M-S STEREO MICROPHONE AMPLIFIER

20-272 M-S Microphone Amplifier

User Instructions

This unit has been developed in order to meet the requirement for a high quality portable two channel microphone amplifier with a reasonable degree of functional flexibility.

With the M-S matrix in operation, the operator may make recordings in A-B format using an M-S mic combination, or in M-S format using an A-B mic combination. Alternatively, the matrix can be bypassed and the unit used as a two channel microphone amplifier for unprocessed A-B to A-B or M-S to M-S operation.

The microphone input connections are made on the rear of the unit using a 5 pin female latching XLR. The signal is routed to the front panel switches which operate on both channels: P48 phantom power on/off, 20dB pad on/off and a 3 position switch for a low frequency filter with -3dB points of either 100, 150 Hz or off. A phase reversal switch for channel 2 is fitted. The signal is then transformer coupled to the input stage. Gain is variable from 20 to 70dB approximately (0-50dB with 20dB pad in circuit), but overall gain will be dependent also on the balance or width control. The peak LEDs will illuminate with increasing intensity from approximately 6dB below clip. This is to warn of front end overload, not of excessive output level.

With the mode switch in the A-B position the unit functions as a two channel microphone amplifier with a ganged gain control. The relative output levels can be varied using the balance control.

When the mode switch is in the M-S position, sum and difference signals are obtained from both inputs and appear at the outputs as M and S signals on channels 1 and 2 respectively. Thus, with a mid mic in Channel 1 input and a side mic in Channel 2 input, stereo left and right signals will appear on Channel 1 and 2 outputs respectively. Alternatively, with left and right mics in Channels 1 and 2, the M signal will appear on output 1 and the S signal on output 2. The width of the M-S signal may be varied using the front panel width control. Detents are provided for repeatability of operation. Sennheiser have available several useful documents on M-S recording techniques.

The outputs are electronically balanced and appear on a 5 pin male latching XLR. A front panel switch allows the user to select line level output or to attenuate the signal by 50dB to connect with the microphone inputs of a tape recorder, mixer or other piece of equipment. The outputs will function with P48 applied to the unit from an external source, but **do not** plug or unplug equipment with the P48 present at the outputs of the mic amplifier, as transients are generated which may damage the unit. `Y' leads are available in both male and female versions to connect 3 pin XLR cables to the 5 pin XLRs on the unit.

The unit is powered by a single PP3/6LR61 battery which is accessible via a door on the rear panel or from an external DC supply connected to the 3.5mm mono jack socket on the rear panel. A three position switch allows the unit to be switched off or on using the internal or external power source. High energy alkaline or lithium battery types are recommended. Power status is indicated by a yellow LED on the front panel. If external power is applied to the jack socket, the LED will be lit continuously. When the power switch is set to internal, the LED indicates the battery status. The LED is off in normal battery operation. As the battery voltage falls to roughly 15% of its original capacity, the LED will flash at approximately 3Hz. When the battery is exhausted, or if the unit is switched off and then back on quickly, the internal power supply is then switched off and will not restart as the battery recovers. The yellow LED will then flash every 1.5 to 3 seconds. If this occurs, the power supply monitor circuit must be reset for the unit to be powered up again. The unit must be switched briefly to the EXT ON position of the power switch, or switched off for several seconds. The application of external power will also reset the monitor circuit. Noise may be present for approximately 2 seconds after power on before the internal supply voltages stabilise. Battery life will be extended by the using of low power microphones where possible and by switching the P48 power on **after** the preamplifier unit is switched on to avoid large inrush currents.

The unit is housed in a robust black anodised extruded aluminium case with protective glass-filled nylon end bezels.

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TECHNICAL SPECIFICATION:

Equivalent input noise:	150O termination, 20kHz bandwidth, 20EC: typ. -128dBu
THD = Noise:	20kHz bandwidth: typ. 0.0035%
Frequency response:	20-25kHz ±0.5dB
Maximum output level into high impedance load:	+17.5dBu
Maximum output level into 600O:	+17.0dBu
Peak LED:	Illumination at approximately +11dBu
Gain; A-B mode:	Typ. 80 dB with width control in mid position
Input impedance:	2500 O
Output balance at 1kHz:	Typ. -60dB
Output balance at 15kHz:	Typ. -45dB
Input balance at 1kHz:	Typ. -60dB
Input balance at 15kHz:	Typ. -60dB
P48 supply to BS6840: Part 15:88/ IEC 268-15:87/ DIN 45596:	10mA maximum per channel, 44-52 VDC

Battery life:		Typ. with 2 x 2mA P48 microphones
With battery type;	**Alkaline PP3**:	Typ. 4.5-5.25 hours
	Lithium PP3:	Typ. 10-11 hours
DC-DC converter frequency:		165-220kHz
DC-DC converter efficiency:		Typ. 85%

Recommended plug-in external DC power supplies; 6 and 12 VDC output:
Canford Audio stock code: UK: 23-731, 23-732, 23-741 or 23-742
Europe: 23-831, 23-832, 23-841 or 23-842

Input connector:	5 pin XLR Neutrik NC5FDL1B female panel mount connector (Canford stock code: 41-597)
Mating connector (not supplied):	5 pin XLR NC5MXB male cable (Canford stock code: 41-522)
Output connector: (Canford	5 pin XLR Neutrik NC5MDL1B male panel mount connector stock code: 41-598)
Mating connector (not supplied):	5 pin XLR NC5FXB female cable (Canford stock code: 41-521)
5 pin to 3 pin XLR `Y' leads:	Input: Canford stock code: 20-273 Output: Canford stock code: 20-274

Pin wiring:	Pin (1) Screen	
	Pin (2) CH1	Hot
	Pin (3) CH1	Cold
	Pin (4) CH2	Hot
	Pin (5) CH2	Cold