RTN400

Controllers for freezer cabinet and cold rooms.

eo | **ENVIRONMENTALLY OPTIMISED**

Controllers for freezer cabinet and cold rooms with built-in compressor.

USER MANUAL

CONTENTS

1 - INTRODUCTION

RTN400 series is a series of controllers for freezer cabinets and cold rooms with built-in compressors.

1.1 - MAIN FEATURES

- Panel-mounted
- Energy Saving algorithms and optimised defrost control
- 8 preloaded applications
- Defrost at single/double evaporator
- Frame heater
- Local network auto-configuration
- Direct load connection (up to 2 HP)
- Supply voltage control LVD
- Easy to refit in Eliwell and third-party systems
- Presence of an open collector output

1.2 - DESCRIPTION

This latest generation device has the following key functions:

- 2 ON/OFF regulators for HOT/COLD
- Single defrost and double evaporator (heatings, modulated heaters, reverse cycle, hot gas)
- Evaporator fans and condenser fans
- Frame Heater
- AUX
- Light
- Door switch
- ON /OFF
- Deep cooling cycle
- Day / Night
- Diagnostics
- "Easy Map" programming
- Programmable inputs/outputs
- LINK[2] local area network
- RS485 communication protocol: Modbus
- Compatible with Device Manager (DM)
- Compatible with Unicard and Multi-function key

2 - SPECIFICATIONS

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

Classification:	electronic automatic control (not safety) device for incorporation
Mounting:	panel mounting
Type of action:	1.B
Pollution class:	2
Material class:	IIIa
Overvoltage category:	II
Nominal pulse voltage:	2500V
Temperature:	Use: –5 … +55°C - Storage: -30 … +85°C
Power supply:	SMPS 100-240Va ±10% 50/60 Hz
Power consumption:	5.5W max
Fire resistance category:	D
Software class:	A
RTC battery life:	In absence of external power, the clock battery will last 3 years.

2.2 - FURTHER INFORMATION

2.2.1 - INPUT CHARACTERISTICS

Measurement range:	**NTC**: -50.0°C ... +110°C; **PTC**: -55.0°C ... +150°C; **PT1000**: -60.0°C ... +150°C
	(on 3-digit display with +/- sign)
Accuracy:	±1.0° for temperatures below -30°C
	±0.5° for temperatures between -30°C and +25°C
	±1.0° for temperatures above +25°C
Resolution:	1 or 0.1°C
Buzzer:	NO
Analogue/Digital Inputs:	5 configurable NTC/PTC/PT1000/DI inputs
	1 multi-function, voltage-free digital input (D.I.)

2.2.2 - OUTPUT CHARACTERISTICS

Digital Outputs:	**OUT1**:	1 SPST relay:	2HP	max 240V~
	OUT2:	1 SPDT relay:	1HP	max 250V~
	OUT3:	1 SPDT relay:	8(4)A	max 250V~
	OUT4:	1 SPST relay:	8(4)A	max 250V~
OC (Open Collector) Output:	**OC**:	1 multifunctional output:	12V⎓ 20mA	

2.2.3 - MECHANICAL CHARACTERISTICS

Dimensions:	121x92 mm
Terminals:	faston and screw for wires with cross-section of 2.5mm^2
Connectors:	TTL for Unicard / Device Manager connection (via DMI)
Humidity:	Usage / Storage: 10...90% RH (non-condensing)

2.2.4 - REGULATIONS

Electromagnetic compatibility:	The device complies with Directive 2004/108/EC
Safety:	The device complies with Directive 2006/95/EC
Food Safety:	The device complies with standard EN13485 as follows:

- Suitable for storage.
- Application: air.
- Climate range A
- measurement class 1 in the range from -25°C to 15°C (*)

(*** with Eliwell probes only**)

NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) refer to the instrument alone and not to any accessories provided, such as the probes.
This means, for example, that the error introduced by the probe must be added to the error of the instrument.

2.3 - CONNECTIONS

2.3.1 - TERMINALS
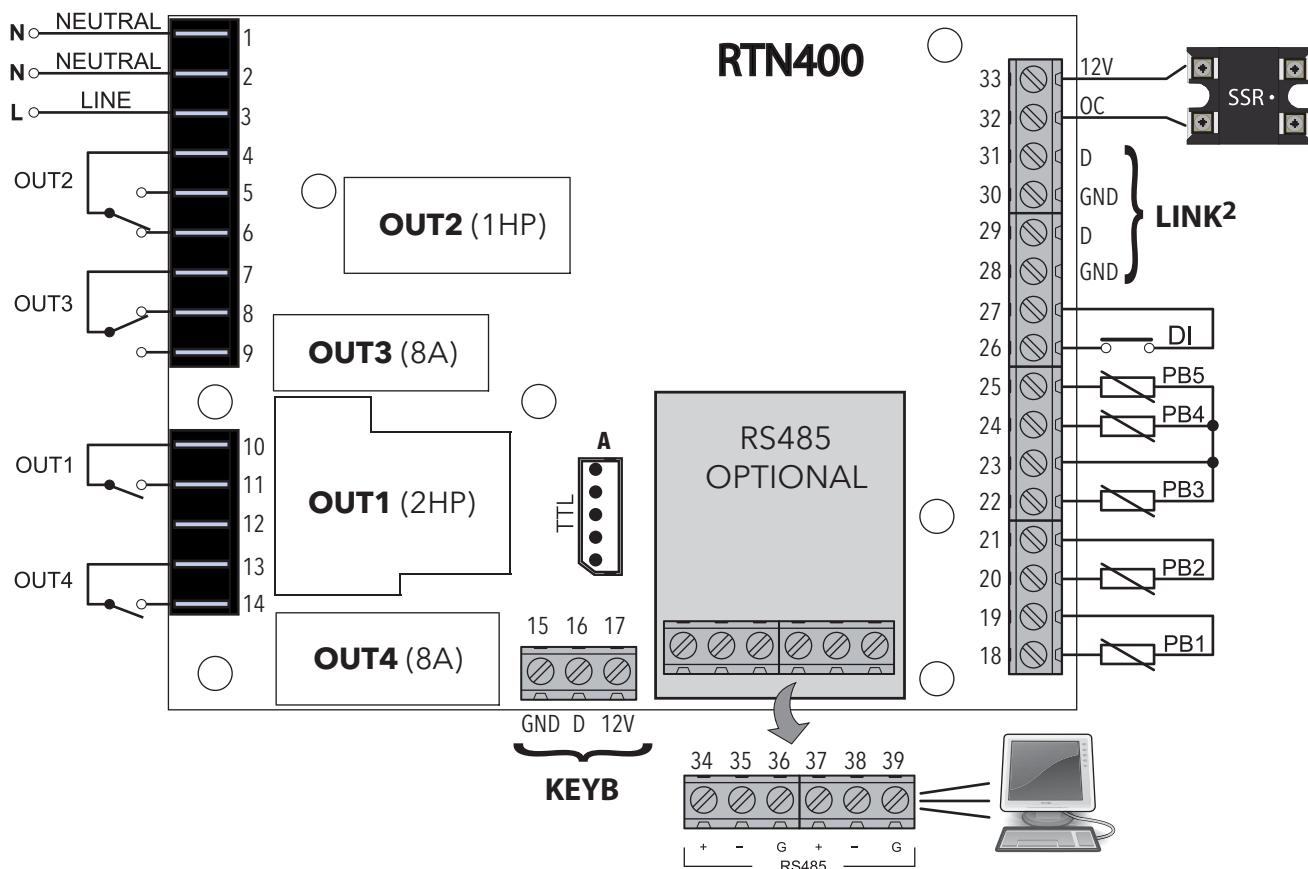
* **N.B.:** analogue inputs PB1...PB5 can also be configured as Digital Inputs DI.

TERMINALS				
1-2	NEUTRAL. These are power supply terminals.		**15-16-17**	Connection to KDEPlus or KDWPlus external keyboard or ECPlus echo module.
3	LINE. These are power supply terminals.		**19-18**	PB1 probe connection.
4	OUT2 Shared Terminal		**21-20**	PB2 probe connection.
5	N.O. OUT2		**23-22**	PB3 probe connection.
6	N.C. OUT2		**23-24**	PB4 probe connection.
7	OUT3 Shared Terminal		**23-25**	PB5 probe connection.
8	N.C. OUT3		**27-26**	Digital input (DI).
9	N.O. OUT3		**28-29**	LINK^2. Connection 1 - local area network.
10	OUT1 Shared Terminal		**30-31**	LINK^2. Connection 2 - local area network.
11	N.O. OUT1		**32-33**	Open Collector Output (OC).
12	Not Used		**A**	TTL Unicard/DMI/Multi Function Key connection
13	OUT4 Shared Terminal		**34-35-36**	RS485. Connection 1 - Supervision Gateway.
14	N.O. OUT4		**37-38-39**	RS485. Connection 2 - Supervision Gateway.

2.3.2 - CONNECTING A D.I. TO PB1...PB5 INPUTS

A D.I. can be connected to **PB1...PB5** inputs by connecting it between pin PB**x** (with x = 1, 2, 3, 4 or 5) and the relative earth pin (CPB). Here's an example of how to connect the various D.I.s:
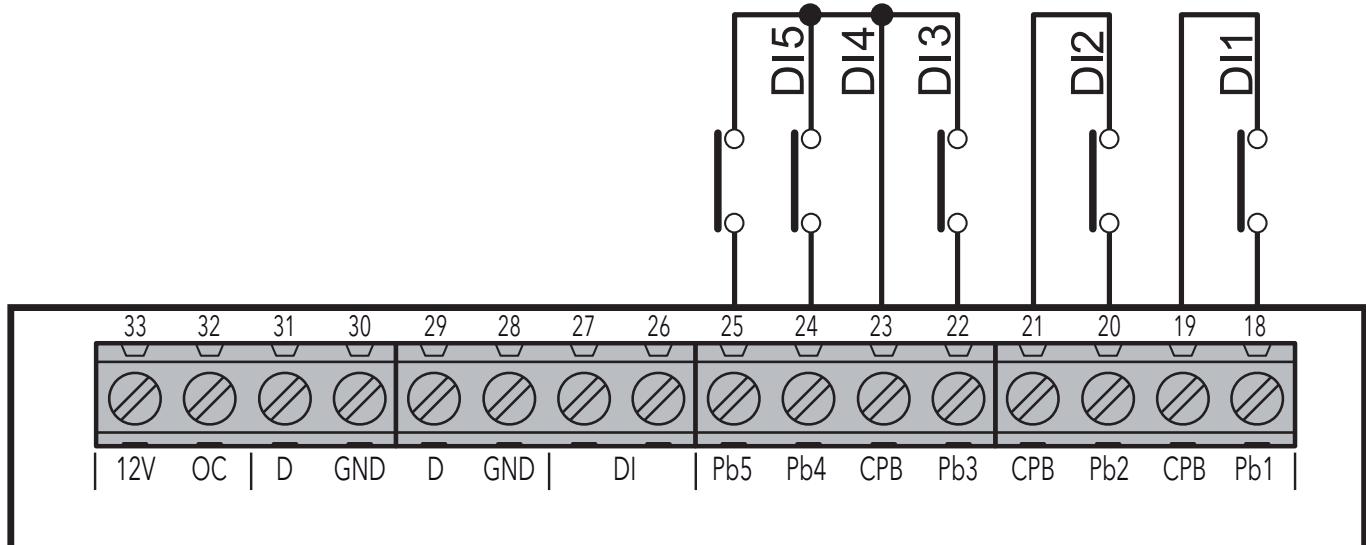
2.4 - MECHANICAL ASSEMBLY

Do not install the device in places subject to high humidity and/or dirt; it is intended for use in sites with ordinary or normal levels of pollution. Keep the area around the device cooling slots adequately ventilated.
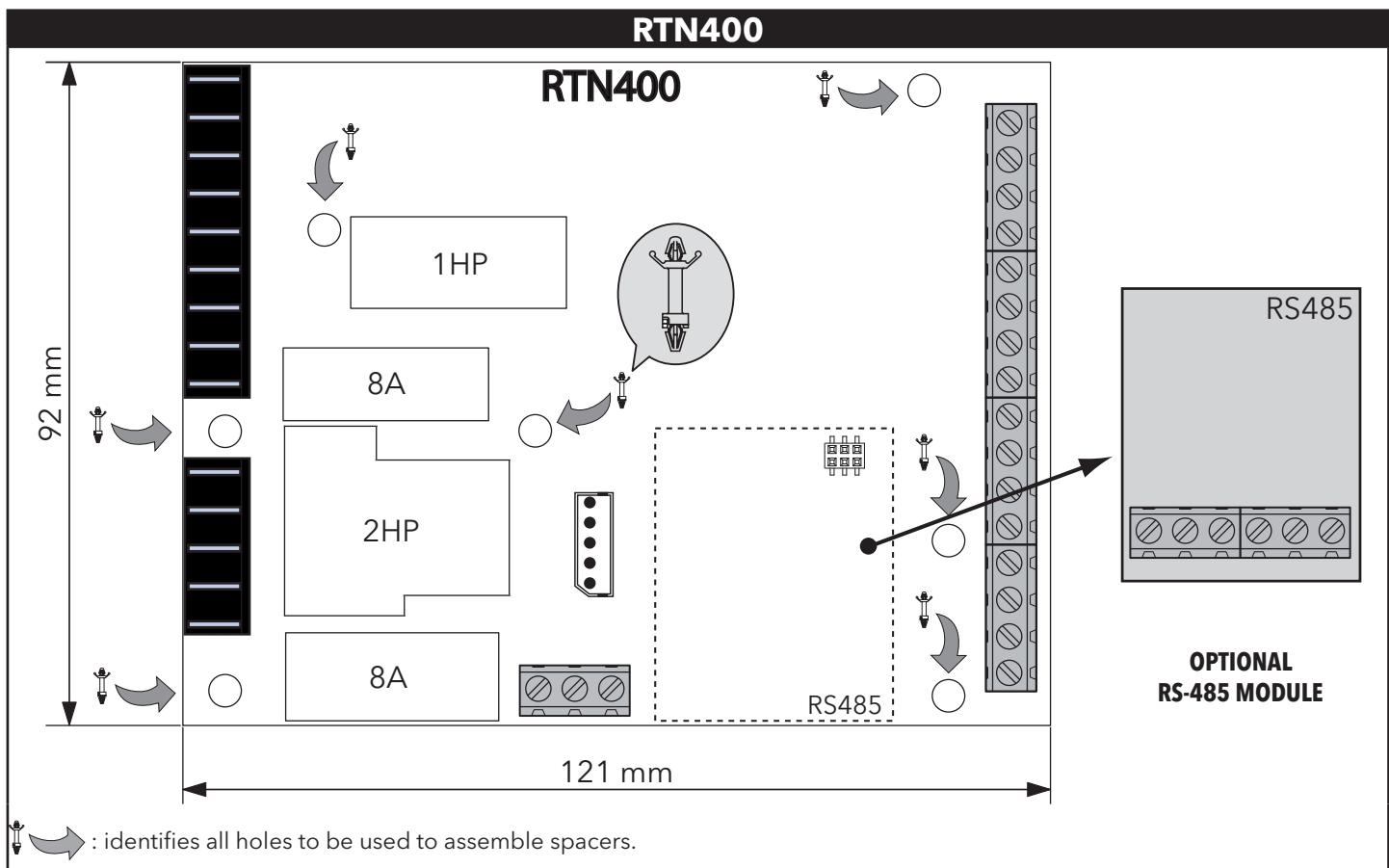
3.1 - SUMMARY

FUNCTION		AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
INPUTs									
PB1	(NTC)	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**	**REG1**
PB2	(NTC)		❄	❄ / ✹	❄				
PB3	(NTC)								
PB4	(NTC)								
PB5	(NTC)								
DI	(par. H18)	**AUX**	**AUX**	**AUX**	**AUX**	**AUX**	**AUX**	**AUX**	**AUX**
OUTPUTs									
OUT1 (2HP relay)		⟟	⟟	⟟	⟟	⟟	⟟	⟟	⟟
OUT2 (16A relay)			❄	❄	❄				
OUT3 (8A relay)		((•))	((•))	✹	✹	((•))	((•))	((•))	((•))
OUT4 (8A relay)		💡(**AUX**)	💡(**AUX**)	💡(**AUX**)	💡(**AUX**)	💡(**AUX**)	💡(**AUX**)	💡(**AUX**)	💡(**AUX**)
OC				((•))	Frame Heater				

DESCRIPTION OF APPLICATIONS

AP1 (Dairy Products and Fruit/Vegetables):
Vertical cabinet/Serve over counter MT (2°C)
- defrost cycle with the compressor stopped
- 1 probe

AP2 (Dairy Products and Fruit/Vegetables):
Vertical cabinet/Serve over counter MT (-4°C)
- resistance defrost (device hours)
- 2 probes

AP3 (Surgelati):
Island/Glass Door Cabinet LT (-22°C)
- resistance defrost (device hours)
- evaporator fans (FCO=2, duty cycle always ON in case of probe error)
- 2 probes

AP4 (Surgelati):
Island/Glass Door Cabinet LT (-25°C)
- resistance defrost (device hours)
- evaporator fans (FCO=2, duty cycle always ON in case of probe error)
- Frame Heater
- 2 probes

AP5 (Dairy Products and Fruit/Vegetables):
Same parameters of application **AP1**.

AP6 (Dairy Products and Fruit/Vegetables):
Same parameters of application **AP1**.

AP7 (Dairy Products and Fruit/Vegetables):
Same parameters of application **AP1**.

AP8 (Dairy Products and Fruit/Vegetables):
Same parameters of application **AP1**.

Control

L**RTN400** always regulates in standard mode.
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.

3.2 – APPLICATION 1

The application is configured for "**VERTICAL CABINET/SERVE OVER COUNTER**" at medium temperature (2°C), defrost cycle with the compressor stopped and 1 probe. It is recommended for the storage of dairy products, cheese, cold cuts, fruit and vegetables. The preset configuration features:

APPLICATION	APPLICATION DATA
	Settings for Inputs, Outputs and Keys are listed below: **Input Configuration:** • Input PB1 — regulator sensor REG1 • Input PB2 — not set • Input PB3 — not set • Input PB4 — not set • Input PB5 — not set • Input DI — AUX **Output Configuration:** • OUT1 (2HP relay) — compressor • OUT2 (16A relay) — not set • OUT3 (8A relay) — alarm • OUT4 (8A relay) — AUX (light) • OC — not set **Key configuration:** • UP key — manual defrost • DOWN key — AUX • ESC key — stand-by

APPLICATION DIAGRAM

PB1 (REG1)

AUX   DI

OUT4   OUT1   OUT3

EVAPORATOR

COMPRESSOR

3.3 – APPLICATION 2

The application is configured for "**VERTICAL CABINET/SERVE OVER COUNTER**" at medium temperature (-4°C), with resistance defrost (device hours) and 2 probes. It is recommended for the storage of dairy products, cheese, cold cuts, fruit and vegetables. The preset configuration features:

APPLICATION	APPLICATION DATA
	Settings for Inputs, Outputs and Keys are listed below: **Input Configuration:** • Input PB1 regulator sensor REG1 • Input PB2 evaporator sensor • Input PB3 not set • Input PB4 not set • Input PB5 not set • Input DI AUX **Output Configuration:** • OUT1 (2HP relay) compressor • OUT2 (16A relay) defrost • OUT3 (8A relay) alarm • OUT4 (8A relay) AUX (light) • OC not set **Key configuration:** • UP key manual defrost • DOWN key AUX • ESC key stand-by

APPLICATION DIAGRAM

3.4 – APPLICATION 3

The application is configured for "**ISLAND/GLASS DOOR CABINET**" at low temperature (-22°C), with resistance defrost (device hours), evaporator fans (FCO=2, duty cycle always ON in case of probe error) and 2 probes.
É indicata per la conservazione di Surgelati, gelati, carni e polli. The preset configuration features:

APPLICATION	APPLICATION DATA
	Settings for Inputs, Outputs and Keys are listed below: **Input Configuration:** • Input PB1 regulator sensor REG1 • Input PB2 fans / evaporator sensor • Input PB3 not set • Input PB4 not set • Input PB5 not set • Input DI AUX **Output Configuration:** • OUT1 (2HP relay) compressor • OUT2 (16A relay) defrost • OUT3 (8A relay) evaporator fans • OUT4 (8A relay) AUX (light) • OC alarm **Key configuration:** • UP key manual defrost • DOWN key AUX • ESC key stand-by

APPLICATION DIAGRAM

3.5 – APPLICATION 4

The application is configured for "**ISLAND/GLASS DOOR CABINET**" at low temperature (-25°C) , with resistance defrost (device hours), evaporator fans (FCO=2, duty cycle always ON in case of probe error), with Frame Heater and 2 probes.
É indicata per la conservazione di Surgelati, gelati, carni e polli. The preset configuration features:

APPLICATION	APPLICATION DATA
	Settings for Inputs, Outputs and Keys are listed below: **Input Configuration:** • Input PB1 regulator sensor REG1 • Input PB2 evaporator sensor • Input PB3 not set • Input PB4 not set • Input PB5 not set • Input DI AUX **Output Configuration:** • OUT1 (2HP relay) compressor • OUT2 (16A relay) defrost • OUT3 (8A relay) evaporator fans • OUT4 (8A relay) AUX (light) • OC Frame Heater **Key configuration:** • UP key manual defrost • DOWN key AUX • ESC key stand-by

APPLICATION DIAGRAM

3.6 - APPLICATIONS 5-6-7-8

Applications **AP5-AP6-AP7-AP8** are "**NOT USED**" and parameters are the same of application **AP1**.

4 - KEYBOARD USER INTERFACE AND START-UP

4.1 - LED

RTN400 family controllers will also function even if a keyboard has not been connected.
With **KDEPlus** or **KDWPlus** keyboards (which are the same and guarantee the same functions), the display will be as follows:
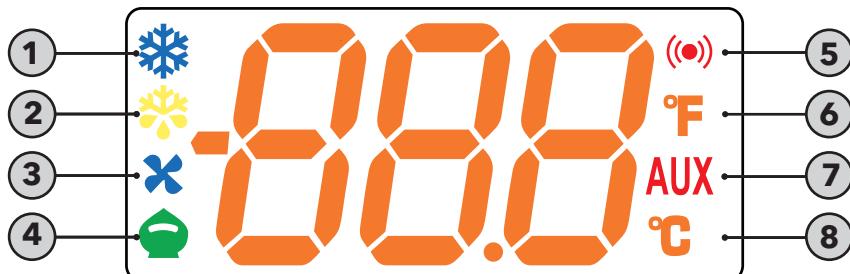
Meaning of LEDs:

No	Icon	LED	Operation	Meaning
1	❄	**Compressor**	Permanently on	compressor on
			Blinking	Delay, protection or start-up blocked
			OFF	otherwise
2	❄	**Defrost**	Permanently on	Defrost active
			Blinking	Activated manually 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)
			OFF	otherwise
7	AUX	**AUX**	Permanently on	Aux output active and/or light on
			Blinking	Deep cooling on
			OFF	otherwise
8	°C	**°C readout**	Permanently on	°C setting (dro = 0)
			OFF	otherwise

N.B.: When the instrument 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.

4.2 - KDEPLUS BUTTONS

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

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 summarizes the function of each key:

No	Key	Action		
		Pressed and released	**Press for at least 5 secs**	**Start-up**
1	⤊	• Scrolls through menu items • Decreases values	Activates the **Manual Defrost function** (from outside menus).	---
2	⤋	• Scrolls through menu items • Decreases values	Function can be configured by the user (from outside menus). (see parameter H32)	---
3	⏻	• Returns to the previous menu level • Confirms parameter value	Activates the Stand-by function (from outside menus).	---
4	set	• Displays any alarms (if active) • Opens Machine Status menu • Confirms commands	Opens the Programming Menu (User and Installer parameters)	When pressed during start-up it enables the user to select the application to be loaded.

4.3 - KDWPLUS BUTTONS AND ADDITIONAL LEDS

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

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 summarizes the function of each key:

No	Key	Action		
		Pressed and released	**Press for at least 5 secs**	**Start-up**
1	⟰	• Scrolls through menu items • Increases values	Function can be configured by the user (from outside menus). (see parameter H31)	---
2	⟱	• Scrolls through menu items • Decreases values	Function can be configured by the user (from outside menus). (see parameter H32)	---
3	⓪	• Returns to the previous menu level • Confirms parameter value	Activates the Stand-by function (from outside menus). (see parameter H33)	---
4	set	• Displays any alarms (if active) • Opens Machine Status menu • Confirms commands	Opens the 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 • Returns to the previous menu level	---	---
6	Aux ☀	Activates the AUX output / Switches on the Light	---	---

LED

The following table summarizes the function of each LED:

No	LED	Description
A	RH%	Forces fan on (Hxx = 15)
B	🔒	Locked keypad
C	Aux ☀	Light relay on from key
D	❄	Defrost ON
E	⓪	Device off

4.4 - CONNECTIONS WITH REMOTE TERMINAL AND REMOTE DISPLAY

Each power board can be connected to a single **KDEPlus** or **KDWPlus** keypad (user terminal) and if required to an **ECPlus** module (remote display) by means of the connector located on the keypad.

RTN400 + KDEPlus CONNECTION

L = max. 15m
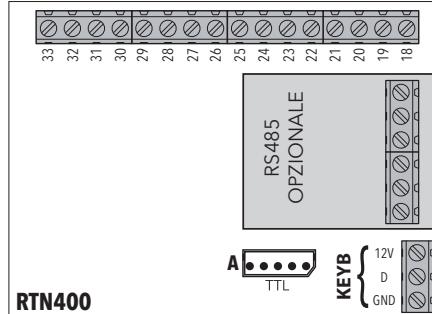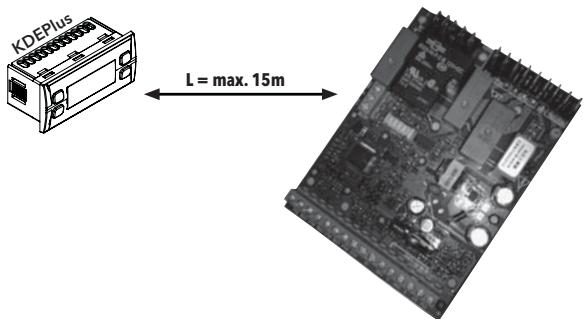
RTN400 + ECPlus CONNECTION

L = max. 100m
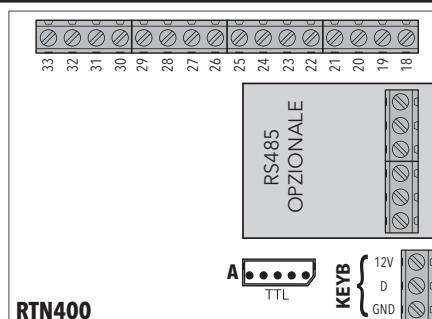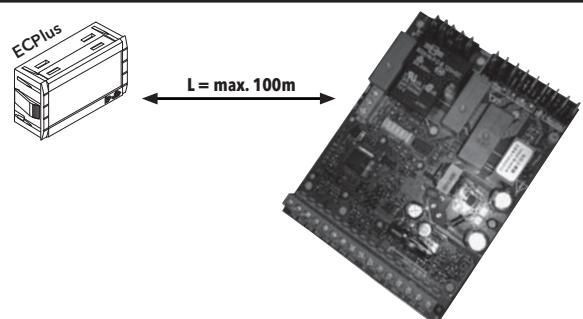
RTN400 + KDEPlus + ECPlus CONNECTION

L = max. 15m

L2 < (100 - L) m
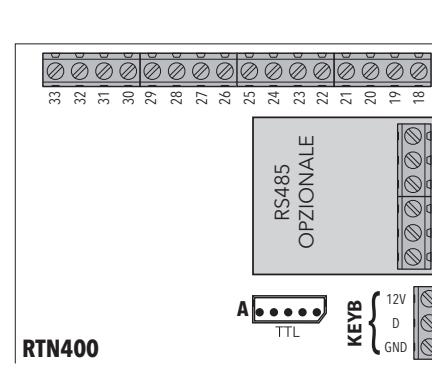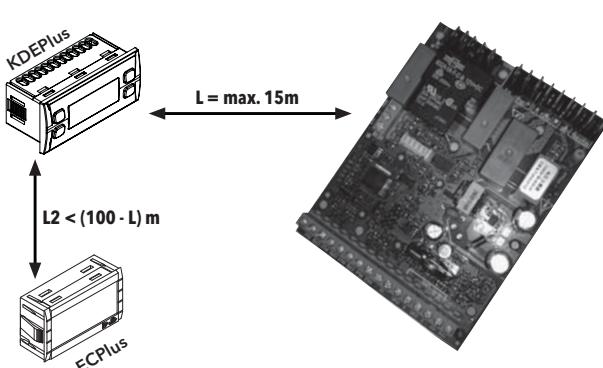
RTN400 + KDWPlus + ECPlus CONNECTION

L = max. 15m

L2 < (100 - L) m
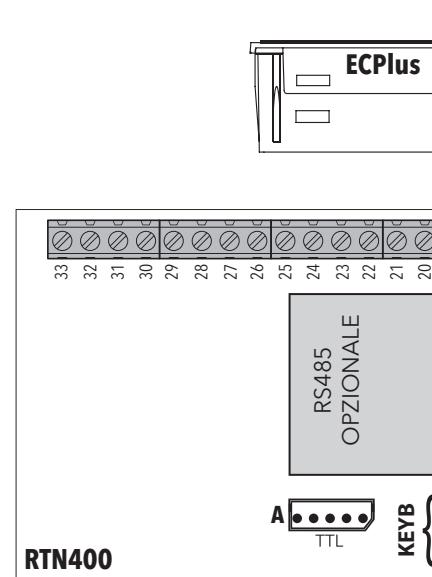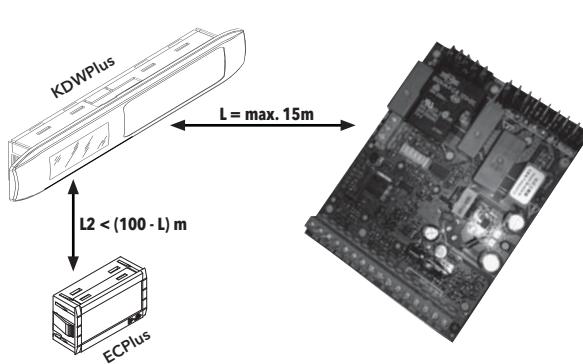
NOTE:

An ECHO (**ECPlus**) module can be connected to the **KDWPlus** using the same terminal as the base is connected to.

4.5 - PRELIMINARY SETTINGS

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

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

4.5.1 - SELECTING APPLICATIONS

The procedure for loading one of the default applications is:
- On switching the controller on, press and hold the **set** key: the label "AP1" will appear.
- Scroll through the various applications (AP1... AP8) using the ⊼ and ⊻ keys.
- Select the desired application using the **set** key ("AP3" in the example) or cancel the procedure by pressing the ① key; alternatively wait for the timeout.
- If the operation is successful, the display will show "yES", if not it will show "no".
- After a few seconds the instrument will return to the main display.
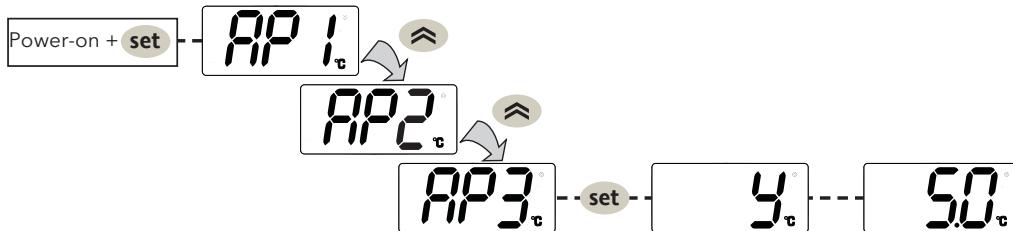
4.5.2 - RESET PROCEDURE

RTN400 can be **RESET** and the default factory settings restored in a simple and user-friendly way.
This is done by simply reloading one of the basic applications (see "Loading default applications").

You may need to **RESET** the instrument in circumstances in which the normal operation of the instrument is compromised or if you decide to restore the instrument to its default configuration (e.g. Application 1 values).

⚠ **IMPORTANT!**: This operation resets the instrument to its initial state, returning all the parameters to their default values. This means that all changes made to operating parameters will be lost.

4.5.3 - PASSWORDS

Password "**PA1**": grants access to User parameters. By default the password is disabled (**PS1=0**).
To enable it (**PS1≠0**): press and hold **set** for more than 5 seconds, scroll through the parameters using ⊼ and ⊻ until you see label **PS1**; press **set** to display the value, modify it using ⊼ and ⊻, then save it by pressing **set** or ①. If enabled, it will be needed to access the User parameters.

Password "**PA2**": grants access to Installer parameters. By default the password is enabled (**PS2=10**).
To modify it (**PS2≠10**): press and hold **set** for more than 5 seconds, scroll through the parameters using ⊼ and ⊻ until you see label **PA2**; press **set**, set the value "15" using ⊼ and ⊻, then confirm using **set**. Scroll through the folders until you see label diS then press **set** to enter. Scroll through the parameters with ⊼ and ⊻ until you see label **PS2**, press **set** to display the value, modify it using ⊼ and ⊻, then save it by pressing **set** or ①.

The visibility of "**PA2**" is:

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

2) **Otherwise**: Password "**PA2**" is amongst the level 1 parameters. If enabled, it will be needed to access "Installer" parameters; to enter it, proceed as instructed for password **PA1**.

If the entered value is incorrect, label **PA1**/**PA2** will be displayed once again and the procedure must be repeated.

4.5.4 - SETPOINT: SETTING AND EDIT LOCK

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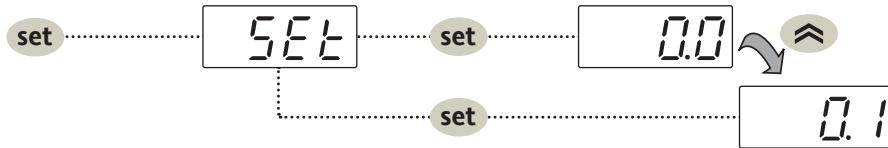
It is possible to disable the keypad on this device.
The keypad can be locked by programming the "LOC" parameter appropriately.
With the keypad locked, you can still access the "Machine Status" menu by pressing **set** to display the Setpoint, but you cannot edit it. To disable the keypad lock, repeat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

4.5.5 - DISPLAY PROBES VALUE

To display the value read by probes connected to the device, press the **set** key and enter the "Machine Status" menu, then press the key again when one of the probe-related labels "Pb1...Pb5" 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.

4.5.6 - KEY-ACTIVATED FUNCTIONS

All models have the **UP** key set to enable the "Manual Defrost" function.
The DOWN and ESC keys can also be set to activate any other function required by the user.
The parameters for configuring the two keys are:

- **H11** = DOWN key configuration
- **H33** = ESC key configuration

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

H32/H33 value	Function to enable
0	disabled
1	defrost
2	reduced set
3	Light
4	Energy saving
5	AUX
6	Stand-by
7	Deep cooling cycle
8	Start/end defrost

4.5.7 - "MACHINE STATUS" MENU

Access the "Machine Status" menu by pressing and releasing the **set** key.
By pressing the ⌃ and ⌄ keys you can scroll through all menu folders.

SET	**press and release**	

SEt ---- **SET** ---- valore Setpoint ---- **UP** **DOWN** → **change SEtpoint value**

UP **DOWN** ↓

ALr ---- **SET** ---- active alarms list ---- **UP** **DOWN** → **if alarm/s present**

rtC ---- **SET** ---- clock parameters ---- **dAy** → **day**
h → **hour**
' → **minutes**

Pb1 ---- **SET** ---- PB1 value

Pb2 ---- **SET** ---- PB2 value

Pb3 ---- **SET** ---- PB3 value

Pb4 ---- **SET** ---- PB4 value

Pb5 ---- **SET** ---- PB5 value

idF ---- **SET** ---- FIRMWARE msk

rEL ---- **SET** ---- FIRMWARE rel

LAn ---- **SET** ---- nr. of device Link[2]
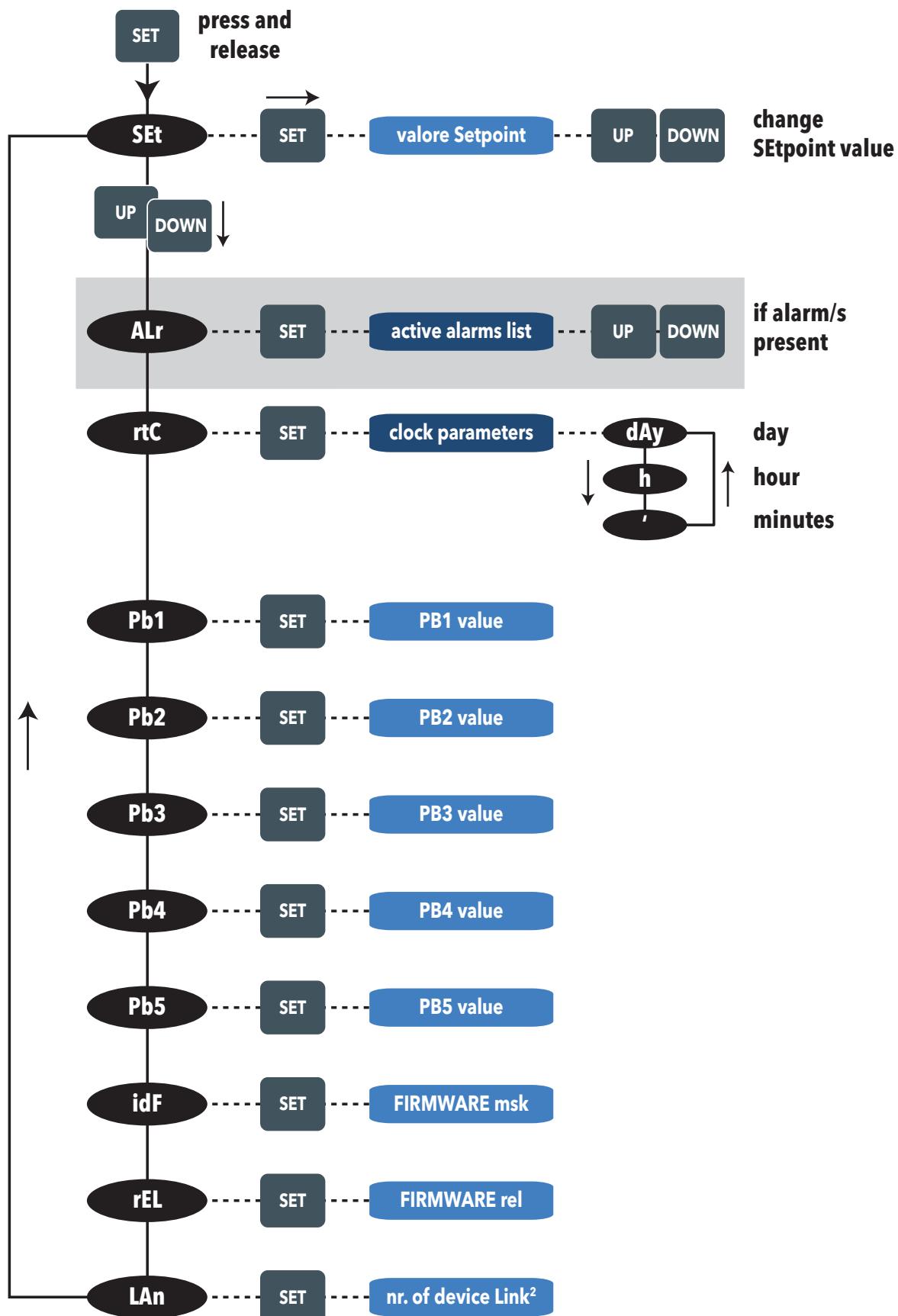
4.5.8 - PROGRAMMING MENU

To access the "Programming" menu, press and hold the (set) key for more than 5 seconds. If enabled, the instrument will request an access PASSWORD, either **PA1** for "**User**" parameters or **PA2** for "**Installer**" parameters (see "PASSWORD" section).

"User" Parameters: When accessed, the display will show the first parameter (e.g. "rE"). Press ⬆ and ⬇ to scroll through all of the parameters in the current level. Select the desired parameter by pressing (set). Press ⬆ and ⬇ to change it and (set) to save the changes.

"Installer" parameters: When accessed the display will show the first folder (e.g. "CP"). Press ⬆ and ⬇ to scroll through all of the folders in the current level. 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 change it and (set) to save the changes.

👉 **N.B.**: It is strongly recommended that you switch the device off and on again each time the parameter configuration is changed, in order to prevent malfunctioning of the configuration and/or ongoing timings.
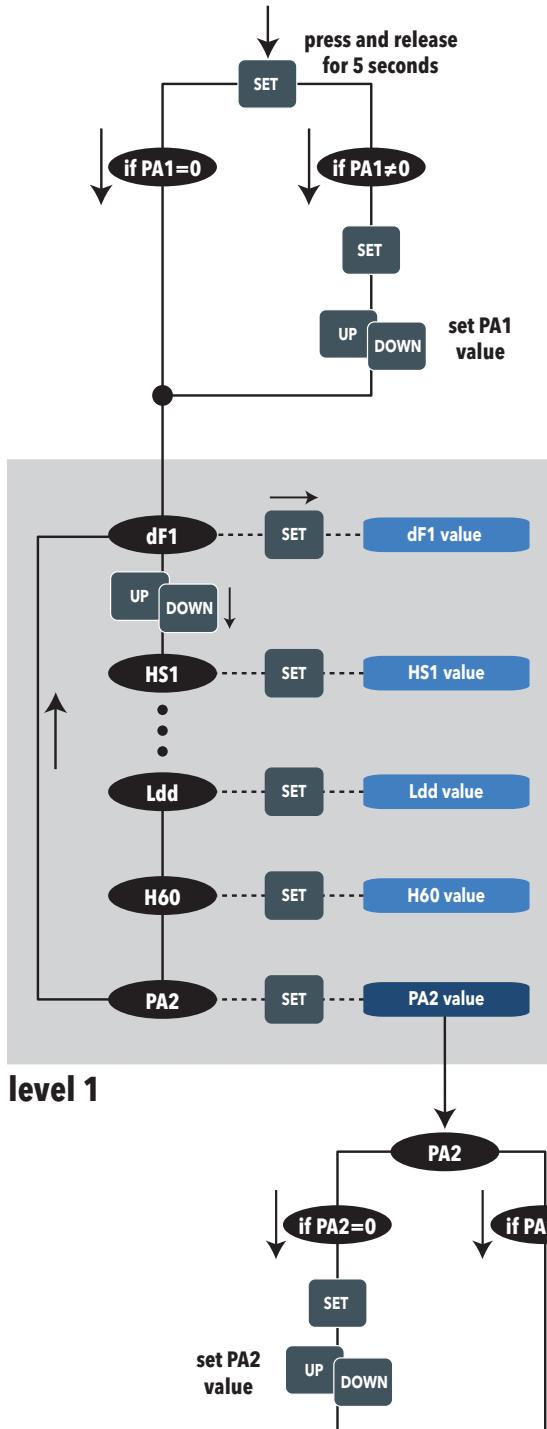
NOTE: For folders and parameters:
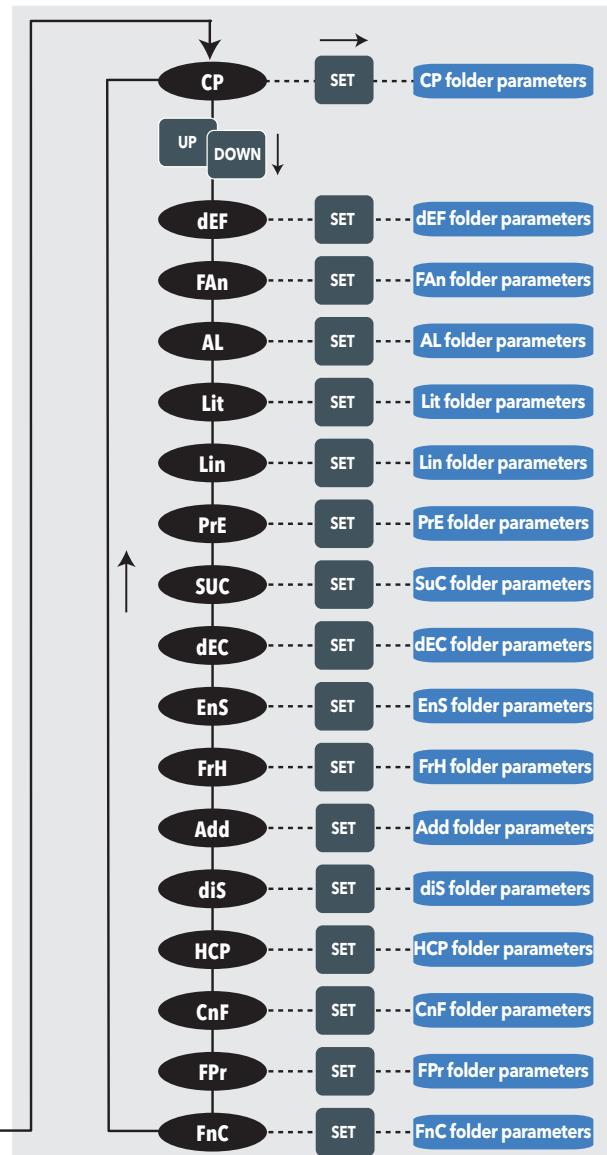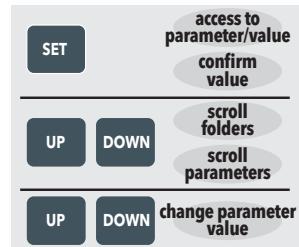
level 1

level 2

5 - FUNCTIONS AND REGULATORS

This section describes the various functions of the devices.

⚠️ **IMPORTANT!**:   the functions may not be available in certain models.

5.1 - SETTINGS

5.1.1 - PROBE SETTING AND CALIBRATION

RTN400 has 5 configurable NTC/PTC/PT1000/D.I. inputs (PB1 ... PB5).

The temperature probes (PB1 ... must all be of the same type and must be configured using parameter **H00**.
Parameter **H00** is located in the "Installer" menu in folder "**CnF**" and must be 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**)

5.1.2 - DISPLAY SETTINGS

Folder "**diS**", at the **User** or **Installer** level, contains the parameters used to set the temperature readout, decimal point usage, unit of measurement 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°C to +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 value of Pb1 (default).
    - ddL = 1   ➔ continues to display the value read by the probe at the start of defrosting.
    - ddL = 2   ➔ displays fixed label "**dEF**".

  NOTE: the time-out setting must be less than the interval between 2 consecutive defrost cycles.

- **dro**: (**Inst**) sets temperature display to °C or °F.
    - dro = 0   ➔ display in °C (default).
    - dro = 1   ➔ display in °F.

  ⚠️ **IMPORTANT**: switching between °C and °F DOES NOT modify the temperature parameter values, etc.
  (e.g. set=10°C becomes 10°F).
  This means that the maximum and minimum limits of parameters as an absolute value are the same for both units of measurement and the ranges are therefore different from each other.

- **ddd**: (**User**) sets the value to be displayed.
  All other display and adjustment modes are the same.
    - ddd = SP1 ➔ Setpoint SP1
    - 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 LINK[2] network probe.

5.2 - FUNCTIONS

5.2.1 - UPLOAD, DOWNLOAD, FORMAT

Description

The Unicard/Multi Function Key must be connected to the serial port (TTL) and allows the rapid programming of instrument parameters.

NOTE: **DOWNLOAD** from reset only operating mode: at power-on, if the Unicard/Multi Function Key is inserted in the device, the controller automatically downloads data.

After connecting the Unicard/Multi Function Key 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.

IMPORTANT !:   once download has been completed successfully, the controller 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 folder "**FPr**" 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 instrument 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). Important: the **Fr** parameter deletes all data present and this operation cannot be reversed.

- **dL** (Download):   Connect the Unicard/Multi Function Key with the instrument switched off. At power-on, data will automatically start downloading from the Unicard/Multi Function Key to the controller. At the end of the lamp test, the display will show "**dLy**" if the operation was successful and "**dLn**" if not.

IMPORTANT !:   before uploading or downloading a map, make sure that communication between the controller and supervisor (PC with Televis system, TelevisCompact, etc.) has been terminated. In other words, remember to disconnect the RS485 from the controller or stop data acquisition by the Supervisor.
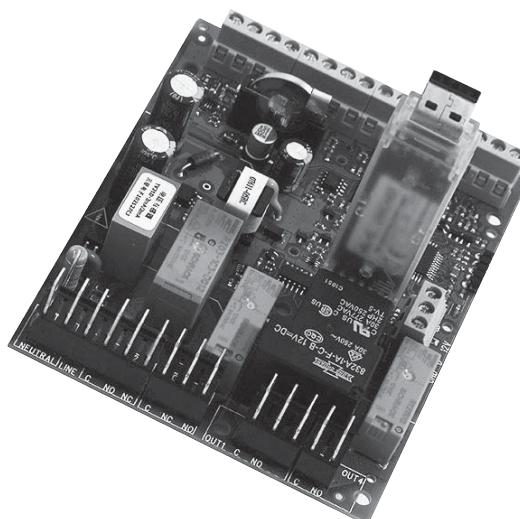
User parameters

The parameters that control this function are:

Label	Description
UL	Transfer of programming parameters from controller to Unicard/Multi Function Key.
Fr	Format Unicard/Multi Function Key. Erases all data contained in the Copy Card.

5.2.1.1 - MULTI FUNCTION KEY

The Multi Function Key lets you download/upload a parameter map from/to a controller. Regardless of whether you are down or uploading a parameter map, the controller must be connected to a power supply and switched on.

