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# REFERENCE

## BLT™

### Balanced Line Transmitter

#### OWNERS MANUAL AND INSTALLATION GUIDE

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**SOUNDSTREAM**®  
T E C H N O L O G I E S

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## CONGRATULATIONS!

You now own the **REFERENCE BLT™ (Balanced Line Transmitter)**, the product of an uncompromising design and engineering philosophy. Your Soundstream REFERENCE accessory will undoubtedly increase the performance of your audio system.

To maximize the performance of your system, we recommend that you thoroughly acquaint yourself with its capabilities and features. Please retain this manual and your sales and installation receipts for future reference.

Soundstream products are the result of American craftsmanship and the highest quality control standards, and when properly installed, will provide you with many years of listening pleasure. Should your accessory ever need service or replacement due to theft, please record the following information, which will help protect your investment.

Model \_\_\_\_\_

Serial # \_\_\_\_\_

Dealer's Name \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Installation Shop \_\_\_\_\_

Installation Date \_\_\_\_\_

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## INTRODUCTION

For many years now, Soundstream has had a sister company in the pro-audio industry called Stewart Electronics. Stewart Electronics has been designing and manufacturing high-end balanced line audio products since its creation. During concert performances, microphones, mixing consoles and amplifiers are often separated by great distances. Crossing these long runs of audio cables are often high voltage power cables for lights, amplifiers etc. However, there is

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## TROUBLESHOOTING

<i>PROBLEM</i>	<i>CAUSE</i>
BLT™ is connected, but the amplifier has no output.	Check to make sure the amplifier is on, the DIN cable and the RCA outputs of the head unit are properly connected.
Output from the amplifier is too low.	Make sure the input selector switches on the amplifier are set to the "BAL" position.
Amplifier output is distorted	Re-adjust the gains on the BLT™ and the amplifier. Pay attention to the clipping indicators to make sure you are not over-driving either the amplifier or the BLT™. Also, make sure you are not over-driving the speakers as well.

## SERVICE

Your Soundstream REFERENCE BLT™ is protected by a limited warranty.

## SPECIFICATIONS

<b>Phantom Voltage</b>	± 15 Vdc
<b>THD</b>	<0.01%
<b>Signal to Noise</b>	>100 dB
<b>Frequency Response</b>	20 Hz to 20 kHz ± 0.5 dB
<b>Stereo Separation</b>	>90 dB
<b>Input Sensitivity</b>	250mV to 5.0V RMS
<b>Maximum Output Signal</b>	5.0 V (2.5 V per phase)
<b>Gain</b>	+0 to +32 dB (1x to 40x)
<b>Input Impedance</b>	10K ohms
<b>Output Impedance</b>	600 ohms

**Dimensions:** 3.36" L x 2.0" W x 1.22" H

# INSTALLATION STEP 2

## LEVEL SETTING

The input levels of the BLT™ are adjusted by means of the individual channel input level controls located on the top of the unit. In the ideal situation, all components in the audio system reach maximum undistorted output at the same time. By setting all components to reach clipping at the same time, you can maximize the output of your system. For the BLT™ and for REFERENCE amplifiers equipped with the balanced signal input, please follow these steps for the quickest,

