MELFORM

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Koala Green

User and maintenance manual

Please refer to the user and maintenance manual available here:

en.melform.com/section/manuals

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1. INTRODUCTION

1.1 Field of application

The Koala Green refrigerated containers have been designed and manufactured to ensure the transport at controlled temperature of products which require the cold chain to remain uninterrupted. A battery allows them to meet the above requirement even when a power supply is not available.
They are the right solution for long transports, or for transports requiring temperature to be precisely controlled throughout their duration.
The different Koala Green models are suitable for transportation of:

- *Fresh products*(digital thermostat adjustment range: 0°C to +10°C)
- *fresh and frozen products* (digital thermostat adjustment range: -30°C to +10°C, or -25°C to +10°C, or -18°C to +10°C);
- *fresh and hot products* (digital thermostat adjustment range: 0°C to +40°C);
- *fresh, frozen and hot products* (digital thermostat adjustment range: -30°C to +40°C, or -25°C to +40°C, or -18°C to +40°C);

The reference ambient temperature ranges between +10°C and +32°C. Outside this range the rated performances of the refrigerated containers may vary.

It is essential to make sure that the ambient temperature at which Koala Green operates never exceeds 45°C: above this limit the electronic components of the refrigerated container may be irreversibly damaged.

As a consequence, we recommend that you fit with ventilation turrets the vehicles and vans that under certain climate conditions could easily reach and exceed any critical temperatures.
To ensure that the Koala Green containers operate properly, the work area must be properly ventilated; to this purpose, leave an unobstructed space of at least 20 cm around the ventilation grids.

1.2 Referring to the manual

This manual has been designed in such a way that the user can easily and quickly find all the information required to properly use and maintain the equipment. As a consequence, it must always be available for reference to the maintenance technicians and to the operators.
The user instructions must be read thoroughly before the product is commissioned.

1.3 Warranty

The product is guaranteed to be free of manufacturing defects for one year from the date of purchase, provided that:
- it has been used in accordance with the instructions provided by the manufacturer;
- has not been connected to an incorrect power supply;
- has not been damaged as a consequence of improper use.

The warranty does not cover any accidental damages due to transport, negligence, wrong use or improper use not in accordance with these user instructions. The warranty is void in case the product was repaired or tampered with by any unauthorised third parties.
For any support and to obtain any genuine spare parts please contact your local distributor or the Melform Customer Care Service (customercare@melform.com).

Koala Green is an exclusive Melform product.
The manufacturer reserves the right to change the model specifications at any time without notice. Colours may vary.

2. CAUTIONS

The product is manufactured according to the latest state of the art. It meets all the requirements that must be complied with to ensure that the equipment operates properly and safely.
The person in charge appointed by the user should provide the personnel with appropriate training, to make sure that the container is only used for the purposes for which it has been designed and in accordance with the instructions contained herein.

2.1 General recommendations

- The container must be used in accordance with the instructions provided by the manufacturers. The function of the Koala Green container is ensuring that temperatures remain steady during the transport of hot, fresh or frozen food. Other purposes or uses, therefore, are not recommended.
- This product is designed to be used by trained adults only; keep it away from children.
- For any repairs only contact a technical support service authorised by the manufacturer and demand that they use genuine spare parts.
- Warning: after a period of uninterrupted use, some equipment parts, like the compressor or the battery, may be hot. Take the appropriate precautions to reduce the related risks when performing any maintenance operations on them.
- We recommend that you use personal protection equipment like work gloves when opening and closing the doors, to avoid any risk of getting pinched.
- Warning: the door is not designed to be opened from the inside; make sure that no people/animals get trapped inside the Koala.
- Make sure that the ambient temperature never exceeds +40°C: beyond this temperature the electronic components of the refrigerated containers may be irreversibly damaged.
- Do not cover the ventilation grids. Leave at least 20 cm of unobstructed space around the ventilation grids.
- Storing the product inside a cold room is not recommended: air humidity damages the electronic components of the container, while the motor oil solidifies due to the low temperature.
- We recommend that you do not store the container at a temperature of less than 0°C.
- Periodically check that the container is in good conditions.
- Only use the container on flat surfaces.
- If the cooling unit overturns or has a steep inclination, turn it off. Move the container back to a flat surface and wait for at least 1 hour before switching on the cooling unit again.
- Do not start the cooling unit if it has been hit, has fallen or is damaged.
- Do not bring the container in contact with any pointed or sharp surfaces, or with direct heat sources (naked flames).
- Do not expose the container to splash water, rain, weather agents or aggressive and polluting atmospheres (fumes, gases).
- To not use any steam jet or pressurised equipment to wash the container.
- Do not leave the container exposed to direct sunlight for too many hours.
- Do not install the container near sinks or taps.
- Do not install the container near cookers, stoves or other heat emitting equipment.
- Do not store any flammable liquids in the container.
- Do not wash the battery and do not immerse it in water or other liquids: risk of short-circuit.
- Do not smoke and do not generate any sparks or flames near the battery and the battery charger: risk of explosion.
- Do not expose the battery to heat, fire or microwaves.
- Do not remove the battery cover, do not pierce or cut the exterior plastic container: risk of short-circuit.
- Do not expose the battery to any temperatures exceeding 50°C: danger of explosion.
- Be particularly careful when replacing the battery and opening/closing the drawer, to avoid having your fingers (or those of another operator) crushed.

