

## Data sheet

### SM 031 (031-1BB90)

#### Technical data

Order no.	031-1BB90
Type	SM 031
Module ID	0403 1543

#### General information

Note	-
Features	2 inputs 16Bit Thermocouple Voltage -80mV...+80mV

#### Current consumption/power loss

Current consumption from backplane bus	75 mA
Power loss	1.1 W

#### Technical data analog inputs

Number of inputs	2
Cable length, shielded	200 m
Rated load voltage	DC 24 V
Current consumption from load voltage L+ (without load)	30 mA
Voltage inputs	-
Min. input resistance (voltage range)	10 MOhm
Input voltage ranges	-80 mV ... +80 mV
Operational limit of voltage ranges	±0.3%
Operational limit of voltage ranges with SFU	±0.1%
Basic error limit voltage ranges	±0.25%
Basic error limit voltage ranges with SFU	±0.05%
Destruction limit current	-
Current inputs	-
Max. input resistance (current range)	-
Input current ranges	-
Operational limit of current ranges	-
Operational limit of current ranges with SFU	-
Basic error limit current ranges	-
Radical error limit current ranges with SFU	-
Destruction limit current inputs (voltage)	-
Destruction limit current inputs (electrical current)	-
Resistance inputs	-
Resistance ranges	-
Operational limit of resistor ranges	-
Operational limit of resistor ranges with SFU	-
Basic error limit	-
Basic error limit with SFU	-
Destruction limit resistance inputs	-
Resistance thermometer inputs	-
Resistance thermometer ranges	-

Operational limit of resistance thermometer ranges	-
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	-
Operational limit of resistance thermometer ranges with SFU	-
Destruction limit resistance thermometer inputs	-
Thermocouple inputs	✓
Thermocouple ranges	type B type C type E type J type K type L type N type R type S type T
Operational limit of thermocouple ranges	Type E, L, T, J, K, N: $\pm 2.5\text{K}$ / Type B, C, R, S: $\pm 8.0\text{K}$
Operational limit of thermocouple ranges with SFU	Type E, L, T, J, K, N: $\pm 1.5\text{K}$ / Type B, C, R, S: $\pm 4.0\text{K}$
Basic error limit thermoelement ranges	Type E, L, T, J, K, N: $\pm 2.0\text{K}$ / Type B, C, R, S: $\pm 7.0\text{K}$
Basic error limit thermoelement ranges with SFU	Type E, L, T, J, K, N: $\pm 1.0\text{K}$ / Type B, C, R, S: $\pm 3.0\text{K}$
Destruction limit thermocouple inputs	-
Programmable temperature compensation	✓
External temperature compensation	✓
Internal temperature compensation	✓
Internal temperature compensation	1 K
Technical unit of temperature measurement	-
Resolution in bit	16
Measurement principle	Sigma-Delta
Basic conversion time	4.2...324.1 ms (50 Hz) 3.8...270.5 ms (60 Hz) per channel
Noise suppression for frequency	>90dB at 50Hz (UCM<10V)

#### Status information, alarms, diagnostics

Status display	yes
Interrupts	yes
Process alarm	yes, parameterizable
Diagnostic interrupt	yes, parameterizable
Diagnostic functions	yes
Diagnostics information read-out	possible
Module state	green LED
Module error display	red LED
Channel error display	red LED per channel

#### Isolation

Between channels	-
Between channels of groups to	-
Between channels and backplane bus	✓
Between channels and power supply	-
Max. potential difference between circuits	-
Max. potential difference between inputs (Ucm)	DC 140 V/ AC 60 V
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 60 V

Max. potential difference between Minterm and outputs	-
Insulation tested with	DC 500 V
<b>Datasizes</b>	
Input bytes	4
Output bytes	0
Parameter bytes	22
Diagnostic bytes	20
<b>Housing</b>	
Material	PPE / PPE GF10
Mounting	Profile rail 35 mm
<b>Mechanical data</b>	
Dimensions (WxHxD)	12.9 mm x 109 mm x 76.5 mm
Weight	60 g
<b>Environmental conditions</b>	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
<b>Certifications</b>	
UL508 certification	yes