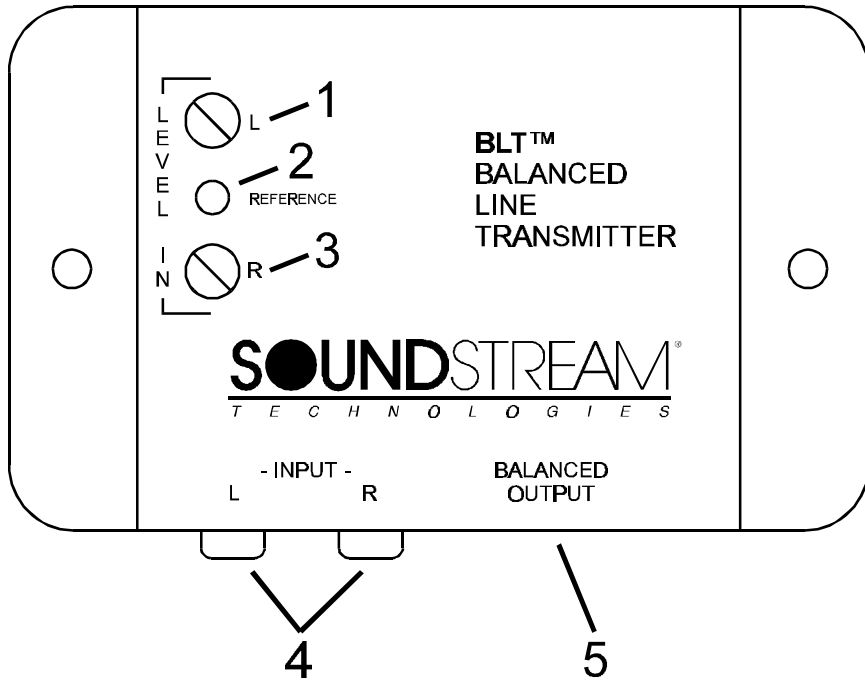
1. Disconnect any speakers from the amplifier.
2. Switch the inputs of the amplifier receiving the balanced input to the "BAL" position.
3. Turn the amplifier's input level controls to the minimum (5 volts) position (fully counter-clockwise), and switch the amplifier's input level selector to the 0.5 - 5.0 Volt position.
4. Turn the BLT™'s input level controls to the minimum position (fully counter-clockwise).
5. Set source unit volume to approximately 3/4 of full volume.
6. While playing extremely dynamic source material or a test tone, slowly increase the BLT™'s input level until the red LED labeled "REFERENCE" on the top of the BLT™ begins to blink. This calibrates the input sensitivity of the BLT™ to the level of your head unit. (NOTE: To set the BLT™ level, Soundstream recommends using the Autosound 2000 Compact Disc #104, 1 kHz 0 dB "all bits high" tone. If this CD is not available, a similar tone from a test CD can be used, or an extremely dynamic CD with a high crest factor. Remember; the "loudest" CD you have may not be the most "dynamic"!)
7. Next, with the source material still playing, adjust the input levels of your amplifier so that the input LED's on the amplifier begin to blink as well. Since in step 6 you've set up the BLT™ to transmit a 5 volt signal, and in step 3 you set the amplifier up to clip upon receiving a 5 volt input signal, the BLT™ LED and the input clipping LED's on the amplifier should blink at about the same level.
8. Turn the system down, and reconnect the speakers. If the volume out of your amplifier is not loud enough, turn up the gain adjustments on the front of the amplifier receiving the BLT™ input.
9. If the amplifier volume is too loud, and the amplifier gain controls are already turned to the minimum position, turn down the level of the transmitted signal by adjusting the level controls on the top of the

never any spurious noise or unwanted whine during the concert! Why? Balanced Line Audio is the answer.

The car audio environment can be a very noisy place to an audio signal. On-board computers, clocks and switching power supplies can all add noise to an otherwise perfect audio system. These are all perfect reasons for using balanced line audio in the car. With the experience and knowledge of Stewart Electronics, Soundstream has created the BLT™ to bring balanced line audio to the car. The BLT™ converts an unbalanced signal (standard RCA output from a head unit) to a **True Balanced Audio** signal, with all its features and benefits.

