EWHT800LX

Controllers for cold rooms and curing rooms for on-board installation

COLDFACE

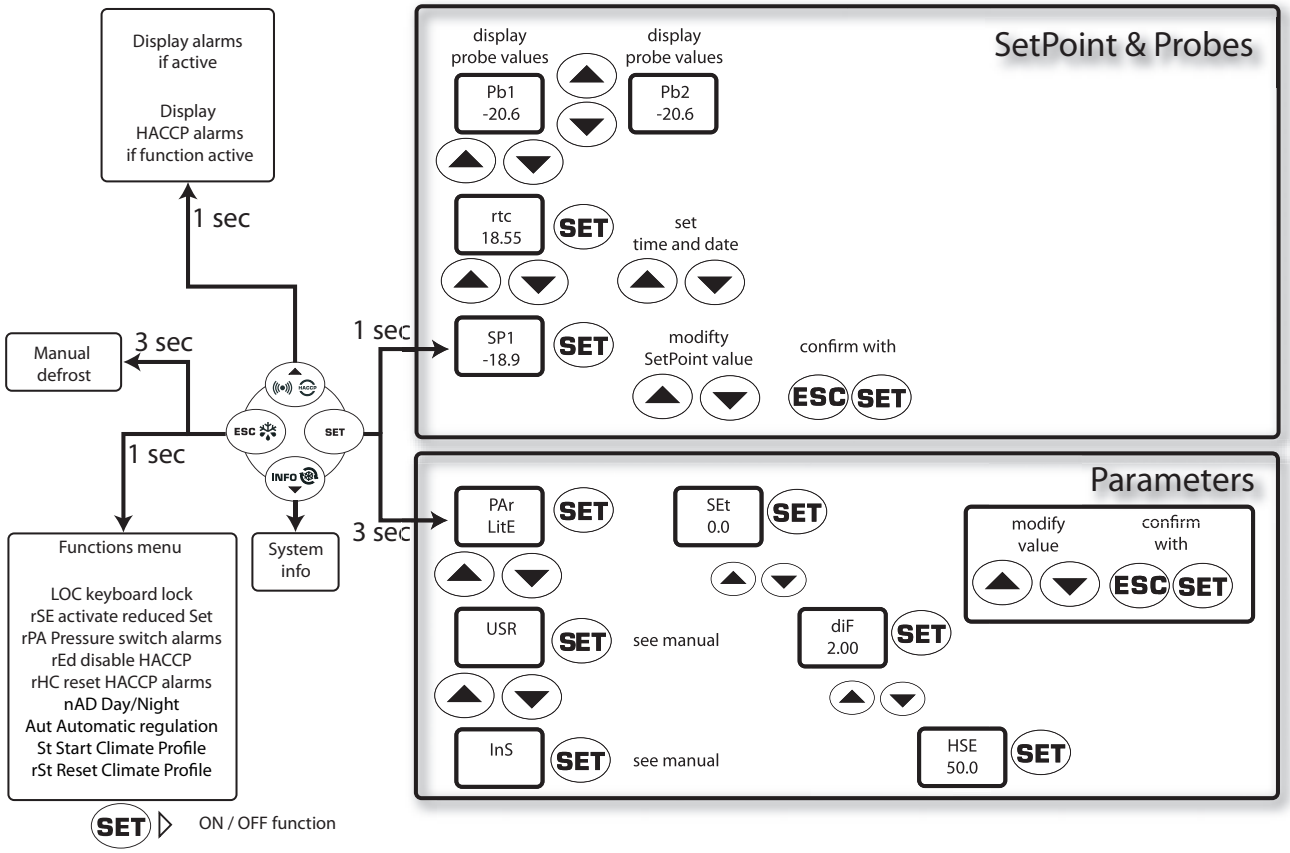
invensys
Controls Europe

English

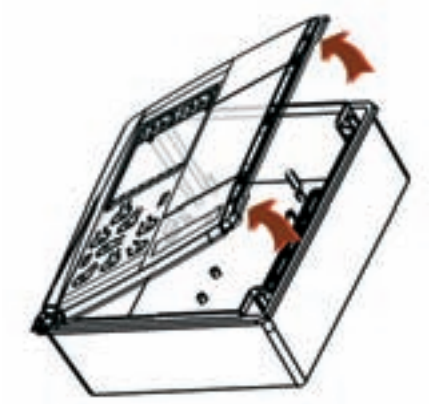
INTRODUCTION

The Coldface EWHT800LX series controls the temperature and humidity of a static or ventilated cold room. The curing cycle consists of 1 program with 8 customisable climate profiles. The instrument controls positive and negative cold rooms and is capable of managing a double evaporator and condenser probes. Coldface has 8 configurable relays, 4 low-voltage digital inputs configurable for door switch, alarm and pressure. Models are available with clock with yearly calendar and HACCP event logging. The instrument can be connected to Televis**System** via the optional plug-in module. The box allows for installation of a power contactor or a disconnecting switch with door lock.
This summary document contains basic information about the standard models EWHT800LX. For further information and different configurations, refer to the complete user manual p/n 9MA10024 which can be downloaded free of charge from the www.eliwell.it website.

