

EWNNext 1000

Electronic controllers compatible with flammable refrigerant gases

User Guide

EWNX1_01EN

01/2026



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The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

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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 should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric and Eliwell for any consequences arising out of 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

For security reasons, before removing the controller, we recommend to reset the controller to the default value (see 'Restore default values').

NOTICE

DISCLOSURE OF APPLICATION DATA

Reset the controller to the default values to help prevent data disclosure.

Failure to follow these instructions can result in equipment damage.



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

About the document

Document Scope

The **EWNext 1000** user guide covers the installation, configuration, and operation of electronic controllers for refrigerated units. It includes descriptions of models, accessories, cybersecurity measures, and preliminary configurations. The guide details mechanical and electrical installation, wiring practices, and technical characteristics. It explains the user interface, defrost functions, diagnostics, and alarm management. Parameters for various functions like compressors, fans, defrost cycles, and energy-saving modes are provided. The document also includes Modbus functions and resources for remote communication, help ensuring comprehensive guidance for users and installers.

Validity Note

This document is valid for the **EWNext 1000** devices.

The characteristics of the products described in this document are intended to match the characteristics that are available on www.eliwell.com. As part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on www.eliwell.com, consider www.eliwell.com to contain the latest information.

General Cybersecurity Information

In recent years, the growing number of networked machines and production plants has seen a corresponding increase in the potential for cyber threats, such as unauthorized access, data breaches, and operational disruptions. You must, therefore, consider all possible cybersecurity measures to help protect assets and systems against such threats.

To help keep your Schneider Electric products secure and protected, it is in your best interest to implement the cybersecurity best practices as described in the [Cybersecurity Best Practices](#) (English document).

Schneider Electric provides additional information and assistance:

- Subscribe to the Schneider Electric [security newsletter](#).
- Visit the [Cybersecurity Support Portal](#) to:
 - Find Security Notifications
 - Report vulnerabilities and incidents
- Visit the [Schneider Electric Cybersecurity and Data Protection Posture](#) to:
 - Access the "cybersecurity posture"
 - Learn more about cybersecurity in the cybersecurity academy
 - Explore the cybersecurity services from Schneider Electric

Available Languages of this Document

This document is available in these languages:

- Italian (EWNX1_01IT)
- English (EWNX1_01EN)

Related Documents

Title of documentation	Reference Number
Instruction Sheet EWNext 1000	9IS24925
Cybersecurity Best Practices	Refer to Cybersecurity Best Practices (English document)

To find documents online, visit the Eliwell website: www.eliwell.com

Environmental Data

For product compliance and environmental information refer to the Schneider Electric [Environmental Data Program](#).

Information on non-inclusive or insensitive terminology

As part of a group of responsible, inclusive companies, we are updating our communications and products that contain non-inclusive or insensitive terminology. Until we complete this process, however, our content may still contain standardized industry terms that may be deemed inappropriate by our customers.

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 except under the specific conditions specified in this user guide.
- 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 equipment 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.
- Do not connect wires to unused terminals and/or terminals indicated as "Reserved".

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

DANGER

HAZARD OF ELECTRIC SHOCK, FIRE AND/OR UNINTENDED EQUIPMENT OPERATION

- 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 "Wiring Diagrams" section).
- 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" section).
- Only use the specified plug-in terminals (see "Best wiring practices" section)
- All network components (controllers, sensors and actuators) must be powered by separate SELV power supplies/transformers except under the specific conditions specified in this user guide.
- No network component (controllers, sensors and actuators) can be earthed.

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

DANGER

LOOSE WIRING WILL 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.

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 no loads exceeding the ratings specified in the technical data are connected. ⁽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 mm² (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 your application not apply a frequently operated capacitive load on the relay, capacitive loads will reduce the life of any electromechanical relay, and installation of a contactor or an external relay, that is sized and maintained according the ratings and characteristics of the capacitive load, will help minimize the consequence of relay degradation.

(2) Although the highest performance relays have been selected for the inrush outputs and loads are declared in accordance with standard IEC 61810-1 D.3, It is end user responsibility that instrument outputs guarantee the proper operation of the application in relation to the expected lifecycle 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
<ul style="list-style-type: none"> • Store the equipment in the protective packaging until ready for installation. • 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.

Take the suitable care and precautions when using this product as a control device, to avoid unforeseen consequences resulting from the operation of the controlled machine, variations in controller status or changes to the machine data memory or operating parameters.

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
<ul style="list-style-type: none"> • Before attempting to control the application remotely, you must be perfectly familiar with the application and the machine. • Take the necessary precautions to guarantee that you are working on the anticipated machine remotely by using clear identification documentation within the application and the corresponding remote connection.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE
Do not set any parameter not having the full understanding of its behavior in general and in relation to the specific application ⁽¹⁾ .
Failure to follow these instructions can result in death, serious injury, or equipment damage.

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

NOTICE
REDUCTION OF RELAY ENDURANCE
<ul style="list-style-type: none"> • Do not enable zero-crossing to control inductive loads such as contactors and iron-core transformers. • Use same mains phase to supply both load and controller.
Failure to follow these instructions can result in equipment damage.

NOTICE
UNINTENDED EQUIPMENT OPERATION
<ul style="list-style-type: none"> • Help 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.

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 until the Unicard is removed and the controller is power cycled (after that the former applicative restart).

NOTICE

UNINTENDED EQUIPMENT OPERATION

Use authenticated Schneider Electric or Eliwell files only.

Failure to follow these instructions can result in equipment damage.

NOTICE

UNINTENDED EQUIPMENT OPERATION

- The load equivalent to all the bus RS485 bus should not exceed 8 Unit Load (For the definition of Unit Load refer to standard TIA/EIA-485-A).
- Do not fit the termination resistors inside the RS485 network.
- For the connection with the supervision system, use a shielded "twisted pair" cable specific (for example: BELDEN cable model 8762).
- The length of an RS485 network is directly related to the baudrate used. At a baud rate of 9600 baud, the maximum cable length is approximately 800 mt (2,625 ft). At 19200 baud, the maximum length is reduced to approximately 400 mt (1,312 ft).

Failure to follow these instructions can result in equipment damage.

NOTICE

UNINTENDED EQUIPMENT OPERATION

SELV wiring must be kept separate from other wiring (see "Wiring Diagram" 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 shorter 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.

Flammable refrigerant gases

For use with flammable gases:

- This device has been evaluated in accordance with chapter 22.112 of the IEC 60335-2-89 standard with reference to annex BB prescription 9 (sealed relays).
- This device has been evaluated with a surface temperature not exceeding 200 °C (392 °F), as per prescription 22.114 of the IEC 60335-2-89 standard, according to the criteria of chapter 11 (normal operation).

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 used equipments and designed systems 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:

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Introduction

General Description

The **EWNNext 1000** user guide covers the installation, configuration, and operation of electronic controllers for refrigerated units. It includes descriptions of models, accessories, cybersecurity measures, and preliminary configurations. The manual details mechanical and electrical installation, wiring practices, and technical characteristics. It explains the user interface, defrost functions, diagnostics, and alarm management. Parameters for various functions like compressors, fans, defrost cycles, and energy-saving modes are provided. The document also includes Modbus functions and resources for remote communication, help ensuring comprehensive guidance for users and installers.

In this user guide, 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 **EWNNext 1000** models:

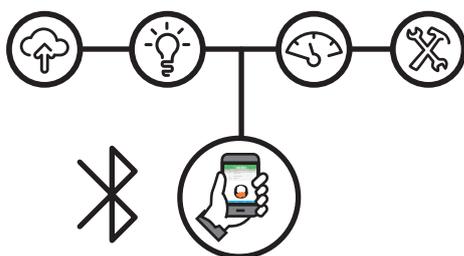
Product	Description
EWNNext 1281 SBCY	EWNNext 1281 NTC 1,5Hp/10/8/5 230Vac SBCY AIR HC
	EWNNext 1281 NTC 1,5Hp/10/8/5 230Vac SBCY PH AIR HC
EWNNext 1385 SBCY	EWNNext 1385 NTC 1,5/1,5Hp/8/5 SMPS SBCY AIR HC
	EWNNext 1385 NTC 1,5/1,5Hp/8/5 SMPS SBCY PH AIR HC
EWNNext 1385 SBCIL	EWNNext 1385 NTC 1,5/1,5Hp/8/5 SMPS SBCIL AIR HC
	EWNNext 1385 NTC 1,5/1,5Hp/8/5 SMPS SBCIL 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 plug-in terminals
- **BUZ (/B)** = controller with Buzzer
- **RTC (/C)** = controller with RTC
- **SYN (/Y)** = controller with synchronized defrost cycles triggered by digital input.
- **VSC (/I)** = controller with Open Collector output for connecting a variable-speed compressor.
- **FB (/L)** = controller with Field Bus communication.

AIR - Mobile application for Dongle BTLE



'Eliwell AIR' App, available on Google Play and Apple Store, is used to connect via Bluetooth to EWNNext 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

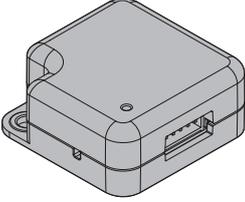
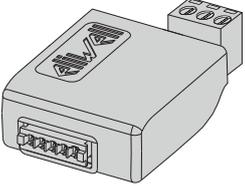
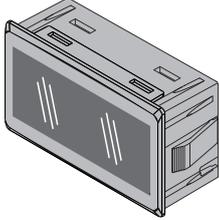
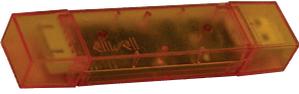
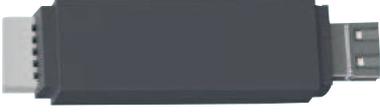
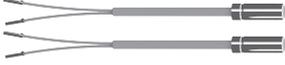
For further information, refer to controller and 'Eliwell AIR' App user manual on the Eliwell website: www.eliwell.com

Accessories

⚡ ⚠ DANGER

HAZARD 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 for EWNNext: Remote display to be connected to TTL serial port
	BusAdapter: Opto-isolated TTL/RS485 communication interface
	UNICARD: Programming key
	DMI: Programming interface
	Probes: NTC

Cybersecurity

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This section includes the following topics:

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Overview

This Eliwell product includes functions that enable Information security. These functions come as default and can be configured according to your own installation requirements.

NOTE: deactivating or changing the settings for these individual functions can positively or negatively affect the overall posture of the device security.

It is also necessary to observe best practices in order to guarantee advanced system protection and help ensure the security of the system as a whole.

For more information, please refer to: “[Cybersecurity Best Practices](#)” (English language only).

Eliwell adheres to industry best practices in the development and implementation of control systems. This includes a Defense-in-Depth approach which protects the controller by limiting access exclusively to authorized personnel and protocols.

WARNING

UNAUTHORIZED ACCESS AND SUBSEQUENT NETWORK INTRUSION

- Assess whether the room or the machines are connected to a critical infrastructure and, if so, take suitable preventative measures, based on 'Defense-In-Depth' strategy, before connecting the automation system to any network.
- Monitor activity within the systems.
- Help prevent direct access or direct connection to the devices by unauthorized individuals or unauthorized actions.

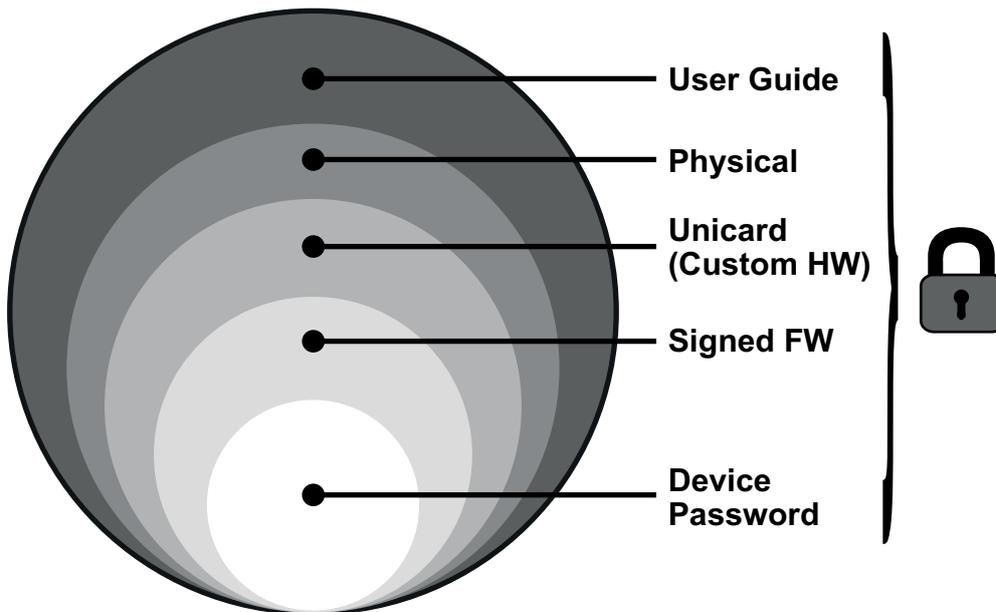
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Defense in Depth

Overview

The protection levels of the device are:

1. User Guide
2. Physical
3. UNICARD (Custom Hardware)
4. Signed firmware
5. Device password



1. User Guide

This document with their Safety Messages, Recommendations, etc.

2. Physical

Make sure to install the device in a box accessible only by authorized personnel and protect the access to the communication ports.

3. UNICARD (Custom proprietary hardware)

The UNICARD (a custom proprietary hardware) is the only one that can be connected to the TTL port for Firmware upgrade.

4. Signed firmware

The device can only be update using Schneider Electric or Eliwell signed firmware (see 'Security hardening guidelines' section).

5. Device password

The device provides two passwords (**PA1** and **PA2**) to access User and Installer parameters. Change them immediately (see 'Password' section)

Security hardening guidelines

Recommendations

- Install the device inside the machine with only the front panel accessible.
- Permit access to the device only to authorized and Qualified personnel (see '**Personnel qualification**' section)

Secure disposal guidelines

Procedure

The guidelines for removing the device and help prevent potential data disclosure are:

1. Restore default value (see '**Restore default values**' section)
2. Remove the device (component/system) from its intended environment
3. Recycle the device properly (see '**Disposal**' section)

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**.

The procedure to load one of the preset applications restores the respective default values, with the exception of the parameters which are not 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.

Disposal

For security reasons, before removing the controller, we recommend to reset the controller to the default value (see 'Restore default values' paragraph).

NOTICE

DISCLOSURE OF APPLICATION DATA

Reset the controller to the default values to help prevent data disclosure.

Failure to follow these instructions can result in equipment damage.



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

Secure operation guidelines

Device upgrade

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 until the Unicard is removed and the controller is power cycled (after that the former applicative restart).

NOTICE

UNINTENDED EQUIPMENT OPERATION

Use authenticated Schneider Electric or Eliwell files only.

Failure to follow these instructions can result in equipment damage.

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.

Account management guidelines

Recommendations

Protect the device access by changing the PA1 and PA2 password (see '**Password**' section)

Password

The **PA1** and **PA2** passwords 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 5 seconds, until the label "UnL" appears
2. Press and hold for at least 3 seconds **SET**
3. Scroll through the parameters with Δ and ∇ until you find the label "PA2"
4. Press and release **SET**
5. Set the "**PA2**" value using the keys Δ and ∇
6. Confirm the value by pressing **SET** (the first folder will be displayed)
7. Scroll through the folders with Δ and ∇ until you find the label "diS"
8. Press and release **SET**
9. Scroll through the parameters with Δ 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 Φ , 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.

For security reasons, on first access we recommend to change the **PA1** and **PA2** passwords.

Carefully consider the implications of giving access to other people.

⚠ WARNING

UNAUTHORISED ACCESS

- Change the default passwords PA1 and PA2 immediately.
- Do not share the password to unauthorized individuals or non-qualified personnel.

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

Preliminary configurations

Contents

This section includes the following topics:

- Introduction 23
- EWNnext 1281 SBCY (230 Vac)25
- EWNnext 1385 SBCY (SMPS 100...240 Vac)26
- EWNnext 1385 SBCIL (SMPS 100...240 Vac)27

Introduction

Overview

EWNnext 1000 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 can only be edited via Device Manager, an Eliwell proprietary software.

Switching on for the first time

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

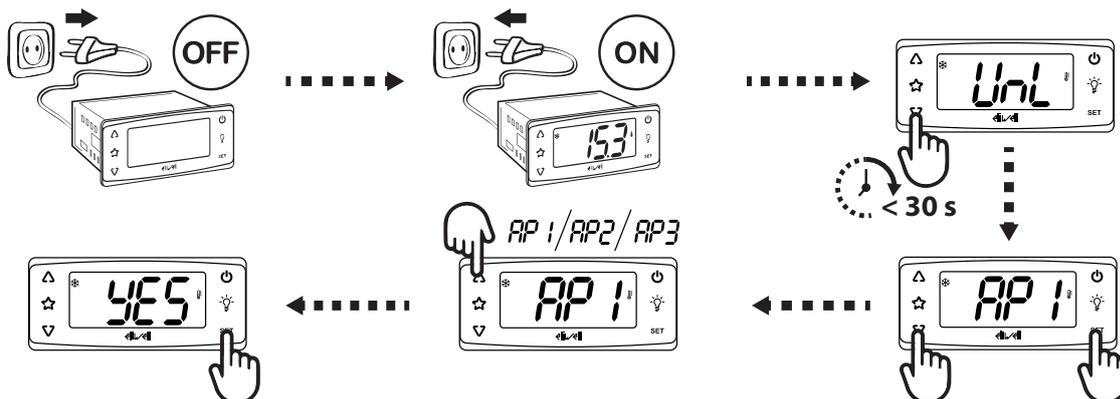
During the first startup, at the end of the lamp test:

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 5 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 Δ and ∇
 6. Confirm the selected preset application using **SET**.
- Note:** The process can be canceled by pressing O or letting a timeout occur (15 seconds)
7. If the procedure completes successfully, the display will show "yES"; otherwise it will show "Err"
 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 not 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**.

The procedure to load one of the preset applications restores the respective default values, with the exception of the parameters which are not 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.

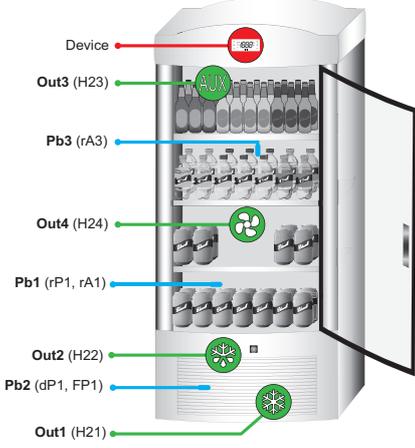
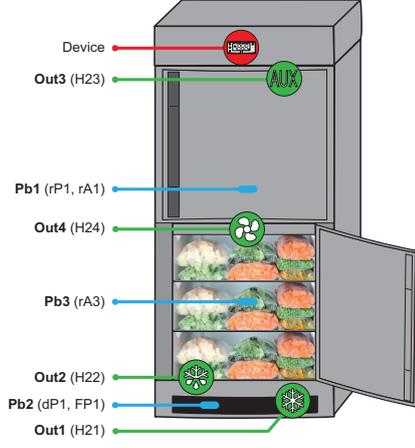
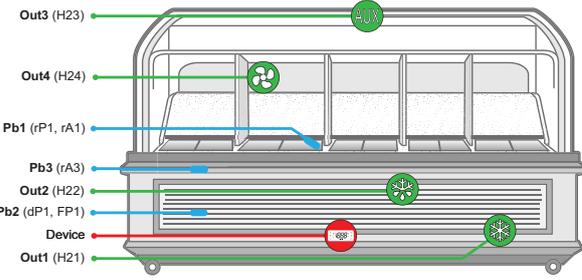
View Preset applications

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

- **EWNext 1281 SBCY**
- **EWNext 1385 SBCY**
- **EWNext 1385 SBCIL**

EWNNext 1281 SBCY (230 Vac)

Application overview

AP1: NT refrigerated units	AP2: NT refrigerated units
	
AP3: LT refrigerated units	Legend:
	<ul style="list-style-type: none"> • Device • Out1 = Compressor 1 • Out2 = Defrost 1 • Out3 = Auxiliary • Out4 = Evaporator fans • Pb1 = Room and Temperature alarm probe • Pb2 = Evaporator and Fans probe • Pb3 = Temperature alarm probe

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	Pb1, Pb2, Pb3 = NTC; Pb4 : not configured
Digital inputs	DI3, DI4, DI5 = not configured DI6 (on TTL) = not configured
Digital outputs	Out1 relay (default: Compressor 1) Out2 relay (default: Defrost 1) Out3 relay (default: Auxiliary) Out4 relay (default: Evaporator fans)
Buzzer	YES
RTC	YES
SYNC	YES (DI7) = not configured
FIELD BUS	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature dS1 = 8.0 °C (46.4 °F) and dS2 = 8.0 °C (46.4 °F)
Active alarms	Pb1 : Maximum/minimum temperature (HAL and LAL) Pb3 : Overheating alarm (COH)
Key configuration	△: manual defrost (H31 = 1) ∇: not configured (H32 = 0) ⊖: stand-by (H33 = 4) ⚡: not configured (H34 = 0) ☆: auxiliary (H35 = 2)

EWNNext 1385 SBCY (SMPS 100...240 Vac)

Application overview

AP1: NT refrigerated units	AP2: NT refrigerated units
AP3: LT refrigerated units	<p>Legend:</p> <ul style="list-style-type: none"> • Device • Out1 = Compressor 1 • Out2 = Defrost 1 • Out3 = Auxiliary • Out4 = Evaporator fans • Pb1 = Room and Temperature alarm probe • Pb2 = Evaporator and Fans probe • Pb3 = Temperature alarm probe

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	Pb1, Pb2, Pb3 = NTC; Pb4 : not configured
Digital inputs	DI3, DI4, DI5 = not configured DI6 (on TTL) = not configured
Digital outputs	Out1 relay (default: Compressor 1) Out2 relay (default: Defrost 1) Out3 relay (default: Auxiliary) Out4 relay (default: Evaporator fans)
Buzzer	YES
RTC	YES
SYNC	YES (DI7) = not configured
FIELD BUS	NO
Type of defrost	Electric heater defrost
End of defrost	Due to temperature dS1 = 8.0 °C (46.4 °F) and dS2 = 8.0 °C (46.4 °F)
Active alarms	Pb1 : Maximum/minimum temperature (HAL and LAL) Pb3 : Overheating alarm (COH)
Key configuration	△: manual defrost (H31 = 1) ∇: not configured (H32 = 0) ⊖: stand-by (H33 = 4) ⚡: not configured (H34 = 0) ☆: auxiliary (H35 = 2)

EWNNext 1385 SBCIL (SMPS 100...240 Vac)

Application overview

AP1: Bottle cooler sub-zero	AP2: Cold cuts aging cabinets
AP3: Ice cream display case	<p>Legend:</p> <ul style="list-style-type: none"> • Device • Out1 = Compressor 1 • Out2 = Defrost 1 (AP1, AP3) or de-humidify (AP2) • Out3 = Auxiliary (AP1) or humidify (AP2) or de-humidify with resistor (AP3) • Out4 = Evaporator fans (AP1) or Auxiliary (AP2, AP3) • DI5 = Door switch • Pb1 = Room and Temperature alarm probe • Pb2 = Evaporator and Fans probe or Variable Speed Fans • Pb3 = Temperature alarm probe • Pb4 = Humidity probe or Variable Speed Fans

Application details

Setpoint	AP1 = 3.5 °C (38.3 °F); AP2 = 10.0 °C (50.0 °F); AP3 = -18.0 °C (-0.4 °F)
Analog inputs	Pb1, Pb2, Pb3 = NTC; Pb4 : NTC (AP1) or 4...20 mA (AP2, AP3)
Digital inputs	DI1, DI2, DI3, DI4 = not configured DI5 = not configured (AP1, AP3) or Door switch (AP2) DI6 (on TTL) = not configured
Digital outputs	Out1 relay (default: Compressor 1) Out2 relay (default: Defrost 1 (AP1, AP3) or de-humidify (AP2)) Out3 relay (default: Auxiliary (AP1) or humidify (AP2) or de-humidify with resistor (AP3)) Out4 relay (default: Evaporator fans (AP1) or Auxiliary (AP2, AP3))
Buzzer	YES
RTC	YES
SYNC	NO
FIELD BUS	YES
Type of defrost	Electric heater defrost
End of defrost	Due to temperature dS1 = 8.0 °C (46.4 °F) and dS2 = 8.0 °C (46.4 °F)

Preliminary configurations

Active alarms	Pb1: Maximum/minimum temperature (HAL and LAL) Pb3: Overheating alarm (COH)
Key configuration	△: manual defrost (H31 = 1) ▽: not configured (H32 = 0) ⊖: stand-by (H33 = 4) ⚡: not configured (H34 = 0) ☆: auxiliary (H35 = 2)

Mechanical installation

Contents

This section includes the following topics:

Before starting	30
Disconnecting Power	30
Operating environment	31
Installation Considerations	31
Mechanical installation	32

Before starting

Read and understand this chapter before beginning the installation of your system.

Pay particular attention in conforming to any safety information, different electrical requirements, and normative standards that would apply to your machine or process in the use of this equipment.

The use and application of the information contained herein require expertise in the design and programming of automated control systems. Only you, the user, machine builder or integrator, can be aware of all the conditions and factors present during installation and setup, operation, and maintenance of the machine or process, and can therefore determine the automation and associated equipment and the related safeties and interlocks which can be effectively and properly used.

When selecting automation and control equipment, and any other related equipment or software, for a particular application, you must also consider any applicable local, regional or national standards and/or regulations.

WARNING

REGULATORY INCOMPATIBILITY

Be sure that all used equipments and designed systems 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.

Disconnecting Power

All options and modules should be assembled and installed before installing the control system on a mounting rail, onto a mounting plate or in a panel. Remove the control system from its mounting rail, mounting plate or panel before disassembling the equipment.

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 except under the specific conditions specified in this user guide.
- 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 equipment 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.
- Do not connect wires to unused terminals and/or terminals indicated as "Reserved".

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

Operating environment

For use with flammable gases:

- This device has been evaluated in accordance with chapter 22.112 of the IEC 60335-2-89 standard with reference to annex BB prescription 9 (sealed relays).
- This device has been evaluated with a surface temperature not exceeding 200 °C (392 °F), as per prescription 22.114 of the IEC 60335-2-89 standard, according to the criteria of chapter 11 (normal operation).

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 used equipments and designed systems 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.

Installation Considerations

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 except under the specific conditions specified in this user guide.
- 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 equipment 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.
- Do not connect wires to unused terminals and/or terminals indicated as "Reserved".

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

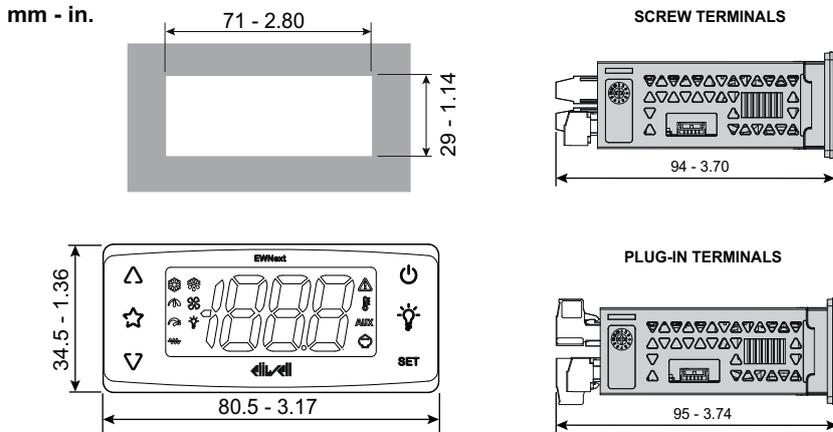
UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE

- Store the equipment in the protective packaging until ready for installation.
- 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 installation

Mechanical dimensions



Installing/uninstalling the controller

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

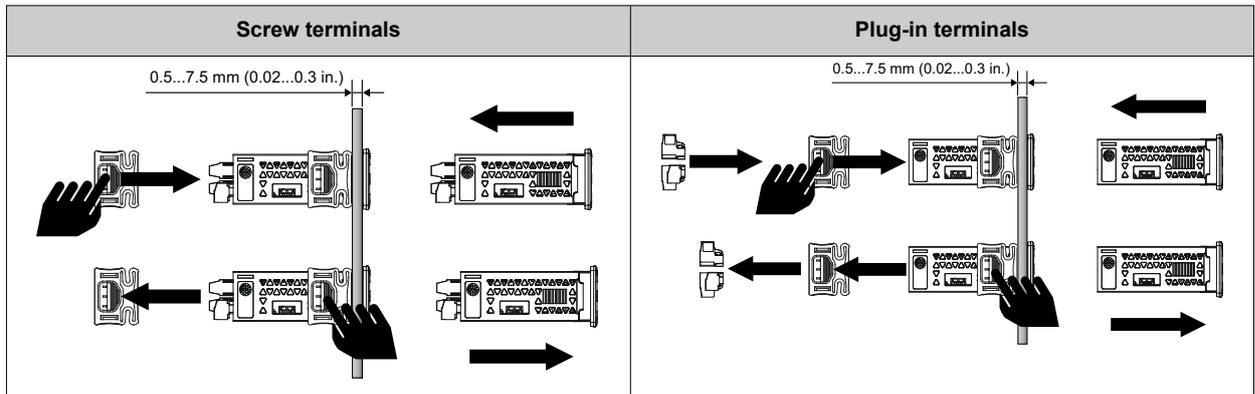
1. Make a hole measuring 71 x 29 mm (2.80 x 1.14 in.)
2. Introducing the controller
3. Secure it by inserting the brackets in the relevant rails at the 2 sides of the controller, until it clicks into place

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	34
Wiring diagram	36
EWNnext 1281 SBCY (230 Vac)	37
EWNnext 1385 SBCY (SMPS 100...240 Vac)	38
EWNnext 1385 SBCIL (SMPS 100...240 Vac)	39
Remote Communication	40

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 except under the specific conditions specified in this user guide.
- 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 equipment 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.
- Do not connect wires to unused terminals and/or terminals indicated as "Reserved".

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

DANGER

HAZARD OF ELECTRIC SHOCK, FIRE AND/OR UNINTENDED EQUIPMENT OPERATION

- 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 "Wiring Diagrams" section).
- 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" section).
- Only use the specified plug-in terminals (see "Best wiring practices" section)
- All network components (controllers, sensors and actuators) must be powered by separate SELV power supplies/transformers except under the specific conditions specified in this user guide.
- No network component (controllers, sensors and actuators) can be earthed.

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 no loads exceeding the ratings specified in the technical data are connected. ⁽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 mm² (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 your application not apply a frequently operated capacitive load on the relay, capacitive loads will reduce the life of any electromechanical relay, and installation of a contactor or an external relay, that is sized and maintained according the ratings and characteristics of the capacitive load, will help minimize the consequence of relay degradation.

⁽²⁾ Although the highest performance relays have been selected for the inrush outputs and loads are declared in accordance with standard IEC 61810-1 D.3, It is end user responsibility that instrument outputs guarantee the proper operation of the application in relation to the expected lifecycle of the machine.

⚠ WARNING

REGULATORY INCOMPATIBILITY
 Be sure that all used equipments and designed systems 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.

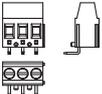
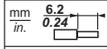
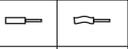
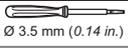
Wiring guidelines

⚡ ⚠ DANGER

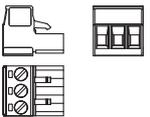
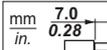
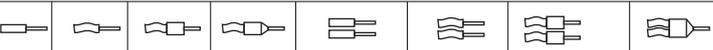
LOOSE WIRING WILL RESULT IN ELECTRIC SHOCK AND/OR FIRE
 Tighten the connections in compliance with the technical specifications for torque values and make sure the wiring is correct.
Failure to follow these instructions will result in death or serious injury.

Use copper conductors only

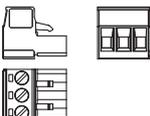
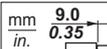
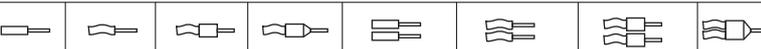
The table below shows the type and size of permitted cables for screw terminals and the torque values:

					N•m	0.5
	mm in.	mm ²	AWG	Ø 3.5 mm (0.14 in.)	lb-in	4.5
	6.2 0.24	0.2...4.0	30...12			
		0.2...2.5	30...12			

The table below shows the type and size of permitted cables for plug-in terminals pitch 5.0 mm (0.197 in.) and the torque values.

					N•m	0.5
	mm in.	mm ²	AWG	Ø 3.5 mm (0.14 in.)	lb-in	4.5
	7.0 0.28	0.2...2.5	24...12			
		0.2...2.5	24...12			
		0.25...2.5	---			
		0.25...2.5	---			
		2 x 0.2...1.0	---			
		2 x 0.2...1.5	---			
		2 x 0.25...0.75	---			
		2 x 0.5...1.5	---			

The table below shows the type and size of permitted cables for plug-in terminals pitch 3.5 mm (0.138 in.) and the torque values.

					N•m	0.22...0.25
	mm in.	mm ²	AWG	Ø 2.5 mm (0.10 in.)	lb-in	1.95...2.21
	9.0 0.35	0.14...1.5	26...16			
		0.14...1.5	26...16			
		0.25...1.5	22...16			
		0.25...0.5	22...20			
		2x 0.08...0.5	2x 28...20			
		2x 0.08...0.75	2x 28...20			
		2x 0.25...0.34	2x 24...22			
		2x 0.5	2x 20			

Only use the plug-in terminals supplied with the product (only with specific models) or purchased directly from Eliwell; otherwise, be sure you are using terminals that are suitable for operation with the Eliwell controller in the conditions specific to its application.

NOTICE

UNINTENDED EQUIPMENT OPERATION
 SELV wiring must be kept separate from other wiring (see "Wiring Diagram" 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 shorter 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.

Special Handling Considerations

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
<ul style="list-style-type: none">• Store the equipment in the protective packaging until ready for installation.• 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.

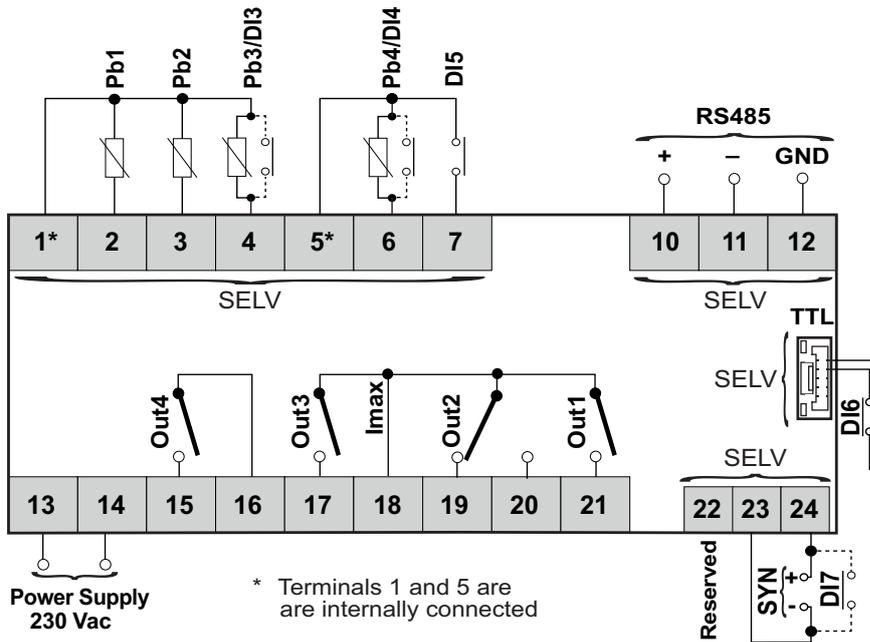
Wiring diagram

Wiring diagrams

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

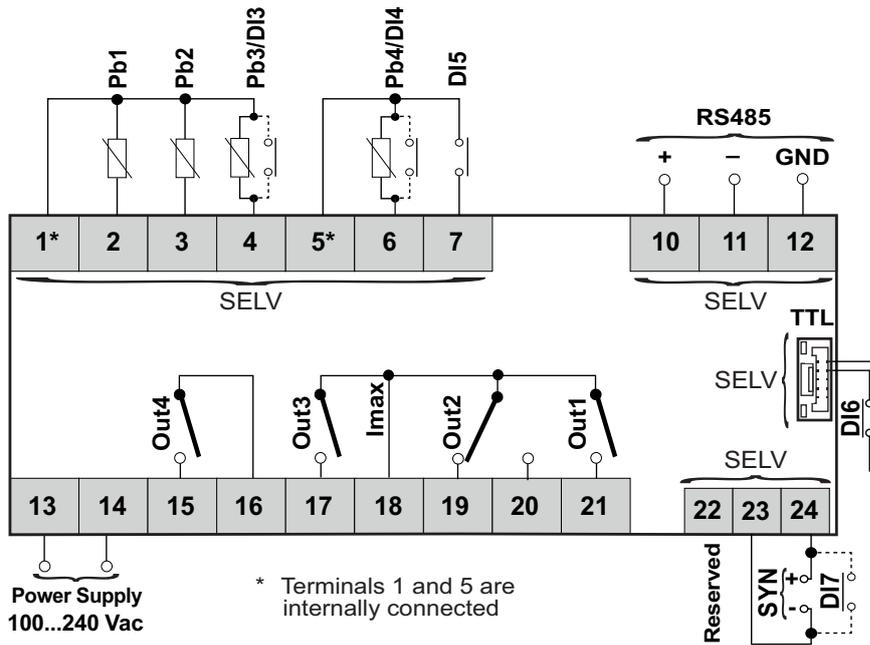
- **[EWNext 1281 SBCY](#)**
- **[EWNext 1385 SBCY](#)**
- **[EWNext 1385 SBCIL](#)**

EWNNext 1281 SBCY (230 Vac)



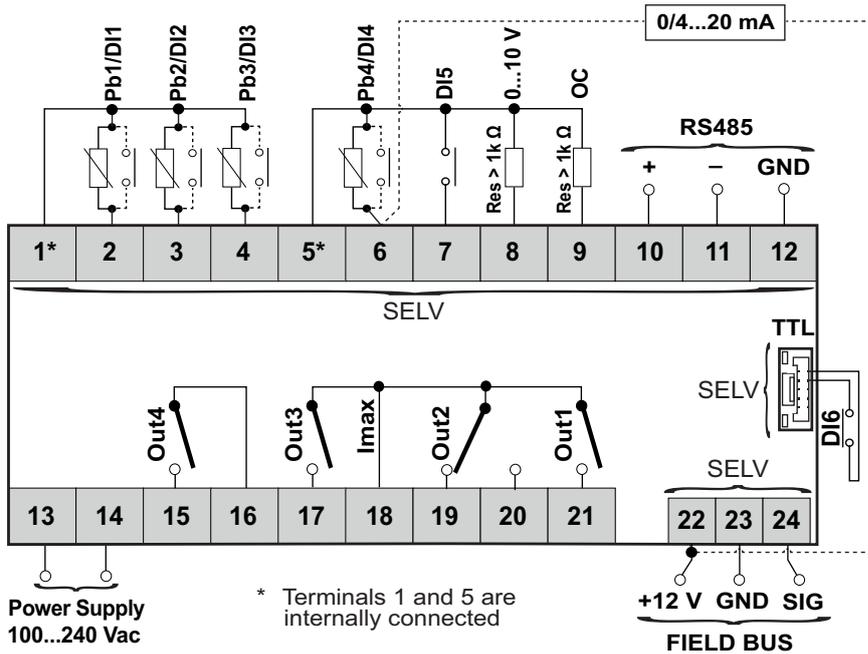
Terminals	Description
1-2	Probe Pb1
1-3	Probe Pb2
1-4	Probe Pb3 (H13=0 and P03≠DIG) or Digital input DI3 (H13≠0 and P03=DIG)
5-6	Probe Pb4 (H14=0 and P04≠DIG) or Digital input DI4 (H14≠0 and P04=DIG)
5-7	Digital input DI5
10-11-12	RS485. Supervision Gateway Connection (NOT ISOLATED)
13-14	Power supply input: 230 Vac
15-16	SPST relay Out4 (Default: Evaporator fans)
17-18	SPST relay Out3 (Default: Auxiliary)
18-19-20	SPDT relay Out2 (Default: Defrost 1)
18-21	SPST relay Out1 (Default: Compressor 1)
22-23-24	22 = Reserved (do not use); 23-24 = Input for defrost synchronization SYN or Digital input DI7
Imax	Maximum current on common: screw terminals = 17 A; plug-in terminals = 12 A
TTL	TTL serial port or digital input DI6 (if H16≠0)
SELV	SELV connections

EWNnext 1385 SBCY (SMPS 100...240 Vac)



Terminals	Description
1-2	Probe Pb1
1-3	Probe Pb2
1-4	Probe Pb3 (H13=0 and P03≠DIG) or Digital input DI3 (H13≠0 and P03=DIG)
5-6	Probe Pb4 (H14=0 and P04≠DIG) or Digital input DI4 (H14≠0 and P04=DIG)
5-7	Digital input DI5
10-11-12	RS485. Supervision Gateway Connection (NOT ISOLATED)
13-14	Power supply input: SMPS 100...240 Vac
15-16	SPST relay Out4 (Default: Evaporator fans)
17-18	SPST relay Out3 (Default: Auxiliary)
18-19-20	SPDT relay Out2 (Default: Defrost 1)
18-21	SPST relay Out1 (Default: Compressor 1)
22-23-24	22 = Reserved (do not use); 23-24 = Input for defrost synchronization SYN or Digital input DI7
Imax	Maximum current on common: screw terminals = 17 A; plug-in terminals = 12 A
TTL	TTL serial port or digital input DI6 (if H16≠0)
SELV	SELV connections

EWNNext 1385 SBCIL (SMPS 100...240 Vac)



Terminals	Description
1-2	Probe Pb1 (H11=0 and P01≠DIG) or Digital input DI1 (H11≠0 and P01=DIG)
1-3	Probe Pb2 (H12=0 and P02≠DIG) or Digital input DI2 (H12≠0 and P02=DIG)
1-4	Probe Pb3 (H13=0 and P03≠DIG) or Digital input DI3 (H13≠0 and P03=DIG)
5-6	Probe Pb4 (H14=0 and P04≠DIG/420/020) or Digital input DI4 (H14≠0 and P04=DIG) or input 0/4...20 mA (H14=0 and P04=420/020)
5-7	Digital input DI5
5-8	Output 0...10 V - Load impedance ≥ 1 kΩ (01n ≠0)
5-9	Open Collector Output (OC): 12 Vdc ±5 % - Load impedance ≥ 1 kΩ (02n ≠0)
10-11-12	RS485. Supervision Gateway Connection (NOT ISOLATED)
13-14	Power supply input: SMPS 100...240 Vac
15-16	SPST relay Out4 (Default: Evaporator fans)
17-18	SPST relay Out3 (Default: Auxiliary)
18-19-20	SPDT relay Out2 (Default: Defrost 1)
18-21	SPST relay Out1 (Default: Compressor 1)
22-23-24	FIELD BUS ⁽²⁾ (22 = +12 V ⁽¹⁾ , 23 = GND, 24 = SIG)
Imax	Maximum current on common: screw terminals = 17 A; plug-in terminals = 12 A
TTL	TTL serial port or digital input DI6 (if H16≠0)
SELV	SELV connections

(1) Maximum current available on +12 V connection for 0...20/4...20 mA external transducer could be up to 20 mA (maximum one transducer).

(2) Only for **EWNNext 1385 SBCIL** models interconnection.

Remote Communication

EWNnext 1000 has the following communication ports:

- 1x TTL serial port
- 1x RS485 serial port (NOT ISOLATED)
- 1x Field Bus (**EWNnext 1385 SBCIL** only)

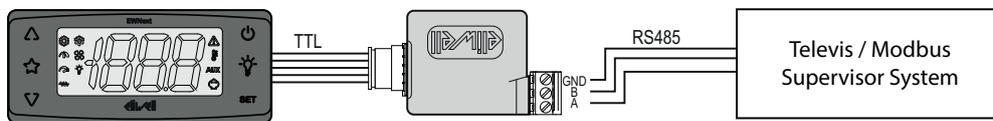
Take extra care when performing serial line connections. Incorrect wiring may lead to faulty operation or damage of the equipment.

TTL serial port

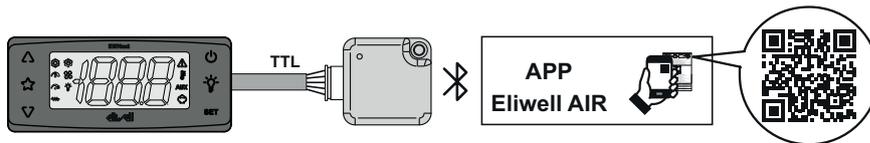
Overview

This serial port is a 5 V not isolated bus with a Modbus RTU protocol.

Example 1: Additional RS485 serial port



Example 2: Bluetooth communication



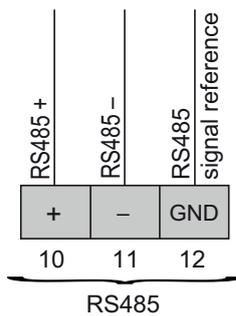
RS485 serial port

Overview

This serial port offers the user communication between controllers by means of a Modbus RTU protocol.

Connectors

EWNnext 1000 is equipped with an RS485 serial port (NOT ISOLATED):



RS485 serial port connection

Description

When you connect a device with a not isolated RS485 serial port to the network, please consider:

- Start connecting only the '+' and '-' terminals of the device
- If the functioning is not good or is not stable, connect also the GND terminal to the network. Verify that the connection do not create a earth loop on the serial port to help prevent equipment damage.

NOTICE

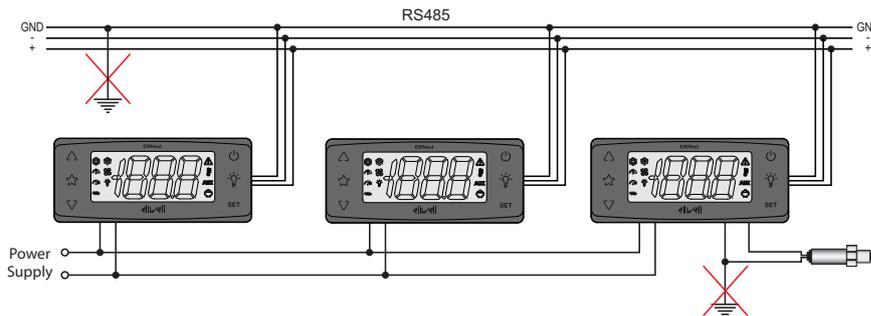
UNINTENDED EQUIPMENT OPERATION

- The load equivalent to all the bus RS485 bus should not exceed 8 Unit Load (For the definition of Unit Load refer to standard TIA/EIA-485-A).
- Do not fit the termination resistors inside the RS485 network.
- For the connection with the supervision system, use a shielded "twisted pair" cable specific (for example: BELDEN cable model 8762).
- The length of an RS485 network is directly related to the baudrate used. At a baud rate of 9600 baud, the maximum cable length is approximately 800 mt (2,625 ft). At 19200 baud, the maximum length is reduced to approximately 400 mt (1,312 ft).

Failure to follow these instructions can result in equipment damage.

Connection Example 1 (Network)

The devices can be connected to a RS485 network as illustrated:



Connection Example 2 (Supervisor)

The device can be connected to an external supervisor via RS485 as indicated in the picture below:



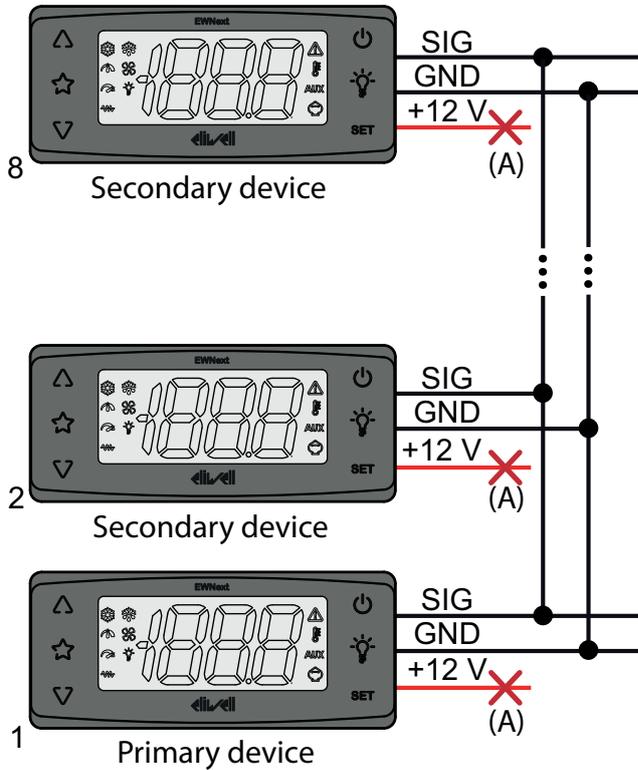
Field Bus connection (EWNext 1385 SBCIL)

Only for EWNext 1385 SBCIL models interconnection.

Overview

A Field Bus is a serial bus system used to connect devices to each other and to only one Primary device (see Field Bus - Introduction section).

Field Bus connection example



(A) Do not connect (to be used only for future extensions)

NOTICE

UNINTENDED EQUIPMENT OPERATION

- A maximum of eight EWNext 1000 devices can be connected together in a network (using only the GND and SIG connections).
- Do not use +12 V connection.

Failure to follow these instructions can result in equipment damage.

Technical characteristics

Contents

This section includes the following topics:

- Technical data 44
- Power supply and Power draw 44
- Output characteristics 45
- Input characteristics 46
- Further Information 46

Technical data

The product complies with the following harmonized Standards: EN 60730-1 and EN 60730-2-9	
Construction of control:	Electronic automatic incorporated Control
Purpose of control:	Operating control (non-safety related)
Type of action:	1.C
Degree of protection by enclosure:	IP00 rear side IP20 front panel only IP65 front panel only (with a steel sheet 2 mm (0.08 in.) thick ±10 % - Tested in accordance with EN 60529)
Pollution degree:	2
Overvoltage category:	II
Rated impulse voltage:	2500 V
Power supply:	See 'Power supply and Power draw' table
Power draw (maximum):	See 'Power supply and Power draw' table
Ambient operating conditions:	Temperature: -20...55°C (-4...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
Environmental front panel rating:	Open Type
Equivalent RS485 bus load:	0.1 Unit Load
Number of device on Field Bus (Maximum):	8

Power supply and Power draw

Model	Power supply	Power draw (maximum)
EWNnext 1281 SBCY	230 Vac (±10%) 50/60 Hz	5.5 W / 6.5 VA
EWNnext 1385 SBCY	SMPS 100...240 Vac (±10%) 50/60 Hz	3.5 W / 8.5 VA
EWNnext 1385 SBCIL	SMPS 100...240 Vac (±10%) 50/60 Hz	3.5 W / 8.5 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 1281 SBCY	Out1	YES	10(6) A 5 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 10 FLA 60 LRA 5 A (70 A inrush, 2.5 ms)(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 3.6 FLA 21.6 LRA
	Out3	YES	4(2) A 2 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 3.6 FLA 21.6 LRA 2 A (70 A inrush, 2.5 ms)(1).
	Out4	YES	5(2) A 1 A (25 A inrush, 2.5 ms) (1).	5 A resistive - 2 FLA 12 LRA 1 A (25 A inrush, 2.5 ms) (1).
I_{max} = Maximum current on common pole (Out1+Out2+Out3) - V* : I _{max} = 17 A - S** : I _{max} = 12 A.				

SMPS 100...240 Vac models	Output	Inrush	EU (100...240 Vac)	USA (100...240 Vac)
EWNext 1385 SBCY	Out1	YES	10(6) A 5 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 10 FLA 60 LRA 5 A (70 A inrush, 2.5 ms)(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 3.6 FLA 21.6 LRA
	Out3	YES	10(6) A 5 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 10 FLA 60 LRA 5 A (70 A inrush, 2.5 ms)(1).
	Out4	YES	5(2) A 1 A (25 A inrush, 2.5 ms) (1).	5 A resistive - 2 FLA 12 LRA 1 A (25 A inrush, 2.5 ms) (1).
I_{max} = Maximum current on common pole (Out1+Out2+Out3) - V* : I _{max} = 17 A - S** : I _{max} = 12 A.				
EWNext 1385 SBCIL	Out1	YES	10(6) A 5 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 10 FLA 60 LRA 5 A (70 A inrush, 2.5 ms)(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 3.6 FLA 21.6 LRA
	Out3	YES	10(6) A 5 A (70 A inrush, 2.5 ms) (1).	10 A resistive - 10 FLA 60 LRA 5 A (70 A inrush, 2.5 ms)(1).
	Out4	YES	5(2) A 1 A (25 A inrush, 2.5 ms) (1).	5 A resistive - 2 FLA 12 LRA 1 A (25 A inrush, 2.5 ms) (1).
I_{max} = Maximum current on common pole (Out1+Out2+Out3) - V* : I _{max} = 17 A - S** : I _{max} = 12 A.				
1x 0...10 V : Load impedance ≥ 1 kΩ				
1x Open Collector Output (OC) : 12 Vdc ±5 % - Load impedance ≥ 1 kΩ				

(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 plug-in terminals.

Input characteristics

Analog inputs	<ul style="list-style-type: none"> • EWNnext 1281 SBCY: 4x NTC inputs (Pb1, Pb2, Pb3⁽³⁾ and Pb4⁽⁴⁾) • EWNnext 1385 SBCY: 4x NTC inputs (Pb1, Pb2, Pb3⁽³⁾ and Pb4⁽⁴⁾) • EWNnext 1385 SBCIL: 3x NTC inputs (Pb1⁽¹⁾, Pb2⁽²⁾ and Pb3⁽³⁾) + 1x NTC or 0/4...20 mA⁽⁵⁾ input
Digital inputs	<ul style="list-style-type: none"> • EWNnext 1281 SBCY: 4x voltage free digital inputs (DI3⁽³⁾, DI4⁽⁴⁾, DI5 and DI6⁽⁶⁾) + 1 voltage free digital input (DI7) or SYN connection for defrost synchronization • EWNnext 1385 SBCY: 4x voltage free digital inputs (DI3⁽³⁾, DI4⁽⁴⁾, DI5 and DI6⁽⁶⁾) + 1 voltage free digital input (DI7) or SYN connection for defrost synchronization • EWNnext 1385 SBCIL: 6x voltage free digital inputs (DI1⁽¹⁾, DI2⁽²⁾, DI3⁽³⁾, DI4⁽⁴⁾, DI5 and DI6⁽⁶⁾)

(1) analog input **Pb1** (**H11**=0 and **P01**≠DIG) can also be configured as digital input **DI1** (if **H11**≠0 and **P01**=DIG)

(2) analog input **Pb2** (**H12**=0 and **P02**≠DIG) can also be configured as digital input **DI2** (if **H12**≠0 and **P02**=DIG)

(3) analog input **Pb3** (**H13**=0 and **P03**≠DIG) can also be configured as digital input **DI3** (if **H13**≠0 and **P03**=DIG)

(4) analog input **Pb4** (**H14**=0 and **P04**≠DIG) can also be configured as digital input **DI4** (if **H14**≠0 and **P04**=DIG)

(5) analog input **Pb4** (**H14**=0 and **P04**≠DIG/420/020) can also be configured as digital input **DI4** (if **H14**≠0 and **P04**=DIG) or current input 0/4...20 mA (**H14**=0 and **P04**=420/020)

(6) digital input **DI6**, if enabled, should be connected to the TTL connector (if **H16**≠0)

Further Information

Probe values

Display ranges	-199.9...199.9 or -1999...1999
Measurement range	NTC: -50...110°C (-58...230°F) - on display with 3 digits + sign Current: 0...20 mA / 4...20 mA
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. Current: ±0.2 mA
Resolution	1°C/°F or 0.1°C/°F (depending on the display range setting)

Mechanical characteristics

Dimensions	Front panel 80.5 x 34.5 mm (3.17 x 1.36 in.) Depth 94 mm (3.70 in.) for models with screw terminals Depth 95 mm (3.74 in.) for models with plug-in terminals
Mounting panel thickness	0.5...7.5 mm (0.02...0.3 in.)
Terminals	Screw / Plug-in terminals

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

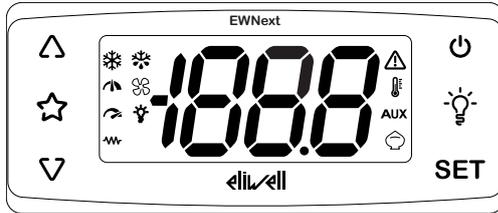
Contents

This section includes the following topics:

- User interface 48
- Using the controller 50
- Setting the probes 55
- Setting the displayed values 56

User interface

Interface



Keys

Keys	press and release	press for at least 5 seconds
	<ul style="list-style-type: none"> 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.
	From outside the menus only. Can be configured by the user (parameter H35) Default: Activates AUX output.	---
	<ul style="list-style-type: none"> Scroll through the menu options. Decrease the values. 	<ul style="list-style-type: none"> From outside the menus only. Can be configured by the user (parameter H32) Default: not configured. Unlock keypad
	<ul style="list-style-type: none"> 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.
	From outside the menus only. Can be configured by the user (parameter H34) Default: not configured.	---
	---	Press both simultaneously within 30 seconds after device power-on, or after stand-by to load the preset applications (only after unlocking the keypad).
Keys	press and release	press for at least 3 seconds
SET	<ul style="list-style-type: none"> Access the "Machine Status" menu. Display alarms (if present). Confirm commands 	Access the "Programming" menu.

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 5 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 on Off: fans off
	Medium VSC speed (only EWNext 1385 SBCIL)	On steadily: $V_{min} \leq \text{required speed} < 90\% V_{max}$ Off: $0\% \leq \text{required speed} < V_{min}$
	Maximum VSC speed (only EWNext 1385 SBCIL)	On steadily: required speed $\geq 90\% V_{max}$ Off: required speed $< 90\% V_{max}$
	Light	On steadily: light on Off: light off
	Heating	On steadily: Heating regulator active Slow flashing: Humidity output active (if H2x = 16) Fast flashing: Dehumidify output with (H2x = 18) or without (H2x = 17) resistor Off: Heating regulator inactive
	Alarm	On steadily: alarm present Flashing: alarm silenced Off: No alarm active
	Temperature	On steadily: a temperature is displayed (°C or °F) Flashing: PID autotuning active (only EWNext 1385 SBCIL) Off: a value not relating to temperature or a label is displayed
AUX	AUX	On steadily: AUX output active Flashing: Deep cooling active Off: AUX output off
	Energy saving	On steadily: Energy saving active Flashing: reduced set active Off: Energy saving inactive

Note: **Vmin** = minimum compressor speed; **Vmax** = maximum compressor speed.

Note: Some icons may be associated with unavailable functions, depending on the model (in that cases those icons will never light on).

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.

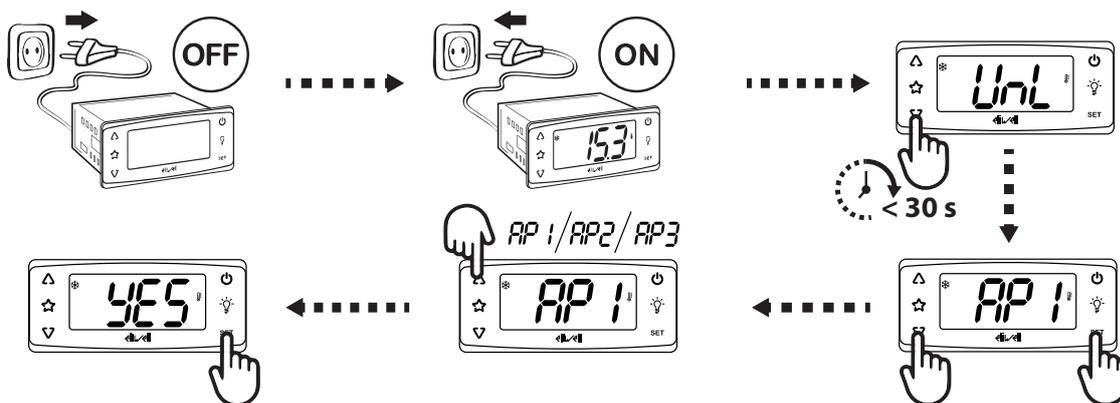
During the first startup, at the end of the lamp test:

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 5 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 Δ and ∇
 6. Confirm the selected preset application using **SET**.
- Note:** The process can be canceled by pressing Power or letting a timeout occur (15 seconds)
7. If the procedure completes successfully, the display will show "**yES**"; otherwise it will show "**Err**"
 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 not 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**.

The procedure to load one of the preset applications restores the respective default values, with the exception of the parameters which are not 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 **PA1** and **PA2** passwords 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 5 seconds, until the label "UnL" appears
2. Press and hold for at least 3 seconds **SET**
3. Scroll through the parameters with Δ and ∇ until you find the label "PA2"
4. Press and release **SET**
5. Set the "PA2" value using the keys Δ and ∇
6. Confirm the value by pressing **SET** (the first folder will be displayed)
7. Scroll through the folders with Δ and ∇ until you find the label "diS"
8. Press and release **SET**
9. Scroll through the parameters with Δ 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 Φ , 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.

For security reasons, on first access we recommend to change the **PA1** and **PA2** passwords.

Carefully consider the implications of giving access to other people.

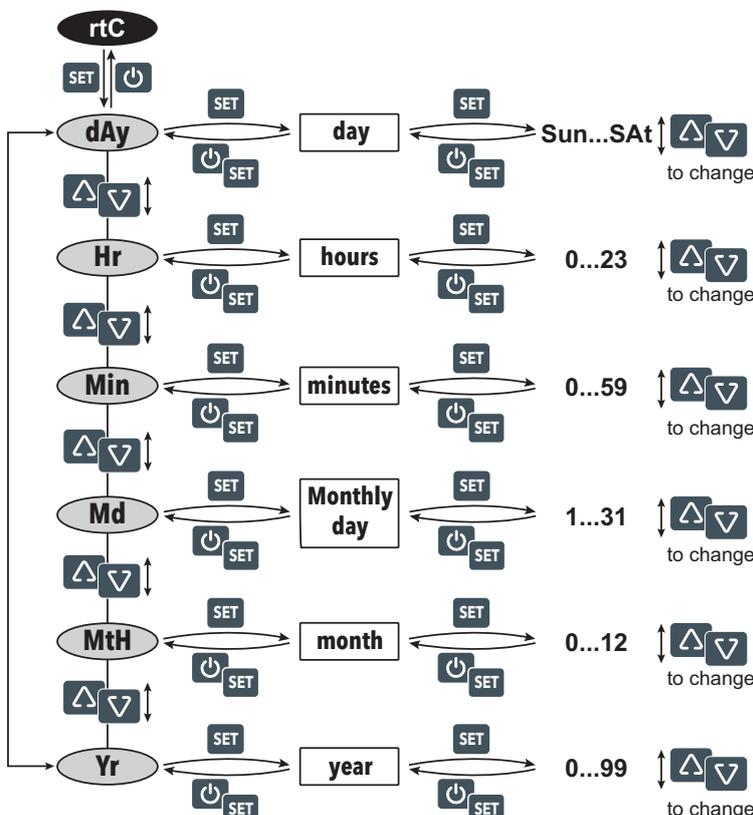
⚠ WARNING

UNAUTHORISED ACCESS

- Change the default passwords PA1 and PA2 immediately.
- Do not share the password to unauthorized individuals or non-qualified personnel.

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

RTC setting



Machine Status Menu

To enter the Machine Status menu:

1. To unlock the keypad, press and hold ∇ for at least 5 seconds, until the label “UnL” appears
2. Press and release **SET**
3. Scroll through the folders with keys Δ 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 Φ , or let a timeout occur (15 seconds).

List of folders:

The folders shown are as follows:

- **SEt**: setpoint setting folder
- **SEH**: humidity setpoint setting folder (only visible if the function is active)
- **ALr**: alarms folder (only visible if there are active alarms)
- **rtC**: clock parameters folder
 - **dAy**: day
 - **Hr**: hour
 - **Min**: minutes
 - **Md**: monthly day
 - **MtH**: month
 - **Yr**: year
- **ntd**: folder displaying the time of transition from night to day (visible if **SLE** = 1)
 - **h**: hour
 - **'**: minutes
- **dtN**: folder displaying the time of transition from day to night (visible if **SLE** = 1)
 - **h**: hour
 - **'**: minutes
- **Pb1**: Pb1 probe value folder
- **Pb2**: Pb2 probe value folder
- **Pb3**: Pb3 probe value folder
- **Pb4**: Pb4 probe value folder
- **APP**: uploaded application (**AP1**, **AP2** or **AP3**)
- **idF**: firmware mask value folder
- **rEL**: firmware release value folder
- **nAM**: product name folder
- **PEr**: VSC value folder (if available)
- **FAn**: Fan value folder (if available)

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

Programming Menu

To enter the Programming menu:

- To unlock the keypad, press and hold ∇ for at least 5 seconds, until the label “UnL” appears
- Press and hold for at least 3 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 (**diF**) will be shown.

- Scroll through the parameters with keys Δ and ∇ until you find the label for the parameter you want to change
- Press and release **SET**
- Set the desired value using the keys Δ and ∇
- To confirm the value press **SET** or Φ , or let a timeout occur (15 seconds).

Installer parameters (Inst):

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

- Scroll through the folders with keys Δ and ∇ until you find the label for the desired folder
- Press and release **SET**
- Scroll through the parameters with keys Δ and ∇ until you find the label for the parameter you want to change
- Press and release **SET**
- Set the desired value using the keys Δ and ∇
- To confirm the value press **SET** or Φ , or let a timeout occur (15 seconds).

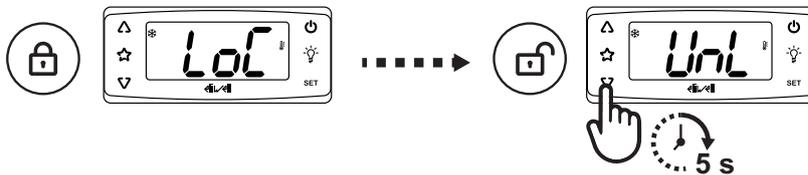
Note: Switch the device off and on again every time you change the parameter configuration.

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 5 seconds, until the label 'UnL' appears.



Viewing the probe values

- Unlock the keypad by pressing and holding ∇ for at least 5 seconds, until the label “UnL” appears
- Press and release **SET** to access the 'Machine status' menu
- Scroll through the folders with Δ and ∇ until you find the folder **Pb1**, **Pb2**, **Pb3** or **Pb4**
Note: folders can only be viewed if relative probe is active (**P01/P02/P03/P04**≠diS)
- Press **SET** to view the value measured by the corresponding probe.
Note: the displayed value cannot be changed.

Setting the setpoint

1. To unlock the keypad, press and hold ∇ for at least 5 seconds, until the label "UnL" appears
2. Press and release **SET** to access the "Machine status" menu
3. Scroll through the folders with Δ and ∇ until you find the folder **SEt**
4. Press **SET** to view the current setpoint value.
5. Change the setpoint value using Δ and ∇ within 15 seconds.
6. To confirm the value press **SET** or $\text{\textcircled{P}}$, 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.

Note: if the functions set are 'AUX' (H3x=2) or 'Light' (H3x=8), press and release the key to activate the function. In all other cases, press the key for at least 5 seconds.

Key	Parameter
Δ	H31
∇	H32
$\text{\textcircled{P}}$	H33
$\text{\textcircled{L}}$	H34
$\text{\textcircled{S}}$	H35

Value H31/H32/H33/H34/H35	Description
0	Disabled
1	Defrost
2	AUX
3	Reduced set
4	Stand-by
5	nPL autotuning procedure (VSC models)
6	tun autotuning procedure (VSC models)
7	Deep cooling
8	Light
9	Energy saving
10	Self-learning (RTC models)
11	HACCP disabled
12	HACCP reset
13	summer/winter (only parameter H32)

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:

EWNnext 1281 SBCY

- 2 analog inputs (**Pb1** and **Pb2**)
- 2 analog/digital multifunctional inputs that can be configured as digital inputs **DI3/DI4** (**H13/H14**≠0 and **P03/P04**=DIG) or as analog probes **Pb3/Pb4** (**H13/H14**=0 and **P03/P04**≠DIG)

EWNnext 1385 SBCY

- 2 analog inputs (**Pb1** and **Pb2**)
- 2 analog/digital multifunctional input that can be configured as digital inputs **DI3/DI4** (**H13/H14**≠0 and **P03/P04**=DIG) or as analog probes **Pb3/Pb4** (**H13/H14**=0 and **P03/P04**≠DIG)

EWNnext 1385 SBCIL

- 3 analog/digital multifunctional inputs that can be configured as digital inputs **DI1/DI2/DI3** (**H11/H12/H13**≠0 and **P01/P02/P03**=DIG) or as analog probes **Pb1/Pb2/Pb3** (**H11/H12/H13**=0 and **P01/P02/P03**≠DIG)
- 1 analog/digital multifunctional inputs that can be configured as digital input **DI4** (**H14**≠0 and **P04**=DIG), as analog probe **Pb4** (**H14**=0 and **P04**≠DIG/420/020) or **0...20/4...20 mA** input (**H14**=0 and **P04**=420/020)

Probe calibration

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

- **CA1** (probe Pb1)
- **CA2** (probe Pb2)
- **CA3** (probe Pb3)
- **CA4** (probe Pb4)

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

Virtual probe / changing the probe

The device, in addition to regulating the values detected by the individual probes, can also regulate according to a weighted average of the value read by two probes (regulation probe and virtual probe):

- Virtual probe in Day mode:

$$P_{bi}(\text{Virtualprobe}) = [(probe1) * H72 + (probe2) * (100 - H72)]/100$$
- Virtual probe in Energy Saving mode (Night):

$$P_{bi}(\text{Virtualprobe}) = [(probe1) * H73 + (probe2) * (100 - H73)]/100$$

In the formula, probe 1 is selected via parameter **H70**, and probe 2 via parameter **H71**. Changing the regulation probe, between Day and Night - Energy Saving - mode, can be carried out by setting **H72** = 100 and **H73**= 0:

- Virtual probe in Day mode: **Probe1** (see **H70**)
- Virtual probe in Energy Saving mode (Night): **Probe2** (see **H71**).

