

EWPlus 961/971/974 EO LVD

Versatile high-performance controllers thanks to the new Energy Saving algorithms for plug-in refrigerated cabinets.








USER INTERFACE






EW^{PLUS} EO LVD

NOTE

When switched on, the device performs a Lamp Test; the display and LEDs will flash for several seconds to check that they all function correctly.

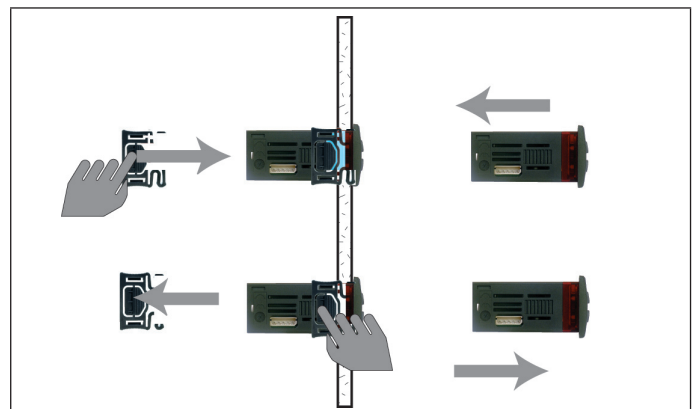
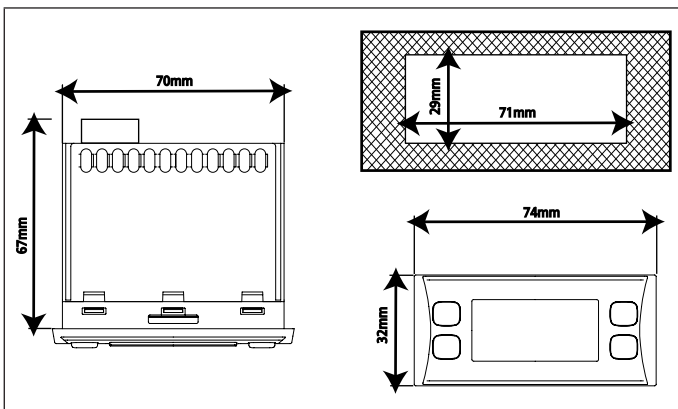
	Reduced SET / Economy LED Permanently on: Energy Saving active Flashing: Reduced SET active Quick flashing: access to level2 parameters Off: otherwise		Fans LED Permanently on: fans active Off: otherwise
	Compressor LED Permanently on: compressor active Flashing: a delay, a protection or a locked start-up Off: otherwise		Defrost LED Permanently on: defrost active Flashing: manual or D.I. activation Off: otherwise
	Alarm LED Permanently on: alarm active Flashing: alarm acknowledged Off: otherwise	AUX	Aux LED Permanently on: Aux output active Flashing: Deep Cooling cycle active Off: Aux output not active
°C	°C LED Permanently on: °C setting (dro = 0) Off: otherwise	°F	°F LED Permanently on: °F setting (dro = 1) Off: otherwise

KEYs

			set
UP Press and release • Scroll menu items • Increases values Press for at least 5 sec • Activates the Manual Defrost function	DOWN Press and release • Scroll menu items • Decrease values Press for at least 5 sec • Function can be configured by the user (see parameter H32)	STAND-BY (ESC) Press and release • Returns to the previous menu level • Confirms parameter value Press for at least 5 sec • Activates the Standby function (OFF) (when outside the menus)	SET (ENTER) Press and release • Displays alarms (if active) • Opens Machine Status menu Press for at least 5 sec • Opens Programming menu • Confirm commands

MOUNTING - DIMENSIONS

The device is designed for panel mounting. Drill a 29x71 mm hole and insert the instrument; secure it with the special brackets provided. Do not install the instrument in damp and/or dirty places; in fact, it is suitable for use in places with ordinary or normal levels of pollution. Keep the area around the instrument cooling slots adequately ventilated.



CONNECTIONS

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APPLICATIONS TABLE

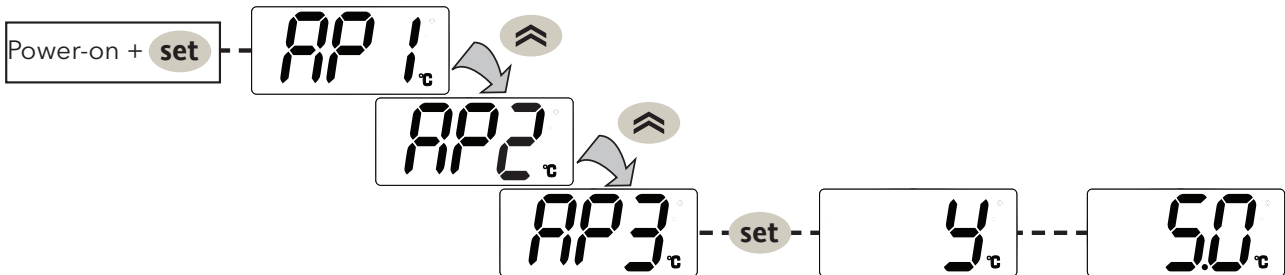
F = Functions H = Inputs and Outputs R = Relay Output	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
	APP. 1	APP. 2	APP. 3	APP. 4	APP. 1	APP. 2	APP. 3	APP. 4	APP. 1	APP. 2	APP. 3	APP. 4
F - End defrost by time	X	X	X	X	X	X	X	X	X	X	X	X
F - End defrost by temperature					X	X	X	X	X	X	X	X
F - Alarm on Pb1	X	X	X	X	X	X	X	X	X	X	X	X
F - Supply voltage control	X (*)				X (*)				X (*)			
H - Pb1 present	X	X	X	X	X	X	X	X	X	X	X	X
H - Pb2 present					X	X	X	X	X	X	X	X
H - Pb3 / D.I.1 enabled	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1	D.I.1
R - Compressor	X	X	X	X	X	X	X	X	X	X	X	X
R - Defrost							X				X	
R - Fans								X	X	X	X	
R - AUX					X	X			X	X		X
R - Condenser fans reversion												X

(*) The parameters which manage the function are not included in the vectors. Their value will remain unvaried in case the vector changes.

LOADING DEFAULT APPLICATIONs

The procedure used to load one of the default applications is:

- when the instrument switches on, press and hold the **set** key: the label "AP1" will appear;
- scroll through the various applications (AP1-AP2-AP3-AP4) using the \uparrow and \downarrow keys;
- select the desired application using the key **set** ("AP3" in the example) or cancel the procedure by pressing the key Ⓢ ; alternatively wait for the timeout;
- if the operation is successful, the display will show "y", otherwise "n" will appear;
- after a few seconds the instrument will return to the main display.



RESET PROCEDURE

EWPlus EO LVD instruments can be **RESET** and the default factory settings restored in a simple and user-friendly way. Simply reload one of the basic applications by following the procedure described in the paragraph "Loading default applications".