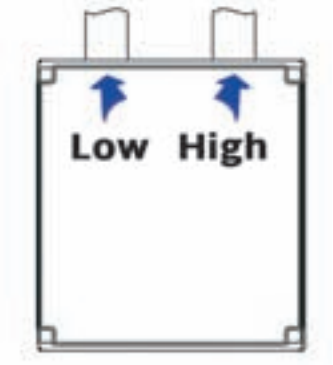
NAVIGATION DIAGRAM



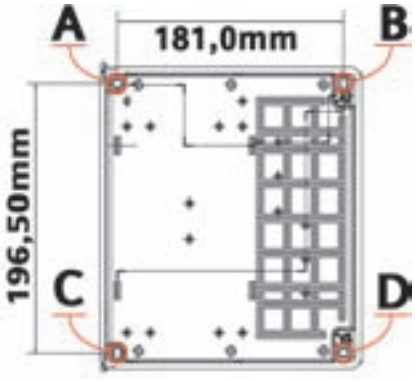
MECHANICAL INSTALLATION



• Remove the protective plate on the right of the door
• Take out the 2 screws supplied and then open the cover.



• Drill holes in the top (or bottom) of the backplate to pass the high and low-voltage wires through. **Cable clamps must be no bigger than size PG29**



• Screw the backplate to the wall using 4 screws (not supplied) to match the holes A...D.
• Shut the door and cover the screws with the corresponding plate

ELECTRICAL CONNECTIONS

Output relay (default settings)
- **OUT1** = Dehumidification
- **OUT2** = Humidification
- **OUT3** = Heating
- **OUT4** = Compressor
- **OUT5** = Evaporator fan
- **OUT6** = Auxiliary 1 (ventilation fans)
- **OUT7** = Auxiliary 2 (destratification fans)
- **OUT8** = Light

Probe inputs (default settings)
- **Pb1** = NTC cold room probe
- **Pb2** = NTC defrost end probe
- **Pb3** = NTC (de)stratification probe
- **Pb4** = NTC condenser fan probe
- **Pb5** = Humidity probe / pressure transducer 4...20mA

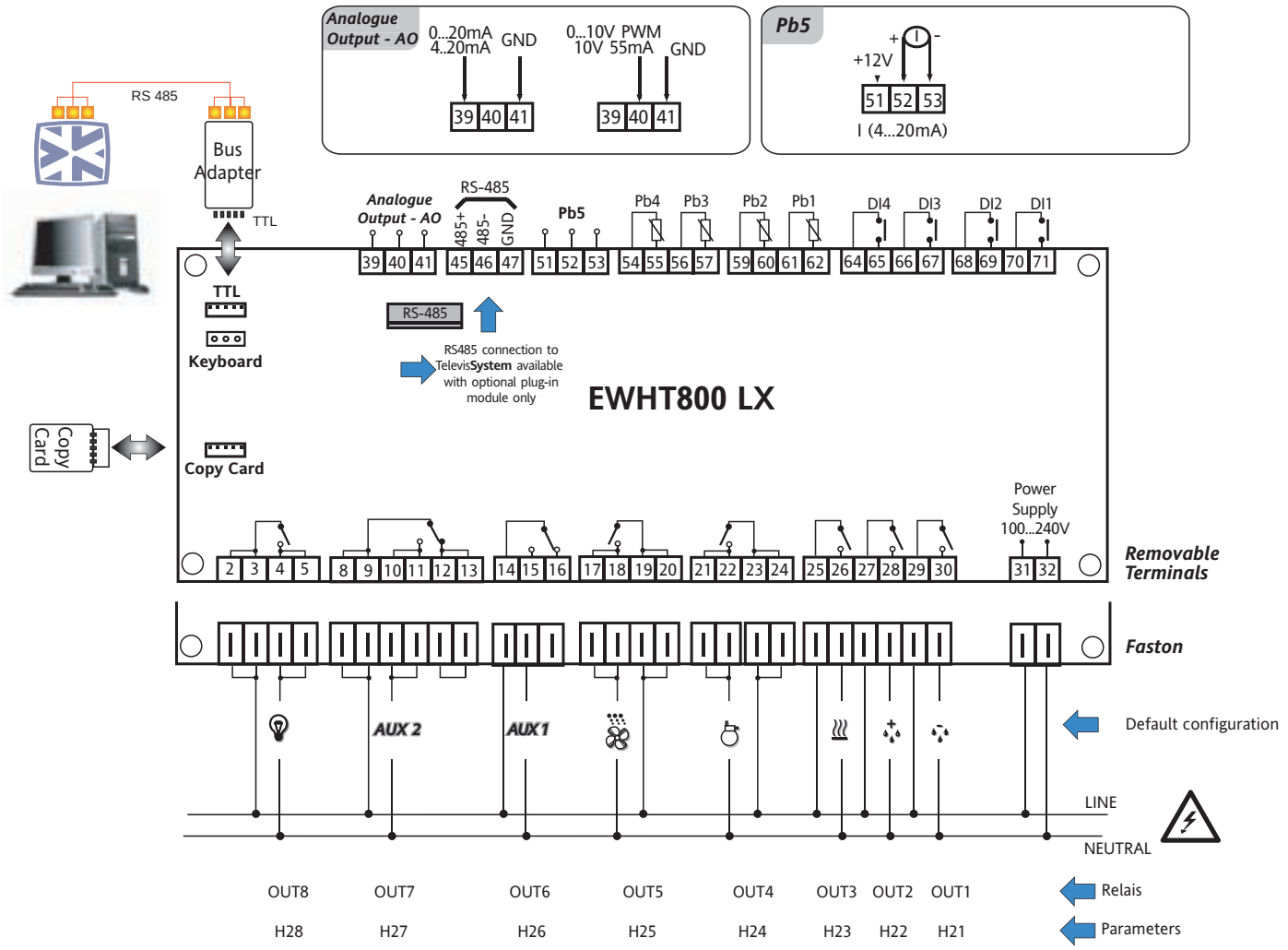
To switch between NTC/PTC probe types use parameter H00. **SWITCH OFF AND RESTART THE INSTRUMENT** after making the change

