S-DIAS Strain Gauge Input Module

AI 022

with 2 analog inputs
measurement range ±1.875 mV until ±120 mV

The S-DIAS AI 022 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	±1.875 mV	±3.75 mV	±7.5 mV	±15 mV	±120 mV	
Measurement value	±8388608 d					
Resolution	24-bit					
Hardware filter	180 Hz, 1st 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	75-5000 Ω (when using one channel) 150-5000 Ω (when using both channels)					

Noise	±0.0031 % referred to the full scale value for filter Word 2	
Temperature drift	±0.001 % / °C referred to the full scale value of the measuring range	
Overall accuracy	±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
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 °C	
Environmental temperature	0 ... +60 °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 (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