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

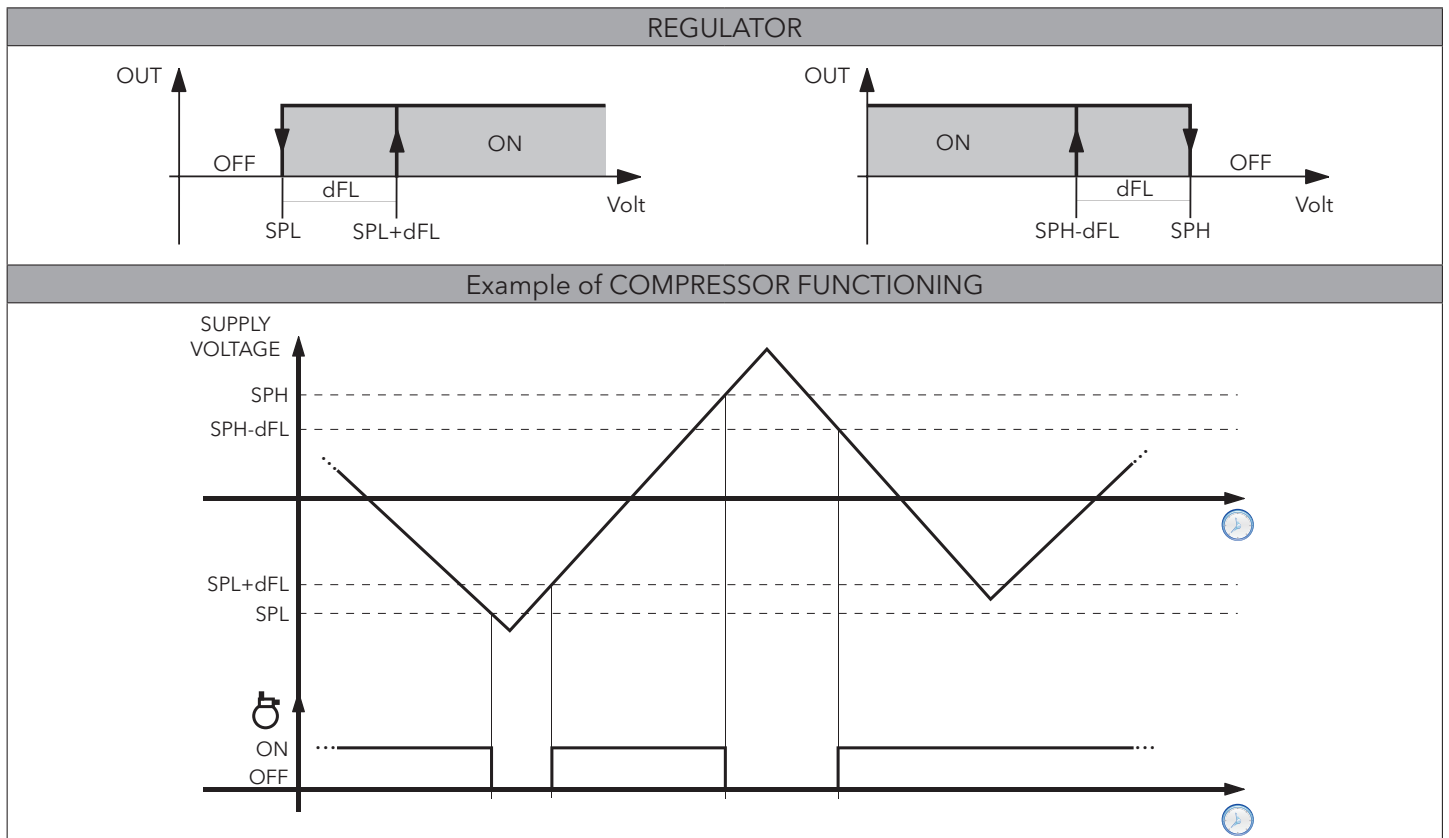
! IMPORTANT!: This operation resets the instrument to its initial state, returning all the parameters to their default factory values. This means that all changes made to operating parameters will be lost.

SUPPLY VOLTAGE CONTROL

The supply voltage can be monitored by means of a dedicated analog input.

When the voltage is lower than the minimum threshold value (set by parameter **SPL**) or when it exceeds the maximum threshold value (set by parameter **SPH**), the outputs are deactivated (one, two or all outputs, depending on the value set at parameter **SoU**). When the voltage exceeds the value **SPL+dFL** or when it is lower than the value **SPH-dFL**, the outputs are activated again, taking into consideration also the delays possibly set. If **SPL/SPH=0**, the low/high voltage control is deactivated.

Here below you can find the regulation diagrams and an example of the functioning of the compressor:



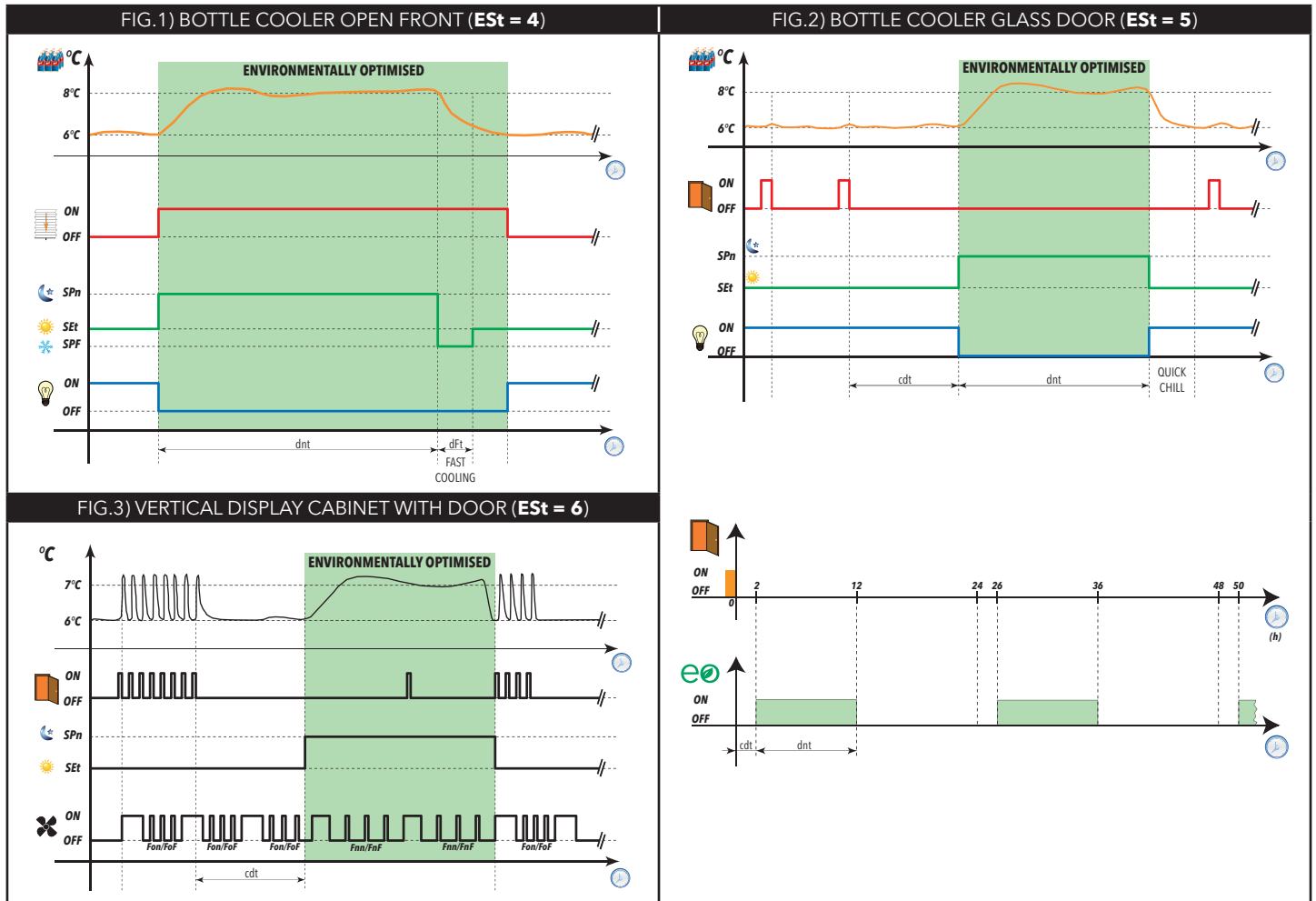
ENERGY SAVING / SWITCH-ON FOLLOWING A POWER FAILURE

The "Energy Saving" function can be enabled by keystroke (DOWN or ESC), by digital input (DI1 or DI2) or remotely. The operating algorithms are determined by the **ESt** and **ESA** parameters. The Economy LED (💡) will light up in all cases in which the function is active. The **ESt** parameter determines the type of application to be controlled (see **FIG.1**, **FIG.2** and **FIG.3**) while the **ESA** parameter switches the LIGHT on or off (AUX output). Energy Saving can also be enabled by a "virtual" door switch. The **ESP** parameter determines the sensitivity of the controller, while the **dOt** parameter determines how long the "virtual" door switch must remain open for. When the time **dOt** expires, the door is deemed closed and normal temperature control resumes.

NOTES: 1) if **ESP** > 0, **dOt** MUST be > 0.

2) at the end of an Energy Saving period the controller will implement an optimised algorithm that will gradually restore the temperature to the **SEt** value (normal operation).

If **ESt** = 5, after a power failure the instrument will always work in standard mode (day) until the first closing of the door. In the absence of a door opening / closing, after a time **Cdt**, the device will always work in Economy mode (Energy Saving) for a period equal to: **dnt**.

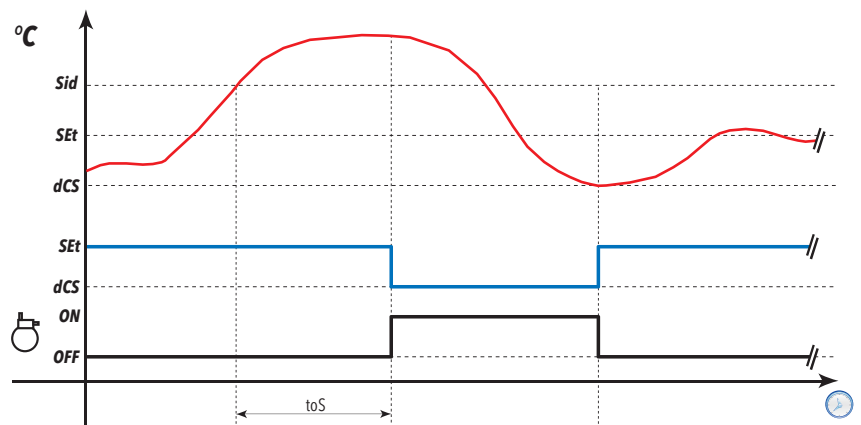


AUTOMATIC DEEP COOLING CYCLE - DCC (dCA = 2)

On activation of **DCC** (Deep Cooling Cycle), the compressor controller will regulate in relation to the setpoint **dCS**, with a differential equal to the value **diF**; the interval between defrosts is reset to zero and defrosts are disabled.

If **tdC** = 0, **DCC** will end when the setpoint **dCS** is reached.

If **tdC** ≠ 0, **DCC** will end after a time set in parameter **tdC**.



ACCESSING AND USING THE MENUS

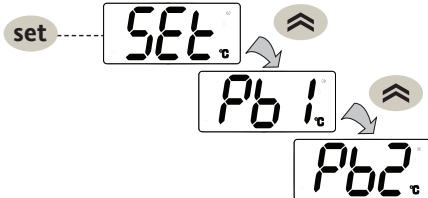
Resources are organised into 2 menus which are accessed as explained below:

- "Machine Status" menu: press and release the **set** key.
- "Programming" menu: press for at least 5 secs the **set** key.

Either do not press any keys for 15 seconds (time-out) or press the **ⓘ**, key once, to confirm the last value displayed and return to the previous screen.

"MACHINE STATUS" MENU

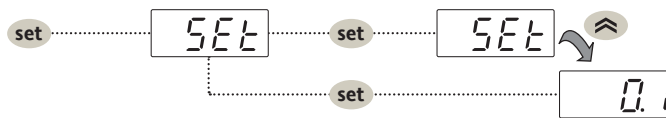
Access the Machine Status menu by pressing **set** and releasing the key. If no alarms are active, the "SEt" label appears. Use the keys **⏪** and **⏩** to scroll through all the folders in the menu:



- AL: alarms folder (**only visible if an alarm is active**);
 - SEt: Setpoint setting folder;
 - Pb1: probe 1 - Pb1 folder;
 - Pb2: probe 1 - Pb2 folder* (**EWPlus 971/974 EO LVD models only**);
 - Pb3: power supply value folder.
- * **folder displayed if Pb2 present (H42 = y)**

SETPOINT SETTING:

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.



LOCK SETPOINT MODIFICATION:

The keypad can be locked by programming the 'LOC' parameter.

With the keypad locked you can still access the 'Machine Status' menu by pressing **set** to display the Set point, but you cannot edit them. To disable the keypad lock, repeat the locking procedure.

DISPLAYING THE PROBES:

When labels Pb1 or Pb2* are present, press the **set** key to view the value measured by the corresponding probe.

- N.B.:**
- 1) **Pb2 is only present on EWPlus 971/974 EO LVD models.**
 - 2) **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.

N.B.: **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.**

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 and hold **set** for longer than 5 seconds, scroll through the parameters using **⏪** and **⏩** until you see the label **PA2**, press **set**, set the value 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" parameters (**PA1**) or the "Installer" parameters (**PA2**).
- 2) **Otherwise:** The password **PA2** is amongst the level1 parameters. If enabled, it will be required when accessing the Installer parameters; to enter it, proceed as instructed for password **PA1**.

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

MANUAL DEFROST CYCLE ACTIVATION

Hold down the **⏪** key for longer than 5 seconds. It is only activates if the temperature conditions are fulfilled. Otherwise, the display will flash three times to indicate that the operation will not be performed.



INSTRUMENT ON/OFF

The instrument can be switched off by pressing the key  for longer than 5 seconds.


In this condition, the adjustment algorithms and defrost cycles are disabled and the text "OFF" will appear on the display.

USING THE UNICARD/COPYCARD

The Unicard/Copycard 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 , scroll through the parameters using  and , then select the function using  (e.g. **UL**).

- **Upload (UL):** Select UL and press . 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 Unicard/Copycard, (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 Unicard/Copycard when the instrument is switched off. At power-on, data is downloaded from the Unicard/Copycard 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.

N.B.: After downloading, the instrument works with the settings of the new map just downloaded.



