

SSM

Micro Bodypack Transmitter



Quick Start Steps

- 1) Install a good battery and turn power on (see pages 5 and 8).
- 2) Set the compatibility mode to match the receiver (see page 9).
- 3) Connect the signal source and adjust input gain for optimum modulation level (see page 10).
- 4) Set **Step Size** and frequency to match receiver (see pages 8 and 9). Also refer to the receiver manual for the RF scanning procedure to find a clear operating frequency.
- 5) Turn on the receiver and verify that solid RF and audio signals are present (see receiver manual).

WARNING: Moisture, including talent's sweat, will damage the transmitter. Wrap the SSM in a plastic bag or other protection to avoid damage.



Fill in for your records:

Serial Number:

Purchase Date:



FCC Notices:

For body worn operation, this transmitter model has been tested and meets the FCC RF exposure guidelines when used with the Lectrosonics accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines. Contact Lectrosonics if you have any questions or need more information about RF exposure using this product..

This device complies with FCC radiation exposure limits as set forth for an uncontrolled environment. This device should be installed and operated so that its antenna(s) are not co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Notices:**Per RSS-210**

This device operates on a no-protection no-interference basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio licence is required. Please consult Industry Canada's document CPC-2-1-28, Optional Licensing for Low-Power Radio Apparatus in the TV Bands, for details.

Ce dispositif fonctionne selon un régime de non-brouillage et de non-protection. Si l'utilisateur devait chercher à obtenir une certaine protection contre d'autres services radio fonctionnant dans les mêmes bandes de télévision, une licence radio serait requise. Pour en savoir plus, veuillez consulter le document CPC-2-1-28 d'Industrie Canada intitulé, Délivrance de licences sur une base volontaire pour les appareils radio de faible puissance exempts de licence et exploités dans les bandes de télévision.

Per RSS-Gen

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- 1) This device may not cause interference*
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.*

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;*
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

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Consumer Alert for US Users - FCC Order DA 10-92

Most users do not need a license to operate this wireless microphone system. Nevertheless, operating this microphone system without a license is subject to certain restrictions: the system may not cause harmful interference; it must operate at a low power level (not in excess of 50 milliwatts); and it has no protection from interference received from any other device. Purchasers should also be aware that the FCC is currently evaluating use of wireless microphone systems, and these rules are subject to change. For more information, call the FCC at 1-888- CALL-FCC (TTY: 1-888-TELL-FCC) or visit the FCC's wireless microphone website at www.fcc.gov/cgb/wirelessmicrophones. To operate wireless microphone systems at power greater than 50mW, you must qualify as a Part 74 user and be licensed. If you qualify and wish to apply for a license go to: <http://www.fcc.gov/Forms/Form601/601.html>

Introduction

Three Block Tuning Range

The SSM transmitter tunes across a range of over 76 MHz. This tuning range covers three standard Lectrosonics frequency blocks.



Four bands are available covering standard blocks as follows:

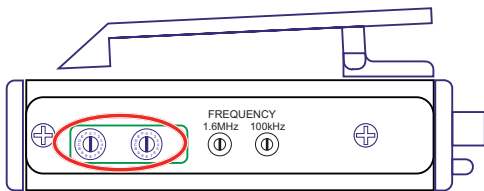
Band	Blocks Covered	Freq. MHz
A1	470, 19, 20	470.100 - 537.575
B1	21, 22, 23	537.600 - 614.375
B2	22, 23, 24	563.200 - 639.975
C1	24, 25, 26	614.400 - 691.175

To simplify backward compatibility with earlier Digital Hybrid Wireless® equipment, block numbers are presented along with frequencies in LCD screens.

About Frequency Blocks

A 25.6 MHz band of frequencies, referred to as a **Block**, came about with the design of the first frequency tunable Lectrosonics wireless products. These products provided two 16-position rotary switches to select frequencies as shown in the illustration below. A logical method of identifying the switch positions was using 16 character hexadecimal numbering. This naming and numbering convention is still used today.

The 16 switch positions are numbered **0** (zero) through **F**, presented in a two-character designation such as B8, 5C, AD, 74, etc. The first character indicates the position of the left hand switch and the second character indicates the position of the right hand switch. This designator is commonly called a “hex code.”



On older transmitter models, the left hand switch makes steps in 1.6 MHz increments, the right hand switch in 100 kHz increments.

Each block spans a 25.6 MHz band. A simple formula is used to name the blocks according to the lowest frequency in each one. For example, the block starting at 512 MHz is named Block 20, since 512 divided by 25.6 equals 20. Special blocks were created later in different frequency bands using the lowest frequency in the block as the designator.

About Digital Hybrid Wireless®

US Patent 7,225,135

All wireless links suffer from channel noise to some degree, and all wireless microphone systems seek to minimize the impact of that noise on the desired signal. Conventional analog systems use companders for enhanced dynamic range, at the cost of subtle artifacts (known as “pumping” and “breathing”). Wholly digital systems defeat the noise by sending the audio information in digital form, however, it is often at the cost of one or more issues regarding power, bandwidth, operating range and resistance to interference.

The Lectrosonics Digital Hybrid Wireless system overcomes channel noise in a dramatically new way, digitally encoding the audio in the transmitter and decoding it in the receiver, yet still sending the encoded information via an analog FM wireless link. This proprietary algorithm is not a digital implementation of an analog compander but a technique which can be accomplished only in the digital domain.

Since the RF link between transmitter and receiver is FM, channel noise will increase gradually with increased operating range and weak signal conditions, however, the Digital Hybrid Wireless system handles this situation elegantly with rarely audible audio artifacts as the receiver approaches its squelch threshold.

