

EV3294

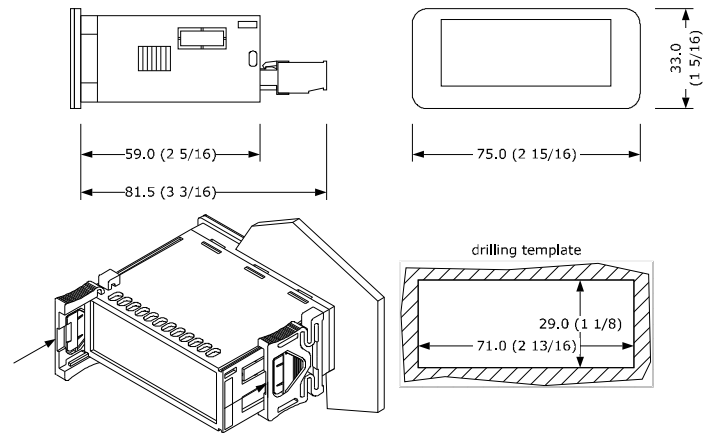
Controllers for refrigerated cabinets, counters and islands, with energy-saving strategies and compatible with the EVconnect APP



- E ENGLISH**
- Controllers for low temperature units.
 - Power supply 115... 230 VAC or 12-24 VAC/DC (according to the model).
 - Incorporated clock (according to the model).
 - Cabinet probe and evaporator probe (PTC/NTC).
 - Door switch input.
 - Compressor relay 16 A res. @ 250 VAC.
 - Alarm buzzer.
 - Incorporated Bluetooth Low Energy sensor (according to the model).
 - TTL MODBUS slave port for EVconnect app, EPoCA remote monitoring system or for BMS (according to the model).
 - Cooling or heating operation.

1 MEASUREMENTS AND INSTALLATION

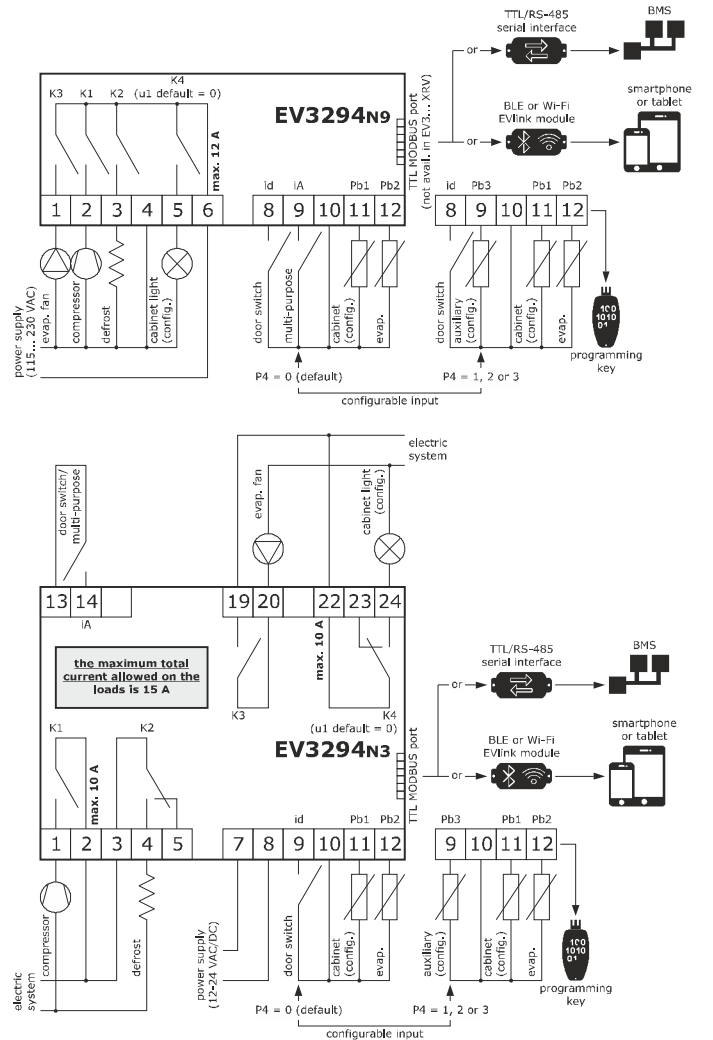
Measurements in mm (inches). To be fitted to a panel, snap-in brackets provided.



