

## User's Manual



**MPA 181T**  
Mini Power Amplifier

68-1082-01  
Rev. A  
02 06



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# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

## Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

## Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

## Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

## Precaución

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

## Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité: n'essayez pas de le contourner ni de la désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

## Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puede ser eliminada.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrirlo o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

## USA, Canada, South America, and Central America:

Extron Electronics  
1230 South Lewis Street  
Anaheim, CA 92805, USA

## Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

## Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

## Japan:

Extron Electronics, Japan  
Daisan DMJ Bldg. 6F,  
3-9-1 Kudan Minami  
Chiyoda-ku, Tokyo 102-0074  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

## 安全须知 • 中文



这个符号提示用户该设备用户手册中的操作和维护说明。



这个符号警告用户该设备机壳内暴露的危险电压，有触电危险。

### 注意

**阅读说明书** • 用户使用该设备前必须阅读并理解有安全和使用说明。

**保存说明书** • 用户应保存安全说明书以备将来使用。

**遵守警告** • 用户应遵守产品和用户指南上的所有安全和操作说明。

**避免追加** • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

### 警告

**电源** • 该设备只能使用产品上标明的电源。设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

**拔掉电源** • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统电源线。

**电源线保护** • 妥善布线，避免被踩踏，或重物挤压。

**维护** • 所有维修必须由认证的维修人员进行。设备部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

**通风孔** • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

**锂电池** • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的议处理废弃电池。

## Quick Start Guide — MPA 181T

To install and set up an MPA 181T Mini Power Amplifier, follow these steps:

### Step 1

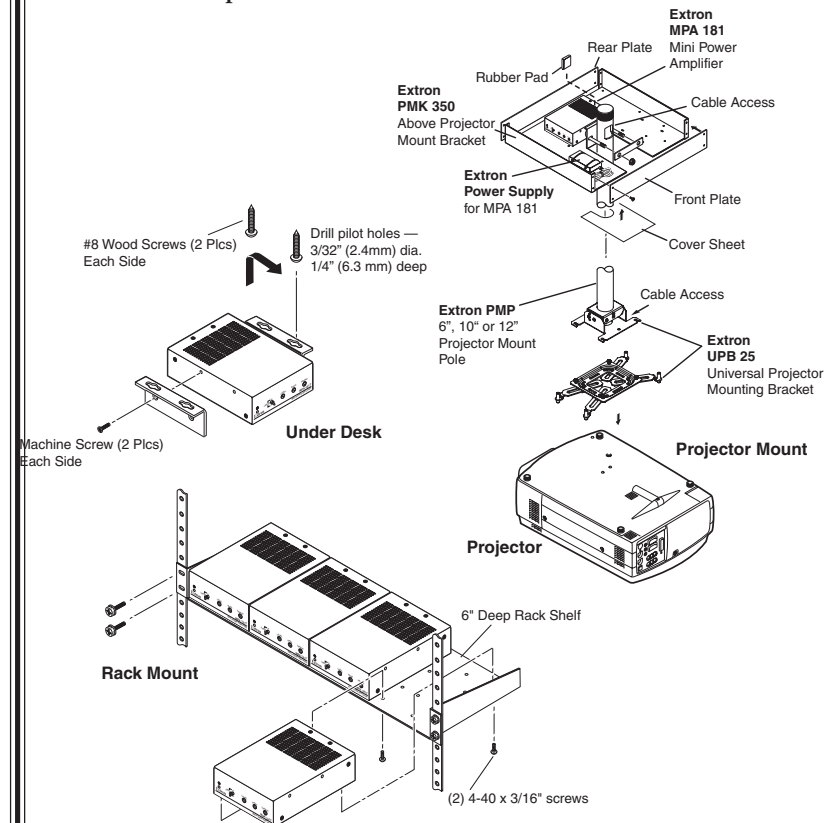
Turn all of the equipment off and disconnect it from the power source.

### Step 2

Mount the MPA 181T on a rack, under a desk, or on a projector, as illustrated below.

### Step 3

Attach the speakers to the MPA 181T.



### Step 4

Attach inputs to the MPA 181T unit and the audio source and/or projector. Ensure that the projector's audio output is set to **variable out**. Multiple input options (RCA, 3.5 mm stereo input, or captive screw) can be used simultaneously; this results in audio mixing.

