COPELAND XR01CX - XR02CX - XR03CX - XR04CX - XR06CX

XR01CX DIGITAL THERMOSTAT
XR02CX DIGITAL CONTROLLER WITH "OFF CYCLE" DEFROST
XR03CX DIGITAL CONTROLLER WITH AUXILIARY RELAY
XR04CX DIGITAL CONTROLLER WITH DEFROST RELAY
XR06CX DIGITAL CONTROLLER WITH DEFROST AND FANS MANAGEMENT

1599020280 Rel.1.0

OPERATING MANUAL

GB

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.
- Copeland reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.

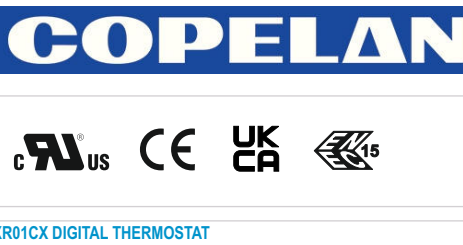
1.2 SAFETY PRECAUTIONS

- 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 or to Copeland (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.

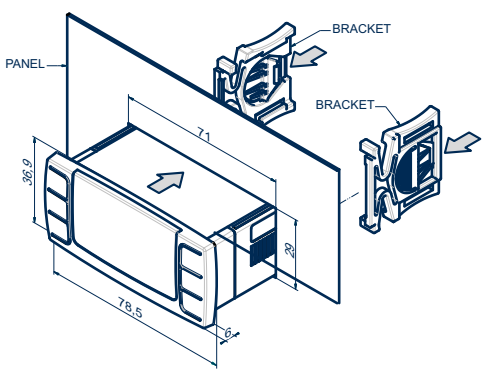
1.3 DISPOSAL OF THE PRODUCT

The appliance (or the product) must be disposed of separately in accordance with the local waste disposal legislation in force.

2. FRONT PANEL

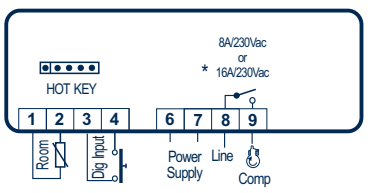


3. DIMENSIONS AND CUT OUT

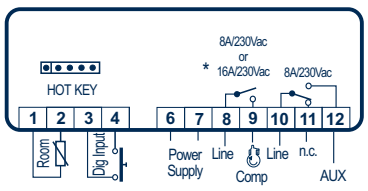


4. CONNECTIONS

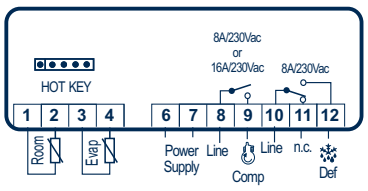
XR01CX - XR02CX 8A or 16A COMP.



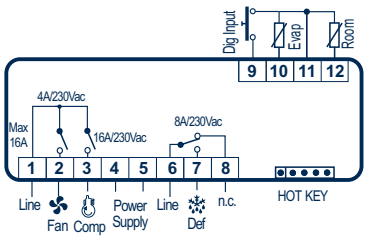
XR03CX 8A or 16A COMP.



XR04CX 8A or 16A COMP.



XR06CX 16A COMP.



5. GENERAL DESCRIPTION

Model **XR01CX**, in **32x74x50 mm short format**, is a single stage temperature thermostat suitable for applications in the field of refrigeration or heating. It provides a relay output to drive the compressor. It is also provided with 1 NTC probe input and one digital input. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or by the HOTKEY.

Model **XR02CX**, in **32x74x50 mm short format**, is a digital controller 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 1 NTC probe input and one the digital input. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or by the HOTKEY.

The **XR03CX**, in **32x74x50 mm short format**, is microprocessor based controller suitable for applications on normal temperature refrigerating units. It provides two relay output: one for compressor and the other one for alarm signalling or as auxiliary output. It provides an NTC probe input and a digital input for alarm signalling, for switching the auxiliary output or for start defrost. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or the by HOTKEY.

