EWRC 550 - EWRC 800 – EWHT 800
Controllers for ageing rooms (EWHT) and temperature (EWRC) controllers for in-room installation

GB

Invensys Controls Europe
An Invensys Company

CONTENTS

1 HOW TO USE THIS MANUAL

This manual is designed to permit quick, easy reference with the following features:

References

References column**:**
A column to the left of the text contains *references* to subjects discussed in the text to help you locate the information you need quickly and easily.

Cross references

Cross references:
All words written in *italics* are referenced in the subject index to help you find the page containing details on this subject; supposing you read the following text:
" If there are 2 *compressors* in the installation, the minimum time between the switching on and the switching off) of the two *compressors* is observed. "
The italics mean that you will find a reference to the page on the topic of *compressors* listed under the item *compressors* in the index.
If you are consulting the manual "on-line" (using a computer), words which appear in italics are hyperlinks: just click on a word in italics with the mouse to go directly to the part of the manual that discusses this topic.

Icons for emphasis

Some segments of text are marked by icons appearing in the *references* column with the meanings specified below:

Warning! : **information which is essential for preventing negative consequences for the system or a hazard to personnel, instruments, data, etc., and which users MUST read with care.**

Take note: information on the topic under discussion which the user ought to keep in mind

Tip: a recommendation which may help the user to understand and make *use* of the information supplied on the topic under discussion.

2 INTRODUCTION

2.1 General Description

2.1.1 All models

The new Coldface *range* of controllers allow you to control the temperature of a static or ventilated cold room with single-phase *compressors* up to 2HP.
They are ideal for *use* in controlling commercial and industrial refrigerated store rooms, and thanks to the wide *range* of outputs available, they are capable of controlling all associated *functions* such as lighting, alarms, and condensation *fans* for *example*.
They have an optional RS-485 port for connection to a Televis **System** and ModBUS (with no need for any further external *accessories*).
As controllers, they are extremely simple and intuitive to *use*: the double *LED display* with 8 navigation *keys* ensures the clear and simultaneous *display* of all active *functions*.
The HACCP function sets, maintains and memorises temperature measurements and any associated alarms, ensuring the quality and hygiene of stored products.
The 95 to 240V~ switching power supply guarantees compatibility with all types of application.

2.1.2 EWHT800LX

The new Coldface Series "EWHT 800 LX" controller is intended for *applications* with dual compartment cold rooms and allows the combined control of temperature and relative humidity.
The curing/ageing/storing cycle consists of 1 program with 8 climate profiles; the combined control of temperature and humidity during *defrost*, which can be fully customized by the customer, makes Coldface the best electronic solution for curing/ageing/storing all food products.
The 8 configurable relays control all associated *functions* such as ventilation *fans*, anti-stratification *fans*, *humidify*/*dehumidify functions* and *heating* for *example*.

2.1.3 EWRC800LX

The new Coldface Series "EWRC 800 LX" controller controls the temperature of a static or ventilated refrigerated store room.
It is suitable for deep *cooling* and conservation rooms.
It is also ideal for "mixed" refrigerated storage units with a *deep cooling cycle* and subsequent conservation of foodstuffs.
On completion of the *deep cooling cycle*, the controller switches automatically to conservation mode.
It will automatically override *defrost* cycles and alarms during deep *cooling*. Alarm management is automatically restored when the cold room reaches conservation temperature.
The 8 configurable relays control all associated *functions* such as lights, alarms and condensation *fans*.
It has a subset of *parameters* which can be programmed in line with the type of configuration required for the installation.

2.1.4 EWRC550LX

The new Coldface Series "EWRC 800 LX" controller controls the temperature of a static or ventilated refrigerated store room.
It is suitable for cold rooms in which low temperatures must be closely monitored and high precision temperature readings are required.
The operating *range* extends from -200°C to +150°C. Accurate to 0.1°C.
The 5 configurable relays control all associated *functions* such as lights, alarms and condensation *fans*.
It has a subset of *parameters* which can be programmed in line with the type of configuration required for the installation.

2.1.4.1 Applications

	EWHT800	EWRC800	EWRC550
Butchers	●	●	●
Sausage and salami production	●	●	●
Delicatessens	●	●	●
Cheese production	●	●	●
Pasta production	●	●	●
Vegetable production	●		
Cold stores for foodstuffs (fruit, vegetables, meat)	●	●	●
Abattoirs	●	●	●
Dryers for wood, skins, paper, marble.	●	●	●

2.2 Models and Features

-->See Annexe A - *Models* and *Accessories* and the Specifications chapter.

3 USER INTERFACE

The front panel of the device *functions* as the *user interface* and is used to perform all operations relating to the controller.

3.1 Keys

There are 8 *keys* (4+4) on the front panel. Each key has (see the two tables below):

- o A "direct" action (marked in white on the key).
- o An "associated" function (marked in black on the key). In the manual, this is shown in square brackets (e.g. [DOWN]=INFO).
- o A "combined" action involving two *keys*. In the manual, this is shown in square brackets (e.g.[UP+DOWN]).

Key	Description Key	Press once (press and release)					Press and hold [press for about 3 seconds*]	*Menu* / Comments
		MAIN *MENU*	CONFIGURATION *MENU*	STATE *MENU*	*ALARM MENU*	FUNCTION *MENU*		
	**▲ UP**		Increases a value - - - Go to the next *label*	Increases a value - - - Go to the previous *label* - - - Opens edit set mode Open edit RTC mode	Go to the next *label*	Go to the previous *label*	N.A.	Programmable from parameter **H31**
	Alarms	Open *Alarm Menu*					[reset Power Failure PF]	Only if alarms are present
	**▼ DOWN**		Decreases a value - - - Goes to the previous *label*	Decreases a value - - - Goes to the next *label* - - - Opens edit set mode Open edit RTC mode	Go to the previous *label*	Goes to the previous *label*	N.A.	Programmable from parameter **H32**
	INFO	Open State *Menu*					N.A.	
	**Esc(ape)** (save new settings)	Open *Functions menu*	Exit without saving new settings - - - Go back to previous level	Output - - - Go back to previous level	Exit	Exit		Programmable from parameter **H33**
	[*DEFROST*]						[Activate *manual defrost*]	

Key	Description Key	Press once (press and release)					Press and hold [press for about 3 seconds*]	*Menu* / Comments
		MAIN *MENU*	**CONFIGURATION *MENU***	**STATE *MENU***	***ALARM MENU***	**FUNCTION *MENU***		
	**Confirm set** (save new settings)		Confirm value - - - Exit and save new settings - - - Move to next level (open *folder*, subfolder, parameter, value)	Confirm value - - - Exit and save new settings - - - Move to next level (open *folder*, subfolder, parameter, value) - - - Activate *functions*	Move to next level (open *folder*, subfolder, parameter, value)	Activate *functions*	[Open Configuration *menu*]	
	ALL	Alarm acknowledgment	Alarm acknowledgment	Alarm acknowledgment	Alarm acknowledgment	Alarm acknowledgment	*Activation time can be configured from H02 with the exception of SET NOT CONFIGURABLE	

3.1.1 Description of keys and associated functions

Key	Description Key	Press once (press and release)	Press and hold [press for about 3 seconds*]	*Menu* / Comments
	***STANDBY***	N.A.	[Enable *STANDBY* mode]	Programmable from parameter **H34**
	**LIGHT (LIGHT)**	• Switch on light • Switch off light	*Activation time 0.5 seconds	Programmable from parameter **H35**

EWHT800				
	**AUX1-2** **Ventilation *fans* AUX1** **-----** **Anti-stratification *fans* AUX2**		[Enable/disable Ventilation *fans* AUX1] **(H36=10)**	Programmable from parameter **H36**
	Start/Stop/Reset operating cycles	Start/Stop operating cycles **(H37=15)**	[Reset operating cycles] **(H37=15)**	Programmable from parameter **H37**
EWRC800 – EWRC550				
	**AUX**	/	Enable/disable auxiliary relay	Programmable from parameter **H36**
	**Energy Saving Night and Day**			Programmable from parameter **H37**
			*Activation time can be configured from H02 with the exception of AUX and LIGHT	

3.2 STANDBY

Definition: *Standby* and OFF are considered to be synonyms. For *example*, device OFF (= device is in *standby*)

This allows you to manage function modes during *standby* based on parameter H08:

- H08=0: the *display* is **off** and regulators active, the controller signals any alarms by reactivating the *display*.
  H08=1: the *display* is **on**, all regulators are blocked including alarms.
- H08=2: the *display* is **off**, all regulators are blocked including alarms.
- H08=3: **the PV *display* shows the "OFF** " *label*, all regulators including alarms are blocked.

The stand-by regulator can be activated via digital input when configured accordingly.

H08	*Display*	Regulators active		Alarms active	*Functions* active	Open *menu*			
		EWHT800	EWRC800/550			Programm.	States	*Functions*	Alarms
0	Off	YES	YES	YES – reactivate *display*	NO	YES	YES	YES(°)	If active
1	See main *display*	Light	Light+Aux	NO	NO	YES	YES	YES(°)	If active
2	Off	Light	Light+Aux	NO	NO	YES	YES	YES(°)	If active
3	OFF *label*	Light	Light+Aux	NO	NO	YES	YES	Yes(°)	If active

(°) Open the Function *Menu* although *Functions* will be activated only with the controller ON.

Key	Device 'On' --> 'OFF'	Device 'OFF' --> 'On'
	Press the [*STANDBY*] key for about 3 seconds from the main *display*.	The word OFF appears on the *display*. Press the [*STANDBY*] key for about 3 seconds.
	The word OFF appears on the *display*.	EWHT800/EWRC800/550 will go back to the 'normal' read-out.

3.2.1 Description of keys – combined action

Key sequence	Combined pressing of *keys* Press once (press and release)	Associated function	[*Menu*] / Comments
	**ESC + Set in sequence**	Lock keypad	From unlocked keypad
		Unlock keypad	From locked keypad

3.3 Display

The controller has a double *display*.

	PV *DISPLAY* Process Value	Description	Colour	Comments
EWHT		Displays Parameter labels Alarm labels Function labels Process values	Amber	Read-out with decimal point. if parameter *ndt*=1
EWRC				
	SV *DISPLAY* SetPoint Value	**Description**	**Colour**	**Comments**
EWHT		Displays Set Point Time Parameter values Function states States	Green	Humidity value read-out. Read-out with decimal point if parameter *ndH*=dec
EWRC				View time in HH:MM format Read-out with decimal point if parameter *ndt*=1

3.4 LED

The *display* has
- EWHT800: 25 icons (*LED*).
- EWRC800/550: 17 icons (*LED*).

split into 3 categories:
- States and *Operating Modes*.
- Values and Units of Measure.
- Steps.

The values shown can have up to:
- PV *display*: 3 figures, with +/- sign.
- SV *display*: 4 figures.

3.4.1 LED: States and Operating Modes

Icon	Description	Colour	Permanently on	<Blinking> (Indicated with < >)	EWHT 800	EWRC 800	EWRC 550	ACCESS IN *STANDBY* (OFF)
	PANIC alarm	Red	Panic Alarm Enabled	/	N.A.	•	•	•
HACCP	HACCP	Red	HACCP alarms	<HACCP alarms not viewed yet>	•	•	•	•
	Alarms	Red	Alarm active	<Alarm acknowledged>	•	•	•	NO

Icon	Description	Colour	Permanently on	<Blinking> (Indicated with < >)	EWHT 800	EWRC 800	EWRC 550	ACCESS IN *STANDBY* (OFF)
	Power	Red	Power supply on	/	N.A.	•	•	•
	Internal exchanger *fans*	Yellow	Internal exchanger *fans* active	<Forced ventilation>	•	•	•	NO
	External exchanger *fans*	Yellow	*External exchanger fans* active	/	•	•	•	NO
AUX	Auxiliary AUX	Yellow	Auxiliary output active	/	N.A.	•	•	NO
AUX1	*Fans* Ventilation	Yellow	*fans* active	/	•	N.A.	N.A.	NO
AUX2	*Fans* Anti-stratification	Yellow	*fans* active	/	•	N.A.	N.A.	NO
	*Compressor*	Yellow	*Compressor* on	<Delay or activation blocked>	•	•	•	NO
	*Defrost* (*Defrost*)	Yellow	Automatic *defrost* active	<*dripping*>	•	N.A.	N.A.	NO
	*Defrost* 1 (*Defrost* 1)	Yellow	Automatic *defrost* 1 active	<*Dripping*>	N.A.	•	•	NO
	*Defrost* 2 (*Defrost* 2)	Yellow	Automatic *defrost* 2 active	<*Dripping*>	N.A.	•	•	NO
	*Heating*	Yellow	*Heating*	/	•	N.A.	N.A.	NO
	*Humidify*	Yellow	*Humidify* active	/	•	N.A.	N.A.	NO
	*Dehumidify*	Yellow	*Dehumidify* active	/	•	N.A.	N.A.	NO
	Light	Yellow	Light on	/	•	•	•	•
	*Deep Cooling Cycle* DCC	Yellow	*Deep cooling Cycle* active	/	N.A.	•	•	NO
	Economy (Energy Saving)	Yellow	Energy saving enabled	/	•	N.A.	N.A.	•
		Green			N.A.	•	•	•
	Night and Day	Yellow	Night and Day enabled	/	•	N.A.	N.A.	•

Icon	Description	Colour	Permanently on	<Blinking> (Indicated with < >)	EWHT 800	EWRC 800	EWRC 550	ACCESS IN *STANDBY* (OFF)
		Green			N.A.	•	•	•
HACCP	HACCP	Green	HACCP *Menu*	<HACCP alarms not viewed yet>	N.A.	•	•	•.
%RH	RH%	Yellow	SV *display* relative humidity value	/	•	N.A.	N.A.	NO
	RTC clock	Yellow	Show/change time	/	•	•	•	NO
	Date	Yellow	Show/change date	/	•	•	•	NO

ALL	Off in cases not described (e.g. *compressor* off)

3.4.2 LED: PHASES

ALL LEDs		Individual *LED*			*LED* 1...n
Off	**Permanently on**	**Off**	**Flashing**	**Permanently on**	**Permanently on**
Cycle ready to start	**Cycle completed Case 1 STEP Case 8 STEP**	**STEP not started**	**STOP STEP**	**STEP ON**	**Step 1.., n-1 completed**

--> See also the section on managing Climate Profiles.

3.5 Access to folders – Menu Structure

Key

Press and release	[Press and hold]	<Flashing *label*>
		<dtY>

Access to folders is organised into menus.
Access is determined by the *keys* on the front panel (see relative sections).
Access to each individual *menu* is explained below (or in the sections indicated).
There are 6 menus:

- Main '*Display menu*' → see "Main *Display Menu*" section.
- *Menu* and SetPoint Configuration → see '*SetPoint Menu*'.
- 'States' *menu* → see "States *Menu*' section.
- 'Alarms' *menu* → see "*Alarm Menu*" section.
- "Programming" *Menu* → see '*Programming Menu*' section.
  → see 'Night And Day *Functions*' *menu*.
- '*Functions*' *Menu* → see '*Functions Menu*' section.

- - - - - - - - - - - - - - - - - - -

- Set date/time → see "States *Menu*' section.

3.5.1 Main Display" Menu"

Main *Display*' refers to the contents of the *default* read-outs, i.e. when *keys* are not used.

3.5.1.1 Modifying the main display

In EWHT800/EWRC800-550, the main *display* can be customized to suit personal requirements.
The various screens can be selected by configuring the following *parameters* appropriately:

PV *display label*	**Parameter ddd=**	**SV *display label***	**Parameter dd2=**
Set Point	0	Set Point	0 (*default*)
Value Pb1	1 (*default*)	Value Pb1	
		Real Time Clock (Hours/Mins)	1
Value Pb2	2		
Value Pb3	3		
Value Pb4	4		
Value Pb5		Value Pb5	2

Examples

	***DEFAULT* EWHT800 Parameter ddd=1 dd2=0**	**ddd=1; dd2=1**
		
SV *display*	RH% *LED* on (parameter RH =Y) - - - Read-out with decimal figure (parameter rdH=dec)	Clock *LED* on - - - RTC present (parameter H48=Y)

3.5.2 SetPoint Menu

3.5.2.2 Example of how to program the setpoint (SP1, SP3)

By way of *example*, we will change the setpoint value from -18.0 degrees centigrade to -20.0 degrees centigrade.

Display	***Label***	**Key**	**Description**
PV *display* SV *display*	-18.00 12:00		Press and release the 'SET' key on the first window of the *display*. *Use* the "Set" key to browse all folders until the Set *label* appears.
PV *display* SV *display*	SP1 -18.0		*Label* SP1 is shown on the PV *display* whilst the current value of Setpoint SP1 is shown on the SV *display*.
PV *display* SV *display*	SP1 -20.0		*Use* the 'UP' and 'DOWN' *keys* to change the Setpoint value shown on the SV *display*.
PV *display* SV *display*	SP3 -21.0		Press the "set" key and *label* SP3 will be shown whilst the current value of Setpoint SP3 will be shown on the SV *display*. *Use* the UP and 'DOWN' *keys* to change the setpoint value shown on the SV *display*. - - - If you press the SET' or 'ESC' *keys* again, or allow the time out (15 seconds) to elapse, the new value will be saved and the *display* will return to the starting screen.

3.5.3 "States" menu

From the states *menu*, you can:

- View values for each resource.
- Set the date and time.

Menu	**Key**				
Main	▼	Open states *menu*			
Menu	**Key**	**PV *display label***	**SV *display label***	**Description**	**Edit**
States	▼▲	Pb1	Value Pb1		//
States	▼▲	Pb2	Value Pb2		//
States	▼▲	Pb3	Value Pb3		//
States	▼▲	Pb4	Value Pb4		//
States	▼▲	Pb5	Value Pb5		//
States	SETPOINT	Open Date/Time *menu*			YES
Menu	**Key**				
Date/time	▼	rtC	HH*:MM	Change time*	YES
Date/time	SETPOINT	rtC	HH:MM	Open change minutes	
Date/time	▼▲	rtC	HH:MM	Change minutes*	YES
Date/time	SETPOINT	rtC	dd:mm	Open change day	
Date/time	▼▲	rtC	dd*:mm	Change day*	YES
Date/time	SETPOINT	rtC	dd:mm	Open change month	
Date/time	▼▲	rtC	dd:mm*	Change month*	YES
Date/time	SETPOINT	rtC	yyyy	Open change year	
Date/time	▼▲	rtC	yyyy*	Change year*	YES
				* Flashing	

3.5.4 Alarm Menu

3.5.4.3 Probe errors

See Troubleshooting section

3.5.4.4 View Alarms

Display	*Label*	Key	Description
PV *display* SV *display*	-18.00 12:00		Press and release the 'UP' key on the starting page of the *display*. *Use* the "Set" key to browse all folders until the Set *label* appears.
PV *display* SV *display*	ALr SYS		The ALr *label* appears on the PV *display* whilst the SV *display* shows if it was • a system alarm (*label* SYS) • or an HACCP alarm. *Use* the 'UP' and 'DOWN' *keys* to view the *label* for the current alarm.
PV *display* SV *display*	ALr HA1		This is a HA1 high temperature alarm.

3.5.5 Programming Menu

3.5.5.5 Modifying an installer level parameter

Instructions are provided below on how to change an installer level parameter.
User level (USr) *parameters* are modified in the same way.
By way of *example*, let's take the dEF *defrost* parameter *folder*, parameter dtY (InS/dEF/dtY *folder*).
We will illustrate how to change the value from 0 to 2.

Display	*Label*	Key	Description
PV *display* SV *display*	-18.00 12:00		The *programming menu* contains all the *parameters* needed to set device *functions*, and is divided into two access levels: user (USr) level and installer (inS) level: Press the [SET] key from the main *display*.
PV *display* SV *display*	USr (*PA1*)		The *label* USr for the user level of the *menu* is shown. - - - (If the USer level is password-protected, *label PA1* appears on the SV *display*) (°)
PV *display* SV *display*	inS (PA2)		**Installer level access (InS)** Press the "UP" and "DOWN" *keys* by the Usr *label* to view *label* inS which indicates the entry point to folders containing installer level *parameters*. - - - (If the InStaller level is password-protected, *label* PA2 appears on the SV *display*) (°)
PV *display* SV *display*	CPr - - -		Press and release the 'set' key on the inS *label*. Press the 'set' key to browse all folders at the installer level until you find the one you want.

Display	Label	Key	Description
PV *display*	Hud		Hud *folder* only visible with EWHT.
SV *display*	- - -		
PV *display*	dEF		Press the "UP" and "DOWN" *keys* to view *parameters* when you have found the *label* for the dEF *folder* required. Press 'DOWN' to view the last parameter (dtY) in the selected *folder* (dEF), or "UP" to view the last parameter of the previous *folder*. • EWHT: parameter *db*, last in the HUd *folder*. • EWRC: parameter dCC, last in the CPr *folder*.
SV *display*	- - -		
PV *display*	dty		All *parameters* are displayed as follows: • PV *display*: parameter *label* (dtY in this *example*). • SV *display*: current value of parameter (0 in this *example*).
SV *display*	0		
PV *display*	<dty>		Press the "SET" key to modify the current value of the selected parameter. In fact, when you press the "SET" key, the *label* on the PV *display* will start to <blink> to indicate that the parameter value can be modified. Press the UP and DOWN *keys* to change the value of the selected parameter'. When the parameter has been set to the required value, press "ESC" or "SET", or wait for the 60-second timeout to elapse to save the new value set. Now press and release the Esc key to return to previous levels viewed.
SV *display*	2		

3.5.5.6 (°) Configuration of password PA1

Display	Label	Key	Description
PV *display*	USr		If the USer level is password-protected, *label PA1* appears on the SV *display*.
SV *display*	*PA1*		
PV *display*	*PA1*		When you press SET, *label PA1* appears on the PV *display* and 0 on the SV *display*. *Use* the UP and DOWN *keys* to enter a password (*example PA1*=1).
SV *display*	0		
PV *display*	CPr		If the password entered is correct, the *label* of the first *folder* visible (CPr in this case) appears on the PV *display* and you will be able to scroll through the *programming menu* or return to the previous stage. - - - The same procedure applies to the insertion of password PA2.
SV *display*	- - - -		

3.5.6 Configuring nAd parameters

See section on Night and Day *functions*

3.5.7 Functions menu

See *Functions* section

4 INPUT-OUTPUT CONFIGURATION

The following rules must be followed when connecting cards to each other and to the application:
- **Loads that exceed the maximum limits set forth herein must not be applied to outputs.**
- **When connecting loads, follow connection diagrams carefully.**
- **To avoid electric pairings, wire all low SELV (°) utilities separately from high voltage ones.**

(°) SELV: SAFETY EXTRA LOW VOLTAGE

Controller configuration is determined by the values of the *parameters* associated to inputs and outputs.

4.1 Configuration of analogue inputs

Analogue inputs

The *analogue inputs* referred to below as Pb1...Pb5 are 5 in total.

Using the *parameters*, a physical resource (probe, voltage/current signal) can be "physically" configured for each type of input:
- 4 inputs can be configured as *temperature probes* or an NTC type probe.
- 1 input (Pb5) can be configured as a current input (*default*)/voltage (4-20mA / 0-10V signal).

Inputs can be "physically" configured as specified in the table below.

Analogue input Pb5	Parameter	*Range*	Description
	H03	-999...1999	Lower current/voltage limit for input
	H04	-999...1999	Upper current/voltage limit for input

Using *parameters*, the following actions are possible for each analogue input:
- Define the presence (or not) of a probe.
- Associate a "logical" significance.

Parameter	Description	Value – see note				
		0	**1**	**2**	**3**	**4**
H41	Cold room probe presence Pb1	Cold room probe not inserted	Cold room probe inserted (§) (§§)	//	//	//
H42	Internal exchanger probe presence Pb2	Internal exchanger Probe Not present	Internal exchanger Probe Present (§) (§§)	//	//	//
H43	Probe Pb3 inserted	Probe not inserted	*Display* probe	Internal exchanger 2 probe	External exchanger probe (see *analogue output configuration*) (§§)	Stratification probe (§)
H44 (EWHT800/ EWRC800 only)	Probe Pb4 presence	Probe not inserted (§§)	*Display* probe	Internal exchanger 2 probe	External exchanger probe (see *analogue output configuration*) (§)	Stratification probe
H45	Probe Pb5 inserted.	Probe not inserted (§§)	Humidity probe (§)	External exchanger pressure probe	//	//

N.B: // indicates that no value is present.
N.B: (§) *default EWHT800LX*
N.B: (§§) *default EWRC800LX – EWRC550LX*

N.B.: For EWRC800/EWRC500 only:

Parameter	Analogue input	Value			
		0	**1**	**2**	**3**
H39	Pb5	Not used	Not used	Not used	4...20mA

The values read by *analogue inputs* can be configured in the following *parameters*.

Parameter	Description	Unit of measure	*Range*
CA1	Calibration Pb1	°C/°F	-30.0...30.0
CA2	Calibration Pb2	°C/°F	-30.0...30.0
CA3	Calibration Pb3	°C/°F	-30.0...30.0
CA4	Calibration Pb4	°C/°F	-30.0...30.0
CA5	Calibration Pb5	number	-30.0...30.0

4.2 Configuration of Digital Inputs

Digital inputs

There are 4 low voltage *digital inputs* which are referred to as DI1...DI4.

Study the following tables:

Table A – parameter association - *configuration of digital inputs*

Parameter	Description	Value	Description	Note / *default* EWHT 800 LX	Note / *default* EWRC 800 LX	Note / *default* EWRC 550
H11	Configuration Digital input DI1	-21...+21	See Table B	+4= door switch	+4= door switch	+4= door switch
H12	Configuration Digital input DI2	-21...+21	See Table B	+5= External alarm	+5= External alarm	+5= External alarm
H13	Configuration Digital input DI3	-21...+21	See Table B	+9= low pressure switch	+9= low pressure switch	+9= low pressure switch
H14	Configuration Digital input DI4	-21...+21	See Table B	+10= high pressure switch	+10= high pressure switch	+10= high pressure switch

Digital inputs: configuration table

Table B – *Digital inputs: configuration table*

Polarity is defined as listed below:

	Value	Description
+	Positive	Active when contact open
-	Negative	Active when contact closed

Value	Description	Notes
0	Input disabled	
±1	*Defrost*	Toggle
±2	Reduced set	
±3	AUX	
±4	Door switch	
±5	External alarm	
±6	Disable HACCP alarm recording	
±7	Stand-by (ON-OFF)	
±8	Maintenance request	
±9	Low pressure switch	
±10	High pressure switch	
±11	General pressure switch	
±12	Pre-*heating*	
±13	Force internal exchanger *fans*	
±14	Activate light relay	
±15	Activate ventilation fan relay	
±16	Enable/disable nad *functions*	
±17	*Deep cooling cycle*	
±18	Panic alarm	
±19	Reset HACCP alarms	
±20	*Heating/cooling* mode	
±21	START/STOP cycle at climate profiles, press and hold (H02) reset.	Toggle

If more than one parameter in the table is configured with the same value, the input with a higher index has priority - the other inputs become irrelevant.

4.3 Digital outputs – relay configuration

Digital outputs

See the section on *Electrical Connections* for the number and capacity of relays and for information on the symbols used on labels supplied with the device.

High voltage outputs (relays) are identified in the *parameters table* as OUT1...OUT8.

All *digital outputs* can be configured as outlined in the table below:

Table A – parameter association - configuration of outputs

Parameter	Description	Value	Description	Note / *default* EWHT 800 LX	Note / *default* EWRC 800 LX	Note / *default* EWRC 550 LX
H21	Configuration of digital output OUT1	0...+16	See Table B	14= *Dehumidify*	4= Alarm	Not present
H22	Configuration of digital output OUT2	0...+16	See Table B	13= *humidify*	6 = Stand-by	Not present
H23	Configuration of digital output OUT3	0...+16	See Table B	15 = *Heating*	12= *External exchanger fans*	Not present
H24	Configuration of digital output OUT4	0...+16	See Table B	1= *compressor*	1= *compressor*	1= *compressor*
H25	Configuration of digital output OUT5	0...+16	See Table B	3= internal exchanger *fans*	3= internal exchanger *fans*	3= internal exchanger *fans*
H26	Configuration of digital output OUT6	0...+16	See Table B	11= ventilation *fans* (AUX1)	2= *defrost*	2= *defrost*
H27	Configuration of digital output OUT7	0...+15	See Table B	16=stratification *fans* (AUX2)	5 = Aux	5 = Aux
H28	Configuration of digital output OUT8	0...+16	See Table B	7= light	7= light	7= light
H29	Configuration of buzzer digital output	0...+16	0= not present 8= present	8= present on keypad	8= present on keypad	8= present on keypad

Table B – Outputs: configuration table

Relays : configuration table

Value	Description	Notes
0	Disabled	
1	*Compressor* (*cooling*)	
2	*Defrost*	
3	*Fans*	
4	Alarm	
5	Aux	
6	Stand-by	
7	Light	
8	Buzzer output	
9	Internal exchanger 2	
10	*Compressor* 2	
11	Ventilation *fans*	Indicated as AUX1 on *EWHT800LX*
12	*External exchanger fans*	If F00=5 (see *Analogue Output Configuration*) output activated in parallel with AO1
13	*Humidify*	
14	*Dehumidify*	
15	*Heating*	
16	Stratification *fans*	Indicated as AUX2 on *EWHT800LX*

4.4 Key configuration

The ▲ (UP) ▼ (DOWN) and ESC *keys* are identified in the parameter table as UP DOWN ESC.
The SET key cannot be configured from *parameters*.
The other four *keys* are referred to as FREE1...4. Table A lists the *display* on the front of the device.

The *keys* can be configured as shown in the table below:

Table A – configuration of parameter - key association

Parameter	Description	Value	Description	Note / *default* EWHT 800 LX	Note / *default* EWRC 800 LX	Note / *default* EWRC 550 LX
H31	*Key configuration* UP	0...+15	See Table B	▲Key Alarm & HACCP 0 = disabled	▲Key Alarm & HACCP 0 = disabled	▲Key Alarm & HACCP 0 = disabled
H32	DOWN *key configuration*	0...+15	See Table B	▼ Key INFO 0 = disabled	▼Key INFO 0 = disabled	▼ Key INFO 0 = disabled
H33	*Key configuration* ESC	0...+15	See Table B	ESC *defrost* key 1= *defrost*	ESC *defrost* key 1= *defrost*	ESC *defrost* key 1= *defrost*
H34	Free1 configuration key	0...+15	See Table B	**ON/OFF key** 7=Stand-by	**ON/OFF key** 7=Stand-by	**ON/OFF key** 7=Stand-by
H35	Free2 *key configuration*	0...+15	See Table B	**Light key** 6= Light	**Light key** 6= Light	**Light key** 6= Light
H36	Free3 *key configuration*	0...+15	See Table B	**AUX1/2 key** 10= Activates/disables ventilation *fans*	**AUX key** 2=Auxiliary	**AUX key** 2=Auxiliary
H37	Free4 *key configuration*	0...+15	See Table B	**START-STOP/RESET key** 15 =Start Stop reset	**Reduced set / Night and Day key** 14= Reduced S et + Night and Day	**Reduced set / Night and Day key** 14= Reduced S et + Night and Day

Table B – *Keys* configuration table

Keys : configuration table

Value	Description	*EWHT800LX*	*EWRC800LX*	*EWRC550LX*
0	Disabled	●	●	●
1	*Defrost*	●	●	●
2	Auxiliary	●	●	●
3	Reduced Set	●	●	●
4	Reset HACCP alarms	●	●	●
5	HACCP alarms disabled	●	●	●
6	Light	●	●	●
7	Stand-by	●	●	●
8	Maintenance request	●	●	●
9	Internal exchanger *fans* ON	●	●	●
10	Enable / disable Ventilation *fans*	●	Not used	Not used
11	Enable / disable Night and Day	●	●	●
12	DCC *Deep Cooling Cycle*	●	●	●
13	Aux1-2	● Press and release: AUX1 Press and hold: AUX2	Not used	Not used
14	Reduced Set + Night and day	●	●	●
15	Start Stop reset	●	Not used	Not used

4.5 Analogue output configuration

Analogue outputs

Table A – Analogue Output

Parameter	Description	Value					
		0	1	2	3	4	5
F00	Select type of analogue output	Disabled	PWM	4...20mA	0...20mA	0...10Vdc	Relay output configured as *external exchanger fans* See H21...H28 (=12)
F01	Select analogue output operating mode	H = *Heating*	C = *Cooling*	//	//	//	//
F02	Select probe for external exchanger fan regulation	Regulation without probe	Regulation with probe (Pb3 or Pb4) (°)	//	//	//	//

N.B: // indicates that no value is present.
(°) probe Pb3 --> H43 = 3, probe Pb4 --> H44 = 3

4.6 Serial configurations – Protocol parameters

Present on all 2 serial *models*:

- ***Copy Card*** - that we will also call I²CBUS- for
  - *Copy Card* connection to upload/download *parameters*.
  - Serial communication with personal computer.
- **KEYB** - that we will also call COM1**:** channel for base-keypad communication.

The *TTL* serial - that we will also call COM2 – can also be used to:

- Configure *parameters* with Param Manager software using Eliwell protocol.
- Configure device *parameters*, states, and variables with Modbus via Modbus protocol.

See the table below:

Parameter	Description	Value	
		t	d
PtS	**Select COM2 (*TTL*) protocol**	Televis	Modbus
Parameter	**Description**	***Range***	
dEA	**Controller address dEvice Address**	0…14 (1…14 for Modbus protocol)	
FAA	**Controller family FAmily Address**		
Parameter	**Description**	**Values**	
PtY	**Modbus protocol parity bit Modbus PAritY bit**	• n= None • E= Even • o= Odd	

4.7 Copy Card

The *Copy Card* allows you to rapidly program device *parameters* (up/download parameter map to or from one or more controllers of the same type).

See the section entitled – *Functions* (FnC *folder*) / How to *use* the *Copy Card folder* CC) **for a description of the Upload and Download procedure.**

5 COMPRESSORS

Compressor

The *compressor* is controlled by the device's relay. It will be switched on or off depending on:

- The temperature state read by the cold room probe (see section entitled *Input-Output Configuration*).
- Temperature control *functions* configured (see section entitled *Compressor* Regulator - Temperature Control).
- *Defrost*/*dripping functions* (see *Defrost* section).

5.1.1 Compressor Configuration

See the wiring diagrams for details of how to connect the *compressor* to the device.
Relay polarity is fixed.

In *models* marked with the letters LX you MUST check the *compressor* → digital output (relay) association by setting parameter **H21** (**H21** ... **H28** if present) accordingly. *Example* **H21** = 1 (*compressor* regulator).

5.1.2 Compressor operating conditions

Compressor function

The regulator is activated provided that:

- The device is in ON.
- There is not an ***E1*** regulation probe failure alarm (the number of points detected exceeds the limit).
- The time set in parameter ***OdO*** has elapsed**.**
- A *defrost* cycle is not underway (except in **FREE** mode).

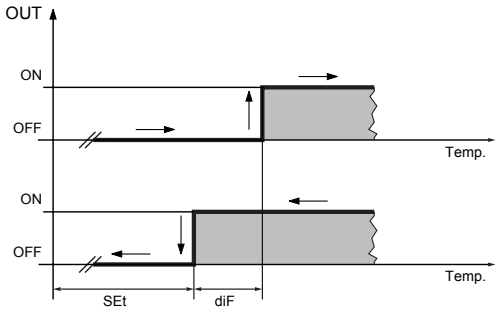
(There is a fixed interval of one second between the request and activation of the relay).

The *parameters* of this regulator are:

- The setpoint which can be set from the keypad within the high and low values set.
- The differential.

The diagram below indicates the *compressor* activation mode for *cooling* based on the **SEt** and ***diF*** > 0 *parameters*.

Compressor regulator diagram for cooling



5.1.3 Compressor protection in the event of a probe failure and Duty Cycle

Ont and Oft parameters

If the cold room probe fails (conversion produces a number of points outside the pre-programmed limits), the output configured as *compressor*/general regulates in accordance with the times set in *parameters* ***Ont*** and ***Oft***. The first time to consider is ***Ont***. If *Ont* **>0,** the protection programmed in *parameters* ***dOn-dOF-dbi*** must be respected. (See *Compressor Safety Times*).

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

Ont	***OFt***	**Relay output**
0	0	Off
0	>0	Off
>0	0	**On**
>0	>0	**Duty Cycle**

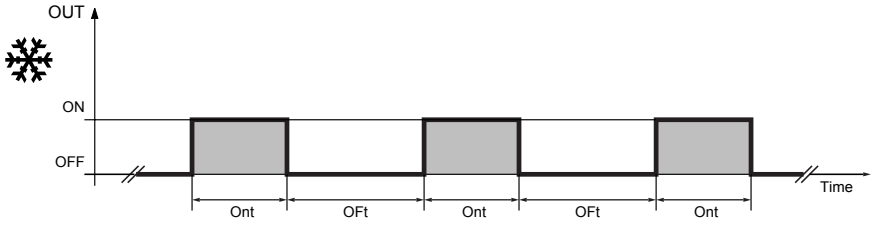
If ***Ont*** **>** 0 and ***OFt*** **= 0**, the *compressor* regulator relies on the safety time set in ***CAt*** to stop the relay**.**

Duty cycle compressor

If ***Ont*** > 0 and ***OFt*** > 0, the *compressor* regulator activates in operating cycle mode irrespective of the values read by the probes (cold room probe failure) and of requests from other utilities (Duty Cycle mode).
If the cold room probe is working properly, the Duty Cycle mode does not activate as it does not have priority over normal *compressor* regulator settings.

Duty Cycle compressor diagram

OUT = *compressor* regulator output state.



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.

5.1.4 Compressor Safety Times

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.

Compressor off-on timing

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 when the controller is powered on.

On-On timing

A safety time (*compressor* On... On safety time) regulated by the parameter ***dbi*** must be respected between one switch-on and the next.

