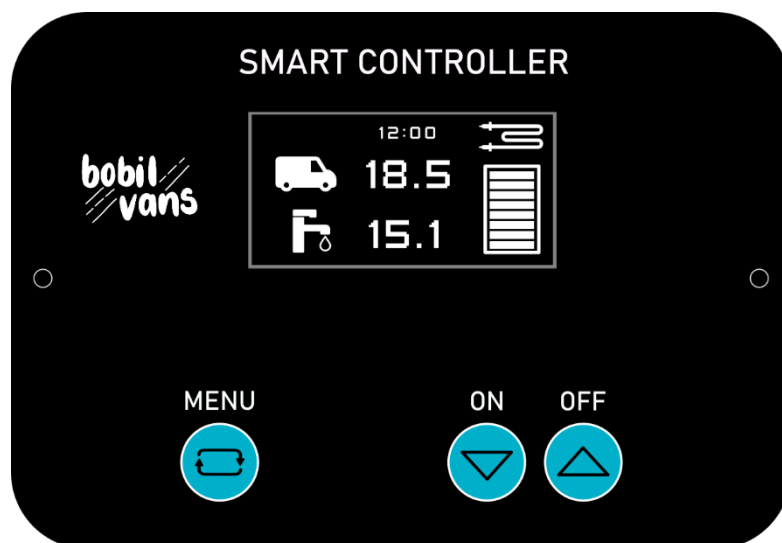




BOBIL VANS HYDRONIC CONTROLLER

USER GUIDE





Important Safety Instructions! Please save these instructions!

This manual contains important safety, installation, and operating instructions for the Bobil Vans Hydronic Controller.

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

- In the event of product failure, do not attempt to repair the controller. Contact us for support.
- Electrical devices are not toys – keep away from children.
- This product is for 12V circuits only. Make sure your voltage specification is within the input voltage range expressed. Do not connect to a 24v circuit.
- Install and store the product in a dry and cool place.
- Keep electronics away from liquids!
- Do not use the product if physically damaged.
- Over-current protection devices should be on the positive line.

If you have any questions about your installation, please email us at info@bobilvans.co.uk

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



Basic Information

The Bobil Hydronic Controller offers a host of features for controlling the Bobil Water System. The key features are:

- Control of the Autoterm Flow Hydronic Diesel Heater and Bobil Calorifier.
- Accurate temperature feedback for cabin temperature and water temperature as well as the temperature outside of the vehicle.
- Routines for both water heating and combination air and water heating, which can be set with a timer and run via the heater or AC element when on grid.
- Operation of the 12v element based on the system voltage.
- 9 point water level display with a 'tank full' reading for the waste tank.
- Remote operation from a phone via Wi-Fi.

These instructions go through each screen of this controller, along with how to change parameters of each setting.

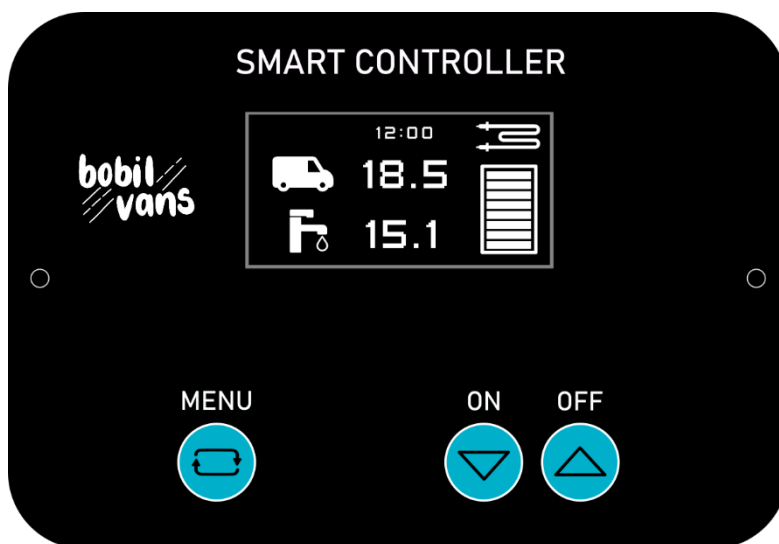
They do not show the wiring on the controller, for this please refer to the main instruction manual for your specific kit to show the wiring on the controller, as each is slightly different depending on your kit.