TABLE OF "USER" MENU PARAMETERS

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4
SEt	Temperature control Setpoint	LSE ... HSE	°C/°F	3,5	3,5	3,5	3,5	3,5	1,5	1,0	3,5	3,5	1,5	1,0	2,0
diF	Compressor relay activation differential (diF must be ≠ 0).	0,1 ... 30,0	°C/°F	2,0	2,0	2,0	2,0	2,0	4,0	2,0	2,0	2,0	4,0	2,0	8,0
HSE	Maximum value that can be assigned to the Setpoint	LSE ... 320	°C/°F	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0
LSE	Minimum value that can be assigned to the Setpoint	-67,0 ... HSE	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0
dtY	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free").	0/1/2	num					0	0	1	0	0	0	1	0
diT	Interval between the start of two consecutive defrost cycles	0 ... 250	hours	24	24	24	24	24	2	6	24	24	2	6	10
dEt	Defrost timeout; determines the maximum defrost duration	1 ... 250	min	30	30	30	30	30	30	30	30	30	30	30	45
dSt	Defrost end temperature (determined by evaporator probe)	-67,0 ... 320	°C/°F					8,0	3,0	8,0	8,0	8,0	3,0	8,0	7,0
FSt	Fans stop temperature; if Pb2 > FSt , the fans are stopped. The value is either positive or negative and, depending on parameter FPT , can be either the absolute temperature or the temperature relative to the Setpoint.	-67,0 ... 320	°C/°F					50,0			50,0	50,0	-20,0	50,0	
Fdt	Fan activation delay after a defrost cycle	0 ... 250	min					0			0	0	0	0	
dt	Coil drainage time	0 ... 250	min					0	0	0	0	0	0	0	
dFd	Allows to select the evaporator probes exclusion during defrost. y = yes; n = no.	n/y	flag					y			y	y	y	y	
HAL	Maximum temperature alarm. Temperature value which, if exceeded in an upward direction, triggers the activation of the alarm signal.	LAL ... 320	°C/°F	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	9,5
LAL	Minimum temperature alarm. Temperature value which, when exceeded downwards, triggers the activation of the alarm signal.	-67,0 ... HAL	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-2,0
tAO	Tempo ritardato segnalazione allarme temperatura.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	30
dCS	Deep cooling cycle setpoint	-67,0 ... 320	°C/°F	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0
tdC	Deep cooling cycle duration	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
OSP	Offset on setpoint	-30,0 ... 30,0	°C/°F	0,5	0,5	1,0	1,0	0,5	1,0	0,5	0,5	0,5	1,0	0,5	1,0
OdF	Intervention differential correction	0,0 ... 30,0	°C/°F	4,0	4,0	2,0	2,0	4,0	2,0	4,0	4,0	4,0	2,0	4,0	2,0
dnt	Duration of night mode	0 ... 24	hours	11	11	10	9	11	10	10	11	11	10	10	9
dFt	Duration of fast cooling mode	0 ... 24	hours	0	0	1	1	0	1	1	0	0	1	1	1
SPn	Night mode setpoint	LSE ... HSE	°C/°F	0,7	0,7	3,0	6,5	0,7	3,0	1,0	0,7	0,7	3,0	1,0	6,5
dFn	Night mode offset	0,1 ... 30,0	°C/°F	4,0	4,0	2,0	0,1	4,0	2,0	4,0	4,0	4,0	2,0	4,0	0,1
SPF	Fast cooling setpoint	LSE ... HSE	°C/°F	0,0	0,0	-0,5	-6,8	0,0	-0,5	-2,0	0,0	0,0	-0,5	-2,0	-6,8
dFF	Fast cooling offset	0,1 ... 30,0	°C/°F	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
LOC	LOCK. Basic commands modification lock. n = no; y = yes.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n
PS1	PASsword 1. When enabled (PS1 ≠ 0) it constitutes the access key for level1 parameters (User).	0 ... 250	num	0	0	0	0	0	0	0	0	0	0	0	0
CA1	Calibration 1. Value to be added to the value read by probe Pb1 .	-12,0 ... 12,0	°C/°F	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0
CA2	Calibration 2. Value to be added to the value read by probe Pb2 .	-12,0 ... 12,0	°C/°F					0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ddl	Display mode during defrost. 0 = display the temperature read by probe Pb1 ; 1 = locks the reading at the temperature value read by Pb1 when defrosting starts and until the next time the SEt value is reached; 2 = displays the label deF during defrosting and until the next time the SEt value is reached (or until Ldd has elapsed).	0/1/2	num	1	1	1	1	1	1	1	1	1	1	1	1
Ldd	Timeout value for display unlock - deF label	0 ... 255	min	30	30	30	30	30	30	30	30	30	30	30	30
H42	Evaporator probe present (Pb2). n = not present; y = present.	n/y	flag					y	y	y	y	y	y	y	y
rEL	firmware rELease. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
tAb	tAble of parameters. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Note: ** The USER menu parameters also include 'PA2', which can be used to access the Installer menu.

