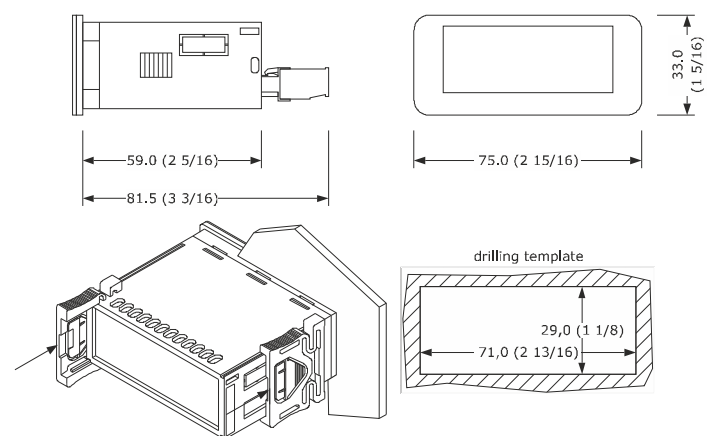




- 1 ENGLISH**
- 230 VAC or 115 VAC power supply (according to the model)
 - cabinet probe and needle probe (PTC/NTC)
 - door switch/multi-purpose input
 - compressor relay 16 A res. @ 250 VAC
 - alarm buzzer
 - TTL MODBUS slave port for EVconnect app, EPoCA remote monitoring system or for BMS
 - operation with EV3KEY programming key.

Purchasing code	Power supply
EV3802N7	230 VAC
EV3802N5	115 VAC

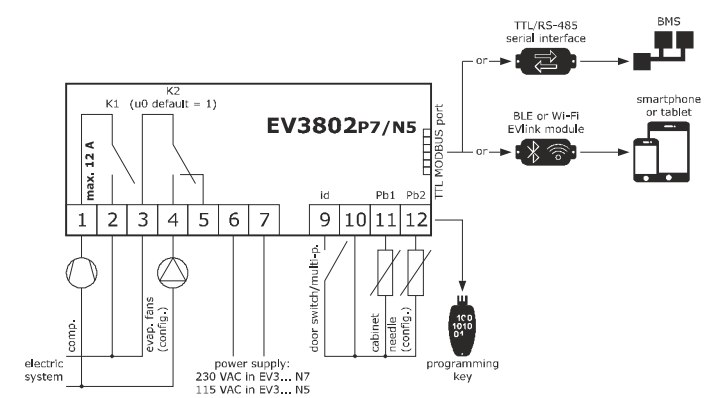
1 MEASUREMENTS AND INSTALLATION
Measurements in mm (inches). To be fitted to a panel, snap-in brackets provided.



- 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, locate the power cables as far away as possible from the signal cables.

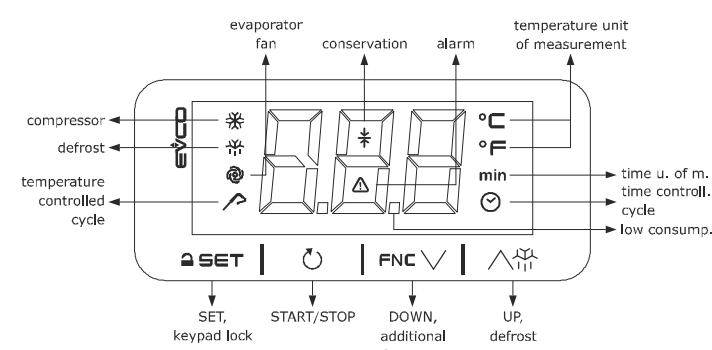


- PRECAUTIONS FOR ELECTRICAL CONNECTION**
- if using an electrical or pneumatic screwdriver, adjust the tightening torque
 - if the device is moved from a cold to a warm place, humidity may cause condensation to form inside. Wait for about an hour before switching on the power
 - make sure that the supply voltage, electrical frequency and power are within the set limits. See the section *TECHNICAL SPECIFICATIONS*
 - disconnect the power supply before carrying out any type of maintenance
 - do not use the device as a safety device
 - for repairs and for further information, contact the EVCO sales network.