Parameters

Parameter	Description
H70	1st probe to use as a virtual probe.
H71	2nd probe to use as a virtual probe.
H72	% calculation used by the virtual probe for daytime.
H73	% calculation used by the virtual probe for night-time (Energy Saving mode).

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	Description
yES	Display with decimal point and resolution to tenths of a degree
no	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	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
4	Display the value read by Pb4
5	Display the value read by Virtual probe
6	Display the value read by Remote probe
7	Reserved (EWNnext 1281 SBCY and EWNnext 1385 SBCY) or Display the value read by Field Bus probe (EWNnext 1385 SBCIL)

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 Primary device.

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

ddE	Description
0	ECNext module not connected
1	Display the value read by Pb1 and alarm.
2	Display the value read by Pb2 and alarm.
3	Display the value read by Pb3 and alarm.
4	Display the value read by Pb4 and alarm.
5	Display the value read by Virtual probe.
6	Display the value read by Remote probe
7	Reserved (EWNnext 1281 SBCY and EWNnext 1385 SBCY) or Display the value read by Field Bus probe (EWNnext 1385 SBCIL)
8	Display 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	Description
0	Display the values read by the selected probe
1	Display the value read by the selected probe at the start of defrosting until the setpoint is reached
2	Display the label dEF during defrosting until the setpoint is reached

Filter displayed value

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

FiS parameter:

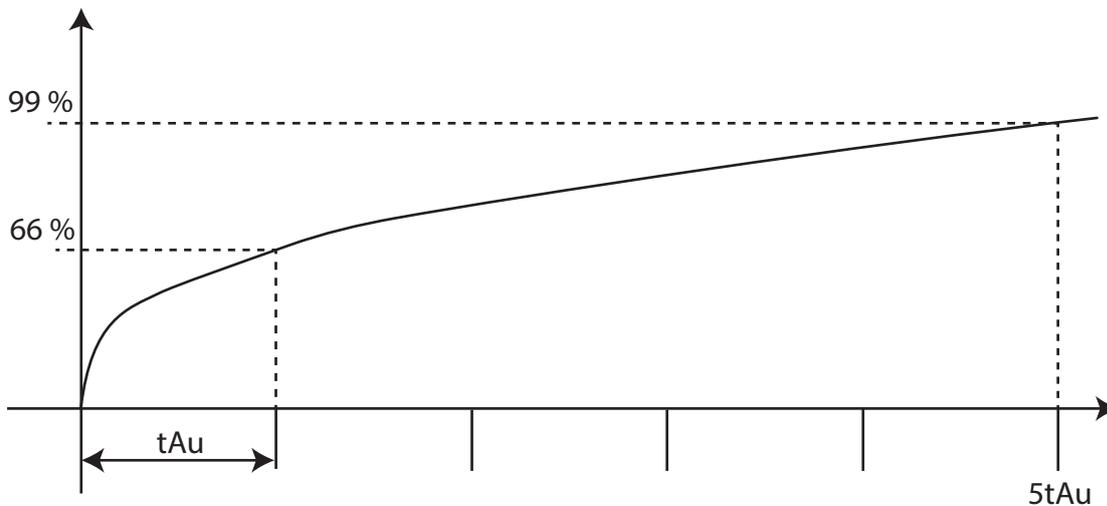
- **FiS=0**: the filter is disabled
- **FiS=1**: the filter is set based on time values **tAu** and **5tAu** (see picture below), and is applied to the displayed information according to the value of parameter **Fit**.
- **FiS=2**: the temperature value shown changes by 1°C/°F every **tAu** minutes

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	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).

Field Bus (EWNNext 1385 SBCIL only)

Contents

This section includes the following topics:

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Introduction (EWNNext 1385 SBCIL only)

Description

A Field Bus network is a serial bus system used to connect devices to each other and to only one Primary device. Field Bus network configuration takes place using the same addresses as the supervision system. No limitation is applied to the addresses (they may also be non-contiguous).

The Field Bus is managed by a set of parameters that allows commands and values sharing over the network.

It can be available on Field Bus port. To enable the functionality, using Device Manager, set parameter **F-DATA_LAYER_LAN** to value '2'.

Up to 8 devices can be connected on the Field Bus network, but only one of them have to be set as 'Primary' (**SC2** = 1) to share information between the other ones.

Only devices with Field Bus enabled can share data.

If the Field Bus network is enabled, at every start-up the 'Primary' device scans the network looking for connected 'Secondary' devices. During the network discovery, the label '**ndi**' will flash on the display.

Important

If you decide to create a Field Bus network, is necessary to remember that:

- All the devices connected to the network required the Field Bus is active (**F-DATA_LAYER_LAN** = 2)
- Only one device of the network is set as 'Primary' (**SC2** = 1)
- On the 'Primary' device is set the number of devices present in the network (set **L11**= 1 (Primary) + **n** (number of 'Secondary' devices))

Activation Field Bus

The parameter to activate Field Bus is **F-DATA_LAYER_LAN** and can be update only via Device Manager. It is enabled by default.

The values that can be set are:

- **0**: Field Bus disabled
- **1**: Reserved
- **2**: Field Bus enabled

Definitions

In the Field Bus network, is necessary to know the differentiation between:

- **Primary**: This role is mandatory on the network and is responsible for dispatching information among connected devices. Only one device in the network can assume this role (**SC2** = 1).
- **Secondary**: All devices in the network that are configured to operate as non-Primary nodes (**SC2** = 0). These devices must not initiate communication requests.
- **Main**: The device that starts data sharing in a network implementing Field Bus. It may be different from the Primary device.
- **Remote**: All devices that receive data shared by the **Main** device. This role should be considered different from the Secondary device.

Note: Only one device on the Field Bus network can be configured as the 'Main' device.

Parameters description

⚠ WARNING
<p>HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE Do not set any parameter not having the full understanding of its behavior in general and in relation to the specific application ⁽¹⁾. Failure to follow these instructions can result in death, serious injury, or equipment damage.</p>

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

Sharing probe value (L00)

L00	Description
diS (0)	Probe sharing disabled (default value)
Pb1 (1)	Probe '1'
Pb2 (2)	Probe '2'
Pb3 (3)	Probe '3'
Pb4 (4)	Probe '4'
Pbi (5)	Virtual Probe
Pbr (6)	Remote Probe

Only one 'Main' device (either 'Primary' or 'Secondary') on the network can share the physical or virtual probes value; all other devices can only receive them.

Note: To avoid unexpected behavior, the probe to be shared must be available on the current device model.

Displayed value sharing (L01)

L01	Description
0	Help prevents sending the displayed value from the device to the Field Bus network (default value)
1	Enables sending the displayed value from the device to the Field Bus network
2	Displays the value of the device with setting L01 = 1 ('Main' device)

Only one 'Main' device (either 'Primary' or 'Secondary') on the network can share either the physical or virtual probes value, the other ones only can receive it.

Note: Only numerical values or setpoint can be shared (other information such as alarms, errors, etc., are ignored).

Setpoint sharing (L02)

L02	Description
no (0)	Does not send the Setpoint value to the Field Bus network when it is changed. (default value)
yES (1)	Sends the Setpoint value to the Field Bus network when it is changed.

Defrost start request sharing (L03)

L03	Description
0	Sends defrost request disabled (default value)
1	'Primary' device for sending simultaneous start defrost
2	'Primary' device for sending sequential start defrost

The parameter has to be set on 'Primary' device only (**L03** = 1 or 2) to enable defrost command send over the network. The 'Secondary' devices, upon receiving the command, will start defrosting based on their configuration parameters.

End Defrost mode sharing (L04)

L04	Description
ind (0)	Independent defrost ending (default value)
dEP (1)	Dependent defrost ending

The parameter has to be set on 'Primary' device only.

At the end of a defrost cycle, triggered by the 'Primary' device, the 'Secondary' devices will resume normal operation depending on **L04** value:

- **L04** = **ind** (0): (independent defrost ending): each Secondary start regulation as soon as his defrost is ended.
- **L04** = **dEP** (1): (dependent defrost ending): each Secondary waits (with regulation locked) until the other defrost cycles are ended for all devices, or the timeout set by parameter **L10** has expired.

Stand-by synchronization (L05)

L05	Description
no (0)	Stand-by command synchronization disabled (default value)
yES (1)	Stand-by command synchronization enabled

If a defrost cycle is in progress, the stand-by command, with **H08** = 1 or **H08** = 2, forces defrost cycle to end. If the defrost command is sent over the network by a 'Primary' device with **L03** = 1 or **L03** = 2, it is recommended to also set **L05** = yES (1) on that device to ensure that all devices enter in stand-by mode and terminate their own defrost cycles.

Note: To avoid unexpected behavior, wait for the command to propagate across the network before toggling it again.

Light synchronization (L06)

L06	Description
no (0)	Light command synchronization disabled (default value)
yES (1)	Light command synchronization enabled

Only devices with **L06** = yES (1) are capable of synchronizing light state transitions (On/Off) across the Field Bus network.

Note: Light management has to be properly configured on each device (see Light output).

Note: To avoid unexpected behavior, wait for the command to propagate across the network before toggling it again.

Energy saving synchronization (L07)

L07	Description
no (0)	Energy saving synchronization disabled (default value)
yES (1)	Energy saving synchronization enabled

Only devices with **L07** = yES (1) are capable of synchronizing Energy Saving state transitions (On/Off) across the Field Bus network.

Note: Energy saving management has to be properly configured on each device (see Energy saving).

Note: To avoid unexpected behavior, wait for the command to propagate across the network before toggling it again.

AUX synchronization (L08)

L08	Description
no (0)	Auxiliary output synchronization disabled (default value)
yES (1)	Auxiliary output synchronization enabled

Only devices with **L08** = yES (1) are capable of synchronizing Auxiliary output state transitions (On/Off) across the Field Bus network.

Note: The Auxiliary output management has to be properly configured on each device (see Auxiliary output).

Note: To avoid unexpected behavior, wait for the command to propagate across the network before toggling it again.

Dependent defrost end timeout (L10)

L10	Description
1...250	Timeout value

In dependent defrost end mode with **L04** = dEP (1), regulation is still forced to resume if, within the **L10** timeout, the 'Primary' device does not reactivate it (for example, if the network connection is interrupted during an ongoing defrost cycle).

Note: For optimal performance **L10** should be greater than (**dEt** + **dt**)

Number of connected devices (L11)

L11	Description
0...8	Number of devices connected to Field Bus

If the number of detected devices after network discovery differs from the set value (**L11**), a 'No-Link' (**ELi**) alarm will be triggered.

Alarm relay sharing (L12)

L12	Description
0	Function disabled (default value)
1	Primary alarm relay (the relay is activated from local alarm relay or secondary alarm relay)
2	Secondary alarm relay

This parameter allows the alarm relay of one device to be shared with the other devices connected on the network. If a device is configured as the 'Main' device, it will activate its alarm relay and display the alarm icon both for its own alarms and for alarms detected on other devices in the Field Bus configured as 'remote'.

Note: The alarm relay output must be configured on the 'Main' device. Only one device on the network can be configured as the 'Main' device.

Buzzer and Alarm mute sharing (L15)

L15	Description
0	Function disabled (default value)
1	'Main' device
2	'Remote' device (shares buzzer and alarm silenced command with 'Main' device).

With this parameter, it is possible to share the alarm buzzer and alarm icon of a remote device with the 'Main' device. If a device is configured as the 'Main' device (L15 = 1), it will activate its own alarm buzzer and alarm icon both for its own alarms and for alarms present on other devices in the Field Bus configured as 'Remote' (L15 = 2).

If alarm silencing is enabled on the 'Main' device, it will deactivate its buzzer, make the alarm icon flash, and automatically silence the alarm status on the connected 'Remote' devices.

Note: Even when configured on the 'Main' device, the alarm relay output is not affected.

Note: Only one device on the Field Bus network can be configured as the 'Main' device.

Synchronized Defrost (EWNnext 1385 SBCIL only)

Description

Defrost synchronization on a Field Bus network is performed with respect to the actual defrost phase; therefore, the dripping phase and all functions that occur after defrost are not taken into account.

The 'Primary' device (device with **SC2** = 1) simply issues enable commands at the start of a defrost or upon thermostat activation, without interfering with the normal protections or delays of each device, such as the drip phase.

If the 'Secondary' devices connected to the Field Bus network are configured to accept defrost and network function commands from the 'Primary' device, any defrosts and/or functions triggered by events generated locally by the 'Secondary' device will not be executed, except for:

- manual defrosts
- supervisor initiated remote defrosts
- defrosts triggered by a deep cooling cycle.

Associated defrosts and/or functions will only be carried out by the secondary devices if a “no link” alarm is present (**Eli**).

Operating conditions:

- In a local network, defrost commands and activation of the functions associated with the events are controlled exclusively by the 'Primary' device (only if 'Secondary' devices are configured accordingly).
- If there is no communication, every element in the network works individually for the cooling chain.

A safety mechanism can be set on 'Secondary' devices that locally forces a defrost if they do not receive a defrost command from the 'Primary' device within the **dit** timeout period (with **dit** ≠ 0). The timeout is reset after each defrost.

Note: If **dit**=0 this safety mechanism is disabled.

There are two types of defrost, setting with **L03** value:

- **L03** = 1: simultaneous defrost
- **L03** = 2: sequential defrost

Parameter **L04** can be used to indicate whether, once defrost is complete, the device waits for all the others to finish before being able to reactivate regulation.

This means there is still a timeout that forces reactivation of regulation once a time period set with **L10** elapses (for example the Field Bus network line is interrupted while a defrost is in progress).

Only one 'Main' device (either 'Primary' or 'Secondary') on the network can share either the physical or virtual probes value, the other ones only can receive it.

Note: To avoid unexpected behavior, the probe to share must be available on the current device model.

Simultaneous Defrost (L03 = 1)(EWNnext 1385 SBCIL only)

In a Field Bus network it is possible to activate defrosts simultaneously, coordinated by the 'Primary' device, by setting **L03=1**.

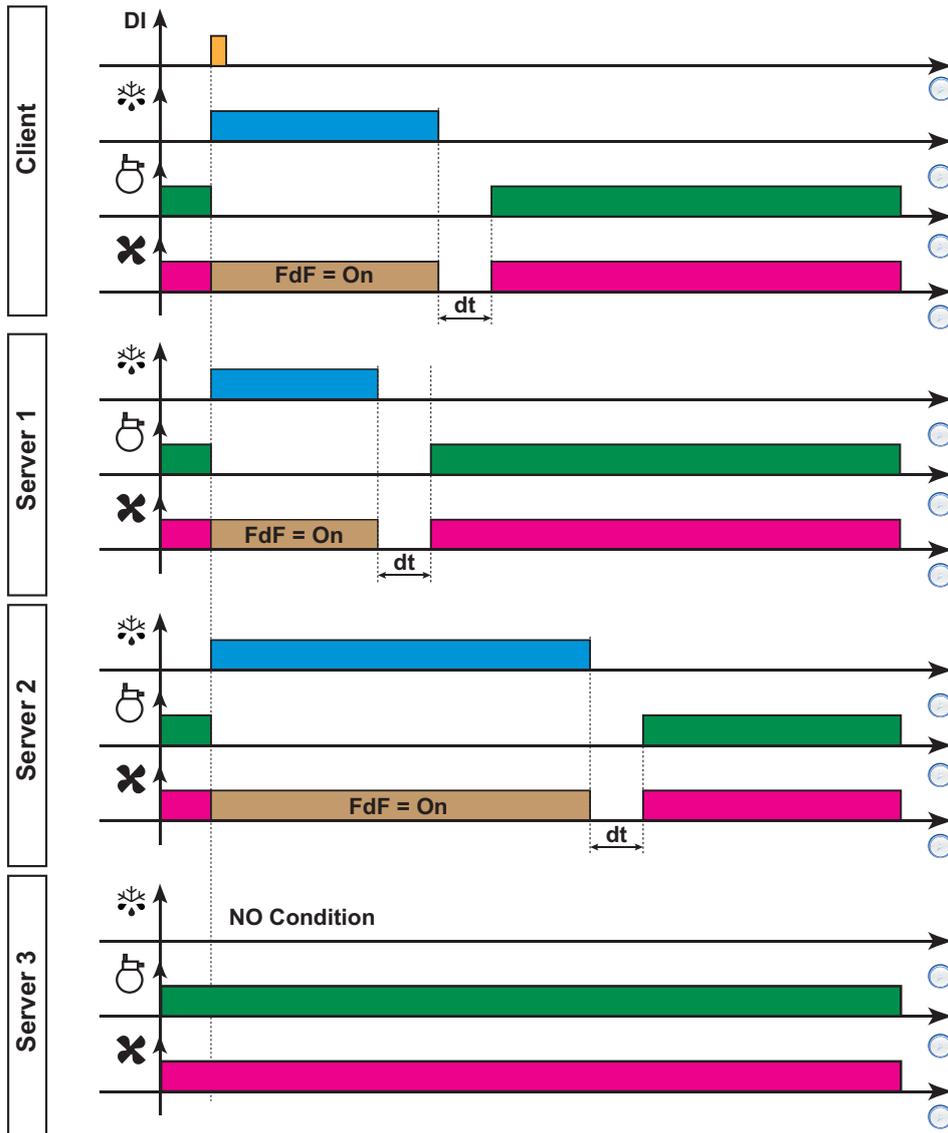
The 'Primary' device will send a defrost request to all devices defined as 'Secondary' devices simultaneously. Defrosting on the 'Secondary' devices will start immediately, regardless of the value of the **doH** parameter, if the conditions for defrosting are met.

At the end of the defrost, temperature control will be activated based on parameter **L04**:

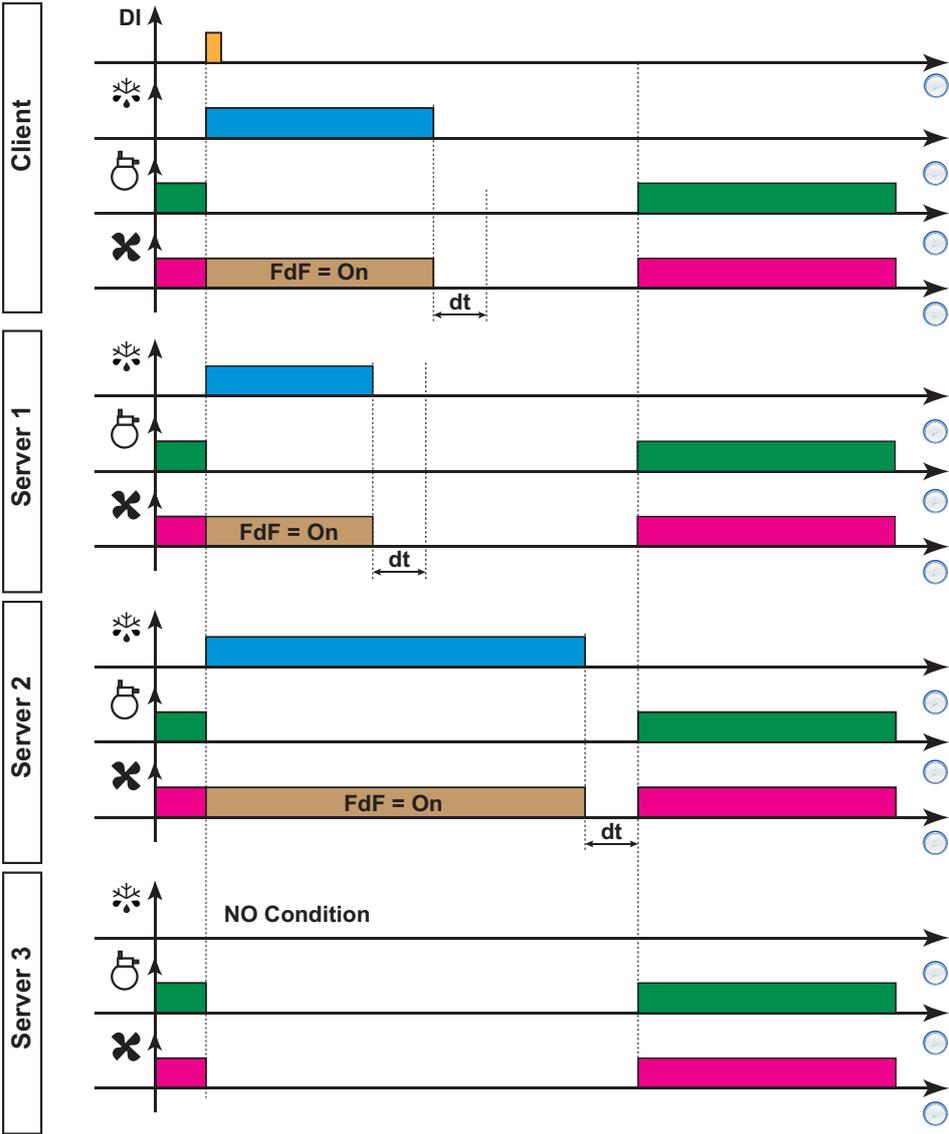
- if **L04=ind** it will resume after every defrost and corresponding period **dt** has ended
- if **L04=dEP** it will resume after all defrosts and corresponding periods **dt** have ended.

Operating diagrams

Independent simultaneous defrost (L04 = ind)



Dependent simultaneous defrost (L04 = dEP)



Legend:

- DI = Digital Input
- ❄️ = Defrost
- ⚙️ = Compressor
- ✖️ = Fans
- **NO Condition** = The conditions for defrosting are not met
- **Primary** = Primary device
- **Secondary** = Secondary device

Sequential Defrost (L03 = 2)(EWNnext 1385 SBCIL only)

In a Field Bus network it is possible to activate defrosts sequentially, coordinated by the 'Primary' device, by setting **L03=2**.

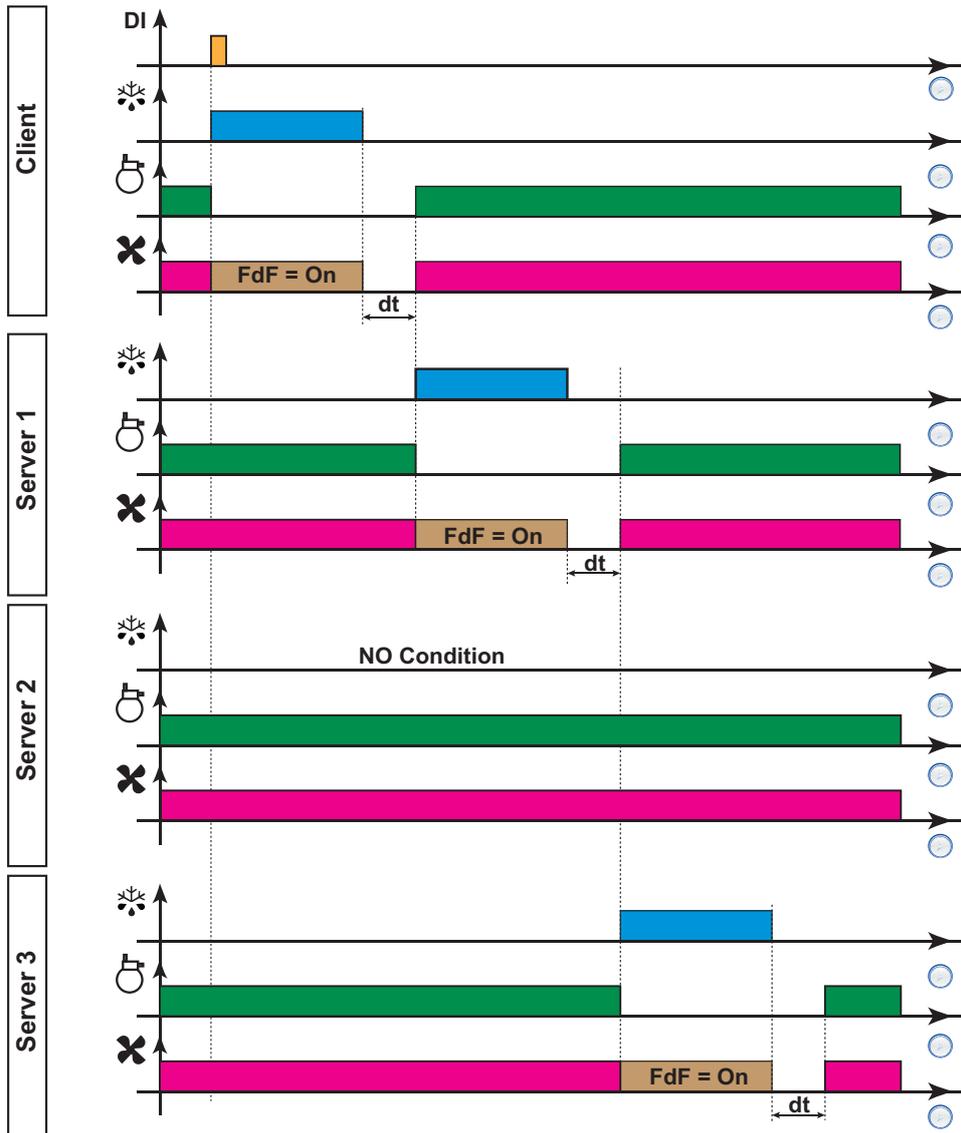
The 'Primary' device will send a sequential defrost request to all devices defined as 'Secondary' devices. The defrosting order depends on the sequence in which the devices were recognized at the last power-on. The sequence may change at every power-on.

At the end of the defrost, temperature control will be activated based on parameter **L04**:

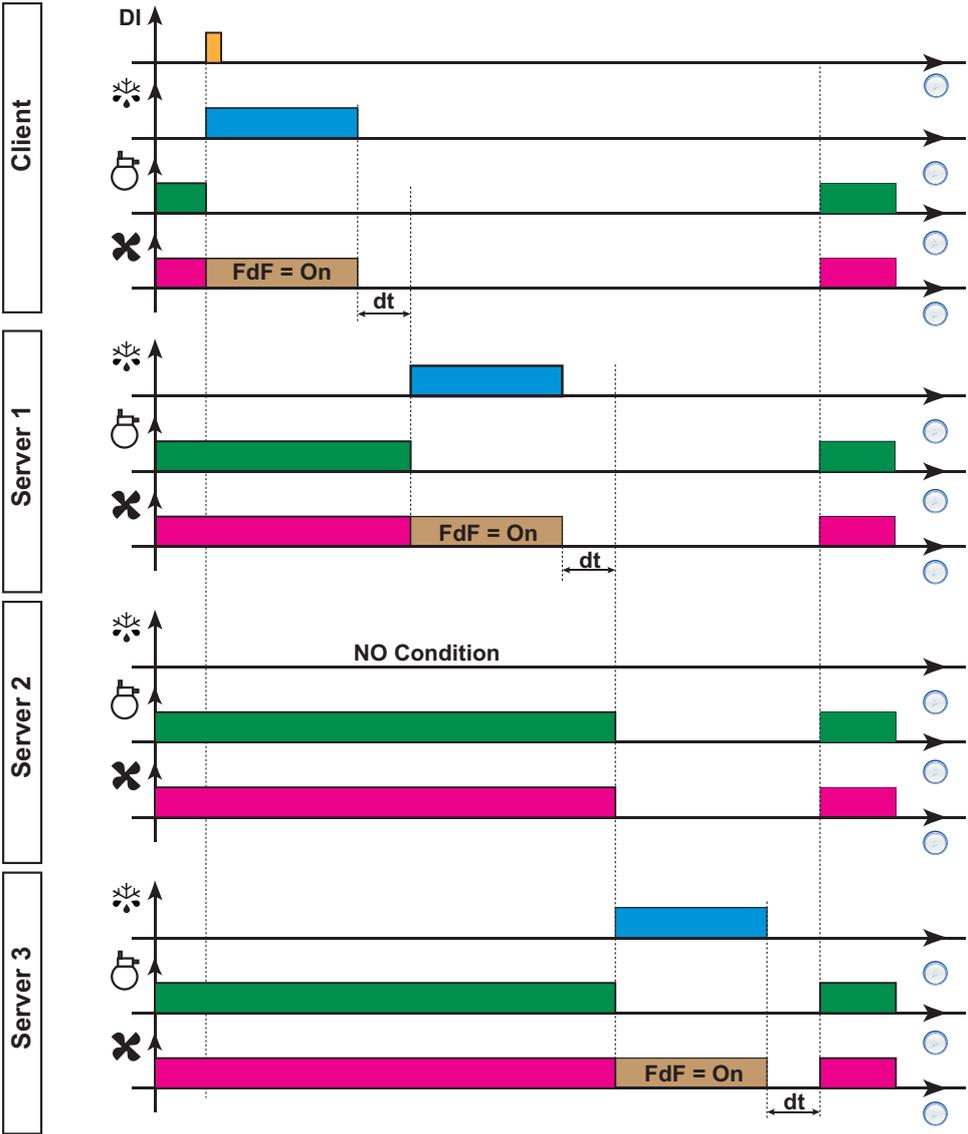
- if **L04=ind** it will resume after every defrost and corresponding period **dt** has ended
- if **L04=dEP** it will resume after all defrosts and corresponding periods **dt** have ended.

Operating diagrams

Independent sequential defrost (L04 = ind)



Dependent sequential defrost (L04 = dEP)



Legend:

- DI = Digital Input
- ❄️ = Defrost
- 🏠 = Compressor
- ✖️ = Fans
- **NO Condition** = The conditions for defrosting are not met
- **Primary** = Primary device
- **Secondary** = Secondary device

Defrost

Contents

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Modular Defrost	73
Standard defrost	86
Synchronized Defrost from Digital Input	94
Double evaporator defrost	97
Drop defrost	99

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 evaporator 2 probe (see **dP2**), 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:

- Modular defrost
- Standard defrost
- Sync Defrost
- Double evaporator defrost
- Defrost forced management (Drop 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 help prevent the water left on the evaporator from freezing again.

Defrost is triggered automatically if:

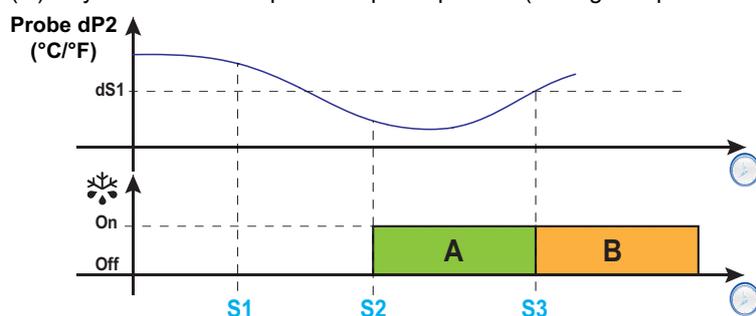
- the temperature of the evaporator is lower than the defrost end setpoint **dS1*** (**dS2**** for defrost on the second evaporator).
- the defrost activation timer has elapsed and the temperature of the evaporator 1 is lower than the defrost end setpoint **dS1*** (**dS2**** for defrost on the evaporator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

(*) only models with evaporator 1 probe present (setting with parameter **dP1**).

(**) only models with evaporator 2 probe present (setting with parameter **dP2**).



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 evaporator 1 probe (see **dP1**) and that can control the evaporator fans.

Parameters

Parameter	Description
dP1	Sets evaporator 1 probe.
dP2	Sets evaporator 2 probe.
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 158).

In the event of a regulation probe 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 evaporator 1 probe (see **dP1**)
- **ddL** = 1: display the temperature read by the evaporator 1 probe (see **dP1**) 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
dP1	Sets evaporator 1 probe.
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)
- via menu function using **dEF**
- 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.

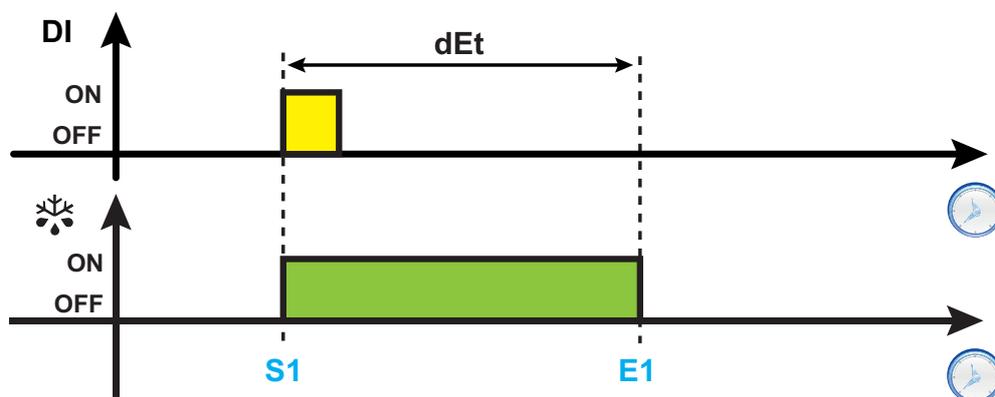
(*): only models with evaporator 1 probe present (setting with parameter **dP1**).

(**): only models with evaporator 2 probe present (setting with parameter **dP2**).

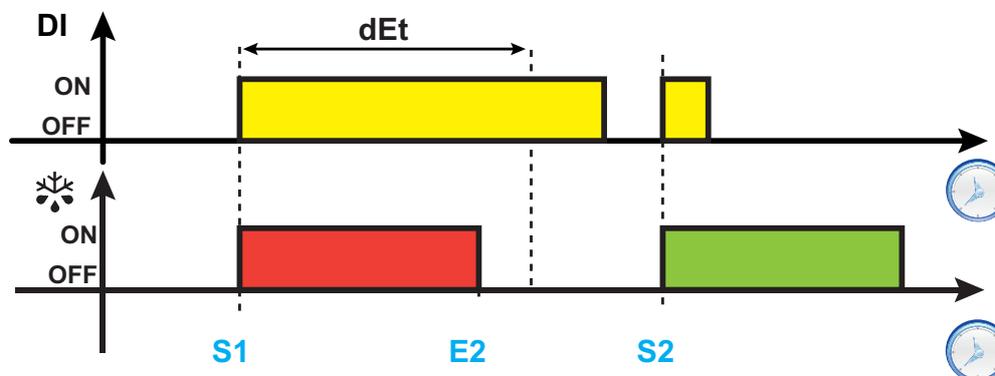
Note: defrost activation takes place upon closure (**H1x**=1) or opening (**H1x**=-1) of the digital input DI (if activated). You can only activate a defrost, not end an active one. Any defrost or dripping cycle in progress and the defrost or dripping time cannot be suspended.

Regulation examples

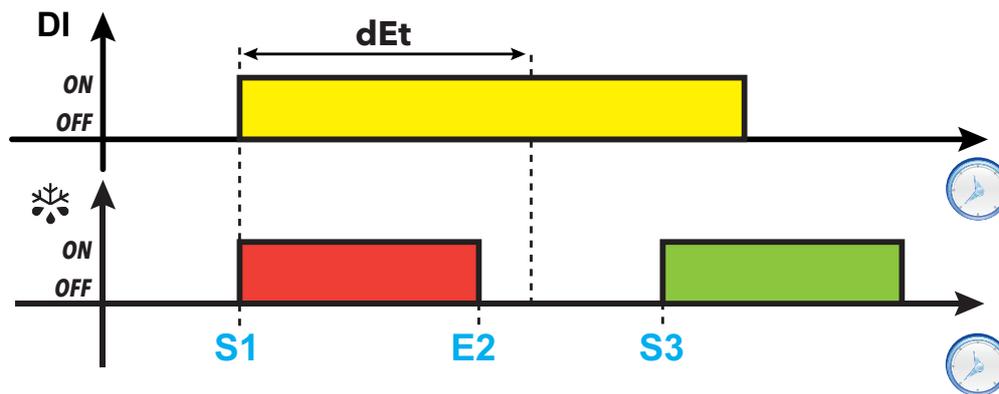
Example 1:



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	DI1 digital input/polarity configuration.
H12	DI2 digital input/polarity configuration.
H13	DI3 digital input/polarity configuration.
H14	DI4 digital input/polarity configuration.
H15	DI5 digital input/polarity configuration.
H16	DI6 digital input/polarity configuration.
H17	DI7 digital input/polarity configuration (solo EWNNext 1385 SBCY e EWNNext 1385 SBCIL).
H31	△ key configuration.
H32	▽ key configuration.
H33	⊖ key configuration.
H34	⊕ key configuration.
H35	☆ key configuration.

Modular Defrost

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

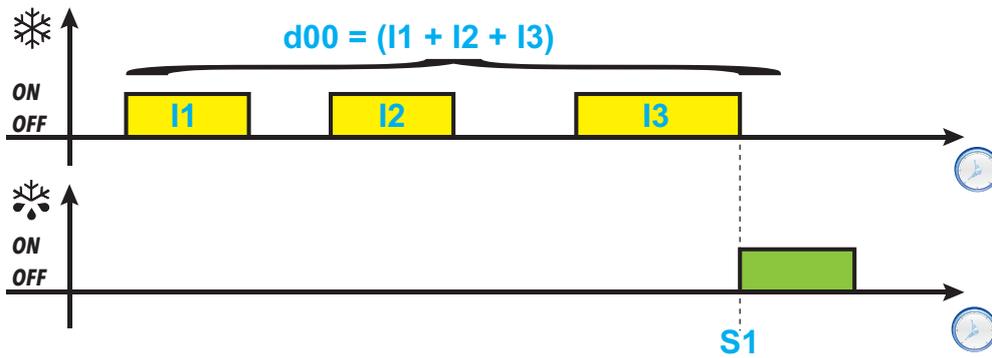
Activation method	Parameters
Compressor running time The defrost is activated when the sum of compressor operating period durations reaches the value d00 .	d00/d01
device running time The defrost is activated when the instrument operating period duration reaches the value dit .	dit/d11
Compressor stop The defrost is activated when the compressor switches off (only if d20 = 1).	d20
Compressor continuously on The compressor is always active for a maximum time of d30 (only if d30 ≠ 0).	d30/d31
Evaporator temperature The defrost is activated when the Evaporator temperature drops below the set threshold d41 .	d40...d45
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
RTC (Real Time Clock) The defrost will be activated at preset intervals and on specified days (RTC with fixed or regular intervals)	d90...d94

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: <ul style="list-style-type: none"> • 0 = hours • 1 = minutes • 2 = seconds

Regulation diagram



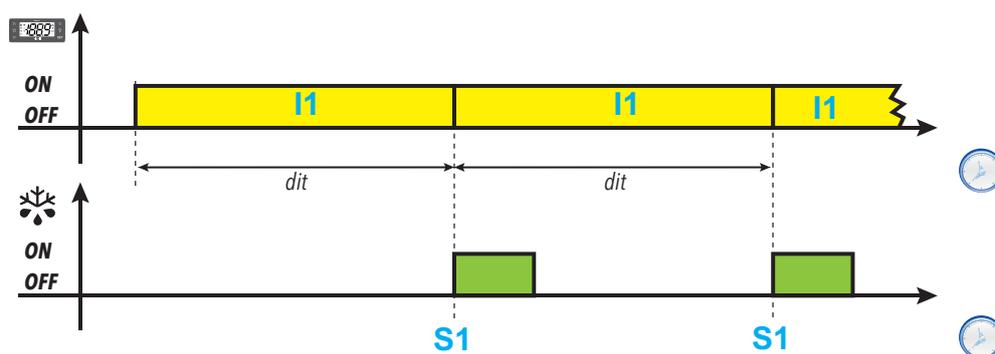
Legend: I1, I2, I3 = Compressor on times; S1 = Defrost start.

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: <ul style="list-style-type: none"> • 0 = hours • 1 = minutes • 2 = seconds

Regulation diagram



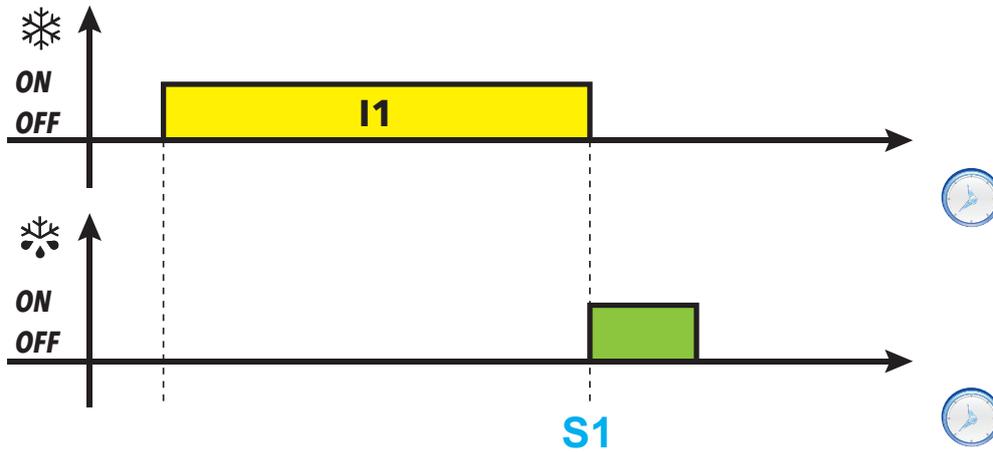
Legend: I1 = Controller on time (equal to dit); S1 = Defrost start.

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. <ul style="list-style-type: none"> 0 = mode disabled. 1 = enabled. Defrost is activated when the compressor switches off.

Regulation diagram



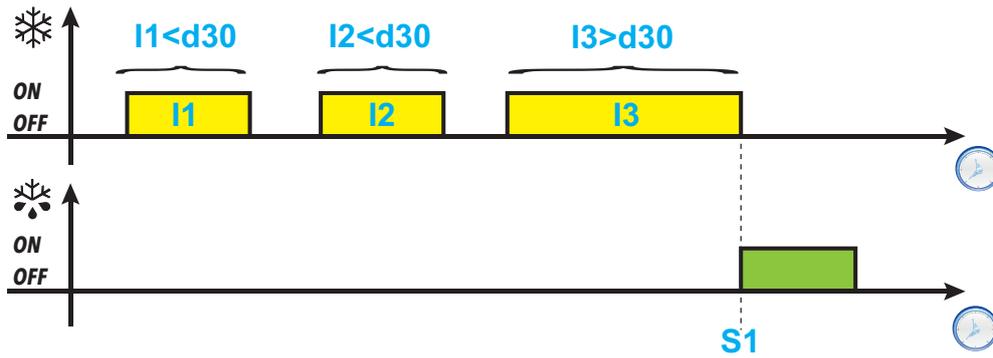
Legend: I1 = Compressor on time; S1 = Defrost start

Compressor continuously on

This defrost can be configured via the following parameters:

Parameter	Description
d30	Defrost by compressor continuously on. Set the maximum time
d31	d30 unit of measure: <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds

Regulation diagram



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

Evaporator temperature

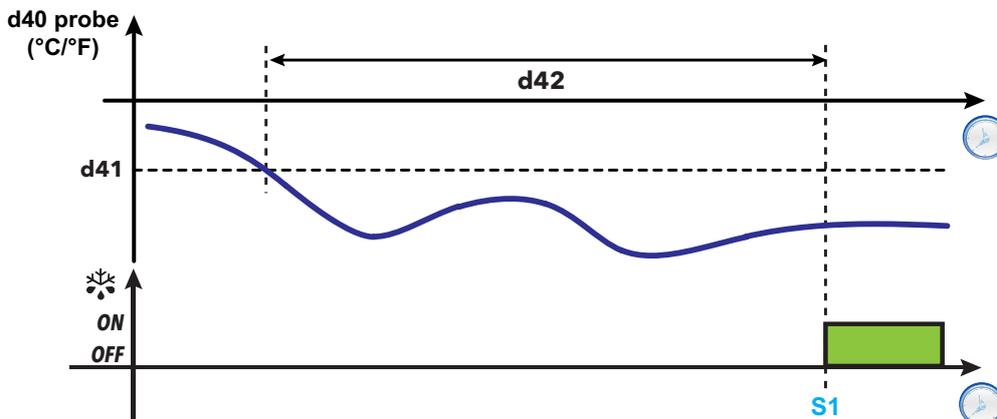
This defrost can be configured via the following parameters:

Parameter	Description
d40	Selects evaporator 1 probe (see dP1) (only refers to defrost with threshold). <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = defrost runs according to the value read by probe Pb1 Pb2 (2) = defrost runs according to the value read by probe Pb2 Pb3 (3) = defrost runs according to the value read by probe Pb3 Pb4 (4) = defrost runs according to the value read by probe Pb4 Pbi (5) = defrost runs according to the value read by virtual probe Pbr (6) = defrost runs according to the value read by remote probe PbL (7) = defrost runs according to the value read by remote probe (Field Bus)
d41	Sets the defrost activation threshold (on the value read by evaporator 1 probe)
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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> AbS (0) = absolute value (for example: d41 = -25°C means that the threshold temperature is exactly -25°C) rEL (1) = relative value (offset d41 negative, compared to the temperature of defrost probe d40 at the end of first thermostataion cycle) AdP (2) = Adaptive defrost : absolute referred to d45 or relative threshold (negative offset d41, compared to the temperature of defrost probe d40 at the end of first thermostataion cycle).
d45	Evaporator 2 defrost activation threshold (if H45 > 0, counting is active when the probe is under the threshold value)

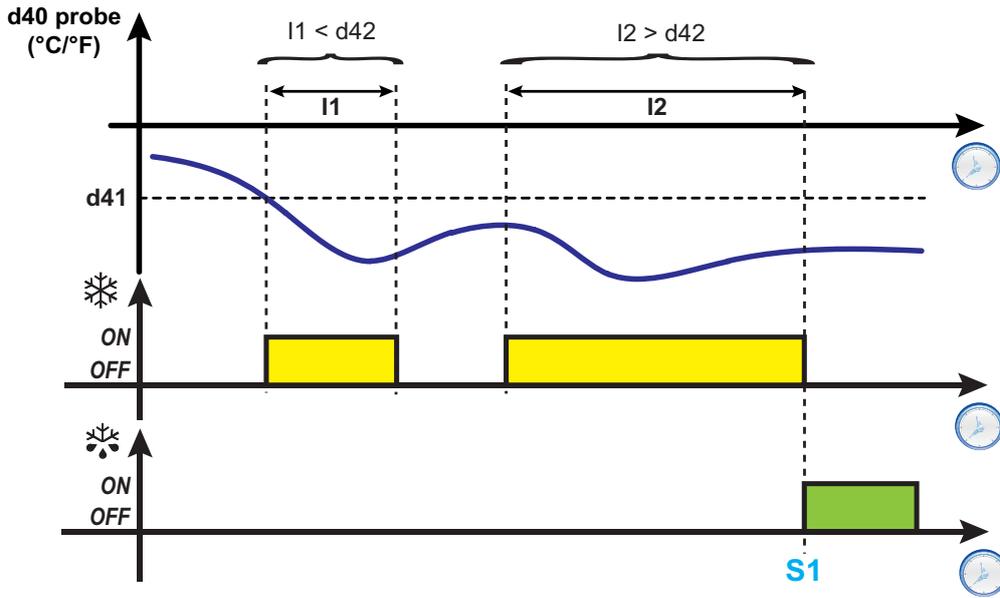
Note: this function can only be activated in models which manage probe **d40** (as long as the conditions are correct to do so).

Regulation diagrams

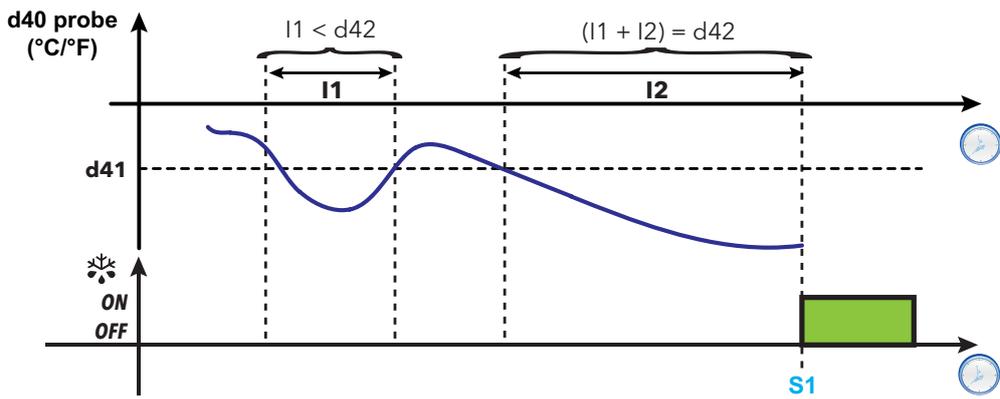
d43 = 0: count independent of the compressor status



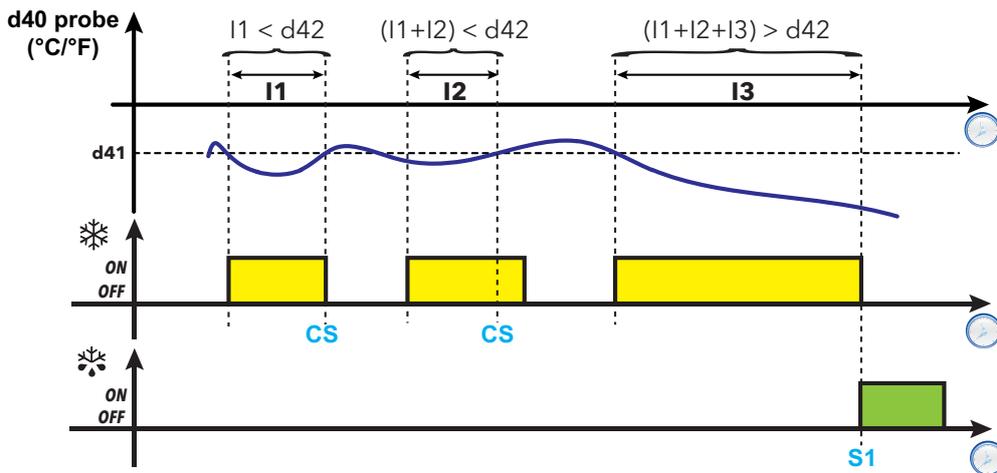
d43 = 1: count with compressor on



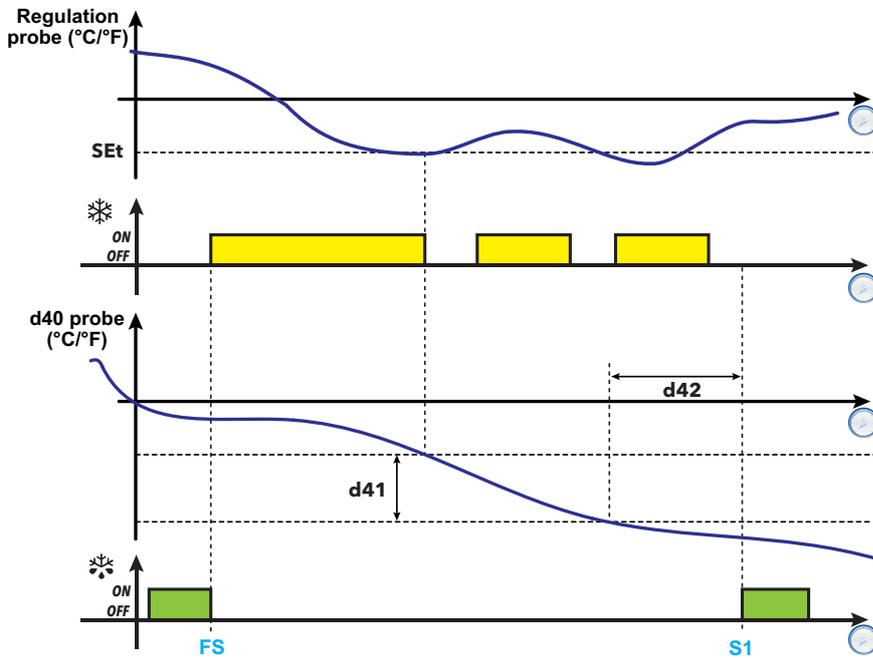
d43 = 2 : count independent of compressor status, count active for d40 probe values below threshold d41



d43 = 3 : count with compressor on, count active for d40 probe values below threshold d41



d44 = rEL: Threshold in relative value



Legend: I1, I2, I3 = Times with count active; FS = End of defrost; S1 = Defrost start; CS = Count stop (d40 probe > d41).

Temperature differential

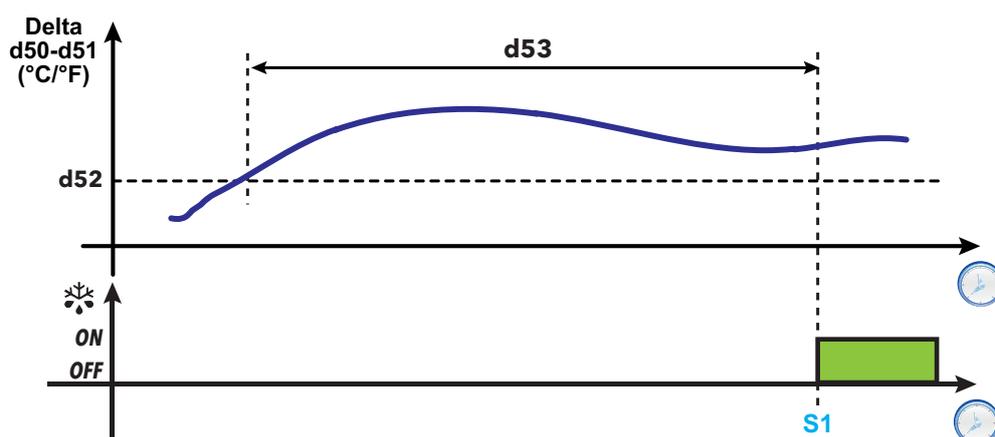
This defrost can be configured via the following parameters:

Parameter	Description
d50	Sets defrost 1 probe. <ul style="list-style-type: none"> • 0 = disabled • 1 = enabled. Defrost runs according to the value read by defrost 1 probe (only refers to defrost with threshold)
d51	Sets defrost 2 probe. <ul style="list-style-type: none"> • 0 = disabled • 1 = enabled. Defrost runs according to the value read by defrost 2 probe (only refers to defrost with threshold)
d52	Sets the defrost activation threshold (absolute differential d50-d51)
d53	Sets the maximum time for which the temperature difference (d50-d51) 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 . <ul style="list-style-type: none"> • 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 (d50-d51) 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. <ul style="list-style-type: none"> • 0 = absolute value • 1 = relative value (negative offset, relative to the differential of the temperatures measured by defrost 1 probe and defrost 2 probe (d50-d51) at the end of the first cooling cycle or on startup).

Note: this function can only be activated in models which manage defrost 2 probe (as long as the conditions are correct to do so).

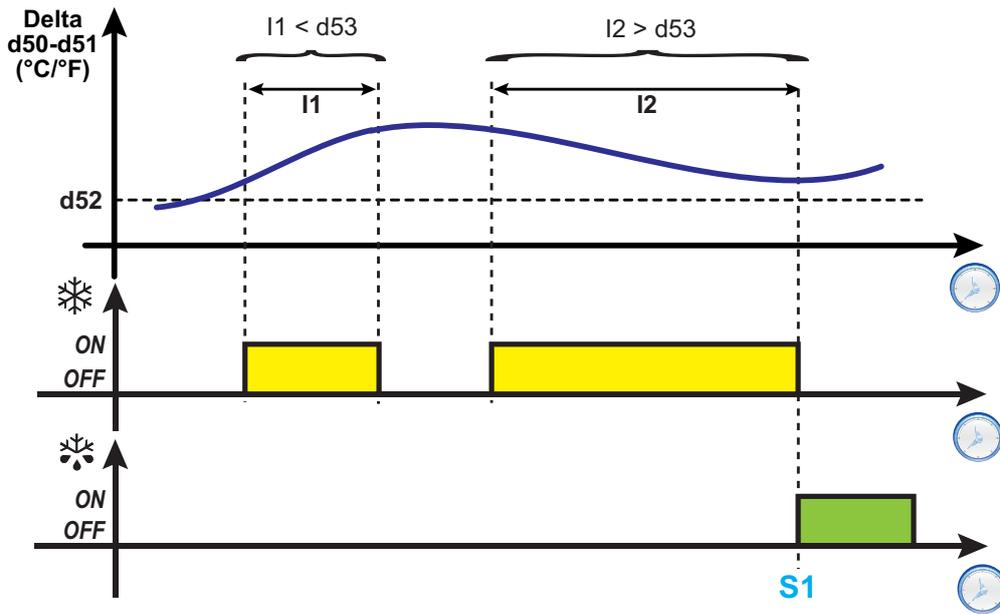
Regulation diagrams

d54 = 0: count independent of the compressor status

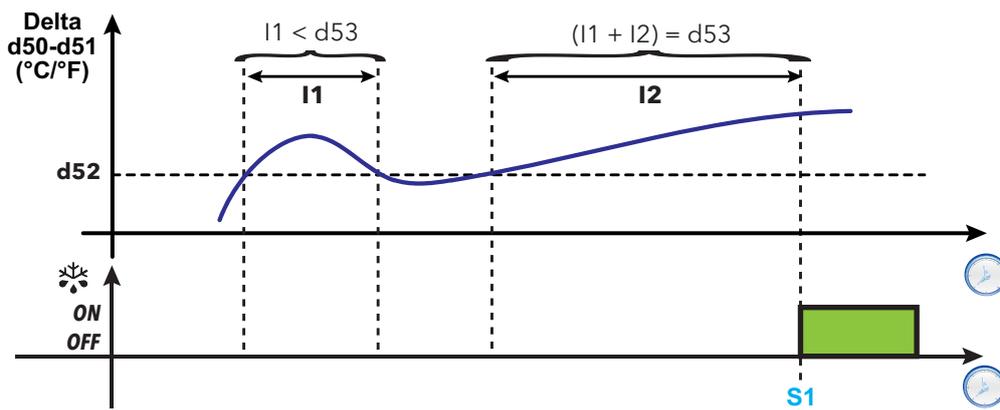


Defrost

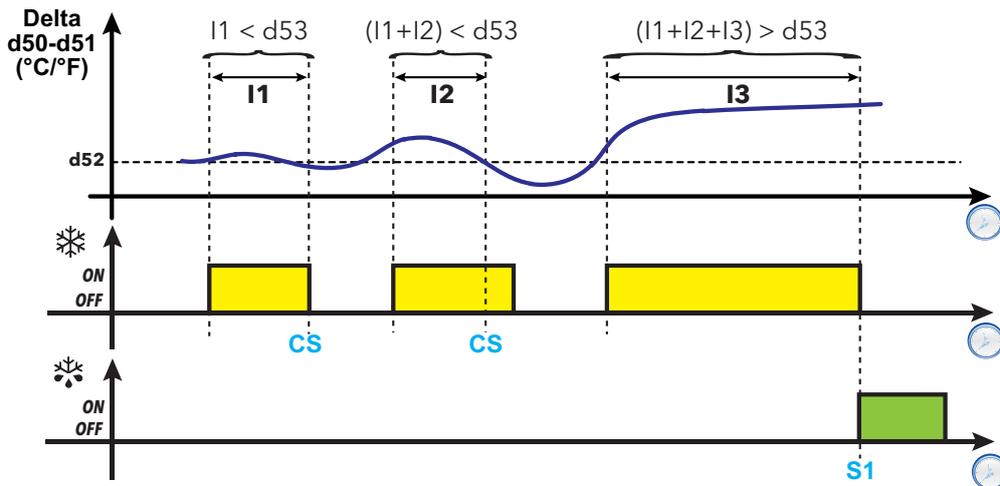
d54 = 1: count with compressor on



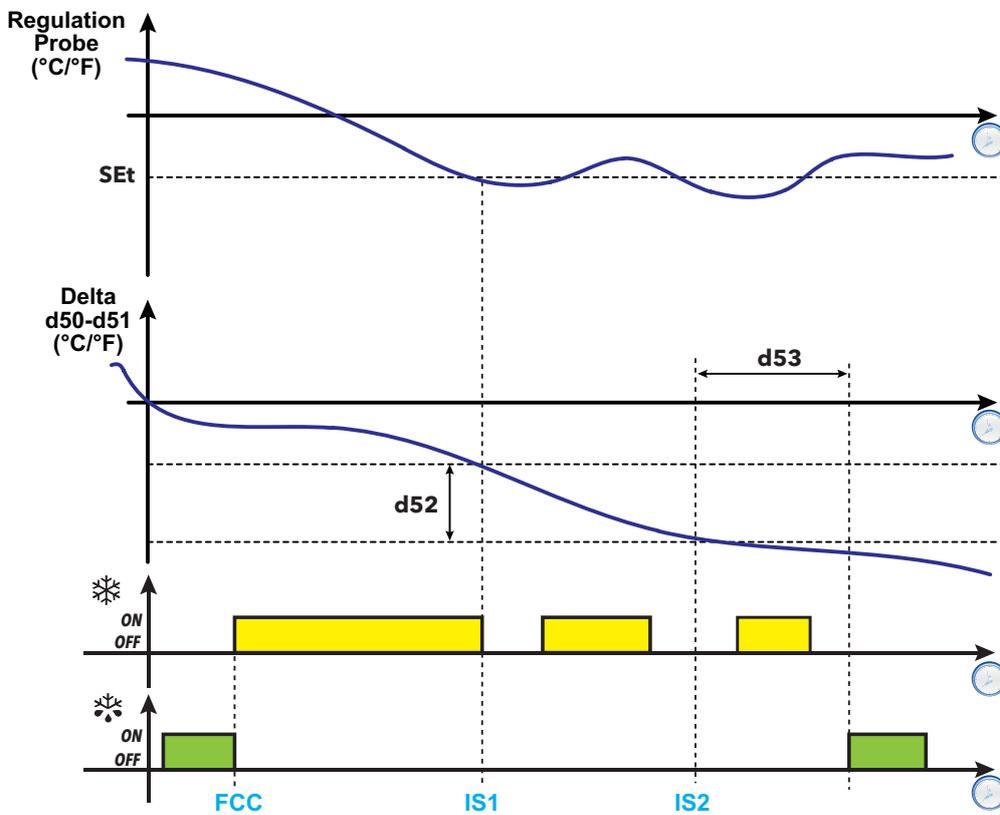
d54 = 2: count independent of the compressor status, count stop below the threshold



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 (d51 > d52); FCC = Start first cooling cycle; IS1 = Moment in correspondence with the first cooling cycle in which the cut-in threshold is calculated (Threshold = d50-d51+Offset); IS2 = Activation threshold crossing moment calculated at the IS1 time.

RTC (Real Time Clock)

This defrost can be configured via the following parameters:

Parameter	Description
d90	Sets the defrost mode with RTC. <ul style="list-style-type: none"> • 0 = Mode disabled • 1 = RTC at time intervals (maximum 6 different intervals) • 2 = RTC at fixed intervals (d91) • 3 = Regular RTC
d91	Sets the number of daily defrosts (only if d90=2).
d92	Sets the first weekend/holiday day(only if d90≠3) <ul style="list-style-type: none"> • 0 = Sunday • 1 = Monday • 2 = Tuesday • 3 = Wednesday • 4 = Thursday • 5 = Friday • 6 = Saturday • 7 = Disabled
d93	Sets the second weekend/holiday day. Same as d92 .
d94	Sets the interval (duration) of the regular defrost expressed in days.

Note: this function can only be activated in models with RTC.

RTC operation at time intervals

If RTC at time intervals mode is selected (**d90=1**), up to 6 different defrost intervals can be programmed. The intervals can be customized to different schedules for weekdays (**dxH, dxn**) or weekends/holidays (**FxH, Fxn**).

Note: it is not possible to set the maximum duration or the defrost end temperature for a single defrost event.

RTC operation at fixed intervals

If RTC at fixed intervals mode is selected (**d90=2**), the first defrost starts with the first programmed defrost time (holiday / weekday). The next defrost begins at fixed intervals: the time between two defrosts (expressed in hours) is calculated with the formula $24 \text{ h}/\text{d91}$ (example: if **d91=6**, defrost begins every 4 hours after the first).

The defrost events are described via parameters:

- **d1H** (weekday start hour)
- **d1n** (weekday start minute)
- **F1H** (weekend/holiday start hour)
- **F1n** (weekend/holiday start minute).

Regular RTC operation

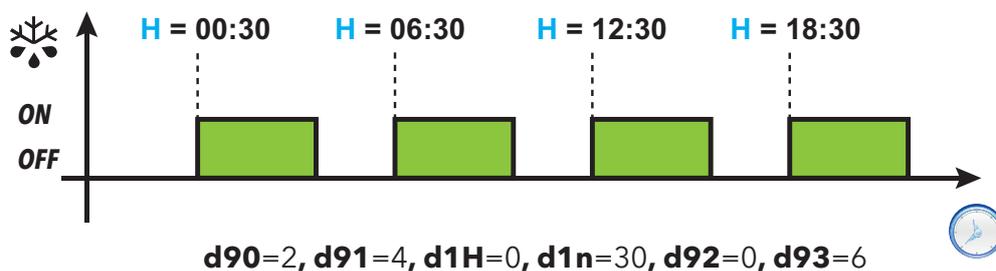
If regular interval RTC is selected (**d90=3**), the first defrost begins at the time programmed using parameters **d1H, d1n** (**F1H** and **F1n** are not taken into account).

After **d94** days from the first defrost, at the time **d1H & d1n**, a new defrost begins. After **d94** days from the second defrost, at the time **d1H & d1n**, a new defrost begins and so on.

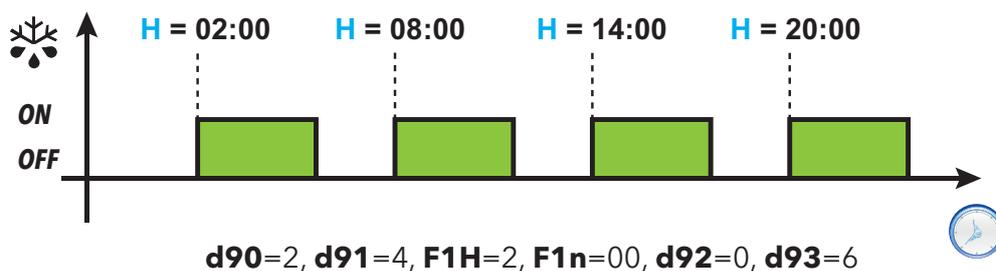
Note: No distinction is made between weekdays and weekends/holidays. The value of parameter **d92** is not important.

Regulation diagrams

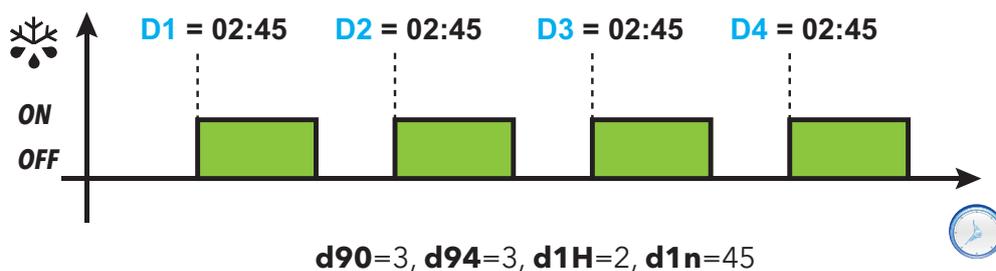
a) Example of defrost at fixed intervals during the week (Monday...Friday)



b) Example of defrost at fixed intervals on weekends/holiday (Saturday/Sunday)



c) Example of defrost at regular intervals (start day: Sunday)



Legend:

- **H** = Defrost start time;
- **Dx** = day of the week (Start day **D1** = Sunday. **d94**=3 days on which consecutive defrosts will start with **D2**=Wednesday, **D3**=Saturday and **D4**=Tuesday).