Delay on timing

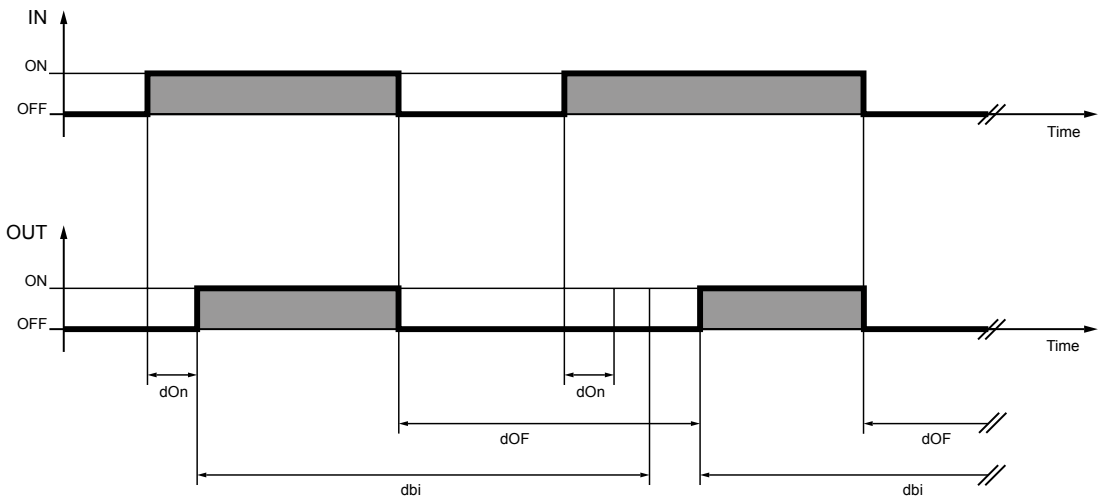
The safety time set in parameter ***dOn*** must elapse between a start-up request and actual start-up.

Times set with *parameters* ***dOn***, ***dOF*** and ***dbi***, if active, are not accumulative but parallel.

Compressor diagram with parameters (dOn, dOF, dbi)

Compressor protection diagram with *parameters* ***dOn***, ***dOF***, ***dbi*** configured.

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



Maximum time setting

The maximum activation time for the *compressor* before it is disabled can be set in parameter ***CAt***.

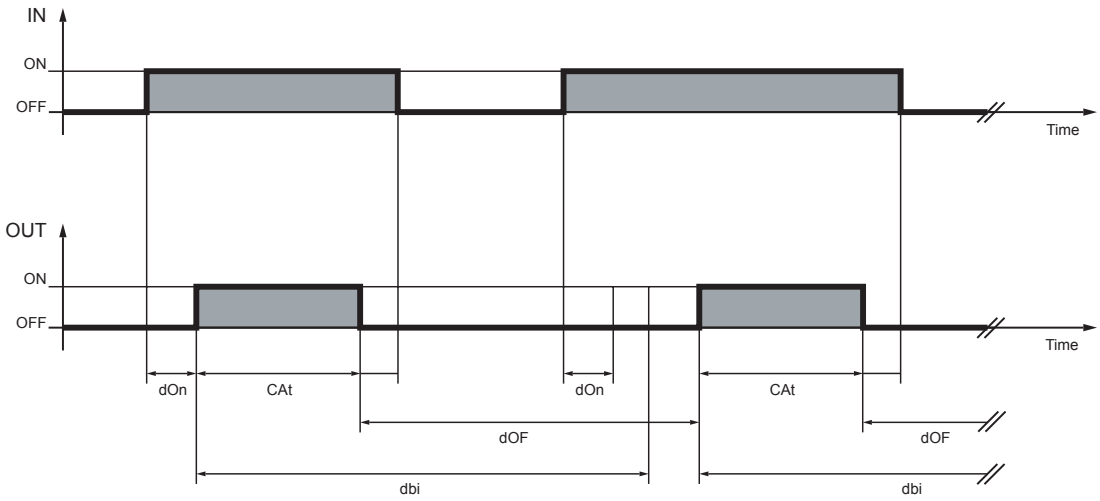
Minimum time setting

The minimum activation time for the *compressor* before it is disabled can be set in parameter ***Cit***.

Compressor diagram with parameters (dOn, dOF, dbi, CAt)

Compressor protection diagram with *parameters* ***dOn***, ***dOF***, ***dbi*** and ***CAt*** time configured.

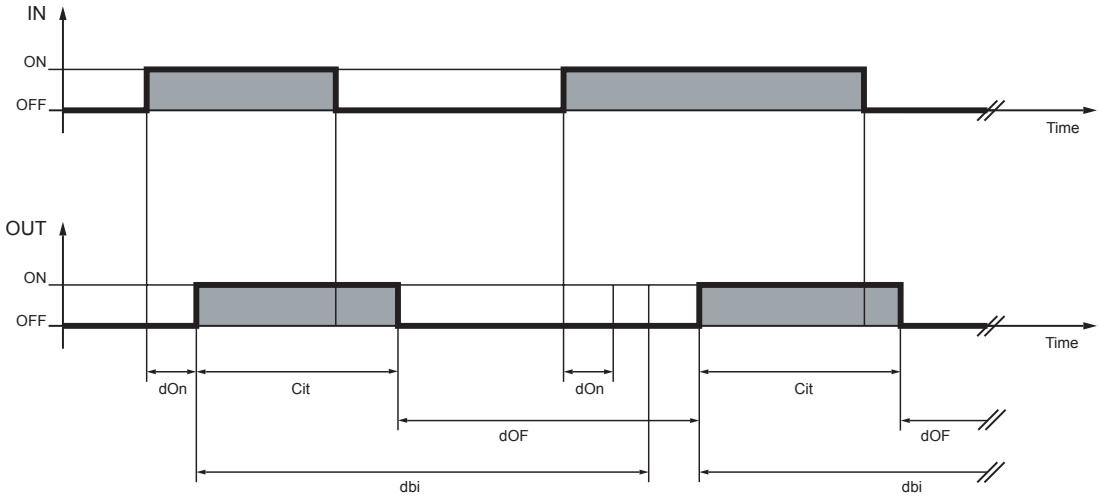
IN	Input state for *compressor* regulator.
OUT	Output state for *compressor* regulator.



Compressor diagram with parameters (dOn, dOF, dbi, Cit)

Compressor protection diagram with *parameters* ***dOn***, ***dOF***, ***dbi*** and ***Cit*** time configured.

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



See the section entitled *Compressor function during defrost* for other safety measures and *compressor* timings.

6 HEATING / COOLING

Heating/Cooling regulation *parameters* can be viewed and configured in *folder*

- ***COMPRESSOR (folder with label "CPr")*, *parameters diF*.**
- **HUMIDITY AND *HEATING* (*folder* with *label* "Hud").**
- ***CONFIGURATION PARAMETERS (folder with label "CnF")* parameters H05 H09.**

(see *user interface* and parameter sections).

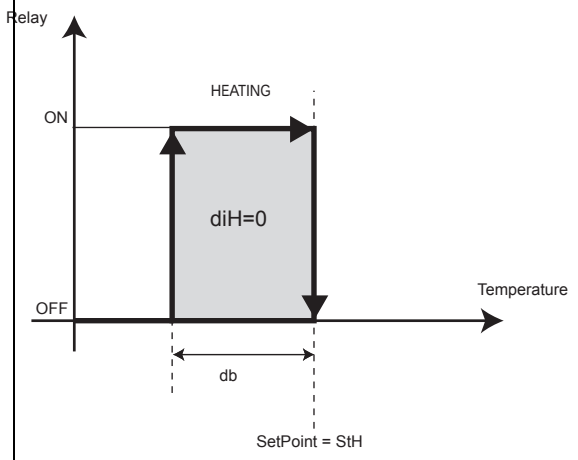
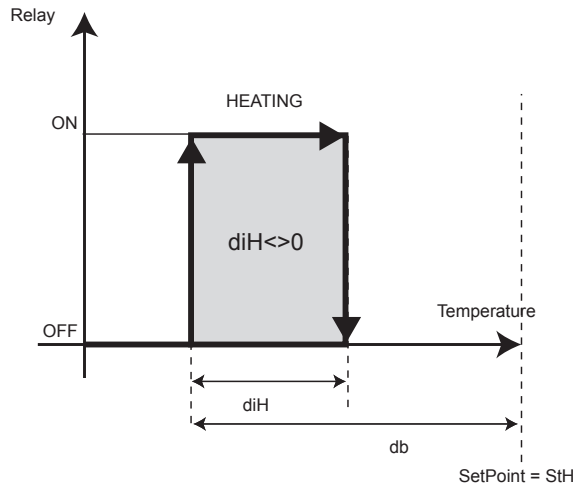
6.1 Operating modes

6.1.1 Heating

- Set type of temperature regulation H07= H.
- Set a relay output as '*heating*', i.e. H21...28=15.

	Setpoint	H07	H21...H28*	Diagram
Disabled		*diS*		
Heating	*StH*	H	**15**	**A B**

***Heating* relay**		Comments	Diagram
ON	**OFF**		
Temperature ≤ *StH-db*	Temperature > *StH*	*diH*= 0 -->differential=*db*	**A**
Temperature ≤ *StH-db*	Temperature > *StH-db+diH*	*diH*≠0 --> differential = *diH*	**B**
		db always positive	

A	**B**
	

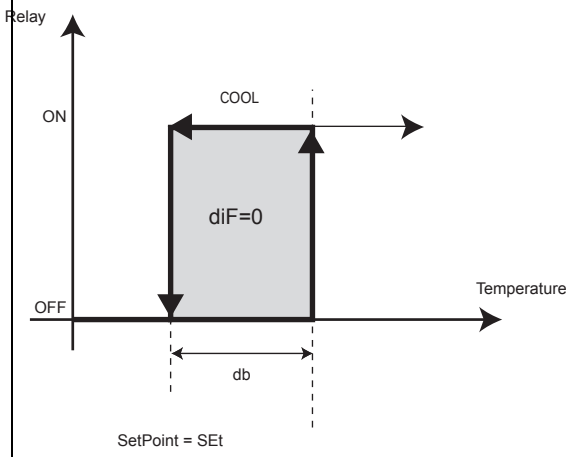
6.1.2 Cooling

- Set type of temperature regulation H07= C.
- Configure a relay output as "*compressor*" output, i.e. H21...H28= 1.

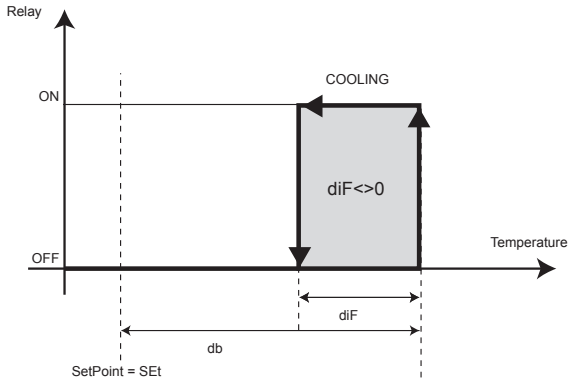
Diagram		H07	Setpoint	H21...H28*
	Disabled	*diS*	/	
C D	*Cooling*	C	SEt	**1**

Compressor **relay**		Comments	Diagram
ON	**OFF**		
Temperature ≥ SEt+*db*	Temperature < SEt	*diH*= 0 -->differential=*db*	**C**
Temperature ≥ SEt+*db*	Temperature < *StH*+*db*-*diF*	*diH*≠0 --> differential = *diH*	**D**
		db always positive	

C



D



6.2 Neutral Zone (Heating / Cooling)

- Set type of temperature regulation H07= nE.
- Configure a relay output as "*compressor*" output, i.e. H21...H28= 1.
- Set a relay output as '*heating*', i.e. H21...28=15.

	Setpoint	H07	H21...H28*	H21...H28*	Diagram
Disabled		*diS*			
Neutral zone	SEt	HC	**1**	**15**	**D**

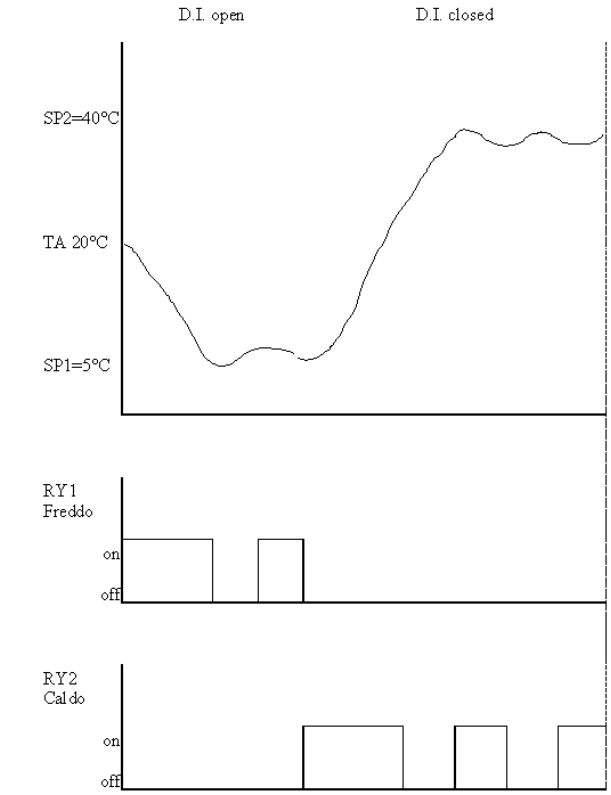
6.3 Heating/Cooling

- Set type of temperature regulation H07= HC.
- Set a digital input as air *Heating/Cooling* H11..H14= ±20 (be careful with polarity).

N.B:

- Function not possible in *Neutral Zone*.
- *Manual defrost* active ONLY in *COOLING* mode.

	Setpoint	H07	H11...H14	Diagram
Disabled		*diS*		
Heating	*StH*	HC	±20	**E**
Cooling	SEt	HC	±20	**E**

E
***Example* H11=+6**
Contact open : _ *cooling*
Contact closed: *heating*

RY1 relay set as *cooling*.
RY2 relay set as *heating*.

7 DEFROST

Defrost

Defrost is used to stop ice from forming on the surface of the internal exchanger.
Defrost (see *Defrost Modes*) takes place basically by *heating* up the internal exchanger using:

- Electrical heaters.
- Hot gas (see Hot gas solenoid valve section).
- By simply stopping the *compressor* and hence the "*cooling*" cycle.

Dripping

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

7.1.1 Defrost conditions and function

Defrosting is enabled if:

- The internal exchanger temperature is lower than the end *defrost* temperature set in parameter ***dSt*.**
- *Manual defrost*ing has not already been activated, in which case the request for automatic *defrost* will be cancelled.

Defrost requests

Defrost requests can be made in the following ways:

Switch on controller	If parameter ***dPO*** (*defrost* at switch on) is programmed accordingly.
Time interval	If ***dit*** > 0 each time the ***defrost*** **time interval** set in parameter ***dit***
Time	If ***dit*** = 0 and ***dCt***=3 with the **rtc** (real time clock) function present. At the times set in *parameters* ***dE1…dE8*** (**dd** *folder*).
Regulator Activation Properties	The *defrost* regulator can be actioned in any of the modes indicated in Regulator Activation Properties. The cycle will not start if ***odo*** is present, the request will be refused and the *display* will flash three times to indicate that it is impossible to *defrost*.

7.1.2 Automatic defrosting

The *defrost* cycle is programmed to start at the intervals set in parameter ***dit***>0.
To disable the automatic cycle, set ***dit***=0.
See Automatic *Defrost* with the Real Time Clock to run defrosts at set times.

Defrost Interval Counter

Parameter	Description	Value	Notes
dCt	Running time of the *compressor* (DIGIFROST method®)	0	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. **N.B.**: *compressor* running time is counted separately from the internal exchanger temperature. If the internal exchanger probe is missing or faulty, the count continues for the time the *compressor* is on.
dCt	Controller running time	1	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.
dCt	*Compressor* stop	2	Each time the *compressor* stops, a *defrost* cycle is run according to the mode set in parameter **dtY**
dCt	With **rtc**	3	At the times set in parameters***dE1…dE8*** **&** ***F1…F8***

Regardless of how the interval is counted, the following conditions apply:

- If the internal exchanger probe temperature is greater than ***dSt***, *defrost* will not be permitted: a new interval will be counted and only at the end of this subsequent count will conditions be tested for the start of a *defrost* cycle.

7.1.3 Automatic defrost with Real time clock

(See Real Time Clock setting).
The *defrost* cycle is programmed to start at the actual time in hours and minutes for up to a maximum of 8 **daily** intervals. This programming applies **every day**, weekdays, weekends and holidays alike, except when they are managed by the Day/Night regulator.

Defrost conditions at pre-programmed time

Parameters **dE1**..**dE8** are contained in *folder* **dd**.
The *folder* is **only displayed if**:

- ***dit*** = 0
- ***dCt*** = 3 (Real time clock)
- The controller has been switched off and switched back on again after the previous *parameters* were programmed.

Based on these values and only at these values will a *defrost* cycle start.
If you *don*'t want to *use* some of the *defrost* times (***dE1***...***dE8***) exclude them as explained below:
Select the parameter (***dE1***...***dE8***) in *folder* **dd** that you want to exclude then increase the value until 24 appears on the *display* (OFF value).
Note that times do not have to be set in chronological order, e.g. :
dE1 = h 12.25
dE2 = h 06.05
dE3 = h 18.30

IMPORTANT: Do not confuse *parameters* ***dE1***...***dE8*** with values **d0**...**d6** in *folder* **rtC** (set clock) or sub-folders **d0**...**d6** in *folder* **nAd** used for the Day/Night Regulator.

7.1.4 Manual defrost

Pressing the *manual defrost* key will start the *defrost* cycle, which can also be started from Digital Input if appropriately configured.
Procedures for the activation of this *defrost* cycle are the same as for external *defrost*.
The *defrost* interval will now be counted as described for Automatic *Defrost* (time ***dEt*** is not cleared, it continues).
If conditions do not permit (internal exchanger temperature greater than the value set in parameter ***dSt***), this will be signalled on the *display* (screen flashes three times) and *defrost* will stop.

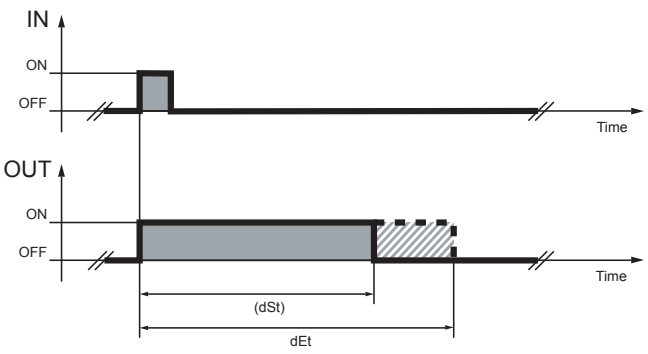
7.1.5 External or manual defrost

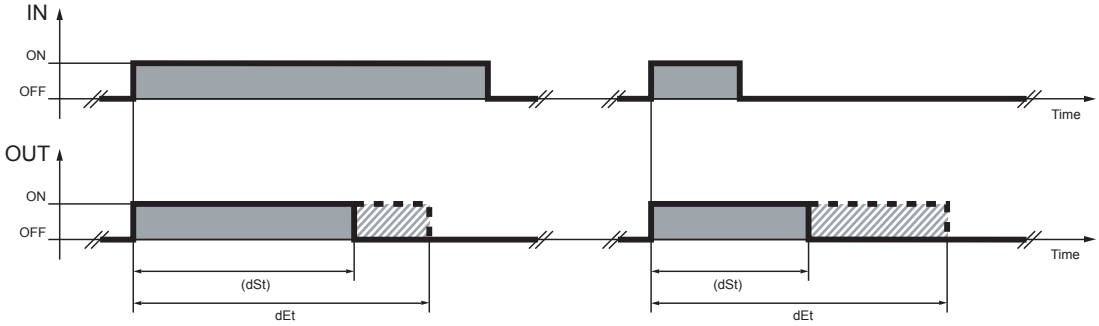
Defrost can be requested and the relative regulator activated from one of the Regulator Activation Properties if configured accordingly and if conditions permit.
Time graphs for signals in each of the various function modes are presented below.

IMPORTANT: *Defrost* is activated on the rising front (toggle). Hence you can only activate a *defrost*, **NOT** stop one that is underway. *Defrost* or *dripping* currently underway and the *defrost* or *dripping* interval count cannot be suspended.

Defrost procedures from Digital Input

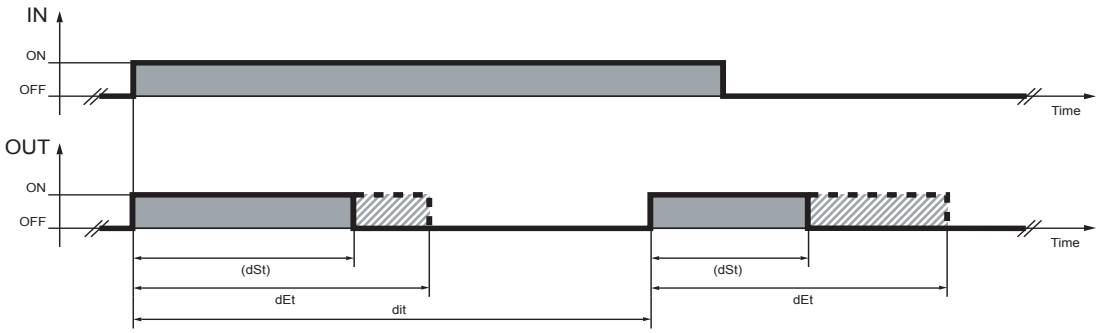
IN (DI)	Input state for *defrost* regulator, with activation from Digital Input.
OUT	Output state for *defrost* regulator.
	Note: (***dSt***) indicates end *defrost* time when temperature reached.





7.1.6 Defrost modes

Defrost can be activated in four ways, as set in parameter **dtY**.



7.1.7 Defrost with electrical heaters

Defrost with electrical heaters is configured by setting **dtY** = 0.

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. See Electrical Heaters for *defrost* section.
On completion of *defrost*, the electrical heaters are switched off and the *compressor* remains off for the *dripping* time set in parameter ***dt*** , if it is not equal to zero.
Defrost ends:

End of defrost with electrical heaters

Internal exchanger probe absent	param. **H42**=0	By timeout set in parameter ***dEt*** (*defrost* timeout).
Internal exchanger probe present	param. **H42**=2	Temperature setpoint for the end of *defrost* set in parameter ***dSt*** reached. If this setpoint is not reached within the time set in parameter ***dEt*** (*defrost* timeout), the *defrost* will end by timeout.

N.B.:
Parameter **tcd** with a positive value is generally used for reverse cycle defrosts, or with a negative value when electrical heaters are used.

IMPORTANT: Congruity between **tcd** and **dtY** values are not checked.

7.1.8 Hot gas defrost

Hot gas defrost is configured by setting parameter **dtY** = 1.
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. See Hot gas solenoid valve section.
On completion of the *defrost* cycle, the solenoid valve relay is de-energised and the *dripping* set in parameter ***dt*** is disabled if not equal to zero. The *compressor* relay is once again controlled by the *compressor* regulator.
Defrost ends:

End of reversing valve defrost

Internal exchanger probe absent	param. **H42**=0	By timeout set in parameter ***dEt*** (*defrost* timeout)
Internal exchanger probe present	param. **H42**=1	Temperature setpoint for the end of *defrost* set in parameter ***dSt*** reached. If this setpoint is not reached within the time set in parameter ***dEt*** (*defrost* timeout), the *defrost* will end by timeout.

IMPORTANT: *parameters* ***dOn***, ***dOF*** and ***dbi*** (see *Compressor* safety timing) have priority.

7.1.9 Defrost with compressor stopped

The *defrost* cycle with the *compressor* stopped is configured by setting parameter **dtY** =0.
The *compressor* stops for the duration of the *defrost*, and *defrost* relay does not exist.
On completion of *defrost*, the *compressor* relay stays de-energised during the *dripping* time set in ***dt*** if it is not equal to zero.

Defrost ends:

End of defrost with compressor stopped

Internal exchanger probe absent	param. **H42**=0	By timeout set in parameter ***dEt*** (*defrost* timeout)
Internal exchanger probe present	param. **H42**=1	Temperature setpoint for the end of *defrost* set in parameter ***dSt*** reached. If this setpoint is not reached within the time set in parameter ***dEt*** (*defrost* timeout), the *defrost* will end by timeout.

7.1.10 Defrost in FREE mode

The *defrost* cycle with the *compressor* stopped is configured by setting parameter **dtY** =2.
The *compressor* remains under the control of the *compressor* regulator for the duration of the *defrost* cycle and the relay configured as *defrost* and that the *defrost* heaters are connected to activates. See Electrical Heaters for *defrost* section.
The heaters are switched off on completion of the *defrost* cycle. During *dripping*, the *compressor* continues to thermo regulate.
Defrost ends in the same way as the previous case.

7.1.11 Defrost mode diagrams.

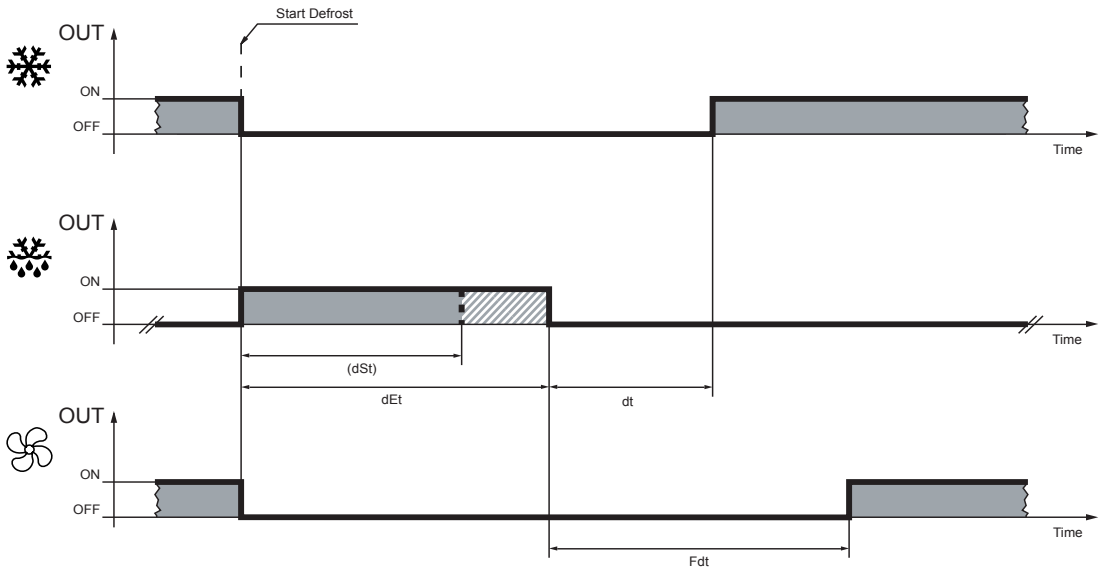
Key:

Compressor OUT	Output state for *compressor* regulator
Defrost OUT	Output state for *defrost* regulator.
Fans OUT	Output state for *fans* regulator
	N.B.: (***dSt***) indicates end *defrost* time when temperature reached

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

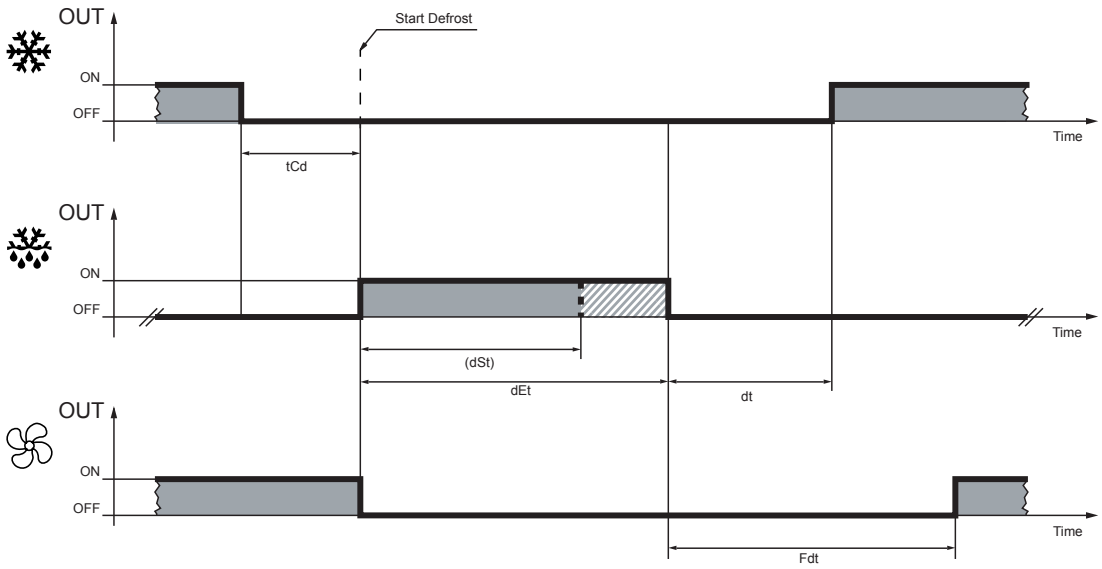
DEFROST WITH ELECTRICAL HEATERS

Defrost with electrical heaters diagram



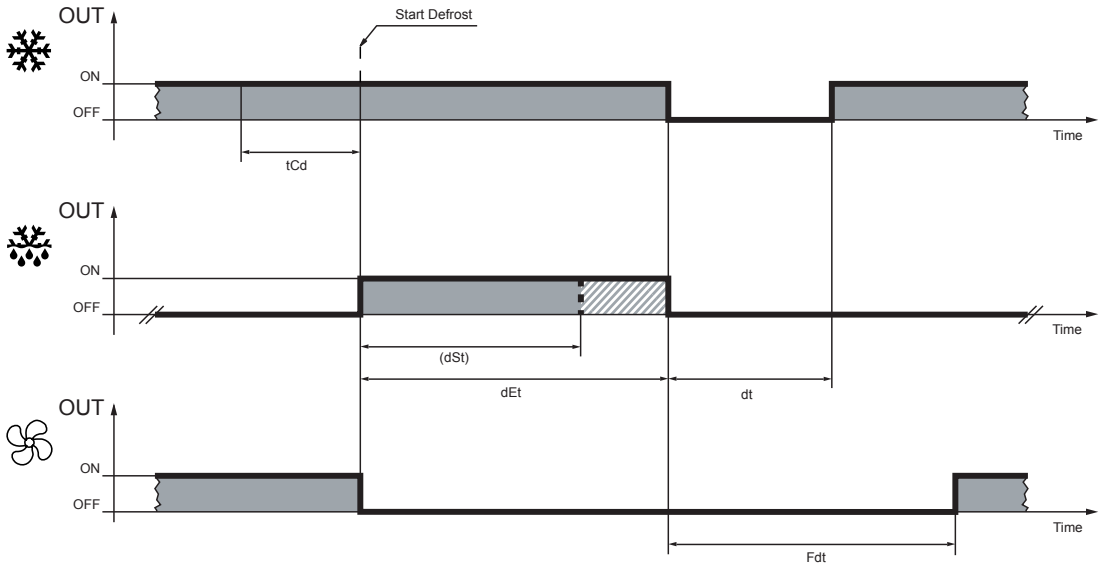
DEFROST WITH ELECTRICAL HEATERS and tcd < 0

Diagram: defrost with electrical heaters and tcd < 0



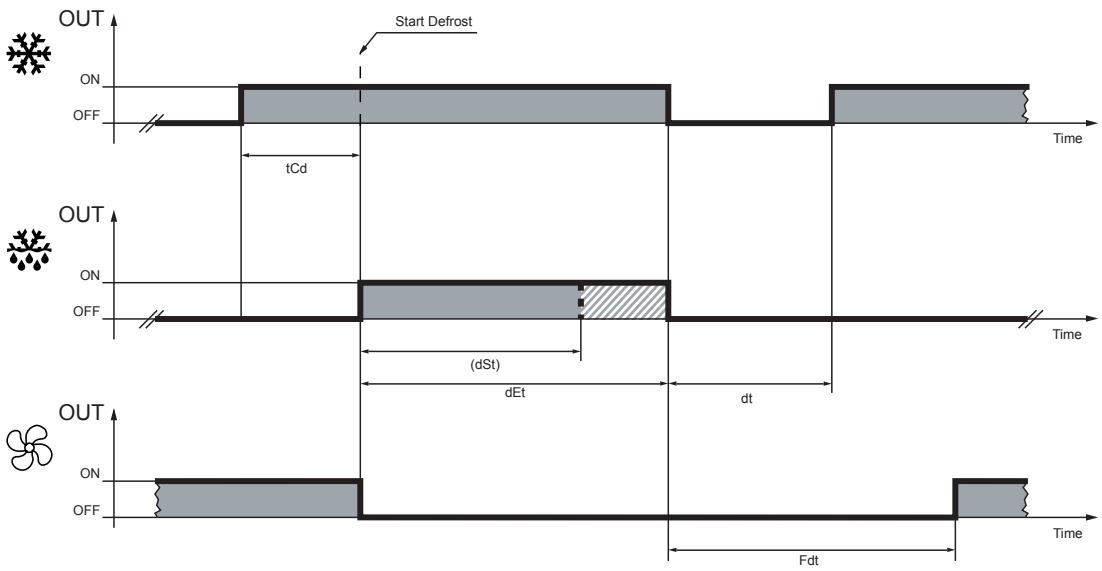
CYCLE INVERSION *DEFROST* and tcd > 0

Diagram 1: hot gas defrost and tcd > 0



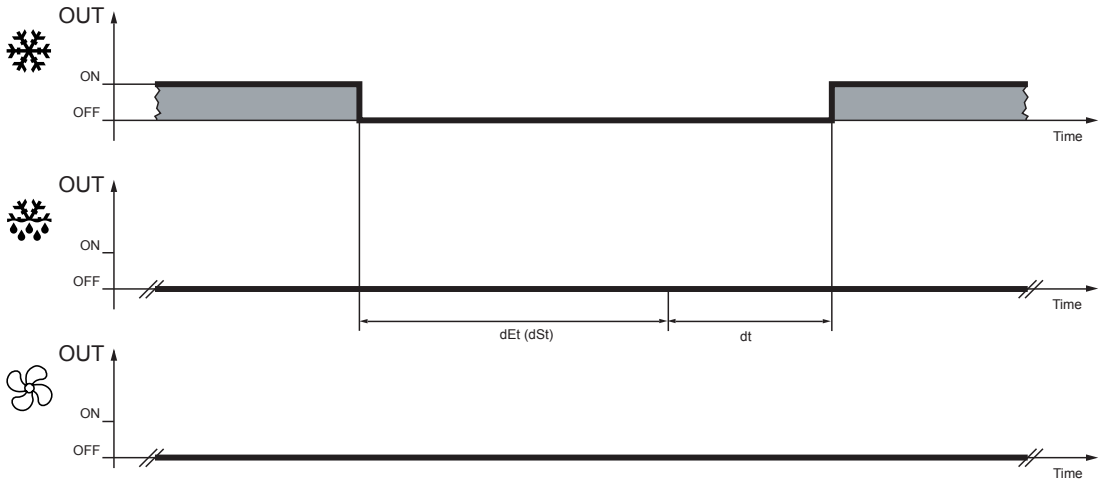
CYCLE INVERSION *DEFROST* and tcd > 0

Diagram 2: hot gas defrost and tcd > 0



DEFROST WITH COMPRESSOR STOPPED

Diagram: defrost with compressor stopped



7.1.12 Defrost regulator protection and constraints

End of defrost for Time out

If the *defrost* cycle does not terminate on reaching the end of *defrost* temperature set in parameter ***dSt***, a maximum *defrost* time interval can be set in parameter ***dEt***.

IMPORTANT: *Defrost* can only be terminated manually by switching the controller on and off again using the ON/OFF function (See Operation of ON - OFF function (Stand-By)).

7.1.13 Compressor function during defrost

To improve efficiency during "*cooling*" and extend the life of the *compressor*, a number of *parameters* have been designed to regulate the *use* of the *compressor* during *defrost*.

Parameter	Description	*Range*	*Default*	UM	Notes
tcd	**t**ime *compressor* for ***defrost***	-31...31	0	min	
Code	***Compressor*** **o**ff before ***defrost***	0...60	0	min.	

Compressor timing prior to defrost

You can set a minimum interval prior to the start of *defrost* in either of the following two ways:

- with *compressor* ON (if **tcd**>0)
- with *compressor* OFF (if **tcd**<0)

Start *defrost* means the time defined by the interval count (see parameter ***dit***); consequently, **tcd** has no effect on timed (**rtc**), manual, digital input, and linked defrosts.

To activate the interval, both conditions must be satisfied:

- ***dit*** count
- **tcd** count;

which generates the following cases:

- ***dit*** count satisfied:
  - the *defrost LED* lights up but the "*defrost*" relay output does not activate
  - the *compressor* relay is forced ON (if **tcd**>0) or OFF (if **tcd**<0)
- if both ***dit*** and **tcd** have been satisfied:
  - the "*defrost*" relay output activates
  - the *compressor* relay stays in the previous state
  - the ***dEt*** count now starts and the state on the *display* is modified as configured in **ddL**.

Important:

- Set **tcd**>0 for *hot gas defrost*
- Set **tcd**<0 for *defrost* with electrical heater
- We recommend enabling either **Cod** or **tcd** when defrosting with electrical heater.
- The interval set in **tcd** may delay the actual start of *defrost* with respect to the setting in parameter ***dit***.

