

BUC 202

Two Channel Balanced and
Unbalanced Audio Converter



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, 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.

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, www.extron.com.

Instructions de sécurité • Français

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ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, www.extron.com.

Sicherheitsanweisungen • Deutsch

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

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Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, www.extron.com.

Инструкция по технике безопасности • Русский

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Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: www.extron.com, номер по каталогу - 68-290-01.

Chinese Simplified (简体中文)

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注意: ⚠产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修)说明。

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Chinese Traditional (繁體中文)

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注意: ⚠若產品上使用此符號, 是為了提醒使用者, 設備隨附的用戶手冊中有重要的操作和維護(維修)說明。

有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊, 請瀏覽 Extron 網站: www.extron.com, 然後參閱《Extron 安全性與法規遵守手冊》, 準則編號 68-290-01。

Japanese

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Korean

경고: 이 기호 ⚠ 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠ 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

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FC 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 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. There is no guarantee that interference will not occur. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, you are 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.

NOTE: For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the “**Extron Safety and Regulatory Compliance Guide**” on the Extron website.

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

CAUTION: A caution indicates a situation that **may** result in minor injury.

WARNING: A warning indicates a situation that has the **potential** to result in death or severe injury.

ATTENTION: Attention indicates a situation that may damage or destroy the product or associated equipment.

Specifications Availability

Product specifications are available on the Extron website, www.extron.com.

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Introduction

The Extron BUC 202 is a two channel balanced and unbalanced audio converter and audio line driver. It features two balanced or unbalanced inputs and outputs, both on captive screw connectors. The BUC 202 provides two independent channels of signal matching between unbalanced and balanced audio equipment. Two rotary switches provide precise trim adjustment from -21 to +21 dB in clearly-labeled 3 dB steps. In addition to serving as an interface from consumer products to professional AV systems, the BUC 202 is a high-quality line driver for sending and receiving audio signals up to 1,000 feet (300 m). The unique 1U, quarter rack width enclosure, together with the included patented ZipClip 200 mounting bracket, offers the versatility to install the BUC 202 in a discreet location, such as on a rack rail, beneath a table, or within a lectern.

Features

- Converts unbalanced audio signals to balanced signals and balanced signals to unbalanced signals
- Active balancing circuitry
- Audio line driver for long distance audio signal transmission
- Independent, variable trim control on each channel with wide, 42 dB adjustment range
- Versatile 1U, quarter rack width enclosure allows installation on a rack rail, beneath a table, or within a lectern
- Patented ZipClip 200 mounting kit included:
 - Mounts securely on a variety of surfaces, including rack rails, tables, lecterns, and table legs
 - Wire tie slots for proper strain relief and dressing of excess cable
 - Quick release tab allows for easy installation and removal

Application Example

The illustration below is one example of configuring a system using the BUC 202.

