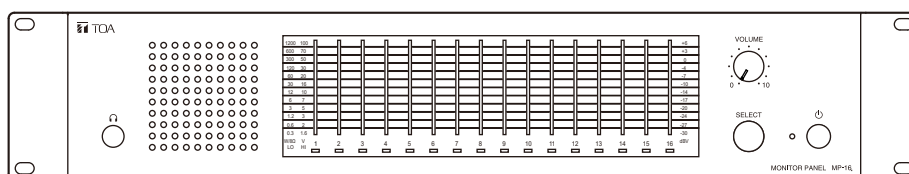




INSTRUCTION MANUAL

16 CHANNEL AUDIO MONITOR PANEL MP-16



Thank you for purchasing TOA's 16 Channel Audio Monitor Panel.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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1. 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

When Installing the Unit

- 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.

When the Unit is in Use

- Should the following irregularity be found during use, immediately stop the power supply to the unit, disconnect the power supply plug of the AC adapter 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 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.



CAUTION

When Installing the Unit

- 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 the Unit is in Use

- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.
- Use the optional AD-246 AC adapter for the unit. Note that the use of other adapter may cause a fire.

This equipment is not suitable for use in locations where children are likely to be present.

The terminals marked with the symbol ⚡ are hazardous live. The external wiring to these terminals requires installation by an instructed person.

2. GENERAL DESCRIPTION

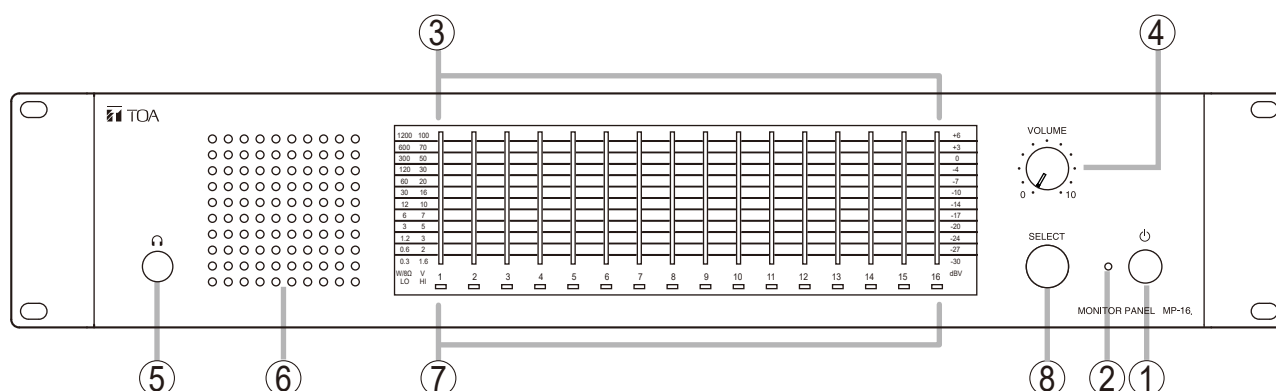
The MP-16 is a 16-channel audio monitor panel, which can be mounted on an EIA standard equipment rack (2 unit size).

3. FEATURES

- The unit is designed to simultaneously monitor up to 16 channels' signal levels by means of level meters.
- Signals that can be monitored are those of high-impedance speaker level, low-impedance speaker level, and line level.
- The built-in speaker and equipped headphone jack also allow aural monitoring of one of 16 channels' signals.

4. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power switch

Press this switch to turn on the power. To turn off the power, press this switch again.

2. Power indicator

Lights when the power switch is set to ON.

3. Level meters (1 – 16)

Indicate the signal level of each channel.

4. Volume control

Adjusts the sound volume of the Monitor speaker (6) or headphones.

5. Headphone jack

Connect headphones to this jack to monitor sound output of the channel selected with the Channel selector (8). In this case, no sound is output from the Monitor speaker (6).

