

EW03

electronic controller for “ ventilated” refrigeration units



FRONT & LEDS



- Compressor
 - ON for compressor ON;
 - blinking for delay, disabled protection or activation.
- Defrost
 - ON during defrosting;
 - blinking when activated manually.
- Alarm
 - ON when the alarm is enabled;
 - blinking when the alarm is silenced.
- SET/prog.
 - ON during set-point setting;
 - blinking for parameter programming.
- decimal point: ON for nd=3.

KEYS

- ▲ UP Key
 - Scrolls menu entries
 - Increases the values
- ▼ DOWN Key
 - Scrolls menu entries
 - Decreases values
- esc**
 - ESCA(pe) function
 - Activation of defrost function (5 sec)
- set**
 - Accesses the setpoint
 - Accesses the menus (5 sec)
 - Confirms the commands

PROGRAMMING MENU

To enter the “Programming” menu, press the “set” key for more than 5 seconds. If specified, the access PASSWORD will be requested, (parameter “PA”), and, if the password is correct, the label of the first parameter will appear. If the password is wrong, the display will show the PA label again. To scroll through the other parameters, use the “UP” and “DOWN” keys; to change the parameter, press and release “set”, then set the desired value using the “UP” and “DOWN” keys, and confirm with the “set” key to move to the next parameter. If you do not use the keyboard for over 15 seconds (time-out) or if you press the “esc” key once, the last value shown on the display is confirmed and you return to the previous viewing.

NOTE: Switch-off the instrument and switch it on again to save any change in the parameters’ configuration.

Set Setting

Access the set point by pressing and quickly releasing the “set” key. The current value of the set point appears.

To change the Setpoint value, use the “UP” and “DOWN” keys and press the “set” key to confirm, the value.

If you do not use the keyboard for over 15 seconds (time-out) or if you press the “esc” key once, the last value shown on the display is confirmed and you return to the previous viewing.

FUNCTIONS

DEFROSTING OPERATION

The defrosting may take place manually using the key or automatically, at time intervals.

Defrosting modes

During the defrost cycle the compressor is stopped. Defrosting ends only by time-out set by the parameter **dE**.

Enabling defrost cycle manually

To activate the defrosting cycle manually, press the “esc” key. If parameter $O_d <> 0$, the display will blink three (3) times, to indicate that the operation will not be performed.

Automatic defrosting

In this case the defrosting takes place at time intervals set by parameter **dt**. If $dt=0$ defrosting will not take place at all. If the parameter $dt > 0$ the defrosting will take place at fixed intervals, as stated, and according to the parameter **dc**:
dc=0 Compressor hours of application (DIGIFROST® method);
dc=1 Hours of appliance operation
dc=2 compressor stop.

PLEASE NOTE: If the manual defrosting is already active the request for automatic defrosting will be cancelled.

ALARMS

DISPLAY	FAULT
E1	Faulty probe 1
E2	Faulty probe 2
If simultaneous, they will be shown on the display alternately, every 2 seconds	

The alarm signal produced by a faulty thermostat probe (referred to probe 1) is shown as E1 on the instrument display

The alarm signal produced by a faulty evaporator probe (probe 2) is shown as E2 on the instrument display. The error condition of the probe 1 (thermostat) causes the following:
 • viewing E1 code on the display
 • compressor enabling as indicated by “On” and “OF” parameters, if these are programmed for duty cycle or:

On	OF	Compressor output
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	dc

The error condition of the probe 2 (evaporator) causes the following:
 • viewing E2 code on the display
 • end of defrost because of time-out.

MAXIMUM AND MINIMUM TEMPERATURE ALARM

If an alarm condition occurs and alarm exclusion times are not running (see alarm exclusion parameters), the alarm icon lights up permanently. This type of alarm does not affect the regulating in progress. Alarms are considered as absolute (default) values or as values related to the Set point (the distance from the Set point itself) depending on the At parameter. If the alarms are relative ($At=1$), parameter HA is set to positive values and LA to negative values.

