

Balanced Line Series

BLD-10_{tm} Balanced Line Driver

BLR-10_{tm} Balanced Line Receiver

BLX-10_{tm} Balanced Line Transceiver

Installer Information

Congratulations

You are installing one of the most innovative custom audio installation products available - The AudioControl BLD-10 Four Channel Balanced Line Driver, BLR-10 Four Channel Balanced Line Receiver and the BLX-10 Two Channel Balanced Line Transceiver. These units will help you make any audio system sound it’s best by converting between noise-ridden RCA cables and a noise-Rejecting balanced audio signal.

Before you charge off into the installation, please take a moment to kick back, reflect on things and read through this manual.

Features of the Balanced Line Series

- Unbalanced to Balanced to Unbalanced Conversion
- Active Balanced Circuitry Eliminates The Need For Lossy Audio Transformers In The Signal Path
- Separate Balanced Line Driver And Line Receiver For Quiet Operation Even In Noisy Environments
- Allows Easy Extension Of High-Quality Audio Signals Up To 1000’ (305 Meters)
- Perfect For Separating Amps And Source Units In Multi-Room Audio Installations
- Uses Standard, Inexpensive, Twisted-Pair Cat-5 Wiring



The Most Important Instruction Of All
FILL OUT AND SEND IN THE WARRANTY CARD! Also, save the invoice or sales slip as proof of purchase. These actions will protect this investment and help prove that such a handy piece of audio equipment was really in the system.

IMPORTANT

For the best product performance and the lowest use of pain-killers, nothing is better than a well-planned professional system installation. Before you start pulling wires, sketch out a full layout of the complete system. This will help plan the wire routing and minimize the “gotchas” later on. Happy installing.

Installation Notes

Mounting The Units

The small size and low power draw of these units allow them to be mounted in almost any dry indoor location. Pick locations close to the unbalanced units that will be connected to the driver or receiver. This keeps the unbalanced RCA cables as short as possible since they are more susceptible to noise pickup than the balanced lines. There is no heat build-up problem if you need to put the unit into a closed area, but remember, you need to at least be able to reach the units to plug in the wiring block.

Important Note: When routing the 24 volt AC power wiring from the wall plug transformer, make certain that you do not run it near or parallel to the unbalanced RCA cables. You may pick up AC hum.

Wiring The System

Audio Wiring

The Balanced Line system operates using standard unshielded twisted-pair wiring. You can use solid or stranded category 5 cabling in most installations. In areas that are known for severe RF noise (like downtown Manhattan) you may need to use a shielded multi-pair cable such as Belden 8451. Good wiring practices will minimize the chance of any noise pickup.

- Do not run the audio cables next to AC power wiring.
- If you need to cross over a power wire, try to do it at 90° to the other wire.
- Keep the audio wiring as far as possible from any noise sources such as lighting power supplies, fluorescent lights, motors, etc.

Grounding

If you use a shielded balanced line cable, then you need to be careful about ground loops. In some instances it is necessary to only connect the

shield at one end of the balanced line and NOT at the other end. This provides a ground path for noise picked up by the shield, but it prevents a continuous signal ground path between the source and destination units.

Power Wiring

The Balanced Line Series components operate from a 24 volt AC wall plug transformer. There is no polarity on the power wiring from the transformer so it can connect either way to the connector block on the unit. The power draw is very low on these units (each unit draws approximately 24 milliamps) so you can tap the supply from another 24 VAC transformer if it’s handy.

Helpful Hint: If you are installing multiple drivers or receivers in one location, the wall plug transformer supplied is capable of powering up to 10 units. Just parallel the power connections on each driver/receiver and run them to the power transformer.

Setting The Level Controls

Properly adjusting the level controls will give you the highest headroom and the best signal to noise ratio. Please note that the input level control is capable of up to 21dB of gain while the output level control is attenuate only. This minimizes the chance of system gain noise due to excessive gain at the receiving end of the balanced line. These balanced line converters are also very useful for converting signal levels between the high level balanced signal of professional audio equipment and the lower level unbalanced signal of consumer audio. Here are some example settings for common installations.



