



SmartGen
ideas for power

HT40M

WATER ENGINE HEATER

USER MANUAL



SMARTGEN (ZHENGZHOU) TECHNOLOGY CO., LTD.



Chinese trademark

SmartGen English trademark

SmartGen — make your generator *smart*

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Table 1 - Software Version

| Date | Version | Note |
|------------|---------|-------------------|
| 2017-09-05 | 1.0 | Original release. |
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1 OVERVIEW

HT40M Water Heater enjoys wide application on various engine coolant pre-heated. It has fine cast aluminum enclosure and self-extinguishing engineering plastics end closure, easy and convenient to use.

If during cranking the ambient temperature is lower than 4°C, engine coolant and lubricant may condense into solid state and lose their lubricating and cooling properties, which can damage the engine. Therefore engine heater should be installed to ensure normal starting and running of the engine when the ambient temperature is lower than 4 °C.

HT40M Water Heater combines the following features: cast stainless steel inner pipes and end closure with high corrosion resistance; power, heating and overheat protection light indicators; 3 kinds of heaters with different heating temperature are optional (Standard heater: 40°C; 50°C and 60°C heaters are needed to be customized).

This product is suitable for various engines with (13~25) L displacement.

Please login our company's official website to select heaters.

2 PERFORMANCE AND CHARACTERISTICS

- Fine cast aluminum enclosure, stainless steel inner pipes and sealed end closure;
- Coolant temperature is controlled by thermostat which is installed within the heater. It has simple connections and high reliability;
- Power, heating and overheat protection light indicators make it easy to observe the heater status;
- Both of the two water inlets have one-way inlet valve and they sit on either side of the heater; Users can choose any one to use during installation;
- Both of the two line inlets are knock-down design; Users can choose suitable one to use according to the installation way. Waterproof joint (stuffing box) are provided;
- There is a water drain valve with seal ring on the bottom of the heater so as to be used when needed;
- Overheating thermostat provides the protection of dry heating and overheating;
- Press *Test* button to test-run the unit when ambient temperature is over high;
- This product can work normally at -40 °C temperature.

3 TECHNICAL PARAMETERS

Table 2 – HT40M Specification

| Model | HT40M |
|------------------------------|--|
| Rated Power | 4000W |
| Rated Voltage | AC 190V~AC277V |
| Rated Current | 16.7A |
| Engine Displacement (L) | (13~25)L |
| Thermostat Range | HT40M: Off: (40±3)°C Reset: (25±5)°C |
| | HT40M-1: Off: (50±3)°C Reset: (35±5)°C |
| | HT40M-2: Off: (60±3)°C Reset: (45±5)°C |
| Overheating Thermostat Range | Off: (110±4)°C Reset: manual reset (temperature bellows 95 °C) |
| Insulating Resistance | ≥50MΩ |
| Electrical Strength | AC 1.5kV 1min, ≤2.5mA |
| Inlet/Outlet Size | 3/4"(φ19mm) |
| Max. Water Pressure | 0.5MPa |
| Protection Level | IP54 |
| Vibration Resistance | (5~8)Hz; Amplitude±7.5mm; Triaxial |
| | (8~500)Hz; a=2g; Triaxial |
| Shock Resistance | Half-sine Wave; a _{peak} =50g; Triaxial |
| Working Temperature | -40°C~+70 °C |
| Storage Temperature | -40 °C~+70 °C |
| Case Dimensions | 445mm×375mm×210mm |
| Weight | 3.9kg |

