



Installation and Operation Manual



SUM-4 *Four Channel Stereo Utility Mixer*

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INTRODUCTION

Thank you for your purchase of the tiny TOOLS™ SUM-4, Four Channel Stereo Utility Mixer, which we will refer to throughout the manual as the SUM-4. We're confident this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the product.

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NOTE:

This manual should be read thoroughly before installation and operation.

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INTRODUCTION

PRODUCT DESCRIPTION

The **tiny TOOLS SUM-4** provides four stereo line level high Z mixing inputs, which accept balanced or unbalanced stereo sources; stereo and monaural balanced low Z outputs; individual front panel level controls; stereo mixing/link port for input expansion and removable screw terminal connectors. The SUM-4 is powered by a surge protected internal **bi-polar 15vdc power supply** affording **superior head-room and high definition audio**. The SUM-4 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.

INSTALLATION

Please examine your SUM-4 carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package contains the SUM-4, 16Vac@600ma wall power transformer and this manual.

Installation of the SUM-4 in high RF environments should be performed with care. Shielded cable is suggested for all audio connections. All shields should be tied to the "GND" Ground terminals. The station ground should be connected to the chassis ground screw located on the far right side of the SUM-4 as viewed from the rear. It is recommended that all cables connected to the SUM-4 be looped through ferrite cores to suppress RF. Surge protection with RF filtering such as the Tripp-Lite ISOBAR 4 or 6 is also suggested for the wall transformer.

Inputs: Connect your audio sources to any of the four SUM-4 inputs, labeled INPUT 1 (L-/L+ and R-/R+) thru INPUT 4. For unbalanced inputs, install a jumper between the "-" input and GND. Single (monaural) inputs should have their left and right inputs connected in parallel. Observe proper phasing.

Outputs: Connect the STEREO load to the SUM-4's output, labeled "OUTPUT" "L-/L+" and "R-/ R+". For unbalanced loads, use the "+" and GND terminals only. The **MONAUARAL** connection is made to the terminals labeled "Mono-/Mono+". **Do not connect the "-" terminal to ground. Shields should be tied to the "GND" terminals.**

OPERATION

Power: Insert the power plug into the power jack on the SUM-4 and the wall transformer into the proper AC outlet. Verify that the power LED is lit. Three additional SUM-4's may be powered by connecting 22-gauge wire between the power screw terminals and following proper polarity.

Each input channel is supplied with a front panel level control. When the control is fully CCW, the channel is OFF. When the control is fully CW, 12 dB of gain is available. With the control set at 1 o'clock, unity gain is achieved. Stereo input sources appear at both the stereo and monaural outputs.

MULTIPLE UNIT LINKING

Multiple SUM-4's may be linked together in order to expand input channel capacity. Connect the **LEFT+** output of the first SUM-4 to the **LTXI (Left eXternal Input)** of the second SUM-4, while connecting the **RIGHT+** output of the first SUM-4 to the **RTXI (Right eXternal Input)** of the second SUM-4. Use shielded cable and tie the shields to GND at both ends. All signals will appear at the second SUM-4's output. Multiple units may be linked.

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SPECIFICATIONS

Input Level	+4dBu nominal
Input Impedance	20K Ω balanced, 10 K Ω unbalanced
Expansion Input Level	-2dBv nominal, @ 40K Ω unbalanced input exp input
Stereo Output level	+4dBu nominal, +24dBu max, @ 600 Ω
Stereo and Monaural Output Impedance	100 Ω balanced, 47 Ω unbalanced
Monaural Output level	+4dBu nominal, + 24dBu max, @ 600 Ω
System Gain	Off to 12dB
Frequency Response	20 to 20kHz, +/- 0.1dB
Noise	84dB below nominal, output
THD	.009%, any frequency
IMD	.008% (250/7kHz)
Xtalk	<80dB @ 2 kHz
TDR	> 100dB
Connectors	Audio Inputs/Outputs – Removable screw terminals
Power Requirement	16 Vac, 600 ma, wall transformer, Supplied. Screw terminals for external powering up to three additional SUM-4's from one wall transformer. (220 Vac 50-60 Hz CE wall transformer OPTIONAL)
Size	4.20" x 6.00" x 1.55", Painted steel chassis w/ 4 – 6-32 mounting holes
Weight	2.0 lb.
Options	RA-1, Rack Shelf. 1 RU.

LIMITED WARRANTY

The term "Buyer" as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person's or entity's own use.

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APPENDIX A

Functional Diagram

