

FK 210A Digital controller for ventilated refrigerating units, with RTC, HACCP and Energy Saving functions

ENGLISH

1 GETTING STARTED

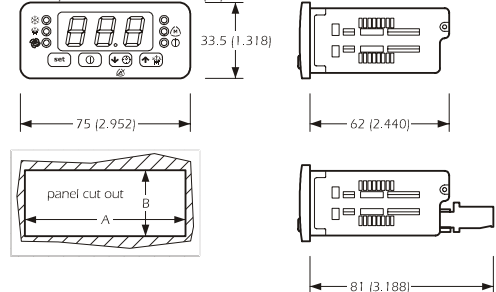
1.1 Important

Read these instructions carefully before installing and using the instrument and follow all additional information for installation and electrical connection.

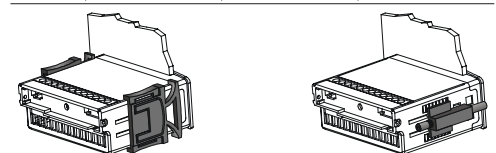
Keep these instructions close to the instrument for future consultations.

1.2 Installing the instrument

Panel mounting, with click brackets or screw brackets (supplied by the builder); dimensions in mm [in].



DIMENS.	MINIMUM	TYPICAL	MAXIMUM
A	71.0 (2.795)	71.0 (2.795)	71.8 (2.826)
B	29.0 (1.141)	29.0 (1.141)	29.8 (1.173)

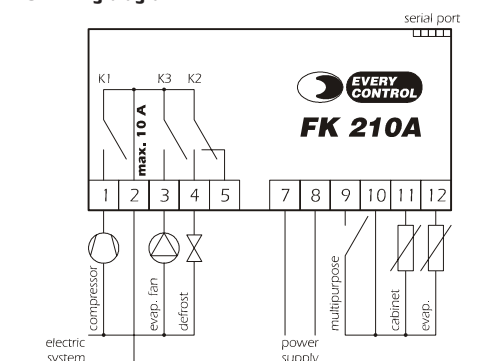


Installation with click brackets (on the left-hand side) and screw brackets (on the right-hand side).

Additional information for installation:

- 62 (2.440) is the maximum depth with screw terminal blocks
- 81 (3.188) is the maximum depth with extractable terminal blocks
- the panel thickness must not be higher than 4 mm (0.157 in)
- moderate the clamping torque, in order not to damage box and screw brackets
- working conditions (working temperature, humidity, etc.) must be between the limits indicated in the technical data
- do not install the instrument close to heating sources (resistances, hot air ducts, etc.), devices provided with big magnetos (big speakers, etc.), locations subject to direct sunlight, rain, humidity, dust, mechanical vibrations or bumps
- according to the safety norms, the protection against electrical parts must be ensured by a correct installation of the instrument; the parts that ensure the protection must be installed so that you can not remove them if not by using a tool.

1.3 Wiring diagram



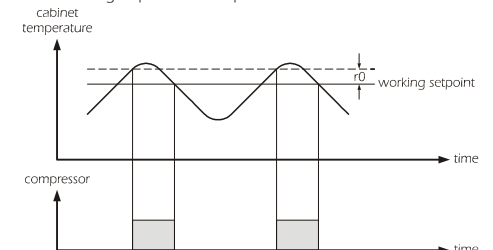
Additional information for electrical connection:

- do not operate on the terminal blocks with electrical or pneumatic screwdrivers
- if the instrument has been moved from a cold location to a warm one, the humidity could condense on the inside; wait about an hour before supplying it
- test the working power supply voltage, working electrical frequency and working electrical power of the instrument; they must correspond with the local power supply
- disconnect the local power supply before servicing the instrument
- do not use the instrument as safety device
- for repairs and information on the instrument please contact Evco sales network.

2 OPERATION

2.1 The compressor

During the normal operation the compressor activity mainly depends on the working setpoint and on parameter r0.



2.2 The defrost

The defrost is activated at intervals.

