

SOP#:	Date Issued: 8/03	Date Revised: 7/08
TITLE:	Branson® DIGITAL Sonifier® UNITS Models S-450D	
SCOPE:	Research Personnel	
RESPONSIBILITY:	BORC staff	
PURPOSE:	To outline the proper procedures for use and maintenance of the Ultrasonic sonifier.	

1 PURPOSE

This SOP explains how to use the digital sonicator in cell disruption, Nano particles, chip assay, emulsification, homogenization, cell lysing, processing DNA and proteins etc.

2 RESPONSIBILITY

It is the responsibility of the BORC staff to ensure that equipment is appropriately cleaned, maintained in good working order, and available for research personnel as requested.

3 BEFORE CONDUCTING YOUR EXPERIMENT

Before you start your experiment, you need to set up a set of parameters to that fit your experiment.

System Modes

You can control the way in which ultrasonic wave are applied to your sample by setting the unit to operate in one of several different modes. There are five system modes, **continuous mode**, **pulse mode**, **timed mode**, **temperature mode** (not available), and **pulse/pause mode**. You determine the mode in which to operate by specifying parameters for your experiment.

Amplitude Control

The Amplitude control is found on the right side of the system chassis, it is a large circular control protruding through the side of the Front Panel. It rotates up and down to regulate the Amplitude value from minimum to maximum. The Amplitude value is displayed on the Front Panel display.

Entering Parameters from the Keypad

When in the Ready mode, you can press any available Line Select key on the front panel to select a parameter for modification. There are a total of two (2) pages of parameters; use the Arrow Up or Arrow Down keys to see more parameter choices on the display.

Use the number keys to key in a parameter value, and press Enter to store the value or accept the choice, or press Clear to clear a stored numeric entry or to disable a choice and then press Enter to store the cleared or disabled parameter value. The System will not accept

parameter values that are out of the range of the system. Once the parameters have been changed and stored, the experiment is ready to run with the new values.

Presets and recall

Once you have a set of parameters stored for a given experiment, you can save that setup as a Preset. Up to 20 Presets may be saved. Presets save all parameters for the setup except for the Amplitude parameter. Presets are saved until they are over-written or cleared, and are maintained in memory even if the system is turned off or unplugged. You can use the ID number to recall the saved parameters.

4 PROCEDURES

4.1 Turn the power switch on.

The system enters the **Power-Up state** when the power switch is turned on. The fan starts to run, and the system then enters the **Self-Diagnostics state**. In this state, the system performs hardware and software checks on itself. The front panel display shows several diagnostic displays (indicating which step in the self-diagnostics it is in) and the front panel LEDs will illuminate as a visible test. After it successfully completes this system check, it enters the **Ready state**.

4.2 Set up the parameters for your experiment.

In the Ready state, the system is waiting to begin an experiment, and it can accept parameter settings that you enter through the keypad. The front panel display shows the Amplitude setting and some parameters, and the appropriate LEDs are illuminated. The system must be in the Ready state for you to start a new experiment or make changes to any parameters. You can also use the ID number to recall the saved parameters.

4.3 Start to process samples

After setting parameters for your application or recall the saved parameters, pressing the **Start/Stop** button to enter the **Run state**. The front panel display will show the runtime information, including the percentage of power used on its bottom line as a bargraph display, and the LED next to the Start/Stop button remains lit while the application is running. If you set Limits, your application will Stop automatically upon reaching those limits.

5 MAINTENANCE

- 5.1. The Digital Sonifier is a self-contained system that requires no internal servicing, except for a protective fuse.
- 5.2. The ultrasonic tooling (horns and tips) may require periodic inspection and maintenance to ensure optimum performance.
- 5.3. The tooling components are subject to wear and may require replacement after a period of time, depending on the applications.

6 REFERENCES

Refer to the manufacturer's manual for additional information.

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