## Quick Start Guide — MPA 181T, cont'd

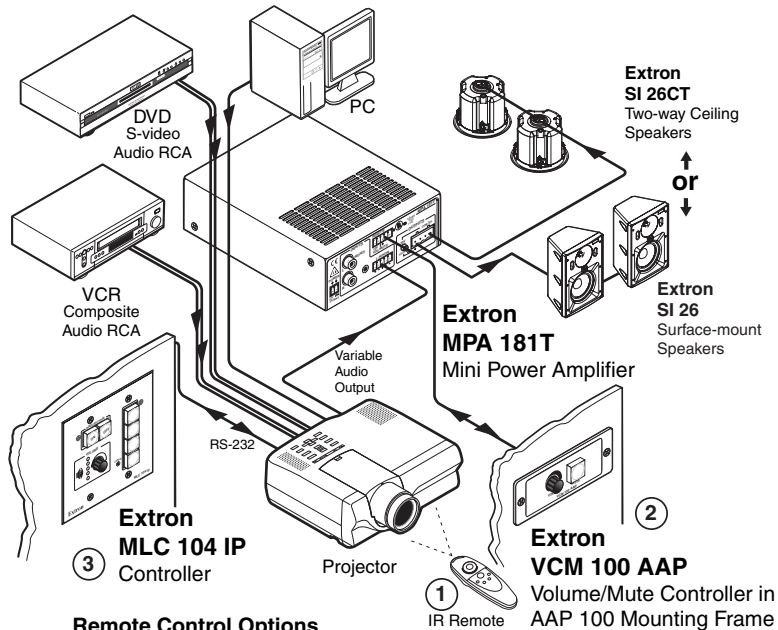
### Step 5

Connect power cords to the MPA 181T and other audio equipment.

### Step 6

Adjust the MPA 181T input level, bass and treble.

- If connecting to a projector, ensure that the volume on the projector is at its lowest point, then adjust the **level** of the MPA 181T fully counterclockwise.
- Set the projector volume to its maximum volume level (no sound should come out).
- Return to the MPA 181T and raise the **level** until sound distortion occurs, then lower slightly until distortion disappears. This setting ensures that, whatever the projector volume setting may be, no clipping occurs.
- Adjust **bass** and **treble** to preference.



#### Remote Control Options

- IR Remote - (input selection and volume control through projector)
- VCM 100 Volume/Mute Controller - (direct MPA 161T control)
- MLC 104 IP Controller - (input selection and volume control through projector)

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# 1 Chapter One

## **Introduction**

About this Manual

About the MPA 181T

Features

# Introduction

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## About this Manual

This manual contains information about the Extron MPA 181T Mini Power Amplifier with instructions on how to mount and operate the unit.

## About the MPA 181T

The Extron MPA 181T is a high performance, compact, single channel power amplifier. The MPA 181T delivers 18 watts (rms) for 70 Volt line level speakers, 14 watts (rms) for 4 ohm speaker loads, and 8 watts (rms) for 8 ohm loads.

The MPA 181T accepts balanced and unbalanced stereo and mono inputs, and outputs a mono audio signal to drive for 4/8 ohm direct speakers or 70 volt line distribution speakers.

Front panel controls are provided for input level, bass, and treble. The front panel also features a limiter switch which automatically reduces the gain to prevent distortion (amplifier clipping). The MPA 181T features remote control capability for volume adjustment and muting. The MPA 181T, housed in a 1U, quarter rack width metal enclosure, can be mounted under a desk, or mounted on a projector.

## Features

**Class D audio amplifier** — The MPA 181T features improved, class D technology for high efficiency and low distortion.

**Compact size** — The MPA 181T is housed in a 1U high, 1/4 rack width, 6" deep, metal enclosure, allowing this amplifier to fit in many unique applications.

**Three balanced and unbalanced audio inputs** — Balanced or unbalanced input are available on the captive screw connector, while the 3.5 mm stereo mini jack and RCA connectors provide unbalanced input. The captive screw, RCA and stereo mini jack connectors are actively mixed together, then summed into a mono signal.

**Selectable 70V or direct 4/8 ohm output** — Fits distribution sound or direct 4/8 ohm applications.

**Quick plug speaker outputs** — Speaker output is on a captive screw connector for quick installation.

**Front panel controls** — Input level, bass, and treble can be easily adjusted from the front panel.

**Limiter switch** — The limiter switch prevents output distortion (clipping) and potential damage to speakers.

**Volume and mute remote control** — A rear panel, captive screw "Remote" input connector allows for remote control of volume adjustment and muting.

