INSTRUCTION MANUAL

duet IEM SYSTEM

DCHT
Digital Transmitter
DCHT, DCHT/E01, DCHT-B1C1, DCHT/E01-B1C1, DCHT-941, DCHT-961

Quick Start Steps

1) Install good batteries and turn power on (see pages 5 and 7).
2) Set compatibility mode to match the receiver (see page 11).
3) Connect signal source, select input type and adjust input gain for optimum modulation level (see page 10).
4) Set or sync frequency to match receiver (see page 11, 12). Also see receiver manual for scanning procedure.
5) Set encryption key type and sync with receiver (see page 13).
6) Set programmable switch to desired function (see page 13).
7) Verify RF and audio signals are present at the receiver (see receiver manual).

WARNING: Moisture, including talent's sweat, will damage the transmitter. Wrap the DCHT in a plastic baggie, our silicone cover (order part # DCHTCVR) or other protection to avoid damage.

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Serial Number:

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LECTROSONICS®
Rio Rancho, NM, USA
www.lectrosonics.com

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Introduction

The DCHT, DCHT/E01 transmitter is designed to work with a companion receiver (such as the Lectrosonics DCHR or M2R, part of digital camera hop systems) as an audio relay between an audio production bag or cart and a camera or other audio device. The 6-pin input jack accepts two mic or line level analog signals or AES digital signals from external sources with a variety of adapter cables. Analog inputs can be linked for the same gain when used with a stereo source, or operate independently with individual settings.

This fourth generation digital design features specially developed, high efficiency digital circuitry for extended operating time on two AA batteries. The transmitter can tune in 25 kHz steps across the UHF television band from 470.100 to 607.950 MHz (E01 frequency range is 470.100 to 614.375 MHz), with a selectable output power of 10, 25 or 50 mW.

Studio quality audio performance is assured by high quality components in the preamp, wide range input gain adjustment and DSP-controlled limiting for analog sources, and settings are included for any lavaliere microphone, dynamic microphones, line level inputs, and AES digital inputs. Input gain is adjustable over a 51 dB range in 1 dB steps to allow a precise match to the input signal level, to maximize dynamic range and signal to noise ratio.

A separate switch is provided on the top panel that can be configured as mute, power or bypassed.

The housing is constructed of solid machined aluminum for lasting ruggedness. The exterior is finished with an ultra hard, dark electroless nickel finish called ***ebENi***.

Firmware updates are made through a side panel microB USB port.

General Technical Description

DSP-controlled Input Limiter

For analog sources, the transmitter employs a DSP-controlled analog audio limiter prior to the analog-to-digital converter. The limiter has a range greater than 30 dB for excellent overload protection. A dual release envelope makes the limiter acoustically transparent while maintaining low distortion. It can be thought of as two limiters in series, connected as a fast attack and release limiter followed by a slow attack and release limiter. The limiter recovers quickly from brief transients, so that its action is hidden from the listener, but recovers slowly from sustained high levels to keep audio distortion low and preserve short term dynamic changes in the audio level.

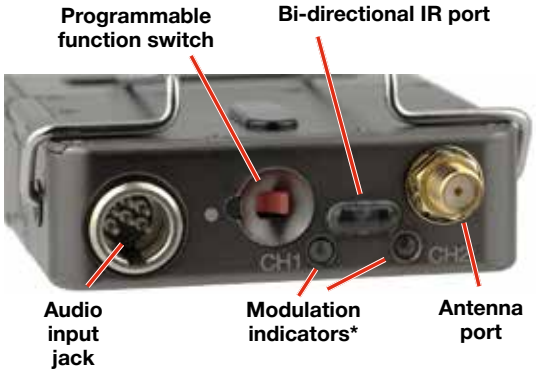
Encryption

When transmitting audio, there are situations where privacy is essential, such as during professional sporting events, in court rooms or private meetings. For instances where your audio transmission needs to be kept secure, without sacrificing audio quality, Lectrosonics implements AES256 encryption in our digital wireless microphone systems. High entropy encryption keys are first created by one of the units in the system. The key is then synced with another encryption-capable unit, via the IR port. The audio will be encrypted and can only be decoded if both the transmitter and receiver have the matching encryption key. If you are trying to transmit an audio signal and keys do not match, all that will be heard is silence.

Canada ISED Notice

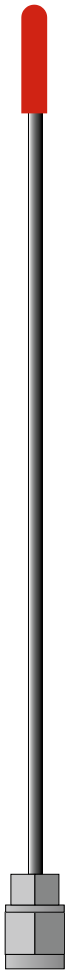
This device operates on a no-protection, no-interference basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio licence is required. For further details, consult Innovation, Science and Economic Development Canada's document Client Procedures Circular CPC-2-1-28, *Voluntary Licensing of Licence-Exempt_Low-Power Radio Apparatus in the TV bands.*

Features and Functions



Whip Antennas

Because the transmitter tunes across such a broad frequency range, it is best to use the appropriate antenna for maximum operation. Two antennas are included with the transmitter, and are shipped from the factory pre-cut and fully assembled. Each antenna covers three blocks. Refer to the chart below to determine which antenna matches the operating frequency you will be using.



Block	Frequency Range MHz	Cap Color	Antenna
470	470.100 - 495.600	Black	AMM19
19	486.400 - 511.900	Black	AMM19
20	512.000 - 537.500	Black	AMM19
21	537.600 - 563.100	Red	AMM22
22	563.200 - 588.700	Red	AMM22
23	588.800 - 607.950	Red	AMM22
24	614.400 - 639.900	Red	AMM22
25	640.000 - 665.500	Blue	AMM25
26	665.600 - 691.175	Blue	AMM25
941	941.525 - 959.825	Black	AMM961
961	961.100 - 1014.900	Black	AMM961

Optional Battery Eliminator

The transmitter can be powered by external DC using the optional LTBATELIM power supply adapter. The battery door is replaced by the adapter with a simple procedure. The adapter provides a locking coaxial connector and a variety of power cords and connectors are available.

Battery Status LED Indicator

The Power/Function LED on the top panel will mirror the keypad LED unless the programmable switch is set to Mute, and the switch is turned on.

Alkaline, lithium or rechargeable batteries can be used to power the transmitter. The type of batteries in use are selectable in a menu on the LCD.

When alkaline or lithium batteries are being used, the LED labeled BATT on the keypad glows green when the batteries are good. The color changes to red at a mid-point of the runtime. When the LED begins to ***blink*** red, there will be only a few minutes of operation remaining.

The exact point at which the LEDs turn red will vary with battery brand and condition, temperature and power consumption. The LEDs are intended to simply catch your attention, not to be an exact indicator of remaining time.

A weak battery will sometimes cause the Power LED to glow green immediately after the transmitter is turned on, but it will soon discharge to the point where it will turn red or the unit will turn off completely.

Rechargeable batteries give little or no warning when they are depleted. If you wish to use these batteries in the transmitter, the most accurate way to determine run-time status is by testing the time provided by a particular battery brand and type, then using the **BatTime** function to determine remaining runtime.

NOTE: Refer to the **Main Menu and Setup** section for **BatTime** details.

Belt Clips

The wire belt clip may be removed by pulling the ends out of the holes in the sides of the case. Be sure to have a firm grip to avoid scratching the surface of the housing.

An optional spring-loaded, hinged belt clip (model number BCSLEBN) is also available. This clip is attached by removing the plastic hole cap on the back of the housing and mounting the clip with the supplied screw.

IR (infrared) Port

The IR port is available on the top of the transmitter for quick setup using a receiver with this function available. IR Sync will transfer the settings for frequency from the receiver to the transmitter.

Status LED

Blue LED indicates ready (transmitting) status.

Connecting the Signal Source

Microphones, line level audio and digital sources can be used with the transmitter. Refer to the section entitled Input Connections for details on the correct wiring for line level sources and microphones to take full advantage of the Servo Bias circuitry.

Battery Installation

The transmitter is powered by two AA batteries. Lithium batteries are recommended for longest life.

The battery status circuitry compensates for the difference in voltage drop between alkaline and lithium batteries across their usable life, so it's important to select the correct battery type in the menu.

