sisco

Ultrasound Generator

(User manual)



Operation Instruction

I. Introduction to Performance:

First of all, thank you for using our brand ultrasonic generator. In order to improve the defect of complicated tuning process, this machine upgrades the circuit, program and components. After more than two years of repeated testing and factory practice, a brand-new intelligent digital display ultrasonic generator with complete functions and simple tuning is newly introduced:

(I) It has the function of timing, which can realize time switch machine;

(II) It has the function of frequency sweeping to realize frequency sweeping and washing;

(III) The ultrasonic frequency, output wattage and current can be displayed at the same time, and the display is more intuitive and clear;

(VI) It has the functions of overcurrent, overload and overheating protection;

(V) This machine uses high-power IBGT to amplify the output and drive the transducer, so that the ultrasonic wave has a stronger cavitation effect on the liquid;

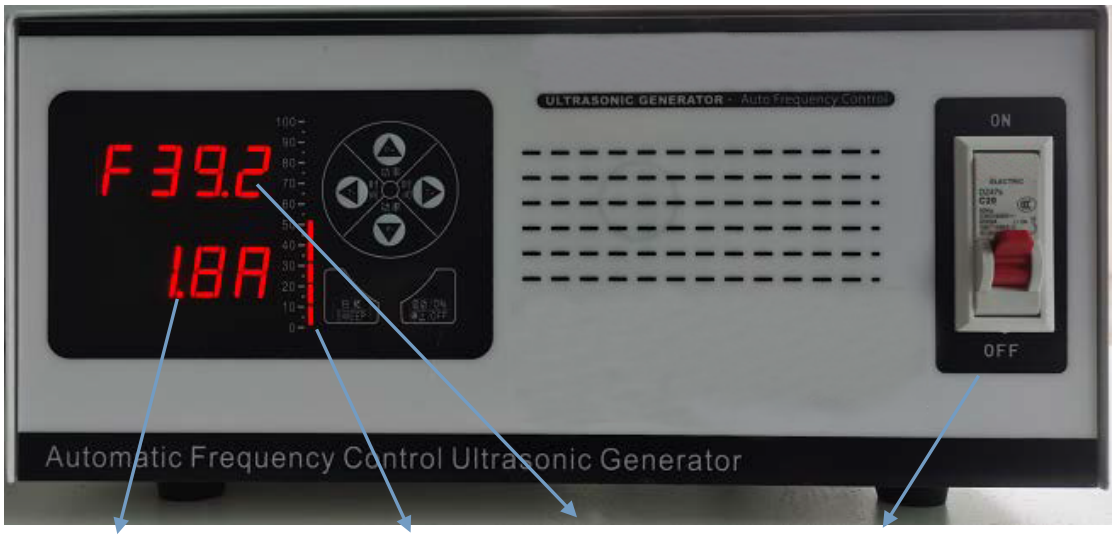
(VI) This machine adopts PWM regulation technology to realize efficient dynamic response;

II. Basic Parameters of THD-T Type: (Input Current is Adjusted According to Transducer power)

Model	Input Voltage	Frequency Range	Output Rating	Maximum Input Current	Environmental Protection Temperature	Weight	（Mm） Overall Dimension (mm)
Ⅰ	220V±10v	20Khz-40Khz	0.6KW-0.9KW	3A	60℃	9kg	425 x 300 x 145
Ⅱ	220V±10v	20Khz-40Khz	1.2KW-1.5KW	4A	60℃	9kg	425 x 300 x 145
Ⅲ	220V±10v	20Khz-40Khz	1.8KW-2.1KW	5.5A	60℃	9.5kg	425 x 300 x 145
Ⅳ	220V±10v	20Khz-40Khz	2.4KW-3.0KW	6.5A	60℃	9.5kg	425 x 300 x 145

1. Timing range: 0-60 minutes; 2. Ambient temperature: 0-40 degrees Celsius; 3. Relative humidity: 40%-90%; 4. Alarm temperature in the cabinet: 60 degrees Celsius; 5. Adjustment range: 2%-100% (press pause for short-term shutdown).

