



OPERATING MANUAL
DIGITAL EQUALIZER



MODEL SM-EQ-2000

IMPORTANT SAFETY INFORMATION

The information furnished in this manual does not include all of the details of design and engineering of this particular product; nor does it cover every possible application or situation concerning its usage, which may occur during the installation, operation or maintenance of the product.

IMPORTANT - THE PRODUCT REQUIRES CLASS 2 OUTPUT WIRING

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL. DISCONNECT POWER CORD BEFORE REMOVING REAR PANEL COVER TO ACCESS GAIN SWITCH.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE!

CAUTION Do not locate sensitive high-gain equipment such as preamplifiers or tape decks directly above or below this unit. Because this amplifier has a high power density, it has a strong magnetic field which can induce hum into unshielded devices that are located nearby. This field is strongest just above and below the unit. If an equipment rack is used, we recommend locating the amplifier(s) at the bottom of the rack and the preamplifier or other sensitive equipment at the top.

Safety Instructions

1. Read, follow and retain these instructions.
2. Read all warnings.
3. The apparatus must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, may be placed on the apparatus. Do not use this apparatus near water. Clean only with a damp cloth.

4. The apparatus must be connected to a mains socket outlet with a protective earthing connection.
5. The appliance coupler must remain readily operable for disconnection from the mains.
6. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
8. Do not install the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and third grounding plug. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use power cord from attachments/ accessories specified by the manufacturer.
11. Use only with a cart, stand, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from flip-over.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, or does not operate normally.

Please follow the instructions in this manual to obtain the optimum results from this unit. We also recommend that you keep this manual handy for future reference.

GENERAL DESCRIPTION

The Digital Equalizer is a stereo equalizer processor for easy audio spectrum control. All parameters can be easily adjusted and controlled via the user friendly menu function. The 24-bit A/D and D/A converters provide superb sound quality and a wide frequency response due to the 48kHz- sampling rate. A total of 30 factory presets are provided. The user programs can be recalled or stored from/to the device, allowing them to be changed rapidly.

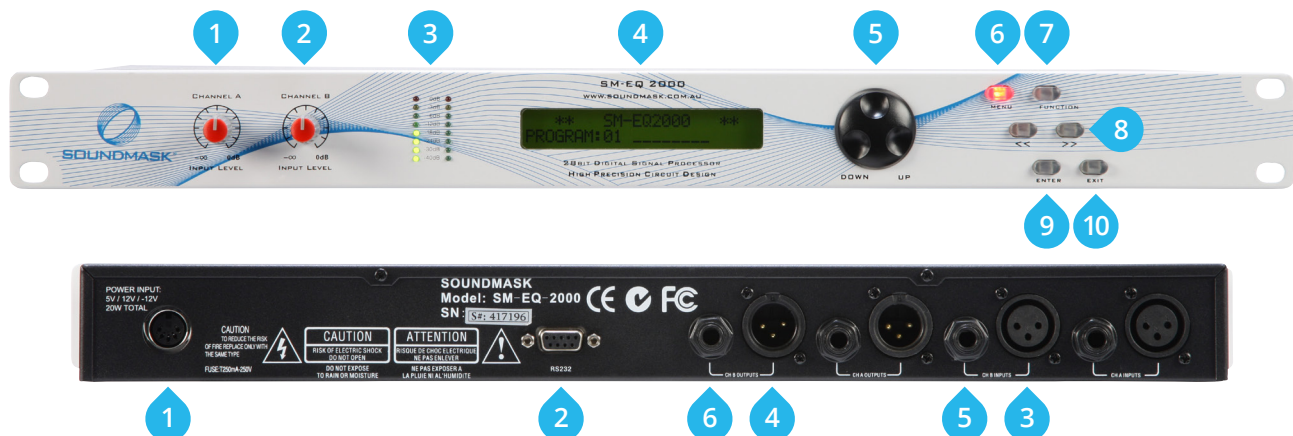
DESIGN FEATURES

- › 2-inputs and 2-outputs allow the device to be configured as a true stereo processor.
- › 2 modes of operation: L-R Linked and L-R Separate.
- › 2 x 20 EQ action filters. Selectable frequency and band width.
- › High Performance 24-Bit A/D & D/A converters.
- › EQ ranges from -15dB to +15dB in 0.25dB/step.
- › 30 user-defined programs.

