

# LR-3200

## USER MANUAL



Basic DSP RF  
Receiver (072 MHz)

## Dear Valued Customer,

Thank you for choosing Listen! We are dedicated to providing you with the highest quality products available, and take pride in delivering outstanding performance to ensure you are completely satisfied.

We independently certify each of our products to the highest quality standards and back them with a limited lifetime guarantee. We are available to answer any questions you might have during installation or in the operation of our products. At Listen, it's all about you, should you have any comments or suggestions we're here to listen.

### Here's how to reach us:

**+1.801.233.8992 +1.800.330.0891 North America**

**+1.801.233.8995 fax   [support@listentech.com](mailto:support@listentech.com)   [www.listentech.com](http://www.listentech.com)**

Thank you and enjoy your listening experience!

Best regards,

*Russell Gentner and the Listen Team*

- In the few instances where repairs were needed, 99% of all clients indicated that they were happy with repair turn-around-times and 85% of the time, clients were without their product for less than 10 days!
- Overall client satisfaction of working with Listen was rated 4.8 out of 5.
- "Please continue with your excellent attitude toward customer satisfaction. You guys are great!"
- "I've never had such good service from any company. Keep up the good work!"
- "You stand behind your product wonderfully."

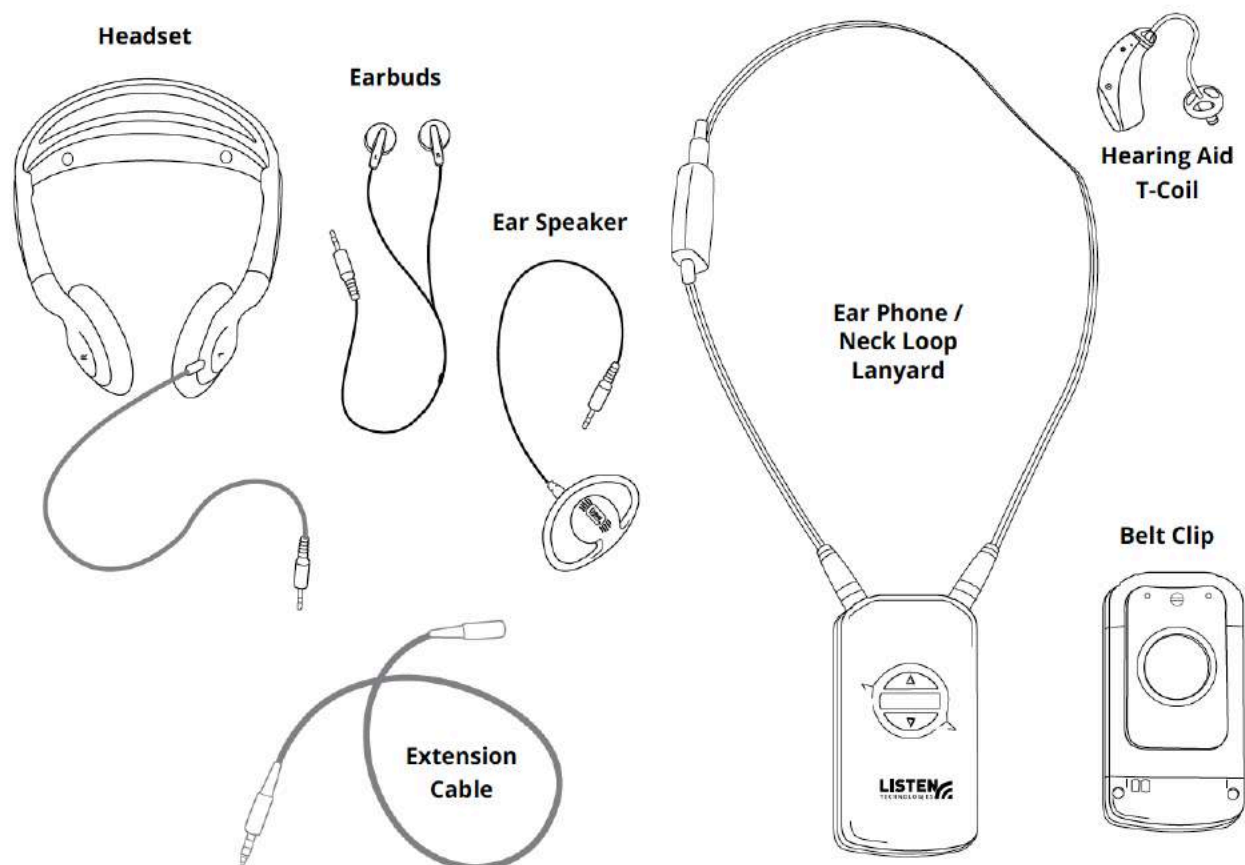
**LISTEN**  
TECHNOLOGIES 

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## BASIC DSP™ RECEIVERS

The LR LR-3200 is an Assistive Listening Receiver designed to be compact and simple to use. The unique design of the receiver allows them to be worn as a necklace, using the belt clip or concealed in a pocket, making this the most inconspicuous ALS receiver on the market.



Each receiver can be purchased with a Ear Phone/Neck Loop Lanyard that is designed to hold the receiver like a necklace similar to the Blue Tooth™ transceivers used with many of the today's hearing aids. The Ear Phone/Neck Loop Lanyard can be used as the induction loop for those users who have T-coil enabled hearing aids or cochlear implants, inducing the received audio directly into these T-coil enabled devices. The Ear Phone/Neck Loop Lanyard also provides the connection to Listen's Universal Ear Speaker, Earphones and Headphones, incorporating a short connection cable that plugs directly into the Ear Phone/Neck Loop Lanyards 3.5mm headset jack located 2/3 of the way up the lanyard. A second 3.5mm extension cable provided with Listen's universal earphones provides the length of cable required to place the receiver in a pocket or using the belt clip.



## LR-4200 QUICK REFERENCE

- 1 Power On/Off**  
 Press and hold for 1 second to turn on. Press and hold for 3 seconds to turn off.
- 2 Up/Down Volume Control**  
 Press momentarily to adjust the volume up/down or press and hold to ramp the volume.  
*Note:* Press and hold both up and down buttons for 5 seconds to activate channel select, use up and down to change the channel. Momentarily press the power button to save and exit.
- 3 Micro USB**  
 USB charging, programming, firmware updates and inventory dispensing.
- 3.5 mm Output Jacks**  
 Connect Listen Ear Phone/Neck Loop Lanyard for use with T coil hearing aids or with Universal Ear Speaker or Headphone.
- Belt Clip**  
 To remove, remove screw and pull belt clip from unit. To install place belt clip in place and insert screw.
- 6 Charging Contact**  
 For use with Listen charging tray options.
- 7 LED**  
 Indicates unit is on, low battery condition, and charging status.
- 8 Battery Protective Pull Tab**  
 Remove clear plastic pull tab to activate internal battery connections.
- 9 Battery Door**  
 Can be removed to access battery and product labeling information.

## LR-3200 SPECIFICATIONS

Product Specification: LR-3200-072		
<b>Audio</b>	System Frequency Response	50 Hz - 15 kHz ( $\pm 3$ dB) / 50 Hz - 10 kHz ( $\pm 3$ dB)
	System Signal to Noise Ratio	SQ enabled 80 dB, SQ disabled 70 dB /
	System Distortion	<1% total harmonic distortion (THD) at 80% deviation
	Output/s	Two (2) 3.5 mm (0.14 in.) connectors, unbalanced, 0 dBu nominal output level, 50 mW maximum, impedance 32 ohm
<b>Controls</b>	User Controls	Power, up/down volume
	Set-up Controls	Press and hold up/down volume buttons for 5 seconds to enter channel adjust, use up/down to select channel
	Programming	Via software and USB port
<b>Indicators</b>	LED	Flashes when batteries are low or to indicate charging, solid when fully charged
<b>RF</b>	Frequency Range	72.025 - 75.975 MHz
	Number of Channels	Basic mode 3 wide band, Expanded mode 17 wide band
	Sensitivity	.6uV typical, 1 uV maximum for 12 dB sinad
	Frequency Accuracy	$\pm .005\%$ stability 32 to 122 °F (0 to 50 °C)
	Antenna Type	Uses ear phone/neck loop lanyard and short ear phone cable or standard earphone cable
<b>Power</b>	Squelch	Programmable in 20 steps, automatic on loss of RF signal
	Battery Type	Lithium Ion
	Battery Life	24 Hours of typical use
	Battery Charging Time	Fully charged in 2.5 Hours
<b>Physical</b>	Power Supply	Micro USB connector, 5 V, 500 mA
	Dimensions (H x W x D)	3.75 x 2.0 x 0.64 in. (9.6 x 5.0 x 1.7 cm)
	Dimensions with Belt Clip	3.75 x 2.0 x 0.80 in. (9.6 x 5.0 x 2.1 cm)
	Unit Weight	1.6 oz (45.4 g)
	Unit Weight with Batteries	2.4 oz (68.1 g)
	Shipping Weight	3.2 oz (90.8 g) with 16 oz (454 g) minimum
<b>Environmental</b>	Color	Flat Black
	Temperature - Operation	14 to 104 °F (-10 to 40 °C)
	Temperature - Storage Relative	(-)4 to 122 °F (-20 to 50 °C)
<b>Compliance</b>	Humidity	0 to 95% relative humidity, non-condensing
	Standards	FCC Part 15 Class B, Industry Canada, ICES-3 (B), RoHS

## LISTENTALK SAFETY CAUTIONS!

### ***Hearing Safety***

This product is designed to amplify audio to a high volume level which could potentially cause hearing damage if used improperly. To protect your hearing make sure the volume is turned down before putting on the ear speaker or headphones. Then adjust the volume up to the minimum setting require to hear clearly. Do not allow children or other unauthorized individuals to have access to this product without supervision.

### ***Medical Device Safety***

Before using this Listen product with an implantable or other medical device, consult your physician or manufacturer of your implantable or other medical device. Always make sure you are using this product in accordance with the safety guidelines established by your physician or the implantable device manufacturer.

### ***Recycling***

Help Listen Technologies protect the environment! Please take the time to dispose of your equipment properly.



#### ***Product Recycling Instructions***

Please do NOT dispose of your Listen Technologies equipment in the household trash. Please take the equipment to an electronics recycling center; OR, return the product to the factory for proper disposal.



#### ***Battery Recycling Instructions***

Please do NOT dispose of batteries in the household trash. Please take the batteries to a retail or community collection point for recycling.



## QUICK SETUP AND OPERATION INSTRUCTIONS:

### 1. Unpack Unit

Inspect the unit for physical damage. If damage is apparent, please contact Listen Technologies technical support for assistance.

### 2. Activate Battery

Remove the clear plastic pull tab located at the bottom of the battery door, this will activate the internal battery connections. Note: upon first activation the battery will have a limited charge, we recommend the unit be charged immediately.

### 3. Charge Battery

Fully charge the rechargeable Lithium Ion battery by connecting the unit to one of Listen Technologies charging options.

- a. LA-380 Intelligent 12-Unit Charging/Carrying Case
- b. LA-381 Intelligent 12-Unit Charging Tray
- c. LA-421 1-Port USB Charger (comes with cable)
- d. LA-423 4-Port USB Charger (comes with 4 cables)
- e. LA-422 USB to Micro USB cable (Connects receiver to any standard USB port)

When connected to a charging option the status LED next to the power button will begin to flash indicating that the unit is charging. When the unit reaches 100% charged the status LED next to the power button will stop flashing and will be solid.