In contrast, a purely digital system tends to drop the audio suddenly during brief dropouts and weak signal conditions. The Digital Hybrid Wireless system simply encodes the signal to use a noisy channel as efficiently and robustly as possible, yielding audio performance that rivals that of purely digital systems, without the power, noise and bandwidth problems inherent in digital transmission. Because it uses an analog FM link, Digital Hybrid Wireless enjoys all the benefits of conventional FM wireless systems, such as excellent range, efficient use of RF spectrum, and long battery life.

Battery Charging

The transmitter operates from a 3.6 V rechargeable battery that will provide about six hours of operation per charge. Battery life can be monitored from the timer function built into current Lectrosonics receivers.



The factory supplied battery charger kit provides a folding NEMA 2-prong plug on the charger, and will operate from 100-240 VAC sources. The LED glows red during charging and turns green when the battery is fully charged. The kit includes a Euro plug adapter and vehicle auxiliary power adapter cord.

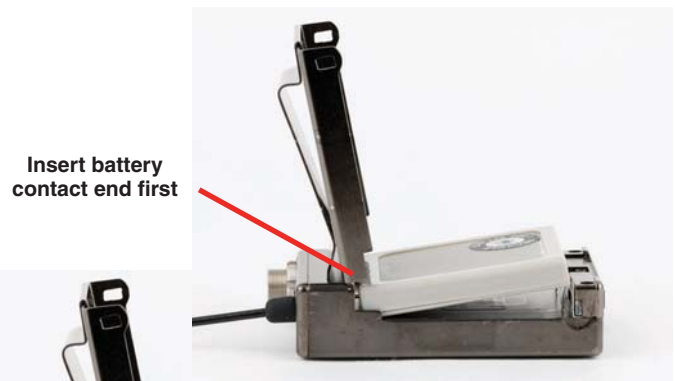
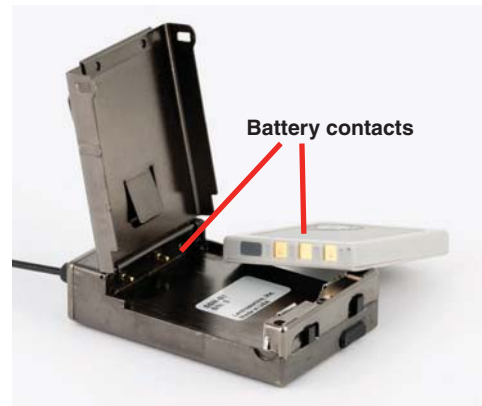
**Battery charger kit
P/N 40107**



CAUTION: Use only the factory supplied battery and battery charger.

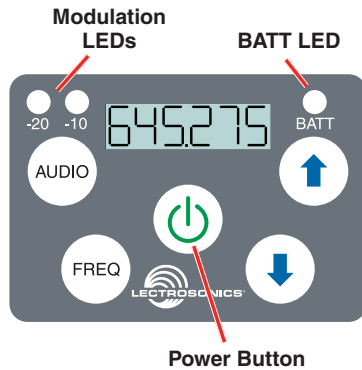
Battery Installation

The battery compartment and door catch are designed for simple and quick battery changes, yet prevent the door from being opened accidentally.



If the battery is inserted incorrectly, the door will close but the unit will not operate.

Controls and Functions



Modulation LEDs

Proper input gain adjustment is critical to ensure the best audio quality. Two bicolor LEDs will glow either red or green to accurately indicate modulation levels. The input circuitry includes a wide range DSP controlled limiter to prevent distortion at high input levels.

It is important to set the gain (audio level) high enough to achieve full modulation during louder peaks in the audio. The limiter can handle over 30 dB of level above full modulation, so with an optimum setting, the LEDs will flash red during use. If the LEDs never flash red, the gain is too low. In the table below, +0 dB indicates full modulation.

Signal Level	-20 LED	-10 LED
Less than -20 dB	● Off	● Off
-20 dB to -10 dB	● Green	● Off
-10 dB to +0 dB	● Green	● Green
+0 dB to +10 dB	● Red	● Green
Greater than +10 dB	● Red	● Red

LCD Screen

The LCD is a numeric-type Liquid Crystal Display with screens for adjusting output power, frequency, audio level, low frequency audio roll-off and various modes and options. The transmitter can be powered up with or without the RF output turned on. A brief press on the power button turns the unit on in a Standby Mode with the output turned off to allow adjustments to be made without interfering with other wireless systems in the vicinity.

WARNING: Moisture, including talent's sweat, will damage the transmitter. Wrap the SSM in a plastic baggie or other protection to avoid damage.

BATT LED

This LED glows green when the battery is good. The color changes to red when there is only a few minutes of operation left. The LED will blink briefly, just before the unit powers down.

The exact point at which the LED turns red will vary with battery brand and condition, temperature and current drain. The LED is intended to simply catch your attention, not to be an exact indicator of remaining time.

AUDIO Button

The AUDIO button is used to adjust the audio output level and low frequency roll-off. Each press of the button will toggle between the two settings.

FREQ Button

The FREQ Button displays the selected operating frequency and toggles the LCD between displaying the actual operating frequency in MHz and a two-digit hexadecimal number that corresponds to the equivalent Lectrosonics Frequency Switch Setting.

Power Button

Turns the unit on and off. A brief press turns power on in a Standby Mode to make settings without interfering with other wireless systems in the vicinity. Pressing and holding the button until a counter on the LCD completes a sequence turns the power on with the RF output turned on. Pressing and holding for the duration of a countdown turns the unit off.

