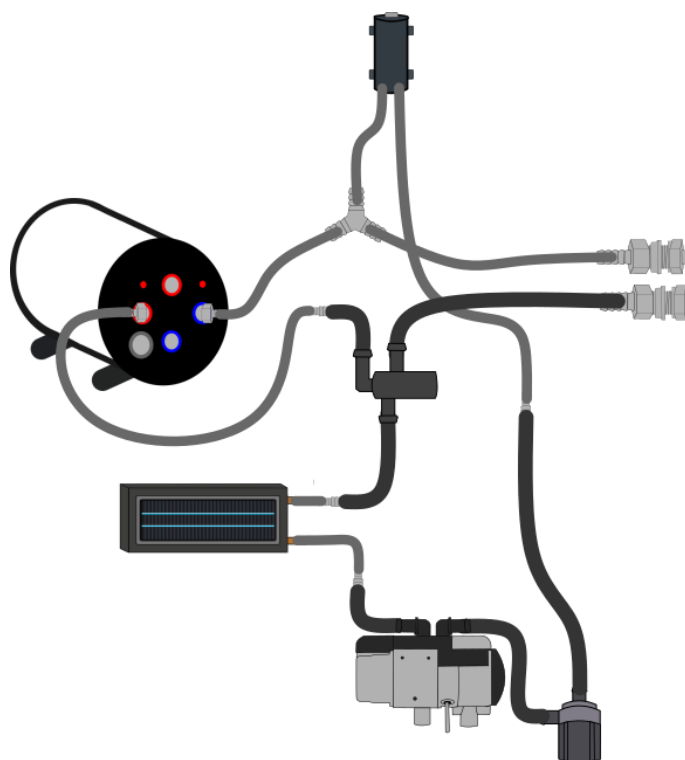




# BOBIL VANS HYDRONIC UNDERFLOOR HEATING SYSTEM INSTALLATION INSTRUCTIONS





## Important Safety Instructions! Please save these instructions!

This manual contains important safety, installation, and operating instructions for the Bobil Hydronic Underfloor Heating System.

Bobil Vans accepts no liability for damage caused by:

- Incorrect assembly.
- Damage resulting from mechanical influences or excess voltage.
- Modification or tampering with the unit/system without express permission from the manufacturer.
- Use 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 system. Inadequate repairs may cause serious injury.
- Electrical devices are not toys - keep away from children.
- Coolant can reach over 80C, ensure system is cool each time before performing maintenance.
- This product is for 12V battery banks only. Make sure your voltage specification is within the input voltage range expressed.
- Do not use the product if physically damaged or with visibly perished hoses.

### Installation

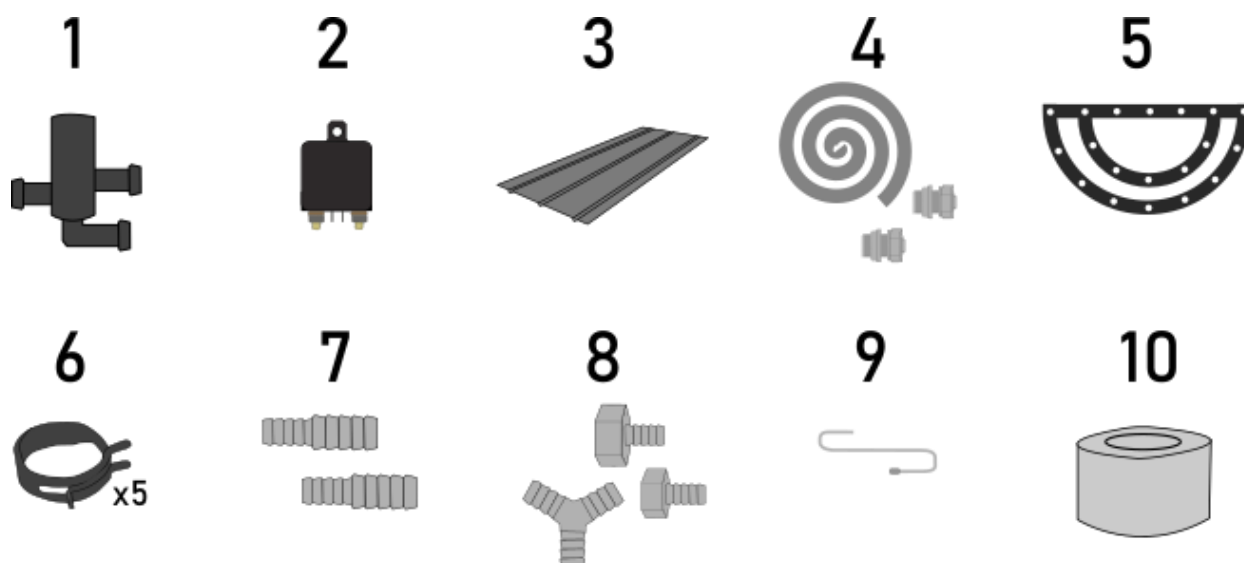
- Ensure it is in a secure location where it cannot tip or fall.
- If necessary, verify installation with a qualified electrician or installer.
- Lay cables so they cannot be damaged or be a tripping hazard.
- Do not operate in salty, wet, or damp environments; in the vicinity of corrosive fumes; in the vicinity of combustible material; in areas with risks of explosions.
- Ensure proper cable sizing for currents generated, with appropriate fuses.