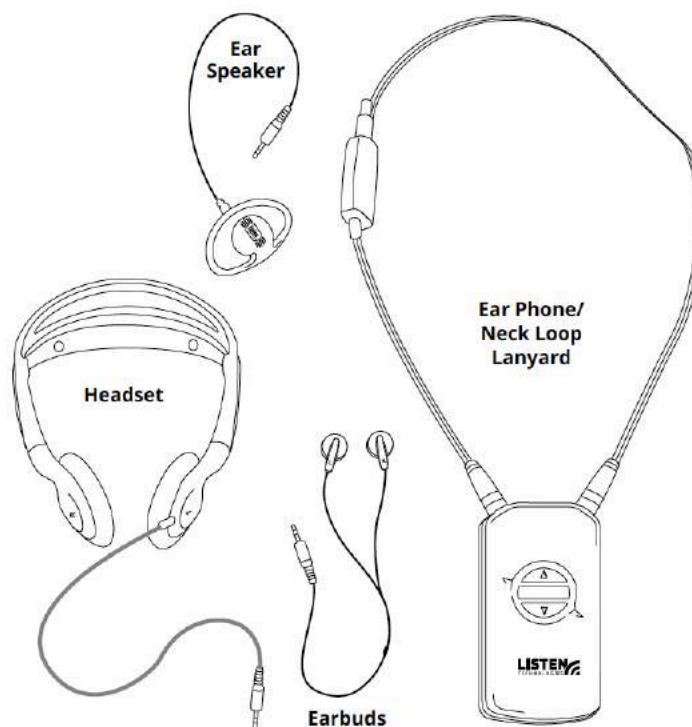
#### 4. Connect Earphone

##### Using The Earphone/Neck Loop lanyard:

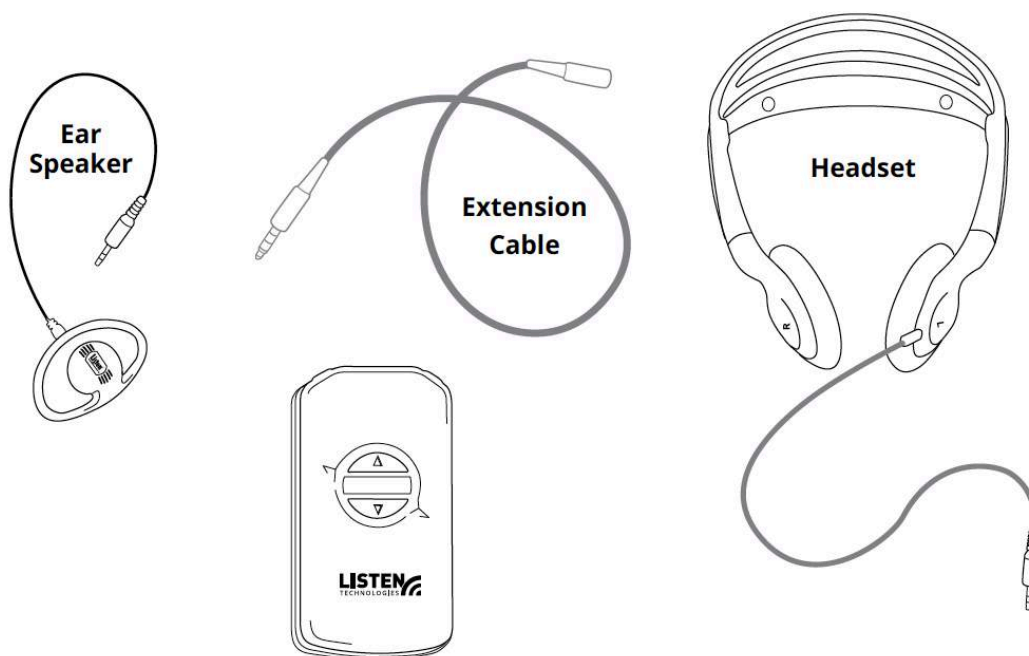
Connect the Listen Intelligent ear phone/neck loop lanyard to the two 3.5 mm output jacks on the unit. Then connect the short cable ear speaker or headphones to the 3.5mm output jack on the lanyard. The lanyard neck loop is placed over the head and worn as a necklace.

This is the preferred method of wearing the receiver for best performance!

For T-coil compatible hearing aid use simply disconnect the ear speaker or headset from the ear phone/neck loop lanyard.



**Using The 3.5mm Earphone Extension Cable:** If the receiver is to be clipped to a belt, waistband or inside a pocket a long extension cable is used. Connect the extension cable to the ear speaker, headset or earphones, then connect the extension cable into one of the 3.5 mm output jacks on top of the receiver.



### 5. Turn the Unit On

Press and hold the Power Button for 1 second to turn the receiver on. The LED will light solid. To turn the receiver off, press and hold the power button for 3 seconds



**Power Button:** Press and hold for 1 second to turn on, press and hold for 3 seconds to turn off

### 6. Channel Select Mode

The Listen receiver is pre-programmed to operate on channel E (72 MHz) from the factory. To receive audio, both the transmitter and receiver(s) need to be set to the same channel. If not, the receiver channel needs to be reprogrammed to the channel being broadcast. To adjust the receiver to a different listening channel, press and hold the volume up and down buttons simultaneously for 5 seconds. The front program (red) LED will begin to flash and the current channel will be heard in the ear speaker.

Use the volume up or down button to scroll through the available channels. Once the desired channel is located momentarily press the power button to save and exit the channel select mode or if no button is pressed for 5 seconds then the selected channel will be saved and the unit will exit the channel select mode. See page 14-15 for complete channel selection information.

**Save/Exit:** Press power button to save and exit

**Program LED:** red



**Channel Select Mode:** Press and hold the up and down button simultaneously for 5 seconds

**Scroll Up/Down:** Use the up or down button to scroll through available channels

### 7. Adjust Volume

Adjust the listening volume to a comfortable listening level via the volume up/down buttons.

If the volume is adjusted while there is no audio present the unit will output a momentary tone each time the button is pressed allowing the user to gauge and adjust the audio level to a comfortable listening level.

*Note: To protect the users hearing, at power up the receiver will automatically reset to an adjustable default volume level. Put on a headset and then adjust the volume to a comfortable listening level.*



**Volume Up/Down:** Use the volume up or down to raise/lower volume

## BATTERY & BELT CLIP

### **Low Battery Indication**

When the unit detects a low battery condition it will cause the status LED to flash slowly indicating that the unit needs to be charged. When the light begins to flash the unit has approximately 3 hours of receiver use before the unit will turn off.

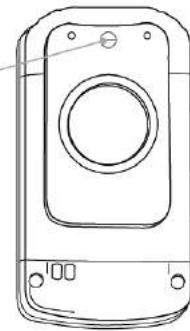


**Status LED:** Begins to flash when receiver has less than an estimated 3 hours use left on the charge

### **Belt Clip Installation/Removal**

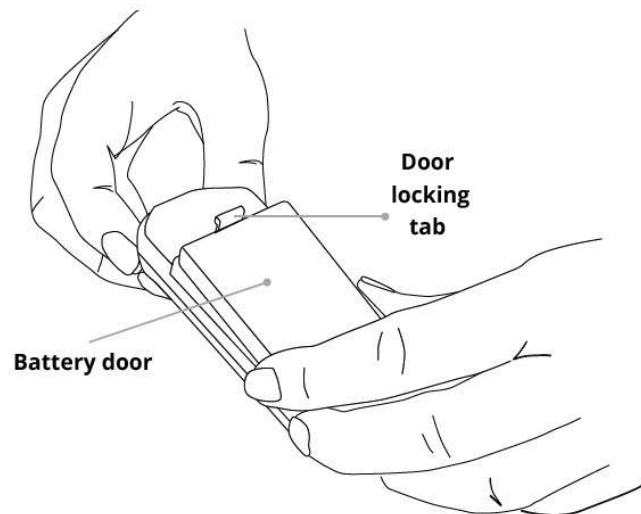
To remove belt clip, remove screw and pull belt clip from unit. To install place belt clip in place and insert screw.

**Belt Clip Screw:**



### **Accessing Battery Compartment**

To access the battery compartment simply remove the belt clip and battery door by pulling down and out on the battery door locking tab. Note: The product labeling information can be found behind the battery and includes the product model number, description, serial number, contact information and compliance statement.



## ADVANCED PROGRAM FEATURES AND LISTEN'S IDSP SOFTWARE SUITE

To manage the advanced program features on any of the iDSP™ receivers a windows based User Interface (UI) software is required.

This software is available free of charge from Listen Technologies. To download the software log onto **<http://www.listentech.com/support/software/idsp-software-suite/>** and follow the instructions.

With the UI software, direct communication is provided via the Micro USB connection on the receiver. Once connected the UI software provides setup and adjustment of the following functions of the LR-3200 receiver.

*Note: A help file for the UI software is included with the download and will provide detailed instructions for set up and management of all the advanced program features of the LR-3200 receiver.*

### **Super Quiet Mode**

To reduce background noise and increase the audio quality, Listen offers a noise reduction technology called Listen SQ™. Only Listen \*transmitters and receivers have SQ™ available, both the transmitter and receiver must have SQ™ activated to achieve the improved sound quality performance. This LR-3200 receiver has been shipped to you with the SQ™ feature disabled.

#### **SQ™ Summary:**

- Improves noise performance by at least 20 dB

- SQ must be enabled for both the transmitter and receivers

- SQ™ is NOT Squelch

- SQ™ is NOT compatible with other manufactures' products

- SQ™ can be disabled to permit operation with early Listen products or other manufactures, products

*Note: The LT-803 does not have the SQ™ feature. The LT-800 has the SQ™ feature.*

### **Basic Channels and Expanded Channels Modes**

Your Listen receiver has been shipped with the Basic Channel Mode enabled.

In the default Basic Channel Mode, only A, E and H channels are available for selection. If the channel desired is not available in Basic Channel Mode, the receiver will need to be set to the Expanded Channel Mode.

In Expanded Channel Mode all 17 wide band and channels are available for selection.

### **Auto Power Mode**

The auto power mode will automatically power the receiver on when the unit is removed from the charging device. When the unit is returned to the charging device the unit will automatically turn off and resume charging operation. Your Listen receiver has been shipped to you with the Auto Power Mode enabled.

### **Unit ID**

The unit ID number provides a unique identification for each receiver. This allows the software to keep track of a specific unit. This can be any 3 digit number between 000 and 999. The unit ID allows venues to track individual units and for easy dispensing and inventory control. Your Listen receiver has been shipped to you with a Unit ID of 000.

### **Default Volume**

Each time the LR-3200 is powered on the headset volume level is set to 35% which is the default level. To change the default volume level setting adjust the software slider to the desired level. The slider can be adjusted in 5% increments from 5% to 100%.

### ***Unit Information***

When a unit is connected to the configuration software the software extracts specific information from the unit and displays it for the user. This information includes the model number, frequency, Serial Number, battery level, and Firmware Version.

### ***Reset to Factory Defaults***

The unit can be returned to its factory default settings at any time by using the iDSP Software Suite.

### ***Firmware Update***

The firmware update function will check via the internet to see if a firmware update is available for the receiver.

