EPJcolor

Remote user interfaces (with CAN port)

device for INDOOR APPLICATIONS

PLEASE READ CAREFULLY and save this document

CONSIDER THE ENVIRONMENT

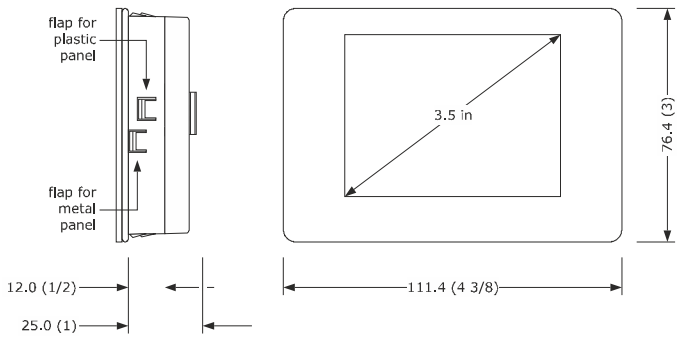
EN ENGLISH

- panel or wall mountiung (according to the model)
- 24 VAC/12... 30 VDC power supply not insulated
- colour touch-screen TFT graphic display
- alarm buzzer
- RS-485 MODBUS port
- CAN port
- **device for indoor applications**.

Purchasing codes	Installation mode	Power supply
EPJC900X4	panel mounted	24 VAC/12... 30 VDC
EPJC900X4VW	wall mounted	24 VAC/12... 30 VDC

1 MEASUREMENTS AND INSTALLATION | Measurements in mm (in)

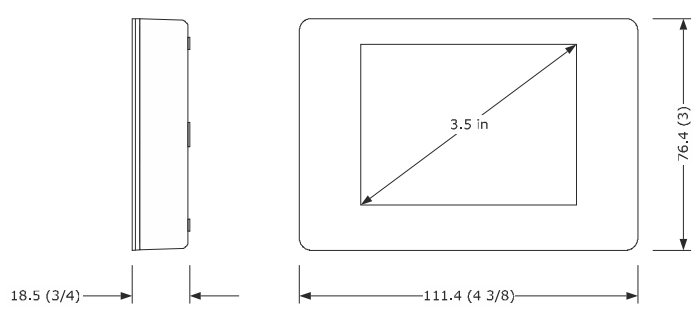
1.1 Models for panel mounting



To be fitted to a panel, with elastic holding flaps.

N.B.
- the thickness of a metal panel must be between 0.8 and 1.5 mm (1/32 and 1/16 in), while that for a plastic panel must be between 0.8 and 3.4 mm (1/32 and 1/8 in)
- the measurements of rilling template must be 107.6 x 72.6 mm (3 15/16 x 2 7/8 in), with rounded corners R 3.0 mm (1/8 in).

1.2 Models for wall mounting



Wall mounting (with bolts and fastening screws) or in the most common flush mounting boxes (with fastening screws).

1. Unhook the back shell from the front through a screwdriver and the proper seat.

2.1 In case of wall mounting:

2.1.1 Lean the back shell against the wall in a position suitable to get the connecting cable to pass through the proper opening.

2.1.2 Use the slots of the back shell as template to drill 4 holes having a diameter suitable to the bolt.
5.0 mm (3/16 in) diameter bolts are suggested.

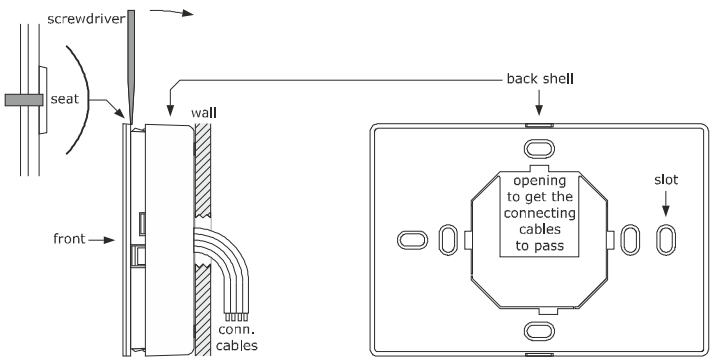
2.1.3 Insert the bolts in the holes drilled in the wall.

2.1.4 Fasten the back shell at the wall with 4 screws.
Countersunk head screws are suggested.

2.2 In case of flush mounting box, fasten the back shell at the box with 4 screws.
Countersunk head screws are suggested.

