VebaBox
Cold Chain Innovators

User Manual
Charge module

Original instructions

VebaBox Cold Chain Innovators
info@vebabox.com
www.vebabox.com

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1. Safety Precautions

VebaBox is a specialized custom-made product that contains electric and cooling circuits, installation, use and maintenance of which are subordinated to special directives and regulations for protection of human health and global environment.
This is why the VebaBox company as legal owner of the product design and manufacturer declares and warns that only appointed qualified distributors and technical services are authorized to install and to service the VebaBox products.
During normal product usage the users should be aware of the following dangers.

CAUTION: ***Danger of fatal injury from electric shocks! When using the VebaBox, if the VebaBox/ power pack is powered by mains voltage, ensure that the power supply has a power circuit breaker! Check that the voltage specification on the plug label is the same as that of the power supply.***

Only connect the VebaBox or battery power pack as follows:

• with the mains connection cable included with the battery power pack to the mains socket.

If the cable is damaged, it must be replaced to prevent possible electrical hazards.

Disconnect the connection cable before cleaning and maintenance, after use and before changing a fuse.

CAUTION: ***Danger of injuries! Batteries contain aggressive and caustic acids. Avoid battery fluid coming into contact with your body. If your skin does come into contact with battery fluid, wash the part of your body in question thoroughly with water. Disconnect the VebaBox and other electric devices from the battery before you connect the battery to a quick charging device. Overvoltage can damage the electronics of the VebaBox.***

CAUTION: ***The power pack is not intended for use by children and teenagers or invalid persons unless they have been adequately supervised by a responsible person to ensure that they can use the appliance safely.***

Do not operate the power pack if it is visibly damaged. The VebaBox power pack may only be repaired by qualified personnel. Inadequate repairs can cause considerable hazards. If your power pack should need repairing, please contact your local distributor.

CAUTION: ***Use tools with insulated handles that during operation and maintenance are in proper condition only.***

CAUTION: ***Danger of fatal injury due to electric shocks! Do not touch exposed cables with your bare hands. This especially applies when operating the Power pack from an AC power supply.***

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

Set up the power pack in a dry location where it is protected against splashing water. Protect the power pack and the cable against rain and moisture. Do not place it near open flames or other heat sources (heaters, direct sunlight, gas ovens etc.).

CAUTION: ***Danger of overheating! Always make sure there is sufficient ventilation so that heat generated during normal operation can dissipate.***

Ensure that the ventilation slots are not covered.

Leave at least 100 mm free from the of powerpack to ensure adequate ventilation.

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

WARNING: ***Control circuits (except mains 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 shortcut electrical circuits and cause severe burns to the wearer.***

IMPORTANT: ***VebaBox cannot be held liable for claims for damage resulting from the following:***

• Misuse, improper installation, abnormal servicing, storage of hazardous chemicals, use of corrosive substances, transit damage, recharging of cooling system, accident, fire, improper repair, tampering or abuse.

• Incorrect voltages or faults with regard to power supply which falls outside of the VebaBox operating parameters.

First Aid

First Aid – Electric shock

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

Second: *When you are sure that the power is off remove the victims from the dangerous area and put them in anti-shock position*

Third: *Call your local medical emergency aid and act according to their instructions until the medical aid specialist comes to take over and provide further aid.*

First Aid–Burns from heat.

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

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

Third: *Call your local medical emergency aid and act according to their instructions until the medical aid specialist comes to take over and provide further aid.*

2. General safety rules for working with batteries

• Always wear protective clothing, gloves and googles

• Do not smoke near batteries.

• Keep sparks, flames and metal objects away from batteries.

• Use insulated tools when making battery connections.

• Electrolyte is a solution of acid and water, so avoid skin contact. If acid contacts skin or eyes, flush with water immediately and contact a medical professional.

• Ensure the cable connections to the terminals are properly tightened.

• Do not lay objects on top of battery.