4 PANEL INDICATION

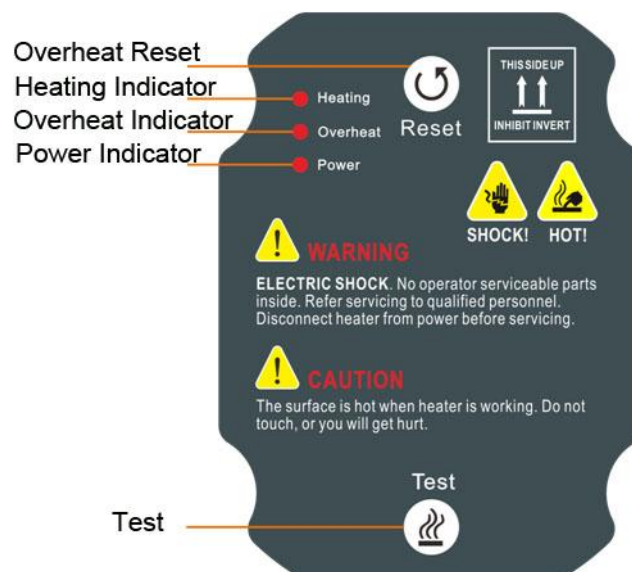


Figure 1 – Panel Indication

5 CONNECTIONS



Figure 2 – Wire Connection

Install the water-proof connection joint after knock on the knock-down hole which on the plastic shell. Pass the 4mm² power line through the thread hole of shell to connect to L, N, E terminals respectively.

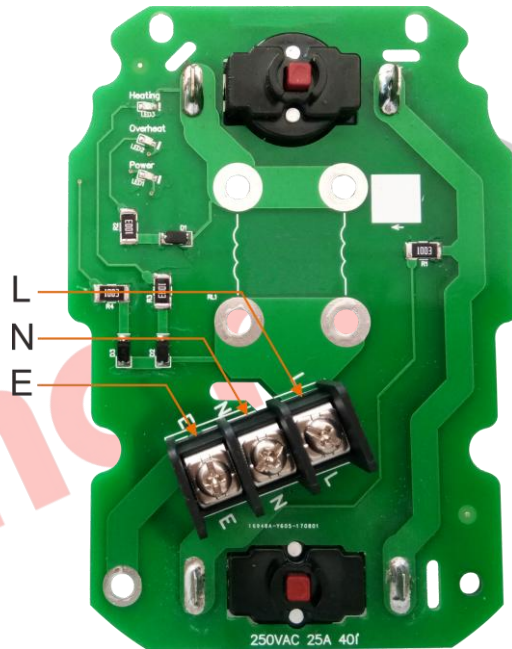


Figure 3 - Connection Position

6 INSTALLATION INSTRUCTION

Please install the heater vertically according to the diagram before use. Paying attention to direction of heater inlet and outlet, and ensure that the heater position is below the lowest water level of the engine and that all the air is exhausted out of the heater and it is topped off with coolant.

Operating diagram:

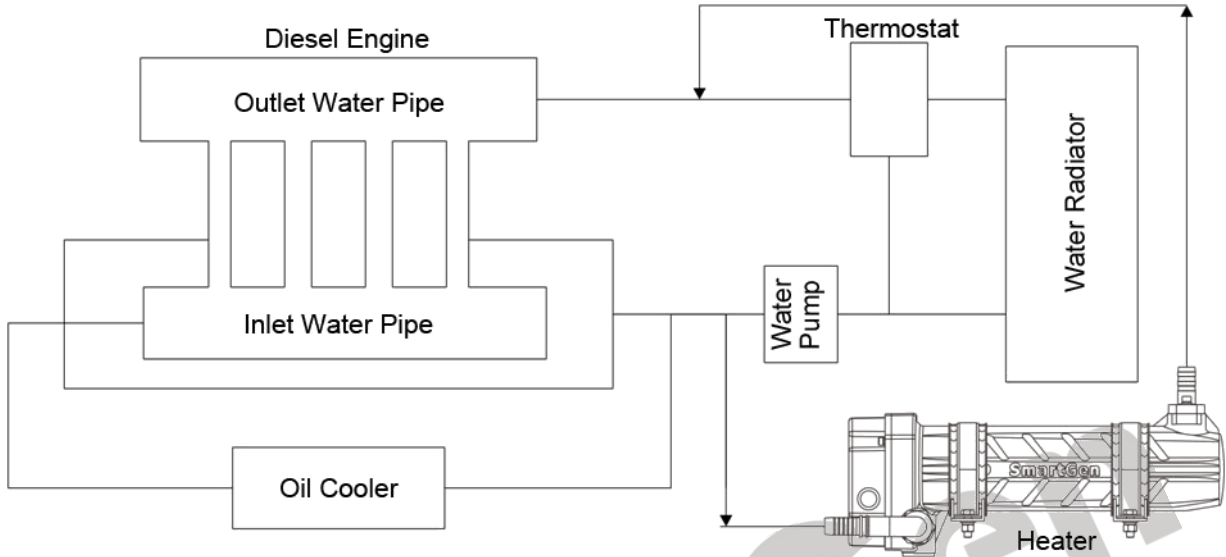


Figure 4 - Operation Schematic Diagram

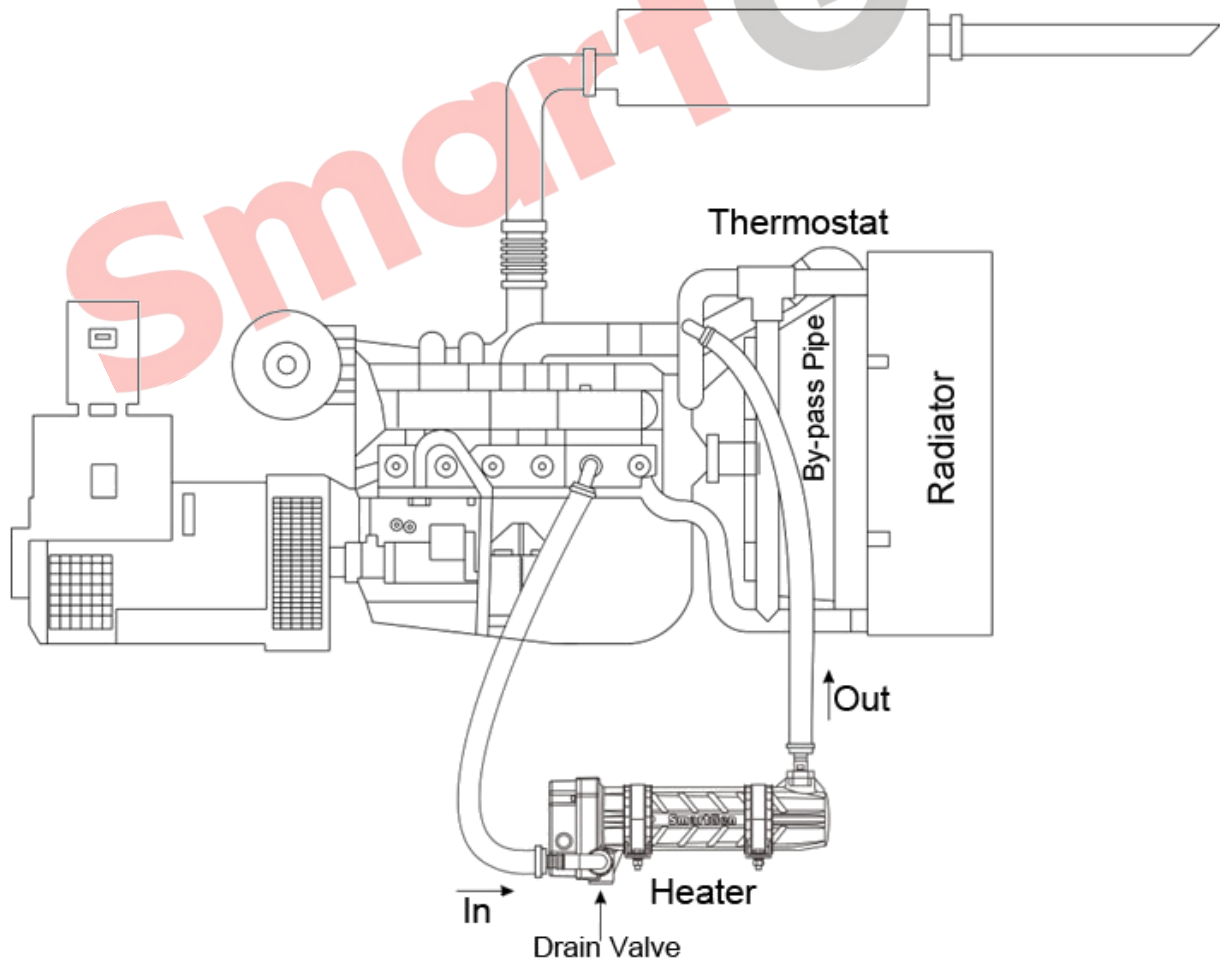


Figure 5 - Heater Position Diagram

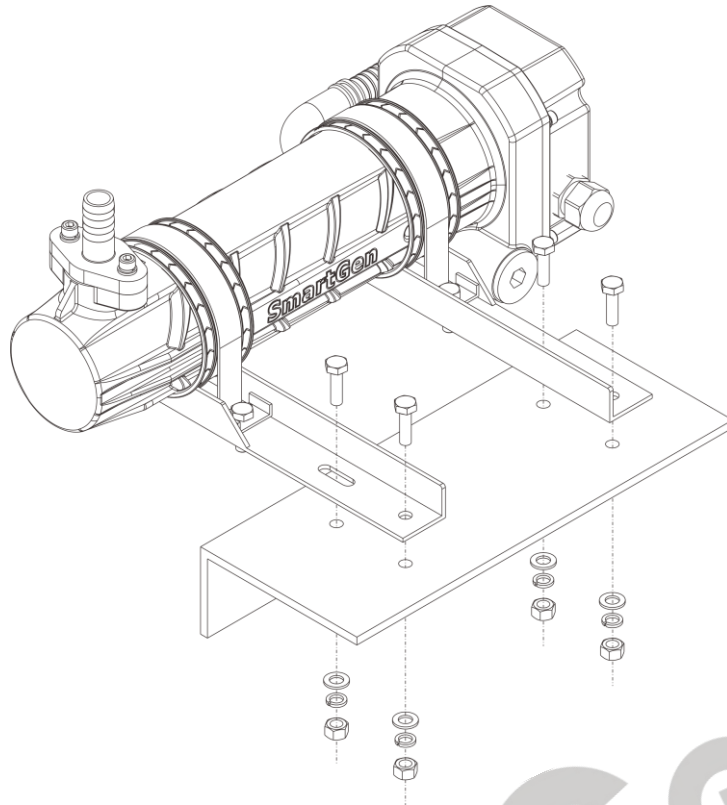


Figure 6 - Heater Installation Method

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7 OPERATION

7.1 COMMISSIONING

If heater doesn't work and overheat indicator doesn't light up, users can force heater to work by pressing test button.

7.2 OVERHEAT PROTECTION RESET

When overheat alarm indicator lights up, heater will enter into overheat protection status and stop heating. If heater temperature falls below the reset temperature limit of overheat protection thermostat (95°C), users need to press reset button and heater enters into auto mode again.

8 CAUTION

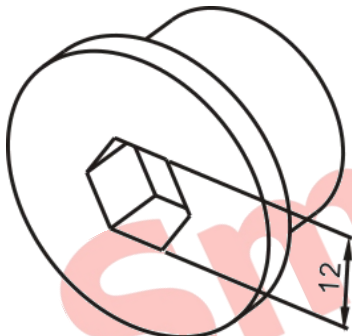
Before starting the machine, ensure that all the air is exhausted out of the heater and it is topped off with coolant. If water is used, please drain it off when generator is stopped to avoid internal corrosion. Otherwise, the remaining water freezes when temperature is lower than 0°C, which can damage the enclosure.

Corresponding antifreeze is strongly recommended.

Heat resisting power line is strongly recommended.

Earth line must be soundly connected to earth.

Drain valve: Can be opened or closed using hexagonal tools.



