



**SmartGen**  
ideas for power

**HT40MA**

**ENGINE WATER 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
2021-12-22	1.0	Original release.



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## 1 OVERVIEW

HT40MA Water Heater enables wide application on various engine coolant pre-heating. It has fine cast aluminum enclosure and self-extinguishing engineering plastics end closure, easy and convenient to use.

If the ambient temperature is lower than 4°C during cranking, 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.

The inner heating pipe and end cover both adopt stainless steel with high corrosion resistance. The heater has light indication function, which can indicate power and heating status. 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

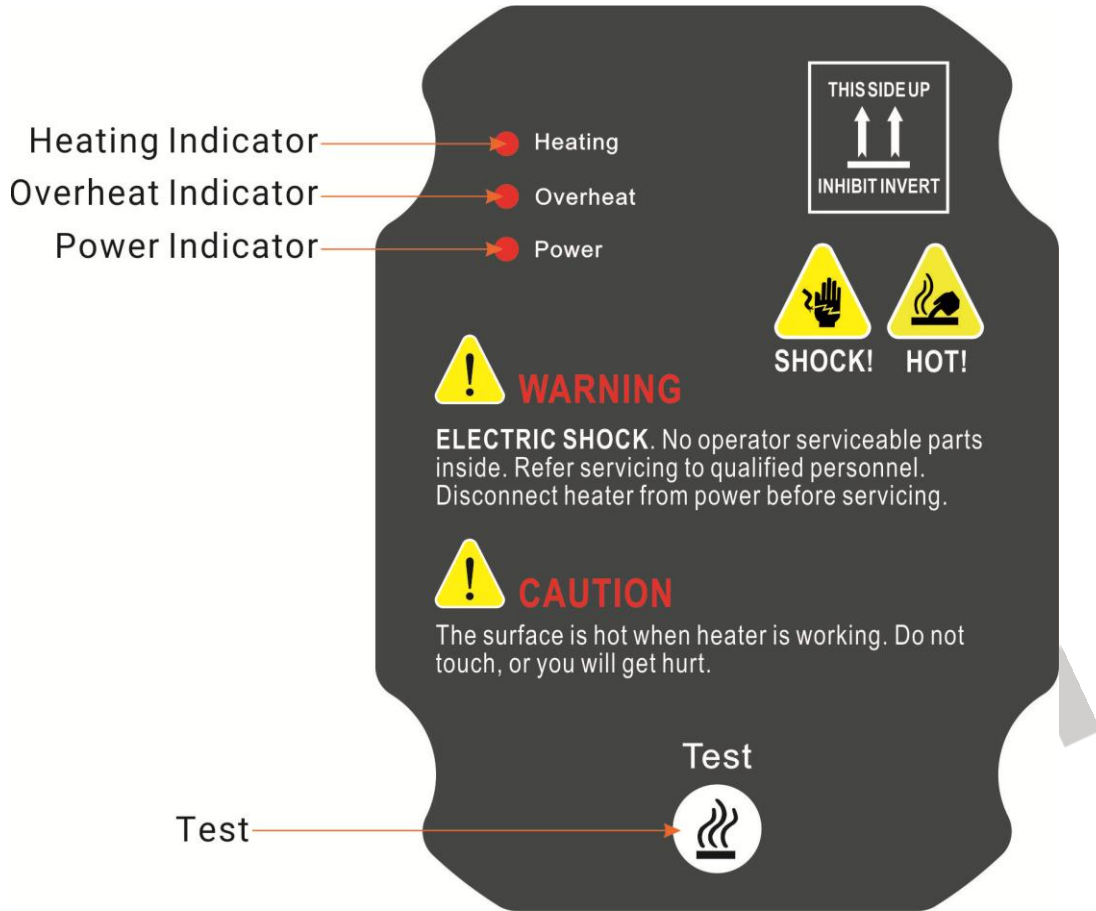
- Fine cast aluminum enclosure, stainless steel inner pipes and sealed end closure;
- Coolant temperature is controlled by thermostat which is installed within the heater. It has simple structure and high reliability;
- Power, heating and overheat protection light indicators make it easy to observe the 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 power line inlets are knock-off design; Users can choose suitable one to use according to the installation way. Waterproof joints (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 key 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 – HT40MA Specification