5.2.1.2 - UNICARD

The Unicard can be used in the same way as the Multi Function Key to download/upload a parameter map from/to a controller.
It is a versatile tool that also allows you to quickly and easily customize devices.
It differs from the Copy Card in the following ways:

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

The Unicard can be powered in the following ways:

1) Bench powered:

UNICARD   Controller   Controller power supply

B) Field power:

USB power supply   UNICARD   Controller
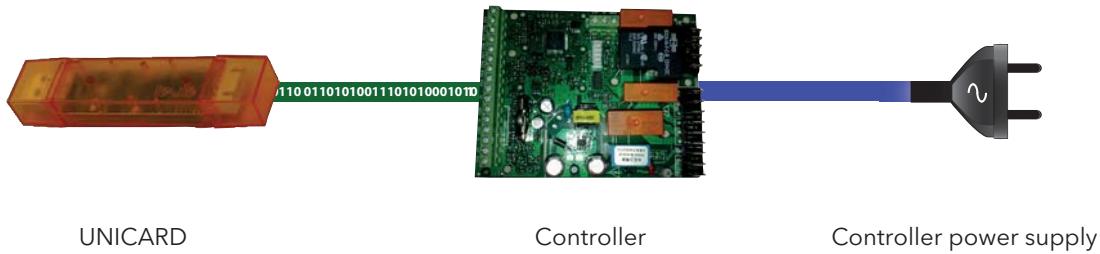
USB battery   UNICARD   Controller

5.2.2 - FIRMWARE BOOT LOADER

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

Updating procedure:

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

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

- Wait until the led of the UNICARD/MFK is blinking (operation in progress)
- The operation will be concluded when the Led of the UNICARD/MFK is:
  - **ON**: operation concluded correctly
  - **OFF**: operation not performed (application not compatible ...)

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

In order to download the Firmware application on the UNICARD (in CLONE mode as used for parameters maps) you must use the Device Manager (version 05.00.06 or later), which you can download from the Eliwell site after having registered at level 2.

NOTE: with this version of the Device Manager the UNICARD can be connected <u>DIRECTLY</u> without using the DMI.

5.2.3 - 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 (⓪) keys for 5 seconds.
When remote display is active, the **°C** and **°F** icons blink.

You will be asked to type in the value of **Adr**.

To return to the default menu:

- Hold down the (⌃) and (⓪) 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:
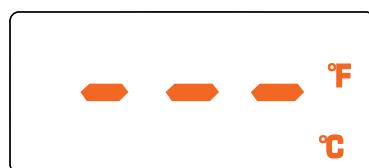
5.3 - REGULATORS

5.3.1 - LINK² NETWORK

A local network (**LINK²**) can comprise up to 8 **RTN400** devices and allows only one of the devices to be connected to the Modbus supervision network.

5.3.1.1 - Supervision Gateway

Cabling for supervision can be simplified via the LINK² network.
More specifically, the **RS485 supervision line** can be connected to any of the LINK²PCBs.

The latter will automatically "sort" communication with other PCBs.

The **RS485** network does not need any specific configuration for addresses as it uses those set for network supervision (parameter **Adr)**.

5.3.1.2 - Shared temperature probe

One of the 5 temperature probes (ST1…ST5) or the virtual probe can be shared via the LINK² network.

EXAMPLE: A typical example is the sharing of the regulation probe
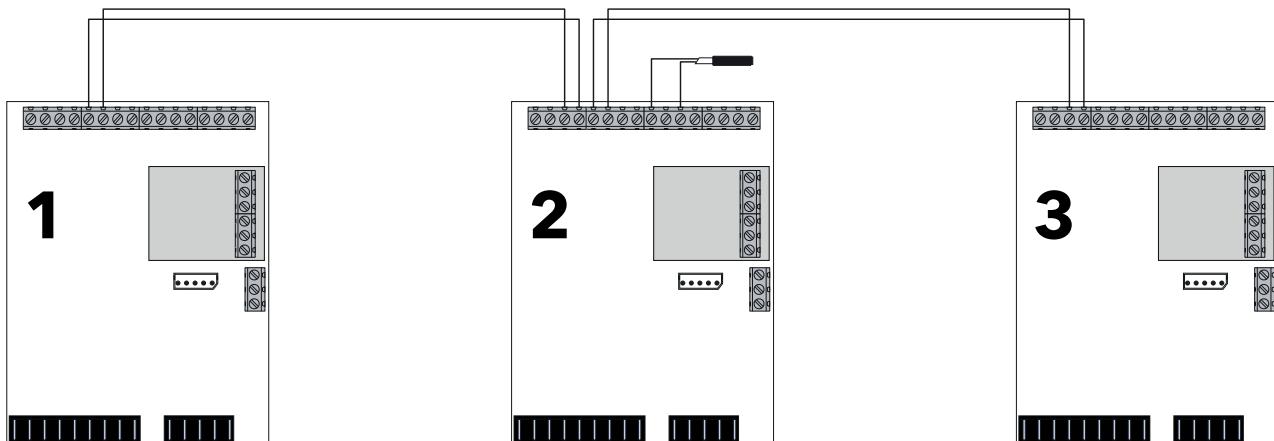
1	**2**	**3**
L00 = diS	**L00 = Pb1**	**L00 = diS**
rP1 = LP	**rP1 = Pb1**	**rP1 = LP**

5.3.1.3 - Defrost

Defrosting of various devices in the network can be coordinated via the LINK^2 network.

Coordination can be enabled via parameter **L03 = yES** in the device that will be coordinating the defrost.
This parameter can also be used to indicate if, on termination of defrost, the device should wait for all devices to finish before reactivating regulation.
Nevertheless, there is a time-out in this mode (parameter L10) that forces regulation to reactivate if, during this time, the coordinating device has not reactivated regulation (e.g. the LINK^2 network was interrupted during defrost.)

💡 **EXAMPLE 1**: An explanation of how to configure a current defrost is provided below, while resources are blocked.
The coordinating device is device no.1.
Value **x** for **L10** represents the number of minutes delay set whereas dE1/dE2 the defrost time-out set by the coordinating device.

1	2	3
L03 = yES	L03 = no	L03 = no
L04 = dEP	L04 = dEP	L04 = dEP
L10 = x	L10 = x	L10 = x
dOH = 0	dOH = 0	dOH = 0
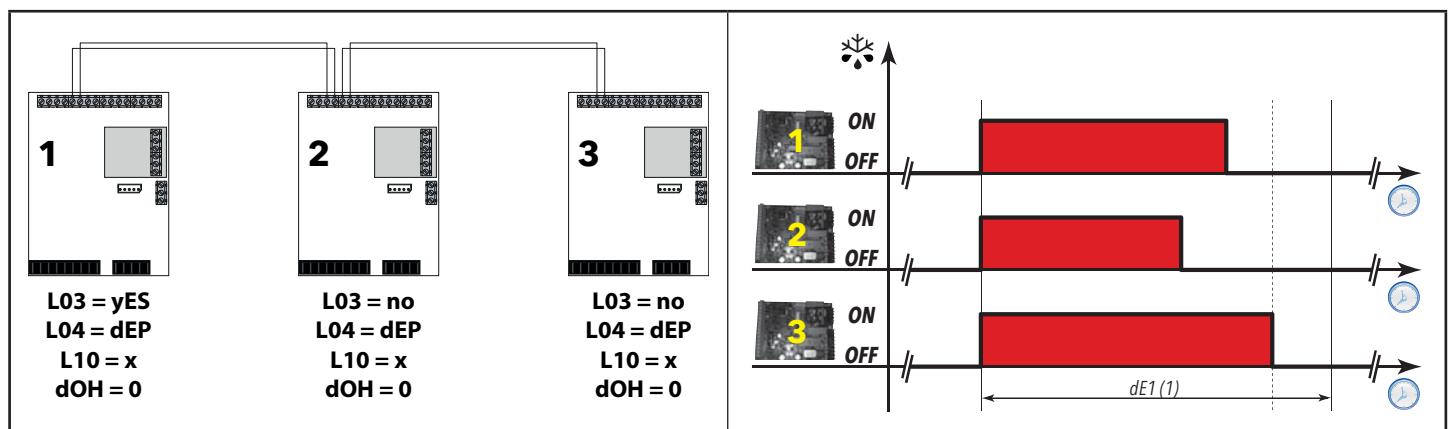
👉 **N.B.**: When parameter **L04 = dEP**, it is suggested that you disable all the active defrosts.
In this situation parameter **L10** is used.

--- • --- • --- • --- • --- • --- • --- • --- • --- • ---

💡 **EXAMPLE 2**: If you want to run a sequential defrost, set parameter **dOH** to activate defrosts sequentially (in the following example, a 30-minute end of defrost time-out is used).

1	2	3
L03 = yES	L03 = no	L03 = no
L04 = ind	L04 = ind	L04 = ind
L10 = 0	L10 = 0	L10 = 0
dOH = 0	dOH = 30	dOH = 60
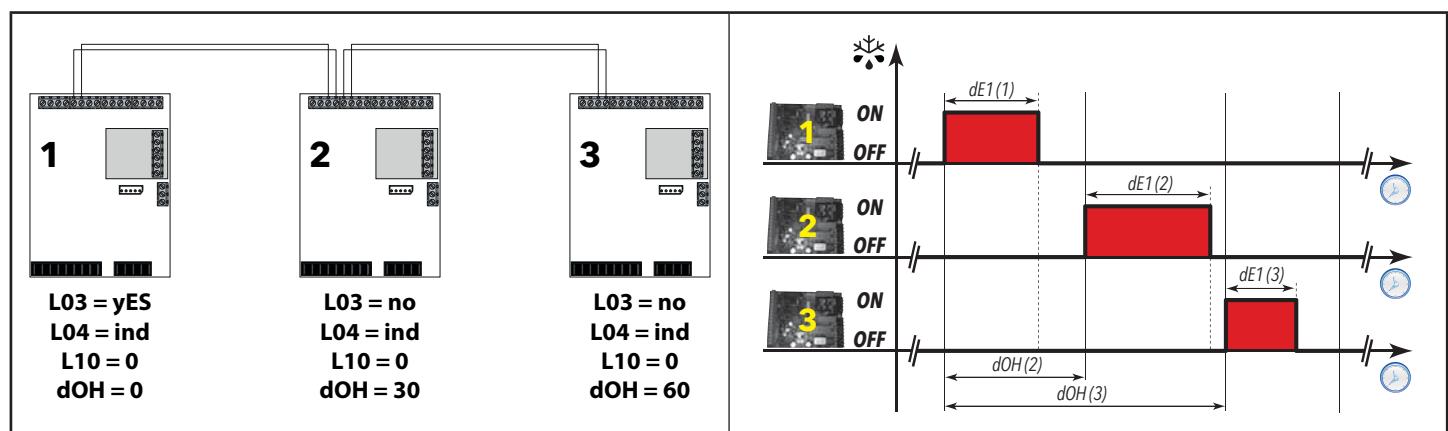
👉 **N.B.**: In this situation, parameter **L10** is not used even if its value is **L10 > 0**.

The PCBs can implement a safety mechanism when communication between the LINK^2 network and the device coordinating defrost fails. To achieve this, the local defrost mode should be set to device hours, i.e. setting the value of parameter upper **dit** to the maximum time interval between two consecutive defrosts; this can then be sent to the coordinating device.

Every time the device receives a defrost request from the coordinating device, it resets timer **dit**.
If the PCB no longer receives the defrost command, after a time equal to **dit**, a defrost will be activated automatically and timer **dit** will be cleared and restarted from 0.

In the example below, the **Master** is the device that coordinates defrosts and the **Slave** is any of the other devices in the network. **Box** "**A**" specifies the exact time at which communication between the **slave** and the **master** stopped.
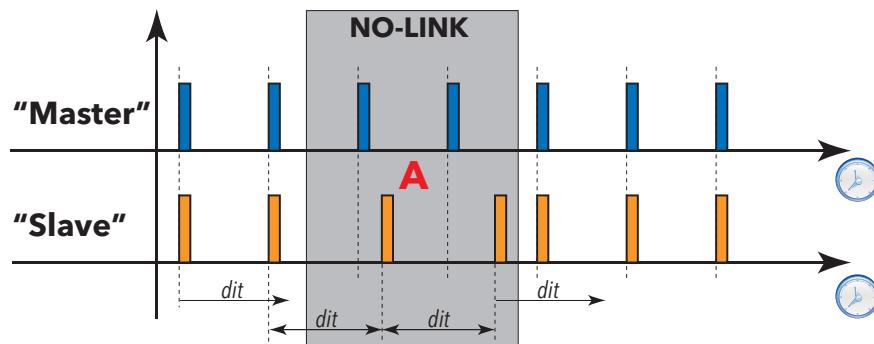
N.B.:
1. To operate correctly, set **dit >** maximum interval between 2 consecutive defrosts of the device configured as master for the defrost.
2. In the case of **dit = 0**, when there is a request from the device configured as master the slaves will defrost, but if the network communication stops the defrost will not be done.

5.3.1.4 - Shared display

To make sure that all keypads in the ducted counter show the same value, the display of a given PCB can be shared via the LINK^2 network.

EXAMPLE: In the following example, all PCBs will show the value of PCB no. 2.
PCB's 1 and 3 will show the value of the probe mounted on PCB 2, which was selected via parameter **ddd**.

| L01 = 2 | L01 = 1 | L01 = 2 |
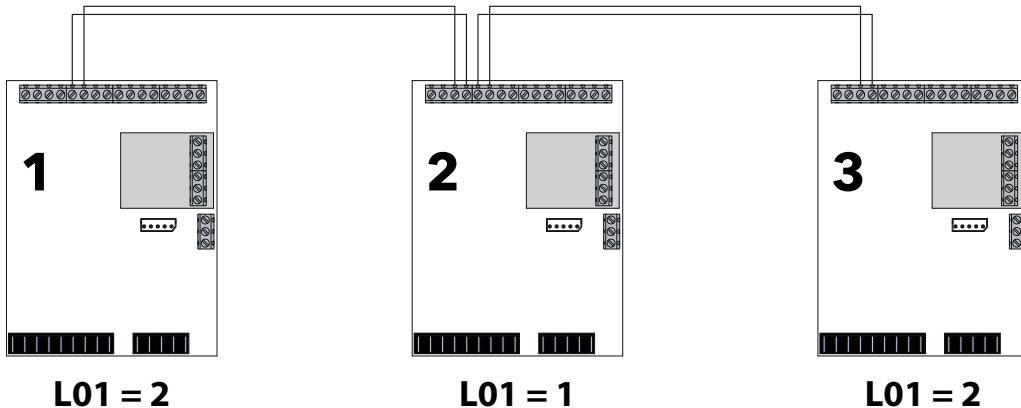
N.B.:
1. If PCB 2 (Master) has an activate alarm showing on the display (e.g. probe alarm), this is not shared with boards 1 and 3.
2. If PCB 2 shares the value of a probe in error, the other boards will show the reading set in local parameter **ddd**.
3. If board 1 and/or 3 have any additional alarms (e.g. local probe alarms), these will be displayed (locally).
4. If PBC 1 and/or 3 do not receive the distributed display (LINK^2 signal interrupted), they will show the reading selected in local parameter **ddd**.

5.3.1.5 - Shared setpoint value

The regulation setpoint SP1 can be shared with all PCBs via the LINK[2] network.
IF the setpoint is modified for any one of the PCBs in the LINK[2] network, the setpoint will be automatically updated in all other PCBs in the LINK[2] network.

L02 = yES   **L02 = yES**   **L02 = yES**
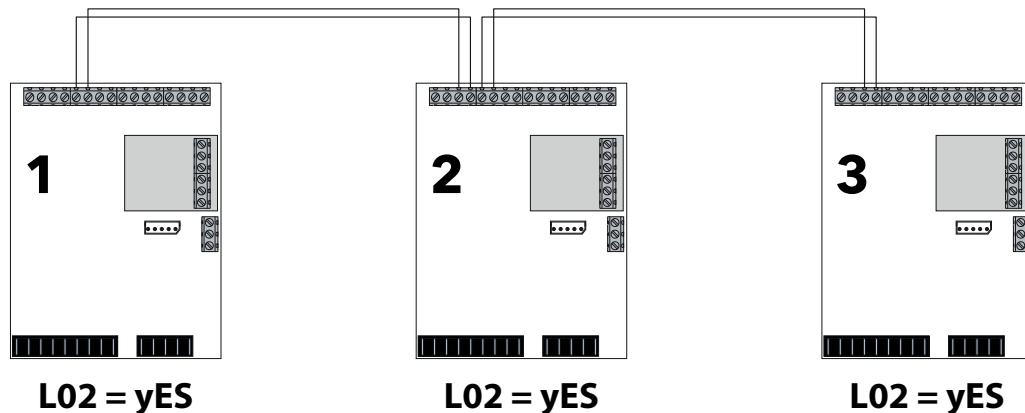
N.B.: When parameter **L02 = yES**, if the setpoint value is changed in any one of the devices, the same value will be set in all the other network devices.
If one of the devices is disconnected from the network or if the communication stops after a change of setpoint value, it will continue to use the new set value.

5.3.1.6 - Shared commands

The following commands can be shared via the LINK[2] network:

- Stand-By
- Lights
- AUX
- Energy Saving

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

User parameters

The parameters that manage this regulator are:

Label	Description
rP1	Sets which regulation 1 probe to use.
dit	Interval between the start of two consecutive defrost cycles. 0 = function disabled.
dOH	Time delay to activate defrost cycle after request.
L00	Selects which probe to share.
L01	Shares the value displayed with the LAN network.
L02	Sends the setpoint value to the LAN network after it has been modified.
L03	Enables the defrost request to be sent to the LAN network.
L04	End defrost mode. ind = independent; dEP = dependent.
L05	Enables the Stand-by command to be synchronized. yes = yes; no = no.
L06	Enables the light command to be synchronized. yes = yes; no = no.
L07	Enables the Energy Saving command to be synchronized. yes = yes; no = no.
L08	Enables the AUX command to be synchronized. yes = yes; no = no.
L10	Sets the time delay to be set after the end of dependent defrosts.
Adr	Modbus protocol controller address.
ddd	Selects type of value to display.

5.3.2 - REGULATION

RTN400 offers a selection of different regulation modes:

- Single thermostat.
- Double "series" thermostat.
- Double "parallel" thermostat.

N.B.: when working with a "single thermostat", you can have an auxiliary regulator for user-customized applications (e.g. light sensor management, etc.).

5.3.2.1 - Single thermostat

The standard regulator is activated by parameter **rE = 0** or **rE = 4** (in the latter case, the auxiliary regulator is also active).
This regulator can work in both hot and cold (parameter **HC1**).
The regulation differential can be managed as a relative or absolute value for standard regulator **rE = 0** only:

RELATIVE DIFFERENTIAL (current ID):
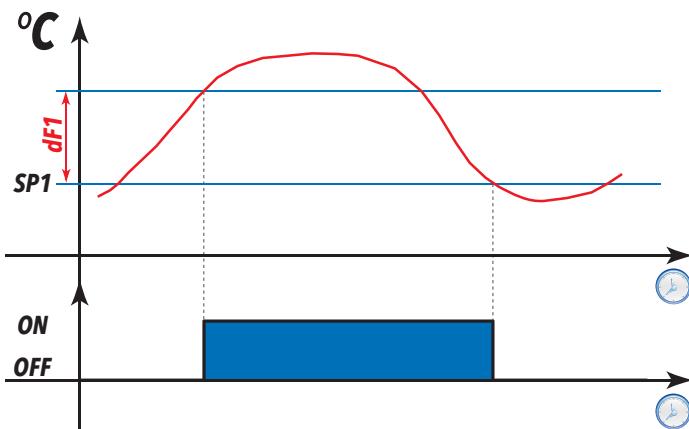
Relative differential for
ON-OFF regulator **COOL**
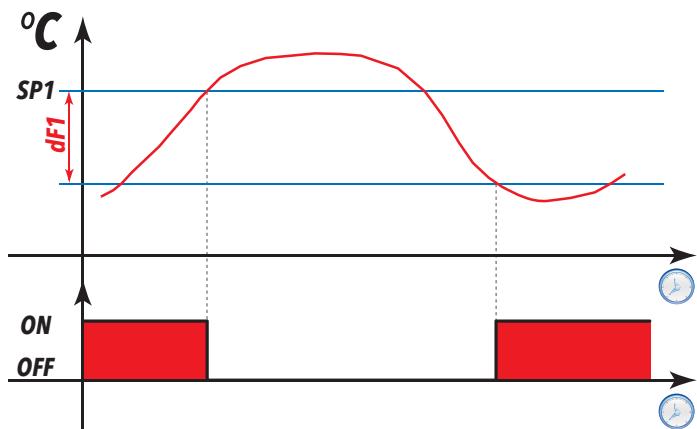
Relative differential for
ON-OFF regulator **HEAT**

ABSOLUTE DIFFERENTIAL:
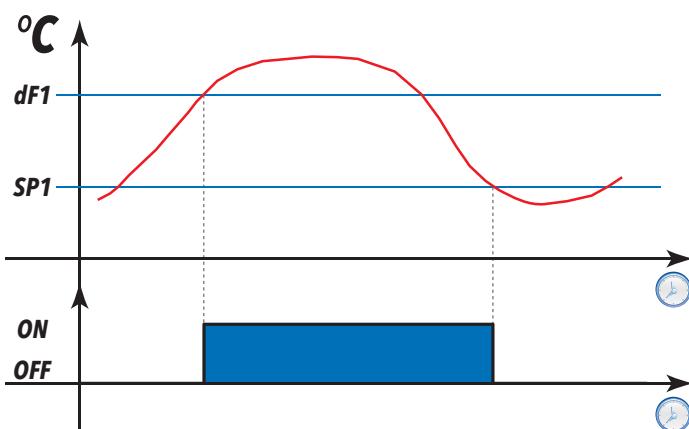
Absolute differential for
ON-OFF regulator **COOL**
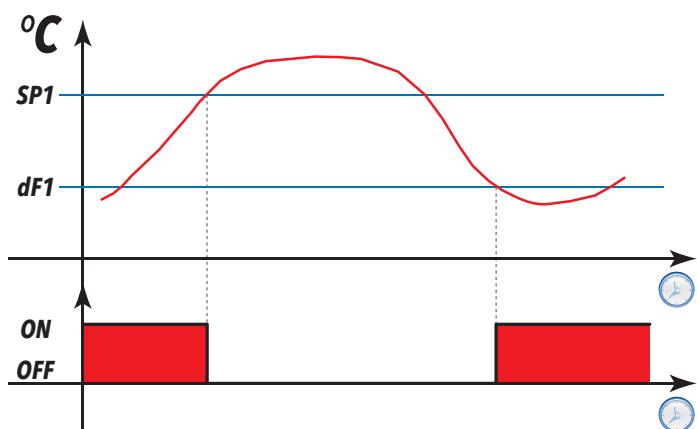
Absolute differential for
ON-OFF regulator **HEAT**

5.3.2.2 - Double "series" thermostat

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. If one or both of the thermostats has a probe error, the regulation will use the probe error parameters. In the diagram below, **1_T1** is the probe set as thermostat 1, and **1_T2** is the probe set as thermostat 2.
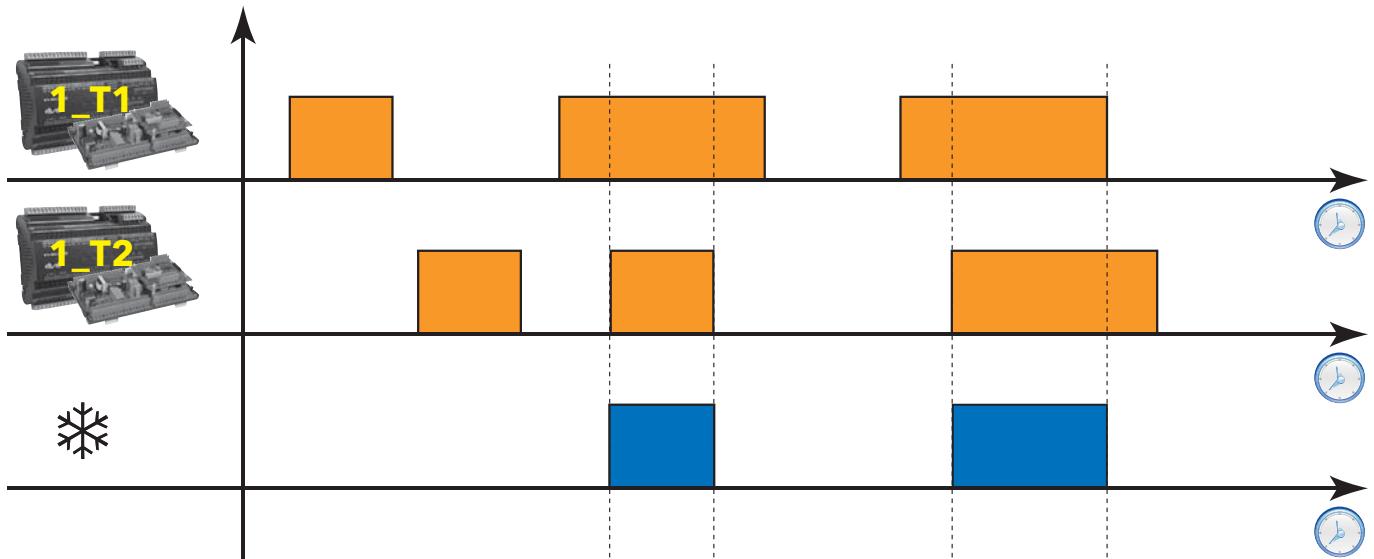
5.3.2.3 - Double "parallel" thermostat

This regulator activates cold/hot only if both thermostats have been requested, and disables it when both thermostats have been satisfied. If one or both of the thermostats has a probe error, the regulation will use the probe error parameters.
In the diagram below, **1_T1** is the probe set as thermostat 1, and **1_T2** is the probe set as thermostat 2.
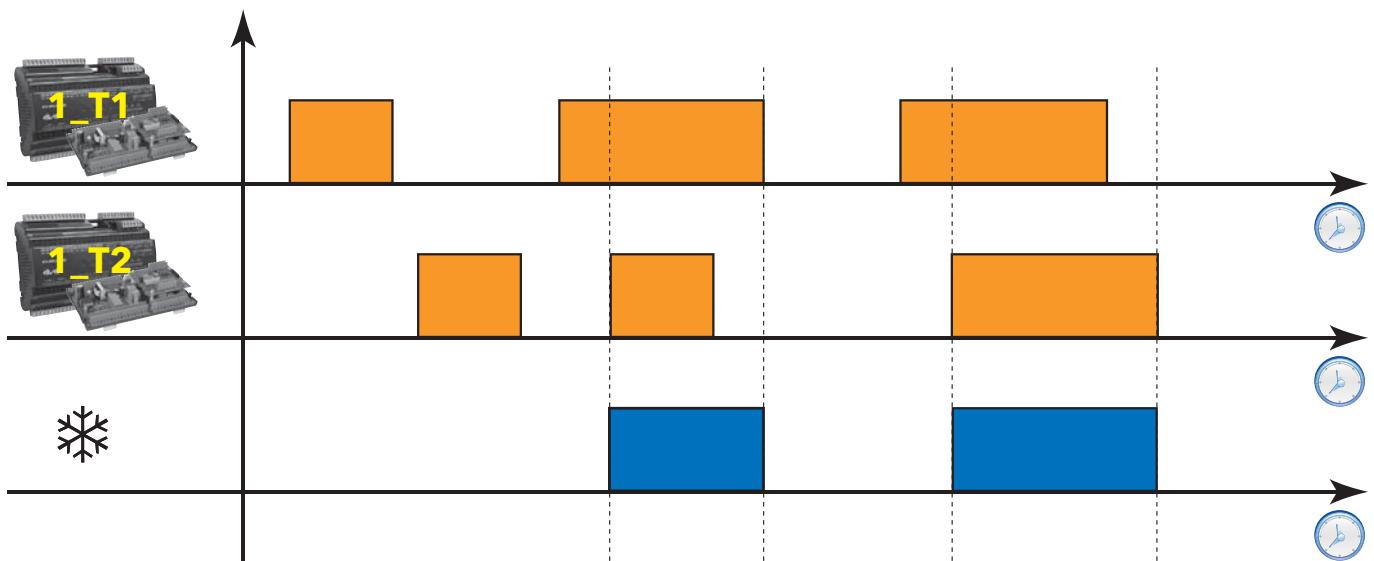
5.3.2.4 - Double compressor

In all the possible regulation modes, apart from two power step regulation, an additional compressor output can be controlled. This is enabled after a delay after the activation of the first output (**Compr n°1**), set by parameter **CP2**, and disabled at the same time as the first compressor.

This second output has no safety timer in that it follows immediately after the enabling of the first output and its associated safety timers.

5.3.2.5 - Auxiliary regulation

In addition to the standard regulator, an auxiliary regulator can be implemented by setting **rE = 4**.
This regulator:

- Can function in both modes: HEAT and COOL.
- Has its own setpoint (**SP2**) and differential (**dF2**).
- Has no safety timer, except for the time delay in **OdO**.
- In the event of a probe error, the output will always be OFF.

This regulator is independent from other regulations, with the exception of stand-by, where the output is set to OFF.
The output associated to the regulator is: **Reg AUX**.

This regulator can be used, for example, to manage the light based on a light sensor connected to one of the five inputs Pb1…Pb5
(in this case, the setpoint and the differential, should be set according to the transcodification tables for compatible sensors. Contact
Eliwell for assistance with choosing sensors and for transcodification tables).

5.3.2.5 - Regulation in the event of a probe error

If a probe error occurs for regulator 1, and/or regulator 2 when there is a double thermostat, the output will be managed in
accordance with parameters **Ont** and **OFt**.

5.3.2.7 - Safety timing

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 where:

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

5.3.2.8 - Energy Saving

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

- From a digital input (when configured appropriately).
- From a key (when configured appropriately).
- By remote (from supervision system directly).
- Via RTC (when configured appropriately).
- Via LINK[2].

In these modes, offsets **OS1** and **OS2** are added to regulation setpoints **SP1** and **SP2**.
If the auxiliary regulator is active, the offset will also be added.

👉 **N.B.**: if you don't want the offset to be added to the auxiliary regulator as well, set **OS2** = 0

In this mode, the value of the underlying differential will also be changed, **dF1** will be replaced by **dn1** and **dF2** by **dn2**.
If the auxiliary regulator is active, the differential will also be added.

👉 **N.B.**: if you don't want to change the value of the differential in Energy Saving mode, just set **dn1**=**dF1**, and **dn2**=**dF2**.

5.3.2.9 - Remote Offset (managed by Supervisor only)

Using the serial commands you can increase/decrease the current value of the regulation setpoint for quantity **OF1** (which is added to setpoint **SP1** and setpoint **OS1** or **Od1 if they have been set**).

⚠️ **CAUTION**: this increase/decrease only applies to the first setpoint (**SP1**).

This function is normally used for hot gas defrost installations where a certain number of counters must be chilling to assure there is enough hot gas for the defrost to be carried out effectively.

User parameters

The parameters that manage this regulator are:

Label	Description
rE	Sets the type of regulation to be implemented.
SP1	Temperature regulation setpoint.
dF1	Activation differential (absolute or relative).
SP2	Thermostat 2 temperature regulation setpoint.
dF2	Activation differential of the second thermostat (absolute or relative).
HC1	Thermostat 1 mode.
HC2	Thermostat 2 mode.
Ont	Controller switch-on time in the event of faulty probe.
OFt	Controller switch-off time in the event of a faulty probe.
dOn	Time delay to activate compressor output after request.
dOF	Time delay to activate compressor output after switching off.
dbi	Time delay between two consecutive switch ons of compressor output.
OdO	Delay in activating outputs after the instrument is switched on or after a power failure.
Cdt	Door close time.
ESo	Cumulative door opening time to disable Energy Saving mode.
OS1	Setpoint offset 1.
OS2	Setpoint offset 2.
Od1	Energy Saving Offset 1 glass door display cabinets.
Od2	Energy Saving Offset 2 glass door display cabinets.
dn1	Activation differential 1 in energy saving mode.
dn2	Activation differential 2 in energy saving mode.

5.3.3 - COMPRESSOR/GENERAL PROTECTIONS

Description

If the cold room probe is in error "E1", the relay of the output configured as compressor/general regulates in line with the timings set in parameters **Ont** and **Oft**.

The first time to consider is **Ont**.
If **Ont > 0**, the protection programmed in parameters **dOn**-**dOF**-**dbi** must however be observed
(see compressor safety timings).

👉 **N.B.**:   You are reminded that parameter **OdO** inhibits the activation of all outputs commanding a relay for its entire duration (compressor/general, defrost, fans), 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:   il regolatore compressore sarà sempre attivo.

If **Ont** > 0 and **OFt** > 0:   il regolatore compressore attua in modalità ciclo di lavoro ma indipendentemente da i valori assunti dalle sonde (sonda cella guasta) e da richieste di altre utenze (modalità **Duty Cycle**).

If the cabinet 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**:
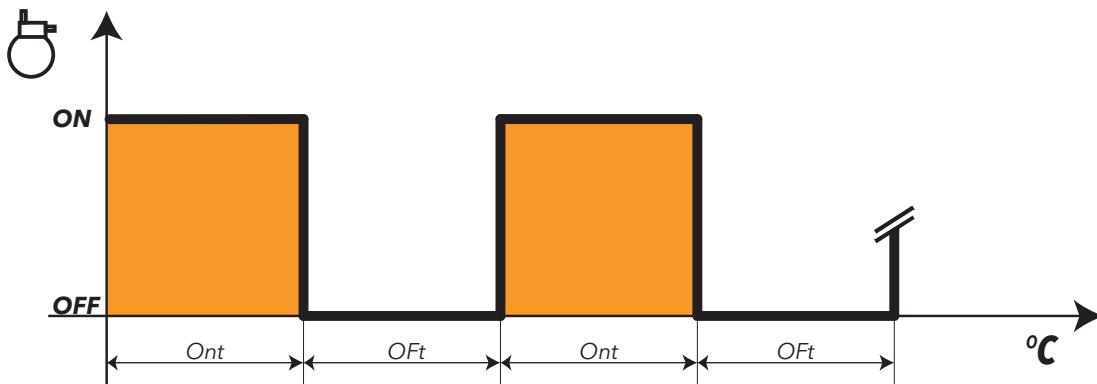
5.3.3.1 - Compressor safety times

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 where:

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

N.B.: See the section entitled Compressor Function During Defrost for other safety measures and compressor timings.

User parameters

The parameters that manage this regulator are:

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

5.3.4 - DEFROST/COIL DRAINAGE

5.3.4.1 - Enable defrost

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

- automatically, in one of the following modes as set in **dCt**:
  - compressor hours (Digifrost).
  - device hours.
  - compressor stop.
  - by clock time (see the relative RTC section below).
  - by probe (this does not apply in double evaporator systems).
- via LINK[2].
- from DI.
- from a key.
- by remote.

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

1. defrost by electrical heater.
2. defrost by electrical heater. Smart Defrost.
3. reverse cycle.
4. hot gas for plug-ins.
5. hot gas for counters with remote unit.

Coil drainage

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 drainage interval is regulated via parameter **dt**.

Defrost conditions and function

Defrosting is enabled if **OdO** has elapsed and:

- The evaporator temperature, read by probe 2, is less that the end defrost time set in parameter **dS1**.
- 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.
automatically	La partenza del ciclo di sbrinamento è programmata ad intervalli se **dit**>0 ogni volta che scade il tempo intervallo sbrinamento impostato al parametro **dit**. Per non effettuare lo sbrinamento automatico è necessario impostare **dit**=0. (vedere paragrafo relativo).
via LINK[2]	Impostando **L03 = yES** (vedere paragrafo relativo).
from D.I. (External request)	If D.I. appropriately configured. Activation from D.I. respects the protections of the automatic cycle. When OdO≠0 the cycle does not start, the request is rejected and the display blinks three times to indicate that defrost is not possible.
from a key (Manually)	By pressing key ⌃ if enabled (H31 = 1). When **OdO≠0** the cycle does not start, the request is rejected and the display blinks three times to indicate that defrost is not possible.
by remote	Mediante comandi Modbus.

5.3.4.2 - Automatic defrost

The defrost cycle is programmed to start at intervals.

👉 **N.B.**: To disable the automatic cycle, set **dit**=0.

If **dit>0**, defrosts will take place at fixed intervals as set in parameter **dit** and the interval time is calculated as follows:

Parameter	Value	M.U.	Description	Note
dCt	0	num	Defrost 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 internal evaporator temperature. If the evaporator probe is missing or faulty, the count will always activate during the compressor on time.
	2	num	Controller running time	The defrost time interval is counted continuously when the controller is on and starts at each power-on. A defrost cycle starts when the defrost interval elapses (indicated by dit) if conditions permit and the controller immediately starts counting a new defrost interval.
	3	num	Compressor stop	Every time the compressor stops, a defrost is carried out in the mode set in parameter **dty**.
	4	num	RTC (clock)	The following can be set using the clock: • Defrost times (**6** time bands on weekdays and **6** bands for weekends and public holidays). • Periodical defrost (every **n** days). • Daily events (**1** event for weekdays and **1** event for weekends and public holidays). Time band defrosts and periodic defrost operate in a mutually exclusively way (they do not operate at the same time). If defrost by RTC has been enabled and the clock has failed, the defrost will run according to the mode set in **dit** (provided ≠ **0**).
	5	num	Temperature	Defrost activates when the evaporator temperature drops below the **dSS** threshold and the time **dit** has elapsed. If probe dP1 fails, defrost activates on the basis of interval **dit**.

⚠️ **CAUTION**: in all interval count modes, the following conditions apply.

If the time delay set in **OdO** is under way or if the evaporator probe temperature is greater than **dS1**, then the conditions for defrost have not been fulfilled: another count will commence and only on completion of this new count will the start defrost conditions be tested again.

5.3.4.3 - Manual defrost

If you press the manual defrost key ⌃ (or from Digital Input if configured with **H11...H18 = 1**), the device will start defrost. Procedures for the activation of this defrost cycle are the same as for external defrost.

The defrost interval count proceeds as described earlier under Automatic Defrost (time **dE1** is not cleared and allowed to continue).

If the conditions to start defrost have not been fulfilled, i.e.:

- The time set in parameter **OdO** has not elapsed.
- The evaporator temperature is greater 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.

5.3.4.4 - External Defrost

If the Digital Input has been configured for this function (if **H11 ... H18 = 1**), a defrost request can be made and the relative regulator activated if the necessary conditions have been fulfilled.
Time graphs for signals in each of the various function modes are presented below.

⚠️ **CAUTION**: The defrost activates on the leading edge of the signal (toggle) and the polarity can be selected.
Hence you can only activate a defrost, NOT stop one that is underway.
Defrost or dripping currently under way and the count of defrost or dripping time cannot be suspended.

IN (Digital Input)	Input state for defrost regulator, with activation from Digital Input.
OUT (Defrost)	Output state for defrost regulator.
DurDI	Digital Input duration.
N.B.:	**dS1** indicates the time to end of defrost and to reach setpoint temperature, whereas **dE1** indicates the end of defrost time-out.

The control diagram is as follows:
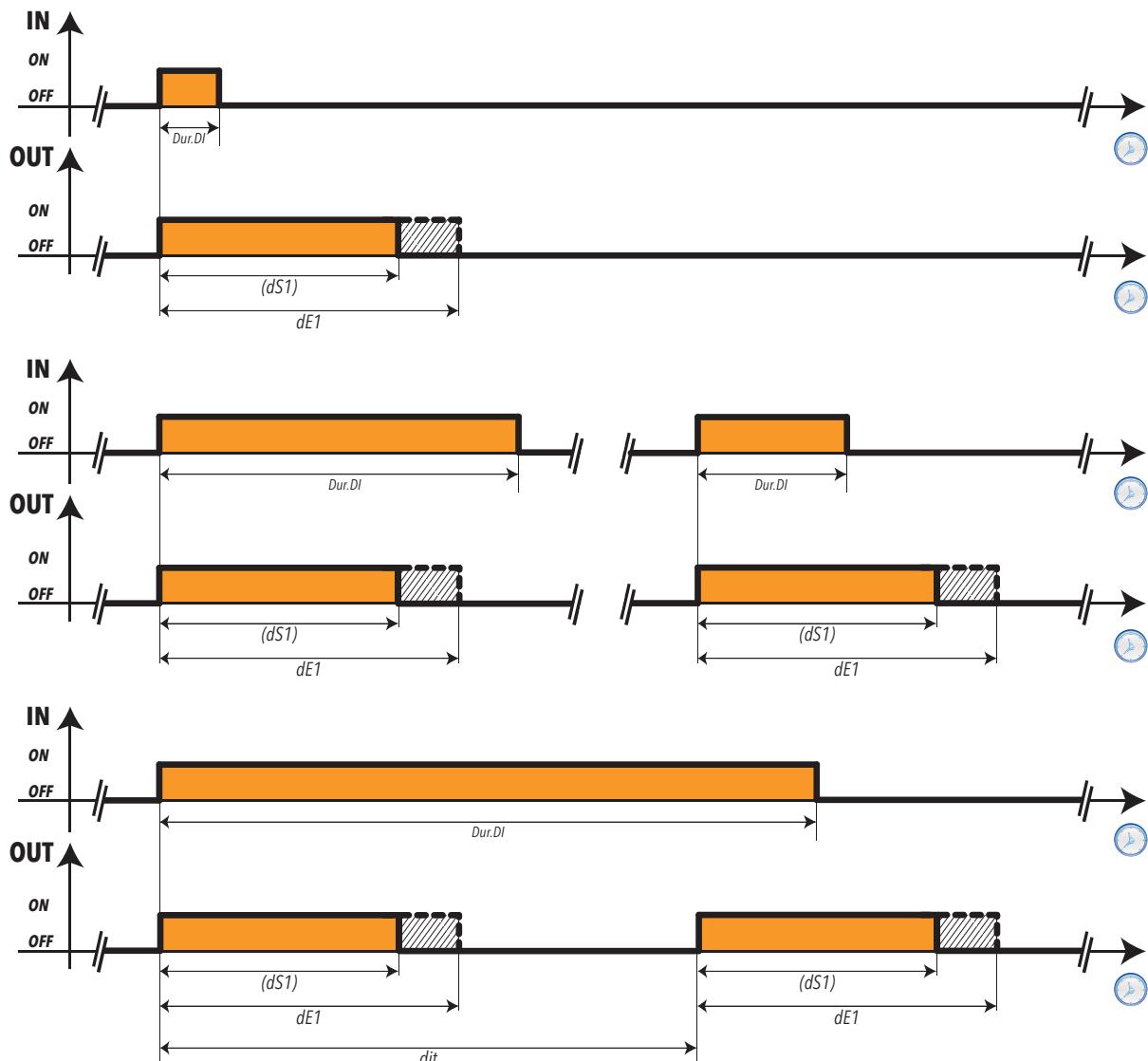
5.3.4.5 - Defrost mode

Defrost by electrical heater

Defrost with electrical heaters is configured by setting **dtY = 0**.
It is used in "**LOW TEMPERATURE**" applications.

The compressor stops for the duration of the defrost cycle and the relay configured as defrost regulator output, and that the electrical heaters are connected to, activates. On completion of defrost, the heaters will be switched off and the compressor will stop for the dripping time set in parameter **dt** if different form zero.

Defrost ends due to:

Evaporator Probe (dP1)	End of defrost description
dP1 ABSENT	For time-out set in parameter **dE1** (defrost time-out)
dP1 PRESENT	On reaching end of defrost temperature setpoint configured in parameter **dS1**. If this setpoint is not reached by the time set in parameter **dE1** (defrost time-out), the defrost will stop due to time-out.

N.B.:
- If **dS1** activates before **dE1**, dripping (**dt** and **Fdt**) behaves as set in **dS1**.
- If **Fdt** < **dt**, the setting is **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:
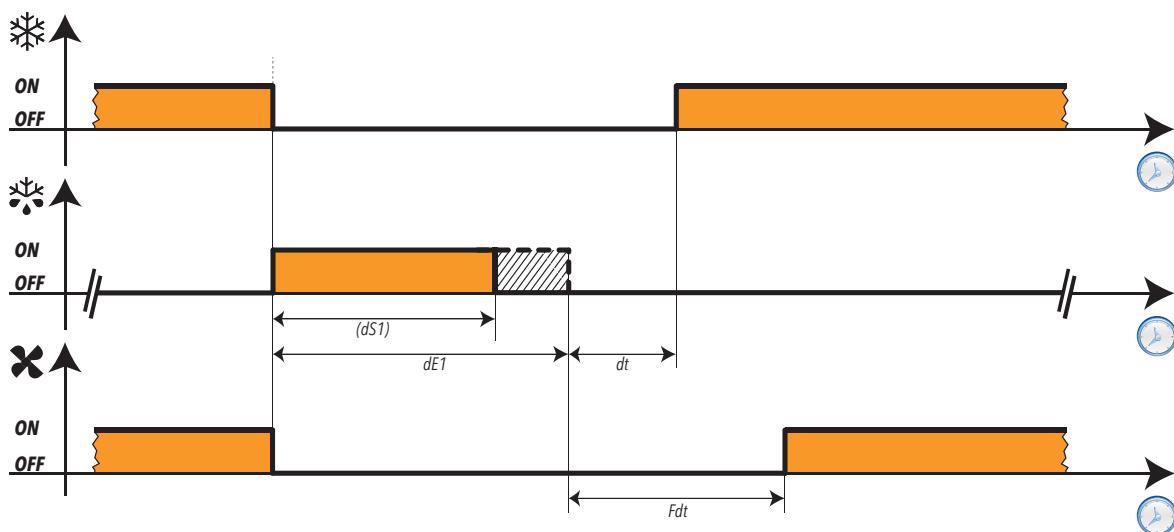
Legend:

❄	Output state for **compressor** regulator
❄	Output state for **defrost** regulator
✖	Output state for **evaporator fans** regulator

Defrost by electrical heater: Smart Defrost.

This algorithm optimizes defrost by using heaters.
This algorithm can be used to reduce the end of defrost setpoint as compared to the standard mode; the controller modulates the heaters appropriately and detects if the ice has fully melted, and therefore if defrost can be stopped (before time-out **dE1**).

N.B.:
- This algorithm applies to both single and double evaporation applications.
- The function is active if **dty = 4** and stops within time (**dE1**) or at temperature (**dS1**).
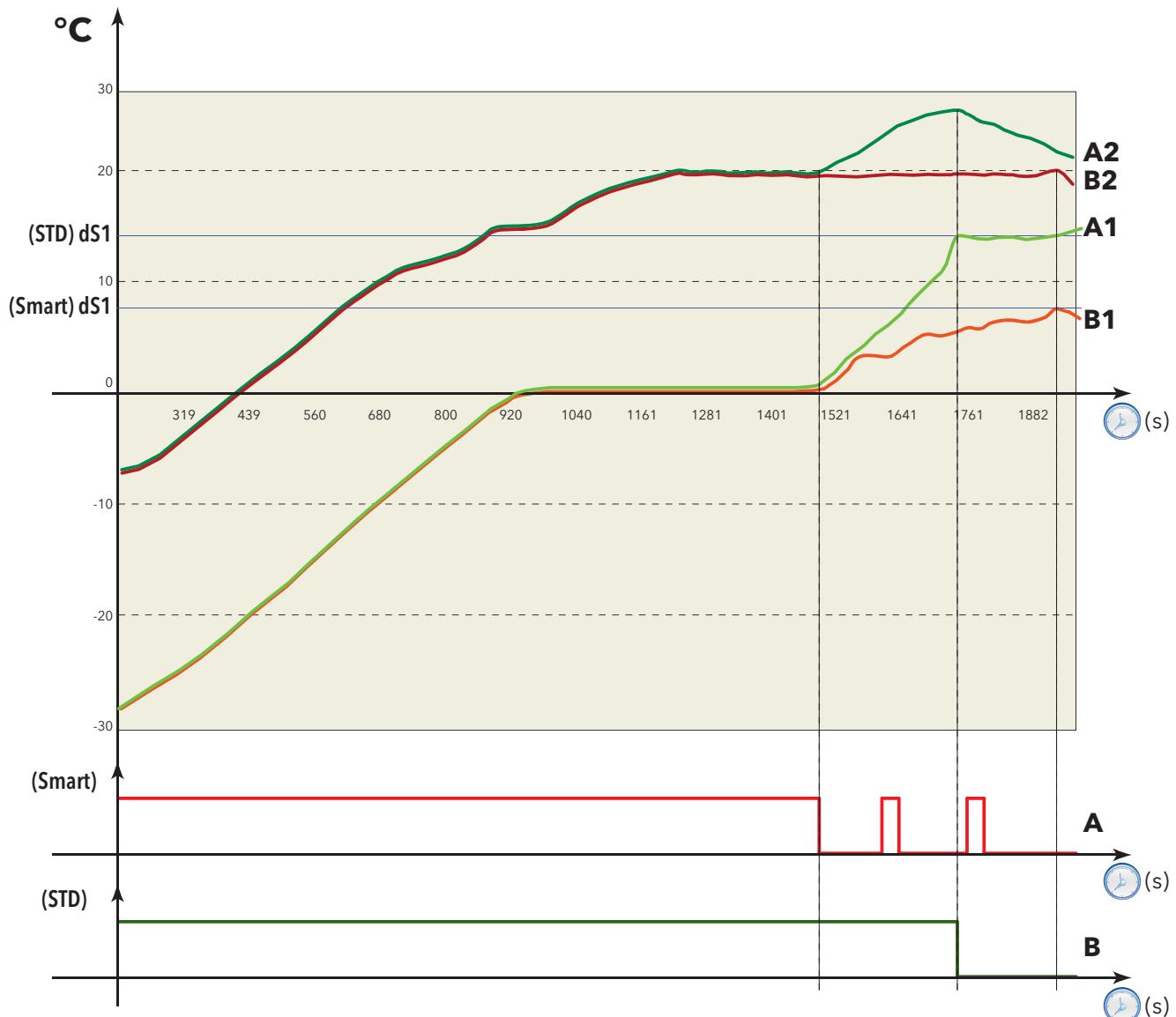
The meaning of each of the letters in the graph is provided in the table below:

Key	Description of Curve
A	"Standard Defrost" Relay Activation
A1	"Standard Defrost" Evaporator Temperature
A2	"Standard Defrost" Counter Temperature
B	"Smart Defrost" Relay Activation
B1	"Smart Defrost" Evaporator Temperature
B2	"Smart Defrost" Counter Temperature

The configuration of this mode is similar to traditional defrost.
The time-out to be set is the same, whereas the end of defrost setpoint can be reduced.

Reverse cycle 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-energized and the coil drainage 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	For time-out set in parameter **dE1** (defrost time-out)
dP1 PRESENT	On reaching end of defrost temperature setpoint configured in parameter **dS1**. If this setpoint is not reached by the time set in parameter **dE1** (defrost time-out), the defrost will stop due to time-out.

CAUTION: Parameters **dOn**, **dOF** and **dbi** always take priority however.

