

## XR320C - XR340C

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## 1. GENERAL WARNING

### 1.1 Please read before using this manual

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

### 1.2 Safety Precautions

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "SAE s.r.l." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

## 2. GENERAL DESCRIPTION

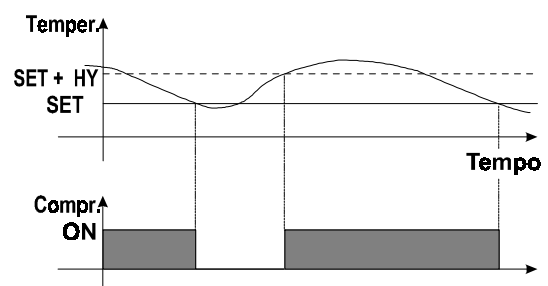
Models **XR320C** and **XR340C**, 32x74 mm format, are microprocessor based controllers suitable for applications on normal (XR320C) medium or low temperature (XR340C). The XR320C is fitted with one relay outputs to control compressor, the XR340C is fitted with the relay compressor and defrost - which can be either electrical or hot gas. The third probe, coupled with a configurable analogue output, allows control of the evaporator's or condenser's fans speed through the **XRPW500** external module. The alarm conditions are signalled by the internal buzzer. Additional features include an output port for the **XJRS485** external serial module and a configurable digital input for external alarm.

## 3. CONTROLLING LOADS

### 3.1 The compressor

The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point: if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.

In case of fault in the thermostat probe the start and stop of the compressor are timed through parameters "CO<sub>n</sub>" and "CO<sub>F</sub>".



### 3.2 Fast Freezing

When defrost is not in progress, fast freezing can be activated by the "UP" key by holding it pressed for about 3 seconds. The compressor operates in continuous mode for the time set through the "CC<sub>t</sub>" parameter. The cycle can be terminated before the end of the set time using the same activation key.

### 3.3 Defrost

**XR320C:** defrost is performed through a simple stop of the compressor. Parameter "Id<sub>F</sub>" controls the interval between defrost cycles, while its length is controlled by parameter "Md<sub>F</sub>".

**XR340C:** Two defrost modes are available through the "td<sub>F</sub>" parameter: defrost through electrical heaters (td<sub>F</sub>=0) and hot gas defrost (td<sub>F</sub>=1). Other parameters are used to control the interval between defrost cycles, its maximum length and two defrost modes: timed or controlled by the evaporator's probe.

At the end of defrost the Drip time starts - it is controlled through the "Fd<sub>t</sub>" parameter.

### 3.3.1 External consent for defrost end (par. dIC)

With dIC=3, the digital input can control the end of defrost. This feature can be used in a plant with more than one evaporator when some of them are controlled by devices able to signal, by means of an external contact, that the defrost is in progress. When the temperature of defrost end is reached (par. EdF), the controller checks the state of the digital input; if it is ON, the drain time starts (par. Fdt) and the normal regulation is stopped. When the digital input is switched off, the controller re-starts the normal regulation. In any case the normal regulation re-starts when the maximum length for defrost (par. MdF) is expired.

## 4. FRONT PANEL COMMANDS

**SET:** **TO DISPLAY TARGET SET POINT:** by pressing and releasing this key the set point is displayed for 5s.

**TO MODIFY SET POINT:** by holding the key pressed for at least 2s set point change mode is entered: the set point is displayed and the LEDs of the first and third digits blink. To change the value use the "UP" and "DOWN" keys. The new value can be stored either by pressing the "SET" key (the instrument restores temperature display) or by waiting the exit time-out to expire (15s).

**▲ (UP):** in programming mode or in "Function Menu" it browses the parameter codes or increases the value of the displayed variable. Hold pressed for a faster change.

**TO START A FAST FREEZING CYCLE:** in normal operation, by holding it pressed for 3s the fast freezing cycle is started. Such cycle can be interrupted by holding the "UP" key pressed for 3s.

**▼ (DOWN):** in programming mode or in "Function Menu" it browses the parameter codes or decreases the value of the displayed variable. Hold pressed for a faster change.

