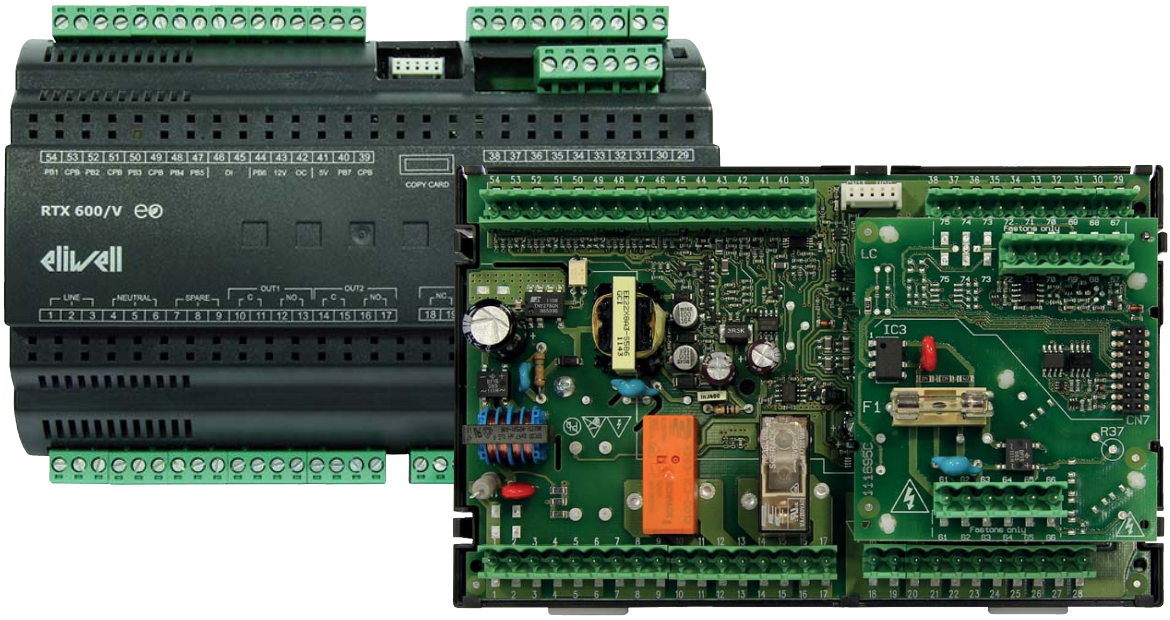
eliwell
by Schneider Electric

RTX-RTD 600 /V

Devices for remote refrigerated cabinets with pulse Electronic Expansion Valve (EEV) management.



USER MANUAL

9MA10058.06

The information given in this document contains general descriptions and/or technical characteristics concerning the performance of the products contained. This document is not intended to replace and must not be used to determine the suitability and reliability of these products for any users' specific applications. Each user or integrator is responsible for performing the risk analysis, evaluation and appropriate and complete testing of the products according to the specific application or use in question.
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The installation and use of this product must comply with all applicable state,
regional and local safety regulations. For safety reasons and to ensure greater compliance with the data of the documented system, component repairs must be performed exclusively by the manufacturer.

When using devices for applications with technical safety requirements, comply with the relevant instructions.

Failure to comply with this information can result in injury or damage to the equipment.

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CONTENTS

SAFETY INFORMATION

Important information

Read these instructions carefully and visually inspect the equipment to familiarise yourself with the device before attempting to install it, put it into operation, overhaul or service 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 warning label indicates the existence of an electrical danger that could result in personal injury should the user fail to follow the instructions.

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 accompanied by this symbol to avoid the risk of serious injury or death.

⚠ DANGER

DANGER indicates a dangerous situation that, unless avoided, **will result in** death or cause serious injuries.

⚠ WARNING

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

⚠ CAUTION

CAUTION indicates a 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.

NOTE

Electrical equipment must be installed, used and repaired by qualified personnel only.
Eliwell accepts no responsibility for any consequences resulting from the use of this material.
A qualified person is someone who has specific skills and knowledge regarding the structure and the operation of electrical equipment and who has received safety training on how to avoid the inherent dangers.

Permitted use

For safety reasons, the device must be installed and used in accordance with the instructions provided. In particular, parts carrying dangerous voltages must not be accessible under normal conditions.
It must be adequately protected from water and dust according to the application, and must be accessible only using a tool.
The device is suitable for use in commercial or household refrigeration appliances and/or similar equipment and has been tested for safety aspects in accordance with the harmonized European reference standards.

Prohibited use

Any use other than that expressly permitted is prohibited.

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

Liability and residual risks

The liability of 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 equipment allowing access to dangerous parts without having to use tools;
- tampering with and/or modification of the product;
- installation/use on equipment that does not comply with the regulations in force in the Country of installation.

Disposal

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

Date of production

The date of production is shown on the device label, indicating the week and year of production (WW-YY).

Product related information

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Disconnect all power from all devices including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables and wires.
- Check the earthing connections on all earthed devices.
- Use this equipment and all connected products only at the specified voltage.
- Do not connect the device directly to the line voltage, except where indicated otherwise.

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

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

⚠ DANGER

RISK OF EXPLOSION AND FIRE

Do not use this device in applications where R290 flammable refrigerant is used.

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

⚠ DANGER

RISK OF OVERHEATING AND FIRE

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

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

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Eliwell for any consequences arising out of the use of this material.

⚠ WARNING

LOSS OF CONTROL

- The installation designer must consider the potential failure modes of the control circuit and, for some critical control functions, provide a means for reaching a safe condition during and after a circuit failure. Examples of critical control functions are the emergency stop and end of travel stop, power supply cut-off and restarting.
- Separate or redundant control circuits must be provided for critical control functions.
- The system control circuits can include communication connections. Keep in mind the implications of transmission delays or sudden connection failures.
- Comply with all the standards regarding accident protection and the local applicable safety directives.
- Every implementation of this device must be tested individually and completely in order to check its proper operation before putting it in service.

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

INFORMATION ABOUT THE MANUAL

Document scope

This document describes **RTX-RTD 600 /V** devices for remote refrigerated cabinets with pulse (EEV) electronic expansion valve, including information on installation and wiring.

Use this document to:
- Install and use your **RTX-RTD 600 /V** device
- Become familiar with the functions of the **RTX-RTD 600 /V** device

NOTE: Read this document and all related documents carefully before installing, operating or maintaining the device.

Note regarding validity

This document is valid for devices **RTX-RTD 600 /V** (MSK 509).
The technical characteristics of the devices described in this manual can also be consulted online on the Eliwell website. The characteristics illustrated in this manual should be identical to those which can be consulted online. In line with our policy of continuous improvement, we may revise the contents to improve clarity and accuracy. If you see any discrepancies between the manual and the information consulted on-line, please use the latter as a reference.

Related documents

Document title	Reference document code
User Manual - RTX-RTD 600 /V - IT	9MA00277 (IT)
User Manual - RTX-RTD 600 /V - RU	9MAA0277 (RU)
FT - RTX 600 /V	9IS24210 (IT/EN)
FT - RTX 600 /V	9IS54211 (FR)
FT - RTX 600 /V	9IS54212 (ES)
FT - RTX 600 /V	9IS54416 (DE)
FT - RTX 600 /V	9IS54310 (RU)
FT - RTX 600 /V	9IS54276 (PL)
FT - RTD 600 /V	9IS24285 (IT/EN)
FT - RTD 600 /V	9IS54278 (FR)
FT - RTD 600 /V	9IS54279 (ES)

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

CHAPTER 1
INTRODUCTION

1.1. DESCRIPTION

The series of **RTX-RTD 600 /V** devices consists of devices for remote refrigerated cabinets with pulse electronic expansion (EEV) valve.

They are new generation devices with the following main functions:

- Control of evaporator overheating via an integrated driver for pulse (EEV) valves
- 2 ON/OFF regulators for HOT/COLD
- Single & double evaporator defrost (heaters, modulated heaters, inversion cycle, hot gas)
- Evaporator fans
- Anti-condensation heaters (Frame heaters)
- AUX
- Light
- Door microswitch
- ON/OFF
- Deep Cooling
- Dynamic setpoint
- Day/Night
- Diagnostics
- “Easy Map” programming
- Programmable inputs/outputs
- LINK^2 local network
- RS485 Modbus and Televis communication protocols
- Compatibility with the Device Manager (DM)
- Compatibility with UNICARD and Multi Function Key

In this manual, the photographs and drawings help to demonstrate the **RTX-RTD 600 /V** device (and other Eliwell devices) and are purely illustrative. The relative dimensions and proportions may not correspond to the actual dimensions, nor are actual size or in scale. Moreover, all wiring and electrical diagrams are to be considered as simplified representations which don’t correspond to the actual situation.

1.2. RANGE

The **RTX-RTD 600 /V** range includes:

Image	Description
	RTX 600 /V
	KIT RTX 600 /V + KDEPlus
	RTD 600 /V

Depending on your own applications, the following accessories may be purchased separately:

Image	Description
	KDEPlus
	KDWPlus
	Vertical KDT
	Horizontal KDT
	ECPLUS
	UNICARD USB/TTL USB-A/A EXTENSION CABLE USB MAINS POWER SUPPLY
	NTC, Pt1000 and PTC
	PRESSURE TRANSDUCER (EWPA)
	RATIOMETRIC TRANSDUCER (EWPA)
	Electronic expansion valves (**EEV**) **pulse** **PXV** (with orifices from 0.5 to 2.7 mm)

NOTE: Contact Eliwell Sales Office for item codes.

1.3. CONTENTS OF PACK

Fig. 1 on page 14 shows the contents of a **RTX-RTD 600 /V** device package with or without Power-Pack.

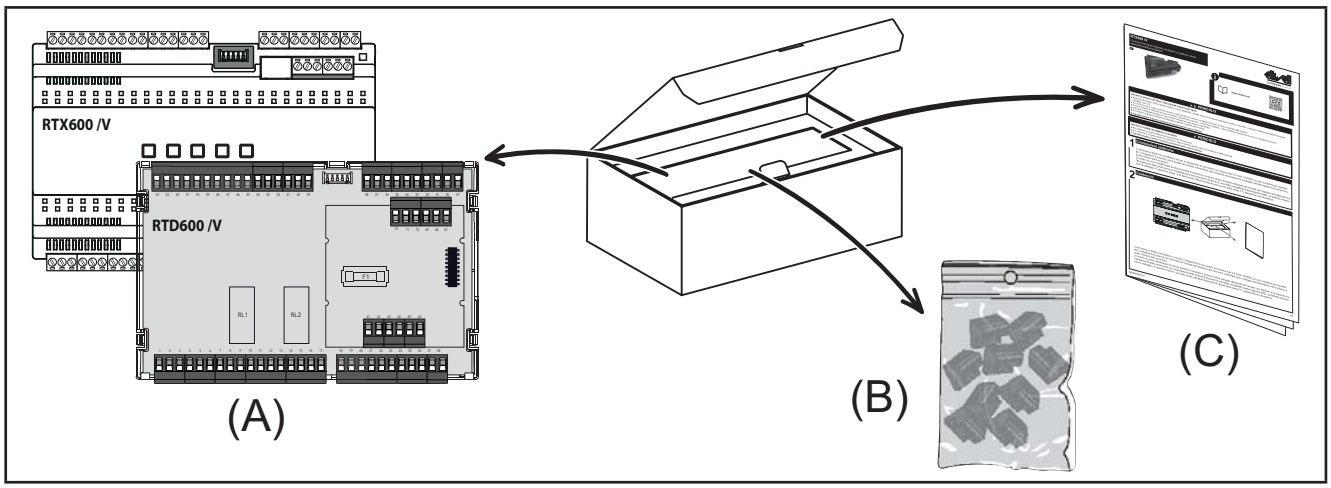


Fig. 1. Contents of pack

The following can be found in the package:

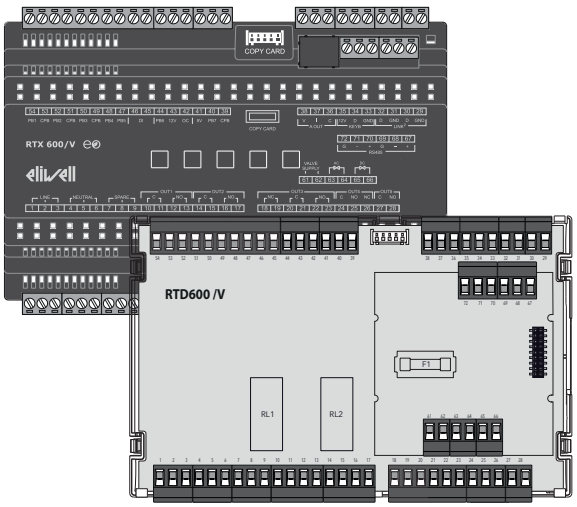
Label	Description
A	**RTX-RTD 600 /V** device
B	Removable screw terminal KIT
C	**RTX-RTD 600 /V** instruction sheet

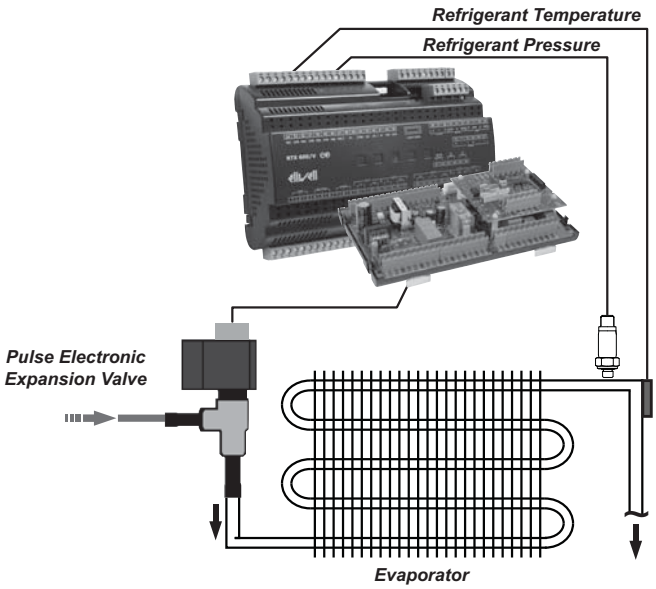
The KIT versions include a second box containing the **KDEPlus** keyboard.

1.4. MAIN CHARACTERISTICS OF THE RTX-RTD 600 /V

RTX-RTD 600 /V has high performance in terms of connectivity, as well as simple programming, maintenance and technical assistance.

The models are available mounted on a DIN rail to reduce the wiring time.
The 8 DIN format allows maximum flexibility and easy installation.





The range of **RTX-RTD 600 /V** devices includes:

- **RTX 600 /V**: consisting of 1 base board and 1 internal upper board
- **RTD 600 /V**: consisting of 1 base board and 1 internal upper board.

NOTE: The differences between The 2 models are as follows:

- Cover (**RTX 600 /V** = present; **RTD 600 /V** = absent)
- OUT2 relay model: - **RTX 600 /V** = 16(5) A;
  - **RTD 600 /V** = 16 A resistive (Suitable for incandescent lamp).

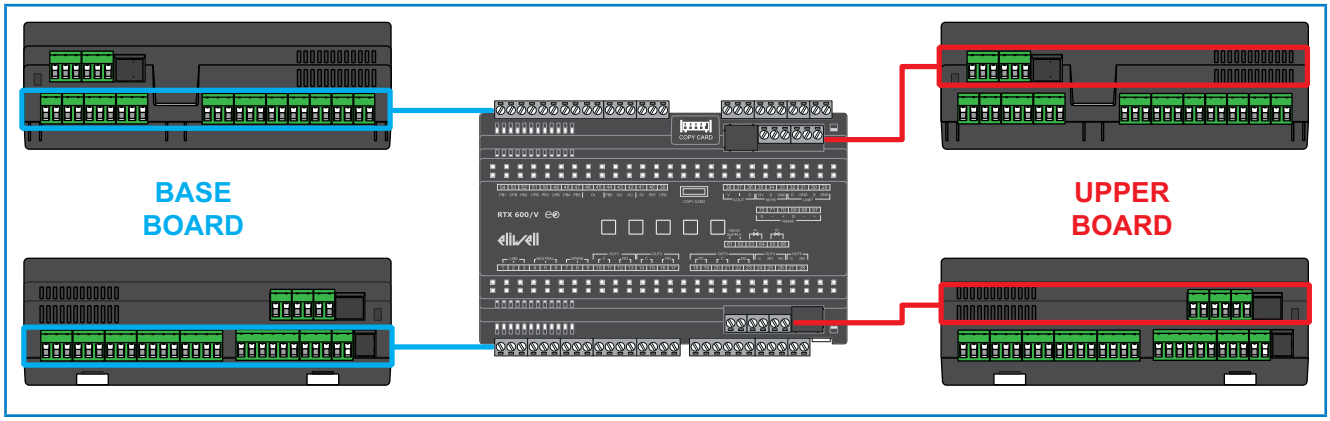


Fig. 2. **RTX 600 /V** : Base board and upper board

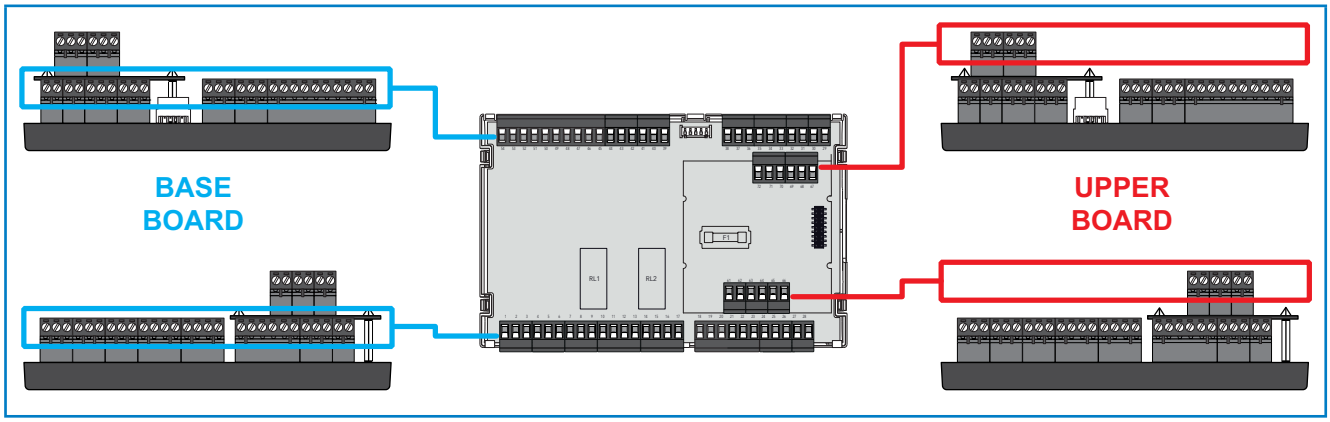


Fig. 3. **RTD 600 /V** : Base board and upper board

The following table shows the main characteristics of the **RTX 600 /V and RTD 600 /V** models.

Feature	RTX 600 /V	RTD 600 /V
Power supply	SMPS 100...240 Vac (±10 %) 50/60 Hz	
Input types	5 configurable NTC / PTC / Pt1000 / DI inputs (Pb1, Pb2, Pb3, Pb4 e Pb5) 1 configurable 4...20 mA / DI input (Pb6) 1 ratiometric / DI configurable input (Pb7) 1 non-powered multipurpose digital input (DI)	
Output type	5 relay digital outputs 1 OC multifunctional output (Open Collector) 1 DAC multifunctional output (0...10 Vdc / 4...20 mA) 1 EEV pulse driver output on SSR relay	
Display	NO	NO
Cover	YES	NO
Communication ports	1 TTL for UNICARD / Device Manager (via DMI) / Multi Function Key connection (maximum lenght 3 m / 9.84 ft.) 1 RS485 opto-isolated serial for supervision 1 serial for connection to local Link2 network 1 serial for connection to keyboard (KDEPlus, KDWPlus, KDT) or display (ECPlus)	

1.5. MAIN COMPONENTS OF THE RTX-RTD 600 /V

The main components of the **RTX-RTD 600 /V** are the following:

NOTE: **Fig. 4 on page 16** shows the **RTX-RTD 600 /V** device with the removable connectors mounted**.**

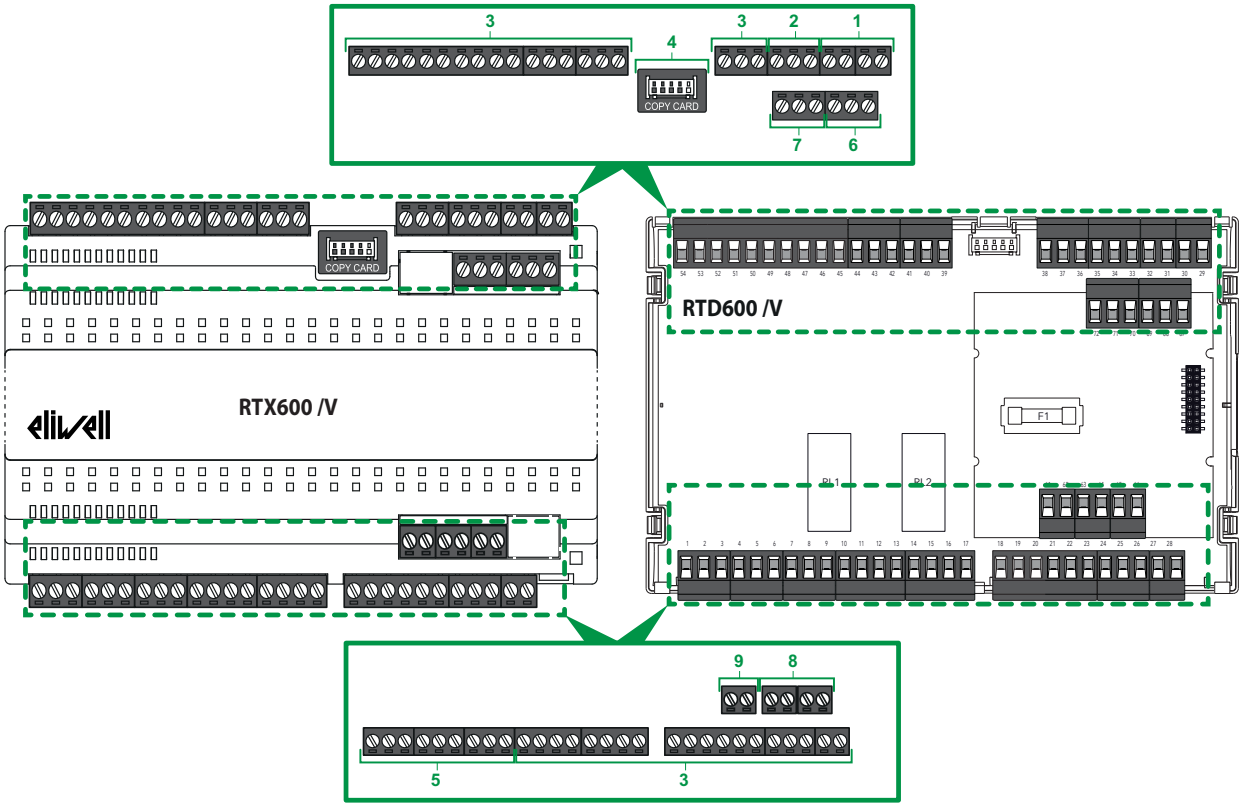


Fig. 4. Main components of the **RTX-RTD 600 /V**

Label	Description	Position	For more information refer to:
1	Link[2]	Base Board	**"3.1.6. Serial connections" on page 34** and **"5.5. Serials" on page 55**
2	Keyboard	Base Board	**"5.5. Serials" on page 55**
3	Doors Input/Output	Base Board	**"3.3.1. Base board wiring diagram" on page 37**
4	TTL port	Base Board	**"5.5. Serials" on page 55**
5	Power supply	Base Board	**"5.6. Power supply" on page 55**
6	RS 485-1 port	Upper Board	**"3.1.6. Serial connections" on page 34** and **"5.5. Serials" on page 55**
7	RS 485-2 port	Upper Board	**"3.1.6. Serial connections" on page 34** and **"5.5. Serials" on page 55**
8	Pulse EEV power supply	Upper Board	**"5.7. EEV PULSE power supply" on page 55**
9	Pulse EEV output	Upper Board	**"3.3.2. Upper board wiring diagram" on page 39**

CHAPTER 2
MECHANICAL INSTALLATION

2.1. BEFORE STARTING

Before starting to install your system, read this chapter carefully.

Only the user, the machine manufacturer or the integrator can be familiar with all the conditions and factors present during installation and set up, preparing, starting-up and servicing the machine the process and therefore only they are able to determine which automation equipment and relative safety devices and interlocks can be used in a correct and efficient manner.

When the automation and control equipment and any other relative equipment or software are selected for a particular application, also the applicable local, regional and national standards and regulations must be taken into consideration.

Caution must be used concerning compliance with all safety information, other electrical requirements or laws which may apply to your machine or process when using this device.

⚠ WARNING

REGULATORY INCOMPATIBILITY

Make sure that all equipment used and the systems designed comply with all applicable local, regional and national laws.

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

2.2. DISCONNECTION FROM THE POWER SUPPLY

Assembled and installed all options and modules before installing the control system on an assembly rail, the panel door or other assembly surface. Before disassembling the equipment, remove the control systems from the assembly rail, plate or panel.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Disconnect all power from all devices including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables and wires.
- Check the earthing connections on all earthed devices.
- Use this equipment and all connected products only at the specified voltage.
- Do not connect the device directly to the line voltage, except where indicated otherwise.

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

2.3. COMMENTS CONCERNING PROGRAMMING

The products described in this manual were designed and tested using Eliwell programming, configuration and maintenance software products.

2.4. OPERATING ENVIRONMENT

This device is designed to operate outside of any dangerous location.
Install this device only in areas known to be free from hazardous atmospheres.

⚠ DANGER

RISK OF EXPLOSION AND FIRE

Do not use this device in applications where R290 flammable refrigerant is used.

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

⚠ DANGER

RISK OF OVERHEATING AND FIRE

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

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

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Eliwell for any consequences arising out of the use of this material.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

Install and use the device in compliance with the conditions described in the paragraph “Environmental and electrical characteristics”.

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

2.5. COMMENTS CONCERNING INSTALLATION

RTX-RTD 600 /V device

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- If there is a risk of injury and/or damage to equipment, use the required safety interlocks.
- Install and use this device in an electrical cabinet with a nominal voltage suited to the place of use.
- For power line and output circuit fuses and connections, comply with local and national regulations corresponding to the nominal current and voltage of the device being used.
- Do not use this equipment in critical safety conditions.
- Do not dismantle, repair or modify the equipment, except where indicated otherwise.
- Do not install the devices in places subject to high humidity and/or dirt.

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

For mechanical dimensions, see **“5.2. Mechanical Characteristics” on page 53**.

RTX-RTD 600 /V devices are designed for assembly on DIN rail.

Keyboard (KDEPlus, KDWPlus, KDT) and Display (ECPlus)

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK OR ACCESS TO MOVING PARTS

The final application must prevent the access to high voltage or moving parts through the hole for the keyboard (**KDEPlus**, **KDWPlus** or **KDT**) or the display (**ECPlus**) mounting given that the keyboard or the display cannot provide protection against this eventuality.

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

2.6. RTX 600 /V INSTALLATION

The **RTX 600 /V** is designed for installation on a DIN rail.
For installation proceed as follows:

1. Move the two locking clips outwards (lever with a screwdriver in the compartments)
2. Mount the device on the DIN rail
3. Press the clips inwards to lock.

   NOTE: Once assembled on the DIN rail, check that the clip docking devices are turned downwards.

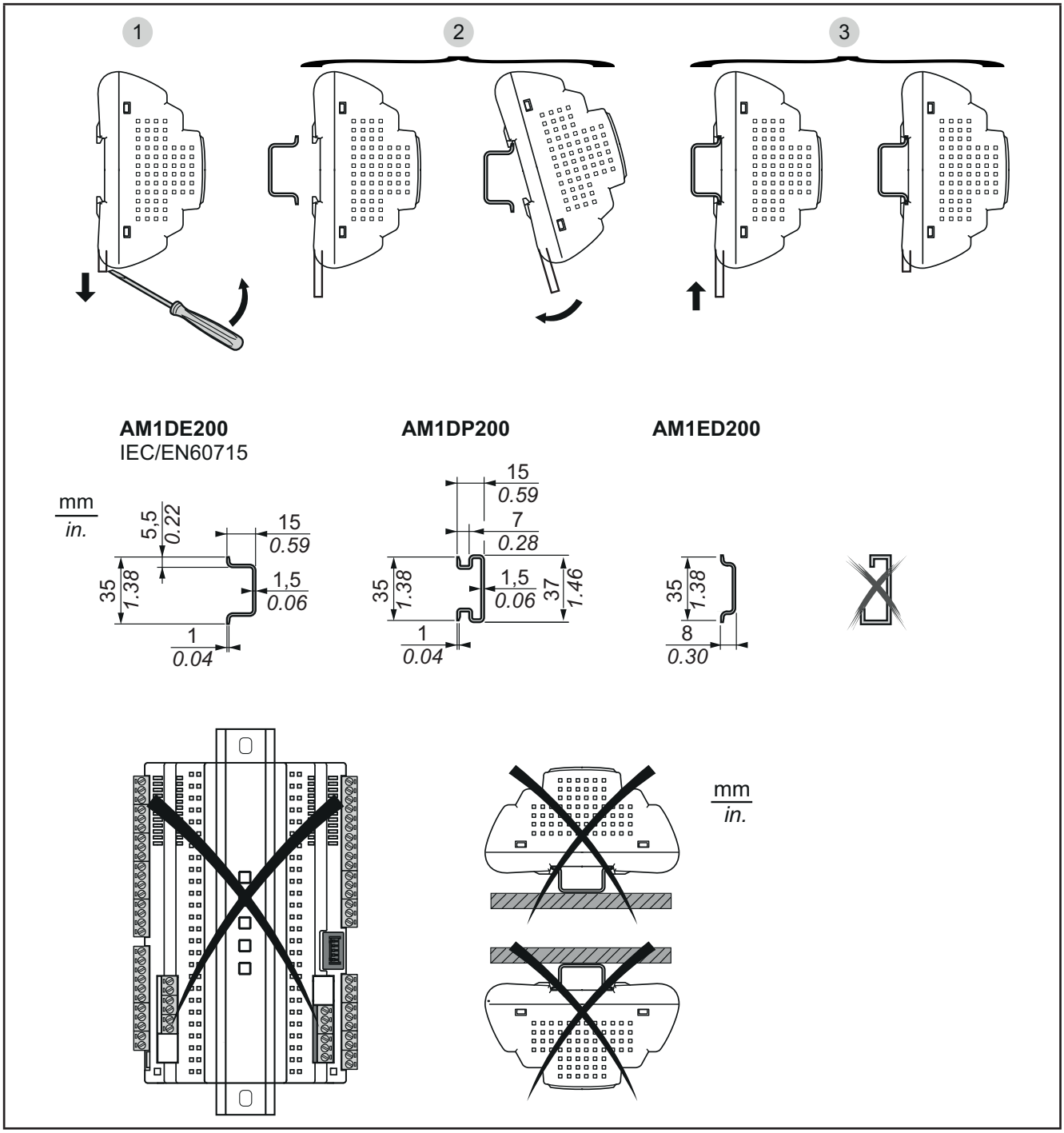


Fig. 5. Installation

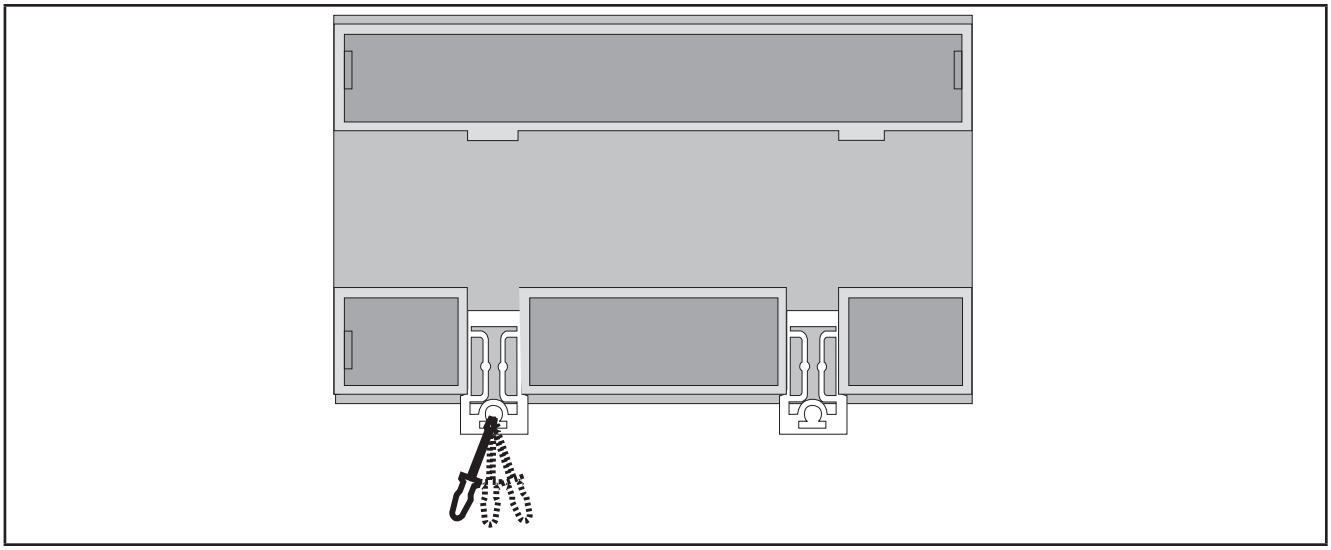


Fig. 6. Detail of sping hooking devices

The **RTX 600 /V** device was designed as a class IP20 product and must only be installed in type-approved cabinets and/or in points that prevent unauthorised access.

When installing the device, comply with a series of distances:

- **RTX 600 /V** and all sides of the cabinet (including the panel door).
- The terminal boards on the **RTX 600 /V** and the wiring raceways. These distances reduce the electromagnetic interference between the device and the wiring raceways.
- The **RTX 600 /V** and the other heat-generating devices installed in the same cabinet.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- Place the devices dissipating the most heat in the top of the cabinet and ensure suitable ventilation.
- Do not place these devices near or above any devices which could cause overheating.
- Install the device in a point that guarantees the minimum distances from all structures and adjacent equipment as indicated in this document.
- Install all equipment in conformity with the technical specifications given in the respective documentation.

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

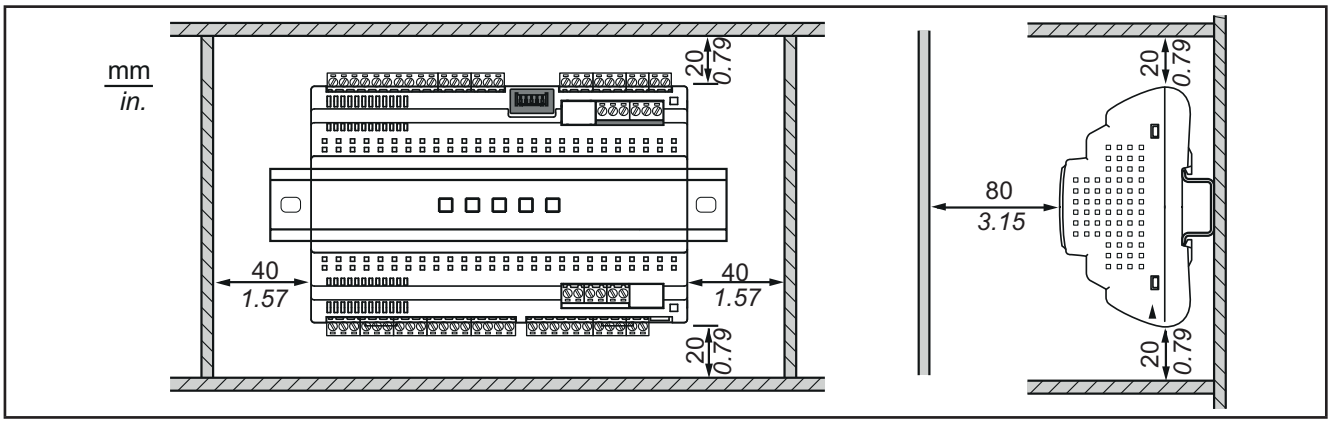


Fig. 7. Distances

2.7. RTD 600 /V INSTALLATION

The **RTD 600 /V** is designed for installation on a DIN rail.
For installation proceed as follows:

1. Move the two locking clips outwards (lever with a screwdriver in the compartments)
2. Mount the device on the DIN rail
3. Press the clips inwards to lock.

   NOTE: Once assembled on the DIN rail, check that the clip docking devices are turned downwards.

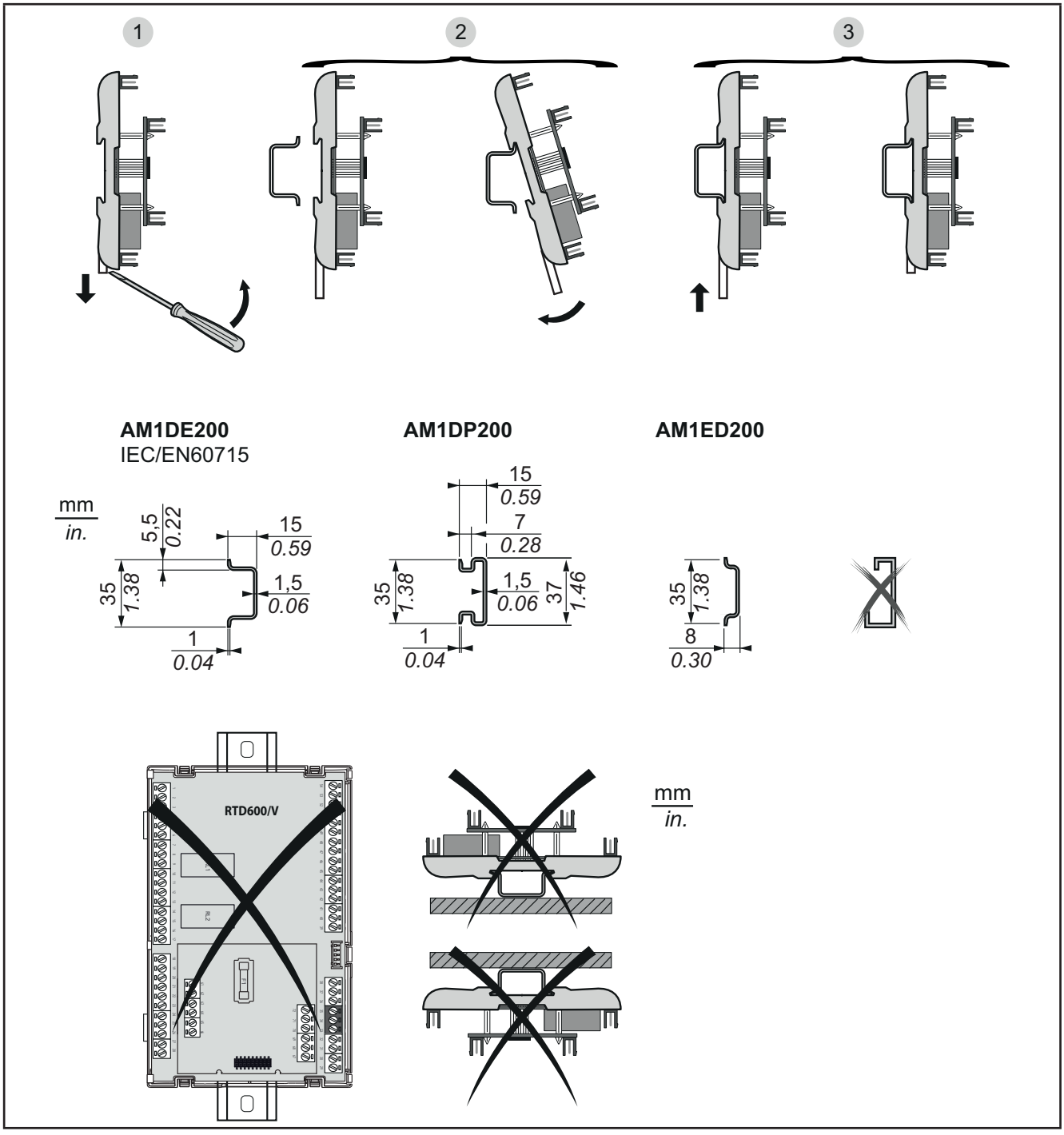


Fig. 8. Installation

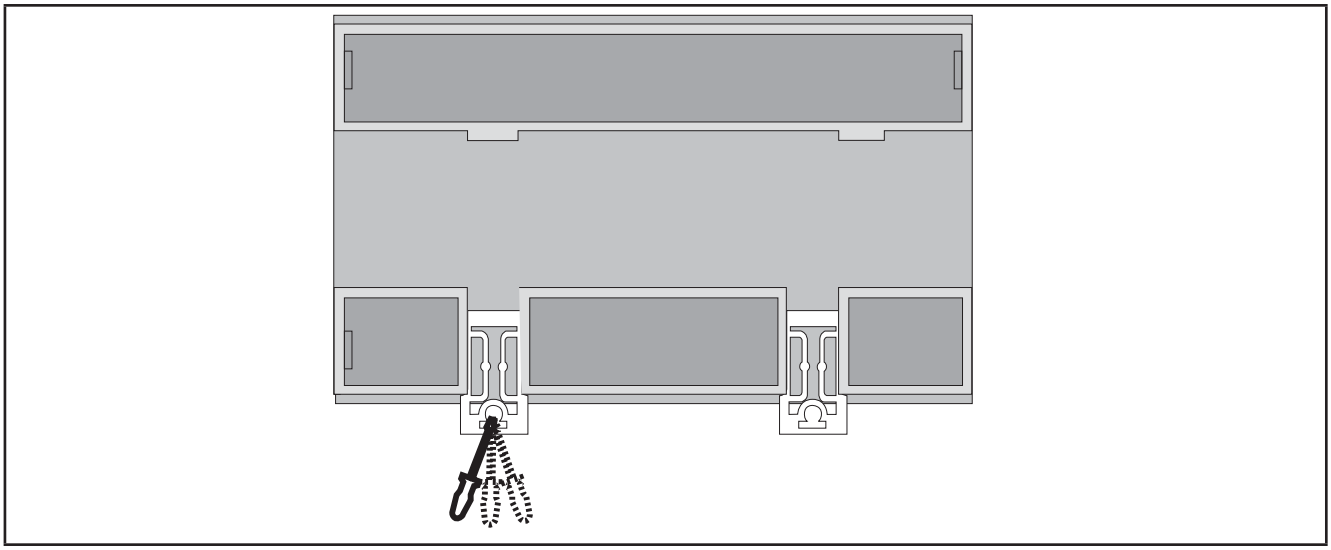


Fig. 9. Detail of sping hooking devices

The **RTD 600 /V** device must only be installed in type-approved cabinets and/or in points that prevent unauthorised access.

When installing the device, comply with a series of distances:

- **RTD 600 /V** and all sides of the cabinet (including the panel door).
- The terminal boards on the **RTD 600 /V** and the wiring raceways. These distances reduce the electromagnetic interference between the device and the wiring raceways.
- The **RTD 600 /V** and the other heat-generating devices installed in the same cabinet.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- Place the devices dissipating the most heat in the top of the cabinet and ensure suitable ventilation.
- Do not place these devices near or above any devices which could cause overheating.
- Install the device in a point that guarantees the minimum distances from all structures and adjacent equipment as indicated in this document.
- Install all equipment in conformity with the technical specifications given in the respective documentation.

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

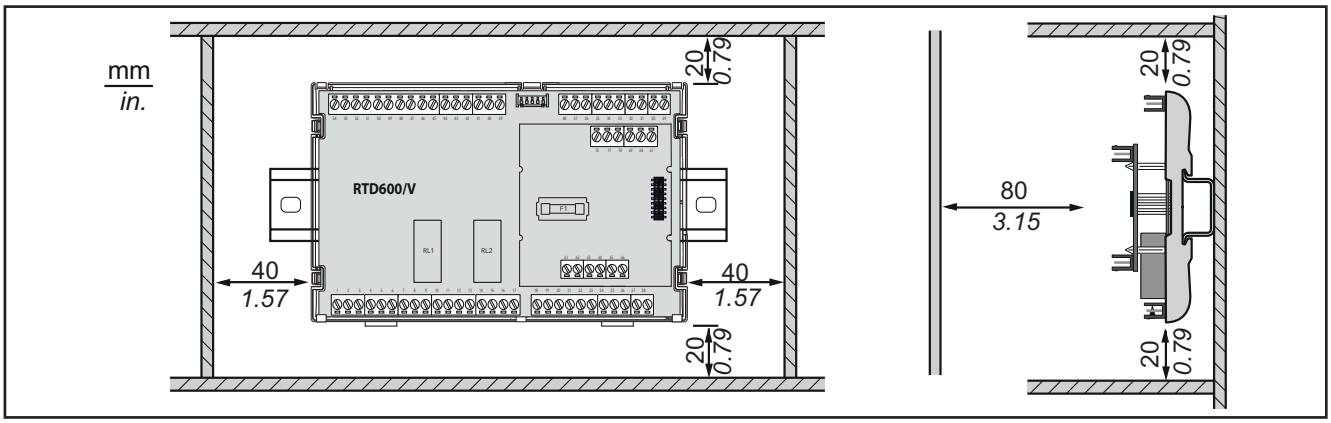


Fig. 10. Distances

2.8. KDEPLUS INSTALLATION

The **KDEPlus** keyboard is designed for panel assembly (on a flat surface) with supplied brackets.
For installation proceed as follows:

1. Make a 71x29 mm hole (2.80x1.14 in.).
2. Insert the keyboard.
3. Fix the brackets in the guides on the 2 sides of the keyboard to lock into place (you should hear a “Click”).
4. To remove press the brackets on the 2 sides of the device (“Click”), remove them and push the keyboard.
5. Remove the keyboard.

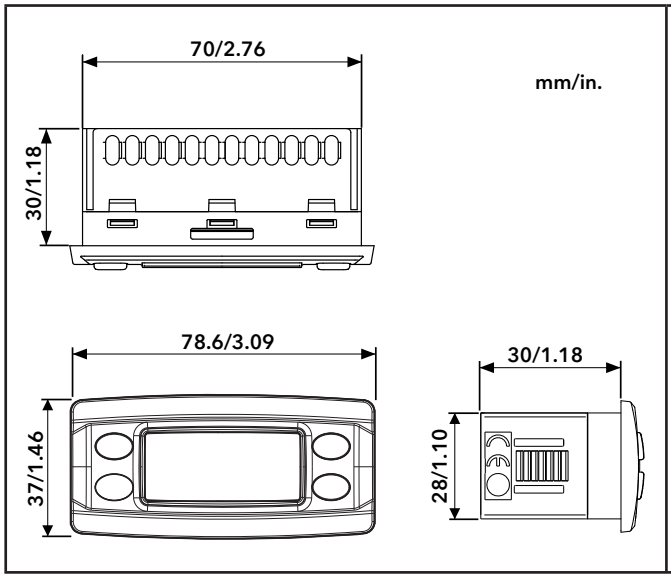


Fig. 11. Dimensions

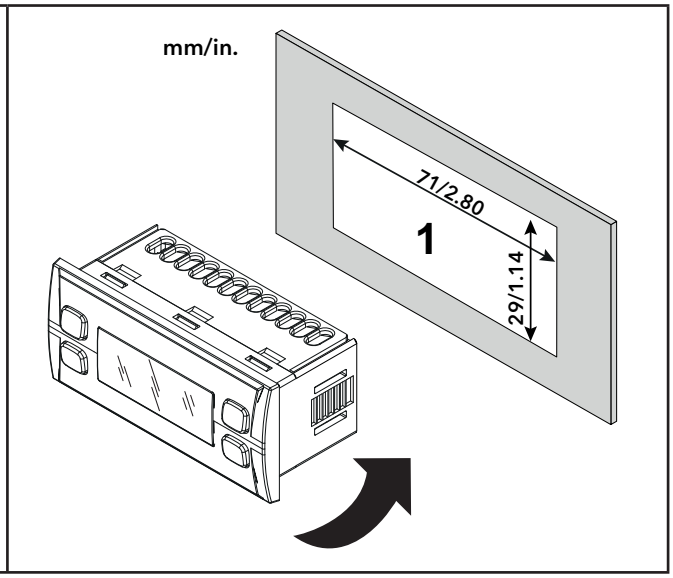


Fig. 12. Panel mounting

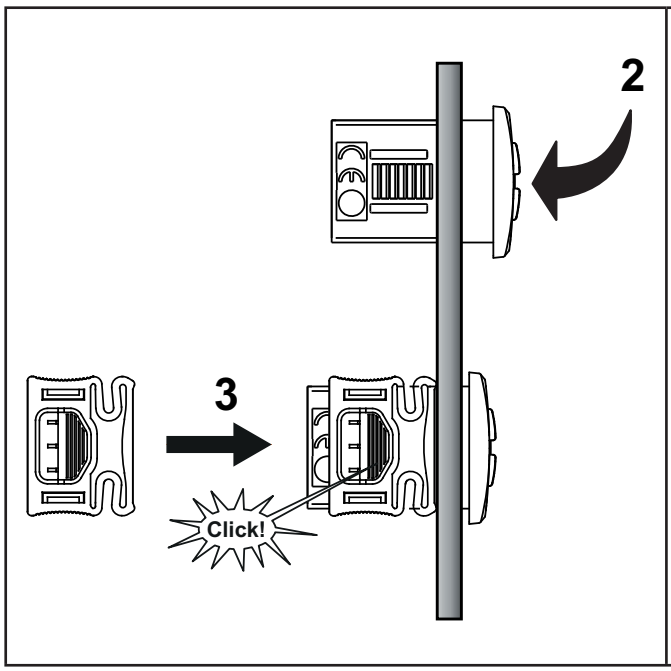


Fig. 13. Example of insertion

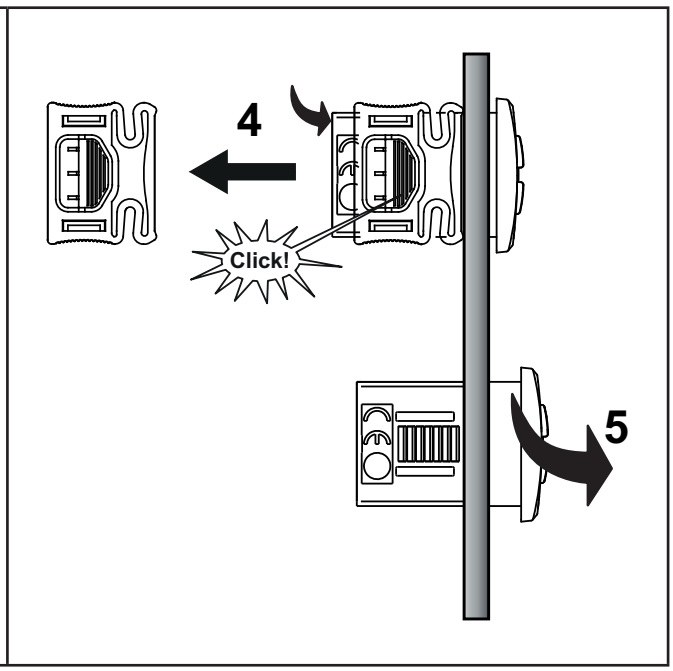


Fig. 14. Example of removal

2.9. KDWPLUS INSTALLATION

The keyboard is designed for panel assembly (on a flat surface) with supplied brackets.
For installation proceed as follows:

1. Make 1 150x31 mm hole (5.91x1.22 in.).
2. Make 2 holes Ø 3.2 mm (0.13 in.).
3. Insert the keyboard.
4. Place the screws in the holes on the keyboard and tighten.
5. Mount the front panel on the keyboard.
6. To remove, remove the front panel.
7. Unscrew the locking screws and push the keyboard.
8. Remove the keyboard.

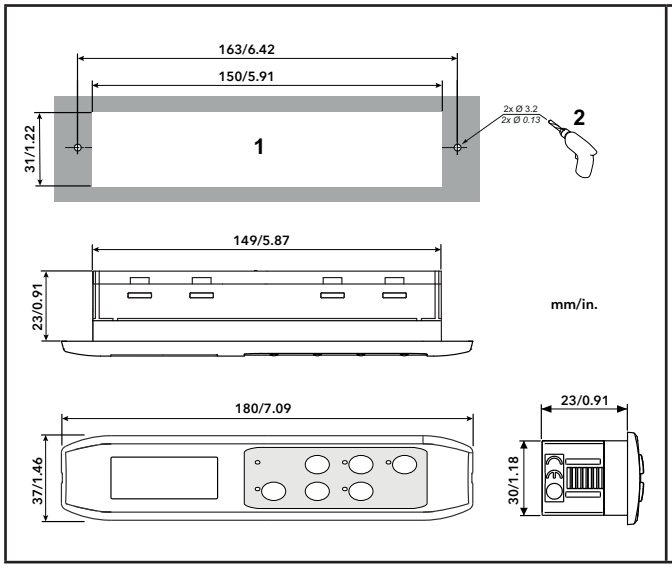


Fig. 15. Dimensions

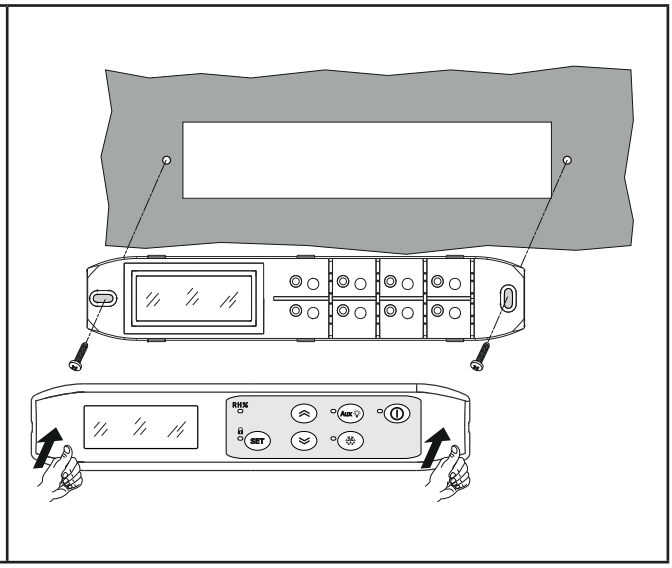


Fig. 16. Panel mounting

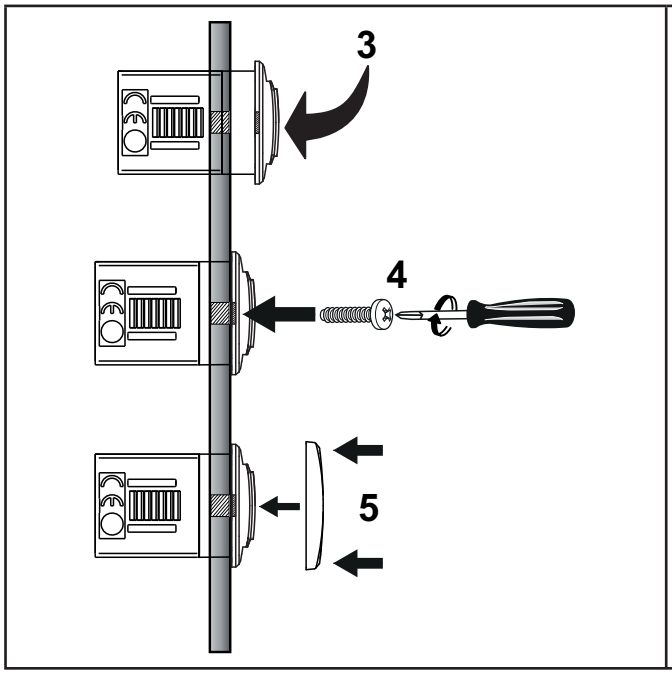


Fig. 17. Example of insertion

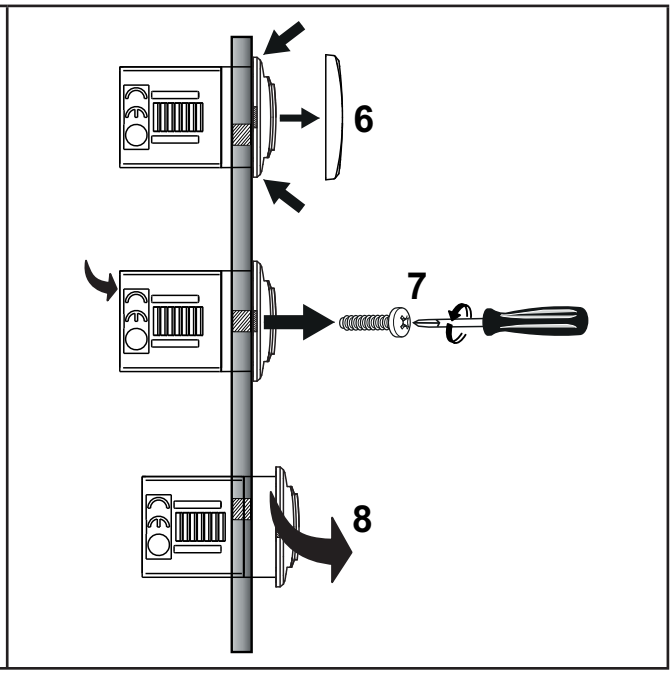


Fig. 18. Example of removal

2.10. KDT VERTICAL INSTALLATION

The **KDT Vertical** keyboard is suitable to be fitted to a STAINLESS STEEL flat surface.
For installation proceed as follows:

1. Make a 67x120 mm hole (2.64x4.72 in.).
2. Clean the surface to remove any greasy, dusty or dirty residues.
3. Remove the double-sided tape protection strip from the back of the keyboard.
4. Place the keyboard in the drilled space for gluing.
5. Remove the protective film from the front surface of the keyboard.

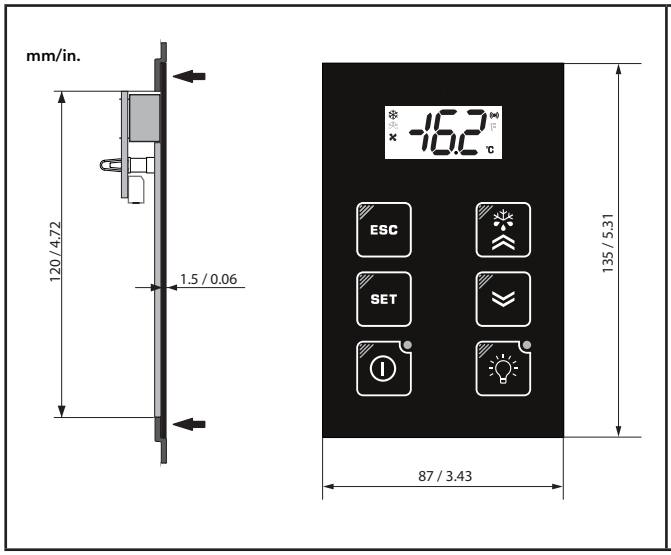


Fig. 19. Dimensions

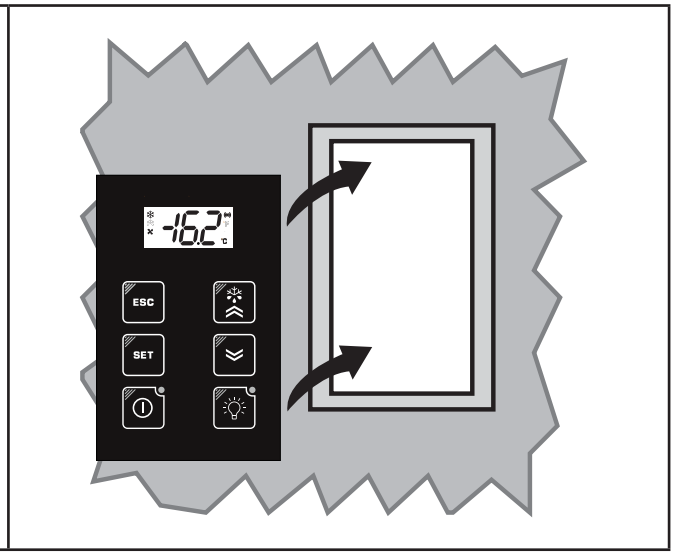


Fig. 20. Panel mounting

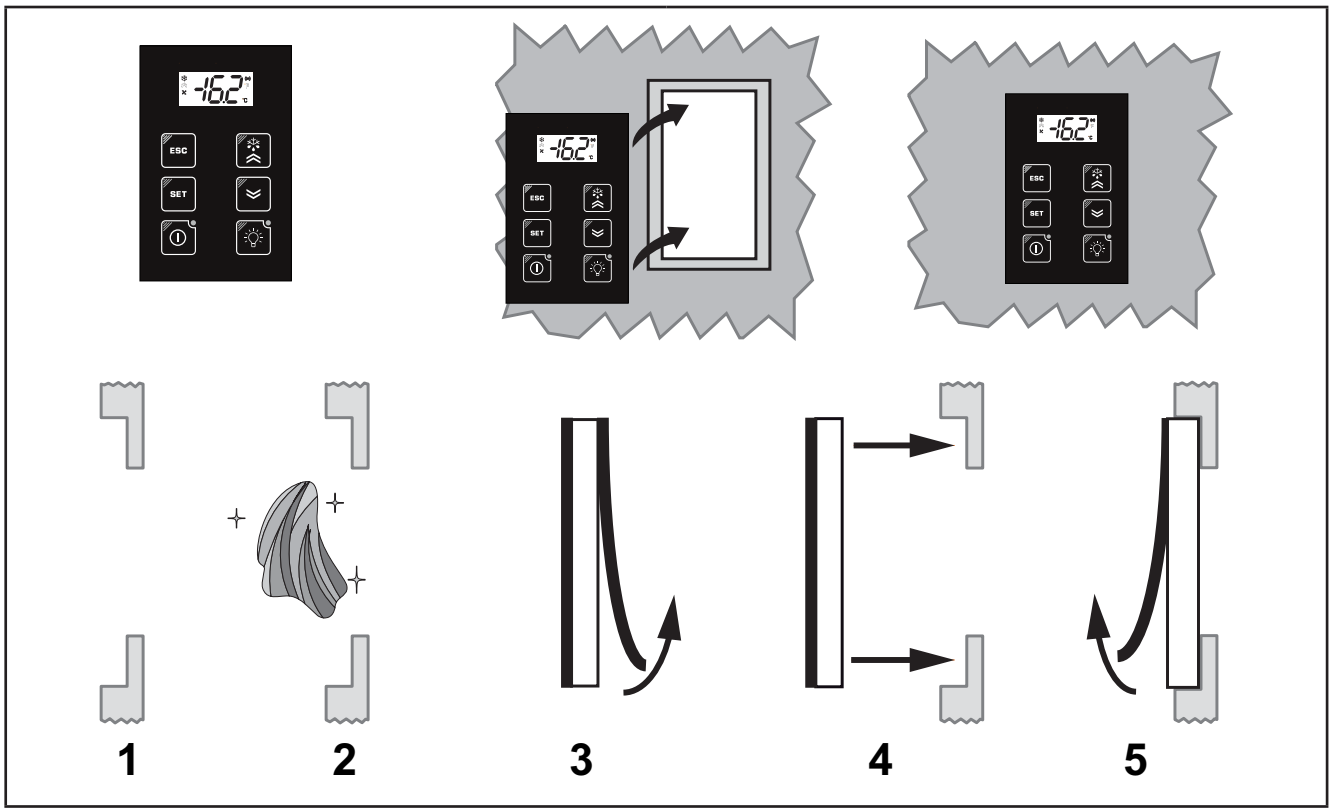


Fig. 21. Mounting example

2.11. KDT HORIZONTAL INSTALLATION

The **KDT Horizontal** keyboard is suitable to be fitted to a STAINLESS STEEL flat surface.
For installation proceed as follows:

1. Make a 150x31 mm hole (5.91x1.22 in.).
2. Clean the surface to remove any greasy, dusty or dirty residues.
3. Remove the double-sided tape protection strip from the back of the keyboard.
4. Place the keyboard in the drilled space for gluing.
5. Remove the protective film from the front surface of the keyboard.

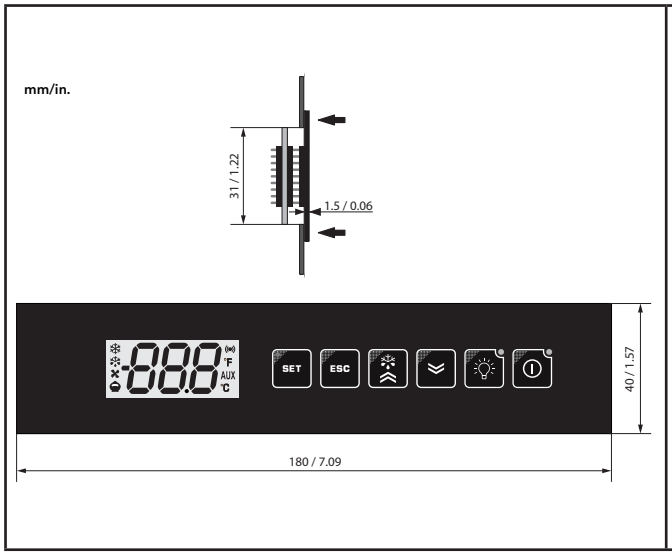


Fig. 22. Dimensions

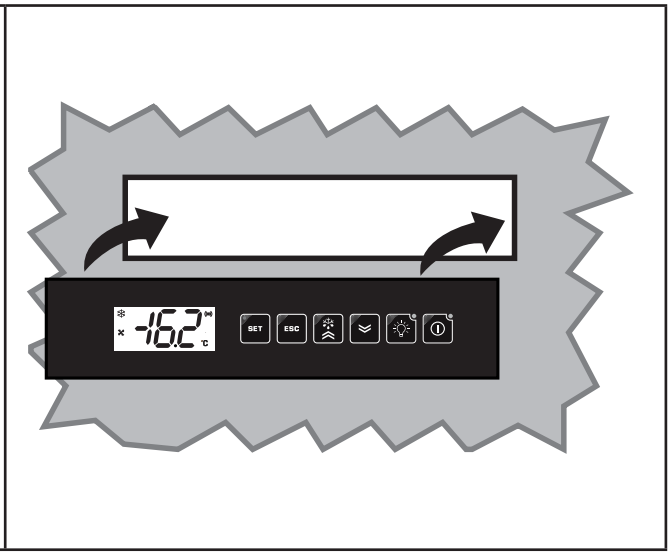


Fig. 23. Panel mounting

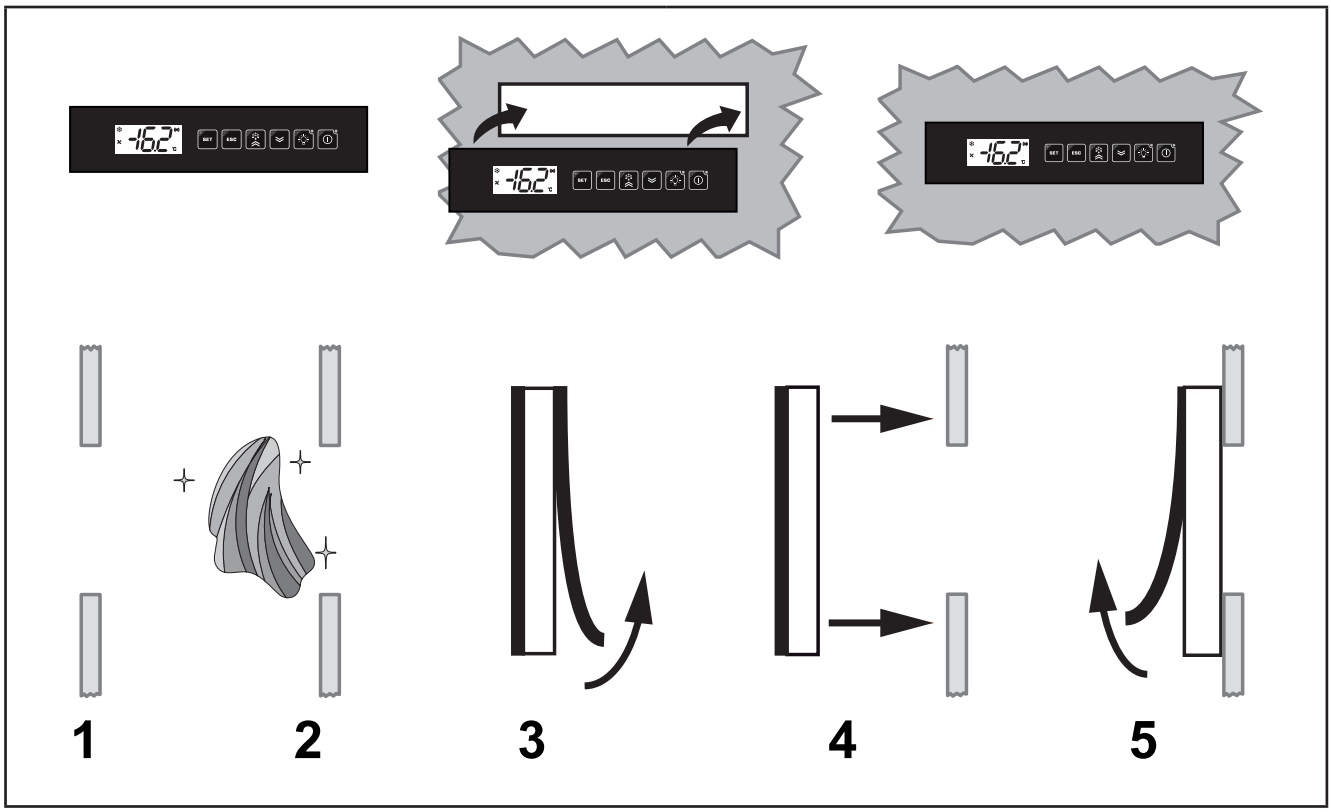


Fig. 24. Mounting example

2.12. ECPLUS INSTALLATION

The **ECPlus** display is designed for panel assembly (on a flat surface) with supplied brackets.
For installation proceed as follows:

1. Make a 45.9x26.4 mm hole (1.81x1.04 in.).
2. Inset the display.
3. Lock in position with the brackets on the 2 sides of the display (“Click”).
4. To remove press the brackets on the 2 sides of the display (“Click”), remove them and push the display.
5. Remove the display.

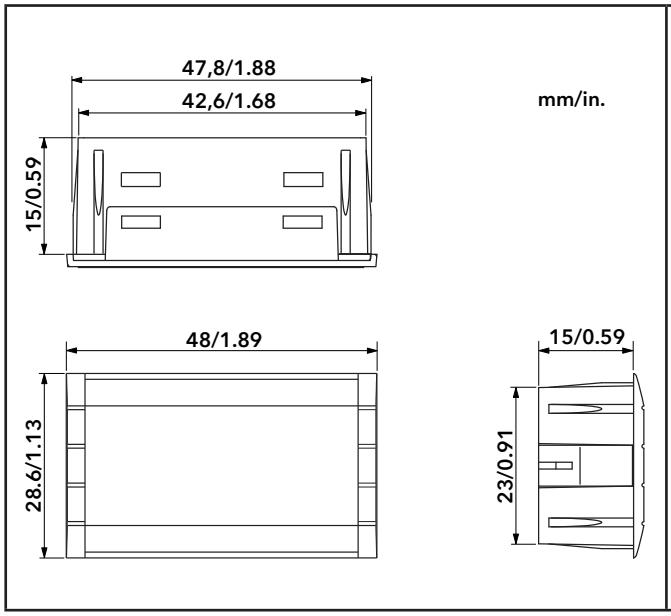


Fig. 25. Dimensions

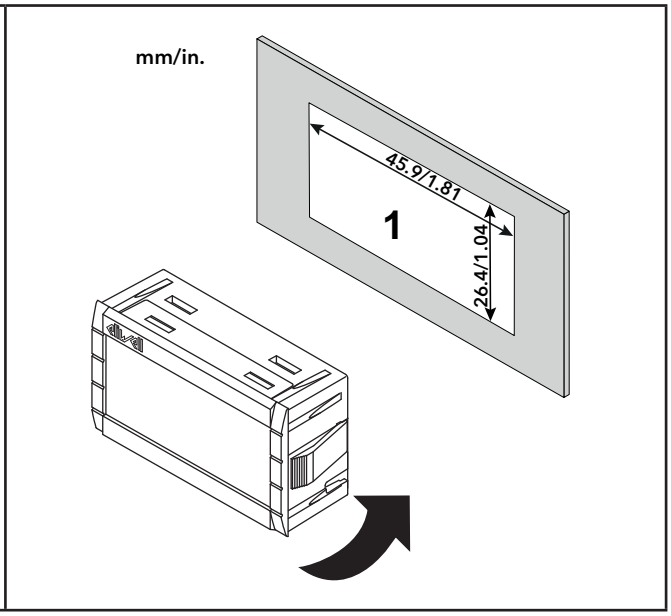


Fig. 26. Panel mounting

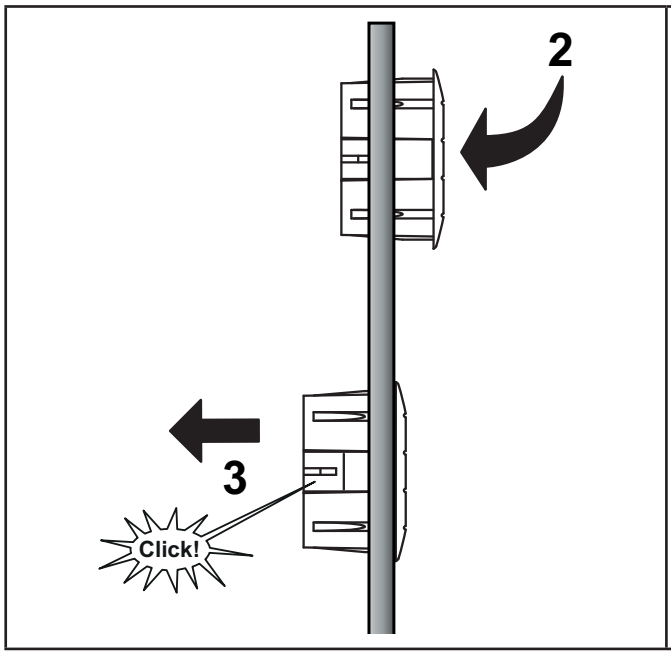


Fig. 27. Example of insertion

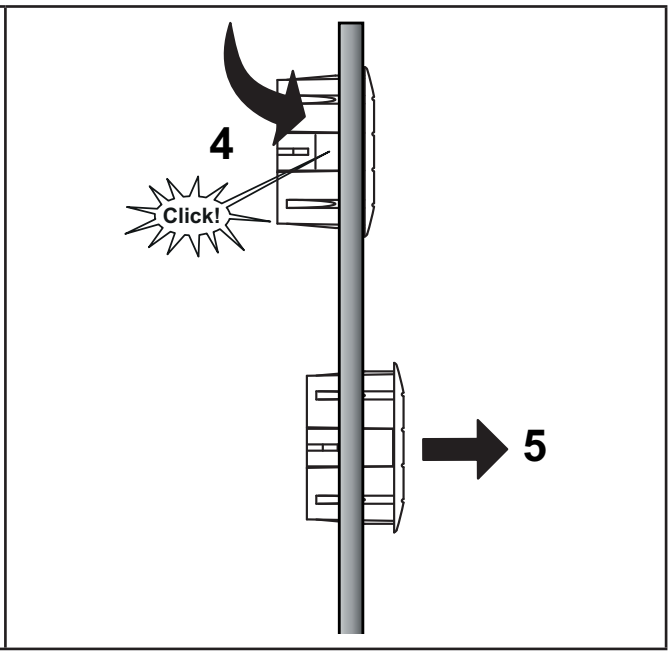


Fig. 28. Example of removal

CHAPTER 3
ELECTRICAL CONNECTIONS

3.1. WIRING PRACTICES

The following information describes the guidelines for wiring and the practices to follow when using the **RTX-RTD 600 /V** device.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Disconnect all power from all devices including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables and wires.
- Check the earthing connections on all earthed devices.
- Use this equipment and all connected products only at the specified voltage.
- Do not connect the device directly to the line voltage, except where indicated otherwise.

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

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK OR ACCESS TO MOVING PARTS

The final application must prevent the access to high voltage or moving parts through the hole for the keyboard (**KDEPlus**, **KDWPlus** or **KDT**) or the display (**ECPlus**) mounting given that the keyboard or the display cannot provide protection against this eventuality.

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

⚠ WARNING

LOSS OF CONTROL

- The installation designer must consider the potential failure modes of the control circuit and, for some critical control functions, provide a means for reaching a safe condition during and after a circuit failure. Examples of critical control functions are the emergency stop and end of travel stop, power supply cut-off and restarting.
- Separate or redundant control circuits must be provided for critical control functions.
- The system control circuits can include communication connections. Keep in mind the implications of transmission delays or sudden connection failures.
- Comply with all the standards regarding accident protection and the local applicable safety directives.
- Every implementation of this device must be tested individually and completely in order to check its proper operation before putting it in service.

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

3.1.1. Wiring guidelines

Wire the **RTX-RTD 600 /V** device in accordance with the following rules:

- Keep separate the I/O and communication wiring from the electrical wiring.
  Keep in separate raceways these two types of wirings.
- Check that the operating conditions and environment comply with the specification values.
- Use wires of the correct diameter and suited to the voltage and current requirements.
- Use copper conductors (obligatory).
- Use twisted-pair shielded wires for analogue and/or high-speed I/Os.
- Use twisted-pair shielded wires for networks and field buses.

Use correctly earthed shielded wires for all analogue and high-speed inputs and outputs and communication connections.
If shielded wires cannot be used for these connections, the electromagnetic interference may deteriorate the signal. Deteriorated signals can result in the device, modules or attached equipment operating incorrectly.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- Use shielded wires for all high-speed I/O, analogue I/O and communication signals.
- Earth the wire shields for all analogue I/O, high-speed I/O and communication signals in a single point.
- The signal cables (probes, digital inputs, communication, and relative power supplies) of the device must be laid separately from the power cables.
- Reduce the length of the connections as far as possible and avoid winding them round electrically connected parts.

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

NOTE: Lay the main wiring (power wires) separately from the secondary wiring (very low voltage wire coming from intermediate power sources). Where this is not possible, double insulation is required in the form of cable recesses or raceways.

3.1.2. Rules for screw-type terminal boards

The table below displays the type and the size of cables for disconnectable terminals with pitch **5.00** (0.197 in.) or **5.08** (0.20 in.):

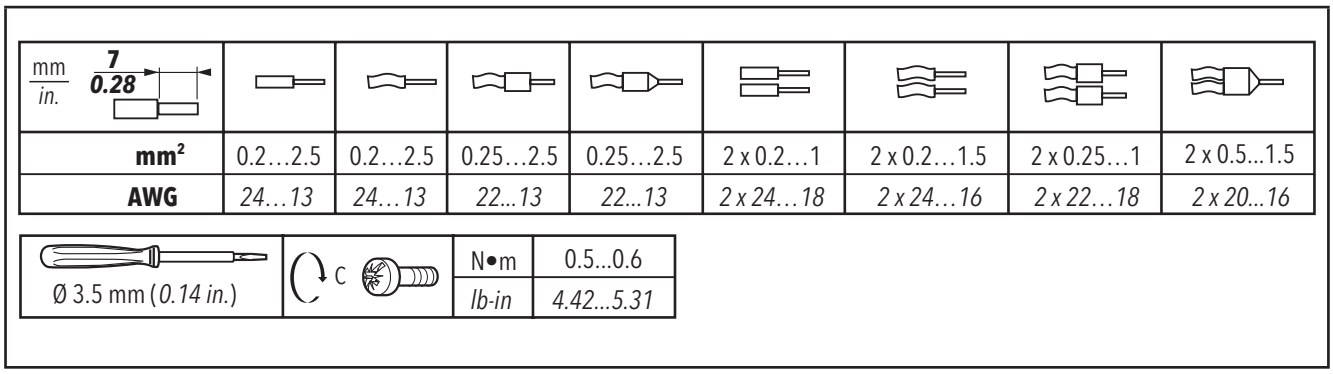


Fig. 29. Spacing 5.00 mm (0.197 in.) or 5.08 mm (0.20 in.)

⚠ ⚠ DANGER

LOOSE WIRING CAN RESULT IN ELECTRIC SHOCK

Tighten the connections in compliance with the torque technical specifications.

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

⚠ DANGER

FIRE HAZARD

- Use only the recommended wire sections for current capacity of the I/O channels and the electrical power.
- For common relay output wiring use conductors with section of at least 2.0 mm² (AWG 14) with a nominal temperature value of at least 80 °C (176 °F).

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

3.1.3. Protecting the outputs from damage from inductive loads

If the device has relay outputs, these types of outputs can cope with up to 240 Vac.

Damage from inductive loads to this type of outputs can cause the contacts to weld and lead to the loss of control. Each inductive load must include a protective device such as a peak limiter or snubber. These relays don't support capacitive loads.

