



**SmartGen**  
ideas for power

**HT SERIES**

**(HT10/HT22)**

**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
2012-04-05	1.0	Original release.
2012-06-25	1.1	Product renamed; parameters modified.
2012-10-08	1.2	Dimensional drawing modified; Film drawing modified.
2013-05-23	1.3	Add drain valve.
2014-07-08	1.4	Add installation instruction and other descriptions.
2015-10-26	1.5	Add heater types which use 50°C and 60°C to break temperature switch.
2016-01-21	1.6	Abolish HT05 and HT15 type.
2016-03-29	1.7	Add Heater Packing List.
2016-08-08	1.8	Modify the parameters of power.
2020-12-03	1.9	Modify the product weight.

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## 1 OVERVIEW

HT Series Heater enjoys wide application on various engine coolant preheaters. It has fine cast aluminum enclosure and self-extinguishing engineering plastics end closure, multiple installation ways and easy and convenient use.

If during cranking the outside 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. Engine heater should be installed to ensure normal starting and running of the engine when the outside temperature is lower than 4 °C.

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

This product is suitable for various engine with (0~13.1)L displacement.

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

## 2 PERFORMANCE AND CHARACTERISTICS

- 1) Fine cast aluminum enclosure and special surface treatment with high corrosion resistance and high/low temperature capability;
- 2) Stainless steel inner pipes and end closure with high corrosion resistance;
- 3) Coolant temperature is controlled by thermostat which is installed within the heater. It has simple connections and high reliability;
- 4) Power and heating light indicators make it easy to observe the heater status;
- 5) There is a water drain valve with seal ring on the bottom of the heater so as to be used when needed;
- 6) Overheating thermostat provides the protection of dry heating and overheating;
- 7) Multiple installation ways apply to different installation situations;
- 8) This product can work normally at -25°C temperature.

### 3 TECHNICAL PARAMETERS

HT series water heaters are divided into 2 types according to the power of the internal heating pipes, their case and installation dimensions are all the same.

Table 2 Technical Parameters

Model	HT10	HT22
Rated Power	1190W (220V1000W)	2200W (220V1850W)
Rated Voltage	240V	
Rated Current	5A	9.2A
Engine Displacement (L)	0~7	7~13
Thermostat Set Point	40°C±3 °C	
Thermostat Range	Standard: Off: 40 °C±3 °C On: 25 °C±6 °C	
	HT10-1, HT22-1: Off: (50±3)°C On: (35±6)°C	
	HT10-2, HT22-2: Off: (60±3)°C On: (45±6)°C	
Overheating Thermostat Range	Off: 95 °C±3 °C On: 80 °C±6 °C	
Insulating Resistance	≥50MΩ	
Electrical Strength	AC 1.5kV 1min	
Inlet/Outlet Size	3/4" (φ 19mm)	
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 Conditions	-25 °C~+70 °C	
Storage Conditions	-30 °C~+70 °C	
Case Dimensions	203mm×150mm×177mm	
Weight (include accessories)	1.9kg	

### 4 INDICATOR

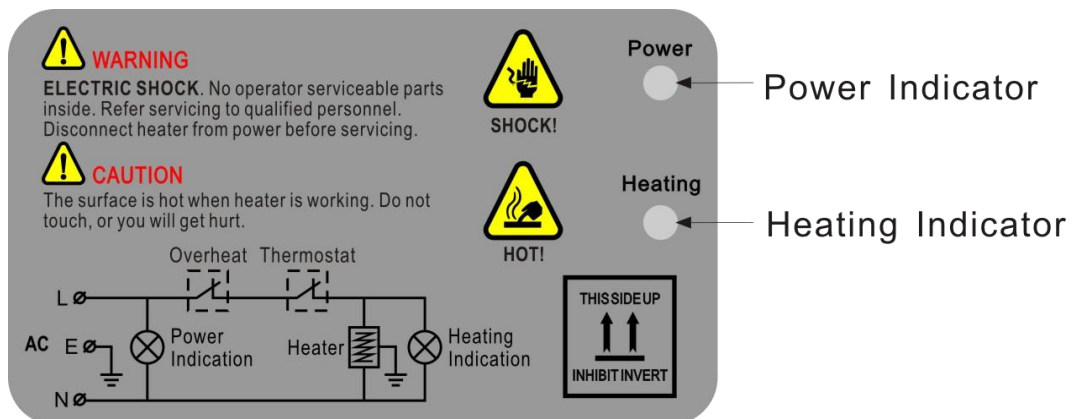


Fig.1- Panel Indicator Drawing

## 5 CONNECTIONS

The supplied power cable is 1.2m long. Please follow the back cover application diagram when wiring; earth line must be soundly connected to earth.

