DISPLAY CABINETS

Installation and Operation Manual

1 GENERAL INFORMATION

This manual has been written in a straightforward way so that by reading it you can learn about the operation and maintenance of our units. It is recommended that you read it carefully and keep it for future reference.

The manufacturer accepts no liability for damage to persons or objects resulting from non-compliance with the instructions contained in this manual. To fully understand all the advantages of this unit, please read carefully before proceeding with the installation. Anyone using this unit should read this user manual. If in doubt, please consult your dealer.

This product has been manufactured under strict quality controls and meets all the requirements set by Infrico Supermarket. Before leaving the factory, each unit is tested and quality-assured. This unit has been manufactured with recyclable materials, through an environmentally friendly production process.

These units comply with directive 2014/30/EC, 2014/35/EU. In addition, IEC EN 60335-1, IEC EN 60335-2-89, EN 61000-3-2, EN 61000-6-1 and EN 61000-6-3 have been applied.

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

End-of-life electrical/electronic equipment must be disposed of by an authorised waste management company.

2 SAFETY INSTRUCTIONS

IMPORTANT: see the **RATING PLATE** inside the unit to determine the **TYPE OF REFREGERANT.**

FOR MODELS WITH R290 / HYDROCARBON REFRIGERANT:

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

GENERAL SAFETY WARNINGS

	Poor levelling can lead to potential water drainage problems, which can result in water freezing and failure.
	The shelves are designed for a maximum load of 200 kg/m^2.
	It is mandatory to leave a minimum of 10 cm between the back of the display cabinet and the wall.
	All ventilation openings on the display cabinet must be free of obstructions.
	Do not use metal or sharp objects in order to accelerate defrosting.
	When cleaning the evaporator and/or condenser enclosure, hand protection must be worn to prevent cuts or punctures from internal parts.
	Periodically check that drains are not clogged, making it difficult for water to drain.
	Do not use electrical appliances for the preservation of frozen food within unless authorised by the manufacturer.
	Do not damage or tamper with the cooling circuit.
	Do not expose the refrigerated unit to the elements.
	Disconnect all power cables before accessing the electrical terminals of the unit.
	Those parts that provide access to the electrical panel of the display cabinet must only be worked on by qualified technical personnel.
	For the electrical connection, an isolator switch must be installed in accordance with the installation regulations. It must be directly connected to the supply terminals and must have contact separation on all poles to provide disconnection under category III overvoltage conditions.
	The components of the cooling circuit may only be worked on by authorised personnel.
	The power cable must be extended and kept away from liquids and heat sources. The use of multiple sockets such as power strips is not permitted.
	If the power cable is damaged, it must be replaced by the manufacturer.
	Check that the power supply voltage corresponds to the voltage indicated on the display cabinet. The socket outlet must be suitable for maximum consumption.

	Earthing, in addition to protection against overcurrents, short circuits and indirect contact in accordance with current standards, is mandatory.
	Do not apply water or cleaning agents to electrical components. Do not touch the display cabinets with wet or damp hands or feet. **Do not handle the display cabinet with bare feet.**
	Do not store or use flammable products near the display cabinet.
	Do not allow children to handle the unit, as they could damage it or seriously injure themselves.

3 RATING PLATE

The rating plate is a plate which is permanently affixed to the control panel of the unit, containing important electrical information in addition to data relating to the refrigeration system for each unit. It also incorporates the model and serial number.

4 EC DECLARATION OF CONFORMITY

EC DECLARATION OF CONFORMITY

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

INFRICO CTRA. DE AGUILAR A-318 POR MORILES KM. 15,5 - A-3132 **14900 LUCENA** (Córdoba) SPAIN
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ES Declaramos que los productos indicados a continuación:
FR We declare that the products listed above:
GB We declare that the products listed hereunder:
IT Noi dechiariamo che i prodotti sottoelencati:
PT We declare that the products listed below:
DE Erklärt, das die nachsteherd berschriebenen Produkte:

Marca / Marque / Brand / Marca / Marca:	**Infrico**
Modelo/Modèle / Model / Modello / Modelo:	*All display cabinet models have an EC Declaration of Conformity*
ES Respeta 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 / EU DC 2012 / 27 / EU REG 1094 / 2015 / EU DC 2009 / 125 / CE REG 1095 / 125 / EC DC 2012 / 19 / EU
ES Y en las siguientes normas: **FR** Et des normes ci-apres: **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**

Company certified according to the Integrated Management System based on the UNE-EN ISO 9001:2015 - UNE-EN ISO 14001:2015 - UNE-EN ISO 45001:2018 standards

LUCENA, JUNE 2023

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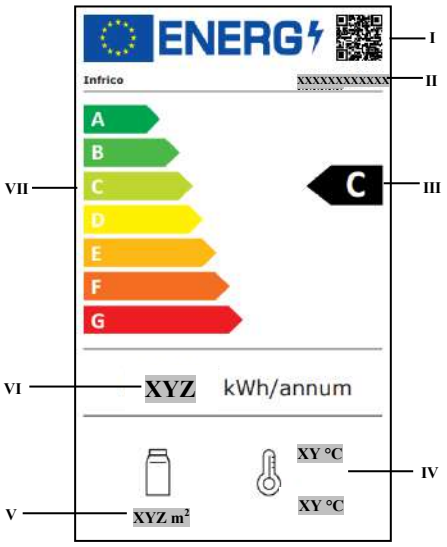
Quality Manager

5 ENERGY LABEL AND ACCESS TO EPREL

You can consult the product energy labels in the EPREL database. This database contains the energy labelling of European products in accordance with Regulation (EU) 2019/2018 which sets minimum energy efficiency standards for refrigeration appliances.

On this label you will find information about the annual consumption of the display cabinet, as well as TDA values and the maximum and minimum temperatures for the products.