WARNING: Risk of explosion if the battery is replaced by an incorrect type.

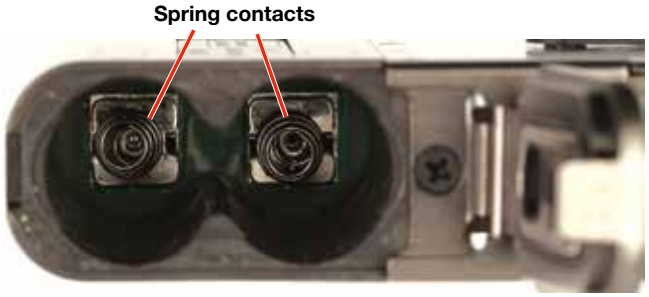
Because rechargeable batteries run down quite abruptly, using the Power LED to verify battery status will not be reliable. However, it is possible to track battery status using the battery timer function available in the receiver.

Push outward on the battery compartment door and lift it to open.

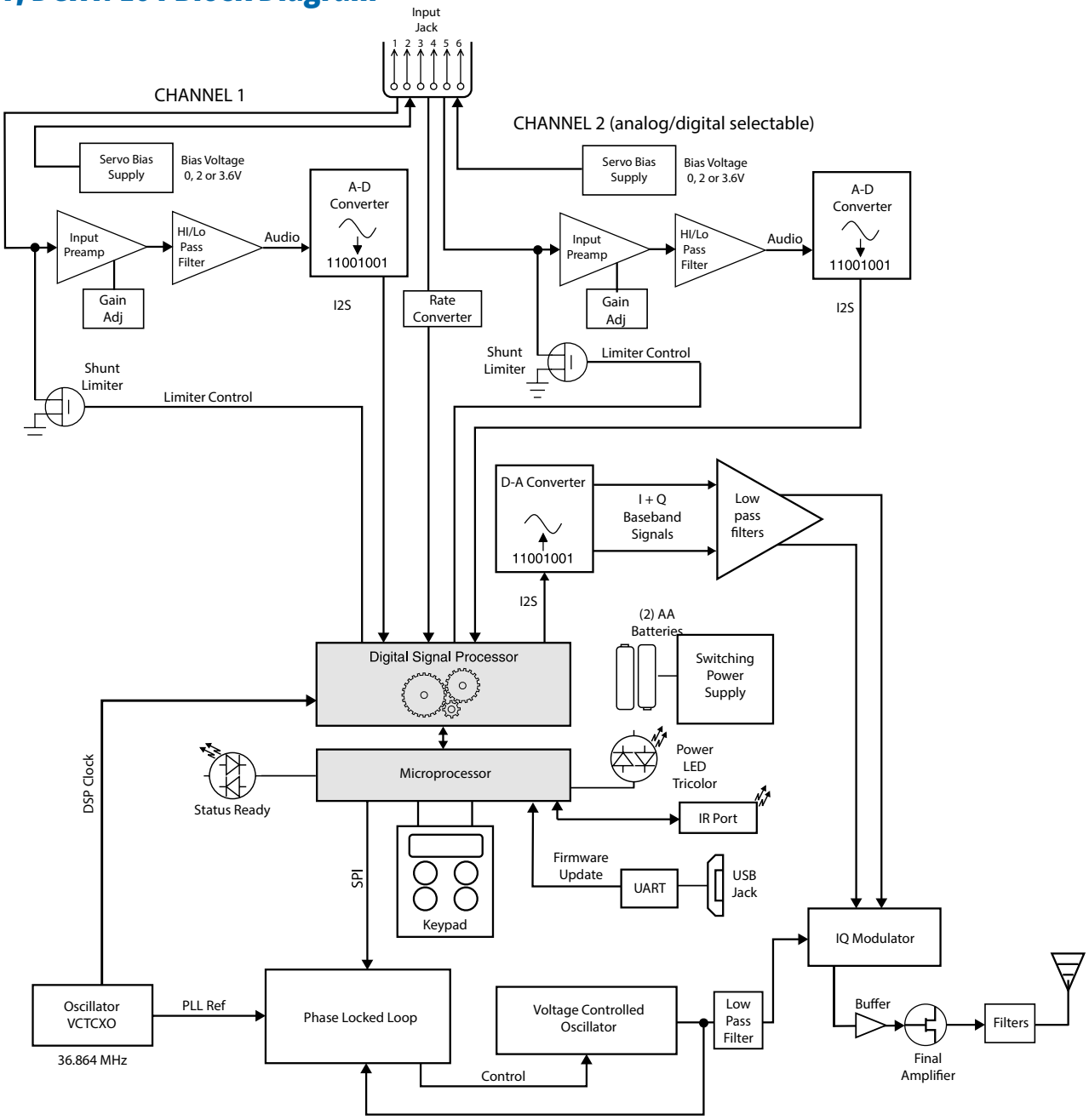
Insert the batteries according to the markings on the back of the housing.

If the batteries are inserted incorrectly, the door may close but the unit will not operate.

The battery contacts can be cleaned with alcohol and a cotton swab, or a clean pencil eraser. Be sure not to leave any remnants of the cotton swab or eraser crumbs inside the compartment.



DCHT, DCHT/E01 Block Diagram

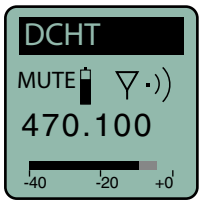


Powering On and Off

Powering On in Operating Mode

Press and hold the Power Button ⏻ for a few seconds until the progress bar on the LCD finishes.

When you release the button, the unit will be operational with the RF output turned on and the Main Window displayed. You can also use the programming switch if it is configured for this function.

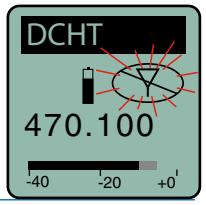


Powering On in Standby Mode

A brief press of the power button ⏻, and releasing it before the progress bar finishes, will turn the unit on with the RF output turned off. In this Standby Mode the menus can be browsed to make settings and adjustments without the risk of interfering with other wireless systems nearby.

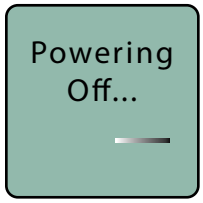
Release Power Button before the bar progresses to enter Standby Mode

RF indicator blinks



NOTE: After settings and adjustments are made, press the power button again to turn the unit off or navigate to menu item Xmit, RFOn? to choose to begin transmitting.

Powering Off



To turn the unit off, press and hold hold the Power Button ⏻ for a few seconds and wait for the progress bar to finish, or use the programmable switch (if it is configured for this function).

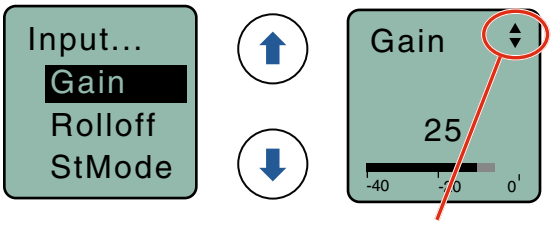
If the power button is released, or the top panel switch is turned back on again before the progress bar finishes, the unit will remain turned on and the LCD will return to the same screen or menu that was displayed previously.

NOTE: If the programmable switch is in the OFF position, power can still be turned on with the power button.

Main Menu and Setup Screen Details

Entering the Main Menu

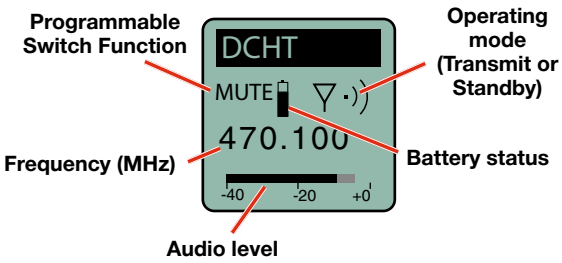
The LCD and keypad interface makes it easy to browse the menus and make the selections for the setup you need. When the unit is powered up in either the operating or the standby mode, press **MENU/SEL** on the keypad to enter a menu structure on the LCD. Use the ⬆ and ⬇ arrow buttons to select the menu item. Then press the **MENU/SEL** button to enter the setup screen.



