

device for **INDOOR APPLICATIONS**

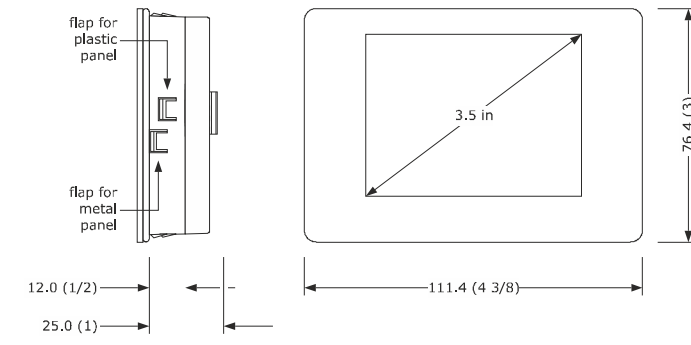
PLEASE READ CAREFULLY and save this document
CONSIDER THE ENVIRONMENT

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

| Purchasing codes | Installation mode | Power supply | Incorporated sensor |
|------------------|-------------------|---------------------|---------------------|
| EPJC900X4 | panel mounted | 24 VAC/12... 30 VDC | no |
| EPJC900X4VW | wall mounted | 24 VAC/12... 30 VDC | no |
| EPJC910X4VW | wall mounted | 24 VAC/12... 30 VDC | temperature |

1 MEASUREMENTS AND INSTALLATION | Measurements in mm (in)

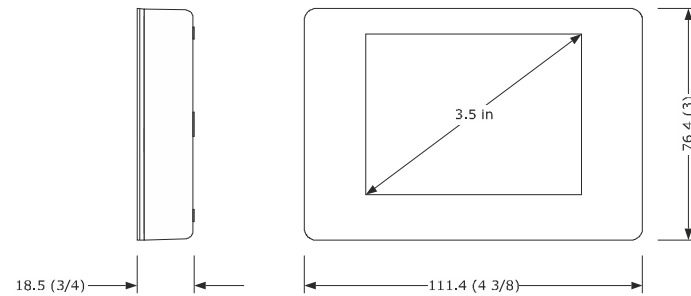
1.1 Models for panel mounting



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

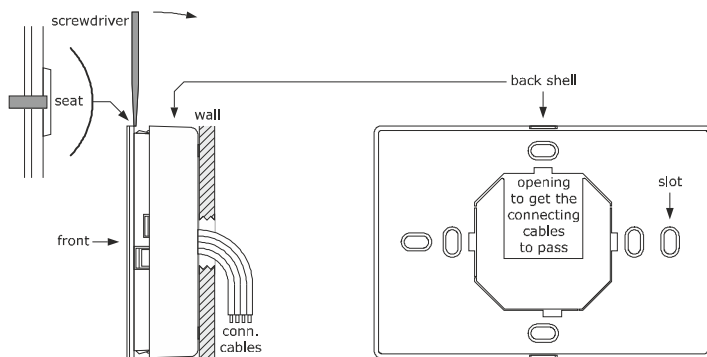
- N.B.**
- the thickness of a metal panel must be between 0.8 and 1.5 mm (1/32 and 1/16 in), while that for a plastic panel must be between 0.8 and 3.4 mm (1/32 and 1/8 in)
 - the measurements of drilling template must be 107.6 x 72.6 mm (3 15/16 x 2 7/8 in), with rounded corners R 3.0 mm (1/8 in).

1.2 Models for wall mounting



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

- Unhook the back shell from the front through a screwdriver and the proper seat.
- In case of wall mounting:
 - Lean the back shell against the wall in a position suitable to get the connecting cable to pass through the proper opening.
 - 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.
 - Insert the bolts in the holes drilled in the wall.
 - Fasten the back shell at the wall with 4 screws. Countersunk head screws are suggested.
- In case of flush mounting box, fasten the back shell at the box with 4 screws. Countersunk head screws are suggested.
- Make the electrical connection as shown in the section **ELECTRICAL CONNECTION** without powering up the device.
- Fasten the front of the device at the back shell.



INSTALLATION PRECAUTIONS

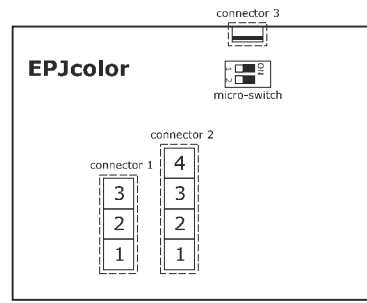
- Ensure that the working conditions are within the limits stated in the **TECHNICAL SPECIFICATIONS** section
- Do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical vibrations or shocks
- 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 |

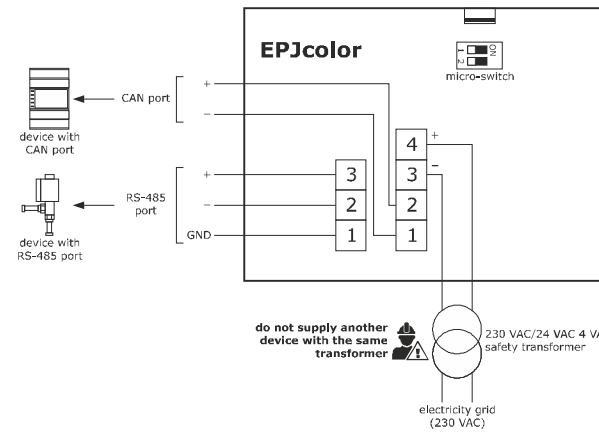
Connector 3: USB port, for programming the device.

