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CONSIDER THE ENVIRONMENT

EN ENGLISH

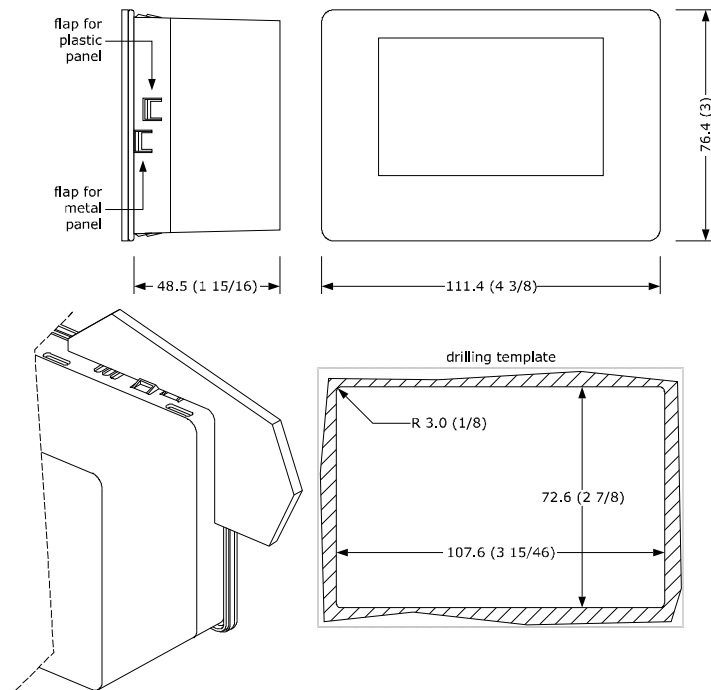
- Controllers for low temperature units.
- Power supply 12 VAC/DC.
- Incorporated clock (according to the model).
- Cabinet probe and evaporator probe (PTC/NTC).
- Door switch input.
- Compressor relay 16 A res. @ 250 VAC or 30 A res. @ 250 VAC (according to the model).
- Alarm buzzer.
- TTL MODBUS slave port for EVconnect APP or BMS.
- Port for SD card data-logger module EVBD05 (according to the model).
- Models in plastic container or open-frame (according to the model).

1 MEASUREMENTS AND INSTALLATION | Measurements in mm (inches)

1.1 Models in plastic container

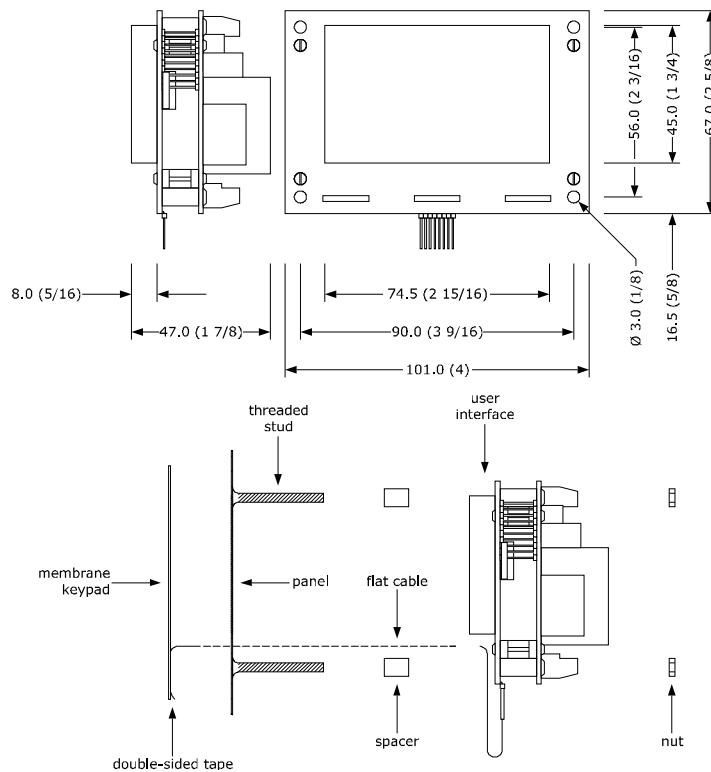
To be fitted to a panel, with elastic holding flaps.

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).



1.2 Open-frame models

To be installed from behind, with threaded studs and membrane keypad.

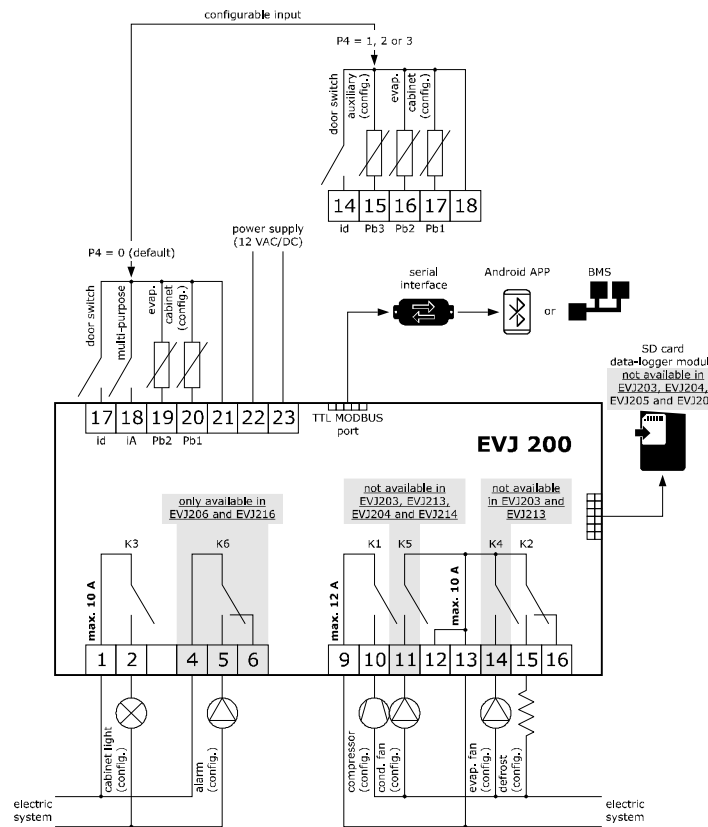


INSTALLATION PRECAUTIONS

- 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.