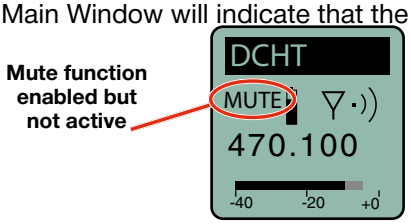
The prompt in the upper right corner may display one or both arrows, depending upon what adjustment can be made. If the changes are locked, a small padlock symbol will appear.

Main Window Indicators

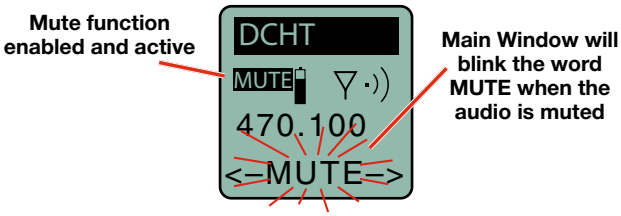
The Main Window displays the current settings, status, audio level and battery status.



If the programmable switch function is set for **MUTE**, the Main Window will indicate that the function is enabled.

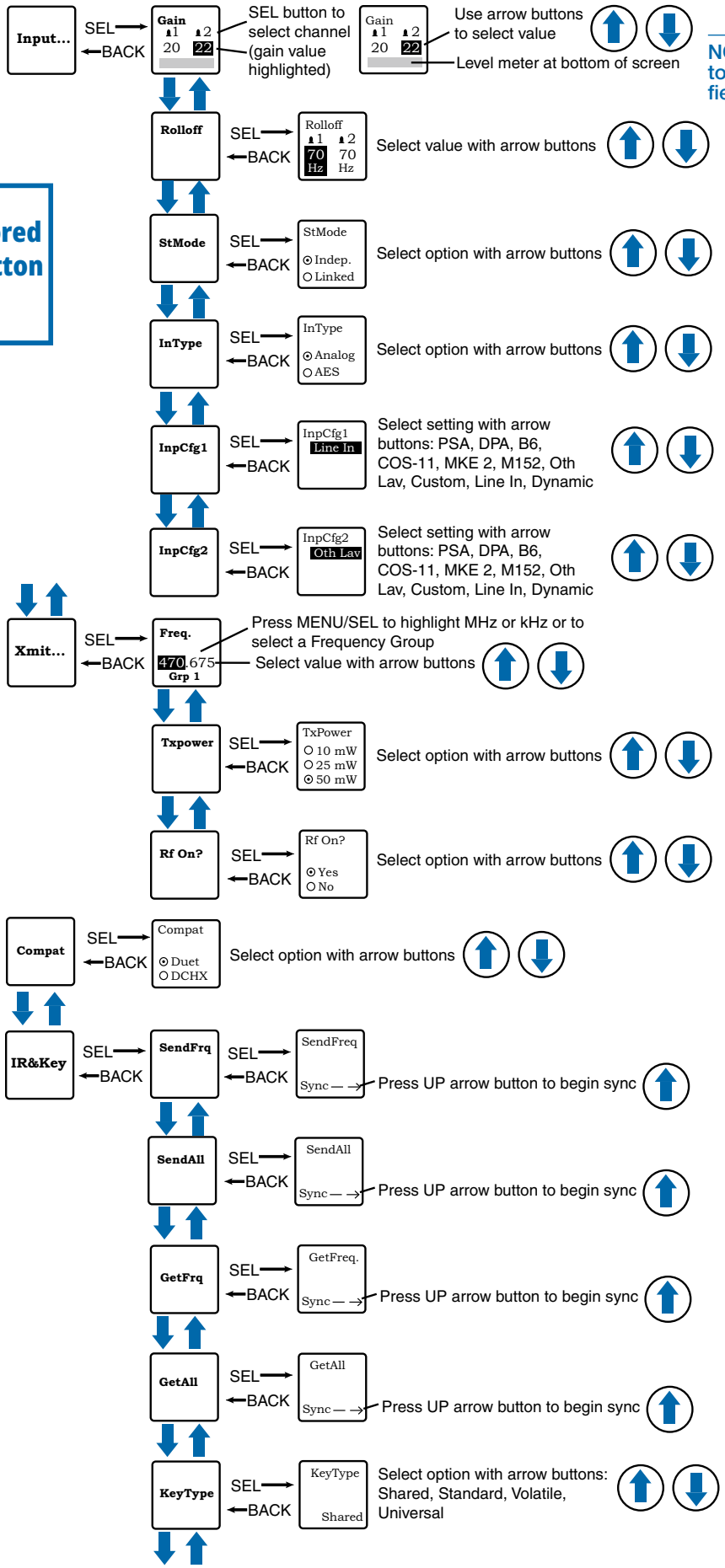


When the switch is turned on, the mute icon appearance will change and the word MUTE will blink at the bottom of the display. The -10 LED on the top panel will also glow solid red.



LCD Menu Map

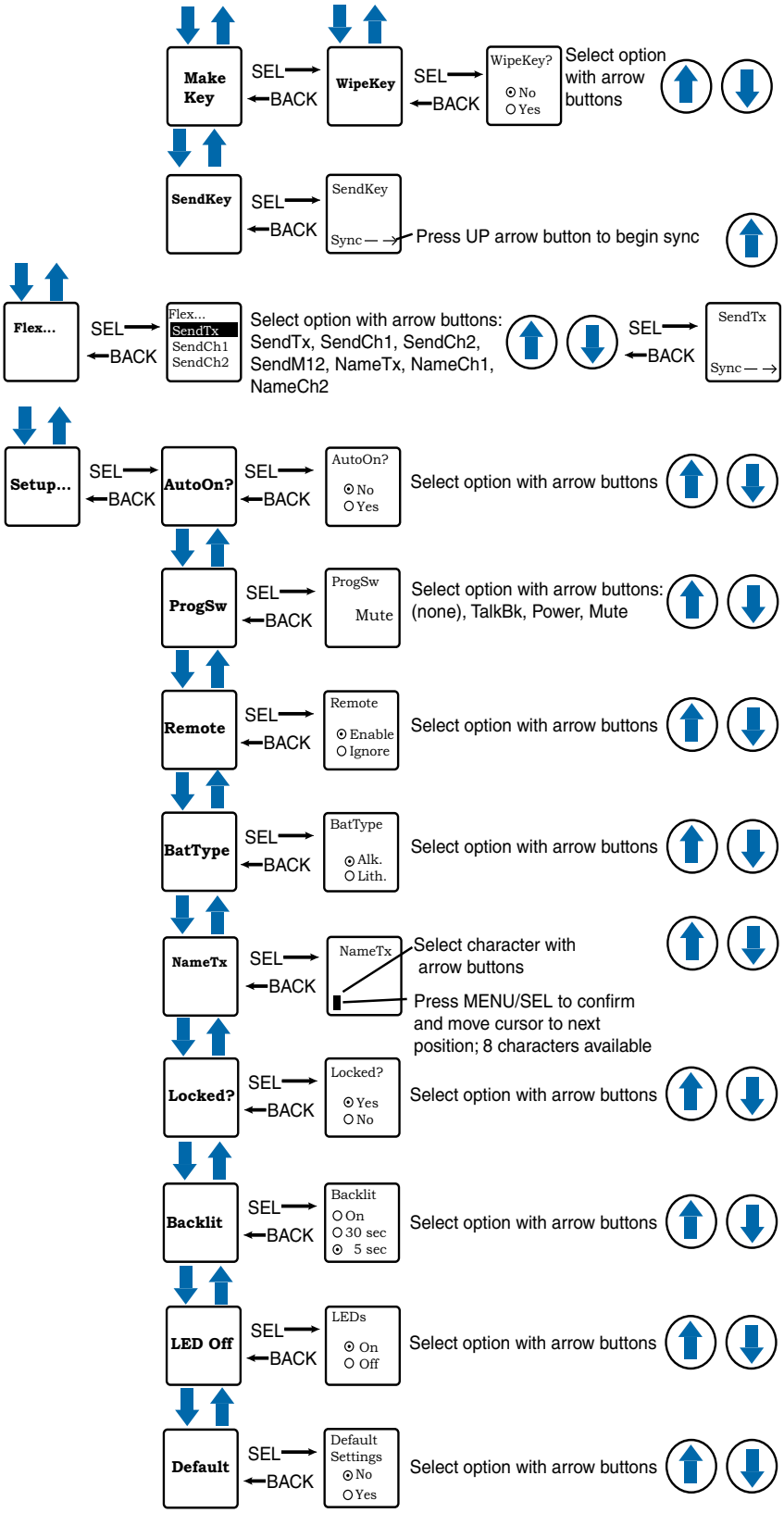
Settings will be stored when the BACK button is pressed.



