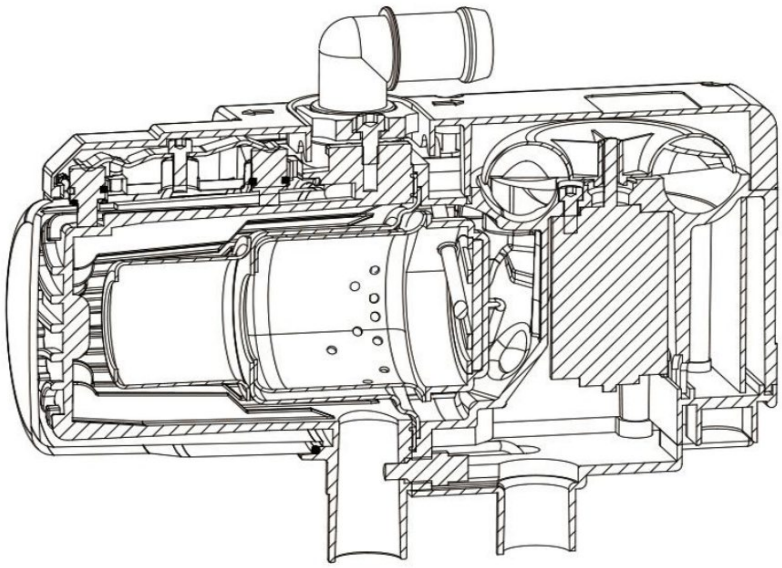

Hydrome

User manual

V2

Table of Content

Introduction

Congrats to your new Hydrome v2 Heater. This manual provides essential information to ensure safe and efficient use of your heater. The Hydrome v2 is an advanced diesel water heater, designed to operate autonomously and effectively under various conditions without the need for an external power supply.

Safety First: Never operate the heater near flammable materials such as gas stations, fuel depots, or in enclosed spaces like garages. Always ensure that there is water in the system before starting the heater, and the system is properly bled of air. Use only the specified diesel fuel and adhere to the recommended voltage levels to avoid risk of damage or fire.

Maintenance and Care: To maintain optimal functionality and safety, it is crucial to have the heater inspected and serviced by authorized professionals at least once every two years. Regular maintenance checks help in early detection of potential issues, preventing costly repairs and ensuring your heater's longevity.

Operation: The heater is designed for ease of use with features that ensure your vehicle's interiors are warmed up efficiently. The automatic shutoff feature activates when the coolant temperature reaches the set threshold, ensuring energy-efficient operation.

Environmental Responsibility: We have designed the Hydrome v2 to be as environmentally friendly as possible, with low fuel consumption and efficient burning that minimizes emissions.

Before using your heater, please read through this manual thoroughly to understand the various functions and safety features. Should you lose this manual, contact your supplier for a replacement. We hope the Hydrome v2 enhances your experience by providing reliable and comfortable warmth when you need it most.

Technical parameters

Model	5 kW
Fuel consumption	0.58 l/h
Fuel	Diesel
Nominal voltage	12v
Working voltage	10–15v
Power consumption	39 W
Weight	2.3 kg
Dimension	230x100x110 mm

Working principles of the parking heater

The Hydrome v2 is a diesel-powered water heater designed to efficiently heat vehicles independently of the vehicle's own heating system. It utilizes a combination of its fuel system, a combustion chamber, and a heat exchanger to provide heat to the vehicle's coolant, which in turn heats the engine block and cabin. Here's how it operates:

