



# SoundConnect 2™

## User Manual

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PN: 8024 REV 022820  
SOUNDCONNECT 2 USER MANUAL  
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REV 022820

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# Limited Warranty

LISTEN, Inc., a Massachusetts Corporation, having its principal place of business at 580 Harrison Ave, Suite 3W, Boston, MA 02118 (Manufacturer) warrants its **SoundConnect 2** products (the Products) as follows:

## 1. **Limited Warranty.**

Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of one (1) year from the date of purchase. If the Products do not conform to this Limited Warranty during the warranty period (as herein above specified), Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its own expense, furnish, replacement Products or, at Manufacturer's option, replacement parts for the defective Products. Shipping of the replacement Products or replacement parts shall be at Buyer's expense.

## 2. **Other Limits.**

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising out of improper or abnormal use of handling of the Products; against defects or damages arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to Buyer the warranty it received (if any) from the maker thereof of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization by Manufacturer.

## 3. **Exclusive Obligation.**

THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for incidental, special, or consequential damages.

## 4. **Other Statements.**

Manufacturer's employees or representatives' ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTIES, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

## 5. **Entire Obligation.**

This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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## IMPORTANT SAFETY PRECAUTIONS AND SYMBOL EXPLANATIONS

SoundConnect 2 has been supplied in safe operating condition.

This User's Manual contains information and warnings that should be followed by the user to ensure safe and service free operation. Special note should be made of the following:

1. Read these instructions
2. Keep these instructions
3. Heed all warnings
4. Follow all instructions
5. **WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture. Do not use this apparatus near water.
6. Clean only with a dry cloth. Do not use spray or liquid cleaning solutions.
7. 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 that produce heat.
9. The appliance coupler is the AC mains disconnect and should remain readily operable after installation.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Use only attachments/accessories specified by Listen, Inc.
12. Use only with hardware, brackets, stands, and components sold with the apparatus or by Listen, Inc.
13. Unplug the apparatus during lightning storms or when unused for long periods of time.
14. Whenever it is likely that the correct functioning or operating safety of the apparatus has been impaired, the apparatus must be made inoperative and be secured against unintended operation. Any adjustment, maintenance and repair of the open apparatus, under power, must be avoided as far as possible and, if unavoidable, must be carried out only by trained service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## Safety Symbols



The exclamation point triangle is used to indicate that caution is necessary when operating the device or control close to where the symbol is placed, or to indicate that the current situation needs operator awareness or operator action in order to avoid undesirable consequences. This alerts the user to the presence of important operating and maintenance (servicing) instructions in this manual.

## Power In Connector



**CAUTION!** Do not substitute the supplied AC power adapter. Substituting the AC power adapter may damage the product and introduce safety hazards. Only use power adapters supplied by or approved by Listen, Inc.

## Polarized Mic Input Connectors



**CAUTION!** The Polarized Mic In 1 and Polarized Mic In 2 connectors on the rear panel are intended to interface to microphones requiring a polarization voltage of 200V. The polarization voltage supply available from these connectors is current limited to 10 $\mu$ A and does not represent a safety hazard. To minimize exposure to the polarization voltage supply, only use prefabricated cables and accessories recommended for use by the polarized microphone manufacturer. Promptly dispose of damaged cables or accessories.



# Introduction

SoundConnect 2™ is a compact and rugged USB controlled microphone power supply and conditioning amplifier. It can power either one or two microphones, so it is a great choice for audio test applications where two microphones need to be powered simultaneously, for example headphone testing, stereo measurements, or anywhere you need a reference microphone as well as your input microphone.

## Features

- **USB Control**

SoundConnect 2 features full USB control in addition to the manual interface, which permits control of the device from within your test and measurement software or directly from your computer. Message Step control requires SoundCheck 14 or later.

- **Powers most test microphones:**

Two powered BNC connectors on the rear panel provide 10 VDC power for Listen SCM microphones, and IEPE power for IEPE microphones or accelerometers. Optional LEMO connectors are available for powering microphones that require 200 V polarization. It is fully TEDS compatible\* for seamless communication of calibration data to your measurement device.

- **Wide frequency response**

SoundConnect 2 has a bandwidth greater than 100 kHz, and offers gain control from -20d B to +40 dB in 10 dB increments. User-selectable low pass (22.4 kHz and 120 kHz) and high pass (1 Hz, 10 Hz, 20 Hz, 100 Hz) 2nd order Butterworth filters with -1 dB corners, permit the frequency response to be tailored for a wide variety of applications. Each channel is independently configurable, and the configurations can be stored for later recall.

- **Low Self-Noise**

SoundConnect 2 offers excellent dynamic range and low distortion which makes it a good choice for production line environments as well as the R&D lab. Balanced inputs and outputs offer excellent noise immunity and ground loop immunity.

- **Simple User Interface**

The front panel features simple push buttons for power and gain control; multicolored level indicators and a 2-line LCD display offers a clear readout of settings.

- **Compact and Lightweight**

The unit is compact and lightweight, measuring just 4 3/8" wide and 2 units high. Up to four units can be mounted side by side in a 19" x 2U rack.

- **Excellent Value**

SoundConnect 2 is less than half the price of other microphone power supplies that offer similar functionality.

\* Feature under development. Available soon as a software upgrade.

## Requirements

NI Visa is required for Listen Hardware such as: AmpConnect, AudioConnect and SoundConnect 2. It is automatically installed with the SoundCheck installer for Windows and must be manually installed for Mac OS.

## Front Panel

The front panel controls allow you to select the input type for each channel as well as other settings. Pressing the Setup button will display other menus to access the various options.

### Power Switch

The LED indicator shows when unit is powered on. The current state of SoundConnect 2 is stored in memory when it is shut off via the front panel power switch. These values are recalled the next time it is turned on.