⚠ WARNING

RELAY OUTPUTS WELDED TO CLOSED POSITION

- Always protect the relay outputs from damage resulting from alternating current inductive loads using a suitable external protective device or circuit.
- Do not connect the relay outputs to capacitive loads.

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

Depending on the load a protection circuit may be required for device outputs and certain modules.
Inductive load switching may create voltage impulses that damage, short-circuited or reduce the life of the output devices.

⚠ CAUTION

DAMAGE TO OUTPUT CIRCUITS DUE TO INDUCTIVE LOADS

Use an external protective device or circuit able to reduce the risks caused by voltage impulses in the switching of inductive loads.

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

Choose a protection circuit from the following diagrams according to the electrical power used.
Connect the protection circuit to the outside of the device or relay output module.

Protection circuit A: this protection circuit uses a snubber and can be used for alternating current circuits. The snubber must be compatible with the type of charge and the RMS voltage of the snubber must be +10% higher than the charge voltage (for example: with a charge working at 250 Vac, the snubber must have a minimum voltage of 275 Vac).

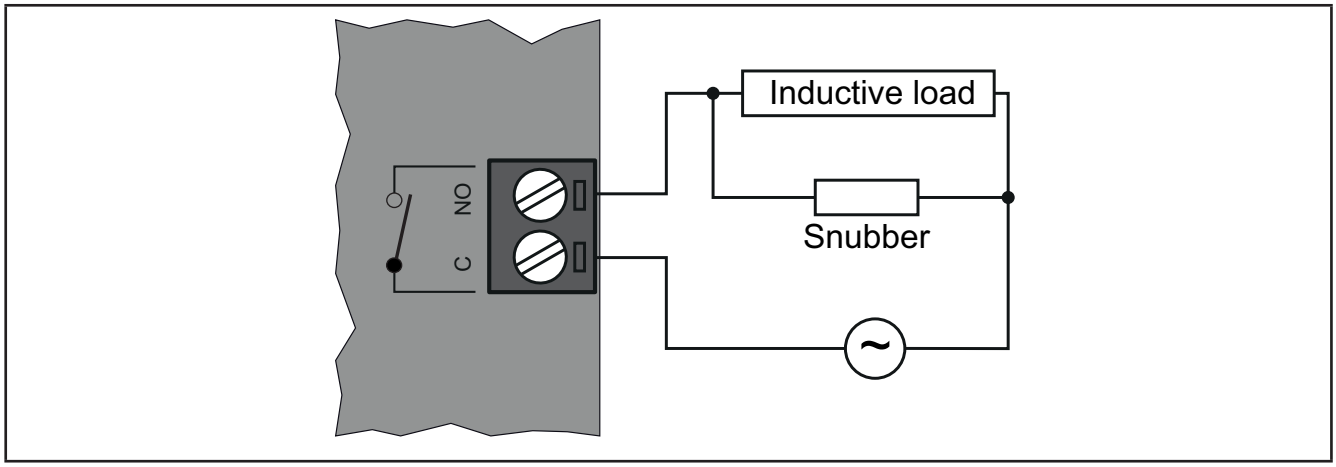


Fig. 30. Protection circuit A

Protection circuit B: this protection circuit uses a varistor and can be used for alternating current circuits. In applications in which the inductive load is frequently and/or rapidly switched on and off, check that the maximum continuous energy (U) of the varistor is 20% or more higher than the peak load energy, and the clamping voltage on the varistor is not less than 1.6 times the charge voltage.

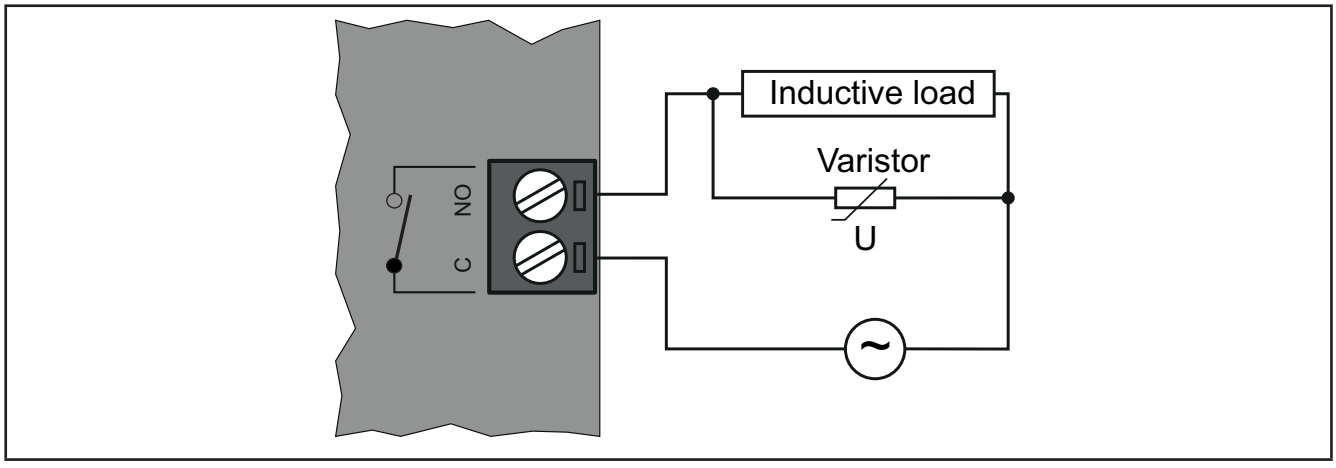


Fig. 31. Protection circuit B

NOTE: Place the protection devices as close as possible to the load.

3.1.4. Specific considerations for handling

When handling the equipment use caution to avoid damage caused by electrostatic discharge. In particular the unshielded connectors and in certain cases the open circuit boards are extremely vulnerable to electrostatic discharge.

⚠ WARNING

FAULTY OPERATION OF EQUIPMENT DUE TO ELECTROSTATIC DISCHARG

- Keep the device in the protective packaging until ready for installation.
- The device must only be installed in type-approved cabinets and/or in points that prevent accidental access and provide protection from electrostatic discharge as defined in IEC 1000-4-2.
- When handling sensitive equipment, use a earthed protective device against electrostatic discharge.
- Before handling the device, 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.

Before any operations, check that the device is connected to a suitable external power supply.

Refer to **“5.6. Power supply” on page 55** and **“5.7. EEV PULSE power supply” on page 55**.

Before connecting the valve, carefully configure the device selecting the type of valve from the list of valves. Refer to **“8.1.1. List of compatible / pilotable valves” on page 72.**

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

Check the valve parameters declared by the manufacturer before using the valve in generic valve configuration.

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

3.1.5. Analogue inputs-probes

The temperature probes don’t feature any connection polarity and can be extended using normal bipolar cable.

⚠ WARNING

FAULTY OPERATION OF EQUIPMENT DUE TO CONNECTIONS

- Apply the electrical power supply to all devices powered externally after applying the electrical power to the **RTX-RTD 600 /V** device.
- Signal leads (probes, digital inputs, communication, and the signal electronic supply) must be routed separately from power and supply cables.

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

NOTICE

INOPERABLE DEVICE

Before switching on the electrical power, check all the wiring connections.

Failure to follow these instructions can result in equipment damage.

NOTE: Extending the probes affects the electromagnetic compatibility (EMC) of the device.

NOTE: Probes requiring a specific polarity must respect the correct connection polarity.

3.1.6. Serial connections

The **RTX-RTD 600 /V** device has the following serial communication ports:

- 1 RS485 serial opto-isolated for monitoring
- 1 serial for connection to local Link^2 network
- 1 serial for keyboard connection (**KDEPlus**, **KDWPlus**, **KDT**) or display **ECPlus** connection

Take extra care when connecting serial lines.
Incorrect wiring may cause the device to work incorrectly or not at all.

RS485 serial

- Use a shielded and 'twisted-pair' cable specific to RS485 (for example: BELDEN cable model 9842).
  For laying wires, comply with the indications given in standard EN 50174 on information technology wiring.
  Take extra care in separating data transmission circuits from power lines.
- The length of the RS485 network connected directly to the device is 1200 m.
  (in accordance with ANSI TIA/EIA RS-485-A and ISO 8482:1987 (E)).
- The Modbus protocol can manage up to 247 devices.
- Single terminal board with 3 conductors: use all 3 conductors
  ('+' and '-' for the signal; 'G' for 0 V signal earth).
- The network must have BUS DAISY CHAIN topology and be equipped with 120 Ω - 1/4 W terminal resistors between the '+' and '-' terminals on each of the two ends of the BUS or enable those already integrated in the device.

Don't communicate on the RS485 serial port if the UNICARD/DMI/Multi Function Key is connected and vice- versa.

NOTICE
INOPERABLE DEVICE Connect only the RS485 serial and TTL (for UNICARD/DMI/Multi Function Key) one at a time. **Failure to follow these instructions can result in equipment damage.**

Link^2 serial connection

- Use a shielded and 'twisted-pair' cable specific to RS485 (for example: BELDEN cable model 9842).
  For laying wires, comply with the indications given in standard EN 50174 on information technology wiring.
- A maximum of 8 devices can be connected to a Link^2 network.

Echo display or keyboard serial connection

Use the connection cable supplied with the keyboard (**KDEPlus**, **KDWPlus** or **KDT**) or display (**ECPlus**).

Take extra care when cutting one of the 2 cable connectors supplied and to the sequence of the wires for subsequent connection to the terminals on the **RTX-RTD 600 /V** card.

Refer to **"6.5. CONNECTIONS RTX 600 /V WITH KEYBOARD AND DISPLAY" on page 60**.
Refer to **"6.6. CONNECTIONS RTD 600 /V WITH KEYBOARD AND DISPLAY" on page 61**.

3.2. CONNECTORS

The **RTX-RTD 600 /V** has inside a “Main board” and an “Upper card”.

For the connectors to the “Main board”, refer to **“3.2.1. Base board connectors” on page 35**.

For the connectors to the “Upper card”, refer to **“3.2.2. Upper board connectors” on page 36**.

On **RTX 600 /V** the Input/Output and port labels are marked on the cover of the device.
On **RTD 600 /V** the Input/Output and port numbers are marked on the circuit boards.

3.2.1. Base board connectors

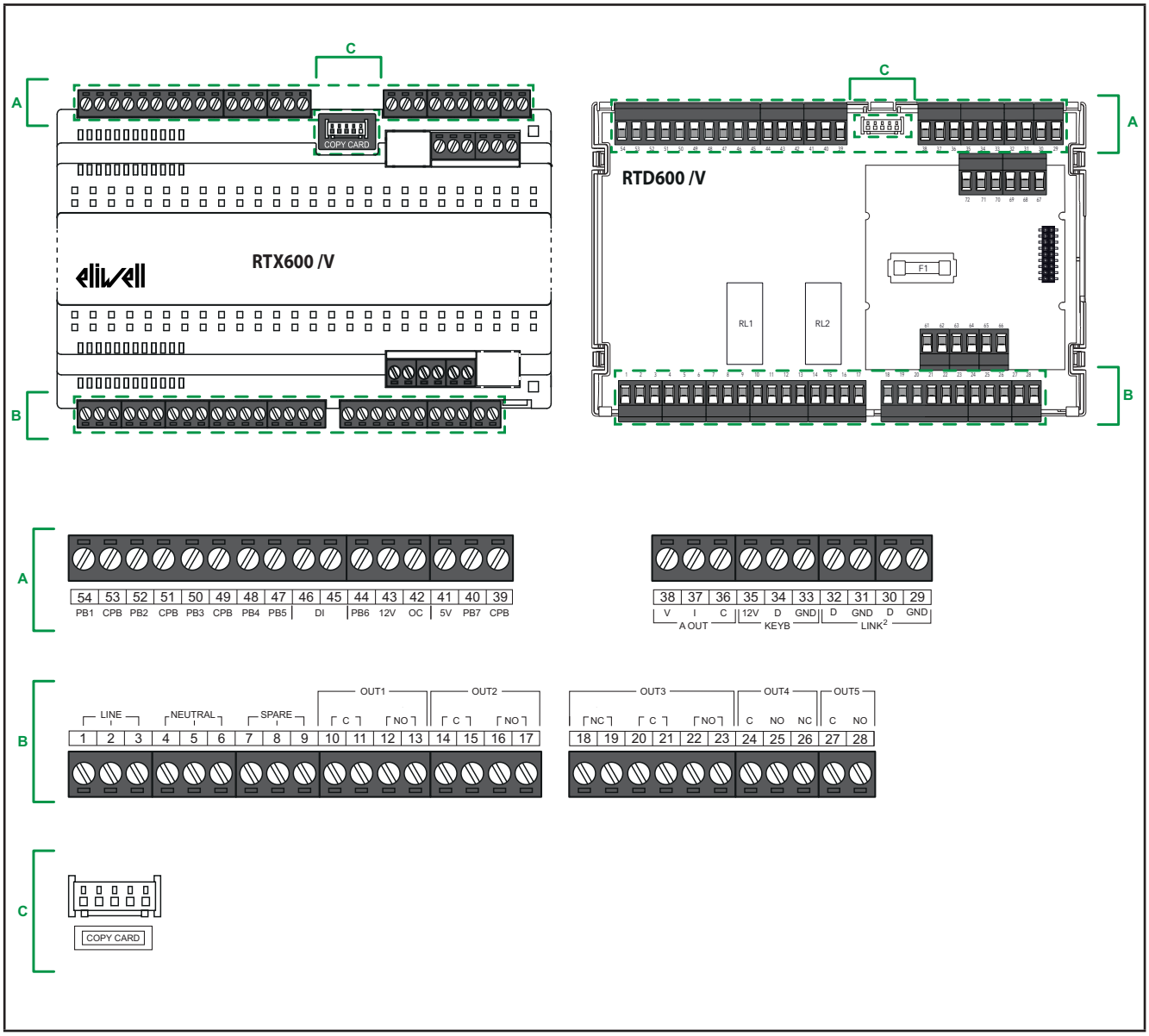


Fig. 32. Base board connectors

3.2.2. Upper board connectors

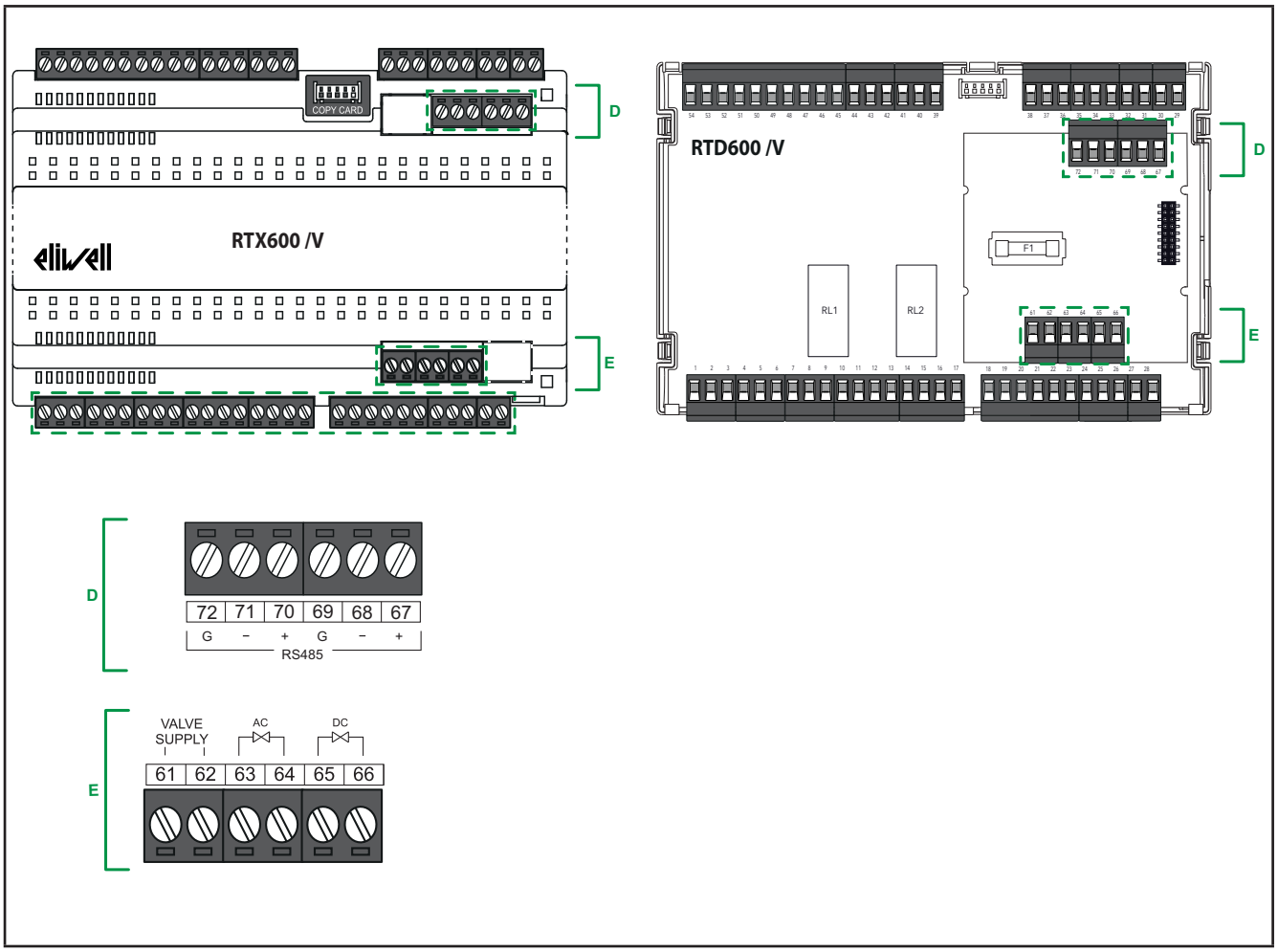


Fig. 33. Upper board connectors

3.3. DEVICE WIRING DIAGRAMS

Incorrect wiring will cause irreversible damage to the **RTX-RTD 600 /V**.

For the wiring diagram refer to **"3.3.1. Base board wiring diagram" on page 37** and the wiring diagram described in **"3.3.2. Upper board wiring diagram" on page 39.**

NOTICE
INOPERABLE DEVICE
Before switching on the electrical power, check all the wiring connections.
Failure to follow these instructions can result in equipment damage.

3.3.1. Base board wiring diagram

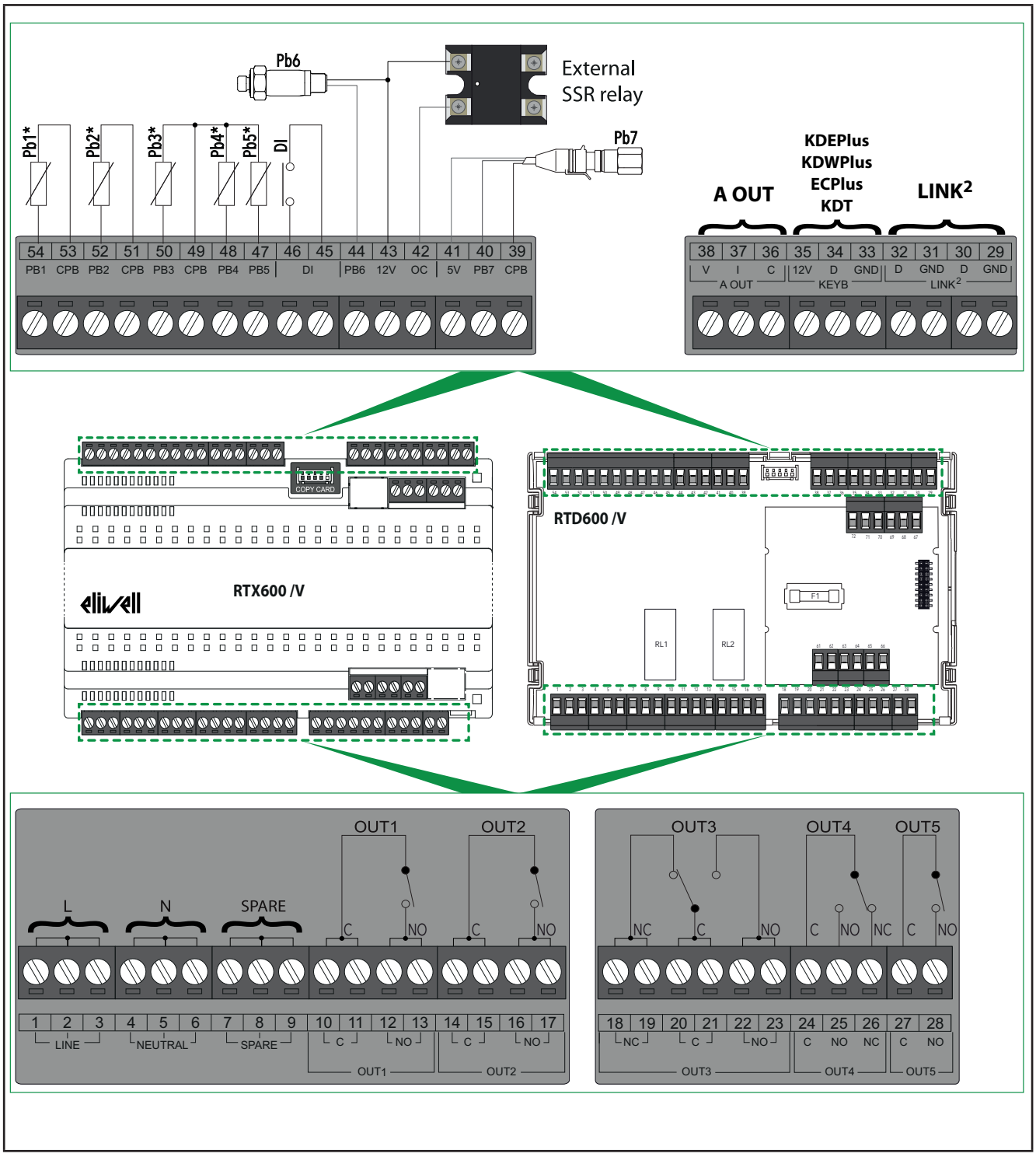


Fig. 34. Base board wiring diagram

For more information see **“TECHNICAL DATA” on page 52**.

Base board terminal labels

The following terminals are mounted on the base:

	Label			
POWER SUPPLY	LINE		1-2-3	Power line
	NEUTRAL		4-5-6	Neutral power supply
	SPARE		7-8-9	Auxiliary terminals not connected internally
OUTPUTS DIGITAL	OUT1	C	10-11	OUT1 relay Common terminal
		NO	12-13	OUT1 relay Normally Open
	OUT2	C	14-15	OUT2 relay Common terminal
		NO	16-17	OUT2 relay Normally Open
	OUT3	NC	18-19	OUT3 relay Normally Closed
		C	20-21	OUT3 relay Common terminal
		NO	22-23	OUT3 relay Normally Open
	OUT4	C	24	OUT4 relay Common terminal
		NO	25	OUT4 relay Normally Open
		NC	26	OUT4 relay Normally Closed
	OUT5	C	27	OUT5 relay Common terminal
		NO	28	OUT5 relay Normally Open
LINK^2	LINK^2-1	GND	29	0 V connection 1 - local network signal earth
		D	30	Connection 1 - local network signal
	LINK^2-2	GND	31	0 V connection 2 - local network signal earth
		D	32	Connection 2 - local network signal
CONNECTION KEYPAD	KEYB	GND	33	0 V signal earth
		D	34	External keyboard data terminal
		12 V	35	+12 Vdc power output for external keyboard
OUTPUT DAC	A OUT	C	36	Common terminal
		I	37	Analogue current output (4...20 mA)
		V	38	Analogue voltage output (0...10 V)
Copy Card	TTL		---	TTL connection - UNICARD/DMI/Multi Function Key
PB7 - RATIOMETRIC TRANSDUCER	CPB		39	0 V signal earth
	PB7		40	Ratiometric transducer connection (probe Pb7)
	5V		41	Power output at +5 Vdc for ratiometric transducer
OUTPUT OPEN COLLECTOR	OC		42	DAC output For connection of an external SSR relay
	12 V		43	+12 Vdc power supply output for Open Collector output
PB6 - PRESSURE TRANSDUCER	12 V		43	Power output at +12 Vdc for pressure transducer
	PB6		44	Pressure transducer connection (probe Pb6)
DIGITAL INPUT	DI		45-46	Digital input
INPUTS ANALOGUE	PB5		47	Analogue input 5 (Pb5 probe)
	PB4		48	Analogue input 4 (Pb4 probe)
	CPB		49	0 V Pb3-Pb4-Pb5 analogue input signal earth
	PB3		50	Analogue input 3 (Pb3 probe)
	CPB		51	0 V Analogue input 2 signal earth
	PB2		52	Analogue input 2 (Pb2 probe)
	CPB		53	0 V Analogue input 1 signal earth
	PB1		54	Analogue input 1 (Pb1 probe)

3.3.2. Upper board wiring diagram

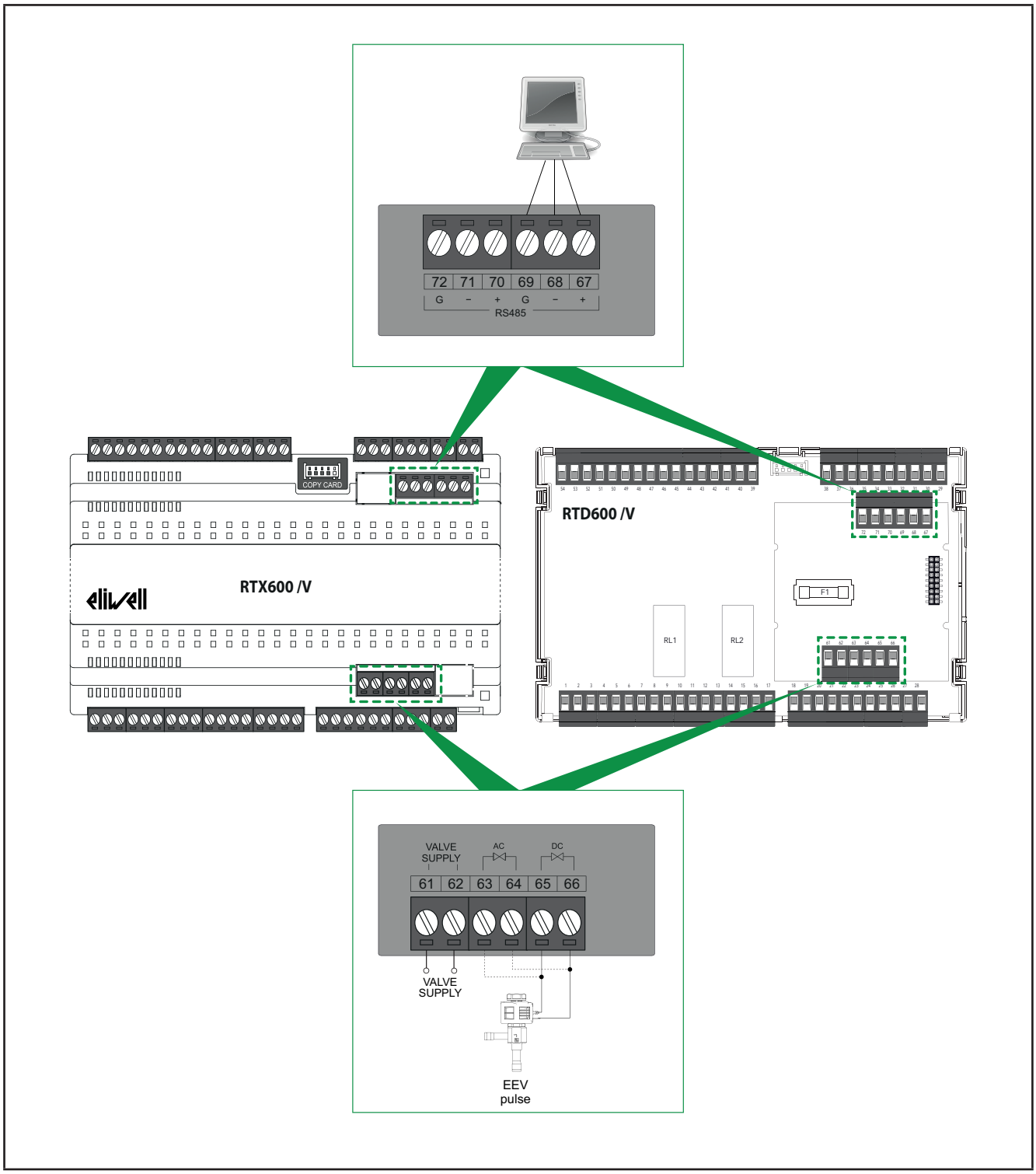


Fig. 35. Upper board wiring diagram

For more information see **“TECHNICAL DATA” on page 52**.

Upper board terminal labels

The following terminals are mounted on the upper board:

	Label	Terminal	Description
POWER SUPPLY PULSE VALVE	VALVE SUPPLY	61	Power supply input for pulse electronic expansion valve. Refer to **“5.7. EEV PULSE power supply” on page 55**
		62	
OUTPUT PULSE VALVE	AC	63	Terminals for connection of AC Valve
		64	
	DC	65	Terminals for connection of DC Valve
		66	
RS485-1	+	67	“+” signal for RS485-1 serial port
	-	68	“-” signal for RS485-1 serial port
	G	69	0 V signal earth
RS485-2	+	70	“+” signal for RS485-2 serial port
	-	71	“-” signal for RS485-2 serial port
	G	72	0 V signal earth

NOTES: - for the list of Compatible and Pilotable valves refer to paragraph:
“8.1.1. List of compatible / pilotable valves” on page 72.
- for the connection diagrams refer to paragraph:
“3.4. Pulse valve connection diagrams” on page 41.

3.4. PULSE VALVE CONNECTION DIAGRAMS

Take extra care when wiring the valve.

Select the valve coil with care, as appropriate, according to the voltage utilized.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

Check the valve parameters declared by the manufacturer before using the valve in generic valve configuration.

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

Eliwell Controls Srl is not liable for the data provided by the valve manufacturer, including any technical modifications or updates. Consult the valve manual to check the suitability and correct configuration.

NOTICE

INOPERABLE DEVICE

- Before switching on the electrical power, check all the wiring.
- Before connecting the valve, check the plate data.
- The **RTX-RTD 600 /V** driver supplies the valve with the same voltage as its input voltage (Valve Supply).
- In the case of a DC valve, the input voltage (Valve Supply) must be alternate current.
  (for example: a valve with a 240 Vdc coil must be connected to a 240 Vac supply).

Failure to follow these instructions can result in equipment damage.

Here below are the connection diagrams of pulse valves.
(refer to **“8.1.1. List of compatible / pilotable valves” on page 72**):

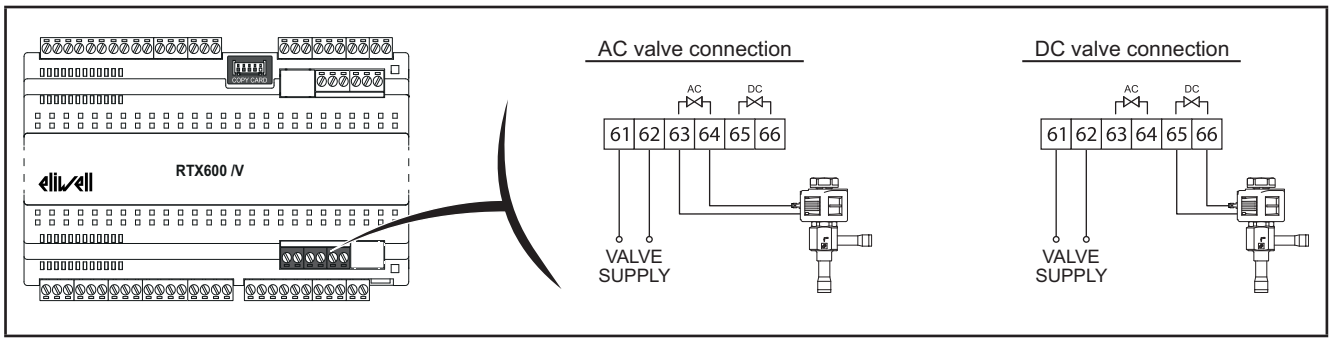


Fig. 36. RTX 600 /V: Connection diagram

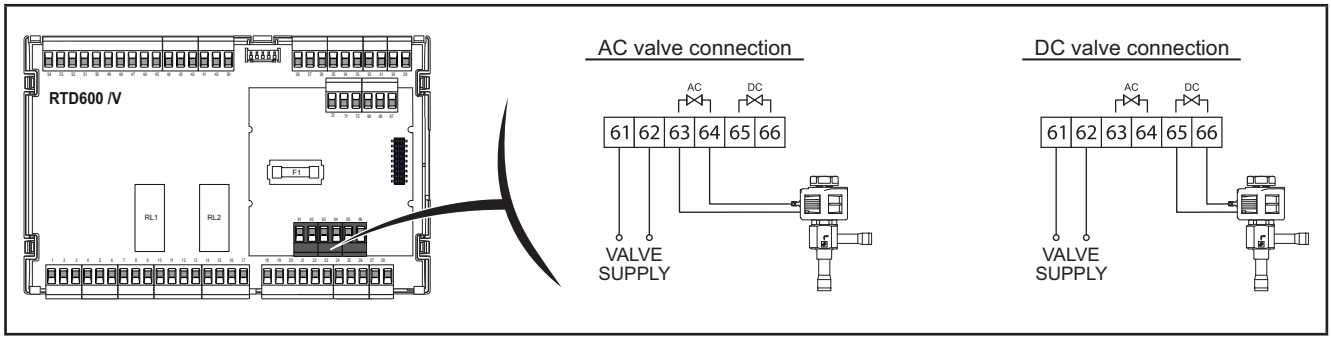


Fig. 37. RTD 600 /V: Connection diagram

CHAPTER 4
APPLICATIONS

4.1. SUMMARY

Description of applications

DESCRIPTION OF APPLICATIONS
AP1 (Dairy Products and Fruit/Vegetables): MT vertical open display cabinet - resistance defrost.
AP2 (Frozen Foods): LT vertical glass door cabinet - resistance defrost.
AP3 (Frozen Foods): LT island - single evaporator - resistance defrost.
AP4 (Cold cuts): LT island - double evaporator - resistance defrost.
AP5 (Frozen Foods): LT/LT Combi - single evaporator.
AP6 (Frozen Foods and Fruit/Vegetables): Cold Room.
AP7 (Frozen Foods): LT island - single evaporator - hot gas defrost (Ducted).
AP8 (Frozen Foods): LT vertical glass door cabinet - resistance defrost - frame heater with probe.

Control

Depending on the application selected, the **RTX-RTD 600 /V** regulates as follows:

- Standard Regulation (**AP1-AP2-AP3-AP4-AP6-AP7-AP8**).
  The regulator will activate when the temperature exceeds T > SP1+dF1 and disables when T < SP1.
  For these applications, the regulation differential is managed as a relative value.
- Double “parallel” thermostat (**AP5**).
  Regulation is based on 2 thermostats (T1 and T2) connected “in parallel”.
  This regulator activates cold only if both thermostats have been requested, and disables it when both thermostatshave been satisfied. If one or both of the thermostats has a probe error, the regulation will use the probe errorparameters.

Summary of Applications

APPLICATION		AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
INPUTS									
Pb1	NTC	**VIRT1***	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**
Pb2	NTC	**VIRT2***	-	-	-	**REG2****	-	-	-
Pb3	NTC	❄	❄	❄ / ✣	❄ / ✣	❄ / ✣	❄ / ✣	❄ / ✣	❄
Pb4	NTC	-	-	-	❄2	-	-	-	Frame Heater output 0...10V
Pb5	NTC	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**
DI	par. **H18**	-	🚪	-	-	-	🚪	-	🚪
Pb6	4...20 mA par. **H16**	**DI***** for monitoring	**DI*** **	**DI*** **	**DI*** **	**DI*** **	**DI*** **	**DI*** **	**DI*** **
Pb7	Ratiometric	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**
OUTPUTS									
OUT1	Relay	⋈	⋈	⋈	⋈	⋈	⋈	⋈	⋈
OUT2	**RTX 600 /V**	✣	✣	✣	✣	✣	✣	✣	✣
	RTD 600 /V	💡	💡	💡	💡	💡	💡	💡	💡
OUT3	Relay	❄	❄	❄	❄	❄	❄	❄	❄
OUT4	Relay	(AUX)	((●))	((●))	❄2	((●))	((●))	🔧	((●))
OUT5	**RTX 600 /V**	💡	💡	💡	💡	💡	💡	💡	💡
	RTD 600 /V	✣	✣	✣	✣	✣	✣	✣	✣
EEV	Output	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**	**EEV**
A OUT	Output	-	-	-	-	-	-	-	Frame Heater
OC	Output	Frame Heater	Frame Heater	Frame Heater	Frame Heater	Frame Heater	-	Frame Heater	-

NOTE

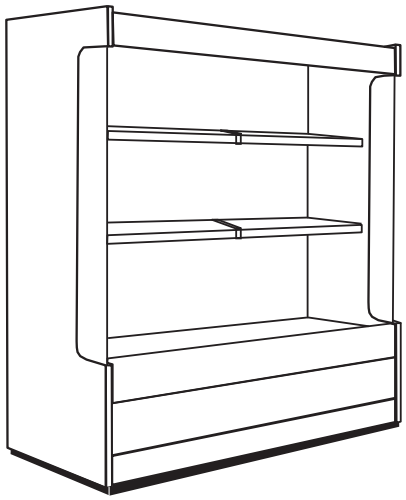
* : Regulated via virtual probe based on value Pbi = [**VIRT1** x H72 + **VIRT2** x (100 - H72)]/100.
(where **VIRT1** = value of temperature probe selected with H70 and
VIRT2 = value of temperature probe selected with H71).

** : 2nd thermostat control probe.
(compressor ON when both thermostats are requested, otherwise OFF).

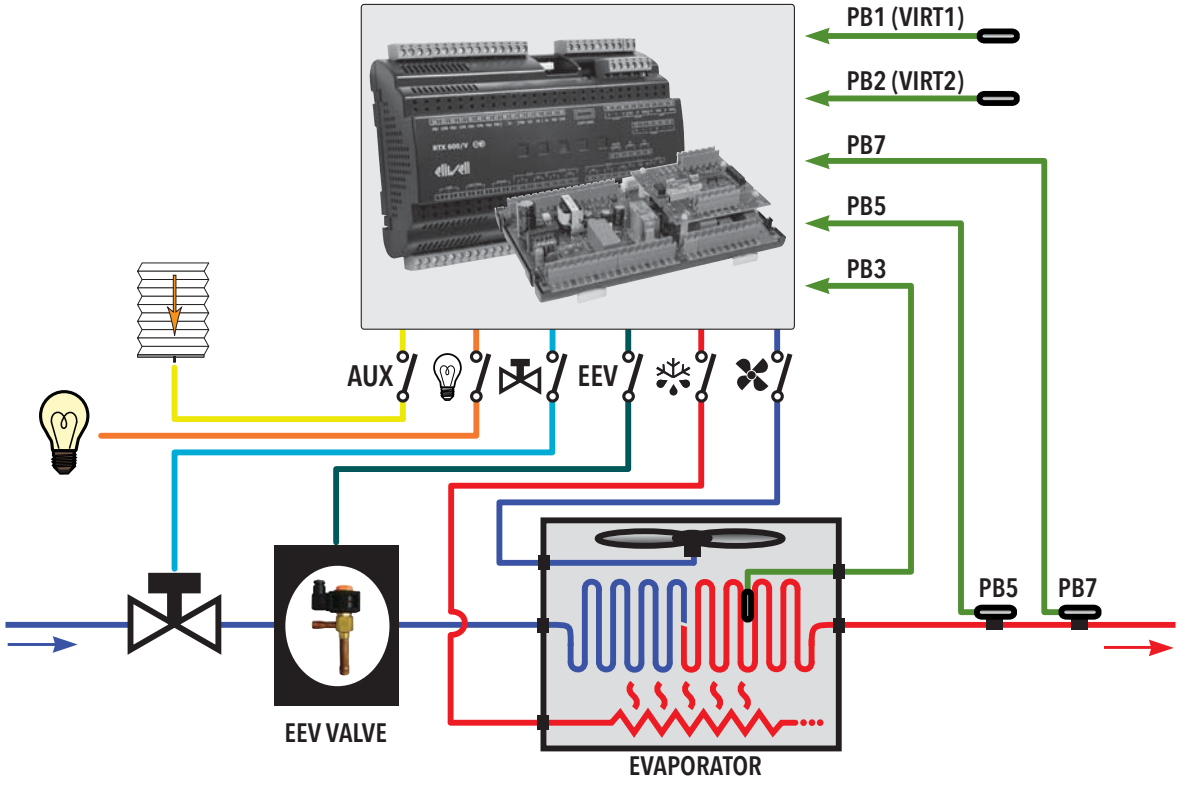
*** : When T1 has been configured as a DI, the relative digital input is connected between terminal **44** and one of terminals **39-49-51-53**.

4.2. APPLICATION AP1

The application is configured for '**VERTICAL OPEN DISPLAY CABINETS**' at average temperature values and resistance defrost, recommended for the storage of dairy products and fruit/vegetables. The preset configuration features:

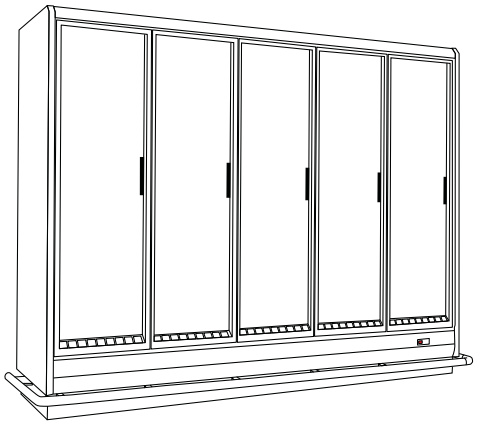
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Virtual sensor VIRT1 • Input Pb2 = Virtual sensor VIRT2 • Input Pb3 = Evaporator sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Generic input • Input Pb7 = EEV valve ratiometric transducer • Input DI = Not set **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = AUX (screen) • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = Standby

APPLICATION DIAGRAM

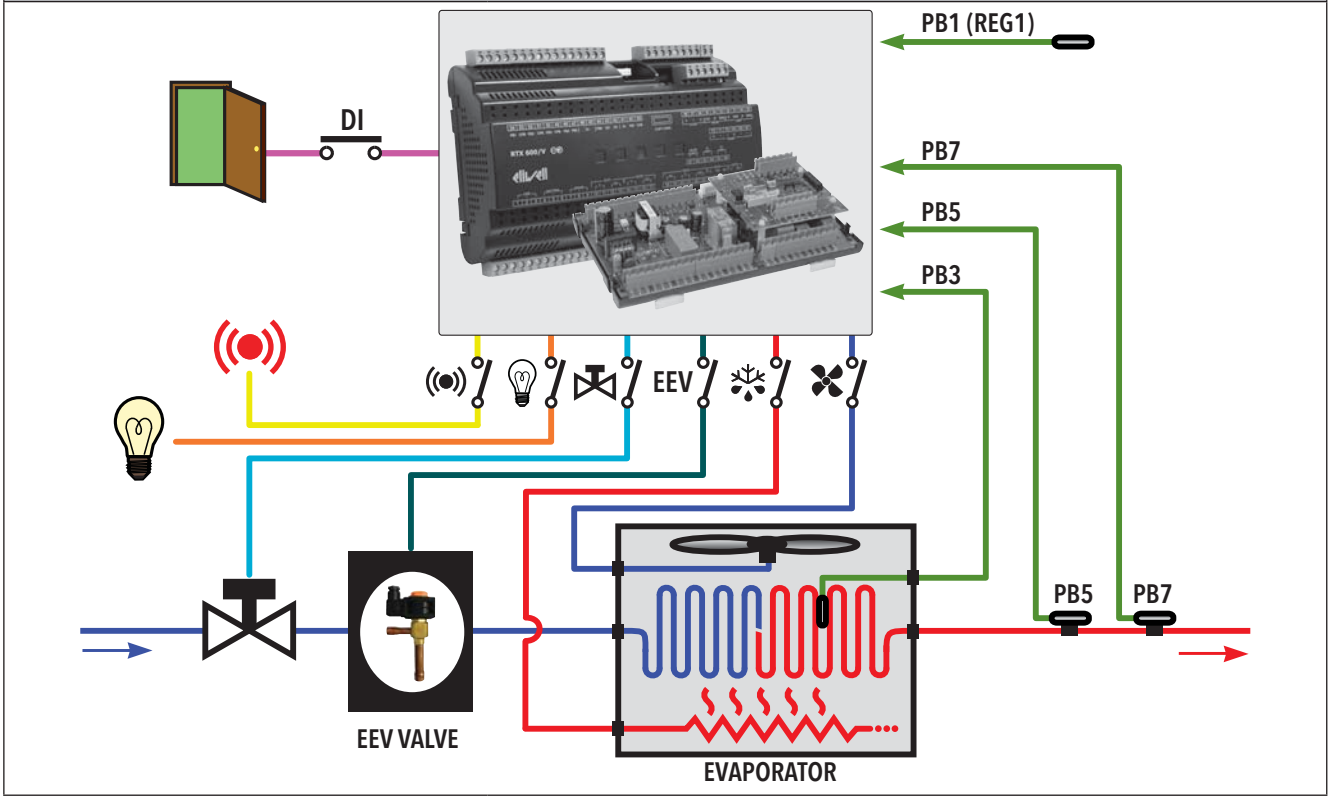


4.3. APPLICATION AP2

The application is configured for '**VERTICAL GLASS DOOR DISPLAY CABINETS**' at low temperature values and resistance defrost, recommended for the storage of frozen foods. The preset configuration features:

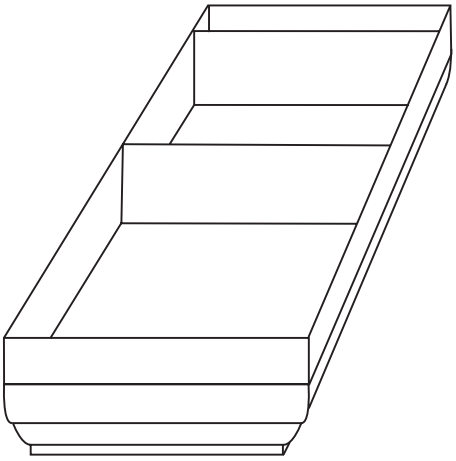
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve pressure transducer • Input DI = Door switch **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Alarm • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = Standby

APPLICATION DIAGRAM

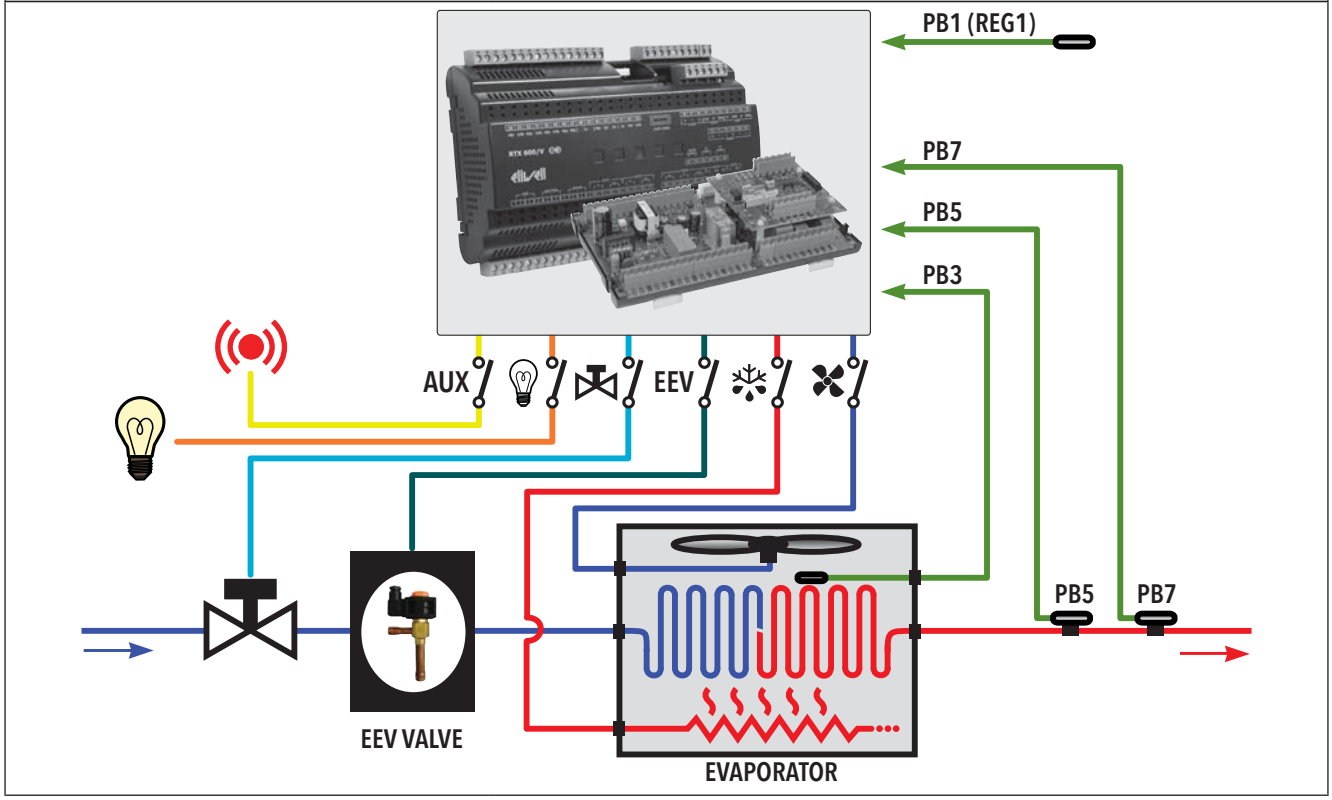


4.4. APPLICATION AP3

The application is configured for '**HORIZONTAL ISLANDS**' at low temperature values, single evaporator and resistance defrost, recommended for the storage of frozen foods. The preset configuration features:

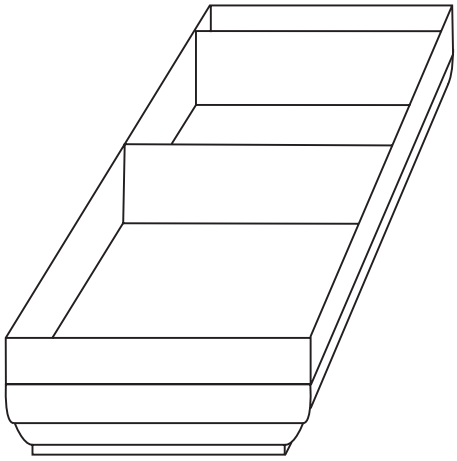
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator/Fan sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Not set **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Alarm • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = Standby

APPLICATION DIAGRAM

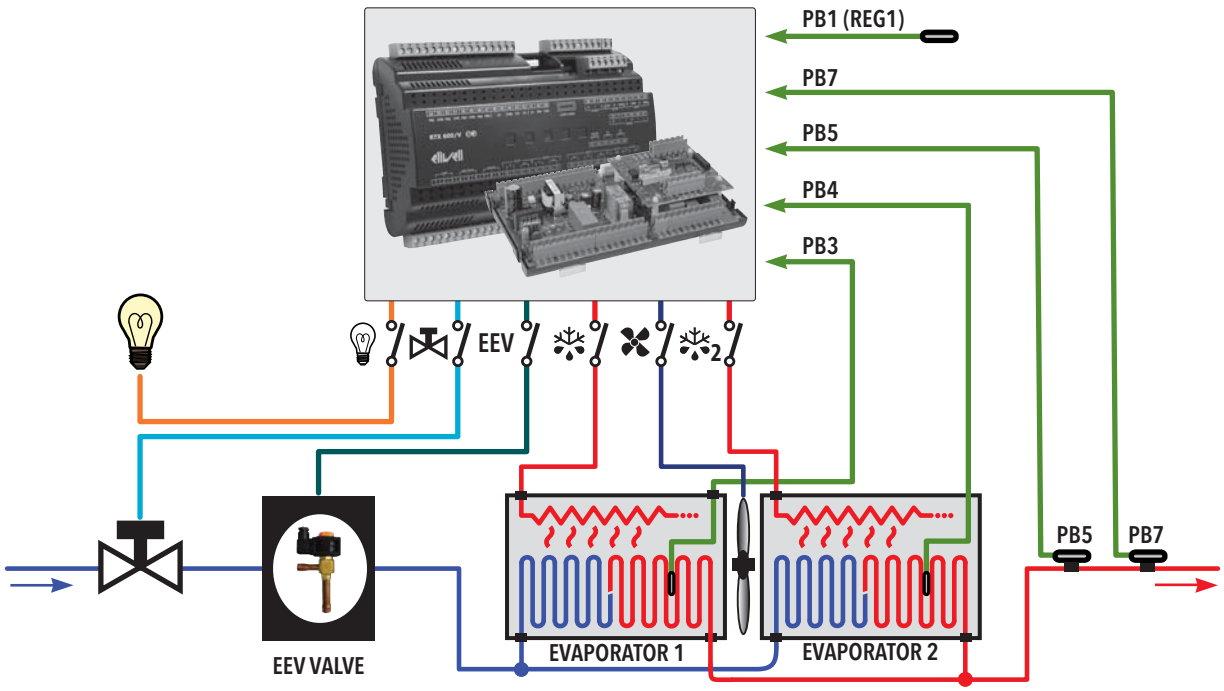


4.5. APPLICATION AP4

The application is configured for '**HORIZONTAL ISLANDS**' at low temperature values, double evaporator and resistance defrost, recommended for the storage of frozen foods. The preset configuration features:

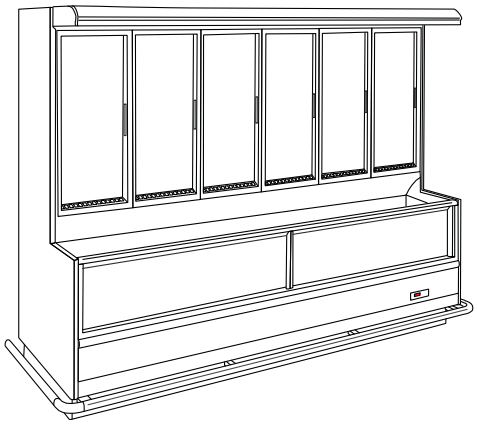
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator/Fan sensor • Input Pb4 = Evaporator 2 sensor • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Not set **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT5 (relay) = Defrost 2 • OUT4 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = Standby

APPLICATION DIAGRAM

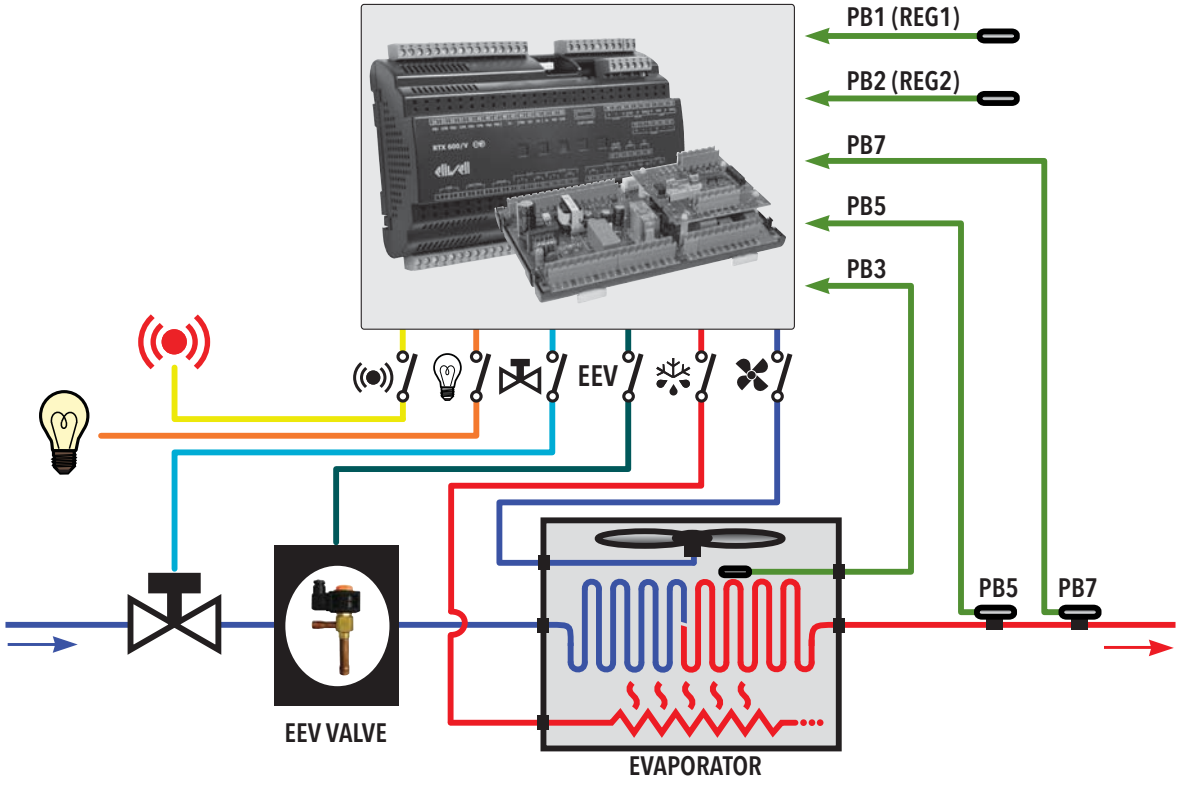


4.6. APPLICATION AP5

The application is configured for '**COMBINED VERTICAL DISPLAY CABINETS**' at low temperature values, single evaporator and resistance defrost, recommended for the storage of frozen foods. The preset configuration features:

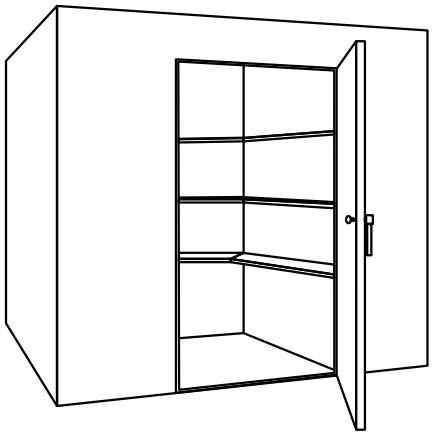
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Regulator sensor REG2 • Input Pb3 = Evaporator/Fan sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Not set **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Alarm • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = standby

APPLICATION DIAGRAM

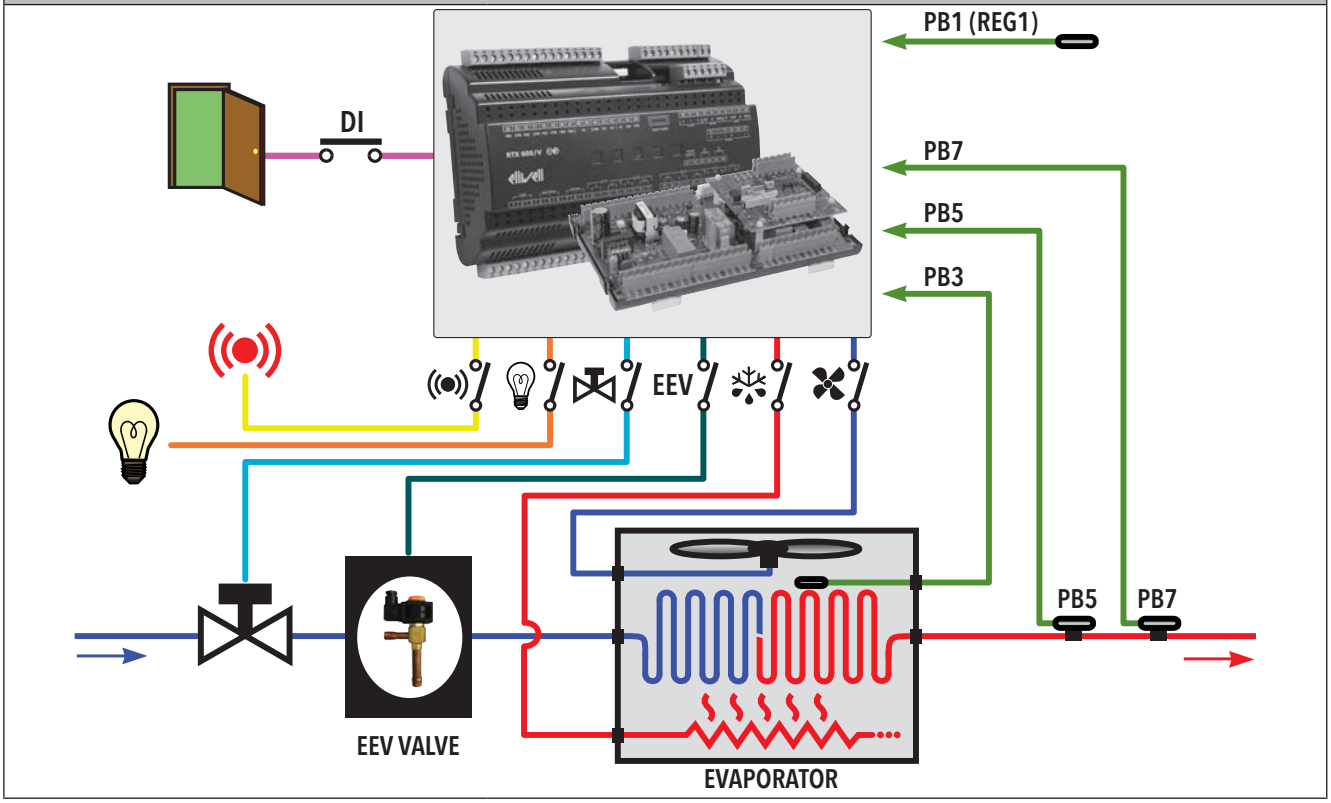


4.7. APPLICATION AP6

The application is configured for '**COLD ROOMS**' recommended for the storage of frozen foods and fruit/vegetables. The preset configuration features:

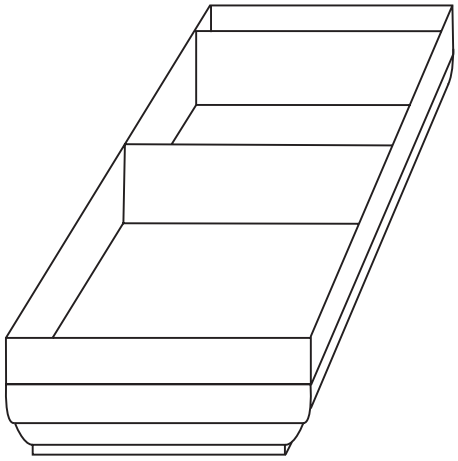
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator/Fan sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Door switch **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Alarm • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Not set **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = standby

APPLICATION DIAGRAM

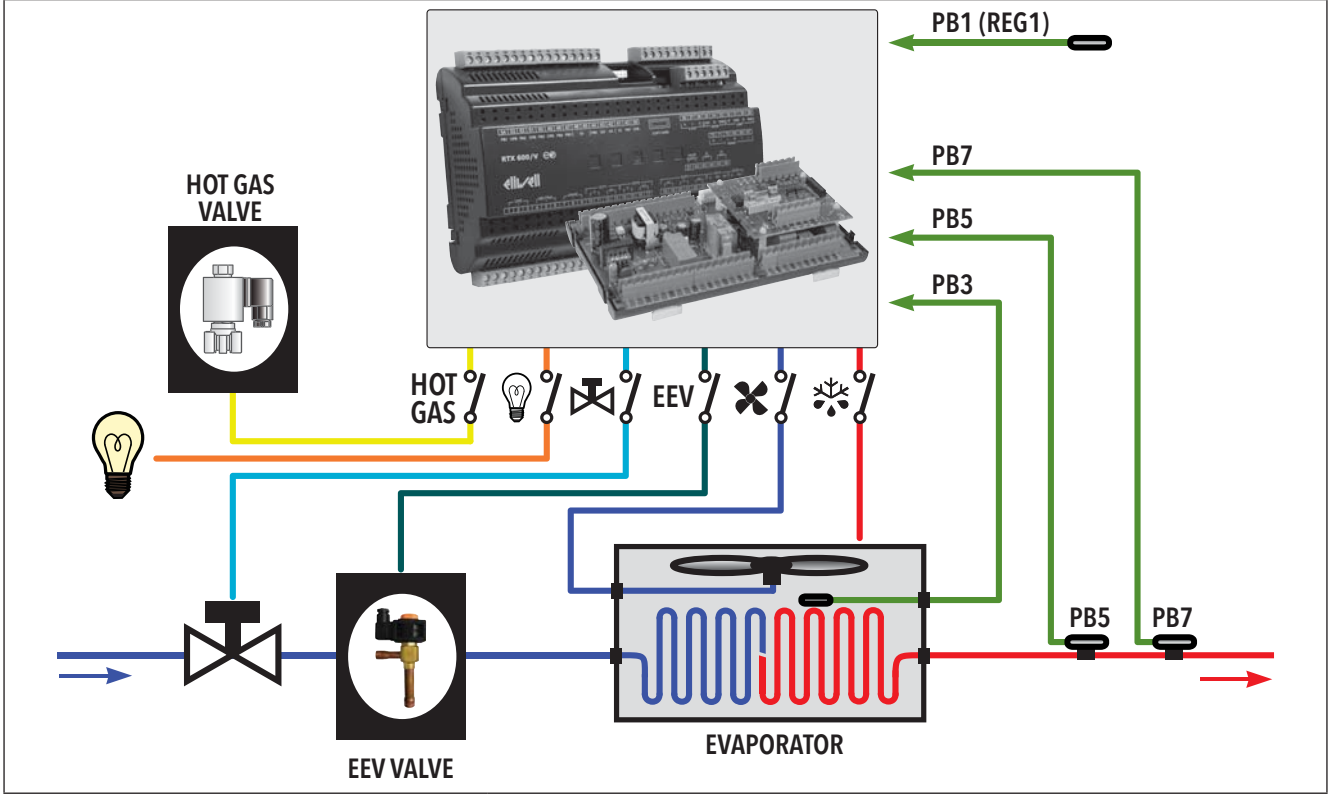


4.8. APPLICATION AP7

The application is configured for '**HORIZONTAL ISLANDS**' at low temperature values, single evaporator and hot gas defrost, recommended for the storage of frozen foods. The preset configuration features:

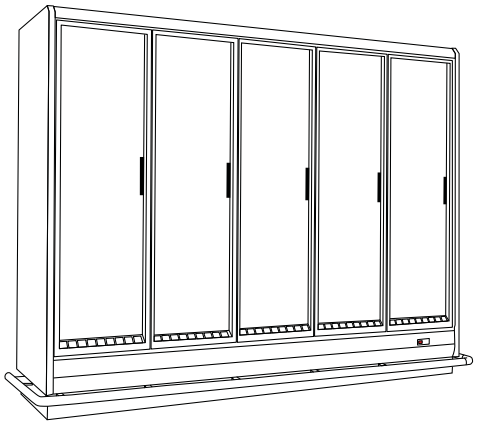
APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator/Fan sensor • Input Pb4 = Not set • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Not set **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Hot gas on evaporator suction valve • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Not set • OC = Frame Heater **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = standby

APPLICATION DIAGRAM

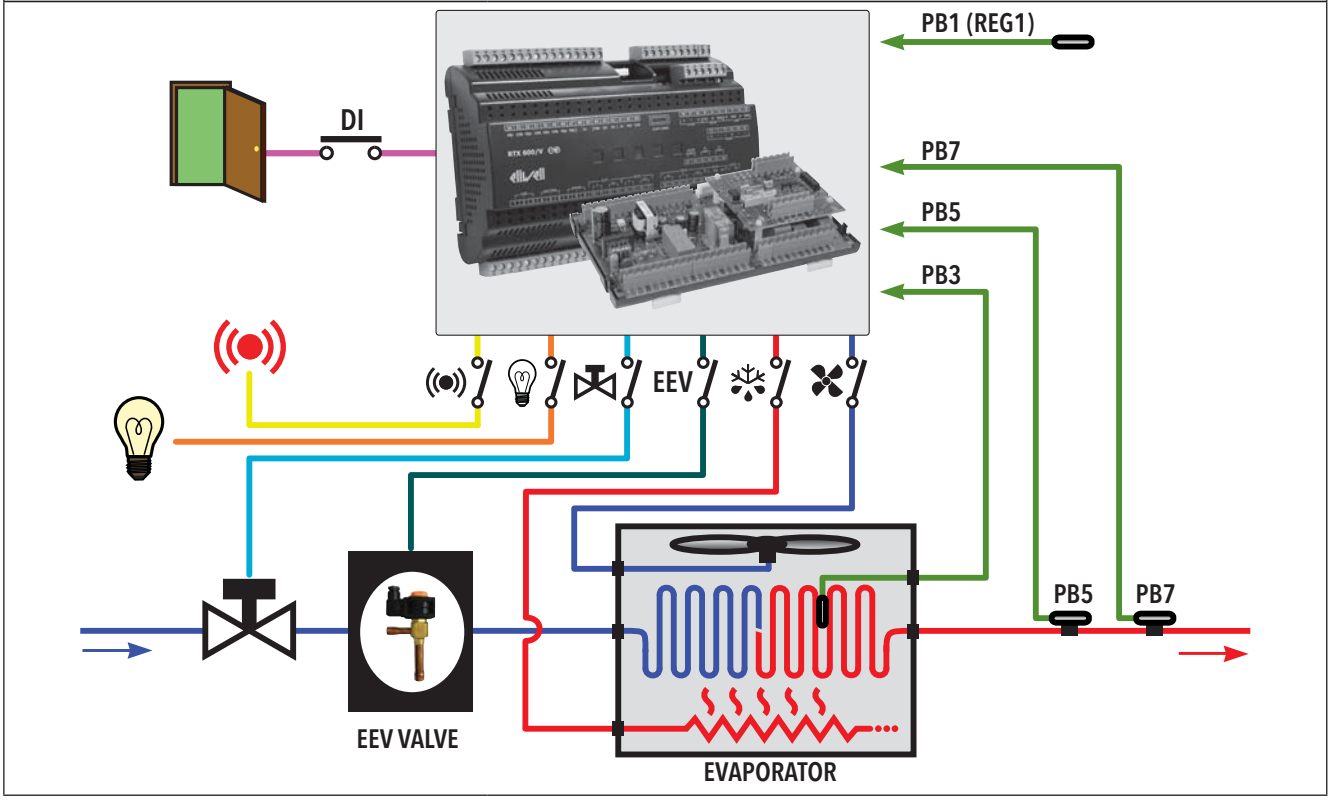


4.9. APPLICATION AP8

The application is configured for '**VERTICAL GLASS DOOR DISPLAY CABINETS**' at low temperature values, resistance defrost and frame heater with probe, recommended for the storage of frozen foods. The preset configuration features:

APPLICATION	APPLICATION DATA
	The Input, Output and Key settings are shown below: **Input configuration:** • Input Pb1 = Regulator sensor REG1 • Input Pb2 = Not set • Input Pb3 = Evaporator sensor • Input Pb4 = Frame heater output 0...10 V • Input Pb5 = EEV valve temperature sensor • Input Pb6 = Not set • Input Pb7 = EEV valve ratiometric transducer • Input DI = Door switch **Output configuration:** • OUT1 (relay) = Compressor • OUT2 (relay) = **RTX 600 /V** (Evaporator fans) = **RTD 600 /V** (Light) • OUT3 (relay) = Defrost • OUT4 (relay) = Alarm • OUT5 (relay) = **RTX 600 /V** (Light) = **RTD 600 /V** (Evaporator fans) • EEV (relay) = EEV valve • A OUT = Frame Heater • OC = Not set **Key configuration:** • UP key = Manual defrost • DOWN key = Not set • ESC key = standby

APPLICATION DIAGRAM



CHAPTER 5
TECHNICAL DATA

All components in the **RTX-RTD 600 /V** devices system meet the European Community (CE) requirements for open devices.

They must be installed in a cabinet or other designated place to suit the environmental conditions and minimise the risk of involuntary contact with high voltages. Use metal casings to improve the immunity of the **RTX-RTD 600 /V** devices system to electromagnetic fields.
This device meets the CE requirements indicated in the table below.

The application of incorrect current and voltage values to the analogue inputs and outputs may damage the electronic circuits. Moreover, connecting a current input of a device to an analogue input configured for voltage and vice versa will also damage the electronic circuits.

NOTICE

INOPERABLE DEVICE

- Do not apply voltages over 11 V to the controller analogue inputs when the analogue input is configured as a 0-5 V or 0-10 V input.
- Do not apply currents over 30 mA to the controller analogue inputs when the analogue input is configured as an input 0-20 mA or 4-20 mA.
- Make sure that the signal applied corresponds to the analogue input configuration.

Failure to follow these instructions can result in equipment damage.

5.1. ENVIRONMENTAL AND ELECTRIC CHARACTERISTICS

Feature	Description
Power supply:	SMPS 100...240 Vac (±10 %)
EEV pulse power supply:	100...240 Vac (±10 %)
Power supply frequency:	50/60 Hz
Absorbed power:	7.5 W max
Operating temperature:	–5.0...55.0 °C (23.0...131 °F)
Storage temperature:	–30.0...85.0 °C (–22.0...185 °F)
Operating humidity:	10...90 %RH (non-condensing)
Storage humidity:	10...90 %RH (non-condensing)

If the current limits within the specified temperature interval are not maintained, the products may malfunction, be damaged or stop working.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

Do not exceed any of the nominal values specified in the environmental and electric characteristics tables.

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

Feature	Description
It conforms to the following harmonised standards:	EN 60730-2-9 / EN 60730-1
Classification:	electronic automatic control device (not safety) device to be incorporated
Mounting:	on DIN Rail
Type of action:	1.B
Pollution class:	2 (normal)
Insulating material class:	IIIa
Over-voltage category:	II
Nominal pulse voltage:	2500 V
Fire resistance category:	D
Software class:	A
Digital outputs:	Refer to **“5.4. Output Characteristics” on page 54**
Fuse:	Certified according to IEC 60127-1 Model: 5x20; Value: 1A fast - 250V.

5.2. MECHANICAL CHARACTERISTICS

The mechanical characteristics of the **RTX-RTD 600 /V** are:

Feature	Description
Casing:	PC+ABS resin casing, UL94 V-0
Dimensions:	10 DIN rail
Terminals:	Removable screw terminals for wires with max cross-section 2.5 mm^2 (13 AWG)

	Length (mm / in.)	Height (mm / in.)	Depth (mm / in.)
RTX 600 /V - RTD 600 /V (terminals excluded)	175 / 6.88	110 / 4.33	60 / 2.36 - 55 / 2.17

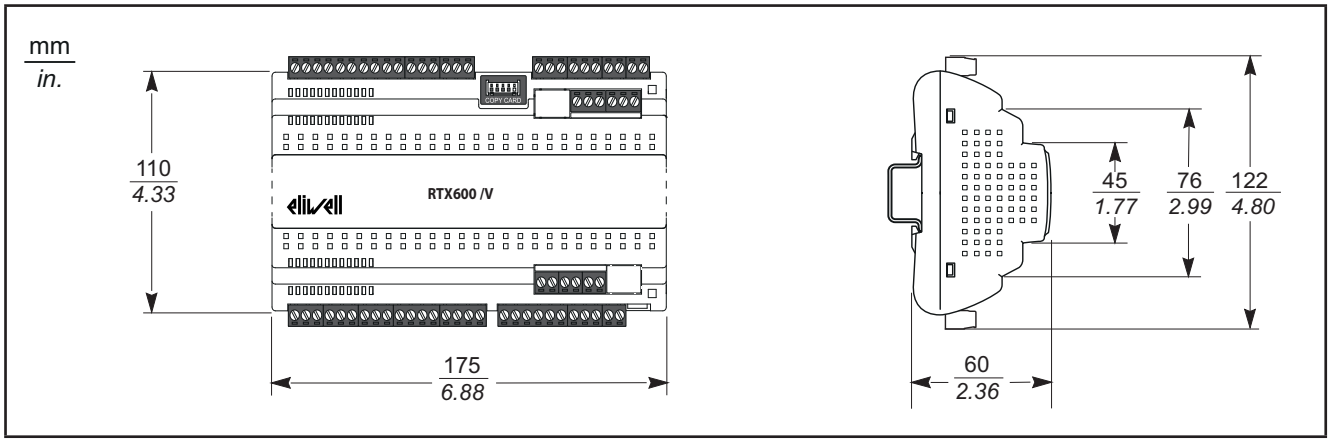


Fig. 38. RTX 600 /V mechanical dimensions

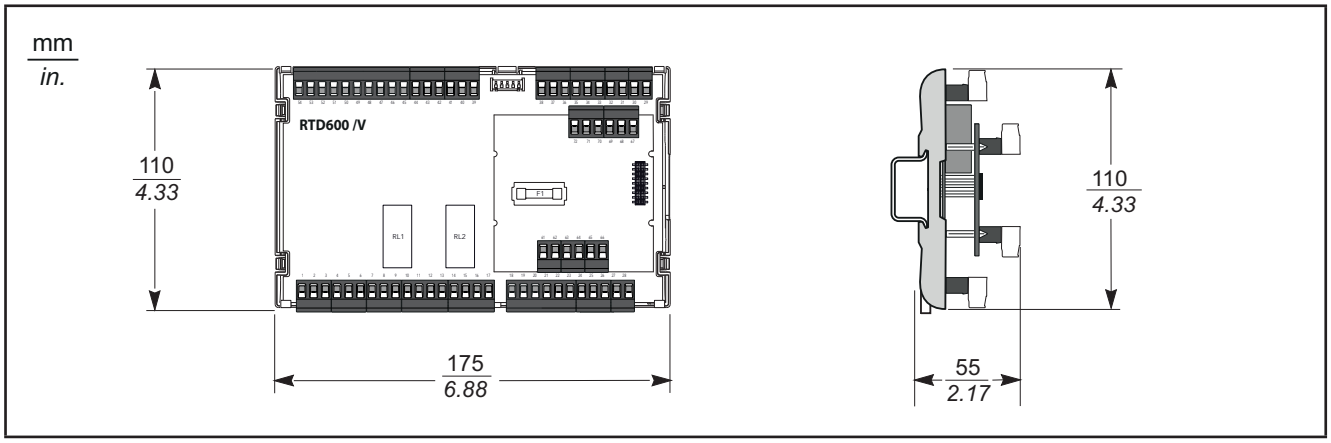


Fig. 39. RTD 600 /V mechanical dimensions

5.3. INPUT CHARACTERISTICS

The characteristics of the inputs on the **RTX-RTD 600 /V** are as follows:

Feature	Description
Measurement range:	**NTC**: –50.0...110 °C (–58.0...230 °F)
	PTC: –55.0...150 °C (–67.0...302 °F)
	Pt1000: –60.0...150 °C (–76.0...302 °F)
Display:	3 digits + sign
Accuracy:	±1.0 °C/°F for temperatures below -30.0 °C (-22.0 °F)
	±0.5 °C/°F for temperatures between -30.0...25.0 °C (-22.0...77.0 °F)
	±1.0 °C/°F for temperatures above 25 °C (77 °F)
Resolution:	1 or 0.1 °C/°F
Buzzer:	NO
Analogue/Digital Inputs:	**Pb1**: NTC / PTC / Pt1000 / DI configurable input
	Pb2: NTC / PTC / Pt1000 / DI configurable input
	Pb3: NTC / PTC / Pt1000 / DI configurable input
	Pb4: NTC / PTC / Pt1000 / DI configurable input
	Pb5: NTC / PTC / Pt1000 / DI configurable input
	Pb6: 4...20 mA / DI configurable input
	Pb7: ratiometric / DI configurable input
	DI: multifunction digital voltage free input

Analogue inputs configured as digital inputs are not isolated.

NOTICE

INCORRECT INPUT WIRING IN NON-ISOLATED INPUTS

On analogue inputs configured as digital inputs, use only clean contact type inputs.

Failure to follow these instructions can result in equipment damage.

5.4. OUTPUT CHARACTERISTICS

The characteristics of the outputs on the **RTX-RTD 600 /V** are as follows:

Feature	Description	EN 60730 (max 250 Vac)
RTX 600 /V Digital outputs:	**OUT1** (SPST relay)	NO 16(5) A
	OUT2 (SPST relay)	NO 16(5) A
	OUT3 (SPDT relay)	NO 16(5) A - NC 16 A resistive
	OUT4 (SPDT relay)	NO 8(4) A - NC 6(3) A
	OUT5 (SPST relay)	NO 8(4) A
RTD 600 /V Digital outputs:	**OUT1** (SPST relay)	NO 16(5) A
	OUT2 (SPST relay)	NO 16A resistive Suitable for incandescent lamp
	OUT3 (SPDT relay)	NO 16(5) A - NC 16 A resistive
	OUT4 (SPDT relay)	NO 8(4) A - NC 6(3) A
	OUT5 (SPST relay)	NO 8(4) A
OC (Open Collector) output:	**OC**: multifunctional output: 12 Vdc - 20 mA	
DAC output:	**A OUT**: multifunctional output: 0...10 Vdc / 4...20 mA	
EEV pulse driver output:	SSR relay 100...240 Vac/dc - Imax = 300 mA	

5.5. SERIALS

Serial	Description	Notes
TTL	1 TTL serial	Connection between the controller and the accessories for rapid programming of UNICARD, Multi Function Key and Device Manager (via DMI)
RS485	1 split RS485 serial	If the controller is connected at the end of the RS485 communication line, apply a 120 Ω terminal resistor between the “+” and “-” line on the RS485
LINK^2	1 split Link^2 serial	Connection between more than one controller (max 8) forming a local network
KEYB	1 serial for connection to keyboard	• Connection between the controller and the external keyboard **KDEPlus**, **KDWPlus** or **KDT** • Connection between the controller and the display **ECPlus**

For more information refer to **“3.1.6. Serial connections” on page 34**.
Take great care with the connecting of the serial lines. Incorrect wiring may cause the device to stop working.