3 FIRST-TIME USE

- Carry out the installation following the instructions given in the section *MEASUREMENTS AND INSTALLATION*.
 - Power up the device as set out in the section *ELECTRICAL CONNECTION*: an internal test will start up. The test normally takes a few seconds; when it is finished the display will switch off.
 - Configure the device as shown in the section *Setting configuration parameters*. Recommended configuration parameters for first-time use:
- | PAR. | DEF. | PARAMETER | MIN... MAX. |
|------|------|--------------------------------|------------------------------------|
| P0 | 1 | type of probe | 0 = PTC 1 = NTC |
| P2 | 0 | temperature measurement unit | 0 = °C 1 = °F |
| u0 | 1 | auxiliary output configuration | 0 = defrosting 1 = evaporator fans |
- Then check that the remaining settings are appropriate; see the section *CONFIGURATION PARAMETERS*.
- Disconnect the device from the mains.
 - Make the electrical connection as shown in the section *ELECTRICAL CONNECTION*, without powering up the device.
 - For the connection in an RS-485 network connect the interface EVIF22TSX or EVIF23TSX, to use the device with the EPoCA remote monitoring system, connect the EVIF25TWX module, to use the device with the APP EVconnect connect the interface EVIF25TBX; see the relevant instruction sheets. **If EVIF22TSX or EVIF23TSX is used, set parameter BLE to 0.**
 - Power up the device again.

4 USER INTERFACE AND MAIN FUNCTIONS



- 4.1 Switching the device on/off**
Power up/disconnect the device.
If the device is switched on and no cycle is active, the display will show the cabinet temperature.
If the display shows an alarm code, see the section *ALARMS*.
If no cycle is active, after 10 s have elapsed without the keys being pressed, the display will automatically switch off, except for the low consumption LEDs.
When 60 s have elapsed without the keys being pressed, the display will show the "Loc" label and the keypad will lock automatically.

LED	ON	OFF	FLASHING
	compressor switched on	compressor switched off	compressor protection in progress
	defrost active	-	dripping active
	evaporator fans on	evaporator fans off	evaporator fan delay in progress
	temperature controlled cycle active	-	- temperature controlled cycle selected - test to check needle probe is correctly inserted in progress; when time controlled cycle LED is on, test has failed and time controlled cycle is active - when alarm LED is on, blast chilling/freezing has failed and is active - when alarm LED flashes, blast chilling/freezing has failed and conservation is active
	conservation active	-	setpoint during conservation being set
	alarm active	-	-
°C/°F	temperature displayed	-	-
min	time displayed	-	residual time maximum duration of temperature controlled blast chilling/freezing displayed
	time controlled cycle is selected	-	time controlled cycle active

- 4.2 Switching the display back on**
Touch a key.
- 4.3 Unlocking the keypad**
Touch a key for 1 s: the display will show the label "UnL".

4.4 Activating an operating cycle
Check that the keypad is not locked and that defrosting is not active.

- Touch the SET key to select a cycle.

LAB.	LED	DESCRIPTION
PoS		time controlled blast chilling and conservation (if EO = 0 or 1)
nEG		time controlled blast freezing and conservation (if EO = 1 or 2)
PoS		temperature controlled blast chilling and conservation (if EO = 0 or 1)
nEG		temperature controlled blast freezing and conservation (if EO = 1 or 2)

- Touch the START/STOP key within 15 s.

- 4.5 Activating the last cycle carried out**
Check that the keypad is not locked and that defrosting is not active.
- Touch the SET key.
 - Touch the START/STOP key again within 15 s.

- 4.6 Interrupting an operating cycle**
Check that the keypad is not locked.
- Touch the START/STOP key for 2 s.

- 4.7 Setting the cabinet setpoint during conservation**
Check that the keypad is not locked.
- Touch the SET key.
 - Touch the UP or DOWN key within 15 s to set the value.
 - Touch the SET key (or take no action for 15 s).

The setting is temporary: when a new cycle is activated (and after a power failure), the device will restore the r9/rA values.

- 4.8 Activating manual defrost**
Check that the keypad is not locked and that blast chilling/freezing is not active.
- Touch the UP key for 4 s.

- 4.9 Silencing the buzzer**
Touch a key.

5 OPERATING CYCLES

- 5.1 Initial information**
Cycles managed:
- time controlled blast chilling and conservation
 - time controlled blast freezing and conservation
 - temperature controlled blast chilling and conservation
 - temperature controlled blast freezing and conservation.
- Before each temperature controlled cycle, a test is run to check that the needle probe is correctly inserted.
The test consists of two phases: if the first one is completed successfully, the second one is not carried out.
The first phase is completed successfully if [(needle temperature - cabinet temperature) > threshold rc] 3 times out of 5, checked every 10 s. The second phase is completed successfully if [(needle temperature - cabinet temperature) > 1 °C/°F] 6 times out of 8 (compared to previous test), checked every (duration rd/8) s.
If the test fails, the corresponding time controlled cycle is activated.

