















## DIAGNOSTICS

Alarms are always indicated by the alarm icon (🔔), the buzzer and the relay (if setting).

To switch off the buzzer, press and release any key; the corresponding icon will continue to flash.

**N.B.:** If alarm exclusion times have been set (see "AL" folder in the parameters table) the alarm will not be signalled.

In the event of an alarm caused by an inoperable **Pb1** probe (ambient), the indication "E1" will appear on the display.

For an inoperable **Pb2** probe (evaporator), the indication "E2" will appear.

For an inoperable **Pb3** probe, the indication "E3" will appear on the display.

## ALARMS

Label	Description	Cause	Effects	Remedy
<b>E1</b>	Probe1 in error (ambient)	<ul style="list-style-type: none"> <li>• measured values are outside operating range</li> <li>• Probe inoperable/short-circuited/open</li> </ul>	<ul style="list-style-type: none"> <li>• Display label <b>E1</b></li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> <li>• Disable max/min alarm controller</li> <li>• Compressor operation based on parameters "<b>Ont</b>" and "<b>Oft</b>"</li> </ul>	<ul style="list-style-type: none"> <li>• check probe type (<b>H00</b>)</li> <li>• check probe wiring</li> <li>• replace probe</li> </ul>
<b>E2</b>	Probe2 in error (defrost)	<ul style="list-style-type: none"> <li>• measured values are outside operating range</li> <li>• Probe inoperable/short-circuited/open</li> </ul>	<ul style="list-style-type: none"> <li>• Display label <b>E2</b></li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> <li>• The Defrost cycle will end due to Timeout (parameter <b>dEt</b>)</li> <li>• The evaporator fans will be: on if the compressor is ON, or running in accordance with the <b>FCO</b> parameter if the compressor is OFF.</li> </ul>	<ul style="list-style-type: none"> <li>• check probe type (<b>H00</b>)</li> <li>• check probe wiring</li> <li>• replace probe</li> </ul>
<b>E3</b>	Probe3 in error	<ul style="list-style-type: none"> <li>• measured values are outside operating range</li> <li>• Probe inoperable/short-circuited/open</li> </ul>	<ul style="list-style-type: none"> <li>• Display label <b>E3</b></li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> </ul>	<ul style="list-style-type: none"> <li>• check probe type (<b>H00</b>)</li> <li>• check probe wiring</li> <li>• replace probe</li> </ul>



Label	Description	Cause	Effects	Remedy
<b>AH1</b>	Alarm for HIGH Pb1 temperature	value read by <b>Pb1</b> > <b>HAL</b> after time of " <b>tAO</b> ". (see "MAX/MIN TEMP.ALARMS")	<ul style="list-style-type: none"> <li>Recording of label <b>AH1</b> in folder AL</li> <li>Relay activation (if setting)</li> <li>No effect on regulation</li> </ul>	wait until value read by Pb1 returns below <b>HAL</b> .
<b>AL1</b>	Alarm for LOW Pb1 temperature	value read by <b>Pb1</b> < <b>LAL</b> after time of " <b>tAO</b> ". (see "MAX/MIN TEMP.ALARMS")	<ul style="list-style-type: none"> <li>Recording of label <b>AL1</b> in folder AL</li> <li>Relay activation (if setting)</li> <li>No effect on regulation</li> </ul>	wait until value read by Pb1 returns above <b>LAL</b>
<b>EA</b>	External alarm	Digital input activated ( <b>H11</b> = $\pm 5$ )	<ul style="list-style-type: none"> <li>Recording of label <b>EA</b> in folder AL</li> <li>Alarm icon permanently on</li> <li>Relay activation (if setting)</li> <li>Regulation locked if <b>rLO</b> = y</li> </ul>	check and remove the external cause which triggered the alarm on the D.I.
<b>OPd</b>	Door open alarm	Digital input activated ( <b>H11</b> = $\pm 4$ ) (for longer than <b>tdO</b> )	<ul style="list-style-type: none"> <li>Recording of label <b>OPd</b> in folder AL</li> <li>Alarm icon permanently on</li> <li>Relay activation (if setting)</li> <li>Regulation locked</li> </ul>	<ul style="list-style-type: none"> <li>close the door</li> <li>delay function defined by <b>OAO</b></li> </ul>
<b>Ad2</b>	Defrost due to timeout	End of defrost cycle due to timeout rather than due to defrost end temperature being recorded by probe Pb2.	<ul style="list-style-type: none"> <li>Recording of label <b>Ad2</b> in folder AL</li> <li>Alarm icon permanently on</li> <li>Relay activation (if setting)</li> </ul>	wait for the next defrost cycle for automatic return
<b>COH</b>	Over Heating alarm	Pb3 value set by parameter SA3 exceeded.	<ul style="list-style-type: none"> <li>Recording of label <b>COH</b> in folder AL</li> <li>Alarm icon permanently on</li> <li>Relay activation (if setting)</li> <li>Regulation locked (Compressor)</li> </ul>	wait for the temperature to return to a value of <b>SA3</b> (Setpoint) minus <b>dA3</b> (differential).
<b>nPA</b>	General pressure switch alarm	Activation of pressure alarm by general pressure switch.	<p>If the number of pressure switch activations is <b>N</b> &lt; <b>PEn</b>:</p> <ul style="list-style-type: none"> <li>Recording of folder <b>nPA</b> in folder AL, with the number of pressure switch activations</li> <li>Regulation locked (Compressor and Fans)</li> </ul>	check and remove the cause which triggered the alarm on the D.I. (Automatic Reset)

