

# M2T

## Digital IEM Transmitter



This device has not been authorized as required by the rules of the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased, until authorization is obtained.



*Dante™ is a trademark of Audinate Pty Ltd.*



Fill in for your records:

Serial Number:

Purchase Date:



# Table of Contents

<b>Introduction.....</b>	<b>3</b>
What is Dante? .....	3
<b>Panels and Features.....</b>	<b>4</b>
M2T Front Panel .....	4
M2T Back Panel.....	4
Operating Instructions .....	5
IR (infrared) Port .....	5
USB Port .....	5
Headphone Volume Adjustment.....	5
Dante Ports (optional) .....	5
Ethernet Port.....	5
Power Inlet .....	5
Navigating the Menus .....	5
<b>LCD Menu Map.....</b>	<b>6</b>
<b>Menu Item Descriptions .....</b>	<b>7</b>
RF Enable/Level.....	7
RF Tuning.....	7
Sync Scan.....	7
Sync Settings.....	7
Sync FlexList™ .....	7
Audio Level/Trim.....	8
Audio Input Type .....	8
Audio Polarity .....	8
Headphone Monitor .....	8
Front Panel Setup .....	8
Network Settings.....	8
Edit Names .....	8
Restore Defaults .....	8
About.....	8
Links.....	9
<b>System Setup Procedures .....</b>	<b>9</b>
Summary of Steps .....	9
<b>Accessories .....</b>	<b>10</b>
<b>Specifications and Features.....</b>	<b>11</b>
Specifications.....	11
<b>Wireless Designer Software and USB Driver.....</b>	<b>12</b>
<b>Wireless Designer Software and USB Driver.....</b>	<b>13</b>
Software Installer .....	13
<b>Firmware Update Instructions.....</b>	<b>13</b>
<b>Service and Repair .....</b>	<b>14</b>
Returning Units for Repair .....	14

## 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](http://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

The M2T Digital Half-Rack Transmitter with analog and optional digital Dante™ network audio inputs presents an excellent sounding IEM system with a unique level of performance in a wireless in-ear monitor platform. With ultra-low latency, 24-bit audio, digital RF modulation and two stereo digital channels, the M2T provides a truly unique IEM product for demanding, professional applications.

The M2T includes a USB port for firmware updates and an IR port for fast setup. A large, high resolution, backlit LCD and large membrane switches provide an intuitive interface that is highly visible in daylight or dimly lit conditions.

The half-rack transmitter provides four audio inputs which can be individually configured to be analog or Dante compatible. The input connectors are full size XLR/TRS combo types for balanced line level analog signals. Input preamp circuits use a special balanced amplifier with very high common mode rejection to minimize hum and noise. Analog signals are converted to an internal 24-bit digital format which is then encoded, organized into packets, and passed to an RF modulator. The modulated RF signal is filtered before and after amplification to suppress out-of-band noise and spurious signals.

Conventional in-ear wireless monitor systems rely on decades-old technology: FM transmission with multiplexed, companded audio. The M2T Transmitter employs unique technology to provide ruler-flat frequency response from 20 Hz to 15 kHz and maximum channel separation. In addition, the digital audio eliminates a compandor and the associated artifacts. The result is crystal clear sound and extremely low distortion of <0.15%.

The M2T is designed and developed with the professional touring, installation, theater and broadcast customers in mind. The transmitter chassis is all-metal. The front panel is an aluminum extrusion with a durable powder coat finish.

Firmware updates are made via the USB port on the front panel of the housing. The procedure is very simple using a standard micro USB cable connected to a PC. Setup and adjustment are enabled through a backlit LCD, membrane switches and an intuitive menu structure.

## What is Dante?

Audinate's patent pending Dante™ technology is a flexible Internet Protocol (IP) and Ethernet based digital AV network technology that eliminates the many bulky cables needed to provide point-to-point wiring for analog AV installations.

With Dante, existing infrastructure can be used for high performance audio as well as for ordinary control, monitoring or business data traffic. Digital networks utilize standard IP over Ethernet offering high bandwidth capable of transporting hundreds of high quality channels over Gigabit Ethernet.