Compressor protection prior to defrost

To prevent the *compressor* from switching on unnecessarily prior to a *defrost* cycle, the parameter **Cod** exists: the thermostat control cycle checks if a *defrost* cycle is scheduled before switching on the *compressor*. If the on time falls within the interval set in **Cod** , the *compressor* will not be switched on.
If the *compressor* is ON at the beginning of this interval, it will stay on for as long as the usual regulators (thermostat control, *defrost*) require it and depending on the relative settings.
Start *defrost* means the time defined by the interval count (see parameter ***dit***); consequently, **Cod** has no effect on timed (**rtc**) *defrost* cycles.

Important: parameter **Cod** only applies to *defrost* cycles with electrical heater;

7.1.14 Alarm function during defrost

If the *defrost* cycle terminates for timeout, an alarm can be activated by configuring parameter **dAt** (see *end of defrost for time out* alarm).

See also *Alarm exclusion time* after *defrost*.

In the event of a cold room probe error (probe 1), *defrost* cycles will not be run.

During *defrost*, the temperature values recorded by the internal exchanger probe (probe 2) and *display* probe (probe 3) may be false readings. For this reason, the temperature alarm is excluded.

7.1.15 Display function during defrost

Display lock during defrost

By setting parameter **ddL** (*display* lock during *defrost*) accordingly, the value shown on the *display* at the start of *defrost* could be:

- left clear to show *default* value.
- locked at cold room probe temperature.
- locked with *label* “dEF” (*defrost*).

Unlock display

The *display* can be unlocked:

- when the *defrost* temperature is reached
- if the time to reach the setpoint is too long, a timeout value can be set to unlock the *display* by configuring parameter **Ldd** (Lock *defrost* disable).

IMPORTANT: the *display* will nevertheless be unlocked after *dripping* as if it has been configured, it locks regulators.

IMPORTANT: parameter **Ldd** can be used in a link network to unlock both the *display* and other resources. See Lock resources during synchronized *defrost* section.

8 FANS

8.1.1 Fan operating conditions

The regulator is active provided that:

- The time set in parameter ***OdO*** has elapsed.
- The temperature of the internal exchanger probe, if present, is between the values set in *parameters* **Fot** and ***FSt*.**
- Parameter ***dFd*** has not been excluded during *defrost*.
- *Dripping* is not underway (***dt***).
- The delay *fans* after *defrost* function s not active (***Fdt***).

Fans on/off requests

The request to switch *fans* on or off can be made:

- 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.

8.1.2 Fan function in thermostat control

During "*cooling*", fan function takes place as shown in this diagram.

Fans in thermostat control

	***Compressor* on**	***Compressor* off**
Internal exchanger probe absent (H42=0)	ON	OFF
Internal exchanger probe in error (out of limit)	ON	OFF
Internal exchanger probe present and *FCO*=n (*fans* off when *compressor* off)	THERMOSTAT CONTROLLED	OFF
Internal exchanger probe present and *FCO*=y (thermostat *fans*)	THERMOSTAT CONTROLLED	THERMOSTAT CONTROLLED
Internal exchanger probe present and *FCO*=d.c. (thermostat *fans*) Fon 0 and FoF 0	Duty Cycle *fans*	Duty Cycle *fans*

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

- ***FSt*** (block *fans* temperature) and ***FAd*** (*fans* differential).
- **Fot** (start *fans* temperature) and ***FAd*** but with inverted sign.

Depending on parameter **FPt,** the block *fans* temperature set in parameter ***FSt*** can be absolute (real temperature value) or relative (value to be added to Setpoint **SEt**).
Depending on parameter **FPt,** the start *fans* temperature set in parameter **Fot** can be absolute (real temperature value) or relative (value to be added to Setpoint **SEt**).

IMPORTANT: if the absolute value of parameter **Fot** is greater than ***FSt*** the *fans* will be excluded.
The fan regulator *functions* as indicated below:

Parameter **FPt** is set to **FPt** =0 (Ab).

Diagram: block fans at absolute temperature with FSt

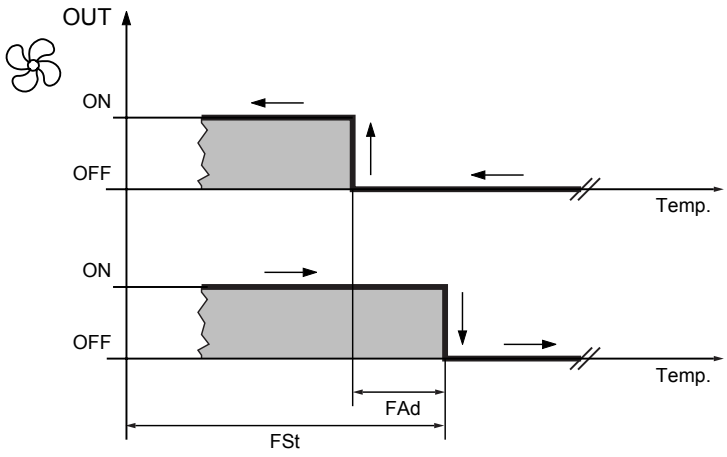


Diagram: block fans at absolute temperature with FoT and FSt

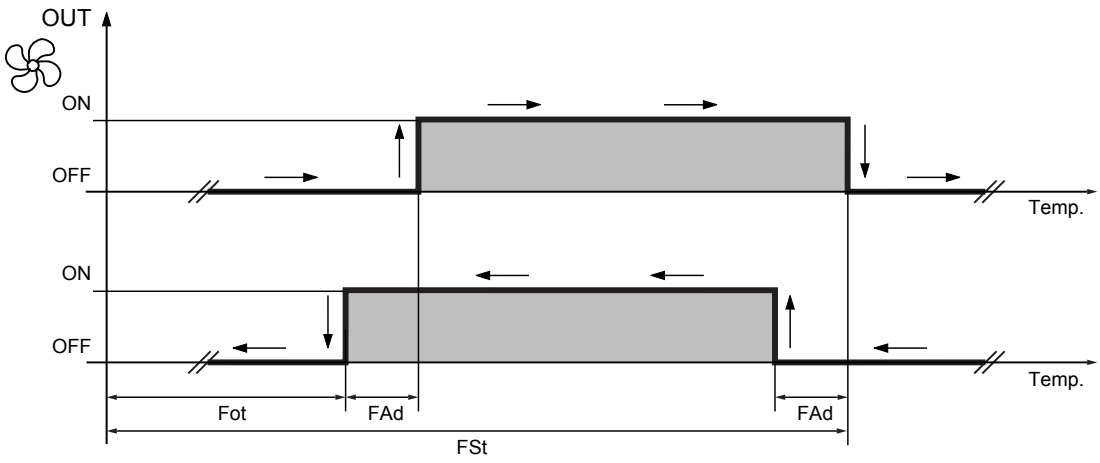


Diagram: block fans at relative temperature with FSt

Parameter **FPt** is set to **FPt** =1 (rE)
*Parameters **FSt*** and **Fot** are considered on the basis of their sign in both cases.

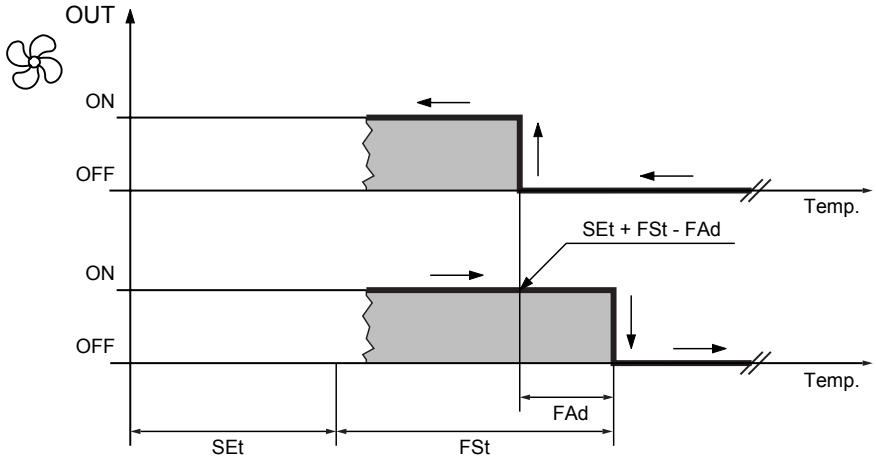


Diagram: block fans at relative temperature with Fot>0 and FSt>0

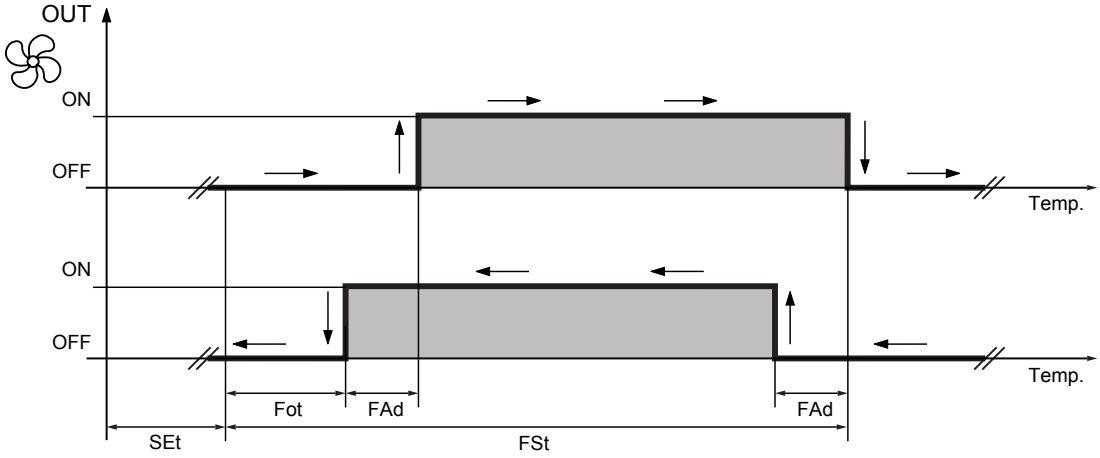


Diagram: block fans at relative temperature with Fot<0 and FSt >0

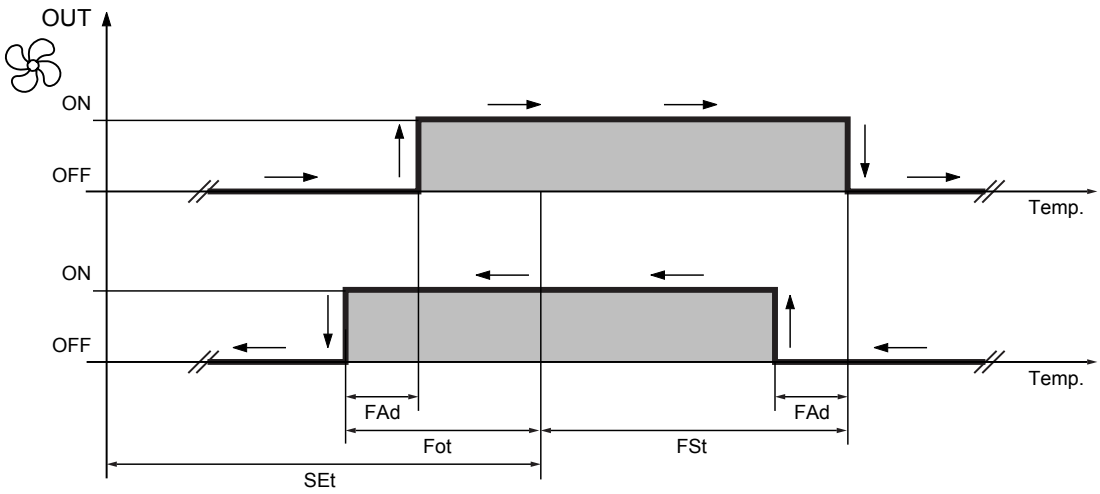
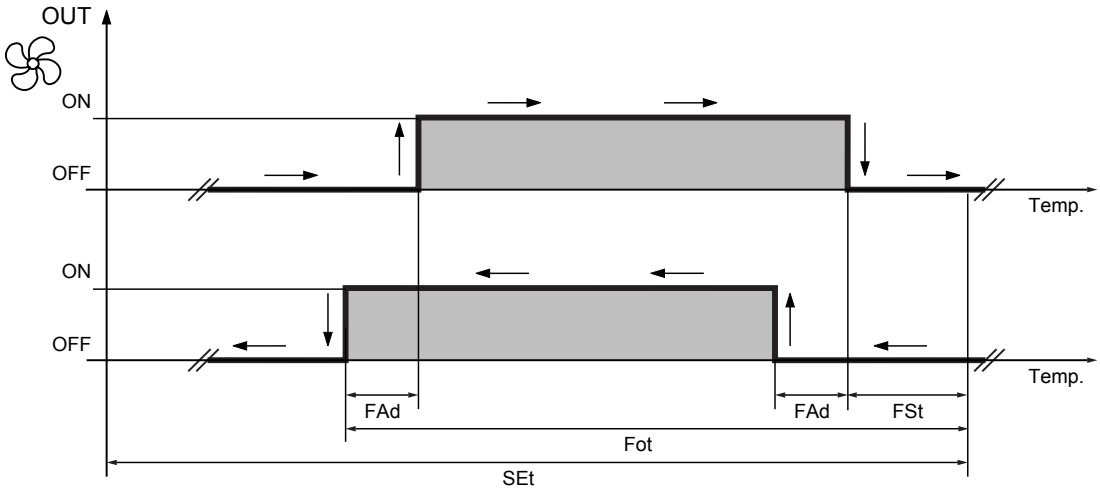


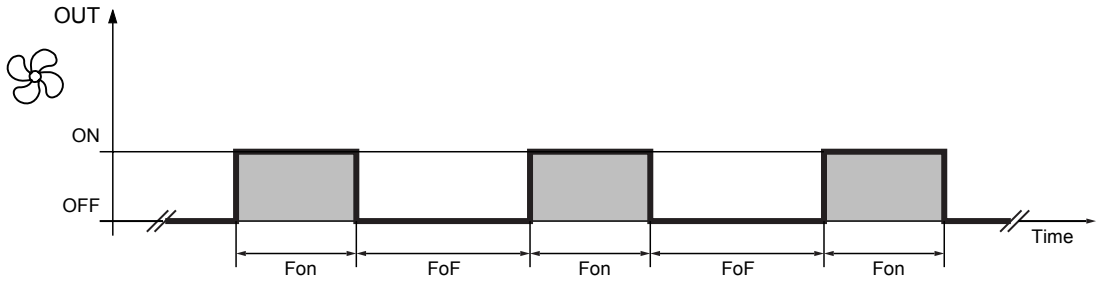
Diagram: block fans at relative temperature with Fot<0 and FSt <0



8.1.3 Fan function in Duty cycle

Duty cycle fans

Fan function during the Duty Cycle simply follows the on/off state of the *compressor* by setting *parameters* **Fon** and **FoF** accordingly, provided internal exchanger probe/fan values fall within the interval ***FSt***...**Fot**



8.1.4 Fan function during defrost

During *defrost*, fan function takes place as shown in this diagram.

Fans during defrost

Defrost	**Fan state**
dFd =Y (*fans* excluded during *defrost*)	OFF
dFd = n (*fans* are not excluded during *defrost*, see parameter *FCO*, Fon and FoF)	Thermostat control/DUTY CYCLE

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

- ***FSt*** (block *fans* temperature) and ***FAd*** (*fans* differential).
- **Fot** (start *fans* temperature) and ***FAd*** but with inverted sign.

Depending on parameter **FPt,** the block *fans* temperature set in parameter ***FSt*** can be absolute (real temperature value) or relative (value to be added to Setpoint **SEt**).

N.B.: during *defrost with electrical heaters*, the *compressor* stops but the *fans* work as if the *compressor* was still on, unless they have been excluded during *defrost* (see parameter *dFd*).

See *defrost modes* diagram

8.1.5 Fan function during dripping

If parameter ***dt*** (*dripping* time) is different from zero, the *fans* will stay off for the time set in this parameter. See *Defrost with electrical heaters* diagram
Note that if ***Fdt*** (fan delay time) is greater than ***dt*** (*dripping* time) the *fans* stay off for the time set in ***Fdt*** rather than ***dt*** (the greater of the two).

8.1.6 Preventilation

Parameter (**PdC**) activates the fan output for *preventilation* before the *compressor* switches on and delaying activation of the latter.

8.1.7 Post-ventilation

Parameter (**FdC**) delays the switching off of the *fans* after the *compressor* has stopped (increasing efficiency of the system making better *use* of inertia).
Value 0 excludes the function.
There is no *preventilation* in *standby* mode.

8.1.8 Forced ventilation

Fans can be forced to work continuously:

- from a key (set H31...H37=9);
- from digital input (set at least one of the following H11...H14=±13).

If *fans* are forced ON, the internal exchanger fan *LED* fill flash.
There is no *forced ventilation* in *standby* – after a power failure or after the machine has gone from OFF->ON, the *fans* will be forced ON if they were on prior to the controller switching off.

9 EXTERNAL EXCHANGER FANS

Condenser *parameters can be viewed and configured in *folder***

- *ANALOGUE OUTPUT (folder with label "AO")*
- FAN CONTROL (*folder* with "FAn" *label*)

(see *user interface* and *parameters* sections).

*** DEFINITION: condenser *fans* or *external exchanger fans***

Fan configuration
The part being referred to is the fan unit on the outside of the heat exchanger that normally serves as a condenser.

Firstly, the fan must be connected properly to the appropriate output (see connection diagram).

Various types of fan pilot modules can be connected depending on the relative availability and configuration of parameter F00.
See the table below:

Table 1

F00	0	1	2	3	4	5
	Disabled	PWM	4-20mA	0-20mA	0-10V	Relay
		Indirect	**Indirect**	**Indirect**	**Indirect**	**Direct**
External module to pilot *fans*		**YES**	**YES**	**YES**	**YES**	**NO**

9.1 Operating modes

Condenser *fans* can function:
- **Continuously (proportional) by configuring parameter** F02.
- **ON / OFF when requested by *compressor* in parallel.**

If the output has been configured as proportional, the *parameters*
PICK UP, *PHASE SHIFT*, *PULSE LENGTH* all have a meaning.

Pick-up Parameter *F03*
Each time the external exchanger fan starts, the exchanger fan is supplied at the maximum voltage level, hence the fan runs at maximum speed for a time equal to *F03* in seconds. At the end of this time, the fan continues at the speed set by the regulator.

Phase shift Parameter F04
Defines a delay to offset the various electrical properties of the fan drive motors.

Pulse length Parameter F05
Defines the duration in seconds of the pulse piloting the TRIAC.

The fan can be configured to make it run independently or dependent on the *compressor* state; you can also decide if the fan should be on or not when the *compressor* is off (parameter F16**).**

The cut-off can be bypassed for a time configurable in parameter *F18*;
during this period, if the regulator requests the cut-off, the fan will run at minimum speed.

Condenser *fans* do not function:
- **When the device is Off (local or remote).**
- **When one or more alarms have blocked the fan.**

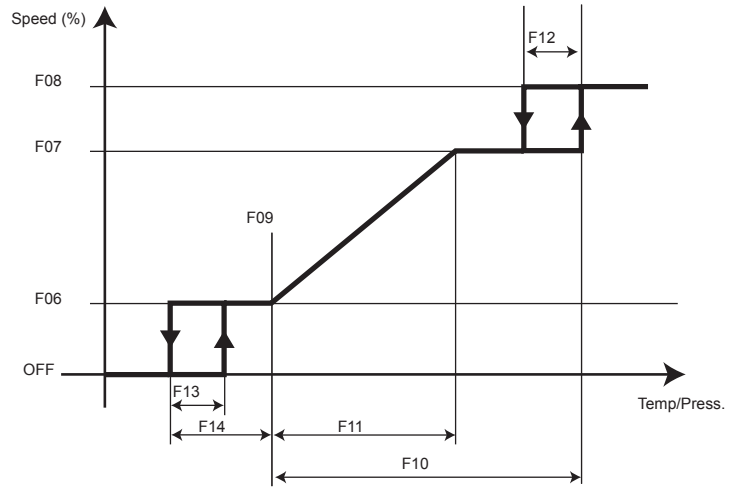
Continuous operation

9.1.1 1.1.1 Continuous operation

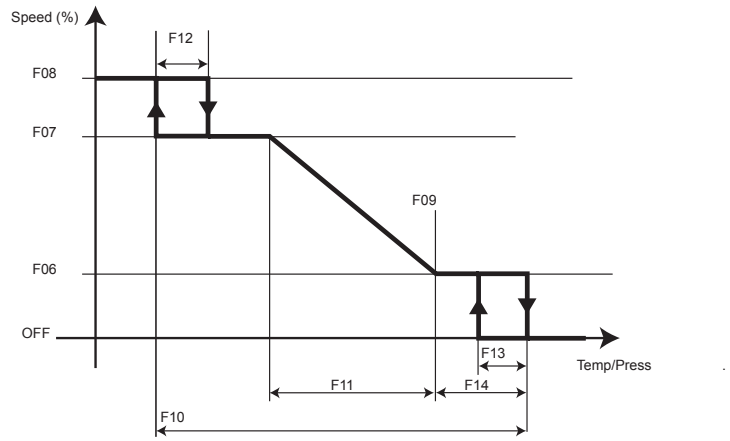
Operation in summer mode* (see diagram A - C)	Operation in winter mode* (see diagram B - D)
The fan is regulated on the input selected in F02	
In *cooling* mode(F02=C**),** **if the fan is activated when requested by the *compressor*** (parameter F16= 0**), permission to switch on the *compressor* is given only after the fan has been running for the minimum time set in** parameter *F19*;	**In *heating* mode (**F02=H**),** **if the fan is activated when requested by the *compressor*** (parameter F16= 0**), permission to switch on the *compressor* is given only after the fan has been running for the minimum time set in** parameter *F19*;
Fan rotation speed is proportional to the temperature of the external exchanger. ***Preventilation* is run to prevent the *compressor* from switching on at excessively high condensation temperatures.**	
COOLING	***HEATING***

Diagrams for fan speed based on the regulation probe

COOLING diagram A



HEATING diagram B

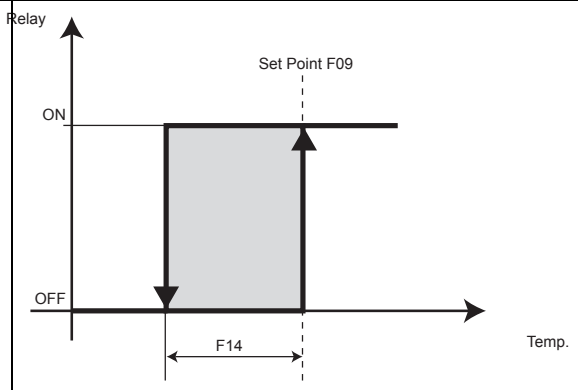
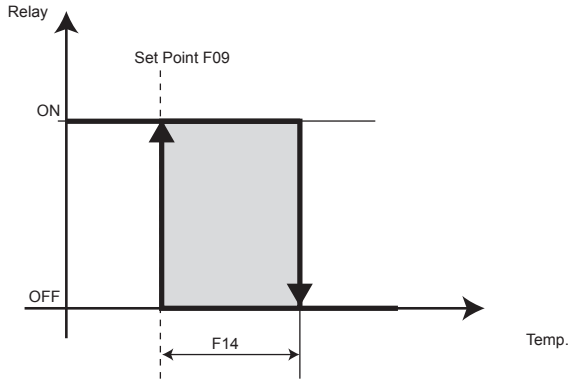


Temp: external exchanger temperature

Press.: external exchanger pressure

Operation in response to request

9.1.2 Operation in response to request

Diagram C *Cooling*	Diagram D *Heating*
	

10 PRESSURE SWITCH AND PREHEATING

Pressure switch input regulator

This regulator performs diagnostic operations over a digital input associated via a configuration table. It is activated by setting *parameters*

- H11...H14 = 11 (general pressure switch),
- H11...H14 =9 (low pressure switch) or
- H11...H14 =10 (high pressure switch).

If a pressure switch input is activated, power to the *compressor* is immediately cut off, the relative alarm *LED* lights up to indicate this visually and the following labels in the alarms *folder* are also displayed:

- P01, P02, P03... (up to the value set in parameter PEn) if H11...H14=11 for the general pressure switch
- H01, H02, H03... (up to the value set in parameter PEn) if H11...H14=10 for the high pressure switch
- L01, L02, L03... (up to the value set in parameter PEn) if H11...H14=9 for the low pressure switch

Regulation is provided via the configuration of two *parameters*: PEn e PEI:
An alarm is generated only if the maximum number of signals is reached before the time set in parameter PEI elapses. The time PEI is counted down from the first signal.
If the number of activations exceeds the number set in PEn within the time limit PEI, the following events occur:

- The *compressor*, *fans* and *defrost* are disabled
- The *label* PA, HPA or LPA (depending on whether it relates to the general, high or low pressure switch or H11-H14 = 11, 9 or 10) appears in the alarm *folder*.
- The alarm relay comes on (if configured).

If the number of activations exceeds the number set in PEn within the time limit PEI, the alarm is automatically reset.
N.B: Once the controller is in alarm state, it must be powered off then on, or reset by activating parameter rAP from the function *menu*. Pressure switch alarms can be reset via function rPA in *folder* FnC.
N.B: If parameter PEn is set to O, the function is excluded and alarms and counters are also disabled.

Preheat Input Regulator

The digital input configured as Preheat (H11..H14=12) disables *compressor* and fan outputs.
When the preheat input is activated, this is not indicated on the *display* but in *folder* AL by means of *label* (see Alarms *Folder*).

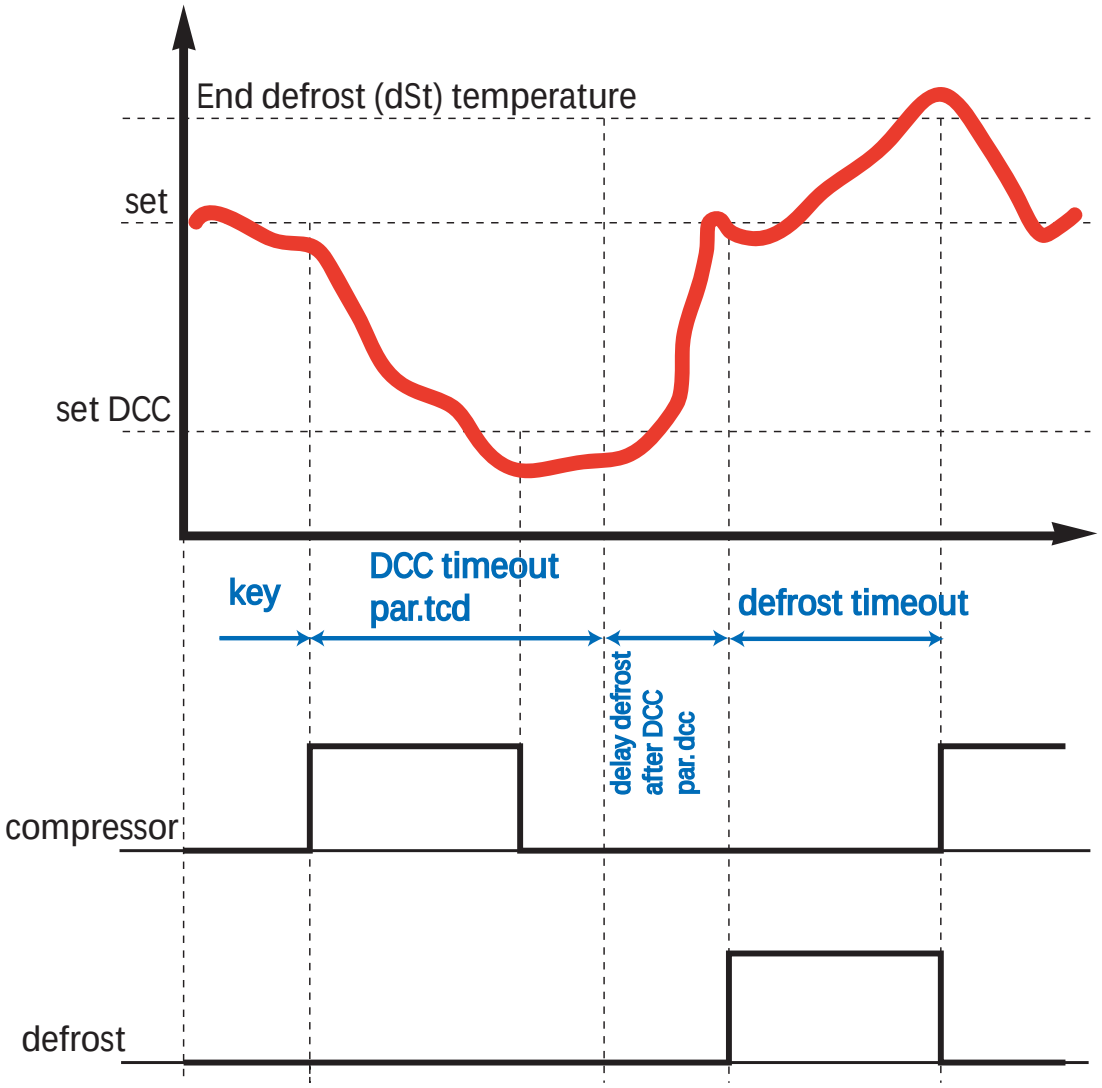
11 DEEP COOLING CYCLE

Deep Cooling Cycle **Function**

The Deep *Cooling* (DCC) function is activated by parameter H01.
The corresponding *LED* will light up when the function is active (EWRC800/550 only (LX).

Activation of DCC from function key: the *compressor* regulates in relation to setpoint dCS with a differential equal to the value set in parameter *diF* for the time set in parameter tdc (deep cool cycle).
When the DCC (*Deep Cooling Cycle*) activates, the interval between *defrost* cycles is cleared and defrosts disabled. After a DCC cycle and once the time set in parameter dcc has elapsed, a *defrost* cycle is forced and the counters restart for the interval between *defrost* cycles (value set in parameter *dit*).

During the DDC cycle, temperature alarms are disabled - except for the low temperature one - *LAL* if Att=1 (setpoint alarm). Normal temperature alarm control is restored at the end of the DCC cycle. 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 ddc are modified, the *Deep Cooling Cycle* is recalculated with the new values set.



12 FUNCTIONS

The *Functions menu* is used to perform a number of manual *functions* such as putting the device into stand-by, acknowledging alarms, running a *manual defrost* etc.

A number of these operations can be done from the keyboard when viewing the main *display* using the ESC key - see also the *User Interface* section.

For more details, see the table below:

	Label			**Model**		
Function	**PV *display***	**SV *display***	**Notes**	**EWRC550**	**EWRC800**	**EWHT 800**
Lock keypad	*LOC*	On / OFF*	Only function visible when keypad is locked (On)	●	●	●
Reset HACCP alarms	rHC	On / OFF*	Reset HACCP alarms	●	●	●
Reduced set	rSE	On / OFF*	Reduced set	●	●	●
Reset pressure switch alarm	rPA	On / OFF*	Reset pressure switch alarm (°)	●	●	●
Night and Day *functions*	nAd	On / OFF*		●	●	●
Disable recording of HACCP alarms	rEd	On / OFF*	HACCP alarm recording blocked	●	●	●
Automatic regulation	Aut	On / OFF*	If Automatic Regulation is On, *manual defrost* will not be possible (the PV *display* will flash to indicate that *manual defrost* was not activated).	●	●	●
Start climate profile/step.	St	On / OFF*	Start a climate profile. If the climate profile has already started (St=On), it will be switched to the STOP state. Visible only if Aut=On.	N.A.	N.A.	●
Reset climate profile/step	rSt	On / OFF*	Climate profile cleared and returned to STOP state. (°)	N.A.	N.A.	●
* *Functions* are all OFF by *default*.			(°) The function returns to the OFF state when you exit the *Functions Menu*.			

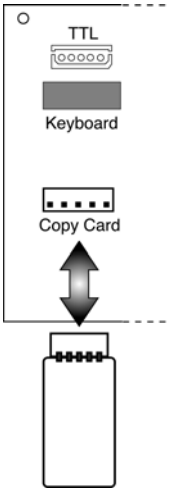
***Example* of lock keypad (*LOC* function)**

Display	Key	Description
		Press the 'ESC' key from the main *display*.
		Scroll with 'UP' and 'DOWN' to find the function required: • *LOC* • rSE • rPA • etc which in this case is the lock keypad function (*LOC*).
		Press the 'SET' key. The word 'On' will appear on the SV *display*.
		Press ESC again and wait for the 15 second timeout to elapse.

N.B: if the *LOC* function has been enabled, you will not be able to activate/disable other *functions* until the keypad has been unlocked.
The unlock procedure is identical to the lock keypad procedure.

12.1 Using the Copy Card (folder FPr)

Follow the steps outlined below for Upload (*label UL*), download (*label dL*) and key formatting (*label Fr*) operations:

	**UPLOAD CONTROLLER to *Copy Card*)** This downloads programming *parameters* from EWRC / EWHT to the *Copy Card*.	**DOWNLOAD (copy from *COPY CARD* to CONTROLLER)** This uploads programming *parameters* from the *Copy Card*.	**FORMAT*** Formatting the *Copy Card* Formatting means deleting the contents of the *Copy Card* and initializing it. * This should be done prior to Uploading when used for the first time.

Display	**Key**	**Description**
See *Programming Menu User Interface* section		**Upload / Download / Formatting** **The download procedure is illustrated in the *example*.** You need to enter the *Programming Menu* to *use* the *Copy Card*. Press [SET] from the main *display*. The *label* 'USr' appears on the PV *display*. (°) Scroll with 'UP' and 'DOWN' to find the *label* of *folder* 'FPr' on the PV *display*. Press 'DOWN'. The *label* '*UL*' appears on the PV *display*. Scroll with 'UP' and 'DOWN' to find the *label* "*dL*" on the PV *display*. - - - (°) alternatively, press the 'UP' key. The '*Fr*' *label* will appear on the PV *display*. Scroll with the 'UP' key to view labels '*dL*', '*UL*' and the *label* of the 'FPr' *folder*.
FPr - - - -		The commands you need to *use* the *Copy Card* are in the 'FPr' *folder*. Press 'UP' to see the *functions*.
dL		Scroll with 'UP' and 'DOWN' to find the function required: • *UL* for upload • *dL* for download • *Fr* for format
dL rUn		Press the 'set' key and the upload (or download) will be performed. (In the *example dL*- download). The string 'rUn' will appear on the *display*.

Display	Key	Description
		If the operation completes successfully, 'yes' is displayed; otherwise 'no' is shown (°). Remove the *Copy Card* on completion.
		

12.1.1 Download from reset

Connect the *copy card* with device switched off.
When the instrument is switched on, the programming *parameters* are uploaded to the device.

	Lamp test completed...
	Example **A** ...dLY... appears on the *display*. If the procedure terminates successfully.
	Example **B** ...dLn... appears on the *display*. If the procedure does not complete successfully (°).
	In both cases, the device will be switched OFF locally (OFF appears on the *display*). When you press [DOWN] (°°), the device will operate: • With the new map ***Example*** **A** • With the previous map ***Example*** **B** Remove the *Copy Card* on completion. (°°) see *User Interface* section, ON/OFF paragraph.

N.B.:

- The formatting function is **ONLY REQUIRED FOR UPLOADING (**)**:
  - To *use* the *Copy Card* the first time (if the *Copy Card* has never been used before); and
  - To *use* the *Copy Card* with devices that are not compatible.
  - (**) a pre-programmed key supplied by Eliwell to DOWNLOAD *parameters* does not need to be formatted. **N.B. Formatting can NOT be cancelled.**
- After downloading, the device will operate with the settings of the new map just loaded.
- Remove the key on completion of the operation.

(°) if the string n / dLn (*download from reset*) appears:

- Check that the key is connected to the device.
- Check the *Copy Card* – EWHT / EWRC connection (check the *TTL* cable).
- Check that the key is compatible with the device.
- Contact the Eliwell Technical Support.

13 HUMIDITY (EWHT800LX)

--> Available on *EWHT800LX only*.

Humidity regulation *parameters* can be viewed and configured in *folder*

- **HUMIDITY AND *HEATING* (*folder* with *label* "Hud").**
- ***CONFIGURATION PARAMETERS (folder with label "CnF") parameters* H05 H09.**

(see *user interface* and *parameters* sections).