Label	Description	Cause	Effects	Remedy
<b>PAL</b>	General pressure switch alarm	Activation of pressure alarm by general pressure switch.	<p>If the number of pressure switch activations is <b>N = PEn</b>:</p> <ul style="list-style-type: none"> <li>• Display label <b>PAL</b></li> <li>• Recording of label <b>PA</b> in folder AL</li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> <li>• Regulation locked (Compressor and Fans)</li> </ul>	<ul style="list-style-type: none"> <li>• Switch the device off and back on again</li> <li>• Reset alarms by entering the functions folder and selecting the <b>rAP</b> function (Manual Reset)</li> </ul>
<b>HC n</b>	Max/Min Pb3 value when out of range (SLH...SHH)	Logs the Max/Min value recorded by Pb3 when it exceeds the range SLH...SHH. " <b>n</b> " represents the sequential number of times the range is exceeded.	<ul style="list-style-type: none"> <li>• Recording of folder "HC <b>n</b>" in folder AL</li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> <li>• No effect on regulation</li> </ul>	<b>N.B.:</b> " <b>n</b> " can assume the values 1 to 8. If <b>n</b> > 8, folder HC8 will flash and the system will overwrite folders where <b>n</b> =1.
<b>tC n</b>	Pb3 out-of-range dwell time (SLH...SHH)	Stores the dwell time of the Pb3 value outside of the range SLH...SHH. " <b>n</b> " represents the sequential number of times the range is exceeded.	<ul style="list-style-type: none"> <li>• Recording of folder "tC <b>n</b>" in folder AL</li> <li>• Alarm icon permanently on</li> <li>• Relay activation (if setting)</li> <li>• No effect on regulation</li> </ul>	<b>N.B.:</b> " <b>n</b> " can assume the values 1 to 8. If <b>n</b> > 8, folder HC8 will flash and the system will overwrite folders where <b>n</b> =1.
<b>bC n</b>	Value recorded by Pb3 on return from <b>bOt</b>	Logs the value recorded by Pb3 on return from a blackout. " <b>n</b> " represents the sequential number of blackouts that have occurred.	<ul style="list-style-type: none"> <li>• Recording of folder "bC <b>n</b>" in folder AL</li> <li>• No effect on regulation</li> </ul>	<b>N.B.:</b> " <b>n</b> " can assume the values 1 to 8. If <b>n</b> > 8, folder bC8 will flash and the system will overwrite folders where <b>n</b> =1.
<b>bt n</b>	Pb3 out-of-range dwell time during <b>bOt</b>	Stores the out-of-range dwell time of the Pb3 value during a blackout. " <b>n</b> " represents the sequential number of blackouts that have occurred.	<ul style="list-style-type: none"> <li>• Recording of folder "bt <b>n</b>" in folder AL. The value contained will be <b>0</b> if the value of Pb3 has remained within the range, <b>≠ 0</b> if the value has gone outside of the range.</li> <li>• No effect on regulation</li> </ul>	<b>N.B.:</b> " <b>n</b> " can assume the values 1 to 8. If <b>n</b> > 8, folder bC8 will flash and the system will overwrite folders where <b>n</b> =1.

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

## PASSWORD

**Password "PA1"**: used to access **User** parameters. The password is not enabled by default (**PS1=0**).

To enable it (**PS1≠0**): press and hold **set** for longer than 5 seconds, scroll through the parameters using **⏪** and **⏩** until you see the label **PS1**, press **set** to display the value, modify it using **⏪** and **⏩**, then save it by pressing **set** or **⏏**. If enabled, it will be required in order to access the User parameters.

