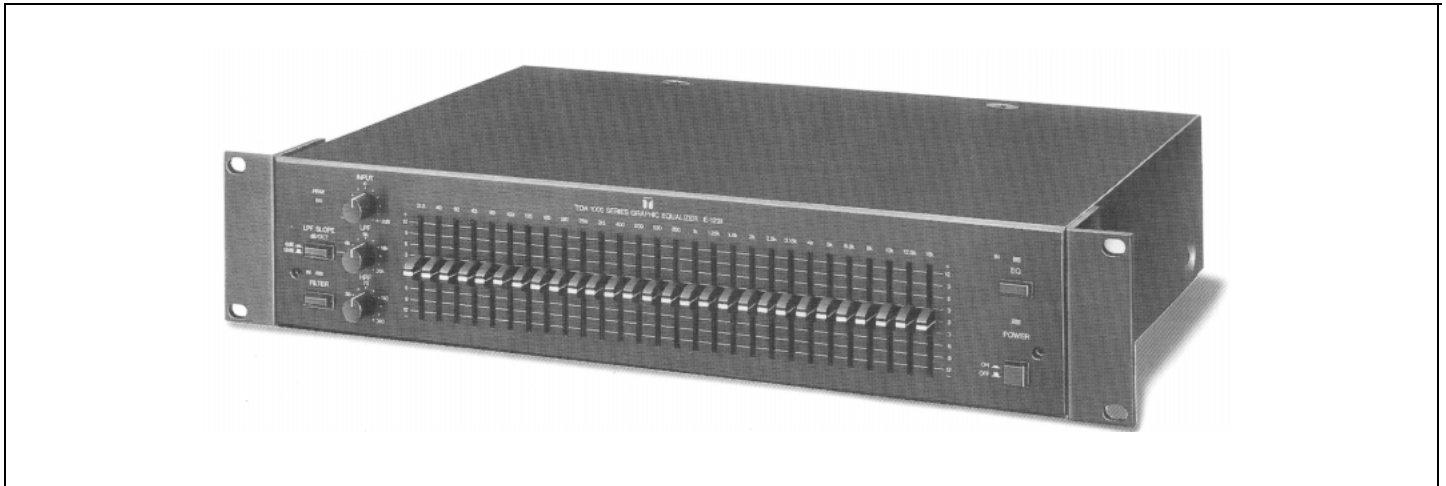

TOA ENGINEERED SOUND PRODUCT

1/3 OCTAVE ACTIVE GRAPHIC EQUALIZER

E-1231



DESCRIPTION

The TOA E-1231 is a single-channel, 28-band, one-third octave equalizer, designed to provide clean and accurate audio equalization for permanent installations. The E-1231 provides 12dB of boost or cut at each of its 28 frequencies, all of which are centered at ISO 1/3 octave increments from 31.5Hz to 16kHz. The E-1231 comes with active bandpass/bandreject filters that are designed for minimum phase shift. Slide controls feature a precision-calibrated linear scale, noiseless operation, and center detents for easy and accurate adjustment. Filters are summed in parallel for reliability, so that the failure of one filter does not interrupt operation of the others. Continuously variable highpass and lowpass filters offer exceptionally wide control ranges. The lowpass filter can be set for either a 6dB or 12dB per octave slope and is variable from 2.5kHz to 30kHz. The highpass filter has a slope of 12dB per octave and is variable from 15Hz to 300Hz. A Filter In/Out switch with an LED status indicator allows the user to bypass the high- and lowpass filters. In addition to an EQ In/Out switch, an automatic EQ bypass function provides complete signal bypass of the unit in the event of an AC power loss. An output muting function suppresses turn-on/turn-off transients. The input level control gives ± 12 dB of adjustment to allow for a wide variety of input levels/sources. An LED indicator monitors both input and output levels and illuminates when either comes within 3dB of clipping. The input and output are electronically balanced and

utilize terminal strip connectors. High quality, low distortion input and output transformers, providing 30Hz—20kHz response (± 0.15 dB) are optional and installation requires no soldering.

A security cover is included with the E-1231 to guard against disturbance or tampering. The E-1231 occupies two standard EIA rack spaces.

FEATURES

1. 28 filters on ISO 1/3 octave center frequencies from 31.5Hz to 16kHz.
2. Continuously variable 12dB boost or cut at each center frequency.
3. High quality, minimum phase shift active filters.
4. Noiseless center-detent slide controls with precision-calibrated linear scales.
5. Continuously variable highpass and lowpass filters with wide control ranges and a Filter In/Out switch.
6. Lowpass filter can be set for either 6dB/oct or 12dB/oct.
7. EQ In/Out switch for manually bypassing equalizer.
8. Automatic EQ bypass circuitry in case of AC power loss.
9. LED peak indicator monitors input and output levels, for proper gain structuring.
10. Variable input level control allows a variety of input levels and sources.
11. Optional input and output isolation transformers.
12. Security cover is included.

