EV3243

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

EPoCA compatible

PLEASE READ CAREFULLY and save this document

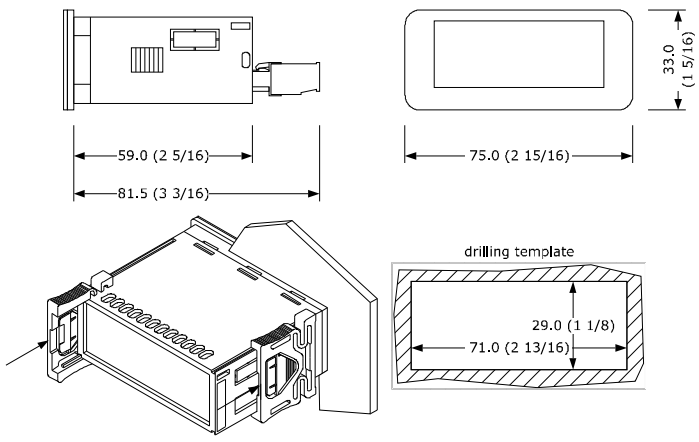
CONSIDER THE ENVIRONMENT

E ENGLISH

- Controllers for normal and low temperature units with automatic defrost mode according to the setpoint value
- Power supply 115... 230 VAC or 230 VAC (according to the model)
- Cabinet probe (PTC/NTC)
- Door switch input
- Evaporator/auxiliary probe (PTC/NTC)/multi-purpose input
- Compressor relay 16 A res. @ 250 VAC (30 A res. @ 250 VAC by request)
- sealed relays compliant with the standard EN 60079-15
- 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.

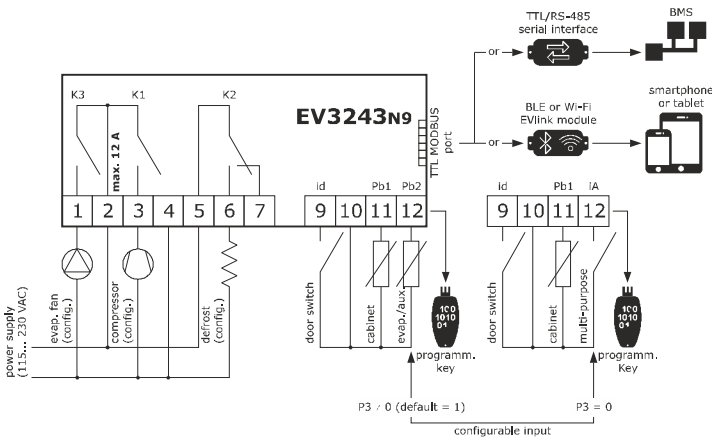


INSTALLATION PRECAUTIONS

- 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*.

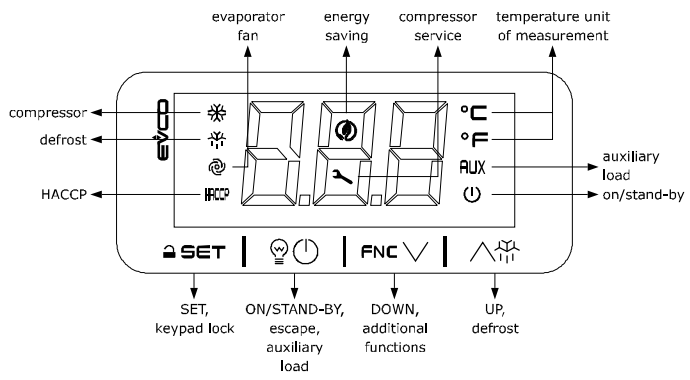
Recommended configuration parameters for first-time use.