**Password "PA2"**: used to access **Installer** parameters. The password is enabled by default (**PS2=15**).

To modify it (**PS2≠15**): press **set** and hold for longer than 5 seconds, scroll through the parameters using **⏪** and **⏩** until you see the label **PA2**, press **set**, set the value to "15" using **⏪** and **⏩**, then confirm using **set**. Scroll through the folders until you find the label **diS** and press **set** to enter. Scroll through the parameters using **⏪** and **⏩** until you see the label **PS2**, press **set** to display the value, modify it using **⏪** and **⏩**, then save it by pressing **set** or **⏏**.

The visibility of "PA2" is as follows:

- 1) **PA1 and PA2 ≠ 0**: Press and hold **set** for longer than 5 seconds to display "PA1" and "PA2". It will then be possible to decide whether to access the User (PA1) or the Installer (PA2) parameters.
- 2) **Otherwise**: The password "PA2" is amongst the level 1 parameters. If enabled, it will be required when accessing the Installer parameters; to enter it, proceed as instructed for password "PA1".

If the password entered is incorrect, the label PA1/PA2 will be displayed again and the procedure will need to be repeated.

## USING THE COPY CARD

The Copy Card is connected to the serial port (TTL) and allows rapid programming of the instrument parameters.

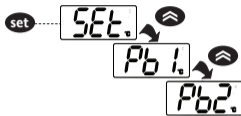
Access **Installer** parameters by entering "PA2", scroll through the folders using **⏪** and **⏩** until folder **FPr** appears. Select it using **set**, scroll through the parameters using **⏪** and **⏩**, then select the function using **set** (e.g. **UL**).

- **Upload (UL)**: Select UL and press **set**. This function uploads the programming parameters from the instrument to the card. If the procedure is a success, "y" will appear on the display, otherwise "n" will appear.
- **Format (Fr)**: This command is used to format the copy card, (recommended when using the card for the first time).  
**Important**: the **Fr** parameter deletes all data present. This operation cannot be cancelled.
- **Download**: Connect the Copy Card when the instrument is switched off. At power-on, data is downloaded from the copy card to the instrument automatically. At the end of the lamp test, the display will show "dLy" if the operation was successful and "dLn" if not.

**NOTE**: After downloading, the instrument works with the settings of the new map just downloaded.

## MACHINE STATUS MENU

Access the Machine Status menu by pressing **set** and releasing the key. If no alarms are active, the "SEt" label appears. Use the keys **⏶** and **⏷** to scroll through all the folders in the menu:



- AL: alarms folder (**only visible if an alarm is active**);
- SEt: Setpoint setting folder;
- Pb1: probe 1 - Pb1 folder;
- Pb2: probe 2 - Pb2\* folder;
- Pb3: probe 3 - Pb3\*\* folder;

\* folder displayed if Pb2 present (H42 = y)

\*\* folder displayed if Pb3 present (H11 = 0 and H43 = y)

### Setting the Setpoint:

To display the Setpoint value press the **set** key when the "SEt" label is displayed.

The Setpoint value appears on the display. To change the Setpoint value, press the **⏶** and **⏷** keys within 15 seconds. Press **set** to confirm the modification.

### Displaying the probes:

When labels Pb1, Pb2 or Pb3 are present, press the **set** key to view the value measured by the corresponding probe (**NOTE**: the value cannot be modified).

## PROGRAMMING MENU

To access the "Programming" menu, press the **set** key for more than 5 seconds. If specified, an access PASSWORD will be requested: "PA1" for User parameters and "PA2" for Installer parameters (see "PASSWORD" paragraph).

### User parameters:

When accessed, the display will show the first parameter (e.g. "diF"). Press **⏶** and **⏷** to scroll through all the parameters on the current level. Select the desired parameter by pressing **set**. Press **⏶** and **⏷** to modify it and **set** to save the changes.

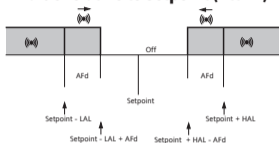
### Installer parameters:

When accessed, the display will show the first folder (e.g. "CP"). Press **⏶** and **⏷** to scroll through the folders on the current level. Select the desired folder using **set**. Press **⏶** and **⏷** to scroll through the parameters in the current folder and select the parameter using **set**. Press **⏶** and **⏷** to modify it and **set** to save the changes.

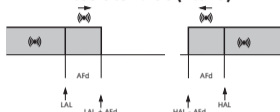
**NOTE:** Make sure you switch the instrument off and on again each time the parameter configuration is changed, in order to prevent malfunctioning in the configuration and/or timing in progress.