Controller Overview

The controller has three button inputs.

- The left-hand button is a menu scroll button. Press this button to scroll through the different screens.
- The other two buttons are used to turn the routines on and off and alter the time and temperature.



Controller Menu Screens

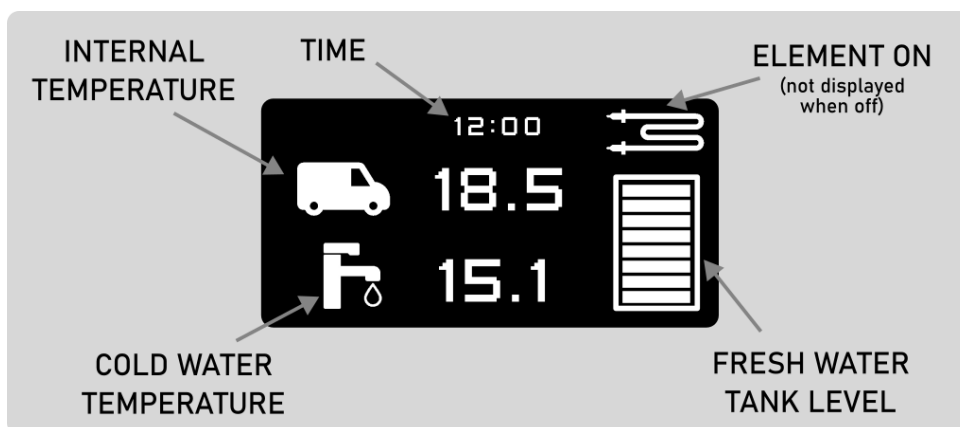
1. Main Status
2. Secondary Status
3. Water Heating Routine
4. Air and Water Heating Routine
5. AC Air/Water Heating Routine
6. Set Time for Air/Water Heating
7. Enable Air and Water Heating Timer
8. Air Target Set Point
9. DC Heating Element Control
10. Time Setting
11. WI-FI Connection
12. Settings

Leaving the controller for 60 seconds will default back to the main status screen.

Please see the following pages for a breakdown of each status page and how to change each setting.