Due to the ways the Bobil Hydronic Underfloor System can be fitted, we cannot account for all installation variations and eventualities in this instruction manual. If you install your system in a way which deviates from these instructions without contacting us beforehand, then we cannot accept fault for any issues that might occur due to incorrect assembly or use, and as such, broken parts would not be covered under warranty.

If you have any questions about your installation, please email us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk)

## What comes in the box?

Please unpack all bags and boxes and ensure you have everything before beginning installation.



1. Automated Coolant Diverter	6. Spring Clips (x5)
2. 12V Relay	7. 18mm-16mm reducers (x2)
3. Spreader Plates	8. 16mm Y piece, 16mm barb to 1/2" F, 19mm barb to 1/2" F
4. Underfloor Heating Pipe & Connectors	9. Temperature Sensor
5. Routing Template	10. Foil Tape Roll

- 2sqm. Kits will receive 5 plates + 15m of pipe
- 3.5sqm. Kits will receive 9 plates + 25m of pipe
- 5 sqm. Kits will receive 13 plates + 35m of pipe

## Preparing your Installation Area

Before installing the underfloor heating pipe, you must have installed your hydronic heating system to attach it to, so you can cut everything to the right size. You also need to have installed the floor batons and insulation, so you can fit the pipe into something on the floor. Please see the QR code below for the video for more information.

Although you will have picked a floor area size when ordering the kit, it is best to double check where you want your underfloor heating pipe to run, and make sure that there will be no holes to cut out in this area (i.e. for a diesel heater, wastewater drain pipe, electrical conduit or shower cutout).

If there is, be sure to pre-mark the area, or better yet, drill the hole(s) before installing the underfloor kit. Drilling/screwing through the underfloor pipe can cause a leak.



We strongly recommend the use of a trim router to cut out the pipe channels in your insulation board. Whilst it is technically possible to chisel the channel out by hand, it will take a long time and not be very neat, and the depth of your channel may not be consistent which could alter the underfloor system heating times.

There is no coolant hose included in the kit, though we do sell it by the meter on our website if you need more. The kit assumes you will use some hose from the install of the hydronic heater itself, as there should be some leftover. Be sure to not kink any of the underfloor pipe or coolant hose, as this can restrict the coolant flow.

Scan this code with your phone camera to watch a video on installing the underfloor heating kit, and how it works.



This instruction booklet will be split into 3 parts:

- Part 1 – Installing the underfloor heating pipes
- Part 2 – Connecting the pipes to the hydronic system
- Part 3 – Wiring & Controller

