



CUP TYPE ULTRASONIC PROCESSOR

LIH15-2200



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1. Overview

Touch screen series non-contact ultrasonic processor (crusher) is a new product independently developed by our company. Complete functions, novel appearance, and reliable performance. The instrument adopts a large 4.3-inch capacitive touch screen display; the control adopts centralized control by a central computer, and the ultrasonic output, gap time, duty cycle, and temperature can be set arbitrarily, and the ultrasonic power can be adjusted linearly and continuously. Temperature detection and display, frequency automatic tracking, fault automatic alarm.

2. Function and its composition

1. This instrument is a multi-functional and multi-purpose instrument that uses strong ultrasound to produce cavitation effects in liquids and ultrasonically treats substances. It can be used for crushing animal and plant tissues, cells, bacteria, and spores, and can also be used for emulsification. , Separation and acceleration of chemical reactions, etc. It is widely used in biochemistry, microbiology, medicinal chemistry, surface chemistry, physical chemistry, zoology and other fields.

★This instrument is mainly used for aseptic crushing, which can break chromosomes and break cells through the heart tube. Non-contact stainless steel trough container (suitable for handling multiple biological hazards and harmful samples at the same time) with threaded compression device, and a large soundproof box is also optional. Compared with the traditional probe-contact ultrasonic cell disruptor, the probe is in direct contact with the sample, and the same probe needs to be used repeatedly, which is easy to cause sample cross-contamination. Since the depth of each probe inserted into the sample is different, the energy distribution of each ultrasound is also different, which affects the repeatability and accuracy of the experimental results. This instrument can process multiple samples at the same time, with high experimental efficiency; no need to operate the probe frequently, each sample is in a separate fully enclosed test tube to avoid cross-contamination; it supports ice bath function, which is convenient for samples to work at 4-10 degrees, and the energy distribution Uniform, complete ultrasonic effect; flexible ultrasonic parameter setting, standardized experimental steps, good experimental repeatability, and high reliability of results. It has gradually become an indispensable standardized tool for CHIP (chromatin immunoprecipitation) and DNA shearing research platforms. High experimental efficiency, reliable results, and good repeatability The minimum sample size of 5ul can be processed, which is suitable for precious samples.

2. This machine is composed of ultrasonic generator (power supply), transducer assembly and sample processing chamber, which are connected by cables in the middle.

3. Precautions before use

1. Check the power supply voltage: the machine is powered by 220V±5% AC voltage (frequency 50Hz), and the power socket is located at the bottom left of the rear panel of the instrument. Laboratory power supply must have good grounding.

WARNING: To avoid lightning strikes and use safety, please use grounding. When replacing the fuse, please unplug the power plug first.

2. Instrument working environment

The instrument should be placed in a well-ventilated place to work indoors, and the normal working room temperature range is 0°C to 35°C.

In order for the instrument to work normally, please pay attention to: anti-corrosion, moisture-proof, sun-proof, and dust-proof.

3. Install

Connect the power cord, transducer and temperature probe according to each socket.

Pour 4L-4.5L of medium water (purified water is recommended) into the reaction tank. For the uniformity of the experiment, it is recommended to use thin-walled centrifuge tubes as much as possible. *32-hole adapter), pour the sample and fix it on the stainless steel adapter,★ the sample needs to be added to the crushed ice (the more crushed the better) or ice water (purified water is recommended) before ultrasonication, and finally put the sample and the centrifuge tube adapter Put it into the reaction tank (the high profile of the adapter can be adjusted according to the sample or centrifuge tube specification, generally it can be in the middle position).

4. Due to the different characteristics of the samples used by different customers, how long each sample takes or the depth of the centrifuge tube inserted into the ultrasonic treatment chamber needs to be compared with several samples. It is generally recommended to adjust the power to the maximum. In the future It will be carried out according to this parameter, and according to the feedback of past customer experience, the effect of processing samples has a relatively large relationship with time.

4. Each function description and instrument operation interface

1. For the first use, add about 4.5L of water to the reaction tank, and the water level should be equal to the upper drain in the tank.

2. After connecting the ultrasonic generator, power supply, temperature, and transducer interface, turn on the power switch after the ultrasonic power controller.