- The ATP Homologation Certificate (available upon request for some models) has a validity of 6 years and can be renewed by the authorised Testing Stations for 6 more years, or by the ATP Experts for 3 more years.
- Any change made after the purchase on an ATP-certified container immediately voids its validity.

The manufacturer declines all responsibility if the applicable accident prevention regulations are not respected by the user company.

3. USING THE PRODUCT

3.1 Using the product for the first time

The container has been cleaned before being shipped from the factory. Before using the container, anyway, we recommend that you wash it, following the procedure described in paragraph 4.1 "Washing instructions".
Before using a Koala Green container, fully charge the battery, checking its state through the specific indicator, as described in paragraph 3.4 "Battery monitoring".
A full battery charge is also required if the equipment has remained unused for a prolonged time; we also recommend that you test the Koala Green container before using it.

3.2 Types of refrigerated containers

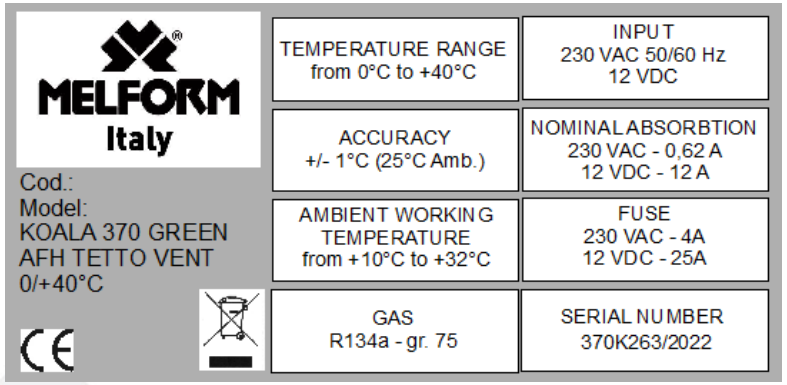
The Koala Green refrigerated containers can be:

- integrated: the cooling unit is static and is integrated into the container outline;
- with exterior cooling unit: the cooling unit is fastened to the head of the container.

The version with exterior cooling unit can feature static or ventilated refrigeration.

3.3 Installation

For information about the technical specifications of the Koala Green container in use (power supply, input, protection fuses), please refer to the nameplate data on the cooling unit and to the product data sheet published on www.melform.com



Nameplate with Koala Green model and technical specifications

The Koala Green containers are powered with 230Vac voltage and equipped with a battery.

If the local mains voltage is too high or too low, the compressor does not work and the electronic components of the equipment may get damaged.

The container is equipped with 2 fuses, one for the 230Vac power supply and one for the 12Vdc internal circuit. For the fuse value please refer to the nameplate.

230Vac 50/60Hz alternating voltage connection:

- check that the power supply cable plug is suitable for the mains outlet;
- make sure that the outlet is equipped with an effective ground contact and that it has an appropriate capacity. The equipment is electrically safe only when it is properly connected to an effective

grounding system; systems not complying with the regulations in force could cause damages and injuries;
- do not use any a.c./a.c. transformers to power the cooling unit.

To prevent any voltage drops and power losses:
- the cable must be as short as possible and must not be interrupted;
- avoid installing any additional switches, plugs or junction boxes;
- the cable section must be chosen according to the cable length;
- do not connect any other electrical equipment on the cooling unit cable;
- do not use any portable generators, as any ensuing voltage peaks and frequency rate variations could damage the equipment;
- do not use any battery chargers to power the cooling unit;
- leave an unobstructed space around the cooling unit (at least 20 cm wide), to ensure that the unit is properly ventilated, as well as to increase the cooling efficiency and to decrease the power consumption.

3.4 Battery monitoring

The Koala Green container is equipped with an indicator allowing the battery to be monitored. The parameters are shown on the display Victron.

Battery monitoring display

By repeatedly pressing the + and – buttons on the indicator display you can view the following parameters:

- Voltage (*expressed in volts*);

- Battery output current (*expressed in amperes*). Negative sign "-" if the cooling unit is being powered
- Battery input current (*expressed in amperes*). Positive sign "+" if the battery is being charged;

- Battery output power (*expressed in watts*). Negative sign "-" if the cooling unit is being powered
- Battery input power (*expressed in watts*). Positive sign "+" if the battery is being charged;

- Amount of amperes-hour consumed by the battery (*expressed in ampere-hours*);

- Battery charge percentage (*expressed as a %*): if the battery is fully charged the displayed value is 100%;

- Remaining battery time (*expressed in hours*): it is an estimate of how long the battery can keep powering the cooling unit, before it needs to be recharged.