1. **Fuel and Power Supply**: The heater draws diesel from the vehicle's fuel tank using a dedicated fuel pump. It is powered by the vehicle's battery, operating within a voltage range of 10-15 volts.
2. **Ignition and Combustion**: Once activated, the heater's control unit initiates the ignition process. The glow plug heats up to ignite the diesel fuel inside the combustion chamber. The resulting heat is intense and efficient, thanks to the controlled environment within the chamber.
3. **Heat Exchange**: The heat generated in the combustion chamber is transferred to the coolant via a heat exchanger. This coolant circulates through the heater's internal system and then flows into the vehicle's radiator and heating system, gradually warming up the engine and the cabin.
4. **Temperature Regulation**: The heater is equipped with sensors that monitor the temperature of the coolant. Once the coolant reaches a preset temperature of around 65 degrees Celsius, the heater automatically shuts off. This prevents overheating and conserves fuel. If the temperature drops below a certain threshold, the heater can restart to maintain the desired warmth.
5. **Exhaust System**: Combustion produces exhaust gases, which are safely expelled from the vehicle through an exhaust pipe. The design ensures that the exhaust is directed away from the vehicle, preventing any ingress of gases into the cabin or engine area.
6. **Safety Features**: The heater includes several safety features to prevent operation under unsafe conditions, such as low water levels in the coolant system or incorrect fuel types. It also includes fail-safes like automatic shutoff in the event of overheating or system malfunction.
7. **User Interface and Controls**: Users can start, stop, and adjust settings via a control panel or remote control, providing ease of use and flexibility. Advanced settings allow for further customization, such as setting timers or adjusting the heat output.

By integrating these components and processes, the Hydrome v2 parking heater ensures a comfortable and warm environment for passengers and efficient pre-heating of the engine, especially in cold weather conditions, enhancing both comfort and vehicle performance.

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Installation Guidelines and Safety Precautions

Proper installation is critical for the safe and efficient operation of your Hydrome v2 heater. Please follow these guidelines closely to ensure your safety and the heater's optimal performance:

1. **Direction of Water Flow:** Ensure that the vehicle's water flow direction aligns with the water pump of the heater. Install the water pump as low as possible within the system to avoid air-pockets in the pump.
2. **Exhaust Pipe Configuration:** The exhaust pipe should measure no less than 25 cm and no more than 200 cm in length. Orient the exhaust port in the same direction as the airflow of the moving vehicle to ensure proper expulsion of exhaust gases.
3. **Installation of the Dosage-Fuel Pump:** When installing the dosage-fuel pump, tilt it upwards to facilitate the expulsion of air from the fuel line. Regularly check the vent of the tank to prevent negative pressure, which can impair function. Protect the fuel pipeline with bellows and keep it away from the heat source, muffler, and exhaust pipe. Secure all installations properly.

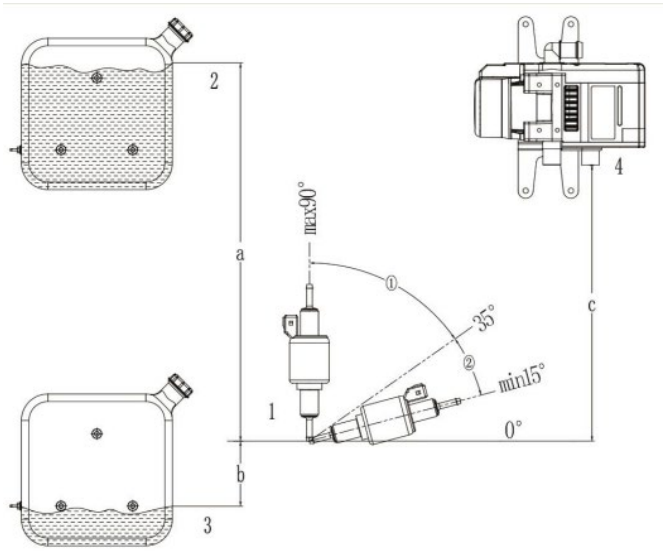
Fuel line limitations

1. Fuel pump inlet
2. Maximum fuel level
3. Minimum fuel level

a: **Max:** 3 m

b: **Max:** 1 m

c: **Max:** 4 m



Fuel pump angle

Not recommended	0º – 15º
Good	15º – 35º
Best	35º – 90º

Installation Guidelines and Safety Precautions

4. **Fuel Line Connections:** Always use short sections of rubber hose to connect the nylon hose with other components of the fuel line. Insert the nylon fuel line as deeply as possible into the rubber hose to ensure a tight, air-free connection.

5. **Fuel Skimmer Installation:** Adjust the metal skimmer tube to the correct length based on the depth of the tank, ensuring the skimmer's end is positioned 2–5 cm above the tank bottom to avoid drawing in debris. Create a 25 mm hole at the top of the tank for installation, removing any burrs. Secure the fuel skimmer tightly with a seal and ensure the fuel line is correctly oriented.

