low to medium capacity applications. Accuracy is \pm 1 % or better, with capacity up to 200 t/h (220 STPH).	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	Α
AISI 304 stainless steel 4 inch (100 mm) flowguide	В
AISI 304 stainless steel with PTFE coated infeed 4 inch (100 mm) flowguide	С
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	Н
AISI 316 stainless steel 6 inch (150 mm) flowguide	J
AISI 316 stainless steel with PTFE coated infeed 6 inch (150 mm) flowguide	К
Mild steel, painted 8 inch (200 mm) flowguide	L
AISI 304 stainless steel 8 inch (200 mm) flowguide	М
AISI 304 stainless steel with PTFE coated infeed 8 inch (200 mm) flowguide	N
AISI 316 stainless steel 8 inch (200 mm) flowguide	Р
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)	В
10 lb (4.5 kg)	С
20 lb (9.1 kg)	D
Not specified (Only for quotation purposes, not a valid ordering option)	X

SITRANS WF100 Solids flowmeter	7	MH	171	86-				
Impact solids flowmeter for low to medium capacity applications. Accuracy is \pm 1 % or better, with capacity up to 200 t/h (220 STPH).	-	-	ľ	ľ	-	-	A	
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	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	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				
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								
Standard: CE, RCM, EAC, KCC						0		
CSA/FM Class II, Div. 1, Groups E, F, G and Class III, ATEX II 2D, Ex tD A21 IP65 T70 °C, CE, RCM, IECEx, Ex tD A21 IP65 T70 °C, EAC Ex						1		

Article No.

LVDT flowmeters

SITRANS WF100

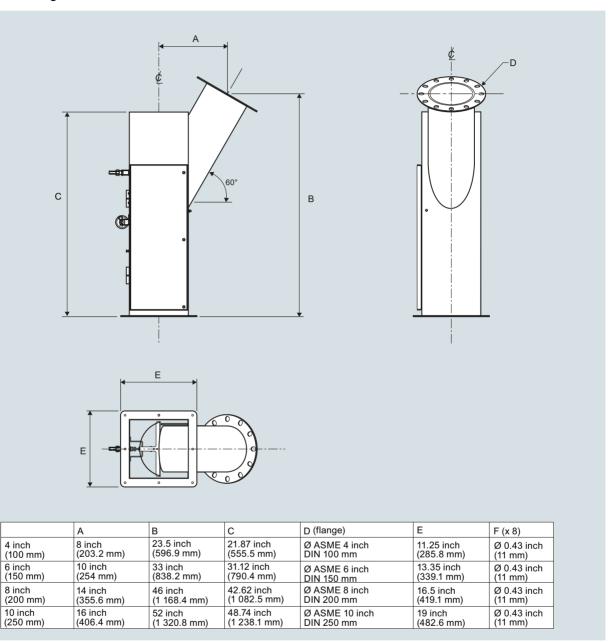
Selection and ordering data	Order Code
Further designs	
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Application Eng. reference number (max. 15 characters), specify in plain text.	Y31
Manufacturer's test certificate: According to EN 10204-2.2	C11
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	
https://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	7MH7723-1KP
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 316 standard	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

	Article No.
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
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
Spare load cell hardware kit	A5E44809390

LVDT flowmeters

SITRANS WF100

Dimensional drawings

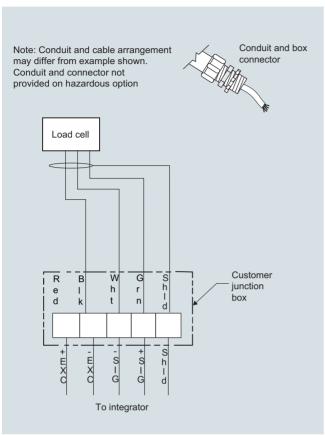


SITRANS WF100, dimensions

LVDT flowmeters

SITRANS WF100

Circuit diagrams



SITRANS WF100 connections

LVDT flowmeters

SITRANS WF200 series

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

LVDT flowmeters

SITRANS WF200 series

Selection and ordering data	•	۱rt	icl	le	No	٠.
SITRANS WF200 series Solids flowmeters	7	MI	H7	11	5-	
impact solids flowmeter for medium to high capacity applications. Accuracy is \pm 1 % or better, with capacity up to 900 t/h (990 STPH).	١	-		-	-	- (
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			В			
For model options 2 and 4			С			
Alumina ceramic tiles						
For model options 1 and 3			D			
For model options 2 and 4			Ε			
Load cell						
50 lb				1		
100 lb				2		
Not specified (for quotation purposes only, not a valid ordering option)				0		
Approvals						
CE, RCM, EAC, KCC					1	
CE, RCM, CSA/FM Class II, Div. 1, Groups E, F, G and Class III ATEX II 2D, Ex tD A21 IP65 T70 °C, CE, RCM, IECEx, Ex tD A21 IP65 T70 °C, EAC Ex					2	

	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
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 https://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.	

¹⁾ Not available with construction option A.

LVDT flowmeters

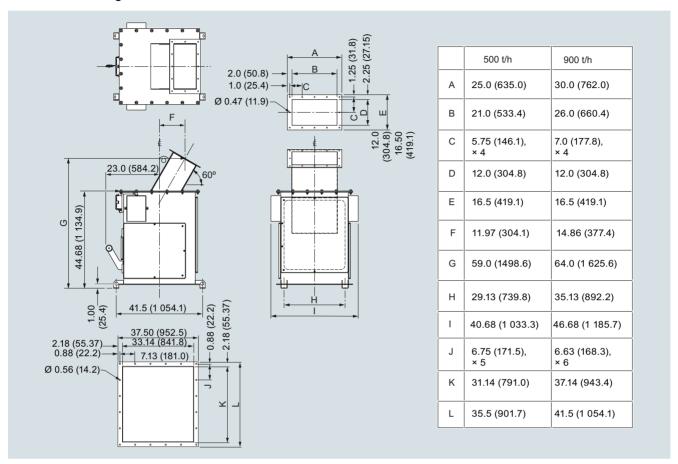
SITRANS WF200 series

Selection and ordering data	Article No.
Spare parts	
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
Spare load cell hardware kit	A5E44809390