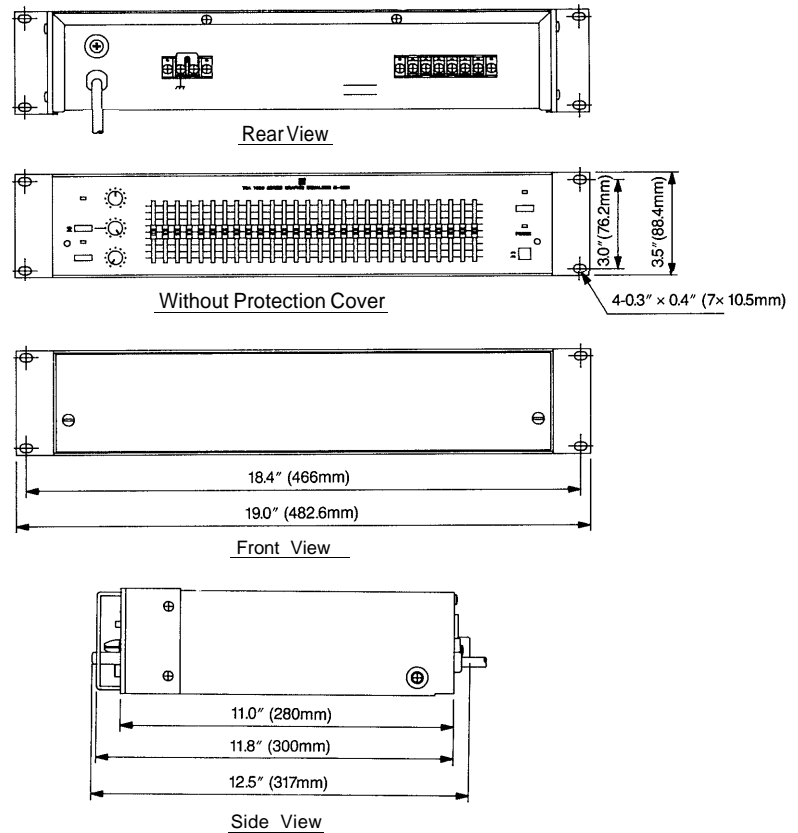
SPECIFICATIONS

PERFORMANCE:	
Frequency Response	20Hz to 20kHz (± 1.0 dB)
Total Harmonic Distortion	Less than 0.01% at 1 kHz, all sliders at 0 position, rated output
Hum and Noise	-94dB (EQ in, 20Hz-20kHz BPF, all sliders at 0 position)
INPUT & OUTPUT:	
Input	
Input Impedance	10k ohms
Rated Input Level	+4dB* (INPUT LEVEL CONTROL set at 0 position)
Maximum Input Level	+20dB* at 1kHz
output	
Recommended Load	600 ohms or higher
Rated Output Level	+4dB* with 600-ohm load
Maximum Output Level	+20dB* with 600-ohm load
CONTROLS PANEL FUNCTIONS: (Front Panel)	
Equalizer Sliders	
Bands	28
Center Frequencies	Standard ISO center frequencies from 31.5Hz to 16kHz
Boost/Cut	± 12 dB
Input Level Control	± 12 dB
Highpass Filter	Adjustable Cutoff Freq; 15Hz to 300Hz, 12dB per oct
Lowpass Filter	Adjustable Cutoff Freq; 2.5 kHz to 30kHz, 12dB per oct/ 6dB per oct switchable slope
Filter In/Out	Push Switch defeats Highpass and Lowpass Filters Green LED indicator
Pre-Peak Indicator	Red LED (Lights when input or output reaches 3dB below clipping.)
Power	On/Off Push Switch with Green LED indicator
(Rear Panel)	
Input	Screw Terminals (H=Hot, C=Cold, E=Ground)
Output	Screw Terminals (H=Hot, C=Cold, E=Ground)
Ground	Signal Ground to Chassis Ground (removable link)
Fuse	250V 0.2A (120V version) 250V 80mA Slow-blow Type (220V/240V version)
POWER:	
Power Requirements	AC mains. 50/60Hz
Power Consumption	11 Watts
PHYSICAL:	
Dimensions (WxHxD)	19.0 x 3.5 x 12.5 inches (483 x 88 x 317mm) EIA Rack Mount
Net Weight	9.9 lbs. (4.5kg)
OPTIONAL	LT-101 Input Transformer
ACCESSORIES:	LT-102 Output Transformer

Designed for UL Approval.