- 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

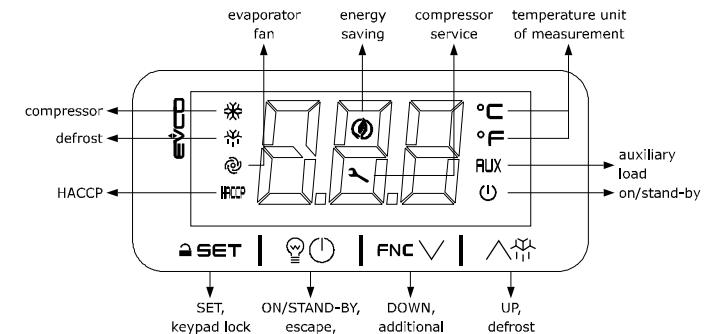
1. Install following the instructions given in the section *MEASUREMENTS AND INSTALLATION*.
2. Power up the device as shown in the section *ELECTRICAL CONNECTION* and an internal test will be run.
The test normally takes a few seconds, when it is finished the display will switch off.
3. Configure the 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
d1	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 (or use EV3... XRV). 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
	saved HACCP alarm in EVlink	-	-
	energy saving active	-	-
	request for compressor service	-	- settings active - access to additional functions active - operation with EVconnect APP active
	view temperature	-	overcooling or overheating active
	auxiliary load on	auxiliary load off	- auxiliary load on by digital input - 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. Touch the SET key.
 2. Touch the UP or DOWN key within 15 s to set the value within the limits r1 and r2 (default "-50... 50")
 3. 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. 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. 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. Touch the DOWN key for 4 s.
 2. 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. Touch the SET key.
4. Touch the UP or DOWN key to set "149" (when label "rCH" is selected).

5. Touch the SET key.
 6. 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. Touch the DOWN key for 4 s.
 2. Touch the UP or DOWN key within 15 s to select a label.