NOTES:
- If **dS1** activates before **dE1**, dripping (**dt** and **Fdt**) behaves as set in **dS1**.
- If **Fdt** < **dt**, the setting is **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 Period
Draining	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Defrost Output	= Defrost output

Example tcd<0

Defrost Request	= Start defrost request
Defrost	= Defrost Period
Draining	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Defrost Output	= Defrost output
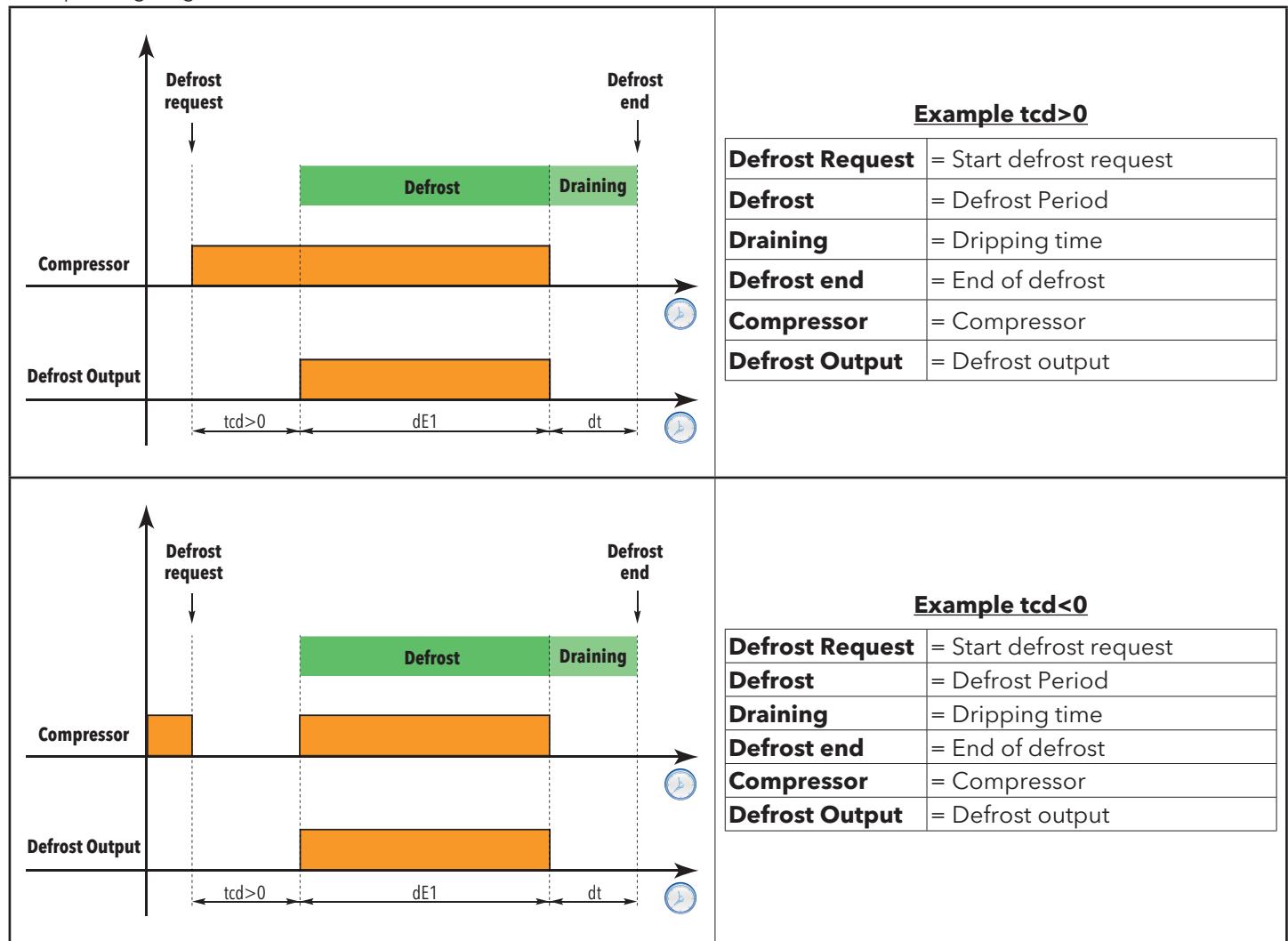
Hot gas defrost for plug-in systems

The hot gas defrost for **PLUG-IN** systems differs from the reverse cycle defrost in that the gas must be heated up appropriately before starting defrost.

The defrost cycle comprises the following phases (or a sub-group of them):

- **Deep-cooling**:   gas heated and cold built up in counter for time set in **tcd** > 0.
- **Pump-down**:   evacuation of cold gas in evaporator, for the time set in **tPd** > 0.
- **Defrost**:   injection of hot gas for time of between **ndE** and **dE1**.
- **Dripping**:   completion of "evacuation" of water from evaporator (for time set in **dt**).
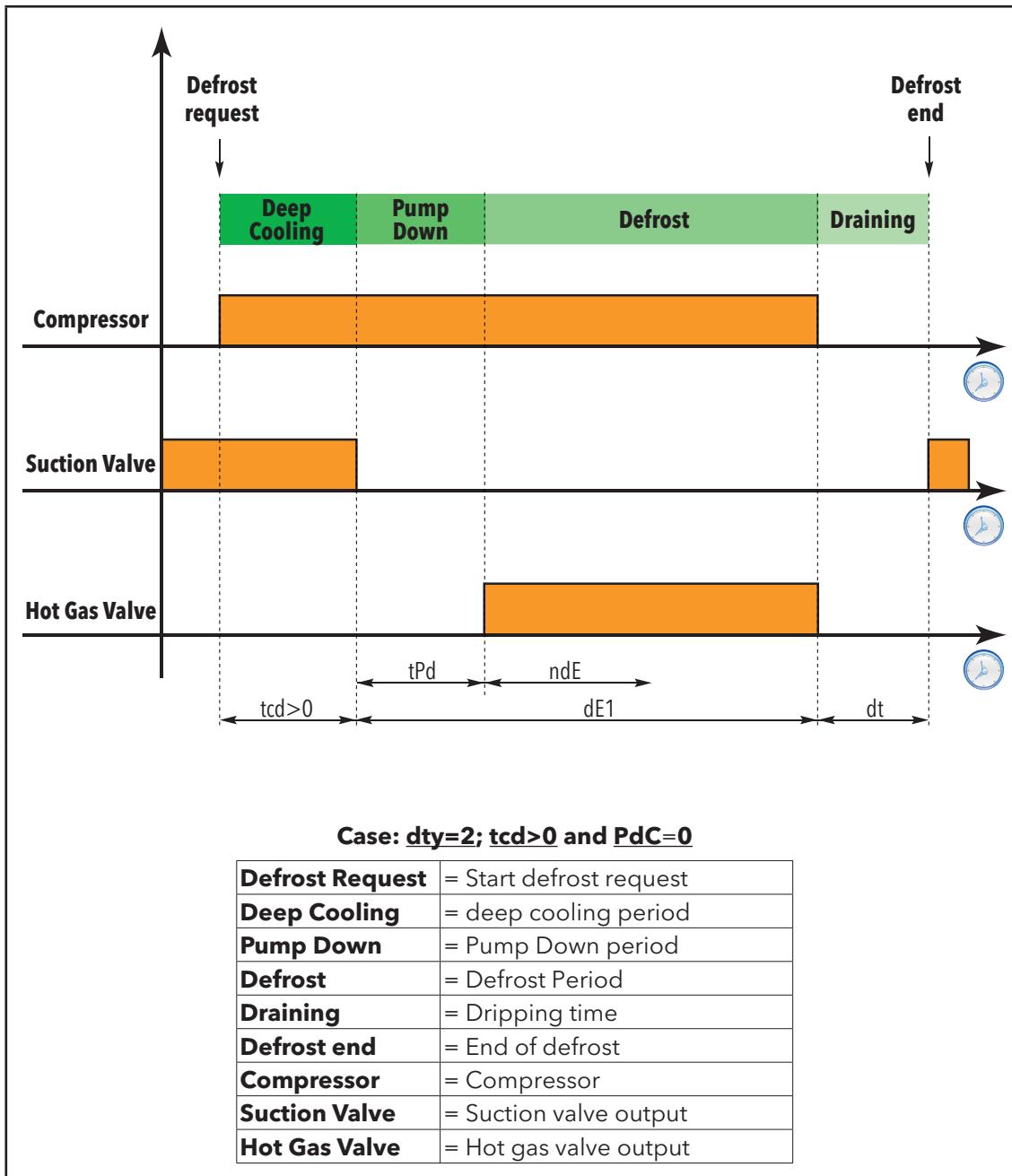
Case: <u>dty=2</u>; <u>tcd>0</u> and <u>PdC</u>=**0**

Defrost Request	= Start defrost request
Deep Cooling	= deep cooling period
Pump Down	= Pump Down period
Defrost	= Defrost Period
Draining	= Dripping time
Defrost end	= End of defrost
Compressor	= Compressor
Suction Valve	= Suction valve output
Hot Gas Valve	= Hot gas valve output

During the entire defrost phase:
- (if present and enabled) the EEV valve output is off (OFF).
- If **dFd = 0**, the fans are off (OFF).

Hot gas defrost for systems with remote unit

Hot gas defrost in **REMOTE-CONTROLLED** systems requires the following phases (or sub-groups of them):

- **Pump-down**: evacuation of cold gas in evaporator (parameter **tcd < 0**).
- **Defrost**: Injection of hot gas (for a time **Ti > ndE** and **Ti < dE1**).
- **Dripping**: completion of "evacuation" of water from evaporator (for time set in **dt**).
- **Pump-down**: evacuation of hot gas in evaporator, for time set in **PdC**.
- **Regulation**: if necessary, valve EEV reactivated.
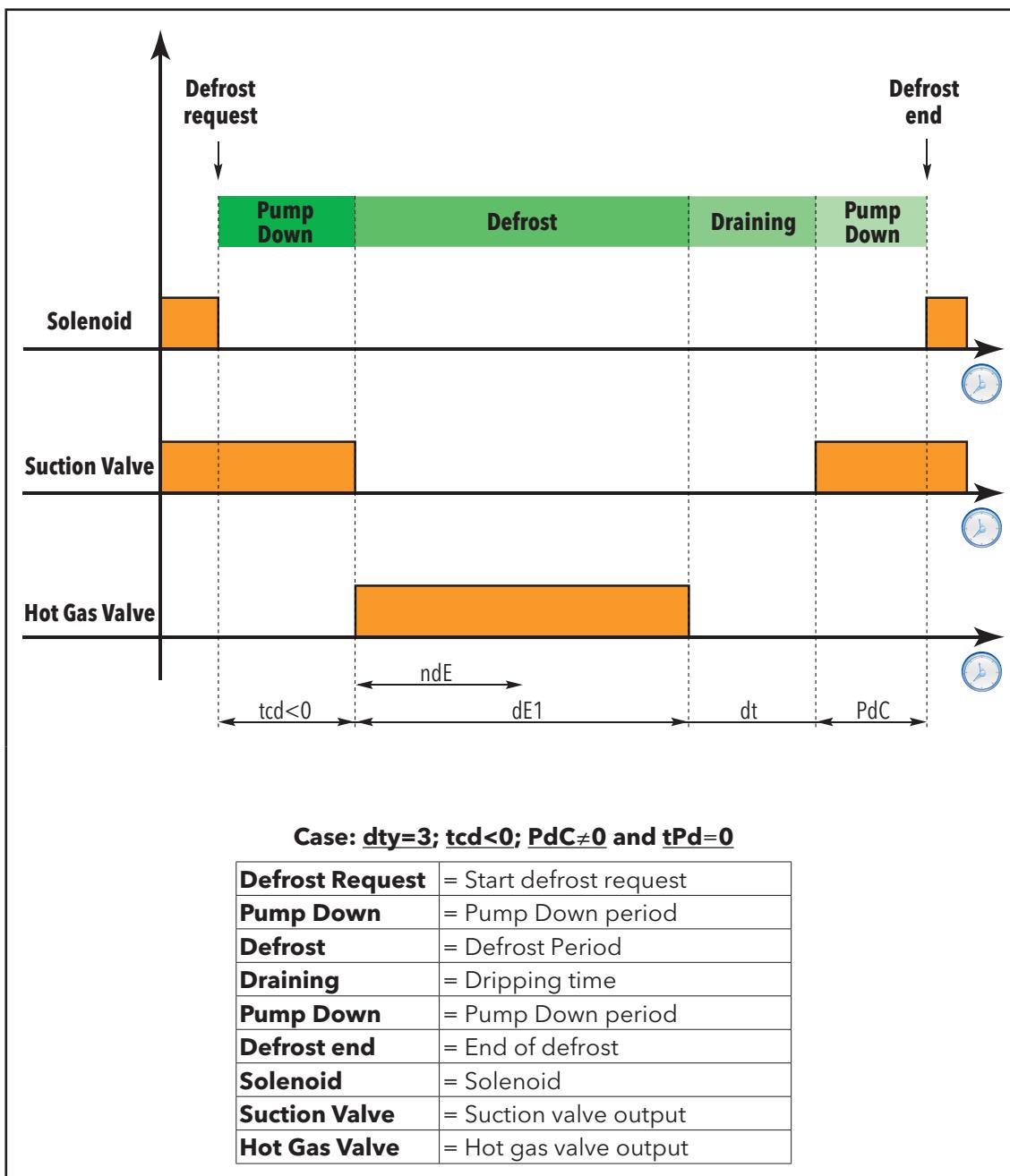
Case: <u>dty=3</u>; <u>tcd<0</u>; <u>PdC≠0</u> and <u>tPd=0</u>

Defrost Request	= Start defrost request
Pump Down	= Pump Down period
Defrost	= Defrost Period
Draining	= 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 entire defrost phase:
- (if present and enabled) the EEV valve output is off (OFF).
- If **dFd = 0**, the fans are off (OFF).

Double evaporator defrost

In double evaporator applications, defrost can be optimized using a probe and an output for each evaporator; this optimizes the heating phase for each evaporator in line with actual requirements.

N.B.:
1. This mode is active if at least two outputs have been configured as defrost (evap. 1 and evap. 2).
2. Each evaporator has its own end of defrost tie and time-out.

The decision regarding the fulfilment or otherwise of defrost conditions (temperature below threshold), given that there are two sensors (one per evaporator) can be made in one of the following ways:

- **dFt = 0**: check that only evaporator 1 sensor (**dP1**) is below threshold **dS1**.
- **dFt = 1**: at least one evaporator has fulfilled defrost conditions. Evaporator 1 defrost probe (**dP1**) is below threshold **dS1** e/o evaporator defrost probe 2 (**dP2**) is below threshold **dS2**.
- **dFt = 2**: both evaporators have fulfilled defrost conditions. Evaporator 1 defrost probe (**dP1**) is below threshold **dS1** and evaporator defrost probe 2 (**dP2**) is below threshold **dS2**.

The defrost of each evaporator stops when the following conditions are fulfilled:

- Time-out **dE1**/**dE2** has elapsed.
- Temperature **dS1**/**dS2** reached.

NOTE 1: The count of dripping time starts when both evaporators have stopped defrosting.

NOTE 2: If necessary, two sensors and one defrost output can be used as a control.
EXAMPLE: double evaporator, each with its own probe but shared defrost, or 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	Delay in activating defrost cycle after request
dE1	Evaporator 1 defrost time-out. Determines the maximum defrost duration
dE2	Evaporator 2 defrost time-out. Determines the maximum defrost duration
dS1	End of defrost temperature 1 - determined by evaporator 1 probe
dS2	End of defrost temperature 2 - determined by evaporator 2 probe
dSS	Start defrost temperature threshold (only if **dCt** = 5 - temperature)
dPO	Determines whether the instrument must enter defrost mode at power-on
Fdt	Delay in activating fans after a defrost cycle
dt	Coil drainage time
dFd	Allows exclusion of 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

5.3.5 - EVAPORATOR FANS

5.3.5.1 - Operating conditions

The regulator is activated provided that:
- The time set in parameter **OdO** has elapsed.
- The temperature of the evaporator probe is less than the value set in parameter **FSt**.
- It hasn't been excluded during defrost by parameter **dFd** (**dFd = On**).
- Dripping is not active (**dt**).
- Fan delay after defrost has not been implemented (**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

	FCO	DAY		NIGHT (Energy Saving)	
		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	INV DUTY-CYCLE DAY**	THERMOSTAT CONTROLLED	INV DUTY-CYCLE NIGHT**
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	INV DUTY-CYCLE NIGHT**
	4	ON	INV DUTY-CYCLE DAY**	ON	INV DUTY-CYCLE NIGHT**

*   see section on "Fan function when probe Pb2 is absent" (H42 = 0).
**   Function is the opposite of normal Duty-Cycle

Graphs explaining fan function based on the value of **FCO** are provided below.
In the graphs you will see:

Legend:

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

FCO = 0

- COOL
- PROBE OK
- PROBE KO — Fon/FoF — Fnn/FnF
- DAY — NIGHT

FCO = 1

- COOL
- PROBE OK
- PROBE KO
- DAY — NIGHT

FCO = 2

- COOL
- PROBE OK
- PROBE KO — Fon/FoF — Fnn/FnF
- DAY — NIGHT

FCO = 3

- COOL
- PROBE OK — Fon/FoF — Fnn/FnF
- PROBE KO — Fon/FoF — Fnn/FnF
- DAY — NIGHT

FCO = 4

- COOL
- PROBE OK — Fon/FoF — Fnn/FnF
- PROBE KO — Fon/FoF — Fnn/FnF
- DAY — NIGHT
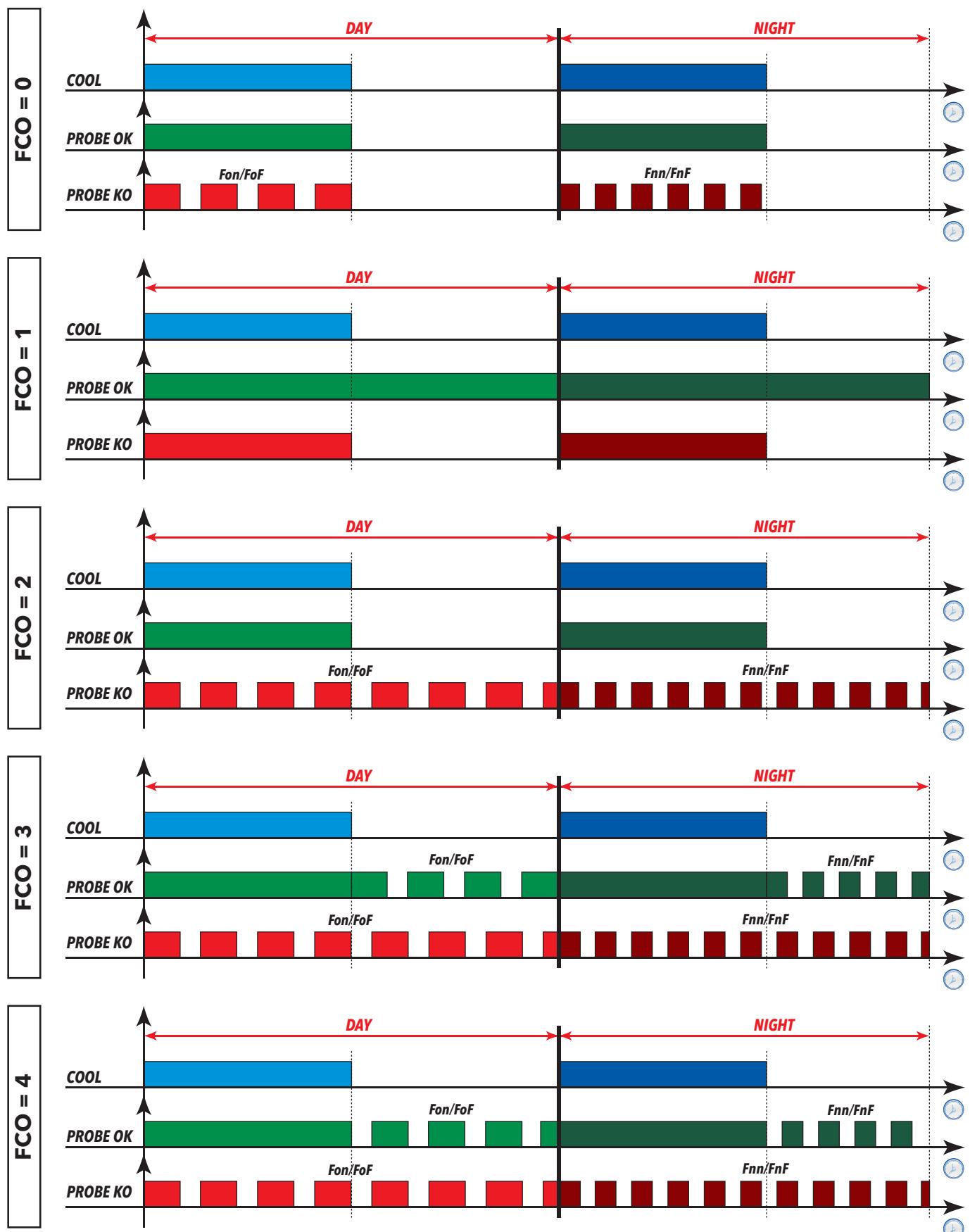
5.3.5.2 - Fan function in temperature control

During "cooling", the fans operate as shown in this diagram:

Thermostat control of fans takes place at the values set in parameters
- **FSt** (fans disabling temperature) and **FAd** (fans differential).

The block fan temperature set by parameters **FSt** (fan block temperature) and **FAd** (fan differential) is an absolute value since **FPt = 0** (actual temperature value).

> ⚠️ **CAUTION**: On nearing the start fan temperature (-50°C), the differential will always refer to parameter **FAd** but with the opposite sign.

The fan regulator operates as indicated below:
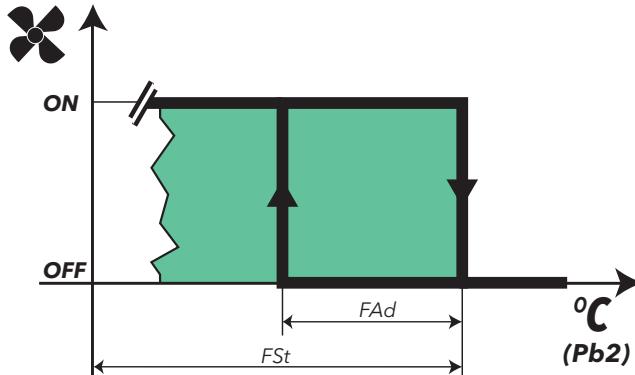
The regulation probe can be:
- Single for normal regulation and defrost (**FP1** ≠ 0 and **FP2** = 0).
- A specific probe for regulation and one during defrost (**FP1** ≠ 0 and **FP2** ≠ 0).

The fans can be excluded:
- During defrost
- If a digital input has been configured as door switch.

When evaporator fans are enabled during defrost (**FdF** = ON) and the relative probe is in error, the fans are all switched on.
If the evaporator probe is not present and **FdF** = ON, the evaporator fans are active during defrost.
Energy Saving mode (night) is only active if enabled by parameter **ESF** (obviously when the controller is in Energy Saving mode).

5.3.5.3 - Fan function in Duty Cycle

There are two Duty Cycle modes: **Day** and **Night** (Energy Saving).
The activation of **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**: parameters **Fon** and **FoF** must be set appropriately.
- **Night**: parameters **Fnn** and **FnoF** must be set appropriately.

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 run in Duty Cycle mode as shown below:

DUTY-CYCLE DAY

DUTY-CYCLE NIGHT
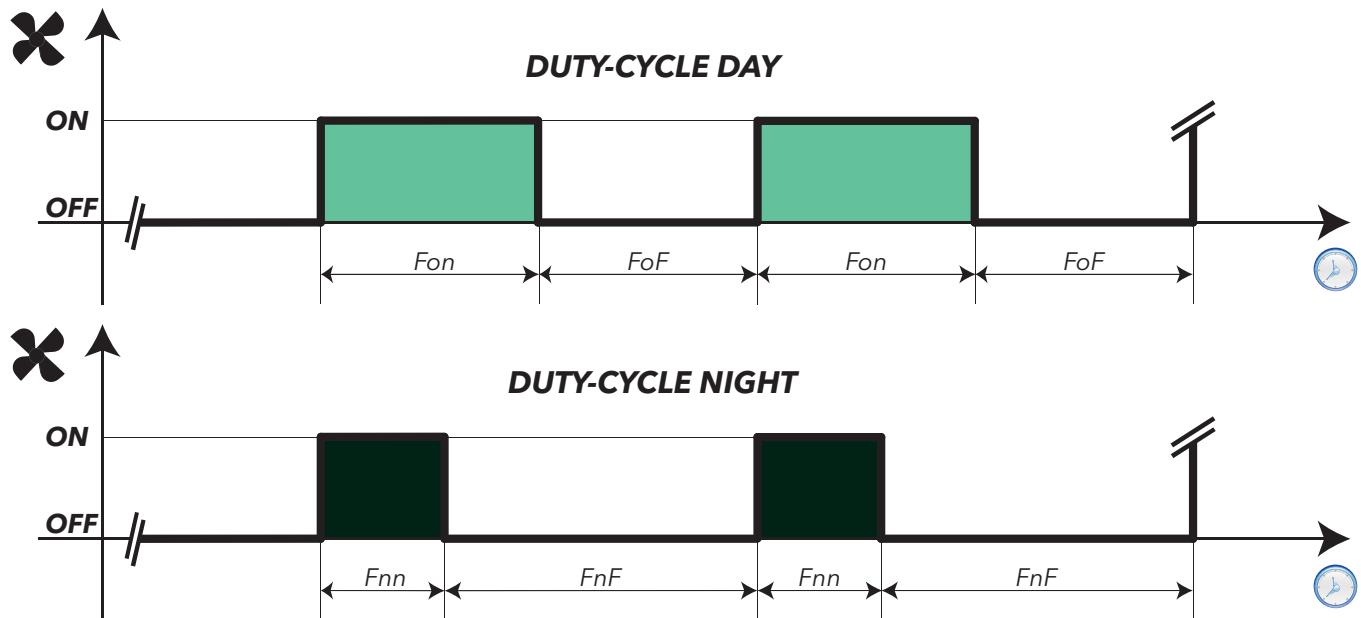
5.3.5.4 - Fan function during defrost

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**)	**TEMPERATURE CONTROL / DUTY-CYCLE**

Thermostat control of fans takes place at the values set in parameters:
- **FSt** (fans disabling temperature) and **FAd** (fans 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 evaporator fans have been enabled during defrost (**dFd = On**) and regulate on evaporator probe Pb2 in temperature control mode; when the latter go into "E2" error during defrost, the fans must always be ON irrespective of the values set by the duty-cycle.

5.3.5.5 - Fan function without probe

If parameter **H42** = **n** (probe Pb2 absent), depending on the value of FCO and compressor status, fans could have these states: "On", "Off", "Duty Cycle Day" and "Duty Cycle Night".

Parameter **FCO** determines evaporator fan function mode during the DAY phase and during the NIGHT phase.

An example of fan function based on the value set for **FCO** is provided below.
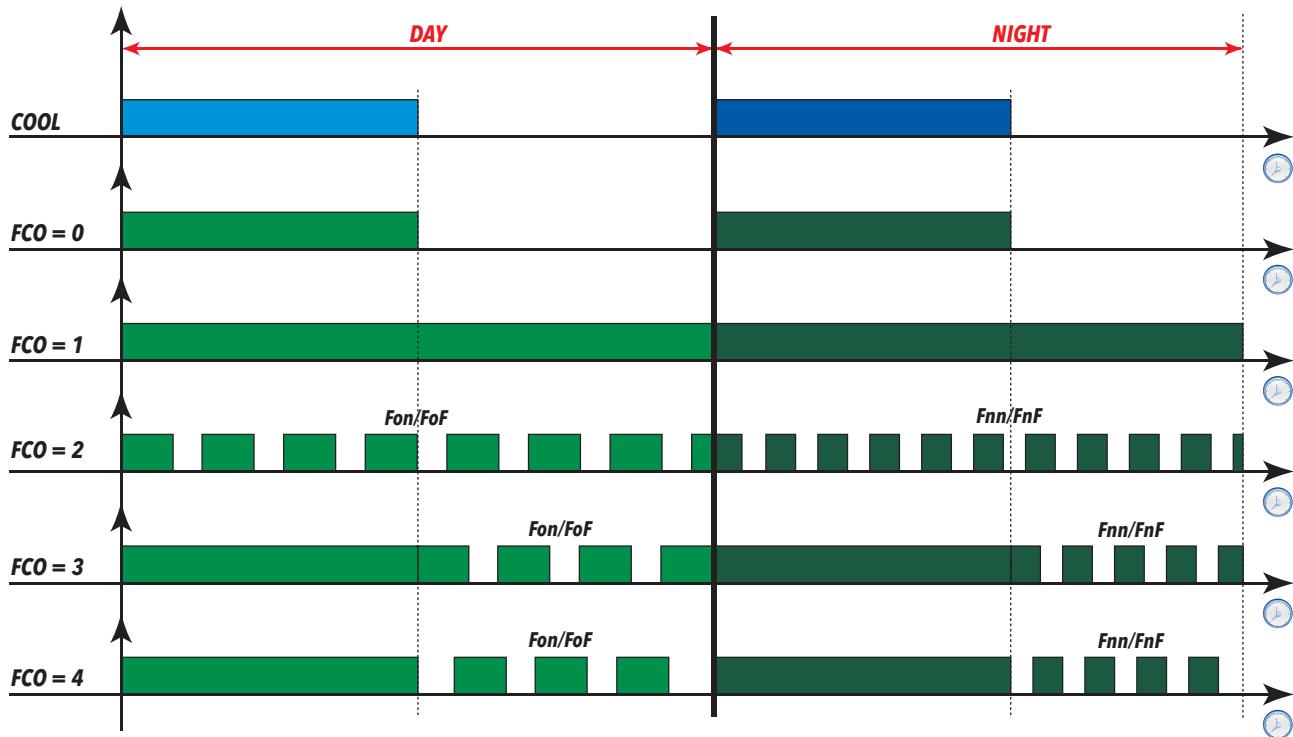
5.3.5.6 - Fan function during dripping

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

5.3.5.7 - 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 must be active with any FCO value and even when a probe has not been configured.
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	Characterizes parameter "FSt" that can be expressed as an absolute value or in relation 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	Coil drainage time
FdC	Delay switching off evaporator fans after disabling the compressor.
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)

5.3.6 - RTC

5.3.6.1 - Weekdays/Weekends-Public Holidays

The controller can manage up to two weekend days/public holidays.
These can be selected using parameters **Fd1** and **Fd2**.

For example:

EXAMPLE 1: Let's say you want to set just one public holiday, a Monday for example.
- You need to set: **Fd1 = 1** (Monday), **Fd2 = 7** (disabled).

EXAMPLE 2: Let's say you want to set a weekend day and a public holiday, a Wednesday and Sunday for example.
- You need to set: **Fd1 = 3** (Wednesday), **Fd2 = 0** (Sunday) or,
- You need to set: **Fd1 = 0** (Sunday), **Fd2 = 3** (Wednesday).

5.3.6.2 - Time-band defrost

The controller can manage up to 6 daily defrosts with two setpoints: one that applies to weekdays and another specific one for public holidays/weekends.

In addition to start defrost times, you can decide to use an identical end of defrost setpoint and time-out for all defrosts, or set specific values for each event.

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

When you set **Edt = 1**, you can define a specific setpoint **dS1** and time-out **dE1** for each event.
This lets you schedule longer and/or more intense defrosts when the sales outlet is closed (when there is a lower heat demand on the counters). This mode is recommended for systems with single evaporator defrosting.

For double evaporator defrosting, all defrosts use the same **dS2** and **dE2** and they cannot be customized.

5.3.6.3 - Periodical defrost

In some counters, all you have to do is run a defrost cycle every two/three/... days. This can be done using the set of parameters for periodical defrosting, where the activation time to be repeated every x days can be set.

5.3.6.4 - Events

The controller can manage two specific events, one applicable to all weekdays and one applicable to all weekends/public holidays.

These events have a start time and a duration. A standard example is the period a sales outlet is closed when, using events, lights can be automatically switched off, screens closed, the setpoint increased and other energy-saving functions implemented.
This is done by specifying the time the sales outlets closes, whereas the event duration is simply the same as the time it remains closed.

Every event can run one of the following functions:

- Null (function disabled).
- Energy-saving activation (*).
- Activation Energy-Saving (*) and light OFF.
- Energy-Saving Activation (*), light OFF and activation of AUX outlet (e.g. to close curtains).
- Activation of device stand-by.

(*) for Energy-Saving associated functions, see the specific section.

5.3.7 - ENERGY SAVING

The Energy Saving mode (sometimes called Night function) lets you activate a series of functions to reduce energy consumption when the outlet is closed.

- Modifies the average weight of the virtual probe/switching of regulation probe.
- Increases setpoint (reduced setpoint).
- Modifies regulation differential.
- Modulation of evaporator fans with setpoint satisfied.
- Reduction of power delivered by heaters (anti-condensation).

The Energy-Saving mode can be activated from:

- Digital input (when configured appropriately).
- RTC events.
- Remote command (from supervisor and/or via LAN).
- Hotkey.

The light and screen output (AUX) can be managed by configuring the following:

- RTC events (see RTC section).
- Dedicated digital input.
- Hotkey.
- Remote command (from supervisor and/or via LAN).

For the "reduced setpoint", "evaporator fans" and "frame heaters", see the relative sections.

5.3.7.1 - Virtual probe/ probe change

As well as regulating the various values coming from individual probes, the controller can also regulate on the basis of a weighted average of the value read by two probes; this is done via the so-called virtual probe.

• Virtual probe in Day mode:

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

• Virtual probe in Energy Saving mode (Night):

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

In the formula, **probe 1** is selected from parameter **H70**, and **probe 2** from parameter **H71**.

The switch between DAY and NIGHT mode in the regulation probe can be configured 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.

5.3.8 - DEEP COOLING CYCLE (DCC)

Description

This regulator assures that the compressor regulates on the basis of setpoint **dCS**, with a differential equal to the value set in parameter **diF**. When the **DCC** (Deep Cooling Cycle) function activates, the interval between defrosts is cleared and defrosts are disabled.

DCC is stopped by setting parameter **tdc≠0**, or on reaching setpoint **dCS** if **tdc = 0**.

On exiting a **DCC**, and after a time that can be set in parameter **dcc**, a defrost is forced and counts start again for the interval between defrosts (value set by parameter **dit**). If **dcc=0**, the defrost starts at the end of **DCC**.

During the **DCC** cycle, temperature alarms are disabled.

Normal temperature control management is restored at the end of the **DCC** cycle when the temperature read by **rP1** returns to the value set in the regulation setpoint **SEt**.

Operating conditions

The Deep Cooling Cycle is reactivated via Digital Input or by hotkey when configured appropriately.

In the event of a probe error and/or power failure, 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, before a new cycle can be started, the time set in **dcc** must elapse.

The control diagram is as follows:
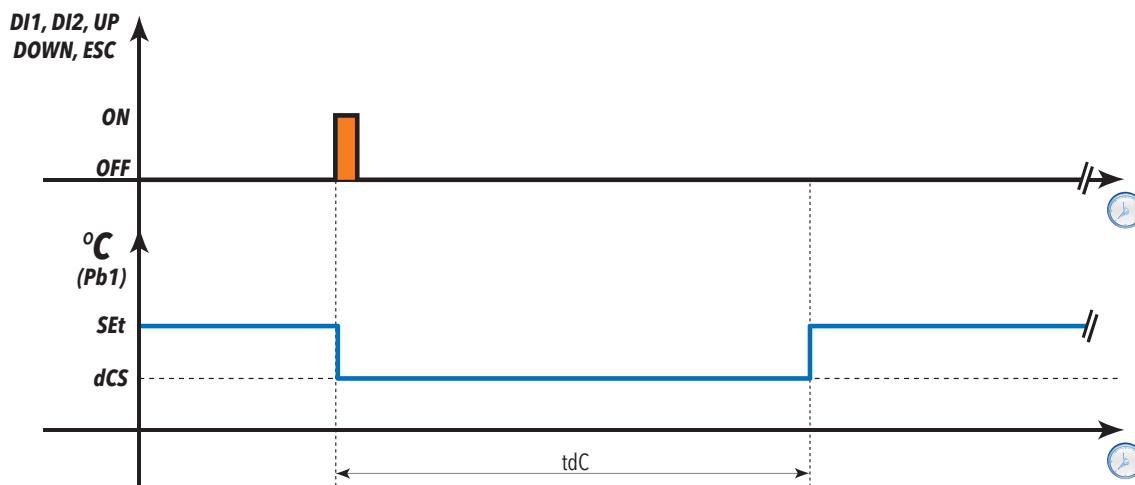
User parameters

The parameters that manage the fan regulator are:

Label	Description
dCS	Deep cooling cycle setpoint
tdc	Duration of deep cooling cycle
dcc	Delay before defrost after a deep cooling cycle.

5.3.9 - PREHEATING

When the preheating output is active, the following occur:

- The compressor output will be forced OFF.
- The compressor icon will (❄) start to blink.

Preheating only effects defrosting in applications needing the compressor (**dty**= 1 and **dty**= 2).

5.3.10 - PRESSURE SWITCH

Description
This regulator performs diagnostic operations over a digital input activated by assigning the value **±10** (General pressure switch), **±11** (Low pressure switch) o **±12** (High pressure switch) to one of the parameters **H11**...**H18**.

If a pressure switch input is activated, power to the compressor is immediately cut off, the relative alarm LED lights up to provide a visual warning and a folder known as either **nPA** (general pressure switch), **LPA** (low pressure switch) or **HPA** (high pressure switch), depending on the type of pressure switch, is displayed in the alarms folder **ALr**. The folder contains the label with the number of pressure switch activations (up to the maximum value set in parameter **PEn**).

If the number of activations exceeds the maximum number defined by parameter **PEn** within a time less than the value of **PEI**, the following conditions occur:
- the compressor, fans and defrost are disabled.
- in the alarms folder **AL** the label **PA** (pressure alarm) is displayed in place of folder **nPA, LPA** or **HPA**.
- the label **PA** (general pressure switch), **PAL** (low pressure switch) or **PAH** (high pressure switch) is shown on the display.
- the alarm relay comes on (if configured)

IMPORTANT:
1. If the number of activations exceeds the number set in **PEn** within the time limit **PEI**, the alarm is automatically reset.
2. the input must be:
   - self-closing if not used and the input is activated normally closed.
   - open if not used and activated normally open.
   - de-activated by the digital input configuration parameter.

NOTES:
1. once the controller is in alarm state, it must be powered off then on, or RESET by activating function **rPA** in the functions folder **FPr**.
2. if parameter **PEn = 0**, the function is disabled and alarms and counters are also disabled.
3. the pressure switch alarm is not stored in EEPROM.
4. during the pressure switch activation period the defrost interval count runs as normal.

Operating conditions
The number of pressure switch errors is counted using a FIFO method. The time interval **PEI** is divided into 32 parts; the counter is incremented by one unit if there are one or more activations during one part of the entire interval **PEI**.

Two operating examples are given below: In both cases, suppose that **PEI** = 32' (equal to 32'/32 = 1 minute) and **PEn** = 7.

Example 1: *ALARM SIGNALLED*: The interval for storing activations is 1 minute: all activations within that minute are counted as a single activation and the alarm (if any) is activated when the sampling interval has elapsed. In this example the pressure switch alarm is signalled because there have been 7 activations during the 32' time window.

Example 2: *ALARM NOT SIGNALLED*: In this example the alarm is not activated because during the 32' time window the number of activations set in parameter **PEn** was not reached. In practice the time window is a rolling window and all activations that are outside of it are deleted: the reference point is the last activation and the time **PEI** is subtracted from that point to establish how many activations are included in the count.

Case 1

The time between the 1st and the 7th intervention is 11' < PEI (32') → ALARM SIGNAL

Case 2

The time between the 1st and the 7th intervention is 33' > PEI (32') → NO ALARM SIGNAL
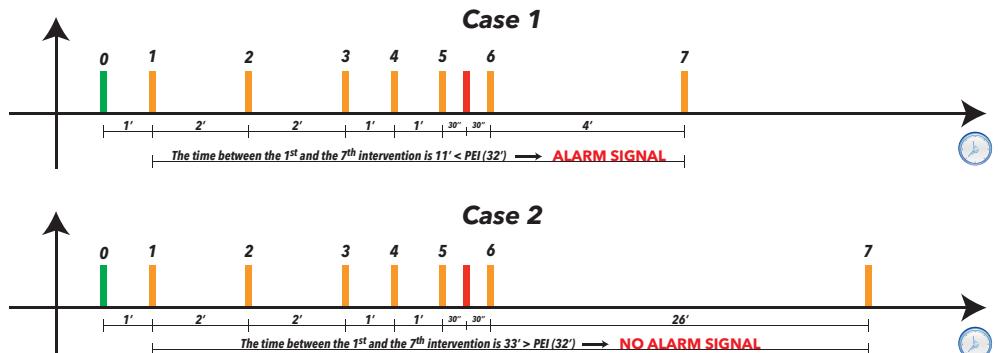
User parameters
The parameters that manage the pressure switch regulator are:

Label	Description
PEn	number of errors allowed per general/low/high pressure switch input
PEI	General/low/high pressure switch error count interval (in 32 parts)

5.3.11 - AUXILIARY OUTPUT (AUX/LIGHT)

Description

If one of the parameters **H21...H27** is configured as **H2x=5**, the relay is commanded as AUX and, when the key associated to **H31...33** is pressed (which must be configured as **H3x=3**), the relay activates if it was previously off, and vice versa.

The on/off state is saved in non-volatile memory hence when power returns after a blackout, the device will restart in the state that was active prior to the blackout.

If one of the parameters **H11**...**H12** is configured as **H1x=3**, the AUX relay is commanded from digital input; in this case, the relay will mirror the state of the input. In this case, on/off state is not saved in non-volatile memory.

> ⚠️ **CAUTION**: the meaning of the D.I. must always remain the same: for example, if the relay is activated by D.I. and switched off by key, when the D.I. is reset to the starting position, the relay does not change state (since it was already de-energised by key). With the instrument OFF, if set accordingly, only the digital input (D.I.) and the associated key can change the state of the output.

Operating conditions

The regulator is activated by:

- Key
- Function
- Digital Input
- Energy-saving activation

if configured accordingly.

The regulator is not active when:

Condition	AUX output state	NOTES
during start-up	OFF	
during standby	state depends on parameter **H08**	

The control diagram is as follows:
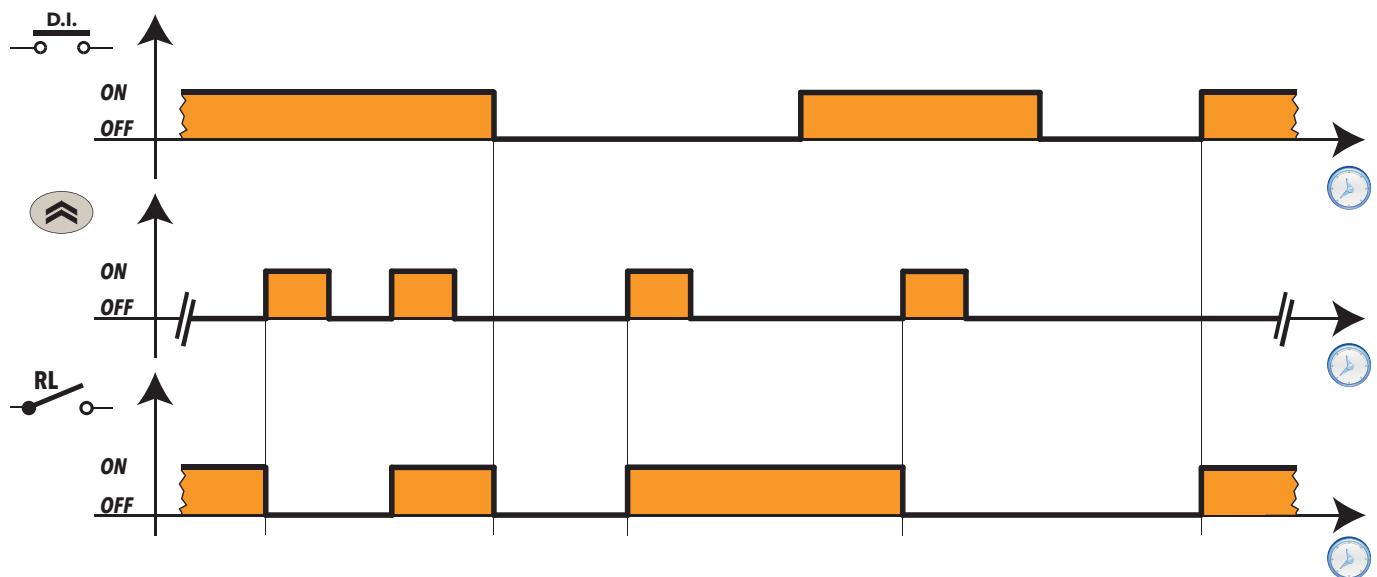
User parameters

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

Label	Description
H08	Stand-by operating mode
H11...H18	Configuration of digital inputs 1...8/Polarity
H21...H27	Configuration of digital outputs 1.....7
H31...H33	Configuration keys 1,2 and 3

5.3.12 - DOOR/EXTERNAL ALARM MANAGEMENT

The door switch input is associated to an appropriately configured digital input (**H1x = ±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 following values can be assigned to the various parameters:

dod: Door switch switches off utilities by DI command
- **0** = function disabled
- **1** = disables fans
- **2** = disables compressor (COMP)
- **3** = disables compressor (COMP) and fans (FAN)

The intention is that any safety timings (e.g. delay switching on compressor, etc.) will still be respected.

EAL: blocks compressor regulators, defrosting and fans if the digital input (configured as an external alarm) is activated.
- **0** = no resource blocked
- **1** = compressor and defrost blocked
- **2** = compressor, defrost and fans blocked

dOA: defines what to activate/disable on the activation/deactivation of the digital input. Valid only if **PEA** ≠ 0.
- **0** = activates compressor (COMP)
- **1** = activates the 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: Defines whether the door switch or external alarm should be linked to parameter **dOA** in the following mode:
- **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: Delay activating/switching off compressor (0 ... 250 min).

dFO: Delay activating/switching off evaporator fans (0 ... 250 min).

tdO: Door open alarm exclusion time (0 ... 250 min). The door open alarm is activated if the door remains open for longer than the time set in this parameter.

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

Graphs explaining fan function based on the value of **dOA** are provided below. In the graphs you will see:

	Door
	Evaporator Fans
	Compressor

dOA = 0

dFO
dCO

dOA = 1

dFO
dCO

dOA = 2

dFO
dCO

dOA = 3

dFO
dCO

dOA = 4

dFO
dCO

dOA = 5

dFO
dCO
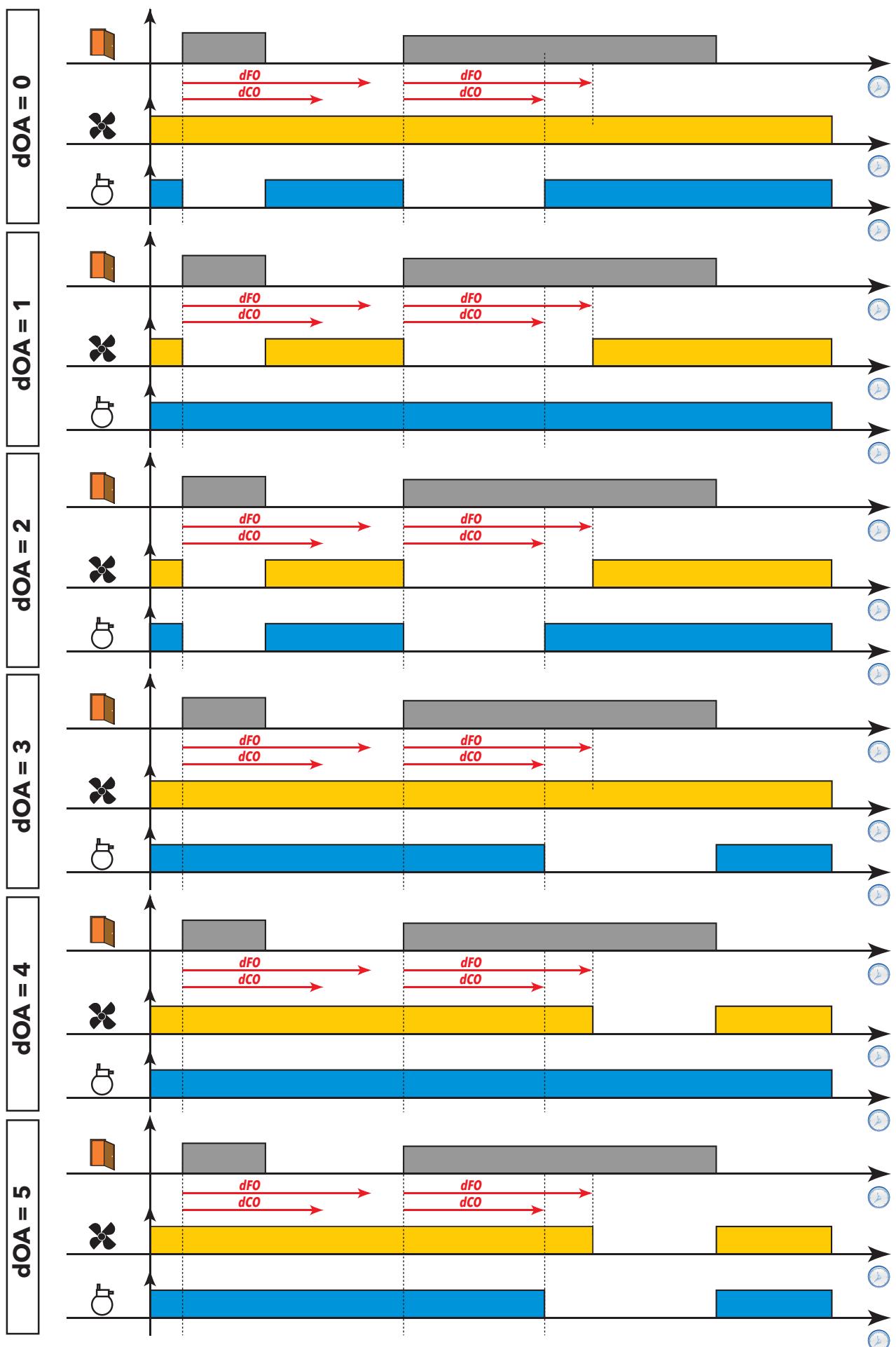
5.3.13 - FRAME HEATER

The controller is fitted with a regulator for frame heaters.
Regulation can occur by:
- Fixed value.
- Glass door probe.
- Glass door probe with dew point from remote.