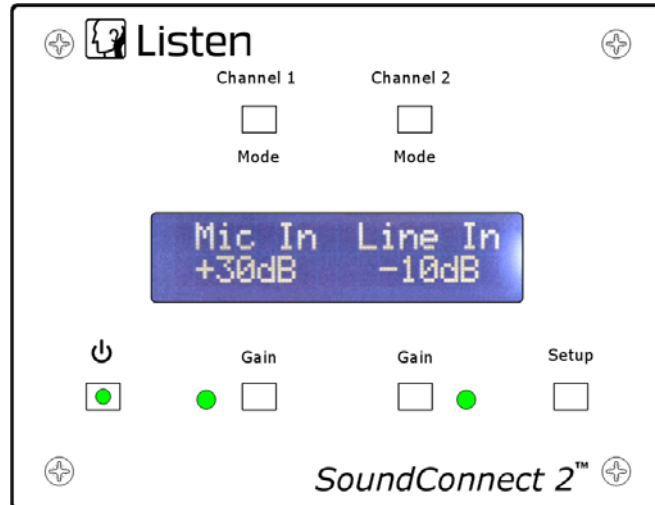


Figure 1-1: Front Panel

### LCD Display

Parameters are displayed on the top row; values on the bottom.

### Channel Settings Mode

This is the default, power up state displayed whenever power is applied to the unit. Channel Settings Mode provides access to the parameters that are changed the most: Source and Gain.

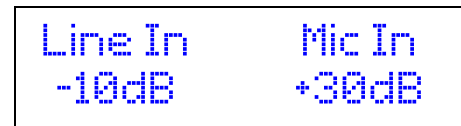


Figure 1-2: Channel Settings Mode

### Channel Buttons 1 and 2

Allows you to select the input connector and bias configuration for each channel. (These buttons are also used to select other parameters in other Setup Modes.)

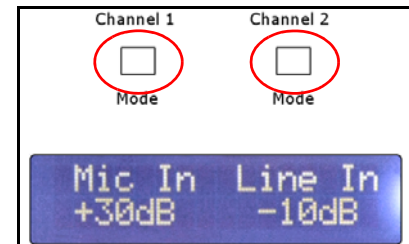
Pressing either **Channel Button** will change the respective channel's signal source:

- **Line In:** 1/4" TRS Input, Balanced or Single ended operation
- **Mic In:** Microphone connected to BNC input. No Bias enabled
- **MicSCM:** Microphone connected to BNC input. Biased for constant voltage, e.g.: SCM-2 or SCM-3 microphones, as well as electret capsules. Use with SCM Microphone requires a Microdot to BNC adapter. See [SCM Microphone with Microdot to BNC Adapter on page 13](#).
- **MicIEPE:** Microphone connected to BNC input. Biased for constant current microphones.
- **MicLemo:** Microphone connected to Polarized Lemo input. Bias may be +200V or off.

Also used for SCM Microphone with a Microdot to Lemo adapter. See [SCM Microphone with Microdot to BNC Adapter on page 13](#).

(This option is only available when the optional Lemo board is installed.)

- **Muted:** For use when an output signal is not desired, especially when minimizing noise during system setup.



A brief "Wait.." message is displayed after the source is selected to allow the input stage and high-pass filters to settle.

A brief "No Bias" message is displayed if MicSCM, MicLEPE, or MicLemo bias is disabled. See [Setup Mode 1 - Channel on page 6](#).

### Gain Button - Channel 1 and 2

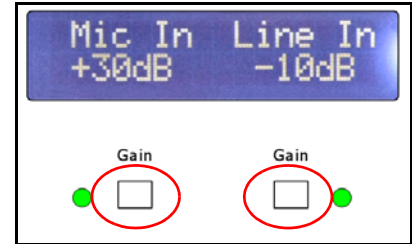
Values are selected by pressing the channel Gain buttons.

- **Gain Values:** -20 dB, -10 dB, 0 dB, +10 dB, +20 dB, +30 dB, +40 dB

Gain is applied immediately after a button is pressed.

The gain selection order is bidirectional.

- Starting at the default of 0 dB, pressing the gain button four times will advance the gain upward to the maximum +40 dB value.
- The next button press will cause the gain to decrease; after six button presses, the gain will be the minimum -20 dB value.
- The next button press causes the gain to increase again, and so forth.



### Signal LED Channel 1 and 2: (Levels listed are approximate)

- **Off:** Output level is less than -40 dBV
- **Green:** Output level is between -40 dBV and +1.8 dBV
- **Yellow:** Output level is between +1.8 dBV and +10.8 dBV
- **Red:** Output level is above +10.8 dBV

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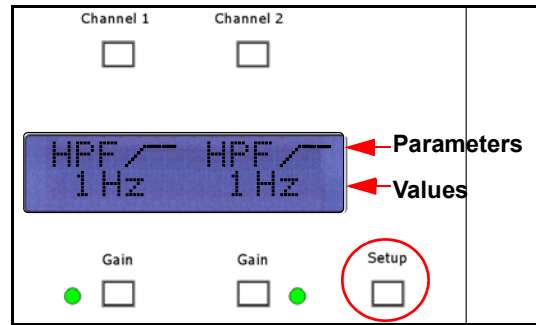
**Note:** This is useful for adjusting the signal gain of SoundConnect 2 to maximize the full-scale deflection of the A/D converter on the test system data acquisition board.

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## Setup Button

This activates a menu on the front panel display allowing you to access secondary parameters not available when the **Channel buttons** or **Gain buttons** are pressed.

- Parameters are displayed on the top display row; values on the bottom.
- Except for the Gain menu, Parameter and Value menus are cyclical; after the last value is displayed, the selections are repeated from the top of the order.
- The setup menu is exited when you press the Setup button again. The display will revert to the Channel Settings Mode after 30 seconds.



