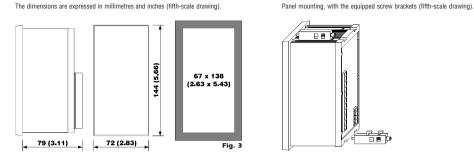
## **DIMENSIONAL DATA**

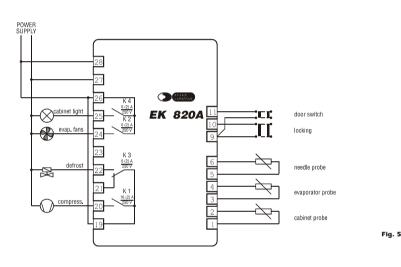
## OVERALL DIMENSIONS AND PANEL CUTOUT

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



# **ELECTRICAL CONNECTION**

CONNECTIONS TO DEBIVE Instance of typical application.



INSTALLATION

WITH THE FIXING SYSTEM SUGGESTED BY THE BUILDER

## BUILDER DATA

#### FVC0 S r I

Via Mezzaterra 6, 32036 Sedico Belluno ITALY Phone 0039/0437852468 (a.r.) Fax 0039/043783648 Internet addresses e-mail: info@evco.it http://www.evco.it

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# EK 820A

**ON-OFF** digital controller for guick cooler management

Operating instructions Version 1.01 of 30th September 2004 File ek820a\_eng\_v1.00.pdf PT

#### 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.

## GENERAL INFORMATIONS

## WHAT IS THE USE

EK 820A is an ON-OFF digital controller studied for guick cooler management (of foods at ambient temperature or pre-cooked) which basic characteristics are the management of ten cycles of functioning, the one 11/2 HP compressor management, the quick cooling modality selection (for temperature or time), the needle probe proper insertion verify, the "manual defrost and ventilation"; besides, the instrument is provided with one door switch digital input configurable to interact on the outputs activity and with one locking digital input configurable to interact on the instrument status.

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

EK 820A is available in the 72 x 144 mm (2.83 x 5.66 in.) case and it is studied for panel mounting with the equipped screw brackets.

## **GETTING STARTED**

#### INSTALLATION

EK 820A was studied for panel mounting, panel cutout 67 x 138 mm (2.63 x 5.43 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 internal 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 magnetos (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

EK 820A is provided with two extractable screw terminal blocks for cables up to 2.5 mm<sup>2</sup> (0.38in.2, for the connection to the power supply, inputs and outputs) 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

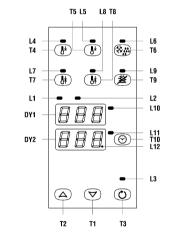


if you have any questions or problems concerning the instrument please consult Evco (see the chapter BUILDER DATA).

# IIGE

## PRELIMINARY INFORMATIONS

After derived the connections related in Fig. 5, the instrument reproposes the last settings stored: if a lack of power supply happens during the count of a time, when the power supply recovers the count gets reproposed from the beginning



Pushing and releasing the key T3 the instrument turning ON (status ON) or turning OFF (status STAND-BY), except during the configuration parameters setting procedure; the LED L3 is associated to the instrument status, it is turned ON during the status ON and it is turned OFF during the status STAND-BY.

Fig. 2

If an alarm should be active the display DY1 displays the alarm code flashing and the buzzer utters an intermittent been as long as the cause that has given it does not disappear (see the chapter SIGNALS AND ALARMS); pressure on a key during an alarm permits to silence the huzzer

During the status STAND-BY the display DY1 displays the temperature read by the cabinet probe and all outputs are forced to the status OFE

EK 820A is provided with ten cycles of functioning 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).

#### **OUICK COOLING FOR TEMPERATURE CYCLE**

Pushing and releasing the key T4 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L4 is associated to the quick cooling cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected

Pushing and releasing the key T10 the quick cooling for temperature modality gets selected; the LED L10 is associated to the quick cooling for temperature modality, it is turned ON when the modality is selected and it is turned OFF when the modality is not selected.

Pushing and releasing the key T3 the cycle gets activated: the LED L1 is associated to the guick cooling/freezing, it is turned ON when the quick cooling/freezing is running and it is turned OFF when the quick cooling/freezing is not running.

Fig. 4

During this cycle the display **DY1** displays the temperature read by the needle probe, if the conditions permit it (the temperature read by the needle probe must be below the quick cooling/freezing for temperature enabling setpoint) the display **DV2** displays the decrease of the quick cooling for temperature maximum length and the LED **L12** lashes to indicate that the count of the time is running; keeping pushed the key **T10** the display **DV2** displays the fraction of time passed from the moment in which the instrument activates the cycle.

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

The output K 2 is associated to the evaporator fans and it is forced to the status ON, except during 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 3 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 output K 1 gets forced to the status OFF and the output K 2 functioning gets established with the parameters of the family F, if the instrument was set to manage hot gas defrost (reversal of cycle) during a defrost the output K 1 remains continuously activated and the output K 2 functioning gets established with the parameters of the family F, if the instrument was to to manage air defrost (open door) during a defrost the output K 1 gets forced to the status OFF and the output K 2 ents forced to the status ON.

Passed the dripping length from the moment of the defrost end the instrument automatically moves to the evaporator fans stoppage; if the instrument was set to manage defrost to resistances (detricial) or hot gas defrost (reversal of cycle) during a dripping the outputs K 1 and K 2 get forced to the status OFF, if the instrument was set to manage air defrost (open door) during a dripping the output K 1 gets forced to the status OFF and the output K 2 gets forced to the status ON.