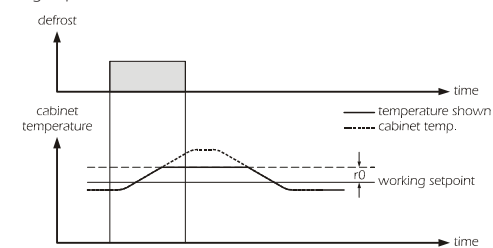
The defrost activity mainly depends on parameter dE:

- if parameter dE has value 0, the defrost will be activated when the instrument will have remained turned on the time you will have set with parameter d0 (if you turn off the instrument or switch off the power supply, the count will start from the beginning)
- if parameter dE has value 1, the defrost will be activated when the compressor will have remained turned on the time you will have set with parameter d0
- if parameter dE has value 2, the defrost will be activated when the evaporator temperature will have remained below the temperature you will have set with parameter dF the time you will have set with parameter d0.

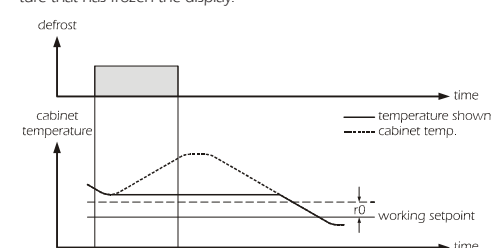
If to the defrost activation the evaporator temperature is above the one you have set with parameter d2, the defrost will not be activated.

It is possible to activate electric defrosts or hot gas ones, according to parameter d1:

- if parameter d1 has value 0 (electric defrost), during the defrost the compressor will be turned off and the defrost output will be turned on
 - if parameter d1 has value 1 (hot gas defrost), during the defrost both the compressor and the defrost output will be turned on.
- Parameter d6 sets the temperature shown during the defrost:
- if parameter d6 has value 0, during the defrost the display will show the cabinet temperature
 - if parameter d6 has value 1 and to the defrost activation the cabinet temperature is below "working setpoint + r0", during the defrost the display will not show temperatures above "working setpoint + r0"; the display restores the normal operation when the after dripping evaporator fan delay ends and the cabinet temperature falls below "working setpoint + r0"



- if parameter d6 has value 1 and to the defrost activation the cabinet temperature is above "working setpoint + r0", during the defrost the display will not show the increases of the temperature; the display restores the normal operation when the after dripping evaporator fan delay ends and the cabinet temperature falls below the last temperature that has frozen the display.



The defrost ends when the evaporator temperature gets to the one you have set with parameter d2 (parameter d3 however sets the defrost maximum duration); if the evaporator probe is not enabled (parameter /Ab = 0), the defrost will last the time you will have set with parameter d3.

During the defrost the evaporator fan activity mainly depends on parameter F4 (look at paragraph 2.3).

Spent the defrost the instrument moves to the dripping.

The dripping lasts the time you have set with parameter d7.

During the dripping both the compressor and the defrost output are turned off; the evaporator fan activity mainly depends on parameter F4 (look at paragraph 2.3).

Spent the dripping the instrument moves to the after dripping evaporator fan delay.

The after dripping evaporator fan delay lasts the time you have set with parameter F5.

During the after dripping evaporator fan delay the compressor restores

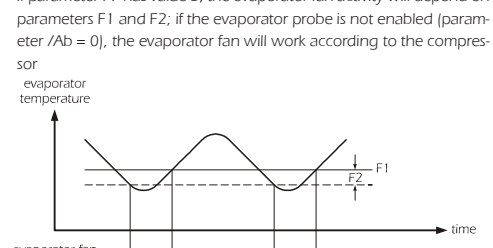
the normal operation; both the defrost output and the evaporator fan are turned off.

Spent the after dripping evaporator fan delay the instrument restores the normal operation.

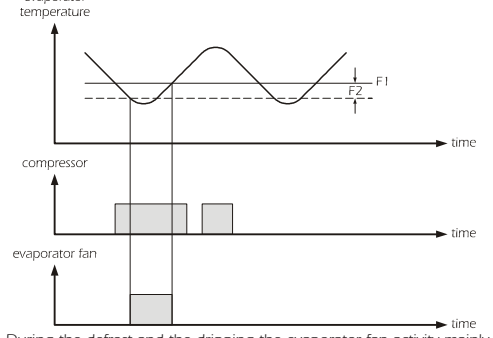
2.3 The evaporator fan

During the normal operation the evaporator fan activity mainly depends on parameter F7:

- if parameter F7 has value 0, the evaporator fan will be turned off
- if parameter F7 has value 1, the evaporator fan will be turned on
- if parameter F7 has value 2, the evaporator fan will work according to the compressor
- if parameter F7 has value 3, the evaporator fan activity will depend on parameters F1 and F2; if the evaporator probe is not enabled (parameter /Ab = 0), the evaporator fan will work according to the compressor



- if parameter F7 has value 4 and the compressor is turned off, the evaporator fan will be turned off; if parameter F7 has value 4 and the compressor is turned on, the evaporator fan activity will depend on parameters F1 and F2. If the evaporator probe is not enabled (parameter /Ab = 0), the evaporator fan will work according to the compressor.



During the defrost and the dripping the evaporator fan activity mainly depends on parameter F4:

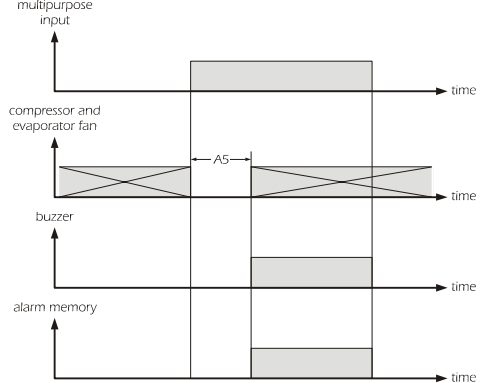
- if parameter F4 has value 0, the evaporator fan will be turned off
- if parameter F4 has value 1, the evaporator fan will be turned on
- if parameter F4 has value 2, the evaporator fan activity will depend on parameter F7.

2.4 The multipurpose input

Parameter i0 sets the effect provoked by the activation of the multipurpose input:

- if parameter i0 has value 0, no effect will be provoked
- if parameter i0 has value 1, spent the time you will have set with parameter A5 at most (multipurpose input alarm, HACCP alarm) or as long as the input will be deactivated; if parameter A8 has value 1, the instrument will store the alarm (on condition that parameter A5 has not value -1)

- if parameter i0 has value 2, the compressor and the evaporator fan will be turned off the time you will have set with parameter A5 at most (multipurpose input alarm, HACCP alarm) or as long as the input will be deactivated; if parameter A8 has value 1, the instrument will store the alarm (on condition that parameter A5 has not value -1)



- if parameter i0 has value 3, the evaporator fan will be turned off the time you will have set with parameter A5 at most (multipurpose input alarm, HACCP alarm) or as long as the input will be deactivated; if parameter A8 has value 1, the instrument will store the alarm (on condition that parameter A5 has not value -1)
- if parameter i0 has value 4, the Energy Saving cycle will be activated as long as the input will be deactivated; if parameter A5 has value -1, the effect will not be signalled.

2.5 The Energy Saving cycle

To the hours you have set with parameter Hr1 the Energy Saving cycle is activated.

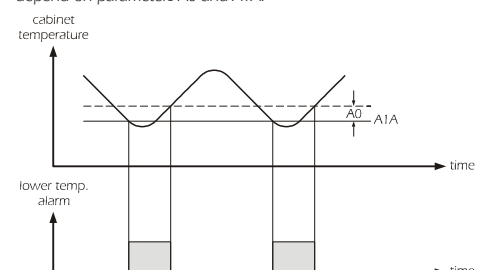
During the Energy Saving cycle the working setpoint becomes the temperature you have set with parameter r8.

The Energy Saving cycle lasts the time you have set with parameter Hr2. Through the multipurpose input it is also possible to activate/deactivate the Energy Saving cycle by hand.

2.6 The lower temperature alarm (HACCP alarm)

The lower temperature alarm activity mainly depends on parameter A2A:

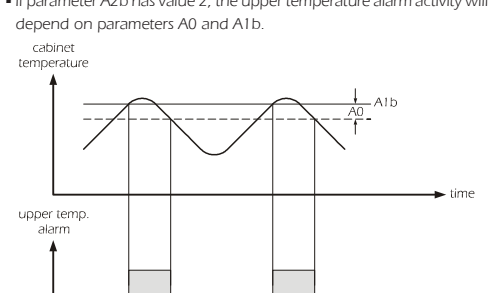
- if parameter A2A has value 0, the lower temperature alarm will never be activated
- if parameter A2A has value 1, the lower temperature alarm activity will depend on parameters A0 and A1A (parameter A1A will be relative to the working setpoint, that is "working setpoint + A1A")
- if parameter A2A has value 2, the lower temperature alarm activity will depend on parameters A0 and A1A.



