

INSTALLATION AND MAINTENANCE USER MANUAL



INDEX

CE DECLARATION	2
GENERAL INFORMATION	3
SAFETY INSTRUCTIONS	3
SERIAL DATA PLATE	6
RECEIVING AND INSPECTING THE EQUIPMENT	8
Damages occurred during transportation	8
STORAGE	9
INSTALLATION	9
Location	9
Unpacking	9
Ventilation	10
Leveling	10
INITIAL CLEANING PROCEDURE	11
ELECTRICAL INSTRUCTIONS	12
TECHNICAL DATA	12
TECHNICAL INFORMATION AND ACCESS TO EPREL	14
ELECTRICAL CONNECTION	14
START-UP	15
PRODUCT LOADING AND STORAGE	16
ACCESSORIES	16
Grills	16
MAINTENANCE, CLEANING AND CARE	17
Cleaning procedure	17
Condenser cleaning	18
Door maintenance	18
Maintenance of drains	19
Lower grille	19
LED LIGHT REPLACEMENT	19
SPARE PARTS REQUEST	20
INCIDENTS AND REPAIRS	20
WARRANTY MANAGEMENT	24
Warranty certificate	25

CE DECLARATION



DECLARACIÓN "CE" DE CONFORMIDAD

DECLARATION "CE" DE CONFORMITÉ
"EC" CONFORMITY DECLARATION
DICHIARAZIONE "CE" DI CONFORMITÀ
DECLARAÇÃO "CE" DE CONFORMIDADE
EG KONFORMITÄTSERKLÄRUNG



INFRICO, S.L. CTRA. DE AGUILAR A-318 POR MORILES KM. 15,5 – A-3132 **14900 LUCENA** (Córdoba) ESPAÑA

Tel. Nacional: 957 51 30 68 - Tel. Internacional 34-957-51 03 03

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ES Declaramos que los productos indicados a continuación:

FR Nous déclarons que les produits énumérés ci-après:

GB We declare that the products listed hereunder:

IT Noi dichiariamo che i prodotti sottoelencati:

PT Declaramos que os produtos abaixo indicados:

DE Erklärt, das die nachstehend beschriebenen Produkte:

Marca / Marque / Mark / Marca / Marca:

INFRICO

Modelo/Modèle / Model / Modello / Modelo:

ZXS10

ES Respetamos las prescripciones contenidas en las siguientes directivas:

FR Sont conformes aux prescriptions des Directives suivantes:

GB Are in compliance with the following Directives:

IT Sono conformi a quanto prescritto dalle seguenti Direttive:

PT Estao em conformidade com as prescrições das seguintes Directivas:

DE Mit den Vorschriften, die in den folgenden Richtlinien:

DC 2014/30/CE
DC 2014/35/CE
DC 2011/ 65 / CE
REG 2017 / 1369 / UE
DC 2012 / 27 / UE
REG 2019 / 2018
REG 2019 / 2024
DC 2012 / 19 / UE
DC 2009 / 125 / CE

ES Y en las siguientes normas:

FR Et des normes ci-après:

GB And with the following standards:

IT E dalle seguenti norme:

PT E das seguintes normas:

DE Und Normen stehen:

UNE-EN 60335-1
UNE-EN 60335-2-89
UNE-EN 55011 - UNE-EN 55014
UNE-EN 61000-3-2
UNE-EN 61000-6-1
UNE-EN 61000-6-3

Empresa Certificada según Sistema Integrado de Gestión basado en las normas UNE-EN ISO

9001:2015 - UNE-EN ISO 14001:2015 - ISO 45001:2018



LUCENA, FEBRERO DE 2022



DEPARTAMENTO DE CALIDAD
Ctra. Las Navas - Los Pieleros, km 2,5
Tlf: 957 59 51 13 - Fax: 957 59 51 04
14900 LUCENA (Córdoba)

José Luis Crespillo
Director de Calidad

GENERAL INFORMATION

This manual has been written in a simple way so that by reading it you can learn about the operation and maintenance of our furniture. It is recommended to read them carefully and keep them for any consultation.

The manufacturer is not responsible for any damage to persons or objects that may be caused by non-compliance with the instructions contained in this manual. To know all the advantages of this section, please read it carefully before proceeding with the installation. Anyone using this appliance is recommended to read this user's manual.

This product has been manufactured under strict quality controls and complies with all the requirements established by Infrico. Before leaving the factory, each unit has been tested for quality assurance. This equipment has been manufactured with recyclable materials, through an environmentally friendly production process.

Follow these instructions for the proper functioning of the furniture and the life of the furniture will be longer.

This furniture complies with the regulations 2014/30/EU, 2014/35/EU. In addition, the standards have been applied: IEC EN 60335-1, IEC EN 60335-2-89, EB 61000-3-2, EN 61000-6-1 and EN 61000-6-3.



WARNING! This device must only be used for the purpose described in this manual.

SAFETY INSTRUCTIONS

The use of electrical appliances entails the implementation of basic safety indicators, such as:



This appliance must be properly located and installed prior to installation, following the recommendations in this manual.



This appliance is not intended for use by children aged from 8 years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children should not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



Children should not play with the device without supervision.



This device must not be installed in premises where explosive gaseous substances are present.



Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.



Keep all ventilation openings in the enclosure of the appliance or in the embedding structure free of obstruction.



Do not use mechanical devices or other means to accelerate the thawing process, other than those recommended by the manufacturer.



Do not damage the coolant circuit.



Do not use electrical appliances inside food storage compartments, unless they are of a type recommended by the manufacturer.



To reduce flammability hazards, this appliance should only be installed by a qualified person.



When cleaning the evaporator and/or condenser enclosure, the hands must be protected by gloves to avoid possible cuts or punctures with the internal elements of the cabinet.



Do not allow children to handle the device, as they could damage it or seriously injure themselves.



Do not touch the cold surfaces of the freezing appliances as they may damage it or seriously damage themselves.



Do not touch cold freezing surfaces as the skin may stick to them.



Do not store or use flammable products near the appliance.



Unplug the appliance before any cleaning, repair, or maintenance operation.



Do not damage or tamper with the cooling circuit.



Do not expose the refrigeration equipment to atmospheric agents.



Do not store explosive substances such as pressurized containers or aerosols with flammable propellants in the refrigeration equipment.



It is strictly forbidden to store pharmaceutical products, bottles, or glass jars inside the refrigerator cabinet.



The protection grids and especially the parts that give access to the electrical panel of the cabinet, should only be handled by qualified technical personnel.



Before accessing the electrical terminals of the cabinet, all power cables must be disconnected.



The components of the cooling circuit may only be handled and/or repaired by qualified personnel. Before proceeding with any type of internal manipulation of the cabinet, disconnect it from the mains beforehand.



The power supply cables must be correctly extended, protected from shocks, away from liquids, water, and heat sources and in perfect condition. The use of multiple sockets is not permitted.



To avoid risks, if the power cord(s) are damaged, they must be replaced by the manufacturer.



Before connecting to the mains, check that the power supply voltage corresponds to the voltage indicated on the nameplate. The socket must be suitable for the maximum consumption. Earthing is essential.



Grounding is essential, as well as protection against over currents, short circuits and indirect contacts in accordance with current standards.



Do not spray water fountains or cleaning products directly onto the electrical components of the refrigerated display. Do not touch the refrigeration unit with wet or damp hands or feet. Do not handle the refrigerated cabinet with bare feet.



The refrigeration unit may only be installed by qualified technical personnel.



If the power cord is damaged, it must be replaced by the manufacturer, its after-sales service or similarly qualified personnel to avoid a hazard.



Any use other than those specified in this manual will be considered dangerous. The manufacturer disclaims any liability for improper, incorrect, or unreasonable use.



NOTE: Any manipulation of the device must be carried out by a qualified technician.

IMPORTANT: see the **TECHNICAL LABEL** inside the cabinet to locate the **TYPE OF REFRIGERANT**.

FOR MODELS WITH R290 / HYDROCARBON REFRIGERANT.



R290

CAUTION: RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT. SHOULD ONLY BE REPAIRED BY A QUALIFIED TECHNICIAN. DO NOT PUNCTURE REFRIGERANT PIPING.

SERIAL DATA PLATE

The serial data plate is a permanently affixed to the inside of the equipment, which contains important electrical information as well as data relating to the refrigeration system of each unit. It also incorporates the model and serial number.







MADE IN SPAIN
 FECHA FAB. 13/02/2023
 MFG. DATE

CTRA. DE ACUILAR A.A-318 POR
 MORILES KM 15,5 - A-3132 14000
 LUCENA (CORDOBA) TELF. 0034
 957 51 30 88

ERV25

ALIMENTACION SUPPLY	230 V	1	50 Hz	INTENSIDAD TOTAL AMPS	1,2 A
POTENCIA POWER	203 W			REFRIGERANTE REFRIGERANT	R290
RES. ANTIVAH ANTI-SWEAT HEATER				CARGA REFRIG REFRIG. MASS	110 G
RESIST. EVAP. EVAPORATION HEATER				AGENTE ESPUMAN BLOWING AGENT	HFO
OTRAS RESIST. OTHERS HEATERS				PODER. CONGELACION FREEZING	220 KG/24H
ILUMINACION LIGHTING	8 W			VOLUMEN ÚTIL NET CAPACITY	220 L
CONSUMO ENERG ENERGY CONSUM				CLASE CLIMATICA CLIMATIC CLASS	4(30°C..55HR)

ERV25

ERV25

ERV25

ERV25

ERV25

User Instructions

Parameters 1

Parameters 2

Electrict Diagram

The Climate Class refers to the range of ambient temperatures in which the refrigerator operates optimally, and based on the climate type, each appliance requires a specific Climate Class.

CLIMATE CLASS OF THE TEST ROOM	TEMPERATURE	HUMUDITY
3	25°C	60%
4	30°C	55%
5	40°C	40%
7	35°C	75%

On our label, the rating plate specifies the Climate Class for which the appliance is designed, along with the corresponding optimal temperature and humidity range in parentheses. This information helps determine the suitable environmental conditions for the appliance's proper functioning.

Depending on the specific model and its options, it will be technically characterized by a different operating temperature and designed to preserve a specific type of product.

TEMPERATURE CLASS	APPLICATION TEMPERATURE	MAXIMUM TEMPERATURE OF THE HOTTEST PRODUCT	MINIMUM TEMPERATURE OF THE COLDEST PRODUCT
	[°C]	[°C]	[°C]
M0	0/1	+4	-1
M1	0/+2	+5	-1
M2	+2/+4	+7	-1
H2	+4/+8	+10	-1

It is important to emphasize the maintenance that needs to be performed as detailed on maintenance and cleaning section of this manual.

It is advised to perform internal cleaning of the equipment at least once every three months, as a minimum requirement.

Additionally, regular cleaning of the seals (gaskets) should be emphasized as indicated on the maintenance and cleaning section.

RECEIVING AND INSPECTING THE EQUIPMENT

- All Infrico products are factory tested for performance and are free from defects when shipped.
- When your equipment arrives, you should carefully inspect the unit for damage during delivery.
- If damage is detected, you should save all the crating material and make note on the carrier's bill of lading describing the damage. A freight claim should be filled immediately.
- If damage is subsequently noted during or immediately after installation, contact our customer care service.



NOTE: Infrico is not responsible for damage incurred during shipment.

Damages occurred during transportation

When you receive your appliance, it should be carefully inspected for any damages that may have occurred during transportation. If any damage to the unit is detected, it is important to retain all packaging materials and note the damage on the carrier's Bill of Lading. A claim should be filed with the transportation company immediately.



NOTE: Infrico is not responsible for damages that occurs during transportation.

STORAGE

Do not store the furniture outdoors, exposed to atmospheric agents or direct sunlight. Do not expose the furniture to the sun, as this could cause the plastic profiles to deform.

Before storage, check the correct condition of the furniture packaging.