- 5.2 Activating time controlled blast chilling/freezing and conservation**
Check that the keypad is not locked and that defrosting is not active.

- Touch the SET key to select a cycle.

LAB.	LED	DESCRIPTION
PoS		time controlled blast chilling and conservation (if EO = 0 or 1)
nEG		time controlled blast freezing and conservation (if EO = 1 or 2)

- Touch the DOWN key within 15 s to see the duration of the blast chilling/freezing.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the DOWN key within 15 s to see the cabinet setpoint during blast chilling/freezing.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the DOWN key within 15 s to see the cabinet setpoint during conservation.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the START/STOP key within 15 s.

The settings are temporary: when a new cycle is activated (and after a power failure), the device will restore the r1/r2, r7/r8 and r9/rA values.

Information about the active cycle

PHASE	DISPLAY
blast chilling/freezing active	residual time blast chilling/freezing cycle
end blast chilling/freezing	End (press a key)
conservation active	cabinet temperature

Viewing other information about the active cycle
Check that the keypad is not locked.

- Touch the DOWN key to view the type of active cycle.

LAB.	LED	DESCRIPTION
PoS		time controlled blast chilling and conservation
nEG		time controlled blast freezing and conservation

- Touch the DOWN key again to view the cabinet temperature.
- Touch the SET key (or take no action for 15 s) to exit the procedure.

After a power failure during a cycle, the cycle is automatically reactivated from the phase it was in at the moment the power failed. If power fails during blast chilling/freezing, the count is resumed with a maximum error of 10 min.

5.3 Activating temperature controlled blast chilling/freezing and conservation
Check that the keypad is not locked and that defrosting is not active.

- Touch the SET key to select a cycle.

LAB.	LED	DESCRIPTION
PoS		temperature controlled blast chilling and conservation (if EO = 0 or 1)
nEG		temperature controlled blast freezing and conservation (if EO = 1 or 2)

- Touch the DOWN key within 15 s to view the product temperature at the end of blast chilling/freezing.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the DOWN key within 15 s to view the maximum duration of blast chilling/freezing.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the DOWN key within 15 s to view the cabinet setpoint during blast chilling/freezing.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the DOWN key within 15 s to view the cabinet setpoint during conservation.
- Touch the SET key.
- Touch the UP or DOWN key within 15 s to set the value.
- Touch the SET key (or take no action for 15 s).
- Touch the START/STOP key within 15 s.

The settings are temporary: when a new cycle is activated (and after a power failure), the device will restore the r3/r4, r5/r6, r7/r8 and r9/rA values.

If the temperature of the needle does not reach the product temperature at the end of blast chilling/freezing within the maximum duration of blast chilling/freezing, the cycle fails and remains active.

Information about the active cycle

PHASE	INFORMATION DISPLAYED
blast chilling/freezing active	needle temperature
end blast chilling/freezing	End (press a key)
conservation active	cabinet temperature

Viewing other information about the active cycle
Check that the keypad is not locked.

- Touch the DOWN key to view the remaining time of the maximum duration of the blast chilling/freezing cycle (or the elapsed time from the end of the maximum duration of the blast chilling/freezing cycle if it has failed).
- Touch the DOWN key again to view the type of active cycle.

LAB.	LED	DESCRIPTION
PoS		temperature controlled blast chilling and conservation

2.		temperature controlled blast freezing and conservation
3.		Touch the DOWN key again to see the cabinet temperature.
4.		Touch the SET key (or take no action for 15 s) to exit the procedure.

After a power failure during a cycle, the cycle is automatically reactivated from the phase it was in at the moment the power failed. If power fails during blast chilling/freezing, it is reactivated from the beginning.

5.4 Activating the last cycle carried out

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

1.		Touch the START/STOP key for 2 s.
2.		Touch the START/STOP key within 60 s: the display will show the duration of the time controlled blast chilling/freezing or the product temperature at the end of the temperature controlled blast chilling/freezing.
3.		Touch the SET key.
4.		Touch the UP or DOWN key within 15 s to set the value.
5.		Touch the SET key (or take no action for 15 s).
6.		Touch the START/STOP key again within 15 s.

The settings are temporary: when a new cycle is activated (and after a power failure), the device will restore the r1/r2 and r3/r4 values.

5.5 Interrupting an operating cycle

Check that the keypad is not locked.

