Listen®
www.listentech.com

User's Manual

LT-700-072 Portable Display FM Transmitter
LT-700-216 Portable Display FM Transmitter
LT-700-863 Portable Display 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
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."

LT-700 Table of Contents

Package Contents	3
72/216 MHz Specifications	4
863 MHz Specifications	5
Quick Reference	6
Setup Instructions	8
Operating Instructions	10
Programming Instructions	11
Charging Batteries	12
Wall Transformer Operation	13
Channel Selection	14
Listen SQ™	15
RF Reception Maximization Strategies	16
72 MHz Frequency Compatibility Table	17
216 MHz Frequency Compatibility Table	18
Troubleshooting	19
Compliance Notice	21
FCC Statement	21
Warranty	22
Contact Information	22
Optional Accessories	23

LT-700 Package Contents

LT-700-072/216 Contents

- LT-700-072 (72 MHz) or
- LT-700-216 (216 MHz)

LT-700-863 Contents

- LT-700-863 (863 MHz)

Listen Part Number

LT-700-072 (72 MHz)
LT-700-216 (216 MHz)

Listen Part Number

LT-700-863 (863 MHz)

Optional Accessories

See page 23

LT-700 Specifications

Architectural Specifications

The portable FM transmitter shall be capable of broadcasting on 57 channels. The unit shall incorporate a microphone sensitivity switch. The device shall broadcast on both wide and narrow band channels with a SNR of 80dB or greater. The device shall have an audio frequency response of 50 Hz to 15 kHz, ±3dB at 72 MHz, or of 50 Hz to 10 kHz, ±3dB at 216 MHz. The device will incorporate a mute switch. The battery door shall be capable of being mechanically locked. The device shall incorporate an LCD display that indicates channel, battery level, low battery, battery charging, channel lock, program mode, channel lock status and RF signal strength. The portable transmitter shall incorporate automatic battery charging circuitry for recharging of NiMH batteries. The Listen LT-700 is specified.

Specification

	Specification	LT-700-072	LT-700-216
RF	RF Frequency Range	72.025 - 75.975 MHz	216.025 - 216.987 MHz
	Number of Channels	57 (17 wide, 40 narrow)	57 (19 wide, 38 narrow)
	Sensitivity	.6uV typical, 1 uV maximum for 12dB SINAD	
	Frequency Accuracy	±.005% stability 32 to 122° F (0 to 50°C)	
	Transmitter Stability	50 PPM	
	Transmission Range	From 0 to 50 ft. (15.2 m) to 150 ft. (45.7 m)	
	Output Power	Less than 10mW	Less than 100mW
	Antenna	Uses microphone cable	
	Antenna Connector	3.5 mm connector	
	Compliance	FCC Part 15, Industry Canada	
** All system specifications are wireless end-to-end			
Audio	System Frequency Response	63 Hz - 15 kHz (± 3dB)	63 Hz - 10 kHz (±3dB)
	System Signal to Noise Ratio (A-weighted)	SQ enabled: 80dB; SQ disabled 60dB	SQ enabled: 80dB; SQ disabled 50dB
	System Distortion	<2% total harmonic distortion (THD) at 80% deviation	
	Microphone Input	Unbalanced, tip of 3.5 mm connector, (55 dBu nominal, -32dBu maximum, impedance 21 Ohms)	
	Microphone Sensitivity	Three position switch: high, middle and low; 6dB increments	
	Line Input	Unbalanced, ring of 3.5 mm connector, (-10dB nominal input level adjustable, +4dBu maximum, impedance 10k Ohms)	
	Phantom Power	3VDC	
Controls	Set-up Controls, behind the door	Mic sensitivity, NiMH/alkaline battery, SQ enable/disable	
	User Controls	Power, mute, channel UP and DOWN	
	Programming	Unit can be programmed so that only desired channels are displayed to the user; channel selection can be locked by holding the UP or DOWN button 5 seconds.	
Indicators	LED	Red, illuminates when unit is on. Flashes when batteries are low, or to indicate charging. Flashes 2x when muted	
	LCD Display	Channel, lock status, programming	
Power	Battery Type	Two AA batteries, alkaline or NiMH	
	Battery Life (Listen batteries)	15 hours alkaline (LA-361), 8 hours NiMH rechargeable (LA-362)	
	Battery Charging (NiMH only)	Fully automatic, 13 hours	
	Power Supply Connector	2.3 mm OD by 0.7 mm ID, barrel type connector. 7.5VDC, center positive 300mA. Drop in contact points for use with Listen charging cases.	
	Compliance	UL Listed	
Physical	Dimensions	3.0 x 1.0 x 4.25 in. (7.6 x 2.5 x 13 cm) W x D x H	
	Unit Weight	3.9 oz. (111 gm)	
	Unit Weight with batteries	5.8 oz. (164.4 gm)	
	Shipping Weight	1.0 lbs. (0.45 kg)	
	Door	Manually lockable. UP, DOWN and power through door, other controls behind door (see Controls above)	
Environmental	Temperature - Operation	14 to 104° F (-10 to 40°C)	
	Temperature - Storage	-4 to 122° F (-20 to 50°C)	
	Humidity	0 to 95% relative humidity, non-condensing	