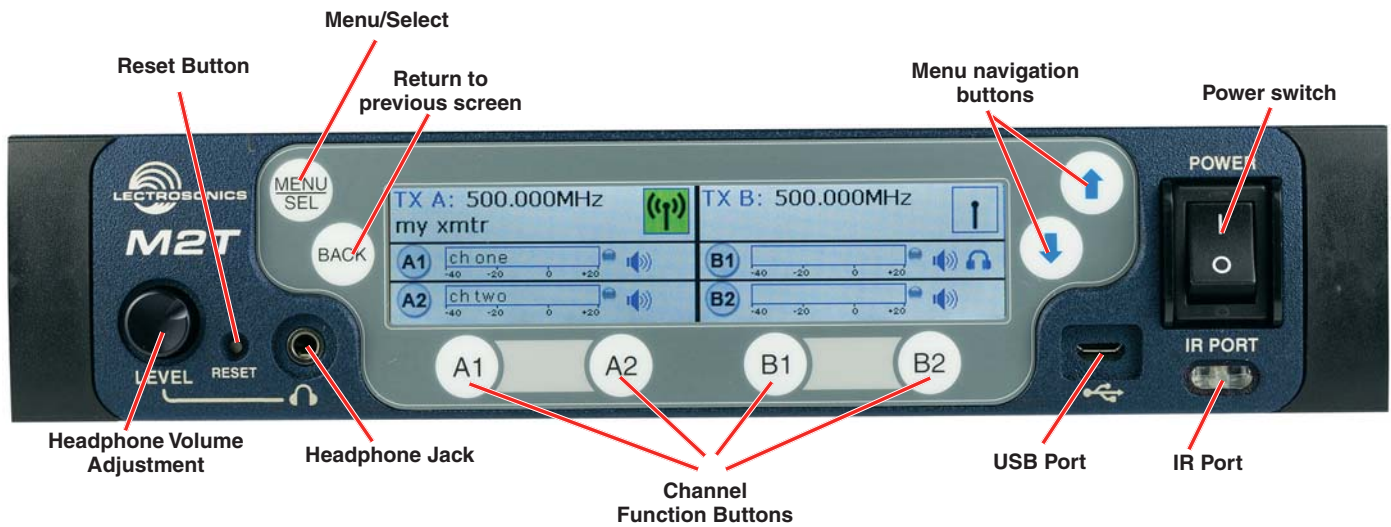
Set-up and configuring the system is made easy as well, saving enormous installation costs and long term cost of ownership on a digital network. The physical connecting point is irrelevant: audio signals can be made available anywhere and everywhere. Patching and routing now become logical functions configured in software, not via physical wired links

## Summary of Dante Benefits

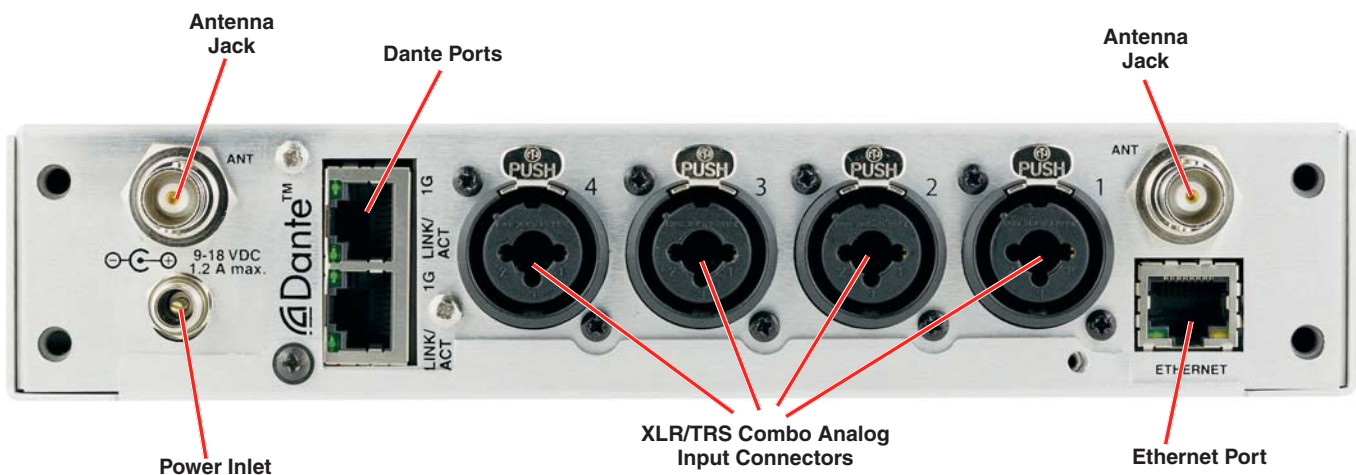
- Plug-and-play technology – automatic discovery and simple signal routing
- Reduced Cost & Complexity- No special skills required to set up audio networking
- Sample accurate playback synchronization
- Add/remove/rearrange components at will
- Deterministic latency throughout the network
- Support mixed bit depths and mixed sample rates over one network
- Scalable, flexible network topology supporting a large number of senders and receivers
- Supports 1Gbps networks
- Supports a single integrated network for audio, video, control, monitoring
- Uses inexpensive, off-the-shelf computer networking equipment

