

VebaBox user manual equipped with o TUC1800 - TUC2000



VebaBox Cold Chain Innovators

info@vebabox.com

www.vebabox.com

EN 3 VebaBox User Manual with TUC2000

EN 21 VebaBox User Manual with TUC2000

DE 39 User manual for VebaBox with TUC2000

EN 58 VebaBox user manual with TUC2000

FR 76 Vebabox User Manual equipped with TUC2000

Contents

1. Introduction.....	4
2. General safety rules during the use of the product	8
3. Application	9
4. Product Assembly Specifications	10
5. Operation	12
6. Cleaning and Maintenance.....	16
7. Packaging material and safe disposal of products.....	17
8. Troubleshooting.....	17
9. Warranty	19

1. Introduction

Dear Customer,

Thank you for choosing VebaBox. This tailor-made product is designed for the storage and transportation of goods that are sensitive to temperature fluctuations and ensures a stable temperature of the goods at the desired level. Please read the following manual carefully before using the product.



CAUTION:

This manual is published for informational purposes only. VebaBox does not provide any warranty, express or implied, in relation to the information and descriptions contained in this manual. Such information and descriptions should not be considered as all-encompassing or covering all contingencies, but with the intention of better understanding our product. If you have any questions or have more information, please contact your local authorized VebaBox representative.

The procedures described herein should only be performed by suitably qualified personnel. Failure to perform these procedures correctly may result in damage to the VebaBox or other property or personal injury.

The VebaBox company and its affiliates shall not be liable in contract or tort (including negligence and/or strict liability) or otherwise, to any person or entity for personal injury, property damage, or any other direct, indirect, special, or consequential damages or liability of any kind, arising out of or resulting from any action by any person contrary to this manual or any information, recommendations or descriptions contained herein or the failure by any person to apply the procedures described herein or the observance of the safety precautions and decals located on the VebaBox unit!

Safety Precautions

VebaBox is a custom-made specialized product that contains electrical and cooling circuits, the installation, use and maintenance of which are subject to special directives and regulations for the protection of human health and the global environment.

This is why the VebaBox company, as the legal owner of the design and manufacturer of the product, declares and warns that only qualified distributors and appointed technical services are authorized to install and maintain VebaBox products.

During normal use of the product, users should be aware of the following hazards.



WARNING: *Risk of fatal injury from electric shock! When using the VebaBox, if the VebaBox is powered at 110-230V AC, make sure the power supply is equipped with a power circuit breaker! Check that the voltage indicated on the label of the plug corresponds to that of the power supply.*

Connect the VebaBox only as follows:

- *with the installation set of the VebaBox 12 V power supply installed by an authorized VebaBox specialist to the car's electrical circuit and/or battery.*
- *or, with the 110-230 V connection cable included with the VebaBox, to the 110-230 V AC power supply.*

If the cord is damaged, it must be replaced to avoid possible electrical hazards.

Disconnect the connecting cable before cleaning and maintenance, after use, and before replacing a fuse.



WARNING: *Risk of injury! Batteries contain aggressive and caustic acids. Do not allow battery fluid to come into contact with your body. If your skin comes into contact with battery fluid, wash the body part in question thoroughly with water. Disconnect the VebaBox and other electrical devices from the battery before connecting the battery to a fast-charging device. Surge can damage the electronics of the VebaBox.*



WARNING: *The VebaBox is not intended for use by children and adolescents or invalid persons unless they have been properly supervised by a responsible person to ensure that they can use the appliance safely.*

Do not use the VebaBox if it is visibly damaged. The VebaBox can only be repaired by qualified personnel. Inadequate repairs can cause considerable hazards. Should your VebaBox need repair, please contact your local distributor.

Do not open the refrigerant circuit under any circumstances!

The VebaBox is not suitable for transporting caustic or solvent-containing substances.

