# EV3294

## Controllers for refrigerated cabinets, counters and islands, with energy-saving strategies and compatible with the EVconnect APP and the EPoCA cloud system

EPoCA compatible

PLEASE READ CAREFULLY and save this document

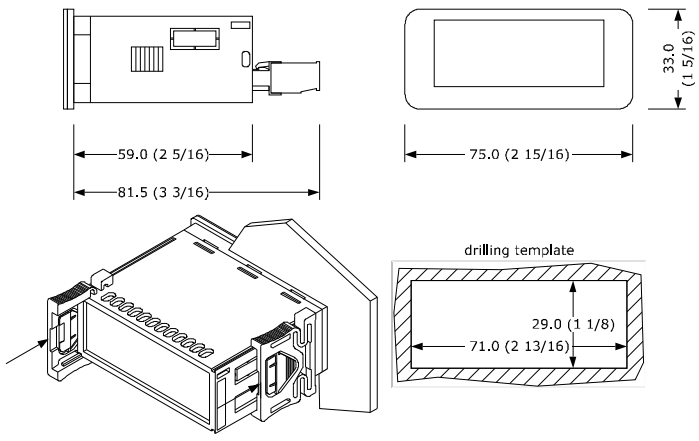
CONSIDER THE ENVIRONMENT

## E ENGLISH

- Controllers for low temperature units.
- Power supply 12-24 VAC/DC.
- Cabinet probe and evaporator probe (NTC/Pt 1000).
- Door switch input.
- Compressor relay 16 A res. @ 250 VAC.
- Alarm buzzer.
- TTL MODBUS slave port for EVconnect app, EPoCA remote monitoring system or for BMS.
- Cooling or heating operation.

## 1 MEASUREMENTS AND INSTALLATION

Measurements in mm (inches). To be fitted to a panel, snap-in brackets provided.

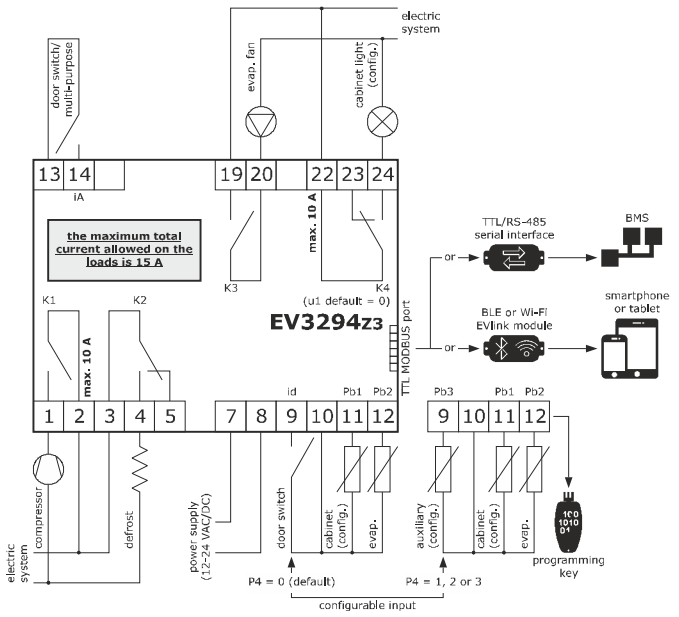



INSTALLATION PRECAUTIONS

- The thickness of the panel must be between 0.8 and 2.0 mm (1/32 and 1/16 in)
- 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.

