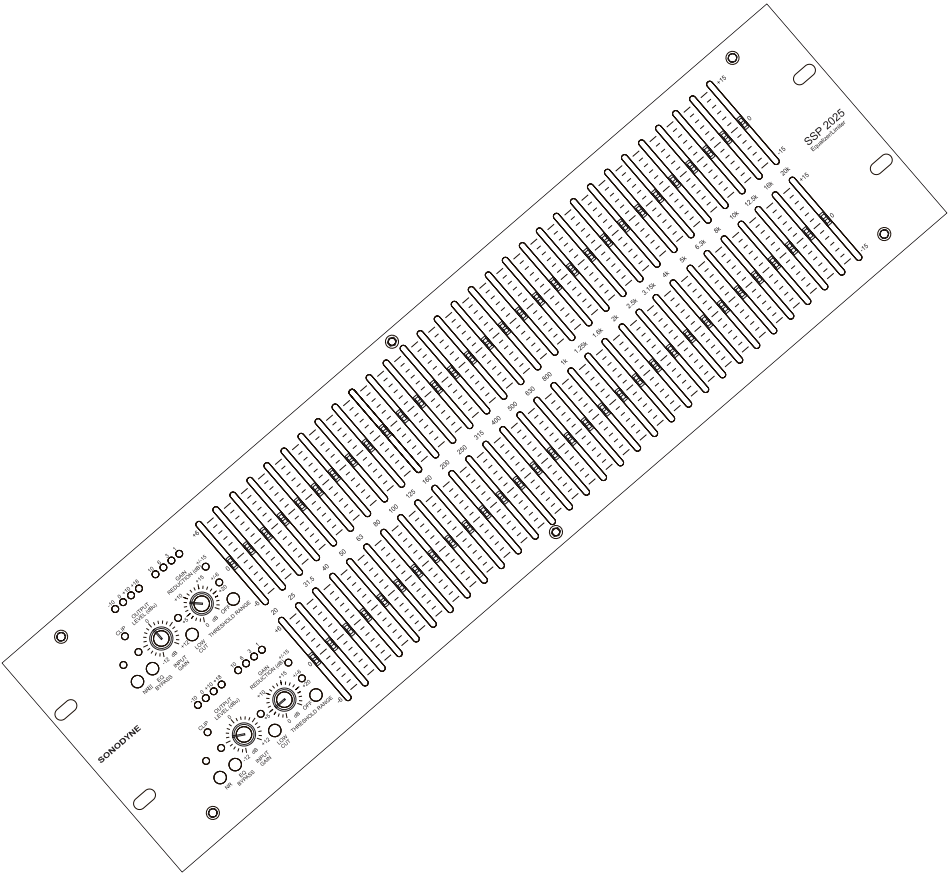
SONODYNE®

SSP 2025

dual channel 31 band graphic equalizer I owners manual



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STATUTORY INFORMATION/ PRECAUTIONS

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of “un-insulated dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS

1. Read and follow these instructions.
2. Do not use this apparatus near water.
3. Clean with dry cloth only.
4. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
5. Do not install near any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.
6. Do not defeat the safety purpose of the polarized or grounding-type plug. A grounding type plug has two poles and a third grounding pole. The thick pole is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the outlet
7. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
8. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.
9. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. 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, does not operate normally, or has been dropped.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE

CONNECTORS
XLR-type connectors are wired as follows (IEC60268 standard): pin 1: ground, pin 2: hot (+), pin 3: cold (-).

MAIN FEATURES/ IN THE BOX

Thank you for purchasing the Sonodyne Graphic Equalizer. Please read this manual thoroughly to get the most out of the product and ensure long-term, trouble-free use. After reading this manual, keep it available for future reference.

MAIN FEATURES

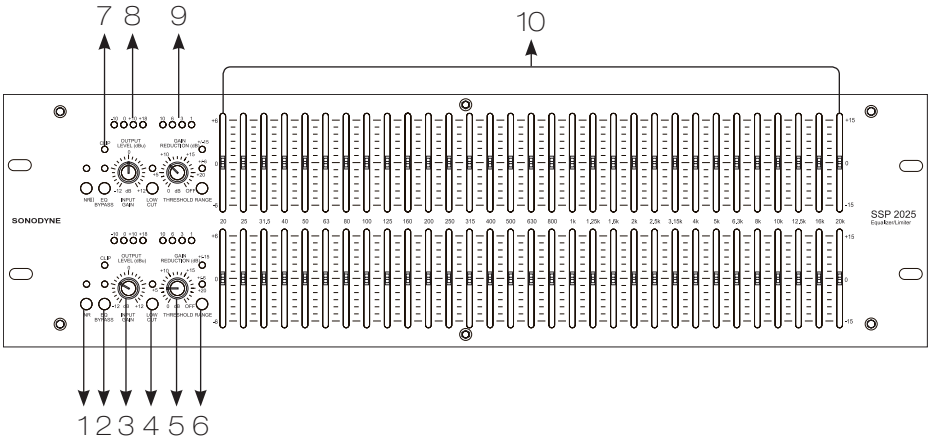
- Two 31-band, 1/3-octave Constant Q frequency bands
- Noise Reduction
- Limiter
- Switchable +-6db and +-15db gain
- 18db/octave 40Hz Bessel low-cut filter
- Ground lift
- -12dB to +12dB input gain range
- XLR, TRS and Barrier strip connectors
- Power-off hard-wire relay bypass with 2sec power up delay

