EWNext Performance Inrush -HC

Electronic controllers compatible with flammable refrigerant gases

User Manual

06/2023

EWNXC-01EN

www.eliwell.com

by Schneider Electric

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Index

Safety information

Important information

Read these instructions carefully and visually inspect the equipment to familiarize yourself with the controller before attempting to install it and/or put it into operation, or before servicing it. The following warning messages may appear anywhere in this documentation or on the equipment to warn of potential dangers or to call attention to information that can clarify or simplify a procedure.

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

This is the safety warning symbol. It is used to warn the user of the potential dangers of personal injury. Observe all the safety warnings that follow this symbol to avoid the risk of serious injury or death.

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

NOTICE used in reference to procedures not associated with physical injuries.

Please Note

Electrical equipment must only be installed, used and repaired by qualified technicians. Schneider Electric and Eliwell do not accept any liability for any consequences arising from the use of this material.

An authorized person is someone in possession of the skills and knowledge applicable to the structure, to the operation of the electrical equipment and to its installation, and who has received safety training in order to recognize and avoid the risks involved.

Personnel qualification

Only personnel with suitable training and an in-depth knowledge and understanding of the contents of this manual and any other documentation relevant to the product are authorized to work on and with this product. Qualified personnel must be capable of identifying any dangers which may arise from the parameterization or changing of parameter values, and from the use of mechanical, electric and electronic equipment in general.

Plus, they must be familiar with the personal safety laws, provisions and regulations which must be observed during system planning and implementation.

Permitted use

This product is used to control refrigerated cabinets, display units and refrigerated units.

The controller must be installed and used in accordance with the provided instructions and in particular, in normal conditions, dangerous energized parts must not be accessible.

The controller should be suitably protected from water and dust. Access to the various product parts from the front should involve the use of a keyed or tooled locking mechanism.

The controller is suitable for integration into equipment for controlling refrigerated cabinets, display units and refrigerated units, and has been checked on the basis of the harmonized European standards of reference.

Only use the product with the specified cables and accessories. Only use genuine accessories and spare parts.

Prohibited use

Any use other than that indicated in the above paragraph "Permitted use" is strictly prohibited.

The relay contacts supplied are electromechanical and are subject to wear. The functional safety protection devices, specified by international or local laws, must be installed outside this device.

Liability and residual risks

The liability of Schneider Electric and Eliwell is limited to the correct and professional use of the product according to the directives referred to herein and in the other supporting documents, and does not cover any damage (including but not limited to) the following causes:

- 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 equipment which does not provide adequate protection against electrocution, water and dust in the actual installation conditions;
- use on devices which allow access to dangerous parts without the aid of tools and/or which do not have a keyed locking mechanism;
- product tampering and/or alteration;
- installation/use on equipment that does 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 local legislation regarding waste disposal.

About the book

Document Scope

This document describes the **EWNext Performance Inrush -HC** controllers and corresponding accessories, including information regarding installation and wiring.

Note: read this document and all related documents carefully before installing, operating or servicing the controller.

Validity Note

The technical characteristics of the devices described in this manual are also available online, through the Eliwell website (**www.eliwell.com**).

The characteristics illustrated in this manual should be identical to those which can be found online. In accordance with our policy of continuous improvement, the content of the documentation may be revised from time to time in order to improve its clarity and accuracy. If there are any discrepancies between the manual and the information available online, use the latter as your point of reference.

Related documents

Publication title	Reference document code
Instruction Sheet EWNext Performance Inrush -HC	9IS54884 (6L)

All available technical documentation and other technical information is available to download from the website: **www.eliwell.com**

Product related information

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, FIRE 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.
- Before restoring the power supply, replace and secure all covers, hardware components and cables.
- Use only the specified voltage when operating this device and any associated products.
- Use appropriate safety interlocks where personnel and/or equipment hazards exist.
- Install and use this equipment in an enclosure appropriately rated for its intended environment.
- Do not use this equipment for safety-critical functions.
- Do not disassemble, repair, or modify this equipment.

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

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND/OR FIRE

- Do not expose the equipment to liquids.
- Do not exceed the temperature and humidity ranges specified in the technical data and keep the area surrounding the cooling slits aerated.
- Do not apply dangerous voltages to the SELV connection terminals (see "Connections" chapter).
- Only connect compatible accessories - as specified in the section "Accessories" - to the device.
- Only use cables with a suitable cross-section (see “Best wiring practices”).
- Only use recommended disconnectable terminals (see “Best wiring practices”)

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

⚠ WARNING

HAZARD OF OVERHEATING AND/OR FIRE

- Do not use with loads other than those indicated in the technical data.
- Do not exceed the maximum permitted current; in the case of higher loads, use a contactor with suitable power.
- For non-inrush outputs, make sure the application has not been designed with the instrument outputs connected directly to instruments that generate a frequently activated capacitive load (1).
- For inrush outputs, make sure that loads exceeding the ratings specified in the technical data are not exceeded. (2).
- Power lines and output connections must be suitably wired and protected by means of fuses when required by national and local regulations.
- Connect the relay output, including the shared pole, using cables with a cross-section of 2.5 mm^2 (14 AWG) and a length of at least 200 mm (7.87 in.).

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

(1) Even if the application does not apply a frequently activated capacitive load to the relay, capacitive loads reduce the life of any electromechanical relay and the installation of a contactor or external relay, sized and maintained according to the ratings and characteristics of the capacitive load, helps to minimize the consequences of relay degradation.

(2) Although the highest performance relays have been selected for the inrush outputs and loads declared in accordance with standard IEC 61810-1 D.3, the end user assumes responsibility to ensure the instrument outputs guarantee proper operation of the application in relation to the anticipated life cycle of the machine.

When handling the equipment, take care to avoid damage caused by electrostatic discharge. In particular, the unshielded connectors are extremely vulnerable to electrostatic discharge.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE

Before handling the equipment, always discharge the static electricity from the body by touching an earthed surface or type-approved antistatic mat.

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

NOTICE

UNINTENDED EQUIPMENT OPERATION

- Prevent subject devices from direct access or direct link by unauthorized parties or unauthenticated actions.
- You must have a complete understanding of the application and the machine before attempting to control the application remotely.
- Isolate your industrial network from other networks inside your company.
- Take the precautions necessary to assure that you are operating remotely on the intended machine by having clear, identifying documentation within the application and its remote connection.

Failure to follow these instructions can result in equipment damage.

NOTICE

INOPERABLE DEVICE

- For the connection of probes and the digital input, use cables shorter than 10 m (32.80 ft).
- For TTL serial line connection, use cables no longer than 1 m (3.28 ft).

Failure to follow these instructions can result in equipment damage.

The controller can be upgraded only with authenticated Schneider Electric or Eliwell files. In case the authenticity check fails the controller stay idle, without any capacity for regulation.

NOTICE

UNINTENDED EQUIPMENT OPERATION

Use authenticated Schneider Electric or Eliwell files only.

Failure to follow these instructions can result in equipment damage.

To restore the normal operation of the controller, upload an authenticated file.

NOTICE

UNINTENDED EQUIPMENT OPERATION

The SELV wiring must be kept separate from all the other wiring (see "Connections" chapter).

Failure to follow these instructions can result in equipment damage.

The temperature (NTC) probes have no specified connection polarity; the connections can be extended using a normal bipolar cable. Extending the probe wiring influences the electromagnetic compatibility (EMC) of the controller.

California Proposition 65

WARNING: This product can expose you to chemicals including lead and lead compounds which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to:

www.P65Warnings.ca.gov.

Flammable refrigerant gases

The use of flammable gas refrigerants is dependent on may factors, including local, regional and/or national regulations.

The devices and corresponding accessories described in the documentation accompanying the product use components and, more specifically, electromechanical relays tested in accordance with IEC standard 60079-15 and classed as nC components (non-sparking 'n' electrical apparatus).
This condition complies to Annex BB of EN/IEC 60335-2-89.

Conformance to Annex BB EN/IEC 60335-2-89 is considered sufficient, and thereby suitable, for commercial refrigeration applications applying flammable gas refrigerants, such as R290. However, other limitations, equipment, locations and/or type of machine (refrigerators, vending machines and dispensers, bottle coolers, ice machines, Reach-Ins, etc.) may also be implicated, restricted and/or required in so doing.

The use and application of the information contained herein require expertise in the design and parameterizing/programming of refrigeration control systems. Only you—the original equipment manufacturer, installer or user—can be aware of all the conditions and factors present, and the regulations applicable, during the design, installation and setup, operation, and maintenance of the machine or related processes. Therefore, only you can determine the suitability of automation and associated equipment, and the related safeties and interlocks, which can be effectively and properly used in the locations for which the equipment is to be put into service. When selecting automation and control equipment, and any other related equipment or software for an application, you must also consider any applicable local, regional or national standards and/or regulations.

You must verify, while incorporating this controller and related equipment, the final compliance of the machine to regulations and standards when using flammable gas refrigerants. Although all statements and information contained herein are believed to be accurate and reliable, they are presented without warranty of any kind. Information provided herein does not relieve you from the responsibility of carrying out your own tests and validations of conformance to any applicable regulations.

⚠ WARNING

REGULATORY INCOMPATIBILITY

Be sure that all equipment applied and systems designed comply with all applicable local, regional and national regulations and standards.

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

Introduction

Contents

This section includes the following topics:

Introduction

General Description

EWNext Performance Inrush -HC is a family of electronic controllers for managing refrigerated cabinets, display units and refrigerated units.

Every controller has 3 preset applications: **AP1**, **AP2** and **AP3**, that pre-configure the controller to work with 3 real usage situations, reducing installation time and only requiring precision changes to parameters.

Main regulators

The main regulators for the controller are as follows:

- cool
- compressor
- deep cooling cycle
- dual compressor
- evaporator/condenser fans
- Modulating defrost
- Standard defrost
- dual evaporator defrost
- door switch
- AUX output (Auxiliary/Light)
- pressure switch
- energy saving
- deadband

In this manual, the photographs and diagrams are provided to illustrate the controller (and other Eliwell devices) and are purely illustrative. The corresponding dimensions and proportions may not correspond to actual dimensions in terms of life-size or scale. Furthermore, all the wiring or electrical diagrams should be considered as simplified representations which may not accurately represent the reality.

Models

The following is a list of **EWNext Performance Inrush -HC** models:

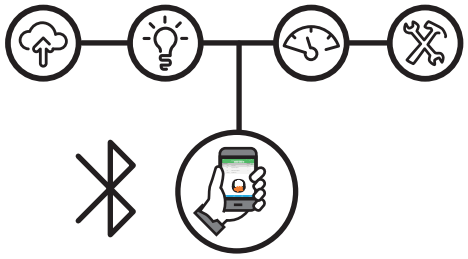
Product	Description
EWNext 971 P/R	EWNext 971 P/R NTC 1Hp/8A 115 Vac Air -HC
	EWNext 971 P/R NTC 1Hp/8A 115 Vac PH Air HC
	EWNext 971 P/R NTC 2Hp/8A 230 Vac Air HC
	EWNext 971 P/R NTC 2Hp/8A 230 Vac PH Air HC
EWNext 974 P/R (2Hp/8A/5A)	EWNext 974 P/R NTC 1Hp/8A/5A 115 Vac Air HC
	EWNext 974 P/R NTC 1Hp/8A/5A 115 Vac PH Air HC
	EWNext 974 P/R NTC 2Hp/8A/5A 230 Vac Air HC
	EWNext 974 P/R NTC 2Hp/8A/5A 230 Vac PH Air HC
EWNext 974 P/R (1.5Hp/1.5Hp/8A)	EWNext 974 P/R NTC 0,5Hp/0,5Hp /8A 115 Vac Air HC
	EWNext 974 P/R NTC 0,5Hp/0,5Hp /8A 115 Vac PH Air HC
	EWNext 974 P/R NTC 1,5Hp/1,5Hp /8A 230 Vac Air HC
	EWNext 974 P/R NTC 1,5Hp/1,5Hp /8A 230 Vac PH Air HC
EWNext 978 P/R	EWNext 978 P/R NTC 0,5Hp/8A/5A/5A 115Vac Air HC
	EWNext 978 P/R NTC 0,5Hp/8A/5A/5A 115Vac PH Air HC
	EWNext 978 P/R NTC 1,5Hp/8A/5A/5A 230Vac Air HC
	EWNext 978 P/R NTC 1,5Hp/8A/5A/5A 230Vac PH Air HC

Abbreviations

The following is a list of abbreviations used in the descriptions:

- **AIR** = controller compatible with the BTLE Dongle
- **PH** = controller with disconnectable terminals

AIR - Applicazione mobile per Dongle BTLE



'Eliwell AIR' App, available on Google Play and Apple Store, is used to connect via Bluetooth to EWNext controllers compatible with Dongle Bluetooth. 'Eliwell AIR' App:

- a smart user interface to customize resources, read/write the configuration parameters, enable datalogging on specific resources and viewing in the form of table or chart the saved values
- real time controller management
- simplified settings and maintenance

For further information, refer to controller and 'Eliwell AIR' App user manual on the Eliwell website: **www.eliwell.com**

Accessories

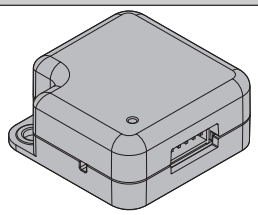
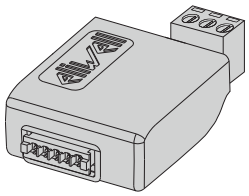
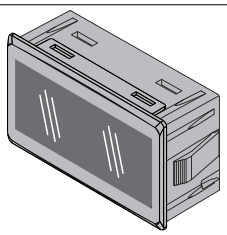
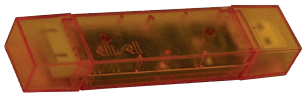
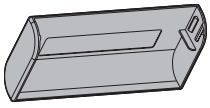
⚠ ⚠ DANGER

RISK OF ELECTRIC SHOCK, FIRE OR ARC FLASH

Only connect compatible accessories to the instrument.

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

Contact a Eliwell representative for further information regarding the accessories that can be used.

Accessory	Description
	**BTLE Dongle**: TTL/Bluetooth communication interface
	**BusAdapter 150 Dongle**: Non-opto-isolated TTL/RS485 communication interface
	**ECNext 5 Vdc per EWNext**: Display for remote display purposes
	**BusAdapter**: Opto-isolated TTL/RS485 communication interface
	**UNICARD**: Programming key
	**DMI**: Programming interface
	**Probes**: NTC
	**Protection**: Dripping protection for connections

Preliminary configurations

Contents

This section includes the following topics:

Introduction

Overview

EWNext Performance Inrush -HC is a family of electronic controllers for managing refrigerated cabinets, display units and refrigerated units.

Every controller has 3 preset applications: **AP1**, **AP2** and **AP3**, that pre-configure the controller to work with 3 real usage situations, reducing installation time and only requiring precision changes to parameters.

Applications

Changing the controller operating parameters does not affect the preset application values.

The first time the instrument is switched on, the operating parameters are the same (for value and visibility) as those for application **AP1**.

Applications **AP1**, **AP2** and **AP3** cannot be edited from the instrument.

Applications **AP2** and **AP3** can only be edited via Device Manager, an Eliwell proprietary software.

Application **AP1** can never be edited (not even using Device Manager) so that the controller can be restored with a reliably working application.

Switching on for the first time

Once the electrical connections have been completed, simply power up the device for it to start working.

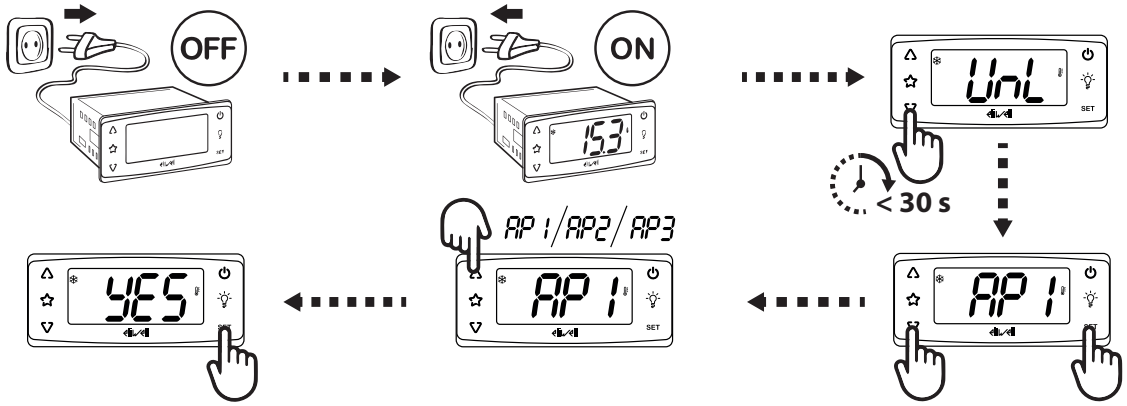
At the first startup:

1. Select and load the preset application - **AP1**, **AP2** or **AP3** - that best reflects the usage requirements.
2. Verify and, if necessary, adjust the value of the main controller parameters to adapt the selected application to your system.
3. Make sure there are no active alarms.

Loading Preset Applications

The procedure to load one of the preset applications is:

1. If the device is on, switch it off
2. Switch on the device
3. Press and hold ▽ for at least 3 seconds, until the keypad unlock label “UnL” appears
4. Within 30 seconds since the device power-on, press and hold (**SET** + ▽) for at least 5 seconds, until the label “AP1” appears
5. Scroll through applications **AP1**, **AP2** and **AP3** using △ and ▽
6. Confirm the selected preset application using **SET**.
   Note: The process can be canceled by pressing ⏻ or letting a timeout occur (15 seconds)
7. If the procedure completes successfully, the display will show "**yES**"; otherwise it will show "**no**"
8. The regulator will restart



The procedure to load one of the preset applications restores the respective default values, with the exception of the parameters NON specific for the application that retain the value set previously. These values, left unaltered, may not be correct and may therefore need to be changed.

NOTICE
INOPERABLE DEVICE Verify the parameters after loading a preset application. **Failure to follow these instructions can result in equipment damage.**

Restore default values

When necessary, you can restore the parameters to their default values, by loading one of the preset applications **AP1**, **AP2** or **AP3**.

View Preset applications

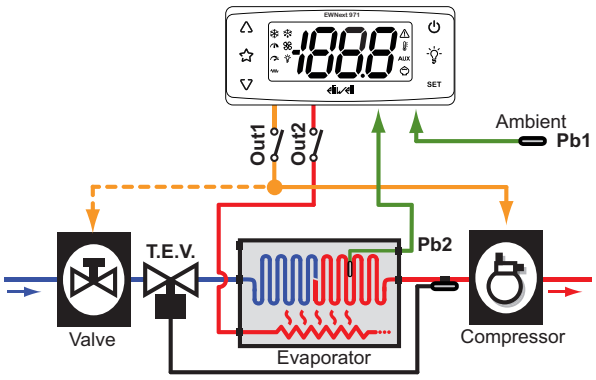
Click on the controller model purchased to access the corresponding Preset applications:

- **EWNext 971 P/R**
- **EWNext 974 P/R (2Hp/8A/5A)**
- **EWNext 974 P/R (1.5Hp/1.5Hp/8A)**
- **EWNext 978 P/R**

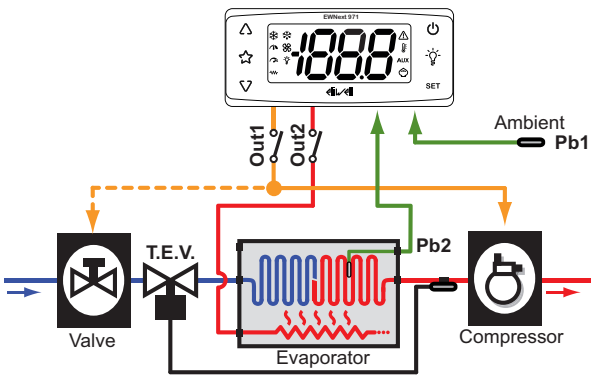
EWNext 971 P/R (115 Vac - 230 Vac)

Application overview

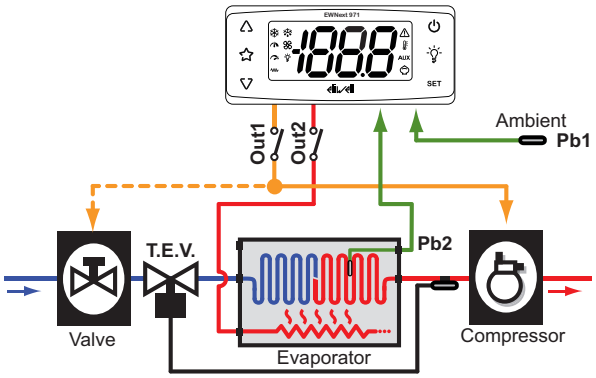
AP1: AT refrigerated units



AP2: NT refrigerated units



AP3: LT refrigerated units



Legend:

- **Ambient** = Ambient
- **Valve** = Valve
- **T.E.V.** = Expansion valve
- **Evaporator** = Evaporator
- **Compressor** = Compressor

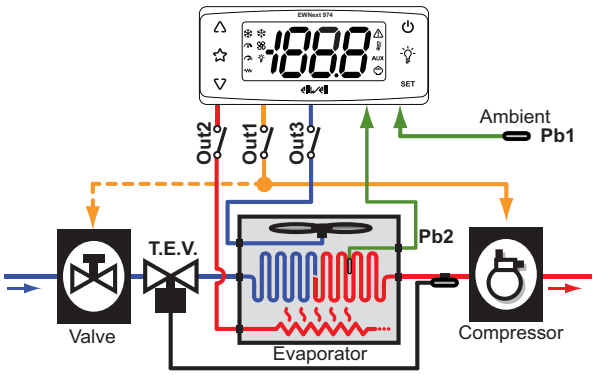
Application details

Setpoint	**AP1** = 3.5 °C (38.3 °F); **AP2** = 0.0 °C (32.0 °F); **AP3** = -18.0 °C (0.4 °F)
Analog inputs	2 NTC inputs (**Pb1**, **Pb2**)
Digital inputs	1 digital input **DI** not set (**H11** = 0) 1 digital input **DI2** on TTL not set (**H12** = 0)
Digital outputs	**Out1** relay (default: Compressor) **Out2** relay (default: Defrost)
Buzzer	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature **dS1** = 8.0 °C (46.4 °F)
Active alarms	Pb1 maximum/minimum temperature (**HAL** and **LAL**)
Key configuration	⚠: manual defrost (**H31** = 1) ▽: not set (**H32** = 0) ⏻: stand-by (**H33** = 4) ☼: not set (**H34** = 0) ☆: auxiliary (**H35** = 0)

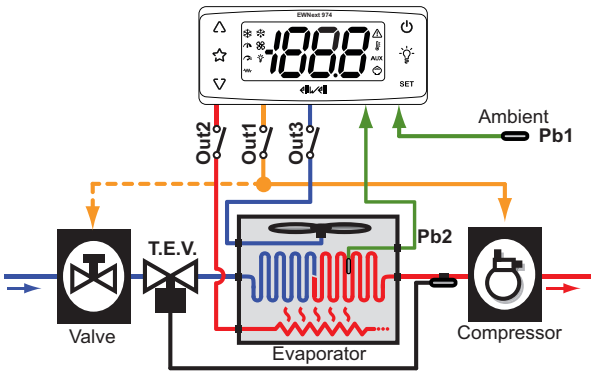
EWNext 974 P/R (2Hp/8A/5A) (115 Vac - 230 Vac)

Application overview

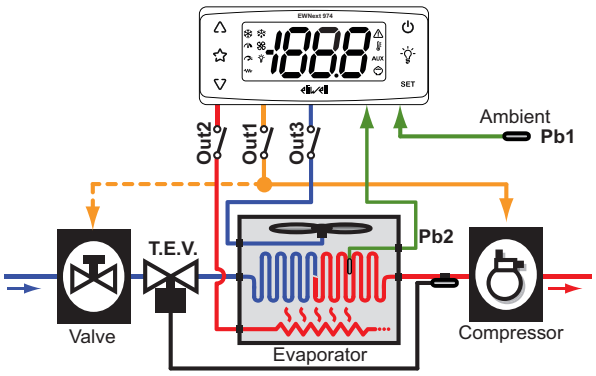
AP1: AT refrigerated units



AP2: NT refrigerated units



AP3: LT refrigerated units



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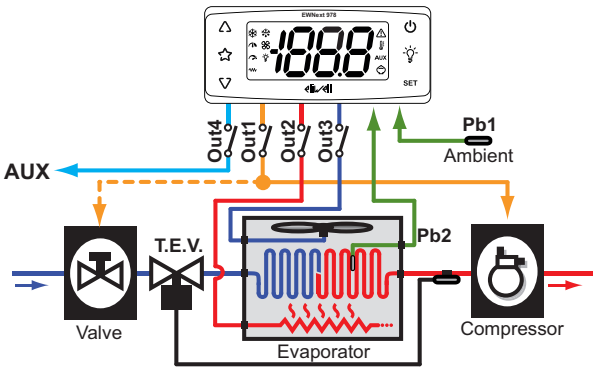
Digital outputs	**Out1** relay (default: Compressor) **Out2** relay (default: Defrost) **Out3** relay (default: Evaporator fans)
Buzzer	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature **dS1** = 8.0 °C (46.4 °F)
Active alarms	Pb1 maximum/minimum temperature (**HAL** and **LAL**)
Key configuration	△: manual defrost (**H31** = 1) ▽: not set (**H32** = 0) ⏻: stand-by (**H33** = 4) 💡: not set (**H34** = 0) ☆: auxiliary (**H35** = 2)

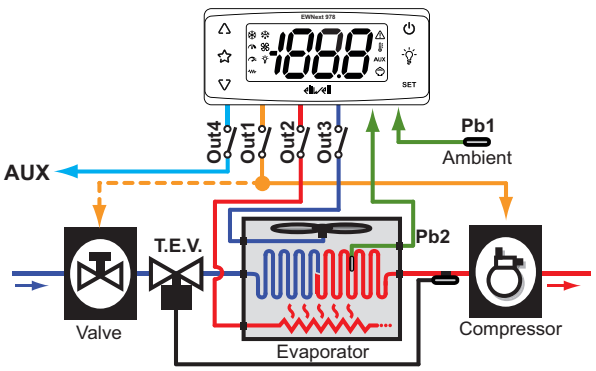
EWNext 974 P/R (1.5Hp/1.5Hp/8A) (115 Vac - 230 Vac)

Application overview

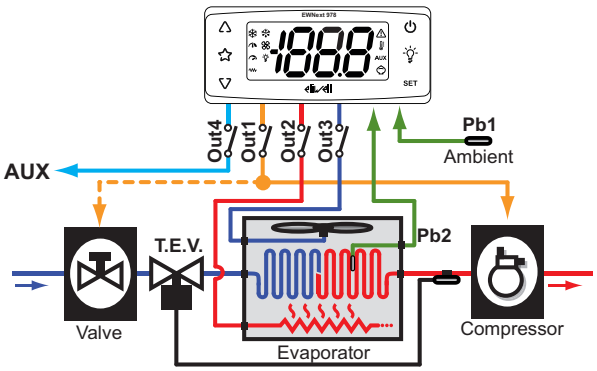
AP1: AT refrigerated units



AP2: NT refrigerated units



AP3: LT refrigerated units



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- **Compressor** = Compressor

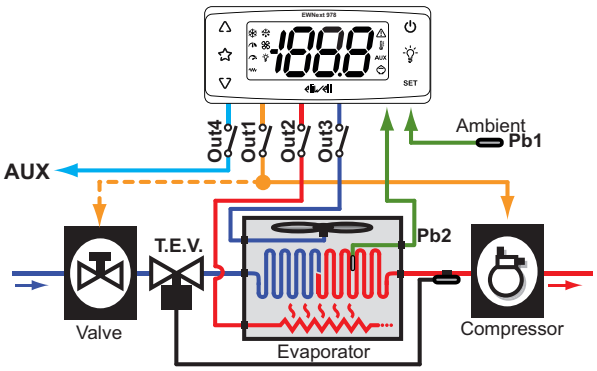
Application details

Setpoint	**AP1** = 3.5 °C (38.3 °F); **AP2** = 0.0 °C (32.0 °F); **AP3** = -18.0 °C (0.4 °F)
Analog inputs	2 NTC inputs (**Pb1**, **Pb2**)
Digital inputs	1 digital input **DI** not set (**H11** = 0) 1 digital input **DI2** on TTL not set (**H12** = 0)
Digital outputs	**Out1** relay (default: Compressor) **Out2** relay (default: Defrost) **Out3** relay (default: Evaporator fans)
Buzzer	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature **dS1** = 8.0 °C (46.4 °F)
Active alarms	Pb1 maximum/minimum temperature (**HAL** and **LAL**)
Key configuration	△: manual defrost (**H31** = 1) ▽: not set (**H32** = 0) ⏻: stand-by (**H33** = 4) ☼: not set (**H34** = 0) ☆: auxiliary (**H35** = 2)

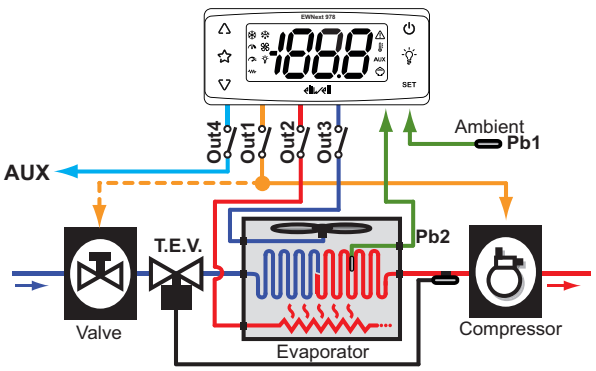
EWNext 978 P/R (115 Vac - 230 Vac)

Application overview

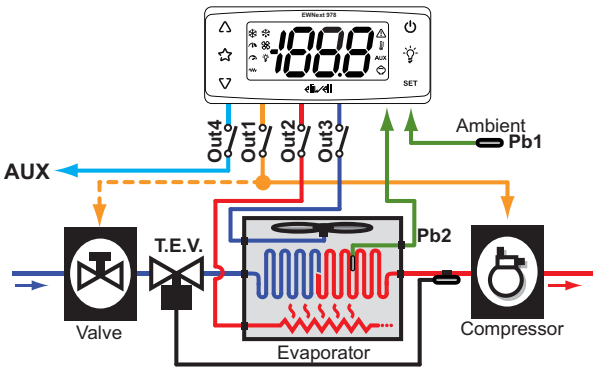
AP1: AT refrigerated units



AP2: NT refrigerated units



AP3: LT refrigerated units



Legend:

- **Ambient** = Ambient
- **Valve** = Valve
- **T.E.V.** = Expansion valve
- **Evaporator** = Evaporator
- **Compressor** = Compressor

Application details

Setpoint	**AP1** = 3.5 °C (38.3 °F); **AP2** = 0.0 °C (32.0 °F); **AP3** = -18.0 °C (0.4 °F)
Analog inputs	2 NTC inputs (**Pb1**, **Pb2**)
Digital inputs	1 digital input **DI** not set (**H11** = 0) 1 digital input **DI2** on TTL not set (**H12** = 0) 2 digital inputs **DI3, DI4** on a specific connector not set (**H13, H14** = 0)
Digital outputs	**Out1** relay (default: Compressor) **Out2** relay (default: Defrost) **Out3** relay (default: Evaporator fans) **Out4** relay (default: AUX)
Buzzer	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature **dS1** = 8.0 °C (46.4 °F)
Active alarms	Pb1 maximum/minimum temperature (**HAL** and **LAL**)
Key configuration	△: manual defrost (**H31** = 1) ▽: not set (**H32** = 0) ⏻: stand-by (**H33** = 4) 💡: not set (**H34** = 0) ☆: auxiliary (**H35** = 2)

Mechanical installation

Contents

This section includes the following topics:

Before starting

Read this manual carefully before installing the controller and its accessories.

In particular, ensure conformity with all safety indications, electrical requirements and current legislation for the machine or the process used with this equipment.

The use and application of information contained herein requires experience in the design and programming of automated control systems. Only the machine user, integrator or manufacturer will be aware of all the conditions and factors affecting installation, configuration, operation and maintenance of the machine or process and can therefore identify the associated equipment and corresponding safety interlocks and systems that can be used appropriately and efficiently. When selecting automation and control equipment, other equipment and connected software for a particular application, all local, regional and national standards and/or legislation must be taken into account.

⚠ WARNING

REGULATORY INCOMPATIBILITY

Be sure that all equipment applied and systems designed comply with all applicable local, regional and national regulations and standards.

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

Power supply disconnection

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, FIRE 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.
- Before restoring the power supply, replace and secure all covers, hardware components and cables.
- Use only the specified voltage when operating this device and any associated products.
- Use appropriate safety interlocks where personnel and/or equipment hazards exist.
- Install and use this equipment in an enclosure appropriately rated for its intended environment.
- Do not use this equipment for safety-critical functions.
- Do not disassemble, repair, or modify this equipment.

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

Operating environment

The use of flammable gas refrigerants is dependent on may factors, including local, regional and/or national regulations.

The devices and corresponding accessories described in the documentation accompanying the product use components and, more specifically, electromechanical relays tested in accordance with IEC standard 60079-15 and classed as nC components (non-sparking 'n' electrical apparatus).
This condition complies to Annex BB of EN/IEC 60335-2-89.

Conformance to Annex BB EN/IEC 60335-2-89 is considered sufficient, and thereby suitable, for commercial refrigeration applications applying flammable gas refrigerants, such as R290. However, other limitations, equipment, locations and/or type of machine (refrigerators, vending machines and dispensers, bottle coolers, ice machines, Reach-Ins, etc.) may also be implicated, restricted and/or required in so doing.

The use and application of the information contained herein require expertise in the design and parameterizing/programming of refrigeration control systems. Only you—the original equipment manufacturer, installer or user—can be aware of all the conditions and factors present, and the regulations applicable, during the design, installation and setup, operation, and maintenance of the machine or related processes. Therefore, only you can determine the suitability of automation and associated equipment, and the related safeties and interlocks, which can be effectively and properly used in the locations for which the equipment is to be put into service. When selecting automation and control equipment, and any other related equipment or software for an application, you must also consider any applicable local, regional or national standards and/or regulations.

You must verify, while incorporating this controller and related equipment, the final compliance of the machine to regulations and standards when using flammable gas refrigerants. Although all statements and information contained herein are believed to be accurate and reliable, they are presented without warranty of any kind. Information provided herein does not relieve you from the responsibility of carrying out your own tests and validations of conformance to any applicable regulations.

⚠ WARNING

REGULATORY INCOMPATIBILITY

Be sure that all equipment applied and systems designed comply with all applicable local, regional and national regulations and standards.

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

Comments concerning installation

Important information

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, FIRE 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.
- Before restoring the power supply, replace and secure all covers, hardware components and cables.
- Use only the specified voltage when operating this device and any associated products.
- Use appropriate safety interlocks where personnel and/or equipment hazards exist.
- Install and use this equipment in an enclosure appropriately rated for its intended environment.
- Do not use this equipment for safety-critical functions.
- Do not disassemble, repair, or modify this equipment.

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

When handling the equipment, take care to avoid damage caused by electrostatic discharge. In particular, the unshielded connectors are extremely vulnerable to electrostatic discharge.

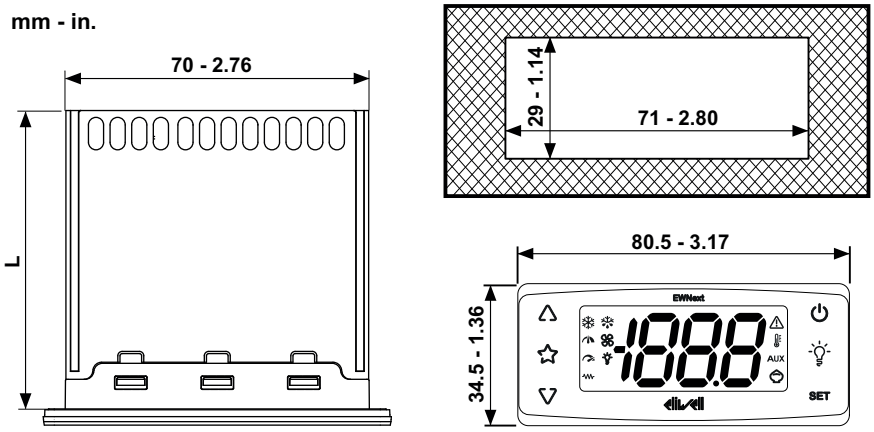
⚠ WARNING

UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE

Before handling the equipment, always discharge the static electricity from the body by touching an earthed surface or type-approved antistatic mat.

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

Mechanical dimensions



L = 60 mm - 2,36 in. (**EWNext 971/974**)
L = 75 mm - 2,95 in. (**EWNext 978**)

Installation

Installing/uninstalling the controller

Mount the controller horizontally.
To install, proceed as follows:

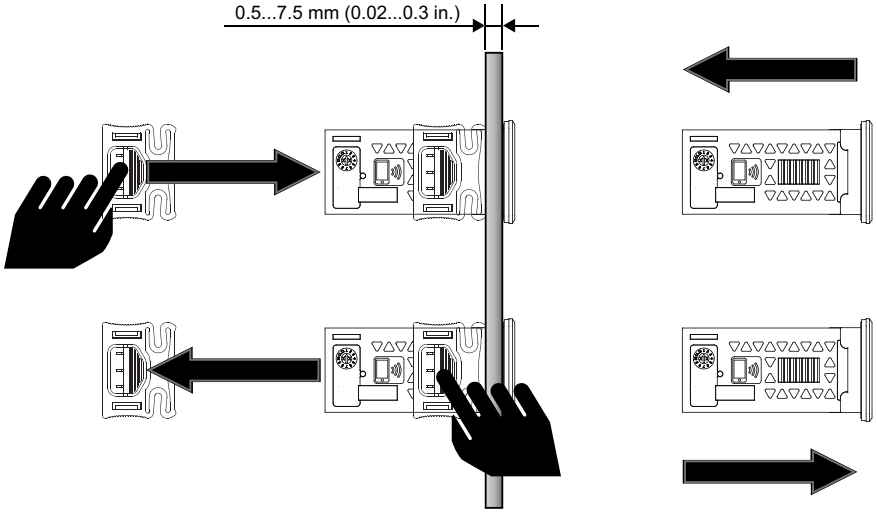
1. Make a hole measuring 71 x 29 mm (2.80 x 1.14 in.)
2. Introducing the controller
3. Secure it by inserting the brackets in the relevant rails at the 2 sides of the controller, until it clicks into place

To uninstall it, proceed as follows:

1. Press the brackets on the 2 sides of the device until you hear a click and take them out
2. Removing the controller

Note: Leave the area around the slits clear to allow air to circulate, keeping the controller cool.

Note: The panel thickness must be between 0.5 mm (0.02 in.) and 7.5 mm (0.3 in.) inclusive.



Electrical connections

Contents

This section includes the following topics:

Best wiring practices

Warnings

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, FIRE 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.
- Before restoring the power supply, replace and secure all covers, hardware components and cables.
- Use only the specified voltage when operating this device and any associated products.
- Use appropriate safety interlocks where personnel and/or equipment hazards exist.
- Install and use this equipment in an enclosure appropriately rated for its intended environment.
- Do not use this equipment for safety-critical functions.
- Do not disassemble, repair, or modify this equipment.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND/OR FIRE

- Do not expose the equipment to liquids.
- Do not exceed the temperature and humidity ranges specified in the technical data and keep the area surrounding the cooling slits aerated.
- Do not apply dangerous voltages to the SELV connection terminals (see "Connections" chapter).
- Only connect compatible accessories - as specified in the section "Accessories" - to the device.
- Only use cables with a suitable cross-section (see “Best wiring practices”).
- Only use recommended disconnectable terminals (see “Best wiring practices”)

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

⚠ WARNING

HAZARD OF OVERHEATING AND/OR FIRE

- Do not use with loads other than those indicated in the technical data.
- Do not exceed the maximum permitted current; in the case of higher loads, use a contactor with suitable power.
- For non-inrush outputs, make sure the application has not been designed with the instrument outputs connected directly to instruments that generate a frequently activated capacitive load (1).
- For inrush outputs, make sure that loads exceeding the ratings specified in the technical data are not exceeded. (2).
- Power lines and output connections must be suitably wired and protected by means of fuses when required by national and local regulations.
- Connect the relay output, including the shared pole, using cables with a cross-section of 2.5 mm^2 (14 AWG) and a length of at least 200 mm (7.87 in.).

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

(1) Even if the application does not apply a frequently activated capacitive load to the relay, capacitive loads reduce the life of any electromechanical relay and the installation of a contactor or external relay, sized and maintained according to the ratings and characteristics of the capacitive load, helps to minimize the consequences of relay degradation.

(2) Although the highest performance relays have been selected for the inrush outputs and loads declared in accordance with standard IEC 61810-1 D.3, the end user assumes responsibility to ensure the instrument outputs guarantee proper operation of the application in relation to the anticipated life cycle of the machine.

⚠ WARNING

REGULATORY INCOMPATIBILITY

Be sure that all equipment applied and systems designed comply with all applicable local, regional and national regulations and standards.

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

Wiring guidelines

⚠ ⚠ DANGER

LOOSE WIRING CAN RESULT IN ELECTRIC SHOCK AND/OR FIRE

Tighten the connections in compliance with the technical specifications for torque values and make sure the wiring is correct.

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

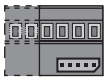
Use copper wires (obligatory)

The table below shows the type and size of permitted cables for screw terminals and the torque values:

mm / in. 6.5 / 0.26								
mm²	0.2…2.5	0.2…2.5	0.25…2.5	0.25…2.5	2 x 0.2...0.75	2 x 0.2...0.75	2 x 0.25...0.75	2 x 0.5...1.5
AWG	*24…14*	*24…14*	*24...14*	*24...14*	*2 x 24…18*	*2 x 24…18*	*2 x 24…18*	*2 x 20...16*

Ø 3.5 mm (*0.14 in.*)	C	N•m	0.5...0.6
		lb-in	*4.42...5.31*

The table below shows the type and size of permitted cables for the type of screw terminals illustrated below and the torque values:



mm / in. 6.0 / 0.24		
mm²	0.05…2.50	.05…1.5
AWG	*30…14*	*30…16*

Ø 3.5 mm (*0.14 in.*)	C	N•m	0.5
		lb-in	*4.5*

The table below shows the type and size of permitted cables for MSTB 2.5/x-ST-5.00 disconnectable terminals and the torque values.

mm / in. 7 / 0.28								
mm²	0.2…2.5	0.2…2.5	0.25…2.5	0.25…2.5	2 x 0.2...1	2 x 0.2…1.5	2 x 0.25...1	2 x 0.5...1.5
AWG	*24…14*	*24…14*	*24...14*	*24...14*	*2 x 24…18*	*2 x 24…16*	*2 x 22…18*	*2 x 20...16*

Ø 3.5 mm (*0.14 in.*)	C	N•m	0.5...0.6
		lb-in	*4.42...5.31*

Only use the removable screw terminal blocks provided (in some models) or bought directly from Eliwell. Otherwise, make sure you are using suitable terminals to jointly operate with the Eliwell device in the condition of the specific application.

NOTICE

UNINTENDED EQUIPMENT OPERATION

The SELV wiring must be kept separate from all the other wiring (see "Connections" chapter).

Failure to follow these instructions can result in equipment damage.

NOTICE

INOPERABLE DEVICE

- For the connection of probes and the digital input, use cables shorter than 10 m (32.80 ft).
- For TTL serial line connection, use cables no longer than 1 m (3.28 ft).

Failure to follow these instructions can result in equipment damage.

The temperature (NTC) probes have no specified connection polarity; the connections can be extended using a normal bipolar cable. Extending the probe wiring influences the electromagnetic compatibility (EMC) of the controller.

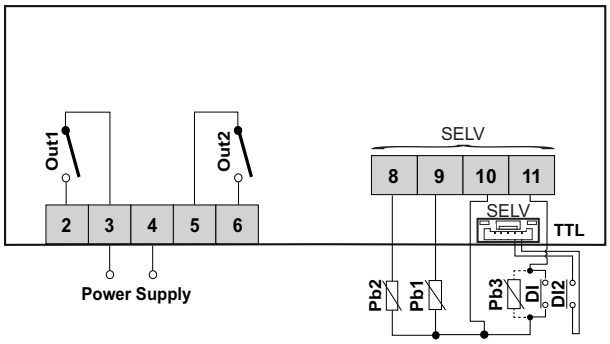
Connections

Wiring diagrams

Click on the controller model to access the corresponding wiring diagram:

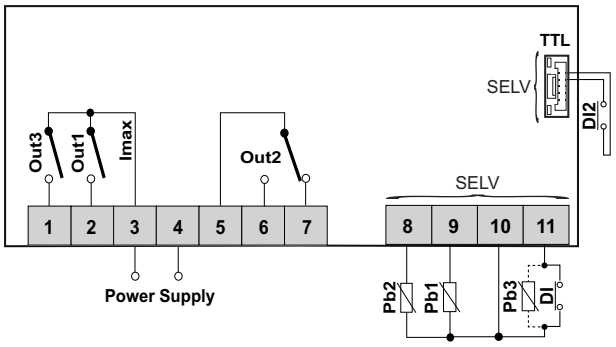
- **EWNext 971 P/R**
- **EWNext 974 P/R (2Hp/8A/5A)**
- **EWNext 974 P/R (1.5Hp/1.5Hp/8A)**
- **EWNext 978 P/R**

EWNext 971 P/R (115 Vac - 230 Vac)



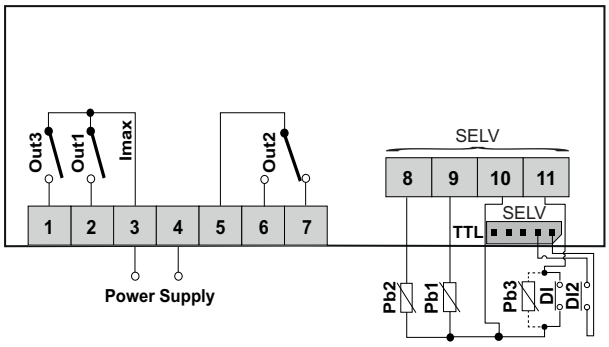
Terminals	Description
2-3	Compressor relay (**Out1**)
3-4	Power supply input 115 Vac or 230 Vac (depending on the model)
5-6	Defrost relay (**Out2**)
8-10	Probe Pb2
9-10	Probe Pb1
11-10	Digital input DI (**H11**≠0 and **H43**=n) / probe Pb3 (**H11**=0 and **H43**=y)
SELV	SELV terminals
TTL	TTL serial port or DI2 (if **H12**≠0)

EWNext 974 P/R (2Hp/8A/5A) (115 Vac - 230 Vac)



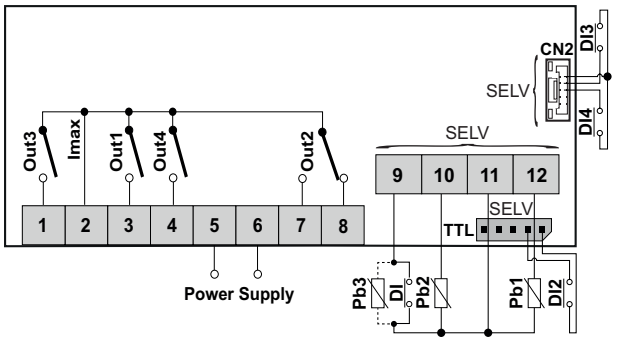
Terminals	Description
1-3	Evaporator fans relay (**Out3**)
2-3	Compressor relay (**Out1**)
4-5	Power supply input 115 Vac or 230 Vac (depending on the model)
6-7-8	Defrost relay (**Out2**)
8-10	Probe Pb2
9-10	Probe Pb1
11-10	Digital input DI (**H11**≠0 and **H43**=n) / probe Pb3 (**H11**=0 and **H43**=y)
Imax	Screw terminals: 17 A maximum Disconnectable terminals: 12 A maximum
SELV	SELV terminals
TTL	TTL serial port or DI2 (if **H12**≠0)

EWNext 974 P/R (1.5Hp/1.5Hp/8A) (115 Vac - 230 Vac)



Terminals	Description
1-3	Evaporator fans relay (**Out3**)
2-3	Compressor relay (**Out1**)
3-4	Power supply input 115 Vac or 230 Vac (depending on the model)
5-6-7	Defrost relay (**Out2**)
8-10	Probe Pb2
9-10	Probe Pb1
11-10	Digital input DI (**H11**≠0 and **H43**=n) / probe Pb3 (**H11**=0 and **H43**=y)
Imax	Screw terminals: 17 A maximum Disconnectable terminals: 12 A maximum
SELV	SELV terminals
TTL	TTL serial port or DI2 (if **H12**≠0)

EWNext 978 P/R (115 Vac - 230 Vac)



Terminals	Description
1-2	Evaporator fans relay (**Out3**)
3-2	Compressor relay (**Out1**)
4-2	AUX relay (**Out4**)
5-6	Power supply input 115 Vac or 230 Vac (depending on the model)
7-8-2	Defrost relay (**Out2**)
9-11	Digital input DI (**H11**≠0 and **H43**=n) / probe Pb3 (**H11**=0 and **H43**=y)
10-11	Probe Pb2
12-11	Probe Pb1
Imax	Screw terminals: 17 A maximum Disconnectable terminals: 12 A maximum
SELV	SELV terminals
TTL	TTL serial port or DI2 (if **H12**≠0)
CN2 (2-1)	Digital input DI3
CN2 (3-1)	Digital input DI4

Technical characteristics

Contents

This section includes the following topics:

Technical data

The product complies with the following harmonized Standards: EN 60730-1 and EN 60730-2-9	
Device construction:	Electronic automatic incorporated Control
Device purpos:	Operating control (non-safety related) device
Type of action:	1.C
Degree of protection by enclosure:	IP00 for models with removable screw terminal blocks IP20 for models with screw terminal blocks IP65 front panel only (Tested in accordance with EN 60529 with a steel sheet 2 mm (0.08 in.) thick ±10 %)
Pollution degree:	2
Overvoltage category:	II
Nominal pulse voltage:	2500 V
Power supply:	see table below
Power draw:	see table below
Environmental operating conditions:	Temperature: -5...55°C (23...131°F) Humidity: 10…90% RH (non-condensing)
Transportation and storage conditions:	Temperature: -30...85°C (-22...185°F) Humidity: 10…90% RH (non-condensing)
Software class:	A
Front panel protection type:	Type 1
Temperature for the ball pressure test:	Front and Rear cover: 128 °C (262,4 °F) Terminal blocks: 107 °C (224,6 °F) PWB (Printed Wiring Board): 125 °C (257 °F)

Power supply and power draw

Model	Power supply	Power draw (maximum)
EWNext 971 P/R	115 Vac or 230 Vac (±10%) 50/60 Hz (depending on the model)	5.5 VA
EWNext 974 P/R (2Hp/8A/5A)	115 Vac or 230 Vac (±10%) 50/60 Hz (depending on the model)	5.5 VA
EWNext 974 P/R (1.5Hp/1.5Hp/8A)	115 Vac or 230 Vac (±10%) 50/60 Hz (depending on the model)	5.5 VA
EWNext 978 P/R	115 Vac or 230 Vac (±10%) 50/60 Hz (depending on the model)	5.5 VA

Note: Verify the power supply specified on the controller label.