## MAX/MIN TEMPERATURE ALARMS

### Temperature as a value relative to Setpoint (Att=1)



### Temperature as an Absolute value (Att=0)



Minimum alarm	Temp. $\leq$ <b>Set + LAL *</b>	Temp. $\leq$ <b>LAL (LAL with sign)</b>
Maximum alarm	Temp. $\geq$ <b>Set + HAL **</b>	Temp. $\geq$ <b>HAL (HAL with sign)</b>
Returning from minimum temperature alarm	Temp. $\geq$ <b>Set + LAL + AFd</b> or $\geq$ <b>Set -  LAL  + AFd (LAL &lt; 0)</b>	Temp. $\geq$ <b>LAL + AFd</b>
Returning from maximum temperature alarm	Temp. $\leq$ <b>Set + HAL - AFd (HAL &gt; 0)</b>	Temp. $\leq$ <b>HAL - AFd</b>
	<b>* if LAL is negative, Set + LAL &lt; Set</b>	
	<b>** if HAL is negative, Set + HAL &lt; Set</b>	

## ELECTRICAL CONNECTIONS

**Attention! Make sure the machine is switched off before working on the electrical connections.**

The instrument is equipped with screw or disconnectable terminal blocks for connecting electrical cables with a max. diameter of 2.5 mm<sup>2</sup> (one wire per terminal for power connections): for the terminal ratings, see the label on the instrument.

Do not exceed the maximum permissible current; in case of higher loads, use a suitably rated contactor. Make sure the power supply voltage complies with that required by the instrument. Probes have no connection polarity and can be extended using a normal bipolar cable (note that the extension of the probes influences the electromagnetic compatibility - EMC - of the instrument: take great care with the wiring).

Probe cables, power supply cables and the TTL serial cable should be routed separately from power cables.

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

Classification:	operation (not safety) device for incorporation
Mounting:	panel mounting with 71x29 mm (+0.2/-0.1 mm) drilling template
Type of action:	1.B
Pollution class:	2
Insulation material class:	IIIa
Overvoltage category:	II
Rated impulse voltage:	2500 V
Temperature:	Use: -5 ... +55°C - Storage: -30 ... +85 °C
Power supply:	230 Vac ( $\pm 10\%$ ) 50/60 Hz
Consumption:	4.5 W max
Digital outputs (relay):	refer to the label on the device
Fire resistance category:	D
Software class:	A

**NOTE: check the power supply specified on the instrument label; contact our Sales Office for power supply and relay ratings.**

## FURTHER INFORMATION

### Input Characteristics

Display range:	<b>NTC:</b> -50.0 ... 110 °C; <b>PTC:</b> -55.0 ... 140 °C; <b>PT1000:</b> -55.0 ... 150 °C (on display with 3 digits + sign)
Accuracy:	<b>NTC, PTC, PT1000</b> (-55,0 ... 70 °C): Better than 0.5% of full scale +1 digit <b>PT1000</b> (70,0 ... 150 °C): Better than 0.6% of full scale +1 digit
Resolution:	0.1 °C
Buzzer:	YES
Analogue inputs:	2 NTC (default)/PTC/PT1000 (can be selected using parameter <b>H00</b> )
Digital inputs:	2 voltage-free digital inputs

- N.B.:** - D.I.1 can also be configured as a probe input (**H11**=0 and **H43**=y)  
- D.I.2, if activated, should be connected to terminals 1-2 of the TTL

### **Output Characteristics**

Digital outputs:	1 Compressor relay: UL60730 (A) 1.5Hp (10FLA - 60LRA) max 240 Vac
	1 Defrost relay: NA 8(4) A - NC 6(3) A max 250 Vac
	1 Fans relay: 5(2) A max 250 Vac
	1 Alarm relay: 5(2) A max 250 Vac

### **Mechanical Characteristics**

Casing:	PC+ABS UL94 V-0 resin casing, polycarbonate window, thermoplastic resin keys
Dimensions:	front panel 78.6x37 mm, depth 59 mm (without terminals)
Terminals:	screw/disconnectable terminals for cables with a diameter of 2.5mm <sup>2</sup>
Connectors:	TTL for connection of Copy Card + D.I.2
Humidity:	Use / Storage: 10 ... 90 %RH (non-condensing)

### **Regulations**

Food Safety:	The device complies with standard EN 13485 as follows: <ul style="list-style-type: none"><li>- suitable for storage</li><li>- application: air</li><li>- climate range A</li><li>- measurement class 1 in the range from -25 ... 15 °C (*)</li></ul>
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**(\* exclusively using Eliwell probes)**

**NOTE:** The technical specifications given in this document regarding measurement (range, accuracy, resolution, etc.) refer to the instrument and not to any accessories provided (for example: probes).

## DESCRIPTION OF IDPlus 978 FAMILY

IDPlus 978 devices are controllers with 4 relay outputs, 2 temperature sensors (regulation and evaporator), a multifunctional Digital/Temperature input and a digital input.

