



ID 983-985 LX (/C/CK) HACCP

electronic controllers for “ventilated” refrigerating units



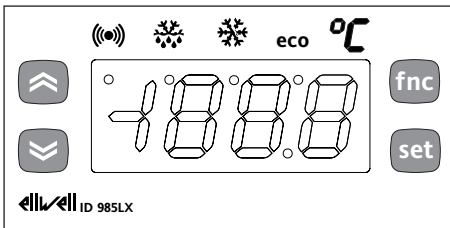
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USER INTERFACE

The user has a display and four buttons for controlling instrument status and programming.

BUTTONS AND MENUS

UP Button		Scrolls through the menu items Increases the values Activates manual defrosting (see H31 parameter)
DOWN button		Scrolls through the menu items Decreases the values Parameter programmable (see H32 parameter)
fnc button		ESC function (quit) Parameter programmable (see H33 parameter)
Set point button		Accesses the set point Accesses the Menus Confirms the commands Displays the alarms (if active) Stores hours/min



At start-up the instrument performs a Lamp Test; the display and LEDs flash for a few seconds to check that they are working correctly. The instrument has two main menus: the Machine Status menu and the Programming menu.

LEDS

Position	Associated function	Status
eco	Set point/Reduced set point (set point)	ON for parameter programming level 2 blinking when reduced set point is entered (ON for setting set point)
	Compressor or relay 1	ON for compressor on; blinking for protection delay or enabling blocked
	Defrosting	ON when defrosting in progress; blinking when activated manually or by digital input
	Alarm	ON for active alarm; blinking for silenced alarm
	Fans	ON when fan is on
aux	aux	ON when auxiliary output is operating
o	decimal point	ON when instrument is on stand-by

ACCESSING AND USING MENUS

The resources are arranged in a menu that can be accessed by pressing and quickly releasing the “set” button (Machine Status menu) or holding down the “set” button for more than 5 seconds (Programming menu).

To access the contents of each folder indicated by the relevant label, just press the “set” button once. You can now scroll through the contents of each folder, modify it or use its functions. If you do not use the keyboard for over 15 seconds (time-out) or press the “fnc” button once, the last value shown on the display is confirmed and you are taken back to the previous screen mask.

MACHINE STATUS MENU

(See Machine Status Menu Diagram)

To access the Machine Status menu, press the “set” button and quickly release it. If no alarms are present, the label “SEt” appears.

By using the “UP” and “DOWN” buttons you can scroll through the other folders in the menu:

- AL: alarm folder (if alarms present, except for faulty probes/probe errors;
- SEt: Setpoint setting folder.
- rtc (/C, /CK models): real time clock folder;
- Pb1: probe 1 value folder;
- Pb2: probe 2 value folder;
- Pb3: probe 3 value folder (if present);

Set setting

Access the “Machine Status” menu, press the “set” button and quickly release it. The “SEt” folder label appears.

To display the Set point value, press the “set” button again.

The Set point value appears on the display. To change the Set point value, use the “UP” and “DOWN” buttons within 15 seconds. If the parameter is LOC = y the Set point cannot be changed.

Real Time Clock (/C /CK models)

By pressing the “set” button when the “rtc” label appears, the label d00 (days) is displayed.

Use the “UP” and “DOWN” buttons to set days.

If you do not use the buttons for over 2 seconds or press “set”, you switch to the hours (h00) and minutes (‘00) folders: use the “UP” and “DOWN” buttons to set the hours and minutes respectively. If you do not use the keyboard for over 15 seconds (time-out) or press the “fnc” button once, the last value shown on the display is confirmed and you are taken back to the previous screen mask.

NOTE: Always use the “set” button to confirm the hours/minutes/days setting.

NOTE2: We recommend considering the first day d00 as SUNDAY.

Alarm on

If an alarm condition exists when the Machine Status menu is accessed the “AL” folder label appears (see section on “Diagnostics”).

Displaying probes

If you press the “set” button when the corresponding label appears, the value of the probe associated with it is displayed.

PROGRAMMING MENU

(See Programming Menu Diagram)

1) Displaying level 1 parameters

To access the Programming menu, hold the “set” button for more than 5 seconds. If specified, the level 1 access PASSWORD will be requested (see parameter “PA1”) and (if the password is correct) the label of the first folder will appear. If the password is incorrect, the display will show the PA1 label again.

Use the “UP” and “DOWN” buttons to scroll through the other folders; **the folders will only display level 1 parameters. NOTE: at this point level 2 parameters are NOT visible even if NOT password-protected.**

2) Displaying level 2 parameters

Go to the “CnF” folder in the Programming Menu and scroll down the parameters until you reach the PA2 label. By pressing and releasing the “set” button

you will enter the level 2 parameters and the label of the first folder in the programming menu will appear.

Level 2 parameters can be protected by a second password (see "PA2" parameter in "diS" folder, not to be confused with PA2 label in the "CnF" folder). If specified, level 2 parameters are hidden to the user; when accessing the "CnF" folder the level 2 access PASSWORD will be requested and (if the correct password is entered) the label of the first folder in the programming menu will appear.

NOTE: At this level the folders will only display all the level 2 parameters.

Therefore level 1 parameters will only be visible if you quit the Programming Menu and repeat procedure 1).

To enter the folder, press "set". The label of the first visible parameter will appear. To scroll through the other parameters, use the "UP" and "DOWN" buttons. To change the parameter, press and release "set", then set the desired value using the "UP" and "DOWN" buttons and confirm with the "set" button. Move on to the next parameter.

PLEASE NOTE: We strongly recommend that you switch the instrument off and on again each time parameter configuration is changed in order to prevent malfunctioning of the configuration and/or ongoing timings.

PASSWORD

Passwords "PA1" and "PA2" allow level 1 and level 2 parameters to be accessed. There are no passwords in the standard configuration. To enable them (value ≠0) and assign them the desired value, access the Programming menu in the "diS" folder. If passwords are enabled, they will be requested:

- PA1 when entering the Programming menu (see the "Programming Menu" section);
- PA2 in the "CnF" folder containing the level 1 parameters.

ACTIVATING MANUAL DEFROST CYCLE

To activate the defrost cycle manually, press the "UP" button (if configured =1) for 5 seconds. If the right defrosting conditions are not present (the temperature of the evaporator probe is higher than the end of defrost temperature, for example) or parameter OdO≠0, the display will flash three (3) times to indicate that the operation will not be performed.

USING THE COPY CARD

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). Operations are described below:

Fr-Format (level 2 parameter)

This command can be used to format the copy card. This operation **must** be performed when it is used for the first time or used with models that are not compatible. Warning: when the copy card has been programmed, all the data entered is cancelled when the "Fr" parameter is used. This operation cannot be undone.

UL-Upload

This operation unloads the programming parameters from the instrument.

N.B.: Upload also involves uploading any HACCP alarms. If the instrument contains alarms, it should therefore be reset to avoid unloading unwanted alarms in the copy card.

dL-Download

This operation downloads the programming parameters to the instrument.

NOTE:

- **UPLOAD: instrument → Copy Card**
- **DOWNLOAD: Copy Card → instr.**

These operations are performed by accessing the folder with the "FPr" label and selecting the "UL", "dL" or "Fr" commands. The operation is confirmed by pressing the "set" button. If the operation is successful, a "y" is displayed whereas if it is unsuccessful an "n" will be displayed.

Download "from reset"

Connect the copy card with the instrument OFF. When the instrument is switched on, the programming parameters will be downloaded. When the lamp test has been completed, the following are displayed for about 5 seconds:

- label dLY if copy operation is successful
- label DLn if operation fails

PLEASE NOTE:

- after downloading, the instrument will work with the parameter map settings that have just been downloaded.

DISTANCE-MANAGED SYSTEMS

The Televis remote control systems can be connected using the TTL serial port (the TTL- RS 485 BUS ADAPTER 100 interface module must be used). To configure the instrument to do this, you need to access the "Add" folder and use the "dEA" and "FAA" parameters.