The **XR04CX**, in **32x74x50 mm short format**, is microprocessor based controller suitable for applications on normal or low temperature refrigerating units. It provides two relay output: one for compressor and the other one for defrost. It provides two NTC probe inputs, one for room temperature and other one to control defrost termination. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or by the HOTKEY.

applications on medium or low temperature ventilated refrigerating units. It has three relay outputs to control compressor, fan, and defrost, which can be either electrical or reverse cycle (hot gas). It is also provided with 2 NTC probe inputs, the first one for temperature control, the second one, to be located onto the evaporator, to control the defrost termination temperature and to managed the fan and it's provided with a configurable digital input. With the HOTKEY it's possible to program the instrument in a quick and easy way.

6. REGULATION

6.1 THE REGULATION OUTPUT (Only for XR01CX)

The regulation is performed according to the temperature measured by probe. The instrument is provided with the **CH** programmable parameter wich enables the user to set the regulation both for heating or cooling applications:

- **CH=cL** --> cooling applications;
- **CH=Ht** --> heating applications.

6.2 COOLING APPLICATIONS

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.

6.3 HEATING APPLICATIONS (Only XR01CX)

The Hy value is automatically subtracted to the SET POINT. If the temperature decreases and reaches set point minus differential the output is started and then turned off when the temperature reaches set point value again.

7. DEFROST

XR02CX - XR03CX: 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**.
XR04CX - XR06CX: Two defrost modes are available through the **td** parameter:

- **td=EL** defrost through electrical heater (compressor OFF);
- **td=in** hot gas defrost (compressor ON).

Other parameters are used to control the interval between defrost cycles (**id**), its maximum length (**Md**) and two defrost modes: timed or controlled by the evaporator's probe. At the end of defrost dripping time is started, its length is set in the **dt** parameter. With **dt=0** the dripping time is disabled.

8. FANS (Only XR06CX)

With **FC** parameter it can be selected the fans functioning:

- **FC=cn** will switch ON and OFF with the compressor and **not run** during defrost
- **FC=on** fans will run even if the compressor is off, and not run during defrost

After defrost, there is a timed fan delay allowing for drip time, set by means of the **Fd** parameter.

- **FC=cy** fans will switch ON and OFF with the compressor and **run** during defrost
- **FC=oY** fans will run continuously also during defrost.

An additional parameter **FS** provides the setting of temperature, detected by the evaporator probe, above which the fans are always OFF. This is used to make sure circulation of air only if his temperature is lower than set in **FS**.

8.1 FANS AND DIGITAL INPUT

When the digital input is configured as door switch **iF=do**, fans and compressor status depends on the **dC** parameter value:
dC=no normal regulation;
dC=Fn fans OFF;
dC=cP compressor OFF;
dC=Fc compressor and fans OFF.
When **rd=y**, the regulation restart with door open alarm.

9. VOLTAGE PROTECTION (Option)

The HLVD function provides an alarm if the voltage of the power supply out of the normal range **vU** and **vL**.
Parameters **vc** enable this function. **vU** and **vL** define the limitation threshold of the power, and if the voltage out of the range, the alarm will be triggered. Then the system will go to the dedicate action according to the parameter **vr**.

- **vr=n** the regulation not stop
- **vr=y** the regulation stop

When the power back to the normal range, then alarm disappeared, the system will start to run the normal regulation.

10. FRONT PANEL COMMANDS

SET To display target set point, in programming mode it selects a parameter or confirm an operation

To start a manual defrost

In programming mode it browses the parameter codes or increases the displayed value

aux In programming mode it browses the parameter codes or decreases the displayed value

KEYS COMBINATION

+ To lock or unlock the keyboard

SET+ To enter in programming mode

SET + To return to room temperature display

+ To reset parameters

LED	MODE	SIGNIFICATO
	On	Compressor enabled
	Flashing	- Compressor activation delay active (during -Compressor stop for micro-door
	On	Defrost in progress
	Flashing	- Defrost delay active (during time dd) - Dripping in progress (during time dt)
	On	Fans output enabled
	Flashing	Fans delay after defrost
	On	Alarms happend
	Flashing	-----

10.1 HOW TO SEE THE SET POINT

1. Push and immediately release the **SET** key, the set point will be showed;
2. Push and immediately release the **SET** key or wait about 5s to return to normal visualisation.