**Flexible mounting options** — The MPA 181T can be mounted on a rack, projector, or under furniture.

**External international power supply** — The included autoswitchable, 12 VDC, 3 A external power supply provides worldwide power compatibility (part #70-380-01).



# Chapter Two

## Installation and Operation

Installation Overview

Mounting the MPA 181T

Rear Panel Features

Front Panel Features

Setting up the MPA 181T Amplifier



# Installation and Operation

## Installation Overview

To install and set up an MPA 181T, follow these steps:

- 1 Turn all of the equipment off. Make sure that the input devices (DVD, VCR, PC, etc.), the MPA 181T unit, and the output devices are turned off and disconnected from their power source(s).
- 2 Mount the MPA 181T unit. See *Mounting the MPA 181T* below.
- 3 Attach the speakers and/or other output devices to the MPA 181T. See *Rear Panel Features* later in this chapter for more information.
- 4 Attach inputs to the MPA 181T. See “Audio inputs” later in this chapter for more information.
- 5 Connect power cords to the MPA 181T and other devices.
- 6 Adjust MPA 181T input level, bass and treble. See *Setting up the MPA Amplifier* later in this chapter for detailed information.

## Mounting the MPA 181T

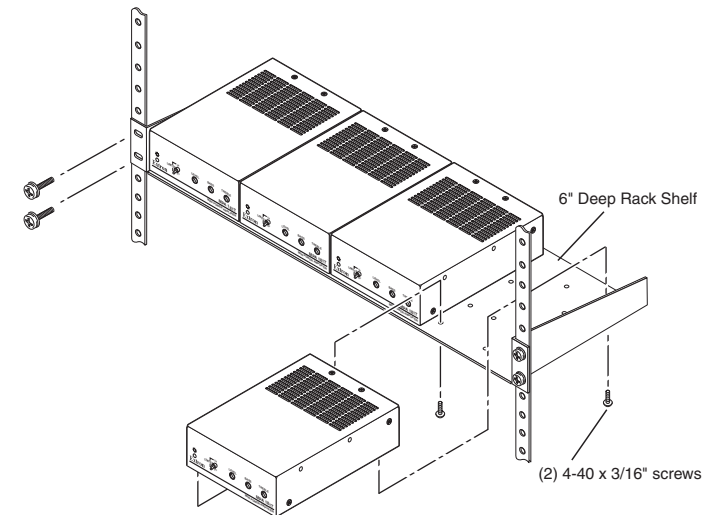
There are many optional accessories for mounting the MPA 181T. They include the following part numbers:

- PMK 300 Multi-Product Projector Mounting Kit (70-374-01)
- PMK 350 Low Profile Multi-product Projector Mount Kit (70-563-02, -03)
- RSU 126 1U 6" Universal Rack Shelf (60-190-10)
- RSU 129 1U Universal rack shelf (60-190-01)
- RSB 129 1U 6" basic rack shelf (60-604-01)
- MBU 125 1U Under-Desk Mounting Kit (70-077-01)
- MBD 129 1U Through-Desk Mounting Kit (70-077-02)

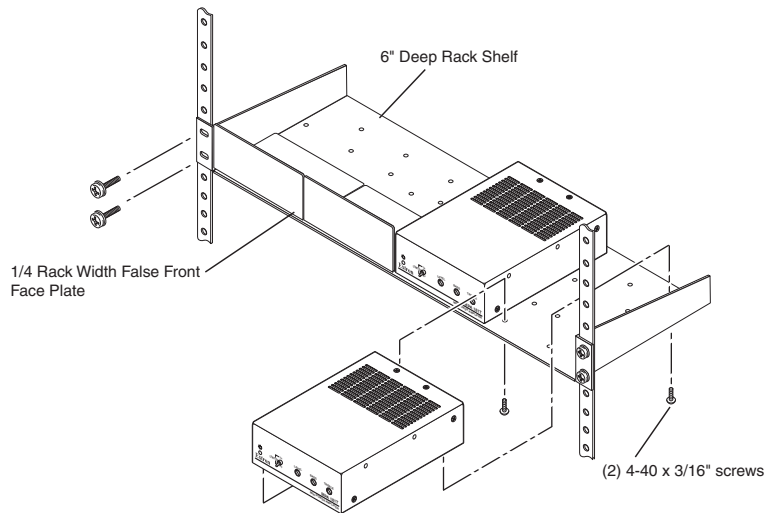
Following are detailed instructions on rack mounting, under-desk mounting, and projector mounting the MPA 181T unit (for use in classrooms, personal offices, meeting rooms, etc.).

