



 **dhhydronic**

OPERATION MANUAL

DH9, DH15, DH9DUO, DH15DUO and DH30
with Eberspacher Furnace and V4 Thermostat

RETAIN IN VEHICLE FOR OPERATOR REFERENCE



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INTRODUCTION

DH Hydronic hot water heaters operate by transferring the energy from coolant heated by the diesel furnace to a potable water heat exchanger and optional fan air heaters.

The systems are assembled with pride in Tasmania and designed to be long-lasting and reliable. Please retain this operation manual in your RV/boat for quick reference on how to use and care for your system.

OPERATING CONSIDERATIONS

- **Units are designed to be switched on when needed and turned off when not in use. Extended periods with the unit left in standby are not recommended.**
- Try to start showers when the furnace is running, the hot water indicator is fully hot and the furnace is not in standby, as the furnace restart time can reduce the amount of available hot water.
- When starting from cold, or after a shower, allow time for the system to fully reheat before using it.
- Never leave the system in storage with very hard water in it as this can cause damage to the internal stainless steel plate heat exchanger.
- Never run the furnace in a sealed box or with any obstruction to the air inlet or exhaust.

TYPICAL COOLANT FURNACE OPERATION

- Turn on the furnace using the Dieselheat thermostat.
- After approximately 3 seconds, the coolant circulating pump will come on. The glow pin and fuel pump will then come on and the furnace will start its combustion cycle.
- Once the furnace obtains full combustion, it will continue to produce heat on full power until the coolant temperature reaches 80°C.
- At this temperature, the furnace will cycle down to its lower heat setting and the circulating pump will continue to circulate coolant around the system.
- When the coolant reaches approximately 88°C, the furnace will go to standby and the coolant circulation pump will continue.
- The furnace will not restart until the coolant temperature drops to 78°C. This will happen either by heat dissipation over time, or if the hot water service or fan heater demands heat.





Only turn the furnace off using the controller. Do not cut power to the furnace during any stage of its operation.

CONTROLLING THE HOT WATER SYSTEM AND AIR TEMPERATURE

General







The Dieselheat touch screen thermostat is designed to control the room temperature and hydronic furnace in a Dieselheat hydronic hot water and heating system.

Turning The System ON/Off

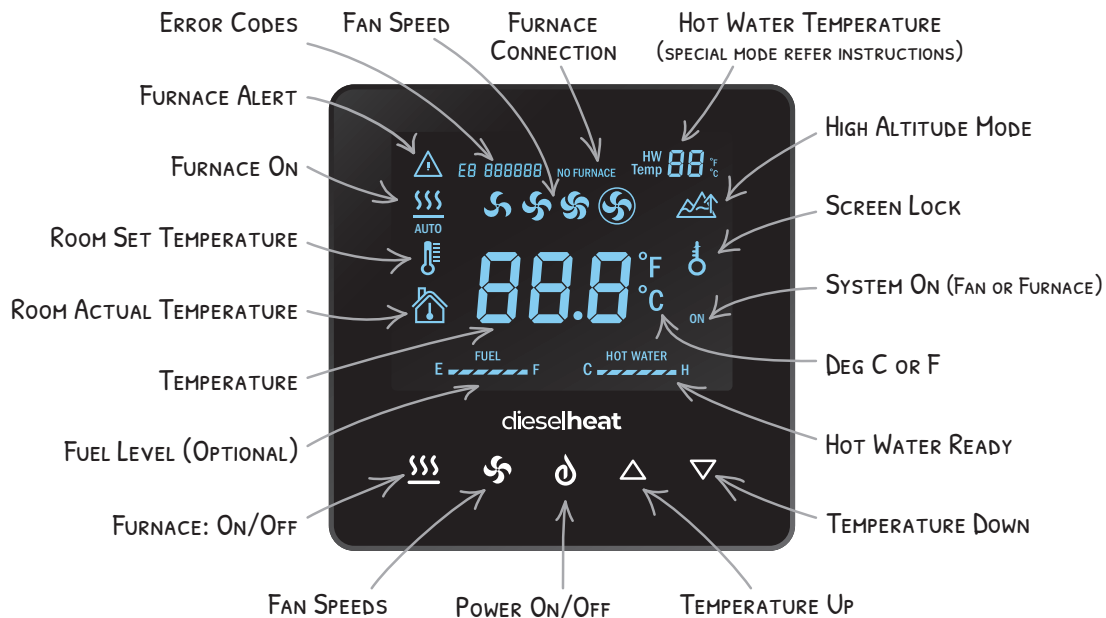
- Press  to activate the system.
- Press  to turn on the furnace for hot water.
- Press  to activate the air heating.
- Press  to switch the system off.

