

## DIMENSIONAL DATA

### OVERALL DIMENSIONS AND PANEL CUTOUT

The dimensions are expressed in millimetres and inches (third-scale drawing).

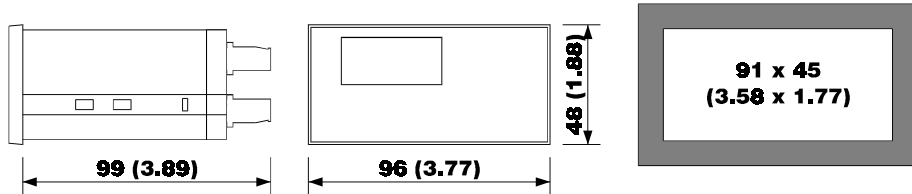


Fig. 3  
ds8-294e.wmf

## INSTALLATION

### WITH THE FIXING SYSTEM SUGGESTED BY THE BUILDER

Panel mounting, with the equipped screw brackets (third-scale drawing).

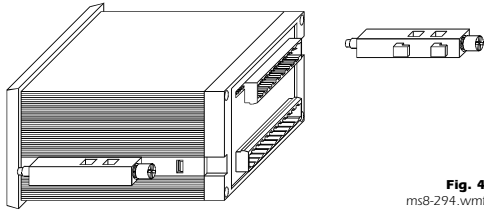


Fig. 4  
ms8-294.wmf

## ELECTRICAL CONNECTION

### CONNECTIONS TO DERIVE

Instance of typical application.

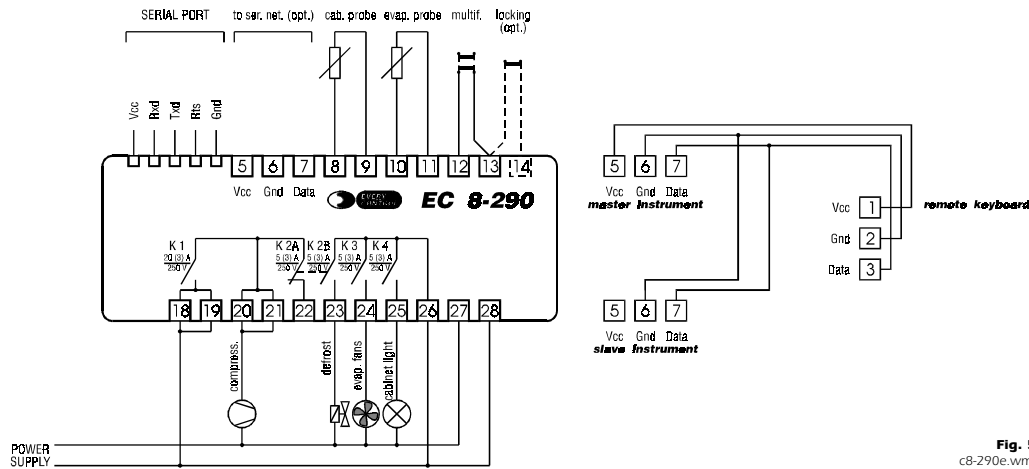


Fig. 5  
c8-290e.wmf

## BUILDER DATA

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# EC 8-290

## ON-OFF digital controller for one 1½ HP compressor, evaporator fans, defrost (for temperature-time) and cabinet light output management

### Operating instructions

Release 1/00 of April the tenth 2000  
Code EC 8-290 DOC E001  
File 8290e.p65

### IMPORTANT:

The use of this new instrument is easy; but for safety reasons, it is important read these instructions carefully before the installation or before the use and follow all additional informations.

It is very important keep these instructions with the instrument for future consultations.



Fig. 1  
f8-290.wmf

## GENERAL INFORMATIONS

### WHAT IS THE USE

EC 8-290 is an ON-OFF digital controller studied for refrigerating systems management which basic characteristics are the one 1½ HP compressor, evaporator fans, defrost (for temperature-time) and cabinet light output management; besides, the instrument is provided with one multifunction digital input configurable to interact on the outputs activity (it presents a request of a defrost cycle, it forces the cabinet light output to the status ON, etc.).