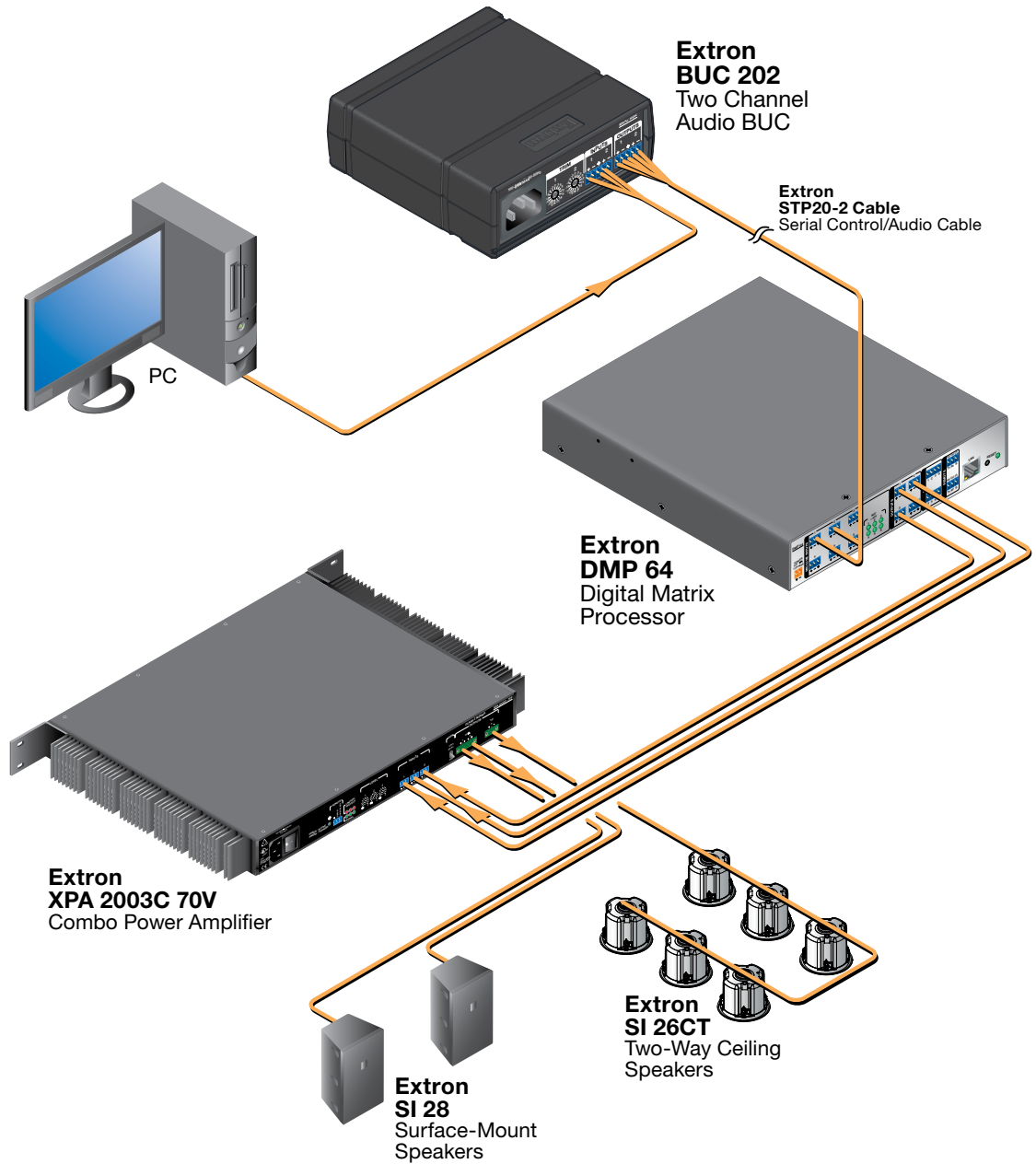


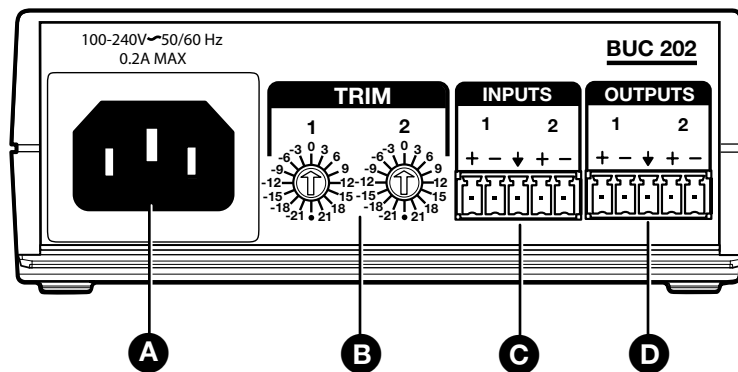
Figure 1. BUC 202 Application Example

Setup and Operation

The Setup and Operation section describes:

- [Rear Panel Features and Cabling](#)
- [Front Panel Feature](#)
- [Adjusting the Trim](#)

Rear Panel Features and Cabling



- A** AC power
- B** Trim adjustment
- C** Input connector
- D** Output connector

Figure 2. BUC 202 Rear Panel

- A AC power** — Connect to standard AC power: 100 to 240 VAC, at 50 or 60 Hz.
- B Trim adjustment (channels 1 and 2)** — Adjust the audio input level for the channel using the 16-position rotary switch. This switch sets the level in 3 dB increments from -21 dB to +21 dB. The arrow on the shaft indicates the current setting.