Standard defrost

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

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

dtv value	Defrost mode
0	Electric heater defrost (with dedicated relay for heating resistance)
	Defrost due to compressor stoppage (without dedicated relay for defrost)
1	Cycle inversion (hot gas) defrost
2	Free defrost

Electric heater defrost

When defrost is activated ($dt = 0$):

- 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 $dt \neq 0$ 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:

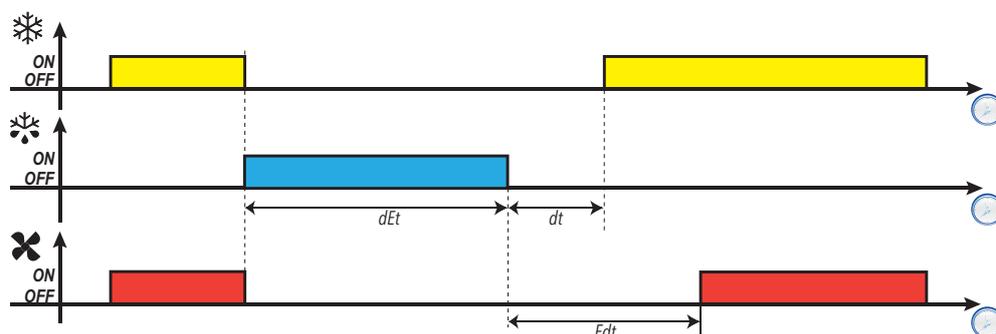
Condition	dP1	Evaporator probe
End of timeout period set using parameter dEt .	diS	Not managed
Defrost end setpoint set using parameter dS1 reached or due to timeout if the setpoint is not reached within the time period dEt .	\neq diS	Managed

Notes:

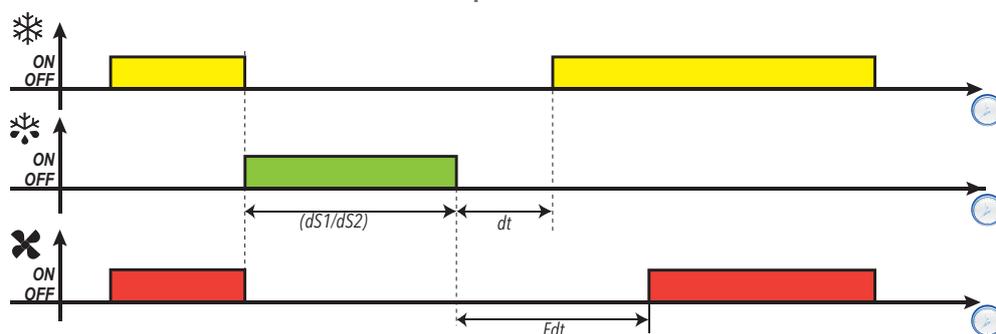
- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- If **dS1** intervenes before **dEt**, dripping (managed by parameters **dt** and **Fdt**) is activated in correspondence with **dS1** intervention
- If **Fdt** < **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 evaporator probe status (see **dP1**)
- 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.
dP1	Sets evaporator 1 probe.
dtY	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dS1	Evaporator 1 defrost end temperature.
d40	Selects Evaporator 1 probe.
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 ($dy = 0$),

- The compressor stops
- The defrost can stop only for timeout (condition defined by dEt parameter)

End of defrost

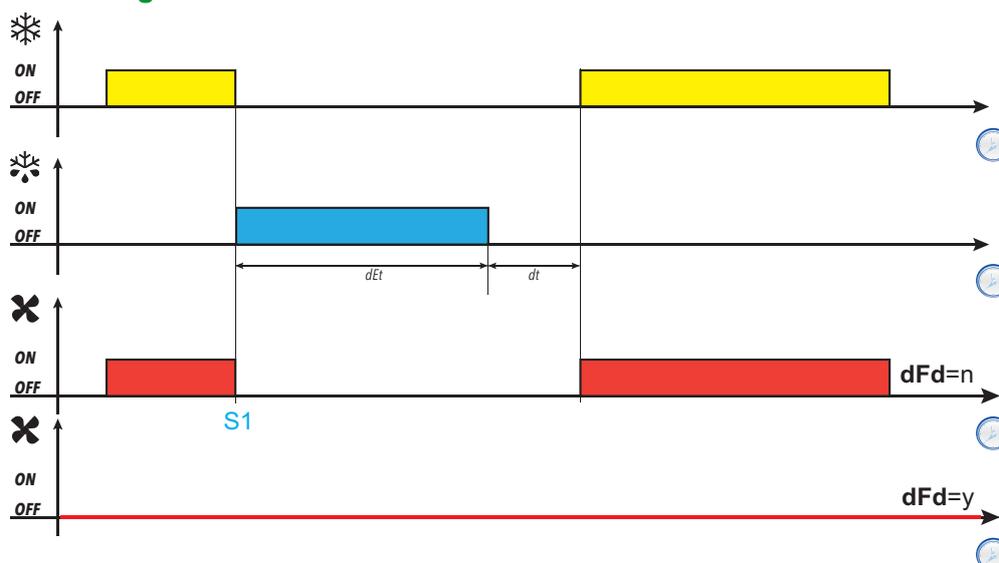
Defrost ends in the following conditions:

Condition	dP1	Evaporator probe
End of timeout period set using parameter dEt .	diS	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 .	$\neq diS$	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 $dt \neq 0$, 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 evaporator probe status (see $dP1$)
- Defrost and dripping are carried out independently of the door switch activation or not

Regulation diagram



Legend: S1 = Start of defrost

Parameters

Parameter	Description
$dP1$	Sets evaporator 1 probe.
dy	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 (**dt**= 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:

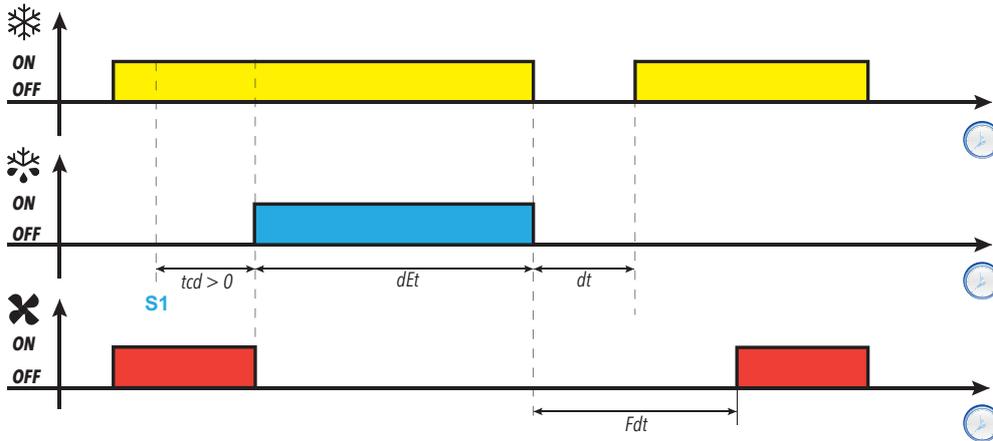
Condition	dP1	Evaporator probe
End of timeout period set using parameter dEt	diS	Not managed
Defrost end setpoint set using parameter dS1 reached or due to timeout if the setpoint is not reached within the time period dEt .	≠diS	Managed

Notes:

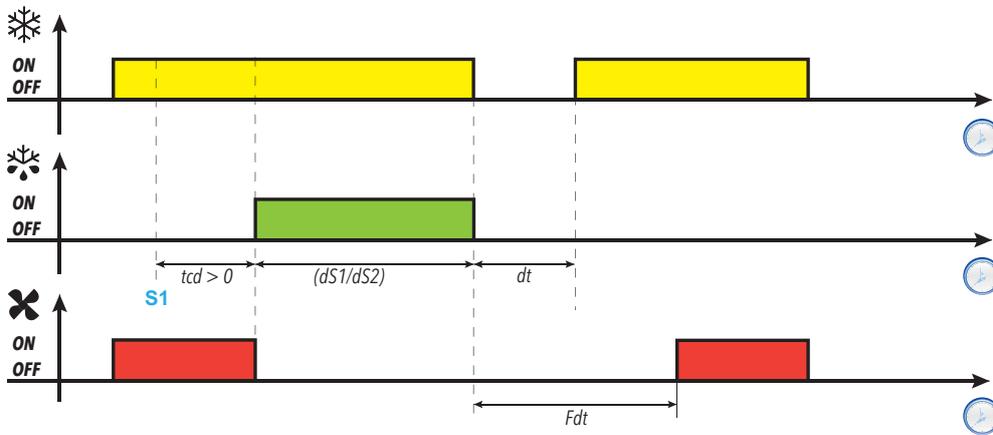
- To end defrost manually, switch the controller off and on again or use Stand-by function
- Temperature alarms are excluded during defrost
- The compressor safety timings (managed by parameters **don**, **doF** and **dbi**) take priority over defrost
- If **dS1** intervenes before **dEt**, dripping (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 evaporator probe status (see **dP1**)
- Defrost and dripping are carried out independently of the door switch activation or not

Regulation diagrams

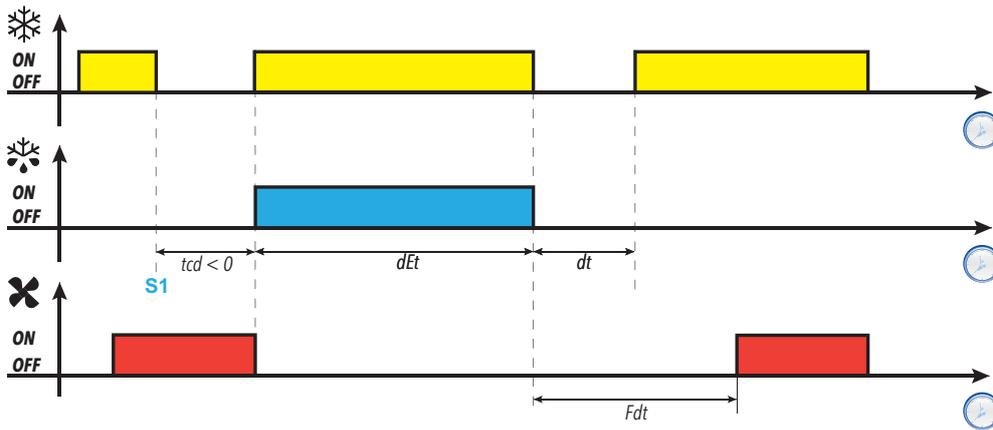
End of hot gas defrost due to timeout, with $tcd > 0$



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

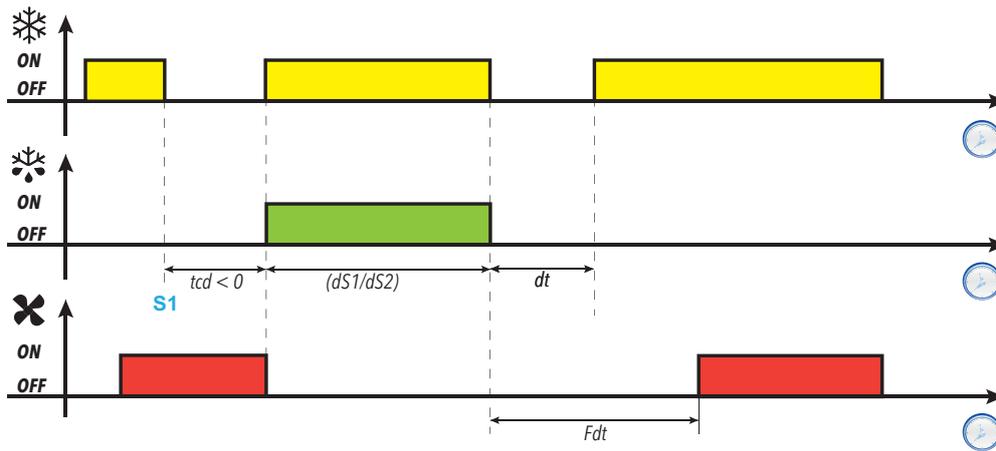


End of hot gas defrost due to timeout, with $tcd < 0$



Defrost

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.
dP1	Sets evaporator 1 probe.
dt	Type of defrost.
dEt	Defrost timeout. Determines the maximum duration of the defrost.
dFd	Evaporator fan exclusion during defrost.
Fdt	Fan activation delay after a defrost.
dt	Dripping duration.

Free defrost

When defrost is activated (**dy**= 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	dP1	Evaporator probe
End of timeout period set using parameter dEt	diS	Not managed
End of defrost temperature setpoint, set using parameter dS1 , reached. Note: If the setpoint is not reached within the time set using parameter dEt (defrost timeout), the defrost ends in any case due to timeout.	≠diS	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 evaporator probe status (see **dP1**)
- Defrost and dripping are carried out independently of the door switch activation or not

Parameters

Parameter	Description
dP1	Sets evaporator 1 probe.
dy	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.

Synchronized Defrost from Digital Input

Functioning conditions

The function can only be activated on Evaporator 1 by setting parameter **H17** = 13 (Synchronized defrost).

Note: a negative value for **H17** is not allowed.

The Synchro defrost can be started by an external device or by one of the devices that shares the digital input.

The devices that share the line aren't in condition to perform a defrost, they continue to regulate as usual: if at least one controller is in condition to start a defrost, the other controllers (that aren't in condition to start a defrost) stop their normal regulation and wait.

When all controllers of the line have finished the defrost sequence, all controllers start to regulate again.

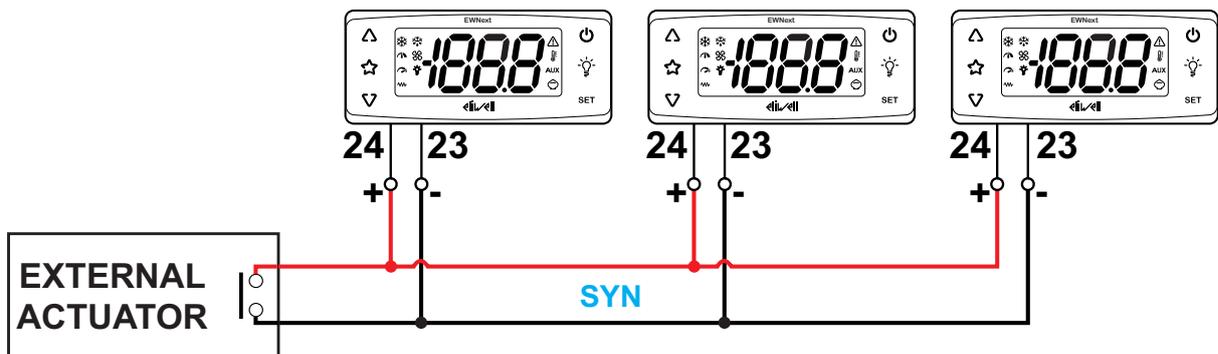
The start of a synchronized defrost can be enabled by means of an external actuator or via one of the **EWNNext 1000** devices that share the synchronism connection.

NOTICE

INOPERABLE DEVICE

- The external actuator should be voltage free.
- Use a maximum of 8 EWNNext 1000 devices in the network.
- All the devices used in the network must be EWNNext 1000 (not compatible with other EWNNext products).
- The synchronized defrost does not permit the use of this port for a Modbus network.

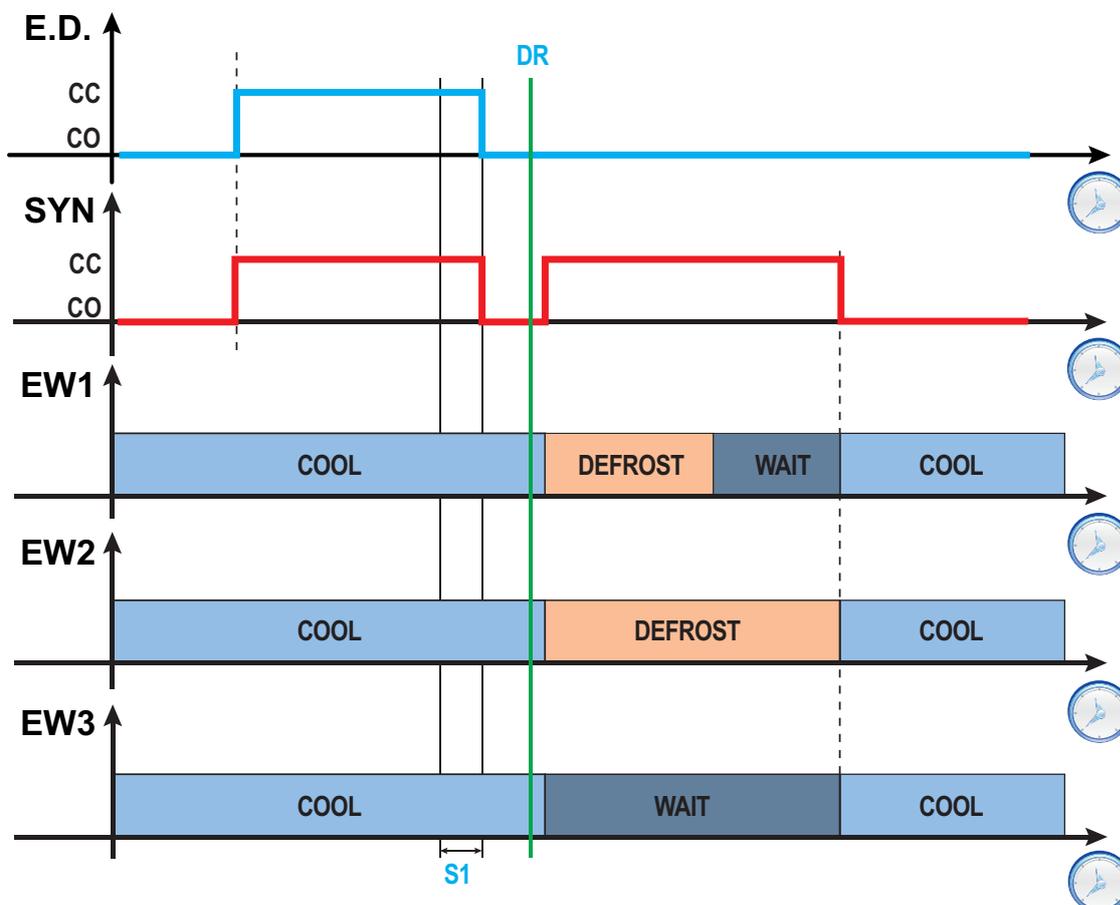
Failure to follow these instructions can result in equipment damage.



Legend: External Actuator = External actuator; **SYN** = Defrost synchronization line.

CASE 1: at least one controller can start a defrost

If at least one controller is capable of starting a defrost, the other controllers - that do not possess the conditions for starting it - inhibit normal regulation. When all synchronized controllers have completed the defrost sequence, they will begin regulating normally again.



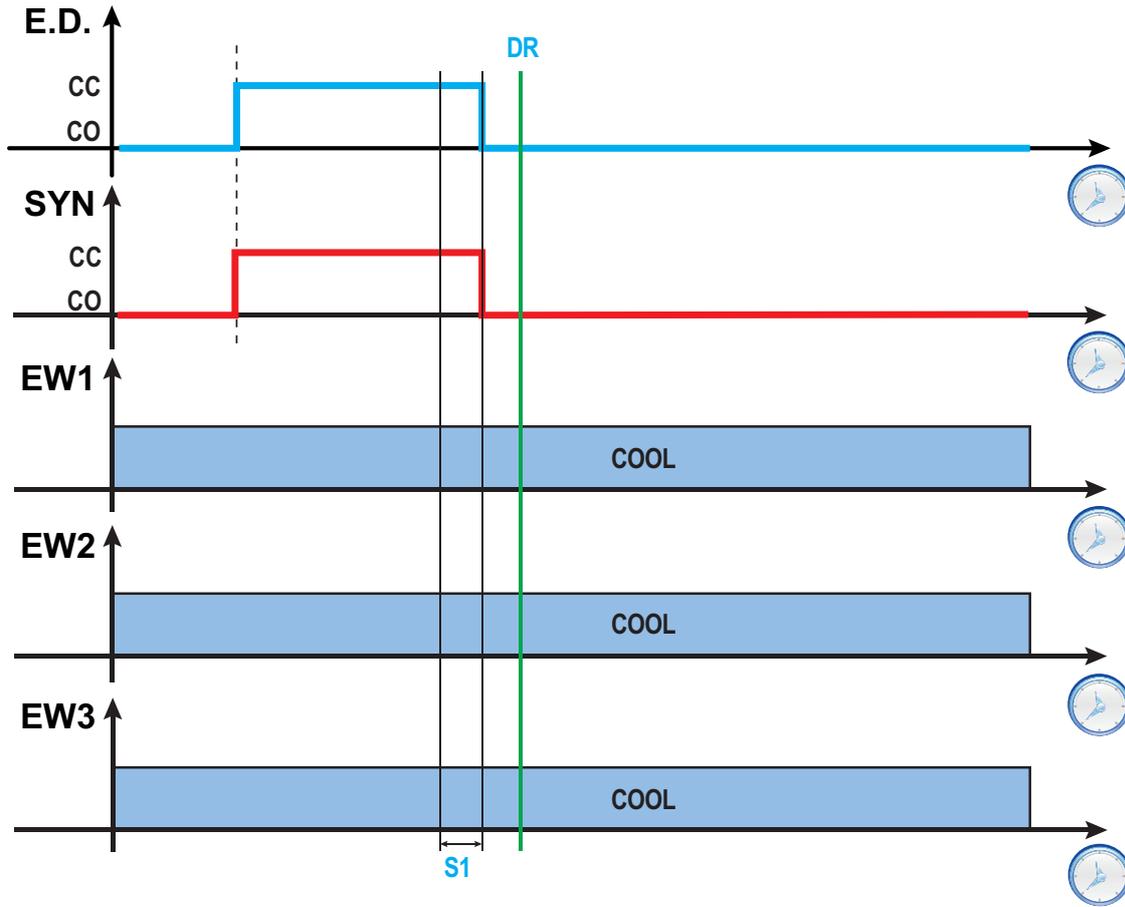
Legend: E.D. = External device; SYN = Synchronization line; CC = Closed contact; CO = Open contact; EW1...EW3 = Synchronization network tools; DR = Defrost request; S1 = Time period of 0.5 seconds; COOL = Normal regulation; WAIT = Command wait time; DEFROST = Defrost.

The defrost sequence will be:

1. The external device activates the synchronization line, closing the circuit for a time period of at least 0.5 seconds (**S1**). During this period all the shared controllers continue to regulate normally.
2. The external device deactivates the synchronization line.
The controllers that possess the conditions for starting a defrost start it activating the synchronization line.

If none of the controllers are in a condition to start a defrost, they will continue to regulate normally.

CASE 2: none of the controllers can start a defrost



Legend: E.D. = External device; SYN = Synchronization line; CC = Contact closed; CO = Contact open; EW1...EW3 = Synchronization network tools; DR = Defrost request; S1 = Time period of 0.5 seconds; COOL = Normal regulation.

Double evaporator defrost

Introduction

To activate this function:

- Configure a relay output as a second evaporator using parameter **H2x** = 10 (if **H45** ≠ 4 only)
- Configure the type of double defrost management using parameter **H45**
- Configure evaporator 2 probe using parameter **dP2**.

Functioning conditions

Defrost in dual evaporator mode can be carried out in 4 different ways:

H45	Description
0	Evaporator 1 defrost probe value (dP1) under the threshold dS1 . Note: The evaporator 2 is not taken into account.
1	At least one evaporator has the conditions for defrosting: <ul style="list-style-type: none"> • Evaporator 1 defrost probe value (dP1) under the threshold dS1 or • Evaporator 2 defrost probe value (dP2) under the threshold dS2
2	Both evaporators have the conditions for defrosting: <ul style="list-style-type: none"> • Evaporator 1 defrost probe value (dP1) under the threshold dS1 and • Evaporator 2 defrost probe value (dP2) under the threshold dS2
3	Defrost is activated on Evaporator 1 and Evaporator 2 alternately.
4	End of defrost using two probes (dP1 e dP2).

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 defrost end temperature (**dS1** and **dS2**) or when a timeout takes place. If a probe error is detected, the end of the defrost will be for timeout depending on **dEt** parameter.

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 (**dS1**) 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 **dP2** probe is not configured as an Evaporator 2 probe (**dP2** = diS) 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

In the below table, the following assumption are takes:

- **dP1** is the evaporator 1 probe
- **dP2** is the evaporator 2 probe

H45	Function	Start of defrost	End of defrost
0	Defrost on Evaporator 1	dP1 probe < dS1	Evaporator 1 <ul style="list-style-type: none"> • dP1 probe > dS1 or • Timeout if dP1 probe < dS1 or • Timeout if dP1 probe in error Evaporator 2 <ul style="list-style-type: none"> • dP2 probe > dS2 or • Timeout if dP2 probe < dS2 or • Timeout if dP2 probe in error
	Defrost on Evaporator 2	dP1 probe < dS1	
1	Defrost on Evaporator 1	dP1 probe < dS1	
	Defrost on Evaporator 2	dP2 probe < dS2	
2	Defrost on Evaporator 1	dP1 probe < dS1 and dP2 probe < dS2 *	
	Defrost on Evaporator 2	dP1 probe < dS1 and dP2 probe < dS2 *	
3	Defrost is activated on Evaporator 1 and Evaporator 2 alternately.		
4	End of defrost using two probes.		
H45	Function	Start of dripping	End of dripping
-	Dripping	<ul style="list-style-type: none"> • 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 **dP2** probe is in error or not setting and a digital output is configured as Evaporator 2, the condition **dP2** probe < **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.
dP1	Sets evaporator 1 probe.
dP2	Sets evaporator 2 probe.
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.
H21	Digital output Out1 configuration.
H22	Digital output Out2 configuration.
H23	Digital output Out3 configuration.
H24	Digital output Out4 configuration.
H45	Defrost input mode for applications with dual evaporator.

Drop defrost

Introduction

This function can only be activated in models which manage evaporator 1 probe (as long as the conditions are correct to do so).

Preliminary

The “Drop defrost” algorithm, when enabled by **d60** > 0, help prevents defrost cycles from being executed if the evaporator conditions do not require them: in any case, the algorithm cannot skip several defrosts greater than **d60** value.

A counter keeps the number of defrost to skip.

Functioning conditions (see example)

At startup, the first **d63** defrost cycles (system ramp-up) are always executed without incrementing the skip counter (steps 1, 2, 3).

Starting from the (**d63 + 1**) defrost cycles, the skip counter begins to update (step 4).

The threshold for evaporator 1 (**SE1**) is calculated as follows: **SE1** = (**d61** / 100) x **dEt**.

After start-up, if the defrost cycle ends before reaching **SE1** time, the skip defrost counter is incremented by '1' (steps 4, 7, 11, 16).

When the counter reaches '1', a defrost is performed and the next one is skipped.

If the next executed defrost ends before **SE1** (step 7), the counter increases to '2', a defrost is performed (step 8), and the next two defrosts are skipped (steps 9, 10).

If the following defrost again ends before **SE1** (step 11), the counter increases to '3', a defrost is performed, and the next 3 defrosts are skipped.

Once the counter reaches the maximum value **d60** skipped defrosts (for example **d60** = 4), it is reset, and the algorithm restarts.

If at any point a defrost cycle ends after **SE1**, the next defrost is executed normally, and the counter is reset.

Optimized defrosting resumes as soon as a defrost cycle ends before **SE1**.

Manual defrosts is triggered via keypad, digital input, deep cooling, or supervisor commands and are always executed and do not affect the skip counter, except when they occur before a mandatory defrost following skipped cycles (steps 5, 8, 12, 17, 23). In this specific case, the skip counter is incremented by '1' after the manual defrost is completed or triggered. If a manual defrost ends after **SE1**, the skip counter is reset.

Optimized defrosting will resume once a defrost cycle ends before **SE1**.

Example

In the below example, the following assumption are takes:

- **d60** = 4
- **d63** = 3

	STEPS																									
DS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Time < SE1	-	-	-	Y	-	-	Y	-	-	-	Y	-	-	-	-	Y	-	-	-	-	-	Y	-	-	Y	-
Counter	0	0	0	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	1	1	1	2	2
Skipped	N	N	N	N	N	Y	N	N	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	Y	Y	N	N	Y	N	N
																							RESTART			

Legend: **DS** = Defrost Steps; **Time** = Indicate if defrost duration is less then **d61** value (Y = yes; N = no); **Counter** = Value of the counter; **Skipped** = Indicate if the defrost is skipped (Y = yes; N = no).

Parameters

Parameter	Description
d60	Maximum number of defrost to skip. 0 = disabled.
d61	Nominal defrost duration percentage 1.
d63	Number of defrost cycles at start-up for system ramp-up (without incrementing the counter).
dEt	Defrost timeout. Determines the maximum duration of the defrost.

Functions

Contents

This section includes the following topics:

Door switch	102
Stand-by	105
Copy parameters (UNICARD)	106
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Reset TelevisAir diagnostic counters	108

Door switch

Description

By setting **H1x** = ±4, it is possible to connect a door switch to the digital input. When activated, it can:

- disabled the compressor either immediately or after a delay defined by parameter **dCo**.
- enabled the fans either immediately or after a delay defined by parameter **dFo**.

It's also possible to associate an auxiliary (AUX) output relay.

Operating mode

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

1) EWNNext 1281 SBCY e EWNNext 1385 SBCY

dod	dCo	dFo	Action	Compressor	VSC	Fans
0	---	---	Door switch disabled	ON	ON	ON
1	---	0	Fans disabled	ON	ON	OFF
	---	>0		ON	ON	OFF after dFo
2	0	---	Compressor and VSC disabled	OFF	OFF	ON
	>0	---		OFF after dCo	OFF after dCo	ON
3	0	0	Fans, Compressor and VSC disabled	OFF	OFF	OFF
	>0	>0		OFF after dCo	OFF after dCo	OFF after dFo
4	RESERVED					
5	RESERVED					
6	RESERVED					
7	RESERVED					
8	RESERVED					
9	RESERVED					
10	RESERVED					

2) EWNNext 1385 SBCIL

dod	dCo	dFo	Action	Compressor	VSC	Fans
0	---	---	Door switch disabled	ON	ON	ON
1	---	0	Fans disabled	ON	ON	OFF
	---	>0		ON	ON	OFF after dFo
2	0	---	Compressor and VSC disabled	OFF	OFF	ON
	>0	---		OFF after dCo	OFF after dCo	ON
3	0	0	Fans, Compressor and VSC disabled	OFF	OFF	OFF
	>0	>0		OFF after dCo	OFF after dCo	OFF after dFo
4	0	0	Compressor disabled, VSC min speed	OFF	MS	ON
	>0	>0		OFF after dCo	MS after dCo	ON
5	0	0	Fans and Compressor disabled, VSC min speed	OFF	MS	OFF
	>0	>0		OFF after dCo	MS after dCo	OFF after dFo
6	---	0	Fans enabled	ON	ON	ON
	---	>0		ON	ON	(3)
7	0	---	Compressor and VSC enabled	ON	ON	ON
	>0	---		(1)	(1)	ON
8	0	0	Fans, compressor and VSC enabled	ON	ON	ON
	>0	>0		(1)	(1)	(3)
9	0	---	Compressor enabled, VSC min speed	ON	ON	ON
	>0	---		(1)	(2)	ON
10	0	0	Fans and Compressor enabled, VSC min speed	ON	ON	ON
	>0	>0		(1)	(2)	(3)

Legend: **ON** = enabled; **OFF** = disabled; **MS** = VSC Minimum speed; **VSC** = VSC compressor.

(1) Compressor or VSC disabled when the door is opened and enabled after the **dCo** time

(2) VSC compressor at minimum speed when the door is opened and enabled after the **dCo** time

(3) Fans disabled when the door is opened and enabled after the **dFo** time

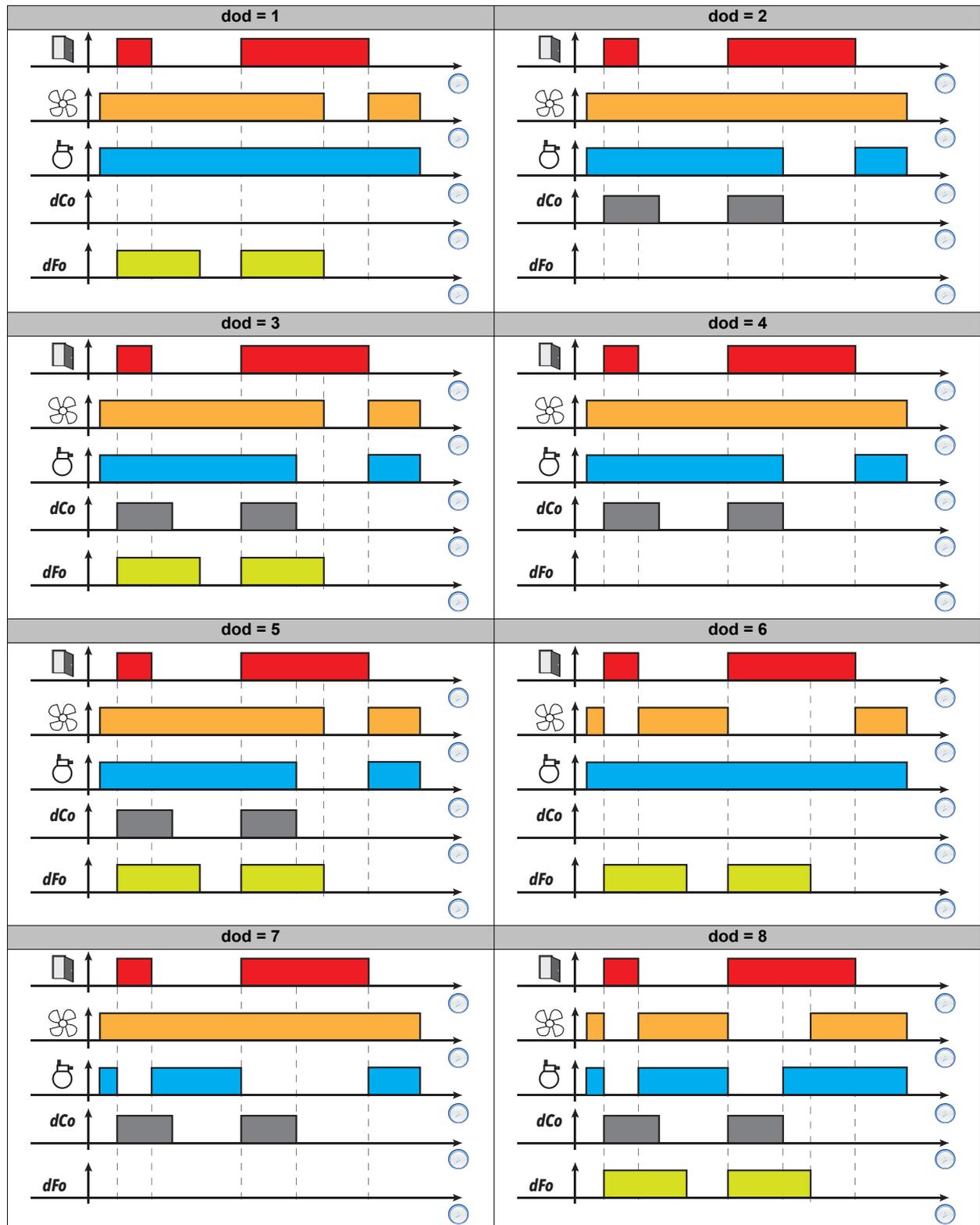
Note: If the door is opened during a defrost cycle, the defrost continues normally.

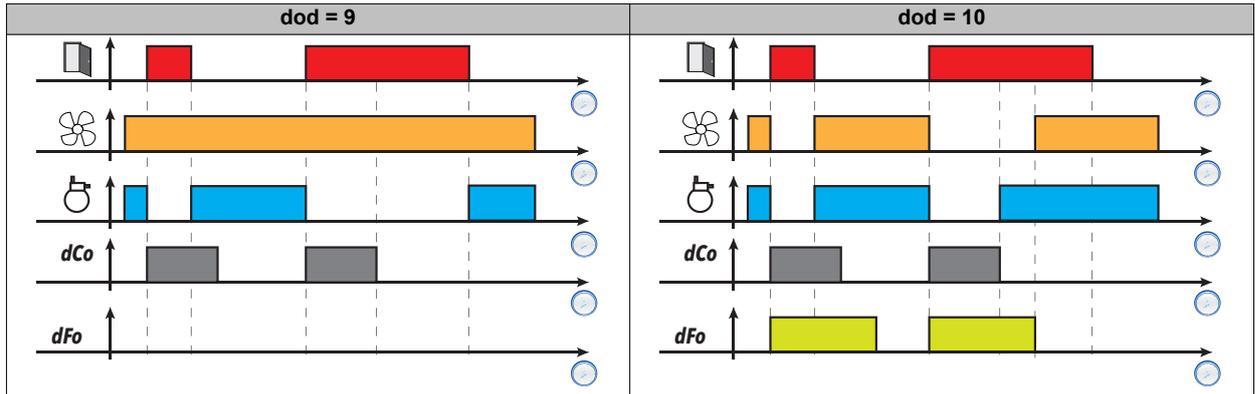
Other parameters involved in the operation of the door regulator are: **dAd**, **oAo**, **tdo**, **AuP**, **ESA** (only if **H1x** = 11 or **H1x** = 12) and **dCd**.

When the door is closed, the fans remain off for a time period equal to **dCd**. The door opening generates an 'Open Door Alarm'.

Regulation diagrams

Depending on parameter **dod**, the following behavior are considered:





Parameters

Parameter	Description
dod	Utilities switched off upon activation of the digital input set for the micro 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.
ESA	AUX/Lights status during Energy saving
AuP	Association of an AUX output when the door is open.
dCd	Fan activation delay after closing door.
H11	DI1 digital input/polarity configuration.
H12	DI2 digital input/polarity configuration.
H13	DI3 digital input/polarity configuration.
H14	DI4 digital input/polarity configuration.
H15	DI5 digital input/polarity configuration.
H16	DI6 digital input/polarity configuration.
H17	DI7 digital input/polarity configuration (only EWNext 1385 SBCY and EWNext 1385 SBCIL)

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 Field Bus (configured with **L05** = 1)
- 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 Δ 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.

If **H06 = 1**, the "AUX" and "Light" regulators remain active during stand-by, and the output state can be Set/Reset through either keypad or digital input.

Parameters

Parameter	Description
PAo	Alarm exclusion time when switching on the controller, after a power failure
odo	Output activation delay after startup
L05	Stand-by synchronization
H08	Stand-by operating mode
H11	D11 digital input/polarity configuration.
H12	D12 digital input/polarity configuration (on TTL port).
H13	D13 digital input/polarity configuration
H14	D14 digital input/polarity configuration
H15	D15 digital input/polarity configuration
H16	D16 digital input/polarity configuration
H17	D17 digital input/polarity configuration (only EWNnext 1385 SBCY and EWNnext 1385 SBCIL)
H31	Δ key configuration.
H32	∇ key configuration.
H33	\odot key configuration.
H34	⚡ key configuration.
H35	\star 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 the controller 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 Δ and ∇ until you find the folder **FPr**
3. Press **SET** to confirm
4. Scroll through the parameters using Δ 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 Δ and ∇ until you find the folder **FPr**
3. Press **SET** to confirm
4. Scroll through the parameters using Δ 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.

Bootloader firmware

Description

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

If the UNICARD is detected, the bootloader checks its contents for a valid Firmware update and, if yES, it starts the Firmware update.

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 not authenticated, 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 until the Unicard is removed and the controller is power cycled (after that the former applicative restart).

NOTICE

UNINTENDED EQUIPMENT OPERATION

Use authenticated Schneider Electric or Eliwell files only.

Failure to follow these instructions can result in equipment damage.

Display

During the application update, the display shows:

- **Bright pattern** (sequence of display segments): during firmware verification
- **Display off**: during firmware update
- **Err**: when an error occurs during firmware updating. Restart the device manually
- **display active**: When firmware updating successful and device automatically restarts.

Reset TelevisAir diagnostic counters

Description

The controller provides via TelevisAir 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 **Δ** and **∇** until you find the folder **FnC**
3. Press **SET** to confirm
4. Scroll through the menu options with **Δ** and **∇** until you find the label **Cnt** and press **SET**
5. Scroll through the parameters with **Δ** and **∇** until you find the counter to reset
6. Press and hold **SET** for at least 3 seconds to confirm.

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

Regulators

Contents

This section includes the following topics:

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Heat/Cool

Description

The regulator can work with an absolute or relative differential, both in Heat and Cool modes, and is controlled by the value of Regulation 1 probe (see **rP1**).

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 1 probe is not in error (see **rP1**)
- 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)

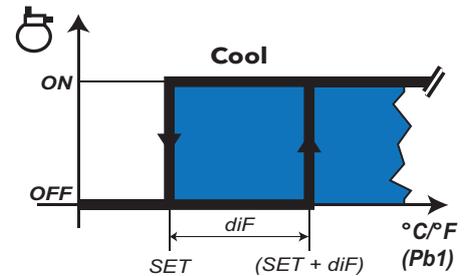
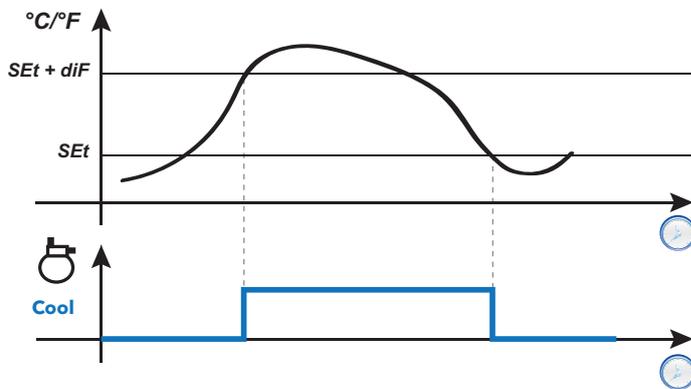
If an offset is activated on the setpoint (**oSP**) and on the differential (**odF**), then:

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

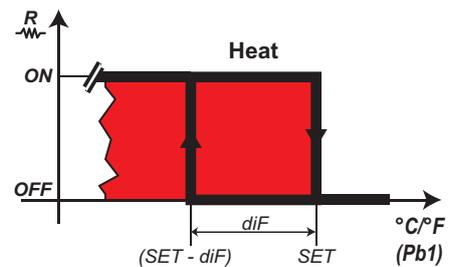
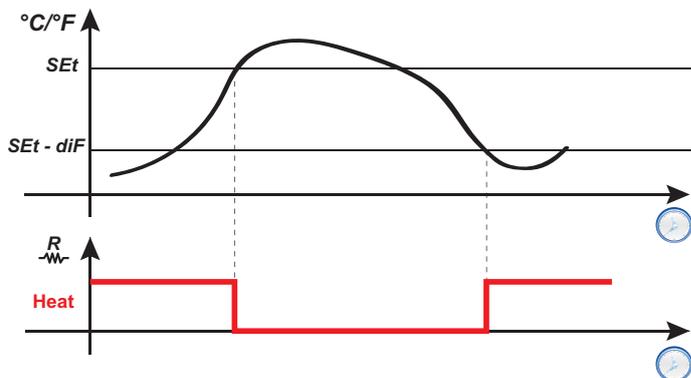
Note: **oSP** can assume both positive and negative values.

Regulation diagrams

Cooling Regulation (**HC(0) = C**)



Heating Regulation (**HC(1) = H**)



Legend: Heat = Heating; Cool = Cooling.

Parameters

Parameter	Description
rP1	Regulation 1 probe selection
SEt	Regulation setpoint
diF	Regulator activation differential
HC	Select regulation mode (C (0) = Cool; H (1) = Heat)
oSP	Offset on setpoint
odF	Offset on differential in energy saving mode
odo	Output activation delay after startup

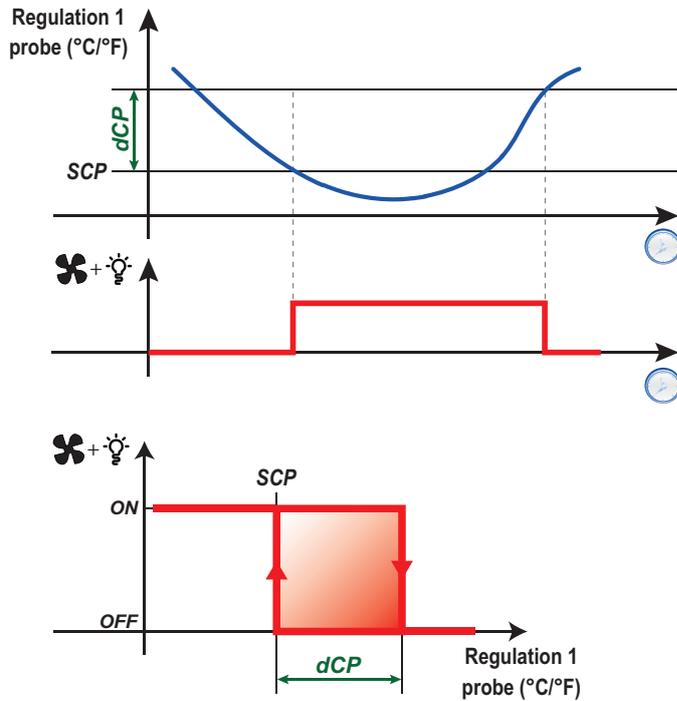
Low ambient temperature protection

Description

Regulator activations takes place when the temperature measured by regulation 1 probe (see **rP1**) 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 regulation 1 probe (see **rP1**)
- 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)
- Thermostat 1 probe is not in error (see **rP1**)
- 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. Parameter **Cod** makes it possible to avoid regulator activation near a defrost cycle. Before activating the compressor, the controller checks whether the next defrost is scheduled after a time period that is less than the value of parameter **Cod**.

Regulator activations is possible also near a defrost cycle.

If the next defrost is scheduled after a time period...	Then the compressor...
less than the value of parameter Cod	it is not activated and the icon  flashes.
greater than the value of parameter Cod	it is activated.

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

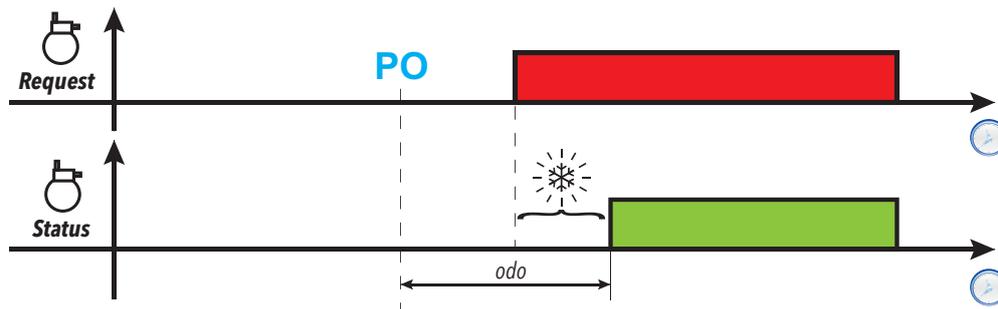
Compressor protections

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

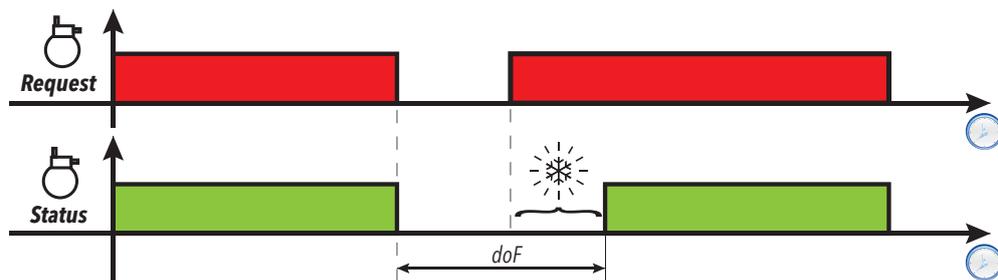
- a delay **doF** between compressor relay switch-off and the next switch-on. If a new activation request arises during the delay **doF**, the compressor icon will flash on the display.
- a delay **dbi** between one compressor startup and the next. The delay **dbi** is calculated from the previous compressor 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

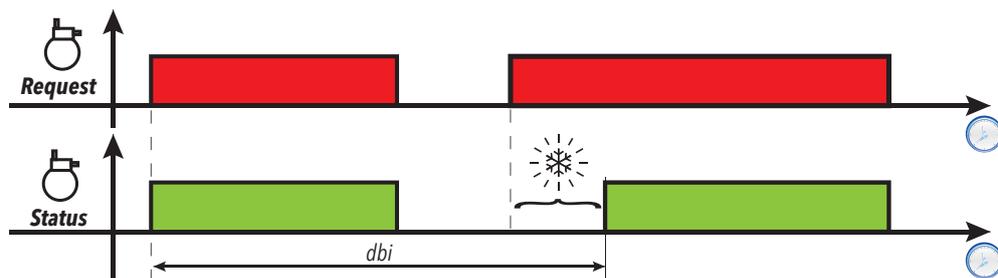
Compressor activation delay from controller power-on



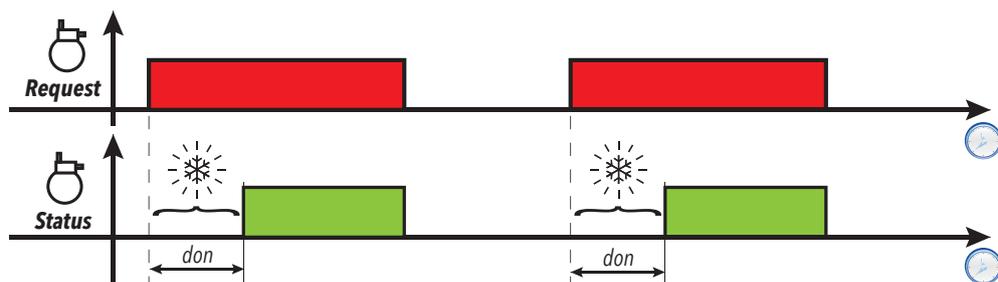
Compressor output activation delay from switch-off



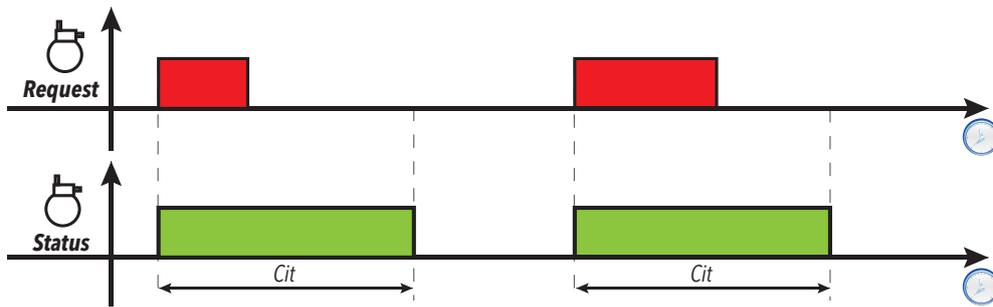
Delay between two consecutive compressor output activations



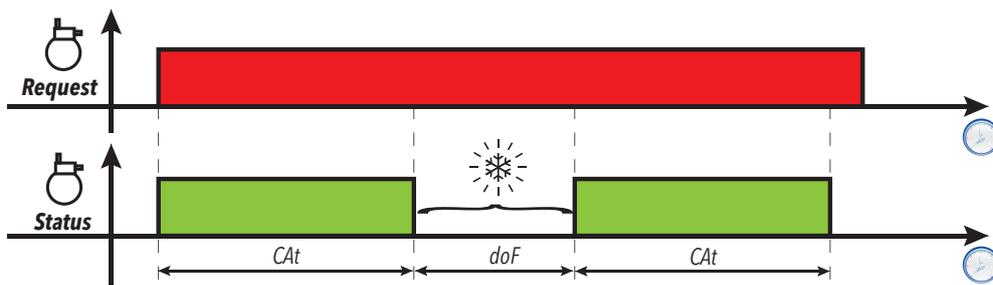
Compressor activation delay from request



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
rP1	Regulation 1 probe selection
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
Cod	Time compressor remains off before a defrost

Managing the compressor with the probe in error

Description

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

- Regulation 1 probe (see **rP1**) is in error
- The display shows **Ex** (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).

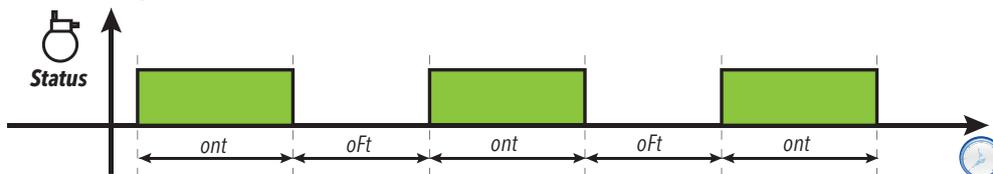
Functioning conditions

Ont	OFt	Compressor output
0	0	inactive
0	>0	inactive
>0	0	active
>0	>0	Duty cycle, regardless of the probe values (regulation 1 probe not working) and requests from other utilities

Note: if regulation 1 probe 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
rP1	Regulation 1 probe selection
ont	Compressor output ON time if thermostat 1 probe is not functioning
oFt	Compressor output OFF time if thermostat 1 probe 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

Variable-speed compressor (EWNnext 1385 SBCIL only)

Description

The VSC (Variable Speed Compressor) regulator can only be activated on models equipped with the output **OC**, by setting parameter **02n** = 2.

The regulator is active only in cooling mode by setting **HC** = 0.

This regulator can be used to manage a variable-speed compressor via the PFM (Pulse Frequency Modulation) Open Collector output. This output drives an inverter and can be used to regulate the ability of the compressor to cool a system (e.g. a refrigerated display unit, a room, etc.) while keeping the temperature close to the setpoint value **SEt**. The algorithm generates an outgoing value between 0.0...100% and converts it proportionally into **rpm**.

Prior to commissioning, compressors units must be evaluated based on the specifications provided in the manufacturer's datasheet.

WARNING

HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE

Verify the compressor characteristics in its datasheet to be compatible ⁽¹⁾ with our controller before commissioning.

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

(1) for any doubt contact Eliwell Technical Support.

The maximum frequency **F_1** and minimum frequency **F_2** values can be set via parameter within the range 0...250 Hz; these values correspond to **rpm** compressor values (depending on the specific compressor characteristic). The control algorithm is a PID algorithm that can be set using the auto-tuning function.

There are also special functions that can be customized for:

- "pull down" or "pull up" systems at startup or at the end of defrost
- requests relating to inverter compressors
- functions for managing overload conditions, etc.

Note: After the initial startup, and every time it becomes necessary, a new auto-tuning cycle can be started (see Manual auto-tuning).

Note: Whenever sudden load variations occur, a series of parameters speed up regulation around the setpoint during normal operating conditions ('pull-up' or 'wake-up' procedures).

Functioning conditions

During startup / switch-off, the compressor is subjected to delays and protections that can be selected via parameters **don**, **doF**, **dbi**, **Cit**, **CAt** and **odo**. If the regulation probe is in error or is not configured, the set capacity is equal to **CEr** and the values of parameters **ont** and **oFt** are not taken into account.

At controller startup and in general after a Stand-by/stop condition, a compressor capacity of **CSC** is set for a time period **CSd**. After the startup sequence, the compressor capacity will be set to 100% (wake-up) until the temperature **SEt + PdE** is reached.

At the end of a 'wake-up' sequence, a capacity value of **CPd** (day mode) or **CPn** (night mode) should be set. The PID regulator begins regulating, starting from this value.

When the controller is set to regulate cooling and the value read by thermostat 1 probe is greater than **SEt + PdS** or less than **SEt + PUS**, a countdown of **PUd** begins. When the time has elapsed, an optimized pull-up / wake-up procedure is started in line with the temperature value.

Note: If the temperature falls within the limits indicated above before the **PUd** time has elapsed, the timer is reloaded.

Wake-up/pull-up operation:

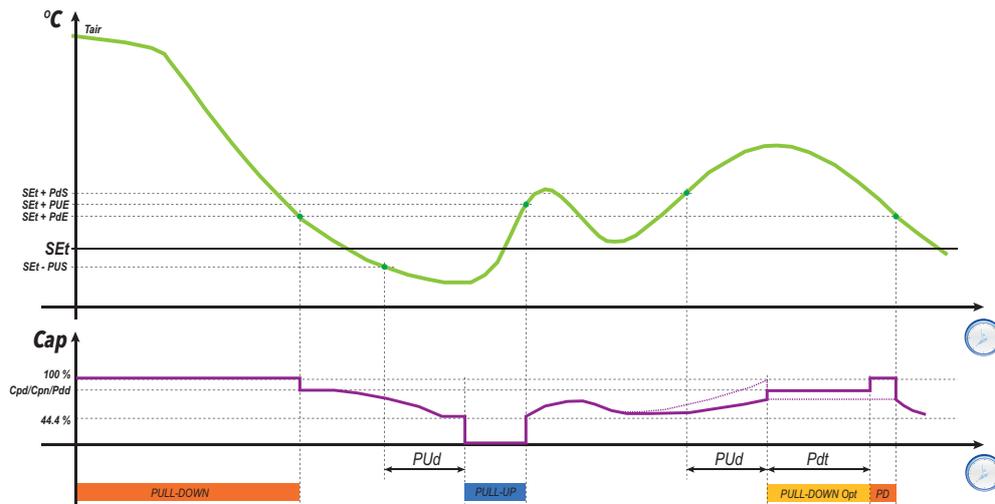
- **Wake-up:** when an optimized wake-up is activated, the compressor capacity is forced to the value **Pdd** for a time period **Pdt**. When the time period **Pdt** has elapsed, the capacity should be forced to 100% until the temperature reaches the value (**SP1 + PdE**).
- **Pull-Up:** when a pull-up is activated, the compressor is switched off until the temperature reaches the value **SP1 + PUE**.

When the 'wake-up/pull-up' cycle has ended, the controller begins regulation again, setting a capacity equal to the last value set before the cycle was activated.

During normal regulation (for example, when the 'wake-up'/pull-up' cycles are not active), the compressor can be set to a fixed capacity value by setting **CAU** = 1 ('FiH') and setting the value using parameter **CdU** (%).

If **CAU** = 0 ('Aut'), **CdU** will represent the maximum capacity that the regulator can request. Also in this case, when the compressor is activated for a period of time equal to **CSd**, a compressor capacity of **CSC** will be set.

Regulation diagram



Legend: T_{air} = Value read by Thermostat 1 probe; Cap = Compressor capacity value; **Pull-Down Opt** = Optimized wake-up; **PD** = Wake-up cycle

Parameters

Parameter	Description
rP1	Regulation 1 probe selection
SEt	Regulation setpoint
don	Compressor relay activation delay from call
doF	Delay between compressor relay switch-off and the next switch-on
HC	Select regulation mode (C (0) = Cool; H (1) = Heat)
dbi	Delay between two subsequent compressor starts
Cit	Minimum compressor activation time
CAt	Maximum compressor activation time
odo	Output activation delay from startup
CEr	Controlled capacity value in the event of regulation probe error
PdS	Differential for forced activation of a wake-up
PUS	Differential for forced activation of a pull-up
PUd	Temperature outside range timeout
PdE	Wake-up end differential
PUE	Pull-up end differential
Pdt	Optimized wake-up timeout
Pdd	Controlled capacity value, if a wake-up is activated, when the time period PUd has elapsed
CPd	Controlled capacity after a wake-up in day mode
CPn	Controlled capacity after a wake-up in night mode
CSd	Duration of constant-speed compressor heating CSC on startup or after a stand-by
CSC	Fixed compressor capacity for a time period CSd on startup or after a stand-by
CAU	Select automatic or manual PID mode
CdU	PID duty cycle in manual mode
F_1	Maximum compressor operation frequency
F_2	Minimum compressor operation frequency

Activating the Auto-tuning function for the PID regulator (VSC)

Description

Auto-tuning can be activated manually in 2 ways using the functions in the folder **FnC** for the table "Installer parameters":

- **nPL** = calculates the preliminary values to assign to the parameters in order to make the system run.
- **tun** = calculates the value of the parameters precisely.

'nPL' procedure

When this procedure is activated, the preliminary values for managing the variable-speed compressor parameters. Typically this procedure is activated when the controller remains off for a long period of time and the regulator probe therefore has a value that is very different from the Setpoint.

Note: In most cases, this procedure is enough to achieve good regulator configuration.

The controller performs ON-OFF cycles, which it uses to determine the value of the parameters required for regulation.

'tun' procedure

When this procedure is activated, the optimized values for the PID regulator parameters are calculated.

Typically this function is used following execution of the function **nPL**.

At the end of the procedure, the values of the PID regulator parameters are updated.

Double compressor

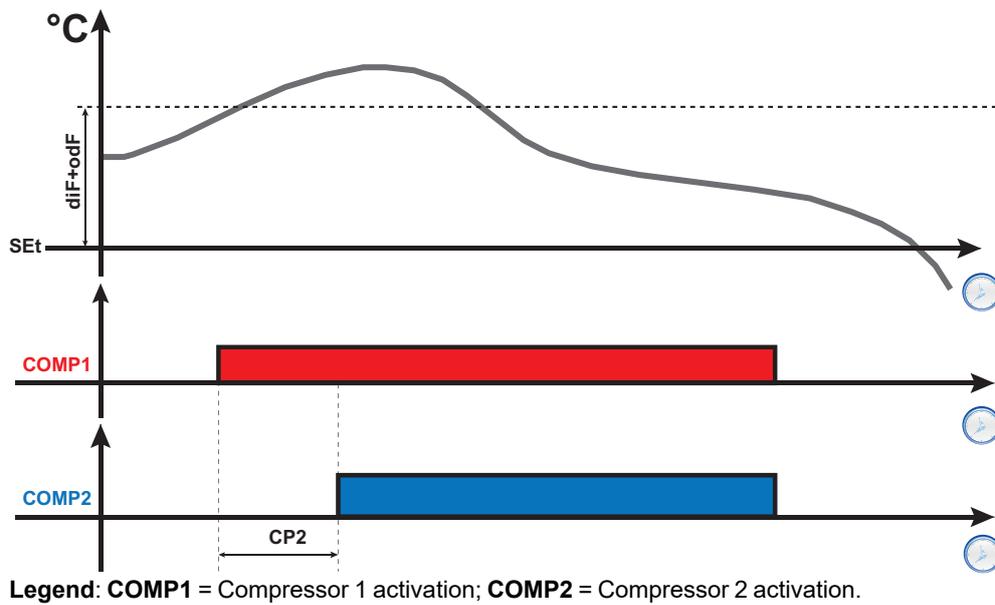
Description

If a digital output is set as compressor 2 (**H2x = 9**), 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



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(0) = dis**: Deep cooling cycle disabled
- **dCA(1) = Std**: Manual deep cooling cycle
- **dCA(2) = Aut**: Automatic deep cooling cycle

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

- a defrost is forced
- the defrost counters 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 (dCA = Std)

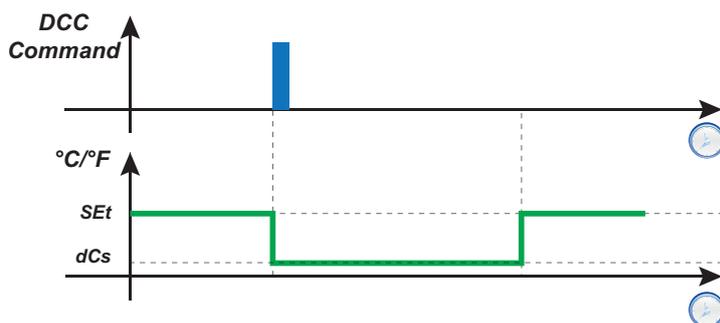
The regulator can be activated manually in one of the following ways:

- press and hold a key (configured with **H3x = 8**)
- digital input (only if **H1x = ±3**)
- using a Supervisor, via Modbus command (serial)
- via APP (if the BTLE Dongle is present. See accessories)

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 (dCA = Aut)

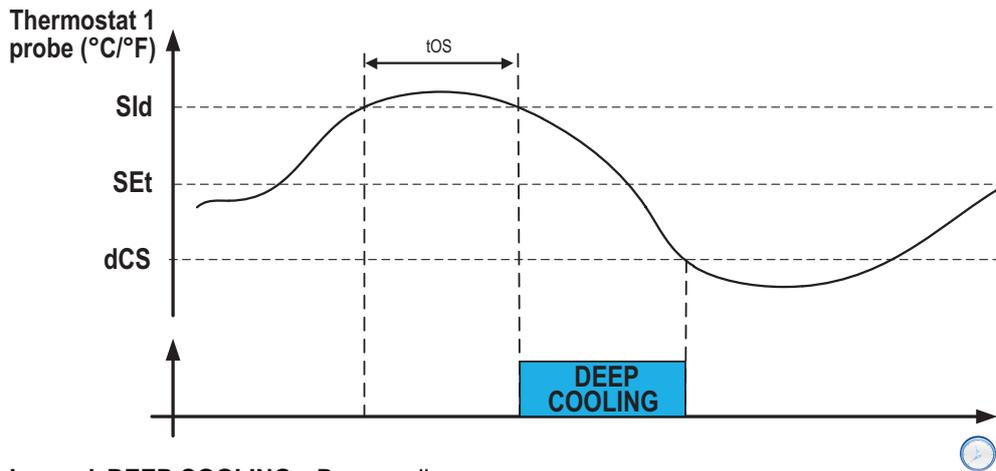
The regulator is activated if the value read by regulation 1 probe remains above the temperature **Sld** for a period of time **toS**.

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 regulation 1 probe drops below the value **dCS**
- if **tdC** > 0: it will end when the time period **tdC** elapses



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 fans probe (see **FP1**) 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.

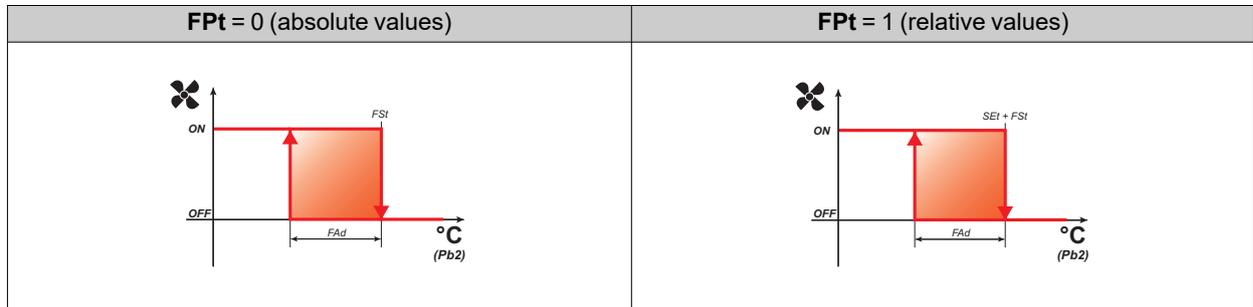
Fan operating modes

			Day		Night	
FP1 probe	FP1 probe active	FCo	Compressor ON	Compressor OFF	Compressor ON	Compressor OFF
Present	YES	0	Thermostat controlled	Off	Thermostat controlled	Off
		1	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
		2	Thermostat controlled	Duty cycle day	Thermostat controlled	Duty cycle night
		3	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
		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	YES	0	Duty cycle day	Off	Duty cycle night	Off
		1	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
		2	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
		3	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
		4	On	Off	On	Off
		5	On	Off	On	Off
		6	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
Absent	NO	0	On	Off	On	Off
		1	On	Duty cycle day	On	Duty cycle night
		2	On	Duty cycle day	On	Duty cycle night
		3	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night
		4	On	Off	On	Off
		5	On	Off	On	Off
		6	Duty cycle day	Duty cycle day	Duty cycle night	Duty cycle night

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:

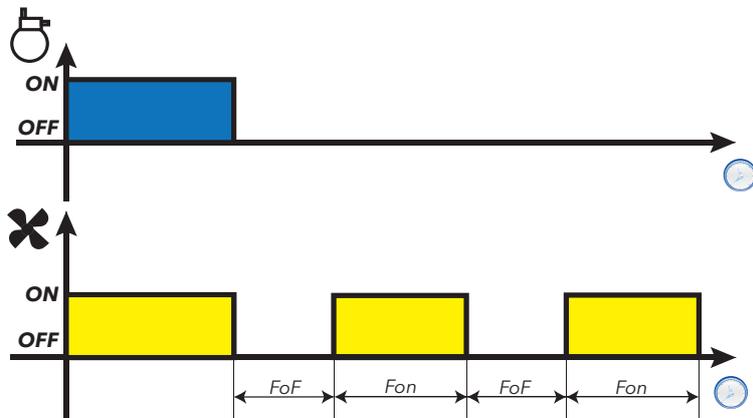


Fan operation in duty cycle

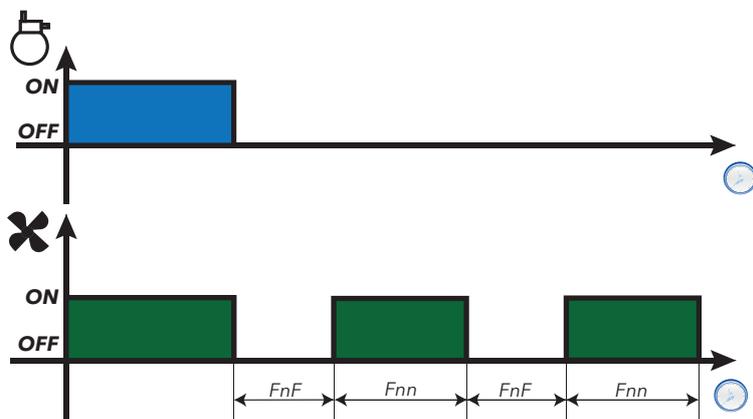
The fans run in duty cycle mode when the compressor is off and this mode is specified by parameter **FCo**. Depending on whether the controller is in day or night mode, fan operation is based on parameters **Fon** and **FoF** (day) or **Fnn** and **FnF** (night):

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
no	Regulation or duty cycle
yES	Off

Note: to exclude the fans during a defrost, you must set **dFd** = yES. 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**.

