



Induction Heating Equipment Manufacturer

15KW 380V Induction Heater Card

Using Manual

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Product Introduction

This electromagnetic induction heater card it can be used for household electric cooker and small area heating equipment, small smelting furnace, injection moulding machine rod heating and so on.

The induction heater is water cooling of heat dissipation. Max power 25KW.

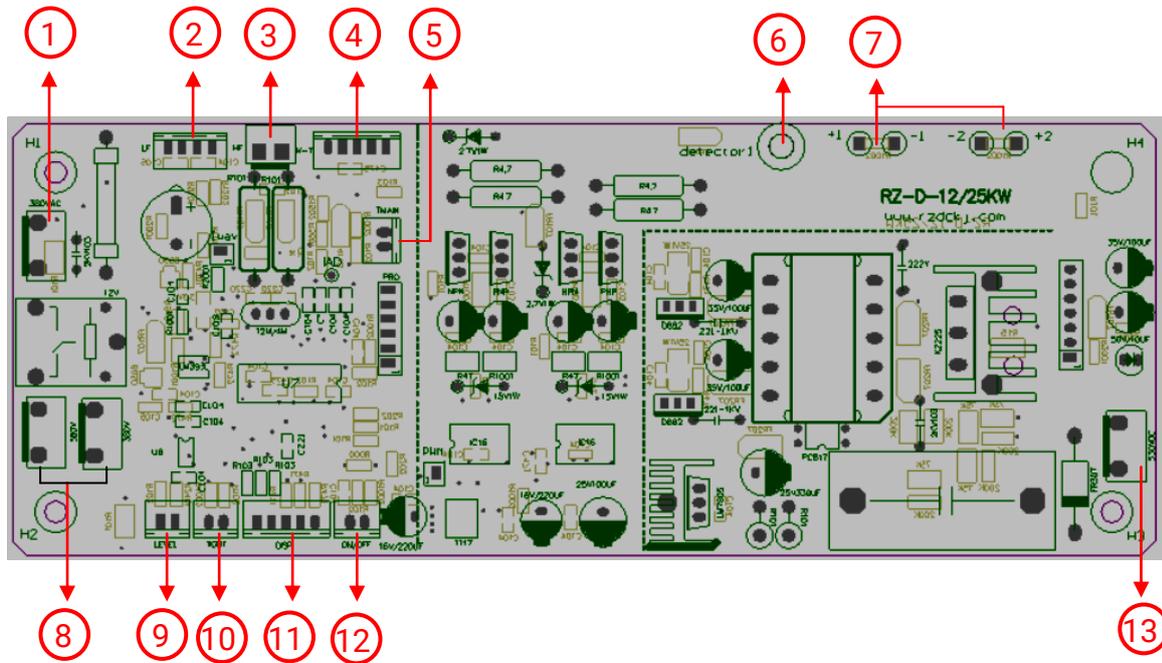
The inductance coil needs to be wound by the user according to the shape of the heated object .

Please read and according to the manual to installation and use.