6 SETTINGS

6.1 Setting 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 do not operate for 15 s): the display will show the label "SP".
5. Touch the UP or DOWN key to select a parameter.
6. Touch the SET key.
7. Touch the UP or DOWN key within 15 s to set the value.
8. Touch the SET key (or do not operate for 15 s).
9. 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 EV3... XRV or 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. Touch the DOWN key for 4 s.
 2. Touch the UP or DOWN key within 15 s to select the label "rtc".
 3. Touch the SET key: the display will show the label "yy" followed by the last two figures of the year.
 4. 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. Touch the SET key: the display will show the label for the day of the week.
 7. 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. 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 P4 = 3, air in probe offset
3	CA2	0.0	evaporator probe offset	-25... 25 °C/°F
4	CA3	0.0	auxiliary probe offset	-25... 25 °C/°F
5	P0	1	probe type	0 = PTC 1 = NTC
6	P1	1	enable °C decimal point	0 = no 1 = yes
7	P2	0	temperature unit of measurement	0 = °C 1 = °F
8	P3	1	evaporator probe function	0 = disabled 1 = defrost + fan 2 = fan
9	P4	0	configurable input function	0 = digital input 1 = condenser probe 2 = critical temperature probe 3 = air out probe if P4 = 3, regulation temperature = product temperature (CPT)
10	P5	0	value displayed	0 = regulation temperature 1 = setpoint 2 = evaporator temperature 3 = auxiliary temperature 4 = air in temperature
11	P7	5	air in weight for calculated product temperature (CPT)	0... 10 % x 10 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 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 1 = overcooling/overheating 2 = energy saving
	21	r12	0	position of the r0 differential	0 = asymmetric 1 = symmetric
	N.	PAR.	DEF.	COMPRESSOR	MIN... MAX.
	22	C0	0	compressor on delay after power-on	0... 240 min
	23	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 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 0 = disabled
	31	C11	0	second compressor switch-on delay (not available in EV3... N3)	0... 240 s
	32	C13	0	number of start-ups for compressor rotation (not available in EV3... N3)	0... 10 0 = disabled
	N.	PAR.	DEF.	DEFROST (if r5 = 0)	MIN... MAX.
	33	d0	8	automatic defrost interval	0... 99 h 0 = only manual if d8 = 3, maximum interval
	34	d1	0	defrost type	0 = electric 1 = hot gas 2 = compressor stopped
	35	d2	8.0	threshold for defrost end	-99... 99 °C/°F
	36	d3	30	defrost duration	0... 99 min se P3 = 1, maximum duration
	37	d4	0	enable defrost at power-on	0 = no 1 = yes
	38	d5	0	defrost delay after power-on	0... 99 min
	39	d6	2	value displayed during defrost	0 = regulation temperature 1 = display locked 2 = dEF label
	40	d7	2	dripping time	0... 15 min
	41	d8	0	defrost interval counting mode	0 = device on hours 1 = compressor on hours 2 = hours evaporator temperature < d9 3 = adaptive 4 = real time
	42	d9	0.0	evaporation threshold for automatic defrost interval counting	-99... 99 °C/°F
	43	d11	0	enable defrost timeout alarm	0 = no 1 = yes
	44	d15	0	compressor on consecutive time for hot gas defrost	0... 99 min
	45	d16	0	pre-dripping time for hot gas defrost	0... 99 min
	46	d18	40	adaptive defrost interval	0... 999 min if compressor on + evaporator temperature < d22 0 = only manual
	47	d19	3.0	threshold for adaptive defrost (relative to optimal evaporation temperature)	0... 40 °C/°F optimal evaporation temperature - d19
	48	d20	180	compressor on consecutive time for defrost	0... 999 min 0 = disabled
	49	d21	200	compressor on consecutive time for defrost after power-on and overcooling	0... 500 min if (regulation temperature - setpoint) > 10°C/20 °F 0 = disabled
	50	d22	-2.0	evaporation threshold for adaptive defrost interval counting (relative to optimal evaporation temperature)	-10... 10 °C/°F optimal evaporation temperature + d22
	N.	PAR.	DEF.	ALARMS	MIN... MAX.
	51	AA	0	select value for high/low temperature alarms	0 = regulation temperature 1 = evaporator temperature 2 = auxiliary temperature
	52	A1	-10.0	threshold for low temperature alarm	-99... 99 °C/°F
	53	A2	2	low temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute
	54	A4	10.0	threshold for high temperature alarm	-99... 99 °C/°F
	55	A5	2	high temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute
	56	A6	12	high temperature alarm delay after power-on	0... 99 min x 10
	57	A7	15	high/low temperature alarms delay	0... 240 min
	58	A8	15	high temperature alarm delay after defrost	0... 240 min
	59	A9	15	high temperature alarm delay after door closing	0... 240 min
	60	A10	10	power failure duration for alarm recording	0... 240 min
	N.	PAR.	DEF.	FANS	MIN... MAX.
	62	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) 4 = thermoregulated (with F1) if compressor on
	63	F1	-4.0	threshold for evaporator fan operation	-99... 99 °C/°F differential = 1 °C/2 °F
	64	F2	0	evaporator fan mode during defrost and dripping	0 = off 1 = on 2 = according to F0
	65	F3	2	evaporator fan off maximum time	0... 15 min
	66	F4	0	evaporator fan off time during energy saving	0... 240 s x 10
	67	F5	10	evaporator fan on time during energy saving	0... 240 s x 10
	68	F7	5.0	threshold for evaporator fan on after dripping (relative to setpoint)	-99... 99 °C/°F setpoint + F7
	69	F9	0	evaporator fan off delay after compressor off	0... 240 s if F0 = 2
	70	F11	15.0	threshold for condenser fan on	0... 99 °C/°F differential = 2 °C/4 °F
	71	F12	30	condenser fan off delay after compressor off	0... 240 s if P4 ≠ 1
	72	F15	0	evaporator fan off time with compressor off	0... 240 s if F0 = 2
	73	F16	1	evaporator fan on time with compressor off	0... 240 s if F0 = 2