In factory the instrument gets preset to accept at the measure inputs PTC/NTC probes used in refrigeration field at the moment.

EC 8-290 is available in the 96 x 48 mm (3.77 x 1.88 in.) case and it is studied for panel mounting with the equipped screw brackets.

## GETTING STARTED

### INSTALLATION

EC 8-290 was studied for panel mounting, panel cutout 91 x 45 mm (3.58 x 1.77 in.), with the equipped screw brackets (the overall dimensions and the panel cutout are related in Fig. 3, the fixing system suggested by the builder is related in Fig. 4).

### ADDITIONAL INFORMATIONS

- the panel thickness must be included from 1 to 5 mm (0.04 to 0.19 in.)
- verify if the using conditions (ambient temperature, humidity, etc.) are within the limits indicated by the builder (see the chapter TECHNICAL DATA)
- install the instrument in a location with a suitable ventilation, to avoid the inter-nal overheating of the instrument
- do not install the instrument near surfaces that can to obstruct the air-grating (carpets, covers, etc.), heating sources (radiators, hot air ducts, etc.), locations subject to direct sunlight, rain, humidity, excessive dust, mechanical vibrations or bumps, devices with strong magnets (microwave ovens, big speakers, etc.)
- according with the safety norms, the protection against possible contacts with electrical parts and parts protected with functional insulation only must be ensured through a correct installation procedure of the instrument; all parts that ensure the protection must be fixed so that they can not be removed if not with a tool.

### ELECTRICAL CONNECTION

EC 8-290 is provided with two extractable screw terminal blocks for cables up to 2.5 mm<sup>2</sup> (0.38in.<sup>2</sup>, for the connection to the power supply, inputs and outputs) and it is provided with one five poles single line male connector (for the connection to the CLONE configurator/cloner and RICS supervision systems), located on the instrument back panel (the connections to derive are related in Fig. 5 and they are checkable on the polyester label stuck on the instrument case).

### ADDITIONAL INFORMATIONS

- if the instrument is brought from a cold to a warm location, the humidity may condense inside the instrument; wait about an hour before supply the instrument
- verify if the operating power supply voltage, electrical frequency and power of the instrument correspond to the local power supply (see the chapter TECHNICAL DATA)
- do not supply more instruments with the same transformer
- if the instrument is installed on a vehicle, its power supply must be derived directly from the battery of the vehicle
- give the instrument a protection able to limit the current absorbed in case of failure
- the instrument remains connected to the local power supply as long as the terminals 27 and 28 are derived to the local power supply, even if the instrument is apparently turned off
- if the instrument is supplied from low voltage use low voltage loads
- give the probes a protection able to insulate them against possible contacts with metal parts or use insulated probes
- give the outputs a protection able to protect them against short circuit and overload
- do not try to repair the instrument; for the repairs apply to highly qualified staff

- if you have any questions or problems concerning the instrument please consult Every Control (see the chapter BUILDER DATA).

## USE

### PRELIMINARY INFORMATIONS

After derived the connections related in Fig. 5, during the normal functioning the instrument displays the temperature read by the cabinet probe.

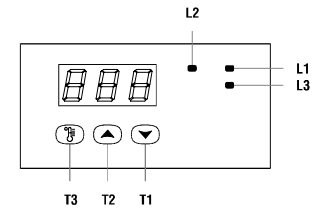


Fig. 2  
iu8290.wmf

If an alarm should be active the instrument displays the alarm code flashing and the buzzer utters an intermittent beep as long as the cause that has given it does not disappear (see the chapter SIGNALS AND ALARMS); pressure on the key T1 during an alarm permits to silence the buzzer.

EC 8-290 is provided with one working setpoint and with some configuration parameters that get stored in a non volatile memory and that permit to set the instrument according with one's requirements (see the chapter CONFIGURABILITY).

