

# MASTERSONIC Power Supply for Advanced Ultrasonic Liquid Processing & Cleaning Systems

**Traditional design barriers have finally been broken. All sonic and ultrasonic parameters are programmable. A triumph of merging digital and power electronics. There is no comparison to anything currently available in the world of Ultrasonics.**



Mastersonic MMM Power Supply (or sonic and ultrasonic generator) consists of two parts:

- Generator
- Remote control panel for parameterization.

The generator is a separate device and it can work independently from the remote control panel.

The generator may be mounted in a separate cabinet where it can be connected to a main power supply and to the ultrasonic cleaning tank.

The picture to the right shows the generator front panel and the following indicator lights and function buttons.

**Power Level Display:**

The 4-digit LED display indicates the ultrasonic generator power level as a percentage of its nominal (maximum) power.

**ON – Ultrasonic Power On/Off indicator:**

This green light is illuminated when the generator is turned ON. When the generator is turned OFF this light is not illuminated.

**OV - Over voltage indicator:**

In a normal condition this light is not illuminated. When illuminated this red light indicates the auto-protection for over voltage is activated.

**OC - Over current indicator:**

In a normal condition this light is not illuminated. When illuminated this red diode indicates the auto-protection for maximal current is activated.

**DF - Driver fault indicator:**

In a normal condition this light is not illuminated. When illuminated this red diode indicates failure of voltage supplying drivers.

**4 square function buttons:**


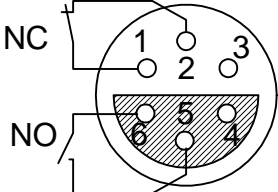
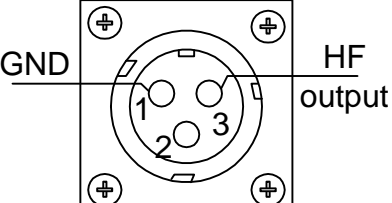
Green for power ON, Red for power OFF, and 2 Gray buttons for increasing and decreasing the power.

**Mains switch (bottom right):** for turning the main power supply ON and OFF.

**9 pin interface connector (bottom left):** for remote control panel connection.



**Front Panel**

	<p>The back panel of the ultrasonic generator has the following 3 connectors:</p> <ul style="list-style-type: none"> <li>➤ Left - Main power supply connector, 230 VAC, single phase.</li> <li>➤ Center - Connector for external ON or OFF power control (by controller or relay).</li> <li>➤ Right – Transducer power connector.</li> </ul>
	<p><b><u>Connector details for external ON/OFF power control.</u></b>  NOTE: To operate the generator with the front panel ON/OFF buttons PIN1 and PIN2 should be connected. External connector must be in its place before starting the generator.</p>
	<p><b><u>Power output connector for ultrasonic frequency.</u></b> The drawing shows the connection from ultrasonic generator to the cleaner's transducers.</p>

### Remote control panel:

The remote control panel is designed for tuning the ultrasonic generator while connected to the cleaner system. The remote control panel may be connected to the front panel connector when the generator is turned ON or OFF. The remote control panel receives its power through the connector. When connected, the generator parameters that are in its memory are transferred to the buffer of the control panel.

The remote control panel has LCD display with 2 rows of 16 symbols and keyboard with 20 buttons, which has the following functions:

- Digital keyboard from 0 to 9 and decimal point – for entering new parameters.
- “↵” Enter button to input parameters or initiate a Function.
- “ESC” button to escape or cancel current operation.
- Up and Down Arrow buttons for increasing and decreasing display values.
- Left and Right Arrow buttons for reading the LCD menu.
- Functions buttons:
  - F1 – reads stored parameter data. Press F1 then Select a memory position (0 to 20) to view stored parameters.
  - F2 – stores new parameter data from the buffer to a selected memory position (0 to 20).
  - F3 – downloads parameter data from the buffer to the generator memory.

**NOTE: If the Mastersonic generator is ON when downloading data from the remote control panel the generator will turn OFF automatically for system safety. The generator may be restarted manually after the download is completed.**



## Description of Settings Displayed:

<b>Reading data</b> <<<<<<	Upload the parameters from the generator to the remote control panel buffer.
<b>Sending data</b> >>>>>>	Downloading parameters from the remote control panel buffer to the generator memory.
<b>Read memory</b> Location xx	Reading parameters from a memory location ( <u>xx</u> ) to the remote control panel buffer.
<b>Write memory</b> Location xx	Writing parameters from the remote control panel buffer to a memory location (xx).
<b>Frequency 28kHz</b> (can be selected differently)	The average frequency of the ultrasonic transducers (first, natural resonant mode).
<b>Sweeping range 0-200kHz</b> (can be selected differently)	Sweeping frequency interval of the ultrasonic cleaner.
<b>Tracking range 1.000kHz</b> (can be selected differently)	The range for controlling the power through the frequency.
<b>MAX Frequency 50.000kHz</b> (can be selected differently)	The maximal carrier frequency of the generator.
<b>MIN Frequency 20.000kHz</b> (can be selected differently)	The minimum carrier frequency of the generator.

**The frequency spectrum of ultrasonic waves in the tank, produced by MMM digital signal processing technology covers the range from several Hz until several MHz (without taking into account the acoustic noise spectrum produced by cavitation).**

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