## Rack mounting

1. If feet were previously installed on the bottom of the MPA 181T unit, remove them.
2. Mount the unit on the rack shelf, using two 4-40 x 3/16" screws in opposite (diagonal) corners to secure the MPA to the shelf. See figure 2-1 below.
3. Install blank panel(s) or other unit(s) to the rack shelf.
4. Insert the shelf into the rack, aligning the holes in the shelf with those in the rack.
5. Secure the shelf to the rack using the supplied machine screws.



**Figure 2-1 — Rack mounting the MPA 181T**

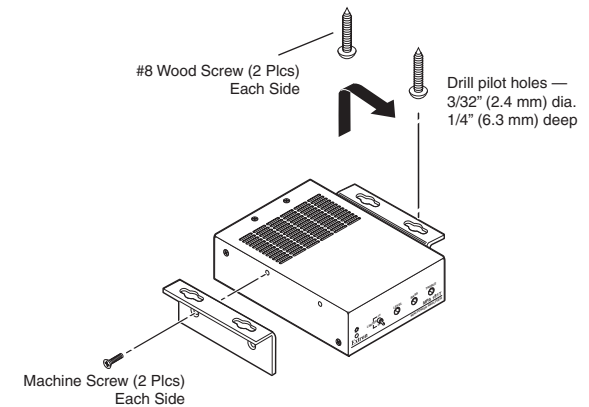


**Figure 2-2 — Mounting the MPA 181T on the RSU shelf**

### Under-desk mounting

In addition to using the MPA 181T unit on a rack or projector, it can also be mounted under furniture (or under a desk). Mount the unit by using the optional mounting kit (part #70-077-01) for furniture, as follows:

1. Attach the mounting brackets to the amplifier with the machine screws provided (figure 2-3).
2. Hold the amplifier with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
3. Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
4. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" of the screw head protrudes.
5. Align the mounting screws with the slots in the brackets and place the interface against the surface, with the screws through the bracket slots.
6. Slide the unit slightly forward or back, then tighten all four screws to secure it in place.



**Figure 2-3 — Under-desk mounting**

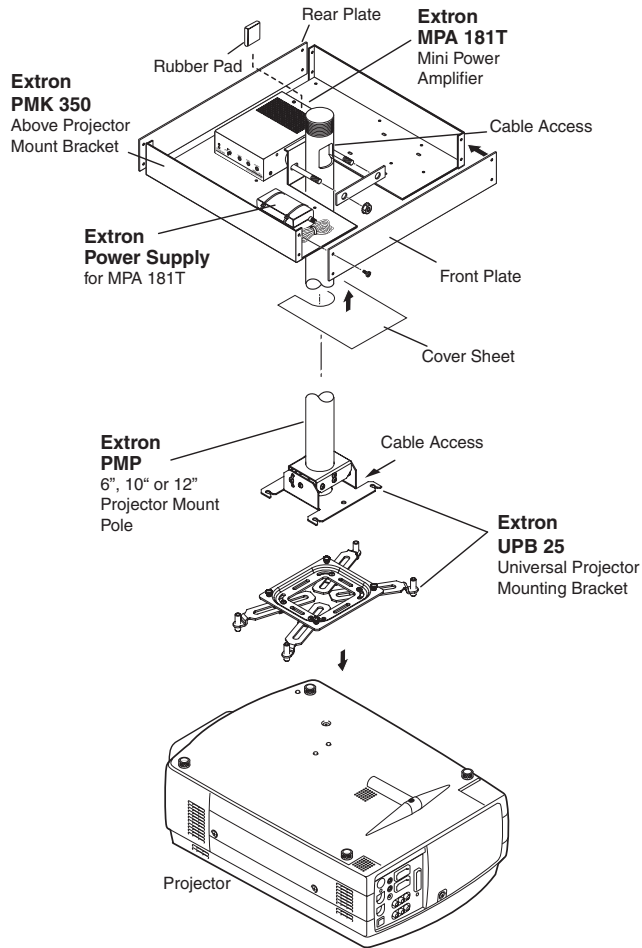
### Projector mounting

In addition to mounting the MPA 181T unit to a rack or under furniture, it can also be projector mounted using the optional kits PMK 350 (part #70-563-02, -03) or PMK 300 (part #70-374-01). See figures 2-4 and 2-5 on the following page.

