

# S-DIAS Analog Input Module

## AI 088



with 8 thermal element inputs  
2 KTY temperature sensors

The S-DIAS AI 088 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.

### 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 <sup>rd</sup> 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 ... +690 °C (-0.501-38.512 mV)	-100-6900	0.0078 %/Ω
K	NiCr-Ni	-40 ... +940 °C (-1.527-38.918 mV)	-400-9400	0.0077 %/Ω
T	Cu-CuNi	-40 ... +400 °C (-1.475-20.872 mV)	-400-4000	0.0144 %/Ω
E	NiCr-CuNi	0 ... +520 °C (0-38.624 mV)	0-5200	0.0078 %/Ω
N	NiCrSi-NiSi	-80 ... 1080 °C (-1.972-39.326 mV)	-800-10800	0.0076 %/Ω
S	Pt10Rh-Pt	-50 ... 1760 °C (-0.236-18.609 mV)	-500-17600	0.0161 %/Ω
R	Pt13Rh-Pt	-50 ... 1760 °C (-0.226-21.003 mV)	-500-17600	0.0142 %/Ω
B	Pt30Rh-Pt6Rh	0 ... +1820 °C (0-13.820 mV)	0-18200	0.0217 %/Ω
L	Fe-CuNi	0 ... +680 °C (0-38.487 mV)	0-6800	0.0078 %/Ω
U	Cu-CuNi	0 ... +590 °C (0-33.606 mV)	0-5900	0.0089 %/Ω

### Voltage Measurement Range

Type	Voltage range	Measurement value
1	0-40 mV	0-40000

### Temperature Sensor Input Spec. for Thermo Coupling Compensation

Number of channels	2	
Sensor type	KTY 10-62 or KTY 11-62	
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 <sup>rd</sup> 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 80 mA	maximum 102 mA

### Article Number and Miscellaneous

Article number	20-009-088
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	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

## Notes