2.7 The upper temperature alarm (HACCP alarm)

The upper temperature alarm activity mainly depends on parameter A2B:

- if parameter A2B has value 0, the upper temperature alarm will never be activated
- if parameter A2B has value 1, the upper temperature alarm activity will depend on parameters A0 and A1B (parameter A1B will be relative to the working setpoint, that is "working setpoint + A1B")
- if parameter A2B has value 2, the upper temperature alarm activity will depend on parameters A0 and A1B.



3 USER INTERFACE

3.1 Turning on/off the instrument

- make sure no procedure is running
 - press [ON] 2 s.
- Turning off means turning off the instrument via software (the instrument remains connected with the power supply).

3.2 The display

If the instrument is turned on, during the normal operation the display will show the cabinet temperature.

If the instrument is turned off, the display will be switched off.

3.3 Showing the evaporator temperature

- make sure no procedure is running
- press [DOWN] 2 s: the display will show "Pr2"
- press [SET]

To quit the procedure:

- press [LEFT] or [RIGHT] as long as the display shows the cabinet temperature or do not operate 30 s.

If parameter /Ab has value 0, the label "Pr2" will not be shown.

3.4 Activating the defrost by hand

- make sure no procedure is running
- press [LEFT] 4 s.

If the evaporator temperature is above the one you have set with parameter d2, the defrost will not be activated.

3.5 Silencing the alarms

- make sure no procedure is running
- press [DOWN]

4 RTC (REAL TIME CLOCK)

4.1 Setting the RTC

- make sure the instrument is turned off and no procedure is running
- press [DOWN] 2 s: the display will show "Pr2"
- press [LEFT] or [RIGHT] to select "rtc".

To modify the year:

- press [SET] and [LEFT] or [RIGHT] the display will show "y" followed by the last two figures of the year.

To modify the month:

- press [SET] and [LEFT] or [RIGHT] in 2 s since you have released the buttons to modify the month: the display will show "m" followed by the month (format 1-12).

To modify the day:

- press [SET] and [LEFT] or [RIGHT] in 2 s since you have released the buttons to modify the month: the display will show "d" followed by the day (format 1-31).

To modify the hour:

- press [SET] and [LEFT] or [RIGHT] in 2 s since you have released the buttons to modify the day: the display will show "h" followed by the hour (format 0-23).

To modify the minutes:

- press [SET] and [LEFT] or [RIGHT] in 2 s since you have released the buttons to modify the hour: the display will show "n" followed by the minutes.

To quit the procedure:

- do not operate 2 s: the display will show "rtc"
- press [LEFT] or [RIGHT] as long as the display shows the cabinet temperature or do not operate 30 s.

The instrument stores the date and the time every 10 min.

5 WORKING SETPOINT

5.1 Setting the working setpoint

- make sure no procedure is running
- press [SET] and [LEFT] or [RIGHT] LED will flash (also look at parameters r1, r2 and r5).

6 CONFIGURATION PARAMETERS

6.1 Setting configuration parameters

Configuration parameters are arranged on two levels.

To gain access the first level:

- make sure the instrument is turned off and no procedure is running
 - press [LEFT] and [DOWN] 4 s: the display will show "PA".
- To select a parameter:
- press [LEFT] or [RIGHT]

To modify a parameter:

- press [SET] and [LEFT] or [RIGHT]

To gain access the second level:

- gain access the first level

- press [LEFT] or [RIGHT] to select "PA"
- press [SET] and [LEFT] or [RIGHT] to set "19"
- press [LEFT] and [DOWN] 4 s: the display will show "r0".

To quit the procedure:

- press [LEFT] or [RIGHT] 4 s or do not operate 60 s.

7 HACCP

7.1 Preliminary information

The instrument can store up to 9 HACCP alarms (after which the latest overwrites the oldest) and supplies information on:

- the critical value
- the date and the hours the alarm has arisen

• the alarm duration (between 1 min and 99 h and 59 min, partial if the alarm is running).