System	Input Gain	Output Level
Consumer to Consumer	+ 10dB	-10dB
Consumer to Pro Balanced Input	+ 10dB	Not Used
Pro Balanced Output to Consumer	Not Used	-10dB

Balanced Line Series Specifications

Specification are subject to change and improvement

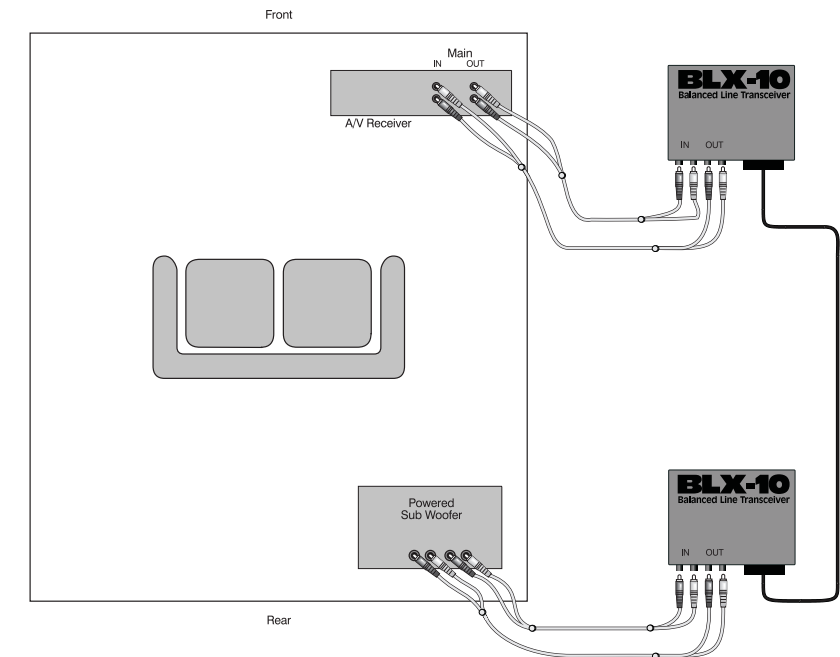
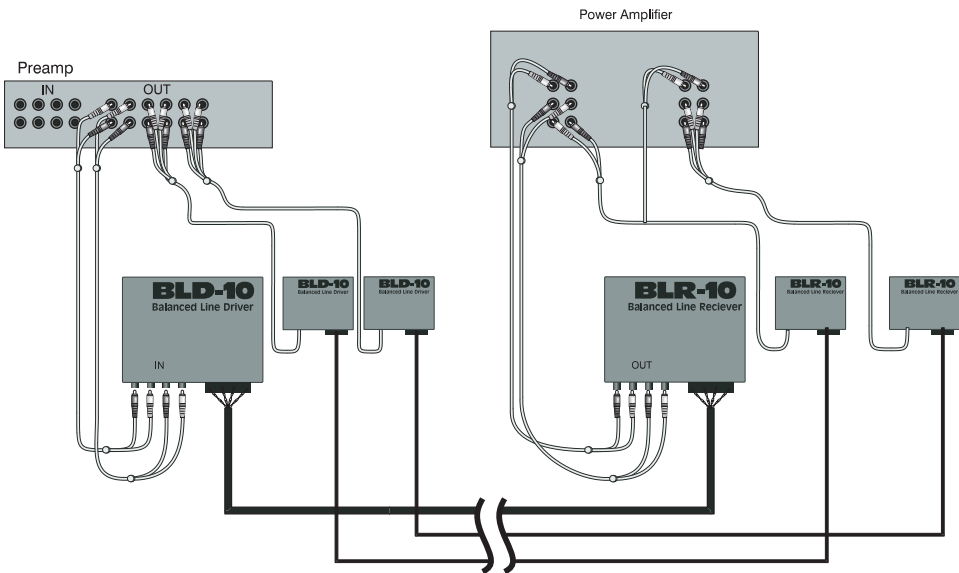
Channels	4
Configurations	
BLD-10	4 ch. Unbalanced to Balanced Conversion
BLR-10	4 ch. Balanced to Unbalanced Conversion
BLX-10	2 ch. Bal. to Unbal, 2 ch. Unbal. To Bal.
Headroom.....	10 dB
Signal to Noise (20-20k)	95 dB ref. 1 v
Channel Separation	Greater than 75 dB (1 kHz)
CMRR	Greater than 68 dB (1 kHz)
Unbalanced Signal Level	3 V _{rms} max.
Unbalanced Input Impedance	100 kohms
Unbalanced Output Impedance	250 ohms
Unbalanced Audio Connector.....	RCA
Balanced Signal Level	3V _{rms} max.
Balanced Input Impedance	20k ohms
Balanced Output Impedance	150 ohms
Balanced Audio Connector	Euroblock (12-24 awg)
Power Supply	24 VAC
Current Draw	40 mA
Weight	1 lb.
Dimensions.....	4”H x 5.2”W x 1.2”D
Warranty	5 Years
Country of Origin	U.S.A.
Units are supplied with 24VAC wall plug transformer	