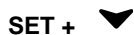


**TO START A MANUAL DEFROST:** by holding it pressed for 3s the defrost cycle is started

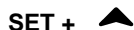
### KEY COMBINATIONS:



**TO UNLOCK THE KEYBOARD:** when held pressed for 3s the keyboard is unlocked (see "LOC" function).



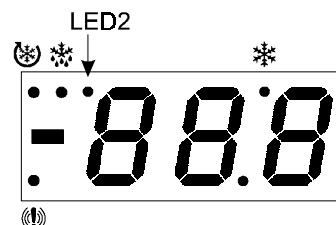
**TO ENTER ON FUNCTION MENU:** when held pressed for 3s the Function Menu is entered.



**TO RETURN TO THE ROOM TEMPERATURE DISPLAY:** programming end, return to the room temperature display.

### 4.1 Use of LEDS

A series of light points on the front panels is used to monitor the loads controlled by the instrument. Each LED function is described in the following table.



LED	MODE	Function
	ON	Compressor enabled
	FLASHING	- Programming Phase (flashing with LED2) - Anti-short cycle delay enabled
LED2	FLASHING	Programming Phase (flashing with LED )
	ON	Defrost enabled
	FLASHING	Drip time in progress
	ON	Fast freezing enabled
	ON	- ALARM signal - In "Pr2" indicates the parameter is also present in "Pr1"

## 5. FUNCTION AND PARAMETERS' PROGRAMMING MENU

### 5.1 Function menu

Includes all the main functions controlled by the instrument.

#### Access procedure:

- The menu is entered by holding the **SET** and **DOWN** keys pressed for three seconds. The label of the first function is displayed.
- The **UP** and **DOWN** keys are used to cycle backwards or forward in the menu.
- By pressing the **SET** key the currently displayed function is enabled.

## 5.2 List of functions

1. "dFt": displays for 5s the time remaining to next defrost in hours & 10 min groups [ hh.m].
2. "Pt2": displays for 5s the temperature of the second probe.(XR340C)
3. "Pt3": displays the temperature of the third probe, when present, for 5s, otherwise an "OFF" flashing message is displayed for 5s.
4. "Pr 1": includes all user level accessible parameters.
5. "Pr2": includes all the instrument's parameters (at installer level). It can be accessed through a security code. Hence it is possible to modify all parameters and add or remove parameters from "Pr1" (user level) by pressing "SET" + "DOWN". When a parameter is enabled at user level, LED 5 (Alarm LED) is on.
6. "dIG": a security code protected function allowing to choose whether digital inputs are enabled by opening or closing the contact, corresponding to **normally open (standard configuration)** or normally closed circuit.
7. "LOE": keyboard lock. When enabled the "POF" flashing message is displayed for a few seconds then the keys are locked. Only the set point display is enabled.
8. "tSt": start the instrument self test.
9. "ALr": displays any Alarm messages.
10. "OUT": exits from menu

From functions "dFt", "Pt2" and "Pt3" you can exit by pressing SET or by time out. The instrument will go back to "Functions Menu". From all other functions the exit is by time out and the instrument will again display the room temperature.

## 5.3 Exit Timeout

If no key is pressed for more than 15 seconds the instrument reverts to room temperature display mode.

## 5.4 Accessing "Pr2" and "dIG" and SECURITY CODE input

To access parameters in "Pr2" and "dIG" a security code is required.

1. Enter Function Menu, select label "Pr2" or "dIG" and press the "SET" key. The "PAS" flashing message is displayed, shortly followed by "0 - -" with a flashing zero.
2. Use "UP" or "DOWN" to input the security code in the flashing digit;
3. Confirm the figure by pressing "SET".
4. Repeat operations 2 and 3 for the other digits.
5. If the security code is correct the access to "Pr2" or "dIG" is enabled by pressing "SET" on the last digit, otherwise the security code input process restarts from the beginning.

If no key is pressed for more than 15 seconds the instrument reverts to room temperature display mode.

**SECURITY CODE is 321**

**NOTE:** each parameter in "Pr2" can be removed or put into "Pr1" (user level) by pressing "SET" + "DOWN". When a parameter is present in "Pr1" LED (5) is on.

## 5.5 Changing a parameter's value

Each parameter is identified by a special alphanumeric code (label).

To change the parameter's value operate as follows:

1. Enter the "Function Menu" and select the parameters' list you require: Pr1, Pr2 or dIG.
2. Browse the parameters' list using "UP" or "DOWN" until the required parameter is displayed.
3. Press the "SET" key to display its value.
4. Use "UP" or "DOWN" to change its value.
5. Press "SET" to store the new value and skip to the following parameter.