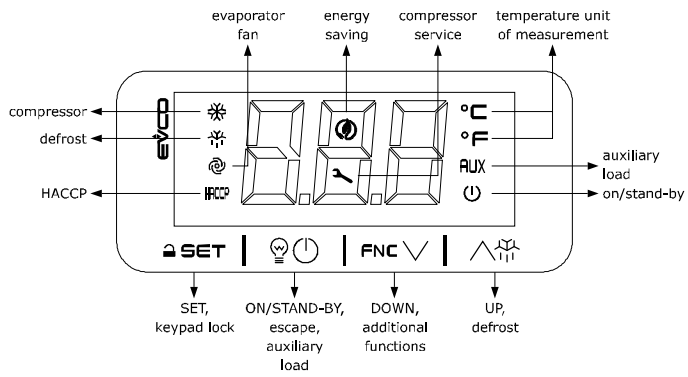
## 3 FIRST-TIME

1. Install following the instructions given in the section *MEASUREMENTS AND INSTALLATION*.
2. Power up the device as shown in the section *ELECTRICAL CONNECTION* 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 | **2** | probe type | 1 = NTC 2 = Pt 1000 |
| P2 | **0** | temperature unit of measurement | 0 = °C 1 = °F |
| d1 | **0** | defrost type | 0 = electric 1 = hot gas<br>2 = compressor stopped |

   Then check that the remaining settings are appropriate; see the section *CONFIGURATION PARAMETERS*.
4. Disconnect the device from the mains.
5. Make the electrical connection as shown in the section *ELECTRICAL CONNECTION* without powering up the device.
6. For the connection in an RS-485 network connect the interface EVIF22TSX or EVIF23TSX, to activate real time functions connect the module EVIF23TSX, to use the device with the APP EVconnect connect the interface EVIF25TBX. To use the device with the EPoCA remote monitoring system, connect the EVIF25TWX module; see the relevant instruction sheets. **If EVIF22TSX or EVIF23TSX is used, set parameter bLE to 0**.
7. Power up the device.

## 4 USER INTERFACE AND MAIN FUNCTIONS




### 4.1 Switching the device on/off

1. | ON/STAND-BY | If POF = 1, touch the ON/STAND-BY key for 4 s.

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<br>- setpoint setting active |
| | defrost or pre-dripping active | - | - defrost delay active<br>- dripping active |
| | evaporator fan on | evaporator fan off | evaporator fan stop active |
| **HACCP** | saved HACCP alarm in EVlink | - | - |
| | energy saving active | - | - |
| | request for compressor service | - | - settings active<br>- access to additional functions active<br>- operation with EVconnect APP active |
| **°C/°F** | view temperature | - | overcooling or overheating active |
| **AUX** | auxiliary load on | auxiliary load off | - auxiliary load on by digital input<br>- auxiliary load delay active |
| | device off | device on | device on/off active |

If Loc = 1 (default) and 30 s 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 1 s: the display will show the label "**UnL**".

### 4.3 Set the setpoint

Check that the keypad is not locked.

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

### 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 UP key for 2 s.

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 u1 = 0, default)

1. | ON/STAND-BY | Touch the ON/STAND-BY key.

- if u1 = 1, the **demisting** switch on for the u6 duration.
- if u1 = 2 and the keypad is not locked, the **button-operated load** switches on/off.

### 4.6 Silence buzzer

Touch a key.
If u1 = 3 and u4 = 1, the alarm output switches off.

## 5 ADDITIONAL FUNCTIONS

### 5.1 Activate/deactivate overcooling, overheating and manual energy saving

Check that the keypad is not locked.

1. | FNC | Touch the DOWN key.

| FUNCTION | CONDITION | CONSEQUENCE |
|---|---|---|
| overcooling | r5 = 0, r8 = 1 and defrost not active | the setpoint becomes "setpoint - r6", for the r7 duration |
| overheating | r5 and r8 = 1 | the setpoint becomes "setpoint + r6", for the r7 duration |
| energy saving | r5 = 0 and r8 = 2 | the setpoint becomes "setpoint + r4", at maximum for HE2 duration |

### 5.2 View/delete compressor functioning hours and view comp. start-up number

Check that the keypad is not locked.

| | | |
|---|---|---|
| 1. | FNC | Touch the DOWN key for 4 s. |
| 2. | FNC | Touch the UP or DOWN key within 15 s to select a label. |

| LAB. | DESCRIPTION |
|---|---|
| **CH** | view compressor functioning hours (hundreds) |
| **rCH** | delete compressor functioning hours |
| **nS1** | compressor start-up number (thousands) |

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

### 5.3 View the temperature detected by the probes

Check that the keypad is not locked.

| | | |
|---|---|---|
| 1. | FNC | Touch the DOWN key for 4 s. |
| 2. | FNC | Touch the UP or DOWN key within 15 s to select a label. |

| 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. | SET | Touch the SET key. |
| 4. | ON/STAND-BY | Touch the ON/STAND-BY key (or do not operate for 60 s) to exit the procedure. |