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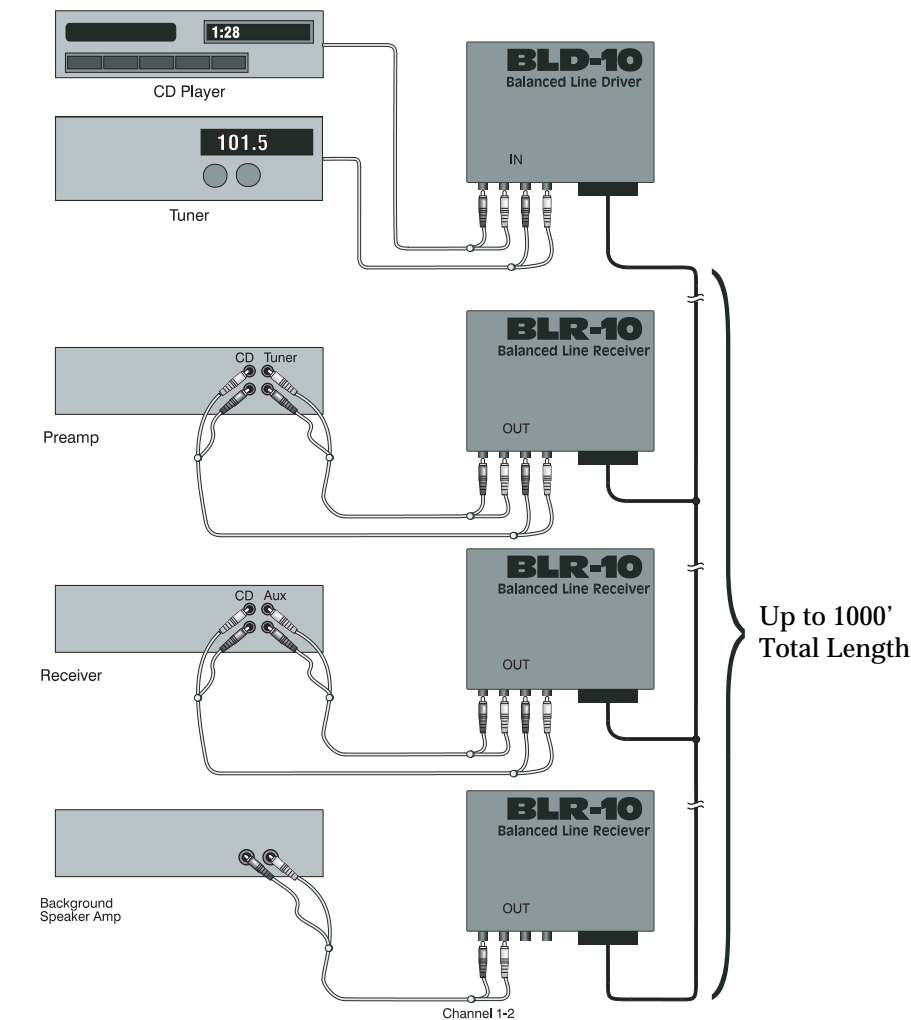
System Examples

