

## Data sheet

SM 331S - SPEED-Bus (331-7BF70)

## Technical data

General information  Note	Order no.	331-7BF70
Note Features Sinputs Voltage ±10 V Oscilloscopes/FIFO-Function Interrupt parameterizable  SPEED-Bus   Current consumption/power loss  Current consumption from backplane bus 530 mA Power loss 4 W  Technical data analog inputs  Number of inputs 8 Cable length, shielded 50 m Rated load voltage DC 24 V  Current consumption from load voltage L+ (without load) 62 mA  Voltage inputs  Min. input resistance (voltage range) 120 kOhm Input voltage ranges 100 k +100 V +100 V  Operational limit of voltage ranges with SFU Basic error limit voltage ranges with SFU Current inputs  Max. input resistance (current range) Input current ranges Operational limit of current ranges Operational limit of current ranges	Туре	SM 331S - SPEED-Bus
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Voltage inputs       ✓         Min. input resistance (voltage range)       120 kOhm         Input voltage ranges       -10 V +10 V         Operational limit of voltage ranges       +/-0.6%         Operational limit of voltage ranges with SFU       -         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 with SFU       -         Radical error limit current ranges with SFU       -         Radical error limit current inputs (electrical current)       -         Destruction limit current inputs (electrical current)       -         Destruction limit current inputs (voltage)       -         Resistance inputs       -	Rated load voltage	DC 24 V
Min. input resistance (voltage range)  Input voltage ranges  -10 V +10 V  Operational limit of voltage ranges  +/-0.6%  Operational limit of voltage ranges with SFU  Basic error limit voltage ranges with SFU  -  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 with SFU  -  Radical error limit current ranges with SFU  -  Radical error limit current ranges with SFU  -  Radical error limit current ranges with SFU  -  Bestruction limit current ranges with SFU  -  Current inputs  -  Current inputs  -  Operational limit of current ranges with SFU  -  Radical error limit current ranges with SFU  -  Current inputs (electrical current)  -  Destruction limit current inputs (voltage)  -  Resistance inputs	Current consumption from load voltage L+ (without load)	62 mA
Input voltage ranges -10 V +10 V Operational limit of voltage ranges +/-0.6% Operational limit of voltage ranges with SFU - Basic error limit voltage ranges +/-0.4% 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 with SFU - Radical error limit current ranges with SFU - Destruction 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	Voltage inputs	✓
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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 -	Basic error limit voltage ranges with SFU	-
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	Destruction limit current	-
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 -	Current inputs	-
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 -	Max. input resistance (current range)	-
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 -	Input current ranges	-
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 -	Operational limit of current ranges	-
Radical error limit current ranges with SFU -  Destruction limit current inputs (electrical current) -  Destruction limit current inputs (voltage) -  Resistance inputs -	Operational limit of current ranges with SFU	-
Destruction limit current inputs (electrical current) - Destruction limit current inputs (voltage) - Resistance inputs -	Radical error limit current ranges with SFU	-
Destruction limit current inputs (voltage) - Resistance inputs -	Radical error limit current ranges with SFU	-
Resistance inputs -	Destruction limit current inputs (electrical current)	
	Destruction limit current inputs (voltage)	-
Resistance ranges -	Resistance inputs	-
	Resistance ranges	-
Operational limit of resistor ranges -	Operational limit of resistor ranges	-
Operational limit of resistor ranges with SFU -	Operational limit of resistor ranges with SFU	-
Basic error limit -	Basic error limit	-
Basic error limit with SFU -	Basic error limit with SFU	
Destruction limit resistance inputs -	Destruction limit resistance inputs	-
Resistance thermometer inputs -	Resistance thermometer inputs	-



Resistance thermometer ranges	A YASKAWA COMPANY
Operational limit of resistance thermometer ranges	-
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	-
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	successive approximation
Basic conversion time	25 µs all channels
Noise suppression for frequency	-
Initial data size	16 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	none
Isolation	
Between channels	✓
Between channels of groups to	1
Between channels and backplane bus	✓
Between channels and power supply	✓
Max. potential difference between circuits	-
Max. potential difference between inputs (Ucm)	DC 30 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	

V	PA

Input bytes	16	A YASKAWA COMPANY
Output bytes	0	
Parameter bytes	41	
Diagnostic bytes	16	
Housing		
Material	PPE	
Mounting	DIN rail SPEED-Bus	
Mechanical data		
Dimensions (WxHxD)	40 mm x 125 mm x 120 m	m
Weight	235 g	
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL508 certification	yes	