

Crestron **CNXBRMO**
Bridging/Mono Interface

Operations Guide



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Bridging/Mono Interface: CNXBRMO

Introduction

Features and Functions

- Designed for use with a Crestron[®] CNX-PAD8A or CNX-BIPAD8 audio distribution processor
- Facilitates bridging of a CNAMPX-16X60 or CNAMPX-12X60 for increased power output
- Can be configured to produce a summed, mono signal with up to four outputs (two with inverted polarity) from a single stereo source

Applications

The CNXBRMO accepts the stereo signal from a single room output and splits that signal into two stereo outputs, one with normal polarity and the other with inverted polarity. These two outputs connect to the inputs of two adjacent stereo channels on the CNAMPX amplifier. The result is that these two channels can be used to drive a stereo pair of loudspeakers with over 200 Watts of output power per speaker.

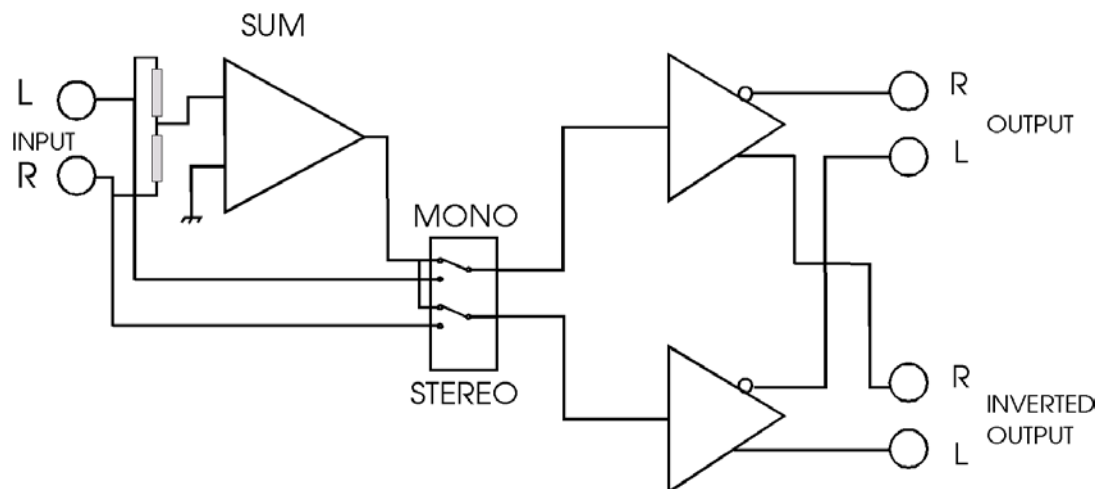
On either amplifier model only the first two adjacent channels and the last two adjacent channels are bridgeable. Therefore no more than two CNXBRMO interfaces may be used with a single CNAMPX amplifier.

The CNXBRMO can also be configured to produce a summed mono signal.

Internal Block Diagram

The following diagram represents the signal routing abilities of the CNXBRMO. For more information refer to “Hardware Hookup” on page 7.

Internal Block Diagram of the CNXBRMO



Specifications

Specifications for the CNXBRMO are listed in the following table.

CNXBRMO Specifications

SPECIFICATION	DETAILS
Cresnet [®] power usage	<1 Watt @ 24 Volts DC
Environmental	
Temperature	41° to 122°F (5° to 50°C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	Black metal, surface mount box with (2) integral mounting flanges
Dimensions (including connectors)	
Height	1.26 in (3.19 cm)
Width	5.75 in (14.61 cm)
Depth	2.54 in (6.45 cm)
Weight	0.54 lbs (0.24 kg)