UP and DOWN Arrow Buttons

The Up and Down arrow buttons are used to select the values on the various setup screens and to lock out the control panel. Press and hold both buttons until a countdown is completed to lock the keypad. Remove the battery to unlock the keypad.

Turning LEDs ON and OFF

These arrow keys also turn the LEDs on and off. With no other button pressed, the UP arrow turns the LEDs on and the DOWN arrow turns them off. When the LEDs are tuned off, the LCD will display a reminder every few seconds.

See Operating Instructions and Setup Screens for complete information.

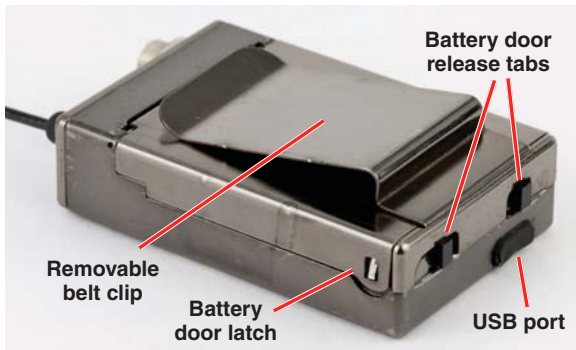
Connectors and USB Port

The housing is machined out of a solid aluminum billet for a rugged, lightweight assembly.



The antenna is a flexible whip made of galvanized steel, permanently attached to the transmitter to prevent damage from heavy use. The IR port is capped with a translucent dome material to broaden the reception angle. The input jack is a rugged 3-pin LEMO connector with a threaded locking sleeve.

The opposite end of the transmitter contains the battery door latches and release tabs, and the USB port, which is used for firmware updates.



The battery door itself is made of stainless steel to allow a thin wall thickness, but retain the strength to withstand heavy use.

Attaching and Removing the Microphone

Align the ridges on the plug with the grooves in the jack and insert the plug.




Slide the threaded sleeve onto the jack and rotate it clockwise to tighten it.



Operating Instructions


Powering On in Operating Mode

Press and hold the Power Button  for several seconds until a counter on the LCD progresses from 1 through 3, followed by a display of the model, firmware version, frequency block and compatibility mode.



When you release the button, the unit will be operational with the RF output turned on and the Main Window displayed.

Powering On in Standby Mode


A brief press of the Power Button , releasing it before the counter has reached 3, will turn the unit on with the RF output turned off. The LCD will display a reminder that the RF output of the transmitter is turned off.



In this Standby Mode the frequency can be browsed to make adjustments without the risk of interfering with other wireless systems nearby.

After adjustments are made, press the power button again to turn the unit off.

Powering Off

Holding the Power Button  in and waiting for the completion of the countdown from 3 to 1 will turn the power off.



If the power button is released before the countdown is completed, the unit will remain turned on and the LCD will return to the same screen or menu that was displayed previously.

Setup Screens

Two different setup menus are accessed by holding either the UP or DOWN arrow button while powering the unit on. See the opposite page for a listing of the menu items and descriptions.

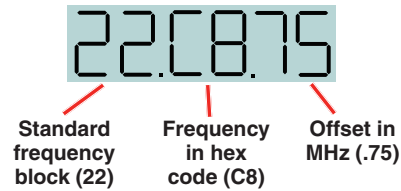
Screens Used in Normal Operation

When the transmitter is turned on with the RF output on, the LCD will display the frequency, audio gain or LF roll-off point.

Audio gain is expressed in dB.



Frequency is displayed in one of two ways:

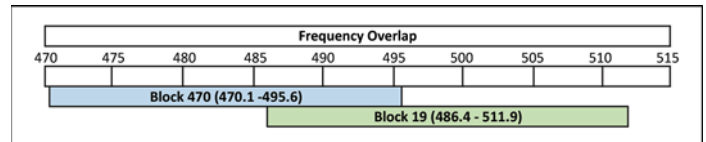


LF roll-off is expressed in Hz.



To make changes to the settings, press either button to display the desired screen, then use the UP and DOWN arrows to select the value. The changes take effect immediately when you release the buttons.

Block 470/19 Frequency Overlap



Frequencies 486.400 - 495.600 Overlap in Blocks 470 and 19

Block 470 and block 19 overlap each other in the frequency range from 486.400 to 495.600 MHz. Since block 470 starts at a lower frequency than block 19, the hex codes (and pilot tones) will not match even though the frequencies are the same in the overlap zone. **When using a transmitter on the A1 band with a block 19 receiver**, be sure the transmitter is set to block 19 and check the hex code on the receiver to make sure it matches the transmitter.

Call the factory for further questions on this issue.

Setup Steps

The setup menus are accessed by holding either the UP or DOWN arrow while powering the unit on. Refer to **Setup Screens** on the next page for details of each setup parameter.

The following list outlines the steps necessary to set up the transmitter for normal use.

- 1) Install a charged battery.
- 2) Set the compatibility mode to match the receiver to be used.
- 3) Adjust the step size and frequency to match the receiver. The frequency is normally determined using the receiver to identify one within clear operating spectrum. Refer to the receiver instructions for details on using features such as scanning.

NOTE: Some Lectrosonics receivers include an IR (infrared) port to transfer settings from the receiver to the transmitter. Refer to the section on IR (infrared) Sync for details.

- 4) Connect the microphone or audio source to be used. Select the correct input configuration.
- 5) Adjust the input gain. Refer to **Adjusting the Input Gain** on the following page for details.
- 6) Turn on the receiver and verify that solid RF and audio signals are present (see receiver manual)

Setup Screens

DOWN Button Menu

Hold the **DOWN** button while powering up the unit. Then press the AUDIO button repeatedly to scroll through the following settings. Use the UP and DOWN arrows to select the available options under each setting.

