Ultrasonic Processor

Working Theory

The ultrasonic power supply generates high frequency electrical signals, which is applied to the piezoelectric crystals within the converter, where it is changed to mechanical vibration. The longitudinal vibrations are amplified by the probe and transmitted to the cleaning liquids, which consist of alternate compression and rarefactions. These pressure fluctuations create microscopic bubbles, which expand during the negative pressure excursions, and implode violently during the positive excursions. As the bubbles collapse, millions of shock waves (extreme in pressure and temperature) are generated at the implosion sites. This pressure is then used for disruption of cell structure.

Applications

This ultrasonic equipment includes a variety of applications such as disruption of cell structure, e.g. bacteria, virus, spores. Besides, it also has functions to homogenize, emulsify, intermix, degas, disintegrate, and so forth. Therefore, it has been widely used in research of biology, medical science, chemical, food, cosmetics, environmental protection, and other related industries.

Features

- Convenient and precise digital display and control.
- Variable safe control of power output to protect samples.
- Output amplitude can be adjusted from 0% to 100% and directly displayed on the display board
- Intensity display with max intensity control.
- Two operation options are available: pulse modulation and constant output.
- Pulse width and interval time can be set from 0.1 to 10 sec. during pulse working.
- External control interface is available for direct operation.

Specifications

- Introduction of front panel
- Liquid crystal display
- Max intensity: the button is to control the ultrasonic output intensity. It has 4 levels: 20%, 30%, 60%, and 100%.
- Intensity: can change from 0-100% of the ranges.
- Number inputting button
- Start/Stop: operate or stop button.
- Mode: The change button between pulse modulate and constant output.
- Pulse: To set the output amplitude in constant operation. Imputing the number can set the time. Pulse wide is from 0.1 to 9.9 secs.
- Timer: Display shows the set time and the time remaining in minutes and seconds.

Notice: Interval pulse modulates can prevent accumulating too much heating in the liquid and so can offer more effective result. The temperature can be set and controlled.

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Notice: Over strong output power will damage the slender converter, so please choose the position according to the following demand:

- 1/8 converter set “20%”
- 3/16 converter set “35%”
- 1/4 converter set “60%”
- 1/2 converter set “100%”

Model	Power (W)	Conv	Sample Volume	Pulse Working %
UP-100	100	1/8”, 3/16”, 1/4”	100ul~80ml	10%~90%
UP-500	500	1/8”, 3/16”, 1/4”, 1/2”	250ul~600ml	10%~90%
UP-800	800	1/8”, 3/16”, 1/4”, 1/2”, 3/4”	250ul~1200ml	1%~99%
UP-1200	1200	1/8”, 3/16”, 1/4”, 1/2”, 3/4”	250ul~1200ml	1%~99%

* Our Ultrasonic Processor is equipped with Converter, Tip (UP-100: 1/8”; UP-500: 1/2”; UP-800: 1/2”; UP-1200: 3/4”), Sound Abating Enclosure, Elevator, Temperature Control Sensor, External Pedal Switch, Power Cord.

* The watt shown is the highest power output.

Optional Converters

NO.	DESCRIPTION
1	Converter Model CV33
2	Four element couplers
3	1/8" (3mm) stepped micro tip
4	Booster
5	1/2" (13mm) solid probe
	1/2" (13mm) with threaded end and replaceable tip
	3/4" (19mm) solid probe
	3/4" (19mm) with threaded and replaceable tip
	1" (25mm) solid probe
	1" (25mm) with threaded and replaceable tip
6	1/2" (13mm) replaceable tip
	3/4" (19mm) replaceable tip
	1" (25mm) replaceable tip
7	Coupler
8	1/8" (3mm) stepped micro tip
9	1/2" (13mm) with threaded end and replaceable tip
10	1/8" (3mm) tapered micro tip
	3/16" (5mm) tapered micro tip
	1/4" (6mm) tapered micro tip
11	Probe - solid or with threaded end and replaceable tip - same as 5
12	Replaceable tip same as 6
13	1/2" (13mm) half wave extender 5"
	3/4" (19mm) half wave extender 5"
	1" (25mm) half wave extender 5"
14	3/4" (19mm) full wave extender 10"
	1" (25mm) full wave extender 10"
	3/4" (19mm) solid high gain probe
	3/4" (19mm) high gain probe with threaded and replaceable tip
	1" (25mm) solid high gain probe
	1" (25mm) high gain probe with threaded and replaceable tip
15	Replaceable tip 3/4" (19mm) or 1" (25mm) - same as 6

Optional Accessories

- Floating Micro Tube Holder
- Rosett Cooling Cell
- Glass Cooling Cell
- Continuous Flow Cell
- Elevator
- Sound Abating Enclosure
- Supper Stand

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