To access the EPREL database, scan the QR code on the energy label or access the EPREL website and enter the model identifier. The link to access the EPREL website is as follows:
http://eprel.ec.europa.eu/screen/product/refrigeratingappliancesdirectsalesfunction



I	QR CODE
II	MODEL IDENTIFICATION
III	EFFICIENCY CLASS SCALE
IV	MAXIMUM AND MINIMUM PRODUCT TEMPERATURE
V	AREA OF EXPOSURE (M2)
VI	AE (kWh/year)
VII	EFFICIENCY CLASS SCALE

6 RECEPTION AND INSPECTION

All Infrico products are factory tested, evaluated for quality and performance, and are free from defects. When you receive your unit, it should be carefully inspected for any possible damage that may have occurred during transport.

If any damage to the unit is found, you should retain all packing material and report the damage to the carrier. A complaint must be made immediately to the transport company, and must be written on the delivery note and signed by the carrier. If damage is noticed during or immediately following installation, contact your dealer immediately.

	**NOTE: Infrico cannot be held responsible for damage during transport.**

7 STORAGE

Do not store units outdoors, exposed to the elements or in direct sunlight. Units with plastic packaging exposed to the sun can reach temperatures in excess of 80 °C and this may cause damage to the product's plastic parts and components.

Before storage, check that the packaging of the unit is in good condition.

8 INSTALLATION

8.1 Location

This unit is designed and manufactured for the display and sale of refrigerated products inside air-conditioned premises where the temperature is maintained at a level equal to or lower than that specified under the UNE-EN-ISO 239523 standard as class 3 25ºC (75ºF) and where relative humidity is maintained at a value equal to or lower than 60% RH.

Make sure that the location chosen for your unit has adequate air flow to ensure efficient cooling in the area of the pump-motor unit.

NOTE: It is very important to avoid any direct incidence of air conditioning on the display cabinets.

Like other displays, these models are very sensitive to air disturbance. Draughts circulating around the displays considerably affect their correct functioning. DO NOT allow air-conditioning equipment, electric fans, open doors or windows, etc. to create draughts around display cabinets.

Avoid locations close to sources of heat, such as ovens, fryers, cookers, in addition to direct sunlight, where temperatures may reach extreme values, as their cooling capacity may be affected. In addition, a location should not be chosen in an area where temperatures fall below 12°C (55°F).
The floor at the final location must be strong enough to support the total weight of the unit when it contains the maximum product load. It must also be level and vibration-free. Reinforce the floor if necessary.

8.2 Unpacking

The unit leaves the factory on wooden bases and shrink-wrapped with polyethylene protection. Special packaging will be on a wooden pallet, packed in wooden crates and shrink-wrapped. The unit is fastened to the wooden baseboard with bolts. The bolts must be removed beforehand to avoid damaging the unit when unpacking.

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 unit disposal.

NOTE: Infrico does not recommend tipping the unit to the front, side or back. However, should this occur, you must ensure that the unit remains in an upright position for at least 24 hours before switching it on, so that the compressor oil returns to the compressor.

8.3 Ventilation

To ensure maximum performance of the unit, it should be located in a place with a continuous air supply from both the rear and the bottom.

A restriction to the air supply passing through the unit would result in excessive heat load on the condenser unit, which would impair its operating efficiency. The front grille of the unit must not be obstructed at any time.

It is advisable to maintain 100 mm (4 inches) clearance from the wall and if there is a ceiling above the display cabinet, it should be 300 mm (12 inches) away.

Check that the location is correct, with no draughts that could affect the display cabinet.

	**NOTE: Any obstruction of the air flow, whether total or partial, will void the guarantee on the unit.**

8.4 Levelling

It is very important that the unit is perfectly level for proper operation, so that the drains can drain correctly and the unit is not subjected to undue stress. The internal structure of the unit will also remain unaffected.

These models are supplied from the factory with non-adjustable conveyor balls and adjustable feet.

8.5 Installation of drainage lines

Incorrect drainage installation can lead to future problems with the operation of the display cabinet, leading to unnecessary costs. Siphons should be installed as close as possible to the display cabinet outlet. It is necessary to shim the pipes so that the siphons do not bear the full weight of the piping.

	**Install siphons as close as possible to the unit outlet.**
	**Do not use drainage pipes with a nominal diameter smaller than that of the pipe supplied with the display cabinet.**
	**Install siphons to prevent odours and insects from entering.**
	**Position the drainage pipe in the direction of flow.**
	**Shim the pipes so that the siphons do not bear the full weight of the piping. A certain degree of slope is necessary to facilitate the flow.**
	**Excessive length of drainage pipe will hinder good drainage.**

8.6 Initial cleaning procedure

	NOTE: This sticker indicates the procedure to be followed for the external maintenance of the unit.

Before start-up and loading the product into the unit, you must remove the protective plastic covering from the unit and clean it thoroughly (in the case of stainless steel display cabinets). If adhesive residues remain, they must be removed using alcohol. It is recommended to clean all stainless steel surfaces of the unit with mild soap and warm water. After cleaning, rinse with plenty of water and dry with a soft cloth.

	NOTE: Never use harsh or abrasive cleaners, concentrated detergents, solvents or chemicals to clean the unit. Remember that products containing bleach or ammonia are very harmful to the steel surface. Avoid contamination of the steel surface by ferrous particles.

8.7 Safety measures for units using hydrocarbons as refrigerant (R290)

	The use of hydrocarbons as refrigerant gases has many environmental advantages over other refrigerants, but has the disadvantage that they are flammable. For that reason a number of measures must be taken to ensure safety. The room must have a minimum volume of 1 m3 for every 8 gr. of refrigerant. The amount of refrigerant is indicated on the unit's rating plate. Before connecting the unit, ensure that the refrigerant circuit and the unit in general are in good condition. During installation, maintenance and cleaning, it must be ensured that the refrigerant sealed circuit is not broken.
	The presence of fire or sparks inside the unit is prohibited. **The unit must be kept away from sources of heat or sources of ignition.** **In the event of leakage, the following measures must be taken:** - Ventilate well for a few minutes. - Disconnect the unit from the power supply. - Notify customers and technical services. Disconnect the power supply to the room and keep sources of heat or flame away from the room.