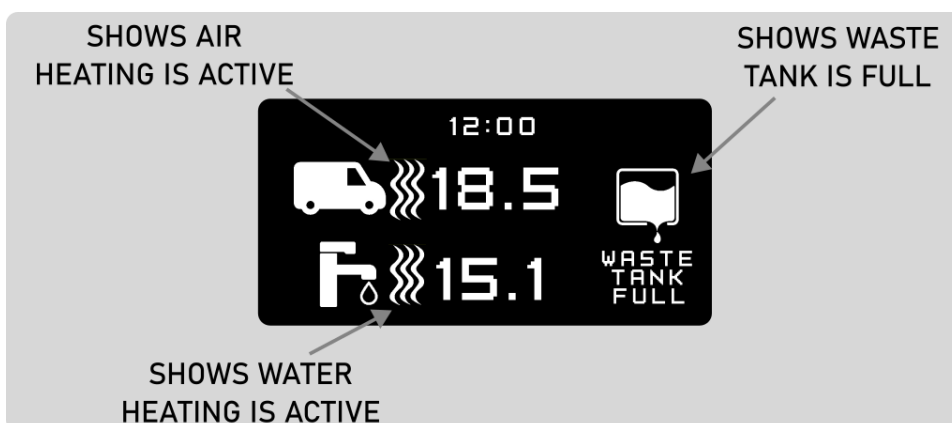


Main Status Screen



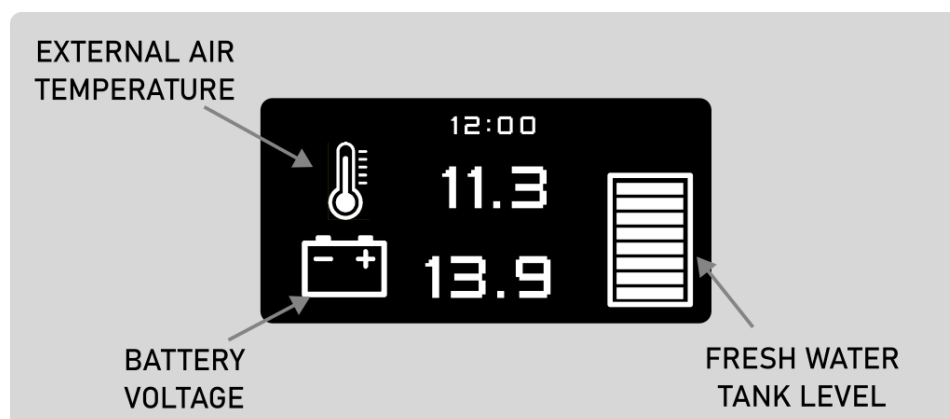
- The fresh water tank level is only displayed if the sensor is connected.
- If the waste tank sensor is triggered, you will see "waste tank full". As this replaces the fresh level, the level is then displayed on the second status screen.

If a heating routine is running, then additional icons will be displayed.



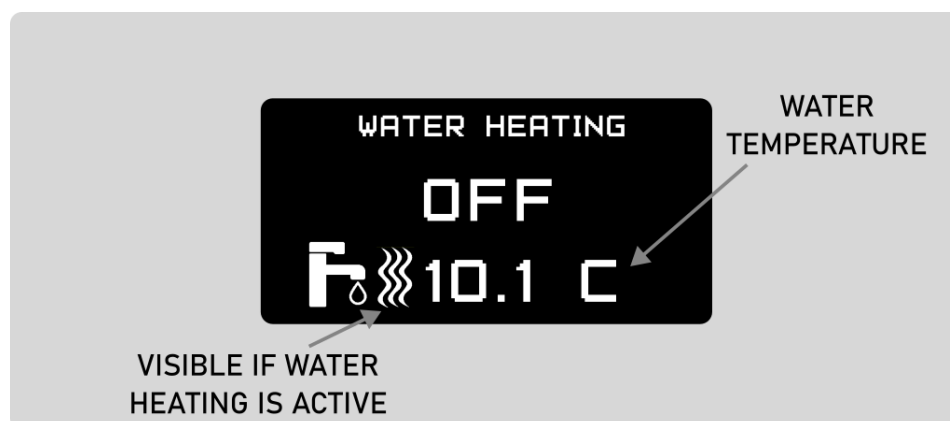
- This screen doesn't allow you to set any routines, it simply displays if there is current something being heated.
- The internal temperature is read from the temperature sensor plugged into the Controller, which can be placed anywhere you see fit in the van.

Secondary Status Screen



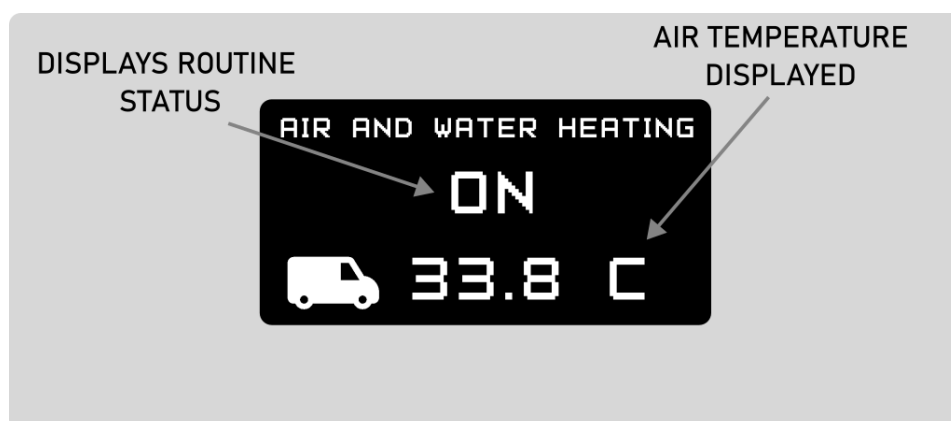
- Displays external air temperature and current battery voltage.
- External air temperature reading is from the 2nd temperature sensor connected to this controller which can be placed outside the van, or can be placed somewhere else in the van (e.g. the cab or garage area).