Relay outputs 2, 3 and 4 can be used to control:

- compressor
- defrost heating elements
- evaporator fans
- AUX output
- alarm
- Standby

The second probe can be used to control the defrost cycle and the evaporator fans.

The Digital inputs (D.I.1 and D.I.2) can be used for:

- Energy Saving
- defrost activation
- AUX management
- door switch
- standby
- external alarm
- deep cooling
- pressure switch
- HACCP alarms



## "USER MENU" PARAMETERS TABLE

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
SEt	Temperature control SEtpoint	LSE ... HSE	0.0	0.0	0.0	0.0	°C/°F
diF	Compressor relay activation differential	0.1 ... 30.0	2.0	2.0	2.0	2.0	°C/°F
HSE	Maximum value that can be assigned to the Setpoint	LSE ... 302	99.0	99.0	99.0	99.0	°C/°F
LSE	Minimum value that can be assigned to the Setpoint	-58.0 ... HSE	-50.0	-50.0	-50.0	-50.0	°C/°F
dtY	Type of defrost	0/1/2	0	0		1	num
dIt	Interval between the start of two consecutive defrost cycles	0 ... 250	6	6	6	6	hours
dEt	Defrost timeout	1 ... 250	30	30	30	30	min
dSt	End defrost temperature	-50.0 ... 150	8.0	8.0	8.0	8.0	°C/°F
FSt	Fans stop temperature	-58.0 ... 302	50.0	50.0	50.0	50.0	°C/°F
Fdt	Fan activation delay after a defrost cycle	0 ... 250	0	0	0	0	min
dt	Coil drainage time	0 ... 250	0	0	0	0	min
dFd	To select or exclude the fans (it depends on FCO parameter)	n/y	y	y	y	y	min
HAL	Maximum temperature alarm	LAL ... 150	50.0	50.0	50.0	50.0	°C/°F
LAL	Minimum temperature alarm	-50.0 ... HAL	-50.0	-50.0	-50.0	-50.0	°C/°F
LOC	Basic commands modification lock	n/y	n	n	n	n	flag
PS1	PASsword 1 for access to QUICK menu parameters	0 ... 250	0	0	0	0	num
CA1	Calibration1. Value to be added to the value read by probe 1	-12.0 ... 12.0	0.0	0.0	0.0	0.0	°C/°F
CA2	Calibration2. Value to be added to the value read by probe 2	-12.0 ... 12.0	0.0	0.0	0.0	0.0	°C/°F
CA3	Calibration3. Value to be added to the value read by probe 3	-12.0 ... 12.0	0.0	0.0		0.0	°C/°F
ddl	Display mode during defrost	0/1/2	0	0	0	0	num
Ldd	Display lock disabling timeout. 0 = function disabled	0 ... 255	30	30	30	30	min
SHH	Maximum HACCP alarm signals threshold	-55.0 ... 150		10.0			°C/°F
SLH	Minimum HACCP alarm signals threshold	-55.0 ... 150		-10.0			°C/°F
drA	Minimum time spent in critical range before alarm occurs	0 ... 99		10			min
drH	HACCP alarm reset time after last reset	0 ... 250		24			hours
H50	enable HACCP and alarm relay functions	0/1/2		2			num
H51	HACCP alarm exclusion time	0 ... 250		0			min
H42	Evaporator probe present	n/y	y	y	y	y	flag
H43	Probe 3 present	n/y	n	y	n	n	flag
rEL	firmware rELease. Reserved: read-only parameter	/	/	/	/	/	/
tAb	table of parameters. Reserved: read-only parameter	/	/	/	/	/	/

**Notes:** \* The USER menu parameters also include: **PA2**, which can be used to access the Installer menu

\*\* To reset the HACCP alarms, use the **rES** function in the FnC folder for Installer parameters

\*\*\* For the complete list of parameters, see: **Table of Installer menu parameters.**