13.1 Operating modes

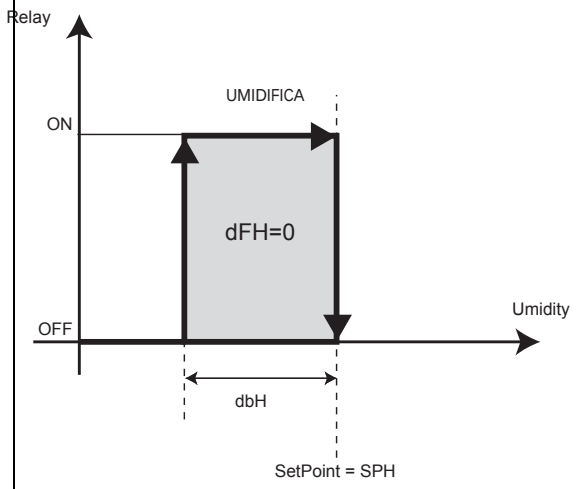
13.1.1 Humidify

- Configure a relay output as *humidify* output, i.e. H21...H28= 13

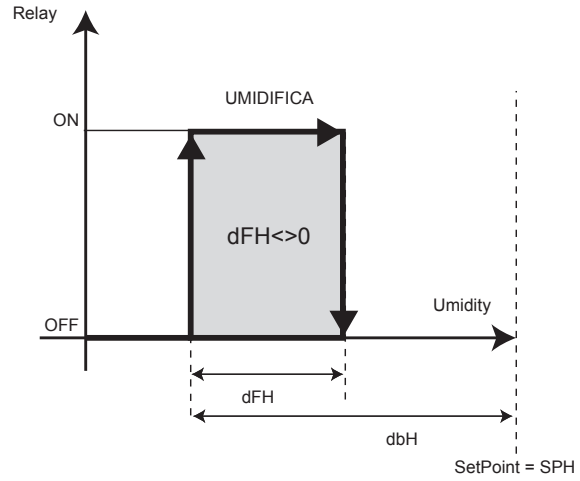
	Setpoint	H05		H21...H28*	Diagram
Disabled	/	*diS*			
Humidify	*SPH*	nE	HU	**13**	**A B**
*** *humidify* is only possible by configuring a relay as a *humidify* relay.**					

***Humidify* relay**		N.B.	Diagram
ON	**OFF**		
Humidity = *SPH-dbH*	Humidity > *SPH*	*dFH*= 0 -->differential =*dbH*	**A**
Humidity = *SPH-dbH*	Humidity > (*SPH-dbH*)+*dFH*	*dFH*≠0 --> differential = *dFH*	**B**
		dbH always positive	

A



B



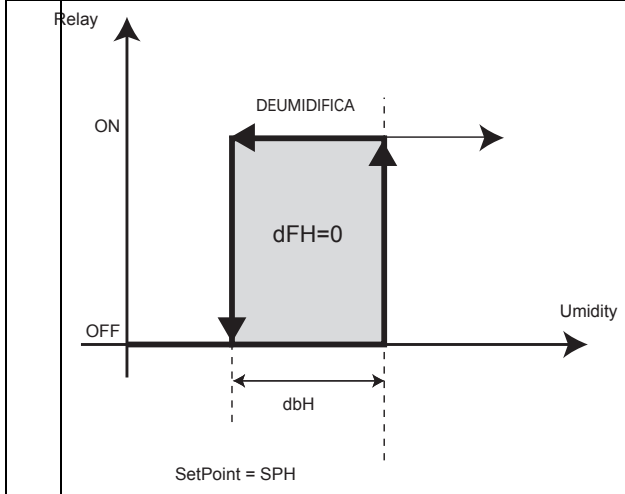
13.1.2 Dehumidify

- Configure a relay output as a *humidify* output*, i.e. H21...H28= 14 or
- Configure a relay output as a *humidify* output*, i.e. H21...H28= 14 + *cooling* output (*compressor*)** or
- Configure a *cooling* relay output (*compressor*) and a *heating* relay output**

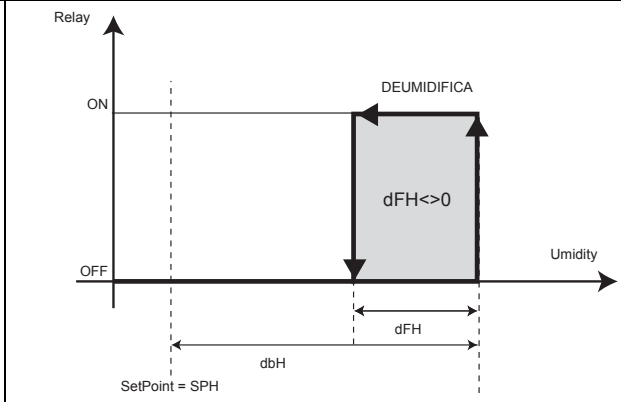
Diagram		***Humidify*** **type H09**	Setpoint	H05		H21...H28*	H21...H28**	
	Disabled		/	*diS*				
C D	***Dehumidify*** **with relay*** **	0 (*Dehumidify* relay)	*SPH*	nE	*dEH*	**14**	**-**	**-**
E	***Dehumidify*** **with relay*** ** + ***cooling***	1 (*Dehumidify* relay+*cooling*)	*SPH*	nE	*dEH*	**14**	**01**	**-**
F	***Dehumidify*** **without relay*** **	2 (*heating*+*cooling*)	*SPH*	nE	*dEH*	**-**	**01**	**15**
dehumidify								

Dehumidify **relay**		N.B.	Diagram
ON	**OFF**		
Humidity =*SPH*+*dbH*	Humidity < *SPH*	*dFH*= 0 -->differential =*dbH*	**C E F**
Humidity = *SPH*-*dbH*	Humidity < (*SPH*+*dbH*)-*dFH*	*dFH*≠0 --> differential = *dFH*	**D**
		dbH always positive	

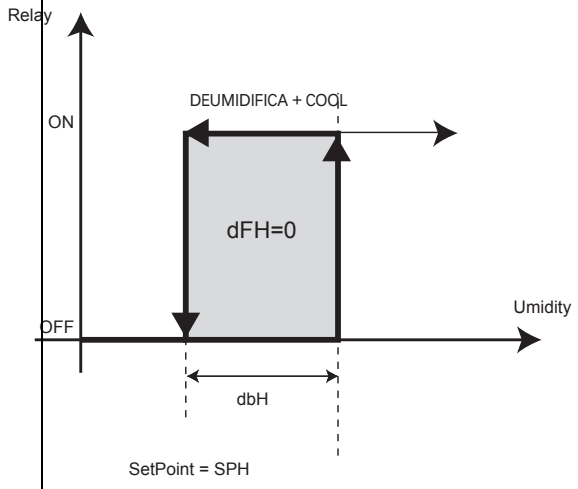
C



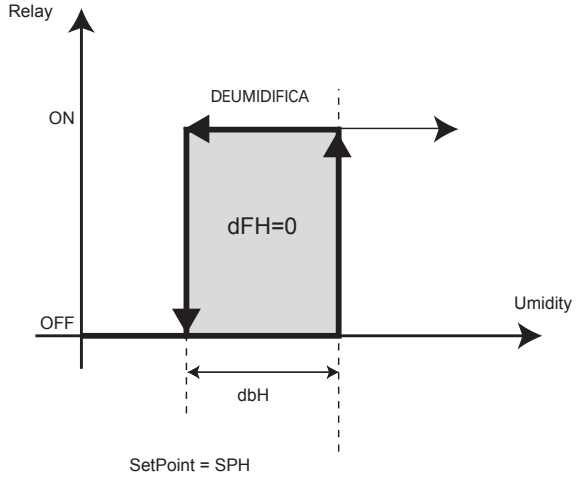
D



E



F



13.1.3 Neutral zone

To regulate humidity in the *Neutral Zone*, set H05= nE (*Neutral Zone*).
See cases B-D illustrated above.

14 STRATIFICATION FANS (EWHT800LX)

--> Available on *EWHT800LX only*.

Parameters for anti-stratification *fans** can be viewed and configured in *folder*

- **VENTILATION *FANS* (Stratification fan *parameters*) (*folder* with *label* "ACF")**
- ***CONFIGURATION PARAMETERS (folder with label "CnF")* H43 H44**

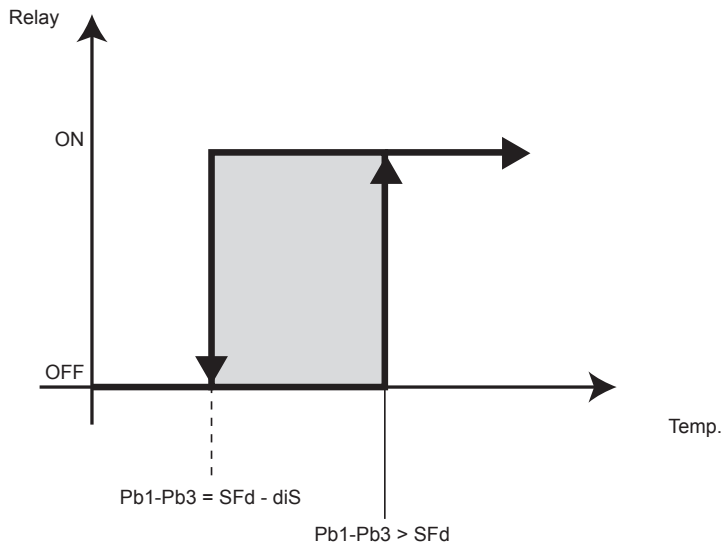
(see *user interface* and *parameters* sections).

*STRATIFICATION: hot air inside the cold store moves to the side whilst cold air falls to the bottom creating a "stratification" effect.
To prevent this from happening, anti-stratification *fans* are switched on.

14.1 Operating modes

Configure a relay output as anti-stratification output, i.e. H21...H27= 16
Configure an analogue input as stratification probe (Pb3 or Pb4 = 4)

		Stratification *fans* ON	Stratification *fans* OFF
Stratification probe not present	H43=0 or H44=0 H43=0 or H44=1 H43=0 or H44=2 H43=0 or H44=3	***SOn***	***SOF***
Stratification probe present	H43=4 or H44=4	**|Pb1-Pb3| > *SFd***	**|Pb1-Pb3| = *SFd* - *diS***
		|Pb1-Pb4| > *SFd*	**|Pb1-Pb4| = *SFd* - *diS***
		N.B: the difference Pb1-Pb3 (Pb4) must be an absolute value as the two probes can be located either at the top or the bottom inside the cold store. If the cold store probe is located high up, the stratification probe should be positioned low down, and vice versa.	
Stratification probe error	H43=4 or H44=4	***SOn***	***SOF***



15 VENTILATION FANS (EWHT800LX)

--> Available on *EWHT800LX only*.

Parameters for ventilation *fans** can be viewed and configured in *folder*.

- **VENTILATION *FANS* (*folder* with *label* "ACF")**

(see *user interface* and *parameters* sections).

15.1 Operating modes

Configure a relay output as ventilation fan output H21...H27= 11
To disable/re-enable:

- **From a key**
- **From digital input** Configure a digital input as ventilation *fans* H11..H14= ±15.
- **Via function FrH ---> See *Functions* section.**

Operation is cyclical based on *parameters Con* and *COF*. Unit of measurement set in parameter dt3.

COn	*COF*	OUT
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	Duty cycle

Fans are off:

- As in the table.
- When the device is Off (local or remote).
- Power failure.

16 CLIMATE PROFILES (EWHT800LX)

Independent climate profile management *parameters* can be viewed and configured in the following *folder*:

- Climate profiles program (*folder* with *label* "Prg")
  (see *user interface* and *parameters* sections).

EWHT800 manages an 8-step CLIMATE PROFILE. Each STEP consists of a set of 10 *parameters*.

START climate profile
(°) It can be started from:
- **Key** - Press the START-STOP / RESET key for about 1 second.
- **Function** - set function St= On; N.B: the Aut function must **=On.**
- **Digital Input** – set one of the *parameters* H11...H14 = 21 (toggle) function.

STOP climate profile
(°) It can be stopped from:
- **Key** - Press the START-STOP / RESET key for about 1 second.
- **Function** - set function St= OFF.
- Digital Input – set one of the *parameters* H11...H14 = 21 (toggle function).

RESET climate profile
It can be RESET from:
- **Key** - Press and hold the START-STOP / RESET key.
- **Function** - set function rSt= On.

Climate profile mode	Description	*LED*
/	No profile active	
START	STEP 3 in progress	
STOP	STEP 3 STOP	
RESET	No profile active	
End of cycle	Step 3 ended STEP 1 2 3 completed successfully	
	Climate profile with 1 STEP (STEP 1 completed successfully) or 8 STEPs	

16.1 Description of STEPs / parameters

0) STEP activation delay
Defines the delay after START that the STEP is activated. In hours and minutes.
The SetPoint is defined in parameter 8) End of STEP mode – with the exception of STEP 1.
For activation instructions, see (°).
If this parameter = 0 the activation delay can be modified – even when the Climate Profile is in progress– from the State *Menu*.

Climate profile mode	Parameter 1) = 0 Modify activation delay	*Display* State *Menu*
START	YES from State *Menu* **Open State *Menu*** *Label* SP1 will appear. - - - **Press SET** *Label* StP will appear. Hours *LED* flashes – press the UP/DOWN *keys* to modify. **Press SET** Minutes *LED* flashes – press the UP/DOWN *keys* to modify.	
STOP		

Climate profile mode	Parameter 1) = 0 Modify activation delay	*Display* State *Menu*
RESET	NO Open State *Menu* *Label* StP will appear. Not modifiable.	
End of cycle	YES from State *Menu* **Open State *Menu*** *Label* StP will appear. - - - See STOP *example*.	

1) STEP duration.
Determines the duration of the step in hours and minutes.
If = 00.00 indicates the end of the step when temperature is reached and not on time elapsed.

2) Type of regulator active HUMIDITY
Indicates the regulator active in the STEP.

diS	Disabled
nE	*Neutral zone* (*Humidify* and *Dehumidify*)
HU	*Humidify*
dEH	*Dehumidify*

3) Type of regulator active TEMPERATURE
Indicates the regulator active in the STEP.

		Visibility 5)	Visibility 6)
diS	Disabled	•	**N.A.**
nE	*Neutral zone* (*Heating/Cooling*)	•	**N.A.**
H	*Heating*	**N.A.**	•
C	*Cooling*	•	**N.A.**
HC	*Heating/Cooling*	•	•

4) HUMIDITY SETPOINT
Setpoint **SP3.** Defines the regulation setpoint in the STEP.

5) TEMPERATURE SETPOINT *COOLING*
Setpoint **SP1.** Defines the regulation setpoint in the STEP – see parameter 3).

6) TEMPERATURE SETPOINT *HEATING*
Setpoint **SP2.** Defines the regulation setpoint in the STEP – see parameter 3).

7) ENABLING AUX RELAY
n= not active y = active.

8) END OF STEP MODE
- Indicates the mode in which the current step ends.
- Defines the setpoint during the delay defined in parameter 0) Delay activating STEP (if <>0) with the exception of STEP 1.

			MAIN *DISPLAY*
1	End of program		
2*	Go to next STEP	**Keep current setpoint**	**Current SetPoint**
3*	Go to next STEP	Go to the next step and wait for new setpoint (no regulation).	
4	Go back to the start of the STEP		
5	Go back to the STEP defined from 9)		
6	Unlimited duration		
*** value irrelevant in case 7P8 – there are no subsequent steps**			

9) GO BACK TO STEP NO.xx
STEP number to go back to.
Defines which STEP to go back to if parameter 8) is set at 5.
N.B 0= STEP 1, 1= STEP 2, ...7= STEP 8.

16.2 STEP parameters table

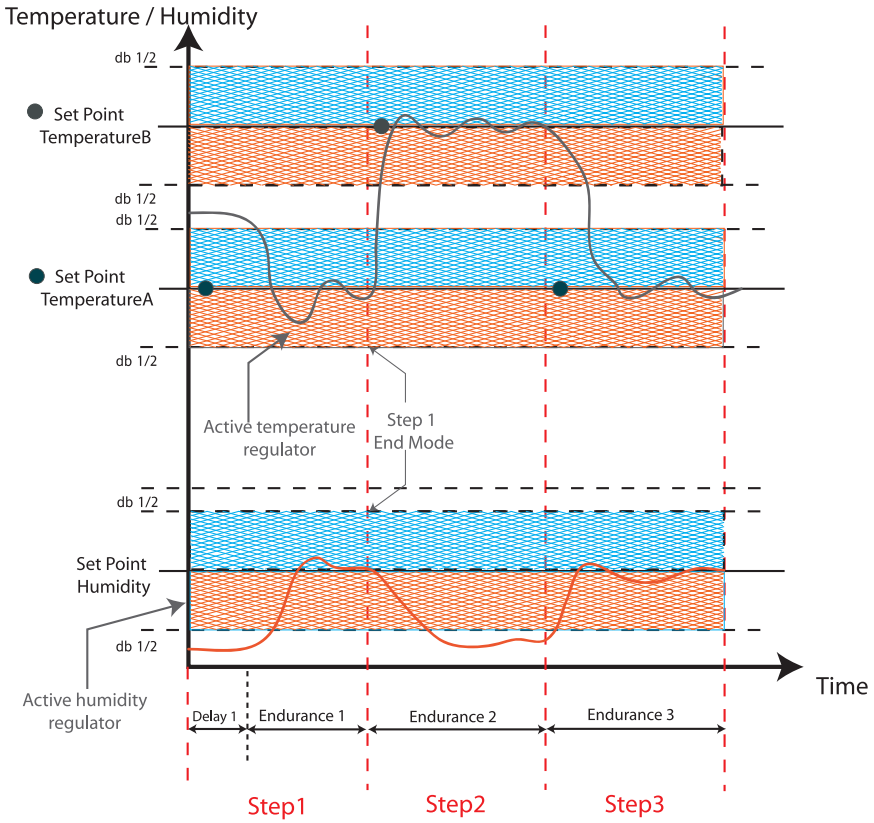
No.		STEP1	STEP2	STEP3	STEP4	STEP5	STEP6	STEP7	STEP8	COMMENTS
0	Activation delay STEP	1P0	2P0	3P0	4P0	5P0	6P0	7P0	8P0	Parameter in hours and minutes [HH:MM] *Example* 0P0_H, 0P0_M
1	STEP duration.	1P1	2P1	3P1	4P1	5P1	6P1	7P1	8P1	Parameter in hours and minutes [HH:MM] *Example* 0P0_H, 0P0_M
2	Type of regulator active HUMIDITY	1P2	2P2	3P2	4P2	5P2	6P2	7P2	8P2	
3	Type of regulator active TEMPERATURE	1P3	2P3	3P3	4P3	5P3	6P3	7P3	8P3	
4	Type of regulator active TEMPERATURE	1P4	2P4	3P4	4P4	5P4	6P4	7P4	8P4	
5	HUMIDITY SETPOINT	1P5	2P5	3P5	4P5	5P5	6P5	7P5	8P5	
6	TEMPERATURE SETPOINT COOL	1P6	2P6	3P6	4P6	5P6	6P6	7P6	8P6	Dynamic visibility based on value No. 3
7	TEMPERATURE SETPOINT HEAT	1P7	2P7	3P7	4P7	5P7	6P7	7P7	8P7	Dynamic visibility based on value No. 3
8	ENABLING AUX RELAY	1P8	2P8	3P8	4P8	5P8	6P8	7P8	8P8	
9	GO BACK TO STEP NO.xx	1P9	2P9	3P9	4P9	5P9	6P9	7P9	8P9	

16.3 Example

The following *example* shows a climate profile with 3 STEPS and temperature/humidity regulation in the *Neutral Zone*.

Key

	Delay	Duration	Type of regulation	Set Point Humidity	Set Point Temperature	Setpoint next step
Parameter	**0)**	**1)**	**2) RH / 3) Temp**	**4)**	**5)**	**8)**
STEP1	DELAY 1	Endurance 1	nE / nE	Set Point Humidity	Set Point Temperature A	3
STEP2	/	Endurance 2	nE / nE	Set Point Humidity	Set Point Temperature B	3
STEP3	/	Endurance 3	nE / nE	Set Point Humidity	SetPoint t Temperature A	3



17 DEFROSTING SECOND INTERNAL EXCHANGER (EWRC800LX – EWRC550LX)

Using the probe configured as internal exchanger 2, you can control the *defrost* of a second internal exchanger.

Configure a relay output (configuration *parameters* **H21**...**H28**) as a *defrost* relay for internal exchanger 2.
To enable this function, you need to:

- Configure probe Pb3 or Pb4 in control internal exchanger 2 *defrost* mode (parameter **H43, H44**).
- Configure a relay output (configuration *parameters* **H21**...**H28**) as a *defrost* relay for internal exchanger 2.
- Define the *defrost* mode by configuring **H47**.

Start mode
Two internal exchangers can be defrosted in three different ways depending on how parameter H47 is configured:

- **H47**=0: *Defrost* is enabled only when the temperature of internal exchanger 1 is less than parameter ***dSt***.
- **H47**=1: *Defrost* is enabled when at least one of the two probes is below its respective end of *defrost* temperature (***dSt*** for internal exchanger 1 and **dS2** for internal exchanger 2).
- **H47**=2: *Defrost* is enabled when both probes are below their respective end of *defrost* setpoints (***dSt*** for internal exchanger 1 and **dS2** for internal exchanger 2).

The probe error condition is considered as probe requesting *defrost*.

End mode
End of *defrost* when there are two internal exchangers occurs when both probes have reached or exceeded their respective end of *defrost* setpoints (***dSt*** for internal exchanger 1 and **dS2** for internal exchanger 2).
If one or both the probes encounter an error, end *defrost* is activated by a timeout.

In any case,
If conditions do not consent the *defrost*, the request will be cancelled.
The *defrost* of each internal exchanger ends when the relative probe temperature is equal to or greater than the end of *defrost* temperature or by timeout.
Dripping starts when both defrosts have terminated.

If one or both probes are in error, the *defrost* of the respective internal exchanger ends by timeout. *Defrost* can only start if the temperature is less than the respective setpoint (***dSt*** or **dS2**).

If the probe has not been configured as the probe for the second internal exchanger (**H43, H44** ≠2), the *defrost* of the second internal exchanger can be started if a digital output has been configured to command the *defrost* of the second internal exchanger (**H21**..**H28** = 9). In this case, consent is given for *defrost* as if the probe temperature (int. exchanger 2)< **dS2** and the output happened by time-out. The fan regulator remains unaltered.

Summary table

Internal exchanger 1 *defrost*	**START *defrost***		**STOP *defrost***
	If **H47**=0	Probe 2 temperature (int. exchanger 1)< ***dSt***	Probe 2 temperature (int. exchanger 1)> ***dSt***
	If **H47**=1	Probe 2 temperature (int. exchanger 1)< ***dSt***	
	If **H47**=2	Probe 2 temperature (int. exchanger 1)< ***dSt*** and Probe temperature (int. exchanger 2)< **dS2**	or if Probe 2 temperature (int. exchanger 1)<***dSt*** by timeout or if probe 2 is in error for timeout
	N.B.: if a probe error has occurred or **H43, H44** ?2 and a digital output has been configured to regulate a second internal exchanger, the following condition applies: Probe temperature (int. exchanger 2)< **dS2**		
Internal exchanger 2 *defrost*	**START *defrost***		**STOP *defrost***
	If **H47**=0	Probe 2 temperature (int. exchanger 1)< ***dSt*** and Probe temperature (int. exchanger 2)< **dS2**	Probe 3 temperature (int. exchanger 2)> **dS2** or if
	If **H47**=1	Probe temperature (int. exchanger 2)< **dS2**	
	If **H47**=2	Probe 2 temperature (int. exchanger 1)< ***dSt*** and Probe temperature (int. exchanger 2)< **dS2**	Probe temperature (int. exchanger 2)< **dS2** by timeout or if a probe error has occurred due to a timeout.
	N.B.: if a probe error has occurred or **H43, H44** ≠2 and a digital output has been configured to regulate a second internal exchanger, the following condition applies: Probe temperature (int. exchanger 2)< **dS2**		
Dripping	START *dripping*		END *dripping*
	End of *defrost* on both internal exchangers if both internal exchangers have been defrosted, otherwise, end of only *defrost* underway.		Unaltered

18 ALARMS AND TROUBLESHOOTING

EWRC800 can run full diagnostics on the installation, signalling any operating faults with specific alarms found, and record and signal any user-defined unusual events to have greater control over the installation as a whole.

Alarm conditions

An alarm is always signalled with the buzzer (if present) and the *LED* for the alarm icon.

***Probe errors* are indicated on the *display* - the following table appears:**

18.1 Probe Errors Table

Label	Probe error	Cause	Effect	Troubleshooting
E1 (!)	**Cold room Probe faulty**	• **Measured values are outside the nominal *range*.** • **Regulating probe faulty/short-circuited/open.**	• *Label* "*E1*" shown on the *display*. • Activation of *compressor* as indicated in *parameters Ont* and OFtl". • High/low alarm regulator disabled.	• **Check the probe wiring.** • **Replace probe.** • **When the error has been removed, regulation continues as normal.**
E2 (!)	***Defrost* probe faulty**	**Identical to *E1***	• *Label* "*E2*" shown on *display*. • *Defrost* ended for timeout (if active).	• **Identical to *E1*** • **If *defrost* was in progress, it will terminate when the setpoint is reached.**
E3 E4 (!) (§)	***Display* probe faulty.**	**Identical to *E1***	• No effect on regulation	**Identical to *E1***
	External exchanger probe faulty.	**Identical to *E1***	• *Label* "*E3*" or "E4" shown on *display*. • See *F20*	**Identical to *E1***
	Stratification probe faulty.	**Identical to *E1***	• *Label* "*E3*" or "E4" shown on *display*. • Associated output disabled.	**Identical to *E1***
	EWRC800/550 only. **Internal exchanger 2 probe faulty.**	**Identical to *E1***	• *Label* "*E3*" or "E4" shown on *display*. • *Defrost* ended for timeout (if active).	**Identical to *E1*** • **If *defrost* was in progress, it will terminate when the setpoint dS2 is reached.**
E5 (!) (§)	**Humidity probe faulty.**	**Identical to *E1***	***Label* "E5" shown on *display*.**	**Identical to *E1***

(!) N.B.:

- Being more serious, Exx alarms are not saved in *folder* ALR, they are signalled on the main *display* as indicated in the table below:

Label	*E1*	*E2*	*E3*	E4	E5
E1	***E1* fixed**				
E2	**Alternating with *E1***	Alternating with the value of the cold room probe			
E3	**Alternating with *E1***	**Alternating with *E2***			
E4	**Alternating with *E1***	**Alternating with *E2***	**Alternating with *E3***		
E5	**Alternating with *E1***	**Alternating with *E2***	**Alternating with *E3***	**Alternating with E4**	E5 fixed on SV *display* If *default* read-out is Pb5 otherwise, alternating with the others.

- **An alarm is generated if the condition persists for about 10 seconds.**
- **During the cold room probe error, the *defrost* interval count continues as normal.**

(§) Depending on how *parameters* H43...H45 have been configured (the table shows *default* values indicated by (§)), errors *E3* E4 E5 on the *display* indicate the type of probe fault.
Example: *E3* indicates a stratification probe fault.

Label	Parameter	Value				
		0	1	2	3	4
E3	H43	**Probe not inserted**	***Display* probe**	**Internal exchanger 2 probe**	**External exchanger probe**	**Stratification probe (§)**
E4	H44	**Probe not inserted**	***Display* probe**	**Internal exchanger 2 probe**	**External exchanger probe (§)**	**Stratification probe**
E5	H45	**Probe not inserted**	**Humidity probe (§)**	**External exchanger pressure probe**	//	//

18.2 Table of Alarms

Messages signalling alarms that are not related to an error are not indicated on the controller *display* but can be viewed in *folder* AL from the Machine State *menu*.

Label	Alarm	Cause	Effect	Troubleshooting
AH1/AH3	**High temperature alarm Probe 1/3**	**See diagram HIGH LOW ALARMS**	• Recording of *label* AH1/AH3 in *folder* ALr of machine state *menu*. • No effect on regulation.	**Wait for the temperature value read by the cold room probe/*display* probe to fall below *HAL*.**
AL1/AL3	**Low temperature alarm Probe 1/3**	**See diagram HIGH LOW ALARMS**	• Recording of *label* AL1/AL3 in *folder* ALr of machine state *menu*. • No effect on regulation.	**Wait for the temperature value read by the cold room probe/*display* probe to come back above *LAL*.**
EWHT 800 LX only. *HHA*	**High humidity Humidity**	**See diagram HIGH LOW ALARMS**	• Recording of *label* AH1/AH3 in *folder* ALr of machine state *menu*. • No effect on	**Wait for the temperature value read by the cold room probe/*display* probe to fall below *HAL*.**

Label	Alarm	Cause	Effect	Troubleshooting
			regulation.	
EWHT 800 LX only. *LHA*	**Low humidity Humidity**	**See diagram HIGH LOW ALARMS**	• Recording of *label* AL1/AL3 in *folder* ALr of machine state *menu*. • No effect on regulation.	**Wait for the temperature value read by the cold room probe/*display* probe to come back above *LAL*.**
EA	**External alarm**	• Activation of digital input after delay defined in parameter o dAd (DI1, DI2) o di3 (DI3, DI4); See also diU	• Recording of *label* EA in *folder* ALr of machine state *menu*. • Blocks controllers as programmed in parameter rLO.	• Manual silencing of buzzer. • The controllers resume normal operation upon subsequent deactivation of the DI.
Ad2	***Defrost* alarm (Warning*)**	• *Defrost* suspended for timeout instead of when the internal exchanger probe reached the end of *defrost* temperature.	• Fixed alarm *LED* illuminates; • Recording of *label* Ad2 in *folder* ALr of machine state *menu*.	• Manual silencing to turn off *LED*. • Wait for the subsequent *defrost* cycle to delete message from *folder* ALr.
OPd	**Door open alarm.**	• If the door has been opened and delay time tdO has elapsed. • Delay tdO starts after the time set in parameter o dAd (DI1, DI2) o di3 (DI3, DI4); See also diU	• Alarm *LED* lights up • Activation of buzzer when delay time tdO has elapsed. • Recording of *label* Opd in *folder* ALr of machine state *menu*.	• Manual silencing of alarm relay. • The *LED* and message in *folder* AL will remain active until the door is closed.
PAn	**Panic Alarm**	When digital input configured as Panic alarm (H11...H14=18) activates after the delay defined in parameter dAd.	• Panic *LED* lights up and *LED* for relay configured as alarm. • Recording of *label* PAn in *folder* ALr of machine state *menu*.	• The alarm remains on until DI is subsequently disabled.
PA	**General pressure switch alarm**	• Pressure switch alarm activated by the pressure switch regulator (general/high/low).	Recording of *label* PA/LPA/HPA (depending on type of pressure alarm that has occurred: general, high or low) in ALr *folder*.	
LPA	**Low pressure switch alarm**			
HPA	**High pressure switch alarm**			

* Warning alarms have no effect on normal functioning of the device, they are just an indication.

18.3 High/low temperature and humidity alarm.

The purpose of this alarm is to record and signal on the *display* that the limits of a temperature or humidity *range* defined by the user have been exceeded.

- **High and low temperature alarms are regulated in relation to the cold room and/or *display* probe.**
- **High/low humidity alarms are regulated in relation to probe 5** Pb5**.**

18.3.1 1.3.1 High/low temperature alarm configuration

The alarm is regulated on the basis of the probe temperature(s) defined in parameter PbA.

Parameter: PbA	**Temperature *range***	**Value**
Probe 1 alarm	*HAl* ... *LAL*	**0**
Probe 3 alarm	*HAl* ... *LAL*	**1**
Probe 1 and 3 alarm	*HAl* ... *LAL* **(the same for both probes)**	**2**
Probe 1 and 3 alarm	*HAl* ... *LAL* **(probe 1) and** SA3 **(probe 3)**	**3**

The temperature limits defined in *parameters* *HAL* and *LAL* are determined by parameter Att **which specifies if they represent the absolute temperature value or a Setpoint differential (SEt).**

- **If** Att **=1 rE(lative), the probe temperature limits are based on the Setpoint (**SEt**).**
- **If** Att **=0 Ab(solute), the temperature limits for the probe are absolute.**

N.B: **to generate an alarm when the value falls below the setpoint when Att=0 (relative), a negative value must be entered for *LAL*.**

High/low temperature alarm output

A digital output (relay) can be configured by setting parameter H21 **(**H21 ... H25 **if present) so that a device can be activated (usually sound or visual) when the alarm occurs.**

N.B: if the device has a buzzer, the relative configuration must also be checked (see Buzzer Configuration).

18.3.2 1.3.2 High/low temperature alarm exclusion times

Alarm exclusion time

Parameter *PAO* can be used to program an *alarm exclusion time* after the controller is switched on**.**
This parameter refers to high/low temperature alarms only.
During this interval, the regulator is disabled and any temperature alarms are not signalled.

Alarm signal delay

Parameter *tAO* can be used to program a delay for the signalling of alarms after they have occurred.
This parameter refers to high/low temperature alarms only.
During this interval, the regulator is disabled and any temperature alarms are not signalled.

Alarm exclusion time after defrost

Parameter *dAO* can be used to program a delay for the signalling of alarms after a *defrost* cycle.
This parameter refers to high/low temperature alarms only.
During this interval, the regulator is disabled and any temperature alarms are not signalled.

18.3.3 1.3.3 High/low humidity alarm exclusion times

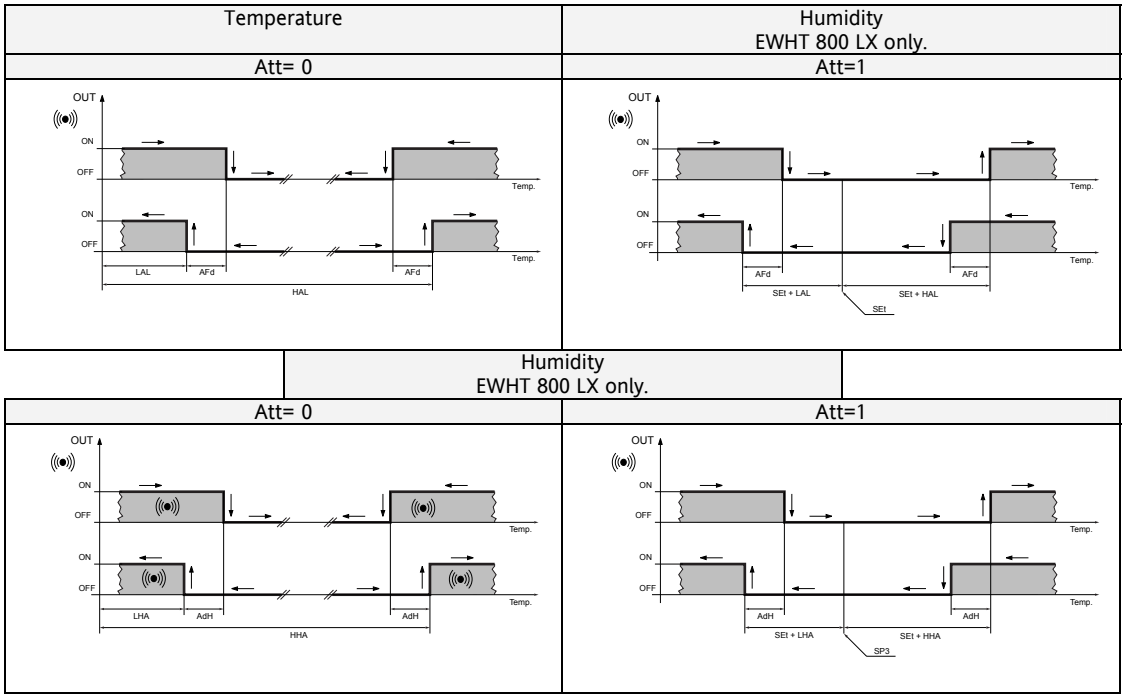
Alarm exclusion time

Parameter *PAH* can be used to program an *alarm exclusion time* after the controller is switched on**.**
This parameter refers to high/low humidity alarms only.
During this interval, the regulator is disabled and any humidity alarms are not signalled.

Alarm signal delay

- **Parameter *AOH* can be used to program a delay for the signalling of alarms after they have occurred.**
- **Parameter *OAH* can be used to program a delay for the signalling of alarms after the door has been closed.**
  This parameter refers to high/low humidity alarms only.
  During this interval, the regulator is disabled and any humidity alarms are not signalled.

18.3.4 High/low temperature and humidity alarms



		Att=0	Att=1
Temperature	**Low alarm**	**Temperature less than or equal to *LAL* (*LAL* with +/- sign)**	**Temperature less than or equal to Set point + *LAL****
Humidity		**Temperature less than or equal to LdH (LdH with +/- sign)**	**Temperature less than or equal to Set point + LdH (°)**
Temperature	**High alarm**	**Temperature greater than or equal to setpoint+*HAL* ******	**Temperature greater than or equal to *HAL* (*HAL* with +/- sign)**
Humidity		**Temperature greater than or equal to setpoint+*HHA* (°°)**	**Temperature greater than or equal to *HHA* (*HHA* with +/- sign)**
When one of the two aforementioned conditions occurs and no *alarm exclusion time* has been set (see parameter *PAO*), the alarm *LED* lights up, the buzzer sounds and/or the relay configured as alarm activates.			
• **If *LAL* is negative, it will be subtracted from the Setpoint.** ** **If *HAL* is negative, it will be subtracted from the Setpoint.**		(°) **if LdH is negative it will be subtracted from the Setpoint.** (°) **if *HHA* is negative it will be subtracted from the Setpoint.**	
Temperature	**Reset after low temperature alarm**	**Temperature greater than or equal to *LAL* + *AFd***	**Temperature greater than or equal to Setpoint + *LAL* + *AFd***
Humidity		**Temperature greater than or equal to *LHA* + *AdH***	**Temperature greater than or equal to Setpoint + *LHA* + *AdH***

		Att=0	Att=1
Temperature	**Reset after high temperature alarm**	**Temperature less than or equal to setpoint+*HAL* - *AFd***	**Temperature less than or equal to *HAL-AFd***
Humidity		**Temperature less than or equal to *HHA* - dH**	**Temperature less than or equal to *HHA-AdH***
Temperature		**If Att=*reL*(ative) *LAL* must be negative: so [Setpoint + *LAL*] equals [Setpoint - *LAL*]**	
Humidity		**If Att=*reL*(ative) *LHA* must be negative: so [Setpoint + *LHA*] equals [Setpoint - *LHA*]**	

N.B.: **during a *defrost* cycle, high and low temperature alarms are excluded.**

19 PARAMETERS

Parameters are used to configure every aspect of:

- EWHT 800LX;
- EWRC 800LX;
- EWRC 550LX.

They can be modified using the:

- *Copy Card*.
- Controller keypad.
- Personal computer with Param Manager.

The following sections analyse each parameter, divided into categories (folders), in detail.

Each *folder* is designated with 3 figures (*example*: CPr, CnF, etc) or 2 figures (AO).

