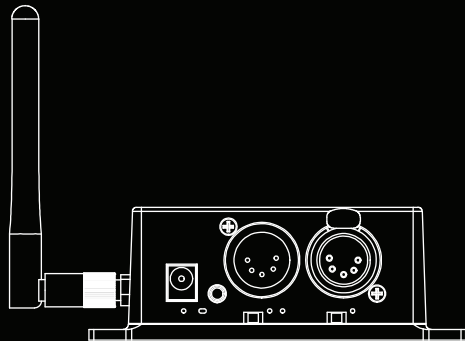# LITEDIMMER
WIRELESS DMX 2X8

LITEDIMMER
WIRELESS DMX 4X4

LITEDIMMER
WIRELESS TRX TRANSMITTER & RECEIVER

USER GUIDE

LITEGEAR™

Congratulations on your purchase of LiteGear's LiteDimmer™ Wireless Products!

About LiteDimmer Wireless

LiteDimmer Wireless is designed as an ultra compact LED controller system. It is comprised of a transceiver capable of transmitting or receiving DMX signal as well as several LED dimmer units. Because these dimmers incorporate advanced RF receivers along with their dimming circuit in one small housing, LiteDimmer Wireless two- and four-channel units are perfect for use with costumes or props, such as lanterns. The system makes use of genuine LumenRadio™ CRMX™ radios for rock-solid performance and compatibility with many third-party wireless transmitters and receivers.

> *We are proud to have worked closely with RC4 Wireless™ – producers of the most reliable wireless DMX systems available - on the development of LiteDimmer Wireless.*

Table of Contents

Interface and Connections

The LiteDimmer Wireless user interface consists of numerous LED indicator lights and recessed buttons *(Figure 1a)*. All LED indicators are behind small round holes. All buttons are behind small slotted openings. Use the included LiteGear actuator tool *(Figure 1b)* to depress these buttons. (A small micro screwdriver may be carefully used if your actuator tool should become lost.)

Figure 1a

LITEDIMMER™ WIRELESS DMX 2X8

Indicator Lights
Antenna
Recessed Buttons
Terminal Blocks
TRS Jack

LITEDIMMER™ WIRELESS DMX 4X4

Indicator Lights
Antenna
Recessed Buttons
Terminal Blocks
TRS Jack

LITEDIMMER™ WIRELESS TRX TRANSMITTER & RECEIVER

Antenna
DC Power In
XLR Connection (5-Pin)
TRS Jack
Recessed Button
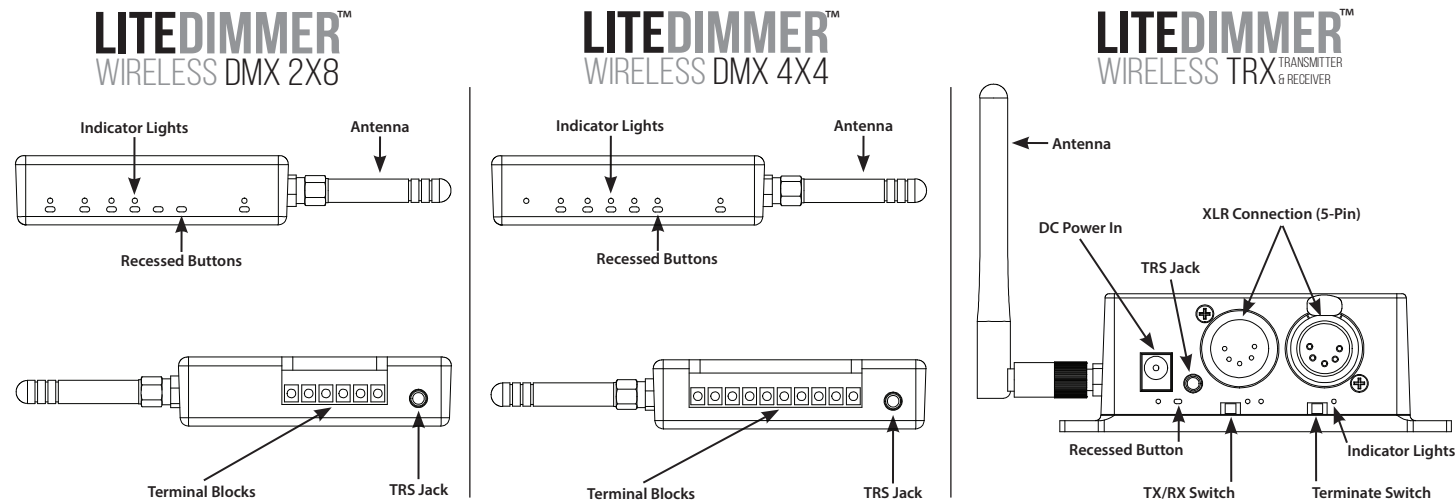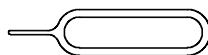TX/RX Switch
Indicator Lights
Terminate Switch