10.2 HOW TO CHANGE THE SETPOINT

1. Push the **SET** key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and starts blinking;
3. To change the **SET** value push theo or n arrows within 10s;
4. To memorise the new set point value push the **SET** key again or wait 15s.

10.3 HOW TO START A MANUAL DEFROST

Push the **DEF** key for more than 2 seconds and a manual defrost will start, the pre-condition is evaporator probe temp lower than **dE** .

10.4 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:
1. Enter the Programming mode by pressing the **SET**+ keys for 3s;
2. Select the required parameter.
3. Press the **SET** key to display its value (set value starts to blink);
4. Use or to change its value;
5. Press **SET** to store the new value and move to the following parameter.
To exit: Press **SET**+ or wait 15s without pressing a key.
NOTE: the set value is stored even when the procedure is exited by waiting the time-out to expire. Please restart the controller after change the parameters

10.5 HOW TO RESET TO THE FACTORY PARAMETER VALUE(Option)

In the first 60s after controller power-on, it allows user to reset to the factory parameter through key combination with steps below:
1. Start pressing DEF key and for 5s;
2. Then release just but keep DEF key another 5s. Then parameter reset successfully by controller re-start automatically.

NOTE:
• The Parameters Factory Reset function shall be accessible in the first 60 seconds from the device power-on. The default configuration will initiate the loading, during this time all regulation will be interrupted, relays will be powered off, and the controllers is reset.
•It allows user to reset to a customized parameter map through Hotkey, to download the parameters into the controller firstly, then execute the above 2 steps.

Here is the setps to update to customized paraleter into the controller.
1.Save your own parameter map into a Hotkey
2.Plug-in the hotkey into the controller, power off the controller
3.Then power on the controller, the parameter into Hotkey will be downloaded into the controller automatically with display showing 'En' label.

NOTE: After reset to user parameter, it will be impossible to reset to Emerson parameter anymore.

10.6 HIDDEN MENU

The hidden menu includes all the parameters of the instrument.

HOW TO ENTER THE HIDDEN MENU
1. Enter the Programming mode by pressing the **SET**+keys for 3s (Set value starts blinking);
2. Released the keys, then push again the **SET**+keys for more than 7s. The L2 label will be displayed immediately followed from the Hy parameter.

NOW YOU ARE IN THE HIDDEN MENU.
3. Select the required parameter;
4. Press the **SET** key to display its value;
5. Use or to change its value;
6. Press **SET** to store the new value and move to the following parameter.
To exit: Press **SET**+ or wait 15s without pressing a key.
NOTE1: if none parameter is present in L1, after 3s the **nP** message is displayed. Keep the keys pushed till the L2 message is displayed.
NOTE2: the set value is stored even when the procedure is exited 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**+. In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

Keep pressed for more than 3s the + keys.
The **PF** message will be displayed and the keyboard will be locked. If a key is pressed more than 3s the PF message will be displayed.

10.8 TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3s the + keys till the **Pn** message will be displayed.

11. DIGITAL INPUTS

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

11.1 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.

11.2 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 don't change. The alarm stops just after the digital input is de-activated.

11.3 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.

11.4 SWITCHING SECOND RELAY ON (iF=Au) (Only XR03CX)

When **o1=Au** it switches on and off the second relay.

11.5 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.

11.6 INVERSION OF THE KIND OF ACTION: HEATING - COOLING (iF=Hc)

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

12. INSTALLATION AND MOUNTING

Instruments 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÷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.

13. ELECTRICAL CONNECTIONS

The instruments are provided with screw terminal block to connect cables with a cross section up to 2,5 mm². 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.

13.1 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.

