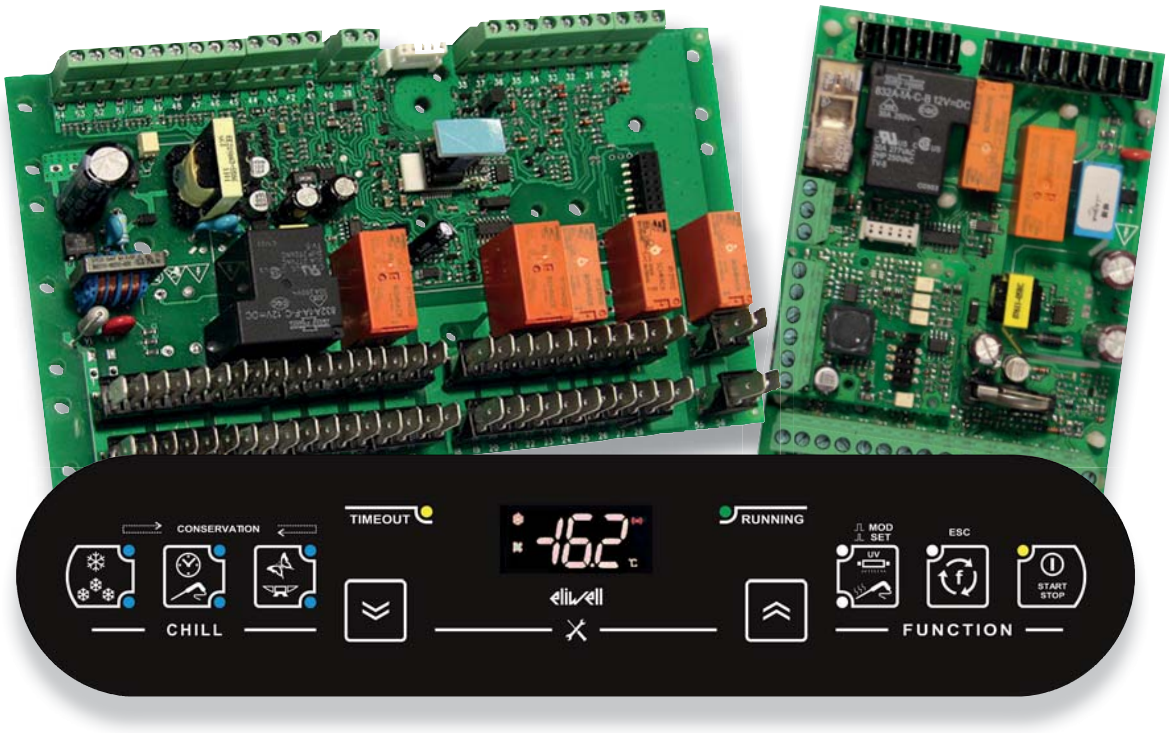
eliwell
by Schneider Electric

EWBC 800

Controllers for blast chillers with capacitive Touch keypad



USER MANUAL

9MA10246.02

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Eliwell nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.
If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Eliwell software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

TABLE OF CONTENTS

SAFETY INFORMATION

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to inform of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result** in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Eliwell for any consequences arising out of the use of this material.
A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Permitted use

This product should be used to control professional Blast Chillers.

For safety reasons, the product must be installed and used in accordance with the instructions provided. In particular, parts carrying dangerous voltages must not be accessible under normal conditions. It must be adequately protected from water and dust according to the application, and must be accessible only using a tool.

The product is suitable for use in a blast chiller for professional refrigeration appliances and has been tested for safety aspects in accordance with the harmonized European reference standards.

Prohibited use

Any use other than that expressly permitted is prohibited.

The relay contacts provided are mechanical and subject to failure: any protection devices required by reference standards, or suggested by good practice in view of obvious safety requirements, must be installed externally of the product.

Disclaimer

Liability and residual risks

Eliwell liability is limited to the proper and professional use of this product under the guidelines contained in the present and other supporting documents, and does not extend to damages caused by (but not limited to):

- unspecified installation/use and, in particular, in contravention of the safety requirements of the legislation in force in the Country of installation and/or specified in this document;
- use on blast chillers which do not provide adequate protection against electrocution, water and dust in the actual installation conditions;
- use on blast chillers allowing access to dangerous parts without having to use tools;
- tampering with and/or modification of the product;
- installation/use on blast chillers that do not comply with the regulations in force in the Country of installation.

Disposal

The equipment (or product) must be subjected to separate waste collection in compliance with the local legislation on waste disposal.

Manufacturing Date

The manufacturing date appears on the device label to indicate production week and year (WW-YY).

Product related information

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected devices prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is removed.
- Replace and secure all covers, accessories, hardware, cables and wires.
- For all the devices where this is provided, confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.

Failure to follow these instructions will result in death or serious injury.

This equipment has been designed to operate outside of any hazardous location.
Only install this equipment in zones known to be free of hazardous atmosphere.

⚠ DANGER

POTENTIAL FOR EXPLOSION

Install and use this equipment in non-hazardous locations only.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop, power outage and restart.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.
- Observe all accident prevention regulations and local safety guidelines.(1)
- Each implementation of this equipment must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

(1) For additional information, refer to NEMA ICS 1.1 (latest edition), “Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control” and to NEMA ICS 7.1 (latest edition), “Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems” or their equivalent governing your particular location.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Only use software approved by Eliwell for use with this equipment.
- Update your application program every time you change the physical hardware configuration.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

ABOUT THE BOOK

Document Scope

This document describes the controllers for blast chillers with capacitive Touch keypad, including information concerning installation and wiring.

NOTE: Read and understand this document and the related documents before installing, operating, or maintaining your controller.

Validity Note

This document is valid for **EWBC 800** blast chillers (models **EWBC 854** and **EWBC 875**).

The technical characteristics of the devices described in this manual also appear online.

The characteristics that are presented in this manual should be the same as those characteristics that appear online.

In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

Related Documents

Title of Documentation	Reference Document Code
User Guide - EWBC 800	9MA00246 (IT)
Instruction Sheet - Base board EWBC 800	9IS24353 (IT/EN)
Instruction Sheet - Base board EWBC 800	9IS54369 (ES)
Instruction Sheet - Base board EWBC 800	9IS54370 (DE)
Instruction Sheet - Base board EWBC 800	9IS54371 (FR)
Instruction Sheet - Keypad EWBC 800	9IS24354 (IT/EN)
Instruction Sheet - Keypad EWBC 800	9IS54379 (ES)
Instruction Sheet - Keypad EWBC 800	9IS54380 (DE)
Instruction Sheet - Keypad EWBC 800	9IS54381 (FR)

You can download these technical publications and other technical information from our website at:
www.eliwell.com

CHAPTER 1
INTRODUCTION

1.1. DESCRIPTION

EWBC 800 (**Fig. 1 on page 10**) consists of an electronics control board, called the ‘base’, and a capacitive touch keypad with display, called the ‘user interface’.

EWBC 800 should be incorporated into Customer applications for controlling basic blast chiller functions.
The power board is supplied ‘open’, and is equipped with a microcontroller, inputs and outputs; the user interface is equipped with keys, LEDs and a display.

NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) refer to the instrument alone and not to any accessories provided (for example: probes).

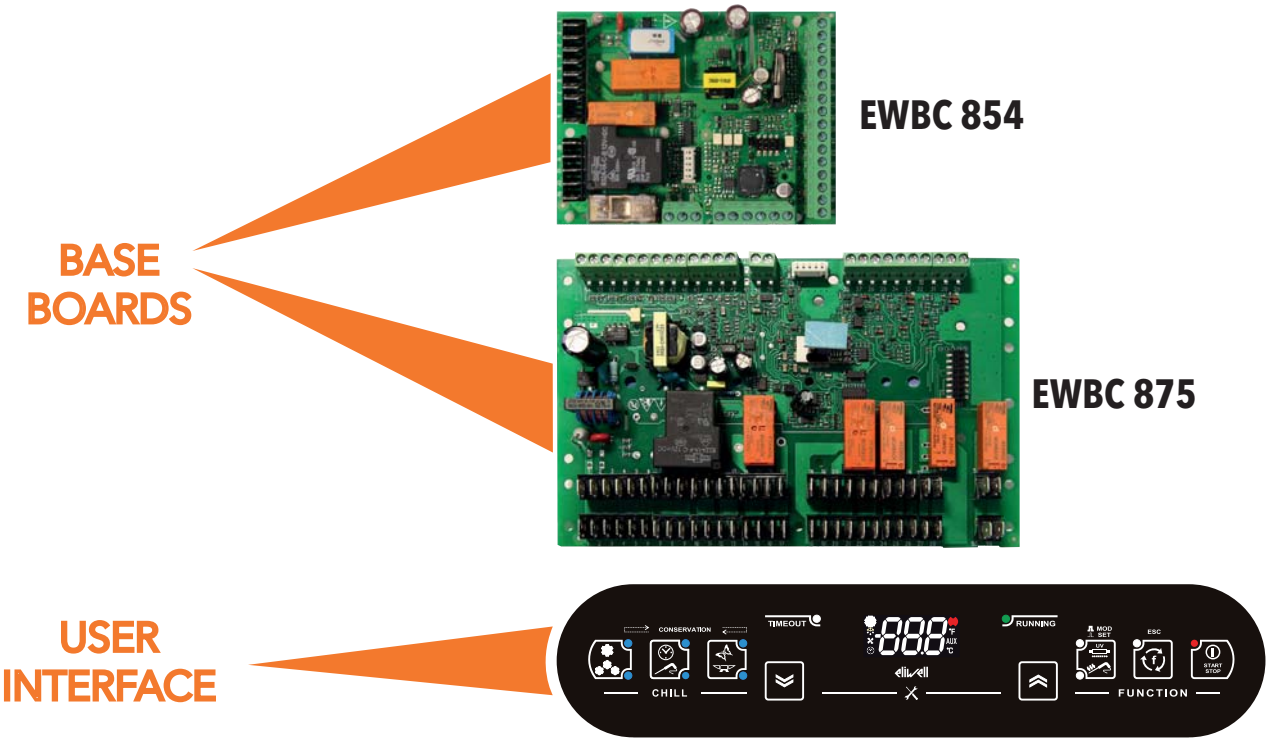


Fig. 1. **EWBC 800**: power bases and user interface

1.2. GLOSSARY

BLAST CHILLING

Process by which the temperature of the food products is lowered abruptly, cooling or freezing them.
The sudden drop in temperature ensures compliance with the organoleptic qualities of the food product, which can then be stored.

It is divided into:
- Positive blast chilling, or blast chilling correctly called cooling;
- Negative blast chilling, or blast chilling correctly called freezing.

BLAST CHILLER

Machine used to run the blast chilling cycle and the subsequent storage of a food product.

STORAGE

Next step in the blast chilling cycle, in which the food product is maintained at a certain temperature in order to preserve its cooling or freezing.

It is divided into:
- Positive storage, in the case of cooling;
- Negative storage, in the case of freezing.

DEFROST

Process of ice and frost accumulations removal from the inner walls of the refrigeration plants.

UNFREEZING

Function for rapidly unfreezing foods in a uniform manner without partial cooking, maintaining the natural humidity and fragrance (**EWBC 875** only).

PRE-COOKING

Function that cooks food gradually, enhancing the flavour and preserving all the nutritional properties and the natural humidity and consistency (**EWBC 875** only).

HACCP

HACCP (Hazard Analysis and Critical Control Points) alarms management with recording of the 10 most recent events (**EWBC 875** only).

‘OPEN’ BOARD

Board without protective casing.

COLD ROOM SETPOINT

Constant temperature value at which the cold room is maintained during the blast chilling cycle.

NEEDLE PROBE

Type of probe with ‘needle’ shape (**Fig. 2 on page 12**) that allows to pierce a food product to detect the temperature of its core.

Fig. 2. Needle probe

STAND-BY STATUS

Status in which the blast chiller is not running a program or function, and the user interface is switched off.

STOP STATUS

Status in which the blast chiller is not running a program or function, and the user interface is switched on and enabled.

STERILIZATION

Chemical or physical process that leads to the elimination of every living organism, both pathogenic and non-pathogenic, including spores and fungi. It is typically implemented through the use of a UV (Ultra Violet) lamp, i.e. that emits ultraviolet rays.

NEEDLE PROBE TARGET (CORE)

Temperature value, measured by the needle probe (core), at which the blast chilling cycle stops and the storage phase begins.

CHAPTER 2
TECHNICAL DATA

2.1. TECHNICAL DATA (EN 60730-2-9)

2.1.1. USER INTERFACE TECHNICAL DATA

Power supply:	12 Vdc (provided by **EWBC 800** base board)
Insulation class:	2
Temperature:	operating: -5 ... 55 °C (23 ... 131 °F) - storage: -30 ... 85 °C (-22 ... 185 °F)
Ambient humidity:	operating / storage: 10 ... 90 % (non-condensing)
Base-Keypad connectors:	**BASE**: Screw-type terminal block for cables with a cross-section up to 2,5 mm^2 (13 AWG) **KEYPAD**: JST 3-way quick connector
Keypad dimensions:	64x296 mm (2,52x11,65 in.)

2.1.2. EWBC 800 TECHNICAL DATA

	EWBC 854	EWBC 875
Classification:	electronic automatic control (not safety) device for incorporation	
Installation:	open board	
Type of action:	1.B	
Pollution class:	2	
Insulation material class:	IIIa	
Over voltage category:	II	
Nominal pulse voltage:	2500 V	
Temperature:	operating: -5 ... 55 °C (23 ... 131 °F) - storage: -30 ... 85 °C (-22 ... 185 °F)	
Power supply:	SMPS 100 ... 240 Vac ±10% 50/60 Hz	
Maximum consumption:	5.5 W	7.5 W
Fire resistance category:	D	
Software class:	A	
RTC battery life:	---	In a power failure, the clock battery will last 4 days

NOTE: The degree of protection (IP) to the User depends on the characteristics of the machine in which **EWBC 800** is integrated. It has high voltage contacts and must therefore be protected against User access complying with the measures provided by the law in force in the Country where the unit is installed.

2.2. FURTHER INFORMATION

2.2.1. EWBC 854

INPUT CHARACTERISTICS:

Measurement range:	**NTC**: –50...110 °C (-58...230 °F) - Model KTY 83-121 1 kΩ 1% **PTC**: –55...150 °C (-67...302 °F) - Model 103AT - 10 kΩ / 25 °C (on 3-digit display with +/- sign)
Accuracy:	±1,0 °C/°F for temperatures below -30 °C (-22 °F) ±0,5 °C/°F for temperatures between -30 ... 25 °C (-22 ... 77 °F) ±1,0 °C/°F for temperatures between 25 ... 80 °C (77 ... 176 °F) ±2,0 °C/°F for temperatures above 80 °C (176 °F)
Resolution:	1 or 0,1 °C (1 or 0,1 °F)
Buzzer:	NO
Analogue inputs:	**WARNING!**: The probe can break if outside the usage range **PB1**: PTC not configurable (**default:** Needle probe) **PB2***: NTC/PTC configurable (**default:** Cold room probe) **PB3***: NTC/PTC configurable (**default:** Evaporator/defrost probe) **PB4***: NTC/PTC configurable (**default:** Condenser probe) ***** Jointly configurable as PTC or NTC (**tP0**)
Digital inputs:	**DI**: Voltage-free with closing current for ground (closing current referred to ground 0.5 mA) (**default:** blast chiller door closing control switch) **PB5**: Voltage-free with closing current for ground (closing current referred to ground 0.5 mA) (**default:** pressure switch)

OUTPUT CHARACTERISTICS:

Digital outputs:	**R1**: SPST relay: 2 HP - 240 Vac max (parameter **Fr1 - default:** Compressor) **R2**: SPDT relay: 16 A - 250 Vac max (parameter **Fr2 - default:** Evaporator fan) **R3**: SPDT relay: 8(4) A - 250 Vac max (parameter **Fr3 - default:** Condenser fan) **R4**: SPST relay: 8(4) A - 250 Vac max (parameter **Fr4 - default:** Door heating)
OC (SSR) output:	**R5**: Open collector **OC** for external relay connection, 12 Vdc - 20 mA (parameter **Fr5 - default:** NOT USED)

MECHANICAL CHARACTERISTICS:

Dimensions:	121x92 mm (4.76x3.62 in.)
Terminals:	• Faston 6.3 mm (0.25 in.) connectors for cables with a cross-section of 2.5 mm^2 (13 AWG) for power supply and relay outputs • Screw-on terminals for cables with cross-section of 2.5 mm2 (13 AWG) for inputs and OC digital output
Serial ports:	• 3-way voltage serial connector for connection to **KEYB** keypad • TTL 5-way connector for connection to Unicard / Device Manager (via DMI) (maximum length 3 m / 118 in.)
Ambient humidity:	Operation / Storage: 10…90 %RH (non-condensing)

REGULATION:

Food safety:	The device complies with standard EN13485 as follows: • suitable for storage • application: air • climate range: A • measurement class 1 in the range -25...15 °C (-13...59 °F) (*****) **(* using Eliwell probes only)**

NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) refer to the device alone and not to any accessories provided (for example: probes).

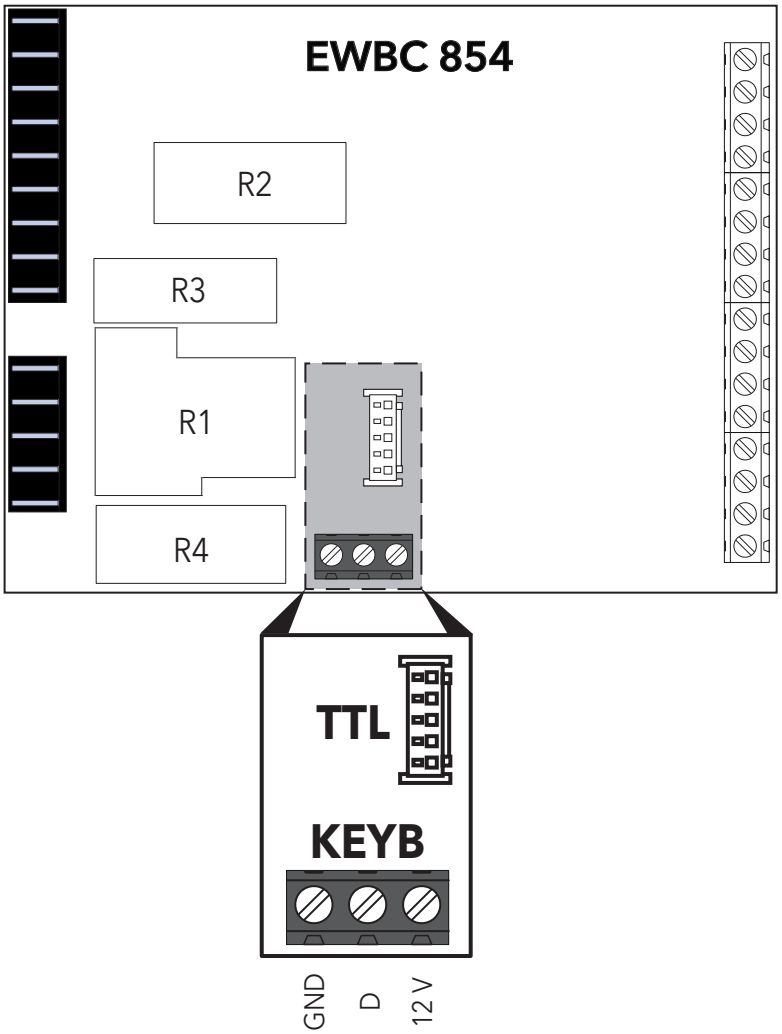


Fig. 3. Serial ports: **TTL** and **KEYB**

2.2.2. EWBC 875

INPUT CHARACTERISTICS:

Measurement range:	**NTC**: –50...110 °C (-58...230 °F) - Model KTY 83-121 1 kΩ 1% **PTC**: –55...150 °C (-67...302 °F) - Model 103AT - 10 kΩ / 25 °C (on 3-digit display with +/- sign)
Accuracy:	±1,0 °C/°F for temperatures below -30 °C (-22 °F) ±0,5 °C/°F for temperatures between -30 ... 25 °C (-22 ... 77 °F) ±1,0 °C/°F for temperatures between 25 ... 80 °C (77 ... 176 °F) ±2,0 °C/°F for temperatures above 80 °C (176 °F)
Resolution:	1 or 0,1 °C (1 or 0,1 °F)
Buzzer:	NO
Analogue inputs:	**WARNING!**: The probe can break if outside the usage range **PB1**: PTC not configurable (**default:** Needle probe) **PB2***: NTC/PTC configurable (**default:** Cold room probe) **PB3***: NTC/PTC configurable (**default:** Evaporator/defrost probe) **PB4***: NTC/PTC configurable (**default:** Condenser probe) **PB5**: NOT USED ***** Jointly configurable as PTC or NTC (**tP0**)
Digital inputs:	**DI1/DI2**: Voltage-free with closing current for ground (closing current referred to ground 0.5 mA) **Default:** - **DI1**: blast chiller door closing control switch - **DI2**: pressure switch **DI3**: NOT USED

OUTPUT CHARACTERISTICS:

Digital outputs:	**R1**: SPST relay: 2 HP - 240 Vac max (parameter **Fr1 - default:** Compressor) **R2**: SPST relay: 16 A - 250 Vac max (parameter **Fr2 - default:** Evaporator fan) **R3**: SPDT relay: 16 A - 250 Vac max (parameter **Fr3 - default:** Condenser fan) **R4**: SPDT relay: 8(4) A - 250 Vac max (parameter **Fr4 - default:** Door heating) **R5**: SPST relay: 8(4) A - 250 Vac max (parameter **Fr5 - default:** Room light) **R6**: SPST relay: 8(4) A - 250 Vac max (parameter **Fr6 - default:** NOT USED)
OC (SSR) output:	**R7**: Open collector **OC** for external relay connection, 12 Vdc - 20 mA (parameter **Fr7 - default:** Cold room heating resistance)

MECHANICAL CHARACTERISTICS:

Dimensions:	194,5x124 mm (7,66x4,88 in.)
Terminals:	• Faston 6.3 mm (0.25 in.) connectors for cables with a cross-section of 2.5 mm^2 (13 AWG) for power supply and relay outputs • Screw-on terminals for cables with cross-section of 2.5 mm2 (13 AWG) for inputs and OC digital output
Serial ports:	• 3-way voltage serial connector for connection to **KEYB** keypad • TTL 5-way connector for connection to Unicard / Device Manager (via DMI) (maximum length 3 m / 118 in.)
Ambient humidity:	Operation / Storage: 10…90 %RH (non-condensing)

REGULATION:

Food safety:	The device complies with standard EN13485 as follows: • suitable for storage • application: air • climate range: A • measurement class 1 in the range -25...15 °C (-13...59 °F) (*****) **(* using Eliwell probes only)**

NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) refer to the device alone and not to any accessories provided (for example: probes).