## **RF RECEPTION MAXIMIZATION STRATEGIES:**

For proper and reliable operation, Listen receivers should receive a strong and consistent signal from the originating transmitter. Follow these strategies should be used to maximize this signal:

- a. When designing and installing a system, keep in mind that the location of both the transmitter and receivers is critical to maximizing signal strength
- b. Eliminate or minimize obstructions between the transmitter and receivers
- c. Minimize the distance between the transmitter and receivers
- d. Move transmitter and receivers away from metal objects
- e. Place the transmitting antenna as high as possible (on stationary transmitters)
- f. Orient both transmitting and receiving antennas vertically
- g. On portable transmitters and receivers, the cable from the microphone or headset is the antenna; ensure that the cable is not coiled or laying horizontal

**CAUTION:** When installing remote antennas, ensure the antenna is clear of power lines. Coaxial cable, connectors, and optional antenna mounting kits are available from Listen. Visit **[www.listentech.com](http://www.listentech.com)** or ask your dealer for details.

## 72 MHZ COMPATIBILITY CHART:

Frequency MHz	Listen	Phonic Ear	Comtek	Phonak	Williams*	Gentner	Telex	Drake
72.0250	1	1	1	A1	(11,1)			
72.0500					(2)	1		
72.0750	2	2	2	A2	(12,3)			
72.1000	A	A	A	A	A, (13,4)	2	A	72.1
72.1250	3	3	3	A3	(14,5)			
72.1500				(6)	3			
72.1750	4	4	4	A4	(15,7)			
72.2000	K	K	K	K	K, (8)	4	B	72.2
72.2250	5	5	5	K5	(16,9)			
72.2500					(10)	5		
72.2750	6	6	6	K6	(17,11)			
72.3000	B	B	B	B	B,(18,12)	6	C	72.3
72.3250	7	7	7	B7	(19,13)			
72.3500					(14)	7		
72.3750	8	8	8	B8	(20,15)			
72.4000	N	N	N	N	N, (16)	8	D	72.4
72.4250	9	9	9	N9	(21,17)			
72.4750					(18)	9		
72.5000	C	C	C	C	C, (23, 20)	10	E	72.5
72.5250	11	11	11	C1	(24,21)			
72.5500					(22)	11		
72.5750	12	12	12	C2	(25, 33)			
72.6000	O	O	O	O	O, (24)	12	F	72.6
72.6250	13	13	13	O2	(26, 25)			
72.6500					(26)	13		
72.6750	14	14	14	4	(27)			
72.7000	D	D	D	D	D, (28)	14	G	72.7
72.7250	15	15	15	D5	(29)			
72.7500					(30)	15		
72.7750	16	16	16	D6	(30,31)			
72.8000		P	PP	P	P, (32)	16	H	72.8
72.8250	17	17	17	07	(31,33)			
72.8500					(34)	17		
72.8750	18	18		18	P8	(32,35)		
72.9000	E	E	E	E	E, (33, 36)	18	I	72.9
72.9250	19	19	19	E9	(34,37)			
72.9500					(38)	19		

Basic Mode: 3 channels (A, E, H). Expanded Mode: 17 channels (all lettered).

\*Parenthesis indicate T35 and T20 narrowband.

## 72 MHZ COMPATIBILITY CHART:

Frequency MHz	Listen	Phonic Ear	Comtek	Phonak	Williams*	Gentner	Telex	Drake
74.6250	33	33	1	33	e3	(36,40)		
74.6500					(41)	20		
74.6750	34	34	34	e4	(37, 42)			
74.7000	I	I	I	I	I, (38, 43)	21	O	
74.7250	35	35	35	I5	(39, 44)			
74.7500					(45)	22		
74.7750	36	36	36	I6	(40, 46)			
75.2250	37	37	37	I7	(41, 47)			
75.2500					(48)	23		
75.2750	38	38	38	I8	(42, 49)			
75.3000	J	J	J	J	J, (43, 50)	24	P	
75.3250	39	39	39	J9	(55, 51)			
75.3500					(52)	25		
75.3750	40	40	40	J0	(45, 53)			
75.4000	R	R	R	R	R, (54)	26	Q	
75.4250	21	21	21	R1	(46, 55)			
72.4250	9	9	9	N9	(21,17)			
75.4500					(56)	27		
75.4750	22	22	22	R2	(47, 57)			
75.5000	F	F	F	F	F, (48, 58)	28	J	75.5
75.5250	23	23	23	F3	(49, 59)			
75.5500					(60) 29			
75.5750	24	24	24	F4	(50, 61)			
75.6000	S	S	S	S	S, (62)	30	K	75.6
75.6250	25	25	25	S5	(51, 63)			
75.6500					(64)	31		
75.6750	26	26	26	S6	(52, 65)			
75.7000	G	G	G	G	G, (53, 66)	32	L	75.7
75.7250	27	27	27	G7	(54, 67)			
75.7500					(68)	33		
75.7750	28	28	28	G8	(55, 69)			
75.8000	T	T	T	T	T, (70)	34	M	75.8
75.8250	29	29	29	T9	(56, 71)			
75.8500					(72)	35		
75.8750	30	30	30	T0	(57, 73)			
75.9000	H	H	H	H	H, (58, 74)	36	N	75.9
75.9250	31	31	31	H1	(59, 75)			
75.9500					(76)	37		
75.9750	32	32	32	H2	(60, 77)			



## TROUBLESHOOTING LR-3200 RECEIVERS:

### ***The receiver has no power***

Make sure the unit has either a fully charged battery or a Listen approved wall charging transformer is connected. Make sure the Power button on the top of the unit has been pressed to turn the unit ON. If this does not work, make sure the battery is installed properly and / or install a replacement battery.

### ***There is no audio***

Make sure the volume control is turned up to at least 25%. Check the Intelligent Earphone/Neck Loop Lanyard to insure it's plugged all of the way. Make sure the Ear Phone is plugged into the Earphone/Neck Loop Lanyard. Check to insure the transmitter is broadcasting an audio source. Verify the receiver is tuned to the same channel as the transmitter. If the RF signal is too weak, the receiver will squelch and mute the audio source; move closer to the antenna or make sure the transmitter's output RF power switch is set on "FULL" (LT-800).

### ***The audio is distorted***

Check the receiver is on the correct channel and make sure your using the clearest channel possible. Verify the audio on the transmitter is not turned up too loud; this will cause distortion. Insure the Intelligent Ear Phone/Neck Loop Lanyard connectors are pushed all the way into the jacks on top of the unit. Check the Ear Phone to verify it is plugged all the way into the Ear Phone/Neck Loop Lanyard. Review the SQ™ settings on your transmitter and receivers to verify both are turned ON (or OFF, if some of your equipment is not SQ™ capable). Make sure the receiver is not too close to the transmitting antenna. If the receiver can't get farther away from the antenna, turn down the RF output power on the stationary (LT-800) transmitter.

### ***I cannot pick up the signal on the receiver***

Check to make sure the receiver and the transmitter are on the same exact channel frequency. Verify the receiver is in broadcast range of the transmitter. Move the receiver closer to the transmitter.

### ***I can pick up the signal on the receiver, but it sounds like it's not tuned in***

Check the transmitter and receiver and verify they are both on exactly the same channel number/letter. Make sure you are using a clear channel that is free from noise and interference.

### ***I'm using another brand of transmitter - how do I tell which channel to use?***

Refer to Listen's Frequency Compatibility Table (page 16). Adjust either the transmitter or the receiver to a common channel.

### ***There is not sufficient range***

Inspect the transmitting antenna verify it is located as close as possible to the receiving area. Place the antenna as high as possible and check to see it is free from obstacles. Check the squelch setting on the unit; perhaps it is too sensitive.

### ***When I change channels, only certain channels are accessible***

The unit has been programmed to basic mode which only shows the A, E, and H channels. The unit can be programmed for expanded mode which will show all 17 channels. This is programmed via the configuration software.

### ***My battery is not charging***

Verify the clear plastic pull tab has been removed from the receiver battery door engaging the battery connections. Make sure the battery is installed properly and that the unit is plugged into the charging device correctly. Check the charging device to verify it is plugged in the proper power outlet and power is available at the outlet. If this does not work, install a replacement battery.

### ***I want to run the unit from a wall transformer***

Simply plug a Listen approved charging transformer (LA-421) into the Micro USB connector on the side of the unit. A battery must be installed at all times even when operating the unit with a wall charging transformer.

## **COMPLIANCE NOTICE AND FCC STATEMENT AND INDUSTRY CANADA STATEMENTS**

### ***Compliance Notice***

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesirable operation.

### ***FCC Statement***

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.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC and IC Rules. In order to maintain compliance with FCC and IC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

### ***Industry Canada Statement***

This equipment complies with ICES-003 class B.

CAN ICES-3 (B)/NMB-3(B)

## WARRANTY

Listen Technologies warrants ListenRF receivers to be free from defects in materials and workmanship under normal use and conditions for (5) five-years from the original date of purchase. All product warranties can be transferred, warranties are valid for (5) years from the original date of purchase.

All rechargeable Li-ion batteries supplied with transceivers and receivers are warranted for (1) one-year from the date of purchase.

This limited warranty, prices and the specifications of products are subject to change without notice.

**<https://www.listentech.com/support/warranty/>**



**LISTEN TECHNOLOGIES** 14912 Heritage Crest Way, Bluffdale, Utah 84065-4818 USA

**Phone:** +1.801.233.8992 **Toll-Free:** 1.800.330.0891 [www.listentech.com](http://www.listentech.com)

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20190425

# User's Manual



LT-800-072 Stationary FM Transmitter  
LT-803-072 Stationary FM Transmitter  
LT-800-216 Stationary FM Transmitter

***Don't miss a single sound.***





Dear Valued Customer,

Thank you for choosing Listen! All of us at Listen are dedicated to providing you with the highest quality products available. We take great pride in their outstanding performance because we care that you are completely satisfied. That's why we independently certify them to the highest quality standards and back them with a limited lifetime guarantee. We stand ready to answer any questions you might have during installation or in the operation of our products. Should you experience any problems whatsoever with your Listen products, we are ready to help you in any way we can with prompt, efficient customer care. Because at Listen, it's all about you! And should you have any comments on how we might improve our products or our service, we're here to listen.

Here's how to reach us:

+1.801.233.8992

+1.800.330.0891 North America

+1.801.233.8995 fax

[support@listentech.com](mailto:support@listentech.com)

[www.listentech.com](http://www.listentech.com)

Thank you and enjoy your listening experience!

Best regards,

Russell Gentner and the Listen Team

- In the few instances where repairs were needed, 99% of all clients indicated that they were happy with repair turn-around-times and 85% of the time, clients were without their product for less than 10 days!
- Overall client satisfaction of working with Listen was rated 4.8 out of 5.
- "Please continue with your excellent attitude toward customer satisfaction. You guys are great!"
- "I've never had such good service from any company. Keep up the good work!"
- "You stand behind your product wonderfully."





