EVJ 200

Extra-large controllers for refrigerated cabinets and display units, with energy-saving strategies

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and save this document
CONSIDER THE ENVIRONMENT

EN ENGLISH

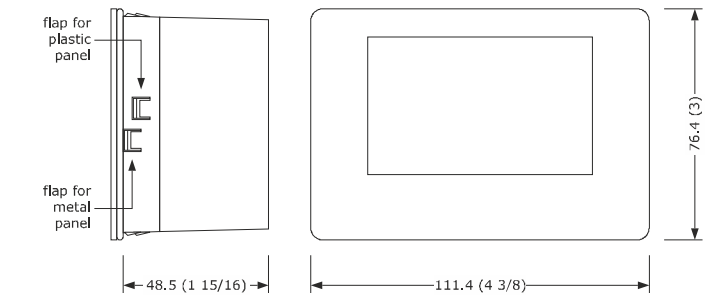
- Controllers for low temperature units.
- Power supply 230 VAC.
- Incorporated clock (according to the model).
- Cabinet probe and evaporator probe (PTC/NTC).
- Door switch input.
- Compressor relay 16 A res. @ 250 VAC or 30 A res. @ 250 VAC (according to the model).
- Alarm buzzer.
- TTL MODBUS slave port for EVconnect APP or BMS.
- Port for SD card data-logger module EVBD05 (according to the model).
- Models in plastic container or open-frame (according to the model).

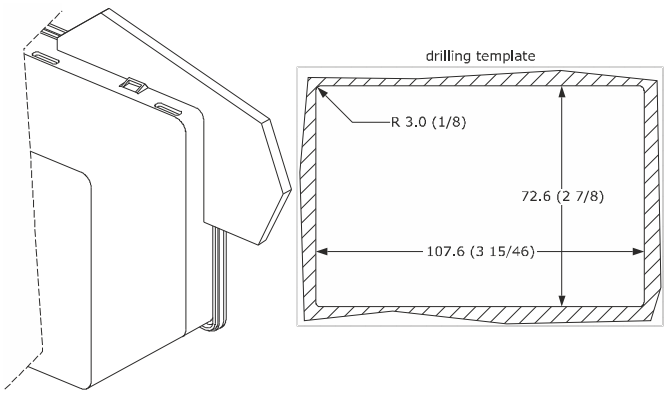
1 MEASUREMENTS AND INSTALLATION | Measurements in mm (inches)

1.1 Models in plastic container for front installation

Front installation on a plastic or metal panel (with elastic holding flaps).

N.B.
The thickness of a metal panel must be between 0.8 and 1.5 mm (1/32 and 1/16 in), while that for a plastic panel must be between 0.8 and 3.4 mm (1/32 and 1/8 in).

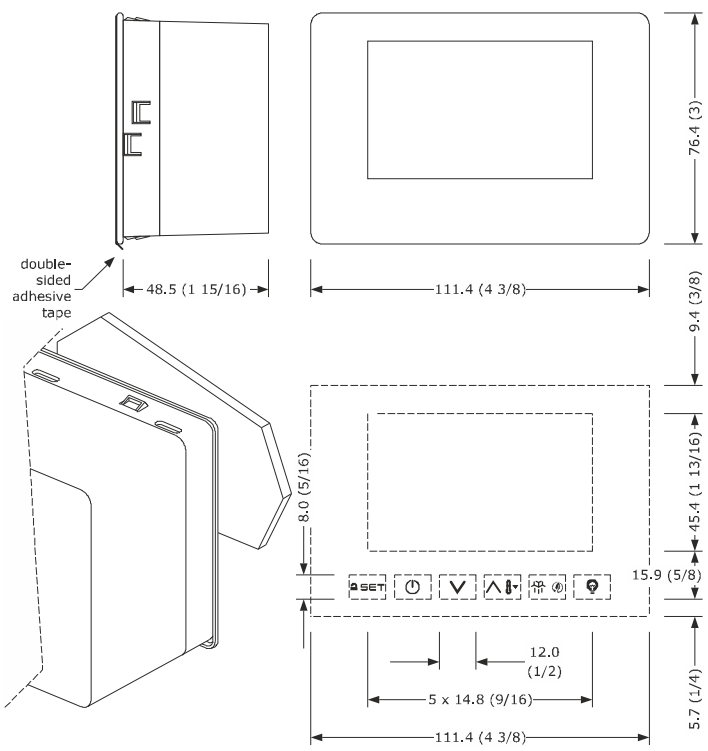




1.2 Models in plastic container installed from behind

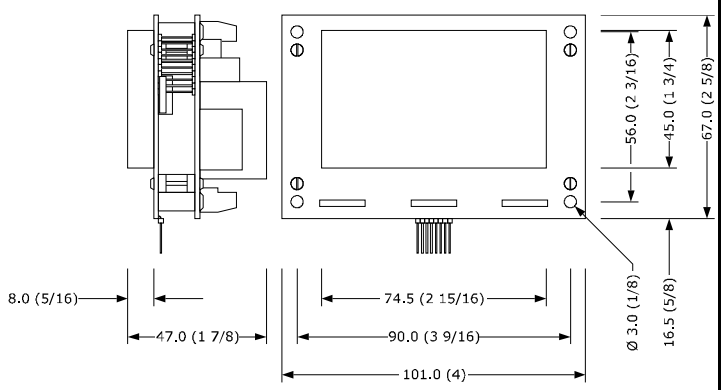
Installed from behind a glass or methacrylate panel (with biadhesive) customizing the keys on the front of the unit.

