EV3S844

Controller for blast chillers

EPoCA compatible

PLEASE READ CAREFULLY and save this document

CONSIDER THE ENVIRONMENT

I ENGLISH

- power supply 115... 230 VAC
- built-in clock
- cabinet probe and needle probe (PTC/NTC)
- door switch input
- compressor relay 16 A res. @ 250 VAC
- sealed relays compliant with the standard EN 60079-15
- output 12 VDC, max. 30 mA
- alarm buzzer
- TTL MODBUS slave port for EVJKEY programming key, EVconnect app, EPoCA remote monitoring system or for BMS.

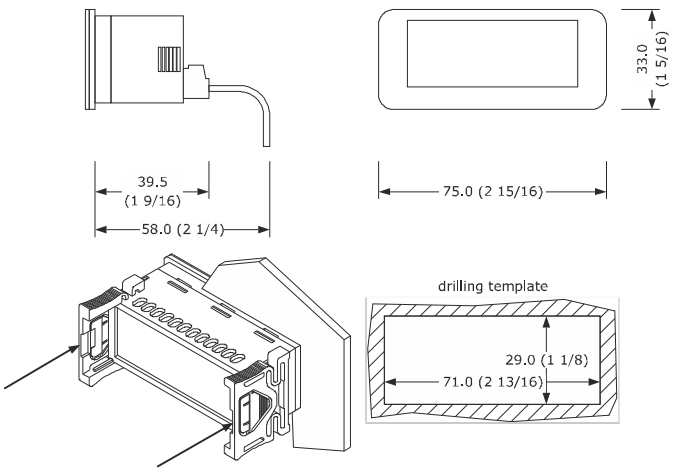
Purchasing code	Power supply
EV3S844P9	115... 230 VAC

1 MEASUREMENTS AND INSTALLATION | Measurements in mm (inches)

1.1 User interface

To be fitted to a panel, snap-in brackets provided.

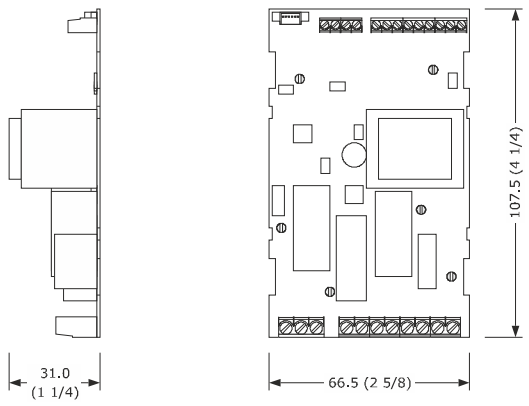
N.B.
The thickness of the panel must be between 0.8 and 2.0 mm (1/32 and 1/16 in).



1.2 Control module

To be installed on an electrical panel, on plastic spacers (not provided).

N.B.
Any metal parts must be far enough away so as not to compromise safety distances.