INSTALLATION

Location

This appliance is intended for indoor use only.

Ensure that the chosen location for your equipment has proper airflow to guarantee efficient cooling.

Avoid placing the equipment near sources of heat, such as ovens, fryers, stoves, as well as direct sunlight exposure where temperatures can reach extreme values.

This equipment is designed to operate in a conditioned environment that maintains a maximum ambient temperature of 30°C and a maximum relative humidity of 55% (Climate class 4, according to ISO 23953-2). The performance of this equipment may be negatively affected if operated in higher temperature and humidity conditions than that for which they have been designed.

Sufficient space should be provided between the equipment and the side walls to allow for a door opening angle of 120 degrees. The doors should be able to open a minimum of 90 degrees to utilize the maximum door width available.

The floor of the final location should be strong enough to support the total weight of the appliance, assuming it contains the maximum product load. Additionally, it should be level and free from vibrations.

Reinforce the floor if necessary.

Unpacking

The equipment leaves the factory on a wooden pallet and is packed in a cardboard box with plastic packaging inside. The box is supported on the wooden base by strapping. The strapping must be removed beforehand. Care must be taken to ensure that the unloading and transport means do not damage the elements that may be on the lower part of the equipment.

All packaging materials are environmentally friendly and should be reused or recycled. Actively contribute to the protection of the environment by demanding recyclable packaging and environmentally friendly methods of equipment removal.



NOTE: Infrico does not recommend tipping the unit forward, sideways, or backwards.

However, should this occur, you must ensure that the unit remains upright for at least 24 hours before plugging it in, so that the compressor oil returns to the compressor.

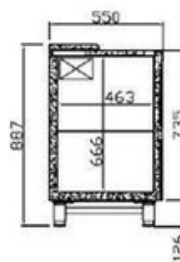
Ventilation

To ensure maximum performance of the equipment, it should be located in a place with a continuous air supply from both the rear and the bottom. To promote proper airflow, the unit has spacers located at the rear of the unit. In addition, a minimum clearance of 75mm on each side of the unit must be observed for the same purpose.

Restriction of the air supply through the unit will result in excessive heat load on the condensing unit, which will impair its operating efficiency. At no time may the front grille of the unit be obstructed.



NOTE: Any obstruction of the air flow, either total or partial, voids the warranty of the appliance.



300mm minimum clearance at the top and front of the unit

Leveling

It is very important that the unit is perfectly level for proper operation, so that the drains drain properly, the doors are aligned, and the unit is not subjected to undue stresses.

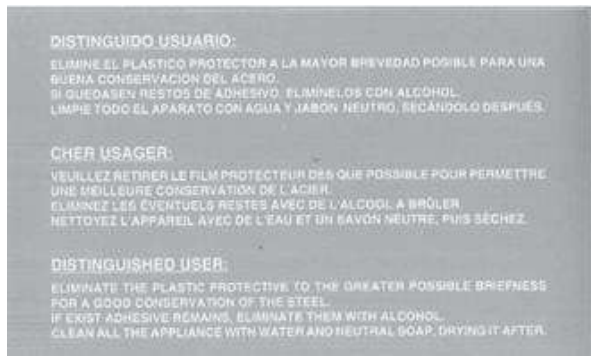


A bad leveling will cause water drainage problems from the defrost, causing freezing of the water and the corresponding failure.

These models s EVV, ERV and NEC are supplied with regulators, therefore, you must make sure that the floor where it is located is level.

Adjustable feet are available as an option for all models. In case you wish to install feet, they must be adjusted until the unit is completely stable and level. Please refer to the section "Installation of feet" for detailed information about the adjustment of the feet.

INITIAL CLEANING PROCEDURE



 **NOTE:** This sticker indicates the procedure to follow in the conservation of the section.



is

Before starting-up and placing any food inside the cabinet, firstly remove the protective film and then clean the complete unit thoroughly. If any adhesive remains, eliminate it with alcohol. Washing with a mild soap and warm water solution

is recommended for cleaning all the stainless-steel surfaces of your cabinet. This should be followed by cleaning with a baking soda solution. Rinse thoroughly with clear water and dry with a clean, soft cloth.

The cleaning of refrigeration equipment should be done following the instructions provided. Establish a regular cleaning schedule that allows you to maintain a proper level of hygiene. This will ensure optimal operation and extend the lifespan of the equipment.

It is recommended to follow the following maintenance schedule:

TYPE	AREA	PERIODICIDAD
CLEANING	EXTERIOR	WEEKLY
CLEANING	INTERIOR	MONTHLY
MAINTANENCE	DOORS	MONTHLY
CLEANING	GENERAL	EVERY 2-3 MONTHS

Cleaning and disinfection of the equipment should be done using non-abrasive detergents that are approved for food use. Never use alcohol, solvents, acetone, chlorine-based detergents, or products that chemically attack copper or aluminum.

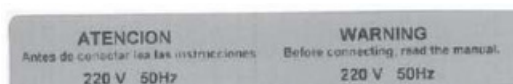
It is important to note that for cleaning the glass parts, specific products should be used. The use of water can lead to the accumulation of limescale deposits.

 **NOTE:** Never use abrasive or harsh cleaners, concentrated detergents, solvents or chemicals when cleaning the unit.

ELECTRICAL INSTRUCTIONS

You must check the voltage of the installation before connecting the unit, making sure that it is the appropriate one. To determine the voltage of the unit, check the rating label located inside the cabinet. Verify that this information coincides exactly with the electrical characteristics of where it will be installed.

 **NOTE:** This sticker is located on the power cord, it warns us of the electronic risk in the appliance. Power supply, it warns us of the electronic risk in the appliance.



 **NOTE:** The unit must be connected to a dedicated circuit. Failure to comply with this requirement will void the warranty.

 **NOTE:** The unit is designed to cope with a voltage fluctuation of 5% with respect to the nominal voltage indicated on the nameplate. Compressor failure due to higher fluctuations automatically voids the warranty.

The equipment has a factory installed hose and plug of the type shown in the figure below. If you do not have the proper outlet, it must be installed first.



If the hose or plug is altered in any way, it could pose a serious risk. Any tampering with these components will void the warranty.



Infrico does not warrant those appliances connected to an extension cord.

TECHNICAL DATA

MODELS	Dimension (mm)			Doors	Grills	Chamber volume (L)	RegimeTemp. (°C)	Ref.	Gas Charge (gr.)
	Length	Depth	High						
ERV 15 SH	600	510	850	1	2	124	+4°C / +12°C	R290	80
ERV 25 SH	900	510	850	2	2	193	+4°C / +12°C	R290	100
ERV 35 SH	1.350	510	850	3	2	296	+4°C / +12°C	R290	120
ERV 15 II SH	600	510	850	1	2	124	+4°C / +12°C	R290	80

ERV 25 II SH	900	510	850	2	2	193	+4°C / +12°C	R290	110
ERV 35 II SH	1.350	510	850	3	2	296	+4°C / +12°C	R290	110
ERV 15 PP	600	510	920	1	2	140	+4°C / +8°C	R290	80
ERV 25 PP	900	510	920	2	2	220	+4°C / +8°C	R290	110
ERV 35 PP	1.350	510	920	3	2	330	+4°C / +8°C	R290	120
ERV 15	600	510	920	1	2	140	+4°C / +12°C	R290	80
ERV 25	900	510	920	2	2	220	+4°C / +12°C	R290	110
ERV 35	1.350	510	920	3	2	330	+4°C / +12°C	R290	110
ERV 25 C	900	510	920	1	2	220	+4°C / +12°C	R290	110
ERV 15 II	600	510	920	1	2	140	+4°C / +12°C	R290	80
ERV 25 II	600	510	920	2	2	220	+4°C / +12°C	R290	110
ERV 35 II	1.350	510	920	3	2	330	+4°C / +12°C	R290	110
ERV 53	600	510	1.820	1	5	280	+4°C / +12°C	R290	90
ERV 83	900	510	1.820	2	5	435	+4°C / +12°C	R290	110
ERC 15	600	620	827	1	2	150	+4°C / +8°C	R290	100
ERC 36 B	620	595	1.870	1	4	355	+4°C / +8°C	R290	120
ERC 100	1.385	704	2.005	2	4	1.110	+4°C / +8°C	R290	140
ERC 130	1.384	804	2.005	2	4	1.310	+4°C / +8°C	R290	150
ERC 200	2.081	804	2.005	3	4	2.030	+4°C / +8°C	R290	150
ERC 130 PH	1.384	842	2.003	2	4	1.310	+4°C / +8°C	R290	150
ERC 130 PH BT	1.384	842	2.003	2	4	1.310	-18°C	R290	
ERC 200 PH	2.081	842	2.003	3	8	2.030	+4°C / +8°C	R290	150
ERC 200 PH BT	2.081	842	2.003	3	8	2.030	-18°C	R290	
NEC 501 RV	687	705	2.010	1	5	500	+2°C / +8°C	R290	120
NEC 1002 RV	1.385	705	2.010	2	10	1.000	+2°C / +8°C	R290	120
NEC 401 FS	687	670	2.010	1	5	430	-15°C / -25°C	R290	140
NEC 501 FV	687	705	2.010	1	5	500	-15°C / -25°C	R290	130
NEC 1002 FV	1.387	705	2.010	2	10	1.000	-15°C / -25°C	R290	150

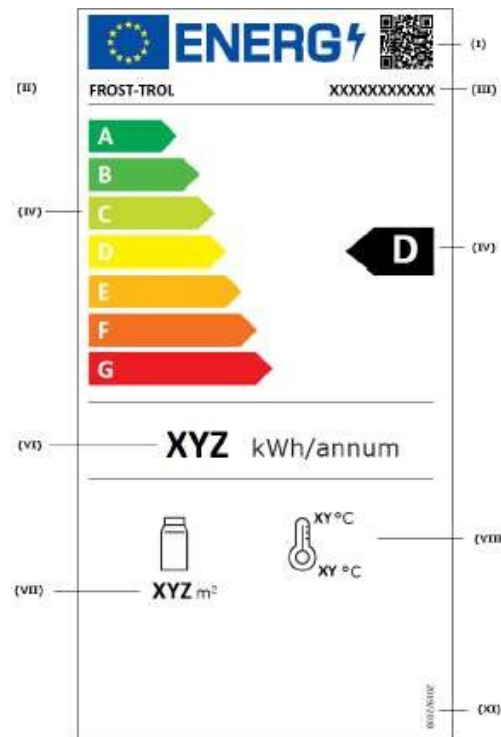
TECHNICAL INFORMATION AND ACCESS TO EPREL

From March 1st 2021, it will be possible to search the EPREL database for energy labels and product information sheets.

EPREL is the European product database for energy labeling according to Regulation (EU) 2019/2018 which sets minimum energy efficiency standards for refrigeration furniture.

The label provides information on the annual consumption of the refrigerated furniture, as well as TDA values and maximum and minimum product temperatures.

To access the EPREL database, scan the QR code that appears on the energy label supplied with the cabinet or access the EPREL website and enter the model identifier from the table below.



ELECTRICAL CONNECTION

The assembly, installation and connection of this refrigerated cabinet must be carried out by a certified technician.



Before accessing the electrical terminals of the cabinet, all power cables must be disconnected.

Electrical connections must be made according to the wiring diagram provided with each piece of furniture and in compliance with the safety regulations in force.



For electrical connection, a selector switch must be incorporated in accordance with the installation regulations. The selector switch must be directly connected to the supply terminals and must have a contact separation in all poles that provides disconnection under category III overvoltage conditions.

Before connecting to the mains, make sure that the supply voltage corresponds to the voltage indicated on the nameplate. The socket must be suitable for the maximum consumption.



The power supply cables must be correctly laid out, protected from shocks, away from liquids, water, and heat sources and in perfect condition. The use of multiple sockets is not permitted.

