

**Data sheet**  
**SM 234 (234-1BD60)**
**Technical data**

<b>Order no.</b>	<b>234-1BD60</b>
Type	SM 234
<b>General information</b>	
Note	-
Features	3x AI 2x AO 12 Bit Voltage +/- 10 V, 1...5 V, 0...10 V Current +/- 20 mA, 0/4...20 mA Resistance thermometer Parameterizable
<b>Current consumption/power loss</b>	
Current consumption from backplane bus	100 mA
Power loss	2.9 W
<b>Technical data analog inputs</b>	
Number of inputs	4
Cable length, shielded	200 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	yes
Current consumption from load voltage L+ (without load)	70 mA
Voltage inputs	yes
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 voltage	max. 15V
Current inputs	yes
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)	max. 50mA
Destruction limit current inputs (voltage)	max. 15V
Resistance inputs	yes
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	max. 15V
Resistance thermometer inputs	yes
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	max. 15V
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
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	yes
Current consumption from load voltage L+ (without load)	70 mA
Voltage output short-circuit protection	yes
Voltage outputs	yes
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	max. 15V
Current outputs	yes
Max. in load resistance (current range)	500 Ohm

Max. inductive load (current range)	10 mH
Typ. open circuit voltage current output	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	max. 15V
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	yes
Between channels and power supply	yes
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 50 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
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Net weight	100 g
Weight including accessories	-
Gross weight	-
<b>Environmental conditions</b>	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
<b>Certifications</b>	
UL certification	yes
KC certification	-