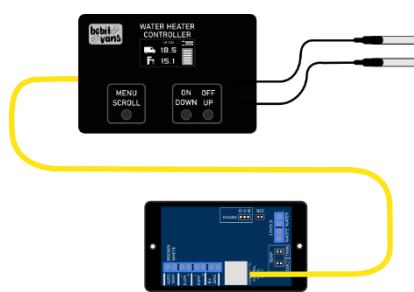


BOBIL VANS 12V ELECTRIC WATER HEATER WITH SMART CONTROLLER

INSTALLATION INSTRUCTIONS





Important Safety Instructions! Please save these instructions!

This manual contains important safety, installation, and operating instructions for the Bobil Air Electric.

The manufacturer accepts no liability for damage by:

- Incorrect assembly.
- Damage resulting from mechanical influences or excess voltage.
- Modification or tampering with the unit without expressed permission from the manufacturer.
- Used for purposes other than described in this manual.

General safety

- Firmly secure all cables and hoses.
- In the event of product failure, do not attempt to repair the water heater. Inadequate repairs may cause serious injury.
- Electrical devices are not toys - keep away from children.
- Disconnect the product from the battery and mains power each time before cleaning or maintaining the heater.
- This product is for 12V battery banks and 230V AC circuits only. Make sure your voltage specification is within the input voltage range expressed.
- Install and store the product in a dry and cool place.
- Keep electronics away from liquids!
- Do not use the product if physically damaged or with visibly perished hoses.

Installation

- Ensure secure location where it cannot tip or fall.
- If necessary, verify installation with a qualified electrician or installer.
- Do not use a water pump with a pressure exceeding 45psi.
- Lay cables so they cannot be damaged or be a tripping hazard.
- Do not operate in salty, wet, or damp environments; in the vicinity of corrosive fumes; in the vicinity of combustible material; in areas with risks of explosions.
- Ensure proper cable sizing for currents generated.
- Over-current protection devices should be on the positive line.

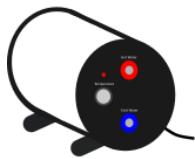
Thank you for buying our products!

Small businesses like ours only exist because of the support of our customers. We appreciate you purchasing from us, and hope that you have a great experience.

If you have any installation questions or queries then just get in touch, we're here to help.
Contact us at info@bobilvans.co.uk or on the phone at +44 1275 261074



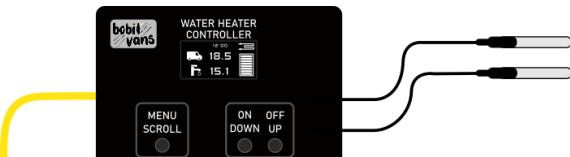
What comes in the box?



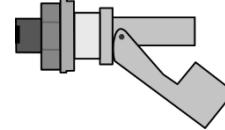
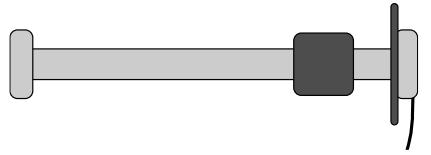
230v, 12v or dual element tank



Drain valve, hose and washers



Bobil Smart Controller (with level sensors if ordered)



Preparing your installation area

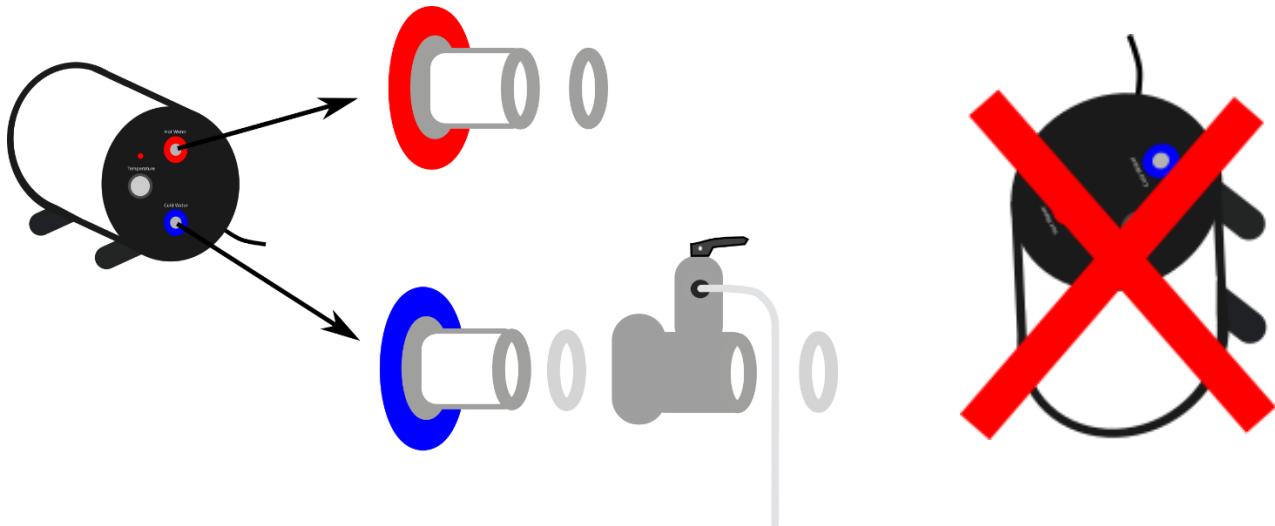
The tank should be installed in a cupboard or locker which is clean, dry, ventilated, accessible and free of explosive gases or vapour such as those given off by charging batteries.