LVDT flowmeters

SITRANS WF200 series

Dimensional drawings

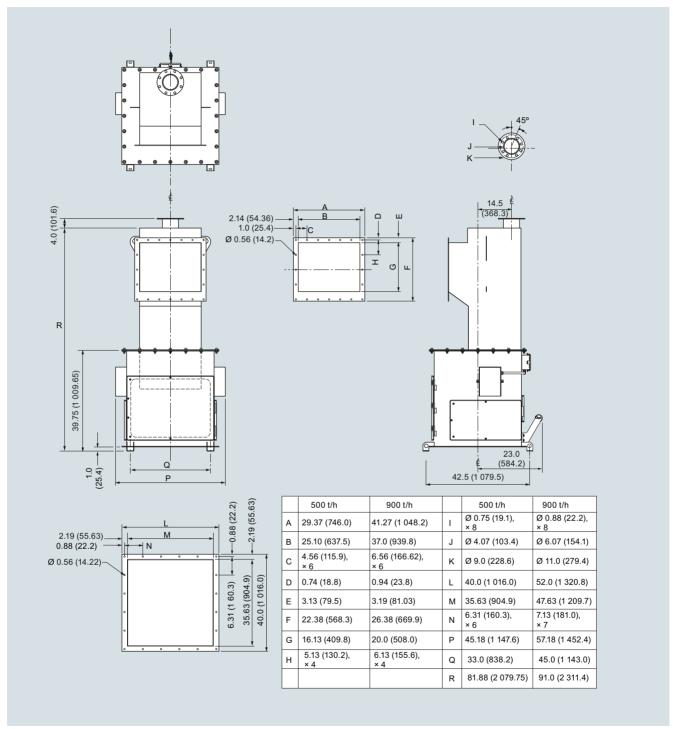


SITRANS WF200, dimensions in inch (mm)

LVDT flowmeters

SITRANS WF200 series

Dimensional drawings (continued)

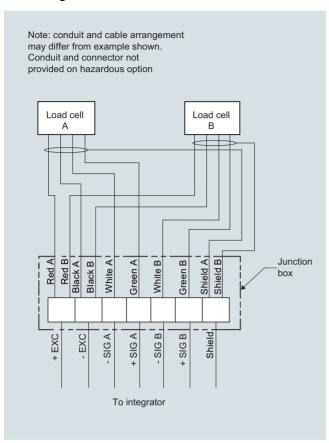


SITRANS WF250, dimensions in inch (mm)

LVDT flowmeters

SITRANS WF200 series

Circuit diagrams

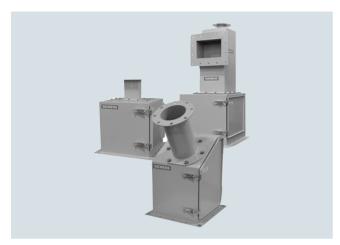


SITRANS WF200 series connections

LVDT flowmeters

SITRANS WF300 series

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.

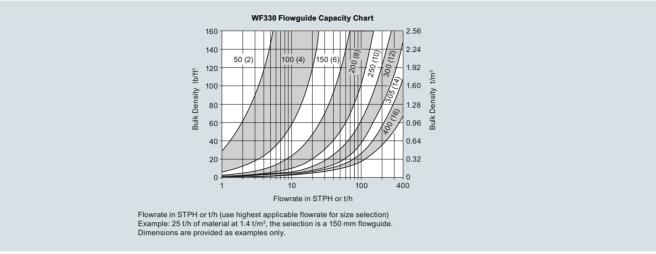
Dry bulk solids enter the flow guide producing a mechanical deflection as they strike the flowmeter sensing plate before continuing through the process unhindered. The LVDT in the sensing head converts the deflection of the horizontal force into an electrical signal. The integrator processes this signal 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.

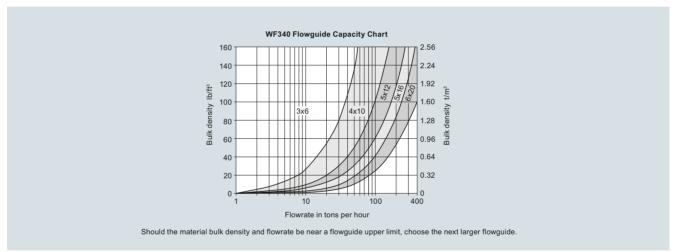
LVDT flowmeters

SITRANS WF300 series

Characteristic curves



SITRANS WF330 flowguide capacity chart



SITRANS WF340 flowguide capacity chart

LVDT flowmeters

SITRANS WF300 series

Selection and ordering data	A	rtic	le	No).	
SITRANS WF330 Solids flowmeter,	71	/Н	710	2-		
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).			-	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		Α				
2 inch ASME flange pattern ¹⁾		В				
4 inch ASME flange pattern ¹⁾		С				
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⁾		Н				
16 inch ASME flange pattern ³⁾		J				
DN 50 flange pattern ¹⁾		K				
DN 100 flange pattern ¹⁾		L				
DN 150 flange pattern ²⁾		М				
DN 200 flange pattern ²⁾		N				
DN 250 flange pattern ²⁾		Р				
DN 300 flange pattern ³⁾		Q				
DN 350 flange pattern ³⁾		R				
DN 400 flange pattern ³⁾		S				
Flowguide construction						
No flowguide		4				
Mild steel, C5-M rated polyester painted		E				
Mild steel, epoxy painted with zinc primer ¹⁾		C				
Mild steel, epoxy painted with zinc primer ³⁾		_)			
304 (1.4301) stainless steel ¹⁾		-				
304 (1.4301) stainless steel ³⁾		F				
316 (1.4401) stainless steel ¹⁾						
316 (1.4401) stainless steel ³⁾	-[]	۲	1			
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⁾ 304 (1.4301) stainless steel ¹⁾			3			
304 (1.4301) stainless steel '7 304 (1.4301) stainless steel ³			4			
			5			
316 (1.4401) stainless steel ¹⁾			6			

	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
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 https://www.siemens.com/weighing/documentation	

- 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.