**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.

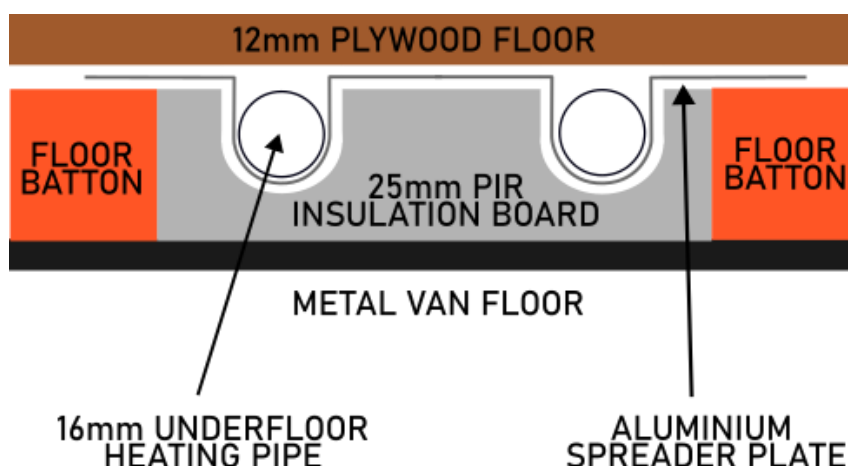
If you have any installation questions or queries then just get in touch, we're here to help.  
Contact us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk) or on the phone at +44 1275 261074

## PART 1 – Installation of the Underfloor Heating Pipe

### How the Underfloor Heating Works

Put simply, the underfloor heating works via coolant being pumped through a pipe, which is nestled into your insulation layer under your main van floor.

The diagram below shows a blown-up, side on view of the different layers. The pipe carries the coolant, the spreader plate disperses the heat, and the wooden floor on top receives this heat. Everything is tightly sandwiched together to maximise heat transfer.



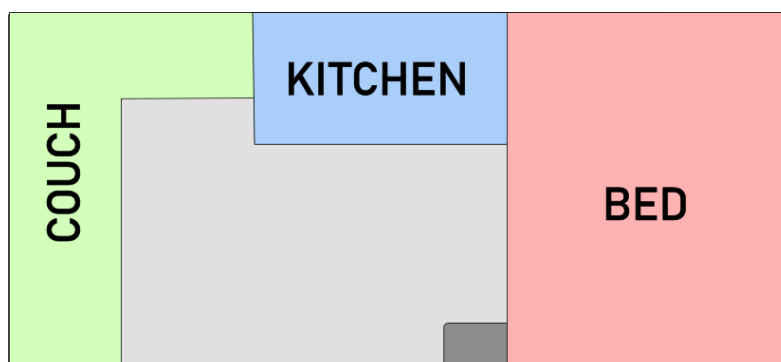
### Installation

1. **PLAN YOUR AREA:** Tape/mark out the area you wish to have your underfloor heating pipe in. The pipe will need to travel up and down, 150mm apart, and cover this area.

Firstly, decide where your underfloor heating pipe starts and ends. This should be near your hydronic heating system as it will need to attach to the coolant pipes. We recommend this to be hidden away under a seat or in a cupboard.

You'll then get to play Tetris with your aluminium spreader plates. These are bulky and cover the straight parts of the pipe run. Depending on your floor layout you may not be able to use all of them, but attempt to fit them all if you can, as it will increase the heating of the floor. You can cut the plates up to suit your layout.

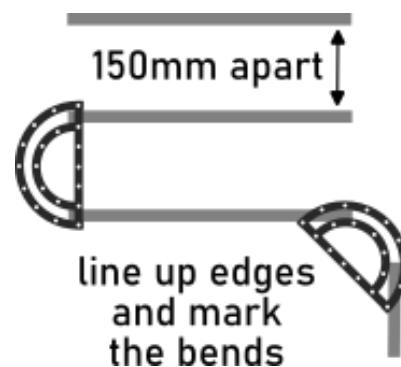
You may find that the final bit of the pipe that needs to make a path back to the start point will not have a spreader plate due to its route. This is fine to do.



2. **MARK THE CUTS:** With a pen, mark out on the floor where the pipe is going to go, using the aid of the spreader plates and the routing template.

Place the spreader plates in place, and mark the pipe grooves where the plates end, then connect these together

With any 90 degree or 180 degree bends, you can use the routing template by lining it up to the straight pipe and tracing the bend for an accurate curve.



3. **ROUTER THE CORNERS:** With everything marked, it's time to router out the pipe channel. Get your trim router and set the depth to around 12mm. We recommend using a 'bearing guided template profiler' router bit for this.

