

## SMARTGEN HT22M

# HT22M Water Heater User Manual

Model: HT22M | Brand: SMARTGEN

## 1. INTRODUCTION

The SMARTGEN HT Series Water Heater is designed for preheating engine coolant, ensuring optimal engine performance and longevity, especially in cold environments. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your HT22M water heater.

Engine coolant and lubricant can condense in temperatures below 4°C (39.2°F), losing their essential properties and potentially damaging the engine during startup. The HT22M water heater prevents this by maintaining the coolant at an optimal temperature, facilitating smooth engine starting and operation.

## 2. PRODUCT FEATURES

- Durable Construction:** Features a fine cast aluminum enclosure and special surface treatment, providing high corrosion resistance and capability in high/low temperature conditions.
- Corrosion-Resistant Components:** Equipped with stainless steel inner pipes and end closure for enhanced resistance to corrosion.
- Thermostatic Control:** Coolant temperature is precisely controlled by an integrated thermostat, ensuring reliable and consistent heating.
- Status Indicators:** Includes power, heating, and overheat protection light indicators for easy monitoring of the heater's operational status.
- Convenient Drainage:** A water drain valve with a seal ring is located at the bottom of the heater for easy coolant drainage when required.
- Wide Application:** Suitable for various engines with a displacement range of 0 to 13 liters.

## 3. PRODUCT COMPONENTS AND DIAGRAMS

Familiarize yourself with the components of the HT22M water heater using the following diagrams.



**Figure 3.1:** Side view of the SMARTGEN HT22M Water Heater, illustrating its compact design and general form factor. This view highlights the main body and connection points.



**Figure 3.2:** Top-down view of the HT22M Water Heater, showing the coolant inlet and outlet ports. This perspective is useful for planning hose routing during installation.



**Figure 3.3:** Angled view of the HT22M Water Heater, providing a clear look at the integrated control panel with its indicator lights and reset button. This view also shows the mounting tabs.



**Figure 3.4:** Front view of the HT22M Water Heater, focusing on the control panel. This image clearly displays the "Power," "Heating," and "Overheat" indicator lights, the "Reset" button, and important safety warnings.

## 4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and effective operation of the HT22M water heater. It is recommended that installation be performed by qualified personnel.

### 4.1 Safety Precautions

- Ensure the engine is cool and the ignition is off before beginning installation.
- Disconnect the vehicle's battery to prevent accidental electrical discharge.
- Wear appropriate personal protective equipment (PPE), including gloves and eye protection.
- Handle coolant with care; it can be toxic. Dispose of old coolant responsibly.

### 4.2 Mounting the Heater

1. Select a suitable mounting location near the engine, ensuring it is secure, stable, and away from moving parts or excessive heat.
2. Ensure the heater is mounted in an upright position as indicated by any "THIS SIDE UP" markings on the unit.
3. Use appropriate fasteners to secure the heater to the mounting surface.

### 4.3 Coolant Line Connection

1. Identify the appropriate coolant lines for integration into the engine's cooling system. The heater should be installed in a bypass loop or in line with a section of the cooling system where coolant flow can be established through the heater.
2. Cut the coolant hose at the chosen location and insert the heater, ensuring a tight fit with hose clamps.
3. Ensure all connections are secure and leak-free.
4. Refill the cooling system with the appropriate coolant to the manufacturer's recommended level and bleed any air from the system.

### 4.4 Electrical Connection

1. Connect the heater to a suitable power source as specified on the product label (e.g., AC220V, AC240V).
2. Ensure the power supply is fused and properly grounded according to local electrical codes.

- Verify all electrical connections are secure and insulated to prevent short circuits.

## 5. OPERATING INSTRUCTIONS

The HT22M water heater operates automatically based on its internal thermostat.

### 5.1 Initial Power-Up

- After installation and ensuring the cooling system is full and bled, connect the heater to its power supply.
- The "Power" indicator light should illuminate, indicating the unit is receiving power.

### 5.2 Automatic Operation

- The internal thermostat will monitor the coolant temperature. When the temperature drops below the set point (e.g., 40°C, 50°C, or 60°C depending on the model), the heating element will activate.
- When the heating element is active, the "Heating" indicator light will illuminate.
- Once the coolant reaches the desired temperature, the thermostat will cycle the heating element off, and the "Heating" light will extinguish.
- The heater will continue to cycle on and off as needed to maintain the coolant temperature.

