

Parking Heater



QUALITY
SERVICE
ATTENTIVELY

AIR HEATER

PRODUCT
SYSTEM MANUAL

Please Read It Carefully And Keep It In A Safe Place.

This manual describes its structure and installation instructions. Please read this manual carefully before installation and use to ensure correct use. Please keep it after reading.

Attention :

There may be some changes in the contents of the manual. There is no special notice, but the manual is consistent with the product.

We try to express clearly what users have to learn. If you have any questions, please contact us directly.

After opening the packing box for the first time, please check the main equipment and spare parts according to the packing list.

If you have any questions, please contact the dealer as soon as possible.

Please contact the marketing department or our authorized service station in case of failure during use.

We will serve you wholeheartedly.

Please keep the warranty card properly and give feedback according to the terms. This warranty card is the only valid certificate for after-sales service.

Product Overview And Structure



Parking Heater (Hereinafter Referred To As Heater) Is A Small Heat Exchanger

Which is mainly controlled by microcomputer, the heat exchanger is located in the shell as an independent air passage. The cold air is drawn into the air duct by the forced draft fan. When the cold air becomes hot, it is blown out to form a combustion heating system. In this way, the cab and passenger compartment can be heated whether the engine is working or not. It has the advantages of compact structure, convenient installation, energy saving and environmental protection, safe and reliable, simple maintenance and so on.

Product Structure



① Heater Body

The main structure of the heater is shown in Figure 2.

② Controller

The controller is installed on the top of the main body of the heater, which automatically controls and monitors the whole working process of the heater after starting, and realizes the fault protection function according to the pre-programmed program.

③ Flame Sensor

When the flame sensor works, it can monitor the temperature of the furnace chamber because of the change of resistance with temperature. In the ignition stage, it is used to judge whether the furnace is ignited or not. In normal working condition, it is helpful to judge whether the flame is burning continuously or not.

④ Temperature Sensor

The temperature sensor is installed on the outer wall of the middle part of the heater body. When the heat exchanger temperature exceeds 210 °C. The controller will automatically cut off the oil pump circuit, stop the oil supply, and then turn off the heater to prevent the system from overheating.

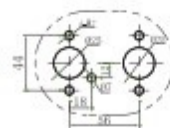
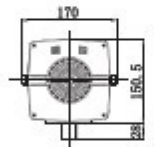
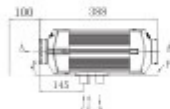
Technical Parameters

Serial Number	Model Parameter	12V 2KW	12V 5KW	12V 8KW	Note
		1	Fuel	International Diesel	
2	Heating Capacity	1-2KW	1-5KW	1-8KW	
3	Rated Voltage	12V			
4	Power Consumption	0.09-0.22L/H	0.12-0.43L/H	0.12-0.6L/H	
5	Work Environment	-40-20°C			
6	Starting Power Consumption	9-11A	9-11A	9-11A	
7	Power Consumption in Operation	1-5A	1-3A	1-3A	
8	Product Weight	2.7KG	3.7KG	3.7KG	
9	Product Size	140×110×110mm	195×140×140mm	195×140×140mm	

Installation

Only Special Parts Can Be Used To Install The Heater. Due To Different Vehicle Types, The Location And Fixing Method Of Each Component Will Be Different. It Must Be Installed On Site By Professional Personnel.

Parking Heater (Hereinafter Referred To As Heater) Is A Small Heat Exchanger



① Installation Of Heater Body

A. Installation Position

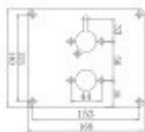
The heater body can be installed inside or outside the vehicle.

B. Spacing Requirements

In order to ensure the hot air circulation and facilitate the installation and maintenance of the heater body, sufficient installation space must be provided, please refer to the double dot line range for installation space (as shown in the figure), make sure that there is no interference in the gap between the bottom surface of the heater body and the mounting surface of the vehicle.

C. Seal

There must be a good seal between the heater body and the vehicle mounting surface. the mounting surface must be flat enough and a specific gasket must be installed (as shown in the figure), the spacing unevenness on the mounting base of heater body shall be less than 1 mm. after drilling the installation hole, the flatness must be improved according to this requirement. please tighten the m6 nut during installation. the tightening torque is 6nm + 1nm. the location of the mounting hole is shown in the figure.