14. HOW TO USE THE HOT KEY

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

1. Program one controller with the front keypad;
2. When the controller is ON, insert the Hot key and push key; the **uP** message appears followed a by flashing **En**;
3. Push **SET** key and the **En** will stop flashing;
4. Turn OFF the instrument remove the Hot Key, then turn it ON again.

NOTE: the **Er** message is displayed for failed programming. In this case push again key if you want to restart the upload again or remove the Hot key to abort the operation.

14.2 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, successfully followed by appear **En** label;
4. After 10 seconds the instrument will restart working with the new parameters;
5. Remove the Hot Key.

NOTE: the **Er** message is displayed for failed programming. Check the Hotkey connection, check the data into Hotkey and repeat the actions above..

显示字符	报警原因	输出状态
P1	Room probe failure	Compressor output according to "Cy" and "Cn"
P2	Evaporator probe failure	Defrost end is timed
HA	Maximum temperature	Outputs unchanged
LA	Minimum temperature	Outputs unchanged
EA	External alarm	Outputs unchanged
CA	Serious external alarm	All outputs OFF
dA	Door Open	Compressor and fans restarts
Hu	High voltage of power	All outputs off except alarm/light
Lu	Low voltage of power	All outputs off except alarm/light

15.1 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** and **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.

16. TECHNICAL DATA

Purpose of Control	Operating Control					
Construction of Control	Incorporated control intended to be used within Class I and Class II equipment					
Housing	Self extinguishing PC					
Case	Frontal 32×74mm; depth 50 or 60mm					
Mounting	Panel mounting in a 71×29mm panel cut-out					
Protection	Rear: IP20 (EN60529) Frontal: IP65(EN60529), type 1 enclosure (UL 50e)					
Connections	Screw terminal blocks 2,5mm2 wiring					
Power Supply	According to the model: 12Vac/dc, ±10%; 230Vac 10%, 50/60Hz, 115Vac 10%, 50/60Hz					
Power Absorption	3,5 V Amax					
Display	2 digits, red LED, 14,2 mm high					
Digital Input	Free voltage contact					
			Nominal	Terminal	UL	IEC
Relay Outputs	Xr01/02/0304CX	oA1*	SPST 16A, 230Vac	8,9	Resistive 16A, 230Vac, 100K Cycles (NO) Motor Load 2HP (4.9FLA/9LRA), 230Vac, 100K Cycles (NO)	Resistive or Inductive 16(8)A, 230Vac, 100K Cycles (NO)
			SPST 8A, 230Vac		Resistive 8A (NO only), 230Vac, 30K Cycles (NO) Motor Load 1/2HP (4.9FLA/29.4LRA), 230Vac, 30K Cycles (NO) Pilot Duty B300, 230Vac, 6K Cycles (NO)	Resistive or Inductive 8(3)A , 230Vac, 100K Cycles (NO)
		oA2	SPST 8A, 230Vac	10,11,12	Motor Load 1/2HP (4.9FLA/29.4LRA), 230Vac, 30K Cycles (NO) Pilot Duty B300, 230Vac, 6K Cycles	Resistive or Inductive 8(3)A, 230Vac, 100K Cycles (NO)
					Resistive 8A, 230Vac, 30K Cycles (NC)	Resistive or Inductive 8A, 230Vac, 30K Cycles (CO)
	XR06CX	oA3	SPST 4A, 230Vac	**1,2	Resistive 4A, 230Vac, 30K Cycles (NO) Motor Load 1/8HP (1.3FLA/11.4LRA), 230Vac, 30K Cycles (NO) Pilot Duty C300, 30K Cycles (NO)	Resistive or Inductive 3(1)A or 4(1)A, 230Vac, 50K Cycles
		oA1	SPST 16A, 230Vac	**1,3	General Purpose 16A(Max load), 230Vac, 50K Cycles (NO) Motor Load 1-1/2HP (10FLA/60LRA), 230Vac, 30K Cycles (NO) Pilot Duty A300, 6K Cycle (NO)	Resistive 16A, 230Vac, 100K Cycles (NO)
					Resistive 16A, 230Vac, 100K Cycles (NO) Motor Load (16FLA/96LRA), 230Vac, 100K Cycles (NO) Motor Load 2HP, 230Vac, 30K Cycles (NO)	Resistive or Inductive 10(2)A, 230Vac, 50K Cycles (NO)
		oA2	SPST 8A, 230Vac	7	Resistive 8A, 230Vac, 30K Cycles (NO) Motor Load 1/2HP (4.9FLA/29.4LRA), 230Vac, 30K Cycles (NO)	Resistive or Inductive 13A or 12(8)A, 230Vac, 100K Cycles (NO)
				8	Resistive 8A, 230Vac, 30K Cycles (NC)	Resistive 8A, 230Vac, 30K Cycles (CO)
	NOTE: * oA1 not both are fitted **Terminal 1 is a shared 'LINE' common. Maximum current Rating is 16A. Two load conditions shall be considered, either 13A (OA1) + 3A (OA3) or 12A (OA1) + 4A(OA3).					
Data Storing	on the non-volatile memory (EEPROM)					
Type of Action	1.B					
Pollution Degree	2					
Software Class	A					
Rate Impulsive Voltage	2500V for 115Vac and 230Vac Models 500V for 12V models					
Over voltage Category	II					
Operation Temperature	0÷60 °C (IEC/EN 60730-1), -20÷60 °C (UL 60730-1 – CAN/CSA E60730-1)					
Storage Temperature	-20÷60 °C (UL 60730-1).					
Relative Humidity	20÷85% (no condensing).					
Measuring and Regulation Range	NTC -40÷110°C (-40÷230°F), resolution 0,1 °C or 1°C or 1 °F (selectable).					
Accuracy	(Ambient temp. 25°C): ±0,7 °C ±1 digit.					