NOTE: When StMode is set to Linked, a single gain value field will be shown

NOTE: The key menu selections only show when DCHX compatibility mode (encryption) is selected and a key type other than Universal is selected.

NOTE: Make, Wipe and Send Key Menu options are only available in Shared, Standard and Volatile Key Types. They will not be displayed in the menu if Universal Key Type is chosen.



Input Menu

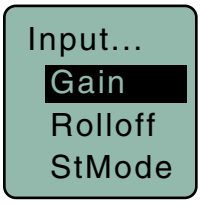
Adjusting the Input Gain for Digital Inputs

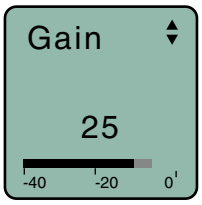
For gain adjustment, two multi-color LEDs on the top panel, one for each channel, provide a visual indication of the audio signal level entering the transmitter. The LEDs will glow either red or green to indicate modulation levels.

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.

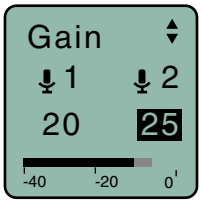
1) With fresh batteries in the transmitter, power the unit on in the standby mode (see previous section ***Powering On in Standby Mode***).

2) Navigate to the Gain setup screen.





Setup screen in Linked mode



Setup screen in Independent mode

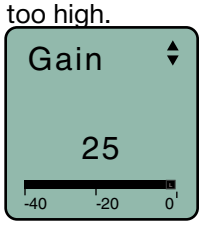
3) If using a microphone, position it the way it will be used in actual operation and have the user speak or sing at the loudest level that occur during use. Or, set the output level of the source audio device to the maximum level that will be used.

4) Use the ⬆ and ⬇ arrow buttons to adjust the gain until the LED glows green most or all of the time, and flicker red during the loudest peaks.

5) Turn the recorder or mixer gain down before setting the transmitter to the normal operating mode and enabling the audio output.

6) If the audio output level of the receiver is too high or low, use only the controls on the receiver to make adjustments. Always leave the transmitter gain adjustment set according to these instructions, and do not change it to adjust the audio output level of the receiver.

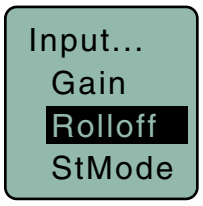
7) If the audio source drives the inputs into limiting, the audio level meter will move all the way to the right and terminate in a small box with an "L" in it, indicating limiting. If this happens on anything other than brief peaks, then the audio gain is set too high.

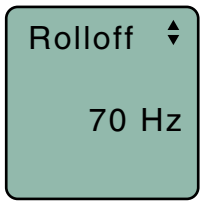


Selecting the Low Frequency Roll-off

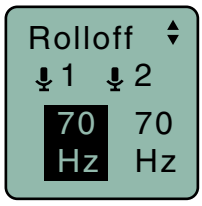
The low frequency audio roll-off is adjustable to optimize performance for ambient noise conditions or personal preference.

Low frequency audio content may be desirable or distracting, so the point at which the roll-off takes place can be set at 20, 35, 50, 70, 100, 120 and 150 Hz.





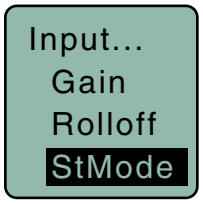
Setup screen in Linked mode

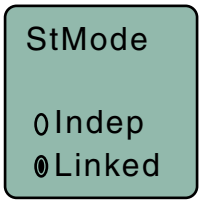


Setup screen in Independent mode

Selecting StMode (stereo mode)

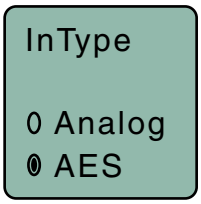
The two channels can be set to **Indep** (independent) or **Linked**. Indep allows the gain to be adjusted separately on each channel. Linked employs the gain adjustment to both channels.





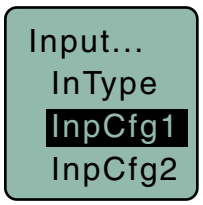
Selecting Input Type

AES digital or analog audio input is selected with the **InType** menu item. With the AES selected, there are no additional settings needed for the input. Analog input configuration is set with the **InpCfg1 and InpCfg2** menu items.



Selecting Input Configuration

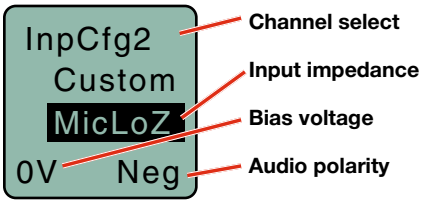
When the input type is set to Analog, **InpCfg1** and **InpCfg2** menus are used to configure the audio input for the respective channels. Use the ⬆ and ⬇ arrow buttons to select the input type.



TYPE	DESC, BIAS, IMPEDANCE, POLARITY
Line In	Line level signals up to +24 dBu
Dynamic	Low-Z dynamic microphones
PSA	Point Source Audio lav microphones
DPA	DPA lavaliere; 4V, Mid-Z, (+)
B6	Countryman B6; 2V, Low-Z, (+)
COS-11	Sanken COS-11; 4V, Low-Z, (–)
MKE 2*	Sennheiser MKE 2; 4V, Low-Z, (+)
M152*	Lectrosonics M152; 4V, Low-Z, (+)
Oth Lav*	Other lavaliere; 4V, Low-Z, (+)
Custom	Manually configurable microphone level

* Separate listings for these microphones are included for convenience, however, they are all the same configuration.

The **Custom** option opens a setup screen that provides a variety of settings. Press SEL to select the custom setup item, then press the ⬆ and ⬇ arrow buttons to adjust the setting.



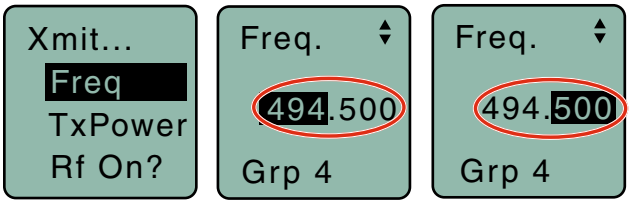
Available settings:

- Input impedance (Z): LOW, MID, HIGH
- Bias voltage: 0V, 2V, 4V
- Audio polarity: + (pos.), – (neg.)

Xmit Menu

Selecting Frequency

The setup screen for frequency selection offers multiple ways to browse the available frequencies.

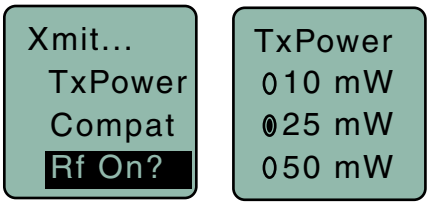


Press the MENU/SEL button to select each field. Use the ⬆ and ⬇ arrow buttons to adjust the frequency. Each field will step through the available frequencies in a different increment, or select the Frequency Group.

NOTE: When the frequency is highlighted, hold down the MENU/SEL button to increase or decrease frequency in higher increments.

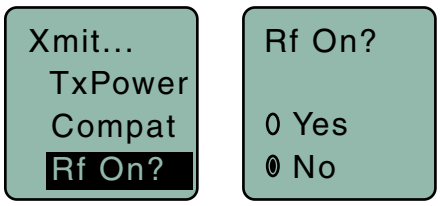
Selecting Transmitter Output Power

The output power can be set to 10 mW, 25 mW or 50 mW.