PAR.	DEF.	PARAMETER	MIN... MAX.
SP	**0.0**	setpoint	r1... r2
P0	**1**	probe type	0 = PTC 1 = NTC
P2	**0**	temperature unit of measurement	0 = °C 1 = °F
d00	**0**	enable parameters type b	0 = °C 1 = °F
d01	**0**	setpoint threshold to enable parameters type b	r1... r2 if SP > d01
d1	**0**	defrost type	0 = electric 1 = hot gas 2 = compressor stopped
d1b	**0**	defrost type	0 = electric 1 = hot gas 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. | | 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 - setpoint setting active
	defrost or pre-dripping active	-	- defrost delay active - dripping active
	evaporator fan on	evaporator fan off	- evaporator fan stop active - low humidity operation active
HACCP	saved HACCP alarm in EVlink	-	-
	energy saving active	-	-
	request for compressor service	-	- settings active - access to additional functions active - operation with EVconnect or EPoCA active
°C/°F	view temperature	-	overcooling or overheating active
AUX	auxiliary load on	auxiliary load off	- auxiliary load on by digital input - auxiliary load delay active - demisting on (slow flashing)
	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

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 uc1... uc3 = 3, default)

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

If uc1... uc3 = 5 and the keypad is not locked, the **button-operated load** switches on/off.

4.6 Switching the demisting on/off (if uc1... uc3 = 4)

1. | | Touch the UP key.

The demisting is switched on for the u6 duration. If u6 = 0 the demisting is switched on/off manually.

4.7 Silence buzzer

Touch a key.
If uc1... uc3 = 6 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 Activating the high/low humidity operation (if F0 and F0b = 2)

Check that the keypad is not locked.

1. | FNC | Touch the DOWN key for 4 s.

LAB.	DESCRIPTION
rH_	low humidity operation (evaporator fan according to F15 and F16 if compressor off, on if compressor on)
rH‾	high humidity operation (evaporator fan on)

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

5.3 View/delete compressor functioning hours

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

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

5.4 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 P3 ≠ 4) inlet air temperature (if P3 = 4)
Pb2	evaporator temperature (if P3 = 1 or 2) touch: the UP key to view the optimal evaporation temperature calculated the DOWN key to view the minimum evaporator temperature detected
Pb3	auxiliary temperature (if P3 = 3, 4 or 5)
Pb4	calculated product temperature (CPT; if P3 = 4)

3. | SET | Touch the SET key.
4. | | 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 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. | | 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 if P3 = 4, air in probe offset
3	CA2	**0.0**	evaporator/auxiliary probe offset	-25... 25 °C/°F
4	P0	**1**	probe type	0 = PTC 1 = NTC
5	P1	**1**	enable °C decimal point	0 = no 1 = yes
6	P2	**0**	temperature unit of measurement	0 = °C 1 = °F
7	P3	**1**	configurable input function	0 = digital input 1 = defrost + fan 2 = fan 3 = condenser probe 4 = air out probe 5 = critical temperature probe if P3 = 4, regulation temperature = product temperature (CPT)
8	P5	**0**	value displayed	0 = regulation temperature 1 = setpoint 2 = evaporator/auxiliary temperature
9	P7	**5**	air in weight for calculated product temperature (CPT)	0... 10 % x 10 CPT = {[(P7 x (air in)] + [(100 - P7) x (air out)] : 100}
10	P8	**5**	display refresh time	0... 250 s : 10
N.	**PAR.**	**DEF.**	**REGULATION**	**MIN... MAX.**
11	r0	**2.0**	setpoint differential	1... 15 °C/°F
12	r1	**-50**	minimum setpoint	-99 °C/°F... r2
13	r2	**50.0**	maximum setpoint	r1... 199 °C/°F
14	r4	**0.0**	setpoint offset in energy saving	0... 99 °C/°F
15	r5	**0**	cooling or heating operation	0 = cooling 1 = heating