9 CASE AND INSTALLATION DIMENSIONS

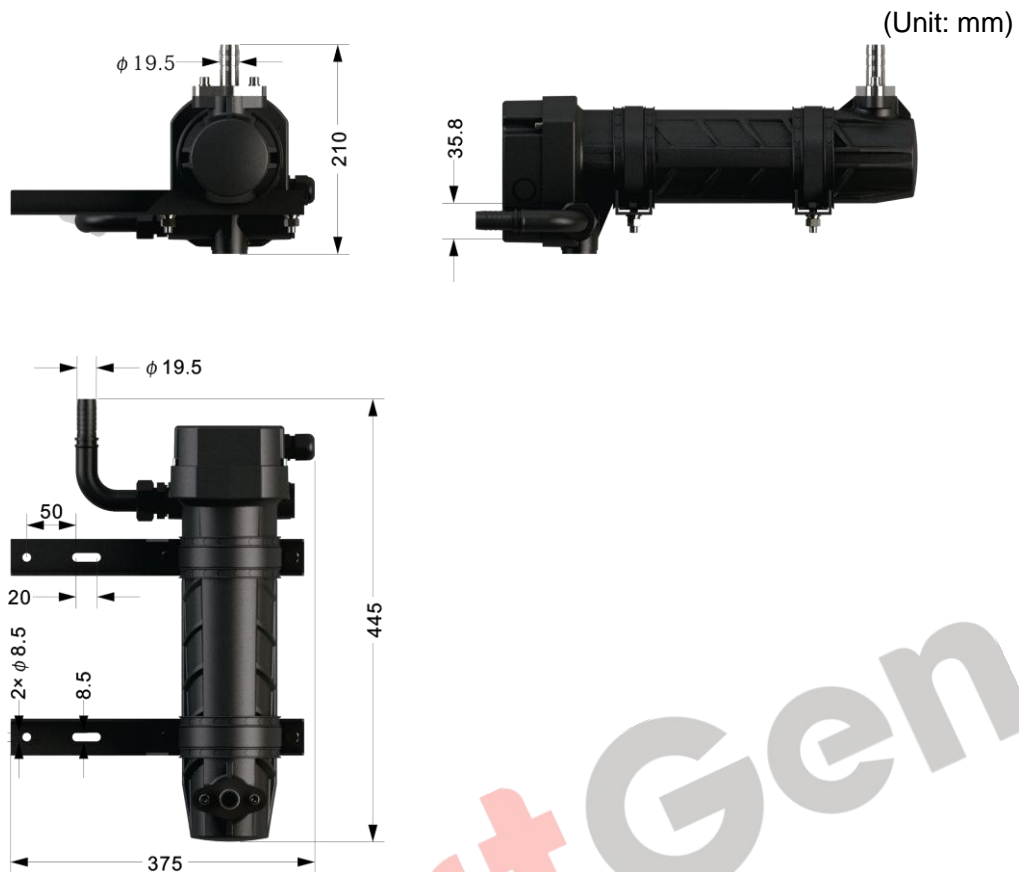


Figure 7 – Overall Dimensions

10 PACKING LIST

Table 3 – Packing List

| No. | Name & Model | Quantity |
|-----|------------------------------|----------|
| 1 | Heater | 1 |
| 2 | Holder(left) | 1 |
| 3 | Holder(right) | 1 |
| 4 | U-shape steel belt | 2 |
| 5 | Rubber ring | 2 |
| 6 | Flat gasket GB/T 95 8 | 8 |
| 7 | Spring washer GB/T 93 8 | 8 |
| 8 | Hexagon nut GB/T 41 M8 | 8 |
| 9 | Hexagon bolt GB/T 5783 M8x25 | 8 |
| 10 | rotary joint (Inlet) | 1 |
| 11 | Pagoda joint (Outlet) | 1 |
| 12 | Water-proofing cable joint | 1 |
| 13 | Certification | 1 |
| 14 | User manual | 1 |