Data sheet
SM 231 (231-1BF00)

Technical data

Order no.	231-1BF00
Type	SM 231

General information

Note	-
Features	8 inputs Configurable Voltage 0...60 mV Resistance thermometer, thermocouple

Current consumption/power loss

Current consumption from backplane bus	280 mA
Power loss	1.4 W

Technical data analog inputs

Number of inputs	8
Cable length, shielded	200 m
Rated load voltage	-
Current consumption from load voltage L+ (without load)	-
Voltage inputs	✔
Min. input resistance (voltage range)	2 MOhm
Input voltage ranges	0 mV ... +60 mV
Operational limit of voltage ranges	-
Operational limit of voltage ranges with SFU	-
Basic error limit voltage ranges	+/-0.1%
Basic error limit voltage ranges with SFU	-
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	-
Radical error limit current ranges with SFU	-
Radical error limit current ranges with SFU	-
Destruction limit current inputs (electrical current)	-
Destruction limit current inputs (voltage)	-
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	Pt100

Operational limit of resistance thermometer ranges	-
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	±0.15% (2-wire) ±0.15% (4-wire)
Basic error limit thermoresistor ranges with SFU	-
Destruction limit resistance thermometer inputs	-
Thermocouple inputs	✔
Thermocouple ranges	type J type K type T
Operational limit of thermocouple ranges	-
Operational limit of thermocouple ranges with SFU	-
Basic error limit thermoelement ranges	±0.1% (Compensation external) ±1.0% (internal)
Basic error limit thermoelement ranges with SFU	-
Destruction limit thermocouple inputs	-
Programmable temperature compensation	✔
External temperature compensation	✔
Internal temperature compensation	✔
Internal temperature compensation	4 K
Technical unit of temperature measurement	-
Resolution in bit	16
Measurement principle	Sigma-Delta
Basic conversion time	6.75 ms ... 268 ms
Noise suppression for frequency	50 Hz and 60 Hz
Initial data size	16 Byte

Status information, alarms, diagnostics

Status display	none
Interrupts	yes
Process alarm	no
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	✔
Between channels and power supply	-
Max. potential difference between circuits	-
Max. potential difference between inputs (Ucm)	DC 15 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 15 V
Max. potential difference between Mintern and outputs	-
Insulation tested with	DC 500 V

Datasizes

Input bytes	16
Output bytes	0
Parameter bytes	12
Diagnostic bytes	12

Housing

Material	PPE / PA 6.6
Mounting	Profile rail 35 mm

Mechanical data

Dimensions (WxHxD)	25.4 mm x 76 mm x 88 mm
Weight	90 g

Environmental conditions

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

Certifications

UL508 certification	yes