

EWPlus 971 - 974

Electronic controllers for refrigeration units

by Schneider Electric

USER INTERFACE



EWPlus 971 - 974

NOTE:

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

	Reduced / Economy indicator Led Permanently alight: Energy Saving active Blinking: reduced setpoint active Quick flashing: Access to level 2 parameters Off: otherwise		Fans Led Permanently alight: fans active Off: otherwise
	Compressor Led Permanently alight: compressor on Blinking: delay, protection or start blocked. Off: otherwise		Defrost Led Permanently alight: defrost active Blinking: activated manually or from DI Off: otherwise
	Alarms Led Permanently alight: alarm active Blinking: Alarm acknowledged Off: otherwise	AUX	Aux Led Permanently alight: AUX output active Blinking: Deep cooling Cycle active Off: AUX output not active
°C	°C Led Permanently alight: °C setting (dro = 0) Off: otherwise	°F	°F Led Permanently alight: °F setting (dro = 1) Off: otherwise

KEYS

	UP Press and release Scrolls through menu options Increases values Press and hold for at least 5 s User configurable function (see parameter H31)		DOWN Press and release Scrolls through menu options Decreases values Press and hold for at least 5 s User configurable function (see parameter H32)		STAND-BY (ESC) Press and release Goes back up one level from current menu Confirms parameter value Press and hold for at least 5 s User configurable function (see parameter H33)		SET (ENTER) Press and release Displays alarms (if present) Opens Machine Status menu Press and hold for at least 5 s Open programming menu Confirms commands
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ELECTRICAL CONNECTIONS

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this device and any associated products.

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

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

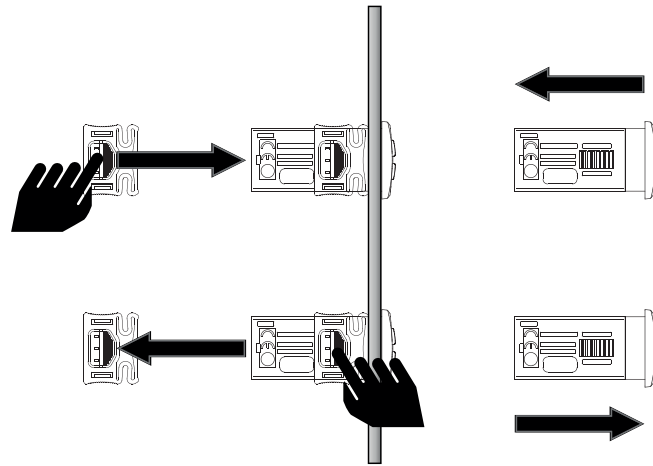
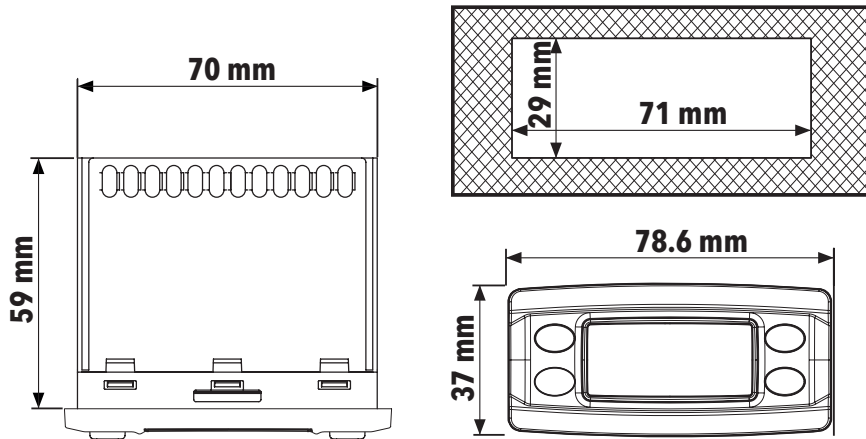
The device is equipped with screw-type or removable terminal boards for connection of wires having a maximum cross section of 2.5 mm² (a single conductor per terminal for the power connections): refer to the label on the instrument for details of the terminal ratings.
Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity. Probes have no connection polarity and can be extended using a normal two-core cable (note that extension of the probe leads influences the instrument's electromagnetic compatibility - EMC: take great care with the wiring). Probe cables, power supply cables and the TTL serial cables should be routed separately from power cables.

MOUNTING - DIMENSIONS

The device is designed for panel mounting. Drill a 29x71 mm hole and insert the device; secure it with the special brackets provided.

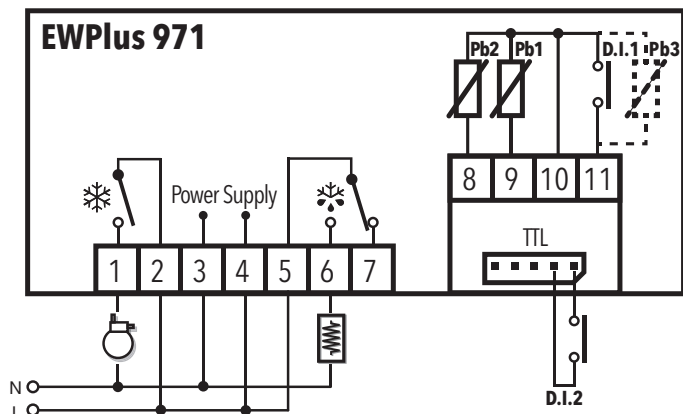
Do not mount the device in places exposed to high levels of dirt or humidity. The device is suitable for use in environments with ordinary or normal levels of pollution.