To avoid risks, if the power cord(s) are damaged, they must be replaced by the manufacturer.

START-UP

A correct location must be chosen, where it has been verified that there is no air current that could affect the refrigeration equipment and cause heat to enter from the outside. The equipment cannot be installed in the vicinity of air conditioning outlets, fans, doors, or other machines that can draw hot air from their condensing units into the cabinet or onto the condensing unit of the cabinet.



NOTE: The refrigerated cabinet cannot be installed in rooms where explosive gaseous substances are present.

Once the box has been installed, leveled, cleaned, and electrically connected according to the instructions provided here, it is ready for operation. Simply plug it into the mains.

The equipment should operate smoothly and quietly, within generally accepted standards. If there is any unusual noise, switch the unit off immediately and check for any possible obstruction in the fans.

The unit requires some time to reach operating temperature. You should wait until it is reached before proceeding to load product. Continuous opening of the doors hinders the ability of the unit to maintain proper cooling efficiency.

Evaporators with electronic thermostat, the unit leaves the factory with a standard parameter setting and a certain cut-out set-point. Set-point adjustment. Set-point adjustment according to your needs.



NOTE: Before charging the product, we recommend keeping the unit running for 24 hours to ensure correct operation.



NOTE: If the appliance is unplugged or disconnected, you must wait five minutes before plugging it in again.



NOTE: It is mandatory to leave at least 3cm between the back of the refrigeration unit and the wall.



NOTE: Keep all ventilation openings of the cabinet free of obstructions.

PRODUCT LOADING AND STORAGE

Before introducing products into the equipment, it is advisable to make it work completely empty until it reaches the working temperature. Once this temperature is reached, the product can be loaded.

The following points should be considered during loading operations:

- You must leave enough space between the products to allow air circulation through the products.
- The products must allow the doors to remain closed.
- The maximum weight allowed for each shelf of 25 kg must not be exceeded. In grills reinforced with plate, it is allowed to exceed 75Kg.
- The fan must not be obstructed, and the products must not exceed the maximum determined load level. The load must always be placed under the fans.
- If the equipment remains unplugged for long periods, it should be unplugged, empty, clean and with the door ajar.
- The presence of unwrapped products inside the chamber may cause corrosion of the evaporator.



The doors of the refrigerator cabinet should remain closed as long as possible. This will prevent excessive consumption as well as the generation of frost inside the cabinet.



Corrosion problems due to unwrapped beverages inside the equipment will void the warranty.

ACCESSORIES

Grills

All coolers are supplied with guides, supports, and grills. The supports are easily removable for cleaning and the guides are adjustable to the desired height.

MAINTENANCE, CLEANING AND CARE

Cleaning procedure



Before proceeding with any type of internal manipulation of the furniture, disconnect it from the mains beforehand.

Any maintenance operation not described in this manual must be carried out by specialized personnel. Cleaning of refrigeration equipment should be carried out in accordance with the following instructions. Establish a periodic cleaning program that allows you to maintain an adequate level of hygiene. In this way, we ensure optimum performance and extend the life of the equipment.

The following maintenance schedule is recommended:

TYPE	ZONE	PERIODICITY
CLEANING	OUTSIDE	WEEKLY
CLEANING	INSIDE	MONTHLY
MAINTENANCE	DOORS	MONTHLY
CLEANING	GENERAL	EACH 2 – 3 MONTHS



Do not spray water or cleaning products directly onto the electrical components of the equipment.

For cleaning and disinfection of the equipment, use non-abrasive detergents that are approved for food use. Never use alcohol, solvents, acetone, detergents containing chlorine, or products that chemically attack copper or aluminum.

To emphasize, the cleaning of the glasses, to use specific products. The use of water would cause the accumulation of calcareous deposits.

To clean the unit, follow the instructions below:

- Disconnect the unit from the mains and remove all products inside.
- Open the doors and allow the interior to reach room temperature. Remove the grills and clean them with mild soap and warm water. Dry the accessories completely with a soft cloth.
- Once the chamber has reached room temperature, clean all interior and exterior surfaces with soapy water. Rinse thoroughly and dry with a soft cloth. Failure to dry properly may result in water spots. Also, stainless steel cleaners are available that can repair and protect the protective coating on steel surfaces.
- Return the accessories to their original position and connect the unit to the mains.
- Pitting or cracks in the steel are signs of material deterioration. In this case, apply stainless steel cleaner capable of repairing the passivity of the steel.



NOTE: Never use steel wool pads, metal brushes or spatulas to clean the appliance or scouring pads.



NOTE: The cleaning products you use must be alkaline based or chlorine free. Any cleaner containing chlorides will damage the protective coating of the stainless steel.

Condenser cleaning

The condenser, located behind the rear or front grille of the unit, depending on the model, should be checked periodically, it is advisable to do so at least every 6 months.



Before cleaning or repairing the appliance, make sure that it is unplugged.

The frequency of cleaning will depend on the working environment. It must be ensured that air circulates through the condenser, so its surface must be free of dirt and grease. Dirty condensers cause malfunctions. If the condenser coil is dirty or blocked, the following points should be carried out;

- Disconnect the unit from the mains.
- Remove the rear or front grille of the unit, depending on the model.
- On some models it will be necessary to remove the screws that fasten the condenser unit to the baseboard and remove the condenser unit to clean the condenser.
- If the condenser has a protective casing, it should be unscrewed and removed.
- Once the surface of the condenser is free, it should be cleaned using a vacuum cleaner or soft brush. Never use a metal brush.
- If the dirt is excessive, compressed air can be used to clean the condenser.
- Once cleaned, reinstall the protective housing, return the condenser unit to its original position and replace the screws.
- Finally, replace the grille and connect the unit to the mains.



Never use water to clean the condenser as this may damage nearby electrical components.

Door maintenance

Over time and with the use of the doors, the hinges may move slightly. If you notice that the door is starting to become misaligned, you should adjust the screws that attach the hinge brackets to the cabinet.

Maintenance of drains

Those units that have an internal drain to evacuate the water obtained during cleaning should be checked to ensure that the drains are free of any obstruction, which is usually caused by the entry of beverages.

Some models have a water collection tray which should be removed and emptied periodically.

Lower grille

To remove the lower grille from the unit for cleaning the condensing unit, follow the procedure below:

1. Locate the lower grille fixing screws.
2. Use a screwdriver to loosen these screws.
3. Proceed to open the lower grille.

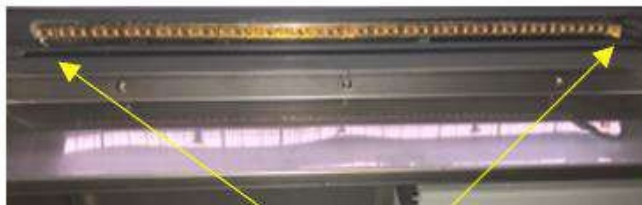
To replace the lower grille of the unit, follow the process described above in reverse order.

LED LIGHT REPLACEMENT



This replacement must be carried out by suitable technical personnel.

1. Disconnect the power supply.
2. Remove the polycarbonate protection screen, in the case that they were screwed, we must remove the screws; then press with the fingers on the ends and pull it out.



3. Next we clear the LED array.

Disconnect the cable from the junction box and replace it with the new LED assembly.

El cable rojo y negro es el que debemos conectar y desconectar.



The red and black wire is the one to be connected and disconnected.

Optionally you can place LEDs, RGB type with the possibility of color change.



SPARE PARTS REQUEST

Before contacting the Spare Parts Department, please gather the following information:

- EQUIPMENT MODEL.
- EQUIPMENT SERIAL NUMBER.
- YEAR OF MANUFACTURE.

All this information can be found collected on the equipment nameplate, which is located inside the refrigeration equipment.

According to EU Regulation 2019/2024 (ECODESIGN), the following components will be available as spare parts for a minimum period of eight years after the last unit of the model has been placed on the market: thermostats, starting relays, heating resistors of the anti-frost system, temperature sensors, software and firmware including replacement software, printed circuit boards, light sources, door handles and hinges, knobs, levers and buttons, gaskets, trays, baskets and storage racks. For all other components, please check availability.

These spare parts can be replaced using ordinary tools without permanent damage to the appliance. These spare parts will be publicly available on our website (<https://repuestos.infrico.com/by-you/>).

The maximum delivery time for spare parts is fifteen working days from the time the order is received.

INCIDENTS AND REPAIRS



Make sure that the unit is disconnected from the mains before carrying out any maintenance or repair work. This work must be carried out by qualified personnel.

If after carrying out the relevant checks, DO NOT MAKE ANY REPAIRS. Contact your Technical Assistance Service, providing the model and serial number of the appliance (these data can be found on the nameplate).

If you do not know of any technical assistance company in your area, contact our company to receive a list of companies that can offer an adequate technical service.

Infrico Technical Assistance Service

Tel: 00 34 957 51 14 62

Fax: 00 34 957 59 51 06

Email: sat@infrico.com

www.infrico.com

Many malfunctions arise from causes that can be easily eliminated without the need to contact Technical Support. The following list covers various types of problems and how to solve them.

PROBLEM	POSSIBLE LEAKAGE	POSSIBLE SOLUTION
The device does not work.	1. The plug is not connected to the socket. 2. No electric current is reaching the socket because the fuse has blown or the automatic power limiter has tripped.	1. Connect the plug to the socket and check that there is power. 2. Replace the fuse or reconnect the automatic power limiter.
Appliance does not cool sufficiently	1. Check the cut-off temperature on the controller. 2. Poorly closed door or frequent openings. 3. Obstruction of the ventilation grilles of the appliance. 4. Dirty condenser. 5. The device is directly exposed to direct sunlight or a heat source.	1. Decrease the cutting temperature. 2. Make sure that the door does not remain open for too long. 3. Keep these areas free as indicated in the "installation" chapter of this manual. 4. Clean with compressed air or a stiff brush (not steel). 5. Change the location of the refrigerator or protect it from these heat sources.
Noisy operation	1. The unit has not been leveled correctly. 2. Some of the inner tubes chafe. 3. Loose fastening screws of some parts. 4. Fan in condenser or evaporator causing vibration. 5. Compressor oil load too low.	1. Level as indicated in the "installation" chapter of this manual. 2. Separate the tubes that are rubbing. 3. Tighten loose screws. 4. Level the equipment and tighten any loose bolts. 5. If the unit has been overturned at any time, leave it in an upright position for 24 hours without

	6. Loose parts in the condensing unit.	connecting it to allow the oil to return to the compressor. Check for possible oil leaks.
Appliance creates excessive ice on the evaporator	1. Poorly closed doors. 2. Excessive door opening. 3. Defrosting has not been carried out.	1. Make sure that the door does not remain open for too long. 2. Programme un desescarche.
Compressor does not start	1. Switch open. 2. Blown fuse. 3. Faulty wiring. 4. Clixon open. 5. Controller contacts open. 6. Defective relay. 7. Low gas load in the system.	1. Close the switch. 2. Replace the blown fuse. 3. Check electrical wiring. 4. Check for abnormally low voltage at the power outlet. 5. Controller defective, or device located in too cold area. 6. Replace the relay. 7. Check for leaks.
Compressor starts but stops due to overload.	1. Low voltage. 2. Faulty unit wiring. 3. Defective starting capacitor. 4. Defective compressor.	1. Check for abnormally low voltage at the power outlet. 2. Check wiring and electrical installation of the equipment. 3. Replace the starting capacitor.