## 6 SETTINGS

### 6.1 Setting configuration parameters

| | | |
|---|---|---|
| 1. | SET | Touch the SET key for 4 s: the display will show the label "**PA**". |
| 2. | SET | Touch the SET key. |
| 3. | FNC | Touch the UP or DOWN key within 15 s to set the PAS value (default "**-19**"). |
| 4. | SET | Touch the SET key (or do not operate for 15 s): the display will show the label "**SP**". |
| 5. | FNC | Touch the UP or DOWN key to select a parameter. |
| 6. | SET | Touch the SET key. |
| 7. | FNC | Touch the UP or DOWN key within 15 s to set the value. |
| 8. | SET | Touch the SET key (or do not operate for 15 s). |
| 9. | SET | Touch the SET key for 4 s (or do not operate for 60 s) to exit the procedure. |

### 6.2 Set the date, time and day of the week (available in if EVIF23TSX, EVIF25TWX or interface EVIF25TBX is connected)

N.B.
- 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 EVconnect app, the date, time and day of the week will be automatically set by the smartphone or tablet.

Check that the keypad is not locked.

| | | |
|---|---|---|
| 1. | FNC | Touch the DOWN key for 4 s. |
| 2. | FNC | Touch the UP or DOWN key within 15 s to select the label "**rtc**". |
| 3. | SET | Touch the SET key: the display will show the label "**yy**" followed by the last two figures of the year. |
| 4. | FNC | Touch the UP or DOWN key within 15 s to set the year. |
| 5. | Repeat actions 3. and 4. to set the next labels. | |

| LAB. | DESCRIPTION OF THE NUMBERS FOLLOWING THE LABEL |
|---|---|
| **n** | month (01... 12) |
| **d** | day (01... 31) |
| **h** | time (00... 23) |
| **n** | minute (00... 59) |

| | | |
|---|---|---|
| 6. | SET | Touch the SET key: the display will show the label for the day of the week. |
| 7. | FNC | Touch the UP or DOWN key within 15 s to set the day of the week. |

| LAB. | DESCRIPTION |
|---|---|
| **Mon** | Monday |
| **tuE** | Tuesday |
| **UEd** | Wednesday |
| **thu** | Thursday |
| **Fri** | Friday |
| **Sat** | Saturday |
| **Sun** | Sunday |

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

## 7 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<br>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 | **2** | probe type | 1 = NTC 2 = Pt 1000 |
| 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<br>1 = defrost + fan<br>2 = fan |
| 9 | P4 | **0** | configurable input function | 0 = digital input<br>1 = condenser probe<br>2 = critical temperature probe<br>3 = air out probe<br>if P4 = 3, regulation temperature = product temperature (CPT) |
| 10 | P5 | **0** | value displayed | 0 = regulation temperature<br>1 = setpoint<br>2 = evaporator temperature<br>3 = auxiliary temperature<br>4 = air in temperature |
| 11 | P7 | **5** | air in weight for calculated product temperature (CPT) | 0... 10 % x 10<br>CPT = {[(P7 x (air in)] + [(100 - P7) x (air out)] : 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 | **-50** | minimum setpoint | -99 °C/°F... r2 |
| 15 | r2 | **50.0** | maximum setpoint | r1... 199 °C/°F |
| 16 | r4 | **0.0** | setpoint offset in energy saving | 0... 99 °C/°F |
| 17 | r5 | **0** | cooling or heating operation | 0 = cooling<br>1 = heating |
| 18 | r6 | **0.0** | setpoint offset in overcooling/overheating | 0... 99 °C/°F |
| 19 | r7 | **30** | overcooling/overheating duration | 0... 240 min |
| 20 | r8 | **0** | DOWN key additional function | 0 = disabled<br>1 = overcooling/overheating<br>2 = energy saving |
| 21 | r12 | **0** | position of the r0 differential | 0 = asymmetric<br>1 = symmetric |
| **N.** | **PAR.** | **DEF.** | **COMPRESSOR** | **MIN... MAX.** |
| 22 | C0 | **0** | compressor on delay after power-on | 0... 240 min |
| 23 | C2 | **3** | compressor off minimum time | 0... 240 min |
| 24 | C3 | **0** | compressor on minimum time | 0... 240 s |
| 25 | C4 | **10** | compressor off time during cabinet probe alarm | 0... 240 min |
| 26 | C5 | **10** | compressor on time during cabinet probe alarm | 0... 240 min |
| 27 | C6 | **80.0** | threshold for high condensation warning | 0... 199 °C/°F<br>differential = 2 °C/4 °F |
| 28 | C7 | **90.0** | threshold for high condensation alarm | 0... 199 °C/°F |
| 29 | C8 | **1** | high condensation alarm delay | 0... 15 min |
| 30 | C10 | **0** | compressor hours for service | 0... 999 h x 100<br>0 = disabled |
| **N.** | **PAR.** | **DEF.** | **DEFROST (if r5 = 0)** | **MIN... MAX.** |