# Panels and Features

## M2T Front Panel



## M2T Back Panel



# Operating Instructions

## IR (infrared) Port

Settings, including frequency, name, limiter, mix mode, etc. can be transferred to and from the M2T transmitter via this port to an IR enabled receiver to simplify setup.

## USB Port

For firmware updates and connection to Wireless Designer Software.

## Reset Button

For MCU recovery in the event of an interrupted firmware update.

## Headphone Volume Adjustment

Adjust the headphone volume, and select source with A1, A2, B1, B2 buttons.

## Antenna Output Jacks

Two standard 50 ohm BNC connectors can be used with whip antennas or coaxial cable connected to remote antennas.

## Dante Ports (optional)

A Dante Digital Audio Network Interface.

## Ethernet Port

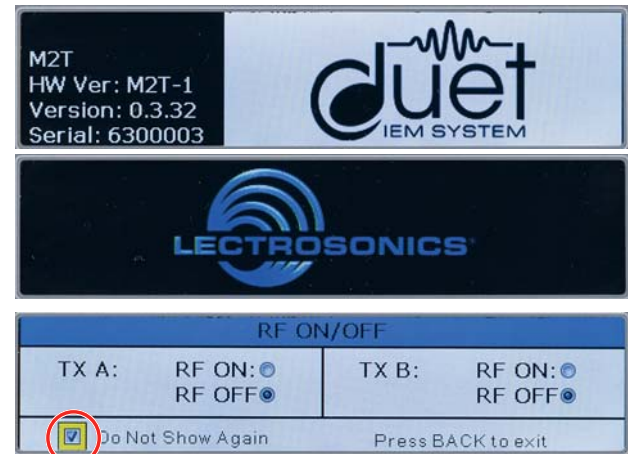
Used for setup, monitoring and control with Wireless Designer Software.

## Power Inlet

The threaded-locking DC coaxial jack accepts 9-18 VDC and draws 1.2A maximum.

# Power Screens

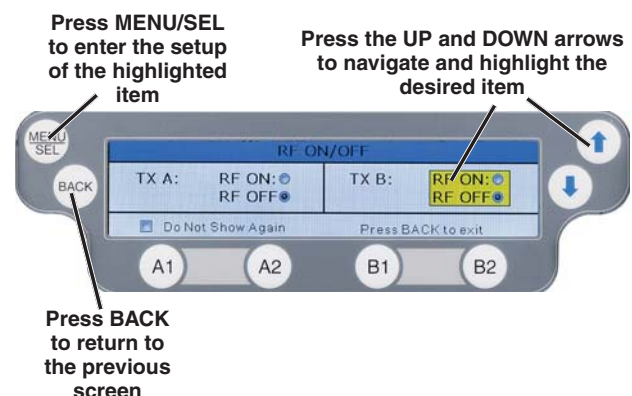
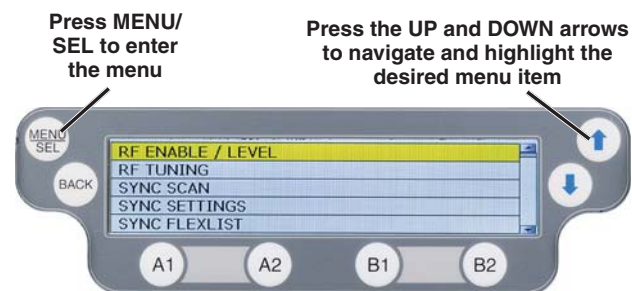
When powering on the M2T, there are three screens that appear in the following order, Duet, Lectrosonics, RF On/Off.



