

Data sheet

SM 031 (031-1CD45)

Technical data

Type SM 031 Modulo ID 0414 15C4 General Information Note - Features 4" All 15 Bit Council (1)20 mA Reduced parameter bytes Current consumption/power loss 65 mA Current consumption from backplane bus 65 mA Power loss 0.8 W Technical data analog inputs Number of inputs 4 Cable length, shielded 200 m Stated load vottage DC 24 V Current consumption from load vottage L+ (without load) 20 mA Voltage inputs - Min. input resistance (voltage ranges - Min. input resistance (voltage ranges with SFU - Basic error limit voltage ranges with SFU - Basic error limit voltage ranges with SFU - Basic error limit voltage ranges with SFU - Max. input resistance (current range) 0.00 hm Input current ranges 0.00 hm Input current ranges 0.00 hm Input current ranges 0.00 hm Max. input resistance (current ranges with SFU <th< th=""><th>Order no.</th><th>031-1CD45</th></th<>	Order no.	031-1CD45
Real information Note	Туре	SM 031
Note - Features 4' Al Bit Current (04)20 mA Reduced parameter bytes Current consumption from backplane bus 65 mA Power loss 0.8 W Technical data analog inputs Number of inputs 4 Cable length, shielded 200 m Cable length, shielded 200 m Rated load voltage DC24 V Current consumption from load voltage L+ (without load) 20 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 voltage - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges 4-0.1% Racide error limit current ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current inputs (voltage) - Destruction limit c	Module ID	0414 15C4
Features 4x AI 16 Bit 16	General information	
Current consumption/power loss Current consumption from backplane bus 65 mA Current consumption from backplane bus 65 mA Power loss Technical data analog inputs 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) 20 mA Voltage inputs - Min. input resistance (voltage ranges) - Input voltage ranges - Operational limit of voltage ranges with SFU - Basic error limit voltage ranges with SFU - Basic error limit voltage ranges with SFU - Max. input resistance (current range) 60 Ohm Input current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Basic arror limit current ranges with SFU - Basic error limit current ranges with SFU - Bestruction limit current inputs (voltage) <td>Note</td> <td>-</td>	Note	-
Current consumption from backplane bus 65 mA Power loss 0.8 W Technical data analog inputs	Features	16 Bit Current 0(4)20 mA
Power loss 0.8 W Technical data analog inputs 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) 20 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 voltage ranges with SFU - Security resistance (current range) 60 Ohm Input current ranges 00 MA Max. input resistance (current range) 00 MA Input current ranges 10 MA Accideal error limit outrent ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current ranges with SFU - Redical error limit current ranges with SFU - Destruction limit current ranges with SFU - Resistance inputs - Resistance ranges -	Current consumption/power loss	
Number of inputs 4 Cable length, shielded 200 m Rated load voltage Current consumption from load voltage L+ (without load) 20 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 Voltage inputs Min. input resistance (voltage range) Operational limit of voltage ranges with SFU Basic error limit voltage ranges with SFU Operational limit of current range) Operational limit of current ranges with SFU Operational limit current inputs (voltage) Operational limit current inputs (electrical current) Operational limit of resistor ranges with SFU Operational limit of resistor ranges wit	Current consumption from backplane bus	65 mA
Number of inputs 4 Cable length, shielded 200 m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 20 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 voltage ranges with SFU - Max. input resistance (current range) 60 Ohm Max. input resistance (current range) 60 Ohm Input current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Basic error limit current ranges with SFU - Destruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance ranges - Operational limit of resistor ranges with SFU - Destruction limit current inputs (electrical current) max. 40mA </td <td>Power loss</td> <td>0.8 W</td>	Power loss	0.8 W
Cable length, shielded 200 m Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 20 mA Voltage inputs - Min. input resistance (voltage ranges) - Input 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 voltage ranges with SFU - Estruction limit voltage ranges with SFU - Max. input resistance (current range) 60 Ohm Input current ranges 0 mA +20 mA +4 mA +20 mA +4 mA +20 mA 4+ mA +20 mA +4 mA +20 mA 4- mA +20 mA +4 mA +20 mA 4- post ruction limit current ranges with SFU - Basic error limit current ranges with SFU - Besic error limit current inputs (voltage) max. 24V Destruction limit current inputs (voltage) max. 40mA Resistance ranges - Operational limit of resistor ranges with SFU - Resistance ranges - <td>Technical data analog inputs</td> <td></td>	Technical data analog inputs	
Rated load voltage DC 24 V Current consumption from load voltage L+ (without load) 20 mA Voltage inputs - Min. input resistance (voltage ranges) - 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 - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges - Max. input resistance (current ranges) - Max. input resistance (current ranges) - Input current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Bestruction limit current inputs (voltage) max. 24V Destruction limit current inputs (voltage) max. 24V Resistance ranges - Operational limit of resistor ranges - Operational limit of resistor ranges with SFU - Resistance inp	Number of inputs	4