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# LT-800/803 Package Contents

## LT-800/803 Contents

- LT-800-072 (72 MHz) or
- LT-803-072 (72 MHz) or
- LT-800-216 (216 MHz) or
- 12 VDC Power Supply

## Listen Part Number

LT-800-072 (72 MHz)  
 LT-803-072 (72 MHz)  
 LT-800-216 (216 MHz)

## Optional Accessories

See page 22



# LT-800/803 Specifications

## LT-800 Architectural Specifications

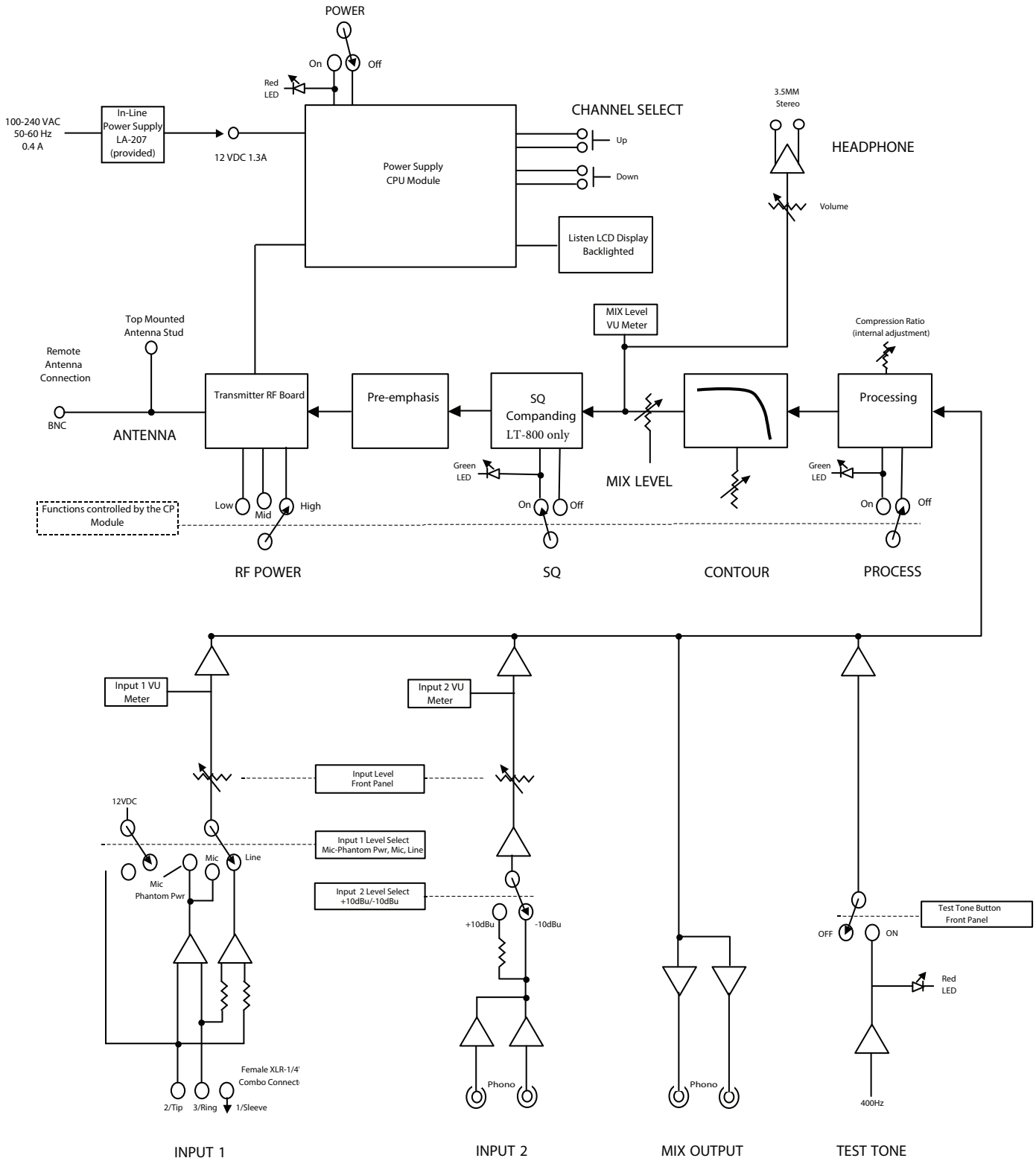
The stationary FM transmitter shall be capable of broadcasting on 57 channels. The transmitter shall have a SNR of 80dB or greater. The output power shall be adjustable to quarter, half or full. Channel tuning shall be capable of being locked. The device shall broadcast on both wide and narrow band channels. The device shall have an audio frequency response of 63 Hz to 15k Hz,  $\pm 3$ dB at 72 MHz, or of 63 Hz to 10k Hz,  $\pm 3$ dB at 216 MHz. It shall have two mixing audio inputs. The device shall have the following audio controls: input level, mix level and an adjustable low pass filter. The device shall have an audio processor that is capable of automatic gain control and limiting. The Listen LT-800 is specified.

## Specification

	Specifications	LT-800-072	LT-803-072	LT-800-216
RF	RF Frequency Range	72.025 - 75.950 MHz		216.025 - 216.9875 MHz
	Number of Channels	17 wide band, 40 narrow band	3 wide band	19 wide band, 38 narrow band
	Frequency Accuracy	+/- .005% stability 32° to 122°F (0° - 50°C)		
	Transmitter Stability	50 PPM		
	Output Power	80,000uV at 3 m		100mW (max allowed by FCC)
	Antenna	Various Antennas available		
	Antenna Connector	BNC		
Compliance	FCC Part 15, Industry Canada		FCC Part 90, Industry Canada	
** All system specifications are wireless end-to-end				
Audio	System Frequency Response	50 Hz - 15 kHz (±3 dB)		50 Hz - 10 kHz (±3 dB)
	System Signal to Noise Ratio (A-Weighted)	80 dB SQ enabled; 60 dB SQ disabled	60 dB	80 dB SQ enabled; 50 dB SQ disabled
	System Distortion	<2% total harmonic distortion (THD) at 80% deviation		
	Audio Input 1	Rear panel. (1) Female-XLR and ¼ in. combo connector, balanced, 0/-55 dBu (line/mic) nominal input level adjustable, -30/+21 dBu (line/mic) maximum input level, impedance 20k/1k Ohms (line/mic), phantom power +12 VDC.		
	Audio Input 2	Rear panel. Two (2) Phono connectors, unbalanced, -10/+10 dBu nominal input level adjustable, +30 dBu maximum, impedance 100k Ohms.		
	Audio Processing (Process)	Compression can be turned on/off. Slope internally adjustable from 1:1 to 4:1. Default 2:1		
	Contour	Cuts and boosts frequencies above 5 kHz		
	Combined Audio Output (Mix)	Input 1 and Input 2 Mixed Output (Rear Panel). Two (2) phono connectors, unbalanced, -10 dBu nominal output level, +19 dBu maximum, impedance 10 ohm.		
Headphone Output (Monitor)	Front panel. One (1) 3.5 mm stereo connector, unbalanced, adjustable output level, +7 maximum, impedance 10 Ohm.			
Controls	Front Panel	Power, Test Tone on/off, Channel UP/DOWN, Input levels, Mix level, Contour, Monitor volume control.		
	Rear Panel	Input 1 Level (line, mic, mic-phantom power), Input 2 Level (-10/+10 dBu), RF Power (low, mid, high)		
	Internal Adjustments	Compression ratio for audio processor		
	Programming	SQ on/off, Processing on/off, Channel lock		
Indicators	Input 1 and Input 2, Mix VU	Indicates Input 1, Input 2 and Mix audio levels. 10 segment LED's (8 green, 2 red)		
	SQ and Processing	Indicated by a green LED when on (front panel)		
	RF Power	Indicated on the LCD (low, mid, high)		
	LCD Display	Channel designation, lock status, RF Power Level, programming (front panel)		
	Test Tone	Red LED illuminates when test tone enabled		
Power	Power Supply Type	In-line power supply. Listen part number LA-207 (Line cord is determined by each country's AC power standards).		
	Power Supply Input	Input: 100-240 VAC, 50-60 Hz, 0.4 A		
	Power Supply Output	Output: 12 VDC, 1.3 A, 15.6 W		
	Power Supply Connector	Output Connector: .02 in. (5.0 mm) OD, .01 in. (2.5 mm) ID, barrel type		
	Power Supply Compliance	UL, CE, GS, TUV		
Physical	Dimensions (H x W x D)	1.75 x 8.50 x 9.13 in. (4.5 x 21.5 x 23 cm)		
	Color	Dark Grey with white silk screening		
	Unit Weight	2.6 lbs. (5.7 kg)		
	Unit Weight with LA-201	4.4 lbs. (2.0 kg)		
	Power Supply			
	Shipping Weight	5.0 lbs. (2.26 kg)		
	Rack Mounting	One (1) rack space height, 1/2 rack space wide. One (1) or two (2) transmitters can be mounted in one rack space. Optional rack mount (LA-326)		
Environmental	Temperature - Operation	-10°C (14°F) to +40°C (104°F)		
	Temperature - Storage	-20°C (-4°F) to +50°C (122°F)		
	Humidity	0 to 95% Relative Humidity, non condensing		

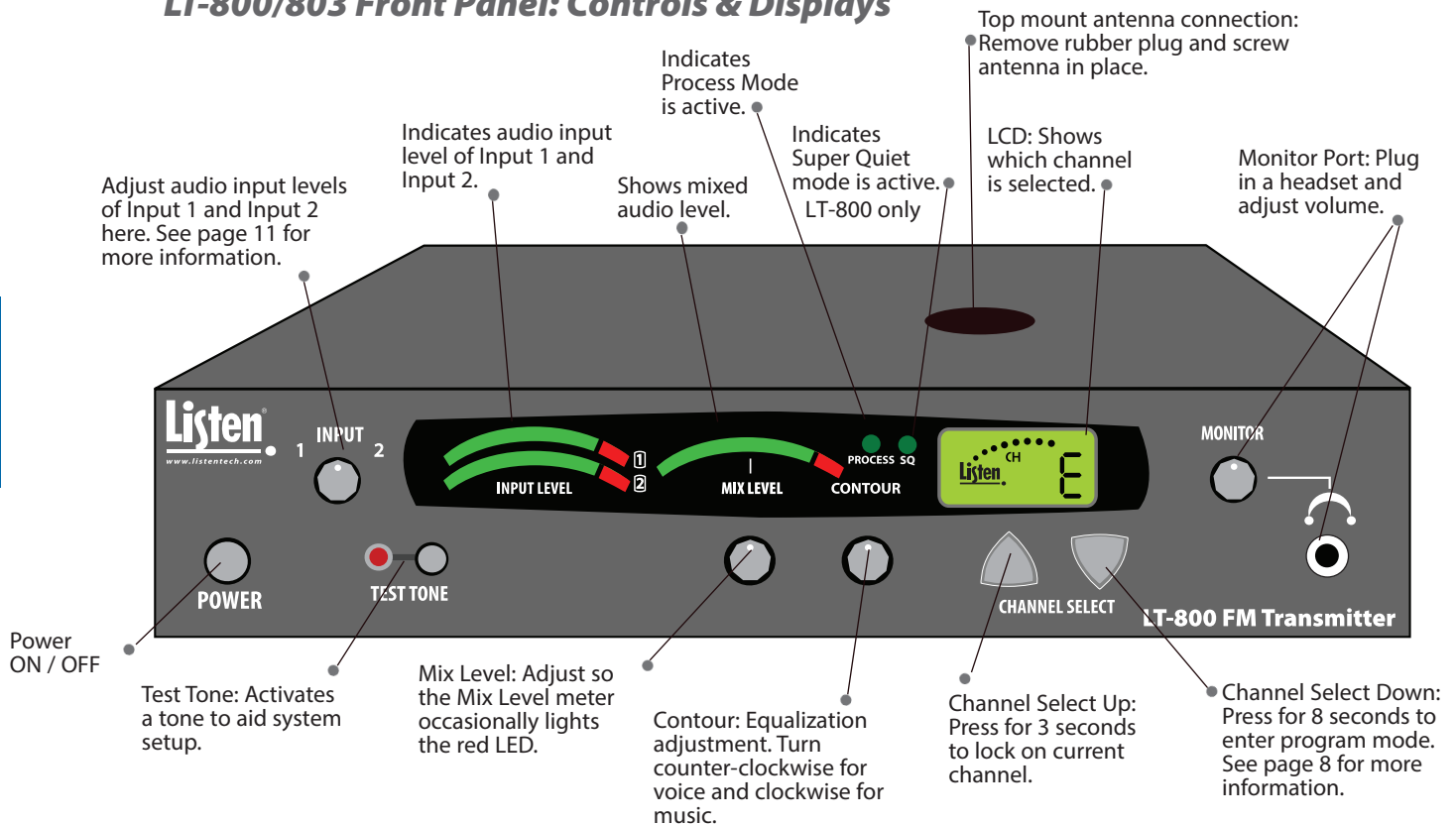
Specifications are subject to change without notification