The output can be:
- Open collector: to pilot an external SSR module.

5.3.13.1 - Connection Examples

A connection example with external SSR is provided below:
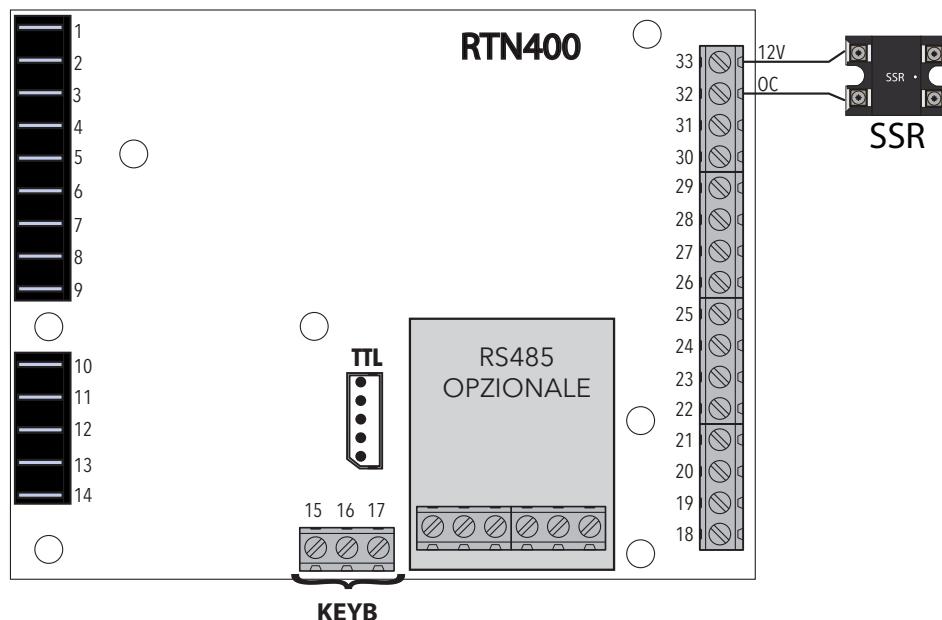
5.3.13.2 - Fixed value regulation

Fixed value regulation occurs when parameter **FH = dc** and the following regulation percentages are set:
- Parameter **FH4**: Day.
- Parameter **FH5**: Night (Energy Saving - Night).
- Parameter **FH6**: Defrost (during Day and Night).
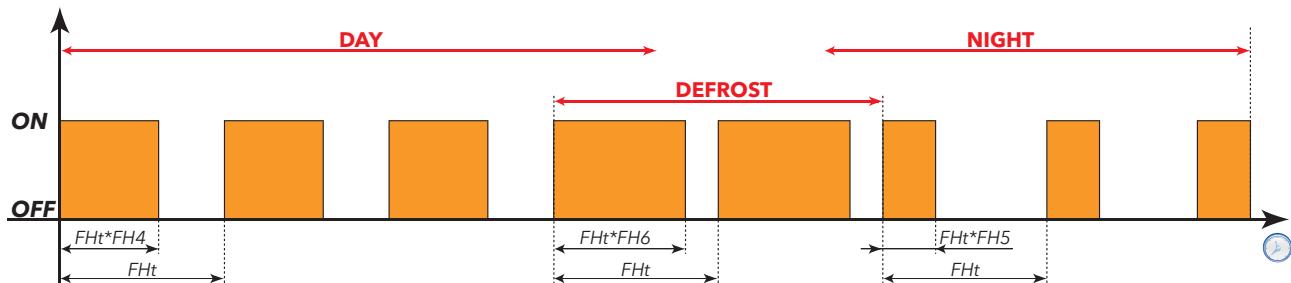
If you use the open collector output (or relay, although we don't recommend the latter), regulation occurs via modulation where parameter **FHt** sets the modulation period.

5.3.13.3 - Glass door probe regulation

Regulation by glass door probe occurs by selecting the required probe via parameter **FH**.
(**diS** = disabled; **dc** = Duty Cycle; **Pb1**...**Pb5** = probe Pb1...Pb5; **Pbi** = virtual probe).

The value of the output depends on the value of the probe, as indicated in the graph:
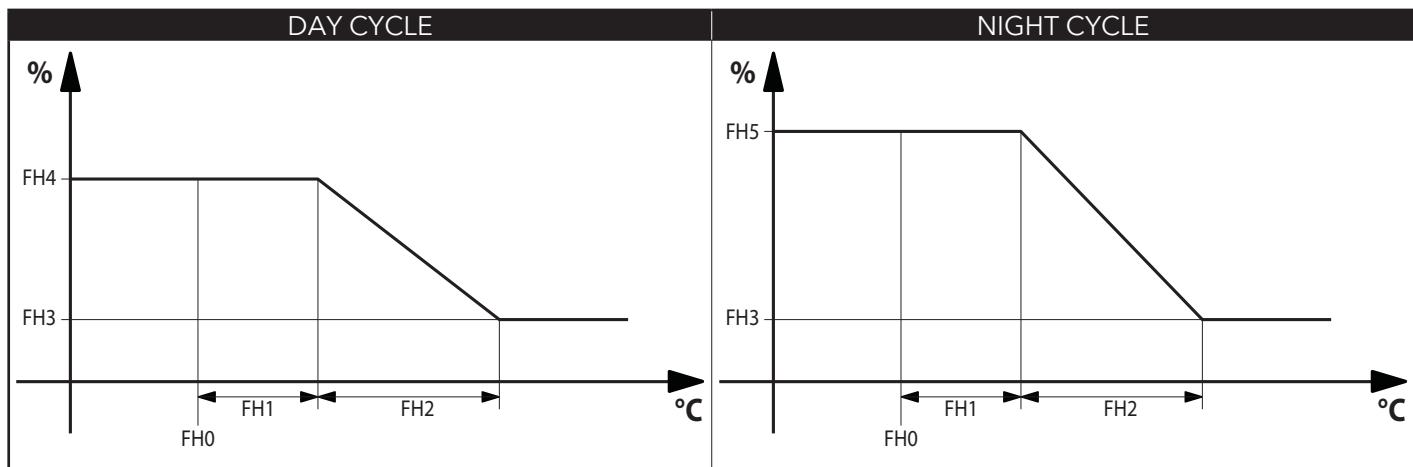
During the defrost stage, the output will be set to the fixed value shown in parameter **FH6**.

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

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

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

Regulation is similar to the previous section, the only difference being relative to the setpoint value **FH0** which is modified from remote (remote dew point) and managed by the supervisor via serial commands.

On starting up, the regulator loads the setpoint value indicated in parameter **FH0**. The regulation setpoint value can be updated from remote (value in volatile memory).

> **N.B.**: Updating from remote must take place within 60 seconds otherwise the regulator will reload the value in parameter **FH0**.

User parameters
The parameters that manage the Frame Heater regulator are:

Label	Description
FH	Selects which probe will be used by frame heaters.
FHt	Frame heater running time. **N.B.** = only used when OC output is used with SSR relay.
FH0	Configuration of relative setpoint for frame heater (only if **FH≠diS** and **FH≠dc**).
FH1	Configuration of relative offset for frame heater (only if **FH≠diS** and **FH≠dc**).
FH2	Configuration of relative band for frame heater (only if **FH≠diS** and **FH≠dc**).
FH3	Configuration of minimum percentage for frame heater (only if **FH≠diS** e **FH≠dc**).
FH4	Sets maximum percentage for day Duty Cycle.
FH5	Sets maximum percentage for night Duty Cycle.
FH6	Sets percentage during defrost.

5.3.14 - VD - POWER SUPPLY CONTROL

Description

When the voltage either falls below the minimum threshold (set in parameter **SPL**) or rises above the maximum threshold (set in parameter **SPH**), one, two or all of the outputs will be disabled, depending on the setting of parameter **SoU**.

When the voltage either rises above the value **SPL+dFL** or falls below the value **SPH-dFL**, the outputs will be re-enabled, taking into account any delay settings. If **SPL/SPH = 0** the high/low voltage control is disabled.

When a low or high voltage alarm is present in the alarms folder ALr the label **LoP** or **HiP** will appear.

Regulation diagrams

The regulation diagrams are as follows:
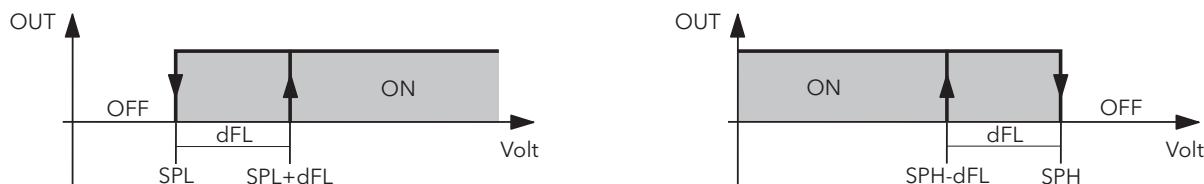
The following is an example of compressor operation on the basis of supply voltage trend:
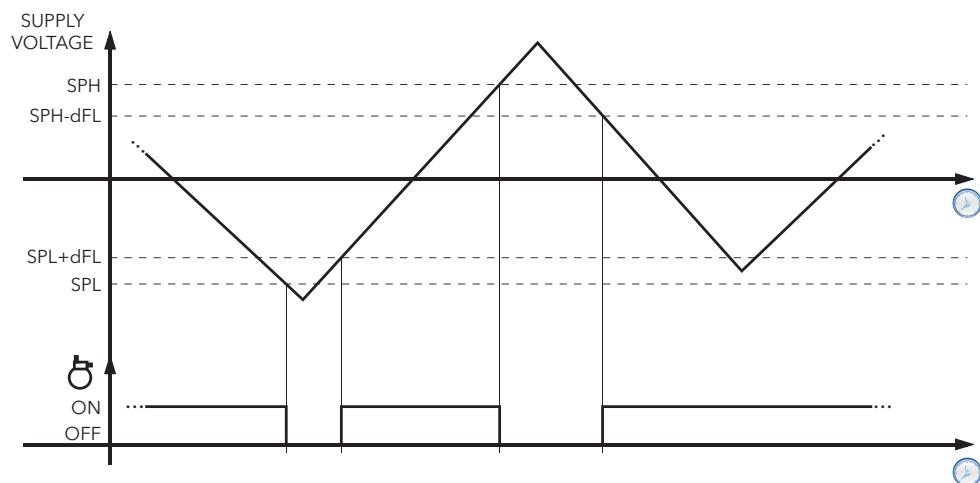
Signalling

Label	Fault	Cause	Effects	Remedy
HiP	HIGH voltage alarm	voltage value reading at analogue input higher than value of **SPH**.	• Recording of label **HiP** in folder ALr • Alarm icon permanently on • Regulation lock based on value of SoU	Wait until value read by the analogue input returns below (SPH-dFL).
LoP	LOW voltage alarm	voltage value reading at analogue input lower than value of **SPL**.	• Recording of label **LoP** in folder ALr • Alarm icon permanently on • Regulation lock based on value of SoU	Wait until value read by the analogue input returns above (SPL-dFL).

User parameters

The parameters that manage the control of the supply voltage are:

PAR.	DESCRIPTION	M.U.	RANGE	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
SPH	Supply voltage maximum threshold. **0**= function excluded.	Volt	0...250	**0** (Parameter not present in vectors)							
SPL	Supply voltage minimum threshold. **0**= function excluded.	Volt	0...300	**0** (Parameter not present in vectors)							
dFL	Activation differential **0**= function excluded.	Volt	0.1...25.0	**1** (Parameter not present in vectors)							
SoU	Selection of output to be disabled. **See table below**.	num	0...127	**0** (Parameter not present in vectors)							

Depending on the value of the parameter **SoU**, the protection situation on the outputs is as follows:

SoU	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	Open Collector
0							
1	Output OFF						
2		Output OFF					
3	Output OFF	Output OFF					
4			Output OFF				
5	Output OFF		Output OFF				
6		Output OFF	Output OFF				
7	Output OFF	Output OFF	Output OFF				
8				Output OFF			
9	Output OFF			Output OFF			
10		Output OFF		Output OFF			
11	Output OFF	Output OFF		Output OFF			
12			Output OFF	Output OFF			
13	Output OFF		Output OFF	Output OFF			
14		Output OFF	Output OFF	Output OFF			
15	Output OFF	Output OFF	Output OFF	Output OFF			
16					Output OFF		
17	Output OFF				Output OFF		
18		Output OFF			Output OFF		
19	Output OFF	Output OFF			Output OFF		
20			Output OFF		Output OFF		
21	Output OFF		Output OFF		Output OFF		
22		Output OFF	Output OFF		Output OFF		
23	Output OFF	Output OFF	Output OFF		Output OFF		
24				Output OFF	Output OFF		
25	Output OFF			Output OFF	Output OFF		
26		Output OFF		Output OFF	Output OFF		
27	Output OFF	Output OFF		Output OFF	Output OFF		
28			Output OFF	Output OFF	Output OFF		
29	Output OFF		Output OFF	Output OFF	Output OFF		
30		Output OFF	Output OFF	Output OFF	Output OFF		
31	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF		
32						Output OFF	
33	Output OFF					Output OFF	
34		Output OFF				Output OFF	
35	Output OFF	Output OFF				Output OFF	
36			Output OFF			Output OFF	
37	Output OFF		Output OFF			Output OFF	
38		Output OFF	Output OFF			Output OFF	
39	Output OFF	Output OFF	Output OFF			Output OFF	
40				Output OFF		Output OFF	
41	Output OFF			Output OFF		Output OFF	
42		Output OFF		Output OFF		Output OFF	
43	Output OFF	Output OFF		Output OFF		Output OFF	
44			Output OFF	Output OFF		Output OFF	
45	Output OFF		Output OFF	Output OFF		Output OFF	
46		Output OFF	Output OFF	Output OFF		Output OFF	
47	Output OFF	Output OFF	Output OFF	Output OFF		Output OFF	
48					Output OFF	Output OFF	

SoU	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	Open Collector
49	Output OFF				Output OFF	Output OFF	
50		Output OFF			Output OFF	Output OFF	
51	Output OFF	Output OFF			Output OFF	Output OFF	
52			Output OFF		Output OFF	Output OFF	
53	Output OFF		Output OFF		Output OFF	Output OFF	
54		Output OFF	Output OFF		Output OFF	Output OFF	
55	Output OFF	Output OFF	Output OFF		Output OFF	Output OFF	
56				Output OFF	Output OFF	Output OFF	
57	Output OFF			Output OFF	Output OFF	Output OFF	
58		Output OFF		Output OFF	Output OFF	Output OFF	
59	Output OFF	Output OFF		Output OFF	Output OFF	Output OFF	
60			Output OFF	Output OFF	Output OFF	Output OFF	
61	Output OFF		Output OFF	Output OFF	Output OFF	Output OFF	
62		Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	
63	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	
64							Output OFF
65	Output OFF						Output OFF
66		Output OFF					Output OFF
67	Output OFF	Output OFF					Output OFF
68			Output OFF				Output OFF
69	Output OFF		Output OFF				Output OFF
70		Output OFF	Output OFF				Output OFF
71	Output OFF	Output OFF	Output OFF				Output OFF
72				Output OFF			Output OFF
73	Output OFF			Output OFF			Output OFF
74		Output OFF		Output OFF			Output OFF
75	Output OFF	Output OFF		Output OFF			Output OFF
76			Output OFF	Output OFF			Output OFF
77	Output OFF		Output OFF	Output OFF			Output OFF
78		Output OFF	Output OFF	Output OFF			Output OFF
79	Output OFF	Output OFF	Output OFF	Output OFF			Output OFF
80					Output OFF		Output OFF
81	Output OFF				Output OFF		Output OFF
82		Output OFF			Output OFF		Output OFF
83	Output OFF	Output OFF			Output OFF		Output OFF
84			Output OFF		Output OFF		Output OFF
85	Output OFF		Output OFF		Output OFF		Output OFF
86		Output OFF	Output OFF		Output OFF		Output OFF
87	Output OFF	Output OFF	Output OFF		Output OFF		Output OFF
88				Output OFF	Output OFF		Output OFF
89	Output OFF			Output OFF	Output OFF		Output OFF
90		Output OFF		Output OFF	Output OFF		Output OFF
91	Output OFF	Output OFF		Output OFF	Output OFF		Output OFF
92			Output OFF	Output OFF	Output OFF		Output OFF
93	Output OFF		Output OFF	Output OFF	Output OFF		Output OFF
94		Output OFF	Output OFF	Output OFF	Output OFF		Output OFF
95	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF		Output OFF
96						Output OFF	Output OFF
97	Output OFF					Output OFF	Output OFF

SoU	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	Open Collector
98		Output OFF				Output OFF	Output OFF
99	Output OFF	Output OFF				Output OFF	Output OFF
100			Output OFF			Output OFF	Output OFF
101	Output OFF		Output OFF			Output OFF	Output OFF
102		Output OFF	Output OFF			Output OFF	Output OFF
103	Output OFF	Output OFF	Output OFF			Output OFF	Output OFF
104				Output OFF		Output OFF	Output OFF
105	Output OFF			Output OFF		Output OFF	Output OFF
106		Output OFF		Output OFF		Output OFF	Output OFF
107	Output OFF	Output OFF		Output OFF		Output OFF	Output OFF
108			Output OFF	Output OFF		Output OFF	Output OFF
109	Output OFF		Output OFF	Output OFF		Output OFF	Output OFF
110		Output OFF	Output OFF	Output OFF		Output OFF	Output OFF
111	Output OFF	Output OFF	Output OFF	Output OFF		Output OFF	Output OFF
112					Output OFF	Output OFF	Output OFF
113	Output OFF				Output OFF	Output OFF	Output OFF
114		Output OFF			Output OFF	Output OFF	Output OFF
115	Output OFF	Output OFF			Output OFF	Output OFF	Output OFF
116			Output OFF		Output OFF	Output OFF	Output OFF
117	Output OFF		Output OFF		Output OFF	Output OFF	Output OFF
118		Output OFF	Output OFF		Output OFF	Output OFF	Output OFF
119	Output OFF	Output OFF	Output OFF		Output OFF	Output OFF	Output OFF
120				Output OFF	Output OFF	Output OFF	Output OFF
121	Output OFF			Output OFF	Output OFF	Output OFF	Output OFF
122		Output OFF		Output OFF	Output OFF	Output OFF	Output OFF
123	Output OFF	Output OFF		Output OFF	Output OFF	Output OFF	Output OFF
124			Output OFF	Output OFF	Output OFF	Output OFF	Output OFF
125	Output OFF		Output OFF	Output OFF	Output OFF	Output OFF	Output OFF
126		Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF
127	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF	Output OFF

5.3.15 - GENERAL INPUT

The general input does carry out any function locally in the controller.
Its function is to monitor from remote the state of the input that a device/specific sensor will be associated to.

EXAMPLE:
The general input can be connected to the output of an ice sensor to monitor if the chiller cabinet (e.g. vegetable counter) is blocked.
In this case, during defrosting, since the water cannot flow anywhere, it collects and turns into ice which gradually obstructs the evaporator. Using an ice sensor, you can monitor if the gap between the evaporator and base of the cabinet is blocked by ice.

5.3.16 - STANDBY

Operating conditions
The Standby 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 in parameter **OdO** is activated.
Each time that the device is switched off, all cycle times are reset.
The on/off state is saved in non-volatile memory hence when power returns after a blackout, the device will restart in the state that was active prior to the blackout.
The output from standby is linked to the delay set in parameter **OdO**.

N.B.: When the device is switched off, all relays are de-energized except for Aux: key/aux input/light/door switch are active.

User parameters
The parameters that manage the Standby regulator are:

Label	Description
PAO	Alarm disabling after power-on
OdO	Delay output enabling from power-on
OAO	High and low temperature alarms disabling time after door closing

6.1 - PARAMETERS TABLE

6.1.1 - "USER" MENU PARAMETERS TABLE

	PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
	SP1	Temperature control SEtpoint **The SEtpoint is only visible in the "machine status" menu.**	°C/°F	LS1 ... HS1	2.0	-4.0	-22.0	-25.0
	dF1	Activation differential (absolute or relative). **NOTE: dF1 ≠ 0.**	°C/°F	-58.0 ... 302	4.0	4.0	2.0	2.0
	HS1	Maximum value assignable to setpoint SP1.	°C/°F	LS1 ... HdL	10.0	10.0	-10.0	-10.0
	LS1	Minimum value assignable to setpoint SP1.	°C/°F	LdL ... HS1	-10.0	-10.0	-30.0	-30.0
	dit	Interval between the start of two consecutive defrost cycles.	hours	0 ... 250	12	9	25	25
	dE1	Evaporator 1 defrost time-out; determines the maximum duration of defrost on evaporator 1.	min	1 ... 250	50	70	60	60
	dS1	Defrost 1 end temperature (referred to evaporator 1) (only if **dP1 ≠ diS**).	°C/°F	-58.0 ... 302	10.0	10.0	12.0	12.0
	dPH	Periodic defrost start time (only if **dCt ≠ 4**). **0...23** = start hour; **24** = disabled.	hours	0 ... 24	24	24	24	24
	dPn	Periodic defrost start minutes (only if **dCt = 4**).	min	0 ... 59	0	0	0	0
	dPd	Interval between one defrost and next (periodic function) (only if **dCt = 4**).	days	1 ... 7	1	1	1	1
	FSt	Fans block temperature. The value is positive or negative (**FP1 ≠ diS**).	°C/°F	-58.0...302			-3.0	-3.0
	Fdt	Fans activation delay after a defrost cycle.	min	0 ... 250			5	5
	dt	drainage time. Coil drainage time.	min	0 ... 250			5	5
	dFd	Evaporator fans operating mode during defrost.	flag	OFF/On			On	On
	HA1	Probe 1 maximum alarm.	°C/°F	LA1...302	10.0	10.0	-15.0	-15.0
	LA1	Probe 1 minimum alarm.	°C/°F	-58.0...HA1	-5.0	-10.0	-40.0	-40.0
	AOP	Alarm output polarity. **0** = alarm active and output disabled; **1** = alarm active and output enabled.	num	0/1	0 - **(Parameter not present in vectors)**			
	FH0	Configuration of relative setpoint for frame heater (**FH ≠ diS** and **FH ≠ dc**).	°C/°F	-58.0...302				0.0
	FH1	Configuration of relative offset for frame heater (**FH ≠ diS** and **FH ≠ dc**).	°C/°F	0.0 ... 25.0				0.0
	FH2	Configuration of relative band for frame heater (**FH ≠ diS** and **FH ≠ dc**).	°C/°F	0.0 ... 25.0				20.0
	FH3	Configuration of minimum percentage for frame heater. (**FH≠diS** and **FH≠dc**).	%	0 ... 100				0
	FH4	Configuration of maximum percentage for day Duty Cycle.	%	0 ... 100				75
	FH5	Configuration of maximum percentage for night Duty Cycle.	%	0 ... 100				50
	FH6	Configuration of percentage during defrosting.	%	0 ... 100				100
	PS1	PAssword 1. When enabled (**PS1≠0**) this is the access key to level 1 parameters (**User**).	num	0 ... 250	0	0	0	0
	CA1	Probe **Pb1** calibration (only if **H41 = Pro**).	°C/°F	-30.0...30.0	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
	CA3	Probe **Pb3** calibration (only if **H43 = Pro**).	°C/°F	-30.0...30.0	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
	CA5	Probe **Pb5** calibration (only if **H45 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
	ddL	Display mode during defrost.	num	0/1/2	2	2	2	2
	Ldd	Timeout value for display unlock - label **dEF**.	min	0 ... 250	40	40	40	40
	H60	Display of selected application..	num	0 ... 8	1 - **(Parameter not present in vectors)**			

N.B.:   * : The parameters in the "USER" menu include PA2 which gives access to "Installer" menu.
** : For the full list of parameters, see the "Installer Menu Parameters Table".

6.1.2 - "INSTALLER" MENU PARAMETERS TABLE

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
SP1	Temperature control SEtpoint **The SEtpoint is only visible in the "machine status" menu.**	°C/°F	LS1...HS1	2.0	-4.0	-22.0	-25.0
SP2	Temperature control SEtpoint second thermostat (only if **rE ≠ 0**). **The SEtpoint is only visible in the "machine status" menu.**	°C/°F	LS2...HS2	2.0	-4.0	-22.0	-25.0
	COMPRESSOR (CP)						
rE	Sets the type of control to be performed: • **0**: single thermostat • **1**: double thermostat in series • **2**: double thermostat in parallel • **3**: not used • **4**: two independent regulators	num	0...4	0	0	0	0
rP1	Sets regulation probe 1. • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5 • **Pbi** (6) = will use the virtual probe • **LP** (7) = will use the remote probe	num	dis Pb1 Pb2 Pb3 Pb4 Pb5 Pbi LP	Pb1	Pb1	Pb1	Pb1
rP2	Sets control probe of thermostat 2 (only if **rE ≠ 0**). • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5	num	dis Pb1 Pb2 Pb3 Pb4 Pb5	diS	diS	diS	diS
dF1	Activation differential (absolute or relative). **Note: dF1 cannot be equal to 0.**	°C/°F	-58,0...302	4.0	4.0	2.0	2.0
dF2	Thermostat 2 activation differential (absolute or relative) (only if **rE ≠ 0**). **Note: dF2 cannot be equal to 0.**	°C/°F	-58,0...302	4.0	4.0	2.0	2.0
Stt	Differential management mode dF1 and dF2. **AbS** (0) = absolute value; **rEL** (1) = relative value	flag	AbS/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	10.0	10.0	-10.0	-10.0
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	-10.0	-30.0	-30.0
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	10.0	10.0	-10.0	-10.0
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	-10.0	-10.0	-30.0	-30.0
HC1	Selects thermostat 1 regulation mode. **C** (0) = Cool; **H** (1) = Heat.	flag	C/H	C	C	C	C
HC2	Selects thermostat 2 regulation mode (only if **rE ≠ 0**). **C** (0) = Cool; **H** (1) = Heat.	flag	C/H	C	C	C	C
Cit	Compressor minimum running time before switching off. If **Cit = 0** it is not active.	min	0...250	0	0	0	0
CAt	Compressor maximum running time before switching off. If **CAt = 0** it is not active.	min	0...250	0	0	0	0
Ont	Controller switch-on time in the event of faulty 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	30	30	30	30
OFt	Controller switch-off time in the event of a faulty 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	15	15	15	15
dOn	Delay time between switch-ons; the delay time indicated must elapse between two consecutive compressor switch-ons.	min	0...250	0	0	0	0
dOF	Delay time after switch off: the delay time indicated must elapse between deactivation of the compressor relay and the next switch-on.	min	0...250	0	0	0	0
dbi	Delay time between switch-ons; the delay time indicated must elapse between two consecutive compressor switch-ons.	min	0...250	0	0	0	0
OdO	Delay in activating outputs after the instrument is switched on or after a power failure. **0 = not active**	min	0...250	0	0	0	0
CP2	Compressor 2 switch-on delay.	secs	0...250	0	0	0	0
CFP	Condenser fan preventilation time in Cool/Heat.	secs	0...255	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
CFd	Condenser fans during defrost mode. **0** = OFF; **1** = ON.	num	0/1	0	0	0	0
OF1	Forced remote offset Represents the value (Offset) that will be added to or subtracted from the regulator 1 SEt (SP1) in the presence of remote commands: • **nOS** = Activate force setpoint offset (**SEt = SP1+OF1**) • **oOS** = Disable force setpoint offset (**SEt = SP1**)	°C/°F	-50.0...50.0	0.0	0.0	0.0	0.0
	DEFROST (dEF)						
dP1	Selects which probe will be used by defrost 1: • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5 • **Pbi** (6) = will use the virtual probe • **LP** (7) = will use the remote probe	num	diS Pb1 Pb2 Pb3 Pb4 Pb5 Pbi LP	diS	Pb2	Pb2	Pb2
dP2	Selects which probe will be used by defrost 2. Same as **dP1**.	num	diS, Pb1...Pb5, Pbi, LP	diS	diS	diS	diS
dty	defrost type. Type of defrost. • **0** = electrical defrost (using heaters) • **1** = inverse 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** = electrical defrost (using heaters) with energy-saving algorithms (smart defrost)	num	0...4	0	0	0	0
dFt	Defrost activation mode using 2 probes: • **0** = activation linked solely to probe 1 • **1** = activation on request of at least one of the two probes • **2** = activation on request of both probes	num	0/1/2	0	0	0	0
dit	Interval between the start of two consecutive defrost cycles. **0** = function disabled (**defrost NEVER run**).	hours	0...250	12	9	25	25
dt1	defrost time 1. Unit of measure for defrost interval (parameter **dit**). • **0** = parameter dit in hours • **1** = parameter dit in minutes • **2** = parameter dit in seconds	num	0/1/2	0	0	0	0
dt2	defrost time 2. Unit of measure for duration of defrost (parameters **dE1/dE2**). (only if **dFt ≠ 0**). • **0** = parameters dE1/dE2 in hours • **1** = parameters dE1/dE2 in minutes • **2** = parameters dE1/dE2 in seconds	num	0/1/2	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 faulty). • **2** = appliance running time; defrost 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	2	2	2	2
dOH	Delay for start of first defrost after request.	min	0...250	0	0	0	0
dE1	Evaporator 1 defrost time-out. Determines the maximum duration of defrost for evaporator 1.	min	1...250	50	70	60	60
dE2	Evaporator 2 defrost time-out (only if **dFt ≠ 0**). Determines the maximum duration of defrost for evaporator 2.	min	1...250	50	70	60	60
dS1	Defrost 1 end temperature (determined by the 1st evaporator probe). (only if **dP1 ≠ dis**).	°C/°F	-58.0...302	10.0	10.0	12.0	12.0
dS2	Defrost 2 end temperature (determined by the 2nd evaporator probe). (only if **dP2 ≠ dis**).	°C/°F	-58.0...302	10.0	10.0	12.0	12.0
dSS	Start defrost temperature threshold (only if **dCt = 5**).	°C/°F	-58.0...302	-30.0	-30.0	-30.0	-30.0

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
dPO	Determines whether the instrument must enter defrost mode (if the temperature measured by the evaporator allows this operation). **no** (0) = no, does not defrost at switch on; **yES** (1) = yes, defrost at switch on.	flag	no/yES	no	no	no	no
tcd	Minimum time that must elapse with the compressor ON or OFF before defrost is activated.	min	-60...60	0	0	0	0
ndE	Defrost duration in minutes (only if set "for hot gas").	min	0...250	0	0	0	0
PdC	Hot gas extraction time at defrost end.	min	0...250	0	0	0	0
tPd	Minimum pump down time that must elapse before defrost starts.	min	0...255	0	0	0	0
dPH	Periodic defrost start time (only if **dCt = 4**). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
dPn	Periodic defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
dPd	Interval between one defrost and next (only if **dCt = 4**). (periodic function).	days	1...7	1	1	1	1
Fd1	1st holiday (only if **dCt = 4**). **0...6** = start day; **7** = disabled.	days	0...7	7	7	7	7
Fd2	2nd holiday (only if **dCt = 4**). **0...6** = start day; **7** = disabled.	days	0...7	7	7	7	7
Edt	To set customized durations and temperatures for each event. • **no** (0) = all values equal; • **yES** (1) = customized values for each event (only if **dCt = 4**).	flag	no/yES	no	no	no	no
d1H	Start time weekday defrost 1 (only if **dCt = 4**). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d1n	1st workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d1t	Weekday defrost 1 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d1S	End of weekday defrost 1 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
d2H	Start time weekday defrost 2 (only if **dCt = 4**). **d1H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d2n	2nd workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d2t	Weekday defrost 2 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d2S	End of weekday defrost 2 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
d3H	Start time weekday defrost 3 (only if **dCt = 4**). **d2H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d3n	3rd workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d3t	Weekday defrost 3 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d3S	End of weekday defrost 3 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
d4H	Start time weekday defrost 4 (only if **dCt = 4**). **d3H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d4n	4th workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d4t	Weekday defrost 4 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d4S	End of weekday defrost 4 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
d5H	Start time weekday defrost 5 (only if **dCt = 4**). **d4H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d5n	5th workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d5t	Weekday defrost 5 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d5S	End of weekday defrost 5 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
d6H	Start time weekday defrost 6 (only if **dCt = 4**). **d5H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
d6n	6th workday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
d6t	Weekday defrost 6 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
d6S	End of weekday defrost 6 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F1H	1st holiday defrost start hour (only if **dCt = 4**). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F1n	1st holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
F1t	Weekend/public holiday defrost 1 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F1S	End of weekend/public holiday defrost 1 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F2H	2nd holiday defrost start hour (only if **dCt = 4**). **F1H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F2n	2nd holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
F2t	Weekend/public holiday defrost 2 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F2S	End of weekend/public holiday defrost 2 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F3H	3rd holiday defrost start hour (only if **dCt = 4**). **F2H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F3n	3rd holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
F3t	Weekend/public holiday defrost 3 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F3S	End of weekend/public holiday defrost 3 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F4H	4th holiday defrost start hour (only if **dCt = 4**). **F3H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F4n	4th holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
F4t	Weekend/public holiday defrost 4 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F4S	End of weekend/public holiday defrost 4 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F5H	5th holiday defrost start hour (only if **dCt = 4**). **F4H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F5n	5th holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
F5t	Weekend/public holiday defrost 5 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F5S	End of weekend/public holiday defrost 5 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
F6H	6th holiday defrost start hour (only if **dCt = 4**). **F5H...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
F6n	6th holiday defrost start minutes (only if **dCt = 4**).	min	0...59	0	0	0	0
F6t	Weekend/public holiday defrost 6 duration (only if **dCt = 4**).	min	0...250	0	0	0	0
F6S	End of weekend/public holiday defrost 6 temperature (only if **dCt = 4**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
	FANS (FAn)						
FP1	Selects which probe to be used by evaporator fans during normal function: • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5 • **Pbi** (6) = will use the virtual probe • **LP** (7) = will use the remote probe	num	diS Pb1 Pb2 Pb3 Pb4 Pb5 Pbi LP	diS	diS	Pb2	Pb2
FP2	Selects which probe to be used by evaporator fans during defrost. Same as **FP1**.	num	diS, Pb1...Pb5, Pbi, LP	diS	diS	diS	diS
FPt	FSt parameter management mode. **AbS** (0) = absolute value; **rEL** (1) = relative value	flag	AbS/rEL	AbS	AbS	AbS	AbS
FSt	Fans block temperature; if the value read is greater than FSt, the fans are stopped. The value is positive or negative (only if **FP1 ≠ dis**).	°C/°F	-58.0...302	30.0	30.0	-3.0	-3.0
FAd	Fan activation differential (only if **FP1 ≠ dis**).	°C/°F	0.1...25.0	2.0	2.0	6.0	6.0
Fdt	Fans activation delay after a defrost cycle	min	0...250	0	0	5	5
dt	drainage time. Coil drainage time.	min	0...250	0	0	5	5
dFd	Evaporator fans operating mode during defrost. **OFF** (0) = Fans Off; **On** (1) = Fans On.	flag	OFF/On	OFF	OFF	On	On
FCO	Evaporator fans operating mode. The state of the fans will be: *(see table below)* **Dutycycle Day**: controlled by means of parameters "**FOn**" and "**FOF**". **Dutycycle Night**: controlled by means of parameters "**Fnn**" and "**FnF**".	num	0...4	0	0	2	2
FdC	Evaporator fans switch-off delay after compressor disabled.	min	0...250	0	0	0	0
FOn	Fan ON time in duty cycle day. Fans used in duty cycle mode; applies to **FCO=dc** and **FP1** is present.	min	0...250	0	0	1	1
FOF	Fan OFF time in duty cycle day. Fans used in duty cycle mode; applies to **FCO=dc** and **FP1** is present.	min	0...250	0	0	0	0

FCO detail table:

		DAY		NIGHT	
FP1	FCO	COMPRESSOR ON	COMPRESSOR OFF	COMPRESSOR ON	COMPRESSOR OFF
FP1 present	0	with Thermostat	OFF	with Thermostat	OFF
	1	with Thermostat	with Thermostat	with Thermostat	with Thermostat
	2	with Thermostat	with Thermostat	with Thermostat	with Thermostat
	3	with Thermostat	duty cycle Day	with Thermostat	dutycycle Night
	4	with Thermostat	duty cycle Day	with Thermostat	duty cycle Night
FP1 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	ON	duty cycle Night

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
Fnn	Fan ON time in duty cycle night. Fans used in duty cycle mode; applies to **FCO=dc** and **FP1** is present.	min	0...250	0	0	1	1
FnF	Fan OFF time in duty cycle night. Fans used in duty cycle mode; applies to **FCO=dc** and **FP1** is present.	min	0...250	0	0	0	0
ALARMS (AL)							
rA1	Selects probe 1 which will be used for temperature alarms: • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5 • **Pbi** (6) = will use the virtual probe	num	diS Pb1 Pb2 Pb3 Pb4 Pb5 Pbi	Pb1	Pb1	Pb1	Pb1
rA2	Selects probe 2 which will be used for temperature alarms. Same as **rA1**.	num	diS, Pb1...Pb5, Pbi	diS	diS	diS	diS
Att	Parameters **HAL** and **LAL** mode intended 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 (para. Att=1), the HAL parameter should be set to positive values, while the LAL parameter should be set to negative values (-LAL).**	flag	AbS/rEL	AbS	AbS	AbS	AbS
AFd	Alarm activation differential.	°C/°F	0.1...25.0	2.0	2.0	2.0	2.0
HA1	Probe 1 maximum alarm. Temperature value (intended as the distance from the setpoint or absolute value in relation to **Att**), which when exceeded will generate an alarm signal (only if **rA1 ≠ dis**).	°C/°F	LA1...302	10.0	10.0	-15.0	-15.0
LA1	Probe 1 minimum alarm. Temperature value (intended as the distance from the setpoint or absolute value in relation to **Att**), which will generate an alarm signal when the value read drops below it (only if **rA1 ≠ dis**).	°C/°F	-58.0...HA1	-5.0	-10.0	-40.0	-40.0
HA2	Probe 2 maximum alarm. Temperature value (intended as the distance from the setpoint or absolute value in relation to **Att**), which when exceeded will generate an alarm signal (only if **rA2 ≠ dis**).	°C/°F	LA2...302	10.0	10.0	-15.0	-15.0
LA2	Probe 2 minimum alarm. Temperature value (intended as the distance from the setpoint or absolute value in relation to **Att**), which will generate an alarm signal when the value read drops below it (only if **rA2 ≠ dis**)	°C/°F	-58.0...HA2	-5.0	-10.0	-40.0	-40.0
PAO	Alarm override time after device is switched on following a power failure. **This parameter refers to high/low temperature alarms only.**	hours	0...10	1	1	1	1
dAO	Temperature alarm exclusion time after defrost.	min	0...250	60	60	60	60
OAO	Alarm signal delay (low and high temperature) after the deactivation of the digital input (door closed).	hours	0...10	0	0	0	0
tdO	Delay in door open alarm activation.	min	0...250	0	0	0	0
tA1	Time delay for temperature alarm indication. **This parameter refers to high/low temperature alarms LA1 and HA1 only.**	min	0...250	30	30	30	30
tA2	Temperature alarm signal delay (only if **rA2 ≠ dis**). **This parameter refers to high/low temperature alarms LA2 and HA2 only.**	min	0...250	30	30	30	30
dAt	Alarm signalling end of defrost due to timeout. • **no** (0) = does not activate alarm • **yES** (1) = activates alarm	flag	no/yES	no	no	no	no
EAL	Regulators blocked by external alarm. • **0** = does not block any resource • **1** = blocks the compressor and defrost • **2** = blocks compressor, defrost and fans	num	0/1/2	0	0	0	0
tP	All keys acknowledge an alarm. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
AOP	Alarm output polarity. • **0** = alarm active and output disabled • **1** = alarm active and output enabled	num	0/1	0 **(Parameter not present in vectors)**			
LIGHTS & DIGITAL INPUTS (Lit)							
dSd	Enable light relay from door switch. • **no** (0) = opening the door does not switch on the light • **yES** (1) = opening the door switches on the light (if it was off)	flag	no/yES	no	no	no	no

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
dLt	Light relay (room light) deactivation (switch-off) delay. The light relay remains on for dLt minutes when the door is closed if parameter **dSd** is set to switch on the light.	min	0...250	0	0	0	0
OFL	Light key always disables the light relay. Enables switching off with chiller light switch even if the delay after closing the door set by **dLt** is enabled. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	yES	yES	yES	yES
dOd	Enable utility switch-off on activation of door switch. • **0** = disabled • **1** = disables fans • **2** = compressor disabled • **3** = disables fans and compressor	num	0...3	0	0	0	0
dOA	Forced action of digital input (only if **PEA ≠ 0**): • **0** = compressor activated • **1** = fans activated • **2** = compressor and fans activated • **3** = compressor disabled • **4** = fans disabled • **5** = compressor and fans disabled	num	0...5	0	0	0	0
PEA	Selection of a digital input with resource blocking/unblocking function. • **0** = function disabled • **1** = associated to door switch • **2** = associated to external alarm • **3** = associated to external alarm and door switch	num	0...3	0	0	0	0
dCO	Delay activating/deactivating compressor after request.	min	0...250	0	0	0	0
dFO	Delay activating/deactivating fans after request.	min	0...250	0	0	0	0
ASb	Activation by key of AUX or LIGHT input when the controller is in standby. • **no** (0) = disables relay until return from stand-by • **yES** (1) = the state of relay doesn't change and it can be activated/disabled from key	flag	no/yES	no	no	no	no
LINK² (Lin)							
L00	Selects which probe to share: • **diS** (0) = disabled • **Pb1** (1) = will share probe Pb1 • **Pb2** (2) = will share probe Pb2 • **Pb3** (3) = will share probe Pb3 • **Pb4** (4) = will share probe Pb4 • **Pb5** (5) = will share probe Pb5 • **Pbi** (6) = will share the virtual probe	num	diS Pb1 Pb2 Pb3 Pb4 Pb5 Pbi	diS	diS	diS	diS
L01	Shares the displayed value with the LAN. • **0** = prevent the value shown by the device from being sent to the LINK² network • **1** = enables sending of the value displayed on the device to the LINK² network • **2** = shows the value of the device with **L01 = 1**	num	0/1/2	0	0	0	0
L02	Sends the setpoint value to the LINK² network after it has been modified. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
L03	Enables the defrost request to be sent to the LINK² network. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
L04	Defrost end mode. • **ind** (0) = indipendent • **dEP** (1) = dependent	flag	ind/dEP	ind	ind	ind	ind
L05	Enables synchronisation of the Standby command. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
L06	Enables synchronisation of the lights command. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
L07	Enables synchronization of the Energy Saving command. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
L08	Enables synchronisation of the AUX command. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
L10	Sets the time delay to be set after the end of dependent defrosts.	min	0...250	30	30	30	30
	PRESSURE SWITCH (PrE)						
PEn	Number of errors allowed per pressure switch input. **0**= disabled.	num	0...15	0	0	0	0
PEi	Pressure switch error count interval.	min	1...250	1	1	1	1
	LVD - POWER SUPPLY CONTROL (SuC) ▶	NOTE:	**all parameters available in the folder are not available in the vectors.**				
SPH	Maximum supply voltage threshold. **0** = function excluded.	Volt	SPL...300	0	0	0	0
SPL	Minimum supply voltage threshold. **0** = function excluded.	Volt	0...SPH	0	0	0	0
dFL	Intervention differential. **0** = function excluded.	Volt	0.1...25.0	0.1	0.1	0.1	0.1
SoU	Selection of the output to be deactivated. See corresponding paragraph.	num	0...127	0	0	0	0
	DEEP COOLING CYCLE (dEC)						
dcS	Deep Cooling Setpoint.	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
tdc	Deep Cooling duration.	min	0...250	0	0	0	0
dcc	Delay before defrost after a deep cooling cycle.	min	0...250	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 on • **4**= device off	num	0...4	0	0	0	0
ESF	Night mode (energy saving) activation for fans. • **no** (0) = disabled • **yES** (1) = enabled if energy saving mode on (**ESt≠0** and **ESt≠4**)	flag	no/yES	no	no	no	no
OS1	Offset setpoint 1 (SP1).	°C/°F	-50.0...50.0	3.0	3.0	3.0	3.0
OS2	Offset setpoint 2 (SP2) (only if **rE ≠ 0**).	°C/°F	-50.0...50.0	0.0	0.0	0.0	0.0
dn1	Activation differential 1 in energy saving mode.	°C/°F	-58.0...302	4.0	4.0	4.0	4.0
dn2	Activation differential 2 in energy saving mode (only if **rE ≠ 0**).	°C/°F	-58.0...302	4.0	4.0	4.0	4.0
EdH	Start time hours weekday Energy Saving (only if **H68 = y**). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
Edn	Workday Energy Saving start minutes (only if **H68 = y**).	min	0...59	0	0	0	0
Edd	Duration of workday Energy Saving (only if **H68 = y**).	hours	1...72	10	10	10	10
EFH	Holiday Energy Saving start hour (only if **H68 = y**). **0...23** = start hour; **24** = disabled.	hours	0...24	24	24	24	24
EFn	Holiday Energy Saving start minutes (only if **H68 = y**).	min	0...59	0	0	0	0
EFd	Duration of holiday Energy Saving (only if **H68 = y**).	hours	1...72	24	24	24	24
	FRAME HEATER (FrH)						
FH	Selects which probe will be used by frame heaters: • **diS** (0) = disabled • **dc** (1) = working in Duty Cycle mode • **Pb1** (2) = will use probe Pb1 • **Pb2** (3) = will use probe Pb2 • **Pb3** (4) = will use probe Pb3 • **Pb4** (5) = will use probe Pb4 • **Pb5** (6) = will use probe Pb5 • **Pbi** (7) = will use the virtual probe	num	diS dc Pb1 Pb2 Pb3 Pb4 Pb5 Pbi	diS	diS	diS	Pb1
FHt	Frame heater running time. **N.B.** = only used if output **OC** used with SSR relay.	secs*10	1...250	30	30	30	30
FH0	Configuration of relative setpoint for frame heater (only if **FH≠dis** and **FH≠dc**).	°C/°F	-58.0...302	0.0	0.0	0.0	0.0
FH1	Configuration of relative offset for frame heater (only if **FH≠dis** and **FH≠dc**).	°C/°F	0.0...25.0	0.0	0.0	0.0	0.0
FH2	Configuration of relative band for frame heater (only if **FH≠dis** and **FH≠dc**).	°C/°F	0.0...25.0	2.0	2.0	2.0	2.0
FH3	Configuration of minimum percentage for frame heater (only if **FH≠dis** and **FH≠dc**)	%	0...100	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
FH4	Sets maximum percentage for day Duty Cycle.	%	0...100	75	75	75	75
FH5	Set maximum Percentage of the night Duty Cycle.	%	0...100	50	50	50	50
FH6	Sets percentage during defrost.	%	0...100	100	100	100	100
COMMUNICATION (Add)							
Adr	Modbus protocol controller address (only if **PtS = d**).	num	1...250	1 (Parameter not present in vectors)			
bAU	Baudrate selection. • **96** (0) = 9600 • **192** (1) = 19200 • **384** (2) = 38400	num	96/192/384	96 (Parameter not present in vectors)			
Pty	Sets Modbus parity bit (only if **PtS = d**). • **n** (0) = none • **E** (1) = even • **o** (2) = odd	num	n/E/o	E (Parameter not present in vectors)			
DISPLAY (diS)							
LOC	LOCk. Setpoint edit lock. You can still access the parameter programming menu and edit the parameters, including this parameter, in order to allow keypad unlocking. • **no** (0) = no • **yES** (1) = yes	flag	no/yES	no	no	no	no
PS1	PAssword 1. When enabled (**PS1 ≠ 0**) this is the access key to level 1 parameters (**User**).	num	0...250	0	0	0	0
PS2	PAssword 2. When enabled (**PS2 ≠ 0**) this is the access key to level 2 parameters (**Installer**).	num	0 ... 250	15	15	15	15
ndt	Display with decimal point. • **no** (0) = no (integers only) • **yES** (1) = yes (decimal display)	flag	no/yES	yES	yES	yES	yES
CA1	Probe **Pb1** calibration. Positive or negative temperature value added to the value read by **Pb1**. This sum is used both for the temperature displayed and for regulation (only if **H41 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
CA2	Probe **Pb2** calibration. Positive or negative temperature value added to the value read by **Pb2**. This sum is used both for the temperature displayed and for regulation (only if **H42 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
CA3	Probe **Pb3** calibration. Positive or negative temperature value added to the value read by **Pb3**. This sum is used both for the temperature displayed and for regulation (only if **H43 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
CA4	Probe **Pb4** calibration. Positive or negative temperature value added to the value read by **Pb4**. This sum is used both for the temperature displayed and for regulation (only if **H44 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
CA5	Probe **Pb5** calibration. Positive or negative temperature value added to the value read by **Pb5**. This sum is used both for the temperature displayed and for regulation (only if **H45 = Pro**).	°C/°F	-30.0...30.0	0.0	0.0	0.0	0.0
LdL	Minimum value that can be displayed by the device.	°C/°F	-58.0...HdL	-50.0	-50.0	-50.0	-50.0
HdL	Maximum value that can be displayed by the device.	°C/°F	LdL...302	50.0	50.0	50.0	50.0
ddL	Display mode during defrost. • **0** = displays the temperature read by probe • **1** = blocks the reading at the temperature value read by the probe when defrosting starts and until the next time the SEt is reached • **2** = displays label **dEF** during defrost and until the SEt is reached (or until **Ldd** elapses).	num	0/1/2	2	2	2	2
Ldd	Timeout value for display unlock - label **dEF**.	min	0...250	40	40	40	40
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 setpoints, differentials, etc. (example: set=10°C becomes 10°F).**	flag	C/F	C	C	C	C

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
ddd	Selects type of value to display. • **SP1** (0) = Setpoint SP1 • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5 • **Pbi** (6) = will use the virtual probe • **LP** (7) = will use the probe of the LINK[2] network	num	SP1 Pb1 Pb2 Pb3 Pb4 Pb5 Pbi LP	Pb1	Pb1	Pb1	Pb1
ddE	Select the type of value to show on ECHO module display. Same as **ddd**.	num	SP1, Pb1...Pb5, Pbi, LP	Pb1	Pb1	Pb1	Pb1
HACCP (HCP)							
rPH	Selects which probe will be used by the HACCP alarms. • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5	num	diS Pb1 Pb2 Pb3 Pb4 Pb5	diS	diS	diS	diS
CONFIGURATION (CnF) ➡	If one or more of the parameters in the folder are changed, the controller **MUST** be switched off and on again.						
H00	Select type of probe used (Pb1...Pb5). **ntc** (0) = NTC; **Ptc** (1) = PTC; **Pt1** (2) = PT1000	num	ntc/Ptc/Pt1	ntc	ntc	ntc	ntc
H08	Function when in standby mode. • **0** = display off; the regulators are active and the device reactivates the display to signal any alarms • **1** = display off; regulators and alarms blocked • **2** = display shows OFF label; regulators and alarms blocked	num	0/1/2	2	2	2	2
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** = preheating alarm • **±10** = general pressure switch • **±11** = low pressure switch • **±12** = high general pressure switch • **±13** = deep cooling • **±14** = not used • **±15** = force Fans to ON • **±16** = force OF1 (remote offset) • **±17** = general input **NOTES:** • 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 open	num	-17...17	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
H13	Configuration of digital input 3/polarity (PB3) (only if **H43=di**). Same as **H11**.	num	-17...17	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
H15	Configuration of digital input 5/polarity (PB5) (only if **H45=di**). Same as **H11**.	num	-17...17	0	0	0	0
H18	Configuration of digital input 8/polarity (DI1). Same as **H11**.	num	-17...17	5	5	5	5
dti	Unit of measure for digital inputs DI1 and DI2. If DI1 or DI2 have been configured as DI, the unit of measure used can be set. • **0** = minutes • **1** = seconds	num	0/1	0	0	0	0

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
d11	Delay to activate digital input 1 (PB1) (only if **H41 = di**).	min/secs	0...255	0	0	0	0
d12	Delay to activate digital input 2 (PB2) (only if **H42 = di**).	min/secs	0...255	0	0	0	0
d13	Delay to activate digital input 3 (PB3) (only if **H43 = di**).	min	0...255	0	0	0	0
d14	Delay to activate digital input 4 (PB4) (only if **H44 = di**).	min	0...255	0	0	0	0
d15	Delay to activate digital input 5 (PB5) (only if **H45 = di**).	min	0...255	0	0	0	0
d18	Delay to activate digital input 8 (DI1).	min	0...255	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** = frame heater • **9** = defrost 2 • **10** = compressor 2; • **11** = not used • **12** = AUX regulator • **13** = hot gas on evaporation suction valve	num	0...13	1	1	1	1
H22	Configuration of digital output 2 (OUT 2). Same as **H21**.	num	0...13	0	2	2	2
H23	Configuration of digital output 3 (OUT 3). Same as **H21**.	num	0...13	4	4	3	3
H24	Configuration of digital output 4 (OUT 4). Same as **H21**.	num	0...13	5	5	5	5
H25	Configuration of digital output 5 (OPEN COLLECTOR). Same as **H21**.	num	0...13	0	0	4	8
H29	Enables keypad buzzer. • **diS** (0) = output disabled • **En** (1) = output enabled	flag	diS/En	diS	diS	diS	diS
H31	UP key configuration. • **0** = Disabled • **1** = Defrost • **2** = Reduced setpoint • **3** = Light • **4** = Energy saving • **5** = AUX • **6** = Stand-by • **7** = Deep cooling • **8** = Start/stop defrost	num	0...8	1	1	1	1
H32	DOWN key configuration. Same as **H31**.	num	0...8	5	5	5	5
H33	ESC key configuration. Same as **H31**.	num	0...8	6	6	6	6
H41	Configuration of analogue input type 1 (Pb1). • **diS** (0) = disabilitato • **di** (1) = ingresso digitale • **Pro** (2) = ingresso sonda	num	diS/di/Pro	Pro	Pro	Pro	Pro
H42	Configuration of analogue input type 2 (Pb2). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro
H43	Configuration of analogue input type 3 (Pb3). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro
H44	Configuration of analogue input type 4 (Pb4). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro
H45	Configuration of analogue input type 5 (Pb5). Same as **H41**.	num	diS/di/Pro	Pro	Pro	Pro	Pro
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 **(Parameter not present in vectors)**			

PAR.	DESCRIPTION	M.U.	RANGE	AP1-AP5-AP6-AP7-AP8	AP2	AP3	AP4
H68	Clock Present. • **no** (0) = clock absent • **yES** (1) = clock present	flag	no/yES	yES	yES	yES	yES
H70	Select 1st probe to use as virtual probe. • **diS** (0) = disabled • **Pb1** (1) = will use probe Pb1 • **Pb2** (2) = will use probe Pb2 • **Pb3** (3) = will use probe Pb3 • **Pb4** (4) = will use probe Pb4 • **Pb5** (5) = will use probe Pb5	num	diS Pb1 Pb2 Pb3 Pb4 Pb5	diS	diS	diS	diS
H71	Select 2nd probe to use as virtual probe. Same as **H70**.	num	0 ... 5	diS	diS	diS	diS
H72	% calculation used by day virtual probe.	%	0 ... 100	0	0	0	0
H73	% calculation used by virtual probe at night (Energy Saving mode).	%	0 ... 100	0	0	0	0
	COPY CARD (FPr)						
UL	Upload. Transfer programming parameters from instrument to Copy Card.	/	/	/ **(Parameter not present in vectors)**			
dL	Download. Transfer programming parameters from Copy Card to Controller.	/	/	/ **(Parameter not present in vectors)**			
Fr	Formatting. Delete data on Copy Card. **IMPORTANT:** **If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be reversed.**	/	/	/ **(Parameter not present in vectors)**			
	FUNCTIONs (FnC)						

The following functions are available:

Function	Function label ACTIVE	Function label NOT ACTIVE	Alarm signaling
Manual defrost	dEF + LED blinking	dEF	Blinking Defrost icon
AUX (ON = on; OFF = non off)	Aon	AoF	AUX ON icon
Reset pressure switch alarms	rAP	rAP	Alarm ON icon
Stand-by	OFF	OFF	Stand-by ON Led (KDWPlus only)

NOTES:
• To modify the status of a given function, press the 'set' key
• If the instrument is switched off, the function labels will return to the default status

7 - ALARMS TABLE

7.1 - ALARM AND MESSAGES TABLE

When an alarm condition is detected, the alarm icon " $((\bullet))$ " will come on.
If present and enabled, the buzzer and alarm relay will also activate.
To silence the buzzer, press and release any key, the relative icon will continue to flash.
All alarms reset automatically (i.e. disappear when the underlying cause is removed).