Don’t communicate on the RS485 serial port if the UNICARD/DMI/Multi Function Key is connected and vice-versa.

NOTICE

INOPERABLE DEVICE

Connect only the RS485 serial and TTL (for UNICARD/DMI/Multi Function Key) one at a time.

Failure to follow these instructions can result in equipment damage.

5.6. POWER SUPPLY

The device can be powered at a voltage of 100...240 Vac (±10%) 50/60 Hz.

According to the requirements of the individual unit and/or the country of installation, if the mains voltage in the country is within the operating range, the controller can be connected directly to the mains.

5.7. EEV PULSE POWER SUPPLY

Select the valve coil with care, as appropriate, according to the voltage utilized.
Eliwell Controls Srl is not liable for the data provided by the valve manufacturer, including any technical modifications or updates. Consult the valve manual to check the suitability and correct configuration.

NOTICE

INOPERABLE DEVICE

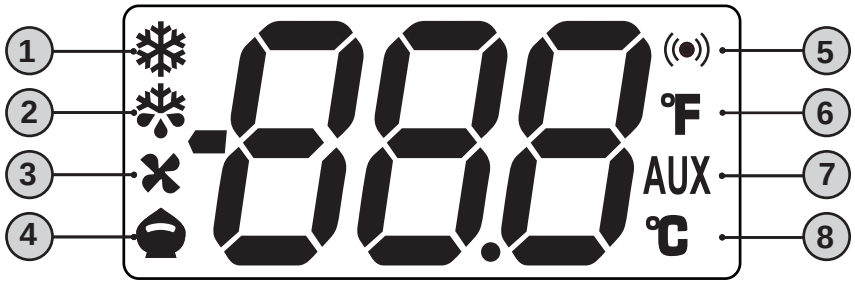
- Before switching on the electrical power, check all the wiring.
- Before connecting the valve, check the plate data.
- The **RTX-RTD 600 /V** driver supplies the valve with the same voltage as its input voltage (Valve Supply).
- In the case of a DC valve, the input voltage (Valve Supply) must be alternate current.
  (for example: a valve with a 240 Vdc coil must be connected to a 240 Vac supply).

Failure to follow these instructions can result in equipment damage.

CHAPTER 6
USER AND START-UP INTERFACE

6.1. LED

RTX-RTD 600 /V controllers can work even if not connected to a keyboard.
If a **KDEPlus**, **KDWPlus** or **KDT** keyboard are connected (these are equivalent), the display is as follows:



Meaning of LEDs:

No	Icon	LED	Operation	Meaning
1	❄	Compressor	Permanently on	compressor on
			Blinking	delay, protection or activation blocked
			OFF	otherwise
2	❄	Defrost	Permanently on	defrost active
			Blinking	manual activation or from Digital Input
			OFF	otherwise
3	✱	Fans	Permanently on	fans active
			OFF	otherwise
4	◒	Reduced SET / Economy	Permanently on	Energy Saving active
			Blinking	reduced setpoint active
			OFF	otherwise
5	((●))	Alarm	Permanently on	alarm active
			Blinking	alarm acknowledged
			OFF	otherwise
6	°F	°F readout	Permanently on	°F setting (dro (1) = F)
			OFF	otherwise
7	AUX	AUX	Permanently on	Aux output active and/or light on
			Blinking	deep cooling cycle active
			OFF	otherwise
8	°C	°C readout	Permanently on	°C setting (dro (0) = C)
			OFF	otherwise

NOTE: When the device is powered on it performs a lamp test, during which time the display and LEDs will flash for several seconds to check that they all function correctly.

6.2. KDEPLUS KEYS

The **KDEPlus** keyboard has 4 keys as shown in the figure:

Each key has a different function depending on whether it is:

- pressed and released
- pressed for at least 5 seconds
- pressed and held at Start-up

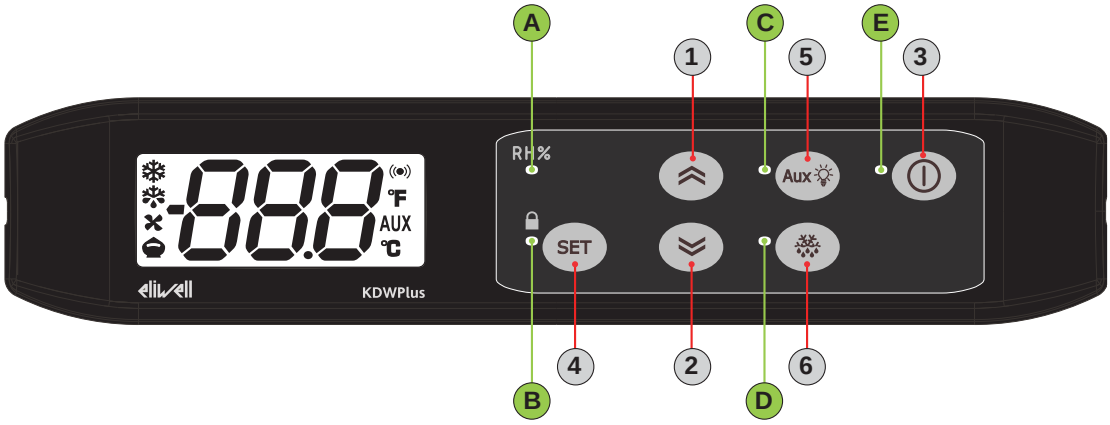
KEYS

The following table summarises the function of each key:

No	Key	Action		
		Press and release	**Press for at least 5 secs**	**Start-up**
1		• Scrolls through menu options • Increases values	Activates the Manual Defrost function (when outside the menus)	---
2		• Scrolls through menu options • Decreases values	Function configurable by user (when outside the menus) (see parameter H32)	---
3		• Goes back up one level from current menu • Confirms parameter value	Activates the Standby function (when outside the menus)	---
4	set	• Displays alarms (if present) • Opens Machine Status menu • Confirms commands	Opens Programming menu (User and Installer Parameters)	When pressed during start-up, it enables the user to select the application to be loaded.

6.3. KDWPLUS KEYS AND ADDITIONAL LEDS

The **KDWPlus** keyboard has 6 keys and 5 LEDs as shown in the figure:



Each key has a different function depending on whether it is:

- pressed and released
- pressed for at least 5 seconds
- pressed and held at Start-up

KEYS

The following table summarises the function of each key:

No	Key	Action		
		Press and release	Press for at least 5 secs	Start-up
1		• Scrolls through menu options • Increases values	User configurable function (from outside menus). (see parameter H31)	---
2		• Scrolls through menu options • Decreases values	Function configurable by user (when not in the menus) (see parameter H32)	---
3		• Goes back up one level from current menu • Confirms parameter value	• Activates the Stand-by function (from outside menus). (see parameter H33)	---
4	set	• Displays alarms (if present) • Opens Machine Status menu • Confirms commands	Opens Programming menu (User and Installer Parameters)	when pressed during start-up, it enables the user to select the application to be loaded.
5		• Activates the Manual Defrost function • Goes back up one level from current menu	---	---
6	Aux	Activates the AUX output / Switches on the light	---	---

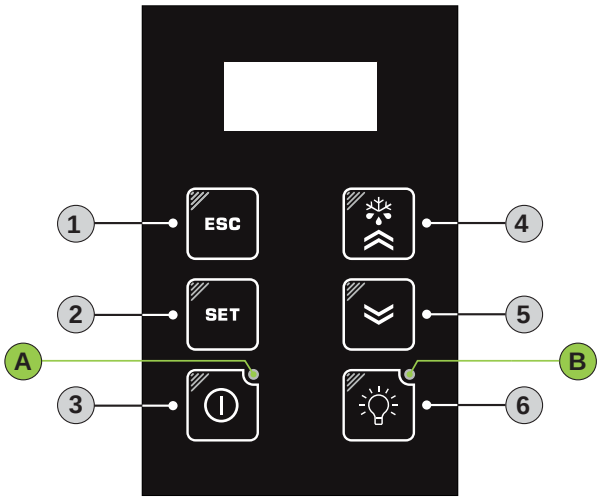
LED

The following table summarises the function of each LED:

No	LED	Description	No	LED	Description
A	RH%	Fans forced ON (H1x = 15)	D		Defrost active
B		Keyboard Locked	E		Device switched off
C	Aux	Light relay on from key			

6.4. KDT KEYS AND ADDITIONAL LEDS

The **KDT** keyboard has 6 keys as shown in the figure:



Each key has a different function depending on whether it is:

- pressed and released
- pressed for at least 5 seconds
- pressed and held at Start-up
- pressed in combination with another key.

KEYS

The following table summarises the function of each key:

No	Key	Action		
		Press and release	Press for at least 5 secs	Start-up
1	ESC	• Goes back up one level from current menu • Confirms parameter value	Activates the Reduced Set function. (see parameter H33)	---
2	SET	• Displays alarms (if present) • Opens Machine Status menu • Confirms commands	Open programming menu (Parameters, User and Installer)	when pressed during start-up, it enables the user to select the application to be loaded.
3		---	User configurable function (from outside menus). (see parameter H34)	---
4		• Scrolls through menu options • Increases values	Activates the Manual Defrost function (see parameter H31)	---
5		• Scrolls through menu options • Decreases values	User configurable function (see parameter H32)	---
6		Turns light on/off	User configurable function (see parameter H35) **NOTE**: if H33≠0, the key does not switch the light on/off	---
+ ESC		Activates remote display control (keyboard shared on LINK[2])		

LED

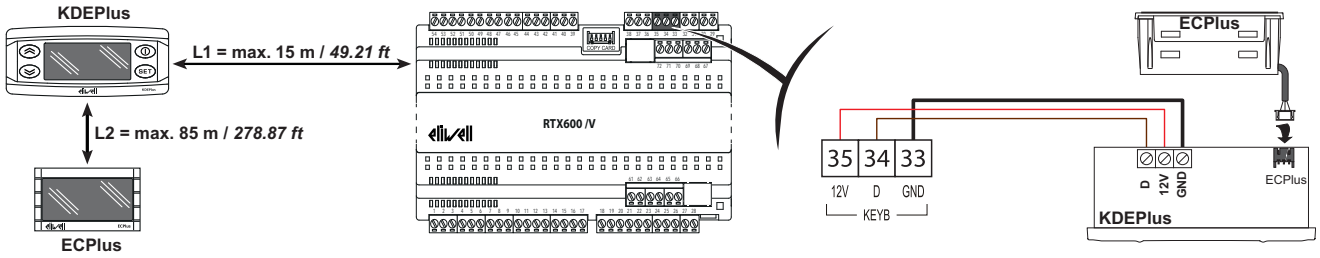
The following table summarises the function of each LED:

No	LED	Description	No	LED	Description
A		Device switched off	B		Light relay on from key

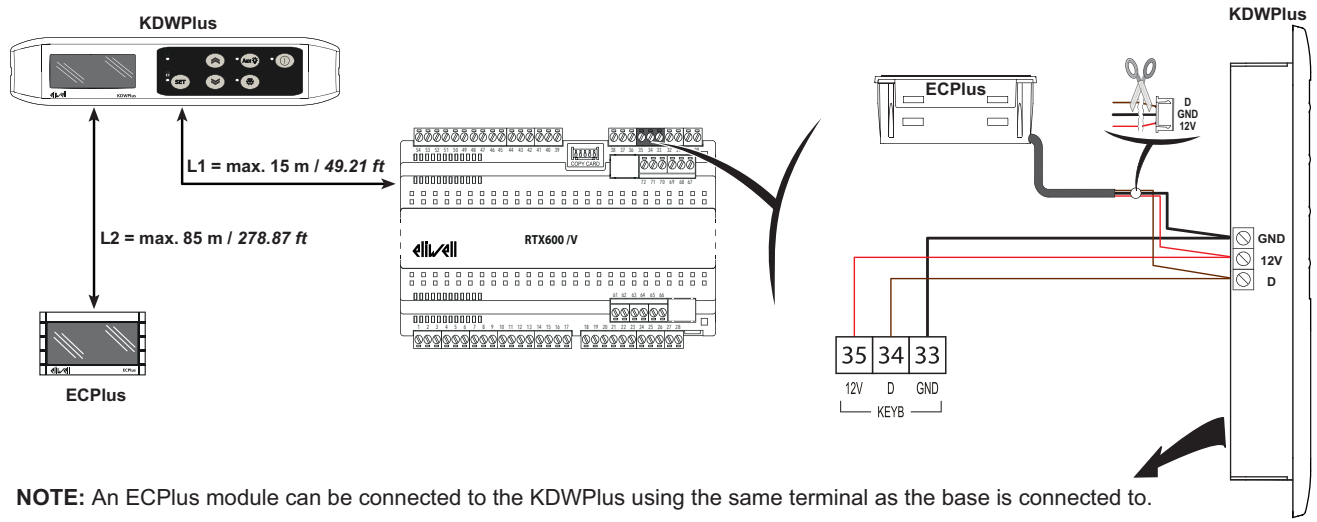
6.5. CONNECTIONS RTX 600 /V WITH KEYBOARD AND DISPLAY

Each **RTX 600 /V** can be connected to a single **KDEPlus**, **KDWPlus** or **KDT** keypad and if required to an **ECPlus** display module for remote display by means of the connector located on the keyboard.

RTX 600 /V + KDEPlus + ECPlus CONNECTION

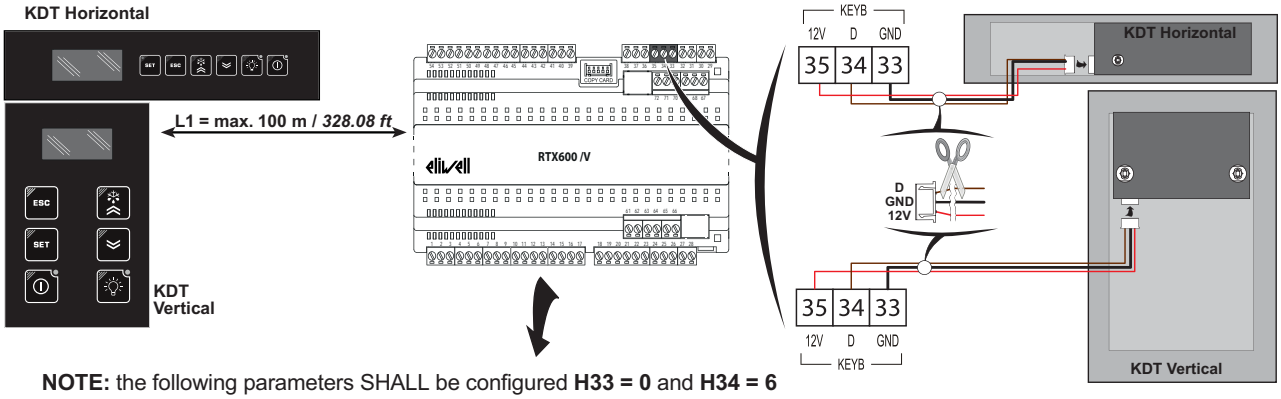


RTX 600 /V + KDWPlus + ECPlus CONNECTION



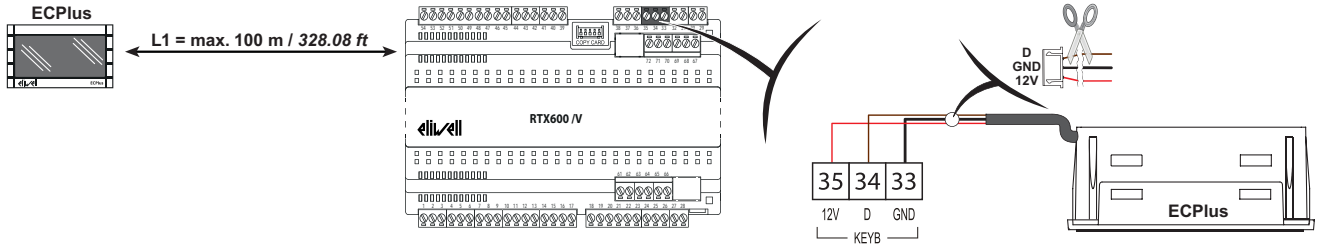
NOTE: An ECPlus module can be connected to the KDWPlus using the same terminal as the base is connected to.

RTX 600 /V + KDT CONNECTION



NOTE: the following parameters SHALL be configured **H33 = 0** and **H34 = 6**

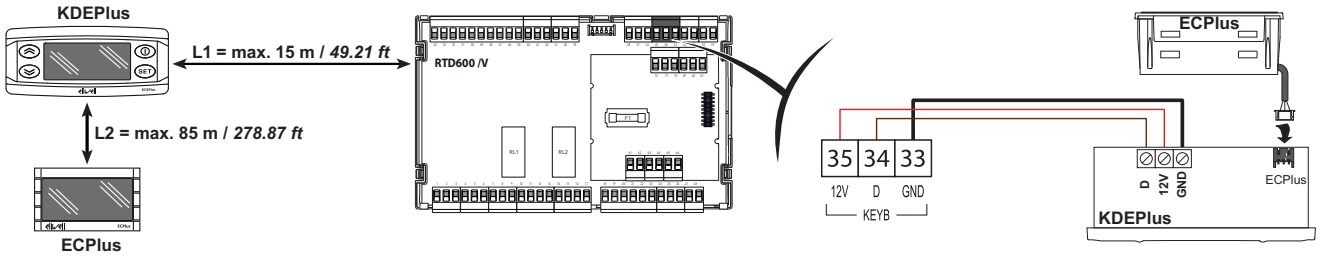
RTX 600 /V + ECPlus CONNECTION



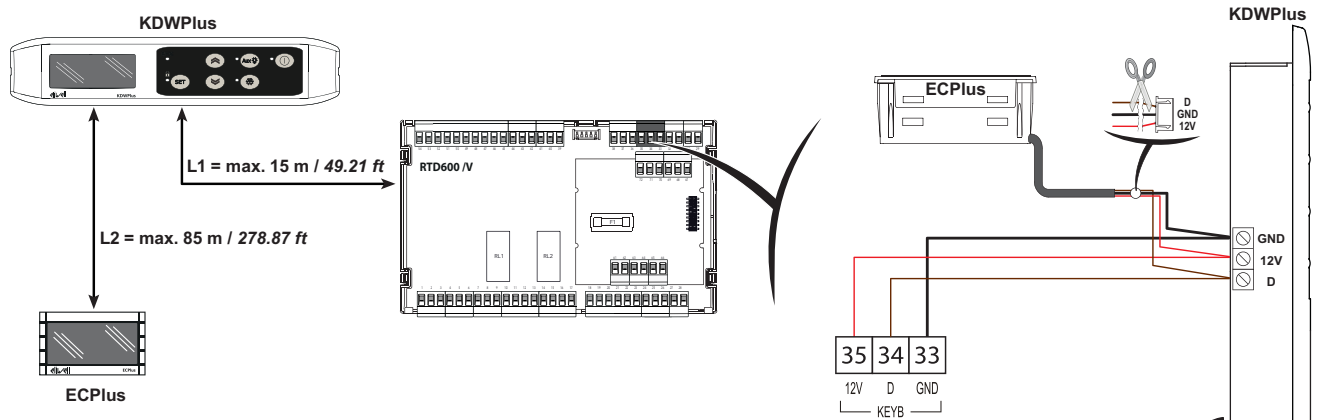
6.6. CONNECTIONS RTD 600 /V WITH KEYBOARD AND DISPLAY

Each **RTD 600 /V** can be connected to a single **KDEPlus**, **KDWPlus** or **KDT** keypad and if required to an **ECPlus** display module for remote display by means of the connector located on the keyboard.

RTD 600 /V + KDEPlus + ECPlus CONNECTION

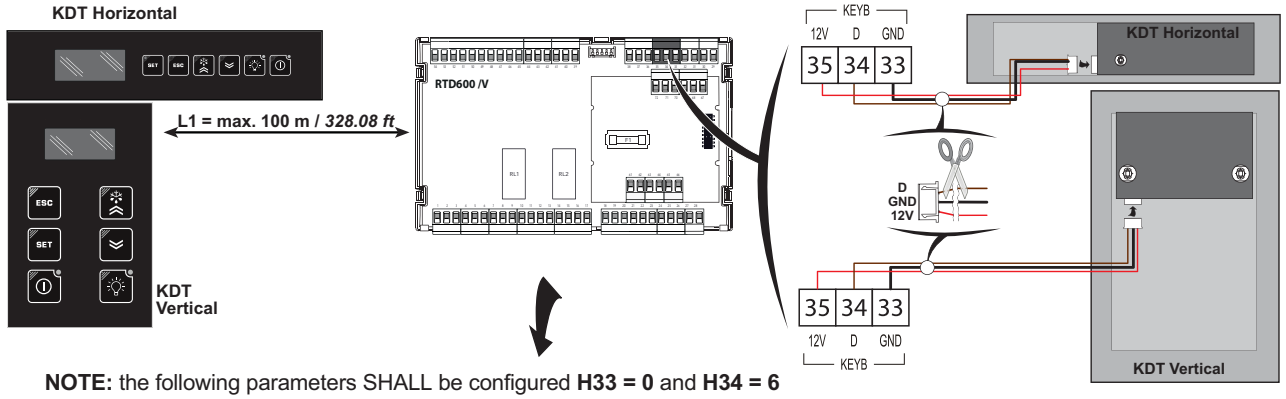


RTD 600 /V + KDWPlus + ECPlus CONNECTION



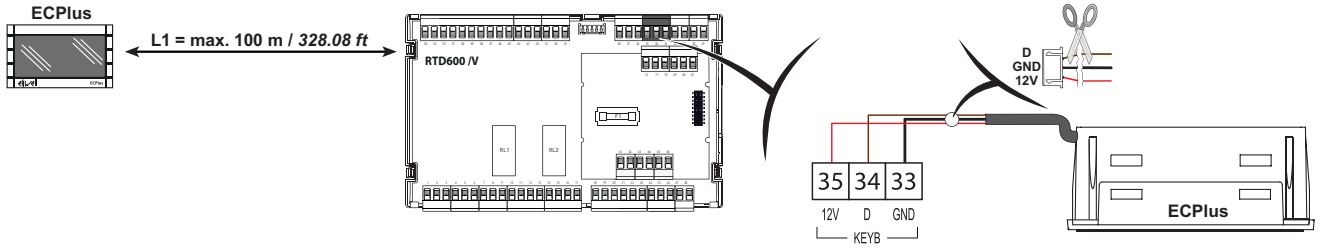
NOTE: An ECPlus module can be connected to the KDWPlus using the same terminal as the base is connected to.

RTD 600 /V + KDT CONNECTION



NOTE: the following parameters SHALL be configured **H33 = 0** and **H34 = 6**

RTD 600 /V + ECPlus CONNECTION



6.7. PRELIMINARY CONFIGURATIONS

After making the electrical connections, simply power up the device to start operation.
At first start-up, Eliwell recommends that you:

1. Select the preset Application that most closely matches your own.
2. Configure the main parameters listed in the USER menu to suit your requirements.
3. Make certain there are no active alarms
   (icon " ((●)) " off and labels E1, E2, E3, E4, E5, E6, E7, EL or Ei not displayed).

6.7.1. Loading default applications

The procedure for loading one of the default applications is:

- When the device is powered up, press and hold the SET key: the label "**AP1**" will appear.
  NOTE: On the **KDT** keyboard, within 30 seconds from the end of the lamp test, press any key for at least 1 sec to exit the "stand-by" mode and then press the SET + ⌄⌄ keys together to view label "**AP1**".
- Scroll through the various applications (**AP1** ... **AP8**) using keys ⌃⌃ and ⌄⌄.
- Select the desired application using the SET key or cancel the procedure by pressing the ⏻ key; alternatively wait for the timeout.
- If the operation is successful, the display will show "**yES**", if not it will show "**Err**".
- The device resents and performs the Lamp Test.
- After a few seconds the device will return to the main display.

NOTICE

INCORRECT OPERATION OF THE DEVICE

The loading procedure for one of the Default Applications restores the factory settings, i.e. the default values given in the parameters table, with the exception of the parameters which are not in the default applications **AP1**...**AP8** (and which are shown in the "Parameters Table" on a grey background) which maintain the previously set value.
This means that all changes that may have been made to operating parameters will be lost.

Failure to follow these instructions can result in equipment damage.

6.7.2. Default parameter settings

The **RTX-RTD 600 /V** can be used to set the parameters to the default value, by loading one of the default applications (**AP1...AP8**) (see paragraph "LOADING DEFAULT APPLICATIONS").

6.7.3. Setpoint: setting and locking the modification

To display the Setpoint value press the key SET and enter the "Machine Status" menu (**"6.7.7. Machine status menu" on page 64**) and then, when the label "SEt" is displayed press SET again. The Setpoint value appears in the display. To change the Setpoint value, press the ⌃⌃ and ⌄⌄ keys within 15 seconds. Press SET to confirm the modification.
It is possible to disable the keypad on this device.
The keypad can be locked by programming the "LOC" parameter.
With the keypad locked you can still access the "Machine Status" menu by pressing SET to display the Setpoint, but you cannot edit it. To disable the keypad lock, repeat the locking procedure.

6.7.4. Password

Password "**PA1**": allows access to the **User** parameters. By default the password is disabled (**PA1=0**).
To enable (**PA1≠0**): press SET for more than 5 seconds, scroll through the parameters with ∧ and ∨ until you see the label **PS1**, press SET to display the value, modify it with ∧ and ∨ and press SET or ⏻ to save.
If enabled, it will be required in order to access the User parameters.

Password "**PA2**": allows access to the **Installer** parameters. By default the password is enabled (**PA2=15**).
To modify it (**PA2≠15**): press and hold SET for longer than 5 seconds, scroll through the parameters using ∧ and ∨ until you see the label **PA2**, press SET, set the value "15" using ∧ and ∨, then confirm using SET. Scroll through the folders until you see the label **diS** and press SET to enter. Scroll through the parameters with ∧ and ∨ until you see the label **PS2**, press SET to display the value, modify it using ∧ and ∨, then save it by pressing SET or ⏻.

The visibility of '**PA2**' is:

PA1 and **PA2 ≠ 0**: Press SET for more than 5 seconds to view '**PA1**' and '**PA2**'. You can then decide whether to access the '**User**' parameters (**PA1**) or the "**Installer**" parameters (**PA2**).

Otherwise: Password '**PA2**' is amongst the level1 parameters. If enabled, it will be required when accessing the "Installer" parameters; to enter it, proceed as instructed for password "**PA1**".

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

6.7.5. Viewing probe vales

To display the value read by the probes connected to the device, press SET and enter the "Machine Status" menu (**"6.7.7. Machine status menu" on page 64**) and then, when displaying one of the labels relative to probes "Pb1"... "Pb7" then press the SET key again.
The value measured by the associated probe will appear on the display.

NOTE: The displayed value is read-only and cannot be modified.

6.7.6. Key-activated functions

All models have the ∧ key set to activate the "Manual Defrost" function.
Keys ∨ and ⏻ can also be set to activate a specific function chosen by the client.
The parameters for configuring the two keys are:

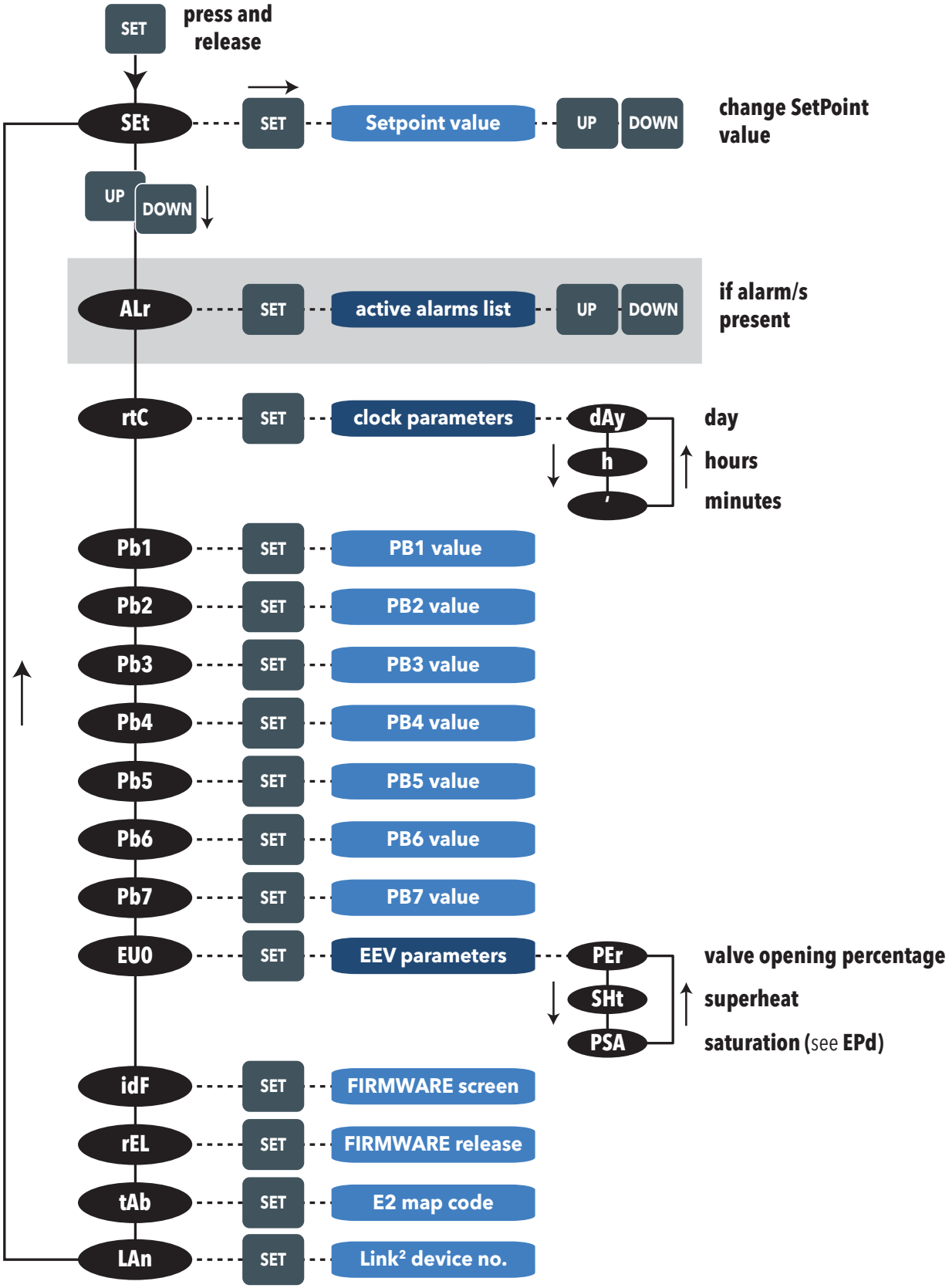
- **H32** = key configuration ∨ (DOWN)
- **H33** = key configuration ⏻ (ESC)

The values that can be set apply to both keys and the functions that can be activated are:

H32/H33 value	Function enabled
0	disabled
1	defrost
2	reduced set
3	Light
4	energy saving
5	AUX
6	Stand-by
7	quick chill cycle
8	Defrost start/end

6.7.7. Machine status menu

Press and release the SET key to access the “Machine Status” menu.
The various folders of the menu can be scrolled using the ⌃ and ⌄ keys:



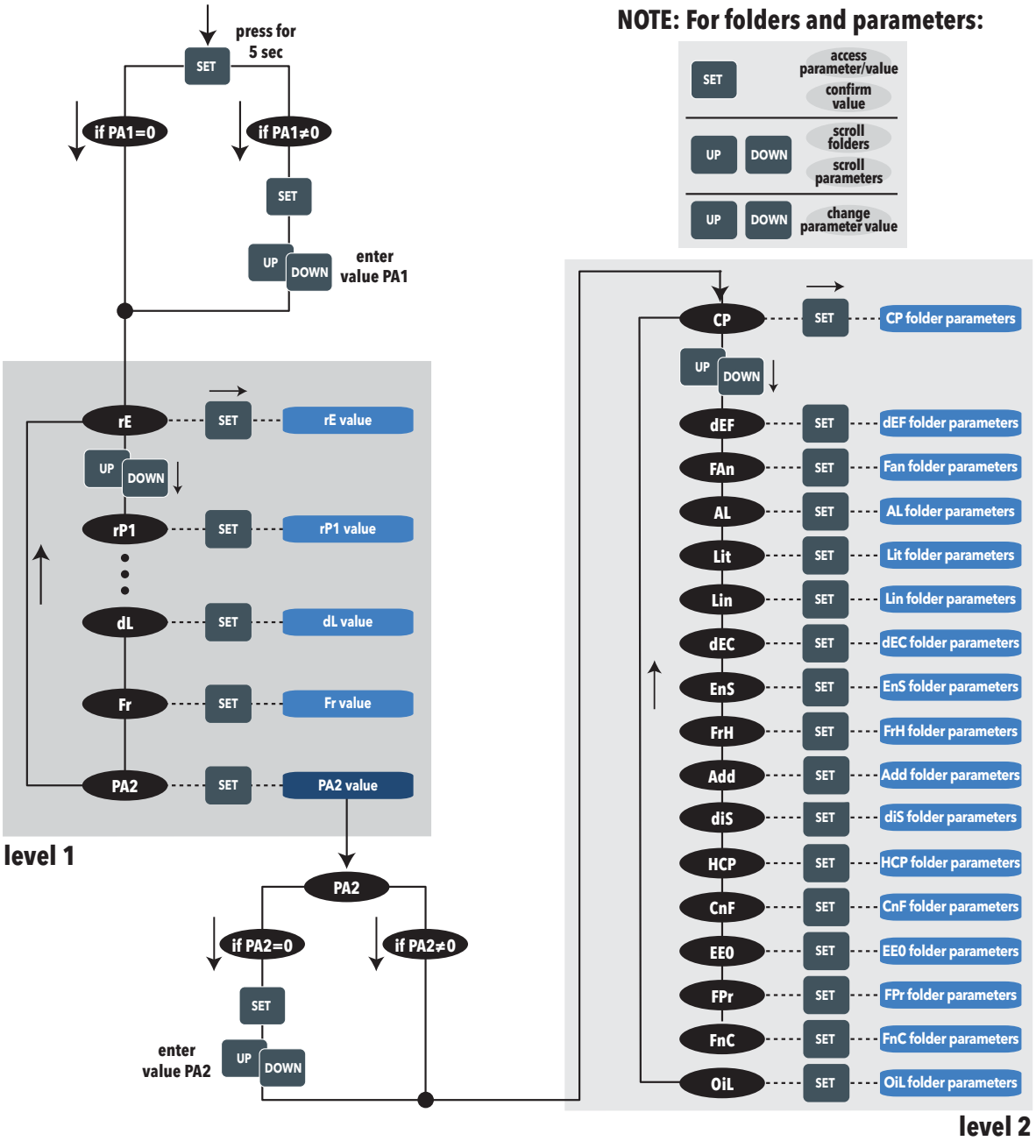
6.7.8. Programming menu

To access the “Programming” menu, press and hold the key for at least 5 seconds SET. If Password protection is activated, a prompt will appear: enter **PA1** for “**User**” parameters and **PA2** for “**Installer**” parameters (refer to **“6.7.4. Password” on page 63**).

“**User**” parameters: When the menu is accessed, the display will show the first parameter (e.g. “**rE**”). Press ⌃⌃ and ⌄⌄ to scroll through all parameters in the current level. Select the desired parameter by pressing SET. Press ⌃⌃ and ⌄⌄ to edit and SET to save the change.

“**Installer**” parameters: When the menu is accessed, the display will show the first folder (e.g. “**CP**”). Press ⌃⌃ and ⌄⌄ to scroll through the current level folders. Select the desired folder using SET. Press ⌃⌃ and ⌄⌄ to scroll through the parameters in the current folder and select the parameter using SET. Press ⌃⌃ and ⌄⌄ to edit and SET to save the change.

NOTE: Switch the device off and on again whenever you edit the parameter configuration.



CHAPTER 7
FUNCTIONS

7.1. SETTINGS

7.1.1. Probe setting and calibration

RTX-RTD 600 /V devices have:

- 5 configurable NTC/PTC/Pt1000/DI inputs (**Pb1** ... **Pb5**);
- 1 4...20 mA / DI configurable input (**Pb6**)
- 1 Ratiometric / DI configurable input (**Pb7**)

The temperature probes (**Pb1** ... **Pb5**) must all be of the same type and must be configured using parameter **H00**.

Parameter **H00** is present at User level (**User**) or Installer (**Inst**) level inside the **CnF** folder and is set as follows:

- **H00** = Ptc → if using PTC probes
- **H00** = ntc → if using NTC probes (default)
- **H00** = Pt1 → if using Pt1000 probes

After installation, the values read by the probes can be corrected/calibrated using the following parameters:

- **CA1**: probe 1 offset. Positive or negative value to be added to the value read by Pb1 (Range: **-30.0...30.0**)
- **CA2**: probe 2 offset. Positive or negative value to be added to the value read by Pb2 (Range: **-30.0...30.0**)
- **CA3**: probe 3 offset. Positive or negative value to be added to the value read by Pb3 (Range: **-30.0...30.0**)
- **CA4**: probe 4 offset. Positive or negative value to be added to the value read by Pb4 (Range: **-30.0...30.0**)
- **CA5**: probe 5 offset. Positive or negative value to be added to the value read by Pb5 (Range: **-30.0...30.0**)
- **CA6**: probe 6 offset. Positive or negative value to be added to the value read by Pb6 (Range: **-30.0...30.0**)
- **CA7**: probe 7 offset. Positive or negative value to be added to the value read by Pb7 (Range: **-30.0...30.0**)

7.1.2. Display settings

Inside the **diS** folder at User level (**User**) or at Installer level (**Inst**) you will find the parameters used to set the temperature readout, decimal point usage, unit of measure and display during defrost.

- **ndt**: (**User**) enables/disables decimal point display (with resolution of one-tenth of a degree; e.g.: 10.0 °C). Display with decimal point is only possible within the range of values from -99.9 ... 99.9 °C.
    - **ndt** = yes ➔ displays read values with decimal point (default);
    - **ndt** = no ➔ displays read values without decimal point

    NOTE: enabling/disabling the decimal point only affects the on-screen display of values. The controller will continue to perform calculations with decimal point.
- **ddL**: (**User**) sets the type of display during and up to the end of defrost
    - **ddL** = 0 ➔ displays the probe value (default)
    - **ddL** = 1 ➔ continues to display the value read by the probe at the start of defrosting
    - **ddL** = 2 ➔ displays fixed label “**dEF**” fissa
- **dro**: (**Inst**) sets temperature display to °C or °F.
    - **dro** = C ➔ display in °C (default)
    - **dro** = F ➔ display in °F

    NOTE: switching between °C and °F DOES NOT modify the temperature parameter values (e.g. set=10 °C becomes 10 °F) This means that the maximum and minimum limits of parameters as absolute values are the same for both units of measure and hence the ranges are different.
- **ddd**: (**User**) establishes the value to be shown on the display. All other display and adjustment modes are the same.
    - **ddd** = SP1 ➔ disabled
    - **ddd** = Pb1 ➔ displays the values read by Pb1
    - **ddd** = Pb2 ➔ displays the values read by Pb2
    - **ddd** = Pb3 ➔ displays the values read by Pb3
    - **ddd** = Pb4 ➔ displays the values read by Pb4
    - **ddd** = Pb5 ➔ displays the values read by Pb5
    - **ddd** = Pbi ➔ displays the values read by the virtual probe
    - **ddd** = LP ➔ displays the values read by the remote probe (Link^2)

7.2. FUNCTIONS

7.2.1. Upload / Download / Formatting

Description

The UNICARD/Multi Function Key (MFK) is connected to the serial port (TTL) and allows fast programming of device parameters.

NOTE: **DOWNLOAD** from reset operating mode: at power-on, if the UNICARD/MFK is inserted in the device, the controller automatically downloads data.

After connecting the UNICARD/MFK with the device switched off and on completion of the lamp test, one of the following labels will be displayed:

- **dLY** if the operation was successful
- **dLn** if the operation was not successful

After about 5 seconds, the display will display the probe or setpoint value, depending on the default settings.

NOTE: once download has been completed successfully, the device will start to work with the new map loaded.

Operating mode: access “Installer” parameters by entering the password “**PA2**” if enabled (**PA2≠0**), scroll through the folders using ⌃ and ⌄ until the “**FPr**” folder appears. Select it using SET, scroll through the parameters using ⌃ and ⌄ then select one of the functions by pressing SET:

- **UL** (Upload): This function uploads the programming parameters from the device to the card. If the operation is successful, the display will show “**yES**”, otherwise it will show “**no**”.
- **Fr** (Format): This command is used to format the copy card (which is necessary when using the card for the first time). **NOTE**: The **Fr** parameter deletes all data present and this operation cannot be reversed.
- **dL** (Download): This operation is used to load the programming parameters from the key to the device. If the operation is successful, the display will show “**dLy**”, otherwise it will show “**dLn**”.
- **Download** (from reset): Connect the UNICARD/MFK with the device switched off. At power-on, data will automatically start downloading from the UNICARD/MFK to the device. At the end of the lamp test, the display will show “**dLy**” if the operation was successful and “**dLn**” if not.

NOTE: before Upload or Download of a map, make confident that there is no communication with the supervisor. This means you should make certain that the RS485 is disconnected from the device or that Supervision system acquisitions have been stopped.

User parameters

The parameters that control this function are:

Label	Description
UL	Transfer programming parameters from device to UNICARD/MFK
Fr	UNICARD/MFK formatting. To erase all data on the Copy Card.
dL	To transfer programming parameters from UNICARD/MFK to device.

MULTI FUNCTION KEY

The Multi Function Key lets you download/upload a parameter map from/to a device.

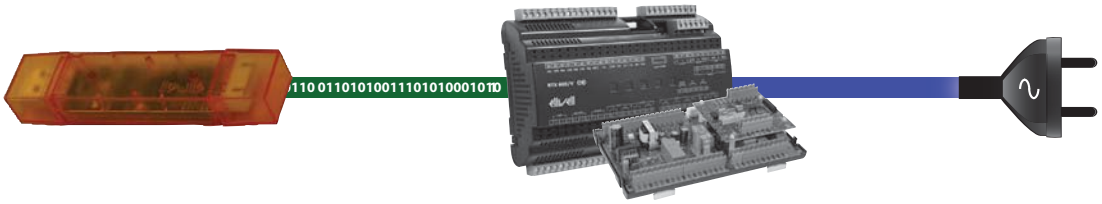
UNICARD

The UNICARD lets you download/upload a parameter map from/to a device, in the same way as the Multi Function Key (MFK). It is a versatile tool that also allows you to quickly and easily customise devices. It differs from the Copy Card in the following ways:

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

The UNICARD can be powered in the following ways:

1) Battery power



UNICARD | Controller | Controller power supply

2) Field power

USB power supply unit | UNICARD | Controller

USB Battery | UNICARD | Controller

7.2.2. Boot Loader Firmware

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

Updating procedure:

- Connect the UNICARD/MFK equipped with the application;
- Power up the device if it is off, otherwise switch it off and on again;
- Wait until the LED of the UNICARD/MFK is blinking (operation in progress);
- The operation will be concluded when the LED of the UNICARD/MFK is:
    - **ON**: operation concluded correctly;
    - **OFF**: operation not performed (application not compatible...)

7.2.3. Keyboard shared on Link²

From each device of a Link² network it is possible, using the local keyboard, to navigate in any one of the other devices connected in the Link².

This menu is activated, from the default menu, by simultaneously holding down the and keys for 5 seconds. When remote display is active, the 2 icons **°C** and **°F** blink.

Depending on the protocol used, you will be asked to type in the following values:

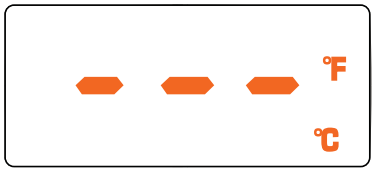
- Televis protocol: **FAA** and **dEA**;
- Modbus protocol: **Adr**.

To return to the default menu:

- Press the and keys for 5 seconds;
- By time-out, 60 seconds after a key was last pressed.

During “remote control of the display”, the local keyboard (of the device of which the display has been remote controlled) is blocked. It is released 3 seconds after the release of the viewing of the display.

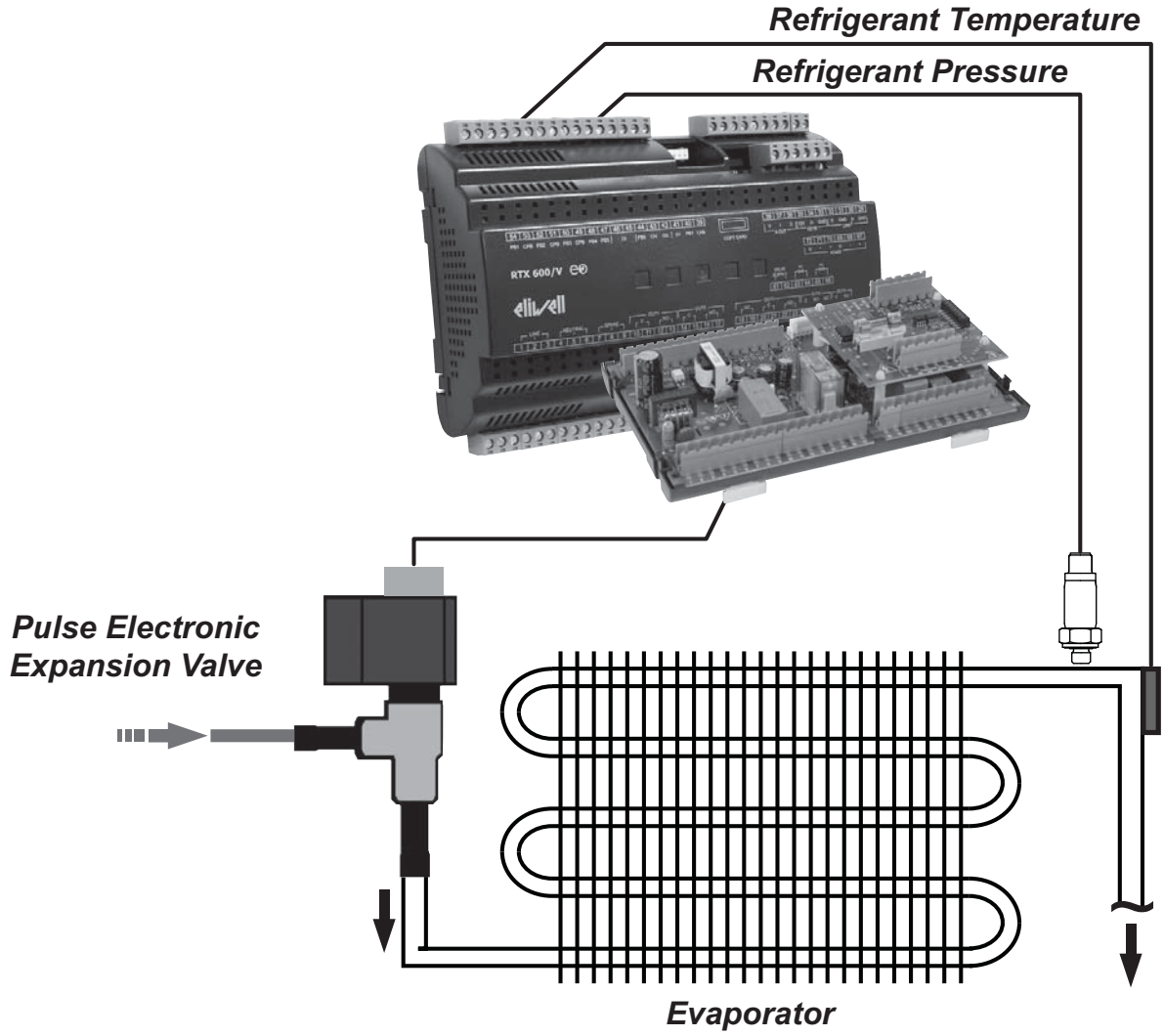
If the connection is lost during “remote control” viewing, the display will show:



CHAPTER 8
REGULATORS

8.1. PULSE ELECTRONIC EXPANSION VALVE (EEV)

An example of the use of the **RTX-RTD 600 /V** with the different components is given below:



The use of the **EEV** pulse valve requires the configuration of:

- the overheating probe (**rSS** - NTC/PTC/Pt1000 temperature probe)
- the saturation probe (**rSP** - ratiometric transducer or pressure transducer 4...20 mA).

The **DEFAULT** configuration requires the following settings:

- **Pb5** as overheating probe (NTC probe)
- **Pb7** as saturation probe (ratiometric transducer).

Take extra care when wiring the valve.
Select the valve coil with care, as appropriate, according to the voltage utilized.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

Check the valve parameters declared by the manufacturer before using the valve in generic valve configuration.

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

Eliwell Controls Srl is not liable for the data provided by the valve manufacturer, including any technical modifications or updates. Consult the valve manual to check the suitability and correct configuration.

8.1.1. List of compatible / pilotable valves

The list of PULSE valves **COMPATIBLE** with the **RTX-RTD 600 /V** is:

Brand	Valve model	Notes
Eliwell by Schneider Electric	PXV	Orifices from 0,5 to 2,7 mm

The list of PULSE valves **PILOTABLE** with the **RTX-RTD 600 /V** and the reference documents used for tests are:

Brand	Valve model	Reference document
Danfoss	AKV10	DKRCC.PD.VA1.A7.02_AKV_sw.pdf
Danfoss	AKV15	
Danfoss	AKV20	
Danfoss	AKVA (NH3)	DKRCC.PD.VA1.B5.02_AKVA.pdf
Alco	EX2	EN_EX2__35016.pdf

For all not listed valves, contact Eliwell to check if they are pilotable.

Eliwell Controls Srl is not liable for the data provided by the valve manufacturer, including any technical modifications or updates. Consult the product manual and the valve manual to check the suitability and correct configuration.

8.1.2. Valve type

The **RTX-RTD 600 /V** device is configured to control AC and DC-type 'Pulse' valves.
The connection diagrams are as follows:

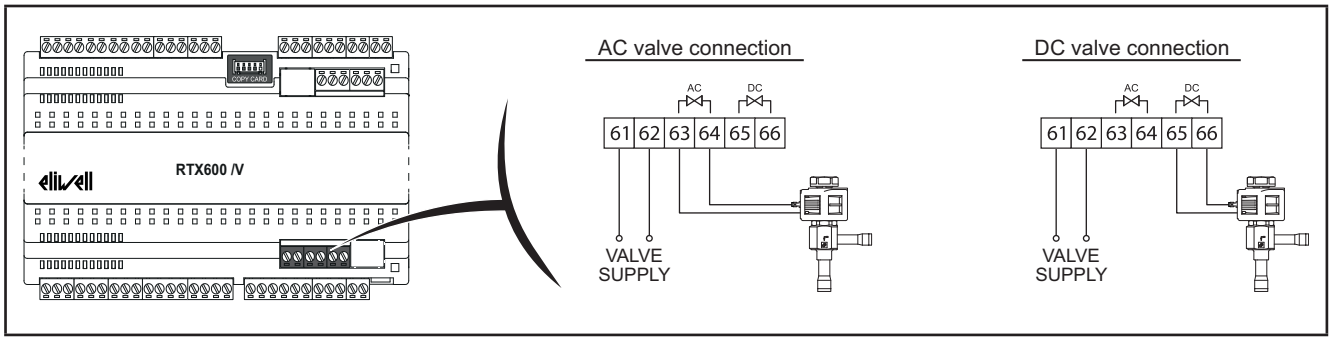


Fig. 40. RTX 600 /V: Connection diagram

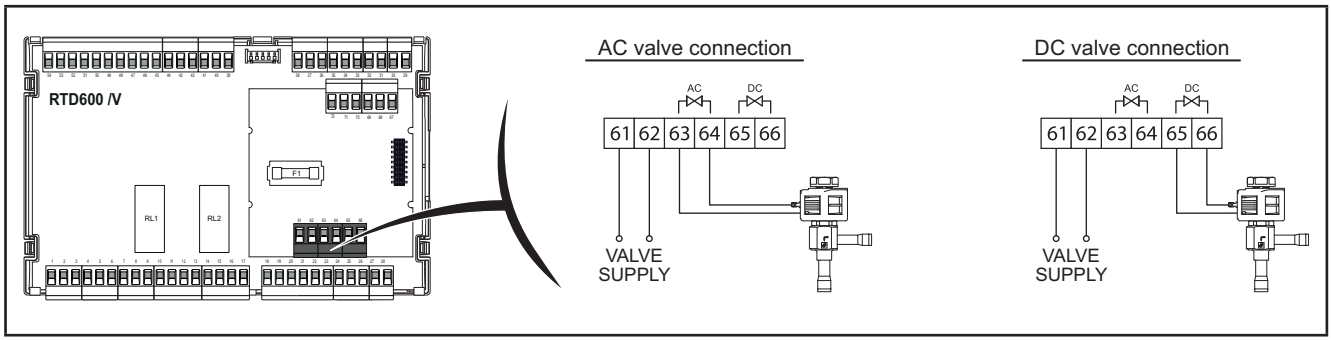


Fig. 41. RTD 600 /V: Connection diagram

Before connecting the valve, carefully configure the **RTX-RTD 600 /V** selecting the type of valve from the list of compatible/pilotable valves.

Eliwell Controls Srl is not liable for the data provided by the valve manufacturer, including any technical modifications or updates. Consult the product manual and the valve manual to check the suitability and correct configuration.

NOTICE

INOPERABLE DEVICE

- Before switching on the electrical power, check all the wiring.
- Before connecting the valve, check the plate data.
- The **RTX-RTD 600 /V** driver supplies the valve with the same voltage as its input voltage (Valve Supply).
- In the case of a DC valve, the input voltage (Valve Supply) must be alternate current.
  (for example: a valve with a 240 Vdc coil must be connected to a 240 Vac supply).

Failure to follow these instructions can result in equipment damage.

8.1.3. Preset selection

RTX-RTD 600 /V are supplied as standard with a series of presettings for the most common types of installation:

PAR.	DESCRIPTION	M.U.	APPLICATIONS
H61	Selects the type of plant and the operating mode: **0** = Reserved; **1** = Plants in which the evaporator pressure changes quickly; **2** = Plants in which the evaporator pressure changes slowly; **3** = Plants in which the evaporator pressure changes quickly - setpoint reached quickly after a defrost cycle; **4** = Plants in which the evaporator pressure changes slowly - setpoint reached quickly after a defrost cycle; **5...16** = Reserved.	num	1 **(DEFAULT)**

8.1.4. Coolant type

⚠ DANGER

RISK OF EXPLOSION AND FIRE

Do not use this device in applications where R290 flammable refrigerant is used.

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

RTX-RTD 600 /V can work with one of the following coolants, already included in the device:

PAR.	DESCRIPTION	M.U.	APPLICATIONS
Ert	Selects the type of refrigerant used: **404** (0) = R404A; **r22** (1) = R22; **410** (2) = R410A; **134** (3) = R134a; **744** (4) = R744 (CO_2); **507** (5) = R507A; **717** (6) = R717 (NH_3); **290** (7) = reserved; **PAr** (8) = refrigerant parameterizable; **407** (9) = R407A; **448** (10) = R448A; **449** (11) = R449A; **450** (12) = R450; **513** (13) = R513A.	num	410 **(DEFAULT)**

NOTE: the Ert parameter is not entered in Applications **AP1** ... **AP8** and does not change if the default values are reset or if a different Application from the default one is loaded.

If a coolant not included in the list has to be used, the “coolant descriptor” can be uploaded (including the key values of the coolant used) via UNICARD/Copycard and then set the parameter **Ert** = 8.

NOTE: To obtain the “coolant descriptor” contact the Eliwell technical support department.

8.1.5. Local pressure transducer (4..20 mA)

The pressure transducer connection diagram is as follows:

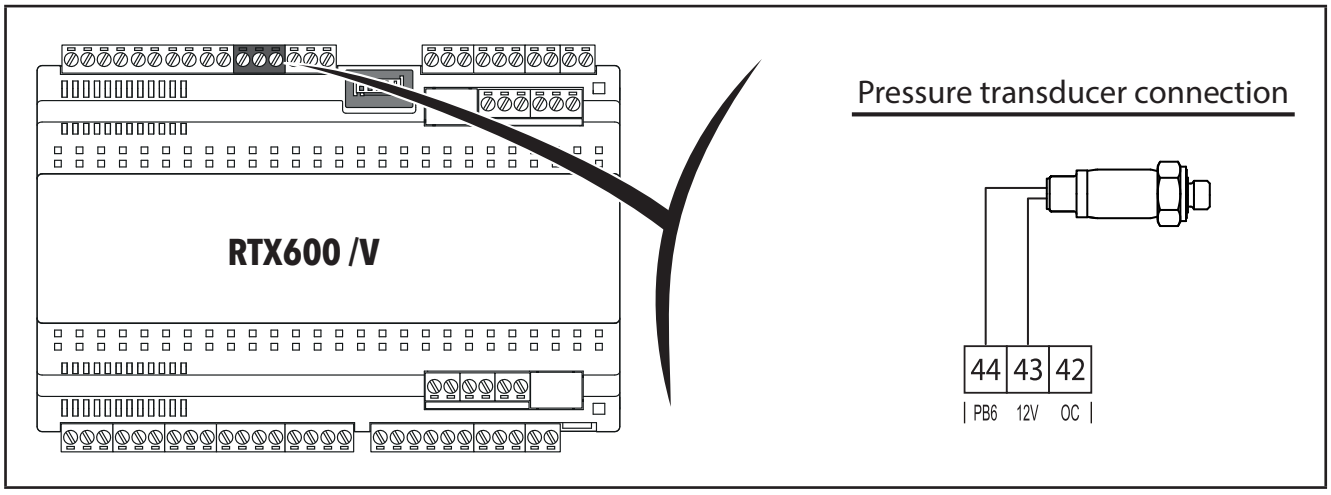


Fig. 42. RTX 600 /V: Connection diagram of pressure transducer 4...20 mA

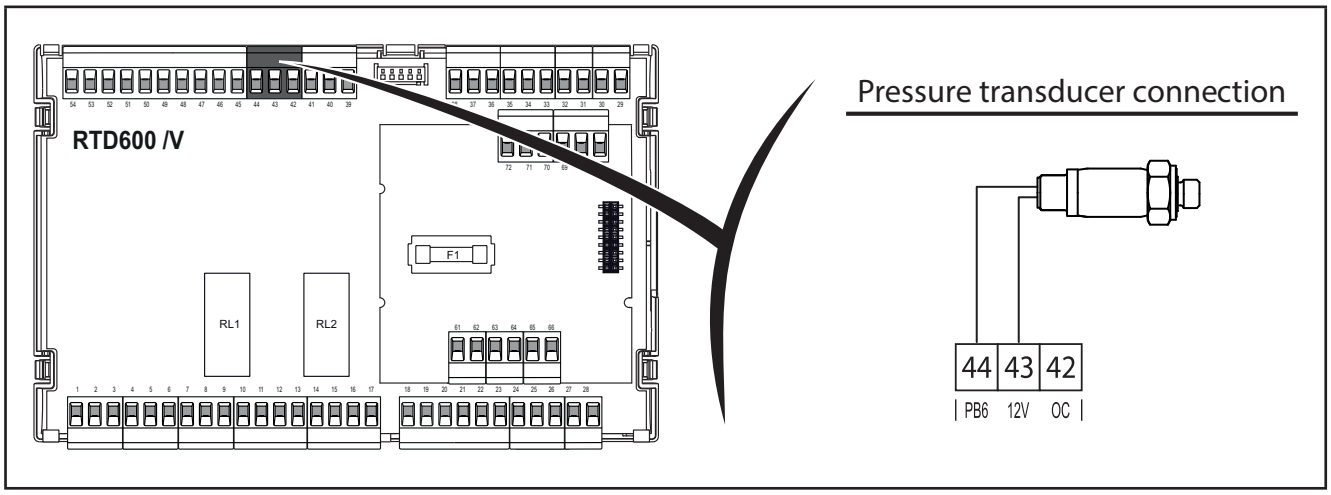


Fig. 43. RTD 600 /V: Connection diagram of pressure transducer 4...20 mA

To use the input 4..20 mA (Pb6) as a saturation probe, set the parameter **rSP** = Pb6.
Via parameters **H03** and **H04** it is possible to set the lower limit (to 4 mA) and the upper limit (to 20 mA).

NOTE: Parameters **H03** and **H04** refer to the relative pressure (atmospheric pressure → 0.0).

8.1.6. Local ratiometric transducer

The ratiometric transducer connection diagram is as follows:

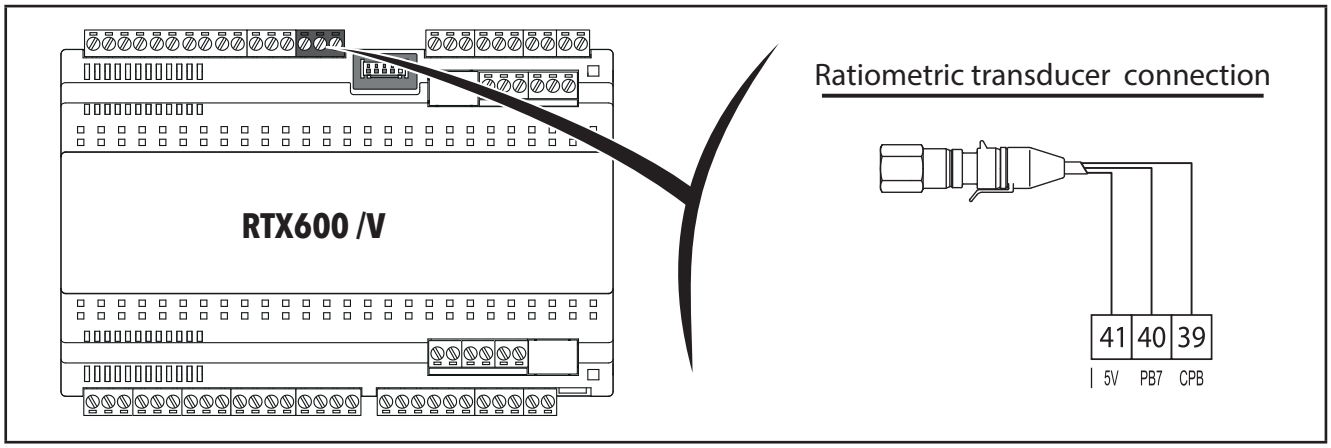


Fig. 44. RTX 600 /V: Connection diagram of ratiometric transducer

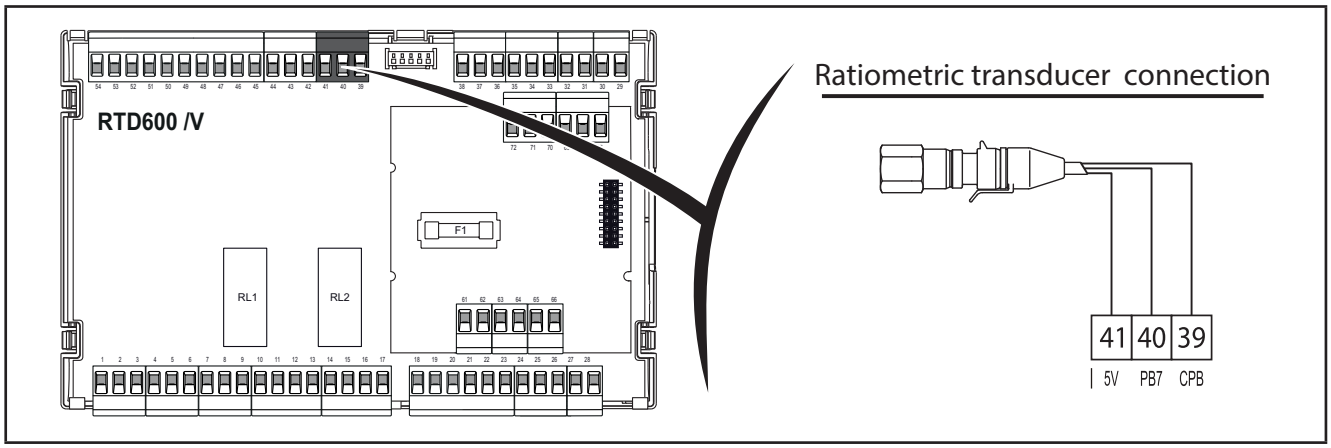


Fig. 45. RTD 600 /V: Connection diagram of ratiometric transducer

To use the ratiometric input (Pb7) as a saturation probe, set the parameter **rSP** = Pb7.
Via parameter **trA** it is possible to select one of the 8 presets, corresponding to the most commonly used ratiometric transducers:

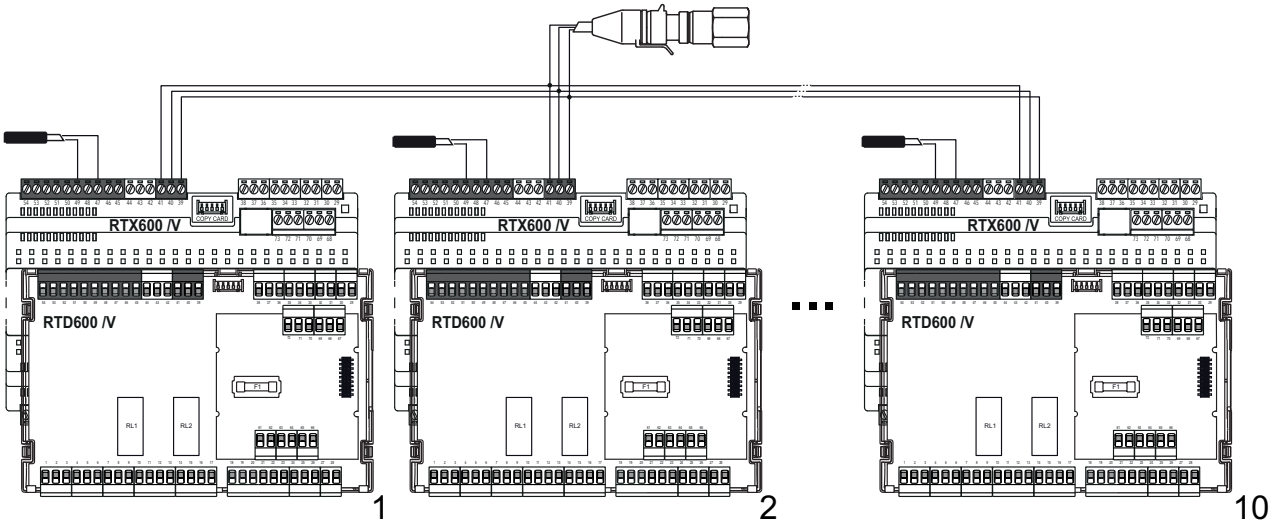
PAR.	DESCRIPTION	M.U.	APPLICATIONS
trA	Selects the model of ratiometric transducer used: **USE** = Generic Probe Settable by the customer **rA1** = EWPA 010 R 0/5V 0/10 BAR FEMALE **rA2** = EWPA 030 R 0/5V 0/30 BAR FEMALE **rA3** = EWPA 050 R 0/5V 0/50 BAR FEMALE **rA4** = AKS 32R -1/6 **rA5** = AKS 32R -1/12 **rA6** = AKS 32R -1/20 **rA7** = AKS 32R -1/34 **rA8** = reserved	num	rA1 (**DEFAULT**)

When using a ratiometric transducer not contemplated in the preset, it can be configured manually by setting the parameter **trA** = "**USE**".

At this point you need to set:

- the lower probe limit, corresponding to 0.5 V (10%) via parameter **H05**
- the upper probe limit, corresponding to 4.5 V (90%) via parameter **H06**

8.1.7. Shared ratiometric transducer (shared via hardware)



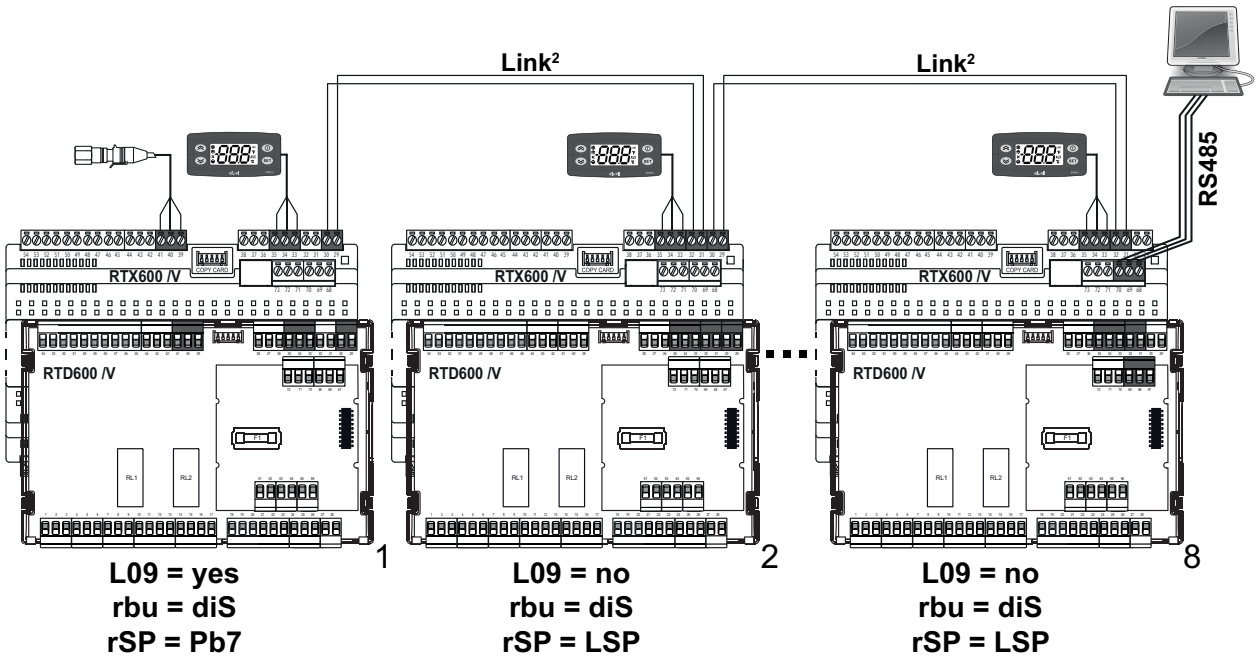
The ratiometric input is configured exactly as described for the non-shared “local ratiometric transducer”.
To use a shared ratiometric transducer (Pb7), set parameter **rSP** = rP.

8.1.8. Sharing the pressure/ratiometric transducer via Link²

When connecting devices in Link², one or two saturation sensors can be connected and their value shared.

EXAMPLE 1

Sharing a single saturation probe:

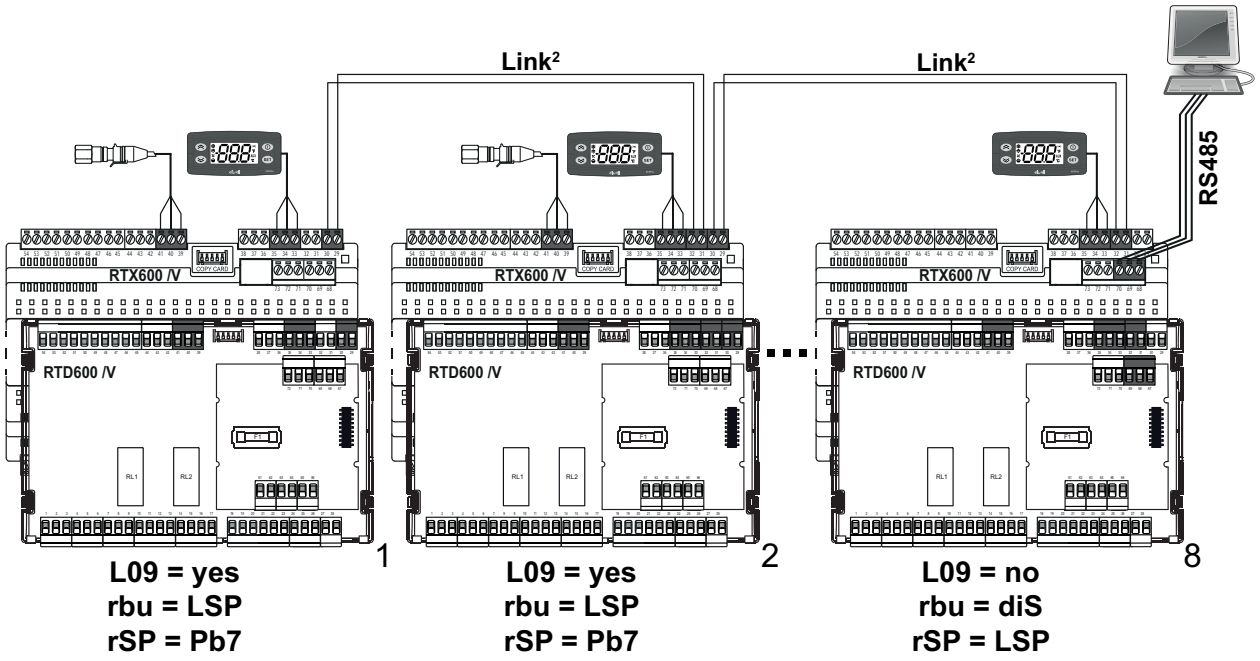


Update the saturation probe sent from the supervision system with a period below 3 minutes otherwise a probe error will be given. In the event of a probe error, all devices will regulate according to what configured with the probe error parameters.

In the event of no-link, all devices in the Link², which are not able to receive the value from the device mounting the probe, will behave as with a saturation probe error.

EXAMPLE 2

To increase the reliability of the system, in the event of a pressure transducer error, two saturation probes linked to two separate Link² cards can be used.



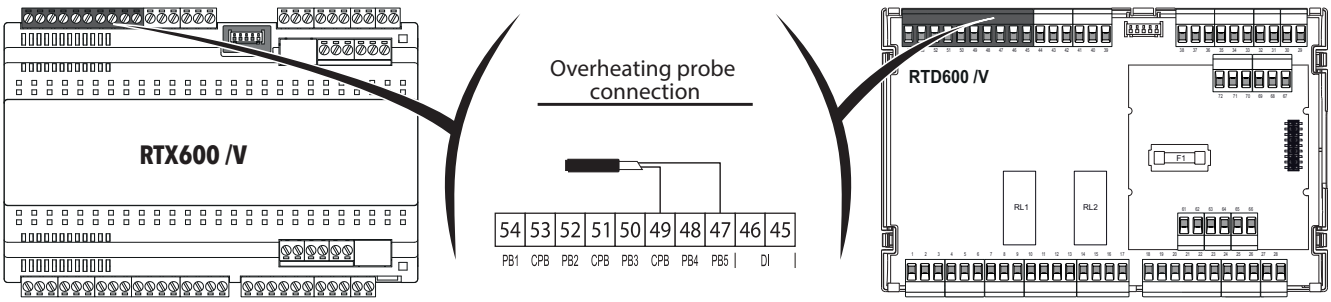
The Link² will automatically share one of the two available values (the first value received by Link²).
The other device, with a pressure transducer, will not use the shared value but the local value, unless this is in error, in which case it will use the shared value.
If the pressure transducer, used for sharing, is in error, the Link² will automatically share the pressure value of the other transducer (provided this is not in error)
If both saturation probes are in error, or there is a no-link condition, the cards will regulate according to the case of a saturation probe in error.

8.1.9. Backup saturation probe from remote

Using serial commands it is possible to send a backup saturation value.
If the device has no valid saturation value (local or shared) it can use the backup saturation value from remote.
If the remote device don't update the value within 3 minutes, the **RTX-RTD 600 /V** will consider the backup probe to be unavailable, and will regulate according to the case of a saturation probe in error.

8.1.10. Overheating probe

Place the superheat probe, the type of which (NTC, PTC or Pt1000) can be selected via parameter **H00**, as shown in the figure:



8.1.11. Safety fuse

The device has an internal safety fuse which protects the valve coils.

If the fuse blows it must be replaced.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Disconnect all power from all devices including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables and wires.
- Check the earthing connections on all earthed devices.

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

⚠ DANGER

RISK OF OVERHEATING AND FIRE

Replace the fuse with a new one with the same characteristics as the one replaced.
For characteristics, refer to **“5.1. Environmental and electric characteristics” on page 52**.

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

When handling the equipment use caution to avoid damage caused by electrostatic discharge.

In particular the unshielded connectors and in certain cases the open circuit boards are extremely vulnerable to electrostatic discharge.

⚠ WARNING

FAULTY OPERATION OF EQUIPMENT DUE TO ELECTROSTATIC DISCHARG

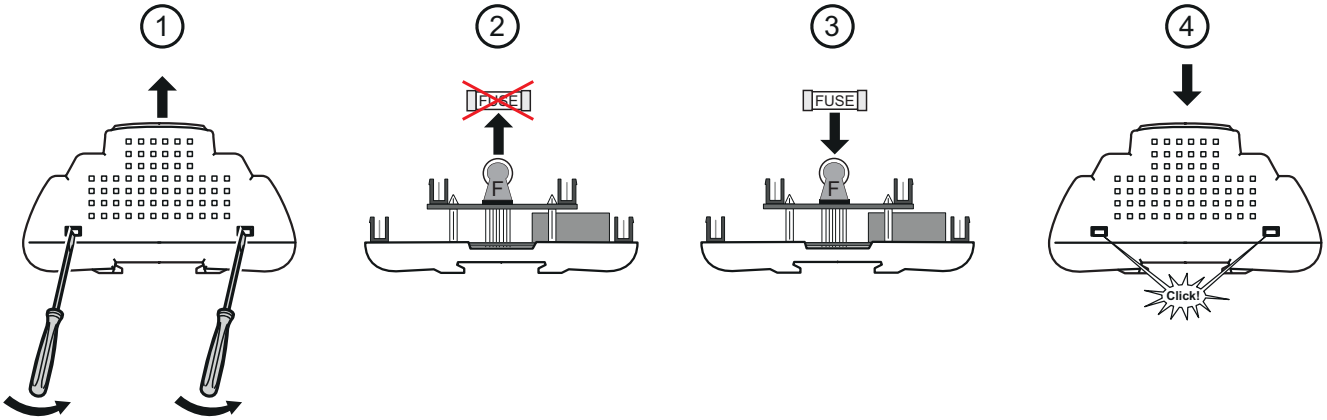
- Keep the device in the protective packaging until ready for installation.
- The device must only be installed in type-approved cabinets and/or in points that prevent accidental access and provide protection from electrostatic discharge as defined in IEC 1000-4-2.
- When handling sensitive equipment, use a earthed protective device against electrostatic discharge.
- Before handling the device, 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.

RTX 600 /V: Replacing the fuse:

To replace the fuse, having switched the power off to all the equipment, proceed as follows:

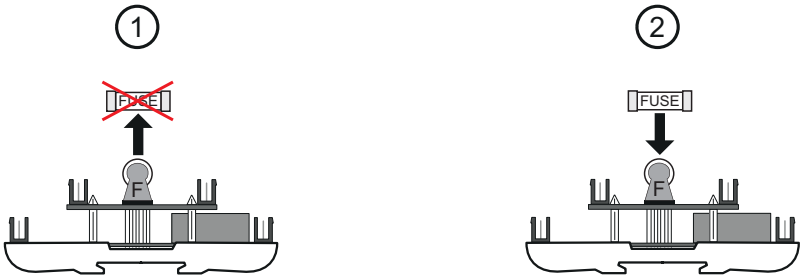
1. Disconnect all terminals from the Upper Board (electronic expansion valve, RS485 network). Remove the cap by pressing the tabs on both sides with a screwdriver.
2. Remove the fuse to be replaced from the Upper Board.
3. Insert the new fuse (**NOTE**: check it is the correct size).
4. Replace the cap by pressing down on both side tabs until you hear a “Click”
5. Reconnect all the terminals on the Upper Board.



RTD 600 /V: Replacing the fuse:

To replace the fuse, having switched the power off to all the equipment, proceed as follows:

1. Remove the fuse to be replaced from the Upper Board.
2. Insert the new fuse (**NOTE**: check it is the correct size).



8.1.12. Valve regulation parameters

RTX-RTD 600 /V is a PULSE type electronic expansion valve that regulators the minimum overheating value at the evaporator output.

It is designed for simple installation and the control algorithm is able to adapt to the cabinet conditions to make certain the performance required by the user.

The user is required to set only the setpoint temperature (**OLt**) and the algorithm will adapt to reach the required performance. The algorithm is optimised to work with low overheating setpoints, using predictive calculation models.

