



MOD : DS12/B5-P9B

Production code : CV120PSVND97BH_1

10/2025

EV3 L series

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CONSIDER THE ENVIRONMENT

E ENGLISH

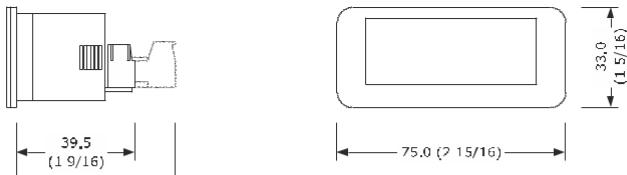
- Controllers for normal and low temperature units.
- Power supply 115 or 230 VAC (according to the model).
- Cabinet probe and evaporator probe (NTC).
- Door switch input.
- Compressor relay 16 A res. @ 250 VAC.

Purchasing code	Relays	Probes (NTC)	Power supply
EV3L21N5	1	1	115 VAC
EV3L21N7	1	1	230 VAC
EV3L22N5	2	2	115 VAC
EV3L22N7	2	2	230 VAC
EV3L23N5	3	2	115 VAC
EV3L23N7	3	2	230 VAC

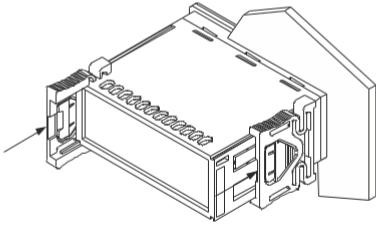
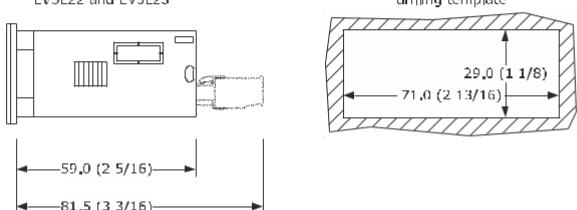
1 MEASUREMENTS AND INSTALLATION

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

EV3L21



EV3L22 and EV3L23

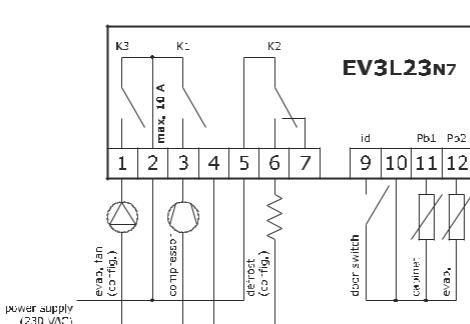
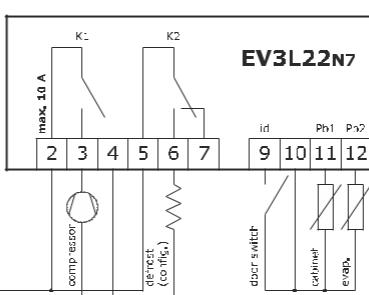
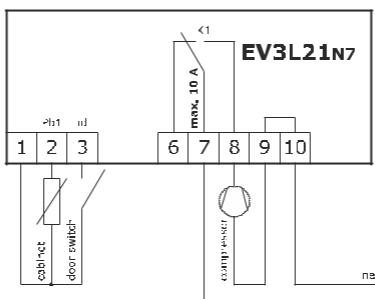
**INSTALLATION PRECAUTIONS**

- 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.

**Controllers for refrigerated cabinets, counters and islands****EVCO****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

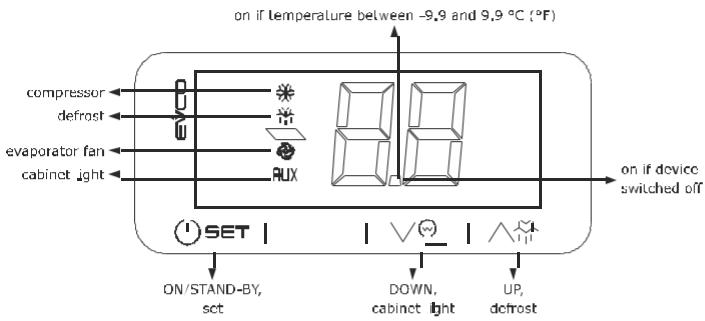
- Install following the instructions given in the section **MEASUREMENTS AND INSTALLATION**.
- Power up the device as shown in the section **ELECTRICAL CONNECTION** and an internal test will be run. The test normally takes a few seconds, when it is finished the display will switch off.
- Configure the device as shown in the section **Setting configuration parameters**.