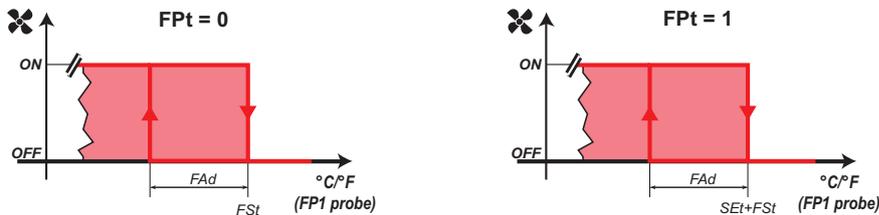
Note: if **Fdt** is greater than **dt** the fans remain off for the time set in **Fdt**.

Post-ventilation

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

Post-ventilation has no priority over the delay set by the **dCd** parameter.

The **FSt** parameter is always considered with sign. The **Fdu** parameter selects the measurement unit of **Fon**, **FoF**, **Fnn** e **FnF**.



Parameters

Parameter	Description
SEt	Regulation setpoint
odo	Output activation delay from startup
FP1	Evaporator fans probe
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
FAd	Evaporator fan trigger differential
Fdt	Evaporator fan activation delay time after a defrosting cycle
dt	Dripping time
dFd	Evaporator fan exclusion during a defrost cycle
Fco	Evaporator fan operating mode
FdC	Evaporator fan shutoff delay after compressor deactivation
Fdu	Unità di misura tempi duty cycle ventole (0 = minutes; 1 = seconds)
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
dCd	Evaporator fans delay activation after door close

Variable speed fans (VSF) (EWNnext 1385 SBCIL only)

Description

This analog regulator is used to manage the modulated fans applied to the evaporator or condenser and provides an implementation percentage to be applied to the analog output 0...10 V.

Regulation is activated by using **FE1** to set the desired probe (temperature probe or pressure transducer)

The regulation setpoint can be absolute or relative:

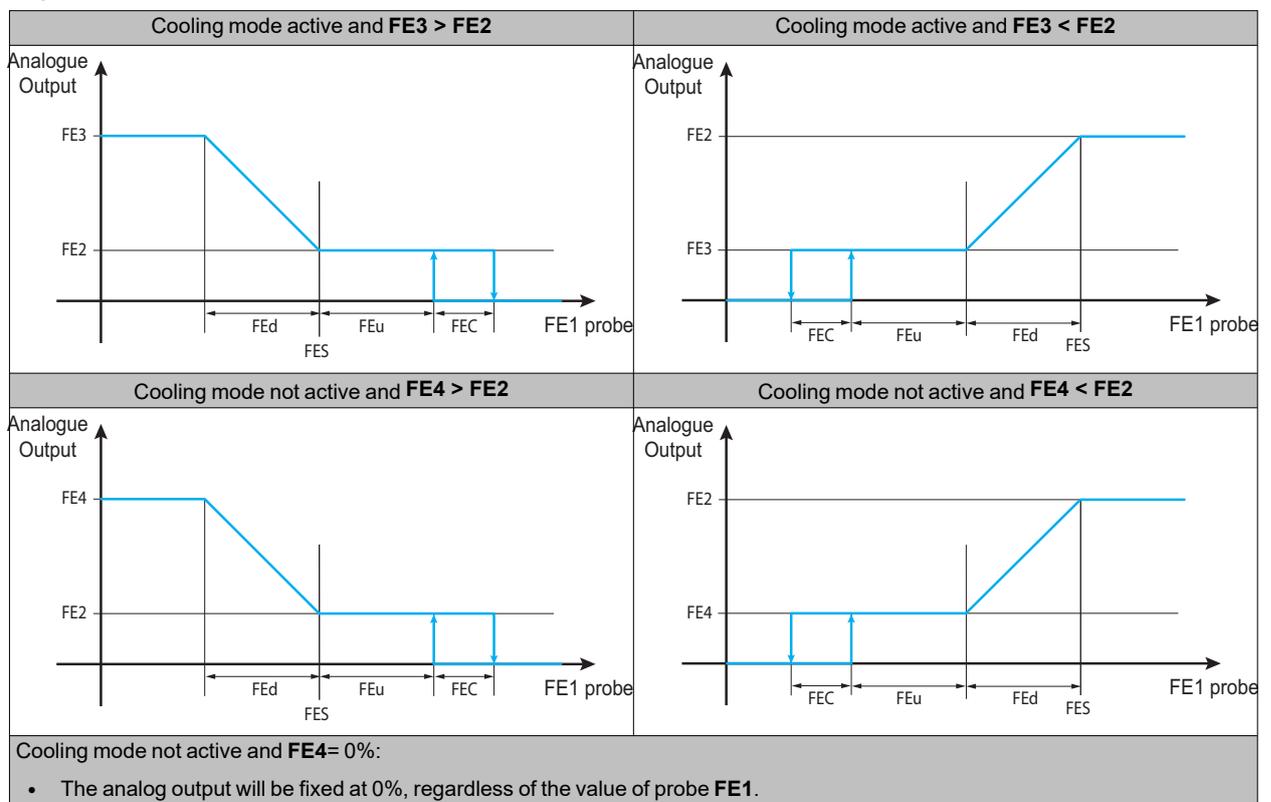
- Absolute if **FEt** = AbS and the setpoint will be the value of: **FES**
- Relative if **FEt** = rEL and the setpoint will be the value of: **FES + SET** (Regulator 1)

Note: the activation of this analog regulator do not activate any icon.

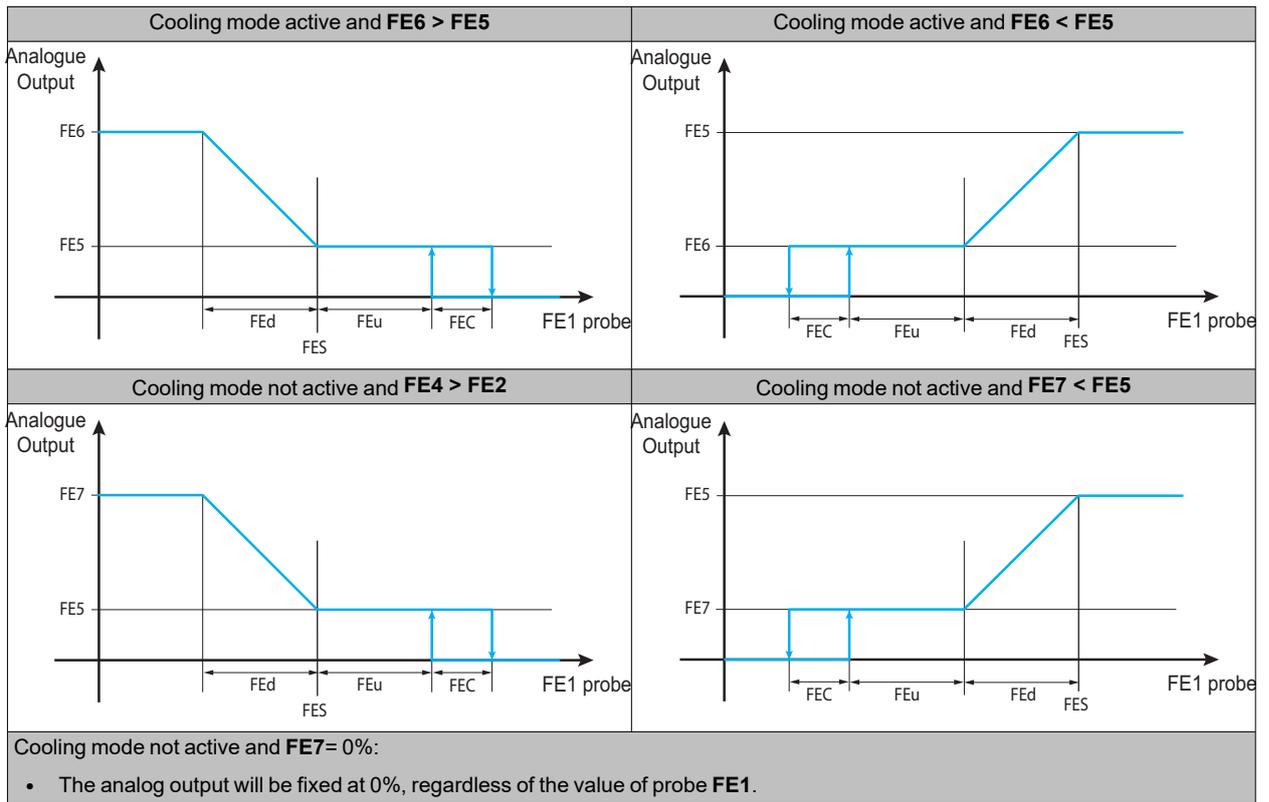
Operation examples

In below example, **FEt** = AbS is considered.

Day mode:



Night mode:



Regulation with probe error

In the event of a probe error, the analog output will assume the following values:

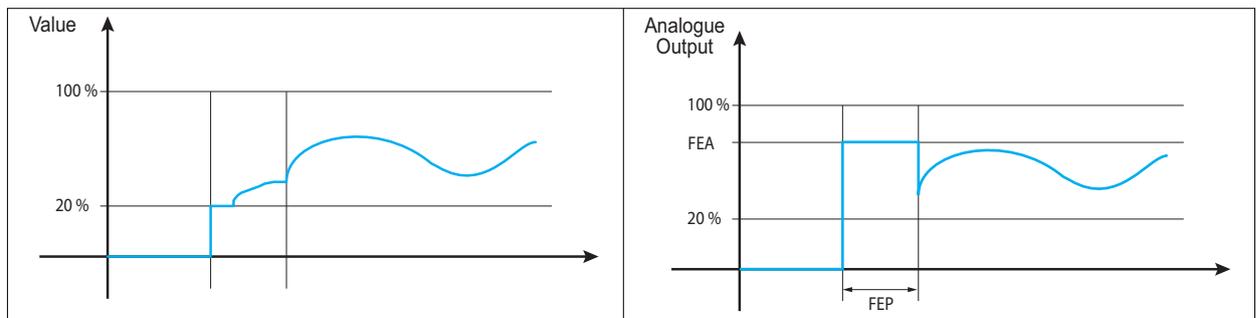
Condition	Day		Night (Energy Saving)	
	Cooling ON	Cooling OFF	Cooling ON	Cooling OFF
$FE4 > 0\%$	$FE9$	$FE9$	---	---
$FE4 = 0\%$	$FE9$	0%	---	---
$FE7 > 0\%$	---	---	$FE9$	$FE9$
$FE7 = 0\%$	---	---	$FE9$	0%

During defrost, the analog output will assume the value set by parameter $FE8$.

During dripping (with a duration dt) the output will be set to 0%.

If the 0% output mode with cooling OFF has been selected ($FE4 = 0\%$ and/or $FE7 = 0\%$), it is possible to keep the analog output active for the FEr post-ventilation time if the analog output is $> 0\%$ when cooling goes OFF, otherwise if it was at 0% it remains at 0%. During the FEr time the cut-off is disabled.

When the regulator requires modulation, it is possible to activate the pick-up mode:



Periodically it is possible to activate the pick-up procedure. The period is set by FEP parameter.

During "Counter cleaning" mode, the modulated fans are forced to percentage $FE3$.

Parameters

Parameter	Description
FE1	Sets the probe used by the modulated fans.
FEt	Sets the FES differential management mode.
FES	Modulated fan disabling temperature.
FEd	Tripping differential for “modulated fans” regulator.
FEu	Cut-OFF (0 = disabled)
FEC	Cut-OFF differential
FEr	Fan deactivation delay time from compressor stoppage.
FE2	Minimum day percentage
FE3	Maximum day percentage with compressor on
FE4	Maximum day percentage with compressor off
FE5	Minimum night percentage
FE6	Maximum night percentage with compressor on
FE7	Maximum night percentage with compressor off
FE8	Percentage during defrost
FE9	Percentage in the event of probe error
FEA	Maximum pick-up speed percentage (0 = mode disabled)
FEb	Fan pick-up time
FEP	Fan forcing period at pick-up speed (0 = mode disabled)

Condenser fans

This regulator is active if there's an output configured as 'condenser fans' (**H2x** = 13) and digital compressor is active or VSC Output is > 0.

Condenser Fans with probe

Regulator is active if there's an output configured as 'condenser fan with probe' (**H2x** = 14).

Condenser fans Inversion

Functioning conditions

If the following conditions have arisen:

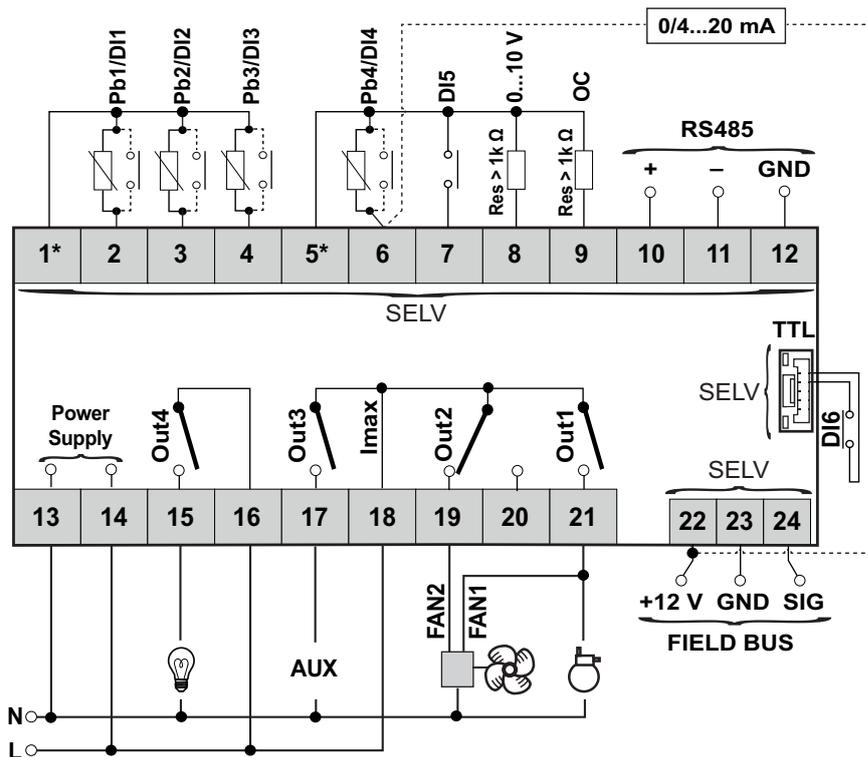
- A digital output is set as "Condenser fan inversion" (**H2x** = 11)
- Defrost is configured as "Defrost due to stoppage" (**dt**y = 0)

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

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.

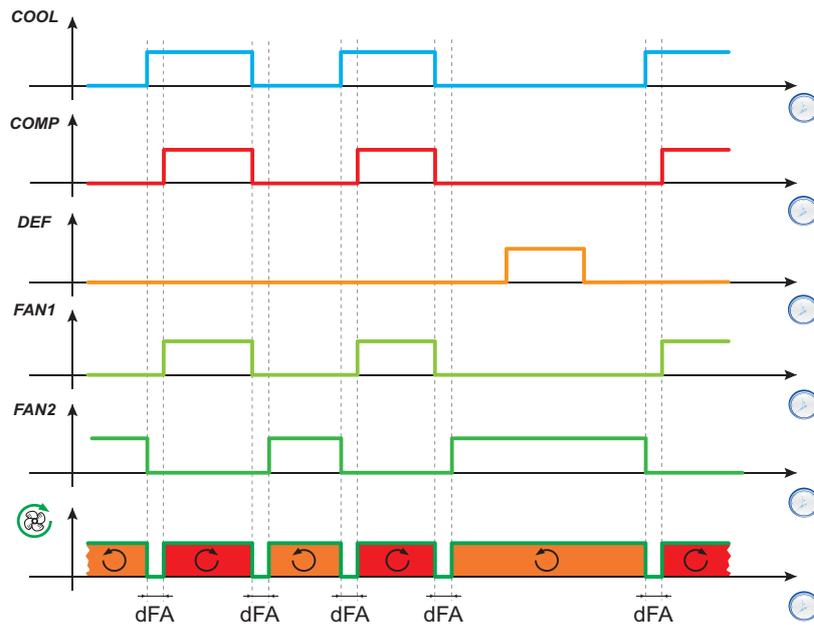
Note: It's anyway suggested to set both parameters different to zero to avoid undesired effects on compressor and inversion condenser fan behavior.

Wiring diagram Example

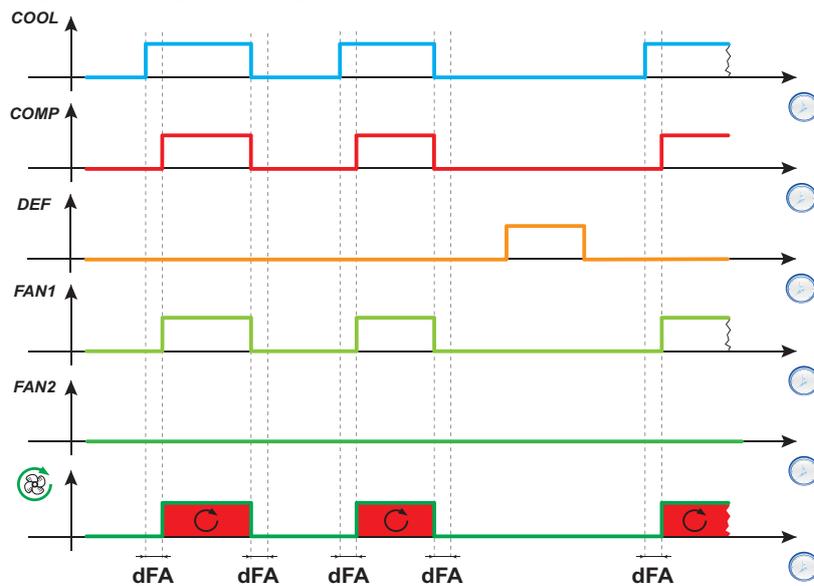


Regulation diagrams

Regulation diagram in Day mode



Regulation diagram in Night mode



Legend: **COOL** = Cooling request; **COMP** = Compressor status; **DEF** = Defrost 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
don	Compressor relay activation delay from 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 **ALR** 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 reaches 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, fans 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 **ALR**.
- it activates the alarm relay, if configured.

To reset this alarm status, execute the **rAP** function in folder **FnC** 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.

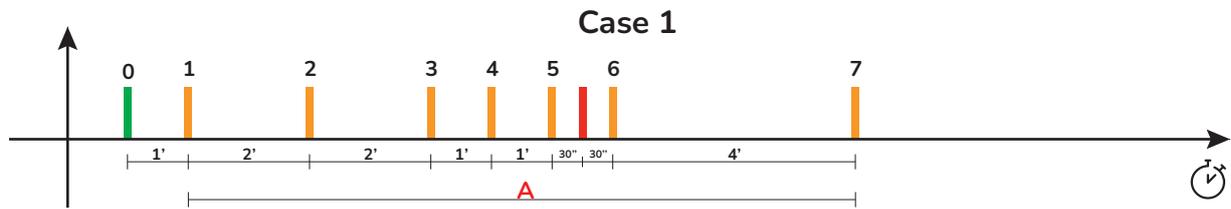
Note: The defrost interval count is independent of any pressure switch alarms.

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
H11	DI1 digital input/polarity configuration
H12	DI2 digital input/polarity configuration
H13	DI3 digital input/polarity configuration
H14	DI4 digital input/polarity configuration
H15	DI5 digital input/polarity configuration
H16	DI6 digital input/polarity configuration (on TTL port)
H17	DI7 digital input/polarity configuration (EWNNext 1281 SBCY and EWNNext 1385 SBCY only)

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 Field Bus (configured with **L08** = 1)
- via APP (if the BTLE Dongle is present. See accessories section)
- RTC activation (models with RTC only)

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

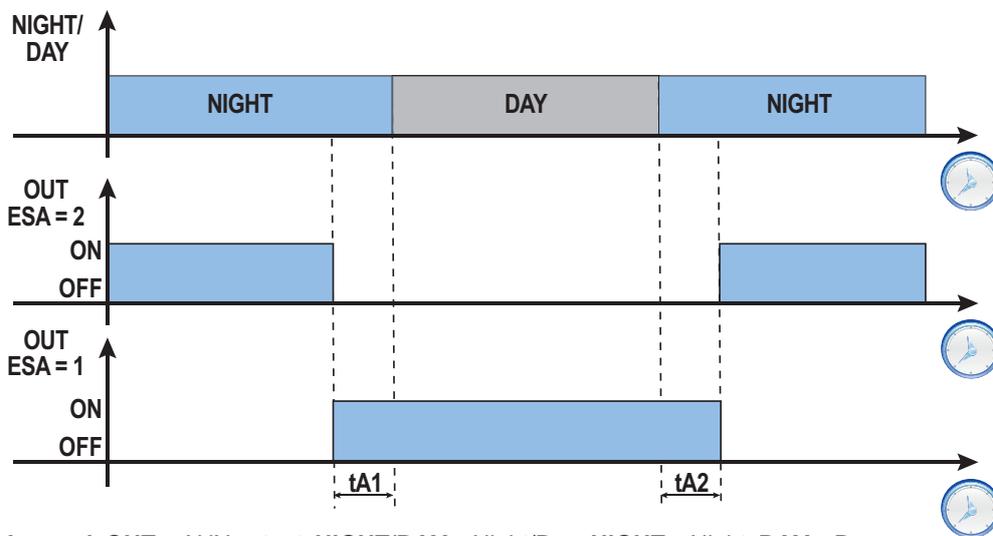
The status of the **AUX** output during Energy Saving is managed by parameter **ESA**:

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

The activation / deactivation of the **AUX** output during Night/Day regulation can:

- be brought forward by a period of time **tA1**
- be delayed by a period of time **tA2**

Note: **tA1** and **tA2** can only be used during Energy saving in models with RTC only (Night/Day - Self-learning).



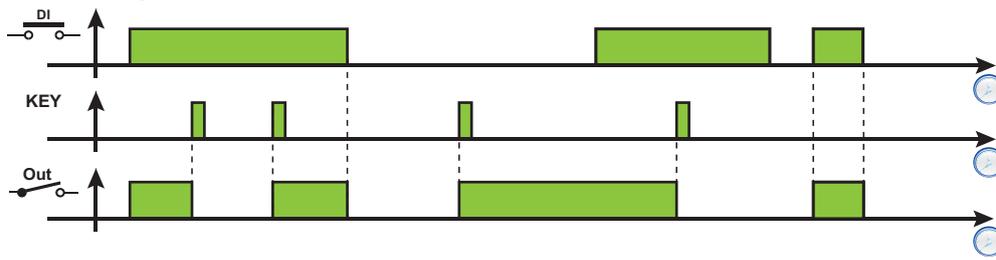
Legend: **OUT** = AUX output; **NIGHT/DAY** = Night/Day; **NIGHT** = Night; **DAY** = Day.

Controlling the auxiliary output via key

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

Note: 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
tA1	Bring AUX/Light output activation in Night/Day transition forward
tA2	Delay AUX/Light output activation in Night/Day transition
L08	Auxiliary output synchronization
H08	Stand-by operating mode
H11	DI1 digital input/polarity configuration
H12	DI2 digital input/polarity configuration
H13	DI3 digital input/polarity configuration
H14	DI4 digital input/polarity configuration
H15	DI5 digital input/polarity configuration
H16	DI6 digital input/polarity configuration (on TTL port)
H17	DI7 digital input/polarity configuration (EWNNext 1281 SBCY and EWNNext 1385 SBCY 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)
- digital input (only if **H1x** = ±9)
- using a Supervisor, via Modbus command (serial)
- via Field Bus (configured with **L06** = 1)
- via APP (if the BTLE Dongle is present. See accessories section)

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

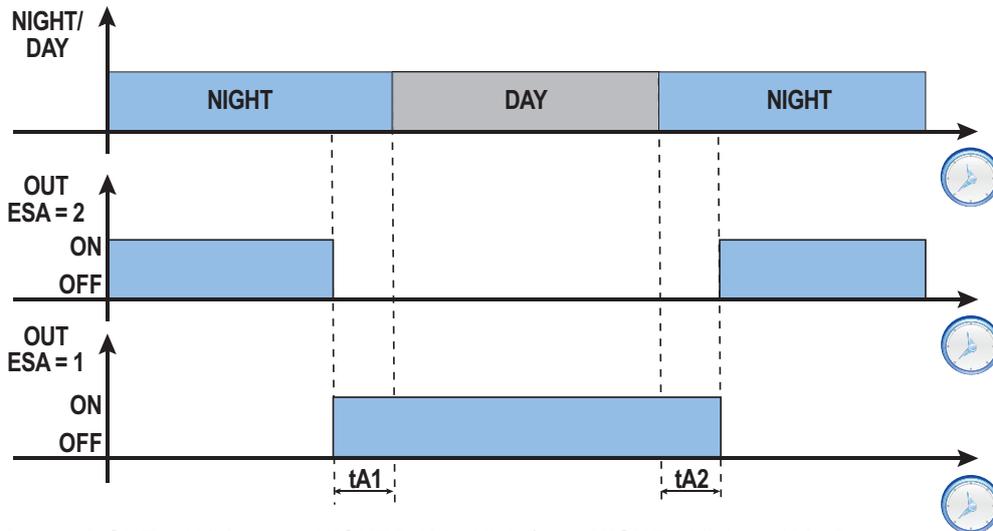
The status of the **Light** output during Energy Saving is managed by parameter **ESA**:

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

The activation / deactivation of the **AUX** output during Night/Day regulation can:

- be brought forward by a period of time **tA1**
- be delayed by a period of time **tA2**

Note: **tA1** and **tA2** can only be used during Energy saving in models with RTC only (Night/Day - Self-learning).



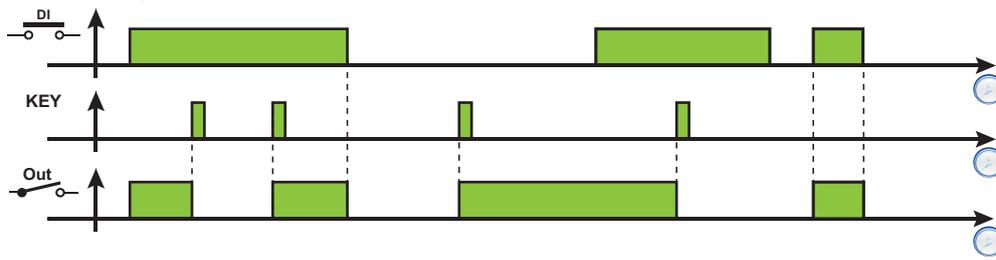
Legend: **OUT** = AUX output; **NIGHT/DAY** = Night/Day; **NIGHT** = Night; **DAY** = Day.

Controlling the light output via key

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

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
L06	Light output synchronization
H08	Stand-by operating mode
H11	DI1 digital input/polarity configuration
H12	DI2 digital input/polarity configuration
H13	DI3 digital input/polarity configuration
H14	DI4 digital input/polarity configuration
H15	DI5 digital input/polarity configuration
H16	DI6 digital input/polarity configuration (on TTL port)
H17	DI7 digital input/polarity configuration (EWNNext 1281 SBCY and EWNNext 1385 SBCY 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.

Anti-sweater heaters (Frame heater) (EWNNext 1385 SBCIL only)

Description

This regulator can activate the anti-sweater heaters for a display unit or a chiller cabinet. Regulation can be:

- with fixed Duty cycle (only if **FH=dc**)
- on glass sensor
- on glass sensor with remote Dew Point.

The device is used to control anti-sweater heaters by means of:

- external SSR relay controlled with Open Collector output
- external module with analog input controlled with 0...10 V analogue output.

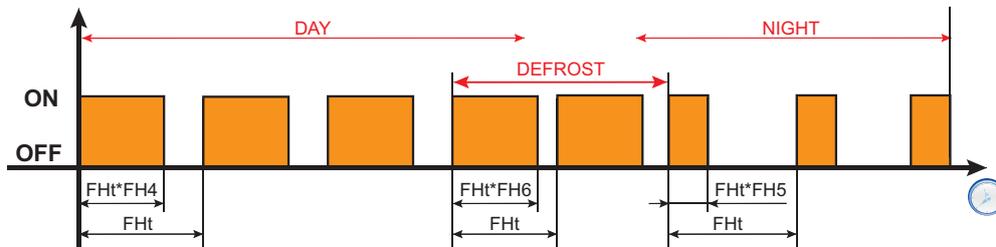
Fixed duty cycle regulation

Fixed duty cycle regulation is activated by setting parameter **FH** = dc and forces a fixed implementation percentage as follows:

- Parameter value **FH4** for day mode
- Parameter value **FH5** for energy saving - night mode
- Parameter value **FH6** during defrost (day / night)

Open Collector output: parameter **FHt** defines the modulation period.

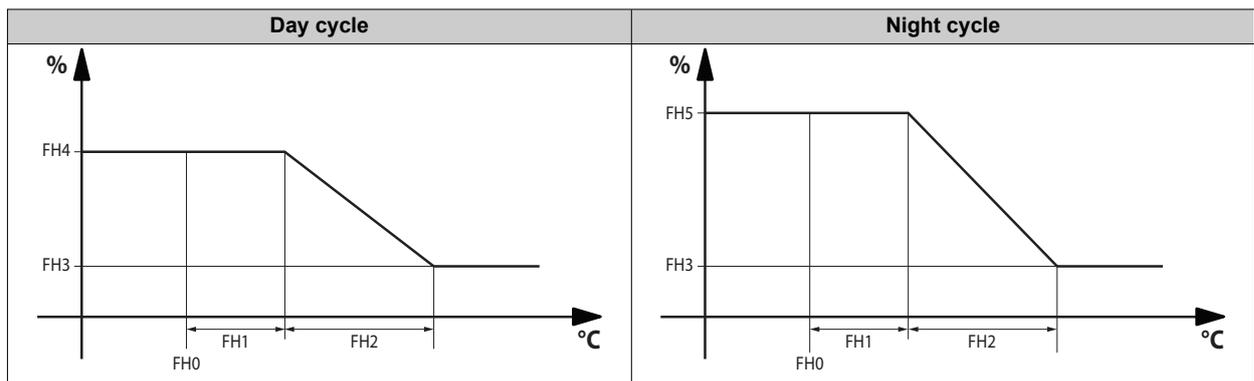
Analog output 0...10 V: fixed regulation percentage.



Legend: **DAY** = Day; **NIGHT** = Night; **DEFROST** = Defrost.

Regulation on probe

Regulation on probe is activated by using **FH** to set the desired probe (Pb1, Pb2, Pb3, Pb4 or Pb5). The output value depends on the value assumed by the probe according to the following graph:



The output modulation is a function of the Dewpoint value (ambient) set by parameter **FH0**. During the defrost phase the output will be set to the fixed value indicated by parameter **FH6**. If a probe error is detected, the output is forced to:

- **FH4** during day cycle
- **FH5** during night cycle

The regulator can modulate the analog output 0...10 V, or it can modulate the Open Collector output (in this case the period is set by parameter **FHt**).

Note: The analog output 0...10 V does not use parameter **FHt**.

Note: The counter controlling the timings of parameter **FHt** (on the basis of **FH4**, **FH5** and **FH6**) is not restored as soon as the status changes (Day, Night, Defrost), but waits for the current countdown to be completed.

Regulation on glass sensor with dewpoint

Regulation is largely the same as for the previous section; the only difference is in the setpoint value **FH0** which is changed remotely (remote dew point) and managed by the Supervisor by means of serial commands. When it is switched on, the regulator loads the setpoint value indicated by parameter **FH0**. This regulation setpoint value can be changed and saved remotely.

Note: remote setpoint updating should be submitted within 60 minutes, otherwise the regulator will restore the value of parameter **FH0**.

Parameters

Parameter	Description
FH	Anti-sweater heaters probe.
FHt	Anti-sweater heaters operating period duration (FH), only used if the OC output is used with SSR relay.
FH0	Setpoint corresponding to the anti-sweater heaters
FH1	Offset corresponding to the anti-sweater heaters
FH2	Band corresponding to the anti-sweater heaters
FH3	Minimum percentage for the anti-sweater heaters
FH4	Maximum percentage for the duty cycle day.
FH5	Maximum percentage for the duty cycle night.
FH6	Anti-sweater heaters percentage during defrost.

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
- **HC** parameter is set to cooling (**HC = C**).

Operation

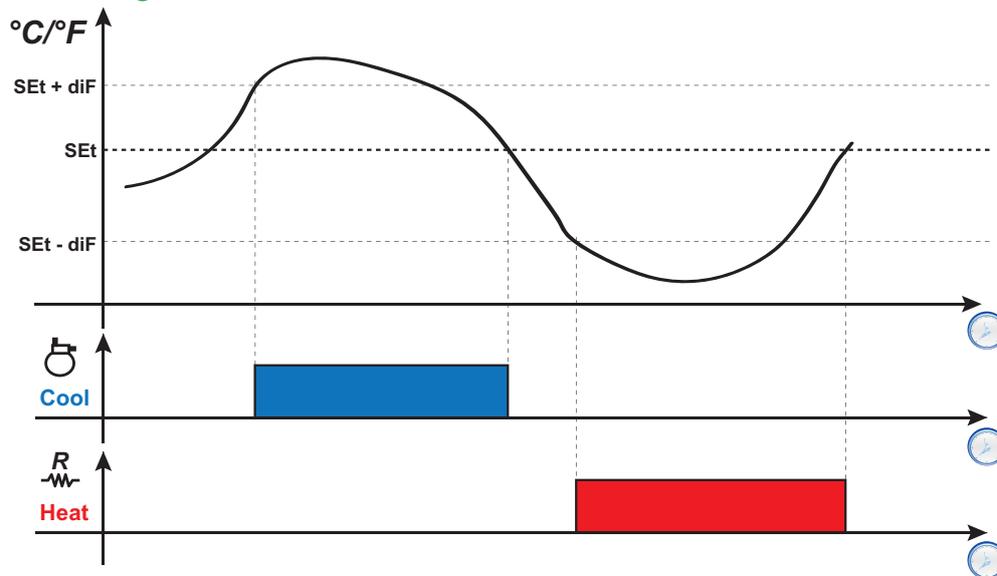
This function should be used when you want the controlled temperature to remain around the value of the setpoint **SEt**. To do so:

- the heating output is activated when the temperature measured by regulation 1 probe drops below the threshold (**SEt-diF**)
- the cooling output is activated when the temperature measured by regulation 1 probe 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
SEt	Regulation setpoint
diF	Regulator activation differential
HC	Heat/cool operation
H21	Digital output Out1 configuration
H22	Digital output Out2 configuration
H23	Digital output Out3 configuration
H24	Digital output Out4 configuration

Night&Day (NaD)

Description

The Night&Day regulator (Energy Saving) can be used to program 2 events.

Functioning conditions

An occurrence can be linked to each of the two events by setting parameters **E10** (Event 1) and **E20** (Event 2):

- **0** = disabled
- **1** = event only active on Mondays
- **2** = event only active on Tuesdays
- **3** = event only active on Wednesdays
- **4** = event only active on Thursdays
- **5** = event only active on Fridays
- **6** = event only active on Saturdays
- **7** = event only active on Sundays
- **8** = event active from Monday to Friday
- **9** = event active from Monday to Saturday
- **10** = event only active on Saturdays and Sundays
- **11** = event active every day

The start and end time can be set for each event:

- **START: E11, E12** (Event 1) and **E21, E22** (Event 2)
- **END: E13, E14** (Event 1) and **E23, E24** (Event 2).

If the event end time follows the start time, the event will end on the same day, otherwise it will start on one day and end the next day.

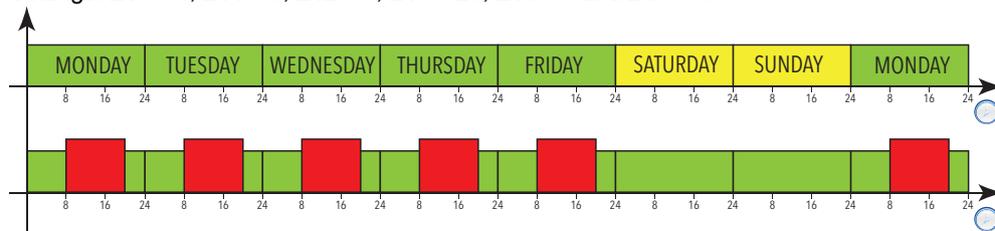
You can set the type of each of the two events using parameters **E15** (Event 1) and **E25** (Event 2):

- **0** = Energy saving
- **1** = AUX deactivated
- **2** = AUX activated
- **3** = Stand-by
- **4** = Light off
- **5** = Light on.

Regulation diagrams

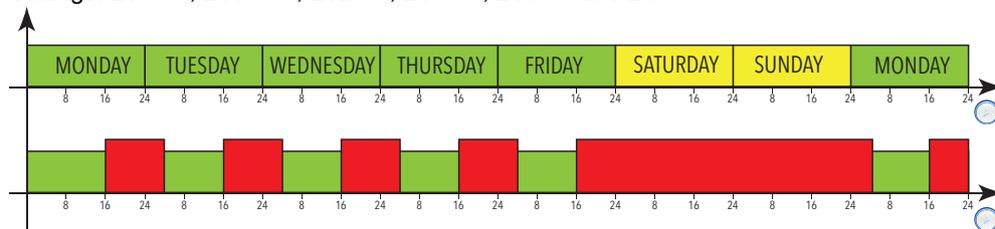
Example 1: The event starts and ends on the same day ($E11/E12 < E13/E14$)

Settings: **E10 = 8; E11 = 8; E12 = 0; E13 = 20; E14 = 0** and **E15 = 4**.



Example 2: The event starts on one day and ends the next day ($E11/E12 > E13/E14$)

Settings: **E10 = 8; E11 = 16; E12 = 0; E13 = 4; E14 = 0** and **E15 = 0**.



Legend: Monday = Monday; Tuesday = Tuesday; Wednesday = Wednesday; Thursday = Thursday; Friday = Friday; Saturday = Saturday; Sunday = Sunday.

Regulation during a blackout

If a blackout occurs during a Night&Day (NaD), then:

- if a **NaD** event was active and the power supply is restored within the same period of activity as the event, the controller will restart with the same status set by the event
- if a **NaD** event was active and the power supply is restored after the end of the same period but before the next event, the controller will restart, ending the event
- if a **NaD** event was active and the power supply is restored not only after the end of the same period but after the start of one of the next events, the controller will restart, setting the status associated with the new event
- external events (key press, activation of a digital input, serial command) always have priority over the status set by the **NaD** event until the next **NaD** event (activation or deactivation). These events are only acknowledged if the power supply is present
- If an external event inverts the status set by the **NaD** event during a status activation, and then there is a blackout and the power supply is restored within the same period, the controller will restart with the status set by the external event. At the end of the **NaD** event, the status of the controller will be restored to its initial condition
- If an external event inverts the status set by the **NaD** event during a status activation, and then there is a blackout and the power supply is restored after the end of the same period but during one of the next events, the controller will restart with the status forced by the external event
- If an external event inverts the status set by a **NaD** event outside a **NaD** event status activation, and then there is a blackout and the power supply is restored with no **NaD** event active, the controller will restart with the status forced by the external event
- If an external event inverts the status set by a **NaD** event outside a **NaD** event status activation, and then there is a blackout and the power supply is restored during a new **NaD** event, the controller will restart with the status requested by the external **NaD** event

Parameters

Parameter	Description
E10	Select Event 1 activation method
E11	Event 1 start hour
E12	Event 1 start minute
E13	Event 1 end hour
E14	Event 1 end minute
E15	Set Event 1 type
E20	Select Event 2 activation method
E21	Event 2 start hour
E22	Event 2 start minute
E23	Event 2 end hour
E24	Event 2 end minute
E25	Set Event 2 type

Night&Day self-learning

PLEASE NOTE: This regulator is mutually exclusive in relation to Energy saving - Reduced set regulator.

Description

The device is equipped with an algorithm capable of observing the store opening times and switching from day mode to night mode automatically. The algorithm uses the door switch input or a presence sensor for its observations.

If **H1x**=±12 (night/day self-learning + door switch), the night & day self-learning follows the same features of the door switch.

The operation of the algorithm is linked to the value of the **SLE** parameter.

- If **SLE** = 0: the algorithm is inactive. The energy-saving function and the wake-up regulator are disabled, and the adjustment always occurs in 'day' mode.
- If **SLE** = 1: the algorithm is active. In the 'Machine Status' menu, two folders will be displayed:
 - **ntd**: folder that shows the time of transition between night and day ('H' = hour, '' = minutes)
 - **dtn**: folder that shows the time of transition between day and night ('H' = hour, '' = minutes)

Depending on **SLP** parameter value, the algorithm works in two different modes:

- **SLP** = 0: daily mode
- **SLP** = 1: weekly mode

NOTE: When setting the parameter **SLP** = 1, restart the device to update the values of **ntd** and **dtn** folders.

The activation of 'night' mode can be:

- **immediate**: with the calculation of the door closing time
- **delayed**: by setting the **tn1** parameter.

If the door is opened during 'night' mode:

- if **tn1**≠0, the device immediately switches to 'day' mode. When the door is closed, after the **tn1** time has elapsed, the device restores 'night' mode.
- if **tn1**=0, the device immediately switches to 'day' mode. When the door is closed, the device remains in 'day' mode until the next transition from 'day' mode to 'night' mode.

The algorithm anticipates 2 controller operating phases:

1. Self-learning phase.
2. Normal operation phase.

1. Self-learning phase

This phase can be activated:

- by pressing and holding a key (configured with **H3x**=10)
- automatically in the event of a blackout that lasts longer than **SLb** days (only if **SLb**≠0)

The duration of this phase can be set using the following parameters:

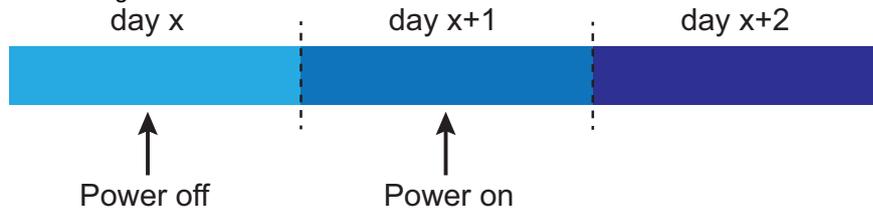
- **SLP**: sets whether the operating mode should be daily (**SLP**=0) or weekly (**SLP**=1)
- **SL1**: sets the duration of self-learning in days when daily mode is set (only if **SLP**=0)
- **SL2**: sets the duration of self-learning in weeks when weekly mode is set (only if **SLP**=1)
- **SLb**: in the event of a lack of power (blackout or extended disconnection from the power supply), sets how many consecutive days will elapse before the self-learning phase is activated.

When the self-learning mode is active:

- during this operating mode, the display will show the temperature value and the label **SL** alternately.
- during the self-learning phase, the energy saving function is disabled (light always on and day setpoint enabled)

Note: The day you start Self-Learning phase is NOT counted, it starts the learning phase the next day (day is from 00:00 to 23:59) respecting **SL1** and **SL2** duration.

Note: If you have 1 day of duration (**SL1**=1) and you start on Monday morning the Self-Learning phase, only the next day is counted as Learning day.

Example (with SLb = 1)**1. Learning mode inactive:****2. Learning mode active:**

The day is stored in EEPROM at RTC weekday changing:

- **day** = (date + 12 * month + 365 * year)

2. Normal operation phase

Once the self-learning period is complete, parameter **SLr** can be used to:

- **SLr=0**: run the operation calculated during self-learning mode
- **SLr=1**: opt for slow self-learning that extends beyond the period set via **SL1** or **SL2**

Light on/off:

- **tA1**: Sets by how much to bring forward light activation when changing from 'night' to 'day'
- **tA2**: Sets by how much to delay light activation when changing from 'day' to 'night'

Operation in Duty Cycle:

- **tn1**: sets by how much to delay the daytime Duty Cycle when changing from 'day' to 'night'
- **tPd**: sets by how much to bring forward the daytime Duty Cycle when changing from 'night' to 'day' (Wake-up period).

Note: When self-learning phase is end and the device starts night and day regulation, during night the temperature regulation is set with parameters **SPn** and **dFn**.

Self-learning Algorithm

Quick self-learning

This is the first self-learning phase and is activated when the controller receives a self-learning command. In this phase the display shows the label **SL**.

Note: The duration of the various phases is expressed in minutes (for example: 8.5 hours is expressed as 510 minutes).

After every day of self-learning the controller:

- Calculates the opening period by comparing it with previous periods and making the necessary corrections, then saves the new value.
- Calculates the closing period by comparing it with previous periods and making the necessary corrections, then saves the new value.

At the end of the self-learning phase, the controller will use the calculated and saved opening / closure values.

For correct operation, make sure there are no active "**E10**" clock alarms.

End self-learning

At the end of the quick self-learning phase, the controller can use the calculated data or, by activating end self-learning, it can carry out a more precise regulation of the calculated data.

In this phase, the applied correction is less than the value used by quick self-learning and can only be worth to ± 15 minutes.

How does SLb parameter works?

SLb parameter sets how many consecutive days of a lack of power-supply will elapse before the self-learning phase is activated.

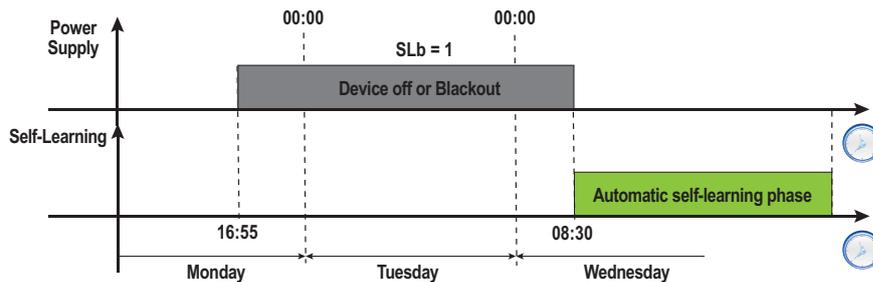
SLb parameter operation is:

- **SLb** = 0: the new self-learning procedure is not carried out and the values calculated during the first self-learning procedure are used.
- **SLb** > 0: the new self-learning procedure is carried out after **SLb** days.

This operating mode is usable for cabinets with a seasonal use which can stay off for long periods.

Below an example shows how automatic self-learning phase starts with **SLb** = 1.

Please note: a day is counted from 00:00 to 23:59 and NOT after 24 hours.



On firmware side, this is achieved with a formula, that every day saves the date value inside the EEPROM of the device (for example 01/04/2025).

After that, if we leave the device off or there is a blackout all Tuesday (02/04/2025) and on Wednesday (03/04/2025) we turn it back on, the device verify the internal RTC and makes the difference between the date previously stored (01/04/2025) and the actual date (03/04/2025).

The difference will be 2, because 2 days are passed and since this value is higher than **SLb** value, the automatic self-learning phase is activated.

Parameters

Parameter	Description
tA1	Bring AUX/Light output activation in Night/Day transition forward
tA2	Delay AUX/Light output activation in Night/Day transition
H11	DI1 digital input/polarity configuration
H12	DI2 digital input/polarity configuration
H13	DI3 digital input/polarity configuration
H14	DI4 digital input/polarity configuration
H15	DI5 digital input/polarity configuration
H16	DI6 digital input/polarity configuration (on TTL port)
H17	DI7 digital input/polarity configuration (EWNNext 1281 SBCY and EWNNext 1385 SBCY only)
H31	△ key configuration.
H32	▽ key configuration.
H33	⏻ key configuration.
H34	⚡ key configuration.
H35	☆ key configuration.
SLE	Enables/disables self-learning.
SLP	Sets the controller self-learning mode
SL1	Self-learning duration in daily mode
SL2	Self-learning duration in weekly mode
SLr	Enables end self-learning
SLb	Duration of the period in the absence of power (blackout)
tn1	Night mode activation delay in Energy saving
tPd	Wake-up phase duration.

Energy saving - Reduced set

PLEASE NOTE: This regulator is mutually exclusive in relation to Night&Day self-learning regulator.

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 Field Bus (configured with **L07** = 1)
- 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: 'Heat/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: Auxiliary/Lights output disabled
- **ESA**=2: Auxiliary/Lights output enabled

Parameters

Parameter	Description
ESA	AUX/Lights status during energy saving.
ESt	Energy Saving mode.
dnt	Night mode duration.
Cdt	Door closure time due to dynamic setpoint activation.
L07	Energy Saving synchronization
H11	DI1 digital input/polarity configuration
H12	DI2 digital input/polarity configuration
H13	DI3 digital input/polarity configuration
H14	DI4 digital input/polarity configuration
H15	DI5 digital input/polarity configuration
H16	DI6 digital input/polarity configuration (on TTL port)
H17	DI7 digital input/polarity configuration (EWNNext 1281 SBCY and EWNNext 1385 SBCY only)
H31	 key configuration.
H32	 key configuration.
H33	 key configuration.
H34	 key configuration.
H35	 key configuration.

Open Bottle coolers

This algorithm can be activated by setting **ES_t**=4 and **H1_x**=±10 (see Wake-up 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.

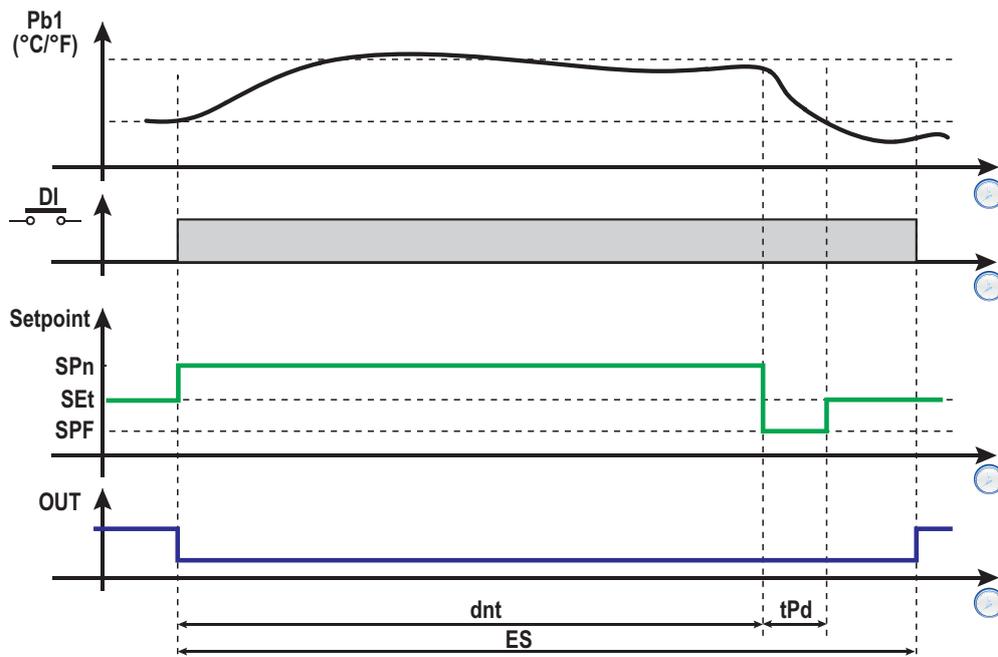
Once the energy saving phase has finished, the rapid cooling phase start for a time period **tPd**.

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.

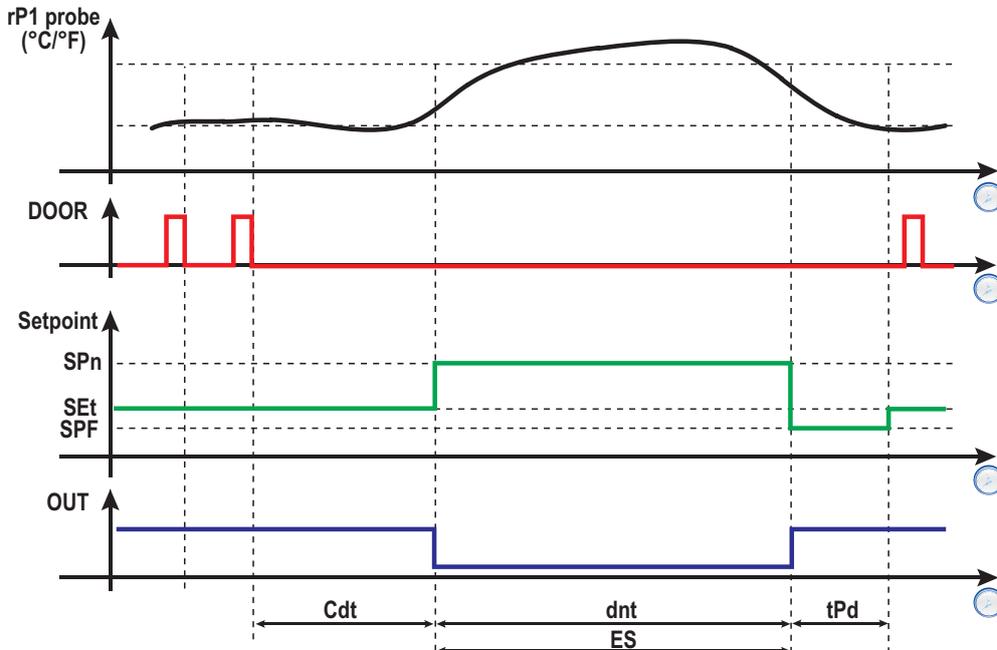
An example of this operation is shown below (in this example **ESA**=1):



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

Bottle cooler with door

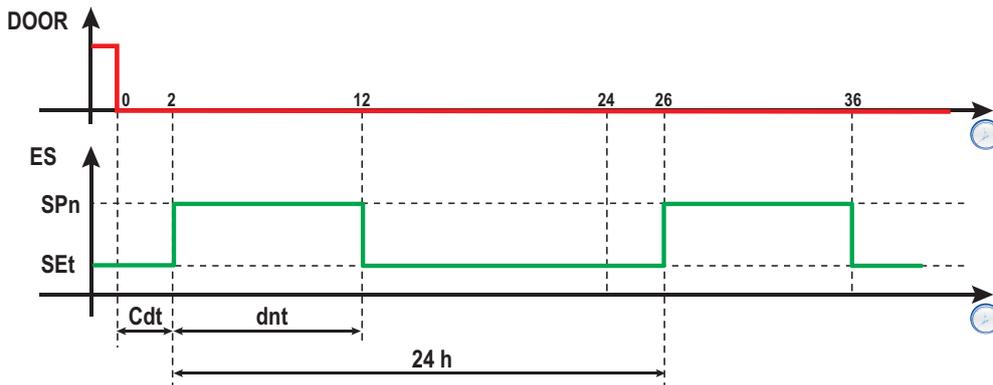
This algorithm can be activated when **ES**t=5 and **H1x**=±11 (See Wake-up regulator), and the bottle cooler with a door exhibits the same features as the door switch, except for the **AuP** parameter, which is replaced by the **ESA** parameter. If the Bottle cooler door remains closed for a period 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 wake-up phase will be started. If **dnt**=0, wake-up regulator 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.

Wake-up (Pull-down)

Description

WAKE-UP DURING SELF-LEARNING

During Night and Day or Self-Learning (SL), the wake-up 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 wake-up type:

- **PdC = diS**: regulator disabled
- **PdC = FI**: wake-up with fixed setpoint
- **PdC = Aut**: automatic wake-up

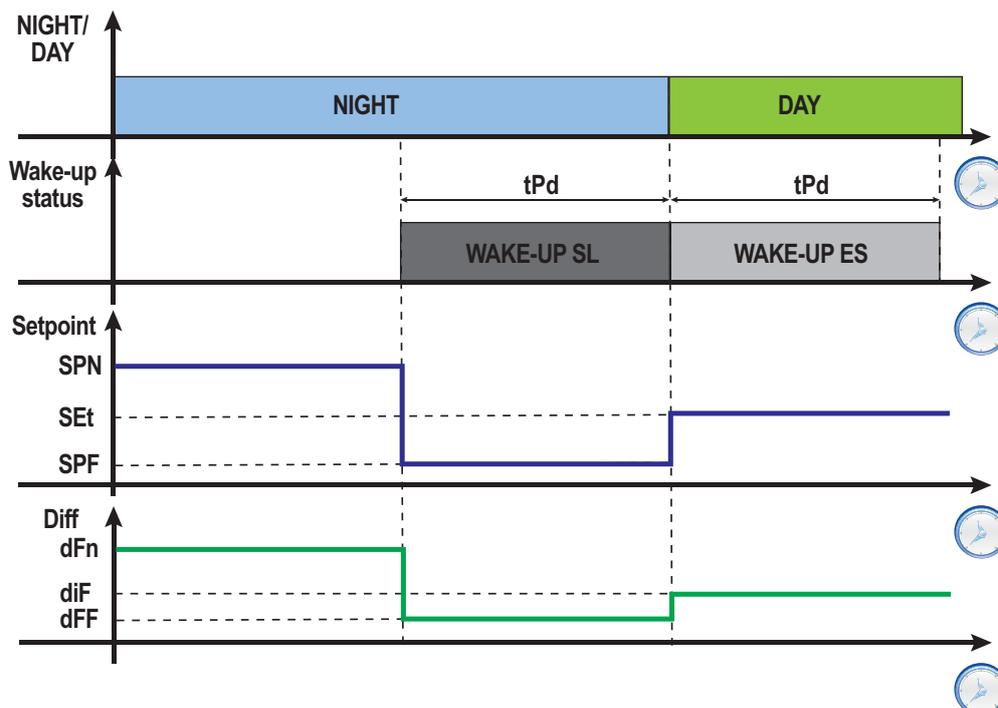
WAKE-UP DURING ENERGY SAVING

During energy saving (ES), the wake-up sequence will start at the end of a 'Night' cycle and work for **tPd** minutes.

Wake-up with fixed setpoint

During a wake-up sequence with fixed setpoint (**PdC = FI**), regulation will use the following values:

- **SPF** = regulation setpoint in wake-up
- **dFF** = regulation differential in wake-up



Legend: NIGHT = Night (Energy saving); DAY = Day; Wake-up status = Wake-up regulator status; WAKE-UP SL = Wake-up regulation during Self-Learning; WAKE-UP ES = Wake-up regulation during Energy saving; Setpoint = Setpoint value; Diff = Differential value;

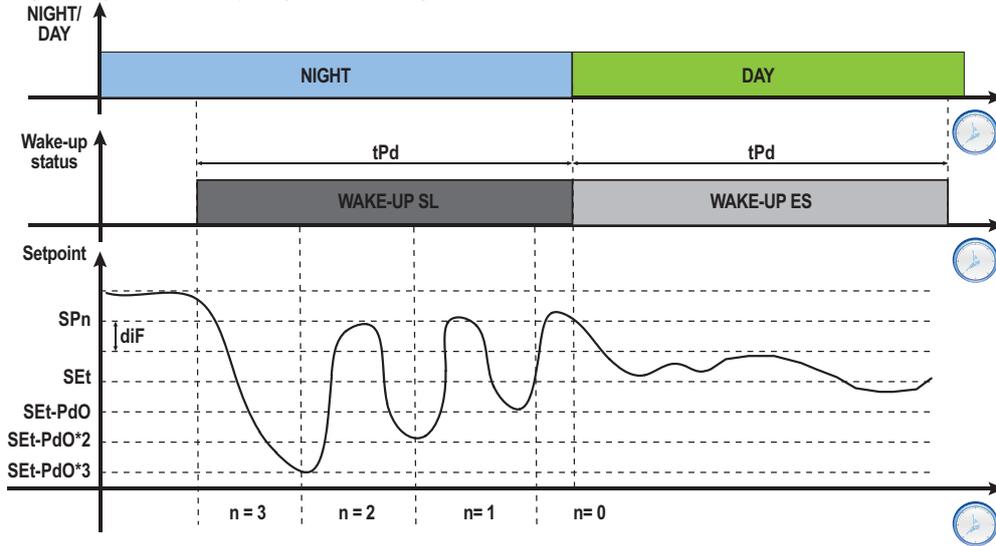
Automatic wake-up

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

- **Setpoint = SEt - Pdo*n**
- **Differential = 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 wake-up sequence.

If wake-up 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; Wake-up status = Wake-up regulator status; WAKE-UP SL = Wake-up regulation during Self-Learning; WAKE-UP ES = Wake-up regulation during Energy saving; Setpoint = Setpoint.

HACCP regulator

Description

This regulator allows the storage and archiving of high and low temperature alarms from the HACCP probe (set with **HCP** parameter), as well as any blackouts experienced by the instrument (minimum HACCP requirements). These data are visible on the display (under the alarm folder '**ALr**').

Normal Behavior

When the temperature value measured by the HACCP probe exits the **SLH...SHH** band (linked to the absolute-relative **Att** parameter) for a time exceeding the **drA** parameter, an HACCP alarm is signaled and displayed in the '**ALr**' folder. Each HACCP alarm creates two folders:

- '**HCn**' = contains the maximum or minimum temperature value reached beyond the band limits
- '**tCn**' = contains the time elapsed with the probe temperature value outside the band (minimum resolution of one minute)

Note: 'n' (from 1 to 8) indicate the number of times the HACCP probe has exited beyond the limits. So there may be up to 8 folders for temperature (**HC1...HC8**) and time (**tC1...tC8**) storage.

In addition to '**HCn**' and '**tCn**' folders, the alarm LED will also come on. By pressing any key, the alarm will be silenced and the alarm LED start flashing to confirm the alarm has been read by the user. Once the probe value returns within the **SLH...SHH** band, the alarm LED will remain in its previous state (steady on or flashing) to signal the event.

The first 8 HACCP alarms are sequentially stored with the appearance of folders **HC1...HC8** and **tC1...tC8**, after which other events will overwrite the previous ones starting from HC1, tC1, and the exceedance of 8 events is signaled by the flashing of the HC8 folder.

To avoid false HACCP alarm signals, the signal is inhibited for the time:

- **dAO** = after a defrost cycle
- **HCT** = after activation/deactivation of Digital Input (depending on the sign of the **H1x** parameter) and/or after pressing a key (**H3x** parameter)

If the alarm is already present upon entering defrost, opening the Digital Input or pressing a key, the storage of the maximum or minimum temperature reached and the time elapsed, continues until the HACCP probe value, returns within the band.

Post blackout behavior

Upon returning from a blackout event (reset), the function creates two folders in the '**ALr**' folder. Depending on the temperature value the content of the two folders is:

A. The value of the HACCP probe is within the band limits **SLH...SHH**

- '**bCn**' = contains the temperature value upon returning from the blackout
- '**btn**' = contains zero value

B. The value of the HACCP probe is outside the band limits **SLH...SHH**

- '**bCn**' = contains the maximum or minimum temperature value reached beyond the band limits
- '**btn**' = contains the time elapsed with the probe temperature value outside the band (minimum resolution of one minute)

Note: 'n' (from 1 to 8) indicate the number of times the HACCP probe has exited beyond the limits. So there may be up to 8 folders for temperature (**bC1...bC8**) and time (**bt1...bt8**) storage.

The first 8 HACCP alarms are sequentially stored with the appearance of folders **bC1...bC8** and **bt1...bt8**, after which other events will overwrite the previous ones starting from bC1, bt1, and the exceedance of 8 events is signaled by the flashing of the bC8 folder.

Reset

The HACCP alarms can be manually reset:

- by using the '**rES**' function (inside the '**FnC**' folder)
- by pressing a key (sets with **H3x** = 12) after a delay of 5 seconds.

Manually reset clears the folders **HC1...HC8**, **tC1...tC8**, **bC1...bC8**, **bt1...bt8**, and resets **drH** value (the counter is reinitialized).

The alarm LED will turn off and stop flashing if no other alarms are present.

If the counter **drH** = 0, from the last reset, all HACCP alarms are automatically cleared.

Parameters

Parameter	Description
HCP	Sets probe used for HACCP alarms.
SHH	Maximum HACCP alarm threshold.
SLH	Minimum HACCP alarm threshold.
drA	Minimum period time in critical area before alarm signalling.
drH	HACCP alarm reset time from last manual reset.
HCE	Enable HACCP alarms storage with/without alarm relay enabling.
HCT	HACCP alarms storage disabling time (key or digital input).
dAo	Temperature alarm exclusion time after defrosting.

Humidity regulator

Description

The humidity function works either with probe (**PbH** ≠ 0) or without probe (**PbH** = 0) selected.

A humidity probe can be set with **PbH** parameter:

PbH	Description
diS (0)	the humidity control works without probes
Pb1 (1)	the humidity control works with probe Pb1
Pb2 (2)	the humidity control works with probe Pb2
Pb3 (3)	the humidity control works with probe Pb3
Pb4 (4)	the humidity control works with probe Pb4
Pbi (5)	the humidity control works with virtual probe
Pbr (6)	the humidity control works with remote probe
PbL (7)	the humidity control works with remote probe (Field Bus)
P1A (8)	probe Pb1 displayed alternate with ddd probe
P2A (9)	probe Pb2 displayed alternate with ddd probe
P3A (10)	probe Pb3 displayed alternate with ddd probe
P4A (11)	probe Pb4 displayed alternate with ddd probe
PIA (12)	virtual probe displayed alternate with ddd probe
PrA (13)	remote probe displayed alternate with ddd probe
PLA (14)	remote probe (Field Bus) displayed alternate with ddd probe

The humidity regulation can be either “active” or “inactive” (relay OFF), depending on **dEH** parameter.

The humidity output is always off in case of an alarm that requires the immediate shutdown of the compressor.

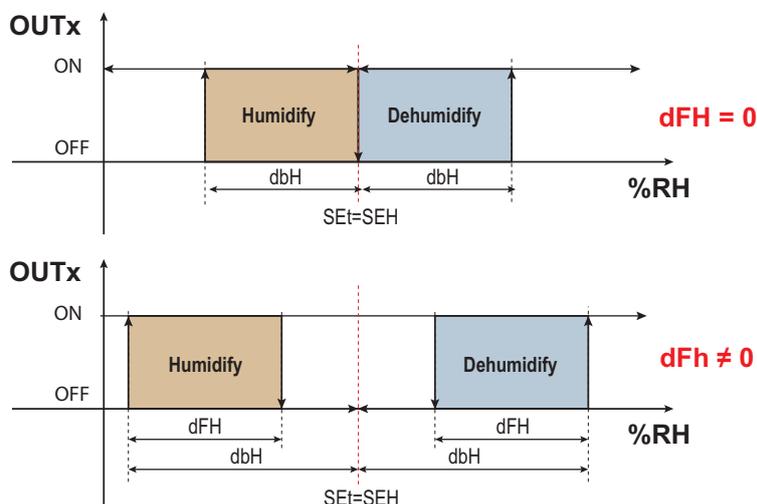
If the humidity probe is in error, both the “humidify” and “de-humidify” outputs work in duty cycle mode, whose ON (**CHn**) and OFF (**CHF**) values. If both outputs are configured (neutral zone), they remain off.

Humidify/Dehumidify with neutral zone

The neutral zone regulation, required that **dFH**, **dbH**, and relay output are properly configured.

Functioning:

- The setpoint is set with **SEH** parameter and the semi-band is set with **dbH** parameter.
- The dehumidify relay is turned ON when the humidity is greater or equal to **SEH+dbH** and is turned OFF when the humidity is lower than **SEH**.
- The humidify relay is turned ON when the humidity is lower or equal to **SEH+dbH** and is turned OFF when the humidity is greater than **SEH**.
- The differential is set with **dFH** parameter. If **dFH** = 0, it is excluded (**dFH** = **dbH**), and deactivation occurs at the **SEH** value.

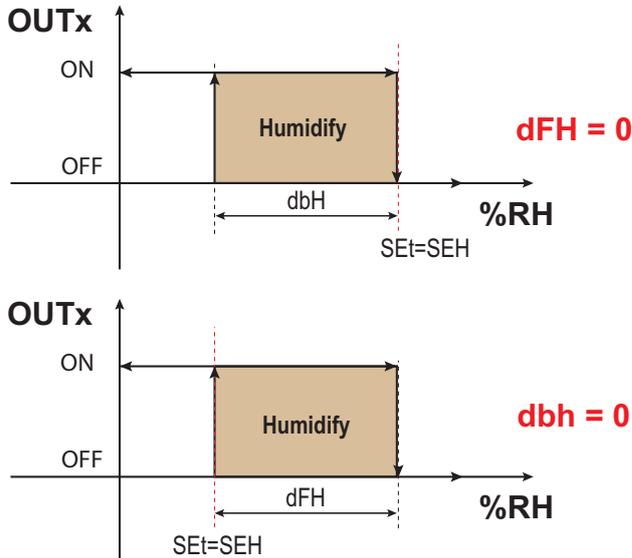


Humidify

This regulation required a dedicated humidify relay

Functioning:

- The setpoint is set with **SEH** parameter and the semi-band is set with **dbH** parameter.
- The humidify relay is turned ON when the humidity is lower or equal to **SEH+dbH** and is turned OFF when the humidity is greater than **SEH**.
- The differential is set with **dfH** parameter. If **dfH = 0**, it is excluded (**dfH = dbH**), and deactivation occurs at the **SEH** value.