16	r6	**0.0**	setpoint offset in overcooling/overheating	0... 99 °C/°F
17	r7	**30**	overcooling/overheating duration	0... 990 min
18	r8	**0**	DOWN key additional function	0 = disabled 1 = overcooling/overheating 2 = energy saving
19	r12	**0**	position of the r0 differential	0 = asymmetric 1 = symmetric
N.	PAR.	DEF.	COMPRESSOR	MIN... MAX.
20	C0	**0**	compressor on delay after power-on	0... 240 min
21	C2	**3**	compressor off minimum time	0... 240 min
22	C3	**0**	compressor on minimum time	0... 240 s
23	C4	**10**	compressor off time during cabinet probe alarm	0... 240 min
24	C5	**10**	compressor on time during cabinet probe alarm	0... 240 min
25	C6	**80.0**	threshold for high condensation warning	0... 199 °C/°F differential = 2 °C/4 °F
26	C7	**90.0**	threshold for high condensation alarm	0... 199 °C/°F
27	C8	**1**	high condensation alarm delay	0... 15 min
28	C10	**0**	compressor hours for service	0... 999 h x 100 0 = disabled
29	C11	**0**	second compressor switch-on delay	0... 240 s
30	C13	**0**	number of start-ups for compressor rotation	0... 10 0 = disabled
N.	PAR.	DEF.	DEFROST	MIN... MAX.
31	d00	**0**	enable parameters type b	0 = no 1 = sì
32	d01	**1.0**	setpoint threshold to enable parameters type b	r1... r2 se SP > d01
33	d0	**8**	automatic defrost interval	0... 99 h 0 = only manual if d8 = 3, maximum interval
34	d0b	**8**	automatic defrost interval	0... 99 h 0 = only manual if d8 = 3, maximum interval
35	d1	**0**	defrost type	0 = electric 1 = hot gas 2 = compressor stopped
36	d1b	**0**	defrost type	0 = electric 1 = hot gas 2 = compressor stopped
37	d2	**8.0**	threshold for defrost end	-99... 99 °C/°F
38	d2b	**8.0**	threshold for defrost end	-99... 99 °C/°F
39	d3	**30**	defrost duration	0... 99 min se P3 = 1, maximum duration
40	d3b	**30**	defrost duration	0... 99 min se P3 = 1, maximum duration
41	d4	**0**	enable defrost at power-on	0 = no 1 = yes
42	d5	**0**	defrost dealy after power-on	0... 99 min
43	d6	**2**	value displayed during defrost	0 = regulation temperature 1 = display locked 2 = dEF label
44	d7	**2**	dripping time	0... 15 min
45	d7b	**2**	dripping time	0... 15 min
46	d8	**0**	defrost interval counting mode	0 = device on hours 1 = compressor on hours 2 = hours evaporator temperature < d9 3 = reserved 4 = real time
47	d9	**0.0**	evaporation threshold for automatic defrost interval counting	-99... 99 °C/°F
48	d11	**0**	enable defrost timeout alarm	0 = no 1 = yes if d1 = 0 or 1, enabled with SP < 0, if d1 = 2, disabled
49	d15	**0**	compressor on consecutive time for hot gas defrost	0... 99 min
50	d16	**0**	pre-dripping time for hot gas defrost	0... 99 min
51	d20	**180**	compressor on consecutive time for defrost	0... 999 min 0 = disabled
52	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
53	d23	**10**	consecutive time difference d23 for defrost	0... 99 min
54	d24	**0**	difference "cabinet temperature - evaporator temperature" for defrost	0... 99 °C/°F if for d23
N.	PAR.	DEF.	ALARMS	MIN... MAX.
55	AA	**0**	select value for high/low temperature alarms	0 = regulation temperature 1 = evaporator temperature 2 = auxiliary temperature
56	A1	**-10.0**	threshold for low temperature alarm	-99... 99 °C/°F
57	A2	**2**	low temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute
58	A4	**10.0**	threshold for high temperature alarm	-99... 99 °C/°F
59	A5	**2**	high temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute
60	A6	**12**	high temperature alarm delay after power-on	0... 99 min x 10
61	A7	**15**	high/low temperature alarms delay	0... 240 min
62	A8	**15**	high temperature alarm delay after defrost	0... 240 min
63	A9	**15**	high temperature alarm delay after door closing	0... 240 min
64	A10	**10**	power failure duration for alarm recording	0... 240 min always records in EVlink
65	A11	**2.0**	high/low temperature alarms reset differential	1... 15 °C/°F
66	A12	**2.0**	water reset warning delay	0... 30 days 0 = disabled
N.	PAR.	DEF.	FANS	MIN... MAX.
67	F0	**1**	evaporator fan mode during normal operation	0 = off 1 = on 2 = according to F15 and F16 if compressor off, on if compressor on 3 = thermoregulated (with F1 and F1A) 4 = thermoregulated (with F1 and F1A) if compressor on 5 = low humidity 6 = high humidity