Keep the area around the instrument cooling slots adequately ventilated.



CONNECTIONS

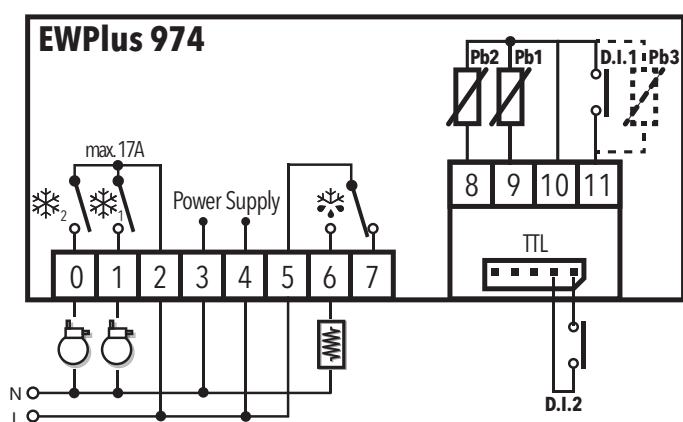
EWPlus 971



TERMINALS

N-L	230 Vac power supply
1-2	Compressor relay 1 - ❄️
3-4	230 Vac power supply input
5-6-7	Defrost relay - ❄️
8-10	Probe Pb2
9-10	Probe Pb1
11-10	Digital input 1 (H11 ≠0 and H43 =n) or Pb3 (H11 =0 and H43 =y)
TTL	TTL or D.I.2 input (H12 ≠0)

EWPlus 974



TERMINALS

N-L	230 Vac power supply
0-1	Compressor Relay 2 - ❄️ ₂
1-2	Compressor Relay 1 - ❄️ ₁
3-4	230 Vac power supply input
5-6-7	Defrost relay - ❄️
8-10	Probe Pb2
9-10	Probe Pb1
11-10	Digital input 1 (H11 ≠0 and H43 =n) or Pb3 (H11 =0 and H43 =y)
TTL	TTL or D.I.2 input (H12 ≠0)

LOADING DEFAULT APPLICATIONS

Loading of the default applications can be done in **2 ways**, mutually exclusive, as a function of the value assumed by the digital inputs. So we have the following two cases:

1) At least one Digital Input configured at $H1x = \pm 11$ (with $x = 1, 2$) (**EWPlus 974 only**);

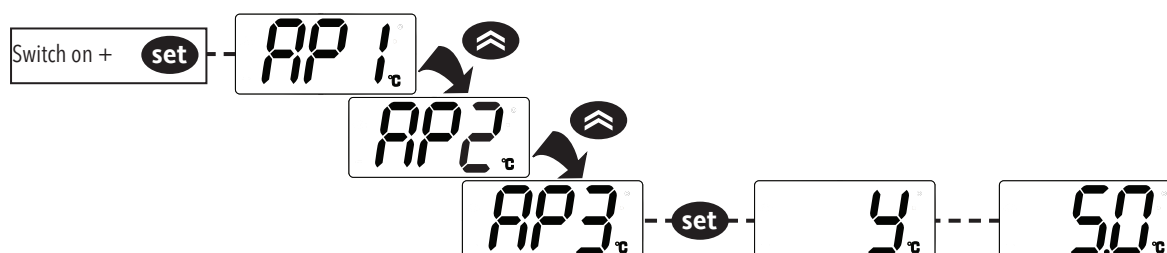
Loading of applications cannot be done at instrument start-up while pressing and holding the **set** key.

In this case, the status of the Digital Input configured at $H1x = \pm 11$ will determine which application will be loaded: **AP1** if the Digital Input is open or **AP2** if the Digital Input is closed.

2) No Digital Input configured at $H1x = \pm 11$ (with $x = 1, 2$).

In this case, the procedure for loading one of the default applications is:

- when the device is powered up, press and hold the **set** key: the label **AP1** will appear.
- scroll through the various applications (**AP1**... **AP3**) using the **⏪** and **⏩** keys.
- select the desired application using the **set** key (**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", if not, it will show "n".
- the device resets and performs the Lamp Test
- after a few seconds the instrument will return to the main display.




RESET PROCEDURE

EWPlus 971/974 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 circumstances in which normal operation of the instrument has been impeded or if you decide to restore it to the default configuration (e.g. AP3 values).



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


MANUAL DEFROST CYCLE ACTIVATION

Press and hold down the  key for longer than 5 seconds. It is only activated if the temperature conditions are fulfilled. Otherwise, the display will blink 3 times to indicate that the operation will not be performed.

ACCESSING AND USING THE MENUS



The resources are organized into 2 menus which are accessed as follows:

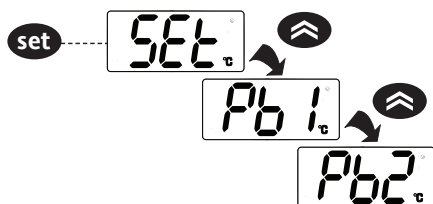
- "Machine Status" menu: press and release the  key.
- "Programming" menu: press and hold the  key for 5 seconds.

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

"MACHINE" STATUS MENU

Press and release the  key to access the "Machine Status" menu. If no alarms are active, the "SEt" label appears.

The various folders of the menu can be scrolled using the  and  keys:







- AL: alarms folder (**visible only 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)


👉 NOTE: If the "REDUCED SET" is active (H11 or H12 = ±2), the value normally displayed and the value inside the folder will be equal to (SEt + OSP). In all other cases, the displayed value will be SEt.