	WARNING! Do not damage the refrigerant circuit or the internal or external walls of the unit.
	WARNING! In the event of damage to the refrigerant circuit or walls of the unit, disconnect the unit from the mains and call a service technician.
	WARNING! Maintenance must be carried out by technical personnel qualified to handle flammable refrigerants.

9 ELECTRICAL INSTRUCTIONS

You must check the voltage of the installation before connecting the unit, making sure that it is appropriate. To determine the voltage of the unit, check the rating plate located on the inside of the unit. Check that this information exactly matches the electrical characteristics for where it is to be installed.

WARNING
Before connecting, read the manual.

	NOTE. This sticker is located on the power cable, and warns us of the electrical risk for the unit.
	NOTE: The unit must be connected to a dedicated circuit. Failure to comply with this requirement voids the guarantee.
	NOTE: The unit is designed to handle a voltage fluctuation of 5% in relation to the nominal voltage indicated on the rating plate. Compressor failure due to higher fluctuations automatically voids the guarantee.

Most units have a factory-fitted power cable and plugs of the type shown in the figure below. If you do not have a suitable socket, then one must be installed beforehand.

	**WARNING! If the power cable or plug is damaged in any way, it could pose a serious risk. Any tampering with these components will void the guarantee.**
	**WARNING! Infrico does not guarantee appliances connected to an extension lead.**
	**The power supply cables must be correctly extended, protected from impact, away from liquids, water and heat sources, and in perfect condition. The use of multiple sockets is not permitted.**

10 START-UP

Once the unit has been installed, levelled, cleaned and electrically connected in accordance with the instructions herein, it is ready for operation. Simply plug it into the mains.

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

The unit requires a certain time to reach the working temperature. You must wait until it is reached before loading the product, which must have been previously refrigerated. Continuous opening of the doors hinders the ability of the unit to maintain proper cooling efficiency

	**NOTE: Before loading the product, we recommend keeping the unit running for 24 hours to ensure correct operation.**
	**NOTE: If the unit is unplugged or disconnected, you must wait five minutes before plugging it in again.**

11 OPERATION

The microcontroller manual is attached to this document.

12 MAINTENANCE, CLEANING AND CARE

12.1 Cleaning Procedure

Cleaning the unit

To clean the unit, follow the instructions below:

- Disconnect the unit from the mains and remove all products from the interior.
- Allow the interior to reach room temperature. Remove all interior fittings and clean them with mild soap and warm water. Dry all accessories completely with a soft cloth.
- Once the chamber has reached room temperature, clean all interior and exterior surfaces with soapy water. Rinse and dry with a soft cloth. Failure to dry properly can lead to the appearance of water spots. Stainless steel cleaners are also available that can repair and protect the protective coating on steel surfaces.
- Place the accessories in their original positions and connect the unit to the mains.
- Pitting or cracks in the steel are signs of material deterioration. In that case, apply stainless steel cleaners capable of restoring the passivity of the steel.
- Those foods with acidic components can attack stainless steel (mustard, mayonnaise, lemon, tomato and other vegetables).

	**NOTE: Never use steel wool pads, wire brushes or spatulas to clean the unit.**
	**NOTE: The cleaning products you use must be alkaline-based or chlorine-free. Any cleaner containing chlorides will damage the protective layer of the stainless steel.**

Cleaning the condenser

The condenser, located behind the front decorations of the display cabinet, should be checked periodically. The frequency of cleaning will depend on the working environment. It must be ensured that air circulates freely through the condenser, so its surface must be free from dirt and grease. Dirty condensers lead to compressor failure and product loss. If the condenser coil is dirty or blocked, follow the steps below (qualified service personnel only):

- Disconnect the unit from the mains.
- Remove the front decoration from the display cabinet.
- On some models it will be necessary to remove the bolts that attach the condensing unit to the skirting board, and remove it

in order to clean the condenser.

- If the condenser has a protective casing, it must be unfastened 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 it is excessively dirty, compressed air can be used for cleaning.
- After cleaning, refit the protective casing, return the condensing unit to its original position and replace all fittings.
- Finally, put the decoration back in place and connect the unit to the mains.

WARNING!: Never use water to clean the condenser as this may damage adjacent electrical components.

In order to guarantee the correct functioning and maintenance of the display cabinet, Infrico Supermarket recommends the following maintenance schedule:

TYPE	AREA	FREQUENCY
CLEANING	EXTERIOR	WEEKLY
CLEANING	INTERIOR	MONTHLY
CLEANING	CONDENSER	MONTHLY
CLEANING	GENERAL	EVERY 2-3 MONTHS
MAINTENANCE	DOORS	MONTHLY

Drainage maintenance

Units fitted with internal drainage to evacuate water collected during cleaning should be checked to ensure that it is free from blockages, which are usually caused by the entry of food.

Cleaning the interior of the display cabinet

To achieve an optimal level of hygiene, cleaning and disinfection should be carried out at least every 30 days. Defrost and wait until the unit interior has reached room temperature and no ice remains.

Clean the inside with lukewarm water and neutral soap, and dry carefully with a soft cloth.

It is essential to ensure that the inner walls are perfectly dry. After cleaning, wait until the unit reaches working temperature before loading the product.

Cleaning and internal disinfection must never be carried out when foodstuffs are present.

Use gloves to protect your hands from cuts and puncture wounds when cleaning the evaporator and condenser.

12.2 Spare Parts and Technical Services

	**WARNING!: 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.**

After making the appropriate checks, DO NOT CARRY OUT ANY REPAIRS YOURSELF. Contact your Technical Services, providing the model and serial number of the unit (located on the rating plate).

If you do not know of any technical services company in your area, please contact us to receive a list of companies that can provide the suitable technical services.