## Setup Mode 1 - Channel

- Pressing the **Setup Button** once activates **Setup Mode 1**
- The unit parameter is displayed on the top row, and the respective value is displayed on the bottom row
- Pressing the **Channel** button changes the Parameter field for that channel
- Pressing the **Gain** button changes the value for that parameter

Parameters specific to Channel 1 and Channel 2 are selected, in the following order:

### 1. High Pass Filters:

- a Displayed Parameter = HPF
- b Displayed Values = 1 Hz, 10 Hz, 20 Hz, 100 Hz

### 2. Low Pass Filter:

- a Displayed Parameter = LPF
- b Displayed Values = 22.4 kHz, 120 kHz

### 3. Constant Voltage (SCM) Feed Resistance:

- a Displayed Parameter = SCM Res
- b Displayed Values = No Bias, 7.5 kOhm (for SCM mics), 2.2 kOhm (typically used for testing electret capsules). Factory calibrated for 10 VDC open circuit using 7.5 kOhm setting.

### 4. Constant Current (IEPE) Current:

- a Displayed Parameter = IEPE
- b Displayed Values = 10 mA, 4 mA, No Bias

### 5. Polarization Voltage:

(This option is only displayed when the optional Lemo board is installed.)

- a Displayed Parameter = Pol
- b Displayed Values = +200 VDC

Values are applied immediately after a button is pressed.

## Setup Mode 2 - General

Pressing the Setup button a second time activates Setup Mode 2 which is for setting the general parameters for the unit. The parameter is displayed on the top row, and the respective value is displayed on the bottom row.

- Pressing either Channel button changes the Parameter field
- Pressing either Gain button changes the value for that parameter
- The display will revert to the Channel Settings Mode after 30 seconds.

General parameters for the unit are selected in the following order:

### 1. Line In / Out Grounds

- a Displayed Parameter = Line I/O Grounds
- b Displayed Values = Lift, Chassis Ground (default)

---

**Note:** The Ground Lift feature allows you to interrupt the connection between the Line In/Out Grounds and the Chassis Ground. Only select **Lift** when you are trying to resolve noise issues due to a Ground Loop. It does not lift the ground of the Mic or BNC inputs.

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### 2. Output Gain

- a Displayed Parameter = Output Gain
- b Displayed Values = 0 dB, +6 dB (0 dB is factory default)

Please refer to [Output Gain 0 dB / +6 dB option on page 11](#) for more information.

### 3. Contrast

A bar graph is displayed showing the LCD contrast setting. Pressing the Gain 1 button reduces the contrast. Pressing the Gain 2 button increases the contrast.

### 4. Restore Defaults

Select **Yes** to restore factory default settings for all menus

**Values are applied immediately after a button is pressed.**

Pressing the Setup button a third time deactivates Setup Mode and causes the menu system to re-enter the **Channel Settings Mode**. The display will also revert to the Channel Settings Mode after 30 seconds.

The display will also show USB messages. When USB is available, either because a cable was connected or a computer has booted, the display will show the message “**USB Active**”. When a cable is disconnected or the attached computer is shutdown, the display will show the message “**USB Not Active**”.

## Front Panel Lockout Mode

As of SoundCheck 14, a Message Step can be used to control SoundConnect 2 in a sequence. See [Operation on page 11](#).

When Front Panel is selected, the unit will not respond to front panel button presses. The display will show the message “**Front Panel is Locked**” for a few seconds after a button press, then return the display back to normal operation. If SoundCheck unlocks the front panel, the display will show the message “**Front Panel is Enabled**” for a few seconds, and the unit will respond to front panel button presses.

# Rear Panel

## Power In

Connector for SoundConnect 2's AC power adapter.

- **CAUTION** - only use the AC power adapter supplied by Listen, Inc.

## Mic / Accel Channel 1 and 2

- BNC connector
- Biased for constant voltage or constant current

## Line In/Output Channel 1 and 2

- ¼" TRS jack

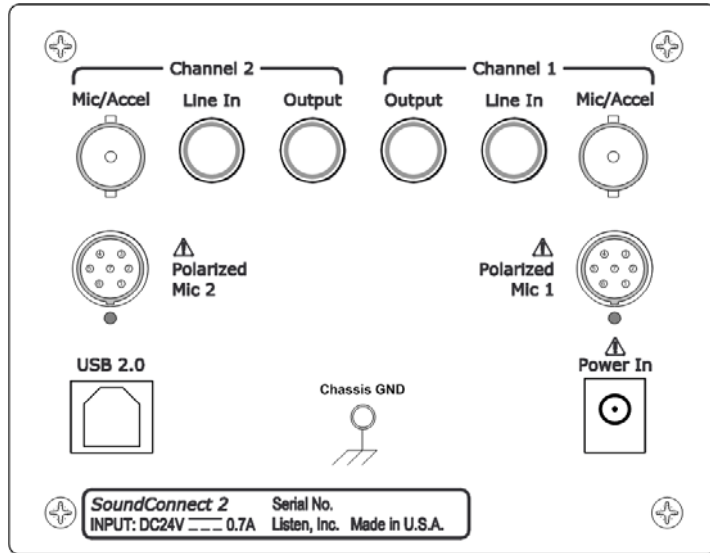


Figure 1-1: Rear Panel

## Externally Polarized Mic 1 and 2

- Lemo 7 pin connector (1B series, type 307); compatible with externally polarized and pre-polarized mics
- Requires optional Lemo board

## USB 2.0

- Connect to SoundCheck system. SoundCheck Message Steps are used to control SoundConnect 2 settings.

## Chassis GND

- The Chassis Ground connection should be used when encountering ground loop noise
- Thumb screw accepts bare wire or standard banana plug

## Lemo Connector

The following diagram details the pinout of the Optional Lemo Connectors.

