

Data sheet

SM 031 (031-1CD30)

Technical data

Type	Order no.	031-1CD30
Seneral information	Туре	SM 031
Note	Module ID	040D 1544
Note		
Features 4 inputs 16Bit Voltage 010 V Current consumption/power loss Current consumption from backplane bus 60 mA Power loss 0.9 W Technical data analog inputs Number of inputs 4 Cable length, shielded 200 m Rated load voltage Dc 24 V Current consumption from load voltage L+ (without load) 25 mA Voltage inputs yes Min. input resistance (voltage range) 200 kOhm Input voltage ranges 0 V +10 V Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Destruction limit voltage Max. input resistance (current range) - Operational limit of current ranges - Operational limit of current ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Basic error limit current ranges - Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current ranges - Operational limit of current ranges with SFU - Basic error limit current inputs (voltage) - Destruction limit current inputs (voltage) - Destructio		
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Operational limit of resistance thermometer ranges with SFU - Basic error limit thermoresistor ranges - Grundfelhergreew Widerstandsthemmeterheriche mit SFU - Destruction limit resistance thermometer inputs - Thermocouple inputs - Thermocouple inputs - Coperational limit of thermocouple ranges - Operational limit of thermocouple ranges - Operational limit of thermocouple ranges with SFU - Basic error limit thermocouple ranges with SFU - Basic error limit thermocouple ranges with SFU - Destruction limit thermocouple inputs - Programmable temperature compensation - Internal temperature operature measurement - Resolution in bit 16 Measurement principle successive approximation Basic conversion time 480 µs all channels Noise suppression for frequency - Status information, alarms, diagnostics Status information, alarms, diagnostics Status information, production - Internal temperature compensation - Internal temperature compensation - Internal temperature measurement - Status information - Process alarm - Ves, parameterizable - Ves, parameter	Operational limit of resistance thermometer ranges	A YASKAWA COMPAN
Grundfehlergrenze Widerstandsthermometer inputs Destruction limit resistance thermometer inputs Thermocouple ranges	Operational limit of resistance thermometer ranges with SFU	-
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Operational limit of thermocouple ranges	Thermocouple inputs	-
Operational limit of thermocouple ranges with SFU - Basic error limit thermoelement ranges Basic error limit thermoelement ranges with SFU - Destruction limit thermoelement ranges with SFU - Programmable temperature compensation - External temperature compensation - Internal temperature measurement - Resolution in bit 16 Measurement principle successive approximation Basic conversion time 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM<8V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Process alarm yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic intertont possible Module error display red LED Module error display red LED Channel error display red LED Channel error display red LED Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Insulation tested with DC 500 V Datasizes Input bytes	Thermocouple ranges	-
Basic error limit thermoelement ranges	Operational limit of thermocouple ranges	-
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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 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM-9V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable process alarm yes, parameterizable process alarm yes, parameterizable process alarm yes, parameterizable process alarm yes, parameterizable possible Module state green LED Module error display red LED Channel error display red LED Esteveen channels of groups to - Between channels and backplane bus yes Between channels and power supply yes Max, potential difference between inputs (Ucm) DC 9 V Max, potential difference between inputs and Mana (Ucm) - Max, potential difference between inputs and Mana (Ucm) - Max, potential difference between inputs and Mana (Ucm) - Max, potential difference between inputs and Mana (Ucm) - Max, potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes	Basic error limit thermoelement ranges with SFU	-
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Internal temperature compensation Internal temperature compensation Technical unit of temperature measurement Tech	Programmable temperature compensation	-
Internal temperature compensation - Technical unit of temperature measurement - Resolution in bit 16 Measurement principle successive approximation Basic conversion time 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM<9V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Upagnostic interrupt yes, parameterizable Upagnostic functions yes Upa	External temperature compensation	-
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Resolution in bit 16 Measurement principle successive approximation Basic conversion time 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM-9V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostics information read-out possible Module state green LED Module state green LED Channel error display red LED per channel Isolation Between channels of groups to - Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) Max. potential difference between linputs and Mintern (Uiso) Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Internal temperature compensation	-
Measurement principle successive approximation Basic conversion time 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM<8V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Module state green LED Module error display red LED Channel error display red LED Status display yes, parameterizable Diagnostic functions yes Diagnostic function	Technical unit of temperature measurement	-
Basic conversion time 480 µs all channels Noise suppression for frequency >80dB at 50Hz (UCM-9V) Status information, alarms, diagnostics Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable 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 yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Resolution in bit	16
Noise suppression for frequency >80dB at 50Hz (UCM-9V) Status information, alarms, diagnostics Siatus display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic information read-out possible Module state green LED Module error display red LED Channel error display red LED Channel error display red LED per channel Isolation Between channels - Between channels of groups to - Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes	Measurement principle	successive approximation
Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic information read-out possible Module state green LED Module error display red LED Channel error display red LED per channel Isolation Between channels of groups to - Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between limputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Basic conversion time	480 µs all channels
Status display yes Interrupts yes, parameterizable Process alarm yes, parameterizable 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 Channel error display red LED Setween channels Between channels of groups to Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between Mana and Mintern (Uiso) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes B 8	Noise suppression for frequency	>80dB at 50Hz (UCM<9V)
Interrupts yes, parameterizable Process alarm yes, parameterizable 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 of groups to - Between channels and backplane bus yes Between channels and power supply yes Max. potential difference between circuits - Max. potential difference between linputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between linputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Status information, alarms, diagnostics	
Process alarm yes, parameterizable Diagnostic interrupt pes Diagnostic functions pes Diagnostics information read-out Module state Module error display Channel error display red LED Ted LED per channel Between channels Between channels of groups to Between channels and backplane bus Between channels and power supply Max. potential difference between inputs (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between Mana and Mintern (Uiso) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between Mana and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V	Status display	yes
Diagnostic interrupt Diagnostic functions yes 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 yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between Mana and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes	Interrupts	yes, parameterizable
Diagnostic functions Diagnostics information read-out Module state Module error display Tred LED Channel error display Tred LED per channel Isolation Between channels Between channels - Between channels and backplane bus Between channels and power supply Max. potential difference between inputs (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) Max. potential difference between inputs and Mintern (Uiso) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes	Process alarm	yes, parameterizable
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 yes Between channels and power supply yes Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Diagnostic interrupt	yes, parameterizable
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 yes Between channels and power supply yes Max. potential difference between circuits Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V	Diagnostic functions	yes
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 yes Between channels and power supply yes Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 9 V Max. potential difference between Mana and Mintern (Uiso) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Diagnostics information read-out	possible
Channel error display red LED per channel Isolation Between channels - 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 9 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 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Module state	green LED
Isolation Between channels Between channels of groups to Between channels and backplane bus Between channels and power supply yes Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 9 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 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Module error display	red LED
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 9 V Max. potential difference between Mana and Mintern (Uiso) - Max. potential difference between inputs and Mana (Ucm) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Channel error display	red LED per channel
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) Max. potential difference between Mana and Mintern (Uiso) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Isolation	
Between channels and backplane bus Between channels and power supply Max. potential difference between circuits Max. potential difference between inputs (Ucm) DC 9 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 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Between channels	-
Between channels and power supply Max. potential difference between circuits Max. potential difference between inputs (Ucm) 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 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Between channels of groups to	-
Max. potential difference between inputs (Ucm) Max. potential difference between Mana and Mintern (Uiso) 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 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Between channels and backplane bus	yes
Max. potential difference between Mana and Mintern (Uiso) 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 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Between channels and power supply	yes
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 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Max. potential difference between circuits	-
Max. potential difference between inputs and Mana (Ucm) Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs Insulation tested with DC 500 V Datasizes Input bytes 8	Max. potential difference between inputs (Ucm)	DC 9 V
Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Max. potential difference between Mana and Mintern (Uiso)	-
Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V Datasizes Input bytes 8	Max. potential difference between inputs and Mana (Ucm)	-
Insulation tested with DC 500 V Datasizes Input bytes 8	Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 50 V
Datasizes Input bytes 8	Max. potential difference between Mintern and outputs	-
Input bytes 8	Insulation tested with	DC 500 V
	Datasizes	
	Input bytes	8
Output bytes 0	Output bytes	0
Parameter bytes 32		32



Diagnostic bytes	20	A YASKAWA COMPANY		
Housing				
Material	PPE / PPE GF10			
Mounting	Profile rail 35 mm			
Mechanical data				
Dimensions (WxHxD)	12.9 mm x 109 mm x 76.5 mm	1		
Weight	60 g			
Environmental conditions				
Operating temperature	0 °C to 60 °C			
Storage temperature	-25 °C to 70 °C			
Certifications				
UL certification	yes			
KC certification	yes	yes		