Output characteristics

230 Vac models	Output	Inrush	EU (230 Vac)	USA (230 Vac)
EWNext 971 P/R	**Out1**	NO	12(8) A	12FLA 72LRA
	Out2	YES	8 A resistive - 4(2) A 2 A (70 A inrush, 2500 µs) (1).	8 A resistive - 3.6FLA 21.6LRA 2 A (70 A inrush, 2500 µs) (1).
EWNext 974 P/R (2Hp/8A/5A)	**Out1**	NO	12(8) A	12FLA 72LRA
	Out2	NO	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	YES	5(2) A - 1 A (25 A inrush, 2500 µs) (1).	5 A resistive - 2FLA 12LRA 1 A (25 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1 + Out3**). - V*: Imax = 17 A - S**: Imax = 12 A.			
EWNext 974 P/R (1.5Hp/1.5Hp/8A)	**Out1**	YES	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Out2	NO	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	YES	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1 + Out3**). - V*: Imax = 17 A - S**: Imax = 12 A.			
EWNext 978 P/R	**Out1**	YES	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Out2	NO	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	YES	5 A resistive - 4(2) A 2 A (70 A inrush, 2500 µs) (1).	5 A resistive - 3.6FLA 21.6LRA 2 A (70 A inrush, 2500 µs) (1).
	Out4	YES	5(2) A - 1 A (25 A inrush, 2500 µs) (1).	5 A resistive - 2FLA 12LRA 1 A (25 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1+Out2+Out3+Out4**) V*: Imax = 17 A - S**: Imax = 12 A.			

Modelli 115 Vac	Output	Inrush	EU (115 Vac)	USA (115 Vac)
EWNext 971 P/R	**Out1**	**NO**	12(8) A	V*: 16FLA 96LRA - S**: 12FLA 72LRA
	Out2	**SI**	8 A resistive - 4(2) A 2 A (70 A inrush, 2500 µs) (1).	8 A resistive - 3.6FLA 21.6LRA 2 A (70 A inrush, 2500 µs) (1).
EWNext 974 P/R (1Hp/8A/5A)	**Out1**	**NO**	12(8) A	V*: 16FLA 96LRA - S**: 12FLA 72LRA
	Out2	**NO**	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	**SI**	5(2) A - 1 A (25 A inrush, 2500 µs) (1).	5 A resistive - 2FLA 12LRA 1 A (25 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1 + Out3**). - V*: Imax = 17 A - S**: Imax = 12 A.			
EWNext 974 P/R (0.5Hp/0.5Hp/8A)	**Out1**	**SI**	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Out2	**NO**	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	**SI**	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1 + Out3**). - V*: Imax = 17 A - S**: Imax = 12 A.			
EWNext 978 P/R	**Out1**	**SI**	10(6) A - 5 A (70 A inrush, 2500 µs) (1).	10FLA 60LRA - 5 A (70 A inrush, 2500 µs) (1).
	Out2	**NO**	NO 8(4) A - NC 6(3) A - CO 6 A resistive	NO 8 A - NC 6 A - CO 6 A resistive NO 3.6FLA 21.6LRA
	Out3	**SI**	5 A resistive - 4(2) A 2 A (70 A inrush, 2500 µs) (1).	5 A resistive - 3.6FLA 21.6LRA 2 A (70 A inrush, 2500 µs) (1).
	Out4	**SI**	5(2) A - 1 A (25 A inrush, 2500 µs) (1).	5 A resistive - 2FLA 12LRA 1 A (25 A inrush, 2500 µs) (1).
	Imax = Maximum current on common pole (**Out1 + Out2 + Out3 + Out4**) V*: Imax = 17 A - S**: Imax = 12 A.			

(1) load expressed in compliance with Standard IEC/UL61810-1, Clause D.3 Special loads with inrush current.
V* = models with screw terminals - **S**** = models with disconnectable terminals.

Input characteristics

Analog inputs	• **EWNext 971 P/R**: 3 NTC inputs (Pb1, Pb2 and Pb3**) • **EWNext 974 P/R (2Hp/8A/5A)**: 3 NTC inputs (Pb1, Pb2 and Pb3**) • **EWNext 974 P/R (1.5Hp/1.5Hp/8A)**: 3 NTC inputs (Pb1, Pb2 and Pb3**) • **EWNext 978 P/R**: 3 NTC inputs (Pb1, Pb2 and Pb3**)
Digital inputs	• **EWNext 971 P/R**: 2 voltage free digital inputs (DI** and DI2*). • **EWNext 974 P/R (2Hp/8A/5A)**: 2 voltage free digital inputs (DI** and DI2*). • **EWNext 974 P/R (1.5Hp/1.5Hp/8A)**: 2 voltage free digital inputs (DI** and DI2*). • **EWNext 978 P/R**: 4 voltage free digital inputs (DI**, DI2*, DI3*** and DI4***).

(*) digital input **DI2**, if enabled, should be connected to the TTL connector (if **H12**≠0)

(**) digital input **DI** can also be configured as analog input **Pb3** (if **H11**=0 and **H43**≠n)

(***) digital inputs **DI3** and **DI4**, if enabled, should be connected to the side connector **CN2** (if **H13**≠0 or **H14**≠0)

Further Information

Probe values

Display ranges	-99.9…99.9 or -999…999
Measurement range	**NTC**: -50...110°C (-58...230°F) - on display with 3 digits + sign
Accuracy	**NTC**: -50...-30 °C (-58...-22 °F): better than ±2.4 °C (±4.3 °F) ±1 digit. -30...110 °C (-22...230 °F): better than ±1.6 °C (±2.9 °F) ±1 digit.
Resolution	1°C/°F or 0.1°C/°F (depending on the display range setting)

Mechanical characteristics

Connectors	TTL serial port for connection of compatible accessories
Dimensions	Front panel 80.5 x 34.5 mm (3.17 x 1.36 in.), depth 60 mm (2.36 in.) or depth 75 mm (2.92 in.) (depending on the model)
Mounting panel thickness	0.5...7.5 mm (0.02...0.3 in.)
Terminals	Screw terminal blocks / removable screw terminal blocks

Note: the technical characteristics provided in this document concerning measurement (range, accuracy, resolution, etc.) refer only to the device itself and not to any accessories supplied, such as the probes.

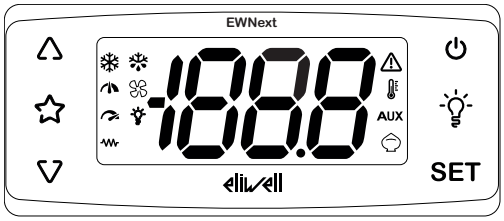
User interface and operation

Contents

This section includes the following topics:

User interface

Interface



Keys

Keys	press and release	press for at least 5 seconds
△	• Scroll through the menu options. • Increase the values.	From outside the menus only. Can be configured by the user (parameter **H31**) Default: Activate manual defrost.
☆	Direct access to the function set with parameter **H35**. From outside the menus only. Default: Activates AUX output.	---
▽	• Scroll through the menu options. • Decrease the values.	• From outside the menus only. Can be configured by the user (parameter **H32**) • Unlock keypad (press and hold for at least 3 seconds)
⏻	• Go back (up one level) in the menu. • Confirm the parameter value.	From outside the menus only. Can be configured by the user (parameter **H33**) Default: Activate stand-by.
💡	Direct access to the function set with parameter **H34**. From outside the menus only.	---
SET	• Access the "Machine Status" menu. • Display alarms (if present).	• Access the "Programming" menu. • Confirm commands.
▽ + SET	Press both simultaneously for at least 5 seconds at device power-on to load the preset applications (only after unlocking the keypad).	

Note: At device power-on or after 30 seconds since last action on the user interface, the device keypad locks automatically. If it is locked and any key is pressed, the text ‘LoC’ will appear. To unlock the keypad, press and hold ▽ for at least 3 seconds until the text "UnL" appears.

Icons

Icon	Function	Description
	Compressor	On steadily: compressor active Flashing: delay, protection or activation inhibited Off: compressor off
	Defrost	On steadily: defrost active Flashing: defrost activated manually or via digital input Off: defrost inactive
	Evaporator fans	On steadily: fans active Off: fans off
	Light	On steadily: light on Off: light off
	Heating	On steadily: Heating regulator active Off: Heating regulator off
	Alarm	On steadily: alarm present Flashing: alarm silenced Off: No alarm active
	Temperature	On steadily: a temperature is displayed (**°C** or **°F**) Off: a value not relating to temperature or a label is displayed
AUX	AUX	On steadily: AUX output active (depending on model) Flashing: Deep cooling active Off: AUX output off
	Energy saving	On steadily: Energy saving active Flashing: reduced set active

Note: Some icons may be associated with unavailable functions, depending on the model.

Note: If the value of the parameter **CuS**≠0, when the instrument is switched on it shows the label **CuS** and the value of the parameter for approximately 2 seconds.

Using the controller

Switching on for the first time

Once the electrical connections have been completed, simply power up the device for it to start working.

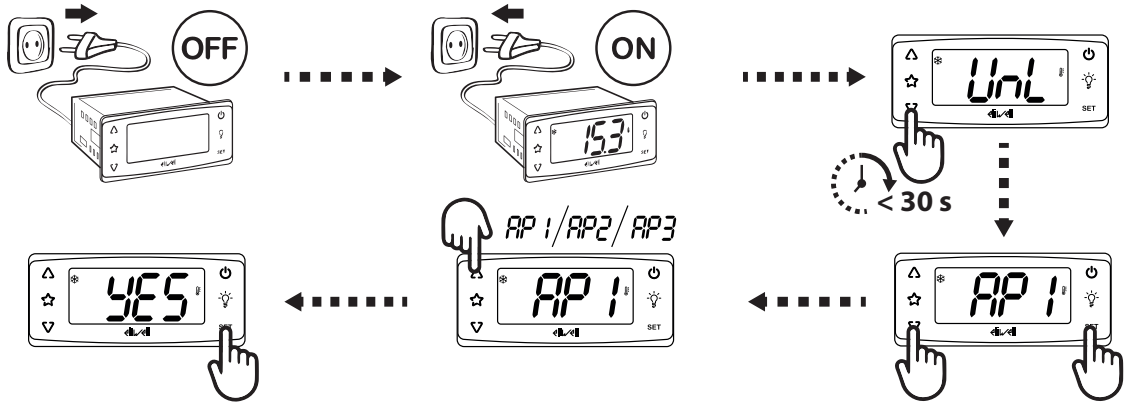
At the first startup:

1. Select and load the preset application - **AP1**, **AP2** or **AP3** - that best reflects the usage requirements.
2. Verify and, if necessary, adjust the value of the main controller parameters to adapt the selected application to your system.
3. Make sure there are no active alarms.

Loading Preset Applications

The procedure to load one of the preset applications is:

1. If the device is on, switch it off
2. Switch on the device
3. Press and hold ▽ for at least 3 seconds, until the keypad unlock label “UnL” appears
4. Within 30 seconds since the device power-on, press and hold (**SET** + ▽) for at least 5 seconds, until the label “AP1” appears
5. Scroll through applications **AP1**, **AP2** and **AP3** using △ and ▽
6. Confirm the selected preset application using **SET**.
   Note: The process can be canceled by pressing ⏻ or letting a timeout occur (15 seconds)
7. If the procedure completes successfully, the display will show "**yES**"; otherwise it will show "**no**"
8. The regulator will restart



The procedure to load one of the preset applications restores the respective default values, with the exception of the parameters NON specific for the application that retain the value set previously. These values, left unaltered, may not be correct and may therefore need to be changed.

NOTICE
INOPERABLE DEVICE Verify the parameters after loading a preset application. **Failure to follow these instructions can result in equipment damage.**

Password

The passwords **PA1** and **PA2** are required to access the device parameters:

- **PA1**: access the User parameters (default: **PA1** = 0 - disabled)
- **PA2**: access the Installer parameters (default: **PA2** = 15 - enabled)

To change the password value:

1. To unlock the keypad, press and hold ▽ for at least 3 seconds, until the label "**UnL**" appears
2. Press and hold for at least 5 seconds **SET**
3. Scroll through the parameters with △ and ▽ until you find the label "PA2"
4. Press and release **SET**
5. Set the value "15" using the keys △ and ▽
6. Confirm the value by pressing **SET** (the first folder will be displayed)
7. Scroll through the folders with △ and ▽ until you find the label "diS"
8. Press and release **SET**
9. Scroll through the parameters with △ and ▽ until you find the label "PS1" or "PS2", depending on whether you want to change access password **PA1** or **PA2**
10. To confirm the value press **SET** or ⏻, or let a timeout occur (15 seconds).

Note: If **PA1**=0, the User parameters will be not protected and displayed before **PA2** label.

Note: If the value entered is incorrect, the label **PA1**/**PA2** will be shown again. Repeat the procedure.

Machine Status Menu

To enter the Machine Status menu:

1. To unlock the keypad, press and hold ▽ for at least 3 seconds, until the label "**UnL**" appears
2. Press and release **SET**
3. Scroll through the folders with keys △ and ▽ until you find the label for the desired folder
4. Press and release **SET**
5. View the value reading
6. To exit press **SET** or ⏻, or let a timeout occur (15 seconds).

List of folders:

The folders shown are as follows:

- **SEt**: setpoint setting folder
- **ALr**: alarms folder (only visible if there are active alarms)
- **Pb1**: Pb1 probe value folder
- **Pb2**: Pb2 probe value folder
- **Pb3**: Pb3 probe value folder
- **idF**: firmware mask value folder
- **rEL**: firmware release value folder
- **nAM**: product name folder

Note: some folders may not be present, depending on the model

Programming Menu

To enter the Programming menu:

a. To unlock the keypad, press and hold ▽ for at least 3 seconds, until the label "**UnL**" appears
b. Press and hold for at least 5 seconds **SET**

If required, an access PASSWORD **PA1** will be requested for User parameters and **PA2** for Installer (Inst) parameters (see **Password** section).

User parameters (User):

Upon access the first parameter (**SEt**) will be shown.

1. Scroll through the parameters with keys △ and ▽ until you find the label for the parameter you want to change
2. Press and release **SET**
3. Set the desired value using the keys △ and ▽
4. To confirm the value press **SET** or ⏻, or let a timeout occur (15 seconds).

Installer parameters (Inst):

Upon access the first folder (**CP**) will be shown.

1. Scroll through the folders with keys △ and ▽ until you find the label for the desired folder
2. Press and release **SET**
3. Scroll through the parameters with keys △ and ▽ until you find the label for the parameter you want to change
4. Press and release **SET**
5. Set the desired value using the keys △ and ▽
6. To confirm the value press **SET** or ⏻, or let a timeout occur (15 seconds).

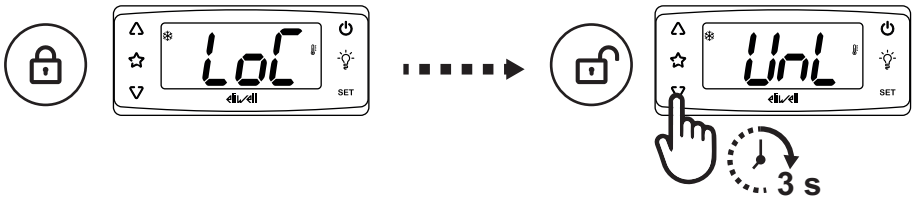
Note: Switch the device off and on again every time you change the parameter configuration.

Locking/unlocking the keypad

The keypad locks automatically in the following situations:

- at device power-on
- after 30 seconds of inactivity

To unlock the keypad, press and hold ▽ for at least 3 seconds, until the label 'UnL' appears.



Viewing the probe values

1. Unlock the keypad by pressing and holding ▽ for at least 3 seconds, until the label “**UnL**” appears
2. Press and release **SET** to access the 'Machine status' menu
3. Scroll through the folders with △ and ▽ until you find the folder **Pb1** or **Pb2** or **Pb3**
4. Press **SET** to view the value measured by the corresponding probe.

Notes:
- the displayed value cannot be changed.
- folder **Pb2** can only be viewed on models that manage probe Pb2.
- folder **Pb3** can only be viewed on models that manage probe Pb3.

Setting the setpoint

1. To unlock the keypad, press and hold ▽ for at least 3 seconds, until the label “**UnL**” appears
2. Press and release **SET** to access the “Machine status” menu
3. Scroll through the folders with △ and ▽ until you find the folder **SEt**
4. Press **SET** to view the current setpoint value.
5. Change the setpoint value using △ and ▽ within 15 seconds.
6. To confirm the value press **SET** or ⏻, or let a timeout occur (15 seconds).

Setting frequently used functions

Some frequently used functions may be paired with the keys by suitably configuring the corresponding parameters; they can then be activated by pressing and holding the paired key.

Key	Parameter
△	**H31**
▽	**H32**
⏻	**H33**
💡	**H34**
☆	**H35**

Value H31/H32/H33/H34/H35	Description
0	Disabled
1	Defrost
2	AUX
3	Reduced set
4	Stand-by
5	Reserved
6	Reserved
7	Deep cooling
8	Light
9	Energy saving

Setting the main parameters

See "User" menu in the parameters table for the various models.

Setting the probes

Introduction

Only connect probes of the same type to the device (all NTC).

Probe inputs

Depending on the model, the controller has the following inputs:

- one or two analog inputs (**Pb1** and **Pb2**)
- one analog/digital multifunctional input that can be configured as digital input **DI** (**H11**≠0 and **H43**=n) or as analog probe **Pb3** (**H11**=0 and **H43**=y)

Probe calibration

The **diS** folder, within the “Installer” menu, contains the parameters:

- **CA1** (probe Pb1)
- **CA2** (probe Pb2)
- **CA3** (probe Pb3)

to force an additional value (with sign) on reading the corresponding probe (if managed by the specific model).

Setting the displayed values

Introduction

The following settings refer to the parameters in folder **diS**.

Display with decimal point

You need to set parameter **ndt**:

ndt value	Description
y	Display with decimal point and resolution to tenths of a degree
n	Display with no decimal point

Note: this setting only influences the displaying of data, not the resolution of the measurement or the accuracy of the controller's calculations.

Default display

You need to set parameter **ddd**:

ddd value	Description
0	Display setpoint
1	Display the value read by Pb1
2	Display the value read by Pb2
3	Display the value read by Pb3 (only if **H11**=0 and **H43**=y)

Note: If the selected probe is not present, the displayed value cannot be considered reliable.

Default ECNext module display (via Modbus)

The controller can manage a **ECNext** module (via Modbus) connected to the TTL serial port. **Note**: the controller always acts as a Master.

To enable viewing, set parameter **ddE**:

ddE value	Description
0	**ECNext** module not connected
1	View the value read by Pb1. If Pb1 is in error, "**E1**" will appear.
2	View the value read by Pb2. If Pb2 is in error, "**E2**" will appear.
3	View the value read by Pb3. If Pb3 is in error, "**E3**" will appear.
4	View the setpoint value.

Note: If the selected probe is not present, the displayed value cannot be considered reliable.

Display during defrost

You need to set parameter **ddL**:

ddL value	Description
0	Display the values read by Pb1
1	Display the value read by Pb1 at the start of defrost
2	Display the label **dEF**

Filter displayed value

Filtering of the value shown on the display depends on parameters **FiS** and **Fit**.

FIS parameter:

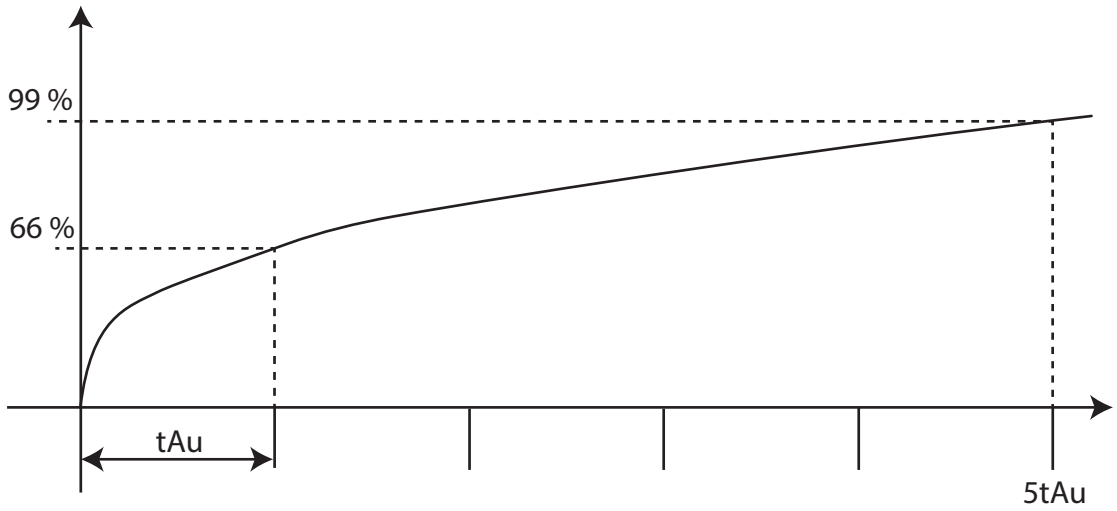
- **FiS**=0: the filter is disabled
- **FiS**=1: the filter is set based on time values **tAu** and **5tAu**, and is applied to the displayed information according to the value of parameter **Fit**.
- **FiS**=2: the temperature value shown changes by 1°C/°F every **tAu** minutes

Note: **tAu** and **5tAu** are, respectively:

- **tAu** = the time taken by the temperature shown to reach 66% of the final value
- **5tAu** = the time taken by the temperature shown to reach 99% of the final value

FIt parameter:

- **Fit**=0: the filter is only enabled when the temperature increases
- **Fit**=1: the filter is always enabled (both when the temperature increases and when it decreases)



Set the unit of measure for the temperatures

You need to set parameter **dro**:

dro value	Description
0	Display the temperature in °C
1	Display the temperature in °F

Note: this setting only influences how the temperatures read by the probes are displayed. After changing the unit of measure from °C to °F, the value of parameters **SEt**, **diF**, etc, remains the same and they will take on a different meaning, since they are expressed in a new unit of measure (**SEt** = 10°C becomes **SEt** = 10°F).

Defrost

Contents

This section includes the following topics:

Introduction

In addition to Standard defrosts, a Modulating defrost has been developed with the aim of activating the defrost function "when necessary", on the basis of conditions defined previously.

In models that manage probe Pb3, defrost can be managed on two separate evaporators that, on the basis of the value of parameter **H45**, can be activated individually, at the same time or alternately.

List of defrost types

Click on the desired defrost type to access the relevant section:

- Modulating Defrost
- Standard defrost
- Dual evaporator defrost

Functioning conditions

Defrosting removes ice from the surface of the evaporator.
If **dt** ≠ 0, once defrost is complete, a dripping cycle takes place to prevent the water left on the evaporator from freezing again.

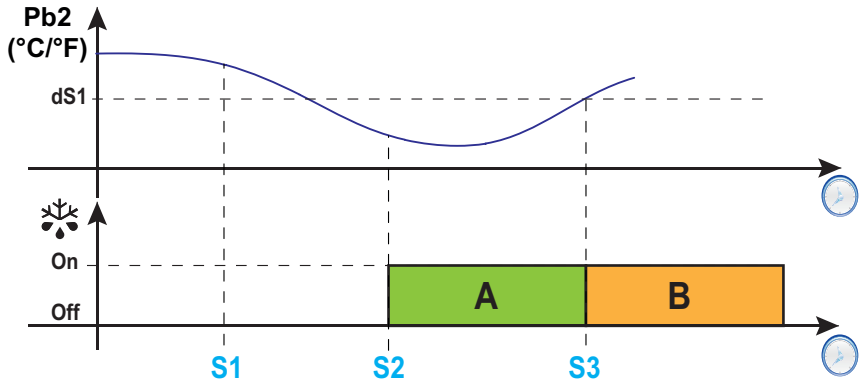
Defrost is triggered automatically if:

- the temperature of the evaporator is lower than the defrost end setpoint **dS1*** (**dS2**** for defrost on the second evaporator).
- the defrost activation timer has elapsed and the temperature of the evaporator 1 is lower than the defrost end setpoint **dS1*** (**dS2**** for defrost on the evaporator 2).

Defrost is NOT triggered automatically if:

- a manual defrost is already underway.
- the defrost activation timer has elapsed and the temperature of the evaporator 1 is higher than the defrost end setpoint **dS1*** (**dS2**** for defrost on the evaporator 2), in which case a new timer count will begin.

(*) models that manage probe Pb2.
(**) models that manage probe Pb3.



Legend: **A** = Defrost; **B** = Dripping; **S1** = Defrost not performed; **S2** = Defrost start; **S3** = End of defrost and start of dripping cycle.

Setting the dripping interval

To activate dripping at the end of the defrost cycle, set parameter **dt** ≠ 0. During dripping, the fans are switched off even if **Fdt** < **dt**.

Note: parameter **dt** is only present in models that manage probe Pb2 and that can control the evaporator fans.

Parameters

Parameter	Description
dS1	Temperature value set for the end of defrost on evaporator 1.
dS2	Temperature value set for the end of defrost on evaporator 2.
Fdt	Fan activation delay after a defrost.
dt	Dripping duration.

Display and alarm operation

Alarm operation during defrost

You can activate an alarm for defrost ending due to timeout, by setting parameter **dAt** = y (see alarm **Ad2** in the section "Alarms and indications" on page 109).

Note: this function can only be activated on models that manage probe Pb2.

In the event of a regulation probe (Pb1) error, defrosts will still take place and during defrost the temperature alarm associated with the probe error will be excluded.

Displayed values

By setting parameter **ddL**, you can choose the values displayed during the defrost phase until the end of dripping time.

The value shown on the display may be configured in one of the following ways:

- **ddL** = 0: display the temperature read by the regulation probe (Pb1)
- **ddL** = 1: display the temperature read by the regulation probe (Pb1) at the start of defrost
- **ddL** = 2: display (steadily) the label **dEF** (defrost)

Restore standard displaying

The standard displaying is restored on the display:

- on reaching the setpoint and after dripping
- on reaching the timeout value, defined by parameter **Ldd**

Parameters

Parameter	Description
dAt	Defrost ended due to timeout alarm indication.
ddL	Display mode during defrosting.
Ldd	Display unlock timeout value - label **dEF**.

Manual defrost

Introduction

The Manual Defrost function can be activated in one of the following ways:

- press and hold a key (configured with **H3x** = 1)
- via digital input (configured with **H1x** = ±1)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories section)

Note: if the **odo** count is in progress, the defrost cycle does not begin, the request is not carried out and the display will flash three times to indicate that defrosting is not possible.

Functioning conditions

If manual defrost is activated, depending on the value of parameter **dMr**, the defrost interval count (**dit** time):

- if **dMr** (0) = **n** the count is not reset.
- if **dMr** (1) = **y** the count is reset

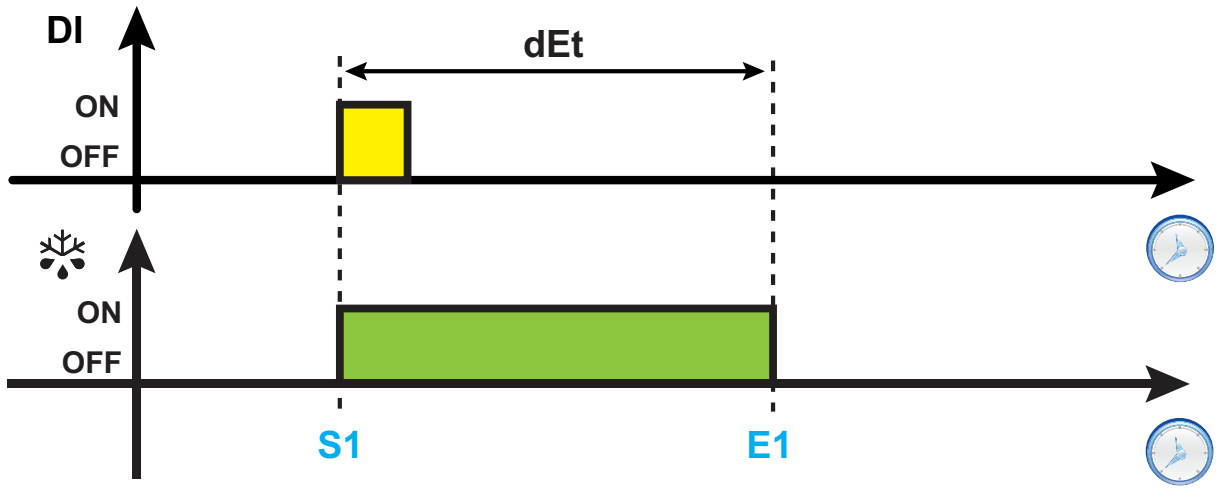
If the **odo** count is in progress and the evaporator temperature is greater than the value of parameter **dS1*** (evaporator 1) or **dS2**** (evaporator 2), the defrost will not be activated and the display will flash three times.

(*): only models that manage probe Pb2.
(**): only models that manage probe Pb3.

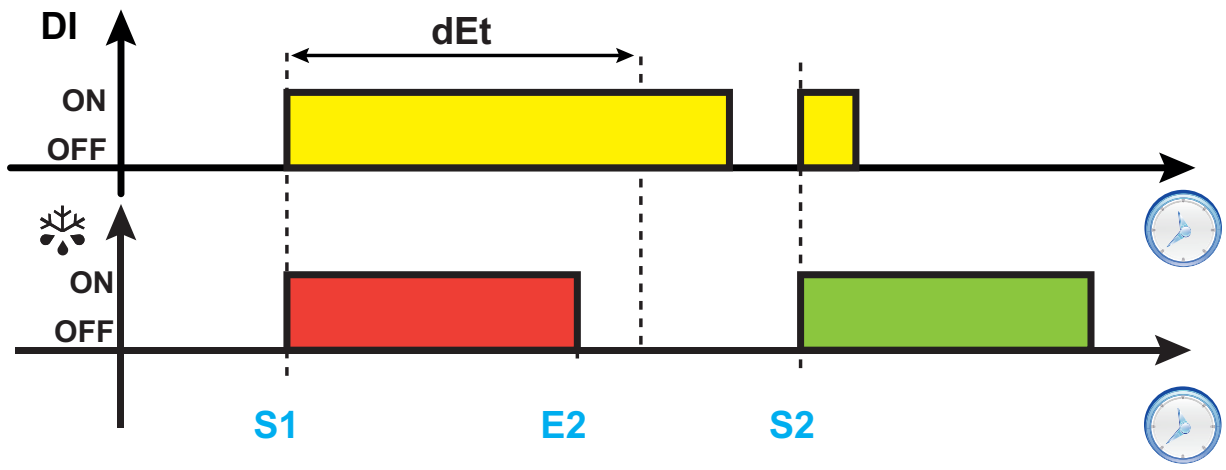
Note: defrost activation takes place upon closure (**H1x**=1) or opening (**H1x**=-1) of the digital input DI (if activated). You can only activate a defrost, not end an active one. Any defrost or dripping cycle in progress and the defrost or dripping time cannot be suspended.

Regulation examples

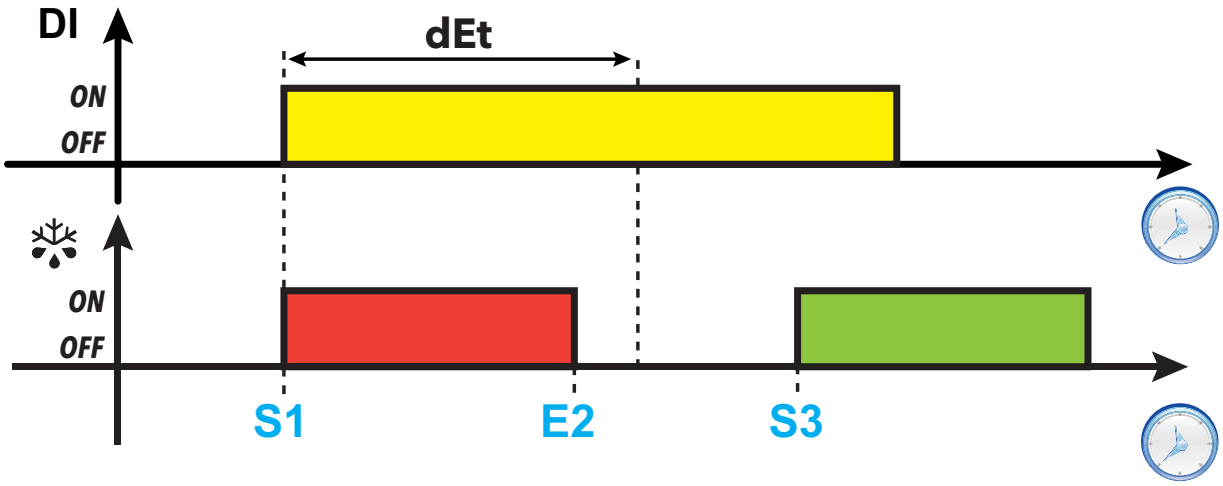
Example 1:



Example 2:



Example 3:



Legend: **S1** = Defrost 1 start; **S2** = Defrost 2 start; **S3** = Regular defrost start with fixed expiration; **E1** = End of defrost due to timeout; **E2** = End of defrost due to temperature.

Parameters

Parameter	Description
dit	Time interval between one defrost and the next.
odo	Output activation delay time from switching on the controller or after a power outage.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
dS2	Evaporator 2 defrost end temperature.
H11	**DI** digital input/polarity configuration.
H12	**DI2** digital input/polarity configuration (on TTL port).
H13	**DI3** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H14	**DI4** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H31	∧ key configuration.
H32	∨ key configuration.
H33	⏻ key configuration.
H34	☼ key configuration.
H35	✩ key configuration.

Modulating Defrost

The Modulating defrost methods that can be activated simultaneously are as follows:

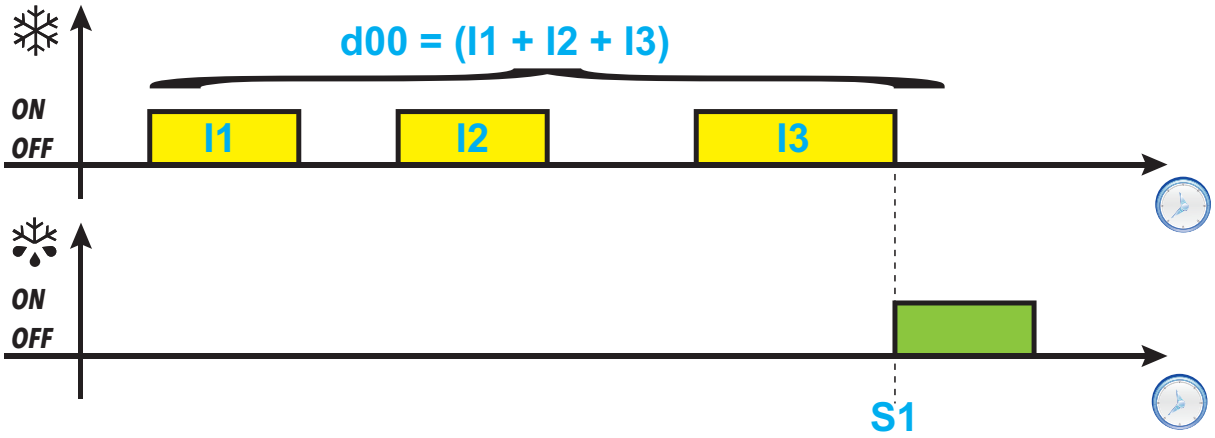
Activation method	Parameters
Compressor running time The defrost is activated when the sum of compressor operating period durations reaches the value **d00**.	**d00/d01**
Instrument running time The defrost is activated when the instrument operating period duration reaches the value **dit**.	**dit/d11**
Compressor stop The defrost is activated when the compressor switches off (only if **d20** = 1).	**d20**
Evaporator temperature The defrost is activated when the Evaporator temperature drops below the set threshold **d41**.	**d40...d44**
Temperature differential The defrost is activated on the basis of the value (**Pb2**-**Pb1**), considered in absolute or relative mode, and on the basis of the defrost activation threshold **d52**.	**d50...d55**

Compressor running time

This defrost can be configured via the following parameters:

Parameter	Description
d00	Compressor running time before defrost is activated. When the compressor on time is equal to **d00**, defrost is active. The value of **d00** is calculated as the sum of all the compressor on times.
d01	**d00** unit of measure: • **0** = hours • **1** = minutes • **2** = seconds

Regulation diagram



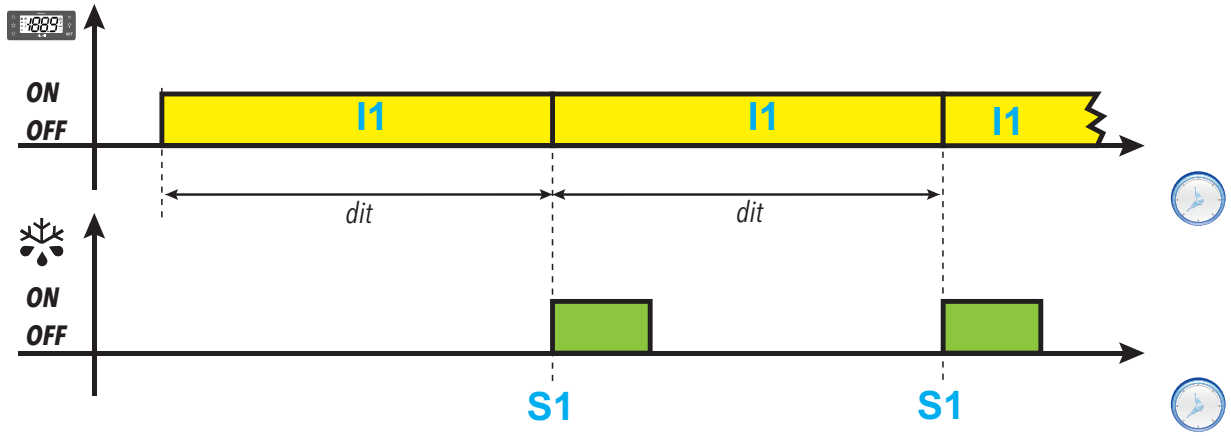
Legend: **I1, I2, I3** = Compressor on times; **S1** = Defrost start.

Instrument running time

This defrost can be configured via the following parameters:

Parameter	Description
dit	Time interval between one defrost and the next. After the instrument is switched on, a meter is activated and remains on, regardless of the compressor status. When the time period **dit** has elapsed, defrost will be activated and the meter will start a new count until the next defrost is activated.
d11	**dit** unit of measure: • **0** = hours • **1** = minutes • **2** = seconds

Regulation diagram



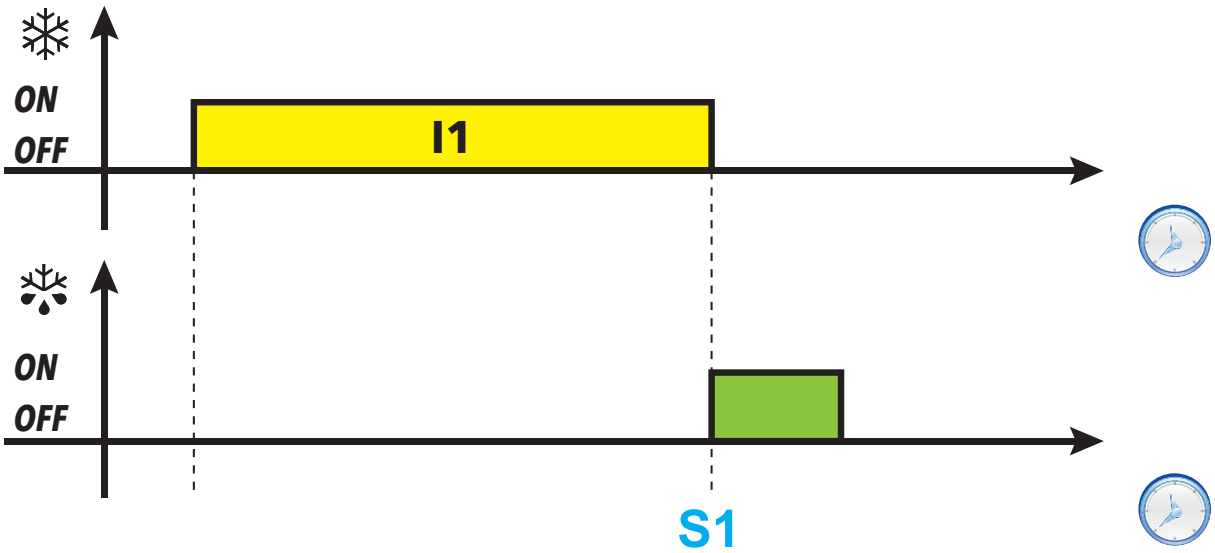
Legend: **I1** = Controller on time (equal to **dit**); **S1** = Defrost start.

Compressor stop

This defrost can be configured via the following parameters:

Parameter	Description
d20	Can be used to activate the defrost when the compressor switches off. • **0** = mode disabled. • **1** = enabled. Defrost is activated when the compressor switches off.

Regulation diagram



Legend: **I1** = Compressor on time; **S1** = Defrost start

Evaporator temperature

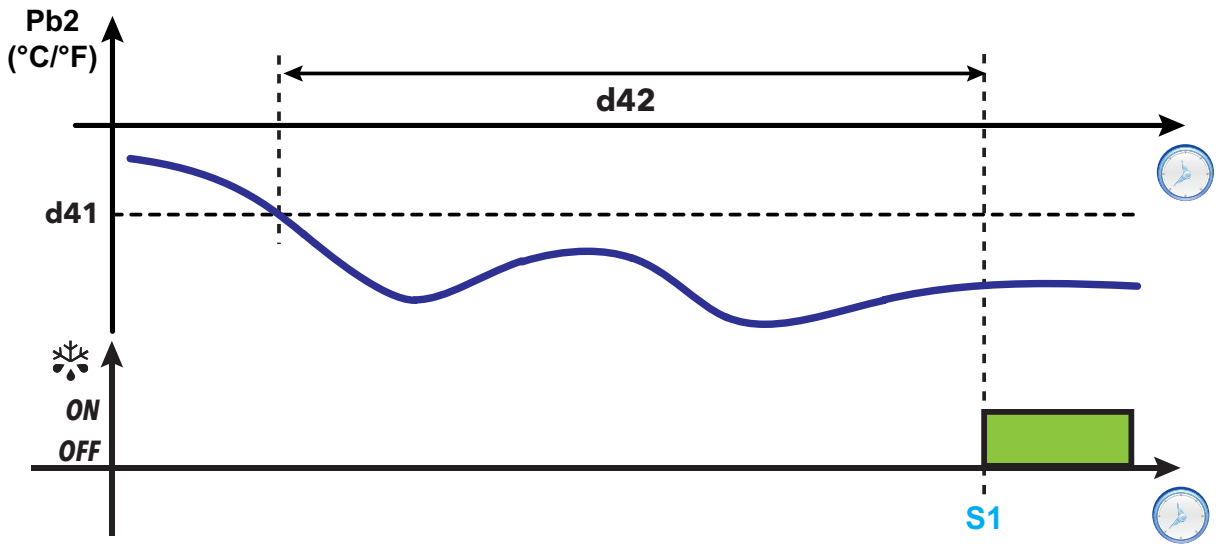
This defrost can be configured via the following parameters:

Parameter	Description
d40	Enables/disables use of probe Pb2. • **0** = mode disabled • **1** = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)
d41	Sets the defrost activation threshold (on the value read by probe Pb2)
d42	Sets the maximum time for which the evaporator can remain under the threshold **d41**
d43	Sets the type of incremental time count in which the evaporator temperature remains under the threshold value. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature rises above the threshold **d41** • **3** = incremental count with compressor on and until the temperature rises above the threshold **d41**
d44	Sets the threshold management mode. • **0** = absolute value (for example: **d41** = -25°C means that the threshold temperature is exactly -25°C) • **1** = relative value (negative offset, relative to the value measured by the defrost probe Pb2 (if **d40** = 1) at the end of the first cooling cycle or on startup). Set the threshold to a value equal to the value measured by probe Pb2 at the end of the first cooling cycle or at startup (if **d40** = 1) reduced by the amount set in parameter **d41**.

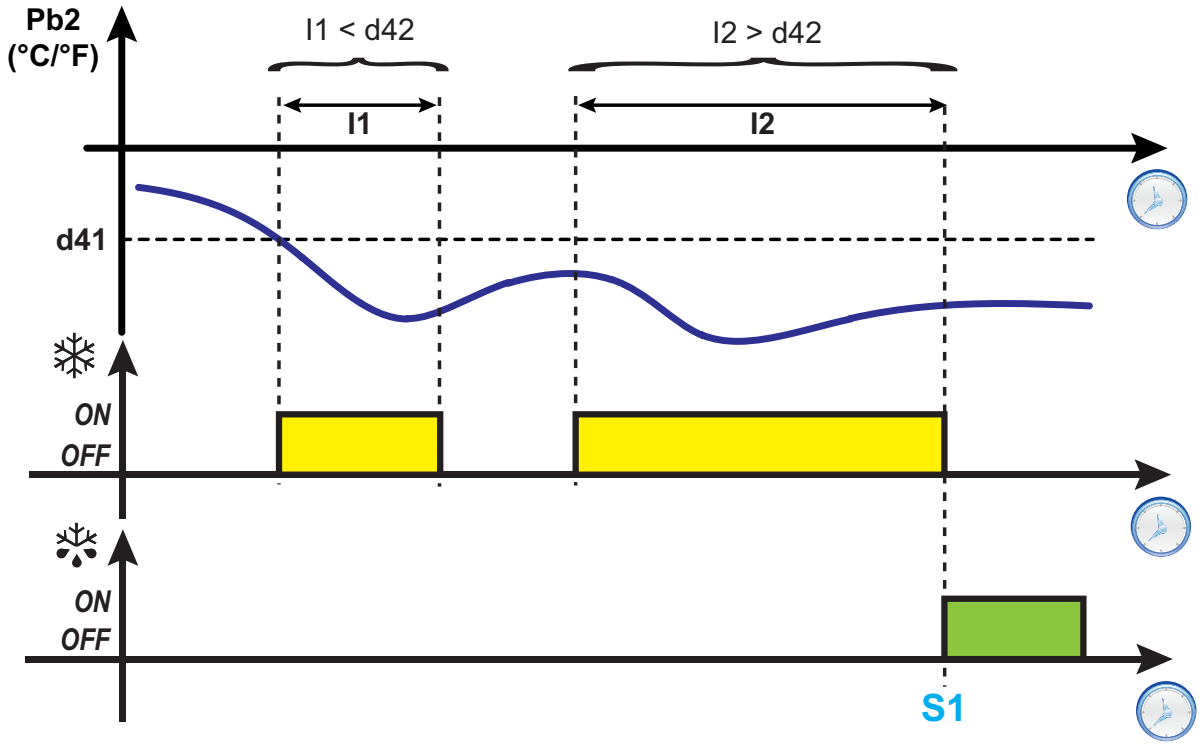
Note: this function can only be activated in models which manage probe Pb2 (as long as the conditions are correct to do so).

