

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

7MH4553-1AA41

SIWAREX WEIGHING MODULE

Used with the applicable PLC System configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official manufacturer documentation

SIMATIC S7-300

Function modules

SIWAREX M

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Overview



SIWAREX M is a legal-for-trade weighing module for exact weighing and proportioning, and can be used in SIMATIC automation systems without problem. The module controls the proportioning of individual setpoints independent of the cycle time of the automation system, and therefore achieves a high proportioning accuracy.

Technical specifications

SIWAREX M	
Main applications	- Platform scales - Fill level (containers/bins) - Proportioning and batching scales - Scales with verification capability
Intrinsically-safe load cell powering	Optional (Ex-I)
Stand-alone (without SIMATIC)	Yes
Integration in:	
• S5-90/-95U/-100U	Via RS 232/TTY + CP
• S5-95U/DP (PROFIBUS master)	Via RS 232/TTY + CP
• S5-115U/-135U/-155U	Via ET 200M
• S7-300	Direct integration
• S7-400	Via ET 200M
• PCS 7	Via ET 200M
• C7	Via IM or ET 200M
• TELEPERM M (AS 388/488/TM)	Via ET 200M
Communication interfaces	SIMATIC S7 (P bus) RS 232, TTY
Process interfaces	
• Digital inputs	3 (assignable)
• Digital outputs	4 (assignable)
• Analog output/analog input	Yes / No
Remote display connection (via serial interface)	Yes (verification capability) Gross/net/setpoint Remote display with operator control
Printer connection	Yes (verification capability)
Measuring properties	
EU type approval for medium accuracy weighing machines Class III (with verification capability)	6000 d
Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K	0,01 %
n_{ind} in acc. with EN 45 501	6000
Min. measuring signal Δu_{min} per d	0.5 μ V
Internal resolution	± 524.288
Data format for weight values	4 byte (fixed-point)

SIWAREX M	
Number of measurements/second	50
Filter	Exponent filter: 0.05 ... 5 Hz Mean value filter
Weighing functions	
• Weight values	Gross/net/tare
• Limits	4 (min./max./empty/overflow)
• Scale standstill	Yes
• Zero setting function	Via command or automatically
Proportioning functions	- Control of coarse/fine flow valves - Tolerance monitoring - Material flow monitoring - Autom. proportioning optimization - Autom. reproportioning - Inching mode
Module parameterization	Via SIMATIC S5/S7/C7 or SIWATOOL M PC parameterization software
UL/CSA/FM certification	Yes
IP degree of protection to DIN EN 60529; IEC 60529	In S7 frame: IP20 Stand-alone: IP10
Load cell powering	
• Supply voltage U_s (rated value)	10.2 V DC
• Max. supply current	≤ 180 mA
• Permissible load resistance:	
- R_{Lmin}	> 60 Ω
- R_{Lmax}	< 4010 Ω
	With Ex(i) interface:
- R_{Lmin}	> 87 Ω
- R_{Lmax}	< 4010 Ω
Permissible load cell characteristic	Up to 4 mV/V
Permissible range of measuring signal (at greatest set characteristic)	-41.5 ... 41.5 mV DC
Max. distance of load cells	1000 m (300 m in Ex area ¹⁾)

1) Up to 1000 m, depending on the gas group. www.DataSheet4U.com

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Technical specifications (continued)

SIWAREX M	
Supply voltage 24 V DC	
• Rated voltage	24 V DC
• Max. current consumption	300 mA
Voltage supply from backplane bus	typ. 50 mA
Serial port 1	
	RS 232:
• Baud rate	2400/9600 baud
• Parity	Even/odd
• No. of data bits/stop bits	8/1
• Signal level	In acc. with EIA-RS 232
• Protocols	SIWAREX protocol 3964R XON/XOFF (printer) ²⁾
Serial port 2	
	TTY:
• Baud rate	9600 baud
• Parity	straight
• No. of data bits/stop bits	8/1
• Signal level	Active/passive (floating)
• Protocols	Remote display protocol SIWAREX protocol 3964R

SIWAREX M	
Binary inputs	
	Number: 3 Rated voltage: 24 V Switching frequency: 10 Hz
Binary outputs	
	Number: 4 (digital) Rated voltage: 24 V Rated current: 0.5 A Total max.: 1 A Electrical isolation: 500 V
Analog output	
• Output range	0/4 ... 20 mA
• Total error at 25 °C	0.15 %
• Updating rate	Approx. 350 ms
• Resolution	16 bits (0 ... 20 mA)
• Burden including line resistance	≤ 600 Ω
Climatic requirements	
Tmin(IND) ... Tmax(IND) (operating temperature)	
• Vertical installation	-10 ... +60 °C
• Horizontal installation/ with verification capability	-10 ... +40 °C
MTBF (SN 29500)	
	172,000 h at +40 °C