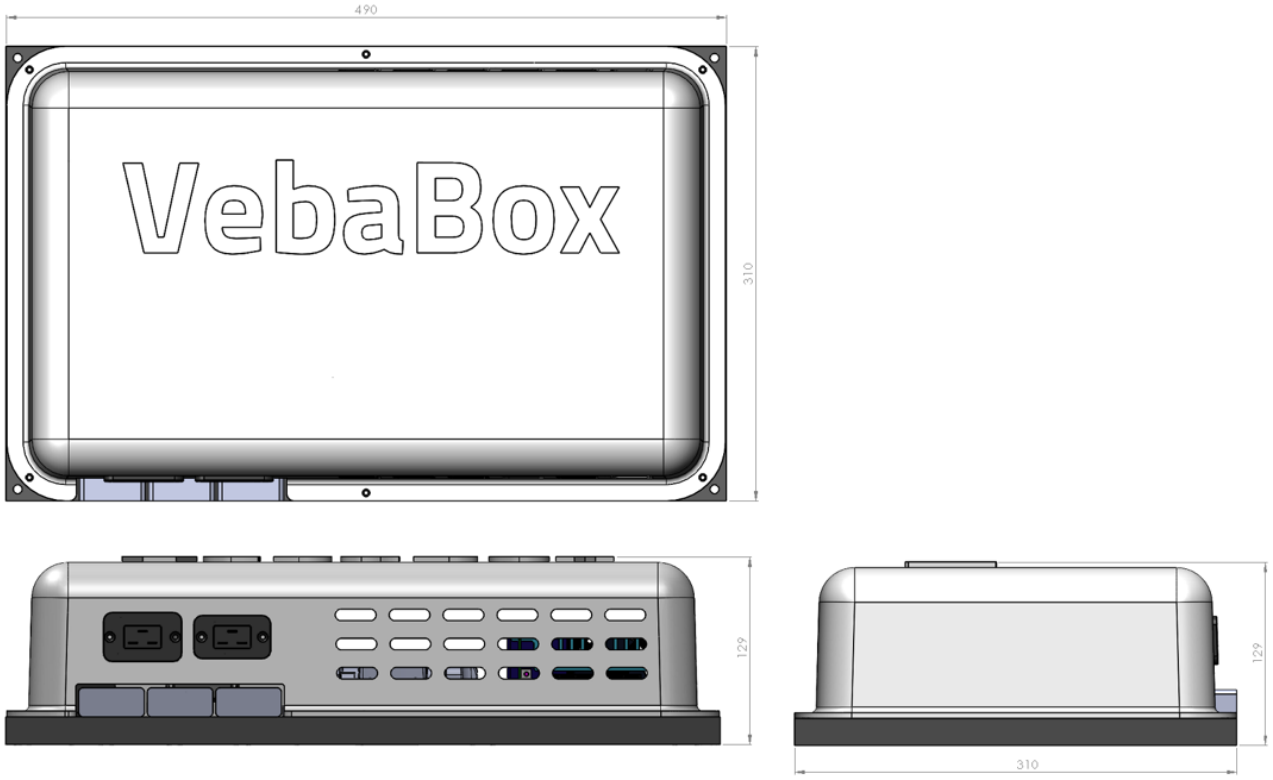
• Always charge and handle batteries in a well-ventilated area.

• Never add acid to a battery.

• Never remove or alter gel vent caps.

3. Product specifications

Product specifications	Models
Dimensions Battery power pack (WxHxD)	490 x 129 x 310 mm
Weight:	+/- 6 kg
Power source input:	*12V DC / 100~240V AC (50/60Hz)
Maximum power consumption: Charging battery Charging battery run TU	 50Ah (adjustable trough settings) 50Ah + Consumption TU (see datasheet TU)
Battery type:	Lithium (Although adjustable, other types are not recommended due to discharge protection)
Discharge protection:	No (integrated in lithium battery)
Ambient temperatures:	-20°C to 50°C
Connectors	3x SB120 1x C19 1x C20