| | | | | |
|---|---|---|---|---|
| 31 | d0 | **8** | automatic defrost interval | 0... 99 h<br>0 = only manual<br>if d8 = 3, maximum interval |
| 32 | d1 | **0** | defrost type | 0 = electric<br>1 = hot gas<br>2 = compressor stopped |
| 33 | d2 | **8.0** | threshold for defrost end | -99... 99 °C/°F |
| 34 | d3 | **30** | defrost duration | 0... 99 min<br>se P3 = 1, maximum duration |
| 35 | d4 | **0** | enable defrost at power-on | 0 = no 1 = yes |
| 36 | d5 | **0** | defrost dealy after power-on | 0... 99 min |
| 37 | d6 | **2** | value displayed during defrost | 0 = regulation temperature<br>1 = display locked<br>2 = dEF label |
| 38 | d7 | **2** | dripping time | 0... 15 min |
| 39 | d8 | **0** | defrost interval counting mode | 0 = device on hours<br>1 = compressor on hours<br>2 = hours evaporator temperature < d9<br>3 = adaptive<br>4 = real time |
| 40 | d9 | **0.0** | evaporation threshold for automatic defrost interval counting | -99... 99 °C/°F |
| 41 | d11 | **0** | enable defrost timeout alarm | 0 = no 1 = yes |
| 42 | d15 | **0** | compressor on consecutive time for hot gas defrost | 0... 99 min |
| 43 | d16 | **0** | pre-dripping time for hot gas defrost | 0... 99 min |
| 44 | d18 | **40** | adaptive defrost interval | 0... 999 min<br>if compressor on + evaporator temperature < d22<br>0 = only manual |
| 45 | d19 | **3.0** | threshold for adaptive defrost (relative to optimal evaporation temperature) | 0... 40 °C/°F<br>optimal evaporation temperature - d19 |
| 46 | d20 | **180** | compressor on consecutive time for defrost | 0... 999 min<br>0 = disabled |
| 47 | d21 | **200** | compressor on consecutive time for defrost after power-on and overcooling | 0... 500 min<br>if (regulation temperature - setpoint) > 10°C/20 °F<br>0 = disabled |
| 48 | d22 | **-2.0** | evaporation threshold for adaptive defrost interval counting (relative to optimal evaporation temperature) | -10... 10 °C/°F<br>optimal evaporation temperature + d22 |

| N. | PAR. | DEF. | ALARMS | MIN... MAX. |
|---|---|---|---|---|
| 49 | AA | **0** | select value for high/low temperature alarms | 0 = regulation temperature<br>1 = evaporator temperature<br>2 = auxiliary temperature |
| 50 | A1 | **-10.0** | threshold for low temperature alarm | -99... 99 °C/°F |
| 51 | A2 | **2** | low temperature alarm type | 0 = disabled<br>1 = relative to setpoint<br>2 = absolute |
| 52 | A4 | **10.0** | threshold for high temperature alarm | -99... 99 °C/°F |
| 53 | A5 | **2** | high temperature alarm type | 0 = disabled<br>1 = relative to setpoint<br>2 = absolute |
| 54 | A6 | **12** | high temperature alarm delay after power-on | 0... 99 min x 10 |
| 55 | A7 | **15** | high/low temperature alarms delay | 0... 240 min |
| 56 | A8 | **15** | high temperature alarm delay after defrost | 0... 240 min |
| 57 | A9 | **15** | high temperature alarm delay after door closing | 0... 240 min |
| 58 | A10 | **10** | power failure duration for alarm recording | 0... 240 min |
| 59 | A11 | **2.0** | high/low temperature alarms reset differential | 1... 15 °C/°F |

