

Main characteristics

- High customization
- Integrate different types of inputs/ outputs
- Up to 40 total channels
- DIN rail mount or plate

Main applications

- Climatic chambers
- Autoclaves
- Plastic Dryers
- Washing machines
- Packaging
- Laboratory Extruders

PROFILE

The main characteristic of the module is that it is assembled according to user requirements, combining different type inputs and outputs on the same card, in the quantities required.

In this way they adapt perfectly to the requirements of the machine or system to be controlled.

The modules can be prepared for assembly on DIN runner or plate, according to requirements.

The remote input and output module (I/O) allows:

- acquisition of multiple information for the appliances controlled and from the environment, via signals and sensors;
- control and regulate appliances through different types of signals and commands.

The modules are available in different models and can manage up to a total of 40 channels (inputs and outputs) each, with the following limits type (see ordering codes):

- digital inputs: 24 max;
- fast digital inputs (meters): 6 max;
- digital outputs: 16 max in total (outputs 0.5 A: 16 max;
- outputs 2 A: 16 max; relay outputs: 8 max);
- PWM outputs: 8 max;
- Temperature inputs (thermocouples, thermo resistance PT100, thermo resistance PT1000): 10 max in total;
- analogue inputs (power input ± 10 V, current input 0/4...20 mA, extensometer input, potentiometer input): 8 max in total;
- analogue outputs (power outputs ± 10 V, current outputs 0/4...20 mA): 8 max in total.

TECHNICAL DATA

POWER	Operating voltage	24 Vdc \pm 25%
	Absorbed current (at 24 Vdc)	700 mA max
	Dissipated power	12 W max
	Connections	Screw terminals, max wire section 1 mm ²
CONNECTIONS	CAN Port	Opto-isolated DB9 M: Connector
	I/O Ports	Connectors depending on the configuration. Type 1: screw terminals, max wire section 1 mm ² ; for relay max wire section 2.5 mm ² Type 2: click-in, female, 12-pole Type 3: comb
COMMUNICATION PROTOCOLS	CAN	CANopen (NMT slave) Version: communication profile DS301 v. 4.02 device profile DS401
	Module addresses available	128
	Transmission speed	10, 20, 50, 100, 125, 250, 500 (predefined), 800, 1000 kbit/s, selectable via hardware or software
DISPLAY LED	Card	1 yellow "Power" LED 1 green "Run" LED
	Bus CAN	1 green "Run" LED 1 red "Run" LED
	Digital input	1 green "Status" LED
	Digital output	1 green "Status" LED Output 0.5 A: yellow "Power" LED every 8 outputs; Output 2 A: yellow "Power" LED every 4 outputs
	Fast counter	1 green "Status" LED
	Relay output	1 green "Status" LED
	PWM output	1 green "Status" LED 1 yellow "Power" LED every 8 outputs
CAN PROTOCOL	Module address configuration	1 switch + 2 16-position dials
	Transmission speed configuration	Via procedure with module address dials or via software
	Bus termination configuration	2 switch
DIGITAL INPUT	Max number	24 (orderable in groups: 3, 6, 9, 12, 15, 18, 21, 24)
	Type	Absorption of current type 1, 2, 3
	Rated voltage	24 Vdc
	Max input voltage	32 Vdc
	Max input current	6,5 mA
	Switch threshold	Low level: \leq 8 Vdc High level: \geq 9 Vdc
	Hardware filter	100 Hz
	Switch delay	0 \Rightarrow 1: 100 μ s 1 \Rightarrow 0: 85 μ s
	Protections	Polarity inversion Overvoltage: max 1 kV per 1 ms
Electric insulation	Channel-channel: no Channel-bus: 2 kV	

