

Data sheet SM 031 - Analog input (031-1BB90)

Technical data

Order no.	031-1BB90
Туре	SM 031 - Analog input
Module ID	0403 1543
General information	
Note	-
Features	2x Al 16 Bit Voltage -80 mV+80 mV TC type J, K, N, R, S, T, B, C, E, L
Current consumption/power loss	
Current consumption from backplane bus	85 mA
Power loss	1.1 W
Technical data analog inputs	
Number of inputs	2
Cable length, shielded	200 m
Rated voltage power section supply	DC 24 V
Current consumption from power section supply (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	±0.3%
Operational limit of voltage ranges with SFU	±0.1%
Basic error limit voltage ranges	±0.25%
Basic error limit voltage ranges with SFU	±0.05%
Destruction limit voltage	max. 20V
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	-
Radical error limit current ranges with SFU	-
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 with SFU	-
Basic error limit	-
Basic error limit with SFU	-
Destruction limit resistance inputs	-
Resistance thermometer inputs	-
Resistance thermometer ranges	-
Operational limit of resistance thermometer ranges	-

YASKAWA

Operational limit of resistance thermometer ranges with SFU -

wppe J wppe J bype K bype K bype K bype K bype N bype N bype C bype N 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: ±3.0K Basic error limit thermocouple ranges Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple inputs max. 20V Programmable temperature compensation yes External temperature compensation yes Temperature error internal compensation 1K Resolution in bi 16 Measurement principle Sigma-Deta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency yes Status information, alarms, diagnostics Sigma-Deta Basic conversion time yes, parameterizable Diagnostic functions yes, parameterizable Diagnostic functions yes, parameterizable Diagnostic functions yes Diagnos	Operational limit of resistance thermometer ranges with SFU	-																																																																																										
Destruction limit resistance thermocouple ranges yes Thermocouple ranges yes Thermocouple ranges Ypp B Ypp E Ypp E Portational insit of thermocouple ranges with SPU Type E Procensation insit thermocouple ranges Type E Personable tormorature compensation yes Parameterization compensation yes Temperature error internature compensation yes Procesalarm <td>Basic error limit thermoresistor ranges</td> <td>-</td>	Basic error limit thermoresistor ranges	-																																																																																										
Thermocouple inputs yes Thermocouple ranges type B type J type L type L type L type C 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: ±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 thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple ranges max. 20V Programmable temperature compensation yes Temperature error internal compensation yes Temperature error internal compensation 1 K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 42_324.1 m	Basic error limit thermoresistor ranges with SFU	-																																																																																										
Thermocouple ranges Upp B Thermocouple ranges Upp B Vipp K Vipp K Vipp N Vipp K Vipp C Vipp C Vipp C Vipp C Vipp C Type E, L, T, J, K, N: ±2.0K / Type B, C, R, S: ±4.0K Basic error limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±2.0K / Type B, C, R, S: ±7.0K Basic error limit thermocouple ranges max. 20V Programmable temperature compensation yes External temperature compensation yes External temperature compensation yes Temperature error internal compensation yes Temperature error internal compensation yes Temperature error internal compensation yes Status display yes Status display yes Status display yes Process atarm yes, parameterizable Diagnostic Interrupt yes, parameterizable	Destruction limit resistance thermometer inputs	-																																																																																										
wppe J wppe J bype K bype K bype K bype K bype N bype N bype C bype N 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: ±3.0K Basic error limit thermocouple ranges Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple inputs max. 20V Programmable temperature compensation yes External temperature compensation yes Temperature error internal compensation 1K Resolution in bi 16 Measurement principle Sigma-Deta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency yes Status information, alarms, diagnostics Sigma-Deta Basic conversion time yes, parameterizable Diagnostic functions yes, parameterizable Diagnostic functions yes, parameterizable Diagnostic functions yes Diagnos	Thermocouple inputs	yes																																																																																										
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 thermocouple ranges with SFU Type E, L, T, J, K, N: ±2.0K / Type B, C, R, S: ±7.0K Basic error limit thermocouple inputs max. 20V Programmable temperature compensation yes External temperature compensation yes Internal temperature compensation yes Temperature error internal compensation yes Temperature compensation yes Temperature error internal compensation yes Temperature error internal compensation yes Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM Status display yes Interrupts yes Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostic fu	Thermocouple ranges	type E type J type K type L type N type R type S type T																																																																																										
Basic error limit thermocouple ranges Type E, L, T, J, K, N: ±2.0K / Type B, C, R, S: ±7.0K Basic error limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple inputs max. 20V Programmable temperature compensation yes Internal temperature compensation yes Temperature error internal compensation yes Tenchnical unit of temperature measurement *C, °F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic onversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM<10V)	Operational limit of thermocouple ranges	Type E, L, T, J, K, N: ±2.5K / Type B, C, R, S: ±8.0K																																																																																										
Basic error limit thermocouple ranges with SFU Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K Destruction limit thermocouple inputs max. 20V Programmable temperature compensation yes External temperature compensation yes Internal temperature compensation yes Temperature error internal compensation yes Temperature error internal compensation 1K Temperature error internal compensation 1K Temperature error internal compensation 1K Temperature error internal compensation 4C. "F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM Status information, alarms, diagnostics Status information, alarms, diagnostics Status display yes Process alarm yes, parameterizable Diagnostic functions yes Diagnostic information read-out possible Module estate green LED Module eror display red LED	Operational limit of thermocouple ranges with SFU	Type E, L, T, J, K, N: ±1.5K / Type B, C, R, S: ±4.0K																																																																																										