Passed the evaporator fans stoppage length from the moment of the dripping end the defrost cycle ends; if the instrument was set to manage defrost to resistances (electrical) or hot gas defrost (reversal of cycle) during an evaporator fans stoppage the output K 2 activation gets disabled, if the instrument was set to manage air defrost (open door) during an evaporator fans stoppage the output K 2 dets forced to the status ON.

Activating the door switch digital input the instrument interacts on the outputs activity according what established with the parameters of the family u.

Activating the locking digital input the locking digital input alarm gets activated.

When the temperature read by the needle probe falls below the quick cooling for temperature stopping setpoint the cycle ends and the successful quick cooling/freezing for temperature signal gets activated; keeping pushed the key **T10** the display **DY1** displays the temperature read by the cabinet probe.

Passed the quick cooling for temperature maximum length, if the temperature read by the needle probe is above the quick cooling for temperature stopping setpoint the unsuccessful quick cooling/freezing alarm gets activated; keeping pushed the key **T10** the display **DY2** displays the fraction of time passed from the moment of the quick cooling for temperature maximum length end.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick cooling for temperature cycle activation is refused
- for the whole period of a locking digital input alarm the quick cooling for temperature cycle activation is refused
- for the whole period of a needle probe failure alarm the quick cooling for temperature cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick cooling for temperature cycle activation is refused
- for the whole period of a door switch digital input alarm the quick cooling for temperature cycle activation is refused
- during a quick cooling for temperature cycle the instrument never automatically presents a request of a defrost cycle, except what established with the parameter d4.

#### QUICK COOLING FOR TIME CYCLE

Pushing and releasing the key T4 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L4 is associated to the quick cooling cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected.

Pushing and releasing the key **T10** the quick cooling for time modality gets selected; the LED L11 is associated to the quick cooling for time modality, it is turned ON when the modality is selected and it is turned OFF when the modality is associated.

To modify the quick cooling for time length push and release over and over the key T1 or T2 as long as the display DY2 displays the desired value (keeping pushed the key T1 or T2 the value gets decreased or increased more quickly).

Pushing and releasing the key T3 the cycle gets activated; the LED L1 is associated to the quick cooling/freezing, it is turned ON when the quick cooling/freezing is running and it is turned OFF when the quick cooling/reczing is not running.

During this cycle the display DY1 displays the temperature read by the cabinet probe, the display DY2 displays the decrease of the quick cooling for time length and the LED L12 flashes to indicate that the count of the time is running; keeping pushed the key T10 the display DY2 displays the fraction of time passed from the moment in which the instrument activates the cycle.

The outputs K 1, K 2 and K 3 get activated with the same functioning saw in the case of quick cooling for temperature cycle.

Activating the door switch digital input the instrument interacts on the outputs activity according what established with the parameters of the family u.

Activating the locking digital input the locking digital input alarm gets activated.

Passed the quick cooling for time length the cycle ends and the quick cooling/freezing for time ended signal gets activated.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick cooling for time cycle activation is refused
- for the whole period of a locking digital input alarm the quick cooling for time cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick cooling for time cycle activation is refused
- for the whole period of a door switch digital input alarm the quick cooling for time cycle activation is refused
- during a quick cooling for time cycle the instrument never automatically presents a request of a defrost cycle, except what established with the parameter d4.

#### QUICK FREEZING FOR TEMPERATURE CYCLE

Pushing and releasing the key T5 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L5 is associated to the quick freezing cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected.

Pushing and releasing the key **T10** the quick freezing for temperature modality gets selected; the LED **L10** is associated to the quick freezing for temperature modality, it is turned ON when the modality is selected and it is turned OFF when the modality is not selected.

Pushing and releasing the key T3 the cycle gets activated; the LED L1 is associated to the quick cooling/freezing, it is turned ON when the quick cooling/freezing is running and it is turned OFF when the quick cooling/freezing is not running.

During this cycle the display **DY1** displays the temperature read by the needle probe, if the conditions permit it (the temperature read by the needle probe must be below the quick cooling/freezing for temperature enabling setpoint) the display **DV2** displays the decrease of the quick freezing for temperature maximum length and the LED **L12** flashes to indicate that the count of the time is running; keeping pushed the key **T10** the display **DV2** displays the traction of time passed from the moment in which the instrument activates the cycle.

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

The outputs K 2 and K 3 get activated with the same functioning saw in the case of quick cooling for temperature cycle.

Activating the door switch digital input the instrument interacts on the outputs activity according what established with the parameters of the family u.

Activating the locking digital input the locking digital input alarm gets activated.

When the temperature read by the needle probe falls below the quick freezing for temperature stopping setpoint the cycle ends and the successful quick cooling/freezing for temperature signal gets activate; keeping pushed the key **T10** the display **DY1** displays the temperature read by the cabinet probe.

Passed the quick freezing for temperature maximum length, if the temperature read by the needle probe is above the quick freezing for temperature stopping setpoint the unsuccessful quick cooling/freezing alarm gets activated; keeping pushed the key T10 the display DV2 displays the fraction of time passed from the moment of the quick freezing for temperature maximum length end.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick freezing for temperature cycle activation is refused
- for the whole period of a locking digital input alarm the quick freezing for temperature cycle activation is refused
- for the whole period of a needle probe failure alarm the quick freezing for temperature cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick freezing for temperature cycle activation is refused
- for the whole period of a door switch digital input alarm the quick freezing for temperature cycle activation is refused
- during a quick freezing for temperature cycle the instrument never automatically presents a request of a defrost cycle, except what established with the parameter rd

#### QUICK FREEZING FOR TIME CYCLE

Pushing and releasing the key T5 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L5 is associated to the quick freezing cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected.