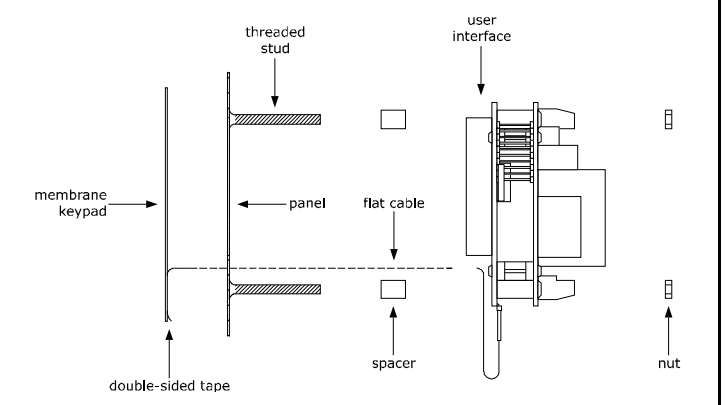
N.B.
- The thickness of a glass panel must be between 2.0 and 4.0 mm (1/16 and 1/8 in), while that for a methacrylate panel must be between 2.0 and 3,0 mm (1/16 e 1/8 in)
- The panel and the material used to make screen printing must not contain conductive substances
- Keep the device and the panel at a temperature between 15 and 38 °C (59 and 100 °F) about an hour before the installation
- Before the installation clean the panel surface in contact with the biadhesive carefully, making sure the product used to clean is suitable for the panel material (we recommend using isopropyl alcohol, hydrocarbon solvent in case of greasy surfaces); keep cleaning with a cloth as long as it results clean and dry after the use
- During the installation, exert a uniform and constant pressure about 30 s on the panel surface in contact with the biadhesive; later keep the device and the panel horizontally about 48 h at a temperature between 15 and 38 °C (59 and 100 °F).



1.3 Open-frame models

To be installed from behind, with threaded studs and membrane keypad.

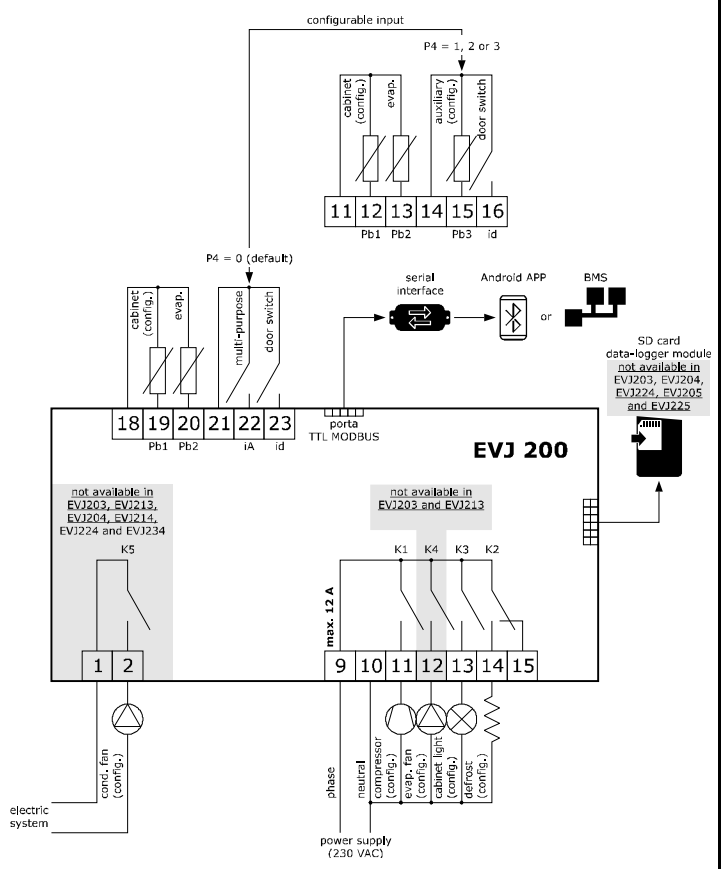




INSTALLATION PRECAUTIONS
- Ensure that the working conditions are within the limits stated in the *TECHNICAL SPECIFICATIONS* section.
- Do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical 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 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.