The output K 1 is associated to the compressor and to the working setpoint, it remains activated continuously as long as the temperature read by the cabinet probe reaches the working setpoint and when it rises above the working setpoint of the hysteresis value (differential) the output gets reactivated, except during a defrost and a dripping.

Passed the defrost interval from the moment of the instrument start or from the moment in which the instrument presents a request of a defrost cycle, if the conditions permit it (the temperature read by the evaporator probe must be below the defrost stopping setpoint) the instrument automatically presents the following request of a defrost cycle.

A defrost cycle provides three phases (defrost, dripping and evaporator fans stoppage) connected in cascade since the end of one automatically determines the passage to the following one.

The output K 2B is associated to the defrost and it remains continuously activated during the defrost as long as the temperature read by the evaporator probe reaches the defrost stopping setpoint when the defrost ends and the instrument automatically moves to the dripping; if the instrument was set to manage defrost to resistances (electrical) during a defrost the compressor output gets forced to the status OFF; if the instrument was set to manage hot gas defrost (reversal of cycle) during a defrost the compressor output remains continuously activated.

Passed the dripping length from the moment of the defrost end the instrument automatically moves to the evaporator fans stoppage; during a dripping the compressor output gets forced to the status OFF.

Passed the evaporator fans stoppage length from the moment of the dripping end the defrost cycle ends; during an evaporator fans stoppage the evaporator fans output activation gets disabled.

If the conditions permit it (the temperature read by the evaporator probe must be below the defrost stopping setpoint) keeping pushed the key T2 for four seconds at least the instrument presents a request of a defrost cycle.

The output K 3 is associated to the evaporator fans and to the output deactivation setpoint, it remains continuously activated as long as the temperature read by the evaporator probe reaches the output deactivation setpoint, when it falls below the output deactivation setpoint of the hysteresis value (differential) the output gets reactivated and during the status OFF of the compressor output the output gets forced to the status OFF, except what established with the parameters of the family F.

The output K 4 is associated to the cabinet light.

Activating the multifunction digital input and the locking digital input (available on request) the instrument interacts on the outputs activity according what established with the parameters of the family i.

#### WORKING SETPOINT SETTING (WORKING TEMPERATURE)

To modify the working setpoint value keep pushed the key **T3** (the instrument displays the actual value) and at the same time push and release over and over the key **T1** or **T2** as long as the instrument displays the desired value (keeping pushed the key **T1** or **T2** the value gets decreased or increased more quickly); after the modification release the key **T3** last; during the pressure of the key **T3** the LED **L1** flashes quickly to indicate that a working setpoint setting procedure is running (to the release of the key **T3** the instrument automatically turns out from the working setpoint setting procedure).

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the access to the working setpoint setting procedure is refused
- the working setpoint is programmable within the limits established with the parameters r1 and r2
- the working setpoint value gets stored in a non volatile memory even if a lack of power supply happens.

#### CONFIGURATION PARAMETERS SETTING

Configuration parameters are arranged on two levels, to protect the most tricky settings against undesirable violations and they are arranged in families that can be recognized through the initial letter of the label.

To gain access to the first level keep pushed at the same time for four seconds at least the keys **T1** and **T2** (passed four seconds the instrument displays the label **PA**).

To select a parameter of the first level push and release over and over the key **T1** or **T2** as long as the instrument displays the label of the desired parameter.

To modify the parameter value keep pushed the key **T3** (the instrument displays the actual value) and at the same time push and release over and over the key **T1** or **T2** as long as the instrument displays the desired value (keeping pushed the key **T1** or **T2** the value gets decreased or increased more quickly); after the modification release the key **T3** last (to the release of the key **T3** the instrument displays the label of the parameter again).

To gain access to the second level enter inside the first level and select the label **PA**.