Pushing and releasing the key T10 the quick freezing for time modality gets selected; the LED L11 is associated to the quick freezing for time modality, it is turned ON when the modality is selected and it is turned OFF when the modality is not selected.

To modify the quick freezing for time length push and release over and over the key T1 or T2 as long as the display DY2 displays the desired value (keeping pushed the key T1 or T2 the value gets decreased or increased more quick(v).

Pushing and releasing the key T3 the cycle gets activated; the LED L1 is associated to the quick cooling/freezing, it is turned ON when the quick cooling/freezing is running and it is turned OFF when the quick cooling/freezing is not running.

During this cycle the display DY1 displays the temperature read by the cabinet probe, the display DY2 displays the decrease of the quick freezing for time length and the LED L12 flashes to indicate that the count of the time is running; keeping pushed the key T10 the display DY2 displays the fraction of time passed from the moment in which the instrument activates the cycle.

The outputs K 1, K 2 and K 3 get activated with the same functioning saw in the case of quick freezing for temperature cycle.

Activating the door switch digital input the instrument interacts on the outputs activity according what established with the parameters of the family u.

Activating the locking digital input the locking digital input alarm gets activated.

Passed the quick freezing for time length the cycle ends and the quick cooling/freezing for time ended signal gets activated. If the LED L9 flashes it means that the needle probe proper insertion verify is running. If the LED L12 flashes it means that the count of a time is running

If the display DY1 displays the indication "dEF" and the LED L6 is turned ON it means that a defrost cycle is running

If the display DY1 displays the indication "dEF" flashing and the LED L6 is turned ON it means that a count of a delay time to a defrost cycle activation is running (see the parameters CO, C1 and C2)

If the display DY1 displays the indication "End" flashing and the buzzer utters an intermittent been for some seconds (successful quick cooling/freezing for temperature) it means that a quick cooling/freezing for temperature cycle/phase positively is successful: the outputs K 1, K 2 and K 3 gets forced to the status OFF

If the display DY1 displays the indication "End" flashing, the display DY2 displays the indication "0" and the buzzer utters an intermittent beep for some seconds (quick cooling/freezing for time ended) it means that a quick cooling/freezing for time cycle/phase ended; the outputs K 1, K 2 and K 3 gets forced to the status OFE

#### ALABMS

If the display DY1 displays the indication "E2" flashing and the buzzer utters an intermittent beep (corrupted memory data alarm) it means that there is a corruption of the configuration data in the memory (turn OFF and turn ON again the instrument; if to the turning ON again the alarm does not disappear the instrument must be replaced); during this alarm a cycle activation is refused, if a cycle is running the cycle ends, the access to the configuration parameters setting procedure is refused and all outputs get forced to the status OFF

If the display DY1 displays the indication "E4" flashing alternated to the temperature read by the cabinet/needle probe and the buzzer utters an intermittent beep (locking digital input alarm) it means that the locking digital input is active (deactivate the locking digital input and turn OFF and turn ON again the instrument, see the parameter u3); during this alarm a cycle activation is refused and all outputs get forced to the status OFF.

If the display DY1 displays the indication "E0" flashing and the buzzer utters an intermittent been (cabinet prohe failure alarm) it means that the kind of connected cabinet prohe is not proper (verify the kind of connected cabinet probe), the cabinet probe is faulty (verify the cabinet probe integrity), there is a mistake in the instrument-cabinet probe connection (verify the instrument-cabinet probe connection integrity), the temperature read by the cabinet probe is outside the limits permitted by the cabinet probe in use (verify that the temperature near the cabinet probe be inside the limits permitted by the cabinet probe): during this alarm a quick cooling/freezing cycle/phase activation is refused, if a quick cooling/freezing cycle/phase is running the quick cooling/freezing cycle/phase ends, if a storing cycle/phase is running the output K 1 functioning gets established with the parameters C5, C6 and C7, if a defrost cycle is running the defrost cycle ends and the instrument never activates a defrost cycle.

If the display **DY1** displays the indication "E3" flashing alternated to the temperature read by the cabinet probe and the buzzer utters an intermittent been (needle probe failure alarm) it means that there is one of the faults saw in the previous case but referred to the needle probe: during this alarm a guick cooling/freezing for temperature cycle/phase activation is refused.

If the display DY1 displays the indication "E1" flashing alternated to the temperature read by the cabinet/needle probe and the buzzer utters an intermittent been (evaporator probe failure alarm) it means that there is one of the faults saw in the previous case but referred to the evaporator probe: during this alarm if a storing cycle/phase is running and the parameter FO has value 0 the output K 2 gets forced to the status OFF, if a defrost is running the defrost ends and the instrument never activates a defrost cycle.

If the display DY1 displays the indication "]-[" flashing alternated to the temperature read by the cabinet probe (door switch digital input alarm) it means that the door switch digital input is active (deactivate the door switch digital input, see the parameters u0 and u2); during this alarm a cycle activation is refused and gets given the action established with the parameter u0. If the display DY1 displays the indication "]-[" flashing alternated to the temperature read by the cabinet/needle probe and the buzzer utters an intermittent beep (door switch digital input alarm) it means that the door switch digital input is active (deactivate the door switch digital input, see the parameters u0, u1 and u2); during this alarm gets given the action established with the parameters u0 and u1.