**WARNING: If RF ON is selected and the user chooses to "Do Not Show Again" RF transmissions will be on when M2T is powered on and may interfere with frequencies already in use. This can be reset in the FRONT PANEL menu.**

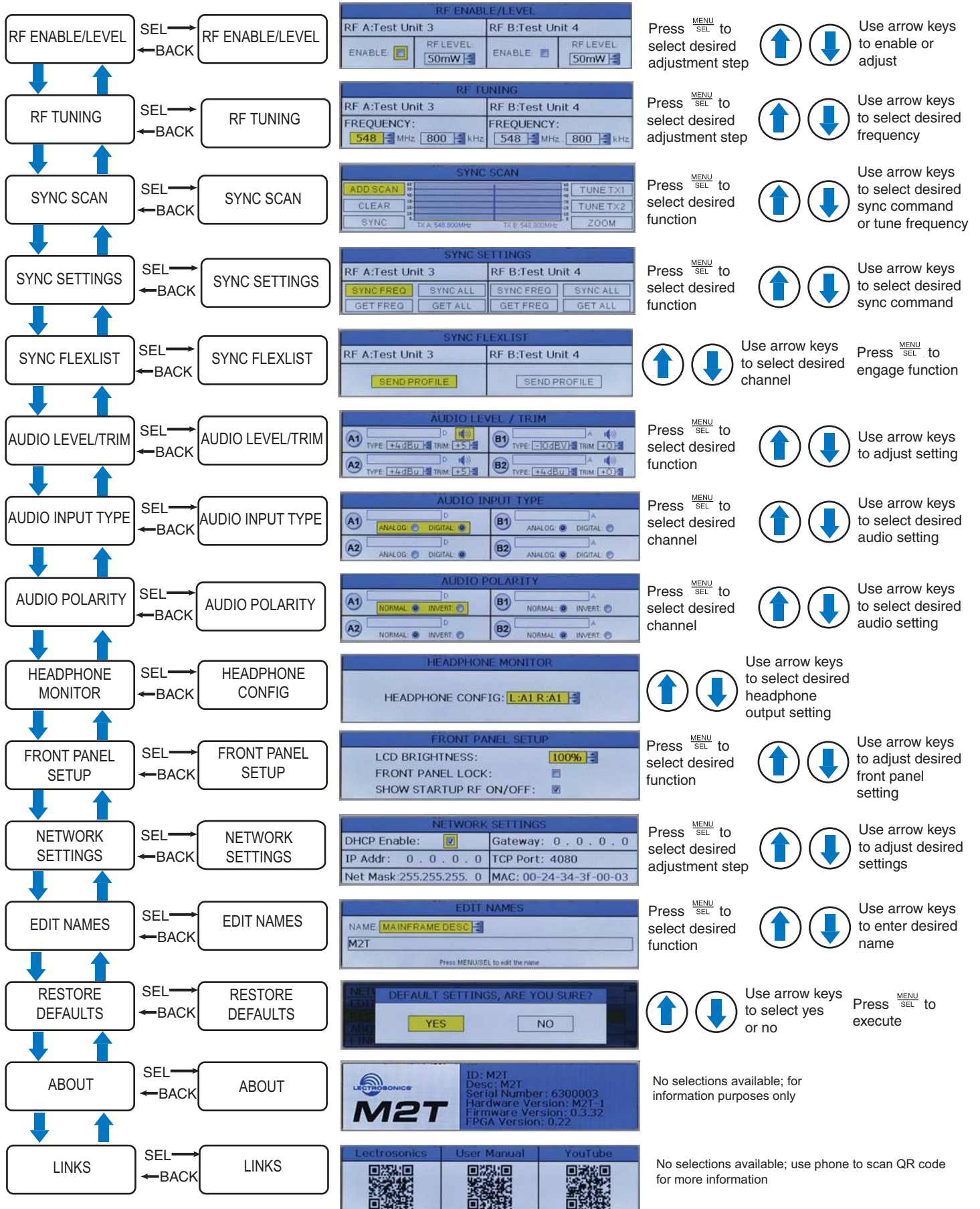
# Navigating the Menus

All Menu setup items are arranged in a vertical list on the LCD. Press MENU/SEL to enter the menu, then navigate with the UP and DOWN arrows to highlight the desired setup item. Refer to the menu map on the following page.