LVDT flowmeters

SITRANS WF300 series

Selection and ordering data	Article No.		Article No.
Spare parts		Spare parts	
40 TPH, mild steel flowguide		40 TPH, mild steel flowguide	
2 inch ASME	PBD:20377-111	2 inch DIN	PBD:20377-121
4 inch ASME	PBD:20377-211	4 inch DIN	PBD:20377-221
6 inch ASME	PBD:20377-311	6 inch DIN	PBD:20377-321
8 inch ASME	PBD:20377-411	8 inch DIN	PBD:20377-421
10 inch ASME	PBD:20377-511	10 inch DIN	PBD:20377-521
40 TPH, mild steel-epoxy flowguide		40 TPH, mild steel-epoxy flowguide	
2 inch ASME	PBD:20377-112	2 inch DIN	PBD:20377-122
4 inch ASME	PBD:20377-212	4 inch DIN	PBD:20377-222
6 inch ASME	PBD:20377-312	6 inch DIN	PBD:20377-322
8 inch ASME	PBD:20377-412	8 inch DIN	PBD:20377-422
10 inch ASME	PBD:20377-512	10 inch DIN	PBD:20377-522
40 TPH, 304 (1.4301) stainless steel flowguide		40 TPH, 304 (1.4301) stainless steel flowguide	
2 inch ASME	PBD:20377-114	2 inch DIN	PBD:20377-124
4 inch ASME	PBD:20377-214	4 inch DIN	PBD:20377-224
6 inch ASME	PBD:20377-314	6 inch DIN	PBD:20377-324
8 inch ASME	PBD:20377-414	8 inch DIN	PBD:20377-424
10 inch ASME	PBD:20377-514	10 inch DIN	PBD:20377-524
40 TPH, 316 (1.4401) stainless steel flowguide		40 TPH, 316 (1.4401) stainless steel flowguide	
2 inch ASME	PBD:20377-115	2 inch DIN	PBD:20377-125
4 inch ASME	PBD:20377-215	4 inch DIN	PBD:20377-225
6 inch ASME	PBD:20377-315	6 inch DIN	PBD:20377-325
8 inch ASME	PBD:20377-415	8 inch DIN	PBD:20377-425
10 inch ASME	PBD:20377-515	10 inch DIN	PBD:20377-525
300 TPH, mild steel flowguide		300 TPH, mild steel flowguide	
6 inch ASME	PBD:20388-111	6 inch DIN	PBD:20388-121
8 inch ASME	PBD:20388-211	8 inch DIN	PBD:20388-221
10 inch ASME	PBD:20388-311	10 inch DIN	PBD:20388-321
12 inch ASME	PBD:20388-411	12 inch DIN	PBD:20388-421
14 inch ASME	PBD:20388-511	14 inch DIN	PBD:20388-521
16 inch ASME	PBD:20388-611	16 inch DIN	PBD:20388-621
300 TPH, mild steel-epoxy flowguide		300 TPH, mild steel-epoxy flowguide	
6 inch ASME	PBD:20388-112	6 inch DIN	PBD:20388-122
8 inch ASME	PBD:20388-212	8 inch DIN	PBD:20388-222
10 inch ASME	PBD:20388-312	10 inch DIN	PBD:20388-322
12 inch ASME	PBD:20388-412	12 inch DIN	PBD:20388-422
14 inch ASME	PBD:20388-512	14 inch DIN	PBD:20388-522
16 inch ASME	PBD:20388-612	16 inch DIN	PBD:20388-622
300 TPH, 304 (1.4301) stainless steel flowguide	DDD-00000 444	300 TPH, 304 (1.4301) stainless steel flowguide	DDD-00000 404
6 inch ASME	PBD:20388-114	6 inch DIN	PBD:20388-124
8 inch ASME	PBD:20388-214	8 inch DIN	PBD:20388-224
10 inch ASME	PBD:20388-314	10 inch DIN	PBD:20388-324
12 inch ASME	PBD:20388-414	12 inch DIN	PBD:20388-424
14 inch ASME	PBD:20388-514	14 inch DIN	PBD:20388-524
16 inch ASME	PBD:20388-614	16 inch DIN 300 TPH 316 (1 4401) stainless steel flowquide	PBD:20388-624
300 TPH, 316 (1.4401) stainless steel flowguide 6 inch ASME	DRD-20200_115	300 TPH, 316 (1.4401) stainless steel flowguide	DRD-20299_125
8 inch ASME	PBD:20388-115	6 inch DIN	PBD:20388-125 PBD:20388-225
10 inch ASME	PBD:20388-215	8 inch DIN	PBD:20388-225 PBD:20388-325
12 inch ASME	PBD:20388-315	10 inch DIN	
12 Inch ASME 14 inch ASME	PBD:20388-415	12 inch DIN	PBD:20388-425
16 inch ASME	PBD:20388-515	14 inch DIN 16 inch DIN	PBD:20388-525 PBD:20388-625
TO ITIGIT ACIVIE	PBD:20388-615	TO ITICIT DIIN	PDD:20300-023

LVDT flowmeters

SITRANS WF300 series

Selection and ordering data	Article No.	
SITRANS WF340 Solids flowmeter, compact design	7MH7104-	
Impact solids flowmeter for low to medium capacity applications. Accuracy is ± 1 % or better, with capacity up to 300 t/h (330 STPH).	•••	
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)	Α	
3 x 6 inch (76 x 152 mm) ¹⁾	В	
4 x 10 inch (102 x 254 mm) ¹⁾	С	
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	Α	
Mild steel, C5-M rated polyester painted	В	
304 (1.4301) stainless steel ¹⁾	С	
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	н	
304 (1.4301) stainless steel, with PTFE liner ¹⁾	J	
304 (1.4301) stainless steel, with PTFE liner ²⁾	К	
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	

	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
Inspection certificate type 3.1 per EN 10204 ³⁾	C12
Instruction manuals	
All literature is available to download for free, in a range of languages, at https://www.siemens.com/weighing/documentation	

- 1) For versions 1 and 2 only.
- For version 3 only.
 Not available with cabinet construction option 1.