1. **Unused**
2. **Negative Input - (Differential Input)**
3. **Polarization Voltage: 0 or +200VDC**
4. **Positive Input - (Differential Input)**
5. **TEDS** \*: Serial number, type and sensitivity information is stored in a TEDS Microphone
6. **Power Supply: +15VDC** (always on)
7. **Power Supply: -15VDC** (always on)

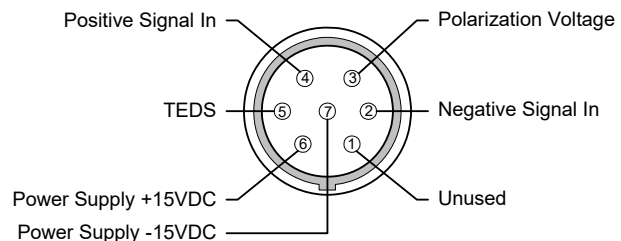


Figure 1-2: Lemo Connector Pinout

The dot below the connector indicates the location of the connector key.

# Software Control

As of SoundCheck 14, SoundConnect 2 can be controlled with a Message Step in SoundCheck. Startup defaults can also be set in the Hardware Editor - Listen Hardware page.

The controls for SoundConnect 2 are shown in [Figure 2-1](#).

SoundConnect 2 settings update when Apply is clicked in the Message Step or in the Sequence Editor or when the step runs in a sequence.

All controls follow the same definitions as shown on [Channel Settings Mode on page 4](#).

Input selections will only allow certain Bias settings to be available as noted below.

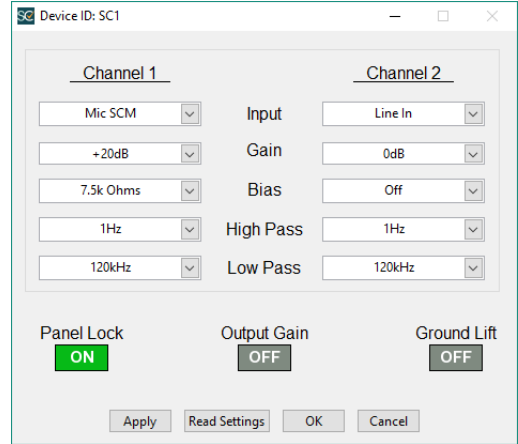


Figure 2-1: SoundConnect Editor

When turning on **Bias Voltage** for a microphone, it may be necessary to include some amount of “**Wait time**” in the Message Step before allowing the sequence to continue. This will allow the microphone to stabilize.

[Figure 2-2](#) shows the first page of the Message Step set to a **Wait time** of 2.5 seconds. The sequence will wait for this amount of time before continuing.

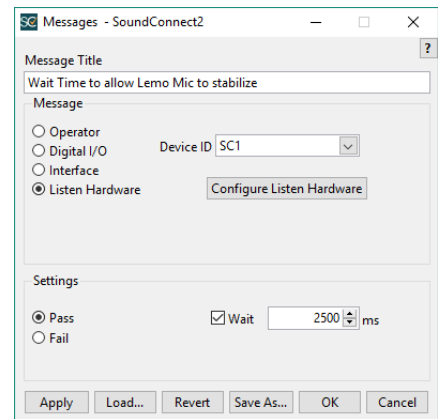


Figure 2-2: Wait Time

## Settings

### Input

- Muted, Line In and Mic In - Bias is automatically set to Off
- Mic SCM - Off, 7.5 kOhm and 2.2 kOhm can be selected. See Bias section below.
- Mic IEPE - Off, 10 mA and 4 mA can be selected
- Lemo (optional Lemo board required) - Off and +200 VDC Polarization voltage can be selected

### Gain

- Select: -20 dB, -10 dB, 0 dB, +10 dB, +20 dB, +30 dB, +40 dB
- Select the input gain for Channel 1 or 2 independently

## Bias

- Off - No Bias
- 7.5 kOhm - used for SCM mics and 2.2 kOhm - typically used for testing electret capsules - BNC connector only
- 10 mA and 4 mA - for IEPE microphones - BNC connector only
- +200 VDC Polarization voltage - Lemo connector only
- +/- 15 VDC - Voltage is always present on the Lemo connector, pin 6 (+) and pin 7 (-)

## High Pass

- 1 Hz, 10 Hz, 20 Hz, 100 Hz

## Low Pass

- 22.4 kHz, 120 kHz

## Overall settings for unit:

- **Panel Lock** - When On the front panel buttons are disabled
- **Output Gain** - When ON the Output Gain of channels 1 and 2 are increased by 6 dB. See [Output Gain 0 dB / +6 dB option on page 11](#).  
This Gain value is taken into account when Auto Read is used in the Calibration Editor for an Input Signal Path.
- **Ground Lift** - Off = Chassis Ground (default). Allows you to interrupt the connection between the Line In/ Out Grounds and the Chassis Ground. Only select **Lift** when you are trying to resolve noise issues due to a Ground Loop.

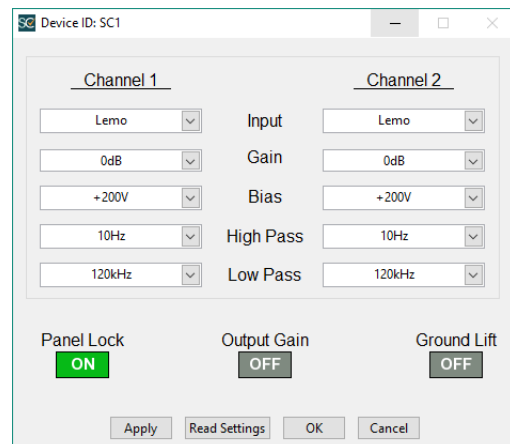


Figure 2-3: Overall Settings

## SoundCheck Acquisition Step Gain Field

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**Important!** *Switching Listen Hardware from Maximum Gain to Minimum Gain in the Acquisition Step is not recommended. This does not allow the input gain circuit sufficient time to stabilize. If you need to switch from Max Gain to Minimum Gain we recommend that you use a Listen Hardware Message step with a 500 mSec wait time to allow for settling.*

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# Operation

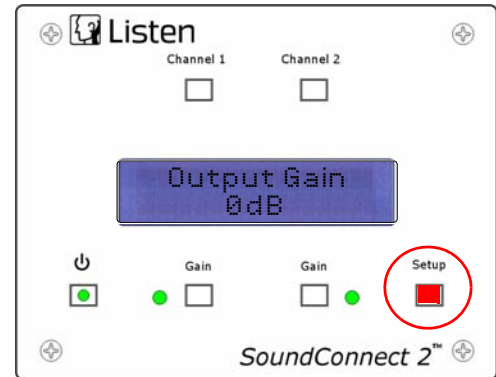
## Output Gain 0 dB / +6 dB option

The Output Gain of SoundConnect can be set to 0 or +6 dB. In addition to increasing the total input to output gain, when selected the +6 dB option provides the maximum dynamic range for the instrument.

