



MOD : SA36/X3D

Production code : CRA 93A

01/2025

Saladette STATIC Range	
model	value
XR02CX	
set	2
HY	4
LS	2
US	8
OT	1
FS	ac
OD	3
AC	3
CY	15
CN	30
DO	on
CF	OC
RE	de
LD	p1
DY	0
ID	4
MD	30
DF	it
AU	99
AL	-55
FH	1
AD	15
DA	90
IP	cl
IF	do
DI	1
DC	no
RD	y
RS	2

12 ALARM SIGNALLING

Mess.	Cause	Outputs
P1	Room probe failure	Compressor output according to CY e Cn
P2	Evaporator probe failure	Defrost end is timed
HA	Maximum temperature alarm	Outputs unchanged
LA	Minimum temperature alarm	Outputs unchanged
H2	Maximum temperature alarm for third probe	Outputs unchanged
L2	Minimum temperature alarm for third probe	Outputs unchanged
EA	External alarm	Outputs unchanged
CA	Serious external alarm	All outputs OFF
dA	Door Open	Compressor and fans restarts
HF	Defrost Alarm	Outputs unchanged

12.1 ALARM RECOVERY

Probe alarms "P1" and "P2" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe. Temperature alarms "HA", "LA", "U2" and "L2" automatically stop as soon as the temperature returns to normal values.

Alarms "EA" and "CA" (with iF=bL) recover as soon as the digital input is disabled.

Defrost alarms "HF" start when the selected probe value not reach the second Defrost termination temp within the second defrost duration. (If P2 have probe error alarm, the Defrost will run by MS and Md. No Defrost Alarm will be generated.); it automatically stops when P2 probe reach to dE(dS) within Md(MS-Md) time

DIGITAL CONTROLLER**XR02CX-WHITE BP**

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1 GENERAL WARNINGS**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.
- Dixell Srl reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.

1.2 SAFETY PRECAUTIONS

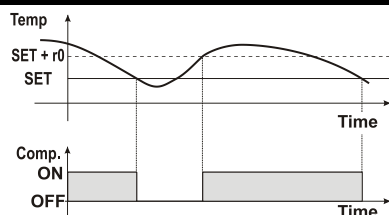
- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor (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

Model **XR02CX**, format **32 x 74 x 50mm**, is a digital thermostat, with off cycle defrost, designed for refrigeration applications at normal temperature. It provides a relay output to drive the compressor. It is also provided with 1NTCprobe input. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or the by **HOT-KEY**.

3 REGULATION

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 **Cy** and **Cn**.

4 DEFROST

Defrost is performed through a simple stop of the compressor. Parameter **id** controls the interval between defrost cycles, while its length is controlled by parameter **Md**.

5 FRONT PANEL COMMANDS

SET	To display target set point, in programming mode it selects a parameter or confirm an operation.
	(DEF) To start a manual defrost.
	(UP) In programming mode it browses the parameter codes or increases the displayed value.
	(DOWN) In programming mode it browses the parameter codes or decreases the displayed value. In non-programming mode it can switch the instrument enter or exit from stand-by mode through pushing more than 3 sec (when do=on).

KEYS COMBINATION

	To lock or unlock the keyboard
SET +	To enter in programming mode
SET +	To return to room temperature display

LED	MODE	SIGNIFICATO
	On	Compressor enabled
	Flashing	Anti short cycle delay enabled (AC parameter)
	On	Defrost in progress
	Flashing	Dripping in progress or Defrost Alarm Active (flashing along with Alarm icon)
	On	Fans output enabled
	Flashing	Fans delay after defrost
	On	Measurement unit
	Flashing	Programming mode
	On	Measurement unit
	Flashing	Programming mode
	On	Stand-by mode, equal the instrument off. The output and related relay set to OFF
	On	Alarm is occurring

5.1 HOW TO SEE THE SET POINT

- Push and immediately release the **SET** key, the set point will be showed;
- Push and immediately release the **SET** key or wait for 5 sec to return to normal visualisation.

5.2 HOW TO CHANGE THE SETPOINT

- Push the **SET** key for more than 2 sec to change the Set point value;
- The value of the set point will be displayed and the "°C" or "°F" LED starts blinking;
- To change the Set value push the **UP** or **DOWN** arrows.
- To memorise the new set point value push the **SET** key again or wait for 10 sec.

5.3 HOW TO START A MANUAL DEFROST

Push the **DEF** key for more than 2 sec and a manual defrost will start.

