CTR

COMPLETE TRANSPORT
REFRIGERATION SERVICES, INC.

MIDWEST

ZANOTTI

zer0°

USE AND MAINTENANCE INSTRUCTIONS

CONTENTS

Thank you for choosing Transblock.
Please read these instructions carefully. They provide details and advice on the correct method of installing, using and maintaining this unit, in order to obtain maximum reliability, efficiency and long life.

1 Safety Recommendations

When installing and using the unit please follow the recommendations listed here below.

- Installation shall be carried out in strict compliance with the diagrams and instructions supplied by the manufacturer.
- Damages due to improper connections are excluded.
- The electric system available where the unit is installed shall meet the relevant standards in force.
- Maintenance shall be effected by trained personnel or by the manufacturer according to the provisions supplied by EN378.

WARNING
Use safety gloves to protect your hands from possible cuts.

The user is strongly recommended to contact the manufacturer before attempting any intervention on the unit and any use not corresponding to the manufacturer's indications (in particular as for the field of application) and to enquire about the possible dangers and contra-indications connected with an improper use of the machine.

- The unit shall be used following these instructions and sticking to the destination of use indicated by the supplier. Any incorrect use can result in damages to the unit and represents a serious danger for people's health.

ATTENTION
The unit is not suitable for working in explosive environments.
Therefore the use of the unit in an explosion-dangerous atmosphere is absolutely forbidden.

ATTENTION
The unit is not suitable for working in salty environments. In such a case protect condenser and evaporator with appropriate means.

When maintenance involves operations on the refrigerating circuit, empty the system and let it reach the atmospheric pressure.

WARNING
Do not discharge the refrigerant in the atmosphere. It must be recovered by specialized technicians using suitable equipment.

- Quantity and quality of the refrigerant to be charged are indicated on the data plate.
- Do not use refrigerants of different kind (especially inflammable fluids, for example hydrocarbons) or air.
- Do not modify or alter the refrigerating circuit or its components (for example: welding on compressor body)
- The final user shall protect the system from external fire dangers.

The unit has been designed to ensure a constant temperature control during transport. The cold storage room must be well insulated, provided with airtight door and optimal ventilation.
If the temperature of the product loaded is too high, the unit will not be able to cool it down.

For safe use of the unit, we suggest:

ATTENTION

- Do not use water or steam when cleaning as the electrical components may be damaged.
- Keep condenser and evaporator clean.
- Stand-by operation in enclosed places: ensure good ventilation to the condenser.
- Check that all screws are properly fixed and suitable to the purpose.
- When making holes in the unit or in the vehicle chassis, take care not to pierce the refrigerating pipings, the electrical wiring or any other vehicle component.
- Never close the compressor discharge valve when the unit is working.
- When working on the unit, use only flexible pipes of gauges in good conditions and avoid touching belts, pulley or fan.

WARNING

- Cleaning and maintenance are to be carried out with the unit switched OFF.
- After a running period, condenser and H/P discharge pipes are very hot; let them cool down before carrying out any operation.
- Handle fans, belts and pulleys carefully, with the unit OFF: prevent them from unexpected starting.
- When working near the coils (condenser and evaporator), pay attention not to cut oneself with the edges of the fins.
- When the unit is working, avoid putting hands near fans and belts.
- Refrigerant fluid handling has to be carried out taking all necessary precautions.
- Near a heating source refrigerant fluid produces an unpleasant smelling gas, irritating for the respiratory system.
- Never heat with fire a cooling cylinder containing refrigerant fluid.
- For any kind of manipulation on the unit, take all possible precautions
- Refrigerant in liquid state evaporates in contact with the atmosphere and freezes everything it touches.