- **rc** - remote control operation; selections: **on**, **oFF**
- **PbAc** - power-back-on after power loss; selections: **0** (stay turned off), **1** (turn back on)
- **bL** - back light duration; selections: **5** (minutes), **30** (seconds), **on** (always on)

UP Button Menu

Hold the **UP** button while powering up the unit. Then press the AUDIO button repeatedly to scroll through and select the following settings (bulleted). Use the UP and DOWN arrows to select the available options under each setting.

- **CP** - compatibility mode; press the UP and DOWN arrows to select one of the following:
 - CP 400 400 Series (Digital Hybrid) mode
 - CP 3 Mode 3 (contact the factory for details)
 - CP 200 200 Series mode; receivers such as UCR200/201/205D/210/211
 - CP 100 100 Series mode; UCR100 receiver
 - CP 7 Mode 7 (contact the factory for details)
 - CP 6 Mode 6 (contact the factory for details)
 - CP IFb IFB Series mode; IFBR1/1a receivers
- **Pr** - RF power output; selections: 25, 50
- **In** - Input configuration; press the UP and DOWN arrows to select one of the following:
 - In dYn no bias, lo-Z; use for dynamic microphones
 - In 152 4v bias, lo-Z; same as otH; listed for easy selection on Lectrosonics 152 and similar mics
 - In SEN 4v bias, lo-Z; same as otH; listed for easy selection on Sennheiser MKE 2 and similar mics
 - In SEt Press the AUDIO button for manual setup of input for explicit control over bias voltage, input resistance and audio polarity. Press the AUDIO button to select the following parameters, then use the UP and DOWN arrows for each item to set the values.
 - BIAS - bias voltage on the input; selections **0**, **2** or **4**
 - rES - input impedance; selections: **0** (300 ohms), **Lo** (approx. 4 k ohms) or **HI** (approx. 100 k ohms)
 - AP - audio polarity (aka "phase"); selections: **P** for positive, **n** for negative (reversed)

NOTE: When you press AUDIO after setting the polarity, the screen will leave this submenu and return to the In menu. To return to this submenu, press AUDIO repeatedly and scroll through the list again.

 - In otH 4v bias, lo-Z; same as CoS but audio phase is not reversed; for various mics
 - In L In no bias, hi-Z; use for line level input (See Line Input Wiring and Use on page 11)
 - In dPA 4v bias, mid-Z; use for DPA lavalier and similar mics
 - In b6 2v bias, lo-Z; use for Countryman B6 and similar mics
 - In CoS 4v bias, lo-Z; phase reversed; use for Sanken COS-11, M152 and similar mics
- **StP** - Frequency tuning step size in kHz; selections: 25 kHz or 100 kHz

Adjusting the Input Gain

The two bicolor Modulation LEDs on the control panel provide a visual indication of the audio signal level entering the transmitter. The LEDs will glow either red or green to indicate modulation levels as shown in the following table.

Signal Level	-20 LED	-10 LED
Less than -20 dB	● Off	● Off
-20 dB to -10 dB	● Green	● Off
-10 dB to +0 dB	● Green	● Green
+0 dB to +10 dB	● Red	● Green
Greater than +10 dB	● Red	● Red

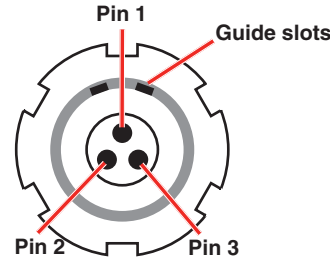
NOTE: Full modulation is achieved at 0 dB, when the “-20” LED first turns red. The limiter can cleanly handle peaks up to 30 dB above this point.

It is best to go through the following procedure with the transmitter in the standby mode so that no audio will enter the sound system or recorder during adjustment.

- 1) With a charged battery in the transmitter, power the unit on in the standby mode (see previous section **Powering On in Standby Mode**).
- 2) Press and hold the AUDIO button with **Aud** and a numeral on the display (e.g. **Aud 22**).
- 3) Prepare the signal source. Position a microphone the way it will be used in actual operation and have the user speak or sing at the loudest level that occur during use, or set the output level of the instrument or audio device to the maximum level that will be used.
- 4) Use the **⬆** and **⬇** arrow buttons to adjust the gain until the **-10 dB** glows green and the **-20 dB** LED starts to flicker red during the loudest peaks in the audio.
- 5) Once the audio gain has been set, the signal can be sent through the sound system for overall level adjustments, monitor settings, etc.
- 6) If the audio output level of the receiver is too high or low, use only the controls on the receiver to make adjustments. Unless the microphone or its position changes, or a different instrument is being used, leave the transmitter gain adjustment set according to these instructions. Use the audio output level control on the receiver to make adjustments for the desired level being delivered to the connected mixer, recorder, etc.

Microphone Wiring

Looking into the 3 pin Lemo mic connector from the outside of the transmitter, the pin centered in the two guide slots is pin 1 (ground). Pin 2 is a 1k resistor to ground. Pin 3 is the audio/bias connection for two-wire microphones and line inputs.



Voltages, polarity, impedance and line level for all signal sources are selected by menus. Menu selections include presets for popular microphones, and a sub-menu for manual setup. Refer to the section entitled **Setup Screens** on the previous page for details.

