PAT SONO MINI

Pen-type ultrasonic sonicator for liquid treatment



User Manual

1. Introduction

The PAT SONO MINI is a compact, pen-style handheld ultrasonic sonicator designed for a wide range of liquid treatments, including mixing, cleaning, de-agglomeration, emulsification, soft tissue ablation, cell disruption, etc. Its primary strength lies in its high power intensity, enabling it to generate powerful cavitation and ultrasound streaming effects during liquid processing. Another key advantage is its small size and portable design, making it suitable for on-the-go or on-spot applications. The compact feature of the device also provides potentials for integration into the industrial production lines or in-situ equipments. The device is versatile and can be used across various fields, including materials science, chemistry, biology, medicine, food processing and more.



2. Specifications

- (1) Transducer nominal frequency 30kHz
- (2) Transducer nominal power 5W
- (3) Transducer dimension OD14mm x 125 mm; Tip diameter 3mm, length 35 mm.
- (4) Transducer on/off duty ratio 50% by default.
- (5) Power control unit dimension 190mm x 125mm x 118mm (length x width x height)
- (6) SMA cable length 85 cm
- (7) Main power supply 200-240VAC, 50-60Hz
- (8) Weight (transducer + power control unit + SMA cable + power cord) 1.5kg

3. Check list:

No.	Items			Quantity
1	Clamp stand	Bottom plate	1 pc	1 set
		Stand rod	1 pc	
		Arm 1	1 pc	
		Arm 2	1 pc	
		Screw	Hand tighten screw 4 pcs; Screw nut 1pc; Flat csk screw 2 pcs	
		Rod plate couple	1 pc	
2	SMA cable			1 pc
3	Transducer			1 pc
4	Power control unit			1 pc
5	Power cord			1 pc
6	User manual			1 pc

4. Safety Precautions:

- (1) **Only** the vibration tip of the transducer can be dipped into the treated liquid.
- (2) **NO touching** on the transducer tip when the transducer is running.
- (3) Always avoid turning on the power when the transducer is in the no load state (transducer tip not in the liquid)
- (4) Always avoid turning on the power when the transducer is in the no connection state (transducer is not connected to the power control unit)
- (5) **Always** check the tightness of each part of the clamp stand, in case the transducer falls down into the liquid.
- (6) **No** opening of the power control unit and transducer

5. Construction and connection guide:

3.1 System setup:



- (1) Transducer and power control unit are connected using the SMA cable
- (2) Transducer is clamped at the clamp stand

3.2 Clamp stand:



- (1) Rod plate couple is fixed to the bottom plate through two flat csk screws
- (2) Stand rod is clamped to the rod plate couple by tightening the hand tighten screw
- (3) Slide arm1 along the stand rod and clamp
- (4) Attach arm2 onto arm1 and clamp through hand tighten screw and screw nut.
- (5) Slide and rotate arm1 and arm2 to adjust position.

3.3 Transducer



- (1) Only handle part could be used for clamping
- (2) Only vibration tip could be dipped into the treated liquid

3.4 SMA cable:



3.5 Power control unit:



- (1) SMA port is used to connect the transducer through the SMA cable.
- (2) Power indicator LED is red in colour.
- (3) Transducer on/off indicator LED is green in colour. When the transducer starts to vibrate, the LED turns to the green "on" state.

6. Operation guide:

(1) Apply the power cord to the <u>power socket</u>, and connect to power supply of 220-230V,50- 60Hz.



(2) Turn on the O/O swith, HMI touch screen panel and power indicator LED will be turned into the "on" state



(3) HMI touch screen panel goes to the boost page and last for <u>10 seconds</u>.



(4) HMI then goes to the control page. Set the parameters, press start/stop to control the process



7. Contact:

PAT@piezoactive.com

- 8. Trouble shoot
- If weak or no vibration, check connections; check environment and device system temperatures; check treated liquid conditions.
- (2) Sometimes there are noises, this may due to the interaction between transducer, liquid and containers

9. Limited Warranty:

Component	NO.
Power control unit	
Transducer	