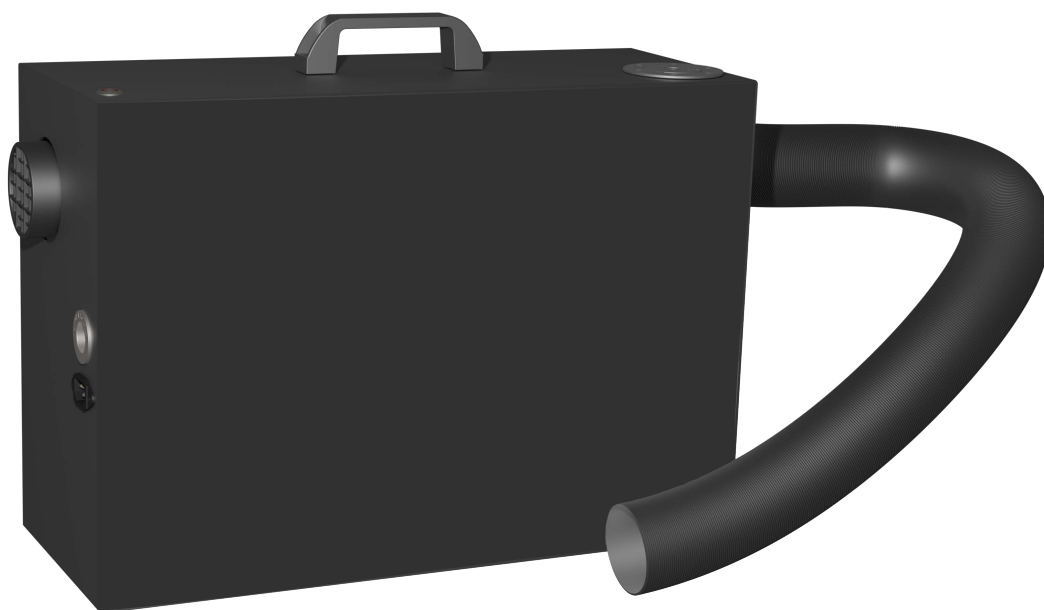


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User's manual

for AUTOTERM Travel Box 2.0



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CONTENTS

INTRODUCTION	3
IMPORTANT BEFORE USAGE	4
USAGE.....	7
FEATURES.....	8
WORKMODES.....	8
ERROR CODES.....	9
TECHNICAL DATA SHEET.....	11

Introduction

The travel heater is a completely self-sustained hot air-delivering unit for outdoor usage only.

It has a fuel tank to ensure a minimum operation time of up to 9 hours (depending on the power level and heating mode used).

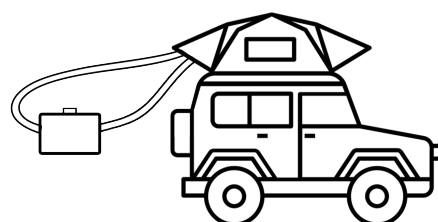
For example, it can be used for camping to heat tents, or in construction shelters or trailers, as well it can be used as emergency heating if the regular heating source had a failure. The travel heater can be a lifesaver in situations when you are stuck in the snow, or mud or your vehicle broke down far away from the place where you can go and wait in warm conditions. Suitable for the off-grid environment. Can be used on construction sites to ensure a comfortable work environment for workers.

Travel heater supports 60mm air ducting hoses, the maximum length of the hot air outlet should not exceed more than 8 meters only in conditions if the air duct is straight. Sharp bends within the first meter from the heater are not allowed, it can result in heater overheating! The air intake for heating maximum length can be 1.5m.

Additionally, a heater can be equipped with an external temperature sensor assy 1458. In this case heater will operate in pre-set temperature modes which can be adjusted with a short press of the button while the heater is operating. The heater will reach a certain temperature of $+1^{\circ}\text{C}$ from the set-point and switch off into wait mode till it drops 2°C below the set-point (see picture below). The heater will reduce power evenly when it gets closer to the set point.

NOTE! The temperature mode is not always the best option as it can increase the heater start-stop sequences in a short time period, causing unpleasant heating conditions and faster battery discharge.