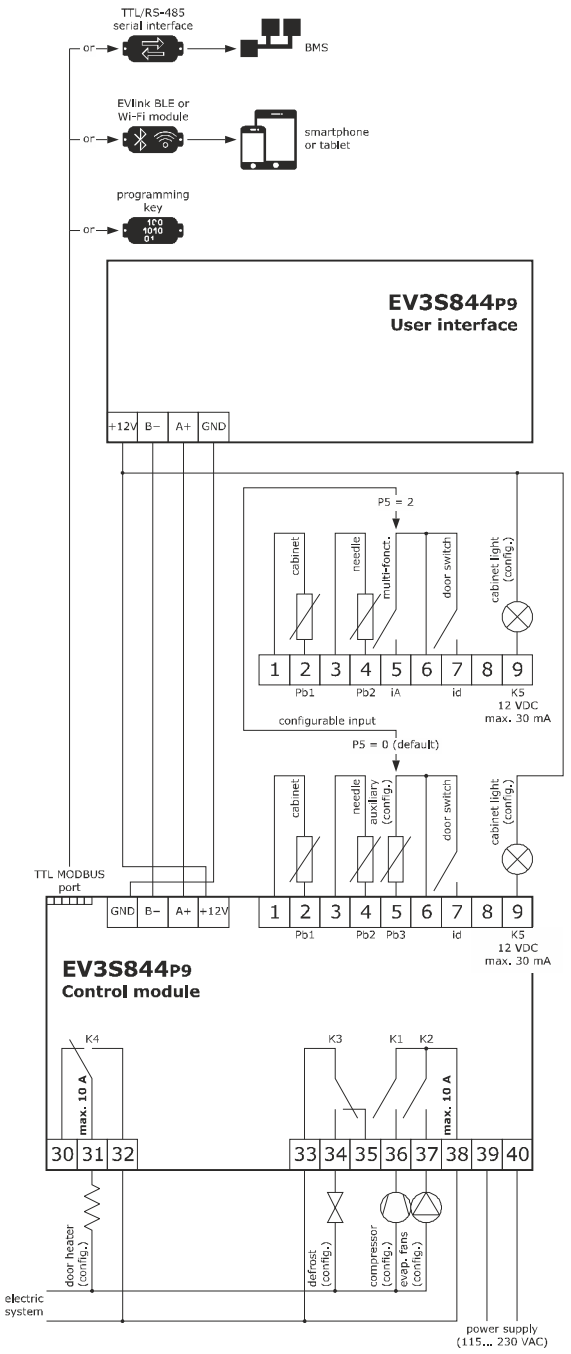


INSTALLATION PRECAUTIONS

- 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.

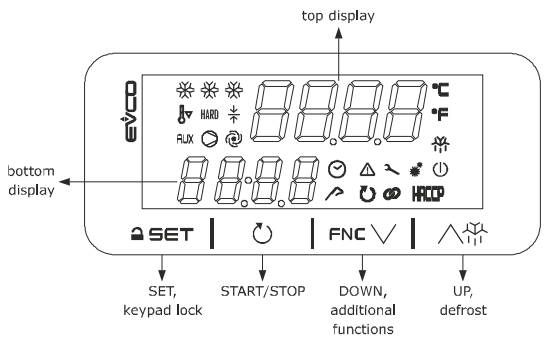
3 FIRST-TIME USE

1. Carry out the installation following the instructions given in the section *MEASUREMENTS AND INSTALLATION*.
2. 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.
3. Configure the device as shown in the section *Setting configuration parameters*.
   Recommended configuration parameters for first-time use:

PAR.	DEF.	PARAMETER	MIN... MAX.
P0	**0**	type of probe	0 = PTC 1 = NTC
P2	**0**	temperature measurement unit	0 = °C 1 = °F
d1	**1**	type of defrost	0 = electric 1 = hot gas 2 = air 3 = air with the door open

   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. To use the device with the EVconnect app, connect the EVIF25TBX module. To use the device with the EPoCA remote monitoring system, connect the EVIF25TWX module. When connecting to an RS-485 network, connect the EVIF22TSX interface.
   If using EVIF22TSX, set the BLE parameter to 0.
7. 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 settings of the last selected cycle.
If the device is in stand-by, the bottom display will show the time.
If the display shows an alarm code, see the section *ALARMS*.
If no cycle is active, after 15 min have elapsed without the keys being pressed, the display will automatically switch off, except for the on/stand-by LEDs.
When 60 s have elapsed without the keys being pressed, the top display will show the **"Loc"** label and the keypad will automatically lock.

LED	ON	OFF	FLASHING
❄	blast chilling in progress	-	blast chilling selected
❄❄	blast freezing in progress	-	blast freezing selected
🌡	pre-cooling in progress	-	pre-cooling threshold reached
AUX	auxiliary load on	auxiliary load off	auxiliary load on from digital input
HARD	hard cycle selected	-	-
	compressor on	compressor off	compressor protection in progress
	conservation active	-	-
	evaporator fans on	evaporator fans off	evaporator fan delay in progress
	time displayed	-	time controlled cycle selected
	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
⚠	alarm active	-	-
	operating cycle in progress	-	conservation in progress
	-	-	-
	-	-	BLE connection with EVconnect app or Wi-Fi connection with EPoCA system active
	setting configuration parameters in progress	-	-
HACCP	-	-	new HACCP alarm saved in device memory, in EVIF25TBX or EVIF25TWX module
°C / °F	temperature displayed	-	-
	defrost or pre-drip active	-	- defrosting delay in progress - dripping active
	device in stand-by	device switched on	-

4.2 Switching the display back on

Touch a key.