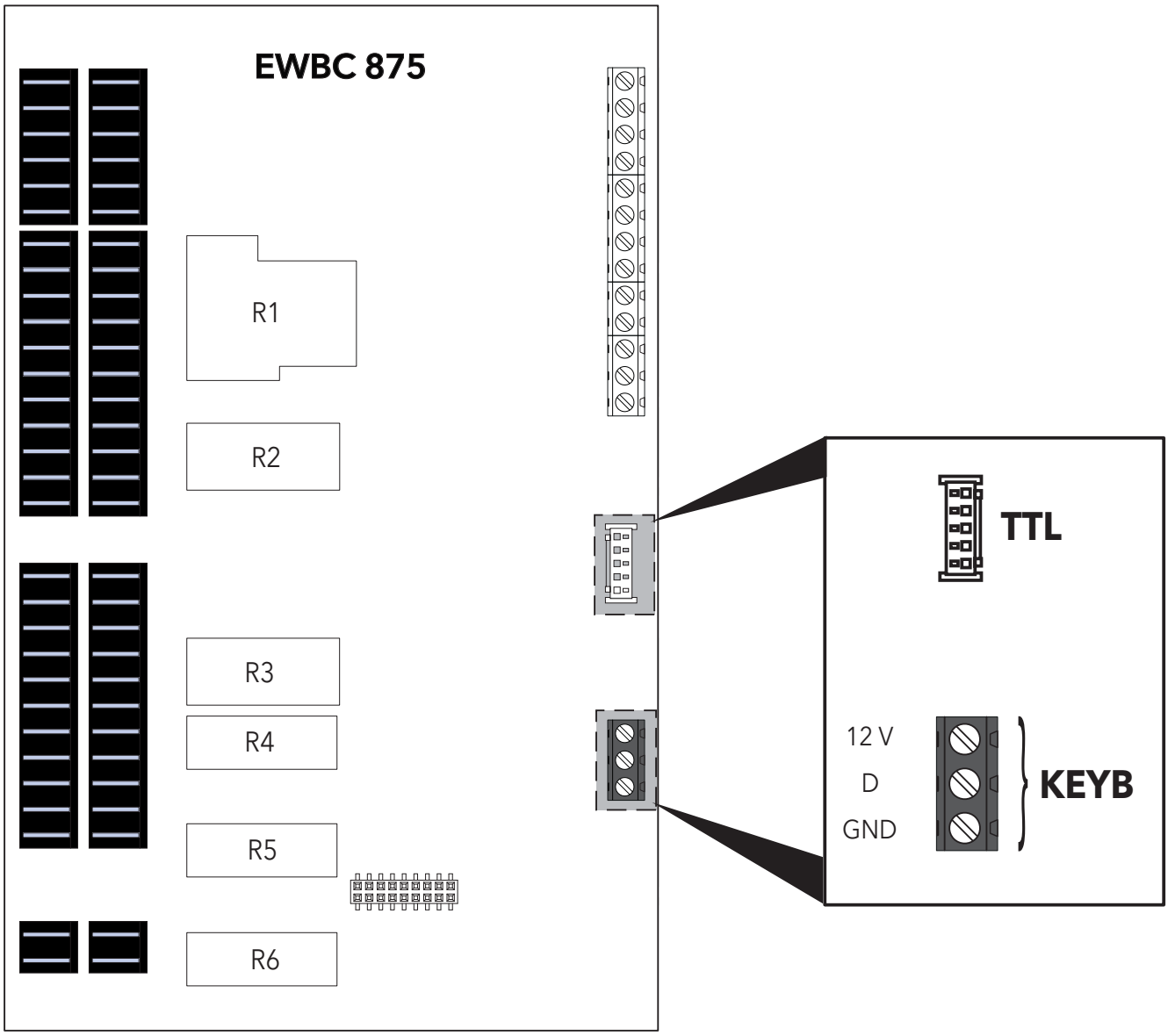


Fig. 4. Serial ports: **TTL** and **KEYB**

2.2.3. BUZZER

The **EWBC 800** user interface has a buzzer that produces two types of acoustic signals:

Short beep:
To confirm the buttons have been pressed (only buttons enabled for the current application) and only if the button is active. In this case the buzzer is managed with priority by the user interface.

Long beep:
In the event of functional alarms (alarm conditions, cycle stopped, confirm, error, etc.), and is managed from the base board.

2.3. MECHANICAL INSTALLATION AND DIMENSIONS

Care must be taken to avoid damage from electrostatic sources when handling this device.

In particular exposed connectors and, in some cases, exposed printed circuit boards are exceptionally vulnerable to electrostatic discharge.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE DAMAGE

- Keep device in the protective conductive packaging until you are ready to install the equipment.
- Only install device in approved enclosures and / or locations that prevent casual access and provide electrostatic discharge protection as defined by IEC 1000-4-2.
- Use a conductive wrist strap or equivalent field force protective device attached to an earth ground when handling sensitive device.
- Always discharge yourself by touching a grounded surface or approved antistatic mat before handling the device.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Do not install **EWBC 800** in places subject to high humidity and/or dirt; it is intended for use in sites with ordinary or normal levels of pollution. Keep the area around the blast chiller cooling slots adequately ventilated.

2.3.1. EWBC 854 INSTALLATION AND DIMENSIONS

Base installation takes place inside the blast chiller, with plastic spacers applied to the holes (**A**) already present.

NOTE: To install it, ONLY use plastic spacers.

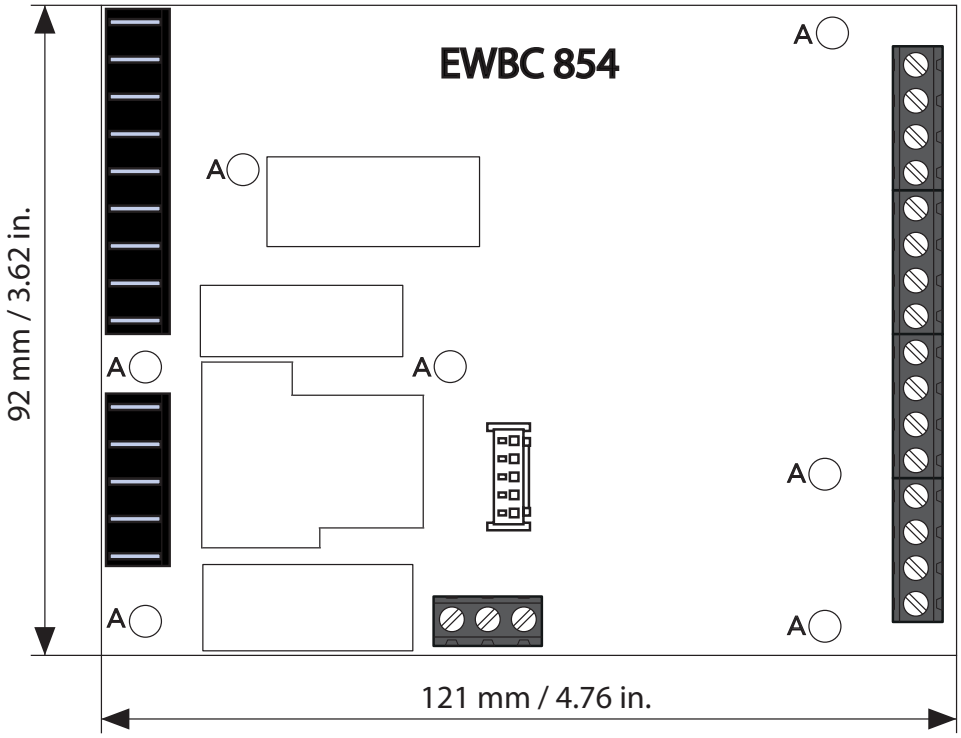


Fig. 5. **EWBC 854** installation and dimensions

2.3.2. EWBC 875 INSTALLATION AND DIMENSIONS

Base installation takes place inside the blast chiller, with plastic spacers applied to the holes (**A**) already present.

NOTE: To install it, ONLY use plastic spacers.

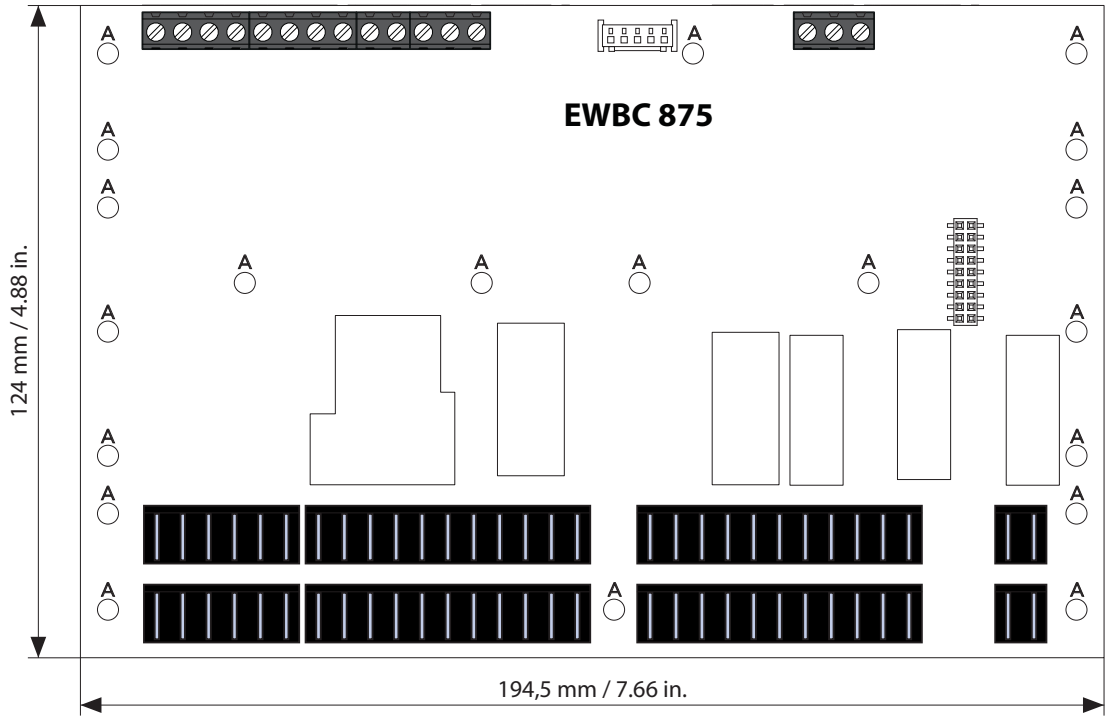


Fig. 6. **EWBC 875** installation and dimensions

2.3.3. USER INTERFACE INSTALLATION AND DIMENSIONS

The user interface dimensions are given in **Fig. 7 on page 19**.

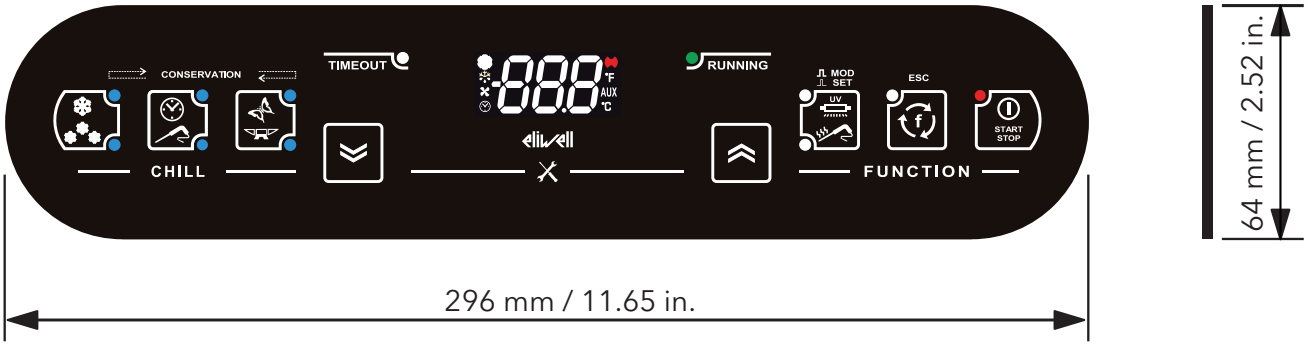


Fig. 7. User interface dimensions

The user interface should be fitted to a drilled and suitably outlined surface on the blast chiller.

To install the user interface, proceed as follows:

1. clean the surface to remove any greasy, dusty or dirty residues;
2. remove the double-sided tape protection strip from the back of the user interface;
3. stick the user interface onto the drilled surface on the blast chiller;
4. remove the protective film from the front of the user interface.

NOTE: The following conventions are used:

- the blast chiller is indicated in **GREY**
- the protective film is indicated in **GREEN**
- the user interface is indicated in **BLACK**
- the double-sided tape protection strip is indicated in **RED**

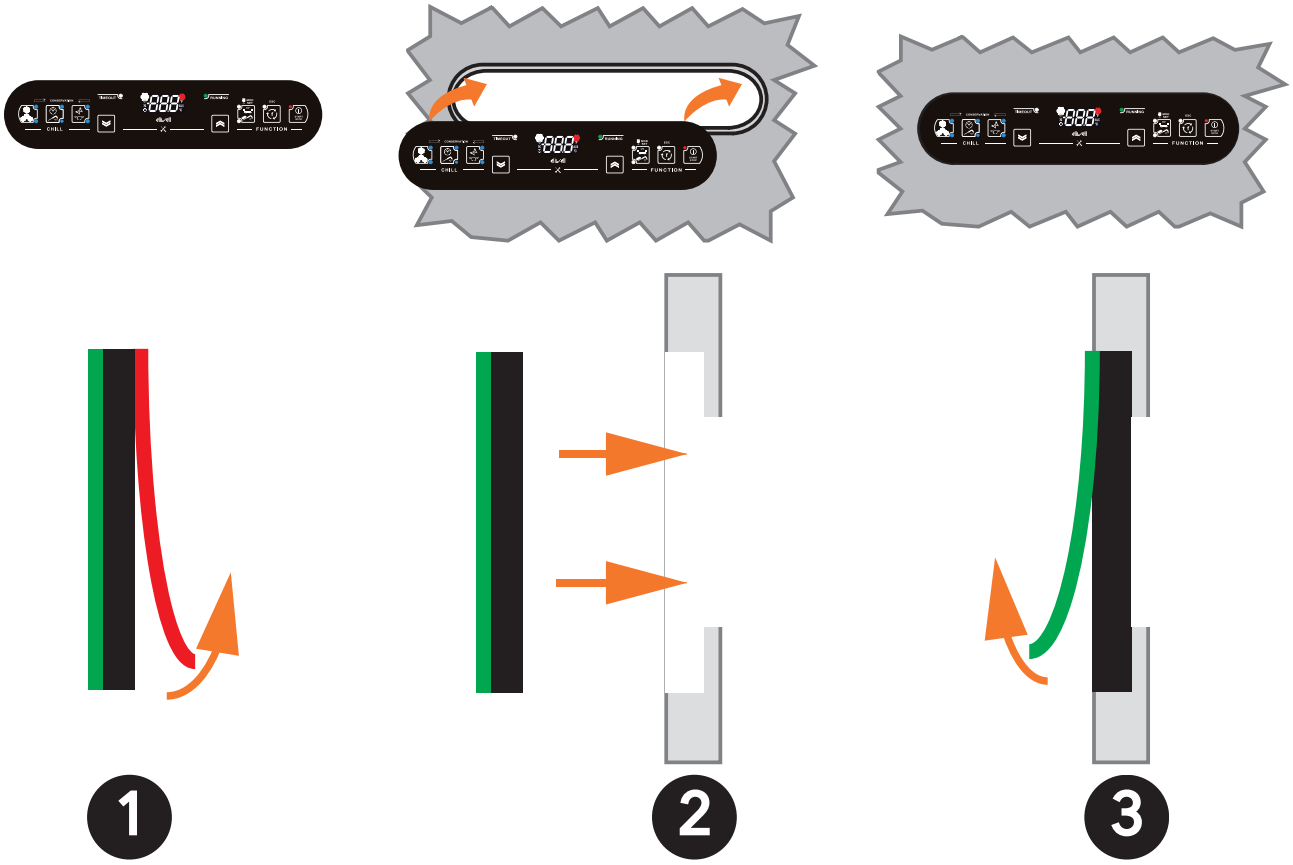


Fig. 8. User interface installation

2.4. ELECTRICAL CONNECTIONS

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires before applying power to the unit.
- For all the devices where this is provided, confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.

Failure to follow these instructions will result in death or serious injury.

This device has been designed to operate outside of any hazardous location.
Only install this device in zones known to be free of hazardous atmosphere.

⚠ DANGER

POTENTIAL OF OVERHEATING AND FIRE

- Do not use with loads other than those indicated in the technical specification.
- Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity.

Failure to follow these instructions will result in death or serious injury.

The **EWBC 800** must be installed in compliance with the following requirements:

- the wiring must comply with the safety regulations and according to the procedures given below, so as not to compromise the **EWBC 800** good stability with respect to electromagnetic interference;
- it is necessary to wire separately the sensor and power supply cables or use shielded cables to avoid interference phenomena;
- avoid the passage of wires (although isolated) above the **EWBC 800** (and particularly above the microcontroller).

2.4.1. CONNECTORS AND TERMINALS BLOCK CHARACTERISTICS

CONNECTOR	CHARACTERISTICS
Power supply	Faston connectors
Digital outputs	Faston connectors
Analogue and digital inputs	Screw-type terminal block
OC (Open Collector) digital output	Screw-type terminal block
TTL	5-way connector
KEYB	Screw-type terminal block

2.4.2. CONNECTION DIAGRAMS SYMBOLS

The loads and analogue inputs indicated in the connection diagrams, are summarized using the symbols shown in the following table.

SYMBOL	DESCRIPTION
	Compressor (FR**x** = 8)
	Defrost (FR**x** = 6)
	Evaporator fan (FR**x** = 7) or Condenser fan (FR**x** = 2)
	Door heating resistance (FR**x** = 4)
	Needle probe
	Cold room probe
	Evaporator probe (defrost)
	Condenser probe
	Pressure switch
	Door switch
	Solid State Relay (**SSR**)

NOTE: The loads shown in **Fig. 10 on page 24** and **Fig. 11 on page 26** are the pre-set types described in **'2.2. FURTHER INFORMATION' on page 14**.

2.4.3. BASE BOARD AND USER INTERFACE CONNECTION

When electrically connecting the base and user interface, refer to **Fig. 9 on page 23**: only one user interface can be connected to the base, via a suitable polarised connector (**B**), which connects to that base by means of a serial port (**KEYB**).

NOTE: The **KEYB** serial port consists of terminals 15- 16-17 in the case of **EWBC 854** and terminals 33-34-35 in the case of **EWBC 875**. For a description of the terminals, depending on base board model, refer to the tables:

- **EWBC 854**: **'2.4.4. EWBC 854 CONNECTION DIAGRAM' on page 24**
- **EWBC 875**: **'2.4.5. EWBC 875 CONNECTION DIAGRAM' on page 26**.

NOTE: The maximum distance of the electrical connection between the base and the user interface is **3** m.

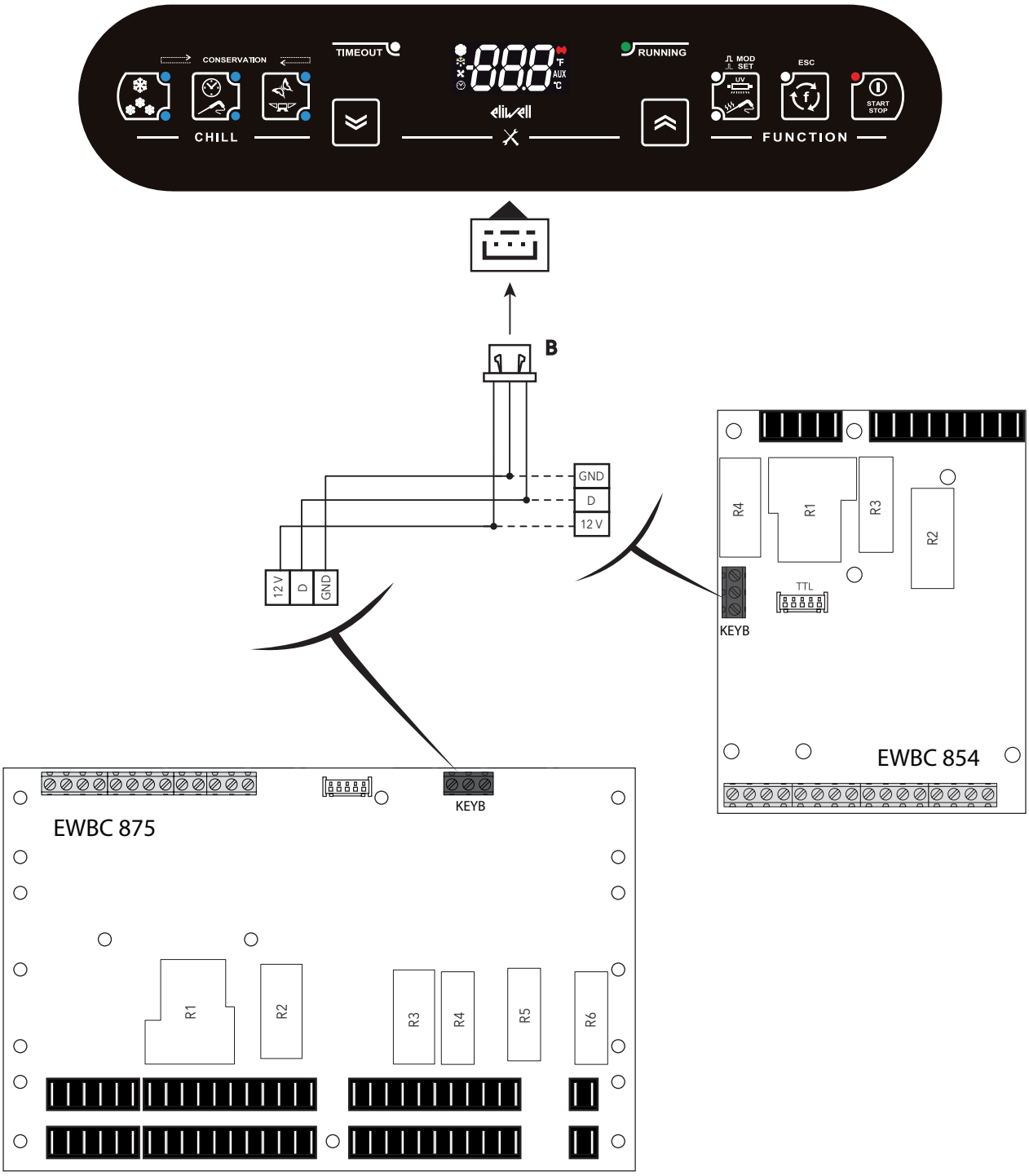


Fig. 9. Base boards and user interface connection diagram

2.4.4. EWBC 854 CONNECTION DIAGRAM

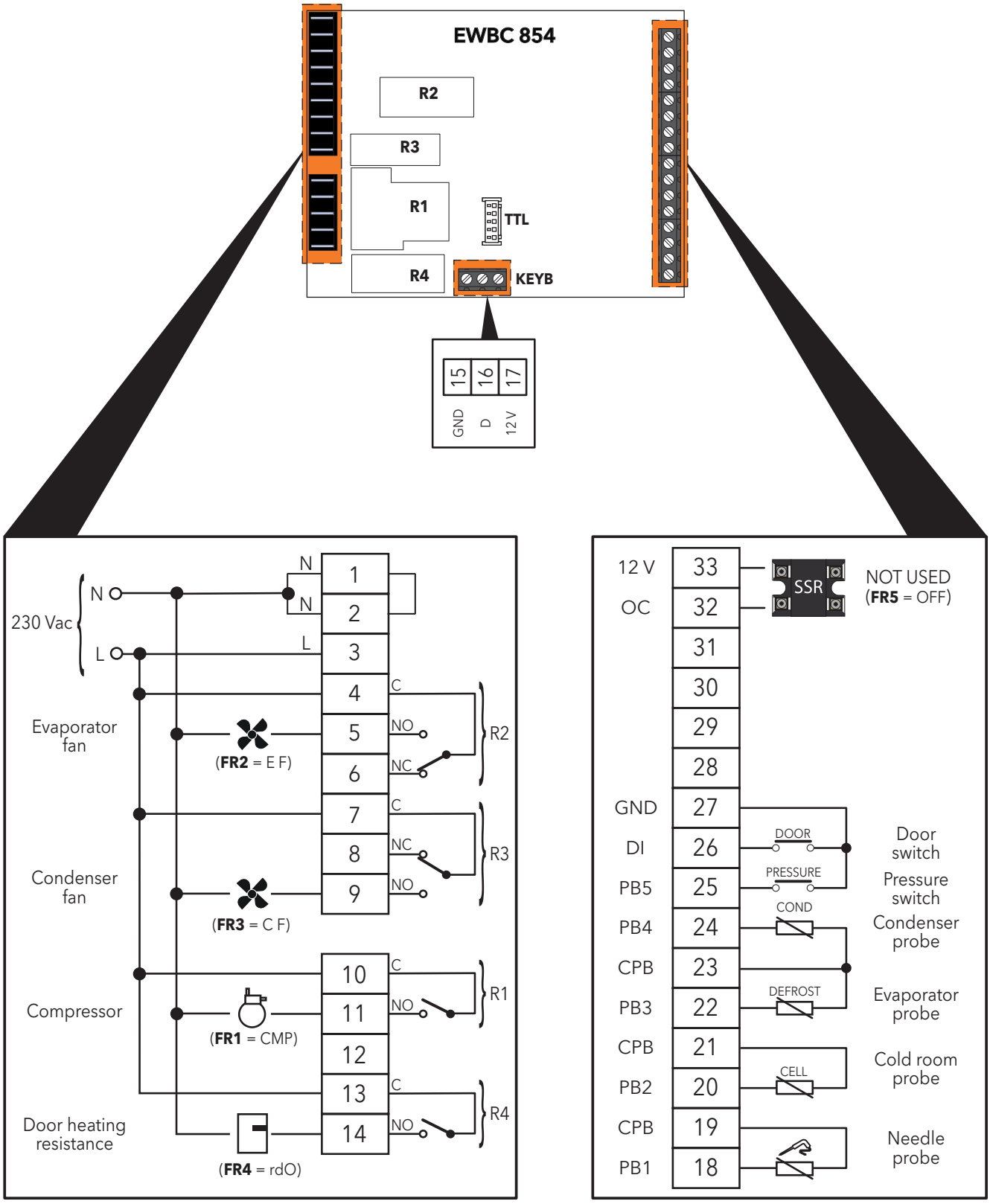


Fig. 10. **EWBC 854** connection diagram example

	TERMINAL	NAMING	DESCRIPTION
Power supply	1	N	Neutral
	2	N	Neutral
	3	L	Phase
Digital outputs	4	C	R2 - Common loads
	5	NA2	R2 - Normally open contact (NO)
	6	NC2	R2 - Normally closed contact (NC)
	7	C	R3 - Common loads
	8	NC3	R3 - Normally closed contact (NC)
	9	NA3	R3 - Normally open contact (NO)
	10	C	R1 - Common loads
	11	NA1	R1 - Normally open contact (NO)
	12	/	Terminal not used
	13	C	R4 - Common loads
	14	NA4	R4 - Normally open contact (NO)
KEYB	15	GND	Ground for user interface
	16	D	Data signal for user interface
	17	12V	Power output at 12 Vdc for user interface
TTL	---	TTL	TTL connector for Unicard / Device Manager connection (via DMI)
Digital inputs/ Analogue inputs	18	PB1	Needle probe
	19	CPB	Probes common
	20	PB2	Cold room probe
	21	CPB	Probes common
	22	PB3	Evaporator probe (defrost)
	23	CPB	Probes common
	24	PB4	Condenser probe
	25	PB5	Pressure switch
	26	DI	Door switch
	27	GND	Ground
	28 - 31	/	Terminals not used
Open collector digital output	32	OC	Signal for open collector digital output
	33	12V	12 Vdc power supply output for open collector (OC) digital output