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

19.1 COMPRESSOR (folder with label “CPr”)

diF **diF**ferential
Compressor relay activation differential; the *compressor* will stop when it reaches the setpoint value configured (as instructed by regulation probe) and restarts at a temperature equal to the setpoint plus the value of the differential.
Related *parameters*: SEt

HSE **H**igher **SE**tpoint
Maximum value that can be assigned to the setpoint.
Related *parameters*: *HSE*, *LSE*, dro

LSE **L**ow **SE**tpoint
Minimum value that can be assigned to the setpoint.
Related *parameters*: *HSE*, *LSE*, dro
N.B: The two setpoints are interdependent: *HSE* (highest setpoint) cannot be less than the *LSE* (lowest setpoint) and vice versa.

OSP **O**ffset **S**et **P**oint
Temperature value to be added algebraically to the setpoint if reduced set has been enabled (Economy function). It can be activated from a key, function or digital input configured for this purpose.
Related *parameters*: H11..H14

Cit ***C**ompressor* m**I**nimum ON **t**ime
Minimum activation time for the *compressor* before it is disabled. If set at 0, it is not active.

CAt ***C**ompressor* m**A**ximum ON **t**ime)
Maximum activation time for the *compressor* before it is disabled. If set at 0, it is not active.

***COMPRESSOR* PROTECTION**

Ont **On t**ime *compressor*
Compressor start time in the event of faulty probe. If set at “1” with *OFt* at “0”, the *compressor* stays on; when *OFt* >0 it will run in duty cycle mode.
Related *parameters*: *OFt*

OFt **OF**F **t**ime *compressor*
Compressor switch off time in the event of a faulty probe. If set to “1” with *Ont* at “0” the *compressor* remains off whereas with *Ont* >00 it runs in duty cycle mode.
Related *parameters*: *Ont*
Based on the table, the (state “OUT”) output of the *compressor*/general behaves as follows:

Ont	*OFt*	OUT
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	Duty cycle *compressor*

dOn **d**elay at **O**n *compressor*
Delayed start. The parameter indicates that a protection is active on the relay actuations of the generic *compressor*. The time indicated must elapse between the request and the actual activation of the *compressor* relay.

dOF **d**elay after power **OF**F
Delayed stop. The parameter indicates that the protection is active on *compressor* relay actuations.
The time indicated must elapse between the *compressor* relay switching off and switching back on again.

dbi **d**elay **B**etween **(i)** power on
Delay between switch-ons; the time indicated must elapse between two subsequent switch-ons of the same *compressor*.

OdO **O**utput **D**elay from power **O**n
Delay in activating outputs after the controller is switched on or after a power failure.
0= not active.
Related *parameters*: *dOn*

dSC* Delay in activating *compressor*. Indicates the time after which the relay configured as *compressor* 2 will be activated in relation to the first *compressor*. If *compressor* 1 disables during this time, the call for *compressor* 2 will be cancelled.

***Deep Cooling Cycle* Function**

See the *Deep Cooling Cycle* Function section.
Related *parameters*: H01, *dit*

dCS* ***d**eep **C**ooling Cycle* **S**etpoint
Set point *deep cooling cycle*

tdc* **t**ime ***C**ooling* Cycle
Deep cooling cycle duration.

dcc* **d**elay ***C**ooling* **C**ycle
Defrost delay after *deep cooling cycle*.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model...only" and shown on a grey background.

19.2 HUMIDITY (folder with label “Hud”) – visible on model EWHT800 only.

HUMIDITY (*humidify*/*dehumidify*)

SPH **S**et **P**oint **H**umidity
Humidity setpoint. [*LSH* < ***SPH*** < *HSH*]
Related *parameters*: *HSH*, *LSH*

dFH **di**ffe**F**rential **H**umidity
Humidity setpoint differential band.

dbH **d**ifferential **b** **H**umidity
Humidity intervention semi-band.

HSH **H**igher **S**etpoint **H**umidity
Maximum value that can be assigned to humidity setpoint.

LSH **L**ower **S**etpoint **H**umidity
Minimum value that can be assigned to the humidity setpoint.

dEH ***dE****frost* **H**umidity
Humidity regulation during *defrost*.
n= Humidity NOT active during *defrost*.
y= Humidity active during *defrost*.

HEATING parameters

StH **S**etpoint **t**emperature **H**eat
Heat regulator temperature setpoint.

diH **di**fferential **H**eat
Differential band for *heating* regulator temperature setpoint.

db ***db***
Temperature intervention semi-band.

19.3 DEFROST (folders with label “dEF”)

Defrosting CONDITIONS

The controller will activate *defrost* in the following circumstances:

- the internal exchanger temperature is lower than the *defrost* end temperature set by the *dSt* parameter;
- *manual defrost*ing is not already activated (see); in this case the request for *automatic defrosting* will be cancelled.

Automatic defrosting

In this case, defrosting takes place at time intervals set by parameter *dit* (=0 defrosting will not take place at all).
If the parameter *dit dit*> 0 and defrosting conditions apply (see parameter *dSt*), defrosting will take place at fixed intervals and according to the parameter *dCt*.

Manual defrost

If the right conditions apply, when the *manual defrost* key is pressed or by digital input, the controller will start the *defrost* cycle.
If the previous conditions apply, *manual defrost* is always enabled with the exception of the following parameter configuration: *dCt* not equal to 3 and *dit* = 0.

dtY* ***d****efrost* **tY**pe
Type of *defrost*.
0 = electrical *defrost* (OFF Cycle *defrost*), or *compressor* stopped during *defrost*);
N.B: electrical *defrost* + air *defrost* in the case of *fans* in parallel with the *defrost* output relay.
1 = Cycle inversion defrosting (hot gas, or *compressor* on during *defrost*).
2 = Free mode *defrost* (independent of *compressor*).

dit ***d****efrost* **i**nterval **t**ime
Interval between the start of two subsequent defrosting cycles.
The unit of time for the 0...250 configuration *range* depends on the selection made in parameter **dt1**: if the parameter is not present, the unit of time is in hours.
This parameter is used in Automatic Defrosts at fixed intervals.
If it is set to 0, there is no automatic *defrost*. *Defrost* will NEVER be run.

dt1* ***D****efrost* **t**ime **1**
Unit of measure for duration of *defrost*: 0 = hours; 1 = minutes; 2=seconds

dt2* ***d****efrost* **t**ime **2**
Unit of measure of *defrost* interval: 0 = hours; 1 = minutes; 2=seconds

dCt ***d****efrost* **C**ounting **t**ype
Selection of count mode for *defrost* interval.

- 0 = *compressor* hours of operation (DIGIFROST® method); Defrosting active ONLY with the *compressor* on.
- N.B: *compressor* running time is counted separately from the internal exchanger probe (count active if internal exchanger probe is missing or faulty).
- 1= Running time in hours. *Defrost* counting is always active when the controller is on and starts at each power-on.
- 2=*Compressor* stopped. Every time the *compressor* stops, a defrosting cycle is performed according to parameter dty.
- 3=With RTC. *Defrost* at specific times set in *parameters dE1...dE8*, F1...F8

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

dOH ***d**efrost* **O**ffset **H**our
Delay time for the start of the first *defrost* from start-up of the controller.

dEt ***d**efrost* **E**ndurance **t**ime
Defrost time-out; determines the maximum duration of defrosting.

dSt ***d**efrost* **S**top **t**emperature
End of *defrost* temperature. Temperature measured by the *defrost* probe.

Configuring probe 3 as internal exchanger 2 probe – visible on *models* EWRC800/EWRC550 only)
The third probe can be used to control the *defrost* cycle of a second internal exchanger by configuring a relay output as the *defrost* relay for internal exchanger 2 (see *parameters* H21...H26).
To enable this function, you need to:

a) Configure probe Pb3 or Pb4 in control internal exchanger 2 *defrost* mode (H43=2).
b) Configure a relay output (see configuration *parameters* H21...H28=9) as a *defrost* relay for internal exchanger 2.
c) Define *defrost* mode by setting parameter H47.

End *defrost* mode in the event of a double internal exchanger is activated when both probes have reached or exceeded the respective end *defrost* setpoints (*dSt* for internal exchanger 1 and dS2 for internal exchanger 2). If one or both the probes encounter an error, end *defrost* is activated by a timeout.

dS2* ***d**efrost* **E**ndurance **2nd** internal exchanger
End of *defrost* temperature, internal exchanger 2.

dE2* ***d**efrost* **E**ndurance **2nd** internal exchanger
Defrost timeout, internal exchanger 2.

dPO ***d**efrost* at **P**ower **O**n
Determines if *defrost* cycle is activated at start-up of the controller:

- Y = *defrost* activated at power-on.
- n = *defrost* not activated at power-on.

tcd* **t**ime ***c**ompressor* for ***d**efrost*
Minimum duration of each *compressor* state before *defrost*.
During a *defrost*, the *compressor* must remain active if **tcd** >0 (positive value) or must stay inactive if **tcd** <0 (negative value) before activating the *defrost* relay. If **tcd** è = 0 the parameter is ignored.

Code* ***C**ompressor* **o**ff before ***d**efrost*
Time *compressor* in "Off" prior to *defrost* cycle. The *compressor* is not switched on if a *defrost* cycle is scheduled within the time indicated in the parameter.
0=Function excluded.

***Parameters* dE1..dE8 / F1..F8**
Parameters to set time of individual defrosts.

- Daily (dE1...dE8)
- Daily "weekends/public holidays" (F1..F8),

used by Day/Night regulator.
Parameters can be viewed only if:

- ***dit* = 0**
- ***dCt* = 3 (Real time clock)**
- **H48 = 1 (rtc option declared as present).**
- The controller has been switched off and switched back on again after the previous *parameters* were programmed.

dE1...dE8 **Setting weekday *defrost* times**
In hours and minutes (in the parameter table, the parameter is split into dEx_ore (hours), dEx_min (minutes), X=1..8.
If parameter ***dit*** (*defrost* interval) =0, ***dCt*** =3 and the **rtC** option (declared) is present, then *parameters* ***dE1...dE8*** allow you to set the hours and minutes.
Based on these values (and these values alone) will a *defrost* cycle start.
If you *don*'t want to *use* some of the *defrost* times (***dE1...dE8*)** exclude them as explained below:
Select the parameter (***dE1...dE8*)** that you want to exclude, then increase the value until 24 appears on the *display*, indicating that the parameter has been excluded.
Range dE1..dE8= 0...24, 24= parameter excluded).
Note that times do not have to be set in chronological order, e.g. :
dE1 = 12.25
dE2 = 06.05
dE3 = 18.30
...
IMPORTANT: Do not confuse *parameters* ***dE1...dE8*** with values **d0** ... **d7** in *folder* **nAd** used for the Day/Night regulator.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

F1...F8 **Setting weekend/public holiday *defrost* times**
In hours and minutes (in the parameter table, the parameter is split into Fx_ore (hours), Fx_min (minutes), X=1..8.
If parameter ***dit*** (*defrost* interval) is ***dit*** =0, ***dCt*** =3 and the **RTC** option (declared) is present, then *parameters* **F1** ... **F8** allow you to set the hours and minutes. Based on these values (and these values alone) will a *defrost* cycle start.
If you *don*'t want to *use* some of the *defrost* times (**F1** ... **F8)** exclude them as explained below:
Select the parameter (**F1...F8)** in *folder* **Fd** that you want to exclude then increase the value until 59 appears on the *display*, indicating that the parameter has been excluded.
Range F1..F8= 0...59, 59= parameter excluded).
Note that times do not have to be set in chronological order, e.g. :

- **F1** = 12.25
- **F2** = 06.05
- **F3** = 18.30

19.4 FANS (folder with label “FAn”)

FPt* **F**an **P**arameter **t**ype
Determines if “*FSt*” and “Fot” are expressed as absolute values or in relation to the setpoint.
0=Absolute value; 1=In relation to setpoint
Related *parameters*: *FSt*, Fot

FSt **F**an **S**top **t**emperature
Fan stop temperature; when the internal exchanger probe reads a value that is higher than the setpoint, the *fans* will stop.
The value can be positive or negative and, depending on parameter **FPt** can represent the temperature as an absolute value or relative to the Setpoint.
Related *parameters*: FPt

Fot* **F**an **o**n start **t**emperature
Fan start temperature. If the temperature read by the internal exchanger probe is lower than the setpoint, the *fans* stay off.

FAd **FA**n **d**ifferential temperature
Start fan intervention differential (see *parameters* “*FSt*” and “Fot”).
Related *parameters*: *FSt*, Fot

Fdt **F**an **d**elay **t**ime
Delay starting internal exchanger *fans* after *defrost* cycle.

dt **d**rainage **t**ime
Drip time.
After a *defrost* cycle, the *fans* and *compressor* remain off for the time set in this parameter.

dFd ***d**efrost* **F**an **d**isable
To select or exclude the internal exchanger *fans* during *defrost*.
y=yes (*fans* excluded); n=no

FCO **F**an ***C**ompressor* **O**FF
To select block *fans* when the *compressor* is OFF (or not).

- y = *fans* active (with thermostat control; depending on the value of the *defrost* probe, see parameter “*FSt*”);
- n = *fans* off;
- dc = duty cycle (via *parameters* “Fon” and “FoF”).

Fod* **F**an **o**pen **d**oor
To select block *fans* (or not) when the door is opened and to start them up (if they were on) when the door is closed.
n=fan lock; y=*fans* unchanged

FdC* **F**an **d**elay ***C**ompressor* off
Fan switch off delay time after *compressor* stop. In minutes. 0= function excluded

FoF*/Fon* **F**an **on** in duty cycle / **F**an **o**ff in duty cycle
Fan ON/OFF time in duty cycle.
Use of *fans* in duty cycle mode; valid for *FCO* = dc

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

External exchanger fans

This regulator is associated to probe Pb3/Pb4 (see) and features:

- Activation setpoint
- Operational differential
- Exclusion of *fans* during *defrost*
- Activation delay after *defrost*

Programming a digital output as *external exchanger fans* (H21...H28=12), the output will behave as follows:

Output value	Value Pb3
ON	= SCF
OFF	= SCF - dCF

If probe Pb3 is not inserted and alarm *E3* occurs, the regulator will remain on during the *defrost* cycle.
Probe 3 can be excluded and in this instance, this loss of connection to the controller will not result in an error message.
N.B: The output is OFF during drip time.
N.B: If a digital output is programmed as "*external exchanger fans*" (H21...H28 =12), parameter SA3 will always be an absolute value, regardless of the value set in parameter Att.

19.5 ANALOGUE OUTPUT (folder with label “AO”)

F00* *Analogue output configuration*
0= disabled
1= PWM
2= 4...20mA
3= 0...20mA
4= 0...10Vdc
5= relay output (see *parameters* H21...H28= 12)
Related *parameters*: H21...H28

F01* Analogue output function mode
H= *Heating*; C=*Cooling*

F02* Select probe for external exchanger fan regulation
0= no probe; 1= with probe (Pb3 or Pb4)
Related *parameters*: H43-H44 (=3)

F03 External exchanger fan *pick-up* time

F04* External exchanger fan phase displacement - in the event of PWM control.
Phase displacement values to pilot Triac with cut-off in the event of inductive loads.
Related *parameters*: F00 (=1)

F05* TRIAC command *pulse length* (proportional) – in the event of PWM control.
Pulse length to pilot TRIAC.
Related *parameters*: F00 (=1)

F06 Minimum external exchanger fan speed in *Heating/Cooling*.

F07 Average external exchanger fan speed in *Heating/Cooling*.

F08 Maximum external exchanger fan speed in *Heating/Cooling*.

F09 Minimum setpoint for external exchanger fan speed in *Heating/Cooling*.

F10 External exchanger fan speed differential in *Heating/Cooling*.

F11 Proportional band for external exchanger fan speed in *Heating/Cooling*.

F12 Maximum hysteresis for external exchanger fan speed in *Heating/Cooling*.

F13 Hysteresis cut-off for external exchanger fan speed in *Heating/Cooling*.
N.B: if F00=5 (Probe Pb5) has no effect.
Related *parameters*: F00 (=5 has no effect).

F14 External exchanger fan speed cut-off differential in *Heating/Cooling*.

F15* Exclude *external exchanger fans* during *defrost* cycle.

- 0 = fan disabled
- 1 = fan enabled

F16* Enable external exchanger fan on with *compressor* off.

- 0 = Fan off with *compressor* off (OFF).
- 1 = Fan on with *compressor* off (OFF).

F17 Start *external exchanger fans* delay after *defrost*.

F18 Bypass time for external exchanger fan cut-off.

F19 External exchanger fan *preventilation* time in *Heating/Cooling*.

F20 Fan state during regulation probe error.

- 0 = fan off (OFF).
- 1 = fan on (ON).

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

19.6 VENTILATION FANS (folder with label “ACF”) - visible on model EWHT800 only.

Ventilation *fans*

COn **C**hange Fan **ON**
ON time for ventilation fan regulator output.

COF **C**hange Fan **OF**F
OFF time ventilation fan regulator output.

dt3* Ventilation fan regulator time standard unit of measure.
0=hours; 1=minutes; 2=seconds;

COn	*COF*	OUT
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	Duty cycle

Anti-stratification *fans*

SFd **S**tratification **F**an(s) **d**ifferential
Temperature delta for stratification *fans*.

diS **S**tratification **F**an(s) **d**ifferential
Temperature differential for stratification *fans*.

SOn **S**tratification Fan(s) **On**
ON time for stratification fan regulator output.

SOF **S**tratification Fan(s) **OF**F
ON time for stratification fan regulator output.

19.7 CLIMATE PROFILE PROGRAM (folder with label “SP9”) – visible on model EWHT800 only.

The program manages 8 steps, each composed of 10 *parameters*.
The description is limited to the first step. The same procedure applies to all other steps.
N:B: x=1...8 (1P0, 1P1,..., 1P8, 2P0, 2P1,...)
***Example* xP0: x = step number, 0= parameter number)**

xP0_H*, XP0_M* Step activation delay
In hours and minutes (in the parameter table, the parameter is split into xP0_H (hours), xP0_M (minutes).
Related *parameters*: xP8

xP1_H*, xP1_M* Step duration
In hours and minutes (in the parameter table, the parameter is split into xP1_H (hours), xP1_M (minutes).

xP2* Regulator on for humidity regulation step

- *diS*= Disabled
- nE= *neutral zone* (*Humidify* and *Dehumidify*)
- HU = *Humidify*
- *dEH*= *Dehumidify*

xP3* Regulator on for temperature

- *diS*= Disabled
- nE= *Neutral zone* (*Heating/Cooling*)
- H= *Heating*
- C= *Cooling*
- HC= *Heating/Cooling*

xP4* Humidity setpoint SP3
Related *parameters*: *LSH*, *HSH*

xP5* Temperature setpoint SP1
If XP3=HC It is not visible.
Related *parameters*: *LSE*, *HSE*

xP6* Temperature setpoint SP2
Visible if XP3=H or HC
Related *parameters*: *LSE*, *HSE*

xP7* Enable AUX relay
n= not active y = active

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model...only" and shown on a grey background.

xP8* End of step mode

- 1=End of program (stand by mode)
- *2=Go to next step and maintain current setpoint (the current Setpoint will be displayed on the main *menu*).
- *3=Go to the next step and wait for the new setpoint (no regulation) (the current Setpoint will NOT be displayed on the main *menu*).
- 4=Go back to start of step.
- 5=Go back to step defined in parameter xP9.
- 6=Unlimited duration, maintain the setpoint.

* IMPORTANT! Parameter **7P8** (or x=7, step number 8 – see xP9) present in the last step of the program makes it impossible to configure values 2 and 3 (there is no next step).
Related *parameters*: xP9

xP9* Step number to go back to.
Defines which step to go back to if parameter xP8 is set at 5.
N.B. 0= step 1, 1= step 2, ...7= step 8.
Related *parameters*: xP8=5

19.8 ALARMS (folder with label "ALr")

Att* **A**larm **t**ype
Parameters "*HAL*" and "*LAL*" mode, i.e. the absolute temperature value or differential in relation to the setpoint.
0 = absolute value; 1 = relative value.
Related *parameters*: *HAL*, *LAL*

AFd **A**larm **diF**ferential
Alarm activation differential
Related *parameters*: *HAL*, *LAL*

HAL **H**igh **A**Larm
High (temperature) alarm.
Temperature value (the distance from the setpoint or absolute value based on Att), which when exceeded triggers an alarm signal.
See High/Low Alarm Diagram.
Related *parameters*: Att, *LAL*

LAL **L**ow **AL**arm
Low (temperature) alarm.
Temperature value (the distance from the setpoint or absolute value based on Att). When temperature read is lower than this value, an alarm signal is triggered.
See High/Low Alarm Diagram.
Related *parameters*: Att, *HAL*

PAO **P**ower ON **A**larm **O**verride
Alarm exclusion time after the controller is switched on following a power failure.

dAO ***d**efrost* **A**larm **O**verride
Alarm exclusion time after *defrost*
Related *parameters*: *tAO*

OAO* Delay signalling high/low temperature alarm after the disabling of the digital input (door closed).
Related *parameters*: *LAL*, *HAL*

tdO* **t**ime out **D**oor **O**pen
Timeout after the alarm signal generated after the disabling of the digital input (door open).
Related *parameters*: H11...H14 = 4 (configured as door switch)

tAO **t**emperature **A**larm **O**verride
Delay signalling temperature alarms
Related *parameters*: *LAL*, *HAL*

RH alarms – visible on model EWHT800 only.

AtH* **A**larm **t**ype **H**umidity
HHA and *LHA* parameter mode
An absolute humidity value or differential in relation to the setpoint.
0 = absolute value; 1 = relative value.
Related *parameters*: *HHA*, *LHA*

HHA **H**igh **H**umidity **AL**arm
Maximum humidity alarm threshold
Humidity value (the distance from the setpoint or absolute value based on AtH), which when exceeded triggers an alarm signal.
See High/Low Alarm Diagram.
Related *parameters*: AtH, *LHA*

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

LHA **L**ow **H**umidity **AL**arm
Minimum humidity alarm threshold
Low (temperature) alarm.
Humidity value (the distance from the setpoint or absolute value based on Att). When humidity read is lower than this value, an alarm signal is triggered.
See High/Low Alarm Diagram.
Related *parameters*: *HHA*, AtH

AdH **A**larm **d**iFferential **H**umidity
Humidity alarm intervention differential.
Related *parameters*: *HHA*, *LHA*

AOH **A**larm **O**verride **H**umidity
Humidity alarm signal delay time

PAH **P**ower ON **A**larm Override **H**umidity
Alarm exclusion time after the controller is switched on following a power failure.

OAH High/low humidity alarm signal delay after door closed.

dAt* ***D****efrost* **A**larm **t**ype
Alarm signalling end of *defrost* due to timeout.
n=Alarm not enabled. y=Alarm enabled.

rLO* **r**egulator **LO**cked
Regulators blocked by external alarm:
- 0= No resources blocked.
- 1= *Compressor* and *defrost* blocked.
- 2= *Compressor*, *defrost* and fan blocked.

Related *parameters*: H11...H14 = 5 (configured as external alarm).

AOP* **A**larm **O**utput **P**olarity
Alarm output polarity:
- 0 = alarm active and output disabled.
- 1 = alarm active and output enabled.

Related *parameters*: H21...H28 = 4 (configured as alarm).

PbA* **P**ro **B**e **A**larm
Configuration of temperature alarm on probe 1 and/or 3:
0=Probe 1 (thermostat control).
1=Probe 3 (*display*).
2=Probes 1 and 3 (thermostat control and *display*).
3=Probes 1 and 3 (thermostat control and *display*) with external threshold.

SA3* **S**etpoint **A**larm **3**
Alarm setpoint probe 3

dA3* **D**iFferential **A**larm **3**
Probe 3 alarm differential.

tA3* (delay) **t**ime **A**larm **3**
Probe 3 alarm signal delay

ArE* **A**larm **r**elay **E**nable
Enables alarm relay in the event of probe 3-related alarms:
- 0= Alarms not enabled in the event of alarms/errors regarding probe 3.
- 1 = Enables alarm relay in the event of alarms/errors regarding all probes.
- 2= Enables alarm relay ONLY in the event of alarms/errors regarding probe 3.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

19.9 LIGHT AND DIGITAL INPUTS (folder with “Lit” label)

(*) only if *digital inputs* are configured as door switch (H11 or H12=4).

dSd* Enables light relay from door switch
- n= door open does not switch on light.
- y= door open switches on light (if previously off).

dLt* **D**elay **L**ig**ht**
Delay switching off relay configured as light after door is closed.
N.B: valid if parameter dSd has been set to switch on light when door opens (if dSd=y).

OFL* **Of**f **L**ight
Disable light relay even with “dLt” disable delay enabled.

dOd* (°) Digital input to switch off utilities.
n=Utilities not switched off; y=Utilities switched off.

dAd* **D**elay **A**ctivation **D**igital input
Delay activating *digital inputs* DI1, DI2.

di3* **D**elay Activation digital input **3** 4
Delay activating *digital inputs* DI3, DI4.

diU* **D**elay **A**ctivation digital input **U** .M.
Unit of measure for *digital inputs* DI3 and DI4 activation delay.
0= minutes; 1=seconds.
RelateD *parameters*: di3

dOA* (°)Action forced by digital input.
- 0=Nothing activated.
- 1=*Compressor* activated.
- 2=*Fans* activated
- 3=*Compressor* and *fans* activated.

PEA* Enable forced action from door switch and/or external alarm.
- 0=Function disabled.
- 1=Associated to door switch.
- 2=Associated to external alarm.
- 3=Associated to door switch and/or external alarm.

dCO* (°)Delay in activating *compressor* after door opened.

dFO* (°)Delay activating *fans* after door opened.

PEn* Number of errors allowed per high/low pressure switch input.

PEI* High/low pressure switch error count interval.

19.10 NIGHT & DAY REGULATOR (folder with label “nAd”)

If the Night & Day regulator is enabled (by key or DI), defrosting can be managed on week days, weekends and public holidays (see *parameters* dE1...dE8, *F1...F8*): the *defrost* cycles to be activated can be set using parameter *E3* for each day.
If the Night & Day regulator has not been enabled, only weekday defrosts *dE1...dE8* will be run.

Folder comprising 7 sub-folders: d0, d1, d2, d3, d4, d5, d6 and d7* each of which contain the following *parameters*:

E0 *Functions* enabled during events;
0=event management disabled.
1=enable reduced set.
2=enable reduced set+light.
3=enable reduced set+light+aux.
4=enable stand-by.

E1 Hours/minutes for start of event. Set event start time based on value of *E0*.
In hours and minutes (in the parameter table, the parameter is split into *E1*_ore (hours), *E1*_min (minutes).

E2 Duration of event. Set event duration based on value of *E0*.
In hours.

E3 Enables *defrost* on weekdays or weekends/public holidays:
0=Weekdays; 1=Weekends/public holidays.
N.B: This regulator can be enabled from a key (see *parameters* H31...H37=11) or by digital input (see *parameters* H11...H14=4).
*N.B: d0= Sunday, d1= Monday, ..., d6=Saturday
d7= Every Day, i.e. a *daily event*.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model...only" and shown on a grey background.

19.11 COMMUNICATION (file with label “Add”)

PtS* **P**ro**t**ocol **S**election
Protocol selection
t=Televis; d=Modbus

dEA* **dE**vice **A**ddress
Controller index within the family (valid values from 0 to 14).

FAA* **FA**mily **A**ddress
Controller family (valid values from 0 to 14).
The value pair FAA and dEA represents the network address of the controller and is indicated in the format "FF.DD" (where FF=FAA and DD=dEA).

PtY* **P**ari**tY** bit Modbus
Modbus parity bit:
n=None; E=Even; o=Odd.

19.12 DISPLAY (folder with “diS” label)

LOC **LOC**k keyboard
Keypad lock. You will still be able to open parameter programming and alter *parameters*, including the state of this parameter if you need to unlock the keypad.
y = Yes (keypad locked); n = No.

PA1 **PA**ssword **1 (USr)**
When enabled (value other than 0), it constitutes the access key for user level (USr) *parameters*.

PA2* **PA**ssword **2 (InS)**
When enabled (value other than 0), it constitutes the access key for installer level (Ins) *parameters*.

PA3* **PA**ssword **3 (HCP)**
When enabled (value other than 0), it constitutes the access key for the HACCP alarm reset function.

ndt **n**umber ***D**isplay* **t**ype
Read-out with decimal point.
n= No decimal point (integers only); y= With decimal point.

ndH **n**umber ***D**isplay* **H**umidity – visible on model EWHT800 only.
Humidity value read-out.
int= integer; dec = decimal; 05d= half numbers.

RH log* **RH%** – visible on model EWHT800 only.
Activation of RH symbol on B *display*.
n= no (RH symbol off); y= Yes (RH on).

CA1* **CA**libration probe **1**
Calibration probe 1. Temperature value to be added to the value read by probe 1 in the modes indicated in parameter CA.

CA2* **CA**libration probe **2**
Calibration probe 2. Temperature value to be added to the value read by probe 2 in the modes indicated in parameter CA.

CA3* **CA**libration probe **3**
Calibration probe 3. Temperature value to be added to the value read by probe 3 in the modes indicated in parameter CA.

CA4* **CA**libration probe **4** – visible on *models* EWHT800/EWRC800 only.
Calibration probe 4. Temperature value to be added to the value read by probe 3 in the modes indicated in parameter CA.

CA5* **CA**libration probe **5**
Calibration probe 5. Temperature value to be added to the value read by probe 3 in the modes indicated in parameter CA.
N.B.: Unit of measure CA1...CA4 in °C/°F; CA5 number.

CA* **CA**libration intervention
Activation of offset on read-out, thermostat control or both:

- 0= Only temperature shown is modified.
- 1= Only the temperature used by regulators and not the read-out (which remains unaltered) is modified.
  2= Temperature read-out is modified which is also the one used by regulators.

LdL* **L**ow ***D**isplay **L**abel*
Lowest value that can be displayed.
The lowest probe value that can be displayed.

HdL* **H**igh ***D**isplay **L**abel*
Highest value that can be displayed.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

ddL* ***D**efrost **D**isplay* **L**ock
Read-out during *defrost*:
0= Shows value read by thermostat control probe.
1= Shows the value read at start of *defrost* cycle until the setpoint is reached.
2= Shows *label* "deF" during *defrost* until the setpoint is reached (or when Ldd elapses).

Ldd* **L**ock ***D**efrost* **D**isable
Display lock disabling timeout (*con* ddL=2) when *defrost* lasts too long.

dro* ***D**isplay* **r**ead- **o**ut
Selects °C or °F to *display* temperature values:
0= °C 1= °F
Configuring this parameter as indicated, temperatures read by the probes can be displayed in degrees centigrade or degrees Fahrenheit.
N.B.: altering this parameter from °C to °F or vice versa does not alter setpoint, differential values etc. Hence all temperature values set will have to be updated.
***Example*, modifying a setpoint of 10°C to a °F read-out creates a new setpoint of 10°F and not 50°F!**

ddd* ***D**efault **D**isplay* **(d)**
Value to be shown on PV *display*:
0= Set point; 1= Probe 1 (thermostat control); 2= Probe 2 (internal exchanger); 3= Probe 3 (*display*)

dd2* ***D**efault **D**isplay* **(2)**
Value to be shown on SV *display*:
0= Set point; 1= RTC; 2=Probe 5

19.13 HACCP ALARM PARAMETERS (folder with label "HAC")

Shi* **S**et **H**igh **I**mmediate HACCP.
High temperature "immediate" alarm signalling limit: when the temperature of the thermostat control probe shown is outside the control *range* set by the value "SHi", an HACCP alarm is immediately generated and the *LED*/(alarm relay) for parameter H50 comes on (see).

Sli* **S**et **L**ow **I**mmediate HACCP.
The differential after resetting an alarm is always 0.1 °C.
High temperature "immediate" alarm signalling limit: when the temperature of the thermostat control probe shown is outside the control *range* set by the value "SLi", an HACCP alarm is immediately generated and the *LED*/(alarm relay) for parameter H50 comes on (see).
The differential after resetting an alarm is always 0.1 °C.

SHH* **S**et **H**igh **H**ACCP.
Maximum HACCP alarm signals threshold: when the temperature of the thermostat control probe shown is outside the control *range* set by the value "SHH" for longer than the time set in parameter "drA", an HACCP alarm is generated and the *LED*/(alarm relay) for parameter H50 comes on (see).
The differential after resetting an alarm is always 0.1 °C.

SLH* **S**et **L**ow **H**ACCP.
Minimum HACCP alarm signals threshold: when the temperature of the thermostat control probe shown is outside the control *range* set by the value "SLH" for longer than the time set in parameter "drA", an HACCP alarm is generated and the *LED*/(alarm relay) for parameter H50 comes on (see).
The differential after resetting an alarm is always 0.1 °C.

drA* **D**elay **r**ecord **A**larm.
Minimum time in critical zone required for event to be recorded: once this time has elapsed, an HACCP alarm is signalled and memorised.

drH* **D**elay **r**egister **H**ACCP. HACCP alarms reset time since last reset: this is the time that must elapse after the controller has been switched on before any alarms previously recorded are automatically cleared.
If the parameter is set at 0, the automatic reset is inhibited and only the manual reset is enabled.

H50* HACCP alarms can be saved with or without enabling of alarm relay:
- 0=HACCP alarms disabled.
- 1=HACCP alarms enabled with alarm relay NOT enabled.
- 2=HACCP alarms enabled with alarm relay enabled.

H51* Time HACCP alarm recording is excluded (key or D.I.).

H52* Probe enabled to signal HACCP alarms:
- 1=Probe 1.
- 3=Probe 3.

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model...only" and shown on a grey background.

19.14 CONFIGURATION PARAMETERS (folder with label “CnF”)

H01* Enable deep *cooling* function.
n=Not enabled; y=Enabled;

H02* Function activation time from keypad (with the exception of *functions* AUX and LIGHT which have a fixed delay of 0.5 seconds).

H03* Bottom limit for current/voltage input.

H04* Upper limit for current/voltage input.

H05* Type of humidity regulation – visible on model EWHT800 only.
- *diS*= Disabled
- nE= *Neutral zone* (*humidify* and *dehumidify*).
- HU= *Humidify*
- *dEH*= *Dehumidify*

H06* Key or digital input configured as AUX/LIGHT active when controller on stand-by.
n=Not active. y=Active.
N.B.:
- EWHT800: activate LIGHT key when controller is on stand-by.
- EWRC800/550: activate LIGHT key and AUX key when the controller is on stand-by.

H07* Type of temperature regulation
- *diS*= Disabled
- nE= *Neutral zone* (*Heating/Cooling*)
- H= *Heating*
- C= *Cooling*
- HC= *Heating/Cooling*

H08* *Standby* function mode:
- 0=Only *display* switches off.
- 1=*Display* on, regulators and alarms off.
- 2=*Display* off, regulators and alarms off
- 3=PV *display* with OFF *label* and regulators blocked.

H09* *Humidify* type – visible on model EWHT800 only.
- 0= *Dehumidify* relay.
- 1= *Dehumidify* relay + *compressor*
- 2= Without *dehumidify* relay (*heating* and *cooling*).

H11*...H14* *Configuration of digital inputs*/polarity

	Value	Description
+	Positive	Active when contact open
-	Negative	Active when contact closed

		Notes		
Value	**Description**	***EWHT800LX***	***EWRC800LX***	***EWRC550LX***
0	Input disabled	●	●	●
±1	*Defrost*	Toggle		
±2	Reduced set	●	●	●
±3	AUX	●	●	●
±4	Door switch	●	●	●
±5	External alarm	●	●	●
±6	Disable HACCP alarm recording	HACCP *models*		
±7	Stand-by (ON-OFF)	●	●	●
±8	Maintenance request	●	●	●
±9	Low pressure switch	●	●	●
±10	High pressure switch	●	●	●
±11	General pressure switch	●	●	●
±12	Pre-*heating*	●	●	●
±13	Force internal exchanger *fans*	●	●	●
±14	Activate light relay	●	●	●
±15	Activate ventilation fan relay	●	N.A.	N.A.
±16	Enable/disable Night & Day *functions*	●	●	●
±17	*Deep cooling cycle*	●	●	●
±18	Panic alarm	N.A.	●	●
±19	Reset HACCP alarms	HACCP *models*		
±20	*Heating/cooling* mode	●	N.A.	N.A.
±21	START/STOP climate profile cycle, press and hold (H02) reset.	Toggle	N.A.	N.A

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

H21*...H28* Configurability of digital output 1...8
High voltage outputs (relays) are identified in the parameter table as OUT1...OUT8

		Notes		
Value	**Description**	***EWHT800LX***	***EWRC800LX***	***EWRC550LX***
0	Disabled	●	●	●
1	*Compressor* (*cooling*)	●	●	●
2	*Defrost*	●	●	●
3	*Fans*	●	●	●
4	Alarm	●	●	●
5	Aux	●	●	●
6	Stand-by	●	●	●
7	Light	●	●	●
8	Buzzer output	●	●	●
9	Internal exchanger 2	N.A.	●	●
10	*Compressor* 2	●	●	●
11	Ventilation *fans*	AUX1	N.A.	N.A.
12	*External exchanger fans*	If F00=5 (see *Analogue Output Configuration*) output activated in parallel with AO1		
13	*Humidify*	●	N.A.	N.A.
14	*Dehumidify*	●	N.A.	N.A.
15	*Heating*	●	N.A.	N.A.
16	Stratification *fans*	AUX2	N.A.	N.A.

H29* Configurability of buzzer output
0= Disabled. 1...7= Not used. 8=Buzzer output. 9...16= Not used.

H31* Configurability of UP key

H32* Configurability of DOWN key.

H33* Configurability of ESC key.

H34* Configurability of Power key. - FREE1

H35* Configurability of Light key. – FREE2

H36* Configurability of key: - FREE3

- EWHT800 AUX1/2
- EWRC800/550 AUX

H37* Configurability of key: - FREE4

- EWHT800 START-STOP/RESET
- EWRC800/550 Energy Saving/Night & Day

The UP, DOWN and ESC *keys* are identified in the parameter table as UP D OWN and ESC.
The other four *keys* are referred to in the *parameters table* as FREE1...4.