PRECAUTIONS FOR ELECTRICAL CONNECTION

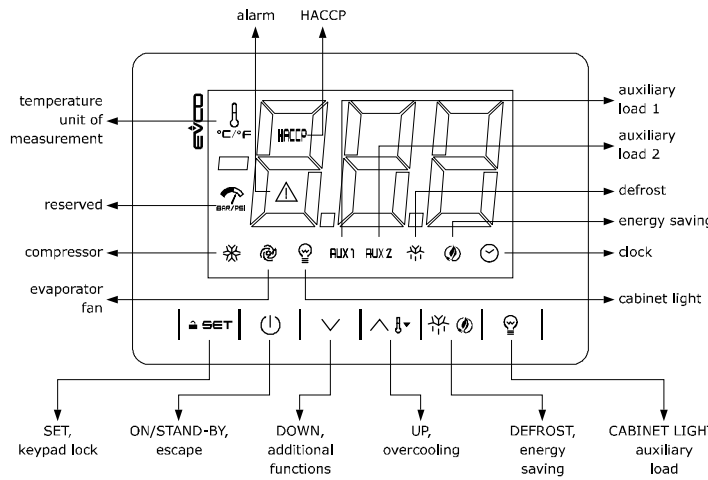
- If using an electrical or pneumatic screwdriver, adjust the tightening torque.
- If the device has been moved from a cold to a warm place, the humidity may have caused condensation to form inside. Wait about an hour before switching on the power.
- Make sure that the supply voltage, electrical frequency 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.

3 FIRST-TIME USE

1. Install following the instructions given in the section **MEASUREMENTS AND INSTALLATION**.
 2. Power up the device and an internal test will be run. The test normally takes a few seconds, when it is finished the display will switch off.
 3. Configure the device as shown in the section **Setting configuration parameters**.
Recommended configuration parameters for first-time use.
- | PAR. | DEF. | PARAMETER | MIN... MAX. |
|------|------|---------------------------------|-------------------------------------------------|
| SP | 0.0 | setpoint | r1... r2 |
| P0 | 1 | probe type | 0 = PTC 1 = NTC |
| P2 | 0 | temperature unit of measurement | 0 = °C 1 = °F |
| d1 | 0 | defrost type | 0 = electric 1 = hot gas 2 = compressor stopped |

4. Then check that the remaining settings are appropriate; see the section **CONFIGURATION PARAMETERS**.
5. Disconnect the device from the mains.
6. Make the electrical connection as shown in the section **ELECTRICAL CONNECTION** without powering up the device.
7. For the connection in an RS-485 network connect the interface EVIF22TSX or EVIF23TSX, to activate real time functions in EVJ203, EVJ204, EVJ205 and EVJ206 connect the module EVIF23TSX, for recording HACCP data in CSV format on SD card connect the module EVBD05, to use the device with the Android APP EVconnect connect the interface EVIF25TBX; see the relevant instruction sheets. **If EVIF22TSX or EVIF23TSX is used, set parameter bLE to 0.**
8. Power up the device.

4 USER INTERFACE AND MAIN FUNCTIONS



4.1 Switching the device on and off

1. If POF = 1 (default), touch the ON/STAND-BY key for 2s.
If the device is switched on, the display will show the P5 value ("cabinet temperature" default); if the display shows an alarm code, see the section **ALARMS**.

| LED | ON | OFF | FLASHING |
|--------------|----------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------|
| | compressor on | compressor off | - compressor protection active - setpoint being set |
| | evaporator fan on | evaporator fan off | evaporator fan stop active |
| | cabinet light on | cabinet light off | cabinet light on by digital input |
| AUX 1 | auxiliary function 1 on | auxiliary function 1 off | - auxiliary function 1 on by digital input - auxiliary function 1 delay active |
| AUX 2 | auxiliary function 2 on | auxiliary function 2 off | - auxiliary function 2 on by digital input - auxiliary function 2 delay active |
| | defrost or pre-drip active | - | - defrost delay active - dripping active |
| | - energy saving active - low consumption active | - | - |

| FUNCTION | CONDITION | CONSEQUENCE | |
|--------------|-------------------|-------------|--------------------------------------------|
| | view time | - | set date, time and day of the current week |
| | view temperature | - | overcooling or overheating active |
| HACCP | saved HACCP alarm | - | new HACCP alarm saved |
| | alarm active | - | - |

If Loc = 1 (default) and 30s have elapsed without the keys being pressed, the display will show the "Loc" label and the keypad will lock automatically.

4.2 Unlock keypad

Touch a key for 1s: the display will show the label "UnL".

4.3 Set the setpoint (if r3 = 0, default)

Check that the keypad is not locked.

1. Touch the SET key.
2. Touch the UP or DOWN key within 15s to set the value within the limits r1 and r2 (default "-40... 50").
3. Touch the SET key (or do not operate for 15s).

4.4 Activate manual defrost (if r5 = 0, default)

Check that the keypad is not locked and that overcooling is not active.

1. Touch the DEFROST key for 2s.

If P3 = 1 (default), defrost is activated provided that the evaporator temperature is lower than the d2 threshold.

4.5 Cabinet light on/off (if u1c... u6c = 5)

1. Touch the CABINET LIGHT key.

4.6 Button-operated load on/off (if u1c... u6c = 10 or 11)

1. Touch the CABINET LIGHT key (for 2s if u1c... u6c = 5).

If u1c... u6c = 6, the demisting switch on for the u6 duration.

4.7 Silence buzzer (if u9 = 1, default)

Touch a key.
If u1c... u6c = 11 and u4 = 1, the alarm output is deactivated.

5 ADDITIONAL FUNCTIONS

5.1 Activate/deactivate overcooling and overheating

Check that the keypad is not locked.

1. Touch the UP key for 2s.

| FUNCTION | CONDITION | CONSEQUENCE |
|-------------|-------------------------------|-----------------------------------------------------------|
| overcooling | r5 = 0 and defrost not active | the setpoint becomes "setpoint - r6", for the r7 duration |
| overheating | r5 = 1 | the setpoint becomes "setpoint + r6", for the r7 duration |

5.2 Activate/deactivate energy saving in manual mode (if r5 = 0)

Check that the keypad is not locked.

1. Touch the DEFROST key.

The setpoint becomes "setpoint + r4", at maximum for HE2 duration.