If the display DY1 displays the indication "dEF" alternated to the indication "]-[" and the buzzer utters an intermittent beep (door switch digital input alarm during a defrost cycle) it means that the door switch digital input is active during a defrost cycle and that the instrument was set to manage defrost to resistances (electrical) or hot gas defrost (reversal of cycle) (deactivate the door switch digital input, see the parameters u0, u1 and u2); during this alarm gets given the action established with the parameters u0 and u1.

If the display DY1 displays the indication "dEF" alternated to the indication "1-f" (door switch digital input alarm during a defrost cycle) it means that the door switch digital input is active during a defrost cycle and that the instrument was set to manage air defrost (open door) (deactivate the door switch digital input, see the parameters u0 and u2); during this alarm gets given the action established with the parameter u0.

If the display DY1 displays the indication "o--" flashing and the buzzer utters an intermittent beep (unsuccessful needle probe proper insertion verify) it means that the needle probe proper insertion verify is unsuccessful (turn OFF and turn ON again the instrument, see the parameters c7 and CE): during this alarm the outputs K1, K2 and K3 get forced to the status

If the display DY1 displays the temperature read by the needle probe, the display DY2 displays the indication "O" flashing and the buzzer utters an intermittent been (unsuccessful quick cooling/freezing) it means that a quick cooling/freezing cycle/phase is unsuccessful (see the parameters c1 and c2 or c4 and c5); inactive.

If the display DY1 displays the indication "End" flashing, the display DY2 displays the indication "---" flashing and the buzzer utters an intermittent beep (quick cooling/freezing ended but unsuccessful) it means that a quick cooling/freezing cycle/phase is ended but it is unsuccessful (see the parameters c1 and c2 or c4 and c5); during this alarm the outputs K1, K2 and K 3 gets forced to the status OFE

If the display DY1 displays the temperature read by the cabinet probe, the display DY2 displays the indication "---" flashing and the buzzer utters an intermittent beep (quick cooling/freezing ended but unsuccessful and storing activated) it means that a quick cooling/freezing phase is ended but it is unsuccessful and that the instrument automatically moved to the storing phase (see the parameters c1 and c2 or c4 and c5); inactive.

If the display DY1 displays the indication "AL" alternated to the temperature read by the cabinet probe and the buzzer utters an intermittent beep (temperature alarm) it means that the

temperature read by the cabinet probe is outside the limit established with the parameter A1 or A2 or A3 or A4 (see the parameters A0, A1, A2, A3 and A4); inactive. ADDITIONAL INFORMATIONS

the alarm codes are related in order of precedence.

## TECHNICAL DATA

COD

Inst

Desi

Desi

TECHNICAL DATA	
Case:	plastic black (PP0), self-extinguishing.
Size:	72 x 144 x 79 mm (2.83 x 5.66 x 3.11 in.), with termina blocks.
Installation:	panel mounting, panel cutout $67 \times 138$ mm (2.63 x 5.43 in.), with the equipped screw brackets.
Type of protection:	IP 54.
Connections:	extractable screw terminal blocks with pitch 7.5 mm (0.29 in., power supply and outputs) and with pitch 5 mm (0.19 in., inputs) for cables up to 2.5 mm <sup>2</sup> (0.38 in. <sup>2</sup> ).
Ambient temperature:	from 0 to +60 °C (+32 to +140 °F, 10 90 % of not con- densing relative humidity).
Power supply:	230 Vac, 50/60 Hz, 4 VA.
Insulation class:	П.
Alarm buzzer:	incorporated.
Measure inputs:	3 (cabinet, evaporator and needle probe) for PTC probes.
Digital inputs:	2 (5 V, 1 mA) of which one door switch configurable to interact on the outputs activity and for NO or NC contact and one locking configurable to interact on the instrument status and for NO or NC contact.
Working range:	from -50 a +150 °C.
Setting range:	from -55 to +99 °C.
Timer setting range:	from 1 to 400 min. for the quick cooling/freezing for temperature from 0 to 999 min. for the quick cooling/freezing for time.
Resolution:	1 °C.
Display:	two 3-digit display 12.5 mm (0.49 in.) high red LED dis- play with automatic minus sign, functioning status indica- tors, programming status indicators.
Outputs:	four relays of which one 16 (2) A @ 250 Vac relay for one 11½ HP @ 250 Vac compressor (NO contact) management and three 6 (2) A @ 250 Vac relays for evaporator fans (NC contact), defrost system (change-over contact) manage- ment and for cabinet light (NO contact) control.
Kind of defrost managed:	to resistances (electrical), to hot gas (reversal of cycle), and to air (open door) automatic and manual.
Defrost management:	for interval, stopping temperature and maximum length.

#### **HOW TO ORDER**

ING SYSTEM	
rument name:	EK 820A.
ired measure input:	P (for PTC probes).
ired power supply:	220 (230 Vac).

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick freezing for time cycle activation is refused
- for the whole period of a locking digital input alarm the quick freezing for time cvcle activation is refused
- for the whole period of a cabinet probe failure alarm the quick freezing for time cycle activation is refused
- for the whole period of a door switch digital input alarm the guick freezing for time cycle activation is refused
- during a quick freezing for time cycle the instrument never automatically presents a request of a defrost cycle, except what established with the parameter d4.