*0dB is referenced to 0.775V RMS.

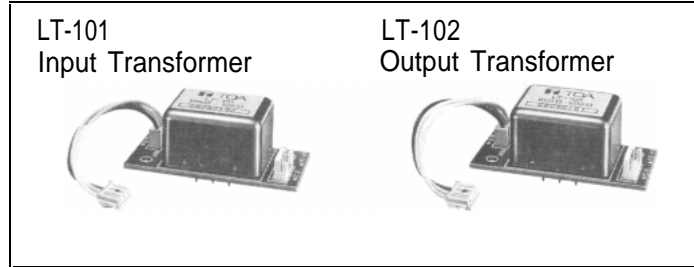
APPEARANCE AND DIMENSIONAL DIAGRAM



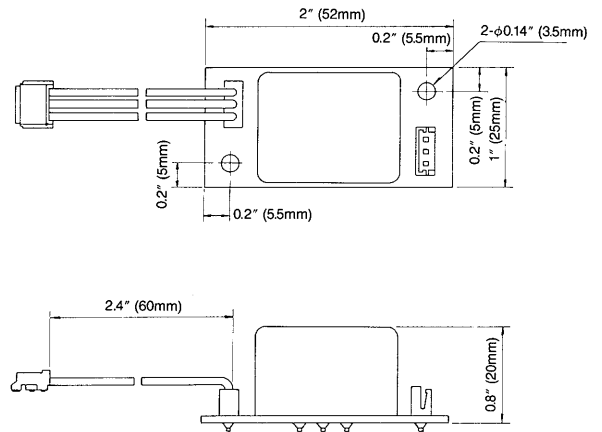
ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The equalizer shall contain 28 filters on ISO center frequencies from 31.5Hz to 16kHz. Each filter section shall provide up to 12dB of cut and boost at the center frequency, with linear slide control operation and a graphic display of the equalization curve. The filters shall be minimum-phase type. The equalizer shall contain highpass and lowpass filters having the following characteristics: Highpass--12dB/octave with -3dB point continually adjustable from 15Hz to 300Hz, and Lowpass switchable -12dB or -6dB with -3dB point continuously adjustable from 2.5kHz to 30kHz. A Filter In/Out switch shall be provided to remove both the high- and lowpass sections from the signal path. The equalizer shall be provided with an EQ bypass switch to remove all equalizer and end-cut filters from the signal chain, with an LED indicator showing status. The input circuit shall be electronically balanced and shall accept either balanced or unbalanced sources. The balanced input shall have 10k ohms impedance. The output circuit shall be electronically balanced and capable of driving a load of 600 ohms or higher. The unit shall accept optional input and output transformers which shall be internally installed by means of standoffs and plug-in connectors. The unit shall contain a relay circuit which bypasses all internal electronics in the event of power failure. An output muting function shall be provided to suppress turn-on and turn-off transients. The unit shall allow for the removal of an external connecting link to separate the signal and the chassis grounds. Barrier strip connectors shall be provided for input and output signal wiring. The unit shall be provided with a front panel power switch with an LED indicator showing Power On status. The input amplifier shall include a gain control with a ± 12 dB range. An LED indicator shall be supplied to monitor both input and output levels and shall illuminate when either comes within 3dB of clipping. The unit shall measure 19.0" wide x 3.5" high x 12.5" deep (483 x 88 x 317mm) with rack mount ears attached, and shall occupy two standard EIA rack spaces. A smoked plastic security cover shall be provided. The equalizer shall be the TOA E-1231 1/3 octave graphic equalizer.