## DESIGN FEATURES

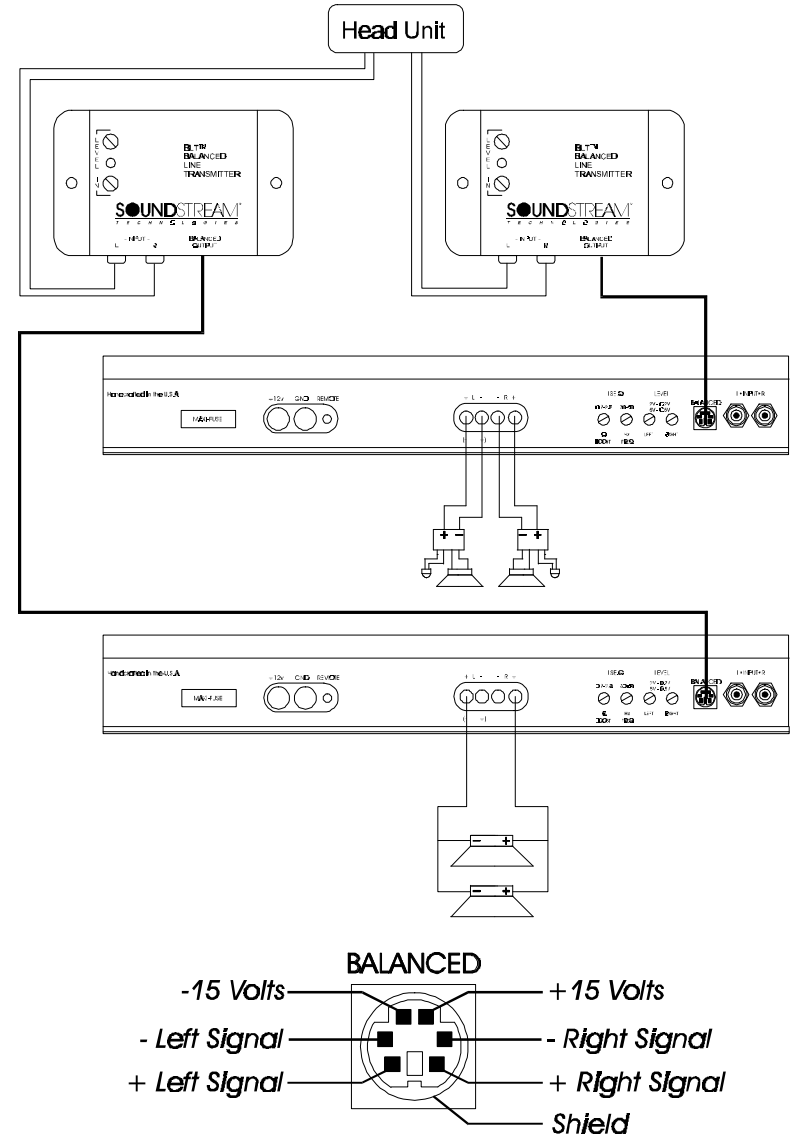
- **Phantom Power** - The BLT™ is powered by the Soundstream amplifier it is providing signal to, via the mini-DIN cable. This eliminates additional power, ground and remote wire connections.
- **Mini-DIN Cable** - The balanced line audio cable features a small and convenient 6-pin mini-DIN plug. This cable carries (+) and (-) Signal information for Left and Right channels, audio ground and  $\pm 15$  Vdc to operate the Soundstream BLT™.
- **Flexible Input Sensitivity** - The Soundstream BLT™ is designed for optimum performance with a 5 volt balanced signal level. Any head unit having an unbalanced signal output level from 250 mV to 5.0 V can be used to obtain the 5 volt balanced signal.
- **Independent Level Controls** - The Soundstream BLT™ features independent left and right channel input level controls for added adjustment flexibility and convenience.
- **Clipping Indicator** - The BLT™ also features an input level clipping LED. This lets you know when you have reached the desired 5 volts balanced audio signal level.
- **Compact Design** - The BLT™'s chassis is small enough to fit in the dash of your car behind your radio or in-dash EQ.
- **Industry Compatible** - While there is as yet no "industry standard" for car audio balanced line audio connections, you will find an ever-growing number of companies use the same 6-pin connector and pin



## KEY TO CALLOUTS

1. **Input Level** - Left channel input sensitivity level control.
2. **Input Overload Indicator** - Indicates the signal input level or input gain level is too high.
3. **Input Level** - Right channel input sensitivity level control.
4. **Inputs** - Unbalanced RCA signal inputs.
5. **Output** - 6-pin DIN Balanced signal output jack.

## BASIC WIRING DIAGRAM



**NOTE:** The pin configuration shown in the diagram is the view looking into the Balanced input jack on the amplifier and the BLT™.