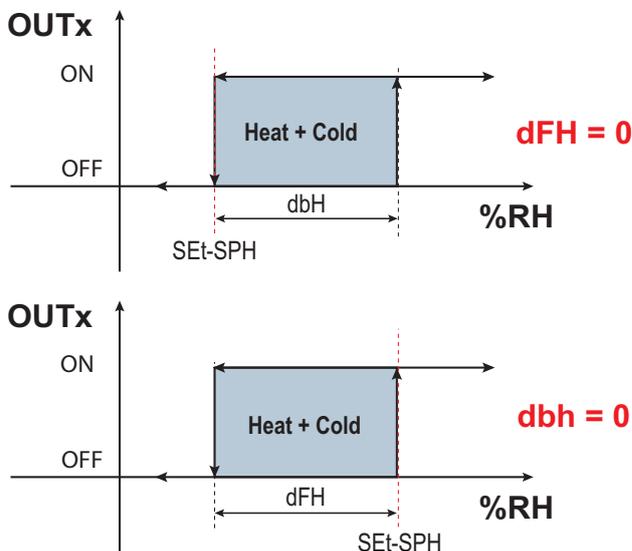


Dehumidify without dehumidify relay (CHC not considered)

This regulation not required a dedicated dehumidify relay: in that case a resistor and the compressor (cooling) should be activated.

Functioning:

- The setpoint is set with **SEH** parameter and the semi-band is set with **dbH** parameter.
- The relay connected to the resistance and the compressor are turned ON when the humidity is greater or equal than **SEH + dbH** and they are turned OFF when lower than **SEH**.
- The differential is set with **dfH** parameter. If **dfH = 0**, it is excluded (**dfH = dbH**), and deactivation occurs at the **SEH** value.
- If a simultaneous request for dehumidify and cooling is incoming, cooling takes priority: when the setpoint (**SEH**) is reached, the heating output will be also activated.
- If a simultaneous request for heating (**HC = H**) and dehumidify is incoming, dehumidify takes priority, so both relay for heating and cooling will be active until **SEH** is reached and then only the heating output stay active.

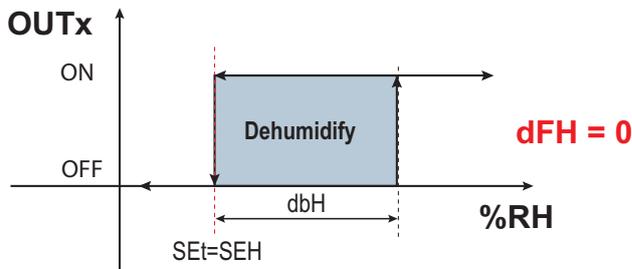


Dehumidify with dehumidify relay (H2x = 17)

This regulation required a dedicated dehumidify relay (**CHC** = 0).

Functioning:

- The setpoint is set with **SEH** parameter and the semi-band is set with **dbH** parameter.
- The humidify relay is turned ON when the humidity is greater or equal to **SEH+dbH** and it is turned OFF when the humidity is lower than **SEH**.
- The differential is set with **dfH** parameter. If **dfH** = 0, it is excluded (**dfH** = **dbH**), and deactivation occurs at the **SEH** value.

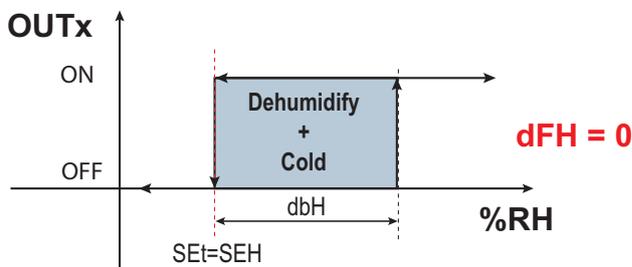


Dehumidify with dehumidify relay (H2x = 17) and cooling relay

This regulation required different dehumidify and cooling relays (**CHC** = 1).

Functioning:

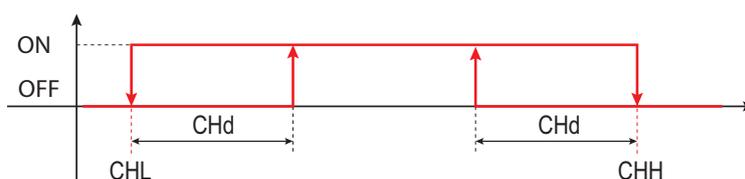
- The setpoint is set with **SEH** parameter and the semi-band is set with **dbH** parameter.
- Both dehumidify and cooling relays are turned ON when the humidity is greater or equal to **SEH+dbH** and they are turned OFF when the humidity is lower than **SEH**.
- The differential is set with **dfH** parameter. If **dfH** = 0, it is excluded (**dfH** = **dbH**), and deactivation occurs at the **SEH** value.
- When a simultaneous request for dehumidify and cooling is incoming, cooling takes priority: when the set point is reached, the dehumidify output will be also activated.



Humidity control and Temperature

This regulator use **CHL**, **CHH** and **CHd** parameters to define a work temperature range. Humidity-Temperature control type can be set with **CHt** parameter:

CHt	Description
0	no temperature control
1	control minimum temperature
2	control maximum temperature
3	control both minimum and maximum temperature



Humidity control with evaporator fan (PbH = 0):

This regulator is enabled with:

- Compressor OFF
- **FCO** = 0 or 4: considering OFF state with compressor OFF
- **FCO** = 5: if the evaporator fan is not configured
- **HUL** greater than '0'

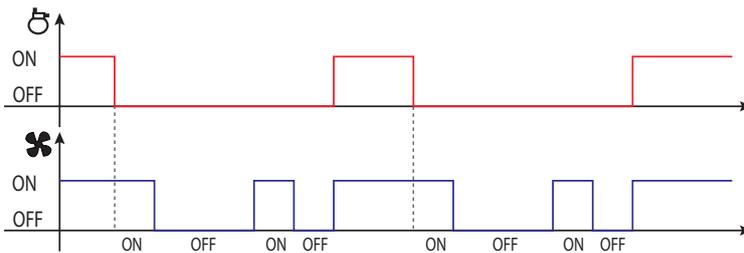
Only the fan is considered, not the humidify relays.

The regulator works in duty cycle mode if the compressor is OFF and **FCO** have to considers the fan OFF.

Note: The modulation always starts ON.

The humidity level can be set with **HUL** parameter:

HUL	Description
0	disabled
1	humidity level '1'. With this setting, the duty cycle of the evaporator fans, use the following values: <ul style="list-style-type: none"> • HU1 = ON time about humidity level '1' • HU2 = OFF time about humidity level '1'
2	humidity level '2'. With this setting, the duty cycle of the evaporator fans, use the following values: <ul style="list-style-type: none"> • HU3 = ON time about humidity level '2' • HU4 = OFF time about humidity level '2'
3	humidity level '3'. With this setting, the duty cycle of the evaporator fans, use the following values: <ul style="list-style-type: none"> • HU5 = ON time about humidity level '3' • HU6 = OFF time about humidity level '3'



Parameters

Parameter	Description
PbH	Humidity probe selection.
SEH	Humidity setpoint.
dfH	Humidity differential.
dbH	Humidity intervention semi-band.
dEH	Humidity regulation during defrost.
CHC	Dehumidification control type.
CHt	Humidity/Temperature control mode.
CHL	Minimum temperature value to enable humidity control.
CHH	Maximum temperature value to enable humidity control.
CHd	Humidity control differential enable.
CHn	“On time” Humidify/De-Humidify.
CHF	“Off time” Humidify/De-Humidify.
FCo	Evaporator fan operating mode.
HUL	Humidity level selection.
HU1	Evaporator fans “on time” for humidity level 1.
HU2	Evaporator fans “off time” for humidity level 1.
HU3	Evaporator fans “on time” for humidity level 2.
HU4	Evaporator fans “off time” for humidity level 2.
HU5	Evaporator fans “on time” for humidity level 3.
HU6	Evaporator fans “off time” for humidity level 3.

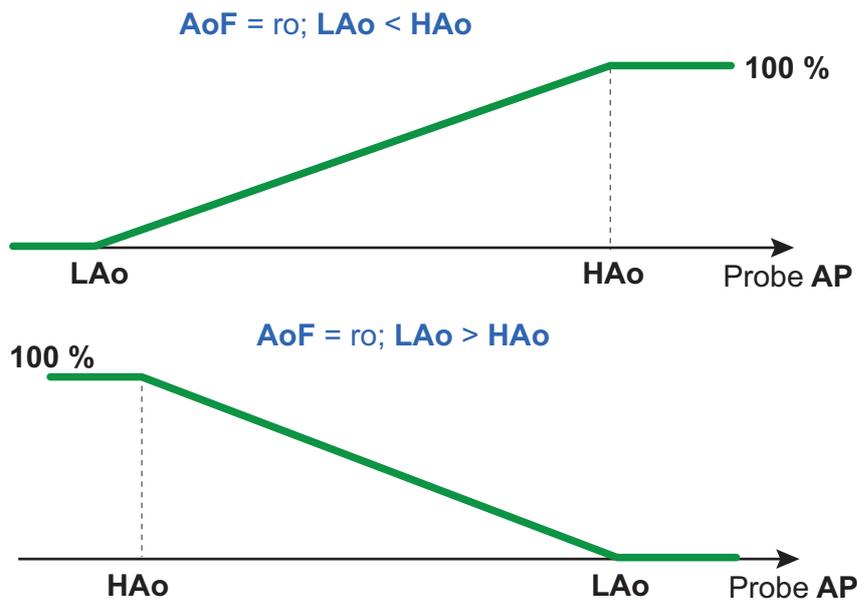
General analog output (solo EWNNext 1385 SBCIL)

Description

The general analog output function, selected with parameters **01n** and **02n**, can be associated to a probe setting with parameter **AP**.

AoF	Description
ro (0)	Output proportional to probe reading, within the range set by parameters LAo and HAo
Er (1)	Output proportional to error between setpoint 1 and the value read on the probe, within the range set by parameters LAo and HAo

Regulation diagrams



Parameters

Parameter	Description
AP	Sets probe used for Analogue output.
AoF	Analogue output mode.
LAo	Analog output lower limit.
HAo	Analog output upper limit.
AoS	Probe error value.
01n	Analogue output 1 configurability (Output 0...10 V).
02n	Analogue output 2 configurability (Output OC).

Zero-Crossing

Description

Zero-crossing control mode is intended to extend the **Out1** relay life time when used to switch resistive and motor loads.

Due to their electromechanical nature, relays are affected by aging and environmental conditions, furthermore certain inductive loads like contactors and iron-core transformers are not suitable to be driven in zero-crossing mode.

For those reasons you are invited to check when this feature fits with your specific application before enabling it.

NOTICE

REDUCTION OF RELAY ENDURANCE

- Do not enable zero-crossing to control inductive loads such as contactors and iron-core transformers.
- Use same mains phase to supply both load and controller.

Failure to follow these instructions can result in equipment damage.

Activation

The zero-crossing activation is managed by parameter **ZCE**:

- **no** (0) : Zero-Crossing is disabled (default)
- **yES** (1) : Zero-Crossing is enabled.

NOTE: The **ZCE** value can be changed only on models **EWNNext 1385 SBCY** and **EWNNext 1385 SBCIL**.

Parameters

Parameter	Description
ZCE	It enables/disables zero-crossing feature.

Diagnostics

Contents

This section includes the following topics:

Alarms and indications	158
Minimum and maximum temperature alarm	161
Low refrigerant alarm	164

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	Reset	Buzzer and alarm relay	Cause	Effects	Solutions
E1	Probe Pb1 in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Probe or corresponding wiring in short-circuit or open circuit 	<ul style="list-style-type: none"> E1 shown Steady alarm icon  	<ul style="list-style-type: none"> Verify the probe type (P01) Verify the probe wiring Replace probe.
E2	Probe Pb2 in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Probe or corresponding wiring in short-circuit or open circuit 	<ul style="list-style-type: none"> E2 shown Steady alarm icon  	<ul style="list-style-type: none"> Verify the probe type (P02) Verify the probe wiring Replace probe.
E3	Probe Pb3 in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Probe or corresponding wiring in short-circuit or open circuit 	<ul style="list-style-type: none"> E3 shown Steady alarm icon  	<ul style="list-style-type: none"> Verify the probe type (P03) Verify the probe wiring Replace probe.
E4	Probe Pb4 in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Probe or corresponding wiring in short-circuit or open circuit 	<ul style="list-style-type: none"> E4 shown Steady alarm icon  	<ul style="list-style-type: none"> Verify the probe type (P04) Verify the probe wiring Replace probe.
Ei	Virtual probe in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Individual physical probes in error 	<ul style="list-style-type: none"> Ei shown Steady alarm icon  	Verify settings and behaviour of individual physical probes
Er	Remote probe in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Supervisor not sending correct virtual probe value 	<ul style="list-style-type: none"> Er shown Steady alarm icon  	Verify supervisor system
EL	Remote probe (Field Bus) in error	Automatic	Active	<ul style="list-style-type: none"> Reading of values outside the operating interval Wrong probe value from Field Bus connected devices and/or wrong Field Bus communication 	<ul style="list-style-type: none"> EL shown Steady alarm icon  	<ul style="list-style-type: none"> Verify Field Bus connected devices probes behavior and sharing configurations Verify Field Bus devices wiring
LnA	Generic alarm from network	Automatic	Active	<ul style="list-style-type: none"> Devices connected to the Field Bus not properly working or configured Not proper or properly working Field Bus wiring 	<ul style="list-style-type: none"> LnA shown Steady alarm icon  	<ul style="list-style-type: none"> Verify Field Bus connected devices behavior and configurations Verify Field Bus devices wiring
AH1	High temperature alarm 1	Automatic	Active	Value read by probe selected with rA1 > HAL for longer than time tAo (see section " Minimum and maximum temperature alarm " on page 161)	<ul style="list-style-type: none"> Alarm AH1 added to folder AL No effect on regulation 	Wait for the temperature read by the probe selected with rA1 to drop below the alarm threshold (HAL-AFd)

Code	Description	Reset	Buzzer and alarm relay	Cause	Effects	Solutions
AL1	Low temperature alarm 1	Automatic	Active	Value read by probe selected with rA1 < LAL for longer than time tAo (see section "Minimum and maximum temperature alarm" on page 161)	<ul style="list-style-type: none"> Alarm AL1 added to folder AL No effect on regulation 	Wait for the temperature read by the probe selected with rA1 to rise above the alarm threshold (LAL+AFd)
EA	External alarm	Automatic	Active	Activation of the digital input (H1x = ±5)	<ul style="list-style-type: none"> Alarm EA added to folder AL Steady alarm icon  Regulation inhibited, on the basis of parameter EAL 	Verify and remove the external cause that caused the alarm on the digital input.
oPd	Open door alarm	Automatic	Active	Digital input activation for a time greater than tDo (H1x = ±4).	<ul style="list-style-type: none"> Alarm oPd added to folder AL Steady alarm icon  Regulator inhibited, on the basis of parameter dod 	<ul style="list-style-type: none"> Close the door Increase the value of parameter oAo
Ad2	Defrost due to timeout	Automatic	Not active	End of defrost due to timeout, instead of the defrost end temperature being reached.	<ul style="list-style-type: none"> Alarm Ad2 added to folder AL Steady alarm icon  	Wait for the next defrost for automatic deactivation.
CoH	Compressor Overheating alarm	Automatic	Active	Value set by parameter SA3 exceeded	<ul style="list-style-type: none"> Alarm COH added to folder AL Steady alarm icon  Compressor regulation inhibited 	Wait for the temperature read by alarm probe selected by rA3 to drop below the alarm threshold (SA3-dA3)
E10	Clock alarm	Automatic	Not active	Clock alarm or battery low	<ul style="list-style-type: none"> Alarm E10 added to folder AL Communication with the RTC is not present 	Set the correct time. If the error persists, replace the instrument (RTC battery low)
ELi	No-Link alarm	Automatic	Active	No-Link alarm. The alarm is triggered when communication on either Field Bus Primary or Secondaries is absent.	<ul style="list-style-type: none"> Alarm ELi added to folder AL Steady alarm icon  	Restore communication between Primary and Secondaries.
rFA	Low refrigerant alarm	Automatic	Not active	Even with the compressor on, the temperature trend does not fall within the interval set by rFt .	<ul style="list-style-type: none"> 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	Automatic	Not active	Pressure switch alarm activation caused by the external pressure switch.	<p>If the number n of pressure switch activations is lower than PEn:</p> <ul style="list-style-type: none"> 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)

Code	Description	Reset	Buzzer and alarm relay	Cause	Effects	Solutions
PAL	Pressure switch alarm	Manual	Active	Pressure switch alarm activation caused by the external pressure switch.	<p>If the number n of pressure switch activations is n = PE_n in a time period < PE_i:</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Switch the controller off and on again • Select rAP (manual reset) in the functions folder to reset the alarms.
HC n	Max/Min HCP probe value when out of range (SLH...SHH)	Manual	Not active	Logs the Max/Min value recorded by HCP probe when it exceeds the range SLH...SHH. n represents the sequential number of times the range is exceeded	<ul style="list-style-type: none"> • Alarm HC n added to the folder AL • Steady alarm icon  • No effect on regulation 	<p>Note: n can assume the values 1 to 8. If n > 8, folder HC8 will flash and the system will overwrite folders where n=1.</p>
tC n	HCP probe out of range dwell time (SLH...SHH)	Manual	Not active	Stores the dwell time of the HCP probe value outside of the range SLH...SHH. n represents the sequential number of times the range is exceeded.	<ul style="list-style-type: none"> • Alarm tC n added to the folder AL • Steady alarm icon  • No effect on regulation 	<p>Note: n can assume the values 1 to 8. If n > 8, folder tC8 will flash and the system will overwrite folders where n=1.</p>
bC n	Value recorded by HCP probe on return from blackout	Manual	Not active	Logs the value recorded by HCP probe on return from a blackout. n represents the sequential number of blackouts that have occurred.	<ul style="list-style-type: none"> • Alarm bC n added to the folder AL • No effect on regulation 	<p>Note: n can assume the values 1 to 8. If n > 8, folder bC8 will flash and the system will overwrite folders where n=1.</p>
bt n	HCP probe out of range dwell time during blackout	Manual	Not active	Stores the out-of-range dwell time of the HCP probe value during a blackout. n represents the sequential number of blackouts that have occurred.	<ul style="list-style-type: none"> • Alarm bt n added to the folder AL • No effect on regulation 	<p>Note: n can assume the values 1 to 8. If n > 8, folder bt8 will flash and the system will overwrite folders where n=1.</p>

Note: to delete folders “**HC n**”, “**tC n**”, “**bC n**” and “**bt n**” from folder AL, start function **rES** in folder FnC.

Minimum and maximum temperature alarm

Description

The alarms operate according to the temperature read by thermostat 1 probe (see **rA1**). The accepted temperature interval limits are set using parameters **HAL** and **LAL**.

Alarm codes

Code	Description
AH1	High temperature 1 alarm
AL1	Low temperature 1 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.

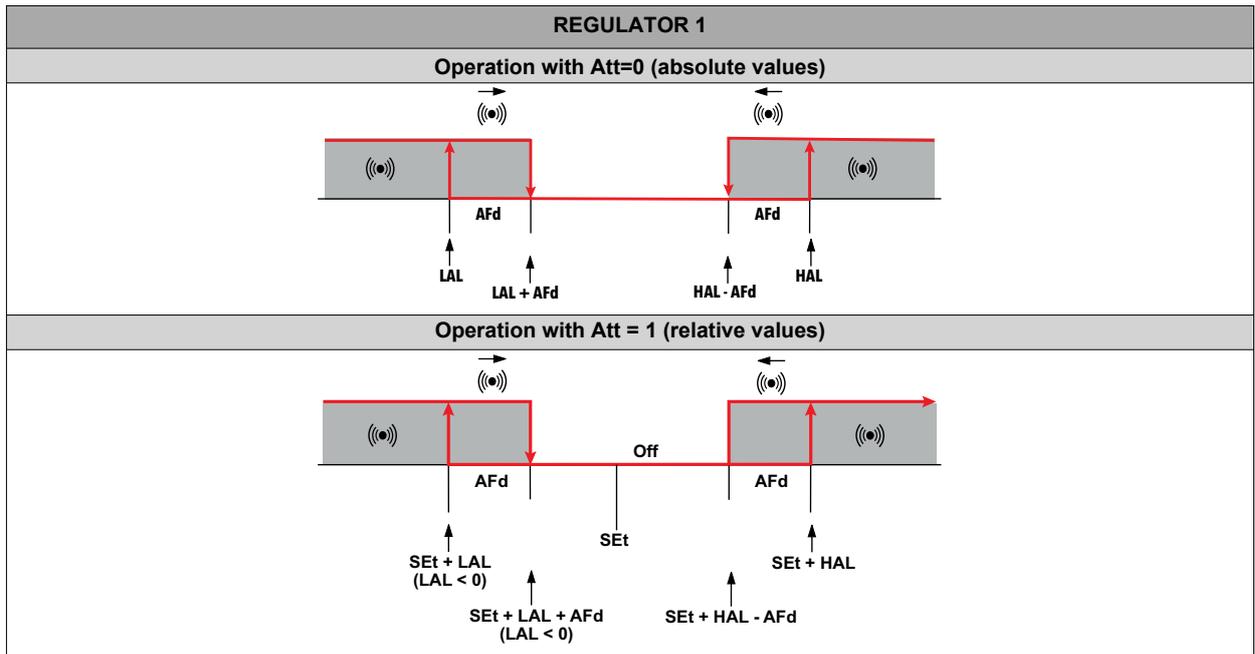
Alarm conditions

Att value	Temperature read by Regulator 1 probe	Alarm generated
0	$\geq \text{HAL}$	Maximum temperature
	$\leq \text{LAL}$	Minimum temperature
1	$\geq (\text{SEt} + \text{HAL})$	Maximum temperature
	$\leq (\text{SEt} + \text{LAL})$	Minimum temperature

Conditions for alarm deactivation

Att value	Temperature read by Regulator 1 probe	Alarm generated
0	$\leq (\text{HAL} - \text{AFd})$	Maximum temperature
	$\geq (\text{LAL} + \text{AFd})$	Minimum temperature
1	$\leq (\text{SEt} + \text{HAL} - \text{AFd})$	Maximum temperature
	$\geq (\text{SEt} + \text{LAL} + \text{AFd})$	Minimum temperature

Operating diagrams



Parameters

Parameter	Description
Att	Expression mode for HAL and LAL values (absolute or relative)
AFd	Alarm activation differential
HAL	Maximum temperature 1 limit
LAL	Minimum temperature 1 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.

If 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.

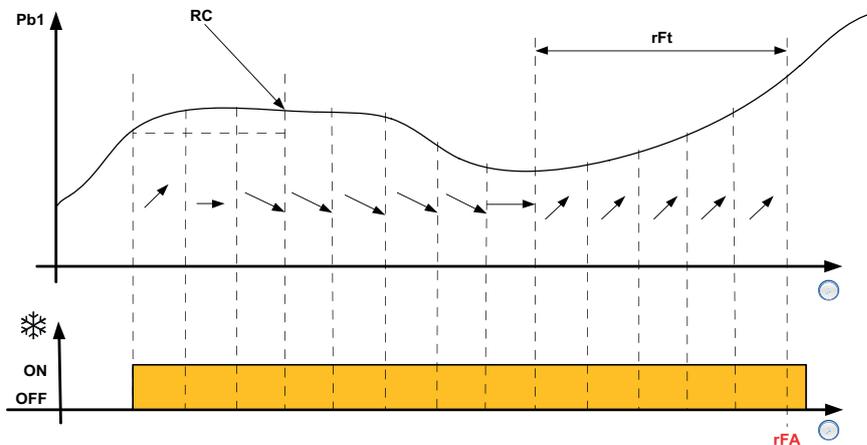
Once this alarm has been detected, the device have to be switched off and on again to cancel it.

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 EWNNext 1000

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Parameters EWNNext 1281 SBCY

⚠ WARNING							
HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE							
Do not set any parameter not having the full understanding of its behavior in general and in relation to the specific application (1).							
Failure to follow these instructions can result in death, serious injury, or equipment damage.							

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

User parameters EWNNext 1281 SBCY

PAR	Description	Range	MU	Value	AP1	AP2	AP3
SEt	Regulation setpoint 1 with range between the minimum setpoint LSE and the maximum setpoint HSE . The setpoint 1 value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	0.0	-18.0
diF	Compressor relay activation differential 1; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SP1+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
dtY	Type of defrost. <ul style="list-style-type: none"> 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 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dt	Dripping time.	0...250	min	0	0	0	0
HAL	High temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Low temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9... HAL	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time on probe 1.	0...250	min	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> 0 = display the temperature read by the selected probe 1 = stop the reading of the value read by the selected probe at the start of defrosting until the setpoint is reached (or until the expiration of Ldd) 2 = displays label dEF during defrost until the setpoint is reached. 	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value after defrost (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

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.

Note: the "User" menu parameters also include **PA2**, which allows access to the "Installer" menu.

Note: for the full list of parameters, see the section "**Installer parameters**".

Installer parameters EWNNext 1281 SBCY

PAR	Description	Range	MU	Value	AP1	AP2	AP3
CP (Compressor)							
rP1	Sets the probe used by regulator 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb1	Pb1	Pb1	Pb1
SEt	Regulation 1 setpoint. The value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	0.0	-18.0
diF	Regulation 1 differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SEt+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
HC	The regulator 1 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
ont	Regulator switch-on time for probe in error: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> if Oft = 1 and Ont = 0 compressor always off if Oft = 1 and Ont > 0 compressor in duty cycle 	0...250	min	0	0	0	0
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	10	10	10	10
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
rP3	Sets the probe used by regulator 3. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
HC3	The regulator 3 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
SP3	Regulation setpoint 3. The setpoint 3 value is set in the "Machine status" menu.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
dF3	Compressor relay activation differential 3; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 3) and restarts at a temperature value equal to SP3+dF3 .	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dEF (Defrost)							
dP1	Sets the probe used by defrost 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	Pb2	Pb2
dP2	Sets the probe used by defrost 2. Same as dP1 .	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
dtY	Type of defrost. <ul style="list-style-type: none"> 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
dt2	Unit of measure for defrost duration (dEt parameter). <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	1	1	1	1
dEt	Defrost 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dPo	Defrost activation request at power-on. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	no	no	no	no
tCd	Minimum period of time with the compressor ON or OFF before defrost is activated.	-127...127	min	0	0	0	0
Cod	Time with the compressor OFF before defrost is activated.	0...250	min	0	0	0	0
dMr	Enables the defrost count reset in the case of manual defrosting. <ul style="list-style-type: none"> 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	see d01	0	0	0	0
d01	d00 unit of measure. <ul style="list-style-type: none"> 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	see d11	24	24	24	24
d11	dit unit of measure. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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
d30	Defrost by compressor continuously on.	0...255	see d31	0	0	0	0
d31	d30 unit of measure. <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d40	Sets the probe used by defrost 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	flag	diS	diS	diS	diS
d41	Sets the defrost 1 activation threshold	-199.9...1999	°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...255	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> AbS (0) = absolute value (for example: d41 = -25°C means that the threshold temperature is exactly -25°C) rEL (1) = relative value (negative offset d41, compared to defrost temperature probe recorded at the end of the first cooling cycle) AdP (2) = Adaptive defrost : absolute referred to d45 or relative threshold (negative offset d41, compared to the temperature of defrost probe d40 at the end of first thermostation cycle). 	AbS/rEL/AdP	flag	AbS	AbS	AbS	AbS
d45	Sets the Evaporator 2 defrost activation threshold.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
d50	Sets the probe used by defrost 1. ('differential' mode). <ul style="list-style-type: none"> 0 (0) = disabled Pb2 (1) = enabled. Defrost runs according to the value read by defrost 1 probe (only refers to defrost with threshold) 	0/Pb2	flag	0	0	0	0
d51	Sets the probe used by defrost 2. <ul style="list-style-type: none"> 0 (0) = disabled Pb1 (1) = enabled. Defrost runs according to the value read by defrost 2 probe (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...1999	°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
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value d52 . <ul style="list-style-type: none"> 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d55	Sets the threshold management mode. <ul style="list-style-type: none"> 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
d60	Maximum number of defrost to skip. 0 = disabled.	0...10	num	0	0	0	0
d61	Nominal defrost duration percentage 1.	0...100.0	%RH	0.0	0.0	0.0	0.0
d63	Number of defrost cycles at start-up for system ramp-up (without incrementing the counter).	0...10	num	0	0	0	0
d90	Sets the defrost mode with RTC. <ul style="list-style-type: none"> 0 = RTC disabled 1 = Reserved 2 = RTC at fixed intervals (d91) 3 = Regular RTC (d94) 	0...3	num	0	0	0	0
d91	Sets the number of daily defrosts (only if d90 =2)	0...255	num	0	0	0	0
d92	Sets the first weekend/holiday day. <ul style="list-style-type: none"> 0 = Sunday 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Disabled 	0...7	num	7	7	7	7
d93	Sets the second weekend/holiday day. Same as d92 .	0...7	num	7	7	7	7
d94	Sets the duration of the regular defrost in days (only if d90 =3).	1...7	num	1	1	1	1
d1H	1st weekday defrost start hour. <ul style="list-style-type: none"> 0...23 = start hour 24 = disabled 	0...24	hours	24 (not in applications)			
d1n	1st weekday defrost start minutes.	0...59	min	0 (not in applications)			
d2H	2nd weekday defrost start hour. <ul style="list-style-type: none"> d1H...23 = start hour 24 = disabled 	d1H...24	hours	24 (not in applications)			
d2n	2nd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d3H	3rd weekday defrost start hour. <ul style="list-style-type: none"> d2H...23 = start hour 24 = disabled 	d2H...24	hours	24 (not in applications)			
d3n	3rd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d4H	4th weekday defrost start hour. <ul style="list-style-type: none"> d3H...23 = start hour 24 = disabled 	d3H...24	hours	24 (not in applications)			
d4n	4th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d5H	5th weekday defrost start hour. <ul style="list-style-type: none"> d4H...23 = start hour 24 = disabled 	d4H...24	hours	24 (not in applications)			
d5n	5th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d6H	6th weekday defrost start hour. <ul style="list-style-type: none"> d5H...23 = start hour 24 = disabled 	d5H...24	hours	24 (not in applications)			
d6n	6th weekday defrost start minutes.	0...59	min	0 (not in applications)			
F1H	1st weekend/holiday defrost start hour. <ul style="list-style-type: none"> 0...23 = start hour 24 = disabled 	0...24	hours	24 (not in applications)			
F1n	1st weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			

PAR	Description	Range	MU	Value	AP1	AP2	AP3
F2H	2nd weekend/holiday defrost start hour. <ul style="list-style-type: none"> F1H...23 = start hour 24 = disabled 	F1H...24	hours	24 (not in applications)			
F2n	2nd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F3H	3rd weekend/holiday defrost start hour. <ul style="list-style-type: none"> F2H...23 = start hour 24 = disabled 	F2H...24	hours	24 (not in applications)			
F3n	3rd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F4H	4th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F3H...23 = start hour 24 = disabled 	F3H...24	hours	24 (not in applications)			
F4n	4th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F5H	5th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F4H...23 = start hour 24 = disabled 	F4H...24	hours	24 (not in applications)			
F5n	5th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F6H	6th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F5H...23 = start hour 24 = disabled 	F5H...24	hours	24 (not in applications)			
F6n	6th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
FAn (Fans)							
FP1	Sets the probe used by the evaporator fans during normal operation. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	Pb2	Pb2
FPt	Parameter Fst management mode. <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature. If the value read is greater than FSt , the fans will be stopped. The value is positive or negative (only if FP1 ≠diS).	-199.9...1999	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature (only if FP1 ≠dis).	-199.9...1999	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan activation differential (only if FP1 ≠dis).	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Evaporator fan activation delay after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Evaporator fan operating mode during a defrost. <ul style="list-style-type: none"> no(0) = Fans not excluded (see FCO, Fon, FoF, Fnn, FnF) yES(1) = Exclude fan during defrost 	no/yES	flag	yES	yES	yES	yES

PAR	Description	Range	MU	Value	AP1	AP2	AP3																																																																																																																										
FCo	Evaporator fan operating mode.	0...6	num	5	5	5	5																																																																																																																										
	<table border="1"> <thead> <tr> <th rowspan="2">FP1 Status</th> <th rowspan="2">FP1 probe</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> </thead> <tbody> <tr> <td rowspan="7">ok</td> <td rowspan="7">#diS</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>DC</td> <td>T</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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">#diS</td> <td>0</td> <td>DC</td> <td>Off</td> <td>DC</td> <td>Off</td> </tr> <tr> <td>1</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>2</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td rowspan="7">no</td> <td rowspan="7">diS</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>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>2</td> <td>On</td> <td>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> </tbody> </table>							FP1 Status	FP1 probe	FCo	day		night		Cn	Cf	Cn	Cf	ok	#diS	0	T	Off	T	Off	1	T	T	T	T	2	T	DC	T	DC	3	DC	DC	DC	DC	4	T	Off	T	Off	5	T	T	T	T	6	T	T	T	T	ko	#diS	0	DC	Off	DC	Off	1	DC	DC	DC	DC	2	DC	DC	DC	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC	no	diS	0	On	Off	On	Off	1	On	DC	On	DC	2	On	DC	On	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC
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FP1 Status = probe FP1 status (ok = present; ko = in error and no = absent); FP1 probe = evaporator 1 probe (see FP1); day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.																																																																																																																																	
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T = thermostat controlled fans; On = fans on; Off = fans off; dC = Duty cycle.																																																																																																																																	
FdC	Evaporator fan shutoff delay after compressor deactivation.	0...250	min	1	1	1	1																																																																																																																										
FOn	Fans on time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
FOF	Fans off time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	6	6	6	6																																																																																																																										
Fnn	Fans on time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	1	1	1	1																																																																																																																										
FnF	Fans off time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
ESF	Activates night mode (energy saving) for the fans. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if ES1≠0 and ES2≠4). 	no/yES	flag	no	no	no	no																																																																																																																										

PAR	Description	Range	MU	Value	AP1	AP2	AP3
FC1	Sets the probe used by the condenser fans. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SCF	Condenser fan enabling setpoint.	-50.0...150.0	°C/°F	0.0	0.0	0.0	0.0
dCF	Condenser fan enabling differential.	0.0...30.0	°C/°F	0.0	0.0	0.0	0.0
tCF	Condenser fan enabling delay after defrost.	0...255	min	0	0	0	0
CFd	Condenser fans disabling during defrost. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if Est≠0 and Est≠4). 	no/yES	flag	no	no	no	no
HuL	Humidity level selection. <ul style="list-style-type: none"> 0 = disabled 1 = humidity level '1' 2 = humidity level '2' 3 = humidity level '3'. 	0...3	num	0	0	0	0
Hu1	Evaporator fans "on time" for humidity level 1.	0...250	min	0	0	0	0
Hu2	Evaporator fans "off time" for humidity level 1.	0...250	min	0	0	0	0
Hu3	Evaporator fans "on time" for humidity level 2.	0...250	min	0	0	0	0
Hu4	Evaporator fans "off time" for humidity level 2.	0...250	min	0	0	0	0
Hu5	Evaporator fans "on time" for humidity level 3.	0...250	min	0	0	0	0
Hu6	Evaporator fans "off time" for humidity level 3.	0...250	min	0	0	0	0
AL (Alarms)							
rA1	Sets probe 1 used for temperature alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb1	Pb1	Pb1	Pb1
Att	Sets the absolute or relative value for parameters HAL and LAL . <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
AFd	Alarm differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
HAL	Maximum temperature alarm probe 1 (only if rA1 ≠diS). Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL ...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm probe 1 (only if rA1 ≠diS). Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9... 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...250	min	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 on probe 1.	0...250	min	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dAt	Defrost ended due to timeout alarm indication. <ul style="list-style-type: none"> no(0) = alarm not activated yES(1) = alarm activated. 	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. <ul style="list-style-type: none"> 0 = does not inhibit the regulators 1 = lock compressor and defrost 2 = lock fans, compressor and defrost 3 = reserved 4 = reserved 	0...4	num	0	0	0	0
AoP	Alarm output polarity. <ul style="list-style-type: none"> nC (0) = NC (Normally closed) nO (1) = NO (Normally open). 	nC/nO	flag	nO	nO	nO	nO
rA3	Sets probe used for temperature alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb3	Pb3	Pb3	Pb3
SA3	Compressor overheating setpoint.	LdL...HdL	°C/°F	50.0	50.0	50.0	50.0
dA3	Compressor overheating 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)			
HAC (HACCP)							
HCP	Sets probe used for HACCP alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SHH	Maximum HACCP alarm threshold.	SLH...1999	°C/°F	50.0	50.0	50.0	50.0
SLH	Minimum HACCP alarm threshold.	-199.9...SHH	°C/°F	-50.0	-50.0	-50.0	-50.0
drA	Minimum period time in critical area before alarm signalling.	0...250	min	10	10	10	10
drH	HACCP alarm reset time from last manual reset.	0...250	min	10	10	10	10
HCE	Enable HACCP alarms storage with/without alarm relay enabling. <ul style="list-style-type: none"> 0 = HACCP alarms storage NOT enabled 1 = HACCP alarms storage enabled and alarm relay NOT enabled 2 = HACCP alarms storage enabled and alarm relay enabled 	0/1/2	num	0	0	0	0
Hct	HACCP alarms storage disabling time (key or digital input).	0...250	min	0	0	0	0
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. <ul style="list-style-type: none"> 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
tA1	Time AUX/Lights activation brought forward before a night/day transition.	0...250	min	0	0	0	0
tA2	AUX/Lights activation delay time after a day/night transition.	0...250	min	0	0	0	0
dOr (Door switch)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dOd	Digital input shuts off utilities.	0...10	num	1	1	1	1
	dod dCo Fan Compressor						
	0 --- ON ON						
	1 --- OFF ON						
	2 0 ON OFF						
	2 > 0 ON OFF after dCo is expired						
	3 0 OFF OFF						
	3 > 0 OFF OFF after dCo is expired						
	4 Reserved						
	5 Reserved						
	6 Reserved						
7 Reserved							
8 Reserved							
9 Reserved							
10 Reserved							
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
dFo	Fan enabling delay from acknowledgment.	0...250	min	0	0	0	0
AuP	Auxiliary (AUX) output activation when the door is opened. <ul style="list-style-type: none"> no(0) = disabled yES(1) = AUX output activation 	no/yES	flag	yES	yES	yES	yES
tn1	Night mode activation delay in Energy saving.	0...250	min	0	0	0	0
dCd	Fans enabling 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...255	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode setpoint.	-199.9...1999	°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 1 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
ESt	Energy Saving mode. <ul style="list-style-type: none"> 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	60	60	60	60
PLd (Wake-up - Pull Down)							
PdC	Enable wake-up (Pull-down). <ul style="list-style-type: none"> diS (0) = disabled Std (1) = with fixed setpoint AUt (2) = automatic 	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Wake-up phase duration.	0...250	min	30	30	30	30
SPF	Regulation setpoint during the wake-up phase.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dFF	Regulation offset during the wake-up phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic wake-up.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic wake-up.	1...10	num	3	3	3	3
Add (Communication)							
Ad1	On Board Address 1 (RS485).	1...247	num	1 (not in applications)			
br1	On Board baudrate 1 (RS485). <ul style="list-style-type: none"> • 96 (0) = 9600 baud • 192 (1) = 19200 baud • 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt1	On Board parity bit 1 (RS485). <ul style="list-style-type: none"> • n(0) = none • E(1) = even • o(2) = odd. 	n/E/o	num	E (not in applications)			
Ad3	On Board Address 3 (TTL).	1...247	num	1 (not in applications)			
br3	On Board baudrate 3 (TTL). <ul style="list-style-type: none"> • 96 (0) = 9600 baud • 192 (1) = 19200 baud • 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt3	On Board parity bit 3 (TTL). <ul style="list-style-type: none"> • n(0) = none • E(1) = even • o(2) = odd. 	n/E/o	num	E (not in applications)			
ECP	Selection of serial port for ECHO. <ul style="list-style-type: none"> • 0 = reserved • 1 = reserved • 2 = TTL 	0/1/2	num	2	2	2	2
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. <ul style="list-style-type: none"> • 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
CA4	Positive or negative temperature value to be added to the value of Pb4.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CAi	Activation of the calibration value. <ul style="list-style-type: none"> • 0 = Adds the value to the temperature value displayed • 1 = Adds the value to the temperature used by the regulators and not to the one displayed • 2 = Adds the value to the temperature used by the regulators and to the temperature displayed. 	0/1/2	num	2	2	2	2
LdL	Minimum value that can be displayed by the device.	-199.9... HdL	°C/°F	-67.0	-67.0	-67.0	-67.0
HdL	Maximum value that can be displayed by the device.	LdL ...1999	°C/°F	302	302	302	302
LoC	Keypad lock. <ul style="list-style-type: none"> • 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
ddd	Selects the type of value to show on the display. <ul style="list-style-type: none"> 0 = setpoint 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe 5 = virtual probe 6 = remote probe 7 = reserved 	0...7	num	1	1	1	1
ddE	Selects the type of value to show on the module ECNext . <ul style="list-style-type: none"> 0 = Module not connected 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe 5 = Setpoint 6 = virtual probe 7 = remote probe 8 = reserved 	0...8	num	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> 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 after defrost (label dEF).	0...250	min	30	30	30	30
ndt	Display with decimal point. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. <ul style="list-style-type: none"> 0 = disabled 1 = the filter is set based on time values tAu and StAu, 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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
H13	<p>Configuration of digital input 3 (DI3) / polarity.</p> <ul style="list-style-type: none"> • 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 = night/day self-learning + door switch • ±13 = reserved • ±14 = load application AP1 and AP2 • ±15 = reserved • ±16 = HACCP alarms disable <p>Notes:</p> <ul style="list-style-type: none"> • 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. 	-16...+16	num	0	0	0	0
H14	Configuration of digital input 4 (DI4) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H15	Configuration of digital input 5 (DI5) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H16	Configuration of digital input 6 (DI6) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H17	<p>Configuration of digital input 7 (DI7) / polarity.</p> <ul style="list-style-type: none"> • 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 = night/day self-learning + door switch • ±13 = synchro defrost request • ±14 = load application AP1 and AP2 • ±15 = reserved • ±16 = HACCP alarms disable <p>Notes:</p> <ul style="list-style-type: none"> • 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. 	-16...+16	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
H21	Configuration of digital output 1 (Out1). <ul style="list-style-type: none"> 0 = disabled 1 = compressor 1 2 = defrost 1 3 = evaporator fans 4 = alarm 5 = auxiliary 6 = stand-by 7 = light 8 = buzzer 9 = compressor 2 10 = defrost 2 11 = fans 2 (condenser fans inversion function) 12 = heater dead band control 13 = fans 3 (condenser fans function) 14 = condenser fans with probe 15 = independent on/off regulator 16 = humidify 17 = de-humidify 18 = de-humidify with resistor 19 = reserved 20 = reserved 	0...20	num	1	1	1	1
H22	Configuration of digital output 2 (Out2). Same as H21.	0...20	num	2	2	2	2
H23	Configuration of digital output 3 (Out3). Same as H21.	0...20	num	5	5	5	5
H24	Configuration of digital output 4 (Out4). Same as H21.	0...20	num	3	3	3	3
H25	Enables/disables the buzzer. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled. 	no/yES	flag	yES	yES	yES	yES
H31	Configuration of Δ key. <ul style="list-style-type: none"> 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 = self-learning 11 = HACCP disabled 12 = HACCP reset 	0...12	num	1	1	1	1
H32	Configuration of ∇ key. <ul style="list-style-type: none"> 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 = self-learning 11 = HACCP disabled 12 = HACCP reset 13 = summer/winter 	0...13	num	0	0	0	0
H33	Configuration of \odot key. Same as H31.	0...12	num	4	4	4	4
H34	Configuration of \otimes key. Same as H31.	0...12	num	0	0	0	0
H35	Configuration of \star key. Same as H31.	0...12	num	2	2	2	2
P02	Probe Pb2 present. <ul style="list-style-type: none"> diS (0) = disable ntC (2) = NTC 	diS/ntC	num	ntC	ntC	ntC	ntC

PAR	Description	Range	MU	Value	AP1	AP2	AP3
P03	Probe Pb3 present. <ul style="list-style-type: none"> diS (0) = disable diG (1) = digital input ntC (2) = NTC 	diS/diG/ntC	num	ntC	ntC	ntC	ntC
P04	Probe Pb4 present. Same as P03 .	diS/diG/ntC	num	diS	diS	diS	diS
H45	Defrost input mode for applications with dual evaporator. <ul style="list-style-type: none"> 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 4 = end of defrost using two probes. 	0...4	num	0	0	0	0
H48	RTC (Real Time Clock) present. <ul style="list-style-type: none"> no (0) = no RTC yES (1) = RTC present. 	no/yES	flag	yES	yES	yES	yES
H60	Display selected application. <ul style="list-style-type: none"> 0 = disabled 1 = AP1 2 = AP2 3 = AP3. 	0...3	num	1 (not in applications)			
H70	1st probe to use as a virtual probe. <ul style="list-style-type: none"> 0 = disabled 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe. 	0...4	num	0	0	0	0
H71	2nd probe to use as a virtual probe. Same as H70 .	0...4	num	0	0	0	0
H72	% calculation used by the virtual probe for daytime.	0.0...100.0	num	0	0	0	0
H73	% calculation used by the virtual probe for night-time (Energy Saving mode).	0.0...100.0	num	0	0	0	0
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.	/	/	/	/	/	/
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.	/	/	/	/	/	/
FnC (Functions)							
oSP	Reduced set activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> SP = the reduced set is not active oSP = the reduced set is active 	/	/	/	/	/	/
dEF	Activate defrost	/	/	/	/	/	/
AUX	AUX output activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> AoF = Deactivates the AUX output Aon = Activates the AUX output 	/	/	/	/	/	/
rAP	Reset pressure switch alarms	/	/	/	/	/	/
rES	Reset HACCP alarms	/	/	/	/	/	/
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/	/	/	/
nAd (Night and Day)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
E10	Event 1 activation mode. <ul style="list-style-type: none"> • 0 = disabled; • 1 = Monday; • 2 = Tuesday; • 3 = Wednesday; • 4 = Thursday; • 5 = Friday; • 6 = Saturday; • 7 = Sunday; • 8 = Monday to Friday; • 9 = Monday to Saturday; • 10 = Saturday and Sunday; • 11 = every day. 	0...11	num	0 (not in applications)			
E11	Event 1 start hour.	0...23	hours	0 (not in applications)			
E12	Event 1 start minute.	0...59	min	0 (not in applications)			
E13	Event 1 end hour.	0...23	hours	0 (not in applications)			
E14	Event 1 end minute.	0...59	min	0 (not in applications)			
E15	Event 1 type. <ul style="list-style-type: none"> • 0 = Energy Saving; • 1 = AUX not active; • 2 = AUX active; • 3 = Stand-by; • 4 = Light on; • 5 = Light off. 	0...5	num	0 (not in applications)			
E20	Event 2 activation mode. Same as E10 .	0...11	num	0 (not in applications)			
E21	Event 2 start hour.	0...23	hours	0 (not in applications)			
E22	Event 2 start minute.	0...59	min	0 (not in applications)			
E23	Event 2 end hour.	0...23	hours	0 (not in applications)			
E24	Event 2 end minute.	0...59	min	0 (not in applications)			
E25	Event 2 type. Same as E15 .	0...5	num	0 (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	-199.9...1999	°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. <ul style="list-style-type: none"> • diS(0) = disabled • Std(1) = manual • Aut(2) = automatic 	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	LdL...HdL	°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"	LdL...HdL	°C/°F	12.0	12.0	12.0	12.0
toS	"Deep Cooling Cycle" activation time	0...250	min	5	5	5	5
SL (Self-learning cycle)							
SLP	Sets the controller self-learning mode. <ul style="list-style-type: none"> • 0 = daily • 1 = weekly. 	0/1	flag	0	0	0	0
SL1	Self-learning duration in daily mode.	1...30	days	1	1	1	1
SL2	Self-learning duration in weekly mode.	2...30	num	2	2	2	2
SLr	Enables self-learning after the initial self-learning period. <ul style="list-style-type: none"> • no(0) = no • yES(1) = yes. 	no/yES	flag	no	no	no	no

PAR	Description	Range	MU	Value	AP1	AP2	AP3
SLb	Duration of the period in the absence of power (blackout), after which self-learning is activated automatically once the power is restored.	0...250	days	0	0	0	0
SLE	Enables/disables self-learning. <ul style="list-style-type: none"> • no (0) = enabled • yES (1) = disabled 	no/yES	flag	no	no	no	no

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 EWNNext 1385 SBCY

⚠ WARNING							
HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE							
Do not set any parameter not having the full understanding of its behavior in general and in relation to the specific application ⁽¹⁾ .							
Failure to follow these instructions can result in death, serious injury, or equipment damage.							

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

User parameters EWNNext 1385 SBCY

PAR	Description	Range	MU	Value	AP1	AP2	AP3
SEt	Regulation setpoint 1 with range between the minimum setpoint LSE and the maximum setpoint HSE . The setpoint 1 value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	0.0	-18.0
diF	Compressor relay activation differential 1; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SP1+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
dtY	Type of defrost. <ul style="list-style-type: none"> 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 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dt	Dripping time.	0...250	min	0	0	0	0
HAL	High temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Low temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9... HAL	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time on probe 1.	0...250	min	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> 0 = display the temperature read by the selected probe 1 = stop the reading of the value read by the selected probe at the start of defrosting until the setpoint is reached (or until the expiration of Ldd) 2 = displays label dEF during defrost until the setpoint is reached. 	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value after defrost (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

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.

Note: the "User" menu parameters also include **PA2**, which allows access to the "Installer" menu.

Note: for the full list of parameters, see the section "**Installer parameters**".

Installer parameters EWNNext 1385 SBCY

PAR	Description	Range	MU	Value	AP1	AP2	AP3
CP (Compressor)							
rP1	Sets the probe used by regulator 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb1	Pb1	Pb1	Pb1
SEt	Regulation 1 setpoint. The value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	0.0	-18.0
diF	Regulation 1 differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SEt+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
HC	The regulator 1 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
ont	Regulator switch-on time for probe in error: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> if Oft = 1 and Ont = 0 compressor always off if Oft = 1 and Ont > 0 compressor in duty cycle 	0...250	min	0	0	0	0
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	10	10	10	10
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
rP3	Sets the probe used by regulator 3. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
HC3	The regulator 3 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
SP3	Regulation setpoint 3. The setpoint 3 value is set in the "Machine status" menu.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
dF3	Compressor relay activation differential 3; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 3) and restarts at a temperature value equal to SP3+dF3 .	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dEF (Defrost)							
dP1	Sets the probe used by defrost 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	Pb2	Pb2
dP2	Sets the probe used by defrost 2. Same as dP1 .	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
dtY	Type of defrost. <ul style="list-style-type: none"> 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
dt2	Unit of measure for defrost duration (dEt parameter). <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	1	1	1	1
dEt	Defrost 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dPo	Defrost activation request at power-on. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	no	no	no	no
tCd	Minimum period of time with the compressor ON or OFF before defrost is activated.	-127...127	min	0	0	0	0
Cod	Time with the compressor OFF before defrost is activated.	0...250	min	0	0	0	0
dMr	Enables the defrost count reset in the case of manual defrosting. <ul style="list-style-type: none"> 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	see d01	0	0	0	0
d01	d00 unit of measure. <ul style="list-style-type: none"> 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	see d11	24	24	24	24
d11	dit unit of measure. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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
d30	Defrost by compressor continuously on.	0...255	see d31	0	0	0	0
d31	d30 unit of measure. <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d40	Sets the probe used by defrost 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	flag	diS	diS	diS	diS
d41	Sets the defrost 1 activation threshold	-199.9...1999	°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...255	min	0	0	0	0
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> AbS (0) = absolute value (for example: d41 = -25°C means that the threshold temperature is exactly -25°C) rEL (1) = relative value (negative offset d41, compared to defrost temperature probe recorded at the end of the first cooling cycle) AdP (2) = Adaptive defrost : absolute referred to d45 or relative threshold (negative offset d41, compared to the temperature of defrost probe d40 at the end of first thermostation cycle). 	AbS/rEL/AdP	flag	AbS	AbS	AbS	AbS
d45	Sets the Evaporator 2 defrost activation threshold.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
d50	Sets the probe used by defrost 1. ('differential' mode). <ul style="list-style-type: none"> 0 (0) = disabled Pb2 (1) = enabled. Defrost runs according to the value read by defrost 1 probe (only refers to defrost with threshold) 	0/Pb2	flag	0	0	0	0
d51	Sets the probe used by defrost 2. <ul style="list-style-type: none"> 0 (0) = disabled Pb1 (1) = enabled. Defrost runs according to the value read by defrost 2 probe (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...1999	°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
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value d52 . <ul style="list-style-type: none"> 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d55	Sets the threshold management mode. <ul style="list-style-type: none"> 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
d60	Maximum number of defrost to skip. 0 = disabled.	0...10	num	0	0	0	0
d61	Nominal defrost duration percentage 1.	0...100.0	%RH	0.0	0.0	0.0	0.0
d63	Number of defrost cycles at start-up for system ramp-up (without incrementing the counter).	0...10	num	0	0	0	0
d90	Sets the defrost mode with RTC. <ul style="list-style-type: none"> 0 = RTC disabled 1 = Reserved 2 = RTC at fixed intervals (d91) 3 = Regular RTC (d94) 	0...3	num	0	0	0	0
d91	Sets the number of daily defrosts (only if d90 =2)	0...255	num	0	0	0	0
d92	Sets the first weekend/holiday day. <ul style="list-style-type: none"> 0 = Sunday 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Disabled 	0...7	num	7	7	7	7
d93	Sets the second weekend/holiday day. Same as d92 .	0...7	num	7	7	7	7
d94	Sets the duration of the regular defrost in days (only if d90 =3).	1...7	num	1	1	1	1
d1H	1st weekday defrost start hour. <ul style="list-style-type: none"> 0...23 = start hour 24 = disabled 	0...24	hours	24 (not in applications)			
d1n	1st weekday defrost start minutes.	0...59	min	0 (not in applications)			
d2H	2nd weekday defrost start hour. <ul style="list-style-type: none"> d1H...23 = start hour 24 = disabled 	d1H...24	hours	24 (not in applications)			
d2n	2nd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d3H	3rd weekday defrost start hour. <ul style="list-style-type: none"> d2H...23 = start hour 24 = disabled 	d2H...24	hours	24 (not in applications)			
d3n	3rd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d4H	4th weekday defrost start hour. <ul style="list-style-type: none"> d3H...23 = start hour 24 = disabled 	d3H...24	hours	24 (not in applications)			
d4n	4th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d5H	5th weekday defrost start hour. <ul style="list-style-type: none"> d4H...23 = start hour 24 = disabled 	d4H...24	hours	24 (not in applications)			
d5n	5th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d6H	6th weekday defrost start hour. <ul style="list-style-type: none"> d5H...23 = start hour 24 = disabled 	d5H...24	hours	24 (not in applications)			
d6n	6th weekday defrost start minutes.	0...59	min	0 (not in applications)			
F1H	1st weekend/holiday defrost start hour. <ul style="list-style-type: none"> 0...23 = start hour 24 = disabled 	0...24	hours	24 (not in applications)			
F1n	1st weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			

PAR	Description	Range	MU	Value	AP1	AP2	AP3
F2H	2nd weekend/holiday defrost start hour. <ul style="list-style-type: none"> F1H...23 = start hour 24 = disabled 	F1H...24	hours	24 (not in applications)			
F2n	2nd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F3H	3rd weekend/holiday defrost start hour. <ul style="list-style-type: none"> F2H...23 = start hour 24 = disabled 	F2H...24	hours	24 (not in applications)			
F3n	3rd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F4H	4th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F3H...23 = start hour 24 = disabled 	F3H...24	hours	24 (not in applications)			
F4n	4th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F5H	5th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F4H...23 = start hour 24 = disabled 	F4H...24	hours	24 (not in applications)			
F5n	5th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F6H	6th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F5H...23 = start hour 24 = disabled 	F5H...24	hours	24 (not in applications)			
F6n	6th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
FAn (Fans)							
FP1	Sets the probe used by the evaporator fans during normal operation. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	Pb2	Pb2
FPt	Parameter Fst management mode. <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature. If the value read is greater than FSt , the fans will be stopped. The value is positive or negative (only if FP1 ≠diS).	-199.9...1999	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature (only if FP1 ≠dis).	-199.9...1999	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan activation differential (only if FP1 ≠dis).	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Evaporator fan activation delay after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Evaporator fan operating mode during a defrost. <ul style="list-style-type: none"> no(0) = Fans not excluded (see FCO, Fon, FoF, Fnn, FnF) yES(1) = Exclude fan during defrost 	no/yES	flag	yES	yES	yES	yES

PAR	Description	Range	MU	Value	AP1	AP2	AP3																																																																																																																										
FCo	Evaporator fan operating mode.	0...6	num	5	5	5	5																																																																																																																										
	<table border="1"> <thead> <tr> <th rowspan="2">FP1 Status</th> <th rowspan="2">FP1 probe</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> </thead> <tbody> <tr> <td rowspan="7">ok</td> <td rowspan="7">#diS</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>DC</td> <td>T</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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">#diS</td> <td>0</td> <td>DC</td> <td>Off</td> <td>DC</td> <td>Off</td> </tr> <tr> <td>1</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>2</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td rowspan="7">no</td> <td rowspan="7">diS</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>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>2</td> <td>On</td> <td>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> </tbody> </table>							FP1 Status	FP1 probe	FCo	day		night		Cn	Cf	Cn	Cf	ok	#diS	0	T	Off	T	Off	1	T	T	T	T	2	T	DC	T	DC	3	DC	DC	DC	DC	4	T	Off	T	Off	5	T	T	T	T	6	T	T	T	T	ko	#diS	0	DC	Off	DC	Off	1	DC	DC	DC	DC	2	DC	DC	DC	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC	no	diS	0	On	Off	On	Off	1	On	DC	On	DC	2	On	DC	On	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC
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T = thermostat controlled fans; On = fans on; Off = fans off; dC = Duty cycle.																																																																																																																																	
FdC	Evaporator fan shutoff delay after compressor deactivation.	0...250	min	1	1	1	1																																																																																																																										
FOn	Fans on time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
FOF	Fans off time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	6	6	6	6																																																																																																																										
Fnn	Fans on time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	1	1	1	1																																																																																																																										
FnF	Fans off time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
ESF	Activates night mode (energy saving) for the fans. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if Est#0 and Est#4). 	no/yES	flag	no	no	no	no																																																																																																																										

PAR	Description	Range	MU	Value	AP1	AP2	AP3
FC1	Sets the probe used by the condenser fans. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SCF	Condenser fan enabling setpoint.	-50.0...150.0	°C/°F	0.0	0.0	0.0	0.0
dCF	Condenser fan enabling differential.	0.0...30.0	°C/°F	0.0	0.0	0.0	0.0
tCF	Condenser fan enabling delay after defrost.	0...255	min	0	0	0	0
CFd	Condenser fans disabling during defrost. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if Est≠0 and Est≠4). 	no/yES	flag	no	no	no	no
HuL	Humidity level selection. <ul style="list-style-type: none"> 0 = disabled 1 = humidity level '1' 2 = humidity level '2' 3 = humidity level '3'. 	0...3	num	0	0	0	0
Hu1	Evaporator fans "on time" for humidity level 1.	0...250	min	0	0	0	0
Hu2	Evaporator fans "off time" for humidity level 1.	0...250	min	0	0	0	0
Hu3	Evaporator fans "on time" for humidity level 2.	0...250	min	0	0	0	0
Hu4	Evaporator fans "off time" for humidity level 2.	0...250	min	0	0	0	0
Hu5	Evaporator fans "on time" for humidity level 3.	0...250	min	0	0	0	0
Hu6	Evaporator fans "off time" for humidity level 3.	0...250	min	0	0	0	0
AL (Alarms)							
rA1	Sets probe 1 used for temperature alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb1	Pb1	Pb1	Pb1
Att	Sets the absolute or relative value for parameters HAL and LAL . <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
AFd	Alarm differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
HAL	Maximum temperature alarm probe 1 (only if rA1 ≠diS). Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL ...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm probe 1 (only if rA1 ≠diS). Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9... 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...250	min	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 on probe 1.	0...250	min	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dAt	Defrost ended due to timeout alarm indication. <ul style="list-style-type: none"> no(0) = alarm not activated yES(1) = alarm activated. 	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. <ul style="list-style-type: none"> 0 = does not inhibit the regulators 1 = lock compressor and defrost 2 = lock fans, compressor and defrost 3 = reserved 4 = reserved 	0...4	num	0	0	0	0
AoP	Alarm output polarity. <ul style="list-style-type: none"> nC (0) = NC (Normally closed) nO (1) = NO (Normally open). 	nC/nO	flag	nO	nO	nO	nO
rA3	Sets probe used for temperature alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb3	Pb3	Pb3	Pb3
SA3	Compressor overheating setpoint.	LdL...HdL	°C/°F	50.0	50.0	50.0	50.0
dA3	Compressor overheating 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)			
HAC (HACCP)							
HCP	Sets probe used for HACCP alarms. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = reserved 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SHH	Maximum HACCP alarm threshold.	SLH...1999	°C/°F	50.0	50.0	50.0	50.0
SLH	Minimum HACCP alarm threshold.	-199.9... SHH	°C/°F	-50.0	-50.0	-50.0	-50.0
drA	Minimum period time in critical area before alarm signalling.	0...250	min	10	10	10	10
drH	HACCP alarm reset time from last manual reset.	0...250	min	10	10	10	10
HCE	Enable HACCP alarms storage with/without alarm relay enabling. <ul style="list-style-type: none"> 0 = HACCP alarms storage NOT enabled 1 = HACCP alarms storage enabled and alarm relay NOT enabled 2 = HACCP alarms storage enabled and alarm relay enabled 	0/1/2	num	0	0	0	0
Hct	HACCP alarms storage disabling time (key or digital input).	0...250	min	0	0	0	0
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. <ul style="list-style-type: none"> 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
tA1	Time AUX/Lights activation brought forward before a night/day transition.	0...250	min	0	0	0	0
tA2	AUX/Lights activation delay time after a day/night transition.	0...250	min	0	0	0	0
dOr (Door switch)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dOd	Digital input shuts off utilities.	0...10	num	1	1	1	1
	dod dCo Fan Compressor						
	0 --- ON ON						
	1 --- OFF ON						
	2 0 ON OFF						
	2 > 0 ON OFF after dCo is expired						
	3 0 OFF OFF						
	3 > 0 OFF OFF after dCo is expired						
	4 Reserved						
	5 Reserved						
	6 Reserved						
7 Reserved							
8 Reserved							
9 Reserved							
10 Reserved							
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
dFo	Fan enabling delay from acknowledgment.	0...250	min	0	0	0	0
AuP	Auxiliary (AUX) output activation when the door is opened. <ul style="list-style-type: none"> no(0) = disabled yES(1) = AUX output activation 	no/yES	flag	yES	yES	yES	yES
tn1	Night mode activation delay in Energy saving.	0...250	min	0	0	0	0
dCd	Fans enabling 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...255	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode setpoint.	-199.9...1999	°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 1 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
ESt	Energy Saving mode. <ul style="list-style-type: none"> 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	60	60	60	60
PLd (Wake-up - Pull Down)							
PdC	Enable wake-up (Pull-down). <ul style="list-style-type: none"> diS (0) = disabled Std (1) = with fixed setpoint AUt (2) = automatic 	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Wake-up phase duration.	0...250	min	30	30	30	30
SPF	Regulation setpoint during the wake-up phase.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dFF	Regulation offset during the wake-up phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic wake-up.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic wake-up.	1...10	num	3	3	3	3
Add (Communication)							
Ad1	On Board Address 1 (RS485).	1...247	num	1 (not in applications)			
br1	On Board baudrate 1 (RS485). <ul style="list-style-type: none"> • 96 (0) = 9600 baud • 192 (1) = 19200 baud • 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt1	On Board parity bit 1 (RS485). <ul style="list-style-type: none"> • n(0) = none • E(1) = even • o(2) = odd. 	n/E/o	num	E (not in applications)			
Ad3	On Board Address 3 (TTL).	1...247	num	1 (not in applications)			
br3	On Board baudrate 3 (TTL). <ul style="list-style-type: none"> • 96 (0) = 9600 baud • 192 (1) = 19200 baud • 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt3	On Board parity bit 3 (TTL). <ul style="list-style-type: none"> • n(0) = none • E(1) = even • o(2) = odd. 	n/E/o	num	E (not in applications)			
ECP	Selection of serial port for ECHO. <ul style="list-style-type: none"> • 0 = reserved • 1 = reserved • 2 = TTL 	0/1/2	num	2	2	2	2
diS (Display)							
dro	Selects the unit of measure used when displaying the temperature read by the probes. <ul style="list-style-type: none"> • 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
CA4	Positive or negative temperature value to be added to the value of Pb4.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CAi	Activation of the calibration value. <ul style="list-style-type: none"> • 0 = Adds the value to the temperature value displayed • 1 = Adds the value to the temperature used by the regulators and not to the one displayed • 2 = Adds the value to the temperature used by the regulators and to the temperature displayed. 	0/1/2	num	2	2	2	2
LdL	Minimum value that can be displayed by the device.	-199.9...HdL	°C/°F	-67.0	-67.0	-67.0	-67.0
HdL	Maximum value that can be displayed by the device.	LdL...1999	°C/°F	302	302	302	302
LoC	Keypad lock. <ul style="list-style-type: none"> • 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
ddd	Selects the type of value to show on the display. <ul style="list-style-type: none"> • 0 = setpoint • 1 = Pb1 probe • 2 = Pb2 probe • 3 = Pb3 probe • 4 = Pb4 probe • 5 = virtual probe • 6 = remote probe • 7 = reserved 	0...7	num	1	1	1	1
ddE	Selects the type of value to show on the module ECNext . <ul style="list-style-type: none"> • 0 = Module not connected • 1 = Pb1 probe • 2 = Pb2 probe • 3 = Pb3 probe • 4 = Pb4 probe • 5 = Setpoint • 6 = virtual probe • 7 = remote probe • 8 = reserved 	0...8	num	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> • 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 after defrost (label dEF).	0...250	min	30	30	30	30
ndt	Display with decimal point. <ul style="list-style-type: none"> • no(0) = no • yES(1) = yes. 	no/yES	flag	yES	yES	yES	yES
FiS	Selects display filter. <ul style="list-style-type: none"> • 0 = disabled • 1 = the filter is set based on time values tAu and StAu, 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
H13	<p>Configuration of digital input 3 (DI3) / polarity.</p> <ul style="list-style-type: none"> • 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 = night/day self-learning + door switch • ±13 = reserved • ±14 = load application AP1 and AP2 • ±15 = reserved • ±16 = HACCP alarms disable <p>Notes:</p> <ul style="list-style-type: none"> • 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. 	-16...+16	num	0	0	0	0
H14	Configuration of digital input 4 (DI4) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H15	Configuration of digital input 5 (DI5) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H16	Configuration of digital input 6 (DI6) / polarity. Same as H13.	-16...+16	num	0	0	0	0
H17	<p>Configuration of digital input 7 (DI7) / polarity.</p> <ul style="list-style-type: none"> • 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 = night/day self-learning + door switch • ±13 = synchro defrost request • ±14 = load application AP1 and AP2 • ±15 = reserved • ±16 = HACCP alarms disable <p>Notes:</p> <ul style="list-style-type: none"> • 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. 	-16...+16	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
H21	Configuration of digital output 1 (Out1). <ul style="list-style-type: none"> • 0 = disabled • 1 = compressor 1 • 2 = defrost 1 • 3 = evaporator fans • 4 = alarm • 5 = auxiliary • 6 = stand-by • 7 = light • 8 = buzzer • 9 = compressor 2 • 10 = defrost 2 • 11 = fans 2 (condenser fans inversion function) • 12 = heater dead band control • 13 = fans 3 (condenser fans function) • 14 = condenser fans with probe • 15 = independent on/off regulator • 16 = humidify • 17 = de-humidify • 18 = de-humidify with resistor • 19 = reserved • 20 = reserved 	0...20	num	1	1	1	1
H22	Configuration of digital output 2 (Out2). Same as H21.	0...20	num	2	2	2	2
H23	Configuration of digital output 3 (Out3). Same as H21.	0...20	num	5	5	5	5
H24	Configuration of digital output 4 (Out4). Same as H21.	0...20	num	3	3	3	3
H25	Enables/disables the buzzer. <ul style="list-style-type: none"> • no (0) = disabled • yES (1) = enabled. 	no/yES	flag	yES	yES	yES	yES
H31	Configuration of Δ key. <ul style="list-style-type: none"> • 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 = self-learning • 11 = HACCP disabled • 12 = HACCP reset 	0...12	num	1	1	1	1
H32	Configuration of ∇ key. <ul style="list-style-type: none"> • 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 = self-learning • 11 = HACCP disabled • 12 = HACCP reset • 13 = summer/winter 	0...13	num	0	0	0	0
H33	Configuration of \odot key. Same as H31.	0...12	num	4	4	4	4
H34	Configuration of \otimes key. Same as H31.	0...12	num	0	0	0	0
H35	Configuration of \star key. Same as H31.	0...12	num	2	2	2	2
P02	Probe Pb2 present. <ul style="list-style-type: none"> • diS (0) = disable • ntC (2) = NTC 	diS/ntC	num	ntC	ntC	ntC	ntC

PAR	Description	Range	MU	Value	AP1	AP2	AP3
P03	Probe Pb3 present. <ul style="list-style-type: none"> diS (0) = disable diG (1) = digital input ntC (2) = NTC 	diS/diG/ntC	num	ntC	ntC	ntC	ntC
P04	Probe Pb4 present. Same as P03 .	diS/diG/ntC	num	diS	diS	diS	diS
H45	Defrost input mode for applications with dual evaporator. <ul style="list-style-type: none"> 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 4 = end of defrost using two probes. 	0...4	num	0	0	0	0
H48	RTC (Real Time Clock) present. <ul style="list-style-type: none"> no (0) = no RTC yES (1) = RTC present. 	no/yES	flag	yES	yES	yES	yES
H60	Display selected application. <ul style="list-style-type: none"> 0 = disabled 1 = AP1 2 = AP2 3 = AP3. 	0...3	num	1 (not in applications)			
H70	1st probe to use as a virtual probe. <ul style="list-style-type: none"> 0 = disabled 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe. 	0...4	num	0	0	0	0
H71	2nd probe to use as a virtual probe. Same as H70 .	0...4	num	0	0	0	0
H72	% calculation used by the virtual probe for daytime.	0.0...100.0	num	0	0	0	0
H73	% calculation used by the virtual probe for night-time (Energy Saving mode).	0.0...100.0	num	0	0	0	0
ZCE	It enables/disables zero crossing feature. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled 	no/yES	flag	no	no	no	no
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.	/	/	/	/	/	/
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.	/	/	/	/	/	/
FnC (Functions)							
oSP	Reduced set activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> SP = the reduced set is not active oSP = the reduced set is active 	/	/	/	/	/	/
dEF	Activate defrost	/	/	/	/	/	/
AUX	AUX output activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> AoF = Deactivates the AUX output Aon = Activates the AUX output 	/	/	/	/	/	/
rAP	Reset pressure switch alarms	/	/	/	/	/	/
rES	Reset HACCP alarms	/	/	/	/	/	/
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/	/	/	/
nAd (Night and Day)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
E10	Event 1 activation mode. <ul style="list-style-type: none"> 0 = disabled; 1 = Monday; 2 = Tuesday; 3 = Wednesday; 4 = Thursday; 5 = Friday; 6 = Saturday; 7 = Sunday; 8 = Monday to Friday; 9 = Monday to Saturday; 10 = Saturday and Sunday; 11 = every day. 	0...11	num	0 (not in applications)			
E11	Event 1 start hour.	0...23	hours	0 (not in applications)			
E12	Event 1 start minute.	0...59	min	0 (not in applications)			
E13	Event 1 end hour.	0...23	hours	0 (not in applications)			
E14	Event 1 end minute.	0...59	min	0 (not in applications)			
E15	Event 1 type. <ul style="list-style-type: none"> 0 = Energy Saving; 1 = AUX not active; 2 = AUX active; 3 = Stand-by; 4 = Light on; 5 = Light off. 	0...5	num	0 (not in applications)			
E20	Event 2 activation mode. Same as E10.	0...11	num	0 (not in applications)			
E21	Event 2 start hour.	0...23	hours	0 (not in applications)			
E22	Event 2 start minute.	0...59	min	0 (not in applications)			
E23	Event 2 end hour.	0...23	hours	0 (not in applications)			
E24	Event 2 end minute.	0...59	min	0 (not in applications)			
E25	Event 2 type. Same as E15.	0...5	num	0 (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	-199.9...1999	°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. <ul style="list-style-type: none"> diS(0) = disabled Std(1) = manual Aut(2) = automatic 	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	LdL...HdL	°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"	LdL...HdL	°C/°F	12.0	12.0	12.0	12.0
toS	"Deep Cooling Cycle" activation time	0...250	min	5	5	5	5
SL (Self-learning cycle)							
SLP	Sets the controller self-learning mode. <ul style="list-style-type: none"> 0 = daily 1 = weekly. 	0/1	flag	0	0	0	0
SL1	Self-learning duration in daily mode.	1...30	days	1	1	1	1
SL2	Self-learning duration in weekly mode.	2...30	num	2	2	2	2
SLr	Enables self-learning after the initial self-learning period. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	no	no	no	no

PAR	Description	Range	MU	Value	AP1	AP2	AP3
SLb	Duration of the period in the absence of power (blackout), after which self-learning is activated automatically once the power is restored.	0...250	days	0	0	0	0
SLE	Enables/disables self-learning. <ul style="list-style-type: none"> • no (0) = enabled • yES (1) = disabled 	no/yES	flag	no	no	no	no

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 EWNNext 1385 SBCIL

⚠ WARNING							
HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE							
Do not set any parameter not having the full understanding of its behavior in general and in relation to the specific application ⁽¹⁾ .							
Failure to follow these instructions can result in death, serious injury, or equipment damage.							