Destruction limit thermocouple inputs max. 20V Programmable temperature compensation yes External temperature compensation yes Temperature error internal compensation 1K Technical unit of temperature measurement °C, °F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM-10V) Status information, alarms, diagnosfics Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM-10V) Status information, alarms, diagnosfics Yes Internupts Yes Process alarm Yes, parameterizable Diagnostic interrupt Yes, parameterizable Diagnostic functions Yes Module state green LED Module error display red LED per channel Elsteven channels - Between channels yes Between channels and backplane bus	Basic error limit thermocouple ranges	Type E, L, T, J, K, N: ±2.0K / Type B, C, R, S: ±7.0K																																																																																										
Programmable temperature compensation yes External temperature compensation yes Temperature compensation yes Temperature compensation 1K Tendical unit of temperature measurement °C, °F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM<10V)	Basic error limit thermocouple ranges with SFU	Type E, L, T, J, K, N: ±1.0K / Type B, C, R, S: ±3.0K																																																																																										
Ves Internal temperature compensation yes Internal temperature compensation 1 K Temperature error internal compensation 1 K Technical unit of temperature measurement °C, °F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM<10V)	Destruction limit thermocouple inputs	max. 20V																																																																																										
Internal temperature compensation yes Temperature error internal compensation 1 K Technical unit of temperature measurement °C, °F, K Resolution in bit 16 Measurement principle Sigma-Delta Basic conversion time 4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel Noise suppression for frequency >90dB at 50Hz (UCM<10V)	Programmable temperature compensation	yes																																																																																										
Temperature error internal compensation1 KTechnical unit of temperature measurement°C, °F, KResolution in bit16Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	External temperature compensation	yes	Technical unit of temperature measurement°C, °F, KResolution in bit16Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Internal temperature compensation	yes	Resolution in bit16Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Temperature error internal compensation	1 K	Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Technical unit of temperature measurement	°C, °F, K	Basic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Resolution in bit	16	Noise suppression for frequency >90dB at 50Hz (UCM<10V) Status information, alarms, diagnostics yes Status display yes Interrupts yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Module state green LED Module error display red LED Channel error display red LED Between channels - Between channels - Between channels of groups to - Between channels and power supply - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 V Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between Mana and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between Mintern and outputs - <td< td=""><td>Measurement principle</td><td>Sigma-Delta</td></td<>	Measurement principle	Sigma-Delta	Status information, alarms, diagnosticsStatus displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channel and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference betw	Basic conversion time	4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel	Status displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationsesBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential differ	Noise suppression for frequency	>90dB at 50Hz (UCM<10V)	InterruptsyesProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesDiagnostic information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LEDBetween channels-Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Status information, alarms, diagnostics		Process alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationstateBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potent	Status display	yes	Diagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)-Max. potential difference between inputs and Dintern (Uiso)-M	Interrupts	yes	Diagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs	Process alarm	yes, parameterizable	Diagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Diagnostic interrupt	yes, parameterizable	Module stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs <t< td=""><td>Diagnostic functions</td><td>yes</td></t<>	Diagnostic functions	yes	Module error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. poten	Diagnostics information read-out	possible	Channel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mana (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Insulation tested withDC 500 V	Module state	green LED	IsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between niputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Montern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern Mi	Module error display	red LED	Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential d	Channel error display	red LED per channel	Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and Outputs-DC 500 VDC 500 V	Isolation		Between channels and backplane bus yes Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 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	Between channels	-	Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels of groups to		Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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	Between channels and backplane bus	yes	Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels and power supply		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	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	Max. potential difference between inputs (Ucm)	DC 75 V/ AC 50 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	Max. potential difference between Mana and Mintern (Uiso)		Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Max. potential difference between inputs and Mana (Ucm)		Insulation tested with DC 500 V	Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 50 V		Max. potential difference between Mintern and outputs		Technical data encoder supply	Insulation tested with	DC 500 V		Technical data encoder supply	
