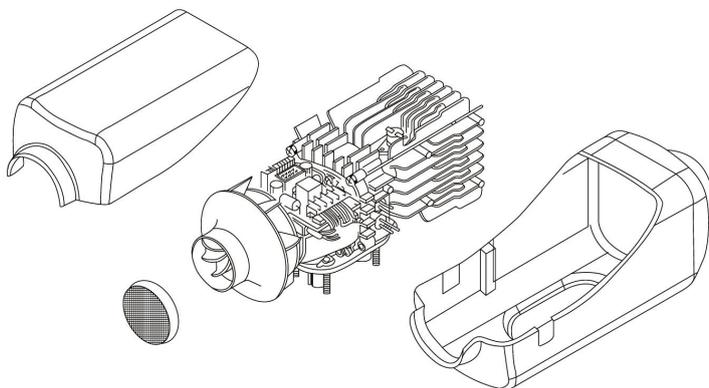


# LIKACI®

## DIESEL AIR CAR PARKING HEATER

### USER MANUAL



Rapid heating



Low fuel consumption



Simple installation



Low noise



Safe and stable



Complete accessories



## **Introduction**

Thank you for choosing LIKACI®!

This is the original instruction, please read all manual instructions carefully before operation. LIKACI® reserves a clear interpretation of our user manual.

If you are satisfied with our product, you could share this pleasant shopping experience with other buyers!

This is a very beautiful thing!

Appreciate your kind feedback and support!

### ***NEED HELP! CONTACT US!***

Have product questions? Need technical support? Please feel free to contact us:

***Email: [likaci.heater@gmail.com](mailto:likaci.heater@gmail.com)***

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## **Safety Precautions**

**In order to ensure the normal operation of the diesel heater, please read these " Safety Precautions " carefully before starting to use the heater.**

1. Do not take the following measures:
  - Change the important component of the diesel heater.
  - Use spare parts from other manufacturers without permission.
  - Do not obey the instruction and guide during installation or operation.
2. Only allow using original attachment and spare parts during installation and maintenance.
3. The heaters can not be used in places where they may form flammable vapor or dust, or near flammable objects, for example:
  - Fuel depot
  - Timber storehouse
  - Carbon storehouse
  - Granary and similar sites
  - Diesel / petrol station
  - Fuel tanks
  - Compression tanks
  - Fire extinguishers
  - Clothes
  - Other flammable objects
4. It is prohibited to use in environments with high humidity, conductive dust, flammable and explosive gases, dust, materials, corrosive media, strong light exposure, and strong magnetic, high-voltage and high current equipment operating nearby.
5. Do not use cigarette lighter for startup.
6. Please place the heater correctly and do not put it upside down.
7. Do not use the heater in closed or non-ventilated places.
8. When adding fuel, the heater must be turned off.

9. Do not cut off the electric power in operation.
10. If the fuel leak or discharge from the fuel system of heater, please contact with LIKACI® to repair. ( Email: [likaci.heater@gmail.com](mailto:likaci.heater@gmail.com) )
11. Place the exhaust outlet outside to prevent exhaust gas from entering.
12. In the process of working, it is forbidden to cut off the electric power directly to stop the heater from working.
13. After turning off the heater, please do not disconnect the power supply immediately. It takes 3-5 minutes for the machine to stop working completely.
14. After starting the heater for 3-5 minutes, it will work normally and heat up. Please wait patiently.
15. When the heater overheat protection function turn on, the heater will stop heating, and then the machine will run automatically when the temperature drops. Therefore, when the heater overheat protection function turn on, please do not turn off or ignore the heater directly to avoid safety accidents.