Programming the setpoint:

To view the Setpoint value, press the  key when the "SEt" label is displayed. The Setpoint value appears in the display. To change the Setpoint value, press the  and  keys within 15 seconds. Press  to confirm the selection.



Setpoint edit lock:









The keypad can be locked by programming the "LOC" parameter. With the keypad locked you can still access the "Machine Status" menu by pressing  to display the Setpoint, but you cannot edit it. To disable the keypad lock, repeat the locking procedure.

Probes display:
















When the label Pb1, Pb2 or Pb3 is displayed, press  and the associated probe value will appear. **IMPORTANT: the value cannot be modified.**

PASSWORD


Password PS1: allows access to "User" parameters. The default setting is password protection disabled (PS1=0).

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

Password "PS2": allows access to "Installer" parameters. By default the password is enabled (PS2=15).

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

The visibility of PS2 is:

- 1) **PS1 and PS2 ≠ 0:** Press and hold  for at least 5 seconds to display PS1 and PS2. You can then decide whether to access the "User" parameters (PS1) or the "Installer" parameters (PS2).
- 2) **Otherwise:** Password PS2 is amongst the "User" parameters. If enabled, it will be required when accessing the "Installer" parameters; to enter it, proceed as instructed for password PS1.

NOTE: If the value entered is incorrect, label PS1/PS2 will be shown again and the procedure must be repeated.

PROGRAMMING MENU

To access the "Programming" menu, press and hold the **set** key for at least 5 seconds.

If PASSWORD protection is activated, a prompt will appear: enter **PS1** for "User" parameters and **PS2** for "Installer" parameters (see "PASSWORD" section).

"User" parameters: When the menu is accessed, the display will show the first parameter (e.g. "dF1"). Press **⬆** and **⬇** to scroll through all of the parameters in the current level. Select the desired parameter by pressing **set**. Press **⬆** and **⬇** to change it and **set** to save changes.

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

NOTE: the instrument must be switched off and then on again each time the configuration of the parameters is changed.

USING THE UNICARD/COPY CARD

The Unicard/Copycard must be connected to the TTL serial port and allows the rapid programming of instrument parameters.

Access the "Installer" parameters by entering **PS2**, then scroll through the folders with the **⬆** and **⬇** until the **FPr** folder is displayed.

Press **set** to select the folder, scroll the parameters with **⬆** and **⬇**, then press **set** to select the function (e.g. **UL**).

- **Upload (UL):** select UL and press **set**. This function uploads the programming parameters from the instrument to the card. If the operation is successful, the display will show "y", otherwise it will show "n".
- **Format (Fr):** this command is used to format the Unicard/Copycard (which is necessary when using the card for the first time). **ATTENTION:** the **Fr** parameter deletes all data present. This operation cannot be reversed.
- **Download:** Connect the Unicard/Copycard when the instrument is switched off. At power-on, data will automatically start downloading from the Unicard/Copycard to the instrument. At the end of the lamp test, the display will show "dLy" if the operation was successful and "dLn" if not

NOTE: After the download, the instrument will use the newly uploaded map settings.

CONTROLLER ON/OFF

To switch the controller off, press and hold the **ⓘ** key for more than 5 seconds.

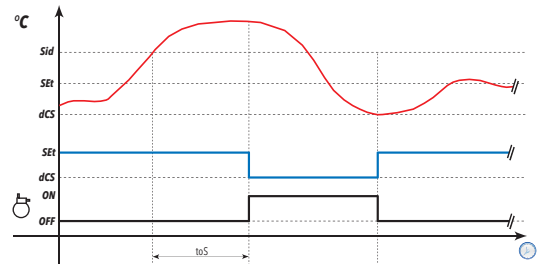
In this condition, the adjustment algorithms and defrost cycles are disabled and the text "OFF" will appear on the display.

AUTOMATIC DEEP COOLING CYCLE - DCC

On activation of **DCC** (Deep Cooling Cycle), the compressor regulator 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**.



DIAGNOSTICS

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

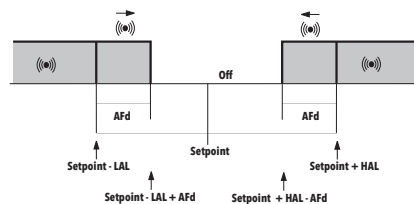
To silence the buzzer, press and release any key, the relative icon will continue to flash.

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

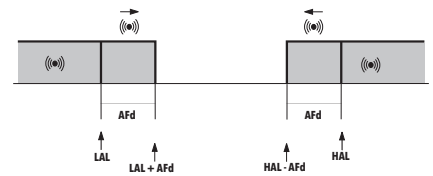
- **E1:** if the Pb1 probe is in error, the indication "E1" will appear on the display.
- **E2:** if the Pb2 probe is in error, the indication "E2" will appear on the display.
- **E3:** if the Pb3 probe is in error, the indication "E3" will appear on the display.