6. **Orientation of the Heater:** Hydrome v2 heater is designed to be installed in an upright position to ensure optimal performance and safety. However, under certain circumstances where space constraints exist or specific installation requirements dictate, the heater may be installed on its side. If you choose to install the heater laterally, it is crucial to position it so that the glow plug is on the upper side. This orientation helps in efficient ignition and prevents pooling of fuel, which can lead to uneven heating or potential safety hazards.

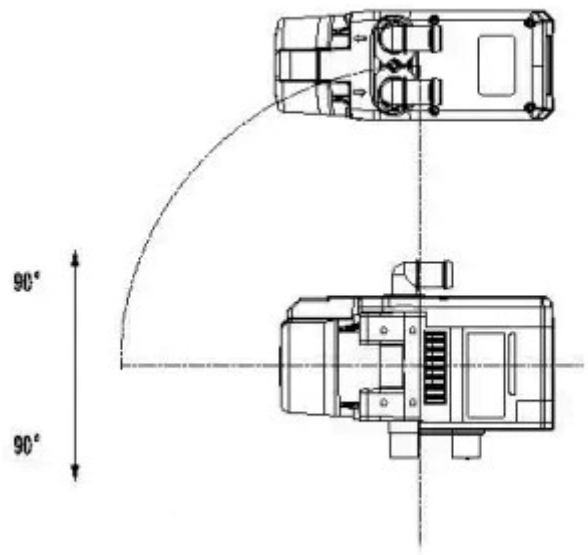
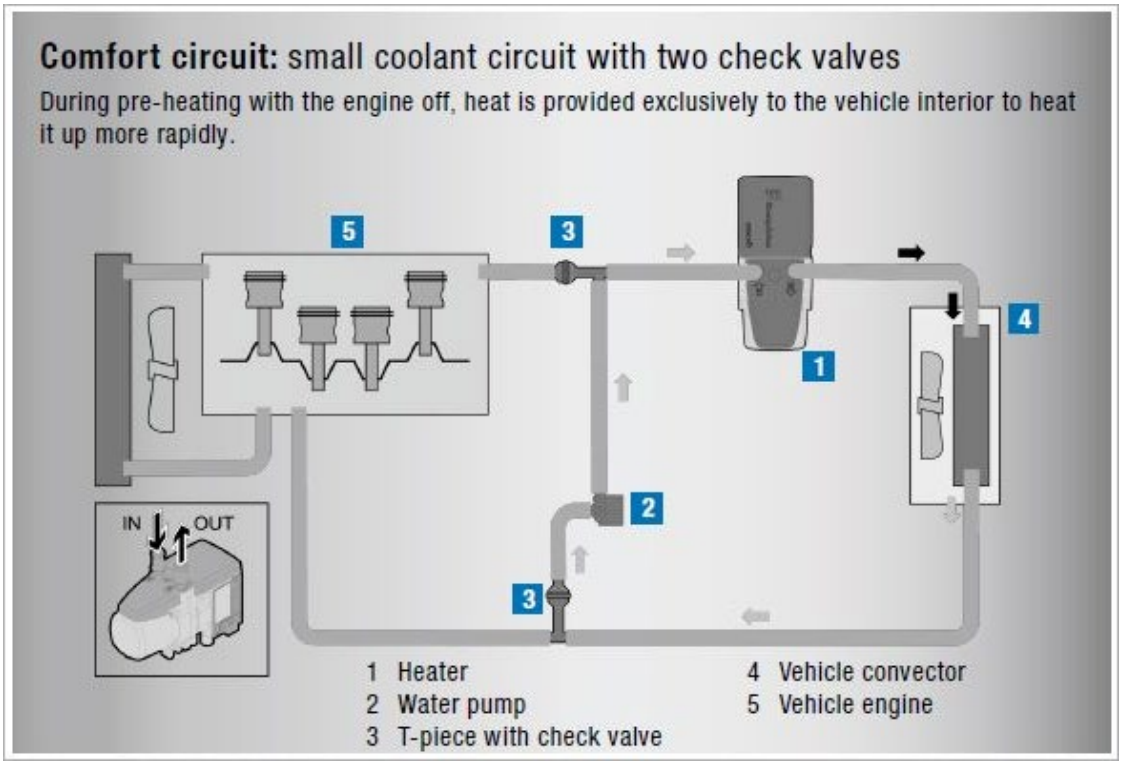


Illustration of motor system placement



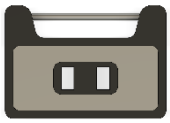
Installation of Cables

1. **Connect the Cable Harness:** Follow the harness connection diagram provided. The design ensures that the harness cannot be connected incorrectly.