Regulation diagrams

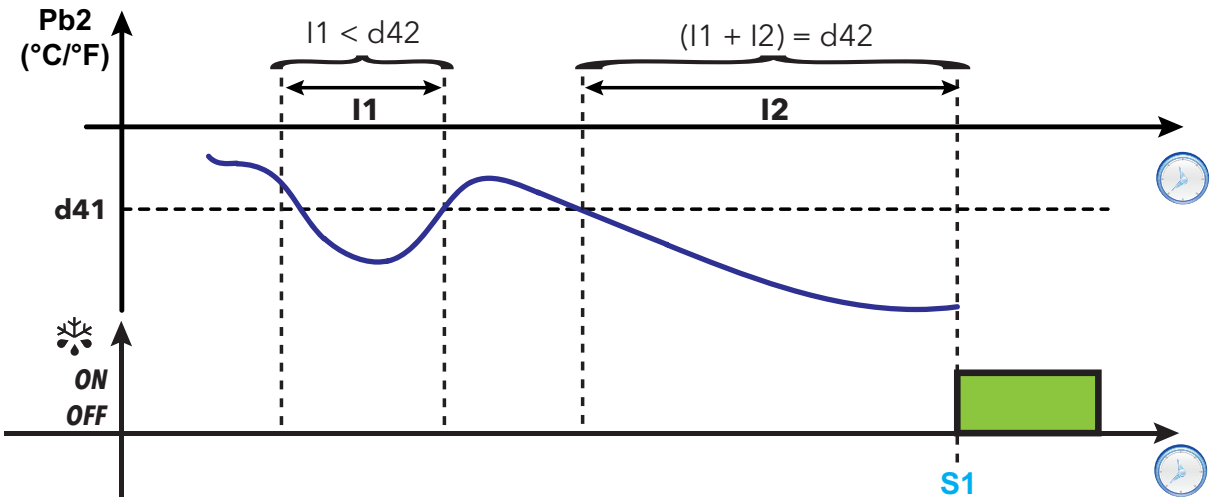
d43 = 0: count independent of the compressor status



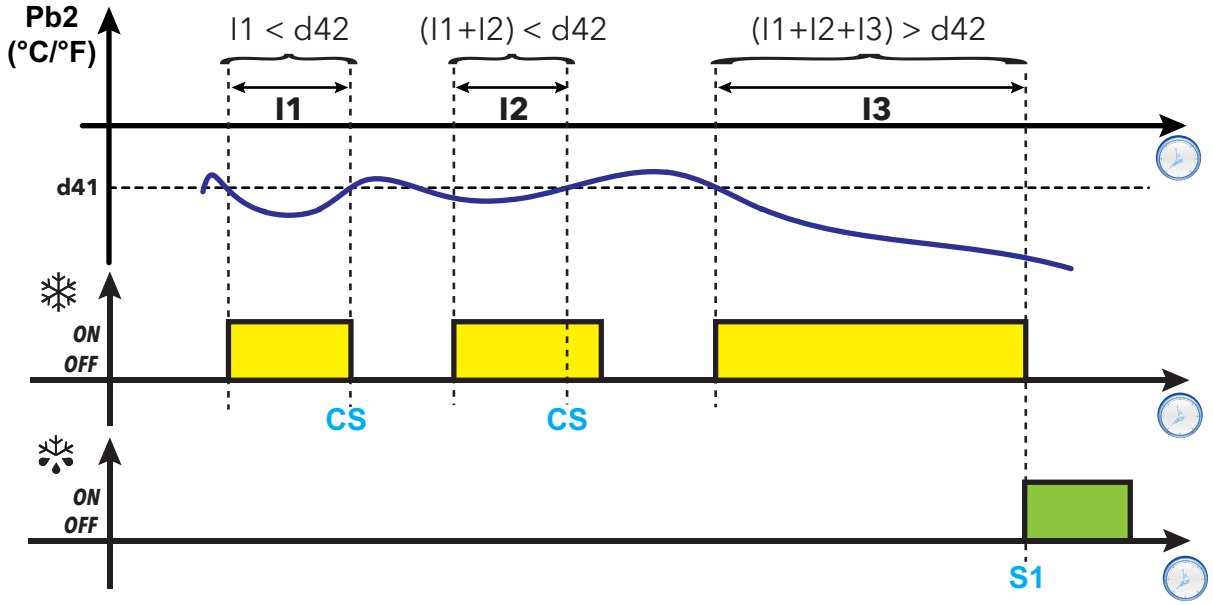
d43 = 1: count with compressor on



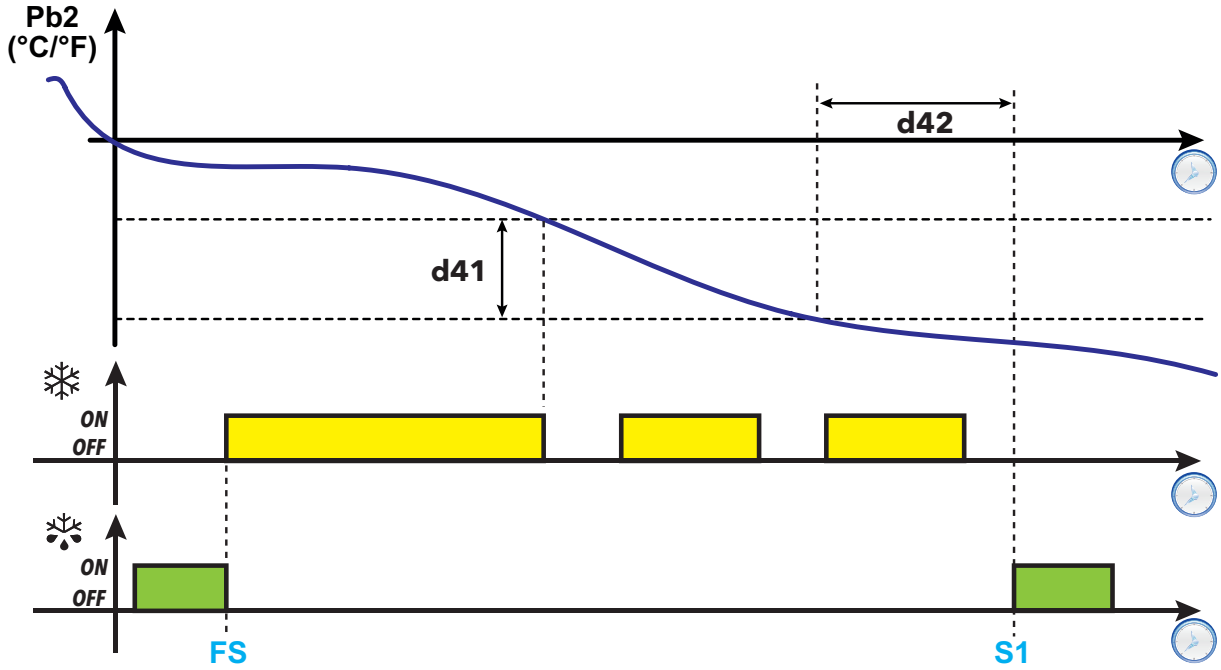
d43 = 2 : count independent of compressor status, count active for Pb2 values below threshold d41



d43 = 3 : count with compressor on, count active for Pb2 values below threshold d41



d44 = 1: Threshold in relative value



Legend: **I1, I2, I3** = Times with count active; **FS** = End of defrost; **S1** = Defrost start; **CS** = Count stop (Pb2 > **d41**).

Temperature differential

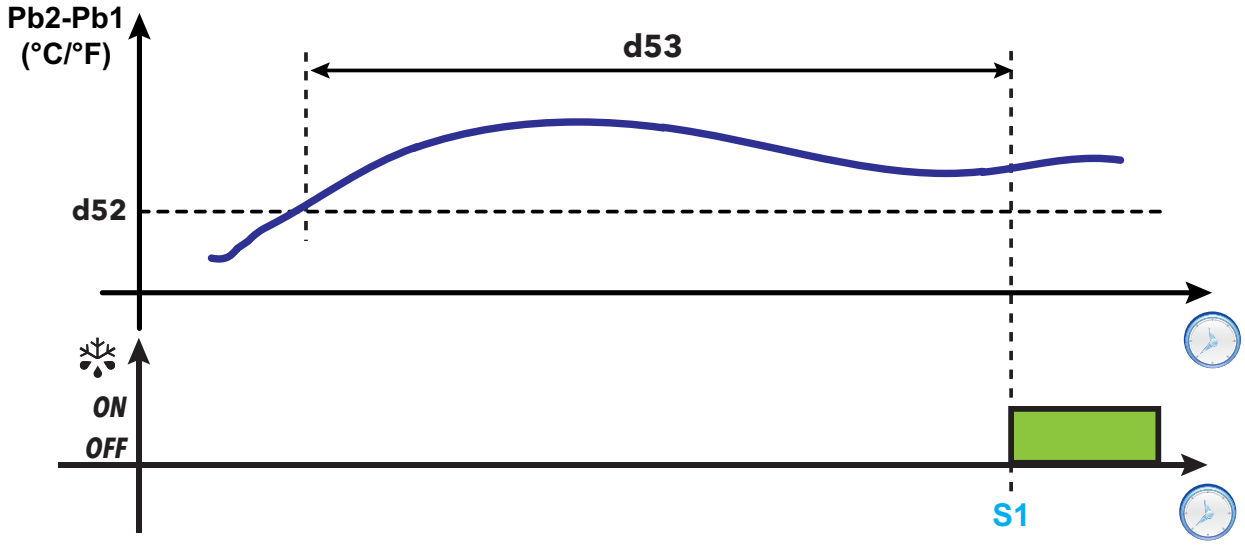
This defrost can be configured via the following parameters:

Parameter	Description
d50	Enables/disables use of probe Pb2. • **0** = disabled • **1** = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)
d51	Enables/disables use of probe Pb1. • **0** = disabled • **1** = enabled. Defrost runs according to the value read by Pb1 (only refers to defrost with threshold)
d52	Sets the defrost activation threshold (absolute differential **Pb2-Pb1**)
d53	Sets the maximum time for which the temperature difference (**Pb2-Pb1**) can remain above the threshold **d52**
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value **d52**. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature difference (**Pb2-Pb1**) falls below the threshold **d52** • **3** = incremental count with compressor on and until the temperature drops below the threshold **d52**
d55	Sets the threshold management mode. • **0** = absolute value • **1** = relative value (negative offset, relative to the differential of the temperatures measured by probes Pb1 and Pb2 (**Pb2-Pb1**) at the end of the first cooling cycle or on startup).

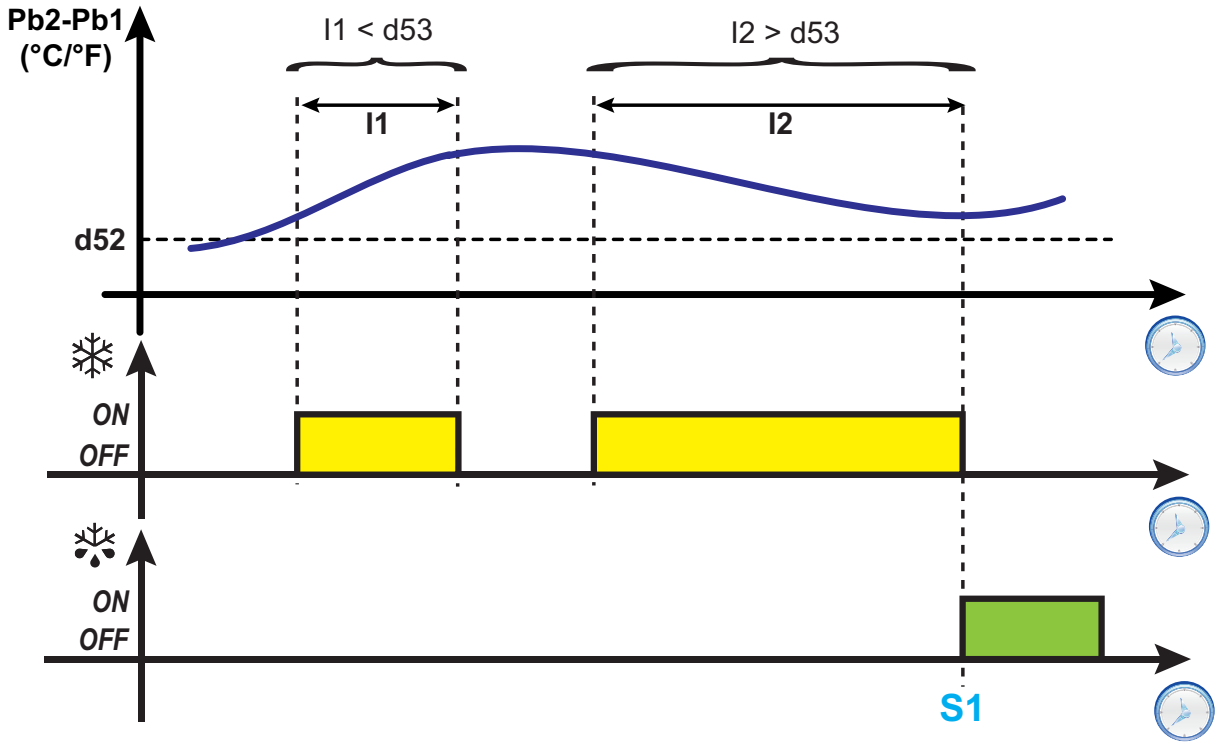
Note: this function can only be activated in models which manage probe Pb2 (as long as the conditions are correct to do so).

Regulation diagrams

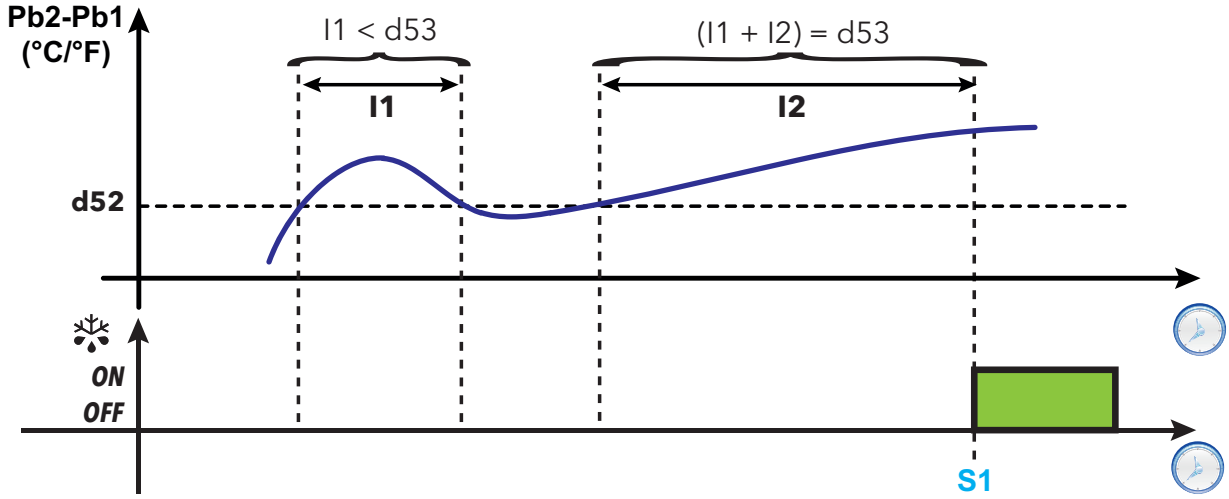
d54 = 0: count independent of the compressor status



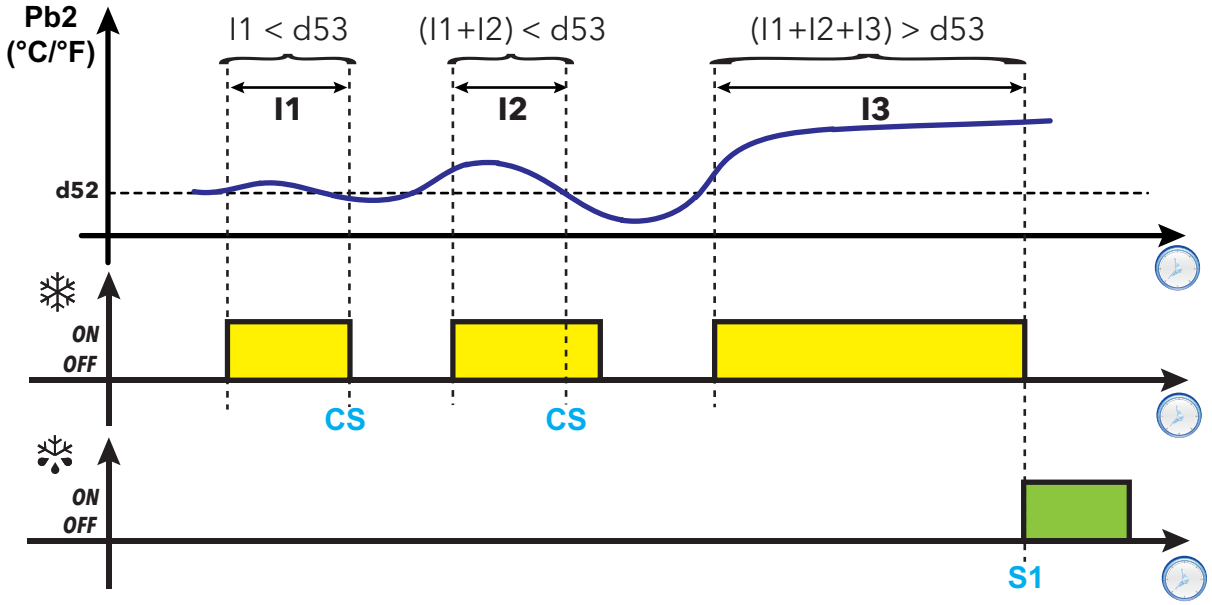
d54 = 1: count with compressor on



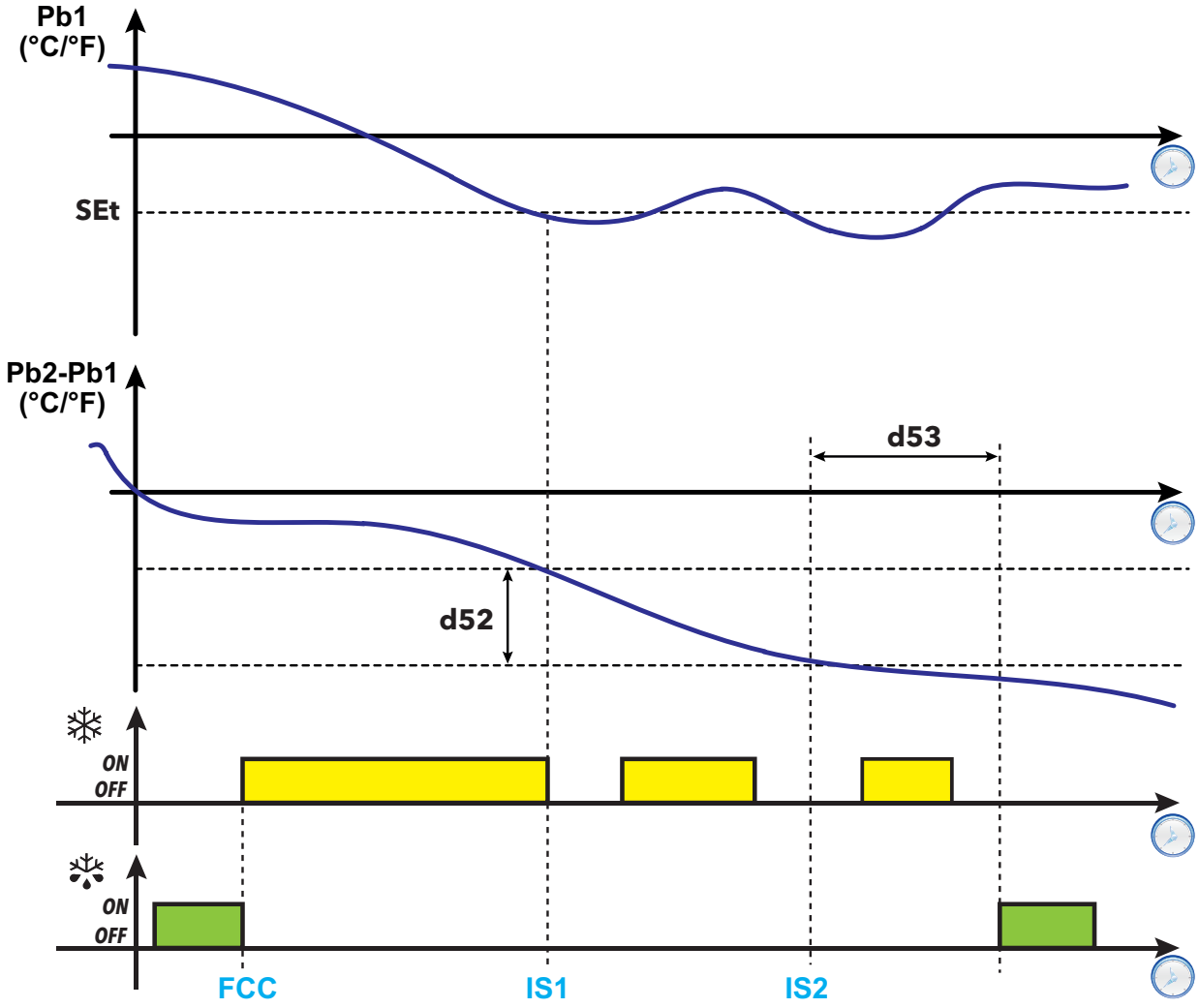
d54 = 2: count independent of the compressor status, count stop below the threshold



d54 = 3: count with compressor on, count stop below the threshold



d55 = 1: Threshold in relative value



Legend: **I1, I2, I3** = Times with count active; **S1** = Defrost request; **CS** = Count stop (Pb2 > **d52**); **FCC** = Start first cooling cycle; **IS1** = Moment in correspondence with the first cooling cycle in which the cut-in threshold is calculated (Threshold = Pb2-Pb1+Offset); **IS2** = Activation threshold crossing moment calculated at the **IS1** time.

Standard defrost

To select this defrost mode, set parameter **dty** (defrost type).

Defrost takes place due to the evaporator heating up, in one of the following ways:

dty value	Defrost mode
0	Electric heater defrost
	Defrost due to compressor stoppage
1	Cycle inversion (hot gas) defrost*
2	Free defrost*

(*): only models that manage probe Pb2.

Electric heater defrost

When defrost is activated (**dty** = 0):

- The compressor stops
- the relay to which the electric heaters are connected, configured as defrost regulator output, is activated

At the end of defrost, if **dt**≠0 the controller will move on to the dripping phase and the compressor, fans and heaters will remain inactive. At the end of the dripping cycle, regulation begins again as normal.

End of defrost

Defrost ends in the following conditions:

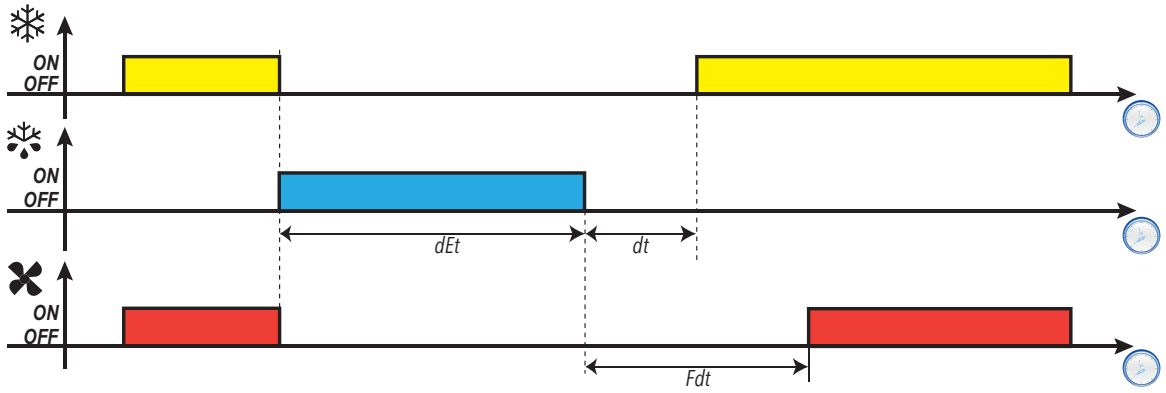
Condition	H42 value	Evaporator probe (Pb2)
End of timeout period set using parameter **dEt**.	0	Not managed
Defrost end setpoint set using parameter **dS1** reached or due to timeout if the setpoint is not reached within the time period **dEt**.	1	Managed

Notes:

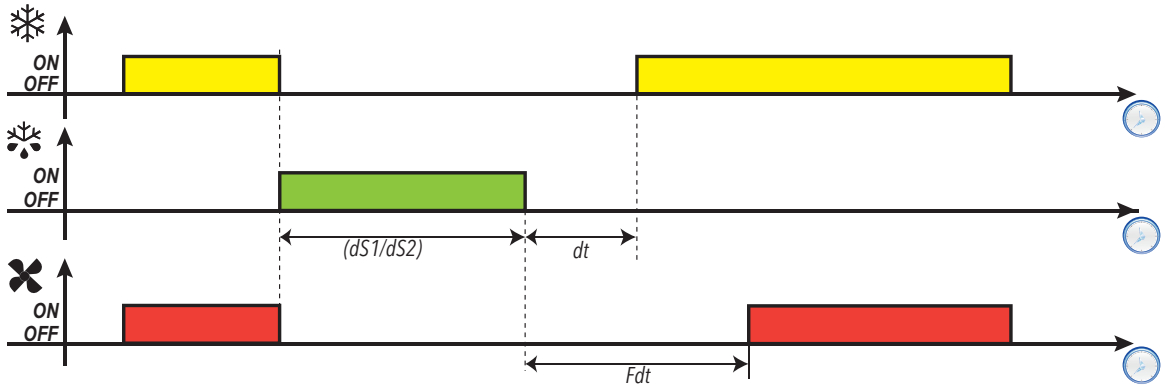
- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- If **dS1** intervenes before **dEt**, dripping (managed by parameters **dt** and **Fdt**) is activated in correspondence with **dS1** intervention
- If **Fdt** < **dt** **Fdt** = **dt** is set
- During the defrost the fans are off if **dFd** = y, otherwise they follow the other settings for the fan regulator
- The programmed defrost is carried out independently of the Pb1 status
- Defrost and dripping are carried out independently of the door switch activation or not

Regulation diagram

End of electric heater defrost due to timeout



End of electric heater defrost due to temperature



Parameters

Parameter	Description
don	Compressor relay activation delay time from call.
doF	Delay time after compressor relay switch-off and the next switch-on.
dbi	Delay time between two compressor switch-ons.
dty	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
d40	Enables/disables use of probe Pb2.
Fdt	Fan activation delay after a defrost.
dFd	Evaporator fan exclusion during defrost.
dt	Dripping duration.

Defrost due to compressor stoppage

When electric defrost is activated (**dty**= 0),

- The compressor stops
- No relay is configured as defrost regulator output

End of defrost

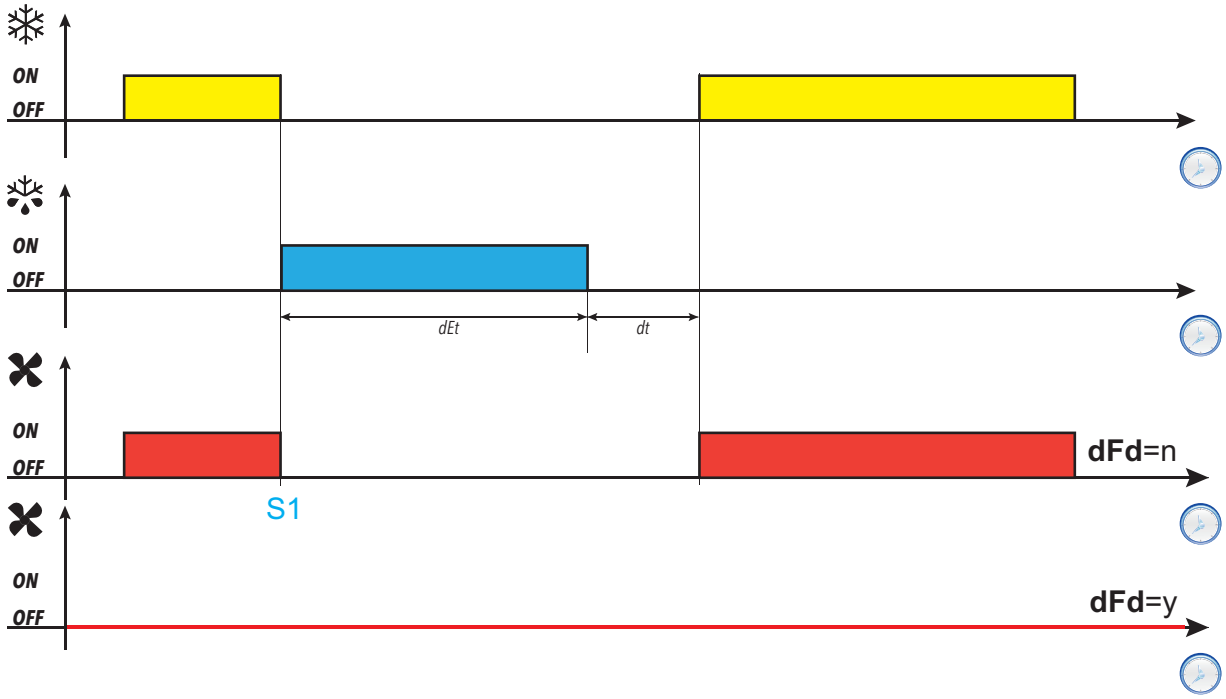
Defrost ends in the following conditions:

Condition	H42 value	Evaporator probe (Pb2)
End of timeout period set using parameter **dEt**.	0	Not managed
Defrost end setpoint set using parameter **dS1** reached or due to timeout if the setpoint is not reached within the time period **dEt**.	1	Managed

Notes:

- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- If **dt** ≠ 0, at the end of defrost the compressor and fans remain off for the time period **dt** (dripping time)
- During the defrost the fans are off if **dFd** = y, otherwise they follow the other settings for the fan regulator
- The programmed defrost is carried out independently of the Pb1 status
- Defrost and dripping are carried out independently of the door switch activation or not

Regulation diagram



Legend: **S1** = Start of defrost

Parameters

Parameter	Description
dty	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dFd	Evaporator fan exclusion during defrost.
dt	Dripping duration.

Cycle inversion (hot gas) defrost

When defrost is activated (**dty**= 1):

- The compressor remains active for the entire duration of the defrost
- the relay to which the solenoid valve is connected, configured as defrost regulator output, is activated

At the end of defrost the valve relay and the compressor relay are deactivated. The compressor relay is stopped for the entire duration of the dripping cycle, set via parameter **dt** (if a value other than zero). At the end of the dripping cycle regulation begins again as normal.

End of defrost

Defrost ends in the following conditions:

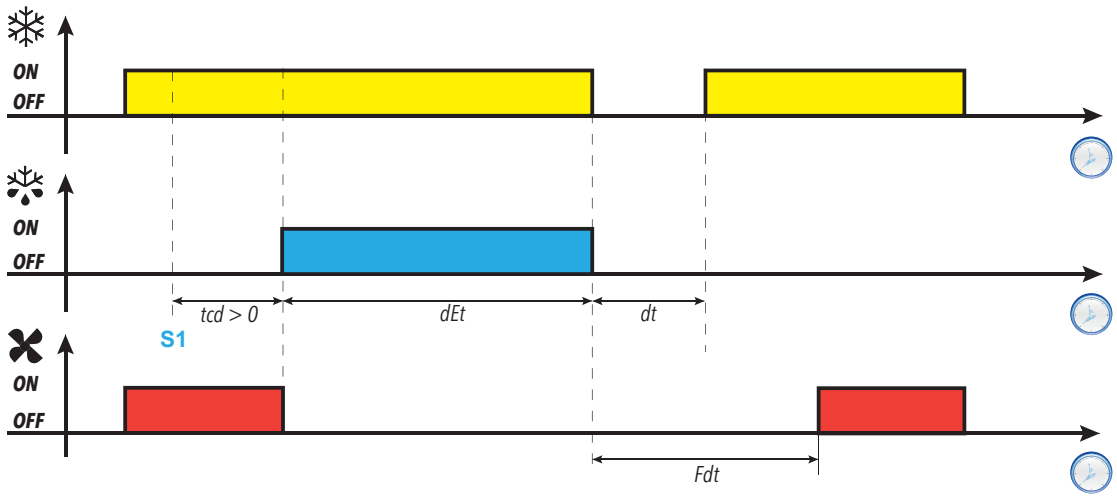
Condition	H42 value	Evaporator probe (Pb2)
End of timeout period set using parameter **dEt**	0	Not managed
Defrost end setpoint set using parameter **dS1** reached or due to timeout if the setpoint is not reached within the time period **dEt**.	1	Managed

Notes:

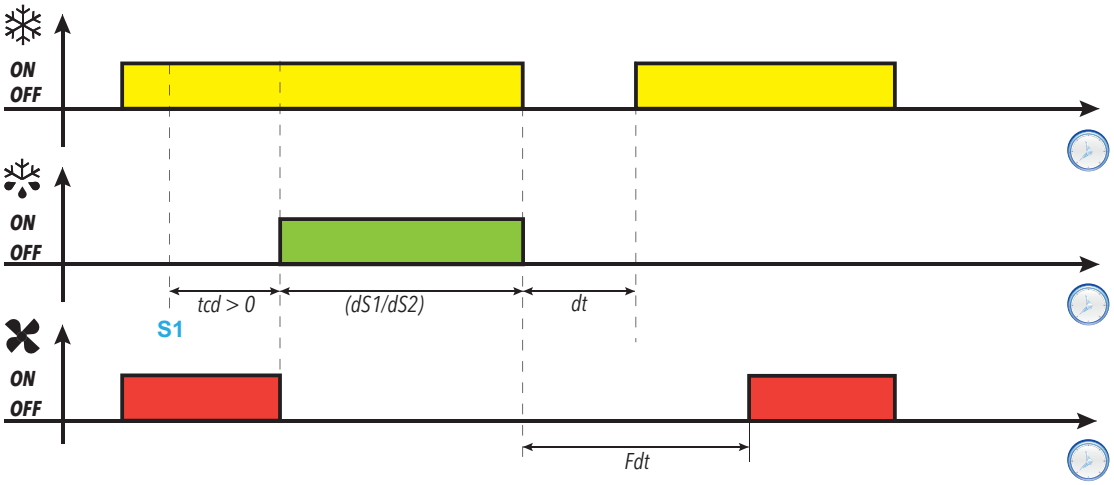
- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- The compressor safety timings (managed by parameters **don**, **doF** and **dbi**) take priority over defrost
- If **dS1** intervenes before **dEt**, dripping (managed by parameters **dt** and **Fdt**) is activated in correspondence with **dS1** intervention
- If **Fdt** < **dt**, **Fdt** = **dt** is set
- During the defrost the fans are off if **dFd** = y, otherwise they follow the other settings for the fan regulator
- The programmed defrost is carried out independently of the Pb1 status
- Defrost and dripping are carried out independently of the door switch activation or not

Regulation diagrams

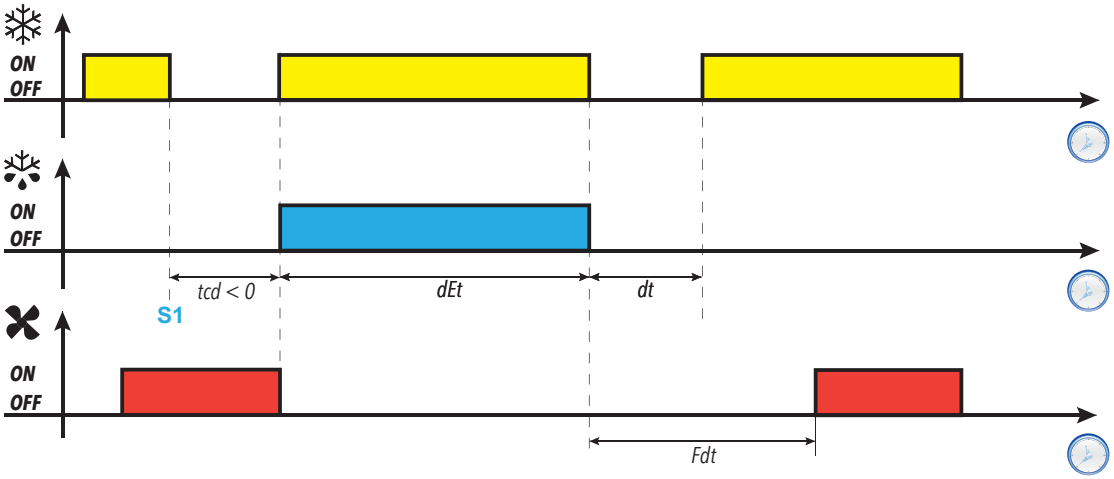
End of hot gas defrost due to timeout, with tcd > 0



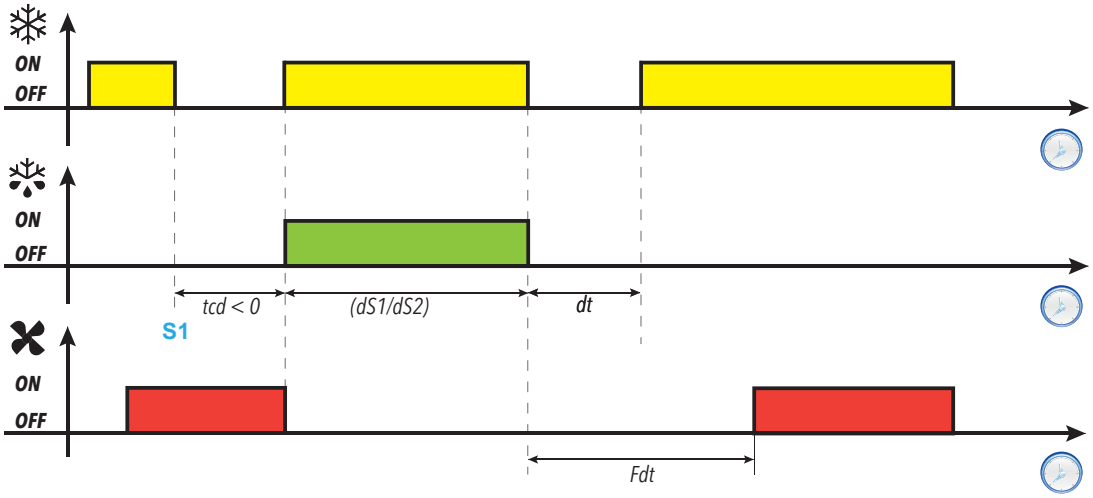
End of hot gas defrost due to temperature, with tcd > 0



End of hot gas defrost due to timeout, with tcd < 0



End of hot gas defrost due to temperature, with tcd < 0



Legend: **S1** = Defrost request

Parameters

Parameter	Description
don	Compressor relay activation delay time from call.
doF	Delay time after compressor relay switch-off and the next switch-on.
dbi	Delay time between two compressor switch-ons.
tcd	Minimum compressor on or off time which must elapse before defrost is activated.
dty	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
Fdt	Fan activation delay after a defrost.
dt	Dripping duration.

Free defrost

When defrost is activated (**dty**= 2):

- The compressor remains under control of the compressor regulator for the duration of the defrost
- the relay to which the electric heaters are connected, configured as defrost regulator output, is activated

At the end of the defrost the heaters switch off.
During the dripping cycle the compressor continues to run.

End of defrost

Defrost ends in the following conditions:

Condition	H42 value	Evaporator probe (Pb2)
End of timeout period set using parameter **dEt**	0	Not managed
End of defrost temperature setpoint, set using parameter **dS1**, reached. **Note**: (only models that manage probe Pb2) If the setpoint is not reached within the time set using parameter **dEt** (defrost timeout), the defrost ends in any case due to timeout.	1	Managed

Notes:

- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- If **dS1** intervenes before **dEt**, dripping (managed by parameters **dt** and **Fdt**) is nevertheless activated in correspondence with the end of interval **dEt**
- The programmed defrost is carried out independently of the Pb1 status
- Defrost and dripping are carried out independently of the door switch activation or not

Parameters

Parameter	Description
dty	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
Fdt	Fan activation delay after a defrost.
dt	Dripping duration.

Dual evaporator defrost

Introduction

To activate this function:

- Configure a relay output as a second evaporator using parameter **H2x** = 10
- Configure the type of dual defrost management using parameter **H45**
- Configure probe Pb3 as a second evaporator: **H11** = 0 and **H43** = 2EP.

Note: this function is only present in models that manage probes Pb2 and Pb3.

Functioning conditions

Defrost in dual evaporator mode can be carried out in 3 different ways:

H45 value	Description
0	Defrost on Evaporator 1 is active and ensures that the temperature read by probe Pb2 is lower than the defrost end temperature **dS1**. **Note**: The second evaporator is not taken into account.
1	Defrost is active and ensures that at least one of the temperatures read by probes Pb2 and Pb3 is lower than the defrost end temperature **dS1** for Evaporator 1 and **dS2** for Evaporator 2.
2	Defrost is active and ensures that both of the temperatures read by probes Pb2 and Pb3 are lower than the respective defrost end temperatures **dS1** for Evaporator 1 and **dS2** for Evaporator 2.
3	Defrost is activated on Evaporator 1 and Evaporator 2 alternately.

If one of the probes is in error, its temperature is considered as a trigger for the defrost function.

End of defrost

The end of defrost occurs when the temperature read by both evaporator probes is above the end unlock temperature (**dS1** and **dS2**) or when a timeout takes place.

General notes

- Defrost is not carried out if the conditions are not right to do so
- If **H45** = 3, the defrost sequence is always: Evaporator 1, Evaporator 2, Evaporator 1, and so on
- The end of defrost with Evaporator 1 only occurs when the probe measures a value that is equal to or greater than the defrost end temperature or when a timeout takes place
- Dripping begins when both defrosts have ended. If **H45** = 3, dripping will begin at the end of each defrost.
- If one or both probes are in error, the defrost will end due to timeout **dEt**
- If Pb3 is not configured as an Evaporator 2 probe (**H43** ≠ 2EP) or it is in error, the Evaporator 2 defrost can only be carried out if a digital output is configured as Evaporator 2 defrost (**H2x** = 10). In this case the temperature is not checked and the defrost ends due to timeout **dEt**
- Fan regulation follows normal operation in the same way as when a single evaporator is managed

Operation

Function	Start of defrost	End of defrost
Defrost on Evaporator 1	• Pb2<**dS1** if **H45**=0 • Pb2<**dS1** if **H45**=1 • Pb2<**dS1** & Pb3<**dS2*** if **H45**=2	• Pb2>**dS1** or • Timeout if Pb2<**dS1** or • Timeout if Pb2 in error
Defrost on Evaporator 2	• Pb2<**dS1** if **H45**=0: • Pb3<**dS2** if **H45**=1: • Pb2<**dS1** & Pb3<**dS2*** if **H45**=2	• Pb3>**dS2** or • Timeout if Pb3<**dS2** or • Timeout if Pb3 in error or • Timeout if **H43** ≠ 2EP
Function	**Start of dripping**	**End of dripping**
Dripping	• If **H45** ≠ 3: it is activated when both evaporators have finished defrosting. • If **H45** = 3: it is activated on the evaporator that was active when it finishes defrosting.	As for defrost with single evaporator

(*): If Pb3 is in error or **H43** ≠ 2EP and a digital output is configured as Evaporator 2, the condition Pb3<**dS2** will be considered as satisfied.

Parameters

Parameter	Description
don	Compressor relay activation delay time from call.
doF	Delay time after compressor relay switch-off and the next switch-on.
dbi	Delay time between two compressor switch-ons.
dty	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
dS2	Evaporator 2 defrost end temperature.
Fdt	Fan activation delay after a defrost.
dt	Dripping duration.

Functions

Contents

This section includes the following topics:

Door switch

Description

By setting **H1x** = ±4 it is possible to connect a door switch to the digital input. When it is activated, the compressor and/or fans are deactivated instantly or after a time period set with parameter **dCo**.

Operating mode

Controller operation on opening of the door switch depends on parameters **dod** and **dCo**:

dod	dCo	Compressor
0 = function disabled	NA	On
1 = fans disabled	NA	On
2 = compressor disabled	0	Off
	> 0	Off after **dCo** time
3 = compressor and fans disabled	0	Off
	> 0	Off after **dCo** time

Note: If the door is opened during a defrost cycle, the defrost continues normally.

Parameters

Parameter	Description
dod	Utilities switched off upon activation of the digital input set for the door switch.
dAd	Digital input activation delay.
dCo	Compressor switch-off delay from door switch.
oAo	Alarm signaling delay after deactivation of the digital input (door closure).
tdo	Delay time due to door open alarm.
AuP	Association of an AUX output when the door is open.
H11	**DI** digital input/polarity configuration.
H12	**DI2** digital input/polarity configuration (on TTL port).
H13	**DI3** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H14	**DI4** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H21	Configuration of digital output **Out1**
H22	Configuration of digital output **Out2**
H23	Configuration of digital output **Out3**
H24	Configuration of digital output **Out4**

Stand-by

Description

The stand-by function maintains the controller power supply and, depending on the value of parameter **H08**:

- switches off the display or shows **oFF**
- deactivates all regulators (or not)
- excludes alarms (or not)

Activation

The stand-by function can be activated in one of the following ways:

- press and hold a key (configured with **H3x** = 4)
- via digital input (configured with **H1x** = ±6)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories section)

Note: the digital input takes priority over the key. If both are configured, the key command will be excluded.

Operation

When the stand-by function is activated, depending on the setting for **H08**, the following will occur:

- **H08** = **0**: display off, the regulators remain active and the instrument can activate the alarm icon ⚠ when an alarm occurs
- **H08** = **1**: display off, all relays are de-energized and the alarms deactivated
- **H08** = **2**: the display shows the text **oFF**, all relays are de-energized and the alarms deactivated

On exiting stand-by function, the temperature alarm is excluded for the time period set with parameter **PAo**; the outputs are deactivated for the time period set with parameter **odo**. These timing are reset every time the controller is switched off.

If stand-by had been active when the controller was switched off (as the result of a blackout, to the opening of the general switch, etc.), it will also remain active the next time it is switched on.

Parameters

Parameter	Description
PAo	Alarm exclusion time when switching on the controller, after a power failure
odo	Output activation delay after startup
H08	Stand-by operating mode
H11	**DI** digital input/polarity configuration.
H12	**DI2** digital input/polarity configuration (on TTL port).
H13	**DI3** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H14	**DI4** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H31	△ key configuration.
H32	▽ key configuration.
H33	⏻ key configuration.
H34	💡 key configuration.
H35	☆ key configuration.

Copy parameters (UNICARD)

Introduction

The UNICARD connects to the TTL serial port and allows uploading/downloading of a parameters map.

Note: Format the UNICARD the first time it is used.

The UNICARD:

- Can be connected directly to a computer by means of a USB port.
- If powered by a USB power supply device, it can power **EWNext Performance Inrush -HC** during the upload/download phases.

Formatting the UNICARD

1. Access the installer parameters, entering the **PA2** password if enabled
2. Scroll through the folders with ∧ and ∨ until you find the folder **FPr**
3. Press **SET** to confirm
4. Scroll through the parameters using ∧ and ∨ until you see parameter **Fr**
5. Press **SET** to confirm.

This command is used to format the UNICARD (necessary when using the card for the first time).
Note: the **Fr** parameter deletes all data present. It's not possible to stop and/or undo this task.

Uploading parameters from the controller to the UNICARD

1. Access the installer parameters, entering the **PA2** password if enabled
2. Scroll through the folders with ∧ and ∨ until you find the folder **FPr**
3. Press **SET** to confirm
4. Scroll through the parameters using ∧ and ∨ until you see parameter **UL**
5. Press **SET** to confirm
6. If the operation is completed, the display will show **yES**, otherwise it will show **no**.

Downloading parameters from the UNICARD to the controller

Connect the UNICARD when the controller is switched off. When the controller is switched on, the data is downloaded automatically from the UNICARD to the controller. On the display shows **dLy** if the operation was successful, otherwise it will show **dLn**.

Note: after downloading the data, the instrument will work with the settings for the loaded map straight away.

Boot loader firmware

Description

The device comes with Boot Loader, which makes it possible to update the firmware directly on site. Updating takes place via UNICARD.

Operating mode

To carry out the update:

1. Connect the UNICARD with the authentic application loaded onto it
2. Restore the device power, if it is off; otherwise, switch it off and on again
3. Wait for the UNICARD LED to flash (operation in progress)
4. The operation is complete when the UNICARD LED is:
   - **ON**: operation completed successfully
   - **OFF**: operation not completed (application incompatible …)
5. At the end of the download, if the operation was successful, firmware is started automatically with the new release. Otherwise, if the applicative is authentic, a feedback is given on display and the applicative does not start.

The controller can be upgraded only with authenticated Schneider Electric or Eliwell files. In case the authenticity check fails the controller stay idle, without any capacity for regulation.