Compressor starts but stops due to overload.	1. Unit overloaded with hot product. 2. Non-condensable air or gas in the system. 3. Dirty condenser. 4. Defective condenser fan. 5. Appliance located in areas that are too hot. 6. Expansion valve or filter clogging. 7. Partially closed discharge valve. 8. Obstruction in discharge line.	1. Check product temperature, and let it cool down outside the equipment if it is too hot. 2. Vacuum to extract air or gases. 3. Clean the condenser. 4. Replace the fan. 5. Remove equipment from very hot areas. 6. Adjust expansion valve or filter. 7. Adjust discharge valve. 8. Check and adjust discharge line.
Reduced condensation pressure	1. Insufficient refrigerant charge. 2. Leaks in the system. 3. Appliance located in too cold area.	1. Check for refrigerant gas leaks. 2. Repair leaks in the system. 3. Remove the equipment from very cold areas.
Compressor short cycling	1. Control diferencial ajustado en intervalos demasiados pequeños. 2. Baja carga de refrigerante. 3. Carga excesiva de refrigerante. 4. Fugas en la válvula de descarga. 5. Presostato de alta abierto. 6. Condensador sucio.	1. Ajustar diferencial con el controlador. 2. Revisar la presión del refrigerante. 3. Ajustar el nivel del refrigerante. 4. Cambiar la válvula de descarga. 5. Ajustar carga del refrigerante para evitar exceso de sobrepresiones. 6. Limpiar el condensador.

WARRANTY MANAGEMENT

Dear customer, we would like to inform you about the warranty management rules that our company grants to its products:

- In any place, we state you that the products manufactured and sold by INFRICO SL are capital goods intended for industrial and not domestic use. It is therefore that the warranty applied is not regulated by the law of consumers and users but by the laws of trade warranty.
- The INFRICO SL warranty covers during a period of one year any manufacturing defect or any hidden defect of the appliance. The warranty that Infrico as manufacturer grants to its commercial network is based on the replacement of defective parts sent carriage paid, being the distributor's responsibility to cover the repair warranty (labor and consumables); and of course, the commissioning of the equipment in the first installation in the establishment.
- It is the distributor's responsibility to meet the end user's warranties, requesting INFRICO SL the necessary components for repairs or replacements.
- The warranty does not cover glass breakage after delivery by Infrico; nor does it cover parts damaged by misuse or normal wear and tear.
- If during the first three months of operation an anomaly is detected in the appliance whose repair, due to its magnitude, is disproportionate in comparison to the value of the equipment, the total replacement of the equipment may be granted.
- Any intervention on the appliance that affects the electrical connection, refrigeration part or electronic microcontroller not authorized by our SAT will result in the loss of the remaining warranty period of the machine.
- If exceptionally the distributor is unable to carry out a repair, we could proceed with prior authorization of the SAT to admit the collection of a machine for repair at the facilities of Infrico SL, to be subsequently returned to the customer. If the repair takes place outside the warranty period, the customer will be charged the costs of such repair and transportation.
- Any authorized return through the SAT, either for repair or replacement is inspected at our facilities. If anomalies other than those claimed are detected outside our manufacture or due to misuse or wear, INFRICO SL will not be responsible for the costs of repair or replacement, which will be borne by the customer.
- The warranty conditions will not be modified unless previously established with the customer in writing an agreement to modify the conditions of the supply contract.

Warrantycertificate

FOR THE PURCHASER

User: _____
Address: _____ Tel: _____
Zip Code / City: _____
Distributor: _____
Purchase date: _____
Model: _____ Serial number: _____
Compressor Number: _____

Vendor signature

Purchaser signature

Ask your distributor to fill in:

User: _____
Address: _____ Tel: _____
Zip Code / City: _____
Distributor: _____
Purchase date: _____
Model: _____ Serial number: _____
Compressor Number: _____

Vendor signature

Purchaser signature

FOR THE DISTRIBUTOR



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Digital controller with defrost and fans management

XR60CX

CONTENTS

1. GENERAL WARNING	1
2. GENERAL DESCRIPTION	1
3. CONTROLLING LOADS	1
4. FRONT PANEL COMMANDS	1
5. MAX & MIN TEMPERATURE MEMORIZATION	1
6. MAIN FUNCTIONS	2
7. PARAMETERS	2
8. DIGITAL INPUT (ENABLED WITH P3P = N)	3
9. TTL SERIAL LINE – FOR MONITORING SYSTEMS	3
10. X-REP OUTPUT – OPTIONAL	3
11. INSTALLATION AND MOUNTING	3
12. ELECTRICAL CONNECTIONS	3
13. HOW TO USE THE HOT KEY	3
14. ALARM SIGNALS	3
15. TECHNICAL DATA	4
16. CONNECTIONS	4
17. DEFAULT SETTING VALUES	4

1.

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 or to "Dixell 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

2. GENERAL DESCRIPTION

Model **XR60CX**, format 32 x 74 mm, is microprocessor based controller, suitable for 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 three NTC or PTC 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, the third one, optional, to connect to the HOT KEY terminals to signal the condenser temperature alarm or to display a temperature. The digital input can operate as fourth temperature probe.

The HOT KEY output allows to connect the unit, by means of the external module XJ485-CX, to a network line ModBUS-RTU compatible such as the Dixell monitoring units of X-WEB family. It allows to program the controller by means the HOT KEY programming keyboard.

The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

3. CONTROLLING LOADS

3.1 COMPRESSOR

The regulation is performed according to the temperature measured by the thermostat probe with a 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 "CON" and "COF".

3.2 DEFROST

Two defrost modes are available through the "tdF" parameter: defrost through electrical heater (tdF = EL) and hot gas defrost (tdF = in). Other parameters are used to control the interval between defrost cycles (ldF), its maximum length (MdF) and two defrost modes: timed or controlled by the evaporator's probe (P2P). At the end of defrost dripping time is started, its length is set in the Fdt parameter. With Fdt = 0 the dripping time is disabled.

3.3 CONTROL OF EVAPORATOR FANS

The fan control mode is selected by means of the "FnC" parameter:

FnC = C_n: fans will switch ON and OFF with the compressor and **not run** during defrost;
FnC = o_n: 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 "Fnd" parameter.
FnC = C_Y: fans will switch ON and OFF with the compressor and **run** during defrost;
FnC = o_Y: fans will run continuously also during defrost

An additional parameter "FSt" 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 "FSt".

3.3.1 Forced activation of fans

This function managed by the **Fct** parameter is designed to avoid short cycles of fans, that could happen when the controller is switched on or after a defrost, when the room air warms the evaporator. **Functioning**: if the difference of temperature between the evaporator and the room probes is more than the value of the Fct parameter, the fans are switched on. With Fct=0 the function is disabled.

3.3.2 Cyclical activation of the fans with compressor off.

When FnC = c-n or c-Y (fans in parallel to the compressor), by means of the Fon and FoF parameters the fans can carry out on and off cycles even if the compressor is switched off. When the compressor is stopped the fans go on working for the Fon time. With Fon = 0 the fans remain always off, when the compressor is off.

4. FRONT PANEL COMMANDS



SET: To display target set point; in programming mode it selects a parameter or confirms an operation.

(DEF) To start a manual defrost

(UP): To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.

(DOWN): To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.

(OFF): To switch the instrument off, if onF = oFF.

(LAMP): Not enabled.

KEY COMBINATIONS:

(UP) + (DOWN): To lock & unlock the keyboard.

SET + (DOWN): To enter in programming mode.

SET + (UP): To return to the room temperature display.

4.1 USE OF LEDS

Each LED function is described in the following table.

LED	MODE	FUNCTION
ON		Compressor enabled
Flashing		Anti-short cycle delay enabled
ON		Defrost enabled
Flashing		Drip time in progress
ON		Fans enabled
Flashing		Fans delay after defrost in progress.
ON		An alarm is occurring
ON		Continuous cycle is running
ON		Energy saving enabled
°C/°F ON		Measurement unit
°C/°F Flashing		Programming phase

5. MAX & MIN TEMPERATURE MEMORIZATION

5.1 HOW TO SEE THE MIN TEMPERATURE

- Press and release the n key.
- The "Lo" message will be displayed followed by the minimum temperature recorded.
- By pressing the n key again or by waiting 5s the normal display will be restored.

5.2 HOW TO SEE THE MAX TEMPERATURE

- Press and release the o key.
- The "Hi" message will be displayed followed by the maximum temperature recorded.
- By pressing the o key again or by waiting 5s the normal display will be restored.

5.3 HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

1. Hold press the SET key for more than 3s, while the max. or min temperature is displayed. message will be displayed)
To confirm the operation the "rSt" message starts blinking and the normal temperature will be displayed.

6. MAIN FUNCTIONS

6.1 HOW TO SET THE SETPOINT



1. Push and immediately release the SET key: the display will show the Set point value;
2. Push and immediately release the SET key or wait for 5 seconds to display the probe value again.

6.2 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 the "C" or "F" LED starts blinking;
3. To change the Set value push the o or n arrows within 10s.
4. To memorise the new set point value push the SET key again or wait 10s.

6.3

HOW TO START A MANUAL DEFROST



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

6.4 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the Set + n keys for 3s (the "C" or "F" LED starts blinking).
 2. Select the required parameter. Press the "SET" key to display its value
 3. Use "UP" or "DOWN" to change its value.
 4. Press "SET" to store the new value and move to the following parameter.
- To exit: Press SET + UP 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.

6.5 THE HIDDEN MENU

The hidden menu Includes all the parameters of the instrument.

6.5.1 HOW TO ENTER THE HIDDEN MENU

1. Enter the Programming mode by pressing the Set + n keys for 3s (the "C" or "F" LED starts blinking).
2. Released the keys, then push again the Set+n keys for more than 7s. The Pr2 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 o or n to change its value.
6. Press "SET" to store the new value and move to the following parameter.

To exit: Press SET + o or wait 15s without pressing a key.

NOTE1: if none parameter is present in Pr1, after 3s the "noP" message is displayed. Keep the keys pushed till the Pr2 message is displayed.

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

6.5.2 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 + n".

In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

6.6 HOW TO LOCK THE KEYBOARD

1. Keep pressed for more than 3 s the UP + DOWN keys.
2. The "POF" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the MAX o Min temperature stored
3. If a key is pressed more than 3s the "POF" message will be displayed.

6.7

TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3s the hand n keys, till the "Pon" message will be displayed.

6.8 THE CONTINUOUS CYCLE

When defrost is not in progress, it can be activated by holding the "o" key pressed for about 3 seconds. The compressor operates to maintain the "ccs" set point for the time set through the "Cct" parameter. The cycle can be terminated before the end of the set time using the same activation key "o" for 3 seconds.

6.9 THE ON/OFF FUNCTION



With "onF = oFF", pushing the ON/OFF key, the instrument is switched off. The "O" message is displayed. In this configuration, the regulation is disabled. To switch the instrument on, push again the ON/OFF key.

WARNING: Loads connected to the normally closed contacts of the relays are always supplied and under voltage, even if the instrument is in stand by mode.

7. PARAMETERS

REGULATION

Hy Differential: (0.1 + 25.5°C / 1+255 °F) Intervention 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: (- 50°C+SET/-58°F+SET): Sets the minimum value for the set point.

US Maximum set point: (SET+110°C/ SET+230°F). Set the maximum value for set point.

Ot Thermostat probe calibration: (-12.0+12.0°C; -120+120°F) allows to adjust possible offset of the thermostat probe.

P2P Evaporator probe presence: n= not present: the defrost stops by time; y= present: the defrost stops by temperature.

OE Evaporator probe calibration: (-12.0+12.0°C; -120+120°F). allows to adjust possible offset of the evaporator probe.

P3P Third probe presence (P3): n= not present; the terminal operates as digital input; y= present; the terminal operates as third probe.

O3 Third probe calibration (P3): (-12.0+12.0°C; -120+120°F). allows to adjust possible offset of the third probe.

P4P Fourth probe presence: (n = Not present; y = present).

o4 Fourth probe calibration: (-12.0 12.0°C) allows to adjust possible offset of the fourth probe.

Ods Outputs activation delay at start up: (0+255min) This function is enabled at the initial start of the instrument and inhibits any output activation for the period of time set in the parameter.