KEYBOARD LOCKED

Keyboard operating can be locked by programming the "Loc" parameter (see folder with "diS" table). If the keyboard is locked you can access the Programming Menu by pressing the "set" button. The Set point can also be displayed.

HACCP

To meet the minimum requirements of the HACCP regulations a series of dedicated parameters record and log the high and low alarms (referring to the thermostat control probe) that occur during normal operating of the device. If present, these parameters can be displayed in the "AL" folder.

In addition to the alarms, these parameters also record any black-outs suffered by the device by recording the number of power failures since the last machine reset. Alarm management for the HACCP function is effected independently by the rest of the controllers.

ALARM LOGGING DURING NORMAL OPERATING CONDITIONS

Each HACCP alarm consists of two folders (displayed under the alarm folder AL if the alarms are present):

- HCn* (n = 1...8) containing the maximum or minimum temperature reached beyond band limits;
- tCn* (n = 1...8) containing the period of time that the thermostat control probe is out of the band (**from when the alarm is generated until it returns within the band limits**) (*).

*n is a progressive number between 1 and 8 that indicates the number of times the thermostat control probe has detected temperature values exceeding the band limits preset by the parameters "SHH" and "SLH". The temperatures will be logged in the 8 folders HC1...HC8 and the holding time in the 8 folders tC1...tC8.

HCn folder (n = 1...8)

If you press the "ENTER" button, the maximum (minimum) value displayed by the thermostat control probe beyond (below) the limit preset by the "SHH" ("SLH") parameter is displayed.

tCn folder (n = 1...8)

press the "ENTER" button to display the period of time that the thermostat control probe (**from when the alarm is generated**) (*) was beyond the band limits defined by "SHH" and "SLH" parameters if it has already returned within the limit again or the time that has elapsed so far with minimum resolution of one minute.

NOTE 1

(*) The alarm is generated after a set holding time (established by parameter drA) in the critical area outside the band limits.

NOTE 2

The first 8 HACCP alarms are logged sequentially when the folders HC1...HC8 and tC1...tC8 appear. The subsequent alarms (n>8) will overwrite the previous alarms starting with HC1 (tC1). When the limit of 8 events is exceeded, the HC8 (tC8) folder flashes on and off.

Video display

When the value of the main temperature (thermostat control) probe exceeds the band defined by parameters "SHH" and "SLH" for longer than "drA" (**caution:** they can be absolute or relative values depending on parameter "Att") the alarm is generated and a LED lights up permanently. If present, the internal buzzer and the alarm relay are also switched on. If you press any button on the unit, the alarm LED flashes to indicate that the alarm has been read by the user.

When the probe value returns within the permitted band, the LED will remain in the condition it was in previously (permanently on or blinking) to signal the event.

NOTE: To prevent false HACCP alarms, alarm exclusion times are used (see table of parameters, ALARMS/HACCP section, especially par. dAO, H51).

ALARM LOGGING AFTER A BLACK OUT

If a reset event occurs (machine black-out), two new folders are generated in the AL folder in order to assess the conditions of the power source correctly:

- "bCn"(n = 1...8)*;
- "btn"(n = 1...8)*;

*n is a number between 1 and 8 that indicates the number of machine resets.

"bCn" folder

If the thermostat control probe reads a temperature value that is within the band limits preset by the values SLH and SHH following a black out, this folder will contain this value (and the "btn" folder will contain the value zero).

If the thermostat control probe reads a value that exceeds the permitted temperature range, an HACCP alarm is generated. The maximum (or minimum) value reached by the thermostat control probe is logged in this folder.

"btn" folder

If the thermostat control probe reads a temperature value that is within the band limits preset by the values SLL and SHH following a black out, this folder will contain the value zero.

If the thermostat control probe reads a value that exceeds the permitted temperature range, an HACCP alarm is generated. The period of time that the thermostat control probe remains out of band limits will be logged in the same way as for normal operating in this folder.

Video display

If there are more than 8 (eight) black out events, folder bC8 flashes and the subsequent events are recorded starting with folders bC1(bt1).

RESET FUNCTION

The RES function (HACCP reset) manually cancels the HACCP alarms and can be associated with a button (see parameters H31...H33; set to 4 to reset) with a delay set by parameter H02. The RES function cancels the folders HCn, tCn, bCn, btn (n=1...8) and resets the drH parameter (the counter starts). The alarm LED remains off whereas the display flashes to indicate that the parameter has been reset.

After a period of time set by parameter drH (if not 0) after the last reset, all the HACCP alarms are automatically deleted. If the machine is subjected to another black-out in this period, the counter will be reset with the value preset with parameter drH and the next automatic reset will occur when this value has been reached.

NOTE: When the unit is switched on for the first time, any alarms present must be manually deleted using this function.

ADVANCED FUNCTIONS

LINK (for /CK models only)

The Link function is used to connect up to 8 instruments (1 Master device and 7 slave and echo devices). The distance between one device and another must be 7 metres maximum whereas the maximum distance between the first and last instrument in the network must be approximately 50m.

PLEASE NOTE: the serial link between the devices is powered.

Master

Instrument that controls the networks and sends commands to the Slaves. The Master is selected using parameter L00 (the value 0 defines the Master)

Slave

Instrument(s) supplied with own controls that also perform(s) commands issued by the Master (with parameters L00..L07).

Echo

Instrument(s) that only display(s) the values of the instrument that it is associated with (it does not therefore have its own I/O resources but only serves as a repeater).

PLEASE NOTE: only one Echo can be connected to the same instrument (Master or Slave; if it is connected to a Slave, you must set parameter L04=n).

Defrosting

The Link network controls defrosting. The Master sends the defrost command which can be performed synchronously (at the same time) or sequentially (one defrost after another) without affecting the normal protections or delays for each instrument (see parameter L03).

Other Functions

The Master can also activate the functions associated with buttons or the Digital Input for all the Slaves: switching lights on/off, alarm silencing, auxiliary set point, auxiliary relay, stand-by (on/off) and functions related to Night & Day controller (see parameter L05).

The Master can also synchronize the displays on the Slave or Echo devices with the display on the Master or a Slave (for the Echo devices) (see parameter L04).

NOTE: synchronized defrosting refers to actual defrosting and not to dripping and subsequent defrosting. The defrost LED on the Slave units blinks when synchronized defrosting has terminated and the Slaves are awaiting for the thermostat control to be enabled by the Master.

The functions are associated with the instruments by correctly setting the parameters (see the parameter table for the "Lin" label folder)

NIGHT & DAY CONTROL

The Night & Day control algorithm can be used to set events and cycles at predefined times of the week. You can set an event start time and duration, as well as functions and defrostings (daily or holidays) to be enabled for each day of the week. By pressing the "set" button when the "nad" label appears, the label d0 (day 1) is displayed in the "Programming" menu.

Tip: consider d0 = Sunday. Use the "UP" and "DOWN" buttons to set other days (d1 (day 2 = Monday)...d6 (day 7 = Saturday)) and Every Day.

By pressing "ENTER" the first parameter E00 is displayed; use the "UP" and "DOWN" buttons to scroll through other parameters E01...03. If you do not use the keyboard for over 15 seconds (time-out), or if you press the "fnc" button once, the last value shown on the display is confirmed and you return to the previous screen mask.

The different functions are set using the appropriate parameters (see the parameter table for the folder with the "nad" label)

DEFROST CONTROL

The instrument can be used to select different types of defrosting with the parameter **dtY**, **defrost type**.

(defrost execution mode).

The dtY parameter can have these values:
0 = electrical defrosting; the compressor is turned off.

1 = cycle reversing defrosting (hot gas); the compressor continues operating.

2 = Free mode defrosting (compressor disabled).

Configuration of 3rd probe as 2nd evaporator probe

The 3^a probe can be used to control the defrosting of a second evaporator by configuring a relay output as a 2nd evaporator defrost relay (see par. H21...H26).