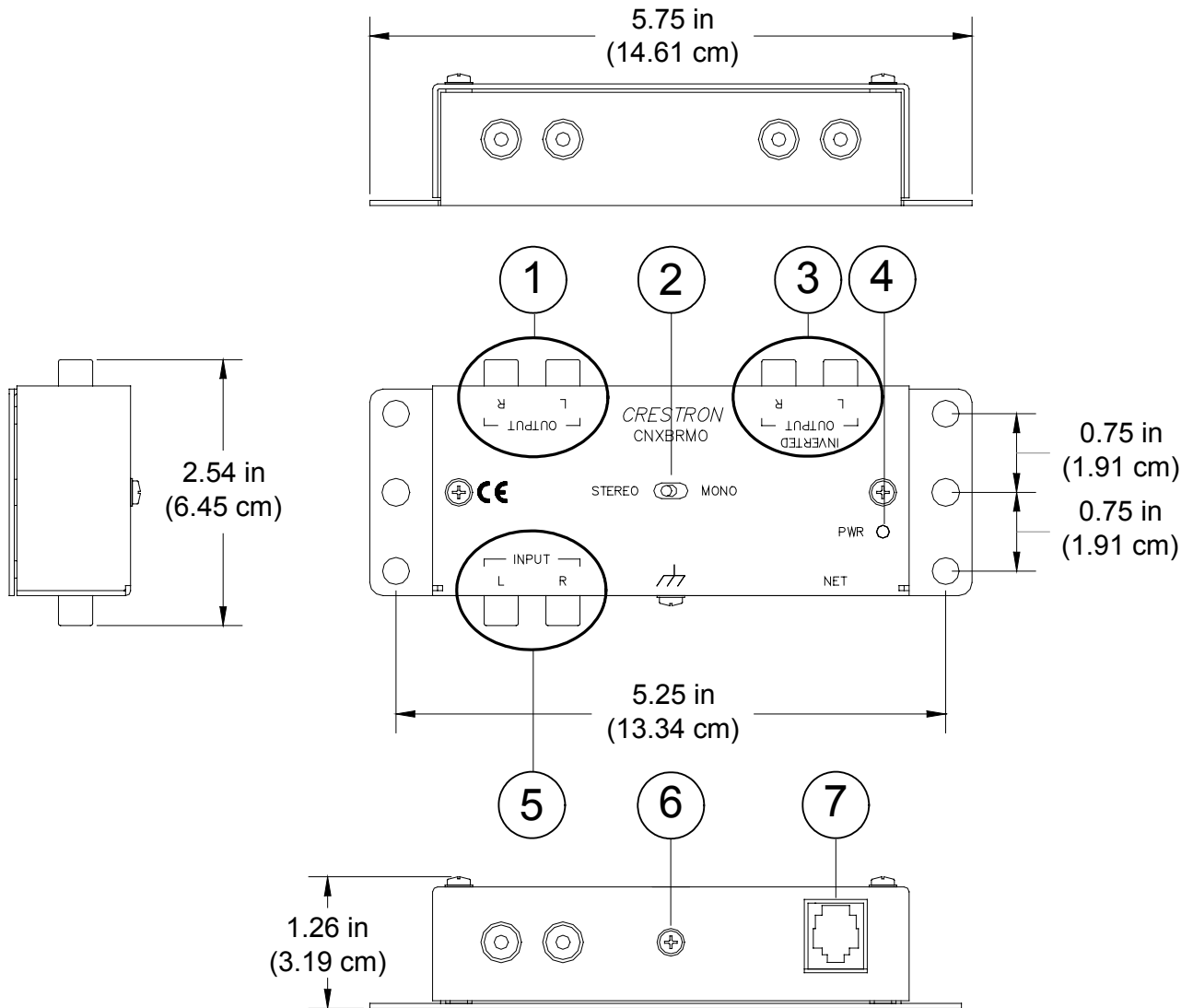
Physical Description

This section provides information on the connections, controls and indicators available on your CNXBRMO.






CNXBRMO Physical View



CNXBRMO Overall Dimensions



Connectors, Controls & Indicators

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	OUTPUT (L & R) 	Two RCA jacks are used to connect to a room/zone amplifier to provide direct left and right line-level audio. Output impedance: 600 Ω; Maximum output level: 2.5 Volts RMS.
2	STEREO/MONO SWITCH	Two-position toggle switch used to select between stereo and mono output.
3	INVERTED OUTPUT (L & R) 	Two RCA jacks are used to connect to a room/zone amplifier to provide inverted left and right line-level audio. Output impedance: 600 Ω; Maximum output level: 2.5 Volts RMS.
4	PWR LED	Indicates 24 Volts DC power supplied from Cresnet control network.
5	INPUT (L & R) 	Two RCA jacks are used to connect to the CNX-PAD8A or CNX-BIPAD8 to accept left and right line-level audio. Input impedance: 10 kΩ; Maximum input level: 2.5 Volts RMS.
6	GROUND 	(1) 6-32 screw, chassis ground lug.
7	NET ^{1,2} 	(1) 6-pin RJ-11 female; connects to Cresnet control network

1. Crestron provides a two-foot cable assembly with the unit, part number 15717, for network connection.
2. Use Crestron's six-conductor modular cable when connecting to the NET port. Standard telephone cables are wired in a crisscross fashion and are not compatible with Crestron equipment. Refer to the latest version of Network Modular Cable Requirements (Doc. 5628), which is available from the Crestron website (<http://www.crestron.com/manuals>).