To projector mount the MPA 181T, do the following:

1. If necessary, remove the feet from the bottom of the device to be installed.
2. Mount the MPA 181T to one of the bracket's three mounting plates. The device can be horizontally mounted facing either up or down, whichever is most convenient. See the illustrations on the following page.

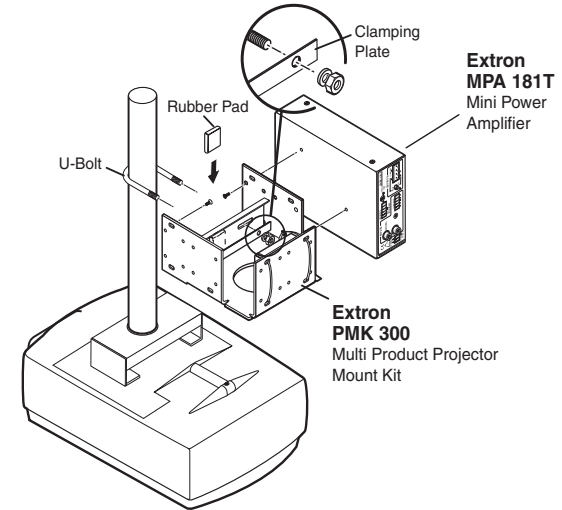
Use two supplied 4-40 x 3/16 screws in opposite (diagonal) corners to secure the device to the bracket.



**Figure 2-4 — Using the PMK 350 projector mounting kit for the MPA 181T**

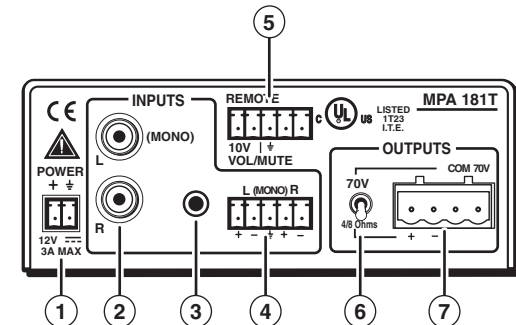
3. Affix the black rubber pad to the mounting plate.
4. Place the U-bolt behind, then through the two holes of the mounting plate to wrap around the ceiling pole.  
**For a typical (1.5" to 2.0" diameter) pole** — The supplied U-bolt fits a typical ceiling pole.
5. Place the bracket on the opposing side of the ceiling pole and through the U-bolt legs.

6. Secure the bracket to the U-bolt onto the ceiling pole with the included hex nuts, washers, and lock washers.



**Figure 2-5 — Mounting the PMK 300**

## Rear Panel Features



**Figure 2-5 — MPA 181T back panel**

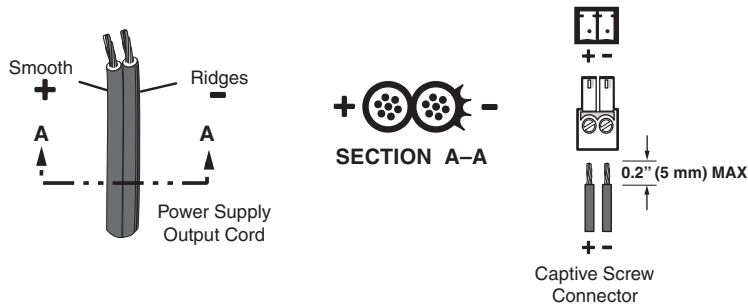
## Power input

- ① **Power connection** — Plug the external 12 VDC power supply into this connector. The power supply is included with the unit.

## Installation and operation, cont'd

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

**CAUTION** When connecting the power supply, voltage polarity is extremely important. Applying power with incorrect voltage polarity could damage the power supply and the interface. Identify the power cord negative lead by the ridges on the side of the cord.



**Figure 2-6 — Power connector wiring**

**NOTE** Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could pull out.

**WARNING** The two power cord wires must be kept separate while the power supply is plugged in. Remove power before continuing.

### Audio inputs

There are three choices of input connectors (RCA, 3.5 mm stereo, and captive screw) available on the rear panel for adapter-free connections.

All inputs are actively mixed together then summed into a mono signal.