MAX/MIN TEMPERATURE ALARMS

Temperature value relative to setpoint (Att=1)



Temperature as an absolute 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)
Reset from minimum temperature alarm condition	Temp. ≥ Set + LAL + AFd or Temp. ≥ Set - LAL + AFd (LAL < 0)	Temp. ≥ LAL + AFd
Reset from maximum temperature alarm condition	Temp. ≤ Set + HAL - AFd (HAL > 0)	Temp. ≤ HAL - AFd
	* If LAL is negative, Set + LAL < Set	
	** If HAL is negative, Set + HAL < Set	

ALARMS

Label	Description	Cause	Effects	Remedy
E1	Probe1 error	<ul style="list-style-type: none"> Measured values are outside operating range Probe error/short-circuited/open 	<ul style="list-style-type: none"> Label E1 displayed Alarm icon permanently on Controller disabled max/min alarms Compressor operation based on parameters "Ont" and "OfT". 	<ul style="list-style-type: none"> Check the probe wiring Replace probe.
E2	Probe2 error	<ul style="list-style-type: none"> Measured values are outside operating range Probe error/short-circuited/open 	<ul style="list-style-type: none"> Label E2 displayed Alarm icon permanently on Defrost will end due to timeout (dEt) The evaporator fans will be: on if the compressor is ON and will operate based on parameter FCO if the compressor is OFF. 	<ul style="list-style-type: none"> Check the probe wiring Replace probe.
E3	Probe3 error	<ul style="list-style-type: none"> Measured values are outside operating range Probe error/short-circuited/open 	<ul style="list-style-type: none"> Label E3 displayed Alarm icon permanently on 	<ul style="list-style-type: none"> Check the probe wiring Replace probe.
AH1	HIGH temperature Temperature Pbx*	Value read by probe Pbx* > HAL after time of " tAO ". (see "MAX/MIN TEMP. MAX/MIN")	<ul style="list-style-type: none"> Recording of label AH1 in folder AL No effect on regulation. 	Wait until temperature value read by Pbx* returns below (HAL-AFd).
AL1	LOW temperature Temperature Pbx*	Value read by probe Pbx* > LAL after time of " tAO ". (see "MAX/MIN TEMP. ALARMS")	<ul style="list-style-type: none"> Recording of label AL1 in folder AL No effect on regulation. 	Wait until temperature value read by Pbx* rises back above (LAL+AFd).
EA	External alarm	Digital input activated (H11 = ±5)	<ul style="list-style-type: none"> Label EA recorded in folder AL Alarm icon permanently on Regulation blocked if rLO = y 	Check and remove external cause of alarm on D.I.
OPd	Door open alarm	Digital input activated (H11 = ±4) (for a time greater than tdO)	<ul style="list-style-type: none"> Recording of label OPd in folder AL Alarm icon permanently on Regulator locked if dOd ≠ 0 	<ul style="list-style-type: none"> close the door delay function defined by OAO
Ad2	End of defrosting due to timeout	End of defrost cycle due to timeout rather than due to defrosting end temperature being read by probe setting with dp1 .	<ul style="list-style-type: none"> Recording of label Ad2 in folder AL Alarm icon permanently on 	Await next defrost cycle for automatic return to normal.
COH	Alarm due to Over Heating	The alarm probe exceeded the value set by parameter SA3 .	<ul style="list-style-type: none"> Label COH Alarm icon permanently on Regulation locked (Compressor) 	Wait for the temperature to return to a value of SA3 (Setpoint) minus da3 (differential).
nPA	Alarm Pressure switch alarm	Activation of pressure switch alarm by general pressure switch.	If the number N of pressure switch activations is N < PEn: <ul style="list-style-type: none"> Folder nPA recorded in folder AL with the number of pressure switch activations Regulation inhibited (Compressor and Fans) 	Check and remove external cause of alarm on D.I. (Auto Reset).
PAL	Alarm Pressure switch alarm	Activation of pressure switch alarm by general pressure switch.	If the number N of pressure switch activations is N = PEn: <ul style="list-style-type: none"> Label PAL displayed Recording of label PA in folder AL Alarm icon permanently on Regulation inhibited (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 (Manual Reset)

*NOTE: the alarm is related to the probe configured by parameter **rA1**.

TECHNICAL SPECIFICATIONS (EN 60730-2-9)

Classification:	operating (not safety) controls for incorporation.
Mounting:	panel mounting with 71x29 mm (+0.2/-0.1 mm) drilling template.
Type of action:	1.B
Pollution class:	2
Material class:	IIIa
Over-voltage category:	II
Nominal pulse voltage:	2500 Vac
Temperature:	Operation: -5 ... 55 °C (23 ... 131 °F) - Storage: -30 ... 85 °C (-22 ... 185 °F)
Power supply:	230 Vac ($\pm 10\%$) 50/60 Hz
Power consumption:	4.5 VA max
Digital outputs (relay):	refer to the label on the device
Fire resistance category:	D
Software class:	A

NOTE: check the power supply rating on the device's label; contact our Sales Office for power and relay ratings.

FURTHER INFORMATION

Input Characteristics

Display range:	NTC: -55.0 ... 110 °C (-58.0 ... 199 °F) (on 3-digit display with +/- sign)
Accuracy:	Better than 0.5 % of integral-scale +1 digit
Resolution:	0.1 °C / 0.1 °F
Buzzer:	NO
Analogue Inputs:	2 NTC
Digital Inputs:	2 voltage-free digital inputs (D.I.1 and D.I.2)

NOTE: - the D.I.1 can also be configured as a probe input (**H11** = 0 and **H43** = y)
 - the D.I.2, if activated, should be connected to terminals 1-2 of the TTL connector (**H12** \neq 0)

Output Characteristics

Digital Outputs:

MODEL	DEFAULT	EN60730 (max 250 Vac)	UL (max 240 Vac)
EWPlus 971	Compressor	12(8)A	12 FLA - 72 LRA
	Defrost	NO 8(4)A - NC 6(3)A	NO 8 A - NC 6 A resistive NO 2.9 FLA / 17.4 LRA
EWPlus 974	Compressor 1	12(8)A	12 FLA / 72 LRA
	Defrost	NO 8(4)A - NC 6(3)A	NO 8 A - NC 6 A resistive NO 2.9 FLA / 17.4 LRA
	Compressor 2	5(2)A	5 A resistive 2 FLA / 12 LRA

Mechanical Characteristics

Container:	PC+ABS UL94 V-0 resin casing, polycarbonate window, thermoplastic resin keys
Dimensions:	front 78.6x37 mm, depth 59 mm (without terminals)
Terminals:	screw-on/removable for cables with cross-section of 2.5 mm ²
Connectors:	TTL for connection to Unicard/Copy Card + D.I.2
Humidity:	Operation / Storage: 10...90 % RH (non-condensing)

Normative

Food Safety:	The device complies with standard EN13485 as follows: <ul style="list-style-type: none"> • suitable for storage • application: air • climate range A • measurement class 1 in the range from -25 ... 15 °C (-13 ... 59 °F) (*) (* with Eliwell NTC probes only)
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NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) refer to the instrument alone and not to any accessories provided, such as the probes. This means, for example, that the error introduced by the probe must be added to the characteristic error of the instrument.

PARAMETERS Table

PARA.	DESCRIPTION	RANGE	M.U.	EWPlus 971			EWPlus 974			LEVEL
				AP1	AP2	AP3	AP1	AP2	AP3	
SEt	Temperature control SEtpoint. The SEtpoint is only visible in the "machine status" menu.	LSE...HSE	°C/°F	0.0	0.0	-23.0	0.0	-25.0	0.0	
COMPRESSOR (folder "CP")										
rP1	Regulation probe selection 0 = no probe; 1 = Pb1; 2 = Pb2; 3 = Pb3	0/1/2/3	num	1	1	1	1	1	1	Inst
dF1	Compressor relay 1 activation differential. NOTE: dF1 cannot be equal to 0.	0.1...30.0	°C/°F	4.0	4.0	2.0	2.0	2.0	4.0	User/Inst
dF2	Compressor relay 2 activation differential. NOTE: dF2 cannot be equal to 0.	0.1...30.0	°C/°F	2.0	2.0	2.0	2.0	2.0	2.0	Inst
dOF	Delay after switching off and subsequent switch-on.	0...250	min	3	3	3	3	3	3	User/Inst
HSE	Maximum value that can be assigned to the setpoint. NOTE: The two setpoints are interdependent: HSE cannot be less than LSE and vice versa.	LSE...320	°C/°F	10.0	10.0	-18.0	10.0	-18.0	10.0	Inst
LSE	Minimum value that can be assigned to the setpoint. NOTE: The two setpoints are interdependent: LSE cannot be greater than HSE and vice-versa.	-67.0...HSE	°C/°F	-10.0	-10.0	-35.0	-10.0	-35.0	-10.0	Inst
Ont	Controller switch-on time in the event of probe errors. • if Ont = 1 and OFt = 0, compressor stays on permanently (ON) • if Ont > 0 and OFt > 0, compressor operates in Duty Cycle mode	0...250	min	15	15	15	15	15	15	Inst
OFt	Controller switch-off time in the event of probe errors. • if OFt = 1 and Ont = 0, compressor will always stay off (OFF) • if OFt > 0 and Ont > 0, compressor operates in Duty Cycle mode	0...250	min	7	7	7	7	7	7	Inst
dOn	Compressor relay activation delay after request.	0...250	min	0	0	0	0	0	0	Inst
dbi	Delay between two consecutive compressor switch-ons.	0...250	min	0	0	0	0	0	0	Inst
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	Inst
CP2	Delay before activation of compressor step 2	1...250	min	10	10	10	10	10	10	User/Inst
DEFROST (folder "dEF")										
dP1	Defrost probe 1 selection. 0 = no probe; 1 = Pb1; 2 = Pb2; 3 = Pb3	0/1/2/3	num	1	2	1	1	1	1	Inst
dtY	Type of defrost 0 = Electric defrost - compressor off (OFF) during defrosting; 1 = Reverse cycle defrost (hot gas) - compressor on (ON) during defrosting; 2 = 'Free': Defrost independent of the compressor	0/1/2	num	0	0	0	0	0	0	Inst
dit	Interval between the start of two consecutive defrost cycles. 0 = function disabled (defrost NEVER performed)	0...250	min	8	8	12	6	6	8	User/Inst
dCt	Selects the count mode for the defrost interval: 0 = compressor hours of operation (DIGIFROST® method); Defrost active ONLY with the compressor on. NOTE: compressor running hours are counted separately from the evaporator probe (count active also when evaporator probe missing or in error). 1 = appliance running time; defrost counting 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 = not used.	0/1/2/3	num	1	1	1	1	1	1	Inst
dOH	Defroststart delay time after request.	0...59	min	0	0	0	0	0	0	Inst
dEt	Defrost timeout; determines the maximum defrost duration.	1...250	min	50	50	40	30	30	50	User/Inst
dS1	Defrost end temperature (determined by probe Pb2).	-67.0...320	°C/°F	8.0	8.0	12.0	8.0	8.0	8.0	User/Inst
dS2	Evaporator 2 defrost end temperature (determined by probe Pb3).	-67.0...320	°C/°F	8.0	8.0	8.0	8.0	8.0	8.0	Inst
dPO	Determines whether the instrument must enter defrost mode (if the temperature measured by the evaporator allows this operation). n (0) = no, no defrost at power-up; y (1) = yes, defrost at power-up.	n/y	num	n	n	n	n	n	n	Inst
FAN REGULATOR (folder "FAn") - (NOTE: for these parameters, Evaporator means Evaporator 1)										
FP1	Fan probe selection. 0 = no probe; 1 = Pb1; 2 = Pb2; 3 = Pb3	0/1/2/3	num	0	0	0	0	0	0	Inst
FPt	Characterises parameter "FS" which can be expressed either as an absolute temperature value or as a value relative to the setpoint. 0 = absolute; 1 = relative.	0/1	flag	0	0	0	0	0	0	Inst
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	50.0	50.0	50.0	Inst
FSS	Evaporator fans activation temperature differential. • If FSS = 0 , the differential is disabled. • If FSS > 0 , the regulator will be active in parallel with the thermostat, and the fan output will be activated if at least one of the two regulators require it to be activated (output ON); it will be deactivated if both regulators are switched off (output OFF). With FSS > 0 temperature control of fans occurs based on the difference between the temperature of the main control probe (ST1) and that of the evaporator (ST2). If ST1-ST2 > FSS with differential equal to parameter FAd but with the opposite sign, fans switch-on will be forced.	0.0...100	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	Inst