TECHNICAL DATA

FAST DIGITAL INPUT	Max number	6 (orderable in groups: 3, 6)
	Type	Absorption of current type 1, 2, 3
	Rated voltage	24 Vdc
	Max input voltage	32 Vdc
	Max input current	6,5 mA
	Switch threshold	Low level: ≤ 8 Vdc High level: ≥ 9 Vdc
	Hardware filter	50 kHz
	Switch delay	0 \Rightarrow 1: < 500 ns 1 \Rightarrow 0: < 500 ns
	Position / counter output format	Type: DINT Resolution: 32 bit (-2147483648 ... 2147483647)
	Speed output format	Type: DINT Resolution: 32 bit (-2147483648 ... 2147483647) LSB: 0,1 impulses/s
	Period measurer / impulse duration measurer output format	Type: DINT Resolution: 32 bit (0 ... 500 kHz) LSB: 0,1 Hz
	Frequency measurer output format	Type: DINT Resolution: 32 bit (0 ... 500 kHz) LSB: 0,1 Hz
	Protections	Polarity inversion Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
Main functions	6 one-way incremental encoders [A] max; 2 one-way incremental encoders + zero notch [A+Z] max; 2 two-way incremental encoders [AB] max; 2 two-way incremental encoders + zero notch [AB+Z] max; Max 6 count forward [Counter]	
Auxiliary functions	Period measurer Frequency measurer Duty-cycle measurer Positive/negative impulse measurer	
THERMOCOUPLE TEMPERATURE INPUT	Max number	10 (orderable in groups: 2, 4, 6, 8, 10)
	Type	Thermocouples J, K, R, S, T, E, B, L, N
	Type of connection	2 fili (isolate e non isolate)
	Through band	0,5 Hz
	Input impedance	> 1 M Ω
	Sampling time (for all channels)	100 ms
	Resolution	0,1 $^{\circ}\text{C}$ / $^{\circ}\text{F}$
	Max error @ 25 $^{\circ}\text{C}$	$\pm 0,5\%$ scale bottom
	Thermocouple use interval (scale)	J: 0 ... 1000 $^{\circ}\text{C}$ / 32 ... 1830 $^{\circ}\text{F}$ K: 0 ... 1300 $^{\circ}\text{C}$ / 32 ... 2372 $^{\circ}\text{F}$ R: 0 ... 1750 $^{\circ}\text{C}$ / 32 ... 3182 $^{\circ}\text{F}$ S: 0 ... 1750 $^{\circ}\text{C}$ / 32 ... 3182 $^{\circ}\text{F}$ T: -200 ... 400 $^{\circ}\text{C}$ / -392 ... 752 $^{\circ}\text{F}$ E: -100 ... 750 $^{\circ}\text{C}$ / -212 ... 1382 $^{\circ}\text{F}$ B: 0 ... 1820 $^{\circ}\text{C}$ / 32 ... 3308 $^{\circ}\text{F}$ L: -200 ... 400 $^{\circ}\text{C}$ / -392 ... 752 $^{\circ}\text{F}$ N: 0 ... 1300 $^{\circ}\text{C}$ / 32 ... 2372 $^{\circ}\text{F}$

TECHNICAL DATA

THERMO RESISTANCE TEMPERATURE INPUT	Max number	10 (orderable in groups: 2, 4, 6, 8, 10)
	Type	Thermo resistance PT100 or PT1000
	Type of connection	2 or 3 wires
	Through band	0,5 Hz
	Input impedance	PT100: 12 k Ω PT1000: 120 k Ω
	Sampling time (for all channels)	100 ms
	Resolution	0,1 °C / °F
	Max Error @ 25 °C	\pm 0,5% scale bottom
	Use interval (scale)	-200...850 °C / -392...1562 °F
	Protections	Polarity inversion: yes Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
ANALOGUE INPUT IN VOLTAGE \pm10 V	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Single-ended voltage \pm 10 V
	Input filter	Low-pass, 3rd order Cutting frequency: 20 Hz
	Input impedance	> 1 M Ω
	Sampling time (for all channels)	5 ms
	Output format	Type: INT Resolution: 13 bit (-4096 ... 4095) LSB: 2,44 mV
	Max error @ 25 °C	\pm 0,5% fondo scala
	Protections	Polarity inversion: yes Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
ANALOGUE INPUT IN CURRENT 0/4 ... 20 mA	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Current 0 ... 20 mA
	Input filter	Low-pass, 3rd order Cutting frequency: 20 Hz
	Input impedance	100 Ω
	Sampling time (for all channels)	5 ms
	Output format	Type: UINT Resolution: 14 bit (0 ... 20 mA: 0 ... 16384 4 ... 20 mA: 3277 ... 16384) LSB: 4,88 μ A
	Max error @ 25 °C	\pm 0,5% scale bottom
	Protections	Polarity inversion: yes Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV

TECHNICAL DATA

POTENTIOMETER ANALOGUE INPUT	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Potentiometer 2 k Ω min.
	Transducer power	5 V, 150 mA max
	Input filter	Low-pass, 3rd order Cutting frequency: 20 Hz
	Input impedance	> 1 M Ω
	Sampling time (for all channels)	5 ms
	Output format	Type: UINT Resolution: 12 bit LSB: 1,22 mV
	Max error @ 25 °C	\pm 0,5% scale bottom
	Protections	Polarity inversion: yes Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
ELECTRIC RESISTANCE EXTENSOMETER ANALOGUE INPUT ("strain gauge")	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Differential, strain gauge, 2,2 mV/V, 3,3 mV/V
	Transducer power	5 V, 150 mA max
	Input filter	Low-pass, 2nd order Cutting frequency: 20 Hz
	Input impedance	> 1 M Ω
	Sampling time (for all channels)	5 ms
	Output format	Type: UINT Resolution: 16 bit LSB: 0,38 μ V
	Max error @ 25 °C	\pm 0,5% fondo scala
	Protections	Polarity inversion: yes Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
DIGITAL OUTPUT 0,5 A	Max number	16 (orderable in groups: 2, 4, 6, 8, 10, 12, 14, 16)
	Composition	Every 8 outputs a power wire
	Type	Current emission
	Rated voltage	24 Vdc \pm 25%
	Max output current	Single output: 0.5 A Group of 8 outputs: 4 A
	Switch delay	0 \Rightarrow 1: 30 μ s 1 \Rightarrow 0: 50 μ s
	Protections	Short circuit Overload : I \geq 0.7 A (according to IEC 61131-2) Overtemperature Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV

TECHNICAL DATA

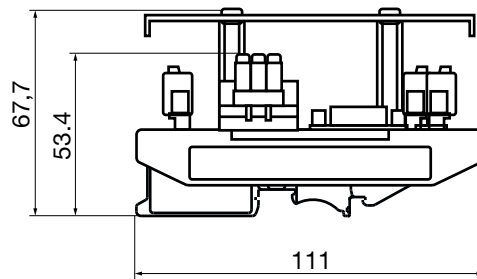
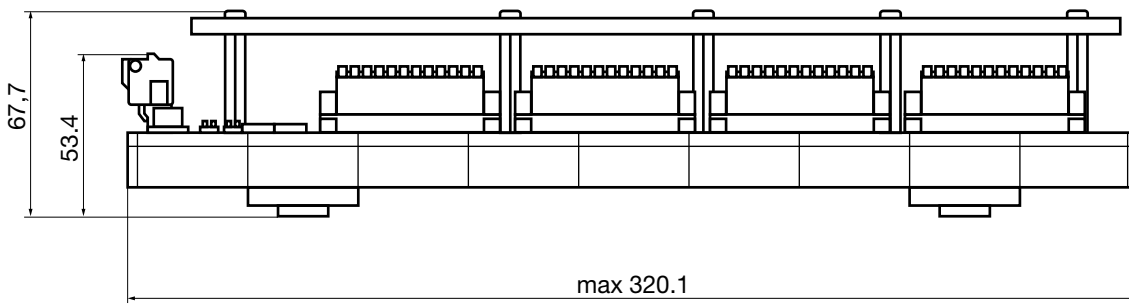
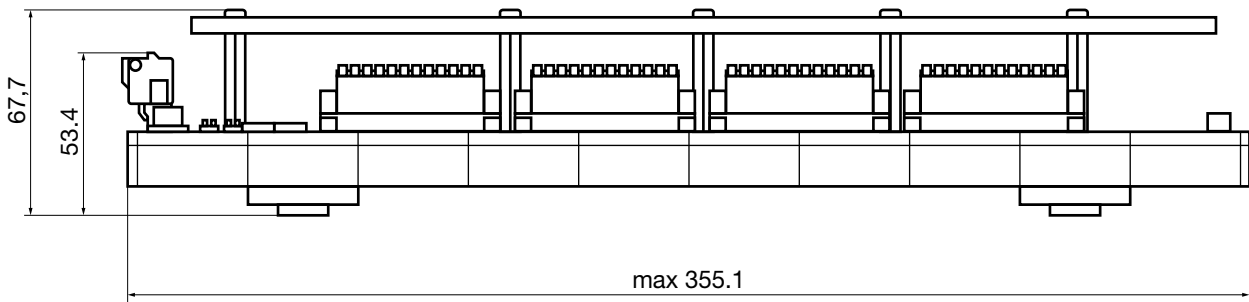
DIGITAL OUTPUT 2 A	Max number	16 (orderable in groups: 2, 4, 6, 8, 10, 12, 14, 16)
	Composition	Every 4 outputs a power wire
	Type	Current emission
	Rated voltage	24 Vdc \pm 25%
	Max output current	Single output: 2 A Group of 4 outputs: 8 A
	Switch delay	0 \Rightarrow 1: 20 μ s 1 \Rightarrow 0: 50 μ s
	Protections	Short circuit Overload: $I \geq 2,7$ A (according to IEC 61131-2) Overtemperature Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
RELAY OUTPUT, SINGLE CONTACT	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Single N.O. contact
	Rated voltage	30 Vdc / 250 Vac
	Max current	5 A
	Mechanical duration	20 x 10 ⁶ operations
	Contact duration	70.000 operations
	Protection	Overvoltage: max 430 V @ 1 mA
	Electric insulation	Channel-channel: yes Channel-bus: 3 kVrms
RELAY OUTPUT, EXCHANGE CONTACT	Max number	4 (orderable in groups: 2, 4)
	Type	exchange contact N.O., N.C.
	Rated voltage	30 Vdc / 250 Vac
	Max current	5 A
	Mechanical duration	20 x 10 ⁶ operations
	Contact duration	2 A: 300.000 operations 5 A: 70.000 operations
	Protection	Overvoltage: max 430 V @ 1 mA
	Electric insulation	Channel-channel: yes Channel-bus: 3 kVrms
PWM OUTPUT	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Composition	Every 8 outputs a power wire
	Type	Current emission
	Rated voltage	25 Vdc \pm 25%
	Max output current	Single output: 1 A Group of 8 outputs: 8 A
	Output configuration	PWM Frequency
	PWM output	Duty cycle: resolution 0.01% Frequency: resolution 0.01 Hz Max frequency: 5 kHz
	Frequency output	Duty cycle: resolution 50% Frequency: resolution 0.01 Hz Max frequency: 50 kHz
	Output format	Type: INT Resolution: 13 bit (-4096 ... 4095) LSB: 2,44 mV
	Switch delay	0 \Rightarrow 1: 1,5 μ s 1 \Rightarrow 0: 1 μ s