LVDT flowmeters

SITRANS WF300 series

Spare parts Spare parts 300 TPH, mild steel flowguide 3 x 6 inch PBD:20401-100 5 x 16 inch PBD:20455-10 4 x 10 inch PBD:20355-100 300 TPH, mild steel-epoxy flowguide 5 x 16 inch PBD:20458-10 300 TPH, mild steel-epoxy flowguide 5 x 16 inch PBD:20458-20 3 x 6 inch PBD:20458-20 4 x 10 inch PBD:20458-20 5 x 16 inch PBD:20458-20 4 x 10 inch PBD:20458-20 5 x 16 inch PBD:20458-20 4 x 10 inch PBD:20458-20 5 x 16 inch PBD:20458-20 4 x 10 inch PBD:20458-20 5 x 16 inch PBD:20458-30 6 x 20 inch PBD:20458-30 4 x 10 inch PBD:20458-30 5 x 16 inch PBD:20458-40 5 x 16 inch PBD:20458-50 5 x 16 inch PBD:20458-60 5 x 16 inch PBD:20458-70	Selection and ordering data	Article No.		Order Code
3 x 6 linch PBD:20401-100 5 x 16 linch PBD:20455-10 4 x 10 linch PBD:20395-100 6 x 20 linch PBD:20458-10 5 x 12 linch PBD:20405-100 300 TPH, mild steel-epoxy flowguide 5 x 16 linch PBD:20455-20 40 TPH, mild steel-epoxy flowguide 5 x 16 linch PBD:20455-20 9 x 20 linch PBD:20458-20 4 x 10 linch PBD:20395-200 300 TPH, 304 (1.4301) stainless steel flowguide 5 x 16 linch PBD:20458-30 4 x 10 linch PBD:20405-200 5 x 16 linch PBD:20458-30 PBD:20458-30 4 x 10 linch PBD:20405-200 5 x 16 linch PBD:20458-30 PBD:20458-30 4 x 10 linch PBD:20405-300 300 TPH, 304 (1.4301) stainless steel-PTFE PBD:20458-30 4 x 10 linch PBD:20495-300 5 x 16 linch PBD:20458-40 4 x 10 linch PBD:20495-300 5 x 16 linch PBD:20458-40 4 x 10 linch PBD:20495-300 5 x 16 linch PBD:20458-40 4 x 10 linch PBD:20495-400 5 x 16 linch PBD:20458-50 5 x 12 linch PBD:20495-500 6 x 20 linch	Spare parts		Spare parts	
4 x 10 inch PBD:20395-100 6 x 20 inch PBD:20458-10 5 x 12 inch PBD:20405-100 300 TPH, mild steel-epoxy flowguide PBD:20455-20 3 x 6 inch PBD:20401-200 6 x 20 inch PBD:20455-20 4 x 10 inch PBD:20395-200 300 TPH, 304 (1.4301) stainless steel flowguide 5 x 12 inch 4 x 10 inch PBD:20401-300 5 x 16 inch PBD:20458-30 4 x 10 inch PBD:20395-300 5 x 16 inch PBD:20458-30 5 x 12 inch PBD:20401-300 300 TPH, 304 (1.4301) stainless steel-PTFE flowguide 5 x 16 inch PBD:20458-30 5 x 12 inch PBD:20405-300 5 x 16 inch PBD:20458-40 PBD:20458-40 4 x 10 inch PBD:20405-300 5 x 16 inch PBD:20458-40 PBD:20458-40 4 x 10 inch PBD:20405-300 5 x 16 inch PBD:20458-40 PBD:20458-40 4 x 10 inch PBD:20405-400 5 x 16 inch PBD:20458-50 PBD:20458-50 5 x 12 inch PBD:20405-500 5 x 16 inch PBD:20458-60 PBD:20458-60 4 x 10 inch PBD:20455-60 PBD:20458-60	40 TPH, mild steel flowguide		300 TPH, mild steel flowguide	
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5 x 12 inch PBD:20405-400 40 TPH, mild steel-PTFE flowguide 300 TPH, mild steel-PTFE flowguide 3 x 6 inch PBD:20401-500 4 x 10 inch PBD:20395-500 5 x 12 inch PBD:20405-500 40 TPH, 304 (1.4301) stainless steel-PTFE flowguide 5 x 16 inch 3 x 6 inch PBD:20401-600 4 x 10 inch PBD:20395-600 5 x 12 inch PBD:20405-600 40 TPH, mild steel-AR flowguide 6 x 20 inch 5 x 12 inch PBD:20405-600 40 TPH, mild steel-AR flowguide PBD:20401-700 4 x 10 inch PBD:20395-700	4 x 10 inch	PBD:20395-400		
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5 x 12 inch 40 TPH, 304 (1.4301) stainless steel-PTFE flowguide 3 x 6 inch 4 x 10 inch 5 x 16 inch 4 x 10 inch PBD:20405-500 PBD:20495-70 PBD:20458-70	4 x 10 inch	PBD:20395-500		PBD:20458-60
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3 x 6 inch PBD:20401-700 4 x 10 inch PBD:20395-700	5 x 12 inch	PBD:20405-600		
4 x 10 inch PBD:20395-700	40 TPH, mild steel-AR flowguide			
	3 x 6 inch	PBD:20401-700		
5 x 12 inch PBD:20405-700	4 x 10 inch	PBD:20395-700		
	5 x 12 inch	PBD:20405-700		

LVDT flowmeters

SITRANS WF300 series

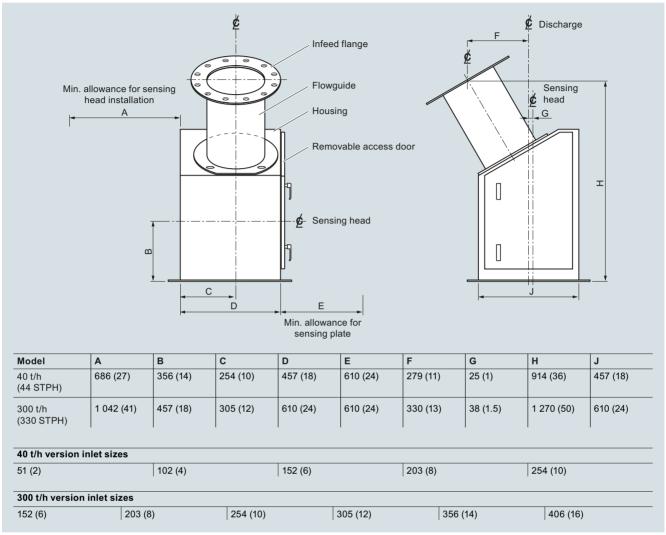
Selection and ordering data Article No.		١.					
SITRANS WF350 Solids flowmeter, aerated infeed design	7MH7106-						
Impact solids flowmeter for low to medium capacity applications. Accuracy is \pm 1 % or better, with capacity up to 300 t/h (330 STPH).		-			-		
Click on the Article No. for the online 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		В					
10 inch (254 mm), 300 t/h		С					
12 inch (305 mm), 40 t/h (0.2 to 44 STPH) version		D					
14 inch (356 mm), 300 t/h		Ε					
20 inch (508 mm), 300 t/h		F					
Flowguide construction							
Mild steel, C5-M rated polyester painted			В				
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		

	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
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 https://www.siemens.com/weighing/documentation	
-	
Spare parts	Article No.
40 TPH, mild steel flowguide	
8 inch	PBD:22520-1A0
12 inch	PBD:22520-2A0
40 TPH, 304 (1.4301) stainless steel flowguide	
8 inch	PBD:22520-1B0
12 inch	PBD:22520-2B0
40 TPH, 316 (1.4401) stainless steel flowguide	
8 inch	PBD:22520-1C0
12 inch	PBD:22520-2C0
300 TPH, mild steel flowguide	
10 inch	PBD:22519-1A0
14 inch	PBD:22519-2A0
20 inch	PBD:22519-3A0
300 TPH, 304 (1.4301) stainless steel flowguide	
10 inch	PBD:22519-1B0
14 inch	PBD:22519-2B0
20 inch	PBD:22519-3B0
40 TPH, 316 (1.4401) stainless steel flowguide	
10 inch	PBD:22519-1C0
14 inch	PBD:22519-2C0
20 inch	PBD:22519-3C0