Food and pharmaceutical products should be stored in their original packaging and/or packed only in suitable containers



WARNING: *Use tools with insulated handles that are only in proper condition during operation and maintenance of the VebaBox.*



WARNING: Risk of fatal injury due to electric shock! Do not touch exposed cables with bare hands. This is especially true when using the VebaBox from an AC power supply.

Before starting the VebaBox, make sure the power line and plug are dry. Do not place electrical devices connected to a live electrical power source inside the cooling container.

Install the VebaBox in a dry place where it is protected from splashing water. Protect the VebaBox and cable from rain and moisture. Do not place it near an open flame or other heat source (radiators, direct sunlight, gas ovens, etc.).



WARNING: Risk of overheating! Always ensure that there is sufficient ventilation so that the heat generated during normal operation can dissipate.

Make sure the ventilation slots are not covered.

Leave at least 100mm clear from the top and around the VebaBox to ensure adequate ventilation.

Never immerse the VebaBox in water. Do not fill the inner container with ice or liquids.



WARNING: Always wear goggles or safety goggles when working with or around the refrigeration system or battery. Refrigerant or battery acid can cause permanent damage if it comes into contact with your eyes.



WARNING: The control circuits (except for the 110 – 230 VAC power input) used in the VebaBox are low voltage. This voltage potential is not considered life-threatening, but the large amount of current available can cause severe burns if shorted to ground.



WARNING: Do not wear jewelry, watches, or rings. These items can short-circuit electrical circuits and cause severe burns to the wearer.



IMPORTANT: VebaBox cannot be held liable for claims for damages arising from the following:

• Improper use, improper installation, abnormal maintenance, storage of hazardous chemicals, use of corrosive substances, damage during

transportation, recharging of the cooling system, accident, fire, improper repair, tampering, or abuse.

• Incorrect voltages or faults in the power supply that is not within the operating parameters of the VebaBox.

First aid

First Aid–Refrigerant

Eyes: *After contact with the liquid, immediately rinse the eyes with large amounts of water. Seek medical attention immediately.*

Skin: *Rinse touched areas with large amounts of warm water. Do not apply heat. Wrap burns with a dry, sterile, bulky dressing to protect them from infection or injury. Seek medical attention immediately.*

Inhalation: *Move the affected person to fresh air and, if necessary, restore breathing. Stay with the victim until emergency medical personnel arrive.*

First Aid – Coolant Oil

Eyes: *Immediately rinse your eyes with large amounts of water for at least 15 minutes while keeping your eyelids open. Seek medical attention immediately.*

Skin: Remove *contaminated clothing. Wash thoroughly with soap and water. Seek medical attention if irritation persists.*

Inhalation: *Move the injured person to fresh air and, if necessary, restore breathing. Stay with the victim until emergency personnel arrive.*

Ingestion: *Do not induce vomiting. Contact your local poison control center or doctor immediately*

First Aid – Electric Shock

First: *Immediately disconnect the electrical power source in the safest way (turn off the car engine or emergency switch, or disconnect/interrupt the live circuit with a suitable insulated tool).*

Second: *When you are sure the power is off, remove the victims from the hazardous area and place them in the shockproof position*

Third: *Call your local medical emergency room and act on their instructions until the medical rescue specialist arrives to step in and provide further help.*

First Aid: Heat Burns

First: *immediately remove victims from the heat source in the safest way.*

Second: *When you are sure that the heat source has been eliminated, put the victims in the anti-shock position*

Third: *Call your local medical emergency room and act on their instructions until the medical rescue specialist arrives to step in and provide further help.*

2. General safety rules during the use of the product

WARNING: Failure to comply with safety regulations may result in death or serious injury and/or damage to the product or its surroundings. Please read this manual carefully and always keep it with the product.