TECHNICAL DATA

PWM OUTPUT	Protections	Short circuit Overload : $I \geq 1.4$ A Overtemperature Overvoltage: max 1 kV per 1 ms
	Electric insulation	Channel-channel: no Channel-bus: 2 kV
ANALOGUE OUTPUT VOLTAGE ± 10 V	Max number	8 (orderable in groups: 2, 4, 6, 8)
	Type	Single ended voltage ± 10 V
	Max output current	20 mA
	Refreshing time	10 ms
	Settling time	1 ms
	Output format	Type: INT Resolution: 13 bit (-4096 ... 4095) LSB: 2,44 mV
	Max error @ 25 °C	$\pm 0,5\%$ scale bottom
	Protections	Corto circuito ± 10 V: yes Overpressure: max 1 kV per 1 ms
Electric insulation	Channel-channel: no Channel-bus: 2 kV	
ANALOGUE OUTPUT CURRENT 0/4 ... 20 mA	Max number	8 (ordinabili in gruppi: 2, 4, 6, 8)
	Type	Corrente, 0 ... 20 mA
	Max voltage	12 V
	Max charge	600 Ω
	Refreshing time	5 ms
	Settling time	1 ms
	Output format	Type: UINT Resolution: 12 bit (0 ... 20 mA: 0 ... 16384 4 ... 20 mA: 3277 ... 16384) LSB: 1,22 μ A
	Max error @ 25 °C	$\pm 0,5\%$ scale bottom
	Protections	Overvoltage: max 1 kV per 1 ms
Electric insulation	Channel-channel: no Channel-bus: 2 kV	
ENVIRONMENTAL CONDITIONS	Operating temperature	0 ... +50 °C (according to IEC 68-2-14)
	Storage temperature	-20 ... +70 °C (according to IEC 68-2-14)
	Relative humidity	5 ... 95% RH non-condensing (according to IEC 68-2-3)
ASSEMBLY		Direct on plate, with spacers On 35 mm DIN bar, horizontal or vertical (optional)
DEGREE OF PROTECTION		IP 20 (optional)
WEIGHT		Depending on the I/O configuration For assembly on plate: 0.6 kg max For assembly on DIN runner: 0,85 kg max
CERTIFICATION		CE UL by specific request
CE STANDARDS	EMC conformity (electromagnetic compatibility)	Observance of Directive 2004/108/CE
	LV conformity (low voltage)	Observance of Directive 2006/95/CE

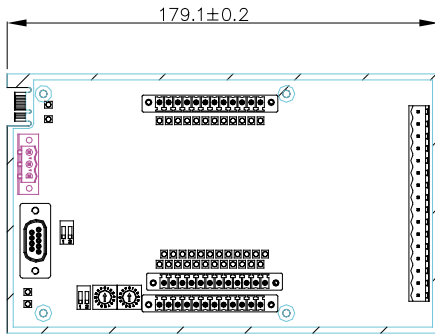
Dimensions

Dimensions CAN-IO, versions for assembly on DIN runner

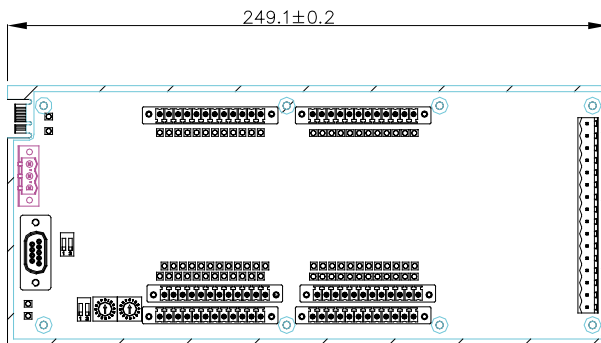


Dimensions

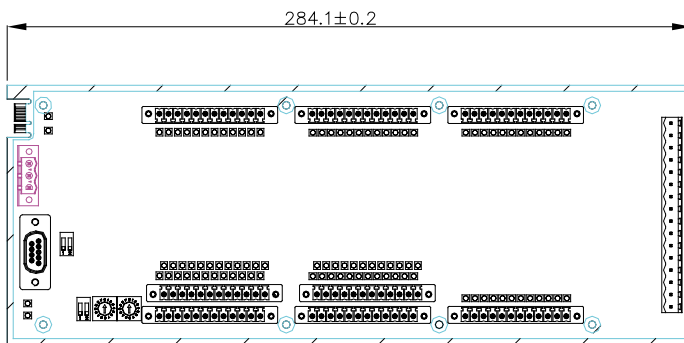
Dimensions, versions for assembly on plate, with relay