AC Anti-short cycle delay: (0+50 min) minimum interval between the compressor stop and the following restart.

rtr Percentage of the second and first probe for regulation (0+100; 100 = P1, 0 = P2): it allows to set the regulation according to the percentage of the first and second probe, as for the following formula $(rtr(P1-P2)/100 + P2)$.

Cct Compressor ON time during continuous cycle: (0.0+24.0h; res. 10min)

Allows to set the length of the continuous cycle: compressor stays on without interruption for the Cct time. Can be used, for instance, when the room is filled with the instrument.

COs Set point for continuous cycle: (-50+150°C) it sets the set point used during the continuous cycle.

COn 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.

COF Compressor OFF time with faulty probe: (0+255 min) time during which the compressor is OFF in case of faulty thermostat probe. With COF=0 compressor is always active.

DISPLAY

CF Temperature measurement unit: °C=Celsius; °F=Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, ALU and ALL have to be checked and modified if necessary).

RES Resolution (for °C): (in = 1°C; dE = 0.1 °C) allows decimal point display.

Lod Instrument display: (P1; P2, P3, P4, SET, dtr): it selects which probe is displayed by the instrument: P1 = Thermostat probe; P2 = Evaporator probe; P3 = Third probe (only for model with this option enabled); P4 = Fourth probe, SET = set point; dtr = percentage of visualization.

rEd X- REP display (optional): (P1; P2, P3, P4, SET, dtr): it selects which probe is displayed by X- REP: P1 = Thermostat probe; P2 = Evaporator probe; P3 = Third probe (only for model with this option enabled); P4 = Fourth probe, SET = set point; dtr = percentage of visualization.

dly Display delay: (0+100m; resul. 10s) when the temperature increases, the display is updated.

dtr Percentage of the second and first probe for visualization when Lod = dtr (0+100; 100 = P1, 0 = P2): if Lod = dtr it allows to set the visualization according to the percentage of the first and second probe, as for the following formula $(dtr(P1-P2)/100 + P2)$.

DEFROST

dFP Probe selection for defrost termination: nP = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = configurable probe; P4 = Probe on Hot Key plug.

tdF Defrost type: EL = electrical heater; in = hot gas

dtE Defrost termination temperature: (-50+50 °C/-58+122°F) (Enabled only when EdF=Pb) sets the temperature measured by the evaporator probe, which causes the end of defrost.

ldF Interval between defrost cycles: (0+120h) Determines the time interval between the beginning of two defrost cycles.

mdF (Maximum) length for defrost: (0+255min) When P2P = n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2P = y (defrost end based on temperature) it sets the maximum length for defrost.

dsd Start defrost delay: (0+99min) This is useful when different defrost start times are required to avoid overloading the plant.

dFd Temperature displayed during defrost: (rt = real temperature; it = temperature start; SET = set point; dEF = "dEF" label)

dAd MAX display delay after defrost: (0+255min). Sets the maximum time between the defrost and the restarting of the real room temperature display.

dDr Drip time: (0 120 min) 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.

dPo First defrost after start-up: (y = immediately; n = after the ldF time)

dAF Defrost delay after continuous cycle: (0 23.5h) time interval between the end of the freezing cycle and the following defrost related to it.

FANS

Fnc Fans operating mode: C-n= runs with the compressor, OFF during defrost;

o-n = continuous mode, OFF during defrost;

C-Y = runs with the compressor, ON during defrost;

o-Y = continuous mode, ON during defrost;

Fnd Fans delay after defrost: (0+255min) Interval between end of defrost and evaporator start.

Fct Temperature differential avoiding short cycles of fans (0+59°C; Fct=0 function disabled). If the difference of temperature between the evaporator and the room probes is more than the value of the Fct parameter, the fans are switched on.

FSt Fans stop temperature: (-50+50°C/122°F) setting of temperature, detected by evaporator probe, above which fans are always OFF.

Fon Fan ON time: (0+15 min) with Fnc = C_n or C_y, (fan activated in parallel with compressor). it sets the evaporator fan ON cycling time when the compressor is off. With Fon = 0 and FoF ≠ 0 the fan are always off, with Fon=0 and FoF = 0 the fan are always on.

Fof Fan OFF time: (0+15 min) with Fnc = C_n or C_y, (fan activated in parallel with compressor). it sets the evaporator fan off cycling time when the compressor is off. With Fon = 0 and FoF ≠ 0 the fan are always off, with Fon=0 and FoF = 0 the fan are always on.

FPr Probe selection for fan management: nP = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = configurable probe; P4 = Probe on Hot Key plug.

ALARMS

ALC Temperature alarms configuration: (Ab; rE)

Ab= absolute temperature: alarm temperature is given by the ALL or ALU values.
rE = temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the "SET+ALU" or "SET-ALL" values.

ALU MAXIMUM temperature alarm: (SET+110°C; SET+230°F) when this temperature is reached the alarm is enabled, after the "ALD" delay time.

ALL Minimum temperature alarm: (-50.0 + SET°C; -58+230°F when this temperature is reached the alarm is enabled, after the "ALD" delay time.

AFH Differential for temperature alarm/ fan recovery: (0,1+25,5°C; 1+45°F)
Intervention differential for recovery of temperature alarm. It's also used for the restart of the fan when the FSt temperature is reached

ALd Temperature alarm delay: (0+255 min) time interval between the detection of an alarm condition and alarm signalling.

daO Exclusion of temperature alarm at startup: (from 0.0 min to 23.5h) time interval between detection of the temperature alarm condition after instrument power on and alarm signalling.

CONDENSER TEMPERATURE ALARM

AP2 Probe selection for temperature alarm of condenser: nP = no probe; P1 = thermostat probe; P2 = evaporator probe; P3 = configurable probe; P4 = Probe on Hot Key plug.

AL2 Low temperature alarm of condenser: (-55+150°C) when this temperature is reached the LA2 alarm is signalled, possibly after the Ad2 delay.

Au2 High temperature alarm of condenser: (-55+150°C) when this temperature is reached the HA2 alarm is signalled, possibly after the Ad2 delay.

AH2 Differential for temperature condenser alarm recovery: (0,1+25,5°C; 1+45°F)

Ad2 Condenser temperature alarm delay: (0+255 min) time interval between the detection of the condenser alarm condition and alarm signalling.

da2 Condenser temperature alarm exclusion at start up: (from 0.0 min to 23.5h, res. 10min)

bLL Compressor off with low temperature alarm of condenser: n = no: compressor keeps working; Y = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

AC2 Compressor off with high temperature alarm of condenser: n = no: compressor keeps on working; Y = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

DIGITAL INPUT

i1P Digital input polarity: oP: the digital input is activated by opening the contact; CL: the digital input is activated by closing the contact.

i1F Digital input configuration: EAL = external alarm: "EA" message is displayed; bAL = serious alarm "CA" message is displayed. PAL = pressure switch alarm; "CA" message is displayed; dor = door switch function; dEF = activation of a defrost cycle; AUS = not enabled; Htr = kind of action inversion (cooling – heating);

bAL digital input alarm delay: delay between the detection of the external alarm condition and its signalling.

with i1F = dor: door open signalling delay
with i1F = PAL: time for pressure switch function: time interval to calculate the number of the pressure switch activation.

nPS Pressure switch number: (0 – 15) Number of activation of the pressure switch, during the interval, before signalling the alarm event (i2F = PAL).

If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

odc Compressor and fan status when open door: no = normal; Fan = Fan OFF; CPr = Compressor OFF; F_C = Compressor and fan OFF.

rrd Outputs restart after doA alarm: no = outputs not affected by the doA alarm; yES = outputs restart with the doA alarm;

HES Temperature increase during the Energy Saving cycle : (-30,0°C – 30,0°C/-22+86°F) the increasing value of the set point during the Energy Saving cycle.

OTHER

Adr Serial address (1-247): Identifies the instrument address when connected to a ModBUS compatible monitoring system.

PbC Type of probe: it allows to set the kind of probe used by the instrument: PbC = PBC probe = NTC probe.

onF on/off key enabling: nu = disabled; oFF = enabled; ES = not set it.

dP1 Thermostat probe display

dP2 Evaporator probe display

dP3 Third probe display- optional.

dP4 Fourth probe display.

rSE Real set point: (readable only), it shows the set point used during the energy saving cycle during the continuous cycle.

rEL Software release for internal use.

Ptb Parameter table code: readable only.

3. DIGITAL INPUT (ENABLED WITH P3P = N)

The free voltage digital input is programmable in different configurations by the "i1F" parameter.

8.1 DOOR SWITCH INPUT (i1F = dor)

It signals the door status and the corresponding relay output status through the "odc" parameter: no = normal (any change); Fan = Fan OFF; CPr = Compressor OFF; F_C = Compressor and fan OFF. Since the door is opened, after the delay time set through parameter "did", the door alarm is enabled, the display shows the message "dA" and the regulation restarts is rtr = yES. 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.

8.2 GENERIC ALARM (i1F = EAL)

As soon as the digital input is activated the unit will wait for "did" time delay before signalling the "EAL" alarm message. The outputs status don't change. The alarm stops just after the digital input is de-activated.

8.3 SERIOUS ALARM MODE (i1F = bAL)

When the digital input is activated, the unit will wait for "did" 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.

8.4 PRESSURE SWITCH (i1F = PAL)

If during the interval time set by "did" parameter, the pressure switch has reached the number of activation of the "nPS" parameter, the "CA" pressure alarm message will be displayed. The compressor and the regulation are stopped. When the digital input is ON the compressor is always OFF. If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

8.5 START DEFROST (i1F = dFr)

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 "MdF" safety time is expired.

8.6 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (i1F = Htr)

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

8.7 ENERGY SAVING (i1F = ES)

The Energy Saving function allows to change the set point value as the result of the (parameter) sum. This function is enabled until the digital input is activated.

8.8 DIGITAL INPUTS POLARITY

The digital input polarity depends on the "i1P" parameter.

i1P = CL: the input is activated by closing the contact.

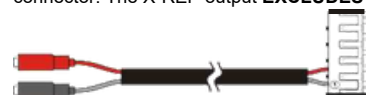
i1P = OP: the input is activated by opening the contact

9. TTL SERIAL LINE – FOR MONITORING SYSTEMS

The TTL serial line, available through the HOT KEY connector, allows by means of the external TTL/RS485 converter, XJ485-CX, to connect the instrument to a monitoring system ModBUS-RTU compatible such as the X-WEB500/3000/300.

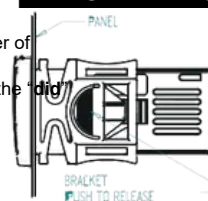
10. X-REP OUTPUT – OPTIONAL

As optional, an X-REP can be connected to the instrument, through the HOY KEY connector. The X-REP output EXCLUDES the serial connection.



To connect the X-REP to the instrument the following connectors must be used CAB-51F(1m), CAB-52F(2m), CAB-55F(5m),

11. INSTALLATION AND MOUNTING



Instrument XR60CX 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.

12. ELECTRICAL CONNECTIONS

The instrument is 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.

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

13. HOW TO USE THE HOT KEY

13.1 HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (UPL)

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

NOTE: the "Err" message is displayed for failed programming. In this case push again o key want to restart the upload again or remove the "Hot key" to abort the operation.

13.2 HOW TO PROGRAM AN INSTRUMENT USING A 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 "doL" message is blinking followed a by flashing "End".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE: the message "Err" is displayed for failed programming. In this case turn the unit off on if you want to restart the download again or remove the "Hot key" to abort the operation.