2.4.5. EWBC 875 CONNECTION DIAGRAM

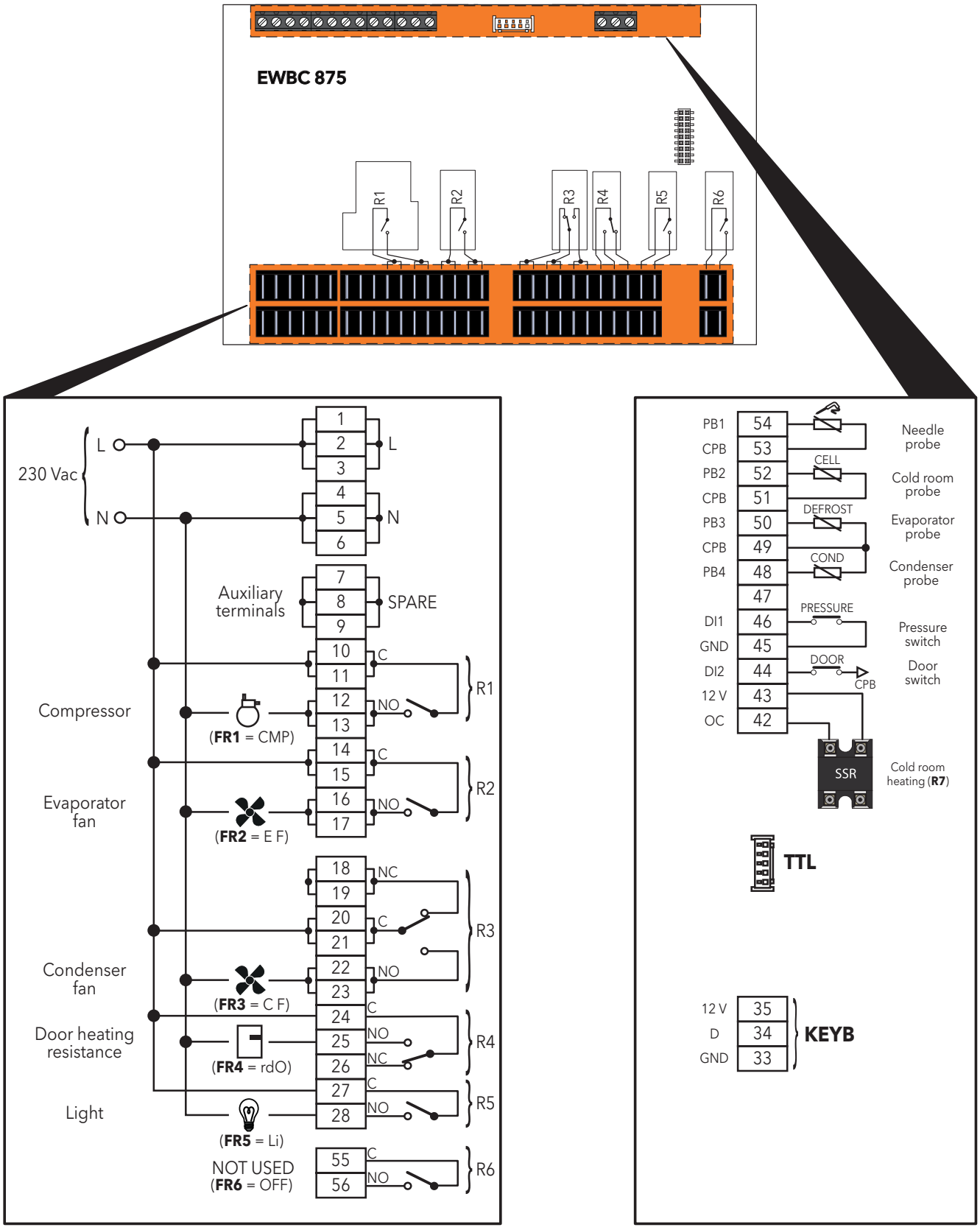


Fig. 11. **EWBC 875** connection diagram example

	TERMINAL	NAMING	DESCRIPTION
Power supply	1-2-3	L	Phase
	4-5-6	N	Neutral
	7-8-9	SPARE	Auxiliary terminals
Digital outputs	10-11	C	R1 - Common loads
	12-13	NA1	R1 - Normally open contact (NO)
	14-15	C	R2 - Common loads
	16-17	NA2	R2 - Normally open contact (NO)
	18-19	NC3	R3 - Normally closed contact (NC)
	20-21	C	R3 - Common loads
	22-23	NA3	R3 - Normally open contact (NO)
	24	C	R4 - Common loads
	25	NA4	R4 - Normally open contact (NO)
	26	NC4	R4 - Normally closed contact (NC)
	27	C	R5 - Common loads
	28	NA5	R5 - Normally open contact (NO)
	55	C	R6 - Common loads
	56	NA6	R6 - Normally open contact (NO)
KEYB	33	GND	Ground for user interface
	34	D	Data signal for user interface
	35	12V	Power output at 12 Vdc for user interface
TTL	---	TTL	TTL connector for Unicard / Device Manager connection (via DMI)
Open collector digital output	42	OC	Signal for open collector digital output
	43	12V	12 Vdc power supply output for open collector (OC) digital output
Digital inputs/ Analogue inputs	44	DI2	Door switch
	45	GND	Ground
	46	DI1	Pressure switch
	47	/	Terminal not used
	48	PB4	Condenser probe
	49	CPB	Probes common
	50	PB3	Evaporator probe (defrost)
	51	CPB	Probes common
	52	PB2	Cold room probe
	53	CPB	Probes common
	54	PB1	Needle probe

CHAPTER 3
USER INTERFACE

3.1. INTRODUZIONE

The user interface is a capacitive touch keypad with display, combined with an electronics board controlling the basic functions of a blast chiller, called the base.

The user interface consists of:

- a display (**D**) with 3 white digits for viewing menus, operating variables, values and parameter labels, as well as 8 icons for indicating load status, programs in progress and alarm conditions.
- a keypad (**T**) with 8 keys for menu navigation, program setting, parameter configuration, alarm acknowledgment, etc. and 12 LED for displaying the status of the blast chiller and the programs in progress, symbols.

If the keypad (**T**) is locked, the **EWBC 800** ignore the pressing of any of the keys.
To unlock the keypad, press and hold any key for 7 sec.

The first time it is switched on, the display and the LEDs on the keypad are all switched off, except the LED for the (**START/STOP**) key.

Every time it is switched on subsequently, or after the power supply has been restored, the user interface carries out a lamp-test (all segments, icons and LEDs blink for a few seconds).

Fig. 12. User interface

3.2. DISPLAY

The display (**D - Fig. 12 on page 28**) features:

- 3 digits with sign and decimal point for viewing menus, operating variables, values and parameter labels;
- 8 icons for viewing units of measurement and blast chiller status.

3.2.1. DIGITS

The display (**D - Fig. 12 on page 28**) features 3 white digits, each formed of 7 segments, with a sign before the first digit and a decimal point before the last digit; it can be used to view menus, operating variables, values and parameter labels.

3.2.2. ICONS

A description of the icons on the display (**D - Fig. 12 on page 28**) is provided in the table below.

ICON	NAMING	OPERATION	MEANING
	**Compressor**	Permanently on	Compressor ON
		Switched off	Compressor OFF
	**Defrost**	Permanently on	Defrost in progress
		Blinking	Defrost required but not in progress (in progress at the next useful event)
		Switched off	Defrost OFF
	**Evaporator fan**	Permanently on	Evaporator fan ON
		Switched off	Evaporator fan OFF
	**Display time**	Permanently on	Manual program in progress, a time is shown on the display (in minutes)
		Switched off	Manual program OFF
	**Alarm**	Permanently on	Alarm present
		Switched off	Alarm absent
°F	**Temperature in °F**	Permanently on	Automatic program in progress, a temperature in °F (degrees Fahrenheit) is shown on the display
AUX	**AUX**	Reserved	Reserved
°C	**Temperature in °C**	Permanently on	Automatic program in progress, a temperature in °C (degrees Centigrade) is shown on the display

3.3. KEYPAD

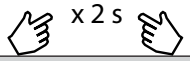
The keypad (**T - Fig. 12 on page 28**) consists of:

- **8 KEYS** created using capacitive touch technology, for navigating menus, setting programs, configuring parameters, acknowledging alarms, etc.
- **12 LEDs**, for indicating the status of the blast chiller and the programs in progress
- **symbols.**

NOTE: If the keypad is locked, **EWBC 800** ignores the pressing of any of the keys on the keypad.
To unlock the keypad, press and hold any key for 7 sec.

3.3.1. KEYS / LEDS

ICON	DESCRIPTION	ACTION	FUNCTION
	**TEMP** key (2 blue LEDs)	Single press 	• In stop status, positive ❄ (parameter **tP**) or negative ❄❄ (parameter **tn**), alternativamente. blast chilling cycle selection, alternately. The corresponding LED comes on in accordance with the selected cycle. • While the blast chilling cycle is in progress, displays the current target value. • While a storage phase is in progress, displays the current storage set point value.
	**TARGET** key (2 blue LEDs)	Single press 	In stop status, manual or automatic blast chilling cycle selection, alternately. The corresponding LED comes on in accordance with the selected cycle.
	**MODE** key (2 blue LEDs)	Single press 	In stop status, soft or hard blast chilling cycle mode selection, alternately. The corresponding LED comes on in accordance with the selected mode.
	**DOWN** key	Single press 	• Buzzer acknowledgment. • In parameter configuration, scroll through parameters. • Decreases values.
	**UP** key	Single press 	• In parameter configuration, scroll through parameters • Increases values.
	**SET/AUX** key (2 white LEDs)	Single press 	• In stop status, special sterilization function or needle probe heating selection , alternately. The corresponding LED comes on in accordance with the selected program. • In parameter configuration, display parameter or confirm displayed parameter value.
		Press and hold 	In stop status, deselects all special functions selected and switched off the corresponding LED.
	**ESC/Function** key (1 white LED)	Single press 	• In stop status, selection of optional functions: - defrost - manual storage - room light - food unfreeze (**EWBC 875** only) - pre-cooking (**EWBC 875** only) - combined cycle unfreeze + pre-cooking (**EWBC 875** only) - clock setting (**EWBC 875** only - with **HCE**=1) - HACCP alarm display (**EWBC 875** only - with **HCE**=1). alternately and LED activation. • In parameter configuration, confirm the value of the displayed parameter, exit parameter configuration or return to previous level.
		Press and hold 	In stop status, deselects all special functions selected and switched off the corresponding LED.

ICON	DESCRIPTION	ACTION	FUNCTION
	**START/STOP** key (1 red LED)	Single press 	Start or stop the selected program or function, alternately.
		Press and hold 	• In stop status, switch to stand-by status with LED activation. • In stand-by status, switch to stop status with LED activation.
	**UP** + **DOWN** keys	Press and hold 	In stop status, **simultaneously** press the **DOWN** and **UP** keys for 2 seconds to access the configuration parameters.
	**TIMEOUT** (1 white LED)	/	In automatic blast chilling cycle, lit and blinking indicates positive (parameter **t1**) or negative (parameter **t2**) timeout reached without the target temperature being reached (continues to blink during the following storage phase).
	**RUNNING** (1 green LED)	/	If lit, indicates defrost program in progress.

3.3.2. SYMBOLS

ICON	DESCRIPTION
	To access the configuration parameters simultaneously press the **DOWN** and **UP** keys for at least 2 seconds.
	During the storage phase, the LEDs corresponding to the **TEMP**, **TARGET**, **MODE** keys come on in sequence, in line with the selected program.
CHILL	Blast chilling cycle selection keys.
FUNCTION	Function selection and program start keys.
SET	Single press of **AUX** key to select a special function.
MOD	Press and hold **AUX** key to deselect a special function.
ESC	Single press of **ESC** to exit parameter configuration or return to previous level.

CHAPTER 4
USER INTERFACE USE

4.1. FIRST SWITCH-ON

The first time it is switched on, **EWBC 800** is in stand-by mode: the display and the keypad LEDs (**Fig. 12 on page 28**) are all off, except the LED for the (**START/STOP**) key.

NOTE: Every time it is switched on subsequently, to set **EWBC 800** to stand-by, press and hold the (**START/STOP**) key for 4 sec.

4.2. SWITCHING ON AFTER THE FIRST TIME

Every time it is switched on subsequently, or after the power supply has been restored, the user interface carries out a lamp-test (all segments, icons and LEDs blink for a few seconds); the **EWBC 800** is then in the status indicated in the table below:

Case	BLAST CHILLER STATUS	
	before the power supply failure	at power supply restoration
1	Blast chiller in stand-by	Blast chiller in stand-by, ready for startup with default settings (parameter **dFP** = 0). The display will resume showing the same information that appeared prior to the power supply being cut off
2	Blast chiller running (program in progress), except in the following case (3)	The blast chiller restarts program operation from the point at which it was interrupted. The time count restarts from zero
3	Blast chiller running (due to needle probe error the blast chilling cycle in progress is manual, initially it was automatic)	Blast chiller resumes operation with automatic blast chilling cycle. The time count restarts from zero. If the needle probe error persists after the reset, the blast chiller resumes operation with a manual blast chilling cycle, lasting as long as the timeout.

4.3. OPERATING PRINCIPLE

EWBC 800 has **programs** for the management of the following blast chiller functions:

- automatic blast chilling,
- manual blast chilling.

The programs are divided into the following categories:

- POSITIVE program with SOFT blast chill mode,
- POSITIVE program with HARD blast chill mode,
- NEGATIVE program with HARD blast chill mode,
- NEGATIVE program with SOFT blast chill mode.

In a programm, is always expected that after a blast chilling there is a storage.

- In the case of the **AUTOMATIC program**, the reference value is the **temperature** detected by the needle probe.
- In the case of the **MANUAL program**, the reference value is the **time**. In this case blast chilling takes place within a specified time, regardless of the needle probe temperature which will adjust itself to the room temperature.

Both the automatic program and the manual program are constituted by a blast chilling cycle which is automatically followed by a storage phase, positive or negative depending on the blast chilling cycle performed.

4.3.1. POSITIVE program with SOFT blast chill mode

The blast chilling cycle **POSITIVE - SOFT** (cooling), has:

- Positive reference temperature (target temperature)
- Soft blast chill mode (**Fig. 13 on page 33**);

NOTE: The numeric values shown in **Fig. 13 on page 33** are the default values.

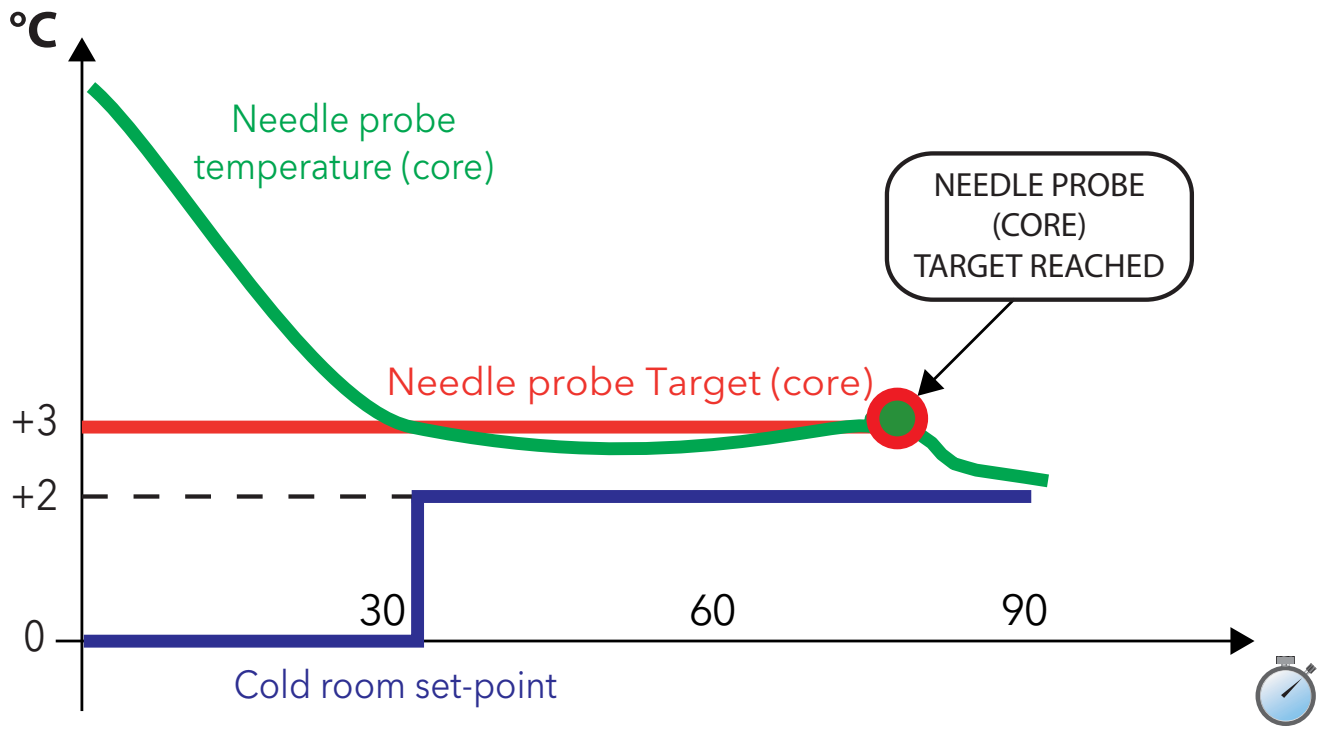


Fig. 13. POSITIVE program with SOFT blast chill mode

NOTE: At the end of the blast chilling cycle, when the storage phase is started automatically, the buzzer will sound continuously for 2 seconds.

4.3.2. POSITIVE program with HARD blast chill mode

The blast chilling cycle **POSITIVE - HARD** (cooling), has:

- Positive reference temperature (target temperature)
- Hard blast chill mode (**Fig. 14 on page 34**);

NOTE: The numeric values shown in **Fig. 14 on page 34** are the default values.

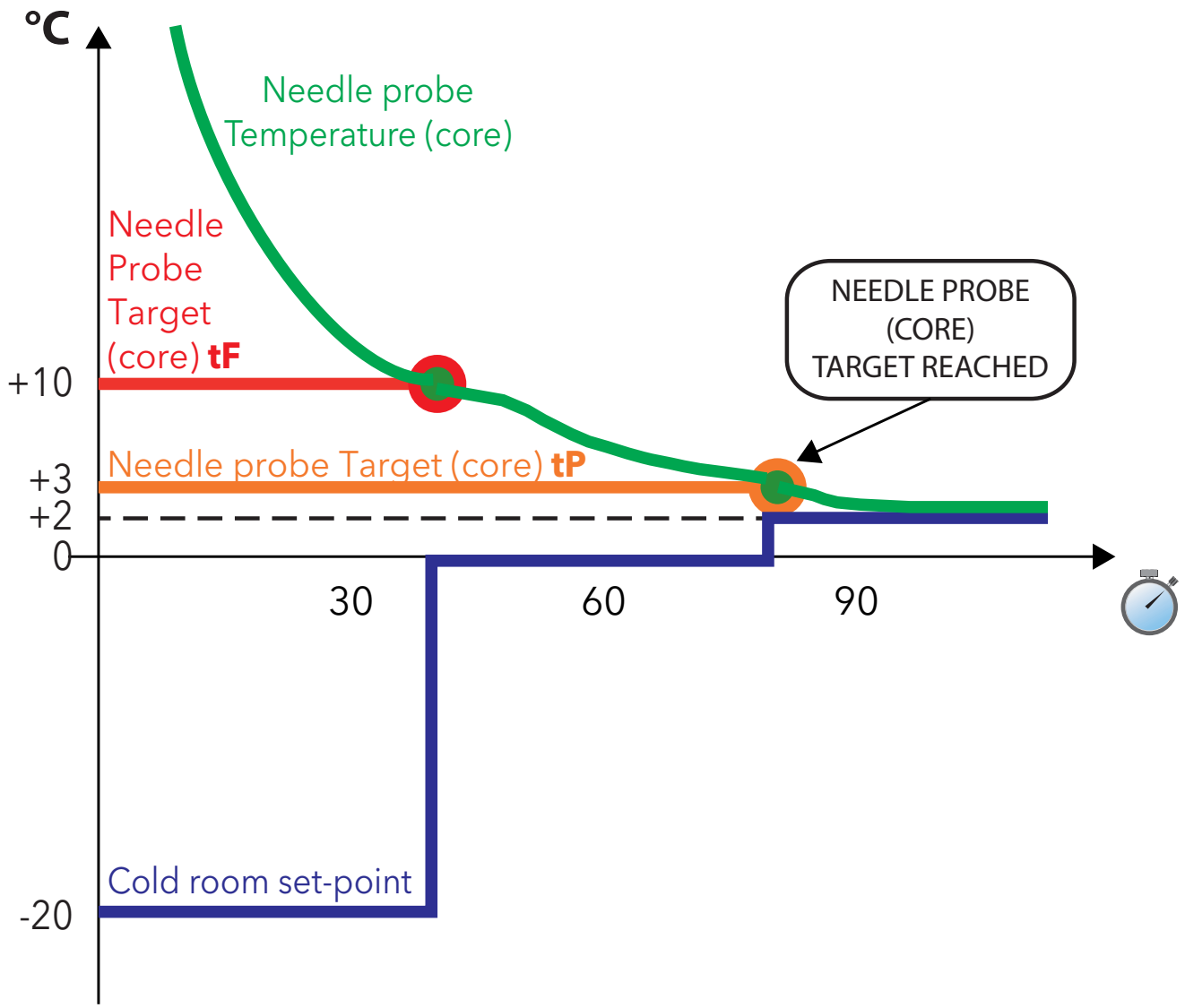


Fig. 14. POSITIVE program with HARD blast chill mode

NOTE: At the end of the blast chilling cycle, when the storage phase is started automatically, the buzzer will sound continuously for 2 seconds.