Current consumption from load voltage L+ (without load) 20 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 voltage - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Operational limit of current ranges with SFU - Basic error limit current inputs (voltage) +/-0.1% Radical error limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance ranges - Operational limit of resistor ranges with SFU - Resistance ranges - Operational limit of resistor ranges with SFU - Resistance ranges - Operational limit of resistor ranges with SFU -	Cable length, shielded	200 m
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 Basic error limit voltage ranges with SFU Destruction limit voltage ranges with SFU Destruction limit voltage Current inputs Max. input resistance (current range) Input current ranges Operational limit of current ranges Operational limit of current ranges Operational limit of current ranges H-O.2% Operational limit current ranges with SFU Basic error limit current ranges with SFU Postruction limit current ranges with SFU Basic error limit current ranges with SFU Postruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance ranges Operational limit of resistor ranges Operational limit of resistor ranges Operational limit of resistor ranges with SFU Basic error limit Basic error limit turrent inputs (soltage) Postruction limit current inputs (electrical current) Postruction limit of resistor ranges Postruction limit of resistor ranges with SFU Postruction limit of resistor ranges with SFU Postruction limit of resistor ranges with SFU Postruction limit resistance inputs Postruction limit resistance inputs	Rated load voltage	DC 24 V
Min. input resistance (voltage ranges	Current consumption from load voltage L+ (without load)	20 mA
Input voltage ranges Operational limit of voltage ranges Operational limit of voltage ranges with SFU Basic error limit voltage ranges with SFU Destruction 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 Adical error limit current ranges Adical error limit current ranges Adical error limit current inputs Destruction limit current ranges Adical error limit current ranges with SFU Destruction limit current inputs (voltage) Destruction limit current inputs (voltage) Destruction limit current inputs (electrical current) Resistance inputs Resistance ranges Operational limit of resistor ranges Operational limit of resistor ranges Operational limit of resistor ranges	Voltage inputs	-
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 voltage - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges +/-0.2% Operational limit of current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Bestruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance inputs - Resistance inputs - Operational limit of resistor ranges with SFU - Destructional limit of resistor ranges with SFU - Basic error limit - Basic error limit with SFU - Bestruction limit tresistance inputs -	Min. input resistance (voltage range)	-
Operational limit of voltage ranges - Basic error limit voltage ranges - Basic error limit voltage ranges with SFU - Destruction limit voltage - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges +/-0.2 mA Operational limit of current ranges +/-0.2 % Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Radical error limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance inputs - Resistance ranges - Operational limit of resistor ranges with SFU - Basic error limit - Operational limit of resistor ranges with SFU - Basic error limit with SFU - Basic error limit with SFU - Bestruction limit tresistance inputs -	Input voltage ranges	-
Basic error limit voltage ranges with SFU - Destruction limit voltage ranges with SFU - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges	Operational limit of voltage ranges	-
Basic error limit voltage ranges with SFU Destruction limit voltage Current inputs Max. input resistance (current range) Input current ranges Operational limit of current ranges Operational limit of current ranges with SFU Basic error limit current ranges with SFU Destruction limit current inputs (voltage) Destruction limit current inputs (voltage) Destruction limit current inputs (electrical current) Resistance inputs Resistance ranges Operational limit of resistor ranges Operational limit of resistor ranges Destruction limit current inputs (electrical current) Resistance ranges Operational limit of resistor ranges with SFU Basic error limit Destruction limit errent ranges with SFU Operational limit of resistor ranges Operational limit of resistor ranges with SFU Easic error limit Operational limit of resistor ranges with SFU Operational limit of resistor ranges with SFU Easic error limit with SFU Operational limit errent inputs Operational limit errent ranges with SFU Operational limit errent ranges with	Operational limit of voltage ranges with SFU	-
Destruction limit voltage - Current inputs yes Max. input resistance (current range) 60 Ohm Input current ranges 0 mA +20 mA +4 mA +20 mA Operational limit of current ranges +/-0.2% Operational limit of current ranges with SFU - Basic error limit current ranges with SFU - Radical error limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance inputs - Operational limit of resistor ranges - Operational limit of resistor ranges - Operational limit of resistor ranges with SFU - Basic error limit - Basic error limit - Basic error limit with SFU - Destruction limit resistance inputs -	Basic error limit voltage ranges	-