| N. | PAR. | DEF. | FANS | MIN... MAX. |
|---|---|---|---|---|
| 60 | F0 | **1** | evaporator fan mode during normal operation | 0 = off 1 = on<br>2 = according to F15 and F16 if compressor off, on if compressor on<br>3 = thermoregulated (with F1)<br>4 = thermoregulated (with F1) if compressor on |
| 61 | F1 | **-4.0** | threshold for evaporator fan operation | -99... 99 °C/°F<br>differential = 1 °C/2 °F |
| 62 | F2 | **0** | evaporator fan mode during defrost and dripping | 0 = off 1 = on<br>2 = according to F0 |
| 63 | F3 | **2** | evaporator fan off maximum time | 0... 15 min |
| 64 | F4 | **0** | evaporator fan off time during energy saving | 0... 240 s x 10 |
| 65 | F5 | **10** | evaporator fan on time during energy saving | 0... 240 s x 10 |
| 66 | F7 | **5.0** | threshold for evaporator fan on after dripping (relative to setpoint) | -99... 99 °C/°F<br>setpoint + F7 |
| 67 | F9 | **0** | evaporator fan off delay after compressor off | 0... 240 s<br>if F0 = 2 |
| 68 | F11 | **15.0** | threshold for condenser fan on | 0... 99 °C/°F<br>differential = 2 °C/4 °F |
| 69 | F12 | **30** | condenser fan off delay after compressor off | 0... 240 s<br>if P4 ≠ 1 |
| 70 | F15 | **0** | evaporator fan off time with compressor off | 0... 240 s<br>if F0 = 2 |
| 71 | F16 | **1** | evaporator fan on time with compressor off | 0... 240 s<br>if F0 = 2 |

| N. | PAR. | DEF. | DIGITAL INPUTS | MIN... MAX. |
|---|---|---|---|---|
| 72 | i0 | **5** | door switch input function | 0 = disabled<br>1 = compressor + evaporator fan off<br>2 = evaporator fan off<br>3 = cabinet light on<br>4 = compressor + evaporator fan off, cabinet light on<br>5 = evaporator fan off + cabinet light on |
| 73 | i1 | **0** | door switch input activation | 0 = with contact closed<br>1 = with contact open |
| 74 | i2 | **30** | open door alarm delay | -1... 120 min<br>-1 = disabled |
| 75 | i3 | **15** | regulation inhibition maximum time with door open | -1... 120 min<br>-1 = until the closing |
| 76 | i5 | **2** | door switch/multi-purpose input function | 0 = disabled<br>1 = energy saving<br>2 = iA alarm<br>3 = button-operated load on<br>4 = device on/off<br>5 = Cth alarm<br>6 = th alarm<br>7 = compressor + evaporator fan off, cabinet light on<br>8 = evaporator fan off + cabinet light on |
| 77 | i6 | **0** | door switch/multi-purpose input activation | 0 = with contact closed<br>1 = with contact open |
| 78 | i7 | **0** | multi-purpose input alarm delay | -1... 120 min<br>-1 = disabled<br>if i5 = 5 or 6, compressor on delay after alarm reset |
| 79 | i10 | **0** | door closed consecutive time for energy saving | 0... 999 min<br>after regulation temperature < SP<br>0 = disabled |
| 80 | i13 | **180** | number of door openings for defrost | 0... 240<br>0 = disabled |
| 81 | i14 | **32** | door open consecutive time for defrost | 0... 240 min<br>0 = disabled |