Standard $\phi 6.3$ mm phone jack

6. Monitor speaker

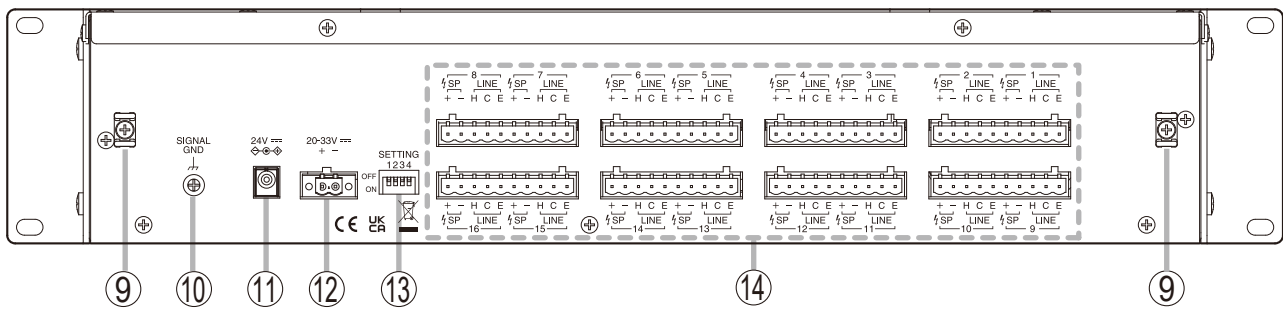
Outputs the sound of the channel selected with the Channel selector (8).

7. Channel indicators (1 – 16)

Light to indicate the channel currently being monitored via the Monitor speaker (6) or headphones. The 16th channel's indicator lights whenever the power is switched ON.

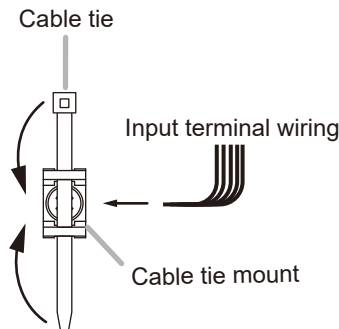
8. Channel selector

Selects the channel to monitor via the Monitor speaker (6) or headphones.



9. Cable tie mounts

To prevent connected plugs and wires from accidentally pulling out, secure the cables from the AC adapter jack (11), DC power input terminal (12) and Input terminals (14) using either (or both) of these conveniently positioned cable tie mounts, as shown below. Please prepare cable ties separately.



10. Functional ground terminal

Noise may be generated when external equipment is connected to the unit. In this case, connect this terminal to the functional ground terminal of the external equipment, and the noise may be reduced.

Note

This ground is not for protective ground.

11. AC adapter jack

Connect the optional AD-246 AC adapter.

Tip

If power is sent to both this jack and DC power input terminal (12), power is supplied to the MP-16 from the terminal having the higher voltage.

12. DC power input terminal

Connect the DC power to this terminal.

Tips

- The DC power supply must have a capacity of over 520 mA.
- The range of input voltage to be fed to this terminal should be between 20 V and 33 V DC.

13. Setting switches

• Switch 1

Permits the level meter to ignore and not display the recurring small signal used for failure detection.

ON: Not displayed

OFF: Displayed (factory default)

Note

Change this setting only when power is turned OFF.

• Switches 2 – 4

These switches are for maintenance purposes only.

Be sure that they are set to the OFF position whenever the MP-16 is operated.

14. Input terminals (1 – 16)

Be sure that all line signal wires are correctly inserted into the LINE holes of the connector. (H: Hot, C: Cold, E: Earth)

Insert the speaker signal wires into the SP holes (+, –) in the connector (this applies to both high and low impedance).

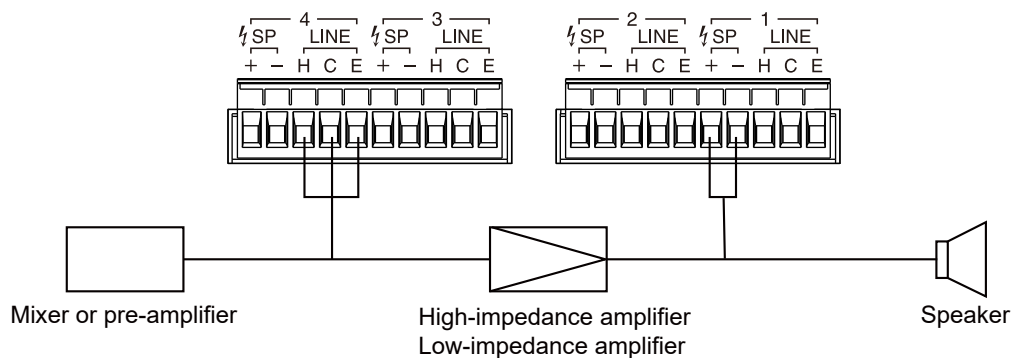
When an unbalanced line signal is being input, short C and E. If hum is generated by ground loops, connect only H and C.