4.3 Unlocking the keypad

Touch a key for 1 s: the top display will show the label "**UnL**".

4.4 Activating an operating cycle

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the cycle.

LED	DESCRIPTION
❄ 🕒	time controlled blast chilling and conservation (if r21 = 1)
❄	temperature controlled blast chilling and conservation
❄ HARD 🕒	time controlled hard blast chilling and conservation (if r21 = 1)
❄ HARD	temperature controlled hard blast chilling and conservation
❄❄❄ HARD 🕒	time controlled blast freezing and conservation (if r21 = 1)
❄❄❄ HARD	temperature controlled blast freezing and conservation
❄❄❄ 🕒	time controlled soft blast freezing and conservation (if r21 = 1)
❄❄❄	temperature controlled soft blast freezing and conservation

2.		Touch the START/STOP key within 15 s.

4.5 Interrupting an operating cycle

Check that the keypad is not locked.

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

4.6 Activating / deactivating pre-cooling

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**CooL**" on the top display.
2.	SET	Touch the SET key for 3 s to view the cabinet setpoint during pre-cooling.
3.	FNC	Touch the UP or DOWN key within 15 s to set the value.
4.	SET	Touch the SET key.
5.		Touch the START/STOP key within 15 s.
6.		Touch the START/STOP key for 3 s to deactivate pre-cooling before time.

When the r12 threshold is reached, the buzzer sounds for 1 second.

4.7 Activating manual defrost

Check that the keypad is not locked and that blast chilling/freezing is not active.

1.		Touch the UP key for 4 s.

If P5 = 0 (default), defrost is activated provided that the evaporator temperature is lower than the d2 threshold.

4.8 Switching the cabinet light on / off (if u4c or u5c = 3, default)

1.	SET	Touch the SET key.

4.9 Switching the UV light on (if u4c or u5c = 4)

Check that the keypad is not locked and that the door is closed.

1.	FNC	Touch the DOWN key to select the label "**StEr**" on the top display.
2.	SET	Touch the SET key for 3 s: the bottom display will show the u6 time the UV light is on.

3.	FNC	Touch the UP or DOWN key within 15 s to set the value.
4.	SET	Touch the SET key.
5.		Touch the START/STOP key to switch the UV light on.
6.		Touch the START/STOP key for 3 s (or open the door) to switch the UV light off before time.

When the u6 time has elapsed, the buzzer sounds for 1 second.

4.10 Heating the needle probe (if u4c or u5c = 2)

Check that the keypad is not locked and that the door is open.

1.	FNC	Touch the DOWN key to select the label "**HEAt**" on the top display.
2.		Touch the START/STOP key to start heating the needle probe.
3.		Touch the START/STOP key for 3 s (or close the door) to interrupt heating of the needle probe before time.

Needle probe heating is activated provided the needle probe temperature is lower than the u7 threshold.
When the u7 threshold is reached, the buzzer sounds for 1 second.

4.11 Silencing the buzzer

Touch a key.

5 OPERATING CYCLES

5.1 Initial information

Cycles managed:
- blast chilling and conservation (soft blast chilling + conservation) both time and temperature controlled
- hard blast chilling and conservation (hard blast chilling phase + soft blast chilling phase + conservation) both time and temperature controlled
- blast freezing and conservation (hard blast freezing + conservation) both time and temperature controlled
- soft blast freezing and conservation (soft blast freezing phase + hard blast freezing phase + conservation) both time and temperature controlled.

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 an operating cycle

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the cycle.