LVDT flowmeters

SITRANS WF300 series

Dimensional drawings

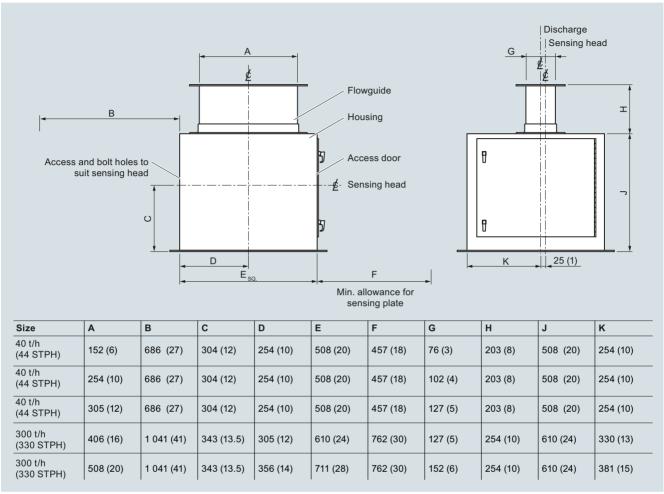


SITRANS WF330, dimensions in mm (inch)

LVDT flowmeters

SITRANS WF300 series

Dimensional drawings (continued)

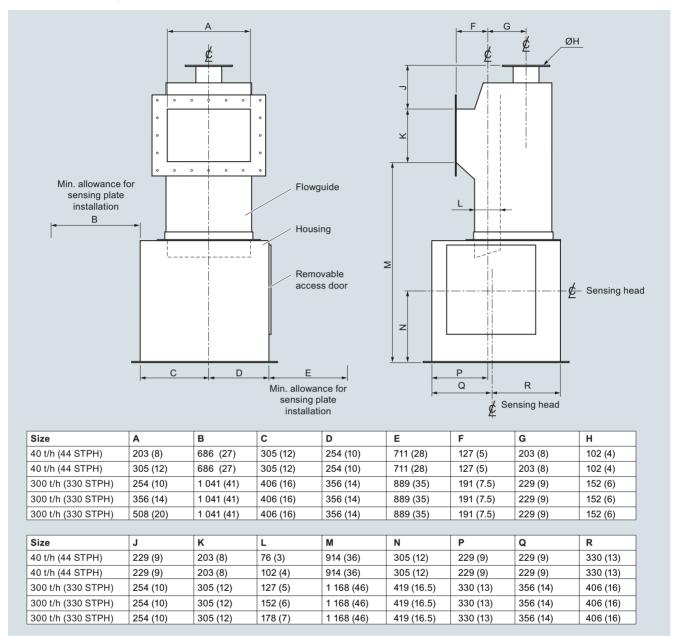


SITRANS WF340, dimensions in mm (inch)

LVDT flowmeters

SITRANS WF300 series

Dimensional drawings (continued)

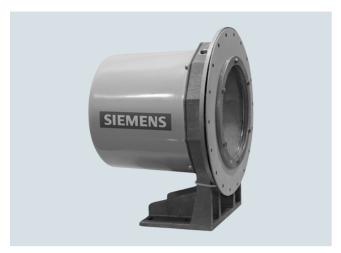


SITRANS WF350, dimensions in mm (inch)

Sensing heads

SITRANS WFS300 series sensing heads

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
- ± 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 FlowmetersSensing heads

SITRANS WFS300 series sensing heads

Technical specifications

Sensing heads	WFS300	WF\$320				
Mode of operation						
Measuring principle	Deflection measurement using LVDT (linear variable differential transformer)					
Typical application	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					
Repeatability	± 0.2 %					
Specified range	33 100 %					
Medium conditions						
Ambient temperature • Without internally mounted LVDT card • With optional internally mounted LVDT card	-40 +60 °C (-40 +140 °F) -40 +50 °C (-40 +122 °F)	-40 +60 °C (-40 +140 °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				
Options	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 SF50 SIWAREX FTC integrator when sensing head is mounted in hazardous areas or with high ambient temperatures					
Approvals	CE, RCM, CSA, FM, EAC, KCC, ATEX, IEC Ex, EAC Ex	CE, RCM, CSA, FM, EAC, KCC, ATEX, IEC Ex, EAC Ex				

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.

Sensing heads

SITRANS WFS300 series sensing heads

SITRANS WFS300 Sensing head			icl	•	• • •	•
-	7	МН	171	11	0-	
Impact solids flowmeter for low to medium capacity applications. Accuracy is \pm 1 % or better, with capacity up to 40 t/h (44 STPH).		I	-		-	
→ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Mounting						
Base	0					
Side	1					
Base, explosion proof, CSA/FM Class I, Div.1, Groups C and D; Class II, Div. 1, Groups E, F and G, ATEX II 2D - Ex tb IIIC T70 °C Db IP64, ATEX II 3D, Ex tc IIIB T70 °C Dc IP5X, IECEx FMG 13.0016X, Ex nA IIC T6 Gc, Ex tb IIIC T70 °C Db IP64, EAC Ex, RCM, EAC, KCC	3					
Side, explosion proof, CSA/FM Class I, Div. 1 Groups C and D; Class II, Div. 1, Groups E, F, and G, ATEX II 2D - Ex tb IIIC T70 °C Db IP64, ATEX II 3D, Ex tc IIIB T70 °C Dc IP5X, IECEx FMG 13.0016X, Ex nA IIC T6 Gc, Ex tb IIIC T70 °C Db IP64, EAC Ex, RCM, EAC, KCC	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		А				
C3/A2/1 000		В				
C4/A2/1 000		С				
C5/A2/1 000		D				
C6/A2/1 000		E				
C7/A2/1 000		F				
C8/A2/3 000		G				
C9/A2/3 000		Н				
C10/A2/3 000		J				
C11/A3/5 000		K				
C12/A3/5 000		L				
C13/A3/5 000		м				
C14/A3/5 000		N				
C0/A2/500		Р				
C0/A3/500		Q				
C10/A3/3 000		R				
Gasketing						
Silicone			Α			
Silicone, light duty			В			
PTFE			E			
Coating (process side only)			ĺ			
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	
CINANDEX ETO :2)						

	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
Instruction manuals	
All literature is available to download for free, in a range of languages, at https://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.	

For use with Compu Series integrators or when externally mounted LVDT conditioner required.
 Applicable for mounting options 0 and 1 only.

