





Analog input modules

Signal modules analog | Analog input modules

331-1KF01
331-7KF01
331-7KB01
331-7AF70

331-7BF70

Order number	331-1KF01	331-7KF01	331-7KB01	331-7AF70
Figure				
Type	SM 331	SM 331	SM 331	SM 331S - SPEED-Bus
General information				
Note	-	-	-	-
Features	<ul style="list-style-type: none"> › 8 inputs › Voltage, current › Resistance › Resistance thermometer 	<ul style="list-style-type: none"> › 8 inputs in 4 groups, › Voltage, current › Resistance › Resistance thermometer › Thermocouples 	<ul style="list-style-type: none"> › 2 inputs in 1 group › Voltage, current › Resistance › Resistance thermometer › Thermocouples 	<ul style="list-style-type: none"> › 8 inputs › Current ± 20 mA › Oscilloscope-/FIFO-Function › Interrupt parameterizable
SPEED-Bus	-	-	-	✓
Current consumption/power loss				
Current consumption from backplane bus	255 mA	95 mA	95 mA	530 mA
Power loss	1.3 W	3 W	3 W	4 W
Technical data analog inputs				
Number of inputs	8	8	2	8
Cable length, shielded	-	-	-	-
Rated load voltage	-	DC 24 V	DC 24 V	DC 24 V
Current consumption from load voltage L+ (without load)	-	100 mA	100 mA	62 mA
Voltage inputs	✓	✓	✓	-
Min. input resistance (voltage range)	100 k Ω	100 k Ω	100 k Ω	-
Input voltage ranges	-50 mV ... +50 mV -500 mV ... +500 mV -1 V ... +1 V -5 V ... +5 V 0 V ... +10 V -10 V ... +10 V +1 V ... +5 V	-80 mV ... +80 mV -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 -10 V ... +10 V	-80 mV ... +80 mV -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 -10 V ... +10 V	-
Operational limit of voltage ranges	+/-0.5% ... +/-0.6%	+/-0.6% ... +/-1.0%	+/-0.6% ... +/-1.0%	-
Basic error limit voltage ranges with SFU	+/-0.3% ... +/-0.4%	+/-0.4% ... +/-0.7%	+/-0.4% ... +/-0.7%	-
Current inputs	✓	✓	✓	✓
Min. input resistance (current range)	100 Ω	85 Ω	85 Ω	100 Ω
Input current ranges	-20 mA ... +20 mA 0 mA ... +20 mA +4 mA ... +20 mA	-3.2 mA ... +3.2 mA -10 mA ... +10 mA -20 mA ... +20 mA 0 mA ... +20 mA +4 mA ... +20 mA	-3.2 mA ... +3.2 mA -10 mA ... +10 mA -20 mA ... +20 mA 0 mA ... +20 mA +4 mA ... +20 mA	-20 mA ... +20 mA
Operational limit of current ranges	+/-0.5%	+/-0.7%	+/-0.7%	+/-0.6%
Basic error limit current ranges with SFU	+/-0.3%	+/-0.5%	+/-0.5%	+/-0.4%

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Order number	331-1KF01	331-7KF01	331-7KB01	331-7AF70
Resistance inputs	✓	✓	✓	-
Resistance ranges	0 ... 600 Ohm 0 ... 6000 Ohm	0 ... 150 Ohm 0 ... 300 Ohm 0 ... 600 Ohm	0 ... 150 Ohm 0 ... 300 Ohm 0 ... 600 Ohm	-
Operational limit of resistor ranges	+/-0.5%	+/-0.7%	+/-0.7%	-
Basic error limit	+/-0.3%	+/-0.5%	+/-0.5%	-
Resistance thermometer inputs	✓	✓	✓	-
Resistance thermometer ranges	Pt100 Ni100 Ni1000	Pt100 Ni100	Pt100 Ni100	-
Operational limit of resistance thermometer ranges	+/-1K ... +/-1.2K	+/-0.7% ... +/-0.8%	+/-0.7% ... +/-0.8%	-
Basic error limit thermoresistor ranges	+/-0.8K	+/-0.5% ... +/-0.6%	+/-0.5% ... +/-0.6%	-
Thermocouple inputs	-	✓	✓	-
Thermocouple ranges	-	type J type R type K type N type L type E type T type S type B type C	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%	+/-1.3% ... +/-2.0%	-
Basic error limit thermoelement ranges	-	+/-0.7% ... +/-1.0%	+/-0.7% ... +/-1.0%	-
Programmable temperature compensation	-	-	-	-
External temperature compensation	-	-	-	-
Internal temperature compensation	-	-	-	-
Resolution in bit	13	14	14	16
Measurement principle	Sigma-Delta	Sigma-Delta	Sigma-Delta	successive approximation
Basic conversion time	61 ms/51 ms / channel	4ms...68ms / channel	4 ms/18 ms/22 ms/68 ms / channel	25 µs all channels
Noise suppression for frequency	50 Hz/60 Hz	10 Hz/400 Hz	10 Hz/400 Hz	-
Initial data size	16 Byte	16 Byte	4 Byte	16 Byte
Status information, alarms, diagnostics				
Status display	none	none	none	none
Interrupts	no	yes	yes	yes
Process alarm	no	yes, parameterizable	yes, parameterizable	yes, parameterizable
Diagnostic interrupt	no	yes, parameterizable	yes, parameterizable	yes, parameterizable
Diagnostic functions	no	yes	yes	yes
Diagnostics information read-out	none	possible	possible	possible
Supply voltage display	none	none	none	none