LABEL	KIND OF ALARM (AND CRITICAL VALUE)
AL	lower temperature alarm (the lowest cabinet temperature during the alarm)
AH	upper temperature alarm (the highest cabinet temperature during the alarm)
iA	multipurpose input alarm (the highest cabinet temperature during the alarm); also look at parameter A8
PF	power supply failure alarm (the cabinet temperature to the restoration of the power supply)

If the instrument is turned off, it will store no alarm.

Turn off the instrument before switching off the power supply, in order not to store "power supply failure alarms" over and over again.

If the duration of the "power supply failure alarm" is such as to provoke the "RTC error", the instrument will not supply any information on the duration of the alarm.

When the cause that has provoked the alarm disappears, the display restores the normal operation (except the "power supply failure alarm" which needs the restoration by hand).

To restore the normal operation of the display by hand:

- press [DOWN]
- LED will flash (look at paragraph 8.1).

7.2 Showing the information on the alarms

- make sure no procedure is running
- press [DOWN] 2 s: the display will show "Pr2"
- press [LEFT] or [RIGHT] to select "LSt"

• press [SET] the display will show one of the labels related in the chart of paragraph 7.1 followed by number "1" (that is the latest alarm)

• press [LEFT] or [RIGHT] to select an alarm (the bigger the number that follows the label, the older the alarm), for example "AH3".

To show the information on the alarm:

- press [SET] LED will stop flashing to remain lit up permanently and the display will show in succession (for example):

EXAMPLE	MEANING
8	the critical value is 8 °C/°F
StA	the display is about to show the date and the hours the alarm has arisen
y05	the alarm has arisen in 2005 (to be continued ...)
n07	the alarm has arisen in July 2005 (to be continued ...)
d14	the alarm has arisen the 14th July 2005
h16	the alarm has arisen at 4 PM (to be continued ...)

n30	the alarm has arisen at 4:30 PM
dur	the display is about to show the duration of the alarm
h01	the alarm has lasted 1 h (to be continued ...)
n15	the alarm has lasted 1 h and 15 min
AH3	the alarm you had selected

Each information lasts 1 s.

To escape from the succession of information:

- press [DOWN] 2 s: the display will show the alarm you had selected.

To quit the procedure:

- press [DOWN] twice or do not operate 45 s.

7.3 Erasing the alarms list

- make sure no procedure is running
- press [DOWN] 2 s: the display will show "Pr2"
- press [LEFT] or [RIGHT] to select "rSt"
- press [SET] and [LEFT] or [RIGHT] to set "149"
- when you release the buttons the display will show "--" flashing 4 s and LED will go out, after which the instrument will quit the procedure.

8 SIGNALS

8.1 Signals

LED	MEANING
	LED compressor if it is lit, the compressor is turned on if it flashes: • the modification of the working setpoint is running • a compressor protection is running (parameters C0, C1, C2 or C4)
	LED defrost if it is lit, the defrost is running if it flashes: • the defrost is required but a compressor protection is running (parameters C0, C1, C2 or C4) • the dripping is running (parameter d7) • the heating of the freezing fluid is running (parameter dP)
	LED evaporator fan if it is lit, the evaporator fan is turned on if it flashes, the after dripping evaporator fan delay is running (parameter F5)
	LED alarm memory if it is lit, the instrument has stored one HACCP alarm at least and you have already shown the information on one alarm at least if it flashes, the instrument has stored one new HACCP alarm at least and you have shown no information on the alarms
	LED on/stand-by if it is lit, the instrument is turned off

9 ALARMS

9.1 Alarms

CODE	MEANING
AL	Lower temperature alarm (HACCP alarm, parameters A0, A1A and A2A) Remedies: • check the cabinet temperature Effects: • the instrument stores the alarm
AH	Upper temperature alarm (HACCP alarm, parameters A0, A1B and A2B) Remedies: • check the cabinet temperature Effects: • the instrument stores the alarm
iA	Multipurpose input alarm (HACCP alarm, parameters i0 and i1) Remedies: • check the reasons that have provoked the activation of the input Effects: • if parameter i0 has value 2, the compressor and the evaporator fan will be turned off • if parameter i0 has value 3, the evaporator fan will be turned off • if parameter A8 has value 1, the instrument will store the alarm (on condition that parameter A5 has not value -1)
PF	Power supply failure alarm (HACCP alarm) Remedies: • check the reasons that have provoked the interruption of the power supply Effects: • the instrument stores the alarm

When the cause that has provoked the alarm disappears, the display restores the normal operation (except the "power supply failure alarm" which needs the restoration by hand; look at paragraph 7.1).