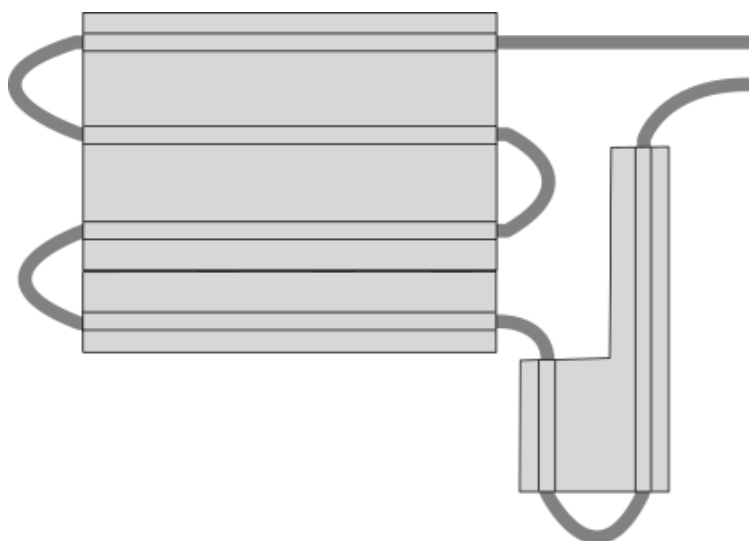
On your floor, create a little divot on each corner piece with your router (freehand). Then, line up the routing template on each corner piece, and cut out the bends with the router, being sure to insert the router into the divot you made. This way, you don't catch the template with the router bit when cutting the corners.

4. **CUT THE PIPE CHANNELS:** Use either a track saw or a router to cut out the straight pipe paths. The channels should be 20mm wide and around 17mm deep. It is useful to create a ply template (like shown on the install video) to help keep your cuts the right distance apart and straight.

Once you've cut and remove the bulk of the material, use your trim router set to 17mm depth and trace over the entire path route. The video shows steps 3 and 4 best, so please refer to it for a demonstration.

5. **SPREADER PLATES:** With everything cut, you can now put in your spreader plates. You can cut these with a jigsaw if you need to make any further adjustments.

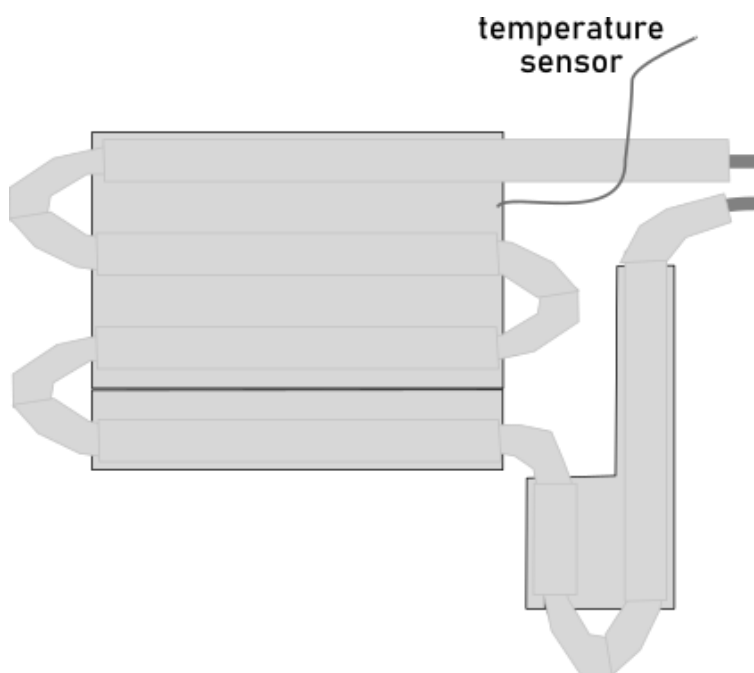
Be sure to leave plenty of room around any bends. You don't need to glue or attach these down the pipe and foil tape will hold them in place.



6. **INSERTING THE PIPE:** Take your coil of pipe and insert it into the channel. Leave a 30cm excess on the end for you to connect to your hydronic heating system later. The pipe will bend quite easily by hand and hold its shape once bend, making it quite easy to install and adjust.