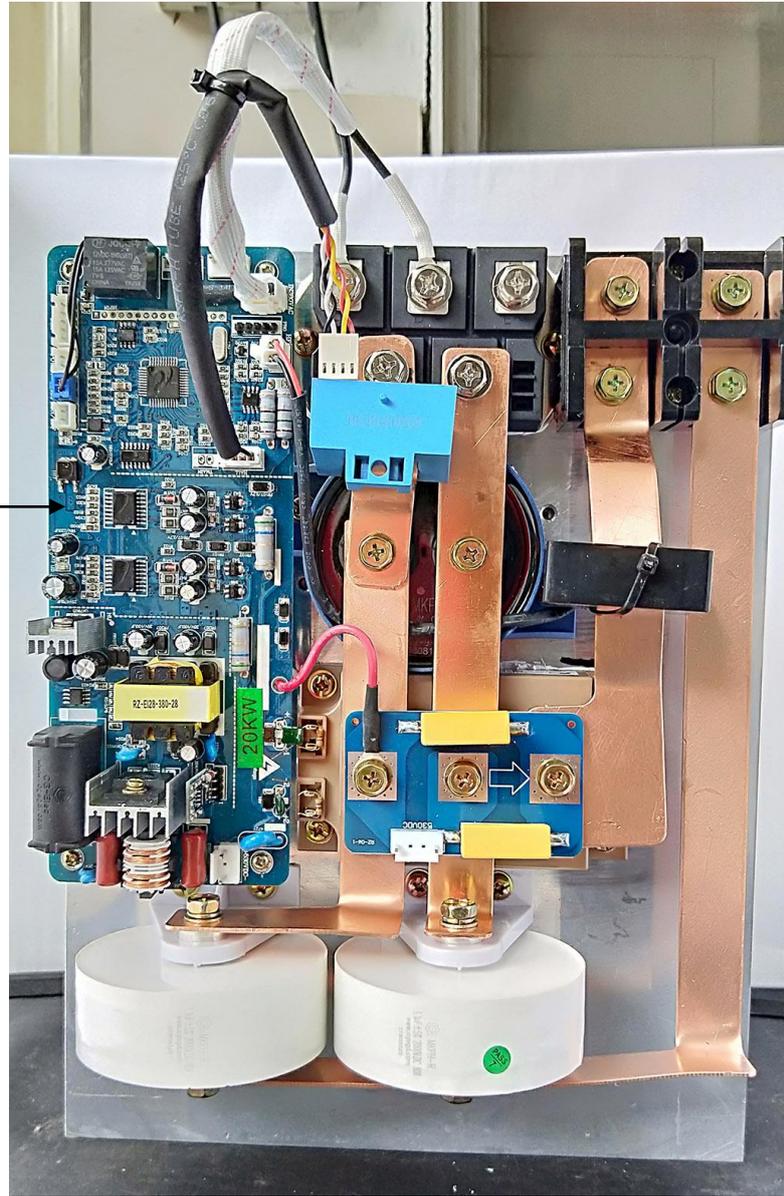
Main control board structural diagram

This main board integrated power board and control board.

The IGBT connected to the main board and fixed to the heat sink under the main board.



15~25kW heater card



Item	Main parts and connector instruction
1	380V Fan power input connector
2	Hall current sensor connector(optional)
3	High Frequency Transformer connector
4	Thermocouple/Infrared Port (Optional)
5	Heating coil temperature sensor connector
6	Protection terminal
7	IGBT connector
8	380V fan power output connector(FAN1 FAN2)
9	Analog signal connector, for power regulation
10	Heat sink temperature sensor connector
11	Display control pad connector(5PIN)
12	Switch connector
13	Heater card power input connector

Display key pad

This part including display, indicator light and operation keys. It is display the heater card running status, setting running current and adjust power.



Item	Instruction
1	Display
2	Frequency indicator light
3	Temperature indicator light
4	Current indicator light
5	Power regulation indicator light
6	Voltage indicator light
7	Down key(subtract data)
8	Left key(query data & change indicator light to display data)
9	Up key(add data)
10	ENT key(confirm set or entry to next set step)

Display status

When the heater card connected to AC power and switch power, the heater card at standby state, display “----”.

When all devices connect ok and switch on, the heater card at running state, display running parameter values, press the left key  to change display parameter: frequency, temperature, voltage, current, power regulation gear. And the indicator light also change.

When the heater card running error, then display error code.(see below table error codes)

Key operation

Adjust power:

The heater car available adjust power by key operation for 1~5 gear.

Before adjust power need switch off, let the heater card at standby model, then press left key change display to power gear 1~5 and power regulation indicator light on. At his time press up or down key to set power gear 1~5 what you need. Then press ENT key to finish set.

If the heater card connected to analog signal(such as 0~20mA,0~10V) to adjust power, then the key adjust power function is disable.