IN THE BOX

Verify that the package contains the following:

- Equalizer unit
- AC power cord
- Operating Manual
- Four rack mount screws and washers

FRONT PANEL



1. NR (Noise Reduction) SWITCH AND LED: The switch engages the Noise Reduction circuit within the EQ. The Noise Reduction yellow LED lights up when the Noise Reduction switch is pressed

2. EQ BYPASS SWITCH and LED: Engaging this switch removes the graphic equalizer section from the signal path. The BYPASS switch does not, however, affect the INPUT GAIN, or LOW CUT filters. The EQ Bypass LED lights up when the switch is pressed

3. INPUT GAIN CONTROL: This control sets the signal level input to the equalizer. It varies the signal level from -12dB to +12dB. Its effect can be viewed on the OUTPUT LEVEL BAR GRAPH

4. LOW CUT SWITCH: The LOW-CUT switch when pressed inserts an 18dB/octave 40Hz Bessel low-cut filter into the signal path

5. LIMITER THRESHOLD CONTROL: This control engages the limiter. It sets the threshold level at which gain reduction begins to occur. The control range is 0dBu to “OFF” (+24dBu). When the threshold control is set to “OFF”, the limiter is disabled

6. BOOST/CUT RANGE SELECTION SWITCH and LEDS: This switch selects the two boost/cut ranges of the equalizer, either ±6dB or ±15dB. The red LED lights when the ±15dB range is selected, and the yellow LED lights when the ±6dB range is selected

7. CLIP LED: This LED lights whenever any internal signal level reaches 3dB below clipping

8. OUTPUT BAR GRAPH LEVEL: These four LEDs indicate output level of the equalizer. The red LED is 3dB below clipping and is marked as +18dBu. It monitors the level at the output of the equalizer after all other processing, including the limiter

9. GAIN REDUCTION METER: These four LEDs indicate the amount of gain reduction introduced by the setting of the LIMITER THRESHOLD control

10. FREQUENCY BAND SLIDER CONTROLS: Each one of these slider potentiometers will boost or cut at its respective frequency by ±6dB or ±15dB, depending upon the position of the BOOST/CUT RANGE switch. When all the sliders are in the center detent position the frequency response of the equalizer is flat. The frequency band centers are marked at 1/3rd octave intervals on ISO standard spacing

CONNECTING THE EQ TO YOUR SYSTEM

The Equalizer has balanced inputs and outputs that can be used with any balanced or unbalanced line-level device. For more specific information about cabling possibilities, please refer to the section entitled INSTALLATION CONSIDERATIONS.

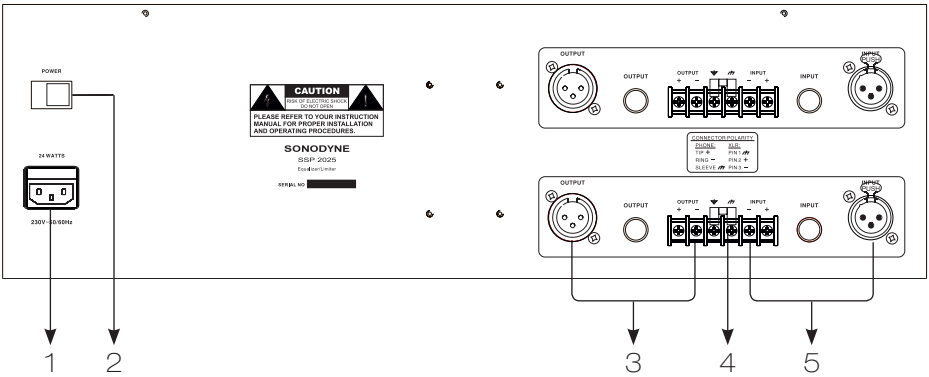
- Turn off all equipment before making connections.
- Mount equalizer in a standard-width rack.
  Install the EQs in a rack with the rack screws provided. It can be mounted above or below anything that does not generate excessive heat. Ambient temperatures should not exceed 45°C when equipment is in use. Although the unit's chassis is shielded against radio frequency and electromagnetic interference, extremely high fields of RF and EMI should be avoided.