Figure 1b

Actuator Tool

Power Supply Options

LiteDimmer Wireless DMX dimmers and transceivers are capable of operating with DC voltages between 6VDC to 35VDC. (An AC to DC power supply is included with TRX units.) LiteDimmer units will not increase or decrease input voltage; *you must provide voltage that is compatible with the power requirements of your LiteMat™ or LiteRibbon® selection*. For best results, always insist on genuine LiteGear™ LED products when using LiteDimmer Wireless DMX dimmers and transceivers.

Preparing LiteDimmer Wireless Dimmers and TRX Units

Electrical connections on dimmers are made with small terminal blocks *(Figure 1a)* located along the side of the dimmer units. These connectors can accept wire size 24 AWG to 14 AWG. Use the included screwdriver to fasten bare wire while observing polarity and wire capacity. Be sure to properly prepare wire by stripping the jacket to approximately 6 mm (0.25 in.) making sure to avoid touching nearby connections. *Take special care not to mistakenly wire DC source voltage to output terminals.*

> ⚠️ *Working knowledge of electricity and electrical theory is required for operation of dimmer units. Do not attempt use without it. Contact a knowledgeable lighting or electrical professional for help if needed. **All wiring should be performed only when voltage is not present.***
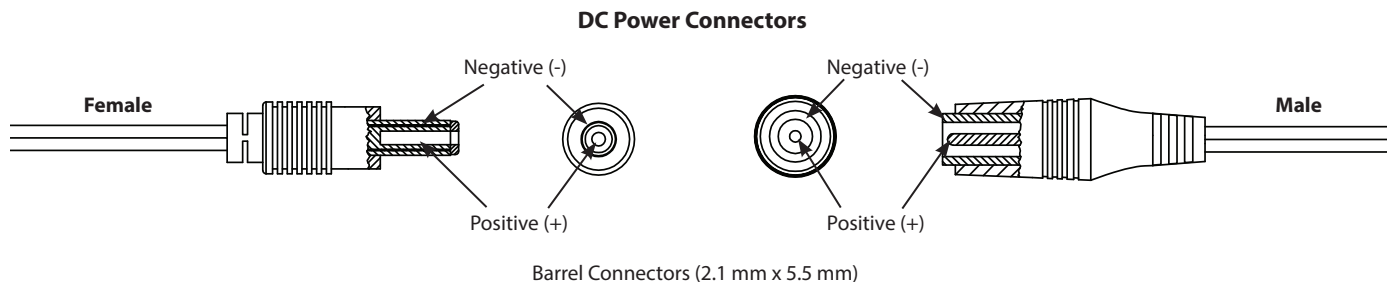
Figure 2

DC Power Connectors

Barrel Connectors (2.1 mm x 5.5 mm)

DMX Adapter (TRS to RJ45)

3.5 mm TRS Plug (¹/₈") ⊏▆▆▆━━━━━━━━━━━━━━━━━━━━━━━━▐▐▐▐▐ RJ45 Plug

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Figure 3b

Tip/Left

Ring/Right

Sleeve

Data 1- (Tip)
Data 1+ (Ring)

Ground (Sleeve)

Figure 3c

RJ45 Pinout
1: Data 1+
2: Data 1-
3: Data 2+
4: N/C
5: N/C
6: Data 2- (N/A)
7: Ground (Data 1 COM)
8: Ground (Data 2 COM)

1 2 3 4 5 6 7 8

Figure 3d

5-Pin XLR

Pin 1: Ground
Pin 2: Data 1-
Pin 3: Data 1+
Pin 4: Data 2- (N/A)
Pin 5: Data 2+ (N/A)