The indicator instrument is equipped with a Bluetooth Smart electronic key. This allows the battery to be monitored through an App on Apple or Android smartphones, tablets and other electronic devices.

The Victron display and controller is set to increase the number of useful battery cycles. The relay inside the refrigeration unit is factory set to have the deactivation of the refrigeration when the battery charge rate of 20% is reached. Charging is required up to at least 90% to keep the battery in good condition for as long as possible.

3.5 Battery recharging

Before use make sure that the battery is charged.
The battery charge state can be viewed on the relevant indicator, as mentioned in paragraph 3.4 "Battery monitoring".

NUMBER OF LEDs	ACTIVATION VOLTAGE	CHARGE STATE	DESCRIPTION
1	≤ 8.00 V	0%	Battery is totally depleted. Replace the battery. **DO NOT RECHARGE.**
2	8.00 V – 12.00 V	0% - 10%	Battery is depleted. **RECHARGE AS SOON AS POSSIBLE.**
3	12.00 V – 12.50 V	10% - 30%	Battery is partially depleted. **RECHARGE IF POSSIBLE**
4	12.50 V – 12.80 V	30% - 60%	Battery is partially depleted. **RECHARGE IF POSSIBLE**
5	12.80 V – 13.20 V	60% - 100%	Battery is almost charged. **RECHARGE IF POSSIBLE**

To recharge the battery, you can connect the Koala Green container to the 230Vac power supply, or you can remove the battery from the Koala Green container and recharge it using the supplied external power unit.

Recharging the battery by connecting the equipment to the 230Vac power supply

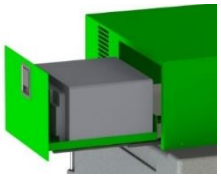
- connect the equipment to the 230Vac power supply;
- wait for the battery recharging time to elapse (about 8/12h, according to the battery type);
- check the battery charge on the indicator.

Recharging the battery through the external power unit

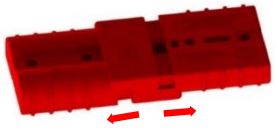
The Koala Green container is fitted with a door allowing the battery to be extracted and recharged using the external power unit supplied along with the product.

To recharge the battery through the external power unit, perform the following operations:

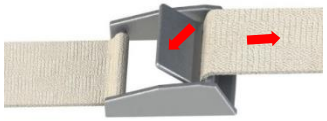
- open the door by turning upward and pulling towards yourself the relevant locking device; move the drawer until the battery has been fully extracted;



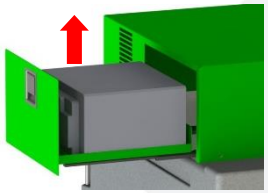
- disconnect the electrical connection;



- release the buckle to open the fabric belt holding the battery in place;



- lift the battery to extract it from the drawer;

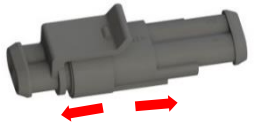


- connect it to the external power unit using the quick connector and switch on the power unit.

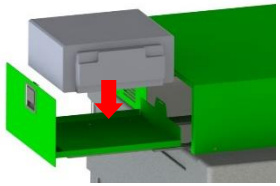
The display on the power unit allows you to monitor the recharge progress and to check the battery charge percentage.

Once the recharge is completed, put the battery back into place by performing the following procedure:

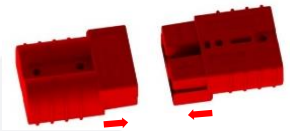
- disconnect the battery from the power unit;



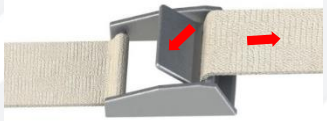
- place the battery into the drawer;

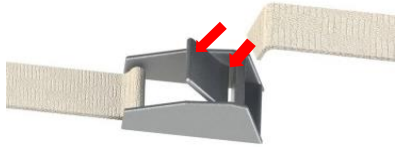


- restore the electrical connection;

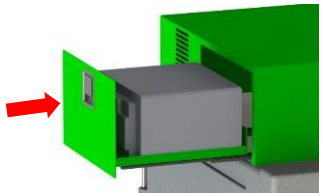


- anchor the battery by closing the belt;





- close the drawer.



Do not charge the battery beyond the specified maximum voltage value**.**
Do not use any battery chargers other than the one installed on the Koala Green container and the external power unit supplied along with the Koala Green container.

Using any other battery chargers may result in malfunction, dangerous overheating and even fire or explosion of the battery.

If the battery gets significantly hotter while under charge, stop the procedure. Let the battery cool down before recharging it.
Never short-circuit the battery poles to check the progress of the recharge operation: the battery may explode.
Do not charge the battery with any current values exceeding the ones mentioned in the technical specifications: dangerous overheating might occur.

If the Koala Green container is not used on a regular basis, we recommend recharging the battery every 10/15 days.

3.6 Battery reset

If the Victron display is switched off and is not activated when the Koala Green is connected to the external power supply in alternating current at 230vac 50/60hz, it means that the battery has reached a very low level of discharge and it must be physically disconnected from the rest of the container before being recharged.