Furnace and fan settings are retained when the system is turned off and will return when it is switched on again.





Controlling Air Heating

- The furnace must be on for the air heating to work.
- Use the fan in  low,  medium, or  high to set the fan speed manually.
- Use the fan in  for the fan speed to vary automatically to maintain a set temperature.
- Use  and  to set the desired room temperature.

Display Icons & Buttons



Keypad Lock/Unlock




Push and hold  and  simultaneously for 5 seconds to LOCK all buttons.
Push and hold  and  simultaneously for 5 seconds to UNLOCK all buttons.

Screen Sleep

The screen will go blank approximately 15 seconds after the last button press. To wake it up, press any button. If the furnace or air heating fan is running, "ON" will remain visible on the screen. The fuel level (if sensor is installed) and hot water indicator will also remain visible, but can be hidden by changing parameter 14 (see page 6).

High Altitude Mode

If operating above 1,500m, the system must be set to High Altitude Mode:

- Press and hold  for 8 seconds until  appears on the screen.
- This setting is retained even when the system is turned off.
- To disable High Altitude Mode, press and hold  again for 8 seconds.

DO NOT USE HIGH ALTITUDE MODE UNLESS OPERATING AT ALTITUDE

Fuel Level Indicator (Optional)

The fuel level gauge will show automatically after the Dieselheat fuel level sensor is connected and the fuel level is filled to over 50%. To hide the fuel level gauge set parameter 13 to 0 (see page 6).

Hot Water Indicator



The hot water indicator shows how ready the system is in terms of pre-heating, it is recommended to always start a shower when the system is fully hot.

System Alerts and Errors

When the furnace detects an issue,  will appear on the screen.



- Some errors will stop the furnace from operating.
- Others serve as warnings, but the system will continue running.
- To find the cause of the alert, retrieve the error codes.

Retrieving Error Codes

1. Press and hold  and  together for 4 seconds.
2. The controller will display error codes in the format E1 00122.
3. Up to **six** error codes will be displayed in sequence.
4. For a full list of error codes, scan the QR code.



Deleting Error Codes

1. While error codes are displayed, press and hold  and  for 4 seconds.
2. The screen will flash E00000 three times, confirming that the error codes have been deleted.

No Furnace

If the **No Furnace** indicator appears, it means the thermostat's CAN functions are enabled, but no Eberspacher furnace is detected.

This suggests the thermostat is attempting to communicate with the furnace but cannot establish a connection.

TEMPERING VALVE - CONTROLLING WATER TEMPERATURE



The tempering valves built onto the DH Hydronic hot water heaters come preset at 50°C, but can be set at between 40°C and 55°C by removing the cap and rotating the brass bolt beneath it.

The system will always be shipped with the tempering valve installed. Never operate the system without the tempering valve or with a defective tempering valve as the outlet water temperature can be as hot as 80°C.






COOLANT

The system must be filled with good quality engine coolant to prevent corrosion of internal components. Commonly available automotive coolants that include corrosion inhibitors are acceptable and should be used in accordance with the manufacturer's specifications. Antifreeze is not required unless the system will be operated or stored in freezing conditions. It is important to replace the coolant at the interval specified by the coolant manufacturer to prevent corrosion of system components. If no information on the coolant is known it is recommended to change it every 3 years or if it becomes discoloured.