**The default factory setting for Output Gain is 0 dB.**

As of SoundCheck 14, Auto Read can be used to automatically account for SoundConnect 2 Gain settings.

By using the Auto Read function in the SoundCheck Calibration Editor, you can automatically compensate for this added gain when using any Input Signal Path other than Direct In 1 or 2. (Direct In/Out paths are protected)



**Figure 3-1: Output Gain**

**Warning:** If you enable Auto Read on a Signal Path that uses the unity cal (Read only)-in.dat calibrated device file (e.g. Impedance Box), gain will be applied to all Signal Paths that use unity cal (Read only)-in.dat including Direct In 1 and Direct In 2. In this case, you may want to create a new unity cal file so the default unity cal file used by the Direct Inputs retains its default value.

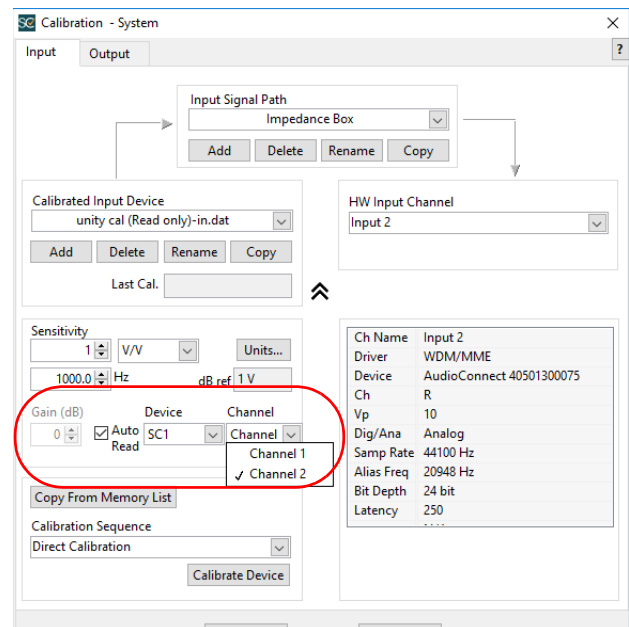
Auto Read checks the gain setting of the selected SoundConnect 2 channel along with the Output Gain setting. The **Gain field** in the **Calibration Editor** is automatically updated with the total gain as shown in [Figure 3-3](#). In this case, the Output Gain of SoundConnect 2 is set to +6 dB and the Channel 1 Gain is set to 0 dB.

See [Setup Mode 2 - General on page 7](#).

### The pros and cons of the settings:

- The +6 dB setting maximizes SNR, but the added gain may be confusing during calibration
- The 0 dB setting may be less confusing, but reduces SNR by 6 dB

As with any external amplifier, calibration in SoundCheck is required regardless of which setting is chosen. For microphones, this is handled during SoundCheck calibration with a mic calibrator. For the Line Inputs, you must provide a known electrical level and perform a direct calibration in SoundCheck. Whichever output gain setting is chosen, the output gain will be compensated for during calibration.



**Figure 3-2: Auto Read**

## Calibration

The ANSI S1.40 standard recommends that a certified calibration laboratory calibrate test instrumentation at least once a year.