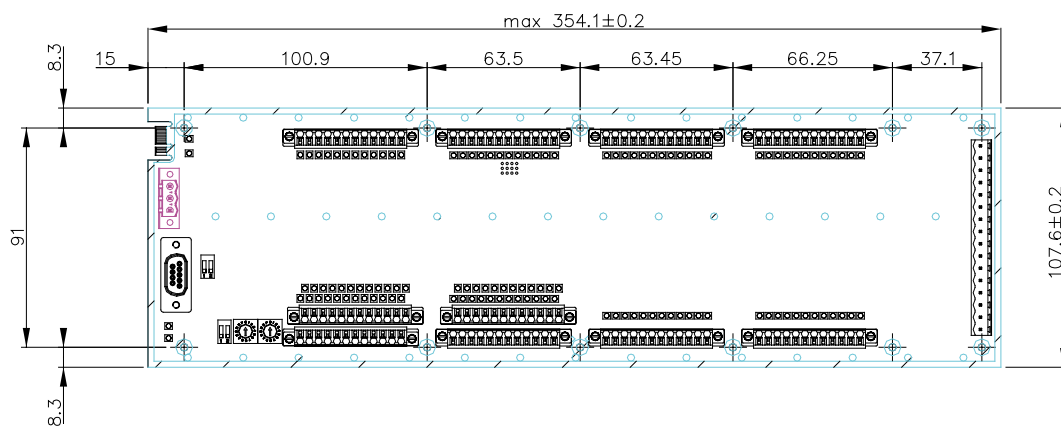
Type AR



Type BR



Type CR

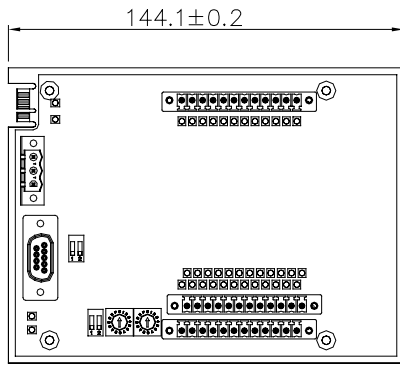


Type DR

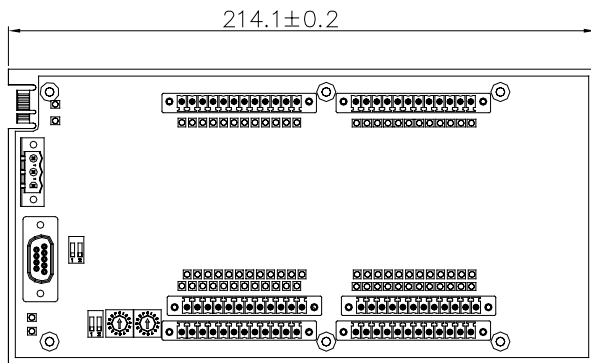
Dimensions in mm

Dimensions

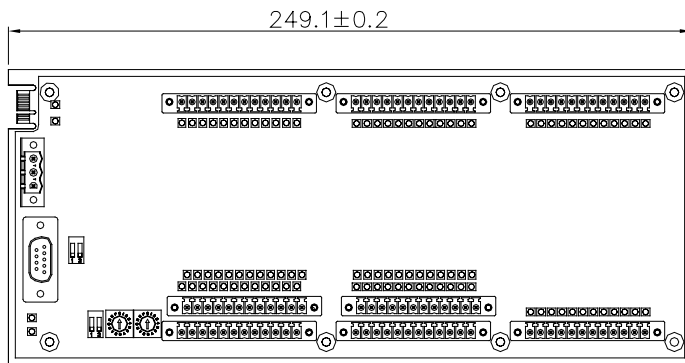
CAN-IO, dimensions, versions for assembly on plate, without relay