Recommended configuration parameters for first-time use.

PAR.	DEF.	PARAMETER	MIN... MAX.
SP	0	setpoint	r1... r2
P2	0	temperature unit of measurement	0 = °C 1 = °F
d1	0	defrost type	0 = electric 1 = hot gas

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.
- Power up the device.

4 USER INTERFACE AND MAIN FUNCTIONS**4.1 Switching the device on/off**

- Touch the ON/STAND-BY key for 3 s.

If the device is switched on, the display will show the cabinet temperature; 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 active	-	- defrost delay active - dripping active
	evaporator fan on	evaporator fan off	evaporator fan stop active

4.2 Unlock keypad

Touch a key for 3 s: the display will show the label "Un".

4.3 Set the setpoint

Check that the keypad is not locked.

- Touch the ON/STAND-BY key.
- Touch the UP or DOWN key within 30 s to set the value within the d2 threshold.
- Touch the ON/STAND-BY key (or do not operate for 30 s).

4.4 Activate manual defrost

Check that the keypad is not locked.

- Touch the UP key for 3 s.

If P4 = 1 (default), defrost is activated provided that the evaporator temperature is lower than the d2 threshold.

4.5 Cabinet light on/off (if u1 or u2 = 2)

- Touch the DOWN key.

5 ADDITIONAL FUNCTIONS**5.1 View the evaporator temperature**

Check that the keypad is not locked.

- Touch the DOWN key for 4 s.
- Touch the ON/STAND-BY key (or do not operate for 30 s) to exit the procedure.

6 SETTINGS**6.1 Setting configuration parameters**

Check that the device is switched on and the keypad is not locked.

- Touch the ON/STAND-BY key for 6 s: once 3 s have elapsed the display will switch off, once 6 s have elapsed the display will show the label "PA".
- Touch the ON/STAND-BY key again.
- Touch the UP or DOWN key within 30 s to set the PS value (default = 19).
- Touch the ON/STAND-BY key: the display will show the label "SP".
- Touch the UP or DOWN key to select a parameter.
- Touch the ON/STAND-BY key.
- Touch the UP or DOWN key within 30 s to set the value.
- Touch the ON/STAND-BY key.
- Touch the ON/STAND-BY key for 3 s (or do not operate for 30 s) to exit the procedure.

6.2 Restore the factory settings (default) and store customized settings as default

N.B.

- Check that the factory settings are appropriate; see the section **CONFIGURATION PARAMETERS**.
- the storing of customized settings overwrites the default.

Check that the device is switched on and the keypad is not locked.

Touch the ON/STAND-BY key for 6 s: once 3 s have elapsed the display will show the label "PA".

- Touch the ON/STAND-BY key again.

- Touch the UP or DOWN key within 30 s to set "49".

- Touch the ON/STAND-BY key again: the display will show the label "dF".

- Touch the ON/STAND-BY key again.

- Touch the UP or DOWN key within 30 s to set the value.

- Touch the ON/STAND-BY key again: the display will show the label "1".

- Touch the ON/STAND-BY key again: the display will show the label "2".

- Touch the ON/STAND-BY key again: the device will exit the procedure.

- Touch the ON/STAND-BY key 2 s before action 6. (or do not operate for 30 s) to exit the procedure beforehand.