NOTICE
UNINTENDED EQUIPMENT OPERATION Use authenticated Schneider Electric or Eliwell files only. **Failure to follow these instructions can result in equipment damage.**

To restore the normal operation of the controller, upload an authenticated file.

Diagnostics

During application update the display shows:

- **Fans icon on** ( ): UNICARD connected
- **Alarm icon on** ( ): binaries file non authentic
- **Alarm and reduced set icons on** (+): error during firmware updating
- **Temperature icon flashing** ( ): firmware updating running

Reset TelevisAir diagnostic counters

Description

The controller provides via Televis**Air** a set of counters that can be used for diagnostic or maintenance functions.

Counters list

Label	Counter	Counter presence	RS	RD
tC1	Compressor 1 working hours	Always	10 h	100 h
nC1	Compressor 1 activations	Always	1	10
tC2	Compressor 2 working hours	If configured	10 h	100 h
nC2	Compressor 2 activations	If configured	1	10
td1	Defrost 1 working hours	If configured	1 m	1 h
nd1	Defrost 1 activations	If configured	1	10
td2	Defrost 2 working hours	If configured	1 m	1 h
nd2	Defrost 2 activations	If configured	1	10
tdo	Door opening time	If configured	1 m	1 h
ndo	Door opening count	If configured	1	10
nP0	Power ON counter	Always	1	1
rSt	Reset all the counters			

Legend:

- **RS** = Multiplier factor to be applied to the counter when the value is read via the serial port.
- **RD** = Multiplier factor to be applied to the counter when the value is read on display.

Operating mode

To reset one or more counters, proceed as follows:

1. Access the Installer parameters entering the **PA2** password if enabled
2. Scroll through the folders with ∧ and ∨ until you find the folder **FnC**
3. Press **SET** to confirm
4. Scroll through the menu options with ∧ and ∨ until you find the label **Cnt** and press **SET**
5. Scroll through the parameters with ∧ and ∨ until you find the counter to reset
6. Press and hold **SET** for at least 5 seconds to confirm.

Note: Parameter **rSt** allows you to reset all the counters simultaneously.

Regulators

Contents

This section includes the following topics:

Cool regulator

Description

The regulator can work with an absolute or relative differential, both in Heat and Cool modes, and is controlled by the value of probe Pb1.

Functioning conditions

Before activating the compressor, the regulator makes sure of the following conditions:

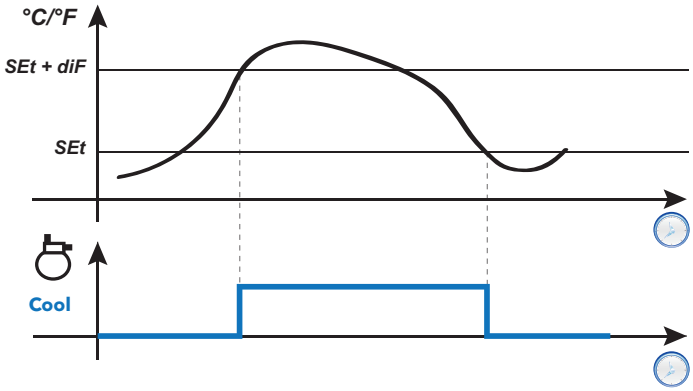
- The controller is on or in stand-by (in the latter case, only applies if **H08** = 0)
- Regulation probe Pb1 is not in error (alarm **E1** is not present)
- From power-on the time set using parameter **odo** has elapsed (only if **odo**≠0)
- There are no active defrosts (depending on the defrost type)

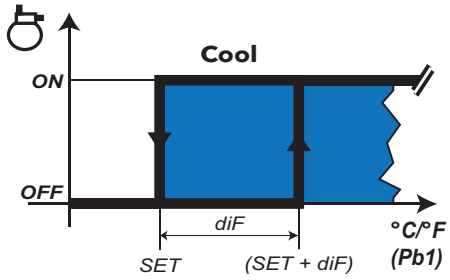
If an offset is activated on the setpoint (**oSP**) and on the differential (**odF**), then:

- **SEt** will be replaced by the value (**SEt + oSP**)
- **diF** will be replaced by the value (**diF+ odF**)

Note: **oSP** can assume both positive and negative values.

Regulation diagrams





Legend: **Cool** = Cooling.

Parameters

Parameter	Description
SEt	Regulation setpoint
diF	Regulator activation differential
oSP	Offset on setpoint
odF	Offset on differential in energy saving mode
odo	Output activation delay after startup

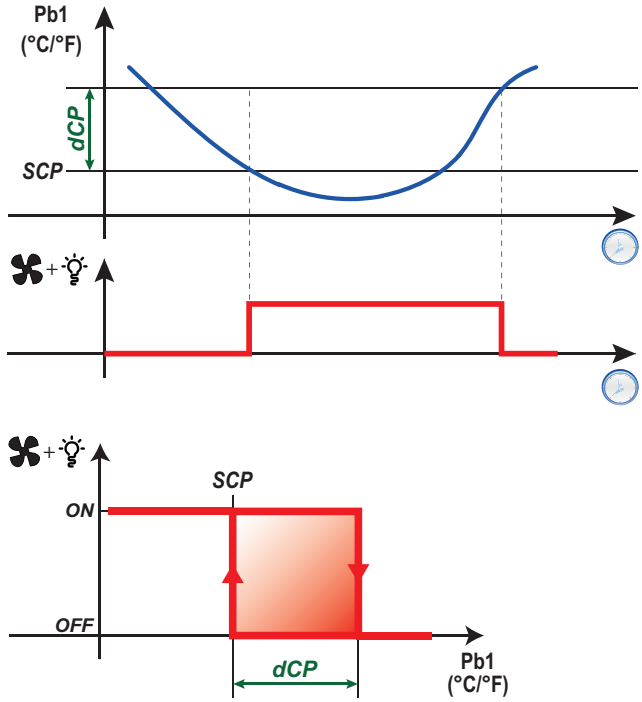
Low ambient temperature protection

Description

Regulator activations takes place when the temperature measured by **Pb1** drops below the temperature **SCP** for a time period **tCP**.

This protection attempts to heat the machine by switching on the lights and the fans until the temperature (**SCP**+**dCP**) is reached. If **tCP** = 0, the function is disabled.

Regulation diagram



Parameters

Parameter	Description
SCP	Excessive cold protection setpoint
dCP	Excessive cold protection differential
tCP	Amount of time the temperature remains below setpoint **SCP**.

Compressor

Description

The compressor is controlled by a relay and switches on/off according to the following elements:

- the temperature value measured by probe Pb1
- the temperature control functions set
- the defrost/dripping functions

For compressor-controller wiring diagrams, refer to the "Electrical Connections" section.

Note: digital output **Out1** is set as "Compressor" by default.

Functioning conditions

The regulator is activated if the following conditions occur:

- The controller is on or in stand-by (in the latter case, only applies if **H08** = 0)
- Regulation probe Pb1 is not in error (alarm **E1** is not present)
- From power-on the time set using parameter **odo** has elapsed (only if **odo**≠0)
- There are no active defrosts (depending on the defrost type)

The Compressor activation request at startup can be delayed by setting parameter **odo**.

During this period, the compressor remains off and, if an activation request is made, the compressor icon ❄ flashes.

Regulator activations is possible also near a defrost cycle.

There is a fixed interval of one second between the request and the actuation of the linked relay.

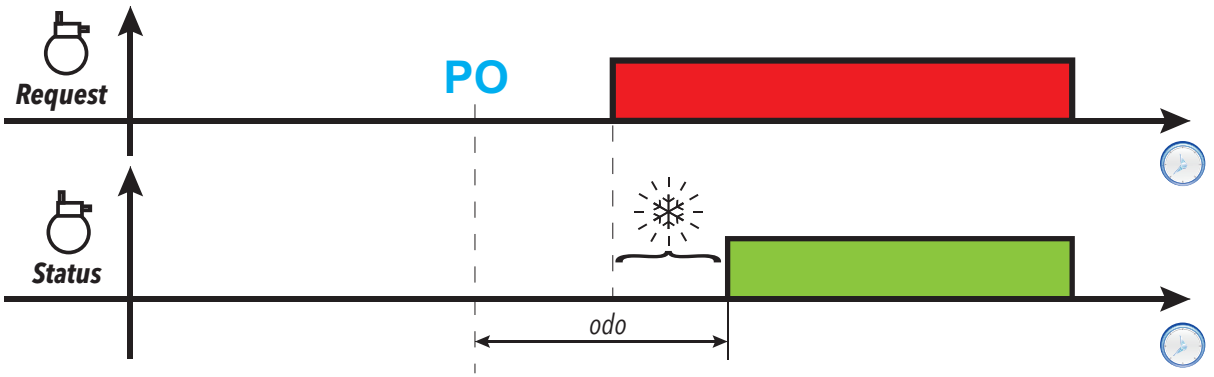
Compressor protections

To avoid damaging the compressor, the following protections can be set up:

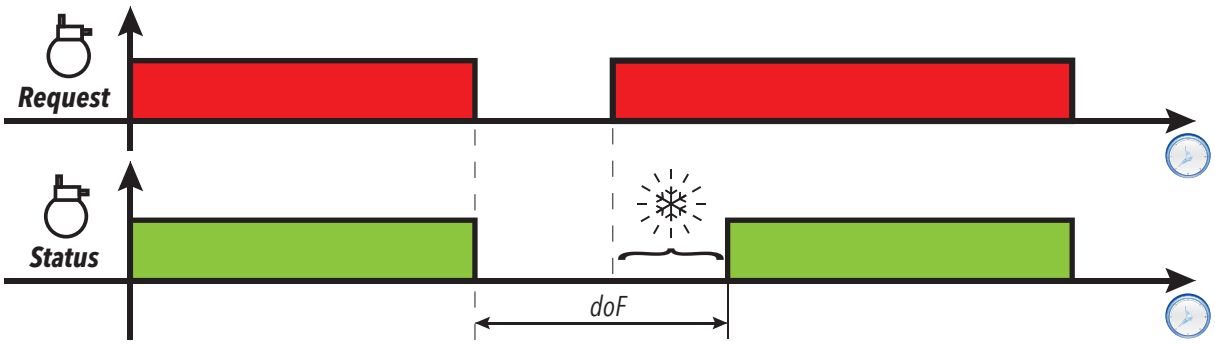
- a delay **doF** between compressor relay switch-off and the next switch-on. If a new activation request arises during the delay **doF**, the compressor icon will flash on the display.
- a delay **dbi** between one compressor startup and the next. The delay **dbi** is calculated from the previous compressor startup. If a request arises during the delay **dbi**, the compressor icon will flash on the display.
- a delay **don** for compressor startup after the request. During the delay **don**, the compressor icon will flash on the display.
- Minimum compressor output activation time **Cit** .
- a maximum compressor running time **CAt**, even if the activation request has not ended and is normally associated with the delay **doF**. During the time period **doF** in which the compressor remains off, the compressor icon will flash on the display.

Regulation diagrams

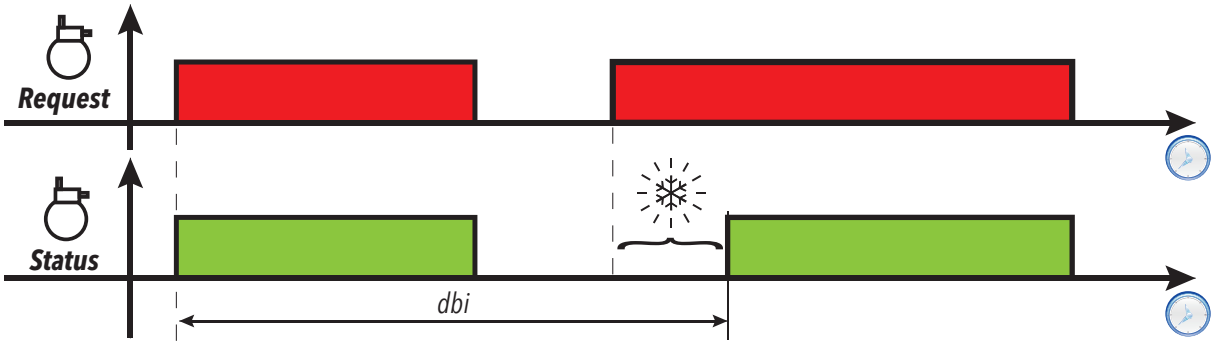
Compressor activation delay from controller power-on



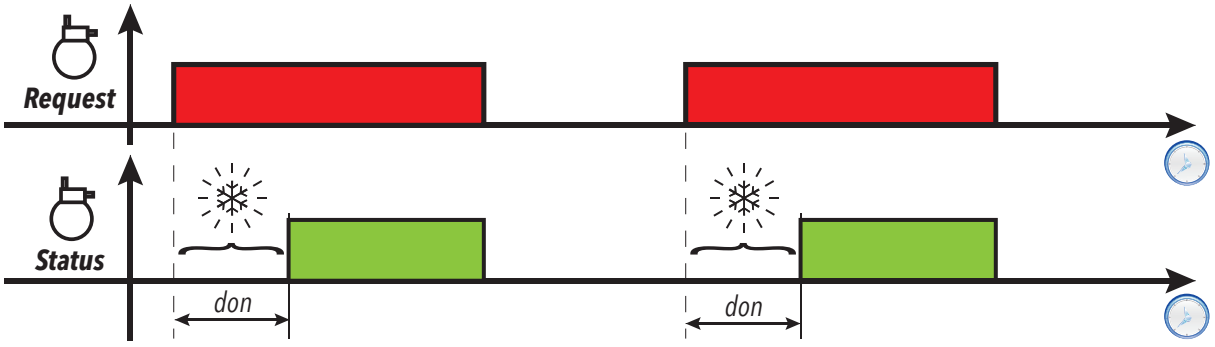
Compressor output activation delay from switch-off



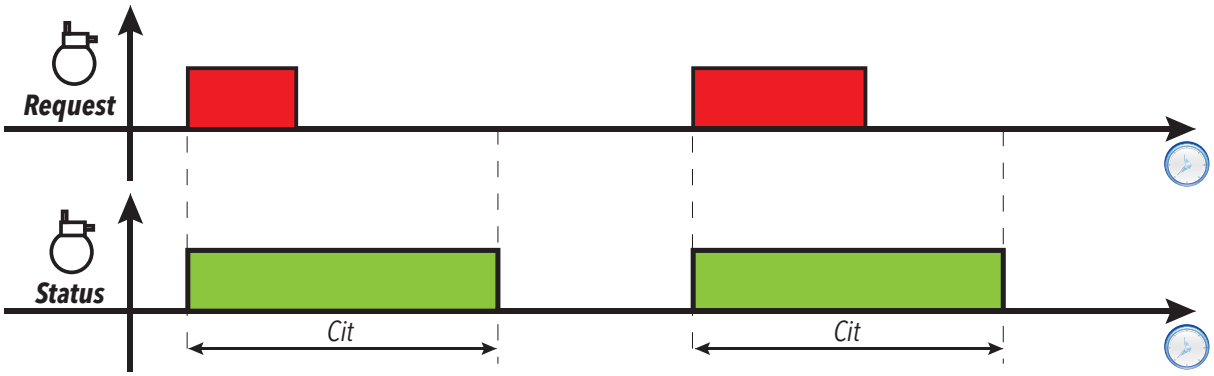
Delay between two consecutive compressor output activations



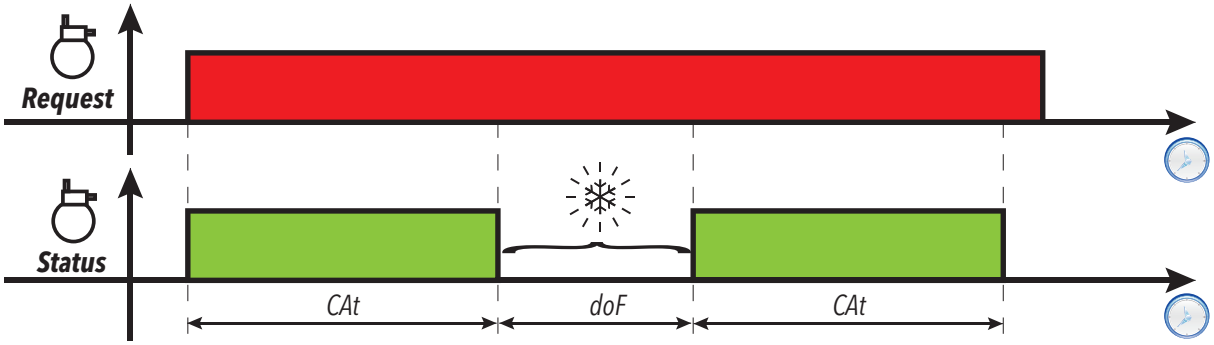
Compressor activation delay from request



Minimum compressor output activation time



Maximum compressor output activation time



Legend: **PO** = Controller switch-on; ❄ = Compressor icon flashing; **Request** = Compressor activation request; **Status** = Compressor status (ON/OFF).

Parameters

Parameter	Description
don	Compressor relay activation delay from call
doF	Delay between compressor relay switch-off and the next switch-on
dbi	Delay between two subsequent compressor starts
Cit	Minimum compressor activation time
CAt	Maximum compressor activation time
odo	Output activation delay from startup

Managing the compressor with the probe in error

Description

The compressor relay operates in Duty cycle mode (according to parameters **ont** and **oft**) if:

- probe Pb1 is in error and the display shows **E1** (see alarms list)

The first time to consider is always **ont**. If **ont** >0 the compressor protections set using **don**, **doF**, **dbi**, **Cit** and **CAt** still apply.

Note: parameter **odo** inhibits activation of the relay outputs for its duration, with the exception of the alarm relay and the buzzer (if present).

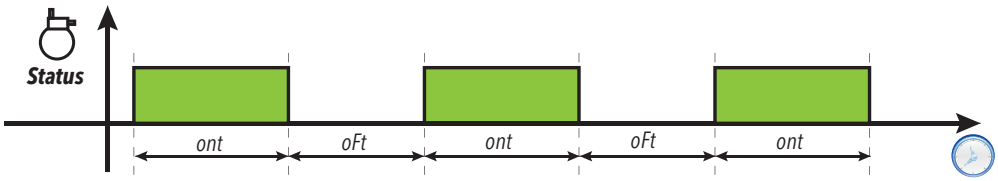
Functioning conditions

Ont	OFt	Compressor output
0	0	off
0	>0	off
>0	0	active
>0	>0	Duty cycle, regardless of the probe values (probe Pb1 not working) and requests from other utilities

Note: if probe Pb1 is functioning, Duty cycle mode is not active and conventional regulation is activated (see compressor section).

Note: when the probe is restored (connected/replaced), normal regulation starts up again.

Regulation diagram



Parameters

Parameter	Description
ont	Compressor output ON time if probe Pb1 is not functioning
oFt	Compressor output OFF time if probe Pb1 is not functioning
don	Compressor relay activation delay from call
doF	Delay between compressor relay switch-off and the next switch-on
dbi	Delay between two subsequent compressor starts
Cit	Minimum compressor activation time
CAt	Maximum compressor activation time
odo	Output activation delay after startup

Dual compressor

Description

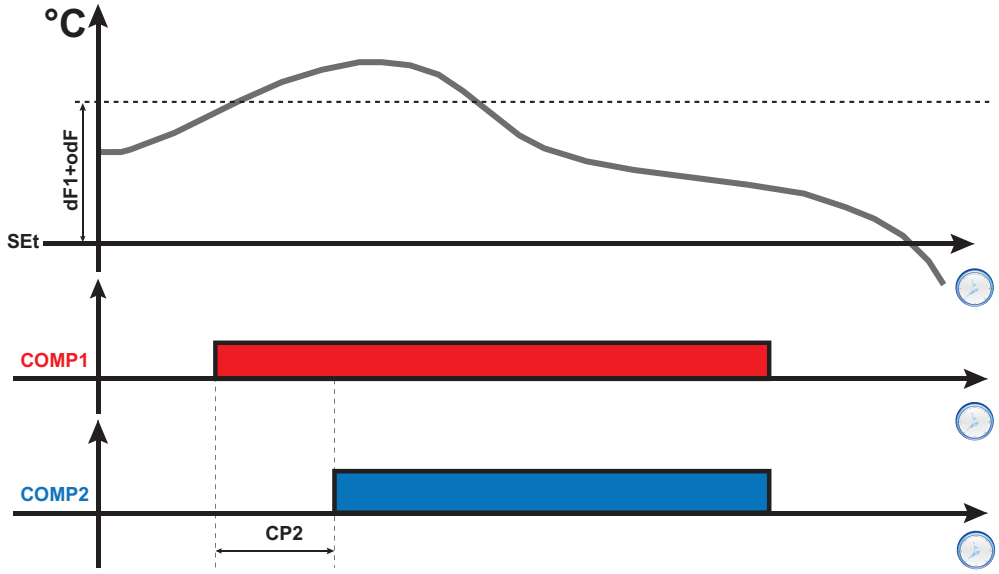
If a digital output is set as compressor 2, the controller will manage 2 power steps. Activation of the second step is conditioned at the activation of the first step.
The first step follows all the rules of the main compressor regulator (delays, safety settings, behavior in the event of an inoperable / missing probe).

Functioning conditions

If activated, compressor 2 will use the same setpoint and differential as compressor 1.
Offsets, differentials, etc. relating to the first compressor also apply to the second compressor.

Compressor 2 will be activated once the delay **CP2** has elapsed.

Regulation diagram



Legend: **COMP1** = Compressor 1 activation; **COMP2** = Compressor 2 activation.

Deep cooling cycle

Description

The Deep Cooling Cycle (DCC) type can be set using parameter **dCA**.

After deep cooling cycle activation, the interval between 2 programmed defrosts is reset and the defrost disabled.

Operating condition

A deep cooling cycle can be activated based on the value of **dCA**:

- **dCA** = **dis**: Deep cooling cycle disabled
- **dCA** = **Std**: Manual deep cooling cycle
- **dCA** = **Aut**: Automatic deep cooling cycle

When the **dCC** meter runs out (Defrost activation delay after a "Deep cooling cycle"):

- a defrost is forced
- the defrost meters are restarted.

Note: If **dCC**=0, automatic defrost after a deep cooling cycle is disabled.

If the temperature probe is in error, the deep cooling cycle is inhibited and standard regulation takes place (with management of the probe in error).

Alarm operation during the deep cooling cycle

During the deep cooling cycle, the temperature alarms are disabled with the exception of the low temperature alarm LAL. Normal management is restored at the end of the cycle, when the regulation setpoint is reached.

Manual deep cooling cycle

The regulator can be activated manually in one of the following ways:

- press and hold a key (configured with **H3x** = 8)
- using a Supervisor, via Modbus command (serial)

During manual deep cooling cycle the regulation will work:

- using the value **dCS** as a setpoint
- using the value **diF** as a differential
- using the value **tdC** as the maximum regulation duration

If the cycle ends due to timeout (**tdC**), the controller will resume normal regulation according to the status of the machine.

Automatic Deep cooling cycle

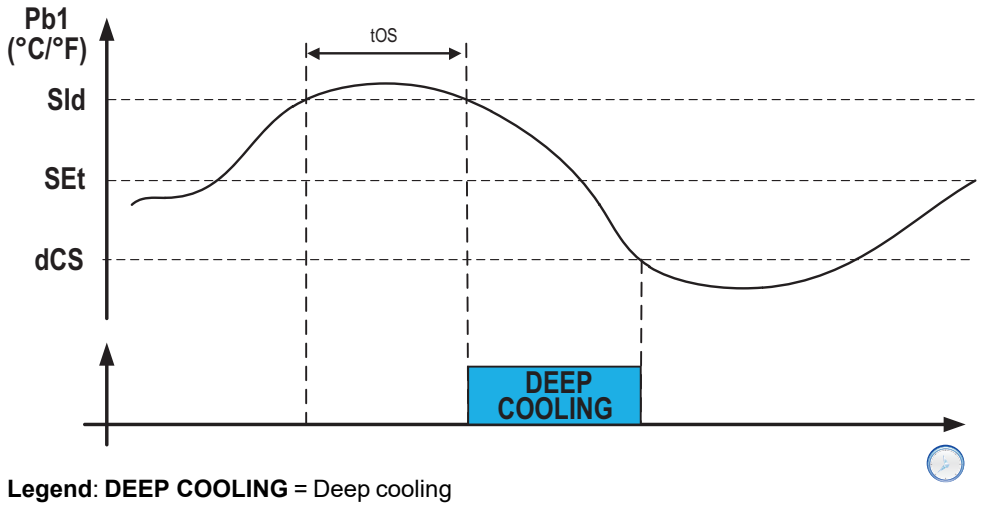
The regulator is activated if the value read by regulation probe **Pb1** remains above the temperature **SId** for a period of time **toS**.

During automatic deep cooling cycle the regulation will work:

- using the value **dCS** as a setpoint
- using the value **diF** as a differential

The cycle will end based on the value **tdC**:

- if **tdC** = 0: it will end when the temperature read by Pb1 drops below the value **dCS**
- if **tdC** > 0: it will end when the time period **tdC** elapses



Legend: **DEEP COOLING** = Deep cooling

Evaporator fans

Functioning conditions

The evaporator fan regulator is activated if the following conditions occur:

- From power-on the time set using parameter **OdO** has elapsed (only if **OdO**≠0).
- The temperature read by the evaporator probe (Pb2) is lower than the value of parameter **FSt**.
- The fans regulator is not deactivated from parameter **dFd** during the defrost (**dFd** = y).
- Dripping is not active (**dt**).
- Fan delay after defrost is not active (**Fdt**).

Regulator activation

The request for fan activation or deactivation can come:

- from the compressor regulator (temperature control mode)
- from the defrost regulator, to control and/or limit the circulation of warm air.

Fan operating modes

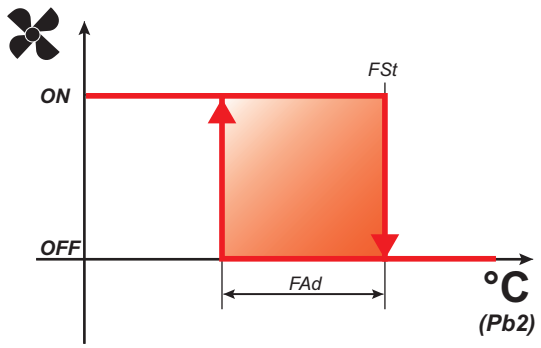
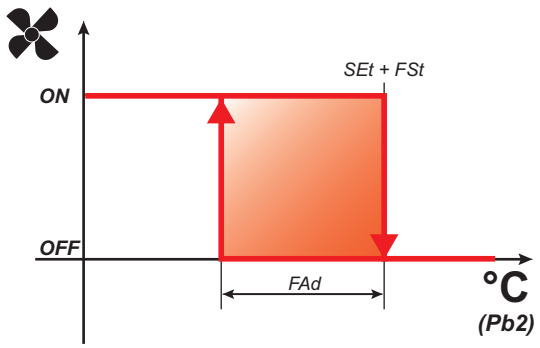
			Day		Night	
Probe Pb2	**H42**	**FCo**	**Compressor ON**	**Compressor OFF**	**Compressor ON**	**Compressor OFF**
Present	y	0	Thermostat controlled	Off	Thermostat controlled	Off
		1	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
		2	Thermostat controlled	Day duty cycle	Thermostat controlled	Night duty cycle
		3	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
		4	Thermostat controlled	Off	Thermostat controlled	Off
		5	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
		6	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
In error **E2**	y	0	Day duty cycle	Off	Night duty cycle	Off
		1	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
		2	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
		3	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
		4	On	Off	On	Off
		5	On	Off	On	Off
		6	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
Absent	n	0	On	Off	On	Off
		1	On	Day duty cycle	On	Night duty cycle
		2	On	Day duty cycle	On	Night duty cycle
		3	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle
		4	On	Off	On	Off
		5	On	Off	On	Off
		6	Day duty cycle	Day duty cycle	Night duty cycle	Night duty cycle

Fan operation in regulation mode

During cooling, fan regulation is carried out based on values **FSt** (fan disabling temperature) and **FAd** (fan differential). Parameter **FPt** can be used to select whether the set temperature values are absolute or relative to the setpoint.

Note: around the fan start temperature **Fot**, the differential will always be specified by **FAd** but with the sign inverted.

Regulation diagrams based on whether the values are absolute or relative are shown below:

FPt = 0 (absolute values)	**FPt** = 1 (relative values)
	

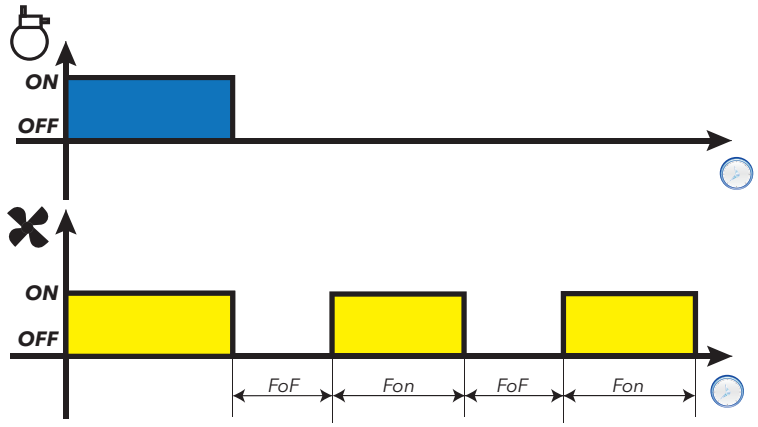
Fan operation in duty cycle

The fans run in duty cycle mode when the compressor is off and this mode is specified by parameter **FCo**.

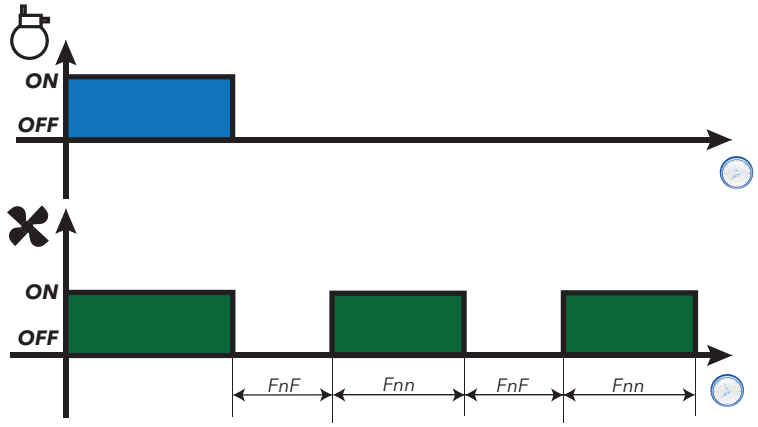
Depending on whether the controller is in day or night mode, fan operation is based on parameters **Fon** and **FoF** (day) or **Fnn** and **FnF** (night):

Fon / Fnn	FoF / FnF	Fans
0	0	Off
0	≠0	Off
≠0	0	On
≠0	≠0	Duty cycle

Regulation diagram for Day duty cycle with compressor off



Regulation diagram for Night duty cycle with compressor off



Fan operation in defrost mode

Operation depends on parameter **dFd**:

dFd	Fans
y	Off
n	Regulation or duty cycle

Note: to exclude the fans during a defrost, you must set **dFd** = y.
Otherwise the compressor is stopped during defrost but the fans run normally.

Fan operation in dripping mode

During dripping the fans remain stopped for the time set using parameter **dt**.

Note: if **Fdt** is greater than **dt** the fans remain off for the time set in **Fdt**.

Post-ventilation

Parameter **FdC** delays fan deactivation after the compressor has stopped. If **FdC** = 0 the function is excluded.

Parameters

Parameter	Description
odo	Output activation delay from startup
FPt	Sets whether parameter **FSt** is expressed as an absolute value or as a value relative to the Setpoint
FSt	Evaporator fan disabling temperature
Fot	Evaporator fan activation temperature
Fdt	Evaporator fan activation delay time after a defrosting cycle
dFd	Evaporator fan exclusion during a defrost cycle
FCo	Evaporator fan operating mode
FdC	Evaporator fan shutoff delay after compressor deactivation
FAd	Evaporator fan trigger differential
dt	Dripping time
Fon	Evaporator fan ON time in day duty cycle mode
FoF	Evaporator fan OFF time in day duty cycle mode
Fnn	Evaporator fan ON time in night duty cycle mode
FnF	Evaporator fan OFF time in night duty cycle mode
ESF	Night mode activation

Condenser fans

Functioning conditions

If the following conditions have arisen:

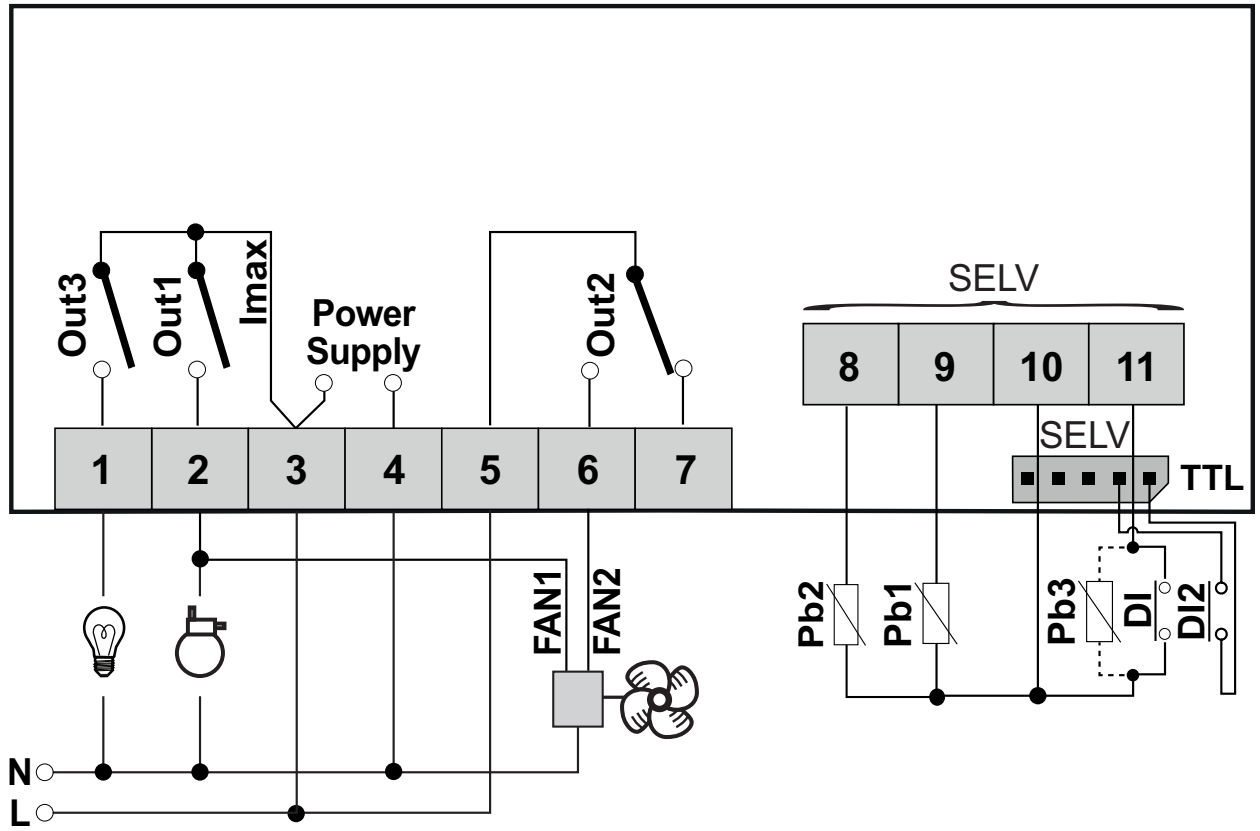
- A digital output is set as "Condenser fan inversion" (**H2x** = 11)
- Defrost is configured as "Defrost due to stoppage" (**dty** = 0)

the condenser fan regulator is activated at the moment the compressor stops (in day mode only).

Note: this regulator is only present in models that manage probe Pb2.

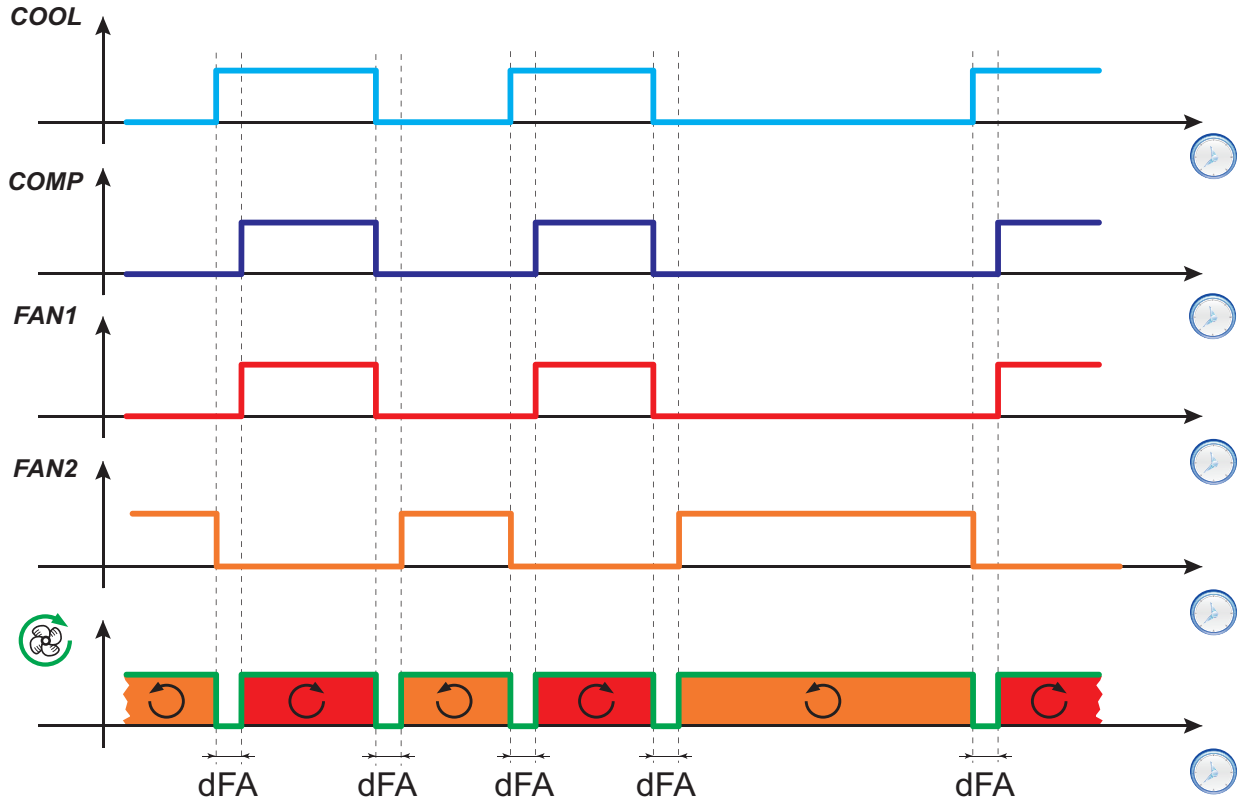
Note: If the compressor and condenser fan activation delay time after the call (**dFA**) and the compressor relay activation delay time after the call (**don**) are both configured, the larger of the two parameters will be taken into account.

Wiring diagram

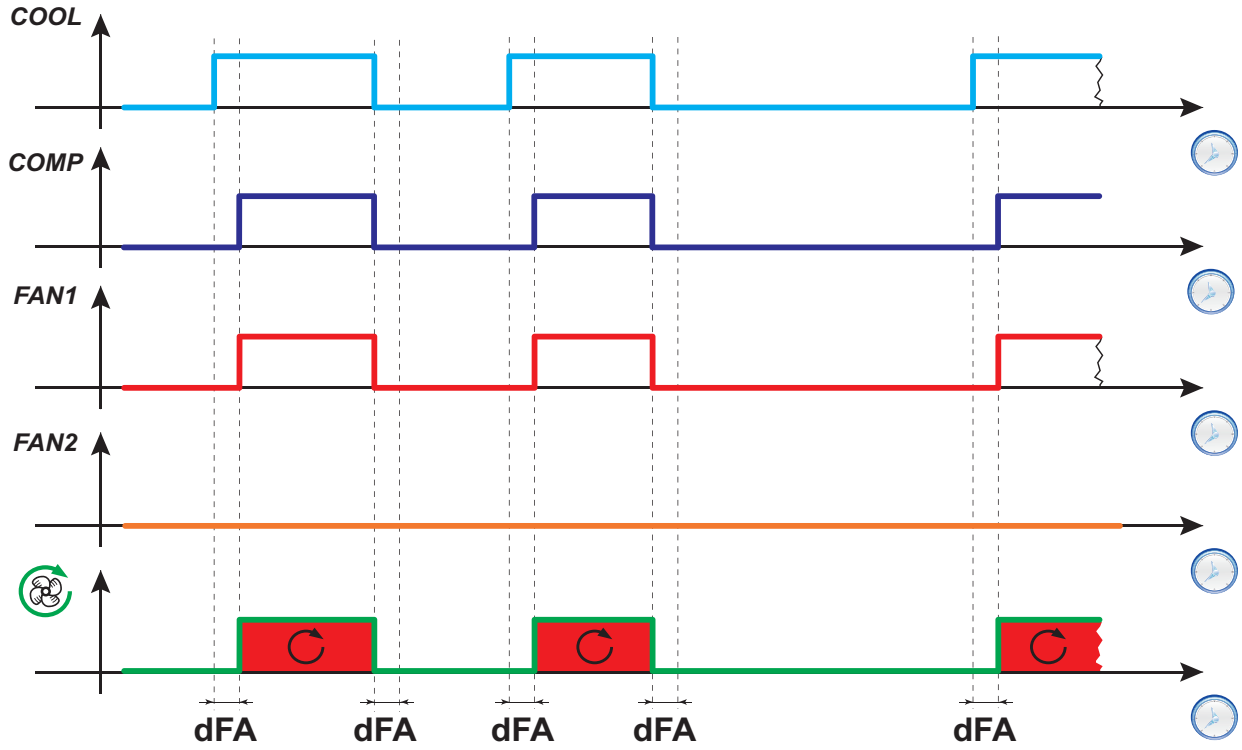


Regulation diagrams

Regulation diagram in Day mode



Regulation diagram in Night mode



Legend: **COOL** = Cooling request; **COMP** = Compressor status; **FAN1** = Condenser fan relay; **FAN2** = Condenser fan inversion relay; = Condenser fan rotation direction.

Parameters

Parameter	Description
dFA	Condenser fan and compressor activation delay from the call
dty	Type of defrost. **0** = Electric defrost or due to stoppage; **1** = Cycle inversion defrost; **2** = Free mode defrost
H21	Digital output Out1 configuration
H22	Digital output Out2 configuration
H23	Digital output Out3 configuration
H24	Digital output Out4 configuration

Pressure switch

Introduction

A pressure switch can be connected to a digital input on the controller.

Setting a digital input as a pressure switch

To set a digital input as a pressure switch:

- Set the digital input as a pressure switch (**H1x** = ±7)
- Set the number of errors permitted per pressure switch, parameter **PEn**

  Note: if **PEn** = 0, the function is disabled.

Pressure switch activation effects

When the pressure switch is activated, the controller carries out the following operations:

- It inhibits the compressor
- It adds the **nPA** alarm to the alarms folder **AL** with an indication of the number of pressure switch activations

The compressor can only be reactivated if the time set using parameter **PEt** has elapsed since the pressure switch was deactivated.

The alarm status is reset automatically when the pressure returns to a normal level.

Effects of reaching the maximum number of pressure switch activations

If the number of pressure switch activations reachs the maximum number set using parameter **PEn** in a time period shorter than the value of parameter **PEI**, the controller performs the following operations:

- It inhibits the compressor and defrost.
- The alarm icon ⚠ appears on the display.
- The label **PAL** is shown on the display.
- It replaces label **nPA** with alarm label **PA** in alarms folder **AL**.
- It activates the alarm relay, if configured.

To reset this alarm status, execute the **rAP** function in folder **FPr** or switch the controller off and on again.

Operating mode

The interval **PEI** is divided into 32 sub-intervals. If one or more activations are recorded within a sub-interval, the meter is increased by one unit.

The reference instant to calculate the **PEI** interval is the last recorded activation. The number of activations recorded in the 32 sub-intervals preceding the most recent activation are counted.

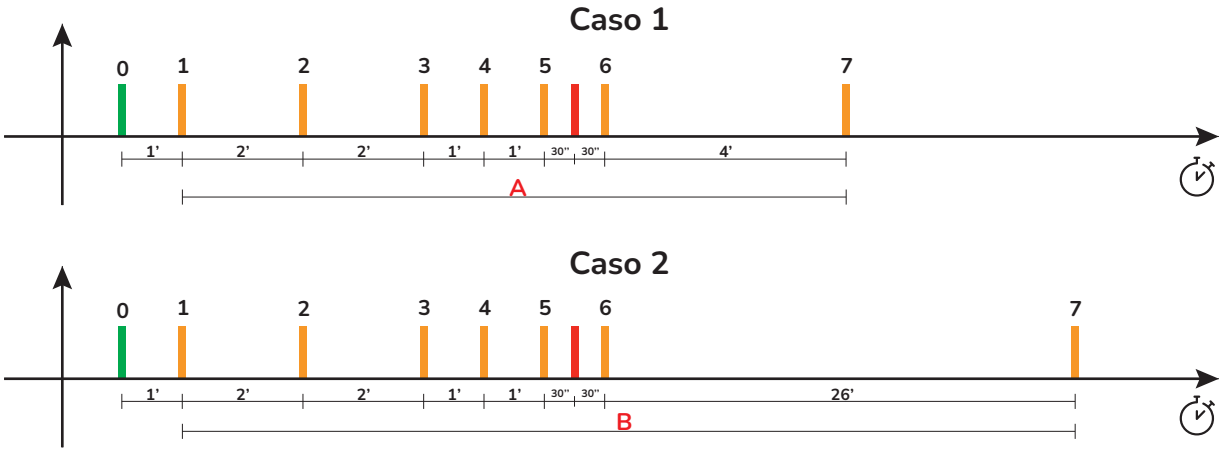
Note: The defrost interval count is independent of any pressure switch alarms.

Regulation diagrams

Examples

PEI = 32 minutes (sub-interval = 32/32 = 1 minute)

PEn = 7



Legend:

- **Case 1** = The time **A** between the 1st and the 7th activation is 11 minutes < PEI (32 minutes)
- **Case 2** = The time **B** between the 1st and the 7th activation is 33 minutes > PEI (32 minutes).

In case 1 the pressure switch alarm is triggered because in the 32 minutes preceding the most recent activation 7 pressure switch activations were counted (including the last one, to which the expiration of the 32-minute window refers).

In case 2 the alarm is not triggered because in the 32 minutes preceding the most recent activation at least 7 pressure switch activations were not counted (including the last one).

Parameters

Parameter	Description
PEn	Number of activations permitted per minimum/maximum pressure switch input
PEI	Minimum/maximum pressure switch activation count interval (in minutes)
PEt	Compressor activation delay after pressure switch deactivation

Auxiliary output

Description

To set a relay as an auxiliary output **AUX**, set the corresponding parameter **H2x**= 5.

Note: The outputs may not be present, depending on the model.

During stand-by the regulator operates in accordance with parameter **H08**.

Activation

The regulator can be activated in one of the following ways:

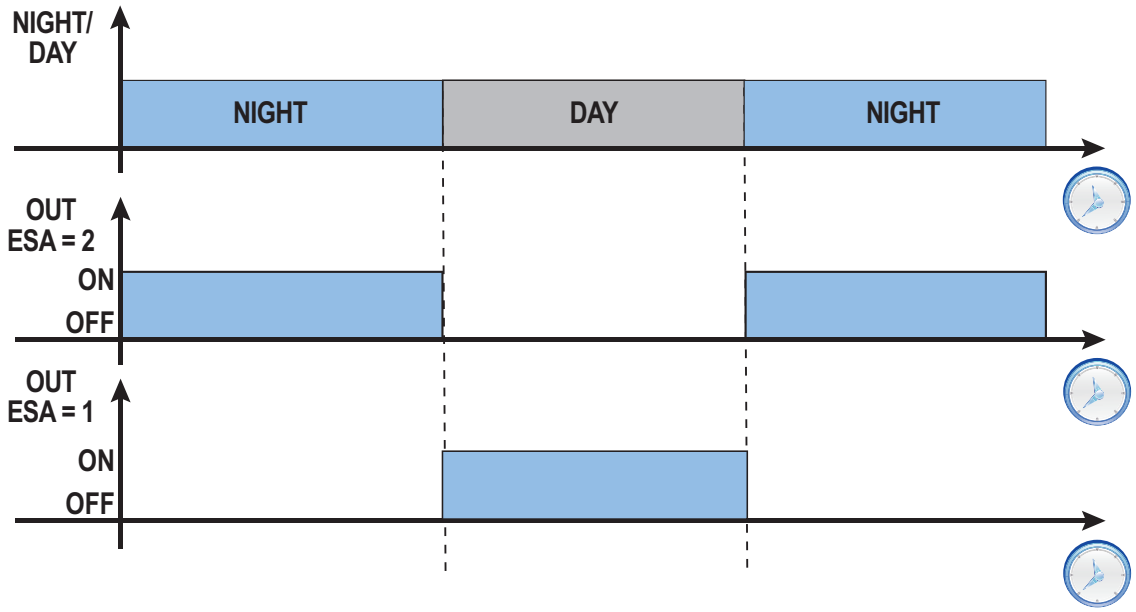
- press and hold a key (configured with **H3x** = 2)
- digital input (only if **H1x** = ±3)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories section)

Note: every time a key associated to the AUX function is pressed the output changes (inverts) status; the digital input, if associated to the AUX function, changes the status of the output in correspondence with its variations.