Turning Rf On/Off

Turn Rf off to preserve battery power while setting other transmitter functions. Turn it back on to begin transmitting.



NOTE: When transmitter is off, a brief press of the Power Button will turn the transmitter on with Rf off. Use this function to turn Rf on when ready to transmit.

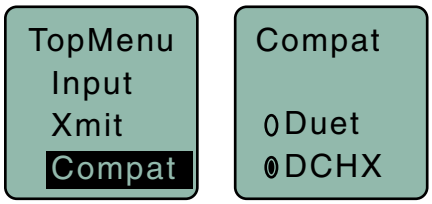
Compatibility Mode

Selecting Receiver Compatibility Mode

The transmitter can be set to operate with different receivers:

Duet: M2R digital IEM/IFB receiver

DCHX: DCHR and M2R-X encrypted (FW v3.x)



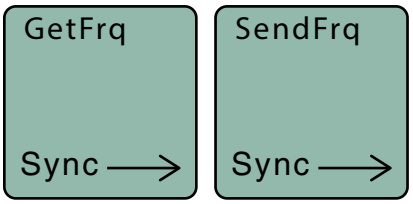
IR&Key Menu

GetFrq

Sync to receive (get) frequency from the M2R transmitter via the IR port

SendFrq

Sync to send frequency to the M2R transmitter via the IR port



Press the ⬆ arrow button to begin sync

GetAll

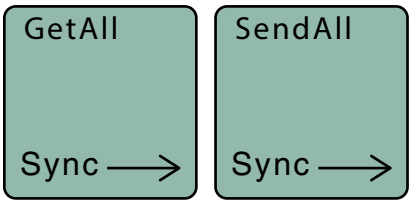
Sync to receive (get) all available settings from the M2R transmitter via the IR port, including the performer's name, (or whatever name the user chooses for the DCHT, DCHT/E01), frequency, mixer settings and limiter settings.

NOTE: The **GetAll** function is designed for trouble shooting and allows for settings to be cloned to transfer to another receiver if there is a problem to be identified. Not all copied settings are available on the DCHT, DCHT/E01.

SendAll

Sync to send all available settings to the M2R transmitter via the IR port, including the performer's name, (or whatever name the user chooses for the DCHT, DCHT/E01), frequency, mixer settings and limiter settings.

NOTE: The **SendAll** function is designed for trouble shooting and allows for settings to be cloned to transfer to another receiver if there is a problem to be identified. Not all settings are available on the DCHT, DCHT/E01.



Press the ⬆ arrow button to begin sync

Encryption Key Management

KeyType

The DCHT has four options for encryption keys:

- **Universal:** This is the most convenient encryption option available. All encryption-capable Lectrosonics transmitters and receivers contain the Universal Key. The key does not have to be generated by the DCHT. Simply set a Lectrosonics encryption-capable receiver and the DCHT to Universal, and the encryption is in place. This allows for convenient encryption amongst multiple transmitters and receivers, but not as secure as creating a unique key.

  NOTE: When the DCHT is set to Universal Encryption Key, Make Key, Wipe Key and Share Key will not appear in the menu.

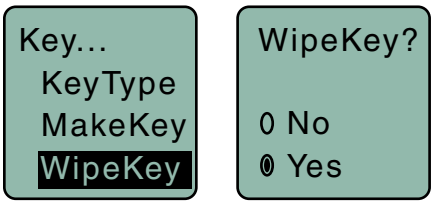
- **Shared:** There are an unlimited number of shared keys available. Once generated by the DCHT and transferred to an encryption capable receiver, the encryption key is available to be shared (synced) by the receiver with other encryption capable transmitters/receivers via the IR port.
- **Standard:** Standard Keys are unique to the DCHT and there are only 255 key instances available to be transferred to a receiver.
- **Volatile:** This one-time only key is the highest level of encryption security. The Volatile Key exists only as long as the power in both the DCHT Transmitter and an encryption capable receiver remains on during a single session. If the receiver is powered off, but the DCHT has remained turned on, the Volatile Key must be sent to the receiver again. If the power is turned off on the DCHT, the entire session concludes and a new Volatile Key must be generated by the transmitter and sent to the receiver via the IR port. Similar to Standard Keys, there are only 255 key instances to be transferred to a receiver.

MakeKey

When the transmitter key type is set to Volatile, Standard or Shared, use this menu item to create a unique key that can be synced with an encryption capable receiver.

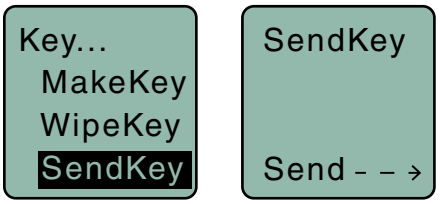
WipeKey

This menu item is only available if there is a key currently on the DCHT that can be deleted. Select Yes to wipe the current key and enable the DCHT to create a new key.



SendKey

This menu item (under IR&Key) is only available if Key Type is set to Volatile, Standard or Shared, and a new key has been created. Press Menu/Sel to sync the Encryption key to another transmitter or receiver via the IR port.



Flex List

Name

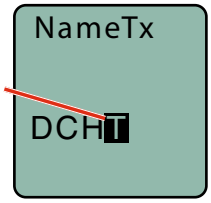
Name the DCHT, DCHT/E01 to allow easy identification on the M2R FlexList. The following are available for custom names:

- **NameTx:** Name the DCHT, DCHT/E01
- **NameCh1:** Name Channel 1
- **NameCh2:** Name Channel 2

Use the UP and DOWN arrows to choose which character you want and then MENU/SEL to move to next space (there are 8 spaces available for each name). Press BACK to save.

NOTE: Duplicate names are not allowed in a FlexList. Be sure to choose unique names for Tx, Ch1 and Ch2.

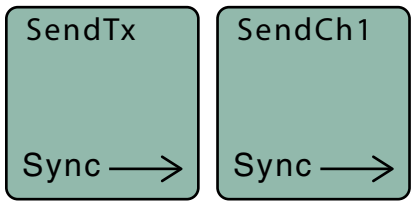
Cursor



Press the ⬆ and ⬇ arrow buttons to select the desired character, press MENU/SELECT to move to next space; there are 8 spaces available.

Sync DCHT, DCHT/E01 information to the M2R FlexList either as one stereo Channel or individual channels:

- **SendTx:** Send (sync) all receiver information to the M2R FlexList as one stereo channel
- **SendCh1:** Send (sync) Channel 1 unique information to the M2R FlexList
- **SendCh2:** Send (sync) Channel 2 unique information to the M2R FlexList
- **SendM12:** Send (sync) a mono mix of both channels to the M2R FlexList

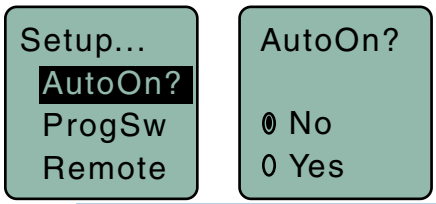


Use the ⬆ arrow button to begin sync

Setup Menu

Selecting AutoOn Feature

If external power is switched off or batteries fail while the unit is transmitting, the unit will automatically turn back on after power is restored or fresh batteries are installed. This function is enabled by selecting **Yes** in the menu options.

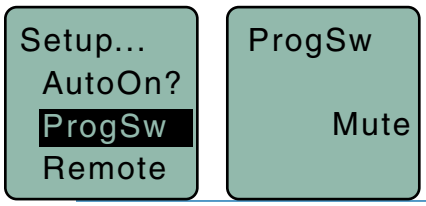


NOTE: AutoOn does not work when the transmitter is in the **Standby** mode.

Selecting Programmable Switch Functions

The programmable switch on the top panel can be configured using the menu to provide several functions:

- **(none) -** disables the switch
- **Mute** - mutes the audio when switched on; LCD will blink a message
- **Power** - turns the power on and off

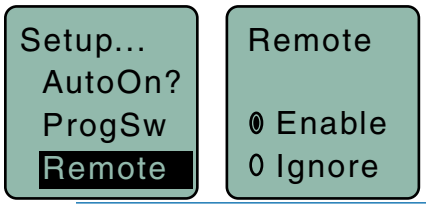


Press the ⬆ and ⬇ arrow buttons to select the desired function or disable the switch

NOTE: The programmable switch will continue to operate whether or not keypad changes are locked.