- Make audio connections via XLR, barrier strip, or 1/4" TRS jacks (according to application needs)
  All three types of connectors for the inputs and outputs can be used for balanced or unbalanced connections.
  The use of more than one connector at a time for the inputs could unbalance balanced lines, cause phase cancellation, short a conductor to ground, or cause damage to other equipment connected to the equalizer. More than one output may be used simultaneously as long as the combined parallel load is greater than 600Ω.

- Select the operating range with the BOOST/CUT RANGE SELECTION switch
  NOTE: Be sure to reduce audio levels at the power amplifiers when changing the setting of this switch as it may generate an audible transient.

- Apply power to the equalizer
  Connect the AC power cord to the AC power receptacle on the back of the equalizer. Route the AC power cord to a convenient power outlet away from audio lines. The unit may be turned on and off from the rear panel power switch or a master equipment power switch. Since the Equalizers consume a relatively small amount of power, the units may be left on continuously.

REAR PANEL



1. IEC AC INLET: Connect the socket end of the mains cable provided with this unit to this socket and the plug end to a 230V AC outlet. Ensure that the ground pin of the AC outlet has a firm connection with the earth of the premises. This is both in the interests of your own safety as well as to eliminate ground related hum and buzz problems

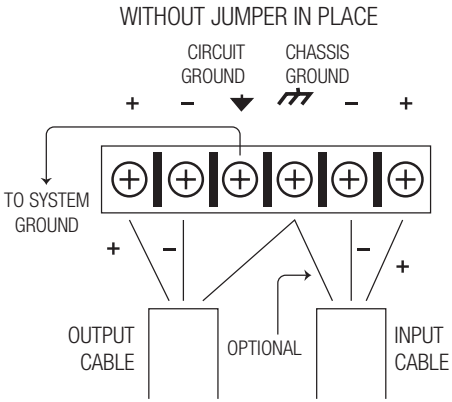
2. POWER SWITCH: Switches the power on and off. Always make audio connections with the power switch in the OFF position

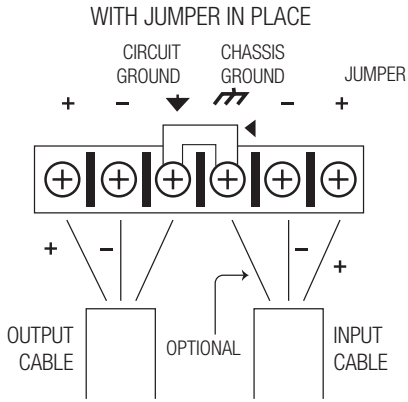
3. OUTPUT CONNECTORS: Three types of output connectors are provided for output connections: male XLR type connectors, 1/4” tip-ring-sleeve phone jack connectors and a barrier strip

4. CHASSIS GROUND LIFT STRAP: By removing the jumper connecting the two screws on the barrier strip, the chassis ground is separated from the circuit ground of the equalizer. This is sometimes necessary to prevent “ground loops” in a sound system. When lifting the ground strap, you must make a connection from the circuit ground terminal to some other ground point in your audio system in order for the equalizer to function properly

5. INPUT CONNECTORS: Three types of input connectors are provided for input connections: female locking XLR type connectors, 1/4” tip-ring-sleeve phone jack connectors, and a barrier strip. The maximum input level that the equalizer can accept without clipping is +22dBu (ref: 0.775Vrms)

WIRING CONNECTIONS WITH GROUND





INSTALLATION CONSIDERATIONS

HOOKUPS AND CABLING: The Equaliser is designed for nominal +4dBu levels. The equalizer can be used with either balanced or unbalanced sources, and the outputs can be used with either balanced or unbalanced loads, provided the proper cabling is used.

INPUT CABLE CONFIGURATIONS: The equalizer has an input impedance of 40kΩ balanced and 20kΩ unbalanced. This makes the Equalizer's audio inputs suitable for use with virtually any low source impedance (under 2kΩ).

OUTPUT CABLE CONFIGURATIONS: The equalizer's output is capable of driving a 600Ω load to +18dBu. For maximum hum rejection with a balanced source, avoid common grounding at the equalizer's inputs and outputs. Most balanced (3-conductor) cables have the shield connected at both ends. This can result in ground loops which cause hum. If hum persists try disconnecting the shield on one or more of the cables in the system, preferably at the input of a device, not at the output.