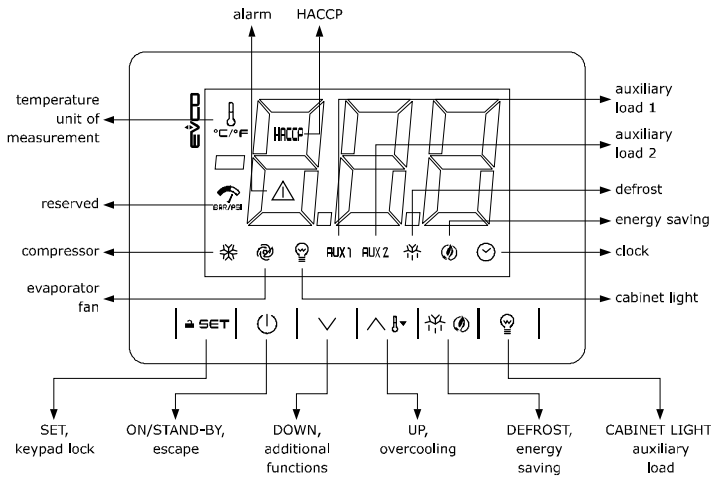
3 FIRST-TIME USE

1. Install following the instructions given in the section *MEASUREMENTS AND INSTALLATION*.
2. Power up the device 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 in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225 connect the module EVIF23TSX, for recording HACCP data in CSV format on SD card connect the module EVBD05, to use the device with the Android APP EVconnect connect the interface EVIF25TBX (or use EVJ214N7VXXRXV, EVJ234 or EVJ235); 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 and off

1. If POF = 1 (default), touch the ON/STAND-BY key for 2s.

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 being set
	evaporator fan on	evaporator fan off	evaporator fan stop active
	cabinet light on	cabinet light off	cabinet light on by digital input
AUX 1	auxiliary function 1 on	auxiliary function 1 off	- auxiliary function 1 on by digital input - auxiliary function 1 delay active
AUX 2	auxiliary function 2 on	auxiliary function 2 off	- auxiliary function 2 on by digital input - auxiliary function 2 delay active
	defrost or pre-drip active	-	- defrost delay active - dripping active
	- energy saving active - low consumption active	-	-
	view time	-	set date, time and day of the current week
	view temperature	-	overcooling or overheating active
HACCP	saved HACCP alarm	-	new HACCP alarm saved
	alarm active	-	-

If Loc = 1 (default) and 30s 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 1s: the display will show the label "**UnL**".

4.3 Set the setpoint (if r3 = 0, default)

Check that the keypad isn't locked.

1.	SET	Touch the SET key.
2.		Touch the UP or DOWN key within 15s to set the value within the limits r1 and r2 (default "-40... 50")
3.	SET	Touch the SET key (or do not operate for 15s).

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 DEFROST key for 2s.

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 u1c... u5c = 5)

1.		Touch the CABINET LIGHT key.

4.6 Button-operated load on / off (if u1c... u5c = 10 or 11)

1.		Touch the CABINET LIGHT key (for 2s if u1c... u5c = 5).

If u1c... u5c = 6, the **demisting** switch on for the u6 duration.

4.7 Silence buzzer (if u9 = 1, default)

Touch a key.
If u1c... u5c = 11 and u4 = 1, the alarm output is deactivated.

5 ADDITIONAL FUNCTIONS

5.1 Activate / deactivate overcooling and overheating

Check that the keypad is not locked.

1.		Touch the UP key for 2s.

FUNCTION	CONDITION	CONSEQUENCE
overcooling	r5 = 0 and defrost not active	the setpoint becomes "setpoint - r6", for the r7 duration
overheating	r5 = 1	the setpoint becomes "setpoint + r6", for the r7 duration

5.2 Activate / deactivate energy saving in manual mode (if r5 = 0)

Check that the keypad is not locked.

1.		Touch the DEFROST key.

The setpoint becomes "setpoint + r4", at maximum for HE2 duration.

5.3 Activate the high or low humidity functions (if F0 = 5)

Check that the keypad isn't locked.

1.		Touch the DOWN key for 1s.
2.		Touch the UP or DOWN key within 15s to select the label "**rH**".
3.	SET	Touch the SET key for 2s until the display shows the right label for the function (only touch the key to see the function activated).

LAB.	DESCRIPTION
rhL	low humidity function (evaporator fan with F17 and F18 if the compressor is off, on if the compressor is on)
rhH	high humidity function (evaporator fan on)

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

5.4 View / delete HACCP alarm information (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)

Check that the keypad isn't locked.

1.		Touch the DOWN key for 1s.

2.	UP/DOWN	Touch the UP or DOWN key within 15s to select a label.

LAB.	DESCRIPTION
LS	view HACCP alarm information
rLS	delete HACCP alarm information

3.	SET	Touch the SET key.
4.	UP/DOWN	Touch the UP or DOWN key to select an alarm code (to select label "**LS**") or to set "**149**" (to select label "**rLS**").

COD.	DESCRIPTION
AL	low temperature alarm
AH	high temperature alarm
id	open door alarm (if i4 = 1)
PF	power failure alarm (available in EVJ213, EVJ214, EVJ214N7VXXRXV, EVJ215, EVJ234 and EVJ235 or in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225 with interface EVIF25TBX connected)

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

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

8.0		critical value (calculated cabinet/product temperature) was 8.0 °C/°F
Sta		(available in EVJ213, EVJ214, EVJ214N7VXXRXV, EVJ215, EVJ234 and EVJ235 or in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225 with interface EVIF25TBX connected)
	y15	alarm signalled in 2015
	n03	alarm signalled in March
	d26	alarm signalled on 26 March 2015
	h16	alarm signalled at 16:00
	n30	alarm signalled at 16:30
dur		
	h01	alarm lasted 1h
	n15	alarm lasted 1h 15min

5.5 View / delete compressor functioning hours

Check that the keypad isn't locked.