### 5.3 Overheat Protection

- The unit is equipped with overheat protection. If the coolant temperature exceeds a safe limit, the "Overheat" indicator light will illuminate, and the heating element will shut off.
- If an overheat condition occurs, disconnect power, allow the unit to cool, and investigate the cause (e.g., low coolant level, air lock).
- After resolving the issue and allowing the unit to cool, press the "Reset" button on the control panel to restore operation.

## 6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your HT22M water heater.

- Periodic Inspection:** Regularly inspect the heater and all connections for signs of leaks, corrosion, or damage. Ensure electrical wiring is intact and secure.
- Coolant Level:** Always ensure the engine's coolant level is maintained at the manufacturer's recommended level. Low coolant can lead to overheating of the heater.
- Draining Coolant:** If the cooling system needs to be drained (e.g., for engine maintenance or long-term storage in extremely cold conditions without power), use the water drain valve located at the bottom of the heater. Ensure a container is placed underneath to collect the coolant.
- Cleaning:** Keep the exterior of the heater clean and free from dirt, debris, or oil buildup. Use a damp cloth; do not use harsh chemicals or abrasive cleaners.
- Winterization (if applicable):** If the engine or vehicle is to be stored in freezing temperatures without the heater being continuously powered, ensure the cooling system, including the heater, is properly drained or filled with appropriate antifreeze solution to prevent freeze damage.

## 7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your HT22M water heater.

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Heater not operating, no lights on.	No power supply; Blown fuse/tripped breaker; Loose electrical connection.	Check power outlet/source. Inspect and replace fuse or reset breaker. Verify all electrical connections are secure.
"Power" light on, but "Heating" light off, and coolant is cold.	Coolant already at desired temperature; Faulty thermostat; Heating element failure.	Verify coolant temperature. If cold, contact qualified service personnel for thermostat or element inspection.
"Overheat" light is on.	Low coolant level; Air pocket in heater; Restricted coolant flow; Internal fault.	Check and top up coolant. Bleed cooling system for air. Inspect coolant lines for kinks or blockages. Allow to cool, then press "Reset" button. If issue persists, seek professional assistance.
Coolant leak detected.	Loose hose clamps; Damaged hose; Cracked housing.	Tighten hose clamps. Replace damaged hoses. If housing is cracked, the unit may need replacement.

For issues not listed above or if troubleshooting steps do not resolve the problem, please contact SMARTGEN customer support or a qualified technician.

## 8. SPECIFICATIONS

Parameter	Value
Model	HT22M
Manufacturer	SMARTGEN
Suitable Engine Displacement	0 - 13 Liters
Operating Temperature Range (External)	Below 4°C (39.2°F) recommended for use
Item Weight	4.19 Pounds
ASIN	B0CHFTHQST
First Available Date	September 6, 2023
Heating Temperature Options	Standard: 40°C; Customizable: 50°C, 60°C (verify specific model)

## 9. SAFETY INFORMATION

Please read and understand all safety warnings before installing or operating the HT22M water heater. Failure to do so may result in injury, property damage, or electric shock.

- Electrical Shock Hazard:** This device operates with high voltage. Always disconnect power before performing any installation, maintenance, or troubleshooting. Only qualified personnel should perform electrical connections.
- Hot Surface Warning:** The heater's surface and coolant lines can become very hot during operation. Avoid direct contact to prevent burns. Allow the unit to cool completely before handling.
- Coolant Safety:** Engine coolant is toxic. Avoid ingestion and prolonged skin contact. Use appropriate personal

protective equipment.

- **Proper Installation:** Ensure the heater is installed securely and correctly according to the instructions. Improper installation can lead to leaks, electrical hazards, or damage to the unit or engine.
- **Ventilation:** Ensure adequate ventilation around the heater to prevent heat buildup.
- **Children and Pets:** Keep children and pets away from the heater, especially during operation.

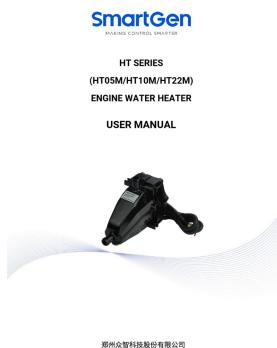
## 10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your SMARTGEN HT22M Water Heater, please refer to the official SMARTGEN website or contact your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.

**SMARTGEN Customer Support:** Please visit [www.smartgen-america.com](http://www.smartgen-america.com) for contact details and further product information.

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