In extreme weather conditions we advise to create a heating loop, reusing the heated air from heated compartment. The max allowed air intake pipe length is 1,5m and the max air outlet pipe length is 8m. Do not use closeable grills!

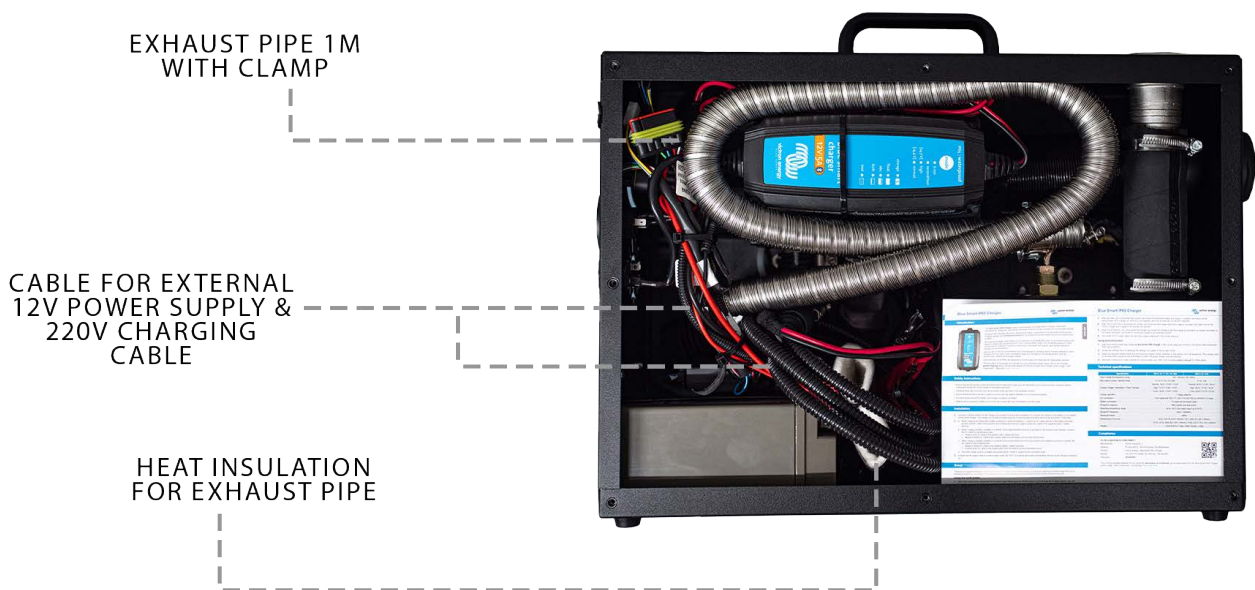


Important Before Usage!

Before using the heater, remove the cover by unscrewing 8 bolts with a 2.5mm hex key that comes attached to the handle.

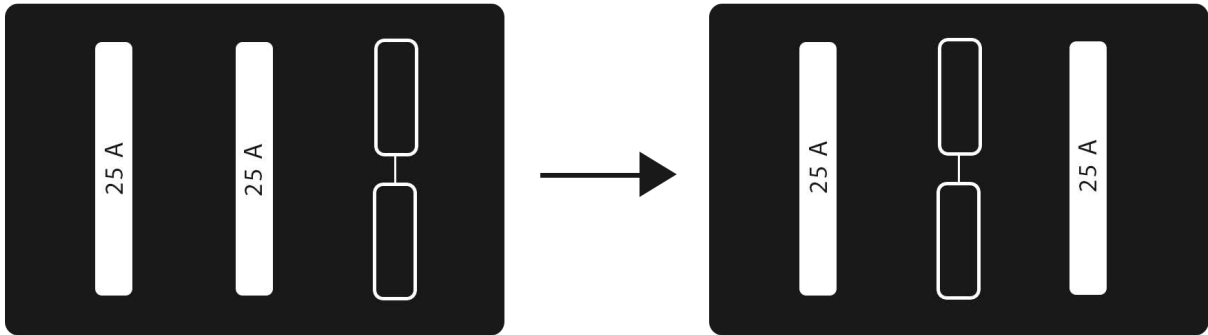


When the cover is removed take out all accessories, which have been packed inside the travel heater.



