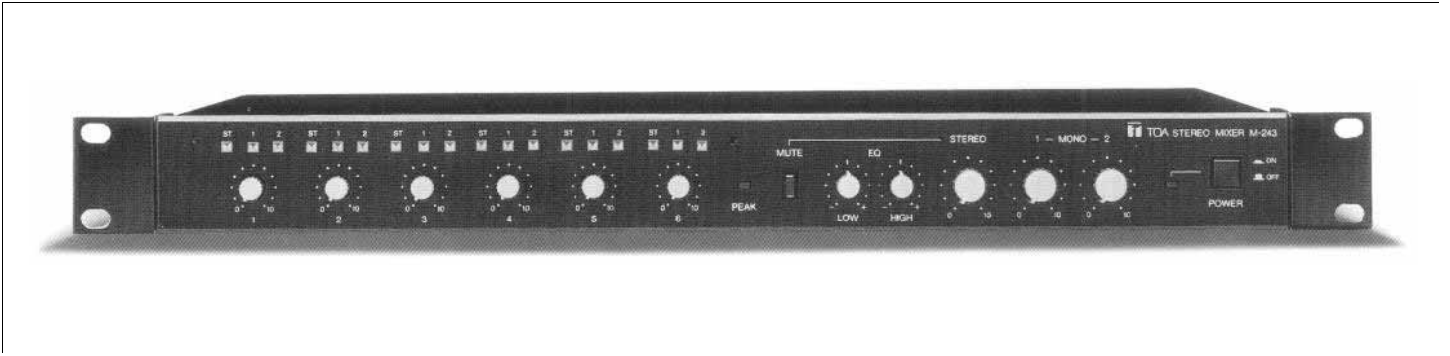


TOA PROFESSIONAL SOUND SYSTEM

STEREO MIXER

M-243



DESCRIPTION

The TOA M-243 is a highly flexible rack mount mixer with two monaural and four stereo inputs, plus one stereo and two mono outputs. There are also mix bus "sub-inputs" and a stereo record output. It is designed especially for commercial systems that require mixing and matrixing a combination of mono and stereo audio sources to one or several outputs, and in which stereo sources may have to be summed to mono and monaural sources sent to L/R outputs.

The compact, single rack space M-243 can be easily configured to serve as anything from a single mono or stereo mixer to a mixer with six regular inputs and three outputs. Each output also has its own separate sub-input. The M-243 is ideal for a variety of systems, including boardrooms, conference rooms, health clubs, restaurants and background music (BGM) applications. For example, in a restaurant, the M-243 can simultaneously and separately control stereo classical music in the dining room, stereo easy listening music in the bar and foyer, plus BGM and paging of customers when their tables are ready.

The M-243 has two monaural line inputs (#1 and 2) that are switchable between balanced XLR microphone level or unbalanced 1/4" phone line level, and four unbalanced L/R stereo inputs (#3~6) with RCA-type jacks. Input 6 has both RCA type and 1/4" phone jacks connected in parallel. Each of the inputs has its own volume control and a set of three assignment switches for assigning the input to any combination of the three outputs. The two monaural inputs each have an automatic compressor to prevent excessive input signals from clipping the mixer output. Each also has a high pass filter to filter out unwanted low frequencies, particularly for speech use, and a -20dB pad in the mic input circuitry to accommodate high output or close-talked microphones. Filter and pad on/off switches are internal to prevent any tampering.

The M-243 has other line level inputs: a L/R stereo sub-input and mono sub-inputs 1 and 2. These directly feed the mixing buses and their associated outputs. The stereo sub-input is configured so that by connecting a monaural signal to the left channel, it will be fed to both the left and right output channels. Among other applications, one of the monaural outputs could be fed into the stereo sub-input as a sub-group mix for the stereo output.

A unique feature of the M-243 is an automatic muting function (switchable on/off). This detects signal on either of the monaural inputs and mutes any of the stereo input signals assigned to the L/R stereo output. This is very useful for priority paging that auto-mutes BGM or for automatic program selection. For example, in a sports lounge, the TV audio could automatically mute the BGM whenever the TV is turned on. Meanwhile, because the stereo input assignments to the mono outputs are unaffected, the same BGM signal could still go uninterrupted to the associated restaurant system that is being fed from one of the mono outputs.