**TO EXIT:** Press "SET" + "UP" or wait 15s without hitting a key.

**NOTE:** the set value is stored even when the procedure is exited by waiting the timeout to expire without pressing "SET".

## 6. LIST OF PARAMETERS

**Hy Differential:** (maximum width 50°C/90°F; resolution 1°C/°F or 0.1°C). Intervention differential for set point, always positive. Compressor Cut IN is Set Point Plus Differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.

- L5 Minimum set point:** (-60°C÷SET / -60°F÷SET): Sets the minimum value that can be input for the set point, to prevent the end user from setting incorrect temperature values.
- U5 Maximum set point:** (SET ÷ 50°C / SET ÷ 122°F). Set the maximum acceptable value for set point.
- RC Anti-short cycle delay:** (0÷30 min) minimum interval between the compressor stop and the following restart.
- OdS Outputs activation delay at start up:** (0÷30min) This function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter.
- RLC Set point alarms configuration:** (0=related to set point; 1=absolute) determines if temperature alarms are relative to set point or if alarms are referred to absolute temperatures.
- RLU MAXIMUM temperature alarm:** (when ALC =0 from 0 to 50 °C or from 0 to 90°F above the set point; when ALC = 1 from ALL to 50°C or from ALL to 122°F). When this temperature is reached the alarm is enabled, (possibly after the "Ald" delay time).
- RLl Minimum temperature alarm:** (when ALC = 0 from 0 to 50 °C or from 0 to 90°F below the set point; when ALC = 1 from -50 °C to ALU or from -58 °F to ALU). When this temperature is reached the alarm is enabled, (possibly after the "Ald" delay time).
- RLd Temperature alarm delay:** (0÷255 min) time interval between the detection of an alarm condition and alarm signalling.
- dRD Delay of temperature alarm at start-up:** (from 0 min to 23h 50 min) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.
- EdR Alarm delay at the end of defrost** (0÷255 min) Time interval between the detection of the temperature alarm condition at the end of defrost and alarm signalling.
- CCt Compressor ON time during fast freezing:** (0÷24 hours) allows to set the length of the fast freezing cycle. Can be used, for instance, when the room is filled with new products.
- dRF Defrost delay after fast freezing cycle:** (0÷23 h 50 min) time interval between the end of the fast freezing cycle and the following defrost related to it.
- ldF Interval between defrost cycles:** (1÷99 hours) Determines the time interval between the beginning of two defrost cycles.
- ndF (Maximum) length for defrost:** (0÷255 min)**XR320C:** sets the defrost duration.  
**XR340C** When EdF = 0 (timed defrost) it sets the defrost duration, when EdF = 1 or 2 (defrost termination based on temperature) it sets the maximum length for defrost.
- SdF Set point for SMARTFROST:** (-30÷30 °C/ -22÷86 °F) (Only on model XR340C) evaporator temperature which starts "ldf" counting (interval between defrosts) in SMARTFROST mode.
- dtE Defrost termination temperature:** (-50÷50 °C/ -58÷122 °F) (Only on model XR340C) Sets the temperature measured by the evaporator probe, which terminates the defrost.
- dFd Temperature displayed during defrost:** (0 = real temperature; 1 = temperature at defrost start; 2 = set point; 3 = "dEF" label)
- dRd MAX display delay after defrost:** (0÷255 min). Sets the maximum time between the end of defrost and the restarting of the real room temperature display.
- EdF Defrost type:** (Only on model XR340C) (0 = electrical heater; 1 = hot gas).
- EdF Defrost mode:** (Only on model XR340C)  
EdF = 0 Time controlled defrost. The defrost lasts for the duration of time set in parameter MdF. On termination the drip down time starts (param. Fdt)  
EdF = 1 Temperature controlled defrost. Defrost terminates when the evaporator reaches the temperature set in parameter dtE (defrost termination temperature).  
NOTE: If at the start of defrost the evaporator temperature is higher than dtE then the defrost will be skipped.  
EdF = 2 SMARTFROST mode. The time ldF (interval between defrosts) is increased when the compressor is running (even non consecutively) and the evaporator temperature is less than the value in "SdF" (set point for SMARTFROST). Defrost terminates on temperature.
- Fdt Drip time:** (0÷60 min) (Only on model XR340C) time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.
- dPD First defrost after start-up:** (0 = immediately ; 1 = after the ldF time)
- CC Third probe configuration:** (0 = not present; 1 = for analogue output; 2 = for remote display: the instrument shows the temperature measured by the first probe, the remote display shows the temperature measured by the third probe)
- RO5 Analogue output start point;** (-50÷50°C or -58÷122 °F). *Only on models with Analog Output.* Sets the temperature at which the analogue output begins.
- RPb Analogue output band width:** *Only on models with Analog Output* (-50÷50°C or -90÷90°F) sets the width of the regulation band for the analogue output. If APb is **positive** then it is above the start point and the kind of action is direct (condenser application). If APb is **negative** then it is below the start point and the kind of action is inverse (evaporator application). See also "**Analogue Output**" chapter.
- CRD Input type for the analogue output:** *Only on models with Analog Output.* four input types can be selected:  
0 = room probe temperature: T1