Regulation during Energy Saving

The status of the **AUX** output during Energy Saving is managed by parameter **ESA**:

- **ESA** = 0: No effect on the status of the AUX output
- **ESA** = 1: Output disabled
- **ESA** = 2: Output enabled



Legend: **OUT** = AUX output; **NIGHT/DAY** = Night/Day; **NIGHT** = Night; **DAY** = Day.

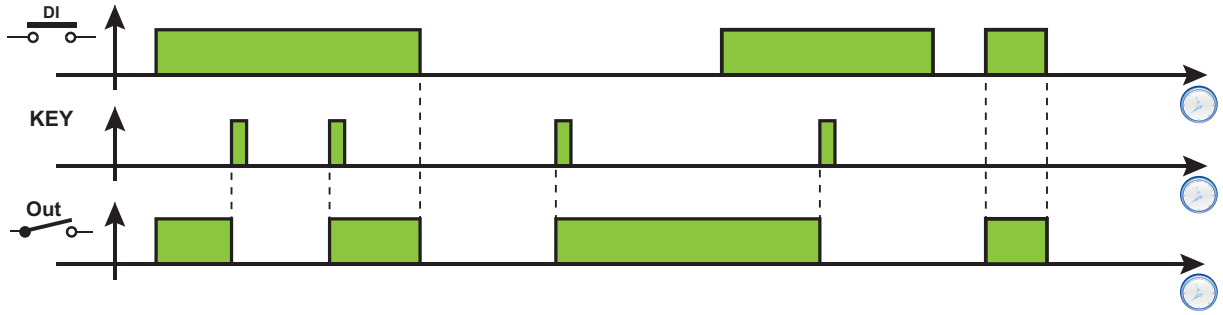
Controlling the auxiliary output via key

To control the output (relay opening/closing) via key, set **H3x** = 2.

Note: depending on the model, some keys may not be present.

Note: the relay status is restored after a blackout.

Regulation diagram



Legend: **DI** = Digital input; **KEY** = Key; **Out** = Digital output.

Parameters

Parameter	Description
ESA	AUX/Light operation during Energy saving
H08	Stand-by operating mode
H11	**DI** digital input/polarity configuration.
H12	**DI2** digital input/polarity configuration.
H13	**DI3** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H14	**DI4** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H21	Digital output Out1 configuration
H22	Digital output Out2 configuration
H23	Digital output Out3 configuration
H24	Digital output Out4 configuration
H31	key configuration.
H32	key configuration.
H33	key configuration.
H34	key configuration.
H35	key configuration.

Light output

Description

To set a relay as an auxiliary **Light**, set the corresponding parameter **H2x**= 7.

Note: The outputs may not be present, depending on the model.

During stand-by the regulator operates in accordance with parameter **H08**.

Activation

The regulator can be activated in one of the following ways:

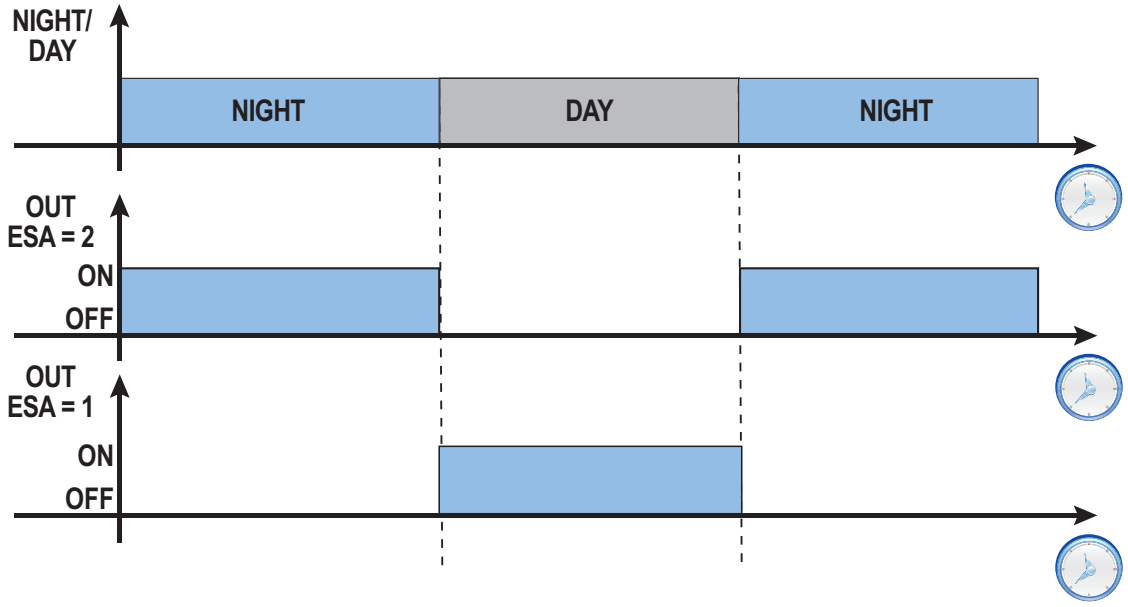
- press and hold a key (configured with **H3x** = 8)
- using a Supervisor, via Modbus command (serial)

Note: every time a key associated to the Light function is pressed the output changes (inverts) status; the digital input, if associated to the Light function, changes the status of the output in correspondence with its variations.

Regulation during Energy Saving

The status of the **Light** output during Energy Saving is managed by parameter **ESA**:

- **ESA** = 0: No effect on the status of the Light output
- **ESA** = 1: Output disabled
- **ESA** = 2: Output enabled



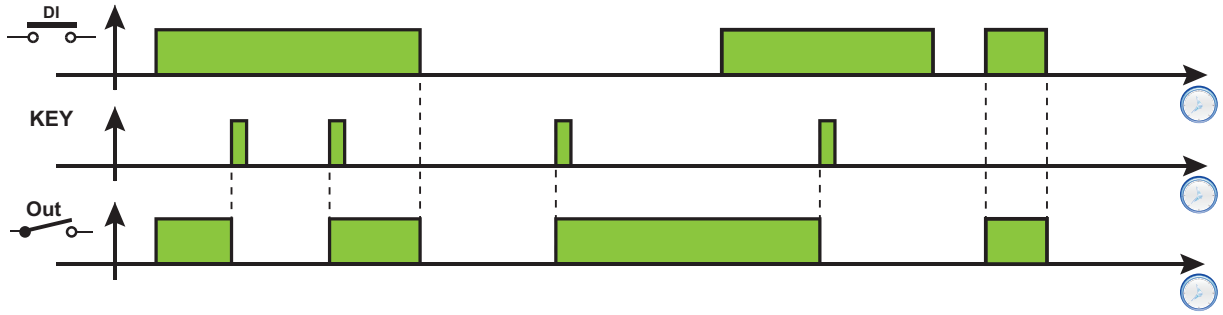
Controlling the light output via key

To control the output (relay opening/closing) via key, set **H3x** = 8.

Note: depending on the model, some keys may not be present.

Note: the relay status is restored after a blackout.

Regulation diagram



Legend: **DI** = Digital input; **KEY** = Key; **Out** = Digital output.

Parameters

Parameter	Description
ESA	AUX/Light operation during Energy saving
H08	Stand-by operating mode
H11	**DI** digital input/polarity configuration.
H12	**DI2** digital input/polarity configuration.
H13	**DI3** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H14	**DI4** digital input/polarity configuration (on CN2 connector - **EWNext 978 P/R** only).
H21	Digital output Out1 configuration
H22	Digital output Out2 configuration
H23	Digital output Out3 configuration
H24	Digital output Out4 configuration
H31	key configuration.
H32	key configuration.
H33	key configuration.
H34	key configuration.
H35	key configuration.

Deadband

Description

The Deadband function can be used to set a temperature band with two differentials pertaining to the setpoint, executing temperature regulation within a reduced range.

Activation

The Deadband zone can only be enabled if:

- at least one digital output is set to 12 (**H2x** = 12) and a heater is connected to that output
- parameter **HC** is set to Cool (**HC** = **C**)

Operation

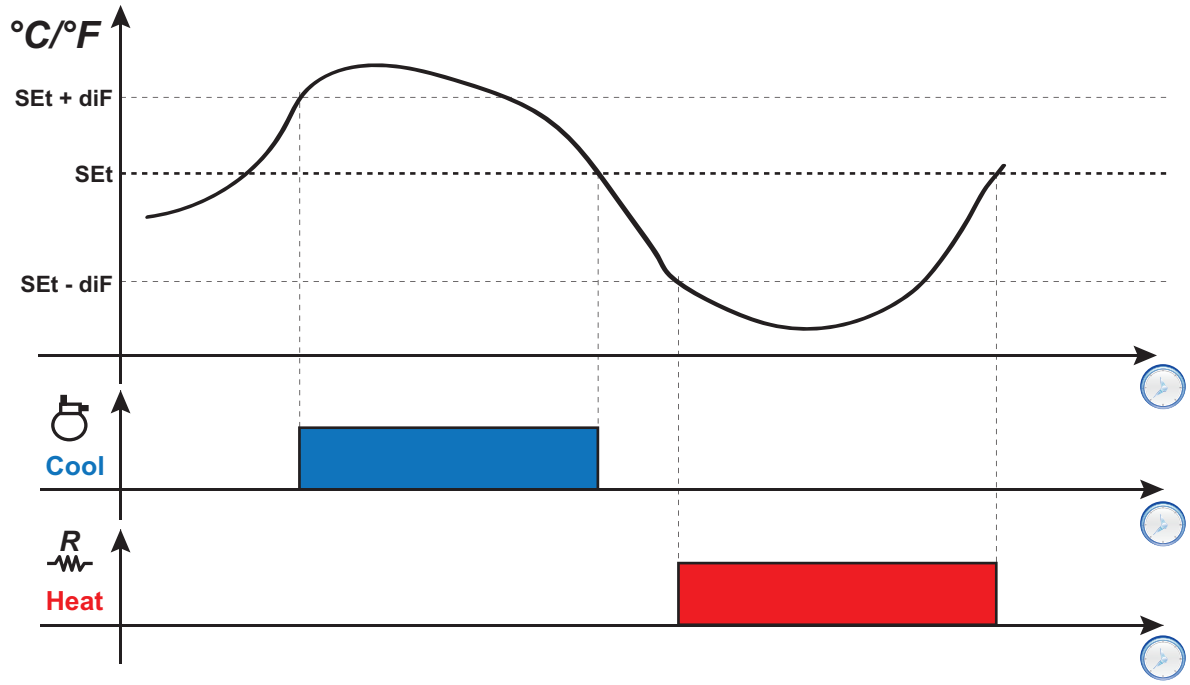
This function should be used when you want the controlled temperature to remain around the value of the setpoint **SEt**. To do so:

- the heating output is activated when the temperature measured by Pb1 drops below the threshold (**SEt-diF**)
- the cooling output is activated when the temperature measured by Pb1 exceeds the value (**SEt+diF**).

Notes:

- If a pressure alarm (which requires a manual reset) is activated, the controller disables both outputs.
- If a defrost is active, the controller disables the output set to Deadband (**H2x** = 12).

Regulation diagram



Legend: **Heat** = Heating; **Cool** = Cooling.

Parameters

Parameter	Description
HC	Heat/cool operation
H21	Digital output Out1 configuration
H22	Digital output Out2 configuration
H23	Digital output Out3 configuration

Energy saving - Reduced set

Reduced set operating conditions

The reduced set function can be activated:

- by pressing and holding a key (configured with **H3x** = 3)
- by activating the digital input (configured with **H1x** = ±2)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories section)
- via functions menu (label **SP**)

When the "reduced set" is activated:

- the icon comes on
- **SEt** will be replaced by the value (**SEt + oSP**)
- **diF** will be replaced by the value (**diF+ odF**)

Note: for further details, see: "Cool regulator".

Energy Saving operating conditions

The energy saving function can be activated:

- by pressing and holding a key (configured with **H3x** = 9)
- by activating the digital input (configured with **H1x** = ±10 or ±11)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories section)

Parameters **ESt** and **ESA** manage device behavior during the energy saving phase. When energy saving is enabled, the icon is on.

Parameter **ESt** sets the type of controller operation:

- **ESt**=0: function disabled
- **ESt**=1: An offset is applied to the setpoint (Setpoint = **SEt + oSP**)
- **ESt**=2: An offset is applied to the differential (Differential = **diF+ odF**)
- **ESt**=3: An offset is applied to the setpoint and differential
- **ESt**=4: Management of open Bottle coolers is activated (**H1x** = ±10)
- **ESt**=5: Management of Bottle coolers with door is activated (**H1x** = ±11)

Parameter **ESA** sets the AUX/Lights status during energy saving:

- **ESA**=0: No effect on the status of the AUX/Lights output
- **ESA**=1: Output disabled
- **ESA**=2: Output enabled

Open Bottle coolers

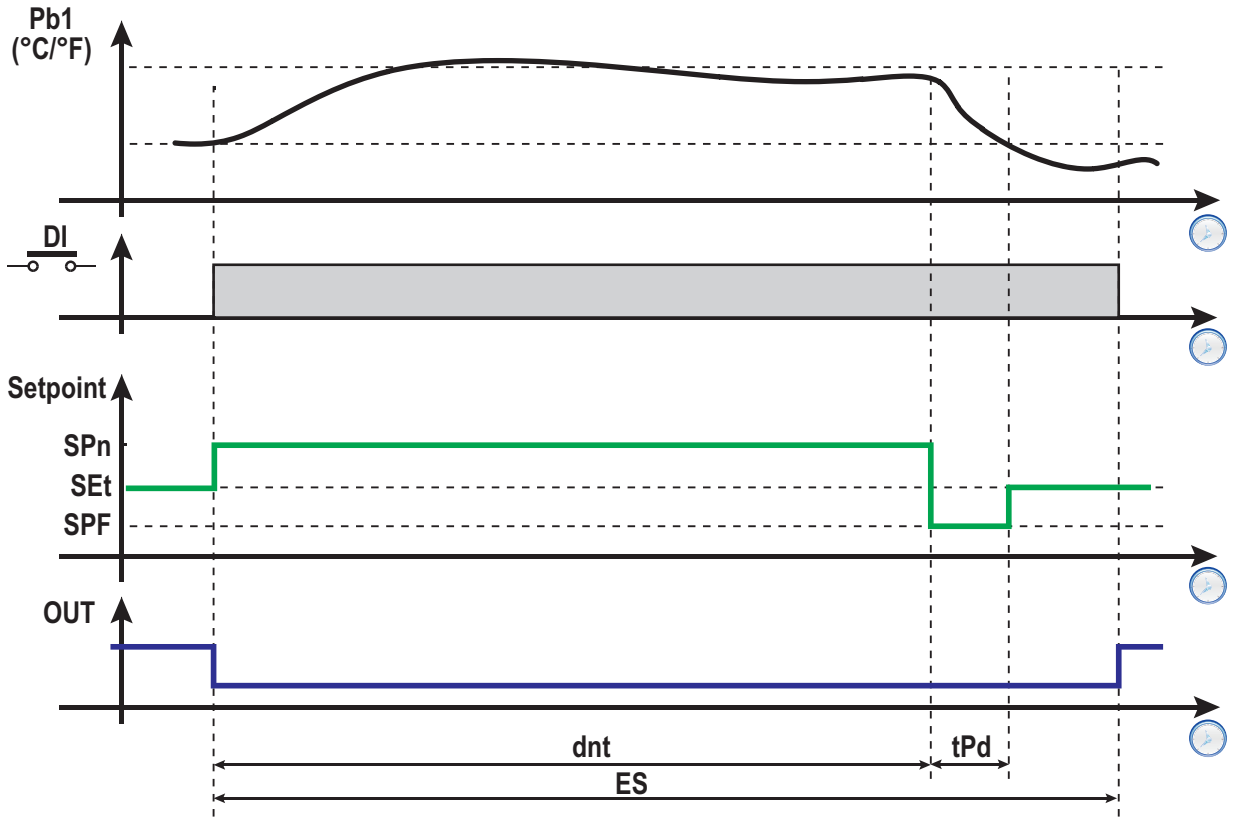
This algorithm can be activated by setting **ESt**=4 , **H1x**=±10 (see pull-down regulator).

Every time the energy saving phase is activated (the curtain is closed), the **dnt** and **tPd** timings are started.

The energy saving phase continues until the time period **dnt** elapses.
Once the energy saving phase has finished, the rapid cooling phase start for a time period **tPd**.
If **dnt**=0, the energy saving function is disabled.

If the Bottle cooler curtain is opened during the energy saving phase, rapid cooling begins immediately.
If the Bottle cooler curtain is opened during the rapid cooling phase, rapid cooling does not end but continues until the time **tPd** has elapsed.

An example of this operation is shown below (in this example **ESA**=1):



Legend: **DI** = Digital input; **OUT** = AUX/Light output; **ES** = Energy saving; **Setpoint** = Setpoint value.

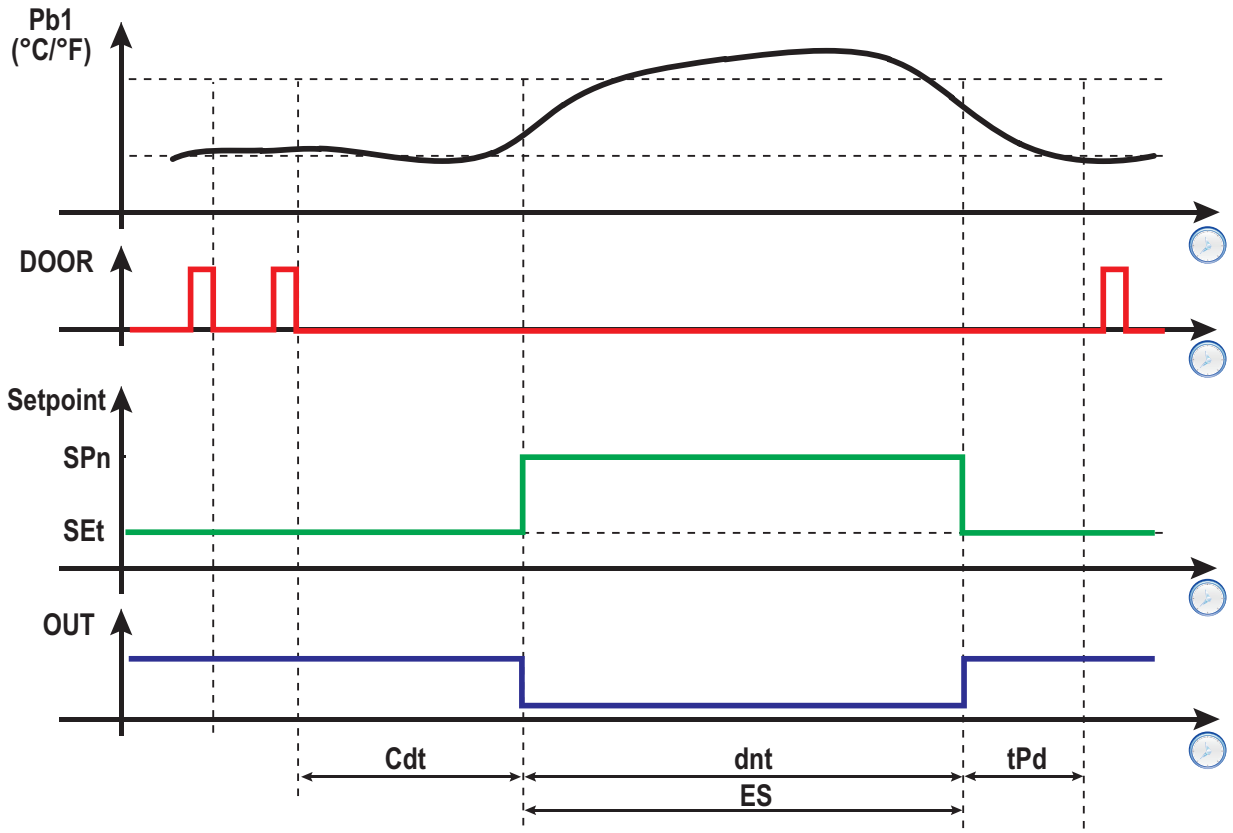
Bottle cooler with door

This algorithm can be activated by setting **ESt**=5 , **H1x**=±11 (See pull-down regulator).

If the Bottle cooler door remains closed for a period greater than the value of parameter **Cdt**, energy saving is activated. When the time period **dnt** or the door is opened, the algorithm will be deactivated.

If the end of the energy saving phase occurs due to timeout, a pull-fown phase will be started. If **dnt**=0, pull-down is disabled while energy saving will be disabled the first time the door is opened.

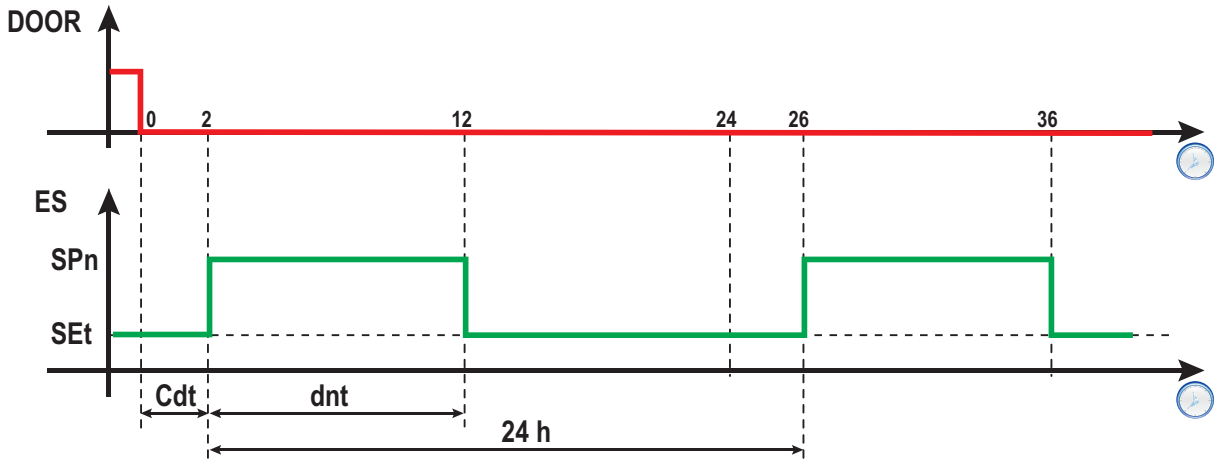
An example of this operation is shown below (in this example **ESA**=1):



Legend: **DOOR** = Bottle cooler door; **OUT** = AUX/Light output; **ES** = Energy saving; **Setpoint** = Setpoint value.

After a blackout, the controller will resume with the energy saving status prior to the power supply disconnection and until the door is closed.

If the door is not opened / closed any more during the day, the controller will activate the night / day phases in accordance with parameters **Cdt** and **dnt**.



Legend: **DOOR** = Bottle cooler door; **ES** = Energy saving.

Pull-down regulator

Description

The pull-down sequence anticipates bringing the end of a “Night” cycle forward by **tPd** minutes, by activating cooling with a setpoint lower than the one used for regulation to overcome thermal inertia of the machine, ensuring the temperature will be close to the regulation temperature when the store reopens.

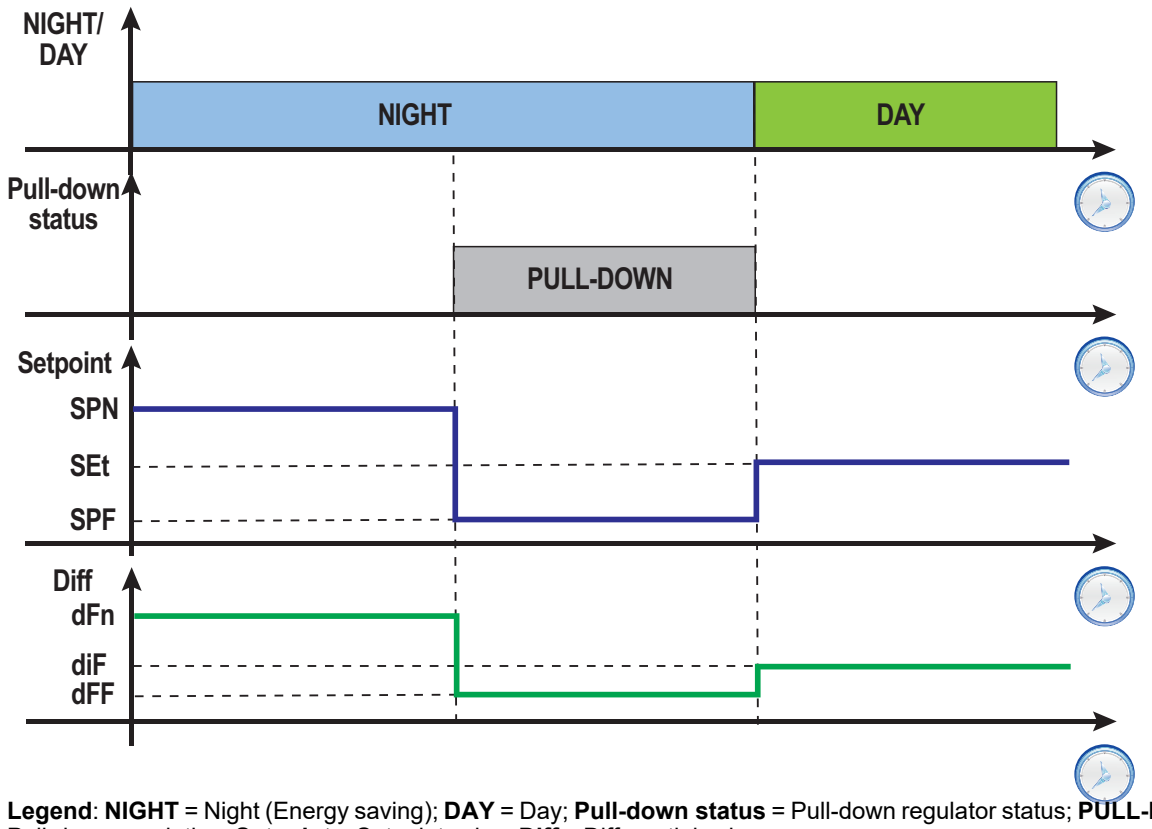
Parameter **PdC** can be used to select the pull-down type:

- **PdC** = **diS**: regulator disabled
- **PdC** = **FI**: pull-down with fixed setpoint
- **PdC** = **Aut**: automatic pull-down

Pull-down with fixed setpoint

If the pull-down with fixed setpoint (**PdC** = FI), regulation will use the following values:

- **SPF** = regulation setpoint in pull-down
- **dFF** = regulation differential in pull-down



Legend: **NIGHT** = Night (Energy saving); **DAY** = Day; **Pull-down status** = Pull-down regulator status; **PULL-DOWN** = Pull-down regulation; **Setpoint** = Setpoint value; **Diff** = Differential value;

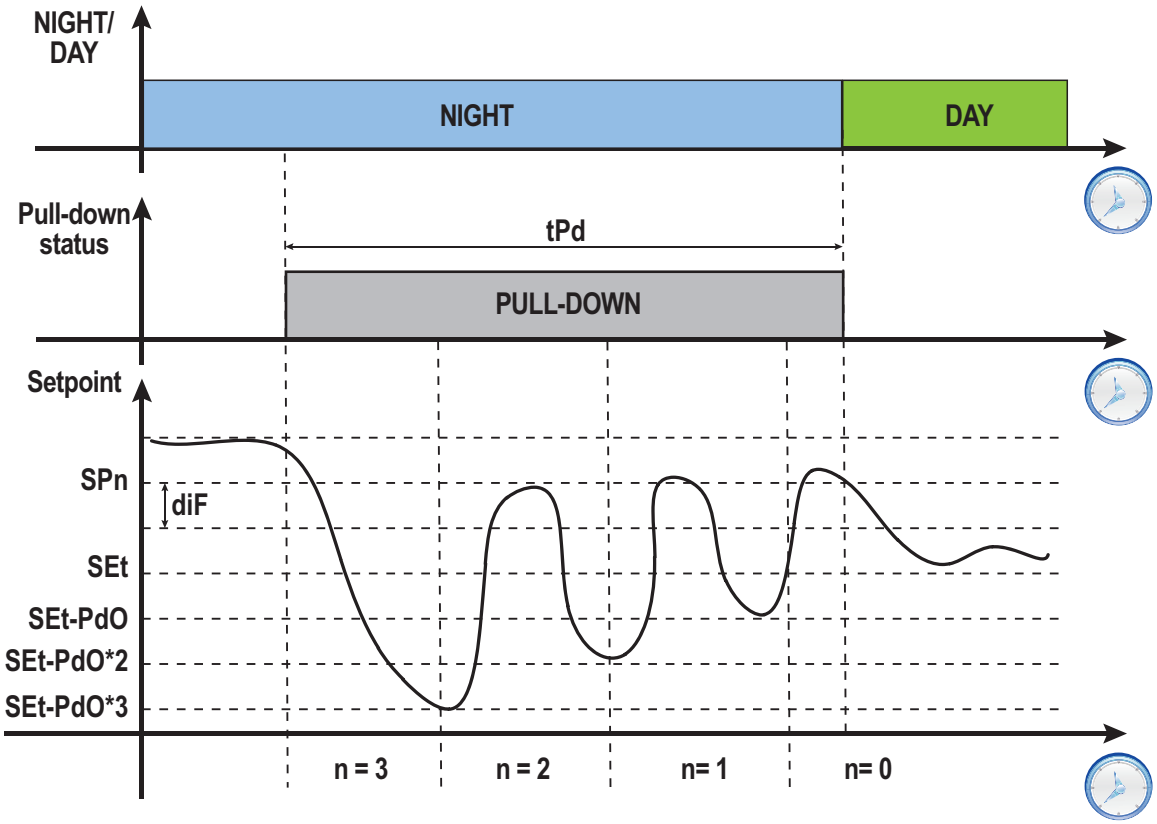
Automatic Pull-down

If automatic pull-down is enabled (**PdC** = Aut), the setpoint and differential values will be:

- **Setpoint** = **SEt** - **Pdo*n**
- **Differental** = **diF** + **Pdo*n**

When regulation begins, **n** = 3 (value set using parameter **Pdn**) and decreases by one every time the calculated setpoint is reached. This system helps to reduce energy consumption during pull-down.

If pull-down regulation does not end before the time period **tPd**, regulation will be stopped and the controller will begin regulating with the “day” regulator settings.



Legend: **NIGHT/DAY** = Night/Day (Energy saving/Normal operation); **NIGHT** = Night; **DAY** = Day; **Pull-down status** = Pull-down regulator status; **PULL-DOWN** = Pull-down regulation; **Setpoint** = Setpoint.

Diagnostics

Contents

This section includes the following topics:

Alarms and indications

Introduction

All alarms are deactivated automatically when their cause is removed, except the pressure switch alarm **PA**, which can be deactivated via the **rAP** function.

Detecting an alarm condition

If there is an alarm condition, the alarm icon ⚠ comes on steadily. If present and enabled, the buzzer and the alarm relay are also activated.

Note: If alarm exclusion timings are in progress, the alarm is not signaled.

All active alarms, except those relating to probe error, are listed in the **AL** folder within the "Machine status" menu.

Silencing an alarm

Press any key or use the menu function: the buzzer is silenced (if present), the alarm icon ⚠ flashes and the alarm relay is de-energized.

Alarms legend

Code	Description	Alarm relay	Reset	Cause	Effects	Solutions
E1	Probe Pb1 error	Active	Automatic Reset	• Reading of values outside the operating interval • Probe or corresponding wiring in short-circuit or open circuit	• **E1** shown • Steady alarm icon ⚠ • Maximum/minimum alarm regulator disabled • Compressor operation based on parameters **Ont** and **OFt**	• Verify the type of probe (default NTC) • Verify the probe wiring • Replace probe.
E2	Probe Pb2 error **Note**: only models that manage probe Pb2	Active	Automatic Reset	• Reading of values outside the operating interval • Probe or corresponding wiring in short-circuit or open circuit	• **E2** shown • Steady alarm icon ⚠ • Defrost ends due to timeout (**dEt**) • The evaporator fans are: on (compressor ON), or run according to parameter **FCo**, (compressor OFF).	• Verify the type of probe (default NTC) • Verify the probe wiring • Replace probe.
E3	Probe Pb3 error **Note**: only models that manage probe Pb3	Active	Automatic Reset	• Reading of values outside the operating interval • Probe or corresponding wiring in short-circuit or open circuit	• **E3** shown • Steady alarm icon ⚠ • No effect on regulation	• Verify the type of probe (default NTC) • Verify the probe wiring • Replace probe.
AH1	Alarm due to Pb1 HIGH Temperature	Active	Automatic Reset	Value read by Pb1 > **HAL** for longer than time **tAo** (see section "Minimum and maximum temperature alarm" on page 111)	• Alarm **AH1** added to folder **AL** • No effect on regulation	Wait for the temperature read by Pb1 to drop below the alarm threshold (**HAL**-**AFd**)
AL1	Alarm due to Pb1 LOW Temperature	Active	Automatic Reset	Value read by Pb1 < **LAL** for longer than time **tAo** (see section "Minimum and maximum temperature alarm" on page 111)	• Alarm **AL1** added to folder **AL** • No effect on regulation	Wait for the temperature read by Pb1 to rise above the alarm threshold (**LAL**+**AFd**)
EA	External alarm	Active	Automatic Reset	Activation of the digital input (**H1x** = ±5)	• Alarm **EA** added to folder **AL** • Steady alarm icon ⚠ • Regulation inhibited if **EAL** = y	Verify and remove the external cause that caused the alarm on the digital input.
oPd	Open door alarm	Active	Automatic Reset	Digital input activation (**H1x** = ±4) for a time greater than **tdo**	• Alarm **oPd** added to folder **AL** • Steady alarm icon ⚠ • Regulator inhibited, on the basis of parameter **dod**	• Close the door • Increase the value of parameter **oAo**

Code	Description	Alarm relay	Reset	Cause	Effects	Solutions
Ad2	Defrost due to timeout **Note**: only models that manage probe Pb2	Not active	Automatic Reset	End of defrost due to timeout, instead of the defrost end temperature being detected by Pb2	• Alarm **Ad2** added to folder **AL** • Steady alarm icon ⚠	Wait for the next defrost for automatic deactivation.
CoH	Overheating alarm	Active	Automatic Reset	Value set by parameter **SA3** exceeded	• Alarm **COH** added to folder **AL** • Steady alarm icon ⚠ • Compressor regulation inhibited	Wait for the temperature read by Pb3 to drop below the alarm threshold (**SA3**-**dA3**)
rFA	Low refrigerant alarm	Not active	Automatic Reset	Even with the compressor on, the temperature trend does not fall within the interval set by **rFt**.	• Alarm **rFA** added to folder **AL** • Steady alarm icon ⚠	Switch the instrument off and on again (alarm deactivated if **rFt** = 0)
nPA	Pressure switch alarm	Not active	Automatic Reset	Pressure switch alarm activation caused by the external pressure switch.	If the number **n** of pressure switch activations is lower than **PEn**: • **nPA** alarm is added to the folder **AL** with the number of pressure switch activations • Compressor regulation inhibited	Verify and remove the cause that triggered the alarm on the digital input (automatic reset) (see Pressure switch)
PAL	Pressure switch alarm	Active	Manual Reset	Pressure switch alarm activation caused by the external pressure switch.	If the number **N** of pressure switch activations is **N** = **PEn** in a time period < **PEi**: • **PAL** is shown • Alarm **PA** is added to the folder **AL** and alarm **nPA** is removed from the folder **AL** • Steady alarm icon ⚠ • Compressor regulation and defrost are inhibited	• Switch the controller off and on again • Select **rAP** (manual reset) in the functions folder to reset the alarms.

Minimum and maximum temperature alarm

Description

The alarms operate according to the temperature read by regulation probe Pb1. The accepted temperature interval limits are set using parameters **HAL** and **LAL**.

Alarm codes

Code	Description
AH1	High temperature alarm
AL1	Low temperature alarm

High and low temperature alarms are excluded during a defrost. The triggering of these alarms does not have any effect on the regulation in progress.

Absolute or relative temperature values

Depending on the value of parameter **Att**, the temperature is expressed as an absolute or relative value (differential in respect to the setpoint):

Att value	Label	Description
0	**Ab**	Absolute values. The **HAL** and **LAL** values must have a sign.
1	**rE**	Relative values. **HAL** > 0 and **LAL** < 0.

Alarm conditions

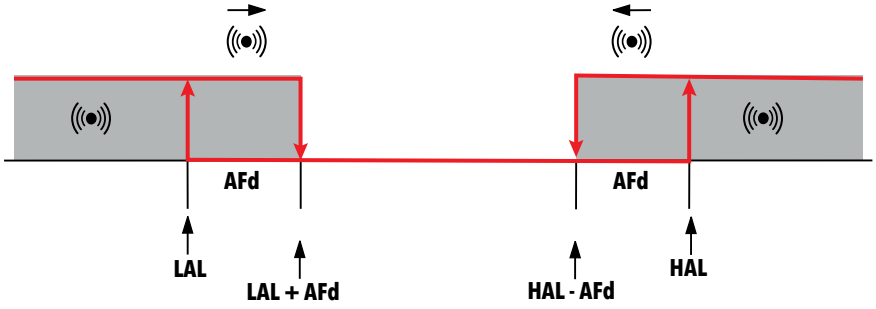
Att value	Temperature read by Pb1	Alarm generated
0	≥ **HAL**	Maximum temperature
	≤ **LAL**	Minimum temperature
1	≥ (**SEt** + **HAL**)	Maximum temperature
	≤ (**SEt** + **LAL**)	Minimum temperature

Conditions for alarm deactivation

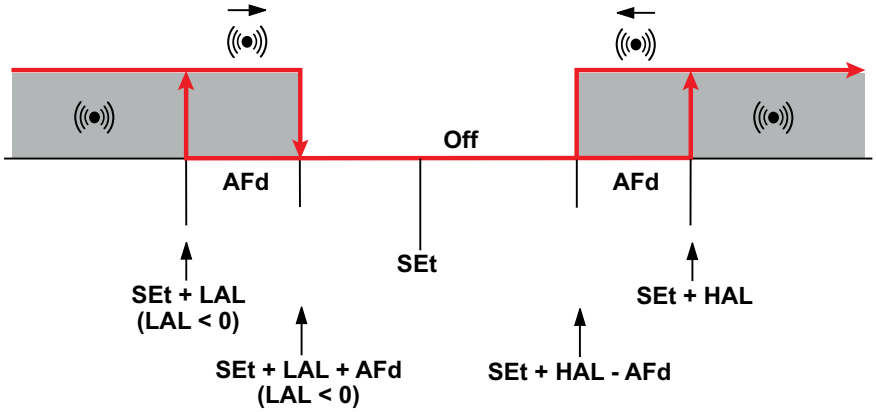
Att value	Temperature read by Pb1	Alarm generated
0	≤ (**HAL** - **AFd**)	Maximum temperature
	≥ (**LAL** + **AFd**)	Minimum temperature
1	≤ (**SEt** + **HAL** - **AFd**)	Maximum temperature
	≥ (**SEt** + **LAL** + **AFd**)	Minimum temperature

Operating diagrams

Operation with Att=0 (absolute values)



Operationwith Att=1 (relative values)



Parameters

Parameter	Description
Att	Expression mode for **HAL** and **LAL** values (absolute or relative)
AFd	Alarm activation differential
HAL	Maximum temperature limit
LAL	Minimum temperature limit
PAo	Alarm exclusion time when switching on the controller, after a power failure
dAo	Exclusion time for temperature alarms after a defrost cycle
oAo	Exclusion time for temperature alarms after closing the door
tAo	Temperature alarm signaling delay time

Low refrigerant alarm

Description

When the compressor is running, the trend of the regulation probe temperature is monitored.

f the trend of the temperature probe does not decrease within an interval given by **rFt**, the alarm icon turns on steady and the alarm **rFA** is added to folder **AL**.

You can silence the alarm with the normal alarm silence procedure.

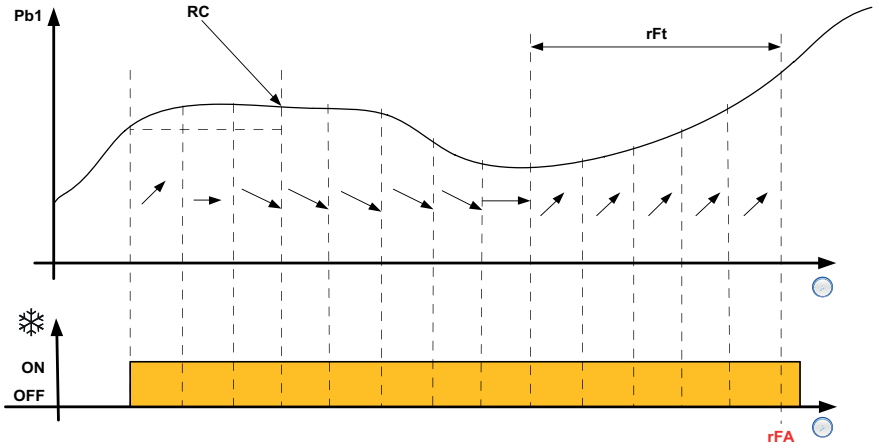
Once this alarm has been detected, the device have to be switched off and on again to cancel it.

The diagnostic is disabled if **rFt = 0**.

Alarm codes

Code	Description
rFA	Low refrigerant alarm

Operating diagrams



Legend: **RC** = reset counter; **rFt** = monitored time interval; **rFA** = alarm activation.

Parameters

Parameter	Description
rFT	Low refrigerant alarm signaling delay.

Parameters

Contents

This section includes the following topics:

Parameters EWNext 971 P/R

User parameters EWNext 971 P/R

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	3.5	3.5
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dit	Time interval between one defrost and the next	0...250	ore	24	24	24	24
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES
HAL	Maximum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when exceeded, will lead to the activation of alarm signaling.	**LAL**...302	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
dnt	Night mode duration.	0...24	ore	11	11	11	11
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
tAb	Reserved: read-only parameter.	/	/	/ (non nelle applicazioni)			
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0

Nota: se uno o più parametri della cartella **CnF** vengono modificati, il controllore deve essere spento e poi riacceso per assicurarne il corretto funzionamento.
Nota: tra i parametri del menu “Utente” è presente anche **PA2** che permette l’accesso al menu “Installatore”.
Nota: per l’elenco completo dei parametri, vedere la sezione "**Parametri installatore**".