## Connection Diagrams

### Lemo Connector Microphones

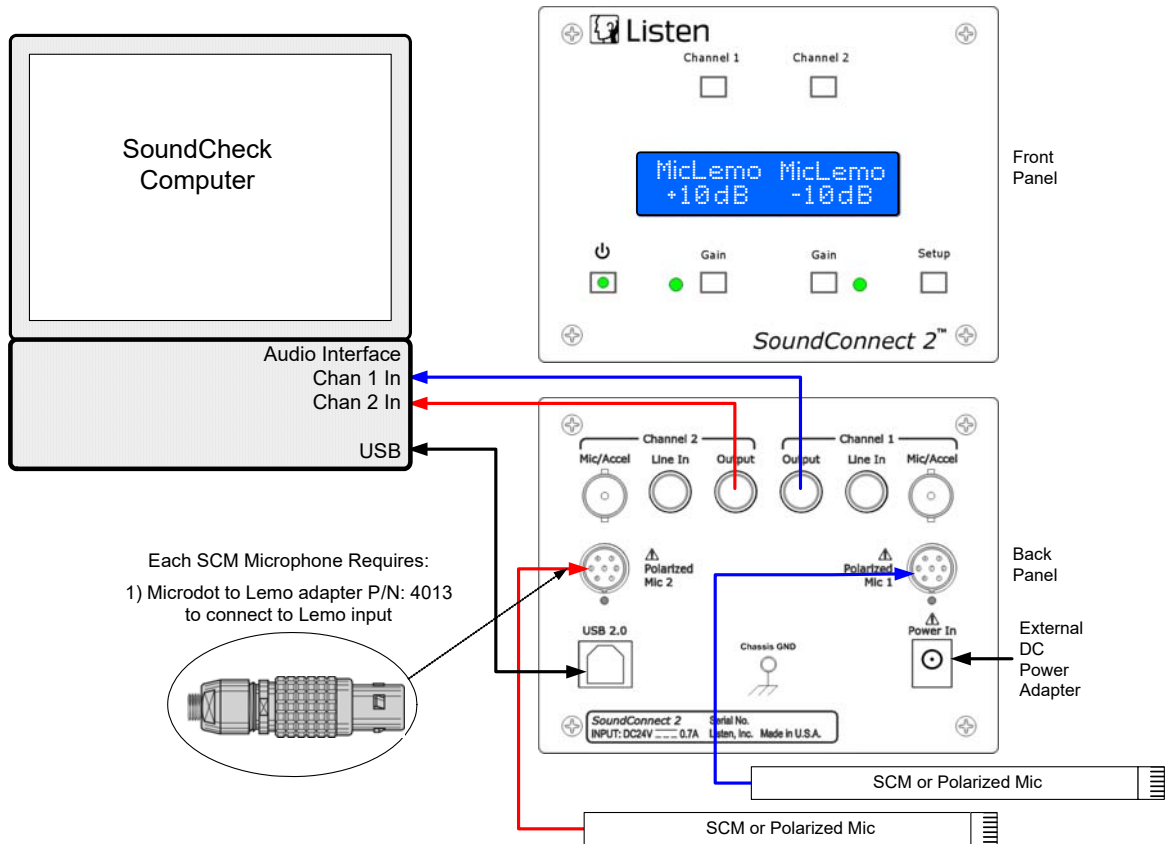


Figure 3-3: Lemo Microphones

#### Microphone requiring polarization voltage

SoundConnect 2 can be used with microphones and preamps requiring polarization voltage. Polarization voltage can be set via the front panel controls or through Message Steps in a SoundCheck sequence.

**Message Step control requires SoundCheck 14 or later.**

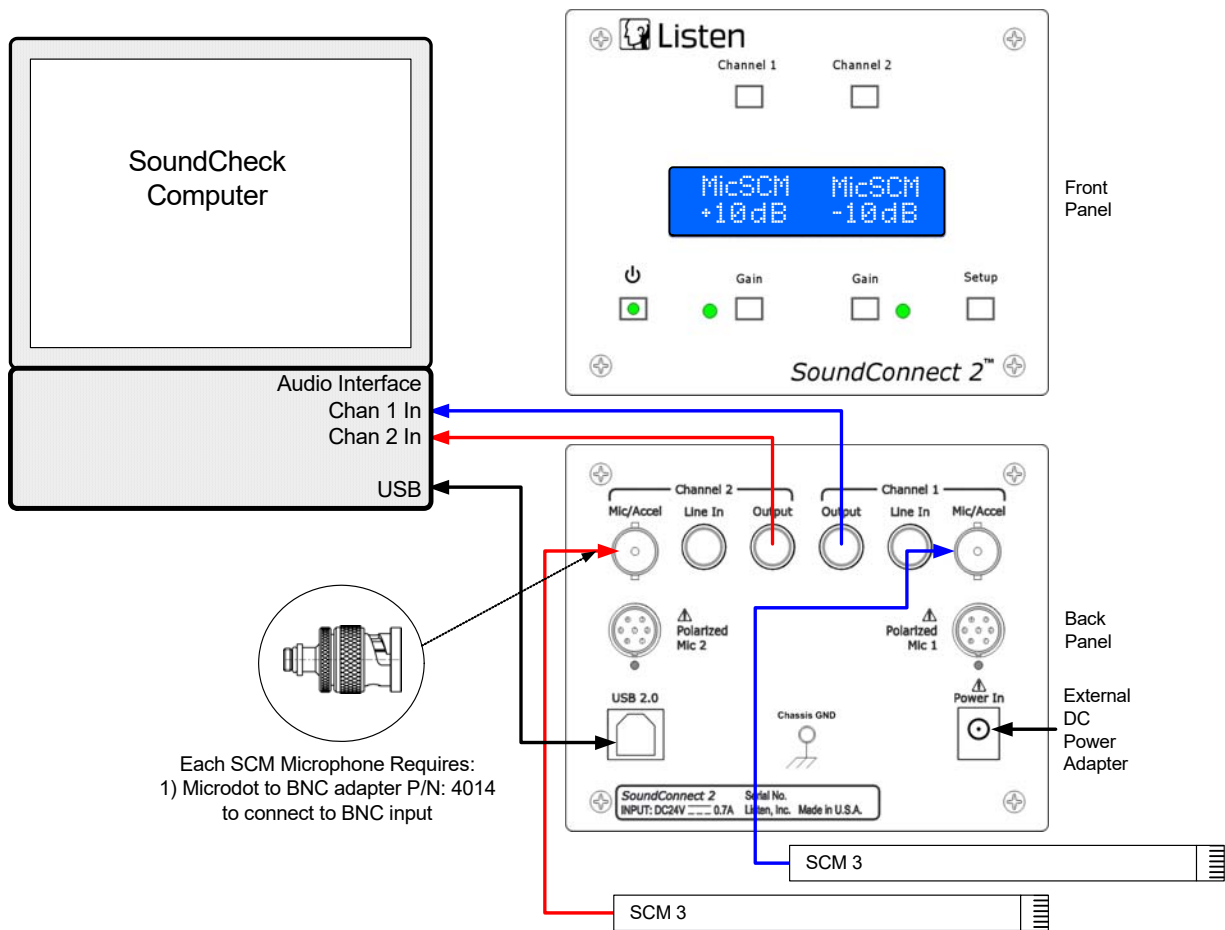
- Set the microphone input type to **MicLemo**. See [Channel Settings Mode on page 4](#)
- Set the microphone gain. See [Channel Settings Mode on page 4](#)
- Set the polarization voltage. See [Setup Mode 1 - Channel on page 6](#)

#### SCM Microphone with Lemo adapter

When connecting a Listen SCM mic to the Lemo input (optional board required) using the Microdot to Lemo adapter P/N 4013: (See [Figure 3-3](#))