DEFAULT SETTING VALUES

LABEL	DESCRIPTION	RANGE	XR01CX	XR02CX	XR03CX	XR04CX	XR06CX
Set	Set Point	LS - US	5.0	3.0	3.0	-5.0	-5.0
Hy	Differential	0.1 ÷ 25°C/1 ÷ 45°F	2.0°C / 4 °F	2.0°C / 4 °F	2.0°C / 4 °F	2.0°C / 4 °F	2.0°C / 4 °F
LS	Minimum Set Point	-55°C÷SET/-67°F÷SET	-55 °C /-55°F	-55 °C /-55°F	-55 °C /-55°F	-55 °C /-55°F	-55 °C /-55°F
US	Maximum Set Point	SET÷99°C/ SET÷99°F	99 °C / 99°F	99 °C / 99°F	99 °C / 99°F	99 °C / 99°F	99 °C / 99°F
od	Outputs activation delay at start up	0 ÷ 99 min	0	0	0	0	0
AC	Anti-short cycle delay	0 ÷ 50 min	1	1	1	1	1
Cy	Compressor ON time faulty probe. Cy=0 comp. always OFF	0 ÷ 99 min	15	15	15	15	15
Cn	Compressor OFF time faulty probe. Cn=0 comp. always active	0 ÷ 99 min	30	30	30	30	30
CH	Kind of action	cL ÷ Ht	cL	cL	cL	_	_
CF	Measurement units: °C =Celsius; °F =Fahrenheit	°C - °F	°C / °F	°C / °F	°C / °F	°C / °F	°C / °F
rE	Resolution (only for °C): dE= decimal between -9.9 and 9.9°C; in= integer	dE – in	dE/in	dE/in	dE/in	dE/in	dE/in
Ld	Default Display: P1= room probe; P2= evaporator probe	P1 - P2	_	_	_	P1	P1
dy	Display delay	0 ÷ 15 min	0	0	0	0	0
ot	First probe calibration	-9.9÷9.9°C/-17÷17°F	0	0	0	0	0
P2	Second probe presence: n= not present; y= present	n – Y	_	_	_	y	y
oE	Second probe calibration	-9.9÷9.9°C/-17÷17°F	_	_	_	0	0
td	Defrost type: EL= electrical heater, compressor OFF; in= hot gas, compressor ON;	EL – in	_	_	_	EL	EL
dE	Defrost termination temperature	-55÷50°C/-67÷99°F	_	_	_	8.0 °C / 46 °F	8.0 °C / 46 °F
id	Interval between defrost cycles	0 ÷ 99 hours	_	8	8	6	6
Md	Maximum length for defrost. when P2=n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2 = y (defrost end based on temperature) it sets the maximum length for defrost.	0 ÷ 99 min.	_	20	20	30	30
dd	Start defrost delay	0 ÷ 99 min.	_	_	_	0	0
dF	Display during defrost: rt= real temperature; it= start defrost temperature; SP= SET-POINT; dE= label dF.	rt – it – SP – dE	_	it	it	it	it
dt	Drip time	0 ÷ 99 min	_	_	_	0	0
dP	Defrost at power-on: y= at power on defrost starts; n= defrost doesn't start at power-on	y - n	_	_	_	n	n
FC	Fans operating mode: cn= in runs with the compressor, OFF during defrost; on= continuous mode, OFF during defrost; cY= runs with the compressor, ON during defrost; oY= continuous mode, ON during defrost.	cn – on – cY – oY	_	_	_	_	on