**Model**

Model	Power	Heating Medium	Fuel	Voltage	Bluetooth
APEX03003	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03004	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03005	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03006	5KW-8KW	Air	Diesel	12V/24V	YES
APEX03007	5KW-8KW	Air	Diesel	12V/24V	YES
APEX03008	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03009	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03010	5KW-8KW	Air	Diesel	12V/24V	YES
APEX03011	5KW-8KW	Air	Diesel	12V/24V	YES
APEX03012	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03013	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03014	5KW-8KW	Air	Diesel	12V/24V	NO
APEX03015	5KW-8KW	Air	Diesel	12V/24V	NO

## Packing List (Split Type)

Split Type		APEX03008	APEX03009	APEX03010	APEX03011	APEX03012
Main engine	/	1	1	1	1	1
Intake pipe		1	1	1	1	1
Exhaust pipe		1	1	1	1	1
Muffler		1	1	1	1	1
Liquid crystal switch		1	1	1	1	1
Remote control		1	1	1	1	1
Air filter		1	1	1	1	1
Wiring harness		1	1	1	1	1
Fuel tank		10L	10L	10L	10L	/
Oil extractor		/	/	1	1	1
User manual		1	1	1	1	1
T piece heater pipe duct		/	/	1	1	/

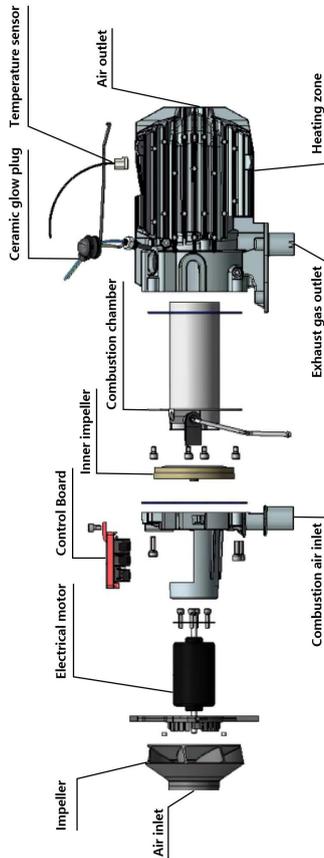
Split Type		APEX03008	APEX03009	APEX03010	APEX03011	APEX03012
Oil filter		1	1	1	1	1
Outlet vent		1	1	2	2	1
Air outlet ducting		1	1	2	2	1
Oil pipe		1	1	1	1	1
Fuel pump sheath		1	1	1	1	1
Oil pump		1	1	1	1	1
Mounting plate		1	1	1	1	1
Oil tank accessories		1	1	1	1	/
Installation parts	/	1 set				

## Packing List (All-in-One Type)

All-in-One Type		APEX0 3003	APEX0 3004	APEX0 3005	APEX0 3006	APEX0 3007	APEX0 3013	APEX0 3014	APEX0 3015
Main engine		1	1	1	1	1	1	1	1
Intake pipe		1	1	1	1	1	1	1	1
Exhaust pipe		1	1	1	1	1	1	1	1
Muffler		1	1	1	1	1	1	1	1
Liquid crystal switch		1	1	1	1	1	1	1	1
Remote control		1	1	1	1	1	1	1	1
Air filter		1	1	1	1	1	1	1	1
Wiring harness		1	1	1	1	1	1	1	1
Fuel tank		5L							
User manual		1	1	1	1	1	1	1	1
Oil filter		1	1	1	1	1	1	1	1
Outlet vent		1	1	1	1	1	1	1	1
Air outlet ducting		1	1	1	1	1	1	1	1

All-in-One Type		APEX0 3003	APEX0 3004	APEX0 3005	APEX0 3006	APEX0 3007	APEX0 3013	APEX0 3014	APEX0 3015
Support frame		2	2	2	2	2	/	/	/
Installation parts	/	1 set							

# Internal Structure

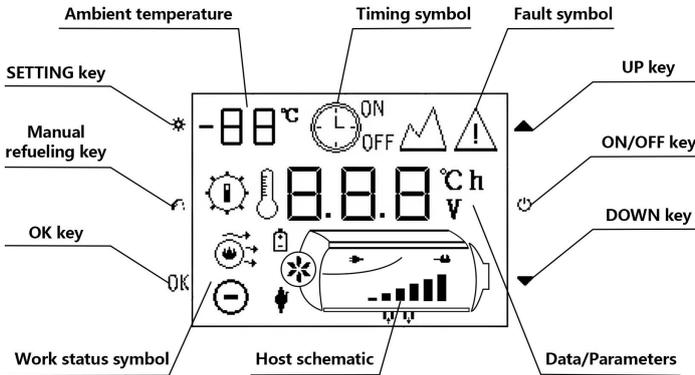


# LCD Switch Controller Operating Instructions

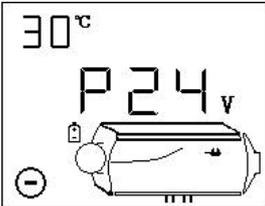
There are two types of the switches: the standard one without Bluetooth function and the high-end one with Bluetooth function.