Digital Inputs (default settings)
- **D.I.1** = Door switch
- **D.I.2** = Alarm
- **D.I.3** = Low pressure
- **D.I.4** = High pressure

Analogue Output (default settings)
- **AO** = 0-10V for piloting external fan module

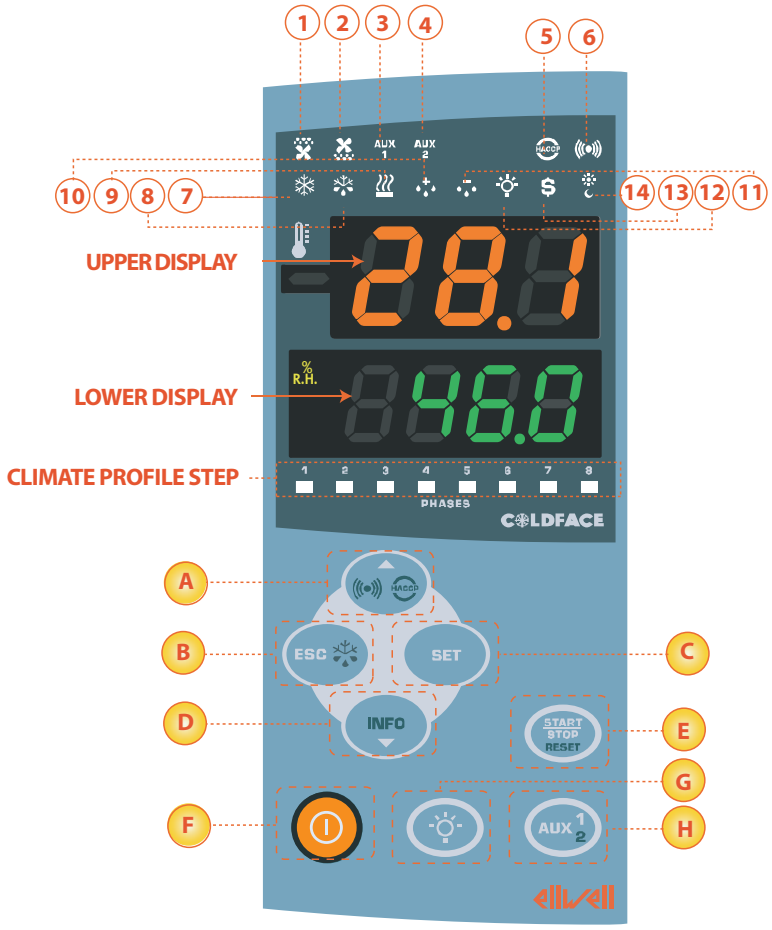
Serials
- **TTL** for connection to Copy Card
- **TTL** for connection to Televis**System**
- **RS485** available **ONLY** with optional Plugin module for connection to Televis**System.**

Important! Make sure the machine is switched off before working on the electrical connections.
- **Removable screw terminals**: electric cables of 2.5 mm² maximum cross-section (one wire per terminal in the case of power connections).
- **FASTONS:** single row of fastons in series.



English

DISPLAY



UPPER DISPLAY
• 3 digits and - sign:
View:
• Operating value
• parameters label
• alarms, functions

If the upper display is blinking it means that the value of the lower display can be modified

LOWER DISPLAY
• 4 digits
View:
• parameters value
• probe values
• function state

HACCP models
• time

If the lower display is blinking it means that the displayed value can be modified

LEDs

No.	LEDs	colour	ON	BLINKING	OFF
1	EVAPORATOR FANS	yellow	Fans ON	Forced ventilation	Fans OFF
2	CONDENSER FANS	yellow	Fans ON	/	Fans OFF
3	VENTILATION FANS AUXILIARY 1 (AUX))	yellow	VENTILATION FANS AUX1 ON	/	VENTILATION FANS AUX1 OFF
4	DESTRATIFICATION FANS AUXILIARY 2 (AUX)	yellow	DESTRATIFICATION FANS AUX2 ON	/	DESTRATIFICATION FANS AUX2 OFF
5	HACCP	red	HACCP alarm	Not displayed	No alarm
6	ALARM	red	Alarm	Silenced	No alarm
7	COMPRESSOR	yellow	Compressor ON	Delay	Compressor OFF
8	DEFROST	yellow	defrost	drip	No defrost
9	HEATING	yellow	Heating ON	/	Heating OFF
10	HUMIDIFICATION	yellow	Humidify	/	
11	DEHUMIDIFICATION	yellow	Dehumidify	/	
12	LIGHT	yellow	Light ON	/	Light OFF
13	ENERGY SAVING	yellow	Energy saving ON	/	Energy saving OFF
14	NIGHT & DAY	yellow	Night & Day ON	/	Night & Day OFF
STEP	CLIMATE PROFILE	green	see Climate Profiles		

ON: function / alarm active; OFF: function / alarm NOT active

KEYS

Nr.	KEY	press and release	press and hold for about 3 seconds	Notes
A	▲ UP	•Alarms Menu (always visible)* • Scroll • Increase values	/	*HACCP alarms/system alarms if present
B	ESC	• Exit • Functions menu	• Manual defrost • Return to Main Menu	
C	SET	• Display SetPoint / probe values / time* • Confirm values • Access value edit mode (upper display blinking)	Access Parameter Edit mode	
D	▼ DOWN	• Scroll • Decrease values • Display instrument INFO**	/	**See Technical Support
E	START/STOP RESET	• Start Climate Profile • Stop Climate Profile	• Reset Climate Profile	See Climate Profiles
F	ON/OFF	/	Switch device On/Off	
G	LIGHT	/	Switch light on/off	
H	AUX1/2	Activate destratification fans	Activate destratification fans	