Water Heating Routine



- This routine starts the diesel heater, and heats the water in the calorifier.
- Use the ON/OFF buttons to enable/disable this routine.
- The heater and routine are turned OFF when the water temperature is reached.
- The water temperature set be changed on the settings page.

Air and Water Heating Routine

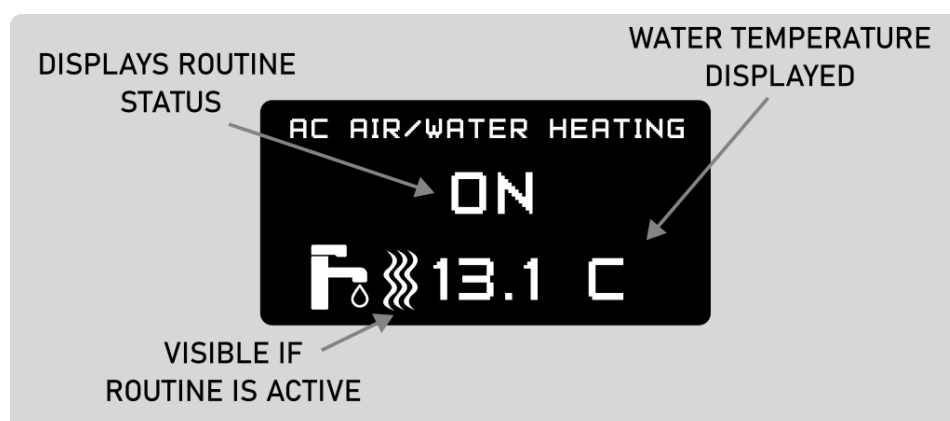


- This routine heats the water and the air to their setpoints using the diesel heater.
- Use the ON/OFF buttons to enable/disable this routine.
- **This routine will run continuously.** As the air temperature approaches the set point, the blower box will slow down (see page 10 for air temp setpoint).
- When switched off, you will see a cooling timer. This is because diesel heaters need a few minutes to shut down so no further commands are allowed at this time.
- The air temperature reading come from the Bobil Controller internal temperature sensor, so you can position this sensor as you see fit in your van. Placing it high up in the van may give an inaccurate reading – we recommend placing it near your bed at sleeping height for the most accurate reading.
- Note that the blower box will only come on when the water temperature in the coolant loop reaches 55 degrees.

If the routine is running and the coolant reaches temperatures over its standard operating temperature of 80 degrees, it will reduce its power output. The Flow heater has three levels, and on the lowest power this should just tick over and give out a minimal amount of heat.

If the maximum temperature as set by the Flow Heater (90 degrees) is reached, it will switch off the combustion but keep the coolant circulating. The diesel heater will then switch back on when the coolant reaches around 65 degrees. Sometime you may notice that the smart controller is 'ON' but the heater has switched off, this is normal behaviour.