TABLE OF "INSTALLER" MENU PARAMETERS

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD																																																											
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4																																																								
SEt	Temperature control SETpoint. The SEtpoint is visible from the "machine status" menu only.	LSE ... HSE	°C/°F	3,5	3,5	3,5	3,5	3,5	1,5	1,0	3,5	3,5	1,5	1,0	2,0																																																								
COMPRESSOR ("CP" folder)																																																																							
diF	diFFerential. Compressor relay activation differential. N.B.: diF cannot be equal to 0.	0,1 ... 30,0	°C/°F	2,0	2,0	2,0	2,0	2,0	4,0	2,0	2,0	2,0	4,0	2,0	8,0																																																								
HSE	Maximum value that can be assigned to the Setpoint. N.B.: The two Setpoints are interdependent: HSE cannot be less than LSE and vice-versa.	LSE ... 320	°C/°F	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0																																																								
LSE	Minimum value that can be assigned to the Setpoint. N.B.: The two Setpoints are interdependent: LSE cannot be higher than HSE and vice-versa.	-67,0 ... HSE	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0																																																								
Ont	Controller on time for faulty probe. - if Ont = 1 and OFt = 0, the compressor remains ON, - if Ont > 0 and OFt > 0, it runs in duty cycle mode.	0 ... 250	min	0	0	0	0	0	1	0	0	0	1	0	0																																																								
OFt	Controller off time for faulty probe. - if OFt = 1 and Ont = 0, the compressor remains OFF, - if OFt > 0 and Ont > 0, it runs in duty cycle mode.	0 ... 250	min	1	1	1	1	1	1	1	1	1	1	1	1																																																								
dOn	Compressor relay activation delay after request.	0 ... 250	secs	0	0	0	0	0	15	0	0	0	15	0	10																																																								
dOF	Delay after switching off and subsequent activation.	0 ... 250	min	0	0	0	0	0	3	0	0	0	3	0	2																																																								
dbi	Delay between two consecutive compressor activations.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	2																																																								
OdO (!)	Delay in activating outputs after the instrument is switched on or after a power failure. 0 = not active	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	0																																																								
dFA	Delay time in activating compressor and condenser fans after request	0 ... 255	secs	0	0	0	0	0	0	0	0	0	0	0	10																																																								
DEFROST ("dEF" folder)																																																																							
dtY	Type of defrost. 0= electric defrost - compressor OFF during defrost cycle 1= cycle inversion defrost (hot gas) - compressor ON during defrost cycle 2= 'Free': defrosting independently of compressor	0/1/2	num						0	0	1	0	0	0	1	0																																																							
dit	Interval between the start of two consecutive defrost cycles. 0 = function disabled (defrosting NEVER performed)	0 ... 250	hours	24	24	24	24	24	2	6	24	24	2	6	10																																																								
dCt	Selects the count mode for the defrost interval: 0 = compressor hours of operation (DIGIFROST® method); Defrost active ONLY when the compressor is on. N.B.: compressor operation time is counted separately from the evaporator probe (count active also when evaporator probe missing or faulty). 1 = appliance running hours = the defrost count is always active when the machine is on and starts at each power-on; 2 = compressor stop Every time the compressor stops, a defrost cycle is performed according to parameter dtY; 3 = temperature	0/1/2/3	num	1	1	1	1	1	0	1	1	1	0	1	1																																																								
dOH	Defrost start delay time after request.	0 ... 59	min	0	0	0	0	0	0	0	0	0	0	0	0																																																								
dEt	Defrost time-out; determines the maximum defrost duration.	1 ... 250	min	30	30	30	30	30	30	30	30	30	30	30	45																																																								
dSt	Defrost end temperature (determined by the evaporator probe).	-67,0 ... 320	°C/°F					8,0	3,0	8,0	8,0	8,0	3,0	8,0	7,0																																																								
dPO	Determines whether the instrument must enter defrost mode (if the temperature measured by the evaporator allows this operation). n = no, does not start defrosting at start-up; y = yes, starts defrost at start-up.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	y																																																								
dSE	Temperature threshold for start of defrost.	-67,0 ... 320	°C/°F	0,0	0,0	0,0	0,0	0,0	-6,0	0,0	0,0	0,0	-6,0	0,0	-6,0																																																								
dtT	Time for which the temperature of the evaporator must remain below dSE.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0																																																								
FAN REGULATOR ("FAn" folder)																																																																							
FpT	Characterizes the "FSt" parameter that can be expressed or as an absolute temperature value or as a value related to Setpoint. 0 = absolute; 1 = relative.	0/1	flag						0	0	0	0	0	0	0																																																								
FSt	Fan lock temperature; if Pb2 > FSt , the fans are stopped. The value is either positive or negative and, depending on parameter FpT , can be either the absolute temperature or the temperature relative to the Setpoint.	-67,0 ... 320	°C/°F						50,0	-20,0	50,0	50,0	50,0	-20,0	50,0	50,0																																																							
FAd	Fan starting differential (see parameters FSt and Fot).	1,0 ... 50,0	°C/°F						2,0	1,0	2,0	2,0	2,0	1,0	2,0	1,0																																																							
Fdt	Delay time in activating fans after a defrost operation.	0 ... 250	min						0	0	0	0	0	0	0																																																								
dt	drainage time. Dripping time.	0 ... 250	min						0	0	0	0	0	0	0																																																								
dFd	Allows to select the evaporator fans exclusion during defrost. y = yes; n = no.	n/y	flag						y	y	y	y	y	y	y																																																								
FCO	Evaporator fans operating mode. The state of the fans will be: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2">DAY</th> <th colspan="2">NIGHT</th> </tr> <tr> <th>H42</th> <th>FCO</th> <th>COMPRESSOR ON</th> <th>COMPRESSOR OFF</th> <th>COMPRESSOR ON</th> <th>COMPRESSOR OFF</th> </tr> </thead> <tbody> <tr> <td rowspan="4">H42 = y</td> <td>0</td> <td>Regulated by Pb2</td> <td>OFF</td> <td>Regulated by Pb2</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>Regulated by Pb2</td> <td>Regulated by Pb2</td> <td>Regulated by Pb2</td> <td>Regulated by Pb2</td> </tr> <tr> <td>2</td> <td>Regulated by Pb2</td> <td>Dutycycle Day</td> <td>Regulated by Pb2</td> <td>Dutycycle Night</td> </tr> <tr> <td>3</td> <td>Dutycycle Day</td> <td>Dutycycle Day</td> <td>Dutycycle Night</td> <td>Dutycycle Night</td> </tr> <tr> <td rowspan="4">H42 = n</td> <td>0</td> <td>ON</td> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>ON</td> <td>Dutycycle Day</td> <td>ON</td> <td>Dutycycle Night</td> </tr> <tr> <td>2</td> <td>ON</td> <td>Dutycycle Day</td> <td>ON</td> <td>Dutycycle Night</td> </tr> <tr> <td>3</td> <td>Dutycycle Day</td> <td>Dutycycle Day</td> <td>Dutycycle Night</td> <td>Dutycycle Night</td> </tr> </tbody> </table> Dutycycle Day: controlled by means of parameters "Fon" and "FoF" . Dutycycle Night: controlled by means of parameters "Fnn" and "FnF" .			DAY		NIGHT		H42	FCO	COMPRESSOR ON	COMPRESSOR OFF	COMPRESSOR ON	COMPRESSOR OFF	H42 = y	0	Regulated by Pb2	OFF	Regulated by Pb2	OFF	1	Regulated by Pb2	Regulated by Pb2	Regulated by Pb2	Regulated by Pb2	2	Regulated by Pb2	Dutycycle Day	Regulated by Pb2	Dutycycle Night	3	Dutycycle Day	Dutycycle Day	Dutycycle Night	Dutycycle Night	H42 = n	0	ON	OFF	ON	OFF	1	ON	Dutycycle Day	ON	Dutycycle Night	2	ON	Dutycycle Day	ON	Dutycycle Night	3	Dutycycle Day	Dutycycle Day	Dutycycle Night	Dutycycle Night	0/1/2/3	num							3	0	3	3	3	0	3	1
				DAY		NIGHT																																																																	
		H42	FCO	COMPRESSOR ON	COMPRESSOR OFF	COMPRESSOR ON	COMPRESSOR OFF																																																																
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3	Dutycycle Day		Dutycycle Day	Dutycycle Night	Dutycycle Night																																																																		
FdC	Evaporator fans switch-off delay after compressor disabled.	0 ... 99	min						1	0	1	1	1	0	1	0																																																							
Fon	Fans ON time in duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10						12	2	12	12	12	2	12	2																																																							
FoF	Fans OFF time in duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10						6	1	6	6	6	1	6	1																																																							