Enable/Disable Remote Control Function

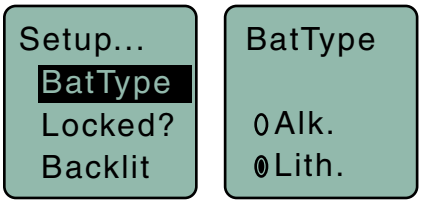
The “dweedle tone” remote control is turned on or off with the **Remote** menu, setting the transmitter to react to tones received (**Enable**) or to **Ignore** the tones.



NOTE: Remote control of settings is enabled using a third party smart phone app named DCHTRemote, published by New Endian, LLC.

Selecting Battery Type

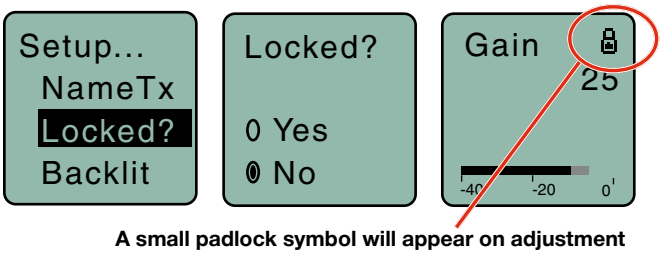
The voltage drop over the life of different batteries varies by type and brand. Be sure to set the correct battery type for accurate indications and warnings. The menu offers alkaline or lithium types.



If you are using rechargeable batteries, it is better to use the timer function on the receiver to monitor the battery life rather than the indicators on the transmitter. Rechargeable batteries maintain a fairly constant voltage across the operating time on each charge and stop working abruptly, so you will have little or no warning as they reach the end of operation.

Locking/Unlocking Changes to Settings

Changes to the settings can be locked to prevent inadvertent changes being made.



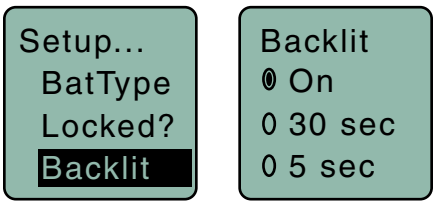
A small padlock symbol will appear on adjustment screens when changes have been locked.

When changes are locked, several controls and actions can still be used:

- Settings can still be unlocked.
- Menus can still be browsed.
- Programmable switch still works (Mute and On/Off).
- Sync functions are still available (except Get Freq. and Get All).

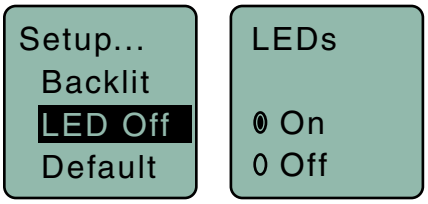
Selecting Backlit Time

Adjusts the duration of the LCD back light to 30 seconds, 5 minutes, or to remain on.



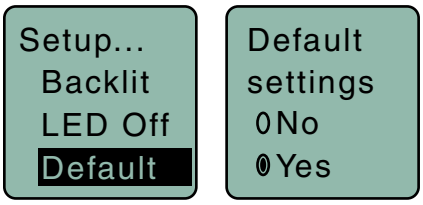
Turning LEDs Off/On

Options to turn the control panel LEDs on or off.



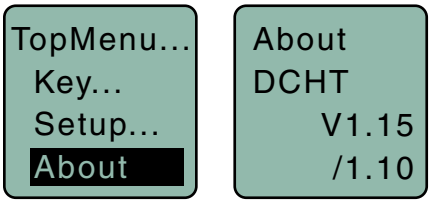
Restoring Default Settings

This is used to restore the factory settings.



About

Displays model number and firmware version.



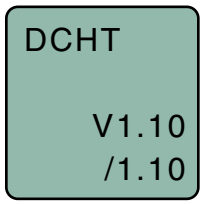
Firmware Update Instructions

Firmware updates are made with a file downloaded from the web site and the DCHT or DCHT/E01 connected via USB, and Wireless Designer software.

The USB port on the transmitter requires a micro-B male plug on the connecting cable. The other end of the cable would normally be a USB A-Type male connector to fit the most common type of USB jack used on computers.

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.

Refer to ***Help*** in Wireless Designer software for instructions.



Once the Update 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.

WARNING: Do not connect more than one Lectrosonics device to your computer while updating firmware. Wireless Designer may need to be updated to the current version to perform a firmware update on recent products

Specifications

Operating Frequencies:

DCHT	470.100 - 607.950 MHz
DCHT/E01	470.100 - 614.375 MHz
DCHT-B1C1 (US)	537.600 - 607.950 MHz
	614.050 - 615.950 MHz
	653.050 - 662.950 MHz
DCHT/E01-B1C1	537.600 - 691.175 MHz
DCHT-941	941.525 - 959.825 MHz
DCHT-961	961.100 - 1014.900 MHz

NOTE: It's the user's responsibility to select the approved frequencies for the region where the transmitter is operating

Operating temp. range:	Celsius: -20° - 50°; Farenheit: -5° - 122°
Frequency Selection Steps:	25 kHz
RF Power Output:	Selectable; 10, 25 or 50 mW. 20mw max for 614.000 - 615.950 MHz and 653.050 - 662.950 MHz.
Frequency Stability:	± 0.002%
Spurious Radiation:	
DCHT Compliant ETSI EN 300 422-1 v1.4.2	
DCHT/E01	Compliant ETSI EN 300 422-1 v2.1.2
Digital Modulation:	8PSK
Encryption:	AES 256-CTR (per FIPS 197 and FIPS 140-2)
Equivalent Input Noise:	–128 dBV
Input Types:	• Analog; mic and line level • AES digital
Input Level (analog)	• Mic: Nominal 2 mV to 300 mV, before limiting Greater than 1V maximum, with limiting • Line: +24 dBu before limiting
Input Impedance:	• Mic: 300 or 4.5 k ohm; selectable • Line: greater than 100 k ohm
Input Limiter:	Dual envelope type; 30 dB range
Gain Control Range:	51 dB in 1 dB steps; digital control
Modulation Indicators:	• Bicolor LED indicates modulation of -20 and 0 dB referenced to full modulation • LCD bar graph
Frequency Response:	15 Hz – 11.3 kHz, +0, -3 dB
Controls:	• Top panel toggle switch; programmable as ***power***, ***mute*** or ***none*** (off) function • Front panel membrane switches with LCD interface for power on/off and all setup and configuration controls
Audio Input Jack:	Switchcraft 6-pin locking (TA6F)
Antenna:	Galvanized steel, flexible wire, SMA connector
Battery:	Two AA Lithium recommended
Battery Life:	5 hours
Weight:	• 5.75 ozs. (163 grams); w/ belt clip and lithium AA batteries • 6.40 ozs. (181 grams); w/ belt clip and Duracell Quantum AA batteries
Overall dimensions:	3.45 x 2.44 x .742 in. (88 x 62 x 19 mm)
Emission Designator:	200KG7E

Specifications subject to change without notice

Input Connections

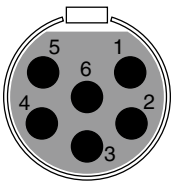
Lavalier microphones and adapter cabling used with digital body pack transmitters should have the shield wire connected to the shell of the microphone plug.

This will reduce the RF energy radiated into the microphone cable shield wire from getting back into the transmitter via the audio input.

Digital RF carriers contain both FM and AM components and greater microphone shielding is required to overcome induced transmitter radio frequency interference.

The 6-pin input jack accommodates two discrete channels at microphone or line levels. The input connections are configured as follows:

	ANALOG	DIGITAL
Pin 1	CH 1 Shield/Gnd	AES GND
Pin 2	CH 1 Mic level	
Pin 3	CH 1 Line level	
Pin 4	CH 2 Mic level	AES CH 1
Pin 5	CH 2 Shield/Gnd	AES CH 2
Pin 6	CH 2 Line level	



TA6FLX connector viewed from outside

Refer to the Accessories section of this manual for details on the available adapter cables.