5.3 Activate the high or low humidity functions (if F0 = 5)

Check that the keypad is not locked.

1. Touch the DOWN key for 1s.
2. Touch the UP or DOWN key within 15s to select the label "rH".
3. Touch the SET key for 2s until the display shows the right label for the function (only touch the key to see the function activated).

| LAB. | DESCRIPTION |
|------|--------------------------------------------------------------------------------------------------------------|
| rhL | low humidity function (evaporator fan with F17 and F18 if the compressor is off, on if the compressor is on) |
| rhH | high humidity function (evaporator fan on) |

4. Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.
- 5.4 **View/delete HACCP alarm information (not available in EVJ203, EVJ204, EVJ205 and EVJ206)**
Check that the keypad is not locked.

1. Touch the DOWN key for 1s.
2. Touch the UP or DOWN key within 15s to select a label.

| LAB. | DESCRIPTION |
|------|--------------------------------|
| LS | view HACCP alarm information |
| rLS | delete HACCP alarm information |

3. Touch the SET key.
4. Touch the UP or DOWN key to select an alarm code (to select label "LS") or to set "149" (to select label "rLS").

| COD. | DESCRIPTION |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| AL | low temperature alarm |
| AH | high temperature alarm |
| id | open door alarm (if i4 = 1) |
| PF | power failure alarm (available in EVJ213, EVJ214, EVJ215 and EVJ216 or in EVJ203, EVJ204, EVJ205 and EVJ206 with interface EVIF25TBX connected) |

5. Touch the SET key.
6. Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.

Example of alarm information (e.g. a high temperature alarm).

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------|
| 8.0 | critical value (calculated cabinet/product temperature) was 8.0 °C/°F |
| Sta | (available in EVJ213, EVJ214, EVJ215 and EVJ216 or in EVJ203, EVJ204, EVJ205 and EVJ206 with interface EVIF25TBX connected) |
| y15 | alarm signalled in 2015 |
| n03 | alarm signalled in March |
| d26 | alarm signalled on 26 March 2015 |
| h16 | alarm signalled at 16:00 |
| n30 | alarm signalled at 16:30 |
| dur | |
| h01 | alarm lasted 1h |
| n15 | alarm lasted 1h 15min |

5.5 View/delete compressor functioning hours

Check that the keypad is not locked.

1. Touch the DOWN key for 1s.
2. Touch the UP or DOWN key within 15s to select a label.

| LAB. | DESCRIPTION |
|------|--------------------------------------------------------------------------|
| CH1 | view compressor functioning hundreds of hours |
| CH2 | view second compressor functioning hundreds of hours (if u1c... u6c = 1) |

| | | |
|----|--|------------------------------------------------------------------------------|
| 3. | | Touch the SET key. |
| 4. | | Touch the UP or DOWN key to set "149" (to select rCH). |
| 5. | | Touch the SET key. |
| 6. | | Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure. |

5.6 View the temperature detected by the probes

Check that the keypad is not locked.

| 1. | | Touch the DOWN key for 1s. | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------|-------------|-----|------------------------------------------------------------------------------|-----|-----------------------------------------|-----|-------------------------------------------|-----|-------------------------------------------------|
| 2. | | Touch the UP or DOWN key within 15s to select a label. | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>LAB.</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>Pb1</td> <td>cabinet temperature (if P4 = 0, 1 or 2) inlet air temperature (if P4 = 3)</td> </tr> <tr> <td>Pb2</td> <td>evaporator temperature (if P3 = 1 or 2)</td> </tr> <tr> <td>Pb3</td> <td>auxiliary temperature (if P4 = 1, 2 or 3)</td> </tr> <tr> <td>Pb4</td> <td>calculated product temperature (CPT; if P4 = 3)</td> </tr> </tbody> </table> | | | LAB. | DESCRIPTION | Pb1 | cabinet temperature (if P4 = 0, 1 or 2) inlet air temperature (if P4 = 3) | Pb2 | evaporator temperature (if P3 = 1 or 2) | Pb3 | auxiliary temperature (if P4 = 1, 2 or 3) | Pb4 | calculated product temperature (CPT; if P4 = 3) |
| LAB. | DESCRIPTION | | | | | | | | | | | |
| Pb1 | cabinet temperature (if P4 = 0, 1 or 2) inlet air temperature (if P4 = 3) | | | | | | | | | | | |
| Pb2 | evaporator temperature (if P3 = 1 or 2) | | | | | | | | | | | |
| Pb3 | auxiliary temperature (if P4 = 1, 2 or 3) | | | | | | | | | | | |
| Pb4 | calculated product temperature (CPT; if P4 = 3) | | | | | | | | | | | |
| 3. | | Touch the SET key. | | | | | | | | | | |
| 4. | | Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure. | | | | | | | | | | |

6 DATA-LOGGER MODULE on SD CARD (not available in EVJ203, EVJ204, EVJ205 and EVJ206)

6.1 Initial information

The data-logger module makes it possible to write information about the device on an SD card (in CSV format), in HACCP or service mode.

Data-logger module configuration parameters.

| PAR. | DEF. | PARAMETER | MIN... MAX. |
|------|------|------------------------------------------|---------------------|
| Sd0 | 30 | SD card writing interval in HACCP mode | 1... 30 min |
| Sd1 | 1 | SD card writing interval in service mode | 1... 30 min |
| Sd2 | 60 | service mode duration | 1... 240 min |
| Sd3 | 0 | enable critical temperature recording | 0 = no 1 = yes |
| Sd4 | 0 | enable cabinet temperature recording | 0 = no 1 = yes |
| Sd5 | 1 | decimal separator type | 0 = comma 1 = point |

6.2 Writing in HACCP mode

Writing in HACCP mode is always activated, it generates a daily file and a monthly file. Information written in HACCP mode.

- cabinet temperature (if Sd4 = 1, default "no")
- critical temperature (if Sd3 = 1, default "no")
- device switched on/off
- defrost activated/completed
- energy saving activated/deactivated
- alarm activated/restored
- power supply restored

The date and time is written for each piece of information.

6.3 Writing in service mode

Writing in service mode must be manually activated. Information written in service mode.

- temperature detected by all probes
- enable/disable probes
- device switched on/off
- functions on/off
- defrost activated/completed
- energy saving activated/deactivated
- alarm activated/restored
- power supply restored

The date and time is written for each piece of information.