Once inserted, cut any excess pipe off, and then using your foil tape, cover all exposed pipe. Since the tape is sticky, this will also help hold down the pipe in the grooves. This tape helps spread the heat from the pipe to the spreader plates.

7. **TEMPERATURE SENSOR:**  
Before covering the pipe, attach the included temperature sensor to one of the spreader plates, equidistant between 2 channels. This will give you the temperature of the floor on the controller.



8. **FLOORING:** You can now cover everything with your flooring material of choice. We recommend nothing thicker than 12mm otherwise the heating effect is reduced. Plywood and other denser materials work well from our testing.

We recommend installing flooring as quickly as possible to prevent damage to the foil tape and underfloor pipe. If you aren't ready in you build to permanently install your floor, or don't have one yet, covering the entire area with a temporary floor is the next best thing, to protect everything from damage.

**It is vital not to screw anything into your floor deeper than the thickness of your flooring material.** If you do, the screw may pass into the underfloor heating pipe, causing a leak. You may need to screw deeper than your floor material for some furniture, in which case, be sure to avoid the underfloor pipe and screw into your wooden floor beams.

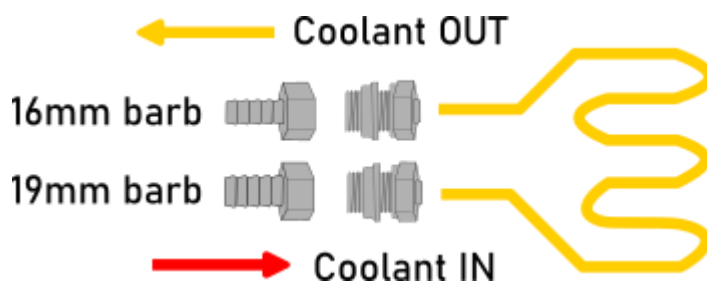
You may wish to mark, on your flooring, where your underfloor pipe is before the floor is covered or painted, so whilst you're building, you know exactly where the pipe is.

## PART 2 – Connecting to your Hydronic System

We designed this underfloor heating system to connect to our Bobil Hydronic System – if you have another type of hydronic heating system, some steps may be similar but others, most notably the wiring, might be different. Please contact us if your hydronic heating system is not one bought from us.

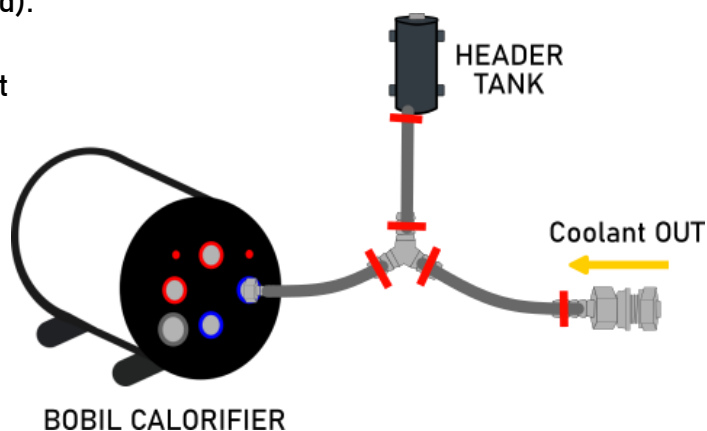
1. **UNDERFLOOR CONNECTORS:** With the underfloor pipe laid and the flooring in place, cut any excess from the underfloor pipe, leaving around 10-20cm exposed poking out the floor. Connect the 2 underfloor pipe connectors to the underfloor pipe (they connect like a compression plumbing fitting). On the other end with be a standard ½" thread.

- Connect the ½" to 16mm barb to the Coolant OUT pipe.
- Connect the ½" to 19mm barb to the Coolant IN pipe.



2. **Y PIECE:** The metal Y Piece has 3 ports to connect 16mm coolant pipe to, with the included spring clips (shown in red).

- Connect one branch to the Coolant OUT pipe of the underfloor pipe.
- Connect one branch to the Coolant OUT pipe of the calorifier.
- Connect the final branch to the header tank.