#### COLD STORING CYCLE

Pushing and releasing the key T7 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L7 is associated to the cold storing cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected

Pushing and releasing the key T3 the cycle gets activated; the LED L2 is associated to the storing, it is turned ON when the storing is running and it is turned OFF when the storing is not running

During this cycle the display **DY1** displays the temperature read by the cabinet probe. The output K 1 is associated to the compressor and to the cold storing setpoint, it remains activated continuously as long as the temperature read by the cabinet probe reaches the cold storing setpoint and when it rises above the cold storing setpoint of the hysteresis value (differential) the output gets reactivated, except during a defrost and a dripping.

The output K 2 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 and when it falls below the output deactivation setpoint of the hysteresis value (differential) the output gets reactivated, except during a defrost cycle.

Passed the defrost interval from the moment in which the instrument activates the cycle 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 3 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 output K 1 gets forced to the status OFF and the output K 2 functioning gets established with the parameters of the family F if the instrument was set to manage hot gas defrost (reversal of cycle) during a defrost the output K 1 remains continuously activated and the output K 2 functioning gets established with the parameters of the family F if the instrument was set to manage air defrost (open door) during a defrost the output K 1 gets forced to the status OFF and the output K 2 nets forced to the status ON

Passed the dripping length from the moment of the defrost end the instrument automatically moves to the evaporator fans stoppage; if the instrument was set to manage defrost to resistances (electrical) or hot gas defrost (reversal of cycle) during a dripping the outputs K 1 and K 2 get forced to the status OFF, if the instrument was set to manage air defrost (open door) during a dripping the output K 1 gets forced to the status OFF and the output K 2 gets forced to the status ON

Passed the evaporator fans stoppage length from the moment of the dripping end the defrost cycle ends: if the instrument was set to manage defrost to resistances (electrical) or hot gas defrost (reversal of cycle) during an evaporator fans stoppage the output K 2 activation gets disabled, if the instrument was set to manage air defrost (open door) during an evaporator fans stoppage the output K 2 gets forced to the status ON.

Activating the door switch digital input the instrument interacts on the outputs activity according what established with the parameters of the family u

Activating the locking digital input the locking digital input alarm gets activated.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the cold storing cycle activation is refused
- for the whole period of a locking digital input alarm the cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the cold storing cycle activation is refused.

#### VERY COLD STORING CYCLE

Pushing and releasing the key T8 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure: the LED 18 is associated to the very cold storing cycle, it is turned ON when the cycle is selected and it is turned OFF when the cycle is not selected

Pushing and releasing the key T3 the cycle gets activated; the LED L2 is associated to the storing, it is turned ON when the storing is running and it is turned OFF when the storing is not runnina.

value (differential) the output gets reactivated, except during a defrost and a dripping The outputs K 2 and K 3 get activated with the same functioning saw in the case of cold storing

Activating the door switch digital input the instrument interacts on the outputs activity accord-

ing what established with the parameters of the family u Activating the locking digital input the locking digital input alarm gets activated

## ADDITIONAL INFORMATIONS

for the whole period of a corrupted memory data alarm the very cold storing cycle

activation is refused

- for the whole period of a locking digital input alarm the very cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the very cold storing cycle activation is refused

#### QUICK COOLING FOR TEMPERATURE AND COLD STORING CYCLE

Pushing and releasing the keys T4 and T7 during the status STAND-BY the cycle gets selected. except during the configuration parameters setting procedure: the LED 14 and 17 are associated to the quick cooling and cold storing cycle, they are turned ON when the cycle is selected and they are turned OFF when the cycle is not selected.

Ended the guick cooling for temperature phase the instrument automatically moves to the cold storing phase.

### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick cooling for temperature and cold storing cycle activation is refused
- for the whole period of a locking digital input alarm the quick cooling for temperature and cold storing cycle activation is refused
- for the whole period of a needle probe failure alarm the quick cooling for tempera ture and cold storing cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick cooling for tempera ture and cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the quick cooling for temperature and cold storing cycle activation is refused.

#### QUICK COOLING FOR TIME AND COLD STORING CYCLE

Pushing and releasing the keys T4 and T7 during the status STAND-RV the cycle gets selected except during the configuration parameters setting procedure: the LED L4 and L7 are associated to the guick cooling and cold storing cycle, they are turned ON when the cycle is selected and they are turned OFF when the cycle is not selected.

Ended the quick cooling for time phase the instrument automatically moves to the cold storing phase.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick cooling for time and cold storing cycle activation is refused
- for the whole period of a locking digital input alarm the quick cooling for time and cold storing cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick cooling for time and cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the guick cooling for time and cold storing cycle activation is refused.

#### QUICK FREEZING FOR TEMPERATURE AND VERY COLD STORING CYCLE

Pushing and releasing the keys T5 and T8 during the status STAND-BY the cycle gets selected except during the configuration parameters setting procedure; the LED L5 and L8 are associated to the quick freezing and very cold storing cycle, they are turned ON when the cycle is selected and they are turned OFF when the cycle is not selected.

Ended the quick freezing for temperature phase the instrument automatically moves to the very cold storing phase

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick freezing for temperature and very cold storing cycle activation is refused
- for the whole period of a locking digital input alarm the quick freezing for temperature and very cold storing cycle activation is refused
- for the whole period of a needle probe failure alarm the quick freezing for tempera ture and very cold storing cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick freezing for tempera ture and very cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the quick freezing for temperature and very cold storing cycle activation is refused.

#### QUICK FREEZING FOR TIME AND VERY COLD STORING CYCLE

Pushing and releasing the keys T5 and T8 during the status STAND-BY the cycle gets selected, except during the configuration parameters setting procedure; the LED L5 and L8 are associated to the quick freezing and very cold storing cycle, they are turned ON when the cycle is selected and they are turned OFF when the cycle is not selected.