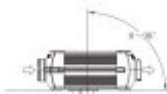
D. Mounting Plate

If the thickness of the mounting plate is less than 1.5 mm, the mounting plate is required. the gap between the mounting plate and the body must also be sealed (as shown in the figure)

note: the gasket must be replaced when the heater body is re installed.

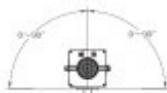
E. Installation Direction

The installation direction of the heater body is shown in the figure. it must be noted that the inclination angle of both sides must be exactly 90 degrees, otherwise the normal operation will be affected.



F. Fan Impeller Inspection

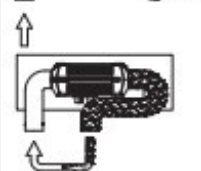
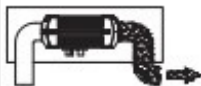
After installation, it is necessary to check to ensure that there is no contact or friction between the fan impeller and the surrounding parts, so as to prevent faults during operation.



② Air Duct Installation

A. Air Circulation Mode

In order to ensure that the air duct is unobstructed, the connection mode should be installed and fixed by professionals. it is suggested that the heater should be installed with independent external circulation or internal circulation.



B. Cold Air In

For heaters with internal circulation, measures shall be taken to prevent the hot air supplied from re entering the air inlet (as shown in the figure). the intake air should be drawn from the cold area of the car, such as the seat or under the bed. if the intake pipe is not connected in this mode, the intake hood with grille must be installed at the air inlet of the heater body.



③ Installation Of Fuel Supply System

The fuel supply system for the heater is shown in figure .

A. Fuel Pump

The fuel pump shall be fixed in a protective rubber clip to eliminate vibration transmission. the fuel pump outlet should be inclined upward. the tilt angle can be set at 45 ° - 95 ° . when conditions permit, the fuel pipe between the fuel pump and heater should rise gradually.



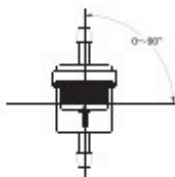
B. Elevation Difference

The difference in height between the fuel level and the fuel pump and between the fuel pump and the fuel inlet of the heater creates pressure (or suction) in the fuel line . therefore, these dimensions should conform to the requirements.

The requirements are as follows: $a \leq 3m$; $b \leq 0.5m$; $c \leq 2m$. note: please check the vent on the tank cap during installation.

C. Installation Of Fuel Filter

The fuel filter should be installed before the fuel inlet of the fuel pump. make sure that the fuel flow is followed correctly. its position should be exactly 90 ° , consistent with figure 13. the fuel filter should be replaced every 6 months, the same as the fuel pipe fitting and clamp.



④ Wiring Harness Installation

The end of each wire shall be wrapped with electrical insulating tape to prevent short circuit.

A. Main Harness

The connection diagram of main harness and heater is shown in figure 14. the wire connecting the heater body of the external circuit has been made into a harness. they can be laid according to the needs, and the position of each part shall be fixed in the appropriate position. the distance between the two fixed points as shown in figure 14 shall not exceed 300 mm. any wiring harness exposed outside the vehicle body or wiring slot must be protected by bellows.



B. Battery Connection

Connect the red lead on the fuse box to the positive side of the vehicle battery and the black lead to the negative side.

C. Fuel Pump Connection

Connect the fuel pump lead to the fuel pump.

D. Control Panel

Install the control panel in a convenient position, the arrangement shall facilitate the observation of the indicator lights on the enclosure to identify the operating conditions (run / stop) of the heater. the terminals of the control panel lead wires shall be inserted into the socket in the order shown in figure, and then connected to the connector on the main harness with the self-locking mechanism.

⑤ Piping Installation

Installation Of Intake And Exhaust Pipes.