It doesn't matter which branch connects to what. Try to keep the coolant pipe length as short as possible to reduce heat loss. The connection to the calorifier tank should have its spring clip included in the main hydronic kit.

3. **AUTOMATED COOLANT DIVERTER:** The final part of this kit to install is the automated coolant diverter. This either send coolant to the calorifier coolant IN port, or the underfloor coolant IN port.

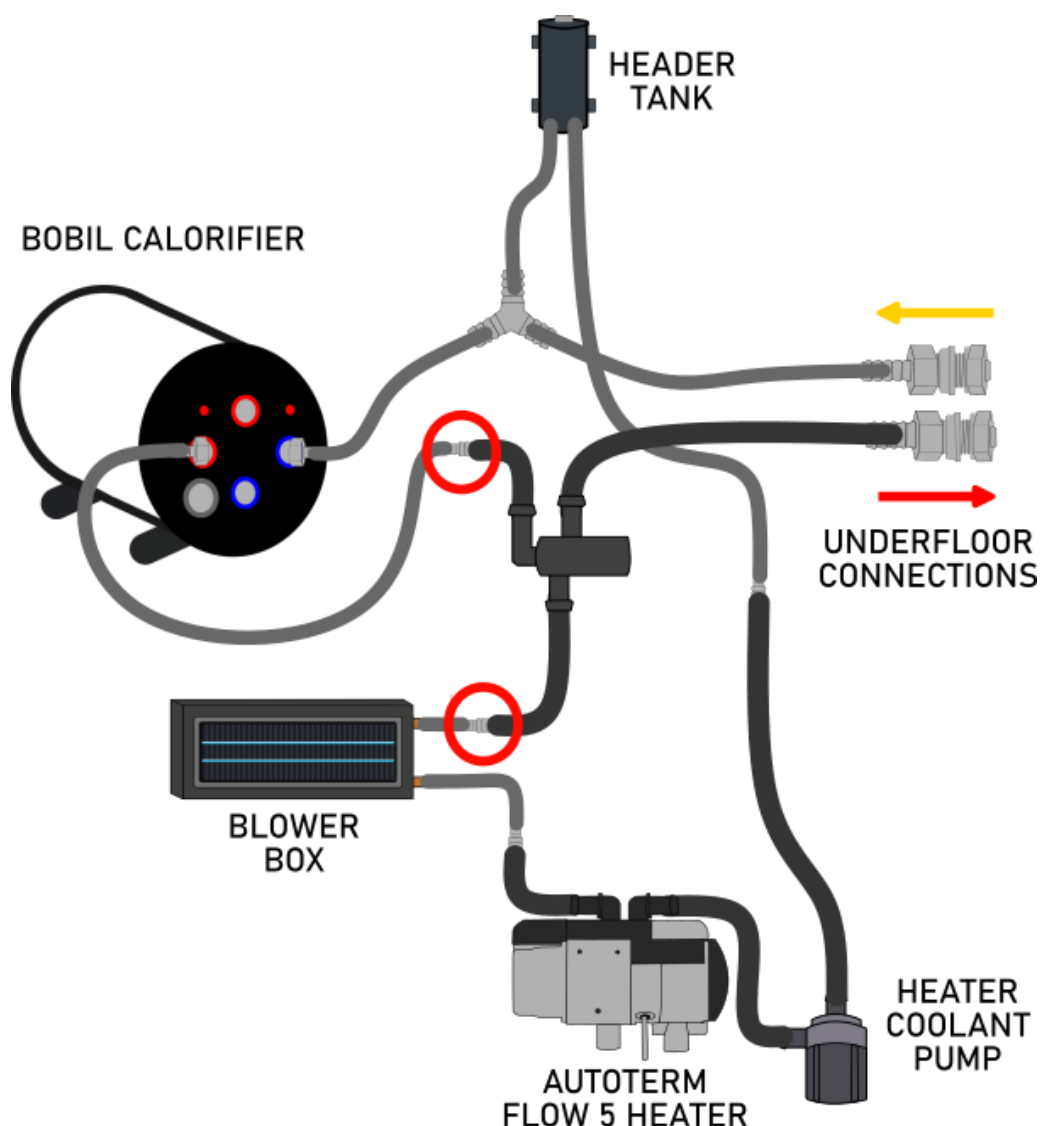
You'll need to orientate this diverter valve correctly, as per the diagram otherwise it won't work. It can be installed on its side, or any way up, so long as the ports are connected to their correct destinations.





