

Data sheet

SM 234 (234-1BD60)

Technical data

Type	Order no.	234-1BD60
Note	Туре	SM 234
Note	General information	
Features		
Current consumption from backplane bus		Configurable Voltage, current
Power loss 2.9 W	Current consumption/power loss	
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 yes Current consumption from load voltage L+ (without load) Voltage inputs Wes Min. input resistance (voltage range) 120 kOhm Input voltage ranges ***********************************	Current consumption from backplane bus	100 mA
Number of inputs	Power loss	2.9 W
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 +400 mW -440 mW -44	Technical data analog inputs	
Rated load voltage Reverse polarity protection of rated load voltage Qurrent consumption from load voltage L+ (without load) Voltage inputs Min. input resistance (voltage range) Input voltage ranges 120 kOhm 120	Number of inputs	4
Reverse polarity protection of rated load voltage yes Current consumption from load voltage L+ (without load) Voltage inputs Min. input resistance (voltage range) Input voltage ranges 120 kOhm Input voltage ranges 110 kOhm Input voltage ranges 110 kOhm Input voltage ranges 110 kOhm 110 km +10 km +	Cable length, shielded	200 m
Current consumption from load voltage L+ (without load) Voltage inputs Min. input resistance (voltage range) Input voltage ranges 120 kOhm Input voltage ranges 110 k +10 V +5 V O V +10 V -10 V +10 V -10 V +10 V -10 V +40 mV -40 mV -4 V +4 V V Operational limit of voltage ranges 4/-0.3% +/-0.7% Operational limit of voltage ranges with SFU Basic error limit voltage ranges with SFU Destruction limit voltage ranges with SFU Current inputs yes Max. input resistance (current range) Input current ranges 4/-0.2% +/-0.8% Operational limit of current ranges 4/-0.3% +20 mA 0 mA +20 mA 0 mA +20 mA -20 mA +20 mA 0 perational limit of current ranges with SFU Basic error limit current ranges with SFU - Basic error limit current ranges with SFU - Destruction limit current ranges with SFU - Destruction limit current inputs (electrical current) max. 50mA Destruction limit current inputs (voltage) max. 15V Resistance inputs Resistance ranges 0 600 Ohm 0 3000 Ohm 0 3000 Ohm 0 3000 Ohm	Rated load voltage	DC 24 V
Voltage inputs Min. input resistance (voltage range) 120 kOhm Input voltage ranges 41 V +5 V O V +10 V -10 V +10 V -10 V +40 U MV -400 mV -4 V +4 V U -10 V +10 U -10 U MV -400 mV -4 V +4 U U -10 U MV -400 mV -4 V +4 U U -10 U MV -400 mV -4 V +4 U U -10 U MV -400 mV -4 V +4 U U MV -4 U	Reverse polarity protection of rated load voltage	yes
Min. input resistance (voltage range) Input voltage ranges #1 V +5 V OV +10 V -10 V +10 V -10 V +40 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 with SFU Destruction limit voltage ranges with SFU	Current consumption from load voltage L+ (without load)	70 mA
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 with SFU - Destruction limit voltage ranges with SFU - Destruction limit voltage Max. 15V Current inputs Max. input resistance (current range) Input current ranges #/-0.3% +/-0.8% Operational limit of current ranges #/-0.3% +/-0.8% Operational limit of 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 #/-0.4%	Voltage inputs	yes
Operational limit of voltage ranges	Min. input resistance (voltage range)	120 kOhm
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 0 mA +20 mA -20	Input voltage ranges	0 V +10 V -10 V +10 V -400 mV +400 mV
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	Operational limit of voltage ranges	+/-0.3% +/-0.7%
Basic error limit voltage ranges with SFU Destruction limit voltage max. 15V Current inputs yes Max. input resistance (current range) Input current ranges +4 mA +20 mA 0 mA +20 mA -20 mA +20	Operational limit of 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	Basic error limit voltage ranges	+/-0.2% +/-0.5%
Current inputs Max. input resistance (current range) Input current ranges -44 mA +20 mA 0 mA +20 mA -20 mA	Basic error limit voltage ranges with SFU	-
Max. input resistance (current range) Input current ranges +4 mA +20 mA 0 mA +20 mA -20 mA .	Destruction limit voltage	max. 15V
Input current ranges +4 mA +20 mA 0 mA +20 mA -20 mA	Current inputs	yes
O mA +20 mA -20 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 Resistance ranges 0 600 Ohm 0 3000 Ohm Operational limit of resistor ranges +/-0.4%	Max. input resistance (current range)	90 Ohm
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%	Input current ranges	0 mA +20 mA
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 current ranges	+/-0.3% +/-0.8%
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 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%	Basic error limit current ranges	+/-0.2% +/-0.5%
Destruction limit current inputs (voltage) Resistance inputs Resistance ranges 0 600 Ohm 0 3000 Ohm Operational limit of resistor ranges +/-0.4%	Radical error limit current ranges with SFU	-
Resistance inputs Resistance ranges 0 600 Ohm 0 3000 Ohm Operational limit of resistor ranges +/-0.4%	Destruction limit current inputs (electrical current)	max. 50mA
Resistance ranges 0 600 Ohm 0 3000 Ohm Operational limit of resistor ranges +/-0.4%	Destruction limit current inputs (voltage)	max. 15V
Operational limit of resistor ranges +/-0.4%	Resistance inputs	yes
	Resistance ranges	
Operational limit of resistor ranges with SELI	Operational limit of resistor ranges	+/-0.4%
Operational fillit of resistor ranges with OFO	Operational limit of resistor ranges with SFU	-



Basic error limit	+/-0.2%	A YASKAWA COMPANY
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	A YASKAWA COMPANY
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		
Wechanical data		



Weight	100 g	A YASKAWA COMPANY
Environmental conditions		
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL certification	yes	
KC certification	-	