- Pay attention to the weight of the product and make sure that you, or the devices used, can support the weight.
- The product should not be placed on inclined surfaces.
- The load in the VebaBox must be securely positioned. The side walls must not be exposed to permanent pressure. The sidewalls of the VebaBox are not designed to withstand permanent loads.
- Please read the operating instructions carefully before plugging in the product.
- Never insert objects into ventilation openings or fans.
- Do not obstruct air circulation by covering the grates with objects.
- Do not damage cooling system parts containing coolants by puncturing, piercing, crushing, bending, or otherwise. Risk of severe frostbite due to refrigerant evaporation.
- Follow local regulations for hazardous substances such as refrigerants: risk of fire or explosion.
- Never touch the heat exchanger with bare hands. Risk of cuts to the fingers on sharp ribs.
- The floor may be slippery.

3. Application

The fundamental function of VebaBox is to keep the goods inside at a regulated, stable and adjustable temperature while the box is subjected to fluctuating ambient temperatures in the range of -20; +40°C for TUC1800 or -20;+50°C for TUC2000.



WARNING: *The VebaBox is not built for cooling goods. This means that the goods must be pre-conditioned to the required temperature before being placed in the box.*



WARNING: When loading the box, leave space around the air inlet and outlet of the unit. The goods must be stacked in such a way that there is a space of at least 10 cm directly under the ceiling of the box. Do not place products directly under the heat exchanger – risk of water dripping.

The VebaBox TUC2000 is intended to be installed in the enclosed superstructures of any type of cargo van equipped with an alternator power source of at least 12V/100A DC. The unit is available for both installation on a side panel of the box (TUC201B) and installation on top of the box (TUC201T).

4. Product Assembly Specifications

The assembly of the product consists of

- a) Basic Parts
 1. VebaBox Body
 2. Thermal unit TUC2000 – monobloc
 3. Power Cord Set
 4. Mechanical fastening set
- b) Accessories (optional)
 1. Remote control
 2. LED lighting inside the VebaBox
 3. Power supplies



VebaBox Body	
Volume Range	<i>(0.5-2) m³</i>
Wall thickness	<i>Min. 50 mm</i>
Heat transfer coefficient	<i>k < 0,7 W/m², °K</i>



Thermal unit TUC2000	
Cooling Unit Dimensions (WxHxD)	<i>451 x 598 x 326 mm</i>
Weight	<i>27 kg</i>
Energy consumption max.	<i>50A at 12VDC/3.6A @230V 7.2A @110V</i>
Cooling capacity measured at +4°C regulated temperature and +30°C ambient temperature according to ATP	<i>+/- 400W</i>
Heating power	<i>+/- 550W</i>
Operating Conditions	<i>Ambient temperature -20°C to 50°C (TUC2000) Set the temperature range +2°C to +25°C</i>



Power supplies	
SB-75 Power Capacity	<i>12V DC / 75Ah</i>
SB-150 Power Capacity	<i>12V DC / 150Ah</i>
SB-250 Power Capacity	<i>12V DC / 250Ah</i>

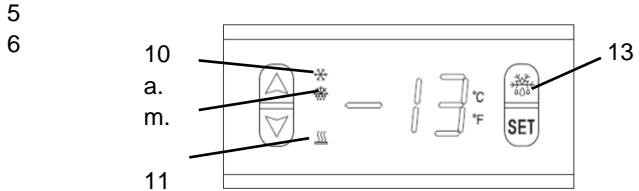
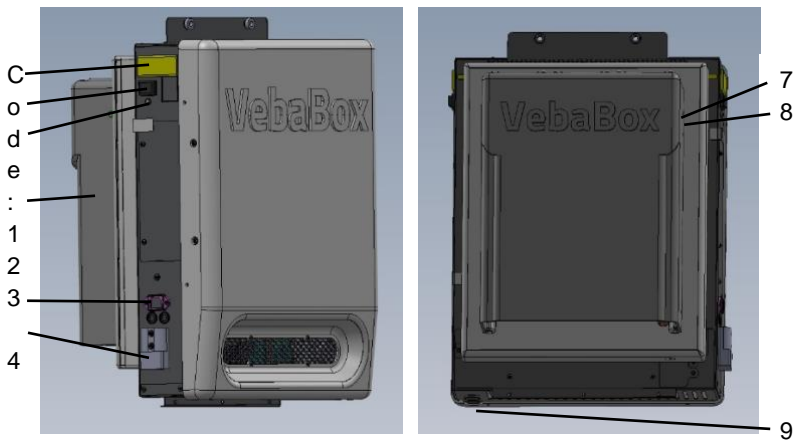
5. Operation

