

Data sheet
SM 031 (031-1BD80)
Technical data

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| Order no. | 031-1BD80 |
| Type | SM 031 |
| Module ID | 0406 1544 |
| General information | |
| Note | - |
| Features | 4x AI 16 Bit Resistance 0...3000 Ohm Resistance measurement with 2-, 3- and 4-wires Resistance temperature transmitter Pt100, Pt1000, NI100 und NI1000 |
| Current consumption/power loss | |
| Current consumption from backplane bus | 85 mA |
| Power loss | 1 W |
| Technical data analog inputs | |
| Number of inputs | 4 |
| 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) | - |
| Input voltage ranges | - |
| Operational limit of voltage ranges | - |
| Operational limit of voltage ranges with SFU | - |
| Basic error limit voltage ranges | - |
| Basic error limit voltage ranges with SFU | - |
| Destruction limit voltage | - |
| 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 | yes |
| Resistance ranges | 0 ... 60 Ohm 0 ... 600 Ohm 0 ... 3000 Ohm |
| Operational limit of resistor ranges | +/- 0.4 % |
| Operational limit of resistor ranges with SFU | +/- 0,2 % |
| Basic error limit | +/- 0.2 % |
| Basic error limit with SFU | +/- 0,1 % |
| Destruction limit resistance inputs | max. 24V |

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| Resistance thermometer inputs | yes |
| Resistance thermometer ranges | Pt100 Pt1000 Ni100 Ni1000 |
| Operational limit of resistance thermometer ranges | +/- 0.4 % |
| Operational limit of resistance thermometer ranges with SFU | +/- 0,2 % |
| Basic error limit thermoresistor ranges | +/- 0.2 % |
| Basic error limit thermoresistor ranges with SFU | +/- 0,1 % |
| Destruction limit resistance thermometer inputs | max. 24V |
| Thermocouple inputs | - |
| Thermocouple ranges | - |
| Operational limit of thermocouple ranges | - |
| Operational limit of thermocouple ranges with SFU | - |
| Basic error limit thermoelement ranges | - |
| Basic error limit thermoelement ranges with SFU | - |
| Destruction limit thermocouple inputs | - |
| Programmable temperature compensation | - |
| External temperature compensation | - |
| Internal temperature compensation | - |
| Temperature error internal compensation | - |
| Technical unit of temperature measurement | °C, °F, K |
| 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 | >80dB at 50Hz (UCM<6V) |
| Status information, alarms, diagnostics | |
| Status display | yes |
| Interrupts | yes, parameterizable |
| 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 | yes |
| Between channels and power supply | - |
| Max. potential difference between circuits | - |
| Max. potential difference between inputs (Ucm) | DC 6 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 50 V |
| Max. potential difference between Mintern and outputs | - |
| Insulation tested with | DC 500 V |
| Technical data encoder supply | |
| Number of outputs | - |

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| Output voltage (typ) | - |
| Output voltage (rated value) | - |
| Short-circuit protection | - |
| Binding of potential | - |

Datasizes

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| Input bytes | 8 |
| Output bytes | 0 |
| Parameter bytes | 34 |
| Diagnostic bytes | 20 |

Housing

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| Material | PPE / PPE GF10 |
| Mounting | Profile rail 35 mm |

Mechanical data

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|------------------------------|----------------------------|
| Dimensions (WxHxD) | 12.9 mm x 109 mm x 76.5 mm |
| Net weight | 61 g |
| Weight including accessories | 61 g |
| Gross weight | 75 g |

Environmental conditions

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

Certifications

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| UL certification | yes |
| KC certification | yes |