

# Crestron **CNX-PBAR4**

## Professional Balanced Audio Receiver

### Operations Guide



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# Professional Balanced Audio Receiver: CNX-PBAR4

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## Introduction

### Features and Functions

The CNX-PBAR4 Professional Balanced Audio Receiver consists of four identical differential receiver channels and is designed to work with the Crestron® CNXRMCLV Room Solution Box and CNX-BIPAD8 Audio Distribution Processor.

Balanced output of local audio sources from the CNXRMCLV room box is routed via CAT5 cabling to the CNX-PBAR4 at the head-end. The balanced audio is buffered and routed from the CNX-PBAR4 to a CNX-BIPAD8 for additional distribution. The CNX-PBAR4 also converts the signal from balanced to single-ended, and outputs the audio on RCA jacks. This line-level audio is routed to a CNX-BIPAD8 or CNX-PAD8A for distribution to other room boxes, amplifiers, or CNX-BIPAD8s. Balanced audio from a CNX-BIPAD8 can also be supplied via CAT5 to the CNX-PBAR4 and passed through to a CNXRMCLV. For detailed information, refer to the simplified configuration diagram described in “Hookup” which begins on page 7.

This non-Cresnet® unit is a key component for distributing audio throughout an entire home, using standard CAT5 cabling. The unit does not require a Cresnet ID or definition in a Crestron SIMPL Windows program.

### *Functional Summary*

- 4 RJ45 Connectors for CAT5 I/O to Room Boxes
- 4 RJ45 Connectors for CAT5 I/O to Audio Distribution Processors
- 8 RCA Connectors (2 per Group) for Line-Level Audio Output to Other Room Boxes, Amplifiers, and Audio Distribution Processors.

## Specifications

Specifications for the CNX-PBAR4 are given in the following table.

### *CNX-PBAR4 Specifications*

SPECIFICATION	DETAILS
Power Requirements	24W (1A @ 24VDC), Power Pack, PW-2410RU, included
CAT5 Cable Length	Up to 500 feet maximum each from all devices.
RJ45 IN Port Input Pins 1, 2, 3, 6 Output Pins 4, 5, 7, 8 Impedance Signal Level	Shielded (8-pin) Female Balanced In Balanced Out 600 Ohms 4VRMS max differential
RJ45 OUT Port Output Pins 1, 2, 3, 6 Input Pins 4, 5, 7, 8 Impedance Voltage Level	Shielded (8-pin) Female Balanced Out Balanced In 600 Ohms 4VRMS max differential
RCA Audio Output Output Type Connector Impedance Voltage Level	Unbalanced / Standard Line Level RCA Female 100 Ohms 2VRMS max.
Audio Specifications Total Harmonic Distortion Signal to Noise Ratio Common Mode Rejection Frequency Response	< 0.005% >100dB >90dB 20 Hz to 20 KHz $\pm$ 0.2 dB
Operating Temperature & Humidity	41° to 113°F (5° to 45°C) 10% to 90% RH (non-condensing)
Dimensions & Weight	Height: 1.7 in (4.32 cm) (1 rack space) Width: 19.0 in (48.26 cm) – with ears (included) 17.03 in (43.24 cm) – without ears Depth: 6.67 in (16.94 cm) Weight: 2.88 lb (1.29 kg)