Male   **Female**

3-Pin XLR

Pin 1: Ground
Pin 2: Data 1-
Pin 3: Data 1+

Male   **Female**
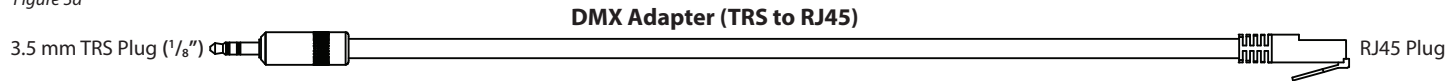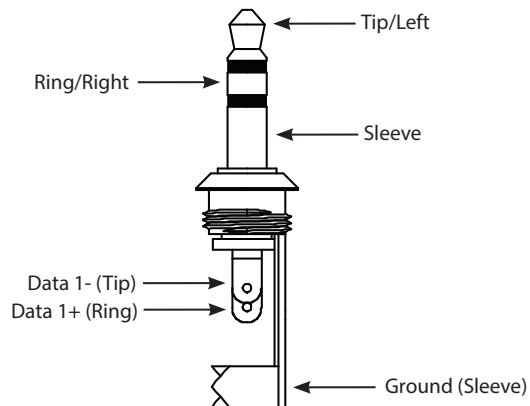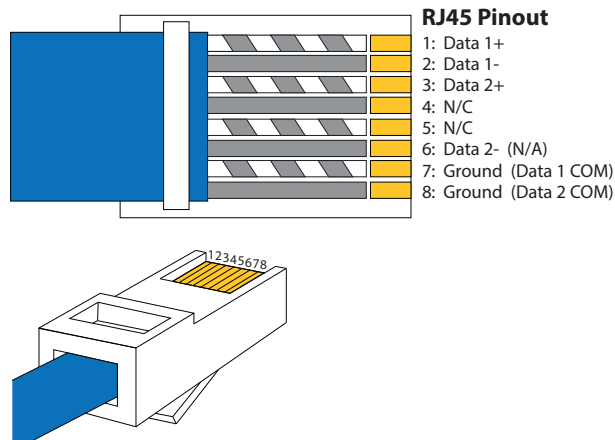
On the wireless dimmer units, a TRS (tip-ring-sleeve/headphone) jack *(Figure 1a)* is provided for DMX signal and can perform one of two functions: When the dimmer is not linked to a transmitter, the jack allows for "wired" DMX input. (A DMX adapter is required for use [sold separately or purchased as part of a kit]; *Figure 3a.*) When the dimmer is linked to a transmitter, the jack offers full DMX output.

Connections on the TRX transceiver unit utilize a 2.1 mm x 5.5 mm male Barrel connector *(Figure 2)* for DC power. DMX is provided by 5-pin XLR *(Figure 3d)* or TRS (tip-ring-sleeve/headphone) connectors *(Figure 3b)*. The male XLR connector serves as DMX input with the female serving as DMX output regardless of the operation mode. The TRS jack serves as a DMX input when the unit is in "TX" (transmit) mode and as DMX output when the unit is in "RX" (receive) mode.

> ❓ *The actuator tool* (Figure 1b) *is small metal device used for depressing the recessed buttons.*

> ❗ *The positive (+) output terminals for all dimmer channels on the wireless dimmer units are common (i.e. "in parallel").*

Safety and Maintenance
Before operation, inspect the cables and enclosure for any damage. Also, inspect the LED installation for short circuits, damage, water, or similar.

DMX Controller and Transceiver
LiteDimmer Wireless devices are DMX controlled. The TRX transceiver units can be set to transmit DMX signal or receive DMX signal. Two units can be used together as a wire replacement for remote connections *(Figure 4a)*; set one unit to "TX" mode and the second to "RX" mode. Most often, however, the TRX unit is used to transmit DMX signal to wireless dimmer units *(Figure 4b)*.

> ❗ *You can use the TRS jack on the wireless dimmer units as a DMX input or output using the TRS to RJ45 adapter: When transmitting data via the TRX unit, the TRS jack on the wireless dimmer units functions as a DMX output* (Figure 4c). *If you choose to bypass the TRX unit, you can plug the adapter directly into the TRS jack on a wireless dimmer unit as a DMX input* (Figure 4d).

Since all wireless dimmer units are LumenRadio compatible, any LumenRadio CRMX or Wireless Solution™ W-DMX™ transmitter can optionally be used if desired.

Figure 4a

Wireless TRX (Set to TX Mode)

Wireless TRX (Set to RX Mode)

To DMX Device

DMX Console

Using 5-Pin XLR Cable

Using 5-Pin XLR Cable

Figure 4b

Wireless Receiver

To LED

Using 24-14 AWG Wire

Wireless TRX (Set to TX Mode)

Wireless Receiver

To LED

Using 24-14 AWG Wire

DMX Console

Using 5-Pin XLR Cable

Wireless Receiver

To DMX Device

Using TRS to RJ45 Adapter

Wireless TRX (Set to TX Mode)