After removing all accessories, insert the fuse from the middle socket (blank one) to the right empty socket to power up the heater.

NOTE! The fuse is removed by following the freight transportation company's requirements for safe transportation of goods.



Connect the heater to 220V to charge the battery, and fill in diesel fuel into the fuel tank. To follow the battery level use the Victron bluetooth app (*).



We recommend not overfilling fuel to the top of the cap, fill in 5l into the empty fuel tank. By overfilling the fuel tank there can be a risk of a diesel spill and slight leakages from the cap.

Do not overtighten the fuel cap, it may cause a vacuum.

The exhaust pipe can be mounted directly to the travel heater exhaust pipe. We recommend using the exhaust pipe when fresh air is necessary to heat so the CO2 suction into the air intake is less possible or moving fumes further away from a specific place or space.



It is possible to connect a 60mm air duct to the hot air outlet and air inlet. To connect the 60mm air duct to the air intake, remove the plastic cover from the air intake, by screwing it ½ counterclockwise and removing the grill.



NOTE! The heater air intake has fan blades. By removing the grill and even with the grill on, do not insert any objects inside the air intake as it can cut and damage objects and blades inside the heater.



Do not operate the heater without the battery. The travel heater has a built-in battery of 22Ah.

Using a heater with a removed battery only with external main power can cause damage to the heater and its components. The same applies with 220v operation with a charger only, it can damage the heater and charger.

Note! If you buy the heater without a battery, use a battery with the following requirements:

- The battery must be **non-spillable**.
- Battery size must be **181x77x167mm**.
- The battery charger must support WET, MF, GEL, AGM, Ca/Ca, and Li-ion battery types.

Usage

IMPORTANT! When using a Travel heater it is important to follow these points.

- Always have a fire extinguisher near
- Do not operate travel box v2.0 in closed spaces
- Avoid direct flow of exhaust gases into living areas
- Make sure that exhaust gases do not flow into the heated air intake.
- Do not touch or put flammable objects in front of the exhaust outlet of the Travel heater
- If it is necessary use an exhaust pipe to deliver gases to a safe distance from the heater or living space.

Do not remove the battery while the heater is operating.



Keep the heater away from children!

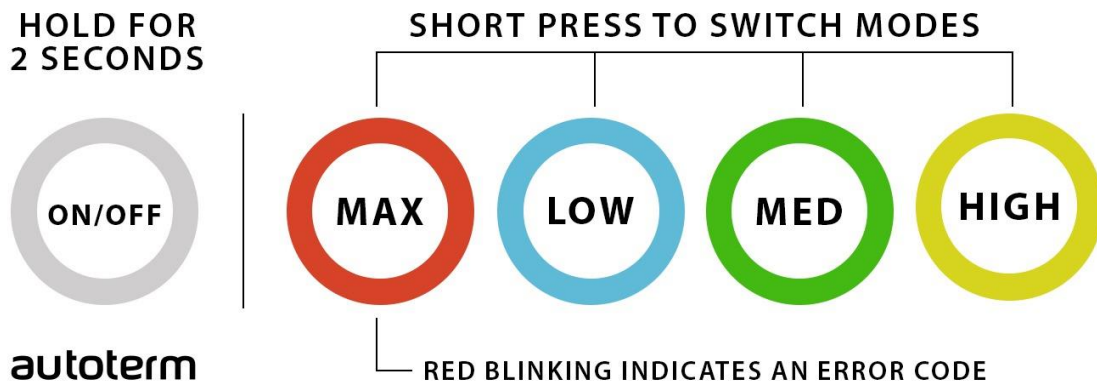
Features

The Travel heater has a unique characteristic that saves the battery from excessive parasite drain. Travel heater has an automatic power relay that detects when the heater is not used switches the heater from a battery, and consumes less power when it is not used. Consumes only 5mA current.