4.3.3. NEGATIVE program with HARD blast chill mode

The blast chilling cycle **NEGATIVE - HARD** (unfreezing), has:

- negative reference temperature (target temperature)
- hard blast chill mode (**Fig. 15 on page 35**);

NOTE: The numeric values shown in **Fig. 15 on page 35** are the default values.

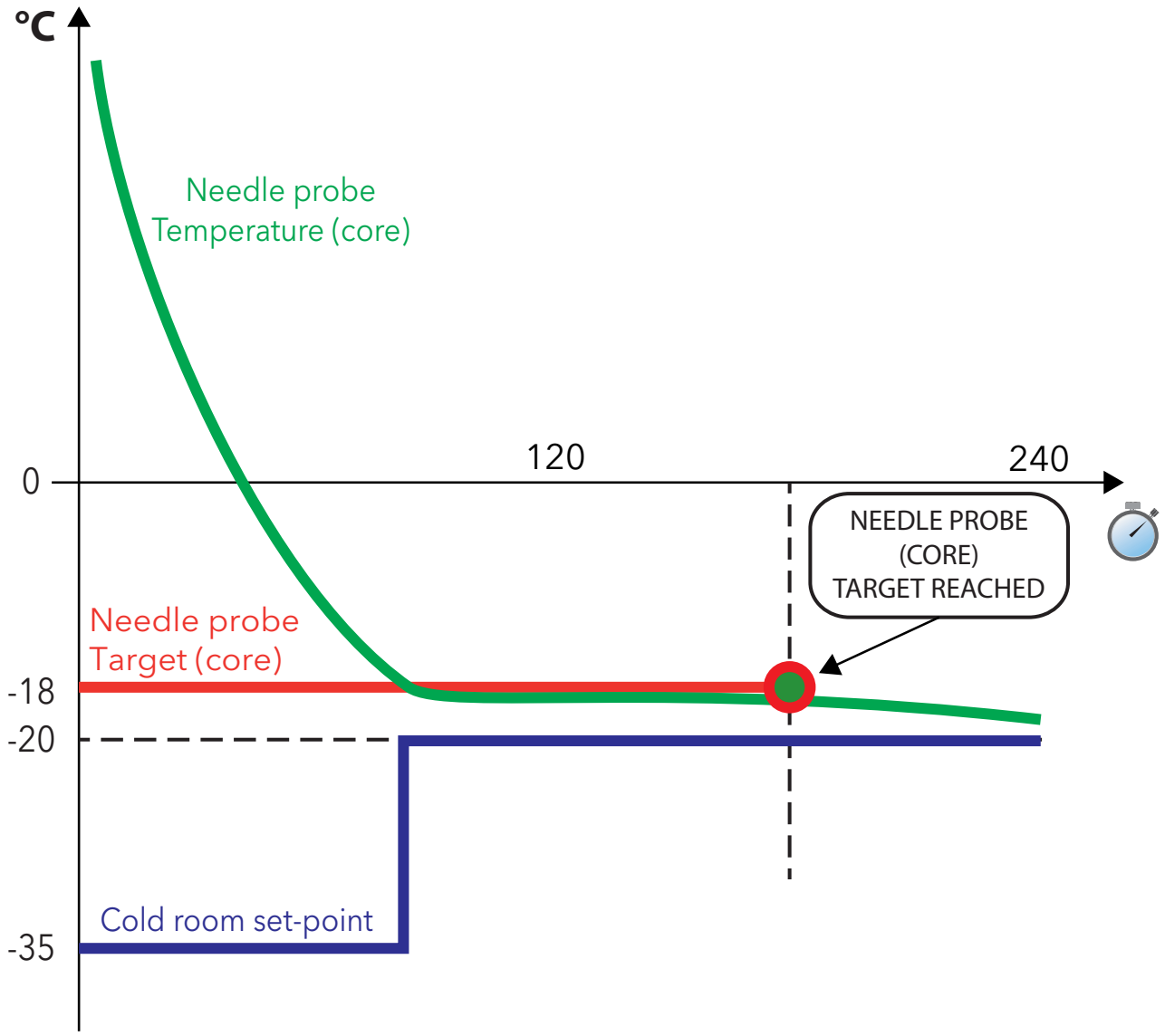


Fig. 15. NEGATIVE program with HARD blast chill mode

NOTE: At the end of the blast chilling cycle, when the storage phase is started automatically, the buzzer will sound continuously for 2 seconds.

4.3.4. NEGATIVE program with SOFT blast chill mode

The blast chilling cycle **NEGATIVE - SOFT** (unfreezing), has:

- negative reference temperature (target temperature)
- soft blast chill mode (**Fig. 16 on page 36**);

NOTE: The numeric values shown in **Fig. 16 on page 36** are the default values.

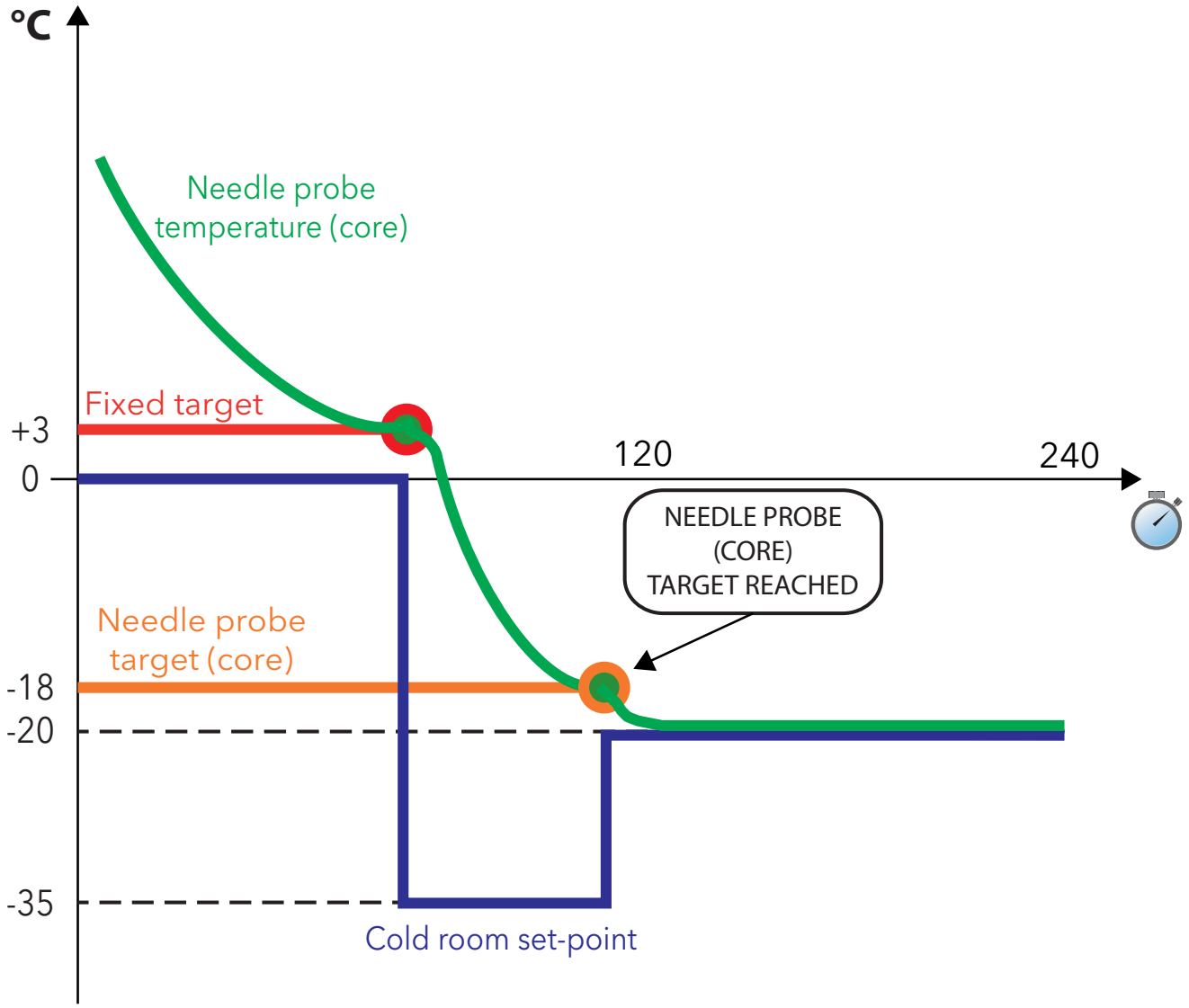


Fig. 16. NEGATIVE program with SOFT blast chill mode

NOTE: At the end of the blast chilling cycle, when the storage phase is started automatically, the buzzer will sound continuously for 2 seconds.

4.4. SELECTING AND STARTING A PROGRAM

There are three keys on the left-hand side of the keypad (refer to **"3.3. KEYPAD' on page 29**); these can be used to configure the blast chilling cycle by setting 3 criteria:

- blast chilling cycle target value. The (**TEMP**) key can be used to set a positive (freezing) or negative (deepfreezing) blast chilling cycle;
- blast chilling cycle target type. The (**TARGET**) key can be used to set an automatic or manual blast chilling cycle. The blast chilling duration is set in the manual blast chilling cycle, whereas in the automatic blast chilling cycle the duration is regulated until the target temperature for the needle probe has been reached;
- blast chilling mode. The (**MODE**) key can be used to set a blast chilling cycle that is hard (the temperature is lowered extremely rapidly) or soft (the temperature is lowered more slowly, avoiding incorrect freezing on the surface of the food to be cooled).

The combination of the three above mentioned criteria produces eight possible blast chilling cycles, summarised in the table below; depending on the blast chilling cycle set via the keypad, the **dFP** parameter assumes a value between 0 and 7.

NOTES: In stop status (for example, when a program begins or ends), **EWBC 800** automatically loads the settings for the blast chilling cycle that corresponds to the current value of the **dFP** parameter.
If the **dFP** parameter is equal to 8 in stop status:

- the first time it is switched on **EWBC 800** automatically loads the following pre-established settings:
  - blast chilling cycle target value: positive,
  - blast chilling cycle target type: manual (timed),
  - blast chilling mode: soft.
- every time it is switched on subsequently, **EWBC 800** automatically loads the blast chilling cycle settings for the last program carried out.

Blast chilling cycle target value	Blast chilling cycle target type	Blast chilling mode	Value of dFP parameter	String shown on the display
Positive	Manual (timed)	Hard	0	PMH
		Soft	1	PMS
	Automatic	Hard	2	PAH
		Soft	3	PAS
Negative	Manual (timed)	Hard	4	nMH
		Soft	5	nMS
	Automatic	Hard	6	nAH
		Soft	7	nAS
Previous retained	Previous retained	Previous retained	8	hLd

A single press of one of the (**TEMP**), (**TARGET**), (**MODE**) keys prompts the display to show the corresponding configuration (blinks for three seconds).

NOTE: The 3 listed criteria do not need to be set in order when configuring the program; each criterion takes account of the values currently set for the other two.

4.4.1. Selecting a blast chilling cycle target value

To select the blast chilling cycle target value (refer to **Fig. 17 on page 38**, if the blast chilling cycle target value is initially positive), proceed as follows:

1. Press (**TEMP**) key until one of the **tP** and **tn** parameter values is displayed.

   NOTE: Pressing the (**TEMP**) key repeatedly (at consecutive intervals of less than 3 sec) changes the displayed data (**D - Fig. 12 on page 28**) alternately, from the value set for the positive blast chilling cycle to the value set for the negative blast chilling cycle; the LED corresponding to the (**TEMP**) key comes on simultaneously. The numeric value of the parameter appears on the display, while the unit of measurement (°C or °F) appears as an icon alongside it.

2. Press (**UP**) and/or (**DOWN**) within 3 sec if you want to change the temperature.

   NOTE: This procedure does not change the default settings stored by the **EWBC 800**. These settings are restored on completion of the program, or after it has been ended prematurely.
   The **tP** parameter is limited at its lower end by the **SPS** parameter; the **tn** parameter is limited at its lower end by the **Snh** parameter.

The temperature set for **EWBC 800** becomes the last temperature displayed, then the display reverts to showing the room temperature.

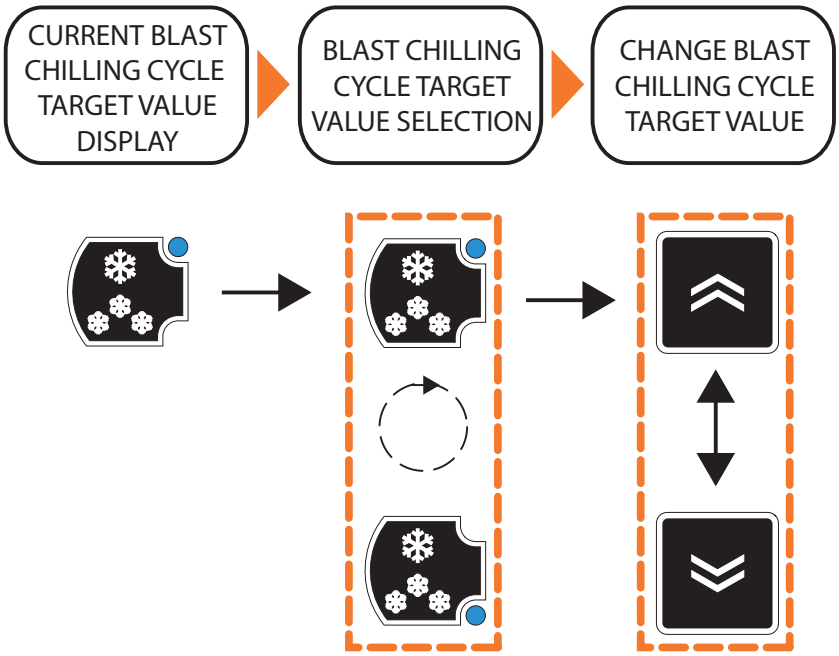


Fig. 17. Selecting a blast chilling cycle target value

NOTE: To restore the blast chilling cycle target value to its default value (**tP** or **tn** parameter), press (**TEMP**) three times in succession.

4.4.2. Selecting a blast chilling cycle target type

To select the blast chilling cycle target type (refer to **Fig. 18 on page 39**, if the blast chilling cycle target type is initially manual), proceed as follows:

1. Press (**TARGET**) key until you select one of the blast chilling cycle target types: manual or automatic.

   NOTE: Pressing the (**TARGET**) key repeatedly (at consecutive intervals of less than 3 sec) changes the displayed data (**D - Fig. 12 on page 28**), alternately, from the value set for the manual target type to the value set for the automatic target type; the LED corresponding to the (**TARGET**) key comes on simultaneously.
   If manual (timed), the cycle duration - expressed in minutes - is shown, with the icon lit; if automatic, the maximum cycle duration timeout - expressed in minutes - is shown.
   The time value, expressed in minutes, depends on the current setting for the target value and parameter **t1** applies for freezing, parameter **t2** for deep-freezing.

2. Press (**UP**) and/or (**DOWN**) within 3 sec if you want to change the timeout period.

The time set for **EWBC 800** becomes the last temperature displayed (even if at a second moment an automatic target type will be set), then the display reverts to showing the room temperature.

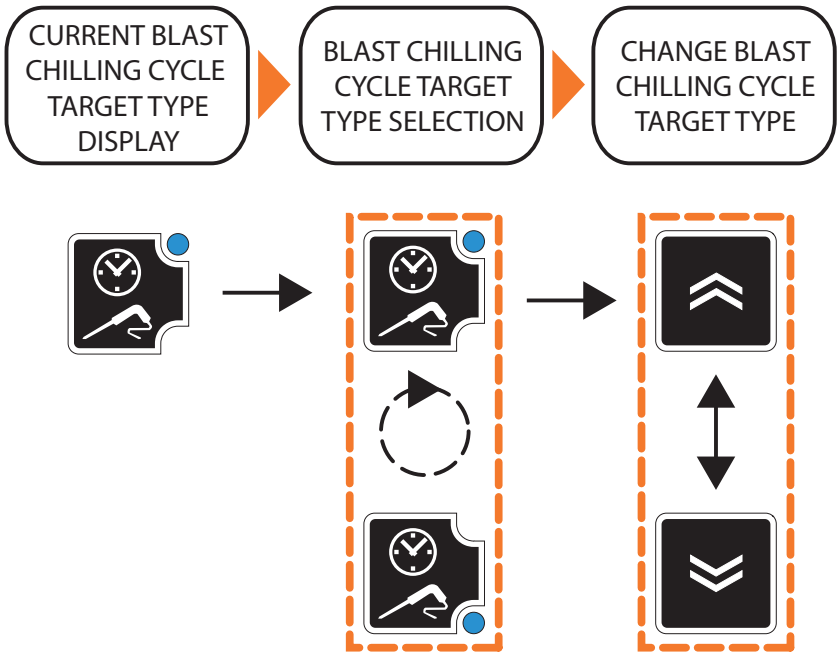


Fig. 18. Selecting a blast chilling cycle target type

NOTE: To restore the blast chilling cycle target type to its default value (**t1** or **t2** parameter), press (**TARGET**) three times in succession.

4.4.3. Selecting the blast chilling mode

To select the blast chilling mode (refer to **Fig. 19 on page 40**, if the blast chilling cycle mode is initially soft), press (**MODE**) key until you have selected one of the blast chilling modes: Hard or Soft.

NOTE: Pressing the (**MODE**) key repeatedly (at consecutive intervals of less than 3 sec) changes the displayed data (**D - Fig. 12 on page 28**) alternately, from the string 'Hrd' (Hard blast chill mode) to 'SFt' (Soft blast chill mode); the LED corresponding to the (**MODE**) key comes on simultaneously.

The mode set for **EWBC 800** becomes the one corresponding to the last string displayed, then the display reverts to showing the room temperature.

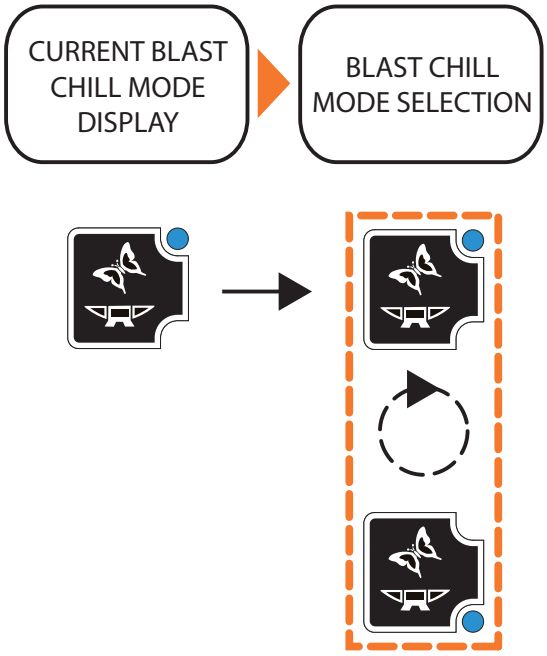


Fig. 19. Selecting the blast chilling mode

4.4.4. Starting and stopping a program

To start a program, press (**START/STOP**) key: **EWBC 800** emits a short beep (buzzer) and the LED RUNNING comes on.

If the program is automatic, the display (**D - Fig. 12 on page 28**) shows the temperature detected by the needle probe.

If the program is manual, the display shows the time remaining until the end of the cycle (in min) and the icon is lit.

The value displayed initially is parameter **t1** or parameter **t2**.
For details of other displayed information, please refer to **"4.5. CYCLICAL DISPLAY' on page 42**.

NOTE: During a blast chilling cycle, press (**TEMP**) key to view the current target value.

The blast chilling cycle ends automatically if one of the following conditions arises:

- the selected time has elapsed, if the target type is manual;
- the selected needle probe (core) target has been reached, if the target type is automatic.

NOTE: In an automatic blast chilling cycle, if the set timeout period is reached (parameter **t1** for the positive blast chilling cycle or **t2** for the negative blast chilling cycle) without the selected temperature target being achieved, the blast chilling cycle continues indefinitely and the LED TIMEOUT will blink.

Once the blast chilling cycle has finished, **EWBC800** emits a beep lasting 2 seconds (buzzer) and automatically starts the storage phase.

NOTE: To silence the buzzer in advance, press the (**DOWN**) key.

The storage phase starts automatically after a blast chilling cycle, but can also be started manually from the stop status (refer to **"4.7.2. Manual storage' on page 47**).

The automatic storage phase occurs:

- after a positive blast chilling cycle, at a cold room temperature equal to the value set for the **SCP** parameter;
- after a negative blast chilling cycle, at a cold room temperature equal to the value set for the **SCn** parameter.

During the storage phase, the display shows the room temperature (if the previous blast chilling cycle has a manual type target) or the temperature detected by the needle probe (if the previous blast chilling cycle has an automatic type target), with the LED RUNNING ON.

For details of other displayed information, please refer to **"4.5. CYCLICAL DISPLAY' on page 42**.

During the storage phase, the LEDs corresponding to the (**TEMP**), (**TARGET**), (**MODE**) keys come on in sequence, in line with the selected program (refer to **Fig. 20 on page 41**).

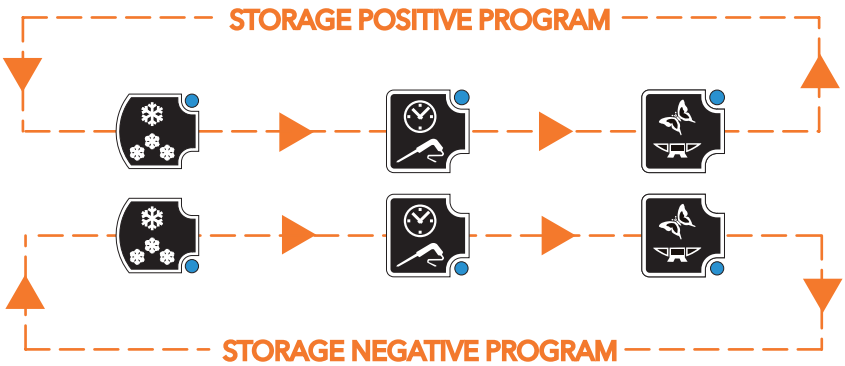


Fig. 20. Sequential LED display during the storage phase

NOTE: During a storage phase, press (**TEMP**) key to view the room probe temperature set point in storage mode, parameter **SCP** or parameter **SCn**, without affecting the LEDs.

To stop a program prematurely, press (**START/STOP**) key to restore the program to its default settings (parameter **dFP**).

NOTE: In stop status, the three LEDs for the (**TEMP**), (**TARGET**), (**MODE**) keys are lit corresponding to the default settings (parameter **dFP**) and the display shows the room temperature.

Pressing (**START/STOP**) key again will restart the blast chilling cycle with the default settings applied (parameter **dFP**).

4.5. CYCLICAL DISPLAY

Beginning with the current information on the display (**D - Fig. 12 on page 28**) when a blast chilling program in progress, press (**UP**) and/or (**DOWN**) keys to cyclically view the temperatures and times for that program.

Every time the (**UP**) key is pressed, the following information is displayed cyclically:

- needle probe temperature,
- time elapsed,
- time remaining,
- cold room temperature.

NOTE: In stop status, the room temperature is the information displayed by default.

The cyclical display corresponding to repeated pressing of the (**UP**) key is conventionally illustrated in a clockwise direction in **Fig. 21 on page 42**.

NOTE: The cyclical display corresponding to repeated pressing of the (**DOWN**) key conventionally moves in an anticlockwise direction, with reference to **Fig. 21 on page 42**.

The last information selected using the keys remains on the display until the end of the program.

NOTE: While the program is in progress, in case of one or more malfunctions, the display shows the last value selected via the keypad (**T - Fig. 12 on page 28**) along with the malfunction(s) present in succession.