Specifications are subject to change without notification

LT-700 Specifications

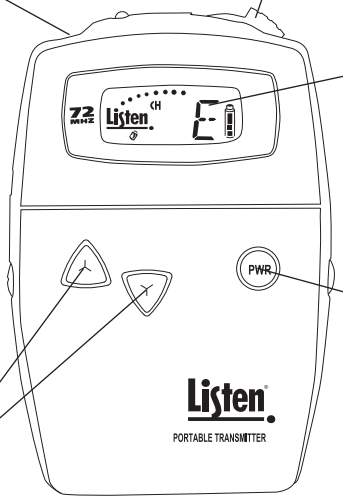
Architectural Specifications

The portable FM Transmitter shall be capable of broadcasting on 17 channels Channel tuning shall be capable of being locked. The transmitter shall have a SNR of 70 db or greater. The output power shall be adjustable to quarter, half or full. The device shall have an audio frequency response of 50 Hz to 15 kHz, +/-3db. The device shall incorporate a microphone sensitivity switch. The device shall incorporate a mute switch. The unit shall operate off of 2 AA batteries. The battery door shall be capable of being mechanically locked. The device shall incorporate an LCD display that indicates battery level, channel, channel lock, low battery, battery charging, programming, and RF signal strength. The portable transmitter shall incorporate automatic battery charging circuitry for recharging of NiMH batteries. The Listen LT-700-863 is specified.

	Specifications	LT-700-863
RF	RF Frequency Range	863.050 - 864.950 MHz
	Number of Channels	17 Wideband
	Frequency Accuracy	+/-.005% stability 0- 50C
	Transmitter Stability	50 PPM
	Output Power	10mW maximum (adjustable)
	Antenna	Integrated External Antenna
	Compliance	CE, ETSI, RoHS
Audio	System Frequency Response	50Hz - 15kHz (+/-3db)
	System Signal to Noise Ratio	70db (A-Weighted)
	System Distortion	<2% THD @ 80% modulation
	Microphone Input	Unbalanced, tip of 3.5mm connector, -20 dbu nominal, -30 dbu maximum, impedance 21 ohms
	Microphone Sensitivity	Three position switch: high, middle, and low; 6db increments
	Line Input	Unbalanced, ring of 3.5mm connector, -10dbu nominal input level, -3dbu maximum, impedance 10K ohms
	Microphone power	3VDC Bias
Controls	User Controls	Power, mute, channel up/down, volume
	Set-up Controls (battery compartment)	Mic sensitivity, NiMH/alkaline battery switch
	Programming	Channel Lock Out, Channel Lock On, RF Power
Indicators	LED	Red, illuminated when unit is on. Flashes when batteries are low, or to indicate charging. Flashes quickly when muted.
	RF Power	Indicated on the LCD (low, mid, high)
	LCD Display	Channel Designation, lock status, RF power level, programming
Power	Battery Type	Type: 2 AA batteries, Alkaline or NiMH
	Battery Life (Listen batteries)	15 hours alkaline (LA-361), 8 hours NiMH rechargeable (LA-362)
	Battery Charging (NiMH only)	Fully Automatic, 14 hours maximum
	Power Supply (LA-208-03)	7.5VDC, center positive 300 mA. Drop in contact points for use with charging cases. Power supply not included (LA-208)
	Power Supply Connector	2.3 mm OD by .7mm ID, barrel type
	Power Supply Compliance	RoHS, WEEE, UL, PSE, CE, CUL, TUV, CB compliant
Physical	Dimensions (H x W x D)	5.0 x 3.0 x 1.0 in (13.0 x 7.6 x 2.5 cm)
	Color	Dark Grey with white silk screening
	Unit Weight	3.9 oz (111g)
	Unit Weight with batteries	5.8 oz (164g)
	Shipping Weight	1.0 lbs. (0.45kg)
	Door	Manually Lockable. Up, down, and power buttons through door. Other controls behind door (see controls)
Environmental	Temperature - Operation	-10C (14F) to +40C (104F)
	Temperature - Storage	-20C (-4F) to +50C (122F)
	Humidity	0 to 95% Relative Humidity, non condensing

LT-700 Quick Reference

LT-700 Front



MUTE / TALK switch
(more information on page 7)

3.5mm Input Jack
A Listen microphone or line level cable connects here.

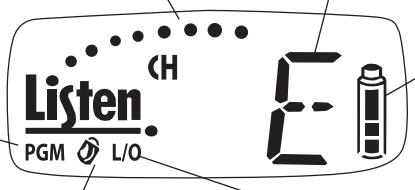
Look & Listen Display™
The display shows level, channel, battery status, PROGRAM mode, whether a channel is locked, and whether a channel is locked out from selection (PROGRAM mode). See close-up below.

Use UP and DOWN buttons to select a channel. Press and hold either button for 5 seconds to lock the channel. Press and hold either button again to unlock.

Press and hold both buttons for 5 seconds to enter PROGRAM mode. The PGM icon will appear in the display. To exit PROGRAM, let unit sit idle for 5 seconds.

Power Switch
Press PWR switch to turn unit on. Press and hold to turn unit off. When in PROGRAM mode, this switch is used to toggle the lock out (L/O) mode for a channel.

LT-700 Look & Listen Display



When dots are illuminated, the microphone is active. If this display does not appear, the microphone is muted.

Indicates the currently tuned channel

Indicates the unit is in PROGRAM mode. To enter PROGRAM mode, press and hold the UP and DOWN keys until the PGM icon appears in the display. To exit PROGRAM mode, let the unit sit idle for 5 seconds.

Battery level indicator. The indicator flashes, along with the red LED on top of the unit, to alert you when the battery is low and needs to be charged or changed. (see information below)

If the padlock icon is visible, the channel is locked. Press and hold either the UP and DOWN button for 5 seconds to lock or unlock.