3. Make the electrical connection as shown in the section *ELECTRICAL CONNECTION* without powering up the device.

4. Fasten the front of the device at the back shell.



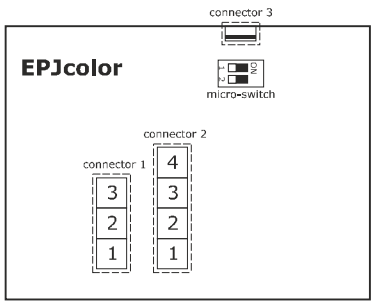
INSTALLATION PRECAUTIONS
- Ensure that the working conditions are within the limits stated in the *TECHNICAL SPECIFICATIONS* section
- Do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical vibrations or shocks
- In compliance with safety regulations, the device must be installed properly to ensure adequate protection from contact with electrical parts. All protective parts must be fixed in such a way as to need the aid of a tool to remove them.

2 ELECTRICAL CONNECTION

N.B.
- Use cables of an adequate section for the current running through them
- To reduce any electromagnetic interference connect the power cables as far away as possible from the signal cables and connect to a CAN network and RS-485 MODBUS network by using a twisted pair.

2.1 Models for panel mounting

2.1.1 Connectors and parts



Connector 1

N.	DESCRIPTION
1	reference RS-485 MODBUS port
2	RS-485 port reference -
3	RS-485 port reference +

Connector 2

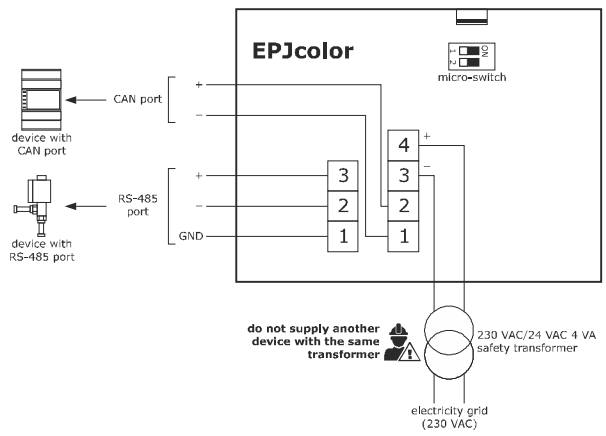
N.	DESCRIPTION
1	CAN port reference -
2	CAN port reference +
3	device power supply (24 VAC/12... 30 VDC). If the device is fed by DC power, connect terminal minus
4	device power supply (24 VAC/12... 30 VDC). If the device is fed by DC power, connect terminal plus

Connector 3: USB port, for programming the device.

Micro-switch:
- to insert the RS-485 MODBUS port termination resistor.
- to insert the CAN port termination resistor.

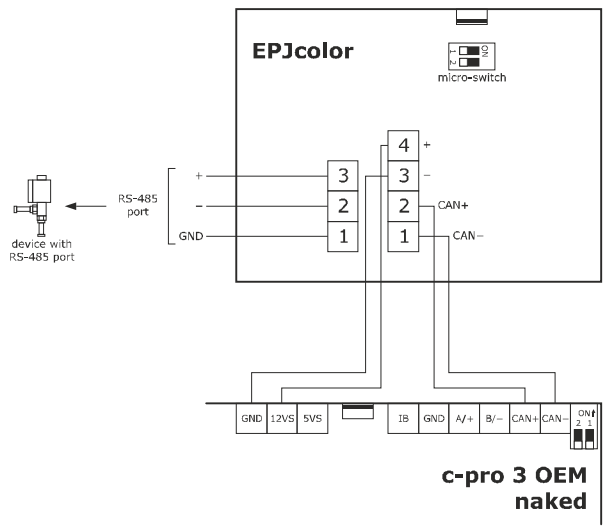
2.1.2 Electrical connection with independent power supply

N.B.
Do not supply another device with the same transformer.



2.1.3 Electrical connection with device powered by a controller (for example c-pro 3 OEM naked)

N.B.
Make sure that the current supplied by the controller is suitable to power the device.