LED	DESCRIPTION
	time controlled blast chilling and conservation (if r21 = 1)
	temperature controlled blast chilling and conservation
HARD	time controlled hard blast chilling and conservation (if r21 = 1)
HARD	temperature controlled hard blast chilling and conservation
HARD	time controlled blast freezing and conservation (if r21 = 1)
HARD	temperature controlled blast freezing and conservation
	time controlled soft blast freezing and conservation (if r21 = 1)
	temperature controlled soft blast freezing and conservation

2.	SET	Touch the SET key for 3 s to view the cabinet setpoint during blast chilling/freezing on the top display.
3.	FNC	Touch the UP or DOWN key within 15 s to set the value.
4.	SET	Touch the SET key for 3 s to view the duration of blast chilling/freezing (for time controlled cycles) or the product temperature at the end of blast chilling/freezing (for temperature controlled cycles) on the bottom display.
5.	FNC	Touch the UP or DOWN key within 15 s to set the value.
6.		Touch the START/STOP key within 15 s.

If r20 = 0 the settings are not stored in the memory: when a new cycle is activated (and after a power failure), the device will restore the r1/r2, r3/ r4 and r7/ r8 values.

Information about the active cycle

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

For temperature controlled cycles
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.

For time controlled cycles
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 (from the moment the power failed).

For temperature controlled cycles
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.

5.3 Interrupting an operating cycle

Check that the keypad is not locked.

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

6 HACCP

6.1 Viewing HACCP alarm information

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**ALrn**" on the top display.
4.	SET	Touch the SET key: the top display will show the most recent alarm label followed by a sequence number (up to 9).
5.	FNC	Touch the UP or DOWN key to select an alarm.

LAB.	DESCRIPTION
tiM	temperature controlled blast chilling/freezing timeout alarm
AH	high temperature alarm
PF	power failure alarm

6.	SET	Touch the SET key (or take no action for 15 s): the bottom display will show information about the alarm in sequence.
7.		Touch the START/STOP key (or take no action for 60 s) to exit the procedure.

Example of alarm information (e.g. a high temperature alarm).

8.0	the critical value (cabinet temperature) was 8.0 °C/°F
Sta	
y15	alarm signalled in 2015
n03	alarm signalled in March
d26	alarm signalled on 26 March 2015
16:30	alarm signalled at 16:30
dur	
h01	alarm lasted 1 hour
n15	alarm lasted 1h 15min

6.2 Deleting HACCP alarm information

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**ALrn**" on the top display.
4.	SET	Touch the SET key for 3 s: the bottom display will show the label "**rSt**".
5.	FNC	Touch the DOWN key again: the bottom display will show "**0**".
6.	FNC	Touch the UP or DOWN key within 15 s to set "**149**" on the bottom display.
7.	SET	Touch the SET key (or take no action for 15 s): the bottom display will show "**- - -**" flashing for 4 s, after which the device will exit the procedure.
8.		Touch the START/STOP key (or take no action for 60 s) before point 6 to exit the procedure before time.

7 COMPRESSOR OPERATING HOURS

7.1 Displaying the compressor operating hours

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**CnPH**" on the top display.
4.	SET	Touch the SET key: the bottom display will show the tens of hours of compressor operation.
5.		Touch the START/STOP key (or take no action for 60 s) to exit the procedure.

7.2 Deleting the compressor operating hours

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**CnPH**" on the top display.
4.	SET	Touch the SET key for 3 s: the bottom display will show the label "**rSt**".
5.	SET	Touch the DOWN key again: the bottom display will show "**0**".
6.	FNC	Touch the UP or DOWN key within 15 s to set "**149**" on the bottom display.
7.	SET	Touch the SET key (or take no action for 15 s): the bottom display will show "**- - -**" flashing for 4 s, after which the device will exit the procedure.
8.		Touch the START/STOP key (or take no action for 60 s) before point 6 to exit the procedure before time.

8 ADDITIONAL FUNCTIONS

8.1 Viewing input and output status

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 on the bottom display and view the value on the top display.

LAB.	DESCRIPTION
Pb1	cabinet temperature
Pb2	needle temperature
Pb3	evaporator temperature (if P5 = 0)
Pb4	condenser temperature (if P5=1)
nA	probe not enabled
iA	multi-purpose input status (if P5 = 2)
id	door switch input status
U1	K1 digital output status
U2	K2 digital output status
U3	K3 digital output status
U4	K4 digital output status
U5	K5 digital output status

3.		Touch the START/STOP key (or take no action for 60 s) to exit the procedure.

8.2 Viewing/deleting compressor operation days

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select a label on the bottom display and view or set the value on the top display.