# Standard one without Bluetooth function

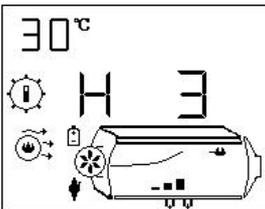
## I. Key Description



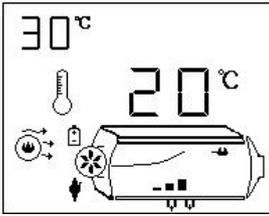
## II. Switching Operation



Picture 1: OFF state



Picture 2: ON state-manual mode



Picture 3: ON state-automatic mode

1. Turn ON the Heater : Press the "⏻" 2 seconds to turn on the heater.
2. Turn OFF the Heater : Press the "⏻" 2 seconds to turn off the heater. At this time, the screen shows "🌀", then shows Picture 1.  
(ATTENTION: Only when the machine is displayed in the OFF state can the power be turned off! )

### III.Operation Mode Declaration

1. The heater has 2 operating modes: automatic mode, manual mode.
  - ① In the automatic mode, the heater automatically adjusts the output power based on the temperature difference between the setting temperature and the room temperature. In the automatic mode, the adjustable range of the setting temperature is 5-30°C.  
You can press "▲" and "▼" to adjust the setting temperature.
  - ② In the manual mode, the adjustable power range is 1-6 (H1-H6). You can press "▲" and "▼" to adjust the output power.  
You can check the current output power level of the machine through the Bar chart in the host schematic.
  - ③ Change the Operation Mode: You can switch between manual mode and automatic mode by long pressing the "\*".

### IV. Remote Control Matching

1. When the machine turn off, press "⏻"+"▼" 2 seconds to start matching, the screen shows "□□ |".
2. Press "▲" and "▼" to adjust the third digit value for remote control code, the numerical range is 1-5.

(NOTE: ① The third digit value is the number of the remote control, and you don't have to change the value the first time you use the heater.

② Each machine can be matched with up to 5 remote controls. Do not repeatedly match the same remote control.)

3. Choose the code of remote control, press any key on the remote control, the machine will be successfully matched with the remote control, and then exit coding state.

## V. Other Function

1. Switching Display data (In the ON state)

In the ON state, short press "OK" to switch the display data. The displayed data is: output power (setting temperature) → casing temperature → working voltage.

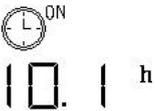
2. Manual Refueling Mode Operation

Please use carefully!

In the OFF state, press "▲" and "▼" or press "⚙️" ( Manual Refueling key) for 2 seconds to manually control of oil pumping, and release the button to stop pumping.

3. Time Setting Operation

Press "OK" and "▼" 2 seconds to enter the time setting interface, as shown in the following figure.



- ① The "⌚" flashes, indicating that this machine will start up after 10.1 hours.



- ② The "⌚" flashes, indicating that this machine will shut up after 10.1 hours.

- ③ Specific operation

1) Press the "▲" or "▼" to adjust the time value. Time range: 1-24 hours.

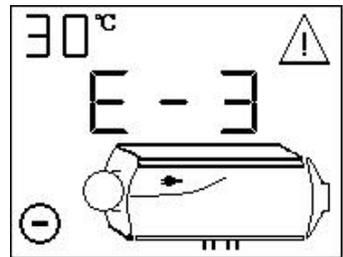
- 2) Short press the "⏻" to switch and adjust the digital bits.
- 3) Short press the "\* " to switch between timed start-up and timed shut-down.
- 4) Short press the "OK" to save the setting values and exit this interface.
- 5) Press "\* " key for 2 seconds to exit this interface without saving the setting values.
- 6) Start timing function  
 At the same time, press "\* " and "▲ " to start the timing function. Activate the timed start-up in the OFF state, and activate the timed shut-down in the ON state.  
 Press the "\* " to view the remaining time.