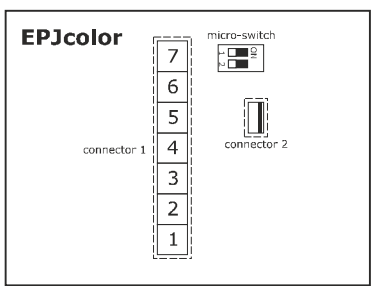


2.1.4 Insertion of the RS-485 MODBUS port and CAN port termination resistor

To insert the RS-485 MODBUS port termination resistor, place micro-switch 1 in position ON.
To insert the CAN port termination resistor, place micro-switch 2 in position ON.
The micro-switch is at the back of the device (remove the back shell from the front before).

2.2 Models for wall mounting

2.2.1 Connectors and parts



Connector 1

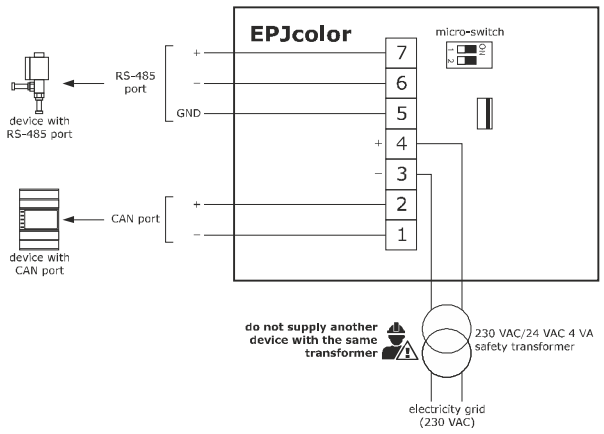
N.	DESCRIPTION
1	CAN port reference -
2	CAN port reference +
3	device power supply (24 VAC/12... 30 VDC). If the device is fed by DC power, connect terminal minus
4	device power supply (24 VAC/12... 30 VDC). If the device is fed by DC power, connect terminal plus
5	reference RS-485 MODBUS port
6	RS-485 port reference -
7	RS-485 port reference +

Connector 2: USB port, for programming the device.

Micro-switch:
- to insert the RS-485 MODBUS port termination resistor.
- to insert the CAN port termination resistor.

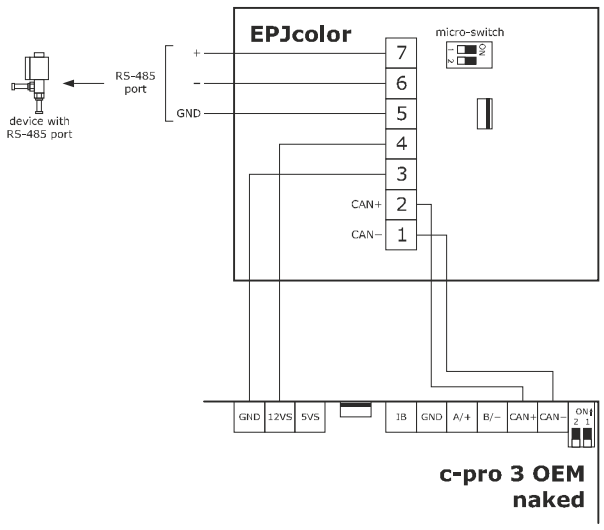
2.2.2 Electrical connection with independent power supply

N.B.
Do not supply another device with the same transformer.



2.2.3 Electrical connection with device powered by a controller (for example c-pro 3 OEM naked)

N.B.
Make sure that the current supplied by the controller is suitable to power the device.

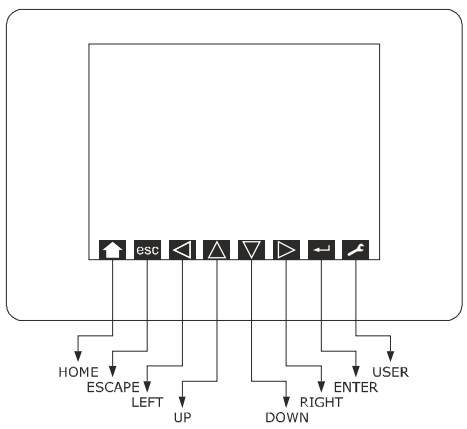


2.2.4 Insertion of the RS-485 MODBUS port and CAN port termination resistor

To insert the RS-485 MODBUS port termination resistor, place micro-switch 1 in position ON.
To insert the CAN port termination resistor, place micro-switch 2 in position ON.
The micro-switch is at the back of the device (remove the back shell from the front before).