[Explanation of Unit Symbols]

Indication	Position	Meaning
	Front panel	The LED next to this symbol is the power indicator, which shows the system's operating status. Whether the system is in operation or standby mode is indicated by the LED being lit or extinguished.
	Front panel	This symbol represents a headphone jack.
	Rear panel	Do not touch the parts indicated with this symbol. These can provide a dangerous voltage that can result in death or serious personal injury when touching them.
	Rear panel	This symbol represents a functional ground terminal. Note This is no protective ground.
	Rear panel	Shows the polarity of the AC adapter jack. The center pin is positive and its surrounding surface is negative.
	Rear Panel	This symbol represents DC power.
	Rear panel	Indicates recycling cooperation request. Do not dispose of the MP-16 along with general waste.
	Rear panel	This mark is a declaration that this product complies with all applicable EU directives and regulations.
	Rear panel	This mark is a declaration that this product complies with all applicable UK regulations.

5. CONNECTION

5.1. Connection Example



5.2. Connection Precautions

- Take care not to connect speaker signal and line signal wires to the same channel. Also, avoid connecting speaker signal wires to the line input terminals. Doing so may result in failure of the unit and other connected equipment.
- Keep the power amplifier's input cables as far away as possible from its output cables. Also, avoid routing high-impedance speaker cables near the input terminals of other channels. Failure to observe these instructions may cause oscillation or crosstalk.
- When installing the unit directly above a power amplifier, be sure to place a 1U-size* blank panel between the unit and the power amplifier.
- To prevent plugs and wires from disconnecting when pulling the unit out of a component rack, be sure that all wiring is secured to the unit's cable tie mount(s).

* 1U-size = 44.5 mm

5.3. Removable Terminal Plug Connection

Notes

- Do not use a micro screwdriver. Sufficient torque is not given to the screws when tightening them, and connections may not be secured.
- Avoid soldering stranded or shielded cable, as contact resistance may increase when the cable is tightened and the solder is crushed, possibly resulting in an excessive rise in joint temperatures.
- When connecting 2 cables or a shielded cable to a single terminal, use a ferrule terminal with an insulation sleeve to crimp the cables because such cable conductors could become loose.

Recommended ferrule terminals for signal cables

(made by DINKLE ENTERPRISE)

Unit: mm

	Model Number	a	b	l ₁	l ₂
①	DN00308D	1.9	0.8	12	8
②	DN00508D	2.6	1	14	8

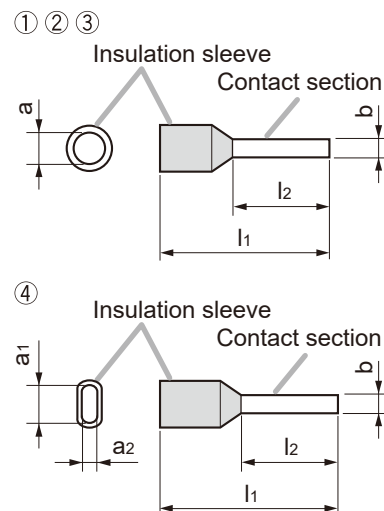
Recommended ferrule terminals for power supply cables

(made by DINKLE ENTERPRISE)

Unit: mm

	Model Number	a	a ₁	a ₂	b	l ₁	l ₂
③	DN01508D	3.5	—	—	1.7	14	8
④	DN01508B	—	6.6	3.6	2.3	16	8

Crimping tool: DNT01-2206B (made by DINKLE ENTERPRISE)

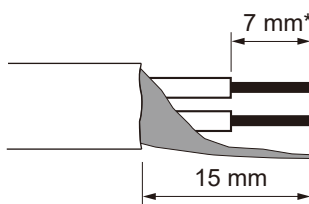


[Cable sheath to trim]

Solid cable and stranded cable



Shielded cable



* Expose 8 mm or more when using the above ferrule terminal, and cut off an extra conductor protruding from the sleeve.

[Wiring procedures]

Step 1. Wiring the supplied removable terminal plug.

1-1. Loosen the terminal screws to insert the wire.

1-2. Tighten the terminal screws.

Ensure that the wire does not break free when pulled.
If the wire does pull free, repeat the connection procedure from the start.

Step 2. Insert the wired terminal plug into the corresponding terminal block in the unit's rear panel.

Step 3. (DC power input terminal only) Tighten the fixing screw.

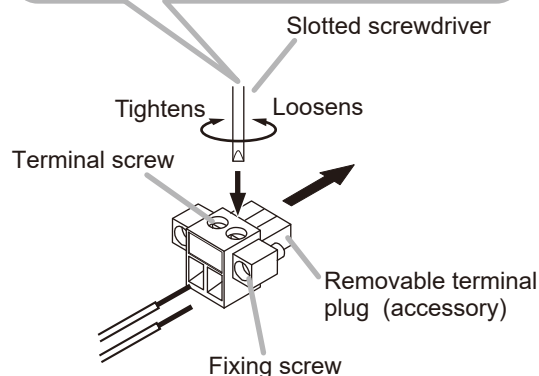
Notes

- Do not reverse Steps 1 and 2 above. Poor contact may result if force is applied to the unit's internal circuit board pins while the terminal screws are being tightened.
- When detaching the terminal plug, pull it straight out. Pulling it out at an angle may cause the terminal plug or terminal block to break.