SPECIFICATIONS

Model	SM-EQ-2000
Input	2 channels, 10kOhm impedance
Output channels	2 channels, 50 Ohm impedance
Action filters	2 x 20 EQ filters with selectable frequency and band width.
Nominal level (input/output)	+4dBm
DAC (input/output)	24-Bit
Programs	100 pre-defined and 100 user-defined programs
Signal to noise ratio	105dB (unweighted)
Power input	Power input: 110/220-230V AC 50/60Hz 20VA Via external power supply
Frequency response	20Hz ~ 20kHz
Dimensions & Weight	483 x 155 x 45 mm, 2.45 kg
Compliance	   
Safety information	Mount unit in locations that provide unobstructed air movement to minimise the risk of overheating.

USER INTERFACE



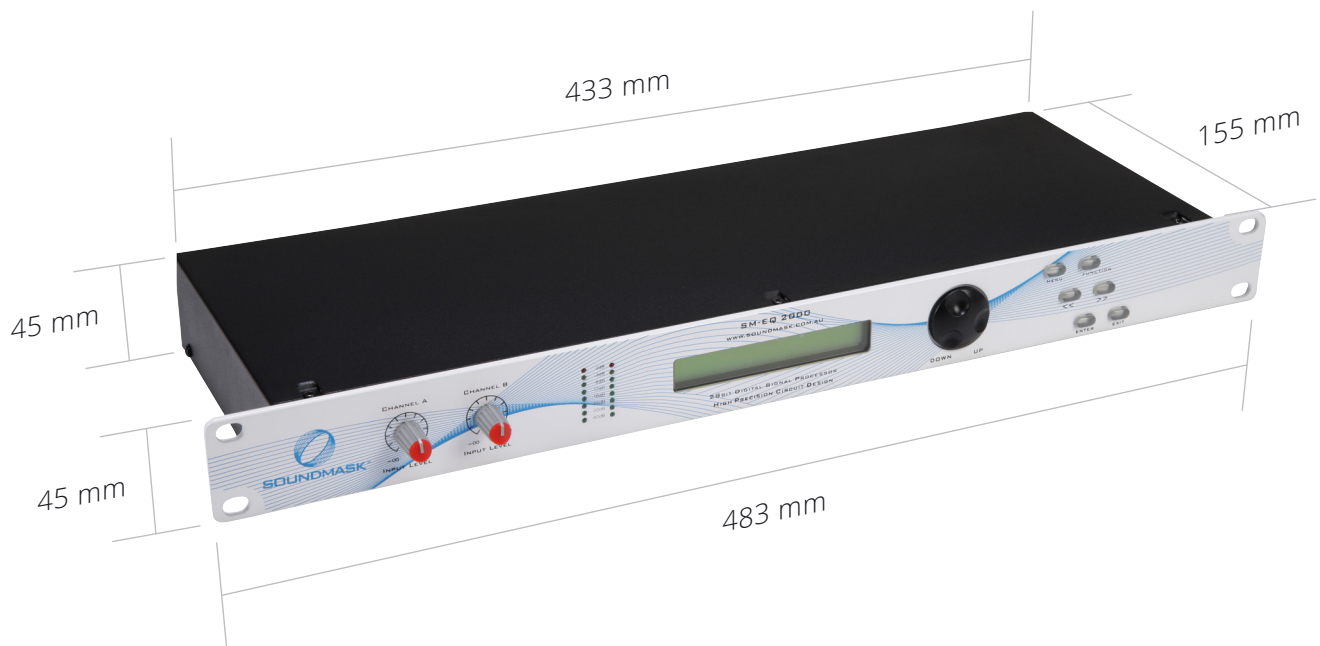
FRONT PANEL

1. **Volume (Left)** – Left input level.
2. **Volume (Right)** – Right input level.
3. **Input Level (L/R)** – Indicators indicate the current peak level of the input signal in dB units.
4. **LCD Display** – Shows unit status and all the necessary information to control the unit.
5. **Rotary Dial** – This rotary control is used to change parameter values.
6. **Menu Key** – Allows user to access all menus of the selected program.
7. **Function Key** – Selects sub-menu functions.
8. **Up/Down Keys** – Navigates between all changeable sub-menus.
9. **Enter Key** – Confirms parameter changes for special events, like storing a new user defined setup.
10. **Exit Key** – Brings the user one menu level up each time.

REAR PANEL

1. **Main Power** – Connects via included external power supply. A compatible power cord is supplied with the unit.
2. **RS232 Serial port** – Connects to a laptop for ease of programming.
3. **XLR input connectors** – 3 pin XLR connectors are fully balanced where pin 2 is hot, pin 3 is cold and pin 1 is ground (shield).
4. **XLR output connectors** – 3 pin XLR connectors are fully balanced where pin 2 is hot, pin 3 is cold and pin 1 is ground (shield).
5. **6.35mm input connector** – 3 conductor connectors with connections paralleled to the XLR.