2. Secure All Connections: After connecting the harness, ensure all connections are secure before proceeding.

3. Connect Battery Cables: Attach the remaining battery cables to the battery terminals.

4. Cable Extension: If you need to extend the battery cables, use cables that are at least 4mm² to maintain safety and functionality.

	Diesel heater unit		Water pump
	Fuel pump		Display

After Installation – before start

Once your Hydrome v2 heater installation is complete, proper commissioning is essential to ensure it functions correctly and safely. Follow these steps carefully to activate and test your heater:

1. **System Purging:** Begin by bleeding all air from the heating system. This includes the heater itself, the pipelines, and any connected components, take help by the manual water pump cycle function. Ensuring the system is free of air is critical for preventing operational issues such as uneven heating or system damage.
2. **Coolant Check:** Verify that the coolant tank is adequately filled. Never operate the heater without coolant or antifreeze. The absence of these fluids can cause severe damage due to overheating. Check the coolant levels and add antifreeze if required, especially in colder climates.
3. **Electrical Connections:** Double-check all electrical connections for tightness and proper insulation. Loose connections can lead to electrical failures and may pose safety risks.
4. **Start-Up Test:** Once the system is primed, air is bled and all connections are secure, start the heater. Initially, the ignition plug may pre-heat for approximately 60 seconds. Monitor the heater closely during this phase to ensure it ignites properly.
5. **Monitoring for Fault Codes:** If the heater fails to start on the first attempt, it will automatically try to ignite again. If the second attempt fails, the control unit will display a fault code. Refer to the user manual for the specific meanings of these codes and recommended actions.
6. **Temperature Check:** After successful ignition, observe the system's temperature. The heater is designed to automatically reduce power once the temperature reaches 5 degrees below the set threshold and will shut off when the target temperature is achieved. Ensure that this automatic regulation is functioning as intended.
7. **Continued Operation:** Allow the heater to run for a set period to ensure it operates smoothly without interruptions or unusual noises. Monitor the water pump to confirm it continues running for about three minutes after the heater shuts off, ensuring the system cools down adequately.
8. **Safety Shutoff Test:** Test the automatic shutoff feature by simulating various operational scenarios, such as overheating or fuel exhaustion. This test is crucial to ensure the heater can safely deactivate in case of an anomaly.

9. **Final Inspection:** Conduct a final inspection of the installation site. Check for any signs of leaks, overheating components, or loose fittings. Ensure that the area around the heater remains clear of any debris or materials that could impede air flow or pose a fire risk.

By thoroughly commissioning your Hydrome v2 heater, you can be confident in its safe and efficient operation. Regular maintenance checks are recommended to keep the heater in optimal condition.

Display functions

START / STOP HEATER

» **Command:** Press the on /off button start, hold down to stop the heater.
» **Function:** Activates or deactivates the diesel heater.

ADJUST POWER OR SETTINGS UP OR DOWN

» **Command:** Press up or down.
» **Function:** Increases or decreases temperature, power or other settings.
» **Example:** L-06 represents power stage 6, and ranges from 1-9.

SET RUNNING TIME

» **Command:** Press settings once till C- appears, change the running time by using the arrows.
» **Function:** Sets how long the heater will run, 0 – 99 Minutes, this setting is overrun if EU-2 is activated. Any set time is limited to the water reaches the upper threshold.
» **Example:** C 40 represents 40 minutes of running time.