AC Air and Water Heating Routine



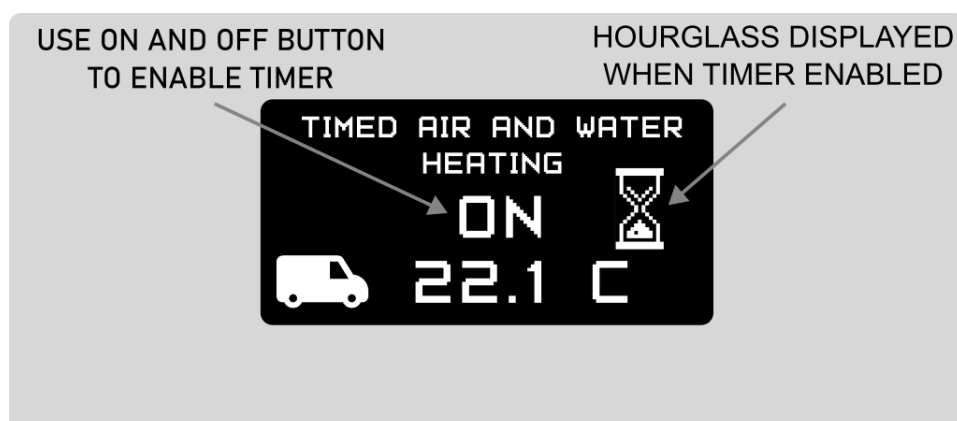
- In this routine, the calorifier is used in the opposite way to other routines. Instead of using the coolant loop to heat the water, we use the AC element to heat the water which then heats the coolant and is also circulated to the blower boxes.
- **This routine will run continuously.** As the air temperature approaches the set point, the blower box will slow down (see page 10 for air temp setpoint).
- The AC element should be switched on (this is not done by the controller). It will enable the coolant loop circulation pump and blower box to heat the air. Note that the circulation pump and blower box will only come on when the water temperature in the hot water tank reaches 55 degrees.
- We recommend using this routine when on hookup power as leaving this on for extended periods of time will use lots of power if run via an inverter (around 70Ah per hour)
- Since the AC element isn't as powerful as the diesel heater, heating output will be lower than when running the diesel heater but it is useful in mild conditions when the van is on hookup.

An important note is that there is no “air heating only” mode with this system.

Due to the diesel heater being a hydronic heater rather than an air heater, in order to get hot air from the blower box the coolant inside the system needs to reach temperature. This coolant runs through the calorifier and by proxy, will heat up the water.

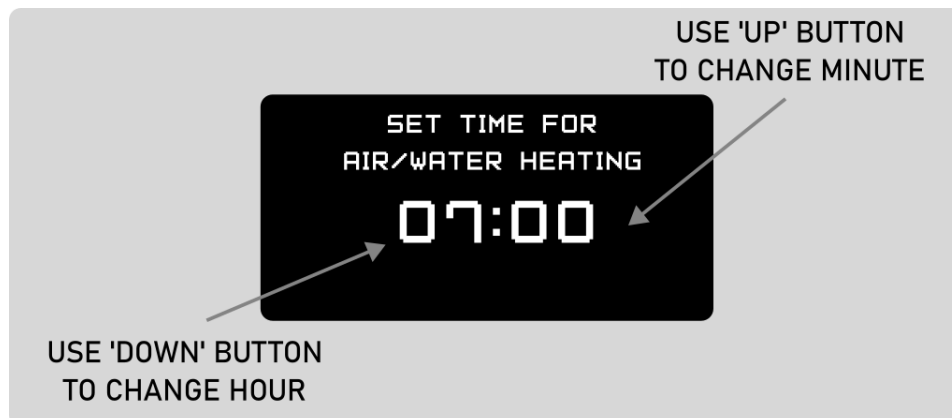
As a result, you will always have hot water in the calorifier every time you run the heater.

Timer ON/OFF Screen for Air/Water Heating



- This screen allows you to enable the timer setting for the air/water heating route.
- Press the ON/OFF buttons to enable/disable this routine.
- When enabled, the hourglass will also be displayed on the main status screen.
- Click MENU to set the routine turn on time.
- The timer will only start the routine, it will need to be switched off manually.

Timer Screen for Air/Water Heating



- This screen allows you to set a time to start the air and water heating routine. This does not enable the routine, it only sets the time.
- Refer to the previous screen to enable/disable this timer.



Air Temperature Setpoint



- Use the ON/OFF button to set the temperature.
- If you hold down the menu scroll button for 2 seconds then you can shortcut to this screen from any other menu screen.