The mating connector for the DCHT, DCHT/E01 input jack is a Switchcraft TA6FLX 6-pin female (nickel plated). Lectrosonics P/N 21932.

NOTICE: Any microphone wired using pin 2 for electret bias will **NOT** work with the DCHT, DCHT/E01 and MCTA6TA5M2 adapter. For example, see figures 1 and 2 (below) for servobias inputs that will not operate properly.

Fig. 1

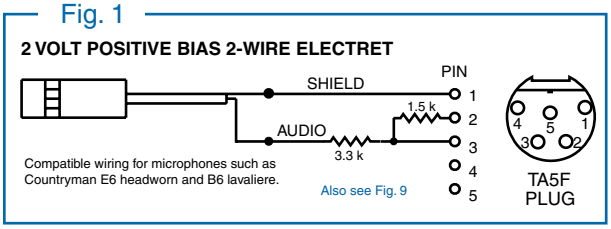
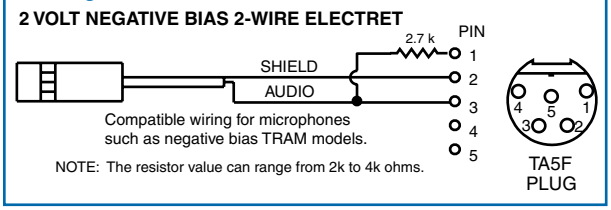
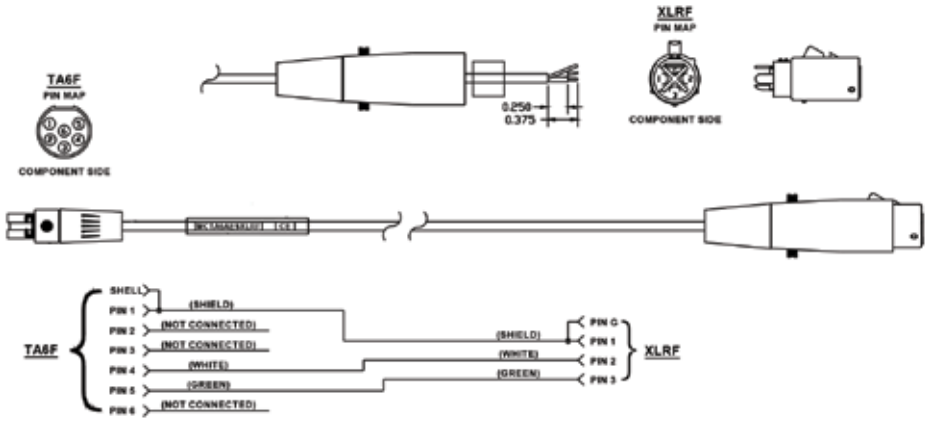


Fig. 2



NOTE: The Sanken CUB-01 is wired using pin 2 for the bias and will not work with the DCHT, DCHT/E01 and MCTA6TA5M2 adapter.

AES IEC Type 1 and 2 Wiring (TA6F to XLRF)

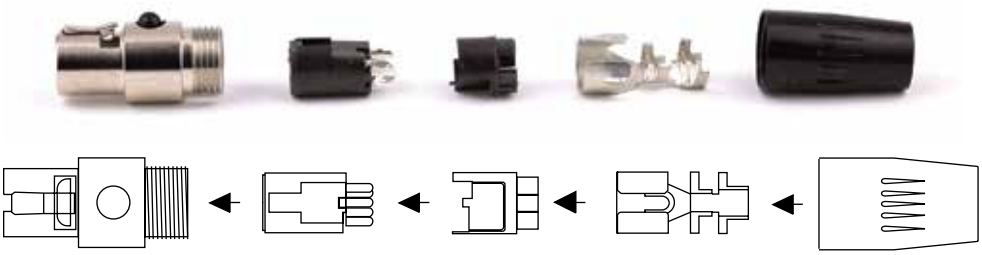


Type 1 interface: Type I connections use balanced, 3-conductor, 110-ohm twisted pair cabling with XLR connectors. Most often used in professional installations and are considered the standard connector for AES3. Wire as shown.

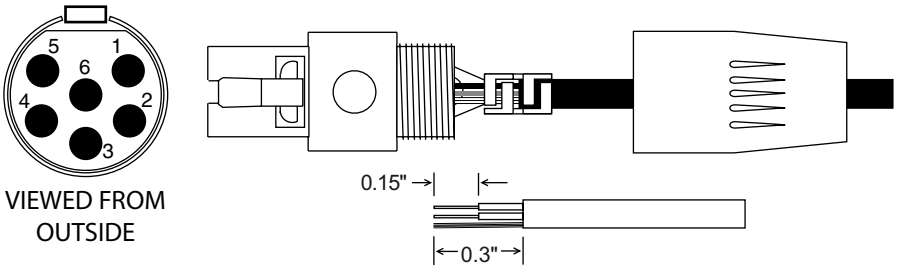
Type 2 interface: A 75-ohm unbalanced electrical or optical interface for consumer electronics applications (less common). Connect pin 4 to the center pin of the connector. Connect pin 5 to the connector shell. Shield (pin 1 of the TA6) is unused.

Microphone Cable Termination for Non-Lectrosonics Microphones

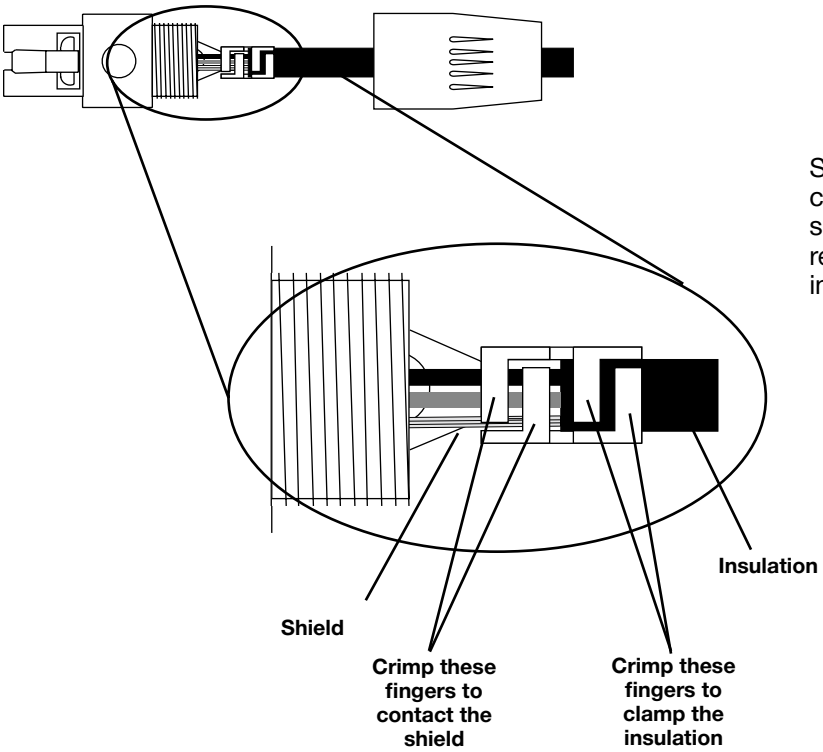
TA6F Connector Assembly



Mic Cable Stripping Instructions



Crimping to Shield and Insulation



Strip and position the cable so that the clamp can be crimped to contact both the mic cable shield and the insulation. The shield contact reduces noise with some microphones and the insulation clamp increases ruggedness.

DCHTRemote

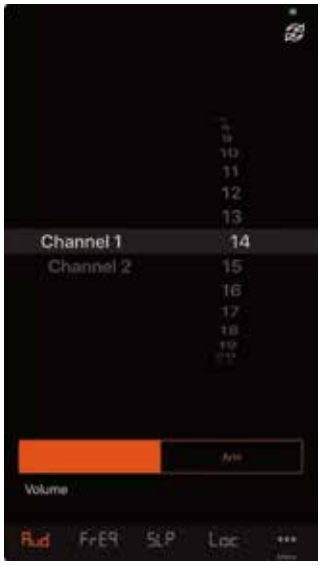
By New Endian LLC

DCHTRemote is a mobile application for iOS operating systems to remotely control the Lectrosonics DCHT Transmitter.