# LT-800/803 Block Diagram

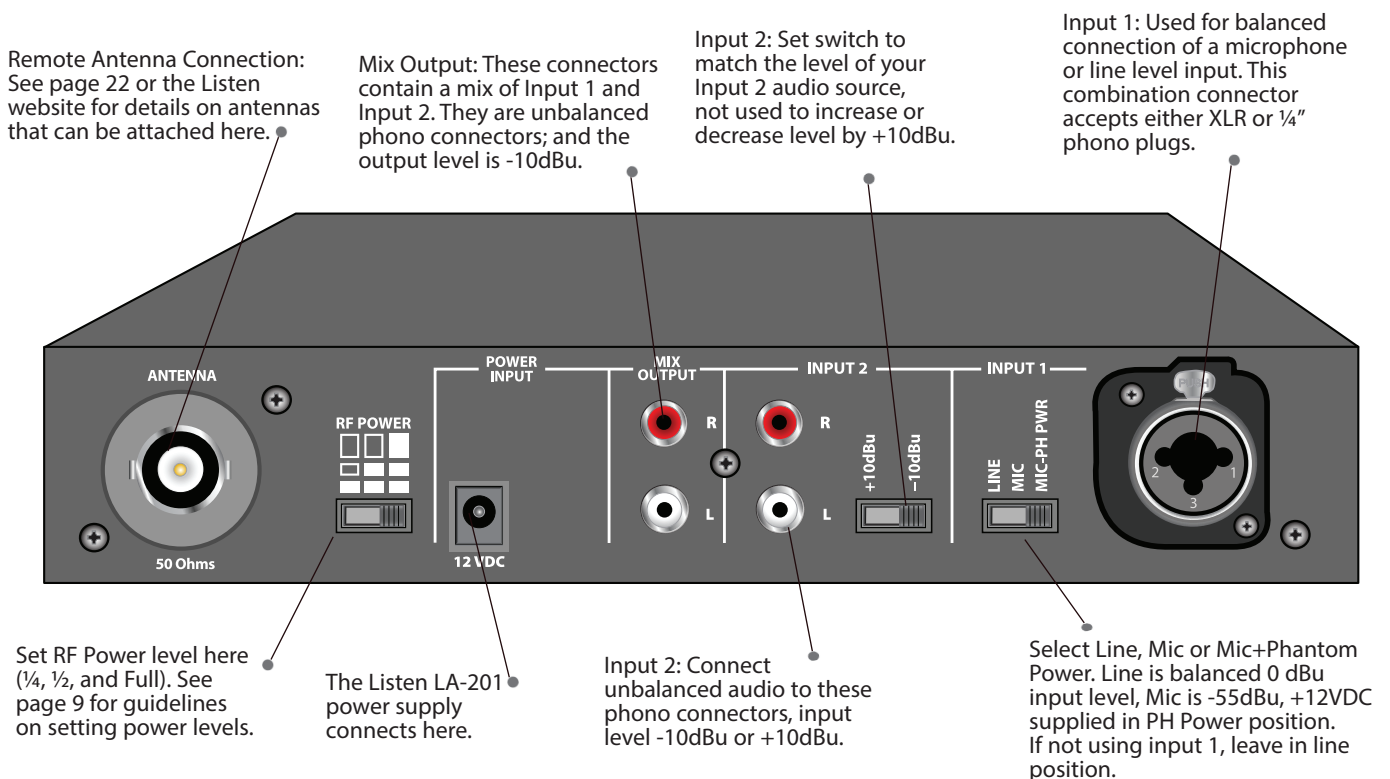


# LT-800/803 Quick Reference

## LT-800/803 Front Panel: Controls & Displays



## LT-800/803 Back Panel: Connections & Settings



# LT-800/803 Setup Instructions

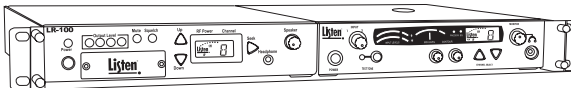
## 1 Unpack the Product

Remove outer packaging and plastic cover. Inspect for physical damage.

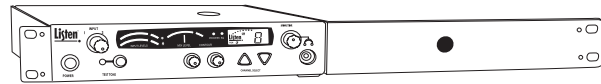
## 2 Mount in Rack (if necessary)

If rack mounting the unit, install the optional rack mount kit (part LA-326) according to the instructions included with the kit, then install the LT-800 in the rack.

**NOTE: If rack mounting, you will need to use a rear connection antenna.**



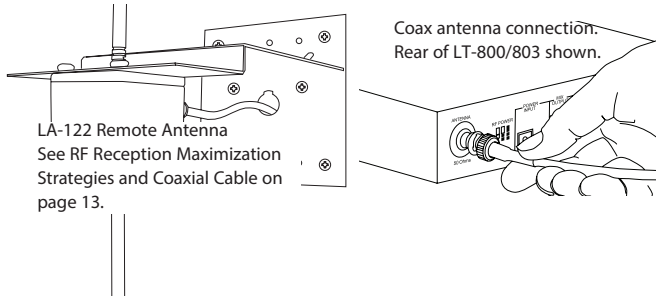
Rack Mount with dual unit installed



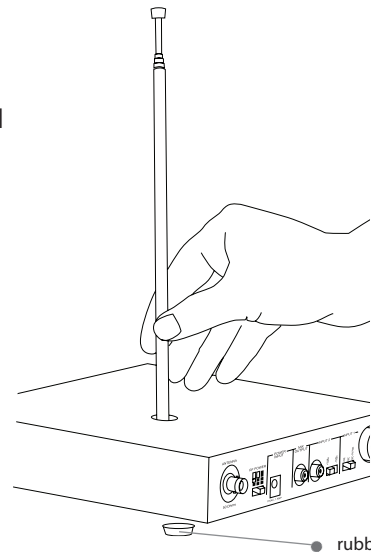
Rack Mount with single unit installed  
Shown with LT-800

## 3 Connect Antenna

Connect the antenna (not included) according to the installation instructions. Only use an antenna supplied by Listen. If you are connecting the antenna directly to the top of the LT-800/803, you will need to remove the rubber plug on top of the unit. If you are using a remote antenna connected to the rear of the unit, do not connect an antenna to the top connector. See page 22 for antenna options, or refer to the Listen website for remote antenna options, [www.listentech.com](http://www.listentech.com).



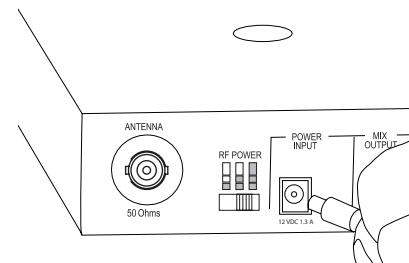
Coax antenna connection.  
Rear of LT-800/803 shown.



LT-800/803 shown with top mount  
antenna connected through top of  
unit (part numbers LA-101, LA-106 (72  
MHz) or LA-102 (216 MHz)

## 4 Connect Power

Plug the power supply into the power connector on the back panel, then plug the power supply into an outlet. Only use a Listen approved power supply (The LA-207, an in-line switching power supply, is the approved power supply for this unit).



## 5 Select Phonak Compatibility (if necessary)

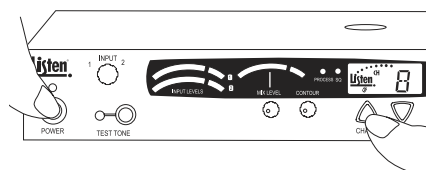
If you will be using Phonak receivers with your LT-800 (216 MHz only), the transmitter can become completely compatible through software control. When switched to this mode, the LT-800 transmitter will display the Phonak channels. By integrating Phonak channels and compatibility into the LT-800-216, it is more convenient to use Phonak receivers with Listen transmitters. ([www.phonak.com](http://www.phonak.com))



# LT-800/803 Setup Instructions (cont.)

## To Select Phonak Mode: (LT-800 only)

Press and hold down the channel select "up" button while powering on the unit. The LCD will display a "P" momentarily upon power up indicating that the transmitter is in the Phonak Channel Mode. The channels displayed will now match Phonak channels. To return to the Listen channel designations, repeat this process. The LCD will display an "L" momentarily upon power up indicating that you are in the Listen Channel Mode.

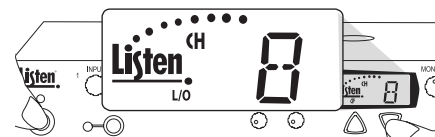


## 6 Select Channel Mode (if necessary)

Your transmitter has been shipped to you with only a limited number of channels available (Basic Mode). If all channels (Expanded Mode) are required, use the following procedure.

## To Select Expanded Mode: (LT-800 only)

To enable or disable the Expanded Mode, press and hold the channel select "down" button while powering on the unit. When the Basic Mode is enabled, "L/O" (lockout) will be displayed on the LCD display as shown below. This indicator is extinguished when in the Expanded Mode.



## 7 Set SQ™ (Super Quiet) and Process Features (SQ available on LT-800 only)

Your transmitter is shipped to you with SQ (super quiet) enabled and Process disabled. For a detailed description of these features and when to use them, please refer to page 12.

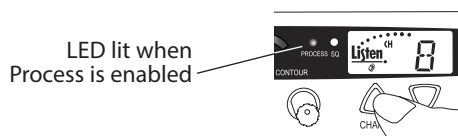
## To Disable or Enable SQ and Process Features:

With the unit on press and hold the channel select "Down" button for 8 seconds. The program (PGM) icon will appear on the LCD.

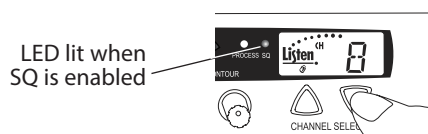
Once in the program mode,



the SQ and Process features can be turned on and off by pressing the channel select buttons. Press the channel select "Up" button to toggle between Process On and Off. Press the channel select "Down" button to toggle between SQ On and Off.



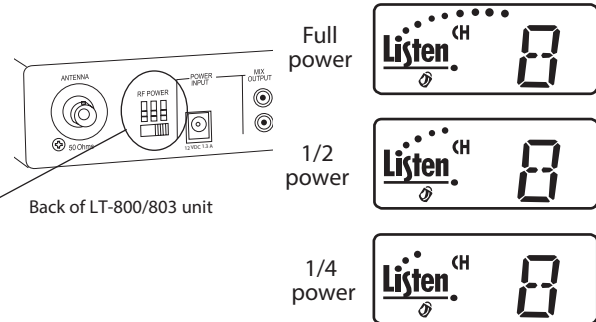
If the green LED is illuminated on the front panel, that feature is enabled. Once you have enabled or disabled the features as desired, let the transmitter exit the program mode by waiting 5 seconds.