Keep pushed the key **T3** (the instrument displays the actual value) and at the same time push and release over and over the key **T1** or **T2** as long as the instrument displays -19 (keeping pushed the key **T1** or **T2** the value gets decreased or increased more quickly); after the modification release the key **T3** last (to the release of the key **T3** the instrument displays the label **PA** again); keep pushed at the same time for four seconds at least the keys **T1** and **T2** (passed four seconds the instrument displays the first parameter of the second level).

To select a parameter of the second level push and release over and over the key **T1** or **T2** as long as the instrument displays the label of the desired parameter.

To modify the parameter value keep pushed the key **T3** (the instrument displays the actual value) and at the same time push and release over and over the key **T1** or **T2** as long as the instrument displays the desired value (keeping pushed the key **T1** or **T2** the value gets decreased or increased more quickly); after the modification release the key **T3** last (to the release of the key **T3** the instrument displays the label of the parameter again).

To turn out from the configuration parameters setting procedure keep pushed at the same time for four seconds at least the keys **T1** and **T2** or do not operate with the keys for fifty seconds at least (time-out exit).

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the access to the configuration parameters setting procedure is refused
- the modification of the parameter /A value has not immediate effect; to obtain this effect, after the modification turn OFF and turn ON again the instrument
- the modification of a parameter value which unit of measure is the hour or the minute or the second has not immediate effect; to obtain this effect it must not be executed during the course of the value
- the modification of the parameters u1, u2, u3, u4 and u5 value has immediate effect; to avoid damages to the connected users, it must be executed with the users not connected
- the configuration parameters values get stored in a non volatile memory even if a lack of power supply happens.

## NETWORK USE

#### PRELIMINARY INFORMATIONS

On request the instrument can be preset to work in a serial network of instruments (slaves) managed from a master instrument in order to implement some resources in the slaves instruments in correspondence with the implementation of the same resources in the master instrument (compressor output status during the normal functioning, presentation of a request of a defrost cycle, etc.).

After derived the connections related in Fig. 5, the master instrument repropose the last settings stored (see the chapter USE), the resources management of the slaves instruments locally happens (see the chapter USE), except what established with the parameters of the family n.

## USE WITH REMOTE KEYBOARD

#### PRELIMINARY INFORMATIONS

On request the instrument can be preset to work with a remote keyboard in order to manage the resources of the instrument even through the remote keyboard.

After derived the connections related in Fig. 5, the instrument repropose the last settings stored (see the chapter USE), the remote keyboard repeats the display of the instrument.

## NETWORK USE WITH REMOTE KEYBOARD

#### PRELIMINARY INFORMATIONS

On request the instrument can be preset to work in a serial network of instruments (slaves) managed from a master instrument in order to implement some resources in the slaves instruments in correspondence with the implementation of the same resources in the master

instrument (compressor output status during the normal functioning, presentation of a request of a defrost cycle, etc.); the resources management of the master instrument can happen even through the remote keyboard.

After derived the connections related in Fig. 5, the master instrument repropose the last settings stored (see the chapter USE), the resources management of the slaves instruments locally happens (see the chapter USE), except what established with the parameters of the family n; the remote keyboard repeats the display of the master instrument.

## CONFIGURABILITY

#### WORKING SETPOINT

| LABEL | MIN. | MAX. | U.M. | ST. | WORKING SETPOINT |
|-------|------|------|------|-----|------------------|
| r1    | r2   | (*)  | 0    |     | working setpoint |

It establishes the temperature associated to the compressor output.