Infrico Technical Services

Tel: 00 34 689 516 485

Fax: 00 34 957 59 51 06

Email: serviciotecnico@infrico.com

www.infrico.com

	**NOTE: If a spare part is required, always insist on one which are factory-authorised.**

13 TROUBLESHOOTING

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

PROBLEM	POSSIBLE SOLUTION
The unit does not work	1. The plug is not connected to the socket. 2. No power at the socket because the fuse has blown or the automatic power limiter has tripped.
The unit does not cool sufficiently	1. Check the cut-off temperature on the controller. 2. Obstruction of the unit's ventilation grilles. 3. Dirty condenser. 4. The unit is directly exposed to sunlight or a heat source. 5. Air currents affect the interior of the display cabinet.
Noisy when operating	1. The unit has not been correctly levelled. 2. Some of the inner piping is rubbing. 3. Loose fastening bolts on one or more parts. 4. Fan in condenser or evaporator causing vibration. 5. Oil load in compressor too low. 6. Loose parts in the condensing unit.
The unit generates excessive ice in the evaporator	1. High ambient humidity. 2. Evaporator fan failure. 3. Defrosting has not been carried out.
Compressor will not start	1. Switch open. 2. Fuse blown. 3. Faulty wiring. 4. Clixon open. 5. Controller contacts open (faulty controller, or unit located in too cold an area). 6. Faulty relay. 7. Low gas charge in the system - check for leaks.
Compressor starts, but stops due to overloading	1. Low voltage. 2. Faulty unit wiring. 3. Starting capacitor defective. 4. Sealed start capacitor. 5. Defective compressor. 6. High condensation pressure.

PROBLEM	POSSIBLE SOLUTION
High condensation pressure	1. Unit overloaded. 2. Air or non-condensing gases in the system. 3. Dirty condenser. 4. Defective condenser fan. 5. Unit located in too hot an area. 6. Blocked expansion valve or filter. 7. Discharge valve partially closed. 8. Blockage in discharge line.
Reduced condensation pressure	1. Insufficient refrigerant charge. 2. Leaks in the system. 3. Unit located in too cold an area.
Compressor is short-cycling	1. Differential control set at intervals which are too short. 2. Low refrigerant charge, check pressure. 3. Excessive refrigerant charge. 4. Leaking discharge valve. 5. High pressure switch open. 6. Dirty condenser.
Excessively long operating cycles, or continuous operation of the unit	1. Insufficient refrigerant charge. 2. Condenser blocked or dirty. 3. Unit located in too warm an area. 4. Controller relay stuck. 5. Air or non-condensing gases in the system. 6. Expansion valve defective or incorrectly adjusted. 7. The doors have been open for too long. 8. Insufficient, defective or waterlogged insulation. 9. Excess oil in evaporator.

14 GUARANTEE MANAGEMENT

Dear customer, we would like to notify you regarding the guarantee management rules that our company applies to its products.

- The Infrico guarantee covers any manufacturing defect or any hidden defect in the unit for a period of two years. The guarantee 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 installation and maintenance guarantee (labour) and, of course, the setting of the unit at the moment of its start-up.

- The guarantee does not cover breakage of glass after delivery by Infrico Supermarket; nor does it cover parts damaged by misuse or normal wear and tear.

- If, during the first six months of use, a defect is detected in the unit, the extent of which is disproportionate to the value of the unit, a full replacement of the unit may be granted, provided it is authorised through our Technical Services.

- Any intervention regarding the unit which affects the electrical wiring, refrigeration part or electronic microcontroller not authorised by our Technical Services will result in the loss of the remaining guarantee period for the machine.

- All returns authorised by Technical Services, either for repair or replacement, will be inspected at our facilities. If anomalies beyond our control or due to misuse or wear and tear are detected, Infrico Supermarket will not be responsible for the return, and the costs of repair or replacement will be borne by the customer.

- All returns authorised by Technical Services must be packed in perfect condition. Infrico Supermarket cannot be held responsible for any damage caused during transport due to improper packaging. The customer will be responsible for repairing it or it will be delivered in the condition in which it was received for repair.

15 GUARANTEE EXCLUSIONS

Before installation and start-up of the supplied unit, it is recommended that you read the installation and operating manual carefully. Failure to comply with the conditions reflected in these manuals invalidates any possible claim regarding the operation of the unit.

Deterioration of perishable goods and the resulting loss of profit due to unit breakdown are not included in the guarantee.

Also excluded from the guarantee are fluorescent tubes, glass, windows and mirrors, in addition to all parts and components when there is evidence of abuse or improper use, as well as defects and damage caused by normal wear of materials or by an external accident, poor assembly, defective or non-existent maintenance, lack of supervision, abnormal use, modifications to material without the seller's authorisation, or dirt and moisture in the refrigeration circuits causing loss of refrigerant through the evaporators and their rapid deterioration.

Furthermore, all damages that may be caused by an incorrectly calculated installation or incorrect adjustment of the refrigeration units, or their location in front of air conditioning outlets, draughts or heat sources are excluded from the guarantee.

No loss of goods or business due to any fault or negligence affecting the proper functioning of the display cabinets shall be attributable to the seller, either directly or indirectly.

16 DISMANTLING THE DISPLAY CABINET

Infrico declares that, with the aim of limiting the amount of electrical and electronic waste and promoting its reuse, this product complies with the provisions of Royal Decree 110/2015, of 20 February, on waste electrical and electronic equipment (hereinafter WEEE).

One of the important notes included in the Royal Decree is the "incorporation of the distributors themselves as a key element in the collection of WEEE", as they are considered to be the main collection channels for consumers.

For this reason, we offer you the possibility to take the unit to the nearest collection point at the end of its useful life, which we will indicate for your location, delivered in the name of Infrico Supermarket S.L. The collection of waste generated by the type of equipment that our company puts on the market will be carried out through its intervention as a distributor. Our environmental consultancy Apogeo Ambiental can help you with this procedure.
In the event of you expressing interest, we would then establish, by mutual agreement, the minimum conditions required to carry out the collection.

This initiative has emerged in response to concerns, both within the Administration and our own, regarding actions for the benefit of the environment and to improve the quality of life of citizens; and also to meet the spirit of the legal standards that regulate these environmental issues.
The symbol indicating separate collection of EEE is the crossed-out wheeled bin, as shown below.

The refrigerated unit contains polyurethane foam, oil, plastic elements, metal parts and electrical and electronic components. The parts making up the refrigerant circuit may not be cut or separated until the refrigerant gas has been removed for recovery in a specialised centre.

