

ULTRASONIC GENERATOR

(JYD-700F SERIES)

使用说明书 User Manual

01. Overview
02. Main Parameters
03. Specification on Panel Functions and Operation
04. Specification on Connection Port
05. Debug Methods and Steps
06. Common Faults and Maintenance Methods
07. Precaution

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01. Overview



The newly ultrasonic generator was officially launched to the ultrasonic cleaning industry in 2007. The Company established R&D team in the development center of Hunan University in 2006, invested abundant human resources and materials to make the revolutionary modification to old ultrasonic cleaner and it has successfully developed the latest ultrasonic control technology, which has achieved ideal effects after related tests were conducted in relevant manufacturers with a year of R&D and experiment.

Main features of the generator: it adopts international advanced figure pulse for driving; compared with traditional auto-excitation type control technology, it's advantages like small in size, light in weight, powerful in power, stable and reliable in operation, continuous and adjustable in power and flexible in control have gained approval from many experts. Frequency scanning more ensured the machine can be at its best working state from the beginning to the end, which can express the potential of ultrasonic transducer to its maximum. It has perfect protection function: over-current protection, output short-circuit protection and integrated the functions of digital ampere meter, frequency and PLC remote control.



It integrates the functions of digital ampere meter, frequency, time control, PLC remote control, mode of sweep display etc. Based on traditional ultrasonic generator, functions of frequency locking, current locking, selection of mode of sweep display, 485 communications and so on are added, expanding the scope of cleaning of ultrasonic generator and solving the problems of frequency and current deviation of the generator after running for a while.

02. Main Parameters

Product model	JYD-701F	JYD-702F	JYD-703F	JYD-700EG
Driving power	600W-1200W	1200W-1500W	1500W-1800W	600W-1500W
Power control	10-100%	10-100%	10-100%	10-100%
Working frequency	25KHz-40KHz	25KHz-40KHz	25KHz-40KHz	60/80/100KHz
Working voltage	220V±10% 50Hz/60H	220V±10% 50Hz/60H	220V±10% 50Hz/60H	220V±10% 50Hz/60H
Maximum output current	4A	5A	6A	3.5A
Ambient temperature	0-40°C	0-40°C	0-40°C	0-40°C
Net weight	6.5KG	6.5KG	6.5KG	6.5KG
Dimensions	212x370x145mm	212x370x145mm	212x370x145mm	212x370x145mm