To LED

Using 24-14 AWG Wire

DMX Console

Using 5-Pin XLR Cable

Figure 4d

Using TRS to RJ45 Adapter

Wireless Receiver

To LED

DMX Console

Using 24-14 AWG Wire
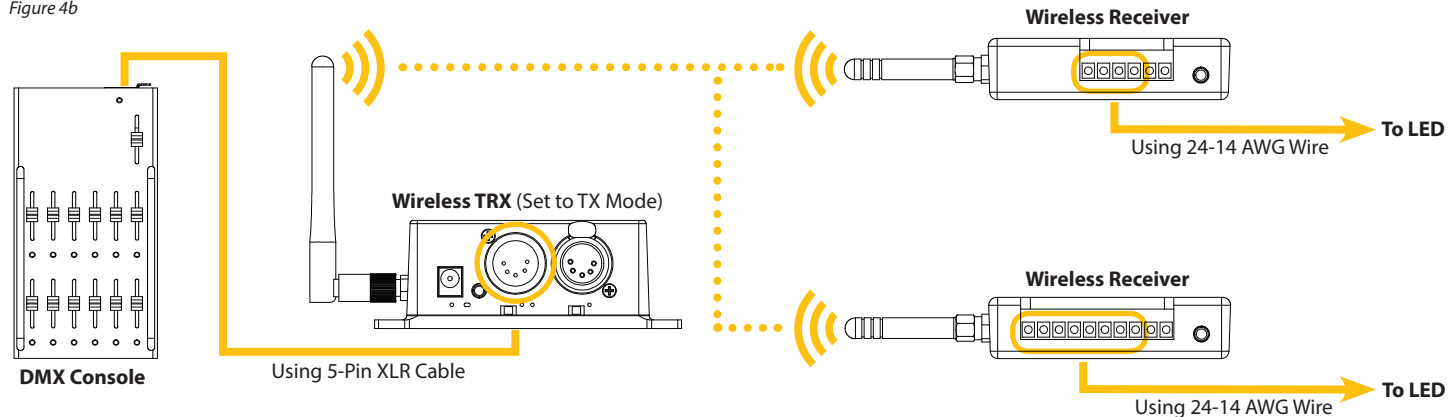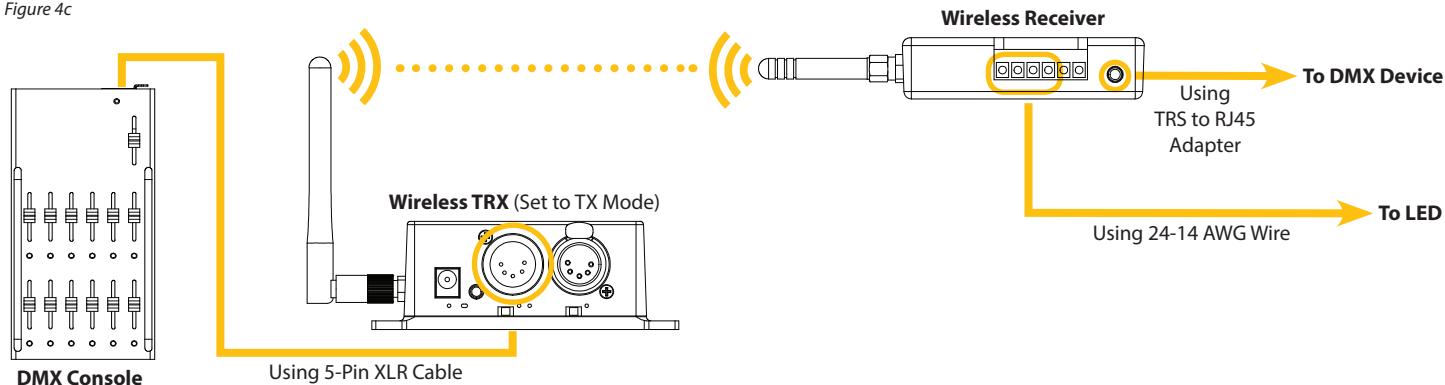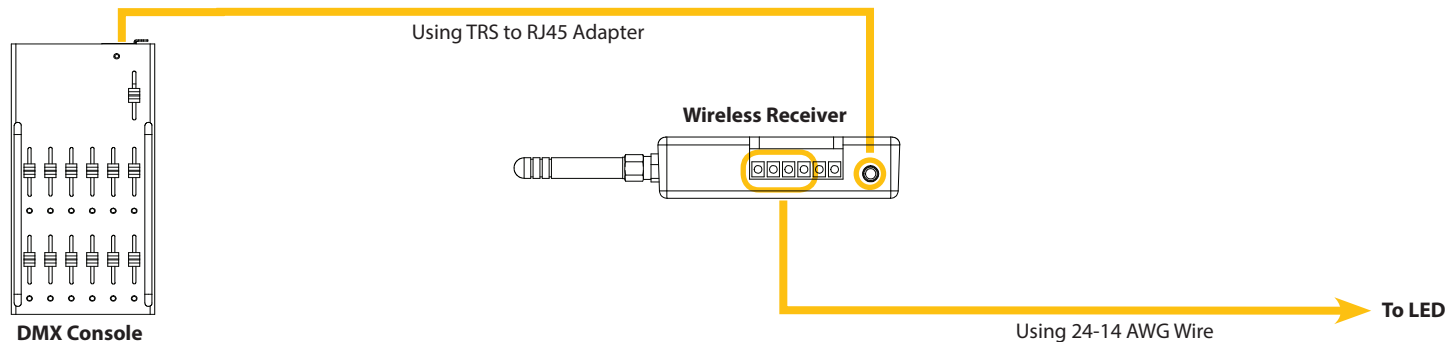
Connect DMX
Begin by providing a DMX512-compatible console or DMX tester along with a 5-pin XLR cable. Next, set your wireless TRX unit to transmit mode by sliding the switch to the **TX** position. Continue by providing DC power, then connect the XLR cable to the male input port. A steady blue indicator light confirms that DMX signal is present.