LAB.	DESCRIPTION
CH1	view compressor operation days
rCH	delete compressor operation days

4.	SET	Touch the SET key for 3 s: the bottom display will show the label "**rCH**".
5.	SET	Touch the DOWN key again: the bottom display will show "**0**".
6.	FNC	Touch the UP or DOWN key within 15 s to set "**149**" on the bottom display.
7.	SET	Touch the SET key (or take no action for 15 s): the bottom display will show "**- - -**" flashing for 4 s, after which the device will exit the procedure.
8.		Touch the START/STOP key (or take no action for 60 s) before point 6 to exit the procedure before time.

9 SETTINGS

9.1 Setting configuration parameters

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**PrnS**" on the top display.
4.	SET	Touch the SET key: the top display will show the label "**PASS**".
5.	FNC	Touch the UP or DOWN key within 15 s to set the PAS value on the bottom display (default "**-19**").
6.	SET	Touch the SET key (or take no action for 15 s): the top display will show the label "**CA**".
7.	FNC	Touch the UP or DOWN key to select a parameter.
8.	SET	Touch the SET key.
9.	FNC	Touch the UP or DOWN key within 15 s to set the value on the bottom display.
10.	SET	Touch the SET key (or take no action for 15 s).
11.		Touch the START/STOP key (or take no action for 60 s) to exit the procedure.

9.2 Setting the date, time and day of the week

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**rtc**" on the top display.
4.	SET	Touch the SET key: the top display will show the label "**Hour**".
5.	FNC	Touch the UP or DOWN key to select a label.

LAB.	MEANING OF THE NUMBERS FOLLOWING THE LABEL
Hour	hour (00... 23)
Min	minutes (00... 59)
YEAr	year (00... 99)
Mont	month (01... 12)
dAY:	day (01... 31)

6.	SET	Touch the SET key.
7.	FNC	Touch the UP or DOWN key within 15 s to set the value on the bottom display.
8.	SET	Touch the SET key (or take no action for 15 s).
9.		Touch the START/STOP key (or take no action for 60 s) to exit the procedure.

9.3 Restoring factory settings (default)

N.B.
Check that the factory settings are appropriate; see the section *CONFIGURATION PARAMETERS*.

Check that the keypad is not locked.

1.	FNC	Touch the DOWN key to select the label "**SrVc**" on the top display.
2.	SET	Touch the SET key.
3.	FNC	Touch the UP or DOWN key within 15 s to select the label "**PrnS**" on the top display.
4.	SET	Touch the SET key: the top display will show the label "**PASS**".
5.	FNC	Touch the UP or DOWN key within 15 s to set "**149**" on the bottom display.
6.	SET	Touch the SET key (or take no action for 15 s): the top display will show the label "**rSt**".
7.	SET	Touch the SET key again: the bottom display will show "**0**".
8.	FNC	Touch the UP or DOWN key within 15 s to set "**1**" on the bottom display.
9.	SET	Touch the SET key (or take no action for 15 s): the bottom display will show "**- - -**" flashing for 4 s, after which the device will exit the procedure.
10.	Disconnect the device from the power supply.	
11.		Touch the START/STOP key (or take no action for 60 s) before point 8 to exit the procedure before time.

10 CONFIGURATION 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	CA3	**0.0**	evaporator probe offset	-25... 25 °C/°F
4	CA4	**0.0**	condenser probe offset	-25... 25 °C/°F
5	P0	**0**	type of probe	0 = PTC 1 = NTC
6	P1	**1**	enable decimal point °C	0 = no 1 = yes
7	P2	**0**	temperature measurement unit	0 = °C 1 = °F
8	P3	**1**	enable needle probe	0 = no 1 = yes
9	P5	**0**	configurable input function	0 = evaporator probe 1 = condenser probe 2 = digital input
10	P8	**5**	refresh time top display	0... 250 s: 10