- ② **RCA input connector** — Plug an RCA audio source to this line level input.
- ③ **3.5 mm stereo input** — Plug a 3.5 mm audio micro cable into this stereo jack.

- ④ **Balanced or unbalanced audio input connector** — Marked “L” and “R”, this 3.5 mm captive screw input is for bare wire, balanced or unbalanced audio signals.



**Figure 2-7 — 3.5 mm captive screw audio input connector wiring**

**CAUTION** Connect the sleeves to ground (Gnd). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.

### Remote control

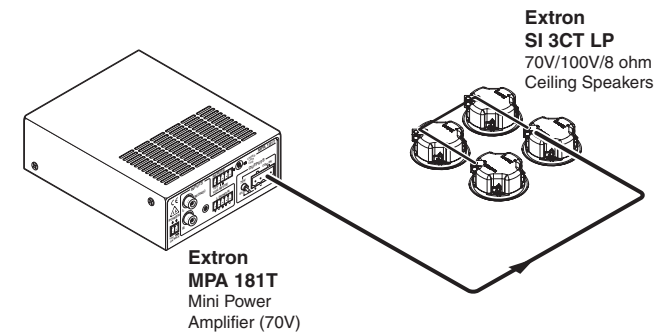
- ⑤ **Remote input connector** — An optional 5-pin, captive screw connector that allows a wall mounted audio controller or MediaLink product to remotely control volume and mute levels for the MPA 181T unit.

For more information on using the remote input connector, see Chapter 3, *Remote Operation*.

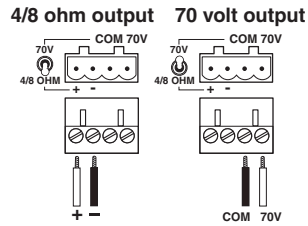
- ⑥ **Output impedance toggle switch** — A switch to toggle between a 70 volt or 4/8 ohm output.

### Audio output

- ⑦ **Speaker connector** — This 4-pin, 5 mm captive screw connector is used to connect the amplifier to the speakers.



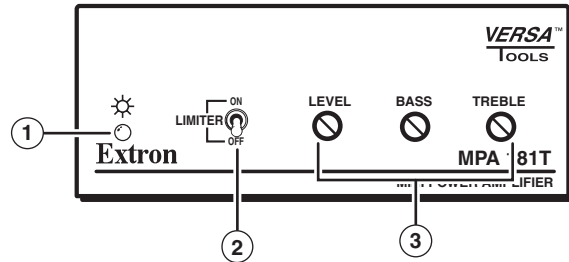
**Figure 2-8 — Typical speaker connection**



**Figure 2-9 — Output speaker wiring**

**WARNING** The 70 volt output and the 4/8 ohm output cannot be used simultaneously.

### Front Panel Features



**Figure 2-10— MPA 181T front panel**

- ① **Power LED** — A green LED lights to indicate that the unit is receiving power.
- ② **Limiter toggle switch** — When the limiter is switched to “On”, the MPA will automatically reduce the level to prevent the amplifier from clipping.
- ③ **Potentiometer adjustments** — These three potentiometers optimize level, bass, and treble adjustments.

### Setting Up the MPA 181T Amplifier

When setting up volume control, ensure that the projector output is set to **variable out**. Consult the projector’s user manual for detailed instructions on its calibration.

To adjust the MPA 181T input level, bass, and treble, do the following:

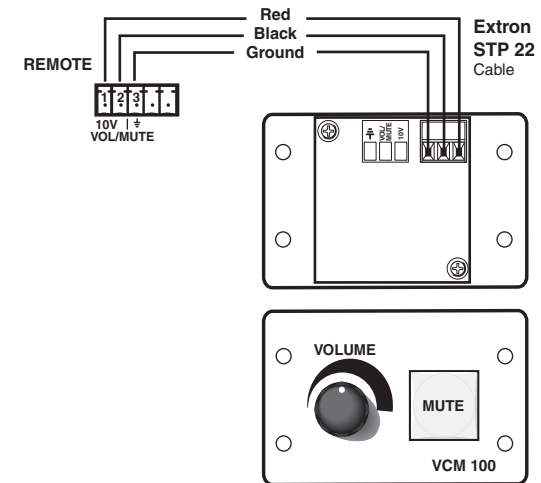
1. If connecting to a projector, ensure that the volume on the device is at its lowest point, then adjust the level of the MPA 181T fully counterclockwise.
2. Set the projector volume to its maximum volume level. No sound should come out.
3. Return to the MPA and raise the level until sound distortion occurs, then lower the level slightly until any distortion disappears. This setting ensures that, whatever the projector volume setting may be, no clipping occurs.
4. Adjust bass and treble to preference.