3. After starting up, you need to click the password box under the touch screen, and then enter "123456" to enter the factory standby state(Generally, the password is removed from the factory. If you need to set the password protection function of the instrument, you can click the "Settings" button and set the password "!" in the "Parameter Selection and Setting" interface. Click to change the color to start the password protection. On the contrary, displaying black and white means canceling the password protection function).

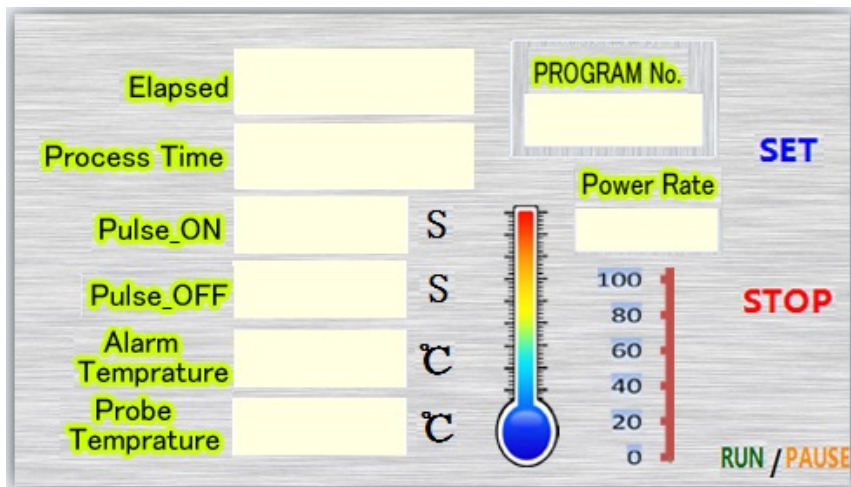


Figure 1

(The upper interface is displayed as the instrument standby working interface)

4. If you need to reset, please click the "Setting" button. At this time, you can modify each parameter according to the requirements. Click the box to modify the parameter that needs to be set. Ultrasonic Off needs to be set to "0", and the ultrasonic can be continuous ultrasonic (it is generally recommended that the effect of continuous ultrasonic is better).

5. After setting the parameters, click the "Run" button, the interface enters the standby mode, and then click the "Run" button, the instrument starts to work. If you need to turn off the ultrasonic wave in the middle, you can click the "Pause" button. If you need to continue after a cycle of work stops work, please click the "Stop" button and then click the "Run" button.

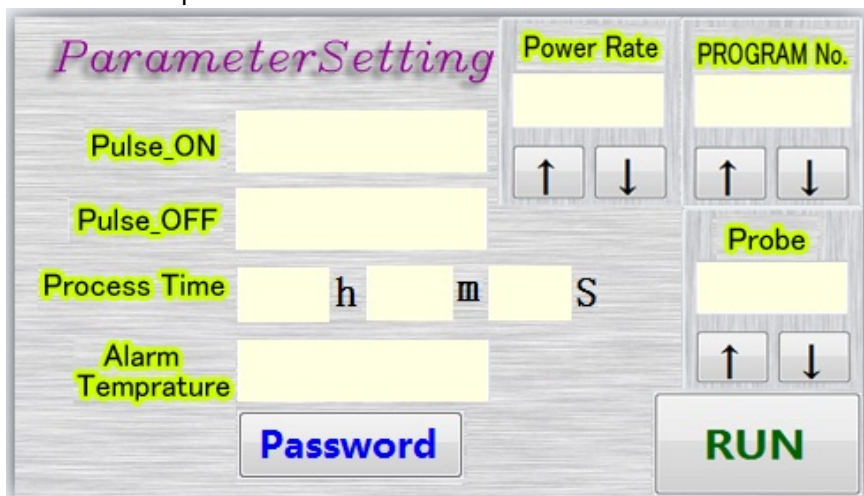


Figure 2

(The upper interface is displayed as the instrument setting working interface)

6. If the box above the "Reset" or "Running" button of the instrument turns yellow during the working process, it means an over-temperature alarm. You need to check whether the set temperature is too low. If it turns red, it means an overload or fault alarm. At this time, you can click "Reset" key above the frame to cancel the alarm and continue to work.

7. The ultrasonic power adjustment knob of this instrument is located at the rear and upper part of the instrument, which can be manually adjusted linearly.