OPTIONAL MATCHING TRANSFORMERS



APPEARANCE AND DIMENSIONAL DIAGRAM LT-101/LT-102



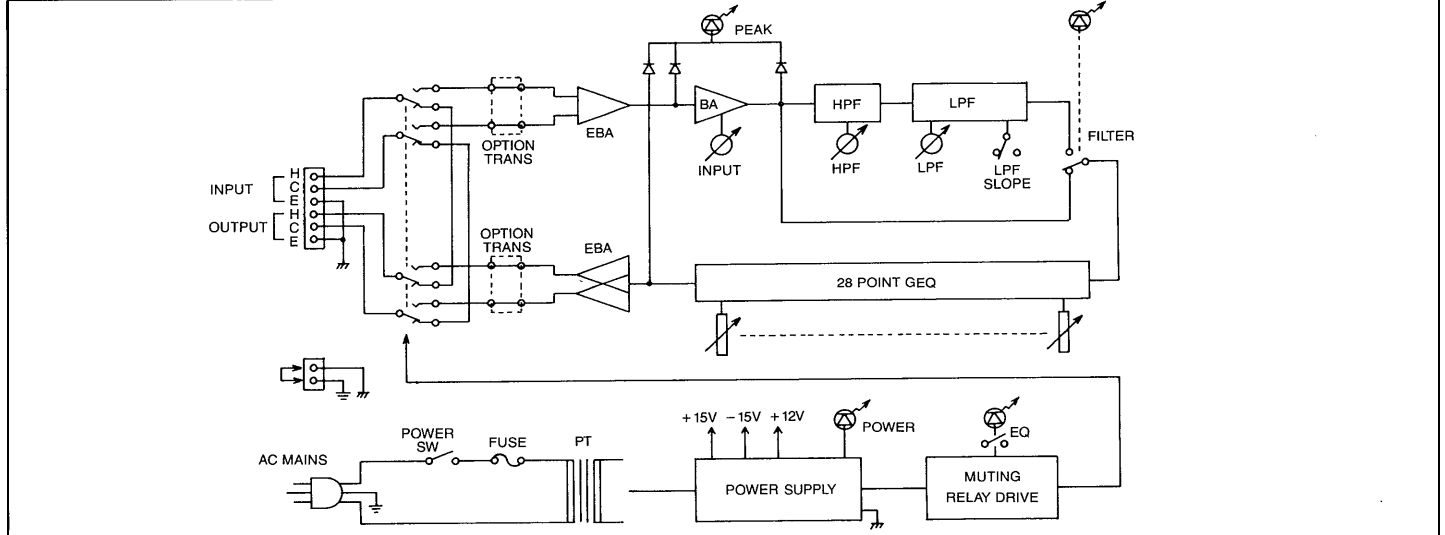
SPECIFICATIONS

Model No.	LT-101	LT-102
Impedance	10k ohms: 10k ohms	600 ohms: 600 ohms
Frequency Response	30Hz to 20kHz at ± 0.15 dB	
Distortion	Less than 0.2% (50Hz, 5dB*)	
Constant Loss	Within 1.5dB (at 1kHz, 1V)	
Weight	0.1 lbs. (44g)	
Accessories	Sleeve; 2, Screw; 4	

* $O_{dB} = 0.775V_{rms}$

**Each transformer mounts at predrilled chassis hole locations. Transformer connections are made via plug-in multi-pin connectors. No soldering is required.

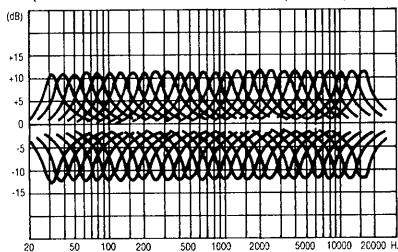
BLOCK DIAGRAM



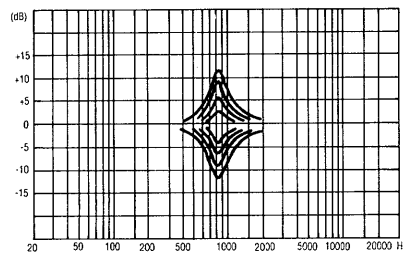
CHARACTERISTIC DIAGRAMS

•Frequency Response

(Each slider is set at a max. or min. position)

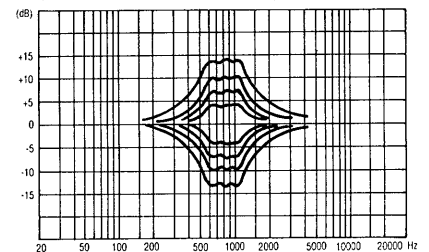


•Frequency Response (ex. 800Hz slider)

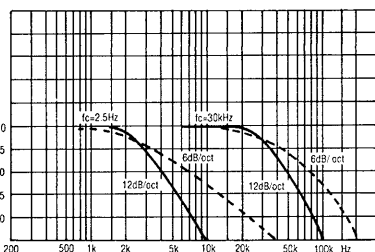


•Frequency Response

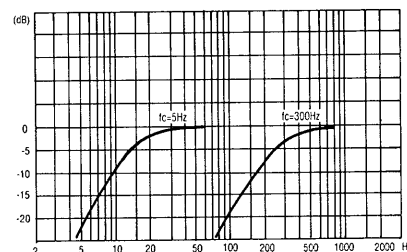
(ex. 630Hz, 800Hz, 1kHz slider)



•Lowpass Filter



•Highpass Filter



*Specifications are subject to change without notice.

