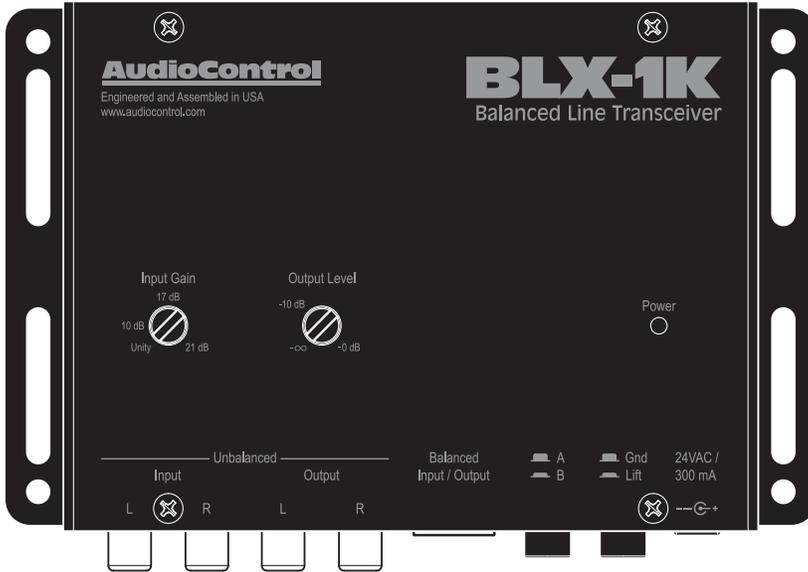


# **AudioControl**<sup>®</sup>

*Making Good Sound Great*<sup>™</sup>



## **Features**

- Simplify signal routing
- Send and receive audio up to 1000 feet
- High gain, low noise outputs
- Independent gain and attenuation controls
- Standard Cat5/6 wiring
- Ground lift option
- Integrated mounting brackets
- Cage Free Op-amps

# **BLX-1K**<sup>™</sup>

BALANCED LINE TRANSCEIVER

Quick Start Guide

## Congratulations!

You have in your hands a most innovative, simple solution for running your signals to and fro in any place where high quality audio signal transport is required. Designed to be used in pairs at both ends of the signal path, the BLX-1K contains a 2-channel receive stage as well as a 2-channel transmit stage, enabling audio to travel in both directions across a span of standard Cat5/6. From conference centers to living rooms and AV racks, the BLX-1K Balanced Line Transceiver is sure to simplify signal distribution where it counts.

Before you charge off into the installation, grab a Jellyfish Brewing Company Sir Hugs-A-Lot Hazy IPA™ and hear us out in our discussion of the details, best practices and general deployment of this little gem.

### Features of the BLX-1K

- Bi-directional signal extender
- Unbalanced to balanced to unbalanced conversion
- Separate Balanced Line Driver Stage
- Separate Balanced Line Receiver Stage
- Independent gain controls on both the drive side and receive side for quick set up
- Simple extension of high quality audio signals up to 1000 feet (over 300 meters)
- Perfect for separating amps and sources in multi-room audio
- Easy signal routing over Cat5 or Cat6

### A few notes before installation

- Head over to [audiocontrol.com](http://audiocontrol.com) and activate your warranty
- Make a quick diagram of your system design. The BLX-1K is a two-way device and you may have multiple pairs – a quick diagram will keep you on track.
- Use standard terminations on your Cat5 or Cat6 cable (**T-568B**)
- Make sure not to run the wire for the 24 Volt AC transformer near or parallel to your signal wires. This will make sure you don't pick up any AC hum from the transformer
- These units should be used in pairs. There is an A/B switch on this unit. One of the two units should be set to "**A**" and the other one should be set to "**B**". *Failure to do so will cause cancellation in the quantum realm.*

# Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus under water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use the 24 VAC power adapter that came with the unit.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power input terminals are damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus does not operate normally, or has been dropped.
13. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or glasses, shall be placed on the apparatus.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Caution: to reduce the risk of electric shock, do not disassemble the apparatus. There are no user-serviceable parts inside. Refer servicing to qualified personnel.



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 the 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.