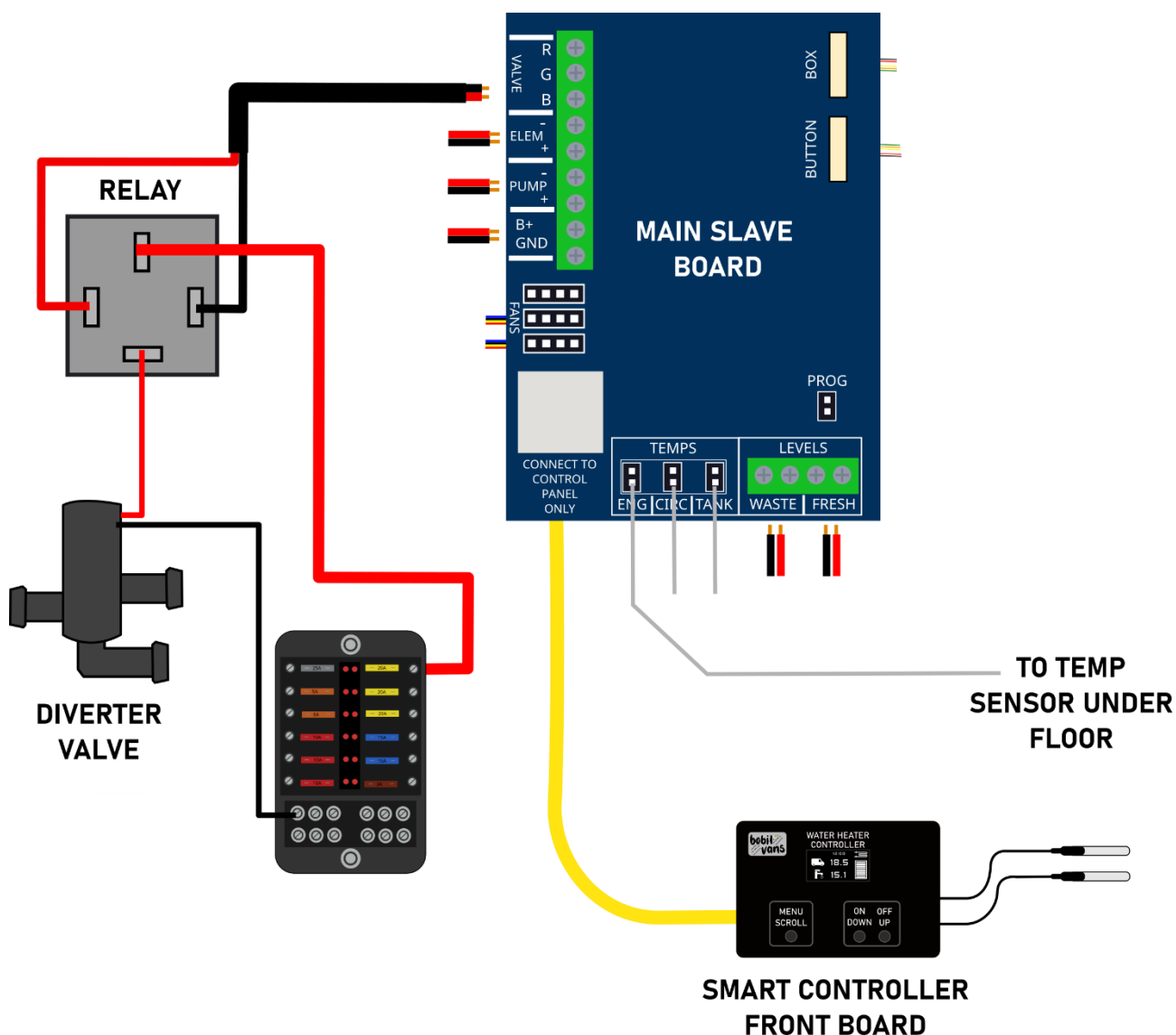
Please note the two reducers, circled in red. These are to reduce the pipe to 16mm, so it can connect after the blower box, and onto the coolant IN port on the calorifier. There will be spring clips for these connections included in the main kit, leftover from the installation of the heater.