When in the PROGRAM mode, L/O indicates whether a particular channel is locked out.

LT-700 Battery Indicator

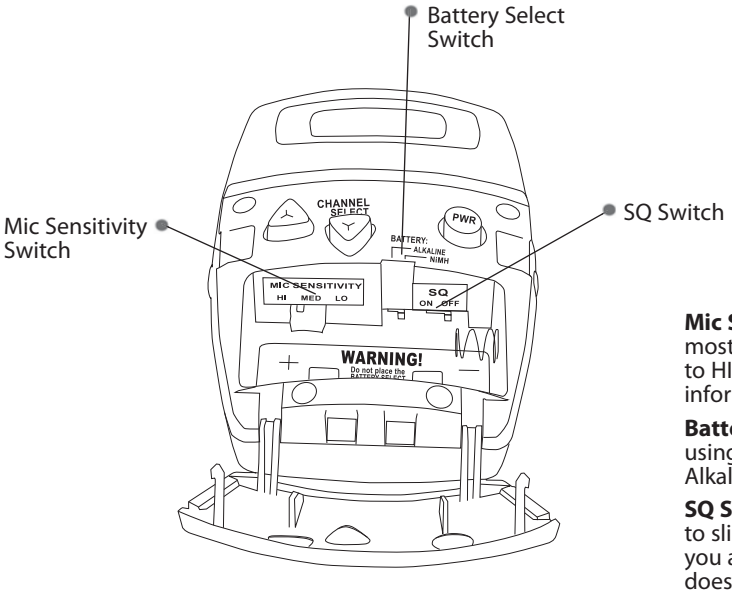
All three segments showing: The batteries are at 50% or greater capacity.

Two segments showing: The batteries are at 25-49% capacity.

One segment showing:
Your batteries less than 25% capacity. When this segment begins flashing along with the LED on top of the unit, you should immediately change your batteries or recharge them (if using NiMH batteries).

LT-700 Quick Reference

LT-700 Inside Access Door

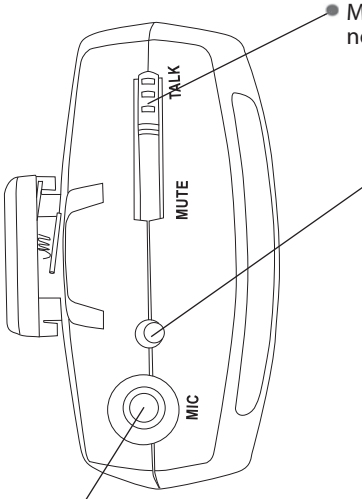


Mic Sensitivity Switch - it arrives set at MID, which will work for most microphones. If your mic level is too low, change the switch to HI; if the level is too high, switch to LO. (see page 8 for more information)

Battery Select Switch - place in NiMH position ONLY if you are using Nickel Metal Hydride batteries, otherwise, leave it in the Alkaline position.

SQ Switch: shipped in the ON position, use a screwdriver or pen to slide to the OFF position if needed. You should turn SQ off if you are using any non Listen receiver or older Listen receiver that does not have the SQ feature. (see page 15 for more information)

LT-700 Top of Unit

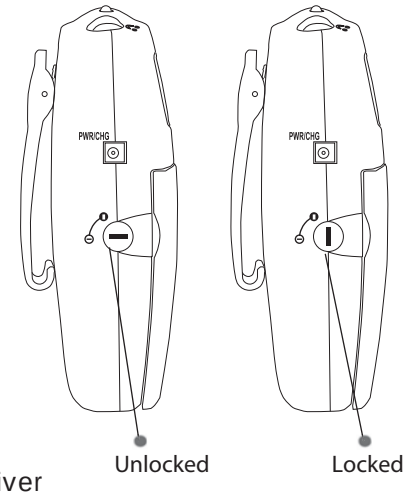


A Note on Charging NiMH Batteries
If you are using NiMH batteries in any Listen product, you should allow adequate time for the charger (charging case or LA-202) to complete a full charge cycle on the batteries. This takes about 13 hours.

LT-700 Setup Instructions

1 **Remove the product**

Remove outer packaging and plastic cover. Inspect for physical damage. If damage is apparent, please contact Listen Technologies Corporation technical support for assistance. See page 22 for contact information.



2 **Open the front access door**

If locked, use a pocketknife or small screwdriver to unlock the door locks on both sides of the unit. To unlock the door, rotate the lock 1/4 turn counterclockwise.

Grip the two tabs with your thumb and index finger and pull the door downward. Do NOT place batteries in the unit yet.

3 **Select Battery Type**

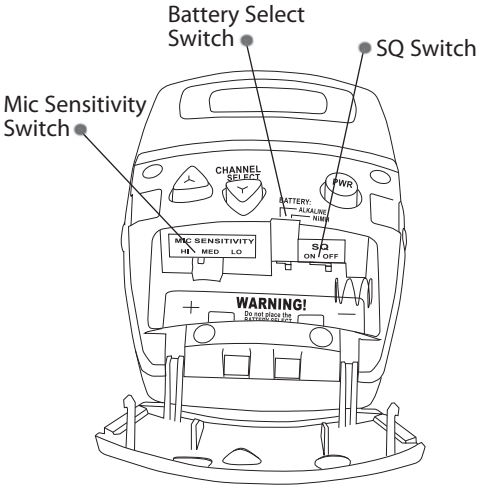
See diagram below. You have two choices: NiMH and Alkaline. The unit is shipped with the switch in the Alkaline position. Use a pen or small screwdriver to select the battery type.