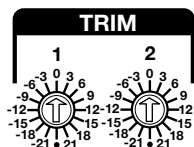


Figure 3. BUC 202 16-position Rotary Switches

NOTE: Unity gain (0 dB) for both channels is at the 12 o'clock (vertical) position with the arrow on the shaft pointing to the 0 position. When the switch is set to the bottom position (indicated by a dot) the signal is muted (see [Adjusting the Trim](#) on page 5).

- C Input connector** — This 3.5 mm, 5-pole captive screw connector accepts line level balanced or unbalanced, mono or stereo audio signals (see to the illustrations below for proper wiring).

ATTENTION: The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inches (5 mm). Any longer and the exposed wires may touch, causing a short circuit between them. Any shorter and the wires can be easily pulled out even if tightly fastened by the captive screws.

NOTE: Do not tin the wires. Tinned wires are not as secure in the connector and could be pulled out.

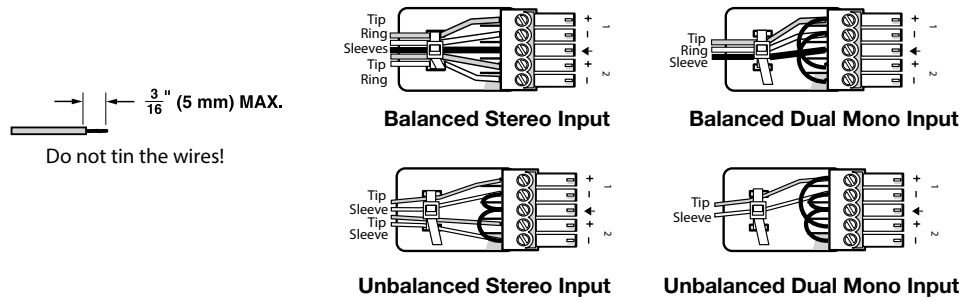
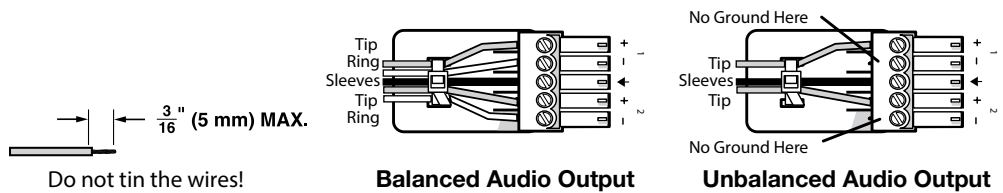


Figure 4. Audio Input Connectors

- D Output connector** — The 3.5 mm, 5-pole captive screw connector outputs balanced or unbalanced line level audio (see the illustrations below for proper wiring).

ATTENTION: For unbalanced audio output, connect sleeves to the center ground pin. **DO NOT** connect sleeves to the negative (-) contacts.

NOTE: Do not tin the wires. Tinned wires are not as secure in the connector and could be pulled out.