NO.	PAR.	DEF.	REGULATION	MIN... MAX.
11	r0	**2.0**	r7, r8, r9, r10, r11 and r12 differential	1... 15 °C/°F
12	r1	**90**	duration time controlled blast chilling	1... 500 min
13	r2	**240**	duration time controlled blast freezing	1... 500 min
14	r3	**3.0**	product temperature at end of temperature controlled blast chilling; also product temperature at end of temperature controlled soft blast freezing	-50... 99 °C/°F
15	r4	**-18.0**	product temperature at end of temperature controlled blast freezing	-50... 99 °C/°F
16	r5	**90**	maximum duration temperature controlled blast chilling	1... 500 min
17	r6	**240**	maximum duration temperature controlled blast freezing	1... 500 min
18	r7	**0.0**	cabinet setpoint during blast chilling; also cabinet setpoint during soft blast freezing	-50... 99 °C/°F
19	r8	**-40.0**	cabinet setpoint during blast freezing	-50... 99 °C/°F
20	r9	**-20.0**	cabinet setpoint during hard blast chilling	-50... 99 °C/°F
21	r10	**2.0**	cabinet setpoint during conservation after blast chilling	-50... 99 °C/°F
22	r11	**-20.0**	cabinet setpoint during conservation after blast freezing	-50... 99 °C/°F
23	r12	**5.0**	cabinet setpoint during precooling	-50... 99 °C/°F
24	r13	**15.0**	product temperature at end of temperature controlled hard blast chilling	-50... 99 °C/°F
25	r14	**60**	duration time controlled hard blast chilling	10... 100 % percentage of r1
26	r15	**65.0**	threshold to enable maximum duration of temperature controlled blast chilling/freezing count	-50... 99 °C/°F