7 CONFIGURATION PARAMETERS

N.	PAR.	DEF.	SETPOINT	MIN... MAX.
1	SP	0	setpoint	r1... r2
2	o1	0	ANALOGUE INPUTS	MIN... MAX.
3	o2	0	cabinet probe offset	-99... 99 °C/F
4	P2	0	evaporator probe offset	not available in EV3L21
5	P4	1	temperature unit of measurement	0 = °C 1 = °F
6	P8	4	enable evaporator probe	not available in EV3L21
7	r0	-2	filter for cabinet temperature display	1... 10 1 = quick 4 = normal 7 = slow 10 = very slow
8	r1	-40	REGULATION	MIN... MAX.
9	r2	50	setpoint differential	-99... 0 °C/F symmetric 0... 99 °C/F asymmetric
10	C0	0	minimum setpoint	-99... 99 °C/F
11	C1	5	maximum setpoint	-99... 99 °C/F
12	C2	3	setpoint differential	0... 99 min
13	C4	50	delay between 2 compressor switch-ons	0... 99 min
14	d0	8	compressor on minimum time	0... 99 s x 10
15	d1	0	compressor on delay after power-on	0... 99 min
16	d2	2	compressor off minimum time	0... 99 min
17	d3	30	percentage compressor on during cabinet probe alarm	0... 100 %
18	d7	2	compressor off consecutive time for hot gas defrost	0... 99 min
19	d8	0	defrost relay status during drip	0 = not active
20	d9	0	defrost duration	not available in EV3L21
21	A1	-99	alarms	MIN... MAX.
22	A4	99	threshold for low temperature alarm	-99... 99 °C/F
23	A5	-2	threshold for high temperature alarm	-99... 99 °C/F
24	A7	2	high/low temperature alarms reset differential	-99... 99 °C/F
25	F0	0	high/low temperature alarms delay	0... 99 min x 10
26	F1	-1	threshold for defrost end	0... 99 h
27	F2	0	defrost type	not available in EV3L21
28	F3	2	threshold for defrost end	0 = electric 1 = hot gas
29	F4	30	defrost duration	-99... 99 °C/F
30	F5	10	defrost relay status during drip	0 = not active
31	F6	0	defrost duration	not available in EV3L21
32	F7	0	defrost relay status during drip	0 = not active
33	F8	0	defrost duration	not available in EV3L21
34	u1	1	alarms	MIN... MAX.
35	u2</td			

8 ALARMS

COD.	DESCRIPTION	RESET	REMEDIES
P1	cabinet probe alarm	automatic	- check probe integrity - check electrical connection
P2	evaporator probe alarm	automatic	
AL	low temperature alarm	automatic	check A1
AH	high temperature alarm	automatic	check A4
id	open door alarm	automatic	check i0 e i1

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					
With fixed screw terminal blocks: 75.0 x 33.0 x 39.5 mm (2 15/16 x 1 5/16 x 1 9/16 in) for EV3L21, 75.0 x 33.0 x 59.0 mm (2 15/16 x 1 5/16 x 2 5/16 in) otherwise	With removable screw terminal blocks: 75.0 x 33.0 x 52.5 mm (2 15/16 x 1 5/16 x 2 1/16 in) for EV3L21, 75.0 x 33.0 x 81.5 mm (2 15/16 x 1 5/16 x 3 3/16 in) otherwise				
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 mm ²	Removable screw terminal blocks for wires up to 2,5 mm ² ; by request				
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	230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 3 VA isolated				
Earthing methods for the control device	None				
Rated impulse-withstand voltage	4 KV				
Over-voltage category	III				
Software class and structure	A				
Analogue inputs	- 1 in EV3L21 (cabinet probe) - 2 in EV3L22 and EV3L23 (cabinet probe and evaporator probe) for NTC probes				
NTC probes	Sensor type	83435 (10 K @ 25 °C, 77 °F)			
	Measurement field	From -40 to 90 °C (from -40 to 194 °F)			
	Resolution	- 0.1 °C (0.1 °F) between -9.9 and 9.9 - 1 °C (1 °F) otherwise			
Digital inputs	1 dry contact (door switch)				
Dry contact	Contact type	5 VDC, 1.5 mA			
	Protection	None			
Digital outputs	- 1 in EV3L21 (K1) - 2 in EV3L22 (K1 and K2) - 3 in EV3L23 (K1, K2 and K3) electro-mechanical relays				
	The maximum current allowed on the loads is 10 A				
Relay K1 (compressor):	SPST, 16 A res. @ 250 VAC				
Relay K2 (auxiliary output 1, default defrost):	SPDT, 8 A res. @ 250 VAC				
Relay K3 (auxiliary output 2, default evaporator fan):	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	2 digits custom display 17 mm (11/16 in) high, with function icons				



N.B.

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

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