Three sets of output mixing buses are provided to feed the three sets of main outputs: L/R Stereo, Mono 1 and Mono 2. Each output has a separate volume control on the front panel. The L/R Stereo output also has bass and treble shelving-type tone controls. Each of the mono outputs has an internal switch that allows it to function as a sum of the stereo output. There is also a L/R stereo recording output from the L/R stereo mix bus prior to the output EQ and volume.

Other features include provision of colored control knobs for the different control functions; a clipping indicator that lights when any signal in the output section reaches 3dB below clipping; an internal ground lift switch that separates the audio and chassis grounds to avoid ground loops; an included security cover for the assignment switches and a power switch with a power-on indicator. The M-243 occupies only one standard 19" EIA rack and includes removable rack mounting ears.

FEATURES

1. Two monaural and four stereo inputs; one stereo and two mono outputs plus a stereo and two mono sub-inputs to the output mix buses.
2. Each input can be assigned to any combination of the three outputs.
3. Monaural inputs switchable between microphone and line level signals with a -20dB pad in the mic input circuitry for high output or close-talked microphones.
4. Switchable high pass filter on each monaural input to filter out unwanted low frequencies, especially for speech use.
5. A compressor for each monaural input to prevent excessive input signals from clipping the mixer output.
6. Automatic muting circuit (switchable on/off) mutes stereo signals assigned to the stereo output by detecting signals on the monaural inputs.
7. Stereo output has a separate L/R recording output and bass/treble type equalization.
8. Ground lift switch to break ground loops that can generate noise.
9. Front panel knobs supplied in different colors for easy association with their function.
10. Security cover for the input assignment switches also serves as a 'write-in strip' for input identification.

SPECIFICATIONS

Model No.	M-243
Frequency Response	20Hz to 20kHz (+1.0, -2.0dB)
Total Harmonic Distortion	Less than 0.01% (1kHz. rated input/output)
Noise Level (A-Weighted) ALL MIN.	STEREO OUT (L, R): -105dB or less MONO OUT (1, 2): -98dB or less STEREO OUT (L, R): -94dB or less MONO OUT (1, 2): -95dB or less
Power Requirements	AC mains
Power Consumption	10 watts (120V version); 12 watts (220-240V version)
Dimensions (W x H x D)	483.0 x 44.0 x 301.8mm (19.0 x 1.7 x 11.9 in.)
Weight	3.8kg (8.4lbs.)
Finish	Black