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

User parameters EWNNext 1385 SBCIL

PAR	Description	Range	MU	Value	AP1	AP2	AP3
SEt	Regulation setpoint 1 with range between the minimum setpoint LSE and the maximum setpoint HSE . The setpoint 1 value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	10.0	-18.0
diF	Compressor relay activation differential 1; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SP1+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
dtY	Type of defrost. <ul style="list-style-type: none"> 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 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dt	Dripping time.	0...250	min	0	0	0	0
HAL	High temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Low temperature 1 alarm. Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9... HAL	°C/°F	-50.0	-50.0	-50.0	-50.0
tAo	Temperature alarm signaling delay time on probe 1.	0...250	min	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> 0 = display the temperature read by the selected probe 1 = stop the reading of the value read by the selected probe at the start of defrosting until the setpoint is reached (or until the expiration of Ldd) 2 = displays label dEF during defrost until the setpoint is reached. 	0/1/2	num	1	1	1	1
Ldd	Display unlock timeout value after defrost (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

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.

Note: the "User" menu parameters also include **PA2**, which allows access to the "Installer" menu.

Note: for the full list of parameters, see the section "**Installer parameters**".

Installer parameters EWNNext 1385 SBCIL

PAR	Description	Range	MU	Value	AP1	AP2	AP3
CP (Compressor)							
rP1	Sets the probe used by regulator 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb1	Pb1	Pb1	Pb1
SEt	Regulation 1 setpoint. The value is set in the "Machine status" menu.	LSE...HSE	°C/°F	3.5	3.5	10.0	-18.0
diF	Regulation 1 differential; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 1) and restarts at a temperature value equal to SEt+diF .	0.0...30.0	°C/°F	2.0	2.0	2.0	2.0
LSE	Minimum value that can be assigned to setpoint 1.	LdL...HSE	°C/°F	-67.0	-67.0	-67.0	-67.0
HSE	Maximum value that can be assigned to setpoint 1.	LSE...HdL	°C/°F	302.0	302.0	302.0	302.0
HC	The regulator 1 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
ont	Regulator switch-on time for probe in error: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> if OFt = 1 and Ont = 0 compressor always off if OFt = 1 and Ont > 0 compressor in duty cycle 	0...250	min	0	0	0	0
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	10	10	10	10
dFA	Condenser fan and compressor activation delay from the request	0...250	s	0	0	0	0
rP3	Sets the probe used by regulator 3. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
HC3	The regulator 3 will execute operation for cooling (set "C(0)") or heating (set "H(1)")	C/H	flag	C	C	C	C
SP3	Regulation setpoint 3. The setpoint 3 value is set in the "Machine status" menu.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
dF3	Compressor relay activation differential 3; the compressor stops when reaching the entered setpoint (upon indication of the regulation probe 3) and restarts at a temperature value equal to SP3+dF3 .	0.1...30.0	°C/°F	1.0	1.0	1.0	1.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
Hud (Humidity)							
PbH	Sets the probe used by humidity function. <ul style="list-style-type: none"> • diS (0) = disabled • Pb1 (1) = probe Pb1 • Pb2 (2) = probe Pb2 • Pb3 (3) = probe Pb3 • Pb4 (4) = probe Pb4 • Pbi (5) = virtual probe • Pbr (6) = remote probe • PbL (7) = Field Bus probe • P1A (8) = probe Pb1 with alternating visualization of 'ddd' • P2A (9) = probe Pb2 with alternating visualization of 'ddd' • P3A (10) = probe Pb3 with alternating visualization of 'ddd' • P4A (11) = probe Pb4 with alternating visualization of 'ddd' • PiA (12) = virtual probe with alternating visualization of 'ddd' • PrA (13) = remote probe with alternating visualization of 'ddd' • PLA (14) = Field Bus probe with alternating visualization of 'ddd' 	diS, Pb1...Pb4 Pbi, Pbr, PbL, P1A...P4A, PiA PrA, PLA	num	diS	diS	Pb4	Pb4
SEH	Humidity setpoint.	0.0...100.0	%RH	0.0	0.0	30.0	0.0
dFH	Humidity differential.	0.0...50.0	%RH	0.0	0.0	0.0	0.0
dbH	Humidity intervention semi-band.	0.0...50.0	%RH	0.0	0.0	0.0	0.0
dEH	Humidity regulation during defrost. <ul style="list-style-type: none"> • no (0) = disabled • yES (1) = probe PbH 	no/yES	flag	no	no	no	no
CHC	Dehumidify control type. <ul style="list-style-type: none"> • 0 = no temperature control • 1 = control minimum temperature 	0/1	flag	0.0	0.0	0.0	0.0
CHt	Humidity-Temperature control type. <ul style="list-style-type: none"> • 0 = no temperature control • 1 = control minimum temperature • 2 = control maximum temperature • 3 = control both minimum and maximum temperature 	0...3	num	0.0	0.0	0.0	0.0
CHL	Minimum temperature to enable humidity control.	-199.9...1999	°C/°F	-67.0	-67.0	-67.0	-67.0
CHH	Maximum temperature to enable humidity control.	-199.9...1999	°C/°F	302	302	302	302
CHd	Differential to enable humidity control.	0.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CHn	ON time for humidity duty setting operation.	0...250	s	0	0	0	0
CHF	OFF time for humidity duty setting operation.	0...250	s	0	0	0	0
dEF (Defrost)							
dP1	Sets the probe used by defrost 1. <ul style="list-style-type: none"> • diS (0) = disabled • Pb1 (1) = probe Pb1 • Pb2 (2) = probe Pb2 • Pb3 (3) = probe Pb3 • Pb4 (4) = probe Pb4 • Pbi (5) = virtual probe • Pbr (6) = remote probe • PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	Pb2	Pb2
dP2	Sets the probe used by defrost 2. Same as dP1 .	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dtY	Type of defrost. <ul style="list-style-type: none"> 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
dt2	Unit of measure for defrost duration (dEt parameter). <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	1	1	1	1
dEt	Defrost 1 timeout. Maximum duration for defrosting evaporator 1.	1...250	min	30	30	30	30
dS1	Evaporator 1 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dS2	Evaporator 2 defrost end temperature.	-199.9...1999	°C/°F	8.0	8.0	8.0	8.0
dPo	Defrost activation request at power-on. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	no	no	no	no
tCd	Minimum period of time with the compressor ON or OFF before defrost is activated.	-127...127	min	0	0	0	0
Cod	Time with the compressor OFF before defrost is activated.	0...250	min	0	0	0	0
dMr	Enables the defrost count reset in the case of manual defrosting. <ul style="list-style-type: none"> 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	see d01	0	0	0	0
d01	d00 unit of measure. <ul style="list-style-type: none"> 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	see d11	24	24	24	24
d11	dit unit of measure. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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
d30	Defrost by compressor continuously on.	0...255	see d31	0	0	0	0
d31	d30 unit of measure. <ul style="list-style-type: none"> 0 = hours 1 = minutes 2 = seconds. 	0/1/2	num	0	0	0	0
d40	Sets the probe used by defrost 1. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	flag	diS	diS	diS	diS
d41	Sets the defrost 1 activation threshold	-199.9...1999	°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...255	min	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d43	Sets the type of time count in which the evaporator temperature remains under the threshold value. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> AbS (0) = absolute value (for example: d41 = -25°C means that the threshold temperature is exactly -25°C) rEL (1) = relative value (negative offset d41, compared to defrost temperature probe recorded at the end of the first cooling cycle) AdP (2) = Adaptive defrost : absolute referred to d45 or relative threshold (negative offset d41, compared to the temperature of defrost probe d40 at the end of first thermostation cycle). 	AbS/rEL/AdP	flag	AbS	AbS	AbS	AbS
d45	Sets the Evaporator 2 defrost activation threshold.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
d50	Sets the probe used by defrost 1. ('differential' mode). <ul style="list-style-type: none"> 0 (0) = disabled Pb2 (1) = enabled. Defrost runs according to the value read by defrost 1 probe (only refers to defrost with threshold) 	0/Pb2	flag	0	0	0	0
d51	Sets the probe used by defrost 2. <ul style="list-style-type: none"> 0 (0) = disabled Pb1 (1) = enabled. Defrost runs according to the value read by defrost 2 probe (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...1999	°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
d54	Sets the type of incremental time count in which the evaporator temperature remains above the threshold value d52 . <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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
d60	Maximum number of defrost to skip. 0 = disabled.	0...10	num	0	0	0	0
d61	Nominal defrost duration percentage 1.	0...100.0	%RH	0.0	0.0	0.0	0.0
d63	Number of defrost cycles at start-up for system ramp-up (without incrementing the counter).	0...10	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
d90	Sets the defrost mode with RTC. <ul style="list-style-type: none"> • 0 = RTC disabled • 1 = Reserved • 2 = RTC at fixed intervals (d91) • 3 = Regular RTC (d94) 	0...3	num	0	0	0	0
d91	Sets the number of daily defrosts (only if d90 =2)	0...255	num	0	0	0	0
d92	Sets the first weekend/holiday day. <ul style="list-style-type: none"> • 0 = Sunday • 1 = Monday • 2 = Tuesday • 3 = Wednesday • 4 = Thursday • 5 = Friday • 6 = Saturday • 7 = Disabled 	0...7	num	7	7	7	7
d93	Sets the second weekend/holiday day. Same as d92 .	0...7	num	7	7	7	7
d94	Sets the duration of the regular defrost in days (only if d90 =3).	1...7	num	1	1	1	1
d1H	1st weekday defrost start hour. <ul style="list-style-type: none"> • 0...23 = start hour • 24 = disabled 	0...24	hours	24 (not in applications)			
d1n	1st weekday defrost start minutes.	0...59	min	0 (not in applications)			
d2H	2nd weekday defrost start hour. <ul style="list-style-type: none"> • d1H...23 = start hour • 24 = disabled 	d1H...24	hours	24 (not in applications)			
d2n	2nd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d3H	3rd weekday defrost start hour. <ul style="list-style-type: none"> • d2H...23 = start hour • 24 = disabled 	d2H...24	hours	24 (not in applications)			
d3n	3rd weekday defrost start minutes.	0...59	min	0 (not in applications)			
d4H	4th weekday defrost start hour. <ul style="list-style-type: none"> • d3H...23 = start hour • 24 = disabled 	d3H...24	hours	24 (not in applications)			
d4n	4th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d5H	5th weekday defrost start hour. <ul style="list-style-type: none"> • d4H...23 = start hour • 24 = disabled 	d4H...24	hours	24 (not in applications)			
d5n	5th weekday defrost start minutes.	0...59	min	0 (not in applications)			
d6H	6th weekday defrost start hour. <ul style="list-style-type: none"> • d5H...23 = start hour • 24 = disabled 	d5H...24	hours	24 (not in applications)			
d6n	6th weekday defrost start minutes.	0...59	min	0 (not in applications)			
F1H	1st weekend/holiday defrost start hour. <ul style="list-style-type: none"> • 0...23 = start hour • 24 = disabled 	0...24	hours	24 (not in applications)			
F1n	1st weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F2H	2nd weekend/holiday defrost start hour. <ul style="list-style-type: none"> • F1H...23 = start hour • 24 = disabled 	F1H...24	hours	24 (not in applications)			
F2n	2nd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F3H	3rd weekend/holiday defrost start hour. <ul style="list-style-type: none"> • F2H...23 = start hour • 24 = disabled 	F2H...24	hours	24 (not in applications)			
F3n	3rd weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			

PAR	Description	Range	MU	Value	AP1	AP2	AP3
F4H	4th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F3H...23 = start hour 24 = disabled 	F3H...24	hours	24 (not in applications)			
F4n	4th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F5H	5th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F4H...23 = start hour 24 = disabled 	F4H...24	hours	24 (not in applications)			
F5n	5th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
F6H	6th weekend/holiday defrost start hour. <ul style="list-style-type: none"> F5H...23 = start hour 24 = disabled 	F5H...24	hours	24 (not in applications)			
F6n	6th weekend/holiday defrost start minutes.	0...59	min	0 (not in applications)			
FAn (Fans)							
FP1	Sets the probe used by the evaporator fans during normal operation. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb2	Pb2	diS	diS
FPt	Parameter Fst management mode. <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
FSt	Fan disabling temperature. If the value read is greater than FSt , the fans will be stopped. The value is positive or negative (only if FP1 ≠diS).	-199.9...1999	°C/°F	50.0	50.0	50.0	50.0
Fot	Evaporator fan activation temperature (only if FP1 ≠dis).	-199.9...1999	°C/°F	-50.0	-50.0	-50.0	-50.0
FAd	Evaporator fan activation differential (only if FP1 ≠dis).	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0
Fdt	Evaporator fan activation delay after a defrost.	0...250	min	0	0	0	0
dt	Dripping time.	0...250	min	0	0	0	0
dFd	Evaporator fan operating mode during a defrost. <ul style="list-style-type: none"> no(0) = Fans not excluded (see FCO, Fon, FoF, Fnn, FnF) yES(1) = Exclude fan during defrost 	no/yES	flag	yES	yES	yES	yES

PAR	Description	Range	MU	Value	AP1	AP2	AP3																																																																																																																										
FCo	Evaporator fan operating mode.	0...6	num	5	5	5	5																																																																																																																										
	<table border="1"> <thead> <tr> <th rowspan="2">FP1 Status</th> <th rowspan="2">FP1 probe</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> </thead> <tbody> <tr> <td rowspan="7">ok</td> <td rowspan="7">≠diS</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>DC</td> <td>T</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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">≠diS</td> <td>0</td> <td>DC</td> <td>Off</td> <td>DC</td> <td>Off</td> </tr> <tr> <td>1</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>2</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> <tr> <td rowspan="7">no</td> <td rowspan="7">diS</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>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>2</td> <td>On</td> <td>DC</td> <td>On</td> <td>DC</td> </tr> <tr> <td>3</td> <td>DC</td> <td>DC</td> <td>DC</td> <td>DC</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>DC</td> <td>DC</td> <td>DC</td> <td>DC</td> </tr> </tbody> </table>							FP1 Status	FP1 probe	FCo	day		night		Cn	Cf	Cn	Cf	ok	≠diS	0	T	Off	T	Off	1	T	T	T	T	2	T	DC	T	DC	3	DC	DC	DC	DC	4	T	Off	T	Off	5	T	T	T	T	6	T	T	T	T	ko	≠diS	0	DC	Off	DC	Off	1	DC	DC	DC	DC	2	DC	DC	DC	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC	no	diS	0	On	Off	On	Off	1	On	DC	On	DC	2	On	DC	On	DC	3	DC	DC	DC	DC	4	On	Off	On	Off	5	On	Off	On	Off	6	DC	DC	DC	DC
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FP1 Status = probe FP1 status (ok = present; ko = in error and no = absent); FP1 probe = evaporator 1 probe (see FP1); day = day mode; night = night mode; Cn = compressor on; Cf = compressor off.																																																																																																																																	
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T = thermostat controlled fans; On = fans on; Off = fans off; DC = Duty cycle.																																																																																																																																	
FdC	Evaporator fan shutoff delay after compressor deactivation.	0...250	min	1	1	1	1																																																																																																																										
FOn	Fans on time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
FOF	Fans off time for day duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	6	6	6	6																																																																																																																										
Fnn	Fans on time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	1	1	1	1																																																																																																																										
FnF	Fans off time for night duty cycle. Applies when Duty cycle mode is active (see FCO).	0...250	min	12	12	12	12																																																																																																																										
ESF	Activates night mode (energy saving) for the fans. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if ESst≠0 and ESst≠4). 	no/yES	flag	no	no	no	no																																																																																																																										

PAR	Description	Range	MU	Value	AP1	AP2	AP3
FC1	Sets the probe used by the condenser fans. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SCF	Condenser fan enabling setpoint.	-50.0...150.0	°C/°F	0.0	0.0	0.0	0.0
dCF	Condenser fan enabling differential.	0.0...30.0	°C/°F	0.0	0.0	0.0	0.0
tCF	Condenser fan enabling delay after defrost.	0...255	min	0	0	0	0
CFd	Condenser fans disabling during defrost. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled if energy saving mode is active (only if ESst≠0 and ESst≠4). 	no/yES	flag	no	no	no	no
HuL	Humidity level selection. <ul style="list-style-type: none"> 0 = disabled 1 = humidity level '1' 2 = humidity level '2' 3 = humidity level '3'. 	0...3	num	0	0	0	0
Hu1	Evaporator fans "on time" for humidity level 1.	0...250	min	0	0	0	0
Hu2	Evaporator fans "off time" for humidity level 1.	0...250	min	0	0	0	0
Hu3	Evaporator fans "on time" for humidity level 2.	0...250	min	0	0	0	0
Hu4	Evaporator fans "off time" for humidity level 2.	0...250	min	0	0	0	0
Hu5	Evaporator fans "on time" for humidity level 3.	0...250	min	0	0	0	0
Hu6	Evaporator fans "off time" for humidity level 3.	0...250	min	0	0	0	0
FE (Modulated Fans)							
FE1	Sets the probe used by the modulated fans. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb4	Pb4	Pb2	Pb2
FEt	Sets the FES differential management mode. <ul style="list-style-type: none"> AbS (0) = absolute value rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
FES	'Modulated fans' regulator inhibiting temperature.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
FEd	Tripping differential for "modulated fans" regulator (absolute or relative).	0.1...50.0	°C/°F	0.1	0.1	0.1	0.1
FEu	Threshold value (Cut-OFF) on "modulated fans" regulator.	0.0...25.0	°C/°F	2.0	2.0	2.0	2.0
FEC	Activation differential for the threshold value (Cut-OFF) on "modulated fans" regulator.	0.1...25.0	°C/°F	5.0	5.0	5.0	5.0
FEr	Fan deactivation delay time from compressor stoppage.	0...250	min	20	20	20	20
FE2	Minimum implementation percentage applied to the analog output in day mode.	0.0...100.0	%	0.0	0.0	0.0	0.0
FE3	Maximum implementation percentage applied to the analog output in day mode with the compressor running.	0.0...100.0	%	20.0	20.0	20.0	20.0
FE4	Maximum implementation percentage applied to the analog output in day mode with the compressor off.	0.0...100.0	%	100.0	100.0	100.0	100.0
FE5	Minimum implementation percentage applied to the analog output in night mode.	0.0...100.0	%	60.0	60.0	60.0	60.0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
FE6	Maximum implementation percentage applied to the analog output in night mode with the compressor running.	0.0...100.0	%	20.0	20.0	20.0	20.0
FE7	Maximum implementation percentage applied to the analog output in night mode with the compressor off.	0.0...100.0	%	80.0	80.0	80.0	80.0
FE8	Implementation percentage applied to the analog output during defrosting.	0.0...100.0	%	60.0	60.0	60.0	60.0
FE9	Implementation percentage applied to the analog output in the event of a probe error.	0.0...100.0	%	0.0	0.0	0.0	0.0
FEA	Modulated fans pick-up percentage. Used to overcome thermal inertia of the fans in the event of extended usage at low speed.	0.0...100.0	%	60.0	60.0	60.0	60.0
FEb	Modulated fans pick-up time.	0...250	s	100	100	100	100
FEP	Fan forcing procedure duration at pick-up speed.	0...250	min	60	60	60	60
AL (Alarms)							
rA1	Sets probe 1 used for temperature alarms. <ul style="list-style-type: none"> • diS (0) = disabled • Pb1 (1) = probe Pb1 • Pb2 (2) = probe Pb2 • Pb3 (3) = probe Pb3 • Pb4 (4) = probe Pb4 • Pbi (5) = virtual probe • Pbr (6) = remote probe • Pbl (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, Pbl	num	Pb1	Pb1	Pb1	Pb1
Att	Sets the absolute or relative value for parameters HAL and LAL. <ul style="list-style-type: none"> • AbS (0) = absolute value • rEL (1) = relative value 	AbS/rEL	flag	AbS	AbS	AbS	AbS
AFd	Alarm differential.	0.1...25.0	°C/°F	2.0	2.0	2.0	2.0
HAL	Maximum temperature alarm probe 1 (only if rA1≠diS). Temperature value (in an absolute or relative value - see Att) which, when exceeded, will lead to the activation of alarm signaling.	LAL...1999	°C/°F	50.0	50.0	50.0	50.0
LAL	Minimum temperature alarm probe 1 (only if rA1≠diS). Temperature value (in an absolute or relative value - see Att) which, when not reached, will lead to the activation of alarm signaling.	-199.9...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...250	min	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 on probe 1.	0...250	min	0	0	0	0
dAt	Defrost ended due to timeout alarm indication. <ul style="list-style-type: none"> • no(0) = alarm not activated • yES(1) = alarm activated. 	no/yES	flag	no	no	no	no
EAL	An external alarm inhibits the regulators. <ul style="list-style-type: none"> • 0 = does not inhibit the regulators • 1 = lock compressor (VSC and on/off) and defrost • 2 = lock fans, compressor (VSC and on/off) and defrost • 3 = lock compressor on/off and defrost and VSC at minimum speed • 4 = lock fans, compressor on/off and defrost and VSC at minimum speed 	0...4	num	0	0	0	0
AoP	Alarm output polarity. <ul style="list-style-type: none"> • nC (0) = NC (Normally closed) • nO (1) = NO (Normally open). 	nC/nO	flag	nO	nO	nO	nO

PAR	Description	Range	MU	Value	AP1	AP2	AP3
rA3	Sets probe used for temperature alarms. <ul style="list-style-type: none"> • diS (0) = disabled • Pb1 (1) = probe Pb1 • Pb2 (2) = probe Pb2 • Pb3 (3) = probe Pb3 • Pb4 (4) = probe Pb4 • Pbi (5) = virtual probe • Pbr (6) = remote probe • PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	Pb3	Pb3	Pb3	Pb3
SA3	Compressor overheating setpoint.	LdL...HdL	°C/°F	50.0	50.0	50.0	50.0
dA3	Compressor overheating 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)			
HAC (HACCP)							
HCP	Sets probe used for HACCP alarms. <ul style="list-style-type: none"> • diS (0) = disabled • Pb1 (1) = probe Pb1 • Pb2 (2) = probe Pb2 • Pb3 (3) = probe Pb3 • Pb4 (4) = probe Pb4 • Pbi (5) = virtual probe • Pbr (6) = remote probe • PbL (7) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
SHH	Maximum HACCP alarm threshold.	SLH...1999	°C/°F	50.0	50.0	50.0	50.0
SLH	Minimum HACCP alarm threshold.	-199.9... SHH	°C/°F	-50.0	-50.0	-50.0	-50.0
drA	Minimum period time in critical area before alarm signalling.	0...250	min	10	10	10	10
drH	HACCP alarm reset time from last manual reset.	0...250	min	10	10	10	10
HCE	Enable HACCP alarms storage with/without alarm relay enabling. <ul style="list-style-type: none"> • 0 = HACCP alarms storage NOT enabled • 1 = HACCP alarms storage enabled and alarm relay NOT enabled • 2 = HACCP alarms storage enabled and alarm relay enabled 	0/1/2	num	0	0	0	0
Hct	HACCP alarms storage disabling time (key or digital input).	0...250	min	0	0	0	0
Lit (Lights and digital inputs)							
ESA	AUX/Lights status during energy saving. <ul style="list-style-type: none"> • 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
tA1	Time AUX/Lights activation brought forward before a night/day transition.	0...250	min	0	0	0	0
tA2	AUX/Lights activation delay time after a day/night transition.	0...250	min	0	0	0	0
dOr (Door switch)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3																																																																
dOd	Digital input shuts off utilities.	0...10	num	1	1	1	1																																																																
	<table border="1"> <thead> <tr> <th>dod</th> <th>dCo</th> <th>Fan</th> <th>Compressor</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>---</td> <td>ON</td> <td>ON</td> </tr> <tr> <td>1</td> <td>---</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>2</td> <td>0</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>2</td> <td>> 0</td> <td>ON</td> <td>OFF after dCo is expired</td> </tr> <tr> <td>3</td> <td>0</td> <td>OFF</td> <td>OFF</td> </tr> <tr> <td>3</td> <td>> 0</td> <td>OFF</td> <td>OFF after dCo is expired</td> </tr> <tr> <td>4</td> <td>0</td> <td>ON</td> <td>OFF (VSC at minimum speed)</td> </tr> <tr> <td>4</td> <td>> 0</td> <td>ON</td> <td>OFF (VSC at minimum speed) after dCo is expired</td> </tr> <tr> <td>5</td> <td>0</td> <td>OFF</td> <td>OFF (VSC at minimum speed)</td> </tr> <tr> <td>5</td> <td>> 0</td> <td>OFF</td> <td>OFF (VSC at minimum speed) after dCo is expired</td> </tr> <tr> <td>6</td> <td colspan="3">Reserved</td> </tr> <tr> <td>7</td> <td colspan="3">Reserved</td> </tr> <tr> <td>8</td> <td colspan="3">Reserved</td> </tr> <tr> <td>9</td> <td colspan="3">Reserved</td> </tr> <tr> <td>10</td> <td colspan="3">Reserved</td> </tr> </tbody> </table>							dod	dCo	Fan	Compressor	0	---	ON	ON	1	---	OFF	ON	2	0	ON	OFF	2	> 0	ON	OFF after dCo is expired	3	0	OFF	OFF	3	> 0	OFF	OFF after dCo is expired	4	0	ON	OFF (VSC at minimum speed)	4	> 0	ON	OFF (VSC at minimum speed) after dCo is expired	5	0	OFF	OFF (VSC at minimum speed)	5	> 0	OFF	OFF (VSC at minimum speed) after dCo is expired	6	Reserved			7	Reserved			8	Reserved			9	Reserved			10	Reserved		
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10	Reserved																																																																						
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																																																																
dFo	Fan enabling delay from acknowledgment.	0...250	min	0	0	0	0																																																																
AuP	Auxiliary (AUX) output activation when the door is opened. <ul style="list-style-type: none"> no(0) = disabled yES(1) = AUX output activation 	no/yES	flag	yES	yES	yES	yES																																																																
tn1	Night mode activation delay in Energy saving.	0...250	min	0	0	0	0																																																																
dCd	Fans enabling delay after door closed.	0...250	s	0	0	0	0																																																																
Lin (Field Bus)																																																																							
L00	Sets probe shared via Field Bus. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = Field Bus probe 	diS, Pb1...Pb4 Pbi, Pbr	num	diS	diS	diS	diS																																																																
L01	Shares the displayed value with the Field Bus network. <ul style="list-style-type: none"> 0 = help prevents sending the displayed value from the device to the Field Bus network 1 = enables sending the displayed value from the device to the Field Bus network 2 = displays the value of the device with setting L01 = 1. 	0/1/2	num	0	0	0	0																																																																
L02	Sends the Setpoint value to the Field Bus network when it is changed. <ul style="list-style-type: none"> no (0) = no yES (1) = yes 	no/yES	flag	no	no	no	no																																																																

PAR	Description	Range	MU	Value	AP1	AP2	AP3
L03	Enables the sending of the defrost request to the Field Bus network. <ul style="list-style-type: none"> 0 = send defrost request disabled 1 = primary device for sending simultaneous defrost request 2 = primary device for sending sequential defrost request. 	0/1/2	num	no	no	no	no
L04	Defrost end method. <ul style="list-style-type: none"> ind (0) = independent dEP (1) = dependent. Waits for all controllers to have finished defrosting. 	ind/dEP	flag	ind	ind	ind	ind
L05	Enables stand-by command synchronization <ul style="list-style-type: none"> no (0) = no yES (1) = yes 	no/yES	flag	no	no	no	no
L06	Enables light command synchronization <ul style="list-style-type: none"> no (0) = no yES (1) = yes 	no/yES	flag	no	no	no	no
L07	Enables energy saving command synchronization <ul style="list-style-type: none"> no (0) = no yES (1) = yes 	no/yES	flag	no	no	no	no
L08	Enables AUX command synchronization <ul style="list-style-type: none"> no (0) = no yES (1) = yes 	no/yES	flag	no	no	no	no
L10	Dependent defrost end timeout.	1...250	min	15	15	15	15
L11	Number of devices connected to Field Bus. If the number of devices differs from the set value, a Field Bus alarm will be activated (ELi).	0...8	num	0	0	0	0
L12	Alarm relay sharing method via Field Bus. <ul style="list-style-type: none"> 0 = function disabled 1 = primary alarm relay (The relay is activated from local alarm relay or secondary alarm relay) 2 = secondary alarm relay. 	0/1/2	num	no	no	no	no
L15	Share buzzer and alarm silenced command via Field Bus. <ul style="list-style-type: none"> 0 = function disabled 1 = main board 2 = remote board (shares buzzer and alarm silenced command with main board). 	0/1/2	num	no	no	no	no
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...255	min	0	0	0	0
EnS (Energy Saving)							
SPn	Night mode setpoint.	-199.9...1999	°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 1 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
ESt	Energy Saving mode. <ul style="list-style-type: none"> 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

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dnt	Night mode duration.	0...24	hours	11	11	11	11
Cdt	Door closure time due to dynamic setpoint activation.	0...250	min*10	60	60	60	60
PLd (Wake-up - Pull Down)							
PdC	Enable wake-up (Pull-down). <ul style="list-style-type: none"> diS (0) = disabled Std (1) = with fixed setpoint AUt (2) = automatic 	diS/ Std/ AUt	num	diS	diS	diS	diS
tPd	Wake-up phase duration.	0...250	min	30	30	30	30
SPF	Regulation setpoint during the wake-up phase.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
dFF	Regulation offset during the wake-up phase.	0.1...30.0	°C/°F	0.1	0.1	0.1	0.1
Pdo	Temperature step in operation with automatic wake-up.	0.1...30.0	°C/°F	0.2	0.2	0.2	0.2
Pdn	Number of steps in operation with automatic wake-up.	1...10	num	3	3	3	3
Add (Communication)							
Ad1	On Board Address 1 (RS485).	1...247	num	1 (not in applications)			
br1	On Board baudrate 1 (RS485). <ul style="list-style-type: none"> 96 (0) = 9600 baud 192 (1) = 19200 baud 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt1	On Board parity bit 1 (RS485). <ul style="list-style-type: none"> n(0) = none E(1) = even o(2) = odd. 	n/E/o	num	E (not in applications)			
Ad2	On Board Address 2 (Field Bus).	1...247	num	1 (not in applications)			
br2	On Board baudrate 2 (Field Bus). <ul style="list-style-type: none"> 96 (0) = 9600 baud 192 (1) = 19200 baud 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt2	On Board parity bit 2 (Field Bus). <ul style="list-style-type: none"> n(0) = none E(1) = even o(2) = odd. 	n/E/o	num	E (not in applications)			
SC2	Primary/Secondary selection serial port 2 (Field Bus). <ul style="list-style-type: none"> CLi(0) = Primary SEr(1) = Secondary 	CLi/SEr	flag	SEr	SEr	SEr	SEr
Po2	Serial 2 polling time (only visible if SC2 = 0).	0...1000	s/100	100	100	100	100
to2	Serial 2 timeout (only visible if SC2 = 0).	0...1000	s/100	50	50	50	50
Ad3	On Board Address 3 (TTL).	1...247	num	1 (not in applications)			
br3	On Board baudrate 3 (TTL). <ul style="list-style-type: none"> 96 (0) = 9600 baud 192 (1) = 19200 baud 384 (2) = 38400 baud 	96/192/384	num	192 (not in applications)			
Pt3	On Board parity bit 3 (TTL). <ul style="list-style-type: none"> n(0) = none E(1) = even o(2) = odd. 	n/E/o	num	E (not in applications)			
ECP	Selection of serial port for ECHO. <ul style="list-style-type: none"> 0 = reserved 1 = reserved 2 = TTL 	0/1/2	num	2	2	2	2
diS (Display)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
dro	Selects the unit of measure used when displaying the temperature read by the probes. <ul style="list-style-type: none"> 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
CA4	Positive or negative temperature value to be added to the value of Pb4.	-30.0...30.0	°C/°F	0.0	0.0	0.0	0.0
CAi	Activation of the calibration value. <ul style="list-style-type: none"> 0 = Adds the value to the temperature value displayed 1 = Adds the value to the temperature used by the regulators and not to the one displayed 2 = Adds the value to the temperature used by the regulators and to the temperature displayed. 	0/1/2	num	2	2	2	2
LdL	Minimum value that can be displayed by the device.	-199.9... HdL	°C/°F	-67.0	-67.0	-67.0	-67.0
HdL	Maximum value that can be displayed by the device.	LdL ...1999	°C/°F	302	302	302	302
LoC	Keypad lock. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 0 = setpoint 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe 5 = virtual probe 6 = remote probe 7 = Field Bus probe 	0...7	num	1	1	1	1
ddE	Selects the type of value to show on the module ECNext . <ul style="list-style-type: none"> 0 = Module not connected 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe 5 = Setpoint 6 = virtual probe 7 = remote probe 8 = Field Bus probe 	0...8	num	0	0	0	0
ddL	Display mode during defrosting. <ul style="list-style-type: none"> 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 after defrost (label deF).	0...250	min	30	30	30	30
ndt	Display with decimal point. <ul style="list-style-type: none"> no(0) = no yES(1) = yes. 	no/yES	flag	yES	yES	yES	yES

PAR	Description	Range	MU	Value	AP1	AP2	AP3
FiS	Selects display filter. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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
VSC (Variable-speed compressor)							
CEr	Controlled capacity value in the event of regulation probe error.	0.0...100.0	%	50.0	50.0	50.0	50.0
PdS	Differential for forced activation of a wake-up.	-50.0...50.0	K/°R	3.0	3.0	3.0	3.0
PUS	Differential for forced activation of a pull-up.	-50.0...50.0	K/°R	-3.0	-3.0	-3.0	-3.0
PUd	Temperature outside range timeout. The timer is activated when the regulation probe reaches a value greater than SEt+PdS (for wake-up) or less than SEt+PuS (for pull-up). When the timer runs out, a wake-up or pull-up procedure will be started depending on the zone in which the probe is located. If the temperature recovers before the end of this timed period, the timer is reloaded.	0...999	min	4	4	4	4
PdE	Wake-up end differential.	-50.0...50.0	K/°R	0.0	0.0	0.0	0.0
PUE	Pull-up end differential. If a pull-up is activated when the timer PUd runs out, the compressor is stopped until SEt+PUE is reached.	-50.0...50.0	K/°R	0.0	0.0	0.0	0.0
Pdt	Optimized wake-up timeout.	0...999	min	10	10	10	10
Pdd	Controlled capacity value, if a pull-down is activated, when the time period PUd has elapsed, that will be maintained: <ul style="list-style-type: none"> • for a time period Pdt at the end of which the capacity will be forced to 100% until SEt+PdE is reached. • until the temperature SEt+PdE is reached (if the time < Pdt). 	0.0...100.0	%	60.0	60.0	60.0	60.0
CPd	Controlled capacity after a wake-up in day operating mode.	0.0...100.0	%	60.0	60.0	60.0	60.0
CPn	Controlled capacity after a wake-up in night operating mode.	0.0...100.0	%	50.0	50.0	50.0	50.0
CSd	Duration of constant-speed compressor heating (set by CSC) on startup or after a stand-by.	0...999	s	120	120	120	120
CSC	Fixed compressor capacity for a time period equal to CSd on startup or after a stand-by.	44.4...100	%	80.0	80.0	80.0	80.0
CAU	Selects automatic or manual PID mode. <ul style="list-style-type: none"> • Aut (0) = automatic • FiH (1) = manual. 	Aut/FiH	flag	Aut	Aut	Aut	Aut
CdU	PID duty cycle in manual mode. If CAU = Aut , CdU will function as a maximum controlled capacity limiter (%). If CAU = FiH , CdU will force controlled capacity of the compressor (%).	0.0...100.0	%	100.0	100.0	100.0	100.0
F_1	Maximum compressor operating frequency.	0.0...250	Hz	150	150	150	150
F_2	Minimum compressor operating frequency.	0.0...250	Hz	67.0	67.0	67.0	67.0
AoU (Analog Output configuration)							

PAR	Description	Range	MU	Value	AP1	AP2	AP3
AP	Sets probe used for Analogue output. <ul style="list-style-type: none"> diS (0) = disabled Pb1 (1) = probe Pb1 Pb2 (2) = probe Pb2 Pb3 (3) = probe Pb3 Pb4 (4) = probe Pb4 Pbi (5) = virtual probe Pbr (6) = remote probe PbL (7) = remote probe (Field Bus) 	diS, Pb1...Pb4 Pbi, Pbr, PbL	num	diS	diS	diS	diS
AoF	Analogue output mode. <ul style="list-style-type: none"> ro (0) = output proportional to probe reading, within the range set by parameters LAo and HAo Er (1) = output proportional to error between setpoint 1 and the value read on the probe, within the range set by parameters LAo and HAo 	ro/Er	flag	ro	ro	ro	ro
LAo	Analog output lower limit.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
HAo	Analog output upper limit.	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
AoS	Probe error value.	0.0...100.0	%	0.0	0.0	0.0	0.0
CnF (Configuration)							
H08	Stand-by operating mode. <ul style="list-style-type: none"> 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
H11	Configuration of digital input 1 (DI1) / polarity. <ul style="list-style-type: none"> 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 = night/day self-learning + door switch ±13 = reserved ±14 = load application AP1 and AP2 ±15 = reserved ±16 = HACCP alarms disable Notes: <ul style="list-style-type: none"> 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. 	-16...+16	num	0	0	0	0
H12	Configuration of digital input 2 (DI2) / polarity. Same as H11 .	-16...+16	num	0	0	0	0
H13	Configuration of digital input 3 (DI3) / polarity. Same as H11 .	-16...+16	num	0	0	0	0
H14	Configuration of digital input 4 (DI4) / polarity. Same as H11 .	-16...+16	num	0	0	0	0
H15	Configuration of digital input 5 (DI5) / polarity. Same as H11 .	-16...+16	num	0	0	-4	0
H16	Configuration of digital input 6 (DI6) / polarity. Same as H11 .	-16...+16	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
H21	Configuration of digital output 1 (Out1). <ul style="list-style-type: none"> • 0 = disabled • 1 = compressor 1 • 2 = defrost 1 • 3 = evaporator fans • 4 = alarm • 5 = auxiliary • 6 = stand-by • 7 = light • 8 = buzzer • 9 = compressor 2 • 10 = defrost 2 • 11 = fans 2 (condenser fans inversion function) • 12 = heater dead band control • 13 = fans 3 (condenser fans function) • 14 = condenser fans with probe • 15 = independent on/off regulator • 16 = humidify • 17 = de-humidify • 18 = de-humidify with resistor • 19 = reserved • 20 = reserved 	0...20	num	1	1	1	1
H22	Configuration of digital output 2 (Out2). Same as H21.	0...20	num	2	2	17	2
H23	Configuration of digital output 3 (Out3). Same as H21.	0...20	num	5	5	16	18
H24	Configuration of digital output 4 (Out4). Same as H21.	0...20	num	3	3	5	5
H25	Enables/disables the buzzer. <ul style="list-style-type: none"> • no (0) = disabled • yES (1) = enabled. 	no/yES	flag	yES	yES	yES	yES
H31	Configuration of Δ key. <ul style="list-style-type: none"> • 0 = disabled • 1 = defrost • 2 = auxiliary • 3 = reduced set • 4 = stand-by • 5 = start nPL tuning • 6 = start tun tuning • 7 = deep cooling • 8 = light • 9 = energy saving • 10 = self-learning • 11 = HACCP disabled • 12 = HACCP reset 	0...12	num	1	1	1	1
H32	Configuration of ∇ key. <ul style="list-style-type: none"> • 0 = disabled • 1 = defrost • 2 = auxiliary • 3 = reduced set • 4 = stand-by • 5 = start nPL tuning • 6 = start tun tuning • 7 = deep cooling • 8 = light • 9 = energy saving • 10 = self-learning • 11 = HACCP disabled • 12 = HACCP reset • 13 = summer/winter 	0...13	num	0	0	0	0
H33	Configuration of \odot key. Same as H31.	0...12	num	4	4	4	4
H34	Configuration of \otimes key. Same as H31.	0...12	num	0	0	0	0
H35	Configuration of \star key. Same as H31.	0...12	num	2	2	2	2

PAR	Description	Range	MU	Value	AP1	AP2	AP3
P01	Probe Pb1 present. <ul style="list-style-type: none"> diS (0) = disable diG (1) = digital input ntC (2) = NTC 	diS/diG/ntC	num	ntC	ntC	ntC	ntC
P02	Probe Pb2 present. Same as P01 .	diS/diG/ntC	num	ntC	ntC	ntC	ntC
P03	Probe Pb3 present. Same as P01 .	diS/diG/ntC	num	ntC	ntC	ntC	ntC
P04	Probe Pb4 present. . <ul style="list-style-type: none"> diS (0) = disable diG (1) = digital input ntC (2) = NTC 420 (6) = 4...20 mA 020 (7) = 0...20 mA 	diS/diG/ntC /420/020	num	ntC	ntC	420	420
04L	Lower limit analog input 4 (only if P04 = 020 or P04 = 420).	-199.9... 04H	num	0.0	0.0	0.0	0.0
04H	Upper limit analog input 4 (0...20 mA or 4...20 mA) (only if P04 = diS).	04L ...1999	num	100.0	100.0	100.0	100.0
n01	Analog output 1 type. <ul style="list-style-type: none"> diS (0) = disabled 010 (9) = 0...10 V 	diS/010	num	010	010	010	010
01n	Analogue output 1 type (Output 0...10 V). <ul style="list-style-type: none"> 0 = Disabled 1 = Anti-sweater heaters - Frame Heater 2 = Reserved 3 = Variable Speed Fans (VSF) 4 = General analog output 	0...4	num	3	3	3	3
n02	Analog output 2 type. <ul style="list-style-type: none"> diS (0) = disabled diP (5) = digital PnP FP (6) = variable Frequency PNP dP (7) = variable duty cycle PNP 	diS/diP/FP/dP	num	6	6	6	6
02n	Analogue output 2 configurability (Output OC). Same as 01n .	0...4	num	diS	diS	diS	diS
H45	Defrost input mode for applications with dual evaporator. <ul style="list-style-type: none"> 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 4 = end of defrost using two probes. 	0...4	num	0	0	0	0
H48	RTC (Real Time Clock) present. <ul style="list-style-type: none"> no (0) = no RTC yES (1) = RTC present. 	no/yES	flag	yES	yES	yES	yES
H60	Display selected application. <ul style="list-style-type: none"> 0 = disabled 1 = AP1 2 = AP2 3 = AP3. 	0...3	num	1 (not in applications)			
H70	1st probe to use as a virtual probe. <ul style="list-style-type: none"> 0 = disabled 1 = Pb1 probe 2 = Pb2 probe 3 = Pb3 probe 4 = Pb4 probe. 	0...4	num	0	0	0	0
H71	2nd probe to use as a virtual probe. Same as H70 .	0...4	num	0	0	0	0
H72	% calculation used by the virtual probe for daytime.	0.0...100.0	num	0	0	0	0
H73	% calculation used by the virtual probe for night-time (Energy Saving mode).	0.0...100.0	num	0	0	0	0

PAR	Description	Range	MU	Value	AP1	AP2	AP3
ZCE	It enables/disables zero crossing feature. <ul style="list-style-type: none"> no (0) = disabled yES (1) = enabled 	no/yES	flag	no	no	no	no
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.	/	/	/	/	/	/
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.	/	/	/	/	/	/
FnC (Functions)							
oSP	Reduced set activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> SP = the reduced set is not active oSP = the reduced set is active 	/	/	/	/	/	/
dEF	Activate defrost	/	/	/	/	/	/
AUX	AUX output activation / deactivation. The labels displayed will be: <ul style="list-style-type: none"> AoF = Deactivates the AUX output Aon = Activates the AUX output 	/	/	/	/	/	/
rAP	Reset pressure switch alarms	/	/	/	/	/	/
rES	Reset HACCP alarms	/	/	/	/	/	/
tun	Autotuning activation/deactivation	/	/	/	/	/	/
nPL	Preliminary Autotuning procedure activation/deactivation.	/	/	/	/	/	/
Cnt	Reset TelevisAir diagnostic counters (see Reset TelevisAir diagnostic counters)	/	/	/	/	/	/
nAd (Night and Day)							
E10	Event 1 activation mode. <ul style="list-style-type: none"> 0 = disabled; 1 = Monday; 2 = Tuesday; 3 = Wednesday; 4 = Thursday; 5 = Friday; 6 = Saturday; 7 = Sunday; 8 = Monday to Friday; 9 = Monday to Saturday; 10 = Saturday and Sunday; 11 = every day. 	0...11	num	0 (not in applications)			
E11	Event 1 start hour.	0...23	hours	0 (not in applications)			
E12	Event 1 start minute.	0...59	min	0 (not in applications)			
E13	Event 1 end hour.	0...23	hours	0 (not in applications)			
E14	Event 1 end minute.	0...59	min	0 (not in applications)			
E15	Event 1 type. <ul style="list-style-type: none"> 0 = Energy Saving; 1 = AUX not active; 2 = AUX active; 3 = Stand-by; 4 = Light on; 5 = Light off. 	0...5	num	0 (not in applications)			
E20	Event 2 activation mode. Same as E10 .	0...11	num	0 (not in applications)			
E21	Event 2 start hour.	0...23	hours	0 (not in applications)			
E22	Event 2 start minute.	0...59	min	0 (not in applications)			
E23	Event 2 end hour.	0...23	hours	0 (not in applications)			
E24	Event 2 end minute.	0...59	min	0 (not in applications)			

PAR	Description	Range	MU	Value	AP1	AP2	AP3
E25	Event 2 type. Same as E15.	0...5	num	0 (not in applications)			
FrH (Anti-sweater heaters - Frame Heater)							
FH	Anti-sweater heaters probe (FH). <ul style="list-style-type: none"> • diS (0) = disabled • dC (1) = duty cycle • Pb1 (2) = probe Pb1 • Pb2 (3) = probe Pb2 • Pb3 (4) = probe Pb3 • Pb4 (5) = probe Pb4 • Pbi (6) = virtual probe • Pbr (7) = remote probe • Pbl (8) = Field Bus probe 	diS, dC, Pb1...Pb4 Pbi, Pbr, Pbl	num	diS	diS	diS	diS
FHt	Anti-sweater heaters operating period duration (FH), only used if the OC output is used with SSR relay.	1...250	s*10	30	30	30	30
FH0	Setpoint corresponding to the anti-sweater heaters (only if FH≠dis and FH≠dc).	-199.9...1999	°C/°F	0.0	0.0	0.0	0.0
FH1	Offset corresponding to the anti-sweater heaters (only if FH≠dis and FH≠dc).	0.0...25.0	°C/°F	0.0	0.0	0.0	0.0
FH2	Band corresponding to the anti-sweater heaters (only if FH≠dis and FH≠dc).	0.0...25.0	°C/°F	0.0	0.0	0.0	0.0
FH3	Minimum percentage for the anti-sweater heaters (only if FH≠dis and FH≠dc).	0.0...100.0	%	0.0	0.0	0.0	0.0
FH4	Maximum percentage for the day Duty cycle.	0.0...100.0	%	75.0	75.0	75.0	75.0
FH5	Maximum percentage for the night Duty cycle	0.0...100.0	%	50.0	50.0	50.0	50.0
FH6	Anti-sweater heaters percentage during defrost.	0.0...100.0	%	100.0	100.0	100.0	100.0
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	-199.9...1999	°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. <ul style="list-style-type: none"> • diS(0) = disabled • Std(1) = manual • Aut(2) = automatic 	diS/ Std/ Aut	num	diS	diS	diS	diS
dCS	"Deep cooling cycle" setpoint	LdL...HdL	°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"	LdL...HdL	°C/°F	12.0	12.0	12.0	12.0
toS	"Deep Cooling Cycle" activation time	0...250	min	5	5	5	5
SL (Self-learning cycle)							
SLP	Sets the controller self-learning mode. <ul style="list-style-type: none"> • 0 = daily • 1 = weekly. 	0/1	flag	0	0	0	0
SL1	Self-learning duration in daily mode.	1...30	days	1	1	1	1
SL2	Self-learning duration in weekly mode.	2...30	num	2	2	2	2
SLr	Enables self-learning after the initial self-learning period. <ul style="list-style-type: none"> • no(0) = no • yES(1) = yes. 	no/yES	flag	no	no	no	no
SLb	Duration of the period in the absence of power (blackout), after which self-learning is activated automatically once the power is restored.	0...250	days	0	0	0	0
SLE	Enables/disables self-learning. <ul style="list-style-type: none"> • no (0) = enabled • yES (1) = disabled 	no/yES	flag	no	no	no	no

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 864 functions and resources

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Setting parameters via Modbus

Introduction

Modbus is a Primary/Secondary protocol for communication between devices connected in a network. Modbus devices communicate using a Primary-Secondary technique in which only one device (Primary) can send request messages. The other devices in the network (Secondary) respond, returning the data requested by the Primary or executing the action contained in the message sent by the Primary. A Secondary is a device connected to a network that processes information and sends the results to the Primary using the Modbus protocol. The Primary device can send messages to individual Secondaries. 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)
- 1 or 2 stop BITS (see **Pty**)

Parameters can be changed via:

- Device keypad
- UNICARD / DMI
- Send data via Modbus protocol directly to an individual device .

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: <ul style="list-style-type: none"> • 0 = Manufacturer ID • 1 = Model ID • 2 = Family ID (MSK 864) / device version

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

Configuration

All the serial ports 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 parameters **Adx**. The device configuration parameters are as follows:

Parameter	Description
Ad1	Modbus protocol controller address 1 (RS485)
br1	Baudrate 1 selection
Pt1	Sets the Modbus 1 protocol parity BIT and the number of stop BITS: <ul style="list-style-type: none"> • n = NONE parity bit + 2 stop BITS • E = EVEN parity bit + 1 stop BIT • o = ODD parity bit + 1 stop BIT
Ad2	Modbus protocol controller address 2 (Field Bus)
br2	Baudrate 2 selection
Pt2	Sets the Modbus 2 protocol parity BIT and the number of stop BITS. Same as Pt1 .
Ad3	Modbus protocol controller address 3 (TTL)
br3	Baudrate 3 selection
Pt3	Sets the Modbus 3 protocol parity BIT and the number of stop BITS. Same as Pt1 .

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

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 bit 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

WARNING

HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE

- Before writing a Modbus parameter help ensure it is included in the parameter list specific for the model in use.
- Do not write any parameter not having the full understanding of its behavior in general and in relation to the specific application (1).

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

(1): contact technical support for parameters not described in the manual and/or in case of any doubt.

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
rP1	Thermostat regulation probe 1	CP	32920	3840	32930	48	R/W	Byte	N	0...7	num
SEt	Regulation setpoint 1	CP	32769	0	32931	49152	R/W	Word	Y	LSE...HSE	°C/°F
diF	Differential of setpoint 1	CP	32770	0	32928	768	R/W	Word	N	0.0...30.0	°C/°F
LSE	Minimum value settable for setpoint	CP	32771	0	32928	3072	R/W	Word	Y	LdL...HSE	°C/°F
HSE	Maximum value settable for setpoint	CP	32773	0	32928	12288	R/W	Word	Y	LSE...HdL	°C/°F
HC	Operating mode of setpoint 1 (Heating/Cooling)	CP	32968	256	32928	49152	R/W	Byte	N	0/1	flag
ont	ON time for compressor output with faulty regulation probe	CP	32768	0	32929	3	R/W	Byte	N	0...250	min
oFt	OFF time for compressor output with faulty regulation probe	CP	32772	0	32929	12	R/W	Byte	N	0...250	min
don	Compressor output enabling delay from request	CP	32776	0	32929	48	R/W	Byte	N	0...250	s
doF	Compressor output enabling delay from shutdown	CP	32780	0	32929	192	R/W	Byte	N	0...250	min
dbi	Delay between two consecutive starts of the compressor output	CP	32784	0	32929	768	R/W	Byte	N	0...250	min
Cit	Minimum enabling time for compressor output	CP	32800	0	32930	3	R/W	Byte	N	0...250	min
CAt	Maximum enabling time for compressor output	CP	32804	0	32930	12	R/W	Byte	N	0...250	min
odo	Delay output enabling from Power On	CP	32788	0	32929	3072	R/W	Byte	N	0...250	min
CP2	Enabling delay for compressor 2	CP	32887	255	32948	49152	R/W	Byte	N	0...250	min
dFA	Compressor and condenser fans activation delay after command	CP	32895	0	32930	3072	R/W	Byte	N	0...250	s
rP3	Thermostat regulation probe 3	CP	32917	61440	33959	192	R/W	Byte	N	0...7	num
HC3	Operating mode of setpoint 3 (Heating/Cooling)	CP	32970	8	33959	768	R/W	Byte	N	0/1	flag
SP3	Regulation setpoint 3	CP	33814	0	33959	3072	R/W	Word	Y	-199.9...1999	°C/°F
dF3	Differential of setpoint 3	CP	33815	0	33959	12288	R/W	Word	N	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
PbH	Humidity control probe selection	HUD	33933	15	33954	3	R/W	Byte	N	0...14	num
SEH	Humidity setpoint	HUD	33841	0	33954	12	R/W	Word	Y	0.0...100.0	%RH
dFH	Differential of humidity set point	HUD	33842	0	33954	48	R/W	Word	N	0.0...50.0	%RH
dbH	Humidity intervention semi-band	HUD	33843	0	33954	192	R/W	Word	N	0.0...50.0	%RH
dEH	Humidity regulation during defrost	HUD	32970	16384	33954	768	R/W	Byte	N	0/1	flag
CHC	Dehumidify control type	HUD	32971	1	33961	768	R/W	Byte	N	0/1	flag
CHt	Humidity-temperature control type	HUD	32926	768	33960	768	R/W	Byte	N	0...3	num
CHL	Minimum temperature to enable humidity control	HUD	33817	0	33954	3072	R/W	Word	Y	-199.9...1999	°C/°F
CHH	Maximum temperature to enable humidity control	HUD	33818	0	33954	12288	R/W	Word	Y	-199.9...1999	°C/°F
CHd	Humidity control enable differential	HUD	33821	0	33954	49152	R/W	Word	N	0.0...30.0	°C/°F
CHn	Humidify-dehumidify out on time	HUD	33816	0	33955	12	R/W	Byte	N	0...250	s
CHF	Humidify-dehumidify out off time	HUD	33820	0	33955	48	R/W	Byte	N	0...250	s
dP1	Defrost probe 1 selection	dEF	32921	15	32936	768	R/W	Byte	N	0...7	num
dP2	Defrost probe 2 selection	dEF	32921	240	32936	12288	R/W	Byte	N	0...7	num
dtY	Type of defrost	dEF	32908	61440	32930	768	R/W	Byte	N	0...2	num
doH	Defrost cycle enabling delay from request	dEF	32820	0	32931	3	R/W	Byte	N	0...250	min
dt2	Unit of measurement for defrost duration	dEF	32925	192	32930	49152	R/W	Byte	N	0...2	num
dEt	Defrost timeout	dEF	32816	0	32930	12288	R/W	Byte	N	1...250	h/min/s
dS1	Defrost end temperature evaporator 1	dEF	32774	0	32931	12	R/W	Word	Y	-199.9...1999	°C/°F
dS2	Defrost end temperature evaporator 2	dEF	32775	0	32931	48	R/W	Word	Y	-199.9...1999	°C/°F
dPo	Defrost enabling request from Power On	dEF	32968	1024	32931	768	R/W	Byte	N	0/1	flag
tCd	Compressor output enabling/disabling time before a defrost	dEF	32796	0	32929	49152	R/W	Byte	Y	-127...127	min
Cod	OFF time of compressor before defrost	dEF	32792	0	32929	12288	R/W	Byte	N	0...250	min
dMR	Enable defrost timers with manual defrost	dEF	32969	2048	32961	12	R/W	Byte	N	0/1	flag
d00	Cumulative time for defrost activation	dEF	32875	0	32949	12	R/W	Byte	N	0...250	h/min/s
d01	Unit of measurement for parameter d00	dEF	32925	12	32951	12	R/W	Byte	N	0...2	num
dit	Interval between defrosts	dEF	32812	0	32949	49152	R/W	Byte	N	0...250	h/min/s
d11	Unit of measurement for defrost intervals	dEF	32925	48	32951	48	R/W	Byte	N	0...2	num
d20	Enable defrost at compressor stoppage	dEF	32969	256	32951	768	R/W	Byte	N	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
d30	Defrost by compressor continuously on	dEF	32808	0	32966	192	R/W	Byte	N	0...255	h/min/s
d31	Unit of measurement for parameter d30	dEF	32924	12288	32966	768	R/W	Byte	N	0...2	num
d40	Defrost probe 1 selection	dEF	32913	240	32950	3	R/W	Byte	N	0...7	num
d41	Defrosting start temperature	dEF	32837	0	32947	49152	R/W	Word	Y	-199.9...1999	°C/°F
d42	Time for which the evaporator temperature must remain below the dSE threshold	dEF	32839	0	32947	12288	R/W	Word	N	0...255	min
d43	Timer mode for temperature below threshold	dEF	32913	3840	32950	12	R/W	Byte	N	0...3	num
d44	Threshold management mode	dEF	32913	61440	32950	48	R/W	Byte	N	0...2	num
d45	Defrosting start temperature 2	dEF	33847	0	32951	3	R/W	Word	Y	-199.9...1999	°C/°F
d50	Defrost probe 1 selection	dEF	32916	61440	32958	3	R/W	Byte	N	0/1	flag
d51	Defrost probe 2 selection	dEF	32917	15	32958	12	R/W	Byte	N	0/1	flag
d52	Defrosting start temperature	dEF	32849	0	32953	48	R/W	Word	N	0.0...1999	°C/°F
d53	Time for which the delta temperature must remain over the threshold	dEF	32853	0	32953	12288	R/W	Word	N	0...999	min
d54	Timer mode for delta temperature above threshold	dEF	32917	240	32958	48	R/W	Byte	N	0...3	num
d55	Threshold management mode	dEF	32917	3840	32958	192	R/W	Byte	N	0/1	flag
d60	Max number of defrosts to skip	dEF	32908	3840	33955	768	R/W	Byte	N	0...10	num
d61	Percentage duration of optimal defrost 1	dEF	32892	0	33955	3072	R/W	Byte	N	0...100.0	%
d63	Number of defrost cycles at start-up for system ramp-up	dEF	32912	3840	33958	48	R/W	Byte	N	0...10	num
d90	Timed defrost mode	dEF	32914	3840	32950	3072	R/W	Byte	N	0...3	num
d91	Number of daily defrosts	dEF	32876	0	32949	48	R/W	Byte	N	0...255	num
d92	Weekend 1	dEF	32914	15	32950	192	R/W	Byte	N	0...7	num
d93	Weekend 2	dEF	32914	240	32950	768	R/W	Byte	N	0...7	num
d94	Regular defrost interval duration	dEF	32914	61440	32950	12288	R/W	Byte	N	1...7	num
d1H	Start time for defrost nr. 1 during weekdays	dEF	34058	255	32993	3	R/W	Byte	N	0...24	hours
d1n	Start minutes for defrost nr. 1 during weekdays	dEF	34058	0	32993	12	R/W	Byte	N	0...59	min
d2H	Start time for defrost nr. 2 during weekdays	dEF	34059	255	32993	48	R/W	Byte	N	d1H...24	hours
d2n	Start minutes for defrost nr. 2 during weekdays	dEF	33024	0	32993	192	R/W	Byte	N	0...59	min
d3H	Start time for defrost nr. 3 during weekdays	dEF	33028	0	32993	768	R/W	Byte	N	d2H...24	hours