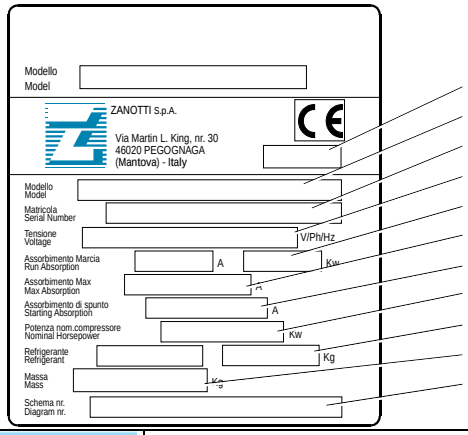
- First aid in case of freezing:

  a) Cover the frozen part.
  b) Immediately warm the frozen part by dipping into cold water.
  c) If water is not available or impossible to use, gently wrap up the frozen part in a clean cloth.
  d) If some refrigerant fluid sprinkles on the eyes, immediately rinse with clean water; as a precaution consult a doctor.
  e) call a doctor

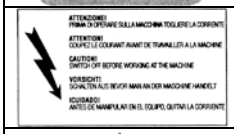
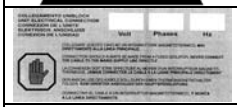
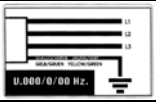
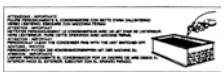
- Refrigerant oil.
  Synthetic types.
  Avoid prolonged or repeated contact with skin.
  Wash hands thoroughly after handling.

  The unit starts automatically; keep away from moving components (belts, pulleys, fans).

2 Table of warning and attention plates

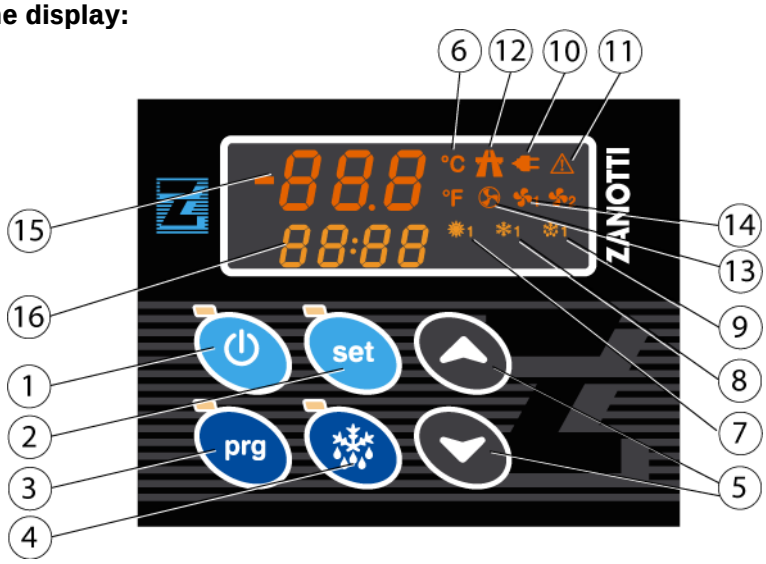


1) Year of manufacture
2) ZANOTTI unit code
3) Serial number
4) Voltage
5) Run Absorption
6) Max Absorption
7) Starting Absorption
8) Compressor's nominal power
9) Refrigerant : Type; Quantity
10) Mass of the unit
11) Electric diagram number

 	*Refrigerant*
	*Condensate drain line*
	*Attention: hot or cold parts*
	*Attention: switch off before operating on the unit.*
	*Attention: danger of electrocution*
	*Connect this cable to a circuit breaker, never to the main line directly.*
 Senso di rotazione elettroventilatori	*Direction of rotation*
	*Colours of supply cable wires*
	*Attention – important : clean the condenser periodically by blowing air from the inside outwards.* *Stop the unit before cleaning.*