1 = temperature difference between the room probe and the evaporator probe: T1 - T2

2 = temperature of the third probe T3

3 = temperature difference between the ambient probe and the third probe T1 - T3

The analogue output will be proportional to these quantities. Attention shall be paid in adjusting the other parameters of the analogue output in compliance with the choice made, once the input quantity has been chosen.

- 0t** **Thermostat probe calibration:** (-30÷30°C, resolution 0.1 °C; or -54÷54 °F, resolution 1 °F) Permits calibration of the thermostat probe.
- 0E** **Evaporator probe calibration:** (-30÷30°C, resolution 0.1 °C; or -54÷54 °F, resolution 1 °F). (Only on model XR340C) Permits calibration of the of the evaporator probe.
- 03** **Third probe calibration:** (-30÷30°C resolution 0.1 °C; or -54÷54 °F, resolution 1 °F) Permits calibration the third probe.
- 0r3** **Remote display Offset:** (-30÷30°C resolution 0.1 °C; or -54÷54 °F, resolution 1 °F) Permits to adjust the temperature shows by the remote display.
- rE5** **Resolution (for °C):** (0 = 1°C; 1 = 0.1 °C) allows decimal point display.
- EF** **Temperature measurement unit:** 0 = Celsius; 1 = Fahrenheit.
- 00n** **Compressor ON time with faulty probe:** (0÷255 min) time during which the compressor is active in case of faulty thermostat probe. With COn=0 compressor is always OFF.
- 00F** **Compressor OFF time with faulty probe:** (0÷255min) time during which the compressor is off in case of faulty thermostat probe. With COF=0 compressor is always active.
- dIC** **Digital input #1 operating mode:** four operating modes can be selected:  
**0 = generic alarm:** the buzzer and the alarm output are enabled, the flashing message "EA" is displayed, the other outputs are not modified;  
**1 = klixon alarm:** the buzzer and the alarm output are enabled, the flashing message "CA" is displayed, the other outputs are set to OFF state;  
**2 = serious alarm mode:** same as for Klixon alarm, but the flashing "OFF" message is displayed.  
**3 = external consent for defrost end:** when the temperature of defrost end is reached (par. EdF), the controller checks the state of the digital input; if it is ON, the drain time starts (par. Fdt) and the normal regulation is stopped. When the digital input is switched off, the controller re-starts the normal regulation. In any case the normal regulation re-starts when the maximum length for defrost (par. MdF) is expired.
- dId** **Digital input delay:** (0÷255 min) delay between the detection of the external alarm condition (input #1) and its signalling.
- tBR** **Buzzer and alarm relay silencing:** (0 = mute disabled, 1 = mute enabled).
- Rd 1., Rd2** **RS485 serial address (0÷94):** identifies the instrument within a control or supervising system.
- Ptb** **Parameter table** (read only) It shows the code of the map used in factory to set the parameters.

## 7. DIGITAL INPUT

The digital input is used to signal an alarm or as external consent for the end of the defrost. The kind of action depends on the **dIC** parameter as reported in the Parameters Menu.

### 7.1 Function "dIG"

The "dIG" function is included in the Function Menu and protected by a security code. It allows to choose whether the digital inputs shall be active corresponding to normally closed or open circuit.

Once the function has been selected and the security code entered, the "In1" label will be displayed, to access the value press "SET". Value can be modified in the 0 ÷ 1 range:

**0 = input normally CLOSED** and is activated by opening the contact;

**1 = input normally OPEN** and is activated by closing the contact.

**Standard configuration:** digital input is enabled by closing the contact.

**To exit:** do not press any key for 15s.

## 8. ANALOGUE OUTPUT (OPTIONAL)

The analogue output is obtained through a 4÷20mA signal proportional to the input selected in parameter "CAO". Through the analogue output the speed of fans can be regulated according to the input variable.