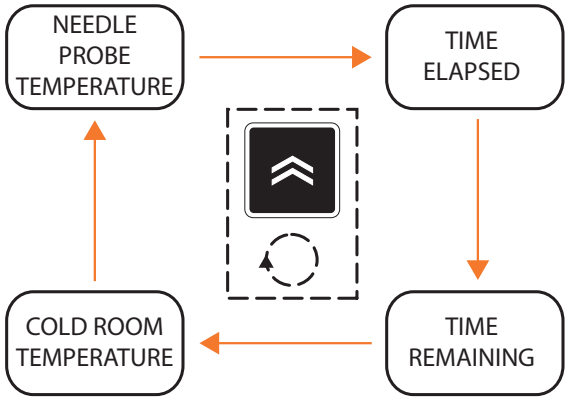


Fig. 21. Cyclical display during a program

NOTE: In the cyclical display, the first information suggested at the beginning of the program will be:

- the needle probe temperature, if the program in progress is automatic,
- the remaining time, if the program in progress is manual.

During the storage phase, the elapsed time and remaining time are not shown; if the needle probe temperature is disabled (parameter **EP1=0**), the string '**---**' is displayed

4.6. SELECTING AND STARTING A SPECIAL FUNCTION

EWBC 800 has **special functions** for the management of the following blast chiller functions:

- cold room sterilization,
- needle probe heating.

NOTE: A special function can be activated if one of the parameters FR1, FR2, FR3, FR4, FR5 is equal to: **4** (cold room sterilization) or **3** (needle probe heating).

From the stop status, every single press of the (**AUX**) key selects an alternate special function, while simultaneously deselecting any program or optional function selected previously..

Pressing and holding the (**AUX**) key deselects all special and optional functions, restoring the program selected previously.

4.6.1. Cold room sterilization

NOTE: To activate a sterilization cycle the blast chiller door must be closed. If the blast chiller door is opened during the sterilization cycle, the cycle stops and the display (**D - Fig. 12 on page 28**) will show the string '**dOr**'.

To select the sterilization cycle, press (**AUX**) key until the special sterilization function has been selected.

NOTE: Repeated pressing of the (**AUX**) key changes the information shown on the display alternately, from the string '**StE**' (sterilization) to '**Prb**' (needle probe heating); the LED corresponding to the (**AUX**) key comes on simultaneously.
If one of the two special functions cannot be activated, there is a single selection and the alternate display does not occur. If neither of the two special functions can be activated, pressing the (**AUX**) key does not have any effect on function selection.

To start the sterilization cycle, press (**START/STOP**) key.
The LED RUNNING comes on and the string '**StE**' remains on the display.

NOTE: The start and duration of the sterilization cycle are determined by parameters **iSt**, **UUd**, **UUt**.
In the case of cold room probe error (refer to **"ALARMS' on page 70**):

- before the sterilization cycle begins, the sterilization cycle does not start and the string 'E2' blinks on the display;
- during the sterilization cycle, the sterilization cycle continues normally.

Once the sterlilization cycle has finished, **EWBC 800** emits a beep lasting 2 s (buzzer) and reverts to stop status.

NOTE: To silence the buzzer in advance, press the (**DOWN**) key.

To stop the sterilization cycle prematurely, press the (**START/STOP**) key. Pressing (**START/STOP**) key again starts the blast chilling cycle with the default settings applied (parameter **dFP**).

PARAMETER	DESCRIPTION
iSt	Regulation hysteresis
UUd	Sterilization cycle duration
UUt	Sterilization temperature threshold

4.6.2. Needle probe heating

The door opening or closing has no effect on the needle probe heating.
To select needle probe heating, press (**AUX**) key until the special needle probe heating function has been selecte.

NOTE: Repeated pressing of the (**AUX**) key changes the information shown on the display (**D - Fig. 12 on page 28**), alternately, from the string '**StE**' (sterilization) to '**Prb**' (needle probe heating); the LED corresponding to the (**AUX**) key comes on simultaneously.
If one of the two special functions cannot be activated, there is a single selection and the alternate display does not occur. If neither of the two special functions can be activated, pressing the (**AUX**) key does not have any effect on function selection.

To start needle probe heating, press (**START/STOP**) key: the LED RUNNING comes on and the string '**Prb**' remains on the display.

NOTE: The start and duration of needle probe heating are determined by parameters **Prd**, **Prt**.
In the event of a needle probe error (refer to **"ALARMS' on page 70**), needle probe heating continues as normal; the display shows the blinking strings 'E1' and 'Prb' alternately.

Once needle probe heating has finished, **EWBC800** emits a beep lasting 2 s (buzzer) and reverts to stop status.

NOTE: To silence the buzzer in advance, press the (**DOWN**) key.

To stop needle probe heating prematurely, press the (**START/STOP**) key.
Pressing (**START/STOP**) key again starts the blast chilling cycle with the default settings applied (parameter **dFP**).

PARAMETER	DESCRIPTION
Prd	Maximum needle heating duration
Prt	Needle probe heating temperature set point

4.7. SELECTING AND STARTING AN OPTIONAL FUNCTION

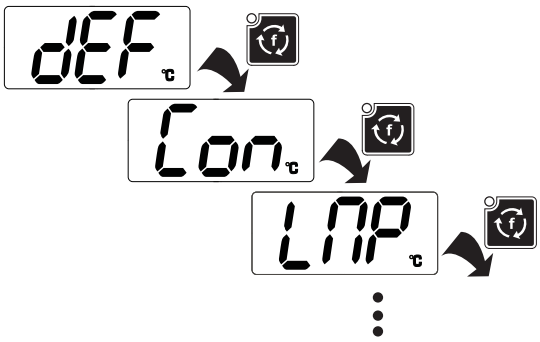
EWBC 800 have **special functions** for the management of the following blast chiller functions:

- defrost
- manual storage
- room light
- food unfreezing (**EWBC 875** only)
- pre-cooking (**EWBC 875** only)
- combined cycle unfreezing+pre-cooking (**EWBC 875** only)
- clock setting (**EWBC 875** only - only if **HCE** = 1)
- displaying HACCP alarms (**EWBC 875** only - only if **HCE** = 1)

From the stop status, every single press of the (**ESC**) key selects an optional function, while simultaneously deselecting any main program or special function selected previously. Pressing and holding the (**ESC**) key deselects all special and optional functions, restoring the program selected previously.

Pressing the (**ESC**) key changes the displayed data (**D - Fig. 12 on page 28**) alternately, between the various optional functions and the LED corresponding to the (**ESC**) key comes on simultaneously.

The following optional functions are available:



- **dEF**: defrost
- **Con**: manual storage
- **LMP**: room light
- **UnF**: unfreezing
- **PrE**: pre-cooking
- **COM**: combined cycle unfreezing+pre-cooking
- **rtC**: clock setting (if **HCE** = 1)
- **hCP**: displaying HACCP alarms (if **HCE** = 1)

NOTE: An optional function can be activated only if one of the relays has been configured using the parameters FR1...FR7. The matching between parameters and relative relays is listed below:

EWBC 854
FR1 ---> R1
FR2 ---> R2
FR3 ---> R3
FR4 ---> R4
FR5 ---> R5 (OC)

EWBC 875
FR1 ---> R1
FR2 ---> R2
FR3 ---> R3
FR4 ---> R4
FR5 ---> R5
FR6 ---> R6
FR7 ---> R7 (OC)

NOTE: If one of the optional functions cannot be activated, you can select from the remaining options, i.e. only the functions to which the physical resource is associated.
If none of the special functions can be activated, pressing the (**ESC**) key does not have any effect on function selection; the corresponding LED blinks for 3 seconds.

4.7.1. Defrost

The defrost function can be controlled by one of the relay outputs only if the corresponding configuration parameter (FR1 ... FR7) is set to '**dEF**'.
The defrost is normally carried out by the User with the blast chiller door open (cold room heating).
The door opening or closing has no effect on the defrost execution.

There are two types of defrost:

- manual (parameter **dF2** = 0), activated via keypad (**T - Fig. 12 on page 28**),
- automatic (parameter **dF2** ≠ 0), activated automatically at pre-set time intervals, determined by the value of parameter **dF2** (interval between defrosts): this parameter represents the timeout after which **EWBC 800** automatically begins a new defrost.

To select manual defrosting, press (**ESC**) key until the '**dEF**' string will appear.

To start manual defrosting, press (**START/STOP**) key: the string '**dEF**' remains on the display and the icon begins to blink, to indicate the pending request.

The defrost begins:

- immediately if a storage phase is in progress,
- at the same time as the next storage phase.
- or as soon as a new blast chilling cycle begins (according to parameter **dF5**)

During the defrost, the string '**dEF**' appears on the display and the icon remains lit steadily.
Once the defrost has finished due to timeout (parameter **dF4**) or due to reaching the target temperature (parameter **dF1**), **EWBC 800** emits a beep lasting 2 seconds (buzzer) and reverts to stop status.

NOTE: Defrost function can be started while a program is already in progress (LED RUNNING ON).

NOTE: To silence the buzzer in advance, press the (**DOWN**) key.

To end the defrost (and the storage phase in progress) prematurely, press (**START/STOP**) key.
Pressing (**START/STOP**) key again starts the blast chilling cycle with the default settings applied (parameter **dFP**).

PARAMETER	DESCRIPTION
dF1	Enable/Maximum defrost duration (**0** = defrost disabled).
dF2	Interval between defrosts (**0** = automatic disabled, manual only).
dF3	Defrost type (**0** = electric, **1** = hot gas, **2** = air).
dF4	Temperature threshold above which the defrost is considered concluded or, during checking, unnecessary.
dF5	Defrost active even at the start of a blast chill program (**0** = no).

4.7.2. Manual storage

To select manual storage, press (**ESC**) key until the '**Con**' string will appear.
The LED corresponding to the (**TEMP**) key for positive storage begins to blink.
To select manual storage, press the (**TEMP**) key repeatedly:

- the LED for the (**TEMP**) key corresponding to comes on, select 'positive storage',
- the LED for the (**TEMP**) key corresponding to comes on, select 'negative storage'.

NOTE: The LEDs corresponding to the (**TARGET**) and (**MODE**) keys are switched off.

To start manual storage, press (**START/STOP**) key: the display shows the room temperature and the LED RUNNING comes on.

NOTE: During a storage phase, press the (**TEMP**) key to view the cold room storage temperature set point, **SCP** parameter or **SCn** parameter, without affecting the corresponding LEDs in any way. Pressing the (**UP**) and/or (**DOWN**) keys repeatedly results in a cyclical display (**Fig. 21 on page 42**): manual storage is considered started following a manual blast chilling cycle (timed).

During the storage phase, the LEDs corresponding to the (**TEMP**), (**TARGET**), (**MODE**) keys come on cyclically, in line with the selected program (refer to **Fig. 20 on page 41**).

To stop manual storage prematurely, press the (**START/STOP**) key.

Pressing (**START/STOP**) key again starts the blast chilling cycle with the default settings applied (par. **dFP**).

4.7.3. Room light (if enabled via parameter)

The room light can be controlled by one of the relay outputs, only if the related configuration parameter (FR1 ... FR7) is set to '**Li**'.
To select the room light, press (**ESC**) key until the '**LMP**' string will appear.

To start the room light for an indefinite period of time, press (**START/STOP**) key: the string '**LMP**' remains on the display.

NOTE: The room light function can be started while a program is already in progress (LED RUNNING on)

NOTE: If the power supply is cut off, the room light will be switched off when power is restored.

If the room light is on, it will be possible to select and view any other program.
In this case, to switch off the room light, proceed as follows:

1. press (**ESC**) key repeatedly until the string '**LMP**' appears.
2. press (**START/STOP**) key.

4.7.4. Food unfreezing (EWBC 875 only)

The 'unfreezing' function can be only controlled by the **R7** relay output (Open Collector) and only if the **FR7** configuration parameter is set to '**C H**' (Cold room heating).

To select the '**Unfreezing**' function, press the (**ESC**) key until the '**UnF**' string will appears.

The relative output will manage the actuator of the resistance for the cold room heating.
The purpose of the relative regulator is to maintain under control the cold room temperature (> 0 °C).
The reference probe for this regulator is the cold room probe.
The regulator operating logic is to maintain the cold room temperature constant and uniform by modulating a resistive load (2000 W max).

The actuation logic is as follows:

- Timeout can be set by **tUn** parameter.
- Setpoint automatically calculated.
- Cold room fan disabling and switch-off of the acoustic alarm resistance in the event of door opening.

The device performs a control of the initial cold room temperature before of an unfreezing cycle.
The initial temperature control phases are used to stabilise the temperature reading of the cell before starting heating.

NOTE: If the door is opened during the control phase of the initial cold room temperature, the cycle will be paused and it will automatically re-activated when the door will close; the timeout is reset and the cycle starts from the beginning.

The LED associated to clock icon (**TARGET**), has the only purpose to indicate if the cycle is finished due to time.

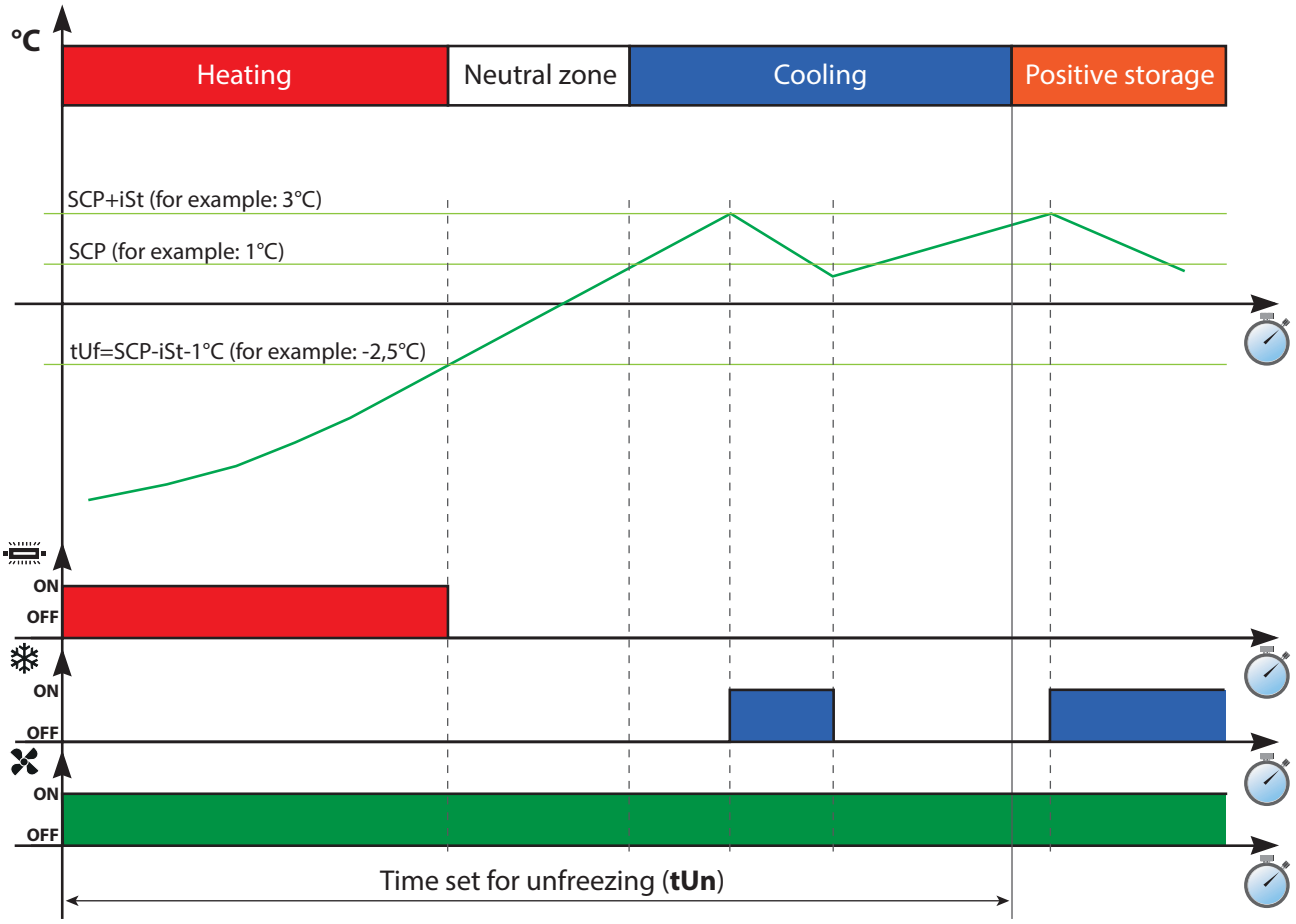


Fig. 22. Unfreezing cycle

Using the (**UP**) and (**DOWN**) keys it is possible to display:

- Cold room temperature
- Time elapsed
- Remaining time

NOTE: This information are always alternate to **UnF** label.

The active icons are as follows:

- Room fan
- Compressor
- RUNNING led

The display at the end of the cycle depends on the **Temp** temperature value:

- If **Temp** ≥ **SCP** the unfreezing cycle has ended and begins the 'positive storage' cycle with the relative display information.
- If **Temp** < **SCP** the unfreezing cycle continues even after the time-out (**tUn**) until the Setpoint (**SCP**) is reached. This condition is shown by the time-out LED flashing.

4.7.5. Pre-cooking (EWBC 875 only)

The 'pre-cooking' function can be only controlled by the **R7** relay output (Open Collector) and only if the **FR7** configuration parameter is set to '**C H**' (Cold room heating).

To select the '**Pre-cooking**' function, press the (**ESC**) key until the '**PrE**' string will appears.

The relative output will manage the actuator of the resistance for the cold room heating.
The purpose of the relative regulator is to maintain under control the cold room temperature (> 0 °C).
The reference probe for this regulator is the cold room probe.
The regulator operating logic is to maintain the cold room temperature constant and uniform by modulating a resistive load (2000 W max).

The actuation logic is as follows:

- Timeout can be set by tPC parameter.
- Setpoint set by PSP parameter.
- Cold room fan disabling and switch-off of the acoustic alarm resistance in the event of door opening.

The device performs a control of the initial cold room temperature before of a pre-cooking cycle.
The initial temperature control phases are used to stabilise the temperature reading of the cell before starting heating.

NOTE: If the door is opened during the control phase of the initial cold room temperature, the cycle will be paused and it will automatically re-activated when the door will close; the timeout is reset and the cycle starts from the beginning.

The LED associated to clock icon (**TARGET**), has the only purpose to indicate if the cycle is finished due to time.

If the (**UP**) and (**DOWN**) keys are not touched for 3 seconds, the display returns to the '**PrE**' label.
The pre-cooking cycle can be launched using the (**START/STOP**) key

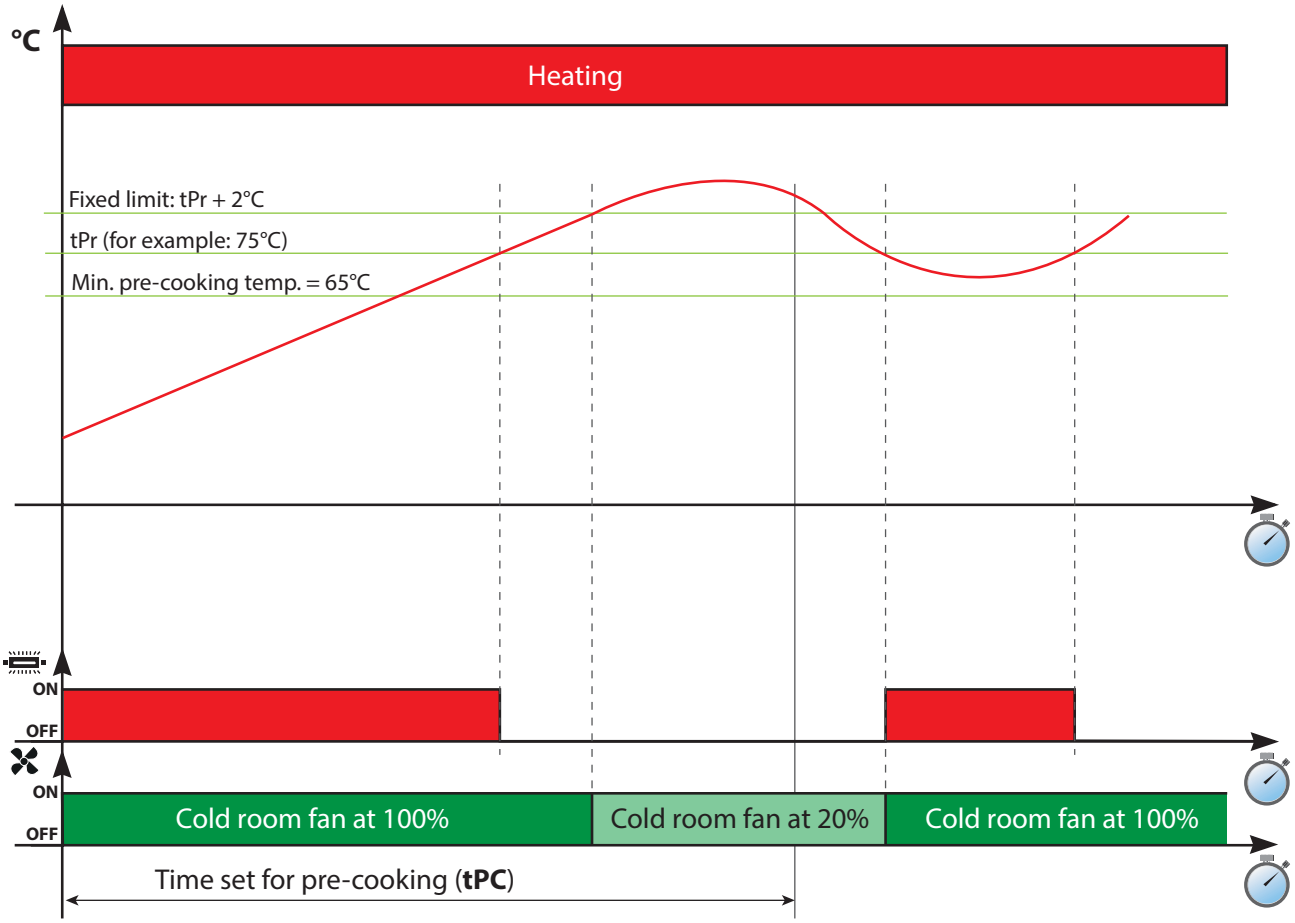


Fig. 23. Pre-cooking cycle

NOTES: • If the cell temperature rises above 2 °C more than the pre-cooking temperature, the low fan speed comes on (at 20%). The fan duty is 2s in ON and 48s in OFF.

• If in the hot cycles at the end of the set time the cell temperature has not reached the required minimum temperature of 65°C, this fault will be shown by the flashing timeout LED. This fault could be due to a goods overload in the cell or a broken heating element.

Using the (**UP**) and (**DOWN**) keys it is possible to display:

- Cold room temperature
- Time elapsed
- Remaining time

NOTE: This information are always alternate to **PrE** label.

The active icons are as follows:

- Room fan
- RUNNING led

The end of the cycle is signalled by the buzzer ringing and the timeout LED flashing.
The **PrE** label and running LED are shown until the ON/OFF button is pressed.

4.7.6. Combined cycle of unfreezing + pre-cooking (EWBC 875 only)

The 'combined cycle' function (unfreezing + pre-cooking) can only be controlled by the **R7** output relay (Open Collector) and only if the configuration parameter **FR7** is set to '**C H**'.

To select the “unfreezing” function, press (**ESC**) key until the string '**COM**' appears.

The combined cycle consists in the '**UnF**' unfreezing cycle followed immediately by a Pre-cooking cycle '**PrE**'. There is no setting for this cycle. The timing of the '**UnF**' and '**PrE**' sub-cycles can be set in the relative menus.

The actuation logic is as follows:

- Timeout cannot be set (set in the individual cycles)
- Setpoint cannot be set (set in the individual cycles)
- Cold room fan disabling and switch-off of the acoustic alarm resistance in the event of door opening.

Using the (**UP**) and (**DOWN**) keys it is possible to display:

- Cold room temperature
- Time elapsed
- Remaining time

NOTE: This information are always alternate to **COM** label.

The active icons are as follows:

- Room fan
- Compressor
- RUNNING led

At the end of the cycle the buzzer rings and the running LED comes on, and stays on until (**START/STOP**) key is pressed.

The timeout LED is managed in the same way as the individual '**UnF**'/'**PrE**' cycles.

4.8. BLAST CHILLER DOOR PRESENCE

If the closing control microswitch is present on the blast chiller door (parameter **Edo** = 1), digital input DI1 is managed as an input corresponding to the microswitch.