#### CONFIGURATION PARAMETERS

| LABEL | MIN. | MAX. | U.M. | ST. | PASSWORD      |
|-------|------|------|------|-----|---------------|
| PA    | -55  | 99   | ---  | 0   | password (\$) |

It is the password that permits to gain access to the second level.

| LABEL | MIN. | MAX. | U.M. | ST. | MEASURE INPUTS |
|-------|------|------|------|-----|----------------|
| /0    | 1    | 4    | ---  | 1   | kind of probe  |

It establishes the kind of probe that the instrument must recognize to its measure inputs, as indicated:

- 1 = PTC probe
- 2 = reserved
- 3 = NTC probe
- 4 = reserved.

| /1 | -55 | +99 | (*)/8 | 0 | calibration (\$) |
|----|-----|-----|-------|---|------------------|
|----|-----|-----|-------|---|------------------|

It establishes a threshold to add algebraically to the signals coming from the measure inputs (for instance to correct the signals).

| /2 | 0 | 6 | --- | 3 | digital filter |
|----|---|---|-----|---|----------------|
|----|---|---|-----|---|----------------|

It establishes a time constant to apply to the signals coming from the measure inputs, as indicated:

- 0 = 0 sec.
- 1 = 0.4 sec.
- 2 = 1.2 sec.
- 3 = 3.0 sec.
- 4 = 8.0 sec.
- 5 = 19.8 sec.
- 6 = 48.0 sec.

| /8 | 0 | 1 | --- | 1 | unit of measure |
|----|---|---|-----|---|-----------------|
|----|---|---|-----|---|-----------------|

It establishes the unit of measure with which the temperature gets displayed, as indicated:

- 0 = the unit of measure is the Fahrenheit degree
- 1 = the unit of measure is the Celsius degree.

| /A | 0 | 1 | --- | 1 | evaporator probe enabling (®) |
|----|---|---|-----|---|-------------------------------|
|----|---|---|-----|---|-------------------------------|

It establishes if to enable the evaporator probe, as indicated:

- 0 = the evaporator probe is disabled
- 1 = the evaporator probe is enabled.

| LABEL | MIN. | MAX. | U.M. | ST. | ON-OFF TEMPERATURE REGULATOR ASSOCIATED TO THE WORKING SETPOINT AND TO THE COMPRESSOR OUTPUT |
|-------|------|------|------|-----|--|
|-------|------|------|------|-----|--|

|    |    |     |     |    |                                |
|----|----|-----|-----|----|--------------------------------|
| r0 | +1 | +15 | (*) | +2 | hysteresis (differential) (\$) |
|----|----|-----|-----|----|--------------------------------|

It establishes the hysteresis (differential) relative to the working setpoint.

|    |     |     |     |     |                                       |
|----|-----|-----|-----|-----|---------------------------------------|
| r1 | -55 | +99 | (*) | -50 | minimum working setpoint programmable |
|----|-----|-----|-----|-----|---------------------------------------|

It establishes the minimum working setpoint programmable; the instrument automatically verifies if the value established with the parameter r1 is below the maximum working setpoint programmable established with the parameter r2.

|    |     |     |     |     |                                       |
|----|-----|-----|-----|-----|---------------------------------------|
| r2 | -55 | +99 | (*) | +50 | maximum working setpoint programmable |
|----|-----|-----|-----|-----|---------------------------------------|

It establishes the maximum working setpoint programmable; the instrument automatically verifies if the value established with the parameter r2 is above the minimum working setpoint programmable established with the parameter r1.

| LABEL | MIN. | MAX. | U.M. | ST. | COMPRESSOR OUTPUT PROTECTION |
|-------|------|------|------|-----|------------------------------|
|-------|------|------|------|-----|------------------------------|

|    |   |     |      |   |   |
|----|---|-----|------|---|---|
| C0 | 0 | 240 | (**) | 1 | disabling time to the output activation from the instrument start |
|----|---|-----|------|---|---|

It establishes the time that disables the output activation from the moment of the instrument start.

|    |   |     |      |   |  |
|----|---|-----|------|---|--|
| C1 | 0 | 240 | (**) | 5 | disabling time to the output activation from the previous activation |
|----|---|-----|------|---|--|

It establishes the time that disables the output activation from the moment of the previous output activation.

|    |   |     |      |   |  |
|----|---|-----|------|---|--|
| C2 | 0 | 240 | (**) | 3 | disabling time to the output activation from the previous deactivation |
|----|---|-----|------|---|--|