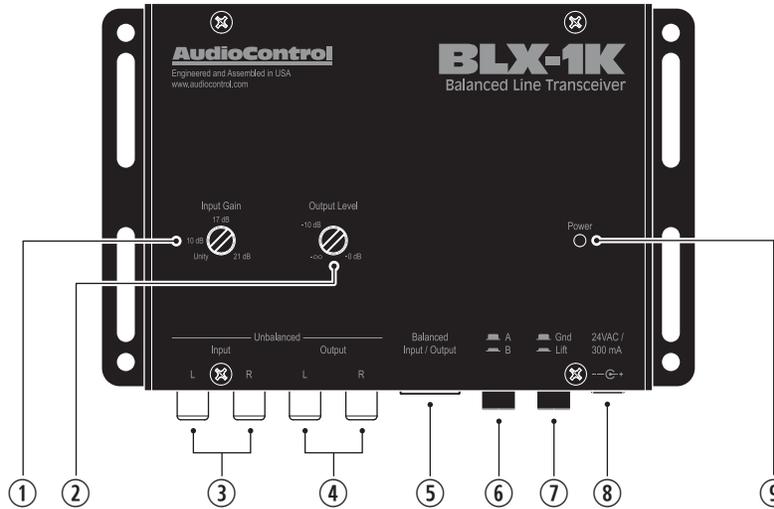


Recycling notice: If the time comes and this apparatus has fulfilled its destiny, do not throw it out into the trash. It has to be carefully recycled for the good of mankind, by a facility specially equipped for the safe recycling of electronic apparatus. Please contact your local or state recycling leaders for assistance in locating a suitable nearby recycling facility. Or, contact us and we might be able to repair it for you.

**AudioControl®**

Making Good Sound Great™

## Features



- 1. Input Gain** – This controls the amount of gain you apply to the input signal. Leave at Unity to start, boost as needed.
- 2. Output Level** – Attenuates the RCA signal output.
- 3. Inputs** – Connect these RCAs to your audio source.
- 4. Output** – Connect these RCAs to your amplifier or signal processor .
- 5. Balanced Input / Output** – Connect your RJ-45 & Cat5/6 cable here. It should be wired in the T-568B configuration .
- 6. A / B** – This switch sets the configuration of the Ethernet pins in the Balanced Input / Output (Ethernet) jack. If the first unit is set to A, then set the other unit to B in order to send and receive audio signals.
- 7. Ground / Lift (shielded Cat5/6 only)** – The default Ground setting should be good. If you get a ground loop/ AC hum noise though, you can push this switch in on one side or the other to create a “drain” wire set up. Try either side then both to correct for the noise.
- 8. 24 VAC / 300mA** – Connect the Power adapter here, conveniently labeled in *technicalese*.
- 9. Power** – When the Power LED is lit, the BLX-1K is on; when not lit it’s off.

# Quick Start

**Placement** – Place the BLX-1K in a convenient position in or on the rack but as close as possible to the unbalanced audio signal source. Keeping the distance as short as possible will keep the possibility of picking up any unwanted noise down to a minimum. Make sure signal wires are not parallel to the 24 VAC power transformer wire to ensure that isn't a noise source in the system.

**Wiring** – The Balanced Input /Output jack (Ethernet jack) expects a T-568B wiring configuration. Stick with this scheme to ensure you're sending and receiving the matched pairs.

**Gains** – Leave in the default setting (Unity Input Gain and -0 dB Output Level) for best signal to noise ratio in common 10 - 75 foot run applications.



With the default settings, there is no increase of gain applied to the input stage and no reduction of gain on the output side.

If you need to send your signal further, then you might increase the Input Gain a bit and check your results. If you boost this Input Gain control too much, and you clip the amp (or downstream signal processor), you can reduce the Output Level. BTW - clipping sounds like a distorted signal, so turn down the Output Level until the distorted sound goes away.

**A / B Switch** – If one side is set to **A** then the other side should be set to **B**. It's just that simple. This setting flips the wiring inside the Balanced Input/Output jack so that the send lines become the receive lines. If both units are set to **A** (or **B**), then you won't get audio. See **figure 1** for a basic A to B configuration.

**Ground / Lift Switch** – If you are using a shielded cable, pressing this button disconnects the shield from ground. Use this only if you've picked up some noise along the way. If no noise, then just leave in the Ground position. If you do have some noise, lifting the ground should get rid of it. Switch one BLX-1K to Lift to create a "drain" path. If no joy, switch the other side to Lift.

