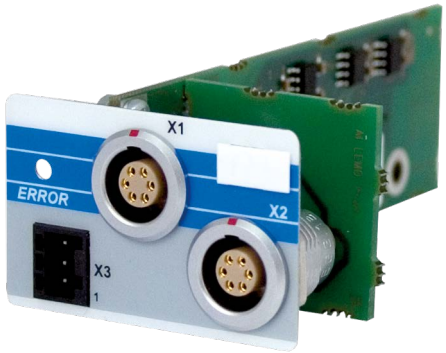
AI Insertable Module
MSR 222



This analog insert module is used to detect currents from 0 to 20 mA. The module has two channels, each with a short-circuit proof reference voltage of 10 V. In addition, each chan-nel has a 24 V supply voltage.

On the diagnostic connector, the processed input signals are measured (0...20 mA ≙0...5 V). The signals on the diagnostic connector are for diagnostic purposes only and cannot be calibrated.

Analog Channel Specifications

Number of channels	2
Measurement range [mA]	0 ... 20 mA
Measurement range [Digit]	0...200,000 in 0.1 µA increments
Resolution [Ampere]	666.7 nA/LSB
Resolution [Bit]	16
Sensor break detection	using a measurement of 4 ... 20 mA
Conversion time per channel	≤ 25 µs
Common mode range	±12 V
Shunt resistor	typically 50 Ω
Analog channel accuracy from end value 0 ... 60 °C	typically ±0.027 %
Status display	ERROR (red) (located on the base)
Converter	18-bit serial SAR
Galvanic isolation	500 V DC

Analog Channel Accuracy

Integral non-linearity error	typically ±0.006 %	maximum ±0.01 %
Noise	typically ±0.01 %	maximum ±0.015 %
Temperature input 0 ... 40 °C 0 ... 60 °C	 typically ±0.004 % typically ±0.01 %	 maximum ±0.02 % maximum ±0.03 %
Cross talk from previous channel 0 ... 20 mA	typically ±0.001 %	maximum ±0.002 %
Total error 0 ... 40 °C 0 ... 60 °C	 typically ±0.021 % typically ±0.027 %	 maximum ±0.047 % maximum ±0.057 %
Long-term drift 1000 h	typically ±0.006 %	

Reference Output

Rated voltage 25 °C	+10,000 V	
Accuracy 25 °C	typically ±0.01 %	maximum ±0.05 %
Temperature input 0 ... +60 °C	typically ±0.01 %	maximum ±0.03 %
Total error 0 ... +60 °C	typically ±0.02 %	maximum ±0.08 %
Additional error with load 0 ... 1 mA 0 ... 10 mA	 typically ±0.001 % typically ±0.015 %	
Long-term drift 1000 h	typically ±0.005 %	
Maximum load (per channel)	10 mA short-circuit proof	

Supply Voltage 0 ... +60 °C

Output voltage	+23.343 V ... 24.330 V ... 25.127 V
Output current/channel	maximum 100 mA short-circuit proof
Total current/base module	maximum 800 mA
Galvanic isolation	500 V DC

Diagnostic Connector

Voltage range	0...5 V (≙0...20 mA)
Load capacity	10 mA
Short-circuit proof	yes

Article Number and Miscellaneous

Article number	18-001-222
Hardware version	2.x

Environmental Conditions

	Storage temperature	-30 ... +85 °C	
	Operating temperature	0 ... +60 °C	
	Humidity	0-95 %, non-condensing	
	EMC stability	in accordance with EN 61000-6-2:2001 (industrial area)	
	Shock resistance	EN 60068-2-27	150 m/s²
	Protection type	EN 60529	IP00

Notes