1.	DOWN	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select a label.

LAB.	DESCRIPTION
CH1	view compressor functioning hundreds of hours
CH2	view second compressor functioning hundreds of hours (if u1c... u5c = 1)
rCH	delete compressor and second compressor functioning hours

3.	SET	Touch the SET key.
4.	UP/DOWN	Touch the UP or DOWN key to set "**149**" (to select **rCH**).
5.	SET	Touch the SET key.
6.	ON/STAND-BY	Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.

5.6 View the temperature detected by the probes

Check that the keypad isn't locked.

1.	DOWN	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select a label.

LAB.	DESCRIPTION
Pb1	cabinet temperature (if P4 = 0, 1 or 2)
	inlet air temperature (if P4 = 3)
Pb2	evaporator temperature (if P3 = 1 or 2)
Pb3	auxiliary temperature (if P4 = 1, 2 or 3)
Pb4	calculated product temperature (CPT; if P4 = 3)

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

6 DATA-LOGGER MODULE on SD CARD (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)

6.1 Initial information

The data-logger module makes it possible to write information about the device on an SD card (in CSV format), in HACCP or service mode.

Data-logger module configuration parameters.

PAR.	DEF.	PARAMETER	MIN... MAX.
Sd0	**30**	SD card writing interval in HACCP mode	1... 30 min
Sd1	**1**	SD card writing interval in service mode	1... 30 min
Sd2	**60**	service mode duration	1... 240 min
Sd3	**0**	enable critical temperature recording	0 = no 1 = yes
Sd4	**0**	enable cabinet temperature recording	0 = no 1 = yes
Sd5	**1**	decimal separator type	0 = comma 1 = point

6.2 Writing in HACCP mode

Writing in HACCP mode is always activated, it generates a daily file and a monthly file.

Information written in HACCP mode.

- cabinet temperature (if Sd4 = 1, default "**no**")
- critical temperature (if Sd3 = 1, default "**no**")
- device switched on/off
- defrost activated/completed
- energy saving activated/deactivated
- alarm activated/restored
- power supply restored

The date and time is written for each piece of information.

6.3 Writing in service mode

Writing in service mode must be manually activated.

Information written in service mode.

- temperature detected by all probes
- enable/disable probes
- device switched on/off
- functions on/off
- defrost activated/completed
- energy saving activated/deactivated
- alarm activated/restored
- power supply restored

The date and time is written for each piece of information.

6.4 Activate / deactivate writing in service mode

Check that the keypad isn't locked.

1.	DOWN	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select the label "**SEr**".
3.	SET	Touch the SET key.
4.	UP/DOWN	Touch the UP or DOWN key within 15s to set "**1**" (activate writing) or "0" (deactivate writing).
5.	ON/STAND-BY	Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.

6.5 File names

Example of a daily file name written in HACCP mode (e.g. the file "*log001_2015_03_26.csv*").

001	the device address is 1 (parameter LA)
2015	the file was written in 2015
03	the file was written in March
26	the file was written on 26 March 2015

Example of a monthly file name written in HACCP mode (e.g. the file "*log001_2015_m03.csv*").

001	the device address is 1 (parameter LA)
2015	the file was written in 2015
m03	the file was written in March 2015

Example of a file name written in service mode (e.g. the file "*log001_2015_0001.csv*").

001	the device address is 1 (parameter LA)
2015	the file was written in 2015
0001	sequence number

6.6 View data-logger module alarms

Check that the keypad isn't locked.

1.	DOWN	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select the label "**Err**".
3.	SET	Touch the SET key.
4.	UP/DOWN	Touch the UP or DOWN key within 15s to see the alarm code.

LAB.	DESCRIPTION
FUL	no space left on SD card alarm
Sd	SD card not inserted or not recognised alarm

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

7 SETTINGS

7.1 Setting configuration parameters

1.	SET	Touch the SET key for 4s: the display will show the label "**PA**".
2.	SET	Touch the SET key.
3.	UP/DOWN	Touch the UP or DOWN key within 15s to set the PAS value (default "**-19**").
4.	SET	Touch the SET key (or do not operate for 15s): the display will show the label "**SP**".
5.	UP/DOWN	Touch the UP or DOWN key to select a parameter.
6.	SET	Touch the SET key.
7.	UP/DOWN	Touch the UP or DOWN key within 15s to set the value.
8.	SET	Touch the SET key (or do not operate for 15s).
9.	SET	Touch the SET key for 4s (or do not operate for 60s) to exit the procedure.

7.2 Set the date, time and day of the week (available in EVJ213, EVJ214, EVJ214N7VXXRXV, EVJ215, EVJ234 and EVJ235 or in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225 with interface EVIF25TBX connected)

N.B.
- If the device is connected to the interface EVIF25TBX, 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 APP EVconnect, the date, time and day of the week will automatically be set by the smartphone or tablet.