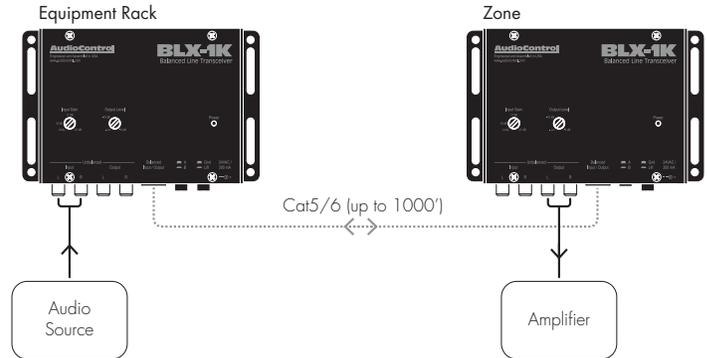
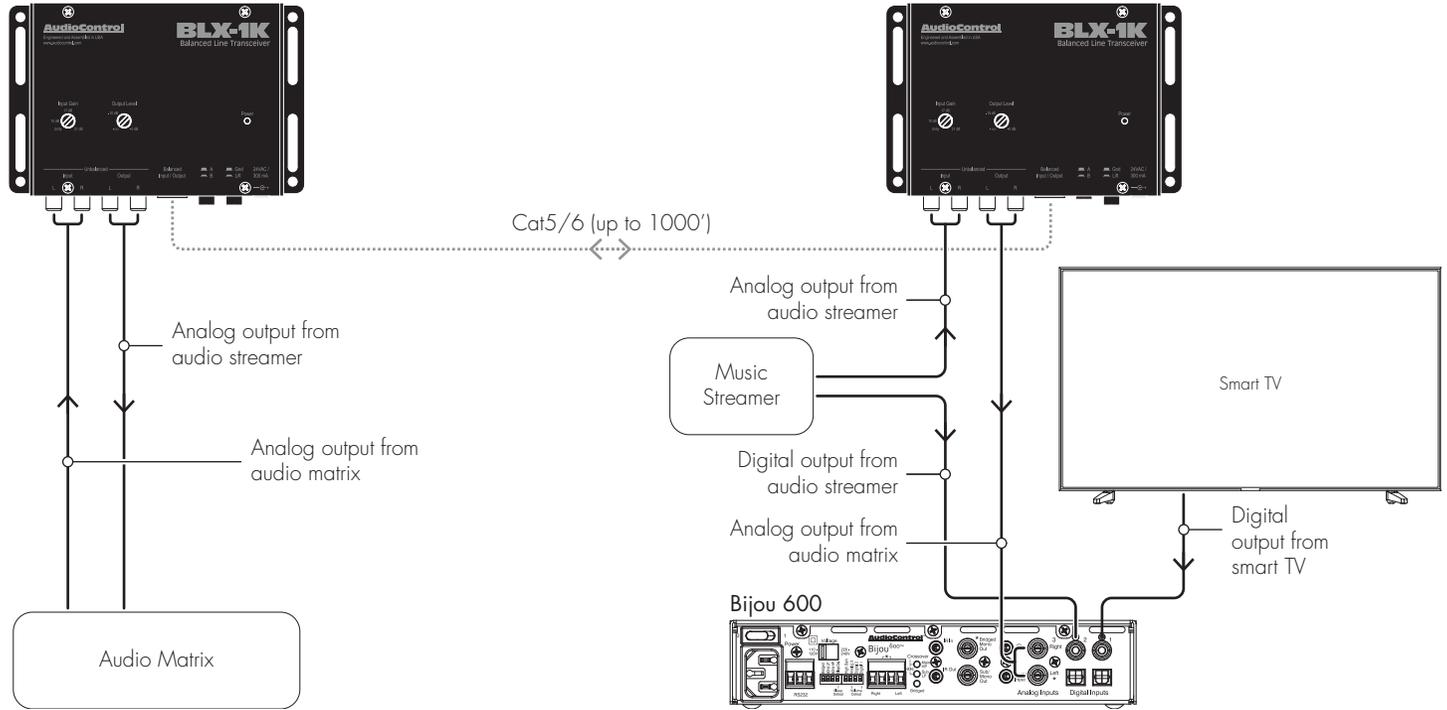


