

Data sheet

SM 031 - Analog input (031-1CA20)

Technical data

Order no.	031-1CA20
Type	SM 031 - Analog input
Module ID	0841 1809
General information	
Note	-
Features	Direct connection of a resistor full bridge (DMS) or load cell 4- or 6-wire connection 16 (24) Bit resolution Auto/self calibration zero point and final value Absolute exactness radical error $\pm 0.1\%$ ($\pm 0.01\%$) Onboard power supply 2.5 V, 5 V, 7.5 V, 10 V und 12 V
Current consumption/power loss	
Current consumption from backplane bus	55 mA
Power loss	1 W
Technical data strain gauge DMS inputs	
Number of inputs	1
Cable length, shielded	200 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	yes
Current consumption from load voltage L+ (without load)	18 mA
Relative accuracy according to self-calibration	$\pm 0.01\%$
Operational limit Usense	$\pm 0.2\%$
Operational limit Usig	$\pm 0.2\%$
Basic error limit Usense	$\pm 0.1\%$
Basic error limit Usig	$\pm 0.1\%$
Destruction limit voltage	max. 12V
External bridge supply possible	-
Internal bridge supply possible	yes
Configurable bridge supply	2.5V / max. 120mA 5V / max. 120mA 7.5V / max. 100mA 10V / max. 90mA 12V / max. 80mA
Resolution in bit	24
Measurement principle	successive approximation
Basic conversion time	1ms cycle, 10ms...330ms depending on the filter
Input filter Hardware	Low pass 10kHz 3rd order
Input filter software	Dynamic IIR filter configurable IIR filter 0.1Hz...1000Hz configurable FIR filter 50Hz/60Hz
Initial data size	4 Byte
Data for selection of the strain gauge DMS sensor	
Bridge supply voltage EXC	0...12V
Bridge differential voltage SIG	$\pm 29\text{mV}$
Rated output	0.5...4mV/V
4 wire connection possible	yes
6 wire connection possible	yes

Possible bridge configuration symmetric full bridge

Status information, alarms, diagnostics

Status display	yes
Interrupts	yes, parameterizable
Process alarm	no
Diagnostic interrupt	yes, parameterizable
Diagnostic functions	yes
Diagnostics information read-out	possible
Module state	yes
Module error display	red LED
Channel error display	red LED

Isolation

Between channels	-
Between channels of groups to	-
Between channels and backplane bus	yes
Between channels and power supply	-
Max. potential difference between circuits	-
Max. potential difference between inputs (Ucm)	-
Max. potential difference between Mana and Mintern (Uiso)	-
Max. potential difference between inputs and Mana (Ucm)	-
Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 50 V
Max. potential difference between Mintern and outputs	-
Insulation tested with	DC 500 V

Datasizes

Input bytes	5
Output bytes	1
Parameter bytes	30
Diagnostic bytes	20

Housing

Material	PC / PPE GF10
Mounting	Profile rail 35 mm

Mechanical data

Dimensions (WxHxD)	12.9 mm x 109 mm x 76.5 mm
Net weight	64 g
Weight including accessories	64 g
Gross weight	78 g

Environmental conditions

Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C

Certifications

UL certification	yes
KC certification	yes
UKCA certification	yes
ChinaRoHS certification	yes