To implement this function:

- configure the 3rd probe in 2nd evaporator defrost control mode (par. H43=2EP).
- configure a relay output as 2nd evaporator defrost relay (configuration parameters H21...H26).
- define the defrost mode by setting parameter H45.

Start of defrosting

If two evaporators are used, defrosting starts in three different ways that are determined by parameter H45.

- H45=0: Defrosting is enabled by controlling that the temperature of the 1st evaporator is lower than parameter dSt.
- H45=1: Defrosting is enabled by controlling that at least one of the two probes is below its end of defrosting temperature (dSt for the 1st evaporator and dS2 for the 2nd evaporator)
- H45=2: Defrosting is enabled by controlling that both the probes are below their respective end of defrosting set points (dSt for the 1st evaporator and dS2 for the 2nd evaporator).

The probe error condition is considered the defrost calling probe.

When defrosting is terminated by a probe or is timed out (see par. dEt), dripping follows (see par. dt).

End of defrosting

If two evaporators are used, defrosting ends when both the probes have reached or exceeded their respective end of defrosting set points (dSt for the 1st evaporator and dS2 for the 2nd evaporator). If one or both the probes are faulty, defrosting is ended by a time-out.

NOTE:

- If there are no conditions for defrosting, the request is ignored. Defrosting of a single evaporator ends when the value read by the respective probe is equal to or higher than the end of defrosting temperature or a time-out occurs. Dripping starts when both defrosts have been completed.
- If one or both the probes are faulty, defrosting in the corresponding evaporator is ended by a time-out. The start of defrosting is permitted when the corresponding temperature is lower than the corresponding set point (dSt or dS2).
- If probe 3 is not configured as a probe on the second evaporator (H43≠2), defrosting on the second evaporator occurs if a digital output is configured to control defrosting on the second evaporator (see par. H21..H25). If this is the case, defrosting is confirmed (as if ST3<dS2) and ends with a time-out. The fan controller remains unchanged.

DIAGNOSTICS

The alarm condition is always signalled by a buzzer (if present) and the alarm icon LED. The alarms from the faulty thermostat control probe (probe 1), the faulty evaporator probe (probe 2), and the faulty display probe (probe 3) appear directly on the instrument display as E1, E2, and E3 respectively.

Table of faulty probes

DISPLAY	FAULT
E1	Faulty probe 1 (thermostat control)
E2	Faulty probe 2 (1st evaporator)
E3	Faulty probe 3 (display or 2nd evaporator)
If simultaneous, they will be shown on the display alternately every 2 seconds	

An error condition in probe 1 (thermostat control) causes the following:

- E1 code appears on display
- compressor is activated as indicated by "Ont" and "Oft" parameters if these are programmed for duty cycle or: The error condition for probe 2 (evaporator) causes the following:

Ont	Oft	Compressor output
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	dc

- E2 code appears on display
- end of defrost due to time-out. The error condition for probe 3 (display) causes the following:
- E3 code appears on display Other alarms do not appear on the instrument display but can be seen in the "Machine Status" menu in the "AL" folder.

The maximum and minimum temperature alarm is regulated according to the thermostat control probe (probe1) and/or display probe (probe 3). The temperature limits are defined by the "HAL" (maximum alarm), "LAL" (minimum alarm) and PbA (alarm configuration on probe 1,3 or both) parameters.

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 and the relay configured as an alarm is activated. 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) and based on the Att parameter. If the alarms are relative (Att=1), the parameter HA1 is set to positive values and LA1 to negative values. This alarm condition can be viewed in the folder "AL" with labels "AH1-AL1".

ALARM WITH THRESHOLD (PROBE 3)

By setting the PbA=3 parameter an alarm is associated to probe 3. It refers to a specific threshold (defined by the SA3 parameter). An over-temperature or an under-temperature alarm is generated and the icon is turned on. This alarm condition can be viewed in the "AL" folder with the labels "AH3-AL3".

The alarm is handled as a temperature alarm for probe 3: for delays and backswings, refer to standard alarms

DEFROST ALARM

If the end of defrosting is due to a time-out (rather than because an end of defrosting temperature is detected by the defrosting probe), an alarm is generated and the icon lights up.

This condition can be viewed in the "AL" folder with the label "Ad2". Automatic back swinging occurs when the next defrost starts. By pressing any button during the alarm condition, the signal light disappears. In order to cancel the alarm properly, you must wait until the next defrost.

EXTERNAL ALARM

The device can also control an external alarm, i.e. from a digital input. If the digital input is enabled, the alarm control is activated by programming and remains enabled until the next time the digital input is deactivated. When an alarm is set off, the alarm icon lights up permanently, the relay configured as alarm is activated and the compressor, defrost and fan controllers are deactivated (if specified by the "EAL" parameter). This alarm condition can be displayed in the "AL" folder using the "EA" label. The relay can be silenced; even if the alarm icon starts blinking, the controllers remain locked until the next time the digital input is deactivated.

OPEN DOOR ALARM

If a door is open, the Open Door alarm is signalled in response to a delay defined by the tdO parameter. The alarm is signalled by the flashing alarm icon. This alarm condition can be viewed in the "AL" folder with the label "Opd".

LINK ALARM

If there is a master/slave/echo communication failure, the No Link alarm is signalled. This alarm condition can be viewed in the "AL" folder with the label "E7".

NOTE:

- The E7 error is signalled after approx. 20 seconds in "no link" condition to avoid any link disturbance causing communication errors.
- The E7 error is also signalled for addressing conflicts when:
 - the number of Slaves set on the MASTER is different from the actual number of Slaves on the network
 - 2 or more Slaves have the same address.

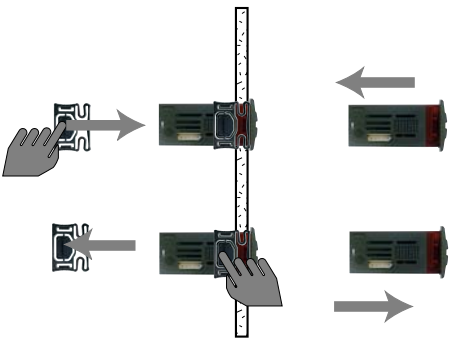
DISPLAY	ALARM
AH1	High temperature alarm (referring to room probe or probe 1)
AL1	Low temperature alarm (referring to room probe or probe 1)
AH3	High temperature alarm (referring to probe 3)
AL3	Low temperature alarm (referring to probe 3)
Ad2	Defrosting timed out
EA	External alarm
Opd	Door Open Alarm
E7	Master-Slave Communication failure (/CK model)
E10	Clock battery alarm (/C or /CK models)

Press any button to silence the alarm. The LED will start to blink. If simultaneous, they will be shown on the display alternately every 2 seconds

***No-link alarms and addressing conflicts alternate with the temperature or probe error values normally displayed on the Master or Slave.**

MECHANICAL ASSEMBLY

The unit has been designed to be panel-mounted: Drill a 29x71 mm hole, insert a tool and fix it in place with the brackets provided. Do not assemble the instrument in excessively humid or dirty locations since it is designed to be used in locations having low/moderate pollution. Always make sure that the area next to the unit cooling slits is adequately ventilated.



ELECTRICAL WIRING

Warning! Always switch off machine before working on electrical connections.

The instrument has screw terminals for connecting electrical cables with a diameter of 2,5 mm²max. (only one conductor per terminal for power connections). for

terminal capacity, see the label on the instrument.

The relay contacts are voltage free.

Do not exceed the maximum current allowed.

For higher loads, use a suitable contactor.

Make sure that the power voltage complies with the device voltage. Probes have no connection polarity and can be extended using an ordinary bipolar cable (note that if probes are extended this affects the electromagnetic compatibility (EMC) of the instrument: special care must be used when wiring).

Probe cables, power supply cables and the TTL serial cable should be kept separate from power cables.

TECHNICAL DATA

Front protection: IP65.

Casing: PC+ABS UL94 V-0 resin plastic body, polycarbonate front, thermoplastic resin buttons.