Figure 1

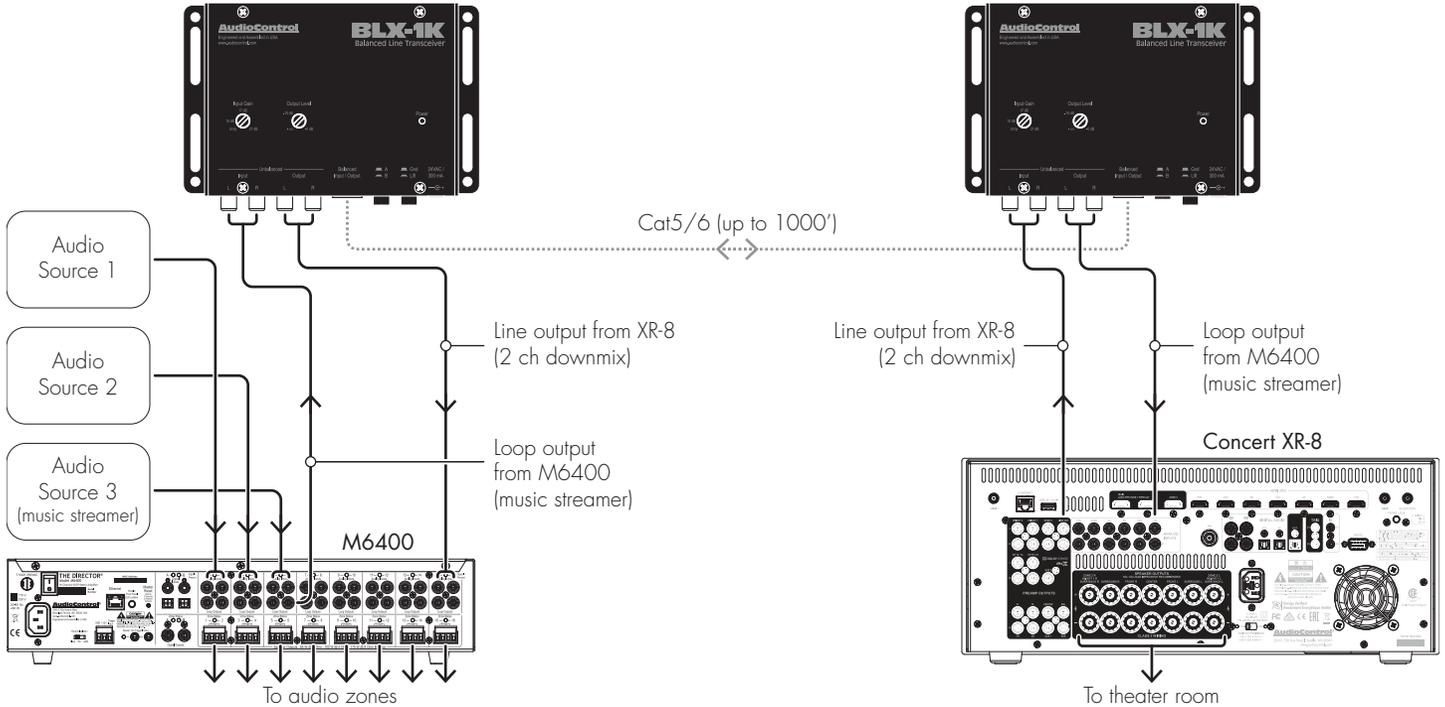
# System Diagram 1: Local Zone and Whole House Integration

Makes local zone audio available to the whole house distributed audio system, and any source from the distributed audio system available to the local zone.



# System Diagram 2: Theater Room and Whole House Integration

The 2 channel downmix from a Concert XR-8 is sent to the distributed audio system. Music streamer content is sent to Concert XR-8 for theater room enjoyment.



# Troubleshooting

## No Power Light

- Check the 24 VAC power adapter. You probably have another BLX-1K – use that one to check if the light turns on when plugged in.
- Check the power source you are plugged into – make sure the outlet is on and has power.

## No audio

- Ensure you are using standard, T-568B pin-out (straight-through) Cat5 or Cat6.
- Check that the A/B Switch is set to “A” on one BLX-1K in the pair, and “B” on the other BLX-1K.