14. ALARM SIGNALS

Message	Cause	Outputs
"P1"	Room probe failure	Compressor output acc. to par. "Con" and "COF"
"P2"	Evaporator probe failure	Defrost end is timed

Message	Cause	Outputs
"P3"	Third probe failure	Outputs unchanged
"P4"	Fourth probe failure	Outputs unchanged
"HA"	Maximum temperature	Outputs unchanged.
"LA"	alarm Minimum temperature	Outputs unchanged.
"HA2"	alarm Condenser high	It depends on the "Ac2" parameter
"LA2"	temperature Condenser low	It depends on the "bLL" parameter
"dA"	temperature	Compressor and fans restarts
"EA"	Door open	Output unchanged.
"CA"	External alarm	All outputs OFF
"CA"	Serious external alarm	All outputs OFF

14.1 ALARM RECOVERY

alarm (i1F=PAL)

Probe alarms "P1", "P2", "P3" and "P4" 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", "HA2" and "LA2" automatically stop as soon as the temperature returns to normal values.

Alarms "EA" and "CA" (with i1F=bAL) recover as soon as the digital input is disabled.

Alarm "CA" (with i1F=PAL) recovers only by **switching off and on** the instrument.

14.2 OTHER MESSAGES

Pon	Keyboard unlocked.
PoF	Keyboard locked
noP	In programming mode: none parameter is present in Pr1 On the display or in dP2, dP3, dP4: the selected probe is nor enabled
noA	None alarm is recorded.

15. TECHNICAL DATA

Case: XR60CX frontal 32x74 mm; depth 60mm;

Mounting: XR60CX panel mounting in a 71x29mm panel cut-out

Protection: IP20; Frontal protection: XR60CX IP65

Connections: Screw terminal block 2,5 mm² wiring.

Power supply: according to the model: 12Vac/dc, ±10%; 24Vac/dc, ±10%;

50/60Hz, 110Vac 10%, 50/60Hz

230Vac 10%,

Power absorption: 3VA max

Display: 3 digits, red LED, 14,2 mm high; Inputs: Up to 4 NTC or PTC probes.

Digital input: free voltage contact

Relay outputs: compressor SPST 8(3) A, 250Vac; SPST 16(6)A 250Vac or 20(8)A 250Vac

defrost: SPDT 8(3) A, 250Vac

fan: SPST 8(3) A, 250Vac or SPST 5(2) A

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

Kind of action: 1B; Pollution grade: 2; Software class: A.;

Rated impulsive voltage: 2500V; Overvoltage Category: II

Operating temperature: 0÷60 °C; Storage temperature: -30÷85 °C.

Relative humidity: 20 85% (no condensing)

Measuring and regulation range: NTC probe: -40÷110°C (-40÷230°F);

PTC probe: -50÷150°C (-58÷302°F)

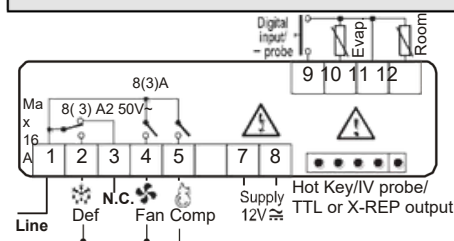
Resolution: 0,1 °C or 1 °C or 1 °F (selectable); Accuracy (ambient temp. 25°C): ±0,7 °C ±1 digit

16. CONNECTIONS

The X-REP output excludes the TTL output.. It's present in the following codes:

XR60CX- xx2xx, XR60CX -xx3xx;

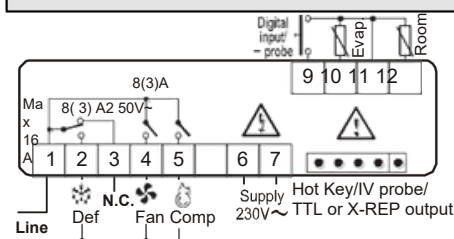
16.1 XR60CX – 8A OR 16A COMP. RELAY - 12VAC/DV OR 24 VAC/DV



NOTE: The compressor relay is 8(3)A or 16(6)A according to the model.

24Vac/dc supply: connect to the terminals 7 and 8.

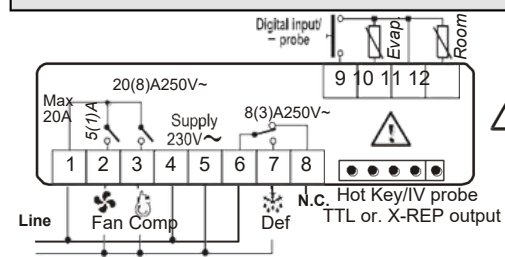
16.2 XR60CX – 8A OR 16A COMP. RELAY - 120VAC OR 230VAC



NOTE: The compressor relay is 8(3)A or 16(6)A according to the model.

120Vac supply: connect to the terminals 6 and 7.

16.3 XR60CX – 20A COMP. RELAY - 120VAC OR 230 VAC



120Vac supply: connect to the terminals 5 and 6.

17. DEFAULT SETTING VALUES

Set point	LS+US	-5.0	--
Differential	0,1 25,5°C / 1 255°F	2.0	Pr1
Minimum set point	-50°C SET/-58°F SET	-50.0	Pr2
Maximum set point	SET 110°C/SET 230°F	110	Pr2
Thermostat probe calibration	-12 12°C /-120 120°F	0.0	Pr1
Evaporator probe presence	n=not present; Y=pres.	Y	Pr1
Evaporator probe calibration	-12 12°C /-120 120°F	0.0	Pr2
Third probe presence	n=not present; Y=pres.	n	Pr2
Third probe calibration	-12 12°C /-120 120°F	0	Pr2
Fourth probe presence	n=not present; Y=pres.	n	Pr2
Fourth probe calibration	-12 12°C /-120 120°F	0	Pr2
Outputs delay at start up	0÷255 min	0	Pr2
Anti-short cycle delay	0 50 min	1	Pr1
P1-P2 percentage for regulation	0 ÷ 100 (100=P1, 0=P2)	100	Pr2
Continuous cycle duration	0.0÷24.0h	0.0	Pr2
Set point for continuous cycle	(-55.0÷150,0°C) (-67÷302°F)	-5	Pr2
Compressor ON time with faulty probe	0 255 min	15	Pr2
Compressor OFF time with faulty probe	0 255 min	30	Pr2
Temperature measurement unit	°C °F	°C	Pr2
Resolution	in=integer; dE= dec.point	dE	Pr1
Probe displayed	P1;P2	P1	Pr2
X-REP display	P1 - P2 - P3 - P4 - SET -	Pr1	Pr2
Display temperature delay	0 ÷ 20.0 min (10 sec.)	0	Pr2
P1-P2 percentage for display	1 ÷ 99	50	Pr2
Defrost type	EL=el. heater; in= hot gas	EL	Pr1
Probe selection for defrost termination	nP; P1; P2; P3; P4	P2	Pr2
Defrost termination temperature	-50 50 °C	8	Pr1
Interval between defrost cycles	1 120 ore	6	Pr1
(Maximum) length for defrost	0 255 min	30	Pr1
Start defrost delay	0÷99min	0	Pr2
Displaying during defrost	it, it, SET, DEF	it	Pr2
MAX display delay after defrost	0 ÷ 255 min	30	Pr2
Draining time	0÷120 min	0	Pr2
First defrost after startup	n=after idF; y=immed.	n	Pr2
Defrost delay after fast freezing	0 ÷ 23h e 50'	0.0	Pr2
Fan operating mode	C-n, o-n, C-y, o-Y	o-n	Pr1
Fan delay after defrost	0÷255min	10	Pr1
Differential of temp. for forced fan active.	0÷50°C	10	Pr2
Fan stop temperature	-50÷50°C/-58÷122°F	2	Pr1
Fan on time with compressor off	0÷15 (min.)	0	Pr2
Fan off time with compressor off	0÷15 (min.)	0	Pr2
Probe selection for fan management	nP; P1; P2; P3; P4	P2	Pr2
Temperat. alarms configuration	IE= related to set; Ab= absolute	Ab	Pr2
MAXIMUM temperature alarm	Set 110.0°C, Set=230°F	110	Pr1
Minimum temperature alarm	-50.0°C Set/-58°F Set	-50.0	Pr1
Differential for temperat. alarm recovery	(0.1°C÷25,5°C) (1°F÷45°F)	1	Pr2
Temperature alarm delay	0 255 min	15	Pr2
Delay of temperature alarm at start up	0 23h e 50'	1.3	Pr2
Probe for temperat. alarm of condenser	nP; P1; P2; P3; P4	P4	Pr2
Condenser for low temperat. alarm	(-55 ÷ 150°C) (- 67÷ 302°F)	-40	Pr2
Condenser for high temperat. alarm	(- 55 ÷ 150°C) (- 67÷ 302°F)	110	Pr2
Differ. for condenser temp. alar. recovery	[0,1°C ÷ 25,5°C] [1°F ÷ 45°F]	Pr2	
Condenser temperature alarm delay	0 ÷ 254 (min.) , 255=nU	15	Pr2
Delay of cond. temper. alarm at start up	0.0 ÷ 23h 50'	1,3	Pr2
Compr. off for cond. low temp. alarm	n(0) - Y(1)	n	Pr2
Compr. off for cond. high temp. alarm	n(0) - Y(1)	n	Pr2
Digital input polarity	oP=opening;CL=closing	cL	Pr1
Digital input configuration	EAL, bAL, PAL, dor; dEF; Htr	Aut	Pr1
Digital input alarm delay	0 ÷ 15	15	Pr2
Number of activation of pressure switch	0÷255min	15	Pr1
Compress and fan status with open door	no; Fan; CPR; F_C	F-c	Pr2
Regulation restart with door open alarm	n - Y	y	Pr2
Differential for Energy Saving	(-30°C÷30°C) (-54°F÷54°F)	0	Pr2
Kind of probe	Ptc; ntc	1	Pr2
Serial address	1÷247	1	Pr2
on/off key enabling	nu, oFF; ES	ntc	Pr1
Room probe display	--	nu	Pr2
Evaporator probe display	--	--	Pr1
Third probe display	--	--	Pr1
Fourth probe display	--	--	Pr1

rSE	Valore set operativo	actual set	-	Pr
rEL	Software release	--	-	2
Ptd	Map code	--	-	Pr

² Only for models XR60CX--xx2xx, XR60CX--xx3xx;

- 2
- Pr
- 2

Dixell


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XR30CX

CONTENTS

GENERAL WARNING	1
GENERAL DESCRIPTION	1
CONTROLLING LOADS	1
FRONT PANEL COMMANDS	1
MAX & MIN TEMPERATURE MEMORIZATION	1
MAIN FUNCTIONS	1
PARAMETERS	2
DIGITAL INPUT (ENABLED WITH P3P = N)	3
RTL SERIAL LINE – FOR MONITORING SYSTEMS	3
XOREP OUTPUT – OPTIONAL	3
INSTALLATION AND MOUNTING	3
ELECTRICAL CONNECTIONS	3
HOW TO USE THE HOT KEY	12
ALARM	14
TECHNICAL	15
CONNECTIONS	16
GENERAL WARNING	17
PLEASE READ BEFORE USING THIS MANUAL	17
SAFETY PRECAUTIONS	2
GENERAL DESCRIPTION	2
CONTROLLING LOADS	3.1
COMPRESSOR	3.1
MAIN FUNCTIONS	6
HOW TO SEE THE SETPOINT	6.1
HOW TO CHANGE THE SETPOINT	6.2
HOW TO START A MANUAL DEFROST	6.3



- SET**: To display target set point; in programming mode it selects a parameter or starts an operation.
- (DEF)** To start a manual defrost
- (UP)**: To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.
- (DOWN)** To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.
- To switch the instrument off, if onF = oFF.
- To switch the light, if oA1 = Lig

KEY COMBINATIONS:

- SET + UP** To lock & unlock the keyboard.
- SET + DOWN** To enter in programming mode.
- SET + UP** To return to the room temperature display.

4.1 USE OF LEDS

Each LED function is described in the following table.

