W-DMX™ G5 USER MANUAL

BLACKBOX
WHITEBOX
MICRO
PROBOX

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www.wirelessdmx.com

WIRELESS SOLUTION
MADE IN SWEDEN

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W-DMX™ G5 User Manual

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1. Radio Compliance Information

FCC IDENTIFIER: NY2-WDMXTRX
Name of Grantee: Wireless Solution Sweden Sales AB
Equipment Class: Part 15 Spread Spectrum Transmitter
FCC Rule Parts: 12C2402.0

General Notes: The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located cooperating in conjunction with any other antenna or transmitter. Users and installers must comply with operating manual.

This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

Modification Warning! Changes or modifications to this equipment, not expressly approved by Wireless Solution Sweden Sales AB could void the user's authority to operate the equipment or void the FCC approval and negate your authority to operate the product.

Safety Notices: Please read this entire manual before using your new equipment. Please keep the manual in a safe place so you can refer to it in the future as required.

W-DMX™ is intended for use only by qualified lighting professionals. Connection, installation, and hanging of this equipment must be performed in accordance with all pertinent local, regional, and national safety codes and regulations.

This equipment shall not be used to operate moving-scenery or moving-truss structures, DMX-triggered motors/hoists or lifting devices including, but not limited to, stage lifts operated by DMX, hydraulic systems or any moving component that may cause harm to human-beings in case of failure.

It should not be used to trigger flames or pyro equipment, explosive powered tools or compressed air equipment. It shall also not be used with water pumps or any water related equipment triggered wirelessly and subject to failure where it may cause harm to human-beings.
Please do not use with any theatrical flying and rigging operations, or any device that may fail due to break of RF signal. W-DMX™ products shall not be used with firearms or weapons triggered by wireless equipment.

Please keep the equipment dry unless it is clearly specified to work outdoors. Do not operate in excessive heat or direct sunlight, and provide adequate ventilation.

Do not place anything on top of the Products that weighs more than 5 pounds (2.25 kg). Excessive weight on top could damage the chassis.

There are no user-serviceable parts inside. All serviceable work shall be done by qualified service personnel, generally appointment by the Manufacturer.

The Product is furthermore not intended for use within a non-entertainment, architectural or motion-picture lighting related business, such as:

- Within hospitals, health centres or any health care institution providing patient treatment with specialized staff and equipment.
- Hazardous Areas of classes I, II and III
- Exclusion Zones
- United States National Radio Quiet Zone
- Within an airplane or a vehicle

No warranty or liability claim is possible in case the Product has been used outside of its reasonably intended usage area, as exemplified above.

The Product must be operated with the factory default settings. No deviation or variance of the Product is allowed. Any peripheral equipment connected to the Product must be previously approved.

The Product must, subsequent to a software upgrade, be thoroughly tested before any use. No warranty or liability claim is possible in case the Product has been thoroughly tested before use.

Wireless Solution Sweden Sales AB cannot take responsibility for any interference that may be caused by a third-party device and cause malfunction of the wireless transmission.

2. Warranty

Wireless Solution Sweden AB's warranty obligations are limited to the terms set forth below: Wireless Solution Sweden AB, as defined below, warrants this W-DMX™-branded hardware product against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the date of purchase by the original end-user purchaser ("Warranty Period"), or up to EIGHTEEN (18) MONTHS from production date. Products to be returned under warranty must be accompanied by an RMA Authorization Number. Wireless Solution Sweden AB does not warrant that the operation of the product will be uninterrupted or error-free. The manufacturer is not responsible for damage arising from failure to follow instructions relating to the product's use.

3. Your Wireless DMX G5 System

Welcome to the Wireless DMX family! We hope you enjoy your brand-new devices – Wireless Solution is the industry's leading system for transmitting and receiving DMX signals reliably, and we thrive on avid users like you who use our products. We appreciate all your constructive feedback after you become an expert!

Before you use, you must know: there are two main operating modes:

- **[TX]** Transmitter (to transmit W-DMX™ signals)
- **[RX]** Receiver (to receive W-DMX™ signals)

Most our products are transceivers, meaning they can transmit or receive W-DMX™ signals, depending on how to set them up:

Product	TX	RX	Triple Band	Double Up	RDM
BlackBox F-1 G5	✓	✓	✓	✓	✓
BlackBox F-2 G5	✓	✓	✓	✓	✓
BlackBox R-512		✓	✓		
WhiteBox F-1	✓	✓	✓	✓	✓
WhiteBox F-2	✓	✓	✓	✓	✓
Micro F-1	✓	✓			✓
Micro R-512		✓			
ProBox F-2500	✓	✓	✓	✓	✓
UglyBox G5	✓	✓	✓		