6. **6.35mm output connector** – 3 conductor connectors with connections paralleled to the XLR.

DIMENSIONAL DIAGRAM



MENU OPERATIONS

The device has a well-structured menu for the user to select appropriate parameters.

BYPASS

- 1 On** – Bypass the device (No EQ filters applied)
- 2 Off** – Normal operation (EQ filters applied)

RESET FILTERS

- 1 Normal** – Normal operation
- 2 Reset** – Reset filters

PROGRAM RECALL

Select Program number then press <Enter> to recall the program. 30 programs are available.

PROGRAM STORE

Select Program number and program name then press <Enter> to store the program. 30 programs are available.

SYSTEM MODE

- 1 L-R Link** – This mode is the same as the Manual (Separate) mode except the Left and Right channels are linked together.
- 2 L-R Separate** – This mode is equivalent to stereo Equalizer. All EQ filters can be modified by the user.

EQUALIZER

20 Equalizers for each channel are available. In Manual (Separate) mode, Level, Frequency and Bandwidth can be adjusted individually. In Manual (L-R Link) mode, left and right are linked together.

LOCK/UNLOCK UNIT

The unit can be locked to eliminate undesired changes in the setup. To lock/unlock the unit, a 4 digit password should be entered and then press the ENTER key. The password is constant and can not be edited. The password is: "DQ2X".

RS 232 PORT FOR PROGRAMMING

The unit can be connected to a lap top via this port for programming. (See subsequent pages)

SOFTWARE INSTRUCTIONS

The SM-EQ-2000 can be supplied with a USB serial cable and software disc (Windows based).

SETTING UP THE SOFTWARE

FIG 1

File: Select "Program" to store the program.

Device: Up or down the program you have set to the SM-EQ-2000.

Setup: First you must select the COM port which the device is plugged into, then the SM-EQ-2000 can link with the computer (FIG 1A).

View: Open the quick controller channel.

FIG 1



FIG 1A

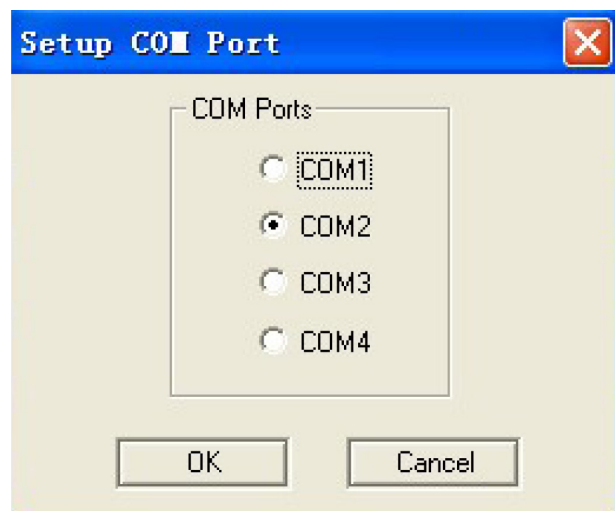


FIG 2

The green line is the EQ curve of the left channel.
The red line is the EQ curve of the right channel.