3. Controller description

3.1 Description of the display:



1. ON/OFF BUTTON: to switch on/off the unit (press 3 seconds). The red LED lights up when the unit is on.
2. SET button: to set the work set point of the unit. When the LED is on, setting is enabled.
3. PROGRAMMING BUTTON: to access the programming mode (press 5 seconds). When the LED is on, programming is enabled.
4 MANUAL DEFROST BUTTON: press for 5 seconds to start a defrost cycle. When the LED is on, defrost is in course.
5. UP/DOWN buttons to set parameters and set point.
6. LED °C or °F: it shows the unit of temperature measurement adopted for the displayed temperature.
7. HOT MODE LED: it shows that the unit is carrying out the hot cycle.
8. COLD MODE LED: it shows that the unit is carrying out the cold cycle.
9. DEFROST LED: it shows that the unit is carrying out the defrost cycle.
10. STAND-BY LED: it shows that the unit is operating in stand-by mode.
11. ALARM LED: it activates any time an alarm occurs.
12. ROAD LED: it shows that the unit is operating in road mode.
13. CONDENSER FAN LED: it shows that the condenser fan is operating.
14. EVAPORATOR FAN LED: it shows that the evaporator fan is operating.
15. DISPLAY: it shows the cold room temperature.
16. DISPLAY: it displays the alarms.

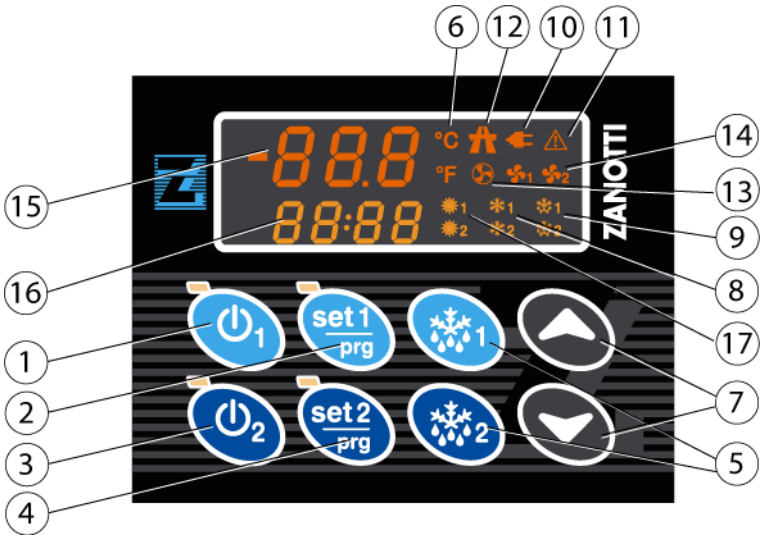
3.2. Setting the work set point:

Press the SET button: on the red display the current value flashes and Set1 appears on the yellow display; press the up/down buttons to change the current value. Press SET again or wait 10 seconds to save the new value.

3.3. Keyboard locked/unlocked

The keyboard locking is achieved by simultaneously pressing the up/down keys for 5 seconds. Once it is locked, if you try to operate on any key of the control unit, the **Pof** message will be displayed.
To unlock it simultaneously press the up/down keys for 5 seconds, the **Pon** message will be displayed.

3.3 Description of the two-temperature control display:



1. ON/OFF BUTTON 1: to switch on/off the evaporator of compartment 1 (press 3 seconds). The red LED lights up when the unit is on.
2. SET BUTTON 1: to set the work set point of the evaporator of compartment 1. When the LED is on, setting is enabled.
3. ON/OFF BUTTON 2: to switch on/off the evaporator of compartment 2 (press 3 seconds). The red LED lights up when the unit is on.
4. SET BUTTON 2: to set the work set point of the evaporator of compartment 2. When the LED is on, setting is enabled.
5. MANUAL DEFROST BUTTON: press for 5 seconds to start a defrost cycle. When the LED is on, defrost is in course. Button n. 1 is for the evaporator of compartment 1, button n. 2 for the evaporator of compartment 2.
6. LED °C or °F: they show the unit of temperature measurement adopted for the displayed temperature.
7. UP/DOWN BUTTONS: set parameters and set point.
8. COLD MODE LED: it shows that the unit is carrying out the cold cycle. N. 1 refers to the evaporator of compartment 1, n. 2 to the evaporator of compartment 2.
9. DEFROST LED: it shows that the unit is carrying out the defrost cycle. N. 1 refers to the evaporator of compartment 1, n. 2 to the evaporator of compartment 2.
10. STAND-BY LED: it shows that the unit is operating in stand-by mode.
11. ALARM LED: it activates any time an alarm occurs.
12. ROAD LED: it shows that the unit is operating in road mode.
13. CONDENSER FAN LED: it shows that the condenser fan is operating.
14. EVAPORATOR FAN LED: it shows that the evaporator fan is operating. N. 1 refers to the evaporator of compartment 1, n. 2 refers to the evaporator of compartment 2.
15. DISPLAY: it shows the cold room temperature.
16. DISPLAY: it displays the alarms.
17. HOT MODE LED: it shows that the unit is carrying out the hot cycle. N. 1 refers to the evaporator of compartment 1, n. 2 to the evaporator of compartment 2.