Dimensions: front 74x32 mm, 60 mm depth.

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

Operating temperature: -5...55 °C.

Storage temperature: -30...85 °C.

Usage ambient humidity: 10...90 % RH (non-condensing).

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

Display range: -50...110 (NTC); -55...140 (PTC) °C without decimal point (parameter selectable), on display 3 digits + sign.

Analogue inputs: three PTC or NTC inputs (parameter-selectable).

Digital inputs: 2 voltage-free parameter-configurable digital inputs.

Serial: TTL for Televis or Copy Card connection.

Digital outputs:

MODEL ID 985LX

4 outputs on relays: first output (A) SPDT 8(3)A 250V~, second and third output (B-C) SPST 8(3)A 250V~, fourth output (D) SPST 5(2)A 250V~.

MODEL ID 983LX

2 outputs on relays:

(A) SPDT 8(3)A 250V~,

(B) SPST 8(3)A 250V~

Link: Link network output (**FOR /CK MODEL ONLY**)

Measurement range: from -55 a 140 °C.

Accuracy: better than 0.5% of bottom scale +1 digit.

Resolution: 1 or 0.1 °C.

Consumption: 3 VA.

Power supply: 12 V~/= ±10% 50/60 Hz

Warning: check the power supply specified on the instrument label; for information on relay capacity and power supplies contact the Sales Office).

MODELS AVAILABLE

Model	Characteristics
ID 983LX - ID 985LX HACCP	Basic model without LINK and without CLOCK and HACCP alarm management
ID 983LX/C - ID 985LX/C HACCP	Model without LINK with CLOCK and HACCP alarm management
ID 983LX/CK - ID 985LX/CK HACCP	Model with LINK and with CLOCK and HACCP alarm management

Note:

C= CLOCK (CLOCK) K=LINK

N. B.:

In addition to the indicated models, the following model is also available

ID 983LX M -

ID 985LX M

Model with MODBUS serial communication protocol

CAUTION: The ID 983LX M - ID 985LX M models do not have a dual evaporator system and therefore do not possess the features and parameters that are specific to dual evaporators.

Technical information on this model can be found on the site:

<http://www.climate-eu.invensys.com>

****PLEASE NOTE: At level 1 the folders will only display all the level 1 parameters.
At level 2 the folders will only display all the level 2 parameters (in bold type).**

Tab. 1 Table of parameters

PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE*	LEVEL**	U.M.
COMPRESSOR CONTROLLER (folder with "CP" label)						
diF	diFFerential. Compressor relay intervention differential; the compressor stops when the Set point value is reached (as indicated by the control probe), and restarts at temperature value equal to the Set point plus the value of the differential. Note: cannot be 0.	0.1...30.0	2.0		1	°C/°F
HSE	Higher SEt. Maximum possible set point value.	LSE...302	50.0		1	°C/°F
LSE	Lower SEt. Minimum possible set point value.	-55.0...HSE	-50.0		1	°C/°F
OSP	Offset SetPoint. Temperature value to be added algebraically to the set point if reduced set enabled (Economy function). It can be enabled using a specially configured button.	-30.0...30.0	0		2	°C/°F
Cit	Compressor min on time. Minimum compressor activation time before disabling. If set at 0 it is not active.	0...250	0		2	min
CAt	Compressor mAx on time. Maximum compressor activation time before disabling. If set at 0 it is not active.	0...250	0		2	min
COMPRESSOR PROTECTIONS (folder with "CP" label)						
Ont (1)	On time (compressor). Compressor activation time in the event of a faulty probe. If set to "1" with Oft at "0" the controller is always on whereas if Oft >0 it operates in duty cycle mode. See Duty Cycle diagram	0...250	0		1	min
Oft (1)	OFF time (compressor). Compressor in disabled state time in the event of a faulty probe. If set to "1" with Oft at "0" the controller is always off whereas if Oft >0 it operates in duty cycle mode. See Duty Cycle diagram	0...250	1		1	min
dOn	delay (at) On compressor. Delay in activating compressor relay after switch-on of instrument.	0...250	0		1	sec
dOF	delay (after power) OFF. Delay after switch off; the indicated time must elapse between switch-off of the compressor relay and the subsequent switch-on.	0...250	0		1	min
dbi	delay between power-on. Delay between switch-ons; the indicated time must elapse between two subsequent switch-ons of the compressor.	0...250	0		1	min
OdO (1)	delay Output (from power) On. Delay time in activating outputs after switch-on of the instrument or after a power failure. 0= not active.	0...250	0		1	min
DEFROSTING CONTROLLER (folder with "dEF" label) (6)						
dty	defrost type. Type of defrost. 0 = electrical defrosting; 1 = cycle reversing defrosting (hot gas); 2 = Free mode defrosting (compressor disabled).	0/1/2	0		1	num
dit	defrost interval time. Period of time elapsing between the start of two defrosting operations. 0= function disabled (defrost is NEVER performed)	0...250	6h		1	hours/min/sec (see dt1)
dt1	defrost time 1. Unit of measurement for defrost times ("dit" parameter). 0 = "dit" parameter expressed in hours. 1 = "dit" parameter expressed in minutes. 2 = "dit" parameter expressed in seconds.	0/1/2	0		2	num
dt2	defrost time 2. Unit of measurement for duration of defrosting ("dEt" parameter). 0 = "dEt" parameter expressed in hours. 1 = "dEt" parameter expressed in minutes. 2 = "dEt" parameter expressed in seconds.	0/1/2	1		2	num
dCt	defrost Counting type. Selection of defrosting time count mode. 0 = compressor operating hours (DIGIFROST® method); Defrosting active ONLY with compressor on. NOTE: compressor time of operation is counted irrespective of evaporator probe (counting is active if evaporator probe is absent or faulty). The value is ignored if RTC is enabled. 1 = equipment operating hours; 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 the parameter dtY 3= With RTC. Defrosting at times set by dE1...dE8, F1...F8	0/1/2/3 (0=df, digifrost 1=rt, real time, 2=SC, stop compressor 3=RTC)	1		1	num
"dd" (6)	dE1...dE8 parameters daily defrost start time 1...8. Range 0...23, 24= off (default)	0...23/0...59	24		1	hours/min
"Fd" (6)	F1...F8 festive defrost start time 1...8. Range 0...23, 24= off (default) CAUTION: The d1...d8, F1...F8 parameters are only visible if dit=0, dCt=3 with clock option present. They are included in the dd and Fd folders	0...23/0...59	24		1	hours/min
dOH	defrost Offset Hour. Start of defrost delay time from start-up of instrument.	0...59	0		1	min
dEt	defrost Endurance time. Defrosting time-out; determines maximum duration of defrosting.	1...250	30min		1	hours/min/sec (see dt2)
dSt	defrost Stop temperature. End of defrosting temperature (determined by evaporator probe).	-50.0... 150	8.0		1	°C/°F
dE2	defrost Endurance time 2nd evaporator. Defrosting time-out on 2nd evaporator; determines maximum duration of defrosting on 2 nd evaporator.	1...250	30min		1	hours/min/sec (see dt2)
dS2	defrost Stop temperature 2nd evaporator. End of defrosting temperature (determined by probe on 2nd evaporator).	-50.0... 150	8.0		1	°C/°F
dPO	defrost (at) Power On. Determines if the instrument must start defrosting at start-up (if the temperature measured by the evaporator allows this) y = yes, starts defrost at start-up; n = no, does not start defrost at start-up.	n/y	n		1	flag
tcd	time compressor for defrost. Minimum time for compressor ON or OFF before defrost If >0 (positive value) the compressor remains ACTIVE for tcd minutes; If <0 (negative value) the compressor remains INACTIVE for tcd minutes; If =0 the parameter is ignored.	0...250	10		2	hours/min/sec
Cod	Compressor off (before defrost). Time for compressor OFF before defrost cycle. If a defrost cycle is set within the programmed time for this parameter, the compressor is not started up. If =0 function is stopped.	-31...31	0		2	min
FAN CONTROLLER (folder with "FAn" label) PLEASE NOTE: this parameter group always refers to the 1st evaporator						
Fpt	Fan Parameter type. Characterizes the "FSt" parameter that can be expressed as an absolute temperature value or as a value related to the Set point. 0 = absolute; 1 = relative.	0/1	0		2	min
FSt	Fan Stop temperature. Fan stop temperature; a value read by the evaporator probe that is higher than the set value causes the fans to stop. The value is positive or negative and, depending on the Fpt parameter, could represent the temperature in absolute value or relative to Set point.	-50.0...150.0	2.0		1	°C/°F

PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE*	LEVEL**	U.M.
Fot	Fan on-start temperature. Fan start temperature; if the temperature read by the evaporator is lower than the value set for this parameter, the fans remain deactivated. The value is positive or negative and, depending on the FPT parameter, could represent the temperature in absolute value or relative to Set point.	-50.0..150.0	-18.0		2	°C/°F
FAd	FAN differential. Fan activation intervention differential (see par. "FSt" and "Fot").	1.0...50.0	2.0		1	°C/°F
Fdt	Fan delay time. Delay time between start-up of fan after defrosting.	0...250	0		1	min
dt	drainage time. Dripping time.	0...250	0		1	min
dFd	defrost Fan disable. Used to select exclusion of evaporator fans during defrosting. y = yes; n = no.	n/y	y		1	flag
FCO	Fan Compressor OFF. Used to select fan stop when compressor is switched OFF. y = fans active (with thermostat; in response to the value read by the defrost probe, see "FSt" parameter); n = fans off; dc = duty cycle (using parameters "Fon" and "FoF").	n/y/dc	y		1	num
Fod	Fan open door open. Used to select the fan stop when door is open and fan re-start when door is closed (if they were active). n=fans stop; y=fans unchanged.	n/y	n		2	flag
FdC	Fan delay Compressor off. Fan switch off delay time after compressor stop. In minutes. 0= function excluded	0..99	0		2	min
Fon	Fan on (in duty cycle). Time fans are ON in duty cycle. Use of fans in duty cycle mode; valid for FCO = dc and H42=1 (probe 2 present) (evaporator)	0..99	0		2	min
FoF	Fan OFF (in duty cycle). Time fans are OFF in duty cycle. Use of fans in duty cycle mode; valid for FCO = dc and H42=1 (probe 2 present) (evaporator)	0..99	0		2	min
Att	ALARMS (folder with "AL" label) Alarm type. Parameter "HAL" and "LAL" modes, as absolute temperature values or as differential compared to the Set point. 0 = absolute value; 1 = relative value.	0/1	0		2	flag
AFd	Alarm differential. Alarm differential.	1.0...50.0	2.0		1	°C/°F
HAL (5)	Higher ALarm. Maximum alarm. Temperature value (considered as distance from Set point or as an absolute value based on Att) which if gone above triggers the alarm signal. See Max/Min. Alarm Diagram;	LAL...150.0	50.0		1	°C/°F
LAL (5)	Lower ALarm. Minimum alarm. Temperature value (considered as distance from Set point or as an absolute value based on Att) which if gone below triggers the alarm signal. See Max/Min. Alarm Diagram;	-50.0...HAL	-50.0		1	°C/°F
PAO (!) (8)	Power-on Alarm Override. Alarm exclusion time after instrument start-up, after a power failure.	0...10	0		1	hours
dAO	defrost Alarm Override. Alarm exclusion time after defrost. (*To prevent false HACCP alarms after a defrost cycle, signalling is inhibited for a period of time set by this parameter	0..999	120min		1	min
OAO	Alarm signal delay after disabling digital input (door open). Alarm refers to a high and low temperature alarm.	0...10	0		2	hours
tdO	time out door Open. Time out after alarm signal following digital input disabling (door open).	0...250	0		2	min
tAO (8)	temperature Alarm Override. Temperature alarm signal delay time.	0...250	0		1	min
dAt	defrost Alarm time. Alarm signal for defrost end due to time-out. n = does not activate alarm; y = activates alarm.	n/y	n		2	flag
EAL	External Alarm Lock. External alarm to lock controllers (n=does not lock, y=locks).	n/y	n		2	flag
AOP	Alarm Output Polarity. Polarity of alarm output. 0 = alarm active and output disabled; 1 = alarm active and output enabled.	0/1	1		2	flag
PbA	Configuration of temperature alarm on probe 1 and/or 3. 0 = alarm on probe 1 (thermostat control); 1 = alarm on probe 3 (display); 2 = alarm on probe 1 and 3 (thermostat control and display). 3 = alarm on probe 1 and 3 (thermostat control and display) on external threshold	0...3	0		2	min
SA3	Probe 3 alarm set point (display)	-50.0...150.0	0		2	°C/°F
dA3	Probe 3 alarm differential (display)	-30.0...30.0	2.0		2	°C/°F
dSd	LIGHT AND DIGITAL INPUTS (folder with "Lit" label) Light relay enable from door switch. n = door open, light does not turn on; y = door open, light turns on (if it was off).	n/y	y		2	flag
dLt	Light relay disabling (switch off) delay (cell light). The cell light will remain on for dLt minutes after closing the door if the dSd parameter is set to do this.	0...31	0		2	min
OFL	Light switch always disables light relay. Enables switching off with light button even if the delay after closing the door set by dLt is active.	n/y	n		2	flag
dOd	Door switch switches off loads. When commanded by the digital input, programmed as door-switch, it stops all the loads when the door is opened and re-starts them when the door is closed (observing any timings in progress).	n/y	n		2	flag
dAd	Digital input activation delay (FOR /CK MODELS ONLY) LINK CONTROLLER(folder with "Lin" label)	0...255	0		2	min
L00	Selects the instrument as Master (0), Slave (from 1 to 7), Echo (0, in this case the Echo serves as a repeater for the Master even if connected to a Slave).	0...7	0		2	num
L01	Refers to Master only. Number of Slaves in network (from 0 to 7). Per Slaves/Echoes leave value =0	0...7	0		2	num
L02	Presence of local Echoes referring to single Slave. 0 = Local echo not present; 1 = Echo present and shares the Slave display at a set rate; if Master or Slave, it determines if the device is active and shares its local display at a set rate. 2 = the Echo shows the display of the associated Slave (Slave and associated Echo must have the same address L00). If it is directly connected to the Master, it displays the Master display.	0/1/2	0		2	num
L03	Refers to Master and Slave. Simultaneous/sequential defrosting. Master: n = simultaneous; y = sequential. Slave: n = ignore; y = accept.	n/y	n		2	flag
L04	Refers to Slave only. Distributed display. n = the Slave displays local values; y = the Slave displays Master display	n/y	y		2	flag
L05	Refers to Master and Slave. Master: n = does not ask Slaves to activate remote functions; y = asks Slaves to activate remote functions. Slave: n = ignores activation of remote functions from Master; y = accepts activation of remote functions from Master.	n/y	n		2	flag

PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE*	LEVEL**	U.M.
L06	Locks resources (compressors, fans, etc) at the end of defrosting. n=no; y=yes NOTE: related to Ldd parameter which has priority over L06 (see)	n/y	y		2	flag
	(FOR /C /CK MODELS ONLY) DAY/NIGHT CONTROLLER (night and day) (folder with "nad" label)	0..4	0		2	num
E00	Functions enabled during events: 0 = control disabled. 1 = reduced set point; 2 = reduced set+light; 3 = reduced set+light+aux. 4= instrument off					
E01	Hours/minutes of start of event. Sets start time of event. Starting from this time, the "NIGHT" mode will be enabled. The duration is determined by EO2.	0..23/0..59	0		2	hours/min
E02	Duration of event. Sets duration of event (for type of event, see E00)	0..99	0		2	hours
E03	Blocking/unblocking daily or holidays defrosting. 0= "work days" defrost sequence defined by par. dE1...dE8; 1= "festive/holidays" defrost sequence defined by par. F0...F8; N.B.: does not affect timed defrosting like Every Day (same defrost sequence for working days/holidays). COMMUNICATION (folder with "Add" label)	0/1	0		2	flag
dEA (!)	dEvice Address. Indirizzo dispositivo: indicates the device address to the management protocol.	0..14	0		1	num
FAA (!)	FAMily Address. Indirizzo famiglia: indicates the device family to the management protocol.	0..14	0		1	num
	DISPLAY (folder with "diS" label)					
LOC	(keyboard) LOCK. Keyboard locked. However, you can still access the parameter programming menu and modify parameters including the status of this parameter to allow keyboard unlocking. y = yes (keyboard locked); n = no.	n/y	n		1	flag
PA1	PAssword 1. When enabled (value is not 0) it represents the access key to level 1 parameters.	0..250	0		1	num
PA2***	PAssword 2. When enabled (value is not 0) it represents the access key to level 2 parameters. number display type.	0..255	0		2	num
ndt	Display with decimal point. y = yes (display with decimal point); n = no (only whole numbers).	n/y	n		1	flag
CA1	CAlibration 1. Calibration 1. Positive or negative temperature value added to the value read by probe 1, based on "CA" parameter settings.	-12.0..12.0	0		1	°C/°F
CA2	CAlibration 2. Calibration 2. Positive or negative temperature value added to the value read by probe 2, based on "CA" parameter settings.	-12.0..12.0	0		1	°C/°F
CA3	CAlibration 3. Calibration 2. Positive or negative temperature value added to the value read by probe 3, based on "CA" parameter settings.	-12.0..12.0	0		1	°C/°F
CA	CAlibration intervention. Offset intervenes on display, thermostat control or both. 0 = only modifies the temperature displayed; 1 = adds to the temperature used by controllers, not the temperature displayed that remains unchanged; 2 = adds to temperature displayed that is also used by controllers.	0/1/2	2		2	num
LdL	Low display Label. Minimum value the instrument is able to display.	-55.0..302	-50.0		2	°C/°F
HdL	High display Label. Maximum value the instrument is able to display.	-55.0..302	140.0		2	°C/°F
ddl	defrost display Lock. Display mode during defrosting. 0 = displays the temperature read by the thermostat control probe; 1 = locks the reading on the temperature value read by thermostat control probe when defrosting starts until the next time the Set point value is reached; 2 = displays the label "deF" during defrosting until the next time the Set point value is reached (or until Ldd expires).	0/1/2	1		1	num
Ldd	Lock defrost disable. Time-out value for unlocking display (dEF label) if reaching the set point takes too long during defrosting or if the Link (Master-Slave) communication fails (E7 error)	0..255	0		1	min
dro	display read-out. Select °C or °F to display temperature read by probe. 0 = °C, 1 = °F. N. B: switching from °C to °F DOES NOT modify set points, differentials, etc. (for example set point=10°C becomes 10°F).	0/1	0		1	flag
ddd	Selection of the value type to be displayed. 0 = Set point; 1 = probe 1 (thermostat control); 2 = probe 2 (evaporator); 3 = probe 3 (display).	0/1/2/3	1		2	num

HACCP PARAMETERS (folder with "HCP" label) SEE relevant paragraph and table 2

CONFIGURATION (folder with "CnF" label)						
H00 (!)	(!) Selection of probe type, PTC or NTC. 0 = PTC; 1 = NTC. Button activation time if buttons are configured for a second function. For the ESC, Up and DOWN buttons configured for a second function (defrost, aux, etc) the time for quick enabling is set.	0/1	1		1	flag
H02		0..15	5		2	sec
H06	Aux is an exception and has a set time of 1 second button/aux input/door switch light	n/y	y		2	flag
H08	active when instrument is off (but powered) Stand-by operating mode. 0= only display switched off; 1= display on and controllers locked; 2= display off and controllers locked;	0/1/2	2		2	num
H11 (7)	Configuration of digital inputs/polarity. 0 = disabled; 1 = defrost; 2 = reduced set point; 3 = auxiliary; 4 = door switch 5 = external alarm *6 = disables storage of HACCP alarms (*only in HACCP models) 7 = stand-by (ON-OFF) 8 = maintenance request	-8..8	0		2	num
H12 (7)	Configuration of digital inputs/polarity. Same as H11	-8..8	0		2	num

PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE*	LEVEL**	U.M.
H21 (!)	(7) WARNING! positive or negative values change polarity Digital output configurability 2. (B) 0 = disabled; 1 = compressor (default); 2 = defrost; 3 = fans; 4 = alarm; 5 = auxiliary. 6 = stand-by 7 = light 8 = buzzer. 9 = Defrosting on 2nd evaporator	0...9	1		2	num
H22 (!)	Digital output configurability 1. (A) Same as H21. (2 = defrost; default)	0...9	2		2	num
H23 (!)	ID 985LX (/C/CK) MODEL ONLY Digital output 3 configurability. (C) Same as H21. (3 = fans; default)	0..9	3		2	num
H24 (!)	ID 985LX (/C/CK) MODEL ONLY Digital output 4 configurability. (D) (9) Same as H21. (4 = alarm; default)	0...9	4 (default) 9 (dual evap.)		2	num
H25 (!)	PARAMETER VISIBLE IN VERSION WITH BUZZER (3) Buzzer output configurability. 0 = disabled; 8 = enabled (default) ; 1-7; 9 = not used	0...8	8		2	num
H31 (!)	UP button configurability. 0 = disabled; 1 = defrosting (default) 2 = auxiliary; 3 = reduced set point; *4 = reset HACCP alarm reset (*only in HACCP models); *5 = disables HACCP alarms (*only in HACCP models) 6 = light; 7 = stand-by; 8 = maintenance request	0..8	1		2	num
H32 (!)	DOWN button configurability. Same as H31. (0 = disabled; default)	0...8	0		2	num
H33 (!)	ESC button configurability. Same as H31. (0 = disabled; default)	0...8	0		2	num
H41	Presence of control probe. n= not present; y= present.	n/y	y		2	flag
H42	Presence of Evaporator probe. n= not present; y= present.	n/y	y		2	flag
H43	Display probe configuration. n= not present; y= present (display probe); 2EP= present (probe on 2nd evaporator).	n/y/2EP	n 2EP (dual evap.)		2	num
H45	Start of defrosting when two evaporators are used 0= Defrosting is enabled by controlling that the temperature of the 1st evaporator is lower than parameter dSt. 1 = Defrosting is enabled by controlling that at least one of the two probes is below its end of defrosting temperature (dSt for the 1st evaporator and dS2 for the 2nd evaporator) 2 = Defrosting is enabled by controlling that both the probes are below their respective end of defrosting set points (dSt for the 1st evaporator and dS2 for the 2nd evaporator)	0/1/2	1		2	flag

label PA2

In the CnF folder you can access all level 2 parameters from label PA2 by pressing the “set” button SEE paragraph 2) Displaying level 2 parameters

reL	release firmware. Device version: read only parameter.	/	/		1	/
tAb	tAble of parameters. Reserved: read only parameter.	/	/		1	/
COPY CARD (folder with “Fpr” label)						
UL	Up load. Transfer of programming parameters from instrument to Copy Card.	/	/		1	/
dL	Down load. Transfer of programming parameters from Copy Card to instrument.	/	/		1	/
Fr	Format. Cancels all data entered in the copy card.	/	/		2	/

N.B.: if “Fr” parameter (copy card formatting) is used, the data entered in the card will be permanently lost. This operation cannot be undone.