The alarm codes are as follows:

Code	Description	LED $((\bullet))$	Alarm Relay	Reset	Parameters involved to ENABLE ALARM
E1	Probe Pb1 failure	ON	Active	Automatic	Ont, OFt
E2	Probe Pb2 failure	ON	Active	Automatic	Ont, OFt
E3	Probe Pb3 failure	ON	Active	Automatic	Ont, OFt
E4	Probe Pb4 failure	ON	Active	Automatic	Ont, OFt
E5	Probe Pb5 failure	ON	Active	Automatic	Ont, OFt
EL	LINK[2] probe failure	ON	Active	Automatic	Ont, OFt
Ei	Virtual probe failure	ON	Active	Automatic	Ont, OFt
AH1	HIGH temperature 1 alarm	ON	Active	Automatic	SP1, Att, AFd, HA1, LA1, PAO, dAO, OAO, tA1
AL1	LOW temperature 1 alarm	ON	Active	Automatic	SP1, Att, AFd, HA1, LA1, PAO, dAO, OAO, tA1
AH2	HIGH temperature 2 alarm	ON	Active	Automatic	SP2, Att, AFd, HA2, LA2, PAO, dAO, OAO, tA2
AL2	LOW temperature 2 alarm	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	End of defrost due to time-out	ON	not active	Automatic	dE1, dE2, dAt
Prr	Preheating alarm	ON	not active	Automatic	
E10	Clock alarm	ON	not active	Automatic	
HiP	HIGH voltage alarm	ON	not active	Automatic	SPH, SPL, dFL, SoU
LoP	LOW voltage alarm	ON	not active	Automatic	SPH, SPL, dFL, SoU
nPA	General pressure switch alarm	ON	not active	Automatic	PEn, PEi
LPA	Low pressure switch alarm	ON	not active	Automatic	PEn, PEi
HPA	High pressure switch alarm	ON	not active	Automatic	PEn, PEi
PA	General pressure switch alarm	ON	not active	Manual	PEn, PEi

NOTES:
1. If alarm exclusion times have been applied ("AL" folder in Parameter Table), the alarm will not be signaled.
2. With the exception of probe failure alarms, all other alarms will record the relative label in the ALr folder in the MACHINE STATE menu.
3. Alarms deriving from a probe failure will be shown on the display via label E1, E2, E3, E4, E5,EL and Ei depending on whether it relates to probe Pb1, Pb2, Pb3, Pb4, Pb5, LINK[2] or Virtual probe.

7.1.1 - CAUSE/EFFECT TABLE

The **RTN400** can run full system diagnostics and signal any operating anomalies with specific alarms as well as record and signal on the display any special events defined by the user, to provide greater system control.

Label	Fault	Cause	Effects	Remedy
E1	Probe Pb1 faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **E1** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E2	Probe Pb2 faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **E2** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E3	Probe Pb3 faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **E3** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E4	Probe Pb4 faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **E4** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
E5	Probe Pb5 faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **E5** displayed • Alarm icon permanently on	• Check probe type (**H00**) • Check the probe wiring • Replace probe
EL	LINK[2] probe faulty	• Measured values are outside operating range • probe faulty/short-circuited/open	• Label **EL** displayed • Alarm icon permanently on	• Check probe type • Check the probe wiring • Replace probe
Ei	VIRTUAL probe faulty	• Measured values are outside operating range • probe faulty/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 probe 1 > HA1 after time set in tA1. (see "MAX/MIN TEMP. ALARMS")	• Label **AH1** recorded in folder ALr • No effect on control	Wait until value read by probe selected with **rA1** returns below (**HA1-AFd**).
AL1	LOW temperature alarm 1	value read by probe 1 > LA1 after time set in tA1. (see "MAX/MIN TEMP. ALARMS")	• Label **AL1** recorded in folder ALr • No effect on control	Wait until value read by probe selected with **rA1** returns above (**LA1+AFd**).
AH2	HIGH temperature alarm 2	value read by probe 2 > HA2 after time set in tA2. (see "MAX/MIN TEMP. ALARMS")	• Label **AH2** recorded in folder ALr • No effect on control	Wait until value read by probe selected with **rA2** returns below (**HA2-AFd**).
AL2	LOW temperature alarm 2	value read by probe 2 > LA2 after time set in tA2. (see "MAX/MIN TEMP. ALARMS")	• Label **AL2** recorded in folder ALr • No effect on control	Wait until value read by probe selected with **rA2** returns above (**LA2+AFd**).
EA	External alarm	Digital input activated	• Label **EA** recorded in folder ALr • Alarm icon permanently on • Regulation blocked as requested by **EAL**	Check and remove external cause of alarm on D.I.
OPd	Door open alarm	Digital input activated (for a time greater than tdO)	• Label **Opd** recorded in folder ALr • Alarm icon permanently on • Regulation blocked as requested by **dOd**	• Close the door • Delay function defined by **OAO**
Ad2	End defrost by time-out	End of defrost cycle due to timeout rather than due to defrost end temperature being read by Pb2.	• Label **Ad2** recorded in folder ALr • Alarm icon permanently on	Wait for the next defrost cycle for automatic reset.
Prr	Preheat alarm	Alarm for preheat input regulator ON	• Label **Prr** displayed • Compressor icon blinking • Regulation locked (Compressor and Fans) **NOTE**: defrost will also be blocked if it is hot gas defrost.	Preheat input regulator off
E10	Clock alarm	• Clock (RTC) battery dead. • RTC failure.	• Label **E10** recorded in folder ALr • Functions associated with clock not available	Connect the instrument to the power supply.

Label	Fault	Cause	Effects	Remedy
HiP	HIGH voltage alarm	Voltage value read by the analog input is higher than the **SPH** value.	• Display label **HiP** • Alarm icon permanently on • Regulation locked depending on **SoU** value	wait for the value read by the analog input returns below (**SPH-dFL**).
LoP	LOW voltage alarm	Voltage value read by the analog input is lower than the **SPL** value.	• Display label **LoP** • Alarm icon permanently on • Regulation locked depending on **SoU** value	Wait for the value read by the analog input returns above (**SPL+dFL**).
nPA	General pressure switch alarm	Activation of pressure switch alarm by general pressure switch regulator.	If the number **N** of pressure switch activations is N<PEn • Folder **nPA** recorded in folder ALr with the number of pressure switch activations • Regulation locked (Compressor and Fans)	Check and remove cause of alarm on D.I. (Auto Reset).
LPA	Low pressure switch alarm	Activation of pressure switch alarm by low pressure switch regulator.	If the number **N** of pressure switch activations is N<PEn: • Folder **LPA** recorded in folder ALr with the number of pressure switch activations • Regulation locked (Compressor and Fans)	Check and remove cause of alarm on D.I. (Auto Reset).
HPA	High pressure switch alarm	Activation of pressure switch alarm by high pressure switch regulator.	If the number **N** of pressure switch activations is N<PEn: • Folder **HPA** recorded in folder ALr with the number of pressure switch activations • Regulation locked (Compressor and Fans)	Check and remove cause of alarm on D.I. (Auto Reset).
PA	General pressure switch alarm	Activation of pressure switch alarm by general pressure switch regulator.	If the number **N** of pressure switch activations is N=PEn: • Label **PA displayed.** • Label **PA** recorded in folder ALr • Alarm icon permanently on • Regulation locked (Compressor and Fans)	• Switch the device off and back on again • Reset alarms by entering the functions folder and selecting the **rAP** function (Manual Reset)

7.2 - DESCRIPTION OF ALARMS

7.2.1 - 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 failure
- **E2** = Probe Pb2 failure
- **E3** = Probe Pb3 failure
- **E4** = Probe Pb4 failure
- **E5** = Probe Pb5 failure
- **EL** = LINK[2] probe failure
- **Ei** = VIRTUAL probe failure

The alarm LED and alarm relay are activated. Codes **E1**, **E2**, **E3**, **E4**, **E5**, **EL** and **Ei**, if they occur at the same time, are displayed in the following sequence: E1 x 2 sec, E2 x 2 sec, E3 x 2 sec, etc.

ACTIONS ON CURRENT REGULATION

For all probes, a probe error will cause the following actions:

- Code E**x** shown on display (where **x** = 1, 2, 3, 4, 5, 6, 7, L, i)
- Alarm icon permanently on and alarm relay activated (if present)

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

SIGNALLING

Code	Meaning
E1	Probe Pb1 error
E2	Probe Pb2 error
E3	Probe Pb3 error
E4	Probe Pb4 error.
E5	Probe Pb5 error.
EL	LINK[2] probe error
Ei	Virtual probe error.

ALARM ACKNOWLEDGEMENT

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.
Eliminating the cause of the alarm disarms the acknowledgment.
The probe fault alarm is not stored by the controller.

USER PARAMETERS

Label	Description
Ont	ON time for compressor output with faulty regulation probe
OFt	OFF time for compressor output with faulty regulation probe

7.2.2 - MINIMUM AND MAXIMUM TEMPERATURE ALARM

OPERATING CONDITIONS

Alarm regulation is based on probe 1. The temperature limits defined in parameters **HA1/2** and **LA1/2** are characterized by parameter **Att** which specifies if they represent the absolute temperature value or a differential from the setpoint (in the event of an offset from the setpoint entered, the high and low alarms will refer to this new regulation set).

- If **Att**=0 **Ab(solute)**, the temperature limits for probe 1/2 are absolute
- If **Att**=1 **rE(lative)**, temperature limits for probe 1/2 refer to setpoints **SP1/2**

NOTE: to obtain the minimum alarm below the setpoint in the event **Att**=1 (relative), **LA1/2** must be set to < 0.

ALARM CONDITION

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

- Maximum alarm: $\geq$ **HA1/2** if **Att=Ab(solute)** and $\geq$ than (**SP1/2 + HA1/2**) if **Att=rE(lative)**
- Minimum alarm: $\leq$ **LA1/2** if **Att=Ab(solute)** and $\leq$ than (**SP1/2 + LA1/2**) if **Att=rE(lative)**

If **Att = Ab(solute)**, **HA1/2 and LA1/2** must have a sign, if **Att = rE(lative)** then **HA1/2 > 0 and LA1/2 < 0**.

When one of the aforementioned conditions occurs and no alarm exclusion times have been set (see exclude alarm parameters), the alarm LED comes on and relay configured as alarm is activated (if present).

The maximum/minimum alarm ceases when the temperature of probe 1/2:

- After maximum alarm: $\leq$ (**HA1/2 - AFd**) if **Att=Ab(solute)** and $\leq$ (**Set + HA1/2 - AFd**) if **Att=rE(lative)**
- After minimum alarm: $\geq$ (**LA1/2 + AFd**) if **Att=Ab(solute)** and $\geq$ (**Set + LA1/2 + AFd**) if **Att=rE(lative)**

ABSOLUTE VALUE TEMPERATURE (Att=0)	RELATIVE VALUE TEMPERATURE COMPARED TO SP1/2 (Att=1)
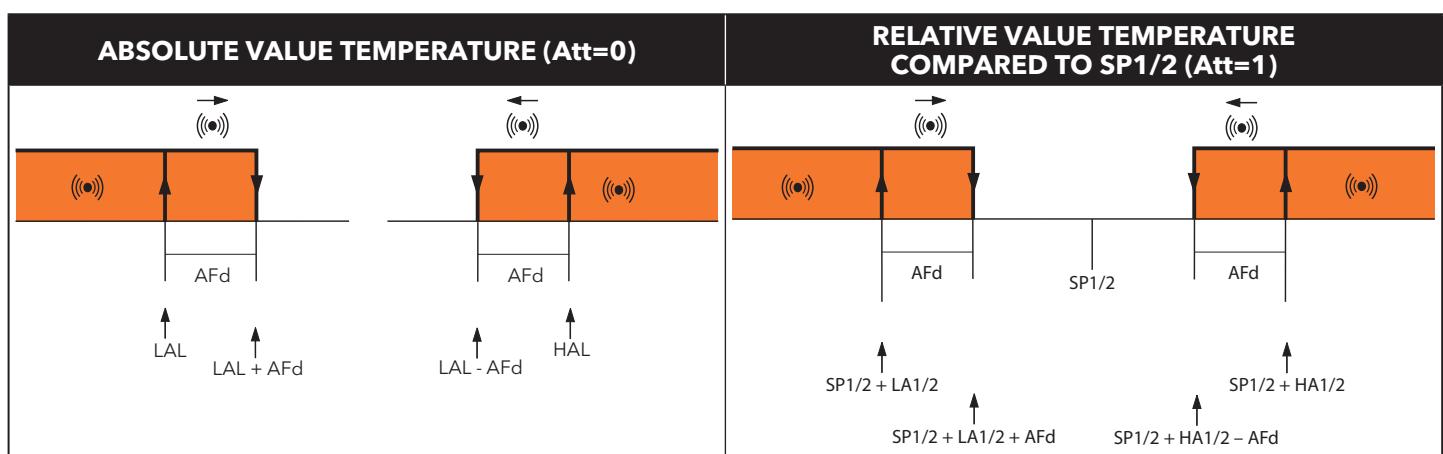
NOTES:
- During a defrost cycle, high and low temperature alarms are overridden.
- Occurrence of this alarm does not effect any regulation in progress.

SIGNALLING

Code	Meaning
AH1/2	HIGH temperature alarm in relation to probe 1/2
AL1/2	LOW temperature alarm in relation to probe 1/2

ALARM ACKNOWLEDGEMENT

When an alarm has occurred, the relay configured as alarm (if present) can be overridden by pressing any key or via a menu function even if the alarm condition persists. The alarm LED will start to blink.
Eliminating the cause of the alarm disarms the acknowledgement.
The probe fault alarm is not stored by the controller.

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 1 maximum alarm threshold
LA2	Probe 1 minimum alarm threshold
PAO	Temperature alarms disabling time from power-on
dAO	Temperature alarm disabling time after defrost cycle
OAO	High and low temperature alarms disabling time after door closing
tAO	Temperature alarms delay time

7.2.3 - END OF DEFROST ALARM DUE TO TIME-OUT

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:

- Permanent illumination of alarm LED
- 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 acknowledgment procedure, although the alarm signal is only actually canceled at the start of the next defrost cycle.

SIGNALLING

Code	Meaning
Ad2	Defrost alarm on Pb2

USER PARAMETERS

Label	Description
dE1	Evaporator 1 defrost time-out.
dE2	Evaporator 2 defrost time-out.
dAt	Alarm signaling end of defrost due to timeout

7.2.4 - EXTERNAL ALARM

OPERATING CONDITIONS

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

The action consist of:

- Permanent illumination of alarm LED
- Recording of label **EA** in the alarms menu
- Activation of the relay configured as alarm (if enabled)
- Regulation disabled if so configured in parameter **EAL**.

The alarm relay can be blocked but regulators remain blocked until the digital input is disabled.

Parameter **EAL** can have the following values:

- **EAL = 0**: no resources are blocked by an external alarm;
- **EAL = 1**: external alarm blocks compressor and defrost;
- **EAL = 2**: external alarm blocks compressor, defrost and fans.

SIGNALLING

Code	Meaning
EA	External alarm

USER PARAMETERS

Label	Description
EAL	External alarm blocks regulators

7.2.5 - DOOR OPEN ALARM

OPERATING CONDITIONS

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

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

On activation of the digital input (door open) and after delay **tdO** has elapsed, the door open alarm must be signaled in the alarms folder and the LED and alarm relay must light up The label **OPd** is displayed.
The action consist of:

- Permanent illumination of alarm LED
- Recording of label **OPd** in the alarms menu
- Activation of the relay configured as alarm

As for other alarms, the relay can be disabled by pressing an override key; the alarm LED will blink and the label **OPd** will remain in the alarms menu until the door is closed.
If the door is opened, the regulator will act as configured in parameter **dOd**. The following values can occur:

- **dOd = 0**: no resources blocked
- **dOd = 1**: fans blocked
- **dOd = 2**: compressor blocked (COMPR)
- **dOd = 3**: both fans and compressor blocked

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

SIGNALLING

Code	Meaning
OPd	Door open alarm

USER PARAMETERS

Label	Description
dOd	Digital input for switching off utilities: **0** = disabled; **1** = disables fans; **2** = disables compressor; **3** = disables fans and compressor.
dCO	Compressor enabling delay from acknowledgement
tdO	Open door disabling time

7.2.6 - PRESSURE SWITCH INPUT ALARM

OPERATING CONDITIONS

The pressure switch is associated to a specially configured digital input and be either general, low or high.

👉 **NOTE**:   The behaviour and configuration parameters are the same for all three types.

Each activation of the pressure switch input causes the immediate disabling of the compressor with a visual-only WARNING to signal the activation, brought about by the lighting up of the alarm LED and the display of a sub-folder named **nPA** (general), **LPA** (minimum) or **HPA** (maximum) in the alarms folder .

The number of pressure switch activations is stored in this folder.

If the pressure switch digital input is disabled, the compressor starts up again and the alarm LED switches off, but the alarms folder stores the number of activations recorded in the previous error count interval (set in the parameter PEi).

On reaching the number of activations set in parameter **PEn**, the number in the folder is replaced with the label **PA** and the letters **PA** (general), **PAL** (minimum) or **PAH** (maximum) appear on the display.

The compressor, fans and defrost are disabled and the alarm LED and alarm relay (if configured) are activated.
Once the controller is in alarm state, it must be powered off then on, or reset by activating
 the **rAP** (reset pressure switch alarm) function from the function menu

👉 **NOTE**:   the value **PEn** represents the number of pressure switch activations, in the interval set in the parameter PEI, which determines the entry into the alarm state and the disabling of the compressor, fans and defrost outputs. If **PEn = 0** the function is disabled and the pressure switch alarm is ignored.

SIGNALLING

Code	Meaning
nPA	general pressure switch alarm
LPA	minimum pressure switch alarm
HPA	maximum pressure switch alarm

USER PARAMETERS

Label	Description
PEn	Number of errors allowed per pressure switch input. **0** = disabled.
PEi	Pressure switch error count interval.

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 slaves can only respond individually to the master.

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

8.1 - DATA FORMAT (RTU)

The coding model 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, etc.); furthermore, some devices support only specific coding models, although it must be the same one for all devices connected in a Modbus network.

The protocol uses the RTU binary method with bytes configured as follows: **8 bits for data, non-parity bit (configurable), 2 stop bits.**

NOTE: the transmission speed must be set at 9600 baud.

Parameter setting allows the full configuration of the device

They can be modified using:

- Device keypad
- Copy Card
- Sending data via Modbus protocol directly to an individual controller or broadcasting it using the address 0.

8.1.1 - NETWORK

The connection diagram for using Modbus is shown below:

ModBus via RS485 connection diagram

PC with ModBUS software package

PC RS232

INTERFACE RS232-RS485
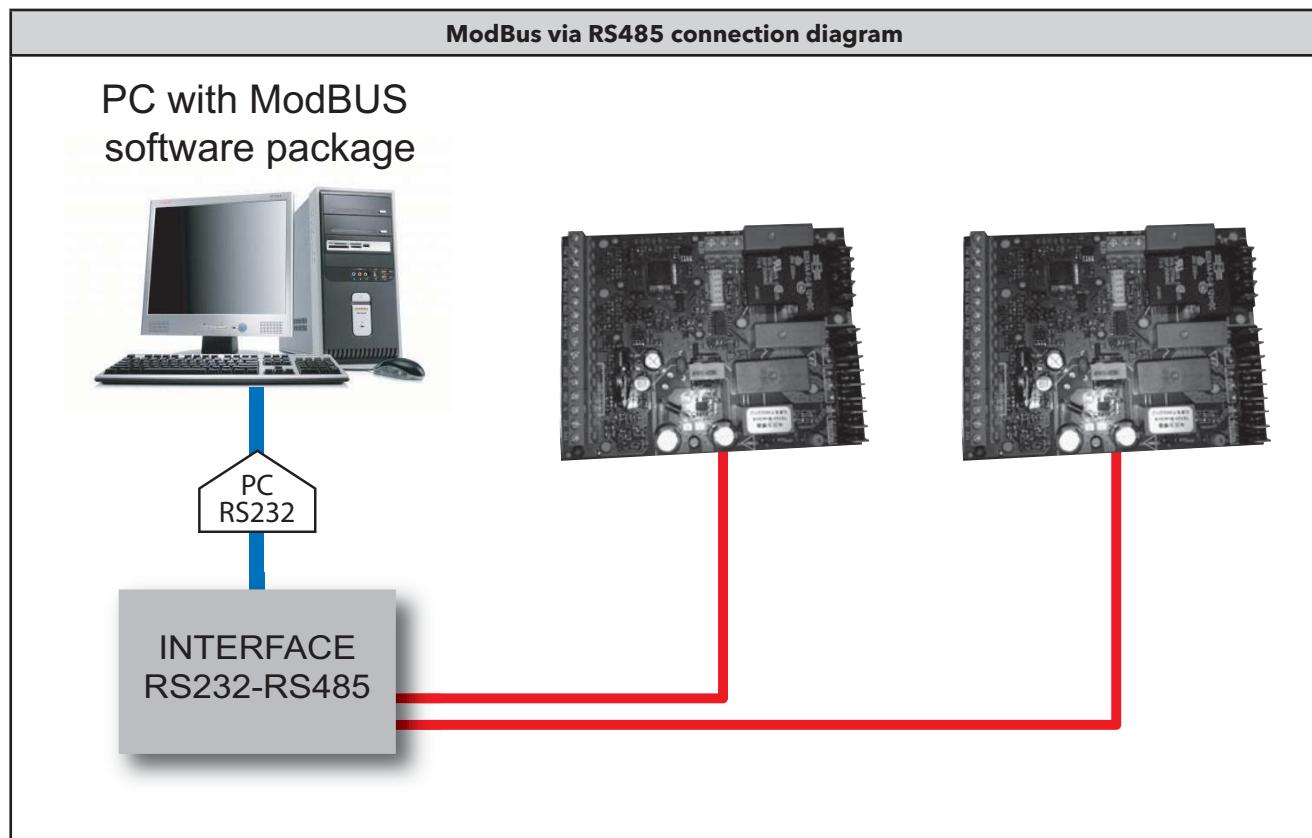
8.1.2 - MODBUS COMMANDS AVAILABLE AND DATA AREAS

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: | Field code	Field description
0	Manufacturer ID (="Invensys")
1	Device model/polycarbonate ID
2	Identification of device family (MSK 510)/version	

Length restrictions

Maximum length in bytes of messages sent to device	30 BYTES
Maximum length in bytes of messages received by the device	30 BYTES

8.1.3 - 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 in a ModBus message is set via parameter **Adr.**

The address 0 is used for broadcast messages that all slaves recognize. Slaves don't respond to broadcast messages.
The parameters for configuring the device are:

Parameter	Description	Values	Range
Adr	Modbus protocol controller address	0	1 ... 250
Pty	Modbus protocol parity bit	n	• n= NONE • E= EVEN • o= ODD
bAU	Baudrate selection.	96	• 96 = 9600 • 192 = 19200 • 384 = 38400

👉 **NOTE**: To guarantee correct operation, the controller must be switched off and switched on again after modification of parameters Pty and bAU.

⚠️ **IMPORTANT**: Remember to set the **2 STOP BITS**.

8.1.4 - PARAMETER VISIBILITY AND VALUES

⚠️ **IMPORTANT**: 1. When not indicated otherwise, the parameter is always visible and modifiable, unless customised settings have been configured via serial.

2. If folder visibility is modified, the new setting will apply to all parameters in the folder.

8.2 - MODBUS TABLES

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

There are three tables:

- The "**PARAMETERS TABLE**" contains all device configuration parameters stored in the controller's non-volatile memory, including visibility
- The "**FOLDER VISIBILITY TABLE**" indicates the visibility of the folders containing the parameters
- The "**CLIENT TABLE**" includes all I/O and alarm status resources available in the volatile memory of the instrument.

Description of columns:

FOLDER
This indicates the label of the folder containing the parameter in question.

LABEL
This indicates the label used to display the parameters in the menu of the controller.

PAR. ADDRESS VALUE
The integer part represents the address of the MODBUS register containing the value of the resource to be read or written in the controller. The value after the 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. ADDRESS VALUE	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	(0**0**000010101000110)
8806.7	4 BIT	10	1350	(00000**1010**1000110)

⚠️ **ATTENZIONE**: 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. ADDRESS
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
- M.U.: num

**Value Meaning

- Value 3 = parameter or folder always visible
- Value 2 = **manufacturer level**; these parameters can only be viewed by enter the manufacturer's password (see parameter PS2) (all parameters declared as always visible, parameters visible at the installer level and manufacturer's level will be visible)
- Value 1 = **installer level**; these parameters can only be viewed by enter the installer's password (see parameter PS1) (all parameters declared as always visible and parameters visible at the 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):
Default visibility:

PAR. ADDRESS VALUE	DATA SIZE	Value		Content of register
49336.6	2 BIT	3	65535	-------------(00000000**11**1111111111111)
49337	2 BIT	3	65535	(000000001111111**11**11111111)
49337.2	2 BIT	3	65535	(0000000011111**11**1111111111)
49337.4	2 BIT	3	65535	(000000001**11**111111111111111)
49337.6	2 BIT	3	65535	(00000000**11**11111111111111111)

R/W
Indicates if resources are read/write, read-only or write-only:
- R = The resource is read-only
- W = The resource is write-only
- RW = The resource can be both read and written to

DESCRIPTION
This is the description of the meaning of the **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 instrument parameters (indicated with the parameter label).

M.U.
Measurement unit for values converted according to the rules indicated in the CPL and EXP columns.

8.2.1 - PARAMETER/VISIBILITY TABLE

NOTE: Reading Modbus command: 04 (0x04) and Writing Modbus command: 22 (0x16)