Check that the keypad isn't locked.

1.	DOWN	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select the label "**rtc**".
3.	SET	Touch the SET key: the display will show the label "**y**" followed by the last two figures of the year.
4.	UP/DOWN	Touch the UP or DOWN key within 15s to set the year.
5.	Repeat actions 3 and 4 to set the next labels.	

LAB.	MEANING OF THE NUMBERS FOLLOWING THE LABEL
n	month (01... 12)
d	day (01... 31)
h	time (00... 23)
n	minutes (00... 59)

6.	SET	Touch the SET key: the display will show the label for the day of the week.
7.	UP/DOWN	Touch the UP or DOWN key within 15s to set the day of the week.

LAB.	DESCRIPTION
Mon	Monday
tuE	Tuesday
UEd	Wednesday
thu	Thursday
Fri	Friday
Sat	Saturday
Sun	Sunday

8.	SET	Touch the SET key: the device will exit the procedure.
9.	ON/STAND-BY	Touch the ON/STAND-BY key to exit the procedure beforehand.

7.3 Reset the factory settings

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

1.	SET	Touch the SET key for 4s: the display will show the label "**PA**".
2.	SET	Touch the SET key.
3.	UP/DOWN	Touch the UP or DOWN key within 15s to set "**149**".
4.	SET	Touch the SET key (or do not operate for 15s): the display will show the label "**dEF**".
5.	SET	Touch the SET key.
6.	UP/DOWN	Touch the UP or DOWN key within 15s to set "**1**".
7.	SET	Touch the SET key (or do not operate for 15s).
8.	Interrupt the power supply to the device.	
9.	SET	Touch the SET key for 2s before action 6 to exit the procedure beforehand.

8 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 (option 4 only available in EVJ224, EVJ225, EVJ234 and EVJ235)	0 = digital input 1 = condenser probe 2 = critical temperature probe 3 = air out probe 4 = evaporator 2 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	**50**	inlet air weight for calculated product temperature (CPT)	0... 100 % CPT = {[(P7 x (inlet air T)] + [(100 - P7) x (outlet air T)] : 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 if u1c... u5c 1, proportional band
14	r1	**-40**	minimum setpoint	-99 °C/°F... r2
15	r2	**50.0**	maximum setpoint	r1... 199 °C/°F
16	r3	**0**	enable setpoint block	0 = no 1 = yes
17	r4	**0.0**	setpoint offset in energy saving	0... 99 °C/°F
18	r5	**0**	cooling or heating operation	0 = cooling 1 = heating
19	r6	**0.0**	setpoint offset in overcooling/overheating	0... 99 °C/°F
20	r7	**0**	overcooling/overheating duration	0... 240 min
21	r12	**1**	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	C1	**5**	delay between 2 compressor switch-ons	0... 240 min
24	C2	**3**	compressor off minimum time	0... 240 min
25	C3	**0**	compressor on minimum time	0... 240 s
26	C4	**10**	compressor off time during cabinet probe alarm	0... 240 min
27	C5	**10**	compressor on time during cabinet probe alarm	0... 240 min
28	C6	**80.0**	threshold for high condensation warning	0... 199 °C/°F differential = 2 °C/4 °F
29	C7	**90.0**	threshold for high condensation alarm	0... 199 °C/°F
30	C8	**1**	high condensation alarm delay	0... 15 min
31	C10	**0**	compressor hours for service	0... 999 h x 100 0 = disabled
32	C11	**10**	compressor 2 on delay	0... 240 s
33	C12	**2**	compressor hours weight for balancing hours and switch-ons (BHC) - (only available in EVJ224, EVJ225, EVJ234 and EVJ235)	0... 10 BHC = {[C12 x (compressor hours)] + [C13 x (compressor switch-ons)]}
34	C13	**1**	compressor hours switch-ons for balancing hours and switch-ons (BHC) - (only available in EVJ224, EVJ225, EVJ234 and EVJ235)	0... 10 BHC = {[C12 x (compressor hours)] + [C13 x (compressor switch-ons)]}
35	C14	**1**	tie between compressors (only available in EVJ224, EVJ225, EVJ234 and EVJ235)	0 = according to C11 1 = according to r0