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD				
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	
Fnn	Fans ON time in night duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					1	1	1	1	1	1	1	1	1
FnF	Fans OFF time in night duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					12	10	12	12	12	10	12	10	12
ALARMS ("AL" folder)																
Att	Parameters HAL and LAL intended as the absolute temperature value or differential in relation to the setpoint. 0 = absolute value; 1 = relative value. N.B.: In case of relative values (para. Att=1) parameter HAL should be set to positive values, whilst parameter LAL should have only negative values (-LAL).	0/1	num	1	1	1	1	1	0	1	1	1	0	1	1	1
AFd	Alarm differential.	1,0 ... 50,0	°C/°F	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	1,0
HAL (!)	Maximum temperature alarm. Temperature value (intended either as distance from Setpoint or as an absolute value based on Att) which, if exceeded in an upward direction, triggers the activation of the alarm signal. See "Max/Min Temperature Alarms".	LAL to 320	°C/°F	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	9,5
LAL (!)	Minimum temperature alarm. Temperature value (intended as distance from the set point or as an absolute value based on Att) which, when exceeded downwards, triggers the activation of the alarm signal. See "Max/Min Temperature Alarms".	-67,0 to HAL	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-2,0
PAO (!)	Alarm exclusion time after instrument switch on, after a power failure. This parameter refers to high/low temperature alarms only.	0 ... 10	hours	0	0	0	0	0	0	0	0	0	0	0	0	2
dAO	Temperature alarm exclusion time after defrost.	0 ... 999	min	0	0	0	0	0	0	0	0	0	0	0	0	60
OA0	Alarm signaling delay (low and high temperature) after digital input disabling (door close).	0 ... 10	hours	0	0	0	0	0	0	0	0	0	0	0	0	0
tdO	Alarm activation delay time open door.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	0	0
tAO	Temperature alarm signal delay time. This parameter refers to high/low temperature alarms only.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	0	30
dAt	Alarm for defrosting ended due to time out. n = alarm deactivated; y = alarm activated.	n/y	flag					n	n	n	n	n	n	n	n	n
rLO	External alarm locks controllers. n = does not lock; y =locks	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n	n
AOP	Alarm output polarity. 0 = alarm active and output disabled; 1 = alarm active and output enabled.	0/1	num					1	1	1	1	1	1	1	1	1
COOL PROTECTION ("CPr" folder)																
CPS	Cool protection setpoint	-67,0 ... 320	°C/°F	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0
CPd	Cool protection differential	0,1 ... 30,0	°C/°F	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
CpT	Time that the temperature remains below the cool protection Setpoint (CPS)	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
LIGHTS & DIGITAL INPUTS ("Lit" folder)																
dOd	Enable utility switch-off on activation of door switch. 0 = disabled 1 = disables fans 2 = disables the compressor 3 = disables fans and compressor	0/1/2/3	num	1	1	1	1	1	0	1	1	1	0	1	0	0
dAd	Activation delay for digital input	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
dCO	Compressor deactivation delay after door opened	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
dCd	Fans activation delay after door closed	0 ... 250	secs	10	10	10	10	10	10	10	10	10	10	10	10	0
PRESSURE SWITCH ("PrE" folder)																
PEn	Number of errors allowed for general pressure switch input. 0 = disabled.	0 ... 15	num	5	5	5	5	5	5	5	5	5	5	5	5	5
PEI	Minimum/maximum pressure switch error count interval	1 ... 99	min	1	1	1	1	1	1	1	1	1	1	1	1	1
PEt	Delay in activating compressor after pressure switch deactivation	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
POWER SUPPLY CONTROL ("SuC" folder) → NOTE: all parameters available in the folder are not available in the vectors.																
SPH	Maximum supply voltage threshold. 0 = deactivated.	0 ... 300	Volt	250				250				250				
SPL	Minimum supply voltage threshold. 0 = deactivated.	0 ... 250	Volt	190				190				190				
dFL	Intervention differential. 0 = deactivated.	0,1 ... 25,0	Volt	5,0				5,0				5,0				
SoU	Selection of the output to be deactivated. 0 = no output; 1 = out1 (A); 2 = out2 (B); 3 = out1 (A) + out2 (B); 4 = out3 (C); 5 = out1 (A) + out3 (C); 6 = out2 (B) + out3 (C); 7 = out1 (A) + out2 (B) + out3 (C)	0 ... 7	num	1				1				1				
DEEP COOLING ("dEC" folder)																
dCA	Enable deep cooling (0 = disabled; 1 = manual; 2 = automatic).	0/1/2	num	2	2	2	2	2	2	2	2	2	2	2	2	2
dCS	Deep cooling setpoint.	-67,0 ... 320	°C/°F	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0
tdC	Deep cooling duration.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
dcc	Defrost delay after deep cooling.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
Sid	Deep cooling start threshold.	-67,0 ... 320	°C/°F	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0
toS	Over-threshold time for deep cooling start.	0 ... 255	min	5	5	5	5	5	5	5	5	5	5	5	5	5
ENERGY SAVING ("EnS" folder)																
ESt	Energy Saving mode: 0 = disabled; 1 = Offset on setpoint; 2 = Offset on differential; 3 = Offset on setpoint and differential; 4 = 'Bottle cooler open front' algorithm; 5 = 'Bottle cooler glass door' algorithm; 6 = 'Vertical display cabinet' algorithm	0 ... 6	num	5	5	4	4	5	4	6	5	5	4	6	4	4
ESA	AUX output status in energy saving mode: 0 = disabled (no effect on AUX); 1 = AUX off; 2 = AUX on	0/1/2	num	0	0	0	0	1	1	0	0	1	1	1	1	1
ESF	Night mode activation (Energy saving) for fans. n = disabled; y =enabled if energy saving mode is active (ESt ≠ 0)	n/y	flag	y	y	y	y	y	y	y	y	y	y	y	y	y
Cdt	Door close time	0 ... 255	min*10	6	6	6	6	6	6	6	6	6	6	6	6	6
ESo	Cumulative door open time for disabling Energy Saving mode	0 ... 10	num	0	0	0	0	0	0	5	0	0	0	5	0	
OSP	Offset on setpoint	-30,0 ... 30,0	°C/°F	0,5	0,5	1,0	1,0	0,5	1,0	0,5	0,5	0,5	1,0	0,5	1,0	
OdF	Intervention differential correction	0,0 ... 30,0	°C/°F	4,0	4,0	2,0	2,0	4,0	2,0	4,0	4,0	4,0	2,0	4,0	2,0	
dnt	Duration of night mode	0 ... 24	hours	11	11	10	9	11	10	10	11	11	10	10	9	
dFt	Duration of fast cooling mode	0 ... 24	hours	0	0	1	1	0	1	1	0	0	1	1	1	
SPn	Night mode setpoint	LSE ... HSE	°C/°F	0,7	0,7	3,0	6,5	0,7	3,0	1,0	0,7	0,7	3,0	1,0	6,5	