1.		Touch the START/STOP key for 2 s.
----	--	-----------------------------------

6 ADDITIONAL FUNCTIONS

6.1 Viewing compressor and evaporator fan status

Check that the keypad is not locked.

1.		Touch the DOWN key once (to view compressor status) or twice (to view evaporator fan status).																
<table border="1"> <thead> <tr> <th>LAB.</th> <th>MEANING FOR COMPRESSOR</th> </tr> </thead> <tbody> <tr> <td>C-1</td> <td>compressor on</td> </tr> <tr> <td>C-0</td> <td>compressor off</td> </tr> <tr> <td>C-P</td> <td>compressor protection in progress</td> </tr> <tr> <th>LAB.</th> <th>MEANING FOR EVAPORATOR FANS (if u0 = 1)</th> </tr> <tr> <td>F-1</td> <td>evaporator fans on</td> </tr> <tr> <td>F-0</td> <td>evaporator fans off</td> </tr> <tr> <td>F-P</td> <td>evaporator fan delay in progress</td> </tr> </tbody> </table>			LAB.	MEANING FOR COMPRESSOR	C-1	compressor on	C-0	compressor off	C-P	compressor protection in progress	LAB.	MEANING FOR EVAPORATOR FANS (if u0 = 1)	F-1	evaporator fans on	F-0	evaporator fans off	F-P	evaporator fan delay in progress
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F-0	evaporator fans off																	
F-P	evaporator fan delay in progress																	
2.		Touch the SET key (or take no action for 15 s) to exit the procedure.																

7 SETTINGS

7.1 Setting first level configuration parameters

1.		Touch the SET key for 4 s: the display will show the label "PA".
2.		Touch the UP or DOWN key to select a parameter.
3.		Touch the SET key.
4.		Touch the UP or DOWN key within 15 s to set the value.
5.		Touch the SET key (or take no action for 15 s).
6.		Touch the SET key for 4 s (or take no action for 60 s) to exit the procedure.

7.2 Setting second level configuration parameters

1.		Touch the SET key for 4 s: the display will show the label "PA".
2.		Touch the SET key.
3.		Touch the UP or DOWN key within 15 s to set the PAS value (default "-19").
4.		Touch the SET key (or take no action for 15 s): the display will show the label "CA1".
5.		Touch the UP or DOWN key to select a parameter.
6.		Touch the SET key.
7.		Touch the UP or DOWN key within 15 s to set the value.
8.		Touch the SET key (or take no action for 15 s).
9.		Touch the SET key for 4 s (or take no action for 60 s) to exit the procedure.

7.3 Restoring factory (default) settings and saving customised settings

N.B.	<ul style="list-style-type: none"> check that the factory settings are appropriate: see the section <i>CONFIGURATION PARAMETERS</i>. saving customised settings overwrites the factory settings.
------	--

1.		Touch the SET key for 4 s: the display will show the label "PA".						
2.		Touch the SET key.						
3.		Touch the UP or DOWN key within 15 s to set the value.						
<table border="1"> <thead> <tr> <th>VAL.</th> <th>MEANING</th> </tr> </thead> <tbody> <tr> <td>149</td> <td>value for restoring the factory information (default)</td> </tr> <tr> <td>161</td> <td>value for saving customised settings</td> </tr> </tbody> </table>			VAL.	MEANING	149	value for restoring the factory information (default)	161	value for saving customised settings
VAL.	MEANING							
149	value for restoring the factory information (default)							
161	value for saving customised settings							
4.		Touch the SET key (or take no action for 15 s): the display will show the label "DEF" (for setting the "149" value) or the label "MAP" (for setting the "161" value).						
5.		Touch the SET key.						
6.		Touch the UP or DOWN key within 15 s to set "4".						
7.		Touch the SET key (or take no action for 15 s): the display will show "--" flashing for 4 s, after which the device will exit the procedure.						
8.		Disconnect the device from the power supply.						
9.		Touch the SET key for 2 s before action 6 to exit the procedure beforehand.						