The following input types can be selected through the "CAO" parameter:

"CAO" = 0 room temperature: T1

"CAO" = 1 room temperature - evaporator temperature : T1 - T2 (Only on model XR340C)

"CAO" = 2 third probe temperature: T3

"CAO" = 3 room temperature - third probe temperature : T1 - T3

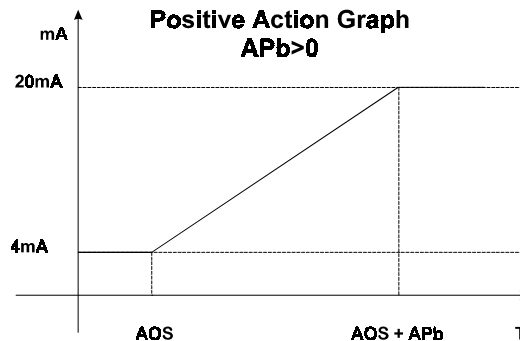
**NOTE:** When "C3" = 0, third probe missing, only configurations "CAO" = 0 and "CAO" = 1 are allowed.

To adjust the analogue input the following parameters are available:

"AOS" = Start point for analogue output

“APb” = Band width for analogue output can be either positive (direct action)and negative (inverse action).

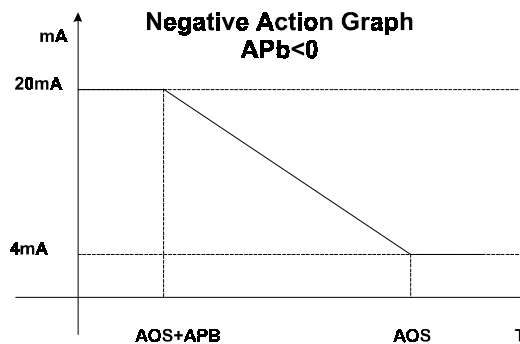
Named T the input, the relationship input-output is given by the following chart with APb>0 (condenser application).



In the common area between AOS and AOS+APb the analogue output is:

$$\text{Analogue Output} = \frac{T - \text{AOS}}{\text{APb}} \cdot (20\text{mA} - 4\text{mA}) + 4\text{mA}$$

Named T the input, the relationship input-output is given by the following chart with APb<0 (evaporator application).



**NOTE:** When the defrost is in progress, the analogue output is set to the minimum value (4 mA). This condition lasts until defrost terminates.

## 9. INSTALLATION AND MOUNTING

Instruments XR320C and XR340C are panel mounted, in a 29x71 mm hole, and fixed using the special bracket supplied.

The ambient temperature range allowed for correct operation is 0 ÷ 60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let air circulate by the cooling holes.

## 10. ELECTRICAL CONNECTIONS

The instruments are provided with screw terminal block to connect cables with a cross section up to 2,5 mm<sup>2</sup>. Before connecting cables make sure the power supply complies with the instrument’s requirements. Separate the input connection cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

### 10.1 Probes connection

The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters and from the warmest place during defrost, to prevent premature defrost termination. The third probe can be placed either on the evaporator or on the condenser - refer to the installation general hints.

## 11. SERIAL OUTPUT RS485

The models XR320C and XR340C can be connected, by means of TTL serial outputs, to the external XJ RS485 serial module to interface the instrument with the monitoring and supervising system XJ500.

## 12. REMOTE DISPLAY XR REP

The remote display XR REP can be connected to the instruments. The XR REP repeats the temperature shows by the controller or displays the temperature measured by the third probe.

By means the C3 parameter can be select the kind of display:

C3=0,1 it displays the room temperature

C3=2 it displays the temperature of the third probe.