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4
dFn	Night mode offset.	0,1 ... 30,0	°C/°F	4,0	4,0	2,0	0,1	4,0	2,0	4,0	4,0	4,0	2,0	4,0	0,1
SPF	Fast cooling setpoint.	LSE ... HSE	°C/°F	0,0	0,0	-0,5	-6,8	0,0	-0,5	-2,0	0,0	0,0	-0,5	-2,0	-6,8
dFF	Fast cooling offset.	0,1 ... 30,0	°C/°F	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
ESP	Virtual door regulator's sensitivity.	0 ... 5	num	0	0	0	0	0	0	0	0	0	0	0	0
dOt	Maximum Time Door Open with virtual door switch.	0 ... 255	sec	0	0	0	0	0	0	0	0	0	0	0	0
COMMUNICATION ("Add" folder)				NOTE: all parameters available in the folder are not available in the vectors.											
PtS (!)	Communication protocol selection (t = Televis; d = ModBus).	t/d	flag	t				t				t			
dEA (!)	Device address: indicates the device address to the management protocol.	0...14	num	0				0				0			
FAA (!)	Family address: indicates the device family to the management protocol.	0...14	num	0				0				0			
Pty (!)	Modbus parity bit setting (n = none; E = even; o = odd).	n/E/o	flag	n				n				n			
StP (!)	Modbus stop bit setting.	1b/2b	flag	1b				1b				1b			
DISPLAY ("dis" folder)															
LOC	LOCK. Setpoint change shutdown. There is still the possibility to enter into parameters programming and modify these, including the status of this parameter to permit keyboard shutdown. n = no; y = yes.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n
PS1	PAssword 1. When enabled (PS1 ≠ 0), this is the access key to level 1 parameters (User).	0...250	num	0	0	0	0	0	0	0	0	0	0	0	0
PS2	PAssword 2. When enabled (PS2 ≠ 0), this is the access key to level 2 parameters (Installer).	0...250	num	15	15	15	15	15	15	15	15	15	15	15	15
ndt	Display with decimal point. n = no (integers only); y = yes (displayed with decimal point).	n/y	flag	y	y	y	y	y	y	y	y	y	y	y	y
CA1	Calibration 1. Positive or negative temperature value added to the value read by Pb1 . This sum is used both for the temperature displayed and for regulation.	-12,0...12,0	°C/°F	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
CA2	Calibration 2. Positive or negative temperature value added to the value read by Pb2 . This sum is used both for the temperature displayed and for regulation.	-12,0...12,0	°C/°F					0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ddl	Display mode during defrost. 0 = display the temperature read by Pb1 ; 1 = locks the reading on the temperature value read by Pb1 when defrosting starts, and until the next time the SEt value is reached; 2 = displays the label deF during defrosting, and until the next time the SEt value is reached. (or until Ldd has elapsed).	0/1/2	num	1	1	1	1	1	1	1	1	1	1	1	1
Ldd	Timeout value for display unlock - deF label	0 ... 255	min	30	30	30	30	30	30	30	30	30	30	30	30
dro	Select °C or °F for displaying the temperature read by probes. 0 = °C, 1 = °F. NOTE: switching between °C and °F or vice-versa DOES NOT modify the SEt, diF values, etc. (e.g. Setpoint=10°C becomes 10°F).	0/1	num	0	0	0	0	0	0	0	0	0	0	0	0
ddd	Selection of type of value to be displayed. 0 = Setpoint; 1 = probe Pb1; 2 = probe Pb2; 3 = not used.	0/1/2/3	num	1	1	1	1	1	1	1	1	1	1	1	1
CONFIGURATION ("CnF" folder)				NOTE: the instrument must be switched off and then on again each time folder CnF parameter configuration is modified to prevent any malfunction of the configuration and/or current timer operations.											
H08	Stand-by operating mode. 0 = display switch off; the loads are active and the device reactivates the display to signal any alarms; 1 = display switch off, loads and alarms stopped; 2 = display with OFF label, loads and alarms stopped.	0/1/2	num	2	2	2	2	2	2	2	2	2	2	2	2
H11	Configuration of digital input 1/polarity (D.I.1). 0 = disabled; ±1 = defrost; ±2 = reduced SET; ±3 = AUX; ±4 = door switch; ±5 = external alarm; ±6 = stand-by (ON-OFF); ±7 = pressure switch; ±8 = deep cooling; ±9 = energy saving; ±10 = door switch + energy saving. N.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	-10 ... 10	num	10	0	9	9	10	9	10	10	10	9	10	9
H12	Configuration of digital input 2/polarity (D.I.2). Same as H11.	-10 ... 10	num	0	0	0	0	0	0	0	0	0	0	0	0
H21	Configurability of digital output 1 (A). 0 = disabled; 1 = compressor; 2 = defrost; 3 = Fans; 4 = alarm; 5 = AUX; 6 = Stand-by; 7 = not used; 8 = condenser fan change rotation; 9 = retain valve.	0 ... 9	num	1	1	1	1	1	1	1	1	1	1	1	1
H22	Configurability of digital output 2 (B). Analogo a H21.	0 ... 9	num					5	5	2	3	3	3	2	8
H23	Configurability of digital output 3 (C). Analogo a H21.	0 ... 9	num									5	5	3	5
H25	Enable/Disable buzzer. 0 = disabled; 4 = enabled; 1-2-3-5-6-7-8-9 = not used	0 ... 9	num	0	0	0	0	0	0	0	0	0	0	0	0
H32	Configurability of DOWN key. 0 = disabled; 1 = defrost; 2 = AUX; 3 = reduced SET; 4 = Stand-by; 5 = deep cooling; 6 = energy saving	0 ... 6	num	0	0	0	0	2	2	0	0	2	2	0	2
H33	Configurability of ESC key. Same as H32	0 ... 6	num	4	4	4	4	4	4	4	4	4	4	4	4
H42	Evaporator probe present (Pb2). n = not present; y = present.	n/y	flag					y	y	y	y	y	y	y	y
reL	reLease firmware. Device version: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
tAb	tAble of parameters. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
COPY CARD ("Fpr" folder)															
UL	UpLoad. Programming parameter transfer from instrument to Copy Card.	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Fr	Format Copy Card. Erase all data contained in the Copy Card. ATTENTION: If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be cancelled	/	/	/	/	/	/	/	/	/	/	/	/	/	/
FUNCTION ("FnC" folder)															
The following function is available in the 'FnC' folder:															
Function		Function label ACTIVE				Function label INACTIVE				alarm signalled					
Reset pressure switch alarms		rAP				rAP				Led ON					
NOTES: <ul style="list-style-type: none"> To modify the status of a specified function press the 'set' button If the unit is switched off, the function labels go back to their default status. 															

DIAGNOSTICS

Alarms are always indicated by the buzzer (if present) and the alarm icon (🔊).

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

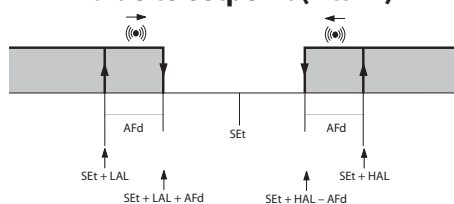
N.B.: If alarm exclusion times have been set (see "AL" folder in the parameters table) the alarm will not be signalled.