Sensing heads

SITRANS WFS300 series sensing heads

Selection and ordering data	Article No.
Spare parts	
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

Sensing heads

SITRANS WFS300 series sensing heads

Selection and ordering data	Article No.
SITRANS WFS320 Sensing head	7MH7112-
Impact solids flowmeter for medium capacity applications. Accuracy is \pm 1 % or better, with capacity up to 300 t/h (330 STPH).	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Classification	
Non-hazardous	1
Hazardous, CSA/FM Class I, Div.1, Groups C and D; Class II, Div. 1, Groups E, F and G, ATEX II 2D - Ex to IIIC T70 °C Db IP64, ATEX II 3D, Ex to IIIB T70 °C Dc IP5X, IECEx FMG 13.0016X, Ex nA IIC T6 Gc, Ex to IIIC T70 °C Db IP64, EAC Ex	2
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	Α
D1/1 000 Position 2	В
D1/1 000 Position 3	С
D2/1 000 Position 1	D
D2/1 000 Position 2	E
D2/1 000 Position 3	F
D3/3 000 Position 1	G
D3/3 000 Position 2	н
D3/3 000 Position 3	J
D4/5 000 Position 1	К
D4/5 000 Position 2	L
D4/5 000 Position 3	М
D5/5 000 Position 1	N
D5/5 000 Position 2	P
D5/5 000 Position 3	Q
Gasketing	
Silicone	Α
PTFE Other gasketing available upon request	_ D
Coating (process side only)	
None, standard aluminum	0
Epoxy - white/aluminum, external castings only Other coatings available upon request.	_ 1
Sensing head mounted LVDT conditioner	
None ¹⁾	0
Included, required for use with SF500 or SIWAREX FTC integrator ²⁾	

	Order Code
Eurther designs	
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
Instruction manuals	
All literature is available to download for free, in a range of languages, at https://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	
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

¹⁾ For use with Compu series integrators or when externally mounted LVDT conditioner required. See Note under Classification.

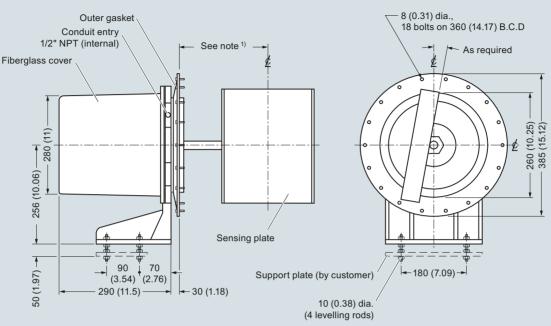
²⁾ Available with classification option 1 only.

Solid FlowmetersSensing heads

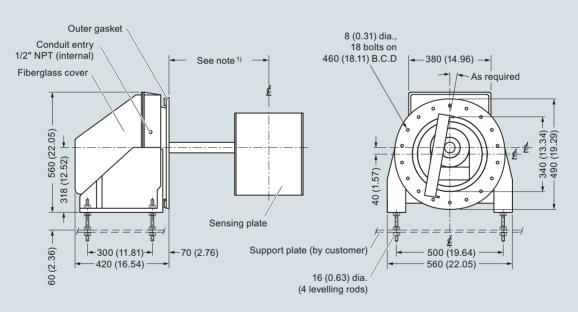
SITRANS WFS300 series sensing heads

Dimensional drawings

WFS300 Sensing Head



WFS320 Sensing Head



Notes:

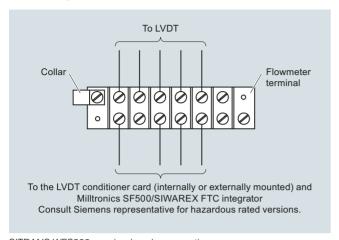
- 1) Refer to flowmeter drawing for sensing head mounting hole to flowguide centerline dimension.
- ²⁾ Sensing head support plate should be rigid and independent of flowmeter housing.
- 3) Ensure outer gasket seals dust tight to flowmeter housing wall.

SITRANS WFS300 sensing heads, dimensions in mm (inch)

Sensing heads

SITRANS WFS300 series sensing heads

Circuit diagrams



SITRANS WFS300 sensing heads connections

Selection and ordering data

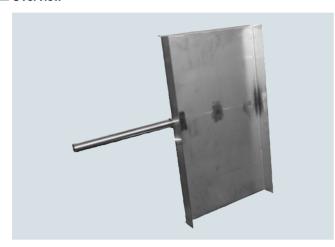
Solid Flowmeters

Article No.

Sensing plates

SITRANS flowmeter sensing plates

Overview



The sensing plate transfers the impact force to the sensing head of the flowmeter.

Selection and ordering data	Article N	o.
SITRANS Flowmeter sensing plates	7MH7114	-
Sensing plates transfer the impact force to the sensing head of the flowmeter.		0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
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	
20×12 inch (508 x 304.8 mm), for version option 1 with 8 inch (203.2 mm) flowguide ¹⁾	В	
20×14 inch (508 x 355.6 mm), for version option 1 with 10 inch (254 mm) flowguide $^{1)}$	С	
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⁾	5 D	
24×16 inch (609.6 x 406.4 mm), for version option 5 with 10 or 12 inch (254 or 304.8 mm) flowguide 1)	5 E	
24×20 inch (609.6 × 508 mm), for version option 5 with 14 or 16 inch (355.6 or 406.4 mm) flowguide 1)		
12×12 inch (304.8 x 304.8 mm), for version option 4 with 8 inch (203.2 mm) flowguide ²⁾	4 G	
16×14 inch (406.4 x 355.6 mm), for version option 2 with 12 inch (304.8 mm) flowguide ²⁾	4 H	
14×18 inch (355.6 x 457.2 mm), for version option 7 with 10 inch (254 mm) flowguide ²⁾	7 J	
18×20 inch (457.2×508 mm), for version option 7 with 14 inch (355.6 mm) flowguide ²⁾	K	

SITRANS Flowmeter sensing plates	7	MH	17	11	4-		ĺ
Sensing plates transfer the impact force to the sensing head of the flowmeter.			-		0		
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⁾		Т					
Plate material							
304 (1.4301) stainless steel ⁵⁾			Α				
304 (1.4301) stainless steel ⁶⁾			В				
316 (1.4401) stainless steel ⁷⁾			С				
316 (1.4401) stainless steel ⁶⁾			D				
304 (1.4301) stainless steel, heavy-duty ⁷⁾			Ε				
304 (1.4301) stainless steel, heavy-duty ⁶⁾			F				
316 (1.4401) stainless steel, light-duty ⁸⁾			G				
316 (1.4401) stainless steel, heavy-duty ⁷⁾			Н				
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			
Plasma A/R ⁷⁾				8			
Plasma A/R ⁶⁾				0			
Further designs	С)rd	er	Co	ode)	ĺ
Please add "-Z" to article no. and specify order code(s).							
Inspection certificate type 3.1 per EN 10204	С	:12	2				
Instruction manuals							ĺ
All literature is available to download for free, in a range of languages, at							
https://www.siemens.com/weighing/documentation							

- 1) See 7MH7102, page 6/18.
- ²⁾ See 7MH7106, page 6/23.
- ³⁾ See 7MH7104, page 6/21.
- 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).