Again, no coolant pipe is included in the kit. The darker grey on a diagram represents 19mm coolant hose, and the lighter grey represents 16mm coolant hose. We sell both by the meter on our website if you need more than what was included with the heater and in the main hydronic heating kit.



## PART 3 – Wiring

This part assumed you already have a Bobit Hydronic Heating system with a Smart Controller. Please follow the associated instructions included with the main kit for wiring the bulk of the controller – these instructions will only cover the underfloor heating kit wiring.



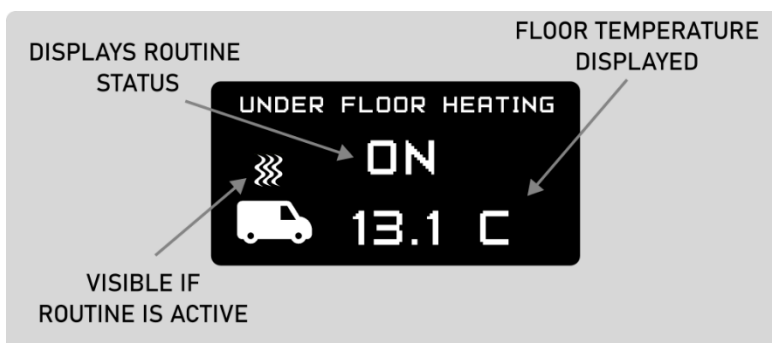
For simplicity, the above wiring diagram highlights the additional bits that you need to wire for the underfloor kit.

- The temperature sensor that you installed under the floor plugs into the **ENG** TEMPS sensor port.
- The wires from the diverter valve plug into the **G** and **B** ports on the board via the included relay as shown. The relay will also need to be wired to power with a 5A fuse.
- You can extend the red/black wires from the diverter valve, and the temperature sensor wires to reach the controller if required.

With the Smart Controller, there are 2 menus on the controller that control the underfloor.

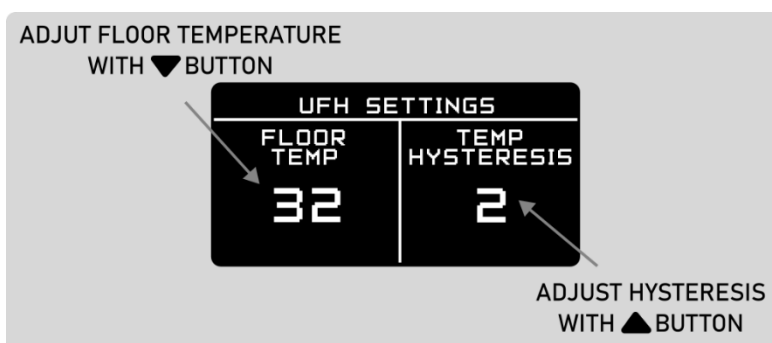
Using the MENU button, cycle through the screens – after AC AIR/WATER HEATING there will be a menu called UNDER FLOOR HEATING as shown below.

The main menu displays whether the underfloor heating is ON or OFF, along with the readout from the temperature sensor you installed under the floor. By pressing ON, you turn it on, and a wavy line will appear to show it is on.



By pressing the OFF button for 3 seconds, you get to the UFH SETTINGS menu.

- Using the ON button changes the temperature the floor will be heated to (20-60C)
- Using the OFF button changes the temp hysteresis. This refers to how much the temperature of the floor can drop (once it is up to temperature), before more coolant is pumped through it. Setting this is 2 or 3 degrees is usually sufficient.



## Troubleshooting

The Bobil Hydronic underfloor heating system should give you many years of service, however if you notice that things aren't quite performing as expected, please do get in touch, we're here to help! Email us with your questions at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk)



We would love to know what you think!

Please let us know by leaving a review through the link sent through when you made your purchase, or email us at [info@bobilvans.co.uk](mailto:info@bobilvans.co.uk)!

You can also share photos of your installation on the 'Bobil Water Heater Users', Facebook page, we'd love to see them!

[www.bobilvans.co.uk](http://www.bobilvans.co.uk)

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