Ended the quick freezing for time phase the instrument automatically moves to the very cold storing phase.

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the quick freezing for time and very cold storing cycle activation is refused
- for the whole period of a locking digital input alarm the quick freezing for time and very cold storing cycle activation is refused
- for the whole period of a cabinet probe failure alarm the quick freezing for time and very cold storing cycle activation is refused
- for the whole period of a door switch digital input alarm the quick freezing for time and very cold storing cycle activation is refused.

#### NEEDLE PROBE PROPER INSERTION VERIFY

Pushing and releasing the key T9 during the status STAND-BY the needle probe proper insertion verify gets selected or unselected, except during the configuration parameters setting procedure: the LED L9 is associated to the needle probe proper insertion verify, it is turned ON when the verify is not selected, it is turned OFF when the verify is selected and it flashes when the verify is running.

Pushing and releasing the key T3 the verify gets activated.

Passed the needle probe proper insertion verify length from the moment in which the instrument activates a quick cooling/freezing for temperature cycle/phase, if the temperature read by the needle probe is above the needle probe proper insertion verify stopping setpoint the

During this cycle the display DY1 displays the temperature read by the cabinet probe.

The output K 1 is associated to the compressor and to the very cold storing setpoint, it remains activated continuously as long as the temperature read by the cabinet probe reaches the very cold storing setpoint and when it rises above the very cold storing setpoint of the hysteresis

cvcle

instrument automatically moves to the quick cooling/freezing for temperature cycle/phase, if the temperature read by the needle probe is below the needle probe proper insertion verify stopping setpoint the unsuccessful needle probe proper insertion verify alarm gets activated. ADDITIONAL INFORMATIONS

the needle probe proper insertion verify has significance exclusively if a quick cooling/freezing for temperature cvcle/phase is selected.

## MANUAL DEFROST

Pushing and releasing the key T6 during the status STAND-BY the presentation of a request of a defrost cycle gets selected or unselected, except during the configuration parameters setting procedure: the LED L6 is associated to the defrost cycle, during the status ON it is turned ON when the cvcle is running and it is turned OFF when the cvcle is not running and during the status STAND-BY it flashes when the presentation of a request of a defrost cycle is selected. If the conditions permit it (the temperature read by the evaporator probe must be below the defrost stopping setpoint) pushing and releasing the key T3 the instrument presents a request of a defrost cycle

During a storing cycle/phase, if the conditions permit it (the temperature read by the evaporator probe must be below the defrost stopping setpoint) keeping pushed the key T6 for four seconds at least the instrument presents a request of a defrost cycle.

During a defrost cycle keeping pushed the key T6 for four seconds at least the defrost cycle ends.

## MANUAL VENTILATION

Keeping pushed the key T6 for four seconds at least during the status STAND-BY the output K 2 gets activated or deactivated, except during the configuration parameters setting procedure; the LED L6 is associated to the output status, during the status STAND-BY it is turned ON when the output is activated and it is turned OFF when the output is deactivated

#### ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the output K 2 activation is refused
- for the whole period of a locking digital input alarm the output K 2 activation is refused.

#### 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 keen pushed at the same time for four seconds at least the keys T1 and T2 during the status STAND-BY (passed four seconds the display DY1 displays the label

To select a parameter of the first level push and release over and over the key T1 or T2 as long as the display DY1 displays the label of the desired parameter

To modify the parameter value keep pushed the key T3 (the display DY1 displays the actual value) and at the same time push and release over and over the key T1 or T2 as long as the display DY1 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 display DY1 displays the label of the parameter again)

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

Keen pushed the key T3 (the display DY1 displays the actual value) and at the same time push and release over and over the key T1 or T2 as long as the display DY1 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 display DY1 displays the label PA again): keen pushed at the same time for four seconds at least the keys T1 and T2 (passed four seconds the display DY1 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 display **DY1** displays the label of the desired parameter.

To modify the parameter value keep pushed the key T3 (the display DY1 displays the actual value) and at the same time push and release over and over the key T1 or T2 as long as the display DY1 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 display DY1 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 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 configuration parameters values get stored in a non volatile memory even if a lack of power supply happens.

## CONFIGURABILITY

#### QUICK COOLING FOR TIME

LABEL MIN. MAX. U.M. ST. QUICK COOLING FOR TIME

0 999 min. 90 quick cooling/freezing for time length

#### It establishes the quick cooling/freezing for time cycle/phase length.

CONFIGURATION PARAMETERS

LABEL	MIN.	MAX.	U.M.	ST.	MEASURE INPUTS
/1	-10	+10	°C	0	calibration (§)
			hold to he sian		lgebraically to the signal coming from the cabinet probe (fo
instan	00 10 0	011001 1			
	. MIN.		U.M.	ST.	QUICK COOLING AND STORING REGULATOR

It establishes the hysteresis (differential) relative to the parameters c3, c6, cb and cC,

## c1 1 400 min. 90 quick cooling for temperature maximum length (§)

It establishes the guick cooling for temperature cycle/phase maximum length

Passed the quick cooling for temperature maximum length, if the temperature read by the needle probe is above the setpoint established with the parameter c2 the unsuccessful quick cooling/freezing alarm gets activated.

c2 -55 +99 °C +10 quick cooling for temperature stopping setpoint (§) It establishes the temperature to which a quick cooling for temperature cvcle/phase gets stopped and it is referred to the needle probe.

#### c3 -55 +99 °C +3 cold storing setpoint (§)

It establishes the temperature associated to the output K 1 during a cold storing cycle/phase. c4 1 400 min, 270 quick freezing for temperature maximum length (§)

It establishes the quick freezing for temperature cycle/phase maximum length.

