© Siemens 2020

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

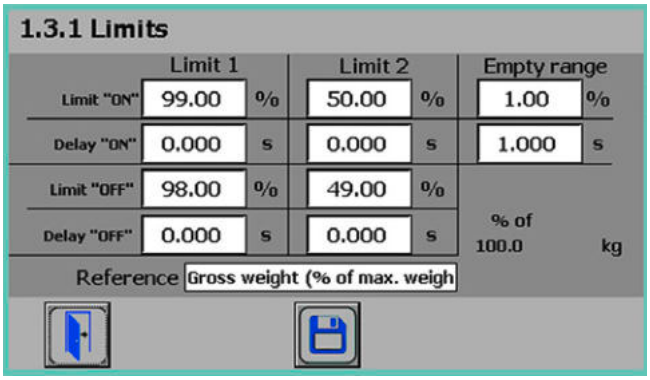
The primary task of SIWAREX WT231 is the measurement and conversion of sensor voltage into a weight value. Up to three interpolation points are used for the weight calculation. The signal can also be digitally filtered if required.

Weighing functions

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

Monitoring and control of the scale signals and states

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



SIWAREX WT231 operating view "Limit values"

ICS Schneider Messtechnik GmbH
Briesestraße 59
D-16562 Hohen Neuendorf / OT Bergfelde

Tel.: 03303 / 504066
Fax: 03303 / 504068

info@ics-schneider.de
www.ics-schneider.de

© Siemens 2020

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.

Technical specifications

SIWAREX WT231	
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 • 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) • 4 digital inputs (24 V DC) • 1 analog output (0/4 ... 20 mA)
Commissioning options for the scale	Directly via the color touch panel and the preinstalled "Ready for use" operating software
Calibration approval	No
Internal resolution	Up to ± 4 million parts
Number of measurements/second (internal)	100 Hz
Filter	• Low-pass filter 0.1 ... 50 Hz • Average value filter
Weighing functions	
Weight values	• Gross • Net • Tare
Limit values	• Min/max • Empty
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 signal (at greatest set characteristic value)	-21.3 ... +21.3 mV
Max. distance of load cells	500 m (229.66 ft)
Auxiliary power supply	
Rated voltage	100 ... 240 V AC
Line frequency	50 ... 60 Hz
Max. power consumption	0.12 A
IP degree of protection to 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 × 185 × 97 mm (10.39 × 7.28 × 3.82 inch)
Weight	4 kg (8.82 lb)

© Siemens 2020

Selection and ordering data

	Article No.
SIWAREX WT231 **Weighing terminal for industrial scales**	**7MH4965-2AA01**
SIWAREX WT231 **Equipment Manual** In various languages. Free download on the Internet at: http://www.siemens.com/weighing/documentation	
Accessories	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	**7MH4900-1AK01**
Ethernet cable patch cord 2 m (7 ft) For connecting SIWAREX WT231 to a PC (SIWATOOL), SIMATIC CPU, panel, etc.	**6XV1850-2GH20**
Spare parts	
Connection board SIWAREX WT2x1 Connection board for connection of load cells and speed sensor in SIWAREX WT2x1 as spare part	**A5E46650277**

	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	**7MH4702-8AG**
• For hazardous atmospheres. Sheath color: blue.	**7MH4702-8AF**
Commissioning	
Commissioning charge for one static scale with SIWAREX module (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	**9LA1110-8SN50-0AA0**
Flat charge for travel and setup in Germany	**9LA1110-8RA10-0AA0**

ICS Schneider Messtechnik GmbH
Briesestraße 59
D-16562 Hohen Neuendorf / OT Bergfelde

Tel.: 03303 / 504066
Fax: 03303 / 504068

info@ics-schneider.de
www.ics-schneider.de