Two-wire electret lavaliers:

- Pin 1 - Ground (shield)
- Pin 3 - Audio and Bias

Sanken COS-11 lavaliers

- Recommended Wiring:**
- Pin 1 - Shield (ground)
 - Pin 2 - White (audio hot)
 - Pin 3 - Black (DC power)

NOTE: The COS-11 can also be wired in a two-wire configuration. Contact Plus24/Sanken for details.

The Sanken CUB-01 is not supported.

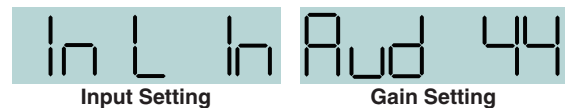
Line Input Wiring and Use

When connecting a line level audio signal to the SSM input, the line input must be selected on the UP Arrow menu, and the audio input gain must be set at 44 (maximum) to allow the full range of limiting. Set up this way the transmitter will cleanly handle input levels up to 0dBV (1 volt).

Line Input:

- Pin 1: Shield (ground)
- Pin 3: Audio and Bias

Transmitter Settings:



Note: This gain setting may seem “backwards” or illogical, however, it is correct due to the unique nature of the SSM input circuitry.

Remote Control

Remote control signals (“dweedle tones”) may be used to control the transmitter. The tones are played back into the microphone to avoid the need to reach and handle the transmitter when making changes to the following adjustments and settings:

- Input Gain
- Sleep/Unsleep
- Lock/Unlock
- Tx power output
- Frequency

A smart phone app is available in the App Store and in Google Play to implement this control. Search for the title **LectroRM**.

IR (infrared) Sync

An IR (infrared) link between an associated receiver and the transmitter can be used to shorten setup time and ensure that the correct settings in the transmitter are made. The dome on the side panel of the transmitter is the port used for the IR link. The receiver is normally used to identify a clear operating frequency. Once step size, frequency and compatibility mode are set in the receiver, the settings can be sent to the transmitter via this IR link.



Place the transmitter close to the IR enabled receiver with the ports facing each other within a foot or two apart. Send the settings with the trigger on the receiver. If the settings are successfully transferred, a confirmation message will appear on the transmitter LCD.

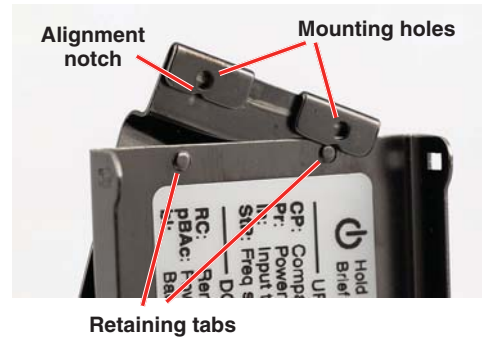
Ir Sync

NOTE: If a mismatch exists between the receiver and transmitter, an error message will appear on the transmitter LCD stating what the problem is.

Removable Belt Clips

Two different belt clips are available, one that orients the antenna downward and another one that orients the antenna upward. Attaching and removing the clips is the same for both models.

A belt clip is removed by rotating it as shown and sliding it off the retaining tabs on the battery door.



To attach a belt clip, align the notches with the retaining tabs, then press on the clip to attach it.



The antenna works equally well when oriented either upward or downward. Position the transmitter so that the antenna is not in contact with or underneath any metallic object or surface in wardrobe or costuming, and preferably with a layer of fabric between the antenna and the user's body.

Locking the Controls

The keypad can be locked to prevent inadvertent changes to be made to the transmitter. Press and hold both the UP and DOWN arrow buttons for several seconds until a countdown is completed on the LCD. The display will show **unloc 3...2...1** and then **Loc** will appear. Remove the battery to unlock the controls.

LectroRM

By New Endian LLC

LectroRM is a mobile application for iOS and Android smart phone operating systems. Its purpose is to make changes to the settings on select Lectrosonics transmitters by delivering encoded audio tones to the microphone attached to the transmitter. When the tone enters the transmitter, it is decoded to make a change to a variety of different settings such as input gain, frequency and a number of others.

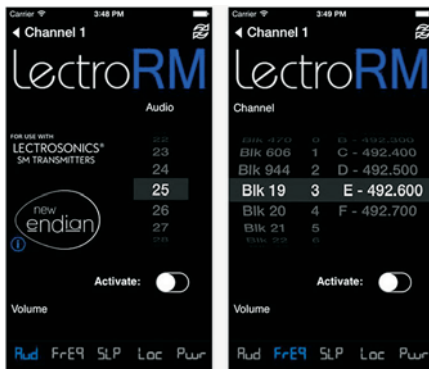
The app was released by New Endian, LLC in September 2011. The app is available for download and sells for about \$20 on the Apple App Store and Google Play Store.

The settings and values that can be changed vary from one transmitter model to another. The complete list of available tones in the app is as follows:

- Input gain
- Frequency
- Sleep Mode
- Panel LOCK/UNLOCK
- RF output power
- Low frequency audio roll-off
- LEDs ON/OFF

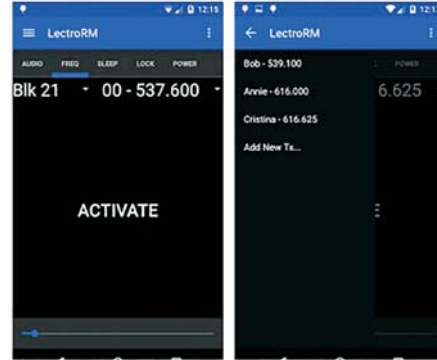
The user interface involves selecting the audio sequence related to the desired change. Each version has an interface for selecting the desired setting and the desired option for that setting. Each version also has a mechanism to prevent accidental activation of the tone.

iOS



The iPhone version keeps each available setting on a separate page with the list of options for that setting. On iOS, the “Activate” toggle switch must be enabled to show the button which will then activate the tone. The iOS version’s default orientation is upside-down but can be configured to orient right-side up. The purpose for this is to orient the phone’s speaker, which is at the bottom of the device, closer to the transmitter microphone.