III. Panel Description: (Figure 1)



Power/current display **Power indicator lamp** **Frequency/time** **Power switch**

Supersonic generator
Instructions

1. It is forbidden to open the ultrasonic wave when there is no water;
2. Please place the machine in a ventilated and dry place;
3. There are no obstructions at the left, right and rear parts of the machine to facilitate heat dissipation;
4. Please contact the professional immediately if the work is abnormal, and do not open the cover.

1. Display window: used to display frequency, power, timing time, working status and faults;

2. Display bar: used to display the number of squares of output power;

3. Start/stop key: In normal working mode, start or close the ultrasonic output; (Under remote control, this key is invalid)

4. Frequency sweeping key: used for frequency sweeping and scouring; (Press and hold this key at the moment of power-on to enter the parameter setting page)

5. Power + key: increase the output power; (In engineering mode, the next project)

6. Power-key: reduce the output power; (In engineering mode, previous project)

7. Time-key: reduce the timing time by minutes or seconds when pausing; (Decreased value, under remote control, invalid)

8. Time + key: increase the timing time by minutes or seconds when pausing; (Increase value, under remote control, invalid)

IV. Instructions for Machine Adjustment:

1. Connect the positive and negative poles of the transducer correctly (note: the negative pole is usually connected with the tank body of the cleaning machine or the steel plate of the vibrating plate).

2. The ultrasonic generator is correctly connected to the 220V±10V power supply, and the power supply should be reliably grounded.

3. When debugging, detergent can be properly added, and simulating the use environment debugging can avoid the current change amplitude after the generator and the transducer are matched and run-in.

4. Water level (water depth), water temperature, water quality and voltage will have great differences on current and effect. Please simulate the use of debugging.

V. Adjustment Steps:

1. Turn on the power switch, and observe whether the upper window frequency is within the working frequency range of the transducer, and whether the power indicator lamp is full (it needs to be full when adjusting the machine).

2. Open the upper cover of the generator with the same frequency, connect the 220V AC power supply, connect the load line with the output terminal of the generator, and hit the open red line of the 20A AC gear with a clamp meter.  Note: The output terminal of the generator is red, positive and negative by default. The bottom thin line, red line and green line are the remote control terminal connections.

3. Observe whether the input current is reached. If not, please press the following steps to debug:

4. Loosen the nut fixing the inductor (right in Figure 3) with M7 sleeve and retreat to the top, take out the inductor and cut off the black electrical tape on the magnetic core, and take out a yellow gasket on each side (every two sides before leaving the factory).