| N. | PAR. | DEF. | DIGITAL OUTPUTS | MIN... MAX. |
|---|---|---|---|---|
| 82 | u1 | **0** | auxiliary output configuration | 0 = cabinet light<br>1 = demisting<br>2 = button-operated load<br>3 = alarm<br>4 = door heaters<br>5 = heater for neutral zone<br>6 = condenser fan<br>7 = on/stand-by |
| 83 | u2 | **0** | enable cabinet light and button-operated load in stand-by | 0 = no 1 = yes<br>manual |
| 84 | u4 | **0** | enable alarm output off silencing the buzzer | 0 = no 1 = yes |
| 85 | u5 | **-1.0** | threshold for door heaters on | -99... 99 °C/°F<br>differential = 2 °C/4 °F |
| 86 | u6 | **5** | demisting on duration | 1... 120 min |
| 87 | u7 | **-5.0** | neutral zone threshold for heating (relative to setpoint) | -99... 99 °C/°F<br>differential = 2 °C/4 °F<br>setpoint + u7 |

| N. | PAR. | DEF. | ENERGY SAVING (if r5 = 0) | MIN... MAX. |
|---|---|---|---|---|
| 88 | HE2 | **0** | energy saving maximum duration | 0... 999 min<br>-1 = until the door opening |

| N. | PAR. | DEF. | REAL TIME ENERGY SAVING (if r5 = 0) | MIN... MAX. |
|---|---|---|---|---|
| 89 | H01 | **0** | Monday energy saving time | 0... 23 h |
| 90 | H02 | **0** | Monday energy saving maximum duration | 0... 24 h |
| 91 | H03 | **0** | Tuesday energy saving time | 0... 23 h |
| 92 | H04 | **0** | Tuesday energy saving maximum duration | 0... 24 h |
| 93 | H05 | **0** | Wednesday energy saving time | 0... 23 h |
| 94 | H06 | **0** | Wednesday energy saving maximum duration | 0... 24 h |
| 95 | H07 | **0** | Thursday energy saving time | 0... 23 h |
| 96 | H08 | **0** | Thursday energy saving maximum duration | 0... 24 h |
| 97 | H09 | **0** | Friday energy saving time | 0... 23 h |
| 98 | H10 | **0** | Friday energy saving maximum duration | 0... 24 h |
| 99 | H11 | **0** | Saturday energy saving time | 0... 23 h |
| 100 | H12 | **0** | Saturday energy saving maximum duration | 0... 24 h |
| 101 | H13 | **0** | Sunday energy saving time | 0... 23 h |
| 102 | H14 | **0** | Sunday energy saving maximum duration | 0... 24 h |

| N. | PAR. | DEF. | REAL TIME DEFROST (if d8 = 4) | MIN... MAX. |
|---|---|---|---|---|
| 103 | Hd1 | **h-** | 1st daily defrost time | h- = disabled |
| 104 | Hd2 | **h-** | 2nd daily defrost time | h- = disabled |
| 105 | Hd3 | **h-** | 3rd daily defrost time | h- = disabled |
| 106 | Hd4 | **h-** | 4th daily defrost time | h- = disabled |
| 107 | Hd5 | **h-** | 5th daily defrost time | h- = disabled |
| 108 | Hd6 | **h-** | 6th daily defrost time | h- = disabled |

| N. | PAR. | DEF. | SAFETIES | MIN... MAX. |
|---|---|---|---|---|
| 109 | POF | **0** | enable ON/STAND-BY key | 0 = no 1 = yes |
| 110 | PAS | **-19** | password | -99... 999 |
| 111 | PA1 | **426** | level 1 password | -99... 999 |
| 112 | PA2 | **824** | level 2 password | -99... 999 |

| N. | PAR. | DEF. | REAL TIME CLOCK | MIN... MAX. |
|---|---|---|---|---|
| 113 | Hr0 | **0** | enable clock | 0 = no 1 = yes |

| N. | PAR. | DEF. | DATA-LOGGING EVLINK | MIN... MAX. |
|---|---|---|---|---|
| 114 | bLE | **1** | serial port configuration for connectivity | 0 = free<br>1 = forced for EVconnect or EPoCA<br>2-99 = EPoCA local network address |
| 115 | rE0 | **15** | data-logger sampling interval | 0... 240 min |
| 116 | rE1 | **1** | recorded temperature | 0 = none 1 = cabinet<br>2 = evaporator<br>3 = auxiliary<br>4 = cabinet and evaporator<br>5 = all |

| N. | PAR. | DEF. | MODBUS | MIN... MAX. |
|---|---|---|---|---|
| 117 | LA | **247** | MODBUS address | 1... 247 |
| 118 | Lb | **2** | MODBUS baud rate | 0 = 2,400 baud<br>1 = 4,800 baud<br>2 = 9,600 baud<br>3 = 19,200 baud<br>parity even |