USER INTERFACE

How to modify the SetPoint

- Press and release the SET key. The upper display will show SP1, the lower display will indicate the current SetPoint value
- Press and release the SET key once more. The upper display will show SP1 blinking
- Use the UP & DOWN keys to adjust the SetPoint value
- Press the ESC key several times (or keep it pressed) to return to the normal display

How to read the probe values

- Press and release the SET key. The upper display will show SP1, the lower display will indicate the current SetPoint value
- Press and release the DOWN key. If the RTC clock is present, the time will be shown in the lower display
- Press and release the DOWN key once more. The upper display will show Pb1, the lower display will indicate the value read by the room probe
- Press and release the DOWN key once more to read the value of probe Pb2 and Pb3
- Press the ESC key to return to the normal display

How to modify the Lite Parameters

The Lite parameters are the most useful parameters and are described in this document, in the section Parameters Table.

1) Press and hold the SET key for 3 seconds until the display shows PAr / Lite
2) Press and release the SET key once more. The upper display will show the first parameter*, the lower display will indicate the current parameter value
3) Using the UP & DOWN keys, find the parameter that you wish to modify
4) Press and release the SET key once more. The upper display will show the name of the blinking parameter
5) Use the UP & DOWN to adjust the parameter value
6) Press and release SET to save the parameter value
7) Return to step 3) or press ESC several times to return to the normal display

English

LITE PARAMETER TABLE

This section describes the most useful parameters, which are contained in the 'Lite' folder. For a description of all User (USr) and Installer (Ins) parameters, see the user manual. Note: the 'Lite' folder parameters are NOT divided into subfolders and are always visible (no access password is required). The same parameters are also visible in the respective folders 'Compressor', 'Fans', etc. (also indicated here for easy reference) in the User (USr) and Installer (Ins) parameters menu.

PARA.	DESCRIPTION	RANGE	DEF. / U.o.M.
SP1	SETPOINT Control value within the range between the minimum set point LSE and the maximum set point HSE.	LSE...HSE	0.0 °C/°F
diF	Compressor relay activation differential; the compressor stops on reaching the set point value (as indicated by the regulation probe) and restarts at a temperature value equal to the set point plus the value of the differential. Note: the value 0 cannot be set.	0.1...30.0	2.0 °C/°F
HSE	Maximum value that can be assigned to the setpoint.	LSE...302	50.0 °C/°F
LSE	Minimum value that can be assigned to the setpoint.	-55.0...HSE	-50.0 °C/°F
SPH	Humidity setpoint. Minimum LSH value that can be assigned to the setpoint. Maximum HSH value that can be assigned to the setpoint.	LSH...HSH	0.0 %RH
dbH	Humidity intervention half-band. Always positive.	0.0...50.0	5.0 %RH
dtY	Type of defrost. 0= electric defrosting - compressor off (OFF) during defrosting 1 = reverse cycle defrost (hot gas) - compressor ON during defrosting 2= Free: defrosting independently of compressor	0/1/2	0
dit	Interval between the start of two subsequent defrosting cycles. 0= function disabled (defrosting NEVER performed)	0...250	6 h
dEt	Defrost time-out; determines the maximum duration of the defrost cycle.	1...250	30 min
dSt	Defrost end temperature (determined by the evaporator probe Pb2).	-50.0...150	6.0 °C/°F
FSt	Fan stop temperature; if the evaporator probe reads a higher value than the set value, 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 set point.	-50...150	6.0 °C/°F
Fdt	Fan activation delay after a defrosting cycle.	0...250	0 min
dt	Drip time.	0...250	0 min
dFd	Allows exclusion of the evaporator fans to be selected or not selected during defrosting. y = yes; n = no.	n/y	y
F09	Minimum setpoint for condenser fan speed.	-50.0...99.9	30.0 °C/bar
SFd	Temperature difference for destratification fans. If the difference |Pb1-Pb3| as an absolute value (positive number) is greater than SFd, the destratification fans are started. They switch off when |Pb1-Pb3| is less than SFd -diS (destratification fans differential)	0...99.9	4.0 °C/°F
HAL	Maximum temperature alarm. Temperature value (intended either as distance from set point or as an absolute value based on Att) which, if exceeded in an upward direction, triggers the activation of the alarm signal.	LAL...150	50.0 °C/°F
LAL	Low 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.	-50.0...HAL	-50.0 °C/°F
dAO	Temperature alarm exclusion time after defrost.	0...999	60 min
tAO	Time delay for temperature alarm indication. Refers to high/low temperature alarms only.	0...250	0 min
CA1 CA2 CA3 CA4	Calibration 1/2/3/4. Positive or negative temperature value added to the value read by probe Pb1/2/3/4, according to the setting of parameter "CA".	-12.0...12.0	0 °C/°F
ddL	Display mode during defrost. 0 = displays the temperature read by the room probe Pb1; 1 = locks the reading at the temperature value read by room probe Pb1 when defrosting starts and until the next time the set point value is reached; 2 = displays the label "deF" during defrosting and until the next time the set point value is reached (or until Ldd has elapsed).	0/1/2	1
	CONFIGURATION **NOTE: the instrument must be switched off and restarted each time these parameters are modified.**		
H00	Probe type selection, PTC/NTC. 0 = PTC; 1 = NTC.	0/1	1
H09	Type of dehumidification. 0= with dehumidification relay; 1= with dehumidification relay + compressor; 2= without dehumidification relay;	0/1/2	0
H42	Pb2 Evaporator probe presence. 0 = not present; 1 = present.	0/1	1