Android



The Android version keeps all settings on the same page and allows the user to toggle between the activation buttons for each setting. The activation button must be pressed and held to activate the tone. The Android version also allows users to keep a configurable list of full sets of settings.

Activation

For a transmitter to respond to remote control audio tones, the transmitter must meet certain requirements:

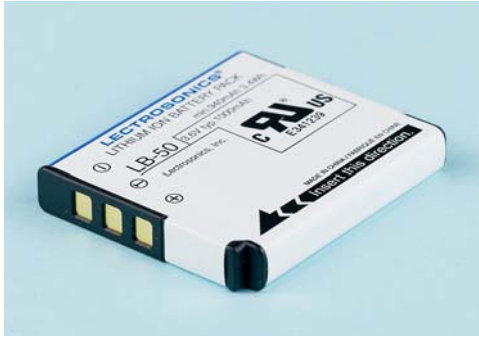
- The transmitter must be turned on.
- The transmitter must have firmware version 1.5 or later for Audio, Frequency, Sleep and Lock changes.
- The transmitter microphone must be within range.
- The remote control function must be enabled on the transmitter.

Please be aware this app is not a Lectrosonics product. It is privately owned and operated by New Endian LLC, www.newendian.com.

Accessories

Rechargeable battery

LB-50 3.6V lithium-ion battery pack



Battery charger kit

P/N 40107 charger for Lectrosonics LB-50 battery; includes charger, EU plug adapter and vehicle auxiliary power cord



Antenna downward belt clip

P/N 26995 slide-on belt clip



Antenna upward belt clip

P/N 27079 slide-on belt clip



Cordura Pouch

P/N 35939 zippered, padded; 4 x 6 x1 inches



Port Cover

P/N P1311 Micro USB port cover



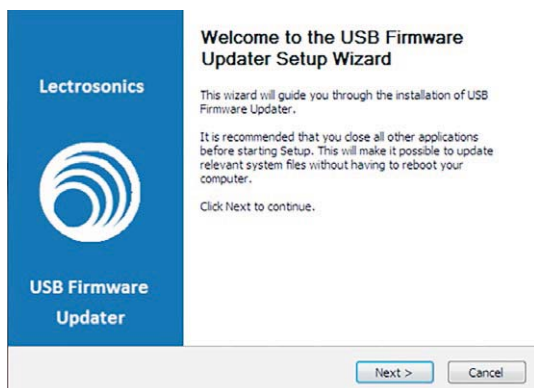
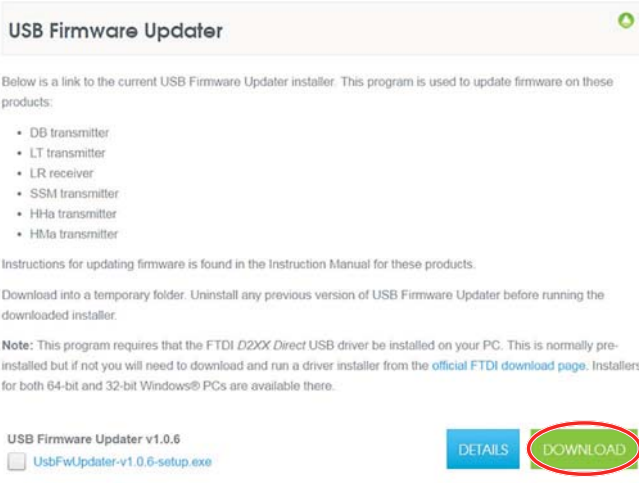
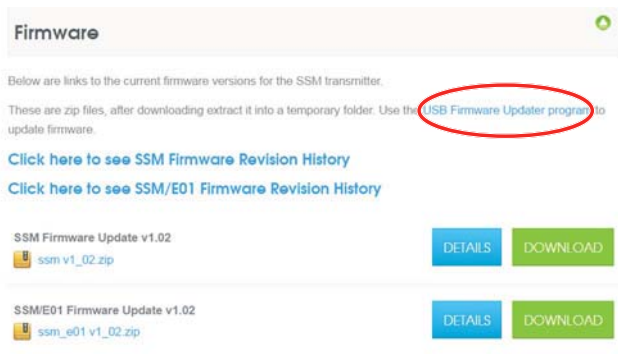
Firmware Update

Updating the firmware is a simple matter of downloading a utility program and file from the website and running the program on a **Windows operating system** with the transmitter connected to a computer via the USB port.


Go to www.lectrosonics.com/US. In the top menu, hover the mouse over Support, and click on Wireless Support. On the right-hand-side Wireless Support Menu, choose Wireless Downloads. Choose your product (SSM), then choose Firmware.

Step 1:

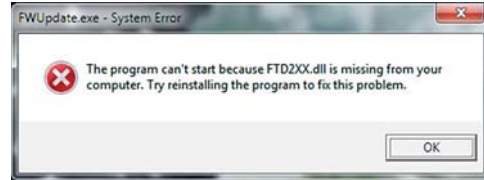
Begin by downloading the USB Firmware Updater Program.