Extending Components In A Multi-Room Installation

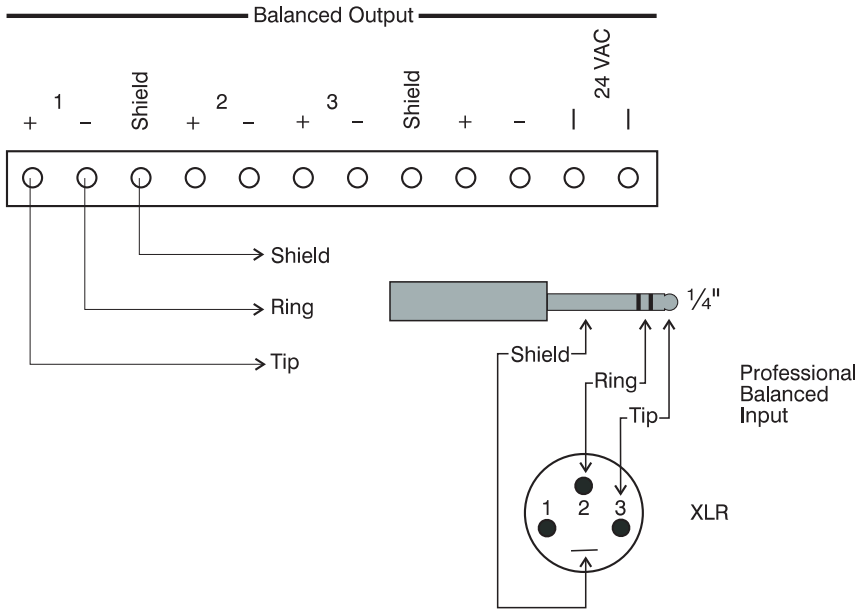


The Balanced Line Series provides a noise-free method to extend the distance between components in an audio system. This allows you to put the amplifiers in the Basement and the source units in the Library or put a CD player in the Master Bedroom and run the audio to your Media Room. They are also handy if a powered subwoofer is picking up noise from a long RCA cable run from the surround processor.

One to Many



Connecting to a Unit With Balanced Inputs



You can use the Balanced Line Series components to convert from -10dB unbalanced RCA to a balanced signal to drive professional audio equipment. Make certain that you set the gain controls per the chart on the previous page to bring the signal level up to pro specs.

Troubleshooting

“No Power Light.”

1. Make certain the two wires from the power supply are connected to the 24 VAC connections on the terminal block.
2. Double-check that the power supply is plugged in and that the outlet has power.

“There is hum in the audio signal.”

1. Make certain that the system is wired with twisted-pair cabling.
2. Try turning up the output level on the BLD-10 driver.
3. Make certain there is not a cut in the wiring allowing a conductor to short to ground (i.e. shield, conduit, cold water pipe, plenum, etc.).
4. In extreme instances, use a shielded, twisted-pair wire such as Belden 8451 or equivalent.

“The sound is distorted.”

1. The output level on the Driver may be set too high.
2. A system impedance mismatch from driving too many Balanced receivers from one Balanced Driver. A reasonable limit is ten units.
3. The signal level feeding into the unbalanced RCA inputs is too high (not likely with consumer grade equipment).

and now a word from the legal department...

The WARRANTY

People are scared of warranties. Lots of fine print. Months of waiting around. Well, fear no more, this warranty is designed to make you rave about us to your friends. It's a warranty that looks out for you and helps you resist the temptation to have your friend, "...who's good with electronics", try to repair your AudioControl product. So go ahead, read this warranty, then take a few days to enjoy your new Balanced Line Series component before sending in the warranty card and comments.

“Conditional” doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warrant all materials and workmanship on the Balanced Line Series components for FIVE YEARS from the date you bought it, and we will fix or replace it, at our option, during that time.

Here are the conditional conditions:

1. A completed warranty card must be returned to us within 15 days after purchasing the Balanced Line Series component.
2. A sales receipt is required for proof of purchase showing when and from whom the unit was bought. We're not the only ones who require this, so it's a good habit to get into with any major purchase.
3. The Balanced Line Series components must have originally been purchased from an authorized AudioControl dealer. You do not have to be the original owner, but you do need a copy of the original sales slip.
4. You cannot let anybody who isn't: (A) the AudioControl factory or (B) somebody authorized in writing by AudioControl to service your Balanced Line Series component. If anyone other than (A) or (B) messes with your Balanced Line Series component, that voids your warranty.
5. The warranty is also void if the serial number is altered or removed, or if the unit has been used improperly. Now that sounds like a big loophole, but here is all we mean by it.

Unwarranted abuse is: (A) physical damage (don't use the unit for a car jack); (B) improper connections (120 volts into the power jack can fry the poor thing); (C) sadistic things. This is the best product we know how to build, but if you mount it to the filter pump of a Jacuzzi, something will go wrong.

Assuming you conform to 1 through 5, and it really isn't all that hard to do, we get the option of fixing your old unit or replacing it with a new one.

Legalese Section

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well your Balanced Line Series component will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up the AudioControl Balanced Line Series components.

Failure to send in a properly completed warranty card negates any service claims.