		Notes		
Value	**Description**	***EWHT800LX***	***EWRC800LX***	***EWRC550LX***
0	Disabled	●	●	●
1	*Defrost*	●	●	●
2	Auxiliary	N.A.	●	●
3	Reduced Set	●	●	●
4	Reset HACCP alarms	HACCP *models*		
5	HACCP alarms disabled	HACCP *models*		
6	Light	●	●	●
7	Stand-by	●	●	●
8	Maintenance request	●	●	●
9	Internal exchanger *fans* ON	●	●	●
10	Enable / disable Ventilation *fans*	●	N.A.	N.A.
11	Enable / disable Night and Day	●	●	●
12	DCC *Deep Cooling Cycle*	●	●	●
13	Aux1-2	●	N.A.	N.A.
14	Reduced Set + Night and day	●	●	●
15	Start Stop reset	●	N.A.	N.A.

H39* Select probe type Pb5 – visible on model EWHT800 only.
0,1,2= not used.
3= 4...20mA

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model... only" and shown on a grey background.

H41* Cold room probe **Pb1** inserted**.**
n=Not inserted. y=Inserted.

H42* Internal exchanger probe **Pb2** inserted**.**
n=Not inserted. y=Inserted.
If H43=3-1, regulation of the temperature differential between probes Pb3 and Pb1, in addition to regulation of probe Pb1, is enabled. In this way, to activate *compressor* regulation, one or both of the two conditions must be met (on Pb1 or Pb3-Pb1 differential). The differential is set in H44. To disable the *compressor*, both conditions must be met, so:
Output enabled if: Pb1>set+*diF*, or T delta (Pb3-Pb1) > H44+*diF*
Output not enabled if: Pb1<set e Delta T (Pb3-Pb1) < H44

H43* Probe Pb3 inserted.

H44* Probe Pb4 inserted – visible on *models* EWHT800/EWRC800 only.

H45* Probe Pb5 inserted.

H47* - Visible on *models* EWRC800/EWRC550 only.
Start *defrost* mode for *applications* with double internal exchanger:
0=*Defrost* is enabled by controlling only that the temperature of internal exchanger 1 is lower than the value set in parameter *dSt*.
1=*Defrost* is enabled, controlling that the readings from at least one of the two probes is below its end of *defrost* temperature (*dST* for internal exchanger 1 and dS2 for internal exchanger 2).
2=*Defrost* is enabled controlling that both probe values are below the relative end of *defrost* setpoints (*dSt* for internal exchanger 1 and dS2 for internal exchanger 2).

H48* RTC present.
n=Not present. y=Present.

H60* Select parameter vector
0=no vector selected. 1= vector 1, ..., 6= vector 6.
It has a subset of *parameters* which can be programmed in line with the type of configuration required for the installation. By setting H60, you can also select one of the six "sets" of pre-programmed *parameters*. If you do not want to enable any of the available sets and prefer to *use* the values in the *programming menu*, just set parameter H60 to 0.
The *parameters* for the vectors for each program are as follows:

		Program 1	Program 2	Program 3	Program 4	Program 5	Program 6
Parameter	**Description**	**H60 =1**	**H60 =2**	**H60 =3**	**H60 =4**	**H60 =5**	**H60 =6**
SEt	Regulation setpoint	0	2	-18	2	-18	5
diF	*Compressor* relay activation differential	2	2	2	2	2	2
LSE	Minimum value that can be assigned to the setpoint	-50	-5	-25	-5	-25	2
HSE	Maximum value that can be assigned to the setpoint	50	5	-15	5	-15	10
dSt	End of *defrost* temperature	6	10	15	10	15	10
FSt	Internal exchanger *fans* state when *compressor* is OFF	6	8	-5	8	-5	50
dtY	*Defrost* mode	0	1	1	0	0	0
dit	Interval been *defrost* cycles	6	6	6	6	6	6
dCt	Count mode for the defrosting interval.	1	1	1	1	1	1
dOH	Delay time for the start of the first *defrost* after controller powered on.	0	0	0	0	0	0
dEt	*Defrost* time-out	30	15	15	30	30	15
Fdt	Start internal exchanger *fans* delay after *defrost* cycle	3	1	2	1	2	0
dt	*Dripping* time	0	2	2	2	2	0
dPO	Start *defrost* command after power on	n	n	n	n	n	n
ddL	Lock *display* mode during *defrost*	1	0	0	0	0	0
dFd	Exclude internal exchanger *fans* during *defrost* cycle.	y	y	y	y	y	y

* is used to indicate *parameters* that are visible at installer level only (Ins).
Unless indicated otherwise, the parameter is visible for all modes; otherwise it will say "visible on model...only" and shown on a grey background.

rEL Controller version: read-only parameter.

tAb Reserved: read-only parameter.

19.15 COPY CARD (folder with label “Fpr”)

UL **U**p**L**oad

Transfer *parameters* from controller to *Copy Card*.

dL **D**own**L**oad

Transfer *parameters* from *Copy Card* to controller.

Fr **Fo**rmat.

Cancellation of all data on the *Copy Card*.

19.16 Parameter/Client Table

The tables below contain

- A summary description of all previously listed *parameters* along with values for the relative ranges, defaults and units of measure.
- All information required to read, write and decode all accessible resources in the controller via Param Manager and/or Modbus.

There are three tables:

- The 'Reference Guide' indicates visibility at USr/Ins level by *folder*/parameter type and model.
- The **parameter** table contains all device configuration *parameters* stored in the controller's non-volatile memory, including visibility.
- The ***client*** *table* includes all the I/O and alarm status resources available in the controller's volatile memory.

Description of columns:

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

MENU Indicates the *menu* containing the parameter concerned.

- USr/InS -> indicates that the parameter is visible in both the User and Installer menus.
- **InS** (in **bold)** -> indicates that the parameter is visible in the installer *menu* only.

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

VALUE PAR AdDRESS WHEN UTILIZING MODBUS PROTOCOL ONLY.
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 number after the point indicates the position of the most significant data bit in 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):

VAL PAR AdDRESS	*DATA SIZE*	Value	Content of register	
8806	WORD	1350	1350	(0000010101000110)
8806	Byte	70	1350	(00000101**01000110**)
8806,8	Byte	5	1350	(**00000101**01000110)
8806,14	1 bit	0	1350	(0**0**000010101000110)
8806,7	4 bit	10	1350	(00000**1010**1000110)

Important: when the register contains more than one data item, during the write operation proceed as follows:

- Read current register value.
- Modify the bits that represent the resource concerned.
- Write the register.

VIS PAR ADDRESS WHEN UTILIZING MODBUS PROTOCOL and PARAM MANAGER.
Same as above. In this case, the parameter visibility value is in the MODBUS register address.
By *default*, all *parameters* have:

- *Data size* 2 bit
- *Range* 0...3
- *UM.* number
- **Visibility** **0...3**
  - 0 = parameter not visible.
  - 1
  - 2 parameter visible at USr level **- see also *MENU*.**
  - 3 parameter visible at Usr/Ins level **- see also *MENU*.**

N.B: *parameters* and *folder* visibility can both be managed (See *Folder* table).
If *folder* visibility is modified, the new setting will apply to all *parameters* in the *folder*.
Always visible and modifiable, unless customised settings have been configured via serial.

N.B: as standard, the setpoint is indicated as a parameter, but it is visible

- **In controller: from State *Menu* (not visible for the Configuration *Menu*).**
- **From Param Manager as first parameter - with index 1.**

R/W WHEN UTILIZING MODBUS PROTOCOL ONLY.
Indicates the option of reading or writing the resource:

R Read-only resource.
W Write-only resource.
RW Read / write resource.

DATA SIZE

WHEN UTILIZING MODBUS PROTOCOL ONLY.
Indicates the size of the data in bits.

WORD	=	16 bit
Byte	=	8 bit
"n" bit	=	0…15 bit depending on value of "n"

CPL

WHEN UTILIZING MODBUS PROTOCOL ONLY.
When the field indicates "Y", the value read by the register requires conversion, because the value represents a number with a sign. In the other cases the value is always positive or null.
To carry out conversion, proceed as follows:

- if the value in the register is between 0 and 32,767, the result is the value itself (zero and positive values).
- If the value in the register is between 32,768 and 65,535, the result is the value of the register - 65,536 (negative values).

RANGE

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

DEFAULT

Indicates the factory-set value for the standard model of the controller.
N.B: N.A. indicates PARAMETER NOT VISIBLE in the controller.
N.B:

a) The value that appears on Param Manager is indicated in square brackets if it is different from the *label* that appears on the device. *Example*:

ndt	Read-out with decimal point.	n/y [0 … 1]	y[1]

b) *Parameters* in *folder* dEF dE1…dE8 are indicated in the table as dEx_ore, dEx_min and on the controller as
   a. dEx on the PV *display* (parameter *label*).
   b. 0:00 on the SV *display* (value dEx_ore: value dEx_min)
   c. N.B. x=1…8

c) *Parameters* in *folder* Prg xP0, xP1 are indicated in the table as xP0_H, xP0_M / xP1_H, xP1_M and on the controller as
   a. xP0, xP1 on the PV *display* (parameter *label*).
   b. 0:00 on the SV *display* (value xP0 / xP1_H (hours): value xP0 / xP1_M (minutes)
   c. N.B. x=1…8

d) Event /parameter E01 in *folder* nAd / sub-folders d0…d7 is indicated in the table as dx_ore (hours), dx_min (minutes) and on the controller as
   a. dx on the PV *display* (parameter *label*)
   b. 0:00 on the SV *display* (value dx_ore) : value dx_min (minutes))
   c. N.B. x=0…7

EXP

WHEN UTILIZING MODBUS PROTOCOL ONLY.
If = -1 the value read by the register is divided by 10 (value/10) to convert it into the values indicated in the *RANGE* and *DEFAULT* columns according to the unit of measure indicated in the **UM column.**
Example: parameter *HSE* = 50.0. Column *EXP* = -1:

- The value read by the controller /ParamManger is 50.0.
- The value read by the register is 500 --> 500/10 = 50.0

UM.

Unit of measure of values
WHEN UTILIZING MODBUS PROTOCOL ONLY.
Measurement unit for values converted according to the rules indicated in the *CPL* and *EXP* columns.

19.16.1 'Reference Guide' table

			Visibility folders/*parameters* ● = YES N.A. = NOT AVAILABLE – Parameter / *Folder* NOT available		Visibility folders/*parameters* ● = YES N.A. = NOT AVAILABLE – parameter / *folder* NOT available		
					Model		
Folder Label	**Meaning Acronym (*label*)**	***Parameters***	**User *Menu* USr**	**Installer *Menu* inS**	**EWHT 800LX**	**EWRC 800LX**	**EWRC 550LX**
CPr	***Com*Pressor**	*Compressor*	●	●	●	●	●
	Deep Cooling Cycle	*Deep Cooling Cycle*	N.A.	●	●	●	●
Hud	**Hu**mi**D**ity	Humidity	●	●	●	N.A.	N.A.
	Heating	*Heating*	●	●	●	N.A.	N.A.
dEF	***dEF*rost**	*Defrost*	● (§)	●	●	●	●
		Defrost Internal exchanger 2	N.A.	●	N.A.	●	●
		Defrosts weekdays/weekends/public holidays	N.A.	●	● *Models* with RTC	● *Models* with RTC	● *Models* with RTC
FAn	**Fa**n(s)	Internal exchanger *fans*	● (§)	●	●	●	●
		External exchanger fans	● (§)	●	●	●	●
AO	**A**nalogue **O** utput	Analogue output	● (§)	●	●	●	●
ACF	**A**ir **C**hange **F**an(s)	Ventilation *fans*	● (§)	●	●	N.A.	N.A.
		Anti-stratification *fans*	N.A.	●	●	N.A.	N.A.
Prg	SteP	Climate profile program	N.A.	●	●	N.A.	N.A.
ALr	**AL**a**r**ms	Alarms	● (§)	●	●	●	●
		RH (humidity) alarm	N.A.	●	●	N.A.	N.A.
Lit	**LI**g**h**t	Light	N.A.	●	●	●	●
nAd	**N**ight **A**nd **D**ay	Night and day	●	●	● *Models* with RTC	● *Models* with RTC	● *Models* with RTC
Add	**Add**ress	Serial address	N.A.	●	●	●	●
diS	***diS*play**	*Display*	● (§)	●	●	● *ndH*, RH N.A.	● *ndH*, RH, CA4 N.A.
HAC	**HAC**CP	HACCP	N.A.	●	● HACCP *models*	● HACCP *models*	● HACCP *models*
CnF	**C**on**F**iguration	Configuration	N.A.	●	● H39, H47, H60 N.A.	● H05, H09 N.A.	● H05, H09, H21...H23, H44, N.A.
FPr	**F**ast **Pr**ogramming (*Copy card*)	Fast programming of *parameters* (*Copy Card*)	●	●	●	●	●

N.B
● Indicates that all *parameters* in the selected *folder* are visible - with the exception of those indicated - see *parameters table*.
● (§) indicates that only some *parameters* in the selected *folder* are visible under the User (Usr) *menu* – see *parameters table*.

19.16.2 Parameters Table

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
	USr/InS	SEt	**16386**	RW	Regulation setpoint	WORD	Y	*LSE* ... *HSE*	0	0	0	-1	°C/°F
CPr	USr/InS	*diF*	**16388**	RW	Setpoint differential	WORD	Y	0 ... 30.0	2.0	2.0	2.0	-1	°C/°F
CPr	USr/InS	*HSE*	**16390**	RW	Maximum value that can be assigned to setpoint	WORD	Y	*LSE* ... HdL	50.0	50.0	50.0	-1	°C/°F
CPr	USr/InS	*LSE*	**16392**	RW	Minimum value that can be assigned to setpoint	WORD	Y	LdL ... *HSE*	-50.0	-50.0	-50.0	-1	°C/°F
CPr	USr/InS	*OSP*	**16394**	RW	Set point offset	WORD	Y	-30.0 ... 30.0	0.0	0.0	0.0	-1	°C/°F
CPr	USr/InS	*Cit*	**49270**	RW	Minimum *compressor* output activation time	WORD		0 ... 255	0	0	0		min
CPr	USr/InS	*CAt*	**49271**	RW	Maximum *compressor* output activation time	WORD		0 ... 255	0	0	0		min
CPr	USr/InS	*Ont*	**49272**	RW	*Compressor* output ON time in the event of a faulty regulation probe	WORD		0 ... 255	10	10	10		min
CPr	USr/InS	*OFt*	**49273**	RW	*Compressor* output OFF time in the event of a faulty regulation probe	WORD		0 ... 255	10	10	10		min
CPr	USr/InS	*dOn*	**49274**	RW	*Compressor* output activation delay after request	WORD		0 ... 255	2	2	2		sec
CPr	USr/InS	*dOF*	**49275**	RW	*Compressor* output activation delay after switch off	WORD		0 ... 255	0	0	0		min
CPr	USr/InS	*dbi*	**49276**	RW	Delay between two successive switch-ons of the *compressor* output	WORD		0 ... 255	2	2	2		min
CPr	USr/InS	*OdO*	**49277**	RW	Delay activating outputs after power-on	WORD		0 ... 255	0	0	0		min
CPr	**InS**	dSC	**49278**	RW	*Compressor* activation delay	WORD		0 ... 255	0	0	0		sec
CPr	**InS**	dCS	**16396**	RW	Deep *cooling* set point	WORD	Y	-302.0 ... 1472.0	0	0	0	-1	°C/°F
CPr	**InS**	tdc	**49279**	RW	Duration deep *cooling*	WORD		0 ... 600	10	10	10		min
CPr	**InS**	dcc	**49280**	RW	*Defrost* delay after deep *cooling*	WORD		0 ... 255	0	0	0		min
Hud	USr/InS	*SPH*	**16468**	RW	Humidity setpoint	WORD	Y	*LSH* ... *HSH*	20.0	N.A.	N.A.	-1	°R
Hud	USr/InS	*dFH*	**16470**	RW	Humidity setpoint differential band	WORD	Y	0.0 ... 50.0	0.0	N.A.	N.A.	-1	°R
Hud	USr/InS	*dbH*	**16472**	RW	Humidity intervention semi-band	WORD		0.0 ... 50.0	5.0	N.A.	N.A.	-1	°R
Hud	USr/InS	*HSH*	**16474**	RW	Maximum value that can be assigned to humidity setpoint	WORD	Y	*LSH* ... H04	100.0	N.A.	N.A.	-1	°R
Hud	USr/InS	*LSH*	**16476**	RW	Minimum value that can be assigned to the humidity setpoint	WORD	Y	H03 ... *HSH*	0.0	N.A.	N.A.	-1	°R
Hud	USr/InS	*dEH*	**49378**	RW	Humidity regulation during *defrost*	WORD		n/y [0 ... 1]	n [0]	N.A.	N.A.		flag
Hud	USr/InS	*StH*	**16462**	RW	Heat regulator temperature setpoint	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Hud	USr/InS	*diH*	**16464**	RW	Differential band for *heating* regulator temperature setpoint	WORD	Y	0 ... 50.0	0.0	N.A.	N.A.	-1	°C/°F
Hud	USr/InS	*db*	**16466**	RW	Temperature intervention semi-band	WORD		0 ... 50.0	2.0	N.A.	N.A.	-1	°C/°F
dEF	**InS**	dtY	**49281**	RW	*Defrost* mode	WORD		0 ... 2	0	0	0		num
dEF	USr/InS	*dit*	**49282**	RW	Interval been *defrost* cycles	WORD		0 ... 255	6	6	6		ore/min/sec
dEF	**InS**	dt1	**49283**	RW	Unit of measure for duration of *defrost*	WORD		0 ... 2	0	0	0		num

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
dEF	**InS**	dt2	**49284**	RW	Unit of measure of *defrost* interval	WORD		0 ... 2	1	1	1		num
dEF	USr/InS	*dCt*	**49285**	RW	*Defrost* interval count mode	WORD		0 ... 3	3	3	3		num
dEF	USr/InS	*dOH*	**49286**	RW	Start *defrost* cycle delay from request	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	*dEt*	**49287**	RW	*Defrost* timeout	WORD		1 ... 255	30	30	30		ore/min/ sec
dEF	USr/InS	*dSt*	**16398**	RW	End of *defrost* temperature	WORD	Y	-302.0 ... 1472.0	6.0	6.0	6.0	-1	°C/°F
dEF	**InS**	dS2	**16400**	RW	End of *defrost* temperature, internal exchanger 2	WORD	Y	-302.0 ... 1472.0	N.A.	8.0	8.0	-1	°C/°F
dEF	**InS**	dE2	**49288**	RW	*Defrost* timeout, internal exchanger 2	WORD		1 ... 255	N.A.	30	30		ore/min/ sec
dEF	USr/InS	*dPO*	**49289**	RW	Request start *defrost* at power on	WORD		n/y [0 ... 1]	n [0]	n [0]	n [0]		flag
dEF	**InS**	tcd	**16402**	RW	*Compressor* output enable/disable time before *defrost*	WORD	Y	-31 ... 31	0	0	0		min
dEF	**InS**	Cod	**49290**	RW	Time before *defrost* during which *compressor* output is not activated	WORD		0 ... 60	0	0	0		min
dEF	USr/InS	dE1_ore	**49409**	RW	Start time (hours) *defrost* no.1 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE1_min	**49410**	RW	Start time (minutes) *defrost* no.1 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE2_ore	**49411**	RW	Start time (hours) *defrost* no.2 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE2_min	**49412**	RW	Start time (minutes) *defrost* no.2 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE3_ore	**49413**	RW	Start time (hours) *defrost* no.3 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE3_min	**49414**	RW	Start time (minutes) *defrost* no.3 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE4_ore	**49415**	RW	Start time (hours) *defrost* no.4 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE4_min	**49416**	RW	Start time (minutes) *defrost* no.4 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE5_ore	**49417**	RW	Start time (hours) *defrost* no.5 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE5_min	**49418**	RW	Start time (minutes) *defrost* no.5 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE6_ore	**49419**	RW	Start time (hours) *defrost* no.6 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE6_min	**49420**	RW	Start time (minutes) *defrost* no.6 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE7_ore	**49421**	RW	Start time (hours) *defrost* no.7 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE7_min	**49422**	RW	Start time (minutes) *defrost* no.7 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	dE8_ore	**49423**	RW	Start time (hours) *defrost* no.8 weekday	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	dE8_min	**49424**	RW	Start time (minutes) *defrost* no.8 weekday	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F1_ore	**49425**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F1_min	**49426**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F2_ore	**49427**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F2_min	**49428**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F3_ore	**49429**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
dEF	USr/InS	F3_min	**49430**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F4_ore	**49431**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F4_min	**49432**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F5_ore	**49433**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F5_min	**49434**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F6_ore	**49435**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F6_min	**49436**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F7_ore	**49437**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F7_min	**49438**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
dEF	USr/InS	F8_ore	**49439**	RW	Start time (hours) *defrost* no.1 weekends/public holidays	WORD		0 ... 24	0	0	0		ore
dEF	USr/InS	F8_min	**49440**	RW	Start time (minutes) *defrost* no.1 weekends/public holidays	WORD		0 ... 59	0	0	0		min
FAn	**InS**	FPt	**49291**	RW	*FSt* parameter mode (absolute or relative)	WORD		0 ... 1	0	0	0		flag
FAn	USr/InS	*FSt*	**16404**	RW	Block internal exchanger *fans* temperature	WORD	Y	-302.0 ... 1472.0	6.0	6.0	6.0	-1	°C/°F
FAn	**InS**	Fot	**16406**	RW	Start internal exchanger *fans* temperature	WORD	Y	-302.0 ... 1472.0	-50.0	-50.0	-50.0	-1	°C/°F
FAn	USr/InS	*FAd*	**16408**	RW	Internal exchanger *fans* activation differential	WORD		1.0 ... 50.0	1.0	1.0	1.0	-1	°C/°F
FAn	USr/InS	*Fdt*	**49292**	RW	Start internal exchanger *fans* delay after *defrost* cycle	WORD		0 ... 255	0	0	0		min
FAn	USr/InS	*dt*	**49293**	RW	Drip time	WORD		0 ... 255	0	0	0		min
FAn	USr/InS	*dFd*	**49294**	RW	Exclude internal exchanger *fans* during *defrost* cycle	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
FAn	USr/InS	*FCO*	**49295**	RW	Internal exchanger fan state with *compressor* output OFF	WORD		n/y/dc [0 ... 2]	y [1]	y [1]	y [1]		flag
FAn	**InS**	Fod	**49296**	RW	Internal exchanger fan state when door open	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
FAn	**InS**	FdC	**49297**	RW	Internal exchanger fan switch off delay time after *compressor* disabled.	WORD		0 ... 99	0	0	0		min
FAn	**InS**	Fon	**49298**	RW	Internal exchanger fan ON time in duty cycle mode.	WORD		0 ... 255	0	0	0		min
FAn	**InS**	FoF	**49299**	RW	Internal exchanger fan OFF time in duty cycle mode.	WORD		0 ... 255	0	0	0		min
AO	**InS**	F00	**49389**	RW	*Analogue output configuration*	WORD		0 ... 5	4	0	0		num
AO	**InS**	F01	**49390**	RW	Analogue output mode	WORD		H/C [0 ... 1]	H	H	H		flag
AO	**InS**	F02	**49391**	RW	Select probe for external exchanger fan regulation	WORD		0 ... 1	1	1	1		num
AO	USr/InS	*F03*	**49392**	RW	Fan *pick-up* time	WORD		0 ... 60	10	10	10		sec
AO	**InS**	F04	**49393**	RW	Fan *phase shift*	WORD		0 ... 90	0	0	0		num
AO	**InS**	F05	**49394**	RW	TRIAC command *pulse length*	WORD		5 ... 40	5	5	5		num
AO	USr/InS	*F06*	**49395**	RW	Minimum external exchanger fan speed in *Heating/Cooling*	WORD		0 ... 100	30	30	30		°R

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
AO	USr/InS	*F07*	**49396**	RW	Average external exchanger fan speed in *Heating/Cooling*	WORD		0 ... 100	95	95	95		°R
AO	USr/InS	*F08*	**49397**	RW	Maximum external exchanger fan speed in *Heating/Cooling*	WORD		0 ... 100	100	100	100		°R
AO	USr/InS	*F09*	**16492**	RW	Minimum setpoint for external exchanger fan speed in *Heating/Cooling*	WORD	Y	-50.0 ... 99.9	30.0	30.0	30.0	-1	-
AO	USr/InS	*F10*	**16494**	RW	Maximum speed differential for external exchanger fan in *Heating/Cooling*	WORD		0 ... 99.9	10.0	10.0	10.0	-1	-
AO	USr/InS	*F11*	**49398**	RW	Proportional band for external exchanger fan speed in *Heating/Cooling*	WORD		0 ... 25.5	7.0	7.0	7.0	-1	-
AO	USr/InS	*F12*	**49399**	RW	Maximum hysteresis for external exchanger fan speed in *Heating/Cooling*	WORD		0 ... 25.5	2.0	2.0	2.0	-1	-
AO	USr/InS	*F13*	**49400**	RW	Hysteresis cut-off for external exchanger fan in *Heating/Cooling*	WORD		0 ... 25.5	2.0	2.0	2.0	-1	-
AO	USr/InS	*F14*	**49401**	RW	External exchanger fan cut-off differential in *Heating/Cooling*	WORD		0 ... 25.5	3.0	3.0	3.0	-1	-
AO	**InS**	F15	**49402**	RW	Exclude *external exchanger fans* during *defrost* cycle.	WORD		0 ... 1	1	1	1		num
AO	**InS**	F16	**49403**	RW	Enable external exchanger fan on with *compressor* off	WORD		0 ... 1	1	1	1		num
AO	USr/InS	*F17*	**49404**	RW	Start *external exchanger fans* delay after *defrost*	WORD		0 ... 59	0	0	0		min
AO	USr/InS	*F18*	**49405**	RW	Bypass time for external exchanger fan cut-off	WORD		0 ... 255	0	0	0		sec
AO	USr/InS	*F19*	**49406**	RW	External exchanger fan *preventilation* time in *Heating/Cooling*	WORD		0 ... 255	0	0	0		sec
AO	USr/InS	*F20*	**49407**	RW	Fan state during regulation probe error	WORD		0 ... 1	1	1	1		num
ACF	USr/InS	*COn*	**49379**	RW	ON time for ventilation fan regulator output	WORD		0 ... 255	1	N.A.	N.A.		min
ACF	USr/InS	*COF*	**49380**	RW	OFF time ventilation fan regulator output	WORD		0 ... 255	0	N.A.	N.A.		min
ACF	**InS**	dt3	**49268**	RW	Ventilation fan regulator time standard unit of measure	WORD		0 ... 2	1	N.A.	N.A.		num
ACF	USr/InS	*SFd*	**16478**	RW	Temperature delta for stratification *fans*	WORD		0 ... 99.9	4.0	N.A.	N.A.	-1	°C/°F
ACF	USr/InS	*diS*	**16480**	RW	Temperature differential for stratification *fans*	WORD		0 ... 30.0	1.0	N.A.	N.A.	-1	°C/°F
ACF	USr/InS	*SOn*	**49381**	RW	ON time for fan stratification regulator output	WORD		0 ... 255	0	N.A.	N.A.		min
ACF	USr/InS	*SOF*	**49382**	RW	ON time for stratification fan regulator output	WORD		0 ... 255	0	N.A.	N.A.		min
Prg	**InS**	1P0_H	**49922**	RW	Step 1 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	1P0_M	**49923**	RW	Step 1 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	1P1_H	**49924**	RW	Step 1 program 1 duration	WORD		0 ... 99	1	N.A.	N.A.		ore
Prg	**InS**	1P1_M	**49925**	RW	Step 1 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	1P2	**49926**	RW	Regulator on for humidity regulation step 1 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	nE [1]	N.A.	N.A.		num
Prg	**InS**	1P3	**49927**	RW	Regulator on step 1 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	nE [1]	N.A.	N.A.		num
Prg	**InS**	1P4	**17160**	RW	Humidity setpoint SP3 step 1 program 1	WORD	Y	*LSH* ...*HSH*	50.0	N.A.	N.A.	-1	°R
Prg	**InS**	1P5	**17162**	RW	Temperature setpoint SP1 step 1 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	1P6	**17164**	RW	Temperature setpoint SP2 step 1 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	1P7	**49934**	RW	Enable AUX step 1 program 1	WORD		0 ... 1	n	N.A.	N.A.		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
Prg	**InS**	1P8	**49935**	RW	End of step 1 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	1P9	**49936**	RW	Return sequence number step 1 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	2P0_H	**49938**	RW	Step 2 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	2P0_M	**49939**	RW	Step 2 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	2P1_H	**49940**	RW	Step 2 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	2P1_M	**49941**	RW	Step 2 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	2P2	**49942**	RW	Regulator on for humidity regulation step 2 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	2P3	**49943**	RW	Regulator on step 2 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	2P4	**17176**	RW	Humidity setpoint SP3 step 2 program 1	WORD	Y	*LSH ...HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	2P5	**17178**	RW	Temperature setpoint SP1 step 2 program 1	WORD	Y	*LSE ...HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	2P6	**17180**	RW	Temperature setpoint SP2 step 2 program 1	WORD	Y	*LSE ...HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	2P7	**49950**	RW	Enable AUX step 2 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	2P8	**49951**	RW	End of step 2 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	2P9	**49952**	RW	Return sequence number step 2 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	3P0_H	**49954**	RW	Step 3 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	3P0_M	**49955**	RW	Step 3 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	3P1_H	**49956**	RW	Step 3 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	3P1_M	**49957**	RW	Step 3 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	3P2	**49958**	RW	Regulator on for humidity regulation step 3 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	3P3	**49959**	RW	Regulator on step 3 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	3P4	**17192**	RW	Humidity setpoint SP3 step 3 program 1	WORD	Y	*LSH ...HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	3P5	**17194**	RW	Temperature setpoint SP1 step 3 program 1	WORD	Y	*LSE ...HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	3P6	**17196**	RW	Temperature setpoint SP2 step 3 program 1	WORD	Y	*LSE ...HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	3P7	**49966**	RW	Enable AUX step 3 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	3P8	**49967**	RW	End of step 3 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	3P9	**49968**	RW	Return sequence number step 3 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	4P0_H	**49970**	RW	Step 4 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	4P0_M	**49971**	RW	Step 4 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	4P1_H	**49972**	RW	Step 4 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	4P1_M	**49973**	RW	Step 4 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
Prg	**InS**	4P2	**49974**	RW	Regulator on for humidity regulation step 4 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	4P3	**49975**	RW	Regulator on step 4 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	4P4	**17208**	RW	Humidity setpoint SP3 step 4 program 1	WORD	Y	*LSH* ...*HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	4P5	**17210**	RW	Temperature setpoint SP1 step 4 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	4P6	**17212**	RW	Temperature setpoint SP2 step 4 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	4P7	**49982**	RW	Enable AUX step 4 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	4P8	**49983**	RW	End of step 4 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	4P9	**49984**	RW	Return sequence number step 4 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	5P0_H	**49986**	RW	Step 5 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	5P0_M	**49987**	RW	Step 5 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	5P1_H	**49988**	RW	Step 5 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	5P1_M	**49989**	RW	Step 5 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	5P2	**49990**	RW	Regulator on for humidity regulation step 5 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	5P3	**49991**	RW	Regulator on step 5 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	5P4	**17224**	RW	Humidity setpoint SP3 step 5 program 1	WORD	Y	*LSH* ...*HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	5P5	**17226**	RW	Temperature setpoint SP1 step 5 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	5P6	**17228**	RW	Temperature setpoint SP2 step 5 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	5P7	**49998**	RW	Enable AUX step 5 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	5P8	**49999**	RW	End of step 5 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	5P9	**50000**	RW	Return sequence number step 5 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	6P0_H	**50002**	RW	Step 6 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	6P0_M	**50003**	RW	Step 6 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	6P1_H	**50004**	RW	Step 6 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	6P1_M	**50005**	RW	Step 6 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	6P2	**50006**	RW	Regulator on for humidity regulation step 6 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	6P3	**50007**	RW	Regulator on step 6 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	6P4	**17240**	RW	Humidity setpoint SP3 step 6 program 1	WORD	Y	*LSH* ...*HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	6P5	**17242**	RW	Temperature setpoint SP1 step 6 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
Prg	**InS**	6P6	**17244**	RW	Temperature setpoint SP2 step 6 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	6P7	**50014**	RW	Enable AUX step 6 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	6P8	**50015**	RW	End of step 6 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	6P9	**50016**	RW	Return sequence number step 6 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	7P0_H	**50018**	RW	Step 7 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	7P0_M	**50019**	RW	Step 7 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	7P1_H	**50020**	RW	Step 7 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	7P1_M	**50021**	RW	Step 7 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	7P2	**50022**	RW	Regulator on for humidity regulation step 7 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	7P3	**50023**	RW	Regulator on step 7 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	7P4	**17256**	RW	Humidity setpoint SP3 step 7 program 1	WORD	Y	*LSH* ...*HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	7P5	**17258**	RW	Temperature setpoint SP1 step 7 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	7P6	**17260**	RW	Temperature setpoint SP2 step 7 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	7P7	**50030**	RW	Enable AUX step 7 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	7P8	**50031**	RW	End of step 7 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	7P9	**50032**	RW	Return sequence number step 7 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
Prg	**InS**	8P0_H	**50034**	RW	Step 8 program 1 activation delay	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	8P0_M	**50035**	RW	Step 8 program 1 activation delay	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	8P1_H	**50036**	RW	Step 8 program 1 duration	WORD		0 ... 99	0	N.A.	N.A.		ore
Prg	**InS**	8P1_M	**50037**	RW	Step 8 program 1 duration	WORD		0 ... 59	0	N.A.	N.A.		min
Prg	**InS**	8P2	**50038**	RW	Regulator on for humidity regulation step 8 program 1	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	8P3	**50039**	RW	Regulator on step 8 program 1	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	*diS* [0]	N.A.	N.A.		num
Prg	**InS**	8P4	**17272**	RW	Humidity setpoint SP3 step 8 program 1	WORD	Y	*LSH* ...*HSH*	0.0	N.A.	N.A.	-1	°R
Prg	**InS**	8P5	**17274**	RW	Temperature setpoint SP1 step 8 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	8P6	**17276**	RW	Temperature setpoint SP2 step 8 program 1	WORD	Y	*LSE* ...*HSE*	0.0	N.A.	N.A.	-1	°C/°F
Prg	**InS**	8P7	**50046**	RW	Enable AUX step 8 program 1	WORD		0 ... 1	0	N.A.	N.A.		flag
Prg	**InS**	8P8	**50047**	RW	End of step 8 program 1 mode	WORD		1 ... 6	1	N.A.	N.A.		num
Prg	**InS**	8P9	**50048**	RW	Return sequence number step 8 program 1	WORD		0 ... 7	0	N.A.	N.A.		num
ALr	**InS**	Att	**49302**	RW	*HAL* and *LAL* parameter mode (absolute or relative)	WORD		0 ... 1	1	1	1		flag
ALr	USr/InS	*AFd*	**16414**	RW	Alarm activation differential	WORD		1.0 ... 50.0	1.0	1.0	1.0	-1	°C/°F