Micro-switch:

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

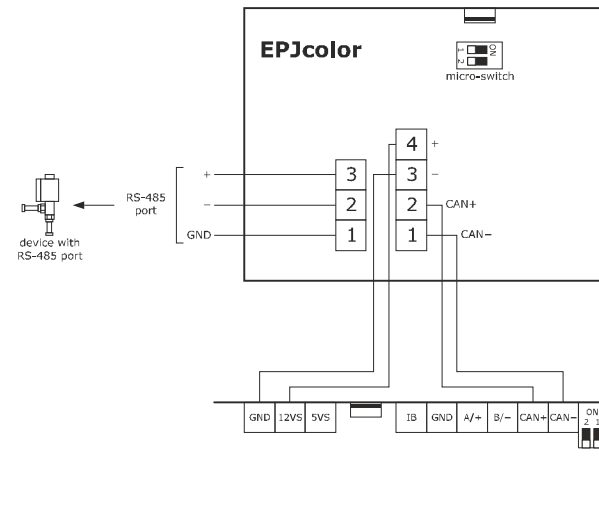
2.1.2 Electrical connection with independent power supply

- 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)

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

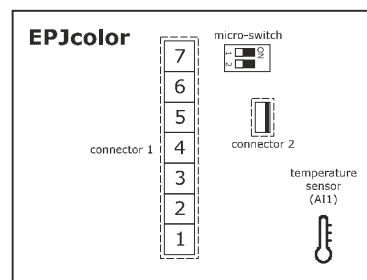


2.1.4 Insertion of the RS-485 MODBUS port and CAN port termination resistor

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.

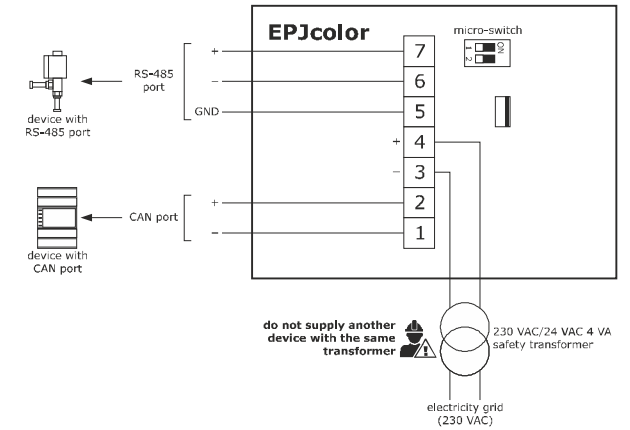
Micro-switch:

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

Temperature (AI1) sensor: according to the model.

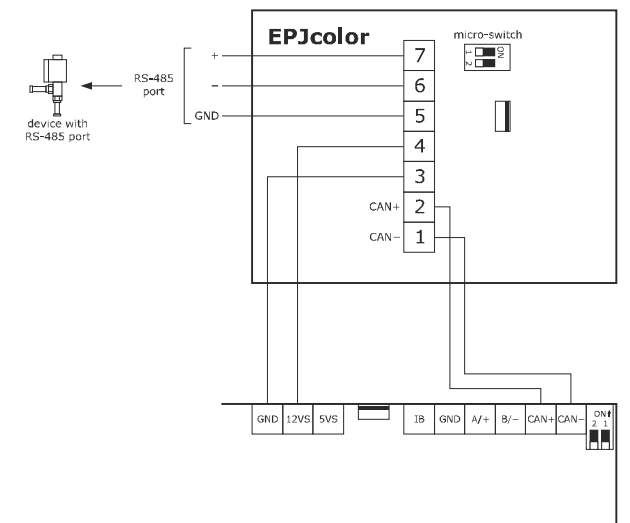
2.2.2 Electrical connection with independent power supply

- 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)

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



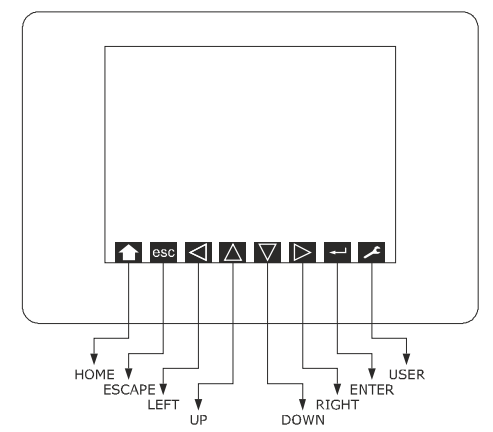
2.2.4 Insertion of the RS-485 MODBUS port and CAN port termination resistor

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

- Power up the device: an internal test will be run.
- 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.