Item	Content
Model	HT40MA
Rated Power	4000W
Rated Voltage	AC240V
Operating Voltage	AC190V~AC277V
Rated Current	16.7A
Engine Displacement	(13~25)L
Thermostat Switch Range	HT40MA: Off: (40±3)°C    Reset: (25±5)°C
	HT40MA-1: Off: (50±3)°C    Reset: (35±5)°C
	HT40MA-2: Off: (60±3)°C    Reset: (45±5)°C
Overheating Switch Range	Off: (95±4)°C    Manual Reset: (temperature below 80°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 <sub>peak</sub> =50g;    Triaxial
Working Temperature	-40°C~+70°C
Storage Temperature	-40°C~+70°C
Case Dimensions	445mm×375mm×210mm
Weight (include accessories)	5.6kg

#### 4 PANEL INDICATION



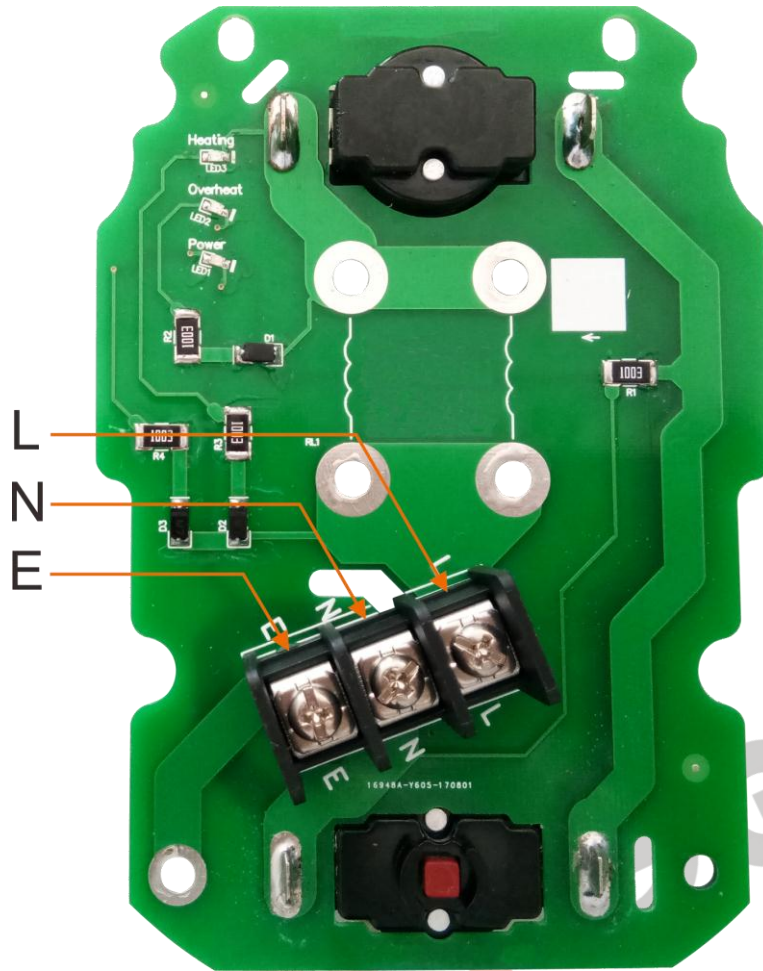
**Fig.1 – Panel Indication**

#### 5 CONNECTIONS



**Fig.2 – Wire Connection**

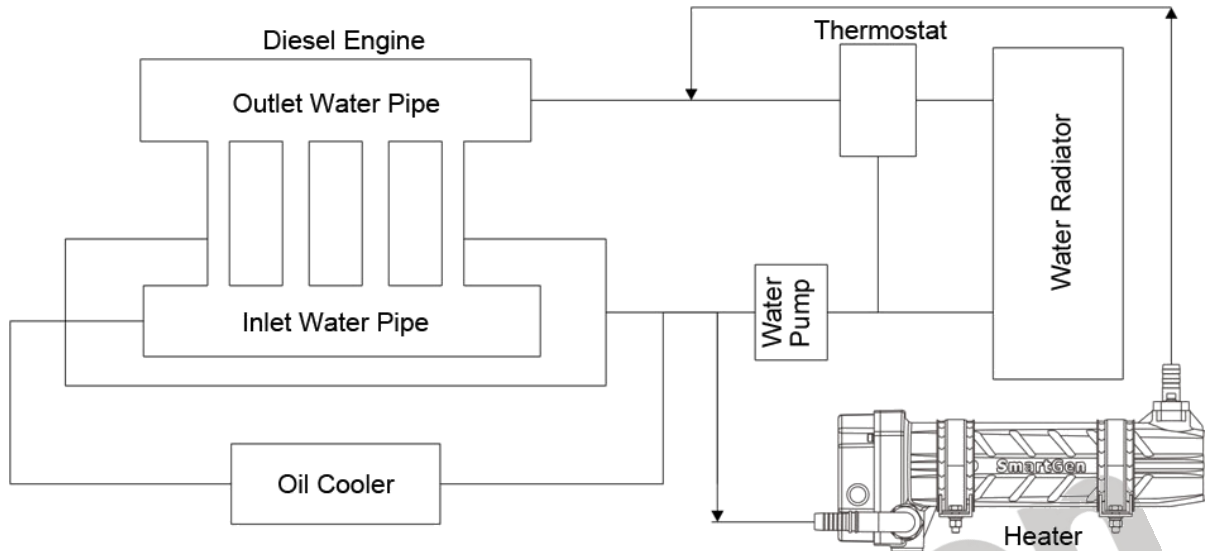
Install the water-proof connection joint after knock on the knock-off hole which on the rear plastic shell. Pass the 4mm<sup>2</sup> power line through the thread hole of rear shell to connect to L, N, E terminals respectively.