# LT-800/803 Setup Instructions (cont.)

## 8 Set RF Power

Set the RF POWER switch on the back of the unit to Full, 1/2 or 1/4 (Level is indicated on the LCD display). The amount of transmitted RF power that you will need depends on your application. If you are operating multiple transmitters in the same environment, it is best to set the transmitters output power to its lowest level to reduce the possibility of interference.



## 9 Connect Audio Inputs

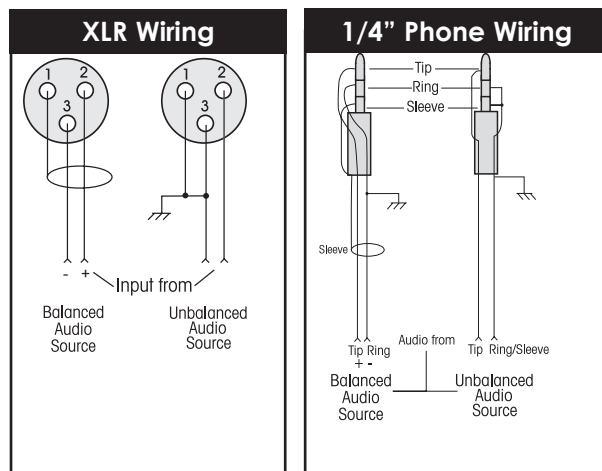
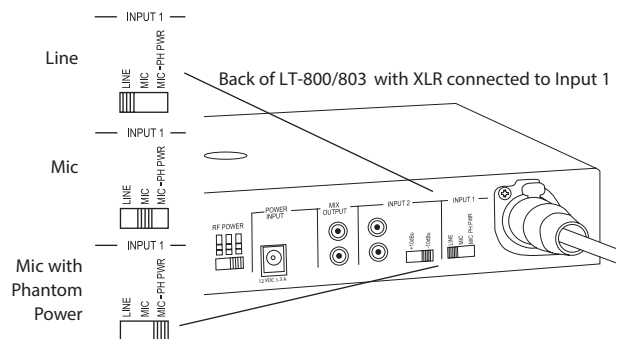
The LT-800 has two audio input options: Input 1 and Input 2. Input 1 is a balanced connection using either an XLR or 1/4" phono connector. Input 2 has two unbalanced mixing phono connectors. Use Input 1 if you are using a microphone or if you have a balanced connection such as from a professional audio mixer (you can also use Input 1 for unbalanced connections). Use Input 2 to connect to an unbalanced audio source.

### Input 1

Connect the audio source(s) to one or both audio input connections. Input 1 offers a choice of balanced XLR or 1/4" phono connector.

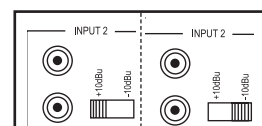
Plug your microphone into Input 1 and move the input select switch to Mic (for dynamic microphones) or Mic + PH Power (for condenser microphones).

Plug your balanced or unbalanced audio source into Input 1. Use the following diagram.



## 7 Input 2

Plug your unbalanced audio source into Input 2 and select the audio level switch for -10dBu or +10dBu, to match the audio level coming from your equipment.



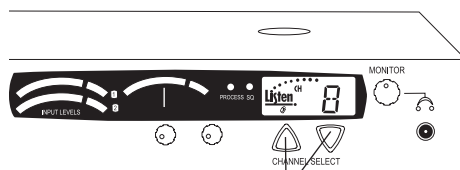
# LT-800/803 Operating Instructions

## 1 **Power Unit On**

Turn power on by pressing the power button.

## 2 **Select a Channel**

Select the transmit channel by pressing the channel select UP and DOWN buttons. See Channel Selection on page 14 for more information.



• Channel Select UP and DOWN buttons

**NOTE:** The LT-800 is shipped with only limited channels (Basic Mode). To select from all channels (Expanded Mode) refer to page 12. (for a more detailed description of Basic and Expanded Mode refer to page 12)

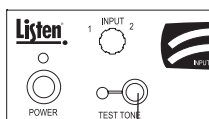
## 3 **Lock on Channel**

Once you determine your transmit channel, you can lock the transmitter on that channel. To lock a channel hold the Channel Select "Up" button for 3 seconds until the padlock icon appears on the display. To unlock, repeat this process and the padlock icon will disappear.



## 4 **Test Tone (if necessary)**

To broadcast a test tone, press the test tone button. This helps to test receivers when no audio source is available.

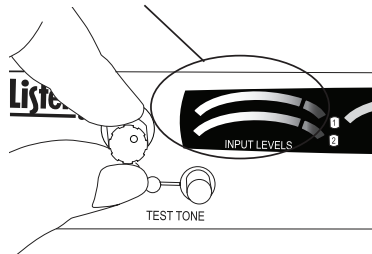


• Press Test Tone button here

# LT-800/803 Audio Control

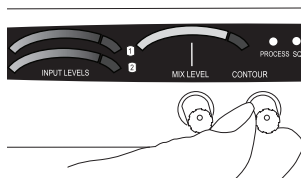
## 1 **Adjust Audio Input Level**

Adjust the input knob counterclockwise to add gain to Input 1. This will decrease gain to Input 2. Adjust input knob clockwise to add gain to Input 2. This will decrease gain to Input 1. If you have two audio sources connected to both Input 1 and 2, adjust the level of one input using the VU meter, then adjust the output level of the other audio source. Adjust the input level until the left VU meter(s) occasionally illuminate the red LEDs. Illumination of the red LEDs indicates the unit is in limiting. Limiting is required so that the unit does not over-modulate the transmitter. If you don't want any audio limiting to occur, make sure the red LEDs never illuminate. If you want a highly limited signal, turn the audio gain up so the red LEDs illuminate often.



## 2 **Adjust Contour**

Adjust the Contour knob counterclockwise if your audio source is mostly voice. Adjust the knob clockwise if your audio source is mostly music. The Contour knob adjusts the relative equalization of the unit. This equalization boosts or cuts frequencies above 5 kHz.



## 3 **Adjust Mix Level**

Adjust the mix level until the right VU meter occasionally illuminates the red LED. This is the level adjustment for the combined output from Input 1 and Input 2.

If you are using another manufacturers' receivers with the LT-800, determine the frequency of their receivers then refer to Listen's Frequency Compatibility Tables (pages 15-16) to find the LT-800 channel that corresponds with the receiver's frequency. We recommend verifying corresponding channel designations on these tables to ensure compatibility and provide the best possible reception.

The LT-800 is Phonak compatible and can be set to display Phonak specific channels. See page 8 to set Channel Mode and page 14 for specific channel designations.



# Listen SQ™ (Super Quiet) - Improving Your Listening Experience

People are accustomed to listening to low noise, high fidelity audio (delivered via CD, DVD, etc.). FM radio systems, such as those made by Listen, have more inherent noise compared to most sound systems. To minimize noise, Listen uses a noise reduction technology called ListenSQ™. Both the transmitter and receiver must have the SQ feature enabled to achieve the desired results. SQ is available on new Listen systems, including the system you received in this shipment. If you are planning to use this product with older Listen systems that do not have Listen SQ, or equipment not manufactured by Listen, you must disable Listen SQ.

Your Listen LT-800 has been shipped to you with the SQ feature enabled. You may need to disable the SQ function for one or more of the following reasons:

- 1 You are using your new Listen LT-800 with older version Listen receivers that do not have the SQ function.
- 2 You are using your new Listen LT-800 with equipment supplied by other manufacturers (Listen is the only manufacturer using SQ Technology).
- 3 You expect that end users will bring and use their own receivers that don't have the SQ function.

**NOTE: See page 8 to enable or disable SQ (Super Quiet).**

## SQ Summary

- SQ is NOT squelch
- SQ improves noise performance by at least 20dB
- SQ is NOT compatible with older version Listen products
- SQ is NOT compatible with other manufacturers' products
- To work properly, SQ must be enabled for both the transmitter and receivers
- SQ can be disabled to permit operation with older Listen products or other manufacturers' products

## Process Mode

Process mode is used for Audio Gain Control (AGC). With the process mode enabled, the LT-800/803 will automatically adjust for inconsistent signal input levels by raising or lowering the signal level accordingly to provide a consistent sound output level. This feature should be used in applications where a consistent sound level is important and the input levels vary substantially. Typically you would not want to engage the Process Mode when a speaker's emphasis is critical to the message they are conveying.

## Basic and Expanded Mode(LT-800 only)

In the default Listen channel mode, only the most commonly used channels are available. This is called "Basic Mode". When the LT-800 is in Basic Mode, "L/O" (lock-out) will be displayed on the LCD, meaning some transmission channels are unavailable. If the channel needed is not available in Basic Mode, access to all transmission channels is achieved in "Expanded Mode". To access Expanded Mode press and hold the channel select "down" button while powering on the unit. To return to Basic Mode, repeat the same process of powering on the unit while holding the "down" button.

# RF Reception Maximization Strategies

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For proper and dependable operation, Listen receivers need to receive a strong and consistent signal from the originating transmitter. Note that on portable receivers the headset wire is the receiving antenna. The following strategies should be used maximize this signal:

- 1 When designing and installing your system, keep in mind that the location of both the transmitting and receiving antennas is critical to maximize broadcast range.
- 2 Eliminate or minimize obstructions between the transmitting and receiving antenna.
- 3 Minimize the distance between the transmitting and receiving antennas.
- 4 Move transmitting and receiving antennas away from metal or conductive objects.
- 5 Place the transmitting antenna as high as possible.
- 6 Orient both transmitting and receiving antennas vertically.
- 7 Position the RF Power switch on the back of the LT-800 to full RF Power, unless lower power is necessary (see page 9).
- 8 Keep coaxial cable from transmitter to antenna as short as possible.

**CAUTION:** When installing antennas, ensure the antenna is clear of power lines.

Coaxial cable, connectors, and optional antenna mounting kits are available from Listen. See page 22-23, visit [www.listentech.com](http://www.listentech.com) or ask your dealer for details.

## Coaxial Cable

The antenna for the LT-800/803 can be mounted directly on the unit if desired. However, you may find that the unit will provide better performance when the antenna is located elsewhere. If you plan to mount the antenna in a different location other than the top of the unit, you must use cable and connectors rated at 50 ohms. Although cable used for cable TV installations looks similar to this cable, it will not work with your Listen system.

If you need to run cable over a length greater than 50 feet for 216 MHz applications or greater than 100 feet for 72 MHz applications or to maximize broadcast range, Listen recommends that you use RG-8 cable rather than RG-58. RG-8 is a lower loss cable, meaning that more of your signal will reach the antenna.

Long cable runs can result in signal degradation due to the "loss" characteristics of the cable. When using RG-58 with a 72 MHz transmitter, there is an average\* loss of 4 dB per 100 feet of cable and at 216 MHz using RG-58 an average\* loss of 8 dB per 100 feet of cable. (A 3dB loss means half of your power has been lost.) However, it is better to suffer coaxial power loss than to try to shoot your signal through obstacles! Obstacles, especially metal, can create drop-outs or reflections of your signal that will result in poor listening conditions.

**\*NOTE:** There are many varieties of 50 ohm, RG-58 and RG-8 cables. You may purchase a cable that is better or worse than this value. Please check with the cable vendor or manufacturer for exact specifications.