FIG 2

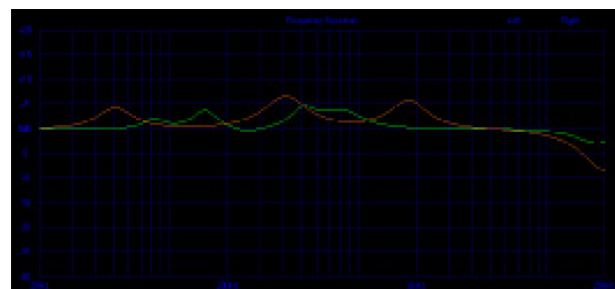


FIG 3

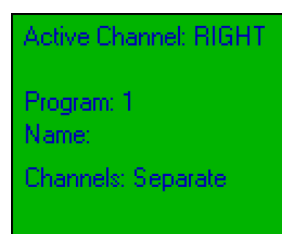
Active channel: The channel which you control (left/right).

Program name: The program number and name. SM-EQ-2000 can store 30 programs.

Channels: The left and right channels can be linked or separate.

L-R link: This mode is the same as the Manual (Separate) mode except the Left and Right channels are linked together.

FIG 3



SETTING UP THE SOFTWARE

FIG 4

Name: Create the program name.

Up/Down: Create the program number from 1 to 30.

FIG 4

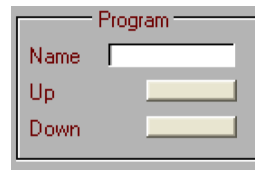


FIG 5

L-R Controls: Choose the channel (left or right) that you want to control.

L-R Link: Choose the left and right link or separate.

Fixed BW: Reset the BW with 0.1.

Level Reset: Reset the level with 0dB.

Freq Reset: Reset the frequency with 0Hz.

View: Left/Right choose the EQ line you want to view.

FIG 5



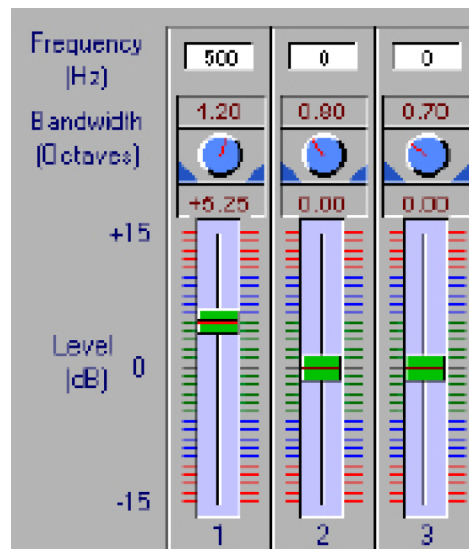
FIG 6

Frequency: Set the frequency you want to increase or decrease.