It establishes the time that disables the output activation from the moment of the previous output deactivation.

|    |   |   |     |   |  |
|----|---|---|-----|---|--|
| C4 | 0 | 1 | --- | 0 | disabling time to the output activation and deactivation |
|----|---|---|-----|---|--|

It establishes if to disable the output activation and deactivation for a fixed time, as indicated:

- 0 = inactive
- 1 = the output activation and deactivation get disabled for 3 sec.

|    |   |     |      |    |   |
|----|---|-----|------|----|---|
| C5 | 1 | 240 | (**) | 10 | cycle time for the output activation during a cabinet probe failure alarm |
|----|---|-----|------|----|---|

It establishes the cycle time for the output activation due to the contribution of the percentage established with the parameter C6 during a cabinet probe failure alarm.

|    |   |     |   |    |  |
|----|---|-----|---|----|--|
| C6 | 0 | 100 | % | 50 | percentage of the cycle time during which the output gets activated during a cabinet probe failure alarm |
|----|---|-----|---|----|--|

It establishes the percentage of the cycle time established with the parameter C5 during which the output must remain continuously activated in the course of the cycle time during a cabinet probe failure alarm, except what established with the disabling times to the compressor output activation.

| LABEL | MIN. | MAX. | U.M. | ST. | DEFROST REGULATOR |
|-------|------|------|------|-----|-------------------|
|-------|------|------|------|-----|-------------------|

|    |   |    |      |   |                  |
|----|---|----|------|---|------------------|
| d0 | 0 | 99 | (**) | 8 | defrost interval |
|----|---|----|------|---|------------------|

## Options:

012 (12 Vac/dc).

custom configuration, presetting to accept at the measure inputs Pt 1000 probes, configuration parameter for the evaporator probe enabling, locking digital input and associated configuration parameters, green LED display, configuration parameters for the user-output configuration, presetting for the connection to a remote keyboard (the maximum distance that can be interfaced is 50 m, 164.04 ft.), presetting for the connection to a serial network of instrument and associated configuration parameters (the maximum distance that can be interfaced is 50 m, 164.04 ft.).

It establishes the time interval that pass from the moment of the instrument start or from the moment in which the instrument presents a request of a defrost cycle to the moment in which the instrument automatically presents the following request of a defrost cycle.

If the parameter d0 has value 0 the instrument never automatically presents a request of a defrost cycle, except what established with the parameter d4.

**d1 0 1 --- 1 kind of defrost**

It establishes the kind of defrost that the instrument must manage, as indicated:

0 = to resistances (electrical)  
1 = to hot gas (reversal of cycle).

**d2 -55 +99 (\*) +2 defrost stopping setpoint**

It is significant exclusively if the parameter /A has value 1, it establishes the temperature to which a defrost gets stopped and it is referred to the evaporator probe.

**d3 1 99 (\*\*) 15 defrost maximum length**

It establishes the defrost maximum length.

Passed the defrost maximum length from the moment in which the instrument activates a defrost cycle, if the temperature read by the evaporator probe is below the setpoint established with the parameter d2 the defrost ends.

**d4 0 1 --- 0 defrost cycle at the instrument start**

It establishes if the instrument automatically must present a request of a defrost cycle at the moment of the instrument start, as indicated:

0 = inactive

1 = the instrument automatically presents a request of a defrost cycle at the moment of the instrument start.

**d5 0 99 (\*\*) 0 delay to a defrost cycle activation from the instrument start**

It is significant exclusively if the parameter d4 has value 1 or if the parameter i0 has value 1, it establishes the delay with which the instrument automatically presents a request of a defrost cycle from the moment of the instrument start and from the moment of the multifunction digital input activation.

A manual presentation of a request of a defrost cycle during the count of the delay established with the parameter d5 clears the delay.