### Remote connector wiring

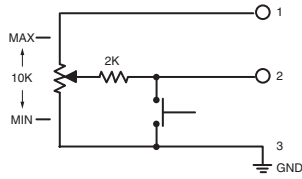
Options for remote control include the Extron VCM 100 and VC 50 volume controllers. Third party 10k potentiometer volume controllers can also be connected to this port.

As shown below, **Pin 1** is 10 VDC reference voltage. **Pin 2** is volume control DC voltage; range is 0 to 10 V, where 0 V is mute and 10 V provides maximum volume. **Pin 3** is ground.

**NOTE** All nominal levels are at  $\pm 10\%$ .



**Figure 2-11— Pinout diagram for VCM 100 MAA remote connector**



**Figure 2-12 — Pinout diagram for a third party volume potentiometer**

See Chapter 3, *Remote Operation* for more information on the three options (IR remote, MLC series, or DC volume/mute controller) for remote control.



**MPA 181T**

# 3

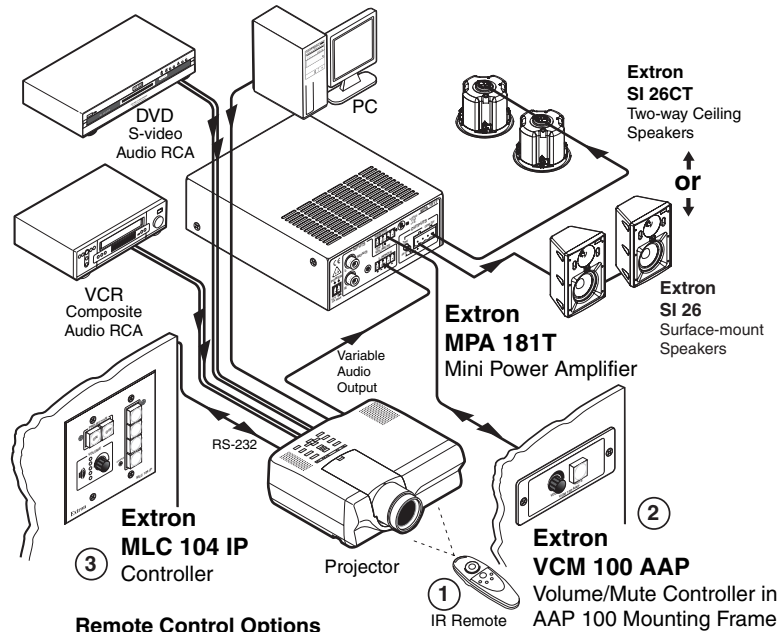
## Chapter Three

### Remote Operation

Remote Control Options

## Remote Operation

### Remote Control Options



#### Remote Control Options

- ① IR Remote - (input selection and volume control through projector)
- ② VCM 100 Volume/Mute Controller - (direct MPA 181T control)
- ③ MLC 104 IP Controller - (input selection and volume control through projector)

**Figure 3-1 — Three remote control options**

- ① **Using the projector's IR remote** — For a projector with variable audio outputs, use the projector's IR remote to control the projector's volume, which effectively controls the MPA's volume.
- ② **Extron VCM 100 and mute controller** — For a projector without variable audio outputs, or for a system designed to control MPA volume directly, use a 10k ohm potentiometer to control the MPA directly via the remote port on the MPA.
- ③ **Using a MediaLink™ Controller** — For a projector with variable audio output, use a MediaLink controller to control the projector's volume via RS-232 or the projector's IR remote to effectively control the MPA volume.