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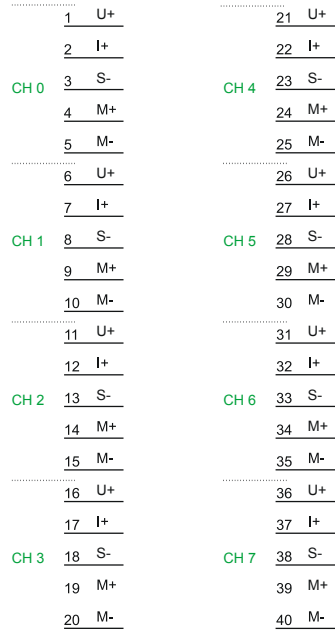
Order number	331-1KF01	331-7KF01	331-7KB01	331-7AF70
Group error display	none	red SF LED	red SF LED	red SF LED
Channel error display	none	red LED per channel	red LED per channel	none
Isolation				
Between channels	-	-	-	✓
Between channels of groups to	-	-	-	-
Between channels and backplane bus	✓	✓	✓	✓
Between channels and power supply	-	✓	✓	✓
Max. potential difference between circuits	-	-	-	-
Max. potential difference between inputs (Ucm)	DC 2 V	DC 3 V	DC 3 V	DC 30 V
Max. potential difference between Mana and Mintern (Uiso)	-	DC 75 V/ AC 60 V	DC 75 V/ AC 60 V	-
Max. potential difference between inputs and Mana (Ucm)	-	DC 3 V	DC 3 V	-
Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 60 V	-	-	DC 75 V/ AC 60 V
Max. potential difference between Mintern and outputs	-	-	-	-
Insulation tested with	DC 500 V	DC 500 V	DC 500 V	DC 500 V
Mechanical data				
Dimensions (WxHxD)	40 mm x 125 mm x 120 mm	40 mm x 125 mm x 120 mm	40 mm x 125 mm x 120 mm	40 mm x 125 mm x 120 mm
Weight	260 g	240 g	220 g	235 g
Environmental conditions				
Operating temperature	0 °C to 60 °C	0 °C to 60 °C	0 °C to 60 °C	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C	-25 °C to 70 °C	-25 °C to 70 °C	-25 °C to 70 °C
Certifications				
UL508 certification	yes	yes	yes	yes

Connections, Interfaces

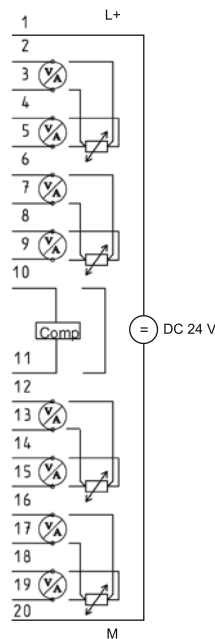
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331-1KF01



331-7KF01



System SLIO

System 100V

System 200V

System 300S

System 500S

HMI

Software

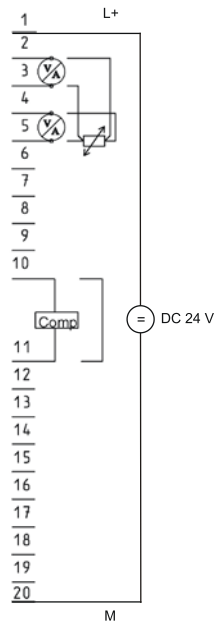
Accessories

Appendix

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331-7KB01



331-7AF70