6.4 Activate/deactivate writing in service mode

Check that the keypad is not locked.

| | | |
|----|--|------------------------------------------------------------------------------------------------|
| 1. | | Touch the DOWN key for 1s. |
| 2. | | Touch the UP or DOWN key within 15s to select the label "SER". |
| 3. | | Touch the SET key. |
| 4. | | Touch the UP or DOWN key within 15s to set "1" (activate writing) or "0" (deactivate writing). |
| 5. | | Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure. |

6.5 File names

Example of a daily file name written in HACCP mode (e.g. the file "log001_2015_03_26.csv").

001 : the device address is 1 (parameter LA)

 2015 : the file was written in 2015

 03 : the file was written in March

 26 : the file was written on 26 March 2015

Example of a monthly file name written in HACCP mode (e.g. the file "log001_2015_m03.csv").

001 : the device address is 1 (parameter LA)

 2015 : the file was written in 2015

 m03 : the file was written in March 2015

Example of a file name written in service mode (e.g. the file "log001_2015_0001.csv").

001 : the device address is 1 (parameter LA)

 2015 : the file was written in 2015

 0001 : sequence number

6.6 View data-logger module alarms

Check that the keypad is not locked.

| 1. | | Touch the DOWN key for 1s. | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------|------|-------------|-----|--------------------------------|----|----------------------------------------------|
| 2. | | Touch the UP or DOWN key within 15s to select the label "Err". | | | | | | |
| 3. | | Touch the SET key. | | | | | | |
| 4. | | Touch the UP or DOWN key within 15s to see the alarm code. | | | | | | |
| <table border="1"> <thead> <tr> <th>LAB.</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>FUL</td> <td>no space left on SD card alarm</td> </tr> <tr> <td>Sd</td> <td>SD card not inserted or not recognised alarm</td> </tr> </tbody> </table> | | | LAB. | DESCRIPTION | FUL | no space left on SD card alarm | Sd | SD card not inserted or not recognised alarm |
| LAB. | DESCRIPTION | | | | | | | |
| FUL | no space left on SD card alarm | | | | | | | |
| Sd | SD card not inserted or not recognised alarm | | | | | | | |
| 5. | | Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure. | | | | | | |

7 SETTINGS

7.1 Setting configuration parameters

| | | |
|----|--|--------------------------------------------------------------------------------------|
| 1. | | Touch the SET key for 4s: the display will show the label "PA". |
| 2. | | Touch the SET key. |
| 3. | | Touch the UP or DOWN key within 15s to set the PAS value (default "19"). |
| 4. | | Touch the SET key (or do not operate for 15s): the display will show the label "SP". |
| 5. | | Touch the UP or DOWN key to select a parameter. |
| 6. | | Touch the SET key. |
| 7. | | Touch the UP or DOWN key within 15s to set the value. |
| 8. | | Touch the SET key (or do not operate for 15s). |

9. **SET** | Touch the SET key for 4s (or do not operate for 60s) to exit the procedure.

7.2 Set the date, time and day of the week (available in EVJ213, EVJ214, EVJ215 and EVJ216 or in EVJ203, EVJ204, EVJ205 and EVJ206 with interface EVIF25TBX connected)

| | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N.B. | <ul style="list-style-type: none"> - If the device is connected to the interface EVIF25TBX, do not disconnect the device from the mains within two minutes since the setting of the time and day of the week. - If the device communicates with the APP EVconnect, the date, time and day of the week will automatically be set by the smartphone or tablet. |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Check that the keypad is not locked.

| 1. | | Touch the DOWN key for 1s. | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------|------|--------------------------------------------|---|------------------|---|----------------|---|-----------------|---|--------------------|
| 2. | | Touch the UP or DOWN key within 15s to select the label "rtc". | | | | | | | | | | |
| 3. | | Touch the SET key: the display will show the label "y" followed by the last two figures of the year. | | | | | | | | | | |
| 4. | | Touch the UP or DOWN key within 15s to set the year. | | | | | | | | | | |
| 5. | Repeat actions 3 and 4 to set the next labels. | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>LAB.</th> <th>MEANING OF THE NUMBERS FOLLOWING THE LABEL</th> </tr> </thead> <tbody> <tr> <td>n</td> <td>month (01... 12)</td> </tr> <tr> <td>d</td> <td>day (01... 31)</td> </tr> <tr> <td>h</td> <td>time (00... 23)</td> </tr> <tr> <td>n</td> <td>minutes (00... 59)</td> </tr> </tbody> </table> | | | LAB. | MEANING OF THE NUMBERS FOLLOWING THE LABEL | n | month (01... 12) | d | day (01... 31) | h | time (00... 23) | n | minutes (00... 59) |
| LAB. | MEANING OF THE NUMBERS FOLLOWING THE LABEL | | | | | | | | | | | |
| n | month (01... 12) | | | | | | | | | | | |
| d | day (01... 31) | | | | | | | | | | | |
| h | time (00... 23) | | | | | | | | | | | |
| n | minutes (00... 59) | | | | | | | | | | | |

| 6. | | Touch the SET key: the display will show the label for the day of the week. | | | | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------|------|-------------|-----|--------|-----|---------|-----|-----------|-----|----------|-----|--------|-----|----------|-----|--------|
| 7. | | Touch the UP or DOWN key within 15s to set the day of the week. | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>LAB.</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>Mon</td> <td>Monday</td> </tr> <tr> <td>Tue</td> <td>Tuesday</td> </tr> <tr> <td>Wed</td> <td>Wednesday</td> </tr> <tr> <td>Thu</td> <td>Thursday</td> </tr> <tr> <td>Fri</td> <td>Friday</td> </tr> <tr> <td>Sat</td> <td>Saturday</td> </tr> <tr> <td>Sun</td> <td>Sunday</td> </tr> </tbody> </table> | | | LAB. | DESCRIPTION | Mon | Monday | Tue | Tuesday | Wed | Wednesday | Thu | Thursday | Fri | Friday | Sat | Saturday | Sun | Sunday |
| LAB. | DESCRIPTION | | | | | | | | | | | | | | | | | |
| Mon | Monday | | | | | | | | | | | | | | | | | |
| Tue | Tuesday | | | | | | | | | | | | | | | | | |
| Wed | Wednesday | | | | | | | | | | | | | | | | | |
| Thu | Thursday | | | | | | | | | | | | | | | | | |
| Fri | Friday | | | | | | | | | | | | | | | | | |
| Sat | Saturday | | | | | | | | | | | | | | | | | |
| Sun | Sunday | | | | | | | | | | | | | | | | | |

| | | |
|----|--|-------------------------------------------------------------|
| 8. | | Touch the SET key: the device will exit the procedure. |
| 9. | | Touch the ON/STAND-BY key to exit the procedure beforehand. |