THE INSTRUMENT ENABLES MODIFICATION OF OTHER PARAMETERS DIVIDED INTO USER LEVEL (USr) and INSTALLER LEVEL (InS)

How to modify other parameters

Installer (InS) level access - User level access is similar:

Procedure applies only to more advanced applications. In this case the parameters are arranged in folders (Compressor / Defrost / Fans etc)
1) Press and hold the SET key for 3 seconds until the display shows PAr / Lite
2) Use the UP & DOWN keys to select the parameter level concerned (Usr or Ins)
3) Press and release the SET key once more. The display will show the first folder
4) Press and release the SET key once more. The upper display will show the first parameter in the folder, the lower display will indicate the current parameter value
5) Using the UP & DOWN keys, find the parameter that you wish to modify
6) Press and release the SET key once more. The upper display will show the name of the blinking parameter
7) Use the UP & DOWN keys to adjust the parameter value
8) Press and release SET to save the parameter value
9) Return to step 5) or press ESC several times to return to the normal display

OPERATION IN DEFAULT CONFIGURATION

The instrument is configured for negative cold. For positive cold, disable the evaporator probe Pb2 (set H42=0) and set relay OUT5 (parameter H25) = 6 (STANDBY) or 0 (DISABLED) to prevent continuous ventilation.

DEHUMIDIFICATION

Digital output OUT1 is configured as dehumidification relay. It switches on if the relative humidity is greater than the Humidity Setpoint SPH + dbH (intervention half-band, always positive) and switches off when the value is SPH. Dehumidification is activated by relay (H09=0).
SPH = 20.0°C Humidity Setpoint
dbH = 5.0°C intervention half-band, always positive
dFH = differential = 0 => dFH = dbH

HUMIDIFICATION

Digital output OUT2 is configured as humidification relay. It switches on if the relative humidity is less than the Humidity Setpoint SPH - dbH (intervention half-band, always positive) and switches off when the value is SPH. Humidification is disabled during defrost (dEH=0).
NOTE:
• Humidification and dehumidification are in Neutral Zone mode (H05=nE)
• Humidification and dehumidification are disabled during defrost (dEH=0)

HEATING

Digital output OUT3 is configured as heating relay. It is activated in Neutral Zone mode (H07=1).
Heating mode:
It switches on if the temperature is less than the Heating Setpoint StH - db (intervention half-band, always positive) and switches off when the value is StH.
StH = 0.0°C Heating Setpoint
db = 2.0°C temperature intervention half-band, always positive
diH = differential = 0 diH = db
Cooling mode:
It switches on if the temperature is greater than the Cooling SetPoint SEt + db (intervention half-

band, always positive) and switches off when the value is SEt+db-diF.
SEt = 20.0°C Cooling SetPoint; db = 2.0°C temperature intervention half-band, always positive
diF = differential = 2.0

COMPRESSOR
Digital output OUT4 is configured as compressor relay. The compressor is active if the cold room temperature detected by Pb1 exceeds the value of SP1 + differential diF. The compressor stops if the cold room temperature detected by Pb1 falls below the SP1 value. The instrument includes compressor on/off protection*

EVAPORATOR FANS
Digital output OUT5 is configured as evaporator fan relay and is activated in the required cases, according to delays and parameter settings*
Default fan settings
dt = 0 min. drip time; dFd = Y. Fans off during defrosting

LIGHT
Digital output OUT8 is configured as light relay. The light is activated by pressing and holding the LIGHT key (G).
Since digital input D.I. 1 is configured as door switch, relay OUT8 (light) is activated when the door is opened. The light also switches on with the instrument in standby*.

CONDENSER FANS
Probe Pb4 is configured as NTC condenser fan temperature probe. It is adjusted according to the temperature of the probe (see parameter F02=1) in cooling mode (see parameter F01=C). The condenser fan functions independently from the compressor, e.g. the fan is on even if the compressor is off (see parameter F16=1)
Note: Analogue output AO is enabled as 0-10V output (F00=4) for piloting an external fan module.*

AUXILIARY (AUX1/2) - ventilation fans
Digital output OUT6 is configured as ventilation fans relay.
The auxiliary output is activated manually by pressing and releasing the AUX1-2 key (H)*

AUXILIARY (AUX1/2) - destratification fans
Digital output OUT7 is configured as destratification fans relay.
The auxiliary output is activated manually by pressing and releasing the AUX1-2 key (H). To prevent stratification, e.g. when hot air inside the room rises to the ceiling and cold air falls to the floor, use probe Pb3 as a stratification probe, positioning it in accordance with the room probe wiring (one near the ceiling, the other near the floor). The fans switch on if Pb1-Pb3 as an absolute value (positive value) is greater than the SFd “difference” value and switch off after SFd-diS temperature differential.
SFd = 4.0°C difference to be compared with |Pb1-Pb3|
diS = 1.0°C differential

MINIMUM / MAXIMUM PRESSURE SWITCH
Digital input D.I. 3 is configured to manage the minimum pressure switch (low pressure)
Digital input D.I. 4 is configured to manage the maximum pressure switch (high pressure)
Pressure switch setting (default)
PEn = 15. Maximum number of low/high pressure error messages
PEi=99 min. The time interval, in minutes, for counting errors indicated by PEn. If during this interval the number of responses from the pressure switch exceeds the indicated threshold, the instrument will report a pressure switch error and power to the compressor, defrost and fans will be cut off. See Alarms Table*
*FOR MORE INFORMATION READ the manual, p/n 9MA10024