Fd	Fans delay after defrost	0 ÷ 99 min	_	_	_	_	10
FS	Fans stop temperature	-55÷50°C/-67÷99°F	_	_	_	_	2.0 °C / 36 °F
AU	Maximum temperature alarm	AL÷99°C / AL÷99°F	99 °C / 99 °F	99 °C / 99 °F	99 °C / 99 °F	99 °C / 99 °F	99 °C / 99 °F
AL	Minimum temperature alarm	-55°C÷AU/-67°F÷AU	-55 °C / -55 °F	-55 °C / -55 °F	-55 °C / -55 °F	-55 °C / -55 °F	-55 °C / -55 °F
Ad	Temperature alarm delay	0 ÷ 99 min	15	15	15	15	15
dA	Exclusion of temperature alarm at startup	0 ÷ 99 min	90	90	90	90	90
vc	Voltage control switch	n - y	n	n	n	n	n
vU	Voltage upper threshold	18 ÷ 28 V/9 ÷ 14 V	25/14	25/14	25/14	25/14	25/14
vL	Voltage lower threshold	18 ÷ 28 V/9 ÷ 14 V	19/9	19/9	19/9	19/9	19/9
vr	Voltage regulation disabling	n - y	n	n	n	n	n
vd	Voltage Differential	0 ÷ 25 V	5	5	5	5	5
o2	The second relay configuration: nu= not use; CP= compressor; dF=defrost; Fn=fan; AL= alarm; LG= Light; AU=auxiliary	nu - CP - dF - Fn - AL - LG-AU	_	_	AU	_	_
iP	Digital input polarity: oP= activated by closing the contact; cL= activated by opening the contact	cL – oP	cL	cL	cL	_	cL
iF	Digital input configuration: (do/EA/bA/dF/Fn/Hc/Au) do= door switch function; EA=external alarm: "EA" message is displayed; bA= serious alarm "CA" message is displayed; dF= defrost activation; Fn=start the evaporator fan;Hc= inversion of the kind of action; Au =not used.	do – EA – bA –dF– Fn– Hc –Au	EA	EA	do	_	do
di	Digital input delay: 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.	0 ÷ 99 min	5	5	15	_	15
dC	Compressor and fan status when open door: no= normal; Fn = Fans OFF; cP =Compressor OFF; Fc = Compressor and fans OFF;	no /Fn / cP / Fc	no	no	no	_	FC
rd	Regulation with door open: n = no regulation if door is opened; Y= when di is elapsed regulation restarts even if door open alarm is present;	n - y	y	y	y	_	y
Fr	Parameter factory reset	y - n	n	n	n	n	n
d1	Thermostat probe display	Read Only	---	---	---	---	---
d2	Evaporator probe display	Read Only	---	---	---	---	---
Pt	Parameter code table	Read Only	---	---	---	---	---
rL	Firmware release	Read Only	---	---	---	---	---

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