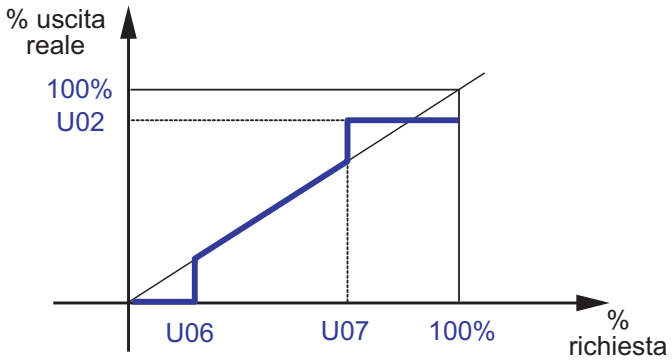
The internal driver has user configurations which can be used to set:

- **U01**: the modulation cycle time (the total valve opening/closing times);
- **U02**: the maximum valve opening;
- **U06**: the minimum value in valve opening percentage for modulation;
- **U07**: the maximum value of valve opening in percentage for modulation.

If the regulation requires a value lower than **U06** the valve opening will be 0%, while if he regulation requires an opening value of more than **U07** the valve will be opened to the value **U02**.

NOTES:

- If the regulator controls an output of more than or equal to **U07**, the actual output is equal to **U02**.
- If the regulator controls an output of less than or equal to **U06**, the actual output is equal to 0.
- If the regulator controls an output of more than or equal to **U07**, for more than the time set in **U05** a maximum opening alarm dA07 is generated to indicate an hazardous system situation.



8.1.13. PID overheating regulator and MOP

PID regulator (H60)

RTX-RTD 600 /V calculate the actual overheating value using the two analogue overheating and saturation probes. Using a PID type controller, it modulates valve opening so that overheating reaches setpoint **OLt**.
The algorithm is dynamic: the actual overheating value may not reach the setpoint configured or it could drop temporarily below this value. If this results in liquid leaking from the evaporator, the value of setpoint **OLt** will need to be increased. The PID configuration parameters upload automatically to the device when you select the installation type defined in parameter **H61**.

MOP regulator (Maximum Operating Pressure)

The driver has a “maximum operating pressure MOP” control function enabled via parameter **HOE**. This function controls the valve closing in a proportional manner as the saturation temperature gets near the value of parameter **HOt** (maximum evaporator temperature threshold) with a proportional band equal to parameter **HPb**.
Above this threshold for more than time **tAP**, a MOP alarm is triggered.

The **MOP** regulation can be disabled:
- via parameter **HOE**.
- when the device is powered up or when returning from a defrost condition, for a time equal to **HdP**.

8.1.14. Regulation in the event of a probe error

In the event of a saturation probe not working (pressure **4...20 mA** or **ratiometric** transducer):
- the output will be modulated with the percentage set in parameter **U08**.

In the event of an overheating probe not working (**NTC, PTC or Pt1000**):
- MOP disabled: the output will be modulated with the fixed percentage set by parameter **U08**
- MOP enabled: the output will be modulated with an opening percentage between 0 and **U08**.

User parameters

The parameters that manage this regulator are:

Label	Description
L09	Enables sharing of saturation (pressure) probe.
trA	Selects the type of ratiometric transducer used.
H00	Selects the type of temperature probes connected (ntc = NTC, Ptc = PTC and Pt1 = Pt1000)
H03	Lower limit of pressure transducer 4-20 mA
H04	Upper limit of pressure transducer 4-20 mA
H05	Lower limit of ratiometric transducer.
H06	Upper limit of ratiometric transducer.
H60	Displays the selected application.
rSP	Selects the saturation probe used.
rSS	Selects the overheating probe used.
rbu	Selects the back-up saturation probe.
EPd	Saturation value display mode (t = temperature and P = pressure).
Ert	Selects the type of refrigerant used.
U01	PWM period.
U02	Maximum valve opening percentage.
U05	Operating time at max opening for alarm signal.
U06	Minimum useful valve opening percentage.
U07	Maximum valve useful opening percentage.
U08	Valve opening percentage during probe error.
OLt	Sets the minimum overheating threshold
HOE	Enable MOP.
tAP	Min time that temp upper threshold is exceeded for alarm activation.
HOt	Evaporator temperature upper threshold.
HdP	MOP disable time at start-up.

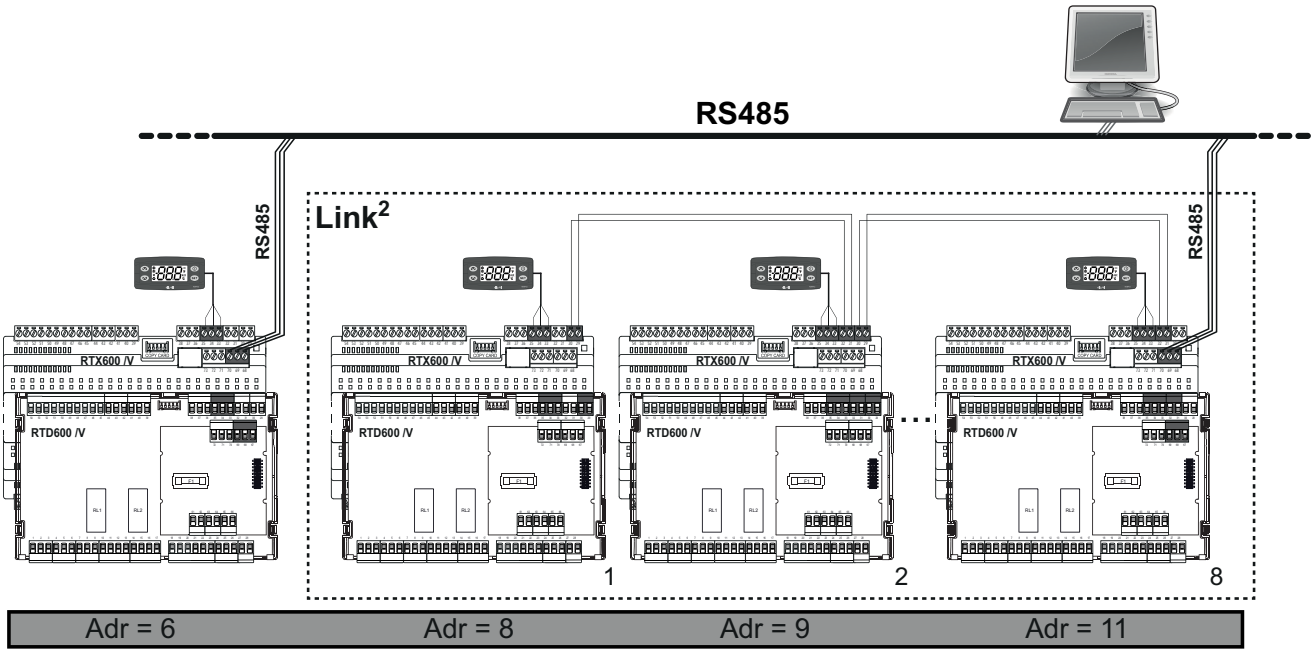
8.2. LINK² NETWORK

It is possible to connect up to a maximum of 8 **RTX-RTD 600 /V** devices in a Link² local network and to connect only one device to the Televis/Modbus monitoring network.

Within each subnetwork, the addresses of the individual devices, characterized by parameters **dEA** and **FAA**, must be preset in such a way as to ensure that each pairing is unique.

NOTE: we recommend assigning the same **FAA** value to all devices in a sub-network so they can be easily identified.

See the example connection Link² + Monitoring network below:



8.2.1. Supervision gateway

Via the Link² network it is possible to simplify the supervision wiring.

More specifically, the **RS485** supervision line can be connected to any of the Link² cards.

The latter will automatically “sort” the communications to other cards.

The **RS485** does not require any specific configuration for the addresses as it uses those already set for the network supervision which use:

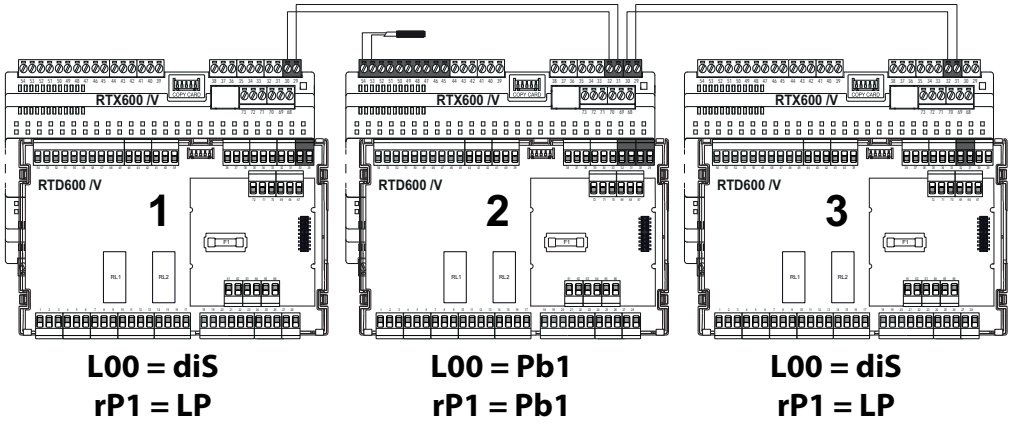
- **Televis**: parameters **FAA** and **dEA**;
- **Modbus**: parameter **Adr**.

8.2.2. Sharing the temperature probe

Via the Link² network it is possible to share one of the 5 temperature probes (Pb1…Pb5) or the virtual probe.

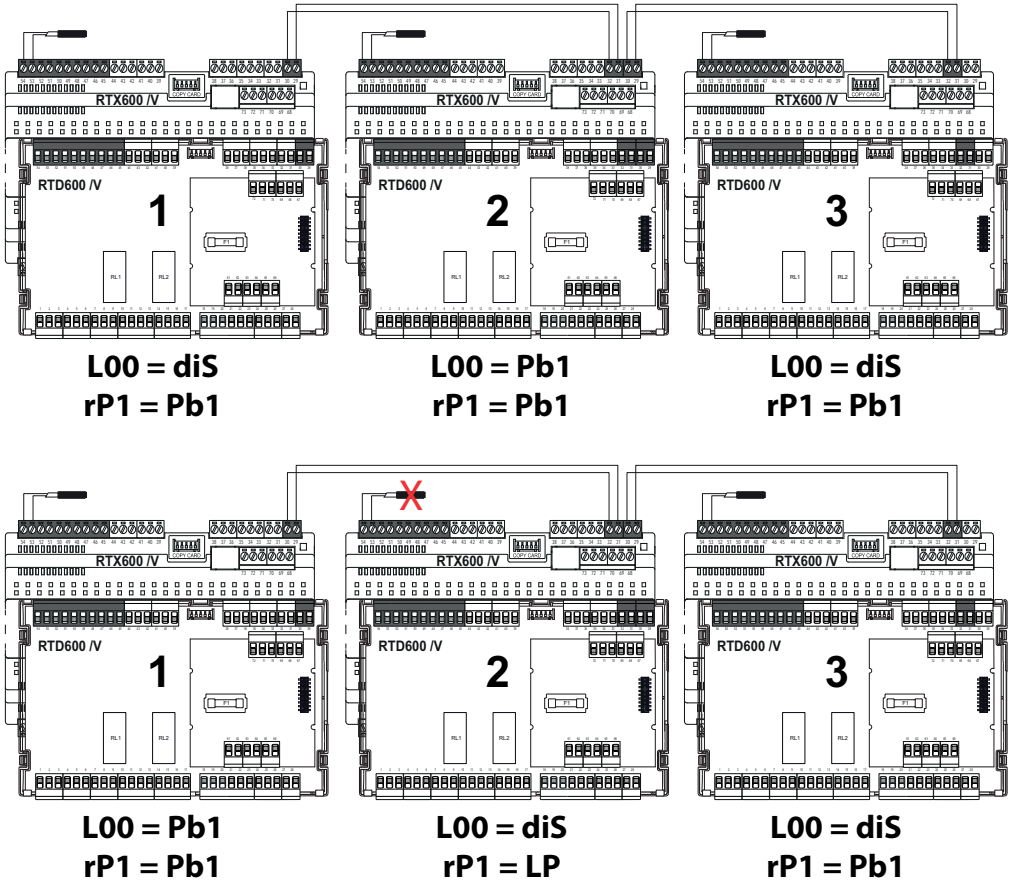
EXAMPLE 1

An example of regulation probe sharing (in the example the probe is connected to device 2)



EXAMPLE 2

One example of sharing may be when a remote cabinet, where every section is equipped with its own regulation probe, one of the regulation probes is not working (in the example the probe on device 2 is the one indicated with a red X). In this case it is possible to control this section via the value read by one of the adjacent sections.
This operation can be done directly from remote:



NOTE: The sharing of the temperature probe is valid not only for regulation but also for other regulators (evaporator fans, heaters, etc.).

8.2.3. Defrost

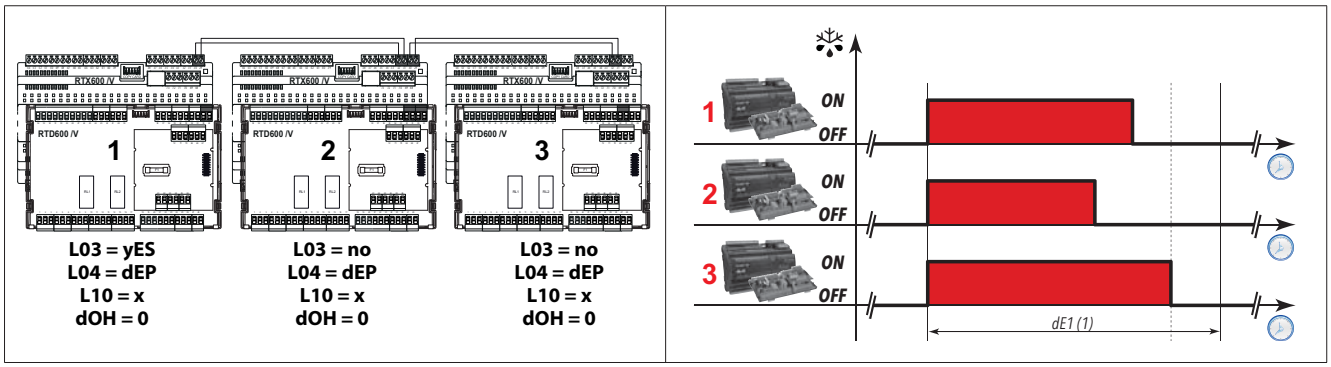
Via the Link² network it is possible to coordinate the defrosts among the various devices in the network.

The coordination is done by setting parameter **L03 = 1** in the device which coordinate the defrost.

Via the parameter it is possible to indicate if, after defrost, the device will wait for all to have finished before re-activating the regulation. In this way a time-out is in any case present (parameter **L10**) which forces the regulation to be reactivated if, within this time, the device which coordinates has not reactivated the regulation (e.g. the line on the Link² network was interrupted during a defrost in progress).

EXAMPLE 1

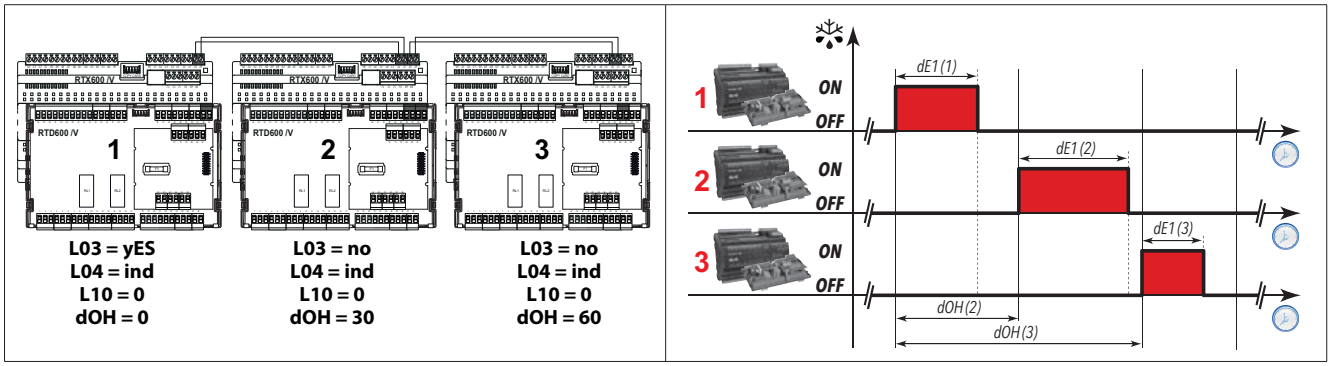
Below it is shown how to configure a simultaneous defrost, with a resource lock.
The coordinating device is device 1. The value **x** for **L10** represents the number of minutes delay set while **dE1**/**dE2** represent the defrost time–out determined by the coordinating device.



NOTE: When the parameter **L04 = dEP**, it is advised to remove all other active defrosts.
In this situation parameter **L10** is used.

EXAMPLE 2

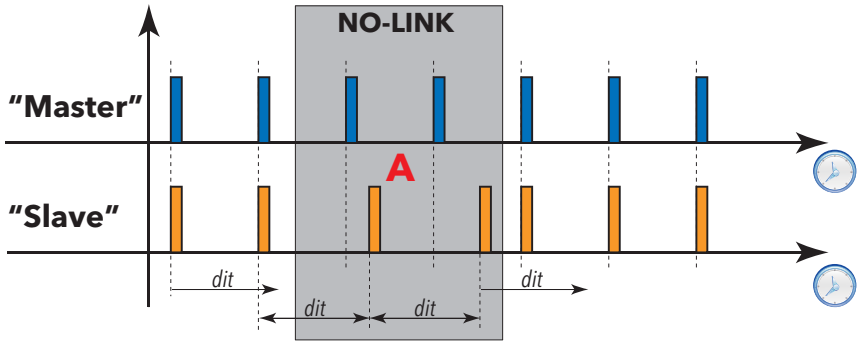
To run a sequential defrost, simply set parameter **dOH** to activate the defrosts sequentially (in the following example a 30 minute time-out after defrost is hypothesised):



NOTE: In this situation parameter **L10** is not used even if its value is **L10 > 0**.

The devices can implement a protection mechanism if the communication via the Link² network, with the device coordinating the defrosts, is dropped.
This is done by setting the local defrost mode at equipment hours, setting the value of parameter **dit** higher than the maximum time interval between two consecutive defrosts which can be sent by the coordinating device.
Each time the device receives a defrost request from the coordinator it resets the timer **dit**.
If the device receives no defrost command, after a time equal to **dit**, a defrost will be activated automatically and the timer **dit** will be reset and will start again from 0.

The example below shows **Master** as the device coordinating the defrosts and **Slave** is one of any of the other devices in the network.
Box "A" identifies the time in which the **Slave** device lost communication with the **Master**.



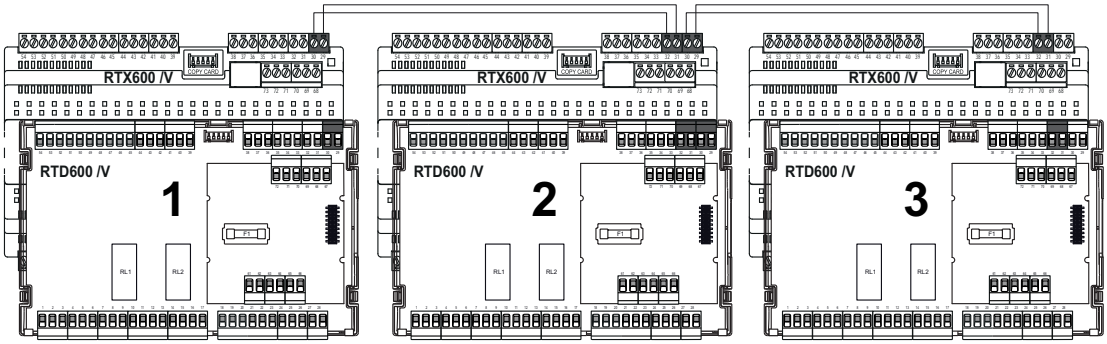
NOTES:
1. To work correctly, set **dit >** maximum interval between 2 subsequent defrosts of the device configured as Master for the defrost.
2. If **dit = 0**, if there is a request from the device configured as Master, the Slaves will defrost while, if the network drops the communication, no defrost will be run.

8.2.4. Shared display

To make certain that all the remote cabinet keyboards display the same value, it is possible to share the display of a given device via the Link[2] network.

EXAMPLE

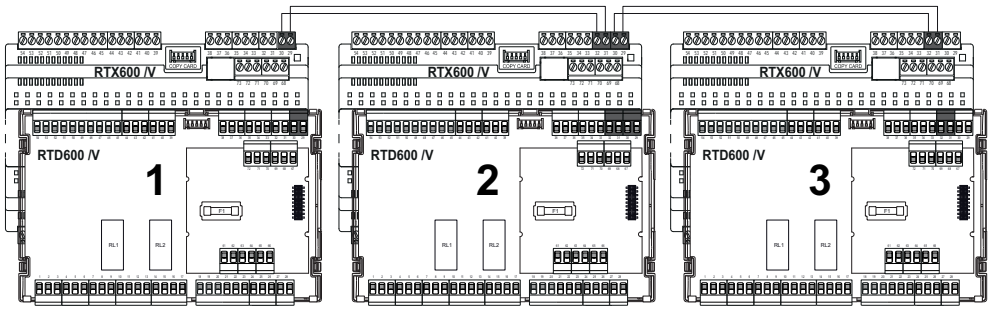
In the following example all the keyboards will display the value of device 2.
Devices 1 and 3 will display the value of the probe mounted on device 2, and which is selected via parameter **ddd**.



NOTE:
1. If device 2 (the one sharing the value with the network) has an active alarm signal on the display (e.g. probe alarm), this is not shared with devices 1 and 3;
2. If device 2 shares the value of a probe not working, the other devices will display the value selected by the local parameter **ddd**.
3. If device 1 and/or device 3 have additional alarm signals (e.g. local probe alarms), these will be displayed locally;
4. If device 1 and/or device 3 don't receive the value of device 2 (no signal in the Link[2]), they will display the value selected by the local parameter **ddd**.

8.2.5. Sharing the setpoint value

Via the Link² network it is possible to share the SPI regulation setpoint among all cards.
If the setpoint is modified on any of the cards in the Link² network, the setpoint of all other cards in the Link² network will automatically be updated.



NOTE: When parameter **L02 = yES**, if the setpoint value of any device is modified, the same value will also be set in all the other devices in the network.
If one of the devices is removed from the network or communication is dropped after a change in the setpoint value, it will continue to use the new set value.

8.2.6. Sharing commands

Via the Link² network it is possible to share the following commands:

- Alarms
- Stand-By;
- Lights;
- AUX;
- Energy saving.

(See parameters **L00** ... **L10** present in folder **Lin**)

User parameters

The parameters that manage this regulator are:

Label	Description
rP1	Sets which is the regulation probe 1 to use.
dit	Interval between the start of two consecutive defrost cycles. 0 = function disabled.
dOH	Defrost cycle enabling delay from request.
L00	Selects which probe to share.
L01	Shares the displayed value with the Link².
L02	Sends the setpoint value to the Link² network when it has been changed.
L03	Enables sending of call for defrost to the Link² network.
L04	End defrost mode.
L05	Enables synchronization of Stand-by command.
L06	Enables synchronization of lights command.
L07	Enables synchronization of Energy Saving command.
L08	Enables synchronization of AUX command.
L09	Enables sharing of saturation (pressure) probe.
L10	Sets the timeout for the end of dependent defrosts.
Adr	Modbus protocol controller address
ddd	Selects the type of value to show in the display.
rbu	Backup saturation probe selection.

8.3. REGULATION

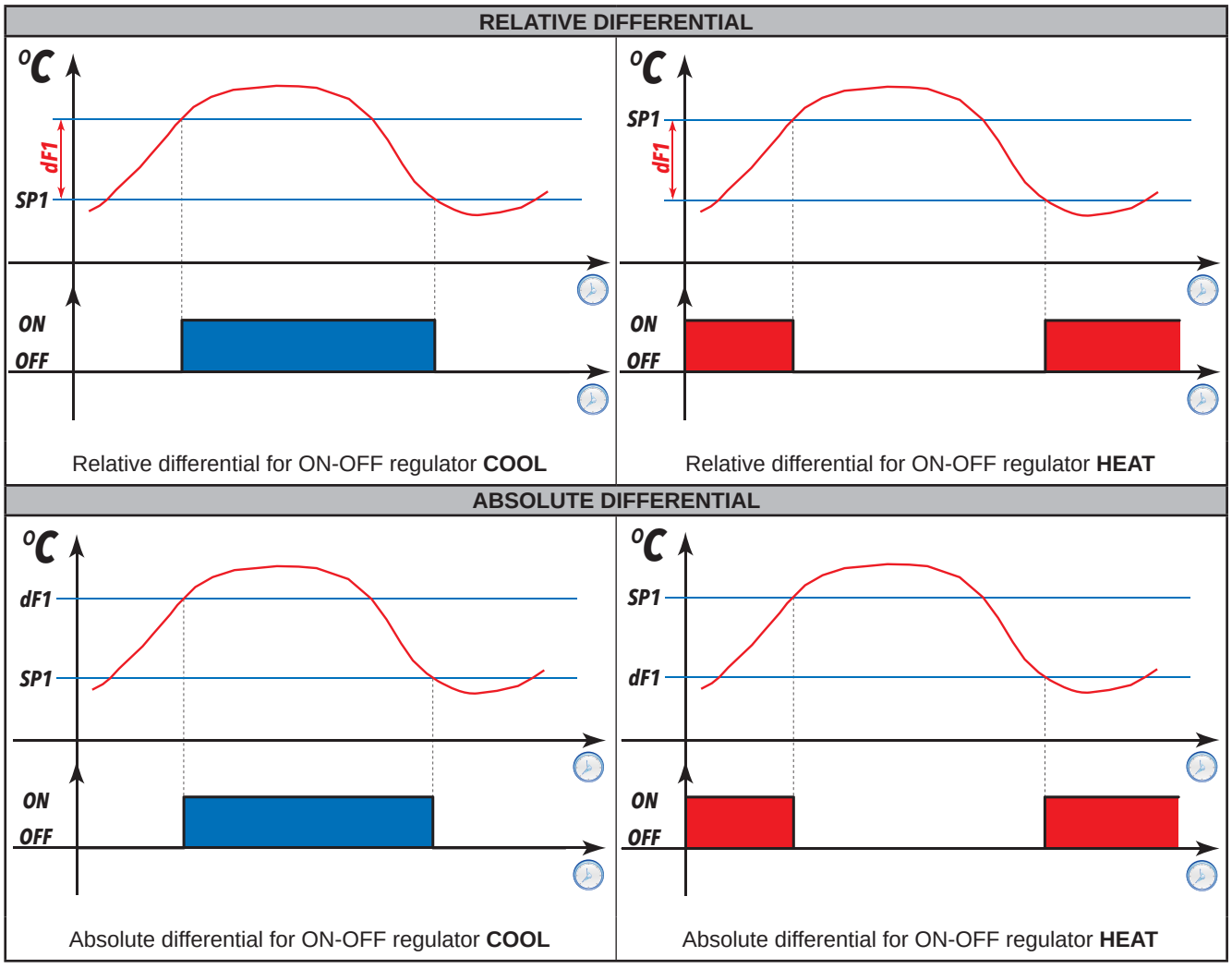
RTX-RTD 600 /V has several different regulation modes:

- Single Thermostat;
- Double Thermostat “in series”;
- Double Thermostat “in parallel”;
- with 2 independent regulators

NOTE:when using “Single Thermostat” mode it is possible to have an auxiliary regulator for each application customised by the user (e.g. light sensor management, etc.)

8.3.1. Single Thermostat Regulation

The “Single Thermostat” regulator is always enabled and can work in hot or cold mode (see **HC1**).
Only in the case of the “Single Thermostat” (**rE = 0**) is it possible to manage the regulation differential in relative or absolute mode:

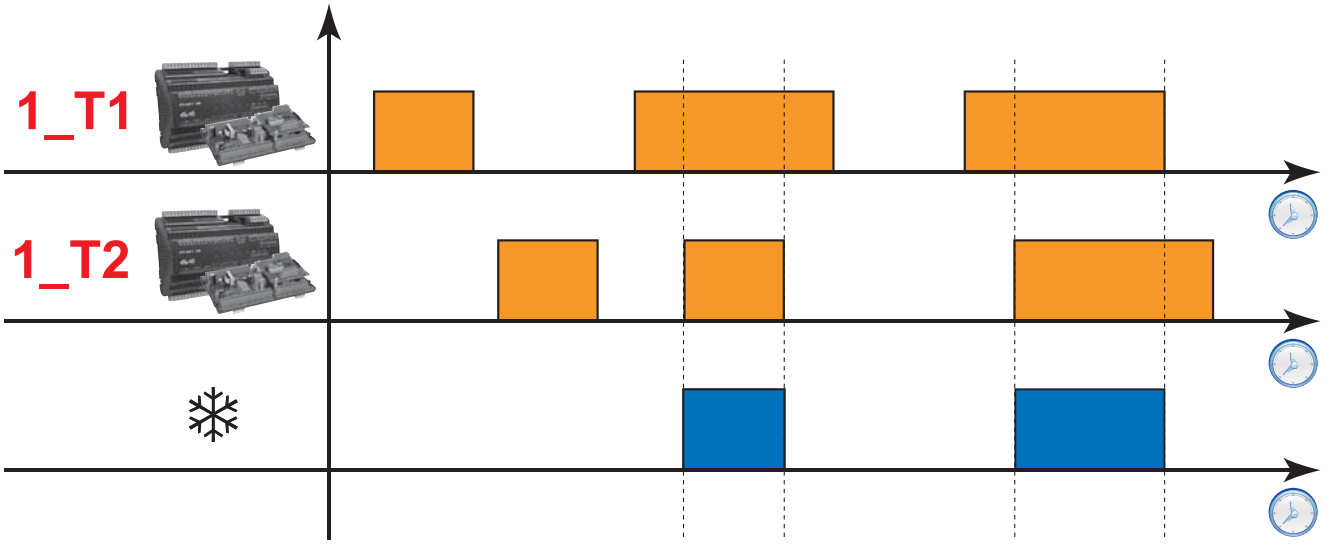


The regulator settings are managed via the following parameters:

- **rP1**: regulation probe 1 settings
- **SP1**: first regulator setpoint / (switch ON) switch off setpoint settings
- **dF1**: first regulator differential / (switch OFF) switch on setpoint settings
- **Stt**: differential mode settings (Absolute or Relative)
- **HC1**: first regulator hot/cold mode settings

8.3.2. Double Thermostat “in series” regulation

This regulator activates cold/hot only if both thermostats have been requested, and disables it when at least one of the two thermostats has been satisfied (cabinet with probe regulation in both inlet and outlet).
If one or both of the thermostats has a probe error, the regulation will use the probe error parameters.
In the following graph, **1_T1** represents the trend of the probe set as thermostat 1 and **1_T2** represents the trend of the probe set as thermostat 2.

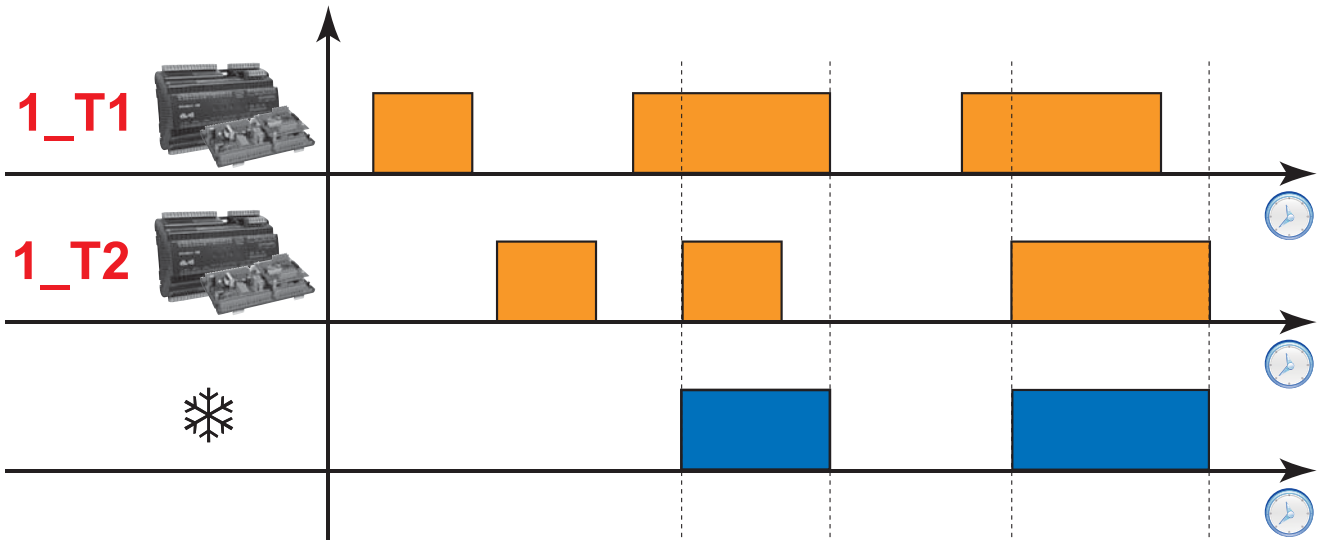


The 2 regulators are set via the following parameters:

- First regulator:
  - **rP1**: regulation probe 1 settings
  - **SP1**: first regulator setpoint settings
  - **dF1**: first regulator differential settings
  - **HC1**: first regulator hot/cold mode settings
- Second regulator:
  - **rP2**: regulation probe 2 settings
  - **SP2**: second regulator setpoint settings
  - **dF2**: second regulator differential settings
  - **HC2**: second regulator hot/cold mode settings

8.3.3. Double Thermostat “in parallel” regulation

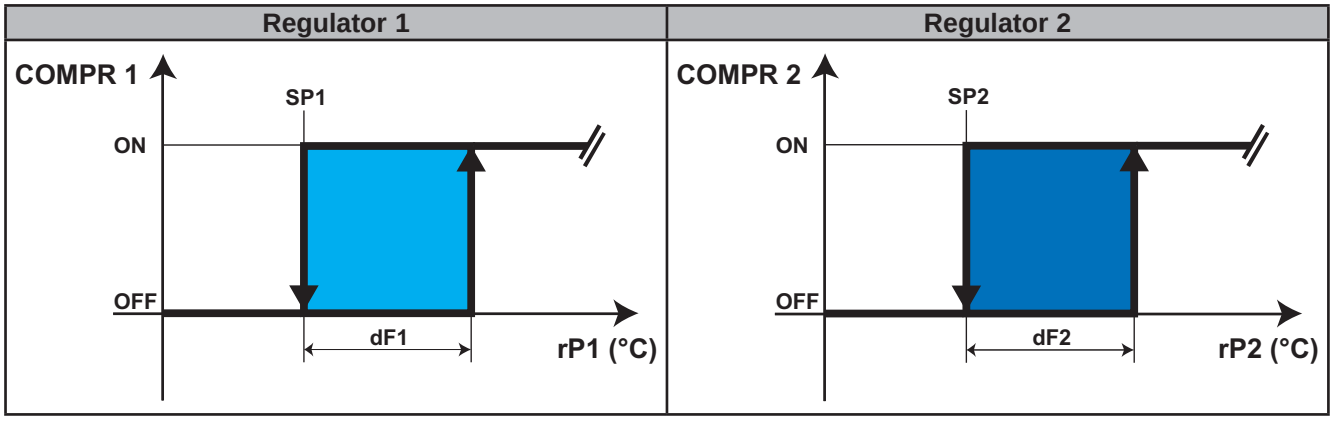
This regulator activates cold/hot only if both thermostats have been requested, and disables it when both thermostats have been satisfied (combined cabinet: island and vertical).
If one or both of the thermostats has a probe error, the regulation will use the probe error parameters.
In the following graph, **1_T1** represents the trend of the probe set as thermostat 1 and **1_T2** represents the trend of the probe set as thermostat 2.



The 2 regulators are set via the following parameters:

- First regulator:
  - **rP1**: regulation probe 1 settings
  - **SP1**: first regulator setpoint settings
  - **dF1**: first regulator differential settings
  - **HC1**: first regulator hot/cold mode settings
- Second regulator:
  - **rP2**: regulation probe 2 settings
  - **SP2**: second regulator setpoint settings
  - **dF2**: second regulator differential settings
  - **HC2**: second regulator hot/cold mode settings

8.3.4. Regulation with 2 independent regulators



The first regulator actuates the output **COMPR 1**, which depends on the values and parameters indicated in the diagram, as well as the compressor safety timing.

The second regulator actuates the output **COMPR 2**, which is not necessarily a compressor, but a generic auxiliary output, which is not dependent on the timing described in parameters **Cit**, **CAt**, **dOn**, **dOF**, **dbi**.

The second regulator:
- may work in both HEAT and COOL modes;
- has its own setpoint (**SP2**) and differential (**dF2**);
- has no safety timing, with the exception of **OdO**;
- in the event of a probe error, the output will always be in OFF.

This regulator is independent from other regulations, with the exception of stand-by, in which the output is placed in OFF. It may be used, for example, to manage the lights depending on a light sensor connected to one of the 5 analogue inputs **Pb1**…**Pb5**

NOTE: in this case set the setpoint **SP2** and the differential **dF2** according to the transcoding tables associated to the compatible sensors. Contact Eliwell for the choice of sensor.

The 2 regulators are set via the following parameters:

- First regulator:
  - **COMPR 1**: (**Compressor**; H21...H27 = 1) output trend for first regulator
  - **rP1**: regulation probe 1 settings
  - **SP1**: first regulator setpoint settings
  - **dF1**: first regulator differential settings
  - **HC1**: first regulator hot/cold mode settings
- Second regulator:
  - **COMPR 2**: (**AUX**; H21...H27 = 5) output trend for second regulator
  - **rP2**: regulation probe 2 settings
  - **SP2**: second regulator setpoint settings
  - **dF2**: second regulator differential settings
  - **HC2**: second regulator hot/cold mode settings

8.3.5. Continuous Modulation Regulation

Continuous Modulation regulation is enabled via parameter **rE** (**rE** = 5).
The function comes on when the cabinet reaches the temperature set in parameter **SP1**, or in the case of energy saving, by the sum of parameters **SP1+OS1**.
When the function is activated, the device controls the valve opening to maintain the cabinet temperature constant and keep the overheating above the value set in parameter **OLt**.
This function prevents drastic variations in the cabinet temperature, so a higher saturation temperature can be set on the compressors, increasing system efficiency.

8.3.6. Regulation in the event of a probe error

If there is a probe error on the first regulator, and/or the second regulator in the case of a double thermostat, the output is managed according to the parameters **Ont** and **OFt**.

8.3.7. Energy Saving

The Energy Saving mode can be activated in one of the following ways:

- from digital input (where appropriately configured);
- from a key (where appropriately configured);
- remotely (directly from the supervision system);
- from an RTC (where appropriately configured);
- from Link[2]

During these modes, in addition to the regulation setpoints **SP1** and **SP2**, will be offsets **OS1** and **OS2**.
If the second regulator is active, the offset will also be added to this.

NOTE: if you don't want the Offset to be added to the second regulator too, set **OS2** = 0.

During this mode, the value of the differential worked on will also be changed, **dF1** will be replaced by **dn1** and **dF2** by **dn2**. If the second regulator is active, the differential will also be added to this.

NOTE: if you don't want to change the value of the differential during Energy Saving mode, set **dn1** = **dF1** and **dn2** = **dF2**.

8.3.8. Dynamic setpoint

If a dynamic setpoint is active (and which is in any case disabled during Energy Saving mode), it is possible to increase or decrease the setpoint of value **Od1** (for setpoint 1) and **Od2** (for setpoint 2) when the door stays closed for a given time (defined by parameter **Cdt**).
As soon as the door is open for a time defined in **ESo** in an hour (not necessarily continuous but cumulative) it returns to the normal setpoint value.
Via parameter **ESo** you can set the disabling "threshold":

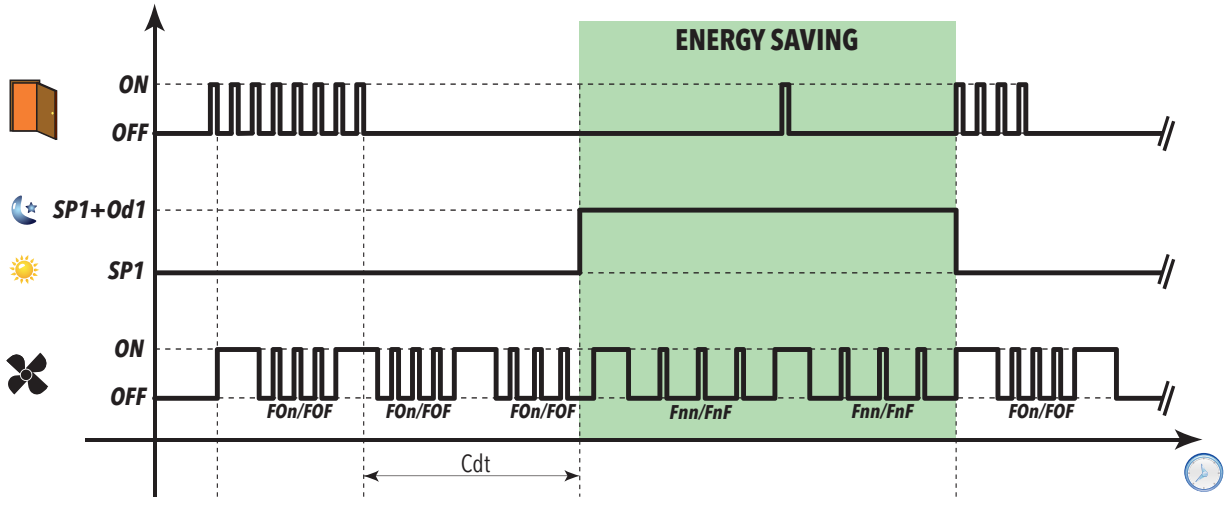
- **ESo** = 0: high use before disabling
- **ESo** = 10: low use before disabling

The function is active if parameter **Cdt** ≠ 0 and if a DI is configured as a door switch.
If the auxiliary regulator is active, the offset will also be added to this.

NOTE: if you don't want the Offset to be added to the second regulator too, set **Od2** = 0.

The graph below shows the algorithm operation. The settings are:

- **ESt** = 2
- **H11** = 8
- **ESF** = yES (enabled if the "Energy Saving" mode is active).



8.3.9. Remote Offset (managed only by the Supervisor)

Via the serial commands it is possible to increase/decrease the current quantity regulation setpoint value **OF1** (added to setpoint **SP1** and any offset **OS1** or **Od1**).

NOTE: This increase/decrease is valid only for the first setpoint (**SP1**).

This function is typically used for systems with hot gas defrost, which requires a certain number of cabinets in cooling, to make certain there is enough hot gas to tun the most efficient defrost.

User parameters

The parameters that manage this regulator are:

Label	Description
rE	Sets the type of control to be used.
SP1	Temperature control SEtpoint regulator 1.
dF1	Activation differential (absolute or relative) regulator 1.
SP2	Temperature control SEtpoint regulator 2.
dF2	Activation differential of the second thermostat (absolute or relative) regulator 2.
HC1	Hot/Cold mode regulator 1.
HC2	Hot/Cold mode regulator 2.
Ont	Controller switch-on time in the event of probe in error.
OFt	Controller switch-off time in the event of probe in error.
dOn	Compressor output activation delay from request.
dOF	Compressor output activation delay from shutdown.
dbi	Delay between two consecutive starts of the compressor output.
OdO	Delay in activating outputs after the device is switched on or after a power outage.
Cdt	Door close time.
ESo	Cumulative door open time that will disable Energy Saving mode.
OS1	Setpoint offset regulator 1.
OS2	Setpoint offset regulator 2.
Od1	Energy Saving Offset glass door display cabinets regulator 1.
Od2	Energy Saving Offset glass door display cabinets regulator 2.
dn1	Activation differential regulator 1 in energy saving mode.
dn2	Activation differential regulator 2 in energy saving mode.

8.4. COMPRESSOR/GENERAL PROTECTIONS

Description

If the cold room probe is in error E1 the output relay configured as compressor/general regulates in accordance with the times set in parameters **Ont** and **Oft**.
The first time to consider is **Ont**.
If **Ont** > 0 the protection programmed with parameters **dOn**, **dOF** and **dbi** must be respected (see Safety Compressor timers).

NOTE: The parameter **OdO** inhibits the activation of all outputs commanding a relay for its entire duration (compressor/general, defrost, fans etc.), excluding buzzers or alarm relays.

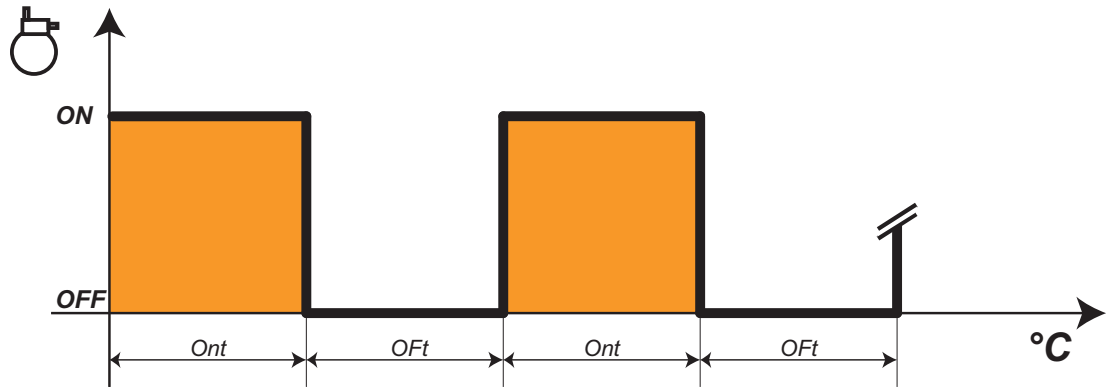
Operating conditions

The table below lists the ways the compressor relay output can be managed:

Ont	OFt	Compressor OUT
0	**0**	OFF
0	**>0**	OFF
>0	**0**	ON
>0	**>0**	DUTY CYCLE

If **Ont** > 0 and **OFt** = 0, the compressor regulator will remain on.
If **Ont** > 0 and **OFt** > 0: the compressor regulator activates in operating cycle mode irrespective of the values read by the probes (cabinet probe inoperable) and of requests from other utilities (**Duty Cycle**).

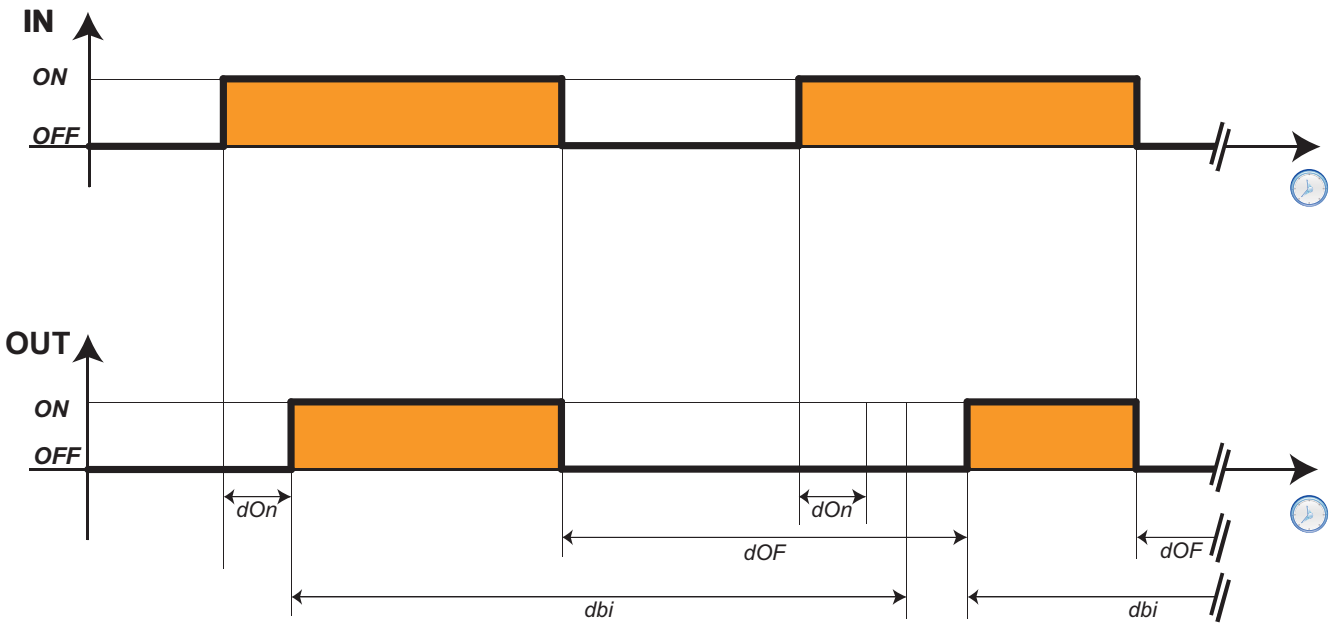
If the cold room probe is working properly, the Duty Cycle mode does **NOT** activate as it does not have priority over normal compressor regulator settings.
The following diagram shows the **Duty Cycle** operating mode based on parameters **Ont** and **OFt > 0**:



8.4.1. Compressor protection timers

Compressor on-off operations must respect the safety times that you can set using the special parameters as described below. The compressor LED will flash to indicate when an activate compressor request has been received but a safety protection exists.
A safety time (compressor On... Off safety time) regulated by the parameter **dOF** must be respected between a switch-off and switch-on of the same compressor.
This waiting time also occurs at switch-on of the device.
A safety time regulated by the parameter **dbi** must be respected between one switch-on and the next.
The safety time set in parameter **dOn** must elapse between a start-up request and actual start-up. Times set with parameters **dOn**, **dOF** and **dbi**, if active, are not accumulative but parallel.
The following diagram illustrates the operation of the compressor protection with parameters **dOn**, **dOF**, **dbi** set:

IN	Input status for compressor regulator.
OUT	Output status for compressor regulator.



NOTE: See the section entitled Compressor Function During Defrost for other protections and compressor timings.

User parameters

The parameters that manage this regulator are:

Label	Description
Ont	Compressor output ON time in the event of a Pb1 probe in error.
OFt	Compressor output OFF time in the event of a Pb1 probe in error.
dOn	Compressor output activation delay from request.
dOF	Compressor output activation delay from shutdown.
dbi	Delay between two consecutive starts of the compressor output.
OdO	Output activation delay from power-on.

8.5. DEFROST/DRIPPING

8.5.1. Enable defrost

Defrost is used to stop ice from forming on the surface of the evaporator.
Its **activation** can be:

- automatic, in one of the following modes selected via **dCt**:
  - compressor hours (Digifrost);
  - appliance hours;
  - compressor stopped;
  - via clock (see corresponding paragraph under RTC);
  - from probe (not applicable in systems with double evaporator).
- via LINK[2];
- via DI;
- from key;
- from remote.

The **type** of defrost can be selected via the parameter **dtY** and can be:

1. defrost with electric heaters;
2. defrost with electric heaters: Smart Defrost;
3. inverse;
4. hot gas for plug-in;
5. hot gas for cabinets with remote control.

Dripping

On completion of defrost, given that there will be water on the evaporator, it is better not to start “cooling” right away as this would ruin the effect of the defrost by creating ice immediately. The dripping interval is regulated via parameter **dt**.

Defrost conditions and operation

Defrosting is enabled if:

- the evaporator temperature, read by probe 2, is lower than the defrost end setpoint configured via parameter **dSt**.
- manual defrosting has not already been activated, in which case the request for automatic defrost will be cancelled.

Defrost requests can be made in the following ways:

Controller power-on	If parameter **dPO** (defrost at power-on) is programmed accordingly.
Time intervals	If **di**t > 0 whenever the defrost time interval set in parameter **dit** elapses.
Manually (via key)	by pressing the ⌃ key if enabled (H31 = 1). The cycle will not start if **OdO** ≠ 0, the request will be refused and the display will flash three times to indicate that defrost is impossible.
External request via DI	If DI appropriately configured. Activation from DI respects the protections of the automatic cycle. The cycle will not start if **OdO** ≠ 0, the request will be refused and the display will flash three times to indicate that defrost is impossible.

8.5.2. Automatic defrosting

The defrost cycle is programmed to start at intervals.

NOTE: To disable the automatic cycle, set **dit**=0.

If **dit>0**, then defrost cycles will be run at fixed intervals, as indicated in parameter **dit**, and the interval time is counted as follows:

Par.	Value	M.U.	Description	Notes
dCt	0	num	Defrosting disabled	-
	1	num	Compressor running hours --- DIGIFROST® method	In this case, the counter runs only if the compressor is on. A new count starts when the defrost interval elapses and a new defrost cycle starts if conditions permit. **NOTE**: compressor running time is counted separately from the evaporator temperature. If the evaporator probe were missing or inoperable, the count would still be active for the period of activity of the compressor.
	2	num	Controller running time	The defrosting interval is counted continuously when the device is on and starts at each power-on. A defrost cycle starts when the defrosting interval elapses (indicated by dit) if conditions permit and the controller immediately starts counting a new defrosting interval.
	3	num	Compressor stop	Each time the compressor stops, a defrost cycle is run according to the mode set in parameter dty.
	4	num	RTC (clock)	The clock can be used to set: • defrost times (**6** bands for weekdays and 6 bands for weekends), • regular defrosts (every **n** days) • daily events (**1** event for weekdays and **1** event for weekends) Time band defrosts and periodic defrost are mutually exclusive functions (they cannot be activated simultaneously). If defrost by RTC has been enabled and the clock is inoperable, the defrost will run according to the mode set in **dit** (provided **dit** ≠ 0).
	5	num	Temperature	The defrost is activated when the evaporator temperature falls below threshold **dSS**. If probe dP1 is inoperable, the defrost is activated according to the interval **dit**.

NOTE: regardless of how the interval is counted, the following conditions apply:

If parameter **OdO** is underway or the temperature read by the evaporator probe is higher than **dS1**, then defrost will not be permitted: a new interval will be counted and only at the end of this subsequent count will conditions be tested for the start of a defrost cycle.

MANUAL DEFROST

Press the manual defrost key  (or from Digital Input if appropriately configured **H11...H18** = 1), the appliance enters defrost.

Procedures for the activation of this defrost cycle are the same as for external defrost.

The defrosting interval will now be counted as described for Automatic Defrost (time **dE1** is not cleared, it continues).

If the conditions for defrost activation are not present, i.e.:

- the time set in parameter **OdO** has not elapsed
- the evaporator temperature is higher than the value set in parameter **dS1**

this will be signalled on the display (screen flashes three times) and defrost will stop.

Manual defrost is always enabled except when **dit** = 0.

8.5.3. External defrost

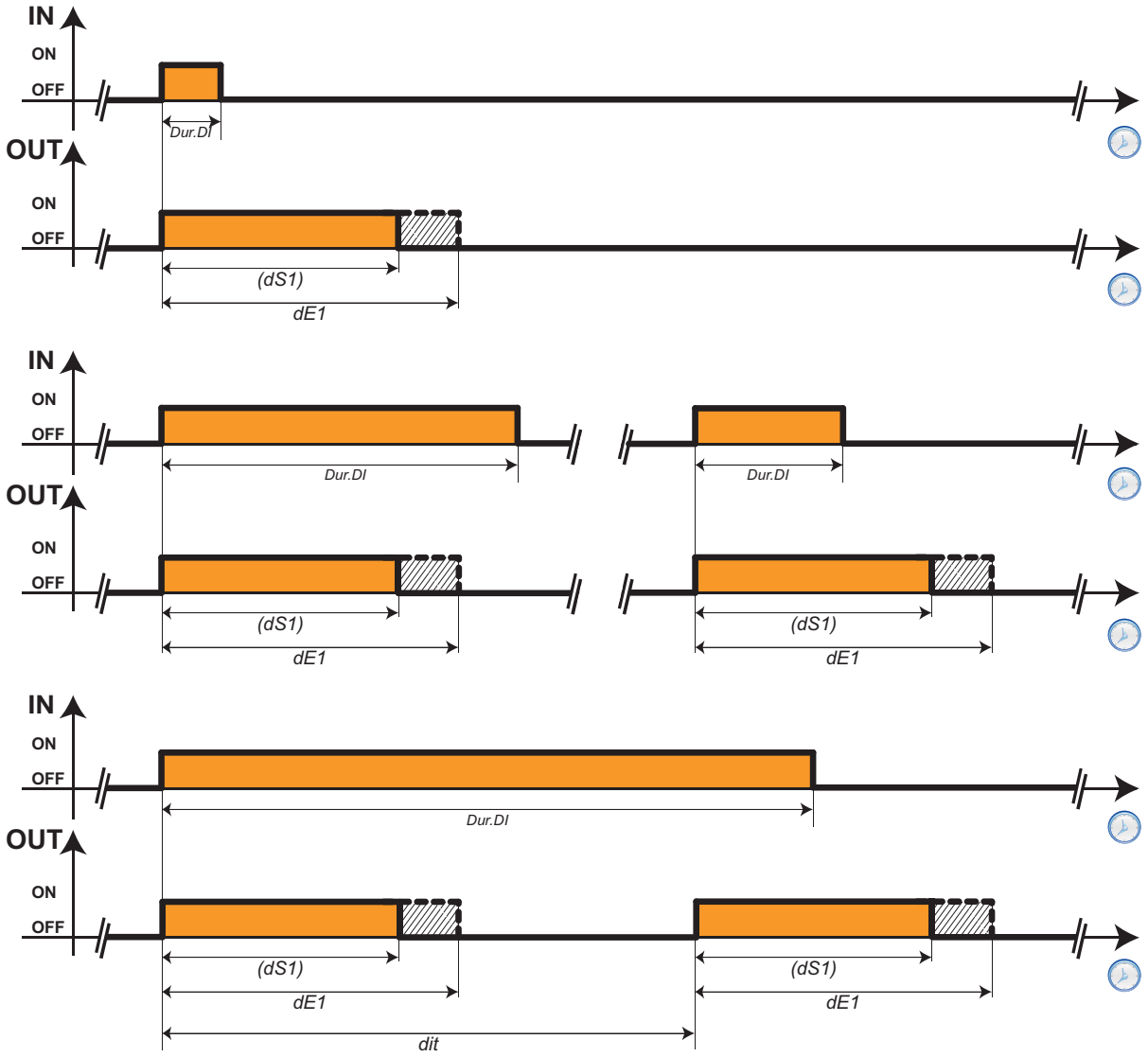
If the Digital Input is configured for this function (if **H11...H18** = 1) and if conditions permit, defrost can be requested and the relative regulator activated.
Time graphs for signals in each of the various function modes are presented below.

NOTE: Defrost activation occurs when the signal is toggled and the polarity can be selected.
Hence you can only activate a defrost, NOT stop one that is underway.
Defrost or dripping currently underway and the defrost or dripping interval count cannot be suspended.

IN (Digital Input)	Input status for defrost regulator, with activation from Digital Input.
OUT (Defrost)	Output status for defrost regulator.
DurDI	Digital Input duration.

NOTE: dS1 indicates end defrost time when Setpoint temperature reached and **dEt** indicates end of defrost due to timeout.

The control diagram is as follows:



8.5.4. Defrost mode

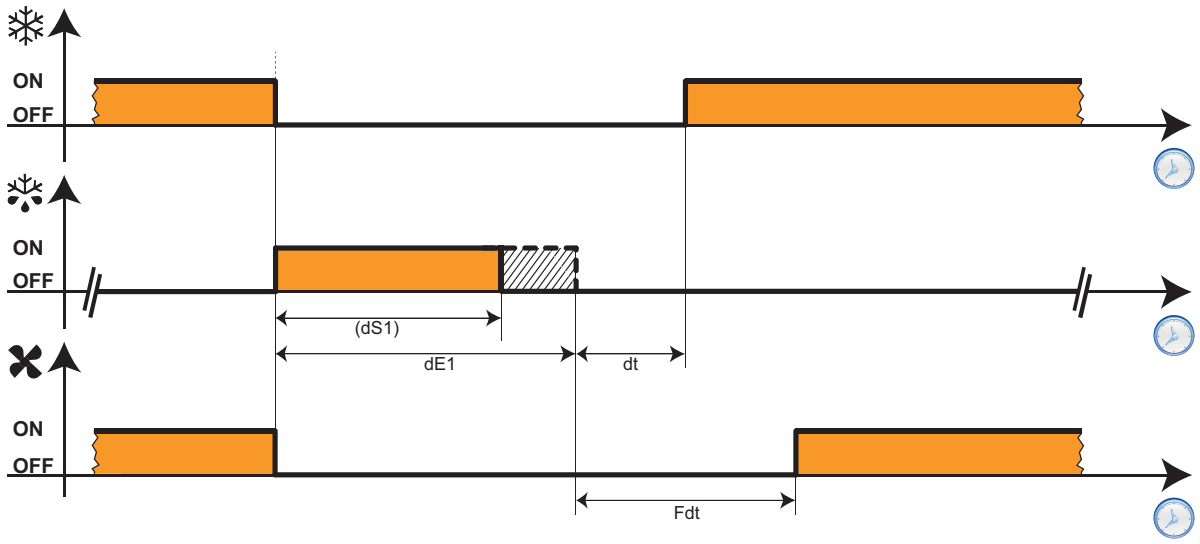
Defrost with electric heaters

Defrost with electrical heaters is configured by setting **dtY = 0**.
It is used in "**LOW TEMPERATURE**" applications.
The compressor remains stopped for the duration of the defrost cycle and the relay configured as defrost regulator output, to which the electrical heaters are connected, activates.
On completion of defrost, the electrical heaters are switched off and the compressor remains off for the dripping time set in parameter **dt**, if it is not equal to zero.
Defrost ends due to:

Evaporator probe (dP1)	End of defrost description
dP1 ABSENT	Due to timeout set in parameter **dE1** (defrost timeout).
dP1 PRESENT	Temperature setpoint for the end of defrost set in parameter **dS1** reached. If this setpoint is not reached within the time set in parameter **dE1** (defrost timeout), the defrost will end due to timeout.

NOTES:
- If **dS1** intervenes before **dE1**, dripping (**dt** and **Fdt**) aligns with **dS1**.
- If **Fdt** < **dt** then **Fdt** = **dt**.
- During defrost, fans are OFF if parameter **dFd** is set accordingly, otherwise they will behave as set for the fan regulator.

The operating diagram is as follows:



Legend:

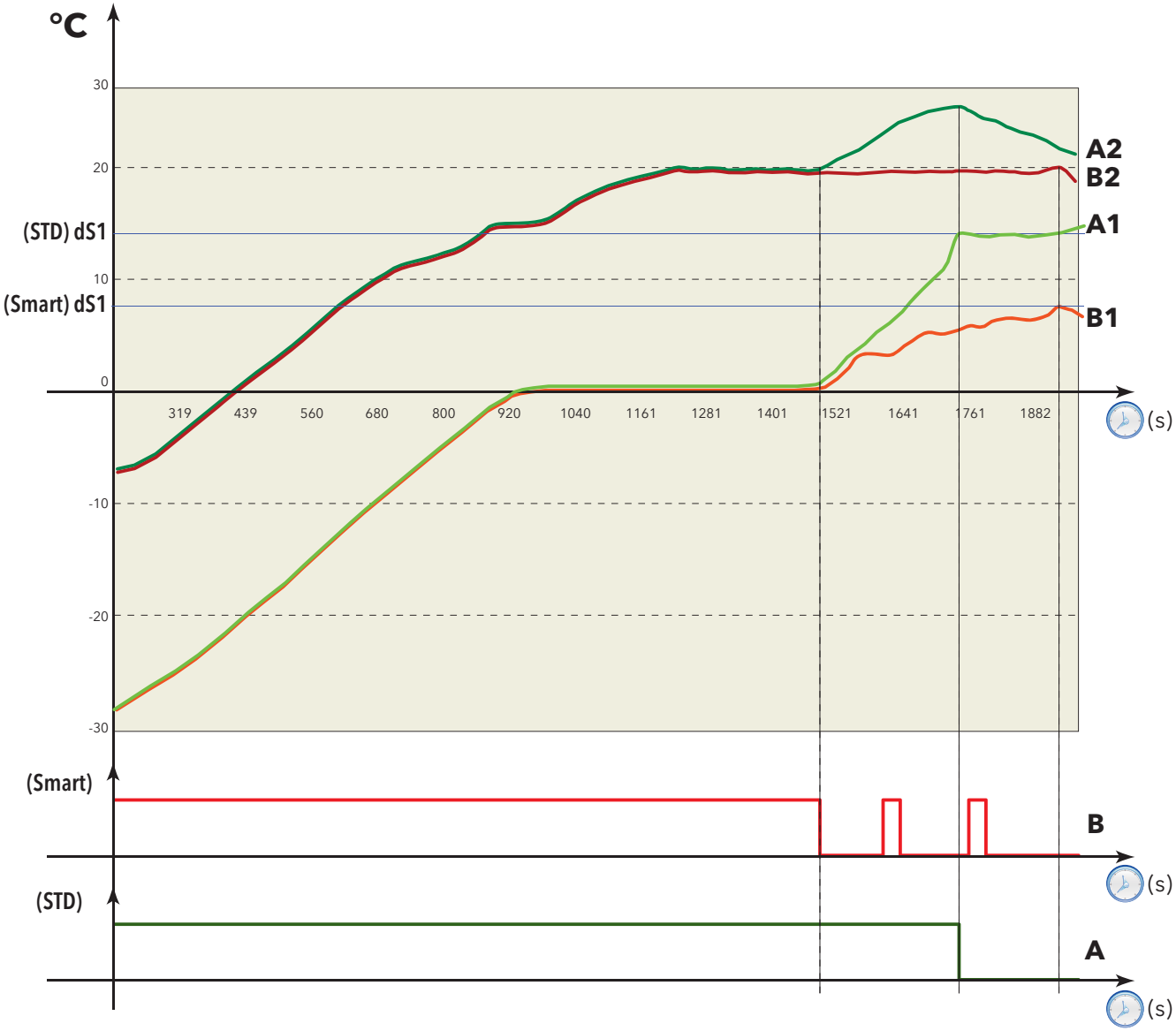
❄	Output status for Compressor regulator
❄	Output status for Defrost regulator
✣	Output status for Evaporator Fan regulator

Defrost with electric heaters: Smart Defrost

This algorithm is used to optimise the defrost via the use of the heaters.

Via this algorithm it is possible to reduce the defrost end setpoint, compared to standard mode, as the controller, appropriately modulating the heaters, is able to detect when all the ice has been melted and it is therefore possible to end the defrost (before time-out **dE1**).

NOTES: • This algorithm is valid for both single and double evaporators.
• The function is active if **dty = 4** and ends in time (**dE1**) or for temperature (**dS1**).



The meaning of the letters in the graph is described in the following table:

Legend	Curve Description
A	“Standard Defrost” Relay Activation
A1	“Standard Defrost” Evaporator Temperature
A2	“Standard Defrost” Cabinet Temperature
B	“Smart Defrost” Relay Activation
B1	“Smart Defrost” Evaporator Temperature
B2	“Smart Defrost” Cabinet Temperature

The configuration of this mode is similar to that for conventional defrost.
Set the same time-out, while the defrost end setpoint can be reduced.

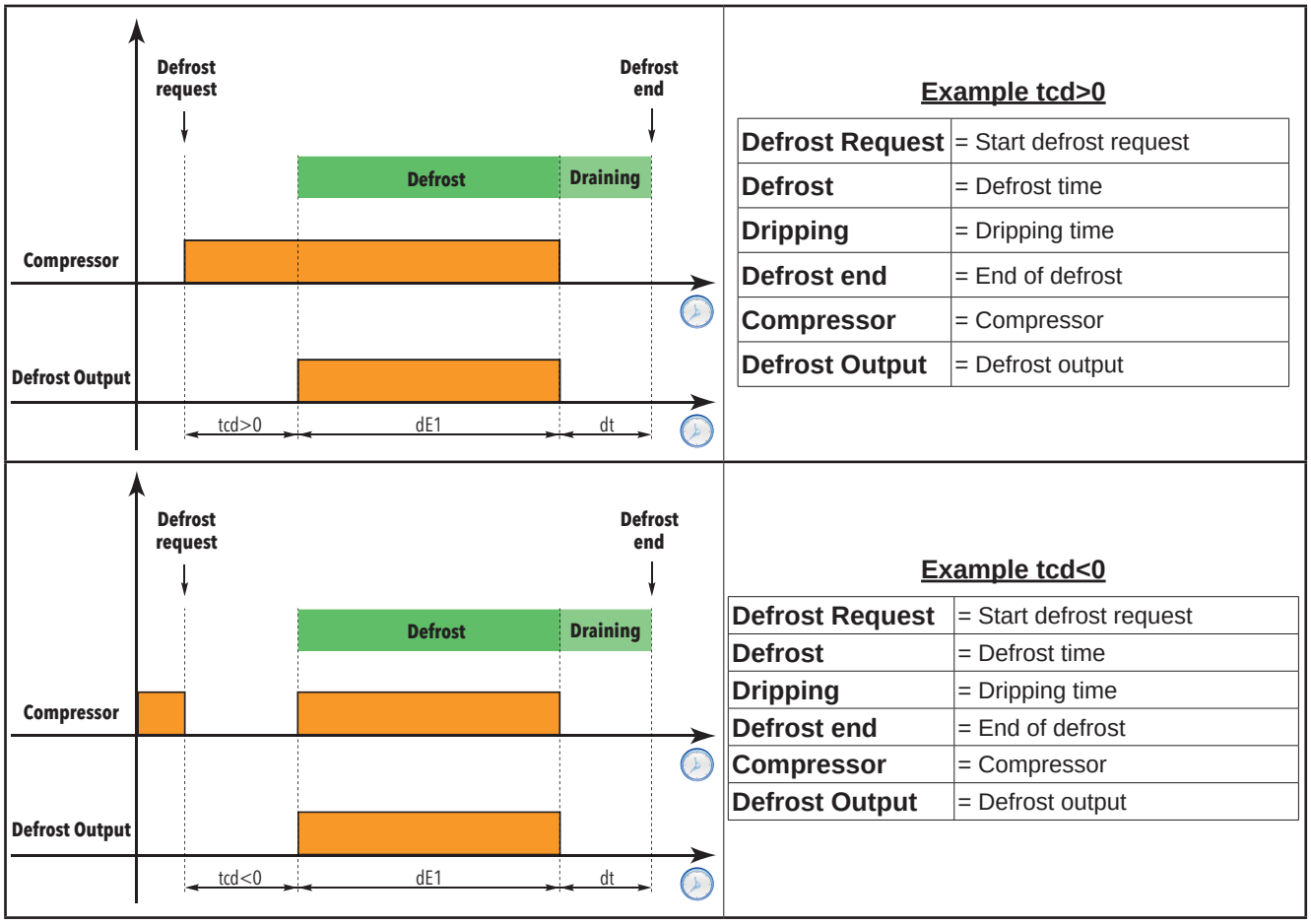
Inverse defrost

Hot gas defrost is configured by setting parameter **dtY = 1**.
It is used in "**LOW TEMPERATURE**" applications.
The compressor stays on for the entire duration of the defrost cycle and the relay configured as defrost regulator output, and that the solenoid valve is connected to, activates.
On completion of the defrost cycle, the solenoid valve relay is de-energised and the dripping phase set in parameter **dt** (if not equal to zero) is interrupted. The compressor relay is once again controlled by the compressor regulator. Defrost ends due to:

Evaporator probe (dP1)	End of defrost description
dP1 ABSENT	Due to timeout set in parameter **dE1** (defrost timeout).
dP1 PRESENT	Temperature setpoint for the end of defrost set in parameter **dS1** reached. If this setpoint is not reached within the time set in parameter **dE1** (defrost timeout), the defrost will end due to timeout.

NOTES:
- parameters **dOn**, **dOF** and **dbi** still have priority.
- If **dS1** intervenes before **dE1**, dripping (**dt** and **Fdt**) aligns with **dS1**.
- If **Fdt** < **dt** then **Fdt** = **dt**.
- During defrost, fans are OFF if parameter **dFd** is set accordingly, otherwise they will behave as set for the fan regulator.

The operating diagram is as follows:



Example tcd>0

Defrost Request	= Start defrost request
Defrost	= Defrost time
Dripping	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Defrost Output	= Defrost output

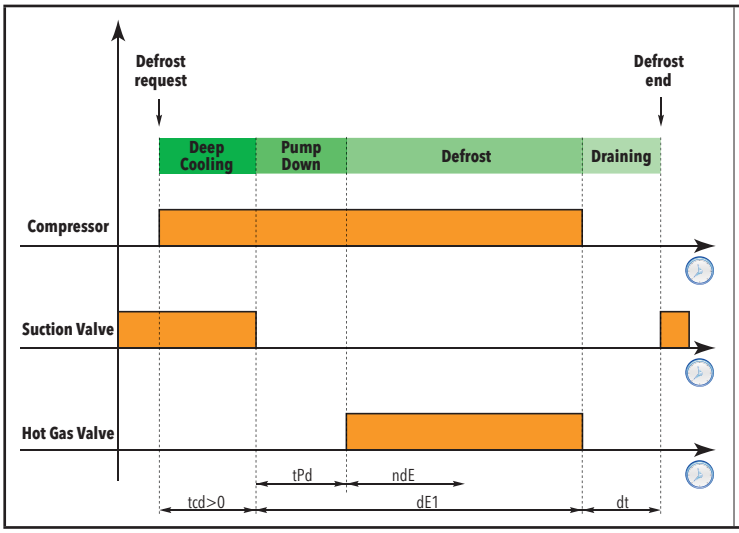
Example tcd<0

Defrost Request	= Start defrost request
Defrost	= Defrost time
Dripping	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Defrost Output	= Defrost output

Hot gas defrost for plug-in systems

Hot gas defrost for **PLUG-IN** systems differs from cycle inversion defrost because as the refrigerant needed to be sufficiently heated before starting the defrost.
The defrost cycle consists of the following phases (or a subgroup thereof):

- **Deep-cooling**: gas heating and accumulation of cold in the cabinet for time **tdC** > 0
- **Pump-down**: cold gas evacuation from the evaporator, for time **tPd** > 0;
- **Defrost**: hot gas injection for time between **ndE** and **dE1**;
- **Dripping**: completion of water “evacuation” from the evaporator (for time **dt**).



Example: dty=2; tcd>0 and PdC=0

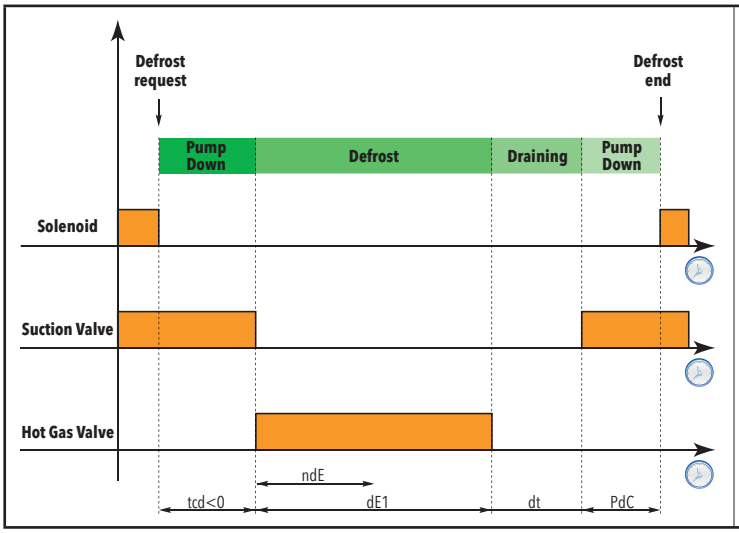
Defrost Request	= Start defrost request
Deep Cooling	= Deep Cooling Period
Pump Down	= Pump Down Period
Defrost	= Defrost time
Dripping	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Suction Valve	= Suction Valve output
Hot Gas Valve	= Hot Gas Valve output

During the whole defrost phase: • (if present and enabled) the EEV valve output is off (OFF).
• The fans are off (OFF).

Hot gas defrost for systems with remote control

The hot gas defrost, in systems with **REMOTE CONTROL**, requires the following phases (or a subgroup thereof):

- **Pump-down**: cold gas evacuation from the evaporator (parameter tdC < 0);
- **Defrost**: hot gas injection (duration between ndE and dE1);
- **Dripping**: completion of water “evacuation” from the evaporator (for time dt);
- **Pump-down**: cold gas evacuation from the evaporator, for time PdC;
- **Regulation**: if required the EEV valve is reactivated.



Example: dty=3; tcd<0 and PdC≠0

Defrost Request	= Start defrost request
Pump Down	= Pump Down Period
Defrost	= Defrost time
Dripping	= Dripping time
Pump Down	= Pump Down Period
Defrost end	= End of defrost
Solenoid	= Solenoid
Suction Valve	= Suction Valve output
Hot Gas Valve	= Hot Gas Valve output

During the whole defrost phase: • (if present and enabled) the EEV valve output is off (OFF).
• The fans are off (OFF).

Double evaporator defrost

In applications with double evaporator, it is possible to optimise the defrost using a probe, and an output, for every single evaporator, to optimise the heat phase, of every single evaporator, according to actual needs.

NOTES: 1) This mode is active if at least two outputs are configured as defrost (evap.1 and evap.2);
2) Every evaporator has its own defrost end set and time-out.

The decision if there are the conditions for defrosting (temperature below the threshold), as there are two sensors (one for each evaporator) can be made in one of the following ways:

- **dFt = 0**: checking that only the defrost probe of evaporator 1 (**dP1**) is below the threshold **dS1**;
- **dFt = 1**: at least one evaporator has the conditions for defrosting.
  Defrost probe evaporator 1 (**dP1**) is below the threshold **dS1** and/or the defrost probe evaporator 2 (**dP2**) is below the threshold **dS2**;
- **dFt = 2**: both evaporators have the conditions for defrosting.
  Defrost probe evaporator 1 (**dP1**) is below the threshold **dS1** and the defrost probe evaporator 2 (**dP2**) is below the threshold **dS2**.

The defrost for every single evaporator ends when the following conditions have been met:

- the **dE1**/**dE2** timeout period has begun
- the **dS1**/**dS2** temperature has been reached

NOTE: The dripping counter starts when both evaporators have finished defrosting.

NOTE: It is also possible to use the control via two sensors with only one defrost output.
EXAMPLE: double evaporator, each with its own probe, but common defrost, or only one evaporator with two sensors (fixed in two different positions).

User parameters

The parameters that manage this regulator are:

Label	Description
dty	Selects defrost type
dit	Time interval between 2 consecutive defrost cycles
dCt	Selects the count mode for the defrost interval
dOH	Defrost cycle activation delay after request
dE1	Defrost timeout, evaporator 1. Determines the maximum defrost duration
dE2	Defrost timeout evaporator 2. Determines the maximum defrost duration
dS1	Defrost 1 end temperature - determined by evaporator probe 1
dS2	Defrost 2 end temperature - determined by evaporator probe 2
dSS	Start defrost temperature threshold (only if dCt = 5 - temperature)
dPO	Determines whether or not the device defrost at power-up
Fdt	Fan activation delay after a defrost cycle
dt	Dripping time
dFd	Used to exclude the evaporator fans to be selected or not selected during defrosting.
dAO	Temperature alarm disabling time after defrost cycle
dAt	Alarm signalling end of defrost due to timeout
ddL	Display mode during defrost cycle (lock display)
Ldd	Timeout value for display unlock - label dEF

8.6. EVAPORATOR FANS

8.6.1. Operating conditions

The regulator is active when:

- time set in parameter **OdO** has elapsed.
- the evaporator probe temperature is lower than the value of parameter **FSt**.
- during defrost it is not excluded by the parameter **dFd** (**dFd = On**).
- dripping is not active (**dt**).
- the fan delay is not active after defrost (**Fdt**).

The request to switch fans on or off can be made in the following ways:

- by the compressor regulator to help in the “cooling” process (temperature control mode).
- by the defrost regulator to check and/or limit the diffusion of hot air.