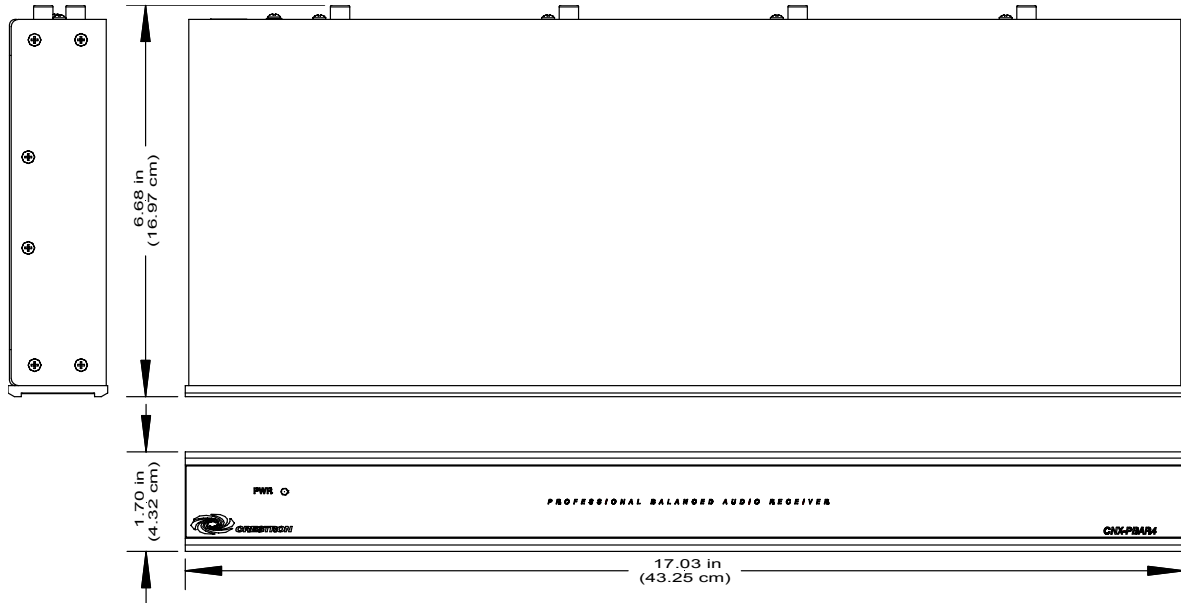
## Physical Description

The CNX-PBAR4 is housed in a black enclosure with labeling on the front and back panels. For unit dimensions, refer to the physical view drawing below.

### *CNX-PBAR4 Front Panel*



### *CNX-PBAR4 Physical View*



## Ports and Indicators

The CNX-PBAR4 has a single LED power indicator (PWR) on the front panel. The LED is illuminated when the unit is connected to and receives 24VDC power from the supplied power pack.

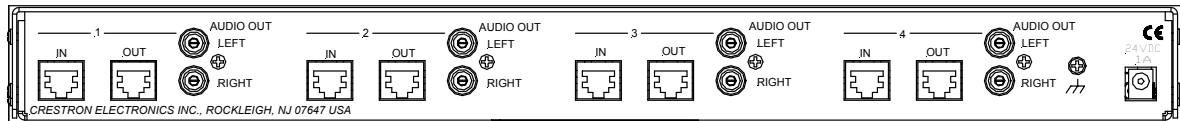
All audio input/output ports are located on the rear panel.

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**NOTE:** This unit is a non-Cresnet device.

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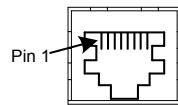
As shown in the illustration on the next page, the unit's ports consist of four identical audio I/O groups of input and output connectors. Also located on the rear panel is the male connector for 24VDC input power from the supplied power pack, PW-2410RU. The ports and controls are described in the paragraphs following the illustration.

**CNX-PBAR4 Rear Panel**

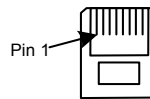
Each of the four audio channels consists of two RJ45 (8-pin) connectors (labeled IN and OUT) and a pair of gold plated RCA connectors labeled AUDIO OUT, LEFT and RIGHT.

**RJ45 Connectors**

These 8-pin connectors provide bi-directional balanced audio connection, via CAT5 cables, to CNXRMCLV room boxes and to CNX-BIPAD8 audio distribution processors. Pinouts for the unit receptacles and cable connectors are shown in the following figure.

**RJ45 Pinouts****8 PIN, RJ45 PINOUT**

RECEPTACLE, REAR VIEW  
(TAB POSITION DOWN)



CONNECTOR  
(TAB FACING AWAY)

**RCA Connectors**

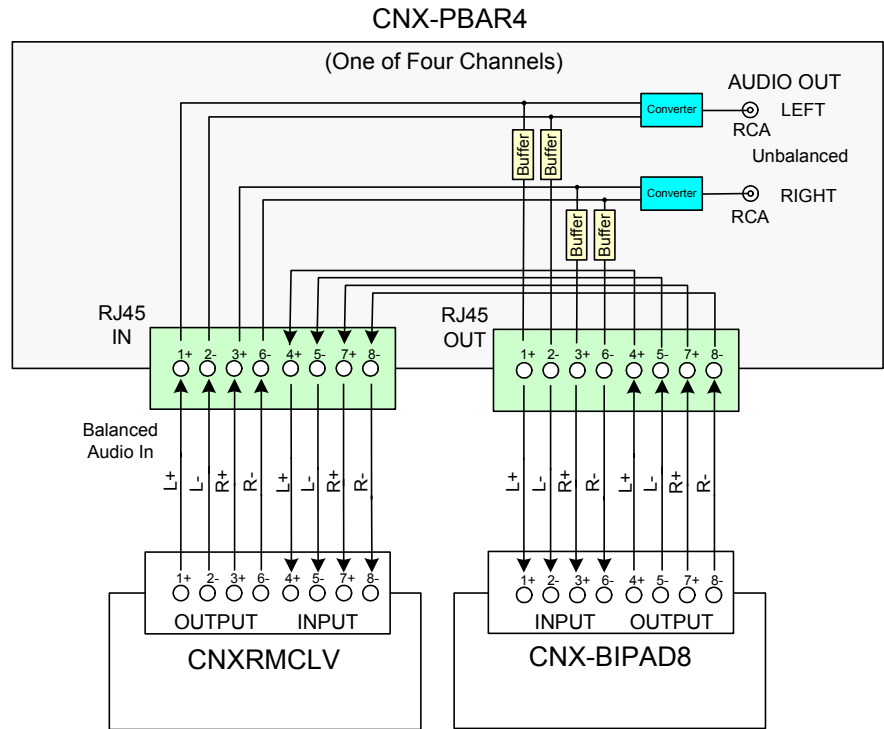
The two RCA connectors provide line-level audio for a variety of configurations required by the local equipment in the room.