Tip-ring-sleeve and tip-sleeve connections:

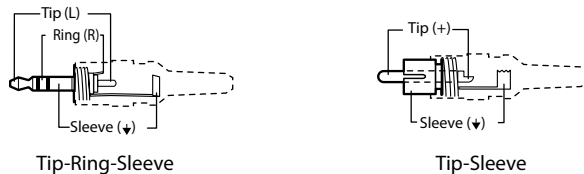


Figure 5. Audio Output Connectors

Front Panel Feature

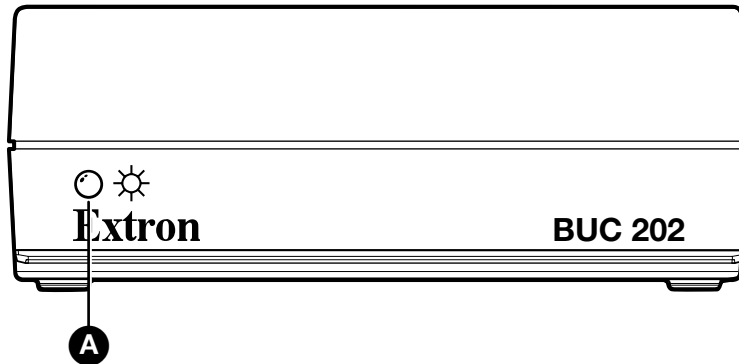


Figure 6. BUC 202 Front Panel

A Power LED — The green lights when the BUC 202 is receiving power.

Adjusting the Trim

The BUC 202 can be wired in four different configurations:

- Balanced input to unbalanced output
- Unbalanced input to balanced output
- Balanced input to balanced output
- Unbalanced input to unbalanced output

Follow the steps below to adjust the trim:

1. Disconnect power from all devices.
2. Wire the BUC 202 for either balanced or unbalanced stereo or dual mono audio input.
3. Wire the BUC 202 for either balanced or unbalanced audio output.
4. Set the trim adjustment:
 - a. Determine the input and output signal types (balanced or unbalanced) and whether it is consumer or professional audio.

Find the trim adjustment setting according to the table below.

		Balanced		Unbalanced	
		Consumer ¹	Professional ²	Consumer ¹	Professional ²
Balanced	Consumer ¹	0 dB	12 dB	6 dB	18 dB
	Professional ²	-12 dB	0 dB	-6 dB	6 dB
Unbalanced	Consumer ¹	0 dB	12 dB	6 dB	18 dB
	Professional ²	-12 dB	0 dB	-6 dB	6 dB

NOTES:

¹ Consumer line level is -10 dBV ≈ -8 dBu.

² Professional line level is +4 dBu.

- b. Use a small screwdriver to turn the appropriate trim adjustment switch to the desired setting.
5. Reconnect power to all devices to test the audio.
6. If necessary, readjust the trim.

Mounting

The Mounting section describes:

- [UL Rack Mounting Guidelines](#)
- [Tabletop Mounting](#)
- [Rack Rail and Under-Furniture Mounting](#)
- [Rack Shelf Mounting](#)

UL Rack Mounting Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the BUC 202 in a rack.

1. **Elevated operating ambient temperature** — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the BUC 202 in an environment compatible with the maximum ambient temperature ($T_{ma} = +122\text{ }^{\circ}\text{F}$, $+50\text{ }^{\circ}\text{C}$) specified by Extron.
2. **Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mount the equipment in the rack so that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (as an example, use of power strips).

Tabletop Mounting

To mount the unit on a desk or tabletop, set the unit on a tabletop.

Rack Rail and Under-Furniture Mounting

NOTE: To properly mount the BUC 202 on a rack rail or under furniture use the Extron ZipClip 200 Mounting Clip.

