Quick Start Guide

Digital Hybrid Wireless®
Reciver

R400A

Version 2

U.S. Patent 7,225,135

Fill in for your records:

Serial Number:

Purchase Date:

This guide is intended to assist with initial setup and operation of your Lectrosonics product.

For a detailed user manual, download the most current version at:

www.lectrosonics.com/US

16 Jun 2015

Initial Setup

1. Connect the power cord from the power supply to the Power Input Jack.
2. Attach the antennas or antenna cables to the MAIN ANT and DIV ANT BNC connectors.
3. Press the POWER/PREV MENU button to turn on the unit. Check to see that the LCD displays the three-screen Power Up Sequence:

   Lectrosonics

   R400A VXX where XX is the current firmware version installed

   Block XX where XX is the frequency tuning range block number

   After the Power Up Sequence is displayed, the Main Window appears and the R400A is ready for operation.
4. Ensure the receiver and transmitter are set to the same Compatibility Mode, then locate a clear operating frequency (see Frequency Coordination.) Then set the Transmitter Frequency Select Switches to match the receiver's operating frequency. (See R400A Menu Options.)
5. Turn the transmitter on and verify that an RF signal is indicated on the LCD.
6. Connect an audio cable to the appropriate audio output jack. Because the audio outputs operate independently, external equipment can be connected to either, or both output jacks.
7. Locate a clear operating frequency. The easiest method is to use Smart-Tune™ and then set the transmitter frequency indicated on the display.

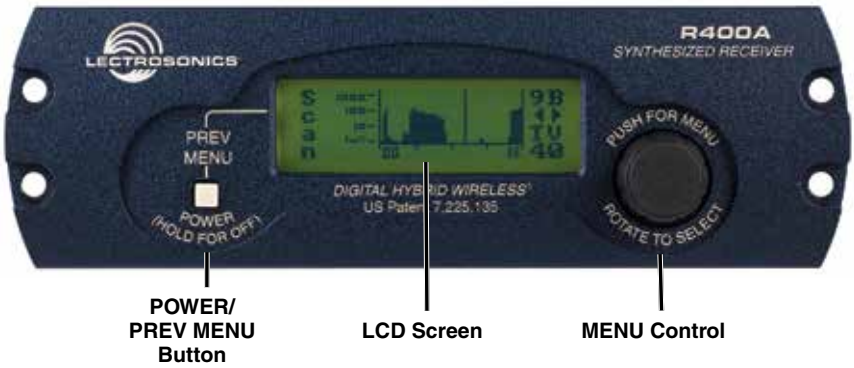
   Note: For more detailed instructions, see "Using SmartTune™ and the Scan function on page 7.
8. Refer to the associated transmitter operating instructions and adjust the transmitter gain.

The importance of the transmitter gain adjustment:

The input gain adjustment on the transmitter sets the limit for the maximum signal to noise that the entire wireless system can deliver. If it is set too low, background noise and dropouts will be noticeable. If set too high, overload distortion may be heard during loud peaks, or feedback may take place when used with a sound reinforcement system.

Adjust the transmitter gain so that ***the loudest peaks in the audio*** will cause the modulation level indicators on both the receiver and transmitter to ***just begin to indicate full scale***. This will maximize the signal to noise ratio and preserve the maximum dynamic range possible without compression. The limiters on Lectrosonics transmitters can handle levels up to 30 dB or more above full modulation, so there is no problem with overload distortion during loud peaks when the gain is adjusted in this manner.

Once the input gain on the transmitter is set correctly, the output level of the receiver can be adjusted to match the sound system, recorder, etc. The output level control on the receiver is simply an attenuator, so it does not affect the signal to noise ratio of the system.



Use the Level or Tone menus to adjust the audio output levels to match the required input level of any connected devices (sound system, recorder, etc.). The adjustment range is from -50 dBu to +5 dBu in 1 dB steps for the balanced output and -55 dBu to +0 dBu in 1 dB steps for the unbalanced output.

Note: The test tone output is especially useful for an exact level match. With the test tone running, adjust for the maximum desired peak level using the metering on the connected device.

If desired, access the LockSet menu to lock the R400A front panel controls to prevent inadvertently modifying the receiver settings during operation.