The thermal unit detects the temperature in the VebaBox by means of a temperature sensor. If the temperature exceeds the set values, the cooling unit is switched on and the controlled space is cooled or heated. When the temperature has reached the set temperature, the thermal unit will automatically shut off.

The internal fans will rotate regardless of the temperature for optimal air circulation, so that the temperature in the VebaBox remains stable. They only turn off when you open the box door.

Controls

The thermal unit is equipped with a digital temperature controller. This allows for easy setting and control of the required temperature.



- 1. Temperature Controller Display
- 2. Main switch
- 3. High Pressure/Door Open Warning
- 4. Evaporator
- 5. 110/230 Volt connection (optional)
- 6. 12 Volt connection
- 7. Interior Light Connector
- 8. Door Switch Connector
- 9. Remote Control Connector
- 10. Active Cooling Symbol
- 11. Active defrost symbol
- 12. Active heating symbol
- 13. Manual defrost button

Turning on the unit:

To turn the unit on, use the power switch (2). Note that if the remote control is installed, the power switch on the thermal unit must always be turned off. Use the power switch on the remote control in this case to turn on the thermal unit.

Note: The unit will only operate when the car's engine is running, unless a Powerpack has been installed or an external 110/230V AC power supply is used.

Temperature Setting:

During normal operation, the display shows the actual internal temperature. To change the SET temperature:

- Press the SET button, the set temperature value starts flashing.
- Use the selection buttons (arrows) to change the set temperature.
- Press the SET button again to confirm the temperature and return to the current temperature display. (If no button is pressed within 6 seconds, the current temperature is automatically displayed).

Indicators:

The unit has one of 4 possible operating states:

- Active cooling – indicated by symbol (9)
- Active heating – indicated by symbol (10)
- Temperature on (in the preset tolerance band) – neither symbol 9 nor symbol 10 are lit.
- Operation Mode Change Delay – flashing symbol 9 or 10 indicates that the unit is changing mode (cooling to heating or vice versa) and is waiting for a preset delay (3 minutes by default)

The alarm function is available on the temperature controller. By default, this will signal any deviation of more than 3°C from the set

temperature. The alarm sound can be silenced by pressing any button (the alarm will still be signaled by the flashing display and the symbol 14 lit).

The defrost function is available in the controller, although under normal use defrosting is not necessary. The defrost button must therefore not be used in TUC2000. Automatic defrosting is also prohibited by default.

Remote control

The installation of the thermal unit may contain remote control of the dashboard. If installed, some specific conditions apply:

- The remote display takes priority in temperature control. When connected, the display on the thermal unit cannot be used for temperature setting and does not participate in temperature regulation.
- The same rules as described in the "controls" section apply to the remote display (including setting the temperature in the box)
- Do not use the power switch on the thermal unit. This switch should always be in the "0" position. Use the switch on the remote control to operate the unit.

Door switch

The unit contains the input for the door switch. For proper operation, the door switch must be connected. If the door is opened, the compressor and internal fans are immediately turned off to prevent excessive air exchange. At the same time, the interior light is switched on. The red indicator light (3) indicates that the unit detects the open door.

High Pressure Warning

The thermal unit is protected from extreme conditions that can cause high refrigerant pressures, such as extremely high ambient temperatures or dirty/blocked heat exchangers. The activation of this protection is indicated by a red indicator light (3).