Industry Compliance

As of the date of manufacture the CNXBRMO has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.



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.

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.
-

Setup

Network Wiring

When wiring the network, consider the following:

- Use Crestron Certified Wire.
- Use Crestron power supplies for Crestron equipment.
- Provide sufficient power to the system.

CAUTION: Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system (<http://www.crestron.com/calculators>).

- To facilitate connection to a CNX-PAD8A or CNX-BIPAD8, use a Cresnet Distribution Block (such as the C2N-HBLOCK).

For more details, refer to “Check Network Wiring” on page 14.

Hardware Hookup

Connect the Device

Make the necessary connections as called out in the illustration that follows this paragraph. Refer to “Network Wiring” above before attaching the 4-position terminal block connector. Apply power after all connections have been made.

When making connections to the CNXBRMO, consider the following:

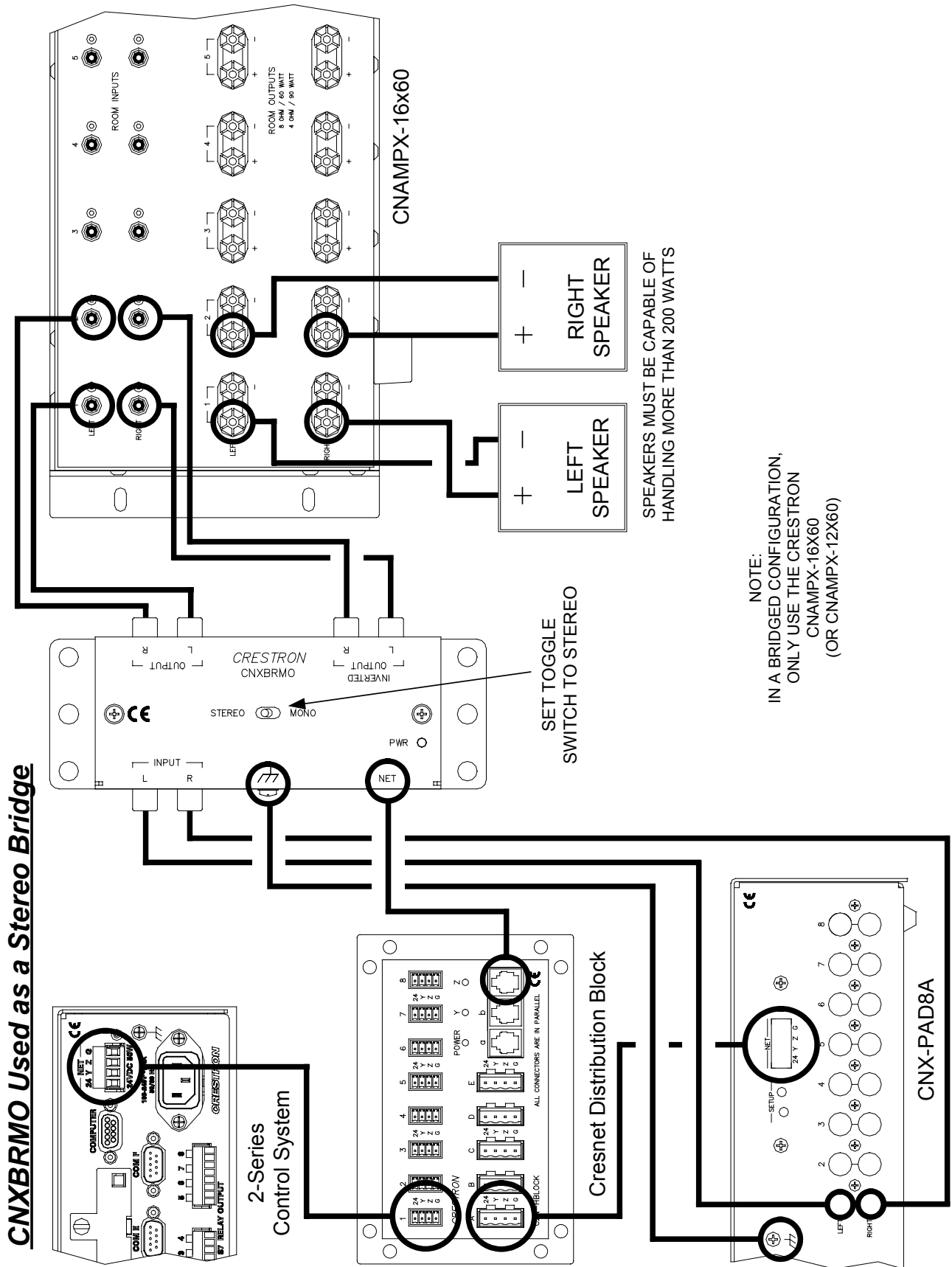
- Use Crestron power supplies for Crestron equipment.
- The included cable cannot be extended.