	N.	PAR.	DEF.	DIGITAL INPUTS	MIN... MAX.
	74	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
	75	i1	0	door switch input activation	0 = with contact closed 1 = with contact open
	76	i2	30	open door alarm delay	-1... 120 min -1 = disabled
	77	i3	15	regulation inhibition maximum time with door open	-1... 120 min -1 = until the closing
	78	i5	2	door switch/multi-purpose input function (options 7 and 8 not available in EV3... N9)	0 = disabled 1 = energy saving 2 = iA alarm 3 = button-operated load on 4 = device on/off 5 = Cth alarm 6 = th alarm 7 = compressor + evaporator fan off, cabinet light on 8 = evaporator fan off + cabinet light on
	79	i6	0	door switch/multi-purpose input activation	0 = with contact closed 1 = with contact open
	80	i7	0	multi-purpose input alarm delay	-1... 120 min -1 = disabled if i5 = 5 or 6, compressor on delay after alarm reset
	81	i10	0	door closed consecutive time for energy saving	0... 999 min after regulation temperature < SP 0 = disabled
	82	i13	180	number of door openings for defrost	0... 240 0 = disabled
	83	i14	32	door open consecutive time for defrost	0... 240 min 0 = disabled
	N.	PAR.	DEF.	DIGITAL OUTPUTS	MIN... MAX.
	84	u1	0	auxiliary output configuration (option 8 not available in EV3... N3)	0 = cabinet light 1 = demisting 2 = button-operated load 3 = alarm 4 = door heaters 5 = heater for neutral zone 6 = condenser fan 7 = on/stand-by 8 = second compressor
	85	u2	0	enable cabinet light and button-operated load in stand-by	0 = no 1 = yes manual
	86	u4	0	enable alarm output off silencing the buzzer	0 = no 1 = yes
	87	u5	-1.0	threshold for door heaters on	-99... 99 °C/°F differential = 2 °C/4 °F
	88	u6	5	demisting on duration	1... 120 min
	89	u7	-5.0	neutral zone threshold for heating (relative to setpoint)	-99... 99 °C/°F differential = 2 °C/4 °F setpoint + u7
	N.	PAR.	DEF.	ENERGY SAVING (if r5 = 0)	MIN... MAX.
	90	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.
	91	H01	0	Monday energy saving time	0... 23 h
	92	H02	0	Monday energy saving maximum duration	0... 24 h
	93	H03	0	Tuesday energy saving time	0... 23 h
	94	H04	0	Tuesday energy saving maximum duration	0... 24 h
	95	H05	0	Wednesday energy saving time	0... 23 h
	96	H06	0	Wednesday energy saving maximum duration	0... 24 h
	97	H07	0	Thursday energy saving time	0... 23 h
	98	H08	0	Thursday energy saving maximum duration	0... 24 h
	99	H09	0	Friday energy saving time	0... 23 h
	100	H10	0	Friday energy saving maximum duration	0... 24 h
	101	H11	0	Saturday energy saving time	0... 23 h
	102	H12	0	Saturday energy saving maximum duration	0... 24 h
	103	H13	0	Sunday energy saving time	0... 23 h
	104	H14	0	Sunday energy saving maximum duration	0... 24 h
	N.	PAR.	DEF.	REAL TIME DEFROST (if d8 = 4)	MIN... MAX.
	105	Hd1	h-	1st daily defrost time	h- = disabled
	106	Hd2	h-	2nd daily defrost time	h- = disabled
	107	Hd3	h-	3rd daily defrost time	h- = disabled
	108	Hd4	h-	4th daily defrost time	h- = disabled
	109	Hd5	h-	5th daily defrost time	h- = disabled
	110	Hd6	h-	6th daily defrost time	h- = disabled
	N.	PAR.	DEF.	SAFETIES	MIN... MAX.
	111	POF	0	enable ON/STAND-BY key	0 = no 1 = yes
	112	PAS	-19	password	-99... 999
	113	PA1	426	level 1 password	-99... 999
	114	PA2	824	level 2 password	-99... 999
	N.	PAR.	DEF.	REAL TIME CLOCK	MIN... MAX.
	115	Hr0	0	enable clock	0 = no 1 = yes
	N.	PAR.	DEF.	DATA-LOGGING EVLINK	MIN... MAX.
	116	bLE	1	enable Bluetooth	0 = no 1 = yes
	117	rE0	15	data-logger sampling interval	0... 240 min
	118	rE1	1	recorded temperature	0 = none 1 = cabinet 2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all
	N.	PAR.	DEF.	MODBUS	MIN... MAX.
	119	LA	247	MODBUS address	1... 247
	120	Lb	2	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 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 - 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