27	r16	**1**	type of cycle enabled	0 = blast chilling and conservation 1 = blast chilling/freezing and conservation 2 = blast freezing and conservation
28	r17	**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
29	r18	**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
30	r20	**1**	save changed settings during cycle activation	0 = no 1 = yes
31	r21	**0**	cycle to select	0 = temperature controlled blast chilling/freezing 1 = all
32	r23	**2**	time buzzer on for failed needle probe test; also time buzzer on for needle probe alarm during temperature controlled blast chilling/freezing	0... 50 s
NO.	PAR.	DEF.	COMPRESSOR	MIN... MAX.
33	C0	**0**	compressor-on delay from cycle activation and power-on	0... 240 min
34	C1	**5**	delay between two compressor switch-ons	0... 240 min
35	C2	**3**	minimum compressor-off time	0... 240 min
36	C3	**0**	minimum compressor-on time	0... 240 s
37	C4	**10**	compressor-off time in cabinet probe alarm during conservation	0... 240 min
38	C5	**10**	compressor-on time in cabinet probe alarm during conservation after blast chilling	0... 240 min
39	C6	**80.0**	high condensation signal threshold	0... 199 °C/°F differential = 2 °C/4 °F
40	C7	**90.0**	high condensation alarm threshold	0... 199 °C/°F
41	C8	**1**	high condensation alarm delay	0... 15 min
42	C9	**30**	compressor-on time in cabinet probe alarm during conservation after blast freezing	0... 240 min
NO.	PAR.	DEF.	DEFROST	MIN... MAX.
43	d0	**8**	automatic defrost interval	0... 99 h 0 = manual only
44	d1	**1**	type of defrost	0 = electric 1 = hot gas 2 = air 3 = air with the door open
45	d2	**2.0**	defrost end threshold	-50... 99 °C/°F
46	d3	**30**	defrost duration	0... 99 min if P5 ≠ 0, maximum duration
47	d4	**0**	enable defrost when blast chilling/freezing and conservation are activated	0 = no 1 = yes
48	d5	**30**	defrost delay from conservation activation	0... 99 min
49	d7	**2**	dripping time	0... 15 min
50	d15	**0**	compressor-on consecutive time for hot gas defrost	0... 99 min if values are negative, dripping heaters on time
51	d16	**0**	pre-dripping time for hot gas defrost	0... 99 min
NO.	PAR.	DEF.	ALARMS (active during conservation)	MIN... MAX.
52	A1	**10.0**	low temperature alarm threshold (relative to r10 and r11)	0... 99 °C/°F r10 -A1 and r11 - A1
53	A2	**1**	enable low temperature alarm	0 = no 1 = yes
54	A4	**10.0**	high temperature alarm threshold (relative to r10 and r11)	0... 99 °C/°F r10 + A4 and r11 + A4
55	A5	**1**	enable high temperature alarm	0 = no 1 = yes
56	A7	**15**	high/low temperature alarm delay	0... 240 min
57	A8	**15**	high temperature alarm delay after defrosting	0... 240 min
58	A10	**5**	duration of power failure for displaying and saving alarm	0... 240 min 0 = disabled
59	A11	**2.0**	high/low temperature alarm reset differential	1... 15 °C/°F
60	A13	**1**	store temperature controlled blast chilling/freezing timeout alarm	0 = no 1 = yes
61	AA	**5**	time buzzer on from end of blast chilling/freezing	0... 240 s
NO.	PAR.	DEF.	FANS	MIN... MAX.
62	F0	**1**	evaporator fan mode during pre-cooling, blast chilling/freezing	0 = off 1 = thermoregulated (with F16 and F17) 2 = thermoregulated (with F1) if compressor on
63	F1	**-1.0**	evaporator fans regulation threshold during conservation	-50... 99 °C/°F
64	F2	**3**	evaporator fan mode during conservation	0 = off 1 = on 2 = on if compressor on 3 = thermoregulated (with F1)
65	F3	**2**	time evaporator fans off	0... 15 min
66	F8	**2.0**	evaporator fans and condenser fan regulation threshold differential	1... 15 °C/°F
67	F9	**10**	evaporator fans off delay from compressor off	0... 240 s
68	F11	**15.0**	condenser fans on threshold if compressor on	0... 99 °C/°F
69	F12	**30**	condenser fans off delay from compressor off	0... 240 s if P3 ≠ 1
70	F15	**15**	evaporator fans off delay from door closed	0... 240 s
71	F16	**20.0**	evaporator fans regulation threshold during pre-cooling, blast chilling/freezing	-50... 99 °C/°F evaporator temperature
72	F17	**20.0**	cabinet temperature threshold for evaporator fans regulation during pre-cooling, blast chilling/freezing	-50... 99 °C/°F
NO.	PAR.	DEF.	DIGITAL INPUTS	MIN... MAX.
73	i0	**2**	door switch input function	0 = disabled 1 = compressor + evaporator fans off, cabinet light on 2 = evaporator fans off, cabinet light on
74	i1	**0**	door switch input activation	0 = with contact closed 1 = with contact open
75	i2	**5**	door open alarm delay	-1... 120 min -1 = disabled
76	i3	**15**	maximum time for inhibiting regulation with door open	-1... 120 min -1 = until closed
77	i5	**1**	multi-purpose input function	0 = disabled 1 = high pressure alarm (compressor + evaporator fans off, condenser fans on)
78	i6	**0**	multi-purpose input activation	0 = with contact closed 1 = with contact open
79	i7	**5**	high pressure alarm delay	0... 120 min
NO.	PAR.	DEF.	DIGITAL OUTPUTS	MIN... MAX.
80	u1c	**0**	K1 relay configuration	0 = compressor 1 = defrosting 2 = evaporator fans
81	u2c	**2**	K2 relay configuration	like u1c
82	u3c	**1**	K3 relay configuration	like u1c
83	u4c	**0**	K4 relay configuration	0 = door heaters 1 = condenser fans 2 = needle probe heating 3 = cabinet light 4 = UV light
84	u5c	**3**	K5 relay configuration	like u4c
85	u2	**0**	enable cabinet light in stand-by	0 = no 1 = yes in manual mode
86	u5	**20.0**	door heaters off threshold	-50... 99 °C/°F
87	u6	**5**	if u4c or u5c=2, maximum duration needle probe heating if u4c or u5c=4, UV light on duration	1... 240 min
88	u7	**40.0**	threshold end of needle probe heating	-50... 99 °C/°F
NO.	PAR.	DEF.	CLOCK	MIN... MAX.
89	Hr0	**1**	enable clock	0 = no 1 = yes
NO.	PAR.	DEF.	SECURITY	MIN... MAX.
90	PAS	**-19**	password	-99... 999
91	PA1	**426**	1st level password	-99... 999
92	PA2	**824**	2nd level password	-99... 999
NO.	PAR.	DEF.	EVLINK DATA-LOGGING (visible if Hr0=1)	MIN... MAX.
93	rE0	**60**	data logger sampling interval	0... 240 min
94	rE1	**4**	select temperature for data logger	0 = none 1 = cabinet probe 2 = needle probe 3 = auxiliary probe 4 = cabinet probe and needle probe 5 = all
NO.	PAR.	DEF.	MODBUS	MIN... MAX.
95	LA	**247**	MODBUS address	1... 247
96	Lb	**2**	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
97	LP	**2**	MODBUS parity	0 = none 1 = odd 2 = even
NO.	PAR.	DEF.	EVLINK	MIN... MAX.
98	bLE	**1**	serial port configuration for connectivity	0 = free 1 = forced for EVconnect or EPoCA 2-99 = EPoCA local network address