#### 4. Fault Alarm

The fault alarm display is shown in the above figure, corresponding to the failure symbol flashing and corresponding to the failure device icon flashing.

The displayed data is the fault code, you can find its meaning and solution in the fault table.

(\* If Spark plugs, oil pump, fan, sensor, power and other symbols are flashing, it indicates that the corresponding device is fail.)



### VI. Fault Table

Error Code	Problem	Solutions
E-2	Voltage Supply Outside Normal Range	Check the battery or generator to ensure it is functioning properly, replace the battery or generator if necessary.
		Check the fuse and replace it if it is aging.
E-3	Ignition Plug Failure	Tighten the ignition plug connector if it is loose.
		The wire is short-circuited with the casing.
		Check whether the ignition plug is damaged.

Error Code	Problem	Solutions
E-4	Oil Pump Failure	Check for damage, looseness, oxidation, short circuits, and breaking of oil pump connections and connectors. Repair or replace the oil pump as necessary.
E-5	High Temperature Alarm ( Intake over 50°C or case over 230°C )	Ensure that the heating duct is not obstructed.
		Check the fan and repair or replace it if it is not working properly.
		Check the temperature sensor. Replace if it is damaged or broken.
E-6	Fan Failure	Clear any obstructions from the fan blades if they are stuck.
		Make sure the connection between the fan and plug is secure by tightening it if it is loose.
		If there is too much space between the magnet on the wind turbine and the Hall sensor on the controller, adjust it to reduce the gap.
		Check the wiring for the fan for any short circuits or open connections and repair them as necessary . If the motor is damaged, repair or replace it.
E-8	No Combustion	Verify the oil level and add oil as needed to prevent oil shortage. Take steps to prevent oil from solidifying at low temperatures.
		Ensure that the oil pipeline and pump are clear of any blockages to ensure proper operation.
		Make sure that there are no obstructions in the air intake and exhaust ducts.
		Verify that the shell temperature sensor is in full contact with the shell and that the pressure spring is strong.

Error Code	Problem	Solutions
E-8	Unsuccessful Startup	<p>Wait until the shell temperature has cooled down to a safe level if it is too high to activate the cooling shell for three minutes after starting.</p>
		<p>There is a lot of white smoke in the waste gas.</p> <ol style="list-style-type: none"> <li>1. Check the filter near the ignition plug and clean or replace it if there is an excessive amount of white smoke in the exhaust gases.</li> <li>2. Check whether the oil pump injection is powerful.</li> <li>3. Check whether the ignition plug is damaged.</li> </ol>
		<p>There is a small amount of white smoke or smokeless exhaust gas.</p> <ol style="list-style-type: none"> <li>1. Check whether there is oil shortage, frozen or blocked oil circuit.</li> <li>2. Check whether the oil pump is stuck or damaged.</li> <li>3. Check whether the combustion air intake and exhaust pipe are unobstructed.</li> <li>4. Check whether the ignition plug is damaged.</li> </ol>
		<p>The ignition is normal but the failure of ignition is still reported.</p> <ol style="list-style-type: none"> <li>1. Verify that the shell temperature sensor is in full contact with the shell and that the pressure spring is strong.</li> <li>2. Check the temperature sensor. Replace if it is damaged or broken.</li> </ol>
E-9	Sensor Failure	<p>Whether the connecting wire and connector of the temperature sensor are damaged or loose, and whether the sensor is damaged.</p>

# High-end one with Bluetooth Function

## I. Key Description



## II. Operation Declaration

1. Turn on/off the heater : Press the "⏻" to turn on or turn off the heater.



Level mode



Temperature control mode

2. Change the operation mode: Press "adjusting knob" to switch the current level mode / temperature control mode.
3. Level/temperature adjustment: Turn the "adjusting knob" clockwise to make the level/temperature +1, and the highest value is level 10 / 36°C; Turn the "adjusting knob" counterclockwise to make the level/temperature -1, and the lowest value is level 1 / 8°C.

### III.Operation Mode Declaration

The heater has 2 operating modes: level mode, temperature control mode.