PAR.	DESCRIPTION	RANGE	DEFAULT	M.U.
SP	Set-Point	LS...HS	0	°C/°F
dF	differential. Compressor stops on reaching the Setpoint value (as indicated by the adjustment probe), and restarts at the temperature value equal to the Setpoint plus the value of the differential. Cannot be = 0.	1...30	2	°C/°F
HS (1)	Higher set. Maximum possible Setpoint value	LS...99	50	°C/°F
LS (1)	Lower set. Minimum possible Setpoint value	-50...HS	-50	°C/°F
On	On time (compressor). Compressor activation time in the event of a faulty probe. If set to "1" with OF set to "0", the compressor is always on while if OF>0, it operates in duty cycle mode	0...99	0	min
OF	OFF time (compressor). Compressor off time in the event of a faulty probe. If set to "1" with On at "0", the compressor is always off, while with OF>0, it operates in duty cycle mode	0...99	0	min
dn	delay at (ON) compressor. Delay time in activating the compressor relay after switch-on of instrument	0...99	0	min
dO	delay (after power) OFF. Delay after switch off; the indicated time must elapse between switch off of the compressor re-ally and the successive switch-on	0...99	0	min
di	Delay between power-on; the indicated time must elapse between two subsequent switch-ons of the compressors	0...99	0	min
Od	Delay output from power-on. Delay time in activating the outputs after switch on of the instrument or after a power failure. 0=not active	0...99	0	min
dy	defrosting type: 0=electrical defrosting 1=cycle reversing refrosting (hot gas) 2=free mode defrost (independent from compressor)	0/1/2	0	num
dt	defrost interval time. Interval between the start of sub-sequent defrosting operation. 0=the function is disabled. Expressed in hours.	0...99	6	hours
dC	defrost Counting type. 0=compressor hour of operation (DIGIFROST® method). Defrosting active ONLY with the compressor ON. 1=hours of device operation. 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 with the "dt" parameter.	0/1/2	1	num
dE	defrost Endurance time. Defrosting time-out; determines the maximum duration of defrosting	1...99	30	min
dS	End of defrost temperature (determined by evaporator probe)	-58.0...302.0	8.0	°C/°F
OS	defrost Offset hour. Start of defrosting delay time from start up of the instrument.	0...99	0	min
dP	defrost (at) power-on. Determines if at start-up the instrument must enter defrosting (if the temperature measured by the evaporator allows this operation); y=starts defrost at start-up; n=doesn't start defrost	n/y	n	flag
FS	Fan stop temperature. If the value, read by the probe is higher then the set value, fans stop.	-58.0...302.0	2.0	°C/°F
Fd	Fan differential. Fan starting differential	1.0...50.0	2.0	°C/°F
Ft	Fan delay time. Delay time in activating fans after a defrost operation	0...99	0	min
FE	defrost Fan disable. Allows to select the probes exclusion during defrost; y=yes; n=no	n/y	y	flag
FC	Fan Compressor Off. Allows to select fan Lock Off (if compressor is switched off). y=fans activated; n=fans off	n/y	y	flag
dr	Drainage time. Dripping time.	0...99	0	min
At	Alarm type. Parameter "HA" and "LA" modes, as temperature absolute value or as differential compared to setpoint. 0=absolute value; 1=relative value	0/1	1	flag
Ad	Alarm Fan differential. Alarm differential	1.0...50.0	2.0	°C/°F
HA	Higher alarm. Maximum temperature alarm. Temperature value (understood as distance from the setpoint, or as an absolute value based on At) which if exceeded in an up-ward direction triggers the activation of the alarm signal.	LA...302.0	50.0	°C/°F
LA	Lower alarm. Minimum temperature alarm. Temperature value (understood as distance from the setpoint, or as an absolute value based on At) which if exceeded in a down-ward direction triggers the activation of the alarm signal.	-58.0...HA	-50.0	°C/°F

MECHANICAL ASSEMBLY

The instrument is designed for flush panel mounting. Insert the unit through a 71x29 mm. panel cut-out and affix with the U-bracket supplied.

The ambient temperature around the instrument should be kept between -5 and 55 °C. Select a location which will not be subject to high humidity or condensation and allow some ventilation to provide cooling to the instrument.

ELECTRICAL CONNECTIONS

Important/Warning! Switch the device OFF before working on the connections.

The instrument has screw terminal blocks for connecting cables with a maximum diameter of 2,5 mm². (one only conductor for power connection); for the capacity of the terminals, see the label on the instrument.

Do not exceed the maximum current allowed; in case of higher loads, use an appropriate contactor. Make sure that power supply voltage meets the instrument voltage. Probes have no connection polarity and can be extended using a regular bipolar cable (note that the extension of the probes affect the EMC electromagnetic compatibility of the instrument; pay extreme attention to the wiring). Probe cables and power supply should be distant from the power cables.

TECHNICAL DATA

Front protection: IP65.

Container: plastic casing of PC+ABS UL94 V-0 resin, clear polycarbonate panel, thermoplastic resin keys.

Size: front panel 74x32 mm, depth 59 mm.

Mounting: panel, with 71x29 mm (+0.2/0.1 mm) drilling template.

Usage temperature: -5...55 °C.

Storage temperature: -30...85 °C.

Storage and usage humidity: 10...90 % RH (non-condensing).

View range:

nd=2: -50...99 °C NTC/PTC on 2 digits+sign without decimal point

nd=3: -50.0...110.0 °C NTC, -55.0...140.0 °C PTC on a 3 digit display + sign with decimal point

Analogue Inputs: 2 PTC/NTC input.