R400A Menu Options

SetUpRx

The SetUpRx menu accesses the screens used to set up the receiver. These screens include: Freq, Level, Tuning, Compat, Tone, PilotBP, Phase, TxBatt and SmartNR.

Freq

The Freq setup screen displays the TV channel, the associated transmitter Frequency Select Switch settings and the selected operating frequency for the R400A. To change the operating frequency, rotate the MENU control. Exit this setup screen by pressing the PREV MENU button. The receiver will retain its tuning even when the power is off.

Note: Remember to set the transmitter to match.

Level-B

The Level-B setup screen displays the audio output level of the receiver in dBu at the balanced XLR jack.

Level-U

The Level-U setup screen displays the audio output level of the receiver in dBu at the unbalanced 1/4-inch jack.

Tuning

The R400A offers 7 tuning modes: Normal mode (default), 4 factory set frequency groups (Fact Grp A thru D), and 2 user programmable frequency groups (User Grp U and V). For more information on tuning groups, see owner's manual. In normal tuning mode, all 256 channels are available.

Compat

The Compat setup screen is used to select the compatibility mode, allowing the R400A to operate with a variety of transmitters. The available compatibility modes are:

NU Hybrid - This mode works with Lectrosonics Digital Hybrid transmitters using ETSI compliant Nu Digital Hybrid compatibility mode.

100 Series - This mode works with all Lectrosonics 100 Series compatible transmitters.

200 Series - This mode works with all Lectrosonics 200 Series compatible transmitters.

NA Hybrid - is the best mode to use when both transmitter and receiver are North American Digital Hybrid Wireless models (not Euro/E01 variants).

IFB - This mode works with all Lectrosonics IFB compatible transmitters.

MODE 3 and MODE 6* - These modes work with a number of non-Lectrosonics analog transmitters. Contact the company for a list of compatible transmitters for each mode.

**Mode 6 available on units with Serial Number 236 and up*

Tone-B

The Tone-B setup screen switches from received audio at the balanced XLR audio output jack to an internally generated 1kHz audio test tone for precise level matching with other externally connected equipment without actually going “on the air.” Pressing the PREV MENU button exits the setup screen.

Tone-U

The Tone-U setup screen switches from received audio at the unbalanced 1/4-inch audio output jack to an internally generated 1kHz audio test tone for precise level matching with other externally connected equipment without actually going “on the air.” Pressing the PREV MENU button exits the setup screen.

Warning: There is only one audio output level setting for both received audio and the setup tone. The level set here will be retained in the receive mode (superseding settings made in the Level-U setup screen).

PilotBP

Pilot tone Bypass defeats the squelch in the receiver and allows whatever audio or noise is present to be output, which can be useful in diagnostics. TURN DOWN THE SOUND SYSTEM OR RECORDER INPUT LEVEL BEFORE USING THIS FUNCTION.

Note: No pilot tone is used in 100 Series or Mode 3 Compatibility Modes, so therefore this function is not offered for those modes.

Phase-B, Phase-U

Phase-B allows the polarity of the balanced XLR audio output to be inverted, as might be necessary to match other microphones or different microphone wiring methods. Phase_U does the same for the unbalanced 1.4” output.

Select the desired polarity (“phase”) the press PREV MENU to story the setting and return to the previous menu.

TxBatt

The TxBatt setup screen allows the selection of the exact battery type being used in the transmitter to provide more accurate battery level monitoring. Four different types of batteries are commonly used in Lectrosonics transmitters: 9 Volt alkaline, 9 Volt lithium, AA alkaline, and AA lithium. Rechargeable NiMH batteries can also be used in the transmitters (see TIMER below).

TIMER - Can be used with any battery type. Displays the cumulative time that the transmitter has been turned on. The time is displayed in two locations on the receiver: the lower left corner of the TxBatt setup screen and the upper left corner of the Main Window display. No battery icon is displayed in TIMER mode.

The colon blinks when the TIMER is running, and also indicates that the communications link is active. When either the transmitter or the R400A receiver is powered OFF, the timer will retain the accumulated time and resume counting only when a signal is detected from the transmitter.