Solids flowmeters accessories

Solids flowmeters peripherals

Selection and ordering data Flowmeter spare load cells Millflo flowmeters stainless steel, with hardware 1 lb (0.5 kg) 2 lb (0.9 kg) 5 lb (2.3 kg) PBD-23900177 10 lb (4.6 kg) 20 lb (9.2 kg) Replace with 2 lb PBD-23900177 7MH7725-1AA 7MH7725-1AB

Millflo L, M, and MA series flowmeters stainless steel, with hardware

50 lb (22.7 kg) 100 lb (45.4 kg) 7MH7725-1AC 7MH7725-1AD

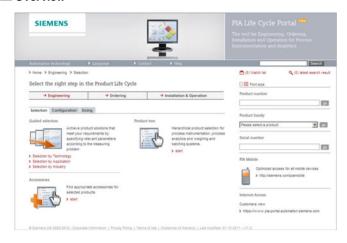
Appendix



7/2 7/2	PIA Life Cycle Portal Engineering, Ordering, Installation and Operation Tool
7/3 7/4	Partner at Siemens Siemens Partner Program
7/5 7/5	Product documentation Product documentation on SIOS
7/6 7/7 7/9	Industry Services Industry Services – Portfolio overview Online Support
7/10 7/10	Siemens Automation Cooperates with Education (SCE) Teaching made easy - Comprehensive support on the way to Industry 4.0
7/13 7/14	SITRAIN – Digital Industry Academy Course offer for Process Instrumentation
7/15	Software licenses
7/17	Conditions of sale and delivery

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

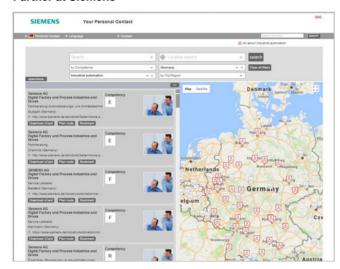
Tel.: +49 (721) 595 2114

E-Mail: support.pia-portal@siemens.com

www.siemens.com/pia-portal

Overview

Partner at Siemens



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Digital Industries.

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

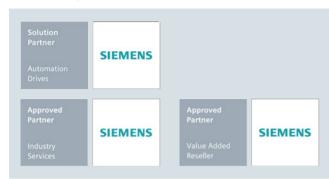
or bv a

• location search or free text search.

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 Parners for industry is available online at:

www.siemens.com/partnerprogram

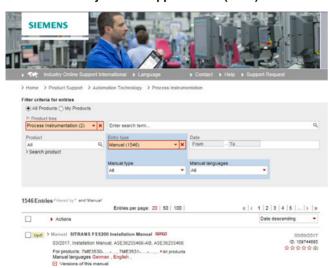
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Appendix

Product documentation

Product documentation on SIOS

Siemens Industry Online Support Portal (SIOS)

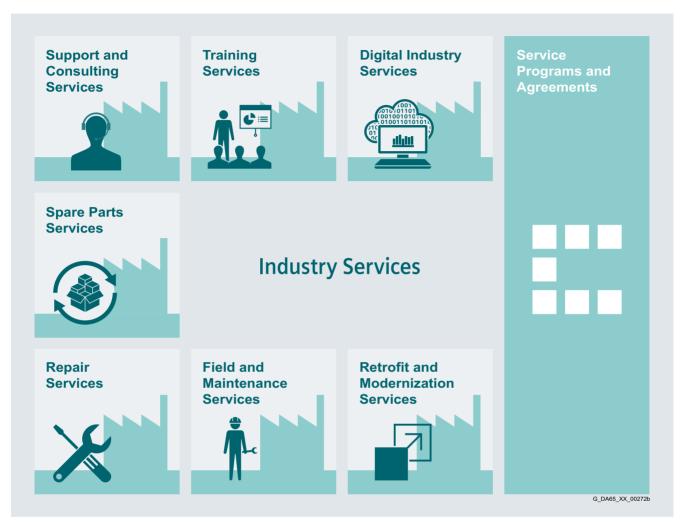


For the complete portfolio, customers can download product documentation for free using the following links to our Siemens Industry Online Support Portal (SIOS):

http://www.siemens.com/processinstrumentation/documentation

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.

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 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



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



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



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

Industry Services - Portfolio overview

Overview (continued)



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



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



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



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

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Overview



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.

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 CAx and 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.



SIMULATION



AUTOMATION



CLOUD

CAx and cloud technologies

Computer-assisted technologies (CAx)

Virtual commissioning using simulation models

Cloud technologies

Connection and data analysis with smart data, manufacturing execution system (MES) and enterprise resource planning (ERP)

Automation and industrial communication technologies

Industrial automation

......

e.g. distributed IO, HMI, RFID, IO-Link, drive systems, safety technologies

Industrial IT technologies

e.g. Industrial Ethernet, interlace with software of third-party providers (OPC UA), security, communication networks

.....

Basics of automation technologies

Digital technologies

Boolean functions

PLC technologies

PLC programming according to IEC 61131

IT technologies

Ethernet and high-level programming languages, e.g. Python, Node-RED, C/C++, Linux

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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/iot2020

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

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



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

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

siemens.com/sce/books

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.

The next international skill competitions are scheduled for Kazan/Russia, in 2019 and Shanghai/China, in 2021. Additionally, we support selected continental and regional competitions.

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

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/partner

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

SIEMENS

Global Industry Partner of WorldSkills International

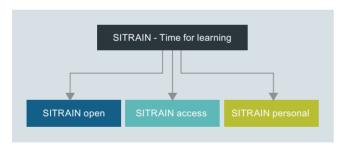


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Time for learning

Today's demands on our knowledge are every bit as diverse and dynamic as our profession itself. We keep learning more and longer – for our work, for our career and for ourselves. Advancing digitalization entails new topics and is also changing the way we absorb and process knowledge. SITRAIN – Digital Industry Academy offers the right source of knowledge here, which we can use anytime in just the way we need it. The time for learning is now.