10 INTERNAL DIAGNOSTICS

10.1 Internal diagnostics

CODE	MEANING
E0	Cabinet probe error Remedies: • check the kind of probe (parameter /0) • check the integrity of the probe • check the connection instrument-probe • check the cabinet temperature

	Effects:
	<ul style="list-style-type: none"> the compressor activity depends on parameters C5 and C6 the defrost is never activated
E1	Evaporator probe error Remedies: <ul style="list-style-type: none"> the same you saw in the previous case Effects: <ul style="list-style-type: none"> the defrost lasts the time you have set with parameter d3 if parameter dE has value 2, the instrument will work as if the parameter had value 0 if parameter F7 has value 3 or 4, during the normal operation the evaporator fan will work according to the compressor
E2	Memory data error Remedies: <ul style="list-style-type: none"> switch off the power supply of the instrument; unless the error disappears, you will have to change the instrument Effects: <ul style="list-style-type: none"> the loads are turned off
rtc	RTC error Remedies: <ul style="list-style-type: none"> set the RTC again Effects: <ul style="list-style-type: none"> the Energy Saving cycle is never activated

When the cause that has provoked the alarm disappears, the instrument restores the normal operation.

12 WORKING SETPOINTS AND CONFIGURATION PARAMETERS

12.1 Working setpoints

	MIN.	MAX.	U.M.	DEF.	WORKING SETPOINTS
r1	r2		°C/°F (1)	0.0	working setpoint

12.2 First level configuration parameters

PARAM.	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/1A	-10	10.0	°C/°F (1)	0.0	cabinet probe offset (2)
/1b	-10	10.0	°C/°F (1)	0.0	evaporator probe offset
PARAM.	MIN.	MAX.	U.M.	DEF.	MAIN REGULATOR
r0	0.1	15.0	°C/°F (1)	2.0	working setpoint differential
PARAM.	MIN.	MAX.	U.M.	DEF.	ENERGY SAVING (damin = 10 min)
Hr1	0.0	23.5	h.damin	0.0	hours the Energy Saving cycle is activated
Hr2	0.0	23.5	h.damin	0.0	duration of the Energy Saving cycle

12.3 Second level configuration parameters

PARAM.	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/0	1	3	---	1	kind of probe 1 = PTC 3 = NTC
/1A	-10	10.0	°C/°F (1)	0.0	cabinet probe offset (2)
/1b	-10	10.0	°C/°F (1)	0.0	evaporator probe offset
/5	0	1	---	1	decimal point Celsius degree 1 = YES
/8	0	1	---	1	unit of measure temperature 0 = °F 1 = °C
/Ab	0	1	---	1	enabling the evaporator probe (2) 1 = YES
PARAM.	MIN.	MAX.	U.M.	DEF.	MAIN REGULATOR
r0	0.1	15.0	°C/°F (1)	2.0	working setpoint differential
r1	-99	r2	°C/°F (1)	-50	minimum working setpoint
r2	r1	99.9	°C/°F (1)	50.0	maximum working setpoint
r5	0	1	---	0	locking the working setpoint modification 1 = YES
r8	-99	99.9	°C/°F (1)	0.0	working setpoint during the Energy Saving cycle
PARAM.	MIN.	MAX.	U.M.	DEF.	COMPRESSOR PROTECTIONS
C0	0	240	min	0	delay since you turn on the instrument (3)
C1	0	240	min	5	delay since the last activation; also delay since the end of the cabinet probe error (4)
C2	0	240	min	3	delay since the last shutdown
C4	0	1	---	0	fixed delay (3 s) to the activation and to the shutdown 1 = YES
C5	1	240	min	10	cycle time for the activation during the cabinet probe error; also look at parameter C6
C6	0	100	%	50	duration of the activation during the cabinet probe error (percentage of C5) (5)
PARAM.	MIN.	MAX.	U.M.	DEF.	DEFROST
d0	0	99	h	8	defrost interval; also look at parameter dE 0 = the defrost at intervals will never be activated
d1	0	1	---	1	kind of defrost 0 = electric defrost 1 = hot gas defrost
d2	-99	99.9	°C/°F (1)	2.0	defrost cutoff temperature
d3	0	99	min	30	defrost maximum duration 0 = the defrost will never be activated
d4	0	1	---	0	defrost when you turn on the instrument (3) 1 = YES
d5	0	99	min	0	defrost delay when you turn on the instrument (if parameter d4 has value 1); also look at parameter i0 (3)
d6	0	1	---	1	temperature shown during the defrost 0 = cabinet temperature 1 = at most "working setpoint + r0" or the cabinet temperature to the defrost activation; look at paragraph 2.2
d7	0	15	min	2	dripping duration
d9	0	1	---	0	erasing the compressor protections to the defrost activation (if parameter d1 has value 1) 1 = YES
dE	0	2	---	0	kind of defrost interval 0 = the defrost will be activated when the instrument will have remained turned on the time you will have set with parameter d0 1 = the defrost will be activated when the compressor will have remained turned on the time you will have set with parameter d0