8 CONFIGURATION PARAMETERS

8.1 First level parameters

NO.	PAR.	DEF.	REGULATION	MIN... MAX.
8	r0	2.0	r7, r8, r9 and rA differential	1... 15 °C/°F
9	r1	90	duration time controlled blast chilling	1... 600 min
10	r2	240	duration time controlled blast freezing	1... 600 min
11	r3	3.0	product temperature at end of temperature controlled blast chilling	-99... 99 °C/°F
12	r4	-18.0	product temperature at end of temperature controlled blast freezing	-99... 99 °C/°F

13	r5	90	maximum duration temperature controlled blast chilling	1... 600 min
14	r6	240	maximum duration temperature controlled blast freezing	1... 600 min
15	r7	0.0	cabinet setpoint during blast chilling	-99... 99 °C/°F
16	r8	-40.0	cabinet setpoint during blast freezing	-99... 99 °C/°F
17	r9	2.0	cabinet setpoint during conservation after blast chilling	-99... 99 °C/°F
18	rA	-20.0	cabinet setpoint during conservation after blast freezing	-99... 99 °C/°F

8.2 Second level parameters

NO.	PAR.	DEF.	ANALOGUE INPUTS	MIN... MAX.
1	CA1	0.0	cabinet probe offset	-25... 25 °C/°F
2	CA2	0.0	needle probe offset	-25... 25 °C/°F
3	P0	1	type of probe	0 = PTC 1 = NTC
4	P1	1	enable decimal point °C	0 = no 1 = yes
5	P2	0	temperature measurement unit	0 = °C 1 = °F
6	P3	1	enable needle probe	0 = no 1 = yes
7	P8	5	display refresh time	0... 250 s : 10

NO.	PAR.	DEF.	REGULATION	MIN... MAX.
8	r0	2.0	r7, r8, r9 and rA differential	1... 15 °C/°F
9	r1	90	duration time controlled blast chilling	1... 600 min
10	r2	240	duration time controlled blast freezing	1... 600 min
11	r3	3.0	product temperature at end of temperature controlled blast chilling	-99... 99 °C/°F
12	r4	-18.0	product temperature at end of temperature controlled blast freezing	-99... 99 °C/°F

13	r5	90	maximum duration temperature controlled blast chilling	1... 600 min
14	r6	240	maximum duration temperature controlled blast freezing	1... 600 min
15	r7	0.0	cabinet setpoint during blast chilling	-99... 99 °C/°F
16	r8	-40.0	cabinet setpoint during blast freezing	-99... 99 °C/°F
17	r9	2.0	cabinet setpoint during conservation after blast chilling	-99... 99 °C/°F
18	rA	-20.0	cabinet setpoint during conservation after blast freezing	-99... 99 °C/°F

19	rb	1	type of cycle enabled	0 = blast chilling and conservation 1 = blast chilling/freezing and conservation 2 = blast freezing and conservation
20	rc	5.0	minimum gap to pass first phase of needle probe test	0... 99 °C/°F 0 = disabled first phase ok if [(needle temperature - cabinet temperature) > rc] 3 times out of 5, checked every 10 s
21	rd	60	duration second phase needle probe test	1... 99 s second phase ok if [(needle temperature - cabinet temperature) > 1 °C/°F] 6 times out of 8 (compared to previous test), checked every (rd/8) s

NO.	PAR.	DEF.	COMPRESSOR	MIN... MAX.
22	C0	3	compressor-on delay from cycle activation and power-on	0... 240 min
23	C1	5	delay between two compressor switch-ons	0... 240 min
24	C2	3	minimum compressor-off time	0... 240 min
25	C3	0	minimum compressor-on time	0... 240 s
26	C4	10	compressor-off time in cabinet probe alarm during conservation	0... 240 min
27	C5	10	compressor-on time in cabinet probe alarm during conservation after blast chilling	0... 240 min
28	C6	20	compressor-on time in cabinet probe alarm during conservation after blast freezing	0... 240 min
29	C11	0	needle probe function in event of cabinet probe error	0 = needle probe 1 = needle probe and cabinet probe

NO.	PAR.	DEF.	DEFROST	MIN... MAX.
30	d0	8	automatic defrost interval	0... 99 h 0 = manual only
31	d3	30	defrost duration	0... 99 min
32	d7	2	dripping time	0... 15 min

NO.	PAR.	DEF.	ALARMS (active during conservation)	MIN... MAX.
33	A1	10.0	low temperature alarm threshold (relative to r9 and rA)	0... 99 °C/°F r9 - A1 and rA - A1 differential = 2 °C/4 °F
34	A2	1	enable low temperature alarm	0 = no 1 = yes
35	A4	10.0	high temperature alarm threshold (relative to r9 and rA)	0... 99 °C/°F r9 + A4 and rA + A4 differential = 2 °C/4 °F
36	A5	1	enable high temperature alarm	0 = no 1 = yes