**MPA 181T**

# Appendix A

## Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Optional Accessories



# Specifications, Part Numbers, and Accessories

## Specifications

### Audio

Frequency response	
8 ohm direct output .....	20 Hz to 20 kHz, $\pm 1.5$ dB
70 V output .....	110 Hz to 20 kHz, +0.5/-3 dB
THD + Noise .....	0.1% @ 1 kHz at nominal level (1 watt, 8 ohm load, or 70 V output)
S/N .....	>72 dB @ 20 Hz to 20 kHz at maximum output (unweighted)
CMRR .....	>80 dB @ 1 kHz, >70 dB @ 20 kHz
Bass adjustment .....	$\pm 10$ dB @ 100 Hz (reference) to 1 kHz (2 dB tolerance)
Treble adjustment .....	$\pm 10$ dB @ 10 kHz (reference) to 1 kHz (2 dB tolerance)

### Audio input

Number/signal type .....	1 stereo/mono, balanced/ unbalanced input 2 stereo/mono, unbalanced inputs (The three inputs are individually buffered and mixed together. Stereo signals are actively summed into a mono signal)
Connectors .....	(1) 3.5 mm captive screw connector, 5 pole (main input) (1) 3.5 mm mini audio jack (tip, ring, sleeve) 1 pair RCA
Impedance .....	18k ohms unbalanced, 23k ohms balanced, DC coupled
Nominal level	
RCA and mini jack .....	-10 dBV (316mVrms) (unbalanced)
Captive screw .....	+4 dBu, (1.23mVrms) (balanced)
Maximum level	
Level pot. at 11 o'clock....	+6 dBV (unbalanced), +16 dBu (balanced) at 1% THD+N
Level pot. at 9 o'clock.....	+16 dBV (unbalanced), +23 dBu (balanced) at 1% THD+N

Input level sensitivity .....	-16 dBV (158 mV) from unbalanced input for maximum output (18 watts at 70 V output and with the level set to maximum) before clipping
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**NOTE**  $0 \text{ dBu} = 0.775 \text{ Vrms}$ ,  $0 \text{ dBV} = 1 \text{ Vrms}$ ,  $0 \text{ dBV} \approx 2 \text{ dBu}$

### Audio output

Number/signal type .....	1 single channel (mono) 70 V output or 1 direct 4 or 8 ohm speaker output
Connectors .....	(1) 5 mm captive screw connector, 4 pole
Minimum load impedance .....	2 ohms
Amplifier type .....	Improved Class D
Continuous power with a full load and 1% THD	
70 V system .....	18 watts (rms)
At 4 ohms .....	14 watts (rms)
At 8 ohms .....	8 watts (rms)
Damping factor .....	>30 (with a 4 ohm load)

### Control/remote — amplifier

Control port .....	(1) 3.5 mm captive screw connector, 5 pole
Pin configuration .....	Pin 1 = 10 V, pin 2 = volume/mute control voltage, pin 3 = GND

### General

External power supply .....	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, 3 A (max.), regulated
Power input requirements .....	12 VDC, up to 3 A
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount .....	Yes, with optional 1U rack shelf, part #60- 190-10 or 60-604-10. Also furniture mountable with optional Mini Under- Desk Mounting Kit, #70-077-10 or mountable to a projector mount with optional kits PMK 350 (#70-563-02, -03) or PMK 300 (#70-374-01).
Enclosure type .....	Metal



## Specifications, Part Numbers, and Accessories

Enclosure dimensions .....	1.7" H x 4.3" W x 6.0" D (1U high, quarter rack wide) 4.3 cm H x 10.9 cm W x 15.2 cm D (Depth excludes connectors.)
Product weight .....	1.2 lbs (0.5 kg)
Shipping weight .....	6 lbs (3 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)

## Included Parts

These items are included in each order of a MPA 181T unit:

Included parts	Part number
MPA 181T Mini Power Amplifier	60-747-01
12 VDC, 3 A external power supply	70-380-01
(2) 5-pin, 3.5 mm captive screw conn.	10-319-10
2-pin, 3.5 mm captive screw conn.	10-319-03
4-pin, 5 mm terminal block plug	10-163-14
<i>MPA 181T Mini Power Amplifier User's Manual</i>	
IEC power cord	
Tweezer	

## Optional Accessories

Accessories	Part number
PMK 300 Multi-Product Proj Mount Kit	70-374-01
PMK 350 Low Profile Multi-product Proj Mount Kit	70-563-02, -03
RSU 126 1U 6" Universal Rack Shelf	60-190-10
RSU 129 1U Universal rack shelf	60-190-01
RSB 129 1U 6" basic rack shelf	60-604-01
MBU 125 1U Under-Desk Mounting Kit	70-077-01
MBD 129 1U Through-Desk Mounting Kit	70-077-02
VCM 100 AAP volume and mute control	70-396-11, -21, -51
VCM 100 MAAP volume and mute control	70-397-11, -21, -51

## **Specifications, Part Numbers, Accessories, cont'd**