Space should be left in front of the heater so the hoses are not kinked and the temperature dial is accessible.



Installation

Screw the overpressure valve onto the tank- hand tight is sufficient. Screw the tank down securely.



The tank cannot be mounted vertically.

The tank is designed for both barbed fittings or 12mm push fit camper van plumbing. The tank thread is a standard $\frac{1}{2}$ " Male thread, for you to screw your needed plumbing adaptors on to.



- For flexi-hose, you can use a $\frac{1}{2}$ " to barb brass fitting with washers.
- For 12mm John Guest pushfit, you can use $\frac{1}{2}$ " Female to 12mm pushfit fittings.
- Both of these we sell on our website.

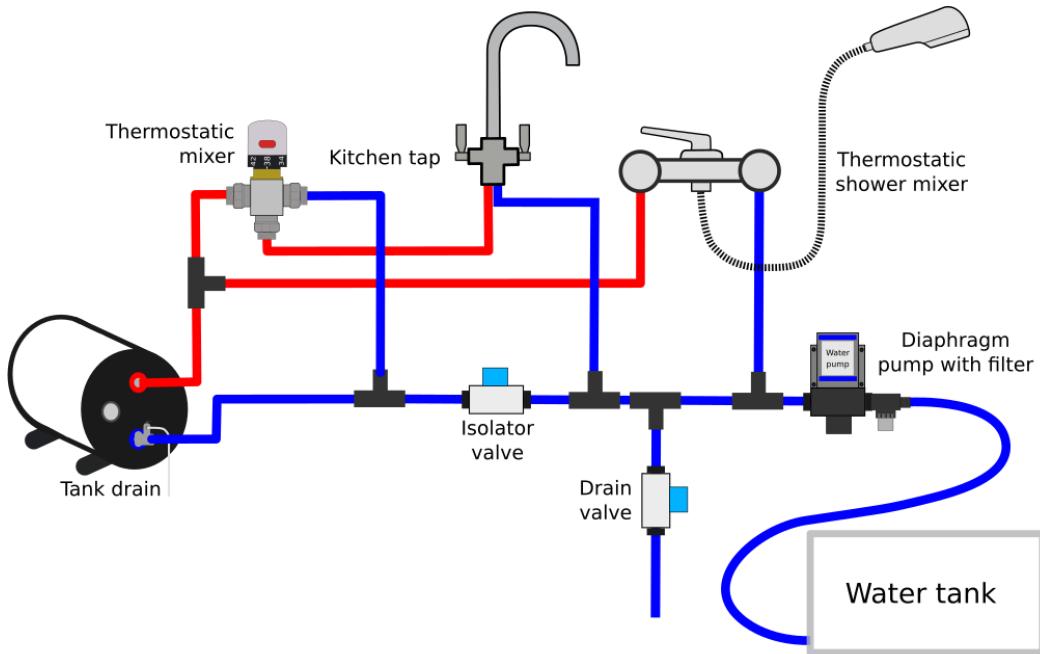
You can use 15mm push fit plumbing but you may need to modify the fitting so the washer seals against the flat face of the tank. Alternatively you can get 12mm fittings for the tank with a 12mm-15mm reducer.

Direct the clear drain hose from the valve down and outside the van or somewhere where water can drain (like into a sink or grey water tank). We recommend having easy access to the tank front, where the connections and temperature knob controller is, for maintenance purposes.



Plumbing Layout

We would recommend a layout similar to this. An accumulator can also be added after the diaphragm pump to smooth the water flow.



Thermostatic Mixer (optional)

If you have small children using the taps in the vehicle it may be advisable to fit a thermostatic mixer to the outlet as shown to prevent them touching water which is extremely hot and could scald.

Thermostatic mixer valves are available on our website under "spare parts".