N.	PAR.	DEF.	DEFROST (if r5 = 0)	MIN... MAX.
36	d0	**8**	automatic defrost interval	0... 99 h 0 = only manual if d8 = 3, maximum interval
37	d1	**0**	defrost type	0 = electric 1 = hot gas 2 = compressor stopped
38	d2	**2.0**	threshold for defrost end	-99... 99 °C/°F
39	d3	**30**	defrost duration	0... 99 min se P3 = 1, maximum duration
40	d4	**0**	enable defrost at power-on	0 = no 1 = yes
41	d5	**0**	defrost dealy after power-on	0... 99 min
42	d6	**1**	value displayed during defrost	0 = regulation temperature 1 = display locked 2 = dEF label
43	d7	**2**	dripping time	0... 15 min
44	d8	**0**	defrost interval counting mode	0 = device on hours 1 = compressor on hours 2 = hours evaporator temperature < d9 3 = adaptive (if P4 = 4, device on hours) 4 = real time
45	d9	**0.0**	evaporation threshold for automatic defrost interval counting	-99... 99 °C/°F
46	d11	**0**	enable defrost timeout alarm	0 = no 1 = yes
47	d15	**0**	compressor on consecutive time for hot gas defrost	-20... 99 min if negative values, duration dripping heater on
48	d16	**0**	pre-dripping time for hot gas defrost	0... 99 min
49	d18	**40**	adaptive defrost interval	0... 999 min if compressor on + evaporator temperature < d22 0 = only manual
50	d19	**3.0**	threshold for adaptive defrost (relative to optimal evaporation temperature)	0... 40 °C/°F optimal evaporation temperature - d19
51	d20	**180**	compressor on consecutive time for defrost	0... 999 min 0 = disabled
52	d21	**200**	compressor on consecutive time for defrost after power-on and overcooling	0... 500 min if (regulation temperature - setpoint) > 10°C/20 °F 0 = disabled
53	d22	**-2.0**	evaporation threshold for adaptive defrost interval counting (relative to optimal evaporation temperature)	-10... 10 °C/°F optimal evaporation temperature + d22
54	d25	**0**	enable air out probe for defrost during evaporator probe alarm	0 = no 1 = yes
55	d26	**6**	defrost interval during evaporator probe alarm	0... 99 h 0 = only manual if d25 = 1

N.	PAR.	DEF.	ALARMS	MIN... MAX.
56	A0	**0**	select value for high/low temperature alarms	0 = regulation temperature 1 = evaporator temperature
57	A1	**0.0**	threshold for low temperature alarm	-99... 99 °C/°F

58	A2	**0**	low temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute
59	A4	**0.0**	threshold for high temperature alarm	-99... 99 °C/°F
60	A5	**0**	high temperature alarm type	0 = regulation temperature 1 = evaporator temperature 2 = auxiliary temperature
61	A6	**120**	high temperature alarm delay after power-on	0... 240 min
62	A7	**15**	high/low temperature alarms delay	0... 240 min
63	A8	**15**	high temperature alarm delay after defrost	0... 240 min
64	A9	**15**	high temperature alarm delay after door closing	0... 240 min
65	A10	**10**	power failure duration for alarm recording (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)	0... 240 min
66	A11	**2.0**	high/low temperature alarms reset differential	1... 15 °C/°F
67	A12	**1**	power failure alarm notification type (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)	0 = HACCP LED 1 = HACCP LED + PF label + buzzer 2 = HACCP LED + PF label + buzzer (if duration > A10)

N.	PAR.	DEF.	FANS	MIN... MAX.
68	F0	**1**	evaporator fan mode during normal operation	0 = off 1 = on 2 = on if compressor on 3 = thermoregulated (with regulation temperature + F1) 4 = thermoregulated (with regulation temperature + F1) if compressor on 5 = according to F6 6 = thermoregulated (with F1) 7 = thermoregulated (with F1) if compressor on
69	F1	**-4.0**	threshold for evaporator fan operation	-99... 99 °C/°F
70	F2	**0**	evaporator fan mode during defrost and dripping	0 = off 1 = on 2 = according to F0
71	F3	**2**	evaporator fan off maximum time	0... 15 min def. 0 in EVJ203 ed EVJ213
72	F4	**30**	evaporator fan off time during energy saving	0... 240 s x 10 if F0 ≠ 5
73	F5	**30**	evaporator fan on time during energy saving	0... 240 s x 10 if F0 ≠ 5
74	F6	**0**	high/low humidity operation	0 = low humidity (with F17 and F18 if compressor off, on if compressor on) 1 = high humifity (on)
75	F7	**5.0**	threshold for evaporator fan on after dripping (relative to setpoint)	-99... 99 °C/°F setpoint + F7
76	F8	**2.0**	threshold for evaporator fan operation differential	1... 15 °C/°F
77	F9	**10**	evaporator fan off delay after compressor off	0... 240 s if F0 = 2 or 5
78	F10	**1**	condenser fan mode	0 = thermoregulated (with F11) 1 = thermoregulated (with F11) if compressor off, on if compressor on 2 = thermoregulated (with F11) if compressor off, on if compressor on, off during defrost, pre-dripping and dripping
79	F11	**15.0**	threshold for condenser fan on	0... 99 °C/°F differential = 2 °C/4 °F
80	F12	**30**	condenser fan off delay after compressor off	0... 240 s if P4 ≠ 1
81	F17	**60**	evaporator fan off time with low humidity	0... 240 s
82	F18	**10**	evaporator fan on time with low humidity	0... 240 s