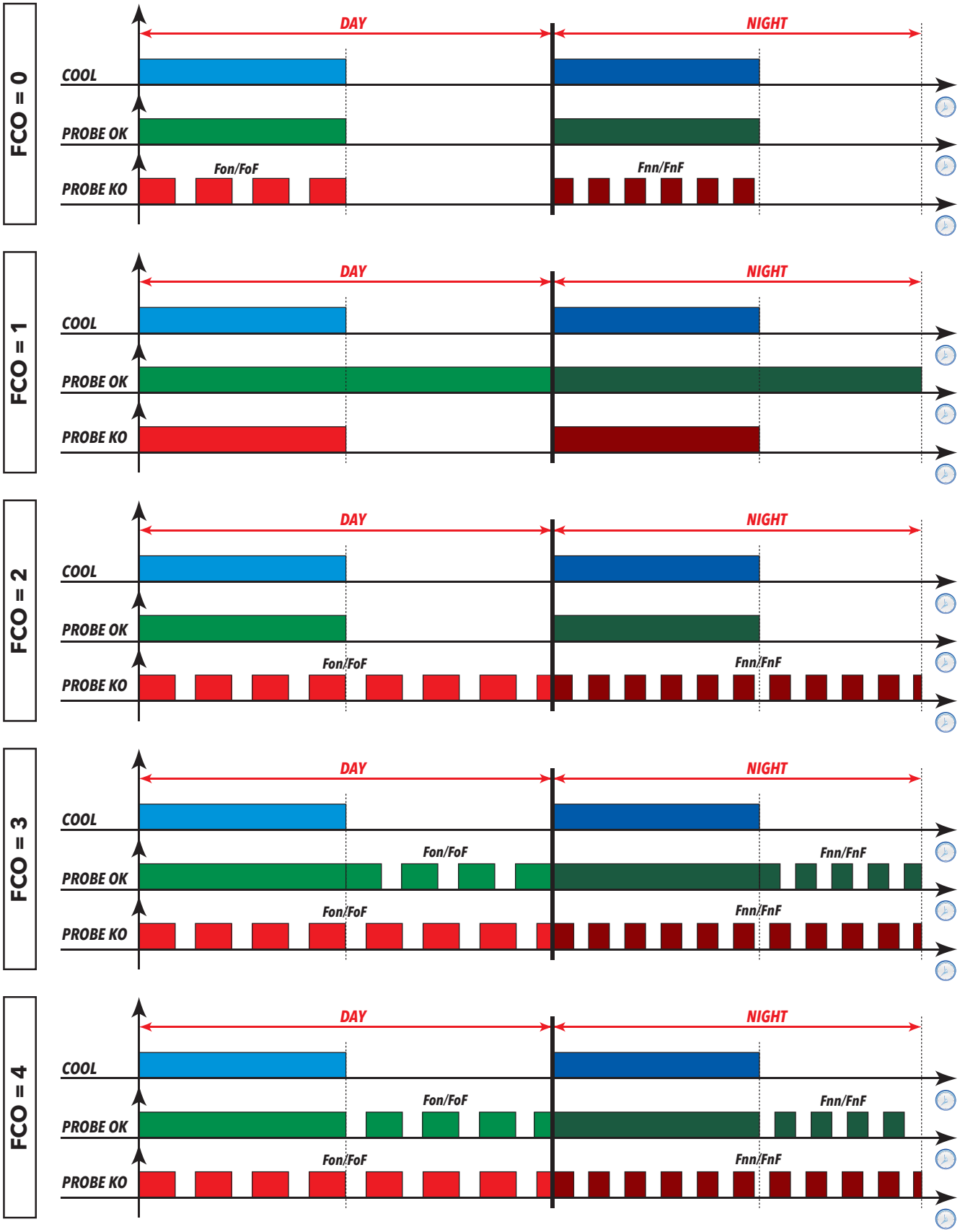
		DAY		NIGHT (Energy Saving)	
	FCO	Compressor ON	Compressor OFF	Compressor ON	Compressor OFF
Probe present and working	**0**	Thermostat controlled	Off	Thermostat controlled	Off
	1	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
	2	Thermostat controlled	Thermostat controlled	Thermostat controlled	Thermostat controlled
	3	Thermostat controlled	Duty Cycle day	Thermostat controlled	Duty Cycle night
	4	Thermostat controlled	Duty Cycle day INV	Thermostat controlled	Duty Cycle night INV**
Probe present but in error	**0**	Duty Cycle day	Off	Duty Cycle night	Off
	1	On	Off	On	Off
	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	Duty Cycle day	Duty Cycle day	Duty Cycle night	Duty Cycle night
Probe absent	**0**	On	Off	On	Off
	1	On	On	On	On
	2	Duty Cycle day	Duty Cycle day*	Duty Cycle night	Duty Cycle night*
	3	On	Duty Cycle day*	On	Duty Cycle night*
	4	On	Duty Cycle day INV**	On	Duty Cycle night INV**

* See paragraph **“8.6.5. Fan operation without probe” on page 108** (**H42** ≠ 0).
** Normal Duty Cycle operation reversed

The graphs below illustrate fan operation on the basis of the **FCO** value.
In the graphs, we can see that:

Legend:

DAY	Day
NIGHT	Night (Energy Saving)
COOL	Cooling
Probe OK	Fan operation with the probe present and working
Probe KO	Fan operation with the probe present but in error


FCO = 0
DAY
NIGHT
COOL
PROBE OK
PROBE KO
Fon/FoF
Fnn/FnF
FCO = 1
DAY
NIGHT
COOL
PROBE OK
PROBE KO
FCO = 2
DAY
NIGHT
COOL
PROBE OK
PROBE KO
Fon/FoF
Fnn/FnF
FCO = 3
DAY
NIGHT
COOL
PROBE OK
PROBE KO
Fon/FoF
Fnn/FnF
Fon/FoF
Fnn/FnF
FCO = 4
DAY
NIGHT
COOL
PROBE OK
PROBE KO
Fon/FoF
Fnn/FnF
Fon/FoF
Fnn/FnF

8.6.2. Fan operation in thermoregulation mode

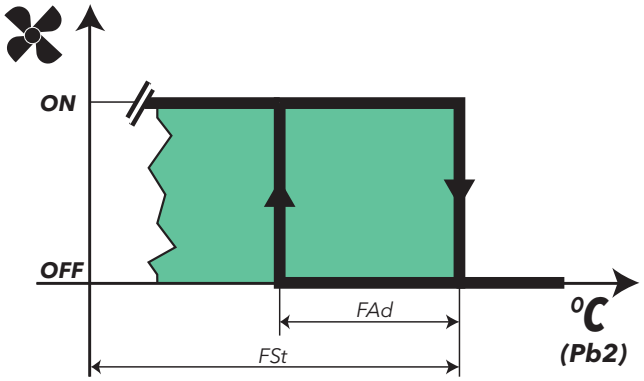
During “cooling”, the fans operate as shown in this diagram:
Thermostat control of fans takes place at the values set in parameters

- **FSt** (fan stopping temperature)
- **FAd** (fan differential).

The fan disabling temperature, set via parameters **FSt** (fan disabling temperature) and **FAd** (fan differential), is an absolute value as **FPt = 0** (actual temperature value).

NOTE: Around the fan start temperature (-50 °C) the differential will always take account of the parameter **FAd** but with the sign inverted.

The fan regulator operates as indicated below:



The control probe may be:

- single one for normal regulation and defrost (**FP1** ≠ 0 and **FP2** = 0);
- one specific probe for regulation and one during the defrost phase (**FP1** ≠ 0 and **FP2** ≠ 0).

The fans can be excluded:

- during the defrost;
- if a digital input is configured as a door switch.

When the evaporator fans are enabled during defrost (**FdF** = ON) and the relative probe has an error, the fans are kept on.

If the evaporator probe is not present, and **FdF** = ON, the evaporator fans are active during defrost.
The Energy saving (night) mode is active only if enabled in parameter **ESF** (of course when the controller is in Energy saving).

8.6.3. Fan operation in Duty Cycle mode

There are two Duty Cycle modes:

- **Day** (DAY)
- **Night** (NIGHT - Energy Saving).

The activation of the **Night** mode depends on parameter **ESF**:

ESF = n	Night Mode disabled
ESF = y	Night mode active when Energy Saving mode is active

Duty Cycle operation depends on the operating mode, e.g.:

- **Day**: set the parameters **Fon** and **FoF**;
- **Night**: set the parameters **Fnn** and **FnF**.

The fans operate as follows:

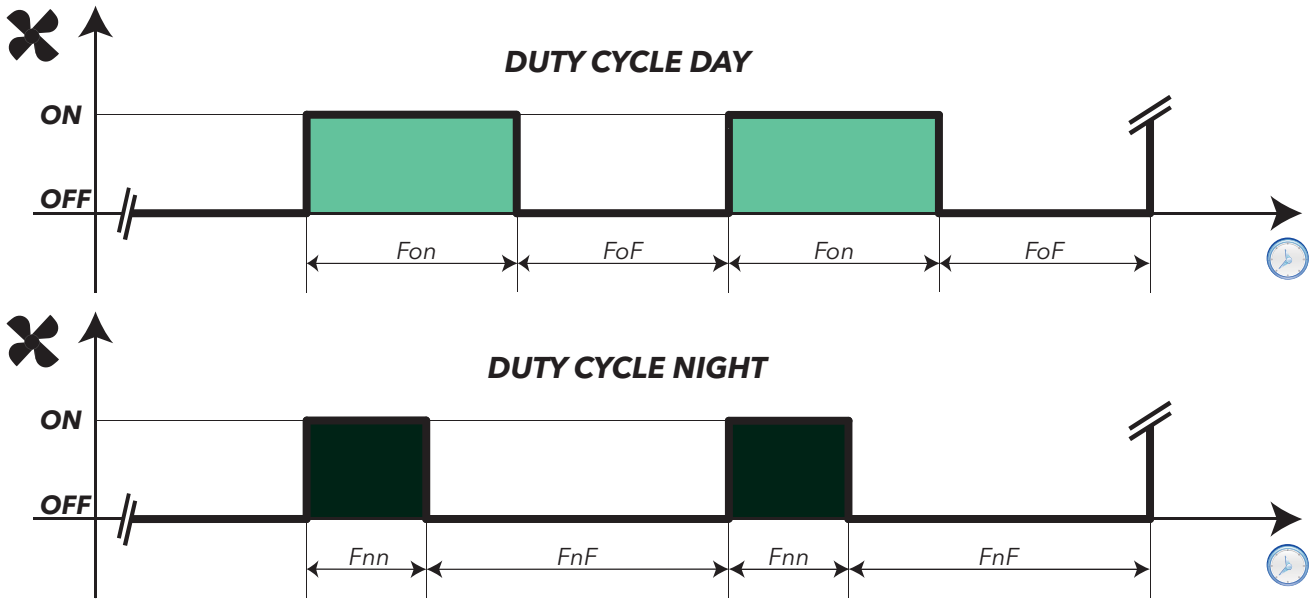
DUTY CYCLE DAY

Fon	FoF	Fan operation
0	0	OFF
0	≠0	OFF
≠0	0	ON
≠0	≠0	DUTY CYCLE DAY

DUTY CYCLE NIGHT

Fnn	FnF	Fan operation
0	0	OFF
0	≠0	OFF
≠0	0	ON
≠0	≠0	DUTY CYCLE NIGHT

The fan regulator will operate in Duty Cycle mode as illustrated below:



8.6.4. Fan operation in defrost

During defrost, the fans operate as shown in this diagram:

dFd = OFF: exclusion of fans during defrost	**OFF**
dFd = ON: the fans are not excluded during defrost (see parameters **FCO**, **Fon**, **FoF**, **Fnn** and **FnF**)	**THERMOREGULATION / DUTY CYCLE**

Thermostat control of fans takes place at the values set in parameters:

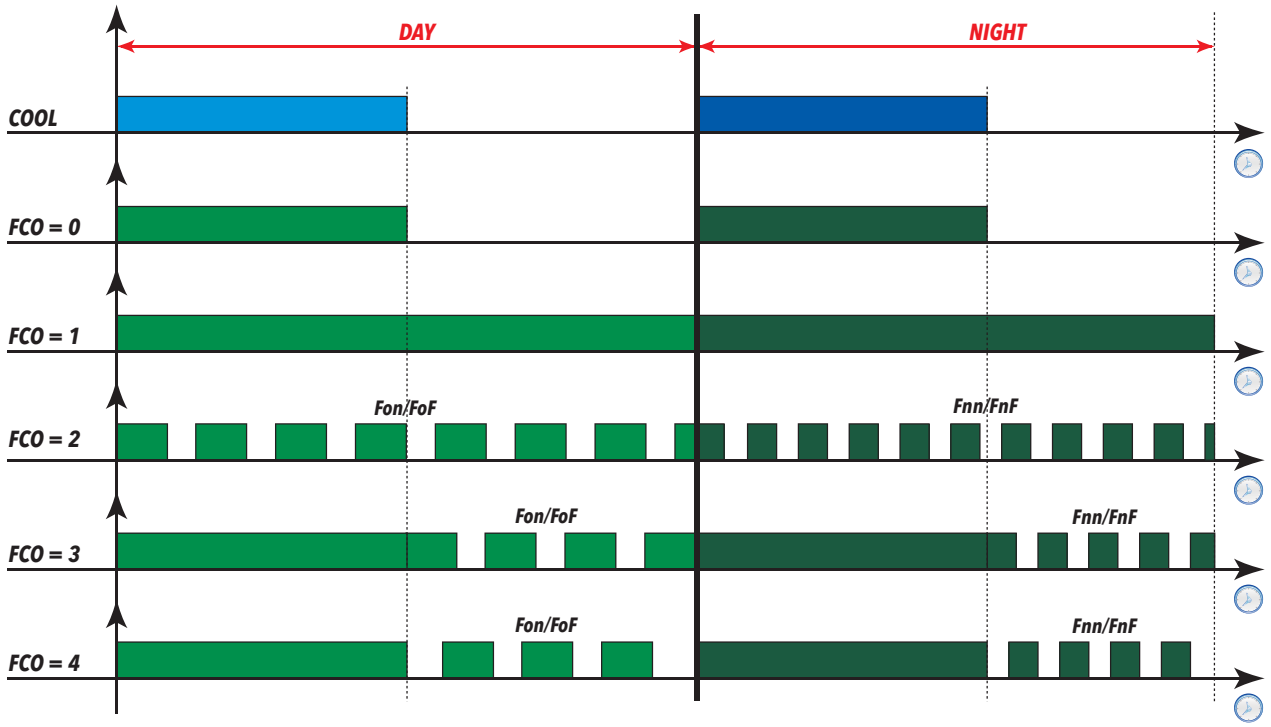
- **FSt** (fan stopping temperature)
- **FAd** (fan differential).

NOTE: during defrost with electrical heaters, the compressor is OFF but the fans work as if the compressor was still ON, unless they have been disabled during defrost (see parameter **dFd**).

When the evaporator fans are enabled in defrost (**dFd** = On) and regulate the evaporator probe Pb2 in thermoregulated mode, when the latter enters error “E2” during defrost, maintain the fans always ON, regardless of the values set via the Duty Cycle.

8.6.5. Fan operation without probe

If parameter **H42** = n (probe Pb2 absent), depending on the **FCO** value and the status of the compressor, the fans may assume the status “On”, “Off”, “Duty Cycle Day and “Duty Cycle Night”.
The parameter **FCO** will determine the operating mode of the evaporator fans during the DAY phase and the NIGHT phase.
The following is an example of fan operation on the basis of the value set for **FCO**.



8.6.6. Fan function during dripping

If parameter **dt** ≠ 0 (dripping time), the fans will stay OFF for the time set in this parameter.
Refer to "**Defrost with heaters**".
Note that if **Fdt** (fan delay time) is greater than **dt** (dripping time) the fans stay OFF for the time set in **Fdt** rather than **dt** (e.g. whichever timing is longer will be applied).

8.6.7. Post-ventilation

Parameter **FdC** delays the switching off of the fans after the compressor has stopped (increasing efficiency of the system by making better use of inertia). Post-ventilation is active with any **FCO** value and without a configured probe. If **FdC = 0** the function is disabled.

NOTE: Post-ventilation does not have priority over the delay set by parameter **dcd**.

User parameters

The parameters that manage the fan regulator are:

Label	Description
FPt	Characterises parameter "**FSt**" which can be expressed either as an absolute value or relative to the setpoint
FSt	Evaporator fans disabling temperature
Fdt	Evaporator fans delay after defrost cycle
dFd	Evaporator fans disabling during defrost time
FCO	Evaporator fans operating mode
FAd	Evaporator fans activation differential
dt	Dripping time
FdC	Evaporator fans switch-off delay after compressor disabled
Fon	Evaporator fans ON time in duty cycle day mode
FoF	Evaporator fans OFF time in duty cycle day mode
Fnn	Evaporator fans ON time in duty cycle night mode
FnF	Evaporator fans OFF time in duty cycle night mode
ESF	Night mode activation (Energy saving)

8.7. RTC

8.7.1. Weekdays / holidays

The controller can manage up to two holidays. These are chosen via parameters **Fd1** and **Fd2**.
For example:

EXAMPLE 1: Let's imagine we wish to set only one holiday, for example Monday.
- Set: **Fd1 = 1** (Monday), **Fd2 = 7** (disabled)

EXAMPLE 2: Let's imagine we wish to set two holidays, for example Wednesday and Sunday.
- Set: **Fd1 = 3** (Wednesday), **Fd2 = 0** (Sunday) or
- Set: **Fd1 = 0** (Sunday), **Fd2 = 3** (Wednesday)

8.7.2. Defrost with time bands

The controller can manage up to 6 daily defrosts, with two sets, one applicable to weekdays and another specific one for weekends/holidays.
In addition to the defrost start times, it is possible to decide whether to use a defrost end setpoint, and a time-out the same for all defrosts, or to set a specific value for each event.

If **Edt = 0**, each band will use the same defrost end set **dS1** (and **dS2**) and the same time-out **dE1** (and **dE2**).

If **Edt = 1**, it is possible to define a setpoint **dS1** and a time-out **dE1** specific to each event.

This allows longer and/or more intense defrosts to be set during sales point closures (when there is less thermal load on the cabinets). This mode is advisable for systems with single evaporator defrost.
For double evaporator defrosts, all defrosts use the same **dS2** and **dE2** and cannot be customised.

8.7.3. Periodic defrost

In some cabinets it is sufficient to run a defrost cycle every two / three / … days.
This is possible using the set of periodic defrost parameters, where the activation time and every how many days it is repeated are set.

8.7.4. Events

The controller can manage two specific events, one applicable every weekday and one applicable every holiday. These events have a start time and a duration. A typical example is the sales point closure period, where via the events it is possible to automatically switch the lights off, close the curtains, increase the setpoint and other energy saving functions.
This result is obtained by indicating the time at which the sales point is closed, while the duration of the event is simply the duration of the period of closure.
Every event can run one of the following functions:

- Nothing (function disabled);
- Activate Energy saving mode (*);
- Activation of Energy Saving(*) and light OFF;
- Activation of Energy Saving (*), light OFF and activation of AUX output (e.g. To close the curtains);
- Activation of device stand-by;

(*) for the functions associated to Energy Saving, see the specific paragraph.

8.8. PREHEATER

In the period when the preheat output is active:

- the compressor output and evaporator fans will be forced to OFF;
- the compressor icon (❄) will blink.

If activated during defrost, the Preheater may continue normally, except in defrost modes which require the compressor to be on:

- Cycle inversion (**dty**= 1)
- Hot gas Plug-in (**dty**= 2).

8.9. ENERGY SAVING

The Energy Saving mode (sometimes referred to as night function) is used to activate a series of functions which reduce consumption during the period of closure:

- modification of the weighted average of the virtual probe/switching of the regulation probe;
- increase in setpoint (reduced setpoint);
- modification of the regulation differential;
- modulation of the evaporator fans with setpoint satisfied;
- reduction of power output from the anti-condensation heaters.

The Energy Saving mode can be activated by:

- appropriately configured digital input:
- events from RTC;
- remote control (from supervision and/or via Link[2]);
- key (hotkey).

The light and curtain output (AUX) can be managed by appropriately configuring:

- RTC events (see paragraph on RTC);
- dedicated digital input;
- key (Hotkey);
- remote control (from supervision and/or via Link[2]).

For the “reduced setpoint”, the “evaporator fans” and the “anti-condensation heaters” see the relative paragraphs.

8.9.1. Virtual probe/ change probe

In addition to controlling the values for the single probes, the controller can also regulate the weighted average of the value read by two probes, done by what is known as a virtual probe.

- Virtual probe in Day mode:

$$\textbf{Virtual probe} = \frac{(\text{probe 1})^* \textbf{H72} + (\text{probe 2})^*(100 - \textbf{H72})}{100}$$

- Virtual probe in Energy Saving mode (Night):

$$\textbf{Virtual probe} = \frac{(\text{probe 1})^* \textbf{H73} + (\text{probe 2})^*(100 - \textbf{H73})}{100}$$

In the formula, **probe 1** is selected by parameter **H70**, and **probe 2** by parameter **H71**.
The regulation probe change, from DAY mode to NIGHT mode (Energy Saving) is obtained by setting **H72=100** and **H73= 0**:

- Virtual probe in Day mode: **Virtual probe = probe 1**.
- Virtual probe in Energy saving mode (Night): **Virtual probe = probe 2**.

8.10. DEEP COOLING CYCLE - DCC

Description

This regulator means that the compressor regulates the setpoint **dCS**, with differential equal to the value set via parameter **dF1**. When the **DCC** (Deep Cooling Cycle) activates, the interval between defrost cycles is cleared and defrosts disabled.
Ending of the **DCC** is time-based, by setting the parameter **tdc≠0**, or when the setpoint **dCS** is reached if **tdc** = 0.
When a **DCC** has ended and once the time set in parameter **dcc** has elapsed, a defrost cycle is forced and the counters restart for the interval between defrost cycles (value set via parameter **dit**).
If **dcc=0** defrost begins at the end of the **DCC**.
During the **DCC** the temperature alarms are disabled.
Normal temperature alarm management is restored at the end of the **DCC**, when the temperature value read by probe **rP1** reaches the regulation setpoint value **SP1**.

Operating conditions

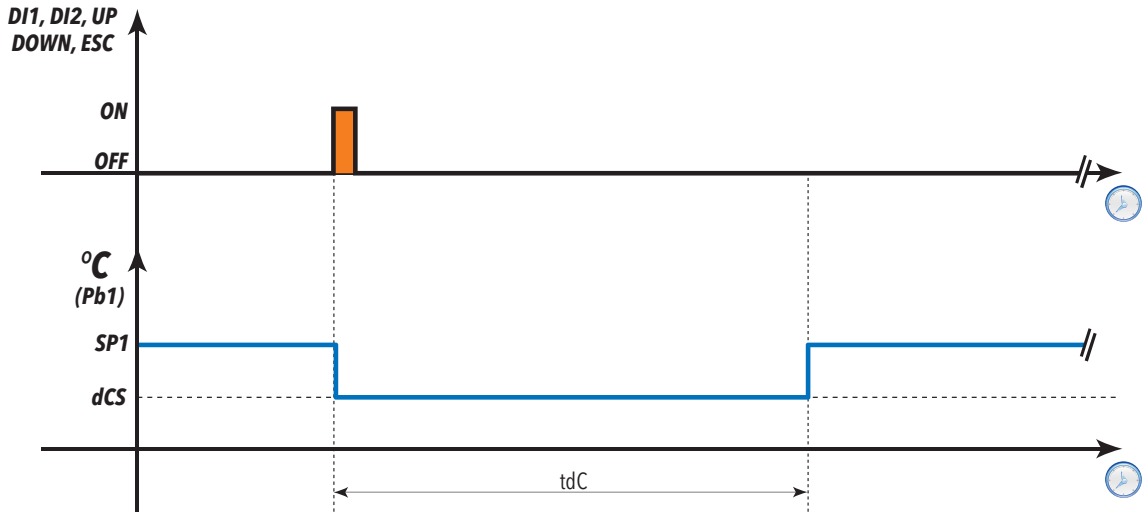
The Deep Cooling Cycle can be run:

- from Digital Input (where appropriately configured)
- from a key (where appropriately configured)
- remotely (supervisor).

In the event of a probe error and/or power outage, the Deep Cooling Cycle is stopped and standard controller function restored. If parameters **dCS**, **tdc** and **dCC** are modified, the Deep Cooling Cycle is recalculated with the new values set.

NOTE: After a Deep Cooling Cycle, wait until the **dCC** time is elapsed before a new cycle can begin.

The control diagram is as follows:



User parameters

The parameters that manage the fan regulator are:

Label	Description
dCS	Deep Cooling Setpoint
tdc	Deep Cooling Time
dcc	Defrost Delay after Deep Cooling.

8.11. AUXILIARY OUTPUT (AUX/LIGHT)

Description

If one of the parameters **H21...H27** is set to the value **5**, it anticipates the relay control as AUX and, by pressing the associated key **H31...H37** (active if it is set to the value **5**), the relay is activated if it was off previously and vice-versa.
The on/off status is saved in non-volatile memory hence when power returns after a blackout, the device will restart in the status that was active prior to the blackout.
If one of the parameters **H11**...**H18** is set to the value **5**, it anticipates the AUX relay control by the digital input; in this case the relay will mirror the status of the input. In this case, on/off status is not saved in non-volatile memory.

NOTE: maintain always the same meaning of the DI: for example, if the relay is activated by DI and switched off by key, when the DI is reset to the starting position, the relay does not change status (since it was already de-energised by key). With the instrument OFF, if set accordingly, only the digital input (DI) and the associated key can change the status of the output.

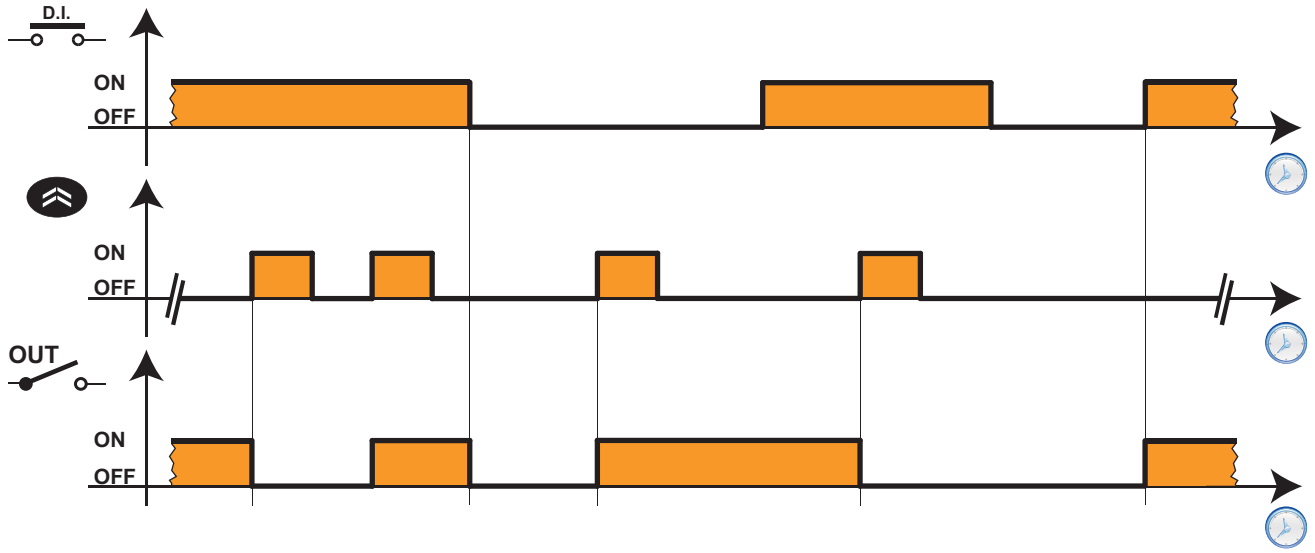
Operating conditions

The regulator is activated by:
- from Digital Input (where appropriately configured)
- from a key (where appropriately configured)
- from a Function
- from activate Energy Saving mode

The regulator is not active when:

Condition	AUX output status
during start-up	OFF
during stand-by	status depending on parameter H08

The control diagram is as follows:



User parameters

The parameters that manage the auxiliary (AUX) output regulator are:

Label	Description
H08	Stand-by operating mode
H11...H18	Configuration of digital input 1...8 / Polarity
H21...H27	Configuration of digital output 1...7
H31...H37	Configuring keys 1...7

8.12. EXTERNAL ALARM/DOOR MANAGEMENT

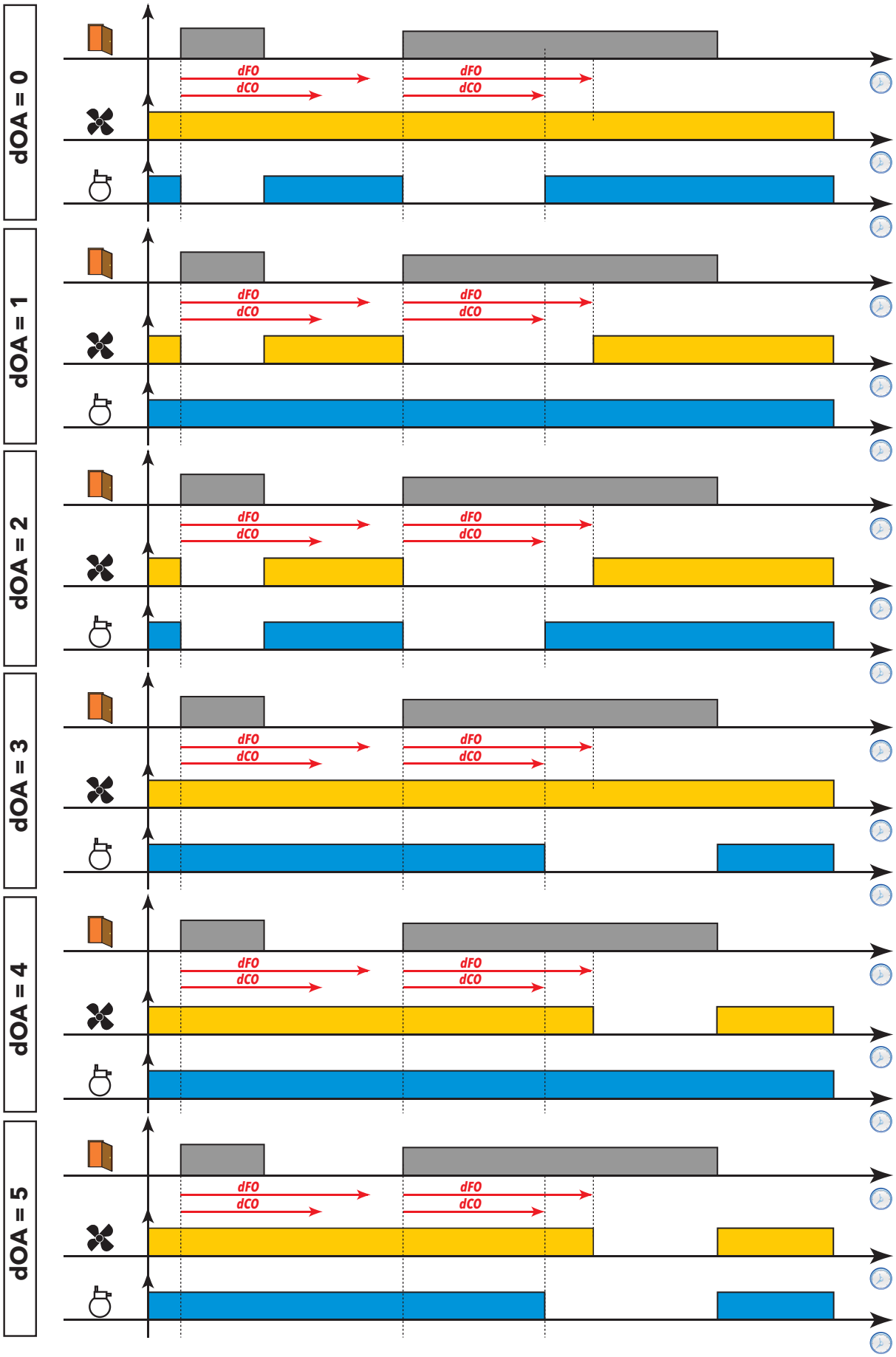
The door switch input is associated to an appropriately configured digital input (one of the parameters **H11...H18** is set to the value **±4**).
By controlling the opening of the door, it is possible to deactivate the compressor output and/or the fans.
It is also possible to associate a deactivation delay to the compressor output by means of parameter **dCO**.
If the door is opened during a defrost cycle, the cycle is not shut down.
The values that can be set for the parameters involved are:

- **dod**: Door switch switches off loads on DI command.
  Any protective timers (e.g. compressor start delay, etc.) will still be observed.
  - **0** = function disabled
  - **1** = disables Fans (FAN)
  - **2** = disables the Compressor (COMP)
  - **3** = disables the Compressor (COMP) and Fans (FAN)
- **EAL**: Locks compressor, defrost and fan regulators if the digital input (configured as external alarm) is activated.
  - **0** = no resource locked
  - **1** = Compressor and Defrost locked
  - **2** = Compressor, Defrost and Fans locked
- **dOA**: Establishes what should be activated/deactivated on activation/deactivation of the digital input (Only if **PEA** ≠ 0).
  - **0** = activates the Compressor (COMP)
  - **1** = activates Fans (FAN)
  - **2** = activates the Compressor (COMP) and Fans (FAN)
  - **3** = disables the Compressor (COMP)
  - **4** = disables the Fans (FAN)
  - **5** = disables the Compressor (COMP) and Fans (FAN)
- **PEA**: Establishes which of the door switch and alarm should be linked to the parameter **dOA** in the following way:
  - **0** = function disabled
  - **1** = function linked to door switch
  - **2** = function linked to external alarm
  - **3** = function linked to door switch and external alarm
- **dCO**: Compressor resource activation/power off delay (0 ... 250 min).
- **dFO**: Evaporator Fan resource activation/power off delay (0 ... 250 min).
- **tdO**: Door open alarm exclusion time (0 ... 250 min). The door open alarm will be activated if the door remains open for a time period greater than the setting for this parameter.

The way in which parameters **dCO** and **dFO** act depends on how the parameter **dOA** is configured. To better understand the meaning of these parameters, refer to the figures below.

The graphs below illustrate fan operation on the basis of the **doA** value.
In the graphs, we can see that:

	Door
	Evaporator fans
	Compressor


dOA = 0
dOA = 1
dOA = 2
dOA = 3
dOA = 4
dOA = 5
dFO
dCO

8.13. FRAME HEATERS (FH)

This regulator makes it possible to activate the anti-condensation heaters of a display window or refrigerated cabinet.

Control can be:

- Fixed value;
- Glass door probe;
- Glass door probe with dew point from remote.

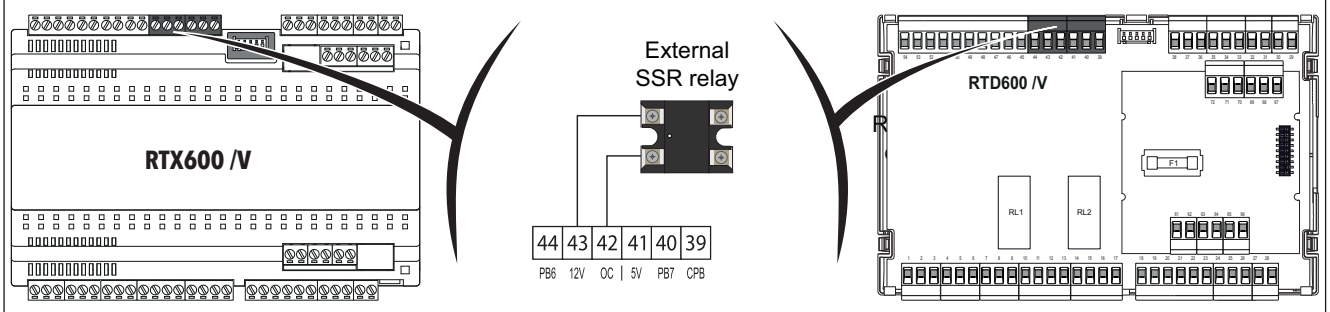
The device is used to pilot Frame Heater via:

- External SSR relay with Open Collector output
- External module with analogue input (0...10 V, 4...20 mA).

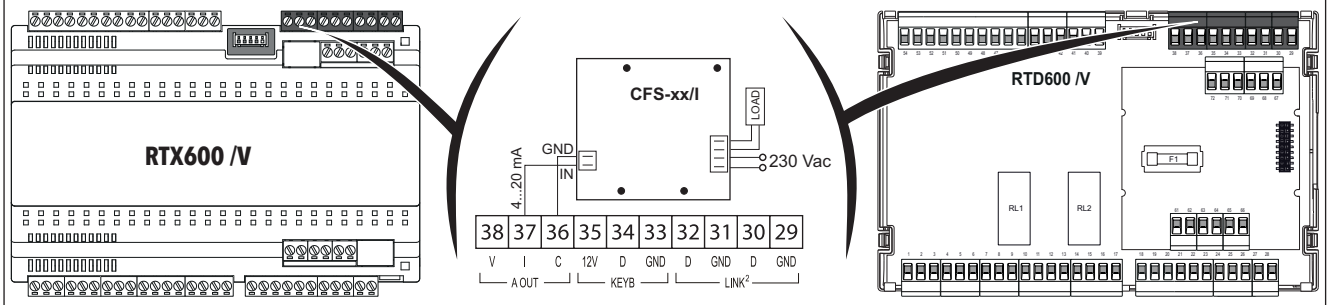
8.13.1. Example of connections

Some examples of connections are as follows:

FH with external SSR relay

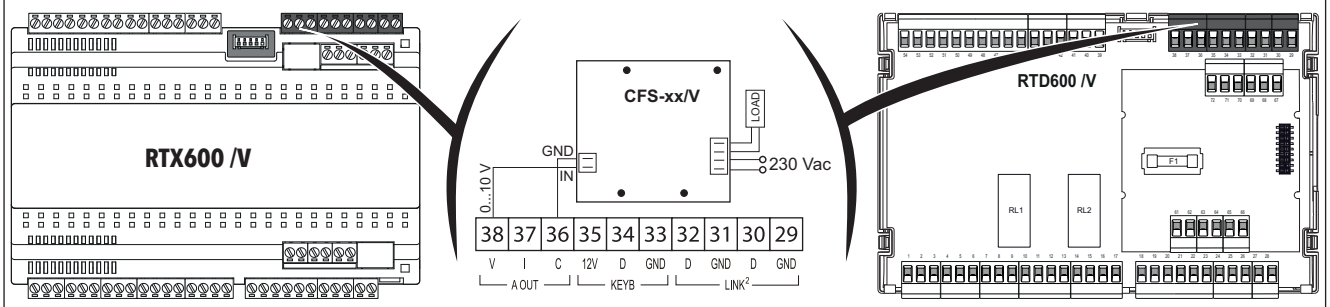


FH with CFS-xx/I on 4...20 mA output



Modules CFS-xx/I control the voltage of a load and have input values of I = 4...20 mA.

FH with CFS-xx/V on 0...10 V output



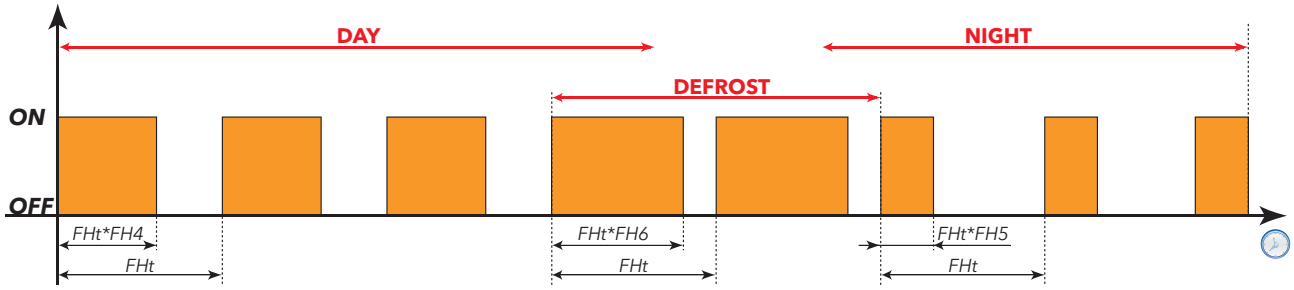
Modules CFS-xx/I control the voltage of a load and have input values of V = 0...10 V.

8.13.2. Fixed value regulation

Fixed value regulation is done via parameter **FH** = dc and sets a fixe actuation percentage from the parameter, according to the following regulation percentages:

- Parameter **FH4**: Day (Day)
- Parameter **FH5**: Night (Energy Saving)
- Parameter **FH6**: Defrost (both Day and Night)

When using the open collector output (or relay, although this is not recommended), the regulation takes place via modulation, where parameter **FHt** sets the modulation period.

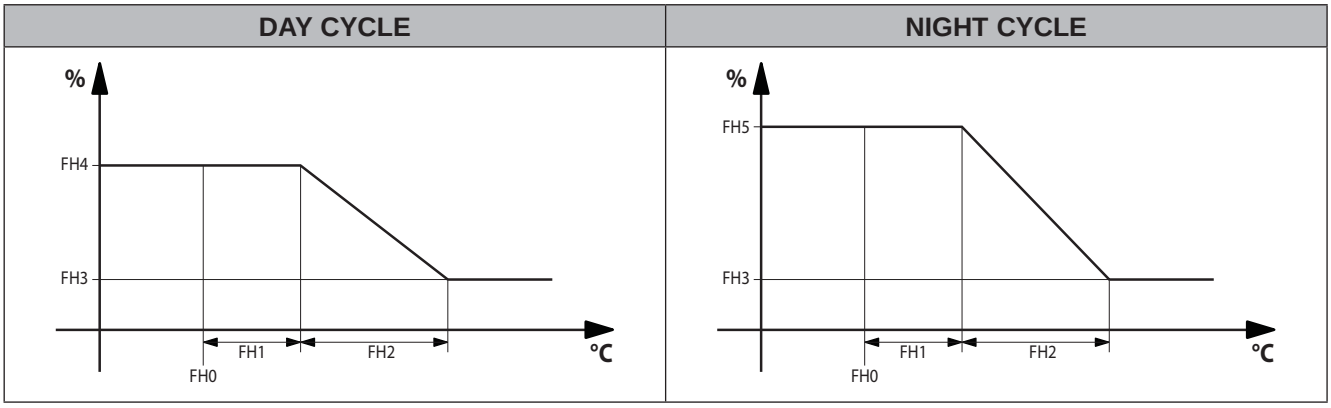


It is also possible to use the analogue output (4…20 mA / 0…10 V).
In this case the output value will remain fixed at the regulation percentage of the respective phases.

8.13.3. Glass door probe regulation

Proportional temperature regulation is done by selecting in parameter **FH**, the required probe (**diS**=disabled; **dc**=Duty Cycle; **Pb1**...**Pb5**=probe Pb1...Pb5; **Pbi**=virtual probe; **PFi**=filtered virtual probe).

The output value depends on the value of the probe according to the following graphs:



During defrost the output will be set to the fixed value indicated in parameter **FH6**.

In the event of a probe error, the output will be positioned on the maximum value (**FH4** day, **FH5** night - Energy Saving).

The regulator can go to modulate the analogue output (4…20 mA / 0…10 V), or go to modulate the Open Collector output (in this case the period is given by parameter **FHt**).

NOTE: The analogue output (4…20 mA / 0…10 V) does not use parameter **FHt**.

NOTE: The counter managing the timers in parameter **FHt** (according to parameters **FH4**, **FH5**, **FH6**) is not reloaded immediately on state change (Day, Night, Defrost); wait until the current count is completed.

8.13.4. Regulation based on glass door probe with dew point from remote

The regulation is very similar to what stated in the previous paragraph, the only difference being the setpoint value **FH0** which is modified remotely (remote dewpoint) and is managed by the Supervisor via serial commands.

On start-up the regulator loads the setpoint value indicated in parameter **FH0**.

The regulation setpoint value can be updated from remote (value in volatile memory).

NOTE: Sent the remote updating within 60 seconds otherwise the regulator will reload the value of parameter **FH0**.

User parameters

The parameters that manage the stand-by regulator are:

Label	Description
FH	Selects which probe will be used by the anti-condensation heaters (Frame Heaters).
FHt	Duration of Frame Heaters (FH) operation, only used when OC (Open Collector) output is used with SSR relay.
FH0	Setpoint setting of the anti-condensation heaters (Frame Heaters).
FH1	Offset setting of the anti-condensation heaters (Frame Heaters).
FH2	Band setting of the anti-condensation heaters (Frame Heaters).
FH3	Minimum percentage setting of the anti-condensation heaters (Frame Heaters).
FH4	Sets maximum percentage for day Duty Cycle.
FH5	Sets maximum percentage for night-time Duty Cycle.
FH6	Setting of percentage during defrost.

8.14. GENERIC INPUT

The generic input has no local function in the controller.

Its function consists in being able to remotely monitor the state of that input to which the output of a specific device/sensor is associated.

EXAMPLE:

The generic input can be connected to the output of an ice sensor to monitor whether the cold cabinet drain (e.g. fruit and vegetable cabinet) is blocked.
In this case, during defrosts as the water cannot flow out it pools and ices, slowly blocking the evaporator. Via an ice presence sensor it is possible to monitor whether the cavity between the evaporator and the bottom of the cabinet is blocked by ice.

8.15. STAND-BY

Operating conditions

The stand-by regulator can be activated by digital input (if configured) or by key (if programmed).

With the device OFF the display shows “OFF” and all regulators are blocked including alarms.

When the device is switched on via a key or an appropriately configured digital input, regular operation commences, the same as from power-on.
After power-on, the temperature alarm is excluded for a time set in parameter **PAO**, and the delay set by parameter **OdO** is activated.
Each time that the device is switched off, all cycle times are reset.
The on/off status is saved in non-volatile memory hence when power returns after a blackout, the device will restart in the status that was active prior to the blackout.
The output from stand-by is linked to the delay set in parameter **OdO**.

NOTE: With the device off, all relays are de-energized except for AUX: button/AUX input-light-door switch are active.

User parameters

The parameters that manage the stand-by regulator are:

Label	Description
PAO	Alarm disabling after power-on
OdO	Output activation delay from power-on
OAO	High/low temperature alarm exclusion time after door closing

CHAPTER 9
PARAMETERS

9.1. USER PARAMETERS TABLE

The table below gives the 'User' parameters of the **RTX-RTD 600 /V**.

NOTES: • the parameters and visibility pre-loaded in the instrument are those in the application **AP1**.
• parameters with grey background ( ) are not in the applications and don't change if another application **AP1...AP8** is loaded.

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	COMPRESSOR (CP)										
rE	Sets the type of control to be used.	num	0...4					2			
rP1	Sets the probe used by thermostat 1.	num	diS, Pb1...Pb5, Pbi, LP	Pbi	PB1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
rP2	Sets the probe used by thermostat 2 (only if **rE** ≠ 0). Same as **rP1**.	num	diS, Pb1...Pb5, Pbi, LP					Pb2			
SP1	Thermostat 1 regulation setpoint.	°C/°F	LS1...HS1	3.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0
dF1	Activation differential of the first thermostat (absolute or relative). **NOTE**: diF ≠ 0.	°C/°F	-58.0...302	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
SP2	Thermostat 2 regulation setpoint (only if **rE** ≠ 0).	°C/°F	LS2...HS2					-22.0			
dF2	Activation differential of the second thermostat (absolute or relative) (only if **rE**≠0). **NOTE**: diF ≠ 0.	°C/°F	-58.0...302					4.0			
HS1	Maximum value assignable to setpoint SP1.	°C/°F	LS1...HdL	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LS1	Minimum value assignable to setpoint SP1.	°C/°F	LdL...HS1	-10.0	-35.0	-35.0	-35.0	-35.0	-35.0	-35.0	-35.0
HS2	Maximum value assignable to setpoint SP2 (only if **rE** ≠ 0).	°C/°F	LS2...HdL					0.0			
LS2	Minimum value assignable to setpoint SP2 (only if **rE** ≠ 0).	°C/°F	LdL...HS2					-35.0			
Cit	Minimum activation time of compressor before possible deactivation. If **Cit** = 0 not active.	min	0...250				0				
CAt	Maximum activation time of compressor before possible deactivation. If **CAt** = 0 not active.	min	0...250				0				
Ont	Controller switch-on time in the event of error probe.	min	0...250	3	3	3		3	3	3	3
OFt	Controller switch-off time in the event of error probe.	min	0...250	3	3	3		3	3	3	3
OdO	Delay in activating outputs after the device is switched on or after a power outage. **0** = not active.	min	0...250	0	0	0	0	0	0	0	0
	DEFROST (dEF)										
dP1	Sets the probe used by defrosting 1.	num	diS, Pb1...Pb5, Pbi, LP	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3
dP2	Sets the probe used by defrosting 2. Same as **dP1**.	num	diS, Pb1...Pb5, Pbi, LP				Pb4				
dty	Type of defrost.	num	0...4	4	4	4	4	4	0	3	4
dFt	Defrost activation mode using 2 probes.	num	0/1/2				2				
dit	Interval between the start of two consecutive defrost cycles. **0** = function disabled (defrost NEVER performed).	see **dt1**	0...250	0	0	0	0	0	0	0	0
dt1	Unit of measurement for defrost interval (parameter **dit**).	num	0/1/2				0				
dCt	Selects the count mode for the defrost interval.	num	0...5	4	4	4		4	4	4	4
dOH	Delay preceding start of first defrost after call.	min	0...250				0				
dE1	Evaporator 1 defrost timeout. Sets the maximum defrost time on Evaporator 1.	min	1...250	30	30	30	30	30	30	30	30
dE2	Evaporator 1 defrost time-out (only if **dFt** ≠ 0). Sets the maximum defrost time on Evaporator 2.	min	1...250				30				
dS1	Defrost 1 end temperature (only if **dP1** ≠ diS).	°C/°F	-58.0...302	7.0	7.0	7.0	7.0	7.0	12.0	12.0	7.0

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
dS2	Defrost 2 end temperature (only if **dP2** ≠ diS).	°C/°F	-58.0...302				7.0				
dSS	Start defrost temperature threshold (only if **dCt** = 5).	°C/°F	-58.0...302	-5.0	-30.0	-30.0		-30.0	-30.0	-30.0	-30.0
dPO	Determines whether or not the device defrost at power-up.	flag	no/yES	no	no	no	no	no	no	no	no
tcd	Minimum time period with the compressor ON or OFF before defrost is activated.	min	-60...60							-3	
ndE	Minimum defrost duration. **NOTE**: If **dtY**=0, **dtY**=1 or **dtY**=4, set **ndE**=0.	min	0...250							15	
PdC	Hot gas extraction time at defrost end.	min	0...250							3	
dPH	Periodic defrost start hour (only if **dCt** = 4).	hours	0...24	24	24	24	24	24	24	24	24
dPn	Periodic defrost start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
dPd	Interval between one periodic defrost and the next (only if **dCt** = 4).	days	1...7	1	1	1	1	1	1	1	1
Fd1	Holiday 1 (only if **dCt** = 4).	days	0...7	0	0	0	0	0	0	0	0
Fd2	Holiday 2 (only if **dCt** = 4).	days	0...7	7	7	7	7	7	7	7	7
d1H	Weekday defrost 1 start hour (only if **dCt** = 4).	hours	0...24	7	0	0	0	0	7	0	0
d1n	Weekday defrost 1 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d2H	Weekday defrost 2 start hour (only if **dCt** = 4).	hours	d1H...24	21	6	6	6	6	21	6	6
d2n	Weekday defrost 2 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d3H	Weekday defrost 3 start hour (only if **dCt** = 4).	hours	d2H...24	24	12	12	12	12	24	12	12
d3n	Weekday defrost 3 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d4H	Weekday defrost 4 start hour (only if **dCt** = 4).	hours	d3H...24	24	18	18	18	18	24	18	18
d4n	Weekday defrost 4 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d5H	Weekday defrost 5 start hour (only if **dCt** = 4).	hours	d4H...24	24	24	24	24	24	24	24	24
d5n	Weekday defrost 5 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d6H	Weekday defrost 6 start hour (only if **dCt** = 4).	hours	d5H...24	24	24	24	24	24	24	24	24
d6n	Weekday defrost 6 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F1H	Holiday defrost 1 start hour (only if **dCt** = 4).	hours	0...24	12	0	0	0	0	12	0	0
F1n	Holiday defrost 1 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F2H	Holiday defrost 2 start hour (only if **dCt** = 4).	hours	F1H...24	23	6	6	6	6	23	6	6
F2n	Holiday defrost 2 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F3H	Holiday defrost 3 start hour (only if **dCt** = 4).	hours	F2H...24	24	12	12	12	12	24	12	12
F3n	Holiday defrost 3 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F4H	Holiday defrost 4 start hour (only if **dCt** = 4).	hours	F3H...24	24	18	18	18	18	24	18	18
F4n	Holiday defrost 4 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F5H	Holiday defrost 5 start hour (only if **dCt** = 4).	hours	F4H...24	24	24	24	24	24	24	24	24
F5n	Holiday defrost 5 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F6H	Holiday defrost 6 start hour (only if **dCt** = 4).	hours	F5H...24	24	24	24	24	24	24	24	24
F6n	Holiday defrost 6 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
	FANS (FAn)										
FP1	Sets the probe used by the evaporator fans during normal operation.	num	dis, Pb1...Pb5, Pbi, LP	diS	diS	Pb3	Pb3	Pb3	Pb3	Pb3	diS
FSt	Fans disabling temperature. The value is positive or negative (only if **FP1** ≠ dis).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAd	Evaporator fans activation differential activation (only if **FP1** ≠ dis).	°C/°F	0.1...25.0	0.1	0.1	4.0	4.0	4.0	4.0	4.0	0.1
Fdt	Evaporator fan activation delay after a defrost cycle	min	0...250						1		
dt	Drainage time. Dripping time.	min	0...250	0	5	5	5	5	5	3	0
dFd	Operating mode of evaporator fans during defrost.	flag	OFF/On			On	On	On	On	OFF	
FCO	Evaporator fans operating mode with compressor output switched off (OFF).	num	0...4			1	1	1	0	1	
FdC	Evaporator fans switch-off delay after compressor deactivation.	min	0...250						5		
FOn	Time fans remain ON during daytime duty cycle. Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see **FCO**).	min	0...250		1	1	1	1	1	1	1

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
FOF	Time fans remain OFF during daytime duty cycle. Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see **FCO**).	min	0...250		0	0	0	0	0	0	0
Fnn	Time fans remain ON during night-time duty cycle. Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see **FCO**).	min	0...250		2	1	1	1	1	1	2
FnF	Time fans remain OFF during daytime duty cycle. Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see **FCO**).	min	0...250		2	0	0	0	0	0	2
	ALARMS (AL)										
rA1	Sets probe 1 used for temperature alarms.	num	diS, Pb1...Pb5, Pbi	Pbi	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
rA2	Sets probe 2 used for temperature alarms. Same as **rA1**.	num	diS, Pb1...Pb5, Pbi					Pb2			
Att	It define if parameters **HA1/2** and **LA1/2** will be used as the absolute temperature value or differential in relation to the setpoint.	flag	AbS/rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL
AFd	Alarms activation differential.	°C/°F	0.1...25.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
HA1	Maximum alarm probe 1 (only if **rA1** ≠ diS).	°C/°F	LA1...302	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
LA1	Minimum alarm probe 1 (only if **rA1** ≠ diS).	°C/°F	-58.0...HA1	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
HA2	Maximum alarm probe 2 (only if **rA2** ≠ diS).	°C/°F	LA2...302					5.0			
LA2	Minimum alarm probe 2 (only if **rA2** ≠ diS).	°C/°F	-58.0...HA2					-5.0			
PAO	Alarm exclusion time after the device is switched on following a power outage.	hours	0...10	3	3	3	3	3	3	3	3
dAO	Temperature alarm exclusion time after defrost.	min	0...250	30	30	30	30	30	30	30	30
OAO	Alarm indication delay (high and low temperature) following deactivation of digital input (port closed).	hours	0...10						10		
tdO	Door open alarm activation delay.	min	0...250						10		
tA1	Temperature 1 alarm signalling delay (only if **rA1**≠diS).	min	0...250	0	0	0	0	0	0	0	0
tA2	Temperature 2 alarm signalling delay (only if **rA2**≠diS).	min	0...250					0			
dAt	Alarm indicating end of defrost as a result of timeout.	flag	no/yES	no	no	no	no	no	no	no	no
EAL	Regulators inhibited by external alarm.	num	0/1/2						0		
tP	Alarm acknowledged by pressing any key.	flag	no/yES						no		
	LIGHTS & DIGITAL INPUTS (Lit)										
dSd	Light relay / door switch interlock.	flag	no/yES						yES		
dLt	Delay preceding deactivation (switch-off) of light relay (interior light). The cell light remains on for **dLt** minutes after the door is closed (only if **dSd** = yES).	min	0...250						0		
OFL	Sets whether the light key disabled the light relay.	flag	no/yES						no		
dOd	Sets which utilities switch off when the door switch is activated.	num	0...3						3		
dOA	Action forced from digital input (if **PEA** ≠ 0).	num	0...5						2		
PEA	Selection of digital input configured to inhibit/enable resources.	num	0...3						1		
dCO	Compressor activation/deactivation delay when enabled (DI activation).	min	0...250						5		
dFO	Fan activation/deactivation delay when enabled (DI activation).	min	0...250						5		
ASb	Sets whether the light key and the light enabling function with door open can be activated even with the controller in OFF.	flag	no/yES						no		
	LINK² (Lin)										
L00	Sets which probe to share via Link².	num	diS, Pb1....Pb5, Pbi	diS	diS	diS	diS	diS		diS	diS
L01	Shares the displayed value with the Link² network.	num	0/1/2	0	0	0	0	0		0	0
L02	Sends the Setpoint value to the Link² network after it has been changed.	flag	no/yES	no	no	no	no	no		no	no

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
L03	Call for defrost can be sent to the Link² network.	num	no/yES	no	no	no	no	no		no	no
L04	End defrost mode.	flag	ind/dEP	ind	ind	ind	ind	ind		ind	ind
L05	Enables synchronization of Stand-by command.	flag	no/yES	no	no	no	no	no		no	no
L06	Enables synchronization of lights command.	flag	no/yES	no	no	no	no	no		no	no
L07	Enables synchronization of Energy Saving command.	flag	no/yES	no	no	no	no	no		no	no
L08	Enables synchronization of AUX command.	flag	no/yES	no	no	no	no	no		no	no
L09	Enables sharing of saturation (pressure) probe.	flag	no/yES	no	no	no	no	no		no	no
L10	Sets the timeout for the end of dependent defrosts.	min	0...250	30	30	30	30	30		30	30
	ENERGY SAVING (EnS)										
ESt	Type of event activated by RTC.	num	0...4	3	2	2	2	2		2	2
ESF	Activation of fans in night mode (energy saving).	flag	no/yES		yES	no	no	no	no	no	yES
Cdt	Door close time for dynamic setpoint activation.	min*10	0...255		0				0		30
ESo	Cumulative door open time for dynamic setpoint deactivation.	num	0...10		0				0		5
OS1	Setpoint 1 offset (**SP1**) in energy saving mode.	°C/°F	-50.0...50.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
OS2	Setpoint 2 offset (**SP2**) in energy saving mode (only if **rE** ≠ 0)	°C/°F	-50.0...50.0					3.0			
Od1	Energy Saving Offset 1 glass door display cabinets.	°C/°F	-50.0...50.0		1.0				0.0		1.0
dn1	Setpoint 1 differential (SP1) in energy saving mode.	°C/°F	-58.0...302	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
dn2	Setpoint 2 differential (SP2) in energy saving mode (only if **rE** ≠ 0).	°C/°F	-58.0...302					4.0			
EdH	Start time hours weekday Energy Saving.	hours	0...24	21	21	21	21	21		21	21
Edn	Start time minutes weekday Energy Saving.	min	0...59	0	0	0	0	0		0	0
Edd	Duration of weekday Energy Saving.	hours	1...72	10	10	10	10	10		10	10
EFH	Start time hours weekend/public holiday Energy Saving.	hours	0...24	0	0	0	0	0		0	0
EFn	Start time minutes weekend/public holiday Energy Saving.	min	0...59	0	0	0	0	0		0	0
EFd	Duration of weekend/public holiday Energy Saving.	hours	1...72	24	24	24	24	24		24	24
	FRAME HEATERS (FrH)										
FH	Sets which probe uses the Frame Heaters (FH).	num	diS, dc, Pb1...Pb5, Pbi	dc	dc	dc	dc	dc		dc	Pb4
FHt	Duration of operating period of Frame Heaters (FH), only used when OC output is used with SSR relay.	s*10	1...250	30	30	30	30	30		30	30
FH0	Setpoint setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0		0.0	0.0
FH1	Offset setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	0.0...25.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
FH2	Band setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0		0.0	0.0
FH3	Minimum percentage setting of the Frame Heaters (only if **FH** ≠ dis and **FH** ≠ dc).	%	0...100	0	0	0	0	0		0	20
FH4	Sets maximum percentage for day Duty Cycle.	%	0...100	75	75	75	75	75		75	100
FH5	Sets maximum percentage for night-time Duty Cycle.	%	0...100	50	50	50	50	50		50	80
FH6	Setting of percentage during defrost.	%	0...100	100	100	100	100	100		100	100
	COMMUNICATION (Add)										
PtS	Select protocol (**t** = Televis; **d** = Modbus).	flag	t/f	t (**DEFAULT**)							
dEA	Device address: indicates the device address to the management protocol.	num	0 ... 14	0 (**DEFAULT**)							
FAA	Family address: indicates the device family to the management protocol.	num	0 ... 14	0 (**DEFAULT**)							
Adr	Modbus protocol controller address.	num	1 ... 250	1 (**DEFAULT**)							
bAU	Select baudrate. **96** (0) = 9600; **192** (1) = 19200; **384** (2) = 38400.	num	96/19200/ 38400	96 (**DEFAULT**)							
Pty	Set the ModBUS parity bit. (**n** = none; **E** = equal; **o** = unequal).	num	n/E/o	E (**DEFAULT**)							

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	DISPLAY (diS)										
LOC	LOCk. Setpoint edit lock. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
ndt	Display values with decimal point.	flag	no/yES	yES	yES	yES	yES	yES	yES	yES	yES
CA1	Probe **Pb1** calibration (only if **H41** ≠ Pro).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA2	Probe **Pb2** calibration (only if **H42** = Pro).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA3	Probe **Pb3** calibration (only if **H43** = Pro).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA4	Probe **Pb4** calibration (only if **H44** = Pro).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA5	Probe **Pb5** calibration (only if **H45** = Pro).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA6	Calibration of pressure transducer **Pb6** (4...20 mA) (only if **H46**=Pro).	Bar	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA7	Calibration of ratiometric transducer **Pb** (only if **H47** = Pro).	Bar	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LdL	Minimum value that can be displayed by the device.	°C/°F	-58.0...HdL	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0
HdL	Maximum value that can be displayed by the device.	°C/°F	LdL...302	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
ddL	Display mode during defrost.	num	0/1/2	0	0	0	0	0	0	0	0
Ldd	Timeout value for display unlock.	min	0...250	0	0	0	0	0	0	0	0
ddd	Sets the value to be shown on the display.	num	SP1, Pb1...Pb5, Pbi, LP	Pbi	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
	HACCP (HCP)										
rPH	Sets which probe will be used by the HACCP alarms.	num	diS, Pb1...Pb5	diS	diS	diS	diS	diS	diS	diS	diS
	CONFIGURATION (CnF) ➔ Switched off and on again if one or more of the parameters are changed.										
trA	Selects the model of ratiometric transducer used.	num	USE, rA1...rA8	USE (**DEFAULT**)							
H00	Selection of type of probe used (Pb1...Pb5).	num	ntc / Ptc / Pt1	ntc	ntc	ntc	ntc	ntc	ntc	ntc	ntc
H08	Stand-by operating mode.	num	0/1/2	2	2	2	2	2	2	2	2
H16	Configuration of digital input 6/polarity (Pb6) (only if **H46**=di).	num	-17...17	17	0	0	0	0	0	0	0
H18	Configuration of digital input 8/polarity (DI). Same as **H16**.	num	-17...17	0	8	0	0	0	8	0	8
d16	Delay to activate digital input 6 (Pb6) (only if **H46** = di).	min	0...255	0	0	0	0	0	0	0	0
d18	Delay preceding activation of digital input 8 (DI).	min	0...255	0	0	0	0	0	0	0	0
H24	Configuration of digital output 4 (OUT 4).	num	0...14	5	4	4	9	4	4	13	4
H27	Configuration of digital output 7 (Open collector). Same as **H24**.	num	0...14	8	8	8	8	8		8	0
H32	Configuration of **DOWN** key.	num	0...8						0		
H33	Configuration of **ESC** key. Same as **H32**.	num	0...8	6	6	6	6	6	6	6	6
H50	Configuration of analogue output type.	flag	010/420								0
H51	Function linked to analogue output.	num	diS, FH, PEr								1
H60	Display of selected application.	num	0...8	1 (**DEFAULT**)							
H70	Sets probe 1 to use as virtual probe.	num	diS, Pb1...Pb5	Pb1							
H71	Sets probe 2 to use as virtual probe. Same as **H70**.	num	diS, Pb1...Pb5	Pb2							
H72	% calculation used by virtual probe - daytime.	%	0...100	50							
H73	% calculation used by virtual probe - night-time (Energy Saving mode).	%	0...100	50							
	ELECTRONIC EXPANSION VALVE (EE0)										
rSP	Sets the saturation probe to use.	num	diS, Pb6, Pb7 LSP, rP	Pb7 (**DEFAULT**)							
rSS	Sets the overheating probe to use.	num	diS, Pb1...Pb5	Pb5 (**DEFAULT**)							
EPd	Saturation value display mode: **t** (0) = temperature; **P** (1) = pressure.	flag	t/P	t (**DEFAULT**)							

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
Ert	Selects the type of refrigerant used.	num	404, r22, 410, 134, 744, 507 717, 290, PAr, 407, 448, 449 450, 513	410 (**DEFAULT**)							
U06	Minimum useful valve opening percentage.	%	0...100	10 (**DEFAULT**)							
H61	Selects the type of installation and function mode.	num	0...16	1 (**DEFAULT**)							
OLt	Minimum overheating threshold.	°C/°F	0.0...100	6.0 (**DEFAULT**)							
	COPY CARD (FPr).										
UL	Upload. To transfer programming parameters from device to CopyCard.	-	-	- (**DEFAULT**)							
dL	Download. To transfer programming parameters from Copy Card to device.	-	-	- (**DEFAULT**)							
Fr	Formatting. To erase data on Copy Card.	-	-	- (**DEFAULT**)							
	FUNCTIONS (FnC)										

The following functions are available:

Function	Function label ACTIVE	Function label NOT ACTIVE	Signalling
Manual defrost	dEF+blinking icon	dEF	Blinking Defrost icon
AUX (ON = active; OFF = not active)	Aon	AoF	AUX ON icon
Reset pressure switch alarms	rAP	rAP	Alarm ON icon
Stand-by	OFF	OFF	LED Stand-by ON (only **KDWPlus**)

NOTE: • To edit the state of a given function press the “set” key
• If the device is switched off the function labels will return to the default state (inactive).

NOTE: For the full list of parameters, riferirsi a **“9.2. INSTALLER PARAMETERS TABLE” on page 126.**

9.2. INSTALLER PARAMETERS TABLE

The table below gives the 'Installer' parameters of the **RTX-RTD 600 /V**.

NOTES: • the parameters and visibility pre-loaded in the instrument are those in the application **AP1**.
• parameters with grey background ( ) are not in the applications and don't change if another application **AP1...AP8** is loaded.

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	COMPRESSOR (CP)										
rE	Sets the type of control to be used: **0**: single thermostat; **1**: double thermostat series; **2**: double thermostat parallel; **3**: reserved; **4**: double thermostat with two independent regulators.	num	0...4	0	0	0	0	2	0	0	0
rP1	Sets the probe used by thermostat 1. **diS** (0) = disabled; **Pb1** (1) = Pb1 probe; **Pb2** (2) = Pb2 probe; **Pb3** (3) = Pb3 probe; **Pb4** (4) = Pb4 probe; **Pb5** (5) = Pb5 probe; **Pbi** (6) = virtual probe; **LP** (7) = remote probe (Link[2]).	num	diS, Pb1...Pb5, Pbi, LP	Pbi	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
rP2	Sets the probe used by thermostat 2 (only if **rE** ≠ 0). Same as **rP1**.	num	diS, Pb1...Pb5, Pbi, LP	diS	diS	diS	diS	Pb2	diS	diS	diS
SP1	Thermostat 1 regulation setpoint.	°C/°F	LS1...HS1	3.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0
dF1	Activation differential of the first thermostat (absolute or relative). **NOTE**: diF ≠ 0.	°C/°F	-58.0...302	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
SP2	Thermostat 2 regulation setpoint (only if **rE** ≠ 0).	°C/°F	LS2...HS2	0.0	0.0	0.0	0.0	-22.0	0.0	0.0	0.0
dF2	Activation differential of the second thermostat (absolute or relative) (only if **rE**≠0). **NOTE**: diF ≠ 0.	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0
Stt	Management mode of differentials **dF1** and **dF2**. **AbS** (0) = absolute value; **rEL** (1) = relative value.	flag	AbS/rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL
HS1	Maximum value assignable to setpoint SP1. **NOTE**: The two setpoints are interdependent: HS1 cannot be less than LS1 and vice versa.	°C/°F	LS1...HdL	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LS1	Minimum value assignable to setpoint SP1. **NOTE**: The two setpoints are interdependent: LS1 cannot be greater than HS1 and vice versa.	°C/°F	LdL...HS1	-10.0	-35.0	-35.0	-35.0	-35.0	-35.0	-35.0	-35.0
HS2	Maximum value assignable to setpoint SP2 (only if **rE** ≠ 0). **NOTE**: The two setpoints are interdependent: HS2 cannot be less than LS2 and vice versa.	°C/°F	LS2...HdL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LS2	Minimum value assignable to setpoint SP2 (only if **rE** ≠ 0). **NOTE**: The two setpoints are interdependent: LS2 cannot be greater than HS2 and vice versa.	°C/°F	LdL...HS2	0.0	0.0	0.0	0.0	-35.0	0.0	0.0	0.0
HC1	Selection of thermostat 1 regulation mode. **C** (0) = Cold, **H** (1) = Hot.	flag	C/H	C	C	C	C	C	C	C	C
HC2	Selection of thermostat 2 regulation mode (only if **rE** ≠ 0). **C** (0) = Cold, **H** (1) = Hot.	flag	C/H	C	C	C	C	C	C	C	C
Cit	Minimum activation time of compressor before possible deactivation. If **Cit** = 0 not active.	min	0...250	0	0	0	0	0	0	0	0
CAt	Maximum activation time of compressor before possible deactivation. If **CAt** = 0 not active.	min	0...250	0	0	0	0	0	0	0	0
Ont	Controller switch-on time in the event of error probe. If **Ont** = 1 and **OFt** = 0, the compressor stays on permanently (ON). If **Ont** > 0 and **OFt** > 0, it operates in Duty Cycle mode.	min	0...250	3	3	3	3	3	3	3	3
OFt	Controller switch-off time in the event of error probe. If **OFt** = 1 and **Ont** = 0, the compressor will always stay off (OFF). If **Ont** > 0 and **OFt** > 0, it operates in Duty Cycle mode.	min	0...250	3	3	3	3	3	3	3	3
dOn	Delay between switch-ons; Wait the time indicated between two consecutive compressor power-ons.	s	0...250	0	0	0	0	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
dOF	Delay time after power-off: Wait the time indicated between deactivation of the compressor relay and the next power-on.	min	0...250	0	0	0	0	0	0	0	0
dbi	Delay between switch-ons; wait the time indicated between two consecutive compressor power-ons.	min	0...250	0	0	0	0	0	0	0	0
OdO	Delay in activating outputs after the device is switched on or after a power outage. **0** = not active.	min	0...250	0	0	0	0	0	0	0	0
OF1	Represents the (Offset) value which will be added or not to the thermostat 1 setpoint (SP1) in the presence of remote controls: **nOS** = Activation of setpoint offset forcing (**SEt** = **SP1**+**OF1**) **nOS** = Disactivation of setpoint offset forcing (**SEt** = **SP1**)	°C/°F	-50.0...50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DEFROST (dEF)										
dP1	Sets the probe used by defrosting 1: **diS** (0) = disabled; **Pb1** (1) = Pb1 probe; **Pb2** (2) = Pb2 probe; **Pb3** (3) = Pb3 probe; **Pb4** (4) = Pb4 probe; **Pb5** (5) = Pb5 probe; **Pbi** (6) = virtual probe; **LP** (7) = remote probe.	num	diS, Pb1...Pb5, Pbi, LP	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3	Pb3
dP2	Sets the probe used by defrosting 2. Same as **dP1**.	num	diS, Pb1...Pb5, Pbi, LP	diS	diS	diS	Pb4	diS	diS	diS	diS
dty	Type of defrost **0** = electric defrost (using heaters) or air defrost; **1** = reverse cycle defrost; **2** = hot gas defrost for plug-in applications (with integrated compressor); **3** = hot gas defrost for applications with remote control (e.g. ducted counters); **4** = electric defrost (via heaters) or air defrost with energy saving algorithms (smart defrost).	num	0...4	4	4	4	4	4	0	3	4
dFt	Defrost activation mode using 2 probes: **0** = activation linked to probe 1 only; **1** = activation in response to at least one of the two probes; **2** = activation in response to both probes.	num	0/1/2	0	0	0	2	0	0	0	0
dit	Interval between the start of two consecutive defrost cycles. **0** = function disabled (defrost NEVER performed).	see **dt1**	0...250	0	0	0	0	0	0	0	0
dt1	Unit of measurement for defrost interval (parameter **dit**). **0** = hours; **1** = minutes; **2** = seconds.	num	0/1/2	0	0	0	0	0	0	0	0
dt2	Unit of measurement for duration of defrost (parameters **dE1**/**dE2**). (only if **dFt** ≠ 0). **0** = hours; **1** = minutes; **2** = seconds.	num	0/1/2	1	1	1	1	1	1	1	1
dCt	Selects the count mode for the defrost interval: **0** = defrost disabled; **1** = compressor running time (DIGIFROST® method); defrost active ONLY when the compressor is on; **NOTE**: compressor running hours are counted separately from the evaporator probe (count active also when evaporator probe missing or inoperable). **2** = appliance running time; counting is always active when the machine is on and starts at each power-on; **3** = compressor stop. Every time the compressor stops, a defrost cycle is performed according to parameter **dtY**; **4** = RTC; **5** = temperature.	num	0...5	4	4	4	4	4	4	4	4

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
dOH	Delay preceding start of first defrost after call.	min	0...250	0	0	0	0	0	0	0	0
dE1	Evaporator 1 defrost timeout. Sets the maximum defrost time on Evaporator 1.	see **dt2**	1...250	30	30	30	30	30	30	30	30
dE2	Evaporator 1 defrost time-out (only if **dFt** ≠ 0). Sets the maximum defrost time on Evaporator 2.	see **dt2**	1...250	1	1	1	30	1	1	1	1
dS1	Defrost 1 end temperature (only if **dP1** ≠ diS).	°C/°F	-58.0...302	7.0	7.0	7.0	7.0	7.0	12.0	12.0	7.0
dS2	Defrost 2 end temperature (only if **dP2** ≠ diS).	°C/°F	-58.0...302	7.0	7.0	7.0	7.0	7.0	12.0	12.0	7.0
dSS	Start defrost temperature threshold (only if **dCt** = 5).	°C/°F	-58.0...302	-5.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0
dPO	Determines whether or not the device defrost at power-up (provided that the temperature measured at the evaporator will allows defrost). **no** (0) = no, does not defrost on power-up; **yES** (1) = yes, defrost on power-on.	flag	no/yES	no	no	no	no	no	no	no	no
tcd	Minimum time period with the compressor ON or OFF before defrost is activated.	min	-60...60	0	0	0	0	0	0	-3	0
ndE	Minimum defrost duration. **NOTE**: If **dtY**=0, **dtY**=1 or **dtY**=4, set **ndE**=0.	min	0...250	0	0	0	0	0	0	15	0
PdC	Hot gas extraction time at defrost end.	min	0...250	0	0	0	0	0	0	3	0
tPd	Minimum pump down time before defrost starts.	min	0...255	0	0	0	0	0	0	0	0
dPH	Periodic defrost start hour (only if **dCt** = 4). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24	24	24	24	24
dPn	Periodic defrost start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
dPd	Interval between one periodic defrost and the next (only if **dCt** = 4).	days	1...7	1	1	1	1	1	1	1	1
Fd1	Holiday 1 (only if **dCt** = 4). **0...6** = start day; **7** = disabled	days	0...7	0	0	0	0	0	0	0	0
Fd2	Holiday 2 (only if **dCt** = 4). **0...6** = start day; **7** = disabled.	days	0...7	7	7	7	7	7	7	7	7
Edt	Sets whether you wish to enter the duration and temperature for defrost end of each event (only if **dCt** = 4). **no** (0) = values all the same; **yES** (1) = customised values for each event.	flag	no/yES	no	no	no	no	no	no	no	no
d1H	Weekday defrost 1 start hour (only if **dCt** = 4). **0...23** = start hour; **24** = disabled.	hours	0...24	7	0	0	0	0	7	0	0
d1n	Weekday defrost 1 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d1t	Weekday defrost 1 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
d1S	Weekday defrost 1 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d2H	Weekday defrost 2 start hour (only if **dCt** = 4). **d1H...23** = start hour; **24** = disabled.	hours	d1H...24	21	6	6	6	6	21	6	6
d2n	Weekday defrost 2 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d2t	Weekday defrost 2 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
d2S	Weekday defrost 2 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d3H	Weekday defrost 3 start hour (only if **dCt** = 4). **d2H...23** = start hour; **24** = disabled.	hours	d2H...24	24	12	12	12	12	24	12	12
d3n	Weekday defrost 3 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d3t	Weekday defrost 3 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
d3S	Weekday defrost 3 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d4H	Weekday defrost 4 start hour (only if **dCt** = 4). **d3H...23** = start hour; **24** = disabled.	hours	d3H...24	24	18	18	18	18	24	18	18
d4n	Weekday defrost 4 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d4t	Weekday defrost 4 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
d4S	Weekday defrost 4 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d5H	Weekday defrost 5 start hour (only if **dCt** = 4). **d4H...23** = start hour; **24** = disabled.	hours	d4H...24	24	24	24	24	24	24	24	24
d5n	Weekday defrost 5 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d5t	Weekday defrost 5 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
d5S	Weekday defrost 5 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d6H	Weekday defrost 6 start hour (only if **dCt** = 4). **d5H...23** = start hour; **24** = disabled.	hours	d5H...24	24	24	24	24	24	24	24	24
d6n	Weekday defrost 6 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
d6t	Weekday defrost 6 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
d6S	Weekday defrost 6 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F1H	Holiday defrost 1 start hour (only if **dCt** = 4). **0...23** = start hour; **24** = disabled.	hours	0...24	12	0	0	0	0	12	0	0
F1n	Holiday defrost 1 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F1t	Weekend/holiday defrost 1 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F1S	Weekend/holiday defrost 1 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F2H	Holiday defrost 2 start hour (only if **dCt** = 4). **F1H...23** = start hour; **24** = disabled.	hours	F1H...24	23	6	6	6	6	23	6	6
F2n	Holiday defrost 2 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F2t	Weekend/holiday defrost 2 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F2S	Weekend/holiday defrost 2 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F3H	Holiday defrost 3 start hour (only if **dCt** = 4). **F2H...23** = start hour; **24** = disabled.	hours	F2H...24	24	12	12	12	12	24	12	12
F3n	Holiday defrost 3 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F3t	Weekend/holiday defrost 3 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F3S	Weekend/holiday defrost 3 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F4H	Holiday defrost 4 start hour (only if **dCt** = 4). **F3H...23** = start hour; **24** = disabled.	hours	F3H...24	24	18	18	18	18	24	18	18
F4n	Holiday defrost 4 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F4t	Weekend/holiday defrost 4 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F4S	Weekend/holiday defrost 4 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F5H	Holiday defrost 5 start hour (only if **dCt** = 4). **F4H...23** = start hour; **24** = disabled.	hours	F4H...24	24	24	24	24	24	24	24	24
F5n	Holiday defrost 5 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F5t	Weekend/holiday defrost 5 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F5S	Weekend/holiday defrost 5 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F6H	Holiday defrost 6 start hour (only if **dCt** = 4). **F5H...23** = start hour; **24** = disabled.	hours	F5H...24	24	24	24	24	24	24	24	24
F6n	Holiday defrost 6 start minutes (only if **dCt** = 4).	min	0...59	0	0	0	0	0	0	0	0
F6t	Weekend/holiday defrost 6 duration (only if **dCt** = 4).	min	0...250	0	0	0	0	0	0	0	0
F6S	Weekend/holiday defrost 6 end temperature (only if **dCt** = 4).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	FANS (FAn)										
FP1	Sets the probe used by the evaporator fans during normal operation: **diS** (0) = disabled; **Pb1** (1) = Pb1 probe; **Pb2**(2) = Pb2 probe; **Pb3** (3) = Pb3 probe; **Pb4**(4) = Pb4 probe; **Pb5** (5) = Pb5 probe; **Pbi** (6) = virtual probe; **LP** (7) = remote probe;	num	dis, Pb1...Pb5, Pbi, LP	diS	diS	Pb3	Pb3	Pb3	Pb3	Pb3	diS
FP2	Sets the probe used by the evaporator fans during defrost. Same as **FP1**.	num	dis, Pb1...Pb5, Pbi, LP, PFi	diS	diS	diS	diS	diS	diS	diS	diS
FPt	Parameter management mode **FSt**. **AbS** (0) = absolute value; **rEL** (1) = relative value.	flag	AbS/rEL	AbS	AbS	AbS	AbS	AbS	AbS	AbS	AbS
FSt	Fans 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).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAd	Evaporator fans activation differential activation (only if **FP1** ≠ dis).	°C/°F	0.1...25.0	0.1	0.1	4.0	4.0	4.0	4.0	4.0	0.1
Fdt	Evaporator fan activation delay after a defrost cycle	min	0...250	0	0	0	0	0	1	0	0
dt	Drainage time. Dripping time.	min	0...250	0	5	5	5	5	5	3	0
dFd	Operating mode of evaporator fans during defrost. **OFF** (0) = Fans Off; **On** (1) = Fans On.	flag	OFF/On	On	On	On	On	On	On	OFF	On