CAUTION: If you are using any battery type other than rechargeable Nickel Metal Hydride (NiMH) batteries, make sure the BATTERY selection switch is in the alkaline position.

WARNING: Do not place the BATTERY switch in the NiMH position if you are not using Nickel Metal Hydride Batteries. The NiMH position will attempt to charge any batteries in the unit, even if they are not the proper type. Charging non-Nickel Metal Hydride (NiMH) batteries will result in physical harm, destruction of property and/or fire.

4 **Set SQ switch**

The SQ switch is inside the battery compartment next to the Battery Select switch. The unit is shipped with SQ in the ON position. To turn it off, use a small screwdriver or pen to slide the switch to the OFF position (to the right). See page 15 for more information on SQ.



5 **Set Mic Sensitivity Switch**

The microphone sensitivity switch is located inside the battery compartment, to the left of the BATTERY selection switch. The LT-700 is shipped with this switch in the center (MED) position. Listen recommends the following settings for our microphones. If you are using a microphone from another vendor, you may need to experiment with different settings.

Part #	Description	Setting
LA-261	Lavalier Microphone	MED
LA-262	Over-the-Head Microphone	MED
LA-270	Noise Cancelling Microphone	MED
LA-272	Over-the-Head Mic w/Earphone	MED
LA-274	Handheld Microphone	HI
LA-276	Collar Microphone	HI
LA-277	Confrerence Microphone	MED
LA-278	Behind-the-Head Microphone	MED
LA-279	Ear Hook Microphone	MED

NOTE: If the setting is too low for the microphone in use the audio will be faint. If the setting is too high for the microphone in use the audio will be distorted.

LT-700 Setup Instructions (cont.)

6 **Place Batteries in Unit**

Place two AA batteries in the compartment, making note of the battery polarity shown in the battery compartment, and again verifying that the BATTERY SELECT switch is in the correct position for the batteries you are using. (ALK should be selected for all battery types other than NiMH).

NOTE: Listen uses 2100mAh (milli-Amp-hour) constant current NiMH (Nickel Metal Hydride) batteries. These may be purchased from your Listen dealer (ask for part number LA-362).

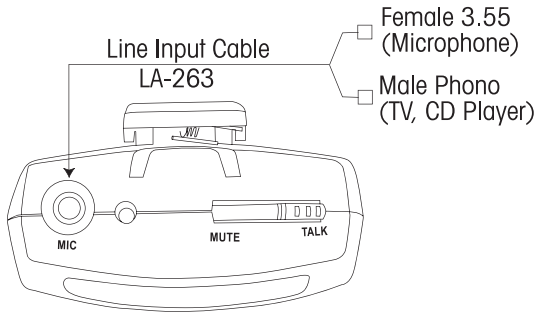
7 **Connect the Microphone**

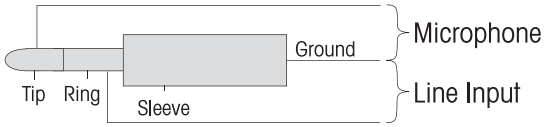
The microphone jack is located on top of the unit. The LT-700 uses the microphone cable as an antenna for transmitting.

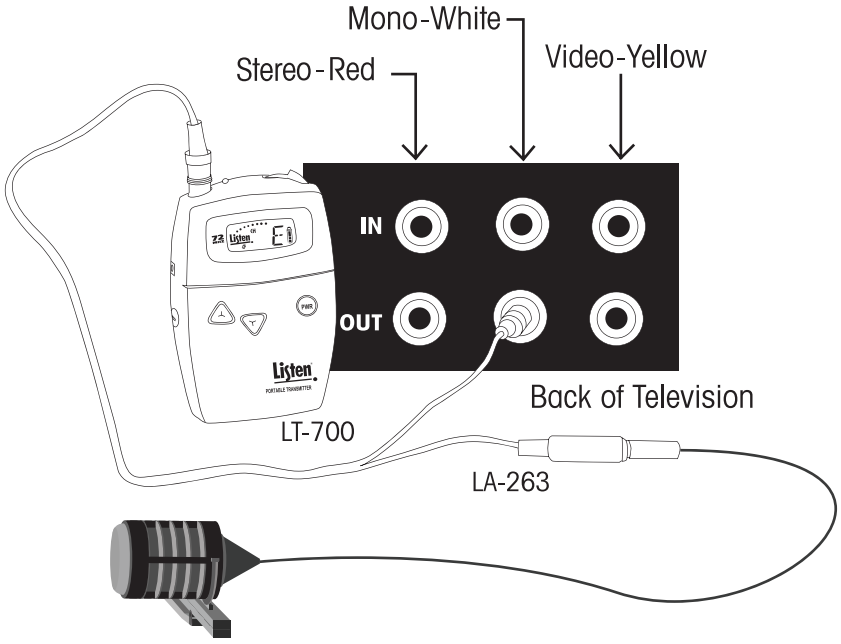
8 **Optional - Connect the Line Input Cable.**

This cable allows you to connect a TV, CD player or other equipment to the LT-700. To do this, you must order the Listen LA-263 Line Input Cable (it is not included with your unit). This cable allows you to connect both a microphone and line input to the jack on top of the LT-700. See the diagram below for connection information. You can use the microphone and the line input at the same time. Please note that the MUTE switch mutes only the microphone; the line source will continue transmitting when the switch is in the MUTE position.