- Set the microphone input type to **MicLemo**. See [Channel Settings Mode on page 4](#)
- 15V DC supply voltage is always present on Lemo the connectors so no Bias setting is needed
- IEPE and Pol. should be set to No Bias
- Set the microphone gain. See [Channel Settings Mode on page 4](#)

## SCM Microphone with Microdot to BNC Adapter



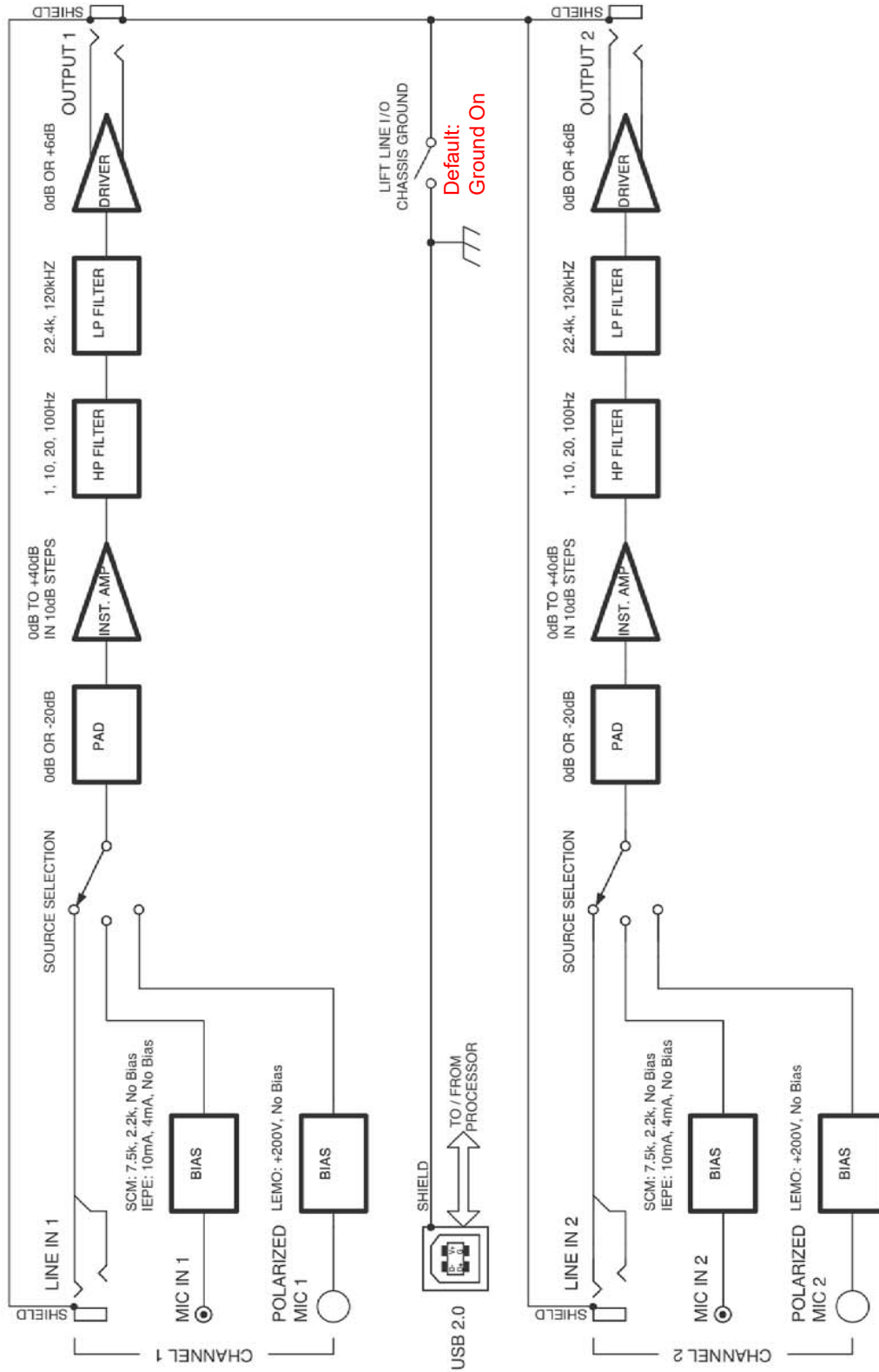
**Figure 3-4: SCM Microphones**

When connecting an SCM mic to the BNC input using the Microdot to BNC adapter P/N 4014:

- Set the microphone input type to **MicSCM**. See [Channel Settings Mode on page 4](#)
- Set the SCM Res to 7.5 kOhm. See [Setup Mode 1 - Channel on page 6](#)
- IEPE and Pol. should be set to No Bias
- Set the microphone gain. See [Channel Settings Mode on page 4](#)