Linking Devices
Linking a TRX transceiver unit with a wireless dimmer unit:
Begin by placing a TRX unit in **TX** mode using the slide switch located underneath the 5-pin XLR connector; then provide DC power. Continue by providing DC power to the wireless dimmer unit. The units are now ready to be paired. Using the actuator tool, tap the **LINK** button on the TRX unit. During this process, all powered and unlinked wireless dimmer units (and TRX units set to **RX** mode) will automatically link to the transmitter. A blue indicator light (**Connect RF** on the wireless dimmer unit) will flash during the discovery process and will remain steady once linked. This process may take up to 10 seconds.

If pairing was unsuccessful, ensure that your wireless dimmer unit is powered, in range, and not already linked to another TRX unit . If the **Connect RF** indicator on the wireless dimmer unit is flashing blue while **Link** on the TRX unit (set to **TX** mode) is steady blue, the wireless dimmer unit is linked to another transmitter. (See the section on "De-Linking Devices".) Once you have de-linked the wireless dimmer unit, you may repeat the linking procedure with the appropriate transmitter.

Linking two TRX transceiver units:
Begin by placing one TRX unit in **TX** mode and the second in **RX** mode using the slide switch; then provide DC power to both units. The units are now ready to be paired. Using the actuator tool, tap the **LINK** button on the TRX unit set to **TX** mode. During this process, all powered and unlinked TRX units set to **RX** mode (and wireless dimmer units) will automatically link to the transmitter. A blue indicator light (**Link** on the TRX unit) will flash during the discovery process and will remain steady once linked. This process may take up to 10 seconds.

If pairing was unsuccessful, ensure that your TRX unit (set to **RX** mode) is powered, in range, and not already linked to another TRX unit (set to **TX** mode). If the **Link** indicator on the TRX unit (set to **RX** mode) is flashing blue while **Link** on the TRX unit (set to **TX** mode) is steady blue, the TRX unit (set to **RX** mode) is linked to another transmitter. (See the section on "De-linking Devices".) Once you have de-linked the TRX (set to **RX** mode), you may repeat the linking procedure with the appropriate transmitter.

De-Linking Devices

To de-link a device, press and hold the **CONNECT RF** button (on the wireless dimmer unit) or the **LINK** button (on the TRX unit) for approximately 3 seconds at which time the **Connect RF** and **Link** indicator lights on the wireless dimmer unit and TRX, respectively, will turn off. When performed on a TRX unit set to **TX**, all powered and linked devices will become de-linked. When performed on a wireless dimmer unit or a TRX unit set to **RX**, only that device will become de-linked.

Using Wired DMX

TRX units can serve as transmitters or receivers. The connector panel includes male and female 5-pin XLR connectors along with a single 3.5 mm TRS (tip-ring-sleeve/headphone) jack capable of handling DMX signal. The 5-pin male XLR connector serves as DMX input while the 5-pin female XLR connector serves as DMX output. Additionally, the TRS jack serves as an optional DMX connection. When the TRX unit is set to **TX** mode, the TRS jack serves as DMX input; when the TRX unit is set to **RX** mode, the TRS jack serves as DMX output. Only one input or output can be used at a time.

Wireless dimmer units are controllable with wireless signal from a TRX unit set to **TX** or directly with a wired connection. This wired connection has two functions: It serves as a DMX input when the unit is not linked to a TRX unit and as an output when a link is established to a TRX unit. This wired connection is made using the same miniature 3.5 mm TRS (tip-ring-sleeve/headphone) jack as the TRX units.

Setting PWM Frequencies

Wireless dimmer units are capable of operating at one of four PWM (pulse width modulation) frequencies. The higher the rate, the less chance of camera strobing (i.e. flicker). At the highest rate, however, advanced features such as FauxRes™ become less effective. The four frequencies are: 20 kHz, 10 kHz, 5 kHz, and 615 Hz.