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TxBatt (continued)

To reset the timer, navigate to the TIMER setup screen and quickly press and release the PREV MENU button and the MENU control simultaneously. The TIMER mode is most useful for NiMH batteries as they do not exhibit reliably identifiable voltage drops as they discharge.

For compatibility modes other than 400 Series and 200 Series, no battery telemetry information is available so the TxBatt setup screen offers TIMER as the only choice.

Exit this setup screen by pressing the PREV MENU button.

SmartNR

Available in 400 Series Compatibility Mode only, the SmartNR setup screen is used to select one of three noise reduction modes:

OFF - No noise reduction is performed and complete transparency is preserved. All signals presented to the transmitter's analog front end, including any faint microphone hiss, will be faithfully reproduced at the receiver.

NORMAL (factory default) - Enough noise reduction is applied to remove most of the hiss from the mic preamp and some of the hiss from lavaliere microphones. The noise reduction benefit is dramatic in this position, yet the degree of transparency maintained is exceptional.

FULL - Enough noise reduction is applied to remove most of the hiss from nearly any signal source of reasonable quality, assuming levels are set properly at the transmitter.

Rotate the MENU control to select the noise reduction mode. Exit this setup screen by pressing the PREV MENU button.

Back

Rotate the MENU control to select BACK, then push the MENU control to return to the TopMenu window.

LockSet

LockSet is used to prevent inadvertent settings and adjustments to be made to the receiver. Press the rotary control and rotate it to navigate to the LockSet menu item, then press the rotary control to enter the setup screen. Select LOCKED to prevent changes to be made, or NOT LOCKED to allow changes to be made.

When the controls are LOCKED, the Scan and SmartTune™ functions are disabled.

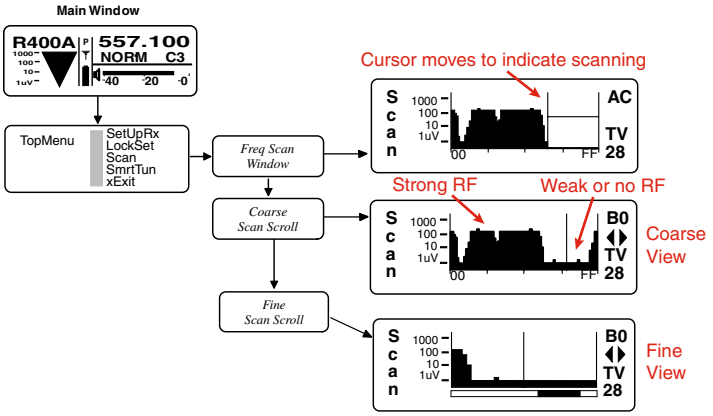
To unlock the controls, repeat the steps above and select NOT LOCKED.

Scan

Navigate to the SCAN option from the menu, then press the rotary control to activate the scan function. The receiver begins scanning the receiver's frequency block. The receiver will continue to scan the tuning range continuously, accumulating the highest peaks with each subsequent scan. Press the rotary control to stop the scanning. Data gathered during the scanning process is retained until Scan mode is exited.

With scanning stopped, the display will show the RF signals detected across the entire tuning range. This "coarse view" presents a cursor (vertical line) that can be moved with the rotary control.

A double press of the rotary control will switch the LCD to a "fine view" to zoom in on the screen. In this mode, the cursor will remain in the center of the display and turning the rotary control will move the background. Finer detail is presented in this mode.



Scroll through the screen and find a frequency where no RF signals are present (or in the worst case, only very weak RF signals). With the cursor on this frequency, press the PREV MENU button to exit from scan mode. You will be given the option of YES to switch to the new frequency just found, NO to return to the frequency set before the scan, or SCAN to return to scanning.

Once the frequency has been selected, set the transmitter to match.

SmartTune™

SmartTune™ automates the discovery of a clear operating frequency. It does this by scanning all the available operating frequencies within the system's frequency block range (in 100 kHz increments) and then selecting the frequency with the least amount of RF interference. When SmartTune is complete, it returns to the Main Window displaying the operating frequency and transmitter switch settings for the clear channel discovered during scanning.

Be sure to set the transmitter to match the new frequency.

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.

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