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 73.0 mm (2 15/16 x 1 5/16 x 2 7/8 in) in EV3... N3		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; 75.0 x 33.0 x 83.0 mm (2 15/16 x 1 5/16 x 3 1/4 in) in EV3... N3	
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 55 °C (from 32 to 131 °F); from 0 to 50 °C (from 32 a 122 °F) in EV3... N3	
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			
115... 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 3.2 VA insulated in EV3... N9		12-24 VAC/DC (+10% -15%), 50/60 Hz (±3 Hz), max. 4 VA/3 W in EV3... N3, provided by a SELV class 2 source	
Earthing methods for the control device		None	
Rated impulse-withstand voltage		2.5 kV (4 kV in EV3... N3).	
Over-voltage category		II (III in EV3... N3).	
Software class and structure		A	
Clock		Incorporated secondary lithium battery (available in EV3... XRV)	
Clock drift		≤ 60 s/month at 25 °C (77 °F)	
Clock battery autonomy in the absence of a power supply		> 24 h at 25 °C (77 °F)	
Clock battery charging time		24 h (the battery is charged by the power supply of the device)	
Analogue inputs		2 for PTC or NTC probes (cabinet probe and evaporator probe)	
PTC probes	Sensor type	KTY 81-121 (990 Ω @ 25 °C, 77 °F)	
	Measurement field	From -50 to 150 °C (from -58 to 302 °F)	
NTC probes	Resolution	0.1 °C (1 °F)	
	Sensor type	B3435 (10 KΩ @ 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	Contact type	5 VDC, 1.5 mA	
	Power supply	None	
	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) In EV3... N3 the maximum total current allowed on the loads is 15 A		
Compressor relay (K1)		SPST, 16 A res. @ 250 VAC	
Defrost relay (K2)		SPST, 8 A res. @ 250 VAC; SPDT, 8 A res. @ 250 VAC in EV3... N3	
Evaporator fan relay (K3)		SPST, 5 A res. @ 250 VAC; SPST, 2 A res. @ 250 VAC (30,000 cycles) in EV3... N3	
Auxiliary relay (K4)		SPST, 5 A res. @ 250 VAC; SPDT, 16 A res. @ 250 VAC in EV3... N3	
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	
Incorporated sensors:		Bluetooth Low Energy (available in EV3... XRV).	
Communication ports:		1 TTL MODBUS slave port for EVconnect app, EPoCA remote monitoring system or for BMS (not available in EV3... XRV)	

For EV3... XRV According to European R&TTE Declaration of Conformity this device can be used in the following Countries: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands and The United Kingdom.

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