**d6 0 1 --- 1 locking of the displayed temperature from a defrost cycle activation**

It establishes if to lock the displayed temperature from the moment in which the instrument activates a defrost cycle, as indicated:

0 = inactive

1 = during a defrost, a dripping and as long as the temperature read by the cabinet probe reaches the working setpoint, the instrument displays the temperature read by the cabinet probe in the moment in which the instrument activates a defrost cycle.

**d7 0 15 (\*\*) 2 dripping length**

It establishes the dripping length.

**d9 0 1 --- 0 disabling times to the compressor output activation override**

It is significant exclusively if the parameter d1 has value 1, it establishes if to clear the disabling times to the compressor output activation in the moment in which the instrument presents a request of a defrost cycle, as indicated:

0 = inactive

1 = in the moment in which the instrument presents a request of a defrost cycle the disabling times to the compressor output activation get cleared.

**dA --- --- (\*) --- evaporator probe reading (\$)**

It permits to display the temperature read by the evaporator probe.

**dB 0 1 --- 0 times base**

It establishes the unit of measure of the parameters expressed in time intervals, except for the parameters L3 and n4, as indicated:

0 = the unit of measure of the parameter d0 is the hour and the unit of measure of the parameters C0, C1, C2, C5, d3, d5, d7, A3, A5, A6, A7, F5, i4 and i5 is the minute

1 = the unit of measure of the parameter d0 is the minute and the unit of measure of the parameters C0, C1, C2, C5, d3, d5, d7, A3, A5, A6, A7, F5, i4 and i5 is the second.

**LABEL MIN. MAX. U.M. ST. ALARM REGULATOR**

**A0 +1 +15 (\*) +2 hysteresis (differential)**

It establishes the hysteresis (differential) relative to the parameters A1 and A2.

**A1 -55 0 (\*) -10 lower temperature alarm set relative to the working setpoint**

It establishes a threshold to add algebraically to the working setpoint; the value so obtained establishes the temperature below which the lower temperature alarm gets activated and it is referred to the cabinet probe.

If the parameter A1 has value 0 the lower temperature alarm never gets activated.

**A2 0 +99 (\*) +10 upper temperature alarm set relative to the working setpoint**

It establishes a threshold to add algebraically to the working setpoint; the value so obtained establishes the temperature above which the upper temperature alarm gets activated and it is referred to the cabinet probe.

If the parameter A2 has value 0 the upper temperature alarm never gets activated.

**A3 0 240 (\*\*) 120 disabling time to the temperature alarm activation from the instrument start**

It establishes the time that disables the temperature alarm activation from the moment of the instrument start.

**A5 -1 120 (\*\*) 30 disabling time to the buzzer activation for the multifunction digital input alarm indication**

It is significant exclusively if the parameter i0 has values different to 0, it establishes the time that disables the buzzer activation for the multifunction digital input alarm indication from the moment in which the multifunction digital input alarm happens.

If the parameter A5 has value -1 during a multifunction digital input alarm the buzzer gets not activated.

**A6 0 240 (\*\*) 5 disabling time to the temperature alarm activation**

It establishes the time that disables the temperature alarm activation from the moment in which the temperature alarm happens.

**A7 0 240 (\*\*) 15 disabling time to the temperature alarm activation from the defrost cycle end**

It establishes the time that disables the temperature alarm activation from the moment of the defrost cycle end.

**LABEL MIN. MAX. U.M. ST. EVAPORATOR FANS REGULATOR ASSOCIATED TO THE EVAPORATOR FANS OUTPUT**

**F1 -55 +99 (\*) -1 output deactivation setpoint**

It is significant exclusively if the parameter /A has value 1 and if the parameter F7 has value 3 or 4, according with the modality established with the parameter F6, it establishes the temperature to which the output gets deactivated and it is referred to the evaporator probe.

**F2 +1 +15 (\*) +2 hysteresis (differential)**

It is significant exclusively if the parameter /A has value 1 and if the parameter F7 has value 3 or 4, it establishes the hysteresis (differential) relative to the parameter F1.