If you don't fit a thermostatic mixer, we recommend keeping the water temperature on the tank at a lower temperature for safety.

Setting the Temperature

The knob on the front of the tank controls the temperature that the water is heated to. It is linear from 30 degrees until 75 degrees. The tank has a temperature sensor built into it which can be plugged into our Bobil Smart Controller. You will find the cable for this cable tied into a loop next to the cold inlet. If this cable is not long enough, you can extend this cable to your desired length.

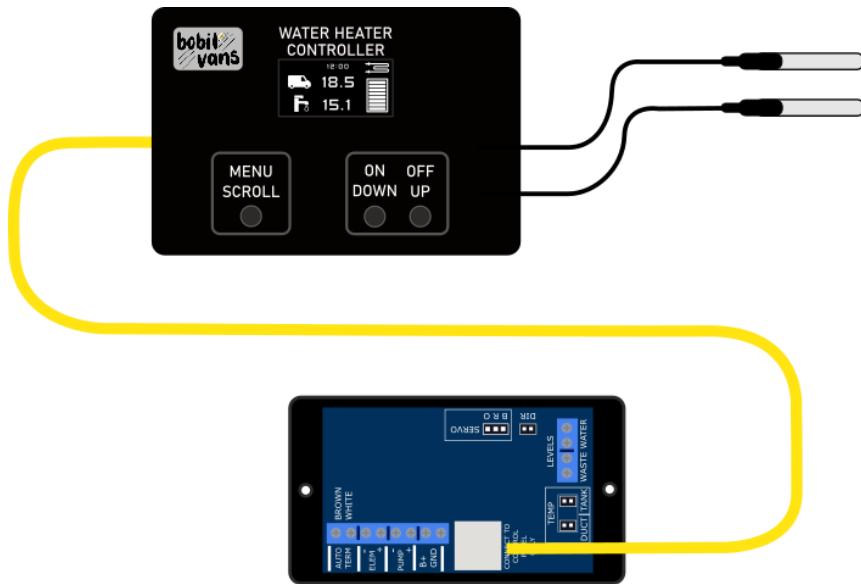


Bobil Smart Controller Wiring

The Bobil Smart Controller is made up of two boxes, one which can be mounted in the living area, and one which is situated near the tank itself.

All connections are made from the slave unit except for the air temperature sensors which come from the cabin box.

The two boxes are connected via the yellow cable.



The two sensors from the master controller are for measuring the internal and external temperatures.

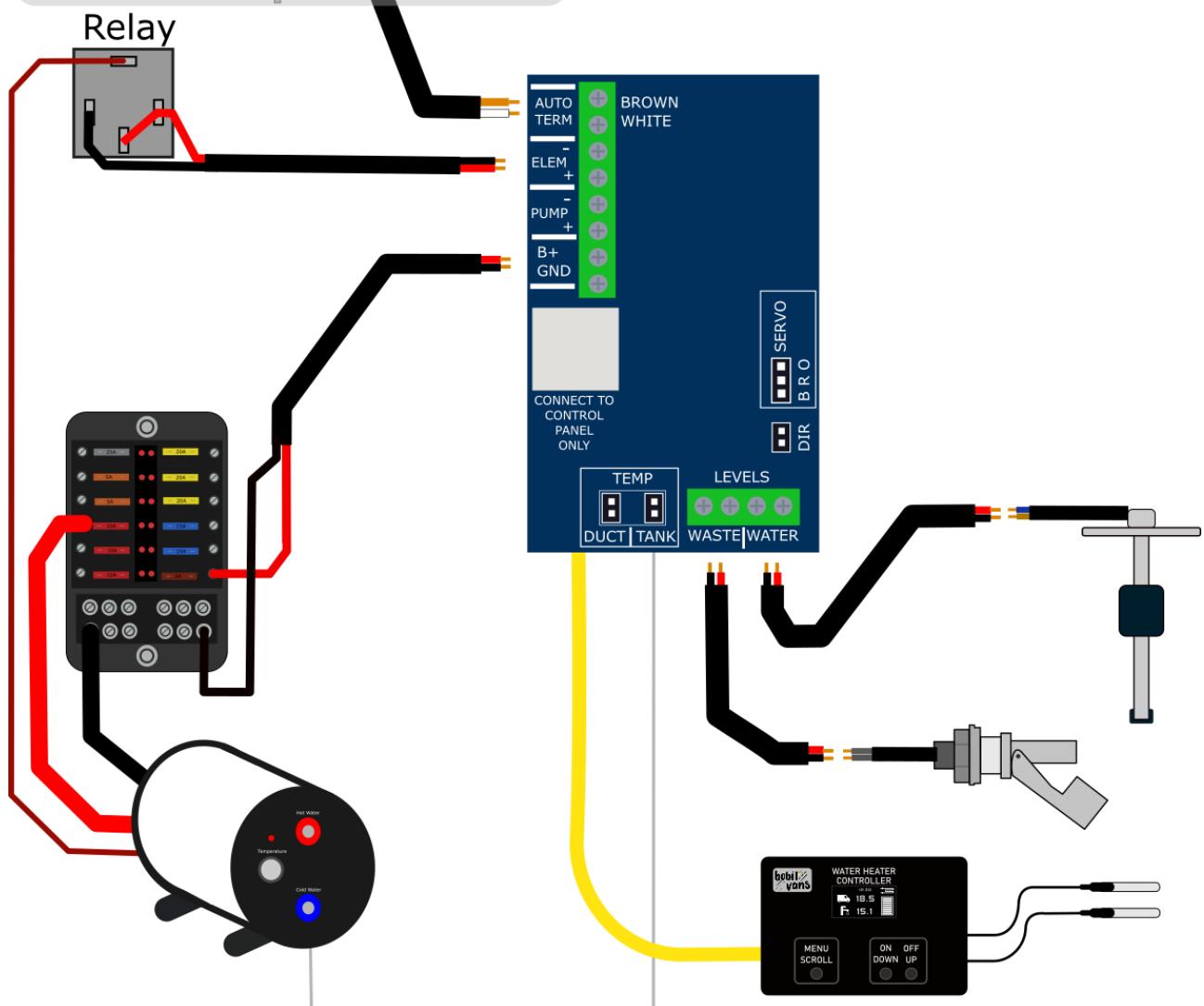
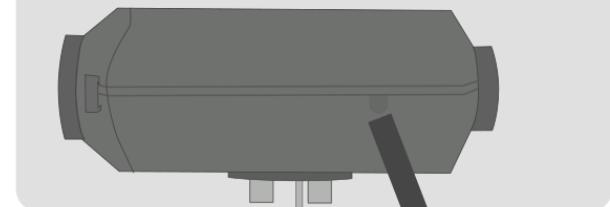
The internal sensor should be mounted high up in the main living space, away from any direct flow from the heater outlet duct.