PRECAUTIONS FOR ELECTRICAL CONNECTION
- If using an electrical or pneumatic screwdriver, adjust the tightening torque
- If the device has been moved from a cold to a warm place, the humidity may have caused condensation to form inside. Wait about an hour before switching on the power
- Make sure that the supply voltage, electrical frequency and power are within the set limits. See the section *TECHNICAL SPECIFICATIONS*
- Disconnect the power supply before doing any type of maintenance
- Do not use the device as safety device
- For repairs and for further information, contact the EVCO sales network; possible returns without label data will not be accepted.

3 USER INTERFACE



3.1 Switching the device on and off

1.	Power up the device: an internal test will be run.
2.	Touch the low part of the display to show the sensitive areas.

4 SETTINGS

4.1 Setting configuration parameters of "Parameters" and "Networks" menu

N.B.
Turn off the power after changing the configuration.

1.	Touch the low part of the display to show the sensitive areas.	
2.		Touch the USER area: the display will show the frame "Network Status (CAN)".
3.		Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
4.		Touch the UP or DOWN area to select a menu.
5.		Touch the ENTER area to access a menu: the display will show the frame "Input Password".
6.		Touch the ENTER area again.
7.		Touch the UP or DOWN area to set "**-19**".
8.		Touch the ENTER area: the display will show the frame of the menu.
9.		Touch the UP or DOWN area to select a parameter.
10.		Touch the ENTER area.

11.		Touch the UP or DOWN area to set the value.
12.		Touch the ENTER area.
13.	esc	Touch the ESCAPE area a few times to return to the previous displays.

4.2 Set the date and time

1.	Touch the low part of the display to show the sensitive areas.	
2.		Touch the USER area: the display will show the frame "Network Status(CAN)".
3.		Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
4.		Touch the UP or DOWN area to select the date and time.
5.		Touch the ENTER area.
6.		Touch the LEFT or RIGHT area to select a field.
7.		Touch the UP or DOWN area to set the value.
8.		Touch the ENTER area.
9.	esc	Touch the ESCAPE area a few times to return to the previous displays.

4.3 Set the language to show the words of the project (if foreseen and if the device works in "programmable" mode)

1.	Touch the low part of the display to show the sensitive areas.	
2.		Touch the USER area: the display will show the frame "Network Status(CAN)".
3.		Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
4.		Touch the UP or DOWN area to select "**Languages**".
5.		Touch the ENTER area.
6.		Touch the UP or DOWN area to select the language.
7.		Touch the ENTER area.
8.	esc	Touch the ESCAPE area a few times to return to the previous displays.

5 CONFIGURATION UPLOAD / DOWNLOAD

5.1 Parameters upload / download (if the device works in "programmable" mode)

N.B.
- configuration upload/download is allowed on condition that parameters of origin coincide with parameters of destination
- upload/download normally takes a few seconds.

1.	Touch the low part of the display to show the sensitive areas.	
2.		Touch the USER area: the display will show the frame "Network Status(CAN)".
3.		Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
4.		Touch the UP or DOWN area to select "**Backup / Restore**".
5.		Touch the ENTER area to access a menu: the display will show the frame "Input Password".
6.		Touch the ENTER area again.
7.		Touch the UP or DOWN area to set "**-19**".
8.		Touch the ENTER area: the display will show the frame "Back-up/Restore".
9.		Touch the LEFT or RIGHT area to select a field.
	FIELD	MEANING
	USB Key	upload/download from USB flash drive
	Backup Memory	upload/ download from device memory
10.		Touch the ENTER area: the display will show the relative frame.
11.		Touch the LEFT or RIGHT area to select a field.
	FIELD	MEANING
	Application parameters	project parameters
	Hardware configuration	configuration parameters
12.		Touch the ENTER area.
13.		Touch the UP or DOWN area to select "**Restore from USB**"/"**Save on USB**" (for field selection "**USB Key**") or to select "**Restore from memory**"/ "**Save on memory**" (for field selection "**Backup Memory**").
14.		Touch the ENTER area: the configuration upload/download will be run.
15.	esc	Touch the ESCAPE area a few times to return to the previous displays.

6 ADDITIONAL FUNCTIONS

6.1 Access to "Info", "Diagnostic" and "Debug" menu (read only)

1.	Touch the low part of the display to show the sensitive areas.	
2.		Touch the USER area: the display will show the frame "Network Status(CAN)".
3.		Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
4.		Touch the UP or DOWN area to select a menu.
5.		Touch the ENTER area.
6.	esc	Touch the ESCAPE area a few times to return to the previous displays.