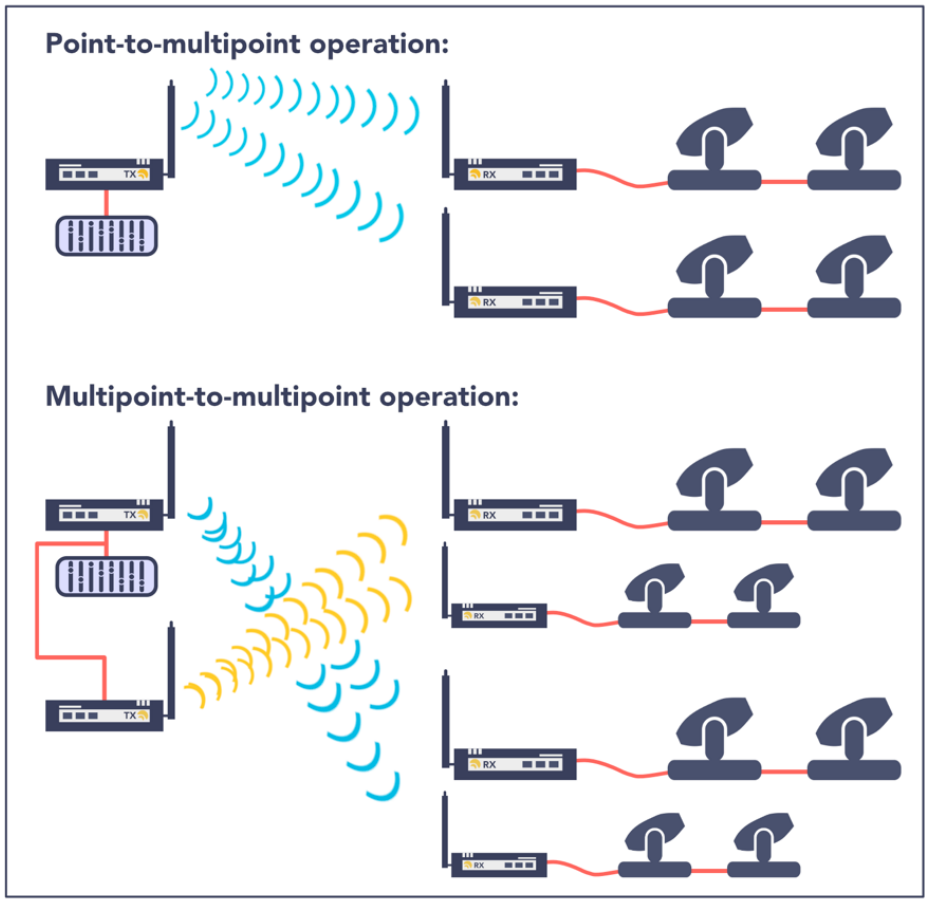
All G5 products are backward compatible to Generation 3. In order to operate in compatibility mode, please refer to 5.5 in this manual. By using the product in a compatible mode, you will lose some of the best features present in G5. Please refer to our helpdesk service if you want to find more about which features you won't be able to use in compatibility mode.

W-DMX™ is not compatible with any other Wireless DMX system that isn't made by Wireless Solution Sweden. The manufacture strongly recommends against pairing this system to any other third-party protocol.

You may find W-DMX™ being used by several lighting manufacturers – this protocol, if specifically named "W-DMX™" will work in an identical way as a branded Wireless Solution product, and it is therefore compatible with our transmitters and receivers.

4. The W-DMX™ Technology

W-DMX™ is solely engineered by Wireless Solution Sweden to provide the same quality, reliability and performance as any wired DMX link. The technology allows you to establish point-to-point links, point-to-multipoint and multipoint-to-multipoint:



W-DMX™ is unique in its use of advanced radio technologies that are also used in mobile phones and military communication.

Rather than using fixed frequency channels, W-DMX™ uses Adaptive Frequency Hopping technology to continually check the radio channels for interferences and to rapidly move operation to clear radio channels. The checks are carried out in combination with another advanced technology: time division multiple access. This technology makes the most efficient use of every visited frequency channel.

In order to guarantee a more reliable transmission, some W-DMX™ devices can operate on three different frequency bands, allowing the user to move their transmission into an interference-free spectrum. This is limited to some product ranges and countries.