If regulations are infringed, specific sanctions will be applied, which are established autonomously in accordance with the legislation of each state belonging to the EC and binding on all those who are subject to those regulations.

	**The parts making up the refrigerant circuit may not be cut or separated until the refrigerant gas has been removed. The personnel responsible must be specialists.**

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EVJ 200

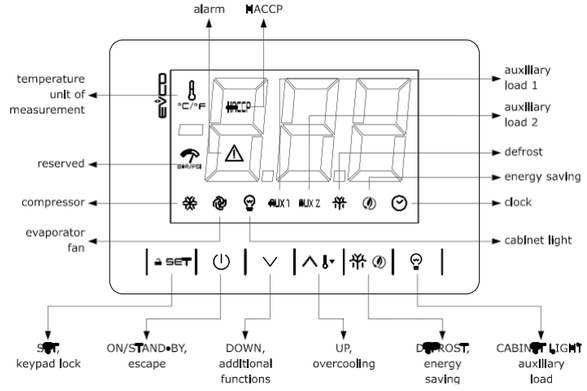
Extra-large controllers for refrigerated and freezers tables, with energy-saving strategies

PLEASE READ CAREFULLY and save this document
CONSIDER THE ENVIRONMENT

General characteristics

- Controllers for low temperature units.
- Power supply 230 VAC.
- Incorporated clock (according to the model).
- Cabinet probe and evaporator probe (PTC/NTC).
- Door switch input.
- Compressor relay 16 A res. @ 250 VAC or 30 A res. @ 250 VAC (according to the model)
- Alarm buzzer.
- TTL MODBUS slave port for EV connect APP or BMS.
- Port for SD card data-logger module EVBD05 (according to the model).
- Models in plastic container or open-frame (according to the model)

1. User interface and main functions



1.1. Switching the device on and off

1. | | ⏻ | | If POF = 1 (default), touch the ON/STAND-BY key for 2s.

If the device is switched on, the display will show the P5 value ("cabinet temperature" default); if the display shows an alarm code, see the section *ALARMS*.

LED	ON	OFF	FLASHING
❄	COMPRESSOR ON	COMPRESSOR OFF	-COMPRESSOR PROTECTION ACTIVE -SETPOINT BEING SET
	EVAPORATOR FAN ON	EVAPORATOR FAN OFF	EVAPORATOR FAN STOP ACTIVE
	CABINET LIGHT ON	CABINET LIGHT OFF	CABINET LIGHT ON BY DIGITAL INPUT
AUX 1	AUXILIARY FUNCTION 1 ON	AUXILIARY FUNCTION 1 OFF	- AUXILIARY FUNCTION 1 ON BY DIGITAL INPUT - AUXILIARY FUNCTION 1 DELAY ACTIVE
AUX 2	AUXILIARY FUNCTION 2 ON	AUXILIARY FUNCTION 2 OFF	- AUXILIARY FUNCTION 2 ON BY DIGITAL INPUT - AUXILIARY FUNCTION 2 DELAY ACTIVE
	DEFROST OR PRE-DRIP ACTIVE	-	-DEFROST DELAY ACTIVE -DRIPPING ACTIVE
	-ENERGY SAVING ACTIVE -LOW CONSUMPTION ACTIVE	-	-
	VIEW TIME	-	SET DATE, TIEM AND DAY OF THE CURRENT WEE
°C/°F	VIEW TEMPERATURE	-	QUICK COOLING ACTIVE
HACCP	SAVED HACCP ALARM	-	NEW HACCP ALRMA SAVED
	ALARM ACTIVE	-	-

If Loc = 1 (default) and 30s have elapsed without the keys being pressed, the display will show the "**Loc**" label and the keypad will lock automatically.

1.2. Unlock keypad

Touch a key for 1s: the display Will show the label **"UnL".**

1.3 Set the setpoint (if r3 = 0, default)

Check that the keypad isn't locked.

1.	| SET |	Touch the SET key.
2.	∧ / ∨	Touch the UP or DOWN key within 15s to set the value within the limits r1 and r2 (default "-40... 50")
3.	| SET |	Touch the SET key (or do not operate for 15s).

1.4 Activate manual defrost

Check that the keypad isn't locked, and that quick cooling isn't active.

1. | | ❄ | | Touch the DEFROST key for 2s.

If P3 = 1 (default), defrost is activated provided that the evaporator temperature is lower than the d2 threshold.

1.5 Cabinet light on/off (if u1, u3, u4 or u6 = 5, default)

1. | | 💡 | | Touch the CABINET LIGHT key.

1.6 Button-operated load on/off (if u1, u3, u4 or u6 = 9 or 10)

1. | | 💡 | | Touch the CABINET LIGHT key (for 2s if u1, u3, u4 or u6 = 5).

If u1 or u11 = 6, the **demisting** switch on for the u11 duration.

1.7 Silence buzzer (if u14 = 1, default)

Touch a key.
If u1 or u11 = 11 and u9 = 1, the alarm output is deactivated.

2. Additional functions.

2.1 Activate/deactivate energy saving in manual mode

Check that the keypad isn't locked.

1. | | ❄ | | Touch the DEFROST key.

The setpoint becomes "setpoint + r4", at maximum for HE2 duration.

2.2 View/delete compressor functioning hours

Check that the keypad isn't locked.

1.	∨	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select a label.

LAB.	DESCRIPTION
CH1	view compressor functioning hundreds of hours
CH2	view second compressor functioning hundreds of hours
rCH	delete compressor and second compressor functioning hours

3.	SET	Touch the SET key.
4.	UP/DOWN	Touch the UP or DOWN key to set "149" (to select rCH).
5.	SET	Touch the SET key.
6.	⏻	Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.

2.3 View the temperature detected by the probes

Check that the keypad isn't locked.

1.	∨	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select a label.