In such cases it is necessary to maintain the connection of the container to the 230V socket, by means of a special cable, and press the RESET button housed on the casing of the container.

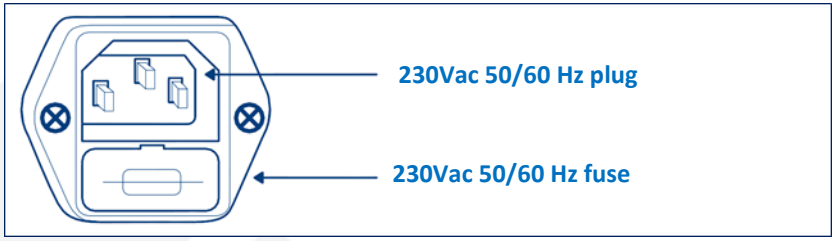
After pressing the button, the system can reset with the start of battery charging. The pressure should be instantaneous, it is not necessary to hold down the button.

During the first charge following deep discharge-reset of the battery, the percentage (%) of the battery will not be available until 100% is reached.

3.7 Commissioning

230Vac 50/60Hz alternating voltage connection:

- insert the power cable socket into the equipment plug (Drawing 1);



Drawing 1: 230Vac 50/60Hz alternating voltage connection plug:

- insert the mains plug into the 230Vac 50/60Hz outlet;
- Switch on the cooling unit by pressing I on the 0/I main switch (Drawing 2 - A).

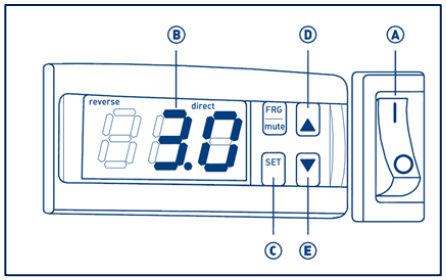
The temperature regulator is factory-set to a predefined setpoint (operating point) according to the Koala model, with the cooling unit switch-off and switch-on set to occur when the temperature differs by -1°C and +1°C respectively from the setpoint value.

To change the setpoint value:

- press the SET button (Drawing 2 - C) for a few seconds: the St1 indication appears on the display (Drawing 2 - B);
- release the SET button (Drawing 2 - C): the current setpoint value blinks on the display (Drawing 2 - B);
- To increase the setpoint value, repeatedly press the UP button (Drawing 2 - D). Each time the button is pressed, the set-point temperature is increased by 0.1°C;
- To decrease the setpoint value, repeatedly press the DOWN button (Drawing 2 - E). Each time the button is pressed, the set-point temperature is decreased by 0.1°C;
- Press the SET button (Drawing 2 - C) again: the new setpoint value is confirmed.

Once the adjustment is completed, the display (Drawing 2 - B) again shows the actual temperature inside the container.
When the voltage supply is restored after a failure, the latest setpoint remains active.

For proper usage, we recommend that you always pre-condition the container to the desired transport temperature before using it, by connecting it to the 230Vac mains current. This allows the battery charge to last longer during transport, if the container is not connected to any external power sources.
To pre-condition the Koala Green container, connect the power cable supplied along with the container, by inserting the power cable socket into the equipment plug, and inserting the mains plug into the 230Vac outlet. Then switch on the cooling unit by pressing I on the 0/I main switch. With the switch turned to on, the cooling unit generates cold and the integrated battery is recharged.



Drawing 2: Temperature regulator

3.8 Loading instructions

Open the container by operating the relevant closing levers/handle.
The container is food-grade; as a consequence, you can insert any bulk or unpackaged food products.

The function of the Koala Green containers is not heating or cooling the products but ensuring that temperature remains steady. It is therefore essential to load the products into the container at the desired temperature.

The container should always be brought to the desired temperature by connecting it to a 230Vac power supply before powering it with the battery, to prolong the battery operating time once the container is loaded on the vehicle.
We recommend that you arrange the products without the cardboard packages, as they slow down the cold penetration.
To prevent any thermal energy dispersion we recommend that you keep the container open as shortly as possible.
Some Koala models allow you to transport Gastronorm size pans.

Gastronorm adapters and pans can be purchased from our catalogue.
Close the container by operating the relevant closing levers/handle.

3.9 Transport instructions

- The product handling operations must only be performed by properly trained personnel, aware of the related risks.
- Before handling the container, make sure that the lid or the door are closed.
- The loaded container may have a significant weight; as a consequence, we recommend that you always lift or handle it with caution, using specific trolleys if necessary.
- When lifting/carrying the container, always hold it by the handles and never by the closing levers. If the container is held by the closing levers when being lifted/carried, the lid may open and the container may fall to the ground.
- Handle the container equipped with castors or with a trolley by operating the relevant handles.
- While handling the container, pay utmost attention to avoid hitting any objects or people.
- If you make multiple deliveries using the same container, avoid leaving it open for a prolonged time, as a huge amount of thermal energy gets dispersed each time.