LED	MODE	FUNCTION
ON		Compressor enabled
Flashing		Anti-short cycle delay enabled
ON		Defrost enabled
ON		An alarm is occurring
ON		Continuous cycle is running
ON		Energy saving enabled
ON		Light on
ON		Auxiliary relay on
°C/°F ON		Measurement unit
°C/°F Flashing		Programming phase

5. MAX & MIN TEMPERATURE MEMORIZATION

1 HOW TO SEE THE MIN TEMPERATURE

- Press and release the key.
- The "Lo" message will be displayed followed by the minimum temperature recorded.
- By pressing the key again or by waiting 5s the normal display will be restored.

2 HOW TO SEE THE MAX TEMPERATURE

- Press and release the key.
- The "Hi" message will be displayed followed by the maximum temperature recorded.
- By pressing the key again or by waiting 5s the normal display will be restored.

3 HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

- Hold press the SET key for more than 3s, while the max. or min temperature is displayed. (rSt message will be displayed)
- To confirm the operation the "rSt" message starts blinking and the normal temperature will be displayed.

6. MAIN FUNCTIONS

6.1 HOW TO SEE THE SETPOINT

- Push and immediately release the SET key: the display will show the Set point value;
- Push and immediately release the SET key or wait for 5 seconds: the display will show the probe value again.

6.2 HOW TO CHANGE THE SETPOINT

- Push the SET key for more than 2 seconds to change the Set point value;
- The value of the set point will be displayed and the "CE" starts blinking;
- To change the Set value push the o or n arrows within 10s.
- To memorise the new set point value push the SET key again or wait 10s.

6.3 HOW TO START A MANUAL DEFROST

- Push the DEF key for more than 2 seconds and a manual defrost starts.

PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for 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. 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 "Dixell 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.

2. GENERAL DESCRIPTION

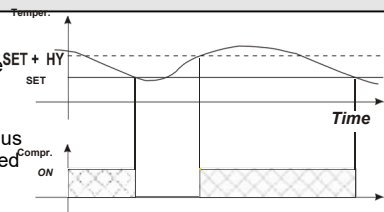
The XR30CX is a digital controller with inductive loads and off cycle defrost designed for refrigeration applications at normal temperature. It provides two relay outputs, one for the compressor, the other one can be used as light, for alarm signalling or as auxiliary output. It is also provided with 2 NTC or PTC probe inputs, the first one for temperature control, the second one, optional, to connect to the HOT KEY terminals to signal the condenser temperature alarm or to display a temperature. The digital input can operate as third temperature probe. The HOT KEY output allows to connect the unit, by means of the external module XJ485-CX, to a network line ModBUS-RTU compatible such as the Dixell monitoring units of X-WEB family. It allows to program the controller by means the HOT KEY programming keyboard. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

3. CONTROLLING LOADS

3.1 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 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 "CoN" and "CoF". Defrost is performed through a simple stop of the compressor. Parameter "IdF" controls the interval between defrost cycles, while its length is controlled by parameter "MdF".



6.4 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the **Set** + **n** keys for 3s (the "CE" or "F" starts blinking).
2. Select the required parameter. Press the **"SET"** key to display its value
3. Use **"UP"** or **"DOWN"** to change its value.
4. Press **"SET"** to store the new value and move to the following parameter.

To exit: Press **SET + UP** 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.

6.5 THE HIDDEN MENU

The hidden menu Includes all the parameters of the instrument.

6.5.1 HOW TO ENTER THE HIDDEN MENU

1. Enter the Programming mode by pressing the **Set** + **n** keys for 3s (the "CE" or "F" starts blinking).
2. Released the keys, then push again the **Set+n** keys for more than 7s. The Pr2 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 **o** or **n** to change its value.
6. Press **"SET"** to store the new value and move to the following parameter.

To exit: Press **SET + o** or wait 15s without pressing a key.

NOTE1: if none parameter is present in Pr1, after 3s the "noP" message is displayed. Keep the keys pushed till the Pr2 message is displayed.

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

6.5.2 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 + n"**.

In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

6. HOW TO LOCK THE KEYBOARD

1. Keep pressed for more than 3 s the **UP + DOWN** keys.
2. The "POF" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the MAX o Min temperature stored. If a key is pressed more than 3s the "POF" message will be displayed.
- 3.

6. TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3 seconds the **UP + DOWN** keys, till the "Pon" message will be displayed.

6.8 THE CONTINUOUS CYCLE

When defrost is not in progress, it can be activated by holding the "o" key pressed for about 3 seconds. The compressor operates to maintain the "ccs" set point for the time set through the "Cct" parameter. The cycle can be terminated before the end of the set time using the same activation key "o" for 3 seconds.

6.9 THE ON/OFF FUNCTION

With **"onF = OFF"**, pushing the **ON/OFF** key, the instrument is switched off. "OFF" message is displayed. In this configuration, the regulation is disabled. To switch the instrument on, push again the ON/OFF key.

WARNING: Loads connected to the normally closed contacts of the relays are always supplied and under voltage, even if the instrument is in stand by mode.

7. PARAMETERS

REGULATION

Hy Differential: (0,1 ÷ 25,5°C / 1÷255 °F) Intervention 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: (- 50°C+SET/-58°F+SET): Sets the minimum value for the set point.

US Maximum set point: (SET+110°C / SET+230°F). Set the maximum value for set point.

Ot Thermostat probe calibration: (-12,0÷12,0°C; -120÷120°F) allows to adjust possible offset of the thermostat probe.

P3P Third probe presence (P3): **n**= not present; the terminal operates as digital input; **y**= present; the terminal operates as third probe.

O3 Third probe calibration (P3): (-12,0÷12,0°C; -120÷120°F). allows to adjust possible offset of the third probe.

P4P Fourth probe presence: (**n** = Not present; **y** = present).

o4 Fourth probe calibration: (-12,0 ÷ 12,0°C) allows to adjust possible offset of the fourth probe.

OdS Outputs activation delay at start up: (0÷255min) 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÷50 min) minimum interval between the compressor stop and the following restart.

CCt Compressor ON time during continuous cycle: (0,0÷24,0h; res. 10min) Allows to set the length of the continuous cycle: compressor stays on without interruption for the CCt time. Can be used, for instance, when the room is filled with new products.

CCS Set point for continuous cycle: (-50÷150°C) it sets the set point used during continuous cycle.

CO n Compressor ON time with faulty probe: (0÷255 min) time during which the compressor is active in case of faulty thermostat probe. With CO n=0 compressor is always OFF.

COF Compressor OFF time with faulty probe: (0÷255 min) time during which the compressor is OFF in case of faulty thermostat probe. With COF=0 compressor is always active.

CH Type of action: CL = cooling; Ht = heating.

DISPLAY

CF Temperature measurement unit: "C"=Celsius; "F"=Fahrenheit. **WARNING:** When measurement unit is changed the SET point and the values of the parameters Hy, LS, US, Ot, ALU and ALL have to be checked and modified if necessary).

rES Resolution (for °C): (in = 1°C; dE = 0.1 °C) allows decimal point display.

dly Display delay: (0 ÷20,0m; risul. 10s) when the temperature increases, the display is updated of 1 °C/1°F after this time.

DEFROST

IdF Interval between defrost cycles: (0÷120h) Determines the time interval between beginning of two defrost cycles.

IdF (Maximum) length for defrost: (0÷255min) When **P2P = n**, (not evaporator probe: timed defrost) it sets the defrost duration, when **P2P = y** (defrost end based on temperature) it sets the maximum length for defrost.

dFd Temperature displayed during defrost: (**rt** = real temperature; **it** = temperature displayed during defrost start; **SET** = set point; **dEF** = "dEF" label)

Ad MAX display delay after defrost: (0÷255min). Sets the maximum time between end of defrost and the restarting of the real room temperature display.

ALARMS

ALC Temperature alarms configuration: (Ab; rE)

Ab= absolute temperature: alarm temperature is given by the ALL or ALU values. rE = temperature alarms are referred to the set point.

Temperature alarm is enabled when the temperature exceeds the

ALU MAXIMUM temperature alarm: (SET+110°C; SET+230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time.

ALL Minimum temperature alarm: (-50,0 ÷ SET°C; -58÷230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time.

AFH Differential for temperature alarm recovery: (0,1÷25,5°C; 1÷45°F) Intervention differential for recovery of temperature alarm.

ALd Temperature alarm delay: (0÷255 min) time interval between the detection of a condition and alarm signalling.

dAo Exclusion of temperature alarm at startup: (from 0.0 min to 23,5h) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

CONDENSER TEMPERATURE ALARM (detected by the fourth probe)

AP2 Probe selection for temperature alarm of condenser: **nP** = no probe; **P1** = thermostat probe; **P2** = evaporator probe; **P3** =configurable probe; **P4** = Probe on Hot Key

AL2 Low temperature alarm of condenser: (-55÷150°C) when this temperature is reached the LA2 alarm is signalled, possibly after the Ad2 delay.

Au2 High temperature alarm of condenser: (-55÷150°C) when this temperature is reached the HA2 alarm is signalled, possibly after the Ad2 delay.

AH2 Differential for temperature condenser alarm recovery: (0,1÷25,5°C; 1÷45°F)

Ad2 Condenser temperature alarm delay: (0÷255 min) time interval between the detection of the condenser alarm condition and alarm signalling.

dA2 Condenser temperature alarm exclusion at start up: (from 0.0 min to 23,5h) time interval between the detection of the condenser alarm condition after instrument power on and alarm signalling.

bLL Compressor off with low temperature alarm of condenser: **n** = no: compressor keeps on working; **Y** = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

AC2 Compressor off with high temperature alarm of condenser: **n** = no: compressor keeps on working; **Y** = yes, compressor is switched off till the alarm is present, in any case regulation restarts after AC time at minimum.

SECOND RELAY

oA Alarm relay silencing (with oA1=ALr):

(**n**= silencing disabled: alarm relay stays on till alarm condition lasts, **y**=silencing enabled: alarm relay is switched OFF by pressing a key during an alarm).

oA1 Second relay configuration: **ALr:** alarm; **Lig:** light; **AuS:** Auxiliary switch alarm; **onF:** always on with instrument on; **db** = do not select it; **dEF:** do not select it!.; **Fan:** do not select it!.; **df2:** do not select it.

AoP Alarm relay polarity: it set if the alarm relay is open or closed when an alarm is present. **yEL**= terminals 1-2 closed during an alarm; **oP** = terminals 1-2 open during an alarm.

DIGITAL INPUT

oP Digital input polarity: **oP:** the digital input is activated by opening the contact; **yP:** the digital input is activated by closing the contact.

i1F Digital input configuration: **EAL** = external alarm: "EA" message is displayed; **bAL** = serious alarm "CA" message is displayed. **PAL** = pressure switch alarm, "CA" message is displayed; **dor** = door switch function; **dEF** = activation of a defrost cycle; **AUS** =to switch on the second relay if oA1 = AUS; **Htr** = kind of action inversion (cooling - heating); **FAn** = not set it; **ES** = Energy saving.

Adi (0÷255 min) with i1F= EAL or i1F= bAL digital input alarm delay: delay between detection of the external alarm condition and its signalling.

with i1F= dor: door open signalling delay

with i1F = PAL: time for pressure switch function: time interval to calculate the number of the pressure switch activation.

nPS Pressure switch number: (0 ÷ 15) Number of activation of the pressure switch. The "did" interval, before signalling the alarm event (I2F= PAL).

If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

odc Compressor status with door open: no, Fan = normal; **CPr**; **F_C** = Compressor OFF.
rrd Outputs restart after doA alarm: no = outputs not affected by the doA alarm; **YES** = outputs restart with the doA alarm;

HES Temperature increase during the Energy Saving cycle : (-30,0°C 30,0°C/-22+86°F)
 it sets the increasing value of the set point during the Energy Saving cycle.

OTHER

Adr Serial address (1÷244): Identifies the instrument address when connected to a ModBUS compatible monitoring system.