## 13. ALARM SIGNALS

Message - Mode	Cause	Outputs
"EE" Flashing	Data or memory failure	Alarm output ON; Other outputs unchanged
"P1" Flashing	Thermostat Probe failure	Alarm output ON; Compressor output according to parameters "CO <sub>n</sub> " and "CO <sub>F</sub> "
"P2" Alternating with room temperature	Evaporator probe failure (XR340C)	Alarm output ON; Other outputs unchanged; defrost termination is timed
"P3" Alternating with room temperature	Third probe failure	Alarm output ON; Other outputs unchanged; When controlled by P3, analogue output OFF
"HA" Alternating with room temperature	Maximum temperature alarm	Alarm output ON; Other outputs unchanged.
"LA" Alternating with room temperature	Minimum temperature alarm	Alarm output ON; Other outputs unchanged.
"FF" Alternating with room temperature	Fast freezing interrupted by power failure	Alarm output ON; Other outputs unchanged.
"EA" Alternating with room temperature	External alarm	Alarm output ON; Other outputs unchanged.
"CA" Alternating with room temperature	Klixon alarm	Alarm output ON; Other outputs OFF.
"OFF" Alternating with room temperature	Serious external alarm	Alarm output ON; Other outputs OFF.

### 13.1 Silencing buzzer / alarm relay output

Once the alarm signal is detected the buzzer and the alarm output can be disabled by pressing any key. The display signal remains as long as the alarm condition remains. Disabling can be inhibited by setting "tbA" to 0 in which case the alarm relay remains active as long as the alarm condition lasts.

### 13.2 Alarm "EE"

The instruments in the Dixell range are provided with an internal check verifying data integrity. Alarm "EE" flashes when a failure in the internal memory is detected. In such case the alarm output enabled.

#### WHAT TO DO

1. Cancel the alarm by pressing a key.
2. Check the value of all parameters and restore correct values when wrong.
3. Check the correct instrument operation and in case of further errors call the service.

### 13.3 Alarm reset through keyboard

It is referred to alarms "EE" and "FF". Reset is performed by pressing any key while the alarm is being signalled, then message "rES" is displayed for about 3s before normal operation is restored.

### 13.4 Alarm recovery

Probe alarms "P1", "P2" and "P3" start 30 seconds after the fault in the related probe; they automatically stop 30 seconds after the probe restarts normal operation. Check connections before replacing the probe.

Temperature alarms "HA" and "LA" automatically stop as soon as the thermostat temperature returns to normal values and when defrost starts.

Alarm "FF" automatically stops after 30 minutes.

External alarms "EA", "CA", "OFF" and stop as soon as the external digital input is disabled.



## 14. SELF DIAGNOSIS

The device self test can be forced by triggering function “tSt” in the Function Menu.

Self test progress:

- 1) Each segment or decimal point is turned on alternatively in all digits (3 segments in parallel);
- 2) All digits in the display are turned on, one by one;
- 3) All digits in the display are turned on simultaneously;
- 4) LEDs are activated, one by one;
- 5) All relays are activated, one by one, for 3s, regardless of configuration;
- 6) Digital input test:
  - if a key is pressed the “Fx” message is displayed (x = number of the key pressed).
  - If the digital input is enabled the “In1” message is displayed.
- 7) All the parameters and their values are displayed in sequence.

Once the self test cycle is over the instrument restores normal operation.

