

# S-DIAS Safety Analog Input Current Module

## SAI 041



with 4 secure inputs (4-20 mA)

The S-DIAS safety analog input module provides the values of four analog current inputs from the Safe CPU (Safety CPU). The analog inputs can also be read by the functional control CPU via the S-DIAS bus from the safety CPU. The four current inputs have an input range of 4-20 mA with a resolution of 16 bits. A 24 V sensor supply is provided for the analog inputs, which must be powered externally. Safe evaluation of the analog inputs is ensured by two independent diversitary evaluations with mutual monitoring.

### Input Specifications

Number of channels	4
Measurement range	4-20 mA
Measurement value	12,000-60,000
Measurement range Overrange and Under range	0.5-21.6 mA
Measurement range Overrange and Under range	1500-64,800
Input type	differential input
Galvanic separation	none
Measurement range resolution	16 bits ca. 0.371 $\mu$ A/LSB
Conversion time for all channels	1 ms
Common mode range	$\pm$ 10 V
Load	typically 55 W
Cable break monitor	configurable min. 0.5 mA
Input filter hardware	1 kHz, low pass 3rd order (common mode)
Input filter software	low pass 1st order (configurable or can be deactivated)
Input delay	dependent on software filter

Measurement precision, 1-channel	$\pm$ 1.0 %/200 $\mu$ A (0-60 °C)
Measurement precision, 2-channel	$\pm$ 2.0%/400 $\mu$ A (0-60 °C)
Linearity	0.006 %
Status display	1x green status LED per channel, 1x red error LED per channel

### Electrical Requirements

Supply voltage sensor supply	typically +24 V DC $\pm$ 20 % (SELV/PELV) UL: Class 2 or LVLC			
Protection class	III			
Current consumption X5	typically 3.5 mA internal consumption			
	maximum 5 mA internal consumption + connected sensors (maximum 500 mA for sensor supply)			
Current consumption from the S-DIAS bus	+12 V		+24 V	
	with missing +24 V connection	typically 100 mA	maximum 120 mA	typically 55 mA

### Article Number and Miscellaneous

Article number	20-897-041
Dimensions	25 x 104.2 x 72 mm (W x H x D)
Approvals	CE, TÜV EG type tested

### Environmental Conditions

Storage temperature	-40 ... +85 °C	
Environmental temperature	0 ... +60 °C	
Humidity	0-95 %, non-condensing	
Installation altitude above sea level	0-2000 m without derating	
	> 2000 m up to a maximum of 5000 m with derating of the maximum environmental temperature by 0.5 °C per 100 m	
Operating conditions	pollution degree 2	
EMC resistance	EN 61000-6-7 (noise immunity requirements for devices with functional safety)	
	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