Knowledge for every need

With its three areas – SITRAIN open, SITRAIN access and SITRAIN personal – SITRAIN offers you an all-encompassing range of options for an ongoing expansion of your knowledge and skills, suited for every type of learner. And SITRAIN uses advancing digitalization to continuously expand content and offer new training methods.





SITRAIN – Digital Industry Academy Customer Support Germany

Tel.: +49 911 895-7575

Email: sitrain.digital.industry.academy.de@siemens.com

Knowledge you can always find

SITRAIN open bundles useful information, worthwhile data and up-to-date expert knowledge about Siemens products for industry. Search it anytime, find anything – and always the right stuff.

Knowledge that gets you ahead

SITRAIN access is learning in the digital age. It offers you individualized ways to build your knowledge and access to exclusive digital training courses. Take advantage of sustainable learning success with a wide range of learning methods. Improve your skills – whether working in groups with others, or by yourself. Whenever, wherever and however you need to.

Knowledge you can experience

We all want to learn from the best. And SITRAIN personal's training courses let you benefit from our well-practiced trainers' expert knowledge, along with direct access to our training equipment. That's the best way to convey knowledge – whether at your company or in our training classrooms.

SITRAIN - Digital Industry Academy

www.siemens.com/sitrain

- SITRAIN open: www.siemens.com/sitrain-open
- SITRAIN access: www.siemens.com/sitrain-access
- SITRAIN personal: www.siemens.com/sitrain-personal

Appendix

SITRAIN - Digital Industry Academy

Course offer for Process Instrumentation

Overview

Course offer for Weighing Technology

Name	Internet	Lenght	Training-ID
Weighing and Dosing System			
Weighing Technologies, Belt Scales, Weighfeeder	https://www.sitrain-learning.siemens.com/DE/en/rw31444/Weighing-Technologies-Belt-Scales-Weighfeeder	2 days	SC-WT-BELE
Weighing Technology for Dosing Scales	https://www.sitrain-learning.siemens.com/DE/en/rw45256/Weighing-Technology-for-Dosing-Scales	3 days	SC-WT-DOSE
Mechanical Weighing Technology	https://www.sitrain-learning.siemens.com/DE/en/rw11059/Mechanical-Weighing-Technology	1 day	SC-WT-MECE
SIWAREX Sensor System and Electronics FTC-L	https://www.sitrain-learning.siemens.com/DE/en/rw13953/SIWAREX-Sensor-System-and-Electronics-FTC-L	2 days	SC-WT-FTCE
Static Weighing Technology	https://www.sitrain-learning.siemens.com/DE/en/rw56700/Static-Weighing-Technology	3 days	SC-WT-STAE
Weighing Technology Overview and Certification (only for Siemens employees)	https://www.sitrain-learning.siemens.com/DE/en/rw51009/Weighing- Technology-Overview-and-Certification	4 days	SC-WT-CWS

Course offer for Process Instrumentation

Name	Internet	Lenght	Training-ID
Fundamentals and Service			
Process Instrumentation Overview and Certification (only for Siemens employees)	https://www.sitrain-learning.siemens.com/DE/en/rw70579/Process-Instrumentation-Overview-and-Certification	4 days	SC-PI-CWS
Pressure- / Temperature Measurement / Pos	itioner		
Pressure, Temperature and Positioners - Technology	https://www.sitrain-learning.siemens.com/DE/en/rw41169/Pressure-Temperature-and-Positioners-Technology	4 days	SC-PI1-T1E
Level Measurement			
Level Measurement - Technology and Sales	https://www.sitrain-learning.siemens.com/DE/en/rw98538/Level-Measurement-Technology-and-Sales	4 days	SC-PI2-T1E
Use of Sonic- and Process Intelligence in Practice	https://www.sitrain-learning.siemens.com/DE/en/rw3461/Use-of-Sonic-and-Process-Intelligence-in-Practice	2 days	SC-PI2-SPI
Flow Measurement			
Flow Measurement - Technology	https://www.sitrain-learning.siemens.com/DE/en/rw61730/Flow-Measurement-Technology	4 days	SC-PI3-T1E
Clamp-on Ultrasonic Flow Measurements	https://www.sitrain-learning.siemens.com/DE/en/rw83148/Clamp-on- Ultrasonic-Flow-Measurements	2 days	SC-PI3-CO
Ex Protection			
Fundamentals of explosion protection	https://www.sitrain-learning.siemens.com/DE/en/rw64352/Fundamentals-of-explosion-protection	3 hours	SC-S-EXBAS
Explosion protection for users	https://www.sitrain-learning.siemens.com/DE/en/rw92471/Explosion-protection-for-users	3 hours	SC-S-EXUSE
Explosion protection for mechanic (only on German)	https://www.sitrain-learning.siemens.com/DE/de/rw39573/Explosionss-chutz-f%C3%BCr-Mechaniker	3 hours	SC-S-EXMEC
Explosion protection for electrician (only on German)	https://www.sitrain-learning.siemens.com/DE/en/rw2869/Explosionss- chutz-f%C3%BCr-Elektriker	3 hours	SC-S-EXELC

Custom and tailor-made training

Additionally to our standard technical, industry and sales training we offer our customers the possibility of custom and tailormade 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 informationen 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 Germany

For customers with a seat or registered office in Germany, 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 installation work the "General Conditions for Erection Works – Germany"¹⁾ ("Allgemeine Montagebedingungen – Deutschland" (currently only available in German)) and/or
- 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 "General Terms and Conditions for Consulting Services of the Division DF – Germany" and/or
- for other supplies and/or services the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹).

In case such supplies and/or services 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 Germany

For customers with a seat or registered office outside Germany, 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 services the "International Terms & Conditions for Services" 1) supplemented by "Software Licensing Conditions" 1) and/or
- for consulting services the "General Terms and Conditions for Consulting Services of the Division DF – Germany" and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products") supplemented by "Software Licensing Conditions")

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.

The text of the Terms and Conditions of Siemens AG can be downloaded at https://mall.industry.siemens.com/legal/ww/en/

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.

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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 must comply with all applicable national and international (re-)export control regulations.

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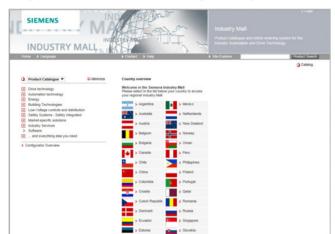
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Selection and ordering at Siemens

Industry Mall, Catalog CA 01, downloading and ordering catalogs

Easy product selection and ordering: Industry Mall and Interactive Catalog CA 01



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