- Touch the low part of the display to show the sensitive areas.
- Touch the USER area: the display will show the frame "Network Status (CAN)".
- Touch the ENTER area: the display will show the frame "V-COLOR BROWS".
- Touch the UP or DOWN area to select a menu.
- Touch the ENTER area to access a menu: the display will show the frame "Input Password".
- Touch the ENTER area again.
- Touch the UP or DOWN area to set "-19".
- Touch the ENTER area: the display will show the frame of the menu.
- 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. | | 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. | | 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. | | 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 "Backup/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. | | 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. | | 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) | Available if the application software of the connected control foresee the multilanguage management |
| 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 Portuguese 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 | Refresh Timeout | 0 | update variables timeout | 0... 100 ms |
| 24 | Print Loading | NO | showing "Loading..." during project page loading | NO = no YES = yes |
| 25 | Password Timeout | 60 | "Parameters", "Networks" and "Backup/Restore" menu password timeout | 0... 240 s |
| 26 | Beep Mode | 2 | beep type when touching the display | 0 = never 1 = always 2 = if the area is sensitive |
| 27 | Print Frame | 0 | showing frames instead low size pages | 0 = no 1 = yes |

| N. | PARAMETER | DEF. | "Networks > CAN bus" MENU | MIN... MAX. |
|----|--------------|------|---|--|
| 28 | MyNode | 99 | CAN address | 1... 127 |
| 29 | Master | - | reserved | - |
| 30 | 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 |
| 31 | Timeout | 5 | delay exclusion device in CAN network from absence of communication | 0... 240 s |
| 32 | Network Node | - | physical node joined to the logic node | [1] 1... [32] 127 |
| N. | PARAMETER | DEF. | "Networks > CAN bus > CAN status" MENU | MIN... MAX. |
| 33 | Cnt Rx | - | number of received packages | 0... 9999 |
| 34 | Cnt Tx | - | number of transmitted packages | 0... 9999 |
| 35 | Cnt Ovfl | - | number of intercepted overflow | 0... 9999 |
| 36 | Cnt Passive | - | number of intercepted passive | 0... 9999 |
| 37 | Cnt Bus Off | - | number of intercepted bus off | 0... 9999 |
| 38 | BufRx Valid | - | number receipts ok | 0... 9999 |
| 39 | BufTx Valid | - | number of transmissions ok | 0... 9999 |
| 40 | Cnt Tx Err | - | number of transmissions in error | 0... 9999 |
| 41 | Cnt Rx Err | - | number of receipts in error | 0... 9999 |
| 42 | Cnt Stuff | - | number stuff errors | 0... 9999 |
| 43 | Cnt Form | - | number form errors | 0... 9999 |
| 44 | Cnt Ack | - | number ack errors | 0... 9999 |
| 45 | Cnt Bit1 | - | number bit1 errors | 0... 9999 |
| 46 | Cnt Bit0 | - | number bit0 errors | 0... 9999 |
| 47 | Cnt CRC | - | number CRC errors | 0... 9999 |

| N. | PARAMETER | DEF. | "Networks > CAN bus > CAN Bit Timing" MENU | MIN... MAX. |
|----|-----------|------|--|-------------|
| 48 | BrP | - | reserved | - |
| 49 | SJW | - | reserved | - |
| 50 | T.SEG1 | - | reserved | - |
| 51 | T.SEG1 | - | reserved | - |

| N. | PARAMETER | DEF. | "Networks > UART" MENU | MIN... MAX. |
|----|-----------|-------|------------------------|--|
| 52 | Address | 1 | MODBUS address | 1... 247 |
| 53 | Parity | even | MODBUS parity | none = none odd = odd even = even |
| 54 | 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 |
| 55 | Bit Stop | 1 bit | MODBUS stop bit | 1 bit = 1 bit 2 bit = 2 bit |

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

| N. | PARAMETER | DEF. | "Diagnostic" MENU (READ ONLY) | MIN... MAX. |
|----|-------------------------------|------|---|--|
| 57 | Device Status Idle Init Speed | - | reserved | - |
| 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 = successfully 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 | - |
| N. | PARAMETER | DEF. | "Sensor" MENU (VISIBLE ACCORDING TO THE MODEL) | MIN... MAX. |
| 69 | Temperature | - | incorporated sensor temperature reading (A11) | - |
| 70 | Offset | 0.0 | incorporated sensor temperature reading offset (A11) | -10.0... 10.0 °C |

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 |
|--|---|

| | | |
|------------------------------------|-----------------|----------------|
| 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 months |
| 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 |
| Incorporated sensors: | temperature (according to the model) |
| Working range incorporated temperature sensor: | 0... 40 °C (32... 104 °F); accuracy ±0,5 °C at 25 °C in static air |

Temperature value will be read with the correct compensation after 30 min the device has been switched on.

| | | | |
|----------------------|------------|------------|--|
| 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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