5.4 HOW TO CHANGE A PARAMETER VALUE

To change any parameter value, operate as follows:

- Enter the Programming mode by pressing the **SET+DOWN** keys for 3 sec ("°C" or "°F" LED starts blinking).
- Select the required parameter. Press the **SET** key to display its value
- Use **UP** or **DOWN** to change its value.
- Press **SET** to store the new value and move to the following parameter.

To exit: Press **SET+UP** or wait for 15 sec without pressing any key.

NOTE: the set value is stored even when the procedure end by waiting the time-out to expire.

5.5 HIDDEN MENU

The hidden menu includes all the parameters of the instrument.

HOW TO ENTER THE HIDDEN MENU

- Enter the Programming mode by pressing the **SET+DOWN** keys for 3 sec ("°C" or "°F" LED starts blinking).
- Released the keys and then push again the **SET+DOWN** keys for more than 7 sec. The "L2" label will be displayed immediately followed from the Hy parameter.

NOW YOU ARE IN THE HIDDEN MENU.

- Select the required parameter.
- Press the **SET** key to display its value
- Use **UP** or **DOWN** to change its value.
- Press **SET** to store the new value and move to the following parameter.

To exit: Press **SET+UP** or wait for 15 sec without pressing any key.

NOTE1: if there are no parameters in L1, after 3 sec the "nP" message will be displayed. Keep both keys pushed till the "L2" message will be displayed.

NOTE2: the set value is stored even when the procedure ends by waiting the time-out to expire.

HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA.

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing **SET+DOWN**. In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

5.6 TO LOCK THE KEYBOARD

- Keep pressed for more than 3 sec the **UP** and **DOWN** keys.
- The "OF" message will be displayed and the keyboard will be locked. If a key is pressed more than 3 sec the "OF" message will be displayed.

5.7 TO UNLOCK THE KEYBOARD

Keep both **UP** and **DOWN** key pressed more than 3 sec until the "on" message will be displayed.

6 PARAMETERS**REGULATION**

Hy	Differential: (0.1 to 25°C; 1 to 45°F) differential for set point. Compressor Cut IN is SET POINT + differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
LS	Minimum SET POINT: (-55°C to SET; -67°F to SET) sets the minimum value for the set point.
US	Maximum SET POINT: (SET to 99°C; SET to 99°F) set the maximum value for set point.
ot	First probe calibration: (-9.9 to 9.9°C; -17 to 17°F) allows to adjust possible offset of the first probe.
F5	Filter probe enabling: (nu; AL; do) set the field of action of the internal measurement filter.

	nu =not used; AL =the filter will always works on all probes; do =the filter will only works on all probes for 30 sec after opening of the door.
od	Outputs activation delay at start up: (0 to 99min) 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.
AC	Anti-short cycle delay: (0 to 50 min) minimum interval between the compressor stop and the following restart.
CY	Compressor ON time with faulty probe: (0 to 99min) time during which the compressor is active in case of faulty thermostat probe. With CY=0 compressor is always OFF.
Cn	Compressor OFF time with faulty probe: (0 to 99min) time during which the compressor is OFF in case of faulty thermostat probe. With Cn=0 compressor is always active.
do	Stand-by mode function Enable: (on, off) on = stand-by mode function enabled, the instrument will be in or exist stand-by mode through pushing "✓" key more than 3 sec pushing; off = stand-by mode function disabled.

DISPLAY	
CF	Measurement unit: (°C; °F) °C=Celsius; °F=Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, oE, o1, AU, AL have to be checked and modified if necessary.
rE	Resolution (only for °C): (dE; in) dE=decimal between -9.9 and 9.9°C; in=integer.
Ld	Default display: (P1; P2) P1=thermostat probe; P2=evaporator probe. SP=Set point (only XR04CX).
dy	Display delay: (0 to 15min) when the temperature increases, the display is updated of 1°C or 1°F after this time.

DEFROST	
id	Interval between defrost cycles: (0 to 99min) Determines the time interval between two consecutives defrost cycles.
Md	Maximum length for first defrost: (0 to 99min, 0 means no defrost) when P2=n , (no evaporator probe: timed defrost) it sets the defrost duration, when P2=y (defrost end based on temperature) it sets the maximum length for first defrost.
dF	Display during defrost: (rt; it; SP; dF) rt=real temperature; it=start defrost temperature; SP=SET-POINT; dF=label dF.