37	A6	15	high/low temperature alarm delay from conservation	0... 240 min
38	A7	15	high/low temperature alarm delay	0... 240 min
39	A8	15	high temperature alarm delay post-defrosting	0... 240 min
40	A9	15	high temperature alarm delay from door closure	0... 240 min if i0 = 0 or 1
41	AA	5	buzzer duration after blast chilling/freezing	0... 240 s

NO.	PAR.	DEF.	EVAPORATOR FANS (always on during defrosting)	MIN... MAX.
42	F0	2	evaporator fan mode during blast chilling/freezing	0 = off 1 = on 2 = on if compressor on
43	F2	1	evaporator fan mode during conservation	0 = off 1 = on 2 = on if compressor on
44	F8	0	evaporator fan delay from defrost activation	0... 99 min

NO.	PAR.	DEF.	DIGITAL INPUTS	MIN... MAX.
45	i0	1	door switch/multi-purpose input function	0 = evaporator fans off 1 = compressor + evaporator fans off 2 = alarm iA 3 = after 10 s evaporator fans off 4 = after 10 s compressor + evaporator fans off
46	i1	0	activation door switch/multi-purpose input	0 = with contact closed 1 = with contact open 2 = disabled
47	i2	30	door open alarm delay	-1... 120 min -1 = disabled if i0 = 0 or 1

48	i3	15	maximum time for inhibiting regulation with door open	-1... 120 min -1 = until closed if i0 = 0 or 1
49	i7	0	compressor-on delay from multi-purpose input alarm reset	-1... 120 min -1 = disabled
DIGITAL OUTPUTS				
50	u0	0	auxiliary output configuration	0 = defrosting 1 = evaporator fans
DATA-LOGGING EVLINK				
51	hR0	-	unused	-
52	bLE	1	serial port configuration for connectivity	0 = free 1 = forced for EVconnect or EPoCA 2-99 = EPoCA local network address
53	rE0	15	data-logger sampling interval	0... 240 min
MODBUS				
52	LA	247	MODBUS address	1... 247
53	Lb	2	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
54	LP	2	MODBUS parity	0 = none 1 = odd 2 = even
MODBUS				
55	E0	247	quick setting of value during cycle activation	0 = disabled 1 = duration of time controlled blast chilling/freezing or product temperature at end of temperature controlled blast chilling/freezing 2 = duration of time controlled blast chilling/freezing and/or cabinet setpoint during blast chilling/freezing 3 = duration of time controlled blast chilling/freezing and cabinet setpoint during blast chilling/freezing or product temperature at end of temperature controlled blast chilling/freezing and cabinet setpoint during blast chilling/freezing
56	E9	-	unused	-
SECURITY				
57	PAS	-19	password	-99... 999
58	PA1	426	level 1 password	-99... 999
59	PA2	824	level 2 password	-99... 999

9 ALARMS

CODE	MEANING	RESET	TO CORRECT
Pr1	cabinet probe alarm	automatic	- check P0
Pr2	needle probe alarm	automatic	- check integrity of the probe - check electrical connection
AL	low temperature alarm	automatic	check A1 and A2
AH	high temperature alarm	automatic	check A4 and A5
id	door open alarm	automatic	check i0 and i1
iA	multi-purpose input alarm	automatic	check i0 and i1

10 TECHNICAL SPECIFICATIONS

Purpose of the control device:	function controller.
Construction of the control device:	built-in electronic device.
Housing:	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 plug-in 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 casing:	IP65 (front).
Connection method:	
fixed screw terminal blocks for wires up to 2.5 mm ²	plug-in screw terminal blocks for wires up to 2.5 mm ² (on 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.

Compliance:			
RoHS 2011/65/EC	WEEE 2012/19/EU	REACH (EC) Regulation no. 1907/2006	
EMC 2014/30/EU	LVD 2014/35/EU		

Power supply:	
230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 2 VA insulated in EV3... N7	115 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 2 VA insulated in EV3... N5.
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 PTC or NTC probes (cabinet probe and needle probe).	

PTC probes:	Type of sensor:	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:	Type of sensor:	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/multi-purpose).	
Dry contact:	Type of contact:	5 VDC, 1.5 mA
	Power supply:	none
	Protection:	none.

Digital outputs:	2 with electro-mechanical relay (compressor and auxiliary relay).
Compressor relay (K1):	SPST, 16 A res. @ 250 VAC
Auxiliary relay (K2):	SPDT, 8 A res. @ 250 VAC.
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:	built-in.
Communications 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 equipment.

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EVCO accepts no liability for any possible errors in this document and reserves the right to make any changes at any time without prejudice to the essential functional and safety features of the equipment.



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