68	F0b	**1**	evaporator fan mode during normal operation	0 = off 1 = on 2 = according to F15 and F16 if compressor off, on if compressor on 3 = thermoregulated (with F1 and F1A) 4 = thermoregulated (with F1 and F1A) if compressor on 5 = low humidity 6 = high humidity
69	F1	**-4.0**	threshold for evaporator fan off	-99... 99 °C/°F
70	F1A	**-5.0**	threshold for evaporator fan on	-99... 99 °C/°F if F1A > F1, F1 differential = 2 °C/4 °F
71	F2	**0**	evaporator fan mode during defrost and dripping	0 = off 1 = on 2 = according to F0
72	F2b	**0**	evaporator fan mode during defrost and dripping	0 = off 1 = on 2 = according to F0
73	F3	**2**	evaporator fan off maximum time	0... 15 min
74	F3b	**2**	evaporator fan off maximum time	0... 15 min
75	F4	**0**	evaporator fan off time during energy saving	0... 240 s x 10
76	F5	**10**	evaporator fan on time during energy saving	0... 240 s x 10
77	F7	**5.0**	threshold for evaporator fan on after dripping (relative to setpoint)	-99... 99 °C/°F setpoint + F7
78	F9	**0**	evaporator fan off delay after compressor off	0... 240 s if F0 = 2
79	F10	**10.0**	difference "cabinet temperature - evaporator temperature" for evaporator fan on	0... 99 °C/°F differential = 2 °C/4 °F
80	F11	**15.0**	threshold for condenser fan on	0... 99 °C/°F
81	F12	**30**	condenser fan off delay after compressor off	0... 240 s
82	F13	**2.0**	F11 differential	1... 15 °C/°F
83	F15	**0**	evaporator fan off time with compressor off	0... 240 s if F0 = 2
84	F16	**1**	evaporator fan on time with compressor off	0... 240 s if F0 = 2
N.	PAR.	DEF.	DIGITAL INPUTS	MIN... MAX.
85	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
86	i1	**0**	door switch input activation	0 = with contact closed 1 = with contact open
87	i2	**30**	open door alarm delay	-1... 120 min -1 = disabled
88	i3	**15**	regulation inhibition maximum time with door open	-1... 120 min -1 = until the closing
89	i5	**2**	door switch/multi-purpose input function	0 = disabled 1 = energy saving 2 = iA alarm 3 = button-operated load on 4 = device on/off 5 = Cth alarm 6 = th alarm
90	i6	**0**	door switch/multi-purpose input activation	0 = with contact closed 1 = with contact open
91	i7	**0**	multi-purpose input alarm delay	-1... 120 min -1 = disabled if i5 = 5 or 6, compressor on delay after alarm reset
92	i10	**0**	door closed consecutive time for energy saving	0... 999 min after regulation temperature < SP 0 = disabled
93	i13	**180**	number of door openings for defrost	0... 240 0 = disabled
94	i14	**32**	door open consecutive time for defrost	0... 240 min 0 = disabled
N.	PAR.	DEF.	DIGITAL OUTPUTS	MIN... MAX.
95	uc1	**0**	relay K1 configuration	0 = compressor 1 = defrost 2 = evaporator fan 3 = cabinet light 4 = demisting 5 = button-operated load 6 = alarm 7 = door heaters 8 = heater for neutral zone 9 = condenser fan 10= on/stand-by 11= compressor 2 12= disabled
96	uc2	**1**	relay K2 configuration	like uc1
97	uc3	**2**	relay K3 configuration	like uc1
98	u2	**0**	enable cabinet light and button-operated load in stand-by	0 = no 1 = yes manual
99	u4	**0**	enable alarm output off silencing the buzzer	0 = no 1 = yes
100	u5	**-1.0**	threshold for door heaters on	-99... 99 °C/°F differential = 2 °C/4 °F
101	u6	**5**	demisting on duration	0... 120 min 0 = solo manuale
102	u7	**-5.0**	neutral zone threshold for heating (relative to setpoint)	-99... 99 °C/°F setpoint + u7
103	u8	**2.0**	u7 differential	1... 15 °C/°F
N.	PAR.	DEF.	ENERGY SAVING (if r5 = 0)	MIN... MAX.
104	HE2	**0**	energy saving maximum duration	0... 999 min -1 = until the door opening
N.	PAR.	DEF.	REAL TIME ENERGY SAVING (if r5 = 0)	MIN... MAX.
105	H01	**0**	Daily energy saving time	0... 23 h
106	H02	**0**	Daily energy saving maximum duration	0... 24 h
N.	PAR.	DEF.	REAL TIME DEFROST (if d8 = 4)	MIN... MAX.
107	Hd1	**h-**	1st daily defrost time	h- = disabled
108	Hd2	**h-**	2nd daily defrost time	h- = disabled
109	Hd3	**h-**	3rd daily defrost time	h- = disabled
110	Hd4	**h-**	4th daily defrost time	h- = disabled
111	Hd5	**h-**	5th daily defrost time	h- = disabled
112	Hd6	**h-**	6th daily defrost time	h- = disabled
N.	PAR.	DEF.	SAFETIES	MIN... MAX.
113	Pbu	**2**	selecting the event for buzzer activation	0 = disabled 1 = alarms 2 = keys and alarms
114	POF	**0**	enable ON/STAND-BY key	0 = no 1 = yes
115	PAS	**-19**	password	-99... 999
116	PA1	**426**	level 1 password	-99... 999
117	PA2	**824**	level 2 password	-99... 999