3.4 Setting and changing the set point:

The procedure is the same as described for the single-temperature control unit. The only difference is the possibility of switching on/off each individual evaporator using the corresponding on/off button.
In addition defrost always takes place at the same time in both evaporators; if an evaporator completes its defrost cycle in a shorter time than the other, it remains in stand-by mode until the second evaporator ends its cycle.
The cold mode of an evaporator prevails over the hot mode of the other one. No conflicting operation is allowed: both evaporators can only operate in the same mode (that is both in cold or hot mode, or they stop when the corresponding set temperature has been reached).

4. Operation

4.1. Operation in road mode:

Check that the punctiform LED on the display is on, showing that the unit is on. Start the vehicle engine and press the ON button for 3 seconds. Attention: when the vehicle is not in motion the refrigerating unit can not be used in road mode. The operation and road icons light up.To stop the refrigerating unit press the on/off button or stop the vehicle.

4.2. Operation in stand-by mode:

Check that supply voltage corresponds to the one shown in the data plate (tolerance: +/-10% on nominal voltage), then insert the plug. Press the ON button for 3 seconds: the operation and standby icons light up; the red display shows the cold room temperature and the yellow display the set point. To stop the refrigerating unit press the on/off button.

4.3. Automatic operation:

After starting the unit operates automatically and it stops any time the cold room temperature reaches the set point; it resumes operation when temperature reaches a value corresponding to set point + differential.
According to the model, the refrigerating unit can show different operating modes which give rise to the activation of different icons:

- cold mode: activated icons - 1 -
- hot mode: activated icons 1 -

In addition to these icons the road or standby icon, or , will also be activated.

4.4. Defrost:

The defrost cycle is activated automatically at intervals, or manually by pressing the defrost button. During this cycle the icons 1 and 1 light up. In the operating mode with heat pump, evaporator and condenser exchange their functions; for this reason the icons activating during defrost can also be 1 and 1, depending on the defrost cycle involving the evaporator or the condenser. In the operating mode with heat pump the defrost cycle ends by time out.

5. Wiring

A wiring diagram, specific for the units of the FZ series, is enclosed with these use and maintenance instructions.

6. Maintenance and repairs

Suitable maintenance is crucial for obtaining longer life, perfect working conditions and high efficiency of the unit as well as for ensuring the safety features provided by the manufacturer. Few operations, listed below, are required in order to ensure long life and reliable use of the units

7. Alarms and warnings

SEE - SEr: Signalling Interval of maintenance (SEE exceeding the working hours for intervention of functioning Stand-By maintenance – SEr working hours for intervention of road maintenance).

The signalling alternates with the visualization of the temperature and/or other alarms.
The signalling disappears after pushing any button of the cabin command in order to activate it again after the switching off or a switching on in Stan-By mode.

PrL – PMI : Low pressure switch alarm

When the low pressure switch trips, the unit stops: the alarm LED lights up and the label PRL is displayed. Reset is automatic. If the number of interventions is higher than parameter LPn during the time set by parameter LPd, the alarm PMI is produced. This alarm can only be reset by switching the unit off and on again.