3.10 Instructions to be followed if the product is unused for long time

Should the container remain unused for a prolonged time, perform the following operations:

- remove all products from the container;
- switch off the cooling unit by pressing 0 on the 0/I main switch (Drawing 2 - A). Remove the mains (or battery) connection plug and the equipment connection socket. Store the power cable in a safe place and protect it from humidity;
- clean the container as described in paragraph 4.1 "Washing instructions";
- leave the lid (the door) open for a few hours to prevent bad odours.
- Fully recharge the battery and test the equipment before using it

3.11 Lithium battery

The Koala Green containers are equipped with a lithium battery. The battery is designed to be used for service purposes, not to start up the equipment. The batteries listed in the table below may be installed depending on the Koala Green model.

Code	PBAB4016	PBAB4013	PBAB4017
Capacity	65Ah	100Ah	120Ah
Continuous discharge current	65A	120A	135A
Rated charging current @25°C	12A	12A	12A
Max charging current @25°C	20A	20A	20A
Useful life	About 5-7 years		
Charging voltage	14,4V		
Max charging voltage	14,6V		
Weight	≈8,2 kg	≈13 kg	≈14,3 kg
Dimensions [mm]	260x158 H246		328x172 H212
Ambient temp.	-20°C/+60°C (operating and storage)		

The battery installed on the Koala Green line are equipped with an internal "BMS" (*Battery Management System*) electronic control board
This board constantly monitors the state of the battery cells and protects them against any potentially dangerous usage conditions.

In particular, the following parameters are monitored:

- **TEMPERATURE MONITORING**
  If temperature exceeds the upper limit or drops below the lower limit specified on the technical data sheet, the battery protects itself by insulating the load from the cells.
- **MAX OUTPUT CURRENT MONITORING**
  If the max output current exceeds the maximum permitted peak value or the maximum permitted continuous value, the battery protects itself by insulating the load from the cells.
- **MAX CHARGING CURRENT MONITORING**
  If the max charging current exceeds the maximum permitted continuous value, the battery protects itself by insulating the load from the cells.

- **CELL VOLTAGE MONITORING**
  The voltage of all internal string cells is monitored. If a cell reaches a voltage that is lower than the minimum permitted value or exceeds the maximum permitted value, the battery protects itself by insulating the load from the cells
- **SHORT-CIRCUIT PROTECTION AND MOSFET FAIL SAFE**
  If the protection system does not trip due to a damage, in the event of an external short-circuit the equipment is protected by an Automotive type fuse, whose value is calibrated on the maximum continuous current that can be output by the battery model in question.

3.12 Koala cables

We recommend that you only use genuine cables. Any different connections must be assessed and performed by qualified personnel. To prevent any voltage drops and power losses, the cable must be as short as possible and must not be interrupted; as a consequence, you should avoid installing any additional switches, plugs or junction boxes. The cable section must be chosen according to the cable length.
In particular:
For connection to the 230Vac 50/60Hz alternating voltage power supply:

- 3P cable, length 2 m, section 0.75 mm^2.

3.13 EVCO Controller - EVLINK Module - EVCONNECT App (Optional)

The solution includes:

- An EV3294 N3 12-24vac controller

EV3294 N3 12-24vac is a controller for the optimised and energy-efficient management of refrigerated units at normal, low, static or ventilated temperatures. Compact and design (74 x 32 mm panel size, 4 capacitive touch keys, IP65), it is compatible with the EVconnect APP.

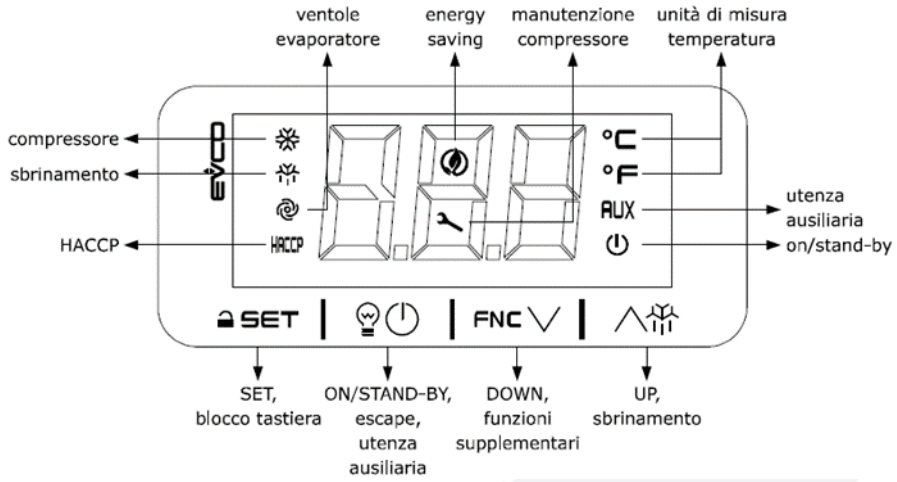
- The EVLINK module (EVIF25TBX module with RTC +BLE+MEMORY)

The module is a data logger for automatic data history storage that requires no programming and is powered by the controller.
The module is a Bluetooth BLE 4.0 (Bluetooth Low Energy) interface that records and transmits data to the Android Smartphone/Tablet device.