Rack Rail Mounting

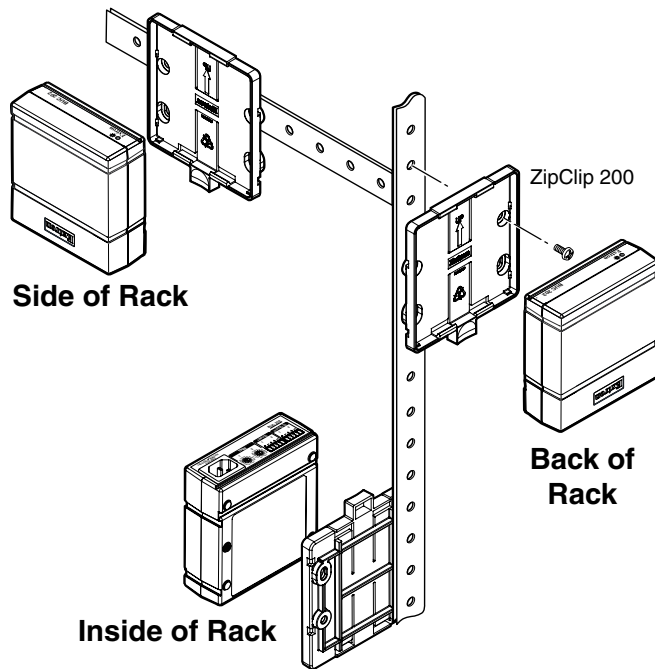
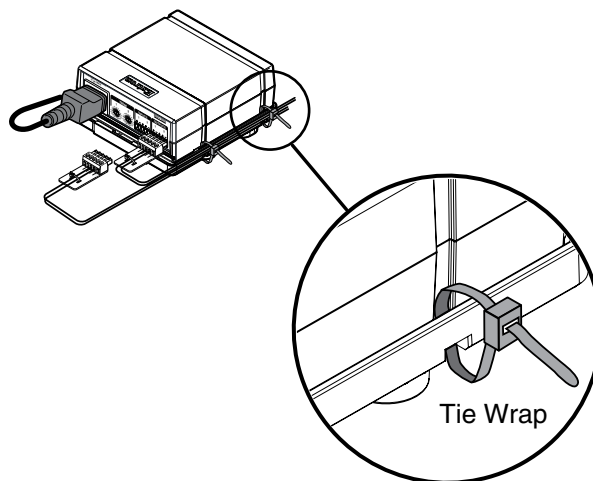


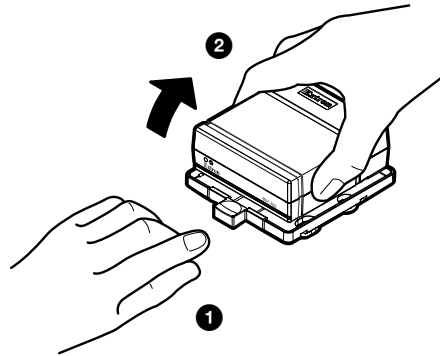
Figure 7. BUC 202 Rack Rail Mounting

1. Fasten the ZipClip 200 mounting clip to a convenient location on a rack rail using two rack screws.
2. Insert the bottom of the BUC 202 into the clip, starting with one end.
3. Pivot the other end of the unit toward the clip and press until the BUC 202 snaps into place.
4. To secure any loose cables and to provide strain relief, attach tie wraps (“zip ties”) around the tie wrap notches on the BUC 202 and through the anchor points on the mounting clip.



ATTENTION: Connect and pull the tie wraps until they are secure.
Do not overtighten.

5. To remove the BUC 202 from the ZipClip 200 mounting clip, press down on the locking tab (❶) while lifting up on the unit (❷).