7 CONFIGURATION PARAMETERS

N.	PARAMETER	DEF.	"Info" MENU (READ ONLY)	MIN... MAX.
1	PROJ	-	project information	-
2	FW	-	firmware information	-
3	HW	-	hardware information	-
4	SW	-	development environment information	-
5	SN	-	serial number information and result of the productive test	-
6	DATE	-	information on data and time last project compiling	-

N.	PARAMETER	DEF.	"Languages" MENU (READ ONLY)	MIN... MAX.
7	English	-	showing in English the project words (if foreseen)	-
8	Italian	-	showing in Italian the project words (if foreseen)	-
9	Français	-	showing in French the project words (if foreseen)	-
10	Español	-	showing in Spanish the project words (if foreseen)	-
11	Deutsch	-	showing in German the project words (if foreseen)	-
12	Russian	-	showing in Russian the project words (if foreseen)	-
13	Português	-	showing in Portoguese the project words (if foreseen)	-

N.	PARAMETER	DEF.	"Parameters" MENU	MIN... MAX.
14	Date Char Separator	-	ASCII character as data separator	-
15	Year format	**YY**	year format	YY = 2 numbers YYYY = 4 numbers
16	Date format	**dd mm yy**	data format	yy mm dd = year, month and day mm dd yy = month, day and year dd mm yy = day, month and year
17	Time Char Separator	**:**	ASCII character as hour separator	-
18	Time With Sec	**YES**	showing time with seconds	NO = no YES = yes
19	Time AM/PM	**NO**	time format	NO = 24 h YES = 12 h
20	Backlight Mode	**TIME**	backlight type	off = off on = on TIME = with Backlight Timeout
21	Backlight Timeout	**60**	timeout backlight	0... 240 s
22	I/O Timeout	**60**	delay remote I/O disabling from CAN communication absence	0... 240 s
23	Print Loading	**NO**	showing "Loading..." during project page loading	NO = no YES = yes
24	Password Timeout	**60**	"Parameters", "Networks" and "Back-up/Restore" menu password timeout	0... 240 s
25	Beep Mode	**2**	beep type when touching the display	0 = never 1 = always 2 = if the area is sensitive
26	Print Frame	**0**	showing frames instead low size pages	0 = no 1 = yes

N.	PARAMETER	DEF.	"Networks > CAN bus" MENU	MIN... MAX.
27	MyNode	**99**	CAN address	1... 127
28	Master	-	reserved	-
29	Baud	**Auto**	CAN baud rate	20K = 20,000 baud 50K = 50,000 baud 125K = 125,000 baud 500K = 500,000 baud Auto = automatic recognizing of baud rate if one of the previous
30	Timeout	**5**	delay exclusion device in CAN network from absence of communication	0... 240 s
31	Network Node	-	physical node joined to the logic node	[1] 1... [32] 127

N.	PARAMETER	DEF.	"Networks > CAN bus > CAN status" MENU	MIN... MAX.
32	Cnt Rx	-	number of received packages	0... 9999
33	Cnt Tx	-	number of transmitted packages	0... 9999
34	Cnt Ovf	-	number of intercepted overflow	0... 9999
35	Cnt Passive	-	number of intercepted passive	0... 9999
36	Cnt Bus Off	-	number of intercepted bus off	0... 9999
37	BufRx Valid	-	number receipts ok	0... 9999
38	BufTx Valid	-	number of transmissions ok	0... 9999
39	Cnt Tx Err	-	number of transmissions in error	0... 9999
40	Cnt Rx Err	-	number of receipts in error	0... 9999
41	Cnt Stuff	-	number stuff errors	0... 9999
42	Cnt Form	-	number form errors	0... 9999
43	Cnt Ack	-	number ack errors	0... 9999
44	Cnt Bit1	-	number bit1 errors	0... 9999
45	Cnt Bit0	-	number bit0 errors	0... 9999
46	Cnt CRC	-	number CRC errors	0... 9999

N.	PARAMETER	DEF.	"Networks > CAN bus > CAN Bit Timing" MENU	MIN... MAX.
47	BrP	-	reserved	-
48	SJW	-	reserved	-
49	T.SEG1	-	reserved	-
50	T.SEG1	-	reserved	-