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
	SP1	32895	38144.6	RW	Setpoint	WORD	Y	LS1...HS1	°C/°F
	SP2	32897	38144.10	RW	Thermostat 2 setpoint	WORD	Y	LS2...HS2	°C/°F
CP	rE	32892	38144	RW	Regulation mode	WORD		0...4	num
CP	rP1	32893	38144.2	RW	Regulation probe 1	WORD		0...7	num
CP	rP2	32894	38144.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
CP	dF1	32896	38144.8	RW	Differential/proportional band	WORD	Y	-58.0...302	°C/°F
CP	dF2	32898	38144.12	RW	Thermostat 2 differential	WORD	Y	-58.0...302	°C/°F
CP	Stt	32901	38144.14	RW	Differential control mode	WORD		0/1	num
CP	HS1	32904	38145	RW	SP1 maximum value	WORD	Y	LS1...HdL	°C/°F
CP	LS1	32905	38145.2	RW	SP1 minimum value	WORD	Y	LdL...HS1	°C/°F
CP	HS2	32906	38145.4	RW	SP2 maximum value	WORD	Y	LS2...HdL	°C/°F
CP	LS2	32907	38145.6	RW	SP2 minimum value	WORD	Y	LdL...HS2	°C/°F
CP	HC1	32902	38145.8	RW	Thermostat 1 mode	WORD		0/1	num
CP	HC2	32903	38145.10	RW	Thermostat 2 mode	WORD		0/1	num
CP	Cit	32912	38145.14	RW	Minimum compressor ON time	WORD		0...250	min
CP	CAt	32913	38146	RW	Maximum compressor ON time	WORD		0...250	min
CP	Ont	32918	38146.2	RW	ON time for faulty probe	WORD		0...250	min
CP	OFt	32919	38146.4	RW	OFF time for faulty probe	WORD		0...250	min
CP	dOn	32914	38146.6	RW	Switch on delay	WORD		0...250	secs
CP	dOF	32915	38146.8	RW	Delay after switching off	WORD		0...250	min
CP	dbi	32916	38146.10	RW	Delay between switch-ons	WORD		0...250	min
CP	OdO	32917	38146.12	RW	Output delay from power-on	WORD		0...250	min
CP	CP2	32920	38146.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
CP	CFP	33001	38147.2	RW	Preventilation time	WORD		0...255	secs
CP	CFd	33002	38147.4	RW	Fan mode	WORD		0/1	num
CP	OF1	32923	38147.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
dEF	dP1	32924	38147.8	RW	Selection defrost probe 1	WORD		0...7	num
dEF	dP2	32925	38147.10	RW	Selection defrost probe 2	WORD		0...7	num
dEF	dtY	32928	38147.12	RW	Defrost mode	WORD		0...4	num
dEF	dFt	32926	38147.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
dEF	dit	32929	38148	RW	Interval between defrost cycles	WORD		0...250	hours
dEF	dt1	32932	38148.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
dEF	dt2	32933	38148.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
dEF	dCt	32927	38148.6	RW	Defrost interval count mode	WORD		0...5	num
dEF	dOH	32934	38148.8	RW	Defrost interval count mode	WORD		0...250	min
dEF	dE1	32930	38148.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
dEF	dE2	32931	38148.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
dEF	dS1	32936	38148.14	RW	Probe 1 end of defrost temperature	WORD	Y	-58.0...302	°C/°F
dEF	dS2	32937	38149	RW	Probe 2 end of defrost temperature	WORD	Y	-58.0...302	°C/°F
dEF	dSS	32935	38149.2	RW	Start defrost temperature threshold	WORD	Y	-58.0...302	°C/°F
dEF	dPO	32938	38149.4	RW	Request defrost activation from power on	WORD		0/1	num
dEF	tcd	32939	38149.6	RW	Min. compressor ON or OFF time before defrost	WORD	Y	-60...60	min
dEF	ndE	32940	38149.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
dEF	PdC	32941	38149.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
dEF	tPd	32943	38149.12	RW	Pump down time before defrost startup	WORD		0...255	min
dEF	dPH	32882	38149.14	RW	Start time for periodical defrost	WORD		0...24	hours
dEF	dPn	32883	38150	RW	Start time minutes for periodical defrost	WORD		0...59	min
dEF	dPd	32884	38150.2	RW	Periodical defrost interval duration	WORD		1...7	days
dEF	Fd1	32831	38150.4	RW	Weekend/public holiday 1	WORD		0...7	num
dEF	Fd2	32832	38150.6	RW	Weekend/public holiday 2	WORD		0...7	num
dEF	Edt	32833	38150.8	RW	Customized duration and temperature for each event	WORD		0/1	num
dEF	d1H	32834	38150.10	RW	Start time weekday defrost 1	WORD		0...24	hours
dEF	d1n	32835	38150.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
dEF	d1t	32836	38150.14	RW	Weekday defrost 1 duration	WORD		0...250	min
dEF	d1S	32837	38151	RW	End of weekday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	d2H	32838	38151.2	RW	Start time weekday defrost 2	WORD		d1H...24	hours
dEF	d2n	32839	38151.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
dEF	d2t	32840	38151.6	RW	Weekday defrost 2 duration	WORD		0...250	min
dEF	d2S	32841	38151.8	RW	End of weekday defrost 2 temperature	WORD	Y	-58.0...302	°C/°F
dEF	d3H	32842	38151.10	RW	Start time weekday defrost 3	WORD		d2H...24	hours
dEF	d3n	32843	38151.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
dEF	d3t	32844	38151.14	RW	Weekday defrost 3 duration	WORD		0...250	min
dEF	d3S	32845	38152	RW	End of weekday defrost 3 temperature	WORD	Y	-58.0...302	°C/°F
dEF	d4H	32846	38152.2	RW	Start time weekday defrost 4	WORD		d3H...24	hours
dEF	d4n	32847	38152.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
dEF	d4t	32848	38152.6	RW	Weekday defrost 4 duration	WORD		0...250	min
dEF	d4S	32849	38152.8	RW	End of weekday defrost 4 temperature	WORD	Y	-58.0...302	°C/°F
dEF	d5H	32850	38152.10	RW	Start time weekday defrost 5	WORD		d4H...24	hours
dEF	d5n	32851	38152.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
dEF	d5t	32852	38152.14	RW	Weekday defrost 5 duration	WORD		0...250	min
dEF	d5S	32853	38153	RW	End of weekday defrost 5 temperature	WORD	Y	-58.0...302	°C/°F
dEF	d6H	32854	38153.2	RW	Start time weekday defrost 6	WORD		d5H...24	hours
dEF	d6n	32855	38153.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
dEF	d6t	32856	38153.6	RW	Weekday defrost 6 duration	WORD		0...250	min
dEF	d6S	32857	38153.8	RW	End of weekday defrost 6 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F1H	32858	38153.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
dEF	F1n	32859	38153.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
dEF	F1t	32860	38153.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
dEF	F1S	32861	38154	RW	End of weekend/public holiday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F2H	32862	38154.2	RW	Start time weekend/public holiday defrost 2	WORD		F1H...24	hours
dEF	F2n	32863	38154.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
dEF	F2t	32864	38154.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
dEF	F2S	32865	38154.8	RW	End of weekend/public holiday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F3H	32866	38154.10	RW	Start time weekend/public holiday defrost 3	WORD		F2H...24	hours
dEF	F3n	32867	38154.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
dEF	F3t	32868	38154.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
dEF	F3S	32869	38155	RW	End of weekend/public holiday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F4H	32870	38155.2	RW	Start time weekend/public holiday defrost 4	WORD		F3H...24	hours
dEF	F4n	32871	38155.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
dEF	F4t	32872	38155.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
dEF	F4S	32873	38155.8	RW	End of weekend/public holiday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F5H	32874	38155.10	RW	Start time weekend/public holiday defrost 5	WORD		F4H...24	hours
dEF	F5n	32875	38155.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
dEF	F5t	32876	38155.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
dEF	F5S	32877	38156	RW	End of weekend/public holiday defrost 1 temperature	WORD	Y	-58.0...302	°C/°F
dEF	F6H	32878	38156.2	RW	Start time weekend/public holiday defrost 6	WORD		F5H...24	hours
dEF	F6n	32879	38156.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
dEF	F6t	32880	38156.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
dEF	F6S	32881	38156.8	RW	End of weekend/public holiday defrost 6 temperature	WORD	Y	-58.0...302	°C/°F
FAn	FP1	32944	38156.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
FAn	FP2	32945	38156.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
FAn	FPt	32946	38156.14	RW	FSt parameter mode	WORD		0/1	num
FAn	FSt	32947	38157	RW	Block fan temperature	WORD	Y	-58.0...302	°C/°F
FAn	FAd	32948	38157.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
FAn	Fdt	32949	38157.4	RW	Fan activation delay after compressor start	WORD		0...250	min
FAn	dt	32954	38157.6	RW	Dripping time	WORD		0...250	min
FAn	dFd	32952	38157.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
FAn	FCO	32951	38157.10	RW	Evaporator fan mode	WORD		0...4	num
FAn	FdC	32950	38157.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
FAn	FOn	32955	38158	RW	Fan ON time in Duty Cycle	WORD		0...250	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
FAn	FOF	32956	38158.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
FAn	Fnn	32957	38158.4	RW	Duty cycle on time during night mode	WORD		0...250	min
FAn	FnF	32958	38158.6	RW	Duty cycle off time during night mode	WORD		0...250	min
AL	rA1	32972	38158.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
AL	rA2	32973	38158.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
AL	Att	32974	38158.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
AL	AFd	32975	38158.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
AL	HA1	32976	38159	RW	Probe 1 maximum alarm	WORD	Y	LA1...302	°C/°F
AL	LA1	32977	38159.2	RW	Probe 1 minimum alarm	WORD	Y	-58.0...HA1	°C/°F
AL	HA2	32978	38159.4	RW	Probe 2 maximum alarm	WORD	Y	LA2...302	°C/°F
AL	LA2	32979	38159.6	RW	Probe 2 minimum alarm	WORD	Y	-58.0...HA2	°C/°F
AL	PAO	32980	38159.8	RW	Exclude alarm at switch on	WORD		0...10	hours
AL	dAO	32982	38159.10	RW	Exclude alarm after defrost	WORD		0...250	min
AL	OAO	32981	38159.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
AL	tdO	33026	38159.14	RW	Open door disabling time	WORD		0...250	min
AL	tA1	32983	38160	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
AL	tA2	32984	38160.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
AL	dAt	32942	38160.4	RW	Enable alarm at end of defrost	WORD		0/1	num
AL	EAL	32986	38160.6	RW	External alarm switches off utilities	WORD		0/1/2	num
AL	tP	33027	38160.8	RW	Enable alarm overriding from any key	WORD		0/1	num
AL	AOP	33193	38184.14	RW	Alarm output polarity	WORD		0/1	num
Lit	dSd	32968	38160.12	RW	Enable light relay from door switch	WORD		0/1	num
Lit	dLt	32969	38160.14	RW	Delay disabling light relay	WORD		0...250	min
Lit	OFL	32970	38161	RW	Light key always disables light relay	WORD		0/1	num
Lit	dOd	32985	38161.2	RW	Door switch turns off utilities	WORD		0...3	num
Lit	dOA	32987	38161.4	RW	Action forced by digital input	WORD		0...5	num
Lit	PEA	32988	38161.6	RW	DI selected to block/release resources	WORD		0...3	num
Lit	dCO	32989	38161.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
Lit	dFO	32990	38161.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
Lit	ASb	33016	38161.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
Lin	L00	32768	38161.14	RW	Shared probe	WORD		0...6	num
Lin	L01	32769	38162	RW	Display value shared	WORD		0/1/2	num
Lin	L02	32770	38162.2	RW	Send setpoint value when modified	WORD		0/1	num
Lin	L03	32771	38162.4	RW	Send defrost request	WORD		0/1	num
Lin	L04	32772	38162.6	RW	End defrost mode	WORD		0/1	num
Lin	L05	32773	38162.8	RW	Synchronization of Stand-By command	WORD		0/1	num
Lin	L06	32774	38162.10	RW	Synchronization of light command	WORD		0/1	num
Lin	L07	32775	38162.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
Lin	L08	32776	38162.14	RW	Synchronization of AUX command	WORD		0/1	num
Lin	L10	33028	38163.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
PrE	PEn	32966	38163.4	RW	Number of errors allowed	WORD		0...15	num
PrE	PEi	32967	38163.6	RW	Error count interval	WORD		1...250	min
SuC	SPH	33159	38184.6	RW	Soglia tensione di alimentazione massima	WORD		SPL ... 300	Volt
SuC	SPL	33160	38184.8	RW	Soglia tensione di alimentazione minima	WORD		0 ... SPH	Volt
SuC	dFL	33161	38184.10	RW	Differenziale tensione di alimentazione	WORD	Y	0,1 ... 25,0	Volt
SuC	SoU	33162	38184.12	RW	Selezione uscite da disabilitare	WORD		0 ... 127	num
dEC	dcS	32962	38163.8	RW	Deep Cooling Setpoint	WORD	Y	-58.0...302	°C/°F
dEC	tdc	32963	38163.10	RW	Deep Cooling duration	WORD		0...250	min
dEC	dcc	32964	38163.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
EnS	ESt	32891	38163.14	RW	Type of Energy Saving	WORD		0...4	num
EnS	ESF	32959	38164	RW	Night mode enabled	WORD		0/1	num
EnS	OS1	32908	38164.6	RW	Offset SP1	WORD	Y	-50.0...50.0	°C/°F
EnS	OS2	32909	38164.8	RW	Offset SP2	WORD	Y	-50.0...50.0	°C/°F
EnS	dn1	32899	38164.14	RW	dn1 Differential in energy saving mode 1	WORD	Y	-58.0...302	°C/°F
EnS	dn2	32900	38165	RW	dn2 Differential in energy saving mode 2	WORD	Y	-58.0...302	°C/°F
EnS	EdH	32885	38165.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
EnS	Edn	32886	38165.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
EnS	Edd	32887	38165.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
EnS	EFH	32888	38165.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
EnS	EFn	32889	38165.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
EnS	EFd	32890	38165.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
FrH	FH	32991	38165.14	RW	Regulation mode	WORD		0...7	num
FrH	FHt	32993	38166	RW	Frame heater period	WORD		1...250	secs*10
FrH	FH0	32994	38166.2	RW	Frame heater setpoint	WORD	Y	-58.0...302	°C/°F
FrH	FH1	32995	38166.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
FrH	FH2	32996	38166.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
FrH	FH3	32997	38166.8	RW	Min. percentage	WORD		0...100	%
FrH	FH4	32998	38166.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
FrH	FH5	32999	38166.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
FrH	FH6	33000	38166.14	RW	Percentage during defrost	WORD		0...100	%
Add	Adr	33157	38185.4	RW	Modbus address	WORD		1...250	num
Add	bAU	33152	38185.6	RW	BaudRate	WORD		0/1/2	num
Add	Pty	33154	38185.8	RW	Parity (Modbus protocol)	WORD		0/1/2	num
diS	LOC	33003	38167	RW	Keypad lock	WORD		0/1	num
diS	PS1	33004	38167.2	RW	Password 1	WORD		0...250	num
diS	PS2	33005	38167.4	RW	Password 2	WORD		0...250	num
diS	ndt	33006	38167.6	RW	Display with decimal point	WORD		0/1	num
diS	CA1	32812	38167.8	RW	Calibration Pb1	WORD	Y	-30.0...30.0	°C/°F
diS	CA2	32813	38167.10	RW	Calibration Pb2	WORD	Y	-30.0...30.0	°C/°F
diS	CA3	32814	38167.12	RW	Calibration Pb3	WORD	Y	-30.0...30.0	°C/°F
diS	CA4	32815	38167.14	RW	Calibration Pb4	WORD	Y	-30.0...30.0	°C/°F
diS	CA5	32816	38168	RW	Calibration Pb5	WORD	Y	-30.0...30.0	°C/°F
diS	LdL	33007	38168.6	RW	Minimum value displayable	WORD	Y	-58.0...HdL	°C/°F
diS	HdL	33008	38168.8	RW	Maximum value displayable	WORD	Y	LdL...302	°C/°F
diS	ddL	33009	38168.10	RW	Block display during defrost	WORD		0/1/2	num
diS	Ldd	33010	38168.12	RW	"ddL" Release Time-Out	WORD		0...250	min
diS	dro	33011	38168.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
diS	ddd	33013	38169.2	RW	Main Display	WORD		0...7	num
diS	ddE	33014	38169.4	RW	Main display on ECHO	WORD		0...7	num
HCP	rPH	32965	38169.6	RW	Select HACCP alarm probe	WORD		0...5	num
CnF	H00	32778	38169.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4-Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
CnF	H08	33017	38169.12	RW	Stand-By mode	WORD		0/1/2	num
CnF	H11	32783	38169.14	RW	Configuration input DI1	WORD	Y	-17...17	num
CnF	H12	32784	38170	RW	Configuration input DI2	WORD	Y	-17...17	num
CnF	H13	32785	38170.2	RW	Configuration input DI3	WORD	Y	-17...17	num
CnF	H14	32786	38170.4	RW	Configuration input DI4	WORD	Y	-17...17	num
CnF	H15	32787	38170.6	RW	Configuration input DI5	WORD	Y	-17...17	num
CnF	H18	32790	38170.12	RW	Configuration input DI8	WORD	Y	-17...17	num
CnF	dti	32799	38170.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
CnF	d11	32791	38171	RW	Activation delay for digital input 1	WORD		0...255	min/secs
CnF	d12	32792	38171.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
CnF	d13	32793	38171.4	RW	Activation delay for digital input 3	WORD		0...255	min
CnF	d14	32794	38171.6	RW	Activation delay for digital input 4	WORD		0...255	min
CnF	d15	32795	38171.8	RW	Activation delay for digital input 5	WORD		0...255	min
CnF	d18	32798	38171.14	RW	Activation delay for digital input 8	WORD		0...255	min
CnF	H21	32820	38172	RW	Configuration Relay 1	WORD		0...13	num
CnF	H22	32821	38172.2	RW	Configuration Relay 2	WORD		0...13	num
CnF	H23	32822	38172.4	RW	Configuration Relay 3	WORD		0...13	num
CnF	H24	32823	38172.6	RW	Configuration Relay 4	WORD		0...13	num
CnF	H25	32824	38172.8	RW	Configuration Relay 5	WORD		0...13	num
CnF	H29	32827	38172.14	RW	Enable buzzer	WORD		0/1	num
CnF	H31	33018	38173	RW	Configuration of UP key	WORD		0...8	num
CnF	H32	33019	38173.2	RW	Configuration of DOWN key	WORD		0...8	num
CnF	H33	33020	38173.4	RW	ESC key configuration	WORD		0...8	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
CnF	H41	32800	38173.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
CnF	H42	32801	38174	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
CnF	H43	32802	38174.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
CnF	H44	32803	38174.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
CnF	H45	32804	38174.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
CnF	H60	33158	38186.4	RW	Select Preset	WORD		0...8	num
CnF	H68	32830	38175	RW	Clock Present	WORD		0/1	num
CnF	rEL	---	38184.2	RW	Device version	2 BIT		0...3	num
CnF	tAb	---	38184.4	RW	Map code	2 BIT		0...3	num
CnF	H70	32808	38175.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
CnF	H71	32809	38175.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
CnF	H72	32810	38175.6	RW	% calculation virtual probe day	WORD		0...100	%
CnF	H73	32811	38175.8	RW	% calculation virtual probe night	WORD		0...100	%
FPr	UL	---	38178	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
FPr	dL	---	38178.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
FPr	Fr	---	38178.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 1 PARAMETERS									
	V1-SP1	34431	38272.6	RW	Setpoint	WORD		V1-LS1...V1-HS1	°C/°F
	V1-SP2	34433	38272.10	RW	Thermostat 2 setpoint	WORD		V1-LS2...V1-HS2	°C/°F
V1	V1-rE	34428	38272	RW	Regulation mode	WORD		0...4	num
V1	V1-rP1	34429	38272.2	RW	Regulation probe 1	WORD		0...7	num
V1	V1-rP2	34430	38272.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V1	V1-dF1	34432	38272.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V1	V1-dF2	34434	38272.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V1	V1-Stt	34437	38272.14	RW	Differential control mode	WORD		0/1	num
V1	V1-HS1	34440	38273	RW	SP1 maximum value	WORD		V1-LS1...V1-HdL	°C/°F
V1	V1-LS1	34441	38273.2	RW	SP1 minimum value	WORD		V1-LdL...V1-HS1	°C/°F
V1	V1-HS2	34442	38273.4	RW	SP2 maximum value	WORD		V1-LS2...V1-HdL	°C/°F
V1	V1-LS2	34443	38273.6	RW	SP2 minimum value	WORD		V1-LdL...V1-HS2	°C/°F
V1	V1-HC1	34438	38273.8	RW	Thermostat 1 mode	WORD		0/1	num
V1	V1-HC2	34439	38273.10	RW	Thermostat 2 mode	WORD		0/1	num
V1	V1-Cit	34448	38273.14	RW	Minimum compressor ON time	WORD		0...250	min
V1	V1-CAt	34449	38274	RW	Maximum compressor ON time	WORD		0...250	min
V1	V1-Ont	34454	38274.2	RW	ON time for faulty probe	WORD		0...250	min
V1	V1-OFt	34455	38274.4	RW	OFF time for faulty probe	WORD		0...250	min
V1	V1-dOn	34450	38274.6	RW	Switch on delay	WORD		0...250	secs
V1	V1-dOF	34451	38274.8	RW	Delay after switching off	WORD		0...250	min
V1	V1-dbi	34452	38274.10	RW	Delay between switch-ons	WORD		0...250	min
V1	V1-OdO	34453	38274.12	RW	Output delay from power-on	WORD		0...250	min
V1	V1-CP2	34456	38274.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V1	V1-CFP	34537	38275.2	RW	Preventilation time	WORD		0...255	secs
V1	V1-CFd	34538	38275.4	RW	Fan mode	WORD		0/1	num
V1	V1-OF1	34459	38275.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V1	V1-dP1	34460	38275.8	RW	Selection defrost probe 1	WORD		0...7	num
V1	V1-dP2	34461	38275.10	RW	Selection defrost probe 2	WORD		0...7	num
V1	V1-dtY	34464	38275.12	RW	Defrost mode	WORD		0...4	num
V1	V1-dFt	34462	38275.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V1	V1-dit	34465	38276	RW	Interval between defrost cycles	WORD		0...250	hours
V1	V1-dt1	34468	38276.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V1	V1-dt2	34469	38276.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V1	V1-dCt	34463	38276.6	RW	Defrost interval count mode	WORD		0...5	num
V1	V1-dOH	34470	38276.8	RW	Defrost interval count mode	WORD		0...250	min
V1	V1-dE1	34466	38276.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V1	V1-dE2	34467	38276.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V1	V1-dS1	34472	38276.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V1	V1-dS2	34473	38277	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V1	V1-dSS	34471	38277.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V1	V1-dPO	34474	38277.4	RW	Request defrost activation from power on	WORD		0/1	num
V1	V1-tcd	34475	38277.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V1	V1-ndE	34476	38277.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V1	V1-PdC	34477	38277.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V1	V1-tPd	34479	38277.12	RW	Pump down time before defrost startup	WORD		0...255	min
V1	V1-dPH	34418	38277.14	RW	Start time for periodical defrost	WORD		0...24	hours
V1	V1-dPn	34419	38278	RW	Start time minutes for periodical defrost	WORD		0...59	min
V1	V1-dPd	34420	38278.2	RW	Periodical defrost interval duration	WORD		1...7	days
V1	V1-Fd1	34367	38278.4	RW	Weekend/public holiday 1	WORD		0...7	num
V1	V1-Fd2	34368	38278.6	RW	Weekend/public holiday 2	WORD		0...7	num
V1	V1-Edt	34369	38278.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V1	V1-d1H	34370	38278.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V1	V1-d1n	34371	38278.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V1	V1-d1t	34372	38278.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V1	V1-d1S	34373	38279	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-d2H	34374	38279.2	RW	Start time weekday defrost 2	WORD		V1-d1H...24	hours
V1	V1-d2n	34375	38279.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V1	V1-d2t	34376	38279.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V1	V1-d2S	34377	38279.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V1	V1-d3H	34378	38279.10	RW	Start time weekday defrost 3	WORD		V1-d2H...24	hours
V1	V1-d3n	34379	38279.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V1	V1-d3t	34380	38279.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V1	V1-d3S	34381	38280	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V1	V1-d4H	34382	38280.2	RW	Start time weekday defrost 4	WORD		V1-d3H...24	hours
V1	V1-d4n	34383	38280.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V1	V1-d4t	34384	38280.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V1	V1-d4S	34385	38280.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V1	V1-d5H	34386	38280.10	RW	Start time weekday defrost 5	WORD		V1-d4H...24	hours
V1	V1-d5n	34387	38280.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V1	V1-d5t	34388	38280.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V1	V1-d5S	34389	38281	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V1	V1-d6H	34390	38281.2	RW	Start time weekday defrost 6	WORD		V1-d5H...24	hours
V1	V1-d6n	34391	38281.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V1	V1-d6t	34392	38281.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V1	V1-d6S	34393	38281.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V1	V1-F1H	34394	38281.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V1	V1-F1n	34395	38281.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V1	V1-F1t	34396	38281.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V1	V1-F1S	34397	38282	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-F2H	34398	38282.2	RW	Start time weekend/public holiday defrost 2	WORD		V1-F1H...24	hours
V1	V1-F2n	34399	38282.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V1	V1-F2t	34400	38282.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V1	V1-F2S	34401	38282.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-F3H	34402	38282.10	RW	Start time weekend/public holiday defrost 3	WORD		V1-F2H...24	hours
V1	V1-F3n	34403	38282.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V1	V1-F3t	34404	38282.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V1	V1-F3S	34405	38283	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-F4H	34406	38283.2	RW	Start time weekend/public holiday defrost 4	WORD		V1-F3H...24	hours
V1	V1-F4n	34407	38283.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V1	V1-F4t	34408	38283.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V1	V1-F4S	34409	38283.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-F5H	34410	38283.10	RW	Start time weekend/public holiday defrost 5	WORD		V1-F4H...24	hours
V1	V1-F5n	34411	38283.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V1	V1-F5t	34412	38283.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V1	V1-F5S	34413	38284	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V1	V1-F6H	34414	38284.2	RW	Start time weekend/public holiday defrost 6	WORD		V1-F5H...24	hours
V1	V1-F6n	34415	38284.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V1	V1-F6t	34416	38284.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V1	V1-F6S	34417	38284.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V1	V1-FP1	34480	38284.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V1	V1-FP2	34481	38284.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V1	V1-FPt	34482	38284.14	RW	FSt parameter mode	WORD		0/1	num
V1	V1-FSt	34483	38285	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V1	V1-FAd	34484	38285.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V1	V1-Fdt	34485	38285.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V1	V1-dt	34490	38285.6	RW	Dripping time	WORD		0...250	min
V1	V1-dFd	34488	38285.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V1	V1-FCO	34487	38285.10	RW	Evaporator fan mode	WORD		0...3	num
V1	V1-FdC	34486	38285.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V1	V1-FOn	34491	38286	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V1	V1-FOF	34492	38286.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V1	V1-Fnn	34493	38286.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V1	V1-FnF	34494	38286.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V1	V1-rA1	34508	38286.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V1	V1-rA2	34509	38286.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V1	V1-Att	34510	38286.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V1	V1-AFd	34511	38286.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V1	V1-HA1	34512	38287	RW	Probe 1 maximum alarm	WORD		V1-LA1...302	°C/°F
V1	V1-LA1	34513	38287.2	RW	Probe 1 minimum alarm	WORD		-58.0...V1-HA1	°C/°F
V1	V1-HA2	34514	38287.4	RW	Probe 2 maximum alarm	WORD		V1-LA2...302	°C/°F
V1	V1-LA2	34515	38287.6	RW	Probe 2 minimum alarm	WORD		-58.0...V1-HA2	°C/°F
V1	V1-PAO	34516	38287.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V1	V1-dAO	34518	38287.10	RW	Exclude alarm after defrost	WORD		0...250	min
V1	V1-OAO	34517	38287.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V1	V1-tdO	34562	38287.14	RW	Open door disabling time	WORD		0...250	num
V1	V1-tA1	34519	38288	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V1	V1-tA2	34520	38288.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V1	V1-dAt	34478	38288.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V1	V1-EAL	34522	38288.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V1	V1-tP	34563	38288.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V1	V1-dSd	34504	38288.12	RW	Enable light relay from door switch	WORD		0/1	num
V1	V1-dLt	34505	38288.14	RW	Delay disabling light relay	WORD		0...250	min
V1	V1-OFL	34506	38289	RW	Light key always disables light relay	WORD		0/1	num
V1	V1-dOd	34521	38289.2	RW	Door switch turns off utilities	WORD		0...3	num
V1	V1-dOA	34523	38289.4	RW	Action forced by digital input	WORD		0...5	num
V1	V1-PEA	34524	38289.6	RW	DI selected to block/release resources	WORD		0...3	num
V1	V1-dCO	34525	38289.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V1	V1-dFO	34526	38289.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V1	V1-ASb	34552	38289.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V1	V1-L00	34304	38289.14	RW	Shared probe	WORD		0...6	num
V1	V1-L01	34305	38290	RW	Display value shared	WORD		0/1/2	num
V1	V1-L02	34306	38290.2	RW	Send setpoint value when modified	WORD		0/1	num
V1	V1-L03	34307	38290.4	RW	Send defrost request	WORD		0/1	num
V1	V1-L04	34308	38290.6	RW	End defrost mode	WORD		0/1	num
V1	V1-L05	34309	38290.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V1	V1-L06	34310	38290.10	RW	Synchronization of light command	WORD		0/1	num
V1	V1-L07	34311	38290.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V1	V1-L08	34312	38290.14	RW	Synchronization of AUX command	WORD		0/1	num
V1	V1-L10	34564	38291.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V1	V1-PEn	34502	38291.4	RW	Number of errors allowed	WORD		0...15	num
V1	V1-PEi	34503	38291.6	RW	Error count interval	WORD		1...250	min
V1	V1-dcS	34498	38291.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V1	V1-tdc	34499	38291.10	RW	Deep Cooling duration	WORD		0...250	min
V1	V1-dcc	34500	38291.12	RW	Waiting time to start defrost cycle	WORD		0...250	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V1	V1-ESt	34427	38291.14	RW	Type of Energy Saving	WORD		0...4	num
V1	V1-ESF	34495	38292	RW	Night mode enabled	WORD		0/1	num
V1	V1-OS1	34444	38292.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V1	V1-OS2	34445	38292.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V1	V1-dn1	34435	38292.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V1	V1-dn2	34436	38293	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V1	V1-EdH	34421	38293.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V1	V1-Edn	34422	38293.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V1	V1-Edd	34423	38293.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V1	V1-EFH	34424	38293.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V1	V1-EFn	34425	38293.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V1	V1-EFd	34426	38293.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V1	V1-FH	34527	38293.14	RW	Regulation mode	WORD		0...7	num
V1	V1-FHt	34529	38294	RW	Frame heater period	WORD		1...2500	secs*10
V1	V1-FH0	34530	38294.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V1	V1-FH1	34531	38294.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
V1	V1-FH2	34532	38294.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
V1	V1-FH3	34533	38294.8	RW	Min. percentage	WORD		0...100	%
V1	V1-FH4	34534	38294.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V1	V1-FH5	34535	38294.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V1	V1-FH6	34536	38294.14	RW	Percentage during defrost	WORD		0...100	%
V1	V1-LOC	34539	38295	RW	Keypad lock	WORD		0/1	num
V1	V1-PS1	34540	38295.2	RW	Password 1	WORD		0...250	num
V1	V1-PS2	34541	38295.4	RW	Password 2	WORD		0...250	num
V1	V1-ndt	34542	38295.6	RW	Display with decimal point	WORD		0/1	num
V1	V1-CA1	34348	38295.8	RW	Calibration ST1	WORD		-30.0...30.0	°C/°F
V1	V1-CA2	34349	38295.10	RW	Calibration ST2	WORD		-30.0...30.0	°C/°F
V1	V1-CA3	34350	38295.12	RW	Calibration ST3	WORD		-30.0...30.0	°C/°F
V1	V1-CA4	34351	38295.14	RW	Calibration ST4	WORD		-30.0...30.0	°C/°F
V1	V1-CA5	34352	38296	RW	Calibration ST5	WORD		-30.0...30.0	°C/°F
V1	V1-LdL	34543	38296.6	RW	Minimum value displayable	WORD		-58.0...V1-HdL	°C/°F
V1	V1-HdL	34544	38296.8	RW	Maximum value displayable	WORD		V1-LdL...302	°C/°F
V1	V1-ddL	34545	38296.10	RW	Block display during defrost	WORD		0/1/2	num
V1	V1-Ldd	34546	38296.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V1	V1-dro	34547	38296.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V1	V1-ddd	34549	38297.2	RW	Main Display	WORD		0...7	num
V1	V1-ddE	34550	38297.4	RW	Main display on ECHO	WORD		0...7	num
V1	V1-rPH	34501	38297.6	RW	Select HACCP alarm probe	WORD		0...5	num
V1	V1-H00	34314	38297.8	RW	Type of probe ST1-ST2-ST3-ST4–ST5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V1	V1-H08	34553	38297.12	RW	Stand-By mode	WORD		0/1/2	num
V1	V1-H11	34319	38297.14	RW	Configuration input DI1	WORD		-17...17	num
V1	V1-H12	34320	38298	RW	Configuration input DI2	WORD		-17...17	num
V1	V1-H13	34321	38298.2	RW	Configuration input DI3	WORD		-17...17	num
V1	V1-H14	34322	38298.4	RW	Configuration input DI4	WORD		-17...17	num
V1	V1-H15	34323	38298.6	RW	Configuration input DI5	WORD		-17...17	num
V1	V1-H18	34326	38298.12	RW	Configuration input DI8	WORD		-17...17	num
V1	V1-dti	34335	38298.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V1	V1-d11	34327	38299	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V1	V1-d12	34328	38299.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V1	V1-d13	34329	38299.4	RW	Activation delay for digital input 3	WORD		0...255	min
V1	V1-d14	34330	38299.6	RW	Activation delay for digital input 4	WORD		0...255	min
V1	V1-d15	34331	38299.8	RW	Activation delay for digital input 5	WORD		0...255	min
V1	V1-d18	34334	38299.14	RW	Activation delay for digital input 8	WORD		0...255	min
V1	V1-H21	34356	38300	RW	Configuration Relay 1	WORD		0...13	num
V1	V1-H22	34357	38300.2	RW	Configuration Relay 2	WORD		0...13	num
V1	V1-H23	34358	38300.4	RW	Configuration Relay 3	WORD		0...13	num
V1	V1-H24	34359	38300.6	RW	Configuration Relay 4	WORD		0...13	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V1	V1-H25	34360	38300.8	RW	Configuration Relay 5	WORD		0...13	num
V1	V1-H29	34363	38300.14	RW	Enable buzzer	WORD		0/1	num
V1	V1-H31	34554	38301	RW	Configuration of UP key	WORD		0...8	num
V1	V1-H32	34555	38301.2	RW	Configuration of DOWN key	WORD		0...8	num
V1	V1-H33	34556	38301.4	RW	ESC key configuration	WORD		0...8	num
V1	V1-H41	34336	38301.14	RW	Configuration input ST1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V1	V1-H42	34337	38302	RW	Configuration input ST2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V1	V1-H43	34338	38302.2	RW	Configuration input ST3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V1	V1-H44	34339	38302.4	RW	Configuration input ST4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V1	V1-H45	34340	38302.6	RW	Configuration input ST5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V1	V1-H68	34366	38303	RW	Clock Present	WORD		0/1	num
V1	V1-H70	34344	38303.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V1	V1-H71	34345	38303.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V1	V1-H72	34346	38303.6	RW	% calculation virtual probe day	WORD		0...100	%
V1	V1-H73	34347	38303.8	RW	% calculation virtual probe night	WORD		0...100	%
V1	V1-UL	---	38306	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V1	V1-dL	---	38306.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V1	V1-Fr	---	38306.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 2 PARAMETERS									
	V2-SP1	34815	38368.6	RW	Setpoint	WORD		V2-LS1...V2-HS1	°C/°F
	V2-SP2	34817	38368.10	RW	Thermostat 2 setpoint	WORD		V2-LS2...V2-HS2	°C/°F
V2	V2-rE	34812	38368	RW	Regulation mode	WORD		0...4	num
V2	V2-rP1	34813	38368.2	RW	Regulation probe 1	WORD		0...7	num
V2	V2-rP2	34814	38368.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V2	V2-dF1	34816	38368.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V2	V2-dF2	34818	38368.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V2	V2-Stt	34821	38368.14	RW	Differential control mode	WORD		0/1	num
V2	V2-HS1	34824	38369	RW	SP1 maximum value	WORD		V2-LS1...V2-HdL	°C/°F
V2	V2-LS1	34825	38369.2	RW	SP1 minimum value	WORD		V2-LdL...V2-HS1	°C/°F
V2	V2-HS2	34826	38369.4	RW	SP2 maximum value	WORD		V2-LS2...V2-HdL	°C/°F
V2	V2-LS2	34827	38369.6	RW	SP2 minimum value	WORD		V2-LdL...V2-HS2	°C/°F
V2	V2-HC1	34822	38369.8	RW	Thermostat 1 mode	WORD		0/1	num
V2	V2-HC2	34823	38369.10	RW	Thermostat 2 mode	WORD		0/1	num
V2	V2-Cit	34832	38369.14	RW	Minimum compressor ON time	WORD		0...250	min
V2	V2-CAt	34833	38370	RW	Maximum compressor ON time	WORD		0...250	min
V2	V2-Ont	34838	38370.2	RW	ON time for faulty probe	WORD		0...250	min
V2	V2-OFt	34839	38370.4	RW	OFF time for faulty probe	WORD		0...250	min
V2	V2-dOn	34834	38370.6	RW	Switch on delay	WORD		0...250	secs
V2	V2-dOF	34835	38370.8	RW	Delay after switching off	WORD		0...250	min
V2	V2-dbi	34836	38370.10	RW	Delay between switch-ons	WORD		0...250	min
V2	V2-OdO	34837	38370.12	RW	Output delay from power-on	WORD		0...250	min
V2	V2-CP2	34840	38370.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V2	V2-CFP	34921	38371.2	RW	Preventilation time	WORD		0...255	secs
V2	V2-CFd	34922	38371.4	RW	Fan mode	WORD		0/1	num
V2	V2-OF1	34843	38371.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V2	V2-dP1	34844	38371.8	RW	Selection defrost probe 1	WORD		0...7	num
V2	V2-dP2	34845	38371.10	RW	Selection defrost probe 2	WORD		0...7	num
V2	V2-dtY	34848	38371.12	RW	Defrost mode	WORD		0...4	num
V2	V2-dFt	34846	38371.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V2	V2-dit	34849	38372	RW	Interval between defrost cycles	WORD		0...250	hours
V2	V2-dt1	34852	38372.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V2	V2-dt2	34853	38372.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V2	V2-dCt	34847	38372.6	RW	Defrost interval count mode	WORD		0...5	num
V2	V2-dOH	34854	38372.8	RW	Defrost interval count mode	WORD		0...250	min
V2	V2-dE1	34850	38372.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V2	V2-dE2	34851	38372.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V2	V2-dS1	34856	38372.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V2	V2-dS2	34857	38373	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V2	V2-dSS	34855	38373.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V2	V2-dPO	34858	38373.4	RW	Request defrost activation from power on	WORD		0/1	num
V2	V2-tcd	34859	38373.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V2	V2-ndE	34860	38373.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V2	V2-PdC	34861	38373.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V2	V2-tPd	34863	38373.12	RW	Pump down time before defrost startup	WORD		0...255	min
V2	V2-dPH	34802	38373.14	RW	Start time for periodical defrost	WORD		0...24	hours
V2	V2-dPn	34803	38374	RW	Start time minutes for periodical defrost	WORD		0...59	min
V2	V2-dPd	34804	38374.2	RW	Periodical defrost interval duration	WORD		1...7	days
V2	V2-Fd1	34751	38374.4	RW	Weekend/public holiday 1	WORD		0...7	num
V2	V2-Fd2	34752	38374.6	RW	Weekend/public holiday 2	WORD		0...7	num
V2	V2-Edt	34753	38374.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V2	V2-d1H	34754	38374.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V2	V2-d1n	34755	38374.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V2	V2-d1t	34756	38374.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V2	V2-d1S	34757	38375	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V2	V2-d2H	34758	38375.2	RW	Start time weekday defrost 2	WORD		V2-d1H...24	hours
V2	V2-d2n	34759	38375.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V2	V2-d2t	34760	38375.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V2	V2-d2S	34761	38375.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V2	V2-d3H	34762	38375.10	RW	Start time weekday defrost 3	WORD		V2-d2H...24	hours
V2	V2-d3n	34763	38375.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V2	V2-d3t	34764	38375.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V2	V2-d3S	34765	38376	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V2	V2-d4H	34766	38376.2	RW	Start time weekday defrost 4	WORD		V2-d3H...24	hours
V2	V2-d4n	34767	38376.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V2	V2-d4t	34768	38376.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V2	V2-d4S	34769	38376.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V2	V2-d5H	34770	38376.10	RW	Start time weekday defrost 5	WORD		V2-d4H...24	hours
V2	V2-d5n	34771	38376.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V2	V2-d5t	34772	38376.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V2	V2-d5S	34773	38377	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V2	V2-d6H	34774	38377.2	RW	Start time weekday defrost 6	WORD		V2-d5H...24	hours
V2	V2-d6n	34775	38377.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V2	V2-d6t	34776	38377.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V2	V2-d6S	34777	38377.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V2	V2-F1H	34778	38377.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V2	V2-F1n	34779	38377.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V2	V2-F1t	34780	38377.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V2	V2-F1S	34781	38378	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V2	V2-F2H	34782	38378.2	RW	Start time weekend/public holiday defrost 2	WORD		V2-F1H...24	hours
V2	V2-F2n	34783	38378.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V2	V2-F2t	34784	38378.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V2	V2-F2S	34785	38378.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V2	V2-F3H	34786	38378.10	RW	Start time weekend/public holiday defrost 3	WORD		V2-F2H...24	hours
V2	V2-F3n	34787	38378.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V2	V2-F3t	34788	38378.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V2	V2-F3S	34789	38379	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V2	V2-F4H	34790	38379.2	RW	Start time weekend/public holiday defrost 4	WORD		V2-F3H...24	hours
V2	V2-F4n	34791	38379.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V2	V2-F4t	34792	38379.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V2	V2-F4S	34793	38379.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V2	V2-F5H	34794	38379.10	RW	Start time weekend/public holiday defrost 5	WORD		V2-F4H...24	hours
V2	V2-F5n	34795	38379.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V2	V2-F5t	34796	38379.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V2	V2-F5S	34797	38380	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V2	V2-F6H	34798	38380.2	RW	Start time weekend/public holiday defrost 6	WORD		V2-F5H...24	hours
V2	V2-F6n	34799	38380.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V2	V2-F6t	34800	38380.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V2	V2-F6S	34801	38380.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V2	V2-FP1	34864	38380.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V2	V2-FP2	34865	38380.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V2	V2-FPt	34866	38380.14	RW	FSt parameter mode	WORD		0/1	num
V2	V2-FSt	34867	38381	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V2	V2-FAd	34868	38381.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V2	V2-Fdt	34869	38381.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V2	V2-dt	34874	38381.6	RW	Dripping time	WORD		0...250	min
V2	V2-dFd	34872	38381.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V2	V2-FCO	34871	38381.10	RW	Evaporator fan mode	WORD		0...3	num
V2	V2-FdC	34870	38381.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V2	V2-FOn	34875	38382	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V2	V2-FOF	34876	38382.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V2	V2-Fnn	34877	38382.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V2	V2-FnF	34878	38382.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V2	V2-rA1	34892	38382.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V2	V2-rA2	34893	38382.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V2	V2-Att	34894	38382.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V2	V2-AFd	34895	38382.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V2	V2-HA1	34896	38383	RW	Probe 1 maximum alarm	WORD		V2-LA1...302	°C/°F
V2	V2-LA1	34897	38383.2	RW	Probe 1 minimum alarm	WORD		-58.0...V2-HA1	°C/°F
V2	V2-HA2	34898	38383.4	RW	Probe 2 maximum alarm	WORD		V2-LA2...302	°C/°F
V2	V2-LA2	34899	38383.6	RW	Probe 2 minimum alarm	WORD		-58.0...V2-HA2	°C/°F
V2	V2-PAO	34900	38383.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V2	V2-dAO	34902	38383.10	RW	Exclude alarm after defrost	WORD		0...250	min
V2	V2-OAO	34901	38383.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V2	V2-tdO	34946	38383.14	RW	Open door disabling time	WORD		0...250	num
V2	V2-tA1	34903	38384	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V2	V2-tA2	34904	38384.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V2	V2-dAt	34862	38384.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V2	V2-EAL	34906	38384.6	RW	External alarm switches off utilities	WORD		0...2	num
V2	V2-tP	34947	38384.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V2	V2-dSd	34888	38384.12	RW	Enable light relay from door switch	WORD		0/1	num
V2	V2-dLt	34889	38384.14	RW	Delay disabling light relay	WORD		0...250	min
V2	V2-OFL	34890	38385	RW	Light key always disables light relay	WORD		0/1	num
V2	V2-dOd	34905	38385.2	RW	Door switch turns off utilities	WORD		0...3	num
V2	V2-dOA	34907	38385.4	RW	Action forced by digital input	WORD		0...5	num
V2	V2-PEA	34908	38385.6	RW	DI selected to block/release resources	WORD		0...3	num
V2	V2-dCO	34909	38385.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V2	V2-dFO	34910	38385.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V2	V2-ASb	34936	38385.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V2	V2-L00	34688	38385.14	RW	Shared probe	WORD		0...6	num
V2	V2-L01	34689	38386	RW	Display value shared	WORD		0/1/2	num
V2	V2-L02	34690	38386.2	RW	Send setpoint value when modified	WORD		0/1	num
V2	V2-L03	34691	38386.4	RW	Send defrost request	WORD		0/1	num
V2	V2-L04	34692	38386.6	RW	End defrost mode	WORD		0/1	num
V2	V2-L05	34693	38386.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V2	V2-L06	34694	38386.10	RW	Synchronization of light command	WORD		0/1	num
V2	V2-L07	34695	38386.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V2	V2-L08	34696	38386.14	RW	Synchronization of AUX command	WORD		0/1	num
V2	V2-L10	34948	38387.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V2	V2-PEn	34886	38387.4	RW	Number of errors allowed	WORD		0...15	num
V2	V2-PEi	34887	38387.6	RW	Error count interval	WORD		1...250	min
V2	V2-dcS	34882	38387.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V2	V2-tdc	34883	38387.10	RW	Deep Cooling duration	WORD		0...250	min
V2	V2-dcc	34884	38387.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V2	V2-ESt	34811	38387.14	RW	Type of Energy Saving	WORD		0...4	num
V2	V2-ESF	34879	38388	RW	Night mode enabled	WORD		0/1	num
V2	V2-OS1	34828	38388.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V2	V2-OS2	34829	38388.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V2	V2-dn1	34819	38388.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V2	V2-dn2	34820	38389	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V2	V2-EdH	34805	38389.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V2	V2-Edn	34806	38389.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V2	V2-Edd	34807	38389.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V2	V2-EFH	34808	38389.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V2	V2-EFn	34809	38389.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V2	V2-EFd	34810	38389.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V2	V2-FH	34911	38389.14	RW	Regulation mode	WORD		0...7	num
V2	V2-FHt	34913	38390	RW	Frame heater period	WORD		1...2500	secs*10
V2	V2-FH0	34914	38390.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V2	V2-FH1	34915	38390.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
V2	V2-FH2	34916	38390.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
V2	V2-FH3	34917	38390.8	RW	Min. percentage	WORD		0...100	%
V2	V2-FH4	34918	38390.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V2	V2-FH5	34919	38390.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V2	V2-FH6	34920	38390.14	RW	Percentage during defrost	WORD		0...100	%
V2	V2-LOC	34923	38391	RW	Keypad lock	WORD		0/1	num
V2	V2-PS1	34924	38391.2	RW	Password 1	WORD		0...250	num
V2	V2-PS2	34925	38391.4	RW	Password 2	WORD		0...250	num
V2	V2-ndt	34926	38391.6	RW	Display with decimal point	WORD		0/1	num
V2	V2-CA1	34732	38391.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V2	V2-CA2	34733	38391.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V2	V2-CA3	34734	38391.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V2	V2-CA4	34735	38391.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V2	V2-CA5	34736	38392	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V2	V2-LdL	34927	38392.6	RW	Minimum value displayable	WORD		-58.0...V2-HdL	°C/°F
V2	V2-HdL	34928	38392.8	RW	Maximum value displayable	WORD		V2-LdL...302	°C/°F
V2	V2-ddL	34929	38392.10	RW	Block display during defrost	WORD		0/1/2	num
V2	V2-Ldd	34930	38392.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V2	V2-dro	34931	38392.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V2	V2-ddd	34933	38393.2	RW	Main Display	WORD		0...7	num
V2	V2-ddE	34934	38393.4	RW	Main display on ECHO	WORD		0...7	num
V2	V2-rPH	34885	38393.6	RW	Select HACCP alarm probe	WORD		0...5	num
V2	V2-H00	34698	38393.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4–Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V2	V2-H08	34937	38393.12	RW	Stand-By mode	WORD		0/1/2	num
V2	V2-H11	34703	38393.14	RW	Configuration input DI1	WORD		-17...17	num
V2	V2-H12	34704	38394	RW	Configuration input DI2	WORD		-17...17	num
V2	V2-H13	34705	38394.2	RW	Configuration input DI3	WORD		-17...17	num
V2	V2-H14	34706	38394.4	RW	Configuration input DI4	WORD		-17...17	num
V2	V2-H15	34707	38394.6	RW	Configuration input DI5	WORD		-17...17	num
V2	V2-H18	34710	38394.12	RW	Configuration input DI8	WORD		-17...17	num
V2	V2-dti	34719	38394.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V2	V2-d11	34711	38395	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V2	V2-d12	34712	38395.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V2	V2-d13	34713	38395.4	RW	Activation delay for digital input 3	WORD		0...255	min
V2	V2-d14	34714	38395.6	RW	Activation delay for digital input 4	WORD		0...255	min
V2	V2-d15	34715	38395.8	RW	Activation delay for digital input 5	WORD		0...255	min
V2	V2-d18	34718	38395.14	RW	Activation delay for digital input 8	WORD		0...255	min
V2	V2-H21	34740	38396	RW	Configuration Relay 1	WORD		0...13	num
V2	V2-H22	34741	38396.2	RW	Configuration Relay 2	WORD		0...13	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V2	V2-H23	34742	38396.4	RW	Configuration Relay 3	WORD		0...13	num
V2	V2-H24	34743	38396.6	RW	Configuration Relay 4	WORD		0...13	num
V2	V2-H25	34744	38396.8	RW	Configuration Relay 5	WORD		0...13	num
V2	V2-H29	34747	38396.14	RW	Enable buzzer	WORD		0/1	num
V2	V2-H31	34938	38397	RW	Configuration of UP key	WORD		0...8	num
V2	V2-H32	34939	38397.2	RW	Configuration of DOWN key	WORD		0...8	num
V2	V2-H33	34940	38397.4	RW	ESC key configuration	WORD		0...8	num
V2	V2-H41	34720	38397.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V2	V2-H42	34721	38398	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V2	V2-H43	34722	38398.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V2	V2-H44	34723	38398.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V2	V2-H45	34724	38398.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V2	V2-H68	34750	38399	RW	Clock Present	WORD		0/1	num
V2	V2-H70	34728	38399.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V2	V2-H71	34729	38399.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V2	V2-H72	34730	38399.6	RW	% calculation virtual probe day	WORD		0...100	%
V2	V2-H73	34731	38399.8	RW	% calculation virtual probe night	WORD		0...100	%
V2	V2-UL	---	38402	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V2	V2-dL	---	38402.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V2	V2-Fr	---	38402.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 3 PARAMETERS									
	V3-SP1	35199	38464.6	RW	Setpoint	WORD		V3-LS1...V3-HS1	°C/°F
	V3-SP2	35201	38464.10	RW	Thermostat 2 setpoint	WORD		V3-LS2...V3-HS2	°C/°F
V3	V3-rE	35196	38464	RW	Regulation mode	WORD		0...4	num
V3	V3-rP1	35197	38464.2	RW	Regulation probe 1	WORD		0...7	num
V3	V3-rP2	35198	38464.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V3	V3-dF1	35200	38464.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V3	V3-dF2	35202	38464.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V3	V3-Stt	35205	38464.14	RW	Differential control mode	WORD		0/1	num
V3	V3-HS1	35208	38465	RW	SP1 maximum value	WORD		V3-LS1...V3-HdL	°C/°F
V3	V3-LS1	35209	38465.2	RW	SP1 minimum value	WORD		V3-LdL...V3-HS1	°C/°F
V3	V3-HS2	35210	38465.4	RW	SP2 maximum value	WORD		V3-LS2...V3-HdL	°C/°F
V3	V3-LS2	35211	38465.6	RW	SP2 minimum value	WORD		V3-LdL...V3-HS2	°C/°F
V3	V3-HC1	35206	38465.8	RW	Thermostat 1 mode	WORD		0/1	num
V3	V3-HC2	35207	38465.10	RW	Thermostat 2 mode	WORD		0/1	num
V3	V3-Cit	35216	38465.14	RW	Minimum compressor ON time	WORD		0...250	min
V3	V3-CAt	35217	38466	RW	Maximum compressor ON time	WORD		0...250	min
V3	V3-Ont	35222	38466.2	RW	ON time for faulty probe	WORD		0...250	min
V3	V3-OFt	35223	38466.4	RW	OFF time for faulty probe	WORD		0...250	min
V3	V3-dOn	35218	38466.6	RW	Switch on delay	WORD		0...250	secs
V3	V3-dOF	35219	38466.8	RW	Delay after switching off	WORD		0...250	min
V3	V3-dbi	35220	38466.10	RW	Delay between switch-ons	WORD		0...250	min
V3	V3-OdO	35221	38466.12	RW	Output delay from power-on	WORD		0...250	min
V3	V3-CP2	35224	38466.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V3	V3-CFP	35305	38467.2	RW	Preventilation time	WORD		0...255	secs
V3	V3-CFd	35306	38467.4	RW	Fan mode	WORD		0/1	num
V3	V3-OF1	35227	38467.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V3	V3-dP1	35228	38467.8	RW	Selection defrost probe 1	WORD		0...7	num
V3	V3-dP2	35229	38467.10	RW	Selection defrost probe 2	WORD		0...7	num
V3	V3-dtY	35232	38467.12	RW	Defrost mode	WORD		0...4	num
V3	V3-dFt	35230	38467.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V3	V3-dit	35233	38468	RW	Interval between defrost cycles	WORD		0...250	hours
V3	V3-dt1	35236	38468.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V3	V3-dt2	35237	38468.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V3	V3-dCt	35231	38468.6	RW	Defrost interval count mode	WORD		0...5	num
V3	V3-dOH	35238	38468.8	RW	Defrost interval count mode	WORD		0...250	min
V3	V3-dE1	35234	38468.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V3	V3-dE2	35235	38468.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V3	V3-dS1	35240	38468.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V3	V3-dS2	35241	38469	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V3	V3-dSS	35239	38469.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V3	V3-dPO	35242	38469.4	RW	Request defrost activation from power on	WORD		0/1	num
V3	V3-tcd	35243	38469.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V3	V3-ndE	35244	38469.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V3	V3-PdC	35245	38469.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V3	V3-tPd	35247	38469.12	RW	Pump down time before defrost startup	WORD		0...255	min
V3	V3-dPH	35186	38469.14	RW	Start time for periodical defrost	WORD		0...24	hours
V3	V3-dPn	35187	38470	RW	Start time minutes for periodical defrost	WORD		0...59	min
V3	V3-dPd	35188	38470.2	RW	Periodical defrost interval duration	WORD		1...7	days
V3	V3-Fd1	35135	38470.4	RW	Weekend/public holiday 1	WORD		0...7	num
V3	V3-Fd2	35136	38470.6	RW	Weekend/public holiday 2	WORD		0...7	num
V3	V3-Edt	35137	38470.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V3	V3-d1H	35138	38470.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V3	V3-d1n	35139	38470.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V3	V3-d1t	35140	38470.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V3	V3-d1S	35141	38471	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-d2H	35142	38471.2	RW	Start time weekday defrost 2	WORD		V3-d1H...24	hours
V3	V3-d2n	35143	38471.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V3	V3-d2t	35144	38471.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V3	V3-d2S	35145	38471.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V3	V3-d3H	35146	38471.10	RW	Start time weekday defrost 3	WORD		V3-d2H...24	hours
V3	V3-d3n	35147	38471.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V3	V3-d3t	35148	38471.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V3	V3-d3S	35149	38472	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V3	V3-d4H	35150	38472.2	RW	Start time weekday defrost 4	WORD		V3-d3H...24	hours
V3	V3-d4n	35151	38472.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V3	V3-d4t	35152	38472.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V3	V3-d4S	35153	38472.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V3	V3-d5H	35154	38472.10	RW	Start time weekday defrost 5	WORD		V3-d4H...24	hours
V3	V3-d5n	35155	38472.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V3	V3-d5t	35156	38472.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V3	V3-d5S	35157	38473	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V3	V3-d6H	35158	38473.2	RW	Start time weekday defrost 6	WORD		V3-d5H...24	hours
V3	V3-d6n	35159	38473.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V3	V3-d6t	35160	38473.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V3	V3-d6S	35161	38473.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V3	V3-F1H	35162	38473.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V3	V3-F1n	35163	38473.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V3	V3-F1t	35164	38473.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V3	V3-F1S	35165	38474	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-F2H	35166	38474.2	RW	Start time weekend/public holiday defrost 2	WORD		V3-F1H...24	hours
V3	V3-F2n	35167	38474.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V3	V3-F2t	35168	38474.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V3	V3-F2S	35169	38474.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-F3H	35170	38474.10	RW	Start time weekend/public holiday defrost 3	WORD		V3-F2H...24	hours
V3	V3-F3n	35171	38474.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V3	V3-F3t	35172	38474.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V3	V3-F3S	35173	38475	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-F4H	35174	38475.2	RW	Start time weekend/public holiday defrost 4	WORD		V3-F3H...24	hours
V3	V3-F4n	35175	38475.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V3	V3-F4t	35176	38475.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V3	V3-F4S	35177	38475.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-F5H	35178	38475.10	RW	Start time weekend/public holiday defrost 5	WORD		V3-F4H...24	hours
V3	V3-F5n	35179	38475.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V3	V3-F5t	35180	38475.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V3	V3-F5S	35181	38476	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V3	V3-F6H	35182	38476.2	RW	Start time weekend/public holiday defrost 6	WORD		V3-F5H...24	hours
V3	V3-F6n	35183	38476.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V3	V3-F6t	35184	38476.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V3	V3-F6S	35185	38476.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V3	V3-FP1	35248	38476.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V3	V3-FP2	35249	38476.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V3	V3-FPt	35250	38476.14	RW	FSt parameter mode	WORD		0/1	num
V3	V3-FSt	35251	38477	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V3	V3-FAd	35252	38477.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V3	V3-Fdt	35253	38477.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V3	V3-dt	35258	38477.6	RW	Dripping time	WORD		0...250	min
V3	V3-dFd	35256	38477.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V3	V3-FCO	35255	38477.10	RW	Evaporator fan mode	WORD		0...3	num
V3	V3-FdC	35254	38477.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V3	V3-FOn	35259	38478	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V3	V3-FOF	35260	38478.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V3	V3-Fnn	35261	38478.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V3	V3-FnF	35262	38478.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V3	V3-rA1	35276	38478.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V3	V3-rA2	35277	38478.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V3	V3-Att	35278	38478.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V3	V3-AFd	35279	38478.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V3	V3-HA1	35280	38479	RW	Probe 1 maximum alarm	WORD		V3-LA1...302	°C/°F
V3	V3-LA1	35281	38479.2	RW	Probe 1 minimum alarm	WORD		-58.0...V3-HA1	°C/°F
V3	V3-HA2	35282	38479.4	RW	Probe 2 maximum alarm	WORD		V3-LA2...302	°C/°F
V3	V3-LA2	35283	38479.6	RW	Probe 2 minimum alarm	WORD		-58.0...V3-HA2	°C/°F
V3	V3-PAO	35284	38479.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V3	V3-dAO	35286	38479.10	RW	Exclude alarm after defrost	WORD		0...250	min
V3	V3-OAO	35285	38479.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V3	V3-tdO	35330	38479.14	RW	Open door disabling time	WORD		0...250	num
V3	V3-tA1	35287	38480	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V3	V3-tA2	35288	38480.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V3	V3-dAt	35246	38480.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V3	V3-EAL	35290	38480.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V3	V3-tP	35331	38480.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V3	V3-dSd	35272	38480.12	RW	Enable light relay from door switch	WORD		0/1	num
V3	V3-dLt	35273	38480.14	RW	Delay disabling light relay	WORD		0...250	min
V3	V3-OFL	35274	38481	RW	Light key always disables light relay	WORD		0/1	num
V3	V3-dOd	35289	38481.2	RW	Door switch turns off utilities	WORD		0...3	num
V3	V3-dOA	35291	38481.4	RW	Action forced by digital input	WORD		0...5	num
V3	V3-PEA	35292	38481.6	RW	DI selected to block/release resources	WORD		0...3	num
V3	V3-dCO	35293	38481.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V3	V3-dFO	35294	38481.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V3	V3-ASb	35320	38481.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V3	V3-L00	35072	38481.14	RW	Shared probe	WORD		0...6	num
V3	V3-L01	35073	38482	RW	Display value shared	WORD		0/1/2	num
V3	V3-L02	35074	38482.2	RW	Send setpoint value when modified	WORD		0/1	num
V3	V3-L03	35075	38482.4	RW	Send defrost request	WORD		0/1	num
V3	V3-L04	35076	38482.6	RW	End defrost mode	WORD		0/1	num
V3	V3-L05	35077	38482.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V3	V3-L06	35078	38482.10	RW	Synchronization of light command	WORD		0/1	num
V3	V3-L07	35079	38482.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V3	V3-L08	35080	38482.14	RW	Synchronization of AUX command	WORD		0/1	num
V3	V3-L10	35332	38483.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V3	V3-PEn	35270	38483.4	RW	Number of errors allowed	WORD		0...15	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V3	V3-PEi	35271	38483.6	RW	Error count interval	WORD		1...250	min
V3	V3-dcS	35266	38483.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V3	V3-tdc	35267	38483.10	RW	Deep Cooling duration	WORD		0...250	min
V3	V3-dcc	35268	38483.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V3	V3-ESt	35195	38483.14	RW	Type of Energy Saving	WORD		0...4	num
V3	V3-ESF	35263	38484	RW	Night mode enabled	WORD		0/1	num
V3	V3-OS1	35212	38484.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V3	V3-OS2	35213	38484.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V3	V3-dn1	35203	38484.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V3	V3-dn2	35204	38485	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V3	V3-EdH	35189	38485.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V3	V3-Edn	35190	38485.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V3	V3-Edd	35191	38485.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V3	V3-EFH	35192	38485.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V3	V3-EFn	35193	38485.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V3	V3-EFd	35194	38485.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V3	V3-FH	35295	38485.14	RW	Regulation mode	WORD		0...7	num
V3	V3-FHt	35297	38486	RW	Frame heater period	WORD		1...2500	secs*10
V3	V3-FH0	35298	38486.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V3	V3-FH1	35299	38486.4	RW	Frame heater offset	WORD		0,0...25,0	°C/°F
V3	V3-FH2	35300	38486.6	RW	Frame heater band	WORD		0,0...25,0	°C/°F
V3	V3-FH3	35301	38486.8	RW	Min. percentage	WORD		0...100	%
V3	V3-FH4	35302	38486.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V3	V3-FH5	35303	38486.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V3	V3-FH6	35304	38486.14	RW	Percentage during defrost	WORD		0...100	%
V3	V3-LOC	35307	38487	RW	Keypad lock	WORD		0/1	num
V3	V3-PS1	35308	38487.2	RW	Password 1	WORD		0...250	num
V3	V3-PS2	35309	38487.4	RW	Password 2	WORD		0...250	num
V3	V3-ndt	35310	38487.6	RW	Display with decimal point	WORD		0/1	num
V3	V3-CA1	35116	38487.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V3	V3-CA2	35117	38487.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V3	V3-CA3	35118	38487.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V3	V3-CA4	35119	38487.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V3	V3-CA5	35120	38488	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V3	V3-LdL	35311	38488.6	RW	Minimum value displayable	WORD		-58,0...V3-HdL	°C/°F
V3	V3-HdL	35312	38488.8	RW	Maximum value displayable	WORD		V3-LdL...302	°C/°F
V3	V3-ddL	35313	38488.10	RW	Block display during defrost	WORD		0/1/2	num
V3	V3-Ldd	35314	38488.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V3	V3-dro	35315	38488.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V3	V3-ddd	35317	38489.2	RW	Main Display	WORD		0...7	num
V3	V3-ddE	35318	38489.4	RW	Main display on ECHO	WORD		0...7	num
V3	V3-rPH	35269	38489.6	RW	Select HACCP alarm probe	WORD		0...5	num
V3	V3-H00	35082	38489.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4–Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V3	V3-H08	35321	38489.12	RW	Stand-By mode	WORD		0/1/2	num
V3	V3-H11	35087	38489.14	RW	Configuration input DI1	WORD		-17...17	num
V3	V3-H12	35088	38490	RW	Configuration input DI2	WORD		-17...17	num
V3	V3-H13	35089	38490.2	RW	Configuration input DI3	WORD		-17...17	num
V3	V3-H14	35090	38490.4	RW	Configuration input DI4	WORD		-17...17	num
V3	V3-H15	35091	38490.6	RW	Configuration input DI5	WORD		-17...17	num
V3	V3-H18	35094	38490.12	RW	Configuration input DI8	WORD		-17...17	num
V3	V3-dti	35103	38490.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V3	V3-d11	35095	38491	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V3	V3-d12	35096	38491.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V3	V3-d13	35097	38491.4	RW	Activation delay for digital input 3	WORD		0...255	min
V3	V3-d14	35098	38491.6	RW	Activation delay for digital input 4	WORD		0...255	min
V3	V3-d15	35099	38491.8	RW	Activation delay for digital input 5	WORD		0...255	min
V3	V3-d18	35102	38491.14	RW	Activation delay for digital input 8	WORD		0...255	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V3	V3-H21	35124	38492	RW	Configuration Relay 1	WORD		0...13	num
V3	V3-H22	35125	38492.2	RW	Configuration Relay 2	WORD		0...13	num
V3	V3-H23	35126	38492.4	RW	Configuration Relay 3	WORD		0...13	num
V3	V3-H24	35127	38492.6	RW	Configuration Relay 4	WORD		0...13	num
V3	V3-H25	35128	38492.8	RW	Configuration Relay 5	WORD		0...13	num
V3	V3-H29	35131	38492.14	RW	Enable buzzer	WORD		0/1	num
V3	V3-H31	35322	38493	RW	Configuration of UP key	WORD		0...8	num
V3	V3-H32	35323	38493.2	RW	Configuration of DOWN key	WORD		0...8	num
V3	V3-H33	35324	38493.4	RW	ESC key configuration	WORD		0...8	num
V3	V3-H41	35104	38493.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V3	V3-H42	35105	38494	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V3	V3-H43	35106	38494.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V3	V3-H44	35107	38494.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V3	V3-H45	35108	38494.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V3	V3-H68	35134	38495	RW	Clock Present	WORD		0/1	num
V3	V3-H70	35112	38495.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V3	V3-H71	35113	38495.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V3	V3-H72	35114	38495.6	RW	% calculation virtual probe day	WORD		0...100	%
V3	V3-H73	35115	38495.8	RW	% calculation virtual probe night	WORD		0...100	%
V3	V3-UL	---	38498	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V3	V3-dL	---	38498.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V3	V3-Fr	---	38498.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 4 PARAMETERS									
	V4-SP1	35583	38560.6	RW	Setpoint	WORD		V4-LS1...V4-HS1	°C/°F
	V4-SP2	35585	38560.10	RW	Thermostat 2 setpoint	WORD		V4-LS2...V4-HS2	°C/°F
V4	V4-rE	35580	38560	RW	Regulation mode	WORD		0...4	num
V4	V4-rP1	35581	38560.2	RW	Regulation probe 1	WORD		0...7	num
V4	V4-rP2	35582	38560.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V4	V4-dF1	35584	38560.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V4	V4-dF2	35586	38560.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V4	V4-Stt	35589	38560.14	RW	Differential control mode	WORD		0/1	num
V4	V4-HS1	35592	38561	RW	SP1 maximum value	WORD		V4-LS1...V4-HdL	°C/°F
V4	V4-LS1	35593	38561.2	RW	SP1 minimum value	WORD		V4-LdL...V4-HS1	°C/°F
V4	V4-HS2	35594	38561.4	RW	SP2 maximum value	WORD		V4-LS2...V4-HdL	°C/°F
V4	V4-LS2	35595	38561.6	RW	SP2 minimum value	WORD		V4-LdL...V4-HS2	°C/°F
V4	V4-HC1	35590	38561.8	RW	Thermostat 1 mode	WORD		0/1	num
V4	V4-HC2	35591	38561.10	RW	Thermostat 2 mode	WORD		0/1	num
V4	V4-Cit	35600	38562.2	RW	Minimum compressor ON time	WORD		0...250	min
V4	V4-CAt	35601	38562.4	RW	Maximum compressor ON time	WORD		0...250	min
V4	V4-Ont	35606	38561.14	RW	ON time for faulty probe	WORD		0...250	min
V4	V4-OFt	35607	38562	RW	OFF time for faulty probe	WORD		0...250	min
V4	V4-dOn	35602	38562.6	RW	Switch on delay	WORD		0...250	secs
V4	V4-dOF	35603	38562.8	RW	Delay after switching off	WORD		0...250	min
V4	V4-dbi	35604	38562.10	RW	Delay between switch-ons	WORD		0...250	min
V4	V4-OdO	35605	38562.12	RW	Output delay from power-on	WORD		0...250	min
V4	V4-CP2	35608	38562.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V4	V4-CFP	35689	38563.2	RW	Preventilation time	WORD		0...255	secs
V4	V4-CFd	35690	38563.4	RW	Fan mode	WORD		0/1	num
V4	V4-OF1	35611	38563.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V4	V4-dP1	35612	38563.8	RW	Selection defrost probe 1	WORD		0...7	num
V4	V4-dP2	35613	38563.10	RW	Selection defrost probe 2	WORD		0...7	num
V4	V4-dtY	35616	38563.12	RW	Defrost mode	WORD		0...4	num
V4	V4-dFt	35614	38563.14	RW	Defrost activation mode with two probes	WORD		0...2	num
V4	V4-dit	35617	38564.8	RW	Interval between defrost cycles	WORD		0...250	hours
V4	V4-dt1	35620	38564	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V4	V4-dt2	35621	38564.2	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V4	V4-dCt	35615	38564.4	RW	Defrost interval count mode	WORD		0...5	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V4	V4-dOH	35622	38564.6	RW	Defrost interval count mode	WORD		0...250	min
V4	V4-dE1	35618	38564.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V4	V4-dE2	35619	38564.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V4	V4-dS1	35624	38564.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V4	V4-dS2	35625	38565	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V4	V4-dSS	35623	38565.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V4	V4-dPO	35626	38565.4	RW	Request defrost activation from power on	WORD		0/1	num
V4	V4-tcd	35627	38565.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V4	V4-ndE	35628	38565.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V4	V4-PdC	35629	38565.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V4	V4-tPd	35631	38565.12	RW	Pump down time before defrost startup	WORD		0...255	min
V4	V4-dPH	35570	38565.14	RW	Start time for periodical defrost	WORD		0...24	hours
V4	V4-dPn	35571	38566	RW	Start time minutes for periodical defrost	WORD		0...59	min
V4	V4-dPd	35572	38566.2	RW	Periodical defrost interval duration	WORD		1...7	days
V4	V4-Fd1	35519	38566.4	RW	Weekend/public holiday 1	WORD		0...7	num
V4	V4-Fd2	35520	38566.6	RW	Weekend/public holiday 2	WORD		0...7	num
V4	V4-Edt	35521	38566.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V4	V4-d1H	35522	38566.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V4	V4-d1n	35523	38566.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V4	V4-d1t	35524	38566.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V4	V4-d1S	35525	38567	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V4	V4-d2H	35526	38567.2	RW	Start time weekday defrost 2	WORD		V4-d1H...24	hours
V4	V4-d2n	35527	38567.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V4	V4-d2t	35528	38567.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V4	V4-d2S	35529	38567.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V4	V4-d3H	35530	38567.10	RW	Start time weekday defrost 3	WORD		V4-d2H...24	hours
V4	V4-d3n	35531	38567.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V4	V4-d3t	35532	38567.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V4	V4-d3S	35533	38568	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V4	V4-d4H	35534	38568.2	RW	Start time weekday defrost 4	WORD		V4-d3H...24	hours
V4	V4-d4n	35535	38568.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V4	V4-d4t	35536	38568.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V4	V4-d4S	35537	38568.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V4	V4-d5H	35538	38568.10	RW	Start time weekday defrost 5	WORD		V4-d4H...24	hours
V4	V4-d5n	35539	38568.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V4	V4-d5t	35540	38568.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V4	V4-d5S	35541	38569	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V4	V4-d6H	35542	38569.2	RW	Start time weekday defrost 6	WORD		V4-d5H...24	hours
V4	V4-d6n	35543	38569.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V4	V4-d6t	35544	38569.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V4	V4-d6S	35545	38569.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V4	V4-F1H	35546	38569.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V4	V4-F1n	35547	38569.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V4	V4-F1t	35548	38569.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V4	V4-F1S	35549	38570	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V4	V4-F2H	35550	38570.2	RW	Start time weekend/public holiday defrost 2	WORD		V4-F1H...24	hours
V4	V4-F2n	35551	38570.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V4	V4-F2t	35552	38570.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V4	V4-F2S	35553	38570.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V4	V4-F3H	35554	38570.10	RW	Start time weekend/public holiday defrost 3	WORD		V4-F2H...24	hours
V4	V4-F3n	35555	38570.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V4	V4-F3t	35556	38570.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V4	V4-F3S	35557	38571	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V4	V4-F4H	35558	38571.2	RW	Start time weekend/public holiday defrost 4	WORD		V4-F3H...24	hours
V4	V4-F4n	35559	38571.4	R/W	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V4	V4-F4t	35560	38571.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V4	V4-F4S	35561	38571.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V4	V4-F5H	35562	38571.10	RW	Start time weekend/public holiday defrost 5	WORD		V4-F4H...24	hours
V4	V4-F5n	35563	38571.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V4	V4-F5t	35564	38571.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V4	V4-F5S	35565	38572	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V4	V4-F6H	35566	38572.2	RW	Start time weekend/public holiday defrost 6	WORD		V4-F5H...24	hours
V4	V4-F6n	35567	38572.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V4	V4-F6t	35568	38572.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V4	V4-F6S	35569	38572.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V4	V4-FP1	35632	38572.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V4	V4-FP2	35633	38572.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V4	V4-FPt	35634	38572.14	RW	FSt parameter mode	WORD		0/1	num
V4	V4-FSt	35635	38573	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V4	V4-FAd	35636	38573.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V4	V4-Fdt	35637	38573.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V4	V4-dt	35642	38573.6	RW	Dripping time	WORD		0...250	min
V4	V4-dFd	35640	38573.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V4	V4-FCO	35639	38573.10	RW	Evaporator fan mode	WORD		0...3	num
V4	V4-FdC	35638	38573.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V4	V4-FOn	35643	38574	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V4	V4-FOF	35644	38574.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V4	V4-Fnn	35645	38574.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V4	V4-FnF	35646	38574.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V4	V4-rA1	35660	38574.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V4	V4-rA2	35661	38574.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V4	V4-Att	35662	38574.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V4	V4-AFd	35663	38574.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V4	V4-HA1	35664	38575	RW	Probe 1 maximum alarm	WORD		V4-LA1...302	°C/°F
V4	V4-LA1	35665	38575.2	RW	Probe 1 minimum alarm	WORD		-58.0...V4-HA1	°C/°F
V4	V4-HA2	35666	38575.4	RW	Probe 2 maximum alarm	WORD		V4-LA2...302	°C/°F
V4	V4-LA2	35667	38575.6	RW	Probe 2 minimum alarm	WORD		-58.0...V4-HA2	°C/°F
V4	V4-PAO	35668	38575.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V4	V4-dAO	35670	38575.10	RW	Exclude alarm after defrost	WORD		0...250	min
V4	V4-OAO	35669	38575.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V4	V4-tdO	35714	38575.14	RW	Open door disabling time	WORD		0...250	num
V4	V4-tA1	35671	38576	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V4	V4-tA2	35672	38576.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V4	V4-dAt	35630	38576.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V4	V4-EAL	35674	38576.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V4	V4-tP	35715	38576.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V4	V4-dSd	35656	38576.12	RW	Enable light relay from door switch	WORD		0/1	num
V4	V4-dLt	35657	38576.14	RW	Delay disabling light relay	WORD		0...250	min
V4	V4-OFL	35658	38577	RW	Light key always disables light relay	WORD		0/1	num
V4	V4-dOd	35673	38577.2	RW	Door switch turns off utilities	WORD		0...3	num
V4	V4-dOA	35675	38577.4	RW	Action forced by digital input	WORD		0...5	num
V4	V4-PEA	35676	38577.6	RW	DI selected to block/release resources	WORD		0...3	num
V4	V4-dCO	35677	38577.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V4	V4-dFO	35678	38577.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V4	V4-ASb	35704	38577.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V4	V4-L00	35456	38577.14	RW	Shared probe	WORD		0...6	num
V4	V4-L01	35457	38578	RW	Display value shared	WORD		0/1/2	num
V4	V4-L02	35458	38578.2	RW	Send setpoint value when modified	WORD		0/1	num
V4	V4-L03	35459	38578.4	RW	Send defrost request	WORD		0/1	num
V4	V4-L04	35460	38578.6	RW	End defrost mode	WORD		0/1	num
V4	V4-L05	35461	38578.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V4	V4-L06	35462	38578.10	RW	Synchronization of light command	WORD		0/1	num
V4	V4-L07	35463	38578.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V4	V4-L08	35464	38578.14	RW	Synchronization of AUX command	WORD		0/1	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V4	V4-L10	35716	38579.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V4	V4-PEn	35654	38579.4	RW	Number of errors allowed	WORD		0...15	num
V4	V4-PEi	35655	38579.6	RW	Error count interval	WORD		1...250	min
V4	V4-dcS	35650	38579.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V4	V4-tdc	35651	38579.10	RW	Deep Cooling duration	WORD		0...250	min
V4	V4-dcc	35652	38579.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V4	V4-ESt	35579	38579.14	RW	Type of Energy Saving	WORD		0...4	num
V4	V4-ESF	35647	38580	RW	Night mode enabled	WORD		0/1	num
V4	V4-OS1	35596	38580.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V4	V4-OS2	35597	38580.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V4	V4-dn1	35587	38580.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V4	V4-dn2	35588	38581	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V4	V4-EdH	35573	38581.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V4	V4-Edn	35574	38581.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V4	V4-Edd	35575	38581.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V4	V4-EFH	35576	38581.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V4	V4-EFn	35577	38581.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V4	V4-EFd	35578	38581.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V4	V4-FH	35679	38581.14	RW	Regulation mode	WORD		0...7	num
V4	V4-FHt	35681	38582	RW	Frame heater period	WORD		1...2500	secs*10
V4	V4-FH0	35682	38582.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V4	V4-FH1	35683	38582.4	RW	Frame heater offset	WORD		0,0...25,0	°C/°F
V4	V4-FH2	35684	38582.6	RW	Frame heater band	WORD		0,0...25,0	°C/°F
V4	V4-FH3	35685	38582.8	RW	Min. percentage	WORD		0...100	%
V4	V4-FH4	35686	38582.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V4	V4-FH5	35687	38582.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V4	V4-FH6	35688	38582.14	RW	Percentage during defrost	WORD		0...100	%
V4	V4-LOC	35691	38583	RW	Keypad lock	WORD		0/1	num
V4	V4-PS1	35692	38583.2	RW	Password 1	WORD		0...250	num
V4	V4-PS2	35693	38583.4	RW	Password 2	WORD		0...250	num
V4	V4-ndt	35694	38583.6	RW	Display with decimal point	WORD		0/1	num
V4	V4-CA1	35500	38583.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V4	V4-CA2	35501	38583.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V4	V4-CA3	35502	38583.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V4	V4-CA4	35503	38583.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V4	V4-CA5	35504	38584	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V4	V4-LdL	35695	38584.6	RW	Minimum value displayable	WORD		-58.0...V4-HdL	°C/°F
V4	V4-HdL	35696	38584.8	RW	Maximum value displayable	WORD		V4-LdL...302	°C/°F
V4	V4-ddL	35697	38584.10	RW	Block display during defrost	WORD		0...2	num
V4	V4-Ldd	35698	38584.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V4	V4-dro	35699	38584.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0...1	num
V4	V4-ddd	35701	38585.2	RW	Main Display	WORD		0...7	num
V4	V4-ddE	35702	38585.4	RW	Main display on ECHO	WORD		0...7	num
V4	V4-rPH	35653	38585.6	RW	Select HACCP alarm probe	WORD		0...5	num
V4	V4-H00	35466	38585.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4–Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0...2	num
V4	V4-H08	35705	38585.12	RW	Stand-By mode	WORD		0...2	num
V4	V4-H11	35471	38585.14	RW	Configuration input DI1	WORD		-17...17	num
V4	V4-H12	35472	38586	RW	Configuration input DI2	WORD		-17...17	num
V4	V4-H13	35473	38586.2	RW	Configuration input DI3	WORD		-17...17	num
V4	V4-H14	35474	38586.4	RW	Configuration input DI4	WORD		-17...17	num
V4	V4-H15	35475	38586.6	RW	Configuration input DI5	WORD		-17...17	num
V4	V4-H18	35478	38586.12	RW	Configuration input DI8	WORD		-17...17	num
V4	V4-dti	35487	38586.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V4	V4-d11	35479	38587	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V4	V4-d12	35480	38587.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V4	V4-d13	35481	38587.4	RW	Activation delay for digital input 3	WORD		0...255	min
V4	V4-d14	35482	38587.6	RW	Activation delay for digital input 4	WORD		0...255	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V4	V4-d15	35483	38587.8	RW	Activation delay for digital input 5	WORD		0...255	min
V4	V4-d18	35486	38587.14	RW	Activation delay for digital input 8	WORD		0...255	min
V4	V4-H21	35508	38588	RW	Configuration Relay 1	WORD		0...13	num
V4	V4-H22	35509	38588.2	RW	Configuration Relay 2	WORD		0...13	num
V4	V4-H23	35510	38588.4	RW	Configuration Relay 3	WORD		0...13	num
V4	V4-H24	35511	38588.6	RW	Configuration Relay 4	WORD		0...13	num
V4	V4-H25	35512	38588.8	RW	Configuration Relay 5	WORD		0...13	num
V4	V4-H29	35515	38588.14	RW	Enable buzzer	WORD		0/1	num
V4	V4-H31	35706	38589	RW	Configuration of UP key	WORD		0...8	num
V4	V4-H32	35707	38589.2	RW	Configuration of DOWN key	WORD		0...8	num
V4	V4-H33	35708	38589.4	RW	ESC key configuration	WORD		0...8	num
V4	V4-H41	35488	38589.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V4	V4-H42	35489	38590	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V4	V4-H43	35490	38590.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V4	V4-H44	35491	38590.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V4	V4-H45	35492	38590.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V4	V4-H68	35518	38591	RW	Clock Present	WORD		0/1	num
V4	V4-H70	35496	38591.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V4	V4-H71	35497	38591.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V4	V4-H72	35498	38591.6	RW	% calculation virtual probe day	WORD		0...100	%
V4	V4-H73	35499	38591.8	RW	% calculation virtual probe night	WORD		0...100	%
V4	V4-UL	---	38594	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V4	V4-dL	---	38594.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V4	V4-Fr	---	38594.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 5 PARAMETERS									
	V5-SP1	35967	38656.6	RW	Setpoint	WORD		V5-LS1...V5-HS1	°C/°F
	V5-SP2	35969	38656.10	RW	Thermostat 2 setpoint	WORD		V5-LS2...V5-HS2	°C/°F
V5	V5-rE	35964	38656	RW	Regulation mode	WORD		0...4	num
V5	V5-rP1	35965	38656.2	RW	Regulation probe 1	WORD		0...7	num
V5	V5-rP2	35966	38656.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V5	V5-dF1	35968	38656.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V5	V5-dF2	35970	38656.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V5	V5-Stt	35973	38656.14	RW	Differential control mode	WORD		0/1	num
V5	V5-HS1	35976	38657	RW	SP1 maximum value	WORD		V5-LS1...V5-HdL	°C/°F
V5	V5-LS1	35977	38657.2	RW	SP1 minimum value	WORD		V5-LdL...V5-HS1	°C/°F
V5	V5-HS2	35978	38657.4	RW	SP2 maximum value	WORD		V5-LS2...V5-HdL	°C/°F
V5	V5-LS2	35979	38657.6	RW	SP2 minimum value	WORD		V5-LdL...V5-HS2	°C/°F
V5	V5-HC1	35974	38657.8	RW	Thermostat 1 mode	WORD		0/1	num
V5	V5-HC2	35975	38657.10	RW	Thermostat 2 mode	WORD		0/1	num
V5	V5-Cit	35984	38657.14	RW	Minimum compressor ON time	WORD		0...250	min
V5	V5-CAt	35985	38658	RW	Maximum compressor ON time	WORD		0...250	min
V5	V5-Ont	35990	38658.2	RW	ON time for faulty probe	WORD		0...250	min
V5	V5-OFt	35991	38658.4	RW	OFF time for faulty probe	WORD		0...250	min
V5	V5-dOn	35986	38658.6	RW	Switch on delay	WORD		0...250	secs
V5	V5-dOF	35987	38658.8	RW	Delay after switching off	WORD		0...250	min
V5	V5-dbi	35988	38658.10	RW	Delay between switch-ons	WORD		0...250	min
V5	V5-OdO	35989	38658.12	RW	Output delay from power-on	WORD		0...250	min
V5	V5-CP2	35992	38658.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V5	V5-CFP	36073	38659.2	RW	Preventilation time	WORD		0...255	secs
V5	V5-CFd	36074	38659.4	RW	Fan mode	WORD		0/1	num
V5	V5-OF1	35995	38659.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V5	V5-dP1	35996	38659.8	RW	Selection defrost probe 1	WORD		0...7	num
V5	V5-dP2	35997	38659.10	RW	Selection defrost probe 2	WORD		0...7	num
V5	V5-dtY	36000	38659.12	RW	Defrost mode	WORD		0...4	num
V5	V5-dFt	35998	38659.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V5	V5-dit	36001	38660	RW	Interval between defrost cycles	WORD		0...250	hours
V5	V5-dt1	36004	38660.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V5	V5-dt2	36005	38660.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V5	V5-dCt	35999	38660.6	RW	Defrost interval count mode	WORD		0...5	num
V5	V5-dOH	36006	38660.8	RW	Defrost interval count mode	WORD		0...250	min
V5	V5-dE1	36002	38660.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V5	V5-dE2	36003	38660.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V5	V5-dS1	36008	38660.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V5	V5-dS2	36009	38661	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V5	V5-dSS	36007	38661.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V5	V5-dPO	36010	38661.4	RW	Request defrost activation from power on	WORD		0/1	num
V5	V5-tcd	36011	38661.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V5	V5-ndE	36012	38661.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V5	V5-PdC	36013	38661.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V5	V5-tPd	36015	38661.12	RW	Pump down time before defrost startup	WORD		0...255	min
V5	V5-dPH	35954	38661.14	RW	Start time for periodical defrost	WORD		0...24	hours
V5	V5-dPn	35955	38662	RW	Start time minutes for periodical defrost	WORD		0...59	min
V5	V5-dPd	35956	38662.2	RW	Periodical defrost interval duration	WORD		1...7	days
V5	V5-Fd1	35903	38662.4	RW	Weekend/public holiday 1	WORD		0...7	num
V5	V5-Fd2	35904	38662.6	RW	Weekend/public holiday 2	WORD		0...7	num
V5	V5-Edt	35905	38662.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V5	V5-d1H	35906	38662.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V5	V5-d1n	35907	38662.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V5	V5-d1t	35908	38662.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V5	V5-d1S	35909	38663	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-d2H	35910	38663.2	RW	Start time weekday defrost 2	WORD		V5-d1H...24	hours
V5	V5-d2n	35911	38663.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V5	V5-d2t	35912	38663.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V5	V5-d2S	35913	38663.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V5	V5-d3H	35914	38663.10	RW	Start time weekday defrost 3	WORD		V5-d2H...24	hours
V5	V5-d3n	35915	38663.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V5	V5-d3t	35916	38663.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V5	V5-d3S	35917	38664	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V5	V5-d4H	35918	38664.2	RW	Start time weekday defrost 4	WORD		V5-d3H...24	hours
V5	V5-d4n	35919	38664.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V5	V5-d4t	35920	38664.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V5	V5-d4S	35921	38664.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V5	V5-d5H	35922	38664.10	RW	Start time weekday defrost 5	WORD		V5-d4H...24	hours
V5	V5-d5n	35923	38664.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V5	V5-d5t	35924	38664.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V5	V5-d5S	35925	38665	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V5	V5-d6H	35926	38665.2	RW	Start time weekday defrost 6	WORD		V5-d5H...24	hours
V5	V5-d6n	35927	38665.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V5	V5-d6t	35928	38665.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V5	V5-d6S	35929	38665.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V5	V5-F1H	35930	38665.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V5	V5-F1n	35931	38665.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V5	V5-F1t	35932	38665.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V5	V5-F1S	35933	38666	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-F2H	35934	38666.2	RW	Start time weekend/public holiday defrost 2	WORD		V5-F1H...24	hours
V5	V5-F2n	35935	38666.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V5	V5-F2t	35936	38666.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V5	V5-F2S	35937	38666.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-F3H	35938	38666.10	RW	Start time weekend/public holiday defrost 3	WORD		V5-F2H...24	hours
V5	V5-F3n	35939	38666.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V5	V5-F3t	35940	38666.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V5	V5-F3S	35941	38667	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-F4H	35942	38667.2	RW	Start time weekend/public holiday defrost 4	WORD		V5-F3H...24	hours
V5	V5-F4n	35943	38667.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V5	V5-F4t	35944	38667.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V5	V5-F4S	35945	38667.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-F5H	35946	38667.10	RW	Start time weekend/public holiday defrost 5	WORD		V5-F4H...24	hours
V5	V5-F5n	35947	38667.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V5	V5-F5t	35948	38667.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V5	V5-F5S	35949	38668	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V5	V5-F6H	35950	38668.2	RW	Start time weekend/public holiday defrost 6	WORD		V5-F5H...24	hours
V5	V5-F6n	35951	38668.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V5	V5-F6t	35952	38668.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V5	V5-F6S	35953	38668.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V5	V5-FP1	36016	38668.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V5	V5-FP2	36017	38668.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V5	V5-FPt	36018	38668.14	RW	FSt parameter mode	WORD		0/1	num
V5	V5-FSt	36019	38669	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V5	V5-FAd	36020	38669.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V5	V5-Fdt	36021	38669.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V5	V5-dt	36026	38669.6	RW	Dripping time	WORD		0...250	min
V5	V5-dFd	36024	38669.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V5	V5-FCO	36023	38669.10	RW	Evaporator fan mode	WORD		0...3	num
V5	V5-FdC	36022	38669.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V5	V5-FOn	36027	38670	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V5	V5-FOF	36028	38670.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V5	V5-Fnn	36029	38670.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V5	V5-FnF	36030	38670.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V5	V5-rA1	36044	38670.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V5	V5-rA2	36045	38670.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V5	V5-Att	36046	38670.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V5	V5-AFd	36047	38670.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V5	V5-HA1	36048	38671	RW	Probe 1 maximum alarm	WORD		V5-LA1...302	°C/°F
V5	V5-LA1	36049	38671.2	RW	Probe 1 minimum alarm	WORD		-58.0...V5-HA1	°C/°F
V5	V5-HA2	36050	38671.4	RW	Probe 2 maximum alarm	WORD		V5-LA2...302	°C/°F
V5	V5-LA2	36051	38671.6	RW	Probe 2 minimum alarm	WORD		-58.0...V5-HA2	°C/°F
V5	V5-PAO	36052	38671.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V5	V5-dAO	36054	38671.10	RW	Exclude alarm after defrost	WORD		0...250	min
V5	V5-OAO	36053	38671.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V5	V5-tdO	36098	38671.14	RW	Open door disabling time	WORD		0...250	num
V5	V5-tA1	36055	38672	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V5	V5-tA2	36056	38672.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V5	V5-dAt	36014	38672.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V5	V5-EAL	36058	38672.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V5	V5-tP	36099	38672.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V5	V5-dSd	36040	38672.12	RW	Enable light relay from door switch	WORD		0/1	num
V5	V5-dLt	36041	38672.14	RW	Delay disabling light relay	WORD		0...250	min
V5	V5-OFL	36042	38673	RW	Light key always disables light relay	WORD		0/1	num
V5	V5-dOd	36057	38673.2	RW	Door switch turns off utilities	WORD		0...3	num
V5	V5-dOA	36059	38673.4	RW	Action forced by digital input	WORD		0...5	num
V5	V5-PEA	36060	38673.6	RW	DI selected to block/release resources	WORD		0...3	num
V5	V5-dCO	36061	38673.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V5	V5-dFO	36062	38673.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V5	V5-ASb	36088	38673.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V5	V5-L00	35840	38673.14	RW	Shared probe	WORD		0...6	num
V5	V5-L01	35841	38674	RW	Display value shared	WORD		0/1/2	num
V5	V5-L02	35842	38674.2	RW	Send setpoint value when modified	WORD		0/1	num
V5	V5-L03	35843	38674.4	RW	Send defrost request	WORD		0/1	num
V5	V5-L04	35844	38674.6	RW	End defrost mode	WORD		0/1	num
V5	V5-L05	35845	38674.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V5	V5-L06	35846	38674.10	RW	Synchronization of light command	WORD		0/1	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V5	V5-L07	35847	38674.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V5	V5-L08	35848	38674.14	RW	Synchronization of AUX command	WORD		0/1	num
V5	V5-L10	36100	38675.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V5	V5-PEn	36038	38675.4	RW	Number of errors allowed	WORD		0...15	num
V5	V5-PEi	36039	38675.6	RW	Error count interval	WORD		1...250	min
V5	V5-dcS	36034	38675.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V5	V5-tdc	36035	38675.10	RW	Deep Cooling duration	WORD		0...250	min
V5	V5-dcc	36036	38675.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V5	V5-ESt	35963	38675.14	RW	Type of Energy Saving	WORD		0...4	num
V5	V5-ESF	36031	38676	RW	Night mode enabled	WORD		0/1	num
V5	V5-OS1	35980	38676.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V5	V5-OS2	35981	38676.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V5	V5-dn1	35971	38676.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V5	V5-dn2	35972	38677	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V5	V5-EdH	35957	38677.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V5	V5-Edn	35958	38677.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V5	V5-Edd	35959	38677.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V5	V5-EFH	35960	38677.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V5	V5-EFn	35961	38677.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V5	V5-EFd	35962	38677.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V5	V5-FH	36063	38677.14	RW	Regulation mode	WORD		0...7	num
V5	V5-FHt	36065	38678	RW	Frame heater period	WORD		1...2500	secs*10
V5	V5-FH0	36066	38678.2	RW	Frame heater setpoint	WORD		-58,0...302	°C/°F
V5	V5-FH1	36067	38678.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
V5	V5-FH2	36068	38678.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
V5	V5-FH3	36069	38678.8	RW	Min. percentage	WORD		0...100	%
V5	V5-FH4	36070	38678.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V5	V5-FH5	36071	38678.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V5	V5-FH6	36072	38678.14	RW	Percentage during defrost	WORD		0...100	%
V5	V5-LOC	36075	38679	RW	Keypad lock	WORD		0/1	num
V5	V5-PS1	36076	38679.2	RW	Password 1	WORD		0...250	num
V5	V5-PS2	36077	38679.4	RW	Password 2	WORD		0...250	num
V5	V5-ndt	36078	38679.6	RW	Display with decimal point	WORD		0/1	num
V5	V5-CA1	35884	38679.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V5	V5-CA2	35885	38679.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V5	V5-CA3	35886	38679.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V5	V5-CA4	35887	38679.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V5	V5-CA5	35888	38680	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V5	V5-LdL	36079	38680.6	RW	Minimum value displayable	WORD		-58.0...V5-HdL	°C/°F
V5	V5-HdL	36080	38680.8	RW	Maximum value displayable	WORD		V5-LdL...302	°C/°F
V5	V5-ddL	36081	38680.10	RW	Block display during defrost	WORD		0/1/2	num
V5	V5-Ldd	36082	38680.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V5	V5-dro	36083	38680.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V5	V5-ddd	36085	38681.2	RW	Main Display	WORD		0...7	num
V5	V5-ddE	36086	38681.4	RW	Main display on ECHO	WORD		0...7	num
V5	V5-rPH	36037	38681.6	RW	Select HACCP alarm probe	WORD		0...5	num
V5	V5-H00	35850	38681.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4–Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V5	V5-H08	36089	38681.12	RW	Stand-By mode	WORD		0/1/2	num
V5	V5-H11	35855	38681.14	RW	Configuration input DI1	WORD		-17...17	num
V5	V5-H12	35856	38682	RW	Configuration input DI2	WORD		-17...17	num
V5	V5-H13	35857	38682.2	RW	Configuration input DI3	WORD		-17...17	num
V5	V5-H14	35858	38682.4	RW	Configuration input DI4	WORD		-17...17	num
V5	V5-H15	35859	38682.6	RW	Configuration input DI5	WORD		-17...17	num
V5	V5-H18	35862	38682.12	RW	Configuration input DI8	WORD		-17...17	num
V5	V5-dti	35871	38682.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V5	V5-d11	35863	38683	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V5	V5-d12	35864	38683.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V5	V5-d13	35865	38683.4	RW	Activation delay for digital input 3	WORD		0...255	min
V5	V5-d14	35866	38683.6	RW	Activation delay for digital input 4	WORD		0...255	min
V5	V5-d15	35867	38683.8	RW	Activation delay for digital input 5	WORD		0...255	min
V5	V5-d18	35870	38683.14	RW	Activation delay for digital input 8	WORD		0...255	min
V5	V5-H21	35892	38684	RW	Configuration Relay 1	WORD		0...13	num
V5	V5-H22	35893	38684.2	RW	Configuration Relay 2	WORD		0...13	num
V5	V5-H23	35894	38684.4	RW	Configuration Relay 3	WORD		0...13	num
V5	V5-H24	35895	38684.6	RW	Configuration Relay 4	WORD		0...13	num
V5	V5-H25	35896	38684.8	RW	Configuration Relay 5	WORD		0...13	num
V5	V5-H29	35899	38684.14	RW	Enable buzzer	WORD		0/1	num
V5	V5-H31	36090	38685	RW	Configuration of UP key	WORD		0...8	num
V5	V5-H32	36091	38685.2	RW	Configuration of DOWN key	WORD		0...8	num
V5	V5-H33	36092	38685.4	RW	ESC key configuration	WORD		0...8	num
V5	V5-H41	35872	38685.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V5	V5-H42	35873	38686	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V5	V5-H43	35874	38686.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V5	V5-H44	35875	38686.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V5	V5-H45	35876	38686.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V5	V5-H68	35902	38687	RW	Clock Present	WORD		0/1	num
V5	V5-H70	35880	38687.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V5	V5-H71	35881	38687.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V5	V5-H72	35882	38687.6	RW	% calculation virtual probe day	WORD		0...100	%
V5	V5-H73	35883	38687.8	RW	% calculation virtual probe night	WORD		0...100	%
V5	V5-UL	---	38690	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V5	V5-dL	---	38690.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V5	V5-Fr	---	38690.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 6 PARAMETERS									
	V6-SP1	36351	38752.6	RW	Setpoint	WORD		V6-LS1...V6-HS1	°C/°F
	V6-SP2	36353	38752.10	RW	Thermostat 2 setpoint	WORD		V6-LS2...V6-HS2	°C/°F
V6	V6-rE	36348	38752	RW	Regulation mode	WORD		0...4	num
V6	V6-rP1	36349	38752.2	RW	Regulation probe 1	WORD		0...7	num
V6	V6-rP2	36350	38752.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V6	V6-dF1	36352	38752.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V6	V6-dF2	36354	38752.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V6	V6-Stt	36357	38752.14	RW	Differential control mode	WORD		0/1	num
V6	V6-HS1	36360	38753	RW	SP1 maximum value	WORD		V6-LS1...V6-HdL	°C/°F
V6	V6-LS1	36361	38753.2	RW	SP1 minimum value	WORD		V6-LdL...V6-HS1	°C/°F
V6	V6-HS2	36362	38753.4	RW	SP2 maximum value	WORD		V6-LS2...V6-HdL	°C/°F
V6	V6-LS2	36363	38753.6	RW	SP2 minimum value	WORD		V6-LdL...V6-HS2	°C/°F
V6	V6-HC1	36358	38753.8	RW	Thermostat 1 mode	WORD		0/1	num
V6	V6-HC2	36359	38753.10	RW	Thermostat 2 mode	WORD		0/1	num
V6	V6-Cit	36368	38753.14	RW	Minimum compressor ON time	WORD		0...250	min
V6	V6-CAt	36369	38754	RW	Maximum compressor ON time	WORD		0...250	min
V6	V6-Ont	36374	38754.2	RW	ON time for faulty probe	WORD		0...250	min
V6	V6-OFt	36375	38754.4	RW	OFF time for faulty probe	WORD		0...250	min
V6	V6-dOn	36370	38754.6	RW	Switch on delay	WORD		0...250	secs
V6	V6-dOF	36371	38754.8	RW	Delay after switching off	WORD		0...250	min
V6	V6-dbi	36372	38754.10	RW	Delay between switch-ons	WORD		0...250	min
V6	V6-Od0	36373	38754.12	RW	Output delay from power-on	WORD		0...250	min
V6	V6-CP2	36376	38754.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V6	V6-CFP	36457	38755.2	RW	Preventilation time	WORD		0...255	secs
V6	V6-CFd	36458	38755.4	RW	Fan mode	WORD		0/1	num
V6	V6-OF1	36379	38755.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V6	V6-dP1	36380	38755.8	RW	Selection defrost probe 1	WORD		0...7	num
V6	V6-dP2	36381	38755.10	RW	Selection defrost probe 2	WORD		0...7	num
V6	V6-dtY	36384	38755.12	RW	Defrost mode	WORD		0...4	num
V6	V6-dFt	36382	38755.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V6	V6-dit	36385	38756	RW	Interval between defrost cycles	WORD		0...250	hours
V6	V6-dt1	36388	38756.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V6	V6-dt2	36389	38756.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V6	V6-dCt	36383	38756.6	RW	Defrost interval count mode	WORD		0...5	num
V6	V6-dOH	36390	38756.8	RW	Defrost interval count mode	WORD		0...250	min
V6	V6-dE1	36386	38756.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V6	V6-dE2	36387	38756.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V6	V6-dS1	36392	38756.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V6	V6-dS2	36393	38757	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V6	V6-dSS	36391	38757.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V6	V6-dPO	36394	38757.4	RW	Request defrost activation from power on	WORD		0/1	num
V6	V6-tcd	36395	38757.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V6	V6-ndE	36396	38757.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V6	V6-PdC	36397	38757.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V6	V6-tPd	36399	38757.12	RW	Pump down time before defrost startup	WORD		0...255	min
V6	V6-dPH	36338	38757.14	RW	Start time for periodical defrost	WORD		0...24	hours
V6	V6-dPn	36339	38758	RW	Start time minutes for periodical defrost	WORD		0...59	min
V6	V6-dPd	36340	38758.2	RW	Periodical defrost interval duration	WORD		1...7	days
V6	V6-Fd1	36287	38758.4	RW	Weekend/public holiday 1	WORD		0...7	num
V6	V6-Fd2	36288	38758.6	RW	Weekend/public holiday 2	WORD		0...7	num
V6	V6-Edt	36289	38758.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V6	V6-d1H	36290	38758.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V6	V6-d1n	36291	38758.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V6	V6-d1t	36292	38758.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V6	V6-d1S	36293	38759	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V6	V6-d2H	36294	38759.2	RW	Start time weekday defrost 2	WORD		V6-d1H...24	hours
V6	V6-d2n	36295	38759.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V6	V6-d2t	36296	38759.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V6	V6-d2S	36297	38759.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V6	V6-d3H	36298	38759.10	RW	Start time weekday defrost 3	WORD		V6-d2H...24	hours
V6	V6-d3n	36299	38759.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V6	V6-d3t	36300	38759.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V6	V6-d3S	36301	38760	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V6	V6-d4H	36302	38760.2	RW	Start time weekday defrost 4	WORD		V6-d3H...24	hours.
V6	V6-d4n	36303	38760.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V6	V6-d4t	36304	38760.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V6	V6-d4S	36305	38760.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V6	V6-d5H	36306	38760.10	RW	Start time weekday defrost 5	WORD		V6-d4H...24	hours
V6	V6-d5n	36307	38760.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V6	V6-d5t	36308	38760.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V6	V6-d5S	36309	38761	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V6	V6-d6H	36310	38761.2	RW	Start time weekday defrost 6	WORD		V6-d5H...24	hours
V6	V6-d6n	36311	38761.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V6	V6-d6t	36312	38761.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V6	V6-d6S	36313	38761.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V6	V6-F1H	36314	38761.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V6	V6-F1n	36315	38761.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V6	V6-F1t	36316	38761.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V6	V6-F1S	36317	38762	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V6	V6-F2H	36318	38762.2	RW	Start time weekend/public holiday defrost 2	WORD		V6-F1H...24	hours
V6	V6-F2n	36319	38762.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V6	V6-F2t	36320	38762.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V6	V6-F2S	36321	38762.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V6	V6-F3H	36322	38762.10	RW	Start time weekend/public holiday defrost 3	WORD		V6-F2H...24	hours
V6	V6-F3n	36323	38762.12	R/W	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V6	V6-F3t	36324	38762.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V6	V6-F3S	36325	38763	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V6	V6-F4H	36326	38763.2	RW	Start time weekend/public holiday defrost 4	WORD		V6-F3H...24	hours
V6	V6-F4n	36327	38763.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V6	V6-F4t	36328	38763.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V6	V6-F4S	36329	38763.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V6	V6-F5H	36330	38763.10	RW	Start time weekend/public holiday defrost 5	WORD		V6-F4H...24	hours
V6	V6-F5n	36331	38763.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V6	V6-F5t	36332	38763.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V6	V6-F5S	36333	38764	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V6	V6-F6H	36334	38764.2	RW	Start time weekend/public holiday defrost 6	WORD		V6-F5H...24	hours
V6	V6-F6n	36335	38764.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V6	V6-F6t	36336	38764.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V6	V6-F6S	36337	38764.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V6	V6-FP1	36400	38764.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V6	V6-FP2	36401	38764.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V6	V6-FPt	36402	38764.14	RW	FSt parameter mode	WORD		0/1	num
V6	V6-FSt	36403	38765	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V6	V6-FAd	36404	38765.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V6	V6-Fdt	36405	38765.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V6	V6-dt	36410	38765.6	RW	Dripping time	WORD		0...250	min
V6	V6-dFd	36408	38765.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V6	V6-FCO	36407	38765.10	RW	Evaporator fan mode	WORD		0...3	num
V6	V6-FdC	36406	38765.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V6	V6-FOn	36411	38766	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V6	V6-FOF	36412	38766.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V6	V6-Fnn	36413	38766.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V6	V6-FnF	36414	38766.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V6	V6-rA1	36428	38766.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V6	V6-rA2	36429	38766.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V6	V6-Att	36430	38766.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V6	V6-AFd	36431	38766.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V6	V6-HA1	36432	38767	RW	Probe 1 maximum alarm	WORD		V6-LA1...302	°C/°F
V6	V6-LA1	36433	38767.2	RW	Probe 1 minimum alarm	WORD		-58.0...V6-HA1	°C/°F
V6	V6-HA2	36434	38767.4	RW	Probe 2 maximum alarm	WORD		V6-LA2...302	°C/°F
V6	V6-LA2	36435	38767.6	RW	Probe 2 minimum alarm	WORD		-58.0...V6-HA2	°C/°F
V6	V6-PAO	36436	38767.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V6	V6-dAO	36438	38767.10	RW	Exclude alarm after defrost	WORD		0...250	min
V6	V6-OAO	36437	38767.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V6	V6-tdO	36482	38767.14	RW	Open door disabling time	WORD		0...250	num
V6	V6-tA1	36439	38768	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V6	V6-tA2	36440	38768.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V6	V6-dAt	36398	38768.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V6	V6-EAL	36442	38768.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V6	V6-tP	36483	38768.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V6	V6-dSd	36424	38768.12	RW	Enable light relay from door switch	WORD		0/1	num
V6	V6-dLt	36425	38768.14	RW	Delay disabling light relay	WORD		0...250	min
V6	V6-OFL	36426	38769	RW	Light key always disables light relay	WORD		0/1	num
V6	V6-dOd	36441	38769.2	RW	Door switch turns off utilities	WORD		0...3	num
V6	V6-dOA	36443	38769.4	RW	Action forced by digital input	WORD		0...5	num
V6	V6-PEA	36444	38769.6	RW	DI selected to block/release resources	WORD		0...3	num
V6	V6-dCO	36445	38769.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V6	V6-dFO	36446	38769.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V6	V6-ASb	36472	38769.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V6	V6-L00	36224	38769.14	RW	Shared probe	WORD		0...6	num
V6	V6-L01	36225	38770	RW	Display value shared	WORD		0/1/2	num
V6	V6-L02	36226	38770.2	RW	Send setpoint value when modified	WORD		0/1	num
V6	V6-L03	36227	38770.4	RW	Send defrost request	WORD		0/1	num
V6	V6-L04	36228	38770.6	RW	End defrost mode	WORD		0/1	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V6	V6-L05	36229	38770.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V6	V6-L06	36230	38770.10	RW	Synchronization of light command	WORD		0/1	num
V6	V6-L07	36231	38770.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V6	V6-L08	36232	38770.14	RW	Synchronization of AUX command	WORD		0/1	num
V6	V6-L10	36484	38771.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V6	V6-PEn	36422	38771.4	RW	Number of errors allowed	WORD		0...15	num
V6	V6-PEi	36423	38771.6	RW	Error count interval	WORD		1...250	min
V6	V6-dcS	36418	38771.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V6	V6-tdc	36419	38771.10	RW	Deep Cooling duration	WORD		0...250	min
V6	V6-dcc	36420	38771.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V6	V6-ESt	36347	38771.14	RW	Type of Energy Saving	WORD		0...4	num
V6	V6-ESF	36415	38772	RW	Night mode enabled	WORD		0/1	num
V6	V6-OS1	36364	38772.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V6	V6-OS2	36365	38772.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V6	V6-dn1	36355	38772.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V6	V6-dn2	36356	38773	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V6	V6-EdH	36341	38773.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V6	V6-Edn	36342	38773.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V6	V6-Edd	36343	38773.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V6	V6-EFH	36344	38773.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V6	V6-EFn	36345	38773.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V6	V6-EFd	36346	38773.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V6	V6-FH	36447	38773.14	RW	Regulation mode	WORD		0...7	num
V6	V6-FHt	36449	38774	RW	Frame heater period	WORD		1...2500	secs*10
V6	V6-FH0	36450	38774.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V6	V6-FH1	36451	38774.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
V6	V6-FH2	36452	38774.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
V6	V6-FH3	36453	38774.8	RW	Min. percentage	WORD		0...100	%
V6	V6-FH4	36454	38774.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V6	V6-FH5	36455	38774.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V6	V6-FH6	36456	38774.14	RW	Percentage during defrost	WORD		0...100	%
V6	V6-LOC	36459	38775	RW	Keypad lock	WORD		0/1	num
V6	V6-PS1	36460	38775.2	RW	Password 1	WORD		0...250	num
V6	V6-PS2	36461	38775.4	RW	Password 2	WORD		0...250	num
V6	V6-ndt	36462	38775.6	RW	Display with decimal point	WORD		0/1	num
V6	V6-CA1	36268	38775.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V6	V6-CA2	36269	38775.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V6	V6-CA3	36270	38775.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V6	V6-CA4	36271	38775.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V6	V6-CA5	36272	38776	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V6	V6-LdL	36463	38776.6	RW	Minimum value displayable	WORD		-58.0...V6-HdL	°C/°F
V6	V6-HdL	36464	38776.8	RW	Maximum value displayable	WORD		V6-LdL...302	°C/°F
V6	V6-ddL	36465	38776.10	RW	Block display during defrost	WORD		0/1/2	num
V6	V6-Ldd	36466	38776.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V6	V6-dro	36467	38776.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V6	V6-ddd	36469	38777.2	RW	Main Display	WORD		0...7	num
V6	V6-ddE	36470	38777.4	RW	Main display on ECHO	WORD		0...7	num
V6	V6-rPH	36421	38777.6	RW	Select HACCP alarm probe	WORD		0...5	num
V6	V6-H00	36234	38777.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4-Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V6	V6-H08	36473	38777.12	RW	Stand-By mode	WORD		0/1/2	num
V6	V6-H11	36239	38777.14	RW	Configuration input DI1	WORD		-17...17	num
V6	V6-H12	36240	38778	RW	Configuration input DI2	WORD		-17...17	num
V6	V6-H13	36241	38778.2	RW	Configuration input DI3	WORD		-17...17	num
V6	V6-H14	36242	38778.4	RW	Configuration input DI4	WORD		-17...17	num
V6	V6-H15	36243	38778.6	RW	Configuration input DI5	WORD		-17...17	num
V6	V6-H18	36246	38778.12	RW	Configuration input DI8	WORD		-17...17	num
V6	V6-dti	36255	38778.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0...1	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V6	V6-d11	36247	38779	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V6	V6-d12	36248	38779.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V6	V6-d13	36249	38779.4	RW	Activation delay for digital input 3	WORD		0...255	min
V6	V6-d14	36250	38779.6	RW	Activation delay for digital input 4	WORD		0...255	min
V6	V6-d15	36251	38779.8	RW	Activation delay for digital input 5	WORD		0...255	min
V6	V6-d18	36254	38779.14	RW	Activation delay for digital input 8	WORD		0...255	min
V6	V6-H21	36276	38780	RW	Configuration Relay 1	WORD		0...13	num
V6	V6-H22	36277	38780.2	RW	Configuration Relay 2	WORD		0...13	num
V6	V6-H23	36278	38780.4	RW	Configuration Relay 3	WORD		0...13	num
V6	V6-H24	36279	38780.6	RW	Configuration Relay 4	WORD		0...13	num
V6	V6-H25	36280	38780.8	RW	Configuration Relay 5	WORD		0...13	num
V6	V6-H29	36283	38780.14	RW	Enable buzzer	WORD		0/1	num
V6	V6-H31	36474	38781	RW	Configuration of UP key	WORD		0...8	num
V6	V6-H32	36475	38781.2	RW	Configuration of DOWN key	WORD		0...8	num
V6	V6-H33	36476	38781.4	RW	ESC key configuration	WORD		0...8	num
V6	V6-H41	36256	38781.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V6	V6-H42	36257	38782	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V6	V6-H43	36258	38782.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V6	V6-H44	36259	38782.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V6	V6-H45	36260	38782.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V6	V6-H68	36286	38783	RW	Clock Present	WORD		0/1	num
V6	V6-H70	36264	38783.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V6	V6-H71	36265	38783.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V6	V6-H72	36266	38783.6	RW	% calculation virtual probe day	WORD		0...100	%
V6	V6-H73	36267	38783.8	RW	% calculation virtual probe night	WORD		0...100	%
V6	V6-UL	---	38786	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V6	V6-dL	---	38786.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V6	V6-Fr	---	38786.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 7 PARAMETERS									
	V7-SP1	36735	38848.6	RW	Setpoint	WORD		V7-LS1...V7-HS1	°C/°F
	V7-SP2	36737	38848.10	RW	Thermostat 2 setpoint	WORD		V7-LS2...V7-HS2	°C/°F
V7	V7-rE	36732	38848	RW	Regulation mode	WORD		0...4	num
V7	V7-rP1	36733	38848.2	RW	Regulation probe 1	WORD		0...7	num
V7	V7-rP2	36734	38848.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V7	V7-dF1	36736	38848.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V7	V7-dF2	36738	38848.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V7	V7-Stt	36741	38848.14	RW	Differential control mode	WORD		0/1	num
V7	V7-HS1	36744	38849	RW	SP1 maximum value	WORD		V7-LS1...V7-HdL	°C/°F
V7	V7-LS1	36745	38849.2	RW	SP1 minimum value	WORD		V7-LdL...V7-HS1	°C/°F
V7	V7-HS2	36746	38849.4	RW	SP2 maximum value	WORD		V7-LS2...V7-HdL	°C/°F
V7	V7-LS2	36747	38849.6	RW	SP2 minimum value	WORD		V7-LdL...V7-HS2	°C/°F
V7	V7-HC1	36742	38849.8	RW	Thermostat 1 mode	WORD		0/1	num
V7	V7-HC2	36743	38849.10	RW	Thermostat 2 mode	WORD		0/1	num
V7	V7-Cit	36752	38849.14	RW	Minimum compressor ON time	WORD		0...250	min
V7	V7-CAt	36753	38850	RW	Maximum compressor ON time	WORD		0...250	min
V7	V7-Ont	36758	38850.2	RW	ON time for faulty probe	WORD		0...250	min
V7	V7-OFt	36759	38850.4	RW	OFF time for faulty probe	WORD		0...250	min
V7	V7-dOn	36754	38850.6	RW	Switch on delay	WORD		0...250	secs
V7	V7-dOF	36755	38850.8	RW	Delay after switching off	WORD		0...250	min
V7	V7-dbi	36756	38850.10	RW	Delay between switch-ons	WORD		0...250	min
V7	V7-OdO	36757	38850.12	RW	Output delay from power-on	WORD		0...250	min
V7	V7-CP2	36760	38850.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V7	V7-CFP	36841	38851.2	RW	Preventilation time	WORD		0...255	secs
V7	V7-CFd	36842	38851.4	RW	Fan mode	WORD		0/1	num
V7	V7-OF1	36763	38851.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F
V7	V7-dP1	36764	38851.8	RW	Selection defrost probe 1	WORD		0...7	num
V7	V7-dP2	36765	38851.10	RW	Selection defrost probe 2	WORD		0...7	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V7	V7-dtY	36768	38851.12	RW	Defrost mode	WORD		0...4	num
V7	V7-dFt	36766	38851.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V7	V7-dit	36769	38852	RW	Interval between defrost cycles	WORD		0...250	hours
V7	V7-dt1	36772	38852.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V7	V7-dt2	36773	38852.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V7	V7-dCt	36767	38852.6	RW	Defrost interval count mode	WORD		0...5	num
V7	V7-dOH	36774	38852.8	RW	Defrost interval count mode	WORD		0...250	min
V7	V7-dE1	36770	38852.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V7	V7-dE2	36771	38852.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V7	V7-dS1	36776	38852.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V7	V7-dS2	36777	38853	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V7	V7-dSS	36775	38853.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V7	V7-dPO	36778	38853.4	RW	Request defrost activation from power on	WORD		0/1	num
V7	V7-tcd	36779	38853.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V7	V7-ndE	36780	38853.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V7	V7-PdC	36781	38853.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V7	V7-tPd	36783	38853.12	RW	Pump down time before defrost startup	WORD		0...255	min
V7	V7-dPH	36722	38853.14	RW	Start time for periodical defrost	WORD		0...24	hours
V7	V7-dPn	36723	38854	RW	Start time minutes for periodical defrost	WORD		0...59	min
V7	V7-dPd	36724	38854.2	RW	Periodical defrost interval duration	WORD		1...7	days
V7	V7-Fd1	36671	38854.4	RW	Weekend/public holiday 1	WORD		0...7	num
V7	V7-Fd2	36672	38854.6	RW	Weekend/public holiday 2	WORD		0...7	num
V7	V7-Edt	36673	38854.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V7	V7-d1H	36674	38854.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V7	V7-d1n	36675	38854.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V7	V7-d1t	36676	38854.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V7	V7-d1S	36677	38855	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-d2H	36678	38855.2	RW	Start time weekday defrost 2	WORD		V7-d1H...24	hours
V7	V7-d2n	36679	38855.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V7	V7-d2t	36680	38855.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V7	V7-d2S	36681	38855.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V7	V7-d3H	36682	38855.10	RW	Start time weekday defrost 3	WORD		V7-d2H...24	hours
V7	V7-d3n	36683	38855.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V7	V7-d3t	36684	38855.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V7	V7-d3S	36685	38856	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V7	V7-d4H	36686	38856.2	RW	Start time weekday defrost 4	WORD		V7-d3H...24	hours
V7	V7-d4n	36687	38856.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V7	V7-d4t	36688	38856.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V7	V7-d4S	36689	38856.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V7	V7-d5H	36690	38856.10	RW	Start time weekday defrost 5	WORD		V7-d4H...24	hours
V7	V7-d5n	36691	38856.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V7	V7-d5t	36692	38856.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V7	V7-d5S	36693	38857	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V7	V7-d6H	36694	38857.2	RW	Start time weekday defrost 6	WORD		V7-d5H...24	hours
V7	V7-d6n	36695	38857.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V7	V7-d6t	36696	38857.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V7	V7-d6S	36697	38857.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V7	V7-F1H	36698	38857.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V7	V7-F1n	36699	38857.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V7	V7-F1t	36700	38857.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V7	V7-F1S	36701	38858	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-F2H	36702	38858.2	RW	Start time weekend/public holiday defrost 2	WORD		V7-F1H...24	hours
V7	V7-F2n	36703	38858.4	RW	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V7	V7-F2t	36704	38858.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V7	V7-F2S	36705	38858.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-F3H	36706	38858.10	RW	Start time weekend/public holiday defrost 3	WORD		V7-F2H...24	hours
V7	V7-F3n	36707	38858.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V7	V7-F3t	36708	38858.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V7	V7-F3S	36709	38859	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-F4H	36710	38859.2	RW	Start time weekend/public holiday defrost 4	WORD		V7-F3H...24	hours
V7	V7-F4n	36711	38859.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V7	V7-F4t	36712	38859.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V7	V7-F4S	36713	38859.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-F5H	36714	38859.10	RW	Start time weekend/public holiday defrost 5	WORD		V7-F4H...24	hours
V7	V7-F5n	36715	38859.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V7	V7-F5t	36716	38859.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V7	V7-F5S	36717	38860	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V7	V7-F6H	36718	38860.2	RW	Start time weekend/public holiday defrost 6	WORD		V7-F5H...24	hours
V7	V7-F6n	36719	38860.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V7	V7-F6t	36720	38860.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V7	V7-F6S	36721	38860.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V7	V7-FP1	36784	38860.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V7	V7-FP2	36785	38860.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V7	V7-FPt	36786	38860.14	RW	FSt parameter mode	WORD		0/1	num
V7	V7-FSt	36787	38861	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V7	V7-FAd	36788	38861.2	RW	Fan differential	WORD		0,1...25,0	°C/°F
V7	V7-Fdt	36789	38861.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V7	V7-dt	36794	38861.6	RW	Dripping time	WORD		0...250	min
V7	V7-dFd	36792	38861.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V7	V7-FCO	36791	38861.10	RW	Evaporator fan mode	WORD		0...3	num
V7	V7-FdC	36790	38861.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V7	V7-FOn	36795	38862	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V7	V7-FOF	36796	38862.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V7	V7-Fnn	36797	38862.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V7	V7-FnF	36798	38862.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V7	V7-rA1	36812	38862.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V7	V7-rA2	36813	38862.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V7	V7-Att	36814	38862.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V7	V7-AFd	36815	38862.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V7	V7-HA1	36816	38863	RW	Probe 1 maximum alarm	WORD		V7-LA1...302	°C/°F
V7	V7-LA1	36817	38863.2	RW	Probe 1 minimum alarm	WORD		-58.0...V7-HA1	°C/°F
V7	V7-HA2	36818	38863.4	RW	Probe 2 maximum alarm	WORD		V7-LA2...302	°C/°F
V7	V7-LA2	36819	38863.6	RW	Probe 2 minimum alarm	WORD		-58.0...V7-HA2	°C/°F
V7	V7-PAO	36820	38863.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V7	V7-dAO	36822	38863.10	RW	Exclude alarm after defrost	WORD		0...250	min
V7	V7-OAO	36821	38863.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V7	V7-tdO	36866	38863.14	RW	Open door disabling time	WORD		0...250	num
V7	V7-tA1	36823	38864	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V7	V7-tA2	36824	38864.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V7	V7-dAt	36782	38864.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V7	V7-EAL	36826	38864.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V7	V7-tP	36867	38864.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V7	V7-dSd	36808	38864.12	RW	Enable light relay from door switch	WORD		0/1	num
V7	V7-dLt	36809	38864.14	RW	Delay disabling light relay	WORD		0...250	min
V7	V7-OFL	36810	38865	RW	Light key always disables light relay	WORD		0/1	num
V7	V7-dOd	36825	38865.2	RW	Door switch turns off utilities	WORD		0...3	num
V7	V7-dOA	36827	38865.4	RW	Action forced by digital input	WORD		0...5	num
V7	V7-PEA	36828	38865.6	RW	DI selected to block/release resources	WORD		0...3	num
V7	V7-dCO	36829	38865.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V7	V7-dFO	36830	38865.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V7	V7-ASb	36856	38865.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V7	V7-L00	36608	38865.14	RW	Shared probe	WORD		0...6	num
V7	V7-L01	36609	38866	RW	Display value shared	WORD		0/1/2	num
V7	V7-L02	36610	38866.2	RW	Send setpoint value when modified	WORD		0/1	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V7	V7-L03	36611	38866.4	RW	Send defrost request	WORD		0/1	num
V7	V7-L04	36612	38866.6	RW	End defrost mode	WORD		0/1	num
V7	V7-L05	36613	38866.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V7	V7-L06	36614	38866.10	RW	Synchronization of light command	WORD		0/1	num
V7	V7-L07	36615	38866.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V7	V7-L08	36616	38866.14	RW	Synchronization of AUX command	WORD		0/1	num
V7	V7-L10	36868	38867.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V7	V7-PEn	36806	38867.4	RW	Number of errors allowed	WORD		0...15	num
V7	V7-PEi	36807	38867.6	RW	Error count interval	WORD		1...250	min
V7	V7-dcS	36802	38867.8	RW	Deep Cooling Setpoint	WORD		-58.0...302	°C/°F
V7	V7-tdc	36803	38867.10	RW	Deep Cooling duration	WORD		0...250	min
V7	V7-dcc	36804	38867.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V7	V7-ESt	36731	38867.14	RW	Type of Energy Saving	WORD		0...4	num
V7	V7-ESF	36799	38868	RW	Night mode enabled	WORD		0/1	num
V7	V7-OS1	36748	38868.6	RW	Offset SP1	WORD		-50.0...50.0	°C/°F
V7	V7-OS2	36749	38868.8	RW	Offset SP2	WORD		-50.0...50.0	°C/°F
V7	V7-dn1	36739	38868.14	RW	dn1 Differential in energy saving mode 1	WORD		-58.0...302	°C/°F
V7	V7-dn2	36740	38869	RW	dn2 Differential in energy saving mode 2	WORD		-58.0...302	°C/°F
V7	V7-EdH	36725	38869.2	RW	Start time weekday Energy Saving	WORD		0...24	hours
V7	V7-Edn	36726	38869.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V7	V7-Edd	36727	38869.6	RW	Weekday Energy Saving event duration	WORD		1...72	hours
V7	V7-EFH	36728	38869.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	hours
V7	V7-EFn	36729	38869.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V7	V7-EFd	36730	38869.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	hours
V7	V7-FH	36831	38869.14	RW	Regulation mode	WORD		0...7	num
V7	V7-FHt	36833	38870	RW	Frame heater period	WORD		1...2500	secs*10
V7	V7-FH0	36834	38870.2	RW	Frame heater setpoint	WORD		-58.0...302	°C/°F
V7	V7-FH1	36835	38870.4	RW	Frame heater offset	WORD		0.0...25.0	°C/°F
V7	V7-FH2	36836	38870.6	RW	Frame heater band	WORD		0.0...25.0	°C/°F
V7	V7-FH3	36837	38870.8	RW	Min. percentage	WORD		0...100	%
V7	V7-FH4	36838	38870.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V7	V7-FH5	36839	38870.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V7	V7-FH6	36840	38870.14	RW	Percentage during defrost	WORD		0...100	%
V7	V7-LOC	36843	38871	RW	Keypad lock	WORD		0/1	num
V7	V7-PS1	36844	38871.2	RW	Password 1	WORD		0...250	num
V7	V7-PS2	36845	38871.4	RW	Password 2	WORD		0...250	num
V7	V7-ndt	36846	38871.6	RW	Display with decimal point	WORD		0/1	num
V7	V7-CA1	36652	38871.8	RW	Calibration Pb1	WORD		-30.0...30.0	°C/°F
V7	V7-CA2	36653	38871.10	RW	Calibration Pb2	WORD		-30.0...30.0	°C/°F
V7	V7-CA3	36654	38871.12	RW	Calibration Pb3	WORD		-30.0...30.0	°C/°F
V7	V7-CA4	36655	38871.14	RW	Calibration Pb4	WORD		-30.0...30.0	°C/°F
V7	V7-CA5	36656	38872	RW	Calibration Pb5	WORD		-30.0...30.0	°C/°F
V7	V7-LdL	36847	38872.6	RW	Minimum value displayable	WORD		-58.0...V7-HdL	°C/°F
V7	V7-HdL	36848	38872.8	RW	Maximum value displayable	WORD		V7-LdL...302	°C/°F
V7	V7-ddL	36849	38872.10	RW	Block display during defrost	WORD		0/1/2	num
V7	V7-Ldd	36850	38872.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V7	V7-dro	36851	38872.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V7	V7-ddd	36853	38873.2	RW	Main Display	WORD		0...7	num
V7	V7-ddE	36854	38873.4	RW	Main display on ECHO	WORD		0...7	num
V7	V7-rPH	36805	38873.6	RW	Select HACCP alarm probe	WORD		0...5	num
V7	V7-H00	36618	38873.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4-Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V7	V7-H08	36857	38873.12	RW	Stand-By mode	WORD		0/1/2	num
V7	V7-H11	36623	38873.14	RW	Configuration input DI1	WORD		-17...17	num
V7	V7-H12	36624	38874	RW	Configuration input DI2	WORD		-17...17	num
V7	V7-H13	36625	38874.2	RW	Configuration input DI3	WORD		-17...17	num
V7	V7-H14	36626	38874.4	RW	Configuration input DI4	WORD		-17...17	num
V7	V7-H15	36627	38874.6	RW	Configuration input DI5	WORD		-17...17	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V7	V7-H18	36630	38874.12	RW	Configuration input DI8	WORD		-17...17	num
V7	V7-dti	36639	38874.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V7	V7-d11	36631	38875	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V7	V7-d12	36632	38875.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V7	V7-d13	36633	38875.4	RW	Activation delay for digital input 3	WORD		0...255	min
V7	V7-d14	36634	38875.6	RW	Activation delay for digital input 4	WORD		0...255	min
V7	V7-d15	36635	38875.8	RW	Activation delay for digital input 5	WORD		0...255	min
V7	V7-d18	36638	38875.14	RW	Activation delay for digital input 8	WORD		0...255	min
V7	V7-H21	36660	38876	RW	Configuration Relay 1	WORD		0...13	num
V7	V7-H22	36661	38876.2	RW	Configuration Relay 2	WORD		0...13	num
V7	V7-H23	36662	38876.4	RW	Configuration Relay 3	WORD		0...13	num
V7	V7-H24	36663	38876.6	RW	Configuration Relay 4	WORD		0...13	num
V7	V7-H25	36664	38876.8	RW	Configuration Relay 5	WORD		0...13	num
V7	V7-H29	36667	38876.14	RW	Enable buzzer	WORD		0/1	num
V7	V7-H31	36858	38877	RW	Configuration of UP key	WORD		0...8	num
V7	V7-H32	36859	38877.2	RW	Configuration of DOWN key	WORD		0...8	num
V7	V7-H33	36860	38877.4	RW	ESC key configuration	WORD		0...8	num
V7	V7-H41	36640	38877.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V7	V7-H42	36641	38878	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V7	V7-H43	36642	38878.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V7	V7-H44	36643	38878.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V7	V7-H45	36644	38878.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V7	V7-H68	36670	38879	RW	Clock Present	WORD		0/1	num
V7	V7-H70	36648	38879.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V7	V7-H71	36649	38879.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V7	V7-H72	36650	38879.6	RW	% calculation virtual probe day	WORD		0...100	%
V7	V7-H73	36651	38879.8	RW	% calculation virtual probe night	WORD		0...100	%
V7	V7-UL	---	38882	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V7	V7-dL	---	38882.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V7	V7-Fr	---	38882.4	RW	Format Copy Card function visibility	2 BIT		0...3	num
APPLICATION 8 PARAMETERS									
	V8-SP1	37119	38944.6	RW	Setpoint	WORD		V8-LS1...V8-HS1	°C/°F
	V8-SP2	37121	38944.10	RW	Thermostat 2 setpoint	WORD		V8-LS2...V8-HS2	°C/°F
V8	V8-rE	37116	38944	RW	Regulation mode	WORD		0...4	num
V8	V8-rP1	37117	38944.2	RW	Regulation probe 1	WORD		0...7	num
V8	V8-rP2	37118	38944.4	RW	Thermostat 2 regulation probe	WORD		0...7	num
V8	V8-dF1	37120	38944.8	RW	Differential/proportional band	WORD		-58.0...302	°C/°F
V8	V8-dF2	37122	38944.12	RW	Thermostat 2 differential	WORD		-58.0...302	°C/°F
V8	V8-Stt	37125	38944.14	RW	Differential control mode	WORD		0/1	num
V8	V8-HS1	37128	38945	RW	SP1 maximum value	WORD		V8-LS1...V8-HdL	°C/°F
V8	V8-LS1	37129	38945.2	RW	SP1 minimum value	WORD		V8-LdL...V8-HS1	°C/°F
V8	V8-HS2	37130	38945.4	RW	SP2 maximum value	WORD		V8-LS2...V8-HdL	°C/°F
V8	V8-LS2	37131	38945.6	RW	SP2 minimum value	WORD		V8-LdL...V8-HS2	°C/°F
V8	V8-HC1	37126	38945.8	RW	Thermostat 1 mode	WORD		0/1	num
V8	V8-HC2	37127	38945.10	RW	Thermostat 2 mode	WORD		0/1	num
V8	V8-Cit	37136	38945.14	RW	Minimum compressor ON time	WORD		0...250	min
V8	V8-CAt	37137	38946	RW	Maximum compressor ON time	WORD		0...250	min
V8	V8-Ont	37142	38946.2	RW	ON time for faulty probe	WORD		0...250	min
V8	V8-OFt	37143	38946.4	RW	OFF time for faulty probe	WORD		0...250	min
V8	V8-dOn	37138	38946.6	RW	Switch on delay	WORD		0...250	secs
V8	V8-dOF	37139	38946.8	RW	Delay after switching off	WORD		0...250	min
V8	V8-dbi	37140	38946.10	RW	Delay between switch-ons	WORD		0...250	min
V8	V8-OdO	37141	38946.12	RW	Output delay from power-on	WORD		0...250	min
V8	V8-CP2	37144	38946.14	RW	Compressor 2 switch-on delay	WORD		0...250	secs
V8	V8-CFP	37225	38947.2	RW	Preventilation time	WORD		0...255	secs
V8	V8-CFd	37226	38947.4	RW	Fan mode	WORD		0/1	num
V8	V8-OF1	37147	38947.6	RW	Forced remote offset	WORD		-50.0...50.0	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V8	V8-dP1	37148	38947.8	RW	Selection defrost probe 1	WORD		0...7	num
V8	V8-dP2	37149	38947.10	RW	Selection defrost probe 2	WORD		0...7	num
V8	V8-dtY	37152	38947.12	RW	Defrost mode	WORD		0...4	num
V8	V8-dFt	37150	38947.14	RW	Defrost activation mode with two probes	WORD		0/1/2	num
V8	V8-dit	37153	38948	RW	Interval between defrost cycles	WORD		0...250	hours
V8	V8-dt1	37156	38948.2	RW	Unit of measurement for defrost interval	WORD		0/1/2	num
V8	V8-dt2	37157	38948.4	RW	Unit of measure for defrost duration	WORD		0/1/2	num
V8	V8-dCt	37151	38948.6	RW	Defrost interval count mode	WORD		0...5	num
V8	V8-dOH	37158	38948.8	RW	Defrost interval count mode	WORD		0...250	min
V8	V8-dE1	37154	38948.10	RW	Evaporator 1 defrost time-out	WORD		1...250	min
V8	V8-dE2	37155	38948.12	RW	Evaporator 2 defrost time-out	WORD		1...250	min
V8	V8-dS1	37160	38948.14	RW	Probe 1 end of defrost temperature	WORD		-58.0...302	°C/°F
V8	V8-dS2	37161	38949	RW	Probe 2 end of defrost temperature	WORD		-58.0...302	°C/°F
V8	V8-dSS	37159	38949.2	RW	Start defrost temperature threshold	WORD		-58.0...302	°C/°F
V8	V8-dPO	37162	38949.4	RW	Request defrost activation from power on	WORD		0/1	num
V8	V8-tcd	37163	38949.6	RW	Min. compressor ON or OFF time before defrost	WORD		-60...60	min
V8	V8-ndE	37164	38949.8	RW	Minimum defrost time (for hot gas only)	WORD		0...250	min
V8	V8-PdC	37165	38949.10	RW	Hot gas extraction time at defrost end	WORD		0...250	min
V8	V8-tPd	37167	38949.12	RW	Pump down time before defrost startup	WORD		0...255	min
V8	V8-dPH	37106	38949.14	RW	Start time for periodical defrost	WORD		0...24	hours
V8	V8-dPn	37107	38950	RW	Start time minutes for periodical defrost	WORD		0...59	min
V8	V8-dPd	37108	38950.2	RW	Periodical defrost interval duration	WORD		1...7	days
V8	V8-Fd1	37055	38950.4	RW	Weekend/public holiday 1	WORD		0...7	num
V8	V8-Fd2	37056	38950.6	RW	Weekend/public holiday 2	WORD		0...7	num
V8	V8-Edt	37057	38950.8	RW	Customized duration and temperature for each event	WORD		0/1	num
V8	V8-d1H	37058	38950.10	RW	Start time weekday defrost 1	WORD		0...24	hours
V8	V8-d1n	37059	38950.12	RW	Start time minutes weekday defrost 1	WORD		0...59	min
V8	V8-d1t	37060	38950.14	RW	Weekday defrost 1 duration	WORD		0...250	min
V8	V8-d1S	37061	38951	RW	End of weekday defrost 1 temperature	WORD		-58.0...302	°C/°F
V8	V8-d2H	37062	38951.2	RW	Start time weekday defrost 2	WORD		V8-d1H...24	hours
V8	V8-d2n	37063	38951.4	RW	Start time minutes weekday defrost 2	WORD		0...59	min
V8	V8-d2t	37064	38951.6	RW	Weekday defrost 2 duration	WORD		0...250	min
V8	V8-d2S	37065	38951.8	RW	End of weekday defrost 2 temperature	WORD		-58.0...302	°C/°F
V8	V8-d3H	37066	38951.10	RW	Start time weekday defrost 3	WORD		V8-d2H...24	hours
V8	V8-d3n	37067	38951.12	RW	Start time minutes weekday defrost 3	WORD		0...59	min
V8	V8-d3t	37068	38951.14	RW	Weekday defrost 3 duration	WORD		0...250	min
V8	V8-d3S	37069	38952	RW	End of weekday defrost 3 temperature	WORD		-58.0...302	°C/°F
V8	V8-d4H	37070	38952.2	RW	Start time weekday defrost 4	WORD		V8-d3H...24	hours
V8	V8-d4n	37071	38952.4	RW	Start time minutes weekday defrost 4	WORD		0...59	min
V8	V8-d4t	37072	38952.6	RW	Weekday defrost 4 duration	WORD		0...250	min
V8	V8-d4S	37073	38952.8	RW	End of weekday defrost 4 temperature	WORD		-58.0...302	°C/°F
V8	V8-d5H	37074	38952.10	RW	Start time weekday defrost 5	WORD		V8-d4H...24	hours
V8	V8-d5n	37075	38952.12	RW	Start time minutes weekday defrost 5	WORD		0...59	min
V8	V8-d5t	37076	38952.14	RW	Weekday defrost 5 duration	WORD		0...250	min
V8	V8-d5S	37077	38953	RW	End of weekday defrost 5 temperature	WORD		-58.0...302	°C/°F
V8	V8-d6H	37078	38953.2	RW	Start time weekday defrost 6	WORD		V8-d5H...24	hours
V8	V8-d6n	37079	38953.4	RW	Start time minutes weekday defrost 6	WORD		0...59	min
V8	V8-d6t	37080	38953.6	RW	Weekday defrost 6 duration	WORD		0...250	min
V8	V8-d6S	37081	38953.8	RW	End of weekday defrost 6 temperature	WORD		-58.0...302	°C/°F
V8	V8-F1H	37082	38953.10	RW	Start time weekend/public holiday defrost 1	WORD		0...24	hours
V8	V8-F1n	37083	38953.12	RW	Weekend/public holiday defrost 1 start time minutes	WORD		0...59	min
V8	V8-F1t	37084	38953.14	RW	Weekend/public holiday defrost 1 duration	WORD		0...250	min
V8	V8-F1S	37085	38954	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V8	V8-F2H	37086	38954.2	RW	Start time weekend/public holiday defrost 2	WORD		V8-F1H...24	hours
V8	V8-F2n	37087	38954.4	R/W	Weekend/public holiday defrost 2 start time minutes	WORD		0...59	min
V8	V8-F2t	37088	38954.6	RW	Weekend/public holiday defrost 2 duration	WORD		0...250	min
V8	V8-F2S	37089	38954.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V8	V8-F3H	37090	38954.10	RW	Start time weekend/public holiday defrost 3	WORD		V8-F2H...24	hours
V8	V8-F3n	37091	38954.12	RW	Weekend/public holiday defrost 3 start time minutes	WORD		0...59	min
V8	V8-F3t	37092	38954.14	RW	Weekend/public holiday defrost 3 duration	WORD		0...250	min
V8	V8-F3S	37093	38955	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V8	V8-F4H	37094	38955.2	RW	Start time weekend/public holiday defrost 4	WORD		V8-F3H...24	hours
V8	V8-F4n	37095	38955.4	RW	Weekend/public holiday defrost 4 start time minutes	WORD		0...59	min
V8	V8-F4t	37096	38955.6	RW	Weekend/public holiday defrost 4 duration	WORD		0...250	min
V8	V8-F4S	37097	38955.8	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V8	V8-F5H	37098	38955.10	RW	Start time weekend/public holiday defrost 5	WORD		F4H...24	hours
V8	V8-F5n	37099	38955.12	RW	Weekend/public holiday defrost 5 start time minutes	WORD		0...59	min
V8	V8-F5t	37100	38955.14	RW	Weekend/public holiday defrost 5 duration	WORD		0...250	min
V8	V8-F5S	37101	38956	RW	End of weekend/public holiday defrost 1 temperature	WORD		-58.0...302	°C/°F
V8	V8-F6H	37102	38956.2	RW	Start time weekend/public holiday defrost 6	WORD		F5H...24	hours
V8	V8-F6n	37103	38956.4	RW	Weekend/public holiday defrost 6 start time minutes	WORD		0...59	min
V8	V8-F6t	37104	38956.6	RW	Weekend/public holiday defrost 6 duration	WORD		0...250	min
V8	V8-F6S	37105	38956.8	RW	End of weekend/public holiday defrost 6 temperature	WORD		-58.0...302	°C/°F
V8	V8-FP1	37168	38956.10	RW	Evaporator fan probe in normal mode	WORD		0...7	num
V8	V8-FP2	37169	38956.12	RW	Evaporator fan probe during defrost stage	WORD		0...7	num
V8	V8-FPt	37170	38956.14	RW	FSt parameter mode	WORD		0/1	num
V8	V8-FSt	37171	38957	RW	Block fan temperature	WORD		-58.0...302	°C/°F
V8	V8-FAd	37172	38957.2	RW	Fan differential	WORD		0.1...25.0	°C/°F
V8	V8-Fdt	37173	38957.4	RW	Fan activation delay after compressor start	WORD		0...250	min
V8	V8-dt	37178	38957.6	RW	Dripping time	WORD		0...250	min
V8	V8-dFd	37176	38957.8	RW	Evaporator fan mode during defrost	WORD		0/1	num
V8	V8-FCO	37175	38957.10	RW	Evaporator fan mode	WORD		0...3	num
V8	V8-FdC	37174	38957.14	RW	Fan switch off delay after compressor stop	WORD		0...250	min
V8	V8-FOn	37179	38958	RW	Fan ON time in Duty Cycle	WORD		0...250	min
V8	V8-FOF	37180	38958.2	RW	Fan OFF time in Duty Cycle	WORD		0...250	min
V8	V8-Fnn	37181	38958.4	RW	Duty cycle on time during night mode	WORD		0...250	min
V8	V8-FnF	37182	38958.6	RW	Duty cycle off time during night mode	WORD		0...250	min
V8	V8-rA1	37196	38958.8	RW	Temperature alarm probe 1 selection	WORD		0...6	num
V8	V8-rA2	37197	38958.10	RW	Temperature alarm probe 2 selection	WORD		0...6	num
V8	V8-Att	37198	38958.12	RW	Parameter HAL and LAL mode	WORD		0/1	num
V8	V8-AFd	37199	38958.14	RW	Alarm setpoint differential	WORD		0.1...25.0	°C/°F
V8	V8-HA1	37200	38959	RW	Probe 1 maximum alarm	WORD		V8-LA1...302	°C/°F
V8	V8-LA1	37201	38959.2	RW	Probe 1 minimum alarm	WORD		-58.0...V8-HA1	°C/°F
V8	V8-HA2	37202	38959.4	RW	Probe 2 maximum alarm	WORD		V8-LA2...302	°C/°F
V8	V8-LA2	37203	38959.6	RW	Probe 2 minimum alarm	WORD		-58.0...V8-HA2	°C/°F
V8	V8-PAO	37204	38959.8	RW	Exclude alarm at switch on	WORD		0...10	hours
V8	V8-dAO	37206	38959.10	RW	Exclude alarm after defrost	WORD		0...250	min
V8	V8-OAO	37205	38959.12	RW	Alarm signal delay after closing door	WORD		0...10	hours
V8	V8-tdO	37250	38959.14	RW	Open door disabling time	WORD		0...250	num
V8	V8-tA1	37207	38960	RW	LA1 and HA1 alarm signal delay	WORD		0...250	min
V8	V8-tA2	37208	38960.2	RW	LA2 and HA2 alarm signal delay	WORD		0...250	min
V8	V8-dAt	37166	38960.4	RW	Enable alarm at end of defrost	WORD		0/1	num
V8	V8-EAL	37210	38960.6	RW	External alarm switches off utilities	WORD		0/1/2	num
V8	V8-tP	37251	38960.8	RW	Enable alarm overriding from any key	WORD		0/1	num
V8	V8-dSd	37192	38960.12	RW	Enable light relay from door switch	WORD		0/1	num
V8	V8-dLt	37193	38960.14	RW	Delay disabling light relay	WORD		0...250	min
V8	V8-OFL	37194	38961	RW	Light key always disables light relay	WORD		0/1	num
V8	V8-dOd	37209	38961.2	RW	Door switch turns off utilities	WORD		0...3	num
V8	V8-dOA	37211	38961.4	RW	Action forced by digital input	WORD		0...5	num
V8	V8-PEA	37212	38961.6	RW	DI selected to block/release resources	WORD		0...3	num
V8	V8-dCO	37213	38961.8	RW	Delay to activate/switch off compressor evap. fan	WORD		0...250	min
V8	V8-dFO	37214	38961.10	RW	Delay to activate/switch off evap. fan	WORD		0...250	min
V8	V8-ASb	37240	38961.12	RW	Key/AUX input/Light active when OFF	WORD		0/1	num
V8	V8-L00	36992	38961.14	RW	Shared probe	WORD		0...6	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V8	V8-L01	36993	38962	RW	Display value shared	WORD		0/1/2	num
V8	V8-L02	36994	38962.2	RW	Send setpoint value when modified	WORD		0/1	num
V8	V8-L03	36995	38962.4	RW	Send defrost request	WORD		0/1	num
V8	V8-L04	36996	38962.6	RW	End defrost mode	WORD		0/1	num
V8	V8-L05	36997	38962.8	RW	Synchronization of Stand-By command	WORD		0/1	num
V8	V8-L06	36998	38962.10	RW	Synchronization of light command	WORD		0/1	num
V8	V8-L07	36999	38962.12	RW	Synchronization of reduced setpoint command	WORD		0/1	num
V8	V8-L08	37000	38962.14	RW	Synchronization of AUX command	WORD		0/1	num
V8	V8-L10	37252	38963.2	RW	Wait for end of dependent defrost timeout	WORD		0...250	min
V8	V8-PEn	37190	38963.4	RW	Number of errors allowed	WORD		0...15	num
V8	V8-PEi	37191	38963.6	RW	Error count interval	WORD		1...250	min
V8	V8-dcS	37186	38963.8	RW	Deep Cooling Setpoint	WORD		-58,0...302	°C/°F
V8	V8-tdc	37187	38963.10	RW	Deep Cooling duration	WORD		0...250	min
V8	V8-dcc	37188	38963.12	RW	Waiting time to start defrost cycle	WORD		0...250	min
V8	V8-ESt	37115	38963.14	RW	Type of Energy Saving	WORD		0...4	num
V8	V8-ESF	37183	38964	RW	Night mode enabled	WORD		0/1	num
V8	V8-OS1	37132	38964.6	RW	Offset SP1	WORD		-50,0...50,0	°C/°F
V8	V8-OS2	37133	38964.8	RW	Offset SP2	WORD		-50,0...50,0	°C/°F
V8	V8-dn1	37123	38964.14	RW	dn1 Differential in energy saving mode 1	WORD		-58,0...302	°C/°F
V8	V8-dn2	37124	38965	RW	dn2 Differential in energy saving mode 2	WORD		-58,0...302	°C/°F
V8	V8-EdH	37109	38965.2	RW	Start time weekday Energy Saving	WORD		0...24	ore
V8	V8-Edn	37110	38965.4	RW	Weekday Energy Saving start time minutes	WORD		0...59	min
V8	V8-Edd	37111	38965.6	RW	Weekday Energy Saving event duration	WORD		1...72	ore
V8	V8-EFH	37112	38965.8	RW	Weekend/public holiday Energy Saving start time	WORD		0...24	ore
V8	V8-EFn	37113	38965.10	RW	Weekend/public holiday Energy Saving start time minutes	WORD		0...59	min
V8	V8-EFd	37114	38965.12	RW	Weekend/public holiday Energy Saving event duration	WORD		1...72	ore
V8	V8-FH	37215	38965.14	RW	Regulation mode	WORD		0...7	num
V8	V8-FHt	37217	38966	RW	Frame heater period	WORD		1...2500	sec*10
V8	V8-FH0	37218	38966.2	RW	Frame heater setpoint	WORD		-58,0...302	°C/°F
V8	V8-FH1	37219	38966.4	RW	Frame heater offset	WORD		0,0...25,0	°C/°F
V8	V8-FH2	37220	38966.6	RW	Frame heater band	WORD		0,0...25,0	°C/°F
V8	V8-FH3	37221	38966.8	RW	Min. percentage	WORD		0...100	%
V8	V8-FH4	37222	38966.10	RW	Maximum percentage/Duty Cycle Day	WORD		0...100	%
V8	V8-FH5	37223	38966.12	RW	Maximum percentage/Duty Cycle Night (ES)	WORD		0...100	%
V8	V8-FH6	37224	38966.14	RW	Percentage during defrost	WORD		0...100	%
V8	V8-LOC	37227	38967	RW	Keypad lock	WORD		0/1	num
V8	V8-PS1	37228	38967.2	RW	Password 1	WORD		0...250	num
V8	V8-PS2	37229	38967.4	RW	Password 2	WORD		0...250	num
V8	V8-ndt	37230	38967.6	RW	Display with decimal point	WORD		0/1	num
V8	V8-CA1	37036	38967.8	RW	Calibration Pb1	WORD		-30,0...30,0	°C/°F
V8	V8-CA2	37037	38967.10	RW	Calibration Pb2	WORD		-30,0...30,0	°C/°F
V8	V8-CA3	37038	38967.12	RW	Calibration Pb3	WORD		-30,0...30,0	°C/°F
V8	V8-CA4	37039	38967.14	RW	Calibration Pb4	WORD		-30,0...30,0	°C/°F
V8	V8-CA5	37040	38968	RW	Calibration Pb5	WORD		-30,0...30,0	°C/°F
V8	V8-LdL	37231	38968.6	RW	Minimum value displayable	WORD		-58,0...V8-HdL	°C/°F
V8	V8-HdL	37232	38968.8	RW	Maximum value displayable	WORD		V8-LdL...302	°C/°F
V8	V8-ddL	37233	38968.10	RW	Block display during defrost	WORD		0/1/2	num
V8	V8-Ldd	37234	38968.12	RW	"ddL" Release Time-Out	WORD		0...250	min
V8	V8-dro	37235	38968.14	RW	°C/°F selection (0=°C, 1=°F)	WORD		0/1	num
V8	V8-ddd	37237	38969.2	RW	Main Display	WORD		0...7	num
V8	V8-ddE	37238	38969.4	RW	Main display on ECHO	WORD		0...7	num
V8	V8-rPH	37189	38969.6	RW	Select HACCP alarm probe	WORD		0...5	num
V8	V8-H00	37002	38969.8	RW	Type of probe Pb1-Pb2-Pb3-Pb4–Pb5 (0=NTC, 1=PTC, 2=PT1000)	WORD		0/1/2	num
V8	V8-H08	37241	38969.12	RW	Stand-By mode	WORD		0...2	num
V8	V8-H11	37007	38969.14	RW	Configuration input DI1	WORD		-17...17	num
V8	V8-H12	37008	38970	RW	Configuration input DI2	WORD		-17...17	num
V8	V8-H13	37009	38970.2	RW	Configuration input DI3	WORD		-17...17	num