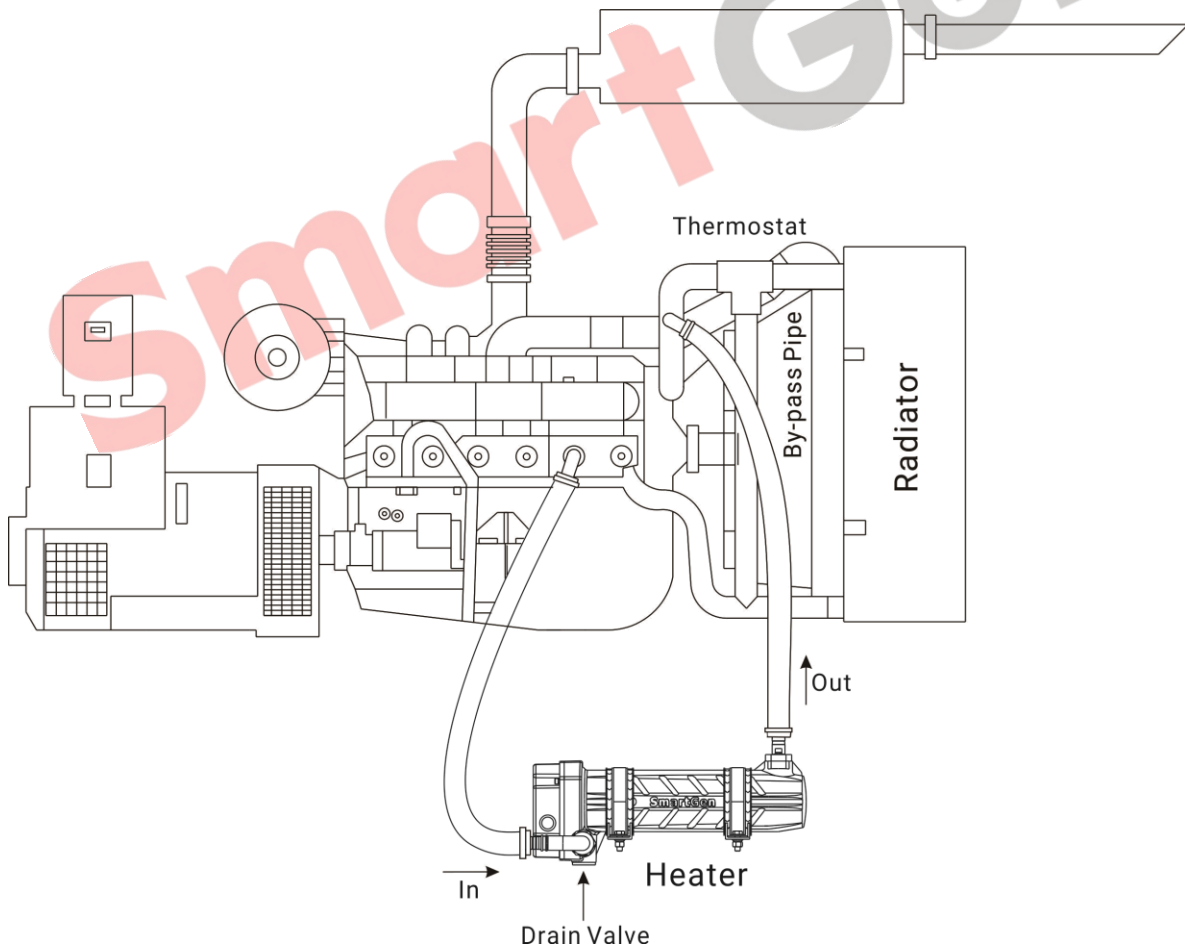
**Fig.3 – Connection Position**

## 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.

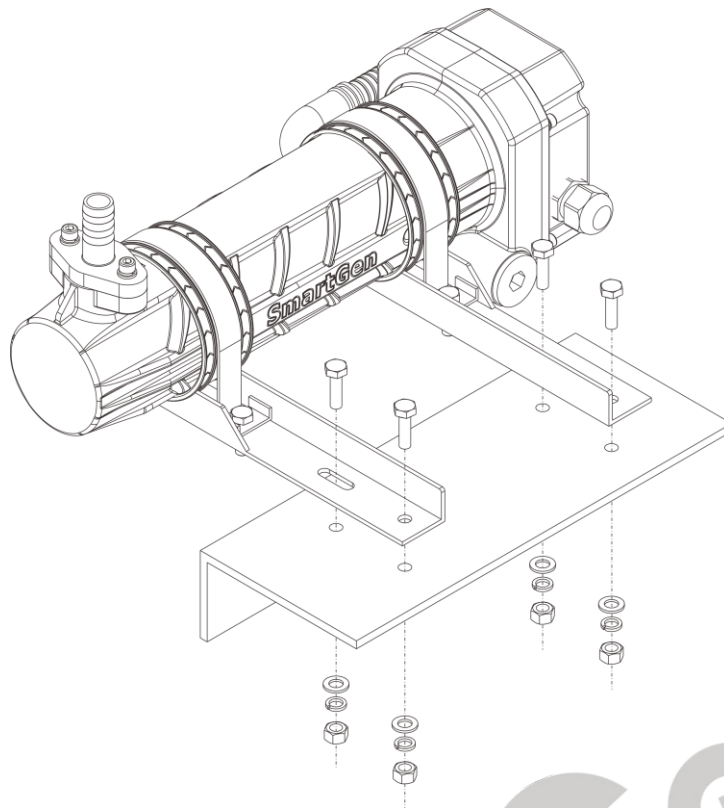


**Fig.4 – Operation Diagram**



**Fig.5 – Installation Position Diagram**





**Fig.6 – Installation Method Diagram**

## **7 OPERATION**

### **7.1 COMMISSIONING**

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

### **7.2 OVERHEAT PROTECTION RESET**

When overheat alarm indicator lights on, heater will enter into overheat protection status and stop heating. If heater temperature falls below the reset temperature limit of overheat protection thermostat (80°C), 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 ambient temperature is lower than 0°C. Otherwise, the remaining water will freeze, resulting in heater break.