The external sensor can be mounted anywhere outside the vehicle but must be protected from moisture. We would suggest attaching it to the underside of the van with the provided rubber P-clip.



Wire up the slave controller as shown

Only connect like this to Autoterm heaters



Please note: the “waste” and “water” ports on the bottom right are for the level sensors. If you ordered these, then connect each on to the correct side (there is no polarity). If you did not order level sensors, leave these blank.



Smart Controller Wiring Notes

- The Autoterm Brown/White port can be connected to an Autoterm diesel heater, if you have one. **Do not connect any other heater or device to this port.**

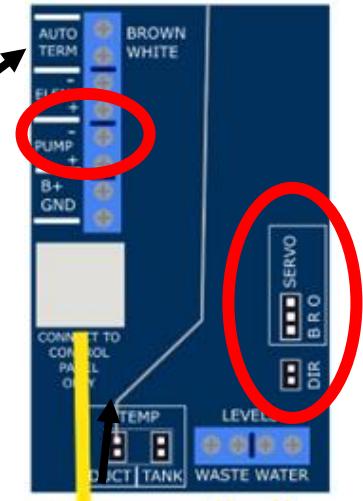
- The Pump, DIR and Servo ports are all for our main Bobil Hybrid Kit so this can be left unconnected (circled red).

- There will be a sensor plugged into the DUCT sensor, leave this in place else you will see errors.

- The controller controls the DC element for “free” hot water when your batteries are full. If you have a 12V/Dual Voltage element tank, then when your batteries reach 13.7V, it will switch the DC element on, and switch it off when voltage falls below 12.7V. This can be enabled on or off, but the values cannot be altered.

- We have a video explanation/tutorial of how to use the Smart Controller, which you can watch by scanning the QR code.

<https://www.youtube.com/watch?v=AoHyYec-9ko>



Wire gauge

Use this table for suggested wiring sizes for the controller and the 12v element.

Distance	1-2M	3M	4-6M	7-8M
Element (mm ²)	2.5mm	6mm	10mm	16mm
Element (AWG)	14 AWG	10 AWG	8 AWG	6 AWG
Controllers (mm ²)	1mm	1.5mm	2.5mm	2.5mm
Controllers (AWG)	17 AWG	16 AWG	14 AWG	14 AWG

Use a 2A fuse for the controller and a 25A fuse for the element. The AC element (if your tank has one) should be fused at 5A AC.

For the connections to the level sensors and the Autoterm, use the thinnest wire you have. We suggest 0.75mm regardless of the distance.