ADJUSTING THERMOSTAT PARAMETERS

Some thermostat settings can be customized. The default settings are suitable for most situations and typically do not need adjustment.

How to Change Parameters:

1. Ensure the thermostat is turned off.
2. Press and hold  and  for 3 seconds to enter Parameter Mode.
3. Use  to scroll through available parameters.
4. Adjust settings using  and .
5. Changes are saved instantly.
6. Turn the thermostat off to exit Parameter Mode.

CODE	PARAMETERS	RANGE	DEFAULT
1	Temp calibration/offset	-9 ~+9	0
2	Temperature Display	0 Deg C, 1 Deg F	Deg C
3	CAN Communication	0 Disable, 1 Enable	Enable
4	Fan auto mode P-band range	2, 4, 6, 8, 10	10
5	Fan auto mode I-time range	1 - 60 mins	3 mins
6	Min EC Output for Auto Fan	0 - 10 Vdc	0 Vdc
7	Max EC Output of Auto Fan	0 - 10 Vdc	10 Vdc
8	Low Fan Speed for EC fans on manual mode	0 - 10 Vdc	2 Vdc
9	Medium Fan Speed for EC fans on manual	0 - 10 Vdc	5 Vdc
10	High Fan Speed for EC fans on manual mode	0 - 10 Vdc	10 Vdc
11	Not used		
12	Show Hot Water Temperature Graph	0, 1 (show)	1 (show)
13	Show Fuel Level Graph	0, 1 (show)	0 (do not show)
14	Display Graphs When Screen Sleeps	0, 1 (show)	1 (show)
15	HW Temperature Display*	0	Off
16	Button Backlight	0 Off, 1 On	On

Note: Parameters 4 and 5 adjust the sensitivity of the fan in Auto mode. P sets the speed at which the fan adjusts as the set temp is approached and T sets the time interval at which the controller adjusts the fan.

* If Parameter 15 is set to Off the main temperature display is based on the internal sensor or the external sensor if connected. If set to On the main display is always based on the internal sensor and the temperature sensed by the external probe is displayed in the top right of the controller. This allows the actual hot water temperature to be displayed in solar hot water systems.

RESTARTING AFTER RUNNING OUT OF FUEL

1. Turn On the Furnace

Switch the furnace on. It will begin a start-up process but will not ignite until the fuel pump and fuel line are fully primed.

2. Understanding the Start Process

Each start process includes two separate start attempts and takes about 6 minutes in total.

During each attempt:

- The coolant pump runs
- The combustion fan revs up and down
- The fuel pump pulses or ticks, note the pump is louder if it has no fuel in it.

3. After a Failed Start Process

If the furnace does not start after two attempts, it will automatically shut down and wait.

You can initiate a new start process by turning the furnace off and then back on.

Note: It may take 2 to 6 start processes for the furnace to successfully start, especially if the fuel line is long.

4. Lockout Warning

The Eberspächer furnace will lock out after approximately 8 failed start processes, this lock can be removed by clearing the fault codes.

Always check the fuel supply before attempting to restart the furnace.