<table>
<tr><th>PAR.</th><th>DESCRIPTION</th><th>M.U.</th><th>RANGE</th><th>AP1</th><th>AP2</th><th>AP3</th><th>AP4</th><th>AP5</th><th>AP6</th><th>AP7</th><th>AP8</th></tr>
<tr><td>FCO</td><td>Evaporator fans operating mode with compressor output switched off (OFF). The status of the fans will be:
<table>
<tr><th></th><th>FP1</th><th>FCO</th><th>COMPRESSOR ON</th><th>COMPRESSOR OFF</th></tr>
<tr><td rowspan="20">DAY</td><td rowspan="5">FP1 present</td><td>0</td><td>Thermostated</td><td>OFF</td></tr>
<tr><td>1</td><td>Thermostated</td><td>Thermostated</td></tr>
<tr><td>2</td><td>Thermostated</td><td>Thermostated</td></tr>
<tr><td>3</td><td>Thermostated</td><td>Duty cycle Day</td></tr>
<tr><td>4</td><td>Thermostated</td><td>Duty cycle Day</td></tr>
<tr><td rowspan="5">FP1 inoperable</td><td>0</td><td>Duty cycle Day</td><td>ON</td></tr>
<tr><td>1</td><td>ON</td><td>ON</td></tr>
<tr><td>2</td><td>Duty cycle Day</td><td>Duty cycle Day</td></tr>
<tr><td>3</td><td>Duty cycle Day</td><td>Duty cycle Day</td></tr>
<tr><td>4</td><td>Duty cycle Day</td><td>Duty cycle Day</td></tr>
<tr><td rowspan="5">FP1 absent</td><td>0</td><td>ON</td><td>OFF</td></tr>
<tr><td>1</td><td>ON</td><td>ON</td></tr>
<tr><td>2</td><td>Duty cycle Day</td><td>Duty cycle Day</td></tr>
<tr><td>3</td><td>ON</td><td>Duty cycle Day</td></tr>
<tr><td>4</td><td>ON</td><td>Duty cycle Day</td></tr>
<tr><td rowspan="20">NIGHT</td><td rowspan="5">FP1 present</td><td>0</td><td>Thermostated</td><td>OFF</td></tr>
<tr><td>1</td><td>Thermostated</td><td>Thermostated</td></tr>
<tr><td>2</td><td>Thermostated</td><td>Thermostated</td></tr>
<tr><td>3</td><td>Thermostated</td><td>Duty cycle Night</td></tr>
<tr><td>4</td><td>Thermostated</td><td>Duty cycle Night</td></tr>
<tr><td rowspan="5">FP1 inoperable</td><td>0</td><td>Duty cycle Night</td><td>ON</td></tr>
<tr><td>1</td><td>ON</td><td>ON</td></tr>
<tr><td>2</td><td>Duty cycle Night</td><td>Duty cycle Night</td></tr>
<tr><td>3</td><td>Duty cycle Night</td><td>Duty cycle Night</td></tr>
<tr><td>4</td><td>Duty cycle Night</td><td>Duty cycle Night</td></tr>
<tr><td rowspan="5">FP1 absent</td><td>0</td><td>ON</td><td>OFF</td></tr>
<tr><td>1</td><td>ON</td><td>ON</td></tr>
<tr><td>2</td><td>Duty cycle Night</td><td>Duty cycle Night</td></tr>
<tr><td>3</td><td>ON</td><td>Duty cycle Night</td></tr>
<tr><td>4</td><td>ON</td><td>Duty cycle Night</td></tr>
</table>
Duty cycle Day: controlled by means of parameters FOn and FOF.
Duty cycle Night: controlled by means of parameters Fnn and FnF.</td><td>num</td><td>0...4</td><td>3</td><td>3</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>3</td></tr>
<tr><td>FdC</td><td>Evaporator fans switch-off delay after compressor deactivation.</td><td>min</td><td>0...250</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>5</td><td>0</td><td>0</td></tr>
<tr><td>FOn</td><td>Time fans remain ON during daytime duty cycle.
Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see FCO).</td><td>min</td><td>0...250</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>FOF</td><td>Time fans remain OFF during daytime duty cycle.
Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see FCO).</td><td>min</td><td>0...250</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Fnn</td><td>Time fans remain ON during night-time duty cycle.
Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see FCO).</td><td>min</td><td>0...250</td><td>1</td><td>2</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>2</td></tr>
<tr><td>FnF</td><td>Time fans remain OFF during daytime duty cycle.
Operation of fans in duty cycle mode; valid when Dutycycle mode is active (see FCO).</td><td>min</td><td>0...250</td><td>0</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>2</td></tr>
<tr><td></td><td>ALARMS (AL)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>rA1</td><td>Sets probe 1 used for temperature alarms:
diS (0) = disabled; Pb1 (1) = Pb1 probe;
Pb2 (2) = Pb2 probe; Pb3 (3) = Pb3 probe;
Pb4 (4) = Pb4 probe; Pb5 (5) = Pb5 probe;
Pbi (6) = virtual probe.</td><td>num</td><td>diS, Pb1...Pb5, Pbi</td><td>Pbi</td><td>Pb1</td><td>Pb1</td><td>Pb1</td><td>Pb1</td><td>Pb1</td><td>Pb1</td><td>Pb1</td></tr>
</table>

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
rA2	Sets probe 2 used for temperature alarms. Same as **rA1**.	num	diS, Pb1...Pb5, Pbi	diS	diS	diS	diS	Pb2	diS	diS	diS
Att	It define if parameters **HA1/2** and **LA1/2** will be used as the absolute temperature value or differential in relation to the setpoint. **AbS** (0) = absolute value; **rEL** (1) = relative value. **NOTE**: In case of relative values (par. **Att**=1), the **HA1/2** parameter should be set to positive values, while the **LA1/2** parameter should be set to negative values (-LAL).	flag	AbS/rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL	rEL
AFd	Alarms activation differential.	°C/°F	0.1...25.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
HA1	Maximum alarm probe 1 (only if **rA1** ≠ diS). Temperature value (based on **Att**) above which the probe will trigger activation of the alarm signal.	°C/°F	LA1...302	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
LA1	Minimum alarm probe 1 (only if **rA1** ≠ diS). Temperature value (based on **Att**) beneath which the probe will trigger activation of the alarm signal.	°C/°F	-58.0...HA1	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0
HA2	Maximum alarm probe 2 (only if **rA2** ≠ diS). Temperature value (based on **Att**) above which the probe will trigger activation of the alarm signal.	°C/°F	LA2...302	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0
LA2	Minimum alarm probe 2 (only if **rA2** ≠ diS). Temperature value (based on **Att**) beneath which the probe will trigger activation of the alarm signal.	°C/°F	-58.0...HA2	0.0	0.0	0.0	0.0	-5.0	0.0	0.0	0.0
PAO	Alarm exclusion time after the device is switched on following a power outage. **This parameter refers to high/low temperature alarms only.**	hours	0...10	3	3	3	3	3	3	3	3
dAO	Temperature alarm exclusion time after defrost.	min	0...250	30	30	30	30	30	30	30	30
OAO	Alarm indication delay (high and low temperature) following deactivation of digital input (port closed).	hours	0...10	0	0	0	0	0	10	0	0
tdO	Door open alarm activation delay.	min	0...250	0	0	0	0	0	10	0	0
tA1	Temperature 1 alarm signalling delay (only if **rA1**≠diS). **This parameter refers to high/low temperature alarms LA1 and HA1 only**.	min	0...250	0	0	0	0	0	0	0	0
tA2	Temperature 2 alarm signalling delay (only if **rA2**≠diS). **This parameter refers to high/low temperature alarms LA2 and HA2 only**.	min	0...250	0	0	0	0	0	0	0	0
dAt	Alarm indicating end of defrost as a result of timeout. **no** (0) = the alarm is not triggered; **yES** (1) = triggers the alarm	flag	no/yES	no	no	no	no	no	no	no	no
EAL	Regulators inhibited by external alarm. **0**= does not inhibit any resource. **1** = compressor and defrost blocked. **2** = compressor, defrost and fans blocked.	num	0/1/2	0	0	0	0	0	0	0	0
tP	Alarm acknowledged by pressing any key. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
Art	Link[2] supervision alarm activation period. Sets every how many minutes the system checks the network operation. The alarm (**AtS**) is not shown on the display and: • if **Art** = 0 is disabled; • if **Art** = 1 is reset automatically after 5 min; • if **Art** ≥ 2 it is reset automatically after 10 min.	min*10	0...250	0	0	0	0	0	0	0	0
	LIGHTS & DIGITAL INPUTS (Lit)										
dSd	Light relay / door switch interlock. **no** (0) = door opening does not switch on the light; **yES** (1) = door opening switches on the light (if it was off).	flag	no/yES	no	no	no	no	no	yES	no	no
dLt	Delay preceding deactivation (switch-off) of light relay (interior light). The cell light remains on for **dLt** minutes after the door is closed (only if **dSd** = yES).	min	0...250	0	0	0	0	0	0	0	0
OFL	Sets whether the light key disabled the light relay. Enables switching off with cold room light switch even if the delay **dLt** is enabled. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
dOd	Sets which utilities switch off when the door switch is activated. **0** = disabled; **1** = disable fans; **2** = disable compressor; **3** = disable fans and compressor.	num	0...3	1	1	1	1	1	3	1	1
dOA	Action forced from digital input (if **PEA** ≠ 0): **0** = activate compressor; **1** = activate fans; **2** = activate compressor and fans; **3** = deactivate compressor; **4** = deactivate fans; **5** = deactivate compressor and fans.	num	0...5	0	0	0	0	0	2	0	0
PEA	Selection of digital input configured to inhibit/enable resources. **0** = function disabled; **1** = associated with door switch; **2** = associated with external alarm; **3** = associated with external alarm and door switch.	num	0...3	0	0	0	0	0	1	0	0
dCO	Compressor activation/deactivation delay when enabled (DI activation).	min	0...250	0	0	0	0	0	5	0	0
dFO	Fan activation/deactivation delay when enabled (DI activation).	min	0...250	0	0	0	0	0	5	0	0
ASb	Sets whether the light key and the light enabling function with door open can be activated even with the controller in OFF. **no** (0) = disables relay until controller comes out of stand-by; **yES** (1) = status of relay remains unchanged and relay can be activated/deactivated using key.	flag	no/yES	no	no	no	no	no	no	no	no
	LINK² (Lin)										
L00	Sets which probe to share via Link²: **diS** (0) = disabled; **Pb1** (1) = probe Pb1; **Pb2** (2) = probe Pb2; **Pb3** (3) = probe Pb3; **Pb4** (4) = probe Pb4; **Pb5** (5) = probe Pb5; **Pbi** (6) = virtual probe.	num	diS, Pb1....Pb5, Pbi	diS	diS	diS	diS	diS	diS	diS	diS
L01	Shares the displayed value with the Link² network. **0** = value displayed by the device cannot be sent to the Link² network; **1** = value displayed by the device can be sent to the Link² network; **2** = displays the value of the device that set **L01** = 1.	num	0/1/2	0	0	0	0	0	0	0	0
L02	Sends the Setpoint value to the Link² network after it has been changed. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L03	Call for defrost can be sent to the Link² network. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L04	End defrost mode. **ind** (0) = independent; **dEP**(1) = dependent. Wait for all controllers to finish defrosting.	flag	ind/dEP	ind	ind	ind	ind	ind	ind	ind	ind
L05	Enables synchronization of Stand-by command. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L06	Enables synchronization of lights command. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L07	Enables synchronization of Energy Saving command. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L08	Enables synchronization of AUX command. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L09	Enables sharing of saturation (pressure) probe. **no** (0) = no; **yES** (1) = yes.	flag	no/yES	no	no	no	no	no	no	no	no
L10	Sets the timeout for the end of dependent defrosts.	min	0...250	30	30	30	30	30	30	30	30

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	DEEP COOLING CYCLE (dEC)										
dCS	Deep cooling setpoint.	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tdc	Deep cooling duration.	min	0...250	0	0	0	0	0	0	0	0
dcc	Defrost delay after deep cooling.	min	0...250	0	0	0	0	0	0	0	0
	ENERGY SAVING (EnS)										
ESt	Type of event activated by RTC: **0**= disabled **1**= Energy Saving; **2**= Energy Saving + Light off; **3**= Energy Saving + Light off + AUX output active; **4**= Device switched off.	num	0...4	3	2	2	2	2	0	2	2
ESF	Activation of fans in night mode (energy saving). **no** (0) = disabled; **yES** (1) = enabled if energy saving mode is active (only if **ESt** ≠ 0 and **ESt** ≠ 4).	flag	no/yES	no	yES	no	no	no	no	no	yES
Cdt	Door close time for dynamic setpoint activation.	min*10	0...255	0	0	0	0	0	0	0	30
ESo	Cumulative door open time for dynamic setpoint deactivation.	num	0...10	0	0	0	0	0	0	0	5
OS1	Setpoint 1 offset (**SP1**) in energy saving mode.	°C/°F	-50.0...50.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
OS2	Setpoint 2 offset (**SP2**) in energy saving mode (only if **rE** ≠ 0)	°C/°F	-50.0...50.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0
Od1	Energy Saving Offset 1 glass door display cabinets.	°C/°F	-50.0...50.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0
Od2	Energy saving offset 2 for glass door display cabinets (only if **rE** ≠ 0).	°C/°F	-50.0...50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
dn1	Setpoint 1 differential (SP1) in energy saving mode.	°C/°F	-58.0...302	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
dn2	Setpoint 2 differential (SP2) in energy saving mode (only if **rE** ≠ 0).	°C/°F	-58.0...302	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
EdH	Start time hours weekday Energy Saving. **0...23** = start hour; **24** = disabled.	hours	0...24	21	21	21	21	21	24	21	21
Edn	Start time minutes weekday Energy Saving.	min	0...59	0	0	0	0	0	0	0	0
Edd	Duration of weekday Energy Saving.	hours	1...72	10	10	10	10	10	1	10	10
EFH	Start time hours weekend/public holiday Energy Saving. **0...23** = start hour; **24** = disabled.	hours	0...24	0	0	0	0	0	24	0	0
EFn	Start time minutes weekend/public holiday Energy Saving.	min	0...59	0	0	0	0	0	0	0	0
EFd	Duration of weekend/public holiday Energy Saving.	hours	1...72	24	24	24	24	24	1	24	24
	FRAME HEATERS (FrH)										
FH	Sets which probe uses the Frame Heaters (FH): **diS** (0) = disabled; **dc** (1) = Duty Cycle; **Pb1** (2) = probe Pb1; **Pb2** (3) = probe Pb2; **Pb3** (4) = probe Pb3; **Pb4** (5) = probe Pb4; **Pb5** (6) = probe Pb5; **Pbi** (7) = virtual probe.	num	diS, dc, Pb1...Pb5, Pbi	dc	dc	dc	dc	dc	diS	dc	Pb4
FHt	Duration of operating period of Frame Heaters (FH), only used when OC output is used with SSR relay.	s*10	1...250	30	30	30	30	30	1	30	30
FH0	Setpoint setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FH1	Offset setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	0.0...25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
FH2	Band setting of the Frame Heaters. (only if **FH** ≠ dis and **FH** ≠ dc).	°C/°F	0.0...25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
FH3	Minimum percentage setting of the Frame Heaters (only if **FH** ≠ dis and **FH** ≠ dc).	%	0...100	0	0	0	0	0	0	0	20
FH4	Sets maximum percentage for day Duty Cycle.	%	0...100	75	75	75	75	75	0	75	100
FH5	Sets maximum percentage for night-time Duty Cycle.	%	0...100	50	50	50	50	50	0	50	80
FH6	Setting of percentage during defrost.	%	0...100	100	100	100	100	100	0	100	100
	COMMUNICATION (Add)										
PtS	Select protocol. **t** (0) = Televis; **d** (1) = Modbus.	flag	t/d	t (**DEFAULT**)							
dEA	Device address: indicates the device address to the management protocol.	num	0...14	0 (**DEFAULT**)							

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
FAA	Family address: indicates the device family to the management protocol.	num	0...14	0 (**DEFAULT**)							
Adr	Modbus protocol controller address.	num	1...250	1 (**DEFAULT**)							
bAU	Select baudrate. **96** (0) = 9600; **192** (1) = 19200; **384** (2) = 38400.	num	96/19200/ 38400	96 (**DEFAULT**)							
Pty	Set the ModBUS parity bit. **n** (0) = none; **E** (1) = even; **or** (2) = odd.	num	n/E/o	E (**DEFAULT**)							
	DISPLAY (diS)										
LOC	LOCk. Setpoint edit lock. The parameter programming menu can still be accessed, and the settings changed, which means also that the status of this parameter can be changed so as to unlock the keypad. **no**(0)= no; **yES**(1)= yes.	flag	no/yES	no	no	no	no	no	no	no	no
PS1	PAssword 1. When enabled (**PS1** ≠ 0) this password provides access to level 1 parameters (**User**).	num	0...250	0	0	0	0	0	0	0	0
PS2	PAssword 2. When enabled (**PS2** ≠ 0) this password provides access to level 2 parameters (**Installer**).	num	0...250	15	15	15	15	15	15	15	15
ndt	Display values with decimal point. **no** (0) = no (integers only); **yES** (1) = yes (display with decimal point).	flag	no/yES	yES	yES	yES	yES	yES	yES	yES	yES
CA1	Probe **Pb1** calibration (only if **H41** ≠ Pro). Positive or negative temperature value added to the value read by **Pb1**. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA2	Probe **Pb2** calibration (only if **H42** = Pro). Positive or negative temperature value added to the value read by **Pb2**. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA3	Probe **Pb3** calibration (only if **H43** = Pro). Positive or negative temperature value added to the value read by **Pb3**. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA4	Probe **Pb4** calibration (only if **H44** = Pro). Positive or negative temperature value added to the value read by **Pb4**. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA5	Probe **Pb5** calibration (only if **H45** = Pro). Positive or negative temperature value added to the value read by **Pb5**. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA6	Calibration of pressure transducer **Pb6** (4...20 mA) (only if **H46**=Pro). Positive or negative temperature value added to the value read by the pressure transducer (4...20 mA). This sum is used for both temperature display and temperature regulation purposes.	Bar	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA7	Calibration of ratiometric transducer **Pb7** (only if **H47**=Pro). Positive or negative temperature value added to the value read by the ratiometric transducer. This sum is used for both temperature display and temperature regulation purposes.	Bar	-30.0...30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LdL	Minimum value that can be displayed by the device.	°C/°F	-58.0...HdL	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0
HdL	Maximum value that can be displayed by the device.	°C/°F	LdL...302	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
ddL	Display mode during defrost. **0** = displays the temperature read by probe or the setpoint (see **ddd**); **1** = locks the reading at the temperature value read by probe when defrosting starts and until the next time the SEt is reached (or until **Ldd** has elapsed); **2** = displays the label dEF during defrosting and until the next time the SEt is reached (or until **Ldd** has elapsed).	num	0/1/2	0	0	0	0	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
Ldd	Timeout value for display unlock.	min	0...250	0	0	0	0	0	0	0	0
dro	Selection of °C or °F to display the probe value. **C** (0)= °C; **F** (1)= °F. **NOTE**: switching between °C and °F or vice versa DOES NOT modify the setpoint, differential values, etc. (example: SEt = 10 °C becomes 10 °F).	flag	C/F	C	C	C	C	C	C	C	C
SbP	Selects BAR or PSI to display the value of the pressure sensor 4...20 mA (Pb6) and Ratiometric sensors (Pb7) if present. **bAr** (0) = BAR; **PSi** (1) = PSI.	flag	bAr/PSi	bAr	bAr	bAr	bAr	bAr	bAr	bAr	bAr
ddd	Sets the value to be shown on the display. **SP1** (0) = setpoint SP1; **Pb1** (1) = probe Pb1; **Pb2** (2) = probe Pb2; **Pb3** (3) = probe Pb3; **Pb4** (4) = probe Pb4; **Pb5** (5) = probe Pb5; **Pbi** (6) = virtual probe; **LP** (7) = remote probe.	num	SP1, Pb1...Pb5, Pbi, LP	Pbi	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
ddE	Sets the value to be shown on the ECHO module display. Analogue at **ddd**.	num	SP1, Pb1...Pb5, Pbi, LP	Pbi	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1	Pb1
	HACCP (HCP)										
rPH	Sets which probe will be used by the HACCP alarms. **diS** (0) = disabled; **Pb1** (1) = probe Pb1; **Pb2** (2) = probe Pb2; **Pb3** (3) = probe Pb3; **Pb4** (4) = probe Pb4; **Pb5** (5) = probe Pb5.	num	diS, Pb1...Pb5	diS	diS	diS	diS	diS	diS	diS	diS
	CONFIGURATION (CnF) ➔ Switched off and on again if one or more of the parameters are changed.										
trA	Selects the model of ratiometric transducer used: **USE** (0) = Generic Probe Settable by the customer; **rA1** (1) = EWPA 010 R 0/5 V 0/10 BAR FEMALE; **rA2** (2) = EWPA 030 R 0/5 V 0/30 BAR FEMALE; **rA3** (3) = EWPA 050 R 0/5 V 0/50 BAR FEMALE; **rA4** (4) = AKS 32R -1 ...6 BAR; **rA5** (5) = AKS 32R -1 ...12 BAR; **rA6** (6) = AKS 32R -1 ... 20 BAR; **rA7** (7) = AKS 32R -1 ... 34 BAR; **rA8** (8) = Reserved. **NOTE**: The upper and lower limits of probes **rA1**...**rA8** are preset (and cannot be modified) while if **USE** is selected, set the values using parameters **H05** and **H06**.	num	USE, rA1...rA8	rA1 (**DEFAULT**)							
H00	Selection of type of probe used (Pb1...Pb5). **ntc** (0) = NTC; **Ptc** (1) = PTC; **Pt1** (2) = Pt1000	num	ntc/Ptc/Pt1	ntc	ntc	ntc	ntc	ntc	ntc	ntc	ntc
H02	Key activation time, when configured with a second function. When the ESC, UP e DOWN keys have been configured with a second function (defrost, aux, etc.), a time is set for quick activation of the second function. With the exception of the AUX and LIGHT functions which have a fixed delay of 0.5 seconds.	num	0...250	5	5	5	5	5	5	5	5
H03	Pressure transducer lower limit 4-20 mA (relative pressure).	Bar	-1.0...H04	-1,0 (**DEFAULT**)							
H04	Pressure transducer upper limit 4-20 mA (relative pressure).	Bar	H03...150.0	7,0 (**DEFAULT**)							
H05	Ratiometric transducer lower limit (relative pressure).	Bar	-1.0...H06	-1,0 (**DEFAULT**)							
H06	Ratiometric transducer upper limit (relative pressure).	Bar	H05...150.0	7,0 (**DEFAULT**)							
H08	Stand-by operating mode. **0** = display off: the regulators are active and the device reactivates the display to signal any alarms; **1** = display off; regulators and alarms inhibited; **2** = display shows OFF label; regulators and alarms inhibited.	num	0/1/2	2	2	2	2	2	2	2	2

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
H11	Configuration of digital input 1/polarity (Pb1) (only if **H41**=di). **0** = disabled; **± 1** = start defrost; **± 2** = end defrost; **± 3** = Light; **± 4** = energy saving; **± 5** = AUX; **± 6** = external alarm; **± 7** = Stand-by; **± 8** = door switch; **± 9** = preheat alarm; **±10**, **±11**, **±12** = reserved; **±13** = deep cooling; **±14** = EEV forced OFF; **±15** = forces Fans in ON; **±16** = force **OF1** (remote offset); **±17** = generic input. **NOTE**: - The + sign indicates that the input is active when the contact is closed; - The − sign indicates that the input is active when the contact is opened.	num	-17...17	0	0	0	0	0	0	0	0
H12	Configuration of digital input 2/polarity (Pb2). (only if **H42** = di). Same as **H11**.	num	-17...17	0	0	0	0	0	0	0	0
H13	Configuration of digital input 3/polarity (Pb3). (only if **H43** = di). Same as **H11**.	num	-17...17	0	0	0	0	0	0	0	0
H14	Configuration of digital input 4/polarity (Pb4). (only if **H44** = di). Same as **H11**.	num	-17...17	0	0	0	0	0	0	0	0
H15	Configuration of digital input 5/polarity (Pb5). (only if **H45** = di). Same as **H11**.	num	-17...17	0	0	0	0	0	0	0	0
H16	Configuration of digital input 6/polarity (Pb6). (only if **H46** = di). Same as **H11**.	num	-17...17	17	0	0	0	0	0	0	0
H17	Configuration of digital input 7/polarity (Pb7). (only if **H47** = di). Same as **H11**.	num	-17...17	0	0	0	0	0	0	0	0
H18	Configuration of digital input 8/polarity (DI). Same as **H11**.	num	-17...17	0	8	0	0	0	8	0	8
dti	Unit of measurement for delay in digital inputs DI1 (Pb1) and DI2 (Pb2). If Pb1 or Pb2 are configured as DI it is possible to set the unit of measurement used. **0** = minutes; **1** = seconds.	num	0/1	0	0	0	0	0	0	0	0
d11	Delay to activate digital input 1 (Pb1) (only if **H41** = di).	see **dti**	0...255	0	0	0	0	0	0	0	0
d12	Delay to activate digital input 2 (Pb2) (only if **H42** = di).	see **dti**	0...255	0	0	0	0	0	0	0	0
d13	Delay to activate digital input 3 (Pb3) (only if **H43** = di).	min	0...255	0	0	0	0	0	0	0	0
d14	Delay to activate digital input 4 (Pb4) (only if **H44** = di).	min	0...255	0	0	0	0	0	0	0	0
d15	Delay to activate digital input 5 (Pb5) (only if **H45** = di).	min	0...255	0	0	0	0	0	0	0	0
d16	Delay to activate digital input 6 (Pb6) (only if **H46** = di).	min	0...255	0	0	0	0	0	0	0	0
d17	Delay to activate digital input 7 (Pb7) (only if **H47** = di).	min	0...255	0	0	0	0	0	0	0	0
d18	Delay preceding activation of digital input 8 (DI).	min	0...255	0	0	0	0	0	0	0	0
H21	Configuration of digital output 1 (OUT 1). **0** = disabled; **1** = compressor 1; **2** = defrost 1 / hot gas valve; **3** = evaporator fans; **4** = alarm; **5** = AUX; **6** = Stand-by; **7** = Light; **8** = anti-condensation heaters (Frame heater); **9** = defrost 2; **10** = reserved; **11** = condenser fans; **12** = AUX regulator; **13** = hot gas on evaporator suction valve; **14** = alarm with inverted polarity.	num	0...14	1	1	1	1	1	1	1	1

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
H22	Configuration of digital output 2 (OUT 2). Same as **H21**. **default RTX 600 /V** / **default RTD 600 /V**	num	0...14	3 7	3 7	3 7	3 7	3 7	3 7	3 7	3 7
H23	Configuration of digital output 3 (OUT 3). Same as **H21**.	num	0...14	2	2	2	2	2	2	2	2
H24	Configuration of digital output 4 (OUT 4). Same as **H21**.	num	0...14	5	4	4	9	4	4	13	4
H25	Configuration of digital output 5 (OUT 5). Same as **H21**. **default RTX 600 /V** / **default RTD 600 /V**	num	0...14	7 3	7 3	7 3	7 3	7 3	7 3	7 3	7 3
H27	Configuration of digital output 7 (Open collector). Same as **H21**.	num	0...145	8	8	8	8	8	0	8	0
H29	Enable keypad buzzer. **diS** (0) = output disabled; **En** (1) = output enabled.	flag	diS/En	diS	diS	diS	diS	diS	diS	diS	diS
H31	**UP** key configuration. **0** = Disabled; **1** = Defrost; **2** = Reduced set; **3** = Light; **4** = Energy saving; **5** = AUX; **6** = Stand-by; **7** = Deep cooling; **8** = Start/stop defrost.	num	0...8	1	1	1	1	1	1	1	1
H32	Configuration of **DOWN** key. Same as **H31**.	num	0...8	0	0	0	0	0	0	0	0
H33	Configuration of **ESC** key. Same as **H31**.	num	0...8	6	6	6	6	6	6	6	6
H34	Configuration of **Free 1**. Same as **H31**.	num	0...8	3	3	3	3	3	3	3	3
H35	Configuration of **Free 2**. Same as **H31**.	num	0...8	1	1	1	1	1	1	1	1
H36	Configuration of **Free 3**. Same as **H31**.	num	0...8	0	0	0	0	0	0	0	0
H37	Configuration of **Free 4**. Same as **H31**.	num	0...8	0	0	0	0	0	0	0	0
H41	Configuration of analogue input type 1 (Pb1). **diS** (0) = disabled; **di** (1) = digital input; **Pro** (2) = probe input.	num	diS/di/Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro
H42	Configuration of analogue input type 2 (Pb2). Same as **H41**.	num	diS/di/Pro	Pro	diS	diS	diS	Pro	diS	diS	diS
H43	Configuration of analogue input type 3 (Pb3). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro
H44	Configuration of analogue input type 4 (Pb4). Same as **H41**.	num	diS/di/Pro	diS	diS	diS	Pro	diS	diS	diS	Pro
H45	Configuration of analogue input type 5 (Pb5). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro
H46	Configuration of analogue input type 6 (Pb6 = 4...20 mA). Same as **H41**.	num	diS/di/Pro	di	di	di	di	di	di	di	di
H47	Configuration of analogue input type 7 (Pb7 = Ratiometric). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro
H50	Configuration of analogue output type. **010** (0) = output 0...10 V; **420** (1) = output 4...20 mA.	flag	010/420	010	010	010	010	010	010	010	010
H51	Function linked to analogue output. **diS** (0) = disabled; **FH** (1) = Frame Heater; **PEr** (2) = Valve output opening percentage.	num	diS, FH, PEr	diS	diS	diS	diS	diS	diS	diS	FH
H60	Display of selected application. **0** = disabled; **1** = Vector 1 (AP1); **2** = Vector 2 (AP2); **3** = Vector 3 (AP3); **4** = Vector 4 (AP4); **5** = Vector 5 (AP5); **6** = Vector 6 (AP6); **7** = Vector 7 (AP7); **8** = Vector 8 (AP8).	num	0...8	1 (**DEFAULT**)							
H68	Clock presence. **no** (0) = no clock; **yES** (1) = clock present.	flag	no/yES	yES	yES	yES	yES	yES	yES	yES	yES
H70	Sets probe 1 to use as virtual probe. **diS** (0) = disabled; **Pb1** (1) = probe Pb1; **Pb2** (2) = probe Pb2; **Pb3** (3) = probe Pb3; **Pb4** (4) = probe Pb4; **Pb5** (5) = probe Pb5.	num	diS, Pb1...Pb5	Pb1	diS	diS	diS	diS	diS	diS	diS
H71	Sets probe 2 to use as virtual probe. Same as **H70**.	num	diS, Pb1...Pb5	Pb2	diS	diS	diS	diS	diS	diS	diS
H72	% calculation used by virtual probe - daytime.	%	0...100	50	0	0	0	0	0	0	0
H73	% calculation used by virtual probe - night-time (Energy Saving mode).	%	0...100	50	0	0	0	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	ELECTRONIC EXPANSION VALVE (EE0)										
Ety	Selection of the driver type for the electronic valve: **0** = disabled; **1** = pulse driver.	num	0/1	1	1	1	1	1	1	1	1
rSP	Sets the saturation probe to use: **diS** (0) = disabled; **Pb6** (1) = pressure transducer 4...20 mA; **Pb7** (2) = ratiometric transducers; **LSP** (3) = remote probe (shared internally of Link[2] network); **rP** (4) = remote probe (from supervisor).	num	diS, Pb6, Pb7 LSP, rP	Pb7 (**DEFAULT**)							
rSS	Sets the overheating probe to use: **diS** (0)= disabled; **Pb1** (1) = Pb1 probe; **Pb2** (2) = Pb2 probe; **Pb3** (3) = Pb3 probe; **Pb4** (4) = Pb4 probe; **Pb5** (5) = Pb5 probe.	num	diS, Pb1...Pb5	Pb5 (**DEFAULT**)							
rbu	Sets the type of saturation probe used as backup. **diS** (0) = disabled; **LSP** (1) = backup saturation probe; **rP** (2) = remote probe (from supervisor).	num	diS, LSP, rP	diS (**DEFAULT**)							
EPd	Saturation value display mode: **t** (0) = temperature; **P** (1) = pressure.	flag	t/P	t (**DEFAULT**)							
Ert	Selects the type of refrigerant used: **404** (0) = R404A; **r22** (1) = R22; **410** (2) = R410A; **134** (3) = R134a; **744** (4) = R744 (CO2); **507** (5) = R507A; **717** (6) = R717 (NH3); **290** (7) = reserved; **PAr** (8) = refrigerant parameterizable; **407** (9) = R407A; **448** (10) = R448A; **449** (11) = R449A; **450** (12) = R450; **513** (13) = R513A. **NOTE**: For custom settings relative to the type of refrigerant in use, contact Eliwell.	num	404, r22, 410, 134, 744, 507 717, 290, PAr, 407, 448, 449 450, 513	410 (**DEFAULT**)							
U01	PWM period.	s	3...10	6 (**DEFAULT**)							
U02	Maximum valve opening percentage.	%	0...100	100 (**DEFAULT**)							
U03	Percentage actuation of valve after power failure (black-out).	%	0...100	0 (**DEFAULT**)							
U04	Percentage actuation of valve after defrost.	%	0...100	0 (**DEFAULT**)							
U05	Operating time at max opening before an alarm signal.	min	0...255	60 (**DEFAULT**)							
U06	Minimum useful valve opening percentage.	%	0...100	10 (**DEFAULT**)							
U07	Maximum valve useful opening percentage.	%	0...100	90 (**DEFAULT**)							
U08	Sets the fixed opening percentage of the valve if the pressure transducer is not working (**U22** = diS).	%	0...100	0 (**DEFAULT**)							
H61	Selects the type of plant and the operating mode: **0** = Not used **1** = Plants in which the evaporator pressure changes quickly **2** = Plants in which the evaporator pressure changes slowly **3** = Plants in which the evaporator pressure changes quickly - Setpoint reached quickly after a defrost cycle **4** = Plants in which the evaporator pressure changes slowly - setpoint reached quickly after a defrost cycle **5...16** = Not used	num	0...16	1 (**DEFAULT**)							
OLt	Minimum overheating threshold.	°C/°F	0.0...100	6.0 (**DEFAULT**)							
OtF	Timer freezer valve opening after OFF -->ON.	s	0...999	0 (**DEFAULT**)							
A_F	Select PID automatic or manual mode.	num	0/1	0 (**DEFAULT**)							
dUt	Duty cycle PID in manual mode.	%	0.0...100	50.0 (**DEFAULT**)							
HOE	Enable MOP. **0** = disabled; **1** = enabled.	num	0/1	0 (**DEFAULT**)							
tAP	Min time that temp upper threshold is exceeded for alarm activation.	min	0...255	180 (**DEFAULT**)							
Hot	Evaporator temperature upper threshold.	°C/°F	-60.0...100	0.0 (**DEFAULT**)							
HdP	MOP disable time at start-up.	min	0...999	0 (**DEFAULT**)							

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
	COPY CARD (FPr).										
UL	Upload. To transfer programming parameters from device to CopyCard.	-	-	- (**DEFAULT**)							
dL	Download. To transfer programming parameters from Copy Card to device.	-	-	- (**DEFAULT**)							
Fr	Formatting. To erase data on Copy Card. **NOTE**: If parameter “Fr” is used, the data entered will be permanently lost. This operation cannot be reversed.	-	-	- (**DEFAULT**)							
	FUNCTIONS (FnC)										

The following functions are available:

Function	Function label ACTIVE	Function label NOT ACTIVE	Signalling
Manual defrost	dEF+blinking icon	dEF	Blinking Defrost icon
AUX (ON=active; OFF=not active)	Aon	AoF	AUX ON icon
Reset pressure switch alarms	rAP	rAP	Alarm ON icon
Stand-by	OFF	OFF	LED Stand-by ON (only **KDWPlus**)

NOTE: • To edit the state of a given function press the “set” key
• If the device is switched off the function labels will return to the default state (inactive).

CHAPTER 10
ALARM DIAGNOSTICS

10.1. ALARMS AND SIGNALS TABLE

When an alarm condition is detected, the alarm icon " ((•)) " will come on.
If present and enabled, the buzzer and alarm relay will also activate.

NOTE: To silence the buzzer, press and release any key, the relative icon will continue to flash.

All alarms are reset automatically (i.e. they disappear when the issue that caused them is removed).

The alarm codes are as follows:

Code	Description	LED ((•))	Relay alarm	Reset	Parameters involved in ENABLING ALARM
E1	probe Pb1 not working	ON	active	Automatic	Ont, OFt
E2	probe Pb2 not working	ON	active	Automatic	Ont, OFt
E3	probe Pb3 not working	ON	active	Automatic	Ont, OFt
E4	probe Pb4 not working	ON	active	Automatic	Ont, OFt
E5	probe Pb5 not working	ON	active	Automatic	Ont, OFt
E6	probe Pb6 not working (pressure transducer 4...20 mA)	ON	active	Automatic	Ont, OFt
E7	probe Pb7 not working (ratiometric transducer)	ON	active	Automatic	Ont, OFt
EL	probe Link^2 not working	ON	active	Automatic	Ont, OFt
Ei	Virtual probe not working	ON	active	Automatic	Ont, OFt
AH1	HIGH temperature alarm 1	ON	active	Automatic	SP1, Att, AFd, HA1, LA1, PAO, dAO, OAO, tA1
AL1	LOW temperature alarm 1	ON	active	Automatic	SP1, Att, AFd, HA1, LA1, PAO, dAO, OAO, tA1
AH2	HIGH temperature alarm 2	ON	active	Automatic	SP2, Att, AFd, HA2, LA2, PAO, dAO, OAO, tA2
AL2	LOW temperature alarm 2	ON	active	Automatic	SP2, Att, AFd, HA2, LA2, PAO, dAO, OAO, tA2
EA	External alarm	ON	active	Automatic	PEA, EAL
OPd	Door open alarm	ON	not active	Automatic	PEA, tdO
Ad2	Defrost end due to timeout	ON	not active	Automatic	dE1, dE2, dAt
Prr	Preheat alarm	ON	not active	Automatic	-
E10	Clock alarm	ON	not active	Automatic	-
EEP	valve MOP alarm	ON	not active	Automatic	-
EEt	valve output max alarm	ON	not active	Automatic	-
EES	saturation probe inoperable	ON	not active	Automatic	-

NOTE:

- If alarm exclusion times have been set (see "AL" folder in parameters table) the alarm will not be indicated.
- With the exception of inoperable probe alarms, all other alarms will record the corresponding label in the folder **ALr** in the "**MACHINE STATUS**" menu (refer to **"6.7.7. Machine status menu" on page 64**.
- The probe not working alarms will be shown on the display via label E1, E2, E3, E4, E5, E6, E7, EL and Ei according to whether it is probe Pb1, Pb2, Pb3, Pb4, Pb5, Pb6, Pb7, Link^2 or Virtual.

10.1.1. Cause/Effect table

RTX-RTD 600 /V devices are able to perform complete diagnostics of the system and report any operating trouble with specific alarms, display and record particular events, defined by the user, to achieve greater control over the system.

Label	Description	Cause	Effects	Troubleshooting
E1	Probe Pb1 in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E1** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E2	Probe Pb2 in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E2** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E3	Probe Pb3 in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E3** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E4	Probe Pb4 in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E4** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E5	Probe Pb5 in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E5** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E6	Probe Pb6 in error (4...20 mA)	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E6** displayed • Alarm icon permanently on	• Check probe type • Check the probe wiring • Replace probe
E7	Probe Pb7 in error (ratiometric)	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **E7** displayed • Alarm icon permanently on	• Check probe type (**trA**) • Check the probe wiring • Replace probe
EL	LINK^2 probe in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **EL** displayed • Alarm icon permanently on	• Check probe type • Check the probe wiring • Replace probe
Ei	VIRTUAL probe in error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **Ei** displayed • Alarm icon permanently on	• Check probe type • Check the probe wiring • Replace probe
AH1	HIGH temperature alarm 1	Value read by probe1 > HA1 after time set in **tA1**. (see “max/min temp. alarm)	• Recording of label **AH1** in folder ALr • No effect on regulation.	Await return to normal of value read by the selected probe with **rA1** lower than **HA1-AFd**.
AL1	LOW temperature alarm 1	Value read by probe1 < LA1 after time set in **tA1**. (see “max/min temp. alarm)	• Recording of label **AL1** in folder ALr • No effect on regulation.	Await return to normal of value read by the selected probe with **rA1** higher than **LA1+AFd**.
AH2	HIGH temperature alarm 2	Value read by probe2 > HA2 after time set in **tA2**. (see “max/min temp. alarm)	• Recording of label **AH2** in folder ALr • No effect on regulation.	Await return to normal of value read by the selected probe with **rA2** lower than **HA2-AFd**.
AL2	LOW temperature alarm 2	Value read by probe2 < LA2 after time set in **tA2**. (see “max/min temp. alarm)	• Recording of label **AL2** in folder ALr • No effect on regulation.	Await return to normal of value read by the selected probe with **rA2** higher than **LA2+AFd**.
EA	External alarm	Digital input activated	• Recording of label **EA** in folder ALr • Alarm icon permanently on • Lockout of regulation as requested by **EAL**	Check and remove external cause of alarm on DI

Label	Description	Cause	Effects	Troubleshooting
OPd	Door open alarm	Digital input activated (for a time greater than **tdO**)	• Recording of label **Opd** in folder ALr • Alarm icon permanently on • Lockout of regulation as requested by **dOd**	• Close the door • Delay preceding indication of alarm defined by **OAO**.
Ad2	End of Defrost due to timeout	End of defrost cycle due to timeout rather than due to defrosting end temperature being read by defrost control probe.	• Recording of label **Ad2** in folder ALr • Alarm icon permanently on	Await next defrost cycle for automatic return to normal
Prr	Preheat alarm	Alarm for preheat input regulator ON	• Label **Prr** displayed • Compressor icon blinking • Regulation inhibited (Compressor and Fans) **NOTE**: defrost will also be blocked if it is reverse cycle or hot gas defrost.	Preheat input regulator off.
E10	Clock Alarm	• Clock (RTC) low battery • RTC inoperable	• Recording of label **E10** in folder ALr • Functions associated with clock not available	Reset the time in the “Machine State” menu
EEP	Valve MOP alarm valve	Saturation temperature has exceeded the threshold value set via the **Hot** parameter	• Label **EEP** recorded in folder ALr • Alarm icon permanently on	The temperature returns below the **Hot** value.
EEt	Max valve outlet alarm valve output	The outlet valve is integraly open (see parameter **U02**)	• Label **EEt** recorded in folder ALr • Alarm icon permanently on	• Check the valve connection • Check the connection/operation of the overheating probe
EES	Saturation probe error	• Measured values are outside operating range • Probe inoperable/short-circuited/open	• Label **EES** displayed • Alarm icon permanently on	• Check the probe type (**rSP**) • Check the probe wiring • Replace probe

10.2. DESCRIPTION OF ALARMS

10.2.1. Probe alarm

OPERATING CONDITIONS

When one of the probes is out of the nominal operating range or in the case of an open probe or a probe in short-circuit, an alarm is generated if this condition persists for longer than 10 seconds.

The alarm condition is indicated on the display by means of the following error codes:

- **E1** = Probe Pb1 not working;
- **E2** = Probe Pb2 not working;
- **E3** = Probe Pb3 not working;
- **E4** = Probe Pb4 not working;
- **E5** = Probe Pb5 not working;
- **E6** = Probe Pb6 not working;
- **E7** = Probe Pb7 not working;
- **EL** = Link[2] probe not working;
- **Ei** = VIRTUAL probe not working.

The alarm LED and alarm relay are activated.

Codes **E1**, **E2**, **E3**, **E4**, **E5**, **E6**, **E7**, **EL** and **Ei**, when occuring at the same time, are shown in the following sequence: E1 x 2 sec, E2 x 2 sec, E3 x 2 sec, etc.

ACTIONS ON CURRENT REGULATION

For all probes, the error probe condition causes the following actions:

- the display shows code E**x** (where **x** = 1, 2, 3, 4, 5, 6, 7, L , i)
- activation and permanent display of alarm icon and activation of alarm relay (if present)

When the error probe condition ceases, regulation resumes as normal.
During the error probe condition, the defrost interval count continues as normal.

SIGNALLING

Code	Meaning
E1	Pb1 probe inoperable
E2	Pb2 probe inoperable
E3	Pb3 probe inoperable
E4	Pb4 probe inoperable
E5	Pb5 probe inoperable
E6	Pb6 probe inoperable
E7	Pb7 probe inoperable
EL	LINK[2] probe inoperable
Ei	VIRTUAL probe inoperable

ALARM ACKNOWLEDGMENT

In the alarm condition, it is possible to acknowledge the alarm and/or relay configured as an alarm, even if the alarm condition persists, by pressing any key or using the corresponding function in the menu
The alarm LED will start to blink.
The disappearance of the alarm cause disarms the acknowledgement.
The error probe alarm is not stored by the device.

USER PARAMETERS

Label	Description
Ont	ON time for compressor output with inoperable control probe
OFt	OFF time for compressor output with inoperable control probe

10.2.2. Max/min temperature alarm

OPERATING CONDITIONS

The alarm regulation is carried out on probe 1.
The temperature limits defined in parameters **HA1/2** and **LA1/2** are determined by parameter **Att** which specifies if they represent the absolute temperature value (**AbS**) or a setpoint differential (**rEL**) (in the case of offset on the entered setpoint, the high and low alarms will refer to this new control setpoint).

- If **Att** = **AbS**(0), the temperature limits for probe 1/2 are absolute.
- If **Att** = **rEL**(1), the temperature limits for probe 1/2 refer to the **SP1/2**.

NOTE: to obtain the minimum alarm below the setpoint in the case of **Att**=1 (relative) it is necessary to set **LA1/2**<0.

ALARM CONDITIONS

A maximum/minimum alarm is generated when the Pb1 temperature is:

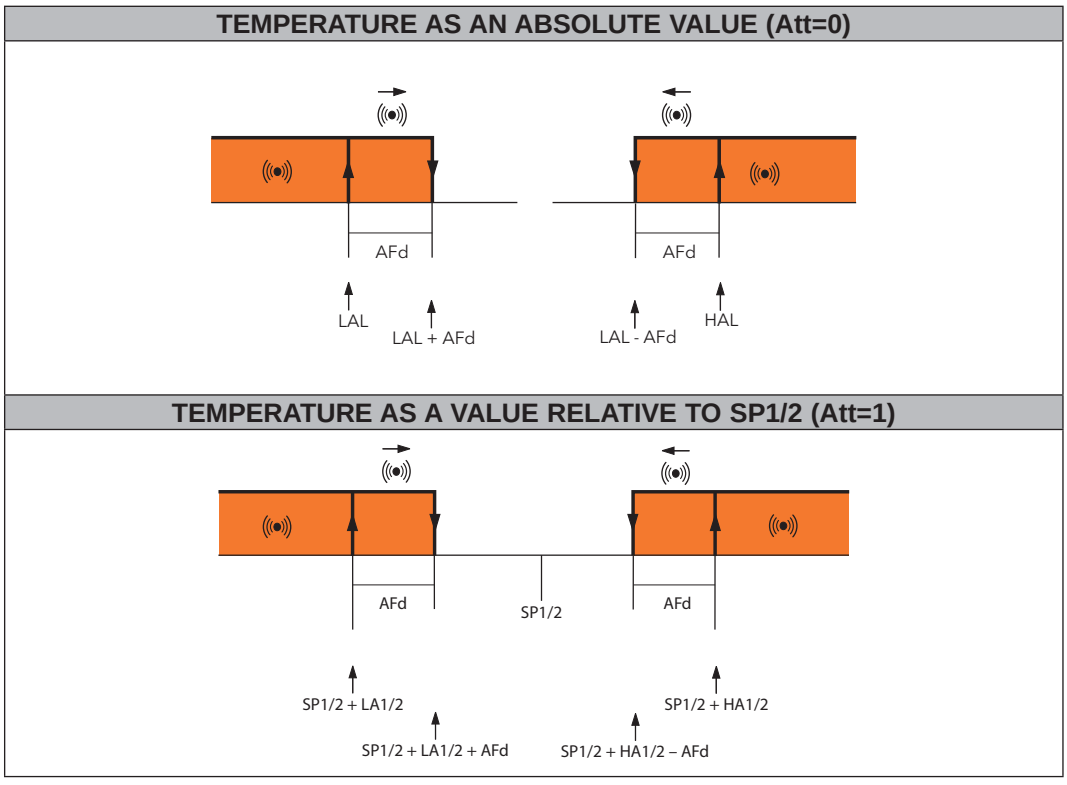
- Maximum alarm: ≥ **HA1/2** if **Att = AbS**(0) and ≥ than (**SP1/2 + HA1/2**) if **Att = rEL**(1)
- Minimum alarm: ≤ **LA1/2** if **Att = AbS**(0) and ≤ than (**SP1/2 + LA1/2**) if **Att = rEL**(1)

If **Att = AbS**(0) set **HA1/2 and LA1/2** with sign. If **Att = rEL**(1) set **HA1/2 > 0** and **LA1/2 < 0**.

When one of the two aforementioned conditions occurs, if no alarm override times apply (see alarm override parameters), the alarm LED lights up and the relay configured as alarm activates (if present).

The maximum/minimum alarm will be reset when the temperature of probe 1/2 is:

- Returning from max alarm: ≤ (**HA1/2 - AFd**) if **Att = AbS**(0) and ≤ (**SP1/2 + HA1/2 - AFd**) if **Att = rEL**(1)
- Returning from min alarm: ≥ (**LA1/2 + AFd**) if **Att = AbS**(0) and ≥ (**SP1/2 + LA1/2 + AFd**) if **Att = rEL**(1)



NOTES: • During a defrost cycle, high and low temperature alarms are overridden.
• Occurrence of this alarm does not effect any regulation in progress.

SIGNALLING

Code	Meaning
AH1/2	HIGH temperature alarm, refers to probe 1/2
AL1/2	LOW temperature alarm, refers to probe 1/2

ALARM ACKNOWLEDGMENT

In the alarm condition, it is possible to acknowledge the relay configured as an alarm (if present), even if the alarm condition persists, by pressing any key or using the corresponding function in the menu.
The alarm LED will start to blink.
The disappearance of the alarm cause disarms the acknowledgement.
The error probe alarm is not stored by the device.

USER PARAMETERS

Label	Description
Att	HAL and LAL parameter mode (absolute or relative)
AFd	Alarm activation differential
HA1	Probe 1 maximum alarm threshold
LA1	Probe 1 minimum alarm threshold
HA2	Probe 2 maximum alarm threshold
LA2	Probe 2 minimum alarm threshold
PAO	Temperature alarm exclusion time from power-on
dAO	Temperature alarm disabling time after defrost cycle
OAO	High/low temperature alarm exclusion time after door closing
tA1	Temperature 1 alarms delay time
tA2	Temperature 2 alarms delay time

10.2.3. End of defrost due to timeout alarm

OPERATING CONDITIONS

The regulator is activated without any delay in the case of end of defrost due to timeout, instead of probe 2 reaching the defrost end temperature.

The action consists of:

- alarm LED on fixed
- recording of label **Ad2** in the alarms menu.

Automatic reset occurs with the start of the next defrost cycle.

The alarm LED can be switched off using the normal acknowledgement procedure, although the alarm signal is only actually cancelled at the start of the next defrost cycle.

SIGNALLING

Code	Meaning
Ad2	Defrost alarm on Pb2

USER PARAMETERS

Label	Description
dE1	Evaporator 1 defrost timeout
dE2	Defrost timeout, evaporator 2
dAt	Alarm signalling end of defrost due to timeout

10.2.4. External alarm

OPERATING CONDITIONS

In the case of activation of the digital input, the alarm regulator is activated with the delay set by parameter **dAd**, and this alarm persists until the next time the digital input is deactivated.

The action consists of:

- alarm LED on fixed
- recording of label **EA** in the alarms menu
- activation of the relay configured as alarm (if enabled)
- deactivation of regulation if parameter **rLO** requires it.

It is possible to release the alarm relay but the regulators still remain locked until the next time the digital input is deactivated.

The values that can be assigned to parameter **EAL** are:

- **EAL = 0**: an external alarm has not locked any resource;
- **EAL = 1**: an external alarm has locked the compressor and defrost;
- **EAL = 2**: an external alarm has locked the compressor, defrost and the fans.

SIGNALLING

Code	Meaning
EA	External alarm

USER PARAMETERS

Label	Description
EAL	An external alarm blocks the regulators

10.2.5. Door open alarm

OPERATING CONDITIONS

The door switch alarm is associated to a specially configured digital input:

- **H11, H12, H13, H14, H15, H16, H17 or H18 = ± 8**

On activation of the digital input (door open) and after delay **tdO** has elapsed, the door open alarm is signalled in the alarms folder and the LED and alarm relay come on. The **OPd** label is displayed.
The action consists of:

- alarm LED on fixed
- recording of label **OPd** in the alarms menu.
- activation of the relay configured as alarm

As in the case of the other alarms, the relay may be deactivated by pressing an acknowledgement key, the alarm LED will blink and label **OPd** will remain in the alarms menu until the door is closed.

If the door is opened, the regulator will operate on the basis of the value of parameter **dOd**.
The values that can be assigned to it are:

- **dOd = 0**: does not inhibit any resource
- **dOd = 1**: inhibits the fans (FAN)
- **dOd = 2**: inhibits the compressor (COMPR)
- **dOd = 3**: inhibits the fans (FAN) and the compressor (COMPR)

If the door open alarm locks the compressor, it can still be reactivated even if the door remains open, by setting the parameter **dCO**.

SIGNALLING

Code	Meaning
OPd	Door open alarm

USER PARAMETERS

Label	Description
dOd	Digital input for switching off loads: **0** = disabled **1** = disables the fans **2** = disables the compressor **3** = disable fans and compressor.
dOA	Action forced from digital input (if **PEA** ≠ 0): **0** = activate compressor; **1** = activate fans; **2** = activate compressor and fans; **3** = deactivate compressor; **4** = deactivate fans; **5** = deactivate compressor and fans.
PEA	Selection of digital input configured to inhibit/enable resources. **0** = function disabled; **1** = associated with door switch; **2** = associated with external alarm; **3** = associated with external alarm and door switch.
dCO	Compressor activation delay from acknowledgement
dFO	Fan activation/deactivation delay when enabled (DI activation).
tdO	Open door disabling time

CHAPTER 11
MODBUS MSK 509 FUNCTIONS AND RESOURCES

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

The master device can send messages to individual slaves or to the entire network (broadcast) whilst slave devices only respond individually to the master device.

The Modbus standard used by Eliwell employs the RTU code for data transmission.

11.1. DATA FORMAT (RTU)

The type of coding used defines the structure of messages transmitted on the network and the way in which this information is deciphered. The type of coding is usually selected on the basis of specific parameters (baud rate, parity, stop); furthermore, some devices support only specific type of coding. Use the same type of coding for all devices connected in a Modbus network.

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

- **8 bit for data**
- **bit parity NONE (configurable)**
- **2 stop BIT**

The device is used to set the parameters

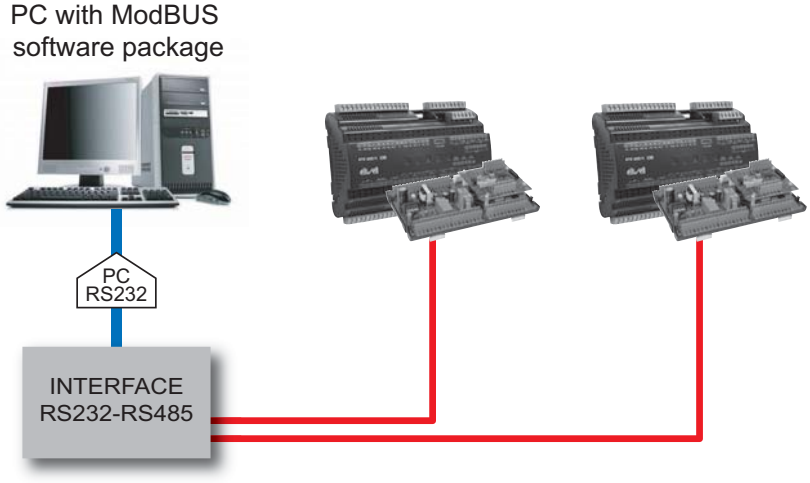
They can be modified through:

- Device keyboard
- UNICARD/DMI/CopyCard
- Sending data via Modbus protocol directly to an individual controller or broadcasting it using the address **0** (broadcast).

11.1.1. Network

The connection diagram when using Modbus is shown below:

Modbus connection via RS485



11.1.2. Modbus commands available and data areas

The following commands are implemented:

Modbus command	Description of command
03 (hex 0x03)	Read 16 consecutive registers for Client side. Read 1 single register for parameters.
16 (hex 0x10)	Write 15 consecutive registers for Client side. Write 1 register for the parameters.
43 (hex 0x2B)	Read device ID. It is possible to read the following 3 fields: • **0** = manufacturer ID • **1** = Device model/polycarbonate ID • **2** = Family ID (MSK509)/device version

Length restrictions

Maximum length in bytes of messages sent to device	30 BYTE
Maximum length in bytes of messages received from the device	30 BYTE

11.1.3. Address configuration

The serial **TTL** - which we will call COM1 – can be used to configure the device, parameters, states, and variables with Modbus via the Modbus protocol.

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

The address **0** is used for broadcast messages that all slaves recognise.
Slaves don't respond to broadcast messages.

The parameters for configuring the device are:

Parameter	Description	Value	Range
PtS	Select protocol. **t** (0) = Televis; **d** (1) = ModBus.	**t**	t/d
dEA	Device address: indicates the device address to the management protocol.	**0**	0...14
FAA	Family address: indicates the device family to the management protocol.	**0**	0...14
Adr	Modbus protocol controller address	**0**	1...250
Pty	Set the parity BIT of the Modbus protocol and the stop BIT number: • **n** = parity bit NONE + 2 BIT stop • **E** = parity bit EVEN + 1 BIT stop • **o** = parity bit ODD + 1 BIT stop	**n**	n/E/o
bAU	Baudrate selection. **96** (0) = 9600; **192** (1) = 19200; **384** (2) = 38400.	**96**	96 / 192 / 384

NOTE: Switch off and switch on again the controller after modification of the **Pty**.

11.1.4. PARAMETER VISIBILITY AND VALUES

NOTES:

- Unless otherwise indicated, the parameter is always visible and modifiable, unless customized settings have been configured via serial.
- If folder visibility is modified, the new setting will apply to all parameters in the folder.

11.2. MODBUS TABLES

The tables below list all information required to read, write and decode all accessible resources in the device.

There are 3 tables:

- **PARAMETERS TABLE**: contains all the device configuration parameters including visibility
- **FOLDER VISIBILITY TABLE**: contains the visibility of the folders containing the parameters
- **CLIENT TABLE**: contains all I/O and alarm status resources available in the volatile memory of the device.

Description of columns:

FOLDER

Indicates the label of the folder containing the parameter in question.

LABEL

Indicates the label used to display the parameters in the menu of the device.

PAR. VALUE ADDR

The whole part represents the address of the MODBUS register containing the value of the resource to be read or written in the device. The value after the decimal point indicates the position of the most significant data bit inside the register; if not indicated it is taken to be zero.

This information is always provided when the register contains more than one information item, and it is necessary to distinguish which bits actually represent the data (the working size of the data indicated in the column DATA SIZE is also taken into consideration).

Given that the modbus registers have the size of one WORD (16 bit), the index number after the point can vary from 0 (least significant bit -LSb-) to 15 (most significant bit -MSb-)

Examples (in binary form the least significant bit is the first on the right):

PAR. VALUE ADDRESS	DATA SIZE	VALUE	Content of register	
8806	WORD	1350	1350	(0000010101000110)
8806	BYTE	70	1350	(00000101**01000110**)
8806.8	BYTE	5	1350	(**00000101**01000110)
8806.14	1 BIT	0	1350	(0000010101000110)
8806.7	4 BIT	10	1350	(00000**1010**1000110)

NOTE:

When the register contains more than one piece of data, the write procedure is as follows:

- Read current value of register
- Modify bits for the resource concerned
- Write register

VIS PAR. ADDR

The same as above. In this case, the MODBUS register address contains the visibility value of the parameter. By default all parameters have:

- Data size: 2 bit
- Range: 0…3
- **Visibility: 3
- U.M.: num

****Value Meaning**

- Value 3 = parameter or folder always visible
- Value 2 = manufacturer level; these parameters can only be viewed by entering the manufacturer password (see parameter PS2)
  (all parameters specified as always visible will be visible, as will parameters visible at installer level)

- Value 1 = installer level; these parameters can only be viewed by entering the installation password (see parameter PS1)
  (all parameters specified as always visible will be visible, as will parameters visible at installer level)
- Value 0 = parameter or folder NOT visible

1. Parameters and/or folders with a level of visibility <>3 (password-protected) will be visible only if the correct password is entered (installer or manufacturer) following this procedure:
2. Parameters and/or folders with a level of visibility =3 are always visible even without a password: in this case, the following procedure is not necessary.

Examples (in binary form the least significant bit is the first on the right)**:**

PAR. VALUE ADDRESS	DATA SIZE	VALUE	Content of register	
49336.6	2 BIT	3	65535	----------(0000000011111111111111)
49337	2 BIT	3	65535	(0000000011111111111111)
49337.2	2 BIT	3	65535	(0000000011111111111111)
49337.4	2 BIT	3	65535	(0000000011111111111111)
49337.6	2 BIT	3	65535	(0000000011111111111111)

R/W

Indicates the option of reading or writing the resource

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

DESCRIPTION

This is the description of the meaning of parameters in the LABEL column.

DATA SIZE

Indicates the size of the data in bits.

- 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 carry out conversion, proceed as follows:

- If the value in the register is between 0 and 32.767, the result is the value itself (zero and positive values)
- If the value in the register is between 32.768 and 65.535, the result is the value of the register – 65.536 (negative values)

RANGE

Describes the interval of values that can be assigned to the parameter. It can be correlated with other parameters in the device (indicated with the parameter label).

U.M.

Unit of measure for values converted according to the rules indicated in the CPL column.

11.2.1. Parameters/visibility table

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
CP	rE	33016	43520.0	RW	Regulation mode	WORD		0...4	num
CP	rP1	33018	43520.2	RW	Control probe 1	WORD		0...7	num
CP	rP2	33020	43520.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
CP	SP1	33022	43520.6	RW	Setpoint	WORD	Y	LS1...HS1	°C/°F
CP	dF1	33024	43521.0	RW	Differential/proportional band	WORD	Y	-58.0...302	°C/°F
CP	SP2	33026	43521.2	RW	Setpoint according to thermostat	WORD	Y	LS2...HS2	°C/°F
CP	dF2	33028	43521.4	RW	Differential according to thermostat	WORD	Y	-58.0...302	°C/°F
CP	Stt	33034	43521.6	RW	Differential control mode	WORD		0/1	flag
CP	HS1	33040	43522.0	RW	Maximum SP1 value	WORD	Y	LS1...HdL	°C/°F
CP	LS1	33042	43522.2	RW	Minimum SP1 value	WORD	Y	LdL...HS1	°C/°F
CP	HS2	33044	43522.4	RW	Maximum SP2 value	WORD	Y	LS2...HdL	°C/°F
CP	LS2	33046	43522.6	RW	Minimum SP2 value	WORD	Y	LdL...HS2	°C/°F
CP	HC1	33036	43523.0	RW	Thermostat mode 1	WORD		0/1	flag
CP	HC2	33038	43523.2	RW	Thermostat mode 2	WORD		0/1	flag
CP	Cit	33056	43523.6	RW	Minimum compressor ON time	WORD		0...250	min
CP	CAt	33058	43524.0	RW	Maximum compressor ON time	WORD		0...250	min
CP	Ont	33068	43524.2	RW	Probe error ON time	WORD		0...250	min
CP	OFt	33070	43524.4	RW	Probe error OFF time	WORD		0...250	min
CP	dOn	33060	43524.6	RW	Delayed start	WORD		0...250	s
CP	dOF	33062	43525.0	RW	Delay after switching off	WORD		0...250	min
CP	dbi	33064	43525.2	RW	Time lag between starts	WORD		0...250	min
CP	OdO	33066	43525.4	RW	Output activation delay from power-on	WORD		0...250	min
CP	OF1	33078	43526.6	RW	Remote offset	WORD	Y	-50.0...50.0	°C/°F
dEF	dP1	33080	43527.0	RW	Defrost probe 1 selection	WORD		0...7	num
dEF	dP2	33082	43527.2	RW	Defrost probe 2 selection	WORD		0...7	num
dEF	dtY	33088	43527.4	RW	Defrost mode	WORD		0...4	num
dEF	dFt	33084	43527.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
dEF	dit	33090	43528.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
dEF	dt1	33096	43528.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
dEF	dt2	33098	43528.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
dEF	dCt	33086	43528.6	RW	Defrost interval count mode	WORD		0...5	num
dEF	dOH	33100	43529.0	RW	Defrost interval count mode	WORD		0...250	min
dEF	dE1	33092	43529.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
dEF	dE2	33094	43529.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
dEF	dS1	33104	43529.6	RW	Probe 1 defrost end temperature	WORD	Y	-58.0...302	°C/°F
dEF	dS2	33106	43530.0	RW	Probe 2 defrost end temperature	WORD	Y	-58.0...302	°C/°F
dEF	dSS	33102	43530.2	RW	Start defrost temperature threshold	WORD	Y	-58.0...302	°C/°F
dEF	dPO	33108	43530.4	RW	Defrost activation request from power-on	WORD		0/1	flag
dEF	tcd	33110	43530.6	RW	Minimum compressor ON or OFF time before defrost	WORD	Y	-60...60	min
dEF	ndE	33112	43531.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
dEF	PdC	33114	43531.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
dEF	tPd	33118	43531.4	RW	Pump down time before defrost startup	WORD		0...255	min
dEF	dPH	32996	43531.6	RW	Periodic start defrost hour	WORD		0...24	hours
dEF	dPn	32998	43532.0	RW	Periodic start defrost minutes	WORD		0...59	min
dEF	dPd	33000	43532.2	RW	Regular defrost interval duration	WORD		1...7	day
dEF	Fd1	32894	43532.4	RW	Weekend/public holiday 1	WORD		0...7	num
dEF	Fd2	32896	43532.6	RW	Weekend/public holiday 2	WORD		0...7	num
dEF	Edt	32898	43533.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
dEF	d1H	32900	43533.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
dEF	d1n	32902	43533.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
dEF	d1t	32904	43533.6	RW	Weekday defrost 1 duration	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
dEF	d1S	32906	43534.0	RW	Weekday defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	d2H	32908	43534.2	RW	Start time hour weekday defrost 2	WORD		d1H...24	hours
dEF	d2n	32910	43534.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
dEF	d2t	32912	43534.6	RW	Weekday defrost 2 duration	WORD		0...250	min
dEF	d2S	32914	43535.0	RW	Weekday defrost 2 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	d3H	32916	43535.2	RW	Start time hour weekday defrost 3	WORD		d2H...24	hours
dEF	d3n	32918	43535.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
dEF	d3t	32920	43535.6	RW	Weekday defrost 3 duration	WORD		0...250	min
dEF	d3S	32922	43536.0	RW	Weekday defrost 3 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	d4H	32924	43536.2	RW	Start time hour weekday defrost 4	WORD		d3H...24	hours
dEF	d4n	32926	43536.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
dEF	d4t	32928	43536.6	RW	Weekday defrost 4 duration	WORD		0...250	min
dEF	d4S	32930	43537.0	RW	Weekday defrost 4 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	d5H	32932	43537.2	RW	Start time hour weekday defrost 5	WORD		d4H...24	hours
dEF	d5n	32934	43537.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
dEF	d5t	32936	43537.6	RW	Weekday defrost 5 duration	WORD		0...250	min
dEF	d5S	32938	43538.0	RW	Weekday defrost 5 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	d6H	32940	43538.2	RW	Start time hour weekday defrost 6	WORD		d5H...24	hours
dEF	d6n	32942	43538.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
dEF	d6t	32944	43538.6	RW	Weekday defrost 6 duration	WORD		0...250	min
dEF	d6S	32946	43539.0	RW	Weekday defrost 6 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F1H	32948	43539.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
dEF	F1n	32950	43539.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
dEF	F1t	32952	43539.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
dEF	F1S	32954	43540.0	RW	Weekend defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F2H	32956	43540.2	RW	Start time hour weekend/public holiday defrost 2	WORD		F1H...24	hours
dEF	F2n	32958	43540.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
dEF	F2t	32960	43540.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
dEF	F2S	32962	43541.0	RW	Weekend defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F3H	32964	43541.2	RW	Start time hour weekend/public holiday defrost 3	WORD		F2H...24	hours
dEF	F3n	32966	43541.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
dEF	F3t	32968	43541.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
dEF	F3S	32970	43542.0	RW	Weekend defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F4H	32972	43542.2	RW	Start time hour weekend/public holiday defrost 4	WORD		F3H...24	hours
dEF	F4n	32974	43542.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
dEF	F4t	32976	43542.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
dEF	F4S	32978	43543.0	RW	Weekend defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F5H	32980	43543.2	RW	Start time hour weekend/public holiday defrost 5	WORD		F4H...24	hours
dEF	F5n	32982	43543.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
dEF	F5t	32984	43543.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
dEF	F5S	32986	43544.0	RW	Weekend defrost 1 end temperature	WORD	Y	-58.0...302	°C/°F
dEF	F6H	32988	43544.2	RW	Start time hour weekend/public holiday defrost 6	WORD		F5H...24	hours
dEF	F6n	32990	43544.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
dEF	F6t	32992	43544.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
dEF	F6S	32994	43545.0	RW	Weekend defrost 6 end temperature	WORD	Y	-58.0...302	°C/°F
FAn	FP1	33120	43545.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
FAn	FP2	33122	43545.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
FAn	FPt	33124	43545.6	RW	FSt parameter mode	WORD		0/1	flag
FAn	FSt	33126	43546.0	RW	Fans disabling temperature	WORD	Y	-58.0...302	°C/°F
FAn	FAd	33128	43546.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
FAn	Fdt	33130	43546.4	RW	Fan activation delay from compressor start	WORD		0...250	min
FAn	dt	33140	43546.6	RW	Dripping time	WORD		0...250	min
FAn	dFd	33136	43547.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
FAn	FCO	33134	43547.2	RW	Evaporator fans mode	WORD		0...4	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
FAn	FdC	33132	43547.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
FAn	FOn	33142	43548.0	RW	Fans ON time in duty cycle	WORD		0...250	min
FAn	FOF	33144	43548.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
FAn	Fnn	33146	43548.4	RW	Duty cycle on time during night mode	WORD		0...250	min
FAn	FnF	33148	43548.6	RW	Duty cycle off time during night mode	WORD		0...250	min
AL	rA1	33176	43549.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
AL	rA2	33178	43549.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
AL	Att	33180	43549.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
AL	AFd	33182	43549.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
AL	HA1	33184	43550.0	RW	Probe 1 maximum alarm	WORD	Y	LA1...302	°C/°F
AL	LA1	33186	43550.2	RW	Probe 1 minimum alarm	WORD	Y	-58.0...HA1	°C/°F
AL	HA2	33188	43550.4	RW	Probe 2 maximum alarm	WORD	Y	LA2...302	°C/°F
AL	LA2	33190	43550.6	RW	Probe 2 minimum alarm	WORD	Y	-58.0...HA2	°C/°F
AL	PAO	33192	43551.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
AL	dAO	33196	43551.2	RW	Alarm exclusion after defrost	WORD		0...250	min
AL	OAO	33194	43551.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
AL	tdO	33284	43551.6	RW	Open door disabling time	WORD		0...250	min
AL	tA1	33198	43552.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
AL	tA2	33200	43552.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
AL	dAt	33116	43552.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
AL	EAL	33204	43552.6	RW	External alarm switches off loads	WORD		0/1/2	num
AL	tP	33286	43553.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
AL	Art	33174	43553.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
Lit	dSd	33168	43553.4	RW	Enable light relay from door switch	WORD		0/1	flag
Lit	dLt	33170	43553.6	RW	Light relay deactivation delay	WORD		0...250	min
Lit	OFL	33172	43554.0	RW	Light key always disables light relay	WORD		0/1	flag
Lit	dOd	33202	43554.2	RW	Door switch switches off loads	WORD		0...3	num
Lit	dOA	33206	43554.4	RW	Action forced by digital input	WORD		0...5	num
Lit	PEA	33208	43554.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
Lit	dCO	33210	43555.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
Lit	dFO	33212	43555.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
Lit	ASb	33264	43555.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
Lin	L00	32768	43555.6	RW	Probe sharing	WORD		0...6	num
Lin	L01	32770	43556.0	RW	Displayed value sharing	WORD		0/1/2	num
Lin	L02	32772	43556.2	RW	Send Setpoint value when modified	WORD		0/1	flag
Lin	L03	32774	43556.4	RW	Send defrost request	WORD		0/1	flag
Lin	L04	32776	43556.6	RW	End defrost mode	WORD		0/1	flag
Lin	L05	32778	43557.0	RW	Standby command synchronisation	WORD		0/1	flag
Lin	L06	32780	43557.2	RW	Lights command synchronisation	WORD		0/1	flag
Lin	L07	32782	43557.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
Lin	L08	32784	43557.6	RW	AUX command synchronisation	WORD		0/1	flag
Lin	L09	32786	43558.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
Lin	L10	33288	43558.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
dEC	dCS	33156	43559.0	RW	Deep Cooling setpoint	WORD	Y	-58.0...302	°C/°F
dEC	tdc	33158	43559.2	RW	Deep Cooling Duration	WORD		0...250	min
dEC	dcc	33160	43559.4	RW	Wait for defrost cycle start	WORD		0...250	min
EnS	ESt	33014	43559.6	RW	Type of Energy Saving	WORD		0...4	num
EnS	ESF	33150	43560.0	RW	Night activation mode	WORD		0/1	flag
EnS	Cdt	33152	43560.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
EnS	ESo	33154	43560.4	RW	Open door cumulative time	WORD		0...10	num
EnS	OS1	33048	43560.6	RW	Offset SP1	WORD	Y	-50.0...50.0	°C/°F
EnS	OS2	33050	43561.0	RW	Offset SP2	WORD	Y	-50.0...50.0	°C/°F
EnS	Od1	33052	43561.2	RW	Offset energy saving door 1	WORD	Y	-50.0...50.0	°C/°F
EnS	Od2	33054	43561.4	RW	Offset energy saving door 2	WORD	Y	-50.0...50.0	°C/°F

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
EnS	dn1	33030	43561.6	RW	dn1 Differential in energy saving mode 1	WORD	Y	-58.0...302	°C/°F
EnS	dn2	33032	43562.0	RW	dn2 Differential in energy saving mode 2	WORD	Y	-58.0...302	°C/°F
EnS	EdH	33002	43562.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
EnS	Edn	33004	43562.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
EnS	Edd	33006	43562.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
EnS	EFH	33008	43563.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
EnS	EFn	33010	43563.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
EnS	EFd	33012	43563.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
FrH	FH	33214	43563.6	RW	Regulation mode	WORD		0...7	num
FrH	FHt	33218	43564.0	RW	Frame Heater period	WORD		1...250	s*10
FrH	FH0	33220	43564.2	RW	Frame Heater setpoint	WORD	Y	-58.0...302	°C/°F
FrH	FH1	33222	43564.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
FrH	FH2	33224	43564.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
FrH	FH3	33226	43565.0	RW	Min percentage	WORD		0...100	%
FrH	FH4	33228	43565.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
FrH	FH5	33230	43565.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
FrH	FH6	33232	43565.6	RW	Percentage during defrost	WORD		0...100	%
Add	PtS	33538	43601.6	RW	Protocol selection	WORD		0/1	flag
Add	dEA	33542	43602.0	RW	Device address	WORD		0...14	num
Add	FAA	33544	43602.2	RW	Device family	WORD		0...14	num
Add	Adr	33546	43602.4	RW	ModBUS address	WORD		1...250	num
Add	bAU	33536	43602.6	RW	BaudRate	WORD		0/1/2	num
Add	Pty	33540	43603.0	RW	Parity (modbus protocol)	WORD		0/1/2	num
diS	LOC	33238	43566.0	RW	Keypad lock	WORD		0/1	flag
diS	PS1	33240	43566.2	RW	Password 1	WORD		0...250	num
diS	PS2	33242	43566.4	RW	Password 2	WORD		0...250	num
diS	ndt	33244	43566.6	RW	Display with decimal point	WORD		0/1	flag
diS	CA1	32856	43567.0	RW	Calibration Pb1	WORD	Y	-30.0...30.0	°C/°F
diS	CA2	32858	43567.2	RW	Calibration Pb2	WORD	Y	-30.0...30.0	°C/°F
diS	CA3	32860	43567.4	RW	Calibration Pb3	WORD	Y	-30.0...30.0	°C/°F
diS	CA4	32862	43567.6	RW	Calibration Pb4	WORD	Y	-30.0...30.0	°C/°F
diS	CA5	32864	43568.0	RW	Calibration Pb5	WORD	Y	-30.0...30.0	°C/°F
diS	CA6	32866	43568.2	RW	Calibration Pb6	WORD	Y	-30.0...30.0	bar/Psi
diS	CA7	32868	43568.4	RW	Calibration Pb7	WORD	Y	-30.0...30.0	bar/Psi
diS	LdL	33246	43568.6	RW	Minimum possible value	WORD	Y	-58.0...HdL	°C/°F
diS	HdL	33248	43569.0	RW	Maximum possible value.	WORD	Y	LdL...302	°C/°F
diS	ddL	33250	43569.2	RW	Lock display during defrost	WORD		0/1/2	num
diS	Ldd	33252	43569.4	RW	Unlock timeout “ddL”	WORD		0...250	min
diS	dro	33254	43569.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
diS	SbP	33256	43570.0	RW	Bar/Psi selection	WORD		0/1	flag
diS	ddd	33258	43570.2	RW	Main Display	WORD		0...7	num
diS	ddE	33260	43570.4	RW	Fundamental display on ECHO	WORD		0...7	num
HCP	rPH	33162	43570.6	RW	HACCP alarm probe selection	WORD		0...5	num
CnF	trA	33558	43603.2	RW	Type of Ratiometric Probe	WORD		0...8	num
CnF	H00	32788	43571.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
CnF	H02	33262	43571.2	RW	Key activation time	WORD		0...250	s
CnF	H03	33560	43603.4	RW	Lower limit probe 4-20 mA	WORD	Y	-1.0...H04	bar/Psi
CnF	H04	33562	43603.6	RW	Upper limit probe 4-20 mA	WORD	Y	H03...150.0	bar/Psi
CnF	H05	33564	43604.0	RW	Ratiometric probe lower limit	WORD	Y	-1.0...H06	bar/Psi
CnF	H06	33566	43604.2	RW	Ratiometric probe upper limit	WORD	Y	H05...150.0	bar/Psi
CnF	H08	33266	43571.4	RW	Stand-by mode	WORD		0/1/2	num
CnF	H11	32798	43571.6	RW	DI1 input configuration (Pb1)	WORD	Y	-17...17	num
CnF	H12	32800	43572.0	RW	DI2 input configuration (Pb2)	WORD	Y	-17...17	num
CnF	H13	32802	43572.2	RW	DI3 input configuration (Pb3)	WORD	Y	-17...17	num
CnF	H14	32804	43572.4	RW	DI4 input configuration (Pb4)	WORD	Y	-17...17	num
CnF	H15	32806	43572.6	RW	DI5 input configuration (Pb5)	WORD	Y	-17...17	num
CnF	H16	32808	43573.0	RW	DI6 input configuration (Pb6)	WORD	Y	-17...17	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
CnF	H17	32810	43573.2	RW	DI7 input configuration (Pb7)	WORD	Y	-17...17	num
CnF	H18	32812	43573.4	RW	DI8 input configuration (DI)	WORD	Y	-17...17	num
CnF	dti	32830	43573.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
CnF	d11	32814	43574.0	RW	DI1 activation signalling delay (Pb1)	WORD		0...255	min/dti
CnF	d12	32816	43574.2	RW	DI2 activation signalling delay (Pb2)	WORD		0...255	min/dti
CnF	d13	32818	43574.4	RW	DI3 activation signalling delay (Pb3)	WORD		0...255	min
CnF	d14	32820	43574.6	RW	DI4 activation signalling delay (Pb4)	WORD		0...255	min
CnF	d15	32822	43575.0	RW	DI5 activation signalling delay (Pb5)	WORD		0...255	min
CnF	d16	32824	43575.2	RW	DI6 activation signalling delay (Pb6)	WORD		0...255	min
CnF	d17	32826	43575.4	RW	DI7 activation signalling delay (Pb7)	WORD		0...255	min
CnF	d18	32828	43575.6	RW	DI8 activation signalling delay (DI)	WORD		0...255	min
CnF	H21	32872	43576.0	RW	Configurability of digital output 1	WORD		0...14	num
CnF	H22	32874	43576.2	RW	Configurability of digital output 2	WORD		0...14	num
CnF	H23	32876	43576.4	RW	Configurability of digital output 3	WORD		0...14	num
CnF	H24	32878	43576.6	RW	Configurability of digital output 4	WORD		0...14	num
CnF	H25	32880	43577.0	RW	Configurability of digital output 5	WORD		0...14	num
CnF	H27	32884	43577.4	RW	Configurability of digital output 7	WORD		0...14	num
CnF	H29	32886	43577.6	RW	Enable buzzer	WORD		0/1	flag
CnF	H31	33268	43578.0	RW	Configuration of UP key	WORD		0...8	num
CnF	H32	33270	43578.2	RW	Configuration of DOWN key	WORD		0...8	num
CnF	H33	33272	43578.4	RW	ESC key configuration	WORD		0...8	num
CnF	H34	33274	43578.6	RW	FREE 1 key configuration	WORD		0...8	num
CnF	H35	33276	43579.0	RW	FREE 2 key configuration	WORD		0...8	num
CnF	H36	33278	43579.2	RW	FREE 3 key configuration	WORD		0...8	num
CnF	H37	33280	43579.4	RW	FREE 4 key configuration	WORD		0...8	num
CnF	H41	32832	43579.6	RW	Pb1 input configuration	WORD		0/1/2	num
CnF	H42	32834	43580.0	RW	Pb2 input configuration	WORD		0/1/2	num
CnF	H43	32836	43580.2	RW	Pb3 input configuration	WORD		0/1/2	num
CnF	H44	32838	43580.4	RW	Pb4 input configuration	WORD		0/1/2	num
CnF	H45	32840	43580.6	RW	Pb5 input configuration	WORD		0/1/2	num
CnF	H46	32842	43581.0	RW	Pb6 input configuration	WORD		0/1/2	num
CnF	H47	32844	43581.2	RW	Pb7 input configuration	WORD		0/1/2	num
CnF	H50	32888	43581.4	RW	Configuration of analogue output type	WORD		0/1	flag
CnF	H51	32890	43581.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
CnF	H60	33548	43604.4	RW	Preset selection	WORD		0...8	num
CnF	H68	32892	43582.0	RW	Clock presence	WORD		0/1	flag
CnF	rEL	---	43600.2	RW	Device version	2 BIT		0...3	num
CnF	tAb	---	43600.4	RW	Map code	2 BIT		0...3	num
CnF	H70	32848	43582.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
CnF	H71	32850	43582.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
CnF	H72	32852	43582.6	RW	% calculation virtual probe day	WORD		0...100	%
CnF	H73	32854	43583.0	RW	% calculation virtual probe night	WORD		0...100	%
EE0	Ety	33282	43583.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
EE0	rSP	33792	43604.6	RW	Saturation probe selection	WORD		0...4	num
EE0	rSS	33794	43605.0	RW	Overheating probe selection	WORD		0...5	num
EE0	rbu	33796	43605.2	RW	Backup saturation probe selection	WORD		0/1/2	num
EE0	EPd	33800	43605.4	RW	Saturation value display mode	WORD		0/1	flag
EE0	Ert	33802	43605.6	RW	Select type of refrigerant	WORD		0...8	num
EE0	U01	33804	43606.0	RW	PWM period	WORD		3...10	s
EE0	U02	33806	43606.2	RW	Maximum valve opening percentage	WORD		0...100	%
EE0	U03	33808	43606.4	RW	Valve actuation percentage after blackout	WORD		0...100	%
EE0	U04	33810	43606.6	RW	Valve actuation percentage after defrost	WORD		0...100	%
EE0	U05	33812	43607.0	RW	Operating time at max opening for alarm signal	WORD		0...255	min
EE0	U06	33814	43607.2	RW	Minimum valve useful opening percentage	WORD		0...100	%
EE0	U07	33816	43607.4	RW	Maximum valve useful opening percentage	WORD		0...100	%
EE0	U08	33818	43607.6	RW	Valve opening percentage during probe error	WORD		0...100	%