N.	PAR.	DEF.	DIGITAL INPUTS	MIN... MAX.
83	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
84	i1	**0**	door switch input activation	0 = with contact closed 1 = with contact open
85	i2	**30**	open door alarm delay	-1... 120 min -1 = disabled
86	i3	**15**	regulation inhibition maximum time with door open	-1... 120 min -1 = until the closing
87	i4	**0**	enable open door alarm recording	0 = no 1 = yes if i2 ≠ -1 and after i2
88	i5	**8**	multi-purpose input function	0 = disabled 1 = energy saving 2 = iA alarm 3 = iSd alarm 4 = button-operated load 1 on 5 = button-operated load 2 on 6 = device on/off 7 = LP alarm 8 = C1t alarm 9 = C2t alarm
89	i6	**0**	multi-purpose input activation	0 = with contact closed 1 = with contact open
90	i7	**0**	multi-purpose input alarm delay	0... 120 min if i5 = 3 or 7, compressor on delay after alarm reset
91	i8	**0**	number of multi-purpose input activations for high pressure alarm	0... 15 0 = disabled if i5 = 3
92	i9	**240**	reset counter time for high pressure alarm	1... 999 min
93	i10	**0**	door closed consecutive time for energy saving	0... 999 min after regulation temperature < SP 0 = disabled
94	i13	**180**	number of door openings for defrost	0... 240 0 = disabled
95	i14	**32**	door open consecutive time for defrost	0... 240 min 0 = disabled

N.	PAR.	DEF.	DIGITAL OUTPUTS	MIN... MAX.
96	u1c	**0**	relay K1 configuration (options 14 and 15 only available in EVJ234 and EVJ235)	0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10= button-operated load 1 11= button-operated load 2 12= alarm 13= on/stand-by 14= evaporator fan 2 15= defrost 2
97	u2c	**4**	relay K2 configuration (options 14 and 15 only available in EVJ234 and EVJ235)	0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10= button-operated load 1 11= button-operated load 2 12= alarm 13= on/stand-by 14= evaporator fan 2 15= defrost 2
98	u3c	**5**	relay K3 configuration (options 14 and 15 only available in EVJ234 and EVJ235)	0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10= button-operated load 1 11= button-operated load 2 12= alarm 13= on/stand-by 14= evaporator fan 2 15= defrost 2
99	u4c	**2**	relay K4 configuration (not available in EVJ203 and EVJ213, options 14 and 15 only available in EVJ234 and EVJ235)	0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10= button-operated load 1 11= button-operated load 2 12= alarm 13= on/stand-by 14= evaporator fan 2 15= defrost 2
100	u5c	**3**	relay K5 configuration (not available in EVJ203, EVJ213, EVJ204, EVJ214, EVJ214N7VXXRXV, EVJ224 and EVJ234, options 14 and 15 only available in EVJ235)	0 = first compressor 1 = second compressor 2 = evaporator fan 3 = condenser fan 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = dripping heater 10= button-operated load 1 11= button-operated load 2 12= alarm 13= on/stand-by 14= evaporator fan 2 15= defrost 2
101	u2	**0**	enable cabinet light and button-operated load in stand-by	0 = no 1 = yes manual
102	u4	**1**	enable alarm output off silencing the buzzer	0 = no 1 = yes
103	u5	**-1.0**	threshold for door heaters on	-99... 99 °C/°F differential = 2 °C/4 °F
104	u6	**5**	demisting on duration	1... 120 min
105	u7	**-5.0**	neutral zone threshold for heating (relative to setpoint)	-99... 99 °C/°F differential = 2 °C/4 °F setpoint + u7
106	u9	**1**	enable alarm buzzer	0 = no 1 = yes

N.	PAR.	DEF.	REAL TIME CLOCK	MIN... MAX.
107	Hr0	**1**	enable clock (default 0 in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)	0 = no 1 = yes

N.	PAR.	DEF.	ENERGY SAVING (if r5 = 0)	MIN... MAX.
108	HE2	**0**	energy saving maximum duration	0... 999 min

N.	PAR.	DEF.	REAL TIME ENERGY SAVING (if r5 = 0)	MIN... MAX.
109	H01	**0**	energy saving time	0... 23 h
110	H02	**0**	energy saving maximum duration	0... 24 h

N.	PAR.	DEF.	REAL TIME DEFROST (if d8 = 4)	MIN... MAX.
111	Hd1	**h-**	1st daily defrost time	h- = disabled
112	Hd2	**h-**	2nd daily defrost time	h- = disabled
113	Hd3	**h-**	3rd daily defrost time	h- = disabled
114	Hd4	**h-**	4th daily defrost time	h- = disabled
115	Hd5	**h-**	5th daily defrost time	h- = disabled
116	Hd6	**h-**	6th daily defrost time	h- = disabled

N.	PAR.	DEF.	DATA-LOGGING (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)	MIN... MAX.
117	Sd0	**30**	SD card writing interval in HACCP mode	1... 30 min
118	Sd1	**1**	SD card writing interval in service mode	1... 30 min
119	Sd2	**60**	service mode duration	1... 240 min
120	Sd3	**0**	enable critical temperature recording	0 = no 1 = yes
121	Sd4	**0**	enable cabinet temperature recording	0 = no 1 = yes
122	Sd5	**1**	decimal separator type	0 = comma 1 = point