Current inputs Max. input resistance (current range) 60 Ohm Input current ranges 0 mA +20 mA +4 mA +20 mA +4 mA +20 mA	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 Basic error limit current ranges with SFU Postruction limit current inputs (voltage) Destruction limit current inputs (electrical current) Resistance inputs Resistance ranges Operational limit of resistor ranges Postructional limit of resistor ranges Operational limit of resistor ranges Operational limit of resistor ranges with SFU Basic error limit eurrent inputs (electrical current) Resistance inputs Resistance inputs Operational limit of resistor ranges Operational limit of resistor ranges Operational limit of resistor ranges with SFU Basic error limit Educational limit of resistor ranges Operational limit of resistor ranges with SFU Basic error limit with SFU Destruction limit resistance inputs	Destruction limit voltage	-
Input current ranges O mA +20 mA +4 mA +20 mA Operational limit of current ranges +/-0.2% Operational limit of current ranges with SFU Basic error limit current ranges with SFU Radical error limit current ranges with SFU Destruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) Resistance inputs Resistance ranges Operational limit of resistor ranges - Operational limit of resistor ranges with SFU Basic error limit - Basic error limit - Basic error limit - Basic error limit with SFU Destruction limit resistance inputs	Current inputs	yes
Operational limit of current ranges	Max. input resistance (current range)	60 Ohm
Operational limit of current ranges with SFU - 1% Basic error limit current ranges + 1/-0.1% Radical error limit current ranges with SFU	Input current ranges	
Basic error limit current ranges +/-0.1% Radical error limit current ranges with SFU - Destruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) max. 40mA Resistance inputs - Resistance ranges - Operational limit of resistor ranges with SFU - Basic error limit Basic error limit with SFU - Destruction limit resistance inputs - - Destruction limit resistance inputs - - - - Destruction limit of resistor ranges with SFU - Basic error limit with SFU Destruction limit resistance inputs - - - - - - - - - - - -	Operational limit of current ranges	+/-0.2%
Radical error limit current ranges with SFU Destruction limit current inputs (voltage) max. 24V Destruction limit current inputs (electrical current) Resistance inputs Resistance ranges - Operational limit of resistor ranges with SFU Basic error limit Basic error limit with SFU Destruction limit resistance inputs - Operational limit resistance inputs - Operational limit of resistor ranges with SFU - Operational li	Operational limit of current ranges with SFU	-
Destruction limit current inputs (voltage) Destruction limit current inputs (electrical current) Resistance inputs Coperational limit of resistor ranges Operational limit of resistor ranges with SFU Basic error limit Basic error limit with SFU Destruction limit resistance inputs Resistance ranges	Basic error limit current ranges	+/-0.1%
Destruction limit current inputs (electrical current) max. 40mA Resistance inputs - 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 resistance inputs - max. 40mA - - - - - - - - - - - - -	Radical error limit current ranges with SFU	-
Resistance inputs - Comparison	Destruction limit current inputs (voltage)	max. 24V
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)	max. 40mA
Operational limit of resistor ranges	Resistance inputs	-
Operational limit of resistor ranges with SFU - Basic error limit - Basic error limit with SFU - Destruction limit resistance inputs -	Resistance ranges	-
Basic error limit Basic error limit with SFU Destruction limit resistance inputs	Operational limit of resistor ranges	-
Basic error limit with SFU - Destruction limit resistance inputs -	Operational limit of resistor ranges with SFU	-
Destruction limit resistance inputs -	Basic error limit	-
	Basic error limit with SFU	-
Resistance thermometer inputs -	Destruction limit resistance inputs	-
	Resistance thermometer inputs	-

YASKAWA VIPA CONTROLS

Resistance thermometer ranges	-
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	
Temperature error internal compensation	
Technical unit of temperature measurement	-
Resolution in bit	16
Measurement principle	successive approximation
Basic conversion time	240 µs all channels
Noise suppression for frequency	>80dB (UCM<4V)
Status information, alarms, diagnostics	
Status display	yes
Interrupts	no
Process alarm	no
Diagnostic interrupt	no
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 circuits	-
Max. potential difference between inputs (Ucm)	DC 4 V
Max. potential difference between Mana and Mintern (Uiso)	<u></u>
Max. potential difference between inputs and Mana (Ucm)	<u> </u>
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
Technical data encoder supply	
Number of outputs	-
Output voltage (typ)	-

YASKAWA VIPA CONTROLS

Output voltage (rated value)	-	
Short-circuit protection	-	
Binding of potential	-	
Datasizes		
Input bytes	8	
Output bytes	0	
Parameter bytes	9	
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	
Net weight	60 g	
Weight including accessories	60 g	
Gross weight	75 g	
Environmental conditions		
Operating temperature	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	
Certifications		
UL certification	yes	
KC certification	yes	