03. Specification on Panel Functions and Operation

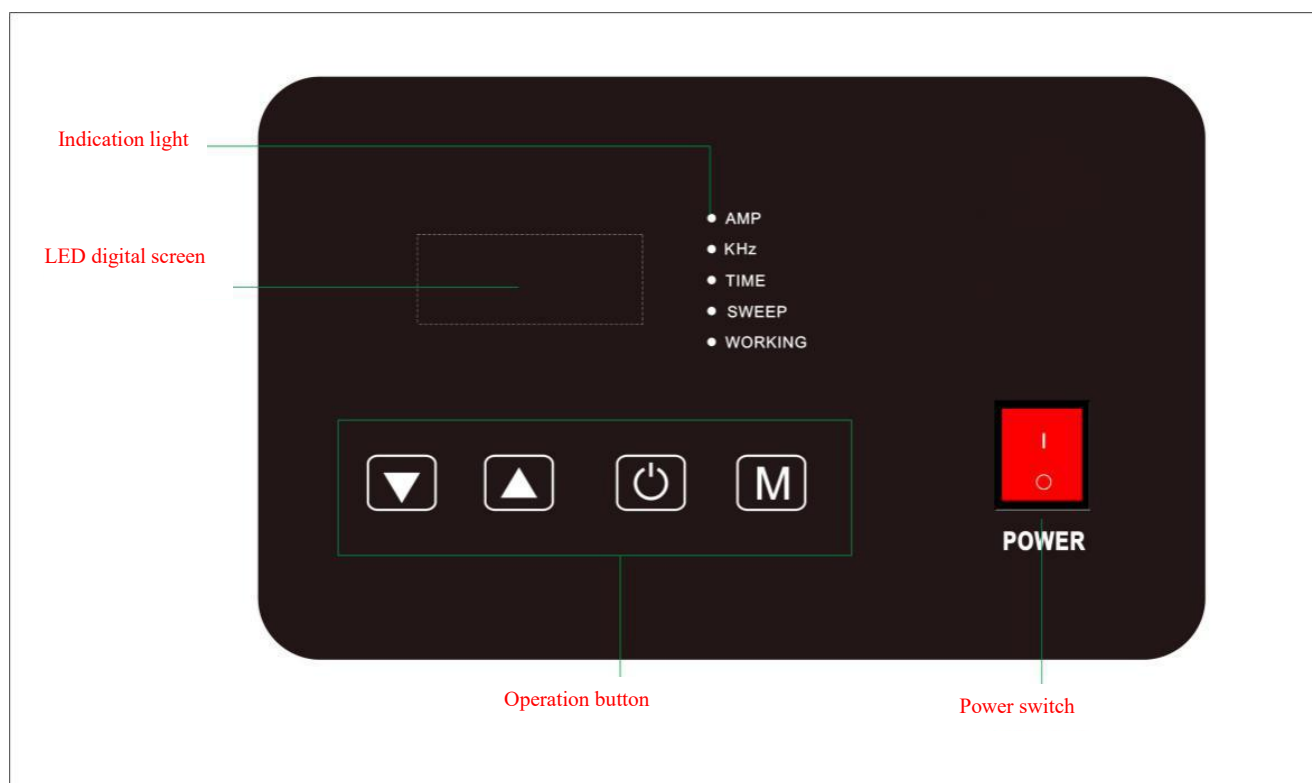


Figure 3.1

Name	Function Description
Power switch	Power switch for the machine's total power switch, push up to open, press down for the off.
Indicator light	Current generator status indication, current display, frequency display, time / PLC display, sweep mode display and operating status display 5 indicators
Operation button	The indication ● is the Mode key. To control the LED digital display mode, you can display the whole working current, ultrasonic working frequency, timing time / PLC, or sweep mode respectively.

After turning on, press the Mode key, you can control the LED digital display mode, you can display the machine operating current, Ultrasonic operating frequency, timing time / PLC, or sweep mode.



Current display mode

Figure 3.2



Operating frequency display mode

Figure3.3



Timing time / PLC display mode

Figure 3.4



Scan display mode

Figure 3.5

Lighting position	LED digital display Screen display mode	Panel function description
● Amp	Current display mode	LED digital tube will display the machine's operating current (unit Amp), as shown in Figure 3.2.
● KHz	Operating frequency display mode	The LED digital tube will display the operating frequency of the ultrasonic generator, as shown in Figure 3.3.
● Time/PLC	Timing time / PLC display mode	LED digital tube will display the timing of the ultrasonic generator, while the Time / PLC indicator is bright, as shown in Figure 3.4, in the timing time / PLC display mode, the key ▼, ▲, ■ can have a role. In other display modes, these three buttons have no effect. The maximum timer time can be set to 59 minutes and 59 seconds. If you do not want to enable timing, it can be set to ON. Press ■ ON/OFF button to stop working, press ▼ button, the time is reduced, the minimum can be reduced to OFF. Press, press 1 second, if often press, the timing time is reduced continuously. Press ▲ button, the timer time plus, the maximum can be added to ON (boot continuous mode), press, plus 1 second, if often press, the timing time plus. After setting the timer time, press ■ ON/OFF button, the timer starts to work. Time to time, the machine will turn off the ultrasound, re-transferred to the original set of ultrasound time. After the boot, there are PLC control access to the ultrasonic generator. If you press the Mode key, the current time / PLC display mode, LED digital tube will display the PLC, then the timing function is invalid, the whole machine is working, completely controlled by the PLC Note: If you do not use the timer function, please set the time display to the time display state!
● Sweep	Scan the display mode	SP01, SP02, SP03, SP04 four sweep display mode, as shown in Figure 3.5, Each sweep mode sweep width is different, can be applied in different cleaning objects so that the ultrasonic generator can achieve the best cleaning effect.
● Working	Working state	Indicates that the generator is in operation.