N.	PAR.	DEF.	SAFETIES	MIN... MAX.
123	POF	**1**	enable ON/STAND-BY key	0 = no 1 = yes
124	Loc	**1**	enable keypad lock (default 0 in the models with open-frame user interface)	0 = no 1 = yes
125	Sen	**90**	sensitivity capacitive keyboard (available in the models installed from behind)	60... 120 60= very sensitive
126	PAS	**-19**	password	-99... 999
127	PA1	**426**	level 1 password	-99... 999
128	PA2	**824**	level 2 password	-99... 999

N.	PAR.	DEF.	DATA-LOGGING EVLINK	MIN... MAX.
129	rE0	**60**	data-logger sampling interval	0... 240 min
130	rE1	**4**	recorded temperature	0 = none 1 = cabinet 2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all

N.	PAR.	DEF.	MODBUS	MIN... MAX.
131	LA	**247**	MODBUS address	1... 247
132	Lb	**2**	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
133	LP	**2**	parity	0 = none 1 = odd 2 = even

N.	PAR.	DEF.	BLUETOOTH	MIN... MAX.
134	bLE	**1**	enable Bluetooth	0 = no 1 = yes

9 ALARMS

COD.	DESCRIPTION	RESET	TO CORRECT
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 A0, A1 and A2
AH	high temperature alarm	automatic	check A4 and A5
id	open door alarm	automatic	check i0 and 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
iSd	high pressure alarm	manual	- switch the device off and on - check i5, i6, i8, i9
LP	low pressure alarm	automatic	check i5 and i6
C1t	compressor thermal switch alarm	automatic	check i5 and i6
C2t	second compressor thermal switch alarm	automatic	check i5 and i6
dFd	defrost timeout alarm	manual	- touch a key - check d2, d3 and d11
FUL	SD card full alarm	manual	free up space on the SD card or replace it
Sd	No SD card inserted alarm	manual	insert the SD card or replace it

10 TECHNICAL SPECIFICATIONS

Purpose of the control device		Function controller
Construction of the control device		Built-in electronic device
Container	Models in plastic container	Black, self-extinguishing
	Open-frame models	Open-frame board
Category of heat and fire resistance		D
Measurements	Models in plastic container	111.4 x 76.4 x 48.0 mm (4 3/8 x 3 x 1 15/16 in)
	Open-frame models	101.0 x 67.0 x 47.0 mm (4 x 2 5/8 x 1 7/8 in)
Mounting methods for the control device	Models in plastic container	according to the model, front installation on a plastic or metal panel (with elastic holding flaps) or installed from behind a glass or methacrylate panel (with biadhesive) customizing the keys on the front of the unit
	Open-frame models	To be installed from behind, with threaded studs and membrane keypad (not provided)
Degree of protection provided by the covering	Models in plastic container	IP65 (front), on condition the device is fitted to a metal panel with thickness 0.8 mm (1/32 in)
	Open-frame models	IP00
Connection method		
Fixed screw terminal blocks for wires up to 2.5 mm² (removable screw terminal blocks for wires up to 2,5 mm² by request)		
Pico-Blade connector		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 -5 to 55 °C (from 23 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. 6 VA insulated		115... 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 6 VA insulated in EVJ205 and EVJ215 with compressor relay rated 16 A res. @ 250 VAC
Earthing methods for the control device		None
Rated impulse-withstand voltage		2.5 KV
Over-voltage category		II
Software class and structure		A
Clock		Incorporated secondary lithium battery (clock not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)
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)
	Resolution	0.1 °C (1 °F)
NTC probes	Sensor type	ß3435 (10 K□Ω @ 25 °C, 77 °F)
	Measurement field	From -40 to 105 °C (from -40 to 221 °F)
	Resolution	0.1 °C (1 °F)
Digital inputs		1 dry contact (door switch)
Dry contact	Contact type	5 VDC, 2 mA
	Power supply	None
	Protection	None
Other inputs		Input configurable for analogue input (auxiliary probe) or digital input (multi-purpose input)
Digital outputs		5 (4 for EVJ204, EVJ214, EVJ214N7VXXRXV, EVJ224 and EVJ234, 3 for EVJ203 and EVJ213) with electro-mechanical relay
Relay K1		SPST, 16 A res. @ 250 VAC
		SPST, 30 A res. @ 250 VAC in EVJ2?5?9???3???
Relay K2		SPDT, 8 A res. @ 250 VAC
Relay K3		SPST, 8 A res. @ 250 VAC

Relay K4 (not available in EVJ203 and EVJ213)	SPST, 5 A res. @ 250 VAC
Relay K5 (not available in EVJ203, EVJ213, EVJ204, EVJ214, EVJ214N7VXXRXV, EVJ224 and EVJ234)	SPST, 5 A res. @ 250 VAC
The device guarantees double insulation between each digital output connector and the rest of the components of the device	
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	Incorporated
Incorporated sensors:	Bluetooth Low Energy (available in EVJ214N7VXXRXV, EVJ234 and EVJ235).
Communications ports	
1 TTL MODBUS slave port for EVconnect APP or BMS	1 port for SD card data-logger module EVBD05 (not available in EVJ203, EVJ204, EVJ205, EVJ224 and EVJ225)

For EVJ214N7VXXRXV, EVJ234 and EVJ235 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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