## 8 ALARMS

| COD. | DESCRIPTION | RESET | REMEDIES |
|---|---|---|---|
| **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 AA, A1 and A2 |
| **AH** | high temperature alarm | automatic | check AA, A4 and A5 |
| **id** | open door alarm | automatic | check i0 e i1 |
| **PF** | power failure alarm | manual | - touch a key<br>- check electrical connection |
| **COH** | high condensation warning | automatic | check C6 |
| **CSd** | high condensation alarm | manual | - switch the device off and on<br>- check C7 |
| **iA** | multi-purpose input alarm | automatic | check i5 and i6 |
| **Cth** | compressor thermal switch alarm | automatic | check i5 and i6 |
| **th** | global thermal switch alarm | manual | - switch the device off and on<br>- check i5 and i6 |
| **dFd** | defrost timeout alarm | manual | - touch a key<br>- check d2, d3 and d11 |

## 9 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 | |
| 75.0 x 33.0 x 73.0 mm (2 15/16 x 1 5/16 x 2 7/8 in) with fixed screw terminal blocks | 75.0 x 33.0 x 83.0 mm (2 15/16 x 1 5/16 x 3 1/4 in) with removable screw terminal blocks |
| Mounting methods for the control device | To be fitted to a panel, snap-in brackets provided |
| Degree of protection provided by the covering | IP65 (front) |
| Connection method | |

| | | |
|---|---|---|
| Fixed screw terminal blocks for wires up to 2,5 mm² | Removable screw terminal blocks for wires up to 2,5 mm²; by request | 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 0 to 50 °C (from 32 a 122 °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 | 12-24 VAC/DC (+10% -15%), 50/60 Hz (±3 Hz), max. 4 VA/3 W, provided by a SELV class 2 source |
| Earthing methods for the control device | None |
| Rated impulse-withstand voltage | 4 KV. |
| Over-voltage category | III. |
| Software class and structure | A |
| Analogue inputs | 2 for NTC or Pt 1000 probes (cabinet probe and evaporator probe) |
| NTC probes: Sensor type | ß3435 (10 KΩ @ 25 °C, 77 °F) |
| NTC probes: Measurement field | From -40 to 105 °C (from -40 to 221 °F) |
| NTC probes: Resolution | 0.1 °C (1 °F) |
| Pt 1000 probes: Measurement field | From -99 to 199 °C (from -146 to 390 °F) |
| Pt 1000 probes: Resolution | 0.1 °C (1 °F) |
| Digital inputs | 1 dry contact (door switch/multi-purpose) |
| Dry contact: Contact type | 5 VDC, 1.5 mA |
| Dry contact: Power supply | None |
| Dry contact: Protection | None |
| Other inputs | Input configurable for analogue input (auxiliary probe) or digital input (door switch/multi-purpose input) |
| Digital outputs | 4 electro-mechanical relays (compressor, defrost, evaporator fan and auxiliary relay) |
| Compressor relay (K1) | SPST, 16 A res. @ 250 VAC |
| Defrost relay (K2) | SPDT, 8 A res. @ 250 VAC |
| Evaporator fan relay (K3) | SPST, 2 A res. @ 250 VAC (30,000 cycles) |
| Auxiliary relay (K4) | SPDT, 16 A res. @ 250 VAC |
| Type 1 or Type 2 Actions | Type 1 |
| Additional features of Type 1 or Type 2 actions | C |
| Displays | 3 digits custom display, with function icons |
| Alarm buzzer | Incorporated |
| Communication ports: | 1 TTL MODBUS slave port for EVconnect app, EPoCA remote monitoring system or for BMS |

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



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