Data sheet
SM 331 (331-7KB01)

Technical data

Order no.	331-7KB01
Type	SM 331
General information	
Note	-
Features	2x AI, in 1 group 12 Bit Voltage +/- 10 V, 1…5 V, 0…10 V Current +/- 20 mA, 0/4…20 mA Resistance thermometer, thermocouple For 20 pole front connectors
SPEED-Bus	-
Current consumption/power loss	
Current consumption from backplane bus	95 mA
Power loss	3 W
Technical data analog inputs	
Number of inputs	2
Cable length, shielded	50 m
Rated load voltage	DC 24 V
Current consumption from load voltage L+ (without load)	100 mA
Voltage inputs	yes
Min. input resistance (voltage range)	100 kOhm
Input voltage ranges	-80 mV ... +80 mV -250 mV ... +250 mV -500 mV ... +500 mV -1 V ... +1 V -2.5 V ... +2.5 V -5 V ... +5 V +1 V ... +5 V -10 V ... +10 V
Operational limit of voltage ranges	+/-0.6% ... +/-1.0%
Operational limit of voltage ranges with SFU	-
Basic error limit voltage ranges	+/-0.4% ... +/-0.7%
Basic error limit voltage ranges with SFU	-
Destruction limit voltage	max. 15V
Current inputs	yes
Max. input resistance (current range)	85 Ohm
Input current ranges	-3.2 mA ... +3.2 mA -10 mA ... +10 mA -20 mA ... +20 mA 0 mA ... +20 mA +4 mA ... +20 mA
Operational limit of current ranges	+/-0.7%
Operational limit of current ranges with SFU	-
Grundfehlergrenze Strombereiche	+/-0.5%
Radical error limit current ranges with SFU	-
Destruction limit current inputs (electrical current)	max. 40mA
Destruction limit current inputs (voltage)	max. 15V
Resistance inputs	yes

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Resistance ranges	0 ... 150 Ohm 0 ... 300 Ohm 0 ... 600 Ohm
Operational limit of resistor ranges	+/-0.7%
Operational limit of resistor ranges with SFU	-
Basic error limit	+/-0.5%
Basic error limit with SFU	-
Destruction limit resistance inputs	max. 15V
Resistance thermometer inputs	yes
Resistance thermometer ranges	Pt100 Ni100
Operational limit of resistance thermometer ranges	+/-0.7% ... +/-0.8%
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	+/-0.5% ... +/-0.6%
Basic error limit thermoresistor ranges with SFU	-
Destruction limit resistance thermometer inputs	max. 15V
Thermocouple inputs	yes
Thermocouple ranges	type J type R type K type N type L type E type T type S type B type C
Operational limit of thermocouple ranges	+/-1.3% ... +/-2.0%
Operational limit of thermocouple ranges with SFU	-
Basic error limit thermoelement ranges	+/-0.7% ... +/-1.0%
Basic error limit thermoelement ranges with SFU	-
Destruction limit thermocouple inputs	max. 15V
Programmable temperature compensation	yes
External temperature compensation	yes
Internal temperature compensation	yes
Temperature error internal compensation	3 K
Technical unit of temperature measurement	°C
Resolution in bit	14
Measurement principle	Sigma-Delta
Basic conversion time	4 ms/18 ms/22 ms/68 ms / channel
Noise suppression for frequency	1300 Hz/190 Hz/150 Hz/50 Hz + 60 Hz
Initial data size	4 Byte

Status information, alarms, diagnostics

Status display	none
Interrupts	yes
Process alarm	yes, parameterizable
Diagnostic interrupt	yes, parameterizable
Diagnostic functions	yes
Diagnostics information read-out	possible
Supply voltage display	none
Group error display	red SF 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	yes
Max. potential difference between circuits	-
Max. potential difference between inputs (Ucm)	DC 3 V
Max. potential difference between Mana and Mintern (Uiso)	DC 75 V/ AC 50 V
Max. potential difference between inputs and Mana (Ucm)	DC 3 V
Max. potential difference between inputs and Mintern (Uiso)	-
Max. potential difference between Mintern and outputs	-
Insulation tested with	DC 500 V

Datasizes

Input bytes	4
Output bytes	0
Parameter bytes	21
Diagnostic bytes	16

Housing

Material	PPE
Mounting	Rail System 300

Mechanical data

Dimensions (WxHxD)	40 mm x 125 mm x 120 mm
Net weight	220 g
Weight including accessories	-
Gross weight	-

Environmental conditions

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

Certifications

UL certification	yes
KC certification	yes