SIEMENS

Data sheet 7MH4960-2AA01



SIMATIC S7-1200 or Stand Alone, SIWAREX WP231, single-channel legal-for-trade weighing module for platform or hopper scales with analog load cells / strain gauges (full bridges), 4xDI, 4xDQ, 1xAQ, 1xRS485, 1xEthernet, 1xLC load cell interface (1-4mV/V)), attention: for legal-for-trade applications please follow the local laws applying in the country of verification! Detailed load cell diagnostics with digital junction box SIWAREX DB (7MH5001-0AD20 or 7MH5001-0AD01)

General information	
Product type designation	SIWAREX WP231
Firmware version	
● FW update possible	Yes
Installation type/mounting	
Rail mounting	Yes; Standard - DIN rail
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
● Rated value (DC)	24 V
● permissible range, lower limit (DC)	19.2 V
● permissible range, upper limit (DC)	28.8 V
● Short-circuit protection	Yes
● Reverse polarity protection	Yes
Input current	
Current consumption, max.	200 mA
from backplane bus 5 V DC, typ.	3 mA
Power loss	
Power loss, typ.	4.5 W
Digital inputs	
Number of digital inputs	4
Digital inputs, parameterizable	Yes
Input voltage	
● Type of input voltage	DC
● Rated value (DC)	24 V
● for signal "0"	5 V DC at 1 mA
● for signal "1"	15 V DC at 2.5 mA
Digital outputs	
Number of digital outputs	4
Short-circuit protection	Yes
Switching capacity of the outputs	
● with resistive load, max.	0.5 A
Output voltage	
● Type of output voltage	DC
● Rated value (DC)	24 V
Output delay with resistive load	
● "0" to "1", max.	25 µs

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● "1" to "0", max.	150 µs
Total current of the outputs	
● Current per channel, max.	0.5 A
● Current per module, max.	4 A
Cable length	
● shielded, max.	500 m
● unshielded, max.	150 m
Analog outputs	
Number of analog outputs	1
Output ranges, current	
● 0 to 20 mA	Yes
● 4 mA to 20 mA	Yes
Load impedance (in rated range of output)	
● with current outputs, max.	600 Ω
Cable length	
● shielded, max.	100 m
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	16 bit
Encoder	
Connection of signal encoders	
● For strain gauges (full bridges) with 4-conductor connection	Yes
● For strain gauges (full bridges) with 6-conductor connection	Yes
● Resistance of full bridge, min.	40 Ω; when using SIWAREX IS: 50 ohm for 7MH4710-5BA; 105 ohm when using 7MH4710-5CA
● Resistance of full bridge, max.	4 100 Ω
Interfaces	
Number of RS 485 interfaces	1; SIWATOOL V7 or SIWAREX DB or SIEBERT remote display
1. Interface	
Interface types	
● RS 485	Yes
2. Interface	
Interface types	
● RJ 45 (Ethernet)	Yes
● Number of ports	1
Interface types	
RS 485	
● Transmission rate, max.	115.2 bit/s
● Cable length, max.	1 000 m; ≤ 115 kbps, shielded cable
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Diagnostic alarm
Substitute values connectable	Yes
Alarms	
● Diagnostic alarm	Yes; Parameterizable
● Hardware interrupt	Yes; Parameterizable
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire break	Yes
● Short-circuit	Yes
Diagnostics indication LED	
● DIAG LED	Yes
● for status of the inputs	Yes
● for status of the outputs	Yes
● for maintenance	Yes
Integrated Functions	
Counter	No
Load cell	

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● Non-automatic weighing instrument	NAWI
● Sampling rate	100 Hz
● Resolution of input signal	±1 000 000 parts pro mV/V
● Common mode voltage, min.	0 V
● Common mode voltage, max.	5 V
● Cable length, max.	500 m; when using the SIWAREX 7MH4702-8AG cable
Measuring functions	
Measuring range	
— -1 mV/V to +1 mV/V	Yes
— -2 mV/V to +2 mV/V	Yes
— -4 mV/V to +4 mV/V	Yes
Potential separation	
Potential separation digital inputs	
● between the channels and backplane bus	Yes
Potential separation digital outputs	
● between the channels and backplane bus	Yes
Potential separation analog outputs	
● between the channels and the power supply of the electronics	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes; CE marking / EC Declaration of Conformity
cULus	Yes; UL 508 (Industrial Control Equipment), CSA C22.2 No. 142 (Process Control Equipment)
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Ecological footprint	
● environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	174.83 kg
— global warming potential, (during production) [CO2 eq]	32.12 kg
— global warming potential, (during operation) [CO2 eq]	140.99 kg
— global warming potential, (after end of life cycle) [CO2 eq]	1.72 kg
Ambient conditions	
Free fall	
● Fall height, max.	1 m; five times, in product package
Ambient temperature during operation	
● horizontal installation, min.	-10 °C
● horizontal installation, max.	40 °C
● vertical installation, min.	-10 °C
● vertical installation, max.	60 °C
Ambient temperature during storage/transportation	
● min.	-40 °C
● max.	70 °C
Air pressure acc. to IEC 60068-2-13	
● Operation, min.	795 hPa
● Operation, max.	1 080 hPa
● Storage/transport, min.	660 hPa
● Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
● Ambient air temperature-barometric pressure-altitude	1 080 ... 795 hPa (-1 000 ... 5 000 m above sea level)
Vibrations	
● Vibration resistance during operation acc. to IEC 60068-	5 ... 8.4 Hz / 3.5 mm, 8.4 ... 150 Hz / 1 g; For wall mounting: 9 ... 29

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2-6	Hz / 1.5 mm, 29 ... 200 Hz / 5 g
● Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
● tested according to IEC 60068-2-27	Yes; 150 m/s², 11 ms
Mechanics/material	
Enclosure material (front)	plastic
● Plastic	Yes
Dimensions	
Width	70 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	280 g

Classifications

	Version	Classification
eClass	16	27-24-22-05
eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422

Approvals / Certificates

General Product Approval

China RoHS | Metrological Approval | Metrological Approval

General Product Approval	For use in hazardous locations	Environment
	Miscellaneous	

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