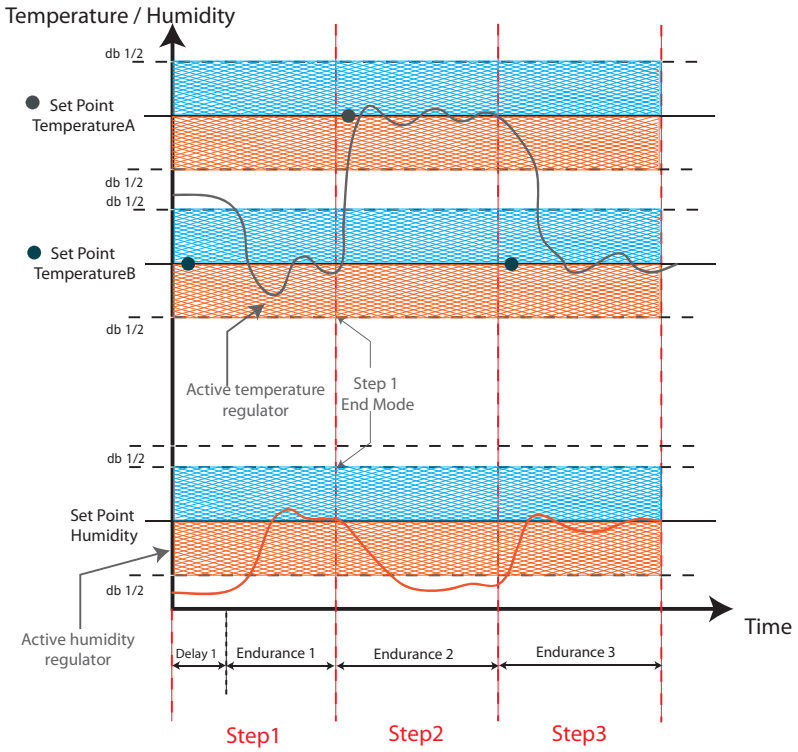
CLIMATE PROFILES

LED Climate Profiles

STEP	colour	ON	BLINKING	OFF
1...8	green	individual LED ON: STEP in progress	individual LED: duty cycle (STEP) not started Note: only one LED can be blinking	individual LED: duty cycle (STEP) not started
		LED 1,2,.., n (n=2,...7) ON: Climate profile consisting of 2,3,..,7 STEPS STEP 1,2,.., n completed successfully		
		ALL LEDs ON: Climate profile consisting of 1 or 8 STEPs: Climate profile completed successfully		ALL LEDs OFF: climate profile ready to start individual LED: cycle STOPPED

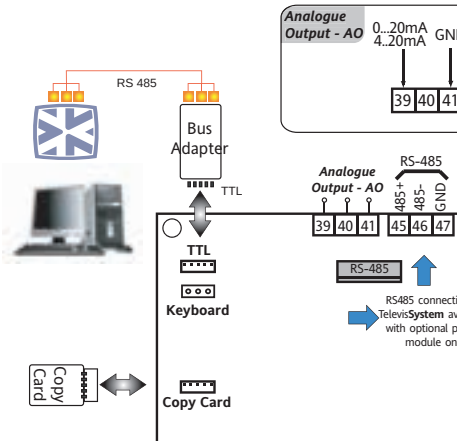
EWHT800LX manages curing cycles by means of climate profiles consisting of 8 STEPS.
Each STEP is defined by a set of 10 parameters.
The parameters determine STEP activation delays, duration, type of humidity and temperature regulation, setpoint for regulation, activation of relay AUX1/2 and procedures for completing one STEP and switching to the next.
By default, regulation is disabled and the setpoints are all zero. The auxiliary relay is enabled
The climate profile START or STOP command is activated by briefly pressing the START/STOP RESET key (E).
The climate profile RESET command is activated by pressing and holding the START/STOP RESET key (E).

Example
3-STEP climate profile and temperature/humidity regulation in Neutral Zone mode. The first STEP starts with a delay while the others start on completion of the previous STEP. The Humidity Setpoint is fixed whereas the Temperature Setpoint is variable.



SUPERVISION

EWHT800LX can be connected to:
• telecontrol system Televis**System** (°)
• third-party systems via Modbus protocol (°°)
• **Param**Manager fast parameter setting software
The connection can be made in 2 ways:
1) via TTL serial port. See Electrical Connections.
Use the Bus**Adapter150** TTL- RS 485 interface module
2) by direct RS-485 connection using the optional RS485/TTL plug-in module (not included).
See figure opposite.
In both cases, use a RS485/RS232-USB PC **interface** converter and the required software licence.



(°) To configure the instrument for this purpose, open the file identified by the label "Add" and use parameters "dEA" and "FAA*
(°°) To configure the instrument for this purpose, open the file identified by the label “Add” and use parameters "dEA", "FAA", "PtY"*

*FOR MORE INFORMATION READ the manual, p/n 9MA10024

ALARMS AND TROUBLESHOOTING

How to display the alarms
1) Press and release the UP key. The upper display will always show the label ALr. The lower display will show:
• nOnE if no alarms active
• SYS to indicate system alarms - see Alarms Table
• HACP to indicate HACCP alarms - see HACCP alarms
2) Using the UP & DOWN keys, find the type of alarm that you want to check

System alarms
The upper display will show the label ALr, the lower display will indicate the alarm code - see Alarms Table
• Using the UP & DOWN key, scroll the other alarms
• Press the ESC key to return to the previous alarm code, press the ESC key several times (or keep it pressed) to return to the normal display

HACCP ALARMS
The instrument logs high and low temperature alarms for the cold room probe, as well as any power failures. The alarm types and the duration and start time of the alarm itself will be displayed in the alarms folder ALr. It is possible to disable the recording of alarms and/or resetting of HACCP alarms. See Functions Menu.