ALARMS

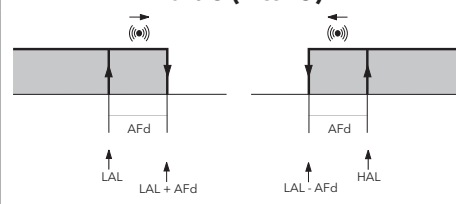
Label	Fault	Cause	Effects	Remedy
E1	Probe1 faulty (cold room)	<ul style="list-style-type: none"> measured values are outside operating range Probe faulty/short-circuited/open 	<ul style="list-style-type: none"> Display label E1 Alarm icon permanently on Disable max/min alarm controller Compressor operation based on parameters 'Ont' and 'OFt'. 	<ul style="list-style-type: none"> check probe wiring replace probe
E2	Probe2 faulty (defrost) only on EWPlus971/974 EO LVD	<ul style="list-style-type: none"> measured values are outside operating range Probe faulty/short-circuited/open 	<ul style="list-style-type: none"> Display label E2 Alarm icon permanently on The Defrost cycle will end due to Timeout (dEt) The evaporator fans will work in Duty Cycle mode. 	<ul style="list-style-type: none"> check probe wiring replace probe
AH1	Alarm for HIGH Pb1 temperature	value read by Pb1 > HAL after time of tAO . (see "MAX/MIN TEMPERATURE ALARMS")	<ul style="list-style-type: none"> Recording of label AH1 in folder AL No effect on regulation 	<ul style="list-style-type: none"> Wait until value read by Pb1 returns below HAL-AFd.
AL1	Alarm for LOW Pb1 temperature	value read by Pb1 < LAL after time of tAO . (see "MAX/MIN TEMPERATURE ALARMS")	<ul style="list-style-type: none"> Recording of label AL1 in folder AL No effect on regulation 	<ul style="list-style-type: none"> Wait until value read by Pb1 returns above LAL+AFd.
EA	External Alarm	digital input activation (H11 = ±5)	<ul style="list-style-type: none"> Recording of label EA in folder AL Alarm icon permanently on Regulation locked if rLO = y 	<ul style="list-style-type: none"> check and remove the external cause which triggered the alarm on the D.I.
OPd	Door open alarm	digital input activation (H11 = ±4) (for longer than tdO)	<ul style="list-style-type: none"> Recording of label OPd in folder AL Alarm icon permanently on Controller locked 	<ul style="list-style-type: none"> close the door delay function defined by OAO
Ad2	end of defrost cycle 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"> Recording of label Ad2 in folder AL Alarm icon permanently on 	<ul style="list-style-type: none"> wait for the next defrost cycle for automatic return
Ad3	end of defrost cycle due to timeout	activation of the defrost for temperature independently dAt . (active if dCt = 3)	<ul style="list-style-type: none"> Recording of label Ad3 in folder AL Alarm icon permanently on 	<ul style="list-style-type: none"> wait for the next defrost cycle for automatic return
HiP	HIGH voltage alarm	Voltage value read by the analog input is higher than the SPH value.	<ul style="list-style-type: none"> Display label HiP Alarm icon permanently on Regulation locked depending on SoU value. 	<ul style="list-style-type: none"> wait for the value read by the analog input returns below SPH-dFL
LoP	LOW voltage alarm	Voltage value read by the analog input is lower than the SPL value.	<ul style="list-style-type: none"> Display label LoP Alarm icon permanently on Regulation locked depending on SoU value. 	<ul style="list-style-type: none"> Wait for the value read by the analog input returns above SPL+dFL
nPA	General pressure switch alarm	Activation of pressure alarm by general pressure switch. (H11 = ±7)	<p>If the number N of pressure switch activations is N < PEn:</p> <ul style="list-style-type: none"> Recording of folder nPA in folder AL, with the number of pressure switch activations Regulation locked (Compressor and Fans) 	<ul style="list-style-type: none"> check and remove the cause which triggered the alarm on the D.I. (Automatic Reset)
PAL	General pressure switch alarm	Activation of pressure alarm by general pressure switch. (H11 = ±7)	<p>If the number N of pressure switch activations is N = PEn:</p> <ul style="list-style-type: none"> Display label PAL Recording of label PA in folder AL Alarm icon permanently on Regulation locked (Compressor and Fans) 	<ul style="list-style-type: none"> Switch the device off and back on again Reset alarms by entering the functions folder and selecting the rAP function (Manual Reset)

MAX/MIN TEMPERATURE ALARMS

Relative Temperature Value to setpoint (Att=1)



Absolute Temperature Value (Att=0)



Minimum temperature alarm	Temp. ≤ Set + LAL *	Temp. ≤ LAL (LAL with sign)
Maximum temperature alarm	Temp. ≥ Set + HAL **	Temp. ≥ HAL (HAL with sign)
Returning from minimum temperature alarm	Temp. ≥ Set + LAL + AFd or Temp. ≥ Set - LAL + AFd (LAL < 0)	Temp. ≥ LAL + AFd
Returning from maximum temperature alarm	Temp. ≤ Set + HAL - AFd (HAL > 0)	Temp. ≤ HAL - AFd

* if **LAL** is negative, **Set + LAL < Set**

** if **HAL** is negative, **Set + HAL < Set**

TECHNICAL DATA (EN 60730-2-9)

Classification:	control device (not safety) to integrate
Mounting:	panel mounting with 71x29 mm (+0.2/-0.1 mm) drilling template
Control type:	1.B
Pollution rating:	2
Material class:	IIIa
Overvoltage category class:	II
Nominal impulsive voltage:	2500V
Temperature:	Operating: -5 ... +55 °C - Storage: -30 ... +85 °C
Power Supply:	230V~ (±20%) 50/60 Hz
Consumption:	4,5W max
Digital Output (relays):	please refer to the device label
Fire resistance class:	D
Software class:	A

NOTE: check the power supply specified on the instrument label; for relay, power supply capacities and PTC probes, contact the Sales Office.

FURTHER INFORMATIONS

Input Characteristics

Display Range:	NTC: -50.0°C ... +110°C (on display with 3 digit + sign)
Accuracy:	Better than 0,5% of full-scale + 1 digit
Resolution:	0,1 °C
Buzzer:	YES (it depends from model)
Analogue Input:	1 NTC (EWPlus 961 EO LVD) or 2 NTC (EWPlus 971/974 EO LVD)
Digital Input:	2 voltage-free digital inputs (D.I.1 and D.I.2)

NOTE: D.I.2, if activated, should be connected to terminals 1-2 of the TTL connector (**H12** ≠ 0)

Output Characteristics

Digital Output:	EWPlus 961 EO LVD: 1 Compressor relay: UL60730-1 12 (8)A max 250V~ UL60730 2Hp (12FLA - 72LRA) max 240V~
	EWPlus 971 EO LVD: 1 Compressor relay: UL60730-1 12 (8)A max 250V~ UL60730 (A) 2Hp (12FLA - 72LRA) max 240V~ 1 AUX relay: N.A. 8(4)A - N.C. 6(3)A max 250V~
	EWPlus 974 EO LVD: 1 Compressor relay: UL60730-1 12 (8)A max 250V~ UL60730 (A) 2Hp (12FLA - 72LRA) max 240V~ 1 Fans relay: N.A. 8(4)A - N.C. 6(3)A max 250V~ 1 AUX relay: 5(2)A max 250V~

Mechanical Characteristics

Casing:	PC+ABS UL94 V-0 resin casing, polycarbonate window, thermoplastic resin keys
Dimensions:	front panel 74x32 mm, depth 59 mm (without terminals)
Terminals:	screw/disconnectable terminals for cables with a diameter of 2.5mm ²
Connectors:	TTL for connection of Copy Card + D.I.2
Humidity:	Use / Storage: 10...90% RH (non-condensing)

LVD Characteristics

Power voltage reading accuracy:	+3% -2%
Power voltage measuring method:	Peak-value voltmeter
BUS ADAPTER:	compatible with low-consumption model only (BUS ADAPTER 350)

Regulations

Electromagnetic compatibility:	The device conforms to Directive 2004/108/EC
Safety:	The device conforms to Directive 2006/95/EC
Food Safety:	The device complies with standard EN 13485 as follows: - suitable for storage - application: air - climate range A - measurement class 1 in the range from -25°C to 15°C (exclusively using Eliwell NTC 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, such as the probes.
This means, for example, that the error introduced by the probe must be added to the typical error of the instrument.

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 mm² (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.

LIABILITY AND RESIDUAL RISKS

ELIWELL CONTROLS SRL declines any liability for damage due to:

- installation/uses different from those specified and, in particular, not complying with the safety regulations and/or instructions given in this document;
- use on panels that do not provide adequate protection against electric shocks, water or dust when assembled;
- 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.

DISCLAIMER

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The same applies to any person or company involved in preparing and editing this document.

ELIWELL CONTROLS SRL reserves the right to make aesthetic or functional changes at any time without notice.

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.



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