The app remotely changes settings on the transmitter through the use of encoded audio tones, which when received by the attached microphone, will alter the configured setting. The app is available for download and sells for about $25 on the Apple App Store.

DCHTRemote's remote control mechanism is the use of an audio sequence of tones (dweedles) that are interpreted by the transmitter as a configuration change. The settings available in DCHTRemote are:

- Audio Level (Gain)
- Frequency
- Sleep Mode
- Lock Mode
- Output Power
- Low Frequency Roll-off
- LED on/off



Activation

For the DCHT to respond to remote control audio tones, the transmitter must:

- The transmitter must not be turned off; it can however be in sleep mode.
- Remote control must be enabled.

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

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.

This device complies with ISED Canada radiation exposure limits as set forth for an uncontrolled environment.

Cet appareil est conforme avec les normes d'Industrie Canada concernant les limites d'exposition aux radiations pour un environnement incontrôlé.

This radio transmitter [IC: 8024A-DCHT, DCHT/E01] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Lectrosonics provides dipole "whip" antennas for use with the DCHT, DCHT/E01 transmitter. The antennas are cut to the frequency range shown below and include a 50 Ohm SMA connector.

Antenna Model	Freq Range (MHz)	Gain (dBi)
AMM19	470.100 - 537.500	2.15
AMM22	537.500 - 607.950	2.15
AMM25	640.000 - 691.175	2.15

NOTE: 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.

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Lectrosonics, Inc. may void the user's authority to operate the equipment.

This device complies with Innovation, Science and Economic Development Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux flux RSS exemptés de licence d'Innovation, Science et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:

(1) Cet appareil ne doit pas provoquer d'interférence; et
(2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Supplied Accessories

AMJ19

Swiveling Whip Antenna with Standard SMA Connector, Block 19.

AMJ22

Antenna with swiveling SMA connector, Block 22.

AMJ25

Antenna with swiveling SMA connector, Block 25.

40073 Lithium Batteries

DCHT is shipped with two (2) batteries. Brand may vary.

Optional Accessories

26895: Wire belt clip

BCSLEBN: Spring-loaded belt clip

Optional Accessories (cont.)

LTBATELIM: Replaces the batteries for powering the DCHT, DCHT/E01 from external DC, 5 to 25 volts.

MCTA6AESXLRF: AES3 digital signal from XLR-F output. 18 inch length.

MCTA6PT: General purpose cable with TA6FLX 6-pin female on one end and stripped and tinned wires on the other end with two separate cables. Wired for connection to microphone level signals. 18 inch length.

MCTA6TA3F2: Line level signals from two TA3-M outputs. 18 inch length.

MCTA6TA5M2: Microphone and line level signals from microphones and other devices configured with TA5F connectors for Lectrosonics wireless transmitters. 6 inch length.

MCTA6XLRF2: Line level signals from two XLR-M outputs. 18 inch length.

DCHTCVR
This tough silicone cover protects the DCHT from moisture and dust. The pliable material and the two-part design make it easy to install and remove. Cutouts for the antenna and jacks and the raised dome for the LED provide a snug fit.

Troubleshooting

Symptom:	Possible Cause:
Transmitter Battery LED off when Power Switch "ON"	1. Batteries are inserted incorrectly. 2. Batteries are low or dead.
No Transmitter Modulation LEDs when Signal Should be Present	1. Gain control turned all the way down. 2. Batteries are inserted incorrectly. Check power LED. 3. Mic capsule is damaged or malfunctioning. 4. Input cable damaged or miswired.
Receiver Indicates RF But No Audio	1. Audio source or cable connected to transmitter is defective. Try using an alternate source or cable. 2. Ensure musical instrument volume control is not set to minimum.
Receiver RF Indicator Off	1. Ensure that the transmitter and receiver are set to the same frequency. 2. Transmitter not turned on, or battery is dead. 3. Receiver antenna missing or improperly positioned. 4. Operating distance is too great. 5. Transmitter may be set to the Standby Mode.
No Sound (Or Low Sound Level), Receiver Indicates Proper Audio Modulation	1. Receiver output level set too low. 2. Receiver output is disconnected; cable is defective or miswired. 3. Camera/Recorder/Mixer input is turned down.
Distorted Sound	1. Transmitter gain (audio level) is too high. Check Modulation LEDs on transmitter and receiver while distortion is being heard. 2. Receiver output level may be mismatched with the Camera Recorder/Mixer input. Adjust output level on receiver to the correct level for the device it is feeding. 3. RF interference. Reset both transmitter and receiver to a clear channel. Use scanning function on receiver if available.
Wind Noise or Breath "Pops'"	1. Reposition microphone, or use a larger windscreen, or both. 2. Omni-directional mics produce less wind noise and breath pops than directional types.
Hiss and Noise -- Audible Dropouts	1. Transmitter gain (audio level) far too low. 2. Receiver antenna missing or obstructed. 3. Operating distance too great. 4. RF interference. Reset both transmitter and receiver to a clear channel. Use scanning function on receiver if available.

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 and then go through the **Troubleshooting** section in this manual.

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 email 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 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

Shipping address:
Lectrosonics, Inc.
561 Laser Rd. NE, Suite 102
Rio Rancho, NM 87124
USA

Telephone:
(505) 892-4501
(800) 821-1121 Toll-free
(505) 892-6243 Fax

Web:
www.lectrosonics.com

E-mail:
sales@lectrosonics.com
service.repair@lectrosonics.com

Lectrosonics Canada:

Mailing Address:
720 Spadina Avenue,
Suite 600
Toronto, Ontario M5S 2T9

Telephone:
(416) 596-2202
(877) 753-2876 Toll-free
(877-7LECTRO)
(416) 596-6648 Fax

E-mail:
Sales: colinb@lectrosonics.com
Service: joeb@lectrosonics.com

Self-Help Options for Non-Urgent Concerns

Our Facebook groups and weblists are a wealth of knowledge for user questions and information. Refer to:

Lectrosonics General Facebook Group: https://www.facebook.com/groups/69511015699

D Squared, Venue 2 and Wireless Designer Group: https://www.facebook.com/groups/104052953321109

The Wire Lists: https://lectrosonics.com/the-wire-lists.html

LECTROSONICS®
P.O. Box 15900 - Rio Rancho, NM - 87174 - USA
Phone: (800)821-1121 or (505)892-4501 - Fax: (505)892-6243
web: www.lectrosonics.com - email: sales@lectrosonics.com

EU Declaration of Conformity

LECTROSONICS, INC.
581 Laser Road
Rio Rancho, NM 87124 USA

Declares under our sole responsibility that the following product:

Model: DCHT/E01

Wireless microphone transmitter

is in conformity with the provisions of the following EC directive(s) (including applicable amendments) and are designed and manufactured in accordance with the harmonized standards:

Document	Description	Date/Version
RL 2014/53/EU	**Radio Equipment Directive 2014/53/EU (RED)**	**2014-04**
EN 300 422-1	Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Class A Receivers	V2.1.2 (2017-01)
	Electromagnetic Compatibility	
EN 301 489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Common Technical Requirements	V2.1.1 (2017-02)
EN 301 489-9	Specific Conditions for wireless microphones, similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices	V2.1.1 (2017-03)
	Safety and Health	
EN 60065-1	Audio, video and similar electronic apparatus – Safety Requirements	2014
EN 62311	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)	2008
RL 2011/65/EU	**RoHS Directive 2011/65/EU: Restriction of the use of certain hazardous substances (RoHS Recast)**	**2011**

The EU type examination was performed by notified body Bay Area Compliance Laboratories.

Software version of DCHT/E01: v0.43

Rio Rancho, NM USA, 08 Jun 2018

R. Cunnings

Robert Cunnings
V.P. Engineering
Lectrosonics, Inc.

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 liablility 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.

LECTROSONICS®
581 Laser Road NE • Rio Rancho, NM 87124 USA • www.lectrosonics.com
(505) 892-4501 • (800) 821-1121 • fax (505) 892-6243 • sales@lectrosonics.com

12 July 2024