FOR MORE INFORMATION READ the manual, p/n 9MA10024

ALARMS TABLE

This section lists alarms associated with the default configuration of the instrument. For a description of alarms relating to custom configurations, refer to the user manual or contact Eliwell Technical Support

Folder	Cause	Effects	Remedy
E1*	Pb1 room probe faulty • measured values are outside operating range • probe faulty/short-circuited/open	• Label E1 displayed • Min/max alarm regulator disabled • Compressor operation based on parameters "Ont" and "OFt" if set for duty cycle.	• Check probe type NTC/PTC (see H00) • Check the probe wiring • Replace probe
E2*	Pb2 defrost probe faulty • measured values are outside operating range • probe faulty/short-circuited/open	• Label E2 displayed • The Defrost cycle will end due to time-out (Parameter "dEt")	• Check probe type NTC/PTC (see H00) • Check the probe wiring • Replace probe
E3*	Pb3 destratification fan probe faulty	• Label E3 displayed • Fans remain ON for time SOn • Fans remain OFF for time SOF	Set parameters SOn and SOF to switch the fans ON/OFF in duty cycle mode
E4*	Pb4 NTC condenser fan probe faulty • Measured values are outside operating range • Probe faulty/short-circuited/open	• Label E4 displayed • Condenser fans ON depending on F16 and F20 parameters	• Check probe type NTC/PTC (see H00) • Check the probe wiring • Replace probe
E5*	Pb5 Humidity probe / pressure transducer faulty	• E5 label shown on lower display • The upper display will show the value read by the room probe except in the case of probe errors	• Check probe type (H45) • Check wiring (2, 3, 4, 5-wire probe) • Replace probe
AL1	Pb1 LOW temperature alarm • value read by Pb1 < LAL after time of "tA0".	• Recording of label AL1 in folder ALr • No effect on regulation	• Wait for the temperature value read by Pb1 to come back above LAL+AFd
AH1	Pb1 HIGH temperature alarm • value read by probe Pb1 > HAL after time of "tA0".	• Recording of label AH1 in folder ALr • No effect on regulation	• Wait until temperature value read by Pb1 returns below HAL-AFd
AL3	Pb3 LOW temperature alarm • value read by Pb3 < LAL with PbA=1,2* • value read by Pb3 < SA3 with PbA=3 and dA3<0** *after delay equal to tA0 ** after delay equal to tA3	• Recording of label AH3 in folder ALr • No effect on current regulation	• Wait for the temperature value read by Pb3 to come back below: LAL+AFd with PbA = 1,2 SA3+|dA3| with PbA=3
AH3	Pb3 HIGH temperature alarm • value read by Pb3 > HAL with PbA=1,2* • value read by PB3 > SA3 with PbA=3 and dA3>0** *after delay equal to tA0 ** after delay equal to tA3	• Recording of label AH3 in folder ALr • No effect on current regulation	• Wait for the temperature value read by Pb3 to come back below: HAL-AFd with PbA = 1,2 SA3-dA3 with PbA=3
LrH	Pb5 LOW humidity alarm • value read by Pb5 < LHA *after delay equal to AOH	• Recording of label LrH in folder ALr • No effect on regulation in progress	• Wait until humidity value read by Pb5 returns below LHA+AdH
HrH	Pb5 HIGH humidity alarm • value read by Pb5 > HHA *after delay equal to AOH	• Recording of label HrH in folder ALr • No effect on regulation in progress	• Wait until humidity value read by Pb5 returns below HHA-LdH

This section lists alarms associated with the default configuration of the instrument. For a description of alarms relating to custom configurations, refer to the user manual or contact Eliwell Technical Support

Folder	Cause	Effects	Remedy
Ad2	• End of defrost cycle due to time-out rather than due to defrost end temperature being read by the defrost probe	• Recording of label Ad2 in folder ALr	• Wait for the next defrost cycle for automatic return
EA	• activation of digital input (set as external alarm). See param. H11...H14	• Registration EA label in the ALr folder • Controller shutdown (see section rLO/dOA/PEA)	• in case of alarm silenced, the controllers remain shutdown until the next deactivation of the digital input. • wait for next deactivation of digital input.
OPd	• Activation of digital input (configured as door switch) See param. H11...H14 • Depends on delay set by parameter td0	• Recording of label OPd in folder ALr • Regulator blocked (see para. dOA/PEA)	• Close door • Depends on delay set by parameter OA0
L01…L15* H01…H15* ***PEn parameter value (default 15, max 99)**	LOW and HIGH pressure warning (min/max pressure switch)	• minute count start defined by parameter PEi • no effect on current regulation	• Wait for the time interval defined by PEi (automatic reset) to elapse • If PEn appear during the PEi interval see LPA/HPA
LPA	LOW pressure alarm (minimum pressure switch)	• Recording of label LPA in folder ALr • Current regulation blocked (compressor, defrost and fans) • The standby relay will be deactivated	• Switch the device off and back on again (manual reset) • The pressure switch alarms can be reset manually from the functions menu (label rPA)
HPA	HIGH pressure alarm (high pressure switch)	• Recording of label HPA in folder ALr • Current regulation blocked (compressor, defrost and fans) • The standby relay will be deactivated	• Switch the device off and back on again (manual reset) • The pressure switch alarms can be reset manually from the functions menu (label rPA)
E10	Clock alarm clock faulty or battery low	• Functions associated with clock not present	• contact Eliwell Technical Customer Support