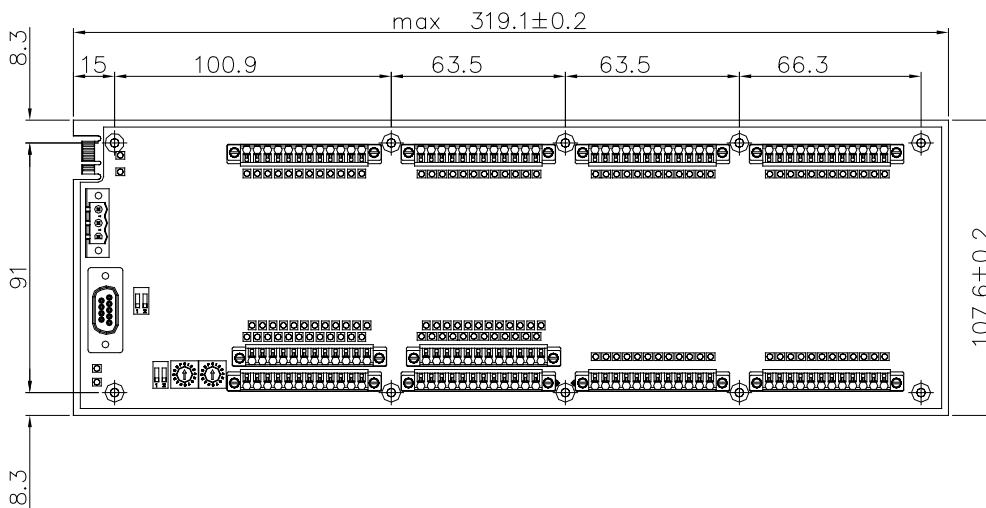
Type A



Type B



Type C



Type D

Dimensions in mm

ORDERING CODE

Create the codes to suit the device configuration required

CAN-IO-D ## ## ## ## ## ## A ## ## ## ## ## ## ## ## - ## ## ##

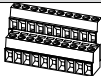
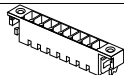
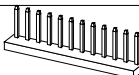
DIGITAL IO

Digital inputs (max 24)	
+24 VDC	00 / 03 / 06 / 09 / 12 / 15 / 18 / 21 / 24
Fast counters (max 6)	
Fast counter 50 kHz	0 / 3 / 6
Digital outputs (max 16)	
+24 VDC 0,5 A	00 / 02 / 04 / 06 / 08 / 10 / 12 / 14 / 16
+24 VDC 2 A	00 / 02 / 04 / 06 / 08 / 10 / 12 / 14 / 16
Relay, 250 VAC 5 A	0 / 2 / 4 / 6 / 8
PWM outputs (max 8)	
24 VDC 1 A, xxxx kHz max	0 / 2 / 4 / 6 / 8

ANALOGUE IO

Analogue inputs (max 8)	
±10 V	0 / 2 / 4 / 6 / 8
0-20 mA	0 / 2 / 4 / 6 / 8
Strain gauge 3,3 mV/V	0 / 2 / 4 / 6 / 8
Potentiometer	0 / 2 / 4 / 6 / 8
Temperature inputs (max 10)	
Thermocouples J, K, S, N, T, E, B, R	00 / 02 / 04 / 06 / 08 / 10
Pt100	00 / 02 / 04 / 06 / 08 / 10
Pt1000	00 / 02 / 04 / 06 / 08 / 10
Analogue outputs (max 8)	
±10 V	0 / 2 / 4 / 6 / 8
0-20 mA	0 / 2 / 4 / 6 / 8

PHYSICAL CHARACTERISTICS

DIN runner	
Absent	0
Present	1
IP protection rating	
Absent	0
IP20	1
Connector	
Screw terminals	 1
Click, female, 12-pole	 2
Comb	 3



Code examples

CAN-IO-D 09 3 00 00 0 4 A 0 0 0 0 00 00 00 0 0 - 0 0 2
9 digital inputs, 3 fast counters, 4 PWM outputs; assembly on plate; click connectors

CAN-IO-D 00 0 00 00 4 0 A 0 0 0 2 04 00 00 0 2 - 1 1 1
4 relay outputs, 2 potentiometer inputs, 4 thermocouple inputs, 2 current analogue outputs 0-20 mA; assembly on DIN runner; IP20 protection rating; screw terminals

ATTENTION! The total number of inputs and Outputs cannot be more than 40.

ACCESSORIES

Ordering code		Description	Quantity per pack
		Female fly connector, 12-pole, for type 2 module connector	10
		Female fly connector, for type 3 module connector	10



The instrument conforms to the European Directives 2004/108/CE (EMC) and 2006/95/CE (LVD) with reference to the generic standards **EN 61131-2** (product) - **EN 61010-1** (safety)

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