# Channel Selection

It is important to choose channels that are free from interference to achieve proper operation of your Listen equipment. This process is trial and error. Before turning on the transmitter, listen to the wide band channels on the receivers (lettered channels at 72 MHz and channels that start with a "2" for 216 MHz when using a Listen receiver). Listen to the audio through the headphone or via the speaker and choose a channel with the least amount of interference. Unless you are interfacing with an existing narrowband transmission system, always use a wide band channel.

## ***If you are using multiple channels follow this process:***

1. **Same Space** If you are using multiple transmitters in the same space, the highest number of channels that will work simultaneously is six at 72 MHz and three at 216 MHz. With all of the transmitters off, listen for interference on all the wide band channels with a Listen receiver. Using the frequency compatibility tables on pages 15-17, eliminate any channels that have noticeable interference. Now choose the channels with the widest channel spacing. It is recommended that adjacent channels be spaced at least 300k Hz apart. If there is no interference the following channels are recommended. For a 72 MHz system, use channels A, C, E, I, J and H. For a 216 MHz system, use channels 2A, 2K and 2V.
2. **Distributed Spacing** If you are using transmitters that are distributed over a large area, you can achieve more simultaneous broadcast channels. However, it is critical that your receiver(s) be located as close to its transmitter as possible. You can use adjacent channels (see frequency compatibility tables (on pages 15-17) in this case as long as the adjacent channel transmitter is at least 50% further away from the receiver than the original transmitter. Example: The transmitter for the receiver on channel E is 100 feet from the receiver. The adjacent channel transmitter on channel D should be at least 150 feet away.

It is highly recommended that after channel selection has been achieved, you lock the channel so that it cannot be changed by the user. To accomplish LOCK on the LT-800, press the "UP" button for 3 seconds. Repeat the process to unlock.

## ***Notes in regard to using 72 MHz and 216 MHz systems:***

1. 72 MHz is a secondary frequency band. This means that other transmitters are licensed to use these frequencies. Thus, you may experience interference from paging transmitters and other types of transmissions. You will need to find a clear channel by listening to all the wide band channels.
2. 216 MHz is a primary frequency band and no other types of transmissions are authorized to use it. Thus, you will find the highest probability of clear channels in this band. However, you may experience intermodulation of the TV Channel 13 aural carrier if there is a channel 13 transmitter in your area and you are close to the transmitter. If you cannot find a clear channel in 216 MHz band due to channel 13, it is recommended that you switch to a 72 MHz system.

### **Wide Band Recommendation**

Listen recommends that you always use a wide band channel unless you need to be compatible with existing narrow band receivers from other manufacturers. Wide band channels have lower noise than their narrow band counterparts.

### **At 72MHz**

The LT-800 at 72 MHz operates on 17 wide band channels and 40 narrow band channels.

- Letters= Wide Band Channels (Example: E)
- Numbers= Narrow Band Channels (Example: 32)

### **At 216MHz**

The LT-800 at 216 MHz operates on 19 wide band channels and 38 narrow band channels.

- "2" as left digit= Wide Band Channel (Example: 2C)
- "1" and "3" as left digits= Narrow Band Channels (Examples: 1A; 3R)



# 72 MHz Compatibility Chart

Frequency MHz	Phonic Listen	Phonic Ear	Comtek	Phonak	Williams*	Gentner	Telex	Drake
72.0250	1	1	1	A1	(11, 1)			
72.0500					(2)	1		
72.0750	2	2	2	A2	(12, 3)			
72.1000	A	A	A	A	A, (13, 4)	2	A	72.1
72.1250	3	3	3	A3	(14, 5)			
72.1500					(6)	3		
72.1750	4	4	4	A4	(15, 7)			
72.2000	K	K		K	K, (8)	4	B	72.2
72.2250	5	5	5	K5	(16, 9)			
72.2500					(10)	5		
72.2750	6	6	6	K6	(17, 11)			
72.3000	B	B	B	B	B, (18, 12)	6	C	72.3
72.3250	7	7	7	B7	(19, 13)			
72.3500					(14)	7		
72.3750	8	8	8	B8	(20, 15)			
72.4000	N	N		N	N, (16)	8	D	72.4
72.4250	9	9	9	N9	(21, 17)			
72.4500					(18)	9		
72.4750	10	10	10	N0	(22, 19)			
72.5000	C	C	C	C	C, (23, 20)	10	E	72.5
72.5250	11	11	11	C1	(24, 21)			
72.5500					(22)	11		
72.5750	12	12	12	C2	(25, 33)			
72.6000	O	O		O	O, (24)	12	F	72.6
72.6250	13	13	13	O2	(26, 25)			
72.6500					(26)	13		
72.6750	14	14	14	4	(27)			
72.7000	D	D	D	D	D, (28)	14	G	72.7
72.7250	15	15	15	D5	(29)			
72.7500					(30)	15		
72.7750	16	16	16	D6	(30, 31)			
72.8000	P	P		P	P, (32)	16	H	72.8
72.8250	17	17	17	P7	(31, 33)			
72.8500					(34)	17		
72.8750	18	18	18	P8	(32, 35)			
72.9000	E	E	E	E	E, (33, 36)	18	I	72.9
72.9250	19	19	19	E9	(34, 37)			
72.9500					(38)	19		
72.9750	20	20	20	E0	(35, 39)			
74.6250	33	33	33	E3	(36, 40)			
74.6500					(41)	20		
74.6750	34	34	34	E4	(37, 42)			
74.7000	I	I	I	I	I, (38, 43)	21	O	
74.7250	35	35	35	I5	(39, 44)			
74.7500					(45)	22		
74.7750	36	36	36	I6	(40, 46)			
75.2250	37	37	37	I7	(41, 47)			
75.2500					(48)	23		
75.2750	38	38	38	I8	(42, 49)			
75.3000	J	J	J	J	J, (43, 50)	24	P	
75.3250	39	39	39	J9	(55, 51)			
75.3500					(52)	25		
75.3750	40	40	40	J0	(45, 53)			
75.4000	R	R		R	R, (54)	26	Q	
75.4250	21	21	21	R1	(46, 55)			
75.4500					(56)	27		
75.4750	22	22	22	R2	(47, 57)			
75.5000	F	F	F	F	F, (48, 58)	28	J	75.5
75.5250	23	23	23	F3	(49, 59)			
75.5500					(60)	29		
75.5750	24	24	24	F4	(50, 61)			
75.6000	S	S		S	S, (62)	30	K	75.6
75.6250	25	25	25	S5	(51, 63)			
75.6500					(64)	31		
75.6750	26	26	26	S6	(52, 65)			
75.7000	G	G	G	G	G, (53, 66)	32	L	75.7
75.7250	27	27	27	G7	(54, 67)			
75.7500					(68)	33		
75.7750	28	28	28	G8	(55, 69)			
75.8000	T	T		T	T, (70)	34	M	75.8
75.8250	29	29	29	T9	(56, 71)			
75.8500					(72)	35		
75.8750	30	30	30	T0	(57, 73)			
75.9000	H	H	H	H	H, (58, 74)	36	N	75.9
75.9250	31	31	31	H1	(59, 75)			
75.9500					(76)	37		
75.9750	32	32	32	H2	(60, 77)			

Wideband frequencies are indicated in highlighted rows. The highlighted channels also indicated those channels available in the “basic” mode (default). All channels can be accessed when in the “expanded” channel mode (see page 8 for more information).

\*Parenthesis indicate T35 and T20 narrowband.

# 216 MHz Compatibility Chart

up to 99.99%

Frequency MHz	Listen	Phonic Ear	Comtek	Phonak	Williams	Gentner	CSI	AVR	
216.0125	1A		1	1				C01	
216.0250	2A	41	41	41		1	1		
216.0375	3A		2	2					
216.0625	1B		3	21					
216.0750	2B	42	42	42		2	10		
216.0875	3B		4	4					
216.1125	1C		5	5				C05	
216.1250	2C	43	43	43	A	3	6		
216.1375	3C		6	22					
216.1625	1D		7	23					
216.1750	2D	44	44	44	B	4	14		
216.1875	3D		8	8					
216.2125	1E		9	9				C09	
216.2250	2E	45	45	45	C	5	2		
216.2375	3E		10	24					
216.2625	1F		11	25					
216.2750	2F	46	46	46	D	6	11		
216.2875	3F		12	12				C12	
216.3125	1G		13	13					
216.3250	2G	47	47	47	E	7	7		
216.3375	3G		14	26					
216.3625	1H		15	27					
216.3750	2H	48	48	48	F	8	15		
216.3875	3H		16	16				C18	
216.4125	1J		17	17				C21	
216.4250	2J	49	49	49	G	9	18		
216.4375	3J		18	18					
216.5125	1K		21	61					
216.5250	2K	51	51	29	H	10	3		
216.5375	3K		22	62					
216.5625	1L		23	28					
216.5750	2L	52	52	52	I	11	12		
216.5875	3L		24	64				C24	
216.6125	1M		25	65				C25	
216.6250	2M	53	53	53	J	12	8		
216.6375	3M		26	81					
216.6625	1N		27	82					
216.6750	2N	54	54	54	K	13	16		
216.6875	3N		28	68					
216.7125	1P		29	69				C29	
216.7250	2P	55	55	55	L	14	19		
216.7375	3P		30	83					
216.7625	1R		31	84					
216.7750	2R	56	56	56		15	4		
216.7875	3R		32	72				C32	
216.8125	1S		33	73				C33	
216.8250	2S	57	57	57			13		
216.8375	3S		34	76					
216.8625	1T		35	85					
216.8750	2T	58	58	58			9		
216.8875	3T		36	86					
216.9125	1U		37	77				C37	
216.9250	2U	59	59	59			17		
216.9375	3U		38	88					

Wideband frequencies are indicated in highlighted rows. The highlighted channels also indicated those channels available in the “basic” mode (default). All channels can be accessed when in the “expanded” channel mode (see page 8 for more information).

# Phonak Frequency Chart

Frequency (MHz)	Listen	Phonak
216.012	1A	1
216.025	2A	41
216.037	3A	2
216.062	1B	21
216.075	2B	42
216.088	3B	4
216.113	1C	5
216.125	2C	43
216.137	3C	22
216.162	1D	23
216.175	2D	44
216.188	3D	8
216.213	1E	9
216.225	2E	45
216.238	3E	24
216.262	1F	25
216.275	2F	46
216.287	3F	12
216.312	1G	13
216.325	2G	47
216.338	3G	26
216.363	1H	27
216.375	2H	48
216.387	3H	16
216.412	1J	17
216.425	2J	49
216.438	3J	18
216.512	1K	61
216.525	2K	29
216.537	3K	62
216.562	1L	28
216.575	2L	52
216.588	3L	64
216.613	1M	65
216.625	2M	53
216.637	3M	81
216.662	1N	82
216.675	2N	54
216.688	3N	68
216.713	1P	69
216.725	2P	55
216.738	3P	83
216.762	1R	84
216.775	2R	56
216.787	3R	72
216.812	1S	73
216.825	2S	57
216.838	3S	76
216.863	1T	85
216.875	2T	58
216.887	3T	86
216.912	1U	77
216.925	2U	59
216.938	3U	88
216.963	1V	79
216.975	2V	60
216.988	3V	80

Wideband frequencies are indicated in highlighted rows. The highlighted channels also indicated those channels available in the “basic” mode (default). All channels can be accessed when in the “expanded” channel mode (see page 8 for more information).