> ❓ *FauxRes is smoothing software that allows for perfectly smooth dimming, eliminating steppiness.*

Frequencies — Typical Uses

20 kHz	The highest available frequency offers the ability to shoot at frame rates up to 120 FPS*. The dimmer circuit runs hotter in this mode, and no FauxRes smoothing is available. This is the factory default rate.
10 kHz	This middle rate offers the ability to shoot at frame rates up to 60 FPS*. FauxRes smoothing is reduced in this setting.
5 kHz	This frequency is commonly used for film and television applications at 24 FPS* and 30 FPS*. This rate offers excellent FauxRes smoothing and cool operation.
615 Hz	This rate is offered for live performance or other non-motion camera applications. FauxRes smoothing is at it best, and the dimmer will operate very coolly. LED strobing will be visible to the eye as well as all motion cameras. **DO NOT USE THIS RATE FOR MOTION CAMERAS OF ANY TYPE.**

*We recommend being aware of the chosen operating frequency and always performing a camera test.

To change PWM frequencies on your wireless dimmer unit, perform the following operations using the actuator tool. Begin by disconnecting DC power from the wireless dimmer unit.

20 kHz	Press and hold **SET DIM A** while connecting your wireless dimmer unit to power. Release **SET DIM A** after connecting to power. (20 kHz is the default operating frequency.)
10 kHz	Press and hold **SET DIM B** while connecting your wireless dimmer unit to power. Release **SET DIM B** after connecting to power.
5 kHz	Press and hold **SET DIM C** while connecting your wireless dimmer unit to power. Release **SET DIM C** after connecting to power.
615 Hz	Press and hold **SET DIM D** while connecting your wireless dimmer unit to power. Release **SET DIM D** after connecting to power.

The frequencies set will remain until changed or until factory default settings are initiated.

Assigning Channels and Dimmer Curves

Wireless dimmer units are capable of automatic, consecutive DMX addressing and discrete DMX addressing, which allows each channel to be assigned to any DMX address. The default addresses are assigned consecutively beginning at 001. To change addresses, you only need to assign the start address of each wireless dimmer unit by assigning a DMX channel to Dim A on your wireless dimmer unit. If consecutive addressing is not what you want, assign a DMX channel to Dim A first, and then manually set the remaining addresses (Dim B, Dim C, and/or Dim D) next.

The units also offer four different response styles. These "dimmer curves" allow for non-dim, linear, and two versions of nonlinear called ISL Fast and ISL Slow. ISL Fast offers quick response time. ISL Slow imitates the effect of an incandescent light bulb with its delayed fade out time.

When you assign a DMX address to a dimmer channel, you also select the response style. You may individually select any combination of addresses and response styles as desired.

Start by making all necessary DC input and output connections on the wireless dimmer unit. Next, connect your DMX console to the TRX unit. Be sure the TRX unit is set to **TX** mode. Provide DC power to both units and perform the pairing function (see the "Linking Devices" section) *(Figure 4b)*. Optionally, you may use the DMX adapter directly between the console and the wireless dimmer unit *(Figure 4d)*. Continue by setting the master brightness of your console to 100% (if applicable) and set all DMX channels to 0%. Then, perform the following operations with power connected to your wireless dimmer unit:

Non-Dim	Set the desired DMX channel to 100%, and tap the button for the desired channel on your wireless dimmer unit (**SET DIM A**, **SET DIM B**, **SET DIM C**, **SET DIM D**). Used for on/off (switch) functionality.	Non-Dim 80 to 100%
Linear	Set the desired DMX channel to 70%, and tap the button for the desired channel on your wireless dimmer unit (**SET DIM A**, **SET DIM B**, **SET DIM C**, **SET DIM D**). Used for incandescent and halogen loads.	Linear 60 to 79%
ISL Fast	Set the desired DMX channel to 50%, and tap the button for the desired channel on your wireless dimmer unit (**SET DIM A**, **SET DIM B**, **SET DIM C**, **SET DIM D**). Used for LEDs.	ISL Fast 40 to 59%
ISL Slow	Set the desired DMX channel to 30%, and tap the button for the desired channel on your wireless dimmer unit (**SET DIM A**, **SET DIM B**, **SET DIM C**, **SET DIM D**). Used for LEDs. (Note that ISL Slow is the default response style.)	ISL Slow 20 to 39% Ignored 0 to 19%

When a DMX channel is successfully assigned, the respective indicator light next to either **SET DIM A**, **SET DIM B**, **SET DIM C**, or **SET DIM D** will flash once and turn solid green (only when the dimmer is in Single mode; see "Setting Dimmer Mode" below). Adjust the selected channel on the console and confirm that the indicator light on the wireless dimmer unit is responding.