Under-Furniture Mounting

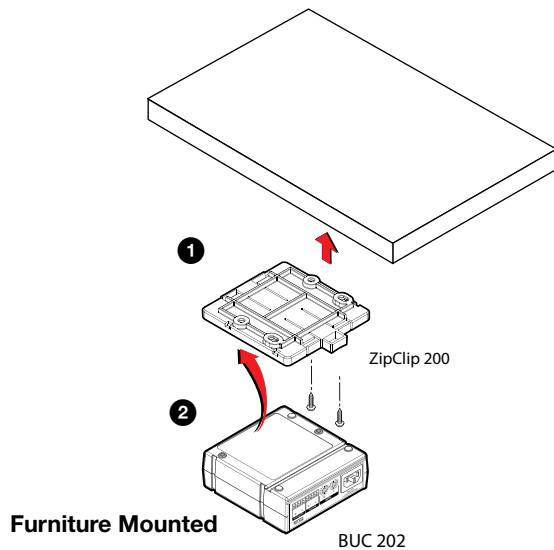
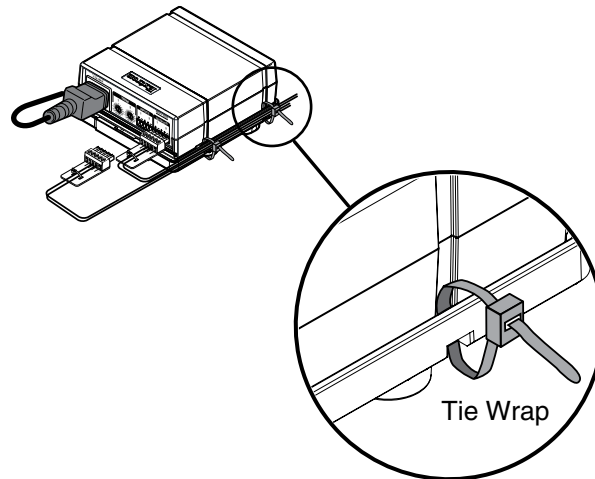


Figure 8. BUC 202 Under-Furniture Mounting

NOTE: The ZipClip is shipped with a set of four wood screws.

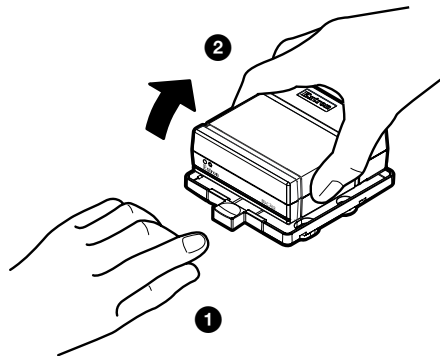
1. Attach the ZipClip to the furniture using two or more wood screws (❶). Make sure the clip is oriented with the appropriate side facing the mounting surface and with the tab accessible from the front of the furniture.
2. Insert the bottom of the BUC 202 into the clip, starting with one end (❷).
3. Pivot the other end of the unit toward the clip and press until the BUC 202 snaps into place.

4. To secure any loose cables and to provide strain relief, attach tie wraps (“zip ties”) around the tie wrap notches on the BUC 202 and through the anchor points on the mounting clip.



ATTENTION: Connect and pull the tie wraps until they are secure. Do not overtighten.

5. To remove the BUC 202 from the ZipClip 200 mounting clip, press down on the locking tab (1) while lifting up on the unit (2).



Rack Shelf Mounting

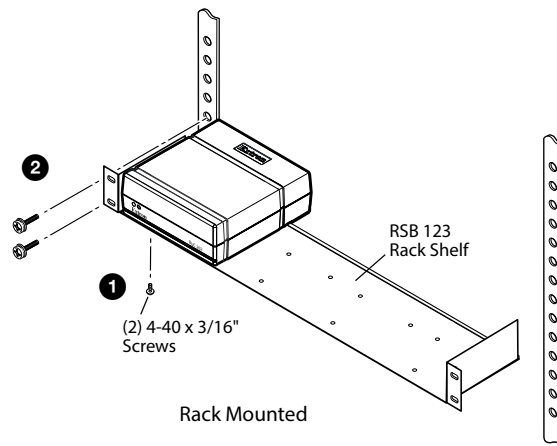


Figure 9. BUC 202 Rack Shelf Mounting

1. Align the threaded holes in the bottom of the BUC 202 with the holes in an Extron rack shelf (❶). Fasten the unit to the shelf with two 4-40 x 3/16-inch screws.
2. Bolt the rack shelf to the rack (❷).

Extron 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
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Japan:

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
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Extron Asia Pte Ltd
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:

Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

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 if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: 714.491.1500 or 800.633.9876

Asia: 65.6383.4400

Europe: 31.33.453.4040

Japan: 81.3.3511.7655

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.

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