

Data sheet

SM 331 (331-7KB01)

Technical data

Type	Order no.	331-7KB01
Note - 2	Туре	SM 331
Note - 2		
Features		
Voltage current Resistance	Note	
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 -500 mV +520 mV -500 mV +520 mV -700 mV	Features	Voltage, current Resistance Resistance thermometer
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 89 mV -250 mV -450 mV -250 mV -450 mV -250 mV -450 m	SPEED-Bus	-
Power loss 3 W	Current consumption/power loss	
Number of inputs 2 Cable length, shielded 50 m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) Voltage inputs Min. input resistance (voltage range) Input voltage ranges -80 mV +80 mV -250 mV +250 mV -250 mV +250 mV -250 mV +50 mV -10 v +10 v -10 v +10 v -10 v +10 v Destruction limit of voltage ranges with SFU Destruction limit voltage Max. input resistance (current range) Ray Max	Current consumption from backplane bus	95 mA
Number of inputs 2	Power loss	3 W
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	Technical data analog inputs	
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 -450 mV +250	Number of inputs	2
Current consumption from load voltage L+ (without load) Voltage inputs Min. input resistance (voltage range) Input voltage ranges -80 mV +80 mV +80 mV +250 mV +500 mV +10 V +	Cable length, shielded	50 m
Voltage inputs Min. input resistance (voltage range) Input voltage ranges -80 mV +80 mV +80 mV +250 mV +500 mV +50 mV +50 mV +50 mV +50 mV +10 mV	Rated load voltage	DC 24 V
Min. input resistance (voltage range) Input voltage ranges -80 mV +80 mV +250 mV +250 mV +500 mV +100 mV	Current consumption from load voltage L+ (without load)	100 mA
Input voltage ranges -80 mV +80 mV -250 mV -250 mV -250 mV -250 mV -250 mV +250 mV -500 mV +250 mV -500 mV +250 mV -500 mY +100 mV -10 V +10 V -2.5 V +2.5 V +1 V +5 V -10 V +10 V +10 V -10 V +10 V +1	Voltage inputs	yes
-250 mV +250 mV -500 mV +500 mV -1 V +1 V -2.5 V +2.5 V -5 V +2.5 V -5 V +2.5 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 with SFU Basic error limit voltage ranges with SFU Destruction limit voltage mages with SFU Current inputs Max. input resistance (current range) Max. input resistance (current range) Basic error limit voltage Max. input resistance (current range) As Ohm Input current ranges -3.2 mA +3.2 mA -10 mA +3.2 mA -10 mA +20 mA 0 mA	Min. input resistance (voltage range)	100 kOhm
Operational limit of voltage ranges with SFU - 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 +20 mA -20 mA +20 mA -4 mA +20 mA -4 mA +20 mA Operational limit of current ranges with SFU - Grundfehlergrenze Strombereiche +/-0.5% Radical error limit current inputs (electrical current) max. 40mA Destruction limit current inputs (voltage) max. 15V	Input voltage ranges	-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
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 with SFU - Grundfehlergrenze Strombereiche +/-0.5% Radical error limit current inputs (electrical current) max. 40mA Destruction limit current inputs (voltage) max. 15V	Operational limit of voltage ranges	+/-0.6% +/-1.0%
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 0 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	Operational limit of 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 0 mA +20 mA +4 mA +20 mA 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	Basic error limit voltage ranges	+/-0.4% +/-0.7%
Current inputs 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	Basic error limit voltage ranges with SFU	
Max. input resistance (current range) 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	Destruction limit voltage	max. 15V
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	Current inputs	yes
-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	Max. input resistance (current range)	85 Ohm
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	Input current ranges	-10 mA +10 mA -20 mA +20 mA 0 mA +20 mA
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	Operational limit of current ranges	+/-0.7%
Radical error limit current ranges with SFU - Destruction limit current inputs (electrical current) max. 40mA Destruction limit current inputs (voltage) max. 15V	Operational limit of current ranges with SFU	-
Destruction limit current inputs (electrical current) max. 40mA Destruction limit current inputs (voltage) max. 15V	Grundfehlergrenze Strombereiche	+/-0.5%
Destruction limit current inputs (voltage) max. 15V	Radical error limit current ranges with SFU	-
	Destruction limit current inputs (electrical current)	max. 40mA
Resistance inputs yes	Destruction limit current inputs (voltage)	max. 15V
	Resistance inputs	yes



Resistance ranges	0 150 Ohm A YASKAWA COMPANY 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	-	A YASKAWA COMPANY
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	
Weight	220 g	
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL certification	yes	
KC certification	yes	