Installer parameters EWNext 971 P/R

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	0.0	-18.0
CP (Compressor)							
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
ont	Regulator switch-on time for probe in error: • if **Ont** = 1 and **OFt** = 0 compressor always on • if **Ont** = 1 and **OFt** > 0 compressor in duty cycle	0...250	min	0	0	0	0
oFt	Regulator switch-off time for probe in error: • if **OFt** = 1 and **Ont** = 0 compressor always off • if **OFt** = 1 and **Ont** > 0 compressor in duty cycle	0...250	min	1	1	1	1
don	Compressor relay activation delay time from call	0...250	s	0	0	0	0
doF	Delay time after switch-off; the indicated time must elapse between compressor relay switch-off and a subsequent switch-on.	0...250	min	0	0	0	0
dbi	Delay time between switch-ons; the indicated time must elapse between two consecutive compressor switch-ons.	0...250	min	0	0	0	0
Cit	Minimum compressor activation time before it can be deactivated. If **Cit** = 0 it is not active.	0...250	min	0	0	0	0
CAt	Maximum compressor activation time before it can be deactivated. If **CAt** = 0 it is not active.	0...250	min	0	0	0	0
odo	Output activation delay time from switching on the controller or after a power failure. **0** = not active	0...250	min	0	0	0	0
CP2	Compressor 2 activation delay.	0...250	min	0	0	0	0
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
dEF (Defrost)							
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
doH	Defrost cycle activation delay from the call	0...250	min	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature (measured by Pb3 if **H43** = 2EP)	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dPo	Defrost activation request at power-on, if the temperature measured by Pb2 allows. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	no	no	no	no
dMr	Enables the defrost count reset in the case of manual defrosting. • **no** (0) = count reset does not take place • **yES** (1) = count reset takes place	no/yES	flag	no	no	no	no
d00	Compressor running time before defrost is activated	0...250	hours	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d01	**d00** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
dit	Time interval between one defrost and the next	0...250	hours	24	24	24	24
d11	**dit** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
d20	Can be used to activate the defrost when the compressor is off. • **no** (0) = disabled. Defrost is not activated. • **yES** (1) = enabled. Defrost is activated when the compressor is off.	no/yES	flag	no	no	no	no
d40	Enables/disables use of probe Pb2. • **0** (0) = disabled. Defrost does not take Pb2 into account • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d41	Sets the defrost activation threshold	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
d42	Sets the maximum time for which the evaporator can remain under the threshold **d41**	0...250	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. • **0** = count independent of the compressor status • **1** = count with compressor on (when the compressor is off the count begins again) • **2** = count independent of the compressor status. The count stops when the temperature rises above the threshold **d41** • **3** = count with compressor on and until the temperature rises above the threshold **d41**	0...3	num	0	0	0	0
d44	Sets the threshold management mode. • **AbS** (0) = absolute value (for example: **d41** = -25°C means that the threshold temperature is exactly -25°C) • **rEL** (1) = relative value (negative offset, relative to the value measured by the defrost probe Pb2 (if **d40** = 1) at the end of the first cooling cycle or on power-on)	AbS/rEL	flag	AbS	AbS	AbS	AbS
d50	Enables/disables use of probe Pb2 ('differential' mode). • **0** (0) = disabled • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d51	Enables/disables use of probe Pb1. • **0** (0) = disabled • **Pb1** (1) = enabled. Defrost runs according to the value read by Pb1 (only refers to defrost with threshold)	0/Pb1	flag	0	0	0	0
d52	Sets the defrost activation threshold (absolute differential **d50**-**d51**)	0.0...302	°C/°F	0.0	0.0	0.0	0.0
d53	Sets the maximum time for which the evaporator can remain above the threshold **d52**	0...999	min	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value **d52**. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature drops below the threshold **d52** • **3** = incremental count with compressor on and until the temperature drops below the threshold **d52**	0...3	num	0	0	0	0
d55	Sets the threshold management mode. • **0** = absolute value (for example: **d52** = **d50**-**d51**) • **1** = relative value (negative offset, relative to the differential of the temperatures measured by probes Pb1 and Pb2 (**d50**-**d51**) at the end of the first cooling cycle or on power-on).	0/1	flag	0	0	0	0
Fan (Fans)							
FPt	Sets whether parameter **FSt** is expressed as an absolute temperature value or as a value relative to the Setpoint. • **AbS** (0) = absolute • **rEL** (1) = relative.	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature.	-67.0...302	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan trigger differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Fan activation delay time after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES

<table>
<tr><th>Parameter</th><th>Description</th><th>Range</th><th>MU</th><th>Default</th><th>AP1</th><th>AP2</th><th>AP3</th></tr>
<tr><td>FCo</td><td>Evaporator fan operating mode.
<table>
<tr><th rowspan="2">Pb2</th><th rowspan="2">H42</th><th rowspan="2">FCo</th><th colspan="2">day</th><th colspan="2">night</th></tr>
<tr><th>Cn</th><th>Cf</th><th>Cn</th><th>Cf</th></tr>
<tr><td rowspan="7">ok</td><td rowspan="7">y</td><td>0</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>1</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>2</td><td>T</td><td>DCd</td><td>T</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>5</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>6</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td rowspan="7">ko</td><td rowspan="7">y</td><td>0</td><td>DCd</td><td>Off</td><td>DCn</td><td>Off</td></tr>
<tr><td>1</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>2</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td rowspan="7">no</td><td rowspan="7">n</td><td>0</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>1</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>2</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
</table>
Headings legend:
Pb2 = probe Pb2 status (ok = present; ko = in E2 error and no = absent; day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.
Status legend:
T = thermostat controlled fans; On = fans on; Off= fans off; DCd = Day duty cycle or DCn = Night duty cycle.</td><td>0...6</td><td>num</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>FdC</td><td>Evaporator fan shutoff delay after compressor deactivation.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Fon</td><td>Day duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>FoF</td><td>Day duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>Fnn</td><td>Night duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>FnF</td><td>Night duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>ESF</td><td>"Night" mode activation.
• no(0) = no
• yES(1) = yes.</td><td>no/yES</td><td>flag</td><td>no</td><td>no</td><td>no</td><td>no</td></tr>
<tr><td colspan="8">AL (Alarms)</td></tr>
<tr><td>Att</td><td>Sets the absolute or relative value for parameters HAL and LAL.
• AbS (0) = absolute value
• rEL (1) = relative value</td><td>AbS/rEL</td><td>flag</td><td>AbS</td><td>AbS</td><td>AbS</td><td>AbS</td></tr>
<tr><td>AFd</td><td>Alarm differential.</td><td>0.1...25.0</td><td>°C/°F</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>HAL</td><td>Maximum temperature alarm.
Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.</td><td>LAL...302</td><td>°C/°F</td><td>50.0</td><td>50.0</td><td>50.0</td><td>50.0</td></tr>
</table>

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
PAo	Alarm exclusion time when switching on the controller, after a power failure.	0...10	min*10	0	0	0	0
dAo	Temperature alarm exclusion time after defrosting.	0...999	min	0	0	0	0
oAo	Alarm signaling delay after deactivation of the digital input (door closure). Alarm refers to high and low temperature alarms.	0...10	hours	0	0	0	0
tdo	Door open alarm activation delay time.	0...250	min	0	0	0	0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
dAt	Defrost ended due to timeout alarm indication. • **no**(0) = alarm not activated • **yES**(1) = alarm activated.	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. • **0** = does not inhibit the regulators • **1** = compressor and defrost inhibited • **2** = fans, compressor and defrost inhibited;	0/1/2	num	0	0	0	0
AoP	Alarm output polarity. • **nC** (0) = NC (Normally closed) • **nO** (1) = NO (Normally open).	nC/nO	flag	nO	nO	nO	nO
SA3	Probe 3 alarm setpoint.	-67.0...302	°C/°F	30.0	30.0	30.0	30.0
dA3	Probe 3 alarm differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
rFt	Low refrigerant alarm signaling delay.	0...250	min	0 (not in applications)			
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. • **0** = No effect on the status of the AUX/Light output • **1** = Output disabled • **2** = Output enabled	0/1/2	num	1	1	1	1
dOr (Door switch)							
dOd	Digital input shuts off utilities. • **0** = disabled • **1** = disables fans • **2** = disables compressor • **3** = disables fans and compressor.	0...3	num	1	1	1	1
dAd	Digital input activation delay	0...250	min	0	0	0	0
dCo	Compressor switch-off delay from door opening.	0...250	min	0	0	0	0
AUP	Auxiliary (AUX) output activation when the door is opened. • **no**(0) = disabled • **yES**(1) = AUX output activation	no/yES	flag	no	no	no	no
dCd	Fans activation delay after door closed.	0...250	s	0	0	0	0
PrE (Pressure switch)							
PEn	Number of errors permitted per minimum/maximum pressure switch input	0...15	num	5	5	5	5
PEi	Minimum/maximum pressure switch error count interval	1...99	min	1	1	1	1
PEt	Compressor activation delay after pressure switch deactivation	0...250	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
ESt	Energy Saving mode. • **0** = disabled • **1** = offset on setpoint • **2** = offset on differential • **3** = offset on setpoint and differential • **4** = "Open Bottle coolers" algorithm • **5** = "Bottle cooler with door" algorithm.	0...5	num	0	0	0	0
dnt	Night mode duration.	0...24	hours	11	11	11	11
Cdt	Door closure time due to dynamic setpoint activation.	0...250	min*10	6	6	6	6
PLd (Pull-down)							
PdC	Enable pull-down. • **diS** (0) = disabled • **Std** (1) = with fixed setpoint • **AUt** (2) = automatic	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Pull-down phase duration.	1...250	min	30	30	30	30
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic pull-down.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic pull-down.	1...10	num	3	3	3	3
Add (Communication)							
Adr	Modbus protocol controller address.	1...247	num	1 (not in applications)			
bAU	Modbus Baudrate selection. • **96** (0) = 9600 baud • **192** (1) = 19200 baud • **384** (2) = 38400 baud	96/192/384	num	96 (not in applications)			
Pty	Modbus parity bit. • **n**(0) = none • **E**(1) = even • **o**(2) = odd.	n/E/o	num	E (not in applications)			
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. • **C**(0) = °C • **F**(1) = °F **Note**: changing from °C to °F or vice-versa does NOT change the **SEt**, **diF** values, etc. (example: **SEt** = 10 °C becomes 10 °F).	C/F	flag	C	C	C	C
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA3	Positive or negative temperature value to be added to the value of Pb3.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddd	Selects the type of value to show on the display. • **0** = setpoint • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe.	0...3	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
ddE	Selects the type of value to show on the module **ECNext**. • **0** = module not connected • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe. • **4** = setpoint.	0...4	num	0	0	0	0
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
ndt	Display with decimal point. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. • **0** = disabled • **1** = the filter is set based on time values **tAu** and **5tAu**, and is applied to the displayed information according to the value of parameter **Fit** • **2** = the temperature value shown changes by 1°C/°F every **tAu** minutes.	0/1/2	num	0 (not in applications)			
tAU	Display filter time constant.	0...250	min	0 (not in applications)			
Fit	Display filter mode. • **0** = the filter is only enabled when the temperature increases • **1** = the filter is always enabled (both when the temperature increases and when it decreases)	0/1	flag	0 (not in applications)			
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
PS2	When enabled (**PS2**≠0) this is the access key for the installer parameters.	0...250	num	15	15	15	15
CnF (Configuration)							
H08	Stand-by operating mode. • **0** = display off; the regulators are active and the device signals possible alarms by reactivating the display • **1** = display off; the regulators and the alarms are blocked • **2** = the display shows the label “OFF”; the regulators and alarms are inhibited.	0/1/2	num	2	2	2	2

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H11	Configuration of digital input 1 (**DI**)/ polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved • **±13** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-13...+13	num	0	0	0	0
H12	Configuration of digital input 2 (**DI2**) / polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-12...+12	num	0	0	0	0
H21	Configuration of digital output 1 (**Out1**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control • **13** = reserved	0...13	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H22	Configuration of digital output 2 (**Out2**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control.	0...12	num	2	2	2	2
H31	Configuration of key. • **0** = disabled • **1** = defrost • **2** = auxiliary • **3** = reduced set • **4** = stand-by • **5** = reserved • **6** = reserved • **7** = deep cooling • **8** = light • **9** = energy saving • **10** = reserved	0...10	num	1	1	1	1
H32	Configuration of key. Same as **H31**.	0...10	num	0	0	0	0
H33	Configuration of key. Same as **H31**.	0...10	num	4	4	4	4
H34	Configuration of key. Same as **H31**.	0...10	num	0	0	0	0
H35	Configuration of key. Same as **H31**.	0...10	num	0	0	0	0
H42	Probe Pb2 present. • **no**(0) = not present • **yES**(1) = present.	no/yES	flag	yES	yES	yES	yES
H43	Probe Pb3 present. • **no**(0) = not present • **yES**(1) = present • **2EP**(2) = second evaporator.	no/yES/2EP	flag	no	no	no	no
H45	Defrost input mode for applications with dual evaporator. • **0** = first evaporator only • **1** = if at least one of the evaporators is below its defrost end temperature • **2** = only if both evaporators are under the respective defrost end temperature • **3** = evaporator 1 and evaporator 2 alternately.	0...3	num	0	0	0	0
H60	Visualizzazione applicazione selezionata. **0** = disabilitato; **1** = AP1; **2** = AP2; **3** = AP3.	0...3	num	1 (not in applications)			
tAb	Reserved: read-only parameter.	/	/	/ (not in applications)			
CuS	Customer model reference.	0...999	num	0 (not in applications)			
FPr (UNICARD)							
UL	Transfer of the programming parameters from the controller to the UNICARD.	/	/	/ (not in applications)			
Fr	UNICARD formatting. Deletes all data on the UNICARD. **Note**: the use of parameter **Fr** results in the loss of all data entered. This operation cannot be reversed.	/	/	/ (not in applications)			
FnC (Functions)							
oSP	Reduced set activation. The labels displayed will be: • **SP** = Activates the reduced set • **oSP** = Deactivates the reduced set	/	/	/ (not in applications)			

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
dEF	Activate defrost	/	/	/ (not in applications)			
AUX	AUX output activation / deactivation. The labels displayed will be: • **Aon** = Activates the AUX output • **AoF** = Deactivates the AUX output	/	/	/ (not in applications)			
rAP	Reset pressure switch alarms	/	/	/ (not in applications)			
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/ (not in applications)			
CPr (Low ambient temperature protection)							
tCP	Time temperature remains below low ambient temperature protection Setpoint (CPS).	0...250	min	0	0	0	0
SCP	Low ambient temperature protection setpoint.	-67.0...302	°C/°F	-10.0	-10.0	-10.0	-10.0
dCP	Low ambient temperature protection differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
dEC (Deep Cooling Cycle)							
dCA	Enable "Deep cooling cycle". • **diS**(0) = disabled • **Std**(1) = manual • **Aut**(2) = automatic	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0
dCC	Defrost activation delay after a "Deep cooling cycle"	0...250	min	0	0	0	0
Sid	Threshold for entering a “Deep Cooling Cycle”.	-67.0...302	°C/°F	12.0	12.0	12.0	12.0
toS	“Deep Cooling Cycle” activation time.	0...250	min	5	5	5	5

Note: if one or more parameters in folder **CnF** are changed, the controller must be switched off and then on again to make sure it works properly.

Parameters EWNext 974 P/R (2Hp/8A/5A)

User parameters EWNext 974 P/R (2Hp/8A/5A)

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	3.5	3.5
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dit	Time interval between one defrost and the next	0...250	ore	24	24	24	24
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES
HAL	Maximum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when exceeded, will lead to the activation of alarm signaling.	**LAL**...302	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
dnt	Night mode duration.	0...24	ore	11	11	11	11
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
tAb	Reserved: read-only parameter.	/	/	/ (non nelle applicazioni)			
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0

Nota: se uno o più parametri della cartella **CnF** vengono modificati, il controllore deve essere spento e poi riacceso per assicurarne il corretto funzionamento.
Nota: tra i parametri del menu “Utente” è presente anche **PA2** che permette l’accesso al menu “Installatore”.
Nota: per l’elenco completo dei parametri, vedere la sezione "**Parametri installatore**".

Installer parameters EWNext 974 P/R (2Hp/8A/5A)

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	0.0	-18.0
CP (Compressor)							
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
ont	Regulator switch-on time for probe in error: • if **Ont** = 1 and **OFt** = 0 compressor always on • if **Ont** = 1 and **OFt** > 0 compressor in duty cycle	0...250	min	0	0	0	0
oFt	Regulator switch-off time for probe in error: • if **OFt** = 1 and **Ont** = 0 compressor always off • if **OFt** = 1 and **Ont** > 0 compressor in duty cycle	0...250	min	1	1	1	1
don	Compressor relay activation delay time from call	0...250	s	0	0	0	0
doF	Delay time after switch-off; the indicated time must elapse between compressor relay switch-off and a subsequent switch-on.	0...250	min	0	0	0	0
dbi	Delay time between switch-ons; the indicated time must elapse between two consecutive compressor switch-ons.	0...250	min	0	0	0	0
Cit	Minimum compressor activation time before it can be deactivated. If **Cit** = 0 it is not active.	0...250	min	0	0	0	0
CAt	Maximum compressor activation time before it can be deactivated. If **CAt** = 0 it is not active.	0...250	min	0	0	0	0
odo	Output activation delay time from switching on the controller or after a power failure. **0** = not active	0...250	min	0	0	0	0
CP2	Compressor 2 activation delay.	0...250	min	0	0	0	0
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
dEF (Defrost)							
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
doH	Defrost cycle activation delay from the call	0...250	min	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature (measured by Pb3 if **H43** = 2EP)	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dPo	Defrost activation request at power-on, if the temperature measured by Pb2 allows. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	no	no	no	no
dMr	Enables the defrost count reset in the case of manual defrosting. • **no** (0) = count reset does not take place • **yES** (1) = count reset takes place	no/yES	flag	no	no	no	no
d00	Compressor running time before defrost is activated	0...250	hours	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d01	**d00** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
dit	Time interval between one defrost and the next	0...250	hours	24	24	24	24
d11	**dit** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
d20	Can be used to activate the defrost when the compressor is off. • **no** (0) = disabled. Defrost is not activated. • **yES** (1) = enabled. Defrost is activated when the compressor is off.	no/yES	flag	no	no	no	no
d40	Enables/disables use of probe Pb2. • **0** (0) = disabled. Defrost does not take Pb2 into account • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d41	Sets the defrost activation threshold	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
d42	Sets the maximum time for which the evaporator can remain under the threshold **d41**	0...250	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. • **0** = count independent of the compressor status • **1** = count with compressor on (when the compressor is off the count begins again) • **2** = count independent of the compressor status. The count stops when the temperature rises above the threshold **d41** • **3** = count with compressor on and until the temperature rises above the threshold **d41**	0...3	num	0	0	0	0
d44	Sets the threshold management mode. • **AbS** (0) = absolute value (for example: **d41** = -25°C means that the threshold temperature is exactly -25°C) • **rEL** (1) = relative value (negative offset, relative to the value measured by the defrost probe Pb2 (if **d40** = 1) at the end of the first cooling cycle or on power-on)	AbS/rEL	flag	AbS	AbS	AbS	AbS
d50	Enables/disables use of probe Pb2 ('differential' mode). • **0** (0) = disabled • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d51	Enables/disables use of probe Pb1. • **0** (0) = disabled • **Pb1** (1) = enabled. Defrost runs according to the value read by Pb1 (only refers to defrost with threshold)	0/Pb1	flag	0	0	0	0
d52	Sets the defrost activation threshold (absolute differential **d50**-**d51**)	0.0...302	°C/°F	0.0	0.0	0.0	0.0
d53	Sets the maximum time for which the evaporator can remain above the threshold **d52**	0...999	min	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value **d52**. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature drops below the threshold **d52** • **3** = incremental count with compressor on and until the temperature drops below the threshold **d52**	0...3	num	0	0	0	0
d55	Sets the threshold management mode. • **0** = absolute value (for example: **d52** = **d50**-**d51**) • **1** = relative value (negative offset, relative to the differential of the temperatures measured by probes Pb1 and Pb2 (**d50**-**d51**) at the end of the first cooling cycle or on power-on).	0/1	flag	0	0	0	0
Fan (Fans)							
FPt	Sets whether parameter **FSt** is expressed as an absolute temperature value or as a value relative to the Setpoint. • **AbS** (0) = absolute • **rEL** (1) = relative.	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature.	-67.0...302	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan trigger differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Fan activation delay time after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES

<table>
<tr><th>Parameter</th><th>Description</th><th>Range</th><th>MU</th><th>Default</th><th>AP1</th><th>AP2</th><th>AP3</th></tr>
<tr><td>FCo</td><td>Evaporator fan operating mode.
<table>
<tr><th rowspan="2">Pb2</th><th rowspan="2">H42</th><th rowspan="2">FCo</th><th colspan="2">day</th><th colspan="2">night</th></tr>
<tr><th>Cn</th><th>Cf</th><th>Cn</th><th>Cf</th></tr>
<tr><td rowspan="7">ok</td><td rowspan="7">y</td><td>0</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>1</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>2</td><td>T</td><td>DCd</td><td>T</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>5</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>6</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td rowspan="7">ko</td><td rowspan="7">y</td><td>0</td><td>DCd</td><td>Off</td><td>DCn</td><td>Off</td></tr>
<tr><td>1</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>2</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td rowspan="7">no</td><td rowspan="7">n</td><td>0</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>1</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>2</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
</table>
Headings legend:
Pb2 = probe Pb2 status (ok = present; ko = in E2 error and no = absent; day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.
Status legend:
T = thermostat controlled fans; On = fans on; Off= fans off; DCd = Day duty cycle or DCn = Night duty cycle.</td><td>0...6</td><td>num</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>FdC</td><td>Evaporator fan shutoff delay after compressor deactivation.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Fon</td><td>Day duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>FoF</td><td>Day duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>Fnn</td><td>Night duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>FnF</td><td>Night duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>ESF</td><td>"Night" mode activation.
• no(0) = no
• yES(1) = yes.</td><td>no/yES</td><td>flag</td><td>no</td><td>no</td><td>no</td><td>no</td></tr>
<tr><td colspan="8">AL (Alarms)</td></tr>
<tr><td>Att</td><td>Sets the absolute or relative value for parameters HAL and LAL.
• AbS (0) = absolute value
• rEL (1) = relative value</td><td>AbS/rEL</td><td>flag</td><td>AbS</td><td>AbS</td><td>AbS</td><td>AbS</td></tr>
<tr><td>AFd</td><td>Alarm differential.</td><td>0.1...25.0</td><td>°C/°F</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>HAL</td><td>Maximum temperature alarm.
Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.</td><td>LAL...302</td><td>°C/°F</td><td>50.0</td><td>50.0</td><td>50.0</td><td>50.0</td></tr>
</table>

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
PAo	Alarm exclusion time when switching on the controller, after a power failure.	0...10	min*10	0	0	0	0
dAo	Temperature alarm exclusion time after defrosting.	0...999	min	0	0	0	0
oAo	Alarm signaling delay after deactivation of the digital input (door closure). Alarm refers to high and low temperature alarms.	0...10	hours	0	0	0	0
tdo	Door open alarm activation delay time.	0...250	min	0	0	0	0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
dAt	Defrost ended due to timeout alarm indication. • **no**(0) = alarm not activated • **yES**(1) = alarm activated.	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. • **0** = does not inhibit the regulators • **1** = compressor and defrost inhibited • **2** = fans, compressor and defrost inhibited;	0/1/2	num	0	0	0	0
AoP	Alarm output polarity. • **nC** (0) = NC (Normally closed) • **nO** (1) = NO (Normally open).	nC/nO	flag	nO	nO	nO	nO
SA3	Probe 3 alarm setpoint.	-67.0...302	°C/°F	30.0	30.0	30.0	30.0
dA3	Probe 3 alarm differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
rFt	Low refrigerant alarm signaling delay.	0...250	min	0 (not in applications)			
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. • **0** = No effect on the status of the AUX/Light output • **1** = Output disabled • **2** = Output enabled	0/1/2	num	1	1	1	1
dOr (Door switch)							
dOd	Digital input shuts off utilities. • **0** = disabled • **1** = disables fans • **2** = disables compressor • **3** = disables fans and compressor.	0...3	num	1	1	1	1
dAd	Digital input activation delay	0...250	min	0	0	0	0
dCo	Compressor switch-off delay from door opening.	0...250	min	0	0	0	0
AUP	Auxiliary (AUX) output activation when the door is opened. • **no**(0) = disabled • **yES**(1) = AUX output activation	no/yES	flag	no	no	no	no
dCd	Fans activation delay after door closed.	0...250	s	0	0	0	0
PrE (Pressure switch)							
PEn	Number of errors permitted per minimum/maximum pressure switch input	0...15	num	5	5	5	5
PEi	Minimum/maximum pressure switch error count interval	1...99	min	1	1	1	1
PEt	Compressor activation delay after pressure switch deactivation	0...250	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
ESt	Energy Saving mode. • **0** = disabled • **1** = offset on setpoint • **2** = offset on differential • **3** = offset on setpoint and differential • **4** = "Open Bottle coolers" algorithm • **5** = "Bottle cooler with door" algorithm.	0...5	num	0	0	0	0
dnt	Night mode duration.	0...24	hours	11	11	11	11
Cdt	Door closure time due to dynamic setpoint activation.	0...250	min*10	6	6	6	6
PLd (Pull-down)							
PdC	Enable pull-down. • **diS** (0) = disabled • **Std** (1) = with fixed setpoint • **AUt** (2) = automatic	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Pull-down phase duration.	1...250	min	30	30	30	30
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic pull-down.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic pull-down.	1...10	num	3	3	3	3
Add (Communication)							
Adr	Modbus protocol controller address.	1...247	num	1 (not in applications)			
bAU	Modbus Baudrate selection. • **96** (0) = 9600 baud • **192** (1) = 19200 baud • **384** (2) = 38400 baud	96/192/384	num	96 (not in applications)			
Pty	Modbus parity bit. • **n**(0) = none • **E**(1) = even • **o**(2) = odd.	n/E/o	num	E (not in applications)			
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. • **C**(0) = °C • **F**(1) = °F **Note**: changing from °C to °F or vice-versa does NOT change the **SEt**, **diF** values, etc. (example: **SEt** = 10 °C becomes 10 °F).	C/F	flag	C	C	C	C
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA3	Positive or negative temperature value to be added to the value of Pb3.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddd	Selects the type of value to show on the display. • **0** = setpoint • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe.	0...3	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
ddE	Selects the type of value to show on the module **ECNext**. • **0** = module not connected • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe. • **4** = setpoint.	0...4	num	0	0	0	0
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
ndt	Display with decimal point. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. • **0** = disabled • **1** = the filter is set based on time values **tAu** and **5tAu**, and is applied to the displayed information according to the value of parameter **Fit** • **2** = the temperature value shown changes by 1°C/°F every **tAu** minutes.	0/1/2	num	0 (not in applications)			
tAU	Display filter time constant.	0...250	min	0 (not in applications)			
Fit	Display filter mode. • **0** = the filter is only enabled when the temperature increases • **1** = the filter is always enabled (both when the temperature increases and when it decreases)	0/1	flag	0 (not in applications)			
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
PS2	When enabled (**PS2**≠0) this is the access key for the installer parameters.	0...250	num	15	15	15	15
CnF (Configuration)							
H08	Stand-by operating mode. • **0** = display off; the regulators are active and the device signals possible alarms by reactivating the display • **1** = display off; the regulators and the alarms are blocked • **2** = the display shows the label “OFF”; the regulators and alarms are inhibited.	0/1/2	num	2	2	2	2

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H11	Configuration of digital input 1 (**DI**)/ polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved • **±13** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-13...+13	num	0	0	0	0
H12	Configuration of digital input 2 (**DI2**) / polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-12...+12	num	0	0	0	0
H21	Configuration of digital output 1 (**Out1**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control • **13** = reserved	0...13	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H22	Configuration of digital output 2 (**Out2**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control.	0...12	num	2	2	2	2
H23	Configuration of digital output 3 (**Out3**). Same as **H22**.	0...12	num	3	3	3	3
H31	Configuration of ⚠ key. • **0** = disabled • **1** = defrost • **2** = auxiliary • **3** = reduced set • **4** = stand-by • **5** = reserved • **6** = reserved • **7** = deep cooling • **8** = light • **9** = energy saving • **10** = reserved	0...10	num	1	1	1	1
H32	Configuration of ▽ key. Same as **H31**.	0...10	num	0	0	0	0
H33	Configuration of ⏻ key. Same as **H31**.	0...10	num	4	4	4	4
H34	Configuration of 💡 key. Same as **H31**.	0...10	num	0	0	0	0
H35	Configuration of ☆ key. Same as **H31**.	0...10	num	0	0	0	0
H42	Probe Pb2 present. • **no**(0) = not present • **yES**(1) = present.	no/yES	flag	yES	yES	yES	yES
H43	Probe Pb3 present. • **no**(0) = not present • **yES**(1) = present • **2EP**(2) = second evaporator.	no/yES/2EP	flag	no	no	no	no
H45	Defrost input mode for applications with dual evaporator. • **0** = first evaporator only • **1** = if at least one of the evaporators is below its defrost end temperature • **2** = only if both evaporators are under the respective defrost end temperature • **3** = evaporator 1 and evaporator 2 alternately.	0...3	num	0	0	0	0
H60	Visualizzazione applicazione selezionata. **0** = disabilitato; **1** = AP1; **2** = AP2; **3** = AP3.	0...3	num	1 (not in applications)			
tAb	Reserved: read-only parameter.	/	/	/ (not in applications)			
CuS	Customer model reference.	0...999	num	0 (not in applications)			
FPr (UNICARD)							
UL	Transfer of the programming parameters from the controller to the UNICARD.	/	/	/ (not in applications)			
Fr	UNICARD formatting. Deletes all data on the UNICARD. **Note**: the use of parameter **Fr** results in the loss of all data entered. This operation cannot be reversed.	/	/	/ (not in applications)			
FnC (Functions)							

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
oSP	Reduced set activation. The labels displayed will be: • **SP** = Activates the reduced set • **oSP** = Deactivates the reduced set	/	/	/ (not in applications)			
dEF	Activate defrost	/	/	/ (not in applications)			
AUX	AUX output activation / deactivation. The labels displayed will be: • **Aon** = Activates the AUX output • **AoF** = Deactivates the AUX output	/	/	/ (not in applications)			
rAP	Reset pressure switch alarms	/	/	/ (not in applications)			
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/ (not in applications)			
CPr (Low ambient temperature protection)							
tCP	Time temperature remains below low ambient temperature protection Setpoint (CPS).	0...250	min	0	0	0	0
SCP	Low ambient temperature protection setpoint.	-67.0...302	°C/°F	-10.0	-10.0	-10.0	-10.0
dCP	Low ambient temperature protection differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
dEC (Deep Cooling Cycle)							
dCA	Enable "Deep cooling cycle". • **diS**(0) = disabled • **Std**(1) = manual • **Aut**(2) = automatic	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0
dCC	Defrost activation delay after a "Deep cooling cycle"	0...250	min	0	0	0	0
Sid	Threshold for entering a “Deep Cooling Cycle”.	-67.0...302	°C/°F	12.0	12.0	12.0	12.0
toS	“Deep Cooling Cycle” activation time.	0...250	min	5	5	5	5

Note: if one or more parameters in folder **CnF** are changed, the controller must be switched off and then on again to make sure it works properly.

Parameters EWNext 974 P/R (1.5Hp/1.5Hp/8A)

User parameters EWNext 974 P/R (1.5Hp/1.5Hp/8A)

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	3.5	3.5
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dit	Time interval between one defrost and the next	0...250	ore	24	24	24	24
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES
HAL	Maximum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when exceeded, will lead to the activation of alarm signaling.	**LAL**...302	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
dnt	Night mode duration.	0...24	ore	11	11	11	11
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
tAb	Reserved: read-only parameter.	/	/	/ (non nelle applicazioni)			
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0

Nota: se uno o più parametri della cartella **CnF** vengono modificati, il controllore deve essere spento e poi riacceso per assicurarne il corretto funzionamento.
Nota: tra i parametri del menu “Utente” è presente anche **PA2** che permette l’accesso al menu “Installatore”.
Nota: per l’elenco completo dei parametri, vedere la sezione "**Parametri installatore**".

Installer parameters EWNext 974 P/R (1.5Hp/1.5Hp/8A)

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	0.0	-18.0
CP (Compressor)							
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
ont	Regulator switch-on time for probe in error: • if **Ont** = 1 and **OFt** = 0 compressor always on • if **Ont** = 1 and **OFt** > 0 compressor in duty cycle	0...250	min	0	0	0	0
oFt	Regulator switch-off time for probe in error: • if **OFt** = 1 and **Ont** = 0 compressor always off • if **OFt** = 1 and **Ont** > 0 compressor in duty cycle	0...250	min	1	1	1	1
don	Compressor relay activation delay time from call	0...250	s	0	0	0	0
doF	Delay time after switch-off; the indicated time must elapse between compressor relay switch-off and a subsequent switch-on.	0...250	min	0	0	0	0
dbi	Delay time between switch-ons; the indicated time must elapse between two consecutive compressor switch-ons.	0...250	min	0	0	0	0
Cit	Minimum compressor activation time before it can be deactivated. If **Cit** = 0 it is not active.	0...250	min	0	0	0	0
CAt	Maximum compressor activation time before it can be deactivated. If **CAt** = 0 it is not active.	0...250	min	0	0	0	0
odo	Output activation delay time from switching on the controller or after a power failure. **0** = not active	0...250	min	0	0	0	0
CP2	Compressor 2 activation delay.	0...250	min	0	0	0	0
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
dEF (Defrost)							
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
doH	Defrost cycle activation delay from the call	0...250	min	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature (measured by Pb3 if **H43** = 2EP)	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dPo	Defrost activation request at power-on, if the temperature measured by Pb2 allows. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	no	no	no	no
dMr	Enables the defrost count reset in the case of manual defrosting. • **no** (0) = count reset does not take place • **yES** (1) = count reset takes place	no/yES	flag	no	no	no	no
d00	Compressor running time before defrost is activated	0...250	hours	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d01	**d00** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
dit	Time interval between one defrost and the next	0...250	hours	24	24	24	24
d11	**dit** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
d20	Can be used to activate the defrost when the compressor is off. • **no** (0) = disabled. Defrost is not activated. • **yES** (1) = enabled. Defrost is activated when the compressor is off.	no/yES	flag	no	no	no	no
d40	Enables/disables use of probe Pb2. • **0** (0) = disabled. Defrost does not take Pb2 into account • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d41	Sets the defrost activation threshold	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
d42	Sets the maximum time for which the evaporator can remain under the threshold **d41**	0...250	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. • **0** = count independent of the compressor status • **1** = count with compressor on (when the compressor is off the count begins again) • **2** = count independent of the compressor status. The count stops when the temperature rises above the threshold **d41** • **3** = count with compressor on and until the temperature rises above the threshold **d41**	0...3	num	0	0	0	0
d44	Sets the threshold management mode. • **AbS** (0) = absolute value (for example: **d41** = -25°C means that the threshold temperature is exactly -25°C) • **rEL** (1) = relative value (negative offset, relative to the value measured by the defrost probe Pb2 (if **d40** = 1) at the end of the first cooling cycle or on power-on)	AbS/rEL	flag	AbS	AbS	AbS	AbS
d50	Enables/disables use of probe Pb2 ('differential' mode). • **0** (0) = disabled • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d51	Enables/disables use of probe Pb1. • **0** (0) = disabled • **Pb1** (1) = enabled. Defrost runs according to the value read by Pb1 (only refers to defrost with threshold)	0/Pb1	flag	0	0	0	0
d52	Sets the defrost activation threshold (absolute differential **d50**-**d51**)	0.0...302	°C/°F	0.0	0.0	0.0	0.0
d53	Sets the maximum time for which the evaporator can remain above the threshold **d52**	0...999	min	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value **d52**. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature drops below the threshold **d52** • **3** = incremental count with compressor on and until the temperature drops below the threshold **d52**	0...3	num	0	0	0	0
d55	Sets the threshold management mode. • **0** = absolute value (for example: **d52** = **d50**-**d51**) • **1** = relative value (negative offset, relative to the differential of the temperatures measured by probes Pb1 and Pb2 (**d50**-**d51**) at the end of the first cooling cycle or on power-on).	0/1	flag	0	0	0	0
Fan (Fans)							
FPt	Sets whether parameter **FSt** is expressed as an absolute temperature value or as a value relative to the Setpoint. • **AbS** (0) = absolute • **rEL** (1) = relative.	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature.	-67.0...302	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan trigger differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Fan activation delay time after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES

<table>
<tr><th>Parameter</th><th>Description</th><th>Range</th><th>MU</th><th>Default</th><th>AP1</th><th>AP2</th><th>AP3</th></tr>
<tr><td>FCo</td><td>Evaporator fan operating mode.
<table>
<tr><th rowspan="2">Pb2</th><th rowspan="2">H42</th><th rowspan="2">FCo</th><th colspan="2">day</th><th colspan="2">night</th></tr>
<tr><th>Cn</th><th>Cf</th><th>Cn</th><th>Cf</th></tr>
<tr><td rowspan="7">ok</td><td rowspan="7">y</td><td>0</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
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<tr><td>2</td><td>T</td><td>DCd</td><td>T</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>5</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>6</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td rowspan="7">ko</td><td rowspan="7">y</td><td>0</td><td>DCd</td><td>Off</td><td>DCn</td><td>Off</td></tr>
<tr><td>1</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>2</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td rowspan="7">no</td><td rowspan="7">n</td><td>0</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>1</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>2</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
</table>
Headings legend:
Pb2 = probe Pb2 status (ok = present; ko = in E2 error and no = absent; day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.
Status legend:
T = thermostat controlled fans; On = fans on; Off= fans off; DCd = Day duty cycle or DCn = Night duty cycle.</td><td>0...6</td><td>num</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>FdC</td><td>Evaporator fan shutoff delay after compressor deactivation.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Fon</td><td>Day duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>FoF</td><td>Day duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>Fnn</td><td>Night duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>FnF</td><td>Night duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>ESF</td><td>"Night" mode activation.
• no(0) = no
• yES(1) = yes.</td><td>no/yES</td><td>flag</td><td>no</td><td>no</td><td>no</td><td>no</td></tr>
<tr><td colspan="8">AL (Alarms)</td></tr>
<tr><td>Att</td><td>Sets the absolute or relative value for parameters HAL and LAL.
• AbS (0) = absolute value
• rEL (1) = relative value</td><td>AbS/rEL</td><td>flag</td><td>AbS</td><td>AbS</td><td>AbS</td><td>AbS</td></tr>
<tr><td>AFd</td><td>Alarm differential.</td><td>0.1...25.0</td><td>°C/°F</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>HAL</td><td>Maximum temperature alarm.
Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.</td><td>LAL...302</td><td>°C/°F</td><td>50.0</td><td>50.0</td><td>50.0</td><td>50.0</td></tr>
</table>

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
PAo	Alarm exclusion time when switching on the controller, after a power failure.	0...10	min*10	0	0	0	0
dAo	Temperature alarm exclusion time after defrosting.	0...999	min	0	0	0	0
oAo	Alarm signaling delay after deactivation of the digital input (door closure). Alarm refers to high and low temperature alarms.	0...10	hours	0	0	0	0
tdo	Door open alarm activation delay time.	0...250	min	0	0	0	0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
dAt	Defrost ended due to timeout alarm indication. • **no**(0) = alarm not activated • **yES**(1) = alarm activated.	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. • **0** = does not inhibit the regulators • **1** = compressor and defrost inhibited • **2** = fans, compressor and defrost inhibited;	0/1/2	num	0	0	0	0
AoP	Alarm output polarity. • **nC** (0) = NC (Normally closed) • **nO** (1) = NO (Normally open).	nC/nO	flag	nO	nO	nO	nO
SA3	Probe 3 alarm setpoint.	-67.0...302	°C/°F	30.0	30.0	30.0	30.0
dA3	Probe 3 alarm differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
rFt	Low refrigerant alarm signaling delay.	0...250	min	0 (not in applications)			
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. • **0** = No effect on the status of the AUX/Light output • **1** = Output disabled • **2** = Output enabled	0/1/2	num	1	1	1	1
dOr (Door switch)							
dOd	Digital input shuts off utilities. • **0** = disabled • **1** = disables fans • **2** = disables compressor • **3** = disables fans and compressor.	0...3	num	1	1	1	1
dAd	Digital input activation delay	0...250	min	0	0	0	0
dCo	Compressor switch-off delay from door opening.	0...250	min	0	0	0	0
AUP	Auxiliary (AUX) output activation when the door is opened. • **no**(0) = disabled • **yES**(1) = AUX output activation	no/yES	flag	no	no	no	no
dCd	Fans activation delay after door closed.	0...250	s	0	0	0	0
PrE (Pressure switch)							
PEn	Number of errors permitted per minimum/maximum pressure switch input	0...15	num	5	5	5	5
PEi	Minimum/maximum pressure switch error count interval	1...99	min	1	1	1	1
PEt	Compressor activation delay after pressure switch deactivation	0...250	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
ESt	Energy Saving mode. • **0** = disabled • **1** = offset on setpoint • **2** = offset on differential • **3** = offset on setpoint and differential • **4** = "Open Bottle coolers" algorithm • **5** = "Bottle cooler with door" algorithm.	0...5	num	0	0	0	0
dnt	Night mode duration.	0...24	hours	11	11	11	11
Cdt	Door closure time due to dynamic setpoint activation.	0...250	min*10	6	6	6	6
PLd (Pull-down)							
PdC	Enable pull-down. • **diS** (0) = disabled • **Std** (1) = with fixed setpoint • **AUt** (2) = automatic	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Pull-down phase duration.	1...250	min	30	30	30	30
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic pull-down.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic pull-down.	1...10	num	3	3	3	3
Add (Communication)							
Adr	Modbus protocol controller address.	1...247	num	1 (not in applications)			
bAU	Modbus Baudrate selection. • **96** (0) = 9600 baud • **192** (1) = 19200 baud • **384** (2) = 38400 baud	96/192/384	num	96 (not in applications)			
Pty	Modbus parity bit. • **n**(0) = none • **E**(1) = even • **o**(2) = odd.	n/E/o	num	E (not in applications)			
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. • **C**(0) = °C • **F**(1) = °F **Note**: changing from °C to °F or vice-versa does NOT change the **SEt**, **diF** values, etc. (example: **SEt** = 10 °C becomes 10 °F).	C/F	flag	C	C	C	C
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA3	Positive or negative temperature value to be added to the value of Pb3.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddd	Selects the type of value to show on the display. • **0** = setpoint • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe.	0...3	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
ddE	Selects the type of value to show on the module **ECNext**. • **0** = module not connected • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe. • **4** = setpoint.	0...4	num	0	0	0	0
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
ndt	Display with decimal point. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. • **0** = disabled • **1** = the filter is set based on time values **tAu** and **5tAu**, and is applied to the displayed information according to the value of parameter **Fit** • **2** = the temperature value shown changes by 1°C/°F every **tAu** minutes.	0/1/2	num	0 (not in applications)			
tAU	Display filter time constant.	0...250	min	0 (not in applications)			
Fit	Display filter mode. • **0** = the filter is only enabled when the temperature increases • **1** = the filter is always enabled (both when the temperature increases and when it decreases)	0/1	flag	0 (not in applications)			
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
PS2	When enabled (**PS2**≠0) this is the access key for the installer parameters.	0...250	num	15	15	15	15
CnF (Configuration)							
H08	Stand-by operating mode. • **0** = display off; the regulators are active and the device signals possible alarms by reactivating the display • **1** = display off; the regulators and the alarms are blocked • **2** = the display shows the label “OFF”; the regulators and alarms are inhibited.	0/1/2	num	2	2	2	2

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H11	Configuration of digital input 1 (**DI**)/ polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved • **±13** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-13...+13	num	0	0	0	0
H12	Configuration of digital input 2 (**DI2**) / polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-12...+12	num	0	0	0	0
H21	Configuration of digital output 1 (**Out1**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control • **13** = reserved	0...13	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H22	Configuration of digital output 2 (**Out2**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control.	0...12	num	2	2	2	2
H23	Configuration of digital output 3 (**Out3**). Same as **H22**.	0...12	num	3	3	3	3
H31	Configuration of ⚠ key. • **0** = disabled • **1** = defrost • **2** = auxiliary • **3** = reduced set • **4** = stand-by • **5** = reserved • **6** = reserved • **7** = deep cooling • **8** = light • **9** = energy saving • **10** = reserved	0...10	num	1	1	1	1
H32	Configuration of ▽ key. Same as **H31**.	0...10	num	0	0	0	0
H33	Configuration of ⏻ key. Same as **H31**.	0...10	num	4	4	4	4
H34	Configuration of 💡 key. Same as **H31**.	0...10	num	0	0	0	0
H35	Configuration of ☆ key. Same as **H31**.	0...10	num	0	0	0	0
H42	Probe Pb2 present. • **no**(0) = not present • **yES**(1) = present.	no/yES	flag	yES	yES	yES	yES
H43	Probe Pb3 present. • **no**(0) = not present • **yES**(1) = present • **2EP**(2) = second evaporator.	no/yES/2EP	flag	no	no	no	no
H45	Defrost input mode for applications with dual evaporator. • **0** = first evaporator only • **1** = if at least one of the evaporators is below its defrost end temperature • **2** = only if both evaporators are under the respective defrost end temperature • **3** = evaporator 1 and evaporator 2 alternately.	0...3	num	0	0	0	0
H60	Visualizzazione applicazione selezionata. **0** = disabilitato; **1** = AP1; **2** = AP2; **3** = AP3.	0...3	num	1 (not in applications)			
tAb	Reserved: read-only parameter.	/	/	/ (not in applications)			
CuS	Customer model reference.	0...999	num	0 (not in applications)			
FPr (UNICARD)							
UL	Transfer of the programming parameters from the controller to the UNICARD.	/	/	/ (not in applications)			
Fr	UNICARD formatting. Deletes all data on the UNICARD. **Note**: the use of parameter **Fr** results in the loss of all data entered. This operation cannot be reversed.	/	/	/ (not in applications)			
FnC (Functions)							

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
oSP	Reduced set activation. The labels displayed will be: • **SP** = Activates the reduced set • **oSP** = Deactivates the reduced set	/	/	/ (not in applications)			
dEF	Activate defrost	/	/	/ (not in applications)			
AUX	AUX output activation / deactivation. The labels displayed will be: • **Aon** = Activates the AUX output • **AoF** = Deactivates the AUX output	/	/	/ (not in applications)			
rAP	Reset pressure switch alarms	/	/	/ (not in applications)			
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/ (not in applications)			
CPr (Low ambient temperature protection)							
tCP	Time temperature remains below low ambient temperature protection Setpoint (CPS).	0...250	min	0	0	0	0
SCP	Low ambient temperature protection setpoint.	-67.0...302	°C/°F	-10.0	-10.0	-10.0	-10.0
dCP	Low ambient temperature protection differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
dEC (Deep Cooling Cycle)							
dCA	Enable "Deep cooling cycle". • **diS**(0) = disabled • **Std**(1) = manual • **Aut**(2) = automatic	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0
dCC	Defrost activation delay after a "Deep cooling cycle"	0...250	min	0	0	0	0
Sid	Threshold for entering a “Deep Cooling Cycle”.	-67.0...302	°C/°F	12.0	12.0	12.0	12.0
toS	“Deep Cooling Cycle” activation time.	0...250	min	5	5	5	5

Note: if one or more parameters in folder **CnF** are changed, the controller must be switched off and then on again to make sure it works properly.

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User parameters EWNext 978 P/R

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	3.5	3.5
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dit	Time interval between one defrost and the next	0...250	ore	24	24	24	24
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES
HAL	Maximum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when exceeded, will lead to the activation of alarm signaling.	**LAL**...302	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
dnt	Night mode duration.	0...24	ore	11	11	11	11
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
tAb	Reserved: read-only parameter.	/	/	/ (non nelle applicazioni)			
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0

Nota: se uno o più parametri della cartella **CnF** vengono modificati, il controllore deve essere spento e poi riacceso per assicurarne il corretto funzionamento.
Nota: tra i parametri del menu “Utente” è presente anche **PA2** che permette l’accesso al menu “Installatore”.
Nota: per l’elenco completo dei parametri, vedere la sezione "**Parametri installatore**".