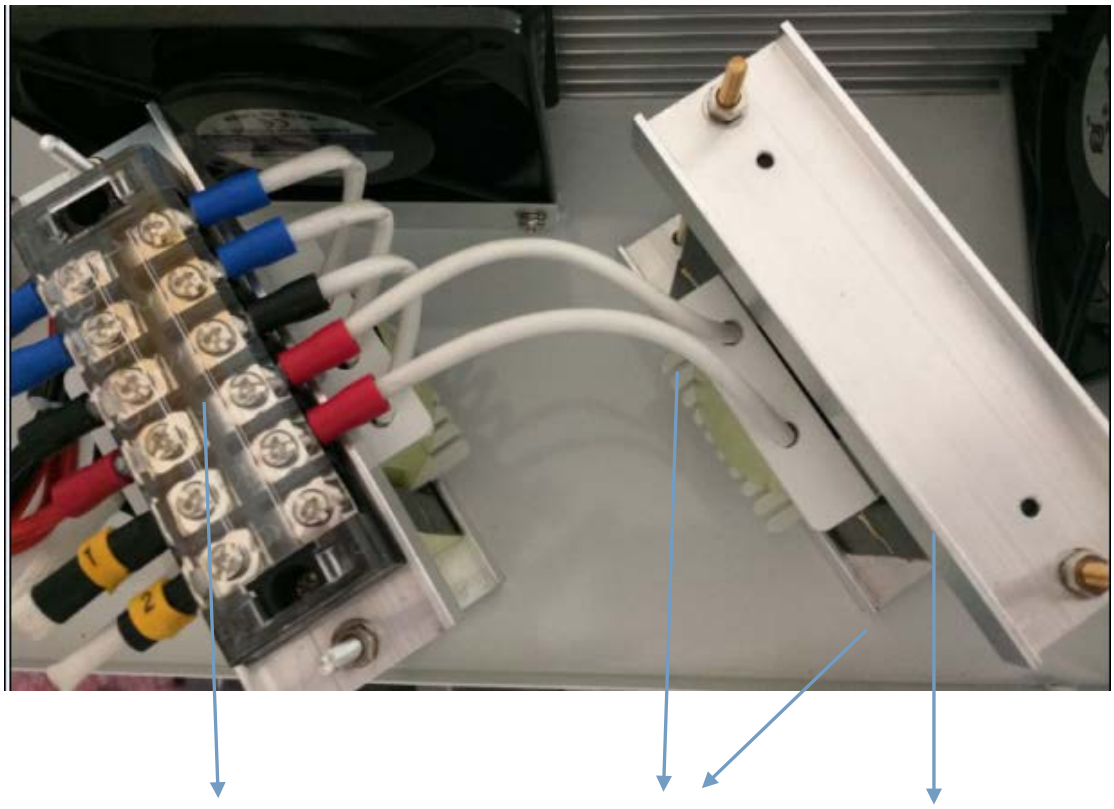


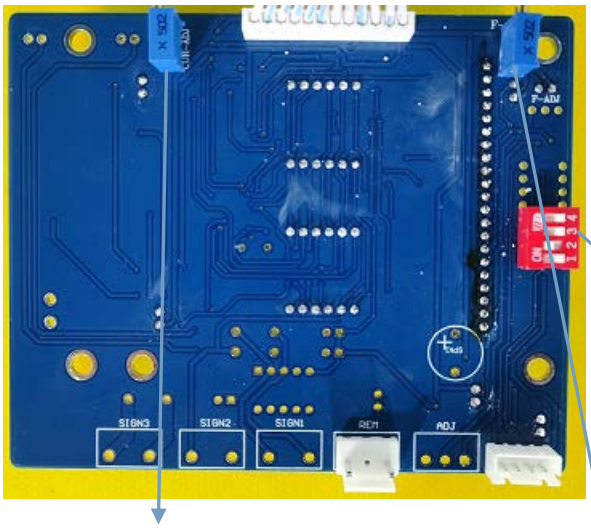
Fig. 3 Transformer Increase (decrease) inductance gasket Matching inductance

5. Lift the magnetic core of the upper part of the inductor slowly by hand (the lower part of the magnetic core is fixed with the other hand), and pay attention to the current in the lower window (or clamp current meter) when lifting the magnetic core (if the window deviates greatly from the clamp current meter, please calibrate the window before operating this step).

6. Observe the frequency at which the maximum current is close to the working current, and then pad the height of the inductor core to the height of the maximum current with insulating sheets, and the pads on both sides are the same thickness. (The upper screen shows that the maximum current at the frequency of 29k is not close to the working current, so the transformer (left in Figure 3) is put into 2nd gear to repeat step 5. If the transformer is in the first gear and the maximum current with the frequency of 27k is higher than the working current, just use the gasket to directly lock the nut after the working current is placed, or reduce the power indicator light to be close to the working current and save it.

Please turn off the power supply and observe the changing trend of current when increasing or decreasing the inductance gasket.

VI. Functions of the Back Parts of the Display Panel:



Frequency fine-tuning

Frequency band debugging

Fig. 2 Current calibration

Status/No.	1	2	3		4
OFF	Normal Work	Frequency Conversion	Frequency Conversio	Fine Tuning Frequency Range	
ON	Key Failure	ON	ON	19K-26K	
		ON	OFF	26K-31K	
		OFF	ON	31K-37K	
		OFF	OFF	36K-43K	

1. Timed operation: The bottom of the display window shows the current "x.xA" and the top shows the timing "xx.xx". If it is necessary to work at a fixed time, you must press the "Time+,-"key to adjust the time after stopping the machine, and then press the start key to realize the timed operation. To cancel the timing, you must pause the machine and clear the time.