Passed the quick freezing for temperature maximum length if the temperature read by the needle probe is above the setpoint established with the parameter c5 the unsuccessful quick cooling/freezing alarm gets activated.

#### c5 -55 +99 °C -18 quick freezing for temperature stopping setpoint (§)

It establishes the temperature to which a quick freezing for temperature cycle/phase gets stopped and it is referred to the needle probe.

c6 -55 +99 °C -25 very cold storing setpoint (§) It establishes the temperature associated to the output K 1 during a very cold storing cycle/

phase. c7 0 +99 °C +30 needle probe proper insertion verify stopping setpoint It establishes the temperature to which a needle probe proper insertion verify gets stopped and

it is referred to the needle probe.

#### c8 -55 +99 °C +65 quick cooling/freezing for temperature enabling setpoint (8)

It establishes the temperature below which it is possible to decrease the times established with the parameters c1 and c4 and it is referred to the needle probe.

c9 0 99 sec 3 buzzer activation length at the quick cooling/freezing end It establishes the buzzer activation length at the successful guick cooling/freezing for tempera-

ture cvcle/phase end and at the quick cooling/freezing for time cvcle/phase end. cA ------ °C --- needle probe reading (§)

- It permits to display the temperature read by the needle probe.
- ch -55 +99 °C -10 quick cooling setpoint (8)

It establishes the temperature associated to the output K 1 during a guick cooling cycle/phase.

cC -55 +99 °C -55 quick freezing setpoint (§) It establishes the temperature associated to the output K 1 during a quick freezing cycle/phase.

cE 1 99 sec. 35 needle probe proper insertion verify length

#### It establishes the needle probe proper insertion verify length.

Passed the needle probe proper insertion verify length from the moment in which the instrument activates a quick cooling/freezing for temperature cycle/phase, if the temperature read by the needle probe is below the setpoint established with the parameter c7 the unsuccessful needle probe proper insertion verify alarm gets activated.

LABEL	MIN.	MAX.	U.M.	ST.	OUTPUT K 1 PROTECTION	
CO	0	99	min.	0	disabling time to the output activation from the instru- ment start	
It establishes the time that disables the output activation from the moment in which the instru- ment gets supplied.						

C1	0	99	min.	0	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 99 min. O 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.

#### C5 0 99 min. 10 cycle time for the output activation during the storing during a cabinet probe failure alarm

It establishes the cycle time for the output activation due to the contribution established with the parameters C6 and C7 during a storing cycle/phase during a cabinet probe failure alarm.

C6 0 99 min 3 output activation length in the course of the cycle time during the cold storing during a cabinet probe failure alarm

It establishes the output activation length in the course of the cycle time established with the parameter C5 during a cold storing cycle/phase during a cabinet probe failure alarm, except

#### what established with the disabling times to the output K 1 activation. output activation length in the course of the cycle time C7 0 99 min. 8 during the very cold storing during a cabinet probe failure alarm

It establishes the output activation length in the course of the cycle time established with the parameter C5 during a very cold storing cycle/phase during a cabinet probe failure alarm, except what established with the disabling times to the output K 1 activation.

#### LABEL MIN. MAX. U.M. ST. DEFROST REGULATOR d0 0 99 (\*) 8 defrost interval

It establishes the time interval that pass from the moment in which the instrument activates a storing cycle/phase 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 2 --- 1 kind of defrost It establishes the kind of defrost that the instrument must manage, as indicated:

0 = to resistances (electrical) 4 to hot gas (reversal of cycle) 2 = to air (open door)

d2 -55 +99 °C +2 defrost stopping setpoint It establishes the temperature to which a defrost gets stopped and it is referred to the evaporator probe

1 = NC contact.

u4 0 999 sec. 5

in which the locking digital input alarm happens.

A0 +1 +15 °C +2 hysteresis (differential)

disabling time to the locking digital input alarm activa-

It establishes the time that disables the locking digital input alarm activation from the moment

It establishes the hysteresis (differential) relative to the parameters A1, A2, A3 and A4.

gets activated during a cold storing cycle/phase and it is referred to the cabinet probe.

gets activated during a cold storing cycle/phase and it is referred to the cabinet probe.

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

If the parameter A3 has value 0 the lower temperature alarm never gets activated.

If the parameter A4 has value 0 the upper temperature alarm never gets activated.

activation

A6 0 255 min. 0 disabling time to the alarm activation

reserved

reserved

reserved

the symbol (§) indicates that the parameter is of the first level

the symbol (\*) indicates that the unit of measure depends from the parameter db

during a "manual ventilation" function the parameters u1 and u2 has not signifi-

If the LED L1 is turned ON it means that a quick cooling/freezing cycle/phase is running.

If during the status STAND-BY the LED L6 is turned ON it means that the output K 2 is acti-

If the LED L9 is turned ON it means that the needle probe proper insertion verify is not selected.

If the LED L10 is turned ON it means that the quick cooling/freezing for temperature modality

If the LED L11 is turned ON it means that the quick cooling/freezing for time modality is se-

If the LED L12 is turned ON it means that the conditions do not permit to decrease the quick

cooling for temperature maximum length or the guick freezing for temperature maximum length

If the LED L6 flashes it means that the presentation of a request of a defrost cycle is selected.

If during the status ON the LED L6 is turned ON it means that a defrost cycle is running.

If the LED L2 is turned ON it means that a storing cycle/phase is running.