Measuring range: from -50 to 99 °C.

Accuracy: 0.5% better than end scale + 1 digit.

Resolution: 0.1 °C or 1°C.

Digital outputs:

3 digital output on relay:

- SPDT 8A 1/2 Hp 250 V~
- SPDT 8A 1/2 Hp 250 V~
- SPDT 5A 1/4 Hp 250 V~

Serial: TTL for connection to Copy Card

Power supply: 230V~ ±10% 50/60 Hz

PAR.	DESCRIPTION	RANGE	DEFAULT	M.U.
dA	defrost Alarm Override. Alarm exclusion time after defrost	0...99	0	min
AE	Power-on Alarm Override. Alarm exclusion time after instrument switch-on, after a power failure	0...10	0	min
PA	Password	0...99	0	num
CL	Calibration probe.	-12...12	0	°C/°F
nd	number display type: 2=2 digits + sign 3=3 digits + sign	2/3	3	flag
dL	display lock. Viewing mode during defrosting: 0=shows the temperature read by the probe 1=locks the reading on the temperature value read by the probe when defrosting starts, and until the next time the setpoint value is reached. 2=displays the label "dF" during defrosting, and until the next time the setpoint value is reached	0/1/2	0	flag
ro(2)	Display read out. Select °C or °F for displaying the temperature read by the probe; 0=°C, 1=°F	0/1	0	flag
rd (3)	Displays the value read by the evaporator probe Pb2	/	/	°C/°F
H0	Probe type selection; 0=PTC; 1=NTC	0/1	1	flag
re (3)	Release firmware	0...99	-	num
tb (3)	table of parameters. Reserved	0...99	-	num
folder FP - Copy Card - see the related paragraph				

PARAMETERS

CONDITIONS OF USE

PERMITTED USE

For safety reasons the instrument must be installed and used in accordance with the instructions supplied. Users must not be able to access parts with dangerous voltage levels under normal operating conditions. The device must be suitably protected from water and dust according to the specific application and only be accessible using special tools (except for the front keypad). The device can be fitted to equipment for household use and/or similar use in the refrigeration sector and has been tested with regard to safety in accordance with the European harmonized reference standards: It is classified as follows:

- as an automatic electronic control device to be integrated as regards its construction;
- as a 1 B type operated control device as regards its automatic operating features;
- as a Class A device in relation to the category and structure of the software.

UNPERMITTED USE

The use of the unit for applications other than those described above is forbidden. It should be noted that the relay contacts supplied with the device are functional and therefore exposed to potential faults. Any protection devices required to comply with product requirements or dictated by common sense due to obvious safety reasons should be installed externally.

DISCLAIMER

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NOTES:

- (1) The two sets are dependent: HS (maximum set) cannot be less than LS (minimum set) and vice versa.
- (2) The switch between °C and °F does not modify the set point, differential etc.
- (3) read-only parameter

The technical characteristics in this document concerning measurements (range, accuracy, resolution, etc.) refer to the instrument in the strictest sense and not to any accessories provided such as probes, for example. This means, for example, that an error introduced by the probe is added to any error that is typical of the instrument.

COPY CARD EW03

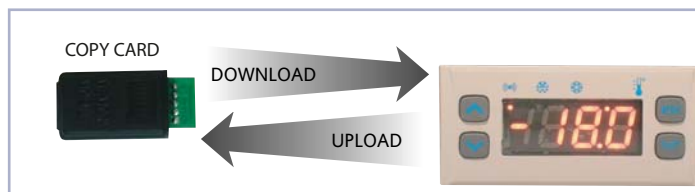
The Copy Card is an accessory connected to the TTL serial port used for quick programming of the unit parameters (upload and download parameter map to one or more units of the same type). upload (UL label) and copy card formatting (Fr label) operations are performed in the following way:

Download from reset (label dL)

Connect the copy card when the instrument is OFF. The programming parameters are downloaded when the device is switched on. At the end of the lamp test, the following messages are displayed for about 5 seconds:

- Y label if copy operation is successful
- n label if operation fails

- The 'FP' folder contains the commands necessary for use of the Copy Card. Press 'set' to access the functions.
- Use the 'UP' / 'DOWN' buttons to display the required function. Press the 'set' and uploading will be performed.
- If the operation is successful 'y' will be displayed, if it is not successful, 'n' will be displayed.



NOTE:

- after the parameters have been downloaded, the device uses the downloaded parameter map settings.



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WIRING DIAGRAM

TERMINALS

1-2	N.O. defrost relay output (A)
1-3	N.C. defrost relay output (A)
1-4	N.O. compressor relay output (B)
1-5	N.O. fan relay output (C)
6-7	Power supply 230V~
8-9	evaporator probe Pb2
8-10	thermostat probe Pb1
A	TTL input for Copy Card