In the above diagram: L--Phase line (Red), N-Neutral line (Green), E-Earth line (Yellow).

## 6 HEATER CONNECTION

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 water.

Heater connection diagram:

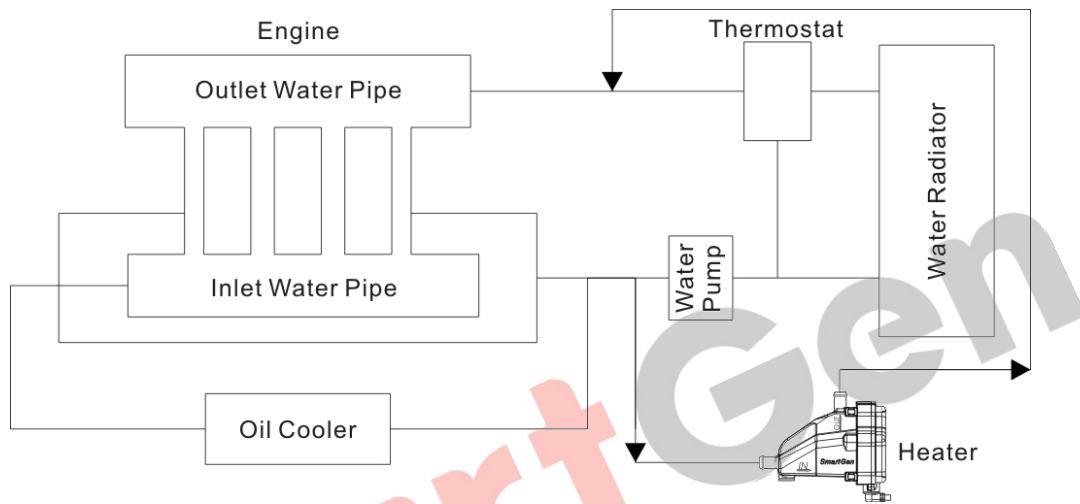


Fig.2- Heater Operating Schematic Diagram

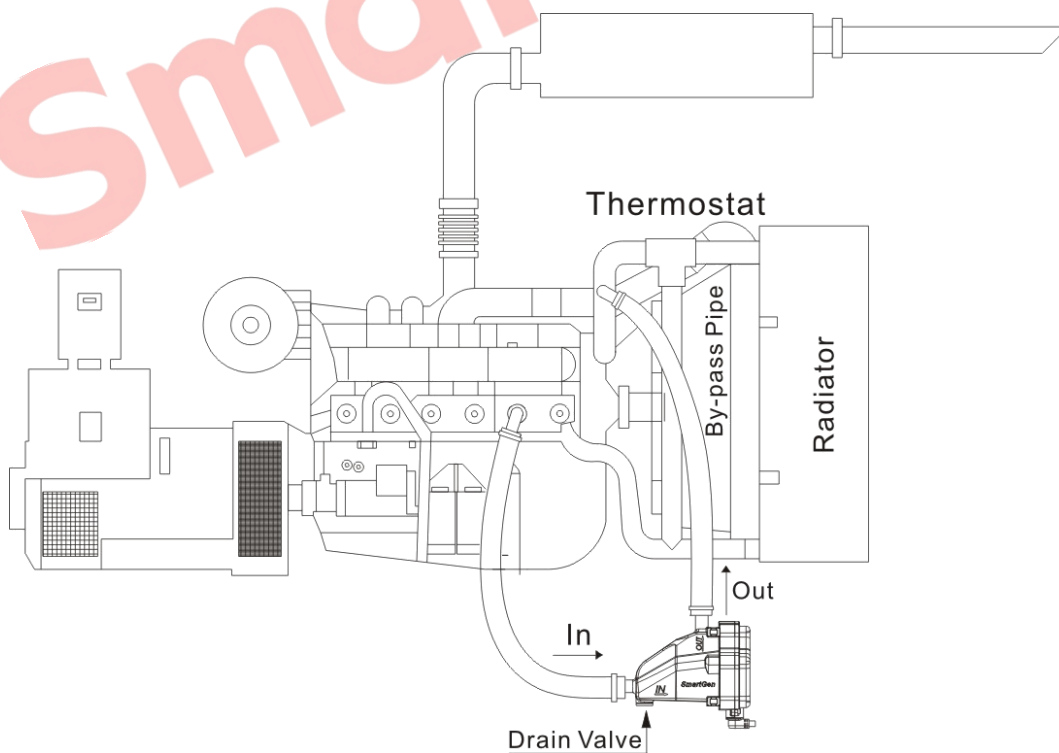


Fig.3- Heater Position Diagram