ALARMS	
AU	Maximum temperature alarm: (AL to 99°C; AL to 99°F) when this temperature is reached the alarm is enabled, after the Ad delay time.
AL	Minimum temperature alarm: (-55°C to AU; -67°F to AU) when this temperature is reached the alarm is enabled, after the Ad delay time.
FH	Differential for temperature alarm recovery: (0.1 to 25°C; 1 to 45°F)
Ad	Temperature alarm delay: (0 to 99min) time interval between the detection of an alarm condition and alarm signalling.
dA	Exclusion of temperature alarm at startup: (0 to 99min) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

DIGITAL INPUT	
iP	Digital input polarity: (oP; cL) oP=activated by closing the contact; cL=activated by opening the contact.
iF	Digital input configuration: (EA; bA; do; dF; Au; Hc) EA=external alarm: "EA" message is displayed; bA=serious alarm "CA" message is displayed; do=door switch function; dF=defrost activation; Au=not used; Hc=inversion of the kind of action.
di	Digital input delay: (0 to 99min) with iF=EA or bA delay between the detection of the external alarm condition and its signalling. With iF=do it represents the delay to activate the door open alarm.
dC	Compressor and fan status when open door: (no; Fn; cP; Fc) no=normal; Fn=Fans OFF; cP=Compressor OFF; Fc=Compressor and fans OFF.
rd	Regulation with door open: (Y; n) n=no regulation if door is opened; Y=when di is elapsed regulation restarts even if door open alarm is present.

OTHER	
d1	Thermostat probe display (read only)
rS	Real Set Point value (read only)
Pt	Parameter code table (read only)
rL	Software release (read only)

7 DIGITAL INPUTS

The free voltage digital input is programmable in different configurations by the **iF** parameter.

7.1 DOOR SWITCH (iF=do)

It signals the door status and the corresponding relay output status through the **dC** parameter:

- **no** = normal (any change);
- **Fn** = Fan OFF;
- **CP** = Compressor OFF;
- **FC** = Compressor and fan OFF.

Since the door is opened, after the delay time set through parameter **di**, the door alarm is enabled, the display shows the message **dA** and the **regulation restarts if rd=Y**. The alarm stops as soon as the external digital input is disabled again. With the door open, the high and low temperature alarms are disabled.

7.2 EXTERNAL ALARM (iF=EA)

As soon as the digital input is activated the unit will wait for **di** time delay before signalling the **EA** alarm message. The outputs status doesn't change. The alarm stops just after the digital input is de-activated.

7.3 SERIOUS ALARM (iF=ba)

When the digital input is activated, the unit will wait for **di** delay before signalling the **CA** alarm message. The relay outputs are switched OFF. The alarm will stop as soon as the digital input is de-activated.

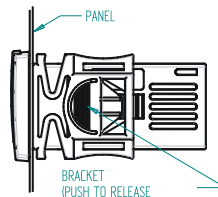
7.4 START DEFROST (iF=dF)

It starts a defrost if there are the right conditions. After the defrost is finished, the normal regulation will restart only if the digital input is disabled otherwise the instrument will wait until the **Md** safety time is expired.

7.5 KIND OF ACTION: HEATING OR COOLING (iF=HC)

This function allows to invert the regulation of the controller: from cooling to heating and viceversa.

8 INSTALLATION AND MOUNTING



Instrument **XR02CX** shall be mounted on vertical panel, in a 29x71 mm hole, and fixed using the special bracket supplied. The temperature range allowed for correct operation is 0 to 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.

9 ELECTRICAL CONNECTIONS

The instrument is provided with screw terminal block to connect cables with a cross section up to 2.5mm². Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the probe 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.

9.1 PROBES

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 or from the warmest place during defrost, to prevent premature defrost termination.

10 USE THE HOT KEY

10.1 HOW TO PROGRAM THE HOT KEY FROM THE INSTRUMENT (UPLOAD)

Program a controller by using the keypad.

1. When the controller is ON, insert the "Hot Key" and push **UP** key.
2. The "uP" message will appear, followed a by a flashing "Ed" label.
3. Push **SET** key and the "Ed" will stop flashing.
4. Turn OFF the instrument, remove the "Hot Key" and then turn it ON again.

NOTE: the "Er" message will be displayed in case of a failed programming operation. In this case push the **UP** key if you want to restart the upload again or remove the "Hot Key" to abort the operation.

10.2 HOW TO PROGRAM AN INSTRUMENT USING HOT KEY (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a programmed "Hot Key" into the 5 PIN receptacle and then turn the Controller ON.
3. Automatically the parameter list of the "Hot Key" is downloaded into the Controller memory, the "do" message is blinking followed a by flashing "Ed".
4. After 10 sec the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE: the "Er" message is displayed in case of a failed programming operation. In this case turn the unit off and then on if you want to restart the download again or remove the "Hot Key" to abort the operation.