In this case:

- if parameter **SLd** = 0, door closing determines consent for the compressor to start;
- if parameter **SLd** = 1 (default value), the compressor is active even with the door open, while the cold room fan always stops when the door is open.

NOTE: To silence the buzzer in advance, press the (**DOWN**) key.

The program or function is not interrupted.

4.9. PARAMETERS CONFIGURATION

EWBC 800 has two types of parameter:

- visible parameters, aimed at the User,
- advanced parameters, aimed at the Installer.

To access the advanced parameters, enter a password (parameter PS2):
(refer to **'4.9.2. Entering a password for advanced parameters' on page 53**).
To change a parameter, please refer to **"4.9.1. Configuring a parameter' on page 52**.

NOTE: to configure the parameters, **EWBC 800** must be in stop status.

To display the list of parameters,press and hold both the (**UP**) and (**DOWN**) key simultaneously for at least 2 s: the display (**D - Fig. 12 on page 28**) shows parameter t1.

4.9.1. Configuring a parameter

To change the value of a parameter (**Fig. 21 on page 42**) proceed as described below:

1. press the (**UP**) or (**DOWN**) key until the display shows the name of the parameter to be changed;
2. press the (**AUX**) key to view the value of the parameter;

NOTE: Press the (**ESC**) key to return to the previous display (list of parameters) without making any changes.

3. press the (**UP**) or (**DOWN**) key within 10 seconds to respectively increase or decrease the value of the parameter;
4. to confirm the change in parameter value:
   - press the (**SET**) key, or the (**ESC**) key
   - wait for 10 seconds.

To exit the list of parameters view:

- press the (**ESC**) key once, or
- wait for 10 seconds.

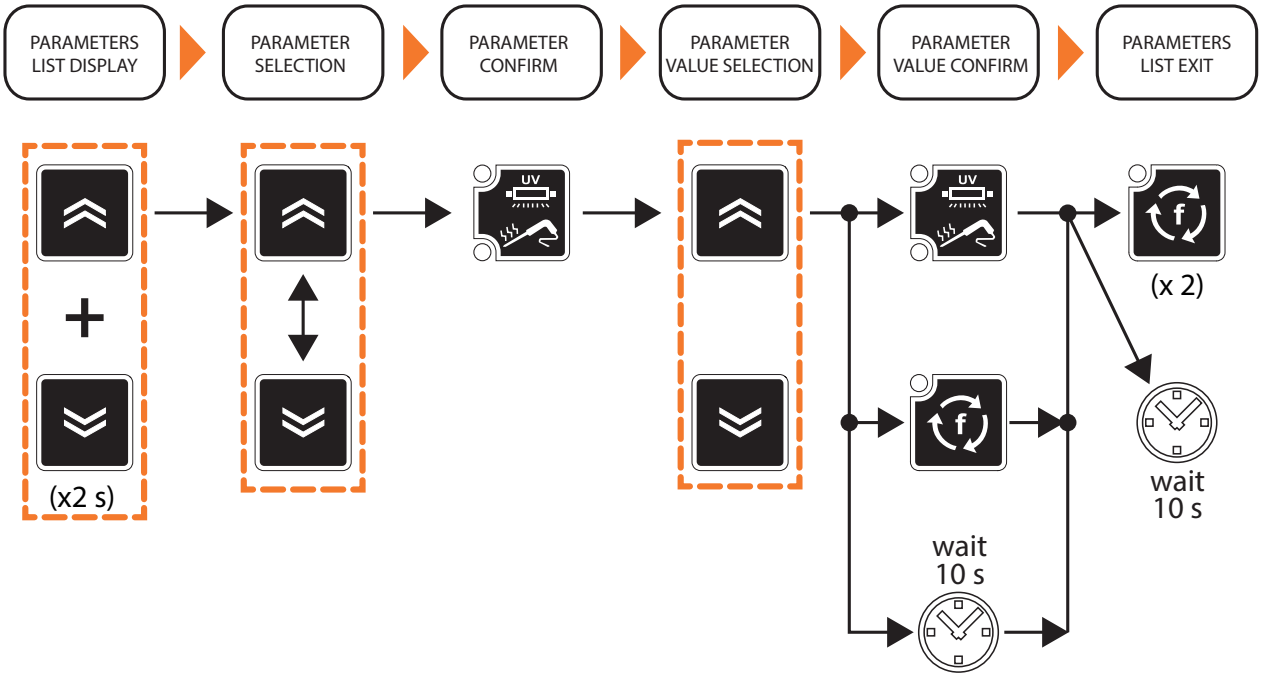


Fig. 24. Parameters configuration

4.9.2. Entering a password for advanced parameters

To enter the password, proceed as follows:

1. Press the (**UP**) or (**DOWN**) key until the display shows the parameter '**PA2**';
2. Press the (**SET**) key;
3. The value '0' will appear on the display;

   NOTE: Press the (**ESC**) key to return to the previous display (list of parameters) without entering any password.
4. press the (**UP**) or (**DOWN**) key within 10 seconds to respectively increase or decrease the value of parameter '**PA2**';

   NOTE: Press the (**ESC**) key to cancel the changes and return to the previous display (list of parameters).
5. to confirm the correct value has been entered for parameter '**PA2**' and access the list of advanced parameters, press the (**SET**) key or wait for 10 seconds.

   NOTE: To configure a parameter on the list of advanced parameters, please refer to:
   '4.9.1. Configuring a parameter' on page 52.

For the advanced parameters description refer to: **''PARAMETERS TABLES' on page 54**.

NOTE: If a password set to a value other than the default is lost, contact Eliwell to recover it.

NOTE: Once the password for advanced parameters has been entered, the value for that password can also be changed.

CHAPTER 5
PARAMETERS TABLES

NOTES: • The access to advanced parameters is password-protected and restricted to qualified personnel only.
- Visible parameters without password are highlighted in grey.
  Advanced parameters are highlighted in white.
- For the advanced parameters access mode refer to:
  '4.9.2. Entering a password for advanced parameters' on page 53.

5.1. TABLE OF VISIBLE AND ADVANCED PARAMETERS EWBC 854

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
iSt	Regulation hysteresis.	3.0	1.0...20.0	°C/°F
t1	Positive timed blast chilling duration (timeout for automatic program).	90	0...599	min
t2	Negative timed blast chilling (deep-freezing) duration (timeout for automatic program).	240	0...599	min
tP	Needle target for positive blast chilling.	3.0	SPS...99.0	°C/°F
tn	Needle target for negative blast chilling.	-18.0	Snh...99.0	°C/°F
SPS	Room set point for Soft positive blast chilling (single phase).	0.0	-50.0...tP	°C/°F
Snh	Room set point for Soft positive blast chilling (single phase).	-35.0	-50.0...tn	°C/°F
tF	Needle target for Phase 1 of automatic Hard positive blast chilling.	10.0	-50.0...99.0	°C/°F
SPF	Room set point for Phase 1 of Hard positive blast chilling.	-20.0	-50.0...99.0	°C/°F
SCP	Room set point for positive storage.	2.0	-50.0...99.0	°C/°F
SCn	Room set point for negative storage.	-20.0	-50.0...99.0	°C/°F
dOF	Compressor Protection Off/On (also valid at reset).	2	0...99	min
dOn	Compressor Protection On/On.	3	0...99	min
dF1	Enable/Maximum defrost duration. **0** = defrost disabled.	30	0...99	min
dF2	Interval between defrosts (**0** = automatic disabled, manual only).	8	0...99	hours
dF3	Defrost type. **EL** (0) = electric **gAS** (1) = hot gas **Air** (2) = air.	Air	EL/gAS/Air	num
dF4	Temperature threshold above which the defrost is considered concluded or, during checking, unnecessary.	5,0	-50.0...99.0	°C/°F
dF5	Defrost active even at the start of a blast chill program. **no** (0) = defrost NOT active; **yES** (1) = defrost active.	no	no/yES	flag
dF6	Dripping duration.	3	0...99	min

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
dr1	Enable door heating. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
dr2	Door heating activation threshold.	5.0	-50.0...99.0	°C/°F
tP0	Probe type Pb2, Pb3, Pb4. **ntC** (0) = NTC; **PtC** (1) = PTC.	PtC	ntC/PtC	flag
dEC	Decimal point °C. **no** (0) = display without decimal point; **yES** (1) = with decimal point.	yES	no/yES	flag
UCF	°C/°F selection. **C** (0) = °C; **F** (1) = °F.	C	C/F	flag
EP1	Enable core probe. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
EP3	Enable evaporator probe. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
Fan	Fan in blast chill status. **C P** (0) = parallel to compressor **On** (1) = always ON.	On	C P/On	flag
FR1	Configurability of digital output **R1**. **OFF** (0) = disabled **rdO** (1) = door heater **C F** (2) = condenser fan **H P** (3) = needle probe heating **U u** (4) = UV lamp **Lig** (5) = room light **dEF** (6) = defrost **E F** (7) = evaporator fan **CMP** (8) = compressor	CMP	OFF/rdO/ C F/H P/ U u/ Lig/ dEF/E F/ CMP	num
FR2	Configurability of digital output **R2**. Same as FR1.	E F	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR3	Configurability of digital output **R3**. Same as FR1.	C F	OFF/rdO/C F/ H P/U u/ Lig/ dEF/ E F/ CMP	num
FR4	Configurability of digital output **R4**. Same as FR1.	rdO	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR5	Configurability of digital output **R5** (OC). Same as FR1.	OFF	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
dbU	Buzzer sound duration.	10	0...60	s
Edo	Door present. **0** = absent; **1** = present.	yES	no/yES	flag
tdO	Timer for door alarm signal.	0	0...999	s
EnC	Enable negative blast chilling. **0** = disabled; **1** = enabled.	yES	no/yES	flag
SLd	Stop loads when door open. **C F** (0) = Compressor + Fan; **Fan** (1) = Fan.	Fan	C F/Fan	flag

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
dFP	Program default setting. **PMH** (0) = Positive Manual HARD **PMS** (1) = Positive Manual SOFT **PAH** (2) = Positive Automatic HARD **PAS** (3) = Positive Automatic SOFT **nMH** (4) = Negative Manual HARD **nMS** (5) = Negative Manual SOFT **nAH** (6) = Negative Automatic HARD **nAS** (7) = Negative Automatic SOFT **HLd** (8) = Previous case.	PMH	PMH/PMS/ PAH/PAS/ nMH/nMS/ nAH/nAS/ HLd	num
Uud	Sterilization cycle duration.	15	1...999	s
Uut	Sterilization temperature threshold.	5.0	-50.0...99.0	°C/°F
Prd	Maximum needle heating duration.	2	0...10	min
Prt	Needle probe heating temperature setpoint.	4.0	0.0...90.0	°C/°F
SCF	Condenser temperature set point, for secondary fan.	60.0	-50.0...99.0	°C/°F
EPS	Pressure switch setting. **0** = disabled.	3	0...4	num
PPS	Pressure switch polarity. **nO** (0) = normally open **nC** (1) = normally closed.	nC	nO/nC	flag
OFL	Offset subtracted from set point in storage to determine the low temperature alarm threshold.	10.0	0.0...99.0	°C/°F
LAE	Enable room minimum temperature alarm. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
OFH	Offset added to set point in storage to determine the high temperature alarm threshold.	10.0	0.0...99.0	°C/°F
HAE	Enable room maximum temperature alarm. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
PS2	Password to access the advanced parameters. Restricted to qualified personnel.	15	0...999	num
tAB	Reserved. Read only parameter.	1	0...65535	num

5.2. TABLE OF VISIBLE AND ADVANCED PARAMETERS EWBC 875

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
iSt	Regulation hysteresis.	3.0	1.0...20.0	°C/°F
t1	Positive timed blast chilling duration (timeout for automatic program).	90	0...599	min
t2	Negative timed blast chilling (deep-freezing) duration (timeout for automatic program).	240	0...599	min
tP	Needle target for positive blast chilling.	3.0	SPS...99.0	°C/°F
tn	Needle target for negative blast chilling.	-18.0	Snh...99.0	°C/°F
SPS	Room set point for Soft positive blast chilling (single phase).	0.0	-50.0...tP	°C/°F
Snh	Room set point for Soft positive blast chilling (single phase).	-35.0	-50.0...tn	°C/°F
tF	Needle target for Phase 1 of automatic Hard positive blast chilling.	10.0	-50.0...99.0	°C/°F
SPF	Room set point for Phase 1 of Hard positive blast chilling.	-20.0	-50.0...99.0	°C/°F
SCP	Room set point for positive storage.	2.0	-50.0...99.0	°C/°F
SCn	Room set point for negative storage.	-20.0	-50.0...99.0	°C/°F
dOF	Compressor Protection Off/On (also valid at reset).	2	0...99	min
dOn	Compressor Protection On/On.	3	0...99	min
dF1	Enable/Maximum defrost duration. **0** = defrost disabled.	30	0...99	min
dF2	Interval between defrosts (**0** = automatic disabled, manual only).	8	0...99	hours
dF3	Defrost type. **EL** (0) = electric; **gAS** (1) = hot gas; **Air** (2) = air.	Air	EL/gAS/Air	num
dF4	Temperature threshold above which the defrost is considered concluded or, during checking, unnecessary.	5.0	-50.0...99.0	°C/°F
dF5	Defrost active even at the start of a blast chill program. **no** (0) = defrost NOT active **yES** (1) = defrost active.	no	no/yES	flag
dF6	Dripping duration.	3	0...99	min
dr1	Enable door heating. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
dr2	Door heating activation threshold.	5.0	-50.0...99.0	°C/°F
Fan	Fan in blast chill status. **C P** (0) = parallel to compressor; **On** (1) = always ON.	On	C P/On	flag
FR1	Configurability of digital output **R1**. **OFF** (0) = disabled **rdO** (1) = door heater **C F** (2) = condenser fan **H P** (3) = needle probe heating **U u** (4) = UV lamp **Li** (5) = room light **dEF** (6) = defrost **E F** (7) = evaporator fan **CMP** (8) = compressor	CMP	OFF/rdO/ C F/H P/ U u/ Lig/ dEF/E F/ CMP	num

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
FR2	Configurability of digital output **R2**. Same as FR1.	E F	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR3	Configurability of digital output **R3**. Same as FR1.	C F	OFF/rdO/C F/ H P/U u/ Lig/ dEF/ E F/ CMP	num
FR4	Configurability of digital output **R4**. Same as FR1.	rdO	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR5	Configurability of digital output **R5**. Same as FR1.	Li	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR6	Configurability of digital output **R6**. Same as FR1.	OFF	OFF/rdO/C F/ H P/U u/ Lig/ dEF/E F/CMP	num
FR7	Configurabilità uscita digitale **R7** (OC). **OFF** (0) = disabled **rdO** (1) = door heater **C F** (2) = condenser fan **H P** (3) = needle probe heating **U u** (4) = UV lamp **Li** (5) = room light **dEF** (6) = defrost **E F** (7) = evaporator fan **CMP** (8) = compressor **C H** (9) = room heating	C H	OFF/rdO/ C F/H P/ U u/ Lig/ dEF/E F/ CMP/C H	num
tP0	Probe type Pb2, Pb3, Pb4. **ntC** (0) = NTC; **PtC** (1) = PTC.	PtC	ntC/PtC	flag
dEC	Decimal point °C. **no** (0) = display without decimal point **yES** (1) = with decimal point.	yES	no/yES	flag
UCF	°C/°F selection. **C** (0) = °C; **F** (1) = °F.	C	C/F	flag
EP1	Enable core probe. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
EP3	Enable evaporator probe. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
dbU	Buzzer sound duration.	10	0...60	s
Edo	Door present. **no** (0) = absent; **yES** (1) = present.	yES	no/yES	flag
tdO	Timer for door alarm signal.	0	0...999	s
EnC	Enable negative blast chilling. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
SLd	Stop loads when door open. **C F** (0) = Compressor + Fan **Fan** (1) = Fan.	Fan	C F/Fan	flag

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
dFP	Program default setting. **PMH** (0) = Positive Manual HARD **PMS** (1) = Positive Manual SOFT **PAH** (2) = Positive Automatic HARD **PAS** (3) = Positive Automatic SOFT **nMH** (4) = Negative Manual HARD **nMS** (5) = Negative Manual SOFT **nAH** (6) = Negative Automatic HARD **nAS** (7) = Negative Automatic SOFT **HLd** (8) = Previous case.	PMH	PMH/PMS/ PAH/PAS/ nMH/nMS/ nAH/nAS/ HLd	num
Uud	Sterilization cycle duration.	15	1...999	s
Uut	Sterilization temperature threshold.	5.0	-50.0...99.0	°C/°F
Prd	Maximum needle heating duration.	2	0...10	min
Prt	Needle probe heating temperature setpoint.	4.0	0...90.0	°C/°F
SCF	Condenser temperature set point, for secondary fan.	60.0	-50.0...99.0	°C/°F
EPS	Pressure switch setting. **0** = disabled.	3	0...4	num
PPS	Pressure switch polarity. **nO** (0) = normally open **nC** (1) = normally closed.	nC	nO/nC	flag
OFL	Offset subtracted from set point in storage to determine the low temperature alarm threshold	10.0	0.0...99.0	°C/°F
LAE	Enable room minimum temperature alarm. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
OFH	Offset added to set point in storage to determine the high temperature alarm threshold.	10.0	0.0...99.0	°C/°F
HAE	Enable room maximum temperature alarm. **no** (0) = disabled; **yES** (1) = enabled.	yES	no/yES	flag
PS2	Password to access the advanced parameters. Restricted to qualified personnel.	15	0...999	num
tME	Setting the evaporator temperature maximum threshold.	50.0	0.0...100	°C/°F
tUn	Setting the unfreezing cycle length.	360	1...999	min
PSP	Setting the pre-cooking setpoint.	70	PLS...PHS	°C/°F
PLS	Setting the minimum pre-cooking setpoint value.	65	65...PHS	°C/°F
PHS	Setting the maximum pre-cooking setpoint value.	85	PLS...185	°C/°F
tPC	Setting the pre-cooking cycle length.	90	1...999	min
FiP	Fan length before starting the pre-cooking cycle.	2	0...30	min
FiS	Fan length before starting the unfreezing cycle.	2	0...30	min
U10	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 10% control of the resistance in unfreezing.	4.0	0.0...100	°C/°F
U20	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 20% control of the resistance in unfreezing.	6.0	0.0...100	°C/°F
U30	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 30% control of the resistance in unfreezing.	8.0	0.0...100	°C/°F

PAR.	DESCRIPTION	VALUE	RANGE	M.U.
U40	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 40% control of the resistance in unfreezing.	10.0	0.0...100	°C/°F
U50	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 50% control of the resistance in unfreezing.	12.0	0.0...100	°C/°F
U60	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 60% control of the resistance in unfreezing.	14.0	0.0...100	°C/°F
U70	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 70% control of the resistance in unfreezing.	16.0	0.0...100	°C/°F
U80	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 80% control of the resistance in unfreezing.	18.0	0.0...100	°C/°F
U90	Difference (Δ) between the Unfreezing Setpoint which corresponds to a 90% control of the resistance in unfreezing.	20.0	0.0...100	°C/°F
P10	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 10% control of the resistance in unfreezing.	0.5	0.0...100	°C/°F
P20	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 20% control of the resistance in unfreezing.	1.0	0.0...100	°C/°F
P30	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 30% control of the resistance in unfreezing.	1.5	0.0...100	°C/°F
P40	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 40% control of the resistance in unfreezing.	2.0	0.0...100	°C/°F
P50	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 50% control of the resistance in unfreezing.	2.5	0.0...100	°C/°F
P60	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 60% control of the resistance in unfreezing.	3.0	0.0...100	°C/°F
P70	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 70% control of the resistance in unfreezing.	3.5	0.0...100	°C/°F
P80	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 80% control of the resistance in unfreezing.	4.0	0.0...100	°C/°F
P90	Difference (Δ) between the Pre-cooking Setpoint (**PSP**) which corresponds to a 90% control of the resistance in unfreezing.	4.5	0.0...100	°C/°F
PEr	Indicates the **PWM** signal period.	10	0...30	s
HCE	Enable HACCP function. **no** (0) = disabled; **yES** (1) = enabled.	no	no/yES	flag
tAB	Reserved. Read only parameter.	1	0...65535	num

CHAPTER 6
LOADS OPERATION LOGICS

The operating logics for the loads are illustrated below; each one can be controlled by any digital relay output, according to the following correspondence between parameters **FR1...FR7** and the outputs:

EWBC 854
FR1 --> R1
FR2 --> R2
FR3 --> R3
FR4 --> R4
FR5 --> R5 (OC)

EWBC 875
FR1 --> R1
FR2 --> R2
FR3 --> R3
FR4 --> R4
FR5 --> R5
FR6 --> R6
FR7 --> R7 (OC)

NOTE: R5 (EWBC 854) or **R7** (EWBC 875) are open collector (OC) output, and therefore requires connection of an external relay.

6.1. COMPRESSOR

The compressor can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 8 (default: **R1**).

The compressor cuts in when running standard programmes and in storage.
It will be off (OFF) during the STOP phase and may be enabled after the START if the chamber probe is not in error.

Fig. 25 on page 62 illustrates the operating logic of relay **R1** (refer to the pre-set types described in **'2.2. FURTHER INFORMATION' on page 14**), specifying when it activates and deactivates the compressor, according to the room temperature set point and regulation hysteresis.

If the blast chiller is fitted with a microswitch for door control closing (parameter **EdO** = 1), compressor start is linked to **SLd** parameter value:

- if **SLd = 0**: the compressor can be started only with closed door
- if **SLd = 0**: the compressor can be started also with open door and fan stopped.

6.1.1. Compressor protections

To protect the compressor, the following timeframes have been provided:

- minimum time that must elapse between the compressor switching off and the subsequent switching on (**dOF**)
- minimum time that must elapse between two consecutive start ups of the compressor (**dOn**).

If a timeout is already in progress, both times, if greater than the counting, will be reset.

NOTE: The minimum time that must elapse between the compressor switching off and the subsequent switching on is counted even after power supply is interrupted.

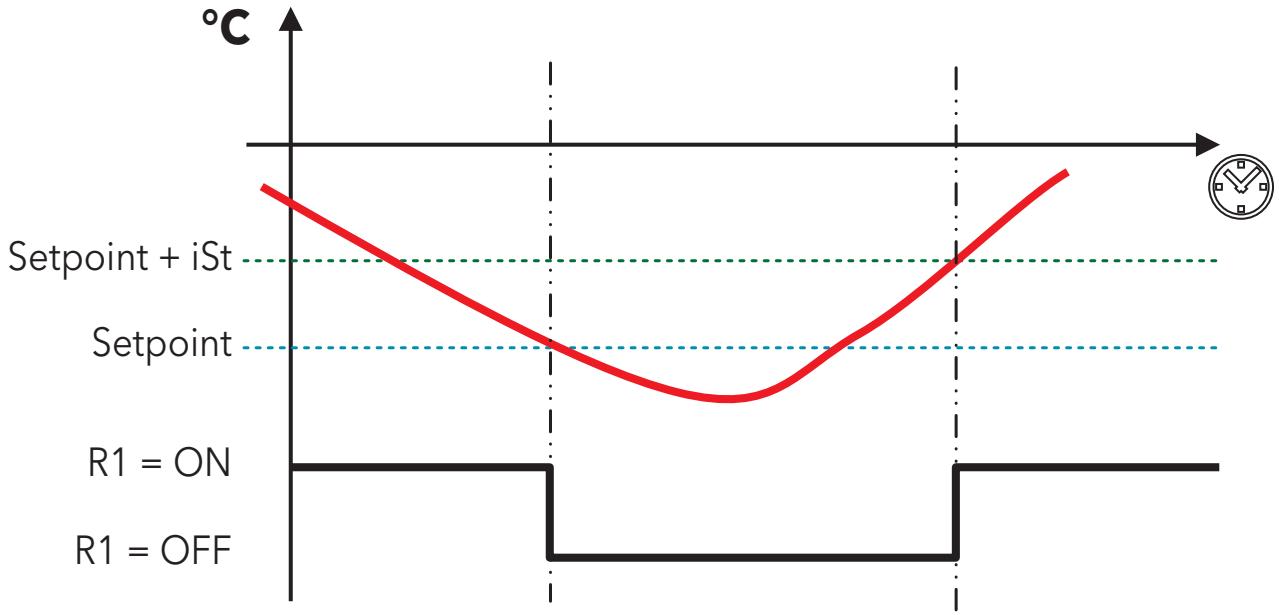


Fig. 25. Compressor operation

With reference to the figure, the following paragraphs shows the operating logics of the compressor, specifying when it is switched on and off depending on the target value and blast chill mode selected.