N.	PARAMETER	DEF.	"Networks > UART" MENU	MIN... MAX.
51	Address	**1**	MODBUS address	1... 247
52	Parity	**even**	MODBUS parity	none = none odd = odd even = even
53	Baudrate	**9600**	MODBUS baud rate	1200 = 1,200 baud 2400 = 2,400 baud 4800 = 4,800 baud 9600 = 9,600 baud 19200 = 19,200 baud 28800 = 28,800 baud 38400 = 38,400 baud 57600 = 57,600 baud
54	Bit Stop	**1 bit**	MODBUS stop bit	1 bit = 1 bit 2 bit = 2 bit
55	Timeout	**10**	delay transmission next request from absence MODBUS receipt	2... 240 s

N.	PARAMETER	DEF.	"Networks > USB" MENU (READ ONLY)	MIN... MAX.
56	USB Status Device	-	reserved	-
57	Device Status Idle Speed	-	reserved	-

N.	PARAMETER	DEF.	"Diagnostic" MENU (READ ONLY)	MIN... MAX.
58	EEPROM	-	EEPROM memory status	OK = not in error ERR = in error
59	RTC	-	clock status	OK = not in error ERR = in error LOW = data lost DISAB = not enabled
60	STACK	-	stack status	OK = not in error ERR = in error (for overflow)
61	MATH	-	math status	OK = not in error ERR = in error (for overflow, underflow, division by zero or NaN)
62	KEY PAR	-	result upload/download via USB project and configuration parameters	OK = succesfully completed ERR = unsuccessfully completed

N.	PARAMETER	DEF.	"Debug" MENU (READ ONLY)	MIN... MAX.
63	Main time	-	main cycle time for software (ms)	-
64	max time main	-	maximum value main cycle time for software	-
65	free stack main	-	minimum free stack of main	-
66	100ms time	-	reserved	-
67	max time 100 ms	-	reserved	-
68	free stack 100 ms	-	reserved	-

8 TECHNICAL SPECIFICATIONS

Purpose of the control device		Function controller
Construction of the control device		Built-in electronic device
Container		Black, self-extinguishing
Category of heat and fire resistance		D
Measurements	Models for panel mounting	111.4 x 76.4 x 25.0 mm (4 3/8 x 3 x 1 in)
	Models for wall mounting	111.4 x 76.4 x 18.5 mm (4 3/8 x 3 x 3/4 in)
Mounting methods for the control device		According to the model, panel mounting (with elastic holding flaps), wall mounting (with bolts and fastening screws) or in the most common flush mounting box (with fastening screws)
Degree of protection provided by the covering		IP30 (IP65 in case of panel mounting)
Connection method	Models for panel mounting	Removable screw terminal blocks for wires up to 1 mm²
	Models for wall mounting	Fixed screw terminal blocks for wires up to 1 mm²
Maximum permitted length for connection cables		
Power supply: 10 m (32.8 ft)		RS-485 MODBUS port: 1,000 m (3,280 ft)
CAN port: - 1,000 m (3,280 ft) with baud rate 20.000 baud - 500 m (1,640 ft) with baud rate 50.000 baud - 250 m (820 ft) with baud rate 125.000 baud - 50 m (164 ft) with baud rate 500.000 baud Over 10 m (32.8 ft) use a shielded cable		
Operating temperature		From -10 to 55 °C (from 14 to 131 °F)
Storage temperature		From -20 to 70 °C (from -4 to 158 °F)
Operating humidity		Relative humidity without condensate from 5 to 95%
Pollution status of the control device		2
Compliance		
RoHS 2011/65/EC		WEEE 2012/19/EU
REACH (EC) Regulation N. 1907/2006		EMC 2014/30/UE RED 2014/53/UE
Power supply		24 VAC (±15%), 50/60 Hz (±3 Hz), max. 4 VA not insulated or 12... 30 VDC, max. 2 W not insulated (independent power supply or by a controller)
Earthing methods for the control device		None
Rated impulse-withstand voltage		I
Over-voltage category		330 V
Software class and structure		A
Clock		Incorporated secondary lithium battery
Clock drift		≤ 55 s/month at 25 °C (77 °F)
Clock battery autonomy in the absence of a power supply		6 momths
Clock battery charging time		24 h (the battery is charged by the power supply of the device)
Displays		Colour touch-screen TFT graphic display
Alarm buzzer		Built-in
Communications ports		
1 RS-485 MODBUS port	1 CAN port	1 USB port

N.B.
The device must be disposed of according to local regulations governing the collection of electrical and electronic waste.

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