

Data sheet SM 031 (031-1LB90)

Technical data

Type SM 031 Module ID 040F 1543 General Information	Order no.	031-1LB90	
Residue Seneral information Note - Features - Seneral	Туре	SM 031	
Features 2 inputs 16Bit Thermocouple Voltage-90mV+90mV regires less parameter bytes than module 031-18B90	Module ID	040F 1543	
Features 2 inputs 16Bit Thermoouple Votage -80mV480mV reqires less parameter bytes than module 031-1B890 Current consumption/power loss 55 mA Power loss 1 W Technical data analog inputs Number of inputs 2 2 Cable length, shielded 200 m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 30 mA Voltage inputs 10 MOhm Input voltage ranges 10 MOhm Input voltage ranges 4.0.3% Operational limit of voltage ranges with SFU 4.0.5% Basic error limit voltage ranges 4.0.25% Basic error limit voltage ranges 4.0.5% Destruction limit current ranges Input current ranges With SFU 5.0.5% Basic error limit current ranges 1.0.0.5% Operational limit of vortent ranges 1.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Basic error limit voltage ranges with SFU 5.0.0.5% Destruction limit current ranges 1.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Basic error limit current ranges with SFU 5.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Destruction limit current ranges with SFU 5.0.0.5% Resistance inputs 6.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	General information		
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Current consumption from backplane bus 55 mA Power loss 1 W Technical data analog inputs Number of inputs 2 Cable length, shielded 200 m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 30 mA Voltage inputs - Min. input resistance (voltage range) 10 MOhm Input voltage ranges -80 mV +80 mV Operational limit of voltage ranges with SFU ±0.3% Basic error limit voltage ranges with SFU ±0.5% Basic error limit voltage ranges with SFU ±0.05% Destruction limit current - Current inputs - Max. input resistance (current range) - Input current ranges - Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current ranges with SFU - Destruction limit current inputs (electrical current) - Resistance inputs -	Features	Thermocouple Voltage -80mV+80mV	
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Voltage inputs	Rated load voltage	DC 24 V	
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Resistance inputs - Comparison	Destruction limit current inputs (voltage)	-	
Resistance ranges - Operational limit of resistor ranges - Operational limit of resistor ranges with SFU - Basic error limit - Basic error limit with SFU - Destruction limit resistance inputs -	Destruction limit current inputs (electrical current)	-	
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Destruction limit resistance inputs -	Basic error limit	-	
	Basic error limit with SFU	-	
Resistance thermometer inputs -	Destruction limit resistance 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	-
Operational limit of resistance thermometer ranges with SFU	-
Destruction limit resistance thermometer inputs	-
Thermocouple inputs	✓
Thermocouple ranges	type B type C type E type J type K type L type N type R type S type T
Operational limit of thermocouple ranges	Type E, L, T, J, K, N: ±2.5K / Type B, C, R, S: ±8.0K
Operational limit of thermocouple ranges with SFU	Type E, L, T, J, K, N: ±1.5K / Type B, C, R, S: ±4.0K
Basic error limit thermoelement ranges	Type E, L, T, J, K, N: ± 2.0 K / Type B, C, R, S: ± 7.0 K
Basic error limit thermoelement ranges with SFU	Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K
Destruction limit thermocouple inputs	-
Programmable temperature compensation	✓
External temperature compensation	✓
Internal temperature compensation	✓
Internal temperature compensation	1 K
Technical unit of temperature measurement	-
Resolution in bit	16
Measurement principle	Sigma-Delta
Basic conversion time	84.2 ms (50 Hz) 70.5 ms (60 Hz) per channel
Noise suppression for frequency	>90dB at 50Hz (UCM<10V)
Status information, alarms, diagnostics	
Status display	yes
Interrupts	yes
Process alarm	no
Diagnostic interrupt	yes, parameterizable
Diagnostic functions	yes
Diagnostics information read-out	possible
Module state	green LED
Module error display	red LED
Channel error display	red LED per channel
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 140 V/ AC 60 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	A YASKAWA COMPANY
Max. potential difference between Mintern and outputs	-	
Insulation tested with	DC 500 V	
Datasizes		
Input bytes	4	
Output bytes	0	
Parameter bytes	10	
Diagnostic bytes	20	
Housing		
Material	PPE / PPE GF10	
Mounting	Profile rail 35 mm	
Mechanical data		
Dimensions (WxHxD)	12.9 mm x 109 mm x 76.5 mm	
Weight	60 g	
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL508 certification	yes	