PARA.	DESCRIPTION	RANGE	M.U.	EWPlus 971			EWPlus 974			LEVEL			
				AP1	AP2	AP3	AP1	AP2	AP3				
FAd	Fans activation intervention differential (see par. FSt).	1.0...50.0	°C/°F	1.0	1.0	1.0	2.0	2.0	1.0	Inst			
Fdt	Fans activation delay after a defrost cycle.	0...250	min	0	0	0	0	0	0	Inst			
dt	Dripping time.	0...250	min	0	0	0	0	0	0	Inst			
dFd	Allows exclusion of the evaporator fans to be selected or not selected during defrosting. n (0) = no; y (1) = yes.	n/y	flag	y	y	y	y	y	y	Inst			
FCO	Evaporator fans operating mode. The status of the fans will be:	0/1/2/3	num	1	1	1	1	1	1	Inst			
	H42										FCO	COMPRESSOR ON	COMPRESSOR OFF
	H42 = y										0	Thermostat controlled	OFF
											1	Thermostat controlled	Thermostat controlled
											2	Thermostat controlled	Duty cycle Day
											3	Duty cycle Day	Duty cycle Day
	H42 = n										0	ON	OFF
											1	ON	Duty cycle Day
											2	ON	Duty cycle Day
3		Duty cycle Day	Duty cycle Day										
Duty cycle Day: controlled by means of parameters "Fon" and "FoF".													
Fon	Fans ON time in duty cycle. Use of fans in duty cycle mode; valid for FCO = dc and H42=1 (probe Pb2 present).	0...250	s	12	12	12	12	12	12	Inst			
FoF	Fans OFF time in duty cycle. Use of fans in duty cycle mode; valid for FCO = dc and H42=1 (probe Pb2 present).	0...250	s	6	6	6	6	6	6	Inst			
ALARMS (folder "AL")													
rA1	Temperature alarm probe selection. 0 = no probe; 1 = Pb1; 2 = Pb2; 3 = Pb3.	0/1/2/3	num	1	1	1	1	1	1	Inst			
Att	Parameters HAL and LAL mode intended as the absolute temperature value or differential in relation to the Setpoint. 0 = absolute value; 1 = relative value. NOTE: In case of relative values (par. Att=1), the HAL parameter should be set to positive values, while the LAL parameter should be set to negative values (-LAL).	0/1	num	1	1	1	1	1	1	Inst			
AFd	Alarms cut-in differential.	1.0...50.0	°C/°F	2.0	2.0	2.0	2.0	2.0	2.0	Inst			
HAL	Maximum Temperature value (intended either as distance from setpoint or as an absolute value based on Att) above which the probe will trigger activation of the alarm signal. See "Max/Min temperature alarms" .	LAL...320	°C/°F	10.0	10.0	10.0	10.0	10.0	10.0	User/Inst			
LAL	Minimum Temperature value (intended as distance from setpoint or as an absolute value based on Att) beneath which the probe will trigger activation of the alarm signal. See "Max/Min temperature alarms" .	-67.0...HAL	°C/°F	-5.0	-5.0	-5.0	-5.0	-50.0	-2.0	User/Inst			
PAO	Alarm exclusion time after device is switched on following a power failure. This parameter refers to high/low temperature alarms only.	0...10	hours	2	2	2	2	2	2	Inst			
dAO	Temperature alarm exclusion time after defrost.	0...999	min	60	60	60	60	60	60	Inst			
OAO	Alarm indication delay (high/low temperature) following deactivation of digital input (port closed).	0...10	hours	0	0	0	0	0	0	Inst			
tdO	Door open alarm activation delay.	0...250	min	0	0	0	0	0	0	Inst			
tAO	Delay preceding temperature alarm signal. This parameter refers to high/low temperature alarms only.	0...250	min	30	30	30	30	30	30	User/Inst			
dAt	Alarm indicating end of defrost as a result of time-out. n (0) = does not activate alarm; y (1) = activates alarm.	n/y	flag	n	n	n	n	n	n	Inst			
rLO	Regulators inhibited by external alarm. n (0) = does not lock; y (1) = locks.	n/y	flag	n	n	n	n	n	n	Inst			
SA3	Alarm setpoint for probe configured by parameter rA1 .	-67.0...320	°C/°F	50.0	50.0	50.0	50.0	50.0	50.0	Inst			
dA3	Probe alarm activation differential configured by parameter rA1 .	1.0...50.0	°C/°F	1.0	1.0	1.0	1.0	1.0	1.0	Inst			
LIGHTS AND DIGITAL INPUTS (folder Lit)													
dOd	Enable utility switch-off on activation of door switch 0 = disabled; 1 = fans disabled; 2 = compressor disabled; 3 = fans and compressor disabled	0/1/2/3	num	0	0	0	0	0	0	Inst			
dAd	Digital input activation delay.	0...255	min	0	0	0	0	0	0	Inst			
dCO	Delay in deactivating compressor after door opened.	0...255	min	0	0	0	0	0	0	Inst			
dCd	Delay in activating fans after door closed.	0...250	s	0	0	0	0	0	0	Inst			
PRESSURE SWITCH (folder "PrE")													
PEn	Number of errors allowed per pressure switch input. 0 = disabled.	0...15	num	0	0	0	0	0	0	Inst			
PEI	Pressure switch error count interval.	0...99	min	1	1	1	1	1	1	Inst			
PEt	Delay in activating compressor after pressure switch deactivation.	0...255	min	0	0	0	0	0	0	Inst			
DEEP COOLING (folder "dEC")													
dCS	Rapid Deep Cooling Setpoint	-67.0...320	°C/°F	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	Inst			
tdC	Rapid Deep Cooling Time	0...250	min	60	60	60	60	60	60	Inst			
dcc	Defrost Delay after Rapid Deep Cooling.	0...255	min	0	0	0	0	0	0	Inst			
Sid	Threshold for Rapid Deep Cooling activation	-67.0...320	°C/°F	10.0	10.0	10.0	10.0	10.0	10.0	Inst			
toS	Rapid Deep cooling activation time	0...255	min	30	30	30	30	30	30	Inst			