# LCD Menu Map



# Menu Item Descriptions

## RF Enable/Level

Allows RF transmission to be turned on and off and set RF levels at 10, 25 or 50 mW.

RF ENABLE/LEVEL			
RF A:Test Unit 3		RF B:Test Unit 4	
ENABLE: <input type="checkbox"/>	RF LEVEL: 50mW	ENABLE: <input type="checkbox"/>	RF LEVEL: 50mW

## RF Tuning

Allows manual selection of the operating frequency.

RF TUNING			
RF A:Test Unit 3		RF B:Test Unit 4	
FREQUENCY: 548 MHz 800 kHz		FREQUENCY: 548 MHz 800 kHz	

## Sync Scan

Receive frequency scan via IR port or tune transmitters manually.

SYNC SCAN			
ADD SCAN			TUNE TX1
CLEAR			TUNE TX2
SYNC	TX A: 548.800MHz	TX B: 548.800MHz	ZOOM

ADD SCAN DATA	
Hold RX up to IR PORT and press ADD	
CANCEL	ADD

ADD SCAN DATA	
GETTING SCAN DATA!	

Screen will alert user if scan is unsuccessful.

ADD SCAN DATA	
IR FAILED! ❌	

## Sync Settings

Allows sending or retrieving setup data via IR port.

SYNC SETTINGS			
RF A:Test Unit 3		RF B:Test Unit 4	
SYNC FREQ	SYNC ALL	SYNC FREQ	SYNC ALL
GET FREQ	GET ALL	GET FREQ	GET ALL

SYNC RX 1 FREQ	
Hold RX up to IR PORT and press GO	
CANCEL	GO

## Sync FlexList™

FlexList allows the user to set up a list of profiles, by name, in the receiver. This allows quick and easily access to listen to any of the mixes on site.

After putting the receiver into Sync Flex mode, choose the function (add, update) and then use the transmitter to send the profile over IR.

SYNC FLEXLIST	
RF A:Test Unit 3	RF B:Test Unit 4
SEND PROFILE	SEND PROFILE

SEND RX 1 PROFILE	
Hold RX up to IR PORT and press GO	
CANCEL	GO

SEND RX 1 PROFILE	
SENDING PROFILE!	

## Audio Level/Trim

Set audio inputs at correct levels.



Easily switch between channels with A1, A2, B1 or B2 Buttons.

## Audio Input Type

Set independent channels to analog or digital (Dante).



NOTE: When selecting a Dante input, user must be familiar with the Dante Controller from Audinate.

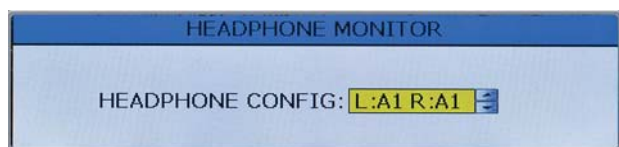
## Audio Polarity

Select normal or inverted polarity for each audio channel.



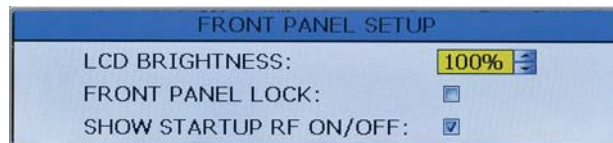
## Headphone Monitor

The headphone source can be selected here or on the front panel, using the A1, A2, B1 or B2 Buttons.



## Front Panel Setup

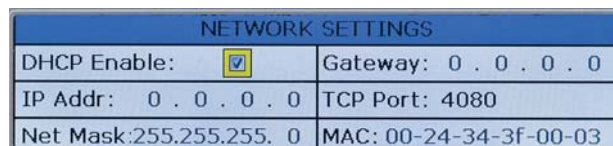
Settings for the LCD brightness can be customized, front panel lock can be turned on/off and startup RF state can be selected..



## Network Settings

Allows the user to set IP address or other network settings when needed.