TROUBLESHOOTING

NO SOUND	If there appears to be no power: • Check that either the stereo or mono LED on the front panel of the crossover is lit. • Check that the power cord is seated properly in the back panel of the crossover and that it is plugged into an active AC power source.
IF THERE APPEARS TO BE POWER, BUT NO AUDIBLE SIGNAL	• Confirm that active audio lines are connected to the crossover's inputs and outputs. • Check that both the input and output gain controls are advanced sufficiently. • Check to make sure that you have turned up the amplifiers' outputs.
HUM AND/OR BUZZ	If you suspect that the hum is caused by a ground loop: • Systematically remove and/or connect the audio grounds of the devices in the signal path • Remember, for safety you must maintain connection to chassis ground. Never lift a safety ground
IF YOU SUSPECT THE HUM IS NOT CAUSED BY A GROUND LOOP	• Check the audio at an earlier stage in the audio chain. • Low level equipment should be mounted away from power amplifiers to avoid induction of this type of hum. • Be certain that all audio wiring except for loudspeaker lines is well shielded, and that low level wiring is not run parallel to and/or in close proximity to AC power wiring.
INTERMITTENT AUDIO	• Check the other equipment and the wiring to make certain that the signal is not Intermittent earlier in the chain. • Check the integrity of all cables using a cable tester.

SPECIFICATIONS

INPUTS	
CONNECTORS	1/4" TRS, female XLR (pin 2 hot), and barrier terminal strip
TYPE	Electronically balanced/unbalanced, RF filtered
IMPEDANCE	Balanced 40kΩ, unbalanced 20kΩ
MAX INPUT LEVEL	>+21dBu balanced or unbalanced
CMRR	>40dB, typically >55dB at 1kHz
OUTPUTS	
CONNECTORS	1/4" TRS, male XLR (pin 2 hot), and barrier terminal strip
TYPE	Balanced/unbalanced, RF filtered
IMPEDANCE	Balanced 120Ω, unbalanced 60Ω
MAX OUTPUT LEVEL	>+21dBu balanced/unbalanced into 2kΩ or greater
	>+18dBm balanced/unbalanced (into 600Ω)
SYSTEM PERFORMANCE	
BANDWIDTH	20Hz ~ 20kHz, +0.5/-1dB
FREQUENCY RESPONSE	<10Hz to >50kHz, +0.5/-3dB
NOISE REDUCTION IN	(±6 and ±15dB range):
SIGNAL TO NOISE RATIO	>100dB, unweighted, ref: +4dBu, 22kHz measurement bandwidth
DYNAMIC RANGE	>118dB, unweighted
NOISE REDUCTION OUT	(±6dB range):
SIGNAL TO NOISE RATIO	>94dB, unweighted, ref: +4dBu, 22kHz measurement bandwidth
DYNAMIC RANGE	>112dB, unweighted
NOISE REDUCTION OUT	(±15dB range):
SIGNAL TO NOISE RATIO	>90dB, unweighted, ref: +4dBu, 22kHz measurement bandwidth
DYNAMIC RANGE	>108dB, unweighted
THD + NOISE	<0.04%, 0.02% typical at +4dBu, 1kHz
	<0.5% at 1kHz with 15dB gain reduction
INTERCHANNEL CROSSTALK	<-80dB, 20Hz to 20kHz (2215/2231)
NOISE REDUCTION	Up to 20dB of dynamic broadband noise reduction
FUNCTION SWITCHES	
NR	Activates Noise Reduction
EQ BYPASS	Bypasses the graphic equalizer section in the signal path
LOW CUT (recessed)	Activates the 40Hz 18dB/octave Bessel high-pass filter
RANGE (recessed)	Selects either ±6dB or ±15dB slider boost/cut range
INDICATORS	
OUTPUT LEVEL	4-LED bar graph (Green, Green, Yellow, Red) at -10, 0, +10, and +18dBu
GAIN REDUCTION	4-LED bar graph (all Red) at 0, 3, 6, and 10dB
TYPE III NR	1 LED: yellow
EQ BYPASS	1 LED: red
CLIP	1 LED: red
LOW CUT	1 LED: red
±6dB	1 LED: yellow
±15dB	1 LED: red
POWER SUPPLY	
OPERATING VOLTAGE	230V AC 50/60Hz
POWER CONSUMPTION	28W
MAINS CONNECTION	IEC receptacle
PHYSICAL	
DIMENSIONS (HxWxD)	134 mm x 483 mm x 201 mm
WEIGHT	4.8kg

Due to continuous improvements, all specifications are subject to change

NOTES

SONODYNE®

A product of the Mukherjee Innovation Centre

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