PARA.	DESCRIPTION	RANGE	M.U.	EWPlus 971			EWPlus 974			LEVEL
				AP1	AP2	AP3	AP1	AP2	AP3	
ENERGY SAVING ("EnS" folder)										
ESt	Energy Saving mode: 0 = disabled 1 = Offset of setpoint; 2 = Offset of differential; 3 = offset of setpoint and differential; 4 = not used; 5 = not used; 6 = not used	0...6	num	1	1	1	0	0	1	Inst
OSP	Offset setpoint.	-30.0...30.0	°C/°F	2.0	2.0	2.0	0.0	0.0	2.0	User/Inst
OdF	Differential offset.	0.0...30.0	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	Inst
COMMUNICATION (folder "Add")										
PtS	Protocol selection. t (0) = Televis; d (1) = ModBus.	t/d	flag	t	t	t	t	t	t	Inst
dEA	Device address: indicates the device address to the management protocol.	0...14	num	1	1	1	1	1	1	Inst
FAA	Family address: indicates the device family to the management protocol.	0...14	num	0	0	0	0	0	0	Inst
PtY	Set the ModBUS parity bit (only if PtS=d). n (0) = none; E (1) = even; o (2) = odd.	n/E/o	num	n	n	n	n	n	n	Inst
StP	Set the Stop ModBUS bit (only if PtS=d). 1b (0) = 1 BIT; 2b (2) = 2 BIT.	1b/2b	flag	2b	2b	2b	2b	2b	2b	Inst
DISPLAY (folder "dis")										
LOC	Setpoint edit lock. The parameter programming menu can still be accessed, and the settings changed, which means also that the status of this parameter can be changed so as to unlock the keypad. n (0) = no; y (1) = yes.	n/y	flag	n	n	n	n	n	n	Inst
PS1	PASsword 1. When enabled (PS1≠0), this is the access key to User parameters (User).	0...250	num	0	0	0	0	0	0	Inst
PS2	PASsword 2. When enabled (PS2≠0) this is the access key to installer parameters (Inst).	0...250	num	15	15	15	15	15	15	Inst
ndt	Display values with decimal point: n (0) = no (integers only) y (1) = yes (displayed with decimal point)	n/y	flag	y	y	y	y	y	y	Inst
CA1	Calibration 1. Positive or negative temperature value added to the value read by Pb1 . This sum is used for both temperature display and temperature regulation purposes.	-12.0...12.0	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	User/Inst
CA2	Calibration 2. Positive or negative temperature value added to the value read by Pb2 . This sum is used for both temperature display and temperature regulation purposes.	-12.0...12.0	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	User/Inst
CA3	Calibration 3. Positive or negative temperature value added to the value read by Pb3 . This sum is used for both temperature display and temperature regulation purposes.	-12.0...12.0	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	User/Inst
CAi	Offset activation on display, thermoregulation or both: 0 = Modifies only the temperature displayed; 1 = Adds only to the temperature used by the regulators, not to the display, which remains unchanged; 2 = Adds to the displayed temperature, which is also used by regulators	0/1/2	num	2	2	2	2	2	2	Inst
ddl	Display mode during defrost. 0 = displays the temperature read by probe configured to parameter dp1 ; 1 = locks the reading at the temperature value read by probe configured to parameter dp1 when defrosting starts and until the next time the SET* is reached; 2 = displays the label deF during defrosting and until the next time the SET* is reached (or until Ldd has elapsed). (* see parameter dCS)	0/1/2	num	2	2	2	2	2	2	Inst
Ldd	Timeout value for display unlock - label deF .	0...255	min	0	0	0	0	0	0	Inst
dro	Selection of °C or °F to display the probe value. 0 = °C, 1 = °F. NOTE: switching from °C to °F or vice versa DOES NOT modify the setpoint, differential, etc. (e.g. set=10°C becomes 10°F).	0/1	num	0	0	0	0	0	0	Inst
ddd	Selects the type of value to show in the display. 0 = Setpoint; 1 = probe Pb1; 2 = probe Pb2; 3 = probe Pb3.	0/1/2/3	num	2	3	2	2	2	2	Inst
FSE	Display filter sensitivity. 0 = disabled.	0...7	num	0	0	0	0	0	0	Inst
FdS	Threshold to disable filter.	-55.0...230	°C/°F	0.0	0.0	0.0	0.0	0.0	0.0	Inst
Ftt	Stay time above the threshold.	0...250	min	15	15	15	15	15	15	Inst
FHt	Sampling time	1...250	s	8	8	8	8	8	8	Inst
CONFIGURATION (folder "CnF") - NOTE: the instrument must be switched off and then on again each time the configuration of the parameters is changed.										
H08	Stand-by operating mode: 0 = display the regulators are active and the device reactivates the display to signal any alarms; 1 = display off; regulators and alarms inhibited; 2 = display shows OFF label; regulators and alarms inhibited.	0/1/2	num	2	2	2	2	2	2	Inst
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; ± 8 = deep cooling; ± 9 = energy saving; ± 10 = door switch + energy saving; ± 11 = Not used (EWPlus 971) - AP1/AP2 (EWPlus 974) selection NOTE: - The "+" sign indicates that the input is active when the contact is closed; - The "-" sign indicates that the input is active when the contact is open.	-11...11	num	0	0	0	11	11	0	Inst
H12	Configuration of digital input 2/polarity (D.I.2). Same as H11.	-11...11	num	0	0	0	0	0	0	Inst