## 7 INSTALLATION INSTRUCTION

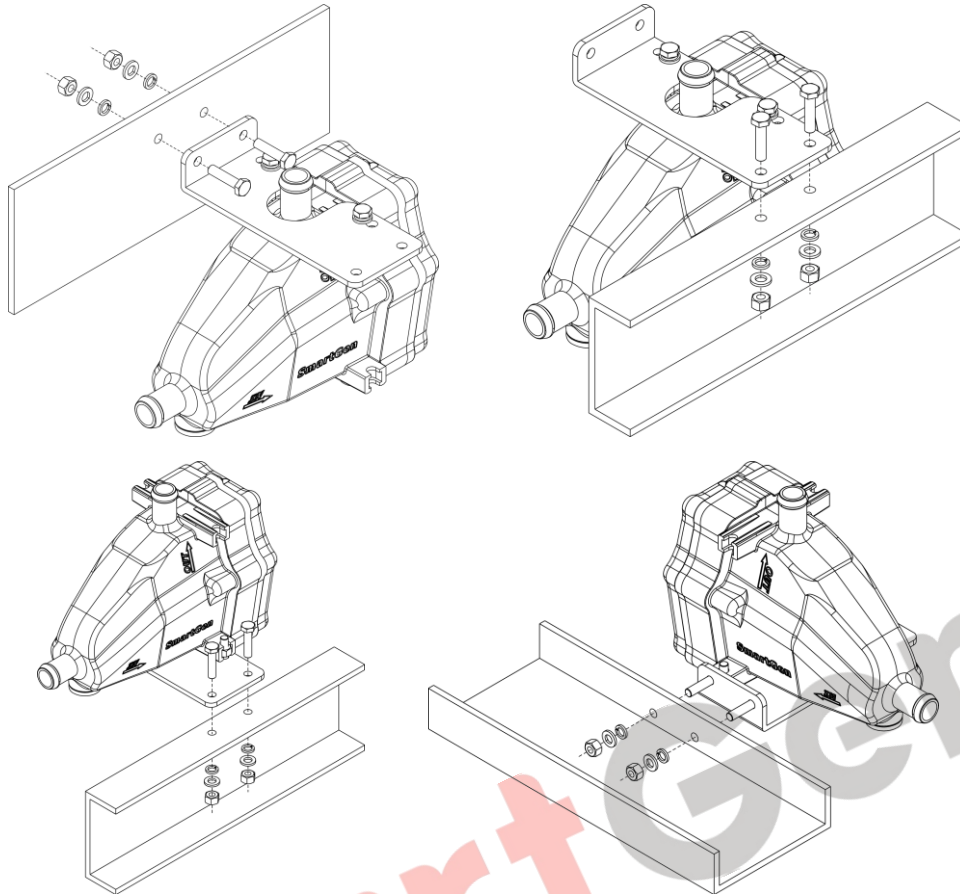


Fig.4- Installation Dimensions

## 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.

Earth line must be soundly connected to earth.

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

(Unit: mm)

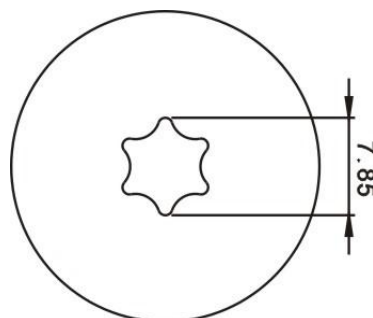


Fig.5- Water Drain Valve

**9 CASE AND INSTALLATION DIMENSIONS**

(Unit: mm)