> ⚠ *Setting the DMX channel and response style of Dim A will automatically assign consecutive DMX channels and the same response style to the consecutive dimmer channels (Dim B, Dim C, and Dim D). You may choose to overwrite the settings on the remaining dimmer channels by performing the above operations on each dimmer channel **after first setting Dim A.***

Setting Dimmer Mode
Wireless dimmer units include several advanced modes of operation. These modes can be helpful if using a simple DMX console. Single mode allows for typical 1-to-1 control while Hybrid mode offers Kelvin temperature and intensity control of Hybrid LiteMats and LiteRibbon. There are two versions of Chroma: 3-channel and 4-channel. Chroma offers HSI (hue, saturation, and intensity) control of RGB or RGBW LiteRibbon.

|	
Single	This mode is ideal for single-color LiteMats and LiteRibbon, such as Tungsten or Daylite. Each dimmer channel can be directly patched to its own DMX channel, resulting in 1-to-1 DMX patching, and **all dimmer channels are separate from each other**. (Note that Single is the default mode.)
Hybrid	This mode is ideal for Hybrid LiteMats and LiteRibbon. The LiteDimmer Wireless 2x8 can do one circuit of Hybrid, resulting in **Dim A's address controlling Kelvin and Dim B's address controlling brightness**. The LiteDimmer Wireless 4x4 adds a second circuit of Hybrid control.
Chroma (RGB)	This mode is ideal for RGB LiteRibbon and is only available on the LiteDimmer Wireless 4x4. **Dim A's address controls hue, Dim B's address controls saturation, and Dim C's address controls intensity. Dim D can be directly patched to its own DMX channel.**
Chroma (RGBW)	This mode is ideal for RGBW or RGBA LiteRibbon and is only available on the LiteDimmer Wireless 4x4. **Dim A's address controls hue, Dim B's address controls saturation, and Dim C's address controls intensity. Dim D cannot be directly patched to its own DMX channel.**

To change modes, perform the following operations with power connected to your wireless dimmer unit:

Single	Press and hold **FUNC** first, and then tap **SET DIM A** while continuing to hold **FUNC**. (The **Func** indicator light will flash on once and then off and repeat this pattern as long as power is connected to the wireless dimmer units and will continue to do so until the mode is changed.) (Note that Single is the default mode.)
Hybrid	Press and hold **FUNC** first, and then tap **SET DIM B** while continuing to hold **FUNC** *(Figure 5)*. (The **Func** indicator light will flash on twice and then off and repeat this pattern as long as power is connected to the wireless dimmer unit and will continue to do so until the mode is changed.)
RGB	Press and hold **FUNC** first, and then tap **SET DIM C** while continuing to hold **FUNC**. (The **Func** indicator light will flash on three times and then off and repeat this pattern as long as power is connected to the wireless dimmer unit and will continue to do so until the mode is changed.) Only available on the wireless LiteDimmer 4x4.
RGBW	Press and hold **FUNC** first, and then tap **SET DIM D** while continuing to hold **FUNC**. (The **Func** indicator light will flash on four times and then off and repeat this pattern as long as power is connected to the wireless dimmer unit and will continue to do so until the mode is changed.) Only available on the LiteDimmer Wireless 4x4.

Figure 5

Hybrid Mode
1. Press and hold **FUNC**
2. Tap **SET DIM B** (while holding **FUNC**)
3. Release
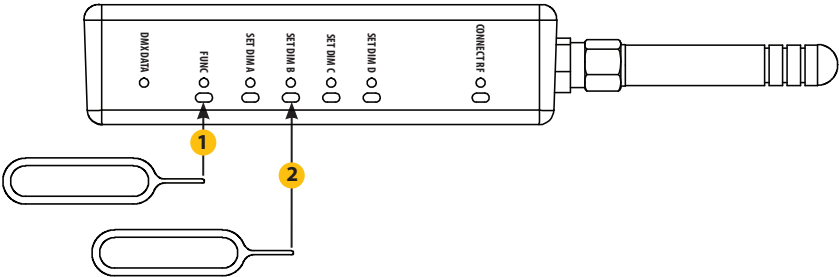
Reset
To reset your wireless dimmer unit to factory defaults, connect your device to power, and then press and hold **FUNC** for approximately 8 seconds, at which point the **Set Dim A** indicator light will flash 5 times, indicating a successful reset.