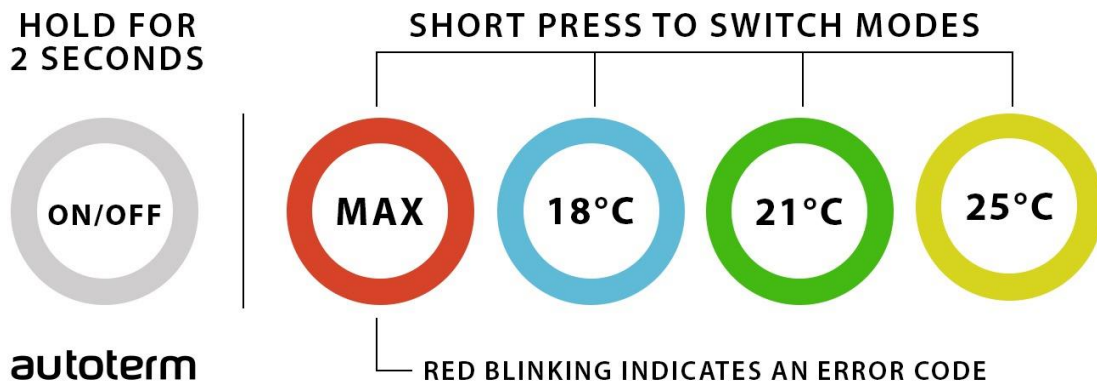
To start the heater press and hold the button for more than 2 (two) seconds, when it starts to flash between red and yellow that indicates that it is connecting with the heater, after that it will light up in RED which indicates max power.

While the heater is running it is possible to switch between power modes by doing a short press of a button, there are 4 power presets MIN/MID/HIGH/MAX or if the external temperature sensor is connected MAX/18/21/25°C

Workmodes without external temperature sensor connected



Workmodes with external temperature sensor connected (Assy. 1458)



Error Codes

RED LED blinks	Description	Fault Cause	Recommended Solutions
1	Overheating of the heat exchanger	The sensor sends a signal to shut down the heater. Heat exchanger temperature in the sensor zone is over 250°C	Check the intake and outlet of the heating unit for unobstructed entry and exit of heated air. Check the integrity of the fan and its performance. Check the temperature sensor and replace it if necessary. Inspect the heat exchanger. Check and remove carbon deposits from the inside of the heat exchanger, if necessary
12	Possible overheating at the intake temperature sensor. Sensor temperature (control unit) is more than 55 degrees.	Control unit is insufficiently cooled down for 5 min. purging before startup; or overheating of the control unit during operation.	Check the intake and outlet of the heating unit for unobstructed entry and exit of air and re-start the heater to cool it down. Replace the control unit.
5	Faulty temperature sensor (PLANAR-2D) or flame indicator	Short circuit to the casing or open circuit in the wiring of the sensor.	Check sensor, replace if necessary
6	Faulty temperature sensor in the control unit	Temperature sensor out of order (located in the control unit, cannot be replaced)	Replace control unit
	Overheat sensor - open circuit	Faulty sensor. Oxidation of contacts in the terminal block.	Check the overheat sensor circuit for an open. Remove oxidation from the connector contacts.
4	Faulty glow plug	Short circuit, open circuit, faulty control unit.	Check the glow plug, and replace it if necessary. Check the control unit, and replace if necessary.
11	Electric motor of the air blower does not develop the necessary speed.	Increased friction in the bearings or contact between the impeller and fan shroud in the blower. Faulty electric motor.	Check the electric motor, if possible correct the fault; replace the air blower if necessary.
	Faulty air temperature sensor (intake) only for PLANAR-8DM.	Mechanical fault. Oxidation of contacts in the block.	Check connecting wires.
9	Shut down, overvoltage more than 30V (for 24V) or more than 16V (for 12V).	Faulty voltage regulator.	Check battery terminals and wiring.
	Shut down, low voltage, less than 20V (for 24V) or less than 10V (for 12V)	Faulty battery.	Check the battery, charge it or replace if necessary.
2	The heater does not start - two automatic start attempts failed.	No fuel in the tank	Fill the fuel tank.
		Fuel grade does not match the operating conditions at low temperatures.	Replace fuel, see Operation Manual.
		Insufficient supply of fuel.	Eliminate fuel line leakage or blockage. Check the performance of the fuel pump, replace if necessary
		Clogged exhaust duct or combustion air intake.	Clean air intake or exhaust duct of possible clogging.
		Insufficient pre-heating of the glow plug, faulty control unit.	Check the plug, replace if necessary. Check voltage supplied by control unit, replace if necessary.
		The impeller touches the the fan shroud in the blower, and, as a result, flow of air into the combustion chamber is reduced.	Replace blower after determining its malfunction.
		The glow plug housing in CC is clogged. Clogged glow plug screen or it is not installed all the way into housing.	Clean the glow plug hole. Replace the glow plug screen, if needed, and install it in accordance with item 5.2.