NOTE: Compressor operation depends on the blast chilling cycle target value and the blast chill mode, but it does not depend on the blast chilling cycle target type.
In the operating logics described in the following paragraphs, the storage phase starts automatically after a blast chilling cycle; alternatively, the storage phase can be started manually
(refer to **'4.4.1. Selecting a blast chilling cycle target value' on page 38**).

6.1.2. POSITIVE target value with SOFT blast chill mode

The compressor is activated or deactivated according to the operating logic indicated in the table below.

Positive program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Blast chilling cycle	SPS	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) less than or equal to Setpoint
Storage phase	SCP			

6.1.3. POSITIVE target value with HARD blast chill mode

This program consists of two consecutive stages, with timeouts calculated automatically by **EWBC 800** base board according to the value of parameter **t1** (default: 90 min):

- **Phase 1**: with timeout duration equal to 2/3 of **t1** (default: 60 min),
- **Phase 2**: with timeout duration equal to 1/3 of **t1** (default: 30 min).

PHASE 1

The compressor is activated or deactivated according to the operating logic indicated in the table below:

Positive program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Hard blast chilling cycle - Phase 1	SPF	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) less than or equal to Setpoint

Phase 1 ends automatically if one of the following conditions arises:

- timeout for Phase 1 reached (2/3 of **t1**), if target type is manual
- needle probe (core) target for Phase 1 reached (parameter **tF**), if target type is automatic
- temperature target for Phase 1 not reached, but timeout for Phase 1 reached (2/3 of **t1**), if target type is automatic.

NOTE: If Phase 1 has ended due to the timeout for Phase 1 being reached (2/3 of **t1**), the LED TIMEOUT will not blink during the subsequent Phase 2.

The blast chiller automatically moves on from Phase 1 to Phase 2.

PHASE 2

The compressor is activated or deactivated according to the operating logic indicated in the table below:

Positive program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Hard blast chilling cycle - Phase 2	SPS	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) less than or equal to Setpoint
Storage phase - Phase 2	SCP			

The blast chilling cycle for Phase 2 ends automatically if one of the following conditions arises:

- timeout for Phase 2 reached (1/3 of **t1**), if target type is manual
- selected needle probe (core) target reached (parameter **tP**), if target type is automatic
- selected temperature target not reached, but timeout for Phase 2 reached (1/3 of **t1**), if target type is automatic.

NOTE: If the blast chilling cycle (automatic) for Phase 2 has ended due to the timeout for stage 2 being reached, thel LED TIMEOUT will blink during the subsequent storage phase.
Any information on the display (**D - Fig. 12 on page 28**) regarding the time elapsed since the start of the program or time remaining until the end of the program depends on the overall duration of the program (parameter **t1**) and not on the duration of Phase 1 or the duration of Phase 2.
For example, the time remaining that can be seen on the display during Phase 1 is the sum of the time required to complete Phase 1 and the timeout for Phase 2 (1/3 of **t1**).

6.1.4. NEGATIVE target value with HARD blast chill mode

The compressor is activated or deactivated according to the operating logic indicated in the table below:

Negative program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Blast chilling cycle	Snh	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) Storage phase SCn less than or equal to Setpoint
Storage phase	SCn			

6.1.5. NEGATIVE target value with SOFT blast chill mode

This program consists of two consecutive stages, with timeouts calculated automatically by **EWBC 800** base board according to the value of parameter **t2** (default: 240 min):

- **Phase 1**: with timeout duration equal to 1/2 of **t2** (default: 120 min),
- **Phase 2**: with timeout duration equal to 1/2 of **t2** (default: 120 min).

PHASE 1

The compressor is activated or deactivated according to the operating logic indicated in the table below:

Negative program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Soft blast chilling cycle - Phase 1	SPS	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) less than or equal to Setpoint

Phase 1 ends automatically if one of the following conditions arises:

- timeout for Phase 1 reached (1/2 of **t2**), if target type is manual
- fixed needle probe target for Phase 1 reached (value at +3°C), if target type is automatic
- temperature target for Phase 1 not reached, but timeout for Phase 1 reached (1/2 of **t2**), if target type is automatic.

NOTE: If Phase 1 has ended due to the timeout for Phase 1 being reached (1/2 di **t2**), the LED TIMEOUT will not blink during the subsequent Phase 2.

The blast chiller automatically moves on from Phase 1 to Phase 2.

PHASE 2

The compressor is activated or deactivated according to the operating logic indicated in the table below.

Negative program	Setpoint	Hysteresis	Activated compressor if	Deactivated compressor if
Blast chilling cycle - Phase 2	Snh	iSt	Room temperature (PB2) higher or equal to Setpoint + Hysteresis	Room temperature (PB2) less than or equal to Setpoint
Storage phase - Phase 2	SCn			

The blast chilling cycle for Phase 2 ends automatically if one of the following conditions arises:

- timeout for Phase 2 reached (1/2 of **t2**), if target type is manual
- selected needle probe (core) target reached (parameter **tn**), if target type is automatic
- selected temperature target not reached, but timeout for Phase 2 reached (1/2 of **t2**), if target type is automatic.

NOTE: If the blast chilling cycle (automatic) for Phase 2 has ended due to the timeout for stage 2 being reached, the LED TIMEOUT will blink during the subsequent storage phase.
Any information on the display (**D - Fig. 12 on page 28**) regarding the time elapsed since the start of the program or time remaining until the end of the program depends on the overall duration of the program (parameter **t2**) and not on the duration of Phase 1 or the duration of Phase 2.
For example, the time remaining that can be seen on the display during Phase 1 is the sum of the time required to complete Phase 1 and the timeout for Phase 2 (1/2 of **t2**).

6.2. EVAPORATOR ROOM FAN

The evaporator room fan can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 7 (default: **R2**).

The cold room fan, if provided, is activated during the execution of a program, according to the value of parameter **FAn**:

- if **FAn = 1**: the room fan is always on, both during the blast chilling cycle and during the storage phase;
- if **FAn = 0**: the room fan is activated together with the compressor, following the operating logic of the compressor described in **'6.1. COMPRESSOR' on page 61**.

6.3. DEFROST

NOTA: During the defrost, any open door alarms ‘dOr’ are ignored
(refer to **'ALARMS' on page 70**).

The defrost heater can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 6 (default: **R3**).

There are 3 types of defrost, each of which produces a specific behaviour in relays R1, R2, R3 (fare riferimento ai tipi predefiniti in **'2.2. FURTHER INFORMATION' on page 14**) on the basis of the value of parameter dF3, according to the operating logic indicated in the table below:

Par. dF3	Type of defrost	R1 (Compressor)	R2 (Cold room fan)	R3 (Defrost heater)
0	Electric	Inactive	Inactive	Active
1	Hot gas	Active	Inactive	Active
2	Air	Inactive	Active	Active

The defrost is enabled or disabled according to the value of the parameter **dF1**:

- if **dF1 = 0**, the defrost is disabled,
- if **dF1 ≠ 0**, the defrost is enabled and has a maximum duration, in min, equal to the value of parameter **dF1**.

The defrost can be manually or automatically activated according to the value of the parameter **dF2**:

- if **dF2 = 0**, the defrost can be activated manually,
- if **dF2 ≠ 0**, the defrost can be activate automatically at intervals between two consecutive defrosts, in hours, with a duration equal to **dF2**.

The evaporator probe PB3 can be enabled or disabled according to the value of the parameter **EP3**:

- if **EP3 = 0**, PB3 is disabled: the defrost can only be activated automatically,
- if **EP3 = 1**, PB3 is enabled: the defrost can be activated both automatically and manually (see **dF2**).

The defrost is activated or deactivated according to the operating logic indicated in the table below:

Activated defrost if	Deactivated defrost if
evaporator temperature (PB3) <= evaporator temperature threshold (**dF4**)	evaporator temperature (PB3) >= evaporator temperature threshold (**dF4**)

If the defrost is activated, the icon ❄ blinks; if the defrost is activated and the blast chiller is in its storage phase, the defrost will become operative and the icon ❄ is lit steadily.
If parameter **dF5** = 1 the defrost is also carried out at the beginning of - but never during - a blast chilling cycle.

NOTE: If the defrost request is generated during a blast chilling cycle, the defrost will take place at the end of the blast chilling cycle, at the same time as the subsequent storage phase starts up.
If the defrost request is generated in stop status, the next time a program is started the defrost is carried out beforehand.

At the end of the defrost cycle, the compressor can be activated only when the greatest of the following times has elapsed:

- dripping time (parameter **dF6**),
- minimum time that must elapse between the compressor switching off and the subsequent switching on (**dOF**).

6.4. CELL HEATING ELEMENT CONTROL (EWBC 875)

The cell heating element can only be controlled by the Open Collector (OC) output if parameter **FR7** (R7) is set to '**C H**'.

The relative output is used by the cell heating element actuator.

The associated functions are food unfreezing (also called unfreezing), food pre-cooking (also called pre-cooking) and the combined cycle.

When enabled, these functions are accessed from the optional functions menu  (**ESC**).

The controller for these functions is used to keep the cell at a controlled temperature (>0°C), the relative probe for this controller is the cell probe.
The controller operating logic is to maintain a constant, uniform cell temperature, at the setpoint value, by modulating a resistive load (max 2000 W).

The pre-cooking and unfreezing cycles are similar; the following table summarises the actuation logic:

	Unfreezing	Pre-cooking
Time-out settable?	by parameter **tUn**	by parameter **tPC**
Calcolo Setpoint	by parameter **SCP**	by parameter **PSP**
Cold room fan	Active	Active
Door opening effect	• Stops cold room fan • Electrical heaters are switched off • Immediate acoustic alarm	• Stops cold room fan • Electrical heaters are switched off • Immediate acoustic alarm
Type of control	Table form	Table form

The device controls the initial temperature of the pre-cooking and unfreezing cycles.
The initial temperature control phase is used to stabilise the temperature reading of the cell before starting heating.

If the door is opened during the initial temperature control phase, the cycle is suspended and automatically restarts when the door is closed, with the timeout is reset, so the cycle starts from the beginning.

End of cycle conditions:

Generally, the cell temperature must be controlled until the operator intervenes, by pressing  (**START/STOP**).

The fact that the time set for the heating cycle has expired is signalled to the user, but the temperature continues to be controlled.

During unfreezing, when the timeout expires, the cycle changes to storage, with rolling LEDs (the LEDs on the buttons to the left of the display flash in succession, continuously).

The change from unfreezing to storage is signalled by a buzzer.
In pre-cooking, an acoustic signal is given but there is no visual signal.

If in the hot cycles at the end of the set time the cell temperature has not reached the required minimum temperature of 65°C, this fault is shown by the flashing LED 

.

This fault could be due to a goods overload in the cell or a broken heating element.

Combined cycle.

The combined cycle consists of an unfreezing cycle followed by a pre-cooking cycle. The combined cycle is the 'collage' of Unfreezing and Pre-cooking cycles (**UnF+PrE**) with the currently set times.

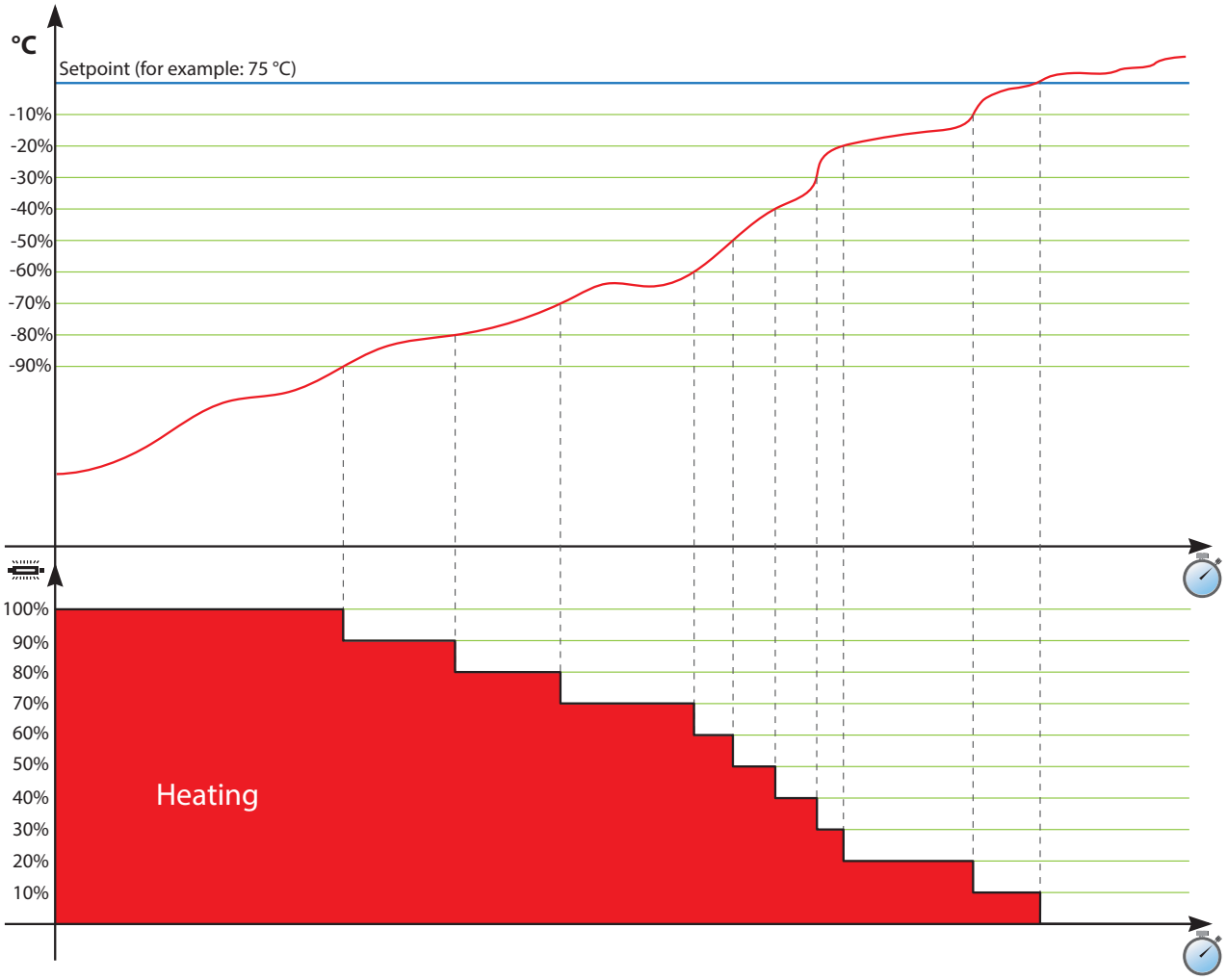
NOTE: avoid the following situation: an uncontrolled cell temperature caused by a faulty heating element or the element control circuit.
If during the combined cycle there is a timeout before the **SCP** threshold is reached the cycle passes automatically from **COM** to **UnF** and the cell temperature is stabilised by the compressor.

Cell element control algorithm

To control the cell during this function, a proportional table control is envisaged, for example:

Control	Difference (Δ) between the Pre-cooking Setpoint (PSP)	Difference (Δ) between the Unfreezing Setpoint
10%	Δ ≤ P10	Δ ≤ U10
20%	P10 < Δ ≤ P20	U10 < Δ ≤ U20
30%	P20 < Δ ≤ P30	U20 < Δ ≤ U30
40%	P30 < Δ ≤ P40	U30 < Δ ≤ U40
50%	P40 < Δ ≤ P50	U40 < Δ ≤ U50
60%	P50 < Δ ≤ P60	U50 < Δ ≤ U60
70%	P60 < Δ ≤ P70	U60 < Δ ≤ U70
80%	P70 < Δ ≤ P80	U70 < Δ ≤ U80
90%	P80 < Δ ≤ P90	U80 < Δ ≤ U90
100%	Δ > P90	Δ > P90

The **P10 ... P90** (Pre-cooking) and **U10 ... U90** (Unfreezing) parameters set the control percentages according to the Setpoint.



6.5. DOOR HEATING

NOTE: Door heating can only be activated through parameter configuration
(refer to **'4.9. PARAMETERS CONFIGURATION' on page 52**).

Door heating is enabled or disabled according to the value of the parameter **dR1**:

- if **dR1 = 0**, door heating is disabled,
- if **dR1 = 1**, door heating is enabled.

Door heating can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 1 (default: **R4**).

NOTE: Door heating, if enabled, is always active and not dependent on the operating logic of other loads or on other programs in progress.

Door heating is activated or deactivated according to the operating logic indicated in the table below:

Door heating activated if	Door heating deactivated if
cold room temperature (PB2) <= door heating temperature threshold - hysteresis (**dR2 - Ist**)	cold room temperature (PB2) => door heating temperature threshold (**dR2**)

6.6. UV LAMP - STERILIZATION

NOTE: Opening the door stops sterilization and generates the door open alarm '**dOr**'
(refer to **'ALARMS' on page 70**).

The UV lamp for sterilization can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 4..

During sterilization the UV lamp and the evaporator fan are activated for a time, in seconds, equal to the value of parameter **UUd**.

Sterilization is activated or deactivated according to the operating logic indicated in the table below:

The sterilization is activated if	The sterilization is deactivated if
cold room temperature (PB2) => sterilization temperature threshold (**UUt**).	cold room temperature (PB2) <= sterilization temperature threshold - hysteresis (**UUt - iSt**).

6.7. NEEDLE PROBE HEATING

The needle probe heater can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 3.

The needle probe heater is activated for a time, in minutes, equal to the maximum needle probe heating time (**Prd**).

If: needle probe temperature (PB1) => needle probe heating temperature set point (**Prt**)

The needle probe heater is deactivated before the maximum needle probe heating time has elapsed (**Prd**).

6.8. CONDENSER FAN

The condenser fan can be controlled by one of the outputs, depending on which of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 2.

NOTE: EWBC 800 automatically deactivates the condenser probe PB4 if the condenser fan is not controlled by any output, i.e. if none of the parameters **FR1...FR5** (EWBC 854) or **FR1...FR7** (EWBC 875) is set to 2.

The condenser fan is activated or deactivated according to the operating logic indicated in the table below:

The condenser fan is activated - Compressor is activated if:	**The condenser fan is permanently activated - Compressor is deactivated if:**
condenser probe temperature (PB4) <= condenser temperature threshold (**SCF**)	condenser probe temperature (PB4) >= condenser temperature threshold (**SCF**)

The condenser fan is activated at the same time as the compressor during a program (blast chilling cycle or storage phase). If the compressor is deactivated, the display (**D - Fig. 12 on page 28)** shows the blinking PB4 condenser probe temperature along with the alarm icon.

NOTE: In this alarm condition, press  **START/STOP** key to stop the program in progress and remove the alarm condition.

Any program in progress will be paused, to resume when the condenser threshold temperature (PB4) drops back under the condenser temperature threshold (**SCF**).

NOTE: If the condenser probe temperature (PB4) exceeds the condenser temperature threshold (SCF) during stop status, the operating logic described in the table above is not applied; this check is carried out the next time the program is started (START).

CHAPTER 7
ALARMS

EWBC 800 is able to perform a complete diagnostics of the blast chiller, reporting any malfunctions with specific alarms, showing the corresponding code on the display (**D1 - Fig. 7 on page 19**).

NOTE: No beep sounds when an alarm occurs.

7.1. ALARMS TABLE

The following table lists the alarms, with related code, indicating the causes, effects and solutions.

Code	Alarm	Causes	Effect	Remedy
E1	Probe PB1 in error	• Measured values are outside operating range • Probe inoperable / shortcircuited / open	If an automatic program is in progress, switch to manual program	• Check probe wiring • Replace probe
E2	Probe PB2 in error	• Measured values are outside operating range • Probe inoperable / shortcircuited / open	• If a manual program is in progress with the needle probe present (parameter **EP1**=1), the manual program continues using the needle probe as a cold room probe. • If a manual program is in progress with the needle probe absent (parameter **EP1**=0), the manual program stops (stop status). • If an automatic program is in progress, the automatic program stops (stop status)	• Check probe wiring • Replace probe
E3	Probe PB3 in error	• Measured values are outside operating range • Probe inoperable / shortcircuited / open	If a defrost is in progress, it continues without checking the evaporator probe temperature.	• Check probe wiring • Replace probe
E4	Probe PB4 in error	• Measured values are outside operating range • Probe inoperable / shortcircuited / open	/	• Check probe wiring • Replace probe
AL	LOW temperature alarm	(In storage with: **LAE=1** only). Positive storage: value read by PB2≤**SCP-OFL** Negative storage: value read by PB2≤**SCn-OFL**	• Label **AL** displayed alternates with a message on the main display • No effect on regulation	/
AH	HIGH temperature alarm	(In storage with: **HAE=1** only). Positive storage: value read by PB2≤**SCP+OFH** Negative storage: value read by PB2≤**SCn+OFH**	• Label **AH** displayed alternates with a message on the main display • No effect on regulation	/

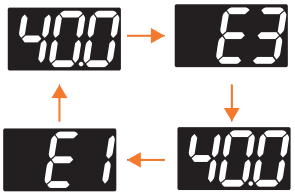
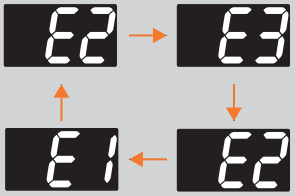
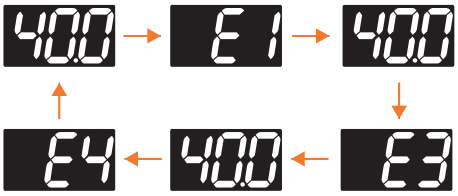
Code	Alarm	Causes	Effect	Remedy
EE	Evaporator overtemperature	Evaporator temperature >**dF4**.	• Label **EE** displayed alternates with the value read by probe PB3 • Alarm icon permanently on • Acoustic signal • Cold room fan active	• Wait until the evaporator temperature is < **dF4** (open the cold room door to improve the heat dispersion) • Press (**START/STOP**) key (*) to go back in a STOP conditions.
dOr	Door open	• Door open (function of parameter **tdO**). • Blast chiller door opening with program or optional function (except defrost) in progress.	• The program or function is in progress • Cold room fan deactivation • Compressor deactivation (see **SLd** and **tdO**)	Close the blast chiller door to reactivate the evaporator room fan (only if **SLd**=0) When the program or function is in progress, press (**START/STOP**) to stop the program or function, remove '**dOr**' and revert to stop status.
PrS	Pressure switch alarm without loads locking	• Opening of the pressure switch DI2 (only if **EPS** ≠ 0) • Pressure switch alarm events count < **EPS**.	Increase by one unit of the alarm counter (initially zero). Blast chiller in stand-by status: • Compressor deactivation • Evaporator room fan deactivation • Condenser fan activation • Time counting stand-by, if a manual program is in progress	Close the pressure switch DI2 and wait for the safety times of the compressor (see **dOF** and **dOn**)
	Pressure switch alarm with loads locking	• Opening of the pressure switch DI2 (only if **EPS**≠0) • Pressure switch alarm events count = **EPS**	Deactivation of all loads.	Press (**START/STOP**) key (*)
E10	RTC Alarm not set	/	/	/

***** When the **START/STOP** key is pressed the program or the special function in progress stops and the alarm events count is reset.

NOTE: When switched on, **EWBC 800** indicates the pressure switch alarm 'PrS' if the DI2 pressure switch is open, as this input is normally closed (NC). The pressure switch alarm has priority over the open door alarm.

The following table summarizes the different display views depending on the alarms that occur if the display shows the PB2 probe temperature.

NOTE: The PB2 probe temperature information displayed is equal to 40°C (main display).