**Functional Description**

As shown in the simplified functional diagram on the following page, the IN connectors receive balanced audio input from the CNXRMCLV on pins 1, 2, 3, and 6. The balanced audio is buffered, routed to pins 1, 2, 3, and 6 of the OUT connector, and supplied to the CNX-BIPAD8. The balanced audio is also converted to unbalanced audio and supplied to the RCA connectors for distribution to the CNX-BIPAD8, amplifiers, or other room boxes. Balanced audio from the CNX-BIPAD8 is supplied to pins 4, 5, 7, and 8 of the OUT connector, and passed through to pins 4, 5, 7, and 8 of the IN connector, to be supplied to the CNXRMCLV.



*CNX-PBAR4 Simplified Functional Diagram*



### Industry Compliance

As of the date of manufacture, this unit has been tested and found to comply with specifications for CE marking and standards per EMC and Radio Communications Compliance Labeling (N11785)



**NOTE:** This device complies with part 15 of the FCC rules. Operation is subject to the following two 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.

## Setup

### Rack Mounting

**WARNING:** To prevent bodily injury when mounting or servicing this unit in a rack, take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

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**NOTE:** If rack mounting is not required, rubber feet are provided for tabletop mounting or stacking. Apply the feet near the corner edges on the underside of the unit.

**NOTE:** Reliable earth grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

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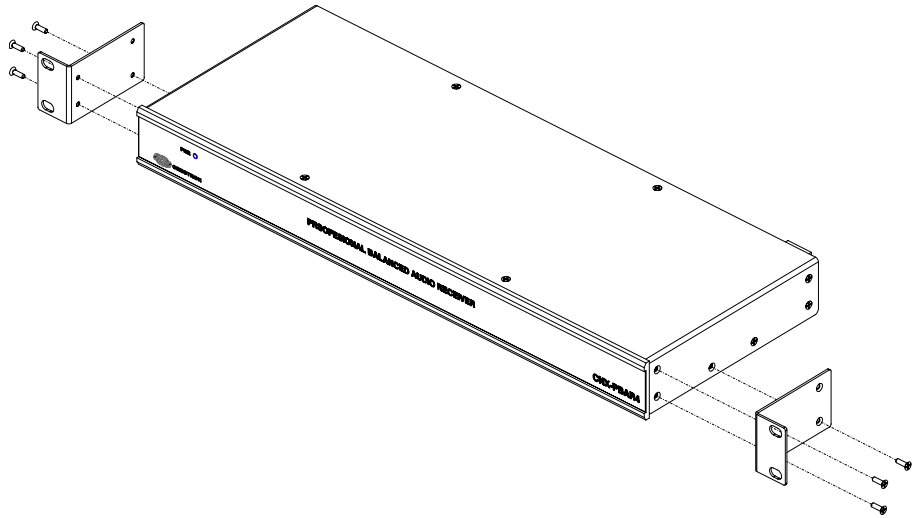
Two “ears” are provided with the unit and must be installed so that it can be rack mounted. Refer to the following illustration and complete the procedures below to attach ears to the unit. The only tool required is a Phillips screwdriver.

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**NOTE:** Attaching screws are provided with the ears.

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#### *Ear Attachment for Rack Mounting*



1. Using a Phillips screwdriver, remove the three side screws closest to the front panel.
2. Position a rack ear so that its mounting holes align with the vacated holes, and secure the ear to the unit with the three longer screws supplied with the ears.
3. Repeat the procedure to attach the remaining ear to the opposite side.