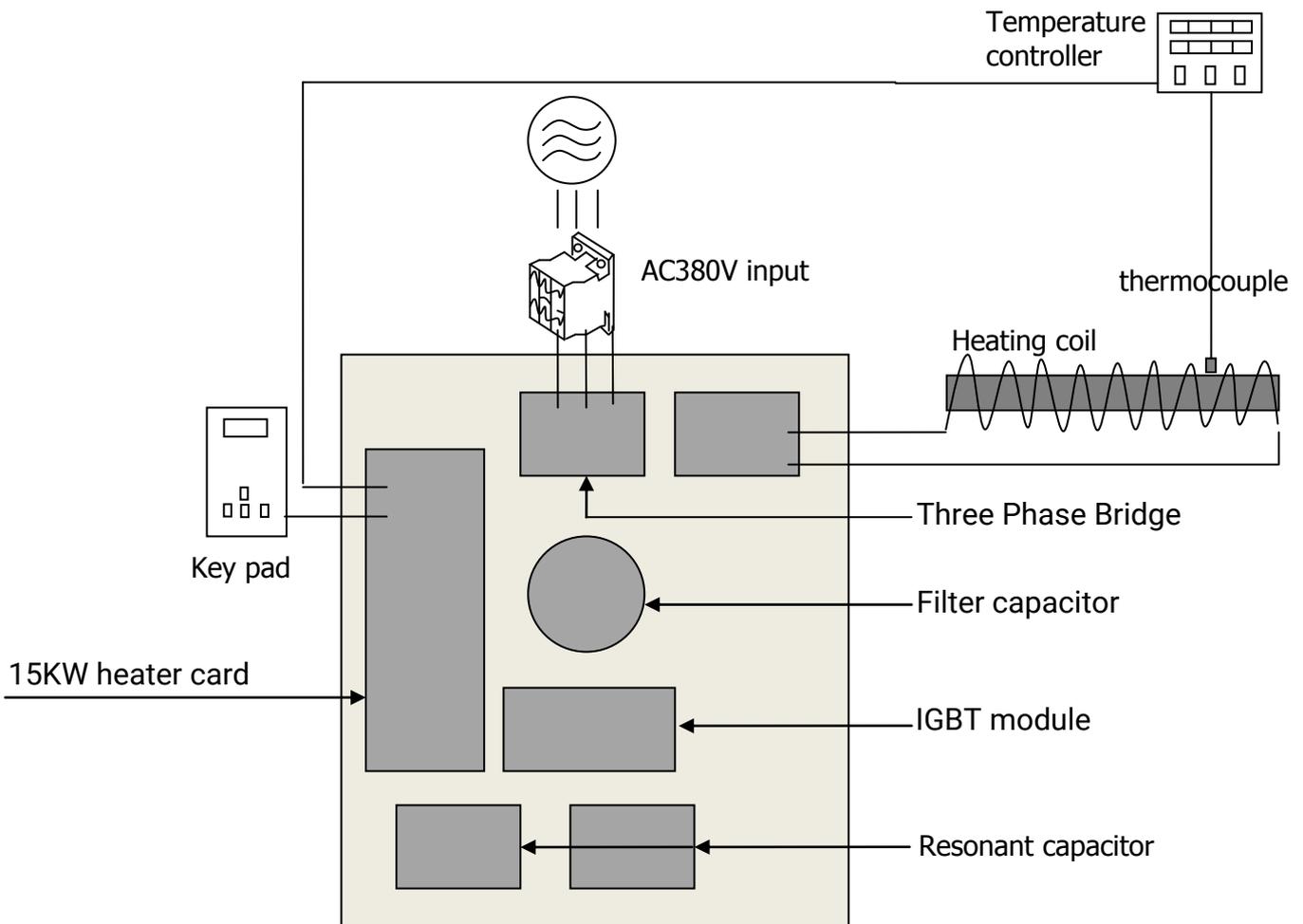
Set running current:

The heater card can set running current by key operation. The current set range is 10A~38A.

Before set, please switch off, let heater card standby, then press left to current model. Then press up or down key to set current value, final press ENT key to confirm set.

Wire diagram

A typical induction heating system with our 15kw heater card as following wire diagram.



Basic parameters

Input voltage range: 330VAC~420VAC

Rated current: 22A

Output frequency range: 4KHz~40KHz

Inductance: 110~130UH

Coil wire diameter: 16 mm²

Coil wire length: 28~33m

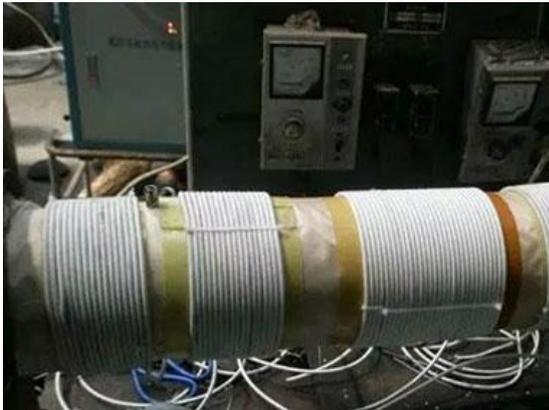
Make Heating coil

In most cases, the make method is shown in fig(—), please wrapped about 25mm thickness insulation cotton on the heating object before winding coil.

Each winding section is left 10~20 cm intervals then winding next section.

The thermometer can be fixed in the interval zone of coil section.

The optimum operating frequency is 12KHz ~23KHz, when the heater card running if frequency lower than 12KHz then can be reduce coil turns; and higher than 23KHz would better need to add coil turns.



(一)



(二)

Error code

When the parts or heating coil have error, then induction heater will stop running and display error code. Then please check, maintenance, reset or repair the devices.