2. Adjust power: When the machine is running, press the "Power+,-"key to adjust the power you need, and the machine will restart in 5 seconds and save your settings.

3. Frequency sweeping: Change the frequency regularly, so as to achieve the ultrasonic flushing effect and enhance the cleaning effect (this function is harmful to the transducer, so please use it as appropriate), restart it after 5 seconds and rememberthe settings.

4. Remote control work: (When the remote control is short-circuited, the time+,-key and start key of the panel are invalid) The equipment used for automatic control controls the ultrasonic work through the signal of PLC equipment, so as to realize remote automatic work output.

5. Machine setting mode: Press and hold the "frequency sweep key" before turning on the power switch, and then turn on the power switch, and the machine will enter the engineering mode setting state. Change the setting items by "power+,-"and "time+,-". After setting, press-Start key-Save and work.

Lower Screen	Go to the Screen	
	0000	0001
C001	Open Remote Control	Close the Remote Control
C002	Frequency Display	Character Display
C003	Actual Frequency Display	Set Frequency Display
C004	Current Display	Power Display

VII. Alarm prompt: "E-1", indicating over-temperature and over-current. "E-2"is an overload prompt.

VIII. Precautions:

1. Vents on both sides of the equipment and rear fans shall be more than 10cm away from the control cabinet and walls.

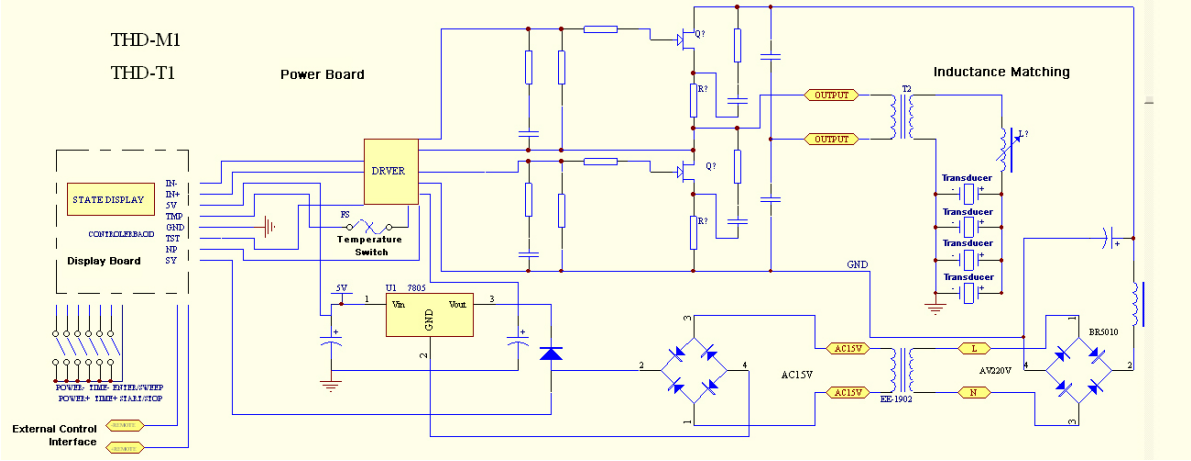
2. Ensure that the equipment is placed in a dry, cool and ventilated place.

3. If the ambient temperature is controlled below 35℃, the service life will be seriously affected if the temperature is too high and working for a long time.

4. Generator, cleaning machine, shock plate, please connect the wires reliably, to avoid leakage and electric shock accidents.

5. Ensure the working voltage is 220V±10V V. If the voltage is too high (too low) or unstable, please use voltage stabilizing equipment such as voltage regulator.

IX. Schematic Diagram:



Power Board
Inductance Matching
Display Panel
Temperature Combination
External Control Interface
Transducer