Display functions

PAIR REMOTE CONTROLL OR ARCTIC LINK

» **Command:** Hold arrow up till HFA appears, proceed with pressing ON on the remote, or send an ON command via ARCTIC LINK

» **Function:** Connecting remote controllers

START WATERPUMP MANUALLY

» **Command:** Hold arrow down till P OF appears, proceed with pressing up

» **Function:** Starts the water pump for a 4 minute period

Advanced Settings Caution

The advanced settings of your heater are designed to optimize its performance under specific conditions. However, improper adjustments to these settings can lead to decreased efficiency, faster wear, or even complete malfunction of the device. Before attempting to alter any advanced settings, please ensure you fully understand the function and impact of each setting.

Here are important precautions to consider:

- **Understand Before Adjusting:** Always refer to the user manual for detailed explanations of each setting. If unsure, consult with a professional or your authorized dealer.
- **Risk of Misconfiguration:** Adjustments to settings such as the fuel pump rate or fan speed can significantly affect the heater's operation. Incorrect values may cause the heater to operate outside optimal conditions, potentially leading to faster wear or failure.
- **Fuel and Power Settings:** Do not deviate from the recommended fuel type and power settings. Using incorrect fuel or adjusting the power settings inappropriately can cause immediate and severe damage to the heater and increase soot build up.
- **Regular Checks and Maintenance:** After making any adjustments, monitor the heater closely for any signs of abnormal operation such as unusual noises, smells, or smoke.
- **Manufacturer's Advice:** Adhere strictly to the manufacturer's guidelines when changing settings. Unauthorized modifications may void your warranty and could pose serious safety risks.

By carefully managing the advanced settings, you can maintain the durability and effectiveness of your heater while ensuring it operates safely under all conditions.

Advanced settings

FU-

» **Function:** Determines the type of fuel the heater uses. It's crucial to set this strictly to diesel (FU-1). Using any fuel type other than diesel (e.g., gasoline, FU-2) can damage the heater.
» **Alternatives:** FU-1 =Diesel FU-2 =Gasoline

L-

» **Function:** Adjusts the restart temperature in Celsius when in EU-2 mode.
» **Alternatives:** 00 - 79

H-

» **Function:** Sets the automatic shut-off temperature in Celsius. Proper configuration prevents overheating and conserves energy.
» **Alternatives:** 50 - 99

P-

» **Function:** Select the fuel pump rate at the lowest setting (L-1). This does not directly adjust the power output of the heater, but rather tempers with the fuel/air ratio mix.
» **Alternatives:** 0.8 – 6.5
» **Factory preset:** 1.8

P-

» **Function:** Select the fuel pump rate at the highest setting (L-9) This does not directly adjust the power output of the heater, but rather tempers with the fuel/air ratio mix.
» **Alternatives:** 3.5 – 9.9
» **Factory preset:** 5.6

Advanced settings

PRM

» **Function:** Select the lowest fan speed setting on (L-1) This should not be used adjust the power output, but rather to adjust the fuel/air ratio mix.
» **Alternatives:** 1300 – 6000
» **Factory preset:** 1600

PRM

» **Function:** Select the highest fan speed setting on (L-9) This should not be used adjust the power output, but rather to adjust the fuel/air ratio mix.
» **Alternatives:** 1500 – 9900
» **Factory preset:** 8600

U-

» **Function:** Sets the operating voltage for the display. This setting should match your heater's specification (12v or 24v) and doesn't convert voltage types.
» **Alternatives:** 12V **or** 24V

PF-

» **Function:** Regulates the power output for the glow plug, with higher values increasing wear but necessary in colder conditions.
» **Alternatives:** **|1=70W |2=75w |3=80w |4=85w |5=90w |6=95w**
» **Factory preset:** 5