Corresponding antifreeze is recommended.

Heat resisting power line is recommended.

Earth line must be soundly connected to earth.

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

Unit: mm

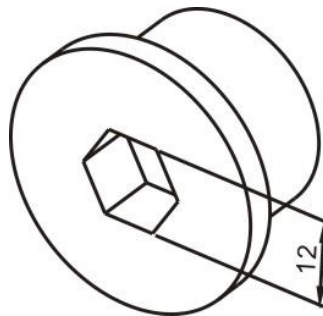


Fig.7 – Drain Screw

## 9 CASE AND INSTALLATION DIMENSIONS

Unit: mm

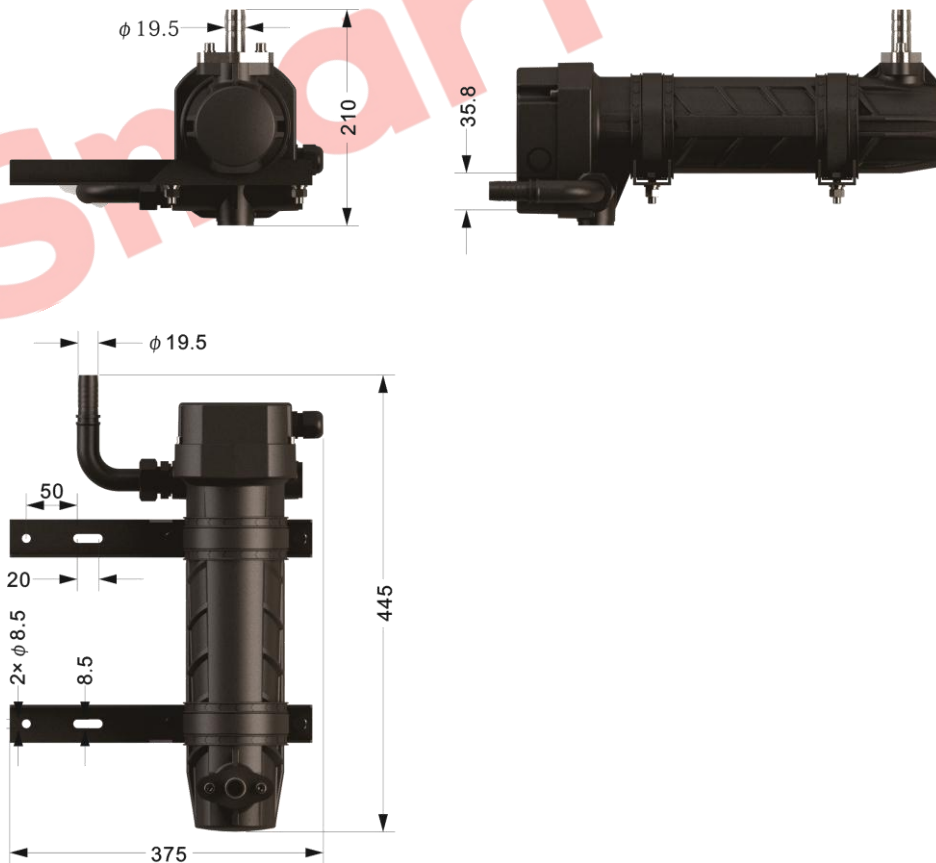


Fig.8 – Overall Dimensions

## 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 M8×25	8
10	Rotary joint (Inlet)	1
11	Pagoda joint (Outlet)	1
12	Water-proof cable joint	1
13	Certification	1
14	User manual	1