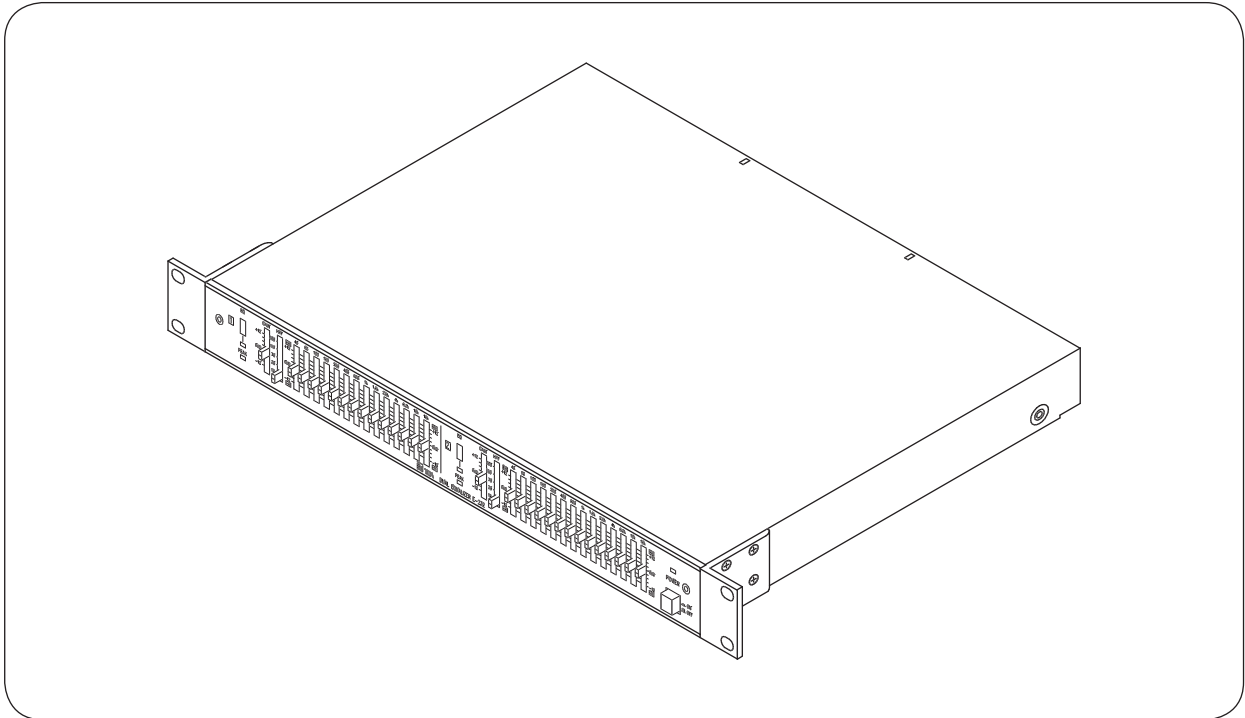


DUAL EQUALIZER
E-232

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Thank you for purchasing TOA's Dual Equalizer.

Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

1. IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.



INSTRUCTIONS ESSENTIELLES POUR LA SÉCURITÉ

- Lire ces instructions.
- Conserver ces instructions pour référence ultérieure.
- Respecter tous les avertissements.
- Suivre toutes les instructions.
- Ne pas utiliser cet appareil à proximité d'eau.
- Nettoyer uniquement à l'aide d'un chiffon sec.
- Ne pas obstruer les orifices de ventilation. Installer conformément aux instructions du fabricant.
- Ne pas installer à proximité de sources de chaleur telles que des radiateurs, des registres thermiques, des chaudières ou d'autres appareils (notamment des amplificateurs) produisant de la chaleur.
- Ne pas contourner la fonction de sécurité de la fiche polarisée ou de mise à la terre. Une fiche polarisée est équipée de deux broches, dont l'une est plus large que l'autre. Une fiche de mise à la terre est équipée de deux broches et d'une troisième pour la mise à la terre. Cette dernière, la plus large, est prévue à des fins de sécurité. Si la fiche fournie ne peut être insérée dans la prise électrique souhaitée, consulter un électricien pour faire remplacer cette dernière.
- Protéger le cordon d'alimentation pour éviter qu'il ne soit piétiné ou pincé, notamment au niveau des fiches, des prises de courant ou de son point de sortie de l'appareil.
- Utiliser uniquement les accessoires spécifiés par le fabricant.
- Utiliser uniquement avec le chariot, support, trépied, la patte de montage ou la table spécifiés par le fabricant ou vendus avec l'appareil. En cas d'utilisation d'un chariot, manipuler la combinaison chariot/appareil pour éviter les blessures dues à un renversement.
- Débrancher cet appareil pendant les orages ainsi que lorsqu'il reste inutilisé pendant une période prolongée.
- La maintenance de l'appareil doit être confiée à un technicien après-vente qualifié. Une maintenance s'avère nécessaire si l'appareil est endommagé (au niveau du cordon d'alimentation ou de la fiche), a été mouillé par un liquide, un objet est tombé à l'intérieur, s'il a été exposé à la pluie ou l'humidité, s'il ne fonctionne pas normalement ou s'il est tombé.



2. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.



WARNING

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



CAUTION

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



WARNING



AVERTISSEMENT

When Installing the Unit

Lors de l'installation de l'appareil

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Ne pas exposer l'appareil à la pluie et le protéger de tout contact avec de l'eau ou d'autres liquides afin d'éviter un incendie ou une électrocution.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Since the unit is designed for in-door use, do not install it outdoors. When it gets wet with rain, there is a danger of electric shock.
- The apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- The socket-outlet shall be installed near the equipment and the plug shall be easily accessible.

When the Unit is in Use

- Should the following irregularity be found during use, immediately turn off this unit's power switch, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
 - If you detect smoke or a strange smell coming from the unit.
 - If water or any metallic object gets into the unit
 - If the unit falls, or the unit case breaks
 - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
 - If it is malfunctioning (no tone sounds.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.



CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.

- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.
 - Install the equipment rack on a stable, hard floor. Fix it with anchor bolts or take other arrangements to prevent it from falling down.
- When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.
- The supplied rack-mounting screws can be used for the TOA equipment rack only. Do not use them for other racks.
- When installing the unit in a rack other than that of TOA, be sure to use the screws with a diameter of over 5 mm and length of over 20 mm to mount the unit. Failure to do so may cause personal injury.

When the Unit is in Use

- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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



L'éclair accompagné d'un symbole représentant une pointe de flèche à l'intérieur d'un triangle équilatéral avertit l'utilisateur de la présence d'une "tension dangereuse" à l'intérieur de l'enceinte du téléviseur, dont la magnitude peut être suffisante pour constituer un risque de choc électrique pour les personnes.



Le point d'exclamation à l'intérieur d'un triangle équilatéral avertit l'utilisateur de l'existence d'instructions d'utilisation et d'entretien (réparation) dans la documentation fournie avec l'appareil.

3. GENERAL DESCRIPTION

The TOA E-232 is a 19" rack mountable (1 unit size), dual-channel 2/3 octave graphic equalizer.

4. FEATURES

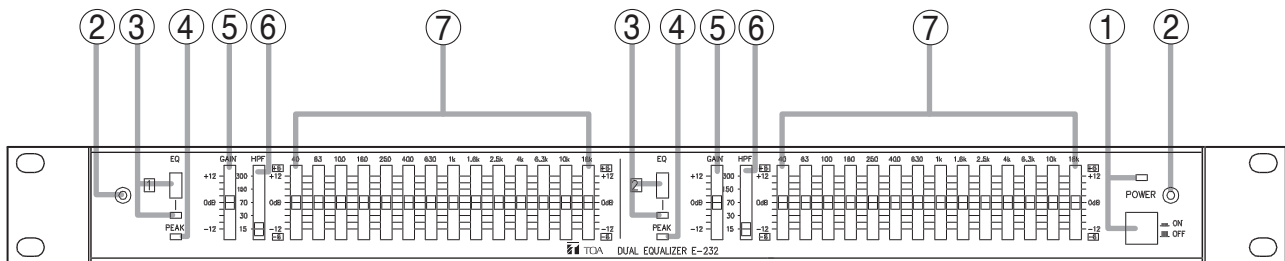
- Dual-channel construction. 14 filters per channel on 2/3 octave center frequencies from 40 Hz to 16 kHz.
- Allows fine audio adjustment because each bandwidth (Q) remains constant whatever the equalization amount is.
- Provides either 12 dB or 6 dB boost or cut per channel.
- Gain control (+12 dB to -12 dB), high-pass filter (-12 dB/octave and variable from 15 Hz to 300 Hz), EQ switch (ON/OFF) and peak indicator per channel.
- Automatic equalizer bypass function provides complete signal bypass of this equalizer in the event of an AC power loss, allowing the sound output to be maintained.
- Security cover is included.