(1) See Duty Cycle diagram

- (2) Positive values: active input when the contact is closed; negative values: active input when contact is open.
- (3) Parameter can be seen in models with optional buzzer.
- (4) If the alarms are relative, the parameter HA1 is set to positive values and LA1 to negative values.
- (6) In the deF folder there are two folders: “dd” (daily defrost) and “Fd” (Festive Defrost); the first folder includes dE1...dE8 parameters (working day defrost start) and the second folder includes F1...F8 parameters (Festive defrost) The two folders are only visible if dit =3 and RTC is present. **NOTE: DO NOT confuse the days d0...d6 related to the nad folder with dE1...dE8 daily defrost**
- (7) WARNING! positive or negative values change polarity
- (8) Refers exclusively to high and low temperature alarms
- (9) **Example: configure H24= 9 for dual evaporator function**

* VALUE column: to be compiled manually with any custom settings (if different from default value).

** LEVEL column: indicates the visibility level of parameters accessed using a PASSWORD (see relevant paragraph)

**** PA2 is visible (or will be requested, if specified) at level 1 **in the CnF folder** and can be set (modified) at level 2 **in the dis folder**

(!) WARNING!

- If one or more parameters marked with (!) are modified, the controller must be switched off after the modification and then switched back on
- **PLEASE NOTE:** We strongly recommend that you switch the instrument off and on again each time parameter configuration is changed in order to prevent malfunctioning of the configuration and/or ongoing timings.
- folder with “nad” label NIGHT/DAY CONTROL (night and day) FOR /C, /CK MODELS ONLY
- folder with “Lin” label LINK CONTROLLER FOR /C/CK MODELS ONLY
- parameters H23-H24 FOR ID 985LX(/C/CK) MODELS ONLY
- The ID 983LX M - ID 985LX M models do not have a dual evaporator system and therefore do not possess the features and parameters that are specific to dual evaporators.

(*) In grey the parameters and configurations that meet HACCP minimum requirements.

Table 2 HACCP parameters

NOTE: The HACCP parameters are at level 1.
The tcn and Hcn folders will be displayed (if HACCP alarms are present) in the AL folder.

PARAMETER	DESCRIPTION	RANGE	DEFAULT	U.M.
HACCP (folder with "HCP" label)				
SHH	SHH: Set High HACCP. Maximum HACCP alarm threshold: when the thermostat control probe temperature value displayed exceeds the band limits preset by the "SHH" value for longer than parameter "drA" an HACCP alarm is indicated and the LED/(alarm relay) lights up for parameter H50 (see). The return differential from the alarm condition is 0.1 °C.	-50.0...150.0	10.0	°C/°F
SLH	SLH: Set Low HACCP. Minimum HACCP alarm threshold: when the thermostat control probe temperature value displayed exceeds the band preset by the "SLH" value for longer than parameter "drA" an HACCP alarm is indicated when the LED/(alarm relay) lights up for parameter H50 (see). The return differential from the alarm condition is 0.1°C.	-50.0...150.0	-10.0	°C/°F
drA	drA: delay record Alarm. Minimum holding time in critical area until event is logged: when this time has elapsed an HACCP alarm is logged and signalled.	0...99	10	min
drH	drH: delay register HACCP. HACCP alarm reset time from last reset: the period of time that must elapse from start-up of the device until logged alarms are automatically reset. If the parameter is set to 0 the automatic reset is disabled and only the manual reset is activated.	0...250	10	hours
H50	H50: enable HACCP functions and alarm relay: 0= HACCP alarms disabled 1= HACCP alarms enabled and alarm relay disabled. 2= HACCP alarms enabled and alarm relay enabled.	0/1/2	0	num
H51	H51: HACCP alarm exclusion time. This parameter determines the alarm exclusion time after shut-down (or start-up depending on the sign in parameter H11) of the D.I. digital input and/or after pressing the button (selectable with parameters H31...H33). If an HACCP alarm is already present at the start of a defrost cycle and/or opening of the D.I.(or a button is pressed) the maximum (or minimum) temperature reached and the holding time continue to be logged until the value read by the thermostat control probe returns within the band defined by parameters "SHH" and "SLH".	0...250	0	min

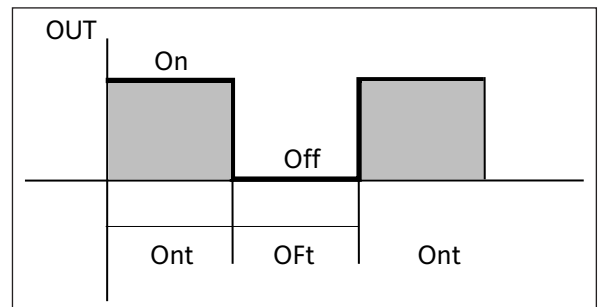
Duty Cycle Diagram

Ont, OFt parameters programmed for Duty Cycle

Ont	OFt	Compressor output
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	dc

The error condition for probe 1 (compressor) causes the following:

- E1 code appears on display
- the controller is activated as indicated by the "Ont" and "OFt" parameters if programmed for the duty cycle



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 independently mounted as regards its construction;
- as a 1 B type operated control device as regards its automatic operating features;
- as a Class A device as regards the category and structure of the software.

UNPERMITTED USE

The use of the unit for applications other than those described 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.

RESPONSIBILITY AND RESIDUAL RISKS

Eliwell & Controlli S.r.L. shall not be liable for any damages deriving from:

- installation/use other than that prescribed and, in particular, which does not comply with the safety standards specified in the regulations and/or those given herein;
- use on boards which do not guarantee adequate protection against electric shock, water or dust when assembled;
- use on boards which allow dangerous parts to be accessed without the use of tools;
- tampering with and/or alteration of the

product;

- installation/use on boards that do not comply with the standards and regulations in force.

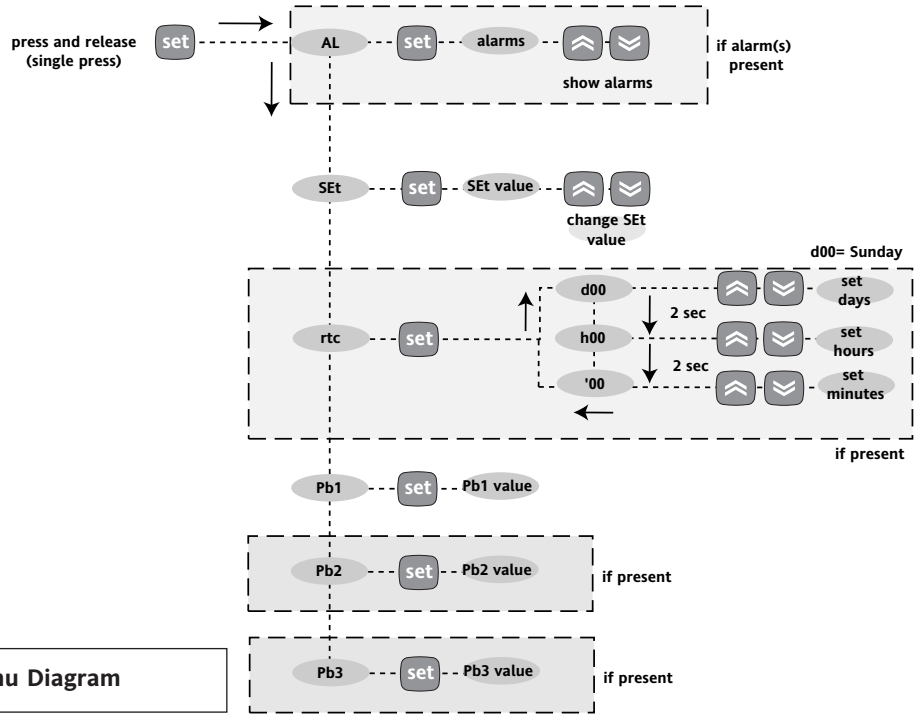
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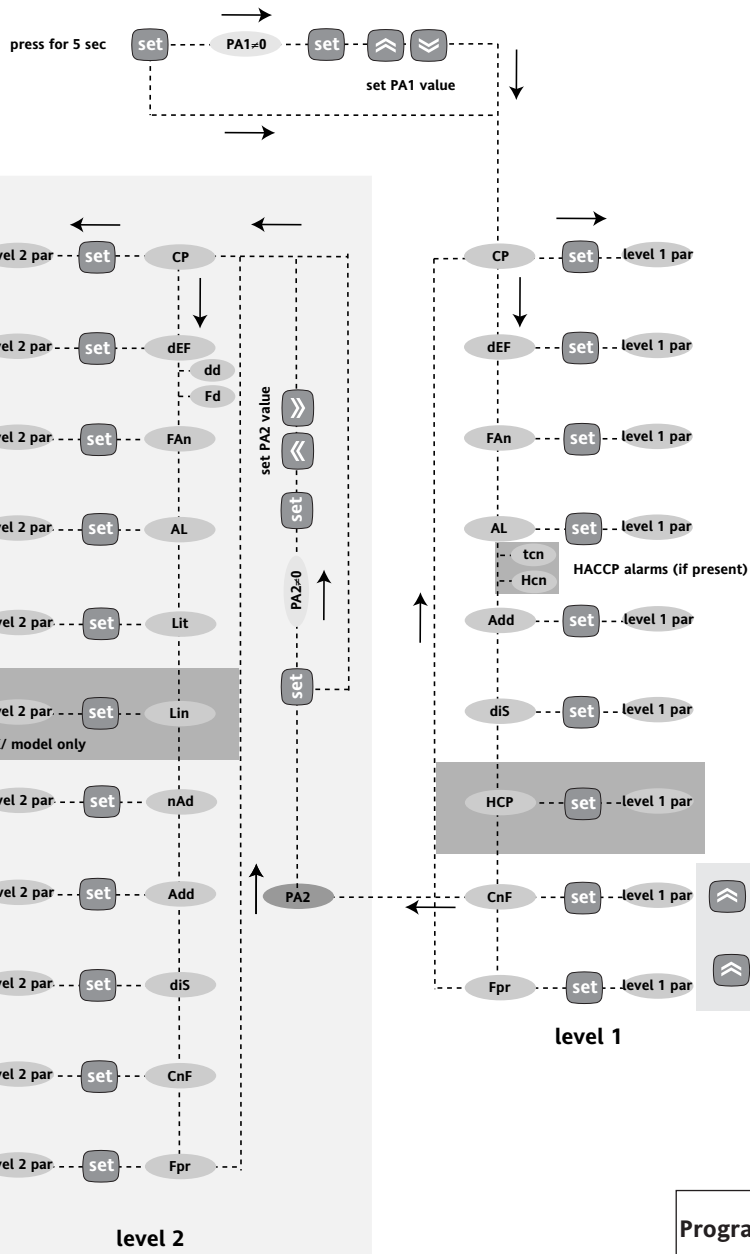
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NOTE: The technical characteristics in this document concerning measurements (range, accuracy, resolution, etc.)