- The free EVCONNECT app for Android 4.4 devices with BLE 4.0

EVconnect is an APP compatible with Android 4.4 devices with Bluetooth 4.0 (BLE) or higher versions, which allows operation via Bluetooth BLE (Bluetooth Low Energy) on the EVCO EV3294 controller.
From Android 4.4 smartphones or tablets, it is possible to download and view data recordings, also in table or graphic format, as well as alarms and machine statuses. The information can be exported in CSV format (e.g. for sending by email).
EVconnect, protected by multi-level access codes, allows you to intervene on setpoint and machine configuration parameters. A list with extended parameter descriptions makes access to configuration operations very convenient.

- Operation of the EV3294 N3 12-24vac regulator



Switching the device on/off

To switch the controller on/off, press the ON/STAND-BY button for 4 seconds.

If the device is switched on, the temperature inside the container is shown on the display.

Unlocking the keypad

If you do not operate the keys for 30 seconds, "Loc" appears briefly on the display and the keypad locks automatically. To unlock the keypad, press any key for 1 second and "UnL" will appear on the display.

Setting the set point on EV3294 N3 12-24Vac controller

The controller is programmed by default to a set point value of 0°C.

- To change the set point value, make sure that the keypad is not locked.
- Press the SET key briefly;
- To increase the set point value, press the UP key within 15 seconds. Each operation of the key increases the set point temperature by 0.1°C;
- To reduce the set point value, press the DOWN button within 15 seconds. Each operation of the button reduces the set point temperature by 0.1°C;
- Press the SET button to confirm the new set point value.

How the Evconnect App Works

Download the free Evco EVconnect App from the PlayStore on your Android 4.4 smartphone or tablet;

Once downloaded, click on the EVconnect App icon;

You will be prompted to open the Bluetooth connection: make the connection;

You will be asked to enter the password: enter the password "426" and confirm;

All Koala containers equipped with a Bluetooth BLE 4.0 interface module are displayed on the smartphone/tablet. Each refrigerated container is identified by name and serial number (e.g. "Koala 1300- matr.0156");

It is possible to display the controller setting parameters and the temperature values measured for each container. It is possible to display an

instantaneous graph of the detected temperatures or to generate exportable CSV files (e.g. for sending by e-mail).

The App allows you to display the following functions:
- HACCP: Allows you to select a time interval (Today, Yesterday, Last 7 days, Choose Date) and to view the temperature data measured in the selected time interval. PDF printouts of the measured graphs can be made and the data can be downloaded (exportable CDV files);
- MAINTENANCE: Allows you to view all the parameters of the controller, divided into Real Time, Service, Alarms, Parameters;
- REAL TIME: Allows you to view the Real Time parameters;
- ALARMS: Allows you to view the alarm parameters.

4. MAINTENANCE

4.1 Washing instructions

- Regularly clean the container interior and exterior, observing the following indications:
- Make sure that no water seeps into the start-up and adjustment controls, into the ventilation grids or into the equipment socket.
- Before cleaning the container, switch off the cooling unit by pressing 0 on the 0/I main switch (Drawing 2 - A). Remove the mains (or battery) connection plug and the equipment connection socket. Store the power cable in a safe place and protect it from humidity.
- Clean the container with a cloth soaked in warm water; for hygienic reasons, always dry the container with disposable clothes or paper (never reusable clothes).
- Never use metal or synthetic scourers; only use soft brushes with plastic or natural bristles.
- Never use any abrasive powders, ammonia, acids or solvents.
- Soapy solutions may be used.
- To not use any steam jet or pressurised equipment.

4.2 Defrosting instructions

If the external temperature and humidity are high and if the lid (or the door) is opened frequently, a layer of frost gradually accumulates on the evaporator surface. The layer acts as an insulator, and if its thickness exceeds 3 mm it can reduce the cooling efficiency.
As a consequence, you should regularly perform the defrosting procedure, as follows:

- remove all products from the container;
- switch off the cooling unit by pressing 0 on the 0/I main switch (Drawing 2 - A). Remove the mains connection plug and the equipment connection socket. Store the power cable in a safe place and protect it from humidity;
- leave the container lid (or door) open until the frost layer has entirely melted. never try to expedite the defrosting by using any heating equipment, and never try to remove the frost layer using knives or other sharp items;
- dry the container with disposable clothes or paper.
- The container is now ready for use.

4.3 Maintenance instructions

PART TO BE CHECKED	FREQUENCY	CHECK TYPE
Connection cable and mains plug	6 months	Check that they are not damaged or too old. Should that not be the case, replace them.
Gasket	6 months	Check its conditions. Replace it if it is torn or deteriorated.
Wheels	6 months	Check the condition of the wheels, if fitted. In the event of squeaking, lack of braking or other damage, repair or replace.