LAB.	DESCRIPTION
Pb1	cabinet temperature (if P4 = 0, 1 or 2) inlet air temperature (if P4 = 3)
Pb2	evaporator temperature (if P3 = 1 or 2)
Pb3	auxiliary temperature (if P4 = 1, 2 or 3)
Pb4	calculated product temperature (CPT; if P4 = 3)

3.	SET	Touch the SET key.
4.	⏻	Touch the ON/STAND-BY key (or do not operate for 60s) to exit the procedure.

3. Settings

3.1 Setting configuration parameters

1.	SET	Touch the SET key for 4s: the display will show the label "PA".
2.	SET	Touch the SET key.
3.	UP/DOWN	Touch the UP or DOWN key within 15s to set the PAS value (default "-19").
4.	SET	Touch the SET key (or do not operate for 15s): the display will show the label "SP".
5.	UP/DOWN	Touch the UP or DOWN key to select a parameter.
6.	SET	Touch the SET key.
7.	UP/DOWN	Touch the UP or DOWN key within 15s to set the value.
8.	SET	Touch the SET key (or do not operate for 15s).
9.	SET	Touch the SET key for 4s (or do not operate for 60s) to exit the procedure.

3.2 Set the date, time and day of the week (available in EVJ213 and EVJ214 or in EVJ203 and EVJ204 with interface EVIF25TBX connected)

N.B.

-If the device is connected to the interface EVIF25TBX, do not disconnect the device from the mains within two minutes since the setting of the time and day of the week.

- If the device communicates with the APP EVconnect, the date, time and day of the week will automatically be set by the smartphone or tablet.

Check that the keypad isn't locked.

1.	∨	Touch the DOWN key for 1s.
2.	UP/DOWN	Touch the UP or DOWN key within 15s to select the label "rtc".
3.	SET	Touch the SET key: the display will show the label "y" followed by the last two figures of the year.
4.	UP/DOWN	Touch the UP or DOWN key within 15s to set the year.
5.	Repeat actions 3 and 4 to set the next labels.	

LAB.	MEANING OF THE NUMBERS FOLLOWING THE LABEL
n	month (01… 12)
d	day (01… 31)
h	time (00… 23)
n	minutes (00… 59)

6.	SET	Touch the SET key: the display will show the label for the day of the week.
7.	UP/DOWN	Touch the UP or DOWN key within 15s to set the day of the week.

LAB.	DESCRIPTION
Mon	Monday
tuE	Tuesday
UEd	Wednesday
thu	Thursday
Fri	Friday
Sat	Saturday
Sun	Sunday

8.	SET	Touch the SET key: the device will exit the procedure.
9.	⏻	Touch the ON/STAND-BY key to exit the procedure beforehand.

3.1 Reset the factory settings

N.B.

Check that the factory settings are appropriate; see the section CONFIGURATION PARAMETERS.

	SET	
1.	SET	Touch the SET key for 4s: the display will show the label "PA".
2.	UP/DOWN	Touch the SET key.
3.	SET	Touch the UP or DOWN key within 15s to set "149".
4.	SET	Touch the SET key (or do not operate for 15s): the display will show the label "dEF".
5.	UP/DOWN	Touch the SET key.
6.	SET	Touch the UP or DOWN key within 15s to set "1".
7.	Interrupt the power supply to the device.	Touch the SET key (or do not operate for 15s).
8.	SET	
9.		Touch the SET key for 2s before action 6 to exit the procedure beforehand.

4. Configuration Parameters

N.	PAR.	SETPOINT	MIN... MAX.	EVJ203
1	SP	setpoint	r1... r2	32
N.	PAR.	ANALOGUE INPUTS	MIN... MAX.	EVJ203
2	CA1	cabinet probe offset	-25... 25 °C/°F si P4 = 3, air in probe offset	0
3	CA2	evaporator probe offset	-25... 25 °C/°F	0
4	CA3	auxiliary probe offset	-25... 25 °C/°F	0
5	P0	enable type	0 = PTC; 1 = NTC	1
6	P1	enable ºC decimal point	0 = no; 1 = sí	0
7	P2	temperature unit measurement	0 = °C; 1 = °F	1
8	P3	evaporator probe function	0 = disabled 1 = defrost + fan 2 = fan	1
9	P4	configurable input function	0 = digital input 1 = condenser probe 2 = critical temperature probe 3 = air out probe si P4 = 3, regulation temperature = product temperature (CPT)	0
10	P5	value displayed	0 = regulation temperature 1 = setpoint 2 = evaporator temperature 3 = auxiliary temperature 4 = air in temperature	0
11	P7	inlet air weight for calculated product temperature (CPT)	0... 100 % CPT = {[(P7 x (inlet air T)] + [(100 - P7) x (outlet air T)]: 100}	50
12	P8	tiempo actualización display	0... 250 s: 10	5
N.	PAR.	REGULATION	MIN... MAX.	EVJ203
13	r0	setpoint differential	1... 15 °C/°F	7
14	r1	minimum setpoint	-99 °C/°F... r2	28
15	r2	maximum setpoint	r1... 199 °C/°F	68
16	r3	enable setpoint block	0 = no 1 = yes	0
17	r4	setpoint offset in energy saving	0... 99 °C/°F	0
18	r5	regulation for heat or cold	0 = for cold 1 = for heat	0
19	r6	setpoint offset in overcooling	0... 99 °C/°F	0

N.	PAR.	REGULATION	MIN... MAX.	EVJ203
20	r7	overcooling duration	0... 240 min	0 min
21	r12	Position of the r0 differential	0 = asymmetric 1 = symmetric	0
N.	PAR.	COMPRESSOR	MIN... MAX.	EVJ203
22	C0	compressor o delay afer poqer-on	0... 240 min	1 min
23	C1	delay between 2 compressor switch-ons	0... 240 min	1 min
24	C2	compressor off minimum time	0... 240 min	1 min
25	C3	compressor on minimum time	0... 240 min	0 s
26	C4	compressor of time during cabinet probe alarm	0... 240 min	10 min
27	C5	compressor on time during cabinet probe alarm	0... 240 min	10 min
28	C6	threshold for high condensation warning	0... 199 °C/°F differential = 2ºC / 4ºC	158
29	C7	threshold for high condensation alarm	0... 199 °C/°F	176
30	C8	high condensation alarm delay	0... 15 min	0 min
31	C10	compressor hours for service	0... 999 h x 100 0 = disabled	0 GG
32	C11	second compressor switch-on delay	0... 240 s	20 s
N.	PAR.	DEFROST	MIN... MAX.	EVJ203
33	d0	automatic defrost interval	0… 99 h 0 = only manual Si d8 = 3, maximum interval	4 h
34	d1	defrost type	0… 99 h 0 = only manual Si d8 = 3, maximum interval	2
35	d2	threshold for defrost end	-99… 99 ºC / ºF	46
36	d3	defrost duration	0… 99 h Si P3 = 1, maximun duration	30 min
37	d4	enable defrost at power-on	0 = no; 1 = yes	0
38	d5	defrost delay after power-on	0… 99 min	0 min
39	d6	value displayed during defrost	0 = regulation temperature 1 = display locked 2 = dEF label	1
40	d7	dripping time	0… 15 min	1 min
41	d8	defrost Interval counting mode	0 = device on hours 1 = compressor on hours 2 = hours evaporator temperature < d9 3 = adaptive 4 = real time	0