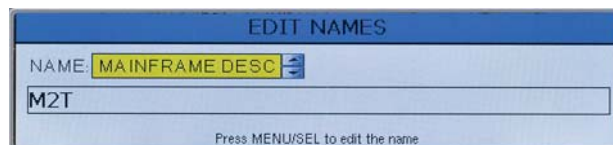
NOTE: New network settings require the unit to reboot to take effect. Making a change and pressing the BACK key will prompt the user to Reboot Now, Save and Exit, or Discard and Exit.



## Edit Names

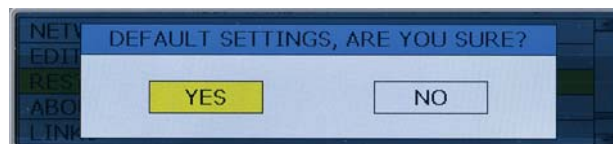
Edit names to match talent for easy location in the Flex-List or easily identify multiple M2T transmitters in a rack.

- Use UP and DOWN Arrows to select letters and MENU/SEL to set and move cursor.



## Restore Defaults

Returns all settings to the factory defaults.



## About

Displays general information about the M2T, including serial number, and hardware, FPGA and microcontroller versions.





## Links

QR codes with links to the Lectrosonics website, the M2T User Manual online and YouTube video tutorials.

Lectrosonics	User Manual	YouTube
		

# System Setup Procedures

## Summary of Steps

- 1) Connect power using supplied DCR15/4AU power supply.
- 2) Power receiver and scan RF spectrum on site.
- 3) Sync Scan to transfer information from receiver to transmitter.
- 4) Tune transmitter to unoccupied channels in scan.
- 5) Sync receiver.
- 6) Turn on transmitter RF.
- 7) Send audio sources to transmitter.

## Accessories

DCR15/A4U

SNA600 Antennas

Replacement Rack Mount Hardware

# Specifications and Features

## Specifications

### RF Power Output:

- Two carriers; two audio channels each
- Power adjustable on each carrier to 10, 25 or 50 mW

Antenna Output: 2 x BNC sockets

Operating Frequencies: 470.100 – 607.975 MHz

Frequency Selection Steps: 25 kHz

Frequency Stability:  $\pm 0.002\%$

Modulation: 8 PSK

Emission Designator: 200KG7E

Spurious Radiation: Compliant with ETSI EN 300 422-1

Equivalent input Noise:  $-128$  dBV

Audio Frequency Response: 20 Hz - 15 kHz

Audio Input:  $-10$  dBV or  $+4$  dBu settings w/  $\pm 5$  dB trim

Audio Input Jack: 4 x combo XLR/TRS connectors

Input impedance: Line: 2k Ohm

Dante Connection: 2 x RJ45, 4 audio RX channels, internally routable

Ethernet Connection: RJ45

USB Connection: Micro USB on front panel for firmware updates

IRDA: IR transceiver for sync of receivers

Headphone jack 3.5 mm stereo jack

Power Requirements: 9-18 VDC

Power Consumption: 5 Watts

Dimensions: Height: 1.750 in. / 44.45 mm  
Width: 8.375 in. / 212.7 mm  
Depth: 7.750 in. / 196.8 mm.

Specifications subject to change without notice.

# Wireless Designer Software and USB Driver

## Windows Installation

Download the Wireless Designer software installer from the web sites under the SUPPORT tab at:

<http://www.lectrosonics.com/US>

<http://www.lectrosonics.com/europe/>

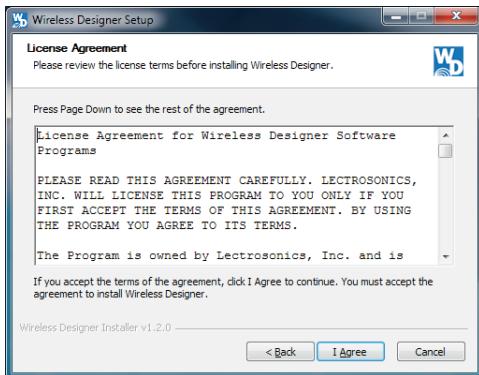
or use the flash drive supplied with the receiver.

These instructions are useful for the first time the software is being installed. Once the software is installed, updates are available by simply clicking on an item in the Help Menu. Refer to the help menu for details.

Launch the installer and follow the screen prompts.



