

Data sheet

SM 331S - SPEED-Bus (331-7AF70)

Technical data

General information Note - General information Note - Stiputs Current ±20 mA Oscilloscope-/FIFO function Interrupt parameterizable SPEED-Bus - Stiputs Stip	Order no.	331-7AF70
Note - Restures Sinputs Current ±20 mA Current ±20 mA Oscilloscope-PFFO 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 D C 24 V Current consumption from load voltage L+ (without load) 62 mA Voltage inputs - Min. input resistance (voltage range) - Input voltage ranges - Operational limit of voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Destruction limit current ranges - 20 mA +20 mA Max. input resistance (current range) 100 Ohm Input current ranges - 20 mA +20 mA Operational limit of current ranges + √-0.6% Operational limit of current ranges with SFU - Radical error limit voltage ranges + √-0.6% Operational limit of current ranges with SFU	Туре	SM 331S - SPEED-Bus
Note - Restures Sinputs Current ±20 mA Current ±20 mA Oscilloscope-PFFO 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 D C 24 V Current consumption from load voltage L+ (without load) 62 mA Voltage inputs - Min. input resistance (voltage range) - Input voltage ranges - Operational limit of voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Destruction limit current ranges - 20 mA +20 mA Max. input resistance (current range) 100 Ohm Input current ranges - 20 mA +20 mA Operational limit of current ranges + √-0.6% Operational limit of current ranges with SFU - Radical error limit voltage ranges + √-0.6% Operational limit of current ranges with SFU		
Features 8 inputs Current ±20 mA Oscilloscope-/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) - Input voltage ranges - Operational limit of voltage ranges with SFU Basic error limit voltage ranges with SFU - Destruction limit of current ranges - 100 Ohm Max. input resistance (current range) 100 Ohm Input voltage ranges - Operational limit of current ranges - 4-0.6% Operational limit of current ranges with SFU - Radical error limit current ranges with SFU - Current inputs - Current inputs (voltage) - Cur	General information	
Current ±20 mA Oscilloscoper-FIFFO 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	Note	-
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) - Input voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Current inputs - Max. input resistance (current ranges) 100 Ohm Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Current inputs -20 mA +20 mA 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 - Radical error limit current ranges with SFU - Radical error limit current ranges with SFU - Radical error limit current ranges with SFU - Radical error limit current inputs (electrical current) - Destruction limit current inputs (voltage) - Resistance inputs -	Features	Current ±20 mA Oscilloscope-/FIFO function
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) - Input voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Destruction limit current Current inputs Max. input resistance (current range) 100 Ohm Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit current ranges with SFU - Radical error limit current ranges with SFU - Radical error limit of current ranges with SFU - Radical error limit current ranges with SFU - Destruction limit current inputs (electrical current) - Destruction limit current inputs (voltage) - Resistance inputs -	SPEED-Bus	✓
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) - Input voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges - Basic error limit voltage ranges with SFU - Destruction limit current - Current inputs - Max. input resistance (current range) 100 Ohm Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit current ranges with SFU - Pestruction limit current ranges with SFU - Radical error limit current ranges with SFU - Destruction limit current ranges with SFU - Destructio	Current consumption/power loss	
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) - Input voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges - Basic error limit voltage ranges with SFU - Current inputs - Current inputs - Max. input resistance (current range) 100 Ohm Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Destruction limit current ranges with SFU - Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit current ranges with SFU - Radical error limit current ranges with SFU - Current inputs -20 mA +20 mA Operational limit of current ranges with SFU - Current limit current limputs (voltage) -	Current consumption from backplane bus	530 mA
Number of inputs Cable length, shielded So 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 Operational limit of voltage ranges Operational limit of voltage ranges - 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 -20 mA +20 mA 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 Destruction 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 limit current ranges with SFU - Radical error limit current ranges with SFU - Bestruction limit current inputs (electrical current) Destruction limit current inputs (voltage) - Resistance inputs	Power loss	4 W
Number of inputs Cable length, shielded So m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) Voltage inputs	Technical data analog inputs	
Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 62 mA Voltage inputs - Min. input resistance (voltage range) - Input voltage ranges - Operational limit of voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Destruction limit current - Current inputs Max. input resistance (current range) 100 Ohm Input current ranges -20 mA +20 mA 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 - Destruction limit current ranges with SFU - Radical error limit current ranges with SFU - Destruction limit current ranges with SFU - Destruction limit current inputs (electrical current) - Destruction limit current inputs (voltage) - Resistance inputs -		8
Current consumption from load voltage L+ (without load) Voltage inputs - Min. input resistance (voltage range) - Input voltage ranges - Operational limit of voltage ranges - 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 -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit 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	Cable length, shielded	50 m
Voltage inputs - Min. input resistance (voltage range) - Input voltage ranges - Operational limit of voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Operational limit current - Current inputs - Operational limit current ranges - Operational limit of current ranges - Operational limit of current ranges - Operational limit of current ranges with SFU - Operational limit of current ranges with SFU - Operational limit curre	Rated load voltage	DC 24 V
Min. input resistance (voltage range) Input voltage ranges Operational limit of voltage ranges 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 -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit 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 (electrical current) Destruction limit current inputs (voltage) Resistance inputs	Current consumption from load voltage L+ (without load)	62 mA
Input voltage ranges Operational limit of voltage ranges Operational limit of voltage ranges with SFU Basic error limit voltage ranges Basic error limit voltage ranges with SFU Destruction limit current - Current inputs Max. input resistance (current range) Input current ranges -20 mA +20 mA Operational limit of current ranges with SFU - Radical error limit current ranges with SFU Destruction limit current ranges with SFU Radical error limit current inputs (electrical current) Destruction limit current inputs (voltage) Resistance inputs -	Voltage inputs	
Operational limit of voltage ranges	Min. input resistance (voltage range)	-
Operational limit of voltage ranges with SFU - Basic error limit voltage ranges - Basic error limit voltage ranges with SFU - Destruction limit current - Current inputs - Max. input resistance (current range) 100 Ohm Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% Operational limit of 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 voltage ranges	
Basic error limit voltage ranges ————————————————————————————————————	Operational limit of voltage ranges	-
Basic error limit voltage ranges with SFU Destruction limit current Current inputs Max. input resistance (current range) Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% 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	Operational limit of voltage ranges with SFU	-
Destruction limit current Current inputs Max. input resistance (current range) Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% 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	-
Current inputs Max. input resistance (current range) Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% Operational limit of current ranges with SFU Radical error limit current ranges with SFU - Destruction limit current inputs (electrical current) Resistance inputs - Resistance inputs	Basic error limit voltage ranges with SFU	-
Max. input resistance (current range) Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% 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) - Resistance inputs - 100 Ohm -20 mA +20 mA -/-0.6% - - Radical error limit ourrent ranges with SFU - - - - - - - - - - - - -	Destruction limit current	-
Input current ranges -20 mA +20 mA Operational limit of current ranges +/-0.6% Operational limit of current ranges with SFU - Radical error limit current ranges with SFU +/-0.4% 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 +/-0.6% Operational limit of current ranges with SFU - Radical error limit current ranges with SFU +/-0.4% 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)	100 Ohm
Operational limit of current ranges with SFU - Radical error limit current ranges with SFU +/-0.4% Radical error limit current ranges with SFU - Destruction limit current inputs (electrical current) - Destruction limit current inputs (voltage) - Resistance inputs -	Input current ranges	-20 mA +20 mA
Radical error limit current ranges with SFU +/-0.4% 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	+/-0.6%
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	+/-0.4%
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	