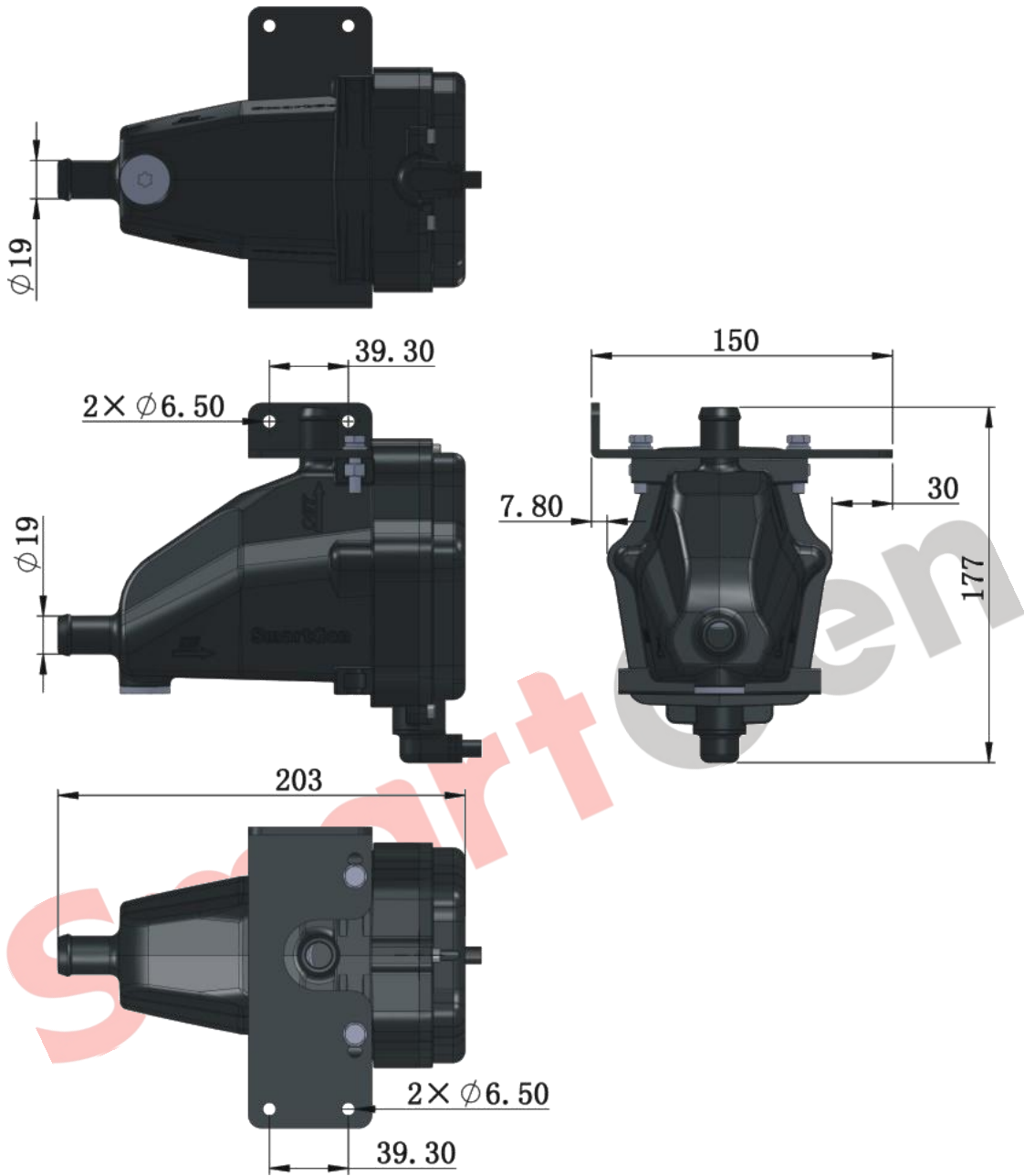


Fig.6- Case Dimensions



**10 ADDITION: HEATER PACKING LIST**

No.	Name	Number	Remarks
1	Heater	1	
2	Bracket	1	
3	Flat gasket	4	GB/T 95 6
4	Spring washer	4	GB/T 93 6
5	Hexagon nut	4	GB/T 6170 M6
6	Hexagon screws	4	GB/T 5783 M6x25
7	Hose clamps	4	Φ 18 – Φ33
8	Certificate	1	
9	User Manual	1	

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