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
EE0	H61	33820	43608.0	RW	Type of installation function mode 1	WORD	Y	0...16	num
EE0	OLt	33836	43610.0	RW	Overheating lower threshold	WORD		0.0...100	°C/°F
EE0	OtF	33842	43610.6	RW	Timer freezer valve opening after OFF->ON	WORD		0...999	s
EE0	A_F	33862	43613.2	RW	Manual or automatic valve drive mode	WORD		0/1	num
EE0	dUt	33870	43614.2	RW	Duty cycle PID in manual mode	WORD		0...100	%
EE0	HOE	33872	43614.4	RW	Enable MOP	WORD		0/1	num
EE0	tAP	33874	43614.6	RW	Min time that temp upper threshold is exceeded for alarm activation	WORD		0...255	min
EE0	Hot	33876	43615.0	RW	Evaporator temperature upper threshold	WORD	Y	-999.9...999.9	°C/°F
EE0	HdP	33878	43615.2	RW	MOP disable time at start-up	WORD		0...999	min
FPr	UL	---	43588.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
FPr	dL	---	43588.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
FPr	Fr	---	43588.4	RW	Visibility of Copy Card formatting function	2 BIT		0...3	num
APPLICATION 1 PARAMETERS									
V1	V1-rE	36088	43776.0	RW	Regulation mode	WORD		0...4	num
V1	V1-rP1	36090	43776.2	RW	Control probe 1	WORD		0...7	num
V1	V1-rP2	36092	43776.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V1	V1-SP1	36094	43776.6	RW	Setpoint	WORD		V1-LS1...V1-HS1	°C/°F
V1	V1-dF1	36096	43777.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V1	V1-SP2	36098	43777.2	RW	Setpoint according to thermostat	WORD		V1-LS2...V1-HS2	°C/°F
V1	V1-dF2	36100	43777.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V1	V1-Stt	36106	43777.6	RW	Differential control mode	WORD		0/1	flag
V1	V1-HS1	36112	43778.0	RW	Maximum SP1 value	WORD		V1-LS1...V1-HdL	°C/°F
V1	V1-LS1	36114	43778.2	RW	Minimum SP1 value	WORD		V1-LdL...V1-HS1	°C/°F
V1	V1-HS2	36116	43778.4	RW	Maximum SP2 value	WORD		V1-LS2...V1-HdL	°C/°F
V1	V1-LS2	36118	43778.6	RW	Minimum SP2 value	WORD		V1-LdL...V1-HS2	°C/°F
V1	V1-HC1	36108	43779.0	RW	Thermostat mode 1	WORD		0/1	flag
V1	V1-HC2	36110	43779.2	RW	Thermostat mode 2	WORD		0/1	flag
V1	V1-Cit	36128	43779.6	RW	Minimum compressor ON time	WORD		0...250	min
V1	V1-CAt	36130	43780.0	RW	Maximum compressor ON time	WORD		0...250	min
V1	V1-Ont	36140	43780.2	RW	Probe error ON time	WORD		0...250	min
V1	V1-OFt	36142	43780.4	RW	Probe error OFF time	WORD		0...250	min
V1	V1-dOn	36132	43780.6	RW	Delayed start	WORD		0...250	s
V1	V1-dOF	36134	43781.0	RW	Delay after switching off	WORD		0...250	min
V1	V1-dbi	36136	43781.2	RW	Time lag between starts	WORD		0...250	min
V1	V1-OdO	36138	43781.4	RW	Output delay from power-on	WORD		0...250	min
V1	V1-OF1	36150	43782.6	RW	Remote offset	WORD		-50.0...50.0	°C/°F
V1	V1-dP1	36152	43783.0	RW	Defrost probe 1 selection	WORD		0...7	num
V1	V1-dP2	36154	43783.2	RW	Defrost probe 2 selection	WORD		0...7	num
V1	V1-dtY	36160	43783.4	RW	Defrost mode	WORD		0...4	num
V1	V1-dFt	36156	43783.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V1	V1-dit	36162	43784.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
V1	V1-dt1	36168	43784.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V1	V1-dt2	36170	43784.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V1	V1-dCt	36158	43784.6	RW	Defrost interval count mode	WORD		0...5	num
V1	V1-dOH	36172	43785.0	RW	Defrost interval count mode	WORD		0...250	min
V1	V1-dE1	36164	43785.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V1	V1-dE2	36166	43785.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V1	V1-dS1	36176	43785.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V1	V1-dS2	36178	43786.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V1	V1-dSS	36174	43786.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V1	V1-dPO	36180	43786.4	RW	Defrost activation request from power-on	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V1	V1-tcd	36182	43786.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V1	V1-ndE	36184	43787.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V1	V1-PdC	36186	43787.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V1	V1-tPd	36190	43787.4	RW	Pump down time before defrost startup	WORD		0...255	min
V1	V1-dPH	36068	43787.6	RW	Periodic start defrost hour	WORD		0...24	hours
V1	V1-dPn	36070	43788.0	RW	Periodic start defrost minutes	WORD		0...59	min
V1	V1-dPd	36072	43788.2	RW	Regular defrost interval duration	WORD		1...7	day
V1	V1-Fd1	35966	43788.4	RW	Weekend/public holiday 1	WORD		0...7	num
V1	V1-Fd2	35968	43788.6	RW	Weekend/public holiday 2	WORD		0...7	num
V1	V1-Edt	35970	43789.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V1	V1-d1H	35972	43789.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V1	V1-d1n	35974	43789.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V1	V1-d1t	35976	43789.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V1	V1-d1S	35978	43790.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-d2H	35980	43790.2	RW	Start time hour weekday defrost 2	WORD		V1-d1H...24	hours
V1	V1-d2n	35982	43790.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V1	V1-d2t	35984	43790.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V1	V1-d2S	35986	43791.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V1	V1-d3H	35988	43791.2	RW	Start time hour weekday defrost 3	WORD		V1-d2H...24	hours
V1	V1-d3n	35990	43791.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V1	V1-d3t	35992	43791.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V1	V1-d3S	35994	43792.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V1	V1-d4H	35996	43792.2	RW	Start time hour weekday defrost 4	WORD		V1-d3H...24	hours
V1	V1-d4n	35998	43792.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V1	V1-d4t	36000	43792.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V1	V1-d4S	36002	43793.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V1	V1-d5H	36004	43793.2	RW	Start time hour weekday defrost 5	WORD		V1-d4H...24	hours
V1	V1-d5n	36006	43793.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V1	V1-d5t	36008	43793.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V1	V1-d5S	36010	43794.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V1	V1-d6H	36012	43794.2	RW	Start time hour weekday defrost 6	WORD		V1-d5H...24	hours
V1	V1-d6n	36014	43794.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V1	V1-d6t	36016	43794.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V1	V1-d6S	36018	43795.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F1H	36020	43795.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V1	V1-F1n	36022	43795.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V1	V1-F1t	36024	43795.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V1	V1-F1S	36026	43796.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F2H	36028	43796.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V1-F1H...24	hours
V1	V1-F2n	36030	43796.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V1	V1-F2t	36032	43796.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V1	V1-F2S	36034	43797.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F3H	36036	43797.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V1-F2H...24	hours
V1	V1-F3n	36038	43797.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V1	V1-F3t	36040	43797.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V1	V1-F3S	36042	43798.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F4H	36044	43798.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V1-F3H...24	hours
V1	V1-F4n	36046	43798.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V1	V1-F4t	36048	43798.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V1	V1-F4S	36050	43799.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F5H	36052	43799.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V1-F4H...24	hours
V1	V1-F5n	36054	43799.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V1	V1-F5t	36056	43799.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V1	V1-F5S	36058	43800.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V1	V1-F6H	36060	43800.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V1-F5H...24	hours
V1	V1-F6n	36062	43800.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V1	V1-F6t	36064	43800.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V1	V1-F6S	36066	43801.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V1	V1-FP1	36192	43801.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V1	V1-FP2	36194	43801.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V1	V1-FPt	36196	43801.6	RW	FSt parameter mode	WORD		0/1	flag
V1	V1-FSt	36198	43802.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V1	V1-FAd	36200	43802.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V1	V1-Fdt	36202	43802.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V1	V1-dt	36212	43802.6	RW	Dripping time	WORD		0...250	min
V1	V1-dFd	36208	43803.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V1	V1-FCO	36206	43803.2	RW	Evaporator fans mode	WORD		0...3	num
V1	V1-FdC	36204	43803.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V1	V1-FOn	36214	43804.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V1	V1-FOF	36216	43804.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V1	V1-Fnn	36218	43804.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V1	V1-FnF	36220	43804.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V1	V1-rA1	36248	43805.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V1	V1-rA2	36250	43805.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V1	V1-Att	36252	43805.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V1	V1-AFd	36254	43805.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V1	V1-HA1	36256	43806.0	RW	Probe 1 maximum alarm	WORD		V1-LA1...302	°C/°F
V1	V1-LA1	36258	43806.2	RW	Probe 1 minimum alarm	WORD		-58.0...V1-HA1	°C/°F
V1	V1-HA2	36260	43806.4	RW	Probe 2 maximum alarm	WORD		V1-LA2...302	°C/°F
V1	V1-LA2	36262	43806.6	RW	Probe 2 minimum alarm	WORD		-58.0...V1-HA2	°C/°F
V1	V1-PAO	36264	43807.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V1	V1-dAO	36268	43807.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V1	V1-OAO	36266	43807.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V1	V1-tdO	36356	43807.6	RW	Open door disabling time	WORD		0...250	num
V1	V1-tA1	36270	43808.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V1	V1-tA2	36272	43808.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V1	V1-dAt	36188	43808.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V1	V1-EAL	36276	43808.6	RW	External alarm switches off loads	WORD		0/1/2	num
V1	V1-tP	36358	43809.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V1	V1-Art	36246	43809.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V1	V1-dSd	36240	43809.4	RW	Enable light relay from door switch	WORD		0/1	flag
V1	V1-dLt	36242	43809.6	RW	Light relay deactivation delay	WORD		0...250	min
V1	V1-OFL	36244	43810.0	RW	Light key always disables light relay	WORD		0/1	flag
V1	V1-dOd	36274	43810.2	RW	Door switch switches off loads	WORD		0...3	num
V1	V1-dOA	36278	43810.4	RW	Action forced by digital input	WORD		0...5	num
V1	V1-PEA	36280	43810.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V1	V1-dCO	36282	43811.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V1	V1-dFO	36284	43811.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V1	V1-ASb	36336	43811.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V1	V1-L00	35840	43811.6	RW	Probe sharing	WORD		0...6	num
V1	V1-L01	35842	43812.0	RW	Displayed value sharing	WORD		0/1/2	num
V1	V1-L02	35844	43812.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V1	V1-L03	35846	43812.4	RW	Send defrost request	WORD		0/1	flag
V1	V1-L04	35848	43812.6	RW	End defrost mode	WORD		0/1	flag
V1	V1-L05	35850	43813.0	RW	Standby command synchronisation	WORD		0/1	flag
V1	V1-L06	35852	43813.2	RW	Lights command synchronisation	WORD		0/1	flag
V1	V1-L07	35854	43813.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V1	V1-L08	35856	43813.6	RW	AUX command synchronisation	WORD		0/1	flag
V1	V1-L09	35858	43814.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V1	V1-L10	36360	43814.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V1	V1-dcS	36228	43815.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V1	V1-tdc	36230	43815.2	RW	Deep Cooling Duration	WORD		0...250	min
V1	V1-dcc	36232	43815.4	RW	Wait for defrost cycle start	WORD		0...250	min
V1	V1-ESt	36086	43815.6	RW	Type of Energy Saving	WORD		0...4	num
V1	V1-ESF	36222	43816.0	RW	Night activation mode	WORD		0/1	flag
V1	V1-Cdt	36224	43816.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V1	V1-ESo	36226	43816.4	RW	Open door cumulative time	WORD		0...10	num
V1	V1-OS1	36120	43816.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V1	V1-OS2	36122	43817.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V1	V1-Od1	36124	43817.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V1	V1-Od2	36126	43817.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V1	V1-dn1	36102	43817.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V1	V1-dn2	36104	43818.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V1	V1-EdH	36074	43818.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V1	V1-Edn	36076	43818.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V1	V1-Edd	36078	43818.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V1	V1-EFH	36080	43819.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V1	V1-EFn	36082	43819.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V1	V1-EFd	36084	43819.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V1	V1-FH	36286	43819.6	RW	Regulation mode	WORD		0...7	num
V1	V1-FHt	36290	43820.0	RW	Frame Heater period	WORD		1...2500	s*10
V1	V1-FH0	36292	43820.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V1	V1-FH1	36294	43820.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V1	V1-FH2	36296	43820.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V1	V1-FH3	36298	43821.0	RW	Min percentage	WORD		0...100	%
V1	V1-FH4	36300	43821.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V1	V1-FH5	36302	43821.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V1	V1-FH6	36304	43821.6	RW	Percentage during defrost	WORD		0...100	%
V1	V1-LOC	36310	43822.0	RW	Keypad lock	WORD		0/1	flag
V1	V1-PS1	36312	43822.2	RW	Password 1	WORD		0...250	num
V1	V1-PS2	36314	43822.4	RW	Password 2	WORD		0...250	num
V1	V1-ndt	36316	43822.6	RW	Display with decimal point	WORD		0/1	flag
V1	V1-CA1	35928	43823.0	RW	Calibration ST1	WORD		-30.0...30.0	°C/°F
V1	V1-CA2	35930	43823.2	RW	Calibration ST2	WORD		-30.0...30.0	°C/°F
V1	V1-CA3	35932	43823.4	RW	Calibration ST3	WORD		-30.0...30.0	°C/°F
V1	V1-CA4	35934	43823.6	RW	Calibration ST4	WORD		-30.0...30.0	°C/°F
V1	V1-CA5	35936	43824.0	RW	Calibration ST5	WORD		-30.0...30.0	°C/°F
V1	V1-CA6	35938	43824.2	RW	Calibration ST6	WORD		-30.0...30.0	bar/Psi
V1	V1-CA7	35940	43824.4	RW	Calibration ST7	WORD		-30.0...30.0	bar/Psi
V1	V1-LdL	36318	43824.6	RW	Minimum possible value	WORD		-58.0...V1-HdL	°C/°F
V1	V1-HdL	36320	43825.0	RW	Maximum possible value.	WORD		V1-LdL...302	°C/°F
V1	V1-ddL	36322	43825.2	RW	Lock display during defrost	WORD		0/1/2	num
V1	V1-Ldd	36324	43825.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V1	V1-dro	36326	43825.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V1	V1-SbP	36328	43826.0	RW	Bar/Psi selection	WORD		0/1	flag
V1	V1-ddd	36330	43826.2	RW	Main Display	WORD		0...7	num
V1	V1-ddE	36332	43826.4	RW	Fundamental display on ECHO	WORD		0...7	num
V1	V1-rPH	36234	43826.6	RW	HACCP alarm probe selection	WORD		0...5	num
V1	V1-H00	35860	43827.0	RW	Probe type ST1-ST2-ST3-ST4–ST5	WORD		0/1/2	num
V1	V1-H02	36334	43827.2	RW	Key activation time	WORD		0...250	s
V1	V1-H08	36338	43827.4	RW	Stand-by mode	WORD		0/1/2	num
V1	V1-H11	35870	43827.6	RW	DI1 input configuration	WORD		-17...17	num
V1	V1-H12	35872	43828.0	RW	DI2 input configuration	WORD		-17...17	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V1	V1-H13	35874	43828.2	RW	DI3 input configuration	WORD		-17...17	num
V1	V1-H14	35876	43828.4	RW	DI4 input configuration	WORD		-17...17	num
V1	V1-H15	35878	43828.6	RW	DI5 input configuration	WORD		-17...17	num
V1	V1-H16	35880	43829.0	RW	DI6 input configuration	WORD		-17...17	num
V1	V1-H17	35882	43829.2	RW	DI7 input configuration	WORD		-17...17	num
V1	V1-H18	35884	43829.4	RW	DI8 input configuration	WORD		-17...17	num
V1	V1-dti	35902	43829.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V1	V1-d11	35886	43830.0	RW	DI activation signalling delay	WORD		0...255	min/dit
V1	V1-d12	35888	43830.2	RW	DI2 activation signalling delay	WORD		0...255	min/dit
V1	V1-d13	35890	43830.4	RW	DI3 activation signalling delay	WORD		0...255	min
V1	V1-d14	35892	43830.6	RW	DI4 activation signalling delay	WORD		0...255	min
V1	V1-d15	35894	43831.0	RW	DI5 activation signalling delay	WORD		0...255	min
V1	V1-d16	35896	43831.2	RW	DI6 activation signalling delay	WORD		0...255	min
V1	V1-d17	35898	43831.4	RW	DI7 activation signalling delay	WORD		0...255	min
V1	V1-d18	35900	43831.6	RW	DI8 activation signalling delay	WORD		0...255	min
V1	V1-H21	35944	43832.0	RW	Configurability of digital output 1	WORD		0...14	num
V1	V1-H22	35946	43832.2	RW	Configurability of digital output 2	WORD		0...14	num
V1	V1-H23	35948	43832.4	RW	Configurability of digital output 3	WORD		0...14	num
V1	V1-H24	35950	43832.6	RW	Configurability of digital output 4	WORD		0...14	num
V1	V1-H25	35952	43833.0	RW	Configurability of digital output 5	WORD		0...14	num
V1	V1-H27	35956	43833.4	RW	Configurability of digital output 7	WORD		0...14	num
V1	V1-H29	35958	43833.6	RW	Enable buzzer	WORD		0/1	flag
V1	V1-H31	36340	43834.0	RW	Configuration of UP key	WORD		0...8	num
V1	V1-H32	36342	43834.2	RW	Configuration of DOWN key	WORD		0...8	num
V1	V1-H33	36344	43834.4	RW	ESC key configuration	WORD		0...8	num
V1	V1-H34	36346	43834.6	RW	FREE 1 key configuration	WORD		0...8	num
V1	V1-H35	36348	43835.0	RW	FREE 2 key configuration	WORD		0...8	num
V1	V1-H36	36350	43835.2	RW	FREE 3 key configuration	WORD		0...8	num
V1	V1-H37	36352	43835.4	RW	FREE 4 key configuration	WORD		0...8	num
V1	V1-H41	35904	43835.6	RW	ST1 input configuration	WORD		0/1/2	num
V1	V1-H42	35906	43836.0	RW	ST2 input configuration	WORD		0/1/2	num
V1	V1-H43	35908	43836.2	RW	ST3 input configuration	WORD		0/1/2	num
V1	V1-H44	35910	43836.4	RW	ST4 input configuration	WORD		0/1/2	num
V1	V1-H45	35912	43836.6	RW	ST5 input configuration	WORD		0/1/2	num
V1	V1-H46	35914	43837.0	RW	ST6 input configuration	WORD		0/1/2	num
V1	V1-H47	35916	43837.2	RW	ST7 input configuration	WORD		0/1/2	num
V1	V1-H50	35960	43837.4	RW	Configuration of analogue output type	WORD		0/1	flag
V1	V1-H51	35962	43837.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V1	V1-H68	35964	43838.0	RW	Clock presence	WORD		0/1	flag
V1	V1-H70	35920	43838.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V1	V1-H71	35922	43838.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V1	V1-H72	35924	43838.6	RW	% calculation virtual probe day	WORD		0...100	%
V1	V1-H73	35926	43839.0	RW	% calculation virtual probe night	WORD		0...100	%
V1	V1-Ety	36354	43839.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V1	V1-UL	---	43588.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V1	V1-dL	---	43588.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V1	V1-Fr	---	43588.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num
APPLICATION 2 PARAMETERS									
V2	V2-rE	36856	43968.0	RW	Regulation mode	WORD		0...4	num
V2	V2-rP1	36858	43968.2	RW	Control probe 1	WORD		0...7	num
V2	V2-rP2	36860	43968.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V2	V2-SP1	36862	43968.6	RW	Setpoint	WORD		V2-LS1...V2-HS1	°C/°F
V2	V2-dF1	36864	43969.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V2	V2-SP2	36866	43969.2	RW	Setpoint according to thermostat	WORD		V2-LS2...V2-HS2	°C/°F

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V2	V2-dF2	36868	43969.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V2	V2-Stt	36874	43969.6	RW	Differential control mode	WORD		0/1	flag
V2	V2-HS1	36880	43970.0	RW	Maximum SP1 value	WORD		V2-LS1...V2-HdL	°C/°F
V2	V2-LS1	36882	43970.2	RW	Minimum SP1 value	WORD		V2-LdL...V2-HS1	°C/°F
V2	V2-HS2	36884	43970.4	RW	Maximum SP2 value	WORD		V2-LS2...V2-HdL	°C/°F
V2	V2-LS2	36886	43970.6	RW	Minimum SP2 value	WORD		V2-LdL...V2-HS2	°C/°F
V2	V2-HC1	36876	43971.0	RW	Thermostat mode 1	WORD		0/1	flag
V2	V2-HC2	36878	43971.2	RW	Thermostat mode 2	WORD		0/1	flag
V2	V2-Cit	36896	43971.6	RW	Minimum compressor ON time	WORD		0...250	min
V2	V2-CAt	36898	43972.0	RW	Maximum compressor ON time	WORD		0...250	min
V2	V2-Ont	36908	43972.2	RW	Probe error ON time	WORD		0...250	min
V2	V2-OFt	36910	43972.4	RW	Probe error OFF time	WORD		0...250	min
V2	V2-dOn	36900	43972.6	RW	Delayed start	WORD		0...250	s
V2	V2-dOF	36902	43973.0	RW	Delay after switching off	WORD		0...250	min
V2	V2-dbi	36904	43973.2	RW	Time lag between starts	WORD		0...250	min
V2	V2-OdO	36906	43973.4	RW	Output delay from power-on	WORD		0...250	min
V2	V2-OF1	36918	43974.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V2	V2-dP1	36920	43975.0	RW	Defrost probe 1 selection	WORD		0...7	num
V2	V2-dP2	36922	43975.2	RW	Defrost probe 2 selection	WORD		0...7	num
V2	V2-dtY	36928	43975.4	RW	Defrost mode	WORD		0...4	num
V2	V2-dFt	36924	43975.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V2	V2-dit	36930	43976.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
V2	V2-dt1	36936	43976.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V2	V2-dt2	36938	43976.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V2	V2-dCt	36926	43976.6	RW	Defrost interval count mode	WORD		0...5	num
V2	V2-dOH	36940	43977.0	RW	Defrost interval count mode	WORD		0...250	min
V2	V2-dE1	36932	43977.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V2	V2-dE2	36934	43977.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V2	V2-dS1	36944	43977.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V2	V2-dS2	36946	43978.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V2	V2-dSS	36942	43978.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V2	V2-dPO	36948	43978.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V2	V2-tcd	36950	43978.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V2	V2-ndE	36952	43979.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V2	V2-PdC	36954	43979.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V2	V2-tPd	36958	43979.4	RW	Pump down time before defrost startup	WORD		0...255	min
V2	V2-dPH	36836	43979.6	RW	Periodic start defrost hour	WORD		0...24	hours
V2	V2-dPn	36838	43980.0	RW	Periodic start defrost minutes	WORD		0...59	min
V2	V2-dPd	36840	43980.2	RW	Regular defrost interval duration	WORD		1...7	day
V2	V2-Fd1	36734	43980.4	RW	Weekend/public holiday 1	WORD		0...7	num
V2	V2-Fd2	36736	43980.6	RW	Weekend/public holiday 2	WORD		0...7	num
V2	V2-Edt	36738	43981.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V2	V2-d1H	36740	43981.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V2	V2-d1n	36742	43981.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V2	V2-d1t	36744	43981.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V2	V2-d1S	36746	43982.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-d2H	36748	43982.2	RW	Start time hour weekday defrost 2	WORD		V2-d1H...24	hours
V2	V2-d2n	36750	43982.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V2	V2-d2t	36752	43982.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V2	V2-d2S	36754	43983.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V2	V2-d3H	36756	43983.2	RW	Start time hour weekday defrost 3	WORD		V2-d2H...24	hours
V2	V2-d3n	36758	43983.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V2	V2-d3t	36760	43983.6	RW	Weekday defrost 3 duration	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V2	V2-d3S	36762	43984.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V2	V2-d4H	36764	43984.2	RW	Start time hour weekday defrost 4	WORD		V2-d3H...24	hours
V2	V2-d4n	36766	43984.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V2	V2-d4t	36768	43984.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V2	V2-d4S	36770	43985.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V2	V2-d5H	36772	43985.2	RW	Start time hour weekday defrost 5	WORD		V2-d4H...24	hours
V2	V2-d5n	36774	43985.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V2	V2-d5t	36776	43985.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V2	V2-d5S	36778	43986.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V2	V2-d6H	36780	43986.2	RW	Start time hour weekday defrost 6	WORD		V2-d5H...24	hours
V2	V2-d6n	36782	43986.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V2	V2-d6t	36784	43986.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V2	V2-d6S	36786	43987.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F1H	36788	43987.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V2	V2-F1n	36790	43987.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V2	V2-F1t	36792	43987.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V2	V2-F1S	36794	43988.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F2H	36796	43988.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V2-F1H...24	hours
V2	V2-F2n	36798	43988.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V2	V2-F2t	36800	43988.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V2	V2-F2S	36802	43989.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F3H	36804	43989.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V2-F2H...24	hours
V2	V2-F3n	36806	43989.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V2	V2-F3t	36808	43989.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V2	V2-F3S	36810	43990.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F4H	36812	43990.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V2-F3H...24	hours
V2	V2-F4n	36814	43990.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V2	V2-F4t	36816	43990.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V2	V2-F4S	36818	43991.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F5H	36820	43991.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V2-F4H...24	hours
V2	V2-F5n	36822	43991.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V2	V2-F5t	36824	43991.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V2	V2-F5S	36826	43992.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V2	V2-F6H	36828	43992.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V2-F5H...24	hours
V2	V2-F6n	36830	43992.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V2	V2-F6t	36832	43992.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V2	V2-F6S	36834	43993.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V2	V2-FP1	36960	43993.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V2	V2-FP2	36962	43993.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V2	V2-FPt	36964	43993.6	RW	FSt parameter mode	WORD		0/1	flag
V2	V2-FSt	36966	43994.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V2	V2-FAd	36968	43994.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V2	V2-Fdt	36970	43994.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V2	V2-dt	36980	43994.6	RW	Dripping time	WORD		0...250	min
V2	V2-dFd	36976	43995.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V2	V2-FCO	36974	43995.2	RW	Evaporator fans mode	WORD		0...3	num
V2	V2-FdC	36972	43995.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V2	V2-FOn	36982	43996.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V2	V2-FOF	36984	43996.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V2	V2-Fnn	36986	43996.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V2	V2-FnF	36988	43996.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V2	V2-rA1	37016	43997.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V2	V2-rA2	37018	43997.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V2	V2-Att	37020	43997.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V2	V2-AFd	37022	43997.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V2	V2-HA1	37024	43998.0	RW	Probe 1 maximum alarm	WORD		V2-LA1...302	°C/°F
V2	V2-LA1	37026	43998.2	RW	Probe 1 minimum alarm	WORD		-58.0...V2-HA1	°C/°F
V2	V2-HA2	37028	43998.4	RW	Probe 2 maximum alarm	WORD		V2-LA2...302	°C/°F
V2	V2-LA2	37030	43998.6	RW	Probe 2 minimum alarm	WORD		-58.0...V2-HA2	°C/°F
V2	V2-PAO	37032	43999.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V2	V2-dAO	37036	43999.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V2	V2-OAO	37034	43999.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V2	V2-tdO	37124	43999.6	RW	Open door disabling time	WORD		0...250	num
V2	V2-tA1	37038	44000.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V2	V2-tA2	37040	44000.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V2	V2-dAt	36956	44000.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V2	V2-EAL	37044	44000.6	RW	External alarm switches off loads	WORD		0...2	num
V2	V2-tP	37126	44001.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V2	V2-Art	37014	44001.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V2	V2-dSd	37008	44001.4	RW	Enable light relay from door switch	WORD		0/1	flag
V2	V2-dLt	37010	44001.6	RW	Light relay deactivation delay	WORD		0...250	min
V2	V2-OFL	37012	44002.0	RW	Light key always disables light relay	WORD		0/1	flag
V2	V2-dOd	37042	44002.2	RW	Door switch switches off loads	WORD		0...3	num
V2	V2-dOA	37046	44002.4	RW	Action forced by digital input	WORD		0...5	num
V2	V2-PEA	37048	44002.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V2	V2-dCO	37050	44003.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V2	V2-dFO	37052	44003.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V2	V2-ASb	37104	44003.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V2	V2-L00	36608	44003.6	RW	Probe sharing	WORD		0...6	num
V2	V2-L01	36610	44004.0	RW	Displayed value sharing	WORD		0/1/2	num
V2	V2-L02	36612	44004.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V2	V2-L03	36614	44004.4	RW	Send defrost request	WORD		0/1	flag
V2	V2-L04	36616	44004.6	RW	End defrost mode	WORD		0/1	flag
V2	V2-L05	36618	44005.0	RW	Standby command synchronisation	WORD		0/1	flag
V2	V2-L06	36620	44005.2	RW	Lights command synchronisation	WORD		0/1	flag
V2	V2-L07	36622	44005.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V2	V2-L08	36624	44005.6	RW	AUX command synchronisation	WORD		0/1	flag
V2	V2-L09	36626	44006.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V2	V2-L10	37128	44006.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V2	V2-dcS	36996	44007.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V2	V2-tdc	36998	44007.2	RW	Deep Cooling Duration	WORD		0...250	min
V2	V2-dcc	37000	44007.4	RW	Wait for defrost cycle start	WORD		0...250	min
V2	V2-ESt	36854	44007.6	RW	Type of Energy Saving	WORD		0...4	num
V2	V2-ESF	36990	44008.0	RW	Night activation mode	WORD		0/1	flag
V2	V2-Cdt	36992	44008.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V2	V2-ESo	36994	44008.4	RW	Open door cumulative time	WORD		0...10	num
V2	V2-OS1	36888	44008.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V2	V2-OS2	36890	44009.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V2	V2-Od1	36892	44009.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V2	V2-Od2	36894	44009.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V2	V2-dn1	36870	44009.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V2	V2-dn2	36872	44010.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V2	V2-EdH	36842	44010.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V2	V2-Edn	36844	44010.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V2	V2-Edd	36846	44010.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V2	V2-EFH	36848	44011.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V2	V2-EFn	36850	44011.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V2	V2-EFd	36852	44011.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V2	V2-FH	37054	44011.6	RW	Regulation mode	WORD		0...7	num
V2	V2-FHt	37058	44012.0	RW	Frame Heater period	WORD		1...2500	s*10

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V2	V2-FH0	37060	44012.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V2	V2-FH1	37062	44012.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V2	V2-FH2	37064	44012.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V2	V2-FH3	37066	44013.0	RW	Min percentage	WORD		0...100	%
V2	V2-FH4	37068	44013.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V2	V2-FH5	37070	44013.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V2	V2-FH6	37072	44013.6	RW	Percentage during defrost	WORD		0...100	%
V2	V2-LOC	37078	44014.0	RW	Keypad lock	WORD		0/1	flag
V2	V2-PS1	37080	44014.2	RW	Password 1	WORD		0...250	num
V2	V2-PS2	37082	44014.4	RW	Password 2	WORD		0...250	num
V2	V2-ndt	37084	44014.6	RW	Display with decimal point	WORD		0/1	flag
V2	V2-CA1	36696	44015.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V2	V2-CA2	36698	44015.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V2	V2-CA3	36700	44015.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V2	V2-CA4	36702	44015.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V2	V2-CA5	36704	44016.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V2	V2-CA6	36706	44016.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V2	V2-CA7	36708	44016.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V2	V2-LdL	37086	44016.6	RW	Minimum possible value	WORD		-58.0...V2-HdL	°C/°F
V2	V2-HdL	37088	44017.0	RW	Maximum possible value.	WORD		V2-LdL...302	°C/°F
V2	V2-ddL	37090	44017.2	RW	Lock display during defrost	WORD		0/1/2	num
V2	V2-Ldd	37092	44017.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V2	V2-dro	37094	44017.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V2	V2-SbP	37096	44018.0	RW	Bar/Psi selection	WORD		0/1	flag
V2	V2-ddd	37098	44018.2	RW	Main Display	WORD		0...7	num
V2	V2-ddE	37100	44018.4	RW	Fundamental display on ECHO	WORD		0...7	num
V2	V2-rPH	37002	44018.6	RW	HACCP alarm probe selection	WORD		0...5	num
V2	V2-H00	36628	44019.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V2	V2-H02	37102	44019.2	RW	Key activation time	WORD		0...250	s
V2	V2-H08	37106	44019.4	RW	Stand-by mode	WORD		0/1/2	num
V2	V2-H11	36638	44019.6	RW	DI1 input configuration	WORD		-17...17	num
V2	V2-H12	36640	44020.0	RW	DI2 input configuration	WORD		-17...17	num
V2	V2-H13	36642	44020.2	RW	DI3 input configuration	WORD		-17...17	num
V2	V2-H14	36644	44020.4	RW	DI4 input configuration	WORD		-17...17	num
V2	V2-H15	36646	44020.6	RW	DI5 input configuration	WORD		-17...17	num
V2	V2-H16	36648	44021.0	RW	DI6 input configuration	WORD		-17...17	num
V2	V2-H17	36650	44021.2	RW	DI7 input configuration	WORD		-17...17	num
V2	V2-H18	36652	44021.4	RW	DI8 input configuration	WORD		-17...17	num
V2	V2-dti	36670	44021.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V2	V2-d11	36654	44022.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V2	V2-d12	36656	44022.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V2	V2-d13	36658	44022.4	RW	DI3 activation signalling delay	WORD		0...255	min
V2	V2-d14	36660	44022.6	RW	DI4 activation signalling delay	WORD		0...255	min
V2	V2-d15	36662	44023.0	RW	DI5 activation signalling delay	WORD		0...255	min
V2	V2-d16	36664	44023.2	RW	DI6 activation signalling delay	WORD		0...255	min
V2	V2-d17	36666	44023.4	RW	DI7 activation signalling delay	WORD		0...255	min
V2	V2-d18	36668	44023.6	RW	DI8 activation signalling delay	WORD		0...255	min
V2	V2-H21	36712	44024.0	RW	Configurability of digital output 1	WORD		0...14	num
V2	V2-H22	36714	44024.2	RW	Configurability of digital output 2	WORD		0...14	num
V2	V2-H23	36716	44024.4	RW	Configurability of digital output 3	WORD		0...14	num
V2	V2-H24	36718	44024.6	RW	Configurability of digital output 4	WORD		0...14	num
V2	V2-H25	36720	44025.0	RW	Configurability of digital output 5	WORD		0...14	num
V2	V2-H27	36724	44025.4	RW	Configurability of digital output 7	WORD		0...14	num
V2	V2-H29	36726	44025.6	RW	Enable buzzer	WORD		0/1	flag
V2	V2-H31	37108	44026.0	RW	Configuration of UP key	WORD		0...8	num
V2	V2-H32	37110	44026.2	RW	Configuration of DOWN key	WORD		0...8	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V2	V2-H33	37112	44026.4	RW	ESC key configuration	WORD		0...8	num
V2	V2-H34	37114	44026.6	RW	FREE 1 key configuration	WORD		0...8	num
V2	V2-H35	37116	44027.0	RW	FREE 2 key configuration	WORD		0...8	num
V2	V2-H36	37118	44027.2	RW	FREE 3 key configuration	WORD		0...8	num
V2	V2-H37	37120	44027.4	RW	FREE 4 key configuration	WORD		0...8	num
V2	V2-H41	36672	44027.6	RW	Pb1 input configuration	WORD		0/1/2	num
V2	V2-H42	36674	44028.0	RW	Pb2 input configuration	WORD		0/1/2	num
V2	V2-H43	36676	44028.2	RW	Pb3 input configuration	WORD		0/1/2	num
V2	V2-H44	36678	44028.4	RW	Pb4 input configuration	WORD		0/1/2	num
V2	V2-H45	36680	44028.6	RW	Pb5 input configuration	WORD		0/1/2	num
V2	V2-H46	36682	44029.0	RW	Pb6 input configuration	WORD		0/1/2	num
V2	V2-H47	36684	44029.2	RW	Pb7 input configuration	WORD		0/1/2	num
V2	V2-H50	36728	44029.4	RW	Configuration of analogue output type	WORD		0/1	flag
V2	V2-H51	36730	44029.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V2	V2-H68	36732	44030.0	RW	Clock presence	WORD		0/1	flag
V2	V2-H70	36688	44030.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V2	V2-H71	36690	44030.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V2	V2-H72	36692	44030.6	RW	% calculation virtual probe day	WORD		0...100	%
V2	V2-H73	36694	44031.0	RW	% calculation virtual probe night	WORD		0...100	%
V2	V2-Ety	37122	44031.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V2	V2-UL	---	44036.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V2	V2-dL	---	44036.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V2	V2-Fr	---	44036.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num
APPLICATION 3 PARAMETERS									
V3	V3-rE	37624	44160.0	RW	Regulation mode	WORD		0...4	num
V3	V3-rP1	37626	44160.2	RW	Control probe 1	WORD		0...7	num
V3	V3-rP2	37628	44160.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V3	V3-SP1	37630	44160.6	RW	Setpoint	WORD		V3-LS1...V3-HS1	°C/°F
V3	V3-dF1	37632	44161.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V3	V3-SP2	37634	44161.2	RW	Setpoint according to thermostat	WORD		V3-LS2...V3-HS2	°C/°F
V3	V3-dF2	37636	44161.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V3	V3-Stt	37642	44161.6	RW	Differential control mode	WORD		0/1	flag
V3	V3-HS1	37648	44162.0	RW	Maximum SP1 value	WORD		V3-LS1...V3-HdL	°C/°F
V3	V3-LS1	37650	44162.2	RW	Minimum SP1 value	WORD		V3-LdL...V3-HS1	°C/°F
V3	V3-HS2	37652	44162.4	RW	Maximum SP2 value	WORD		V3-LS2...V3-HdL	°C/°F
V3	V3-LS2	37654	44162.6	RW	Minimum SP2 value	WORD		V3-LdL...V3-HS2	°C/°F
V3	V3-HC1	37644	44163.0	RW	Thermostat mode 1	WORD		0/1	flag
V3	V3-HC2	37646	44163.2	RW	Thermostat mode 2	WORD		0/1	flag
V3	V3-Cit	37664	44163.6	RW	Minimum compressor ON time	WORD		0...250	min
V3	V3-CAt	37666	44164.0	RW	Maximum compressor ON time	WORD		0...250	min
V3	V3-Ont	37676	44164.2	RW	Probe error ON time	WORD		0...250	min
V3	V3-OFt	37678	44164.4	RW	Probe error OFF time	WORD		0...250	min
V3	V3-dOn	37668	44164.6	RW	Delayed start	WORD		0...250	s
V3	V3-dOF	37670	44165.0	RW	Delay after switching off	WORD		0...250	min
V3	V3-dbi	37672	44165.2	RW	Time lag between starts	WORD		0...250	min
V3	V3-OdO	37674	44165.4	RW	Output delay from power-on	WORD		0...250	min
V3	V3-OF1	37686	44166.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V3	V3-dP1	37688	44167.0	RW	Defrost probe 1 selection	WORD		0...7	num
V3	V3-dP2	37690	44167.2	RW	Defrost probe 2 selection	WORD		0...7	num
V3	V3-dtY	37696	44167.4	RW	Defrost mode	WORD		0...4	num
V3	V3-dFt	37692	44167.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V3	V3-dit	37698	44168.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
V3	V3-dt1	37704	44168.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V3	V3-dt2	37706	44168.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V3	V3-dCt	37694	44168.6	RW	Defrost interval count mode	WORD		0...5	num
V3	V3-dOH	37708	44169.0	RW	Defrost interval count mode	WORD		0...250	min
V3	V3-dE1	37700	44169.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V3	V3-dE2	37702	44169.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V3	V3-dS1	37712	44169.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V3	V3-dS2	37714	44170.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V3	V3-dSS	37710	44170.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V3	V3-dPO	37716	44170.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V3	V3-tcd	37718	44170.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V3	V3-ndE	37720	44171.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V3	V3-PdC	37722	44171.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V3	V3-tPd	37726	44171.4	RW	Pump down time before defrost startup	WORD		0...255	min
V3	V3-dPH	37604	44171.6	RW	Periodic start defrost hour	WORD		0...24	hours
V3	V3-dPn	37606	44172.0	RW	Periodic start defrost minutes	WORD		0...59	min
V3	V3-dPd	37608	44172.2	RW	Regular defrost interval duration	WORD		1...7	day
V3	V3-Fd1	37502	44172.4	RW	Weekend/public holiday 1	WORD		0...7	num
V3	V3-Fd2	37504	44172.6	RW	Weekend/public holiday 2	WORD		0...7	num
V3	V3-Edt	37506	44173.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V3	V3-d1H	37508	44173.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V3	V3-d1n	37510	44173.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V3	V3-d1t	37512	44173.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V3	V3-d1S	37514	44174.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-d2H	37516	44174.2	RW	Start time hour weekday defrost 2	WORD		V3-d1H...24	hours
V3	V3-d2n	37518	44174.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V3	V3-d2t	37520	44174.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V3	V3-d2S	37522	44175.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V3	V3-d3H	37524	44175.2	RW	Start time hour weekday defrost 3	WORD		V3-d2H...24	hours
V3	V3-d3n	37526	44175.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V3	V3-d3t	37528	44175.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V3	V3-d3S	37530	44176.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V3	V3-d4H	37532	44176.2	RW	Start time hour weekday defrost 4	WORD		V3-d3H...24	hours
V3	V3-d4n	37534	44176.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V3	V3-d4t	37536	44176.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V3	V3-d4S	37538	44177.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V3	V3-d5H	37540	44177.2	RW	Start time hour weekday defrost 5	WORD		V3-d4H...24	hours
V3	V3-d5n	37542	44177.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V3	V3-d5t	37544	44177.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V3	V3-d5S	37546	44178.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V3	V3-d6H	37548	44178.2	RW	Start time hour weekday defrost 6	WORD		V3-d5H...24	hours
V3	V3-d6n	37550	44178.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V3	V3-d6t	37552	44178.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V3	V3-d6S	37554	44179.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F1H	37556	44179.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V3	V3-F1n	37558	44179.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V3	V3-F1t	37560	44179.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V3	V3-F1S	37562	44180.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F2H	37564	44180.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V3-F1H...24	hours
V3	V3-F2n	37566	44180.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V3	V3-F2t	37568	44180.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V3	V3-F2S	37570	44181.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F3H	37572	44181.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V3-F2H...24	hours
V3	V3-F3n	37574	44181.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V3	V3-F3t	37576	44181.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V3	V3-F3S	37578	44182.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F4H	37580	44182.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V3-F3H...24	hours

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V3	V3-F4n	37582	44182.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V3	V3-F4t	37584	44182.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V3	V3-F4S	37586	44183.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F5H	37588	44183.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V3-F4H...24	hours
V3	V3-F5n	37590	44183.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V3	V3-F5t	37592	44183.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V3	V3-F5S	37594	44184.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V3	V3-F6H	37596	44184.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V3-F5H...24	hours
V3	V3-F6n	37598	44184.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V3	V3-F6t	37600	44184.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V3	V3-F6S	37602	44185.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V3	V3-FP1	37728	44185.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V3	V3-FP2	37730	44185.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V3	V3-FPt	37732	44185.6	RW	FSt parameter mode	WORD		0/1	flag
V3	V3-FSt	37734	44186.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V3	V3-FAd	37736	44186.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V3	V3-Fdt	37738	44186.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V3	V3-dt	37748	44186.6	RW	Dripping time	WORD		0...250	min
V3	V3-dFd	37744	44187.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V3	V3-FCO	37742	44187.2	RW	Evaporator fans mode	WORD		0...3	num
V3	V3-FdC	37740	44187.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V3	V3-FOn	37750	44188.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V3	V3-FOF	37752	44188.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V3	V3-Fnn	37754	44188.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V3	V3-FnF	37756	44188.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V3	V3-rA1	37784	44189.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V3	V3-rA2	37786	44189.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V3	V3-Att	37788	44189.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V3	V3-AFd	37790	44189.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V3	V3-HA1	37792	44190.0	RW	Probe 1 maximum alarm	WORD		V3-LA1...302	°C/°F
V3	V3-LA1	37794	44190.2	RW	Probe 1 minimum alarm	WORD		-58.0...V3-HA1	°C/°F
V3	V3-HA2	37796	44190.4	RW	Probe 2 maximum alarm	WORD		V3-LA2...302	°C/°F
V3	V3-LA2	37798	44190.6	RW	Probe 2 minimum alarm	WORD		-58.0...V3-HA2	°C/°F
V3	V3-PAO	37800	44191.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V3	V3-dAO	37804	44191.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V3	V3-OAO	37802	44191.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V3	V3-tdO	37892	44191.6	RW	Open door disabling time	WORD		0...250	num
V3	V3-tA1	37806	44192.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V3	V3-tA2	37808	44192.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V3	V3-dAt	37724	44192.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V3	V3-EAL	37812	44192.6	RW	External alarm switches off loads	WORD		0/1/2	num
V3	V3-tP	37894	44193.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	num
V3	V3-Art	37782	44193.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V3	V3-dSd	37776	44193.4	RW	Enable light relay from door switch	WORD		0/1	flag
V3	V3-dLt	37778	44193.6	RW	Light relay deactivation delay	WORD		0...250	min
V3	V3-OFL	37780	44194.0	RW	Light key always disables light relay	WORD		0/1	flag
V3	V3-dOd	37810	44194.2	RW	Door switch switches off loads	WORD		0...3	num
V3	V3-dOA	37814	44194.4	RW	Action forced by digital input	WORD		0...5	num
V3	V3-PEA	37816	44194.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V3	V3-dCO	37818	44195.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V3	V3-dFO	37820	44195.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V3	V3-ASb	37872	44195.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V3	V3-L00	37376	44195.6	RW	Probe sharing	WORD		0...6	num
V3	V3-L01	37378	44196.0	RW	Displayed value sharing	WORD		0/1/2	num
V3	V3-L02	37380	44196.2	RW	Send Setpoint value when modified	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V3	V3-L03	37382	44196.4	RW	Send defrost request	WORD		0/1	flag
V3	V3-L04	37384	44196.6	RW	End defrost mode	WORD		0/1	flag
V3	V3-L05	37386	44197.0	RW	Standby command synchronisation	WORD		0/1	flag
V3	V3-L06	37388	44197.2	RW	Lights command synchronisation	WORD		0/1	flag
V3	V3-L07	37390	44197.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V3	V3-L08	37392	44197.6	RW	AUX command synchronisation	WORD		0/1	flag
V3	V3-L09	37394	44198.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V3	V3-L10	37896	44198.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V3	V3-dcS	37764	44199.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V3	V3-tdc	37766	44199.2	RW	Deep Cooling Duration	WORD		0...250	min
V3	V3-dcc	37768	44199.4	RW	Wait for defrost cycle start	WORD		0...250	min
V3	V3-ESt	37622	44199.6	RW	Type of Energy Saving	WORD		0...4	num
V3	V3-ESF	37758	44200.0	RW	Night activation mode	WORD		0/1	flag
V3	V3-Cdt	37760	44200.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V3	V3-ESo	37762	44200.4	RW	Open door cumulative time	WORD		0...10	num
V3	V3-OS1	37656	44200.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V3	V3-OS2	37658	44201.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V3	V3-Od1	37660	44201.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V3	V3-Od2	37662	44201.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V3	V3-dn1	37638	44201.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V3	V3-dn2	37640	44202.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V3	V3-EdH	37610	44202.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V3	V3-Edn	37612	44202.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V3	V3-Edd	37614	44202.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V3	V3-EFH	37616	44203.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V3	V3-EFn	37618	44203.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V3	V3-EFd	37620	44203.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V3	V3-FH	37822	44203.6	RW	Regulation mode	WORD		0...7	num
V3	V3-FHt	37826	44204.0	RW	Frame Heater period	WORD		1...2500	s*10
V3	V3-FH0	37828	44204.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V3	V3-FH1	37830	44204.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V3	V3-FH2	37832	44204.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V3	V3-FH3	37834	44205.0	RW	Min percentage	WORD		0...100	%
V3	V3-FH4	37836	44205.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V3	V3-FH5	37838	44205.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V3	V3-FH6	37840	44205.6	RW	Percentage during defrost	WORD		0...100	%
V3	V3-LOC	37846	44206.0	RW	Keypad lock	WORD		0/1	flag
V3	V3-PS1	37848	44206.2	RW	Password 1	WORD		0...250	num
V3	V3-PS2	37850	44206.4	RW	Password 2	WORD		0...250	num
V3	V3-ndt	37852	44206.6	RW	Display with decimal point	WORD		0/1	flag
V3	V3-CA1	37464	44207.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V3	V3-CA2	37466	44207.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V3	V3-CA3	37468	44207.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V3	V3-CA4	37470	44207.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V3	V3-CA5	37472	44208.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V3	V3-CA6	37474	44208.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V3	V3-CA7	37476	44208.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V3	V3-LdL	37854	44208.6	RW	Minimum possible value	WORD		-58.0...V3-HdL	°C/°F
V3	V3-HdL	37856	44209.0	RW	Maximum possible value.	WORD		V3-LdL...302	°C/°F
V3	V3-ddL	37858	44209.2	RW	Lock display during defrost	WORD		0/1/2	num
V3	V3-Ldd	37860	44209.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V3	V3-dro	37862	44209.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V3	V3-SbP	37864	44210.0	RW	Bar/Psi selection	WORD		0/1	flag
V3	V3-ddd	37866	44210.2	RW	Main Display	WORD		0...7	num
V3	V3-ddE	37868	44210.4	RW	Fundamental display on ECHO	WORD		0...7	num
V3	V3-rPH	37770	44210.6	RW	HACCP alarm probe selection	WORD		0...5	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V3	V3-H00	37396	44211.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V3	V3-H02	37870	44211.2	RW	Key activation time	WORD		0...250	s
V3	V3-H08	37874	44211.4	RW	Stand-by mode	WORD		0/1/2	num
V3	V3-H11	37406	44211.6	RW	DI1 input configuration	WORD		-17...17	num
V3	V3-H12	37408	44212.0	RW	DI2 input configuration	WORD		-17...17	num
V3	V3-H13	37410	44212.2	RW	DI3 input configuration	WORD		-17...17	num
V3	V3-H14	37412	44212.4	RW	DI4 input configuration	WORD		-17...17	num
V3	V3-H15	37414	44212.6	RW	DI5 input configuration	WORD		-17...17	num
V3	V3-H16	37416	44213.0	RW	DI6 input configuration	WORD		-17...17	num
V3	V3-H17	37418	44213.2	RW	DI7 input configuration	WORD		-17...17	num
V3	V3-H18	37420	44213.4	RW	DI8 input configuration	WORD		-17...17	num
V3	V3-dti	37438	44213.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V3	V3-d11	37422	44214.0	RW	DI1 activation signalling delay	WORD		0...255	min/dti
V3	V3-d12	37424	44214.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V3	V3-d13	37426	44214.4	RW	DI3 activation signalling delay	WORD		0...255	min
V3	V3-d14	37428	44214.6	RW	DI4 activation signalling delay	WORD		0...255	min
V3	V3-d15	37430	44215.0	RW	DI5 activation signalling delay	WORD		0...255	min
V3	V3-d16	37432	44215.2	RW	DI6 activation signalling delay	WORD		0...255	min
V3	V3-d17	37434	44215.4	RW	DI7 activation signalling delay	WORD		0...255	min
V3	V3-d18	37436	44215.6	RW	DI8 activation signalling delay	WORD		0...255	min
V3	V3-H21	37480	44216.0	RW	Configurability of digital output 1	WORD		0...14	num
V3	V3-H22	37482	44216.2	RW	Configurability of digital output 2	WORD		0...14	num
V3	V3-H23	37484	44216.4	RW	Configurability of digital output 3	WORD		0...14	num
V3	V3-H24	37486	44216.6	RW	Configurability of digital output 4	WORD		0...14	num
V3	V3-H25	37488	44217.0	RW	Configurability of digital output 5	WORD		0...14	num
V3	V3-H27	37492	44217.4	RW	Configurability of digital output 7	WORD		0...14	num
V3	V3-H29	37494	44217.6	RW	Enable buzzer	WORD		0/1	flag
V3	V3-H31	37876	44218.0	RW	Configuration of UP key	WORD		0...8	num
V3	V3-H32	37878	44218.2	RW	Configuration of DOWN key	WORD		0...8	num
V3	V3-H33	37880	44218.4	RW	ESC key configuration	WORD		0...8	num
V3	V3-H34	37882	44218.6	RW	FREE 1 key configuration	WORD		0...8	num
V3	V3-H35	37884	44219.0	RW	FREE 2 key configuration	WORD		0...8	num
V3	V3-H36	37886	44219.2	RW	FREE 3 key configuration	WORD		0...8	num
V3	V3-H37	37888	44219.4	RW	FREE 4 key configuration	WORD		0...8	num
V3	V3-H41	37440	44219.6	RW	Pb1 input configuration	WORD		0/1/2	num
V3	V3-H42	37442	44220.0	RW	Pb2 input configuration	WORD		0/1/2	num
V3	V3-H43	37444	44220.2	RW	Pb3 input configuration	WORD		0/1/2	num
V3	V3-H44	37446	44220.4	RW	Pb4 input configuration	WORD		0/1/2	num
V3	V3-H45	37448	44220.6	RW	Pb5 input configuration	WORD		0/1/2	num
V3	V3-H46	37450	44221.0	RW	Pb6 input configuration	WORD		0/1/2	num
V3	V3-H47	37452	44221.2	RW	Pb7 input configuration	WORD		0/1/2	num
V3	V3-H50	37496	44221.4	RW	Configuration of analogue output type	WORD		0/1	flag
V3	V3-H51	37498	44221.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V3	V3-H68	37500	44222.0	RW	Clock presence	WORD		0/1	flag
V3	V3-H70	37456	44222.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V3	V3-H71	37458	44222.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V3	V3-H72	37460	44222.6	RW	% calculation virtual probe day	WORD		0...100	%
V3	V3-H73	37462	44223.0	RW	% calculation virtual probe night	WORD		0...100	%
V3	V3-Ety	37890	44223.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V3	V3-UL	---	44228.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V3	V3-dL	---	44228.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V3	V3-Fr	---	44228.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num
APPLICATION 4 PARAMETERS									
V4	V4-rE	38392	44352.0	RW	Regulation mode	WORD		0...4	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V4	V4-rP1	38394	44352.2	RW	Control probe 1	WORD		0...7	num
V4	V4-rP2	38396	44352.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V4	V4-SP1	38398	44352.6	RW	Setpoint	WORD		V4-LS1...V4-HS1	°C/°F
V4	V4-dF1	38400	44353.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V4	V4-SP2	38402	44353.2	RW	Setpoint according to thermostat	WORD		V4-LS2...V4-HS2	°C/°F
V4	V4-dF2	38404	44353.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V4	V4-Stt	38410	44353.6	RW	Differential control mode	WORD		0/1	flag
V4	V4-HS1	38416	44354.0	RW	Maximum SP1 value	WORD		V4-LS1...V4-HdL	°C/°F
V4	V4-LS1	38418	44354.2	RW	Minimum SP1 value	WORD		V4-LdL...V4-HS1	°C/°F
V4	V4-HS2	38420	44354.4	RW	Maximum SP2 value	WORD		V4-LS2...V4-HdL	°C/°F
V4	V4-LS2	38422	44354.6	RW	Minimum SP2 value	WORD		V4-LdL...V4-HS2	°C/°F
V4	V4-HC1	38412	44355.0	RW	Thermostat mode 1	WORD		0/1	flag
V4	V4-HC2	38414	44355.2	RW	Thermostat mode 2	WORD		0/1	flag
V4	V4-Cit	38432	44356.2	RW	Minimum compressor ON time	WORD		0...250	min
V4	V4-CAt	38434	44356.4	RW	Maximum compressor ON time	WORD		0...250	min
V4	V4-Ont	38444	44355.6	RW	Probe error ON time	WORD		0...250	min
V4	V4-OFt	38446	44356.0	RW	Probe error OFF time	WORD		0...250	min
V4	V4-dOn	38436	44356.6	RW	Delayed start	WORD		0...250	s
V4	V4-dOF	38438	44357.0	RW	Delay after switching off	WORD		0...250	min
V4	V4-dbi	38440	44357.2	RW	Time lag between starts	WORD		0...250	min
V4	V4-OdO	38442	44357.4	RW	Output delay from power-on	WORD		0...250	min
V4	V4-OF1	38454	44358.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V4	V4-dP1	38456	44359.0	RW	Defrost probe 1 selection	WORD		0...7	num
V4	V4-dP2	38458	44359.2	RW	Defrost probe 2 selection	WORD		0...7	num
V4	V4-dtY	38464	44359.4	RW	Defrost mode	WORD		0...4	num
V4	V4-dFt	38460	44359.6	RW	Defrost activation mode with two probes	WORD		0...2	num
V4	V4-dit	38466	44361.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
V4	V4-dt1	38472	44360.0	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V4	V4-dt2	38474	44360.2	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V4	V4-dCt	38462	44360.4	RW	Defrost interval count mode	WORD		0...5	num
V4	V4-dOH	38476	44360.6	RW	Defrost interval count mode	WORD		0...250	min
V4	V4-dE1	38468	44361.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V4	V4-dE2	38470	44361.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V4	V4-dS1	38480	44361.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V4	V4-dS2	38482	44362.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V4	V4-dSS	38478	44362.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V4	V4-dPO	38484	44362.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V4	V4-tcd	38486	44362.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V4	V4-ndE	38488	44363.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V4	V4-PdC	38490	44363.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V4	V4-tPd	38494	44363.4	RW	Pump down time before defrost startup	WORD		0...255	min
V4	V4-dPH	38372	44363.6	RW	Periodic start defrost hour	WORD		0...24	hours
V4	V4-dPn	38374	44364.0	RW	Periodic start defrost minutes	WORD		0...59	min
V4	V4-dPd	38376	44364.2	RW	Regular defrost interval duration	WORD		1...7	day
V4	V4-Fd1	38270	44364.4	RW	Weekend/public holiday 1	WORD		0...7	num
V4	V4-Fd2	38272	44364.6	RW	Weekend/public holiday 2	WORD		0...7	num
V4	V4-Edt	38274	44365.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V4	V4-d1H	38276	44365.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V4	V4-d1n	38278	44365.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V4	V4-d1t	38280	44365.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V4	V4-d1S	38282	44366.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-d2H	38284	44366.2	RW	Start time hour weekday defrost 2	WORD		V4-d1H...24	hours
V4	V4-d2n	38286	44366.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V4	V4-d2t	38288	44366.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V4	V4-d2S	38290	44367.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V4	V4-d3H	38292	44367.2	RW	Start time hour weekday defrost 3	WORD		V4-d2H...24	hours
V4	V4-d3n	38294	44367.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V4	V4-d3t	38296	44367.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V4	V4-d3S	38298	44368.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V4	V4-d4H	38300	44368.2	RW	Start time hour weekday defrost 4	WORD		V4-d3H...24	hours
V4	V4-d4n	38302	44368.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V4	V4-d4t	38304	44368.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V4	V4-d4S	38306	44369.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V4	V4-d5H	38308	44369.2	RW	Start time hour weekday defrost 5	WORD		V4-d4H...24	hours
V4	V4-d5n	38310	44369.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V4	V4-d5t	38312	44369.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V4	V4-d5S	38314	44370.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V4	V4-d6H	38316	44370.2	RW	Start time hour weekday defrost 6	WORD		V4-d5H...24	hours
V4	V4-d6n	38318	44370.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V4	V4-d6t	38320	44370.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V4	V4-d6S	38322	44371.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F1H	38324	44371.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V4	V4-F1n	38326	44371.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V4	V4-F1t	38328	44371.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V4	V4-F1S	38330	44372.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F2H	38332	44372.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V4-F1H...24	hours
V4	V4-F2n	38334	44372.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V4	V4-F2t	38336	44372.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V4	V4-F2S	38338	44373.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F3H	38340	44373.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V4-F2H...24	hours
V4	V4-F3n	38342	44373.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V4	V4-F3t	38344	44373.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V4	V4-F3S	38346	44374.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F4H	38348	44374.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V4-F3H...24	hours
V4	V4-F4n	38350	44374.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V4	V4-F4t	38352	44374.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V4	V4-F4S	38354	44375.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F5H	38356	44375.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V4-F4H...24	hours
V4	V4-F5n	38358	44375.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V4	V4-F5t	38360	44375.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V4	V4-F5S	38362	44376.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V4	V4-F6H	38364	44376.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V4-F5H...24	hours
V4	V4-F6n	38366	44376.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V4	V4-F6t	38368	44376.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V4	V4-F6S	38370	44377.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V4	V4-FP1	38496	44377.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V4	V4-FP2	38498	44377.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V4	V4-FPt	38500	44377.6	RW	FSt parameter mode	WORD		0/1	flag
V4	V4-FSt	38502	44378.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V4	V4-FAd	38504	44378.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V4	V4-Fdt	38506	44378.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V4	V4-dt	38516	44378.6	RW	Dripping time	WORD		0...250	min
V4	V4-dFd	38512	44379.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V4	V4-FCO	38510	44379.2	RW	Evaporator fans mode	WORD		0...3	num
V4	V4-FdC	38508	44379.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V4	V4-FOn	38518	44380.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V4	V4-FOF	38520	44380.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V4	V4-Fnn	38522	44380.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V4	V4-FnF	38524	44380.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V4	V4-rA1	38552	44381.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V4	V4-rA2	38554	44381.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V4	V4-Att	38556	44381.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V4	V4-AFd	38558	44381.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V4	V4-HA1	38560	44382.0	RW	Probe 1 maximum alarm	WORD		V4-LA1...302	°C/°F
V4	V4-LA1	38562	44382.2	RW	Probe 1 minimum alarm	WORD		-58.0...V4-HA1	°C/°F
V4	V4-HA2	38564	44382.4	RW	Probe 2 maximum alarm	WORD		V4-LA2...302	°C/°F
V4	V4-LA2	38566	44382.6	RW	Probe 2 minimum alarm	WORD		-58.0...V4-HA2	°C/°F
V4	V4-PAO	38568	44383.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V4	V4-dAO	38572	44383.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V4	V4-OAO	38570	44383.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V4	V4-tdO	38660	44383.6	RW	Open door disabling time	WORD		0...250	num
V4	V4-tA1	38574	44384.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V4	V4-tA2	38576	44384.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V4	V4-dAt	38492	44384.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V4	V4-EAL	38580	44384.6	RW	External alarm switches off loads	WORD		0/1/2	num
V4	V4-tP	38662	44385.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V4	V4-Art	38550	44385.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V4	V4-dSd	38544	44385.4	RW	Enable light relay from door switch	WORD		0/1	flag
V4	V4-dLt	38546	44385.6	RW	Light relay deactivation delay	WORD		0...250	min
V4	V4-OFL	38548	44386.0	RW	Light key always disables light relay	WORD		0/1	flag
V4	V4-dOd	38578	44386.2	RW	Door switch switches off loads	WORD		0...3	num
V4	V4-dOA	38582	44386.4	RW	Action forced by digital input	WORD		0...5	num
V4	V4-PEA	38584	44386.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V4	V4-dCO	38586	44387.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V4	V4-dFO	38588	44387.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V4	V4-ASb	38640	44387.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V4	V4-L00	38144	44387.6	RW	Probe sharing	WORD		0...6	num
V4	V4-L01	38146	44388.0	RW	Displayed value sharing	WORD		0/1/2	num
V4	V4-L02	38148	44388.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V4	V4-L03	38150	44388.4	RW	Send defrost request	WORD		0/1	flag
V4	V4-L04	38152	44388.6	RW	End defrost mode	WORD		0/1	flag
V4	V4-L05	38154	44389.0	RW	Standby command synchronisation	WORD		0/1	flag
V4	V4-L06	38156	44389.2	RW	Lights command synchronisation	WORD		0/1	flag
V4	V4-L07	38158	44389.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V4	V4-L08	38160	44389.6	RW	AUX command synchronisation	WORD		0/1	flag
V4	V4-L09	38162	44390.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V4	V4-L10	38664	44390.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V4	V4-dcS	38532	44391.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V4	V4-tdc	38534	44391.2	RW	Deep Cooling Duration	WORD		0...250	min
V4	V4-dcc	38536	44391.4	RW	Wait for defrost cycle start	WORD		0...250	min
V4	V4-ESt	38390	44391.6	RW	Type of Energy Saving	WORD		0...4	num
V4	V4-ESF	38526	44392.0	RW	Night activation mode	WORD		0/1	flag
V4	V4-Cdt	38528	44392.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V4	V4-ESo	38530	44392.4	RW	Open door cumulative time	WORD		0...10	num
V4	V4-OS1	38424	44392.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V4	V4-OS2	38426	44393.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V4	V4-Od1	38428	44393.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V4	V4-Od2	38430	44393.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V4	V4-dn1	38406	44393.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V4	V4-dn2	38408	44394.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V4	V4-EdH	38378	44394.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V4	V4-Edn	38380	44394.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V4	V4-Edd	38382	44394.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V4	V4-EFH	38384	44395.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V4	V4-EFn	38386	44395.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V4	V4-EFd	38388	44395.4	RW	Weekend Energy Saving duration	WORD		1...72	hours

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V4	V4-FH	38590	44395.6	RW	Regulation mode	WORD		0...7	num
V4	V4-FHt	38594	44396.0	RW	Frame Heater period	WORD		1...2500	s*10
V4	V4-FH0	38596	44396.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V4	V4-FH1	38598	44396.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V4	V4-FH2	38600	44396.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V4	V4-FH3	38602	44397.0	RW	Min percentage	WORD		0...100	%
V4	V4-FH4	38604	44397.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V4	V4-FH5	38606	44397.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V4	V4-FH6	38608	44397.6	RW	Percentage during defrost	WORD		0...100	%
V4	V4-LOC	38614	44398.0	RW	Keypad lock	WORD		0/1	flag
V4	V4-PS1	38616	44398.2	RW	Password 1	WORD		0...250	num
V4	V4-PS2	38618	44398.4	RW	Password 2	WORD		0...250	num
V4	V4-ndt	38620	44398.6	RW	Display with decimal point	WORD		0/1	flag
V4	V4-CA1	38232	44399.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V4	V4-CA2	38234	44399.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V4	V4-CA3	38236	44399.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V4	V4-CA4	38238	44399.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V4	V4-CA5	38240	44400.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V4	V4-CA6	38242	44400.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V4	V4-CA7	38244	44400.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V4	V4-LdL	38622	44400.6	RW	Minimum possible value	WORD		-58.0...V4-HdL	°C/°F
V4	V4-HdL	38624	44401.0	RW	Maximum possible value.	WORD		V4-LdL...302	°C/°F
V4	V4-ddL	38626	44401.2	RW	Lock display during defrost	WORD		0...2	num
V4	V4-Ldd	38628	44401.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V4	V4-dro	38630	44401.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V4	V4-SbP	38632	44402.0	RW	Bar/Psi selection	WORD		0/1	flag
V4	V4-ddd	38634	44402.2	RW	Main Display	WORD		0...7	num
V4	V4-ddE	38636	44402.4	RW	Fundamental display on ECHO	WORD		0...7	num
V4	V4-rPH	38538	44402.6	RW	HACCP alarm probe selection	WORD		0...5	num
V4	V4-H00	38164	44403.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0...2	num
V4	V4-H02	38638	44403.2	RW	Key activation time	WORD		0...250	sec
V4	V4-H08	38642	44403.4	RW	Stand-by mode	WORD		0...2	num
V4	V4-H11	38174	44403.6	RW	DI1 input configuration	WORD		-17...17	num
V4	V4-H12	38176	44404.0	RW	DI2 input configuration	WORD		-17...17	num
V4	V4-H13	38178	44404.2	RW	DI3 input configuration	WORD		-17...17	num
V4	V4-H14	38180	44404.4	RW	DI4 input configuration	WORD		-17...17	num
V4	V4-H15	38182	44404.6	RW	DI5 input configuration	WORD		-17...17	num
V4	V4-H16	38184	44405.0	RW	DI6 input configuration	WORD		-17...17	num
V4	V4-H17	38186	44405.2	RW	DI7 input configuration	WORD		-17...17	num
V4	V4-H18	38188	44405.4	RW	DI8 input configuration	WORD		-17...17	num
V4	V4-dti	38206	44405.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V4	V4-d11	38190	44406.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V4	V4-d12	38192	44406.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V4	V4-d13	38194	44406.4	RW	DI3 activation signalling delay	WORD		0...255	min
V4	V4-d14	38196	44406.6	RW	DI4 activation signalling delay	WORD		0...255	min
V4	V4-d15	38198	44407.0	RW	DI5 activation signalling delay	WORD		0...255	min
V4	V4-d16	38200	44407.2	RW	DI6 activation signalling delay	WORD		0...255	min
V4	V4-d17	38202	44407.4	RW	DI7 activation signalling delay	WORD		0...255	min
V4	V4-d18	38204	44407.6	RW	DI8 activation signalling delay	WORD		0...255	min
V4	V4-H21	38248	44408.0	RW	Configurability of digital output 1	WORD		0...14	num
V4	V4-H22	38250	44408.2	RW	Configurability of digital output 2	WORD		0...14	num
V4	V4-H23	38252	44408.4	RW	Configurability of digital output 3	WORD		0...14	num
V4	V4-H24	38254	44408.6	RW	Configurability of digital output 4	WORD		0...14	num
V4	V4-H25	38256	44409.0	RW	Configurability of digital output 5	WORD		0...14	num
V4	V4-H27	38260	44409.4	RW	Configurability of digital output 7	WORD		0...14	num
V4	V4-H29	38262	44409.6	RW	Enable buzzer	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V4	V4-H31	38644	44410.0	RW	Configuration of UP key	WORD		0...8	num
V4	V4-H32	38646	44410.2	RW	Configuration of DOWN key	WORD		0...8	num
V4	V4-H33	38648	44410.4	RW	ESC key configuration	WORD		0...8	num
V4	V4-H34	38650	44410.6	RW	FREE 1 key configuration	WORD		0...8	num
V4	V4-H35	38652	44411.0	RW	FREE 2 key configuration	WORD		0...8	num
V4	V4-H36	38654	44411.2	RW	FREE 3 key configuration	WORD		0...8	num
V4	V4-H37	38656	44412.4	RW	FREE 4 key configuration	WORD		0...8	num
V4	V4-H41	38208	44411.6	RW	Pb1 input configuration	WORD		0/1/2	num
V4	V4-H42	38210	44412.0	RW	Pb2 input configuration	WORD		0/1/2	num
V4	V4-H43	38212	44412.2	RW	Pb3 input configuration	WORD		0/1/2	num
V4	V4-H44	38214	44412.4	RW	Pb4 input configuration	WORD		0/1/2	num
V4	V4-H45	38216	44412.6	RW	Pb5 input configuration	WORD		0/1/2	num
V4	V4-H46	38218	44413.0	RW	Pb6 input configuration	WORD		0/1/2	num
V4	V4-H47	38220	44413.2	RW	Pb7 input configuration	WORD		0/1/2	num
V4	V4-H50	38264	44413.4	RW	Configuration of analogue output type	WORD		0/1	flag
V4	V4-H51	38266	44413.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V4	V4-H68	38268	44414.0	RW	Clock presence	WORD		0/1	flag
V4	V4-H70	38224	44414.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V4	V4-H71	38226	44414.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V4	V4-H72	38228	44414.6	RW	% calculation virtual probe day	WORD		0...100	%
V4	V4-H73	38230	44415.0	RW	% calculation virtual probe night	WORD		0...100	%
V4	V4-Ety	38658	44415.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V4	V4-UL	---	44420.0	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V4	V4-dL	---	44420.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V4	V4-Fr	---	44420.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num
APPLICATION 5 PARAMETERS									
V5	V5-rE	39160	44544.0	RW	Regulation mode	WORD		0...4	num
V5	V5-rP1	39162	44544.2	RW	Control probe 1	WORD		0...7	num
V5	V5-rP2	39164	44544.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V5	V5-SP1	39166	44544.6	RW	Setpoint	WORD		V5-LS1...V5-HS1	°C/°F
V5	V5-dF1	39168	44545.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V5	V5-SP2	39170	44545.2	RW	Setpoint according to thermostat	WORD		V5-LS2...V5-HS2	°C/°F
V5	V5-dF2	39172	44545.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V5	V5-Stt	39178	44545.6	RW	Differential control mode	WORD		0/1	flag
V5	V5-HS1	39184	44546.0	RW	Maximum SP1 value	WORD		V5-LS1...V5-HdL	°C/°F
V5	V5-LS1	39186	44546.2	RW	Minimum SP1 value	WORD		V5-LdL...V5-HS1	°C/°F
V5	V5-HS2	39188	44546.4	RW	Maximum SP2 value	WORD		V5-LS2...V5-HdL	°C/°F
V5	V5-LS2	39190	44546.6	RW	Minimum SP2 value	WORD		V5-LdL...V5-HS2	°C/°F
V5	V5-HC1	39180	44547.0	RW	Thermostat mode 1	WORD		0/1	flag
V5	V5-HC2	39182	44547.2	RW	Thermostat mode 2	WORD		0/1	flag
V5	V5-Cit	39200	44547.6	RW	Minimum compressor ON time	WORD		0...250	min
V5	V5-CAt	39202	44548.0	RW	Maximum compressor ON time	WORD		0...250	min
V5	V5-Ont	39212	44548.2	RW	Probe error ON time	WORD		0...250	min
V5	V5-OFt	39214	44548.4	RW	Probe error OFF time	WORD		0...250	min
V5	V5-dOn	39204	44548.6	RW	Delayed start	WORD		0...250	s
V5	V5-dOF	39206	44549.0	RW	Delay after switching off	WORD		0...250	min
V5	V5-dbi	39208	44549.2	RW	Time lag between starts	WORD		0...250	min
V5	V5-OdO	39210	44549.4	RW	Output delay from power-on	WORD		0...250	min
V5	V5-OF1	39222	44550.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V5	V5-dP1	39224	44551.0	RW	Defrost probe 1 selection	WORD		0...7	num
V5	V5-dP2	39226	44551.2	RW	Defrost probe 2 selection	WORD		0...7	num
V5	V5-dtY	39232	44551.4	RW	Defrost mode	WORD		0...4	num
V5	V5-dFt	39228	44551.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V5	V5-dit	39234	44552.0	RW	Interval between defrost cycles	WORD		0...250	hours/dt1