2) Serial printer, ANSI-, EPSON-, IBM-compatible

Ordering data	Order No.		Order No.
SIWAREX M Medium accuracy weighing machine Class III, 6000 d, for the SIMATIC S7 and ET 200M, incl. bus connector, weight 0.6 kg Note: In the case of applications with obligation of verification, observe the conditions for approval! It is recommended to contact the SIWAREX hotline.	7MH4 553-1AA41	SIWAREX M configuration package for PCS 7, version 6.x in German and English on CD-ROM Block for the CFC and faceplate	7MH4 583-3EA64
SIWAREX M Manual • German, English Free download on the Internet at: www.siemens.com/weighing-technology		SIWAREX Batch Recipe control for proportioning processes with SIWAREX M modules • STEP 7 program for SIMATIC S7 (CPU 314 or better) • Example programs for GUI for OP7 and OP27 (configuration with ProTool) • Documentation in German and English	7MH4 553-4GS01
SIWAREX M configuration package for SIMATIC S5/S7 version 5.1 or higher in German and English on CD-ROM • SIWATOOL PC parameterization software • SIMATIC S7 function blocks • SIMATIC S5 function blocks • SIWAREX M Manual on CD • Setup for incorporation of SIWAREX M into STEP 7	7MH4 583-3FA63	SIWAREX Batch secondary license Connection of SIWAREX M to serial PC interface • for 9-pin PC interface, 2 m long • for 9-pin PC interface, 5 m long	7MH4 583-4KL01 7MH4 702-8CA 7MH4 702-8CB
SIWAREX M configuration package for PCS 7, version 5.2 in German and English on CD-ROM Block for the CFC and faceplate	7MH4 583-3EA63	Installation material (mandatory) Front connector for SIWAREX M 20-pin, with screw contacts (required for each SIWAREX module)	6ES7 392-1AJ00-0AA0

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Ordering data (continued)		Order No.	Order No.
Shield contact element A shield contact element is sufficient for one SIWAREX M module		6ES7 390-5AA00-0AA0	
Shield connection terminal Contents: 2 units (suitable for 1 cable with diameter 4 to 13 mm) Note: one shield connection terminal is required each for the • Scale connection • TTY interface • RS 232 interface • Analog output • Digital inputs/outputs		6ES7 390-5CA00-0AA0	
S7 DIN rail • 160 mm • 480 mm • 530 mm • 830 mm • 2000 mm		6ES7 390-1AB60-0AA0 6ES7 390-1AE80-0AA0 6ES7 390-1AF30-0AA0 6ES7 390-1AJ30-0AA0 6ES7 390-1BC00-0AA0	
Accessories (optional)			
PS 307 load power supplies 120/230 V AC; 24 V DC, incl. power connector PS 307-1B; 2 A PS 307-1E; 5 A PS 307-1K; 10 A		6ES7 307-1BA00-0AA0 6ES7 307-1EA00-0AA0 6ES7 307-1KA00-0AA0	
Labeling strips (10 units, spare part) Cables and connectors (optional)		6ES7 392-2XX00-0AA0	
Sub-D connector, 9-pin (female) Quantity: 1 unit, for PC interface (RS 232)		6ES5 750-2AB11	
Sub-D connector, 9-pin (male) Quantity: 1 unit, for RS 232 interface of SIWAREX M		6ES5 750-2AA11	
Sub-D connector, 15-pin (male) Quantity: 1 unit, for TTY interface of SIWAREX M		6ES5 750-2AA21	
Sub-D connector, 25-pin (male) • Quantity: 1 unit, for printer interface (RS 232)		6ES5 750-2AA31	
Sub-D connector, 25-pin (female) • Quantity: 1 unit, for PC interface (RS 232)		6ES5 750-2AB31	
Remote displays (option)			
Remote displays The digital remote displays can be connected directly to SIWAREX M through a TTY interface. The following remote displays can be used: S102 and S302 Siebert Industrieelektronik GmbH P.O. Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: http://www.siebert.de Detailed information available from manufacturer.			
Accessories for remote displays			
Legal-for-trade memory The OmniScale legal-for-trade memory can be connected to the SIWAREX M instead of the printer. There are 2 device versions: • for mounting rails - Horizontal, part number 522 201 - Vertical, part number 522 202 CSM GmbH Raiffeisenstr. 34 D-70794 Filderstadt Tel.: +49 711/77964-20 Fax: +49 711/77964-40 Internet: http://www.csm.de Detailed information available from manufacturer.			
Printers (optional)			
T 2240/24 printer Needle matrix printer, 24 needles, DIN A4 and continuous form		6GF6 520-1LM	
Note An RS 232 interface must be ordered in addition.			
RS 232 interface for T 2240/24 See Catalog KT61 for further printers		6GF6 520-2HA	
Printer accessories			
Connection of SIWAREX M to serial printer interface (RS 232, 25-pin) • 5 m long • 10 m long		7MH4 702-8CH 7MH4 702-8CK	
Accessories for SIWAREX M			
SIWAREX JB junction box, aluminium housing for connecting up to 4 load cells in parallel, and for connecting several junction boxes		7MH4 710-1BA	
SIWAREX JB junction box, stainless steel housing for connecting up to 4 load cells in parallel		7MH4 710-1EA	