FOLDER	LABEL	Value PAR. ADDRESS	Vis. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	M.U.
V8	V8-H14	37010	38970.4	RW	Configuration input DI4	WORD		-17...17	num
V8	V8-H15	37011	38970.6	RW	Configuration input DI5	WORD		-17...17	num
V8	V8-H18	37014	38970.12	RW	Configuration input DI8	WORD		-17...17	num
V8	V8-dti	37023	38970.14	RW	Unit of measure for digital inputs 1 and 2	WORD		0/1	num
V8	V8-d11	37015	38971	RW	Activation delay for digital input 1	WORD		0...255	min/secs
V8	V8-d12	37016	38971.2	RW	Activation delay for digital input 2	WORD		0...255	min/secs
V8	V8-d13	37017	38971.4	RW	Activation delay for digital input 3	WORD		0...255	min
V8	V8-d14	37018	38971.6	RW	Activation delay for digital input 4	WORD		0...255	min
V8	V8-d15	37019	38971.8	RW	Activation delay for digital input 5	WORD		0...255	min
V8	V8-d18	37022	38971.14	RW	Activation delay for digital input 8	WORD		0...255	min
V8	V8-H21	37044	38972	RW	Configuration Relay 1	WORD		0...13	num
V8	V8-H22	37045	38972.2	RW	Configuration Relay 2	WORD		0...13	num
V8	V8-H23	37046	38972.4	RW	Configuration Relay 3	WORD		0...13	num
V8	V8-H24	37047	38972.6	RW	Configuration Relay 4	WORD		0...13	num
V8	V8-H25	37048	38972.8	RW	Configuration Relay 5	WORD		0...13	num
V8	V8-H29	37051	38972.14	RW	Enable buzzer	WORD		0/1	num
V8	V8-H31	37242	38973	RW	Configuration of UP key	WORD		0...8	num
V8	V8-H32	37243	38973.2	RW	Configuration of DOWN key	WORD		0...8	num
V8	V8-H33	37244	38973.4	RW	ESC key configuration	WORD		0...8	num
V8	V8-H41	37024	38973.14	RW	Configuration input Pb1 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V8	V8-H42	37025	38974	RW	Configuration input Pb2 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V8	V8-H43	37026	38974.2	RW	Configuration input Pb3 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V8	V8-H44	37027	38974.4	RW	Configuration input Pb4 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V8	V8-H45	37028	38974.6	RW	Configuration input Pb5 (0=Disable, 1=DI, 2=H00)	WORD		0/1/2	num
V8	V8-H68	37054	38975	RW	Clock Present	WORD		0/1	num
V8	V8-H70	37032	38975.2	RW	Select probe 1 for virtual probe	WORD		0...5	num
V8	V8-H71	37033	38975.4	RW	Select probe 2 for virtual probe	WORD		0...5	num
V8	V8-H72	37034	38975.6	RW	% calculation virtual probe day	WORD		0...100	%
V8	V8-H73	37035	38975.8	RW	% calculation virtual probe night	WORD		0...100	%
V8	V8-UL	---	38978	RW	Parameter transfer function visibility (Device -> Copy Card)	2 BIT		0...3	num
V8	V8-dL	---	38978.2	RW	Parameter transfer function visibility (Copy Card -> Device)	2 BIT		0...3	num
V8	V8-Fr	---	38978.4	RW	Format Copy Card function visibility	2 BIT		0...3	num