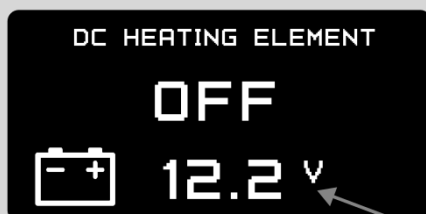
The way the hydronic heater works is as the cabin temperature approaches the set point, the controller will modulate the fan speed. When the air temperature is reached, the fans will be running at around 20% of their full output. If the setpoint overshoots by half a degree, the fans will switch off. This will stop the air being heated but continue to heat the water in the calorifier.

When the air temperature in the van drops below the set point, the blower box slowly comes back on to keep the air temperature at your chosen setpoint.

The blower box will not turn on at all until the coolant loop temperature reaches 55C.

DC Heating Element Control

USE ON AND OFF BUTTONS TO
ACTIVATE HEATING ELEMENT



DISPLAYS BATTERY
VOLTAGE

- Displays current battery voltage as read by the Hydronic Controller.
- This routine controls the 12V 200W DC heating element in the calorifier.
- When the target of 13.4V is reached, a countdown from 300 seconds starts on the home screen. When '0' is reached the element comes on and the element symbol is displayed.
- If the voltage drops below 12.8V, then the element is switched off straight away and the countdown is reset.

Change Voltage Parameters

To change the voltages at which the element is turned on and off, do the following:

1. Navigate to the DC Heating Element Screen
2. Hold down 'OFF' for 5 seconds.
3. Press 'ON' to modify the 'Turn on voltage'.
4. Press 'OFF' to modify the 'Turn off voltage'.
5. Press 'MENU' to navigate back to the settings screen.

Uncontrolled Voltage Mode

You can also use the controller in 'uncontrolled voltage' mode, allowing you turn the 12V element on and off manually at will, disregarding battery voltage completely. This setting is useful for testing purposes but can damage your batteries if left on as it can drain your batteries below the recommended safe voltage as there is no voltage protection.

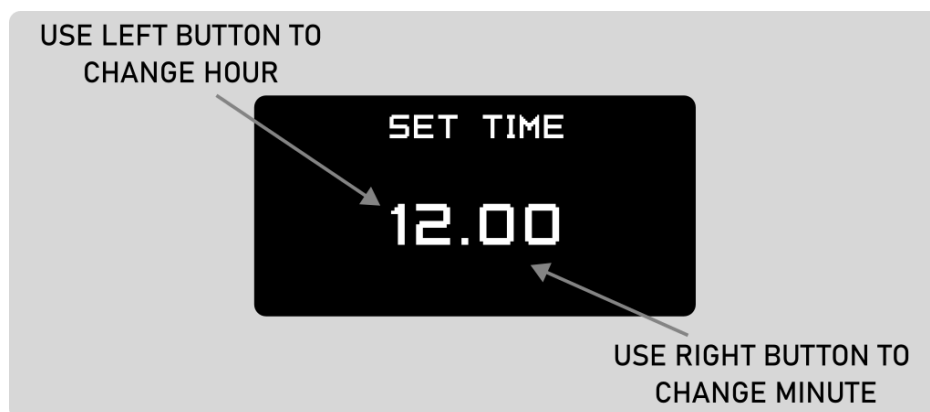
If you wish to enable uncontrolled voltage:

1. Navigate to the DC Heating Element Screen
2. Hold down 'OFF' for 5 seconds.
3. When the voltage select screen is displayed, hold down the 'ON' button for 5 seconds. This will put the controller into manual/uncontrolled mode.
4. Press 'MENU' to navigate back to the settings screen

You can now use 'ON' and 'OFF' on the DC element screen to switch the element on and off manually. To switch back to voltage control, hold down the 'OFF' button for five seconds on the voltage select screen.



Time Setting



- Enables you to change the time on the smart controller.

Wi-Fi Connection



The Bobil Smart Controller can be remotely controlled from your phone via WI-FI.

To connect to the unit, go to the WI-FI connection on your phone and enter the password as shown on the screen.