If you prefer to make your own cable for connection of mic and line inputs, connect shown in the following diagram:







LT-700 Operating Instructions

1 **Make sure the unit is on**
When you press the power button, the LED on top of the unit will be illuminated and the LCD display will be visible.

2 **Select the channel for transmitting**
Please refer to Channel Selection on page 14 for guidelines on choosing an interference-free channel.

To select a channel, press either the channel UP or DOWN button until the display reads the channel you want. To lock your selection, press and hold the UP or DOWN button for 5 seconds. When locked, the small padlock icon will be visible on the display. Press and hold either button again to unlock.

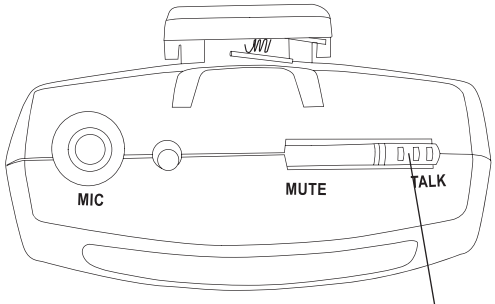
72MHz Units
The LT-700-072 operates on 17 wide band channels and 40 narrow band channels. Channels represented by letters in the display (i.e. A) are wide band channels; channels represented by numbers are narrow band channels.

216MHz Units
The LT-700-216 operates on 19 wide band channels and 38 narrow band channels. Channels beginning with a "2" are wide band channels and channels beginning with a "1" or "3" are narrow band channels. Listen recommends using wide band channels whenever possible, as they are not as noisy as narrow band channels.

Refer to the Frequency Compatibility tables (pages 17-18) for specific frequencies and compatibility with other manufacturers. Also refer to pages 18-19 for more information on channel selection.

3 **Close the Access Door**
Lock it if desired by turning the locks on the side of the unit to the vertical position. See diagram on page 7.

4 **Using the red MUTE / TALK switch on top of the unit**
The red mute/talk switch on top of the unit is a handy way to "turn off" the audio from the microphone. Slide the switch to the mute position and the microphone audio is muted. When the microphone audio is muted, the LED on top of the unit flashes rapidly. Slide the switch back to the talk position and the microphone audio will return to the transmission. If you are using line level audio, it will not be effected by the mute/talk switch.



LT-700 Shown in the TALK position

LT-700 Programming Instructions

The LT-700 can be programmed to transmit on a limited number of channels. For applications where users are required to select a channel (such as classrooms or language interpretation), and you don't want them to have to scroll through all of the available channels, this feature is ideal. You can set up the LT-700 so that only the channels they need to use are available for selection with the UP and DOWN buttons.

1 **Enter PROGRAM Mode**
Press and hold the UP and DOWN keys simultaneously until the PGM symbol is displayed (see the Look & Listen™ Quick Reference on page 6).

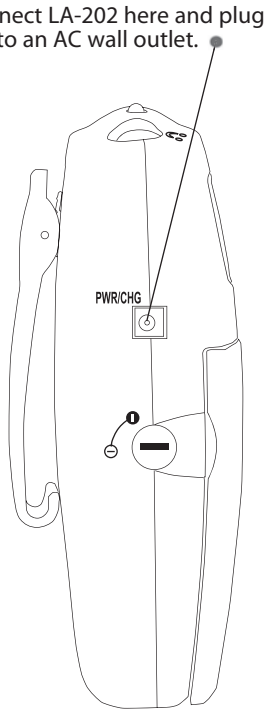
2 **Scroll Through Channels to Lock or Unlock**
Use the UP and DOWN channel select keys to scroll through all available channels. If the L/O symbol appears with a particular channel's indicator, this means that particular channel will not be available for selection by the user. To toggle a channel between locked out and available, press the POWER button.

3 **To exit PROGRAM mode**
Allow the unit to sit idle (don't press any buttons) for 5 seconds. The LT-700 will exit the PROGRAM mode and the PGM icon will disappear.

LT-700 Charging Batteries

The LT-700 and all Listen receivers are unique because they have SmartCharge™ chargers built in. When any of these units are connected to an LA-202 wall transformer or dropped into a Listen charging case, NiMH batteries will be charged.

1 To charge the batteries using the LA-202 wall transformer, plug the transformer into the jack marked "PWR/CHG" on the side of the unit. The unit can be operated while the batteries are charging.



2 To charge the batteries using a drop-in charger, simply place the unit into a slot in the charger and connect the charger to power. Make sure the unit is fully seated in its slot.

There are several charging cases available from Listen. Check the Listen website for more details.

SmartCharge™ uses a pulse charging, which greatly extends the life of Nickel Metal Hydride (NiMH) batteries. The entire charging process takes about 13 hours. Listen recommends that you allow the charger to complete its full cycle every time for maximum battery life.

IMPORTANT: DO NOT ATTEMPT TO CHARGE ANY TYPE OF BATTERY OTHER THAN NiMH (NICKEL METAL HYDRIDE) with your Listen equipment. Alkaline batteries may explode when connected to a charger. Other risks of charging non-NiMH batteries include destruction of property or fire.