04. Specification on Connection Port



Note: control port (1: A, 2: B, 3: GND)

Figure 4

05. Debug Methods and Steps

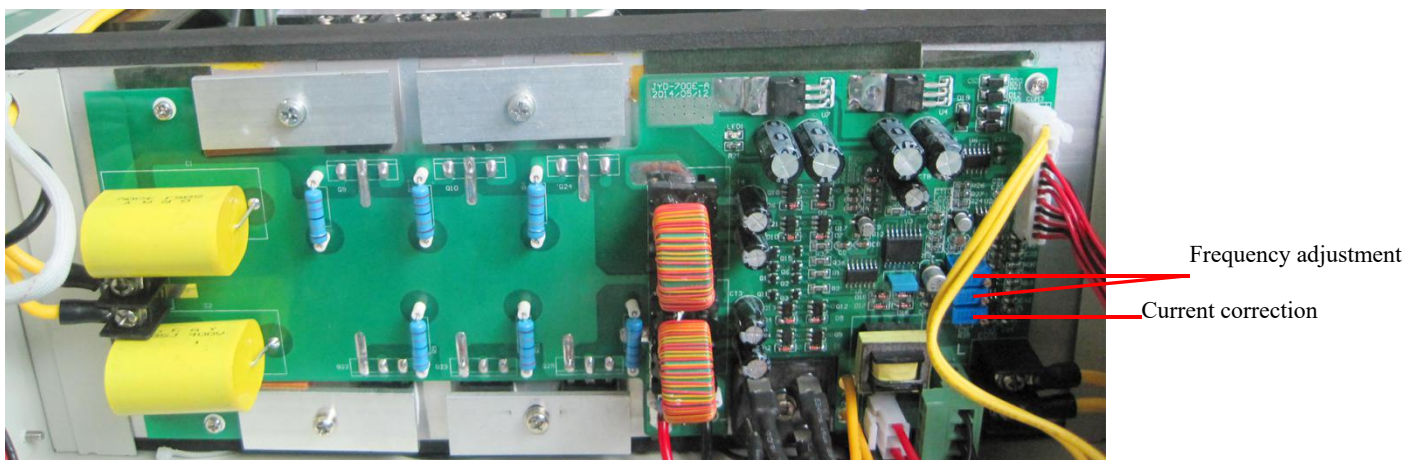


Figure 5.1

1. Connect the load (transducer) to the generator output. Note: (Figure 4), please press + - pole to connect correctly.

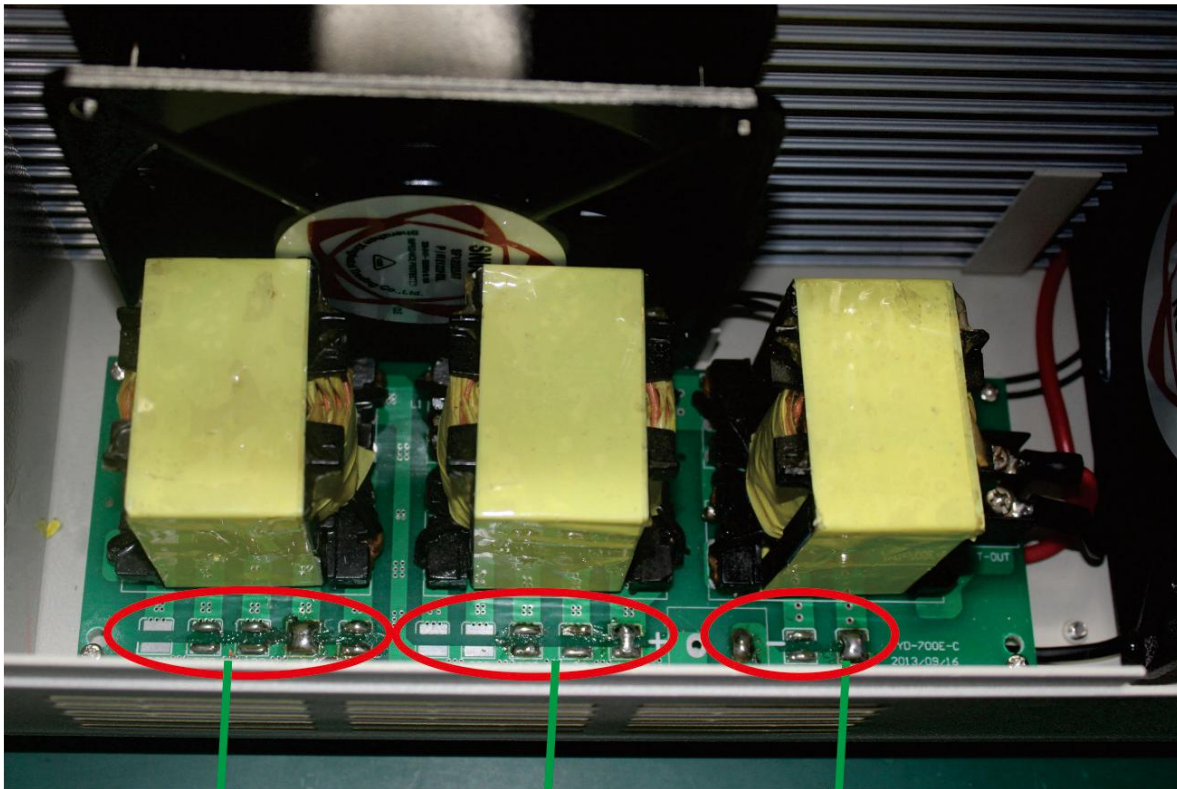
2. Open the case, the DIP switch on the display board 1, 2 are dialed to the bottom of the unlock state. As shown in Figure 5.3.
3. Connect the power cord and press the Mode button to adjust the display mode to the frequency display mode to see if the operating frequency of the generator is consistent with the frequency of the transducer. If not, adjust the frequency potentiometer shown in Figure 5.1 to adjust the operating frequency to the frequency of the transducer.
4. Press the Mode button to move the display mode to the current display mode. Press the ON / OFF button, then the work light is on, and the ultrasonic generator starts to work at this time, press the button ▼,▲ can adjust the current . Press ▼ can increase the current each time , and press ▼ can decrease 0.1A each time. If you long press ▼ can quickly decrease the current, but mind that the ▼ can be pressed to decrease the current when the current is stable (about 3S or so) after pressing.
5. Current correction: When the generator shows the maximum operating current and the actual working current does not match, you can adjust the current calibration shown in Figure 5.1 potentiometer,