1. In the temperature control mode, the heater automatically adjusts the output power based on the temperature difference between the setting temperature and the room temperature. When the temperature rises or falls, the control switch will automatically adjust the operating level to quickly reach the setting temperature, so that the heater The operation of the heater is more intelligent and economic.

In the temperature control mode, the adjustable range of the setting temperature is 8 ~ 36°C. You can turn the "adjusting knob" to adjust the setting temperature.

2. In the level mode, the adjustable level range is 1-10. You can turn the "adjusting knob" to adjust the level.

You can check the current level of the machine and the level is show in the bottom of screen (the Bar chart).

3. Change the operation mode: You can switch between level mode and temperature control mode by pressing the the "adjusting knob".
4. When there is a fault in the operation, the screen display the fault code (flashed), so you can find the problem more accurately and intuitively.

#### IV.Remote Control Matching

1. When the machine turn on, press "⚙️"+"⏻" 3 seconds to start matching, until the upper right corner of the screen shows "En00".
2. Then turn the "adjusting knob", the screen to show "En08" and "rte", next press the "adjusting knob" than 3 seconds until the screen show "P1".  
(Note: P1 can be paired with the "+" key on the remote controller, P2 can be paired with the "-" key, P3 can be paired with the "M" key, and P4 can be paired with the "⏻" key.)
3. Press the corresponding key of the remote controller according to the numerical value (P1-P4) displayed on the screen, the machine will be successfully matched with the remote control, and then exit matching state.

#### V. Bluetooth Function

##### 1. Bluetooth Matching

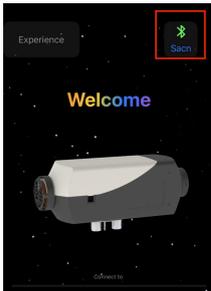
Search and download the corresponding APP name "airHeaterBLE" in iOS or Android APP store, then please follow below step to connect and control heater with mobile phone.

##### 2. Specific Operation

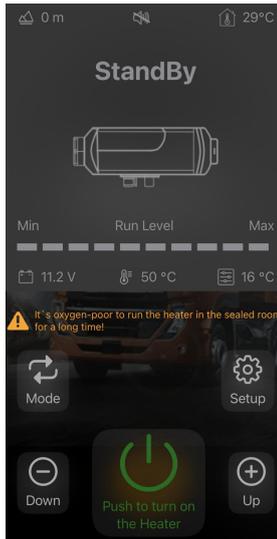
- ① Query the Bluetooth name: When the heater turn on, press "⚙️" key and "adjusting knob" 3s, the screen displays "bLE", the upper side of the screen displays the 6-digit character name (0-F), the 6-digit character is Bluetooth name.



② Connect to the mobile phone via Bluetooth : Click on the Bluetooth symbol “” in the upper right corner, find the corresponding local Bluetooth number: BYD + MAC address of the Bluetooth device + 4 digits ( 4 digits is shown in the upper right corner of the LCD switch controller screen, refer to the picture above), then click on the Bluetooth number to connect, press "adjusting knob" exit this interface.



③ Long press the “” button to turn on/turn off the heater.



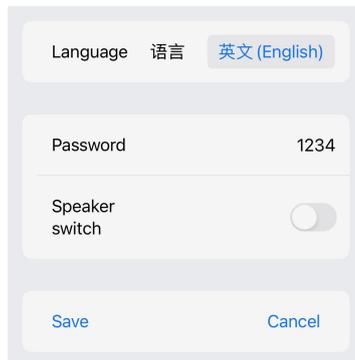
- ④ Click "Mode" button to switch the level mode or smart mode (temperature control mode), then Click "⊕"/"⊖" button to increase or decrease the level value( level 1-10) / temperature value(8°C ~ 36°C).

Level mode

Smart mode



- ⑤ Click the "⚙️" button to go to the settings screen, you can set the language (English / Chinese), password and click "save" to save the settings.



- ⑥ Fault display: When the heater fails, it will display the fault code "E-xx", see the fault table for detail.