PrH – PMS : High pressure switch alarm

When the high pressure switch trips, the unit stops: the alarm LED lights up and the label PRH is displayed. Reset is automatic. If the number of interventions is higher than parameter HPn during the time set by parameter HPd, the alarm PMS is produced. This alarm can only be reset by switching the unit off and on again.

F1t – FtB : Overload relay alarm

This alarm is only active when the unit operates in standby mode. When the relay or the thermistor trips, the unit stops. The alarm LED lights up and the label F1t is displayed. Regulation is resumed after reset and a time Htt. If the number of interventions is higher than parameter Htn during the time set by parameter Htd, the alarm FTB is produced. This alarm can only be reset by switching the unit off and on again.

E01 : Sensor failure alarm

Label E01 is displayed and the alarm LED is activated. The unit stops.

HA – LA : High/Low temperature alarm

Alarms are produced when the actual temperature goes out of a certain range determined on the basis of the set point. In case of low temperature the alarm LED lights up and LA is displayed; in case of high temperature the alarm LED lights up and HA is displayed.

PAb – Ab : Battery voltage alarm

This alarm is only active when the unit operates in road mode. If battery voltage (sensored on key introduction) is lower than the value bt-Pab, a preliminary alarm PAb is activated which just indicates that there is an anomaly. Should voltage drop down to a value corresponding to bt-Ab, the battery alarm AB is produced and the unit is stopped. In addition to above labels the battery icon is activated.
The unit resumes operation after voltage has reached its correct value and time bb has elapsed.

ALM : Supply alarm

This alarm is produced when both road and standby signals are present. The alarm stops the refrigerating unit; ALM is displayed and the standby and road icons flash.

noL : Keyboard communication failure alarm

This alarm is generated when there is no communication between keyboard and card.

Pon : Unlocked keyboard

This signal is displayed for 3 seconds when the keyboard is unlocked by simultaneously pressing the up/down keys.

Pof : locked keyboard

This signal is displayed, when locked keyboard, any time you try:
to modify the set - to enter the programming - to switch off the card

rSt : Reset

This signal is displayed for 3 seconds the first time a key is pressed when an alarm is in progress.

7. 1 Alarm archive

The device can store the last 10 alarms which have occurred and their duration.
In case of alarm within the archive the alarm led flashes.

7. 1.1 Display and cancellation of stored alarms

1. Press the key or
2. On the upper display appears the code of the last alarm which has occurred, the lower display indicates its number.
3. If the key is further pressed the codes of the other alarms are displayed, from the most recent one to the oldest one.
4. To see the alarm duration, press the **SET** key.
5. If the key or **SET** key is pressed again you can switch to the subsequent alarm.

6. If there is no alarm in the archive, **noA** will be displayed.

7. 1.2 Reset Alarm

1. Enter in alarm display.
2. To cancel the displayed alarm press "**SET**" key for 2 sec until message rSt appears on the lower display.
NOTE active alarms cannot be cancelled.
3. To cancel the whole archive press the "**SET**" key for 10 sec.
4. The following will be displayed in sequence:
rsT, clr, noA

7. 2 Alarm maintenance

On time intervals preset by the manufacturer the mains maintenance alarm **SEE** or road maintenance alarm **SEr** is generated, alternated with the temperature display; this display can be temporarily reset by pressing any key and will appear after the subsequent re-activation of the refrigerating set.
To finally reset this signalling contact an authorized servicing center.

8. How to order spare parts

When ordering spare parts make reference to the number written on the unit plate.

WARNING
Worn parts should be replaced only by qualified personnel or by the manufacturer.

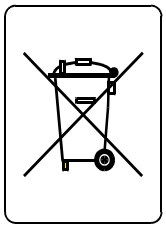
9. How to dispose the packing

Wooden, plastic, polystyrene packing shall be disposed of according to the regulations in force in the country where the unit is used.

10. How to dispose the unit

Do not discharge scrapped components in the environment. They should be disposed of by companies dealing with special waste collection and recovery, according to the regulations in force in the country where the unit is used.

WARNING
Do not discharge the refrigerant in the atmosphere. It should be disposed of by companies dealing with special waste collection and recovery.



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