6. If the current does not meet the requirements, turn off the power, adjust the sense of matching inductance, turn on the power and ON / OFF button, observe the ammeter, ammeter shows the working current to load the work requirements can be.

700E simple model current adjustment method: When the actual current difference is too large, you can adjust the transformer board 10 matching inductor stalls, each inductance 300; 200; 120; 75; 35 five files, a total of two match The inductance of 10 stalls can be adjusted, adjust the way for the two matching inductors currently connected to the sum of the value of the stall, the current sense of the matching inductance. The corresponding power corresponding to the inductance shown in Table 1; another transformer H; L two stalls can be adjusted, when the adjustment of the inductance of the inductance of the inductance or less than the required current, the transformer can be transferred to the file stalls (Product default factory L block)

Shock board power	900W	1200W	1500W	1800W	2100W
Inductance	320uH	275uH	240uH	195uH	155uH

Table 1 (Transducer with black film, yellow film transducer inductance doubled)

7. Rated current at commissioning 0.13A per transducer calculation, the number of transducers when the current can be appropriately reduced to 0.12A calculation.
8. Sweep mode (non-commissioning personnel do not use): SP01 sweep; SP02 sweep; SP03 sweep; SP04 sweep. Please select the appropriate sweep mode according to the different cleaning objects.
9. After adjustment, please dial the DIP switch on the display panel to the top of the lock state, as shown, you can lock debugging the frequency and current will not shift.