If the LED L3 is turned ON it means that the instrument is in the status ON.

If the LED L4 is turned ON it means that a guick cooling cycle/phase is selected.

If the LED 15 is turned ON it means that a quick freezing cycle/phase is selected.

If the LED L7 is turned ON it means that a cold storing cycle/phase is selected.

If the LED L8 is turned ON it means that a very cold storing cycle/phase is selected.

the instrument activates a storing cycle/phase.

LABELMIN, MAX, U.M. ST. RESERVED

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2 --- -- -- reserved

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--- --- ---

SIGNALS AND ALARMS

the temperature alarm happens.

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ADDITIONAL INFORMATIONS

cance

11 ---

Reserved.

Reserved

L3 ---

Reserved

14 ----

Reserved.

SIGNALS

vated

is selected.

(see the parameter c8)

lected

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

A1 -99 0 °C 0 lower alarm set relative to the cold storing setpoint

It establishes a threshold to add algebraically to the setpoint established with the parameter c3:

the value so obtained establishes the temperature below which the lower temperature alarm

A2 0 +99 °C 0 upper alarm set relative to the cold storing setpoint

It establishes a threshold to add algebraically to the setpoint established with the parameter c3:

the value so obtained establishes the temperature above which the upper temperature alarm

A3 -99 0 °C 0 lower alarm set relative to the very cold storing setpoint

It establishes a threshold to add algebraically to the setupint established with the parameter c6-

the value so obtained establishes the temperature below which the lower temperature alarm

A4 0 +99 °C 0 upper alarm set relative to the very cold storing setpoint

It establishes a threshold to add algebraically to the setpoint established with the parameter c6;

the value so obtained establishes the temperature above which the upper temperature alarm

A5 0 255 min. 30 disabling time to the alarm activation from the storing

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

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

gets activated during a very cold storing cycle/phase and it is referred to the cabinet probe.

gets activated during a very cold storing cycle/phase and it is referred to the cabinet probe.

LABELMIN. MAX. U.M. ST. TEMPERATURE ALARM REGULATOR

d3 1 99 (\*) 30 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 quick cooling/freezing activation

It establishes if the instrument automatically must present a request of a defrost cycle in the moment in which the instrument activates a quick cooling/freezing cycle/phase, as indicated: 0 - inactive

1 - the instrument automatically presents a request of a defrost cycle in the moment in which the instrument activates a quick cooling/freezing cycle/phase.

## d7 0 99 (\*) 2 dripping length

It establishes the dripping length.

d9 0 1 --- 0 disabling times to the output K 1 activation override It is significant exclusively if the parameter d1 has value 1, it establishes if to clear the disabling times to the output K 1 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 output K 1 activation get cleared.

### dA --- °C --- evaporator probe reading (§)

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

db 0 1 --- 0 times base for the parameters d0, d3, d7 and F5

- It establishes the unit of measure of the parameters d0, d3, d7 and E5, as indicated: 0 - the unit of measure of the parameter d0 is the hour and the unit of measure of the
- narameters d3 d7 and E5 is the minute
- 1 = the unit of measure of the parameter d0 is the minute and the unit of measure of the parameters d3, d7 and F5 is the second.
- LABELMIN, MAX, U.M. ST. EVAPORATOR FANS REGULATOR ASSOCIATED TO THE OUTPUT K 2

#### F0 0 1 --- 0 output functioning

It is significant exclusively during a storing cycle/phase and during a defrost if the parameter d1 has value 0 or 1, it establishes the output functioning, as indicated:

- 0 = 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, except what established with the parameters d7, F3, F4 and F5
- the output gets forced to the status ON, except what established with the parameters d7. 1 = F3. F4 and F5.

#### F1 -55 +99 °C -1 output deactivation setpoint It is significant exclusively if the parameter FO has value 0, it establishes the temperature to

which the output gets deactivated and it is referred to the evaporator probe. F2 +1 +15 °C +1 hysteresis (differential) It is significant exclusively if the parameter F0 has value 0, it establishes the hysteresis (differential) relative to the parameter F1.

#### F3 0 1 --- 1 output typology

output to the status OFF during a defrost, as indicated:

It establishes the evaporator fans stoppage length.

1 --- 1

LABELMIN. MAX. U.M. ST. DIGITAL INPUTS

1 = during a defrost the output gets forced to the status OFF.

F5 0 99 (\*) 3 evaporator fans stoppage length

0 = inactive

0 = inactive

u0 0

activation as indicated:

activation, as indicated: 0 = inactive

0 = NO contact 1 = NC contact

NO contact

0 = inactive

ON

It is significant exclusively during a storing cycle/phase, it establishes a bond with the output K 1 status as indicated: 1 = during the status OFF of the output K 1 the output gets forced to the status OFF.

F4 0 1 --- 1 output forced to the status OFF during the defrost

It is significant exclusively if the parameter d1 has value 0 or 1, it establishes if to force the

digital input activation

It establishes if to force the output K 4 to the status ON during the door switch digital input

1 = during the door switch digital input activation the output K 4 gets forced to the status

u1 0 1 --- 1 output K 2 forced to the status OFF during the door switch

dinital innut activation

It establishes if to force the output K 2 to the status OFF during the door switch digital input

1 = during the door switch digital input activation the output K 2 gets forced to the status

If the parameter d1 has value 2, during a defrost cycle the parameter u1 has not significance.

u2 0 1 --- 0 kind of contact of the door switch digital input

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

u3 0 1 --- 0 kind of contact of the locking digital input

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

output K 4 forced to the status ON during the door switch