	Description	Fault Cause	Recommended Solutions
10	During the purge time, temperature sensor was not cooled down. Time for ventilation was exceeded.	During 5 min purge before start-up, temperature sensor was not sufficiently cooled.	Check the intake and output of the heater for unobstructed entry and exit of air. Check the integrity of the fan and its operation. Check the sensor, replace if necessary.
7	Faulty fuel pump.	Short circuit or open circuit in the wiring of the fuel pump	Check the wiring of the fuel pump for short circuit and open circuit. Check the wires to overheat sensor, insulation integrity.
8	Heater does not start	Burnt out fuses on the power harness.	Check the fuses and replace them if necessary.
		No communication between the controller and the control unit. Controller receives no data from the control unit.	Check the connectors and the green wire in the connecting harness. Remove oxidation from connectors. Check the controller and the connecting harness, replace if necessary. If the controller is operational, replace the control unit.
11	Motor does not rotate.	Damaged bearing or rotor, foreign objects, etc.	Check connectors and wiring leading to the electric motor board and the control unit. Eliminate the fault, if possible.
	Motor rotates. Speed is not regulated.	Faulty electric motor control board or heater CU.	Replace air blower.
3	Flame failure during operation of the heater.	Insufficient fuel supply. Faulty fuel pump. Faulty flame indicator.	Check for leaks or clogging of fuel lines, tighten the clamps on the fuel lines. Check combustion air intake and exhaust pipe. Check the amount of fuel supplied by the fuel pump, and replace it if necessary. If the heater starts, check flame indicator and replace it if needed.
	Heater does not start.	No communication between the controller and the control unit. Control unit receives no data from the controller.	Check connectors and white wire in the connecting harness. Remove oxidation of connectors. Check controller and connecting harness, replace if necessary. If controller is operational, replace control unit.
13	Flame failure.	Supply voltage drop.	Check the battery, wiring. (Voltage drop may occur due to prolonged use of electric starter) only PLANAR-8DM
3	Flame failure during operation.	Air bubbles in fuel system. Faulty fuel pump. Faulty flame indicator.	Check fuel lines for leaks or clogging. Tighten fuel line hose clamps. Check combustion air intake and exhaust duct.

Travel Heater		
Technical characteristics	High	Low
Voltage	12V	
Heating medium	Air	
Heating power	2.0 kW	1.0 kW
Heated air volume	86 m ³ /h	42 m ³ /h
Power consumption	29 W	11 W
Operation time with a full battery and fuel tank.	~9h	~18h
Battery	Victron AGM 22Ah	
12v Charger	Blue smart charger 12V 5A (*Bluetooth VictronConnect)	
Max. work altitude (MASL)	3000m	
Fuel	Diesel - EN590	
Fuel consumption	0.24 l/h	0.14 l/h
Control mode	Autoterm push control	
Compatible control panels	Simple control, Comfort Control	
Weight of the Travel Heater	22.5kg With a full fuel tank 18.5 Gross weight	
Heater dimensions	500x400x200 mm	

*** Heater standby power consumption 0.06W (when not used)**

*** For further details about the VictronConnect app refer to the online user manual:**

<https://www.victronenergy.com/live/victronconnect:start> Bluetooth active only when mains power connected.



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air and liquid heaters