The CNXBRMO serves as either a bridge for stereo/mono audio in an audio distribution system or can provide all summed mono audio.

Stereo/Mono Bridge

In a bridged wiring configuration the CNXBRMO should only be used with the Crestron CNAMPX-16X60 (or CNAMPX-12X60) amplifier to provide over 200 watts of power to each speaker. Set the **Stereo/Mono** switch on the CNXBRMO to create a stereo or mono bridge. Refer to the illustrations on pages 9 & 10 for proper connections. Apply power to the audio distribution system last.

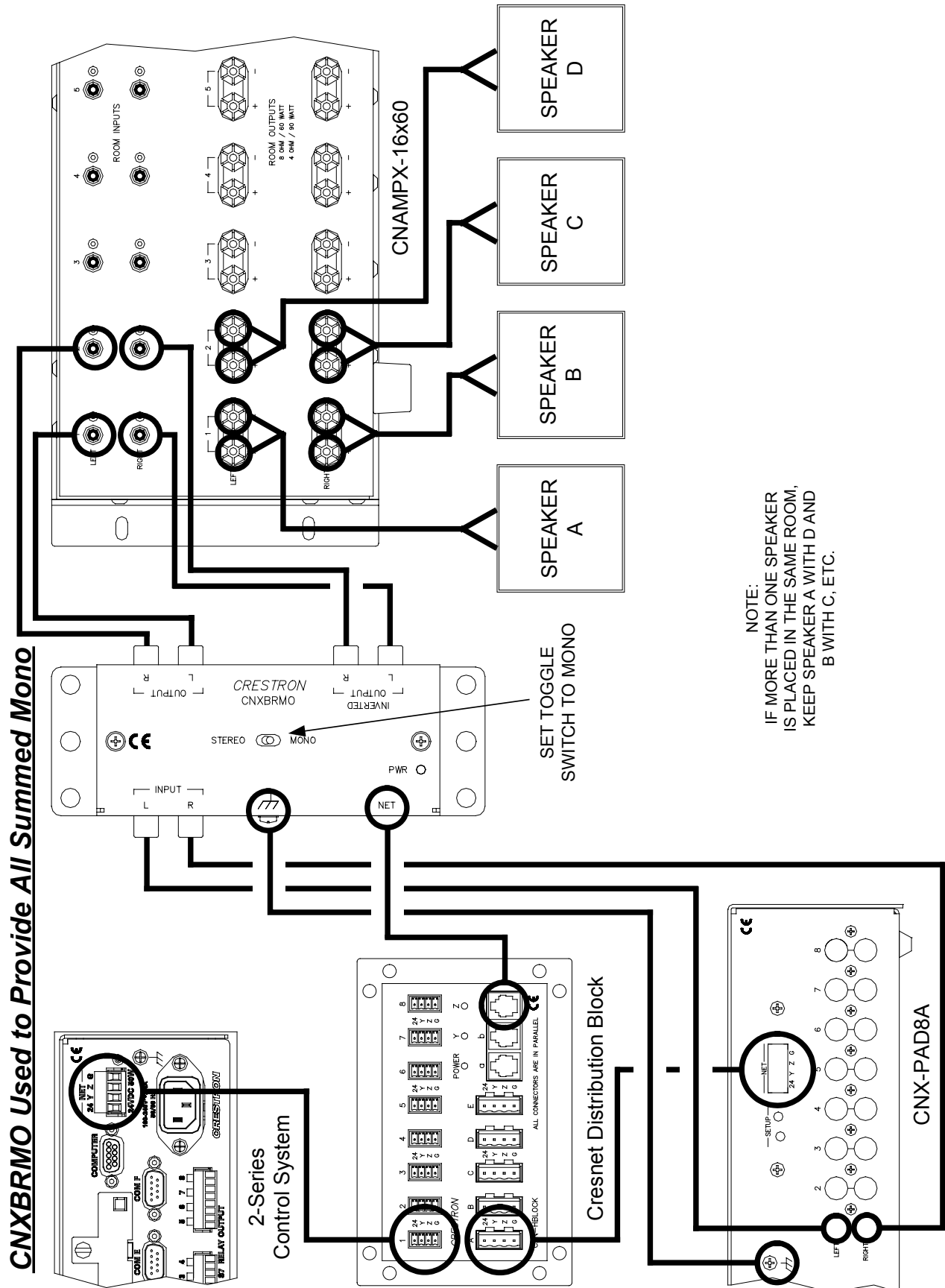
NOTE: When bridging, no more than two CNXBRMO units should be connected to a single CNAMPX-16X60 (or CNAMPX-12X60). When implementing a two CNXBRMO bridge, Crestron recommends connecting one to ROOM INPUTS 1 & 2 and connecting the other to ROOM INPUTS 7 & 8 on the CNAMPX-16X60 (or ROOM INPUTS 5 & 6 on the CNSMPX-12X60). Failure to make these connections in this particular application may result in damage to the amplifier.