Formation of frost on the evaporator surface	Every week	If the thickness of the frost layer exceeds 3 mm, perform the defrosting procedure (follow the indications contained in paragraph 4.2 "Defrosting instructions").
Fan operation	3 months	Check the operation of the fans for unusual noises or lack of cooling (ventilated models only).
Battery	Every day	Check the battery state. NEVER fully discharge the battery

4.4 Troubleshooting

The following table lists the main faults that can occur in the cooling unit of the Koala Green containers, along with the possible causes and the restoring operations. Never perform any operation on the cooling unit if the warranty still applies: the warranty is void if the product has been repaired or tampered with by any unauthorised third parties.

We recommend that you entrust the restoration of the cooling unit operation to qualified technicians, and that you contact your local distributor or the Melform Customer Care Service (customercare@melform.com) for any support and to order any genuine spare parts

FAULT LIST AND PROBLEM RESOLUTION

The cooling unit does not work with a 230Vac 50/60Hz power supply

a) The cooling unit is not connected to the 230Vac 50/60Hz alternating voltage power supply and the battery is totally depleted
Connect the cooling unit to the 230Vac 50/60Hz power supply. Check the 230Vac 50/60Hz power cable and replace it if necessary.

b) The 230Vac 50/60Hz line fuse has failed
Install a new fuse on the 230Vac 50/60Hz line. The fuse is located on the 230Vac 50/60Hz socket (Paragraph 4.6). Investigate the cause of the failure (likely a short-circuit or a temporary overvoltage).

c) The main 0/I switch (Drawing 2 - A) has failed
Check the main 0/I switch (Drawing 2 - A) and replace it if necessary

d) The electrical wiring is disconnected
Restore the wiring, referring to the wiring diagram.

The cooling unit does not work when powered by the battery

a) The 12V.c fuse has failed
Replace the fuse.

b) Battery is depleted
Test the battery and charge or replace it.

c) The main 0/I switch (Drawing 2 - A) has failed
Check the main 0/I switch (Drawing 2 - A) and replace it if necessary

d) Electrical fault
Contact the Melform support service.

The cooling unit does not maintain the set temperature

a) Not enough ventilation for the cooling unit
Check that the ventilation grids are not covered.

b) Ambient temperature is too high
Ventilate the cooling unit compartment.

c) The evaporator is covered with frost
Perform the defrosting procedure described in paragraph 4.2.

d) High-temperature products are stored in the container
Cool down the products before placing them into the container.

e) The lid (or the door) fails to close properly
Check whether the lid (or the door) close properly and if needed replace the gasket.

f) The temperature regulator is not properly set
Check the setting of the temperature regulator and if needed modify the setpoint (see paragraph 3.6 "Commissioning").

g) The cooling system has failed
Contact the support service.

The temperature regulator is not on

a) Environment light is excessive
Obscure the temperature regulator.

b) The mains connection cable is not connected

Insert the plugs into the relevant sockets.

c) The mains connection cable is damaged
Check the mains power cable and replace it if necessary.

d) The electronics of the temperature regulator has failed
Check the temperature regulator and replace it if required.

The temperature regulator flashes on a continuous basis

a) Poor electrical contact
Check that the temperature regulator is properly powered.

b) The temperature regulator has failed
Check the temperature regulator and replace it if required.

The temperature regulator displays numbers that fall outside the standard range

a) The temperature probe has failed
Check the temperature probe and replace it if required.

b) The connection of the probe to the temperature regulator is not compliant
Check the connection of the probe to the regulator and restore it if required.

The temperature regulators displays a flashing E1 or E2 error indication

a) The temperature regulator is not programmed
Reprogram the temperature regulator, entering the proper parameters as pointed out in paragraph 4.5 "Resolving the E1 or E2 errors on the temperature regulator".

The temperature regulator is on but the compressor does not start

a) The inrush voltage is lower than 11V
Battery is depleted: recharge it or replace it if necessary.

b) The cable sections are not appropriate (incorrect extension cables)
Check the power cables and replace them if necessary.

c) The temperature regulator is not properly set
Check the setting of the temperature regulator and if needed modify the setpoint value (see paragraph 3.4 "Commissioning").

The cooling unit temperature drops by just a few degrees, but the unit operates properly

a) Partial gas leak
Check the pressure and temperature inside the cooling circuit (contact a refrigeration technician or the support service to identify the leak and recharge the circuit with gas).

b) Supply voltage too low
Check that the electrical power supply is appropriate.

The cooling unit emits noises and vibrates strongly

a) Noisy fans
Check the operation of the fans and replace them if required.

b) The motor unit is not properly fastened
Check the fastening of the motor unit and restore it if necessary.

The cooling unit falls and overturns

Place the container back on a flat surface. Open the cooling unit casing, inspect the conditions of the components, check the pipes and the electrical connections. If no significant issues are found, wait for at least 1 hour before switching on the cooling unit again. Wait 24 hours if the container is left tilted or tipped over for an extended period of time.