ALL ALARMS:
- Alarm icon permanently on (including pressure switch warnings)
- Press any key to silence the alarm, the LED changes from a steady light to a blinking light. Please note: the buzzer will be deactivated while the alarm relay remains active

* E1-E2-E3-E4: If simultaneous they will be shown alternately on the display at a frequency of 2 seconds. E5 shown permanently on lower display

TECHNICAL SUPPORT

Please have the following information available when contacting Eliwell Technical Support:

- **IdF firmware version (e.g. 389)**
- **rEL firmware version release (e.g. 1,2,...)**
- **tAb map code**
- **Ht instrument model (e.g. 800)**

To obtain this information:
- Press and release the DOWN / INFO key
- Press and release the DOWN key once more to display other information about the instrument
- Press the ESC key to return to the normal display

TECHNICAL DATA

DESCRIPTION						
Front panel	IP54					
Container	Bayblend FR 110					
Dimensions	front 210x245mm, depth 90mm					
Mounting	wall mounting (centre distance of holes A-B 181.0 mm; holes C-D 196.5 mm. See Mechanical Installation paragraph)					
Connections	• removable screw terminals for serial port RS-485, digital and analogue inputs • removable screw or FASTON terminals for power supply and digital relay outputs (see Wiring Diagrams) internal housing for door lock disconnecting switch, remote control switch, etc. WARNING: do not exceed the amperage limits specified on the door lock disconnector markings					
Operating temperature	-5°C...+50°C					
Storage temperature	-20°C...+85°C					
Operating and storage humidity	10..90% RH non-condensing					
Display range	• –50 . . . 110 °C (NTC) / -55...150°C (PTC) without decimal point, on display with 3 digits + sign • 0...2000 (4...20mA)					
Analogue Inputs	• 4 NTC inputs . PTC selectable by parameter H00 • 1 current input 4...20mA					
Digital inputs	4 voltage-free digital inputs configurable by parameters H11...H14					
Relay outputs	• **OUT1** output SPST 1/2HP 8(4)A 250V~ • **OUT2** output SPST 1/2HP 8(4)A 250V~ • **OUT3** output SPST 1/2HP 8(4)A 250V~ • **OUT4** output SPST 2HP 12(12)A 250V~				• **OUT5** output SPST 1HP 8(8)A 250V~ • **OUT6** output SPDT 1/2HP 8(4)A 250V~ • **OUT7** output SPDT 1HP 8(8)A 250V~ • **OUT8** output SPST 1HP 8(8)A 250V~	
Analogue Output	1 configurable analogue output					
Analogue Output Table	**Type**	**Start of scale range**	**Full scale range**	**Resolution**	**Accuracy**	**Permissible load**
	PWM	-	-	1% e.o.s.	±1% e.o.s.	
	0...20mA	0	20	0.1% e.o.s.		500 Ohm
	4...20mA	4	20			500 Ohm
	0-10V	0	10			55mA minimum load resistance 180 Ohm
	Digital output	-	-			
Buzzer	only on models where this is provided					
Serials	• 1 TTL port for connection to Copy Card • 1 TTL port for connection to Televis**System**			• 1 RS-485 serial port for connection to Televis**System** (use with optional plug-in module)		
Accuracy	better than 0.5% of end of scale +1 digit					
Resolution	NTC, PTC: 0,1 °C full range • 4...20mA : 1 digit (ndt = 0) / 0.1 digit (ndt=1)					
Power draw	15W					
Power supply	100-240V~ ± 10% 50/60Hz					

WARNINGS

Important! Make sure the machine is switched off before working on the electrical connections.
The instrument is equipped with:

• **Removable screw terminals**: for connecting electric cables of 2.5 mm^2 maximum cross-section (one wire per terminal in the case of power connections): for the capacity of the terminals, see the label on the instrument. The relay outputs are voltage free: they are indicated on the board with the letters COM for Common, NO for Normally Open and NC for Normally Closed contact. When current exceeds 8A on relay outputs, 2 x 2.5mm^2 cables (2 fastons) must be run out for each individual contact to ensure the temperature of the cables does not exceed 85°C.

• **Fastons:** single row of fastons in series. Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity. Make sure that power supply is of the correct voltage for 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 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.

ISO14001

Eliwell has held ISO 14000 certification for a number of years, thereby guaranteeing the effective application of its Environmental Management Policy.
Eliwell is a member of the Italian Electrical Engineering Association (Comitato Elettrotecnico Italiano) and makes an active contribution to regulatory development.
This ensures that Eliwell technical developers benefit from excellent training in the fields of:

- electrical safety
- electromagnetic compatibility
- respect for the environment

Eliwell wishes to share its commitment to environmental sustainability with its customers, by reducing its paper trail and providing online access to documentation.
For further information, refer to the complete user manual which can be downloaded free of charge from the www.eliwell.it website.

CONDITIONS OF USE - Permitted use

For safety reasons, the device must be installed and used according to the instructions provided.
In particular, parts carrying dangerous voltages must not be accessible in normal conditions.
The device must be adequately protected from water and dust 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 as a stand-alone unit and has been tested for safety aspects in accordance with harmonised European reference standards. It is rated:

- in terms of design, as an automatic electronic temperature controller for built-in or stand-alone installation
- in terms of automatic operating characteristics, as a type 1B controller
- in terms of software class and structure, as a class A device
- In terms of connection, as a device with flexible, external and removable cable with Y connection.
- device with pollution grade 2
- as a device with class D fire resistance
- overvoltage category grade II
- device made with class IIIa material
- ball test temperature: 80°C

Improper use

Any use other than that expressly permitted is prohibited.
Note that 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.

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

DISCLAIMER

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