Match the inductor 2 gear

Match the inductor 1 gear

Transformer stalls

Transformer 1 Chart

Figure 5.2

DIP switch

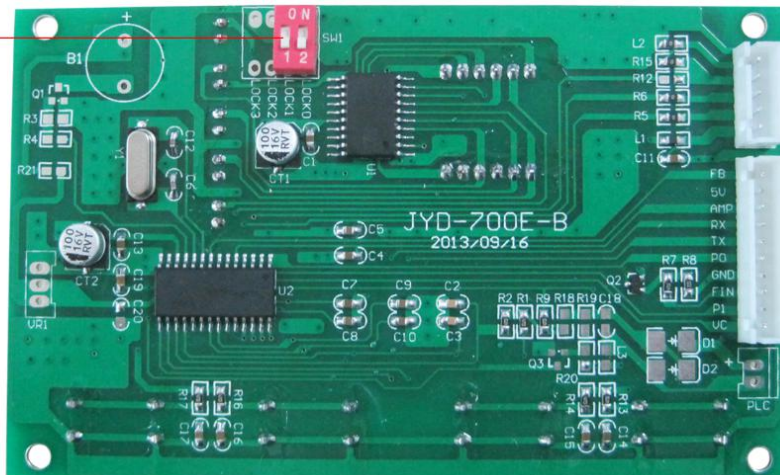


Figure 5.3



06. Common Faults and Maintenance Methods

Fault description	Maintenance method
No sound, the fuse burns out	Open the shell to check whether the power switch is damaged, check the motherboard for burning traces, check the rectifier bridge, power tube, power resistance with or without damage, such as damage is replaced,
No ultrasound, fan switch, driver board indicatorBright, with frequency display	Monitor the generator connector is loose off, then the welding is good, not the return to the manufacturer to repair
No ultrasound, fan switch, the drive board indicator does not light	View 12V power supply, regulator IC, drive transistor, diode is damaged. If so, please one by one replacement.
There is ultrasound, the current is too large, not normal	Check the load for problems, not return to the manufacturer to repair
There is ultrasound, ultrasound sound is not normal,Ultrasound intensity is poor	(1) to see whether the output frequency in the transducer operating frequency range (frequency 28KHZ transducer should be 26KHZ-31KHZ, 40KHZ transducer for 36KHZ-41KHZ). If the difference is too large, you can adjust the frequency potentiometer to restore the normal operating frequency. (2) observe the display current size, if the current is too small, first of all should check whether the ultrasonic transducer damage, such as the transducer off, the transducer chip rupture, adhesive glue cracking, connecting wires are short circuit. Under normal circumstances, if the current drop is little or no decline, and the sound is normal, but the ultrasonic intensity decreased more powerful, it is likely that the transducer adhesive glue cracking, the judgment method; observation transducer and steel plate connection Where the glue coating, under normal circumstances should be a smooth surface, if there is a small crack is likely to glue has been cracked, then the transducer should be removed re-bond, such as the current drop more powerful, the main check whether There is a connection wire breakage or transducer wafer cracking. (3) working voltage, cleaning object, the level of water temperature and the type of cleaning fluid will have an impact on the intensity of ultrasound, especially in the intense agitation, the ultrasound will be weakened, tens of seconds to recover, pay attention to the use of methods.



07. Precaution

Please place the machine in a dry and ventilated place. The distance between the rear of the machine is greater than 35mm. If you have any work, please contact the service personnel. Do not open the lid in case danger.