# LT-800/803 Troubleshooting

## Troubleshooting

### **The LT-800/803 has no power**

Make sure the LA-207 power supply is connected to a power source and is connected to the jack marked "Power Input". Make sure the POWER button is pressed in.

### **There is no audio or the audio level is too low**

Make sure that your audio source is properly connected to Input 1 and/or Input 2. The Input 1 or Input 2 switches must be in the correct position for the appropriate input level. For example: if you are using the output of a mixer on Input 2, the switch should be in the -10dBu position. If it were to be in the +10dBu position, the level would be too low. Also, check the Input knob to ensure it is properly adjusted. You should be able to see the VU meter deflect on Input 1 or Input 2 corresponding with the input level of the audio source. You can listen to the audio source by connecting a headset to the front panel jack and adjusting the Monitor volume control.

If the level of audio into the transmitter is low and can't be corrected using the level input switches, the audio processor can be turned on to boost the signal (see page 8 to set, page 12 for description of Process Mode).

### **The audio is distorted**

Check to make sure you have the input level select switches in the proper position. You may be providing too much audio level for the input stage to handle. Make sure the SQ mode is set correctly on both the LT-800 and the receivers you are using. If your receivers do not have SQ, make sure the SQ mode is turned off (see page 8).

### **There is hum in the audio**

Make sure you have properly grounded the audio source to the LT-800/803. Check the connections from the audio source to the LT-800. If you can, try to use a balanced audio source - this will reduce the chance of creating hum. Connect a ground wire from the LT-800/803 to ground and/or to the ground of the source audio.

### **There is a tone**

The Test Tone button has been pressed (its LED light is on). Push the Test Tone button to turn off the tone.

### **The Audio Input 1 sounds "tinny"**

If you are using an unbalanced audio source, make sure Pin 3 on the XLR or the ring on the 1/4" plug is grounded (see page 9).

### **I cannot pick up the signal on the receiver**

Check to make sure the receiver and the transmitter are using the same frequency band (i.e. 72 MHz or 216 MHz) and that they are on the same channel. Make sure the LT-800/803 has an antenna connected. Ensure that the receiver has an antenna (for portable products the headset is the receiving antenna).

### **I can pick up the signal on the receiver, but it sounds like it's not tuned in**

Check to make sure the transmitter and receiver are on exactly the same channel. It's a good idea to lock the channels once they have been set. To lock the LT-800/803, press the UP button for 3 seconds (see page 10).

# LT-800/803 Troubleshooting (cont.)

## Troubleshooting

### ***I'm using another brand of receiver - how do I tell which channel to use***

Refer to Listen's Frequency Compatibility Tables (pages 15-17). Adjust Listen's transmitter to the same frequency as the other major brand. Since Listen products can access 57 channels, they will most likely receive on the same fixed channel or channels of other major brands. If you are using another brand of receiver, make sure you have turned off the SQ feature on the Listen product(s).

### ***There is not sufficient range***

First make sure that the receivers you are using are operating properly, then make sure that you have an antenna connected either to the top of the LT-800 transmitter or connected to the back of the unit (but not both!). The antenna should be as high as possible and free of obstacles. In addition make sure you are using the correct antenna type for your unit. You might want to use a remote antenna (provided by Listen) that can be mounted on a mast or wall. Try using different frequencies to find one with less interference.

### ***There is interference in my transmission***

Ensure that the transmitter and receivers are on the same channel. Verify that there are no other transmitters on the same channel or a close channel to the one exhibiting interference. Try different channels until you find a clear channel. If this does not work, try a different frequency band (i.e. if you are using 72 MHz, try 216 MHz or vice versa). Please contact Listen support for assistance and a return authorization (RMA) number to exchange product for alternate frequency equipment.

### ***End users are adjusting the unit***

First, lock the channel by pressing and holding the channel select UP button for 3 seconds. Consider removing the Input, Mix Level and Contour knobs. You can order a rack mount kit from Listen which offers a security cover that will limit access to the unit.

### ***I am using other manufacturers' receivers and the sound is distorted***

The receiver is probably not designed to handle the +25 kHz deviation of the Listen transmitter. This can be corrected by turning the Mix Level knob down. Another possibility is that you have enabled the SQ function of the LT-800, and this feature is not available in other companies' products. You will need to disable SQ in this event (see page 8).

If you are using Phonak receivers, the transmitter is capable of operating in the Phonak mode (please refer to page 8).

### ***Several transmitters are operating in the same environment***

For this, you'll need to choose your transmitting frequencies carefully. See page 15-17 for more details.

### ***Can I have two antennas connected to my transmitter***

No. The LT-800/803 transmitter can use only one antenna connection at a time. You may connect either a top mount antenna through the top antenna port, or a remote antenna connected to the BNC connection on the rear of the unit. If multiple antennae are simultaneously connected to both ports the transmitter will have extremely poor broadcast performance and range.

# Compliance Notice & FCC Statement

## LT-800/803 Compliance Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesirable operation.

### **Listen's LT-800 Transmitter (216 MHz only)**

Listen's LT-800 transmitter is authorized by rule under the Low Power Radio Service (47 C.F.R. Part 95) and must not cause harmful interference to TV reception or United States Navy SPASUR installations. You do not need an FCC license to operate these transmitters. These transmitters may only be used to provide: auditory assistance to persons with disabilities, persons who require language translation, or persons in educational settings; health care services to the ill; law enforcement tracking services under agreement with a law enforcement agency; or automated maritime telecommunications system (AMTS) network control communications. Two-way voice communications and all other types of uses not mentioned above are expressly prohibited.

This device must be installed by a trained audio professional or certified dealer of Listen. The user can't make any modifications to the unit without expressed written consent of Listen Technologies Corporation. Any modifications made will void the FCC compliance, Listen warranty and the users authority to operate Listen's equipment.

## LT-800/803 FCC Statement

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.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC and IC Rules. In order to maintain compliance with FCC and IC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

# Warranty & Contacting Listen

## Warranty

Listen Technologies Corporation (Listen) warrants its transmitters and receivers (LT-82, LT-700, LT-800, LT-803, LR-100, LR-42, LR-44, LR-300, LR-400, LR-500, LR-600) to be free from defects in workmanship and material under normal use and conditions for the useful lifetime of the product from date of purchase.

Listen warrants its Stationary IR Radiators (LA-140) to be free from defects in workmanship and material under normal use and conditions for three years from the date of purchase.

Listen warrants its Noise Canceling Microphone (LA-270) to be free from defects in workmanship and material under normal use and conditions for one year from date of purchase.

Listen warrants its Charging/Carrying Cases (LA-306, LA-311, LA-313, LA-317, LA-318, LA-319, LA-320, LA-321, LA-322, LA-323, LA-324, LA-325) to be free from defects in workmanship and material under normal use and conditions for one year from date of purchase.

All other products and accessories are warranted for 90 days from date of purchase.

This warranty is only available to the original end purchaser of the product and cannot be transferred. Warranty is only valid if warranty card has been returned within 90 days of purchase. This warranty is void if damage occurred because of misuse or if the product has been repaired or modified by anyone other than a factory authorized service technician. Warranty does not cover normal wear and tear on the product or any other physical damage unless the damage was the result of a manufacturing defect. Listen is not liable for consequential damages due to any failure of equipment to perform as intended. Listen shall bear no responsibility or obligation with respect to the manner of use of any equipment sold by it. Listen specifically disclaims and negates any warranty of merchantability or fitness of use of such equipment including, without limitation, any warranty that the use of such equipment for any purpose will comply with applicable laws and regulations. The terms of the warranty are governed by the laws of the state of Utah.

In the first ninety days after purchase, any defective product will be replaced with a new unit. After 90 days, Listen will, at its own discretion either repair or replace transmitters and receivers with a new unit or a unit of similar type and condition. Product that is not covered under warranty shall be repaired or replaced with a unit of similar type and condition based on a flat fee. Contact Listen for details.

This limited warranty, prices and the specifications of products are subject to change without notice.

## Contacting Listen

If technical service is needed, please contact Listen. Pre-authorization is required before returning Listen products. If products were damaged in shipment, please contact the carrier, then contact Listen for replacement or repair requirements payable by the carrier.

Listen's corporate headquarters are located in Bluffdale, Utah U.S.A. and are open Monday through Friday, 8am to 5pm Mountain Time.

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# Optional Accessories

## Antenna Accessories



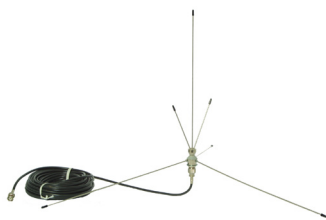
LA-101  
Helical Top Mounted Antenna  
(72 MHz)



LA-102  
Telescoping Top Mounted  
Antenna (216 MHz)



LA-106  
Telescoping Top Mounted  
Antenna (72 MHz)



LA-107  
Ground Plane Remote Antenna  
(216 MHz)



LA-122  
Universal Antenna Kit  
The single solution for all of  
your indoor remote antenna  
needs. Includes: 72 and 216 MHz  
components; flexible and rigid  
dipoles and monopole radials;  
hardware for multiple mount-  
ing configurations; and 25 feet  
(7.6m) of RG-58 coax cable.



LA-123  
90° Helical Antenna  
(72 MHz)

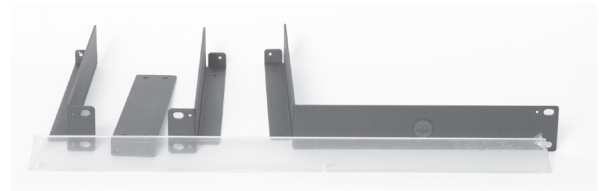


LA-124  
90° Helical Antenna  
(216 MHz)

## LT-800/803 Rack Mount Accessories



LA-125 (72 MHz) and LA-126 (216 MHz)  
Antenna Kit for Rack Mount



LA-326  
Universal Rack Mounting Kit  
Includes components for single and dual rack  
configuration and a security cover  
**NOTE: Rack mounted units cannot use the LA-106,  
LA-102 or LA-101 top mounted antenna.**



## Optional Accessories (cont.)

### Cable & Connectors Accessories



LA-112  
RG-58 50 Ohm  
Coaxial Cable (per ft.)



LA-113  
RG-8 50 Ohm Low-Loss  
Coaxial Cable (per ft.)



LA-127  
RG-58 BNC Connector



LA-128  
RG-8 BNC Connector



LA-390  
RG-8 50 Ohm Preassembled  
Coaxial Cable (per ft.)



LA-391  
RG-58 50 Ohm Preassembled  
Coaxial Cable (per ft.)

### Microphone Accessories



LA-261  
Lavalier Microphone



LA-262  
Over-the-Head  
Microphone



LA-270  
Noise Canceling  
Microphone



LA-274  
Hand-Held  
Microphone



LA-276  
Collar  
Microphone



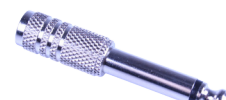
LA-277  
Conferencing  
Microphone



LA-278  
Behind-the-Head  
Microphone



LA-279  
Over-the-Ear Microphone  
Presentation Style



LA-280  
1/4 in. to 3.5 mm  
Microphone  
Adapter for  
LT-800/LT-82

**NOTE:** To use Listen microphones you must use a converter (LA-280) to adapt the 3.5 mm connection to a 1/4" phono connection.

## Notes

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## Notes

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## Notes

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