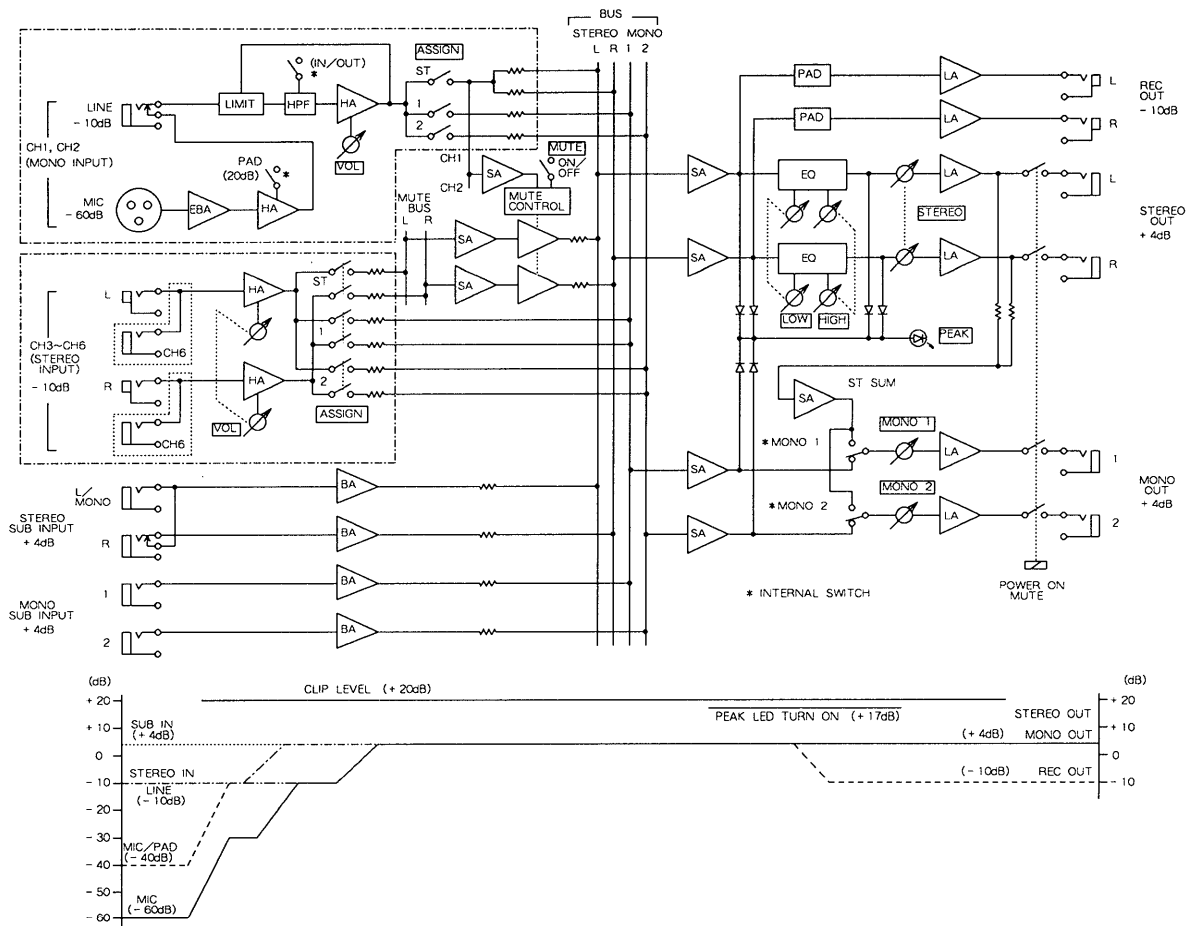
* 0dB is referenced to 0.775V RMS

INPUTS AND OUTPUTS

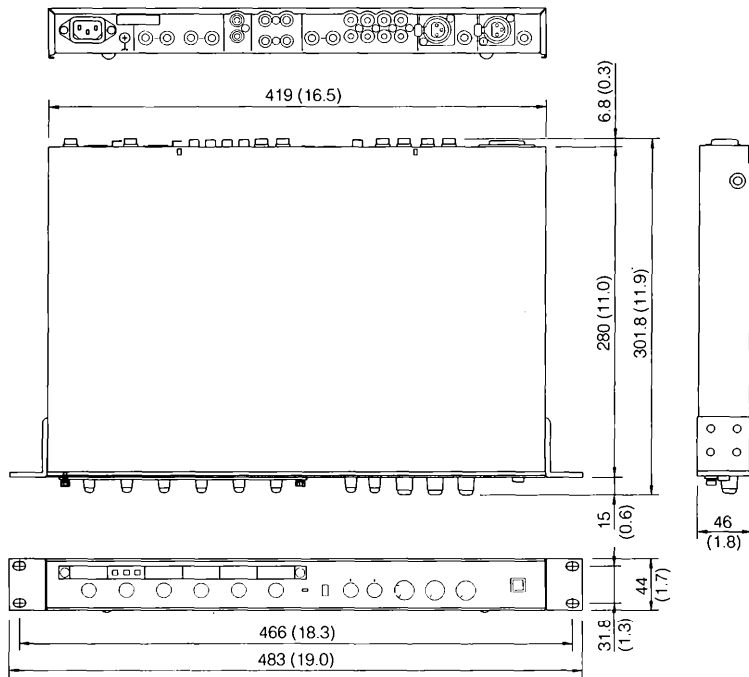
Nomenclature		Rated level	Maximum level	Impedance	Connector type
CH1, CH2 (MONO INPUT)	MIC	-60dB	-30dB	1kΩ	XLR TYPE 1: GND, 2 GOLD, 3: HOT (ELECTRICAL BAL)
	MIC (PAD)	-40dB	-10dB		
	LINE	-10qdB	-	10 kΩ	
CH3~CH6 (STEREO INPUT L, R)		- 1 0 d B	-	10kΩ	RCA PIN (UNBAL) (CH 6... & PHONE)
SUB INPUT	STEREO (L/M,R)	+4dB	+20dB	50k Ω	PHONE (UNBAL)
	MONO (1,2)	+4dB	+20dB	5 0 k Ω	PHONE (UNBAL)
STEREO OUTPUT (L, R)		+4dB	+20dB	1kΩ	PHONE (UNBAL)
MONO OUTPUT (1, 2)		+4dB	+20dB	1kΩ	PHONE (UNBAL)
REC OUTPUT (L,R)		-10dB	+6dB	1kΩ	RCA PIN (UNBAL)

* 0dB=0.775V rms

BLOCK DIAGRAM AND LEVEL DIAGRAM



APPEARANCE AND DIMENSIONAL DIAGRAM



Unit: mm (in.)