If you notice that the guard has been activated, make sure that the car's thermal unit is properly ventilated (check the operation of the roof fan). If the problem is not resolved by setting the unit to suitable ambient temperatures (-20°C to +40°C), the heat exchanger may be dirty or clogged – contact your local dealer for service.

External Fan Control

The thermal unit is equipped with fan speed control. This ensures that the units operate as quietly as possible in all conditions. The fan speed depends on several factors, such as the outside temperature, the box load, and reflects the heat load of the unit.

The internal fans run at a stable speed while the door is closed to maintain adequate airflow inside the box.

6. Cleaning and Maintenance

WARNING: Never allow water or other liquids to enter the thermal unit and electronics.

- Turn off the product and unplug all power cords.
- The VebaBox is not designed for automatic defrosting (not required for normal operation). If excessive frost accumulates, turn the unit off and wait for the ice to melt. Do not remove ice by mechanical means.

- Clean the product with a damp cloth, using a detergent if necessary. NOTE: Do not use abrasive or corrosive agents as they may damage the surface.
- Thoroughly dry all remaining damp parts with a dry cloth.
- Door seals should be greased every three months to prevent the doors from jamming or breaking. This can be done, for example, with medical petroleum jelly.
- Repairs and maintenance should be performed by qualified personnel. It is recommended to check the unit and clean the internal heat exchangers at least once a year.

7. Packaging material and safe disposal of products

The packaging protects the product from damage caused by transport. Keep the original packaging parts for possible future transport of the thermal unit.



Old electrical and electronic products usually contain valuable materials. However, they also contain harmful substances that have been necessary for the proper and safe functioning of the products. Disposal of such products or improper handling of these substances may be harmful to health and the environment. Dispose of the product in a municipal collection depot for electrical and electronic equipment. Discarded product should be stored out of the reach of children. Please note that the cooling unit contains refrigerants that must be disposed of in accordance with local legislation and directives.

8. Troubleshooting

Problem	Analyze	Solution
The cooling unit does not work.	The power plug is not properly connected.	Plug in and check the 12V or 110V/230V socket.

	<p>No input voltage of 12V.</p> <p>Remote control not connected properly.</p> <p>On/off switch in the correct position.</p>	<p>Make sure the car's engine is running. Check the fuse.</p> <p>Check the connection plug of the remote control.</p> <p>On/off button. Tip: If you have a remote control, the unit's main switch must be in the "0" position</p>
The cooling unit does not turn off	On/off switch in the correct position.	Check if the main switch is off (also on the remote control).
The cooling/heating unit is working but not cooling or heating properly.	<p>The doors are not closed properly.</p> <p>There is a heat source in the box.</p> <p>Correctly set temperature</p> <p>The evaporator is frozen.</p> <p>Refrigerant leak.</p>	<p>Close the doors. Check that the seal is not damaged or worn. Use only preconditioned goods.</p> <p>Set the temperature.</p> <p>Allow the evaporator to defrost by turning the unit off and allowing the temperature in the box to exceed the freezing point.</p> <p>Call the VebaBox service.</p>
The red control indicator light is on, the unit	The box door is open.	Close the door and make sure the connector is connected to the unit.

runs but does not cool down	<p>The air passages are clogged or dirty.</p> <p>Ambient temperature is above 40°C. (104°F)</p>	<p>Remove obstruction, dust, or dirt. Contact Distributor for Regular Maintenance</p> <p>Ensure an ambient temperature < 40°C (104°F) with a roof fan.</p>
Cooling/heating works but the fan is stopped	Faulty cable connection / faulty fan.	Call the VebaBox service.
Display the error code	ll display display and symbol LL or HH.	Defective temperature sensor, call VebaBox service.

Note: Self-installed temperature meters may differ from the VebaBox temperature display. This is due to the location of the measurement sensors.

9. Warranty

VebaBox products have a 12-month manufacturing warranty from the delivery of the products. Power supplies that contain a battery inside have the same warranty with a limitation of 18 months from the date of manufacture.

VebaBox www.vebabox.com Cold Chain Innovators