SIMPLE TROUBLESHOOTING

PROBLEM	THINGS TO CHECK	SOLUTIONS
On initial switch on, furnace does nothing.	<ul style="list-style-type: none"> Check fuel pump connection wires are properly inserted into connector and connector is properly plugged into the fuel pump. Check coolant pump wires are properly connected. Check power supply fuses. Check battery voltage is above 12 volts. Check furnace is wired directly to batteries and there are no poor connections. 	<ul style="list-style-type: none"> Retrieve error codes. Check for furnace lockout. Resolve errors. Clear error codes.
No Furnace Displayed	<ul style="list-style-type: none"> Check 15A furnace fuse is ok Check for loose connections in the blue CAN wires between the furnace loom and controller Verify the furnace has power using a multimeter to check voltage at the furnace power wires 	<ul style="list-style-type: none"> Ensure furnace has power Ensure controller is connected to furnace Seek Service
Furnace tries to start but doesn't start.**	<ul style="list-style-type: none"> Check fuel level in tank. Check fuel filter has fuel in it. If it doesn't, look for low fuel or blockages. Check fuel flow in fuel line by shining a torch on the fuel line and looking for bubbles or advancing fuel front when fuel pump is ticking. On the Eberspacher D5E, the pump will audibly tick until filled with fuel. Check fuel pump noise when pump is pumping. Check battery voltage is above 12 volts. 	<ul style="list-style-type: none"> Check for furnace lockout and error codes. If fuel has bubbles, look for air leak in fuel line. If pump can be heard, check fuel source and air leaks in fuel line. Clean the fuel strainer built into the inlet of the fuel pump.
Furnace starts but smokes or smells after initial startup.	<ul style="list-style-type: none"> Smell and smoke at startup is normal but should clear within 1 minute. Check for partially or completely blocked combustion air inlet or exhaust. Check for condensation or water in the exhaust system. If your fuel tank has quick disconnect fittings, check that the fittings are properly connected so adequate fuel can flow. Carefully inspect the air intake and exhaust pipes for mud wasp nests. Check the furnace is not running in a sealed container and that it has adequate combustion inlet air. 	<ul style="list-style-type: none"> If condensation is gathering in the exhaust on RVs, drill 2mm holes at low point. For marine use, install a drainage lock. Open any obstructed combustion air or exhaust pipes and run the furnace on high to clear any accumulated soot. Contact Dieselheat to arrange servicing of the furnace. Clean the fuel strainer built into the inlet of the fuel pump.
Furnace has tried to start multiple times and is now 'dead'.	<ul style="list-style-type: none"> The furnace has locked out due to excessive start attempts. 	<ul style="list-style-type: none"> Retrieve and delete the error codes. Resolve the issues preventing it from starting.
Furnace starts and runs for approx. 1 minute then shuts down very quickly.	<ul style="list-style-type: none"> Check coolant level. Check coolant circulation and ensure pump is primed and nothing is obstructing the coolant flow. 	<ul style="list-style-type: none"> Open any closed valves, or remove anything obstructing the coolant flow. Check coolant level.
System works but the air heating fan head is not hot.	<ul style="list-style-type: none"> Check all shutoff valves are in correct positions. Check coolant circulation. Check air return on fan head is adequate. 	<ul style="list-style-type: none"> Open any incorrectly closed valves. Ensure coolant pump is properly primed. Ensure the electric coolant valve is opening when the fan is on.
The shower runs cold too quickly.	<ul style="list-style-type: none"> Check system is properly preheated before starting shower. Check furnace is not in standby mode before starting shower. Check shower head flow rate is not outside the recommended range. 	<ul style="list-style-type: none"> Allow more time for the system to preheat/reheat. From a cold start, do not allow the furnace to fully shut down before starting shower. Trigger the furnace to restart by running some hot water prior to getting into the shower, then shut off the water and wait for furnace to be running prior to entering shower. Change to a shower head with a lower flow rate.

****The Eberspacher D5E furnace will lock out after approximately 8 failed start attempts. To remove the lock retrieve and erase the error codes.**

TWO YEAR PRODUCT WARRANTY

Dieselheat offers a 2 year warranty on this product. Upon receipt of proof of purchase of a product, Dieselheat will, where possible, provide product support via telephone or email.

If Dieselheat determines that the issue necessitates the return of the product for inspection and/or repair, it is your responsibility to uninstall the product and return the product at your cost to Dieselheat. Upon repair of the product, Dieselheat will return the product to you at its cost. It is your responsibility to reinstall the product.

See our full warranty terms on our website.