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Parameter	Description	Range	MU	Default	AP1	AP2	AP3
SEt	Regulation setpoint with range between the minimum setpoint **LSE** and the maximum setpoint **HSE**. The setpoint value is set in the "Machine status" menu.	**LSE**...**HSE**	°C/°F	3.5	3.5	0.0	-18.0
CP (Compressor)							
diF	Compressor relay activation differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe) and restarts at a temperature value equal to the setpoint plus the value of the differential.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum setpoint value.	-67.0...**HSE**	°C/°F	-50.0	-50.0	-50.0	-50.0
HSE	Maximum setpoint value.	**LSE**...302	°C/°F	99.0	99.0	99.0	99.0
ont	Regulator switch-on time for probe in error: • if **Ont** = 1 and **OFt** = 0 compressor always on • if **Ont** = 1 and **OFt** > 0 compressor in duty cycle	0...250	min	0	0	0	0
oFt	Regulator switch-off time for probe in error: • if **OFt** = 1 and **Ont** = 0 compressor always off • if **OFt** = 1 and **Ont** > 0 compressor in duty cycle	0...250	min	1	1	1	1
don	Compressor relay activation delay time from call	0...250	s	0	0	0	0
doF	Delay time after switch-off; the indicated time must elapse between compressor relay switch-off and a subsequent switch-on.	0...250	min	0	0	0	0
dbi	Delay time between switch-ons; the indicated time must elapse between two consecutive compressor switch-ons.	0...250	min	0	0	0	0
Cit	Minimum compressor activation time before it can be deactivated. If **Cit** = 0 it is not active.	0...250	min	0	0	0	0
CAt	Maximum compressor activation time before it can be deactivated. If **CAt** = 0 it is not active.	0...250	min	0	0	0	0
odo	Output activation delay time from switching on the controller or after a power failure. **0** = not active	0...250	min	0	0	0	0
CP2	Compressor 2 activation delay.	0...250	min	0	0	0	0
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
dEF (Defrost)							
dty	Type of defrost. • **0** = electric defrost or due to stoppage - compressor OFF during defrost • **1** = cycle inversion (hot gas) defrost; compressor on during defrost • **2** = defrost with “Free” mode; defrost independent of compressor.	0/1/2	num	0	0	0	0
doH	Defrost cycle activation delay from the call	0...250	min	0	0	0	0
dEt	Defrost timeout. Determines the maximum duration of the defrost	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature (measured by probe Pb2)	-67.0...302	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature (measured by Pb3 if **H43** = 2EP)	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dPo	Defrost activation request at power-on, if the temperature measured by Pb2 allows. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	no	no	no	no
dMr	Enables the defrost count reset in the case of manual defrosting. • **no** (0) = count reset does not take place • **yES** (1) = count reset takes place	no/yES	flag	no	no	no	no
d00	Compressor running time before defrost is activated	0...250	hours	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d01	**d00** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
dit	Time interval between one defrost and the next	0...250	hours	24	24	24	24
d11	**dit** unit of measure. • **0** = hours • **1** = minutes • **2** = seconds.	0/1/2	num	0	0	0	0
d20	Can be used to activate the defrost when the compressor is off. • **no** (0) = disabled. Defrost is not activated. • **yES** (1) = enabled. Defrost is activated when the compressor is off.	no/yES	flag	no	no	no	no
d40	Enables/disables use of probe Pb2. • **0** (0) = disabled. Defrost does not take Pb2 into account • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d41	Sets the defrost activation threshold	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
d42	Sets the maximum time for which the evaporator can remain under the threshold **d41**	0...250	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. • **0** = count independent of the compressor status • **1** = count with compressor on (when the compressor is off the count begins again) • **2** = count independent of the compressor status. The count stops when the temperature rises above the threshold **d41** • **3** = count with compressor on and until the temperature rises above the threshold **d41**	0...3	num	0	0	0	0
d44	Sets the threshold management mode. • **AbS** (0) = absolute value (for example: **d41** = -25°C means that the threshold temperature is exactly -25°C) • **rEL** (1) = relative value (negative offset, relative to the value measured by the defrost probe Pb2 (if **d40** = 1) at the end of the first cooling cycle or on power-on)	AbS/rEL	flag	AbS	AbS	AbS	AbS
d50	Enables/disables use of probe Pb2 ('differential' mode). • **0** (0) = disabled • **Pb2** (1) = enabled. Defrost runs according to the value read by Pb2 (only refers to defrost with threshold)	0/Pb2	flag	0	0	0	0
d51	Enables/disables use of probe Pb1. • **0** (0) = disabled • **Pb1** (1) = enabled. Defrost runs according to the value read by Pb1 (only refers to defrost with threshold)	0/Pb1	flag	0	0	0	0
d52	Sets the defrost activation threshold (absolute differential **d50**-**d51**)	0.0...302	°C/°F	0.0	0.0	0.0	0.0
d53	Sets the maximum time for which the evaporator can remain above the threshold **d52**	0...999	min	0	0	0	0

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value **d52**. • **0** = incremental count independent of the compressor status • **1** = incremental count with compressor on (when the compressor is off the incremental count is reset) • **2** = incremental count independent of the compressor status. The incremental count stops when the temperature drops below the threshold **d52** • **3** = incremental count with compressor on and until the temperature drops below the threshold **d52**	0...3	num	0	0	0	0
d55	Sets the threshold management mode. • **0** = absolute value (for example: **d52** = **d50**-**d51**) • **1** = relative value (negative offset, relative to the differential of the temperatures measured by probes Pb1 and Pb2 (**d50**-**d51**) at the end of the first cooling cycle or on power-on).	0/1	flag	0	0	0	0
Fan (Fans)							
FPt	Sets whether parameter **FSt** is expressed as an absolute temperature value or as a value relative to the Setpoint. • **AbS** (0) = absolute • **rEL** (1) = relative.	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature; a value, read by the evaporator probe.	-67.0...302	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature.	-67.0...302	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan trigger differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Fan activation delay time after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Used to select or deselect the exclusion of the evaporator fans during defrosting. • **no**(0) = no • **yES**(1) = yes (fan excluded - off).	no/yES	flag	yES	yES	yES	yES

<table>
<tr><th>Parameter</th><th>Description</th><th>Range</th><th>MU</th><th>Default</th><th>AP1</th><th>AP2</th><th>AP3</th></tr>
<tr><td>FCo</td><td>Evaporator fan operating mode.
<table>
<tr><th rowspan="2">Pb2</th><th rowspan="2">H42</th><th rowspan="2">FCo</th><th colspan="2">day</th><th colspan="2">night</th></tr>
<tr><th>Cn</th><th>Cf</th><th>Cn</th><th>Cf</th></tr>
<tr><td rowspan="7">ok</td><td rowspan="7">y</td><td>0</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>1</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>2</td><td>T</td><td>DCd</td><td>T</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>T</td><td>Off</td><td>T</td><td>Off</td></tr>
<tr><td>5</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>6</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td rowspan="7">ko</td><td rowspan="7">y</td><td>0</td><td>DCd</td><td>Off</td><td>DCn</td><td>Off</td></tr>
<tr><td>1</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>2</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td rowspan="7">no</td><td rowspan="7">n</td><td>0</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>1</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>2</td><td>On</td><td>DCd</td><td>On</td><td>DCn</td></tr>
<tr><td>3</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
<tr><td>4</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>5</td><td>On</td><td>Off</td><td>On</td><td>Off</td></tr>
<tr><td>6</td><td>DCd</td><td>DCd</td><td>DCn</td><td>DCn</td></tr>
</table>
Headings legend:
Pb2 = probe Pb2 status (ok = present; ko = in E2 error and no = absent; day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.
Status legend:
T = thermostat controlled fans; On = fans on; Off= fans off; DCd = Day duty cycle or DCn = Night duty cycle.</td><td>0...6</td><td>num</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>FdC</td><td>Evaporator fan shutoff delay after compressor deactivation.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Fon</td><td>Day duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>FoF</td><td>Day duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>Fnn</td><td>Night duty cycle: time with fans on.</td><td>0...250</td><td>min</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>FnF</td><td>Night duty cycle: time with fans off.</td><td>0...250</td><td>min</td><td>12</td><td>12</td><td>12</td><td>12</td></tr>
<tr><td>ESF</td><td>"Night" mode activation.
• no(0) = no
• yES(1) = yes.</td><td>no/yES</td><td>flag</td><td>no</td><td>no</td><td>no</td><td>no</td></tr>
<tr><td colspan="8">AL (Alarms)</td></tr>
<tr><td>Att</td><td>Sets the absolute or relative value for parameters HAL and LAL.
• AbS (0) = absolute value
• rEL (1) = relative value</td><td>AbS/rEL</td><td>flag</td><td>AbS</td><td>AbS</td><td>AbS</td><td>AbS</td></tr>
<tr><td>AFd</td><td>Alarm differential.</td><td>0.1...25.0</td><td>°C/°F</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>HAL</td><td>Maximum temperature alarm.
Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.</td><td>LAL...302</td><td>°C/°F</td><td>50.0</td><td>50.0</td><td>50.0</td><td>50.0</td></tr>
</table>

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
LAL	Minimum temperature alarm. Temperature value (in an absolute or relative value - see **Att**) which, when not reached, will lead to the activation of alarm signaling.	-67.0...**HAL**	°C/°F	-50.0	-50.0	-50.0	-50.0
PAo	Alarm exclusion time when switching on the controller, after a power failure.	0...10	min*10	0	0	0	0
dAo	Temperature alarm exclusion time after defrosting.	0...999	min	0	0	0	0
oAo	Alarm signaling delay after deactivation of the digital input (door closure). Alarm refers to high and low temperature alarms.	0...10	hours	0	0	0	0
tdo	Door open alarm activation delay time.	0...250	min	0	0	0	0
tAo	Temperature alarm signaling delay time.	0...250	min	0	0	0	0
dAt	Defrost ended due to timeout alarm indication. • **no**(0) = alarm not activated • **yES**(1) = alarm activated.	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. • **0** = does not inhibit the regulators • **1** = compressor and defrost inhibited • **2** = fans, compressor and defrost inhibited;	0/1/2	num	0	0	0	0
AoP	Alarm output polarity. • **nC** (0) = NC (Normally closed) • **nO** (1) = NO (Normally open).	nC/nO	flag	nO	nO	nO	nO
SA3	Probe 3 alarm setpoint.	-67.0...302	°C/°F	30.0	30.0	30.0	30.0
dA3	Probe 3 alarm differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
rFt	Low refrigerant alarm signaling delay.	0...250	min	0 (not in applications)			
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. • **0** = No effect on the status of the AUX/Light output • **1** = Output disabled • **2** = Output enabled	0/1/2	num	1	1	1	1
dOr (Door switch)							
dOd	Digital input shuts off utilities. • **0** = disabled • **1** = disables fans • **2** = disables compressor • **3** = disables fans and compressor.	0...3	num	1	1	1	1
dAd	Digital input activation delay	0...250	min	0	0	0	0
dCo	Compressor switch-off delay from door opening.	0...250	min	0	0	0	0
AUP	Auxiliary (AUX) output activation when the door is opened. • **no**(0) = disabled • **yES**(1) = AUX output activation	no/yES	flag	no	no	no	no
dCd	Fans activation delay after door closed.	0...250	s	0	0	0	0
PrE (Pressure switch)							
PEn	Number of errors permitted per minimum/maximum pressure switch input	0...15	num	5	5	5	5
PEi	Minimum/maximum pressure switch error count interval	1...99	min	1	1	1	1
PEt	Compressor activation delay after pressure switch deactivation	0...250	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode Setpoint.	-67.0...302	°C/°F	7.0	7.0	7.0	7.0
dFn	Night mode differential.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
oSP	Temperature value to be added to the setpoint in the case of an enabled reduced set (Economy function).	-30.0...30.0	°C/°F	0.5	0.5	0.5	0.5

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
odF	Differential offset during an energy saving cycle or reduced set.	0.1...30.0	°C/°F	4.0	4.0	4.0	4.0
ESt	Energy Saving mode. • **0** = disabled • **1** = offset on setpoint • **2** = offset on differential • **3** = offset on setpoint and differential • **4** = "Open Bottle coolers" algorithm • **5** = "Bottle cooler with door" algorithm.	0...5	num	0	0	0	0
dnt	Night mode duration.	0...24	hours	11	11	11	11
Cdt	Door closure time due to dynamic setpoint activation.	0...250	min*10	6	6	6	6
PLd (Pull-down)							
PdC	Enable pull-down. • **diS** (0) = disabled • **Std** (1) = with fixed setpoint • **AUt** (2) = automatic	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Pull-down phase duration.	1...250	min	30	30	30	30
SPF	Regulation setpoint during the pull-down phase.	-67.0...302	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the pull-down phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic pull-down.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic pull-down.	1...10	num	3	3	3	3
Add (Communication)							
Adr	Modbus protocol controller address.	1...247	num	1 (not in applications)			
bAU	Modbus Baudrate selection. • **96** (0) = 9600 baud • **192** (1) = 19200 baud • **384** (2) = 38400 baud	96/192/384	num	96 (not in applications)			
Pty	Modbus parity bit. • **n**(0) = none • **E**(1) = even • **o**(2) = odd.	n/E/o	num	E (not in applications)			
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. • **C**(0) = °C • **F**(1) = °F **Note**: changing from °C to °F or vice-versa does NOT change the **SEt**, **diF** values, etc. (example: **SEt** = 10 °C becomes 10 °F).	C/F	flag	C	C	C	C
CA1	Positive or negative temperature value to be added to the value of Pb1.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA2	Positive or negative temperature value to be added to the value of Pb2.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CA3	Positive or negative temperature value to be added to the value of Pb3.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
LoC	Keypad lock. • **no**(0) = Keypad lock disabled • **yES**(1) = Keypad lock enabled (on startup or when 30 seconds have passed since the last action carried out on the user interface)	no/yES	flag	yES	yES	yES	yES
ddd	Selects the type of value to show on the display. • **0** = setpoint • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe.	0...3	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
ddE	Selects the type of value to show on the module **ECNext**. • **0** = module not connected • **1** = Pb1 probe • **2** = Pb2 probe • **3** = Pb3 probe. • **4** = setpoint.	0...4	num	0	0	0	0
ddL	Display mode during defrosting. • **0** = display the temperature read by Pb1 • **1** = inhibits reading on the value of Pb1 at the start of defrost and until the setpoint is reached • **2** = displays label **dEF** during defrost until the setpoint is reached.	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value - label **dEF**	0...250	min	30	30	30	30
ndt	Display with decimal point. • **no**(0) = no • **yES**(1) = yes.	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. • **0** = disabled • **1** = the filter is set based on time values **tAu** and **5tAu**, and is applied to the displayed information according to the value of parameter **Fit** • **2** = the temperature value shown changes by 1°C/°F every **tAu** minutes.	0/1/2	num	0 (not in applications)			
tAU	Display filter time constant.	0...250	min	0 (not in applications)			
Fit	Display filter mode. • **0** = the filter is only enabled when the temperature increases • **1** = the filter is always enabled (both when the temperature increases and when it decreases)	0/1	flag	0 (not in applications)			
PS1	When enabled (**PS1**≠0) this is the access key for the user parameters.	0...250	num	0	0	0	0
PS2	When enabled (**PS2**≠0) this is the access key for the installer parameters.	0...250	num	15	15	15	15
CnF (Configuration)							
H08	Stand-by operating mode. • **0** = display off; the regulators are active and the device signals possible alarms by reactivating the display • **1** = display off; the regulators and the alarms are blocked • **2** = the display shows the label “OFF”; the regulators and alarms are inhibited.	0/1/2	num	2	2	2	2

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H11	Configuration of digital input 1 (**DI**)/ polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved • **±13** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-13...+13	num	0	0	0	0
H12	Configuration of digital input 2 (**DI2**) / polarity. • **0** = disabled • **±1** = defrost • **±2** = reduced set • **±3** = auxiliary • **±4** = door switch • **±5** = external alarm • **±6** = stand-by • **±7** = pressure switch • **±8** = deep cooling • **±9** = light • **±10** = energy saving • **±11** = energy saving with door • **±12** = reserved **Note**: • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-12...+12	num	0	0	0	0
H13	Configuration of digital input 3 (**DI3**) / polarity. Same as **H12**.	-12...+12	num	0	0	0	0
H14	Configuration of digital input 4 (**DI4**) / polarity. Same as **H12**.	-12...+12	num	0	0	0	0
H21	Configuration of digital output 1 (**Out1**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control • **13** = reserved	0...13	num	1	1	1	1

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
H22	Configuration of digital output 2 (**Out2**). • **0** = disabled • **1** = compressor • **2** = defrost • **3** = evaporator fans • **4** = alarm • **5** = auxiliary • **6** = stand-by • **7** = light • **8** = reserved • **9** = compressor 2 • **10** = evaporator 2 defrost • **11** = condenser fans • **12** = heater deadband control.	0...12	num	2	2	2	2
H23	Configuration of digital output 3 (**Out3**). Same as **H22**.	0...12	num	3	3	3	3
H24	Configuration of digital output 4 (**Out4**). Same as **H22**.	0...12	num	5	5	5	5
H31	Configuration of ⚠ key. • **0** = disabled • **1** = defrost • **2** = auxiliary • **3** = reduced set • **4** = stand-by • **5** = reserved • **6** = reserved • **7** = deep cooling • **8** = light • **9** = energy saving • **10** = reserved	0...10	num	1	1	1	1
H32	Configuration of ▽ key. Same as **H31**.	0...10	num	0	0	0	0
H33	Configuration of ⏻ key. Same as **H31**.	0...10	num	4	4	4	4
H34	Configuration of 💡 key. Same as **H31**.	0...10	num	0	0	0	0
H35	Configuration of ☆ key. Same as **H31**.	0...10	num	0	0	0	0
H42	Probe Pb2 present. • **no**(0) = not present • **yES**(1) = present.	no/yES	flag	yES	yES	yES	yES
H43	Probe Pb3 present. • **no**(0) = not present • **yES**(1) = present • **2EP**(2) = second evaporator.	no/yES/2EP	flag	no	no	no	no
H45	Defrost input mode for applications with dual evaporator. • **0** = first evaporator only • **1** = if at least one of the evaporators is below its defrost end temperature • **2** = only if both evaporators are under the respective defrost end temperature • **3** = evaporator 1 and evaporator 2 alternately.	0...3	num	0	0	0	0
H60	Visualizzazione applicazione selezionata. **0** = disabilitato; **1** = AP1; **2** = AP2; **3** = AP3.	0...3	num	1 (not in applications)			
tAb	Reserved: read-only parameter.	/	/	/ (not in applications)			
CuS	Customer model reference.	0...999	num	0 (not in applications)			
FPr (UNICARD)							
UL	Transfer of the programming parameters from the controller to the UNICARD.	/	/	/ (not in applications)			
Fr	UNICARD formatting. Deletes all data on the UNICARD. **Note**: the use of parameter **Fr** results in the loss of all data entered. This operation cannot be reversed.	/	/	/ (not in applications)			
FnC (Functions)							

Parameter	Description	Range	MU	Default	AP1	AP2	AP3
oSP	Reduced set activation. The labels displayed will be: • **SP** = Activates the reduced set • **oSP** = Deactivates the reduced set	/	/	/ (not in applications)			
dEF	Activate defrost	/	/	/ (not in applications)			
AUX	AUX output activation / deactivation. The labels displayed will be: • **Aon** = Activates the AUX output • **AoF** = Deactivates the AUX output	/	/	/ (not in applications)			
rAP	Reset pressure switch alarms	/	/	/ (not in applications)			
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/ (not in applications)			
CPr (Low ambient temperature protection)							
tCP	Time temperature remains below low ambient temperature protection Setpoint (CPS).	0...250	min	0	0	0	0
SCP	Low ambient temperature protection setpoint.	-67.0...302	°C/°F	-10.0	-10.0	-10.0	-10.0
dCP	Low ambient temperature protection differential.	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0
dEC (Deep Cooling Cycle)							
dCA	Enable "Deep cooling cycle". • **diS**(0) = disabled • **Std**(1) = manual • **Aut**(2) = automatic	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	-67.0...302	°C/°F	-2.0	-2.0	-2.0	-2.0
tdC	"Deep cooling cycle" duration	0...250	min	0	0	0	0
dCC	Defrost activation delay after a "Deep cooling cycle"	0...250	min	0	0	0	0
Sid	Threshold for entering a “Deep Cooling Cycle”.	-67.0...302	°C/°F	12.0	12.0	12.0	12.0
toS	“Deep Cooling Cycle” activation time.	0...250	min	5	5	5	5

Note: if one or more parameters in folder **CnF** are changed, the controller must be switched off and then on again to make sure it works properly.

Modbus MSK functions and resources

Contents

This section includes the following topics:

Setting parameters via Modbus

Introduction

Modbus is a client/server protocol for communication between devices connected in a network. Modbus devices communicate using a master-slave technique in which only one device (master) can send request messages. The other devices in the network (slave) respond, returning the data requested by the master or executing the action contained in the message sent by the master. A slave is a device connected to a network that processes information and sends the results to the master using the Modbus protocol.

The master device can send messages to individual slaves, or to all devices connected to the network (broadcast), whilst slave devices can only respond to messages individually and to the master device. The Modbus standard used by Eliwell employs the RTU code for data transmission.

Data format (RTU)

The coding type used defines the structure of messages transmitted on the network and the way in which this information is deciphered. The coding type is usually chosen according to specific parameters (baudrate, parity, stop), plus certain devices only support specific coding types. Use the same coding type for all devices connected to a Modbus network.

The protocol uses the RTU binary method with the serial frame configured as follows:

- 8 bits for data
- parity bits NONE (configurable)
- 2 stop BITS

Parameters can be changed via:

- Device keypad
- UNICARD / DMI
- Send data via Modbus protocol directly to an individual device or in a broadcast using the address 0 (broadcast)

Modbus commands available and data areas

The following commands are implemented:

Modbus command	Description
03 (hex 0x03)	Read resources
16 (hex 0x10)	Write resources
43 (hex 0x2B)	Read device ID. The following 3 fields can be read: • 0 = Manufacturer ID • 1 = Model ID • 2 = Family ID (MSK) / device version

Note: Maximum length of transmitted/received messages equal to 50 bytes.

Configuration

The **TTL** serial port may be used to configure the device, parameters, statuses, variables using the Modbus protocol.

The address of a device within a Modbus message is set via parameter **Adr**.

The address **0** is used for broadcast messages that all slaves recognize. Slaves do not respond to a broadcast type request.

The device configuration parameters are as follows:

Parameter	Description
Adr	Modbus protocol controller address
bAU	Baudrate selection
Pty	Sets the Modbus protocol parity BIT and the number of stop BITs: • **n** = NONE parity bit + 2 stop BITS • **E** = EVEN parity bit + 1 stop BIT • **o** = ODD parity bit + 1 stop BIT

Note: Switch the controller off and on again after changing **Pty**.

Parameter values and visibility

Below are several notes relating to the value and visibility of the parameters.

Notes:

- Unless otherwise indicated, the parameter should be considered as visible and able to be changed unless the user applies custom settings via the serial port.
- If the visibility of the folder is changed all the parameters in that folder will assume the new setting.

Modbus table content

Introduction

The tables below contain the information required to access the resources properly.

There are 3 tables:

- **Modbus Parameters Table**: contains all the device configuration parameters including visibility
- **Folder Visibility Table**: contains the visibility of the folders containing the parameters
- **Modbus Resource Table**: contains all status (I/O) and alarm resources available in the volatile memory of the device.

Description of the columns

FOLDER
Indicates the name of the folder containing the parameter in question.

LABEL
Indicates the name with which the parameter appears in the menu.

DESCRIPTION
Description of the parameter's meaning.

PAR. ADDRESS VAL.
Represents the Modbus register address which contains the read or write value of the resource in the device.

FILTER VAL.
Represents the position of the most significant data bit inside the register. This information is always provided when the register contains more than one piece of information and it is necessary to distinguish which bits actually represent the data (the useful size of the data, indicated in the DATA SIZE column, should also be taken into account).

PAR. ADDRESS VIS.
Contains the Modbus register address which contains the visibility value of the resource to read or write in the device.

FILTER VIS.
Mask representing the position of the data inside the register (it has BITs set to 1 in correspondence with the register BITs effectively associated with the resource). It assumes values from 0 to 65535.

Note: in binary representation the least significant is furthest to the right.

Note: the size of the piece of visibility data is 2 BIT.

Visibility values:

- Value **0** = parameter or folder NOT visible
- Value **1** = parameter or folder visible at 'User' level only
- Value **2** = parameter or folder visible at 'Installer' level only
- Value **3** = parameter or folder visible both 'User' and 'Installer' level

R/W
Indicates the option of reading or writing the resource:

- R = the resource is read-only
- W = the resource is write-only
- R/W = the resource can be both read and written

DATA SIZE
Indicates the size of the piece of data (in bit):

- WORD = 16 bit
- Byte = 8 bit
- “n” bit = 0...15 bit based on the value of “n”

CPL
When the field indicates **Y**, the value read by the register needs to be converted because the value represents a number with a sign. In the other cases the value is always positive or null.

To convert it, proceed as follows:

If the register value falls between...	Then the result is...
0 and 32767	the same value (zero and positive values).
32768 and 65535	the register value, from which to subtract 65536 (negative values).

RANGE
Describes the interval of values that can be assigned to the parameter. This range can be correlated to the value of other parameters.

MU
Unit of measure for the values.

Table of Modbus Parameters

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
SEt	Regulation setpoint	**-**	32769	0	32931	49152	R/W	Word	Y	**LSE**...**HSE**	°C/°F
diF	Setpoint differential	**CP**	32770	0	32928	768	R/W	Word	-	0,1...30,0	°C/°F
LSE	Minimum setpoint value that can be set	**CP**	32771	0	32928	3072	R/W	Word	Y	-67,0...**HSE**	°C/°F
HSE	Maximum setpoint value that can be set	**CP**	32773	0	32928	12288	R/W	Word	Y	**LSE**...302	°C/°F
ont	Compressor output ON time if regulation probe is faulty	**CP**	32768	0	32929	3	R/W	Byte	-	0...250	min
oFt	Compressor output OFF time if regulation probe is faulty	**CP**	32772	0	32929	12	R/W	Byte	-	0...250	min
don	Compressor output activation delay from call	**CP**	32776	0	32929	48	R/W	Byte	-	0...250	s
doF	Compressor output activation delay from switch-off	**CP**	32780	0	32929	192	R/W	Byte	-	0...250	min
dbi	Delay between two consecutive compressor output power-ons	**CP**	32784	0	32929	768	R/W	Byte	-	0...250	min
Cit	Minimum compressor output activation time	**CP**	32800	0	32930	3	R/W	Byte	-	0...250	min
CAt	Maximum compressor output activation time	**CP**	32804	0	32930	12	R/W	Byte	-	0...250	min
odo	Output activation delay at startup	**CP**	32788	0	32929	3072	R/W	Byte	-	0...250	min
dFA	Condenser fan and compressor activation delay from the call	**CP**	32895	0	32930	3072	R/W	Byte	-	0...250	s
CP2	Compressor 2 activation delay.	**CP**	32887	255	32948	49152	R/W	Byte	-	0...250	min
dty	Compressor 2 activation delay.	**dEF**	32908	61440	32930	768	R/W	Byte	-	0/1/2	num
doH	Sets the type of regulation	**dEF**	32820	0	32931	3	R/W	Byte	-	0...250	min
dEt	Ice sensor differential	**dEF**	32816	0	32930	12288	R/W	Byte	-	1...250	min
dS1	Compressor 1 start-up mode	**dEF**	32774	0	32931	12	R/W	Word	Y	-67,0...302	°C/°F
dS2	Compressor 2 activation delay.	**dEF**	32775	0	32931	48	R/W	Word	Y	-67,0...302	°C/°F
dPo	Sets the type of regulation	**dEF**	32968	1024	32931	768	R/W	Byte	-	0/1	flag
dMr	Compressor 1 start-up mode	**dEF**	32969	2048	32961	12	R/W	Byte	-	0/1	flag
d00	Compressor 2 activation delay.	**dEF**	32889	0	32949	12	R/W	Byte	-	0...250	hours
d01	Sets the type of regulation	**dEF**	32925	12	32951	12	R/W	Byte	-	0/1/2	num
dit	Threshold (Setpoint) for ice sensor	**dEF**	32812	0	32949	49152	R/W	Byte	-	0...250	hours
d11	Ice sensor differential	**dEF**	32925	48	32951	48	R/W	Byte	-	0/1/2	num
d20	Compressor 1 start-up mode	**dEF**	32969	256	32951	768	R/W	Byte	-	0/1	flag
d40	Compressor 2 activation delay.	**dEF**	32913	240	32950	3	R/W	Byte	-	0/1	flag
d41	Sets the type of regulation	**dEF**	32837	0	32947	49152	R/W	Word	Y	-67,0...302	°C/°F
d42	Threshold (Setpoint) for ice sensor	**dEF**	32839	0	32947	12288	R/W	Byte	-	0...250	min
d43	Ice sensor differential	**dEF**	32913	3840	32950	12	R/W	Byte	-	0...3	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
d44	Compressor 1 start-up mode	**dEF**	32913	61440	32950	48	R/W	Byte	-	0/1	flag
d50	Sets the type of regulation	**dEF**	32916	61440	32958	3	R/W	Byte	-	0/1	flag
d51	Threshold (Setpoint) for ice sensor	**dEF**	32917	15	32958	12	R/W	Byte	-	0/1	flag
d52	Ice sensor differential	**dEF**	32849	0	32953	48	R/W	Byte	-	0,0...302	°C/°F
d53	Compressor 1 start-up mode	**dEF**	32853	0	32953	12288	R/W	Byte	-	0...999	min
d54	Compressor 2 activation delay.	**dEF**	32917	240	32958	48	R/W	Byte	-	0...3	num
d55	Sets the type of regulation	**dEF**	32917	3840	32958	192	R/W	Byte	-	0/1	flag
FPt	FSt parameter mode (absolute or relative)	**FAn**	32968	4096	32933	3	R/W	Byte	-	0/1	flag
FSt	Evaporator fan disabling temperature	**FAn**	32778	0	32933	12	R/W	Word	Y	-67,0...302	°C/°F
Fot	Evaporator fan activation temperature	**FAn**	32838	0	32948	768	R/W	Word	Y	-67,0...302	°C/°F
FAd	Evaporator fan trigger differential	**FAn**	32869	0	32933	48	R/W	Word	-	0,1...25,0	°C/°F
Fdt	Evaporator fan activation delay time after a defrost cycle	**FAn**	32832	0	32947	48	R/W	Byte	-	0...250	min
dt	Dripping time	**FAn**	32870	255	32933	192	R/W	Byte	-	0...250	min
dFd	Evaporator fan cut-out during defrost	**FAn**	32968	8192	32933	768	R/W	Byte	-	0/1	flag
FCo	Evaporator fan status with compressor output Off	**FAn**	32909	15	32932	49152	R/W	Byte	-	0...3	num
FdC	Evaporator fan shutoff delay after compressor deactivation	**FAn**	32870	0	32933	3072	R/W	Byte	-	0...250	min
Fon	Evaporator fan On time in cyclical regulator mode	**FAn**	32871	255	32933	12288	R/W	Byte	-	0...250	min
FoF	Evaporator fan Off time in cyclical regulator mode	**FAn**	32871	0	32933	49152	R/W	Byte	-	0...250	min
Fnn	Evaporator fan ON time in night mode (duty cycle)	**FAn**	32868	0	32932	3072	R/W	Byte	-	0...250	num
FnF	Evaporator fan OFF time in night mode (duty cycle)	**FAn**	32869	255	32932	12288	R/W	Byte	-	0...250	num
ESF	Night mode activation (Energy Saving)	**FAn**	32969	512	32951	3072	R/W	Byte	-	0/1	flag
Att	Alarm mode (absolute or relative)	**AL**	32968	32768	32934	12	R/W	Byte	-	0/1	flag
AFd	Alarm activation differential	**AL**	32872	0	32934	48	R/W	Word	-	0,1...25,0	°C/°F
HAL	Maximum alarm threshold	**AL**	32779	0	32934	192	R/W	Word	Y	**LAL**...302	°C/°F
LAL	Minimum alarm threshold	**AL**	32781	0	32934	768	R/W	Word	Y	-67,0...**HAL**	°C/°F
PAo	Temperature alarm exclusion time from power-on	**AL**	32873	255	32934	3072	R/W	Byte	-	0...10	min*10
dAo	Exclusion time for temperature alarms after a defrost cycle	**AL**	32841	0	32934	12288	R/W	Word	-	0...250	min
oAo	High and low temperature alarms exclusion time after closing the door	**AL**	32874	255	32934	49152	R/W	Byte	-	0...10	hours
tdo	Door open alarm exclusion time	**AL**	32875	255	32935	49152	R/W	Byte	-	0...250	min
tAo	Temperature alarm signaling delay time	**AL**	32874	0	32935	3	R/W	Byte	-	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
dAt	Defrost ended due to timeout alarm signaling	**AL**	32782	0	32935	12	R/W	Byte	-	0/1	flag
EAL	Regulators inhibited by external alarm	**AL**	32915	3840	32935	48	R/W	Byte	-	0/1/2	num
AoP	Alarm output polarity	**AL**	32969	1	32935	768	R/W	Byte	-	0/1	flag
SA3	Alarm setpoint for probe 3	**AL**	32831	0	32947	12	R/W	Word	Y	-67,0...302	°C/°F
dA3	Probe 3 alarm tripping differential	**AL**	32833	0	32947	192	R/W	Word	-	0,1...30,0	°C/°F
rFt	Refrigerant level alarm bypass	**AL**	33051	0	32985	12288	R/W	Byte	-	0...250	min
ESA	AUX status during Energy Saving	**Lit**	32925	768	32959	3072	R/W	Byte	-	0/1/2	num
tA1	Bring Aux/light switch-on before night/day transition forward	**Lit**	32866	255	32956	12288	R/W	Byte	-	0...250	min
tA2	Delay Aux/light switch-off after night/day transition	**Lit**	32866	0	32956	49152	R/W	Byte	-	0...250	min
dod	Enable utility shutoff upon door switch activation	**dOr**	32909	3840	32935	12288	R/W	Byte	-	0...3	num
dAd	D.I. activation indication delay time 1/2	**dOr**	32882	255	32940	3072	R/W	Byte	-	0...250	min
dCo	Compressor activation delay from acknowledgment	**dOr**	32840	0	32931	3072	R/W	Byte	-	0...250	min
tn1	Energy Saving mode activation delay	**dOr**	32848	0	32953	12	R/W	Byte	-	0...250	min
dCd	Fans activation delay after door closed.	**dOr**	32875	0	32936	3072	R/W	Byte	-	0...250	s
AUP	Associate aux relay with door switch	**dOr**	32909	240	32935	192	R/W	Byte	-	0/1	flag
PEn	Number of errors permitted per minimum/maximum pressure switch input	**PrE**	32894	255	32946	12288	R/W	Byte	-	0...15	num
PEi	Minimum/maximum pressure switch error calculation interval	**PrE**	32894	0	32946	49152	R/W	Byte	-	1...99	min
PEt	Compressor activation delay after pressure switch deactivation	**PrE**	32895	255	32947	3	R/W	Byte	-	0...255	min
SPn	Night mode setpoint	**EnS**	32854	0	32953	49152	R/W	Word	Y	-67,0...302	°C/°F
dFn	Night mode offset	**EnS**	32855	0	32954	3	R/W	Word	-	0,1...30,0	°C/°F
oSP	Offset on setpoint	**EnS**	32783	0	32936	49152	R/W	Word	Y	-30,0...30,0	°C/°F
odF	Trigger differential correction	**EnS**	32785	0	32937	48	R/W	Word	-	0,1...30,0	°C/°F
ESt	Type of action for the Energy Saving function	**EnS**	32918	3840	32958	49152	R/W	Byte	-	0...5	num
dnt	Night mode duration	**EnS**	32877	255	32937	3	R/W	Byte	-	0...24	hours
Cdt	Door closing time	**EnS**	32877	0	32937	12	R/W	Byte	-	0...250	min*10
PdC	Pull-Down mode	**PLd**	32915	61440	32963	3	R/W	Byte	-	0/1/2	num
tPd	Fast cooling mode duration	**PLd**	32836	0	32962	768	R/W	Byte	-	0...250	min
SPF	Fast cooling setpoint	**PLd**	32845	0	32952	12288	R/W	Word	Y	-67,0...302	°C/°F
dFF	Fast cooling offset	**PLd**	32842	0	32951	49152	R/W	Word	-	0,1...30,0	°C/°F
Pdo	Step value for fast cooling setpoint	**PLd**	32843	0	32952	768	R/W	Word	-	0,1...30,0	°C/°F
Pdn	Step number for fast cooling setpoint	**PLd**	32916	3840	32957	49152	R/W	Byte	-	1...10	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
Adr	Modbus protocol controller address	**Add**	33048	0	32984	768	R/W	Byte	-	0...247	num
bAU	Baudrate selection	**Add**	33051	255	32984	3072	R/W	Byte	-	0/1/2	num
PtY	MODBUS parity bit	**Add**	33049	255	32984	12288	R/W	Byte	-	0/1/2	num
dro	Select °C / °F	**diS**	32969	8	32937	192	R/W	Byte	-	0/1	flag
CA1	Analog input 1 calibration	**diS**	32786	0	32937	768	R/W	Word	Y	-30,0...30,0	°C/°F
CA2	Analog input 2 calibration	**diS**	32787	0	32937	3072	R/W	Word	Y	-30,0...30,0	°C/°F
CA3	Analog input 3 calibration	**diS**	32789	0	32937	12288	R/W	Word	Y	-30,0...30,0	°C/°F
LoC	Disable keypad	**diS**	32969	16	32938	48	R/W	Byte	-	0/1	flag
ddd	Select main display value	**diS**	32909	61440	32938	192	R/W	Byte	-	0...3	num
ddE	Display on eco device	**diS**	32918	240	32958	12288	R/W	Byte	-	0...4	num
ddL	Display lock mode during a defrost	**diS**	32910	15	32938	768	R/W	Byte	-	0/1/2	num
Ldd	Display lock timeout from end of defrost	**diS**	32878	255	32938	3072	R/W	Byte	-	0...250	min
ndt	Display with decimal point	**diS**	32969	32	32938	12288	R/W	Byte	-	0/1	flag
FiS	Select display filter	**diS**	33053	255	32990	3	R/W	Byte	-	0/1/2	num
tAu	Display filter time constant	**diS**	33053	0	32990	12	R/W	Byte	-	0...250	min
Fit	Display filter mode	**diS**	33054	255	32990	48	R/W	Byte	-	0/1	flag
PS1	Password 1 value	**diS**	32879	0	32939	192	R/W	Byte	-	0...250	num
PS2	Password 2 value	**diS**	32880	0	32939	768	R/W	Byte	-	0...250	num
H08	Stand-by operating mode	**CnF**	32925	3	32939	12288	R/W	Byte	-	0/1/2	num
H11	Configurability of digital input 1	**CnF**	32881	255	32939	49152	R/W	Word	Y	-13...13	num
H12	Configurability of digital input 2	**CnF**	32881	0	32940	768	R/W	Word	Y	-12...12	num
H13	Configurability of digital input 3	**CnF**	32901	65280	32949	192	R/W	Word	Y	-12...12	num
H14	Configurability of digital input 4	**CnF**	32902	255	32949	768	R/W	Word	Y	-12...12	num
H21	Configurability of digital output Out1	**CnF**	32884	0	32940	12288	R/W	Byte	-	0...13	num
H22	Configurability of digital output Out2	**CnF**	32885	255	32940	49152	R/W	Byte	-	0...12	num
H23	Configurability of digital output Out3	**CnF**	32885	0	32941	3	R/W	Byte	-	0...12	num
H24	Configurability of digital output Out4	**CnF**	32886	255	32941	12	R/W	Byte	-	0...12	num
H31	Key configuration	**CnF**	32910	61440	32941	48	R/W	Byte	-	0...10	num
H32	Key configuration	**CnF**	32911	15	32941	192	R/W	Byte	-	0...10	num
H33	Key configuration	**CnF**	32911	240	32941	768	R/W	Byte	-	0...10	num
H34	Key configuration	**CnF**	32911	3840	32941	3072	R/W	Byte	-	0...10	num
H35	Key configuration	**CnF**	32911	61440	32941	12288	R/W	Byte	-	0...10	num
H42	Configuration of analog input Pb2	**CnF**	32912	61440	32942	3	R/W	Byte	-	0/1	flag
H43	Configuration of analog input Pb3	**CnF**	32913	15	32942	12	R/W	Byte	-	0/1/2	num
H45	Defrost input mode for applications with dual evaporator	**CnF**	32915	15	32950	49152	R/W	Byte	-	0...3	num
H60	Parameter vector selector	**CnF**	33043	0	32987	192	R	Byte	-	0...3	num
tAb	Map code	**CnF**	32997	0	32985	12	R	Word	-	0...999	num
CuS	Customer model reference	**CnF**	33689	0	32990	192	RW	Word	-	0...999	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
UL	Visibility of the function transferring the programming parameters from the controller to the UNICARD	**FPr**	-	-	32985	48	R/W	2 bit	-	0...3	num
Fr	UNICARD formatting function visibility	**FPr**	-	-	32985	768	R/W	2 bit	-	0...3	num
oSP	Reduced set activation	**FnC**	-	-	32988	768	R/W	2 bit	-	0...3	num
dEF	Activate defrost	**FnC**	-	-	32987	768	R/W	2 bit	-	0...3	num
AUX	AUX output activation / deactivation	**FnC**	-	-	32987	49152	R/W	2 bit	-	0...3	num
rAP	Pressure switch alarm reset visibility	**FnC**	-	-	32985	3072	R/W	2 bit	-	0...3	num
tCP	Time temperature remains below the cool protection setpoint	**CPr**	32844	0	32952	3072	R/W	Byte	-	0...250	min
SCP	Cool protection setpoint	**CPr**	32846	0	32952	49152	R/W	Word	Y	-67,0...302	°C/°F
dCP	Cool protection differential	**CPr**	32847	0	32953	3	R/W	Word	-	0,1...30,0	°C/°F
dCA	Enable deep cooling	**dEC**	32925	3072	32959	12288	R/W	Byte	-	0/1/2	num
dCS	Deep cooling setpoint	**dEC**	32834	0	32947	768	R/W	Word	Y	-67,0...302	°C/°F
tdC	Deep cooling duration	**dEC**	32886	0	32948	12288	R/W	Byte	-	0...250	min
dCC	Defrost delay after deep cooling	**dEC**	32883	0	32948	3072	R/W	Byte	-	0...250	min
Sid	Deep cooling start threshold	**dEC**	32857	0	32962	48	R/W	Word	Y	-67,0...302	°C/°F
toS	Time above the threshold for deep cooling start	**dEC**	32867	255	32957	3	R/W	Byte	-	0...250	min
Application 1 parameters											
V1-SEt	Regulation setpoint	**V1**	33073	0	33235	49152	R/W	Word	Y	**LSE**...**HSE**	°C/°F
V1-diF	Setpoint differential	**V1**	33074	0	33232	768	R/W	Word	-	0,1...30,0	°C/°F
V1-LSE	Minimum setpoint value that can be set	**V1**	33075	0	33232	3072	R/W	Word	Y	-67,0...**HSE**	°C/°F
V1-HSE	Maximum setpoint value that can be set	**V1**	33077	0	33232	12288	R/W	Word	Y	**LSE**...302	°C/°F
V1-ont	Compressor output ON time if regulation probe is faulty	**V1**	33072	0	33233	3	R/W	Byte	-	0...250	min
V1-oFt	Compressor output OFF time if regulation probe is faulty	**V1**	33076	0	33233	12	R/W	Byte	-	0...250	min
V1-don	Compressor output activation delay from call	**V1**	33080	0	33233	48	R/W	Byte	-	0...250	s
V1-doF	Compressor output activation delay from switch-off	**V1**	33084	0	33233	192	R/W	Byte	-	0...250	min
V1-dbi	Delay between two consecutive compressor output power-ons	**V1**	33088	0	33233	768	R/W	Byte	-	0...250	min
V1-Cit	Minimum compressor output activation time	**V1**	33104	0	33234	3	R/W	Byte	-	0...250	min
V1-CAt	Maximum compressor output activation time	**V1**	33108	0	33234	12	R/W	Byte	-	0...250	min
V1-odo	Output activation delay at startup	**V1**	33092	0	33233	3072	R/W	Byte	-	0...250	min
V1-dFA	Condenser fan and compressor activation delay from the call	**V1**	33199	0	33234	3072	R/W	Byte	-	0...250	s