[Recommended type of screwdriver]

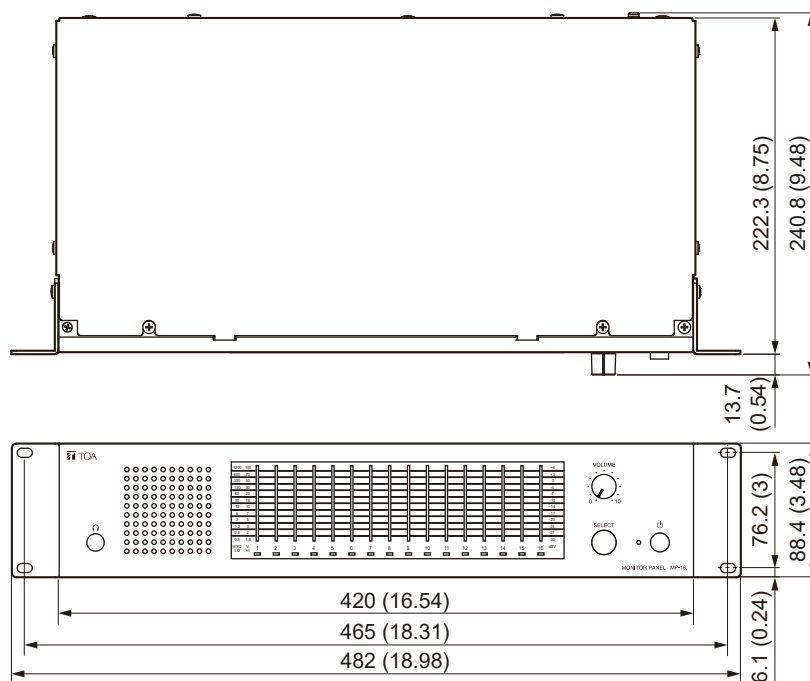


*1 For speaker output terminal: About 3.5 mm
For other terminals: About 2.5 mm



6. DIMENSIONAL DIAGRAM

Unit: mm (inches)



7. SPECIFICATIONS

Power Source	Supplied from an external 24 V DC (20 – 33 V DC) power supply, Removal terminal block (2 pins), or from the optional AD-246 AC adapter
Max. Current Consumption	520 mA
Input	High impedance speaker: Max. 100 V Low impedance speaker: Max. 1200 W (8 Ω) Line: +6 dB*
Output	Speaker output: Max. 3 W Headphone output: 8 Ω
Level Display	Meter: 12-segment LED meter x16 Level Indication: 1.6 – 100 V (High impedance speaker) 0.3 – 1200 W (Low impedance speaker) –30 to +6 dB* (Line)
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Panel: Pre-coated steel plate, black, 30% glossy Case: Surface-treated steel plate
Dimensions	482 (w) x 88.4 (h) x 240.8 (d) mm (18.98" x 3.48" x 9.48")
Weight	3.9 kg (8.6 lb)

* 0 dB = 1 V

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

• Accessories

Removable terminal plug (10 pins) 8
Removable terminal plug (2 pins) 1
Rack mounting screw 5 x 12 4

• Option

AC adapter: AD-246

FCC REQUIREMENTS

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Modifications

Any modifications made to this device that are not approved by TOA Corporation may void the authority granted to the user by the FCC to operate this equipment.

DECLARATION

Any modification to the unit, unless expressly approved by TOA Electronics, Inc., could void your authority to operate the equipment.

DECLARATION OF CONFORMITY

TOA Electronics, Inc.

1 Harmon Plaza, Suite 700 Secaucus, New Jersey 07094, USA

TEL 650-452-1200

declares under its sole responsibility that the product

16 CHANNEL AUDIO MONITOR PANEL MP-16

complies with Part 15 of FCC Rules.

Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Traceability Information for USA

TOA Electronics, Inc.