4.5 Resolving the E1 or E2 errors on the temperature regulator

Error E1:

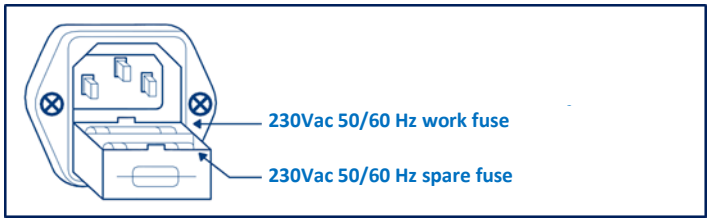
The "E1" error displayed on the temperature regulator indicates an "S2 defrosting probe failure"; to eliminate it (as probe 2 does not physically exist) you need to perform the following procedure:

- access the cooling unit and wait for the "E1" error warning to be displayed, letting the unit complete its start-up procedure;
- simultaneously press the PRG and SET buttons (Drawing 2 - C) for about 5 seconds: the (0) value will be displayed;
- Set the password "22" by pressing the UP button (Drawing 2 - D);
- press the SET button (Drawing 2 - C) to confirm the password;

- using the UP (Drawing 2 - D) and DOWN (Drawing 2 - E) buttons, display the "/A2" parameter in the SUPPORT function ( );
- once the "/A2" parameter is displayed, press the SET button (Drawing 2 - C);
- the value associated with parameter (2) appears on the display;
- using the UP (Drawing 2 - D) and DOWN (Drawing 2 - E) buttons, select the (0) value;
- press the SET button (Drawing 2 - C) to confirm the set (0) value;
- press the PRG button for about 5 seconds to end the procedure by storing the changes.

Error E2:
The "E2" error displayed on the temperature regulator indicates an "S3 defrosting probe failure"; to eliminate it (as probe 3 does not physically exist) you need to perform the following procedure:
- access the cooling unit and wait for the "E2" error warning to be displayed, letting the unit complete its start-up procedure;
- simultaneously press the PRG and SET buttons (Drawing 2 - C) for about 5 seconds: the (0) value will be displayed;
- Set the password "22" by pressing the UP button (Drawing 2 - D);
- press the SET button (Drawing 2 - C) to confirm the password;
- using the UP (Drawing 2 - D) and DOWN (Drawing 2 - E) buttons, display the "/A3" parameter in the SUPPORT function ( );
- once the "/A3" parameter is displayed, press the SET button (Drawing 2 - C);
- the value associated with parameter (2) appears on the display;
- using the UP (Drawing 2 - D) and DOWN (Drawing 2 - E) buttons, select the (0) value;
- press the SET button (Drawing 2 - C) to confirm the set (0) value;
- press the PRG button for about 5 seconds to end the procedure by storing the changes.

4.6 Protection fuse replacement
The Koala Green container is fitted with a 4 A protection fuse on the 230Vac 50/60Hz alternating voltage line, located on the 230Vac 50/60Hz plug.



Drawing 3: 230Vac 50/60Hz alternating voltage fuse:

To replace the fuse on the 230Vac line, perform the following operations:
- remove the alternating voltage line connection plug and the equipment connection socket.
- Open the fuse box with the help of a tool (e.g. the tip of a screwdriver);
- extract the work fuse;
- replace the work fuse with the spare one (also replace the spare fuse, if necessary);
- close back the fuse box;
- insert the equipment connection socket and the alternating voltage line connection plug.

5. DISPOSAL

5.1 Packaging
The packaging material (cardboard, polyethylene film) is 100% recyclable. Disposal must be taken care of by the user and must be carried out in compliance with the local regulations.

5.2 Disposal of the product within the European Union
The product is an appliance that is subject to Legislative Decree 151 of 25 July 2005, implementing the directives 2002/95/EC, 2002/96/EC and 2003/108/EC, on the use of hazardous substances in electrical and electronic appliances and on the disposal of the appliances in question.
The decree prescribes that decommissioned appliance must not be disposed of within the regular solid urban waste flow.
The barred wastebin symbol affixed on the product or on the package indicates that the appliance (cooling unit, temperature regulator) must be

collected separately, in order to optimise the recovery and recycling rate of its component materials and to prevent any potential damages to health and the environment.
The user is required to dispose of the product by delivering it to a collection point intended for the recycling and disposal of electrical and electronic appliances.
The container body and the lid (or door) are made of recyclable material, and thus can be disposed of in an environment-friendly way.
The component materials of the body and lid (or door) are:

- Polyethylene (inner and outer walls of the container and of the lid or door);
- Polyurethane (insulating material between the walls of the container and of the lid or door).

For further information on proper disposal, please contact the local waste disposal authority.

6. COOLANT GAS

The coolant gases, R134a or R452A, used in the cooling circuit of the Koala containers comply with the European standards. The cooling circuit is hermetically sealed, which prevents any coolant leak under the normal operating and usage conditions.
The compressor is airtight, specifically designed for moving applications.

7. CE DECLARATION OF CONFORMITY

All products are accompanied by the instruction manual, the CE declaration of conformity and the technical data sheet.

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