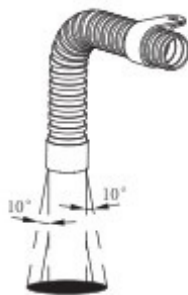
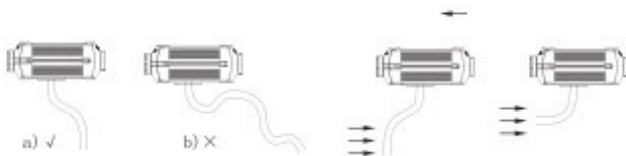
A. Installation Of Pipes

The intake pipe is aluminum bellows and the exhaust pipe is stainless steel bellows. they cannot be installed incorrectly or interchanged during installation. if you need to connect to the heater, fasten it to the combustion air inlet and exhaust vent respectively with the provided clamp.

B. Pipeline Direction

The intake and exhaust pipes should be from the heater outward and downward , or ϕ there should be 5mm holes at the bottom of the pipe to drain condensate.

If the pipe must be bent, the bending radius of the pipe must be at least 50 mm. in addition, the sum of all curve angles of each curve shall not exceed 270° . pipe openings shall not be opposite.



C. High Temperature

When the heater is running, the exhaust pipe is in a high temperature state. in the installation process, be sure to install the pipe away from the plastic parts or other objects with poor thermal resistance.

the exhaust pipe shall be properly fixed. the exhaust port should face down and be perpendicular to the road at an angle of $90^\circ \pm 10^\circ$. to ensure this angle, the exhaust pipe clamp should be within 150 mm from the pipe end.

Warning: violation of the above requirements may cause fire. we will not be responsible for any consequences caused by failure to install according to our requirements.

6. Installation Precautions

- ① It is forbidden to use in places with combustible gas, combustible dust and other combustible and explosive substances.
- ② It is forbidden to use heaters in enclosed spaces (such as garages, repair workshops and other places without ventilation) to avoid burning waste gas poisoning.
- ③ Do not install and use heaters in the living room.
- ④ If the heater is installed on a special vehicle (such as a vehicle transporting dangerous goods), special regulations must be observed when installing the heater.
- ⑤ Be sure to take good care of the fuel tank, compression box, fire extinguisher, clothes, paper, etc. keep away from heaters and avoid them facing hot vents.

Boot-up Operation

In shutdown state, long press "⏻" key for 2 seconds, equipment start-up, display boot status as shown above.

Shutdown Operation

On-state, long press "⏻" key for 2 seconds, equipment entering blow-off cooling process, display "🔌". turn off the equipment after cooling.

At this time, do not force the power off for the cooling block. direct power failure can damage parts because the body temperature is too high to dissipate heat, only when the machine is turned off can the power be cut off.

Manual Mode Operation



Manual mode has six gears(h1-h6)h6 represents maximum power, as shown above, boot status, add or subtract gears by "▲" or "▼", main engine schematic diagram and bar chart to show the current gear.

Automatic Mode Operation

Automatic mode, the figure above shows the setting of 20 degrees celsius, add or subtract temperature values by "▲" or "▼", setting range 5-30 degrees celsius, switching manual/automatic mode by long pressing "⏻" keyboard.

Manual Oiling Operation

In shutdown state, two seconds after pressing the "▲" and "▼" at the same time, manual control of pumping, stop oiling after releasing the key, please use cautiously!

Plateau Model Operation

At the same time, press the button for 2 seconds to enter the plateau mode. "▲" display start plateau mode, press the "⏻" and "ok" key for two seconds to exit the plateau mode at the same time, please use cautiously!

Setting Timing Switch Time Operation

Two seconds after pressing the "OK" and "▼" key at the same time, enter the timing setup time interface, the following figure is shown. tab "🔌" flicker, display shows 10.1 hours on time, if it display off, it means setting a timed shutdown time.

- 1) Press "▲" or "▼" key to adjust time value, time range: 1-24 hours.
- 2) Short press "⏻" key, switch to adjust digital bits.
- 3) Short press "⏻" key, switching the timed start-up and timed shut-down time value.
- 4) Short press "OK" key, save the settings and exit the interface.
- 5) Press "⏻" key for 2 seconds, do not save the settings, exit this interface.
- 6) Starting timing function

At the same time, long press the "⌘" and "▲" key to start the timing function, start the timing boot in the shutdown state, start the timing shutdown in the boot state, press the c key short to see the remaining time.



Remote Control Code-Matching Operation

In shutdown state, simultaneous long press "⏻" and "▼" for two seconds, enter remote control code as follows.