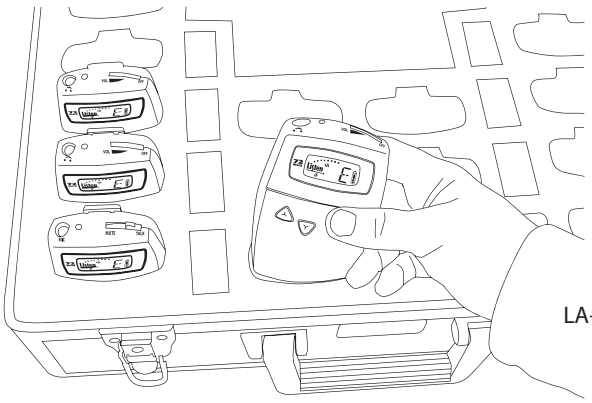
IMPORTANT: In order to charge NiMH batteries, the BATTERY SELECT switch in your Listen product must be set to the NiMH setting. Use a pen or small screwdriver to move the switch (located in the battery compartment) to the proper position.

3 During the charge cycle, the red LED on top of the Listen product will flash slowly. When charging is completed, the LED will turn off. It is not necessary to unplug the charger; however, if you unplug the unit from the charger and then plug it back in, it will begin the 13-hour charge cycle over again.

When not using the LT-700, it is recommended to leave the unit on the charger. The charger provides a ìmaintenanceî charge that keeps the battery at 100%. If the unit is not on the charger, the battery will lose up to 20% of its charge per month.

NOTE: Listen uses 2100mAh (milli-Amp-hour) constant current NiMH (Nickel Metal Hydride) batteries. These may be purchased from your Listen dealer (ask for part number LA-362).

One of several charging cases available from Listen. See www.ListenTech.com for more options.



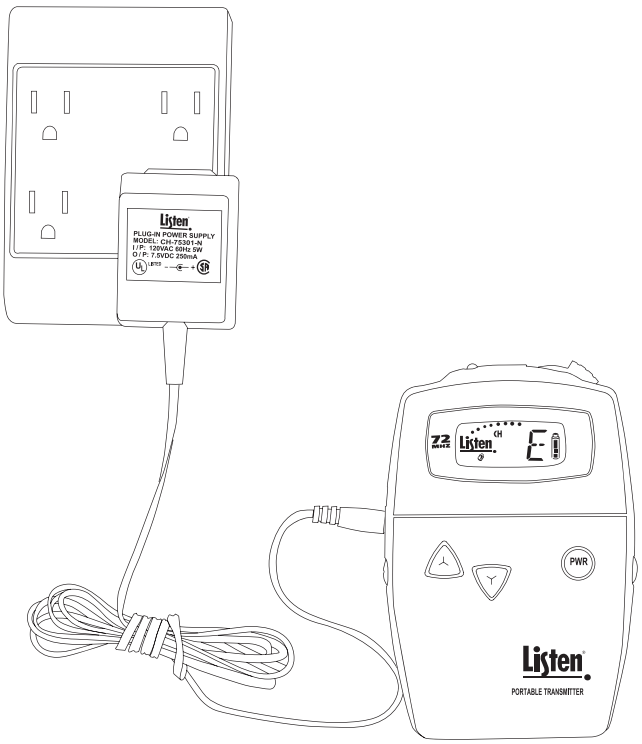
LA-311 - 16-unit Drop In Charging Case shown

LT-700 Wall Transformer Operation

The LT-700 will operate normally when connected to a wall transformer. Use Listen part number LA-202, available from any Listen dealer. Connect the wall transformer to the jack on the side of the LT-700 marked “PWR/CHG” and plug the wall transformer into a grounded AC outlet.

You do not need to have batteries installed in the LT-700 to operate it with a wall transformer.

NOTE: If batteries are in the unit ensure that the battery selection switch is set properly as shown on page 7. Please review the information on page 12 for important information regarding battery type and charging.



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 (lettered channels at 72MHz and channels that start with a "2" for 216MHz when using a Listen receiver). Listen to the audio through the headphone or on a Listen receiver or receiver / speaker. Choose a channel with the least amount of interface. 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:

a. Same Space If you are using multiple transmitters in the same space, the most number of channels that will work simultaneously is six at 72MHz and three at 216MHz. With all of the transmitters off, listen for interference on all the wide band channels via the headphone jack on a Listen receiver. Using the frequency compatibility tables on pages 17-18, 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 300kHz. If there is no interference the following channels are recommended: A, C, E, I, J, and H for 72MHz and channels 2A, 2K and 2V at 216MHz.

b. Distributed Spacing If you are using transmitters that are spread out over space, 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 17-18) in this case as long as the adjacent channel transmitter is at least 50% further away from the receiver as its 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-700, press both the UP and DOWN buttons simultaneously for 5 seconds. Repeat the process to unlock.

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

i. 72MHz 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.

ii. 216MHz 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 216MHz band due to channel 13, it is recommended that you switch to a 72MHz 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 72MHz 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 216MHz operates on 19 wide band channels and 38 narrow band channels.

- "2" as left digit= Wide Band Channel (Example: 2C)
- "1" and ì3î as left digits= Narrow Band Channels (Examples: 1A; 3R)

Listen SQ™ - 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 should disable Listen SQ. Your Listen equipment 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 system with older version Listen equipment that does not have the SQ function.

2. You are using your new Listen system with equipment supplied by other manufacturers.

3. You expect that end users may bring and use their own receivers that donít have the SQ function.

- SQ is NOT squelch
- 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

RF Reception Maximization Strategies

For proper and dependable operation, Listen receivers should receive a strong and consistent signal from the originating transmitter. The following strategies should be used maximize this signal:

a. When using your system, keep in mind that the location of both the transmitter and receiver is critical to maximizing signal strength.

b. Eliminate or minimize obstructions between the transmitter and the receivers.

c. Minimize the distance between the transmitter and the receivers.

d. Stay clear of metal objects.

e. Keep the microphone and headphone cables fully extended. Do not shorten or coil microphone and headphone cables. These cables are the antennas for you portable products.