1 Harmon Plaza, Suite 700 Secaucus, New Jersey 07094, USA

<https://www.toaelectronics.com/>

كتيب التعليمات

احتياطات تتعلق بنواحي السلامة

- يجب التأكد، قبل التركيب أو الاستخدام، من قراءة كافة التعليمات التي من شأنها أن تضمن استخداماً آمناً وصحيحاً.
- ينبغي التأكد من إتباع كافة تعليمات الحبيطة، والتي تشمل تحذيرات هامة واحتياطات تخص السلامة أو أيًا منهما.
- يفضل الاحتفاظ بهذا الكتيب عقب قراءته في متناول اليد للرجوع إليه لاحقاً.
- ننوه بأن هذا الكتيب يضم احتياطات تتعلق بالسلامة قد لا تنطبق على المنتجات الخاصة بك.

رمز السلامة والأعراف المتفق عليها بشأن الرسائل

تستخدم رموز السلامة، والرسائل المذكورة أدناه في هذا الكتيب لمنع الإصابات الجسدية وتلف الملكية، التي تنشأ عن سوء التداول. وينبغي عليك، قبل تشغيل منتجك، أن تبدأ بقراءة هذا الكتيب، وفهم رموز السلامة والرسائل حتى تكون على وعي تام بمخاطر السلامة المحتملة.

المؤشرات والمواقف المحتملة التي تشكل خطورة، التي تؤدي إلى الوفاة أو الإصابات الشخصية الخطيرة في حالة إساءة الاستخدام.

احذر



المؤشرات والمواقف المحتملة التي تشكل خطورة، التي تؤدي إلى إصابات شخصية تتراوح ما بين متوسطة وطفيفة، بالإضافة إلى إلحاق الضرر بالعقار، أو أيًا منهما.

احترس



احذر



عند تركيب الوحدة

- لا تعرض الوحدة لمياه الأمطار، أو للعوامل البيئية، التي من شأنها أن تبطل هذه الوحدة بالمياه أو بالسوائل، إذ ينتج عن هذا التصرف نشوب الحرائق أو الصدمات الكهربائية.

عندما تكون الوحدة قيد الاستخدام

- إذا وقع أيًا من الحوادث العارضة التالية أثناء الاستخدام، أوقف على الفور مصدر الطاقة للوحدة، وافصل قابس مصدر الطاقة لمحول التيار المتردد من مأخذ التيار المتردد والاتصال مباشرة بأقرب وكيل لشركة TOA. ولا تحاول تشغيل الوحدة مرة أخرى وهي على تلك الحالة، إذ قد يؤدي ذلك إلى نشوب الحرائق وحدوث الصدمات الكهربائية.
- إذا أحسست برائحة الدخان، أو أية رائحة غريبة أخرى تنطلق من الوحدة.
- إذا تسرب الماء إلى الوحدة، أو وصل أية مواد معدنية.
- إذا سقطت الوحدة، أو انكسر صندوقها.
- إذا تعرضت لعطل (لا تسمع نبذة الصوت).
- ولتفادي نشوب الحرائق، أو الصدمات الكهربائية، لا تقم بفتح أو تغيير مكان صندوق الوحدة، نظراً للجهد العالي المشحونة به عناصر هذه الوحدة. قم بإزالة عملية الصيانة إلى فني صيانة مختص.
- لا تضع الفناجين، أو الأطباق الكبيرة، أو أية حاويات أخرى للسوائل أو المواد المعدنية فوق الوحدة. وإذا سكبت أيًا من هذه العناصر عن طريق الخطأ داخل الوحدة، فقد يؤدي ذلك إلى نشوب الحرائق، أو الصدمات الكهربائية.

احترس



عند تركيب الوحدة

- يرجى التأكد من إتباع التعليمات المذكورة أدناه عند التركيب داخل حامل. ومن المحتمل أن يؤدي الإخفاق في ذلك إلى نشوب الحرائق أو وقوع إصابات في الأفراد.
- وضع الحامل على أرض ثابتة وصلبة، وتثبيتته عن طريق براغي خاصة بالتثبيت، أو اتخاذ تدابير أخرى لمنعها من السقوط.
- عند توصيل السلك الموصل بالتيار الكهربائي للوحدة بمصدر التيار المتردد، لا بد أن يكون ذو سعة تتناسب معها الوحدة.
- يجب استخدام براغي الحامل المخصصة لحامل الوحدة.

عندما تكون الوحدة قيد الاستخدام

- ينبغي التأكد من أن التحكم في الصوت في الوضع الأدنى قبل تشغيل مفتاح التوصيل بالتيار الكهربائي. من الممكن أن تتسبب الضوضاء العالية الناتجة عن الصوت العالي عند تشغيل الجهاز إلى إضعاف السمع.
- يجب استخدام مكيف التيار المتردد للوحدة. ولا بد من ملاحظة أن استخدام مكيف آخر قد يتسبب في اشتعال الحرائق.