## "INSTALLER MENU" PARAMETERS TABLE

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
SEt	Temperature control SEtpoint.	LSE ... HSE	0,0	0,0	0,0	0,0	°C/°F
<b>COMPRESSOR ("CP" folder)</b>							
diF	diFferential. Compressor relay activation differential.	0,1...30,0	2,0	2,0	2,0	2,0	°C/°F
HSE	Higher SEt. Maximum value that can be assigned to the Setpoint.	LSE...302	99,0	99,0	99,0	99,0	°C/°F
LSE	Lower SEt. Minimum value that can be assigned to the Setpoint.	-58,0...HSE	-50,0	-50,0	-50,0	-50,0	°C/°F
OSP	Temperature value to be added to the Setpoint if reduced set enabled (Economy function).	-30,0...30,0	3,0	0,0	0,0	3,0	°C/°F
Hc	Control mode. <b>C</b> (0) = Cold; <b>H</b> (1) = Hot.	C/H	C	C	C	C	flag
Ont	Controller on time for faulty probe. If <b>Ont = 1</b> and <b>Oft = 0</b> , the compressor remains on; if <b>Ont=1</b> and <b>Oft&gt;0</b> it runs in duty cycle mode.	0 ... 250	0	0	0	0	min
Oft	Controller off time for faulty probe. If <b>Oft = 1</b> and <b>Ont = 0</b> , the controller remains off; if <b>Oft = 1</b> and <b>Ont&gt;0</b> , it operates in duty cycle mode.	0 ... 250	1	1	1	1	min
dOn	Compressor relay activation delay after request.	0 ... 250	0	0	0	0	secs
dOf	Delay after switching off and subsequent activation.	0 ... 250	0	0	0	0	min
dbi	Delay between two consecutive compressor activations.	0 ... 250	0	0	0	0	min
OdO (!)	Delay in activating outputs after the instrument is switched on or after a power failure. <b>0</b> = not active.	0 ... 250	0	0	0	0	min
dcS	Deep Cooling cycle Setpoint.	-58,0...302	0,0	0,0	0,0	0,0	°C/°F
tdc	Deep Cooling cycle duration.	0 ... 255	0	0	0	0	min
dcc	Defrost activation delay after a Deep Cooling cycle.	0 ... 255	0	0	0	0	min
<b>DEFROST ("DEF" folder)</b>							
dtY	Type of defrost. <b>0</b> = electrical defrost; <b>1</b> = reverse cycle defrost; <b>2</b> = defrost independent of compressor.	0/1/2	0	0	0	1	num
dit	Interval between the start of two consecutive defrost cycles.	0 ... 250	6	6	6	6	hours
dCt	Selection of count mode for the defrost interval. <b>0</b> = compressor running time; <b>1</b> = appliance running time; <b>2</b> = A defrost cycle is run at each compressor stop.	0/1/2	1	1	1	1	num

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
dOH	Delay for start of first defrost after request.	0 ... 59	0	0	0	0	min
dEt	Defrost timeout; determines the maximum defrost duration.	1 ... 250	30	30	30	30	min
dSt	Defrost end temperature - determined by probe Pb2.	-50,0...150	8,0	8,0	8,0	50,0	°C/°F
dPO	Determines whether the instrument must enter defrost mode at start-up. <b>n</b> (0) = no; <b>y</b> (1) = yes.	n/y	n	n	n	n	flag
FANS ("FAn" folder)							
FSt	Fans stop temperature.	-58,0...302	50,0	50,0	50,0	50,0	°C/°F
FAd	Fan activation differential.	1,0 ... 50,0	2,0	2,0	2,0	2,0	°C/°F
Fdt	Fan activation delay after a defrost cycle.	0 ... 250	0	0	0	0	min
dt	Coil drainage time.	0 ... 250	0	0	0	0	min
dFd	Allows evaporator fan exclusion to be selected or not selected during defrosting. <b>n</b> (0) = no (it depends on FCO parameter); <b>y</b> (1) = yes (fans excluded).	n/y	y	y	y	y	flag
FCO	Selects or deselects fan deactivation at compressor OFF. <b>0</b> = fans off; <b>1</b> = fans active; <b>2</b> = duty cycle	0/1/2	0	0	0	0	num
FOn	Fans ON time in day duty cycle.	0 ... 99	0	0	0	0	min
FOF	Fans OFF time in day duty cycle.	0 ... 99	0	0	0	0	min
Fnn	Fans ON time in night duty cycle.	0 ... 99	0	0	0	0	min
FnF	Fans OFF time in night duty cycle.	0 ... 99	0	0	0	0	min
ESF	Night mode activation. <b>n</b> (0) = no; <b>y</b> (1) = yes.	n/y	n	n	n	n	flag
ALARMS ("AL" folder)							
Att	Can be used to select absolute ( <b>Att=0</b> ) or relative ( <b>Att=1</b> ) values for HAL and LAL parameters.	0/1	0	0	0	0	num
Afd	Alarm differential.	1,0 ... 50,0	2,0	2,0	2,0	2,0	°C/°F
HAL	Maximum temperature alarm.	LAL...302	50,0	50,0	50,0	50,0	°C/°F
LAL	Minimum temperature alarm.	-58,0...HAL	-50,0	-50,0	-50,0	-50,0	°C/°F
PAO	Alarm exclusion time after re-activation following a power failure.	0 ... 10	0	0	0	0	hours
dAO	Temperature alarm exclusion time after defrost.	0 ... 999	0	0	0	0	min
OA0	Alarm signalling delay after disabling of digital input.	0 ... 10	0	0	0	0	hours
tdO	Delay in door open alarm activation.	0 ... 250	0	0	0	0	min