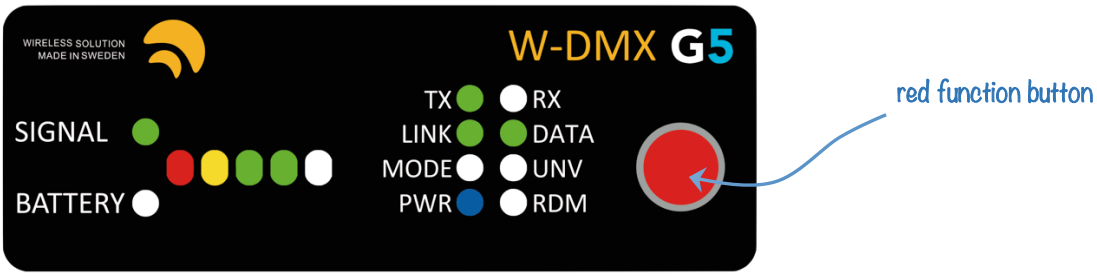
5. Operation

All W-DMX™ devices share the same user interface – these instructions apply to all products:

5.1. Basic setup – Linking devices

A basic setup is defined by the link between two devices. This means that, in order to send data from a transmitter to a receiver, it's necessary to pair the devices:

Press the red function button, on the transmitter, for 1 second, until the *LINK* LED starts flashing.

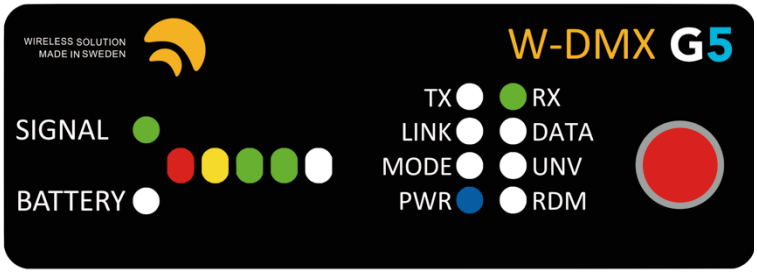


NOTE: All available receivers, as long as they are turned on and compatible with the transmitter's radio mode, will pair with this transmitter. The *LINK* LED of each receiver will flash for 5 seconds, and stay static once linked up.
There is no limited number of receivers that can link up with a transmitter – there can be an infinite number of receivers all paired with a single transmitter.

5.2. Unlinking devices

There are two ways to unlink devices – individual unlink, or group unlink:

Individual unlink:
Press and hold the red function button, on each receiver, for 5 seconds. The *LINK* LED should turn off.



Group unlink:
Press and hold the red function button, on the transmitter, for 5 seconds. All paired and powered receivers will unlink.

5.3. Linking multiple transmitters with multiple receivers

When multiple receivers need to be linked up with different transmitters, repeat the process in 5.1., but turn off all receivers you do not wish to pair up. For example:

- If you have 2 transmitters and 10 receivers, pair the first transmitter to 5 receivers, while the last five are turned off.
- After that, turn the last five receivers, and pair them to the second transmitter.

NOTE: This will not affect any receiver that has already been paired up.

5.4. Switching FLEX mode

All units identified as a transceiver can be changed between transmitter or receiver – the units capable to operate in both modes are listed in chapter 2.
FLEX mode determines if the unit is used in transmit mode (TX) or receive mode (RX):

1. Disconnect the power cable
2. Press and hold the red function button on the front panel.
3. While holding the button, reconnect the power cable.
4. Release the red function button.

You will notice the *TX* LED will turn off, and the *RX* LED will turn on.
Repeat the same procedure to change from RX to TX.

Changing FLEX mode in an F-2 or F-2500:
In any F-2 or F-2500 models the FLEX mode works the same as above. However, unlike previous generations, you change modes with RADIO A button. The changes are the following:

TX – TX: Both universes operate as transmitters
RX – RX: Both universes operate as receivers
RX – TX: Unit operates as a repeater

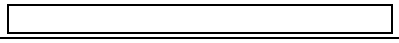
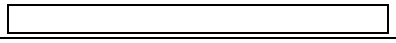
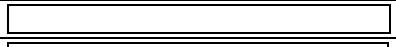
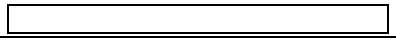
5.5. Changing CTRL mode

There are several operating modes within all W-DMX™ products – these are like operating systems, and allow you to be backward compatible with legacy products. They are:

G3 Mode [2.4 GHz]
G4S Mode [2.4 GHz & 5.8 GHz]
G5 Mode [2.4 GHz, 5.2 GHz & 5.8 GHz]
G5 Mode with double-up [2.4 GHz, 5.2 GHz & 5.8 GHz]

