

S-DIAS Analog Input Module

AI 088-1



with 8 thermal element inputs
2 KTY temperature sensors

The S-DIAS AI 088-1 analog input module has eight thermal element inputs for all conventional thermal element types. Two inputs for KTY temperature sensors for coupling compensation are also provided and additional temperature sensor for thermocouple compensation are integrated into the module.

Extended measurement range compared to AI 088.

Thermal Element Input Specifications

Number of channels	8	
Measurement range	see the following table, Measurement Ranges Thermo Elements	
Converter resolution	16-bit	
Conversion time per channel	1 ms	
Common mode range	±10 V	
Input resistance	2 MΩ	
Cable break monitor	yes	
Measurement current for cable brake monitor	typically 3 μA	
Over voltage protection	265 V AC	
Input filter Hardware	typically 2 Hz	low pass 3 rd order
Input filter Software	50 Hz/60 Hz	
Measurement precision	±0.7 % of maximum measurement value	

Measurement Ranges Thermo Elements

	Type	Thermocouple	Measurement range	Measurement value	Measurement error
	J	Fe-CuNi	-10 ... +850 °C (-0.501-48.715 mV)	-100-8500	0.0062 %/Ω
	K	NiCr-Ni	-40 ... +1200 °C (-1.527-48.838 mV)	-400-12000	0.0061 %/Ω
	T	Cu-CuNi	-40 ... +400 °C (-1.475-20.872 mV)	-400-4000	0.0144 %/Ω
	E	NiCr-CuNi	0 ... +640 °C (0-48.313 mV)	0-6400	0.0062 %/Ω
	N	NiCrSi-NiSi	-80 ... +1300 °C (-1.972-47.513 mV)	-800-13000	0.0063 %/Ω
	S	Pt10Rh-Pt	-50 ... +1768 °C (-0.236-18.693 mV)	-500-17680	0.0160 %/Ω
	R	Pt13Rh-Pt	-50 ... +1768 °C (-0.226-21.101 mV)	-500-17680	0.0142 %/Ω
	B	Pt30Rh-Pt6Rh	0 ... +1820 °C (0-13.820 mV)	0-18200	0.0217 %/Ω
	L	Fe-CuNi	0 ... +840 °C (0-48.943 mV)	0-8400	0.0061 %/Ω
	U	Cu-CuNi	0 ... +600 °C (0-34.309 mV)	0-6000	0.0087 %/Ω

Voltage Measurement Range

	Type	Voltage range	Measurement value
	1	0-50 mV	0-50000

Temperature Sensor Input Spec. for Thermo Coupling Compensation

Number of channels	2	
Sensor type	KTY11-62 replacement sensor	
Measurement range	-20 ... +80 °C	
Measurement value	-200 ... 800	
Converter resolution	16-bit	
Conversion time per channel	1 ms	
Sensor current	typically 0.3 mA at 25 °C	
Cable break monitor	yes	
Short circuit monitor	yes	
Input filter	typically 2 Hz	low pass 3 rd order
Measurement precision	±0.7 % of maximum measurement value	

Electrical Requirements

Voltage supply from S-DIAS bus	+5 V	
Current consumption on the S-DIAS bus (+5 V power supply)	typically 62 mA	maximum 68 mA
Voltage supply from S-DIAS bus	+24 V	
Current consumption on the S-DIAS bus (+24 V power supply)	typically 75 mA	maximum 90 mA

Article Number and Miscellaneous

Article number	20-009-088-1
Dimensions	12.5 x 104.2 x 72 mm (W x H x D)
Standard	UL 508 (E247993)

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	EN 61000-6-2 (industrial area)	
	EMC noise generation	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

Notes