7.3 Reset the factory settings

| | |
|------|----------------------------------------------------------------------------------------------------|
| N.B. | Check that the factory settings are appropriate; see the section CONFIGURATION PARAMETERS . |
|------|----------------------------------------------------------------------------------------------------|

| | | |
|----|-------------------------------------------|---------------------------------------------------------------------------------------|
| 1. | | Touch the SET key for 4s: the display will show the label "PA". |
| 2. | | Touch the SET key. |
| 3. | | Touch the UP or DOWN key within 15s to set "149". |
| 4. | | Touch the SET key (or do not operate for 15s): the display will show the label "dEF". |
| 5. | | Touch the SET key. |
| 6. | | Touch the UP or DOWN key within 15s to set "1". |
| 7. | | Touch the SET key (or do not operate for 15s). |
| 8. | Interrupt the power supply to the device. | |
| 9. | | Touch the SET key for 2s before action 6 to exit the procedure beforehand. |

8 CONFIGURATION PARAMETERS

| N. | PAR. | DEF. | SETPOINT | MIN... MAX. |
|----|------|------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | SP | 0.0 | setpoint | r1... r2 |
| N. | PAR. | DEF. | ANALOGUE INPUTS | MIN... MAX. |
| 2 | CA1 | 0.0 | cabinet probe offset | -25... 25 °C/°F if P4 = 3, air in probe offset |
| 3 | CA2 | 0.0 | evaporator probe offset | -25... 25 °C/°F |
| 4 | CA3 | 0.0 | auxiliary probe offset | -25... 25 °C/°F |
| 5 | P0 | 1 | probe type | 0 = PTC 1 = NTC |
| 6 | P1 | 1 | enable °C decimal point | 0 = no 1 = yes |
| 7 | P2 | 0 | temperature unit of measurement | 0 = °C 1 = °F |
| 8 | P3 | 1 | evaporator probe function | 0 = disabled 1 = defrost + fan 2 = fan |
| 9 | P4 | 0 | configurable input function | 0 = digital input 1 = condenser probe 2 = critical temperature probe 3 = air out probe if P4 = 3, regulation temperature = product temperature (CPT) |
| 10 | P5 | 0 | value displayed | 0 = regulation temperature 1 = setpoint 2 = evaporator temperature 3 = auxiliary temperature 4 = air in temperature |
| 11 | P7 | 50 | inlet air weight for calculated product temperature (CPT) | 0... 100 % CPT = {[(P7 x (inlet air T))] + [(100 - P7) x (outlet air T)] : 100} |
| 12 | P8 | 5 | display refresh time | 0... 250 s : 10 |
| N. | PAR. | DEF. | REGULATION | MIN... MAX. |
| 13 | r0 | 2.0 | setpoint differential | 1... 15 °C/°F |
| 14 | r1 | -4.0 | minimum setpoint | -99 °C/°F... r2 |
| 15 | r2 | 50.0 | maximum setpoint | r1... 199 °C/°F |
| 16 | r3 | 0 | enable setpoint block | 0 = no 1 = yes |
| 17 | r4 | 0.0 | setpoint offset in energy saving | 0... 99 °C/°F |
| 18 | r5 | 0 | cooling or heating operation | 0 = cooling 1 = heating |
| 19 | r6 | 0.0 | setpoint offset in overcooling/overheating | 0... 99 °C/°F |
| 20 | r7 | 0 | overcooling/overheating duration | 0... 240 min |
| 21 | r12 | 1 | position of the r0 differential | 0 = asymmetric 1 = symmetric |
| N. | PAR. | DEF. | COMPRESSOR | MIN... MAX. |
| 22 | C0 | 0 | compressor on delay after power-on | 0... 240 min |
| 23 | C1 | 5 | delay between 2 compressor switch-ons | 0... 240 min |
| 24 | C2 | 3 | compressor off minimum time | 0... 240 min |
| 25 | C3 | 0 | compressor on minimum time | 0... 240 s |
| 26 | C4 | 10 | compressor off time during cabinet probe alarm | 0... 240 min |
| 27 | C5 | 10 | compressor on time during cabinet probe alarm | 0... 240 min |
| 28 | C6 | 80.0 | threshold for high condensation warning | 0... 199 °C/°F differential = 2 °C/4 °F |
| 29 | C7 | 90.0 | threshold for high condensation alarm | 0... 199 °C/°F |