11 ALARMS

CODE	DESCRIPTION	RESET	TO CORRECT
Pr1	cabinet probe alarm	automatic	- check P0 - check integrity of the probe - check electrical connection
Pr2	needle probe alarm	automatic	
Pr3	evaporator probe alarm	automatic	
Pr4	condenser probe alarm	automatic	
rtc	clock alarm	manual	set date, time and day of the week
AL	low temperature alarm	automatic	check A1 and A2
AH	high temperature alarm	automatic	check A4 and A5
door	door open alarm	automatic	check i0 and i1
PF	power failure alarm	manual	- touch a key - check electrical connection
COH	high condensation signal	automatic	check C6
CSd	high condensation alarm	manual	- switch the device off and on - check C7
HP	high pressure alarm	automatic	check i5 and i6
tim	temperature controlled blast chilling/freezing timeout alarm	manual	- touch a key - check r5 and r6

12 TECHNICAL SPECIFICATIONS

Purpose of the control device:		function controller.
Construction of the control device:		built-in electronic device.
Housing:		
user interface: black, self-extinguishing		control module: open frame board.
Category of heat and fire resistance:		D.
Measurements:		
user interface: 75.0 x 33.0 x 39.5 mm (2 15/16 x 1 5/16 x 1 9/16 in)		control module: 66.5 x 107.5 x 31.0 mm (2 5/8 x 4 1/4 x 1 1/4 in).
Mounting methods for the control device:		
user interface: to be fitted to a panel, snap-in brackets provided		control module: to be installed on an electrical panel, on plastic spacers (not provided).
Degree of protection provided by the casing:		
user interface: IP65 (front)		control module: IP00.
Connection method:		
user interface: plug-in screw terminal blocks for wires up to 2.5 mm²		control module: - fixed screw terminal blocks for wires up to 2.5 mm² - Pico-Blade connector.
Maximum permitted length for connection cables:		
user interface-control module: 10 m (32.8 ft)		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)		other outputs: 3 m (9.84 ft).
Operating temperature:		from 0 to 60 °C (from 32 to 140 °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:		
user interface: powered by the control module		control module: 115... 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 3.2 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.
Clock:		built-in secondary lithium battery.
Clock battery autonomy in the absence of a power supply:		> 24 h at 25 °C (77 °F).
Clock battery charging time:		2 min (the battery is charged by the power supply of the device).

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:	ß3435 (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).
Other inputs:		1 input can be configured for analogue input (auxiliary probe) or digital input (multi-purpose, dry contact).
Contact dry:	Type of contact:	5 VDC, 1.5 mA
	Power supply:	none
	Protection:	none.
Digital outputs:		4 with sealed electro-mechanical relay in compliance with the EN 60079-15 standard.
K1 relay:		SPST, 16 A res. @ 250 VAC.
K2 relay:		SPST, 5 A res. @ 250 VAC.
K3 relay:		SPDT, 8 A res. @ 250 VAC.
K4 relay:		SPDT, 16 A res. @ 250 VAC.
Type 1 or Type 2 actions:		type 1.
Additional features of Type 1 or Type 2 actions:		C.
Other outputs:		1 for 12 VDC, max. 30 mA.
Displays:		custom display, 3 digit, with function icons.
Alarm buzzer:		built-in.
Communications ports:		1 TTL MODBUS slave port for EVJKEY programming key, 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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