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**CAUTION:** If rack ears are subsequently removed to accommodate a non-rack configuration, be certain to reinstall the shorter screws removed in Step 1. Failure to do so can cause damage to internal components.

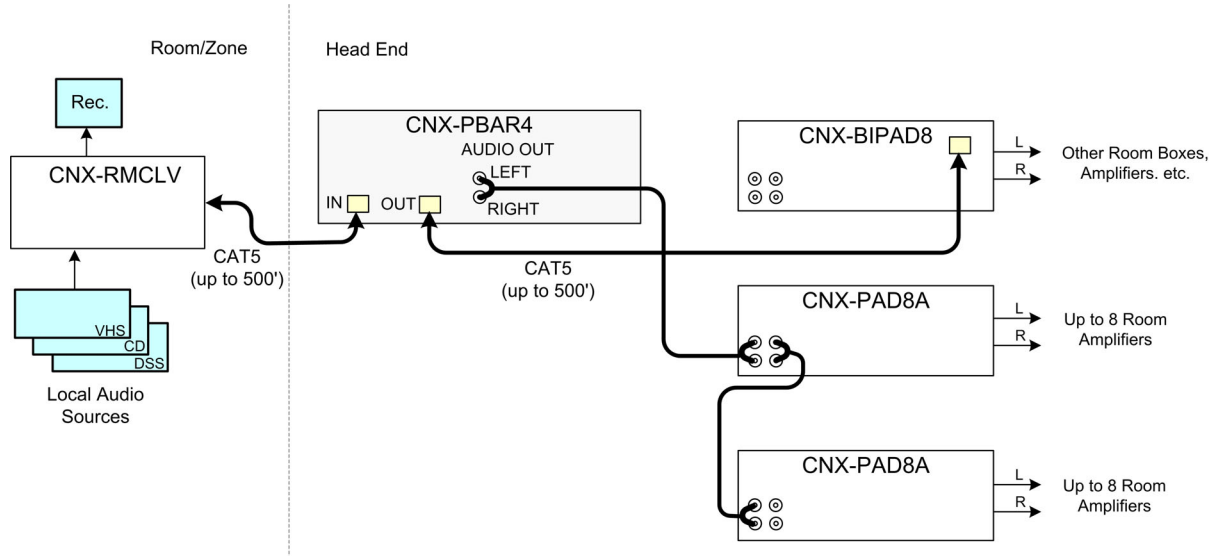
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### Hookup

The CNX-PBAR4 provides great flexibility in redistributing audio signals throughout an entire home. Local room sources can be distributed and shared to other rooms through the headend. For example, as seen in the following simplified configuration diagram, users can choose audio from among the headend sources, their own local sources, or the local sources of other rooms.

To maintain highest signal integrity, Crestron recommends a maximum length of 500 feet for CAT5 input cables between the CNX-PBAR4 and other devices.

*Simplified Configuration Diagram for the CNX-PBAR4*



In this diagram, local audio sources routed from the CNXRMLV as balanced audio to the IN port of the CNX-PBAR4 are sent via CAT5 cable from the OUT connector to a CNX-BIPAD8 for redistribution to other room boxes, amplifiers, or CNX-BIPAD8s.

Line-level audio from the CNX-PBAR RCA outputs is routed to CNX-PAD8As for distribution to local room amplifiers.

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## Problem Solving

### Troubleshooting

In the event of poor quality or missing signal output at one or more distribution points supplied by circuits that include the CNX-PBAR4, and troubleshooting procedures for the other devices in the network do not resolve the problem, do the following:

1. Verify existence of input signals(s) from the CNXRMCLV.
2. Verify that the correct (24 VDC, 1A) external Power Pack is properly connected, and that the front panel PWR indicator is illuminated.
3. Verify pinouts on CAT5 cable connectors. Make sure crimping is secure and that there are no shorts.
4. Verify that all CAT5 input cables and RCA output cables are securely connected.
5. After determining which of the four channels may be at fault, swap the input and output cables between the groups to locate the source of the trouble. If further assistance is required, please contact a Crestron customer service representative.

### Further Inquiries

If after reviewing this Operations Guide for the CNX-PBAR4, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team in your area. Dial one of the following numbers.

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
- In Latin America, call Crestron Latin America at +5255-5093-2160.
- In Australia and New Zealand, call Crestron Control Solutions at +61-2-9737-8203.

### Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the CNX-PBAR4, additional information and programming examples may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website ([www.crestron.com](http://www.crestron.com)) periodically for manual update availability and its relevance. Updates are available from the Downloads | Product Manuals section and are identified as an "Addendum" in the Download column.

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## Return and Warranty Policies

### Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.
2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

### CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

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