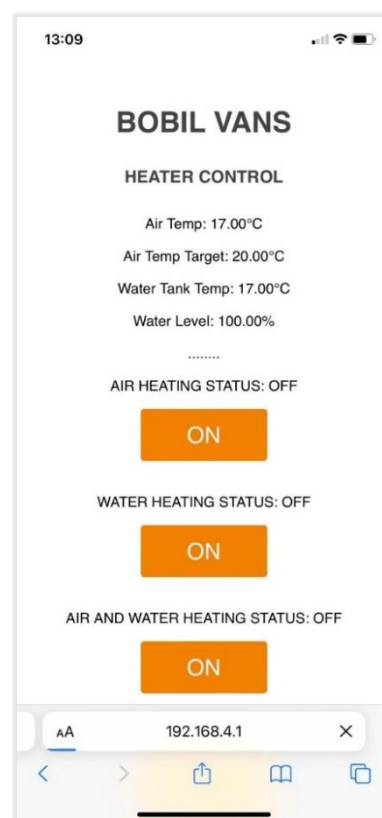
Then go to your browser and type the address as shown on the screen.



A page will come up like this:

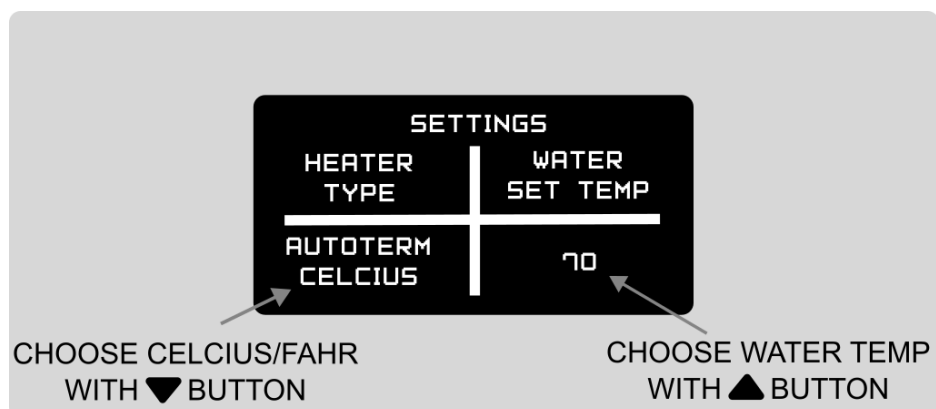
A few points to note whilst using the phone app:

- If you have started a routine using the controller, the phone app will not 'know'. To stop a routine, you would have to 'start' it using it using the app, then stop it.
- The Smart Controller cannot be connected to any other WI-FI hub, it must have a direct connection to a device.
- Depending on your device, you may find that the phone will try and use the Bobil controller as a WI-FI hotspot. If this is the case then we suggest disconnecting from the Bobil controller after you have finished using it as this may cause problems with data.





Settings



- Displays water heating temperature and Celsius/Fahrenheit
- Use the OFF button to set the temperature reading from Celsius to Fahrenheit.
- Use the ON button to change the hot water temperature in the calorifier's maximum temperature, from 55-80C in 5 degree increments.
- Note that the calorifier temperature may exceed the maximum temperature on this page if the coolant heater is also heating air, as hot coolant will still be passing through the calorifier.

Troubleshooting

We hope you don't encounter any issues during your use of our system. If there are any issues however, the Smart Controller will display an error message.

You can refer to the table on the following page to troubleshoot these issues. If you have tried the solution(s) below and the issue persists, please contact us via email and state which error message you are getting and what you have tried and we will do our best to help.



Error message	Solution
Sensor error	Check that the two temperature sensors plugged into the master (top) board are pushed all the way in. Pull them out and push back in again fully.
No sensor no likey	Check that the two temperature sensors plugged into the master (top) board are pushed all the way in. Pull them out and push back in again fully.
Comms error	Check for a flashing light on the slave board chip. Ensure the yellow cable is firmly seated on both ends.
Controller not turning routines on	The temperatures may have already been reached, so check the set temperatures and Celsius/Fahrenheit, and air/water temp on the Smart Controller

If there are any issues, then please do get in touch! E-mail us at info@bobilvans.co.uk or call us on 01275 261074



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!

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

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