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
tAO	Time delay for temperature alarm indication.	0 ... 250	0	0	0	0	min
dAt	Alarm signalling end of defrost due to timeout. <b>n</b> (0) = no; <b>y</b> (1) = yes.	n/y	n	n	n	n	flag
rLO	External alarm locks controllers. <b>n</b> (0) = does not lock; <b>y</b> (1) = locks.	n/y	n	n	n	n	flag
SA3	Probe 3 alarm Setpoint.	-58,0...302	0,0	0,0	0,0	0,0	°C/°F
dA3	Probe 3 alarm differential.	1,0 ... 50,0	1,0	1,0	1,0	1,0	°C/°F
LIGHTS & DIGITAL INPUTS ("Lit" folder)							
dOd	Digital input for switching off utilities. <b>0</b> =disabled; <b>1</b> =disables fans; <b>2</b> =disables the compressor; <b>3</b> =disables fans and compressor.	0/1/2/3	0	0	0	0	num
dAd	Activation delay for digital input.	0 ... 255	0	0	0	0	min
dCO	Compressor deactivation delay after door opened.	0 ... 255	1	1	1	1	min
AuP	Aux output activation when door opened. <b>n</b> (0) = not linked; <b>y</b> (1) = linked.	n/y	n	n	y	n	flag
PRESSURE SWITCH ("PrE" folder)							
Pen	Number of errors allowed for general pressure switch input.	0 ... 15	0	0	0	0	num
PEI	General pressure switch error count interval.	1 ... 99	1	1	1	1	min
PEt	Delay in activating compressor after pressure switch deactivation.	0 ... 255	0	0	0	0	min
COMMUNICATION ("Add" folder)							
PtS	Communication protocol selection. <b>t</b> (0) = Televis; <b>d</b> (1) = Modbus.	t/d	t	t	t	t	flag
dEA	Index of the device inside the family (valid values from 0 to 14).	0 ... 14	0	0	0	0	num
FAA	Device family (valid values from 0 to 14).	0 ... 14	0	0	0	0	num
Pty	Modbus parity bit. <b>n</b> (0) = none; <b>E</b> (1) = even; <b>o</b> (2) = odd.	n/E/o	n	n	n	n	num
StP	Modbus stop bit. <b>1b</b> (0) = 1 bit; <b>2b</b> (1) = 2 bit.	1b/2b	1b	1b	1b	1b	flag
DISPLAY ("diS" folder)							
LOC	Basic commands modification lock. It is still possible to enter parameter programming mode and modify them. <b>n</b> (0) = no; <b>y</b> (1) = yes.	n/y	n	n	n	n	flag
PS1	PAssword1: if <b>PS1≠0</b> is the access key to <b>User</b> parameters.	0 ... 250	0	0	0	0	num
PS2	PAssword2: if <b>PS2≠0</b> is the access key to <b>Installer</b> parameters.	0 ... 250	15	15	15	15	num
ndt	Display with decimal point. <b>n</b> (0) = no; <b>y</b> (1) = yes.	n/y	y	y	y	y	flag
CA1	Calibration 1. Temperature value to be added to the Pb1 value.	-12,0...12,0	0,0	0,0	0,0	0,0	°C/°F
CA2	Calibration 2. Temperature value to be added to the Pb2 value.	-12,0...12,0	0,0	0,0	0,0	0,0	°C/°F