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
d3n	Start minutes for defrost nr. 3 during weekdays	dEF	33029	255	32993	3072	R/W	Byte	N	0...59	min
d4H	Start time for defrost nr. 4 during weekdays	dEF	33029	0	32993	12288	R/W	Byte	N	d3H...24	hours
d4n	Start minutes for defrost nr. 4 during weekdays	dEF	33030	255	32993	49152	R/W	Byte	N	0...59	min
d5H	Start time for defrost nr. 5 during weekdays	dEF	33030	0	32994	3	R/W	Byte	N	d4H...24	hours
d5n	Start minutes for defrost nr. 5 during weekdays	dEF	33031	255	32994	12	R/W	Byte	N	0...59	min
d6H	Start time for defrost nr. 6 during weekdays	dEF	33031	0	32994	48	R/W	Byte	N	d5H...24	hours
d6n	Start minutes for defrost nr. 6 during weekdays	dEF	33032	0	32994	192	R/W	Byte	N	0...59	min
F1H	Start time for defrost nr. 1 during holidays	dEF	33033	255	32994	768	R/W	Byte	N	0...24	hours
F1n	Start minutes for defrost nr. 1 during holidays	dEF	33033	0	32994	3072	R/W	Byte	N	0...59	min
F2H	Start time for defrost nr. 2 during holidays	dEF	33034	255	32994	12288	R/W	Byte	N	F1H...24	hours
F2n	Start minutes for defrost nr. 2 during holidays	dEF	33034	0	32994	49152	R/W	Byte	N	0...59	min
F3H	Start time for defrost nr. 3 during holidays	dEF	33035	255	32995	3	R/W	Byte	N	F2H...24	hours
F3n	Start minutes for defrost nr. 3 during holidays	dEF	33035	0	32995	12	R/W	Byte	N	0...59	min
F4H	Start time for defrost nr. 4 during holidays	dEF	33036	0	32995	48	R/W	Byte	N	F3H...24	hours
F4n	Start minutes for defrost nr. 4 during holidays	dEF	33037	255	32995	192	R/W	Byte	N	0...59	min
F5H	Start time for defrost nr. 5 during holidays	dEF	33037	0	32995	768	R/W	Byte	N	F-F4H...24	hours
F5n	Start minutes for defrost nr. 5 during holidays	dEF	33038	255	32995	3072	R/W	Byte	N	0...59	min
F6H	Start time for defrost nr. 6 during holidays	dEF	33038	0	32995	12288	R/W	Byte	N	F-F5H...24	hours
F6n	Start minutes for defrost nr. 6 during holidays	dEF	33039	255	32995	49152	R/W	Byte	N	0...59	min
FP1	Evaporator fan probe selection in normal mode	FAn	32921	3840	32939	3072	R/W	Byte	N	0...7	num
FPt	Parameter mode FSt (absolute or relative)	FAn	32968	4096	32933	3	R/W	Byte	N	0/1	flag
FSt	Evaporator fans disabling temperature	FAn	32778	0	32933	12	R/W	Word	Y	-199.9...1999	°C/°F
Fot	Evaporator fans enabling temperature	FAn	32838	0	32948	768	R/W	Word	Y	-199.9...1999	°C/°F
FAd	Evaporator fans enabling differential	FAn	32869	0	32933	48	R/W	Byte	N	0.1...30.0	°C/°F
Fdt	Evaporator fans delay after defrost cycle	FAn	32832	0	32947	48	R/W	Byte	N	0...250	min
dt	Dripping time	FAn	32870	255	32933	192	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
dFd	Evaporator fans disabling during defrost time	FAn	32968	8192	32933	768	R/W	Byte	N	0/1	flag
FCo	Evaporator fans status with OFF compressor output	FAn	32909	15	32932	49152	R/W	Byte	N	0...6	num
FdC	Evaporator fans shutdown delay after compressor disabling	FAn	32870	0	32933	3072	R/W	Byte	N	0...250	min
Fon	Evaporator fans ON time in Duty Cycle mode	FAn	32871	255	32933	12288	R/W	Byte	N	0...250	min/s
FoF	Evaporator fans OFF time in Duty Cycle mode	FAn	32871	0	32933	49152	R/W	Byte	N	0...250	min/s
Fnn	Evaporator fans ON time in night duty cycle mode	FAn	32868	0	32932	3072	R/W	Byte	N	0...250	min/s
FnF	Evaporator fans OFF time in night duty cycle mode	FAn	32869	255	32932	12288	R/W	Byte	N	0...250	min/s
ESF	Night mode activation	FAn	32969	512	32951	3072	R/W	Byte	N	0/1	flag
FC1	Condenser probe selection	FAn	32921	61440	33958	3	R/W	Byte	N	0...7	num
SCF	Condenser fan enabling setpoint	FAn	33838	0	32941	49152	R/W	Word	Y	-50.0...150.0	°C/°F
dCF	Condenser fan enabling differential	FAn	33839	0	32942	3	R/W	Word	N	0.0...30.0	°C/°F
tCF	Condenser fan enabling delay after defrost	FAn	33836	0	32942	12	R/W	Byte	N	0...255	min
CFd	Condenser fans disabling during defrost	FAn	32915	15	32949	192	R/W	Byte	N	0/1	flag
HUL	Humidity level selection	FAn	32926	3072	33960	3072	R/W	Byte	N	0...3	num
HU1	Evaporator fans on time humidity level 1	FAn	33888	0	33960	12288	R/W	Byte	N	0...250	min/s
HU2	Evaporator fans off time humidity level 1	FAn	33889	255	33960	49152	R/W	Byte	N	0...250	min/s
HU3	Evaporator fans on time humidity level 2	FAn	33889	0	33961	3	R/W	Byte	N	0...250	min/s
HU4	Evaporator fans off time humidity level 2	FAn	33890	255	33961	12	R/W	Byte	N	0...250	min/s
HU5	Evaporator fans on time humidity level 3	FAn	33890	0	33961	48	R/W	Byte	N	0...250	min/s
HU6	Evaporator fans off time humidity level 3	FAn	33891	255	33961	192	R/W	Byte	N	0...250	min/s
FE1	Select variable speed fan probe	FE	32919	3840	32949	768	R/W	Byte	N	0...7	num
FEt	Setpoint mode	FE	32926	48	32949	3072	R/W	Byte	N	0/1	flag
FES	Setpoint	FE	32862	0	32949	12288	R/W	Word	Y	-199.9...1999	°C/°F
FEd	Band	FE	32863	0	32951	12288	R/W	Word	N	0.1...50.0	°C/°F
FEu	Cut-off band	FE	33829	0	32953	192	R/W	Word	N	0.0...25.0	°C/°F
FEC	Cut-off differential	FE	33830	0	32953	768	R/W	Word	N	0.1...25.0	°C/°F
FEr	Fan switch-off delay after compressor deactivation	FE	33828	0	32958	768	R/W	Byte	N	0...250	min
FE2	Minimum day percentage	FE	32900	0	32958	3072	R/W	Byte	N	0.0...100.0	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
FE3	Maximum day percentage with compressor on	FE	32901	255	32959	3	R/W	Byte	N	0.0...100.0	%
FE4	Maximum day percentage with compressor off	FE	32901	0	32959	12	R/W	Byte	N	0.0...100.0	%
FE5	Minimum night percentage	FE	32902	255	32959	48	R/W	Byte	N	0.0...100.0	%
FE6	Maximum night percentage with compressor on	FE	32902	0	32959	192	R/W	Byte	N	0.0...100.0	%
FE7	Maximum night percentage with compressor off	FE	32903	255	32959	768	R/W	Byte	N	0.0...100.0	%
FE8	Percentage during defrost	FE	32903	0	32959	49152	R/W	Byte	N	0.0...100.0	%
FE9	Percentage in the event of probe error	FE	32904	0	32960	768	R/W	Byte	N	0.0...100.0	%
FEA	Maximum pick-up speed	FE	32905	255	32960	3072	R/W	Byte	N	0.0...100.0	%
FEb	Fan pick-up time	FE	32905	0	32960	12288	R/W	Byte	N	0...250	s
FEP	Fan forcing period at pick-up speed	FE	32906	255	32960	49152	R/W	Byte	N	0...250	min
rA1	Temperature alarm probe 1 selection	AL	32922	15	32966	48	R/W	Byte	N	0...7	num
Att	Alarms mode (absolute or relative)	AL	32968	32768	32934	12	R/W	Byte	N	0/1	flag
AFd	Alarm tripping differential	AL	32872	0	32934	48	R/W	Word	N	0.1...25.0	°C/°F
HAL	Maximum alarm 1 threshold	AL	32779	0	32934	192	R/W	Word	Y	LAL...1999	°C/°F
LAL	Minimum alarm 1 threshold	AL	32781	0	32934	768	R/W	Word	Y	-199.9...HAL	°C/°F
PAo	Temperature alarms disabling time from Power On	AL	32873	255	32934	3072	R/W	Byte	N	0...250	min*10
dAo	Temperature alarm disabling time after defrost cycle	AL	32841	0	32934	12288	R/W	Word	N	0...999	min
oAo	High and low temperature alarms disabling time after door closing	AL	32874	255	32934	49152	R/W	Byte	N	0...10	hours
tdo	Open door disabling time	AL	32875	255	32935	49152	R/W	Byte	N	0...250	min
tAo	High/Minimum alarm delay on probe 1	AL	32874	0	32935	3	R/W	Byte	N	0...250	min
dAt	Defrost alarm signal silenced due to timeout	AL	32782	0	32935	12	R/W	Word	N	0/1	flag
EAL	Regulators blocked from external alarm	AL	32915	3840	32935	48	R/W	Byte	N	0...4	num
AoP	Polarity of alarm output	AL	32969	1	32935	768	R/W	Byte	N	0/1	flag
rA3	Temperature alarm probe selection	AL	32915	240	33959	49152	R/W	Byte	N	0...7	num
SA3	Compressor overheating setpoint	AL	32831	0	32947	12	R/W	Word	Y	LdL...HdL	°C/°F
dA3	Compressor overheating differential	AL	32833	0	32947	192	R/W	Word	N	0.1...30.0	°C/°F
F-rFt	Refrigerant level alarm bypass	AL	33051	0	32985	12288	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
HCP	HACCP probe selection	HAC	32910	3840	33955	49152	R/W	Byte	N	0...7	num
SHH	Maximum HACCP alarm threshold	HAC	33833	0	33956	768	R/W	Word	Y	SLH...1999	°C/°F
SLH	Minimum HACCP alarm threshold	HAC	33835	0	33956	3072	R/W	Word	Y	-199.9...SHH	°C/°F
drA	Minimum dwelling time in critical area before alarm signalling	HAC	32824	0	33956	12288	R/W	Byte	N	0...250	min
drH	HACCP alarm reset time from last manual reset	HAC	33832	0	33956	49152	R/W	Byte	N	0...250	hours
HCE	Enable HACCP alarms storage with/without alarm relay enabling	HAC	32926	192	33957	3	R/W	Byte	N	0...2	num
Hct	HACCP alarms storage disabling time (key or digital input)	HAC	33844	0	33957	12	R/W	Byte	N	0...250	min
ESA	Aux output status in energy saving mode	Lit	32925	768	32959	3072	R/W	Byte	N	0...2	num
tA1	Aux/Light anticipation before night/day transition	Lit	32866	255	32956	12288	R/W	Byte	N	0...250	min
tA2	Aux/Light delay after day/night transition	Lit	32866	0	32956	49152	R/W	Byte	N	0...250	min
dod	Loads shutdown enabling after door micro enabling	dor	32909	3840	32935	12288	R/W	Byte	N	0...10	num
dAd	D.I. 1/2 enabling signalling delay	dor	32882	255	32940	3072	R/W	Byte	N	0...250	min
dCo	Compressor deactivation delay after door opened	dor	32840	0	32931	3072	R/W	Byte	N	0...250	min
dFo	Fan enabling delay from acknowledgement	dor	32906	0	33962	12	R/W	Byte	N	0...250	min
AuP	Aux output activation when door opened	dor	32909	240	32935	192	R/W	Byte	N	0/1	flag
tn1	Activation delay in Energy Saving mode	dor	32848	0	32953	12	R/W	Byte	N	0...250	min
dCd	Fan enabling delay from door closing	dor	33840	0	32936	3072	R/W	Byte	N	0...250	s
L00	Shared probe	Lin	33933	61440	33963	192	R/W	Byte	N	0...6	num
L01	Distributed display (referred to Secondary)	Lin	32924	3072	33963	768	R/W	Byte	N	0...2	num
L02	Setpoint synchronisation	Lin	32971	8	33963	3072	R/W	Byte	N	0/1	flag
L03	Defrost synchronisation	Lin	32919	15	32961	3	R/W	Byte	N	0...2	num
L04	Resource locking after defrost end	Lin	32919	240	32961	48	R/W	Byte	N	0/1	flag
L05	Standby synchronisation	Lin	32925	12288	32961	12288	R/W	Byte	N	0/1	flag
L06	Lights synchronisation	Lin	32925	49152	32961	49152	R/W	Byte	N	0/1	flag
L07	Reduced setpoint synchronisation	Lin	32926	3	32962	3	R/W	Byte	N	0/1	flag
L08	AUX synchronisation	Lin	32926	12	32963	48	R/W	Byte	N	0/1	flag
L10	Resource unlock timeout during synchronised defrosts	Lin	32898	255	32963	192	R/W	Byte	N	1...250	min
L11	Number of devices connected in Field Bus	Lin	33933	3840	33962	12288	R/W	Byte	N	0...8	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
L12	Sharing of alarm relay in Field Bus	Lin	32926	12288	33962	49152	R/W	Byte	N	0...2	num
L15	Share alarm buzzer in Field Bus	Lin	32926	49152	33963	48	R/W	Byte	N	0...2	num
PEn	Number of errors allowed per maximum/minimum pressure switch input	PrE	32894	255	32946	12288	R/W	Byte	N	0...15	num
PEi	Minimum/maximum pressure switch error count interval	PrE	32894	0	32946	49152	R/W	Byte	N	1...99	min
PEt	Compressor activation delay after pressure switch deactivation	PrE	32895	255	32947	3	R/W	Byte	N	0...255	min
SPn	Night mode setpoint	EnS	32854	0	32953	49152	R/W	Word	Y	-199.9...1999	°C/°F
dFn	Night mode offset	EnS	32855	0	32954	3	R/W	Word	N	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	Intervention differential correction	EnS	32789	0	32937	48	R/W	Word	N	0.1...30.0	°C/°F
ESt	Type of action for Energy Saving function	EnS	32918	3840	32958	49152	R/W	Byte	N	0...5	num
dnt	Duration of night mode	EnS	32877	255	32937	3	R/W	Byte	N	0...24	hours
Cdt	Time required to activate energy saving mode after door closed	EnS	32877	0	32937	12	R/W	Byte	N	0...250	min*10
Pdc	Wake-up Mode	PLd	32915	61440	32963	3	R/W	Byte	N	0...2	num
tPd	Duration of fast cooling mode	PLd	32836	0	32962	768	R/W	Byte	N	0...250	min
SPF	Fast cooling setpoint	PLd	32845	0	32952	12288	R/W	Word	Y	-199.9...1999	°C/°F
dFF	Fast cooling offset	PLd	32842	0	32951	49152	R/W	Word	N	0.1...30.0	°C/°F
PdO	Step value for fast cooling setpoint	PLd	32843	0	32952	768	R/W	Word	N	0.1...30.0	°C/°F
Pdn	Step number for fast cooling setpoint	PLd	32916	3840	32957	49152	R/W	Byte	N	1...10	num
Ad1	On Board 1 Address	Add	33048	0	32984	768	R/W	Byte	N	1...247	num
br1	On Board 1 baudrate	Add	33051	255	32984	3072	R/W	Byte	N	0...2	num
Pt1	On Board 1 parity	Add	33049	255	32984	12288	R/W	Byte	N	0...2	num
Ad2	On Board 2 Address	Add	33054	0	32989	192	R/W	Byte	N	1...247	num
br2	On Board 2 baudrate	Add	33055	0	32989	768	R/W	Byte	N	0...2	num
Pt2	On Board 2 parity	Add	33055	255	33989	3072	R/W	Byte	N	0...2	num
SC2	Primary/Secondary selection serial port 2	Add	32970	32	33958	3072	R/W	Byte	N	0/1	flag
Po2	Polling time serial port 2 (only visible if SC2 = 0).	Add	33850	0	---	---	R/W	Word	N	0...1000	s/100
to2	Timeout serial port 2 (only visible if SC2 = 0).	Add	33854	0	---	---	R/W	Word	N	0...1000	s/100
Ad3	On Board 3 Address	Add	33039	0	32990	768	R/W	Byte	N	1...247	num
br3	On Board 3 baudrate	Add	34059	0	32990	3072	R/W	Byte	N	0...2	num
Pt3	On Board 3 parity	Add	33047	0	32990	12288	R/W	Byte	N	0...2	num
ECP	Selection of serial port for ECHO	Add	32922	61440	33958	192	R/W	Byte	N	0...2	num
dro	°C/°F selection	diS	32969	8	32937	192	R/W	Byte	N	0/1	flag
CA1	Analog input 1 calibration	diS	32785	0	32937	768	R/W	Word	Y	-30.0...30.0	°C/°F
CA2	Analog input 2 calibration	diS	32786	0	32937	3072	R/W	Word	Y	-30.0...30.0	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
CA3	Analog input 3 calibration	diS	32787	0	32937	12288	R/W	Word	Y	-30.0...30.0	°C/°F
CA4	Analog input 4 calibration	diS	33837	0	32963	12288	R/W	Word	Y	-30.0...30.0	°C/°F
CAI	Calibration enabling	diS	32924	49152	32937	49152	R/W	Byte	N	0...2	num
LdL	Minimum value that can be displayed	diS	32790	0	32938	3	R/W	Word	Y	-199.9...HdL	°C/°F
HdL	Maximum value that can be displayed	diS	32791	0	32938	12	R/W	Word	Y	LdL...1999	°C/°F
LoC	Disables keypad operation	diS	32969	16	32938	48	R/W	Byte	N	0/1	flag
ddd	Display main status	diS	32909	61440	32938	192	R/W	Byte	N	0...7	num
ddE	Display on Eco	diS	32918	240	32958	12288	R/W	Byte	N	0...8	num
ddL	Display blocking mode during defrost	diS	32910	15	32938	768	R/W	Byte	N	0...2	num
Ldd	Display blocking timeout from defrost end	diS	32878	255	32938	3072	R/W	Byte	N	0...250	min
ndt	Display with decimal point	diS	32969	32	32938	12288	R/W	Byte	N	0/1	flag
FiS	Display filter selection	diS	33053	255	32990	3	R/W	Byte	N	0...2	num
tAu	Time constant for display filter	diS	33053	0	32990	12	R/W	Byte	N	0...250	min
Fit	Display filter mode	diS	33054	255	32990	48	R/W	Byte	N	0/1	flag
PS1	Value of password 1	diS	32879	0	32939	192	R/W	Byte	N	0...250	num
PS2	Value of password 2	diS	32880	0	32939	768	R/W	Byte	N	0...250	num
CEr	Probe error capacity	VSC	32795	0	32942	768	R/W	Word	N	0.0...100.0	%
PdS	Wake-up forced restart differential	VSC	32797	0	32942	3072	R/W	Word	Y	-50.0...50.0	K/°R
PuS	Pull-up forced restart differential	VSC	32798	0	32942	12288	R/W	Word	Y	-50.0...50.0	K/°R
Pud	Temperature timeout out of range	VSC	32799	0	32942	49152	R/W	Word	N	0...999	min
PdE	Wake-up end differential	VSC	32801	0	32943	3	R/W	Word	Y	-50.0...50.0	K/°R
PuE	Pull-up end differential	VSC	32802	0	32943	12	R/W	Word	Y	-50.0...50.0	K/°R
Pdt	Optimized wake-up timeout	VSC	32803	0	32943	48	R/W	Word	N	0...999	min
Pdd	Optimized wake-up capacity	VSC	32805	0	32943	192	R/W	Word	N	0.0...100.0	%
CPd	Capacity after day wake-up	VSC	32806	0	32943	768	R/W	Word	N	0.0...100.0	%
CPn	Capacity after night wake-up	VSC	32807	0	32943	3072	R/W	Word	N	0.0...100.0	%
CSd	Compressor startup delay	VSC	32814	0	32944	12288	R/W	Word	N	0...999	s
CSC	Compressor startup capacity	VSC	32815	0	32944	49152	R/W	Word	N	44.4...100.0	%
CAU	Select PID automatic or manual mode	VSC	32882	0	32945	12	R/W	Word	N	0/1	flag
CdU	PID duty cycle in manual mode	VSC	32818	0	32945	48	R/W	Word	N	0.0...100.0	%
F_1	Maximum Frequency	VSC	32827	0	32946	192	R/W	Word	N	0...250	Hz
F_2	Minimum Frequency	VSC	32829	0	32946	768	R/W	Word	N	0...250	Hz
AP	Probe used by the Analog Output	AoU	33934	15	33964	768	RW	Byte	N	0...7	num
AoF	Analogue output configurability 1	AoU	33932	61440	33957	768	R/W	Byte	N	ro/Er	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
LAO	Lower limit of analogue output 1	AoU	33825	0	33957	3072	R/W	Word	Y	-199.9...1999	°C/°F
HAO	Upper limit of analogue output 1	AoU	33826	0	33957	12288	R/W	Word	Y	-199.9...1999	°C/°F
AoS	Operation mode of analogue output with probe error	AoU	32891	255	33957	49152	R/W	Byte	N	0.0...100.0	%
H08	Standby operating mode	CnF	32925	3	32939	12288	R/W	Byte	N	0...2	num
H11	Analogue input configuration 1 when configured as digital input	CnF	32881	255	32939	49152	R/W	Byte	N	-16...16	num
H12	Analogue input configuration 2 when configured as digital input	CnF	32881	0	32940	768	R/W	Byte	N	-16...16	num
H13	Analogue input configuration 3 when configured as digital input	CnF	32888	0	32963	49152	R/W	Byte	N	-16...16	num
H14	Analogue input configuration 4 when configured as digital input	CnF	32889	255	32964	768	R/W	Byte	N	-16...16	num
H15	Configurability of digital input 5	CnF	32889	0	32964	3072	R/W	Byte	N	-16...16	num
H16	Configurability of digital input 6	CnF	32890	255	32966	12	R/W	Byte	N	-16...16	num
H17	Configurability of digital input 7	CnF	32890	0	33958	12	R/W	Byte	N	-16...16	num
H21	Configurability of digital output 1	CnF	32884	0	32940	12288	R/W	Byte	N	0...20	num
H22	Configurability of digital output 2	CnF	32885	255	32940	49152	R/W	Byte	N	0...20	num
H23	Configurability of digital output 3	CnF	32885	0	32941	3	R/W	Byte	N	0...20	num
H24	Configurability of digital output 4	CnF	32886	255	32941	12	R/W	Byte	N	0...20	num
H25	Buzzer enable	CnF	32897	255	32931	12288	R/W	Byte	N	0/1	num
H31	UP button configurability	CnF	32910	61440	32941	48	R/W	Byte	N	0...12	num
H32	DOWN button configurability	CnF	32911	15	32941	192	R/W	Byte	N	0...13	num
H33	ESC button configurability	CnF	32911	240	32941	768	R/W	Byte	N	0...12	num
H34	Free button 1 configurability	CnF	32911	3840	32941	3072	R/W	Byte	N	0...12	num
H35	Free button 2 configurability	CnF	32911	61440	32941	12288	R/W	Byte	N	0...12	num
P01	Analogue input configuration 1	CnF	32923	15	32957	12	R/W	Byte	N	0...2	num
P02	Analogue input configuration 2	CnF	32923	240	32957	48	R/W	Byte	N	0...2	num
P03	Analogue input configuration 3	CnF	32923	3840	32957	192	R/W	Byte	N	0...2	num
P04	Analogue input configuration 4	CnF	32923	61440	32957	768	R/W	Byte	N	0...2,6,7	num
04L	Lower limit of analogue input 4	CnF	33845	0	33959	12	R/W	Word	Y	-199.9...04H	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
04H	Upper limit of analogue input 4	CnF	33846	0	33959	48	R/W	Word	Y	04L...1999	num
n01	Analog output 1 type	CnF	32912	61440	33958	49152	R/W	Byte	N	0,9	num
01n	Analogue output configurability 1	CnF	32922	240	32957	3072	R/W	Byte	N	0...4	num
n02	Analog output 2 type	CnF	32913	15	33959	3	R/W	Byte	N	0,5,6,7	num
02n	Analogue output configurability 2	CnF	32922	3840	329587	12288	R/W	Byte	N	0...4	num
H45	Defrost input mode for applications with dual evaporator	CnF	32918	15	32950	49152	R/W	Byte	N	0...3	num
H48	RTC present	CnF	32969	64	32942	48	R/W	Byte	N	0/1	flag
H60	Vectors and parameters selection	CnF	33043	0	32987	192	R/W	Byte	N	0...4	num
H70	Sensor 1 selection for virtual sensor	CnF	32918	61440	33961	3072	R/W	Byte	N	0...4	num
H71	Sensor 2 selection for virtual sensor	CnF	32919	61440	33961	12288	R/W	Byte	N	0...4	num
H72	% calculation virtual probe day	CnF	32893	0	33961	49152	R/W	Byte	N	0.0...100.0	%
H73	% calculation virtual probe night	CnF	32897	0	33962	3	R/W	Byte	N	0.0...100.0	%
ZCE	It enables/disables zero crossing feature.	CnF	32970	8192	33964	3072	R/W	Byte	N	0/1	flag
CUS	Customer model reference	CnF	34045	0	32990	192	R/W	Word	N	0...999	num
UL	Parameters from the controller to the UNICARD function visibility	FPr	---	---	32985	48	R/W	Byte	N	0...3	num
Fr	UNICARD formatting function visibility	FPr	---	---	32985	768	R/W	Byte	N	0...3	num
oSPf	Reduced set activation	FnC	---	---	32988	768	R/W	Byte	N	0...3	num
DEF	Activate defrost	FnC	---	---	32987	768	R/W	Byte	N	0...3	num
AUX	AUX output activation / deactivation	FnC	---	---	32987	49152	R/W	Byte	N	0...3	num
rAP	Pressure switch alarms reset visibility	FnC	---	---	32985	3072	R/W	Byte	N	0...3	num
rES	HACCP alarms reset visibility	FnC	---	---	32984	49152	R/W	Byte	N	0...3	num
tUn	Autotuning activation	FnC	---	---	32988	3072	R/W	Byte	N	0...3	num
nPL	Preliminary Autotuning procedure activation	FnC	---	---	32988	12288	R/W	Byte	N	0...3	num
E10	Time band 1 profile	nAd	33040	0	32985	49152	R/W	Byte	N	0...11	num
E11	Event start hour 1	nAd	33041	0	32986	3	R/W	Byte	N	0...23	hours
E12	Event start minute 1	nAd	33042	255	32986	12	R/W	Byte	N	0...59	min
E13	Event termination hour 1	nAd	33042	0	32986	48	R/W	Byte	N	0...23	hours
E14	Event termination minute 1	nAd	33043	255	32986	192	R/W	Byte	N	0...59	min
E15	Enable functions during event 1	nAd	33041	255	32986	768	R/W	Byte	N	0...5	num
E20	Time band 2 profile	nAd	33044	0	32986	3072	R/W	Byte	N	0...11	num
E21	Event start hour 2	nAd	33045	0	32986	12288	R/W	Byte	N	0...23	hours
E22	Event start minute 2	nAd	33046	255	32986	49152	R/W	Byte	N	0...59	min
E23	Event termination hour 2	nAd	33046	0	32987	3	R/W	Byte	N	0...23	hours

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
E24	Event termination minute 2	nAd	33047	255	32987	12	R/W	Byte	N	0...59	min
E25	Enable functions during event 2	nAd	33045	255	32987	48	R/W	Byte	N	0...5	num
FH	Frame heater probe selection	FrH	32898	0	32964	1228/8	R/W	Byte	N	0..8	num
FHt	Frame heater period	FrH	32899	255	32964	49152	R/W	Byte	N	1...250	s*10
FH0	Frame heater setpoint	FrH	32858	0	32965	3	R/W	Word	Y	-199.9...1999	°C/°F
FH1	Frame heater offset	FrH	32859	0	32965	12	R/W	Word	N	0.0...25.0	°C/°F
FH2	Frame heater range	FrH	32861	0	32965	48	R/W	Word	N	0.0...25.0	°C/°F
FH3	Minimum percentage/frame heater duty-cycle	FrH	32856	0	32965	192	R/W	Byte	N	0.0...100.0	%
FH4	Maximum percentage/frame heater duty-cycle day	FrH	32860	0	32965	768	R/W	Byte	N	0.0...100.0	%
FH5	Maximum percentage/frame heater duty-cycle night	FrH	32867	0	32965	3072	R/W	Byte	N	0.0...100.0	%
FH6	Percentage/frame heater duty-cycle in defrost	FrH	32873	0	32965	12288	R/W	Byte	N	0.0...100.0	%
tCP	Time for which the temperature remains below the cool protection setpoint	CPPr	32844	0	32952	3072	R/W	Byte	N	0...250	min
SCP	Cool protection setpoint	CPPr	32846	0	32952	49152	R/W	Word	Y	-199.9...1999	°C/°F
dCP	Cool protection differential	CPPr	32847	0	32953	3	R/W	Word	N	0.1...30.0	°C/°F
dCA	Enable deep cooling	dEC	32925	3072	32959	12288	R/W	Byte	N	0...2	num
dCS	Deep cooling setpoint	dEC	32934	0	32947	768	R/W	Word	Y	LdL...HdL	°C/°F
tdC	Deep cooling Duration	dEC	32886	0	32948	12288	R/W	Byte	N	0...250	min
dCC	Defrost delay after deep cooling	dEC	32883	0	32948	3072	R/W	Byte	N	0...250	min
Sid	Deep cooling start threshold	dEC	32857	0	32962	48	R/W	Word	N	LdL...HdL	°C/°F
toS	Over-threshold time for deep cooling start	dEC	32867	255	32957	3	R/W	Byte	N	0...250	min
SLP	Daily or weekly mode	SL	32969	8192	32961	192	R/W	Byte	N	0/1	flag
SL1	Self Learning duration in daily mode	SL	32865	255	32956	768	R/W	Byte	N	1...30	day
SL2	Self Learning duration in weekly mode	SL	32865	0	32956	3072	R/W	Byte	N	1...30	num
SLr	Enable continuous self learning	SL	32969	16384	32961	768	R/W	Byte	N	0/1	flag
SLb	Automatic activation of self learning after black-out period	SL	32852	0	32953	3072	R/W	Byte	N	0...250	day
SLE	Enable/Disable self learning	SL	32969	32768	32961	3072	R/W	Byte	N	0/1	flag
Application 1 parameters											
V1-rP1	Thermostat regulation probe 1	V1	33224	3840	33234	48	R/W	Byte	N	0...7	num
V1-SEt	Regulation setpoint 1	V1	33073	0	33235	49152	R/W	Word	Y	V1-LSE...V1-HSE	°C/°F
V1-diF	Differential of setpoint 1	V1	33074	0	33232	768	R/W	Word	N	0.0...30.0	°C/°F
V1-LSE	Minimum value settable for setpoint	V1	33075	0	33232	3072	R/W	Word	Y	V1-LdL...V1-HSE	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-HSE	Maximum value settable for setpoint	V1	33077	0	33232	12288	R/W	Word	Y	V1-LSE...V1-HdL	°C/°F
V1-HC	Operating mode (Heating/Cooling)	V1	33272	256	33232	49152	R/W	Byte	N	0/1	flag
V1-ont	ON time for compressor output with faulty regulation probe	V1	33072	0	33233	3	R/W	Byte	N	0...250	min
V1-oFt	OFF time for compressor output with faulty regulation probe	V1	33076	0	33233	12	R/W	Byte	N	0...250	min
V1-don	Compressor output enabling delay from request	V1	33080	0	33233	48	R/W	Byte	N	0...250	s
V1-doF	Compressor output enabling delay from shutdown	V1	33084	0	33233	192	R/W	Byte	N	0...250	min
V1-dbi	Delay between two consecutive starts of the compressor output	V1	33088	0	33233	768	R/W	Byte	N	0...250	min
V1-Cit	Minimum enabling time for compressor output	V1	33104	0	33234	3	R/W	Byte	N	0...250	min
V1-CAt	Maximum enabling time for compressor output	V1	33108	0	33234	12	R/W	Byte	N	0...250	min
V1-odo	Delay output enabling from Power On	V1	33092	0	33233	3072	R/W	Byte	N	0...250	min
V1-CP2	Enabling delay for compressor 2	V1	33191	255	33252	49152	R/W	Byte	N	0...250	min
V1-dFA	Compressor and condenser fans activation delay after command	V1	33199	0	33234	3072	R/W	Byte	N	0...250	s
V1-rP3	Thermostat regulation probe 3	V1	33221	61440	34263	192	R/W	Byte	N	0...7	num
V1-HC3	Operating mode of setpoint 3 (Heating/Cooling)	V1	33274	8	34263	768	R/W	Byte	N	0/1	flag
V1-SP3	Regulation setpoint 3	V1	34118	0	34263	3072	R/W	Word	Y	-199.9...1999	°C/°F
V1-dF3	Differential of setpoint 3	V1	34119	0	34263	12288	R/W	Word	N	0.1...30.0	°C/°F
V1-PbH	Humidity control probe selection	V1	34237	15	34258	3	R/W	Byte	N	0...14	num
V1-SEH	Humidity setpoint	V1	34145	0	34258	12	R/W	Word	Y	0.0...100.0	%RH
V1-dFH	Differential of humidity setpoint	V1	34146	0	34258	48	R/W	Word	N	0.0...50.0	%RH
V1-dbH	Humidity intervention semi-band	V1	34147	0	34258	192	R/W	Word	N	0.0...50.0	%RH
V1-dEH	Humidity regulation during defrost	V1	33274	16384	34258	768	R/W	Byte	N	0/1	flag
V1-CHC	Dehumidify control type	V1	33275	1	34265	768	R/W	Byte	N	0/1	flag
V1-CHt	Humidity-temperature control type	V1	33230	768	34264	768	R/W	Byte	N	0...3	num
V1-CHL	Minimum temperature to enable humidity control	V1	34121	0	34258	3072	R/W	Word	Y	-199.9...1999	°C/°F
V1-CHH	Maximum temperature to enable humidity control	V1	34122	0	34258	12288	R/W	Word	Y	-199.9...1999	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-CHd	Humidity control enable differential	V1	34125	0	34258	49152	R/W	Word	N	0.0...30.0	°C/°F
V1-CHn	Humidify-dehumidify out on time	V1	34120	0	34259	12	R/W	Byte	N	0...250	s
V1-CHF	Humidify-dehumidify out off time	V1	34124	0	34259	48	R/W	Byte	N	0...250	s
V1-dP1	Defrost probe 1 selection	V1	33225	15	33240	768	R/W	Byte	N	0...7	num
V1-dP2	Defrost probe 2 selection	V1	33225	240	33240	12288	R/W	Byte	N	0...7	num
V1-dTY	Type of defrost	V1	33212	61440	33234	768	R/W	Byte	N	0...2	num
V1-doH	Defrost cycle enabling delay from request	V1	33124	0	33235	3	R/W	Byte	N	0...250	min
V1-dt2	Unit of measurement for defrost duration	V1	33229	192	33234	49152	R/W	Byte	N	0...2	num
V1-dEt	Defrost timeout	V1	33120	0	33234	12288	R/W	Byte	N	1...250	h/min/s
V1-dS1	Defrost end temperature evaporator 1	V1	33078	0	33235	12	R/W	Word	Y	-199.9...1999	°C/°F
V1-dS2	Defrost end temperature evaporator 2	V1	33079	0	33235	48	R/W	Word	Y	-199.9...1999	°C/°F
V1-dPo	Defrost enabling request from Power On	V1	33272	1024	33235	768	R/W	Byte	N	0/1	flag
V1-tCd	Compressor output enabling/disabling time before a defrost	V1	33100	0	33233	49152	R/W	Byte	Y	-127...127	min
V1-Cod	OFF time of compressor before defrost	V1	33096	0	33233	12288	R/W	Byte	N	0...250	min
V1-dMR	Enable defrost timers with manual defrost	V1	33273	2048	33265	12	R/W	Byte	N	0/1	flag
V1-d00	Cumulative time for defrost activation	V1	33179	0	33253	12	R/W	Byte	N	0...250	h/min/s
V1-d01	Unit of measurement for parameter d00	V1	33229	12	33255	12	R/W	Byte	N	0...2	num
V1-dit	Interval between defrosts	V1	33116	0	33253	49152	R/W	Byte	N	0...250	h/min/s
V1-d11	Unit of measurement for defrost intervals	V1	33229	48	33255	48	R/W	Byte	N	0...2	num
V1-d20	Enable defrost at compressor stoppage	V1	33273	256	33255	768	R/W	Byte	N	0/1	flag
V1-d30	Defrost by compressor continuously on	V1	33112	0	33270	192	R/W	Byte	N	0...255	h/min/s
V1-d31	Unit of measurement for parameter d30	V1	33228	12288	33270	768	R/W	Byte	N	0...2	num
V1-d40	Defrost probe 1 selection	V1	33217	240	33254	3	R/W	Byte	N	0...7	num
V1-d41	Defrosting start temperature	V1	33141	0	33251	49152	R/W	Word	Y	-199.9...1999	°C/°F
V1-d42	Time for which the evaporator temperature must remain below the dSE threshold	V1	33143	0	33251	12288	R/W	Word	N	0...255	min
V1-d43	Timer mode for temperature below threshold	V1	33217	3840	33254	12	R/W	Byte	N	0...3	num
V1-d44	Threshold management mode	V1	33217	61440	33254	48	R/W	Byte	N	0...2	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-d45	Defrosting start temperature 2	V1	34151	0	33255	3	R/W	Word	Y	-199.9...1999	°C/°F
V1-d50	Defrost probe 1 selection	V1	33220	61440	33262	3	R/W	Byte	N	0/1	flag
V1-d51	Defrost probe 2 selection	V1	33221	15	33262	12	R/W	Byte	N	0/1	flag
V1-d52	Defrosting start temperature	V1	33153	0	33257	48	R/W	Word	N	0.0...1999	°C/°F
V1-d53	Time for which the delta temperature must remain over the threshold	V1	33157	0	33257	12288	R/W	Word	N	0...999	min
V1-d54	Timer mode for delta temperature above threshold	V1	33221	240	33262	48	R/W	Byte	N	0...3	num
V1-d55	Threshold management mode	V1	33221	3840	33262	192	R/W	Byte	N	0/1	flag
V1-d60	Max number of defrosts to skip	V1	33212	3840	34259	768	R/W	Byte	N	0...10	num
V1-d61	Percentage duration of optimal defrost 1	V1	33196	0	34259	3072	R/W	Byte	N	0.0...100.0	%
V1-d63	Number of defrost cycles at start-up for system ramp-up	V1	33216	3840	34262	48	R/W	Byte	N	0...10	num
V1-d90	Timed defrost mode	V1	33218	3840	33254	3072	R/W	Byte	N	0...3	num
V1-d91	Number of daily defrosts	V1	33180	0	33253	48	R/W	Byte	N	0...255	num
V1-d92	Weekend 1	V1	33218	15	33254	192	R/W	Byte	N	0...7	num
V1-d93	Weekend 2	V1	33218	240	33254	768	R/W	Byte	N	0...7	num
V1-d94	Regular defrost interval duration	V1	33218	61440	33254	12288	R/W	Byte	N	1...7	num
V1-FP1	Evaporator fan probe selection in normal mode	V1	33225	3840	33243	3072	R/W	Byte	N	0...7	num
V1-FPt	Parameter mode FSt (absolute or relative)	V1	33272	4096	33237	3	R/W	Byte	N	0/1	flag
V1-FSt	Evaporator fans disabling temperature	V1	33082	0	33237	12	R/W	Word	Y	-199.9...1999	°C/°F
V1-Fot	Evaporator fans enabling temperature	V1	33142	0	33252	768	R/W	Word	Y	-199.9...1999	°C/°F
V1-FAd	Evaporator fans enabling differential	V1	33173	0	33237	48	R/W	Word	N	0.1...30.0	°C/°F
V1-Fdt	Evaporator fans delay after defrost cycle	V1	33136	0	33251	48	R/W	Byte	N	0...250	min
V1-dt	Dripping time	V1	33174	255	33237	192	R/W	Byte	N	0...250	min
V1-dFd	Evaporator fans disabling during defrost time	V1	33272	8192	33237	768	R/W	Byte	N	0/1	flag
V1-FCo	Evaporator fans status with OFF compressor output	V1	33213	15	33236	49152	R/W	Byte	N	0...6	num
V1-FdC	Evaporator fans shutdown delay after compressor disabling	V1	33174	0	33237	3072	R/W	Byte	N	0...250	min
V1-Fon	Evaporator fans ON time in Duty Cycle mode	V1	33175	255	33237	12288	R/W	Byte	N	0...250	min/s

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-FoF	Evaporator fans OFF time in Duty Cycle mode	V1	33175	0	33237	49152	R/W	Byte	N	0...250	min/s
V1-Fnn	Evaporator fans ON time in night duty cycle mode	V1	33172	0	33236	3072	R/W	Byte	N	0...250	min/s
V1-FnF	Evaporator fans OFF time in night duty cycle mode	V1	33173	255	33236	12288	R/W	Byte	N	0...250	min/s
V1-ESF	Night mode activation	V1	33273	512	33255	3072	R/W	Byte	N	0/1	flag
V1-FC1	Condenser probe selection	V1	33225	61440	34262	3	R/W	Byte	N	0...7	num
V1-SCF	Condenser fan enabling set point	V1	34142	0	33245	49152	R/W	Word	Y	-50.0...150.0	°C/°F
V1-dCF	Condenser fan enabling differential	V1	34143	0	33246	3	R/W	Word	N	0.0...30.0	°C/°F
V1-tCF	Condenser fan enabling delay after defrost	V1	34140	0	33246	12	R/W	Byte	N	0...255	min
V1-CFd	Condenser fans disabling during defrost	V1	33219	15	33253	192	R/W	Byte	N	0/1	flag
V1-HUL	Humidity level selection	V1	33230	3072	34264	3072	R/W	Byte	N	0...3	num
V1-HU1	Evaporator fans on time humidity level 1	V1	34192	0	34264	12288	R/W	Byte	N	0...250	min/s
V1-HU2	Evaporator fans off time humidity level 1	V1	34193	255	34264	49152	R/W	Byte	N	0...250	min/s
V1-HU3	Evaporator fans on time humidity level 2	V1	34193	0	34265	3	R/W	Byte	N	0...250	min/s
V1-HU4	Evaporator fans off time humidity level 2	V1	34194	255	34265	12	R/W	Byte	N	0...250	min/s
V1-HU5	Evaporator fans on time humidity level 3	V1	34194	0	34265	48	R/W	Byte	N	0...250	min/s
V1-HU6	Evaporator fans off time humidity level 3	V1	34195	255	34265	192	R/W	Byte	N	0...250	min/s
V1-FE1	Select variable speed fan probe	V1	33223	3840	33253	768	R/W	Byte	N	0...7	num
V1-FEt	Setpoint mode	V1	33230	48	33253	3072	R/W	Byte	N	0/1	flag
V1-FES	Setpoint	V1	33166	0	33253	12288	R/W	Word	Y	-67.0...302	°C/°F
V1-FEd	Band	V1	33167	0	33255	12288	R/W	Word	N	0.1...50.0	°C/°F
V1-FEu	Cut-off band	V1	34133	0	33257	192	R/W	Word	N	0.0...25.0	°C/°F
V1-FEC	Cut-off differential	V1	34134	0	33257	768	R/W	Word	N	0.1...25.0	°C/°F
V1-FEr	Fan switch-off delay after compressor deactivation	V1	34132	0	33262	768	R/W	Byte	N	0...250	min
V1-FE2	Minimum day percentage	V1	33204	0	33262	3072	R/W	Byte	N	0...100	%
V1-FE3	Maximum day percentage with compressor on	V1	33205	255	33263	3	R/W	Byte	N	0...100	%
V1-FE4	Maximum day percentage with compressor off	V1	33205	0	33263	12	R/W	Byte	N	0...100	%
V1-FE5	Minimum night percentage	V1	33206	255	33263	48	R/W	Byte	N	0...100	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-FE6	Maximum night percentage with compressor on	V1	33206	0	33263	192	R/W	Byte	N	0...100	%
V1-FE7	Maximum night percentage with compressor off	V1	33207	255	33263	768	R/W	Byte	N	0...100	%
V1-FE8	Percentage during defrost	V1	33207	0	33263	49152	R/W	Byte	N	0...100	%
V1-FE9	Percentage in the event of probe error	V1	33208	0	33264	768	R/W	Byte	N	0...100	%
V1-FEA	Maximum pick-up speed	V1	33209	255	33264	3072	R/W	Byte	N	0...100	%
V1-FEb	Fan pick-up time	V1	33209	0	33264	12288	R/W	Byte	N	0...250	s
V1-FEP	Fan forcing period at pick-up speed	V1	33210	255	33264	49152	R/W	Byte	N	0...250	min
V1-rA1	Temperature alarm probe 1 selection	V1	33226	15	33270	48	R/W	Byte	N	0...7	num
V1-Att	Alarms mode (absolute or relative)	V1	33272	32768	33238	12	R/W	Byte	N	0/1	flag
V1-AFd	Alarm tripping differential	V1	33176	0	33238	48	R/W	Word	N	0.1...25.0	°C/°F
V1-HAL	Maximum alarm 1 threshold	V1	33083	0	33238	192	R/W	Word	Y	V1-LAL...1999	°C/°F
V1-LAL	Minimum alarm 1 threshold	V1	33085	0	33238	768	R/W	Word	Y	-199.9...V1-HAL	°C/°F
V1-PAo	Temperature alarms disabling time from Power On	V1	33177	255	33238	3072	R/W	Byte	N	0...250	min*10
V1-dAo	Temperature alarm disabling time after defrost cycle	V1	33145	0	33238	12288	R/W	Word	N	0...999	min
V1-oAo	High and low temperature alarms disabling time after door closing	V1	33178	255	33238	49152	R/W	Byte	N	0...10	hours
V1-tdo	Open door disabling time	V1	33179	255	33239	49152	R/W	Byte	N	0...250	min
V1-tAo	High/Minimum alarm delay on probe 1	V1	33178	0	33239	3	R/W	Byte	N	0...250	min
V1-dAt	Defrost alarm signal silenced due to timeout	V1	33086	0	33239	12	R/W	Word	N	0/1	flag
V1-EAL	Regulators blocked from external alarm	V1	33219	3840	33239	48	R/W	Byte	N	0...4	num
V1-AoP	Polarity of alarm output	V1	33273	1	33239	768	R/W	Byte	N	0/1	flag
V1-rA3	Temperature alarm probe selection	V1	33219	240	34263	49152	R/W	Byte	N	0...7	num
V1-SA3	Compressor overheating setpoint	V1	33135	0	33251	12	R/W	Word	Y	V1-LdL...V1-HdL	°C/°F
V1-dA3	Compressor overheating differential	V1	33137	0	33251	192	R/W	Word	N	0.1...30.0	°C/°F
V1-HCP	HACCP probe selection	V1	33214	3840	34259	49152	R/W	Byte	N	0...7	num
V1-SHH	Maximum HACCP alarm threshold	V1	34137	0	34260	768	R/W	Word	Y	V1-SLH...1999	°C/°F
V1-SLH	Minimum HACCP alarm threshold	V1	34139	0	34260	3072	R/W	Word	Y	-199.9...V1-SHH	°C/°F
V1-drA	Minimum dwelling time in critical area before alarm signalling	V1	33128	0	34260	12288	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-drH	HACCP alarm reset time from last manual reset	V1	34136	0	34260	49152	R/W	Byte	N	0...250	hours
V1-HCE	Enable HACCP alarms storage with/without alarm relay enabling	V1	33230	192	34261	3	R/W	Byte	N	0...2	num
V1-HCt	HACCP alarms storage disabling time (key or digital input)	V1	34148	0	34261	12	R/W	Byte	N	0...250	min
V1-ESA	Aux output status in energy saving mode	V1	33229	768	33263	3072	R/W	Byte	N	0...2	num
V1-tA1	Aux/Light anticipation before night/day transition	V1	33170	255	33260	12288	R/W	Byte	N	0...250	min
V1-tA2	Aux/Light delay after day/night transition	V1	33170	0	33260	49152	R/W	Byte	N	0...250	min
V1-dod	Loads shutdown enabling after door micro enabling	V1	33213	3840	33239	12288	R/W	Byte	N	0...10	num
V1-dAd	D.I. 1/2 enabling signalling delay	V1	33186	255	33244	3072	R/W	Byte	N	0...250	min
V1-dCo	Compressor deactivation delay after door opened	V1	33144	0	33235	3072	R/W	Byte	N	0...250	min
V1-dFo	Fan enabling delay from acknowledgement	V1	33210	0	34266	12	R/W	Byte	N	0...250	min
V1-AuP	Aux output activation when door opened	V1	33213	240	33239	192	R/W	Byte	N	0/1	flag
V1-tn1	Activation delay in Energy Saving mode	V1	33152	0	33257	12	R/W	Byte	N	0...250	min
V1-dCd	Fan enabling delay from door closing	V1	34144	0	33240	3072	R/W	Byte	N	0...250	s
V1-L00	Shared probe	V1	34237	61440	34267	192	R/W	Byte	N	0...6	num
V1-L01	Distributed display (referred to Secondary)	V1	33228	3072	34267	768	R/W	Byte	N	0...2	num
V1-L02	Setpoint synchronisation	V1	33275	8	34267	3072	R/W	Byte	N	0/1	flag
V1-L03	Defrost synchronisation	V1	33223	15	33265	3	R/W	Byte	N	0...2	num
V1-L04	Resource locking after defrost end	V1	33223	240	33265	48	R/W	Byte	N	0/1	flag
V1-L05	Standby synchronisation	V1	33229	12288	33265	12288	R/W	Byte	N	0/1	flag
V1-L06	Lights synchronisation	V1	33229	49152	33265	49152	R/W	Byte	N	0/1	flag
V1-L07	Reduced setpoint synchronisation	V1	33230	3	33266	3	R/W	Byte	N	0/1	flag
V1-L08	AUX synchronisation	V1	33230	12	33267	48	R/W	Byte	N	0/1	flag
V1-L10	Resource unlock timeout during synchronised defrosts	V1	33202	255	33267	192	R/W	Byte	N	1...250	min
V1-L11	Number of devices connected in Field Bus	V1	34237	3840	34266	12288	R/W	Byte	N	0...8	num
V1-L12	Sharing of alarm relay in Field Bus	V1	33230	12288	34266	49152	R/W	Byte	N	0...2	num
V1-L15	Share alarm buzzer in Field Bus	V1	33230	49152	34267	48	R/W	Byte	N	0...2	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-PE _n	Number of errors allowed per maximum/minimum pressure switch input	V1	33198	255	33250	12288	R/W	Byte	N	0...15	num
V1-PE _i	Minimum/maximum pressure switch error count interval	V1	33198	0	33250	49152	R/W	Byte	N	1...99	min
V1-PE _t	Compressor activation delay after pressure switch deactivation	V1	33199	255	33251	3	R/W	Byte	N	0...255	min
V1-SP _n	Night mode setpoint	V1	33158	0	33257	49152	R/W	Word	Y	-199.9...1999	°C/°F
V1-dFn	Night mode offset	V1	33159	0	33258	3	R/W	Word	N	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	Intervention differential correction	V1	33093	0	33241	48	R/W	Word	N	0.1...30.0	°C/°F
V1-ES _t	Type of action for Energy Saving function	V1	33222	3840	33262	49152	R/W	Byte	N	0...5	num
V1-dnt	Duration of night mode	V1	33181	255	33241	3	R/W	Byte	N	0...24	hours
V1-cdt	Time required to activate energy saving mode after door closed	V1	33181	0	33241	12	R/W	Byte	N	0...250	min*10
V1-Pdc	Wake-up Mode	V1	33219	61440	33267	3	R/W	Byte	N	0...2	num
V1-tPd	Duration of fast cooling mode	V1	33140	0	33266	768	R/W	Byte	N	0...250	min
V1-SPF	Fast cooling setpoint	V1	33149	0	33256	12288	R/W	Word	Y	-199.9...1999	°C/°F
V1-dFF	Fast cooling offset	V1	33146	0	33255	49152	R/W	Word	N	0.1...30.0	°C/°F
V1-PdO	Step value for fast cooling setpoint	V1	33147	0	33256	768	R/W	Word	N	0.1...30.0	°C/°F
V1-Pdn	Step number for fast cooling setpoint	V1	33220	3840	33261	49152	R/W	Byte	N	1...10	num
V1-SC2	Primary/Secondary selection serial port 2	V1	33274	32	34262	3072	R/W	Byte	N	0/1	flag
V1-Po2	Polling time serial port 2 (only visible if SC2 = 0).	V1	34154	0	-	-	R/W	Word	N	0...1000	s/100
V1-to2	Timeout serial port 2 (only visible if SC2 = 0).	V1	34158	0	-	-	R/W	Word	N	0...1000	s/100
V1-ECP	Selection of serial port for ECHO	V1	33226	61440	34262	192	R/W	Byte	N	0...2	num
V1-dro	°C/°F selection	V1	33273	8	33241	192	R/W	Byte	N	0/1	flag
V1-CA1	Analog input 1 calibration	V1	33089	0	33241	768	R/W	Word	Y	-30.0...30.0	°C/°F
V1-CA2	Analog input 2 calibration	V1	33090	0	33241	3072	R/W	Word	Y	-30.0...30.0	°C/°F
V1-CA3	Analog input 3 calibration	V1	33091	0	33241	12288	R/W	Word	Y	-30.0...30.0	°C/°F
V1-CA4	Analog input 4 calibration	V1	34141	0	33267	12288	R/W	Word	Y	-30.0...30.0	°C/°F
V1-CAI	Calibration enabling	V1	33228	49152	33241	49152	R/W	Byte	N	0...2	num
V1-LdL	Minimum value that can be displayed	V1	33094	0	33242	3	R/W	Word	Y	-199.9...V1-HdL	°C/°F
V1-HdL	Maximum value that can be displayed	V1	33095	0	33242	12	R/W	Word	Y	V1-LdL...1999	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-LoC	Disables keypad operation	V1	33273	16	33242	48	R/W	Byte	N	0/1	flag
V1-ddd	Display main status	V1	33213	61440	33242	192	R/W	Byte	N	0...7	num
V1-ddE	Display on Eco	V1	33222	240	33262	12288	R/W	Byte	N	0..8	num
V1-ddL	Display blocking mode during defrost	V1	33214	15	33242	768	R/W	Byte	N	0...2	num
V1-Ldd	Display blocking timeout from defrost end	V1	33182	255	33242	3072	R/W	Byte	N	0...250	min
V1-ndt	Display with decimal point	V1	33273	32	33242	12288	R/W	Byte	N	0/1	flag
V1-PS1	Value of password 1	V1	33183	0	33243	192	R/W	Byte	N	0...250	num
V1-PS2	Value of password 2	V1	33184	0	33243	768	R/W	Byte	N	0...250	num
V1-CEr	Probe error capacity	V1	33099	0	33246	768	R/W	Word	N	0.0...100.0	%
V1-PdS	Wake-up forced restart differential	V1	33101	0	33246	3072	R/W	Word	N	-50.0...50.0	K°R
V1-PuS	Pull-up forced restart differential	V1	33102	0	33246	12288	R/W	Word	N	-50.0...50.0	K°R
V1-Pud	Temperature timeout out of range	V1	33103	0	33246	49152	R/W	Word	N	0...999	min
V1-PdE	Wake-up end differential	V1	33105	0	33247	3	R/W	Word	N	-50.0...50.0	K°R
V1-PuE	Pull-up end differential	V1	33106	0	33247	12	R/W	Word	N	-50.0...50.0	K°R
V1-Pdt	Optimized wake-up timeout	V1	33107	0	33247	48	R/W	Word	N	0...999	min
V1-Pdd	Optimized wake-up capacity	V1	33109	0	33247	192	R/W	Word	N	0.0...100.0	%
V1-CPd	Capacity after day wake-up	V1	33110	0	33247	768	R/W	Word	N	0.0...100.0	%
V1-CPn	Capacity after night wake-up	V1	33111	0	33247	3072	R/W	Word	N	0.0...100.0	%
V1-CSd	Compressor startup delay	V1	33118	0	33248	12288	R/W	Word	N	0...999	s
V1-CSC	Compressor startup capacity	V1	33119	0	33248	49152	R/W	Word	N	44.4...100.0	%
V1-CAU	Select PID automatic or manual mode	V1	33186	0	33249	12	R/W	Word	N	0/1	flag
V1-CdU	PID duty cycle in manual mode	V1	33122	0	33249	48	R/W	Word	N	0.0...100.0	%
V1-F ₁	Maximum Frequency	V1	33131	0	33250	192	R/W	Word	N	0...250	Hz
V1-F ₂	Minimum Frequency	V1	33133	0	33250	768	R/W	Word	N	0...250	Hz
V1-AP	Probe used by the Analog Output	V1	34238	15	34268	768	RW	Byte	N	0...7	num
V1-AoF	Analogue output configurability 1	V1	34236	61440	34261	768	R/W	Byte	N	ro/Er	flag
V1-LAO	Lower limit of analogue output 1	V1	34129	0	34261	3072	R/W	Word	Y	-199.9...1999	°C/°F
V1-HAO	Upper limit of analogue output 1	V1	34130	0	34261	12288	R/W	Word	Y	-199.9...1999	°C/°F
V1-AoS	Operation mode of analogue output with probe error	V1	33195	255	34261	49152	R/W	Byte	N	0.0...100.0	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-H08	Standby operating mode	V1	33229	3	33243	12288	R/W	Byte	N	0...2	num
V1-H11	Analogue input configuration 1 when configured as digital input	V1	33185	255	33243	49152	R/W	Byte	N	-16...16	num
V1-H12	Analogue input configuration 2 when configured as digital input	V1	33185	0	33244	768	R/W	Byte	N	-16...16	num
V1-H13	Analogue input configuration 3 when configured as digital input	V1	33192	0	33267	49152	R/W	Byte	N	-16...16	num
V1-H14	Analogue input configuration 4 when configured as digital input	V1	33193	255	33268	768	R/W	Byte	N	-16...16	num
V1-H15	Configurability of digital input 5	V1	33193	0	33268	3072	R/W	Byte	N	-16...16	num
V1-H16	Configurability of digital input 6	V1	33194	255	33270	12	R/W	Byte	N	-16...16	num
V1-H17	Configurability of digital input 7	V1	33194	0	34262	12	R/W	Byte	N	-16...16	num
V1-H21	Configurability of digital output 1	V1	33188	0	33244	12288	R/W	Byte	N	0...20	num
V1-H22	Configurability of digital output 2	V1	33189	255	33244	49152	R/W	Byte	N	0...20	num
V1-H23	Configurability of digital output 3	V1	33189	0	33245	3	R/W	Byte	N	0...20	num
V1-H24	Configurability of digital output 4	V1	33190	255	33245	12	R/W	Byte	N	0...20	num
V1-H25	Buzzer enable	V1	33201	255	33235	12288	R/W	Byte	N	0/1	num
V1-H31	UP button configurability	V1	33214	61440	33245	48	R/W	Byte	N	0...12	num
V1-H32	DOWN button configurability	V1	33215	15	33245	192	R/W	Byte	N	0...13	num
V1-H33	ESC button configurability	V1	33215	240	33245	768	R/W	Byte	N	0...12	num
V1-H34	Free button 1 configurability	V1	33215	3840	33245	3072	R/W	Byte	N	0...12	num
V1-H35	Free button 2 configurability	V1	33215	61440	33245	12288	R/W	Byte	N	0...12	num
V1-P01	Analogue input configuration 1	V1	33227	15	33261	12	R/W	Byte	N	0...2	num
V1-P02	Analogue input configuration 2	V1	33227	240	33261	48	R/W	Byte	N	0...2	num
V1-P03	Analogue input configuration 3	V1	33227	3840	33261	192	R/W	Byte	N	0...2	num
V1-P04	Analogue input configuration 4	V1	33227	61440	33261	768	R/W	Byte	N	0...2,6,7	num
V1-04L	Lower limit of analogue input 4	V1	34149	0	34263	12	R/W	Word	Y	-199.9...V1-04H	num
V1-04H	Upper limit of analogue input 4	V1	34150	0	34263	48	R/W	Word	Y	V1-04L...1999	num
V1-n01	Analog output 1 type	V1	33216	61440	34262	49152	R/W	Byte	N	0,9	num
V1-01n	Analogue output configurability 1	V1	33226	240	33261	3072	R/W	Byte	N	0...4	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-n02	Analog output 2 type	V1	33217	15	34263	3	R/W	Byte	N	0,5,6,7	num
V1-02n	Analogue output configurability 2	V1	33226	3840	33261	12288	R/W	Byte	N	0...4	num
V1-H45	Defrost input mode for applications with dual evaporator	V1	33222	15	33254	49152	R/W	Byte	N	0...3	num
V1-H48	RTC present	V1	33273	64	33246	48	R/W	Byte	N	0/1	flag
V1-H70	Sensor 1 selection for virtual sensor	V1	33222	61440	34265	3072	R/W	Byte	N	0...4	num
V1-H71	Sensor 2 selection for virtual sensor	V1	33223	61440	34265	12288	R/W	Byte	N	0...4	num
V1-H72	% calculation virtual probe day	V1	33197	0	34265	49152	R/W	Byte	N	0.0...100.0	%
V1-H73	% calculation virtual probe night	V1	33201	0	34266	3	R/W	Byte	N	0.0...100.0	%
V1-ZCE	It enables/disables zero crossing feature.	V1	33274	8192	34268	3072	R/W	Byte	N	0/1	flag
V1-FH	Frame heater probe selection	V1	33202	0	33268	12288	R/W	Byte	N	0...8	num
V1-FHt	Frame heater period	V1	33203	255	33268	49152	R/W	Byte	N	1...250	s*10
V1-FH0	Frame heater setpoint	V1	33162	0	33269	3	R/W	Word	Y	-199.9...1999	°C/°F
V1-FH1	Frame heater offset	V1	33163	0	33269	12	R/W	Word	N	0.0...25.0	°C/°F
V1-FH2	Frame heater range	V1	33165	0	33269	48	R/W	Word	N	0.0...25.0	°C/°F
V1-FH3	Minimum percentage/frame heater duty-cycle	V1	33160	0	33269	192	R/W	Byte	N	0.0...100.0	%
V1-FH4	Maximum percentage/frame heater duty-cycle day	V1	33164	0	33269	768	R/W	Byte	N	0.0...100.0	%
V1-FH5	Maximum percentage/frame heater duty-cycle night	V1	33171	0	33269	3072	R/W	Byte	N	0.0...100.0	%
V1-FH6	Percentage/frame heater duty-cycle in defrost	V1	33177	0	33269	12288	R/W	Byte	N	0.0...100.0	%
V1-tCP	Time for which the temperature remains below the cool protection setpoint	V1	33148	0	33256	3072	R/W	Byte	N	0...250	min
V1-SCP	Cool protection setpoint	V1	33150	0	33256	49152	R/W	Word	Y	-199.9...1999	°C/°F
V1-dCP	Cool protection differential	V1	33151	0	33257	3	R/W	Word	N	0.1...30.0	°C/°F
V1-dCA	Enable deep cooling	V1	33229	3072	33263	12288	R/W	Byte	N	0...2	num
V1-dCS	Deep cooling setpoint	V1	33138	0	33251	768	R/W	Word	Y	V1-LdL...V1-HdL	°C/°F
V1-tdC	Deep cooling Duration	V1	33190	0	33252	12288	R/W	Byte	N	0...250	min
V1-dCC	Defrost delay after deep cooling	V1	33187	0	33252	3072	R/W	Byte	N	0...250	min
V1-Sid	Deep cooling start threshold	V1	33161	0	33266	48	R/W	Word	Y	V1-LdL...V1-HdL	°C/°F
V1-toS	Over-threshold time for deep cooling start	V1	33171	255	33261	3	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V1-SLP	Daily or weekly mode	V1	33273	8192	33265	192	R/W	Byte	N	0/1	flag
V1-SL1	Self Learning duration in daily mode	V1	33169	255	33260	768	R/W	Byte	N	1...30	Day
V1-SL2	Self Learning duration in weekly mode	V1	33169	0	33260	3072	R/W	Byte	N	1...30	num
V1-SLr	Enable continuous self learning	V1	33273	16384	33265	768	R/W	Byte	N	0/1	flag
V1-SLb	Automatic activation of self learning after black-out period	V1	33156	0	33257	3072	R/W	Byte	N	0...250	Day
V1-SLE	Enable/Disable self learning	V1	33273	32768	33265	3072	R/W	Byte	N	0/1	flag
Application 2 parameters											
V2-rP1	Thermostat regulation probe 1	V2	33432	3840	33442	48	R/W	Byte	N	0...7	num
V2-SEt	Regulation setpoint 1	V2	33281	0	33443	49152	R/W	Byte	Y	V2-LSE...V2-HSE	°C/°F
V2-diF	Differential of setpoint 1	V2	33282	0	33440	768	R/W	Byte	N	0.0...30.0	°C/°F
V2-LSE	Minimum value settable for setpoint	V2	33283	0	33440	3072	R/W	Byte	Y	V2-LdL...V2-HSE	°C/°F
V2-HSE	Maximum value settable for setpoint	V2	33285	0	33440	12288	R/W	Byte	Y	V2-LSE...V2-HdL	°C/°F
V2-HC	Operating mode (Heating/Cooling)	V2	33480	256	33440	49152	R/W	Byte	N	0/1	flag
V2-ont	ON time for compressor output with faulty regulation probe	V2	33280	0	33441	3	R/W	Byte	N	0...250	min
V2-ofFt	OFF time for compressor output with faulty regulation probe	V2	33284	0	33441	12	R/W	Byte	N	0...250	min
V2-don	Compressor output enabling delay from request	V2	33288	0	33441	48	R/W	Byte	N	0...250	s
V2-doF	Compressor output enabling delay from shutdown	V2	33292	0	33441	192	R/W	Byte	N	0...250	min
V2-dbi	Delay between two consecutive starts of the compressor output	V2	33296	0	33441	768	R/W	Byte	N	0...250	min
V2-Cit	Minimum enabling time for compressor output	V2	33312	0	33442	3	R/W	Byte	N	0...250	min
V2-CAt	Maximum enabling time for compressor output	V2	33316	0	33442	12	R/W	Byte	N	0...250	min
V2-odo	Delay output enabling from Power On	V2	33300	0	33441	3072	R/W	Byte	N	0...250	min
V2-CP2	Enabling delay for compressor 2	V2	33399	255	33460	49152	R/W	Byte	N	0...250	min
V2-dFA	Compressor and condenser fans activation delay after command	V2	33407	0	33442	3072	R/W	Byte	N	0...250	s
V2-rP3	Thermostat regulation probe 3	V2	33429	61440	34471	192	R/W	Byte	N	0...7	num
V2-HC3	Operating mode of setpoint 3 (Heating/Cooling)	V2	33482	8	34471	768	R/W	Byte	N	0/1	flag
V2-SP3	Regulation setpoint 3	V2	34326	0	34471	3072	R/W	Byte	Y	-199.9...1999	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-dF3	Differential of setpoint 3	V2	34327	0	34471	12288	R/W	Byte	N	0.1...30.0	°C/°F
V2-PbH	Humidity control probe selection	V2	34445	15	34466	3	R/W	Byte	N	0...14	num
V2-SEH	Humidity setpoint	V2	34353	0	34466	12	R/W	Byte	Y	0.0...100.0	%RH
V2-dFH	Differential of humidity setpoint	V2	34354	0	34466	48	R/W	Byte	N	0.0...50.0	%RH
V2-dbH	Humidity intervention semi-band	V2	34355	0	34466	192	R/W	Byte	N	0.0...50.0	%RH
V2-dEH	Humidity regulation during defrost	V2	33482	16384	34466	768	R/W	Byte	N	0/1	flag
V2-CHC	Dehumidify control type	V2	33483	1	34473	768	R/W	Byte	N	0/1	flag
V2-CHt	Humidity-temperature control type	V2	33438	768	34472	768	R/W	Byte	N	0...3	num
V2-CHL	Minimum temperature to enable humidity control	V2	34329	0	34466	3072	R/W	Byte	Y	-199.9...1999	°C/°F
V2-CHH	Maximum temperature to enable humidity control	V2	34330	0	34466	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V2-CHd	Humidity control enable differential	V2	34333	0	34466	49152	R/W	Byte	N	0.0...30.0	°C/°F
V2-CHn	Humidify-dehumidify out on time	V2	34328	0	34467	12	R/W	Byte	N	0...250	s
V2-CHF	Humidify-dehumidify out off time	V2	34332	0	34467	48	R/W	Byte	N	0...250	s
V2-dP1	Defrost probe 1 selection	V2	33433	15	33448	768	R/W	Byte	N	0...7	num
V2-dP2	Defrost probe 2 selection	V2	33433	240	33448	12288	R/W	Byte	N	0...7	num
V2-dtY	Type of defrost	V2	33420	61440	33442	768	R/W	Byte	N	0...2	num
V2-doH	Defrost cycle enabling delay from request	V2	33332	0	33443	3	R/W	Byte	N	0...250	min
V2-dt2	Unit of measurement for defrost duration	V2	33437	192	33442	49152	R/W	Byte	N	0...2	num
V2-dEt	Defrost timeout	V2	33328	0	33442	12288	R/W	Byte	N	1...250	h/min/s
V2-dS1	Defrost end temperature evaporator 1	V2	33286	0	33443	12	R/W	Byte	Y	-199.9...1999	°C/°F
V2-dS2	Defrost end temperature evaporator 2	V2	33287	0	33443	48	R/W	Byte	Y	-199.9...1999	°C/°F
V2-dPo	Defrost enabling request from Power On	V2	33480	1024	33443	768	R/W	Byte	N	0/1	flag
V2-tCd	Compressor output enabling/disabling time before a defrost	V2	33308	0	33441	49152	R/W	Byte	Y	-127...127	min
V2-Cod	OFF time of compressor before defrost	V2	33304	0	33441	12288	R/W	Byte	N	0...250	min
V2-dMR	Enable defrost timers with manual defrost	V2	33481	2048	33473	12	R/W	Byte	N	0/1	flag
V2-d00	Cumulative time for defrost activation	V2	33387	0	33461	12	R/W	Byte	N	0...250	h/min/s
V2-d01	Unit of measurement for parameter d00	V2	33437	12	33463	12	R/W	Byte	N	0...2	num
V2-dit	Interval between defrosts	V2	33324	0	33461	49152	R/W	Byte	N	0...250	h/min/s