All Summed Mono

To use a single CNXBRMO to provide four mono output signals (two with normal polarity and two with inverted polarity) from a single stereo source, simply set the **Stereo/Mono** switch on the CNXBRMO to Mono and make the connections shown in the illustration on the next page. Apply power to the audio distribution system last.

NOTE: Multiple CNXBRMO units may be used in a single “all summed mono” system (up to four CNXBRMO units per CNAMPX-16X60 or three CNXBRMO units per CNAMPX-12X60).



Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

CNXBRMO Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
PWR LED does not illuminate.	CNXBRMO is not receiving power.	Verify cable plugged into NET port is the correct type and that it is secure.
Hum on audio.	Grounding problem.	Verify CNXBRMO is grounded to CNX-PAD8A (or CNX-BIPAD8). If hum persists, remove chassis ground wire.

Check Network Wiring

Use the Right Wire

In order to ensure optimum performance over the full range of your installation topology, Crestron Certified Wire and only Crestron Certified Wire may be used. Failure to do so may incur additional charges if support is required to identify performance deficiencies because of using improper wire.

Calculate Power

CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system (<http://www.crestron.com/calculators>).

When calculating the length of wire for a particular Cresnet run, the wire gauge and the Cresnet power usage of each network unit to be connected must be taken into consideration. Use Crestron Certified Wire only. If Cresnet units are to be daisy-chained on the run, the Cresnet power usage of each network unit to be daisy-chained must be added together to determine the Cresnet power usage of the entire chain. If the unit is home-run from a Crestron system power supply network port, the Cresnet power usage of that unit is the Cresnet power usage of the entire run. The wire gauge and the Cresnet power usage of the run should be used in the following equation to calculate the cable length value on the equation's left side.

Cable Length Equation

$$L < \frac{40,000}{R \times P}$$

Where: L = Length of run (or chain) in feet
 R = 6 Ohms (Crestron Certified Wire: 18 AWG (0.75 MM²))
 or 1.6 Ohms (Cresnet HP: 12 AWG (4 MM²))
 P = Cresnet power usage of entire run (or chain)

Make sure the cable length value is less than the value calculated on the right side of the equation. For example, a Cresnet run using 18 AWG Crestron Certified Wire and drawing 20 watts should not have a length of run more than 333 feet. If Cresnet HP is used for the same run, its length could extend to 1250 feet.

NOTE: Use Crestron's six-conductor modular cable when connecting to the NET port. Standard telephone cables are wired in a crisscross fashion and are not compatible with Crestron equipment. Refer to the latest version of Network Modular Cable Requirements (Doc. 5628).

Strip and Tin Wire

When daisy-chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle. Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (<http://www.crestron.com/manuals>). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
Network Modular Cable Requirements

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website (<http://www.crestron.com/>) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features and extends the capabilities of the CNXBRMO, additional information 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 periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

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 an authorized CRESTRON dealer. Only authorized CRESTRON dealers may 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 supersedes all previous warranties.

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