The usual error code with maintenance guidelines as bellow table:

Error Code	Causation	Maintenance guidelines
- E 1 -	Short coil, insufficient inductance or short circuit;	Check whether the coil is damaged causing a short circuit; adjust the coil
	IGBT Module Damaged	Replacement IGBT module
- E 2 -	Environment temperature too high	Improving the Heat Dissipation Environment
	The fan is damaged; the fan control circuit is burnt out.	Repair or replace fans; replace circuit boards
	Loose or Short Circuit Plug of Temperature Sensor	Check whether the sensor plug on the TIGBT socket is loose or not; Check whether the sensor is short-circuited or open with a multi meter
- E 3 -	Over current	Check whether the coil is short-circuited; Increase the inductance coil
- E 4 -	Failure of coil connection or bad contact, damage of high frequency transformer	Check whether the coil is disconnected, check the high frequency transformer
- E 5 -	Short circuit or disconnection of coil	Check whether the coil is damaged, short circuit or disconnected
	Coil mismatch; high frequency	The frequency is judged by panel display, and coils are added when the frequency exceeds 23KHz.
- E 6 -	Low voltage	Check whether the input power supply is normal
- E 7 -	Coil temperature is too high	Improving the Insulation of Iron Pipe (Pot) and Coil
- E 8 -	Overvoltage	Shutdown
- E A -	Excessive input current	Check whether the coil is short-circuited or not; Check the current measuring circuit

Safety Precautions

1. To prevent electric shock

- Do not open the cover when energizing or running, otherwise an electric shock occurs.
- Wiring or inspection Please turn off the power after ten minutes, with a multi meter to measure the remaining voltage.
- Electromagnetic heater shell please ground, so as not to touch the high frequency induction voltage.
- Work, including wiring or inspection work, should be a professional.
- Do not wet hands switching power supply to avoid electric shock or injury.
- For cables (including high frequency output cables) do not damage it, add too heavy stress to it. Otherwise it will cause electric shock.
- Do not clean or replace the cooling fan while power is on, otherwise cause harm.
- Keep people away from high frequency output ports and power input ports.

2. Prevent Fire

- Electromagnetic heaters should be installed on incombustible objects, installed directly in flammable or near flammable materials, will lead to fire.
- If the electromagnetic heater is faulty, disconnect the power supply and if it continuously flows through the high current, it may cause a fire.
- High-frequency output coil Do not short-circuit, or it may cause a fire.

3. Prevent damage

- Please provide the rated voltage to the electromagnetic heater in accordance with the provisions to prevent burst, in case of damage and so on.
- Make sure that the output coil is connected to the correct terminal of the power supply, otherwise it will cause burst and damage.

Meet with low pressure specifications of the product affixed to the CE mark.

EMC specifications

- 1) As part of the control box with other devices to control the operation of the device device.

Therefore, we believe that EMC directive is not directly applied to electromagnetic heaters.

For this reason, we do not attach the CE mark to the electromagnetic heater itself. (The CE mark on the electromagnetic heater is based on the low voltage command.)

The European Electric Drive Manufacturers Association (CEMEP) also holds the same view.

- 2) We believe that the EMC specification does not directly affect the transistor electromagnetic heater.

However, the EMC specifications apply to machines or equipment containing transistor electromagnetic heaters, and these machines and equipment must be marked with a CE mark.

Therefore, we have prepared the technical information "EMC Installation Guide", the installation of electromagnetic heaters of the machines and equipment can more easily meet the EMC specifications.

- 3) Installation method overview

Install the electromagnetic heater should use the following methods:

- * Install a noise filter that complies with European standards.

- * The connection between the electromagnetic heater and the induction heating coil should be made using a screen defect cable or installed in a metal casing, and the cables of the electromagnetic heaters and electromagnetic heaters should be as short as possible.

- * A linear noise filter and ferrite core should be inserted in the power supply and control lines.

- * For 220V class electromagnetic heaters set the rated input voltage range of 220V 50Hz / 60Hz.

- * Ensure that the equipment is grounded and the equipment is not grounded. Use a leakage circuit breaker as an electromagnetic vibration protection.

- * Ground terminal separately (do not connect 2 wires on one terminal).

- * Please use the non-fuse circuit breaker to meet the requirements. Please use EN or ICE specifications for electromagnetic contactors.

- * Fuseless circuit breakers and electromagnetic contactors that meet EN or IEC standards should be used. Use electromagnetic heaters in Class II overpressure and Class 2 contamination or higher levels specified in IEC 664.

- (A) When an overpressure is applied, an isolation transformer or surge suppressor conforming to the EN or IEC standard is installed on the input side of the electromagnetic heater.

- (B) In the case of Class 2 contamination, the electromagnetic heater is installed in a control box so that water, oil, toner, dust, etc. can not enter (IP54 or higher).