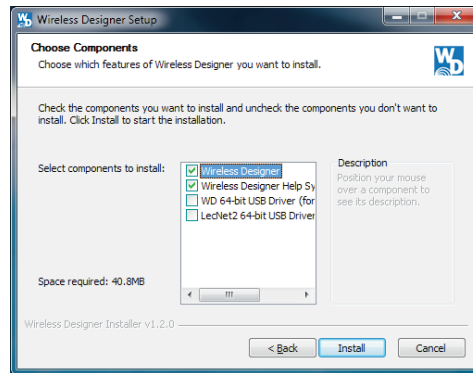
**I Agree** on the EULA (end user license agreement) must be checked to continue the installation.



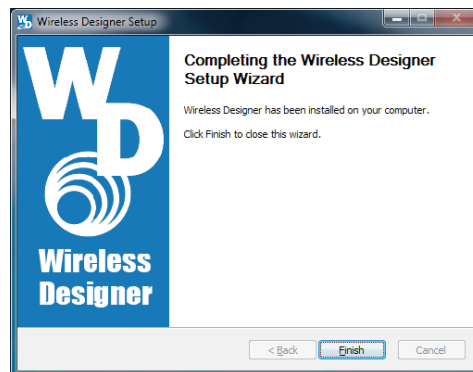
The installer includes USB drivers, which only need to be installed once. By default, the boxes are unchecked in the installer, because they are not required except for the very first time the software is installed on the computer being used.

If it is the first time the software is being installed, check the appropriate box to install the USB driver for the receiver model you are connecting.

If the USB driver is installed, the software will communicate with whichever model is connected.



When the installation is complete, the confirmation screen will appear. Click on **Finish** to complete the installation.





# Wireless Designer Software and USB Driver

## Software for Mac® OS X Operating Systems Installation

Using only the Firefox web browser, open Wireless Designer. If the Firefox Silverlight plugin has not been used before you will be prompted to “Activate Silverlight” before Wireless Designer loads.

**Note:** The Apple Safari web browser no longer supports installation of Silverlight applications like Wireless Designer. Existing installations will continue to work normally, but new installations must be made using the **Mozilla Firefox Browser**.

After Wireless Designer loads, right-click on the page and choose “Install Wireless Designer onto this computer...” from the pop-up menu. A dialog box will open to confirm, click “Install” to proceed.

A dialog box will open to announce that Wireless Designer has been added to your downloads folder. Click the “Open Downloads Folder” button and drag Wireless Designer onto the Dock or into your Applications folder.

Double-click Wireless Designer to launch it. The first time you launch it you may receive a “Wireless Designer can’t be opened...” warning. If so, click “OK” to dismiss the warning and perform the following steps immediately:

Open the Apple “System Preferences” application and double-click the “Security & Privacy” icon.

Near the bottom of the “Security & Privacy” pane you should see the message “Wireless Designer was blocked from opening because it is not from an identified developer.”

Click “Open Anyway”. Another warning dialog box opens, click “Open” to launch Wireless Designer. This only needs to be done once, Wireless Designer will launch normally thereafter.

**Note:** If Wireless Designer is already installed, you must uninstall it before attempting to install a new copy. To do this, launch Wireless Designer, right-click and choose “Remove this application...” from the pop-up menu. Drag the Wireless Designer Dock icon to the desktop to remove it.

## Software Installer

Installation software supplied on USB drive. Can also be downloaded from the web site.



## Firmware Update Instructions

Firmware updates are made with a file downloaded from the web site and a USB connection to the receiver.

Refer to **Help** in Wireless Designer software for the procedure.

## 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](http://www.lectrosonics.com)

##### E-mail:

[sales@lectrosonics.com](mailto:sales@lectrosonics.com)  
[service.repair@lectrosonics.com](mailto: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](mailto:colinb@lectrosonics.com)  
Service: [joeb@lectrosonics.com](mailto:joeb@lectrosonics.com)

**ISED 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 ex-empts 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.*

## 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.



581 Laser Road NE • Rio Rancho, NM 87124 USA • [www.lectrosonics.com](http://www.lectrosonics.com)  
(505) 892-4501 • (800) 821-1121 • fax (505) 892-6243 • [sales@lectrosonics.com](mailto:sales@lectrosonics.com)

10 August 2017