| 30 | C8 | 1 | high condensation alarm delay | 0... 15 min |
|----|------|------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 31 | C10 | 0 | compressor hours for service | 0... 999 h x 100 0 = disabled |
| 32 | C11 | 10 | second compressor switch-on delay | 0... 240 s |
| N. | PAR. | DEF. | DEFROST (if r5 = 0) | MIN... MAX. |
| 33 | d0 | 8 | automatic defrost interval | 0... 99 h 0 = only manual if d8 = 3, maximum interval |
| 34 | d1 | 0 | defrost type | 0 = electric 1 = hot gas 2 = compressor stopped |
| 35 | d2 | 2.0 | threshold for defrost end | -99... 99 °C/°F |
| 36 | d3 | 30 | defrost duration | 0... 99 min se P3 = 1, maximum duration |
| 37 | d4 | 0 | enable defrost at power-on | 0 = no 1 = yes |
| 38 | d5 | 0 | defrost delay after power-on | 0... 99 min |
| 39 | d6 | 1 | value displayed during defrost | 0 = regulation temperature 1 = display locked 2 = dEF label |
| 40 | d7 | 2 | dripping time | 0... 15 min |
| 41 | d8 | 0 | defrost interval counting mode | 0 = device on hours 1 = compressor on hours 2 = hours evaporator temperature < d9 3 = adaptive 4 = real time |
| 42 | d9 | 0.0 | evaporation threshold for automatic defrost interval counting | -99... 99 °C/°F |
| 43 | d11 | 0 | enable defrost timeout alarm | 0 = no 1 = yes |
| 44 | d15 | 0 | compressor on consecutive time for hot gas defrost | -20... 99 min if negative values, duration dripping heater on |
| 45 | d16 | 0 | pre-dripping time for hot gas defrost | 0... 99 min |
| 46 | d18 | 40 | adaptive defrost interval | 0... 999 min if compressor on + evaporator temperature < d22 0 = only manual |
| 47 | d19 | 3.0 | threshold for adaptive defrost (relative to optimal evaporation temperature) | 0... 40 °C/°F optimal evaporation temperature - d19 |
| 48 | d20 | 180 | compressor on consecutive time for defrost | 0... 999 min 0 = disabled |
| 49 | d21 | 200 | compressor on consecutive time for defrost after power-on and overcooling | 0... 500 min if (regulation temperature - setpoint) > 10 °C/20 °F 0 = disabled |
| 50 | d22 | -2.0 | evaporation threshold for adaptive defrost interval counting (relative to optimal evaporation temperature) | -10... 10 °C/°F optimal evaporation temperature + d22 |
| 51 | d25 | 0 | enable air out probe for defrost during evaporator probe alarm | 0 = no 1 = yes |
| 52 | d26 | 6 | defrost interval during evaporator probe alarm | 0... 99 h 0 = only manual if d25 = 1 |
| N. | PAR. | DEF. | ALARMS | MIN... MAX. |
| 53 | A0 | 0 | select value for high/low temperature alarms | 0 = regulation temperature 1 = evaporator temperature |
| 54 | A1 | 0.0 | threshold for low temperature alarm | -99... 99 °C/°F |
| 55 | A2 | 0 | low temperature alarm type | 0 = disabled 1 = relative to setpoint 2 = absolute |
| 56 | A4 | 0.0 | threshold for high temperature alarm | -99... 99 °C/°F |
| 57 | A5 | 0 | high temperature alarm type | 0 = regulation temperature 1 = evaporator temperature 2 = auxiliary temperature |
| 58 | A6 | 120 | high temperature alarm delay after power-on | 0... 240 min |
| 59 | A7 | 15 | high/low temperature alarms delay | 0... 240 min |
| 60 | A8 | 15 | high temperature alarm delay after defrost | 0... 240 min |
| 61 | A9 | 15 | high temperature alarm delay after door closing | 0... 240 min |
| 62 | A10 | 10 | power failure duration for alarm recording (not available in EVJ203, EVJ204, EVJ205 and EVJ206) | 0... 240 min |
| 63 | A11 | 2.0 | high/low temperature alarms reset differential | 1... 15 °C/°F |
| 64 | A12 | 0 | power failure alarm notification type (not available in EVJ203, EVJ204, EVJ205 and EVJ206) | 0 = HACCP LED 1 = HACCP LED + PF label + buzzer 2 = HACCP LED + PF label + buzzer (if duration > A10) |
| N. | PAR. | DEF. | FANS | MIN... MAX. |
| 65 | F0 | 1 | evaporator fan mode during normal operation | 0 = off 1 = on 2 = on if compressor on 3 = thermoregulated (with regulation temperature + F1) 4 = thermoregulated (with regulation temperature + F1) if compressor on 5 = according to F6 6 = thermoregulated (with F1) 7 = thermoregulated (with F1) if compressor on |
| 66 | F1 | -4.0 | threshold for evaporator fan operation | -99... 99 °C/°F |
| 67 | F2 | 0 | evaporator fan mode during defrost and dripping | 0 = off 1 = on 2 = according to F0 |
| 68 | F3 | 2 | evaporator fan off maximum time | 0... 15 min def. 0 in EVJ203 ed EVJ213 |
| 69 | F4 | 30 | evaporator fan off time during energy saving | 0... 240 s x 10 if F0 ≠ 5 |
| 70 | F5 | 30 | evaporator fan on time during energy saving | 0... 240 s x 10 if F0 ≠ 5 |
| 71 | F6 | 0 | high/low humidity operation | 0 = low humidity (with F17 and F18 if compressor on) off, on if compressor on 1 = high humidity (on) |
| 72 | F7 | 5.0 | threshold for evaporator fan on after dripping (relative to setpoint) | -99... 99 °C/°F setpoint + F7 |
| 73 | F8 | 2.0 | threshold for evaporator fan operation differential | 1... 15 °C/°F |
| 74 | F9 | 10 | evaporator fan off delay after compressor off | 0... 240 s if F0 = 2 or 5 |

| | | | | |
|-----------|-------------|-------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 75 | F10 | 1 | condenser fan mode | 0 = thermoregulated (with F11) 1 = thermoregulated (with F11) if compressor off, on if compressor on 2 = thermoregulated (with F11) if compressor off, on if compressor on, off during defrost, pre-dripping and dripping |
| 76 | F11 | 15.0 | threshold for condenser fan on | 0... 99 °C/°F differential = 2 °C/4 °F |
| 77 | F12 | 30 | condenser fan off delay after compressor off | 0... 240 s if P4 ≠ 1 |
| 78 | F17 | 60 | evaporator fan off time with low humidity | 0... 240 s |
| 79 | F18 | 10 | evaporator fan on time with low humidity | 0... 240 s |
| N. | PAR. | DEF. | DIGITAL INPUTS | MIN... MAX. |
| 80 | i0 | 5 | door switch input function | 0 = disabled 1 = compressor + evaporator fan off 2 = evaporator fan off 3 = cabinet light on 4 = compressor + evaporator fan off, cabinet light on 5 = evaporator fan off + cabinet light on |
| 81 | i1 | 0 | door switch input activation | 0 = with contact closed 1 = with contact open |
| 82 | i2 | 30 | open door alarm delay | -1... 120 min -1 = disabled |
| 83 | i3 | 15 | regulation inhibition maximum time with door open | -1... 120 min -1 = until the closing |
| 84 | i4 | 0 | enable open door alarm recording | 0 = no 1 = yes if i2 ≠ -1 and after i2 |
| 85 | i5 | 8 | multi-purpose input function | 0 = disabled 1 = energy saving 2 = iA alarm 3 = iSd alarm 4 = button-operated load 1 on 5 = button-operated load 2 on 6 = device on/off 7 = LP alarm 8 = C1t alarm 9 = C2t alarm |
| 86 | i6 | 0 | multi-purpose input activation | 0 = with contact closed 1 = with contact open |
| 87 | i7 | 0 | multi-purpose input alarm delay | 0... 120 min if i5 = 3, 8 or 9, compressor on delay after alarm reset |
| 88 | i8 | 0 | number of multi-purpose input activations for high pressure alarm | 0... 15 0 = disabled if i5 = 3 |
| 89 | i9 | 240 | reset counter time for high pressure alarm | 1... 999 min |
| 90 | i10 | 0 | door closed consecutive time for energy saving | 0... 999 min after regulation temperature < SP 0 = disabled |
| 91 | i13 | 180 | number of door openings for defrost | 0... 240 0 = disabled |
| 92 | i14 | 32 | door open consecutive time for defrost | 0... 240 min 0 = disabled |
| N. | PAR. | DEF. | DIGITAL OUTPUTS | MIN... MAX. |
| 93 | u1c | 0 | relay K1 configuration | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |
| 94 | u2c | 4 | relay K2 configuration | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |
| 95 | u3c | 5 | relay K3 configuration | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |
| 96 | u4c | 2 | relay K4 configuration (not available in EVJ203 and EVJ213) | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |

| | | | | |
|-----------|-------------|-------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 97 | u5c | 3 | relay K5 configuration (not available in EVJ203, EVJ213, EVJ204 and EVJ214) | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |
| 98 | u6c | 11 | relay K6 configuration (only available in EVJ206 and EVJ216) | 0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10 = button-operated load 1 11 = button-operated load 2 12 = alarm 13 = on/stand-by |
| 99 | u2 | 0 | enable cabinet light and button-operated load in stand-by | 0 = no 1 = yes manual |
| 100 | u4 | 1 | enable alarm output off silencing the buzzer | 0 = no 1 = yes |
| 101 | u5 | -1.0 | threshold for door heaters on | -99... 99 °C/°F differential = 2 °C/4 °F |
| 102 | u6 | 5 | demisting on duration | 1... 120 min |
| 103 | u7 | -5.0 | neutral zone threshold for heating (relative to setpoint) | -99... 99 °C/°F differential = 2 °C/4 °F setpoint + u7 |
| 104 | u9 | 1 | enable alarm buzzer | 0 = no 1 = yes |
| N. | PAR. | DEF. | REAL TIME CLOCK | MIN... MAX. |
| 105 | Hr0 | 0 | enable clock (default 0 in EVJ203, EVJ204, EVJ205 and EVJ206) | 0 = no 1 = yes |
| N. | PAR. | DEF. | ENERGY SAVING (if r5 = 0) | MIN... MAX. |
| 106 | HE2 | 0 | energy saving maximum duration | 0... 999 min |
| N. | PAR. | DEF. | REAL TIME ENERGY SAVING (if r5 = 0) | MIN... MAX. |
| 107 | H01 | 0 | energy saving time | 0... 23 h |
| 108 | H02 | 0 | energy saving maximum duration | 0... 24 h |
| N. | PAR. | DEF. | REAL TIME DEFROST (if d8 = 4) | MIN... MAX. |
| 109 | Hd1 | h- | 1st daily defrost time | h- = disabled |
| 110 | Hd2 | h- | 2nd daily defrost time | h- = disabled |
| 111 | Hd3 | h- | 3rd daily defrost time | h- = disabled |
| 112 | Hd4 | h- | 4th daily defrost time | h- = disabled |
| 113 | Hd5 | h- | 5th daily defrost time | h- = disabled |
| 114 | Hd6 | h- | 6th daily defrost time | h- = disabled |
| N. | PAR. | DEF. | DATA-LOGGING (not available in EVJ203, EVJ204, EVJ205 and EVJ206) | MIN... MAX. |
| 115 | Sd0 | 30 | SD card writing interval in HACCP mode | 1... 30 min |
| 116 | Sd1 | 1 | SD card writing interval in service mode | 1... 30 min |
| 117 | Sd2 | 60 | service mode duration | 1... 240 min |
| 118 | Sd3 | 0 | enable critical temperature recording | 0 = no 1 = yes |
| 119 | Sd4 | 0 | enable cabinet temperature recording | 0 = no 1 = yes |
| 120 | Sd5 | 1 | decimal separator type | 0 = comma 1 = point |
| N. | PAR. | DEF. | SAFETIES | MIN... MAX. |
| 121 | POF | 1 | enable ON/STAND-BY key | 0 = no 1 = yes |
| 122 | Loc | 1 | enable keypad lock (default 0 in the models with open-frame user interface) | 0 = no 1 = yes |
| 123 | PAS | -19 | password | -99... 999 |
| 124 | PA1 | 426 | level 1 password | -99... 999 |
| 125 | PA2 | 824 | level 2 password | -99... 999 |
| N. | PAR. | DEF. | DATA-LOGGING EVLINK | MIN... MAX. |
| 126 | rE0 | 60 | data-logger sampling interval | 0... 240 min |
| 127 | rE1 | 4 | recorded temperature | 0 = none 1 = cabinet 2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all |
| N. | PAR. | DEF. | MODBUS | MIN... MAX. |
| 128 | LA | 247 | MODBUS address | 1... 247 |
| 129 | Lb | 2 | MODBUS baud rate | 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud |
| 130 | LP | 2 | parity | 0 = none 1 = odd 2 = even |
| N. | PAR. | DEF. | BLUETOOTH | MIN... MAX. |
| 131 | bLE | 1 | enable Bluetooth | 0 = no 1 = yes |