PARA.	DESCRIPTION	RANGE	M.U.	EWPlus 971			EWPlus 974			LEVEL
				AP1	AP2	AP3	AP1	AP2	AP3	
H21	Configuration of digital output 1: 0 = disabled; 1 = compressor; 2 = defrost; 3 = fans; 4 = alarm; 5 = AUX 6 = stand-by; 7 = not used; 8 = condenser fans reversal; 9 = check valve; 10 = evaporator 2 defrost; 11 = compressor 2.	0...11	num	1	1	1	1	1	1	Inst
H22	Configuration of digital output 2 Same as H21 .	0...11	num	2	2	2	2	2	2	Inst
H23	Configuration of digital output 3. Same as H21 .	0...11	num	0	0	0	0	11	11	Inst
H24	Configuration of digital output 4. Same as H21 .	0...11	num	0	0	0	0	0	0	Inst
H31	UP key configuration. 0 = disabled; 1 = defrost; 2 = AUX 3 = reduced set; 4 = stand-by; 5 = deep cooling; 6 = energy saving	0...6	num	1	1	1	1	1	1	Inst
H32	Configuration of DOWN key. Same as H31 .	0...6	num	0	0	0	0	0	0	Inst
H33	Configuration of ESC key. Same as H31 .	0...6	num	4	4	4	4	4	4	Inst
H42	Evaporator probe presence. n (0) = not present; y (1) = present.	n/y	flag	y	y	y	y	y	y	Inst
H43	Probe 3 (Pb3) present. n (0) = not present; y (1) = present; 2EP (2) = evaporator 2 defrost.	n/y/2EP	flag	n	y	n	n	n	n	Inst
H45	Start defrost mode for applications with double evaporator. 0 = evaporator 1 only; 1 = if at least one of the evaporators is below its defrost end temperature Probe value configured at parameter dp1 < ds1 (evaporator 1) or Value Pb3 < ds2 (evaporator 2) 2 = if both evaporators are below their respective defrost end temperature Probe value configured at parameter dp1 < ds1 (evaporator 1) and Value Pb3 < ds2 (evaporator 2) 3 = evaporator 1 and evaporator 2 activated alternately	0/1/2/3	num	0	0	0	0	0	0	Inst
H60	Parameter vector selector: read only parameter.	1 ... 3	num	1			3			User/Inst
reL	reLease firmware. Device software release: read-only parameter.	/	/	/	/	/	/	/	/	User/Inst
tAb	tAble of parameters. Reserved: read-only parameter.	/	/	/	/	/	/	/	/	User/Inst
PS2	NOTE: The "USER" menu parameters also include " PS2 " which permits access to the "INSTALLER" menu.									
COPY CARD (folder "FPr")										
UL	Upload. To transfer programming parameters from instrument to CopyCard.	/	/	/	/	/	/	/	/	User/Inst
Fr	Formatting. To erase data on Copy Card. ATTENTION: If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be reversed.	/	/	/	/	/	/	/	/	User/Inst
RESET (folder "rAP")										
rAP	Reset pressure switch alarms	/	/	/	/	/				

CONDITIONS OF USE

Permitted use

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

Prohibited use

Any use other than that expressly permitted is prohibited. The relay contacts provided are mechanical and subject to failure: any protection devices required by product standards, or suggested by good practice in view of obvious safety requirements, must be installed externally of the controller.

LIABILITY AND RESIDUAL RISKS

ELIWELL CONTROLS SRL declines any liability for damage due to:

- installation/uses other than those expressly specified and, in particular, failure to comply with the safety requirements of established standards and/or instructions specified 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 having to use tools;
- tampering with and/or modification of the product;
- installation/use on panels which are not compliant with current standards and regulations

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DISPOSAL



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

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