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
ALr	USr/InS	*HAL*	**16416**	RW	Upper alarm threshold	WORD	Y	*LAL* ... 1472.0	50.0	50.0	50.0	-1	°C/°F
ALr	USr/InS	*LAL*	**16418**	RW	Minimum alarm threshold	WORD	Y	-302.0 ... *HAL*	-50.0	-50.0	-50.0	-1	°C/°F
ALr	USr/InS	*PAO*	**49303**	RW	Alarm bypass at Power On	WORD		0 ... 10	3	3	3		ore
ALr	USr/InS	*dAO*	**49304**	RW	Temperature *alarm exclusion time* after a *defrost* cycle	WORD		0 ... 999	60	60	60		min
ALr	**InS**	OAO	**49305**	RW	High and low temperature *alarm exclusion time* after the door is closed	WORD		0 ... 10	1	1	1		ore
ALr	**InS**	tdO	**49306**	RW	Door open *alarm exclusion time*	WORD		0 ... 255	10	10	10		min
ALr	USr/InS	*tAO*	**49307**	RW	Temperature alarm signal delay time	WORD		0 ... 255	0	0	0		min
ALr	**InS**	AtH	**49383**		*HHA* and *LHA* parameter mode	WORD		0 ... 1	1	N.A.	N.A.		flag
ALr	USr/InS	*HHA*	**16482**		High humidity alarm threshold	WORD		*LHA* ... P328	100.0	N.A.	N.A.	-1	°R
ALr	USr/InS	*LHA*	**16484**		Low humidity alarm threshold	WORD		P327 ... *HHA*	0.0	N.A.	N.A.	-1	°R
ALr	USr/InS	*AdH*	**16486**		Humidity alarm intervention differential	WORD		10 ... 500	2.0	N.A.	N.A.	-1	°R
ALr	USr/InS	*AOH*	**49384**		Humidity alarm signal delay time	WORD		0 ... 255	0	N.A.	N.A.		min
ALr	USr/InS	*PAH*	**49387**		Humidity alarm bypass time at Power On	WORD		0 ... 10	3	N.A.	N.A.		ore
ALr	USr/InS	*OAH*	**49388**		High/low humidity alarm signal delay time after door close	WORD		0 ... 10	1	N.A.	N.A.		ore
ALr	**InS**	dAt	**49308**	RW	Alarm signalling end of *defrost* due to timeout.	WORD		n/y [0 ... 1]	n [0]	n [0]	n [0]		flag
ALr	**InS**	rLO	**49309**	RW	Regulators blocked by external alarm	WORD		0 ... 2	0	0	0		num
ALr	**InS**	AOP	**49310**	RW	Alarm output polarity	WORD		0 ... 1	1	1	1		flag
ALr	**InS**	PbA	**49312**	RW	Probe enabled to signal temperature alarms (probe 1 and/or 3)	WORD		0 ... 3	0	0	0		num
ALr	**InS**	SA3	**16420**	RW	Alarm setpoint for probe 3	WORD	Y	-3020 ... 14720	0.0	0.0	0.0	-1	°C/°F
ALr	**InS**	dA3	**16422**	RW	Alarm 3 differential	WORD	Y	-300 ... 300	2.0	2.0	2.0	-1	°C/°F
ALr	**InS**	tA3	**49313**	RW	Alarm 3 signal delay time.	WORD		0 ... 59	0	0	0		min
ALr	**InS**	ArE	**49314**	RW	Enable alarm relay in the event of probe 3-related alarms.	WORD		0 ... 2	0	0	0		num
Lit	**InS**	dSd	**49315**	RW	Enable light relay from door switch	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
Lit	**InS**	dLt	**49316**	RW	Delay switching off light relay after door closed	WORD		0 ... 31	0	0	0		min
Lit	**InS**	OFL	**49317**	RW	Light switch always disables light relay	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
Lit	**InS**	dOd	**49318**	RW	Enable switch off utilities on activation of door switch	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
Lit	**InS**	dAd	**49319**	RW	Activation delay DI1 and DI 2	WORD		0 ... 255	0	0	0		min
Lit	**InS**	di3	**49320**	RW	Activation delay DI3 and DI 4	WORD		0 ... 255	0	0	0		min
Lit	**InS**	diU	**49321**	RW	Unit of measure for activation delay DI3 and DI 4	WORD		0 ... 1	0	0	0		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
Lit	**InS**	dOA	**49322**	RW	Forced action from digital input	WORD		0 ... 3	0	0	0		num
Lit	**InS**	PEA	**49323**	RW	Enable forced action from door switch and/or external alarm.	WORD		0 ... 3	0	0	0		num
Lit	**InS**	dCO	**49324**	RW	Delay activating *compressor* after request	WORD		0 ... 255	0	0	0		min
Lit	**InS**	dFO	**49325**	RW	Delay activating *fans* after request	WORD		0 ... 255	0	0	0		min
Lit	**InS**	PEn	**49326**	RW	Number of errors allowed per high/low pressure switch input.	WORD		0 ... 15	15	15	15		num
Lit	**InS**	PEI	**49327**	RW	High/low pressure switch error count interval	WORD		1 ... 99	99	99	99		min
nAd	USr/InS	d0_E00	**49441**	RW	Enable *functions* during events day 1	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d0_E01_ore	**49449**	RW	Start event time (hours) day 1	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d0_E01_min	**49450**	RW	Start event time (minutes) day 1	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d0_E02	**49465**	RW	Duration of event day 1	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d0_E03	**49473**	RW	Enable *defrost* weekdays or weekends/public holidays day 1	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d1_E00	**49442**	RW	Enable *functions* during events day 1	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d1_E01_ore	**49451**	RW	Start event time (hours) day 1	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d1_E01_min	**49452**	RW	Start event time (minutes) day 1	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d1_E02	**49466**	RW	Duration of event day 1	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d1_E03	**49474**	RW	Enable *defrost* weekdays or weekends/public holidays day 1	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d2_E00	**49443**	RW	Enable *functions* during events day 2	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d2_E01_ore	**49453**	RW	Start event time (hours) day 2	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d2_E01_min	**49454**	RW	Start event time (minutes) day 2	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d2_E02	**49467**	RW	Duration of event day 2	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d2_E03	**49475**	RW	Enable *defrost* weekdays or weekends/public holidays day 2	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d3_E00	**49444**	RW	Enable *functions* during events day 3	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d3_E01_ore	**49455**	RW	Start event time (hours) day 3	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d3_E01_min	**49456**	RW	Start event time (minutes) day 3	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d3_E02	**49468**	RW	Duration of event day 3	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d3_E03	**49476**	RW	Enable *defrost* weekdays or weekends/public holidays day 3	WORD		0 ... 1	0	0	0		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
nAd	USr/InS	d4_E00	**49445**	RW	Enable *functions* during events day 4	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d4_E01_ore	**49457**	RW	Start event time (hours) day 4	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d4_E01_min	**49458**	RW	Start event time (minutes) day 4	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d4_E02	**49469**	RW	Duration of event day 4	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d4_E03	**49477**	RW	Enable *defrost* weekdays or weekends/public holidays day 4	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d5_E00	**49446**	RW	Enable *functions* during events day 5	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d5_E01_ore	**49459**	RW	Start event time (hours) day 5	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d5_E01_min	**49460**	RW	Start event time (minutes) day 5	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d5_E02	**49470**	RW	Duration of event day 5	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d5_E03	**49478**	RW	Enable *defrost* weekdays or weekends/public holidays day 5	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d6_E00	**49447**	RW	Enable *functions* during events day 6	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d6_E01_ore	**49461**	RW	Start event time (hours) day 6	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d6_E01_min	**49462**	RW	Start event time (minutes) day 6	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d6_E02	**49471**	RW	Duration of event day 6	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d6_E03	**49479**	RW	Enable *defrost* weekdays or weekends/public holidays day 6	WORD		0 ... 1	0	0	0		flag
nAd	USr/InS	d7_E00	**49448**	RW	Enable *functions* during events day 7	WORD		0 ... 4	0	0	0		num
nAd	USr/InS	d7_E01_ore	**49463**	RW	Start event time (hours) day 7	WORD		0 ... 23	0	0	0		ore
nAd	USr/InS	d7_E01_min	**49464**	RW	Start event time (minutes) day 7	WORD		0 ... 59	0	0	0		min
nAd	USr/InS	d7_E02	**49472**	RW	Duration of event day 7	WORD		0 ... 72	0	0	0		ore
nAd	USr/InS	d7_E03	**49480**	RW	Enable *defrost* weekdays or weekends/public holidays day 7	WORD		0 ... 1	0	0	0		flag
Add	**InS**	PtS	**49328**	RW	Protocol selection	WORD		t/d [0 ... 1]	t [0]	t [0]	t [0]		flag
Add	**InS**	dEA	**49329**	RW	Device address	WORD		0 ... 14	0	0	0		num
Add	**InS**	FAA	**49330**	RW	Family address	WORD		0 ... 14	0	0	0		num
Add	**InS**	PtY	**49331**	RW	MODBUS parity bit	WORD		n/E/o [0 ... 2]	n [0]	n [0]	n [0]		num
diS	USr/InS	*LOC*	**49332**	RW	Enable keypad lock	WORD		n/y [0 ... 1]	n	n	n		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
									[0]	[0]	[0]		
diS	USr/InS	PA1	**16424**	RW	Value Password 1	WORD		0 ... 999	0	0	0		num
diS	**InS**	PA2	**16426**	RW	Value Password 2	WORD		0 ... 999	0	0	0		num
diS	**InS**	PA3	**16428**	RW	Value Password 3	WORD		0 ... 999	0	0	0		num
diS	USr/InS	ndt	**49333**	RW	View with decimal point	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
diS	USr/InS	ndH	**49385**		Display humidity value	WORD		int/dec/05d [0 ... 2]	05d [2]	N.A.	N.A.		num
diS	**InS**	RH	**49386**		Activation of RH% symbol on SV display	WORD		0 ... 1	1	N.A	N.A		num
diS	**InS**	CA1	**16430**	RW	Calibration probe 1	WORD	Y	-300 ... 300	0.0	0.0	0.0	-1	°C/°F
diS	**InS**	CA2	**16432**	RW	Calibration probe 2.	WORD	Y	-300 ... 300	0.0	0.0	0.0	-1	°C/°F
diS	**InS**	CA3	**16434**	RW	Calibration probe 3.	WORD	Y	-300 ... 300	0.0	0.0	0.0	-1	°C/°F
diS	**InS**	CA4	**16436**	RW	Calibration probe 4.	WORD	Y	-300 ... 300	0.0	0.0	N.A	-1	°C/°F
diS	**InS**	CA5	**16438**	RW	Calibration probe 5.	WORD	Y	-300 ... 300	0.0	0.0	0.0	-1	°C/°F
diS	**InS**	CA	**49334**	RW	Calibration operation	WORD		0 ... 2	2	2	2		num
diS	**InS**	LdL	**16440**	RW	Lowest value that can be displayed	WORD	Y	-3020 ... HdL	-50.0	-50.0	-50.0	-1	°C/°F
diS	**InS**	HdL	**16442**	RW	Highest value that can be displayed	WORD	Y	LdL ... 14720	140.0	140.0	140.0	-1	°C/°F
diS	**InS**	ddL	**49335**	RW	Lock display mode during defrost	WORD		0 ... 2	1	1	1		num
diS	**InS**	Ldd	**49336**	RW	Display lock timeout after end of defrost	WORD		0 ... 255	0	0	0		min
diS	**InS**	dro	**49337**	RW	Select °C ° F	WORD		0 ... 1	0	0	0		flag
diS	**InS**	ddd	**49338**	RW	View main display 1	WORD		0 ... 3	1	1	1		num
diS	**InS**	dd2	**49339**	RW	View main display 2	WORD		0 ... 1	2	1	1		num
HAC	**InS**	SHi	**16444**	RW	High temperature HACCP immediate alarm signal limit:	WORD	Y	SHH ... 14720	35.0	35.0	35.0	-1	°C/°F
HAC	**InS**	SLi	**16446**	RW	Low temperature HACCP immediate alarm signal limit:	WORD	Y	-3020 ... SLH	-35.0	-35.0	-35.0	-1	°C/°F
HAC	**InS**	SHH	**16448**	RW	High temperature HACCP alarm limit	WORD	Y	SLH ... 14720	30.0	30.0	30.0	-1	°C/°F
HAC	**InS**	SLH	**16450**	RW	Low temperature HACCP alarm signal limit	WORD	Y	-3020 ... SHH	-30.0	-30.0	-30.0	-1	°C/°F
HAC	**InS**	drA	**49340**	RW	Minimum time in critical zone before alarm signal	WORD		0 ... 99	10	10	10		min
HAC	**InS**	drH	**49341**	RW	HACCP alarm reset time after last manual reset	WORD		0 ... 255	0	0	0		ore
HAC	**InS**	H50	**49342**	RW	Save HACCP alarms with/without enabling alarm relay	WORD		0 ... 2	0	0	0		num
HAC	**InS**	H51	**49343**	RW	Time HACCP alarm recording is excluded (key or digital input)	WORD		0 ... 255	0	0	0		min
HAC	**InS**	H52	**49344**	RW	Probe enabled to signal HACCP alarms	WORD		0 ... 1	0	0	0		flag
CnF	**InS**	H01	**49346**	RW	Enable deep cooling	WORD		n/y [0 ... 1]	n [0]	n [0]	n [0]		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
CnF	**InS**	H02	**49347**	RW	Activation time for keyboard *functions*	WORD		0 ... 15	3	3	3		sec
CnF	**InS**	H03	**16488**		Lower current/voltage limit for input	WORD	Y	-999 ... 1999	0.0	0.0	0.0	-1	°R
CnF	**InS**	H04	**16490**		Upper current/voltage limit for input	WORD	Y	-999 ... 1999	100.0	100.0	100.0	-1	°R
CnF	**InS**	H05	**49348**		Type of humidity regulation	WORD		*diS*/nE/HU/*dEH* [0 ... 3]	nE [1]	N.A	N.A		num
CnF	**InS**	H06	**49349**	RW	Key or Digital Input aux/light active when device switched off	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
CnF	**InS**	H07	**49350**		Type of temperature regulation	WORD		*diS*/nE/H/C/*dEH* [0 ... 4]	nE [1]	C [3]	C [3]		num
CnF	**InS**	H08	**49351**	RW	Function mode in Stand by	WORD		0 ... 3	3	3	3		num
CnF	**InS**	H09	**49352**		Type of dehumidification	WORD		0 ... 2	0	N.A	N.A		num
CnF	**InS**	H11	**16452**	RW	Configurability and polarity digital input 1	WORD	Y	-21 ... 21	4	4	4		num
CnF	**InS**	H12	**16454**	RW	Configurability and polarity digital input 2	WORD	Y	-21 ... 21	5	5	5		num
CnF	**InS**	H13	**16456**	RW	Configurability and polarity digital input 3	WORD	Y	-21 ... 21	9	9	9		num
CnF	**InS**	H14	**16458**	RW	Configurability and polarity digital input 4	WORD	Y	-21 ... 21	10	10	10		num
CnF	**InS**	H21	**49353**	RW	Configurability of digital output 1	WORD		0 ... 16	14	4	N.A.		num
CnF	**InS**	H22	**49354**	RW	Configurability of digital output 2	WORD		0 ... 16	13	6	N.A.		num
CnF	**InS**	H23	**49355**	RW	Configurability of digital output 3	WORD		0 ... 16	15	12	N.A.		num
CnF	**InS**	H24	**49356**	RW	Configurability of digital output 4	WORD		0 ... 16	1	1	1		num
CnF	**InS**	H25	**49357**	RW	Configurability of digital output 5	WORD		0 ... 16	3	3	3		num
CnF	**InS**	H26	**49358**	RW	Configurability of digital output 6	WORD		0 ... 16	11	2	2		num
CnF	**InS**	H27	**49359**	RW	Configurability of digital output 7	WORD		0 ... 16	16	5	5		num
CnF	**InS**	H28	**49360**	RW	Configurability of digital output 8	WORD		0 ... 16	7	7	7		num
CnF	**InS**	H29	**49361**		Configurability of digital output 9	WORD		0 ... 16	8	8	8		num
CnF	**InS**	H31	**49362**	RW	Configurability of UP key	WORD		0 ... 15	0	0	0		num
CnF	**InS**	H32	**49363**	RW	Configurability of DOWN key	WORD		0 ... 15	0	0	0		num
CnF	**InS**	H33	**49364**	RW	Configurability of ESC key.	WORD		0 ... 15	1	1	1		num
CnF	**InS**	H34	**49365**	RW	Configurability of Free key1.	WORD		0 ... 15	7	7	7		num
CnF	**InS**	H35	**49366**	RW	Configurability of Free key2.	WORD		0 ... 15	6	6	6		num
CnF	**InS**	H36	**49367**	RW	Configurability of Free key3.	WORD		0 ... 15	10	2	2		num
CnF	**InS**	H37	**49368**	RW	Configurability of Free key4.	WORD		0 ... 15	15	14	14		num
CnF	**InS**	H39	**49369**	RW	Probe Pb5 selection	WORD		0 ... 3	N.A.	3	3		num
CnF	**InS**	H41	**49370**	RW	Cold room probe inserted	WORD		0 ... 1	1	1	1		flag

FOLDER	MENU	LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT EWHT 800LX	DEFAULT EWRC 800LX	DEFAULT EWRC 550LX	EXP	M.U.
CnF	**InS**	H42	**49371**	RW	Internal exchanger probe inserted	WORD		0 ... 1	1	1	1		flag
CnF	**InS**	H43	**49372**	RW	Probe 3 inserted	WORD		0 ... 4	4	3	3		num
CnF	**InS**	H44	**49373**	RW	Probe 4 inserted	WORD		0 ... 4	3	0	N.A		num
CnF	**InS**	H45	**49374**	RW	Probe 5 inserted	WORD		0 ... 2	1	0	0		num
CnF	**InS**	H47	**49375**		*Defrost* start mode in dual internal exchanger *applications*	WORD		0 ... 2	N.A	0	0		num
CnF	**InS**	H48	**49376**	RW	RTC present	WORD		n/y [0 ... 1]	y [1]	y [1]	y [1]		flag
CnF	**InS**	H60	**49377**	RW	Parameter vector selector	WORD		0 ... 6	N.A.	0	0		num
CnF	USr/InS	*rEL*	**//**	R	Controller version	WORD		0 ... 65535	/	/	/		num
CnF	USr/InS	*tAb*	**16460**	R	Alarm signalling end of *defrost* due to timeout.	WORD		0 ... 65535	1	2	3		num
FPr	USr/InS	*UL*			Upload				/	/	/		
FPr	USr/InS	*dL*			Download				/	/	/		
FPr	USr/InS	*Fr*			Format				/	/	/		

19.16.3 Parameter H60 vectors

N.B.:
V0_SEt is the setpoint parameter for Program 1 H60=1
V0_*diF* is the *dIF* parameter for Program 1 H60=1
...
V0_*dFd* is the *dFd* for Program 1 H60=1

V1_SEt is the Setpoint parameter for Program 2 H60=2
V1_*diF* is the *dIF* parameter for Program 2 H60=2
...
V1_*dFd* is the *dFd* parameter for Program 2 H60=2

V5_SEt is the Setpoint parameter for Program 6 H60=6
V5_*diF* is the *dIF* parameter for Program 6 H60=6
...
V5_*dFd* is the *dFd* parameter for Program 6 H60=6
See parameter H60

LABEL	ADDRESS	*R/W*	DESCRIPTION	*DATA SIZE*	*CPL*	*RANGE*	*DEFAULT*	*EXP*	UM
V0_SEt	**16752**		Regulation setpoint	WORD	Y	V0_*LSE* ... V0_*HSE*	0	-1	*°C/°F*
V0_*diF*	**16754**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V0_*LSE*	**16756**		Minimum value that can be assigned to setpoint	WORD	Y	LdL ... V0_*HSE*	-50	-1	*°C/°F*
V0_*HSE*	**16758**		Maximum value that can be assigned to setpoint	WORD	Y	V0_*LSE* ... HdL	50	-1	*°C/°F*
V0_*dSt*	**16760**		End of *defrost* temperature	WORD	Y	-580 ... 3020	80	-1	*°C/°F*
V0_*FSt*	**16762**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	150	-1	*°C/°F*
V0_dtY	**49532**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V0_*dit*	**49533**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*
V0_*dCt*	**49534**		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V0_*dOH*	**49535**		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V0_*dEt*	**49536**		*Defrost* timeout	BYTE		1 ... 255	45		*hours/min/sec*
V0_*Fdt*	**49537**		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	1		*min*
V0_*dt*	**49538**		Drip time	BYTE		0 ... 255	2		*min*
V0_*dPO*	**49539**		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V0_ddL	**49540**		Lock *display* mode during *defrost*	BYTE		0 ... 2	2		*number*
V0_*dFd*	**49541**		Exclude internal exchanger *fans* during *defrost*	BYTE		0 ... 1	1		*flag*
V1_SEt	**16774**		Regulation setpoint	WORD	Y	V1_*LSE* ... V1_*HSE*	20	-1	*°C/°F*
V1_*diF*	**16776**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V1_*LSE*	**16778**		Minimum value that can be assigned to setpoint	WORD	Y	LDL ... V1_*HSE*	-30	-1	*°C/°F*
V1_*HSE*	**16780**		Maximum value that can be assigned to setpoint	WORD	Y	V1_*LSE* ... HDL	70	-1	*°C/°F*

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
V1_*dSt*	**16782**		End of *defrost* temperature	WORD	Y	-580 ... 3020	80	-1	*°C/°F*
V1_*FSt*	**16784**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	150	-1	*°C/°F*
V1_dtY	**49554**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V1_*dit*	**49555**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*
V1_*dCt*	**49556**		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V1_*dOH*	**49557**		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V1_*dEt*	**49558**		*Defrost* timeout	BYTE		1 ... 255	45		*hours/min/sec*
V1_*Fdt*	**49559**		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	1		*min*
V1_*dt*	**49560**		Drip time	BYTE		0 ... 255	2		*min*
V1_*dPO*	**49561**		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V1_ddL	**49562**		Lock *display* mode during *defrost*	BYTE		0 ... 2	2		*number*
V1_*dFd*	**49563**		Exclude internal exchanger *fans* during *defrost*	BYTE		0 ... 1	1		*flag*
V2_SEt	**16796**		Regulation setpoint	WORD	Y	V2_*LSE* ... V2_*HSE*	20	-1	*°C/°F*
V2_*diF*	**16798**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V2_*LSE*	**16800**		Minimum value that can be assigned to setpoint	WORD	Y	LDL ... V2_*HSE*	-30	-1	*°C/°F*
V2_*HSE*	**16802**		Maximum value that can be assigned to setpoint	WORD	Y	V2_*LSE* ... HDL	70	-1	*°C/°F*
V2_*dSt*	**16804**		End of *defrost* temperature	WORD	Y	-580 ... 3020	80	-1	*°C/°F*
V2_*FSt*	**16806**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	150	-1	*°C/°F*
V2_dtY	**49576**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V2_*dit*	**49577**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*
V2_*dCt*	**49578**		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V2_*dOH*	**49579**		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V2_*dEt*	**49580**		*Defrost* timeout	BYTE		1 ... 255	45		*hours/min/sec*
V2_*Fdt*	**49581**		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	1		*min*
V2_*dt*	**49582**		Drip time	BYTE		0 ... 255	2		*min*
V2_*dPO*	**49583**		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V2_ddL	**49584**		Lock *display* mode during *defrost*	BYTE		0 ... 2	2		*number*
V2_*dFd*	**49585**		Exclude internal exchanger *fans* during *defrost*	BYTE		0 ... 1	1		*flag*
V3_SEt	**16818**		Regulation setpoint	WORD	Y	V3_*LSE* ... V3_*HSE*	0	-1	*°C/°F*
V3_*diF*	**16820**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V3_*LSE*	**16822**		Minimum value that can be assigned to setpoint	WORD	Y	LDL ... V3_*HSE*	-50	-1	*°C/°F*
V3_*HSE*	**16824**		Maximum value that can be assigned to setpoint	WORD	Y	V3_*LSE* ... HDL	50	-1	*°C/°F*
V3_*dSt*	**16826**		End of *defrost* temperature	WORD	Y	-580 ... 3020	80	-1	*°C/°F*
V3_*FSt*	**16828**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	150	-1	*°C/°F*

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
V3_dtY	**49598**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V3_*dit*	**49599**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*
V3_*dCt*	**49600**		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V3_*dOH*	**49601**		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V3_*dEt*	**49602**		*Defrost* timeout	BYTE		1 ... 255	45		*hours/min/sec*
V3_*Fdt*	**49603**		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	1		*min*
V3_*dt*	**49604**		Drip time	BYTE		0 ... 255	2		*min*
V3_*dPO*	**49605**		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V3_ddL	**49606**		Lock *display* mode during *defrost*	BYTE		0 ... 2	2		*number*
V3_*dFd*	**49607**		Exclude internal exchanger *fans* during *defrost*	BYTE		0 ... 1	1		*flag*
V4_SEt	**16840**		Regulation setpoint	WORD	Y	V4_*LSE* ... V4_*HSE*	-200	-1	*°C/°F*
V4_*diF*	**16842**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V4_*LSE*	**16844**		Minimum value that can be assigned to setpoint	WORD	Y	LDL ... V4_*HSE*	-250	-1	*°C/°F*
V4_*HSE*	**16846**		Maximum value that can be assigned to setpoint	WORD	Y	V4_*LSE* ... HDL	-150	-1	*°C/°F*
V4_*dSt*	**16848**		End of *defrost* temperature	WORD	Y	-580 ... 3020	80	-1	*°C/°F*
V4_*FSt*	**16850**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	150	-1	*°C/°F*
V4_dtY	**49620**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V4_*dit*	**49621**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*
V4_*dCt*	**49622**		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V4_*dOH*	**49623**		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V4_*dEt*	**49624**		*Defrost* timeout	BYTE		1 ... 255	45		*hours/min/sec*
V4_*Fdt*	**49625**		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	1		*min*
V4_*dt*	**49626**		Drip time	BYTE		0 ... 255	2		*min*
V4_*dPO*	**49627**		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V4_ddL	**49628**		Lock *display* mode during *defrost*	BYTE		0 ... 2	2		*number*
V4_*dFd*	**49629**		Exclude internal exchanger *fans* during *defrost*	BYTE		0 ... 1	1		*flag*
V5_SEt	**16862**		Regulation setpoint	WORD	Y	V5_*LSE* ... V5_*HSE*	50	-1	*°C/°F*
V5_*diF*	**16864**		Setpoint differential	WORD		1 ... 300	20	-1	*°C/°F*
V5_*LSE*	**16866**		Minimum value that can be assigned to setpoint	WORD	Y	LDL ... V5_*HSE*	20	-1	*°C/°F*
V5_*HSE*	**16868**		Maximum value that can be assigned to setpoint	WORD	Y	V5_*LSE* ... HDL	100	-1	*°C/°F*
V5_*dSt*	**16870**		End of *defrost* temperature	WORD	Y	-580 ... 3020	100	-1	*°C/°F*
V5_*FSt*	**16872**		Internal exchanger fan state with *compressor* output Off	WORD	Y	-500 ... 1500	500	-1	*°C/°F*
V5_dtY	**49642**		*Defrost* mode	BYTE		0 ... 2	0		*number*
V5_*dit*	**49643**		Interval been *defrost* cycles	BYTE		0 ... 255	6		*min*

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
V5_*dCt*	49644		*Defrost* interval count mode	BYTE		0 ... 3	1		*number*
V5_*dOH*	49645		Start *defrost* cycle delay from request	BYTE		0 ... 59	0		*min*
V5_*dEt*	49646		*Defrost* timeout	BYTE		1 ... 255	15		*hours/min/sec*
V5_*Fdt*	49647		Start internal exchanger *fans* delay after *defrost* cycle	BYTE		0 ... 255	0		*min*
V5_*dt*	49648		Drip time	BYTE		0 ... 255	0		*min*
V5_*dPO*	49649		Request start of *defrost* at power on	BYTE		0 ... 1	0		*flag*
V5_ddL	49650		Lock *display* mode during *defrost*	BYTE		0 ... 2	0		*number*
V5_dFd	*49651*		*Exclude internal exchanger fans during defrost*	*BYTE*		*0 ... 1*	*1*		*flag*

19.16.4 Client Table

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
ValSondeVis[0]	442	R	Analogue input (read-out) 1	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeVis[1]	444	R	Analogue input (read-out) 2	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeVis[2]	446	R	Analogue input (read-out) 3	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeVis[3]	448	R	Analogue input (read-out) 4	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeVis[4]	450	R	Analogue input (read-out) 5	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeReg[0]	452	R	Analogue input (regulation) 1	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeReg[1]	454	R	Analogue input (regulation) 2	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeReg[2]	456	R	Analogue input (regulation) 3	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeReg[3]	458	R	Analogue input (regulation) 4	WORD	Y	-580 ... 3020	0	-1	°C/°F
ValSondeReg[4]	460	R	Analogue input (regulation) 5	WORD	Y	-580 ... 3020	0	-1	°C/°F
DI. 1	33195	R	Digital input 1 state	1 bit		0 ... 1	0		flag
DI. 2	33195,1	R	Digital input 2 state	1 bit		0 ... 1	0		flag
DI. 3	33195,2	R	Digital input 3 state	1 bit		0 ... 1	0		flag
DI. 4	33195,3	R	Digital input 4 state	1 bit		0 ... 1	0		flag
EAL	33372	R	External alarm digital input	1 bit		0 ... 1	0		flag
PAN	33372,1	R	Panic Alarm	1 bit		0 ... 1	0		flag
OPD	33372,2	R	Door open alarm	1 bit		0 ... 1	0		flag
PA_cnt	33372,3	R	Pressure switch alarm	1 bit		0 ... 1	0		flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
LA_cnt	33372,4	R	Low pressure switch alarm	1 bit		0 ... 1	0		flag
HA_cnt	33372,5	R	High pressure switch alarm	1 bit		0 ... 1	0		flag
PA	33372,6	R	Pressure switch alarm	1 bit		0 ... 1	0		flag
LPA	33372,7	R	Low pressure switch alarm (manual reset)	1 bit		0 ... 1	0		flag
HPA	33373	R	High pressure switch alarm (manual reset)	1 bit		0 ... 1	0		flag
PRR	33373,1	R	Preheat input regulator alarm	1 bit		0 ... 1	0		flag
HA1	33373,2	R	High alarm analogue input 1	1 bit		0 ... 1	0		flag
LA1	33373,3	R	Low alarm analogue input 1	1 bit		0 ... 1	0		flag
HA3	33373,4	R	High alarm analogue input 3	1 bit		0 ... 1	0		flag
LA3	33373,5	R	Low alarm analogue input 3	1 bit		0 ... 1	0		flag
E10	33373,6	R	Time loss alarm	1 bit		0 ... 1	0		flag
AD2	33373,7	R	End of *defrost* for timeout	1 bit		0 ... 1	0		flag
E1	33374	R	Analogue input 1 fault	1 bit		0 ... 1	0		flag
E2	33374,1	R	Analogue input 2 fault	1 bit		0 ... 1	0		flag
E3	33374,2	R	Analogue input 3 fault	1 bit		0 ... 1	0		flag
E4	33374,3	R	Analogue input 4 fault	1 bit		0 ... 1	0		flag
E5	33374,4	R	Analogue input 5 fault	1 bit		0 ... 1	0		flag
CFG	33374,5	R	Configuration error alarm	1 bit		0 ... 1	0		flag
LRH	33374,7	R	Low humidity alarm	1 bit		0 ... 1	0		flag
HRH	33374,6	R	High humidity alarm	1 bit		0 ... 1	0		flag
Reduced set	33035	R	Economy function state	1 bit		0 ... 1	0		flag
StandBy	33035,1	R	stand-by	1 bit		0 ... 1	0		flag
Light	33035,2	R	Auxiliary state	1 bit		0 ... 1	0		number
Lock *display*	33035,3	R	*Display* lock state	1 bit		0 ... 1	0		flag
AUX	33035,4	R	Auxiliary state	1 bit		0 ... 1	0		flag
FAN	33035,5	R	Internal exchanger fan state	1 bit		0 ... 1	0		number
Ventilation	33035,6	R	Ventilation fan state	1 bit		0 ... 1	0		flag
Night&Day	33035,7	R	Night & Day regulator state	1 bit		0 ... 1	0		flag
StopHACCP	33036	R	HACCP alarm recording blocked	1 bit		0 ... 1	0		flag
HeatCool	33036,1	R	*Heating/Cooling* mode	1 bit		0 ... 1	0		number
Record Step enabled	33036,2	R	Sequence program enabled	1 bit		0 ... 1	0		number
Record Step active	33036,3	R	Sequence program active	1 bit		0 ... 1	0		number
New Par CFG	33036,4	R	Modified *parameters* flag	1 bit		0 ... 1	0		number

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
CMD_LUCE_ON	33031	W	On Lights	1 bit		0 ... 1	0		number
CMD_LUCE_OFF	33031,1	W	Off Lights	1 bit		0 ... 1	0		number
CMD_SETRID_ON	33031,2	W	Activate *standby*	1 bit		0 ... 1	0		number
CMD_SETRID_OFF	33031,3	W	Disable economy	1 bit		0 ... 1	0		number
CMD_AUX_ON	33031,4	W	On Auxiliary	1 bit		0 ... 1	0		number
CMD_AUX_OFF	33031,5	W	Off Auxiliary	1 bit		0 ... 1	0		number
CMD_*STANDBY*_ON	33031,6	W	On Device	1 bit		0 ... 1	0		number
CMD_*STANDBY*_OFF	33031,7	W	Off device	1 bit		0 ... 1	0		number
CMD_*DIS*_NIGHTDAY_ON	33032	W	Enable Night & Day function	1 bit		0 ... 1	0		number
CMD_*DIS*_NIGHTDAY_OFF	33032,1	W	Disable Night & Day function	1 bit		0 ... 1	0		number
CMD_TACITA	33032,2	W	Alarm acknowledgment	1 bit		0 ... 1	0		number
CMD_*DEFROST*	33032,3	W	Activate *Manual Defrost*	1 bit		0 ... 1	0		number
CMD_RST_PARAMETRI	33032,5	W	Reset modified *parameters* flag	1 bit		0 ... 1	0		number
CMD_OFF_MANUALE	33032,6	W	OFF for maintenance	1 bit		0 ... 1	0		number
CMD_LOCK_DISP_ON	33032,7	W	Lock keypad	1 bit		0 ... 1	0		number
CMD_LOCK_DISP_OFF	33033	W	Unlock keypad	1 bit		0 ... 1	0		number
CMD_RST_HACCP	33033,1	W	Reset HACCP alarms	1 bit		0 ... 1	0		number
CMD_RST_PRESS	33033,2	W	Reset pressure switch alarms	1 bit		0 ... 1	0		number
CMD_FRAMEHEATER_ON	33033,3	W	Frame Heater ON	1 bit		0 ... 1	0		number
CMD_FRAMEHEATER_OFF	33033,4	W	Frame Heater OFF	1 bit		0 ... 1	0		number
CMD_*DIS*_HACCP_OFF	33033,5	W	HACCP alarm recording OFF	1 bit		0 ... 1	0		number
CMD_*DIS*_HACCP_ON	33033,6	W	HACCP alarm recording ON	1 bit		0 ... 1	0		number
CMD_DEEP_COOL	33033,7	W	Enable Deep *Cooling*	1 bit		0 ... 1	0		number
CMD_HC	33034	W	Enable sequence program	1 bit		0 ... 1	0		number
CMD_AUTO_ON	33034,1	W	Enable sequence program	1 bit		0 ... 1	0		number
CMD_AUTO_OFF	33034,2	W	Disable sequence program	1 bit		0 ... 1	0		number
CMD_STEP_RESET	33034,3	W	Reset sequence program	1 bit		0 ... 1	0		number
CMD_STEP_START	33034,4	W	Start/continue sequence program 1	1 bit		0 ... 1	0		number
CMD_STEP_STOP	33034,5	W	Suspend sequence program	1 bit		0 ... 1	0		number
Deep *COOLING*	33368,3	R	Continuous cycle state	1 bit		0 ... 1	0		flag
Defrost + *Dripping*	33368,5	R	*Defrost* state	1 bit		0 ... 1	0		flag
DEFR_1	33368,6	R	State *defrost* 1	1 bit		0 ... 1	0		number
DEFR_2	33368,7	R	State *defrost* 2	1 bit		0 ... 1	0		flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	UM
SGOCC_1	33369	R	*Dripping* 1	1 bit		0 ... 1	0		flag
SGOCC_2	33369,1	R	*Dripping* 2	1 bit		0 ... 1	0		number
Humidify	33369,7	R	*Humidify* function active state	1 bit		0 ... 1	0		flag
Dehumidify	33370	R	*Dehumidify* active	1 bit		0 ... 1	0		flag
Open Door	33371,4	R	Door state	1 bit		0 ... 1	0		flag
HACCP Alarm	33412,3	R	HACCP Alarm	1 bit		0 ... 1	0		flag
Generic Alarm	33413,3	R	General alarm	1 bit		0 ... 1	0		flag
COMPR 1 relay	33196	R	*Compressor* 1 relay	1 bit		0 ... 1	0		flag
Int. exchanger *DEFROST* 1 relay	33196,1	R	State *defrost* 1	1 bit		0 ... 1	0		flag
INT. EXCHANGER FAN relay	33196,2	R	Internal exchanger fan relay	1 bit		0 ... 1	0		flag
ALARM relay	33196,3	R	Alarm relay	1 bit		0 ... 1	0		flag
AUX relay	33196,4	R	Auxiliary relay	1 bit		0 ... 1	0		flag
STAND-BY relay	33196,5	R	Stand-By relay	1 bit		0 ... 1	0		flag
LIGHT relay	33196,6	R	Light relay	1 bit		0 ... 1	0		flag
BUZZER relay	33196,7	R	Buzzer output	1 bit		0 ... 1	0		flag
Evap *DEFROST* 2 relay	33197	R	State *defrost* 2	1 bit		0 ... 1	0		flag
COMPR 2 relay	33197,1	R	*Compressor* 2 relay	1 bit		0 ... 1	0		flag
Ventilation FAN relay	33197,2	R	Ventilation fan relay	1 bit		0 ... 1	0		flag
COND FAN relay	33197,3	R	Condenser fan relay	1 bit		0 ... 1	0		flag
HUMID relay	33197,4	R	*Humidify* relay	1 bit		0 ... 1	0		flag
DEHUM relay	33197,5	R	*Dehumidify* relay	1 bit		0 ... 1	0		flag
HEATING relay	33197,6	R	*HEATING* relay	1 bit		0 ... 1	0		flag
STRATIFICATION relay	33197,7	R	Stratification fan relay	1 bit		0 ... 1	0		flag
Analogue output	498	R	Analogue output percentage	WORD		0 ... 1	0		flag
Seconds	33358	RW		8					
Minutes	33359	RW		8					
Hours	33360	RW		8					
Day	33362	RW		8					
Day of the week	33361	RW		8					
Month	33363	RW		8					
Year	33364	RW		8					

20 ELECTRICAL CONNECTIONS

20.1 General warnings

IMPORTANT!
Switch off the device before working on the *electrical connections*. All electric work must be performed by a qualified electrician.
To ensure proper connections, the following warnings must be observed:

- Power supply.
- ***Use*** **cables of the right size for the terminals used.** The device is equipped with extractable screw terminals to connect electric cables, the cross section of which must not exceed 2.5 mm² (one wire per terminal for power connections): For the capacity of the terminals, see the *label* on the device. When current exceeds 8A on relay outputs, 2 x 2.5mm² (2 fastons) must be run out for each individual contact to ensure the temperature of the cables does not exceed 85°C.
- Separate the cables of probes and *digital inputs* from inductive loads and high voltage connections to prevent any electromagnetic interference. Do not place probe cables near any electric devices (switches, meters, etc.)
- Make connections as short as possible and do not wind them around electrically connected parts.
- Do not touch electronic components on boards to prevent the build up of static electricity.

20.1.1 Power supply - High voltage inputs (relay)

Relay outputs are voltage free. Do not exceed the maximum permitted current; for higher loads, *use* a contactor with sufficient power capacity.

IMPORTANT!
Make sure that the power supply is the correct voltage for the device.

20.1.2 Analogue inputs-Probes

Temperature probes

Temperature probes have no connection polarity and can be extended using a normal bipolar cable (note that the extension of the probes will adversely affect the device's electromagnetic compatibility (EMC): take great care with the wiring).