8.2.2 - FOLDER VISIBILITY TABLE

LABEL	MODBUS ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	ADDRESS BY APPLICATION								M.U.
						AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8	
vis_CP	38175.12	RW	CP (Compressor) folder visibility	2 BIT	0 ... 3	38303.12	38399.12	38495.12	38591.12	38687.12	38783.12	38879.12	38975.12	num
vis_dEF	38175.14	RW	dEF (Defrost) folder visibility	2 BIT	0 ... 3	38303.14	38399.14	38495.14	38591.14	38687.14	38783.14	38879.14	38975.14	num
vis_FAn	38176	RW	FAn (Fans) folder visibility	2 BIT	0 ... 3	38304	38400	38496	38592	38688	38784	38880	38976	num
vis_AL	38176.2	RW	AL (Alarms) folder visibility	2 BIT	0 ... 3	38304.2	38400.2	38496.2	38592.2	38688.2	38784.2	38880.2	38976.2	num
vis_Lit	38176.4	RW	Lit (Lights & Digital Inputs) folder visibility	2 BIT	0 ... 3	38304.4	38400.4	38496.4	38592.4	38688.4	38784.4	38880.4	38976.4	num
vis_Lin	38176.6	RW	Lin (LINK²) folder visibility	2 BIT	0 ... 3	38304.6	38400.6	38496.6	38592.6	38688.6	38784.6	38880.6	38976.6	num
vis_PrE	38176.8	RW	PrE (Pressure switch) folder visibility	2 BIT	0 ... 3	38304.8	38400.8	38496.8	38592.8	38688.8	38784.8	38880.8	38976.8	num
vis_SUC	38176.10	RW	SUC (LVD) folder visibility	2 BIT	0 ... 3	38304.10	38400.10	38496.10	38592.10	38688.10	38784.10	38880.10	38976.10	num
vis_dEC	38176.12	RW	dEC (Deep cooling) folder visibility	2 BIT	0 ... 3	38304.12	38400.12	38496.12	38592.12	38688.12	38784.12	38880.12	38976.12	num
vis_EnS	38176.14	RW	EnS (Energy Saving) folder visibility	2 BIT	0 ... 3	38304.14	38400.14	38496.14	38592.14	38688.14	38784.14	38880.14	38976.14	num
vis_FrH	38177	RW	FrH (Frame Heater) folder visibility	2 BIT	0 ... 3	38305	38401	38497	38593	38689	38785	38881	38977	num
vis_Add	38177.2	RW	Add (Communication) folder visibility	2 BIT	0 ... 3	38305.2	38401.2	38497.2	38593.2	38689.2	38785.2	38881.2	38977.2	num
vis_diS	38177.4	RW	diS (Display) folder visibility	2 BIT	0 ... 3	38305.4	38401.4	38497.4	38593.4	38689.4	38785.4	38881.4	38977.4	num
vis_HCP	38177.6	RW	HCP (HACCP) folder visibility	2 BIT	0 ... 3	38305.6	38401.6	38497.6	38593.6	38689.6	38785.6	38881.6	38977.6	num
vis_CnF	38177.8	RW	CnF (Configuration) folder visibility	2 BIT	0 ... 3	38305.8	38401.8	38497.8	38593.8	38689.8	38785.8	38881.8	38977.8	num
vis_FPr	38177.12	RW	FPr (Copy Card) folder visibility	2 BIT	0 ... 3	38305.12	38401.12	38497.12	38593.12	38689.12	38785.12	38881.12	38977.12	num
vis_FnC	38177.14	RW	FnC (Functions) folder visibility	2 BIT	0 ... 3	38305.14	38401.14	38497.14	38593.14	38689.14	38785.14	38881.14	38977.14	num

8.2.3 - CLIENT TABLE

NOTE: Reading Modbus command: 03 (0x03) and Writing Modbus command: 16 (0x10)

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	M.U.
A1	513	R	Regulation probe 1	WORD	-67,0...320	°C/°F
A2	514	R	Regulation 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
A11	523	R	HACCP probe	WORD	-67,0...320	°C/°F
SP1	524	R	regulation setpoint value 1	WORD	-67,0...320	°C/°F
SP2	525	R	regulation setpoint value 2	WORD	-67,0...320	°C/°F
rDP	543	R	Dew point value	WORD	-67,0...320	°C/°F
dis	527	R	Display value	WORD	-67,0...320	°C/°F
vr1	528	R	Probe x for virtual probe calculation	WORD	-67,0...320	°C/°F
vr2	529	R	Probe x for virtual probe calculation	WORD	-67,0...320	°C/°F
EA1	513	R	Probe error AI1	WORD	0...1	flag
EA2	514	R	Probe error AI2	WORD	0...1	flag
EA3	515	R	Probe error AI3	WORD	0...1	flag
EA4	516	R	Probe error AI4	WORD	0...1	flag
EA5	517	R	Probe error AI5	WORD	0...1	flag
EA6	518	R	Probe error AI6	WORD	0...1	flag
EA7	519	R	Probe error AI7	WORD	0...1	flag
EA8	520	R	Probe error AI8	WORD	0...1	flag
EA11	523	R	Probe error AI11	WORD	0...1	flag
ErDP	543	R	Probe error rDP	WORD	0...1	flag
Edis	527	R	Probe error dis	WORD	0...1	flag
Evr1	528	R	Probe error vr1	WORD	0...1	flag
Evr2	529	R	Probe error vr2	WORD	0...1	flag
E1	1537	R	Probe error AI1	WORD	0...1	flag
E2	1538	R	Probe error AI2	WORD	0...1	flag
E3	1539	R	Probe error AI3	WORD	0...1	flag
E4	1540	R	Probe error AI4	WORD	0...1	flag
E5	1541	R	Probe error AI5	WORD	0...1	flag
E01	544	R	Cumulative cooling time	WORD	0...1	flag
E02	545	R	Cumulative defrost relay time 1	WORD	0...1	flag
E03	546	R	Cumulative defrost relay time 2	WORD	0...1	flag
E04	547	R	Number of cooling cycles	WORD	0...1	flag
E05	548	R	Number of defrosts	WORD	0...1	flag
AL1	1544	R	Low temperature alarm 1	WORD	0...1	flag
AH1	1545	R	High temperature alarm 1	WORD	0...1	flag
AL2	1546	R	Low temperature alarm 2	WORD	0...1	flag
AH2	1547	R	High temperature alarm 2	WORD	0...1	flag
OPd	1548	R	Door open alarm	WORD	0...1	flag
EA	1549	R	External alarm digital input	WORD	0...1	flag
Prr	1550	R	Preheating 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	RTA battery low alarm	WORD	0...1	flag
LoP	1562	R	Minimum voltage threshold exceeded	WORD	0...1	flag
HiP	1563	R	Maximum voltage threshold exceeded	WORD	0...1	flag
OFF	5121	R	stand-by	WORD	0...1	flag
C1	5122	R	Compressor State 1	WORD	0...1	flag
C2	5123	R	Compressor State 2	WORD	0...1	flag
RegAUX	5124	R	Auxiliary regulator status	WORD	0...1	flag
Def1	5125	R	Defrost State 1	WORD	0...1	flag
Def2	5126	R	Defrost State 2	WORD	0...1	flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	RANGE	M.U.
FEv	5127	R	Evaporator Fan State	WORD	0...1	flag
FCo	5128	R	Condensator Fan State	WORD	0...1	flag
ALM	5129	R	Alarm	WORD	0...1	flag
AUX	5130	R	Auxiliary State	WORD	0...1	flag
Lig	5131	R	Light State	WORD	0...1	flag
DP	5132	R	Deep Cooling	WORD	0...1	flag
FH	5133	R	Frame Heaters	WORD	0...1	flag
SeR	5134	R	Reduced Set Regulator	WORD	0...1	flag
ES	5135	R	Energy saving...	WORD	0...1	flag
do	5136	R	Door open	WORD	0...1	flag
gDI	5138	R	Generic input state	WORD	0...1	flag
LAN	5139	R	Number of devices recognized in the LAN	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	Activation Energy Saving function	WORD	0...1	flag
oNS	2566	RW	Disable Energy Saving function	WORD	0...1	flag
nSR	2567	RW	Activation Economy	WORD	0...1	flag
oSR	2568	RW	Disable Economy	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	Lock Keypad	WORD	0...1	flag
oBT	2572	RW	Unlock Keypad	WORD	0...1	flag
nDM	2573	RW	Activate Manual Defrost	WORD	0...1	flag
nOS	2576	RW	Activate force setpoint offset	WORD	0...1	flag
oOS	2577	RW	Disable force setpoint offset	WORD	0...1	flag
dEC	2578	RW	Enable Deep Cooling	WORD	0...1	flag
ClkUp	2579	R	Reset Clock	WORD	0...1	flag
rDP	543	RW	Dewpoint remote value 1	WORD	0...1	flag
rEO	2580	RW	Reset of EO resources 1	WORD	0...1	flag

9 - WARNINGS

9.1 - ELECTRICAL CONNECTIONS

Important! Make sure the appliance is switched off before working on the electrical connections.

The device has a terminal board with disconnectable terminals for the connection of electrical cables of max. diameter 2.5 mm^2 (only one conductor per terminal for power connections): see the label on the device for details of terminal ratings. Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity. Make sure that the power supply is of the correct voltage for the device.

Probes have no connection polarity and can be extended using a normal bipolar cable (note that the extension of the probes influences the instrument's electromagnetic compatibility -EMC: take great care with the wiring). Probe cables, power supply cables and the TTL serial cable should be routed separately from the mains power cables.

9.2 - DISCLAIMER

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9.3 - RESPONSIBILITIES AND RESIDUAL RISKS

ELIWELL CONTROLS SRL is not liable for damage caused by:
- installation/use other than expressly specified and, in particular, in conflict with the safety prescriptions set down in regulations and/or specified in this document
- use on panels that do not provide adequate protection against electric shocks, water or dust in the adopted mounting conditions;
- use on panels allowing access to dangerous parts without having to use tools;
- tampering with and/or modification of the product;
- installation/use on panels that do not comply with statutory laws and regulations.

9.4 - CONDITIONS OF USE

Permitted use
For safety reasons, the instrument must be installed and used according to the instructions provided. In particular, parts carrying dangerous voltages must not be accessible under normal operating conditions. The device must be adequately protected from water and dust with regard to the application, and must only be accessible using tools (with the exception of the front panel). The device is suitable for use in household refrigeration appliances and/or similar equipment and has been tested for safety aspects in accordance with harmonized European reference standards.

Improper use
Any use other than that expressly permitted is prohibited. The relays provided are of a functional type and can be subject to failure: any protection devices required by product standards, or suggested by common sense for obvious safety requirements, must be installed externally to the controller.

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