N.	PAR.	DEF.	REAL TIME CLOCK	MIN... MAX.
118	Hr0	**0**	enable clock	0 = no 1 = yes
N.	PAR.	DEF.	DATA-LOGGING EVLINK	MIN... MAX.
119	bLE	**1**	serial port configuration for connectivity	0 = free 1 = forced for EVconnect or EPoCA 2-99 = EPoCA local network address
120	rE0	**15**	data-logger sampling interval	0... 240 min
121	rE1	**1**	recorded temperature	0 = none 1 = cabinet 2 = evaporator/auxiliary 3 = all
N.	PAR.	DEF.	MODBUS	MIN... MAX.
122	LA	**247**	MODBUS address	1... 247
123	Lb	**2**	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
124	LP	**2**	parity	0 = none 1 = odd 2 = even

8 ALARMS

COD.	DESCRIPTION	RESET	REMEDIES
Pr1	cabinet probe alarm	automatic	- check P0
Pr2	evaporator/auxiliary probe alarm	automatic	- check probe integrity - 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 - 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
Cth	compressor thermal switch alarm	automatic	check i5 and i6
th	global thermal switch alarm	manual	- switch the device off and on - check i5 and i6
dFd	defrost timeout alarm	manual	- touch a key - check d2, d3 and d11
H2O	water reset warning delay	manual	- touch a key - check A12

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 59.0 mm (2 15/16 x 1 5/16 x 2 5/16 in) with fixed screw terminal blocks			75.0 x 33.0 x 81.5 mm (2 15/16 x 1 5/16 x 3 3/16 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		Pico-Blade 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 55 °C (from 32 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			according to the model, 115... 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 3.2 VA insulated or 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 2 VA insulated
Earthing methods for the control device			None
Rated impulse-withstand voltage			2,5 KV
Over-voltage category			II
Software class and structure			A
Analogue inputs			1 for PTC or NTC probes (cabinet 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		ß3435 (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, 1.5 mA
	Power supply		None
	Protection		None
Other inputs			Input configurable for analogue input (evaporator/auxiliary probe)/digital input (multi-purpose input)
Digital outputs			3 electro-mechanical relays
Relay K1			SPST, 16 A res. @ 250 VAC
			SPST, 30 A res. @ 250 VAC (by request)
Relay K2			SPDT, 8 A res. @ 250 VAC
Relay K3			SPST, 5 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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