NOTE: If the RF signal to the 216MHz model receivers is too high, the audio will be distorted. This may happen if you are within 5 feet of the 216MHz transmitter.

72 MHz Compatibility Chart

Frequency MHz	Listen	Phonak Microfield	Phonic Ear	Comtek	Williams*	Gentner	Telex	Drake
72.0250	1	A1	1	1	(11, 1)			
72.0500					(2)	1		
72.0750	2	A2	2	2	(12, 3)			
72.1000	A	A	A	A	A, (13, 4)	2	A	72.1
72.1250	3	A3	3	3	(14, 5)			
72.1500					(6)	3		
72.1750	4	A4	4	4	(15, 7)			
72.2000	K	K	K	K	K, (8)	4	B	72.2
72.2250	5	K5	5	5	(16, 9)			
72.2500					(10)	5		
72.2750	6	K6	6	6	(17, 11)			
72.3000	B	B	B	B	B, (18, 12)	6	C	72.3
72.3250	7	B7	7	7	(19, 13)			
72.3500					(14)	7		
72.3750	8	B8	8	8	(20, 15)			
72.4000	N	N	N	N	N, (16)	8	D	72.4
72.4250	9	N9	9	9	(21, 17)			
72.4500					(18)	9		
72.4750	10	N0	10	10	(22, 19)			
72.5000	C	C	C	C	C, (23, 20)	10	E	72.5
72.5250	11	C1	11	11	(24, 21)			
72.5500					(22)	11		
72.5750	12	C2	12	12	(25, 33)			
72.6000	O	O	O	O	O, (24)	12	F	72.6
72.6250	13	O2	13	13	(26, 25)			
72.6500					(26)	13		
72.6750	14	4	14	14	(27)			
72.7000	D	D	D	D	D, (28)	14	G	72.7
72.7250	15	D5	15	15	(29)			
74.7500					(45)	22		
74.7750	36	16	36	36	(40, 46)			
75.2250	37	17	37	37	(41, 47)			
75.2500					(48)	23		
75.2750	38	18	38	38	(42, 49)			
75.3000	J	J	J	J	J, (43, 50)	24	P	
75.3250	39	J9	39	39	(55, 51)			
75.3500					(52)	25		
75.3750	40	J0	40	40	(45, 53)			
75.4000	R	R	R	R	R, (54)	26	Q	
75.4250	21	R1	21	21	(46, 55)			
75.4500					(56)	27		
75.4750	22	R2	22	22	(47, 57)			
75.5000	F	F	F	F	F, (48, 58)	28	J	75.5
75.5250	23	F3	23	23	(49, 59)			
75.5500					(60)	29		
75.5750	24	F4	24	24	(50, 61)			
75.6000	S	S	S	S	S, (62)	30	K	75.6
75.6250	25	S5	25	25	(51, 63)			
75.6500					(64)	31		
75.6750	26	S6	26	26	(52, 65)			
75.7000	G	G	G	G	G, (53, 66)	32	L	75.7
75.7250	27	G7	27	27	(54, 67)			
75.7500					(68)	33		
75.7750	28	G8	28	28	(55.69)			
75.8000	T	T	T	T	T, (70)	34	M	75.8
75.8250	29	T9	29	29	(56, 71)			
75.8500					(72)	35		
75.8750	30	T0	30	30	(57, 73)			
75.9000	H	H	H	H	H, (58, 74)	36	N	75.9
75.9250	31	H1	31	31	(59, 75)			
75.9500					(76)	37		
75.9750	32	H2	32	32	(60, 77)			

Wide band frequencies in shaded sections

*Parenthesis indicate T35 and T20 narrowband.

216 MHz Compatibility Chart

Frequency MHz	Listen	Phonak Microfield	Comtek	Williams	Gentner	CSI	AVR	Light Speed
216.0125	1A	1	1				C01	N01
216.0250	2A	41	41		1	1		
216.0375	3A	2	2					
216.0625	1B	21	3					
216.0750	2B	42	42		2	10		
216.0875	3B	4	4					
216.1125	1C	5	5				C05	
216.1250	2C	43	43	A	3	6		
216.1375	3C	22	6					
216.1625	1D	23	7					
216.1750	2D	44	44	B	4	14		
216.1875	3D	8	8					
216.2125	1E	9	9				C09	N09
216.2250	2E	45	45	C	5	2		
216.2375	3E	24	10					
216.2625	1F	25	11					
216.2750	2F	46	46	D	6	11		
216.2875	3F	12	12				C12	N12
216.3125	1G	13	13					
216.3250	2G	47	47	E	7	7		
216.3375	3G	26	14					
216.3625	1H	27	15					
216.3750	2H	48	48	F	8	15		
216.3875	3H	16	16				C18	N18
216.4125	1J	17	17				C21	
216.4250	2J	49	49	G	9	18		
216.4375	3J	18	18					
216.5125	1K	61	21					
216.5250	2K	29	51	H	10	3		
216.5375	3K	62	22					
216.5625	1L	28	23					
216.5750	2L	52	52	I	11	12		
216.5875	3L	64	24				C24	N64
216.6125	1M	65	25				C25	
216.6250	2M	53	53	J	12	8		
216.6375	3M	81	26					
216.6625	1N	82	27					
216.6750	2N	54	54	K	13	16		
216.6875	3N	68	28					
216.7125	1P	69	29				C29	
216.7250	2P	55	55	L	14	19		
216.7375	3P	83	30					
216.7625	1R	84	31					
216.7750	2R	56	56		15	4		
216.7875	3R	72	32				C32	N72
216.8125	1S	73	33				C33	
216.8250	2S	57	57			13		
216.8375	3S	76	34					
216.8625	1T	85	35					
216.8750	2T	58	58			9		
216.8875	3T	86	36					
216.9125	1U	77	37				C37	N77
216.9250	2U	59	59			17		
216.9375	3U	88	38					
216.9625	1V	79	39				C39	
216.9750	2V	60	60			5		
216.9875	3V	80	40				C40	N80