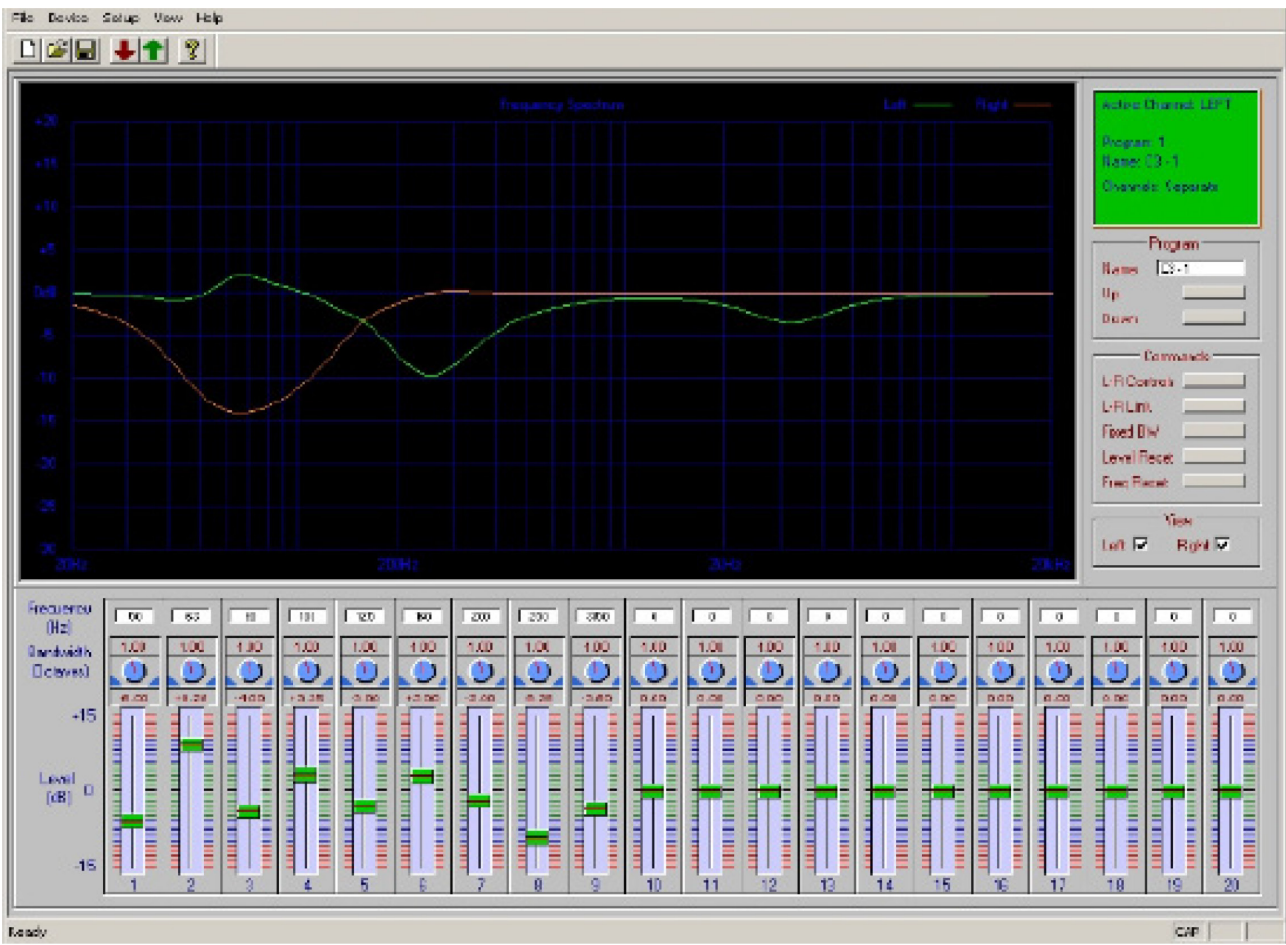
Bandwidth (Octaves): Adjust this knob to choose the appropriate Q or pitch.

Level: Set the electronic level plus or minus.

FIG 6



EXAMPLE OF FULL SETUP



EXAMPLE LAYOUT

RANDOM DIGITAL NOISE GENERATOR [SM-GR-3100](#)



DIGITAL EQUALIZER [SM-EQ-2000](#)



DIGITAL DISTRIBUTOR [SM-DX-4800](#)



DIGITAL AMPLIFIER [SM-DA-8000](#)



CEILING TRANSDUCER [SM-T-1200](#)



- NOTES**
- › Each [SM-T-1200](#) pictured represents 100 transducers.
 - › The [SM-DA-8000](#) is capable of servicing up to 800 transducers.
 - › Diagram not to scale.

TROUBLESHOOTING

If the unit is running slowly or “freezes up”, reset the unit by turning it off using the power switch.

Leave the unit to reset for 15 minutes before turning the power switch on again.

For any further problems, contact us via the detail below.

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NOTES



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