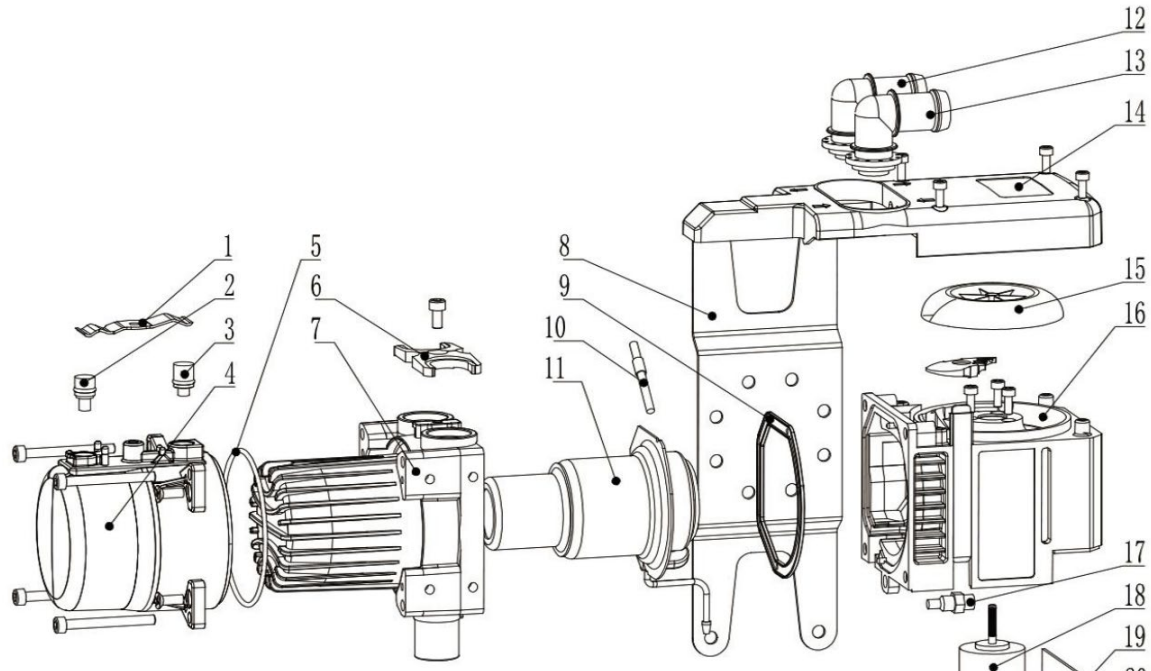
EU-

» **Function:** Enables or disables the restart function after cooldown. This manages how the heater cycles to maintain the desired temperature, overriding the preset running time(C-). The restart temperature is adjusted in the (L-) section.
» **Alternatives:** EU-1 (single cycle) EU-2 (Indefinite restart)

Fault codes

Fault code	Cause	Resolution
E-01	Under voltage	increase voltage by charging your battery or changing to a more powerful power supply.
E-02	Over voltage	Decrease the voltage from your power supply.
E-03	Ignition plug	Remove the glow plug and connect it directly to a power supply of ~9v. If the plug does not glow, change glow plug.
E-04	Fuel pump	Check the connections to the fuel pump, if issue does not resolve - change fuel pump.
E-05	Over heating	Check your upper set temperature limit in the settings and make sure nothing restricts your water flow.
E-06	Fan motor	Connect the fan directly to a power supply of ~9v. If the fan does not spin, change the fan.
E-07	Display	Check the connections to the display, if issue does not resolve - change the cable harness or / and display.
E-08	Flame extinguished	Check your fuel tank level, check the fuel filter, make sure the fuel line is not restricted in any way. Make sure the fuel moves forward while the fuel pump is running.
E-09	Flame sensor	Make sure the flame sensor is connected to the motherboard properly. if issue does not resolve - change the flame sensor.
E-10	Fuel issue	Check your fuel tank level, check the fuel filter, make sure the fuel line is not restricted in any way.
E-11	Water pump	Check the connections to the water pump, if issue does not resolve - change the water pump.
E-12	Water pump overcurrent	The water pump draws too much power. Ensure you are using the provided water pump and check for any obstructions that could restrict the pump's flow.
E-13	Water temp-sensor	Check the connections to the water temp sensors, if issue does not resolve - change one or both temp sensors.
E-14	Exhaust temp-sensor	Check the connection to the exhaust temp sensor, if issue does not resolve - change the exhaust temp sensors.

Exploded view



1. sensor pressor
2. Ultra-high temperature sensor
3. water temperature sensor
4. outer water jacket
5. water jacket seal
6. water nozzle pressor
7. inner water jacket
8. master holder
9. combustor seal
10. ignitor plug
11. combustor
12. water outlet
13. water inlet
14. master cover
15. combustion-supporting wind turbine
16. aluminum body
17. flame sensor
18. motor
19. circuit board
20. circuit board terminal plugin
21. master low cover