11 TECHNICAL DATA

11.1 Technical data

Box: self-extinguishing grey.

Frontal protection: IP 65.

Connections: screw terminal blocks or extractable terminal blocks (power supply, inputs and outputs), 5 poles connector (serial port).

Working temperature: from 0 to 55 °C (32 to 131 °F; 10 ... 90% of relative humidity without condensate).

Power supply: 12 Vac/dc, 50/60 Hz, 1.5 VA (12-24 Vac/dc, 50/60 Hz, 1.5 VA by request).

RTC data maintenance without power supply: 24 h, on condition that the instrument has remained turned on 2 min at least.

Alarm buzzer: included.

Measure inputs: 2 (cabinet probe and evaporator probe) for PTC/NTC probes.

Digital inputs: 1 (multipurpose) for NO/NC contact (free of voltage, 5 V 1 mA).

Working range: from -50 to 100 °C (-50 to 210 °F) for PTC probe, from -40 to 100 °C (-40 to 210 °F) for NTC probe.

Resolution: 0.1 °C/1 °C/1 °F.

Outputs: 3 relays: one 10 A @ 250 Vac relay for one ½ HP @ 230 Vac compressor control (NO contact), one 8 A @ 250 Vac relay for defrost system control (change-over contact) and one 8 A @ 250 Vac relay for evaporator fan control (NO contact); the maximum current allowed on terminal 2 is 10 A.

Serial port: TTL with EVC0BUS communication protocol.

PARAM.	MIN.	MAX.	U.M.	DEF.	ALARMS
A0	0.1	15.0	°C/°F (1)	2.0	lower and upper temperature alarm differential
A1A	-99	99.9	°C/°F (1)	-10	lower temperature alarm set; also look at parameter A2A
A2A	0	2	---	1	kind of lower temperature alarm 0 = it will never be activated 1 = parameter A1A will be relative to the working setpoint, that is "working setpoint + A1A" 2 = parameter A1A will be absolute
A1b	-99	99.9	°C/°F (1)	10.0	upper temperature alarm set; also look at parameter A2b
A2b	0	2	---	1	kind of upper temperature alarm 0 = it will never be activated 1 = parameter A1b will be relative to the working setpoint, that is "working setpoint + A1b" 2 = parameter A1b will be absolute
A3	0	240	min	120	upper temperature alarm delay since you turn on the instrument (3) (7)
A5	-1	120	min	30	buzzer delay for the activation of the multipurpose input (if parameter i0 has value 1 or 4) -1 = the buzzer will not be activated maximum duration of the effect provoked by the multipurpose input alarm; also buzzer delay for the multipurpose input alarm (if parameter i0 has value 2 or 3) -1 = the effect will last as long as the input will be deactivated and the buzzer will not be activated
A6	0	240	min	5	temperature alarm delay (8)
A7	0	240	min	15	upper temperature alarm delay since the end of the after dripping evaporator fan delay (7)
A8	0	1	---	0	storing the multipurpose input alarm (on condition that parameter A5 has not value -1) 1 = YES
AA	0	240	min	0	temperature alarm delay since the activation and the end of the Energy Saving cycle (if parameters A2A and A2b have value 1 or parameters A1A and A1b are relative to the working setpoint)
Ab	0	1	---	1	temperature alarm delay that arises during the activation of the multipurpose input 1 = YES; a temperature alarm that arises during the activation of the multipurpose input, is delayed the time you have set with parameter A5 since the activation of the input; if spent the time you have set with parameter A5 the input is still active, the alarm will further be delayed the time you will have set with parameter A6; if during the time you have set with parameter A5 the input is deactivated, the alarm will further be delayed the time you will have set with parameter A6 since the deactivation of the input