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# Block Diagram



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## Specifications

<b>INPUTS</b>	
<b>Line Input</b>	
Connector	2 - 1/4" TRS Phone Jack, Balanced or Single Ended
Input Impedance	200 k $\Omega$ in parallel with $\leq$ 500 pF
CMRR at 1 kHz	$\geq$ 65 dB at 0 dB gain; $\geq$ 100dB at +40 dB gain
Maximum input voltage before damage	113 Vp AC @ -20 dB gain, differential
<b>Mic Input</b>	
Connector	2 - BNC Connector, compatible with SCM microphones and accelerometers
Input Impedance (bias off)	200 k $\Omega$ in parallel with $\leq$ 500 pF
Bias Supported	Constant Voltage (SCM), Constant Current (IEPE), or none
Resistive Feed	7.5 k $\Omega$ or 2.2 k $\Omega$ , $\pm$ 1%, selectable via front panel or USB
Constant Voltage / Electret Bias, Open Circuit Voltage	Preset to +10 VDC using 7.5 k $\Omega$ setting (Each channel internally adjustable from 100 mV to 12 VDC)
Constant Current / IEPE Bias, Open Circuit Voltage	+22 VDC, $\pm$ 5%; Continuous Output Current: 4 mA and 10 mA, selections for each channel via front panel or USB
<b>Externally Polarized Mic Input</b>	
Connector	2 - Lemo 1B series, type 307 receptacle, Compatible with pre-polarized and condenser microphones
Bias Voltage	+200 VDC, $\pm$ 0.5%, Enabled or disabled via front panel or USB
Bias noise	$\leq$ 100 $\mu$ V, unweighted, 20 kHz BW, Spectra $\leq$ 1 $\mu$ V, 3.16 Hz BW
Output Impedance	20 M $\Omega$
Preamplifier Supply Voltage	$\pm$ 15 VDC, Maximum Supply Current: 25 mA
<b>SIGNAL AMPLIFICATION</b>	
Frequency Response	-3 dB, $\leq$ 0.8 Hz to $\geq$ 140 kHz
Flatness 20 Hz - 20 kHz	$\pm$ 0.05 dB, No filters engaged
Gain	-20 dB to +40 dB in 10 dB steps
Tolerance	$\pm$ 0.1 dB from -20 to +20 dB; $\pm$ 0.2 dB +30 dB & +40 dB
SNR	$\geq$ 120 dB @ 0 dB Gain; $\geq$ 90 dB @ -20 dB Gain; $\geq$ 110 dB @ +20 dB; $\geq$ 90 dB @ +40 dB  (Noise - RTI, 20 kHz BW unweighted, all filters off, output gain +6 dB)

<b>SIGNAL FILTERING (each channel is independently configurable)</b>	
High Pass Filters	Frequencies: -1 dB at 1 Hz, 10 Hz, 20 Hz, 100 Hz; Butterworth, 40 dB/decade (2nd Order)
Low Pass Filters	Frequencies: -1 dB at 22.4 kHz; Butterworth, 40 dB/decade (2nd Order) or 120 kHz, 40 dB/decade (2nd Order)
<b>OUTPUTS</b>	
Balanced and Single Ended	All outputs are short circuit and over voltage protected
Gain	0 dB or +6 dB, selections via front panel or USB to match various balanced input stages
THD	≤ 0.0006% @ 0 dB to +20 dB Gain; ≤ 0.001% @ +30 dB Gain; ≤ 0.002% @ +40 dB Gain; ≤ 0.01% @ -20 dB to -10 dB Gain
Maximum output swing	≥ 15 V RMS into 600 Ω, Balanced
Output Impedance	≤ 60 Ω
Grounding	All 1/4" TRS Sleeves (Line Inputs and Outputs) may be lifted from or connected to chassis ground via the front panel or USB
<b>TEDS SUPPORT*</b>	
IEEE Standard 1451.4 Supported; data is transmitted via USB	
Mic In (BNC)	Class I Mixed Mode Interface (MMI)
Externally Polarized Mic (Lemo)	Class II
<b>USB INTERFACE</b>	
USB 2.0, Windows and Mac OSX HID compliant	
<b>POWER</b>	
24 VDC, 700 mA power input (Supplied with regionally approved 110/220 VAC, 50/60 Hz power adapter)	
<b>PHYSICAL</b>	
Dimensions	4.375" W (111mm) x 3.5" H (89mm) x 8.25" D (210mm)
Weight	1.8 lbs (0.810 kg)

\* Feature under development. Available soon as a software upgrade.



# Equipment Ratings

## Normal Environmental Conditions

SoundConnect 2 may be used under the following environmental conditions:

- Indoor use only
- Altitudes up to 2,000 m
- Temperatures between 0 °C to 40 °C
- Maximum relative humidity 80%
- Within the main supply voltages listed on the supplied or approved AC power adapter
- Transient Overvoltages up to the levels of Overvoltage Category II as required in the relevant standards listed on the Declaration of Conformity
- Temporary Overvoltages occurring on the mains supply as required in the relevant standards listed on the Declaration of Conformity
- Pollution Degree 2 as required in the relevant standards listed on the Declaration of Conformity

## Degree of Ingress Protection:

- SoundConnect 2 is rated IPX0 as required in the relevant standards listed on the Declaration of Conformity

# Declaration of Conformity



**DECLARATION OF CONFORMITY**  
According to EN ISO/IEC 17050-1:2004



**Manufacturer's Name:** Listen, Inc.  
**Manufacturer's Address:** 580 Harrison Avenue  
Suite 3W  
Boston, MA, 02118  
U.S.A.

*Declares under sole responsibility that the product as originally delivered*

**Product Description:** SoundConnect 2 Measurement Amplifier  
**Model Number:** 4024

*complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:*

Low Voltage Directive (2006/95/EC)  
EMC Directive (2004/108/EC)

*and conforms with the following product standards:*

**Safety:**

EN61010-1:2010, Ed. 3.0

**EMC:**

EN55011:2009, A1 (2010) - Class A, Group 1  
EN61000-3-2:2006, A1/A2 (2009) - Class A per Ed. 3.2 (2009 European Limits)  
EN61000-3-3:2008  
EN61326-1:2006  
USA: FCC Part 15, Class A    Canada: ICES-003:2012    Australia/New Zealand: AS/NZS CISPR11

*This Declaration of Conformity applies to the products listed herein and placed on the EU market after:*

**Date:** 4<sup>th</sup> day of March, 2015

**Manufacturer:**

**Signature**

**Name:** Steve Temme

**Position:** President

**Date:** 3/4/2015

## Service and Repair

SoundConnect 2 is designed and constructed to provide the user with many years of safe and trouble free operation. However, should a fault occur which impairs its correct functioning, it should be immediately shut off, disconnected at the mains source and disconnected from other hardware. For repair, contact your local LISTEN service representative. Under no circumstances should persons not qualified in the service of electronic instrumentation attempt repair.

### Contact Information

Contact the Listen office at 617-556-4104, Monday thru Friday, between 9 AM and 5 PM EST.

Sales - [sales@listeninc.com](mailto:sales@listeninc.com)

Technical Support - [support@listeninc.com](mailto:support@listeninc.com)

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