N.	PAR.	DEFROST	MIN... MAX.	EVJ203
42	d9	evaporation threshold for automatic defrost Interval counting	-99... 99 °C/°F	32
43	d11	enable defrost timeout alarm	0 = no; 1 = yes	0
44	d15	compressor on consecutive time for hot gas defrost	0… 99 min	0 min
45	d16	pre-dripping time for hot gas defrost	0… 99 min	0 min
46	d18	adaptive defrost interval	0... 999 min if compressor on + evapora-tor temperature < d22 0 = only manual	40 min
47	d19	threshold for adaptive defrost (relative to optimal evaporation temperature)	0... 40 °C/°F optimal evaporation temperature - d19	6
48	d20	compressor on consecutive time for defrost	0... 999 min 0 = disabled	180 min
49	d21	compressor on consecutive time for defrost after power-on and overcooling	0... 500 min if (regulation temperature - setpoint) > 10°C/20 °F 0 = disabled	200 min
50	d22	evaporation threshold for adaptive defrost interval counting (relative to optimal evaporation temperature)	-10... 10 °C/°F optimal evaporation temperature + d22	-4
51	d25	enable air out probe for defrost during evaporator probe alarm	0 = no 1 = yes	0
52	d26	defrost interval during evaporator probe alarm	0... 99 h 0 = only manual if d25 = 1	6 h
N.	PAR.	ALARMS	MIN... MAX.	EVJ203
53	A0	select value for high/low temperature alarms	0 = regulation temperature 1 = evaporator temperature	0
54	A1	threshold for low temperature alarm	-99... 99 °C/°F	9
55	A2	low temperature alarm type	0 = disabled 1 = relative to setpoint 2 = absolute	1
56	A4	threshold for high temperature alarm	-99... 99 °C/°F	18
57	A5	high temperature alarm type	0 = regulation temperature 1 = evaporator temperature 2 = auxiliary temperature	1
58	A6	high temperature alarm delay after power-on	0... 240 min	120 min
59	A7	high/low temperature alarms delay	0... 240 min	15 min
60	A8	high temperature alarm delay after defrost	0... 240 min	60 min
61	A9	high temperature alarm delay after door closing	0... 240 min	15 min

N.	PAR.	ALARMS	MIN... MAX.	EVJ203
62	A11	high/low temperature alarms reset differential	1… 15 °C / °F	4
N.	PAR.	FANS	MIN... MAX.	EVJ203
63	F0	evaporator fan mode during normal operation	0 = off 1 = on 2 = on if compressor on 3 = thermoregulated (with regulation temperature + F1) 4 = thermoregulated (with regulation temperature + F1) if compressor on 5 = according to F6 6 = thermoregulated (with F1) 7 = thermoregulated (with F1) if compressor on	7
64	F1	threshold for evaporator fan operation	-99… 99 °C / °F	50
65	F2	evaporator fan mode during defrost and dripping	0 = off 1 = on 2 = according to F0	1
66	F3	evaporator fan off maximum time	0... 15 min	10 min
67	F4	evaporator fan off time during energy saving	0... 240 s x 10 if F0 ≠ 5	30 s x 10
68	F5	evaporator fan on time during energy saving	0... 240 s x 10 if F0 ≠ 5	30 s x 10
69	F6	high/low humidity operation	0 = low humidity (with F17 and F18 if compressor off, on if compressor on) 1 = high humifity (on)	0
70	F7	threshold for evaporator fan on after dripping (relative to setpoint)	-99... 99 °C/°F setpoint + F7	9
71	F8	threshold for evaporator fan operation differential	1... 15 °C/°F	4
72	F9	evaporator fan off delay after compressor off	0... 240 s if F0 = 2 or 5	10 s
73	F10	condenser fan mode	0 = thermoregulated (with F11) 1 = thermoregulated (with F11) if compressor off, on if compressor on 2 = thermoregulated (with F11) if compressor off, on if compressor on, off during defrost, pre-dripping and dripping	1
74	F11	threshold for condenser fan on	0... 99 °C/°F differential= 2 °C/4 °F	59
75	F12	condenser fan off delay after compressor off	0... 240 s if P4 ≠ 1	120 s