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-d11	Unit of measurement for defrost intervals	V2	33437	48	33463	48	R/W	Byte	N	0...2	num
V2-d20	Enable defrost at compressor stoppage	V2	33481	256	33463	768	R/W	Byte	N	0/1	flag
V2-d30	Defrost by compressor continuously on	V2	33320	0	33478	192	R/W	Byte	N	0...255	h/min/s
V2-d31	Unit of measurement for parameter d30	V2	33436	12288	33478	768	R/W	Byte	N	0...2	num
V2-d40	Defrost probe 1 selection	V2	33425	240	33462	3	R/W	Byte	N	0...7	num
V2-d41	Defrosting start temperature	V2	33349	0	33459	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V2-d42	Time for which the evaporator temperature must remain below the dSE threshold	V2	33351	0	33459	12288	R/W	Byte	N	0...255	min
V2-d43	Timer mode for temperature below threshold	V2	33425	3840	33462	12	R/W	Byte	N	0...3	num
V2-d44	Threshold management mode	V2	33425	61440	33462	48	R/W	Byte	N	0...2	num
V2-d45	Defrosting start temperature 2	V2	34359	0	33463	3	R/W	Byte	Y	-199.9...1999	°C/°F
V2-d50	Defrost probe 1 selection	V2	33428	61440	33470	3	R/W	Byte	N	0/1	flag
V2-d51	Defrost probe 2 selection	V2	33429	15	33470	12	R/W	Byte	N	0/1	flag
V2-d52	Defrosting start temperature	V2	33361	0	33465	48	R/W	Byte	N	0.0...1999	°C/°F
V2-d53	Time for which the delta temperature must remain over the threshold	V2	33365	0	33465	12288	R/W	Byte	N	0...999	min
V2-d54	Timer mode for delta temperature above threshold	V2	33429	240	33470	48	R/W	Byte	N	0...3	num
V2-d55	Threshold management mode	V2	33429	3840	33470	192	R/W	Byte	N	0/1	flag
V2-d60	Max number of defrosts to skip	V2	33420	3840	34467	768	R/W	Byte	N	0...10	num
V2-d61	Percentage duration of optimal defrost 1	V2	33404	0	34467	3072	R/W	Byte	N	0.0...100.0	%
V2-d63	Number of defrost cycles at start-up for system ramp-up	V2	33424	3840	34470	48	R/W	Byte	N	0...10	num
V2-d90	Timed defrost mode	V2	33426	3840	33462	3072	R/W	Byte	N	0...3	num
V2-d91	Number of daily defrosts	V2	33388	0	33461	48	R/W	Byte	N	0...255	num
V2-d92	Weekend 1	V2	33426	15	33462	192	R/W	Byte	N	0...7	num
V2-d93	Weekend 2	V2	33426	240	33462	768	R/W	Byte	N	0...7	num
V2-d94	Regular defrost interval duration	V2	33426	61440	33462	12288	R/W	Byte	N	1...7	num
V2-FP1	Evaporator fan probe selection in normal mode	V2	33433	3840	33451	3072	R/W	Byte	N	0...7	num
V2-FPt	Parameter mode FSt (absolute or relative)	V2	33480	4096	33445	3	R/W	Byte	N	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-FSt	Evaporator fans disabling temperature	V2	33290	0	33445	12	R/W	Byte	Y	-199.9...1999	°C/°F
V2-Fot	Evaporator fans enabling temperature	V2	33350	0	33460	768	R/W	Byte	Y	-199.9...1999	°C/°F
V2-FAd	Evaporator fans enabling differential	V2	33381	0	33445	48	R/W	Byte	N	0.1...30.0	°C/°F
V2-Fdt	Evaporator fans delay after defrost cycle	V2	33344	0	33459	48	R/W	Byte	N	0...250	min
V2-dt	Dripping time	V2	33382	255	33445	192	R/W	Byte	N	0...250	min
V2-dFd	Evaporator fans disabling during defrost time	V2	33480	8192	33445	768	R/W	Byte	N	0/1	flag
V2-FCo	Evaporator fans status with OFF compressor output	V2	33421	15	33444	49152	R/W	Byte	N	0...6	num
V2-FdC	Evaporator fans shutdown delay after compressor disabling	V2	33382	0	33445	3072	R/W	Byte	N	0...250	min
V2-Fon	Evaporator fans ON time in Duty Cycle mode	V2	33383	255	33445	12288	R/W	Byte	N	0...250	min/s
V2-FoF	Evaporator fans OFF time in Duty Cycle mode	V2	33383	0	33445	49152	R/W	Byte	N	0...250	min/s
V2-Fnn	Evaporator fans ON time in night duty cycle mode	V2	33380	0	33444	3072	R/W	Byte	N	0...250	min/s
V2-FnF	Evaporator fans OFF time in night duty cycle mode	V2	33381	255	33444	12288	R/W	Byte	N	0...250	min/s
V2-ESF	Night mode activation	V2	33481	512	33463	3072	R/W	Byte	N	0/1	flag
V2-FC1	Condenser probe selection	V2	33433	61440	34470	3	R/W	Byte	N	0...7	num
V2-SCF	Condenser fan enabling set point	V2	34350	0	33453	49152	R/W	Byte	Y	-50.0...150.0	°C/°F
V2-dCF	Condenser fan enabling differential	V2	34351	0	33454	3	R/W	Byte	N	0.0...30.0	°C/°F
V2-tCF	Condenser fan enabling delay after defrost	V2	34348	0	33454	12	R/W	Byte	N	0...255	min
V2-CFd	Condenser fans disabling during defrost	V2	33427	15	33461	192	R/W	Byte	N	0/1	flag
V2-HUL	Humidity level selection	V2	33438	3072	34472	3072	R/W	Byte	N	0...3	num
V2-HU1	Evaporator fans on time humidity level 1	V2	34400	0	34472	12288	R/W	Byte	N	0...250	min/s
V2-HU2	Evaporator fans off time humidity level 1	V2	34401	255	34472	49152	R/W	Byte	N	0...250	min/s
V2-HU3	Evaporator fans on time humidity level 2	V2	34401	0	34473	3	R/W	Byte	N	0...250	min/s
V2-HU4	Evaporator fans off time humidity level 2	V2	34402	255	34473	12	R/W	Byte	N	0...250	min/s
V2-HU5	Evaporator fans on time humidity level 3	V2	34402	0	34473	48	R/W	Byte	N	0...250	min/s
V2-HU6	Evaporator fans off time humidity level 3	V2	34403	255	34473	192	R/W	Byte	N	0...250	min/s
V2-FE1	Select variable speed fan probe	V2	33431	3840	33461	768	R/W	Byte	N	0...7	num
V2-FEt	Setpoint mode	V2	33438	48	33461	3072	R/W	Byte	N	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-FES	Setpoint	V2	33374	0	33461	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V2-FEd	Band	V2	33375	0	33463	12288	R/W	Byte	N	0.1...50.0	°C/°F
V2-FEu	Cut-off band	V2	34341	0	33465	192	R/W	Byte	N	0.0...25.0	°C/°F
V2-FEC	Cut-off differential	V2	34342	0	33465	768	R/W	Byte	N	0.1...25.0	°C/°F
V2-FEr	Fan switch-off delay after compressor deactivation	V2	34340	0	33470	768	R/W	Byte	N	0...250	min
V2-FE2	Minimum day percentage	V2	33412	0	33470	3072	R/W	Byte	N	0.0...100.0	%
V2-FE3	Maximum day percentage with compressor on	V2	33413	255	33471	3	R/W	Byte	N	0.0...100.0	%
V2-FE4	Maximum day percentage with compressor off	V2	33413	0	33471	12	R/W	Byte	N	0.0...100.0	%
V2-FE5	Minimum night percentage	V2	33414	255	33471	48	R/W	Byte	N	0.0...100.0	%
V2-FE6	Maximum night percentage with compressor on	V2	33414	0	33471	192	R/W	Byte	N	0.0...100.0	%
V2-FE7	Maximum night percentage with compressor off	V2	33415	255	33471	768	R/W	Byte	N	0.0...100.0	%
V2-FE8	Percentage during defrost	V2	33415	0	33471	49152	R/W	Byte	N	0.0...100.0	%
V2-FE9	Percentage in the event of probe error	V2	33416	0	33472	768	R/W	Byte	N	0.0...100.0	%
V2-FEA	Maximum pick-up speed	V2	33417	255	33472	3072	R/W	Byte	N	0.0...100.0	%
V2-FEb	Fan pick-up time	V2	33417	0	33472	12288	R/W	Byte	N	0...250	s
V2-FEP	Fan forcing period at pick-up speed	V2	33418	255	33472	49152	R/W	Byte	N	0...250	min
V2-rA1	Temperature alarm probe 1 selection	V2	33434	15	33478	48	R/W	Byte	N	0...7	num
V2-Att	Alarms mode (absolute or relative)	V2	33480	32768	33446	12	R/W	Byte	N	0/1	flag
V2-AFd	Alarm tripping differential	V2	33384	0	33446	48	R/W	Byte	N	0.1...25.0	°C/°F
V2-HAL	Maximum alarm 1 threshold	V2	33291	0	33446	192	R/W	Byte	Y	V2-LAL...1999	°C/°F
V2-LAL	Minimum alarm 1 threshold	V2	33293	0	33446	768	R/W	Byte	Y	-199.9...V2-HAL	°C/°F
V2-PAo	Temperature alarms disabling time from Power On	V2	33385	255	33446	3072	R/W	Byte	N	0...250	min*10
V2-dAo	Temperature alarm disabling time after defrost cycle	V2	33353	0	33446	12288	R/W	Byte	N	0...999	min
V2-oAo	High and low temperature alarms disabling time after door closing	V2	33386	255	33446	49152	R/W	Byte	N	0...10	hours
V2-tdo	Open door disabling time	V2	33387	255	33447	49152	R/W	Byte	N	0...250	min
V2-tAo	High/Minimum alarm delay on probe 1	V2	33386	0	33447	3	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-dAt	Defrost alarm signal silenced due to timeout	V2	33294	0	33447	12	R/W	Byte	N	0/1	flag
V2-EAL	Regulators blocked from external alarm	V2	33427	3840	33447	48	R/W	Byte	N	0...4	num
V2-AoP	Polarity of alarm output	V2	33481	1	33447	768	R/W	Byte	N	0/1	flag
V2-rA3	Temperature alarm probe selection	V2	33427	240	34471	49152	R/W	Byte	N	0...7	num
V2-SA3	Compressor overheating setpoint	V2	33343	0	33459	12	R/W	Byte	Y	V2-LdL...V2-HdL	°C/°F
V2-dA3	Compressor overheating differential	V2	33345	0	33459	192	R/W	Byte	N	0.1...30.0	°C/°F
V2-HCP	HACCP probe selection	V2	33422	3840	34467	49152	R/W	Byte	N	0...7	num
V2-SHH	Maximum HACCP alarm threshold	V2	34345	0	34468	768	R/W	Byte	Y	V2-SLH...1999	°C/°F
V2-SLH	Minimum HACCP alarm threshold	V2	34347	0	34468	3072	R/W	Byte	Y	-199.9...V2-SHH	°C/°F
V2-drA	Minimum dwelling time in critical area before alarm signalling	V2	33336	0	34468	12288	R/W	Byte	N	0...250	min
V2-drH	HACCP alarm reset time from last manual reset	V2	34344	0	34468	49152	R/W	Byte	N	0...250	hours
V2-HCE	Enable HACCP alarms storage with/without alarm relay enabling	V2	33438	192	34469	3	R/W	Byte	N	0...2	num
V2-HCt	HACCP alarms storage disabling time (key or digital input)	V2	34356	0	34469	12	R/W	Byte	N	0...250	min
V2-ESA	Aux output status in energy saving mode	V2	33437	768	33471	3072	R/W	Byte	N	0...2	num
V2-tA1	Aux/Light anticipation before night/day transition	V2	33378	255	33468	12288	R/W	Byte	N	0...250	min
V2-tA2	Aux/Light delay after day/night transition	V2	33378	0	33468	49152	R/W	Byte	N	0...250	min
V2-dod	Loads shutdown enabling after door micro enabling	V2	33421	3840	33447	12288	R/W	Byte	N	0...10	num
V2-dAd	D.I. 1/2 enabling signalling delay	V2	33394	255	33452	3072	R/W	Byte	N	0...250	min
V2-dCo	Compressor deactivation delay after door opened	V2	33352	0	33443	3072	R/W	Byte	N	0...250	min
V2-dFo	Fan enabling delay from acknowledgement	V2	33418	0	34474	12	R/W	Byte	N	0...250	min
V2-AuP	Aux output activation when door opened	V2	33421	240	33447	192	R/W	Byte	N	0/1	flag
V2-tn1	Activation delay in Energy Saving mode	V2	33360	0	33465	12	R/W	Byte	N	0...250	min
V2-dCd	Fan enabling delay from door closing	V2	34352	0	33448	3072	R/W	Byte	N	0...250	s
V2-L00	Shared probe	V2	34445	61440	34475	192	R/W	Byte	N	0...6	num
V2-L01	Distributed display (referred to Secondary)	V2	33436	3072	34475	768	R/W	Byte	N	0...2	num
V2-L02	Setpoint synchronisation	V2	33483	8	34475	3072	R/W	Byte	N	0/1	flag
V2-L03	Defrost synchronisation	V2	33431	15	33473	3	R/W	Byte	N	0...2	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-L04	Resource locking after defrost end	V2	33431	240	33473	48	R/W	Byte	N	0/1	flag
V2-L05	Standby synchronisation	V2	33437	12288	33473	12288	R/W	Byte	N	0/1	flag
V2-L06	Lights synchronisation	V2	33437	49152	33473	49152	R/W	Byte	N	0/1	flag
V2-L07	Reduced setpoint synchronisation	V2	33438	3	33474	3	R/W	Byte	N	0/1	flag
V2-L08	AUX synchronisation	V2	33438	12	33475	48	R/W	Byte	N	0/1	flag
V2-L10	Resource unlock timeout during synchronised defrosts	V2	33410	255	33475	192	R/W	Byte	N	1...250	min
V2-L11	Number of devices connected in Field Bus	V2	34445	3840	34474	12288	R/W	Byte	N	0...8	num
V2-L12	Sharing of alarm relay in Field Bus	V2	33438	12288	34474	49152	R/W	Byte	N	0...2	num
V2-L15	Share alarm buzzer in Field Bus	V2	33438	49152	34475	48	R/W	Byte	N	0...2	num
V2-PE _n	Number of errors allowed per maximum/minimum pressure switch input	V2	33406	255	33458	12288	R/W	Byte	N	0...15	num
V2-PE _i	Minimum/maximum pressure switch error count interval	V2	33406	0	33458	49152	R/W	Byte	N	1...99	min
V2-PE _t	Compressor activation delay after pressure switch deactivation	V2	33407	255	33459	3	R/W	Byte	N	0...255	min
V2-SP _n	Night mode setpoint	V2	33366	0	33465	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V2-dF _n	Night mode offset	V2	33367	0	33466	3	R/W	Byte	N	0.1...30.0	°C/°F
V2-oSP	Offset on setpoint	V2	33295	0	33448	49152	R/W	Byte	Y	-30.0...30.0	°C/°F
V2-odF	Intervention differential correction	V2	33301	0	33449	48	R/W	Byte	N	0.1...30.0	°C/°F
V2-ESt	Type of action for Energy Saving function	V2	33430	3840	33470	49152	R/W	Byte	N	0...5	num
V2-dnt	Duration of night mode	V2	33389	255	33449	3	R/W	Byte	N	0...24	hours
V2-cdt	Time required to activate energy saving mode after door closed	V2	33389	0	33449	12	R/W	Byte	N	0...250	min*10
V2-Pdc	Wake-up Mode	V2	33427	61440	33475	3	R/W	Byte	N	0...2	num
V2-tPd	Duration of fast cooling mode	V2	33348	0	33474	768	R/W	Byte	N	0...250	min
V2-SPF	Fast cooling setpoint	V2	33357	0	33464	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V2-dFF	Fast cooling offset	V2	33354	0	33463	49152	R/W	Byte	N	0.1...30.0	°C/°F
V2-PdO	Step value for fast cooling setpoint	V2	33355	0	33464	768	R/W	Byte	N	0.1...30.0	°C/°F
V2-Pdn	Step number for fast cooling setpoint	V2	33428	3840	33469	49152	R/W	Byte	N	1...10	num
V2-SC2	Primary/Secondary selection serial port 2	V2	33482	32	34470	3072	R/W	Byte	N	0/1	flag
V2-Po2	Polling time serial port 2 (only visible if SC2 = 0).	V2	34362	0	-	-	R/W	Byte	N	0...1000	s/100

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-to2	Timeout serial port 2 (only visible if SC2 = 0).	V2	34366	0	-	-	R/W	Byte	N	0...1000	s/100
V2-ECP	Selection of serial port for ECHO	V2	33434	61440	34470	192	R/W	Byte	N	0...2	num
V2-dro	°C/°F selection	V2	33481	8	33449	192	R/W	Byte	N	0/1	flag
V2-CA1	Analog input 1 calibration	V2	33297	0	33449	768	R/W	Byte	Y	-30.0...30.0	°C/°F
V2-CA2	Analog input 2 calibration	V2	33298	0	33449	3072	R/W	Byte	Y	-30.0...30.0	°C/°F
V2-CA3	Analog input 3 calibration	V2	33299	0	33449	12288	R/W	Byte	Y	-30.0...30.0	°C/°F
V2-CA4	Analog input 4 calibration	V2	34349	0	33475	12288	R/W	Byte	Y	-30.0...30.0	°C/°F
V2-CAI	Calibration enabling	V2	33436	49152	33449	49152	R/W	Byte	N	0...2	num
V2-LdL	Minimum value that can be displayed	V2	33302	0	33450	3	R/W	Byte	Y	-199.9...V2-HdL	°C/°F
V2-HdL	Maximum value that can be displayed	V2	33303	0	33450	12	R/W	Byte	Y	V2-LdL...1999	°C/°F
V2-LoC	Disables keypad operation	V2	33481	16	33450	48	R/W	Byte	N	0/1	flag
V2-ddd	Display main status	V2	33421	61440	33450	192	R/W	Byte	N	0...7	num
V2-ddE	Display on Eco	V2	33430	240	33470	12288	R/W	Byte	N	0...8	num
V2-ddL	Display blocking mode during defrost	V2	33422	15	33450	768	R/W	Byte	N	0...2	num
V2-Ldd	Display blocking timeout from defrost end	V2	33390	255	33450	3072	R/W	Byte	N	0...250	min
V2-ndt	Display with decimal point	V2	33481	32	33450	12288	R/W	Byte	N	0/1	flag
V2-PS1	Value of password 1	V2	33391	0	33451	192	R/W	Byte	N	0...250	num
V2-PS2	Value of password 2	V2	33392	0	33451	768	R/W	Byte	N	0...250	num
V2-CEr	Probe error capacity	V2	33307	0	33454	768	R/W	Byte	N	0.0...100.0	%
V2-PdS	Wake-up forced restart differential	V2	33309	0	33454	3072	R/W	Byte	N	-50.0...50.0	K/°R
V2-PuS	Pull-up forced restart differential	V2	33310	0	33454	12288	R/W	Byte	N	-50.0...50.0	K/°R
V2-Pud	Temperature timeout out of range	V2	33311	0	33454	49152	R/W	Byte	N	0...999	min
V2-PdE	Wake-up end differential	V2	33313	0	33455	3	R/W	Byte	N	-50.0...50.0	K/°R
V2-PuE	Pull-up end differential	V2	33314	0	33455	12	R/W	Byte	N	-50.0...50.0	K/°R
V2-Pdt	Optimized wake-up timeout	V2	33315	0	33455	48	R/W	Byte	N	0...999	min
V2-Pdd	Optimized wake-up capacity	V2	33317	0	33455	192	R/W	Byte	N	0.0...100.0	%
V2-CPd	Capacity after day wake-up	V2	33318	0	33455	768	R/W	Byte	N	0.0...100.0	%
V2-CPn	Capacity after night wake-up	V2	33319	0	33455	3072	R/W	Byte	N	0.0...100.0	%
V2-CSd	Compressor startup delay	V2	33326	0	33456	12288	R/W	Byte	N	0...999	s
V2-CSC	Compressor startup capacity	V2	33327	0	33456	49152	R/W	Byte	N	44.4...100.0	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-CAU	Select PID automatic or manual mode	V2	33394	0	33457	12	R/W	Byte	N	0/1	flag
V2-CdU	PID duty cycle in manual mode	V2	33330	0	33457	48	R/W	Byte	N	0.0...100.0	%
V2-F ₁	Maximum Frequency	V2	33339	0	33458	192	R/W	Byte	N	0...250	Hz
V2-F ₂	Minimum Frequency	V2	33341	0	33458	768	R/W	Byte	N	0...250	Hz
V2-AP	Probe used by the Analog Output	V2	34446	15	34476	768	R/W	Byte	N	0...7	num
V2-AoF	Analogue output configurability 1	V2	34444	61440	34469	768	R/W	Byte	N	ro/Er	flag
V2-LAO	Lower limit of analogue output 1	V2	34337	0	34469	3072	R/W	Byte	Y	-199.9...1999	°C/°F
V2-HAO	Upper limit of analogue output 1	V2	34338	0	34469	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V2-AoS	Operation mode of analogue output with probe error	V2	33403	255	34469	49152	R/W	Byte	N	0.0...100.0	%
V2-H08	Standby operating mode	V2	33437	3	33451	12288	R/W	Byte	N	0...2	num
V2-H11	Analogue input configuration 1 when configured as digital input	V2	33393	255	33451	49152	R/W	Byte	N	-16...16	num
V2-H12	Analogue input configuration 2 when configured as digital input	V2	33393	0	33452	768	R/W	Byte	N	-16...16	num
V2-H13	Analogue input configuration 3 when configured as digital input	V2	33400	0	33475	49152	R/W	Byte	N	-16...16	num
V2-H14	Analogue input configuration 4 when configured as digital input	V2	33401	255	33476	768	R/W	Byte	N	-16...16	num
V2-H15	Configurability of digital input 5	V2	33401	0	33476	3072	R/W	Byte	N	-16...16	num
V2-H16	Configurability of digital input 6	V2	33402	255	33478	12	R/W	Byte	N	-16...16	num
V2-H17	Configurability of digital input 7	V2	33402	0	34470	12	R/W	Byte	N	-16...16	num
V2-H21	Configurability of digital output 1	V2	33396	0	33452	12288	R/W	Byte	N	0...20	num
V2-H22	Configurability of digital output 2	V2	33397	255	33452	49152	R/W	Byte	N	0...20	num
V2-H23	Configurability of digital output 3	V2	33397	0	33453	3	R/W	Byte	N	0...20	num
V2-H24	Configurability of digital output 4	V2	33398	255	33453	12	R/W	Byte	N	0...20	num
V2-H25	Buzzer enable	V2	33409	255	33443	12288	R/W	Byte	N	0/1	num
V2-H31	UP button configurability	V2	33422	61440	33453	48	R/W	Byte	N	0...12	num
V2-H32	DOWN button configurability	V2	33423	15	33453	192	R/W	Byte	N	0...13	num
V2-H33	ESC button configurability	V2	33423	240	33453	768	R/W	Byte	N	0...12	num
V2-H34	Free button 1 configurability	V2	33423	3840	33453	3072	R/W	Byte	N	0...12	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-H35	Free button 2 configurability	V2	33423	61440	33453	12288	R/W	Byte	N	0...12	num
V2-P01	Analogue input configuration 1	V2	33435	15	33469	12	R/W	Byte	N	0...2	num
V2-P02	Analogue input configuration 2	V2	33435	240	33469	48	R/W	Byte	N	0...2	num
V2-P03	Analogue input configuration 3	V2	33435	3840	33469	192	R/W	Byte	N	0...2	num
V2-P04	Analogue input configuration 4	V2	33435	61440	33469	768	R/W	Byte	N	0...2,6,7	num
V2-04L	Lower limit of analogue input 4	V2	34357	0	34471	12	R/W	Byte	Y	-199.9...V2-04H	num
V2-04H	Upper limit of analogue input 4	V2	34358	0	34471	48	R/W	Byte	Y	V2-04L...1999	num
V2-n01	Analog output 1 type	V2	33424	61440	34470	49152	R/W	Byte	N	0,9	num
V2-01n	Analogue output configurability 1	V2	33434	240	33469	3072	R/W	Byte	N	0...4	num
V2-n02	Analog output 2 type	V2	33425	15	34471	3	R/W	Byte	N	0,5,6,7	num
V2-02n	Analogue output configurability 2	V2	33434	3840	33469	12288	R/W	Byte	N	0...4	num
V2-H45	Defrost input mode for applications with dual evaporator	V2	33430	15	33462	49152	R/W	Byte	N	0...3	num
V2-H48	RTC present	V2	33481	64	33454	48	R/W	Byte	N	0/1	flag
V2-H70	Sensor 1 selection for virtual sensor	V2	33430	61440	34473	3072	R/W	Byte	N	0...4	num
V2-H71	Sensor 2 selection for virtual sensor	V2	33431	61440	34473	12288	R/W	Byte	N	0...4	num
V2-H72	% calculation virtual probe day	V2	33405	0	34473	49152	R/W	Byte	N	0.0...100.0	%
V2-H73	% calculation virtual probe night	V2	33409	0	34474	3	R/W	Byte	N	0.0...100.0	%
V2-ZCE	It enables/disables zero crossing feature.	V2	33482	8192	34476	3072	R/W	Byte	N	0/1	flag
V2-FH	Frame heater probe selection	V2	33410	0	33476	12288	R/W	Byte	N	0...8	num
V2-FHt	Frame heater period	V2	33411	255	33476	49152	R/W	Byte	N	1...250	s*10
V2-FH0	Frame heater setpoint	V2	33370	0	33477	3	R/W	Byte	Y	-199.9...1999	°C/°F
V2-FH1	Frame heater offset	V2	33371	0	33477	12	R/W	Byte	N	0.0...25.0	°C/°F
V2-FH2	Frame heater range	V2	33373	0	33477	48	R/W	Byte	N	0.0...25.0	°C/°F
V2-FH3	Minimum percentage/frame heater duty-cycle	V2	33368	0	33477	192	R/W	Byte	N	0.0...100.0	%
V2-FH4	Maximum percentage/frame heater duty-cycle day	V2	33372	0	33477	768	R/W	Byte	N	0.0...100.0	%
V2-FH5	Maximum percentage/frame heater duty-cycle night	V2	33379	0	33477	3072	R/W	Byte	N	0.0...100.0	%
V2-FH6	Percentage/frame heater duty-cycle in defrost	V2	33385	0	33477	12288	R/W	Byte	N	0.0...100.0	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V2-tCP	Time for which the temperature remains below the cool protection setpoint	V2	33356	0	33464	3072	R/W	Byte	N	0...250	min
V2-SCP	Cool protection setpoint	V2	33358	0	33464	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V2-dCP	Cool protection differential	V2	33359	0	33465	3	R/W	Byte	N	0.1...30.0	°C/°F
V2-dCA	Enable deep cooling	V2	33437	3072	33471	12288	R/W	Byte	N	0...2	num
V2-dCS	Deep cooling setpoint	V2	33346	0	33459	768	R/W	Byte	Y	V2-LdL...V2-HdL	°C/°F
V2-tdC	Deep cooling Duration	V2	33398	0	33460	12288	R/W	Byte	N	0...250	min
V2-dCC	Defrost delay after deep cooling	V2	33395	0	33460	3072	R/W	Byte	N	0...250	min
V2-Sid	Deep cooling start threshold	V2	33369	0	33474	48	R/W	Byte	Y	V2-LdL...V2-HdL	°C/°F
V2-toS	Over-threshold time for deep cooling start	V2	33379	255	33469	3	R/W	Byte	N	0...250	min
V2-SLP	Daily or weekly mode	V2	33481	8192	33473	192	R/W	Byte	N	0/1	flag
V2-SL1	Self Learning duration in daily mode	V2	33377	255	33468	768	R/W	Byte	N	1...30	Day
V2-SL2	Self Learning duration in weekly mode	V2	33377	0	33468	3072	R/W	Byte	N	1...30	num
V2-SLr	Enable continuous self learning	V2	33481	16384	33473	768	R/W	Byte	N	0/1	flag
V2-SLb	Automatic activation of self learning after black-out period	V2	33364	0	33465	3072	R/W	Byte	N	0...250	Day
V2-SLE	Enable/Disable self learning	V2	33481	32768	33473	3072	R/W	Byte	N	0/1	flag
Application 3 parameters											
V3-rP1	Thermostat regulation probe 1	V3	33636	3840	33646	48	R/W	Byte	N	0...7	num
V3-SEt	Regulation setpoint 1	V3	33485	0	33647	49152	R/W	Byte	Y	V3-LSE...V3-HSE	°C/°F
V3-diF	Differential of setpoint 1	V3	33486	0	33644	768	R/W	Byte	N	0.0...30.0	°C/°F
V3-LSE	Minimum value settable for setpoint	V3	33487	0	33644	3072	R/W	Byte	Y	V3-LdL...V3-HSE	°C/°F
V3-HSE	Maximum value settable for setpoint	V3	33489	0	33644	12288	R/W	Byte	Y	V3-LSE...V3-HdL	°C/°F
V3-HC	Operating mode (Heating/Cooling)	V3	33684	256	33644	49152	R/W	Byte	N	0/1	flag
V3-ont	ON time for compressor output with faulty regulation probe	V3	33484	0	33645	3	R/W	Byte	N	0...250	min
V3-oFt	OFF time for compressor output with faulty regulation probe	V3	33488	0	33645	12	R/W	Byte	N	0...250	min
V3-don	Compressor output enabling delay from request	V3	33492	0	33645	48	R/W	Byte	N	0...250	s
V3-doF	Compressor output enabling delay from shutdown	V3	33496	0	33645	192	R/W	Byte	N	0...250	min
V3-dbi	Delay between two consecutive starts of the compressor output	V3	33500	0	33645	768	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-Cit	Minimum enabling time for compressor output	V3	33516	0	33646	3	R/W	Byte	N	0...250	min
V3-CAt	Maximum enabling time for compressor output	V3	33520	0	33646	12	R/W	Byte	N	0...250	min
V3-odo	Delay output enabling from Power On	V3	33504	0	33645	3072	R/W	Byte	N	0...250	min
V3-CP2	Enabling delay for compressor 2	V3	33603	255	33664	49152	R/W	Byte	N	0...250	min
V3-dFA	Compressor and condenser fans activation delay after command	V3	33611	0	33646	3072	R/W	Byte	N	0...250	s
V3-rP3	Thermostat regulation probe 3	V3	33633	61440	34675	192	R/W	Byte	N	0...7	num
V3-HC3	Operating mode of setpoint 3 (Heating/Cooling)	V3	33686	8	34675	768	R/W	Byte	N	0/1	flag
V3-SP3	Regulation setpoint 3	V3	34530	0	34675	3072	R/W	Byte	Y	-199.9...1999	°C/°F
V3-dF3	Differential of setpoint 3	V3	34531	0	34675	12288	R/W	Byte	N	0.1...30.0	°C/°F
V3-PbH	Humidity control probe selection	V3	34649	15	34670	3	R/W	Byte	N	0...7	num
V3-SEH	Humidity setpoint	V3	34557	0	34670	12	R/W	Byte	Y	0.0...100.0	%RH
V3-dFH	Differential of humidity setpoint	V3	34558	0	34670	48	R/W	Byte	N	0.0...50.0	%RH
V3-dbH	Humidity intervention semi-band	V3	34559	0	34670	192	R/W	Byte	N	0.0...50.0	%RH
V3-dEH	Humidity regulation during defrost	V3	33686	16384	34670	768	R/W	Byte	N	0/1	flag
V3-CHC	Dehumidify control type	V3	33687	1	34677	768	R/W	Byte	N	0/1	flag
V3-CHt	Humidity-temperature control type	V3	33642	768	34676	768	R/W	Byte	N	0...3	num
V3-CHL	Minimum temperature to enable humidity control	V3	34533	0	34670	3072	R/W	Byte	Y	-199.9...1999	°C/°F
V3-CHH	Maximum temperature to enable humidity control	V3	34534	0	34670	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V3-CHd	Humidity control enable differential	V3	34537	0	34670	49152	R/W	Byte	N	0.0...30.0	°C/°F
V3-CHn	Humidify-dehumidify out on time	V3	34532	0	34671	12	R/W	Byte	N	0...250	s
V3-CHF	Humidify-dehumidify out off time	V3	34536	0	34671	48	R/W	Byte	N	0...250	s
V3-dP1	Defrost probe 1 selection	V3	33637	15	33652	768	R/W	Byte	N	0...7	num
V3-dP2	Defrost probe 2 selection	V3	33637	240	33652	12288	R/W	Byte	N	0...7	num
V3-dtY	Type of defrost	V3	33624	61440	33646	768	R/W	Byte	N	0...2	num
V3-doH	Defrost cycle enabling delay from request	V3	33536	0	33647	3	R/W	Byte	N	0...250	min
V3-dt2	Unit of measurement for defrost duration	V3	33641	192	33646	49152	R/W	Byte	N	0...2	num
V3-dEt	Defrost timeout	V3	33532	0	33646	12288	R/W	Byte	N	1...250	h/min/s
V3-dS1	Defrost end temperature evaporator 1	V3	33490	0	33647	12	R/W	Byte	Y	-199.9...1999	°C/°F

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-dS2	Defrost end temperature evaporator 2	V3	33491	0	33647	48	R/W	Byte	Y	-199.9...1999	°C/°F
V3-dPo	Defrost enabling request from Power On	V3	33684	1024	33647	768	R/W	Byte	N	0/1	flag
V3-tCd	Compressor output enabling/disabling time before a defrost	V3	33512	0	33645	49152	R/W	Byte	Y	-127...127	min
V3-Cod	OFF time of compressor before defrost	V3	33508	0	33645	12288	R/W	Byte	N	0...250	min
V3-dMR	Enable defrost timers with manual defrost	V3	33685	2048	33677	12	R/W	Byte	N	0/1	flag
V3-d00	Cumulative time for defrost activation	V3	33591	0	33665	12	R/W	Byte	N	0...250	h/min/s
V3-d01	Unit of measurement for parameter d00	V3	33641	12	33667	12	R/W	Byte	N	0...2	num
V3-dit	Interval between defrosts	V3	33528	0	33665	49152	R/W	Byte	N	0...250	h/min/s
V3-d11	Unit of measurement for defrost intervals	V3	33641	48	33667	48	R/W	Byte	N	0...2	num
V3-d20	Enable defrost at compressor stoppage	V3	33685	256	33667	768	R/W	Byte	N	0/1	flag
V3-d30	Defrost by compressor continuously on	V3	33524	0	33682	192	R/W	Byte	N	0...255	h/min/s
V3-d31	Unit of measurement for parameter d30	V3	33640	12288	33682	768	R/W	Byte	N	0...2	num
V3-d40	Defrost probe 1 selection	V3	33629	240	33666	3	R/W	Byte	N	0...7	num
V3-d41	Defrosting start temperature	V3	33553	0	33663	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V3-d42	Time for which the evaporator temperature must remain below the dSE threshold	V3	33555	0	33663	12288	R/W	Byte	N	0...255	min
V3-d43	Timer mode for temperature below threshold	V3	33629	3840	33666	12	R/W	Byte	N	0...3	num
V3-d44	Threshold management mode	V3	33629	61440	33666	48	R/W	Byte	N	0...2	num
V3-d45	Defrosting start temperature 2	V3	34563	0	33667	3	R/W	Byte	Y	-199.9...1999	°C/°F
V3-d50	Defrost probe 1 selection	V3	33632	61440	33674	3	R/W	Byte	N	0/1	flag
V3-d51	Defrost probe 2 selection	V3	33633	15	33674	12	R/W	Byte	N	0/1	flag
V3-d52	Defrosting start temperature	V3	33565	0	33669	48	R/W	Byte	N	0.0...1999	°C/°F
V3-d53	Time for which the delta temperature must remain over the threshold	V3	33569	0	33669	12288	R/W	Byte	N	0...999	min
V3-d54	Timer mode for delta temperature above threshold	V3	33633	240	33674	48	R/W	Byte	N	0...3	num
V3-d55	Threshold management mode	V3	33633	3840	33674	192	R/W	Byte	N	0/1	flag
V3-d60	Max number of defrosts to skip	V3	33624	3840	34671	768	R/W	Byte	N	0...10	num
V3-d61	Percentage duration of optimal defrost 1	V3	33608	0	34671	3072	R/W	Byte	N	0.0...100.0	%

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-d63	Number of defrost cycles at start-up for system ramp-up	V3	33628	3840	34674	48	R/W	Byte	N	0...10	num
V3-d90	Timed defrost mode	V3	33630	3840	33666	3072	R/W	Byte	N	0...3	num
V3-d91	Number of daily defrosts	V3	33592	0	33665	48	R/W	Byte	N	0...255	num
V3-d92	Weekend 1	V3	33630	15	33666	192	R/W	Byte	N	0...7	num
V3-d93	Weekend 2	V3	33630	240	33666	768	R/W	Byte	N	0...7	num
V3-d94	Regular defrost interval duration	V3	33630	61440	33666	12288	R/W	Byte	N	1...7	num
V3-FP1	Evaporator fan probe selection in normal mode	V3	33637	3840	33655	3072	R/W	Byte	N	0...7	num
V3-FPt	Parameter mode FSt (absolute or relative)	V3	33684	4096	33649	3	R/W	Byte	N	0/1	flag
V3-FSt	Evaporator fans disabling temperature	V3	33494	0	33649	12	R/W	Byte	Y	-199.9...1999	°C/°F
V3-Fot	Evaporator fans enabling temperature	V3	33554	0	33664	768	R/W	Byte	Y	-199.9...1999	°C/°F
V3-FAd	Evaporator fans enabling differential	V3	33585	0	33649	48	R/W	Byte	N	0.1...30.0	°C/°F
V3-Fdt	Evaporator fans delay after defrost cycle	V3	33548	0	33663	48	R/W	Byte	N	0...250	min
V3-dt	Dripping time	V3	33586	255	33649	192	R/W	Byte	N	0...250	min
V3-dFd	Evaporator fans disabling during defrost time	V3	33684	8192	33649	768	R/W	Byte	N	0/1	flag
V3-FCo	Evaporator fans status with OFF compressor output	V3	33625	15	33648	49152	R/W	Byte	N	0...6	num
V3-FdC	Evaporator fans shutdown delay after compressor disabling	V3	33586	0	33649	3072	R/W	Byte	N	0...250	min
V3-Fon	Evaporator fans ON time in Duty Cycle mode	V3	33587	255	33649	12288	R/W	Byte	N	0...250	min/s
V3-FoF	Evaporator fans OFF time in Duty Cycle mode	V3	33587	0	33649	49152	R/W	Byte	N	0...250	min/s
V3-Fnn	Evaporator fans ON time in night duty cycle mode	V3	33584	0	33648	3072	R/W	Byte	N	0...250	min/s
V3-FnF	Evaporator fans OFF time in night duty cycle mode	V3	33585	255	33648	12288	R/W	Byte	N	0...250	min/s
V3-ESF	Night mode activation	V3	33685	512	33667	3072	R/W	Byte	N	0/1	flag
V3-FC1	Condenser probe selection	V3	33637	61440	34674	3	R/W	Byte	N	0...7	num
V3-SCF	Condenser fan enabling set point	V3	34554	0	33657	49152	R/W	Byte	Y	-50.0...150.0	°C/°F
V3-dCF	Condenser fan enabling differential	V3	34555	0	33658	3	R/W	Byte	N	0.0...30.0	°C/°F
V3-tCF	Condenser fan enabling delay after defrost	V3	34552	0	33658	12	R/W	Byte	N	0...255	min
V3-CFd	Condenser fans disabling during defrost	V3	33631	15	33665	192	R/W	Byte	N	0/1	flag

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-HUL	Humidity level selection	V3	33642	3072	34676	3072	R/W	Byte	N	0...3	num
V3-HU1	Evaporator fans on time humidity level 1	V3	34604	0	34676	12288	R/W	Byte	N	0...250	min/s
V3-HU2	Evaporator fans off time humidity level 1	V3	34605	255	34676	49152	R/W	Byte	N	0...250	min/s
V3-HU3	Evaporator fans on time humidity level 2	V3	34605	0	34677	3	R/W	Byte	N	0...250	min/s
V3-HU4	Evaporator fans off time humidity level 2	V3	34606	255	34677	12	R/W	Byte	N	0...250	min/s
V3-HU5	Evaporator fans on time humidity level 3	V3	34606	0	34677	48	R/W	Byte	N	0...250	min/s
V3-HU6	Evaporator fans off time humidity level 3	V3	34607	255	34677	192	R/W	Byte	N	0...250	min/s
V3-FE1	Select variable speed fan probe	V3	33635	3840	33665	768	R/W	Byte	N	0...7	num
V3-FEt	Setpoint mode	V3	33642	48	33665	3072	R/W	Byte	N	0/1	flag
V3-FES	Setpoint	V3	33578	0	33665	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V3-FEd	Band	V3	33579	0	33667	12288	R/W	Byte	N	0.1...50.0	°C/°F
V3-FEu	Cut-off band	V3	34545	0	33669	192	R/W	Byte	N	0.0...25.0	°C/°F
V3-FEC	Cut-off differential	V3	34546	0	33669	768	R/W	Byte	N	0.1...25.0	°C/°F
V3-FEr	Fan switch-off delay after compressor deactivation	V3	34544	0	33674	768	R/W	Byte	N	0...250	min
V3-FE2	Minimum day percentage	V3	33616	0	33674	3072	R/W	Byte	N	0.0...100.0	%
V3-FE3	Maximum day percentage with compressor on	V3	33617	255	33675	3	R/W	Byte	N	0.0...100.0	%
V3-FE4	Maximum day percentage with compressor off	V3	33617	0	33675	12	R/W	Byte	N	0.0...100.0	%
V3-FE5	Minimum night percentage	V3	33618	255	33675	48	R/W	Byte	N	0.0...100.0	%
V3-FE6	Maximum night percentage with compressor on	V3	33618	0	33675	192	R/W	Byte	N	0.0...100.0	%
V3-FE7	Maximum night percentage with compressor off	V3	33619	255	33675	768	R/W	Byte	N	0.0...100.0	%
V3-FE8	Percentage during defrost	V3	33619	0	33675	49152	R/W	Byte	N	0.0...100.0	%
V3-FE9	Percentage in the event of probe error	V3	33620	0	33676	768	R/W	Byte	N	0.0...100.0	%
V3-FEA	Maximum pick-up speed	V3	33621	255	33676	3072	R/W	Byte	N	0.0...100.0	%
V3-FEb	Fan pick-up time	V3	33621	0	33676	12288	R/W	Byte	N	0...250	s
V3-FEP	Fan forcing period at pick-up speed	V3	33622	255	33676	49152	R/W	Byte	N	0...250	min
V3-rA1	Temperature alarm probe 1 selection	V3	33638	15	33682	48	R/W	Byte	N	0...7	num
V3-Att	Alarms mode (absolute or relative)	V3	33684	32768	33650	12	R/W	Byte	N	0/1	flag
V3-AFd	Alarm tripping differential	V3	33588	0	33650	48	R/W	Byte	N	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
V3-HAL	Maximum alarm 1 threshold	V3	33495	0	33650	192	R/W	Byte	Y	V3-LAL...1999	°C/°F
V3-LAL	Minimum alarm 1 threshold	V3	33497	0	33650	768	R/W	Byte	Y	-199.9...V3-HAL	°C/°F
V3-PAo	Temperature alarms disabling time from Power On	V3	33589	255	33650	3072	R/W	Byte	N	0...250	min*10
V3-dAo	Temperature alarm disabling time after defrost cycle	V3	33557	0	33650	12288	R/W	Byte	N	0...999	min
V3-oAo	High and low temperature alarms disabling time after door closing	V3	33590	255	33650	49152	R/W	Byte	N	0...10	hours
V3-tdo	Open door disabling time	V3	33591	255	33651	49152	R/W	Byte	N	0...250	min
V3-tAo	High/Minimum alarm delay on probe 1	V3	33590	0	33651	3	R/W	Byte	N	0...250	min
V3-dAt	Defrost alarm signal silenced due to timeout	V3	33498	0	33651	12	R/W	Byte	N	0/1	flag
V3-EAL	Regulators blocked from external alarm	V3	33631	3840	33651	48	R/W	Byte	N	0...4	num
V3-AoP	Polarity of alarm output	V3	33685	1	33651	768	R/W	Byte	N	0/1	flag
V3-rA3	Temperature alarm probe selection	V3	33631	240	34675	49152	R/W	Byte	N	0...7	num
V3-SA3	Compressor overheating setpoint	V3	33547	0	33663	12	R/W	Byte	Y	V3-LdL...V3-HdL	°C/°F
V3-dA3	Compressor overheating differential	V3	33549	0	33663	192	R/W	Byte	N	0.1...30.0	°C/°F
V3-HCP	HACCP probe selection	V3	33626	3840	34671	49152	R/W	Byte	N	0...7	num
V3-SHH	Maximum HACCP alarm threshold	V3	34549	0	34672	768	R/W	Byte	Y	V3-SLH...1999	°C/°F
V3-SLH	Minimum HACCP alarm threshold	V3	34551	0	34672	3072	R/W	Byte	Y	-199.9...V3-SHH	°C/°F
V3-drA	Minimum dwelling time in critical area before alarm signalling	V3	33540	0	34672	12288	R/W	Byte	N	0...250	min
V3-drH	HACCP alarm reset time from last manual reset	V3	34548	0	34672	49152	R/W	Byte	N	0...250	hours
V3-HCE	Enable HACCP alarms storage with/without alarm relay enabling	V3	33642	192	34673	3	R/W	Byte	N	0...2	num
V3-HCt	HACCP alarms storage disabling time (key or digital input)	V3	34560	0	34673	12	R/W	Byte	N	0...250	min
V3-ESA	Aux output status in energy savingmode	V3	33641	768	33675	3072	R/W	Byte	N	0...2	num
V3-tA1	Aux/Light anticipation before night/day transition	V3	33582	255	33672	12288	R/W	Byte	N	0...250	min
V3-tA2	Aux/Light delay after day/night transition	V3	33582	0	33672	49152	R/W	Byte	N	0...250	min
V3-dod	Loads shutdown enabling after door micro enabling	V3	33625	3840	33651	12288	R/W	Byte	N	0...10	num
V3-dAd	D.I. 1/2 enabling signalling delay	V3	33598	255	33656	3072	R/W	Byte	N	0...250	min

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-dCo	Compressor deactivation delay after door opened	V3	33556	0	33647	3072	R/W	Byte	N	0...250	min
V3-dFo	Fan enabling delay from acknowledgement	V3	33622	0	34678	12	R/W	Byte	N	0...250	min
V3-AuP	Aux output activation when door opened	V3	33625	240	33651	192	R/W	Byte	N	0/1	flag
V3-tn1	Activation delay in Energy Saving mode	V3	33564	0	33669	12	R/W	Byte	N	0...250	min
V3-dCd	Fan enabling delay from door closing	V3	34556	0	33652	3072	R/W	Byte	N	0...250	s
V3-L00	Shared probe	V3	34649	61440	34679	192	R/W	Byte	N	0...6	num
V3-L01	Distributed display (referred to Secondary)	V3	33640	3072	34679	768	R/W	Byte	N	0...2	num
V3-L02	Setpoint synchronisation	V3	33687	8	34679	3072	R/W	Byte	N	0/1	flag
V3-L03	Defrost synchronisation	V3	33635	15	33677	3	R/W	Byte	N	0...2	num
V3-L04	Resource locking after defrost end	V3	33635	240	33677	48	R/W	Byte	N	0/1	flag
V3-L05	Standby synchronisation	V3	33641	12288	33677	12288	R/W	Byte	N	0/1	flag
V3-L06	Lights synchronisation	V3	33641	49152	33677	49152	R/W	Byte	N	0/1	flag
V3-L07	Reduced setpoint synchronisation	V3	33642	3	33678	3	R/W	Byte	N	0/1	flag
V3-L08	AUX synchronisation	V3	33642	12	33679	48	R/W	Byte	N	0/1	flag
V3-L10	Resource unlock timeout during synchronised defrosts	V3	33614	255	33679	192	R/W	Byte	N	1...250	min
V3-L11	Number of devices connected in Field Bus	V3	34649	3840	34678	12288	R/W	Byte	N	0...8	num
V3-L12	Sharing of alarm relay in Field Bus	V3	33642	12288	34678	49152	R/W	Byte	N	0...2	num
V3-L15	Share alarm buzzer in Field Bus	V3	33642	49152	34679	48	R/W	Byte	N	0...2	num
V3-PEn	Number of errors allowed per maximum/minimum pressure switch input	V3	33610	255	33662	12288	R/W	Byte	N	0...15	num
V3-PEi	Minimum/maximum pressure switch error count interval	V3	33610	0	33662	49152	R/W	Byte	N	1...99	min
V3-PEt	Compressor activation delay after pressure switch deactivation	V3	33611	255	33663	3	R/W	Byte	N	0...255	min
V3-SPn	Night mode setpoint	V3	33570	0	33669	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V3-dFn	Night mode offset	V3	33571	0	33670	3	R/W	Byte	N	0.1...30.0	°C/°F
V3-oSP	Offset on setpoint	V3	33499	0	33652	49152	R/W	Byte	Y	-30.0...30.0	°C/°F
V3-odF	Intervention differential correction	V3	33505	0	33653	48	R/W	Byte	N	0.1...30.0	°C/°F
V3-ESt	Type of action for Energy Saving function	V3	33634	3840	33674	49152	R/W	Byte	N	0...5	num
V3-dnt	Duration of night mode	V3	33593	255	33653	3	R/W	Byte	N	0...24	hours

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-cdt	Time required to activate energy saving mode after door closed	V3	33593	0	33653	12	R/W	Byte	N	0...250	min*10
V3-Pdc	Wake-up Mode	V3	33631	61440	33679	3	R/W	Byte	N	0...2	num
V3-tPd	Duration of fast cooling mode	V3	33552	0	33678	768	R/W	Byte	N	0...250	min
V3-SPF	Fast cooling setpoint	V3	33561	0	33668	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V3-dFF	Fast cooling offset	V3	33558	0	33667	49152	R/W	Byte	N	0.1...30.0	°C/°F
V3-PdO	Step value for fast cooling setpoint	V3	33559	0	33668	768	R/W	Byte	N	0.1...30.0	°C/°F
V3-Pdn	Step number for fast cooling setpoint	V3	33632	3840	33673	49152	R/W	Byte	N	1...10	num
V3-SC2	Primary/Secondary selection serial port 2	V3	33686	32	34674	3072	R/W	Byte	N	0/1	flag
V3-Po2	Polling time serial port 2 (only visible if SC2 = 0).	V3	34566	0	-	-	R/W	Byte	N	0...1000	s/100
V3-to2	Timeout serial port 2 (only visible if SC2 = 0).	V3	34570	0	-	-	R/W	Byte	N	0...1000	s/100
V3-ECP	Selection of serial port for ECHO	V3	33638	61440	34674	192	R/W	Byte	N	0...2	num
V3-dro	°C/°F selection	V3	33685	8	33653	192	R/W	Byte	N	0/1	flag
V3-CA1	Analog input 1 calibration	V3	33501	0	33653	768	R/W	Byte	Y	-30.0...30.0	°C/°F
V3-CA2	Analog input 2 calibration	V3	33502	0	33653	3072	R/W	Byte	Y	-30.0...30.0	°C/°F
V3-CA3	Analog input 3 calibration	V3	33503	0	33653	12288	R/W	Byte	Y	-30.0...30.0	°C/°F
V3-CA4	Analog input 4 calibration	V3	34553	0	33679	12288	R/W	Byte	Y	-30.0...30.0	°C/°F
V3-CAI	Calibration enabling	V3	33640	49152	33653	49152	R/W	Byte	N	0...2	num
V3-LdL	Minimum value that can be displayed	V3	33506	0	33654	3	R/W	Byte	Y	-199.9...V3-HdL	°C/°F
V3-HdL	Maximum value that can be displayed	V3	33507	0	33654	12	R/W	Byte	Y	V3-LdL...1999	°C/°F
V3-LoC	Disables keypad operation	V3	33685	16	33654	48	R/W	Byte	N	0/1	flag
V3-ddd	Display main status	V3	33625	61440	33654	192	R/W	Byte	N	0...7	num
V3-ddE	Display on Eco	V3	33634	240	33674	12288	R/W	Byte	N	0...8	num
V3-ddL	Display blocking mode during defrost	V3	33626	15	33654	768	R/W	Byte	N	0...2	num
V3-Ldd	Display blocking timeout from defrost end	V3	33594	255	33654	3072	R/W	Byte	N	0...250	min
V3-ndt	Display with decimal point	V3	33685	32	33654	12288	R/W	Byte	N	0/1	flag
V3-PS1	Value of password 1	V3	33595	0	33655	192	R/W	Byte	N	0...250	num
V3-PS2	Value of password 2	V3	33596	0	33655	768	R/W	Byte	N	0...250	num
V3-CEr	Probe error capacity	V3	33511	0	33658	768	R/W	Byte	N	0.0...100.0	%
V3-PdS	Wake-up forced restart differential	V3	33513	0	33658	3072	R/W	Byte	N	-50.0...50.0	K/°R

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-PuS	Pull-up forced restart differential	V3	33514	0	33658	12288	R/W	Byte	N	-50.0...50.0	K/°R
V3-Pud	Temperature timeout out of range	V3	33515	0	33658	49152	R/W	Byte	N	0...999	min
V3-PdE	Wake-up end differential	V3	33517	0	33659	3	R/W	Byte	N	-50.0...50.0	K/°R
V3-PuE	Pull-up end differential	V3	33518	0	33659	12	R/W	Byte	N	-50.0...50.0	K/°R
V3-Pdt	Optimized wake-up timeout	V3	33519	0	33659	48	R/W	Byte	N	0...999	min
V3-Pdd	Optimized wake-up capacity	V3	33521	0	33659	192	R/W	Byte	N	0.0...100.0	%
V3-CPd	Capacity after day wake-up	V3	33522	0	33659	768	R/W	Byte	N	0.0...100.0	%
V3-CPn	Capacity after night wake-up	V3	33523	0	33659	3072	R/W	Byte	N	0.0...100.0	%
V3-CSd	Compressor startup delay	V3	33530	0	33660	12288	R/W	Byte	N	0...999	s
V3-CSC	Compressor startup capacity	V3	33531	0	33660	49152	R/W	Byte	N	44.4...100.0	%
V3-CAU	Select PID automatic or manual mode	V3	33598	0	33661	12	R/W	Byte	N	0/1	flag
V3-CdU	PID duty cycle in manual mode	V3	33534	0	33661	48	R/W	Byte	N	0.0...100.0	%
V3-F ₁	Maximum Frequency	V3	33543	0	33662	192	R/W	Byte	N	0...250	Hz
V3-F ₂	Minimum Frequency	V3	33545	0	33662	768	R/W	Byte	N	0...250	Hz
V3-AP	Probe used by the Analog Output	V3	34650	15	34680	768	RW	Byte	N	0...7	num
V3-AoF	Analogue output configurability 1	V3	34648	61440	34673	768	R/W	Byte	N	ro/Er	flag
V3-LAO	Lower limit of analogue output 1	V3	34541	0	34673	3072	R/W	Byte	Y	-199.9...1999	°C/°F
V3-HAO	Upper limit of analogue output 1	V3	34542	0	34673	12288	R/W	Byte	Y	-199.9...1999	°C/°F
V3-AoS	Operation mode of analogue output with probe error	V3	33607	255	34673	49152	R/W	Byte	N	0.0...100.0	%
V3-H08	Standby operating mode	V3	33641	3	33655	12288	R/W	Byte	N	0...2	num
V3-H11	Analogue input configuration 1 when configured as digital input	V3	33597	255	33655	49152	R/W	Byte	N	-16...16	num
V3-H12	Analogue input configuration 2 when configured as digital input	V3	33597	0	33656	768	R/W	Byte	N	-16...16	num
V3-H13	Analogue input configuration 3 when configured as digital input	V3	33604	0	33679	49152	R/W	Byte	N	-16...16	num
V3-H14	Analogue input configuration 4 when configured as digital input	V3	33605	255	33680	768	R/W	Byte	N	-16...16	num
V3-H15	Configurability of digital input 5	V3	33605	0	33680	3072	R/W	Byte	N	-16...16	num
V3-H16	Configurability of digital input 6	V3	33606	255	33682	12	R/W	Byte	N	-16...16	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-H17	Configurability of digital input 7	V3	33606	0	34674	12	R/W	Byte	N	-16...16	num
V3-H21	Configurability of digital output 1	V3	33600	0	33656	12288	R/W	Byte	N	0...20	num
V3-H22	Configurability of digital output 2	V3	33601	255	33656	49152	R/W	Byte	N	0...20	num
V3-H23	Configurability of digital output 3	V3	33601	0	33657	3	R/W	Byte	N	0...20	num
V3-H24	Configurability of digital output 4	V3	33602	255	33657	12	R/W	Byte	N	0...20	num
V3-H25	Buzzer enable	V3	33613	255	33647	12288	R/W	Byte	N	0/1	num
V3-H31	UP button configurability	V3	33626	61440	33657	48	R/W	Byte	N	0...12	num
V3-H32	DOWN button configurability	V3	33627	15	33657	192	R/W	Byte	N	0...13	num
V3-H33	ESC button configurability	V3	33627	240	33657	768	R/W	Byte	N	0...12	num
V3-H34	Free button 1 configurability	V3	33627	3840	33657	3072	R/W	Byte	N	0...12	num
V3-H35	Free button 2 configurability	V3	33627	61440	33657	12288	R/W	Byte	N	0...12	num
V3-P01	Analogue input configuration 1	V3	33639	15	33673	12	R/W	Byte	N	0...2	num
V3-P02	Analogue input configuration 2	V3	33639	240	33673	48	R/W	Byte	N	0...2	num
V3-P03	Analogue input configuration 3	V3	33639	3840	33673	192	R/W	Byte	N	0...2	num
V3-P04	Analogue input configuration 4	V3	33639	61440	33673	768	R/W	Byte	N	0...2,6,7	num
V3-04L	Lower limit of analogue input 4	V3	34561	0	34675	12	R/W	Byte	Y	-199.9...V3-04H	num
V3-04H	Upper limit of analogue input 4	V3	34562	0	34675	48	R/W	Byte	Y	V3-04L...1999	num
V3-n01	Analog output 1 type	V3	33628	61440	34674	49152	R/W	Byte	N	0,9	num
V3-01n	Analogue output configurability 1	V3	33638	240	33673	3072	R/W	Byte	N	0...4	num
V3-n02	Analog output 2 type	V3	33629	15	34675	3	R/W	Byte	N	0,5,6,7	num
V3-02n	Analogue output configurability 2	V3	33638	3840	33673	12288	R/W	Byte	N	0...4	num
V3-H45	Defrost input mode for applications with dual evaporator	V3	33634	15	33666	49152	R/W	Byte	N	0...3	num
V3-H48	RTC present	V3	33685	64	33658	48	R/W	Byte	N	0/1	flag
V3-H70	Sensor 1 selection for virtual sensor	V3	33634	61440	34677	3072	R/W	Byte	N	0...4	num
V3-H71	Sensor 2 selection for virtual sensor	V3	33635	61440	34677	12288	R/W	Byte	N	0...4	num
V3-H72	% calculation virtual probe day	V3	33609	0	34677	49152	R/W	Byte	N	0.0...100.0	%
V3-H73	% calculation virtual probe night	V3	33613	0	34678	3	R/W	Byte	N	0.0...100.0	%
V3-ZCE	It enables/disables zero crossing feature.	V3	33686	8192	34680	3072	R/W	Byte	N	0/1	flag
V3-FH	Frame heater probe selection	V3	33614	0	33680	12288	R/W	Byte	N	0...8	num

Label	Description	Folder	Val. Par. Address	Val. Filter	Vis. Par. Address	Vis. Filter	R/W	Data Size	CPL	Range	MU
V3-FHt	Frame heater period	V3	33615	255	33680	49152	R/W	Byte	N	1...250	s*10
V3-FH0	Frame heater setpoint	V3	33574	0	33681	3	R/W	Byte	Y	-199.9...1999	°C/°F
V3-FH1	Frame heater offset	V3	33575	0	33681	12	R/W	Byte	N	0.0...25.0	°C/°F
V3-FH2	Frame heater range	V3	33577	0	33681	48	R/W	Byte	N	0.0...25.0	°C/°F
V3-FH3	Minimum percentage/frame heater duty-cycle	V3	33572	0	33681	192	R/W	Byte	N	0.0...100.0	%
V3-FH4	Maximum percentage/frame heater duty-cycle day	V3	33576	0	33681	768	R/W	Byte	N	0.0...100.0	%
V3-FH5	Maximum percentage/frame heater duty-cycle night	V3	33583	0	33681	3072	R/W	Byte	N	0.0...100.0	%
V3-FH6	Percentage/frame heater duty-cycle in defrost	V3	33589	0	33681	12288	R/W	Byte	N	0.0...100.0	%
V3-tCP	Time for which the temperature remains below the cool protection setpoint	V3	33560	0	33668	3072	R/W	Byte	N	0...250	min
V3-SCP	Cool protection setpoint	V3	33562	0	33668	49152	R/W	Byte	Y	-199.9...1999	°C/°F
V3-dCP	Cool protection differential	V3	33563	0	33669	3	R/W	Byte	N	0.1...30.0	°C/°F
V3-dCA	Enable deep cooling	V3	33641	3072	33675	12288	R/W	Byte	N	0...2	num
V3-dCS	Deep cooling setpoint	V3	33550	0	33663	768	R/W	Byte	Y	V3-LdL...V3-HdL	°C/°F
V3-tdC	Deep cooling Duration	V3	33602	0	33664	12288	R/W	Byte	N	0...250	min
V3-dCC	Defrost delay after deep cooling	V3	33599	0	33664	3072	R/W	Byte	N	0...250	min
V3-Sid	Deep cooling start threshold	V3	33573	0	33678	48	R/W	Byte	Y	V3-LdL...V3-HdL	°C/°F
V3-toS	Over-threshold time for deep cooling start	V3	33583	255	33673	3	R/W	Byte	N	0...250	min
V3-SLP	Daily or weekly mode	V3	33685	8192	33677	192	R/W	Byte	N	0/1	flag
V3-SL1	Self Learning duration in daily mode	V3	33581	255	33672	768	R/W	Byte	N	1...30	day
V3-SL2	Self Learning duration in weekly mode	V3	33581	0	33672	3072	R/W	Byte	N	1...30	num
V3-SLr	Enable continuous self learning	V3	33685	16384	33677	768	R/W	Byte	N	0/1	flag
V3-SLb	Automatic activation of self learning after black-out period	V3	33568	0	33669	3072	R/W	Byte	N	0...250	day
V3-SLE	Enable/Disable self learning	V3	33685	32768	33677	3072	R/W	Byte	N	0/1	flag

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
HUd	Visibility of folder HUd (humidity)	32966	3072	2 bit	0...3	num

Label	Description	Address	Filter	Data size	Range	MU
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
FE	Visibility of folder FE (Modulated Fans)	32963	12	2 bit	0...3	num
AL	Visibility of folder AL (alarms)	32954	12288	2 bit	0...3	num
HAC	Visibility of folder HACCP (HACCP)	32966	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
Lin	Visibility of folder Lin (Field Bus)	32965	49152	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 (wake-up)	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
VSC	Visibility of folder VSC (Variable-speed compressor)	32955	768	2 bit	0...3	num
AOU	Visibility of folder AOU (Analog Output configuration)	32966	49152	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
nAd	Visibility of folder nAd (night/day)	32954	48	2 bit	0...3	num
FrH	Visibility of folder FrH (Anti-sweater heaters - Frame Heater)	32966	3	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
SL	Visibility of folder SL (Self-Learning cycle)	32962	12288	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-HUd	Visibility of folder HUd (humidity)	33270	3072	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-FE	Visibility of folder FE (Modulated Fans)	33267	12	2 bit	0...3	num
V1-AL	Visibility of folder AL (alarms)	33258	12288	2 bit	0...3	num
V1-HAC	Visibility of folder HACCP (HACCP)	33270	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-Lin	Visibility of folder Lin (Field Bus)	33269	49152	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 (wake-up)	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-VSC	Visibility of folder VSC (Variable-speed compressor)	33259	768	2 bit	0...3	num
V1-AOU	Visibility of folder AOU (Analog Output configuration)	33270	49152	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-nAd	Visibility of folder nAd (night/day)	33258	48	2 bit	0...3	num
V1-FrH	Visibility of folder FrH (Anti-sweater heaters - Frame Heater)	33270	3	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
V1-SL	Visibility of folder SL (Self-Learning cycle)	33266	12288	2 bit	0...3	num
Visibility of folders for AP2 application						

Label	Description	Address	Filter	Data size	Range	MU
V2-CP	Visibility of folder CP (compressor)	33466	192	2 bit	0...3	num
V2-HUd	Visibility of folder HUd (humidity)	33478	3072	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-FE	Visibility of folder FE (Modulated Fans)	33475	12	2 bit	0...3	num
V2-AL	Visibility of folder AL (alarms)	33466	12288	2 bit	0...3	num
V2-HAC	Visibility of folder HACCP (HACCP)	33478	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-Lin	Visibility of folder Lin (Field Bus)	33477	49152	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 (wake-up)	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-VSC	Visibility of folder VSC (Variable-speed compressor)	33467	768	2 bit	0...3	num
V2-AOU	Visibility of folder AOU (Analog Output configuration)	33478	49152	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
V2-FnC	Visibility of folder FnC (functions)	33467	49152	2 bit	0...3	num
V2-nAd	Visibility of folder nAd (night/day)	33466	48	2 bit	0...3	num
V2-FrH	Visibility of folder FrH (Anti-sweater heaters - Frame Heater)	33478	3	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
V2-SL	Visibility of folder SL (Self-Learning cycle)	33474	12288	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-HUd	Visibility of folder HUd (humidity)	33682	3072	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-FE	Visibility of folder FE (Modulated Fans)	33679	12	2 bit	0...3	num
V3-AL	Visibility of folder AL (alarms)	33670	12288	2 bit	0...3	num
V3-HAC	Visibility of folder HACCP (HACCP)	33682	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-Lin	Visibility of folder Lin (Field Bus)	33681	49152	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 (wake-up)	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-VSC	Visibility of folder VSC (Variable-speed compressor)	33671	768	2 bit	0...3	num
V3-AOU	Visibility of folder AOU (Analog Output configuration)	33682	49152	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-nAd	Visibility of folder nAd (night/day)	33670	48	2 bit	0...3	num
V3-FrH	Visibility of folder FrH (Anti-sweater heaters - Frame Heater)	33682	3	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
V3-SL	Visibility of folder SL (Self-Learning cycle)	33678	12288	2 bit	0...3	num

Table of Modbus Resources

WARNING

HAZARD OF EXPLOSION, OVERHEATING AND/OR FIRE

Do not write read-only resources.

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

Label	Description	Address	Filter	R/W	Data_Size	CPL	Range	MU
AI1	Analogue input 1	4125	0	R	Word	Y	-67.0...302	°C
AI2	Analogue input 2	4126	0	R	Word	Y	-67.0...302	°C
AI3	Analogue input 3	4127	0	R	Word	Y	-67.0...302	°C
AI4	Analogue input 4	4128	0	R	Word	Y	-67.0...302	°C
AI1_F	Analogue input 1	4129	0	R	Word	Y	-67.0...302	°F
AI2_F	Analogue input 2	4130	0	R	Word	Y	-67.0...302	°F
AI3_F	Analogue input 3	4131	0	R	Word	Y	-67.0...302	°F
AI4_F	Analogue input 4	4132	0	R	Word	Y	-67.0...302	°F
PER	Power generated by compressor 1	4189	0	R	Word	N	0...100	%
SETP	Control setpoint value 1	2196	0	R	Word	Y	-67.0...302	°F
DI1	Digital input 1	4137	1	R	1 bit	N	0...1	flag
DI2	Digital input 2	4137	2	R	1 bit	N	0...1	flag
DI3	Digital input 3	4137	4	R	1 bit	N	0...1	flag
DI4	Digital input 4	4137	8	R	1 bit	N	0...1	flag
DI5	Digital input 5	4137	16	R	1 bit	N	0...1	flag
DI6	Digital input 6	4137	32	R	1 bit	N	0...1	flag
DI7	Digital input 7	4137	64	R	1 bit	N	0...1	flag
E1	Analog input 1 error	4145	1	R	1 bit	N	0...1	flag
E2	Analog input 2 error	4145	2	R	1 bit	N	0...1	flag
E3	Analog input 3 error	4145	4	R	1 bit	N	0...1	flag
E4	Analog input 4 error	4145	8	R	1 bit	N	0...1	flag
oPd	Door open	4145	16	R	1 bit	N	0...1	flag
EA	External alarm	4145	32	R	1 bit	N	0...1	flag
AL1	Low analogue input threshold exceeded 1	4145	64	R	1 bit	N	0...1	flag
AH1	High analogue input threshold exceeded 1	4145	128	R	1 bit	N	0...1	flag
Ad2	Defrost timeout	4145	256	R	1 bit	N	0...1	flag
E10	RTC error	4145	512	R	1 bit	N	0...1	flag
COH	Overheating alarm	4145	1024	R	1 bit	N	0...1	flag
rCA	Refrigerant level low	4145	2048	R	1 bit	N	0...1	flag
nPA	Pressure switch	4145	4096	R	1 bit	N	0...1	flag
PA	Critical pressure	4145	8192	R	1 bit	N	0...1	flag
PAn	Men at work alarm	4146	4	R	1 bit	N	0...1	flag
HCP	HACCP Alarm	4146	8	R	1 bit	N	0...1	flag
ALM	Alarm	4183	256	R	1 bit	N	0...1	flag
RL1	Output 1	4141	1	R	1 bit	N	0...1	flag
RL2	Output 2	4141	2	R	1 bit	N	0...1	flag
RL3	Output 3	4141	4	R	1 bit	N	0...1	flag
RL4	Output 4	4141	8	R	1 bit	N	0...1	flag
BUZ	Buzzer	4141	256	R	1 bit	N	0...1	flag
CP1	Compressor 1	4183	2	R	1 bit	N	0...1	flag
COMP2	Compressor 2	4183	4	R	1 bit	N	0...1	flag
RGEN	General purpose regulator 1 digital output	4183	8	R	1 bit	N	0...1	flag
DEF1	Defrost 1	4183	16	R	1 bit	N	0...3	flag
DEF2	Defrost 2	4183	32	R	1 bit	N	0...3	flag

Label	Description	Address	Filter	R/W	Data_Size	CPL	Range	MU
FAN	Evaporator fans	4183	64	R	1 bit	N	0...1	flag
FAN_C	Condenser fans	4183	128	R	1 bit	N	0...1	flag
LIGHT	Light	4183	1024	R	1 bit	N	0...1	flag
AUX	Auxiliary	4183	512	R	1 bit	N	0...1	flag
STD-BY	Stand-by	4183	1	R	1 bit	N	0...1	flag
ENS	Energy saving	4183	16384	R	1 bit	N	0...1	flag
ECo	Reduced set	4183	8192	R	1 bit	N	0...1	flag
DEEP	Deep Cooling	4183	2048	R	1 bit	N	0...1	flag
Do	Door status	4183	32768	R	1 bit	N	0...1	flag
RonAux	Activates auxiliary output	4181	1	W	1 bit	N	0...1	flag
RoFFAux	Deactivates auxiliary output	4181	2	W	1 bit	N	0...1	flag
Ronon	Device on	4181	4	W	1 bit	N	0...1	flag
RoFFoFF	Device off	4181	8	W	1 bit	N	0...1	flag
AttEnSav	Activates energy saving function	4181	16	W	1 bit	N	0...1	flag
DisattEnSav	Deactivates energy saving function	4181	32	W	1 bit	N	0...1	flag
Att_SetR	Activates economy mode	4181	64	W	1 bit	N	0...1	flag
Disatt_SetR	Deactivates economy mode	4181	128	W	1 bit	N	0...1	flag
RonLight	Switches lights on	4181	256	W	1 bit	N	0...1	flag
RoFFLight	Switches lights off	4181	512	W	1 bit	N	0...1	flag
Att_Sbr	Manual Defrost activation	4181	4096	W	1 bit	N	0...1	flag
DCon	Deep Cooling regulator activation	4181	16384	W	1 bit	N	0...1	flag
RTCUp	Updates clock	4154	0	W	Word	N	0...65535	flag
tim_CP1	Compressor 1 running time	4166	0	R	Word	N	0...65535	hours*10
cnt_CP1	Compressor 1 number of activations	4167	0	R	Word	N	0...65535	num
tim_DEF1	Defrost 1 activation time	4168	0	R	Word	N	0...65535	min
cnt_DEF1	Defrost 1 number of activations	4170	0	R	Word	N	0...65535	num
tim_Door	Door opening time	4171	0	R	Word	N	0...65535	min
cnt_Door	Door opening count	4172	0	R	Word	N	0...65535	num
tim_DEF2	Defrost 2 activation time	4174	0	R	Word	N	0...65535	min
cnt_DEF2	Defrost 2 number of activations	4175	0	R	Word	N	0...65535	num
cnt_PoWER	Number of instrument power-ons	4176	0	R	Word	N	0...65535	num
tim_CP2	Compressor 2 run time	4178	0	R	Word	N	0...65535	hours*10
cnt_CP2	Compressor 2 number of activations	4179	0	R	Word	N	0...65535	num

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