

# S-DIAS Strain Gauge Input Module

## AI 022-1



with 2 analog inputs  
measurement range  $\pm 1.25$  mV until  $\pm 80$  mV

The S-DIAS AI 022-1 strain gauge input module is used to analyze measuring bridges (i.e. DMS load cells). With a 24-bit resolution, measurement values with an accuracy of 0.035 % are provided.

### Analog Channel Specifications

Number of channels	2				
Bridge supply voltage	+5 V				
Load cell rated values	0.25 mV/V	0.5 mV/V	1 mV/V	2 mV/V	16 mV/V
Measurement range	$\pm 1.25$ mV	$\pm 2.5$ mV	$\pm 5$ mV	$\pm 10$ mV	$\pm 80$ mV
Measurement value	$\pm 8388608$ d				
Resolution	24-bit				
Hardware filter	8 Hz, 1 <sup>st</sup> order				
Filter setting, conversion time and noise-free resolution	filter word	2	5	1023	
	filter type	Sinc4	Sinc4	Sinc4	
	cutoff frequency (-3 dB)	144 Hz	57.7 Hz	0.282 Hz	
	conversion time	4 ms	9 ms	1702 ms	
	noise-free resolution	15.5 bits	16 bits	20 bits	
Sensor break detection	yes				
Load per channel	60-5000 $\Omega$ (when using one channel)				

Noise	$\pm 0.0031$ % referred to the full scale value for filter Word 2	
Temperature drift	$\pm 0.001$ % / $^{\circ}\text{C}$ referred to the full scale value of the measuring range	
Overall accuracy	$\pm 0.035$ % referred to the full scale value of the measuring range	
Calibration data Null-voltage protected	yes	
Calibratable	no	

### Electrical Requirements

Voltage supply from S-DIAS bus	+5 V	
Current consumption on the S-DIAS bus (+5 V power supply)	typically 50 mA	maximum 55 mA
Voltage supply from S-DIAS bus	+24 V	
Current consumption on the S-DIAS bus (+24 V power supply) without load on the measuring bridge supply voltage	typically 17 mA at +18 V typically 15 mA at +24 V typically 14 mA at +30 V	maximum 20 mA at +18 V maximum 18 mA at +24 V maximum 17 mA at +30 V
Current consumption on the S-DIAS bus (+24 V power supply) with maximum load on the both measuring bridge supply voltage	typically 41 mA at +18 V typically 34 mA at +24 V typically 29 mA at +30 V	maximum 48 mA at +18 V maximum 40 mA at +24 V maximum 34 mA at +30 V

### Article Number and Miscellaneous

Article number	20-009-022-1
Dimensions	12.5 x 104.2 x 72 mm (W x H x D)
Standard	UL 508 (E247993)
Approvals	UL, cUL, CE

### Environmental Conditions

Storage temperature	-20 ... +85 $^{\circ}\text{C}$	
Environmental temperature	0 ... +60 $^{\circ}\text{C}$	
Humidity	0-95 %, non-condensing	
Operating conditions	pollution degree 2 altitude up to 2000 m	
EMC resistance	in accordance with EN 61000-6-2:2007 (industrial area)	
EMC noise generation	in accordance with EN 61000-6-4 (industrial area)	
Vibration resistance	EN 60068-2-6	3.5 mm from 5-8.4 Hz 1 g from 8.4-150 Hz
Shock resistance	EN 60068-2-27	15 g
Protection type	EN 60529	IP20