Type of error	On-screen display
None. (continuous display of the PB2 probe temperature).	
PB2 probe error (continuous display of ‘E2’). If the PB1 probe temperature is displayed, cyclic display in succession of ‘E2’ and PB1 probe temperature.	
PB1, PB3 or PB4 probe error. (e.g. PB3 probe error: cyclic display in succession of ‘E3’-‘40.0’).	
Error of two probes, one of which is PB2. (e.g. probe PB2 and PB3 error: cyclic display in succession of ‘E3’-‘E2’).	
Error of two probes, excluding PB2. (e.g. probe PB1 and PB3 error: cyclic display in succession of ‘E3’-‘40.0’-‘E1’-‘40.0’).	
Error of three probes, one of which is PB1. (e.g. probe PB1, PB2 and PB3 error: cyclic display in succession of ‘E2’-‘E3’-‘E2’-‘E1’).	
Error of three probes, excluding PB2. (probe PB1, PB3 and PB4 error: cyclic display in succession of ‘E1’-‘40.0’-‘E3’-‘40.0’-‘E4’-‘40.0’).	
Low temperature alarm AL. (cyclic display in succession of ‘AL’-‘40.0’). In the case of other errors (excluding E2), display in succession with each of them.	
High temperature alarm AH. (cyclic display in succession of ‘AH’-‘40.0’). In the case of other errors (excluding E2), display in succession with each of them.	
Door open, with **Edo**=1. (cyclic display of **dOr**).	
Open pressure switch with **EPS** other than 0 and alarm events count under **EPS** (blinking display of ‘PrS’)	
Open pressure switch with **EPS** other than 0 and alarm events count equal to **EPS** (cyclical display of ‘PrS’ and LED lit steadily).	

With the program in progress,

- In case of one or more malfunctions, the display shows the last value selected via the keypad (**T - Fig. 12 on page 28**) along with the malfunction(s) present in succession.
  (refer to **'4.5. CYCLICAL DISPLAY' on page 42**)
- In case of a PB1 probe error with displaying of the current PB1 probe temperature, ‘E1’ appears steadily on the display and other values can be viewed cyclically.
  (refer to **'4.5. CYCLICAL DISPLAY' on page 42**)
- In case of a PB2 probe error with displaying of the current PB2 probe temperature, ‘E2’ appears steadily on the display and other values can be viewed cyclically.
  (refer to **'4.5. CYCLICAL DISPLAY' on page 42**).

7.2. CLOCK SETTING (EWBC 875 AND HCE = 1 ONLY)

The function menu also can be used to configure the **RtC** clock on which the HACCP alarm is based.
Also see the corresponding paragraphs for the clock alarm and the HACCP alarm.

Since the clock is only used for HACCP function, to disable this function by parameter, disabled also the functionality linked to the clock, including the associated alarm (**E10**).

However the HACCP function operates even if the RTC has not been set, in which event, the "timestamp" of the HACCP alarm (activation time of recorded warning), will be without meaning but the alarm will be given.

NOTE: The clock setting does not activated the HACCP function.

7.3. DISPLAYING HACCP ALARMS (EWBC 875 AND HCE = 1 ONLY)

The HACCP alarms list (log) can be navigated in the relative function menu.

It is based on the RTC resource in the card.

The **EWBC 800** manages HACCP alarms with a circular buffer with 10 alarm events stored. The HACCP alarms can be enabled or disabled with the parameter (**HCE**: Enable Haccp Alarms).

Abnormal events which trigger an HACCP alarm are:

1. COOLING FUNCTIONS:
   - Total blast chilling or core probe deep-freezing timeout exceeded
   - Temperature T = +3 °C exceeded for core probe deep-freezing
   - Threshold temperature exceeded during storage
2. HEATING FUNCTIONS:
   - Storage temperature exceeded during unfreezing
3. IN ADDITION:
   - No power (blackout) during operations
   - Door opened during a current cycle

Whenever an HACCP alarm is triggered, the following critical information is storedtimestamp (inizio - fine):

- Timestamp (start - end)
- Type of cycle requested
- Critical limit value (when applicable)

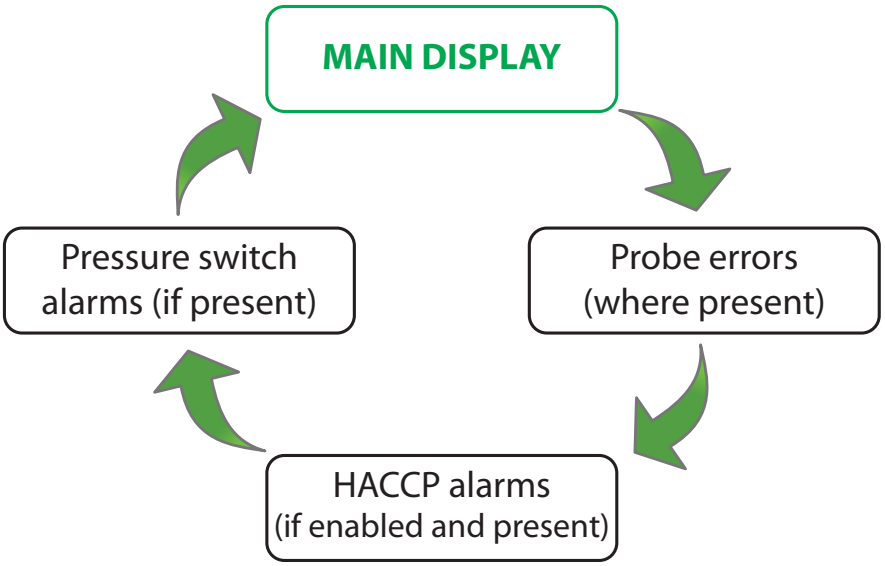
The list of HACCP alarms (log) is accessible from the specific navigation menu.

The detail of the information to view is given below:

7.3.1. ONE OR MORE SIMULTANEOUS ALARMS

The HACCP alarms must be managed together with the other alarms (pressure switch, storage temperature, probe error and door opening).

The sequence in which the alarms are shown is illustrated below:



7.3.2. ALARM CONFIRMATION AND LOG DELETING

The presence of a (new) HACCP alarm is shown by alternating the HCP label and the default view and the red alarm LED comes on.

Accessing the alarm information (log) corresponds to the operator acknowledging the alarm.
From that moment on, this specific alarm event is considered as “archived”, it stays in the log but is no longer shown in the display (red LED off and default view).

7.3.3. ACCESS TO THE HACCP MENU

Access the HACCP menu via the function menu (- **ESC** key).

7.3.4. HACCP ALARMS - LOG INFORMATION

There are 4 types of event that trigger an HACCP alarm:

1. Extra-temperature alarm condition during the current cycle
2. No power during the current cycle
3. Timeout during the current cycle
4. Door opened during the current cycle

For each type of alarm, the information is described in the following table where the columns indicate:

- **TYPE 1**: alarm condition for extra-temperature.
  Applied to: - positive storage
  - negative storage
  - unfreezing
- **TYPE 2**: alarm condition for no power (back-up).
- **TYPE 3**: alarm condition for cycle time expiry (timeout).
  Applied to: - blast chilling cycles
  - core probe deep-freezing
- **TYPE 4**: alarm condition for door open event.

	TYPE 1 (Error code **AH**)	**TYPE 2** (Error code **PF**)	**TYPE 3** (Error code **Et**)	**TYPE 4** (Error code **dO**)
Day	**dxx**	**dxx**	**dxx**	**dxx**
Month	**Mxx**	**Mxx**	**Mxx**	**Mxx**
Year	**Axx**	**Axx**	**Axx**	**Axx**
Hour	**Hxx** (clock)	**Hxx** (clock)	**Hxx** (clock)	**Hxx** (clock)
Cycle type	**CPO** **CnE** **UnF**	**CPO; CnE; UnF;** **PAS; PAH; PMS;** **PMH; nAS; nAH;** **nMS; nMH**	**PAS** **PAH** **nAS;** **nAH**	**CPO; CnE; UnF;** **PAS; PAH; PMS;** **PMH; nAS; nAH;** **nMS; nMH**
Temperature	Maximum temperature detected **(**)**	Temperature when returning from power supply error	N/A	Maximum temperature detected (******)
Time	Duration (minutes) of the extra-temperature **Xxx** (clock)	N/A	Cycle time detected	Door opening duration
Limits	**@CPO: SCP + OFH** **@CnE: SCn + OFH** **@UnF: SCP + OFH**	N/A	Time limit assigned to cycle	N/A

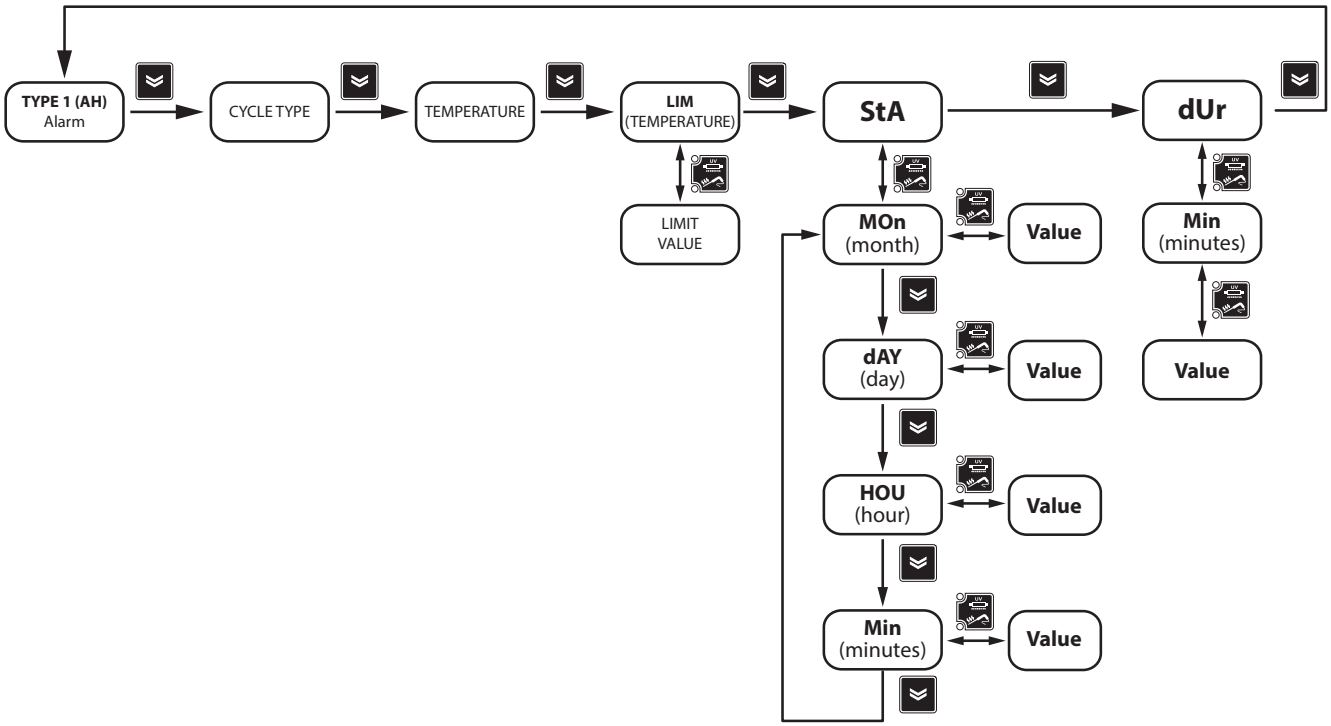
(*) The association between Error Code and the associated function is:
CPO: positive storage; **CnE**: negative storage; **UnF**: unfreezing;
PAS: needle blast chilling, soft; **PAH**: needle blast chilling, hard; **PMS**: time blast chilling, soft;
PMH; time blast chilling, hard; **nAS**: needle unfreezing, soft; **nAH**: needle unfreezing, hard;
nMS: time unfreezing, soft; **nMH**: time unfreezing, hard.

(**) The temperature controlled that triggers an alarm is the cell temperature. With a cell probe error, the control of the HACCP alarms is interrupted.
New alarms are not recorded until the cell probe is reset.

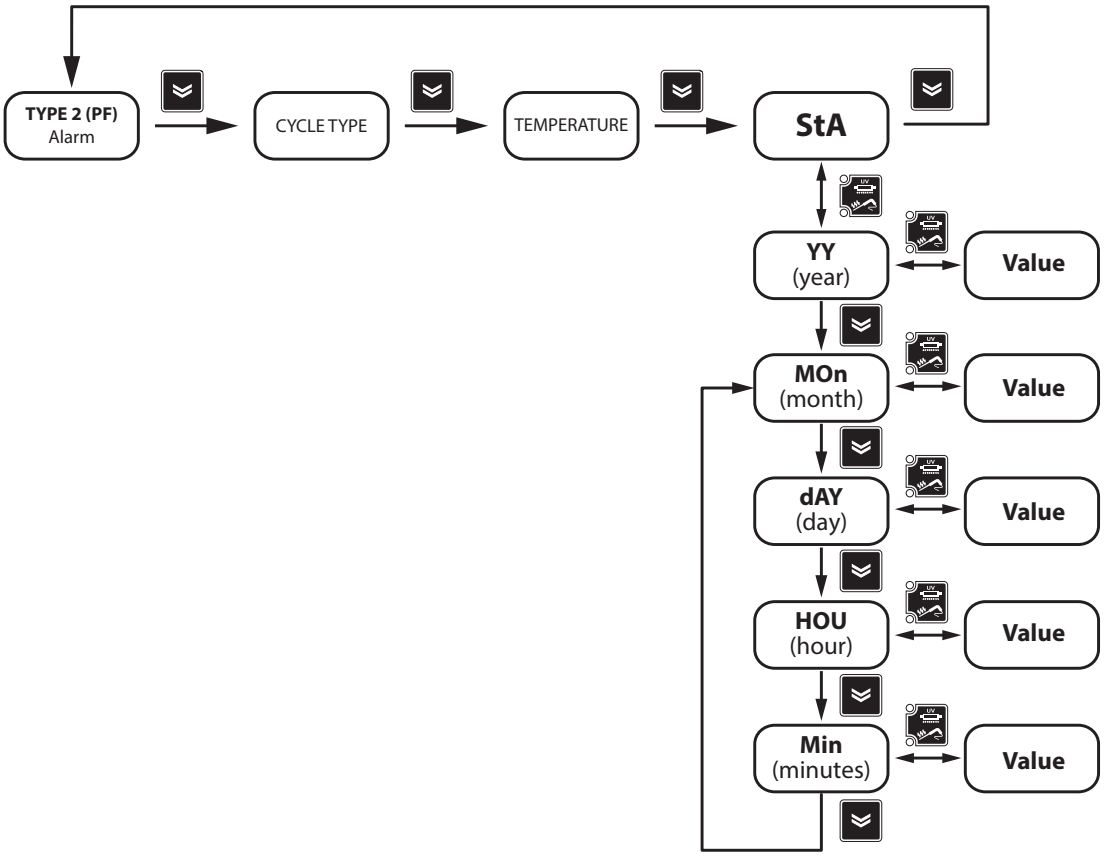
NOTE: if the error occurs during positive storage following the **UnF** cycle then the associated cycle will be **CPO** and not **UnF**.

The alarms browsing is done as follows:

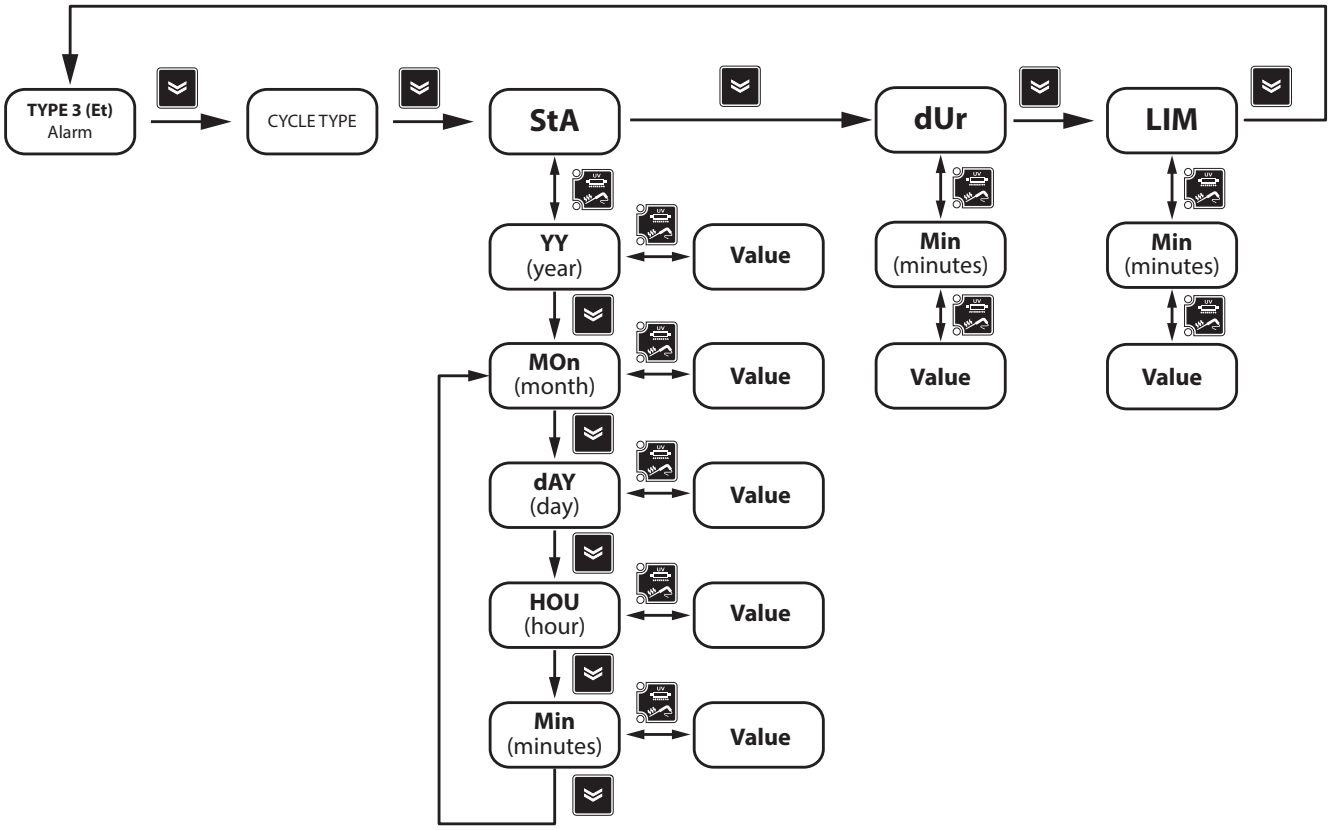
TYPE 1 ALARMS



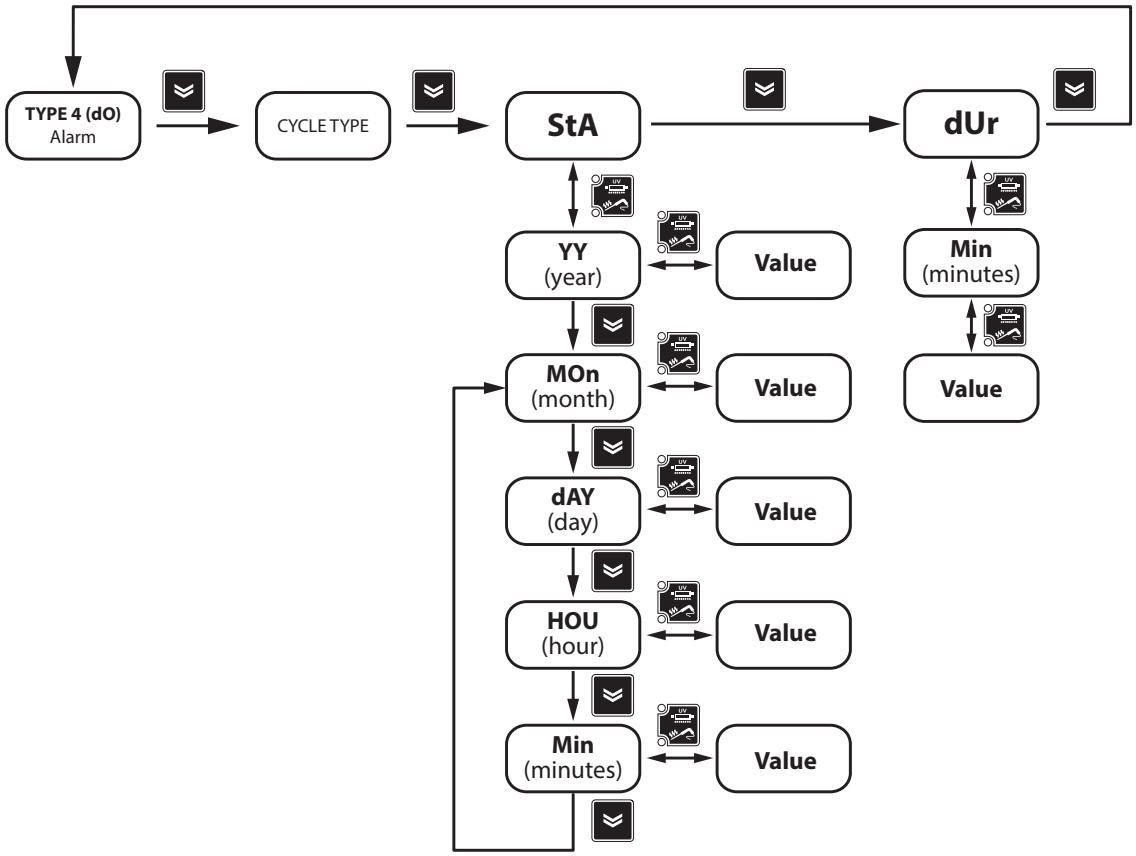
TYPE 2 ALARMS



TYPE 3 ALARMS



TYPE 4 ALARMS



CHAPTER 8
FUNCTIONS

8.1. BOOT LOADER FIRMWARE

The device is equipped with a Boot Loader, so it is possible to update the Firmware directly on site.
Updating may be carried out using UNICARD or MULTI FUNCTION KEY (MFK).

Updating procedure:

- Connect the UNICARD/MFK equipped with the application
- Power the device if it is off, otherwise switch it off and on again

  NOTE: The PB2 probe temperature information displayed is equal to 40°C (main display).

  NOTE: the UNICARD/MFK can be connected even with the device powered.

- Wait until the LED of the UNICARD/MFK is blinking (operation in progress)
- The operation will be concluded when the LED of the UNICARD/MFK is:
  - **ACCESO**: operation concluded correctly
  - **SPENTO**: operation not performed (application not compatible …)

NOTE: the LED display is guaranteed only for UNICARDS produced from week 18-12 onward.

8.2. MULTI FUNCTION KEY

The Multi Function key can be used to update the firmware. The device must be powered.

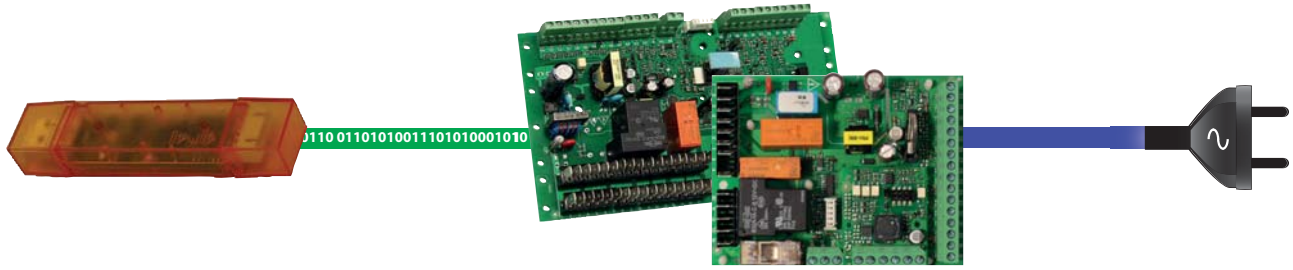
8.3. UNICARD

The Unicard, like the Multi Function key, can be used to update the device firmware.
It is a versatile tool that also allows you to quickly and easily customize devices.
It differs from the Multi Function key in the following ways:

- it can be connected directly to a computer via USB
- it can be plugged into a USB socket or USB battery, to power the device directly during upload/download procedures.

The Unicard can be powered in the following ways:

A) Bench powered



UNICARD Controller Controller power supply

B) Site powered

USB power supply unit UNICARD Controller

USB battery UNICARD Controller

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