External temperature compensation	yes																																																																																											
Technical unit of temperature measurement°C, °F, KResolution in bit16Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Internal temperature compensation	yes																																																																																										
Resolution in bit16Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Temperature error internal compensation	1 K	Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Technical unit of temperature measurement	°C, °F, K	Basic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Resolution in bit	16	Noise suppression for frequency >90dB at 50Hz (UCM<10V) Status information, alarms, diagnostics yes Status display yes Interrupts yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Module state green LED Module error display red LED Channel error display red LED Between channels - Between channels - Between channels of groups to - Between channels and power supply - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 V Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between Mana and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between Mintern and outputs - <td< td=""><td>Measurement principle</td><td>Sigma-Delta</td></td<>	Measurement principle	Sigma-Delta	Status information, alarms, diagnosticsStatus displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channel and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference betw	Basic conversion time	4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel	Status displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationsesBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential differ	Noise suppression for frequency	>90dB at 50Hz (UCM<10V)	InterruptsyesProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesDiagnostic information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LEDBetween channels-Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Status information, alarms, diagnostics		Process alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationstateBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potent	Status display	yes	Diagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)-Max. potential difference between inputs and Dintern (Uiso)-M	Interrupts	yes	Diagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs	Process alarm	yes, parameterizable	Diagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Diagnostic interrupt	yes, parameterizable	Module stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs <t< td=""><td>Diagnostic functions</td><td>yes</td></t<>	Diagnostic functions	yes	Module error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. poten	Diagnostics information read-out	possible	Channel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mana (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Insulation tested withDC 500 V	Module state	green LED	IsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between niputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Montern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern Mi	Module error display	red LED	Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential d	Channel error display	red LED per channel	Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and Outputs-DC 500 VDC 500 V	Isolation		Between channels and backplane bus yes Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 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	Between channels	-	Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels of groups to		Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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	Between channels and backplane bus	yes	Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels and power supply		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	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	Max. potential difference between inputs (Ucm)	DC 75 V/ AC 50 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	Max. potential difference between Mana and Mintern (Uiso)		Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Max. potential difference between inputs and Mana (Ucm)		Insulation tested with DC 500 V	Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 50 V		Max. potential difference between Mintern and outputs		Technical data encoder supply	Insulation tested with	DC 500 V		Technical data encoder supply							
Temperature error internal compensation	1 K																																																																																											
Measurement principleSigma-DeltaBasic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Technical unit of temperature measurement	°C, °F, K																																																																																										
Basic conversion time4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channelNoise suppression for frequency>90dB at 50Hz (UCM<10V)	Resolution in bit	16																																																																																										
Noise suppression for frequency >90dB at 50Hz (UCM<10V) Status information, alarms, diagnostics yes Status display yes Interrupts yes, parameterizable Diagnostic interrupt yes, parameterizable Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Diagnostic functions yes Module state green LED Module error display red LED Channel error display red LED Between channels - Between channels - Between channels of groups to - Between channels and power supply - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 V Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) - Max. potential difference between Mana and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between inputs and Mana (Ucm) - Max. potential difference between Mintern and outputs - <td< td=""><td>Measurement principle</td><td>Sigma-Delta</td></td<>	Measurement principle	Sigma-Delta																																																																																										
Status information, alarms, diagnosticsStatus displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channel and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)CC 75 V/ AC 50 VMax. potential difference betw	Basic conversion time	4.2324.1 ms (50 Hz) 3.8270.5 ms (60 Hz) per channel																																																																																										
Status displayyesInterruptsyes, parameterizableProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationsesBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential differ	Noise suppression for frequency	>90dB at 50Hz (UCM<10V)																																																																																										