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
CA3	Calibration 3. Temperature value to be added to the Pb3 value.	-12,0...12,0	0,0	0,0	0,0	0,0	°C/°F
ddl	Display mode during defrost. <b>0</b> = display the temperature recorded by Pb1; <b>1</b> = lock recorded value of Pb1 at defrost start; <b>2</b> = display the "dEF" label.	0/1/2	0	0	0	0	num
Ldd	Timeout value for display unlock - dEF label.	0 ... 255	30	30	30	30	min
dro	Select the unit of measurement used when displaying the temperature recorded by the probes. ( <b>0</b> = °C, <b>1</b> = °F). <b>NOTE: switching between °C and °F or viceversa DOES NOT modify the Set, diF values, etc. (e.g. Setpoint=10°C becomes 10°F).</b>	0/1	0	0	0	0	flag
ddd	Selects the type of value to display. <b>0</b> = Setpoint; <b>1</b> = probe Pb1; <b>2</b> = probe Pb2; <b>3</b> = probe Pb3.	0/1/2/3	1	1	1	1	num
<b>HACCP ("HCP" folder)</b>							
SHH	Maximum HACCP alarm signals threshold.	-55,0...150	0	10	0	0	°C/°F
SLH	Minimum HACCP alarm signals threshold.	-55,0...150	0	-10	0	0	°C/°F
drA	Minimum time spent in critical range for the event to be recorded. After this a HACCP alarm will be triggered and logged.	0 ... 99	0	10	0	0	min
drH	HACCP alarm reset time after last reset.	0 ... 250	0	24	0	0	hours
H50	Enable HACCP and alarm relay functions. <b>0</b> = HACCP alarms NOT enabled; <b>1</b> = HACCP alarms enabled and alarm relay NOT enabled; <b>2</b> = HACCP alarms enabled and alarm relay enabled.	0/1/2	0	2	0	0	num
H51	HACCP alarm exclusion time.	0 ... 250	0	0	0	0	min
<b>CONFIGURATION ("CnF" folder) ➡ If one or more parameters present in this folder are changed, the controller MUST be powered-off and then powered-on.</b>							
H00 (!)	Probe type selection. <b>0</b> = PTC; <b>1</b> = NTC; <b>2</b> = PT1000.	0/1/2	1	1	1	1	num
H11	Configuration of digital input 1/polarity. <b>0</b> = disabled; <b>±1</b> = defrost; <b>±2</b> = economy Setpoint; <b>±3</b> = AUX; <b>±4</b> = door switch; <b>±5</b> = external alarm; <b>±6</b> = Standby; <b>±7</b> = pressure switch; <b>±8</b> = deep cooling; <b>±9</b> = disable HACCP alarm logging. <b>NOTE:</b> • the "+" sign indicates that the input is active if the contact is closed. • the "-" sign indicates that the input is active if the contact is open.	-9 ... +9	0	0	4	0	num

PAR.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
H12	Configuration of digital input 2/polarity. Same as H11.	-9 ... +9	0	0	0	0	num
H21	Configurability of digital output 1 (✱). <b>0</b> = disabled; <b>1</b> = compressor; <b>2</b> = defrost; <b>3</b> = fans; <b>4</b> = alarm; <b>5</b> = AUX; <b>6</b> = Standby.	0 ... 6	1	1	1	1	num
H22	Configurability of digital output 2 (✱). Same as H21.	0 ... 6	2	2	2	2	num
H23	Configurability of digital output 3 (✱). Same as H21.	0 ... 6	3	3	3	3	num
H24	Configurability of digital output 4 (△). <b>0</b> = disabled; <b>1</b> = compressor; <b>2</b> = defrost; <b>3</b> = fans; <b>4</b> = alarm; <b>5</b> = AUX; <b>6</b> = Standby; <b>7</b> = not used.	0 ... 7	4	4	5	4	num
H25	Enable/Disable buzzer. <b>0</b> = Disabled; <b>4</b> =Enabled; <b>1-2-3-5-6-7-8</b> = not used.	0 ... 8	4	4	4	4	num
H31	Configurability of UP key. <b>0</b> = disabled; <b>1</b> = defrost; <b>2</b> = AUX; <b>3</b> = economy Setpoint; <b>4</b> = standby; <b>5</b> = reset HACCP alarms; <b>6</b> = disable HACCP alarms; <b>7</b> = deep cooling.	0 ... 7	1	1	1	1	num
H32	Configurability of DOWN key. Same as H31.	0 ... 7	0	0	0	0	num
H42	Evaporator probe present. <b>n</b> (0) = not present; <b>y</b> (1) = present.	n/y	y	y	y	y	flag
H43	Probe 3 present. <b>n</b> (0) = not present; <b>y</b> (1) = present.	n/y	n	y	n	n	flag
rEL	Device version. Read-only parameter.	/	/	/	/	/	/
tAb	tAble of parameters. Reserved: read-only parameter.	/	/	/	/	/	/
<b>COPY CARD ("FP" folder)</b>							
UL	Programming parameter transfer from instrument to Copy Card .	/	/	/	/	/	/
Fr	Format Copy Card. Erase all data contained in the Copy Card. <b>NOTE: If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be cancelled.</b>	/	/	/	/	/	/
<b>FUNCTIONS ("FnC" folder)</b>							
rAP	Reset pressure switch alarms.	/	/	/	/	/	/
rES	Reset HACCP alarms.	/	/	/	/	/	/

**NOTE:** If one or more parameters marked with (!) are modified, the controller MUST be switched off and then switched on again to ensure correct operation.

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- use on panels allowing access to dangerous parts without the use of tools;
- tampering with and/or modifying the product;
- installation/use on panels not complying with current standards and regulations.

## CONDITIONS OF USE

### Permitted use

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

### Improper use

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

## DISPOSAL



The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal

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