PARAM.	MIN.	MAX.	U.M.	DEF.	EVAPORATOR FAN
F1	-99	99.9	°C/°F (1)	-1.0	evaporator temperature above which the evaporator fan is turned off (if parameter F7 has value 3 or 4); also look at parameter F6
F2	0.1	15.0	°C/°F (1)	2.0	parameter F1 differential
F4	0	2	---	0	evaporator fan activity during the defrost and the dripping 0 = turned off 1 = turned on 2 = it will depend on parameter F7
F5	0	15	min	2	after dripping evaporator fan delay
F6	0	1	---	0	parameter F1 absolute or relative to the cabinet temperature 0 = absolute 1 = relative to the cabinet temperature, that is "cabinet temperature - F1"; consider the value of parameter F1 without sign
F7	0	4	---	1	evaporator fan activity during the normal operation 0 = turned off 1 = turned on 2 = according to the compressor 3 = it will depend on parameters F1 and F2 4 = if the compressor is turned off, it will be turned off; if the compressor is turned on, according to parameters F1 and F2

PARAM.	MIN.	MAX.	U.M.	DEF.	DIGITAL INPUTS
i0	0	4	---	0	effect provoked by the activation of the multipurpose input 0 = no effect will be provoked 1 = spent the time you will have set with parameter d5 the defrost will be activated; if parameter A5 has value -1, the effect will not be signalled 2 = the compressor and the evaporator fan will be turned off the time you will have set with parameter A5 at most (multipurpose input alarm) or as long as the input will be deactivated 3 = the compressor will be turned off the time you will have set with parameter A5 at most (multipurpose input alarm) or as long as the input will be deactivated 4 = the Energy Saving cycle will be activated as long as the input will be deactivated; if parameter A5 has value -1, the effect will not be signalled
i1	0	1	---	0	kind of contact multipurpose input 0 = NO contact 1 = NC contact
PARAM.	MIN.	MAX.	U.M.	DEF.	SERIAL NETWORK (EVC0BUS)
L1	1	15	---	1	instrument address
L2	0	7	---	0	instrument group
L4	0	3	---	1	baud rate 0 = 1,200 baud 1 = 2,400 baud 2 = 4,800 baud 3 = 9,600 baud
PARAM.	MIN.	MAX.	U.M.	DEF.	ENERGY SAVING
Hr1	0.0	23.5	h.damin	0.0	hours Energy Saving cycle is activated
Hr2	0.0	23.5	h.damin	0.0	duration of the Energy Saving cycle

(1) the unit of measure depends on parameter /8

(2) **switch off the power supply of the instrument after the modification of the parameter**

(3) the parameter also has effect after an interruption of power supply that arises when the instrument is turned on

(4) if the parameter has value 0, the delay since the end of the cabinet probe error will however be 2 min

(5) if, according to parameters C5 and C6, the duration of the activation is shorter than 30 s, the compressor will not be turned on; if the error arises during a compressor protection, the effect introduced by parameters C5 and C6 will be delayed 1 min

(6) if to the defrost activation the duration of the activation of the compressor is shorter than the time you have set with the parameter, the compressor will further remain turned on the fraction of time required to complete it

(7) if a lower temperature alarm arises during the time you have set with the parameter, the parameter will have no effect

(8) if a temperature alarm does not disappear to the end of the times you have set with parameters A3 and AA, the alarm will further be delayed the time you will have set with parameter A6; if a temperature alarm arises during the defrost and does not disappear to the end of the time you have set with parameter A7, the alarm will further be delayed the time you will have set with parameter A6.