Default settings are:
- **20 kHz PWM frequency**
- **Consecutive DMX addresses starting with 001**
- **ISL Slow dimmer curve**
- **Single mode**

Antenna Specifications

LiteDimmer Wireless 2x8 and LiteDimmer Wireless 4x4
45 mm non-articulated antenna (50-ohm, 2.4 GHz, R-SMA/RP-SMA connector)

LiteDimmer Wireless TRX
109 mm articulated antenna (50-ohm, 2.4 GHz, R-SMA/RP-SMA connector)

> ❗ *In cases where the longest possible wireless range is needed, longer (higher gain) antennas can be used on both the transmitter and the dimmers. In general, any 50-ohm, 2.4 GHz antenna with an R-SMA (sometimes called RP-SMA) connector will work.*

LiteDimmer Wireless Specifications

LiteDimmer Wireless DMX 2x8	**LiteDimmer Wireless DMX 4x4**	**LiteDimmer Wireless TRX**
Size: 3.45 in. x 1.55 in. x 0.79 in. (w/o antenna)	*Size:* 3.45 in. x 1.55 in. x 0.79 in. (w/o antenna)	*Size:* 4.33 in. x 2.39 in. x 1.63 in. (w/o antenna)
Weight: 0.13 lb, 2.01 oz, 57 g.	*Weight:* 0.14 lb, 2.12 oz, 60 g	*Weight:* 0.23 lb, 3.56 oz, 101 g

Suitable AWG Sizes For I/O (Wireless LiteDimmer 2x8 and 4x4 only): 24AWG to 14AWG max.
Strip wire to 0.2 in. (5 mm)

Input: 12/24VDC (6-35VDC); Input voltage must match load voltage requirements!

Rating: LiteDimmer Wireless DMX 2x8 – 8 amps max. per channel; 16 amps max. total
LiteDimmer Wireless DMX 4x4 – 8 amps max. per channel; 16 amps max. total

Output: PWM – Does not provide "current limiting." For best results, use with LiteGear LED products only.

Warning: **• Stage and Studio Use Only**
• Dry Location Only
• Hazardous Voltage
• Risk of Electrical Shock
• Disconnect Power Before Servicing
• Not For Residential Use

Any questions? Comments? Concerns? Contact us at +1.818.358.8542 or rf@litegear.com.

LiteDimmer Wireless 2x8 and 4x4–On Power Up

PWM Frequency	DMX DATA	FUNC	SET DIM A	SET DIM B	SET DIM C	SET DIM D	CONNECT RF
20 kHz	—	—	Flash x2	—	—	—	—
10 kHz	—	—	Flash ←	Flash	—	—	—
5 kHz	—	—	Flash →	Flash	—	—	—
615 Hz	—	—	—	Flash x2	—	—	—

LiteDimmer Wireless 2x8 and 4x4–Running (Mode)

	DMX DATA	FUNC	SET DIM A	SET DIM B	SET DIM C	SET DIM D	CONNECT RF
Single	—	Flash x1	—	—	—	—	—
Hybrid	—	Flash x2	—	—	—	—	—
Chroma RGB (4X4 Only)	—	Flash x3	—	—	—	—	—
Chroma RGBW (4X4 Only)	—	Flash x4	—	—	—	—	—

LiteDimmer Wireless 2x8 and 4x4–Running

	DMX DATA	FUNC	SET DIM A	SET DIM B	SET DIM C	SET DIM D	CONNECT RF
Reset	—	—	Flash x5	—	—	—	—
Linked-DMX Present	On	—	—	—	—	—	On
Linked-No DMX Present	Off	—	—	—	—	—	Flash (Slow)
Linked-TRX Off or Out of Range	—	—	—	—	—	—	Flash (Fast)
Not Linked	—	—	—	—	—	—	Off
In Process of Linking	—	—	—	—	—	—	Flash (Fast) 10 Seconds
Assigning Channel/ Dimmer Curve	—	—	On (single mode only)	On (single mode only)	On (single mode only)	On (single mode only)	—
Mode	—	See "(Mode)" Chart	—	—	—	—	—

LiteDimmer Wireless TRX–Running (Mode)

	LINK	RX	TX	TERM
RX (Receive) Mode	—	On	—	—
TX (Transmit) Mode	—	—	On	—
Terminate (On)	—	—	—	On
Terminate (Off)	—	—	—	Off
DMX Present	On	—	—	—
No DMX Present	Flash (Slow)	—	—	—
In Process of Linking	Flash (Fast) 10 Seconds	—	—	—
In Process of De-Linking	Flash (Fast) 5 Seconds	—	—	—

Legend:
- Flash = Flash
- Flash (Slow) = Flash (Slow)
- Flash (Fast) = Flash (Fast)
- ● = On
- ○ = Off
- — = N/A (Ignore)

No DMX Present – Set to RX Mode: **Link** will slowly flash *Off* instead of *On*.

In Process of De-Linking – Set to RX Mode: **Link** will turn *Off*.

LITEGEAR™

SPECIALTY LIGHTING GEAR FOR CINEMA, TV, AND HD VIDEO

LITEGEAR, INC.

An IATSE Local 728 Member-Owned Company

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