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The mixer shall have two selectable monaural mic/line inputs and four stereo line inputs; one stereo output and two monaural outputs. The mixer shall have four mixing buses: L/R stereo, and 1, 2 monaural. It shall incorporate all solid state circuitry. Stereo and mono power outputs shall be nominal +4dB (maximum +20dB), unbalanced (phone) at less than 0.01%. Recording power output shall be nominal -4dB (maximum +6dB), unbalanced (RCA pin) at less than 0.01%.

Inputs: CH 1, CH 2 mono XLR, balanced mic input shall be nominal -60dB (maximum -30dB) 1k ohm input impedance; XLR balanced mic (pad) input shall be nominal -40dB (maximum -10dB) 1k ohm input impedance; and unbalanced phone line input shall be nominal -10dB 10k ohms input impedance. CH 3 to CH 6 (L/R stereo input) shall be nominal -10dB 10k ohms input impedance (unbalanced RCA pin + CH 6 parallel phone connection). Stereo (L/M, R) and mono (1, 2) sub-inputs (unbalanced, phone) shall be nominal +4dB (maximum +20dB) 50k ohms input impedance. A-weighted noise levels shall be at least -105dB below rated nominal output for Stereo Out (L, R) and -98dB below rated nominal output for Mono Out (1, 2) (all level controls minimum) and at least -94dB below rated nominal output for Stereo Out (L, R), and -95dB below rated nominal output for Mono Out (1, 2) (stereo, mono (1, 2) max.). Frequency response shall be +1/-2dB from 20Hz to 20kHz at any power up to rated output.

Each of the two monaural inputs shall have both microphone and line level input jacks with line priority if both are connected; a compressor circuit to protect the mixer from being driven into output clipping from excessive input levels, a switchable high pass filter (HPF), and a -20dB pad (PAD) in the microphone circuitry. The filter and pad switches shall be internal to prevent tampering.

A sub-input shall be provided for each mixing bus for the stereo and two mono outputs. A switchable On/Off muting function shall automatically mute the stereo signals assigned to the L/R stereo mix bus upon detection of a useable signal in either monaural input channel. Each mono output shall have an internal switch to change its function to being a mono sum of the L/R stereo output. The stereo output shall be provided with a low frequency shelving equalizer of +/-15dB at 20Hz and a high frequency shelving equalizer of +/-15dB at 20kHz.

The front panel shall have: a power On/Off switch, six input level controls; six sets of L/R three-input assignment switches (L/R Stereo, Mono 1, Mono 2) with security cover; auto-mute On/Off; low and high frequency equalizer controls; three output level controls for L/R Stereo, Mono 1 and Mono 2; a power On/Off switch and power indicator.

The rear panel shall have: 1/4" and XLR jacks for inputs 1-2 (monaural), four pairs of RCA-type jacks for inputs 3-6 (stereo), plus two 1/4" L/R jacks for input 6; four pairs of RCA-type jacks for the sub-inputs and record outputs; four 1/4" phone jacks for the L/R Stereo, Mono 1 and Mono 2 outputs; AC power input. The stereo sub-input jack shall feed signal to left and right stereo outputs when only the L input is connected.

An internal ground lift (GND) shall disconnect the audio ground from the chassis in the LIFT position. Power shall be by AC line mains. Power consumption for the 120V version shall be 10W (12W 220/240V). The mixer shall be enclosed in a durable, black enclosure. Overall dimensions shall be 483.0(W) x 44.0(H) x 301.8(D)mm (19.0" x 1.7" x 11.9"). Weight shall be 3.8kg (8.4lbs.). Standard EIA equipment rack mounting, operating instructions, 2 small blue and 2 small red knobs, and 1 large blue and 1 large red knobs shall be provided. The mixer shall be the TOA model M-243.

NOTE: 0dB=0.775V RMS