InterruptsyesProcess alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic interruptyesDiagnostic functionsyesDiagnostic information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LEDBetween channels-Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Status information, alarms, diagnostics																																																																																											
Process alarmyes, parameterizableDiagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationstateBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs-Max. potent	Status display	yes																																																																																										
Diagnostic interruptyes, parameterizableDiagnostic functionsyesDiagnostic functionspossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)-Max. potential difference between inputs and Dintern (Uiso)-M	Interrupts	yes																																																																																										
Diagnostic functionsyesDiagnostic functionsyesDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs	Process alarm	yes, parameterizable																																																																																										
Diagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Dintern (Uiso)DC 500 V	Diagnostic interrupt	yes, parameterizable																																																																																										
Module stategreen LEDModule error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and outputs <t< td=""><td>Diagnostic functions</td><td>yes</td></t<>	Diagnostic functions	yes																																																																																										
Module error displayred LEDChannel error displayred LED per channelIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mintern (Uiso)C 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. poten	Diagnostics information read-out	possible																																																																																										
Channel error displayred LED per channelIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mana (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Insulation tested withDC 500 V	Module state	green LED																																																																																										
IsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between niputs (Ucm)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)-Max. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Montern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern Mi	Module error display	red LED																																																																																										
Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mana (Ucm)-Max. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential d	Channel error display	red LED per channel																																																																																										
Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)DC 75 V/ AC 50 VMax. 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 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between inputs and Mintern (Uiso)DC 75 V/ AC 50 VMax. potential difference between Mintern and outputs-Max. potential difference between Mintern and Outputs-DC 500 VDC 500 V	Isolation																																																																																											
Between channels and backplane bus yes Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) - Max. potential difference between inputs and Mintern (Uiso) DC 75 V/ AC 50 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	Between channels	-																																																																																										
Between channels and power supply - Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels of groups to																																																																																											
Max. potential difference between circuits - Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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) - 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	Between channels and backplane bus	yes																																																																																										
Max. potential difference between inputs (Ucm) DC 75 V/ AC 50 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 inputs and Mintern (Uiso) DC 75 V/ AC 50 V Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Between channels and power supply																																																																																											
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	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	Max. potential difference between inputs (Ucm)	DC 75 V/ AC 50 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	Max. potential difference between Mana and Mintern (Uiso)																																																																																											
Max. potential difference between Mintern and outputs - Insulation tested with DC 500 V	Max. potential difference between inputs and Mana (Ucm)																																																																																											
Insulation tested with DC 500 V	Max. potential difference between inputs and Mintern (Uiso)	DC 75 V/ AC 50 V																																																																																										
	Max. potential difference between Mintern and outputs																																																																																											
Technical data encoder supply	Insulation tested with	DC 500 V																																																																																										
	Technical data encoder supply																																																																																											

YASKAWA

Number of outputs	-
Output voltage (typ)	-
Output current (rated value)	-
Short-circuit protection	-
Binding of potential	-
Datasizes	
Input bytes	4
Output bytes	0
Parameter bytes	22
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	58 g
Weight including accessories	
weight including accessories	58 g
Gross weight	58 g 72 g
Gross weight	
Gross weight Environmental conditions	72 g
Gross weight Environmental conditions Operating temperature	72 g 0 °C to 60 °C
Gross weight Environmental conditions Operating temperature Storage temperature	72 g 0 °C to 60 °C
Gross weight Environmental conditions Operating temperature Storage temperature Certifications	72 g 0 °C to 60 °C -25 °C to 70 °C
Gross weight Environmental conditions Operating temperature Storage temperature Certifications UL certification	72 g 0 °C to 60 °C -25 °C to 70 °C yes