9 ALARMS

| COD. | DESCRIPTION | RESET | TO CORRECT |
|------|----------------------------------------|-----------|----------------------------------------------------------|
| Pr1 | cabinet probe alarm | automatic | - check P0 |
| Pr2 | evaporator probe alarm | automatic | - check probe integrity |
| Pr3 | auxiliary probe alarm | automatic | - check electrical connection |
| rtc | clock alarm | manual | set date, time and day of the week |
| AL | low temperature alarm | automatic | check A0, A1 and A2 |
| AH | high temperature alarm | automatic | check A4 and A5 |
| id | open door alarm | automatic | check i0 and i1 |
| PF | power failure alarm | manual | - touch a key - check electrical connection |
| COH | high condensation warning | automatic | check C6 |
| CSd | high condensation alarm | manual | - switch the device off and on - check C7 |
| iA | multi-purpose input alarm | automatic | check i5 and i6 |
| iSd | high pressure alarm | manual | - switch the device off and on - check i5, i6, i8, i9 |
| LP | low pressure alarm | automatic | check i5 and i6 |
| C1t | compressor thermal switch alarm | automatic | check i5 and i6 |
| C2t | second compressor thermal switch alarm | automatic | check i5 and i6 |
| dFd | defrost timeout alarm | manual | - touch a key - check d2, d3 and d11 |
| FUL | SD card full alarm | manual | free up space on the SD card or replace it |
| Sd | No SD card inserted alarm | manual | insert the SD card or replace it |

10 TECHNICAL SPECIFICATIONS

| | |
|------------------------------------|--------------------------------------------------|
| Purpose of the control device | Function controller |
| Construction of the control device | Built-in electronic device |
| Container | Models in plastic container Open-frame models |
| | Black, self-extinguishing Open-frame board |

| | | |
|-----------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------|
| Category of heat and fire resistance | | D |
| Measurements | Models in plastic container | 111.4 x 76.4 x 48.0 mm (4 3/8 x 3 x 1 15/16 in) |
| | Open-frame models | 101.0 x 67.0 x 47.0 mm (4 x 2 5/8 x 1 7/8 in) |
| Mounting methods for the control device | Models in plastic container | To be fitted to a panel, with elastic holding flaps |
| | Open-frame models | To be installed from behind, with threaded studs and membrane keypad (not provided) |
| Degree of protection provided by the covering | Models in plastic container | IP65 (front), on condition the device is fitted to a metal panel with thickness 0.8 mm (1/32 in) |
| | Open-frame models | IP00 |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Connection method | |
| Fixed screw terminal blocks for wires up to 2.5 mm ² (removable screw terminal blocks for wires up to 2.5 mm ² by request) | |
| Pico-Blade connector | Micro-MaTch connector |
| Maximum permitted length for connection cables | |
| Power supply: 10 m (32.8 ft) | Analogue inputs: 10 m (32.8 ft) |
| Digital inputs: 10 m (32.8 ft) | Digital outputs: 10 m (32.8 ft) |
| Operating temperature | From -5 to 55 °C (from 23 to 131 °F) |
| Storage temperature | From -25 to 70 °C (from -13 to 158 °F) |
| Operating humidity | Relative humidity without condensate from 10 to 90% |
| Pollution status of the control device | 2 |

| | | | |
|-----------------|-----------------|---------------------------------|--|
| Conformity | | | |
| RoHS 2011/65/CE | WEEE 2012/19/EU | REACH (EC) Regulation 1907/2006 | |
| EMC 2014/30/UE | | LVD 2014/35/UE | |

| | |
|---------------------------------------------------------------------------------------------------|------------------------------------------|
| Power supply | |
| 12 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 4 VA insulated | 12 VDC (+10% -15%), max. 3.5 W insulated |
| Earthing methods for the control device | |
| None | |
| Rated impulse-withstand voltage | |
| 4 KV | |
| Over-voltage category | |
| III | |
| Software class and structure | |
| A | |
| Clock | |
| Incorporated secondary lithium battery (clock not available in EVJ203, EVJ204, EVJ205 and EVJ206) | |
| Clock drift | |
| ≤ 60 s/month at 25 °C (77 °F) | |
| Clock battery autonomy in the absence of a power supply | |
| > 24 h at 25 °C (77 °F) | |
| Clock battery charging time | |
| 24 h (the battery is charged by the power supply of the device) | |

| | | |
|--------------------------------------------------------------|-------------------|-----------------------------------------|
| Analogue inputs | | |
| 2 for PTC or NTC probes (cabinet probe and evaporator probe) | | |
| PTC probes | Sensor type | KTY 81-121 (990 Ω @ 25 °C, 77 °F) |
| | Measurement field | From -50 to 150 °C (from -58 to 302 °F) |
| | Resolution | 0.1 °C (1 °F) |
| NTC probes | Sensor type | B3435 (10 K Ω @ 25 °C, 77 °F) |
| | Measurement field | From -40 to 105 °C (from -40 to 221 °F) |
| | Resolution | 0.1 °C (1 °F) |

| | | |
|-----------------------------|-------------------------------------------------------------------------------------------------------------|-------------|
| Digital inputs | | |
| 1 dry contact (door switch) | | |
| Dry contact | Contact type | 5 VDC, 2 mA |
| | Power supply | None |
| | Protection | None |
| Other inputs | Input configurable for analogue input (auxiliary probe) or digital input (multi-purpose input) | |
| Digital outputs | 6 (5 for EVJ205 and EVJ215, 4 for EVJ204 and EVJ214, 3 for EVJ203 and EVJ213) with electro-mechanical relay | |

| | |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Relay K1 | SPST, 16 A res. @ 250 VAC SPST, 30 A res. @ 250 VAC in EVJ275?273??? and EVJ276?273??? |
| Relay K2 | SPDT, 8 A res. @ 250 VAC |
| Relay K3 | SPST, 16 A res. @ 250 VAC |
| Relay K4 (not available in EVJ203 and EVJ213) | SPST, 8 A res. @ 250 VAC |
| Relay K5 (not available in EVJ203, EVJ213, EVJ204 and EVJ214) | SPST, 5 A res. @ 250 VAC |
| Relay K6 (only available in EVJ206 and EVJ216) | SPDT, 8 A res. @ 250 VAC |

The device guarantees double insulation between each digital output connector and the rest of the components of the device

| | |
|-------------------------------------------------|----------------------------------------------|
| Type 1 or Type 2 Actions | Type 1 |
| Additional features of Type 1 or Type 2 actions | C |
| Displays | Custom display, 3 digit, with function icons |
| Alarm buzzer | Incorporated |

| | |
|----------------------|---------------------------------------------------------------------------------------------------|
| Communications ports | 1 TTL MODBUS slave port for EVconnect APP or BMS |
| | 1 port for SD card data-logger module EVBD05 (not available in EVJ203, EVJ204, EVJ205 and EVJ206) |

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

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