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-CP2	Compressor 2 activation delay.	**V1**	33191	255	33252	49152	R/W	Byte	-	0...250	min
V1-dty	Type of defrost	**V1**	33212	61440	33234	768	R/W	Byte	-	0/1/2	num
V1-doH	Defrost cycle activation delay from the call	**V1**	33124	0	33235	3	R/W	Byte	-	0...250	min
V1-dEt	Defrost timeout	**V1**	33120	0	33234	12288	R/W	Byte	-	1...250	min
V1-dS1	Evaporator 1 defrost end temperature	**V1**	33078	0	33235	12	R/W	Word	Y	-67,0...302	°C/°F
V1-dS2	Evaporator 2 defrost end temperature	**V1**	33079	0	33235	48	R/W	Word	Y	-67,0...302	°C/°F
V1-dPo	Defrost activation request at power-on	**V1**	33272	1024	33235	768	R/W	Byte	-	0/1	flag
V1-dMr	Enable defrost timer reset with manual defrost	**V1**	33273	2048	33265	12	R/W	Byte	-	0/1	flag
V1-d00	Cumulative time for defrost activation	**V1**	33193	0	33253	12	R/W	Byte	-	0...250	hours
V1-d01	Parameter d00 unit of measure	**V1**	33229	12	33255	12	R/W	Byte	-	0/1/2	num
V1-dit	Device time for defrost activation	**V1**	33116	0	33253	49152	R/W	Byte	-	0...250	hours
V1-d11	Parameter dit unit of measure	**V1**	33229	48	33255	48	R/W	Byte	-	0/1/2	num
V1-d20	Enable defrost at compressor stop	**V1**	33273	256	33255	768	R/W	Byte	-	0/1	flag
V1-d40	Select defrost probe 1	**V1**	33217	240	33254	3	R/W	Byte	-	0/1	flag
V1-d41	Temperature threshold for starting defrost	**V1**	33141	0	33251	49152	R/W	Word	Y	-67,0...302	°C/°F
V1-d42	Time the evaporator temperature must remain below the threshold	**V1**	33143	0	33251	12288	R/W	Byte	-	0...250	min
V1-d43	Time count mode for temperature below threshold	**V1**	33217	3840	33254	12	R/W	Byte	-	0...3	num
V1-d44	Threshold management mode	**V1**	33217	61440	33254	48	R/W	Byte	-	0/1	flag
V1-d50	Defrost probe Pb2 selection	**V1**	33220	61440	33262	3	R/W	Byte	-	0/1	flag
V1-d51	Defrost probe Pb1 selection	**V1**	33221	15	33262	12	R/W	Byte	-	0/1	flag
V1-d52	Temperature threshold for starting defrost	**V1**	33153	0	33257	48	R/W	Byte	-	0,0...302	°C/°F
V1-d53	Time the temperature differential must remain above the threshold	**V1**	33157	0	33257	12288	R/W	Byte	-	0...999	min
V1-d54	Time count mode for temperature differential above threshold	**V1**	33221	240	33262	48	R/W	Byte	-	0...3	num
V1-d55	Threshold management mode	**V1**	33221	3840	33262	192	R/W	Byte	-	0/1	flag
V1-FPt	FSt parameter mode (absolute or relative)	**V1**	33272	4096	33237	3	R/W	Byte	-	0/1	flag
V1-FSt	Evaporator fan disabling temperature	**V1**	33082	0	33237	12	R/W	Word	Y	-67,0...302	°C/°F
V1-Fot	Evaporator fan activation temperature	**V1**	33142	0	33252	768	R/W	Word	Y	-67,0...302	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-FAd	Evaporator fan trigger differential	**V1**	33173	0	33237	48	R/W	Word	-	0,1...25,0	°C/°F
V1-Fdt	Evaporator fan activation delay time after a defrost cycle	**V1**	33136	0	33251	48	R/W	Byte	-	0...250	min
V1-dt	Dripping time	**V1**	33174	255	33237	192	R/W	Byte	-	0...250	min
V1-dFd	Evaporator fan cut-out during defrost	**V1**	33272	8192	33237	768	R/W	Byte	-	0/1	flag
V1-FCo	Evaporator fan status with compressor output Off	**V1**	33213	15	33236	49152	R/W	Byte	-	0...3	num
V1-FdC	Evaporator fan shutoff delay after compressor deactivation	**V1**	33174	0	33237	3072	R/W	Byte	-	0...250	min
V1-Fon	Evaporator fan On time in cyclical regulator mode	**V1**	33175	255	33237	12288	R/W	Byte	-	0...250	min
V1-FoF	Evaporator fan Off time in cyclical regulator mode	**V1**	33175	0	33237	49152	R/W	Byte	-	0...250	min
V1-Fnn	Evaporator fan ON time in night mode (duty cycle)	**V1**	33172	0	33236	3072	R/W	Byte	-	0...250	num
V1-FnF	Evaporator fan OFF time in night mode (duty cycle)	**V1**	33173	255	33236	12288	R/W	Byte	-	0...250	num
V1-ESF	Night mode activation (Energy Saving)	**V1**	33273	512	33255	3072	R/W	Byte	-	0/1	flag
V1-Att	Alarm mode (absolute or relative)	**V1**	33272	32768	33238	12	R/W	Byte	-	0/1	flag
V1-AFd	Alarm activation differential	**V1**	33176	0	33238	48	R/W	Word	-	0,1...25,0	°C/°F
V1-HAL	Maximum alarm threshold	**V1**	33083	0	33238	192	R/W	Word	Y	**LAL**...302	°C/°F
V1-LAL	Minimum alarm threshold	**V1**	33085	0	33238	768	R/W	Word	Y	-67,0...**HAL**	°C/°F
V1-PAo	Temperature alarm exclusion time from power-on	**V1**	33177	255	33238	3072	R/W	Byte	-	0...10	min*10
V1-dAo	Exclusion time for temperature alarms after a defrost cycle	**V1**	33145	0	33238	12288	R/W	Word	-	0...250	min
V1-oAo	High and low temperature alarms exclusion time after closing the door	**V1**	33178	255	33238	49152	R/W	Byte	-	0...10	hours
V1-tdo	Door open alarm exclusion time	**V1**	33179	255	33239	49152	R/W	Byte	-	0...250	min
V1-tAo	Temperature alarm signaling delay time	**V1**	33178	0	33239	3	R/W	Byte	-	0...250	min
V1-dAt	Defrost ended due to timeout alarm signaling	**V1**	33086	0	33239	12	R/W	Byte	-	0/1	flag
V1-EAL	Regulators inhibited by external alarm	**V1**	33219	3840	33239	48	R/W	Byte	-	0/1/2	num
V1-AoP	Alarm output polarity	**V1**	33273	1	33239	768	R/W	Byte	-	0/1	flag
V1-SA3	Alarm setpoint for probe 3	**V1**	33135	0	33251	12	R/W	Word	Y	-67,0...302	°C/°F
V1-dA3	Probe 3 alarm tripping differential	**V1**	33137	0	33251	192	R/W	Word	-	0,1...30,0	°C/°F
V1-ESA	AUX status during Energy Saving	**V1**	33229	768	33263	3072	R/W	Byte	-	0/1/2	num
V1-dod	Enable utility shutoff upon door switch activation	**V1**	33213	3840	33239	12288	R/W	Byte	-	0...3	num
V1-dAd	D.I. activation indication delay time 1/2	**V1**	33186	255	33244	3072	R/W	Byte	-	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-dCo	Compressor activation delay from acknowledgment	**V1**	33144	0	33235	3072	R/W	Byte	-	0...250	min
V1-tn1	Energy Saving mode activation delay	**V1**	33152	0	33257	12	R/W	Byte	-	0...250	min
V1-dCd	Fans activation delay after door closed.	**V1**	33179	0	33240	3072	R/W	Byte	-	0...250	s
V1-AUP	Associate aux relay with door switch	**V1**	33213	240	33239	192	R/W	Byte	-	0/1	flag
V1-PEn	Number of errors permitted per minimum/maximum pressure switch input	**V1**	33198	255	33250	12288	R/W	Byte	-	0...15	num
V1-PEi	Minimum/maximum pressure switch error calculation interval	**V1**	33198	0	33250	49152	R/W	Byte	-	1...99	min
V1-PEt	Compressor activation delay after pressure switch deactivation	**V1**	33199	255	33251	3	R/W	Byte	-	0...255	min
V1-SPn	Night mode setpoint	**V1**	33158	0	33257	49152	R/W	Word	Y	-67,0...302	°C/°F
V1-dFn	Night mode offset	**V1**	33159	0	33258	3	R/W	Word	-	0,1...30,0	°C/°F
V1-oSP	Offset on setpoint	**V1**	33087	0	33240	49152	R/W	Word	Y	-30,0...30,0	°C/°F
V1-odF	Trigger differential correction	**V1**	33089	0	33241	48	R/W	Word	-	0,1...30,0	°C/°F
V1-ESt	Type of action for the Energy Saving function	**V1**	33222	3840	33262	49152	R/W	Byte	-	0...5	num
V1-dnt	Night mode duration	**V1**	33181	255	33241	3	R/W	Byte	-	0...24	hours
V1-Cdt	Door closing time	**V1**	33181	0	33241	12	R/W	Byte	-	0...250	min*10
V1-PdC	Pull-Down mode	**V1**	33219	61440	33267	3	R/W	Byte	-	0/1/2	num
V1-tPd	Fast cooling mode duration	**V1**	33140	0	33266	768	R/W	Byte	-	0...250	min
V1-SPF	Fast cooling setpoint	**V1**	33149	0	33256	12288	R/W	Word	Y	-67,0...302	°C/°F
V1-dFF	Fast cooling offset	**V1**	33146	0	33255	49152	R/W	Word	-	0,1...30,0	°C/°F
V1-Pdo	Step value for fast cooling setpoint	**V1**	33147	0	33256	768	R/W	Word	-	0,1...30,0	°C/°F
V1-Pdn	Step number for fast cooling setpoint	**V1**	33220	3840	33261	49152	R/W	Byte	-	1...10	num
V1-dro	Select °C / °F	**V1**	33273	8	33241	192	R/W	Byte	-	0/1	flag
V1-CA1	Probe Pb1 calibration	**V1**	33090	0	33241	768	R/W	Word	Y	-30,0...30,0	°C/°F
V1-CA2	Probe Pb2 calibration	**V1**	33091	0	33241	3072	R/W	Word	Y	-30,0...30,0	°C/°F
V1-CA3	Probe Pb3 calibration	**V1**	33093	0	33241	12288	R/W	Word	Y	-30,0...30,0	°C/°F
V1-LoC	Enable keypad lock	**V1**	33273	16	33242	48	R/W	Byte	-	0/1	flag
V1-ddd	Select main display value	**V1**	33213	61440	33242	192	R/W	Byte	-	0...3	num
V1-ddE	Display on eco device	**V1**	33222	240	33262	12288	R/W	Byte	-	0...4	num
V1-ddL	Inhibit resources at the end of defrost	**V1**	33214	15	33242	768	R/W	Byte	-	0/1/2	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-Ldd	Display lock timeout from end of defrost	**V1**	33182	255	33242	3072	R/W	Byte	-	0...250	min
V1-ndt	Display with decimal point	**V1**	33273	32	33242	12288	R/W	Byte	-	0/1	flag
V1-PS1	Password 1 value	**V1**	33183	0	33243	192	R/W	Byte	-	0...250	num
V1-PS2	Password 2 value	**V1**	33184	0	33243	768	R/W	Byte	-	0...250	num
V1-H08	Stand-by operating mode	**V1**	33229	3	33243	12288	R/W	Byte	-	0/1/2	num
V1-H11	Configurability of digital input 1	**V1**	33185	255	33243	49152	R/W	Word	Y	-13...13	num
V1-H12	Configurability of digital input 2	**V1**	33185	0	33244	768	R/W	Word	Y	-12...12	num
V1-H13	Configurability of digital input 3	**V1**	33205	65280	33253	192	R/W	Word	Y	-12...12	num
V1-H14	Configurability of digital input 4	**V1**	33206	255	33253	768	R/W	Word	Y	-12...12	num
V1-H21	Configurability of digital output Out1	**V1**	33188	0	33244	12288	R/W	Byte	-	0...13	num
V1-H22	Configurability of digital output Out2	**V1**	33189	255	33244	49152	R/W	Byte	-	0...12	num
V1-H23	Configurability of digital output Out3	**V1**	33189	0	33245	3	R/W	Byte	-	0...12	num
V1-H24	Configurability of digital output Out4	**V1**	33190	255	33245	12	R/W	Byte	-	0...12	num
V1-H31	Key configuration	**V1**	33214	61440	33245	48	R/W	Byte	-	0...10	num
V1-H32	Key configuration	**V1**	33215	15	33245	192	R/W	Byte	-	0...10	num
V1-H33	Key configuration	**V1**	33215	240	33245	768	R/W	Byte	-	0...10	num
V1-H34	Key configuration	**V1**	33215	3840	33245	3072	R/W	Byte	-	0...10	num
V1-H35	Key configuration	**V1**	33215	61440	33245	12288	R/W	Byte	-	0...10	num
V1-H42	Configuration of analog input Pb2	**V1**	33216	61440	33246	3	R/W	Byte	-	0/1	flag
V1-H43	Configuration of analog input Pb3	**V1**	33217	15	33246	12	R/W	Byte	-	0/1/2	num
V1-H45	Defrost input mode for applications with dual evaporator	**V1**	33219	15	33254	49152	R/W	Byte	-	0...3	num
V1-tCP	Time temperature remains below the cool protection setpoint	**V1**	33148	0	33256	3072	R/W	Byte	-	0...250	min
V1-SCP	Cool protection setpoint	**V1**	33150	0	33256	49152	R/W	Word	Y	-67,0...302	°C/°F
V1-dCP	Cool protection differential	**V1**	33151	0	33257	3	R/W	Word	-	0,1...30,0	°C/°F
V1-dCA	Enable deep cooling	**V1**	33229	3072	33263	12288	R/W	Byte	-	0/1/2	num
V1-dCS	Deep cooling setpoint	**V1**	33138	0	33251	768	R/W	Word	Y	-67,0...302	°C/°F
V1-tdC	Deep cooling duration	**V1**	33190	0	33252	12288	R/W	Byte	-	0...250	min
V1-dCC	Defrost delay after deep cooling	**V1**	33187	0	33252	3072	R/W	Byte	-	0...250	min
V1-Sid	Deep cooling start threshold	**V1**	33161	0	33266	48	R/W	Word	Y	-67,0...302	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-toS	Time above the threshold for deep cooling start	**V1**	33171	255	33261	3	R/W	Byte	-	0...250	min
Application 2 parameters											
V2-SEt	Regulation setpoint	**V2**	33281	0	33443	49152	R/W	Word	Y	**LSE**...**HSE**	°C/°F
V2-diF	Setpoint differential	**V2**	33282	0	33440	768	R/W	Word	-	0,1...30,0	°C/°F
V2-LSE	Minimum setpoint value that can be set	**V2**	33283	0	33440	3072	R/W	Word	Y	-67,0...**HSE**	°C/°F
V2-HSE	Maximum setpoint value that can be set	**V2**	33285	0	33440	12288	R/W	Word	Y	**LSE**...302	°C/°F
V2-ont	Compressor output ON time if regulation probe is faulty	**V2**	33280	0	33441	3	R/W	Byte	-	0...250	min
V2-oFt	Compressor output OFF time if regulation probe is faulty	**V2**	33284	0	33441	12	R/W	Byte	-	0...250	min
V2-don	Compressor output activation delay from call	**V2**	33288	0	33441	48	R/W	Byte	-	0...250	s
V2-doF	Compressor output activation delay from switch-off	**V2**	33292	0	33441	192	R/W	Byte	-	0...250	min
V2-dbi	Delay between two consecutive compressor output power-ons	**V2**	33296	0	33441	768	R/W	Byte	-	0...250	min
V2-Cit	Minimum compressor output activation time	**V2**	33312	0	33442	3	R/W	Byte	-	0...250	min
V2-CAt	Maximum compressor output activation time	**V2**	33316	0	33442	12	R/W	Byte	-	0...250	min
V2-odo	Output activation delay at startup	**V2**	33300	0	33441	3072	R/W	Byte	-	0...250	min
V2-dFA	Condenser fan and compressor activation delay from the call	**V2**	33407	0	33442	3072	R/W	Byte	-	0...250	s
V2-CP2	Compressor 2 activation delay.	**V2**	33399	255	33460	49152	R/W	Byte	-	0...250	min
V2-dty	Type of defrost	**V2**	33420	61440	33442	768	R/W	Byte	-	0/1/2	num
V2-doH	Defrost cycle activation delay from the call	**V2**	33332	0	33443	3	R/W	Byte	-	0...250	min
V2-dEt	Defrost timeout	**V2**	33328	0	33442	12288	R/W	Byte	-	1...250	min
V2-dS1	Evaporator 1 defrost end temperature	**V2**	33286	0	33443	12	R/W	Word	Y	-67,0...302	°C/°F
V2-dS2	Evaporator 2 defrost end temperature	**V2**	33287	0	33443	48	R/W	Word	Y	-67,0...302	°C/°F
V2-dPo	Defrost activation request at power-on	**V2**	33480	1024	33443	768	R/W	Byte	-	0/1	flag
V2-dMr	Enable defrost timer reset with manual defrost	**V2**	33481	2048	33473	12	R/W	Byte	-	0/1	flag
V2-d00	Cumulative time for defrost activation	**V2**	33401	0	33461	12	R/W	Byte	-	0...250	ore
V2-d01	Parameter d00 unit of measure	**V2**	33437	12	33463	12	R/W	Byte	-	0/1/2	num
V2-dit	Device time for defrost activation	**V2**	33324	0	33461	49152	R/W	Byte	-	0...250	ore
V2-d11	Parameter dit unit of measure	**V2**	33437	48	33463	48	R/W	Byte	-	0/1/2	num
V2-d20	Enable defrost at compressor stop	**V2**	33481	256	33463	768	R/W	Byte	-	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-d40	Select defrost probe 1	**V2**	33425	240	33462	3	R/W	Byte	-	0/1	flag
V2-d41	Temperature threshold for starting defrost	**V2**	33349	0	33459	49152	R/W	Word	Y	-67,0...302	°C/°F
V2-d42	Time the evaporator temperature must remain below the threshold	**V2**	33351	0	33459	12288	R/W	Byte	-	0...250	min
V2-d43	Time count mode for temperature below threshold	**V2**	33425	3840	33462	12	R/W	Byte	-	0...3	num
V2-d44	Threshold management mode	**V2**	33425	61440	33462	48	R/W	Byte	-	0/1	flag
V2-d50	Defrost probe Pb2 selection	**V2**	33428	61440	33470	3	R/W	Byte	-	0/1	flag
V2-d51	Defrost probe Pb1 selection	**V2**	33429	15	33470	12	R/W	Byte	-	0/1	flag
V2-d52	Temperature threshold for starting defrost	**V2**	33361	0	33465	48	R/W	Byte	-	0,0...302	°C/°F
V2-d53	Time the temperature differential must remain above the threshold	**V2**	33365	0	33465	12288	R/W	Byte	-	0...999	min
V2-d54	Time count mode for temperature differential above threshold	**V2**	33429	240	33470	48	R/W	Byte	-	0...3	num
V2-d55	Threshold management mode	**V2**	33429	3840	33470	192	R/W	Byte	-	0/1	flag
V2-FPt	FSt parameter mode (absolute or relative)	**V2**	33480	4096	33445	3	R/W	Byte	-	0/1	flag
V2-FSt	Evaporator fan disabling temperature	**V2**	33290	0	33445	12	R/W	Word	Y	-67,0...302	°C/°F
V2-Fot	Evaporator fan activation temperature	**V2**	33350	0	33460	768	R/W	Word	Y	-67,0...302	°C/°F
V2-FAd	Evaporator fan trigger differential	**V2**	33381	0	33445	48	R/W	Word	-	0,1...25,0	°C/°F
V2-Fdt	Evaporator fan activation delay time after a defrost cycle	**V2**	33344	0	33459	48	R/W	Byte	-	0...250	min
V2-dt	Dripping time	**V2**	33382	255	33445	192	R/W	Byte	-	0...250	min
V2-dFd	Evaporator fan cut-out during defrost	**V2**	33480	8192	33445	768	R/W	Byte	-	0/1	flag
V2-FCo	Evaporator fan status with compressor output Off	**V2**	33421	15	33444	49152	R/W	Byte	-	0...3	num
V2-FdC	Evaporator fan shutoff delay after compressor deactivation	**V2**	33382	0	33445	3072	R/W	Byte	-	0...250	min
V2-Fon	Evaporator fan On time in cyclical regulator mode	**V2**	33383	255	33445	12288	R/W	Byte	-	0...250	min
V2-FoF	Evaporator fan Off time in cyclical regulator mode	**V2**	33383	0	33445	49152	R/W	Byte	-	0...250	min
V2-Fnn	Evaporator fan ON time in night mode (duty cycle)	**V2**	33380	0	33444	3072	R/W	Byte	-	0...250	num
V2-FnF	Evaporator fan OFF time in night mode (duty cycle)	**V2**	33381	255	33444	12288	R/W	Byte	-	0...250	num
V2-ESF	Night mode activation (Energy Saving)	**V2**	33481	512	33463	3072	R/W	Byte	-	0/1	flag
V2-Att	Alarm mode (absolute or relative)	**V2**	33480	32768	33446	12	R/W	Byte	-	0/1	flag
V2-AFd	Alarm activation differential	**V2**	33384	0	33446	48	R/W	Word	-	0,1...25,0	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-HAL	Maximum alarm threshold	**V2**	33291	0	33446	192	R/W	Word	Y	**LAL**...302	°C/°F
V2-LAL	Minimum alarm threshold	**V2**	33293	0	33446	768	R/W	Word	Y	-67,0...**HAL**	°C/°F
V2-PAo	Temperature alarm exclusion time from power-on	**V2**	33385	255	33446	3072	R/W	Byte	-	0...10	min*10
V2-dAo	Exclusion time for temperature alarms after a defrost cycle	**V2**	33353	0	33446	12288	R/W	Word	-	0...250	min
V2-oAo	High and low temperature alarms exclusion time after closing the door	**V2**	33386	255	33446	49152	R/W	Byte	-	0...10	hours
V2-tdo	Door open alarm exclusion time	**V2**	33387	255	33447	49152	R/W	Byte	-	0...250	min
V2-tAo	Temperature alarm signaling delay time	**V2**	33386	0	33447	3	R/W	Byte	-	0...250	min
V2-dAt	Defrost ended due to timeout alarm signaling	**V2**	33294	0	33447	12	R/W	Byte	-	0/1	flag
V2-EAL	Regulators inhibited by external alarm	**V2**	33427	3840	33447	48	R/W	Byte	-	0/1/2	num
V2-AoP	Alarm output polarity	**V2**	33481	1	33447	768	R/W	Byte	-	0/1	flag
V2-SA3	Alarm setpoint for probe 3	**V2**	33343	0	33459	12	R/W	Word	Y	-67,0...302	°C/°F
V2-dA3	Probe 3 alarm tripping differential	**V2**	33345	0	33459	192	R/W	Word	-	0,1...30,0	°C/°F
V2-ESA	AUX status during Energy Saving	**V2**	33437	768	33471	3072	R/W	Byte	-	0/1/2	num
V2-dod	Enable utility shutoff upon door switch activation	**V2**	33421	3840	33447	12288	R/W	Byte	-	0...3	num
V2-dAd	D.I. activation indication delay time 1/2	**V2**	33394	255	33452	3072	R/W	Byte	-	0...250	min
V2-dCo	Compressor activation delay from acknowledgment	**V2**	33352	0	33443	3072	R/W	Byte	-	0...250	min
V2-tn1	Energy Saving mode activation delay	**V2**	33360	0	33465	12	R/W	Byte	-	0...250	min
V2-dCd	Fans activation delay after door closed.	**V2**	33387	0	33448	3072	R/W	Byte	-	0...250	s
V2-AUP	Associate aux relay with door switch	**V2**	33421	240	33447	192	R/W	Byte	-	0/1	flag
V2-PEn	Number of errors permitted per minimum/maximum pressure switch input	**V2**	33406	255	33458	12288	R/W	Byte	-	0...15	num
V2-PEi	Minimum/maximum pressure switch error calculation interval	**V2**	33406	0	33458	49152	R/W	Byte	-	1...99	min
V2-PEt	Compressor activation delay after pressure switch deactivation	**V2**	33407	255	33459	3	R/W	Byte	-	0...255	min
V2-SPn	Night mode setpoint	**V2**	33366	0	33465	49152	R/W	Word	Y	-67,0...302	°C/°F
V2-dFn	Night mode offset	**V2**	33367	0	33466	3	R/W	Word	-	0,1...30,0	°C/°F
V2-oSP	Offset on setpoint	**V2**	33295	0	33448	49152	R/W	Word	Y	-30,0...30,0	°C/°F
V2-odF	Trigger differential correction	**V2**	33297	0	33449	48	R/W	Word	-	0,1...30,0	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-ESt	Type of action for the Energy Saving function	**V2**	33430	3840	33470	49152	R/W	Byte	-	0...5	num
V2-dnt	Night mode duration	**V2**	33389	255	33449	3	R/W	Byte	-	0...24	ore
V2-Cdt	Door closing time	**V2**	33389	0	33449	12	R/W	Byte	-	0...250	min*10
V2-PdC	Pull-Down mode	**V2**	33427	61440	33475	3	R/W	Byte	-	0/1/2	num
V2-tPd	Fast cooling mode duration	**V2**	33348	0	33474	768	R/W	Byte	-	0...250	min
V2-SPF	Fast cooling setpoint	**V2**	33357	0	33464	12288	R/W	Word	Y	-67,0...302	°C/°F
V2-dFF	Fast cooling offset	**V2**	33354	0	33463	49152	R/W	Word	-	0,1...30,0	°C/°F
V2-Pdo	Step value for fast cooling setpoint	**V2**	33355	0	33464	768	R/W	Word	-	0,1...30,0	°C/°F
V2-Pdn	Step number for fast cooling setpoint	**V2**	33428	3840	33469	49152	R/W	Byte	-	1...10	num
V2-dro	Select °C / °F	**V2**	33481	8	33449	192	R/W	Byte	-	0/1	flag
V2-CA1	Probe Pb1 calibration	**V2**	33298	0	33449	768	R/W	Word	Y	-30,0...30,0	°C/°F
V2-CA2	Probe Pb2 calibration	**V2**	33299	0	33449	3072	R/W	Word	Y	-30,0...30,0	°C/°F
V2-CA3	Probe Pb3 calibration	**V2**	33301	0	33449	12288	R/W	Word	Y	-30,0...30,0	°C/°F
V2-LoC	Enable keypad lock	**V2**	33481	16	33450	48	R/W	Byte	-	0/1	flag
V2-ddd	Select main display value	**V2**	33421	61440	33450	192	R/W	Byte	-	0...3	num
V2-ddE	Display on eco device	**V2**	33430	240	33470	12288	R/W	Byte	-	0...4	num
V2-ddL	Inhibit resources at the end of defrost	**V2**	33422	15	33450	768	R/W	Byte	-	0/1/2	num
V2-Ldd	Display lock timeout from end of defrost	**V2**	33390	255	33450	3072	R/W	Byte	-	0...250	min
V2-ndt	Display with decimal point	**V2**	33481	32	33450	12288	R/W	Byte	-	0/1	flag
V2-PS1	Password 1 value	**V2**	33391	0	33451	192	R/W	Byte	-	0...250	num
V2-PS2	Password 2 value	**V2**	33392	0	33451	768	R/W	Byte	-	0...250	num
V2-H08	Stand-by operating mode	**V2**	33437	3	33451	12288	R/W	Byte	-	0/1/2	num
V2-H11	Configurability of digital input 1	**V2**	33393	255	33451	49152	R/W	Word	Y	-13...13	num
V2-H12	Configurability of digital input 2	**V2**	33393	0	33452	768	R/W	Word	Y	-12...12	num
V2-H13	Configurability of digital input 3	**V2**	33413	65280	33461	192	R/W	Word	Y	-12...12	num
V2-H14	Configurability of digital input 4	**V2**	33414	255	33461	768	R/W	Word	Y	-12...12	num
V2-H21	Configurability of digital output Out1	**V2**	33396	0	33452	12288	R/W	Byte	-	0...13	num
V2-H22	Configurability of digital output Out2	**V2**	33397	255	33452	49152	R/W	Byte	-	0...12	num
V2-H23	Configurability of digital output Out3	**V2**	33397	0	33453	3	R/W	Byte	-	0...12	num
V2-H24	Configurability of digital output Out4	**V2**	33398	255	33453	12	R/W	Byte	-	0...12	num
V2-H31	Key configuration ⚠	**V2**	33422	61440	33453	48	R/W	Byte	-	0...10	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-H32	Key configuration	**V2**	33423	15	33453	192	R/W	Byte	-	0...10	num
V2-H33	Key configuration	**V2**	33423	240	33453	768	R/W	Byte	-	0...10	num
V2-H34	Key configuration	**V2**	33423	3840	33453	3072	R/W	Byte	-	0...10	num
V2-H35	Key configuration	**V2**	33423	61440	33453	12288	R/W	Byte	-	0...10	num
V2-H42	Configuration of analog input Pb2	**V2**	33424	61440	33454	3	R/W	Byte	-	0/1	flag
V2-H43	Configuration of analog input Pb3	**V2**	33425	15	33454	12	R/W	Byte	-	0/1/2	num
V2-H45	Defrost input mode for applications with dual evaporator	**V2**	33427	15	33462	49152	R/W	Byte	-	0...3	num
V2-tCP	Time temperature remains below the cool protection setpoint	**V2**	33356	0	33464	3072	R/W	Byte	-	0...250	min
V2-SCP	Cool protection setpoint	**V2**	33358	0	33464	49152	R/W	Word	Y	-67,0...302	°C/°F
V2-dCP	Cool protection differential	**V2**	33359	0	33465	3	R/W	Word	-	0,1...30,0	°C/°F
V2-dCA	Enable deep cooling	**V2**	33437	3072	33471	12288	R/W	Byte	-	0/1/2	num
V2-dCS	Deep cooling setpoint	**V2**	33346	0	33459	768	R/W	Word	Y	-67,0...302	°C/°F
V2-tdC	Deep cooling duration	**V2**	33398	0	33460	12288	R/W	Byte	-	0...250	min
V2-dCC	Defrost delay after deep cooling	**V2**	33395	0	33460	3072	R/W	Byte	-	0...250	min
V2-Sid	Deep cooling start threshold	**V2**	33369	0	33474	48	R/W	Word	Y	-67,0...302	°C/°F
V2-toS	Time above the threshold for deep cooling start	**V2**	33379	255	33469	3	R/W	Byte	-	0...250	min
Application 3 parameters											
V3-SEt	Regulation setpoint	**V3**	33485	0	33647	49152	R/W	Word	Y	**LSE**...**HSE**	°C/°F
V3-diF	Setpoint differential	**V3**	33486	0	33644	768	R/W	Word	-	0,1...30,0	°C/°F
V3-LSE	Minimum setpoint value that can be set	**V3**	33487	0	33644	3072	R/W	Word	Y	-67,0...**HSE**	°C/°F
V3-HSE	Maximum setpoint value that can be set	**V3**	33489	0	33644	12288	R/W	Word	Y	**LSE**...302	°C/°F
V3-ont	Compressor output ON time if regulation probe is faulty	**V3**	33484	0	33645	3	R/W	Byte	-	0...250	min
V3-oFt	Compressor output OFF time if regulation probe is faulty	**V3**	33488	0	33645	12	R/W	Byte	-	0...250	min
V3-don	Compressor output activation delay from call	**V3**	33492	0	33645	48	R/W	Byte	-	0...250	s
V3-doF	Compressor output activation delay from switch-off	**V3**	33496	0	33645	192	R/W	Byte	-	0...250	min
V3-dbi	Delay between two consecutive compressor output power-ons	**V3**	33500	0	33645	768	R/W	Byte	-	0...250	min
V3-Cit	Minimum compressor output activation time	**V3**	33516	0	33646	3	R/W	Byte	-	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-CAt	Maximum compressor output activation time	**V3**	33520	0	33646	12	R/W	Byte	-	0...250	min
V3-odo	Output activation delay at startup	**V3**	33504	0	33645	3072	R/W	Byte	-	0...250	min
V3-dFA	Condenser fan and compressor activation delay from the call	**V3**	33611	0	33646	3072	R/W	Byte	-	0...250	s
V3-CP2	Compressor 2 activation delay.	**V3**	33603	255	33664	49152	R/W	Byte	-	0...250	min
V3-dty	Type of defrost	**V3**	33624	61440	33646	768	R/W	Byte	-	0/1/2	num
V3-doH	Defrost cycle activation delay from the call	**V3**	33536	0	33647	3	R/W	Byte	-	0...250	min
V3-dEt	Defrost timeout	**V3**	33532	0	33646	12288	R/W	Byte	-	1...250	min
V3-dS1	Evaporator 1 defrost end temperature	**V3**	33490	0	33647	12	R/W	Word	Y	-67,0...302	°C/°F
V3-dS2	Evaporator 2 defrost end temperature	**V3**	33491	0	33647	48	R/W	Word	Y	-67,0...302	°C/°F
V3-dPo	Defrost activation request at power-on	**V3**	33684	1024	33647	768	R/W	Byte	-	0/1	flag
V3-dMr	Enable defrost timer reset with manual defrost	**V3**	33685	2048	33677	12	R/W	Byte	-	0/1	flag
V3-d00	Cumulative time for defrost activation	**V3**	33605	0	33665	12	R/W	Byte	-	0...250	hours
V3-d01	Parameter d00 unit of measure	**V3**	33641	12	33667	12	R/W	Byte	-	0/1/2	num
V3-dit	Device time for defrost activation	**V3**	33528	0	33665	49152	R/W	Byte	-	0...250	hours
V3-d11	Parameter dit unit of measure	**V3**	33641	48	33667	48	R/W	Byte	-	0/1/2	num
V3-d20	Enable defrost at compressor stop	**V3**	33685	256	33667	768	R/W	Byte	-	0/1	flag
V3-d40	Select defrost probe 1	**V3**	33629	240	33666	3	R/W	Byte	-	0/1	flag
V3-d41	Temperature threshold for starting defrost	**V3**	33553	0	33663	49152	R/W	Word	Y	-67,0...302	°C/°F
V3-d42	Time the evaporator temperature must remain below the threshold	**V3**	33555	0	33663	12288	R/W	Byte	-	0...250	min
V3-d43	Time count mode for temperature below threshold	**V3**	33629	3840	33666	12	R/W	Byte	-	0...3	num
V3-d44	Threshold management mode	**V3**	33629	61440	33666	48	R/W	Byte	-	0/1	flag
V3-d50	Defrost probe Pb2 selection	**V3**	33632	61440	33674	3	R/W	Byte	-	0/1	flag
V3-d51	Defrost probe Pb1 selection	**V3**	33633	15	33674	12	R/W	Byte	-	0/1	flag
V3-d52	Temperature threshold for starting defrost	**V3**	33565	0	33669	48	R/W	Byte	-	0,0...302	°C/°F
V3-d53	Time the temperature differential must remain above the threshold	**V3**	33569	0	33669	12288	R/W	Byte	-	0...999	min
V3-d54	Time count mode for temperature differential above threshold	**V3**	33633	240	33674	48	R/W	Byte	-	0...3	num
V3-d55	Threshold management mode	**V3**	33633	3840	33674	192	R/W	Byte	-	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-FPt	FSt parameter mode (absolute or relative)	**V3**	33684	4096	33649	3	R/W	Byte	-	0/1	flag
V3-FSt	Evaporator fan disabling temperature	**V3**	33494	0	33649	12	R/W	Word	Y	-67,0...302	°C/°F
V3-Fot	Evaporator fan activation temperature	**V3**	33554	0	33664	768	R/W	Word	Y	-67,0...302	°C/°F
V3-FAd	Evaporator fan trigger differential	**V3**	33585	0	33649	48	R/W	Word	-	0,1...25,0	°C/°F
V3-Fdt	Evaporator fan activation delay time after a defrost cycle	**V3**	33548	0	33663	48	R/W	Byte	-	0...250	min
V3-dt	Dripping time	**V3**	33586	255	33649	192	R/W	Byte	-	0...250	min
V3-dFd	Evaporator fan cut-out during defrost	**V3**	33684	8192	33649	768	R/W	Byte	-	0/1	flag
V3-FCo	Evaporator fan status with compressor output Off	**V3**	33625	15	33648	49152	R/W	Byte	-	0...3	num
V3-FdC	Evaporator fan shutoff delay after compressor deactivation	**V3**	33586	0	33649	3072	R/W	Byte	-	0...250	min
V3-Fon	Evaporator fan On time in cyclical regulator mode	**V3**	33587	255	33649	12288	R/W	Byte	-	0...250	min
V3-FoF	Evaporator fan Off time in cyclical regulator mode	**V3**	33587	0	33649	49152	R/W	Byte	-	0...250	min
V3-Fnn	Evaporator fan ON time in night mode (duty cycle)	**V3**	33584	0	33648	3072	R/W	Byte	-	0...250	num
V3-FnF	Evaporator fan OFF time in night mode (duty cycle)	**V3**	33585	255	33648	12288	R/W	Byte	-	0...250	num
V3-ESF	Night mode activation (Energy Saving)	**V3**	33685	512	33667	3072	R/W	Byte	-	0/1	flag
V3-Att	Alarm mode (absolute or relative)	**V3**	33684	32768	33650	12	R/W	Byte	-	0/1	flag
V3-AFd	Alarm activation differential	**V3**	33588	0	33650	48	R/W	Word	-	0,1...25,0	°C/°F
V3-HAL	Maximum alarm threshold	**V3**	33495	0	33650	192	R/W	Word	Y	**LAL**...302	°C/°F
V3-LAL	Minimum alarm threshold	**V3**	33497	0	33650	768	R/W	Word	Y	-67,0...**HAL**	°C/°F
V3-PAo	Temperature alarm exclusion time from power-on	**V3**	33589	255	33650	3072	R/W	Byte	-	0...10	min*10
V3-dAo	Exclusion time for temperature alarms after a defrost cycle	**V3**	33557	0	33650	12288	R/W	Word	-	0...250	min
V3-oAo	High and low temperature alarms exclusion time after closing the door	**V3**	33590	255	33650	49152	R/W	Byte	-	0...10	hours
V3-tdo	Door open alarm exclusion time	**V3**	33591	255	33651	49152	R/W	Byte	-	0...250	min
V3-tAo	Temperature alarm signaling delay time	**V3**	33590	0	33651	3	R/W	Byte	-	0...250	min
V3-dAt	Defrost ended due to timeout alarm signaling	**V3**	33498	0	33651	12	R/W	Byte	-	0/1	flag
V3-EAL	Regulators inhibited by external alarm	**V3**	33631	3840	33651	48	R/W	Byte	-	0/1/2	num
V3-AoP	Alarm output polarity	**V3**	33685	1	33651	768	R/W	Byte	-	0/1	flag
V3-SA3	Alarm setpoint for probe 3	**V3**	33547	0	33663	12	R/W	Word	Y	-67,0...302	°C/°F
V3-dA3	Probe 3 alarm tripping differential	**V3**	33549	0	33663	192	R/W	Word	-	0,1...30,0	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-ESA	AUX status during Energy Saving	**V3**	33641	768	33675	3072	R/W	Byte	-	0/1/2	num
V3-tA1	Bring Aux/light switch-on before night/day transition forward	**V3**	33582	255	33672	12288	R/W	Byte	-	0...250	min
V3-tA2	Delay Aux/light switch-off after night/day transition	**V3**	33582	0	33672	49152	R/W	Byte	-	0...250	min
V3-dod	Enable utility shutoff upon door switch activation	**V3**	33625	3840	33651	12288	R/W	Byte	-	0...3	num
V3-dAd	D.I. activation indication delay time 1/2	**V3**	33598	255	33656	3072	R/W	Byte	-	0...250	min
V3-dCo	Compressor activation delay from acknowledgment	**V3**	33556	0	33647	3072	R/W	Byte	-	0...250	min
V3-tn1	Energy Saving mode activation delay	**V3**	33564	0	33669	12	R/W	Byte	-	0...250	min
V3-dCd	Fans activation delay after door closed.	**V3**	33591	0	33652	3072	R/W	Byte	-	0...250	s
V3-AUP	Associate aux relay with door switch	**V3**	33625	240	33651	192	R/W	Byte	-	0/1	flag
V3-PEn	Number of errors permitted per minimum/maximum pressure switch input	**V3**	33610	255	33662	12288	R/W	Byte	-	0...15	num
V3-PEi	Minimum/maximum pressure switch error calculation interval	**V3**	33610	0	33662	49152	R/W	Byte	-	1...99	min
V3-PEt	Compressor activation delay after pressure switch deactivation	**V3**	33611	255	33663	3	R/W	Byte	-	0...255	min
V3-SPn	Night mode setpoint	**V3**	33570	0	33669	49152	R/W	Word	Y	-67,0...302	°C/°F
V3-dFn	Night mode offset	**V3**	33571	0	33670	3	R/W	Word	-	0,1...30,0	°C/°F
V3-oSP	Offset on setpoint	**V3**	33499	0	33652	49152	R/W	Word	Y	-30,0...30,0	°C/°F
V3-odF	Trigger differential correction	**V3**	33501	0	33653	48	R/W	Word	-	0,1...30,0	°C/°F
V3-ESt	Type of action for the Energy Saving function	**V3**	33634	3840	33674	49152	R/W	Byte	-	0...5	num
V3-dnt	Night mode duration	**V3**	33593	255	33653	3	R/W	Byte	-	0...24	hours
V3-Cdt	Door closing time	**V3**	33593	0	33653	12	R/W	Byte	-	0...250	min*10
V3-PdC	Pull-Down mode	**V3**	33631	61440	33679	3	R/W	Byte	-	0/1/2	num
V3-tPd	Fast cooling mode duration	**V3**	33552	0	33678	768	R/W	Byte	-	0...250	min
V3-SPF	Fast cooling setpoint	**V3**	33561	0	33668	12288	R/W	Word	Y	-67,0...302	°C/°F
V3-dFF	Fast cooling offset	**V3**	33558	0	33667	49152	R/W	Word	-	0,1...30,0	°C/°F
V3-Pdo	Step value for fast cooling setpoint	**V3**	33559	0	33668	768	R/W	Word	-	0,1...30,0	°C/°F
V3-Pdn	Step number for fast cooling setpoint	**V3**	33632	3840	33673	49152	R/W	Byte	-	1...10	num
V3-dro	Select °C / °F	**V3**	33685	8	33653	192	R/W	Byte	-	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-CA1	Probe Pb1 calibration	**V3**	33502	0	33653	768	R/W	Word	Y	-30,0...30,0	°C/°F
V3-CA2	Probe Pb2 calibration	**V3**	33503	0	33653	3072	R/W	Word	Y	-30,0...30,0	°C/°F
V3-CA3	Probe Pb3 calibration	**V3**	33505	0	33653	12288	R/W	Word	Y	-30,0...30,0	°C/°F
V3-LoC	Enable keypad lock	**V3**	33685	16	33654	48	R/W	Byte	-	0/1	flag
V3-ddd	Select main display value	**V3**	33625	61440	33654	192	R/W	Byte	-	0...3	num
V3-ddE	Display on eco device	**V3**	33634	240	33674	12288	R/W	Byte	-	0...4	num
V3-ddL	Inhibit resources at the end of defrost	**V3**	33626	15	33654	768	R/W	Byte	-	0/1/2	num
V3-Ldd	Display lock timeout from end of defrost	**V3**	33594	255	33654	3072	R/W	Byte	-	0...250	min
V3-ndt	Display with decimal point	**V3**	33685	32	33654	12288	R/W	Byte	-	0/1	flag
V3-PS1	Password 1 value	**V3**	33595	0	33655	192	R/W	Byte	-	0...250	num
V3-PS2	Password 2 value	**V3**	33596	0	33655	768	R/W	Byte	-	0...250	num
V3-H08	Stand-by operating mode	**V3**	33641	3	33655	12288	R/W	Byte	-	0/1/2	num
V3-H11	Configurability of digital input 1	**V3**	33597	255	33655	49152	R/W	Word	Y	-13...13	num
V3-H12	Configurability of digital input 2	**V3**	33597	0	33656	768	R/W	Word	Y	-12...12	num
V3-H13	Configurability of digital input 3	**V3**	33617	65280	33665	192	R/W	Word	Y	-12...12	num
V3-H14	Configurability of digital input 4	**V3**	33618	255	33665	768	R/W	Word	Y	-12...12	num
V3-H21	Configurability of digital output Out1	**V3**	33600	0	33656	12288	R/W	Byte	-	0...13	num
V3-H22	Configurability of digital output Out2	**V3**	33601	255	33656	49152	R/W	Byte	-	0...12	num
V3-H23	Configurability of digital output Out3	**V3**	33601	0	33657	3	R/W	Byte	-	0...12	num
V3-H24	Configurability of digital output Out4	**V3**	33602	255	33657	12	R/W	Byte	-	0...12	num
V3-H25	Configurability of digital output 5 (buzzer)	**V3**	33613	255	33647	12288	R/W	Byte	-	0/1	num
V3-H31	Key configuration	**V3**	33626	61440	33657	48	R/W	Byte	-	0...10	num
V3-H32	Key configuration	**V3**	33627	15	33657	192	R/W	Byte	-	0...10	num
V3-H33	Key configuration	**V3**	33627	240	33657	768	R/W	Byte	-	0...10	num
V3-H34	Key configuration	**V3**	33627	3840	33657	3072	R/W	Byte	-	0...10	num
V3-H35	Key configuration	**V3**	33627	61440	33657	12288	R/W	Byte	-	0...10	num
V3-H42	Configuration of analog input Pb2	**V3**	33628	61440	33658	3	R/W	Byte	-	0/1	flag
V3-H43	Configuration of analog input Pb3	**V3**	33629	15	33658	12	R/W	Byte	-	0/1/2	num
V3-H45	Defrost input mode for applications with dual evaporator	**V3**	33631	15	33666	49152	R/W	Byte	-	0...3	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-tCP	Time temperature remains below the cool protection setpoint	**V3**	33560	0	33668	3072	R/W	Byte	-	0...250	min
V3-SCP	Cool protection setpoint	**V3**	33562	0	33668	49152	R/W	Word	Y	-67,0...302	°C/°F
V3-dCP	Cool protection differential	**V3**	33563	0	33669	3	R/W	Word	-	0,1...30,0	°C/°F
V3-dCA	Enable deep cooling	**V3**	33641	3072	33675	12288	R/W	Byte	-	0/1/2	num
V3-dCS	Deep cooling setpoint	**V3**	33550	0	33663	768	R/W	Word	Y	-67,0...302	°C/°F
V3-tdC	Deep cooling duration	**V3**	33602	0	33664	12288	R/W	Byte	-	0...250	min
V3-dCC	Defrost delay after deep cooling	**V3**	33599	0	33664	3072	R/W	Byte	-	0...250	min
V3-Sid	Deep cooling start threshold	**V3**	33573	0	33678	48	R/W	Word	Y	-67,0...302	°C/°F
V3-toS	Time above the threshold for deep cooling start	**V3**	33583	255	33673	3	R/W	Byte	-	0...250	min

Visibility table for folders relating to applications

Label	Description	Address	Filter	Data size	Range	MU
Visibility of folders for loaded application						
CP	Visibility of folder **CP** (compressor)	32954	192	2 bit	0...3	num
dEF	Visibility of folder **dEF** (defrost)	32954	768	2 bit	0...3	num
FAn	Visibility of folder **FAn** (fans)	32954	3072	2 bit	0...3	num
AL	Visibility of folder **AL** (alarms)	32954	12288	2 bit	0...3	num
Lit	Visibility of folder **Lit** (lights and digital inputs)	32954	49152	2 bit	0...3	num
dor	Visibility of folder **dor** (door switch)	32962	3072	2 bit	0...3	num
PrE	Visibility of folder **PrE** (pressure switch)	32955	3	2 bit	0...3	num
ENS	Visibility of folder **EnS** (energy saving)	32955	12	2 bit	0...3	num
PLd	Visibility of folder **PLd** (pull-down)	32962	49152	2 bit	0...3	num
Add	Visibility of folder **Add** (communication)	32955	48	2 bit	0...3	num
diS	Visibility of folder **diS** (display)	32955	192	2 bit	0...3	num
CnF	Visibility of folder **CnF** (configuration)	32955	3072	2 bit	0...3	num
FPr	Visibility of folder **FPr** (UNICARD)	32955	12288	2 bit	0...3	num
FnC	Visibility of folder **FnC** (functions)	32955	49152	2 bit	0...3	num
CPr	Visibility of folder **CPr** (low ambient temperature protection)	32954	12	2 bit	0...3	num
dEC	Visibility of folder **dEC** (Deep Cooling cycle)	32962	12	2 bit	0...3	num
Visibility of folders for AP1 application						
V1-CP	Visibility of folder **CP** (compressor)	33258	192	2 bit	0...3	num
V1-dEF	Visibility of folder **dEF** (defrost)	33258	768	2 bit	0...3	num
V1-FAn	Visibility of folder **FAn** (fans)	33258	3072	2 bit	0...3	num
V1-AL	Visibility of folder **AL** (alarms)	33258	12288	2 bit	0...3	num
V1-Lit	Visibility of folder **Lit** (lights and digital inputs)	33258	49152	2 bit	0...3	num
V1-dor	Visibility of folder **dor** (door switch)	33266	3072	2 bit	0...3	num
V1-PrE	Visibility of folder **PrE** (pressure switch)	33259	3	2 bit	0...3	num
V1-ENS	Visibility of folder **EnS** (energy saving)	33259	12	2 bit	0...3	num
V1-PLd	Visibility of folder **PLd** (pull-down)	33266	49152	2 bit	0...3	num
V1-Add	Visibility of folder **Add** (communication)	33259	48	2 bit	0...3	num
V1-diS	Visibility of folder **diS** (display)	33259	192	2 bit	0...3	num
V1-CnF	Visibility of folder **CnF** (configuration)	33259	3072	2 bit	0...3	num
V1-FPr	Visibility of folder **FPr** (UNICARD)	33259	12288	2 bit	0...3	num
V1-FnC	Visibility of folder **FnC** (functions)	33259	49152	2 bit	0...3	num
V1-CPr	Visibility of folder **CPr** (low ambient temperature protection)	33258	12	2 bit	0...3	num
V1-dEC	Visibility of folder **dEC** (Deep Cooling cycle)	33266	12	2 bit	0...3	num
Visibility of folders for AP2 application						
V2-CP	Visibility of folder **CP** (compressor)	33466	192	2 bit	0...3	num
V2-dEF	Visibility of folder **dEF** (defrost)	33466	768	2 bit	0...3	num
V2-FAn	Visibility of folder **FAn** (fans)	33466	3072	2 bit	0...3	num
V2-AL	Visibility of folder **AL** (alarms)	33466	12288	2 bit	0...3	num
V2-Lit	Visibility of folder **Lit** (lights and digital inputs)	33466	49152	2 bit	0...3	num
V2-dor	Visibility of folder **dor** (door switch)	33474	3072	2 bit	0...3	num
V2-PrE	Visibility of folder **PrE** (pressure switch)	33467	3	2 bit	0...3	num
V2-ENS	Visibility of folder **EnS** (energy saving)	33467	12	2 bit	0...3	num
V2-PLd	Visibility of folder **PLd** (pull-down)	33474	49152	2 bit	0...3	num
V2-Add	Visibility of folder **Add** (communication)	33467	48	2 bit	0...3	num
V2-diS	Visibility of folder **diS** (display)	33467	192	2 bit	0...3	num
V2-CnF	Visibility of folder **CnF** (configuration)	33467	3072	2 bit	0...3	num
V2-FPr	Visibility of folder **FPr** (UNICARD)	33467	12288	2 bit	0...3	num

Label	Description	Address	Filter	Data size	Range	MU
V2-FnC	Visibility of folder **FnC** (functions)	33467	49152	2 bit	0...3	num
V2-CPr	Visibility of folder **CPr** (low ambient temperature protection)	33466	12	2 bit	0...3	num
V2-dEC	Visibility of folder **dEC** (Deep Cooling cycle)	33474	12	2 bit	0...3	num
Visibility of folders for AP3 application						
V3-CP	Visibility of folder **CP** (compressor)	33670	192	2 bit	0...3	num
V3-dEF	Visibility of folder **dEF** (defrost)	33670	768	2 bit	0...3	num
V3-FAn	Visibility of folder **FAn** (fans)	33670	3072	2 bit	0...3	num
V3-AL	Visibility of folder **AL** (alarms)	33670	12288	2 bit	0...3	num
V3-Lit	Visibility of folder **Lit** (lights and digital inputs)	33670	49152	2 bit	0...3	num
V3-dor	Visibility of folder **dor** (door switch)	33678	3072	2 bit	0...3	num
V3-PrE	Visibility of folder **PrE** (pressure switch)	33671	3	2 bit	0...3	num
V3-ENS	Visibility of folder **EnS** (energy saving)	33671	12	2 bit	0...3	num
V3-PLd	Visibility of folder **PLd** (pull-down)	33678	49152	2 bit	0...3	num
V3-Add	Visibility of folder **Add** (communication)	33671	48	2 bit	0...3	num
V3-diS	Visibility of folder **diS** (display)	33671	192	2 bit	0...3	num
V3-CnF	Visibility of folder **CnF** (configuration)	33671	3072	2 bit	0...3	num
V3-FPr	Visibility of folder **FPr** (UNICARD)	33671	12288	2 bit	0...3	num
V3-FnC	Visibility of folder **FnC** (functions)	33671	49152	2 bit	0...3	num
V3-CPr	Visibility of folder **CPr** (low ambient temperature protection)	33670	12	2 bit	0...3	num
V3-dEC	Visibility of folder **dEC** (Deep Cooling cycle)	33678	12	2 bit	0...3	num

Table of Modbus Resources

Label	Description	Address	Filter	R/W	Data_Size	CPL	Range	MU
AI1	Regulation probe	4109	0	R	Word	Y	-67,0...302	°C/°F
AI2	Defrost probe	4110	0	R	Word	Y	-67,0...302	°C/°F
AI3_a	Second evaporator defrost probe	4111	0	R	Word	Y	-67,0...302	°C/°F
AI3_b	Compressor temperature probe	4111	0	R	Word	Y	-67,0...302	°C/°F
SET	Regulation setpoint 1 value	4114	0	R	Word	Y	-67,0...302	°C/°F
DI	Digital input 1	4118	1	R	1 bit	-	0...1	flag
DI2	Digital input 2	4118	2	R	1 bit	-	0...1	flag
DI3	Digital input 3							
DI4	Digital input 4							
E1	Analog input 1 fault	4121	1	R	1 bit	-	0...1	flag
E2	Analog input 2 fault	4121	2	R	1 bit	-	0...1	flag
E3	Analog input 3 fault	4121	4	R	1 bit	-	0...1	flag
oPd	Door open	4121	8	R	1 bit	-	0...1	flag
EA	External	4121	16	R	1 bit	-	0...1	flag
AL1	Analog input 1 lower limit exceeded	4121	32	R	1 bit	-	0...1	flag
AH1	Analog input 1 higher limit exceeded	4121	64	R	1 bit	-	0...1	flag
Ad2	Defrost end due to timeout	4121	128	R	1 bit	-	0...1	flag
COH	Overtemperature alarm	4121	512	R	1 bit	-	0...1	flag
rCA	Low liquid refrigerant level	4121	1024	R	1 bit	-	0...1	flag
nPA	Pressure switch	4121	2048	R	1 bit	-	0...1	flag
PA	Critical pressure	4121	4096	R	1 bit	-	0...1	flag
ALM	Alarm	4115	256	R	1 bit	-	0...1	flag
RL1	Control output 1	4120	1	R	1 bit	-	0...1	flag
RL2	Control output 2	4120	2	R	1 bit	-	0...1	flag
RL3	Control output 3	4120	4	R	1 bit	-	0...1	flag
RL4	Control output 4	4120	8	R	1 bit	-	0...1	flag
CP1	Compressor 1	4115	2	R	1 bit	-	0...1	flag
CP2	Compressor 2	4115	4	R	1 bit	-	0...1	flag
DEF1	Defrost 1	4115	16	R	1 bit	-	0...3	flag
DEF2	Defrost 2	4115	32	R	1 bit	-	0...3	flag
FAN	Evaporator fans	4115	64	R	1 bit	-	0...1	flag
FAN_C	Condenser fans	4115	128	R	1 bit	-	0...1	flag
LIGHT	Light	4115	1024	R	1 bit	-	0...1	flag
AUX	Auxiliary	4115	512	R	1 bit	-	0...1	flag
STD-BY	Stand-by	4115	1	R	1 bit	-	0...1	flag
ENS	Energy saving	4115	16384	R	1 bit	-	0...1	flag
ECo	Reduced set	4115	8192	R	1 bit	-	0...1	flag
DEEP	Deep Cooling	4115	2048	R	1 bit	-	0...1	flag
Do	Door status	4115	32768	R	1 bit	-	0...1	flag
RonAux	Activates auxiliary output	4123	1	W	1 bit	-	0...1	flag
RoFFAux	Deactivates auxiliary output	4123	2	W	1 bit	-	0...1	flag
Ronon	Device on	4123	4	W	1 bit	-	0...1	flag
RoFFoFF	Device off	4123	8	W	1 bit	-	0...1	flag
AttEnSav	Activates energy saving function	4123	16	W	1 bit	-	0...1	flag
DisattEnSav	Deactivates energy saving function	4123	32	W	1 bit	-	0...1	flag
Att_SetR	Activates economy mode	4123	64	W	1 bit	-	0...1	flag
Disatt_SetR	Deactivates economy mode	4123	128	W	1 bit	-	0...1	flag
RonLoC	Keyboard lock	4123	1024	W	1 bit	-	0...1	flag
RoFFLoC	Keyboard unlock	4123	2048	W	1 bit	-	0...1	flag
RonLight	Switches lights on	4123	256	W	1 bit	-	0...1	flag

Label	Description	Address	Filter	R/W	Data_Size	CPL	Range	MU
RoFFLight	Switches lights off	4123	512	W	1 bit	-	0...1	flag
Att_Sbr	Manual Defrost activation	4123	4096	W	1 bit	-	0...1	flag
DCon	Deep Cooling regulator activation	4124	2	W	1 bit	-	0...1	flag
Teston	Enables autotest	0	2	W	1 bit	-	0...1	flag
TestoFF	Resets test request	0	2	W	1 bit	-	0...1	flag
oFFRL1	Disables output 1	206	1	W	1 bit	-	0...1	flag
onRL2	Enables output 2	206	2	W	1 bit	-	0...1	flag
oFFRL2	Disables output 2	206	2	W	1 bit	-	0...1	flag
onRL3	Enables output 3	206	4	W	1 bit	-	0...1	flag
oFFRL3	Disables output 3	206	4	W	1 bit	-	0...1	flag
onRL4	Enables output 4	206	8	W	1 bit	-	0...1	flag
oFFRL4	Disables output 4	206	8	W	1 bit	-	0...1	flag
onAllRL	Enables output	206	15	W	Word	-	0...255	num
oFFAllRL	Disables output	206	15	W	Word	-	0...255	num
tim_CP1	Compressor 1 running time	4171	0	R	Word	-	0...65535	hours*10
cnt_CP1	Compressor 1 number of activations	4172	0	R	Word	-	0...65535	num
tim_DEF1	Defrost 1 activation time	4173	0	R	Word	-	0...65535	min
cnt_DEF1	Defrost 1 number of activations	4175	0	R	Word	-	0...65535	num
tim_Door	Door opening time	4176	0	R	Word	-	0...65535	min
cnt_Door	Door opening count	4177	0	R	Word	-	0...65535	num
tim_DEF2	Defrost 2 activation time	4179	0	R	Word	-	0...65535	min
cnt_DEF2	Defrost 2 number of activations	4180	0	R	Word	-	0...65535	num
cnt_PoWEr	Number of instrument power-ons	4181	0	R	Word	-	0...65535	num
tim_CP2	Compressor 2 run time	4183	0	R	Word	-	0...65535	hours*10
cnt_CP2	Compressor 2 number of activations	4184	0	R	Word	-	0...65535	num

Eliwell Controls srl
Via dell'Industria, 15 Z.I. Paludi
32016 Alpago (BL) Italy
Phone +39 (0) 437 986 111
www.eliwell.com

Customers Technical Service
Phone+39 (0) 437 986 300
E techsuppeliwell@se.com

Ufficio commerciale
Phone+39 (0) 437 986 100 (Italy)
Phone+39 (0) 437 986 200 (other countries)
E saleseliwell@se.com

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