## VI. Other Function

### 1. Basic Setting

When the machine turn on, press "⚙️" key for 3 seconds to enter the basic setting interface, the upper left corner shows the setting items, and the interface shows the specific data under the setting items.

Press "adjusting knob" to modify, press "adjusting knob" again to confirm the current data modification.

Turn the "adjusting knob" to adjust the setting items, after all the adjustments are successful, long press "⚙️" key 3s to save all the basic settings.

F0: Current time

F1: Auto-start time

F2: Running time [after auto-start]

F3: Auto-start switch setting

F4: Language switch[Chinese (C), English (E), Russian (Γ)]

F5: Temperature compensation

F6: Tank volume [5-50L] [display ---on behalf of not monitoring the tank situation]

F7: Oil pump power [16/22/28/32UL (default is 22UL)]

F8: Bluetooth switch

F9: Automatic start/stop heater: In temperature control mode, when the ambient temperature reaches the setting temperature, it will automatically turn off after 30s delay; when the ambient temperature is lower than the setting temperature by 2°C, it will automatically turn on after 30 seconds delay)

### 2. Engineering Mode

①When the machine turn on, press "⚙️"+"⏻" 3s, the upper right corner shows the current project, the interface shows the specific data under the project, turn the "adjusting knob" to adjust the project.

②View Data

En00: Heater main board version number

En01: Fault code [see the fault table for detail]

En02: Casing temperature

En03: Power supply voltage

- En04: Running level
- En05: Ambient temperature
- En06: Altitude [The upper left corner]
- En07: Pump oil mode
- En08: Remote control match
- En09: Bluetooth match

## VII. Fault Table

Error Code	Problem	Solutions
E-01	Start-up failure	Check whether the oil pump is working; check whether the interfaces of the oil circuit are hanging wax or blocked.
E-02	Lack of oil and stalling	Checking the fuel tank for lack of oil.
E-03	Abnormal voltage	<ol style="list-style-type: none"> <li>1. Check that the heater supply voltage type matches the actual vehicle voltage.</li> <li>2. Check that the main harness connector is not loosely connected.</li> </ol>
E-04	Air outlet temperature sensor failure	<ol style="list-style-type: none"> <li>1. Detecting whether the outlet air temperature sensor connector is loose and falsely connected.</li> <li>2. Failure of the outlet air sensor, replace the main board.</li> <li>3. Main board failure, replace the main board.</li> </ol>
E-05	Air Inlet temperature sensor failure	Inlet air sensor failure, replacement of the main board.
E-06	Oil pump abnormality	<ol style="list-style-type: none"> <li>1. Check the oil pump plug for loose false connections.</li> <li>2. Check the main wiring harness for disconnection.</li> <li>3. Oil pump failure, replace the oil pump.</li> </ol>

Error Code	Problem	Solutions
E-07	Fan abnormality	<ol style="list-style-type: none"> <li>1. Check whether the fan impeller of the car is jammed.</li> <li>2. Check whether the fan plug is loose and falsely connected.</li> <li>3. Fan failure, replacement of the fan.</li> <li>4. Check whether the wind wheel induction magnet is missing or has the wrong polarity.</li> <li>5. Check whether the control board wind speed sensor is normal.</li> <li>6. Main board failure, replace the main board.</li> </ol>
E-08	Ignition plug abnormality	<ol style="list-style-type: none"> <li>1. Check the ignition plug for false connections.</li> <li>2. Faulty ignition plugs, replace the ignition plugs.</li> <li>3. Main board failure, replace the main board.</li> </ol>
E-09	High temperature protection	<ol style="list-style-type: none"> <li>1. Incorrect or faulty furnace temperature sensor type, replace the sensor.</li> <li>2. Main board failure, replace the main board.</li> </ol>
E-10	Furnace temperature sensor abnormal	<ol style="list-style-type: none"> <li>1. Check the furnace temperature sensor connector for loose false connection.</li> <li>2. Incorrect or faulty type of furnace temperature sensor, replace the sensor.</li> <li>3. Main board failure, replace the main board.</li> </ol>



**LIKACI**<sup>®</sup>

**Reliable product, excellent service!**

**Please feel free to contact us:**

**Email: [likaci.heater@gmail.com](mailto:likaci.heater@gmail.com)**