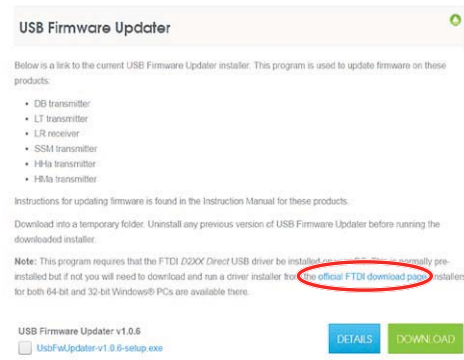
Step 2:

Next, test the Updater by opening the icon:  If the driver opens automatically, proceed to Step 3.

WARNING: If you receive the following error, the Updater is not installed on your system. Follow the TROUBLESHOOTING steps to fix the error.



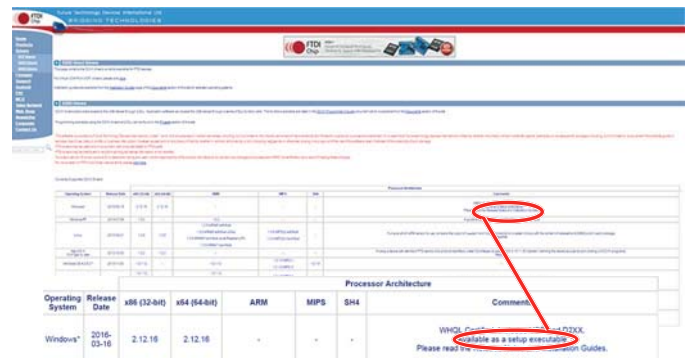
TROUBLESHOOTING:



If you receive the FTDI D2XX error shown above, download and install the driver by clicking on this link.

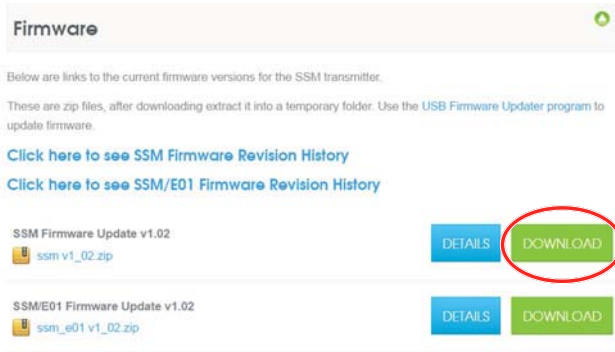
Then click here to download.

NOTE: This website, <http://www.ftdichip.com/Drivers/D2XX.htm>, is not associated with Lectrosonics.com. It is a third party site used only for D2XX drivers currently available for Lectrosonics' devices' upgrades.

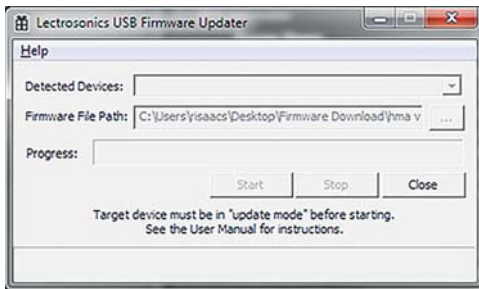


Step 3:

Refer to Step 1 to return to Firmware web page. Download Firmware Update and save to a local file on your PC for easy locating when updating.

**Step 4:**

Open Lectrosionics USB Firmware Updater. 

**Step 5:**

UPDATE

Put the transmitter in UPDATE mode by simultaneously holding down the **UP** and **DOWN** arrow buttons on the transmitter control panel while powering it up.

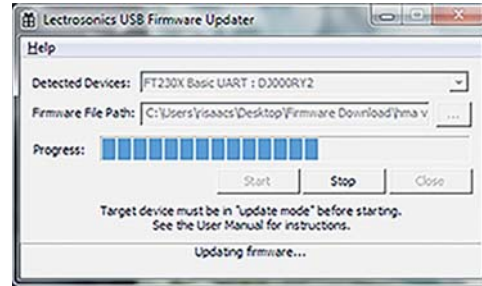
Step 6:

Using a microUSB cable, connect the transmitter to your PC.

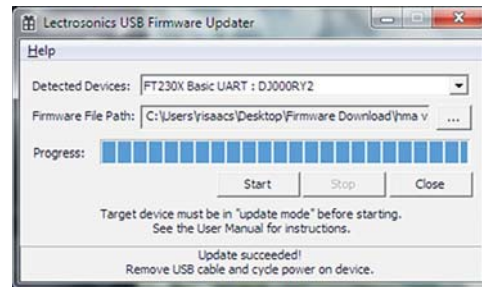
Step 7:

In Lectrosionics USB Firmware Updater, choose the detected device, browse to local Firmware File and click Start.

NOTE: It may take up to a minute or so for the Updater to recognize the transmitter.



WARNING: Do not disrupt the microUSB cable during updating.



The Updater alerts with progress and completion.

Step 8:

b1r 1.02

Once the Updater has completed, turn off the transmitter, then turn it back on to verify that the firmware version on the transmitter LCD matches the firmware version shown on the web site. The firmware is the second LCD display during boot up sequence.

Step 9:

Close Updater and disconnect microUSB cable.