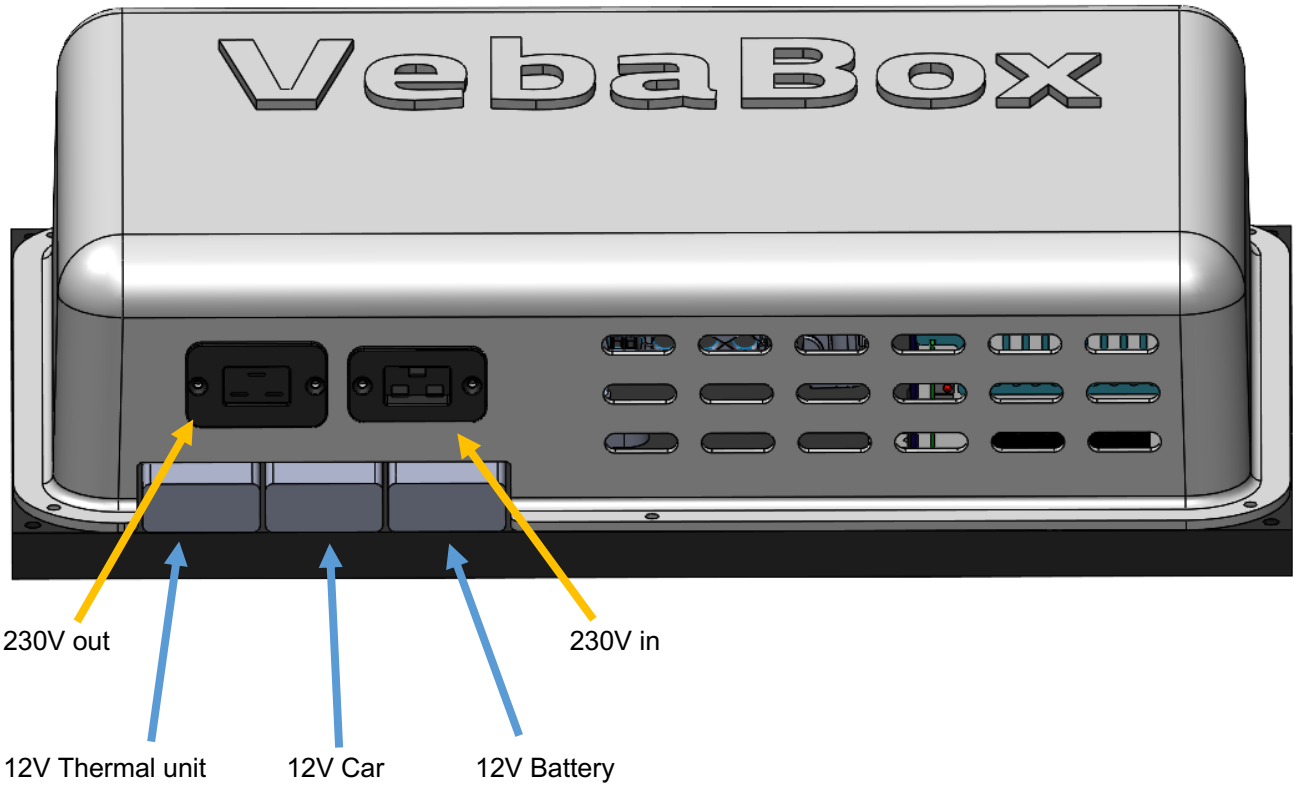
4. Installation

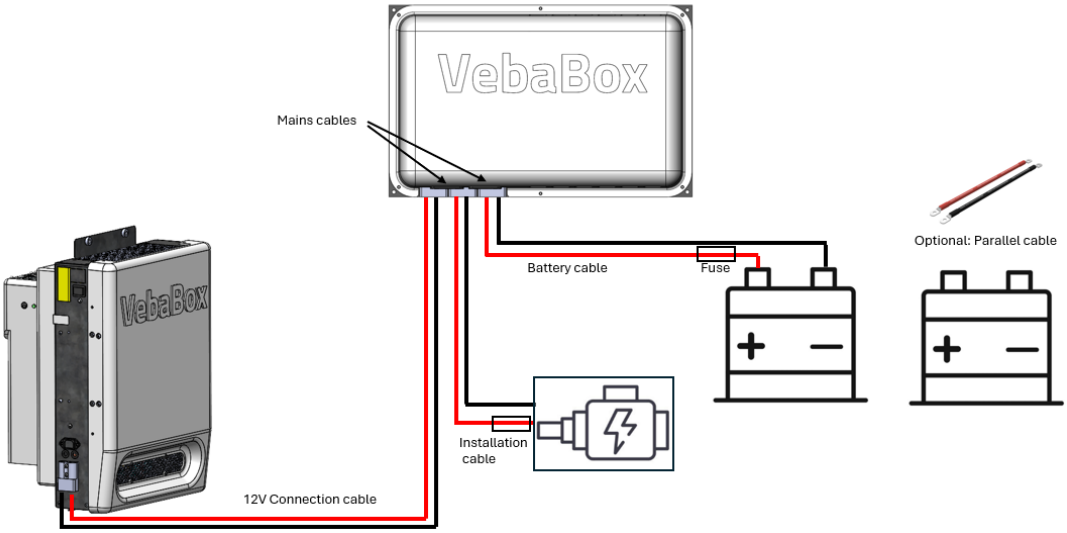
The charge module can be installed using the 4 Ø6mm holes on the corner. Install the module in a place where the air vents are not blocked. Insufficient air flow may result in a lower charge rate. The charge module is installed with prescribed settings.

5. Connection

The charge module is designed as an plug and play unit. There are 3xSB120 connectors for the 12V and 1xC19 and C20 connector for the 230V. The SB120 plug for the battery comes with an different connector to ensure the battery can only be connected to correct plug. The charge module can only be used with the battery and car installation cables from VebaBox. Make sure there is no 230V and 12V charge cable connected when there is no battery connected.

If the battery will be replaced with another type the settings of the DC-DC charger should be checked and adjusted if needed. Please refer to the service manual how to set the DC-DC charger.





6. Troubleshooting

Problem	Analyze	Solution
Battery does not give 12V output.	Battery empty. The battery might be in discharge protection.	Charge the battery by starting the vehicle or with the 230V connection.
	Fuse broken	Device contains internal protective fuse (150A). Before proceeding with replacement, contact the service/distributor. Make sure the reason for the failure is corrected (i.e. short circuit on supply cables)
Battery not charging	Cable connection	Check if the 12V or 230V cable is connected.
	Relay	Check if the relay is activated.
	Charger defect	Check status of charger and parameters with the help of the service manual.
	Low voltage	The charger is triggered once the set voltage is reached. Check if the vehicle delivers the correct voltage.