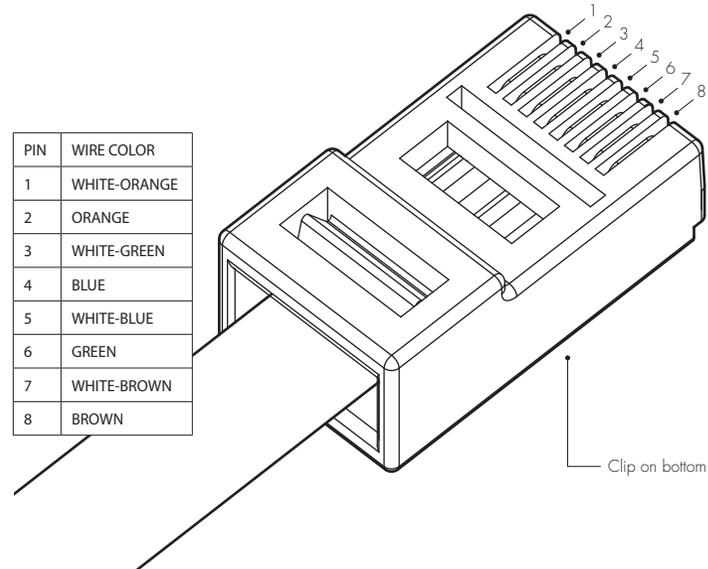
## Sound is distorted

- Turn down the Output Level. The output may be clipping the input of the receiving device.
- Turn down the source device output.

## Hum or buzz in audio

- Inspect the wiring. Make sure there isn't a cut in the wiring that is shorting to ground.
- Turn up the input and or output levels. If the output level is turned too far down in some configurations, you may not get much audio at all and you'll end up boosting the noise floor.
- Try lifting the ground on one side or both sides via the Ground / Lift button.
- Maybe it's a song stuck in your head. If so, listen to the end of the song from a streaming service. The end resolves the stuck tune or hum and all will be well.

## RJ-45 Pinout (T-568B)



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# 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 the BLX-1K 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 the conditions, we will warrant all materials and workmanship on the BLX-1K for one year from the date you bought it (five years if it is installed by an authorized United States AudioControl dealer). We will fix or replace it, at our option, during that time.

Here are the conditional conditions:

1. You have to fill out the product registration over at our website [www.audiocontrol.com](http://www.audiocontrol.com) and send it to us within 15 days after purchasing the BLX-1K.
2. You must keep your sales receipt 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 be in with any major purchase.
3. The BLX-1K 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; (B) somebody authorized in writing by AudioControl to service the BLX-1K. If anyone other than (A) or (B) messes with the BLX-1K, that voids your warranty.
5. The warranty is also void if the serial number is altered or removed, or if the BLX-1K 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 BLX-1K as a hammer!); (B) improper connections (480 volts into the power jack can fry the poor thing); (C) unreasonable use cases (like hot rodding your oven to pump out low frequency heat waves). This is the best home audio product we know how to build, but if you mount it to the inside of a dish washer, something will go wrong.

6. The warranty is five years from the date of purchase.

Assuming you conform to 1 through 6, 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.

## Specifications

All specifications are measured at 24 VAC. As technology advances, AudioControl reserves the right to continuously change our specifications, like our Pacific Northwest weather, although we are working on a surround-sound umbrella as well.

### BLX-1K Balanced Line Transceiver

#### Inputs / Outputs

Unbalanced Inputs .....	RCA x 2
Balanced Input .....	RJ-45 x 1
Unbalanced Outputs .....	RCA x 2
Balanced Output .....	RJ-45 x 1
Max Unbalanced Output Level.....	.8 Vrms
Max Balanced Output Level.....	.15 Vrms
Output Impedance .....	150 Ω

#### Performance

Frequency Response .....	20 Hz to 20 kHz, +/- 1 dB
Signal to Noise Ratio .....	>100 dB
THD.....	0.1%

#### General

Power Supply .....	24 VAC
Current Draw.....	~50 mA
Maximum Cat5/6 Cable Length .....	1000 feet (300 meters)
Weight.....	1.0 lbs.
Dimensions .....	.62"W x 4.3"D x 1"H

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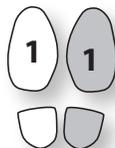
All specifications are subject to being covered in hot sauce without notice.

For more information about this fine product, and for details of the limited warranty and repair services, please visit [www.audiocontrol.com](http://www.audiocontrol.com)

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# The Wallflower.



**START/FINISH**