Wide band frequencies in shaded sections

LT-700 Troubleshooting

Troubleshooting

The LT-700 has no power
Make sure the unit has fully charged batteries, or has a Listen LA-202 wall transformer connected to it. Press the ON button. If this does not work, try a different set of batteries. Make sure the batteries are installed correctly.

There is no audio
Make sure the MUTE/TALK switch is in the TALK position. Make sure you have the microphone plugged all the way in to the input jack. Make sure you are using a Listen approved microphone (see list on page 8). If you are using the line input, make sure you have connected a line level, unbalanced input at the ìringî of the connector.

The audio is distorted
Make sure you are using an approved Listen microphone. Try using a different mic sensitivity switch setting (the switch is located inside the battery compartment of the unit). If you are using a line level input, try turning down the level of the input. If you are using any equipment that does not have SQ capability, turn off SQ in the LT-700.

There is hum in the audio
The microphone may be too close to a transformer. Try moving around and see if the hum goes away.

The microphone level is low
The microphone must be in close proximity to the person who is speaking. If this does not work, try using a head-worn microphone. The mic sensitivity switch may be on the wrong setting, see page 8. Try a different setting (the switch is located inside the battery compartment). Some microphones have directional pickups, ensure that the microphone in use is oriented and positioned properly (pointing at the speakers mouth).

The audio doesn't have much fidelity
If your receivers all have SQ capability, activate SQ in all units by moving their switches to the ON position. In the LT-700 and all SQ-equipped receivers, the SQ switch is located inside the battery compartment. See page 15 for more information.

There is too much noise
This is most likely because the microphone is not close enough to the talkerís mouth, and it is picking up background noise. Try positioning the microphone closer or try using a microphone that is directional (such as a head-worn mic). If you are using a narrow band channel, try switching to a wide band channel. Try another setting on the mic sensitivity switch (located inside the battery compartment). Ensure the microphone is not brushing up against anything. See page 8 for more information.

There is interference
Try different frequencies until you find a clear channel. If this does not work, try a different frequency band (i.e. if you are using 72MHz equipment, exchange it for 216MHz equipment). This is done by returning the equipment to Listen (no charge) and swapping it for the alternate frequency band equipment.

I cannot pick up the signal on the receiver
Make sure the transmitter and the receiver are on the same frequency band (72MHz or 216MHz) and channel.

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 number / letter. If using another brand of receiver refer to Listen's Frequency Compatibility Tables on pages 17-18).

LT-700 Troubleshooting (cont.)

Troubleshooting

There is not sufficient range
The LT-700 is a portable transmitter that uses the microphone cable as an antenna and the range will vary depending on the location of the receivers compared to the transmitter. You can only expect about 100 feet of average effective working range.

It's confusing for users to have 57 channels when switching between channels
Use the PROGRAM function to lock out unwanted channels. This way, users will only need to scroll among a few channels.

I cannot change the channel
It is probably locked (check for the padlock icon). To unlock, press and hold the UP or DOWN button for 5 seconds.

My batteries are not charging
Make sure you are using NiMH batteries and that the BATTERY SELECT switch (inside the battery compartment) is set to the NiMH position. Make sure the batteries are installed correctly. Make sure you are using the right kind of wall transformer (Listen part number LA-202) or charging case. Make sure the charging case is connected to power and the unit is securely pushed into its slot in the case.

NOTE: Listen uses 2100mAh (milli-Amp-hour) constant current NiMH (Nickel Metal Hydride) batteries. These may be purchased from your Listen dealer (ask for part number LA-362).

Compliance Notice and FCC Statement

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-700 Transmitter (216MHz only)
Listen's LT-700 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.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate Listen's equipment.

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 byturning 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, 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.

14912 Heritagecrest Way
Bluffdale, Utah 84065-4818
+1.801.233.8992
+1.800.330.0891 North America
+1.801.233.8995 fax

support@listentech.com
www.listentech.com

Listen Technologies GmbH
Jasminstr.16, 90522 Oberasbach, Germany
+49 911 955 159 0 Europe
+49 911 955 159 40 Fax
support@listentech.de
www.listentech.de

Optional Accessories

Microphone Accessories

LA-261
Lavalier Microphone

LA-262
Over-the-Head
Microphone

LA-270
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Microphone

LA-272
Over-the-Head Mic
w/ Earphone

LA-274
Hand-Held
Microphone

LA-276
Collar
Microphone

LA-277
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Microphone

LA-278
Behind-the-Head
Microphone

LA-279
Over-the-Ear Microphone
Presentation Style

LA-263
Line/Mic Y Input
Cable for LT-700

Listen Technologies Corporation
14912 Heritagecrest Way
Bluffdale, Utah 84065-4818, U.S.A.
+1.801.233.8992
+1.800.330.0891 North America
+1.801.233.8995 fax

www.listentech.com

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