5. HANDLING PRECAUTIONS

- Line voltage must not exceed $\pm 10\%$ of that indicated at the unit's AC inlet. Line frequency can be 50 Hz or 60 Hz.
- The power supply cord supplied with the E-232 is designed for exclusive use with each equipment. Never use them with other equipment.
- When cleaning the unit, be sure to turn the power switch to OFF. Wipe with a soft dry cloth. If it gets very dirty, use the soft cloth slightly moistened in neutral cleanser. Never use thinner, benzene, chemically processed towels, or alcohol as the unit's plastic or other parts may be deformed or discolored.

6. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power button/power lamp

This button switches power on (the lamp lights) and off (the lamp is extinguished).

2. Security cover fixing holes

These holes are provided to fix the security cover which protects control settings from accidental change.

Mount the cover after setting completion, and secure with the supplied screws.

3. EQ ON/OFF button and EQ indicator

Press this button to operate the equalizer. (The EQ indicator will light.) Press this button again to bypasses the unit. (The indicator is extinguished.)

4. Peak indicator

This indicator lights when the input or output signal level comes within 3 dB of clipping. Adjust the input signal level so that the indicator lights only occasionally.

5. Gain control

This control adjusts the variable gain of -12 dB to $+12$ dB depending on the input signal level.

6. HPF cut-off frequency control

This control adjusts the cut-off frequency of a high-pass filter that rejects undesired low frequency components. The filter has a slope of -12 dB per octave and is variable from 15 Hz to 300 Hz.

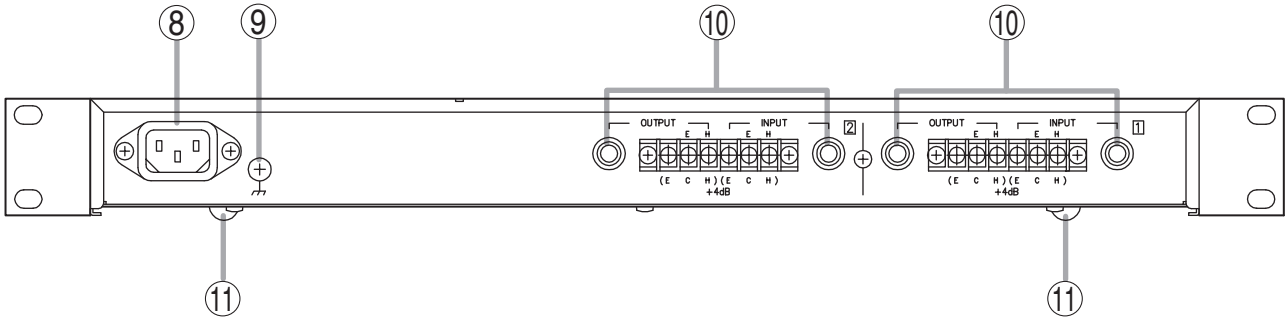
7. Equalization controls

These controls provide equalization at each of 14 frequencies, all of which are centered at $2/3$ octave increments from 40 Hz to 16 kHz.

Boost/cut range can be set for either 6 dB or 12 dB using an internal switch.

After setting completion, attach the supplied blind label to the unused range indication on the front panel, so that the set range can be known at a sight. Boost and cut are factory-preset for 12 dB. (Refer to p. 6 "7. INTERNAL SWITCH SETTINGS.")

[Rear]



8. AC inlet

Connect this inlet to the wall outlet via the supplied power cord.

9. Signal ground

Hum noise may be generated when external equipment is connected to the unit .

Connecting this terminal to the signal ground terminal of the external equipment may reduce the hum noise.

Note

This ground is not for protective ground.

10. Input and output terminals

These terminals are of unbalanced type. Phone jacks and screw terminals are connected in parallel. When using the screw terminals, "H" is hot and "E" is a grounding point.

[Input/output specifications]

		Rated level	Maximum level	Impedance
INPUT	GAIN: +12	-8 dB	+8 dB	30 kΩ
	GAIN: 0	+4 dB	+20 dB	
	GAIN: -12	+16 dB	+32 dB	12 kΩ
OUTPUT		+4 dB	+20 dB	1 kΩ

* 0 dB = 0.775 Vrms

11. Rubber feet (standard accessories)

Depending on the installation conditions, attach the supplied rubber feet to the bottom of chassis. (4 places)

7. INTERNAL SWITCH SETTINGS



WARNING

This work should only be performed by a qualified professional electrician. If users open the unit case or modify the unit, this may cause fire or electric shock.