11 ALARM SIGNALLING

Mess.	Cause	Outputs
P1	Room probe failure	Compressor output according to CY e Cn
HA	Maximum temperature alarm	Outputs unchanged
LA	Minimum temperature alarm	Outputs unchanged
EA	External alarm	Outputs unchanged
CA	Serious external alarm	All outputs OFF
dA	Door Open	Compressor and fans restarts

11.1 ALARM RECOVERY

Probe alarms "P1" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe. Temperature alarms "HA", "LA", automatically stop as soon as the temperature returns to normal values.

Alarms "EA" and "CA" (with iF=bL) recover as soon as the digital input is disabled.

12 TECHNICAL DATA

Housing: self-extinguishing ABS

Case: frontal 32x74 mm; depth 50mm

Mounting: panel mounting in a 71x29mm panel cut-out

Protection: IP20

Frontal protection: IP65

Connections: Screw terminal block ≤ 2.5 mm² wiring

Power supply: (according to the model) 230Vac ±10%, 50/60Hz; 110Vac ±10%, 50/60Hz

Power absorption: 3.5VA max

Display: 2 digits, red LED, 14.2 mm high

Inputs: up to 2 NTC probes

Digital input: free voltage contact

Relay outputs:

Compressor SPST 20(8) A 250Vac

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

Kind of action: 1B

Pollution degree: 2

Software class: A

Rated impulsive voltage: 2500V

Overvoltage Category: II

Operating temperature: 0 to 60°C (32 to 140°F)

Storage temperature: -25 to 60°C (-13 to 140°F)

Relative humidity: 20 to 85% (no condensing)

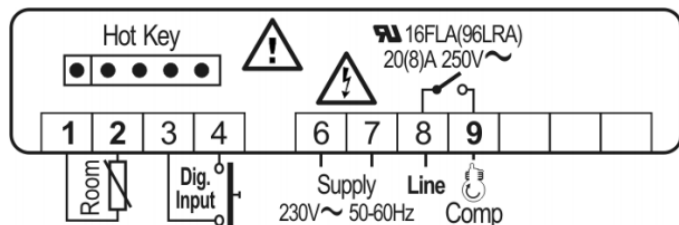
Measuring and regulation range: NTC -40 to 99°C (-40 to 99°F)

Resolution: 0.1°C or 1°C or 1°F (selectable)

Accuracy (ambient temp. 25°C): ±0.1°C ±1 digit

13 CONNECTIONS

13.1 XR02CX – 20A, 110VAC OR 230VAC



NOTE: Connect the 120Vac power supply to 6-7

14 DEFAULT SETTING VALUES

LABEL	DESCRIPTION	RANGE	DEFAULT
REGULATION			
Hy	Differential	0.1 to 25°C; 1 to 45°F	2.0°C
LS	Minimum Set Point	-55°C to SET; -67°F to SET	-50°C
US	Maximum Set Point	SET to 99°C; SET to 99°F	99°C
ot	First probe calibration	-9.9 to 9.9°C; -17 to 17°F	0.0C°
F5	Filter probe enabling	nu; AL; do	AL
od	Outputs activation delay at start up	0 to 99 min	0
AC	Anti-short cycle delay	0 to 50 min	3
CY	Compressor ON time faulty probe	0 to 99 min	15
Cn	Compressor OFF time faulty probe	0 to 99 min	30
do	Stand-by mode function Enable	on; off	on
DISPLAY			
CF	Measurement units	°C; °F	°C
rE	Resolution (only for °C)	dE; in	dE
Ld	Default Display	P1; P2; SP	P1
dy	Display delay	0 to 15 min	0
DEFROST			
id	Interval between defrost cycles	0 to 99 hours	6
Md	Maximum length for first defrost	0 to 99 min	30
dF	Display during defrost	rt; in; SP; dF	It
ALARMS			
AU	Maximum temperature alarm	ALL to 99°C; ALL to 99°F	99°C
AL	Minimum temperature alarm	-55°C to ALU; -67°F to ALU	-55°C
FH	Differential for temperature alarm recovery	0.1 to 25.0°C; 1 to 45°F	1.0°C
Ad	Temperature alarm delay	0 to 99min	15
dA	Exclusion of temperature alarm at startup	0 to 99min	90
DIGITAL INPUT			
iP	Digital input polarity	cL; oP	cL
iF	Digital input configuration	EA; bA; do; dF; Au; Hc	Do
di	Digital input delay	0 to 99min	15
dC	Compressor and fan status when open door	no; Fn; cP; Fc	no
rd	Regulation with door open	n; Y	Y
OTHER			
d1	Thermostat probe display	Read Only	---
Pt	Parameter code table	Read Only	---
rL	Firmware release	Read Only	---

DIXELL



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