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.



Machine Status Menu Diagram



PARAMETERS

level 1 folders	level 2 folders
CP	CP
dEF (+dd+Fd)	dEF
FAn	FAn
AL	AL
Lit	-
Lin	-
nad	-
Add	Add
diS	diS
HCP	-
CnF	CnF
FPr	FPr

Programming Menu Diagram

Max/Min. Alarm Diagram (minimum and maximum temperature)

The maximum temperature alarm occurs when the probe temperature is:

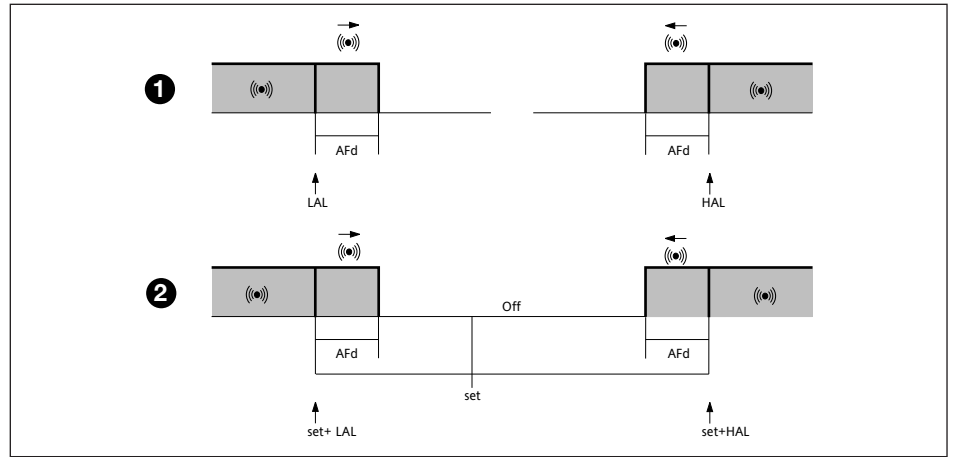
- (1) higher than or equal to HAL if Att=Ab(solute)
- (2) higher than or equal to Set + HAL if Att=rEL(ative)

- if Att=Abs(olute) HAL must be with a sign;
- if Att=rEL(ative) HAL must be only positive.

The minimum temperature alarm occurs when the probe temperature is:

- (1) lower than or equal to LAL if Att=Ab(solute)
- (2) lower than or equal to Set + LAL if Att=rEL(ative)

- if Att=Abs(olute) LAL must be with a sign;
- if Att=rEL(ative) LAL must be only positive.



The maximum temperature alarm back swing occurs when the probe temperature is:

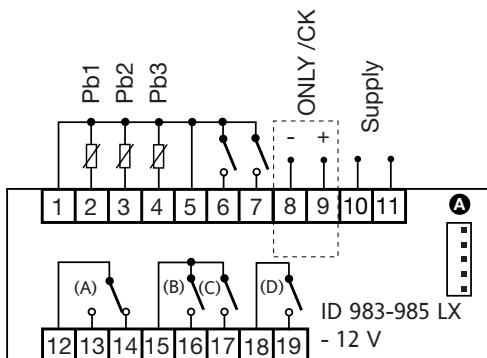
- (1) lower than or equal to HAL - AFD if Att=Ab(solute)
- (2) lower than or equal to set + HAL - AFD if Att=rE(ative)

The minimum temperature alarm back swing occurs when the probe temperature is:

- (1) higher than or equal to LAL + AFD if Att=Ab(solute)
 - (2) greater than or equal to set + LAL + AFD if Att=rE(ative)
- * (set - |LAL| + AFD)

***NOTE: if Att=rEL(ative) LAL must be negative: therefore set point+LAL<set point because set+(-|LAL|)=set-|LAL|**

Wiring Diagram



TERMINALS

1 - 2	Probe input 1 (thermostat control)
1 - 3	Probe input 2 (1st evaporator)
1 - 4	Probe input 3 (display or 2nd evaporator see par. H43)
5 - 6	Digital input 2
5 - 7	Digital input 1
8 - 9	Link (powered; 8=-, 9=+) (FOR/CK MODEL ONLY)
10 - 11	Power supply
12 - 13	N.O. relay output (A) see par. H22 (defrost default)
12 - 14	N.C. relay output (A) see par. H22 (defrost default)
15 - 16	N.O. relay output (B) see par. H21 (compressor default)
*15 - 17	N.O. relay output (C) see par. H23 (fan default)
*18 - 19	N.O. relay output (D) see par. H24 (alarm default)
A	TTL input for Copy Card and connection to Televis system
* ID 985LX (/C/CK) MODEL ONLY	

NOTE:

Example Load settings for double evaporator setting:

ID 985LX (/C/CK)

1 - 4	Probe input 3 (2nd evaporator)
12 - 13	N.O. defrost relay output 1st evaporator (A)
12 - 14	N.C. defrost relay output 1st evaporator (A)
15 - 16	N.O. compressor relay output (B)
15 - 17	N.O. fan relay output (C)
18 - 19	N.O. defrost relay output 2nd evaporator (D)

ID 983LX (/C/CK)

1 - 4	Probe input 3 (2nd evaporator)
12 - 13	N.O. defrost relay output 1st evaporator (A)
12 - 14	N.C. defrost relay output 1st evaporator (A)
15 - 16	N.O. defrost relay output 2nd evaporator (B)



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