The E-232 enables the following functions by setting the internal switches.

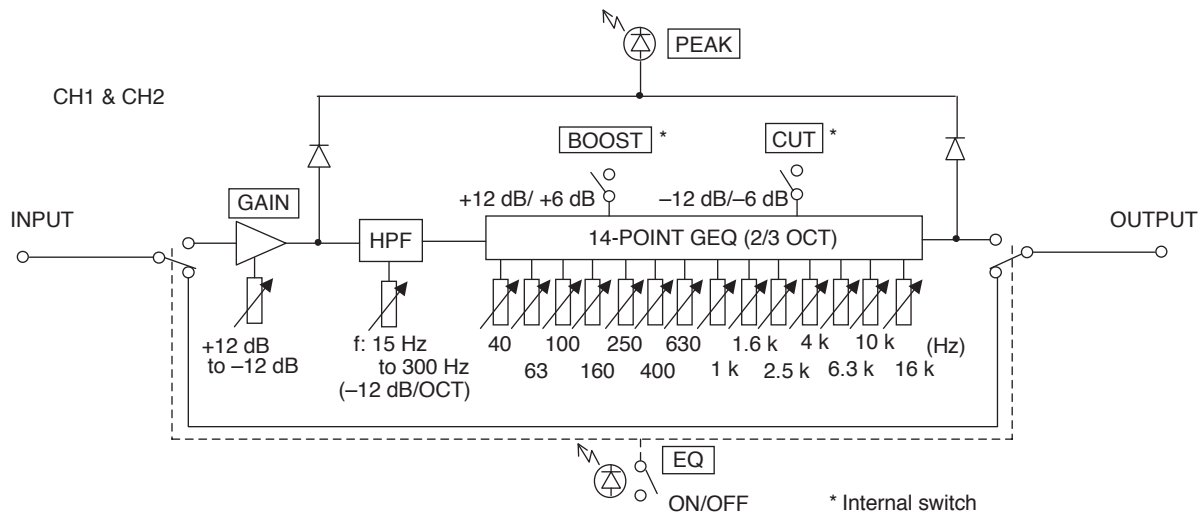
(1) Equalization range setting

Boost (amplification) or cut (attenuation) can be set for either 6 dB or 12 dB per channel.

(2) Ground loop cut [GND switch]

Depending on connected equipment, a ground loop that generates hum noise may be created. In such a case, set the GND switch to "LIFT" position to cut the ground loop.

8. BLOCK DIAGRAM



9. SPECIFICATIONS

Frequency Response	20 Hz to 20 kHz +1, -2 dB
Total Harmonic Distortion	Less than 0.01% (1 kHz rated input/output)
Noise Level (IHF-A)	Less than -98 dB* (EQ: ON, all equalization controls: 0, GAIN : 0, HPF: 15 Hz)
Input	+4 dB*, 30 kΩ (GAIN: 0)
Output	+4 dB*, 1 kΩ
Gain	+12 dB to -12 dB adjustable
Center Frequency (Hz)	40, 63, 100, 160, 250, 400, 630, 1 k, 1.6 k, 2.5 k, 4 k, 6.3 k, 10 k, 16 k
Equalization Range	Boost: +12 dB or +6 dB, Cut: -12 dB or -6 dB (selectable by internal switches)
Highpass Filter	-12 dB per octave (cutoff frequency: 15 Hz to 300 Hz variable)
Power Requirements	E-232 301H: 220 – 240 V AC, 50/60 Hz E-232 313H: 220 – 240 V AC, 50/60 Hz E-232 L: 120 V AC, 60 Hz
Power Consumption	11 W (120 V AC), 13 W (220 – 240 V AC)
Color	Black
Dimensions	483 (w) x 46 (h) x 311 (d) mm (19.02" x 1.81" x 12.24")
Weight	3.8 kg (8.38 lb)

* 0 dB = 0.775 Vrms

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Security cover	1
Security cover fixing screw	2
Rubber foot	4
Rack mounting screw	4
Blind label	1 sheet

10. DIMENSIONAL DIAGRAM

Unit: mm (in)