Specifications

Operating Frequencies:

Band A1: 470.100 - 537.575
 Band B1: 537.600 - 614.375
 Band B2: 563.200 - 639.975
 Band C1: 614.400 - 691.175

Frequency Selection Steps: Selectable; 100 kHz or 25 kHz
 RF Power output: Selectable; 25 or 50 mW
 Pilot tone: 25 to 32 kHz; 5 kHz deviation (Digital Hybrid mode)
 Frequency Stability: $\pm 0.002\%$
 Deviation: ± 75 kHz max. (Digital Hybrid mode)
 Spurious radiation: 60 dB below carrier
 Equivalent input noise: -120 dBV (A-weighted)
 Input level:

- Mic: Nominal 2 mV to 300 mV, before limiting
- Line: Up to 1V maximum with gain set at maximum (See Line Input Wiring and Use on page 11)

 Input impedance:

- Mic: 300 or 4.5 k ohm; selectable
- Line: greater than 100 k ohm

 Input limiter: DSP controlled, dual envelope "soft" limiter with greater than 30 dB range
 Gain control range: 44 dB; digital control
 Modulation indicators: Dual bicolor LEDs indicate modulation of -20, -10, 0 and +10 dB referenced to full modulation

Audio Performance (Digital Hybrid mode)

Frequency Response: 70 Hz to 20 kHz (+/-1dB)
 Low frequency roll-off: -12 dB/octave; 70 Hz
 THD: 0.2% (typical)

SNR at receiver output:	SmartNR	No Limiting	w/Limiting
	OFF	103.5	108.0
Note: The dual envelope "soft" limiter provides exceptionally good handling of transients using variable attack and release time constants. Once activated, the limiter compresses 30+ dB of transmitter input range into 4.5 dB of receiver output range, thus reducing the measured figure for SNR <i>without limiting</i> by 4.5 dB	NORMAL	107.0	111.5
	FULL	108.5	113.0

Controls: Side panel membrane switches with LCD interface for power on/off and all setup and configuration controls
 Audio Input Jack: LEMO 00 Series 3-pin
 Antenna: Galvanized steel, flexible wire
 Battery: Lithium-ion 3.6 V 1000 mAh NP50 battery pack
 Battery Life: 6 hours per charge
 Weight: 2.3 ounces (65.2 grams) including lithium battery
 Dimensions (housing): 2.3 x 1.5 x .56 in. (58.4 x 38 x 14.2 mm)
 Emission Designator: 180KF3E

Service and Repair

If your system malfunctions, you should attempt to correct or isolate the trouble before concluding that the equipment needs repair. Make sure you have followed the setup procedure and operating instructions. Check the interconnecting cables.

We strongly recommend that you **do not** try to repair the equipment yourself and **do not** have the local repair shop attempt anything other than the simplest repair. If the repair is more complicated than a broken wire or loose connection, send the unit to the factory for repair and service. Don't attempt to adjust any controls inside the units. Once set at the factory, the various controls and trimmers do not drift with age or vibration and never require readjustment. **There are no adjustments inside that will make a malfunctioning unit start working.**

LECTROSONICS' Service Department is equipped and staffed to quickly repair your equipment. In warranty repairs are made at no charge in accordance with the terms of the warranty. Out-of-warranty repairs are charged at a modest flat rate plus parts and shipping. Since it takes almost as much time and effort to determine what is wrong as it does to make the repair, there is a charge for an exact quotation. We will be happy to quote approximate charges by phone for out-of-warranty repairs.

Returning Units for Repair

For timely service, please follow the steps below:

- A. DO NOT return equipment to the factory for repair without first contacting us by e-mail or by phone. We need to know the nature of the problem, the model number and the serial number of the equipment. We also need a phone number where you can be reached 8 A.M. to 4 P.M. (U.S. Mountain Standard Time).
- B. After receiving your request, we will issue you a return authorization number (R.A.). This number will help speed your repair through our receiving and repair departments. The return authorization number must be clearly shown on the **outside** of the shipping container.
- C. Pack the equipment carefully and ship to us, shipping costs prepaid. If necessary, we can provide you with the proper packing materials. UPS or FEDEX is usually the best way to ship the units. Heavy units should be "double-boxed" for safe transport.
- D. We also strongly recommend that you insure the equipment, since we cannot be responsible for loss of or damage to equipment that you ship. Of course, we insure the equipment when we ship it back to you.

Lectrosonics USA:

Mailing address:

Lectrosonics, Inc.
PO Box 15900
Rio Rancho, NM 87174
USA

Web:

www.lectrosonics.com

Shipping address:

Lectrosonics, Inc.
561 Laser Rd., Suite 102
Rio Rancho, NM 87124
USA

E-mail:

service.repair@lectrosonics.com
sales@lectrosonics.com

Telephone:

+1 (505) 892-4501
(800) 821-1121 Toll-free US and Canada
Fax +1 (505) 892-6243

Lectrosonics Canada:

Mailing Address:

720 Spadina Avenue,
Suite 600
Toronto, Ontario M5S 2T9

Telephone:

+1 (416) 596-2202
(877) 753-2876 Toll-free Canada
(877) 7LECTRO
Fax (416) 596-6648

E-mail:

Sales: colinb@lectrosonics.com
Service: joeb@lectrosonics.com

LIMITED ONE YEAR WARRANTY

The equipment is warranted for one year from date of purchase against defects in materials or workmanship provided it was purchased from an authorized dealer. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment.

Should any defect develop, Lectrosonics, Inc. will, at our option, repair or replace any defective parts without charge for either parts or labor. If Lectrosonics, Inc. cannot correct the defect in your equipment, it will be replaced at no charge with a similar new item. Lectrosonics, Inc. will pay for the cost of returning your equipment to you.

This warranty applies only to items returned to Lectrosonics, Inc. or an authorized dealer, shipping costs prepaid, within one year from the date of purchase.

This Limited Warranty is governed by the laws of the State of New Mexico. It states the entire liability of Lectrosonics Inc. and the entire remedy of the purchaser for any breach of warranty as outlined above. **NEITHER LECTROSONICS, INC. NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF LECTROSONICS, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF LECTROSONICS, INC. EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.**

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