## 15. TECHNICAL DATA

**Housing:** self extinguishing ABS.

**Case:** frontal 32x74 mm; depth 70mm;

**Mounting:** panel mounting in a 71x29 mm panel cut-out.

**Frontal protection:** IP65

**Connections:** Screw terminal block  $\leq 2,5 \text{ mm}^2$  wiring.

**Power supply:** 12Vac/dc, -10% +15%.

**Power absorption:** 3VA max.

**Display:** 3 digits, red LED, 14,2 mm high.

**Inputs:**

**XR320C:** up to 2 PTC probes.

**XR340C:** up to 3 PTC probes.

**Relay outputs:**

**Compressor:** SPST relay, 8(3)A, 250Vac

**defrost: XR340C:** SPDT relay, 8(3)A, 250Vac

**Other output:** Buzzer for acoustical alarm

**Analogue output:** 4÷20mA (optional)

**Serial output:** TTL output for external serial module XJRS485

**Data storing:** on the non-volatile memory (EEPROM).

**Operating temperature:** 0÷60 °C.

**Storage temperature:** -30÷85 °C.

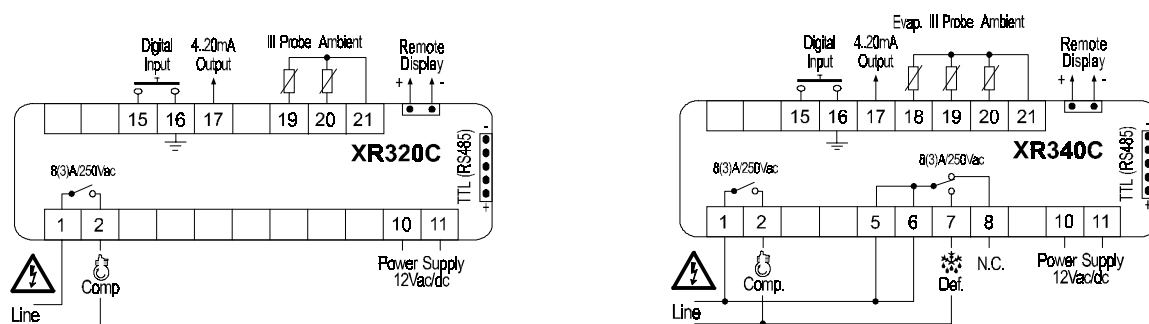
**Relative humidity:** 20÷85% (no condensing)

**Measuring and controlling range:** -55÷50 °C

**Resolution:** 0,1 °C, 1 °C or 1 °F (selectable).

**Controller Accuracy a 25°C:**  $\pm 0,3 \text{ °C} \pm 1 \text{ digit}$

## 16. CONNECTIONS



## 17. DEFAULT SETTING VALUES - STANDARD MODELS

Parameter	Range	Level	XR320C	XR340C
Set	LS÷US	Pr1	3.0/37	-5.0/23
Hy	1÷50°C or 1÷90°F	Pr1	2.0	2.0
LS	-50.0°C÷Set or -58°F÷Set	Pr2	-10/18	-30/-22
US	Set÷50.0°C Set÷122°F	Pr2	20/68	20/68
AC	0÷30 min	Pr2	1	1
OdS	0÷30 min	Pr2	1	1
ALC	0=Relative; 1=Absolute	Pr2	0	0
ALU	with ALC=1: ALL÷50°C/122°F; with ALC=0: 0÷50°C/90°F	Pr2	10/18	10/18
ALL	with ALC=1: -50°C/-58°F÷ALU; with ALC=0: 0÷50°C/90°F	Pr2	10/18	10/18
ALd	0 ÷ 255 min	Pr2	15	15
dAO	0' ÷ 23h 50'	Pr2	1.3	1.3
EdA	0' ÷ 255 min	Pr2	30	30
CCt	0 ÷ 24 hours	Pr2	4	4
dAF	0' ÷ 23h 50'	Pr2	2.0	2.0
IdF	1 ÷ 99 hours	Pr2	8	6
MdF	0 ÷ 255 min	Pr2	20	30
SdF	-30÷30°C/-22÷86°F	Pr2	not present	0/32
dtE	-50÷50°C/-58÷122°F	Pr2	not present	8/46
dFd	0=Real; 1=Start Defrost. 2=Set point ; 3=dEF	Pr2	1	1
dAd	0 ÷ 255 min	Pr2	30	30
tdF	0= electrical heaters 1=Hot gas	Pr2	not present	0
EdF	0=Timed 1=Probe 2=SMARTFROST	Pr2	not present	1
Fdt	0 ÷ 60 min	Pr2	not present	0
dPO	0=Immediately; 1=after IdF	Pr2	1	1
C3.	0=No present 1=Analog Output 2=Remote Display	Pr2	0	0
AOS*	-50÷50°C or -58÷122°F	Pr2	0/32	0/32
APb*	-50÷50°C or -90÷90°F	Pr2	0/0	0/0
CAO*	0=T1; 1=T1-T2; 2=T3; 3=T1-T3	Pr2	0	0
Ot	-30÷30°C or -54÷54°F	Pr2	0	0
OE	-30÷30°C or -54÷54°F	Pr2	--	0
O3	-30÷30°C or -54÷54°F	Pr2	0	0
Or3	-30÷30°C or -54÷54°F	Pr2	0	0
rES	0 = 1°C; 1 = 0,1°C	Pr2	1	1
CF	0 = °C; 1 = °F	Pr2	0/1	0/1
CO <sub>n</sub>	0÷255 min	Pr2	15	15
CO <sub>F</sub>	0÷255 min	Pr2	30	30
dIC	0=General. 1=Klixon; 2=Cut-off; 3= External consent	Pr2	0	0
dId	0÷255 min	Pr2	5	5
tBA	0= Disabled 1= Enabled	Pr2	1	1
Ad1	0÷94	Pr2	0	0
Ad2	0÷94	Pr2	1	1
Ptb		Pr2	--	--

\*Only on models with analog output