

Data sheet

SM 234 (234-1BD60)

Technical data

Order no.	234-1BD60
Type	SM 234
General information	
Note	-
Features	4 inputs/2 outputs Configurable Voltage, current Resistance, resistance thermometer
Current consumption/power loss	
Current consumption from backplane bus	100 mA
Power loss	2.9 W
Technical data analog inputs	
Number of inputs	4
Cable length, shielded	200 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	✓
Current consumption from load voltage L+ (without load)	70 mA
Voltage inputs	✓
Min. input resistance (voltage range)	120 kOhm
Input voltage ranges	+1 V ... +5 V 0 V ... +10 V -10 V ... +10 V -400 mV ... +400 mV -4 V ... +4 V
Operational limit of voltage ranges	+/-0.3% ... +/-0.7%
Operational limit of voltage ranges with SFU	-
Basic error limit voltage ranges	+/-0.2% ... +/-0.5%
Basic error limit voltage ranges with SFU	-
Destruction limit current	-
Current inputs	✓
Max. input resistance (current range)	90 Ohm
Input current ranges	+4 mA ... +20 mA 0 mA ... +20 mA -20 mA ... +20 mA
Operational limit of current ranges	+/-0.3% ... +/-0.8%
Operational limit of current ranges with SFU	-
Basic error limit current ranges	+/-0.2% ... +/-0.5%
Radical error limit current ranges with SFU	-
Destruction limit current inputs (electrical current)	-
Destruction limit current inputs (voltage)	-
Resistance inputs	✓
Resistance ranges	0 ... 600 Ohm 0 ... 3000 Ohm
Operational limit of resistor ranges	+/-0.4%

Operational limit of resistor ranges with SFU	-
Basic error limit	+/-0.2%
Basic error limit with SFU	-
Destruction limit resistance inputs	-
Resistance thermometer inputs	✓
Resistance thermometer ranges	Pt100 Pt1000 Ni100 Ni1000
Operational limit of resistance thermometer ranges	+/-0.4% ... +/-1.0%
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	+/-0.2% ... +/-0.5%
Basic error limit thermoresistor ranges with SFU	-
Destruction limit resistance thermometer inputs	-
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	-
Internal temperature compensation	-
Technical unit of temperature measurement	-
Resolution in bit	16
Measurement principle	Sigma-Delta
Basic conversion time	7 ms - 272 ms
Noise suppression for frequency	50 Hz and 60 Hz
Initial data size	4 Byte

Technical data analog outputs

Number of outputs	2
Cable length, shielded	200 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	✓
Current consumption from load voltage L+ (without load)	70 mA
Voltage output short-circuit protection	✓
Voltage outputs	✓
Min. load resistance (voltage range)	1 kOhm
Max. capacitive load (current range)	1 µF
Max. inductive load (current range)	30 mA
Output voltage ranges	-10 V ... +10 V +1 V ... +5 V 0 V ... +10 V
Operational limit of voltage ranges	+/-0.4% ... +/-0.8%
Basic error limit voltage ranges	+/-0.2% ... +/-0.4%
Destruction limit against external applied voltage	-
Current outputs	✓

Max. in load resistance (current range)	500 Ohm
Max. inductive load (current range)	10 mH
Max. inductive load (current range)	13 V
Output current ranges	-20 mA ... +20 mA +4 mA ... +20 mA 0 mA ... +20 mA
Operational limit of current ranges	+/-0.3% ... +/-0.8%
Basic error limit current ranges	+/-0.2% ... +/-0.5%
Destruction limit against external applied voltage	-
Settling time for ohmic load	0.3 ms
Settling time for capacitive load	1 ms
Settling time for inductive load	0.5 ms
Resolution in bit	12
Conversion time	1.5 ms/channel
Substitute value can be applied	yes
Output data size	4 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	none

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 4 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 Mintern and outputs	-
Insulation tested with	DC 500 V

Datasizes

Input bytes	8
Output bytes	4
Parameter bytes	18
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	100 g

Environmental conditions

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

Certifications

UL508 certification	yes
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