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V5	V5-dt1	39240	44552.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V5	V5-dt2	39242	44552.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V5	V5-dCt	39230	44552.6	RW	Defrost interval count mode	WORD		0...5	num
V5	V5-dOH	39244	44553.0	RW	Defrost interval count mode	WORD		0...250	min
V5	V5-dE1	39236	44553.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V5	V5-dE2	39238	44553.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V5	V5-dS1	39248	44553.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V5	V5-dS2	39250	44554.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V5	V5-dSS	39246	44554.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V5	V5-dPO	39252	44554.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V5	V5-tcd	39254	44554.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V5	V5-ndE	39256	44555.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V5	V5-PdC	39258	44555.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V5	V5-tPd	39262	44555.4	RW	Pump down time before defrost startup	WORD		0...255	min
V5	V5-dPH	39140	44555.6	RW	Periodic start defrost hour	WORD		0...24	hours
V5	V5-dPn	39142	44556.0	RW	Periodic start defrost minutes	WORD		0...59	min
V5	V5-dPd	39144	44556.2	RW	Regular defrost interval duration	WORD		1...7	day
V5	V5-Fd1	39038	44556.4	RW	Weekend/public holiday 1	WORD		0...7	num
V5	V5-Fd2	39040	44556.6	RW	Weekend/public holiday 2	WORD		0...7	num
V5	V5-Edt	39042	44557.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V5	V5-d1H	39044	44557.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V5	V5-d1n	39046	44557.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V5	V5-d1t	39048	44557.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V5	V5-d1S	39050	44558.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V5	V5-d2H	39052	44558.2	RW	Start time hour weekday defrost 2	WORD		V5-d1H...24	hours
V5	V5-d2n	39054	44558.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V5	V5-d2t	39056	44558.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V5	V5-d2S	39058	44559.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V5	V5-d3H	39060	44559.2	RW	Start time hour weekday defrost 3	WORD		V5-d2H...24	hours
V5	V5-d3n	39062	44559.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V5	V5-d3t	39064	44559.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V5	V5-d3S	39066	44560.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V5	V5-d4H	39068	44560.2	RW	Start time hour weekday defrost 4	WORD		V5-d3H...24	hours
V5	V5-d4n	39070	44560.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V5	V5-d4t	39072	44560.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V5	V5-d4S	39074	44561.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V5	V5-d5H	39076	44561.2	RW	Start time hour weekday defrost 5	WORD		V5-d4H...24	hours
V5	V5-d5n	39078	44561.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V5	V5-d5t	39080	44561.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V5	V5-d5S	39082	44562.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V5	V5-d6H	39084	44562.2	RW	Start time hour weekday defrost 6	WORD		V5-d5H...24	hours
V5	V5-d6n	39086	44562.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V5	V5-d6t	39088	44562.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V5	V5-d6S	39090	44563.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V5	V5-F1H	39092	44563.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V5	V5-F1n	39094	44563.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V5	V5-F1t	39096	44563.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V5	V5-F1S	39098	44564.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V5	V5-F2H	39100	44564.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V5-F1H...24	hours
V5	V5-F2n	39102	44564.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V5	V5-F2t	39104	44564.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V5	V5-F2S	39106	44565.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V5	V5-F3H	39108	44565.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V5-F2H...24	hours
V5	V5-F3n	39110	44565.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V5	V5-F3t	39112	44565.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V5	V5-F3S	39114	44566.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V5	V5-F4H	39116	44566.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V5-F3H...24	hours
V5	V5-F4n	39118	44566.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V5	V5-F4t	39120	44566.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V5	V5-F4S	39122	44567.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V5	V5-F5H	39124	44567.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V5-F4H...24	hours
V5	V5-F5n	39126	44567.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V5	V5-F5t	39128	44567.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V5	V5-F5S	39130	44568.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V5	V5-F6H	39132	44568.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V5-F5H...24	hours
V5	V5-F6n	39134	44568.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V5	V5-F6t	39136	44568.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V5	V5-F6S	39138	44569.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V5	V5-FP1	39264	44569.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V5	V5-FP2	39266	44569.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V5	V5-FPt	39268	44569.6	RW	FSt parameter mode	WORD		0/1	flag
V5	V5-FSt	39270	44570.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V5	V5-FAd	39272	44570.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V5	V5-Fdt	39274	44570.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V5	V5-dt	39284	44570.6	RW	Dripping time	WORD		0...250	min
V5	V5-dFd	39280	44571.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V5	V5-FCO	39278	44571.2	RW	Evaporator fans mode	WORD		0...3	num
V5	V5-FdC	39276	44571.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V5	V5-FOn	39286	44572.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V5	V5-FOF	39288	44572.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V5	V5-Fnn	39290	44572.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V5	V5-FnF	39292	44572.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V5	V5-rA1	39320	44573.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V5	V5-rA2	39322	44573.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V5	V5-Att	39324	44573.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V5	V5-AFd	39326	44573.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V5	V5-HA1	39328	44574.0	RW	Probe 1 maximum alarm	WORD		V5-LA1...302	°C/°F
V5	V5-LA1	39330	44574.2	RW	Probe 1 minimum alarm	WORD		-58.0...V5-HA1	°C/°F
V5	V5-HA2	39332	44574.4	RW	Probe 2 maximum alarm	WORD		V5-LA2...302	°C/°F
V5	V5-LA2	39334	44574.6	RW	Probe 2 minimum alarm	WORD		-58.0...V5-HA2	°C/°F
V5	V5-PAO	39336	44575.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V5	V5-dAO	39340	44575.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V5	V5-OAO	39338	44575.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V5	V5-tdO	39428	44575.6	RW	Open door disabling time	WORD		0...250	num
V5	V5-tA1	39342	44576.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V5	V5-tA2	39344	44576.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V5	V5-dAt	39260	44576.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V5	V5-EAL	39348	44576.6	RW	External alarm switches off loads	WORD		0/1/2	num
V5	V5-tP	39430	44577.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V5	V5-Art	39318	44577.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V5	V5-dSd	39312	44577.4	RW	Enable light relay from door switch	WORD		0/1	flag
V5	V5-dLt	39314	44577.6	RW	Light relay deactivation delay	WORD		0...250	min
V5	V5-OFL	39316	44578.0	RW	Light key always disables light relay	WORD		0/1	flag
V5	V5-dOd	39346	44578.2	RW	Door switch switches off loads	WORD		0...3	num
V5	V5-dOA	39350	44578.4	RW	Action forced by digital input	WORD		0...5	num
V5	V5-PEA	39352	44578.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V5	V5-dCO	39354	44579.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V5	V5-dFO	39356	44579.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V5	V5-ASb	39408	44579.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V5	V5-L00	38912	44579.6	RW	Probe sharing	WORD		0...6	num
V5	V5-L01	38914	44580.0	RW	Displayed value sharing	WORD		0/1/2	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V5	V5-L02	38916	44580.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V5	V5-L03	38918	44580.4	RW	Send defrost request	WORD		0/1	flag
V5	V5-L04	38920	44580.6	RW	End defrost mode	WORD		0/1	flag
V5	V5-L05	38922	44581.0	RW	Standby command synchronisation	WORD		0/1	flag
V5	V5-L06	38924	44581.2	RW	Lights command synchronisation	WORD		0/1	flag
V5	V5-L07	38926	44581.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V5	V5-L08	38928	44581.6	RW	AUX command synchronisation	WORD		0/1	flag
V5	V5-L09	38930	44582.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V5	V5-L10	39432	44582.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V5	V5-dcS	39300	44583.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V5	V5-tdc	39302	44583.2	RW	Deep Cooling Duration	WORD		0...250	min
V5	V5-dcc	39304	44583.4	RW	Wait for defrost cycle start	WORD		0...250	min
V5	V5-ESt	39158	44583.6	RW	Type of Energy Saving	WORD		0...4	num
V5	V5-ESF	39294	44584.0	RW	Night activation mode	WORD		0/1	flag
V5	V5-Cdt	39296	44584.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V5	V5-ESo	39298	44584.4	RW	Open door cumulative time	WORD		0...10	num
V5	V5-OS1	39192	44584.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V5	V5-OS2	39194	44585.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V5	V5-Od1	39196	44585.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V5	V5-Od2	39198	44585.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V5	V5-dn1	39174	44585.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V5	V5-dn2	39176	44586.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V5	V5-EdH	39146	44586.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V5	V5-Edn	39148	44586.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V5	V5-Edd	39150	44586.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V5	V5-EFH	39152	44587.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V5	V5-EFn	39154	44587.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V5	V5-EFd	39156	44587.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V5	V5-FH	39358	44587.6	RW	Regulation mode	WORD		0...7	num
V5	V5-FHt	39362	44588.0	RW	Frame Heater period	WORD		1...2500	s*10
V5	V5-FH0	39364	44588.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V5	V5-FH1	39366	44588.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V5	V5-FH2	39368	44588.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V5	V5-FH3	39370	44589.0	RW	Min percentage	WORD		0...100	%
V5	V5-FH4	39372	44589.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V5	V5-FH5	39374	44589.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V5	V5-FH6	39376	44589.6	RW	Percentage during defrost	WORD		0...100	%
V5	V5-LOC	39382	44590.0	RW	Keypad lock	WORD		0/1	flag
V5	V5-PS1	39384	44590.2	RW	Password 1	WORD		0...250	num
V5	V5-PS2	39386	44590.4	RW	Password 2	WORD		0...250	num
V5	V5-ndt	39388	44590.6	RW	Display with decimal point	WORD		0/1	flag
V5	V5-CA1	39000	44591.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V5	V5-CA2	39002	44591.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V5	V5-CA3	39004	44591.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V5	V5-CA4	39006	44591.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V5	V5-CA5	39008	44592.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V5	V5-CA6	39010	44592.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V5	V5-CA7	39012	44592.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V5	V5-LdL	39390	44592.6	RW	Minimum possible value	WORD		-58.0...V5-HdL	°C/°F
V5	V5-HdL	39392	44593.0	RW	Maximum possible value.	WORD		V5-LdL...302	°C/°F
V5	V5-ddL	39394	44593.2	RW	Lock display during defrost	WORD		0/1/2	num
V5	V5-Ldd	39396	44593.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V5	V5-dro	39398	44593.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V5	V5-SbP	39400	44594.0	RW	Bar/Psi selection	WORD		0/1	flag
V5	V5-ddd	39402	44594.2	RW	Main Display	WORD		0...7	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V5	V5-ddE	39404	44594.4	RW	Fundamental display on ECHO	WORD		0...7	num
V5	V5-rPH	39306	44594.6	RW	HACCP alarm probe selection	WORD		0...5	num
V5	V5-H00	38932	44595.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V5	V5-H02	39406	44595.2	RW	Key activation time	WORD		0...250	s
V5	V5-H08	39410	44595.4	RW	Stand-by mode	WORD		0/1/2	num
V5	V5-H11	38942	44595.6	RW	DI1 input configuration	WORD		-17...17	num
V5	V5-H12	38944	44596.0	RW	DI2 input configuration	WORD		-17...17	num
V5	V5-H13	38946	44596.2	RW	DI3 input configuration	WORD		-17...17	num
V5	V5-H14	38948	44596.4	RW	DI4 input configuration	WORD		-17...17	num
V5	V5-H15	38950	44596.6	RW	DI5 input configuration	WORD		-17...17	num
V5	V5-H16	38952	44597.0	RW	DI6 input configuration	WORD		-17...17	num
V5	V5-H17	38954	44597.2	RW	DI7 input configuration	WORD		-17...17	num
V5	V5-H18	38956	44597.4	RW	DI8 input configuration	WORD		-17...17	num
V5	V5-dti	38974	44597.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V5	V5-d11	38958	44598.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V5	V5-d12	38960	44598.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V5	V5-d13	38962	44598.4	RW	DI3 activation signalling delay	WORD		0...255	min
V5	V5-d14	38964	44598.6	RW	DI4 activation signalling delay	WORD		0...255	min
V5	V5-d15	38966	44599.0	RW	DI5 activation signalling delay	WORD		0...255	min
V5	V5-d16	38968	44599.2	RW	DI6 activation signalling delay	WORD		0...255	min
V5	V5-d17	38970	44599.4	RW	DI7 activation signalling delay	WORD		0...255	min
V5	V5-d18	38972	44599.6	RW	DI8 activation signalling delay	WORD		0...255	min
V5	V5-H21	39016	44600.0	RW	Configurability of digital output 1	WORD		0...14	num
V5	V5-H22	39018	44600.2	RW	Configurability of digital output 2	WORD		0...14	num
V5	V5-H23	39020	44600.4	RW	Configurability of digital output 3	WORD		0...14	num
V5	V5-H24	39022	44600.6	RW	Configurability of digital output 4	WORD		0...14	num
V5	V5-H25	39024	44601.0	RW	Configurability of digital output 5	WORD		0...14	num
V5	V5-H27	39028	44601.4	RW	Configurability of digital output 7	WORD		0...14	num
V5	V5-H29	39030	44601.6	RW	Enable buzzer	WORD		0/1	flag
V5	V5-H31	39412	44602.0	RW	Configuration of UP key	WORD		0...8	num
V5	V5-H32	39414	44602.2	RW	Configuration of DOWN key	WORD		0...8	num
V5	V5-H33	39416	44602.4	RW	ESC key configuration	WORD		0...8	num
V5	V5-H34	39418	44602.6	RW	FREE 1 key configuration	WORD		0...8	num
V5	V5-H35	39420	44603.0	RW	FREE 2 key configuration	WORD		0...8	num
V5	V5-H36	39422	44603.2	RW	FREE 3 key configuration	WORD		0...8	num
V5	V5-H37	39424	44603.4	RW	FREE 4 key configuration	WORD		0...8	num
V5	V5-H41	38976	44603.6	RW	Pb1 input configuration	WORD		0/1/2	num
V5	V5-H42	38978	44604.0	RW	Pb2 input configuration	WORD		0/1/2	num
V5	V5-H43	38980	44604.2	RW	Pb3 input configuration	WORD		0/1/2	num
V5	V5-H44	38982	44604.4	RW	Pb4 input configuration	WORD		0/1/2	num
V5	V5-H45	38984	44604.6	RW	Pb5 input configuration	WORD		0/1/2	num
V5	V5-H46	38986	44605.0	RW	Pb6 input configuration	WORD		0/1/2	num
V5	V5-H47	38988	44605.2	RW	Pb7 input configuration	WORD		0/1/2	num
V5	V5-H50	39032	44605.4	RW	Configuration of analogue output type	WORD		0/1	flag
V5	V5-H51	39034	44605.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V5	V5-H68	39036	44606.0	RW	Clock presence	WORD		0/1	flag
V5	V5-H70	38992	44606.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V5	V5-H71	38994	44606.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V5	V5-H72	38996	44606.6	RW	% calculation virtual probe day	WORD		0...100	%
V5	V5-H73	38998	44607.0	RW	% calculation virtual probe night	WORD		0...100	%
V5	V5-Ety	39426	44607.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V5	V5-UL	---	44612.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V5	V5-dL	---	44612.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V5	V5-Fr	---	44612.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
APPLICATION 6 PARAMETERS									
V6	V6-rE	39928	44736.0	RW	Regulation mode	WORD		0...4	num
V6	V6-rP1	39930	44736.2	RW	Control probe 1	WORD		0...7	num
V6	V6-rP2	39932	44736.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V6	V6-SP1	39934	44736.6	RW	Setpoint	WORD		V6-LS1...V6-HS1	°C/°F
V6	V6-dF1	39936	44737.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V6	V6-SP2	39938	44737.2	RW	Setpoint according to thermostat	WORD		V6-LS2...V6-HS2	°C/°F
V6	V6-dF2	39940	44737.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V6	V6-Stt	39946	44737.6	RW	Differential control mode	WORD		0/1	flag
V6	V6-HS1	39952	44738.0	RW	Maximum SP1 value	WORD		V6-LS1...V6-HdL	°C/°F
V6	V6-LS1	39954	44738.2	RW	Minimum SP1 value	WORD		V6-LdL...V6-HS1	°C/°F
V6	V6-HS2	39956	44738.4	RW	Maximum SP2 value	WORD		V6-LS2...V6-HdL	°C/°F
V6	V6-LS2	39958	44738.6	RW	Minimum SP2 value	WORD		V6-LdL...V6-HS2	°C/°F
V6	V6-HC1	39948	44739.0	RW	Thermostat mode 1	WORD		0/1	flag
V6	V6-HC2	39950	44739.2	RW	Thermostat mode 2	WORD		0/1	flag
V6	V6-Cit	39968	44739.6	RW	Minimum compressor ON time	WORD		0...250	min
V6	V6-CAt	39970	44740.0	RW	Maximum compressor ON time	WORD		0...250	min
V6	V6-Ont	39980	44740.2	RW	Probe error ON time	WORD		0...250	min
V6	V6-OFt	39982	44740.4	RW	Probe error OFF time	WORD		0...250	min
V6	V6-dOn	39972	44740.6	RW	Delayed start	WORD		0...250	s
V6	V6-dOF	39974	44741.0	RW	Delay after switching off	WORD		0...250	min
V6	V6-dbi	39976	44741.2	RW	Time lag between starts	WORD		0...250	min
V6	V6-OdO	39978	44741.4	RW	Output delay from power-on	WORD		0...250	min
V6	V6-OF1	39990	44742.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V6	V6-dP1	39992	44743.0	RW	Defrost probe 1 selection	WORD		0...7	num
V6	V6-dP2	39994	44743.2	RW	Defrost probe 2 selection	WORD		0...7	num
V6	V6-dtY	40000	44743.4	RW	Defrost mode	WORD		0...4	num
V6	V6-dFt	39996	44743.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V6	V6-dit	40002	44744.0	RW	Interval between defrost cycles	WORD		0...250	hours/dt1
V6	V6-dt1	40008	44744.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V6	V6-dt2	40010	44744.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V6	V6-dCt	39998	44744.6	RW	Defrost interval count mode	WORD		0...5	num
V6	V6-dOH	40012	44745.0	RW	Defrost interval count mode	WORD		0...250	min
V6	V6-dE1	40004	44745.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V6	V6-dE2	40006	44745.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V6	V6-dS1	40016	44745.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V6	V6-dS2	40018	44746.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V6	V6-dSS	40014	44746.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V6	V6-dPO	40020	44746.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V6	V6-tcd	40022	44746.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V6	V6-ndE	40024	44747.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V6	V6-PdC	40026	44747.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V6	V6-tPd	40030	44747.4	RW	Pump down time before defrost startup	WORD		0...255	min
V6	V6-dPH	39908	44747.6	RW	Periodic start defrost hour	WORD		0...24	hours
V6	V6-dPn	39910	44748.0	RW	Periodic start defrost minutes	WORD		0...59	min
V6	V6-dPd	39912	44748.2	RW	Regular defrost interval duration	WORD		1...7	day
V6	V6-Fd1	39806	44748.4	RW	Weekend/public holiday 1	WORD		0...7	num
V6	V6-Fd2	39808	44748.6	RW	Weekend/public holiday 2	WORD		0...7	num
V6	V6-Edt	39810	44749.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V6	V6-d1H	39812	44749.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V6	V6-d1n	39814	44749.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V6	V6-d1t	39816	44749.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V6	V6-d1S	39818	44750.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-d2H	39820	44750.2	RW	Start time hour weekday defrost 2	WORD		V6-d1H...24	hours
V6	V6-d2n	39822	44750.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V6	V6-d2t	39824	44750.6	RW	Weekday defrost 2 duration	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V6	V6-d2S	39826	44751.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V6	V6-d3H	39828	44751.2	RW	Start time hour weekday defrost 3	WORD		V6-d2H...24	hours
V6	V6-d3n	39830	44751.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V6	V6-d3t	39832	44751.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V6	V6-d3S	39834	44752.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V6	V6-d4H	39836	44752.2	RW	Start time hour weekday defrost 4	WORD		V6-d3H...24	hours
V6	V6-d4n	39838	44752.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V6	V6-d4t	39840	44752.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V6	V6-d4S	39842	44753.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V6	V6-d5H	39844	44753.2	RW	Start time hour weekday defrost 5	WORD		V6-d4H...24	hours
V6	V6-d5n	39846	44753.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V6	V6-d5t	39848	44753.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V6	V6-d5S	39850	44754.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V6	V6-d6H	39852	44754.2	RW	Start time hour weekday defrost 6	WORD		V6-d5H...24	hours
V6	V6-d6n	39854	44754.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V6	V6-d6t	39856	44754.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V6	V6-d6S	39858	44755.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F1H	39860	44755.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V6	V6-F1n	39862	44755.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V6	V6-F1t	39864	44755.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V6	V6-F1S	39866	44756.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F2H	39868	44756.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V6-F1H...24	hours
V6	V6-F2n	39870	44756.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V6	V6-F2t	39872	44756.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V6	V6-F2S	39874	44757.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F3H	39876	44757.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V6-F2H...24	hours
V6	V6-F3n	39878	44757.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V6	V6-F3t	39880	44757.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V6	V6-F3S	39882	44758.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F4H	39884	44758.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V6-F3H...24	hours
V6	V6-F4n	39886	44758.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V6	V6-F4t	39888	44758.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V6	V6-F4S	39890	44759.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F5H	39892	44759.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V6-F4H...24	hours
V6	V6-F5n	39894	44759.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V6	V6-F5t	39896	44759.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V6	V6-F5S	39898	44760.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V6	V6-F6H	39900	44760.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V6-F5H...24	hours
V6	V6-F6n	39902	44760.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V6	V6-F6t	39904	44760.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V6	V6-F6S	39906	44761.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V6	V6-FP1	40032	44761.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V6	V6-FP2	40034	44761.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V6	V6-FPt	40036	44761.6	RW	FSt parameter mode	WORD		0/1	flag
V6	V6-FSt	40038	44762.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V6	V6-FAd	40040	44762.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V6	V6-Fdt	40042	44762.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V6	V6-dt	40052	44762.6	RW	Dripping time	WORD		0...250	min
V6	V6-dFd	40048	44763.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V6	V6-FCO	40046	44763.2	RW	Evaporator fans mode	WORD		0...3	num
V6	V6-FdC	40044	44763.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V6	V6-FOn	40054	44764.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V6	V6-FOF	40056	44764.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V6	V6-Fnn	40058	44764.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V6	V6-FnF	40060	44764.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V6	V6-rA1	40088	44765.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V6	V6-rA2	40090	44765.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V6	V6-Att	40092	44765.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V6	V6-AFd	40094	44765.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V6	V6-HA1	40096	44766.0	RW	Probe 1 maximum alarm	WORD		V6-LA1...302	°C/°F
V6	V6-LA1	40098	44766.2	RW	Probe 1 minimum alarm	WORD		-58.0...V6-HA1	°C/°F
V6	V6-HA2	40100	44766.4	RW	Probe 2 maximum alarm	WORD		V6-LA2...302	°C/°F
V6	V6-LA2	40102	44766.6	RW	Probe 2 minimum alarm	WORD		-58.0...V6-HA2	°C/°F
V6	V6-PAO	40104	44767.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V6	V6-dAO	40108	44767.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V6	V6-OAO	40106	44767.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V6	V6-tdO	40196	44767.6	RW	Open door disabling time	WORD		0...250	num
V6	V6-tA1	40110	44768.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V6	V6-tA2	40112	44768.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V6	V6-dAt	40028	44768.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V6	V6-EAL	40116	44768.6	RW	External alarm switches off loads	WORD		0/1/2	num
V6	V6-tP	40198	44769.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V6	V6-Art	40086	44769.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V6	V6-dSd	40080	44769.4	RW	Enable light relay from door switch	WORD		0/1	flag
V6	V6-dLt	40082	44769.6	RW	Light relay deactivation delay	WORD		0...250	min
V6	V6-OFL	40084	44770.0	RW	Light key always disables light relay	WORD		0/1	flag
V6	V6-dOd	40114	44770.2	RW	Door switch switches off loads	WORD		0...3	num
V6	V6-dOA	40118	44770.4	RW	Action forced by digital input	WORD		0...5	num
V6	V6-PEA	40120	44770.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V6	V6-dCO	40122	44771.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V6	V6-dFO	40124	44771.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V6	V6-ASb	40176	44771.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V6	V6-L00	39680	44771.6	RW	Probe sharing	WORD		0...6	num
V6	V6-L01	39682	44772.0	RW	Displayed value sharing	WORD		0/1/2	num
V6	V6-L02	39684	44772.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V6	V6-L03	39686	44772.4	RW	Send defrost request	WORD		0/1	flag
V6	V6-L04	39688	44772.6	RW	End defrost mode	WORD		0/1	flag
V6	V6-L05	39690	44773.0	RW	Standby command synchronisation	WORD		0/1	flag
V6	V6-L06	39692	44773.2	RW	Lights command synchronisation	WORD		0/1	flag
V6	V6-L07	39694	44773.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V6	V6-L08	39696	44773.6	RW	AUX command synchronisation	WORD		0/1	flag
V6	V6-L09	39698	44774.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V6	V6-L10	40200	44774.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V6	V6-dcS	40068	44775.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V6	V6-tdc	40070	44775.2	RW	Deep Cooling Duration	WORD		0...250	min
V6	V6-dcc	40072	44775.4	RW	Wait for defrost cycle start	WORD		0...250	min
V6	V6-ESt	39926	44775.6	RW	Type of Energy Saving	WORD		0...4	num
V6	V6-ESF	40062	44776.0	RW	Night activation mode	WORD		0/1	flag
V6	V6-Cdt	40064	44776.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V6	V6-ESo	40066	44776.4	RW	Open door cumulative time	WORD		0...10	num
V6	V6-OS1	39960	44776.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V6	V6-OS2	39962	44777.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V6	V6-Od1	39964	44777.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V6	V6-Od2	39966	44777.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V6	V6-dn1	39942	44777.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V6	V6-dn2	39944	44778.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V6	V6-EdH	39914	44778.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V6	V6-Edn	39916	44778.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V6	V6-Edd	39918	44778.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V6	V6-EFH	39920	44779.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V6	V6-EFn	39922	44779.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V6	V6-EFd	39924	44779.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V6	V6-FH	40126	44779.6	RW	Regulation mode	WORD		0...7	num
V6	V6-FHt	40130	44780.0	RW	Frame Heater period	WORD		1...2500	s*10
V6	V6-FH0	40132	44780.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V6	V6-FH1	40134	44780.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V6	V6-FH2	40136	44780.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V6	V6-FH3	40138	44781.0	RW	Min percentage	WORD		0...100	%
V6	V6-FH4	40140	44781.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V6	V6-FH5	40142	44781.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V6	V6-FH6	40144	44781.6	RW	Percentage during defrost	WORD		0...100	%
V6	V6-LOC	40150	44782.0	RW	Keypad lock	WORD		0/1	flag
V6	V6-PS1	40152	44782.2	RW	Password 1	WORD		0...250	num
V6	V6-PS2	40154	44782.4	RW	Password 2	WORD		0...250	num
V6	V6-ndt	40156	44782.6	RW	Display with decimal point	WORD		0/1	flag
V6	V6-CA1	39768	44783.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V6	V6-CA2	39770	44783.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V6	V6-CA3	39772	44783.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V6	V6-CA4	39774	44783.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V6	V6-CA5	39776	44784.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V6	V6-CA6	39778	44784.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V6	V6-CA7	39780	44784.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V6	V6-LdL	40158	44784.6	RW	Minimum possible value	WORD		-58.0...V6-HdL	°C/°F
V6	V6-HdL	40160	44785.0	RW	Maximum possible value.	WORD		V6-LdL...302	°C/°F
V6	V6-ddL	40162	44785.2	RW	Lock display during defrost	WORD		0/1/2	num
V6	V6-Ldd	40164	44785.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V6	V6-dro	40166	44785.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V6	V6-SbP	40168	44786.0	RW	Bar/Psi selection	WORD		0/1	flag
V6	V6-ddd	40170	44786.2	RW	Main Display	WORD		0...7	num
V6	V6-ddE	40172	44786.4	RW	Fundamental display on ECHO	WORD		0...7	num
V6	V6-rPH	40074	44786.6	RW	HACCP alarm probe selection	WORD		0...5	num
V6	V6-H00	39700	44787.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V6	V6-H02	40174	44787.2	RW	Key activation time	WORD		0...250	s
V6	V6-H08	40178	44787.4	RW	Stand-by mode	WORD		0/1/2	num
V6	V6-H11	39710	44787.6	RW	DI1 input configuration	WORD		-17...17	num
V6	V6-H12	39712	44788.0	RW	DI2 input configuration	WORD		-17...17	num
V6	V6-H13	39714	44788.2	RW	DI3 input configuration	WORD		-17...17	num
V6	V6-H14	39716	44788.4	RW	DI4 input configuration	WORD		-17...17	num
V6	V6-H15	39718	44788.6	RW	DI5 input configuration	WORD		-17...17	num
V6	V6-H16	39720	44789.0	RW	DI6 input configuration	WORD		-17...17	num
V6	V6-H17	39722	44789.2	RW	DI7 input configuration	WORD		-17...17	num
V6	V6-H18	39724	44789.4	RW	DI8 input configuration	WORD		-17...17	num
V6	V6-dti	39742	44789.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V6	V6-d11	39726	44790.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V6	V6-d12	39728	44790.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V6	V6-d13	39730	44790.4	RW	DI3 activation signalling delay	WORD		0...255	min
V6	V6-d14	39732	44790.6	RW	DI4 activation signalling delay	WORD		0...255	min
V6	V6-d15	39734	44791.0	RW	DI5 activation signalling delay	WORD		0...255	min
V6	V6-d16	39736	44791.2	RW	DI6 activation signalling delay	WORD		0...255	min
V6	V6-d17	39738	44791.4	RW	DI7 activation signalling delay	WORD		0...255	min
V6	V6-d18	39740	44791.6	RW	DI8 activation signalling delay	WORD		0...255	min
V6	V6-H21	39784	44792.0	RW	Configurability of digital output 1	WORD		0...14	num
V6	V6-H22	39786	44792.2	RW	Configurability of digital output 2	WORD		0...14	num
V6	V6-H23	39788	44792.4	RW	Configurability of digital output 3	WORD		0...14	num
V6	V6-H24	39790	44792.6	RW	Configurability of digital output 4	WORD		0...14	num
V6	V6-H25	39792	44793.0	RW	Configurability of digital output 5	WORD		0...14	num
V6	V6-H27	39796	44793.4	RW	Configurability of digital output 7	WORD		0...14	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V6	V6-H29	39798	44793.6	RW	Enable buzzer	WORD		0/1	flag
V6	V6-H31	40180	44794.0	RW	Configuration of UP key	WORD		0...8	num
V6	V6-H32	40182	44794.2	RW	Configuration of DOWN key	WORD		0...8	num
V6	V6-H33	40184	44794.4	RW	ESC key configuration	WORD		0...8	num
V6	V6-H34	40186	44794.6	RW	FREE 1 key configuration	WORD		0...8	num
V6	V6-H35	40188	44795.0	RW	FREE 2 key configuration	WORD		0...8	num
V6	V6-H36	40190	44795.2	RW	FREE 3 key configuration	WORD		0...8	num
V6	V6-H37	40192	44795.4	RW	FREE 4 key configuration	WORD		0...8	num
V6	V6-H41	39744	44795.6	RW	Pb1 input configuration	WORD		0/1/2	num
V6	V6-H42	39746	44796.0	RW	Pb2 input configuration	WORD		0/1/2	num
V6	V6-H43	39748	44796.2	RW	Pb3 input configuration	WORD		0/1/2	num
V6	V6-H44	39750	44796.4	RW	Pb4 input configuration	WORD		0/1/2	num
V6	V6-H45	39752	44796.6	RW	Pb5 input configuration	WORD		0/1/2	num
V6	V6-H46	39754	44797.0	RW	Pb6 input configuration	WORD		0/1/2	num
V6	V6-H47	39756	44797.2	RW	Pb7 input configuration	WORD		0/1/2	num
V6	V6-H50	39800	44797.4	RW	Configuration of analogue output type	WORD		0/1	flag
V6	V6-H51	39802	44797.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V6	V6-H68	39804	44798.0	RW	Clock presence	WORD		0/1	flag
V6	V6-H70	39760	44798.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V6	V6-H71	39762	44798.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V6	V6-H72	39764	44798.6	RW	% calculation virtual probe day	WORD		0...100	%
V6	V6-H73	39766	44799.0	RW	% calculation virtual probe night	WORD		0...100	%
V6	V6-Ety	40194	44799.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V6	V6-UL	---	44804.0	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V6	V6-dL	---	44804.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V6	V6-Fr	---	44804.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num
APPLICATION 7 PARAMETERS									
V7	V7-rE	40696	44928.0	RW	Regulation mode	WORD		0...4	num
V7	V7-rP1	40698	44928.2	RW	Control probe 1	WORD		0...7	num
V7	V7-rP2	40700	44928.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V7	V7-SP1	40702	44928.6	RW	Setpoint	WORD		V7-LS1...V7-HS1	°C/°F
V7	V7-dF1	40704	44929.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V7	V7-SP2	40706	44929.2	RW	Setpoint according to thermostat	WORD		V7-LS2...V7-HS2	°C/°F
V7	V7-dF2	40708	44929.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V7	V7-Stt	40714	44929.6	RW	Differential control mode	WORD		0/1	flag
V7	V7-HS1	40720	44930.0	RW	Maximum SP1 value	WORD		V7-LS1...V7-HdL	°C/°F
V7	V7-LS1	40722	44930.2	RW	Minimum SP1 value	WORD		V7-LdL...V7-HS1	°C/°F
V7	V7-HS2	40724	44930.4	RW	Maximum SP2 value	WORD		V7-LS2...V7-HdL	°C/°F
V7	V7-LS2	40726	44930.6	RW	Minimum SP2 value	WORD		V7-LdL...V7-HS2	°C/°F
V7	V7-HC1	40716	44931.0	RW	Thermostat mode 1	WORD		0/1	flag
V7	V7-HC2	40718	44931.2	RW	Thermostat mode 2	WORD		0/1	flag
V7	V7-Cit	40736	44931.6	RW	Minimum compressor ON time	WORD		0...250	min
V7	V7-CAt	40738	44932.0	RW	Maximum compressor ON time	WORD		0...250	min
V7	V7-Ont	40748	44932.2	RW	Probe error ON time	WORD		0...250	min
V7	V7-OFt	40750	44932.4	RW	Probe error OFF time	WORD		0...250	min
V7	V7-dOn	40740	44932.6	RW	Delayed start	WORD		0...250	s
V7	V7-dOF	40742	44933.0	RW	Delay after switching off	WORD		0...250	min
V7	V7-dbi	40744	44933.2	RW	Time lag between starts	WORD		0...250	min
V7	V7-OdO	40746	44933.4	RW	Output delay from power-on	WORD		0...250	min
V7	V7-OF1	40758	44934.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V7	V7-dP1	40760	44935.0	RW	Defrost probe 1 selection	WORD		0...7	num
V7	V7-dP2	40762	44935.2	RW	Defrost probe 2 selection	WORD		0...7	num
V7	V7-dtY	40768	44935.4	RW	Defrost mode	WORD		0...4	num
V7	V7-dFt	40764	44935.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V7	V7-dit	40770	44936.0	RW	Interval between defrost cycles	WORD		0...250	hours/ dt1
V7	V7-dt1	40776	44936.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V7	V7-dt2	40778	44936.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V7	V7-dCt	40766	44936.6	RW	Defrost interval count mode	WORD		0...5	num
V7	V7-dOH	40780	44937.0	RW	Defrost interval count mode	WORD		0...250	min
V7	V7-dE1	40772	44937.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V7	V7-dE2	40774	44937.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V7	V7-dS1	40784	44937.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V7	V7-dS2	40786	44938.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V7	V7-dSS	40782	44938.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V7	V7-dPO	40788	44938.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V7	V7-tcd	40790	44938.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V7	V7-ndE	40792	44939.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V7	V7-PdC	40794	44939.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V7	V7-tPd	40798	44939.4	RW	Pump down time before defrost startup	WORD		0...255	min
V7	V7-dPH	40676	44939.6	RW	Periodic start defrost hour	WORD		0...24	hours
V7	V7-dPn	40678	44940.0	RW	Periodic start defrost minutes	WORD		0...59	min
V7	V7-dPd	40680	44940.2	RW	Regular defrost interval duration	WORD		1...7	day
V7	V7-Fd1	40574	44940.4	RW	Weekend/public holiday 1	WORD		0...7	num
V7	V7-Fd2	40576	44940.6	RW	Weekend/public holiday 2	WORD		0...7	num
V7	V7-Edt	40578	44941.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V7	V7-d1H	40580	44941.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V7	V7-d1n	40582	44941.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V7	V7-d1t	40584	44941.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V7	V7-d1S	40586	44942.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-d2H	40588	44942.2	RW	Start time hour weekday defrost 2	WORD		V7-d1H...24	hours
V7	V7-d2n	40590	44942.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V7	V7-d2t	40592	44942.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V7	V7-d2S	40594	44943.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V7	V7-d3H	40596	44943.2	RW	Start time hour weekday defrost 3	WORD		V7-d2H...24	hours
V7	V7-d3n	40598	44943.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V7	V7-d3t	40600	44943.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V7	V7-d3S	40602	44944.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V7	V7-d4H	40604	44944.2	RW	Start time hour weekday defrost 4	WORD		V7-d3H...24	hours
V7	V7-d4n	40606	44944.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V7	V7-d4t	40608	44944.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V7	V7-d4S	40610	44945.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V7	V7-d5H	40612	44945.2	RW	Start time hour weekday defrost 5	WORD		V7-d4H...24	hours
V7	V7-d5n	40614	44945.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V7	V7-d5t	40616	44945.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V7	V7-d5S	40618	44946.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V7	V7-d6H	40620	44946.2	RW	Start time hour weekday defrost 6	WORD		V7-d5H...24	hours
V7	V7-d6n	40622	44946.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V7	V7-d6t	40624	44946.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V7	V7-d6S	40626	44947.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F1H	40628	44947.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V7	V7-F1n	40630	44947.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V7	V7-F1t	40632	44947.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V7	V7-F1S	40634	44948.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F2H	40636	44948.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V7-F1H...24	hours
V7	V7-F2n	40638	44948.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V7	V7-F2t	40640	44948.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V7	V7-F2S	40642	44949.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F3H	40644	44949.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V7-F2H...24	hours
V7	V7-F3n	40646	44949.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V7	V7-F3t	40648	44949.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V7	V7-F3S	40650	44950.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F4H	40652	44950.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V7-F3H...24	hours
V7	V7-F4n	40654	44950.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V7	V7-F4t	40656	44950.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V7	V7-F4S	40658	44951.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F5H	40660	44951.2	RW	Start time hour weekend/public holiday defrost 5	WORD		V7-F4H...24	hours
V7	V7-F5n	40662	44951.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V7	V7-F5t	40664	44951.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V7	V7-F5S	40666	44952.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V7	V7-F6H	40668	44952.2	RW	Start time hour weekend/public holiday defrost 6	WORD		V7-F5H...24	hours
V7	V7-F6n	40670	44952.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V7	V7-F6t	40672	44952.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V7	V7-F6S	40674	44953.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V7	V7-FP1	40800	44953.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V7	V7-FP2	40802	44953.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V7	V7-FPt	40804	44953.6	RW	FSt parameter mode	WORD		0/1	flag
V7	V7-FSt	40806	44954.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V7	V7-FAd	40808	44954.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V7	V7-Fdt	40810	44954.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V7	V7-dt	40820	44954.6	RW	Dripping time	WORD		0...250	min
V7	V7-dFd	40816	44955.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V7	V7-FCO	40814	44955.2	RW	Evaporator fans mode	WORD		0...3	num
V7	V7-FdC	40812	44955.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V7	V7-FOn	40822	44956.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V7	V7-FOF	40824	44956.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V7	V7-Fnn	40826	44956.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V7	V7-FnF	40828	44956.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V7	V7-rA1	40856	44957.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V7	V7-rA2	40858	44957.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V7	V7-Att	40860	44957.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V7	V7-AFd	40862	44957.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V7	V7-HA1	40864	44958.0	RW	Probe 1 maximum alarm	WORD		V7-LA1...302	°C/°F
V7	V7-LA1	40866	44958.2	RW	Probe 1 minimum alarm	WORD		-58.0...V7-HA1	°C/°F
V7	V7-HA2	40868	44958.4	RW	Probe 2 maximum alarm	WORD		V7-LA2...302	°C/°F
V7	V7-LA2	40870	44958.6	RW	Probe 2 minimum alarm	WORD		-58.0...V7-HA2	°C/°F
V7	V7-PAO	40872	44959.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V7	V7-dAO	40876	44959.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V7	V7-OAO	40874	44959.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V7	V7-tdO	40964	44959.6	RW	Open door disabling time	WORD		0...250	num
V7	V7-tA1	40878	44960.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V7	V7-tA2	40880	44960.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V7	V7-dAt	40796	44960.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V7	V7-EAL	40884	44960.6	RW	External alarm switches off loads	WORD		0/1/2	num
V7	V7-tP	40966	44961.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V7	V7-Art	40854	44961.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V7	V7-dSd	40848	44961.4	RW	Enable light relay from door switch	WORD		0/1	flag
V7	V7-dLt	40850	44961.6	RW	Light relay deactivation delay	WORD		0...250	min
V7	V7-OFL	40852	44962.0	RW	Light key always disables light relay	WORD		0/1	num
V7	V7-dOd	40882	44962.2	RW	Door switch switches off loads	WORD		0...3	num
V7	V7-dOA	40886	44962.4	RW	Action forced by digital input	WORD		0...5	num
V7	V7-PEA	40888	44962.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V7	V7-dCO	40890	44963.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V7	V7-dFO	40892	44963.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V7	V7-ASb	40944	44963.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V7	V7-L00	40448	44963.6	RW	Probe sharing	WORD		0...6	num
V7	V7-L01	40450	44964.0	RW	Displayed value sharing	WORD		0/1/2	num
V7	V7-L02	40452	44964.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V7	V7-L03	40454	44964.4	RW	Send defrost request	WORD		0/1	flag
V7	V7-L04	40456	44964.6	RW	End defrost mode	WORD		0/1	flag
V7	V7-L05	40458	44965.0	RW	Standby command synchronisation	WORD		0/1	flag
V7	V7-L06	40460	44965.2	RW	Lights command synchronisation	WORD		0/1	flag
V7	V7-L07	40462	44965.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V7	V7-L08	40464	44965.6	RW	AUX command synchronisation	WORD		0/1	flag
V7	V7-L09	40466	44966.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V7	V7-L10	40968	44966.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V7	V7-dcS	40836	44967.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V7	V7-tdc	40838	44967.2	RW	Deep Cooling Duration	WORD		0...250	min
V7	V7-dcc	40840	44967.4	RW	Wait for defrost cycle start	WORD		0...250	min
V7	V7-ESt	40694	44967.6	RW	Type of Energy Saving	WORD		0...4	num
V7	V7-ESF	40830	44968.0	RW	Night activation mode	WORD		0/1	flag
V7	V7-Cdt	40832	44968.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V7	V7-ESo	40834	44968.4	RW	Open door cumulative time	WORD		0...10	num
V7	V7-OS1	40728	44968.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V7	V7-OS2	40730	44969.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V7	V7-Od1	40732	44969.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V7	V7-Od2	40734	44969.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V7	V7-dn1	40710	44969.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V7	V7-dn2	40712	44970.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V7	V7-EdH	40682	44970.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V7	V7-Edn	40684	44970.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V7	V7-Edd	40686	44970.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V7	V7-EFH	40688	44971.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours
V7	V7-EFn	40690	44971.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V7	V7-EFd	40692	44971.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V7	V7-FH	40894	44971.6	RW	Regulation mode	WORD		0...7	num
V7	V7-FHt	40898	44972.0	RW	Frame Heater period	WORD		1...2500	s*10
V7	V7-FH0	40900	44972.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V7	V7-FH1	40902	44972.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V7	V7-FH2	40904	44972.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V7	V7-FH3	40906	44973.0	RW	Min percentage	WORD		0...100	%
V7	V7-FH4	40908	44973.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V7	V7-FH5	40910	44973.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V7	V7-FH6	40912	44973.6	RW	Percentage during defrost	WORD		0...100	%
V7	V7-LOC	40918	44974.0	RW	Keypad lock	WORD		0/1	flag
V7	V7-PS1	40920	44974.2	RW	Password 1	WORD		0...250	num
V7	V7-PS2	40922	44974.4	RW	Password 2	WORD		0...250	num
V7	V7-ndt	40924	44974.6	RW	Display with decimal point	WORD		0/1	flag
V7	V7-CA1	40536	44975.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V7	V7-CA2	40538	44975.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V7	V7-CA3	40540	44975.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V7	V7-CA4	40542	44975.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V7	V7-CA5	40544	44976.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V7	V7-CA6	40546	44976.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V7	V7-CA7	40548	44976.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V7	V7-LdL	40926	44976.6	RW	Minimum possible value	WORD		-58.0...V7-HdL	°C/°F
V7	V7-HdL	40928	44977.0	RW	Maximum possible value.	WORD		V7-LdL...302	°C/°F
V7	V7-ddL	40930	44977.2	RW	Lock display during defrost	WORD		0/1/2	num
V7	V7-Ldd	40932	44977.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V7	V7-dro	40934	44977.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V7	V7-SbP	40936	44978.0	RW	Bar/Psi selection	WORD		0/1	flag

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V7	V7-ddd	40938	44978.2	RW	Main Display	WORD		0...7	num
V7	V7-ddE	40940	44978.4	RW	Fundamental display on ECHO	WORD		0...7	num
V7	V7-rPH	40842	44978.6	RW	HACCP alarm probe selection	WORD		0...5	num
V7	V7-H00	40468	44979.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V7	V7-H02	40942	44979.2	RW	Key activation time	WORD		0...250	s
V7	V7-H08	40946	44979.4	RW	Stand-by mode	WORD		0/1/2	num
V7	V7-H11	40478	44979.6	RW	DI1 input configuration	WORD		-17...17	num
V7	V7-H12	40480	44980.0	RW	DI2 input configuration	WORD		-17...17	num
V7	V7-H13	40482	44980.2	RW	DI3 input configuration	WORD		-17...17	num
V7	V7-H14	40484	44980.4	RW	DI4 input configuration	WORD		-17...17	num
V7	V7-H15	40486	44980.6	RW	DI5 input configuration	WORD		-17...17	num
V7	V7-H16	40488	44981.0	RW	DI6 input configuration	WORD		-17...17	num
V7	V7-H17	40490	44981.2	RW	DI7 input configuration	WORD		-17...17	num
V7	V7-H18	40492	44981.4	RW	DI8 input configuration	WORD		-17...17	num
V7	V7-dti	40510	44981.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V7	V7-d11	40494	44982.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V7	V7-d12	40496	44982.2	RW	DI2 activation signalling delay	WORD		0...255	min/dti
V7	V7-d13	40498	44982.4	RW	DI3 activation signalling delay	WORD		0...255	min
V7	V7-d14	40500	44982.6	RW	DI4 activation signalling delay	WORD		0...255	min
V7	V7-d15	40502	44983.0	RW	DI5 activation signalling delay	WORD		0...255	min
V7	V7-d16	40504	44983.2	RW	DI6 activation signalling delay	WORD		0...255	min
V7	V7-d17	40506	44983.4	RW	DI7 activation signalling delay	WORD		0...255	min
V7	V7-d18	40508	44983.6	RW	DI8 activation signalling delay	WORD		0...255	min
V7	V7-H21	40552	44984.0	RW	Configurability of digital output 1	WORD		0...14	num
V7	V7-H22	40554	44984.2	RW	Configurability of digital output 2	WORD		0...14	num
V7	V7-H23	40556	44984.4	RW	Configurability of digital output 3	WORD		0...14	num
V7	V7-H24	40558	44984.6	RW	Configurability of digital output 4	WORD		0...14	num
V7	V7-H25	40560	44985.0	RW	Configurability of digital output 5	WORD		0...14	num
V7	V7-H27	40564	44985.4	RW	Configurability of digital output 7	WORD		0...14	num
V7	V7-H29	40566	44985.6	RW	Enable buzzer	WORD		0/1	flag
V7	V7-H31	40948	44986.0	RW	Configuration of UP key	WORD		0...8	num
V7	V7-H32	40950	44986.2	RW	Configuration of DOWN key	WORD		0...8	num
V7	V7-H33	40952	44986.4	RW	ESC key configuration	WORD		0...8	num
V7	V7-H34	40954	44986.6	RW	FREE 1 key configuration	WORD		0...8	num
V7	V7-H35	40956	44987.0	RW	FREE 2 key configuration	WORD		0...8	num
V7	V7-H36	40958	44987.2	RW	FREE 3 key configuration	WORD		0...8	num
V7	V7-H37	40960	44987.4	RW	FREE 4 key configuration	WORD		0...8	num
V7	V7-H41	40512	44987.6	RW	Pb1 input configuration	WORD		0/1/2	num
V7	V7-H42	40514	44988.0	RW	Pb2 input configuration	WORD		0/1/2	num
V7	V7-H43	40516	44988.2	RW	Pb3 input configuration	WORD		0/1/2	num
V7	V7-H44	40518	44988.4	RW	Pb4 input configuration	WORD		0/1/2	num
V7	V7-H45	40520	44988.6	RW	Pb5 input configuration	WORD		0/1/2	num
V7	V7-H46	40522	44989.0	RW	Pb6 input configuration	WORD		0/1/2	num
V7	V7-H47	40524	44989.2	RW	Pb7 input configuration	WORD		0/1/2	num
V7	V7-H50	40568	44989.4	RW	Configuration of analogue output type	WORD		0/1	flag
V7	V7-H51	40570	44989.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V7	V7-H68	40572	44990.0	RW	Clock presence	WORD		0/1	flag
V7	V7-H70	40528	44990.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V7	V7-H71	40530	44990.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V7	V7-H72	40532	44990.6	RW	% calculation virtual probe day	WORD		0...100	%
V7	V7-H73	40534	44991.0	RW	% calculation virtual probe night	WORD		0...100	%
V7	V7-Ety	40962	44991.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V7	V7-UL	---	44996.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V7	V7-dL	---	44996.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V7	V7-Fr	---	44996.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
APPLICATION 8 PARAMETERS									
V8	V8-rE	41464	45120.0	RW	Regulation mode	WORD		0...4	num
V8	V8-rP1	41466	45120.2	RW	Control probe 1	WORD		0...7	num
V8	V8-rP2	41468	45120.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V8	V8-SP1	41470	45120.6	RW	Setpoint	WORD		V8-LS1...V8-HS1	°C/°F
V8	V8-dF1	41472	45121.0	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V8	V8-SP2	41474	45121.2	RW	Setpoint according to thermostat	WORD		V8-LS2...V8-HS2	°C/°F
V8	V8-dF2	41476	45121.4	RW	Differential according to thermostat	WORD		-58.0...302	°C/°F
V8	V8-Stt	41482	45121.6	RW	Differential control mode	WORD		0/1	flag
V8	V8-HS1	41488	45122.0	RW	Maximum SP1 value	WORD		V8-LS1...V8-HdL	°C/°F
V8	V8-LS1	41490	45122.2	RW	Minimum SP1 value	WORD		V8-LdL...V8-HS1	°C/°F
V8	V8-HS2	41492	45122.4	RW	Maximum SP2 value	WORD		V8-LS2...V8-HdL	°C/°F
V8	V8-LS2	41494	45122.6	RW	Minimum SP2 value	WORD		V8-LdL...V8-HS2	°C/°F
V8	V8-HC1	41484	45123.0	RW	Thermostat mode 1	WORD		0/1	flag
V8	V8-HC2	41486	45123.2	RW	Thermostat mode 2	WORD		0/1	flag
V8	V8-Cit	41504	45123.6	RW	Minimum compressor ON time	WORD		0...250	min
V8	V8-CAt	41506	45124.0	RW	Maximum compressor ON time	WORD		0...250	min
V8	V8-Ont	41516	45124.2	RW	Probe error ON time	WORD		0...250	min
V8	V8-OFt	41518	45124.4	RW	Probe error OFF time	WORD		0...250	min
V8	V8-dOn	41508	45124.6	RW	Delayed start	WORD		0...250	s
V8	V8-dOF	41510	45125.0	RW	Delay after switching off	WORD		0...250	min
V8	V8-dbi	41512	45125.2	RW	Time lag between starts	WORD		0...250	min
V8	V8-OdO	41514	45125.4	RW	Output delay from power-on	WORD		0...250	min
V8	V8-OF1	41526	45126.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V8	V8-dP1	41528	45127.0	RW	Defrost probe 1 selection	WORD		0...7	num
V8	V8-dP2	41530	45127.2	RW	Defrost probe 2 selection	WORD		0...7	num
V8	V8-dtY	41536	45127.4	RW	Defrost mode	WORD		0...4	num
V8	V8-dFt	41532	45127.6	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V8	V8-dit	41538	45128.0	RW	Interval between defrost cycles	WORD		0...250	hours/dt1
V8	V8-dt1	41544	45128.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V8	V8-dt2	41546	45128.4	RW	Unit of measurement for defrost duration	WORD		0/1/2	num
V8	V8-dCt	41534	45128.6	RW	Defrost interval count mode	WORD		0...5	num
V8	V8-dOH	41548	45129.0	RW	Defrost interval count mode	WORD		0...250	min
V8	V8-dE1	41540	45129.2	RW	Evaporator 1 defrost timeout	WORD		1...250	min/dt2
V8	V8-dE2	41542	45129.4	RW	Evaporator 2 defrost timeout	WORD		1...250	min/dt2
V8	V8-dS1	41552	45129.6	RW	Probe 1 defrost end temperature	WORD		-58.0...302	°C/°F
V8	V8-dS2	41554	45130.0	RW	Probe 2 defrost end temperature	WORD		-58.0...302	°C/°F
V8	V8-dSS	41550	45130.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V8	V8-dPO	41556	45130.4	RW	Defrost activation request from power-on	WORD		0/1	flag
V8	V8-tcd	41558	45130.6	RW	Minimum compressor ON or OFF time before defrost	WORD		-60...60	min
V8	V8-ndE	41560	45131.0	RW	Minimum defrost time (hot gas only)	WORD		0...250	min
V8	V8-PdC	41562	45131.2	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V8	V8-tPd	41566	45131.4	RW	Pump down time before defrost startup	WORD		0...255	min
V8	V8-dPH	41444	45131.6	RW	Periodic start defrost hour	WORD		0...24	hours
V8	V8-dPn	41446	45132.0	RW	Periodic start defrost minutes	WORD		0...59	min
V8	V8-dPd	41448	45132.2	RW	Regular defrost interval duration	WORD		1...7	day
V8	V8-Fd1	41342	45132.4	RW	Weekend/public holiday 1	WORD		0...7	num
V8	V8-Fd2	41344	45132.6	RW	Weekend/public holiday 2	WORD		0...7	num
V8	V8-Edt	41346	45133.0	RW	Custom duration and temperature for each event	WORD		0/1	flag
V8	V8-d1H	41348	45133.2	RW	Start time hour weekday defrost 1	WORD		0...24	hours
V8	V8-d1n	41350	45133.4	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V8	V8-d1t	41352	45133.6	RW	Weekday defrost 1 duration	WORD		0...250	min
V8	V8-d1S	41354	45134.0	RW	Weekday defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-d2H	41356	45134.2	RW	Start time hour weekday defrost 2	WORD		V8-d1H...24	hours
V8	V8-d2n	41358	45134.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V8	V8-d2t	41360	45134.6	RW	Weekday defrost 2 duration	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V8	V8-d2S	41362	45135.0	RW	Weekday defrost 2 end temperature	WORD		-58.0...302	°C/°F
V8	V8-d3H	41364	45135.2	RW	Start time hour weekday defrost 3	WORD		V8-d2H...24	hours
V8	V8-d3n	41366	45135.4	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V8	V8-d3t	41368	45135.6	RW	Weekday defrost 3 duration	WORD		0...250	min
V8	V8-d3S	41370	45136.0	RW	Weekday defrost 3 end temperature	WORD		-58.0...302	°C/°F
V8	V8-d4H	41372	45136.2	RW	Start time hour weekday defrost 4	WORD		V8-d3H...24	hours
V8	V8-d4n	41374	45136.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V8	V8-d4t	41376	45136.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V8	V8-d4S	41378	45137.0	RW	Weekday defrost 4 end temperature	WORD		-58.0...302	°C/°F
V8	V8-d5H	41380	45137.2	RW	Start time hour weekday defrost 5	WORD		V8-d4H...24	hours
V8	V8-d5n	41382	45137.4	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V8	V8-d5t	41384	45137.6	RW	Weekday defrost 5 duration	WORD		0...250	min
V8	V8-d5S	41386	45138.0	RW	Weekday defrost 5 end temperature	WORD		-58.0...302	°C/°F
V8	V8-d6H	41388	45138.2	RW	Start time hour weekday defrost 6	WORD		V8-d5H...24	hours
V8	V8-d6n	41390	45138.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V8	V8-d6t	41392	45138.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V8	V8-d6S	41394	45139.0	RW	Weekday defrost 6 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F1H	41396	45139.2	RW	Start time hour weekend/public holiday defrost 1	WORD		0...24	hours
V8	V8-F1n	41398	45139.4	RW	Start time minutes weekend/public holiday defrost 1	WORD		0...59	min
V8	V8-F1t	41400	45139.6	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V8	V8-F1S	41402	45140.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F2H	41404	45140.2	RW	Start time hour weekend/public holiday defrost 2	WORD		V8-F1H...24	hours
V8	V8-F2n	41406	45140.4	RW	Start time minutes weekend/public holiday defrost 2	WORD		0...59	min
V8	V8-F2t	41408	45140.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V8	V8-F2S	41410	45141.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F3H	41412	45141.2	RW	Start time hour weekend/public holiday defrost 3	WORD		V8-F2H...24	hours
V8	V8-F3n	41414	45141.4	RW	Start time minutes weekend/public holiday defrost 3	WORD		0...59	min
V8	V8-F3t	41416	45141.6	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V8	V8-F3S	41418	45142.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F4H	41420	45142.2	RW	Start time hour weekend/public holiday defrost 4	WORD		V8-F3H...24	hours
V8	V8-F4n	41422	45142.4	RW	Start time minutes weekend/public holiday defrost 4	WORD		0...59	min
V8	V8-F4t	41424	45142.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V8	V8-F4S	41426	45143.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F5H	41428	45143.2	RW	Start time hour weekend/public holiday defrost 5	WORD		F4H...24	hours
V8	V8-F5n	41430	45143.4	RW	Start time minutes weekend/public holiday defrost 5	WORD		0...59	min
V8	V8-F5t	41432	45143.6	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V8	V8-F5S	41434	45144.0	RW	Weekend defrost 1 end temperature	WORD		-58.0...302	°C/°F
V8	V8-F6H	41436	45144.2	RW	Start time hour weekend/public holiday defrost 6	WORD		F5H...24	hours
V8	V8-F6n	41438	45144.4	RW	Start time minutes weekend/public holiday defrost 6	WORD		0...59	min
V8	V8-F6t	41440	45144.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V8	V8-F6S	41442	45145.0	RW	Weekend defrost 6 end temperature	WORD		-58.0...302	°C/°F
V8	V8-FP1	41568	45145.2	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V8	V8-FP2	41570	45145.4	RW	Evaporator fan probe during defrost	WORD		0...7	num
V8	V8-FPt	41572	45145.6	RW	FSt parameter mode	WORD		0/1	flag
V8	V8-FSt	41574	45146.0	RW	Fans disabling temperature	WORD		-58.0...302	°C/°F
V8	V8-FAd	41576	45146.2	RW	Fans differential	WORD		0.1...25.0	°C/°F
V8	V8-Fdt	41578	45146.4	RW	Fan activation delay from compressor start	WORD		0...250	min
V8	V8-dt	41588	45146.6	RW	Dripping time	WORD		0...250	min
V8	V8-dFd	41584	45147.0	RW	Evaporator fans mode in defrost	WORD		0/1	flag
V8	V8-FCO	41582	45147.2	RW	Evaporator fans mode	WORD		0...3	num
V8	V8-FdC	41580	45147.6	RW	Fan switch-off delay from compressor stoppage	WORD		0...250	min
V8	V8-FOn	41590	45148.0	RW	Fans ON time in duty cycle	WORD		0...250	min
V8	V8-FOF	41592	45148.2	RW	Fans OFF time in duty cycle	WORD		0...250	min
V8	V8-Fnn	41594	45148.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V8	V8-FnF	41596	45148.6	RW	Duty cycle off time during night mode	WORD		0...250	min

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V8	V8-rA1	41624	45149.0	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V8	V8-rA2	41626	45149.2	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V8	V8-Att	41628	45149.4	RW	HAL and LAL parameter mode	WORD		0/1	flag
V8	V8-AFd	41630	45149.6	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V8	V8-HA1	41632	45150.0	RW	Probe 1 maximum alarm	WORD		V8-LA1...302	°C/°F
V8	V8-LA1	41634	45150.2	RW	Probe 1 minimum alarm	WORD		-58.0...V8-HA1	°C/°F
V8	V8-HA2	41636	45150.4	RW	Probe 2 maximum alarm	WORD		V8-LA2...302	°C/°F
V8	V8-LA2	41638	45150.6	RW	Probe 2 minimum alarm	WORD		-58.0...V8-HA2	°C/°F
V8	V8-PAO	41640	45151.0	RW	Alarm exclusion at power-on	WORD		0...10	hours
V8	V8-dAO	41644	45151.2	RW	Alarm exclusion after defrost	WORD		0...250	min
V8	V8-OAO	41642	45151.4	RW	Alarm signalling delay from door closure	WORD		0...10	hours
V8	V8-tdO	41732	45151.6	RW	Open door disabling time	WORD		0...250	num
V8	V8-tA1	41646	45152.0	RW	Alarm LA1 and HA1 signalling delay time	WORD		0...250	min
V8	V8-tA2	41648	45152.2	RW	Alarm LA2 and HA2 signalling delay time	WORD		0...250	min
V8	V8-dAt	41564	45152.4	RW	Enable alarm at end of defrost	WORD		0/1	flag
V8	V8-EAL	41652	45152.6	RW	External alarm switches off loads	WORD		0/1/2	num
V8	V8-tP	41734	45153.0	RW	Enable all keys to acknowledge an alarm	WORD		0/1	flag
V8	V8-Art	41622	45153.2	RW	Link supervision alarm activation period	WORD		0...250	min*10
V8	V8-dSd	41616	45153.4	RW	Enable light relay from door switch	WORD		0/1	flag
V8	V8-dLt	41618	45153.6	RW	Light relay deactivation delay	WORD		0...250	min
V8	V8-OFL	41620	45154.0	RW	Light key always disables light relay	WORD		0/1	flag
V8	V8-dOd	41650	45154.2	RW	Door switch switches off loads	WORD		0...3	num
V8	V8-dOA	41654	45154.4	RW	Action forced by digital input	WORD		0...5	num
V8	V8-PEA	41656	45154.6	RW	Select DI for lock/unlock resources function	WORD		0...3	num
V8	V8-dCO	41658	45155.0	RW	Evaporator fan compressor activation/switch-off delay	WORD		0...250	min
V8	V8-dFO	41660	45155.2	RW	Evaporator fan activation/switch-off delay	WORD		0...250	min
V8	V8-ASb	41712	45155.4	RW	AUX/Light active in OFF key/input	WORD		0/1	flag
V8	V8-L00	41216	45155.6	RW	Probe sharing	WORD		0...6	num
V8	V8-L01	41218	45156.0	RW	Displayed value sharing	WORD		0/1/2	num
V8	V8-L02	41220	45156.2	RW	Send Setpoint value when modified	WORD		0/1	flag
V8	V8-L03	41222	45156.4	RW	Send defrost request	WORD		0/1	flag
V8	V8-L04	41224	45156.6	RW	End defrost mode	WORD		0/1	flag
V8	V8-L05	41226	45157.0	RW	Standby command synchronisation	WORD		0/1	flag
V8	V8-L06	41228	45157.2	RW	Lights command synchronisation	WORD		0/1	flag
V8	V8-L07	41230	45157.4	RW	Reduced setpoint command synchronisation	WORD		0/1	flag
V8	V8-L08	41232	45157.6	RW	AUX command synchronisation	WORD		0/1	flag
V8	V8-L09	41234	45158.0	RW	Share saturation probe (pressure)	WORD		0/1	flag
V8	V8-L10	41736	45158.2	RW	Timeout waiting for end of dependent defrosts	WORD		0...250	min
V8	V8-dcS	41604	45159.0	RW	Deep Cooling setpoint	WORD		-58.0...302	°C/°F
V8	V8-tdc	41606	45159.2	RW	Deep Cooling Duration	WORD		0...250	min
V8	V8-dcc	41608	45159.4	RW	Wait for defrost cycle start	WORD		0...250	min
V8	V8-ESt	41462	45159.6	RW	Type of Energy Saving	WORD		0...4	num
V8	V8-ESF	41598	45160.0	RW	Night activation mode	WORD		0/1	flag
V8	V8-Cdt	41600	45160.2	RW	Min. door closing time for reduced set activation	WORD		0...255	min*10
V8	V8-ESo	41602	45160.4	RW	Open door cumulative time	WORD		0...10	num
V8	V8-OS1	41496	45160.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V8	V8-OS2	41498	45161.0	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V8	V8-Od1	41500	45161.2	RW	Offset energy saving door 1	WORD		-50.0...50.0	°C/°F
V8	V8-Od2	41502	45161.4	RW	Offset energy saving door 2	WORD		-50.0...50.0	°C/°F
V8	V8-dn1	41478	45161.6	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V8	V8-dn2	41480	45162.0	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V8	V8-EdH	41450	45162.2	RW	Weekday Energy Saving start hour	WORD		0...24	hours
V8	V8-Edn	41452	45162.4	RW	Weekday Energy Saving start minutes	WORD		0...59	min
V8	V8-Edd	41454	45162.6	RW	Weekday Energy Saving duration	WORD		1...72	hours
V8	V8-EFH	41456	45163.0	RW	Weekend Energy Saving start hour	WORD		0...24	hours

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V8	V8-EFn	41458	45163.2	RW	Weekend Energy Saving start minutes	WORD		0...59	min
V8	V8-EFd	41460	45163.4	RW	Weekend Energy Saving duration	WORD		1...72	hours
V8	V8-FH	41662	45163.6	RW	Regulation mode	WORD		0...7	num
V8	V8-FHt	41666	45164.0	RW	Frame Heater period	WORD		1...2500	s*10
V8	V8-FH0	41668	45164.2	RW	Frame Heater setpoint	WORD		-58.0...302	°C/°F
V8	V8-FH1	41670	45164.4	RW	Frame Heater offset	WORD		0.0...25.0	°C/°F
V8	V8-FH2	41672	45164.6	RW	Frame Heater range	WORD		0.0...25.0	°C/°F
V8	V8-FH3	41674	45165.0	RW	Min percentage	WORD		0...100	%
V8	V8-FH4	41676	45165.2	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V8	V8-FH5	41678	45165.4	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V8	V8-FH6	41680	45165.6	RW	Percentage during defrost	WORD		0...100	%
V8	V8-LOC	41686	45166.0	RW	Keypad lock	WORD		0/1	flag
V8	V8-PS1	41688	45166.2	RW	Password 1	WORD		0...250	num
V8	V8-PS2	41690	45166.4	RW	Password 2	WORD		0...250	num
V8	V8-ndt	41692	45166.6	RW	Display with decimal point	WORD		0/1	flag
V8	V8-CA1	41304	45167.0	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V8	V8-CA2	41306	45167.2	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V8	V8-CA3	41308	45167.4	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V8	V8-CA4	41310	45167.6	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V8	V8-CA5	41312	45168.0	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V8	V8-CA6	41314	45168.2	RW	Calibration Pb6	WORD		-30.0...30.0	bar/Psi
V8	V8-CA7	41316	45168.4	RW	Calibration Pb7	WORD		-30.0...30.0	bar/Psi
V8	V8-LdL	41694	45168.6	RW	Minimum possible value	WORD		-58.0...V8-HdL	°C/°F
V8	V8-HdL	41696	45169.0	RW	Maximum possible value.	WORD		V8-LdL...302	°C/°F
V8	V8-ddL	41698	45169.2	RW	Lock display during defrost	WORD		0/1/2	num
V8	V8-Ldd	41700	45169.4	RW	Unlock timeout “ddL”	WORD		0...250	min
V8	V8-dro	41702	45169.6	RW	°C/°F selection. (0=°C, 1=°F)	WORD		0/1	flag
V8	V8-SbP	41704	45170.0	RW	Bar/Psi selection	WORD		0/1	flag
V8	V8-ddd	41706	45170.2	RW	Main Display	WORD		0...7	num
V8	V8-ddE	41708	45170.4	RW	Fundamental display on ECHO	WORD		0...7	num
V8	V8-rPH	41610	45170.6	RW	HACCP alarm probe selection	WORD		0...5	num
V8	V8-H00	41236	45171.0	RW	Type of Pb1-Pb2-Pb3-Pb4–Pb5 probes	WORD		0/1/2	num
V8	V8-H02	41710	45171.2	RW	Key activation time	WORD		0...250	s
V8	V8-H08	41714	45171.4	RW	Stand-by mode	WORD		0/1/2	num
V8	V8-H11	41246	45171.6	RW	DI1 input configuration	WORD		-17...17	num
V8	V8-H12	41248	45172.0	RW	DI2 input configuration	WORD		-17...17	num
V8	V8-H13	41250	45172.2	RW	DI3 input configuration	WORD		-17...17	num
V8	V8-H14	41252	45172.4	RW	DI4 input configuration	WORD		-17...17	num
V8	V8-H15	41254	45172.6	RW	DI5 input configuration	WORD		-17...17	num
V8	V8-H16	41256	45173.0	RW	DI6 input configuration	WORD		-17...17	num
V8	V8-H17	41258	45173.2	RW	DI7 input configuration	WORD		-17...17	num
V8	V8-H18	41260	45173.4	RW	DI8 input configuration	WORD		-17...17	num
V8	V8-dti	41278	45173.6	RW	Unit of measurement for digital input 1 and 2	WORD		0/1	num
V8	V8-d11	41262	45174.0	RW	DI activation signalling delay	WORD		0...255	min/dti
V8	V8-d12	41264	45174.2	RW	DI2 activation signalling delay	WORD		0...255	mindti
V8	V8-d13	41266	45174.4	RW	DI3 activation signalling delay	WORD		0...255	min
V8	V8-d14	41268	45174.6	RW	DI4 activation signalling delay	WORD		0...255	min
V8	V8-d15	41270	45175.0	RW	DI5 activation signalling delay	WORD		0...255	min
V8	V8-d16	41272	45175.2	RW	DI6 activation signalling delay	WORD		0...255	min
V8	V8-d17	41274	45175.4	RW	DI7 activation signalling delay	WORD		0...255	min
V8	V8-d18	41276	45175.6	RW	DI8 activation signalling delay	WORD		0...255	min
V8	V8-H21	41320	45176.0	RW	Configurability of digital output 1	WORD		0...14	num
V8	V8-H22	41322	45176.2	RW	Configurability of digital output 2	WORD		0...14	num
V8	V8-H23	41324	45176.4	RW	Configurability of digital output 3	WORD		0...14	num
V8	V8-H24	41326	45176.6	RW	Configurability of digital output 4	WORD		0...14	num

FOLDER	LABEL	PAR. VALUE ADDR.	VIS PAR. ADDR.	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	U.M.
V8	V8-H25	41328	45177.0	RW	Configurability of digital output 5	WORD		0...14	num
V8	V8-H27	41332	45177.4	RW	Configurability of digital output 7	WORD		0...14	num
V8	V8-H29	41334	45177.6	RW	Enable buzzer	WORD		0/1	flag
V8	V8-H31	41716	45178.0	RW	Configuration of UP key	WORD		0...8	num
V8	V8-H32	41718	45178.2	RW	Configuration of DOWN key	WORD		0...8	num
V8	V8-H33	41720	45178.4	RW	ESC key configuration	WORD		0...8	num
V8	V8-H34	41722	45178.6	RW	FREE 1 key configuration	WORD		0...8	num
V8	V8-H35	41724	45179.0	RW	FREE 2 key configuration	WORD		0...8	num
V8	V8-H36	41726	45179.2	RW	FREE 3 key configuration	WORD		0...8	num
V8	V8-H37	41728	45179.4	RW	FREE 4 key configuration	WORD		0...8	num
V8	V8-H41	41280	45179.6	RW	Pb1 input configuration	WORD		0/1/2	num
V8	V8-H42	41282	45180.0	RW	Pb2 input configuration	WORD		0/1/2	num
V8	V8-H43	41284	45180.2	RW	Pb3 input configuration	WORD		0/1/2	num
V8	V8-H44	41286	45180.4	RW	Pb4 input configuration	WORD		0/1/2	num
V8	V8-H45	41288	45180.6	RW	Pb5 input configuration	WORD		0/1/2	num
V8	V8-H46	41290	45181.0	RW	Pb6 input configuration	WORD		0/1/2	num
V8	V8-H47	41292	45181.2	RW	Pb7 input configuration	WORD		0/1/2	num
V8	V8-H50	41336	45181.4	RW	Configuration of analogue output type	WORD		0/1	flag
V8	V8-H51	41338	45181.6	RW	Regulator linked to analogue output	WORD		0/1/2	num
V8	V8-H68	41340	45182.0	RW	Clock presence	WORD		0/1	flag
V8	V8-H70	41296	45182.2	RW	Selection of probe 1 for virtual probe	WORD		0...5	num
V8	V8-H71	41298	45182.4	RW	Selection of probe 2 for virtual probe	WORD		0...5	num
V8	V8-H72	41300	45182.6	RW	% calculation virtual probe day	WORD		0...100	%
V8	V8-H73	41302	45183.0	RW	% calculation virtual probe night	WORD		0...100	%
V8	V8-Ety	41730	45183.2	RW	Electronic expansion valve driver selection	WORD		0/1	num
V8	V8-UL	---	45188.0	RW	Visibility of parameter transfer function (Device -> Copy Card)	2 BIT		0...3	num
V8	V8-dL	---	45188.2	RW	Visibility of parameter transfer function (Copy Card -> Device)	2 BIT		0...3	num
V8	V8-Fr	---	45188.4	RW	Copy Card formatting function visibility	2 BIT		0...3	num

11.2.2. Folder visibility table

FOLDER	MODBUS ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	Address by Application								U.M.
						AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8	
CP	43583.4	RW	CP folder visibility (Compressor)	2 BIT	0...3	43839.4	44031.4	44223.4	44415.4	44607.4	44799.4	44991.4	45183.4	num
dEF	43583.6	RW	dEF folder visibility (Defrost)	2 BIT	0...3	43839.6	44031.6	44223.6	44415.6	44607.6	44799.6	44991.6	45183.6	num
FAn	43584.0	RW	FAn folder visibility (Fans)	2 BIT	0...3	43840.0	44032.0	44224.0	44416.0	44608.0	44800.0	44992.0	45184.0	num
AL	43584.2	RW	AL folder visibility (Alarms)	2 BIT	0...3	43840.2	44032.2	44224.2	44416.2	44608.2	44800.2	44992.2	45184.2	num
Lit	43584.4	RW	Lit folder visibility (Lights and Digital Inputs)	2 BIT	0...3	43840.4	44032.4	44224.4	44416.4	44608.4	44800.4	44992.4	45184.4	num
Lin	43584.6	RW	Lin folder visibility (LINK[2])	2 BIT	0...3	43840.6	44032.6	44224.6	44416.6	44608.6	44800.6	44992.6	45184.6	num
dEC	43585.4	RW	dEC folder visibility (Deep cooling)	2 BIT	0...3	43841.4	44033.4	44225.4	44417.4	44609.4	44801.4	44993.4	45185.4	num
EnS	43585.6	RW	EnS folder visibility (Energy saving)	2 BIT	0...3	43841.6	44033.6	44225.6	44417.6	44609.6	44801.6	44993.6	45185.6	num
FrH	43586.0	RW	FrH folder visibility (Frame Heater)	2 BIT	0...3	43842.0	44034.0	44226.0	44418.0	44610.0	44802.0	44994.0	45186.0	num
Add	43586.2	RW	Add folder visibility (Communication)	2 BIT	0...3	43842.2	44034.2	44226.2	44418.2	44610.2	44802.2	44994.2	45186.2	num
diS	43586.4	RW	diS folder visibility (Display)	2 BIT	0...3	43842.4	44034.4	44226.4	44418.4	44610.4	44802.4	44994.4	45186.4	num
HCP	43586.6	RW	HCP folder visibility (HACCP)	2 BIT	0...3	43842.6	44034.6	44226.6	44418.6	44610.6	44802.6	44994.6	45186.6	num
CnF	43587.0	RW	CnF (Configuration) folder visibility	2 BIT	0...3	43843.0	44035.0	44227.0	44419.0	44611.0	44803.0	44995.0	45187.0	num
EE0	43587.2	RW	EE0 folder visibility (Electronic Valve)	2 BIT	0...3	43843.2	44035.2	44227.2	44419.2	44611.2	44803.2	44995.2	45187.2	num
FPr	43587.4	RW	FPr (Copy Card) folder visibility	2 BIT	0...3	43843.4	44035.4	44227.4	44419.4	44611.4	44803.4	44995.4	45187.4	num
FnC	53587.6	RW	FnC (Functions) folder visibility	2 BIT	0...3	43843.6	44035.6	44227.6	44419.6	44611.6	44803.6	44995.6	45187.6	num

11.2.3. Client Table

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	U.M.
A1	513	R	Control probe 1	WORD	-67.0...320	°C/°F
A2	514	R	Control probe 2	WORD	-67.0...320	°C/°F
A3	515	R	Temperature alarm probe 1	WORD	-67.0...320	°C/°F
A4	516	R	Temperature alarm probe 2	WORD	-67.0...320	°C/°F
A5	517	R	Defrost probe 1	WORD	-67.0...320	°C/°F
A6	518	R	Defrost probe 2	WORD	-67.0...320	°C/°F
A7	519	R	Evaporator fan probe	WORD	-67.0...320	°C/°F
A8	520	R	Frame Heater probe	WORD	-67.0...320	°C/°F
A9	521	R	Valve evaporator pressure	WORD	-67.0...320	bar/Psi
A10	522	R	Valve overheating temperature	WORD	-67.0...320	°C/°F
A11	523	R	HACCP probe	WORD	-67.0...320	°C/°F
SP1	524	R	Control setpoint value 1	WORD	-67.0...320	°C/°F
SP2	525	R	Control setpoint value 2	WORD	-67.0...320	°C/°F
OH1	526	R	Overheating value	WORD	-67.0...320	°C/°F
BKP	542	R	Backup saturation probe {0}	WORD	-67.0...320	°C/°F

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	U.M.
rDP	543	R	Dewpoint value	WORD	-67.0...320	°C/°F
dis	527	R	Display value	WORD	-67.0...320	°C/°F
vr1	528	R	Probe x calculating virtual probe	WORD	-67.0...320	°C/°F
vr2	529	R	Probe x calculating virtual probe	WORD	-67.0...320	°C/°F
EEV	1025	R	valve 1 opening percentage	WORD	100.0	%
FrH	1026	R	Frame heater output	WORD	100.0	%
E1	1537	R	AI1 Probe Error	WORD	0...1	flag
E2	1538	R	AI2 Probe Error	WORD	0...1	flag
E3	1539	R	AI3 Probe Error	WORD	0...1	flag
E4	1540	R	AI4 Probe Error	WORD	0...1	flag
E5	1541	R	AI5 Probe Error	WORD	0...1	flag
E6	1542	R	AI6 Probe Error	WORD	0...1	flag
E7	1543	R	AI7 Probe Error	WORD	0...1	flag
AL1	1544	R	Low temperature 1 alarm	WORD	0...1	flag
AH1	1545	R	High temperature 1 alarm	WORD	0...1	flag
AL2	1546	R	Low temperature 2 alarm	WORD	0...1	flag
AH2	1547	R	High temperature 2 alarm	WORD	0...1	flag
OPd	1548	R	Door open alarm	WORD	0...1	flag
EA	1549	R	Digital input external alarm	WORD	0...1	flag
Prr	1550	R	Preheat Input Regulator Alarm	WORD	0...1	flag
Ad2	1551	R	Defrost timeout	WORD	0...1	flag
nPA	1552	R	Pressure switch alarm	WORD	0...1	flag
LPA	1554	R	Low pressure switch alarm	WORD	0...1	flag
HPA	1556	R	High pressure switch alarm	WORD	0...1	flag
E10	1558	R	RTC flat battery alarm	WORD	0...1	flag
AtS	1559	R	Communication test alarm	WORD	0...1	flag
HOt	1560	R	Valve MOP alarm	WORD	0...1	flag
tHA	1561	R	Valve output max alarm	WORD	0...1	flag
OFF	5121	R	stand-by	WORD	0...1	flag
C1	5122	R	Compressor 1 State	WORD	0...1	flag
C2	5123	R	Compressor 2 State	WORD	0...1	flag
Def	5124	R	Defrost 2 status	WORD	0...1	flag
FEv	5125	R	Evaporator fan state	WORD	0...1	flag
ALM	5127	R	Alarm status	WORD	0...1	flag
AUX	5128	R	Auxiliary Relay	WORD	0...1	flag
Lig	5129	R	Light state	WORD	0...1	flag
DP	5130	R	Deep Cooling	WORD	0...1	flag
FH	5131	R	Demisting heaters	WORD	0...1	flag
SeR	5132	R	Reduced Set regulator	WORD	0...1	flag
ES	5133	R	Energy saving	WORD	0...1	flag
do	5134	R	Door open alarm	WORD	0...1	flag
dyS	5135	R	Active dynamic setpoint	WORD	0...1	flag
gDI	5136	R	Generic input state	WORD	0...1	flag
nAU	2561	RW	Auxiliary On	WORD	0...1	flag
oAU	2562	RW	Auxiliary Off	WORD	0...1	flag
nSB	2563	RW	Device On	WORD	0...1	flag
oSB	2564	RW	Device Off	WORD	0...1	flag
nES	2565	RW	Energy saving function activation	WORD	0...1	flag
oNS	2566	RW	Disable energy saving function	WORD	0...1	flag
nSR	2567	RW	Activate Economy mode	WORD	0...1	flag
oSR	2568	RW	Deactivate Economy mode	WORD	0...1	flag
nLI	2569	RW	Lights On	WORD	0...1	flag
oLI	2570	RW	Lights Off	WORD	0...1	flag
nBT	2571	RW	Keypad lock	WORD	0...1	flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	U.M.
oBT	2572	RW	Keypad unlock	WORD	0...1	flag
nDM	2573	RW	Manual defrost activation	WORD	0...1	flag
oPV	2574	RW	Valve opening command	WORD	0...1	flag
nPV	2575	RW	Valve closing command	WORD	0...1	flag
nOS	2576	RW	Setpoint offset forcing on	WORD	0...1	flag
oOS	2577	RW	Setpoint offset forcing off	WORD	0...1	flag
dEC	2578	RW	Deep Cool on	WORD	0...1	flag
ClkUp	2579	RW	Update Clock	WORD	0...1	flag

NOTES:

- If alarm exclusion times have been set (see “AL” folder in the parameters table) the alarm will not be indicated.
- With the exception of inoperable probe alarms, all other alarms will record the corresponding label in the folder **ALr** in the “**MACHINE STATUS**” menu (refer to **“6.7.7. Machine status menu” on page 64**.
- The probe not working alarms will be shown on the display via label E1, E2, E3, E4, E5, E6, E7, EL and Ei according to whether it is probe Pb1, Pb2, Pb3, Pb4, Pb5, Pb6, Pb7, Link^2 or Virtual.

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