EWRC550LX
N.B: EWRC550 has 2 Pt100 inputs. If you only intend to *use* one Pt100 input, shortcircuit the Pt100 input you are not using.

IMPORTANT!

Pressure probes
Humidity probes (EWHT800)

Pressure probes have a specific insertion polarity which must be observed.
Signal cables (temperature/*pressure probes*, *digital inputs*, *TTL* serial) must be cabled separately from high voltage cables.
Eliwell supplied cables are recommended. Contact Eliwell sales department for item availability.

20.1.3 Serial connections

Connection to Televis System remote control **systems** (°) can be made via a direct RS-485 connection if you have the optional *RS485* plug-in kit***.

20.1.3.1 RS485 connection

RS485

Use a shielded and **"twisted"** twin-conductor 0.5mm²cable plus braiding (i.e. Belden cable model 8762 with PVC sheath, 2 conductors plus braiding, 20 AWG, nominal capacity between 89pF conductors, nominal capacity between a conductor and 161pF shielding).
See standards relating to EN 50174 data transmission systems for indications on how to lay cables.
Make sure data transmission circuits are well separated from power lines.
A RS-485 network up to 1200m in length featuring a maximum of 15 devices can be connected straight to the device.
This length can be extended and the number of devices for each channel increased using appropriate repeater modules.
See the "Installation of RS-485 network" manual for more detailed information.

Attach the120 (Ohm) 1/4W resistors between the "+" and "-" terminals on the interface and last device in each branch of the network.

TTL

1.1.3.2 *TTL* connection

Use a 5-wire *TTL* cable up to 30cm in length.
An Eliwell-supplied *TTL* cable is recommended. Contact Eliwell sales department for item availability.
N.B.: using the *TTL* serial for ParamManager via PCInterface interferes with the readings of analogue input AI5.

20.2 Circuit diagrams

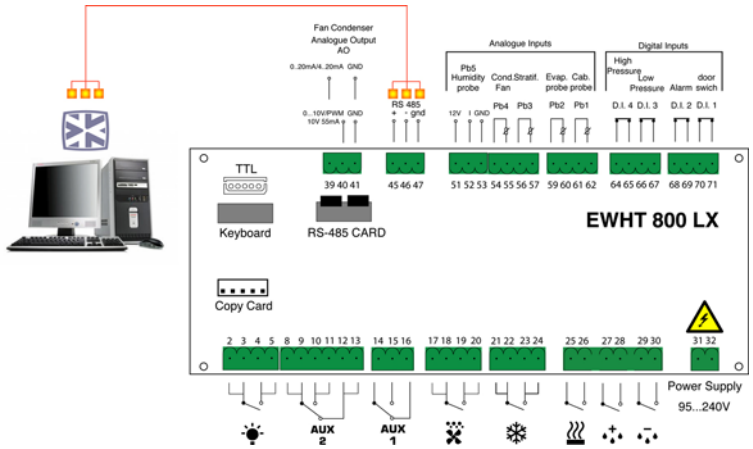
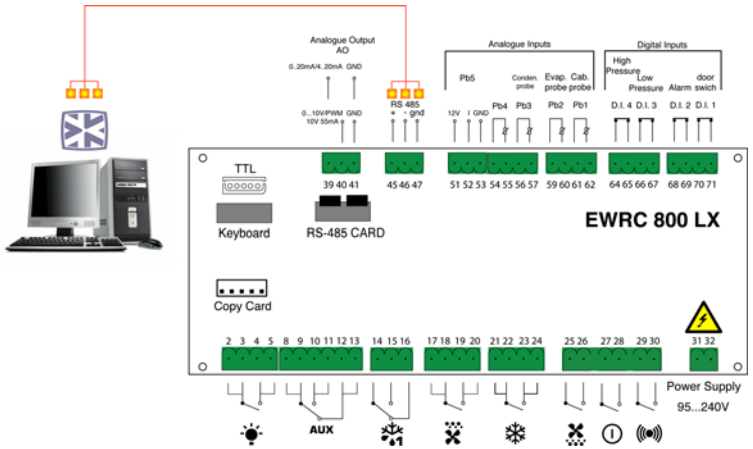
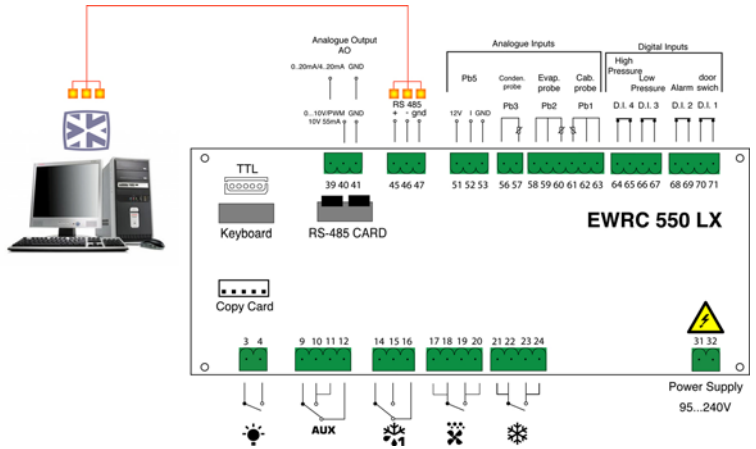
Circuit diagram key

Terminal			RATING	FUNCTION	Function
EWHT800LX	***EWRC800LX***	***EWRC550LX***			
2/3-4/5	**2/3-4/5**	**3-4**	NA 1hp SPST 250V~	**LIGHT**	Light
8/9-12/13	**8/9-12/13**	**9-12**	NC 1hp SPDT 250V~	**AUX2 (*EWHT800LX*)** **AUX (*EWRC800LX* – *EWRC550LX*)**	Stratification *fans*
10-11	**10-11**	**10-11**	NA		AUX
14-16	**14-16**	**14-16**	NC 8(3) SPDT 250V~	**AUX1 (*EWHT800LX*)** ***DEFROST* (*EWRC800LX* – *EWRC550LX*)**	Ventilation *fans*
15-16	**15-16**	**15-16**	NA		*Defrost*
17/18-19/20	**17/18-19/20**	**17/18-19/20**	NA 1hp SPST 250V~	**EVAPORATOR *FANS***	
21/22-23/24	**21/22-23/24**	**21/22-23/24**	NA 2hp SPST 250V~	***COMPRESSOR***	*Compressor*
25-26	**25-26**	**N.A.**	NA 8(3) SPST 250V~	***HEATING* (*EWHT800LX*)** **CONDESING *FANS* (*EWRC800LX*)**	*Heating* *External exchanger fans*
27-28	**27-28**	**N.A.**	NA 8(3) SPST 250V~	**UMIDIFY(*EWHT800LX*)** **STAND-BY(*EWRC800LX*)**	*Humidify* Stand-by
29-30	**29-30**	**N.A.**	NA 8(3) SPST 250V~	**DE-UMIDIFY (*EWHT800LX*)** **ALARM (*EWRC800LX*)**	*Dehumidify* Alarm
31-32	**31-32**	**31-32**	//	**Power Supply** 95...240V~	Power supply 95...240V~
AO Analogue Output		**Analogue Output**			
Terminal	**Terminal**	**Terminal**			
39-41 39= 0...10V/PWM 41= GND	**39-41** 39= 0...10V/PWM 41= GND	**39-41** 39= 0...10V/PWM 41= GND			
40-41 40=0...20mA/4...20mA 41= GND	**40-41** 40=0...20mA/4...20mA 41= GND	**40-41** 40=0...20mA/4...20mA 41= GND			
Terminal	**Terminal**	**Terminal**			
45-46-47 45= + 46= - 48=gnd	**45-46-47** 45= + 46= - 48=gnd	**45-46-47** 45= + 46= - 48=gnd		***RS485***	
Analogue Input		**Analogue Input**			
Terminal	**Terminal**	**Terminal**	***Label***	**FUNCTION**	Function
51-52-53 51=12V 52=I	**51-52-53** 51=12V 52=I	**51-52-53** 51=12V 52=I	**Pb5**		Current input

53=GND	53=GND	53=GND			

Terminal	Terminal	Terminal	*Label*	EWHT800 EWRC800	EWRC550	FUNCTION	Function
51-53	**51-53**	**51-53**	**Pb5**	**4...20mA**	**4...20mA**	**Humidity Probe (*EWHT800LX*) Free (*EWRC800LX*)**	Humidity Probe
54-55	**54-55**	**N.A.**	**Pb4**	**NTC**	**NTC**	**Condensing Fan**	External exchanger probe
56-57	**56-57**	**56-57**	**Pb3**	**NTC**	**NTC**	**Stratification Fan (*EWHT800LX*) Condensing Fan (*EWRC800LX*)**	Stratification *fans* External exchanger probe
59-60	**59-60**	**59-60**	**Pb2**	**NTC**	**Pt100**	**Evaporator Probe**	Internal exchanger Probe
61-62	**61-62**	**61-62**	**Pb1**	**NTC**	**Pt100**	**Cabinet probe**	Cabinet Probe
Digital Inputs		***Digital Inputs***					
Terminal			***Label***			**FUNCTION**	Function
64-65	**64-65**	**64-65**	**D.I. 1**			**High Pressure**	
66-67	**66-67**	**66-67**	**D.I. 2**			**Low Pressure**	
68-69	**68-69**	**68-69**	**D.I. 3**			**Alarm**	Alarm
70-71	**70-71**	**70-71**	**D.I. 4**			**Door switch**	Door switch

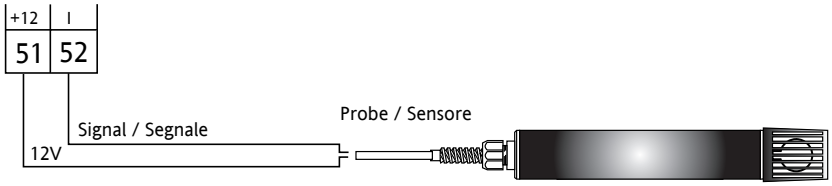
20.2.1 Circuit diagrams

EWHT800LX	EWRC800LX
	
EWRC550LX	
	

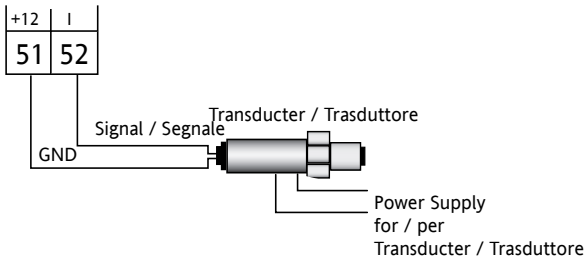
20.2.2 Connections with pressure transducers / humidity probes (EWHT800)

● 2 wires / 2 fili Power Supply from / da EWHT/EWRC

also for / anche per
EWPA 007-030
EWHS 280
EWHS 300

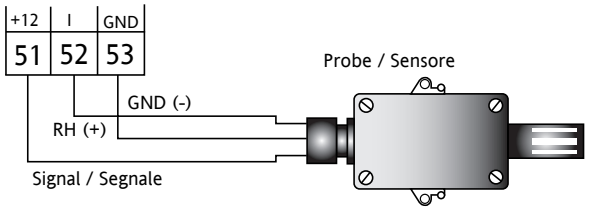


● 2 wires / 2 fili External Power Supply for Transducter / Trasduttore

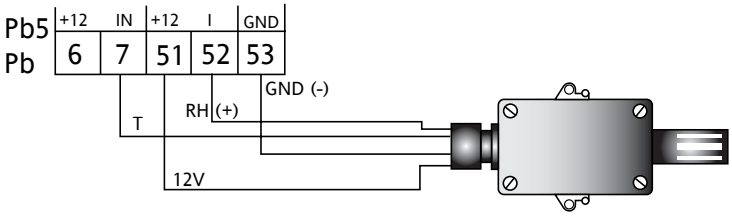


SOLO EWHT800
ONLY EWHT800

● 3 wires / 3 fili Power Supply from / da EWHT



● 4 wires / 4 fili Power Supply from / da EWHT



21 MECHANICAL ASSEMBLY

EWHT800/EWRC800/EWRC550 WALL-MOUNTING

1) Remove the screw caps on the right side of the door, pressing lightly on the points indicated by the arrows in Fig. 1**. Take out the screws and open the door.**

2) Drill holes in the backplate at the top or bottom to pass the wires through. See the *example* in Fig. 2.

3) Screw the backplate to the wall using the 4 screws (not supplied) to match the holes illustrated in Fig. 3.

4) Shut the door by securing it with the 2 screws provided. Replace the screw caps removed earlier from the door (see point).

5) The door lock (supplied only in *models* where it is featured) can be installed in three different positions on the door. The holes to be drilled are indicated on the back. Each position of the door represents a different position where the disconnector can be fitted to the backplate.

N.B: to make it easier to mount the backplate, remove the door by pressing lightly on the left side (the side that the door is attached by). You will also have to separate the base from the keypad by disconnecting the keypad cable.

FIGURE 1

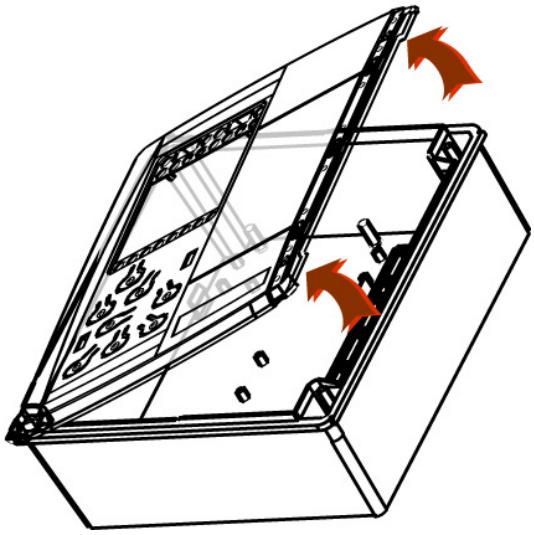


FIGURE 3

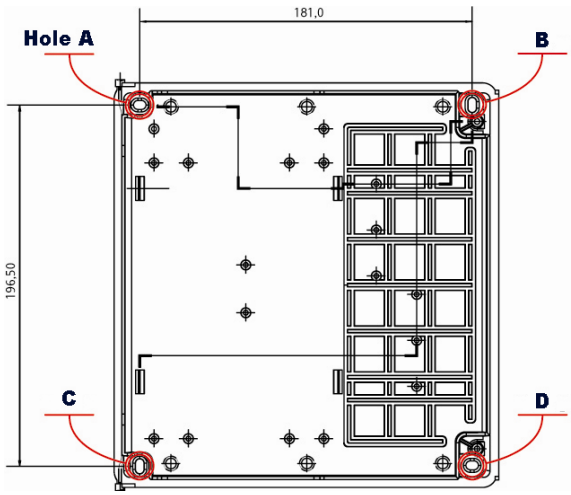
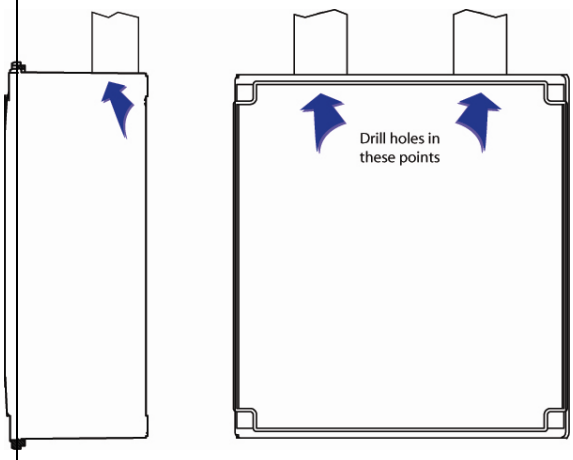


FIGURE 2



IMPORTANT: Cable clamps must be no bigger than size PG29.

22 TECHNICAL SPECIFICATIONS

22.1 General specifications

	Typical	Low	High
Supply voltage	95...240V~	±10%	
Supply frequency	50Hz/60Hz	---	---
Power draw	15W	---	---
Insulation class	2	---	---
Protection rating	IP54		
Ambient operating temperature	25°C	-5°C	50°C
Ambient operating humidity (non-condensing)	30%	10%	90%
Ambient storage temperature	25°C	-20°C	85°C
Ambient storage humidity (non-condensing)	30%	10%	90%

22.2 I/O features

					Models		
Type		**No.**		**Rating**	**EWHT 800LX**	**EWRC 800LX**	**EWRC 550LX**
High voltage *digital outputs*		1	SPST	1 hp 250V~	●	●	●
		1	SPDT	1 hp 250V~	●	●	●
		1	SPDT	8(3)A 250V~	●	●	●
		1	SPST	1 hp 250V~	●	●	●
		1	SPST	2 hp 250V~	●	●	●
		3	SPST	8(3)A 250V~	●	●	**N.A.**
Type	***Folder***	**Description**					
Digital inputs	**DI1 DI2 DI3 DI4**	4 configurable low voltage *digital inputs*			●	●	●
Low voltage (SELV) *analogue outputs* See **Table A**	**AO**	1 **configurable** output **See Table A**			●	●	●
Analogue inputs See **Table B**	**Pb1 Pb2**	2 NTC temperature inputs			●	●	**N.A.**
	Pb1 Pb2	2 Pt100 temperature inputs			**N.A.**	**N.A.**	●
	Pb3	1 NTC temperature input			●	●	●
	Pb4	1 NTC temperature input			●	●	**N.A.**
	Pb5	1 configurable input • 4...20 mA current input • 0-10V voltage input			●	●	●

22.2.1 Table A – Analogue Output

Type	Start of scale *range*	Full scale *range*	Resolution	Accuracy	Permissible load
PWM	-	-	1% full scale	±1% full scale + 1 digit	-
0...20mA	0	20	0.1% full scale		350ohm
4...20mA	4	20			
0..10V	0	10			-
Digital output	-	-	-		-

22.2.2 Table B - Analogue Inputs

Type	*Range*	Resolution	Accuracy	Sensor
NTC	-50..110°C (-58...230°F)	0.1°C (0.1°F)	0.5% end of scale + 1 digit	103AT-2 10kΩ @ 25°C ,
4...20mA	0...2000	0.1 digit		-
0..10V	0...2000			-
Pt100	-200...800°C (-328....1472°F)	0.1°C (0.1°F)		DIN 43760

22.3 Mechanical specifications

Terminals and connectors	Disconnectable screw terminals
Box	Bayblend FR110

22.4 Display and LEDS

		EWHT800LX	***EWRC800LX***	***EWRC550LX***
Display and leds	***DISPLAY* A** 4 digits	•	•	•
	***DISPLAY* B** 3 digits + sign;	•	•	•
	17 LEDs		•	•
	25 LEDs (17 LEDs + 8 LEDs for program steps)	•		
Keys	8 *keys*	•	•	•

22.5 Serials

	Copy Card	
	TTL	*TTL* serial
	RS-485	Via optional module
	Keyboard	

22.6 Mechanical dimensions

	Length (L) mm	**Depth (d) mm**	**Height (H) mm**	
Front panel	210	- -	245	(+0.2mm)
Space required	210	90	245	
Hole centre distance for wall-mounting	196.5	- -	181,0	(+0.2mm / -0.1mm)

23 USE

23.1 Intended use

For safety reasons, the device must be installed and used according to the instructions provided. In particular, parts carrying dangerous voltages must not be accessible in normal conditions.
The device must be adequately protected from water and dust according to the application, and must only be accessible with the *use* of a tool (except for the front panel).
The device is suitable for *use* with household refrigeration appliances and/or similar equipment, or as a standalone device, and has been tested for safety aspects in accordance with the harmonised European reference standards.

It is classified as follows:
EWHT800

- In terms of design, as an automatic electronic temperature and humidity controller for built-in or stand-alone installation.

EWRC 800/550

- In terms of design, as an automatic electronic temperature controller for built-in or stand-alone installation.

All models

- In terms of automatic operating characteristics, as a type 1B controller.
- In terms of software class and structure, as a Class A controller.
- In terms of connection, as a device with flexible, external and disconnectable cable.
- With Y connection.
- Grade 2 polluting device.
- Grade II device in terms of the relative over voltage category.
- Ball test temperature: 75°C.

23.2 Improper use

Any *use* other than that indicated is not allowed.
The relay contacts supplied are of the functional type and subject to fault (being managed by an electronic part they could shortcircuit or remain open). Any safety protection prescribed in product standards, or suggested by common sense, must be installed externally to the instrument for obvious safety reasons.

24 REGULATIONS

24.1 Regulations

The product complies with the following European Community Directives:
• Council Directive 2006/95/EC.
• Council Directive 2004/108/EC.
and complies with the following harmonised *regulations*:
EN 60730-2-6 and EN 60730-2-9.

25 LIABILITY AND RESIDUAL RISKS

Eliwell shall not be held liable for any damage incurred as a result of:

- installation/*use* other than those intended, and, in particular, failure to comply with the safety instructions specified by applicable *regulations* and/or provided in this document;
- *use* with equipment which does not provide adequate protection against electric shocks, water and dust under the effective conditions of installation;
- *use* with equipment which permits access to hazardous parts without the *use* of tools;
- installation/*use* with equipment which does not comply with current *regulations* and legislation.

26 DISCLAIMER

27 ADVANCED FUNCTIONS - NIGHT AND DAY

Events and cycles can be programmed at set times during the week using the Night&Day regulator algorithm.
The *parameters* concerned are contained in *folder* **nAd** / sub-folders d0...d6, d7.

IMPORTANT: do not confuse labels ***E0*** ... ***E3*** with probe error messages ***E1*** ... ***E2*...**

IMPORTANT: on how ***E0*** = 3 (Stand by regulator) is used. You may not have access to the device for the full time indicated in ***E2***.

27.1.1 Day/Night regulator function

Different event every day of the week

For each day of the week, using *parameters* /(subfolders) **d0** ... **d6,** you can set:

- The start time of an event (***E1*, in HH:mm format.)**
- The duration (***E2*)**
- The *functions* to be enabled (***E0*)** for the event.
- Which *defrost* set to enable (*parameters* **dE1..dE8** weekdays or ***F1...F8*** weekends/public holidays) (***E3*)**.

Parameters ***E0*** ... ***E3*** can be different each day.
At the time set in ***E1*** the event starts, usually configured for the Reduced Set function ("NIGHT" mode). The duration is determined in parameter ***E2***. Using parameter ***E0***, during this mode you can:

- Activate the reduced set *functions*.
- Activate the light regulator.
- Activate the aux regulator.
- Activate the Stand By regulator.

You can also decide whether to enable *defrost* during weekdays (***E3*** = 0) and weekends/public holidays (***E3*** = 1):

IMPORTANT Parameter ***E3*** has no effect on the configuration of *daily event*s.

Daily event

Using the same *parameters* ***E0*** ... ***E3*** in (sub)*folder* **d7** , you can program a *daily event*, i.e. that applies every day. It is not possible to manage defrosts however. Hence parameter ***E3*** in *folder* (sub)*folder* **d7** is ignored.

Daily or weekly events have the same priority.

Days of the week have correspond to these *parameters*:

Parameter	Day
d0	Sunday
d1	Monday
d2	Tuesday
d3	Wednesday
d4	Thursday
d5	Friday
d6	Saturday
d7	*Daily Event* (Every Day)

27.1.2 Function with defrost set

If parameter ***E0*** does not equal 0, the significance of *parameters* **dE1..dE8** weekdays switches from:
Defrost set valid EVERY day (see *automatic defrost with Real Time Clock*).
to:
Defrost set valid on weekdays only.

Not only are *parameters* **dE1..dE8** weekdays managed, but also **F1..F8** weekends/public holidays.
For both folders, the following still apply: *Defrost conditions at pre-programmed time*.

Hence you can define for each day **d0** ... **d6**:

- ***E3*** = 0, defrosts will be run at the times set in **dE1** ... **deE8**.
- ***E3*** = 1, defrosts will be run at the times set in **F1** ... **F8**.

Example
If you were to define this time configuration:

- 3 defrosts on "weekends/public holidays" (or days when the chiller cabinet is not used very frequently).
  - 2am (**F1** => h02 '00)
  - 10am (**F2** => h10 '00)
  - 6pm (**F3** => h18 '00)
- 4 defrosts on "weekdays" (or days when intense *use* is made of the chiller cabinet).
  - 5am (**dE1** => h05 '00)
  - 11am (**dE2** => h11 '00)
  - 5pm (**dE3** => h17 '00)
  - 11pm (**dE4** => h23 '00)

if the days included as weekends/public holidays are Sunday and Monday, the days will be configured as follows:

- **d0 / *E3*** = 1 (Sunday = "weekend/public holiday")
- **d1 / *E3*** = 1 (Monday = "weekend/public holiday")
- **d2 / *E3*** = 0 (Tuesday = "weekday")

- **d3 / E03** = 0 (Wednesday = “weekday”)
- **d4 / E03** = 0 (Thursday = “weekday”)
- **d5 / E03** = 0 (Friday = “weekday”)
- **d6 / E03** = 0 (Saturday = “weekday”)

27.1.3 Day/night regulator in the event of a blackout

- If a blackout occurs during the activation period of a day/night state (i.e. caused by a day/night event), and power is restored:
  - during this event, the controller will return to the state current at the time of the blackout before disabling the event at the programmed time.
  - after this event but before the next day/night event, the device starts up as if it has disabled the day/night event during which the blackout occurred.
  - after this event but during the next day/night event, the device starts up as if it has disabled the day/night event during which the blackout occurred before switching to the state requested by the day/night event underway when power was restored.
- Manual events (key or digital input) have priority over the day/night state until the next day/night event (event that either disables the current state or activates the next one) if the power supply is uninterrupted.
- If a manual event inverts the state set by the day/night function within the day/night state activation period and this is followed by blackout, and power is restored:
  - during the activation period of the same day/night state, the controller will return to the state set by the manual event before disabling the event at the programmed time.
  - after this event, the device starts in the state set by the manual event.
  - after this event but during the activation period of the next day/night event, the controller switches to the state requested by the day/night event concerned before disabling the event at the programmed time.

27.1.4 Access to folder nAd - DAY/NIGHT

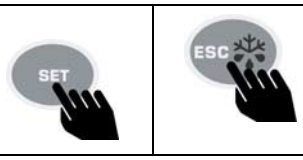
In the *programming menu*, when the corresponding "nAd" *label* appears on the PV *display*, press the “▼” key and the d0 *label* appears on the SV *display*. *Use* the “UP” and “DOWN” *keys* to set the other days (d1…d6) and Every Day (d7).
Press “SET” to view parameter *E0* in *folder* d0…d7.
Use the “▲” and “▼” *keys* to scroll the other *parameters E1…E3*.
To modify the parameter required, press the “SET” key again.

- *Parameters E0*, *E2*, *E3*: the corresponding *label* will blink: *Use* the “▲” and “▼” *keys* to modify the value of the parameter.
- Parameter *E1*:
  - the value of the hours will flash. *Use* the “▲” and “▼” *keys* to modify the value of the parameter.
  - Press “SET”: the minutes value will flash. *Use* the “▲” and “▼” *keys* to modify the value of the parameter.

Either press no key for 15 seconds (time-out) or press the “ESC” key once to confirm the last value displayed and go back to the previous screen.

Folder nAd menu

Nr	*Display*	Key	Description
1			Open Configuration *Menu* - - - Press SET until you get to *folder* nAd
2			Press the DOWN key to see the first day of the week d0.
3			*Use* the ‘UP’ and ‘DOWN’ *keys* to see the other days d1…d6 and Every Day d7. - - - Press SET to view the *parameters* for the selected day (d0 in this case).
4			The first parameter *E0* appears. - - - Press the ‘SET’ key to change the value shown. *Label E0* will flash.

Nr	*Display*	Key	Description
5A			*Use* the UP and DOWN *keys* to change the value shown (from 0 to 1 in this case).
5B			N.B Press SET or ESC to confirm the value.
5C			*Use* the UP and DOWN *keys* to go to the next parameter. - - or Press ESC again to go back to point 3.
6A			Press the 'SET' key to change the value shown. N.B: In this case, the hours *label* will flash.
6B			
6C			*Use* the UP and DOWN *keys* to change the hours value (from 0 to 1 in this case).
7			Press the SET key again to modify the minutes. The minutes *label* will flash. - - - N.B Press **ESC** to confirm the value. - - - Press ESC again to go back to point 3.

28 ADVANCED FUNCTIONS - HACCP

To meet the minimum requirements prescribed in HACCP *regulations*, there is a set of dedicated *parameters*.
These *parameters* can be viewed and configured in *folder*:

- **HACCP (*folder* with *label* "HAC"),**

(see *user interface* and *parameters* sections).

The recording of HACCP alarms can be enabled in parameter H50≠0.
Enable (START) recording HACCP alarms starts each time alarms are erased – see section
Delete HACCP alarms.

These *parameters* record and file all high or low temperature alarms on cold room probe Pb1 or *display* probe Pb3 and any power failures that effect the power supply to the controller.

In addition to alarms, these *parameters* also record any controller blackouts, saving the number of blackouts that have occurred since the last time the machine was stopped.
Alarms for the HACCP function are managed independently from the rest of the regulators.

Each HACCP alarm consists of a *folder* containing the following information:

- Number of alarms: up to 40 alarms can be saved: 20 high/low temperature and 20 power failures.
- Type of alarm: **Ht** (high temperature), **Lt** (low temperature) and **PF** (Power Failure).
- Time/date and duration of all alarms.
- Highest or lowest temperature, with relative time/date, reached during the event.

Immediate HACCP alarm

Parameters SLi, SHi

When a temperature value exceeds the control *range* set in *parameters* **SLi** and **SHi** an HACCP alarm is signalled.
This threshold indicates the limit beyond which the food concerned would deteriorate irreparably.

HACCP Alarm

Parameters SLL, SHH

When a temperature value exceeds the control *range* set in *parameters* **SLL** and **SHH** for longer than the time set in parameter drA, an HACCP alarm is signalled.

28.1.1 View HACCP alarm messages

No.	*Display*	Key	Description
1			From the main *display*, press the ▲/HACCP key.
2			**Alarms *Menu*** If there are any HACCP alarms, the word HACCP will appear.
3			*Label* AHC will be shown on the PV *display*, whilst the two values indicating the the alarm number (1) and the type of alarm will be shown on the SV *display*. - - - To view data in each AHC *folder*, press the 'set' key.
4			The first value with the *label* StA on the PV *display* indicates the time the alarm commenced. - - - This screen alternates every three seconds with another screen, which will always have the *label* StA, although it specifies

No.	*Display*	Key	Description
5			the date the alarm occurred. - - - From the alarm start date/time read-out, press the 'SET' key …
6			…the device will show the alarm duration in hours:minutes. - - - Press the 'set' key again …
7A			…and the highest temperature measured by the probe during the alarm (on the PV *display*) will be displayed along with the relative time/date (SV *display*). - - - As before in the read-out of alarm activation data (*label* StA), two different screens will also alternate every three seconds: the first one shows the time (hh:mm) and the second one the date (dd:mm) the temperature was recorded.
7B			
8			To return to the alarm read-out (*label* AHC) from any level, just press the 'esc' key.

28.1.2 HACCP Power Failure (PF) alarm

In the event of a power failure, up to 20 alarms are generated and identified with the *label* PF in order to accurately assess the state of foodstuffs.

PF alarms can be viewed in the same way as HACCP alarm read-outs:

- 1-2 see View HACCP Alarms.
- 3 The *label* AHC is shown on the PV *display* whilst the two values for the alarm number (1) and type of **PF** alarm are shown on the SV *display*.
- 4-6 see View HACCP Alarms.
- 7A see View HACCP Alarms.
- 7B … The highest temperature read by the probe after the controller was switched off and before it was powered back on again , in the event the pre-programmed temperature limit was exceeded.
  This temperature is shown on the PV *display* whilst the *label* PO FA.
  (POwer FAilure) is shown on the SV *display*.

28.1.3 Deleting HACCP alarms

To avoid saving PF alarms each time the controller is automatically powered on, the *label* PF / CAnC (alternating with the main *display*) appears on the *display*.

- In this situation, press and hold the [▲/HACCP] key and the alarm will not be recorded and the *label* will disappear.
- Otherwise, the PF/ CAnC *label* remains on the *display* and after about 3 minutes the alarm is recorded and the *label* disappears.

Manual deletion of HACCP alarms can be associated to:

- A key (see configuration of *parameters* H31...H37=4) with the delay set in parameter H02.
- A digital input (see configuration of *parameters* H11...H14=9).
- The rHC function (PA3 password-protected, see *Functions Menu*).

Each time HACCP alarms are cancelled, parameter drH clears and the HACCP alarm *LED* switches off.

N.B.:

- When the maximum number of alarms has already been saved, any further alarms will overwrite previous ones: to indicate this, the number of alarms on the *display* flashes.
- See the *User Interface* section for information on how HACCP alarm indication LEDs work.

29 ANNEXE A – MODELS AND ACCESSORIES

29.1 Models

Model	Part number	Digital inputs (low voltage)	Digital outputs (high voltage)	Analogue outputs PWM Safe voltage (SELV)	Analogue inputs
		(DI1...DI4)	**(OUT1...OUT8)**	**(A0)**	**(Pb1...Pb5)**
EWHT 800 LX	HTE48DTX1HH00	**4**	**8**	**1**	5
EWRC 800 LX	RCE48DTX1HH00	**4**	**8**	**1**	5
EWRC 550 LX	RCEMIPTX1HH00	**4**	**5 (OUT1...OUT5)**	**1**	**4 (Pb1...Pb3, Pb5)**

29.2 Accessories

29.2.1 All models

Temperature probes				
	Name	**Part number**	**Description**	**Documentation**
	*TEMPERATURE PROBES* (1) (2)	SN691150	NTC 103AT sensor, 1.5m (plastic hood, 2 core cable);	
		SN8S0A1500	NTC 6X40 temperature probe, 1.5m SILICONE (metal).	**Instruction sheet** SN8S0A1500 GB-I
		SN8S0A3000	NTC 6X40 temperature probe, 3m SILICONE (metal).	
		...	• Metal cap, silicon or PVC cable • NTC probe 6x40, 1.5m	Contact Eliwell sales department
		TD200030	Pressure transducer EWPA 030 4...20mA 0/30bar Female connector	
		TD200107	Pressure transducer EWPA 007 4...20mA -5/8bar Male connector	
		TD300008	Pressure transducer EWPA 007 4...20mA -5/8bar Female connector	

Eliwell can also supply a variety of different NTC probes depending on the cable type (PVC or silicon) and length.

	Name	Part number	Description
Door lock			
	Door lock switch disconnector ABB OT16E4	SWZ00000001	
	Door lock ABB OHY2AJ	SWZ00000002	
	Bar ABB OXS5X85	SWZ00000003	
KIT *RS485*			
	KIT *RS485*	KP250110	KIT *RS485* EWRC V1.0

	Name	Part number	Description
Copy Card			
	*Copy Card*		Smart key to upload/download *parameters*

Interface modules				
	Name	**Part number**	**Description**	**Documentation**
	PCInterface 2150 USB	PCI6A3000000	RS-485 + *TTL* for ParamManager	**Instruction sheet 9IS43083** PCInterface 2150 series GB-I-E-D-F
	PCInterface2150	PCI5A3000000	RS-485 + *TTL* for ParamManager	
Connectivity				
	130 *TTL RS485* bus adapter	BA11250N3700	*TTL*/RS-485 communication interface 12V aux. output to supply the device. *TTL* 1m cable (2)	**Instruction sheet 9IS43084** BusAdapter 130-150-350 GB-I-E-D-F
	150 *TTL RS485* bus adapter	BA10000R3700	*TTL*/RS-485 communication interface *TTL* 1m cable (2)	
Software tools				
	Param Manager AC/CR	SLP05XX000100	All instrument *parameters* can be fully controlled via PC using a suitable Personal Computer with Windows 95 operating system or later, Param Manager software, a PCI 2150 interface module and the necessary cables.	**Manual 8MA00006** Param manager ITA **8MA10006** Param manager GB

N.B: Do not *use* the same power supply for the PC Interface and the EWHT/EWRC device.

Fan modules				
	Name	**Part number**	**Description**	**Documentation**
	CFS FAN MODULES (1)	For part numbers **See instruction sheet**	Single-phase speed regulators for currents from 2A to 9A	**Instruction sheet 8FI40014** CFS –Fan Speed Modules GB-I-E-D-F

Fan modules				
	Name	**Part number**	**Description**	**Documentation**
	CF-*REL* FAN MODULE	MW991300	6A 230V relay	**Instruction sheet 8FI40014** CFS –Fan Speed Modules GB-I-E-D-F
	CFS05 TANDEM FAN MODULE	MW991012	TRIAC 5+5A 230V	**Instruction sheet 8FI40016** CFS05 - TANDEM - Fan Speed Module GB-I-E-D-F
	THREE-PHASE FAN REGULATOR (DRV 300) (1) 3 phases 12...20A/420V~ (IP22 or IP55)	LD312420T1S00	Specifications: • 20A, 420V ~ rated; • Box: IP22.	Contact Eliwell sales department
		LD320420T1S00	Specifications: • 20A, 420V ~ rated; • Box: IP55.	Contact Eliwell sales department
		LD312420T1G00	Specifications: • 12A, 420V ~ rated; • Box: IP22.	Contact Eliwell sales department
		LD320420T1G00	Specifications: • 20A, 420V ~ rated; • Box: IP22.	Contact Eliwell sales department

29.2.2 EWHT800LX only

Humidity transducers				
	Name	**Part number**	**Description**	**Documentation**
	EWHS 280	SN560000	Relative humidity transducer (*range* 20%...90%)	
	EWHS 300	SN520000	Relative humidity transducer (*range* 5%...98%)	
	EWHS 310	SN51000	Relative humidity (*range* 20%...90%) and temperature (*Range* -10°C...+70°C) transducer	

(1) Various items available. Contact our Sales Office.
(2) Various lengths can be requested.

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