Pbc Type of probe: it allows to set the kind of probe used by the instrument: **Pbc** = probe, **ntc** = NTC probe.

onF on/off key enabling: **nu** = disabled; **OFF** = enabled; **ES** = not set it.

dP1 Thermostat probe display

dP3 Third probe display- optional.

dP4 Fourth probe display.

rSE Real set point: (readable only), it shows the set point used during the energy saving cycle or during the continuous cycle.

rEL Software release for internal use.

Ptb Parameter table code: readable only.

3. DIGITAL INPUT (ENABLED WITH P3P = N)

The free voltage digital input is programmable in different configurations by the "i1F" parameter.

8.1 DOORSWITCHINPUT (i1F=dor)

It signals the door status and the corresponding relay output status through the "odc" parameter: **no**, Fan = normal (any change); **CPr**, **F_C** = Compressor OFF.

Since the door is opened, after the delay time set through parameter "did", the door alarm is enabled, the display shows the message "dA" and the regulation restarts is **rtr = YES**. 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.

8.2 GENERALALARM(i1F= EAL)

As soon as the digital input is activated the unit will wait for "did" time delay before signalling the "EAL" alarm message. The outputs status don't change. The alarm stops just after the digital input is de-activated.

8.3 SERIOUS ALARM MODE (i1F = bAL)

When the digital input is activated, the unit will wait for "did" 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.

8.4 PRESSURE SWITCH(i1F= PAL)

If during the interval time set by "did" parameter, the pressure switch has reached the number of activation of the "nPS" parameter, the "CA" pressure alarm message will be displayed. The compressor and the regulation are stopped. When the digital input is ON the compressor is always OFF.

If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

8.5 STARTDEFROST (i1F=dFr)

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 "Mdf" safety time is expired.

8.6 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (i1F=Htr)

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

8.7 ENERGY SAVING (i1F= ES)

The Energy Saving function allows to change the set point value as the result of the HES (parameter) sum. This function is enabled until the digital input is activated.

8.8 DIGITAL INPUT SPOLARITY

The digital input polarity depends on the "i1P" parameter.

i1P=CL: the input is activated by closing the contact.

i1P=OP: the input is activated by opening the contact

9. TTL SERIAL LINE - FOR MONITORING SYSTEMS

The TTL serial line, available through the HOT KEY connector, allows by means of the external TTL/RS485 converter, **XJ485-CX**, to connect the instrument to a monitoring system ModBUS-RTU compatible such as the X-WEB500/3000/300.

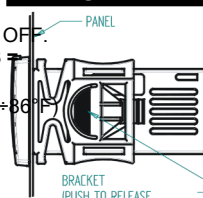
10. X-REP OUTPUT - OPTIONAL

As optional, an X-REP can be connected to the instrument, through the HOY KEY connector. The X-REP output **EXCLUDES** the serial connection.



To connect the X-REP to the instrument the following connectors must be used CAB-51F(1m), CAB-52F(2m), CAB-55F(5m),

11. INSTALLATION AND MOUNTING



Instrument **XR30CX** 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.

12. ELECTRICAL CONNECTIONS

The instrument is 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.

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

13. HOW TO USE THE HOT KEY

13.1

HOW TO PROGRAM A 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 o key; the "uPL" message appears followed a by flashing "End"
3. Push "SET" key and the End will stop flashing.
4. Turn OFF the instrument remove the "Hot Key", then turn it ON again.

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

13.2 HOW TO PROGRAM AN INSTRUMENT USING A 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 "doL" message is blinking followed a by flashing "End".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE the message "Err" is displayed for failed programming. 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.

14. ALARM SIGNALS

Message	Cause	Outputs
"P1"	Room probe failure	Compressor output acc. to par. "Con" and "COF"
"P3"	Third probe failure	Outputs unchanged
"P4"	Fourth probe failure	Outputs unchanged
"HA"	Maximum temperature alarm	Outputs unchanged.
"LA"	Minimum temperature alarm	Outputs unchanged.
"HA2"	Condenser high temperature	It depends on the "Ac2" parameter
"LA2"	Condenser low temperature	It depends on the "bLL" parameter
"dA"	Door open	Compressor according to rrd
"EA"	External alarm	Output unchanged.
"CA"	Serious external alarm	All outputs OFF.
"CA"	(i1F=bAL)	
	Pressure switch alarm	All outputs OFF
	(i1F=PAL)	

14.1 ALARM RECOVERY

Probe alarms **P1**, **P3** and **P4** 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**, **HA2** and **LA2** automatically stop as soon as the temperature returns to normal values.

Alarms **EA** and **CA** (with i1F=bAL) recover as soon as the digital input is disabled.

Alarm **CA** (with i1F=PAL) recovers only by switching off and on the instrument.

14.2 OTHER MESSAGES

Po	Keyboard unlocked.
n	Keyboard locked
Po	In programming mode: none parameter is present in Pr1
F	On the display or in dP2, dP3, dP4: the selected probe is not enabled
no	None alarm is recorded.
P	

15. TECHNICAL DATA

Housing: self extinguishing ABS.

Case: XR30CX frontal 32x74 mm; depth 60mm;

Mounting: XR30CX panel mounting in a 71x29mm panel cut-out

Protection: IP20; **Frontal protection:** XR30CX IP65

Connections: Screw terminal block 2,5 mm² wiring.

Power supply: according to the model: 12Vac/dc, $\pm 10\%$; 24Vac/dc, $\pm 10\%$; 230Vac 50/60Hz, 110Vac 10%, 50/60Hz

Power absorption: 3VA max

Display: 3 digits, red LED, 14,2 mm high; **Inputs:** Up to 4 NTC or PTC probes.

Digital input: free voltage contact

Relay outputs: compressor SPST 8(3) A, 250Vac; or 20(8)A 250Vac

AUX: SPDT 8(3) A, 250Vac

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

Kind of action: 1B; **Pollution grade:** 2; **Software class:** A;

Rated impulsive voltage: 2500V; **Overvoltage Category:** II

Operating temperature: 0÷60 °C; **Storage temperature:** -30÷85 °C.

Relative humidity: 20 85% (no condensing)

Measuring and regulation range: **NTC probe:** -40÷110 °C (-40÷230 °F);

PTC probe: -50÷150 °C (-58÷302 °F)

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

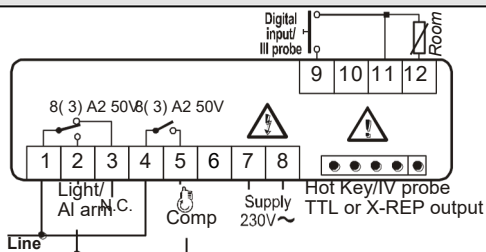
Accuracy (ambient temp. 25 °C): $\pm 0,7$ °C ± 1 digit.

16. CONNECTIONS

The X-REP output excludes the TTL output.. It's present in the following codes:

XR30CX- xx2xx, XR30CX -xx3xx;

16.1 XR30CX – 8A COMPRESSOR



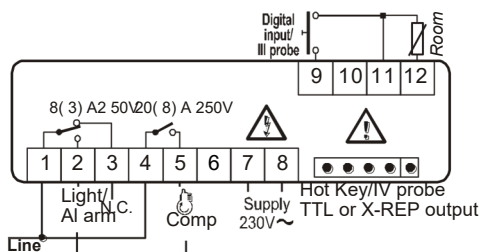
9-40Vdc supply: connect to the terminals 7 and 8.

12Vac/dc supply: connect to the terminals 7 and 8.

24Vac/dc supply: connect to the terminals 7 and 8.

120Vac supply: connect to the terminals 7 and 8.

16.2 XR30CX – 20A COMPRESSOR



9-40Vdc supply: connect to the terminals 7 and 8.

12Vac/dc supply: connect to the terminals 7 and 8.

24Vac/dc supply: connect to the terminals 7 and 8.

120Vac supply: connect to the terminals 7 and 8.

17. DEFAULT SETTING VALUES

Label	Name	Range	°C/°F	
Set	Set point	LS÷US	3.0	--
Hy	Differential	0,1 25.5°C / 1 255°F	2.0	-
LS	Minimum set point	-50°C SET/-58°F SET	-50.0	Pr
US	Maximum set point	SET 110°C / SET 230°F	110	1
Ot	Thermostat probe calibration	-12 12°C / -120 120°F	0.0	Pr
P3P	Third probe presence	n=not present; Y=pres.	n	2
O3	Third probe calibration	-12 12°C / -120 120°F	0	Pr
P4P	Fourth probe presence	n=not present; Y=pres.	n	2
O4	Fourth probe calibration	-12 12°C / -120 120°F	0	Pr
OdS	Outputs delay at start up	0÷255 min	0	1
AC	Anti-short cycle delay	0 50 min	1	Pr
CCt	Continuous cycle duration	0.0÷24.0h	0.0	2
CCS	Set point for continuous cycle	(-55.0÷150,0°C) (-67÷302°F)	0	Pr
COnt	Compressor ON time with faulty probe	0 255 min	15	2
COF	Compressor OFF time with faulty probe	0 255 min	30	2
C	Kind of action	CL=cooling; Ht= heating	CL	2
H	Temperature measurement unit	°C °F	°C	Pr
RES	Resolution	in=integer; dE= dec.point	dE	2

dLy	Display temperature delay (10 sec.)	0	Pr
IdF	Interval between defrost cycles	8	2
MdF	(Maximum) length of defrost	20	Pr
dFd	Displaying during defrost	it	1
	0 ÷ 255 min	30	Pr
dAd	MAX display delay after defrost	Ab	1
ALc	Temperature alarms	110	Pr
	Set 110.0°C; Set=230°F	-50.0	2
ALU	MAXIMUM temperature alarm recovery	1	Pr
ALL	Minimum temperature alarm	15	Pr
AFH	Temperature alarm delay	1.3	2
ALD	Differential for temperature alarm	55	Pr
dAo	Delay of temperature alarm at start up	P4	1
AP2	Probe for temperat. alarm of condenser	40	Pr
	nF, P1, P2, P3, P4	110	1
AL2	Condenser for low temperat. alarm	5	2
AU2	Condenser for high temperat. alarm	-55 ÷ 150°C (-67 ÷ 302°F)	Pr
AH2	Differ. for condenser temp. alar. recovery	[0,1°C ÷ 25,5°C] [1°F ÷ 45°F]	15
	Condenser temperature alarm delay	1,3	2
Ad2	Delay of cond. temper. alarm at start up	0 ÷ 254 (min.) , 255=n	2
dA2	Compr. off for condenser low temperature alarm	0.0 ÷ 23h 50'	n
bLL	Compr. off for condenser high temperature alarm	n(0) - Y(1)	y
AC2	Alarm relay disabling	n=no; y=yes	2
oA1	2 nd relay configuration	ALr = alarm; dEF = do not select it; Lig =Light; AUS =AUX; onF=always on; Fan=Lig do not select it; db = do not select it; dF2 = do not select it	Pr2
AoP	Alarm relay polarity (oA1=ALr)	oP; cL	cL
i1P	Digital input polarity	oP=opening; CL=closing	cl
i1F	Digital input configuration	EAL, bAL, PAL, dor; dEF, AUS	Htr, dor
did	Digital input alarm delay	0÷255min	15
nPS	Number of activation of pressure switch	0 ÷ 15	1
odc	Compress status when open door alarm	no; Fan; CPr; F_C	no
rrd	Regulation restart with door open	n - Y	y
HES	Differential for Energy Saving	(-30°C÷30°C) (-54°F÷54°F)	0
Adr	Serial address	0÷247	1
PbC	Kind of probe	Ptc; ntc	ntc
onF	on/off key enabling	nu, oFF; ES	ntc
dP1	Room probe display	--	nu
dP3	Third probe display	--	--
dP4	Fourth probe display	--	--
rSE	Real set point value	actual set	--
rEL	Software release	--	--
Ptb	Map code	--	--