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N.	PAR.	FANS	MIN... MAX.	EVJ203
76	F17	evaporator fan off time with low humidity	0... 240 s	60 s
77	F18	evaporator fan on time with low humidity	0... 240 s	10 s
N.	PAR.	DIGITAL INPUTS	MIN... MAX.	EVJ203
78	i0	door switch input function	0 = disabled 1 = compressor + evaporator fan off 2 = evaporator fan off 3 = cabinet light on 4 = compressor + evaporator fan off, cabinet light on 5 = evaporator fan off + cabinet light on	0
79	i1	door switch input activation	0 = with contact closed 1 = with contact open	1
80	i2	open door alarm delay	-1... 120 min - 1 = disabled	5 min
81	i3	regulation inhibition maximum time with door open	-1... 120 min - 1 = until the closing	15 min
82	i5	multi-purpose input function	0 = disabled 1 = energy saving 2 = iA alarm 3 = iSd alarm 4 =button-operated load 1 on 5 =button-operated load 2 on 6 = device on/off 7 = LP alarm 8 = C1t alarm 9 = C2t alarm	0
83	i6	multi-purpose input activation	0 = with contact closed 1 = with contact open	1
84	i7	multi-purpose input alarm delay	0... 120 min if i5 = 3 or 7, compressor on delay after alarm reset	0 min
85	i8	number of multi-purpose input activations for high pressure alarm	0... 15 0 = disabled if i5 = 3	0
86	i9	reset counter time for high pressure alarm	1... 999 min	240 min
87	i10	door closed consecutive time for energy saving	0... 999 min after regulation temperature < SP 0 = disabled	0 min
88	i13	number of door openings for defrost	0... 240 0 = disabled	180
89	i14	door open consecutive time for defrost	0... 240 min 0 = disabled	32 min
N.	PAR.	DIGITAL OUTPUTS	MIN... MAX.	EVJ203
90	u1c	K1 output configuration	0 = compressor 1 1 = compressor 2 2 = evaporator fans 3 = condenser fans 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = button-operated load 1 on 10 = button-operated load 2 on 11 = alarm 12 = on/stand-by	0
91	u2c	K2 output configuration	0 = compressor 1 1 = compressor 2 2 = evaporator fans 3 = condenser fans 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = button-operated load 1 on 10 = button-operated load 2 on 11 = alarm 12 = on/stand-by	2
92	u3c	K3 output configuration	0 = compressor 1 1 = compressor 2 2 = evaporator fans 3 = condenser fans 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = button-operated load 1 on 10 = button-operated load 2 on 11 = alarm 12 = on/stand-by	5

N.	PAR.	DIGITAL OUTPUTS	MIN... MAX.	EVJ203
93	U4c	K4 output configuration	0 = compressor 1 1 = compressor 2 2 = evaporator fans 3 = condenser fans 4 = defrost 5 = cabinet light 6 = demisting 7 = door heaters 8 = heater for neutral zone 9 = button-operated load 1 on 10 = button-operated load 2 on 11 = alarm 12 = on/stand-by	-
94	u2	enable cabinet light and button-operated load in stand-by	0 = no 1 = yes manual	0
95	u4	enable alarm output off silencing the buzzer	0 = no 1 = yes	1
96	u5	threshold for door heaters on	-99... 99 °C/°F differential = 2 °C/4 °F	30
97	u6	demisting on duration	1... 120 min	5 min
98	u7	neutral zone threshold for heating (relative to setpoint)	-99... 99 °C/°F differential = 2 °C/4 °F setpoint + u7	-9
99	u9	enable alarm buzzer	0 = no 1 = yes	1
N.	PAR.	REAL TIME CLOCK	MIN... MAX.	EVJ203
100	Hr0	enable clock	0 = no; 1 = yes	0
N.	PAR.	ENERGY SAVING	MIN... MAX.	EVJ203
101	HE2	energy saving maximum duration	0... 999 min - 1 = until the door opening	0’
N.	PAR.	REAL TIME ENERGY SAVING	MIN... MAX.	EVJ203
102	H01	energy saving time	0... 23 h	0 h
103	H02	energy saving máximum duration	0... 24 h	0 h
N.	PAR.	REAL TIME DEFROST (if d8 = 4)	MIN... MAX.	EVJ203
104	Hd1	1st daily defrost time	h- = disabled	-h
105	Hd2	2nd daily defrost time	h- = disabled	-h
106	Hd3	3rd daily defrost time	h- = disabled	-h
107	Hd4	4th daily defrost time	h- = disabled	-h
108	Hd5	5th daily defrost time	h- = disabled	-h
109	Hd6	6th daily defrost time	h- = disabled	-h
N.	PAR.	SAFETIES	MIN... MAX.	EVJ203
110	POF	enable ON/STAND-BY key	0 = no 1 = yes	1
111	Loc	enable keypad lock	0 = no 1 = yes	1
112	PAS	password	-99... 999	-

N.	PAR.	SAFETIES	MIN... MAX.	EVJ203
113	PA1	contraseña 1er Nivel	-99... 999	-
114	PA2	contraseña 2º Nivel	-99... 999	-
N.	PAR.	DATA-LOGGING EVLINK	MIN... MAX.	EVJ203
115	rE0	data-logger sampling interval	0... 240 min	15 min
116	rE1	recorded temperature	0 = none; 1 = cabinet 2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = tall	4
N.	PAR.	MODBUS	MIN... MAX.	EVJ203
117	LA	MODBUS address	1... 247	247
118	Lb	MODBUS baud rate	0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud	2
119	LP	parity	0 = none 1 = odd 2 = even	2
N.	PAR.	BLUETOOTH	MIN... MAX.	EVJ203
120	bLE	enable Bluetooth	0 = no 1 = yes	0

5. Alarms

COD.	DESCRIPTION	RESET	TO CORRECT
Pr1	cabinet probe alarm	automatic	-check P0
Pr2	evaporator probe alarm	automatic	-check probe integrity
Pr3	auxiliary probe alarm	automatic	-check electrical connection
rtc	clock alarm	manual	set date, time and day of the week
AL	low temperature alarm	automatic	check A0, A1 and A2
AH	high temperature alarm	automatic	check A4 and A5
id	open door alarm	automatic	check i0 and i1
PF	power failure alarm	manual	-touch a key -check electrical connection
COH	high condensation warning	automatic	check C6
CSd	high condensation alarm	manual	-switch the device off and on -check C7
iA	multi-purpose input alarm	automatic	check i5 and i6
iSd	high pressure alarm	manual	-switch the device off and on -check i5, i6, i8, i9
LP	low pressure alarm	automatic	check i5 and i6
C1t	compressor thermal switch alarm	automatic	check i5 and i6
C2t	second compressor thermal switch alarm	automatic	check i5 and i6
dFd	defrost timeout alarm	manual	-touch a key -check d2, d3 and d11
FUL	SD card full alarm	manual	free up space on the SD card or replace it
Sd	No SD card inserted alarm	manual	insert the SD card or replace it