8. The instrument can store 20 sets of experimental parameters, which can be pre-set or later recalled and saved in the "Project Number" of the setting interface.

9. This instrument can also be equipped with an external low temperature constant temperature function, and a cooling cycle interface is reserved. The lower interface of the stainless steel tank body is

for constant temperature liquid inlet, and the upper interface is for constant temperature liquid outlet. If equipped with a constant temperature tank, the flow rate must be adjusted to prevent the flow rate from being too fast. If the liquid overflows, it is recommended to connect a peristaltic pump to the output of the upper interface. If the ice bath can meet the experimental requirements, there is no need to configure a constant temperature bath.

10. Main technical parameters of the instrument:

Output Power	2200W The power is manually adjustable (there is a power adjustment knob at the rear of the instrument)
Working frequency	20-25KHz Frequency automatic tracking
Standard single processing volume	1.5/2ml*32
Timing	0~99H59M59S
Operating mode	Continuous ultrasound
Pulse	0.1-99.9s adjustable (ultrasonic on/ultrasonic off)
Temperature control	Control sample temperature (0°C-50°C)
Ice bath function	Support
Alarm	Fault, temperature, time
Input	Touch control
Display method	Intuitive touch screen control, 4.3 inch TFT
Display content	Display of temperature, time, etc.
Protective device	Automatic error correction from the program, overload and over-temperature protection display
Storing data	20 groups
Password	With user password protection
Standard configuration	Ultrasonic generator (host) + reaction tank + adapter
Optional features	Computer communication or low temperature constant temperature function

Table 1

11. Instrument interface description (rear panel):

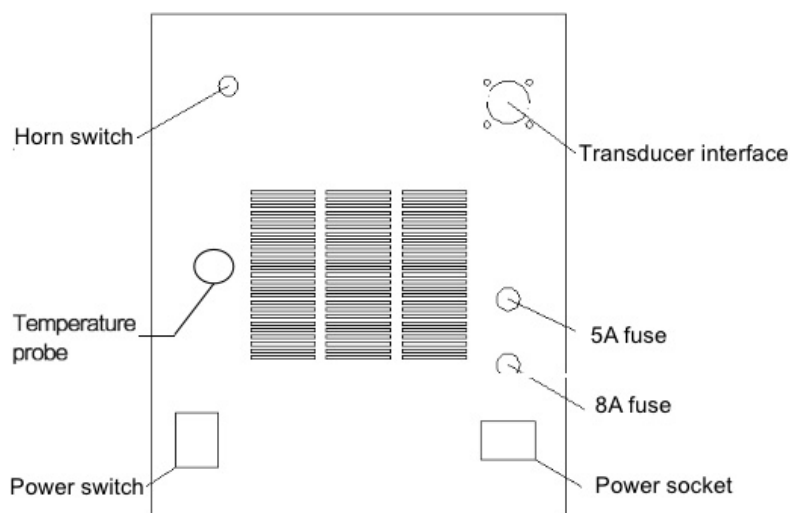


Figure 3
Instrument interface (rear panel)

5. User's guidance

1. The temperature protection setting point must be 1-3°C higher than the room temperature or sample temperature.
2. It is strictly forbidden to turn on the machine when it is not poured into the liquid (no load), otherwise the instrument will be damaged.
3. The amount of crushing of various samples and the length of time are to be determined by the user according to the characteristics of various samples, and the best time value is selected.
4. The instrument can perform continuous ultrasound. When setting parameters, please set the ultrasonic off to "0", and the instrument can run according to the total time.
- ★5. During ultrasonic treatment, due to the cavitation effect of ultrasonic waves in the liquid, the temperature of the liquid will rise rapidly, and users should pay more attention to the temperature of various cells. It is suggested that during the ultrasonic process, some water can be drained and then some ice water can be added appropriately to cool down or equipped with a low temperature constant temperature bath.

★Warning: During the working process, the water in the reaction tank must be in place before the ultrasonic wave can be started (generally, the water level should be equal to the upper circulation backup port).

6. Packing list

1. Ultrasonic generator 1set
2. Vibration system + non-contact reaction tank 1set
3. Power cord 1pcs
4. Instruction manual 1copy
5. Warranty card (including certificate) 1copy
6. Temperature probe 1pcs
7. Standard 1.5/2ml*32 hole adapter 1set
8. 1 connecting 1pcs

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