- 1) Press "▲" or "▼" key to adjust the third digit value for remote control coding, the numerical range is 1-5, corresponding five remote controls.
- 2) Choose the code of remote controller, arbitrarily press a key of the remote control, machine coding successfully and exit coding state.
- 3) Short press "⌘" key to exit remote control code.

Precautions

Inspection Before Use

The heater should be debugged before use. during commissioning, carefully check all connections for leakage and safety. if heavy smoke emission is observed or irregular combustion noise or fuel smell is felt, the heater must be turned off. please remove the fuse so that the heater will not work. the heater must be maintained by qualified professionals before it can be put into use. the details are as follows:

- ① Check the air inlet and outlet for contamination and foreign matter.
- ② Clean the outside of the heater.
- ③ Check the electrical contacts for corrosion or loose connections.
- ④ Check the intake pipe and exhaust pipe for blockage and damage.
- ⑤ Check the fuel line for leakage.

Keep The Pipes Clean

The air inlet and outlet of the heater must be kept clean and unblocked to make the air flow unblocked and prevent overheating.

Change Diesel Oil

When changing the low temperature fuel, the heater should run for at least 15 minutes to fill the fuel pipe and fuel pump with new fuel. The heater must be turned off before refueling.

Installation And Maintenance

Only authorized customer service stations are allowed to install and repair heaters. non original parts are prohibited to avoid danger.

Liability For Damages

If the heater is turned on without authorization or the heater is damaged due to installation or operation violation, the manufacturer shall not bear any responsibility.

Switch Description

1.The Control Panel Is Shown Below The Ground



- 1: Overshift Key
- 2: ON/OFF Key
- 3: Downshift Key
- 4: Setting Key
- 5: Deterministic Key
- 6: Work Status Symbol
- 7: Display Ambient Temperature
- 8: Timing Symbol
- 9: Plateau Symbol
- 10: Fault Symbol
- 11: Display Data Parameters
- 12: Host Schematic

2.Use Operation



Shutdown status



Boot mode (manual mode)



Boot mode (automatic mode)

Code Of Use

- 1.It is prohibited to use in high humidity, conductive dust, flammable and explosive gases, dust, materials, corrosive media, strong light, strong magnetic, high voltage and high current equipment nearby.
- 2.Voltage range of power supply: dc24v controller is suitable for (18-32) v; dc12v controller is suitable for (9-16) v; different voltage controllers are not universal, and it is forbidden to use beyond the applicable voltage range.
- 3.The 5kw controller must be used on the 5kw organism; the 2kw controller must be used on the 2kw organism.
- 4.If the controller or external device is damaged, it must be replaced by the prototype device and professionals.
- 5.It is forbidden to open the controller shell privately
- 6.Equipment must be installed strictly and must be used under safe conditions.
- 7.The company is not responsible for the loss and liability of the controller due to the misconnection short circuit and damage of the external devices and lines.
- 8.At the high temperature of the body, the fan can not operate, so it must be cooled quickly for the body to make its temperature. cooling air is injected from the combustion inlet to make the body temperature less than 100 °C. prevent high temperature from burning parts or causing fire.

Our company is not responsible for any loss or liability caused by the failure to install and use according to article 1 to

Trouble Shooting

Solutions To Common Problems

During use, the heater may not be able to start naturally or go out after starting, leading to fault locking state. In this case, restart the heater: turn it off, hold it off for at least 3 seconds, and then start it again.

Circuit faults may be caused by different reasons, such as corrosion (connector, wire, fuse, battery pole), poor contact of connector, wrong connection of wire, etc. users need to pay attention to inspection and maintenance to prevent such faults.

Solutions To Common Problems

① Control panel wire disconnected

When the heater is turned on, the display cannot display, indicating that the harness connection of the control panel is incorrect. Check whether the wiring harness is disconnected?

② Power failure

The power supply may be cut off suddenly and the heater will stop immediately. This depends on whether it is in the start-up phase before the pump starts pumping fuel, or during normal operation, it is handled differently. In both cases, make sure the power cord is well connected and the power is available, and then start the device again.

In the first case, when the pump does not start pumping fuel, it is considered a normal shutdown and the equipment can be restarted as usual.