**F4 0 2 --- 0 output functioning during the defrost and the dripping**

It establishes the output functioning during a defrost and a dripping, as indicated:

0 = during a defrost and a dripping the output gets forced to the status OFF

1 = during a defrost and a dripping the output gets forced to the status ON

2 = the output functioning during a defrost and a dripping gets established with the parameter F7.

**F5 0 15 (\*\*) 2 evaporator fans stoppage length**

It establishes the evaporator fans stoppage length.

**F6 0 1 --- 0 kind of output deactivation setpoint**

It is significant exclusively if the parameter /A has value 1 and if the parameter F7 has value 3 or 4, it establishes the kind of output deactivation setpoint that the instrument must manage, as indicated:

0 = absolute (the output deactivation setpoint establishes the temperature to which the output gets deactivated)

1 = relative to the temperature read by the cabinet probe (the value obtained subtracting the absolute value of the output deactivation setpoint to the temperature read by the cabinet probe establishes the temperature to which the output gets deactivated).

**F7 0 4 --- 4 output functioning during the normal functioning**

It establishes the output functioning during the normal functioning, as indicated:

0 = during the normal functioning the output gets forced to the status OFF

1 = during the normal functioning the output gets forced to the status ON

2 = during the normal functioning the output gets forced to the status ON and during the status OFF of the compressor output the output gets forced to the status OFF

3 = during the normal functioning the output is associated to the setpoint established with the parameter F1, it remains continuously activated as long as the temperature read by the evaporator probe reaches the setpoint established with the parameter F1 and when it falls below the setpoint established with the parameter F1 of the hysteresis value (differential) established with the parameter F2 the output gets reactivated

4 = during the normal functioning the output is associated to the setpoint established with the parameter F1, it remains continuously activated as long as the temperature read by the evaporator probe reaches the setpoint established with the parameter F1, when it falls below the setpoint established with the parameter F1 of the hysteresis value (differential) established with the parameter F2 the output gets reactivated and during the status OFF of the compressor output the output gets forced to the status OFF

**LABEL MIN. MAX. U.M. ST. DIGITAL INPUTS**

**i0 0 5 --- 4 action given during the multifunction digital input activation**

It establishes the action given during the multifunction digital input activation, as indicated:

0 = inactive

1 = if the conditions permit it (the temperature read by the evaporator probe must be below the setpoint established with the parameter d2) activating the multifunction digital input the instrument presents a request of a defrost cycle

2 = during the multifunction digital input activation the cabinet light output gets forced to the status ON

3 = during the multifunction digital input activation the compressor output, except what established with the disabling times to the compressor output activation and the cabinet light output get forced to the status ON

4 = during the multifunction digital input activation the compressor and evaporator fans outputs get forced to the status OFF and the cabinet light output gets forced to the status ON

5 = during the multifunction digital input activation the evaporator fans output gets forced to the status OFF and the cabinet light output gets forced to the status ON.

If the parameter i0 has value 3 or 4 the multifunction digital input alarm activation that happens during a defrost cycle interacts on the compressor output status from the moment of the defrost cycle end.

**i1 0 1 --- 0 kind of contact of the multifunction digital input**

It establishes the kind of contact of the multifunction digital input, as indicated:

0 = NO contact

1 = NC contact.

**i2 0 2 --- 0 action given during the locking digital input activation (®)**

It establishes the action given during the locking digital input activation, as indicated:

0 = inactive

1 = during the locking digital input activation the compressor output gets forced to the status OFF

2 = during the locking digital input activation the compressor output gets forced to the status OFF, from the moment of the locking digital input deactivation the compressor output activation gets disabled for the time established with the parameter i5, in the moment in which the compressor output gets reactivated the instrument increases a locking digital input alarms counter, when the locking digital input alarms counter reaches the number established with the parameter i3 the compressor output gets definitively forced to the status OFF (instrument locking); to obtain the instrument unlocking turn OFF and turn ON after the instrument.

**i3 0 15 --- 0 number of locking digital input alarms enough to give**