If the power failure occurs after pumping the fuel, it is regarded as illegal shutdown. After restart, the heater will remove the fuel residue, which may take a few minutes, and then the heater will start as usual.

Error Code Table

The following table describes the meaning of the error code and the possible causes

Fault Code Description		
Fault Code	Cause of Failure	Solutions
E-2	Power Supply Voltage Range	Normal Range: 24V (18-32V), 12V (9-16V). Check Whether The Battery Or Generator is Normal And Whether The Fuse is Aging.
E-3	Ignition Plug Failure	1)Check Whether The Ignition Plug Connector Is Loose Or The Wire Is Short-Circuited To The Housing 2)Detect Whether The Ignition Plug Is Damaged.
E-4	Oil Pump Failure	Check For Damage, Loosening, Oxidation, Short Circuit and Breaking Of Oil Pump Connections and Connectors
E-5	High Temperature Alarm (Intake > 50 C; Case > 230 C)	1)Check Whether The Heating Duct Is Unobstructed 2)Check Whether The Fan Is Working Properly 3)Check Whether The Temperature Sensor is Normal
E-6	Fault Of Fan	1)Check Whether The Impeller is Stuck 2)Check If The Connection Plug-in is Loose 3)Excessive Gap Between Magnet On Wind Turbine And Hall Sensor On Controller 4)Whether The line is Short-Circuit Or Open-Circuit; Leakage Of Motor

E-8	Flameout	1)Check For Oil Shortage, Low Temperature Solidification Of Oil, Blockage Of Oil Pipeline And Blockage Of Oil Pump 2)Check Whether The Intake And Exhaust Ducts Are Unblocked 3)Check Whether The Housing Temperature Sensor Is In Full Contact With The Housing And Whether The Pressure Spring Is Strong
	Unsuccessful Start Up	1)The Shell Temperature Is Too High To Blow The Cooling Shell For 3 Minutes After Starting. 2)There Is a Lot Of White Smoke In The Exhau
E-9	Sensor Failure	2.1)Check That The Filter Beside The Ignition Plug Is Clean And Not Clogged Or Replaced 2.2)Check Whether The Fuel Injection Is Effective 2.3)Check Whether The Ignition Plug Is Aging 2.4)Is The Clearance Of The Internal Wind Turbine Too Large? 2)A Small Amount Of White Smoke Or No Smoke In The Exhaust Gas 3.1)Check For Oil Shortage, Frozen Or Blocked Oil Pipelines 3.2) Check Whether The Pump Is Jammed Or Damaged And The Pump Is Powerless To Pump. 3.3) Check Whether The Intake And Exhaust Passages Of Combustion Are Unobstructed 3.4) Check Whether The Ignition Plug Is Damaged
		Whether The Temperature Sensor Connectors And Connectors Are Damaged Or Loosened, Whether The Sensor Is Damaged Or Not

Maintenance Record

Record for repairs and maintenance.

Date	Maintained items and the maintenance cause

1. The warranty time is one year for non-artificial malfunction.
2. This product is qualified after inspection and meets the market standards.
3. Before the usage, please inquire qualified technicians to avoid the wrong operation.
4. Do not disassembly artificially.

It is necessary to inspect and maintain the heater by qualified installer before using every winter.

Packing List

NO	Name	Machine	Unit	Quantity
1	Main equipment	12V/24V 2KW/3KW/8KW	Set	1
2	Main wire harness		Set	1
3	Fuel pump	12V/24V	Piece	1
4	Air outlet		Piece	1
5	Control switch	LED/LCD	Piece	1
6	Fuel filter		Piece	1
7	Fuel pump rubber clip		Piece	1
8	Air inlet pipe	Ø25mm×600mm	Piece	1
9	Exhaust pipe	Ø24mm×600mm	Piece	1
10	Air duct	Ø60mm×600mm	Piece	1
11	Bottom plate		Piece	1
12	Intake pipe clip	Ø28mm	Piece	2
13	Fixing clip for exhaust pipe	Ø27mm	Piece	2
14	Fuel tank	10l	Piece	1
15	Nut	M6	Piece	4
16	Exhaust silencer		Piece	1
17	Fuel hose		Piece	1