You can change between modes are any given moment – changes must be made to the transmitter:

1. Press and hold the red function button for 10 seconds
2. The top 4 LEDs will chase. Tap the red function button to scroll through all the modes.
3. There are 9 options available – you can understand the mode as follows:

	MODE LED	UNV LED
G3 2.4 GHz		
G4S 2.4 GHz		
G4S 5.8 GHz		
G5 2.4 GHz		
G5 5.8 GHz		
G5 5.2 GHz		
G5 2.4 GHz Double-Up		
G5 5.8 GHz Double-Up		
G5 5.2 GHz Double-Up		

4. Press and hold the red function button to save and exit.

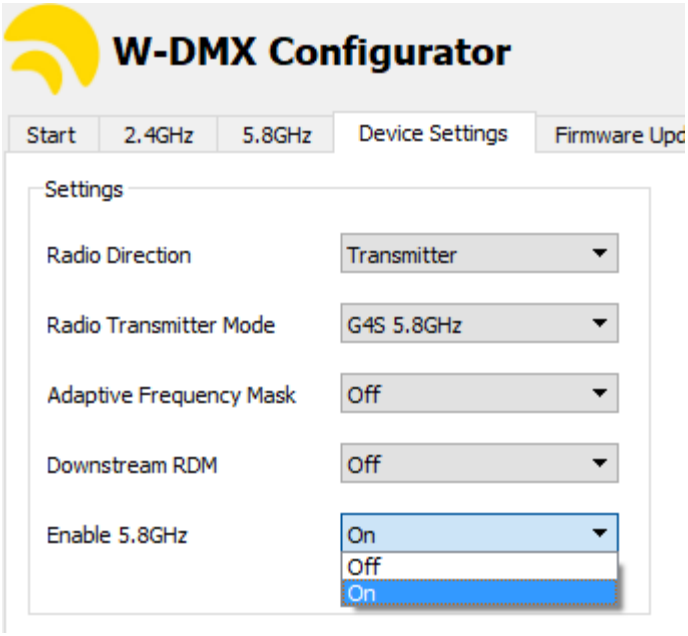
NOTE! All changes shall be made to the transmitter. It's necessary to re-link all receivers after changing control modes. Triple-band and double-up are not available in the Micro series.

If you can't scroll through these modes:

- Please check **5.6.**: 5 GHz needs to be activated.
- Please check if your product supports these modes
- Please check your firmware version to see if G5 and double-up modes are up-to-date.

5.6. Enabling 5 GHz

Due to the different regulations worldwide, all W-DMX™ devices come with 5 GHz disabled from front-interface control. This must be enabled with the W-DMX™ Dongle and Configurator software, available from the website. Once on, you may be able to scroll through all modes.



5.7. Double-Up Mode

Coming soon.

5.8. Repeater Mode

All F-2 models are capable to operate as repeaters, as long as configured to do so:

1. Set the device to G3 mode.
2. Cycle through the radio direction like in 5.4.
3. The cycle sequence in F-2 units is: TX – TX ; RX – RX ; RX - TX
4. Use this last sequence to make your F-2 unit to repeat.
5. Pair the first transmitter in the chain to the RX side of the F-2 unit in G3 Mode.
6. Establish the TX link with succeeding receivers.

5.9. Switching Off UNV 2

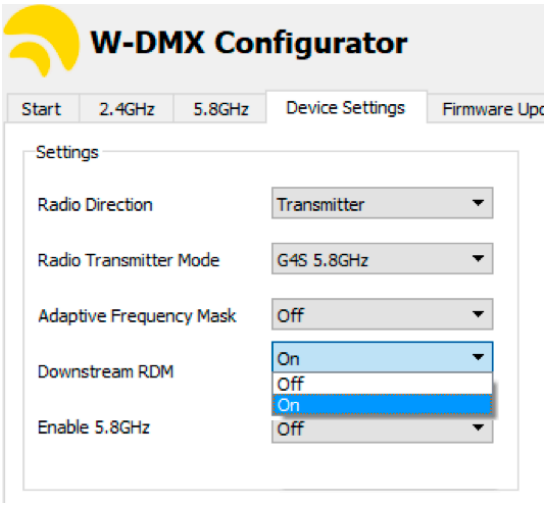
With F-2 models you can switch off RADIO B.

When the unit is in (TX, TX) direction, RADIO B can be turned off by pressing the button for RADIO B during power up. When turned off, the PWR LED in RADIO B will turn off.

To enable RADIO B, press and hold the button for RADIO B during power up.

5.10. RDM

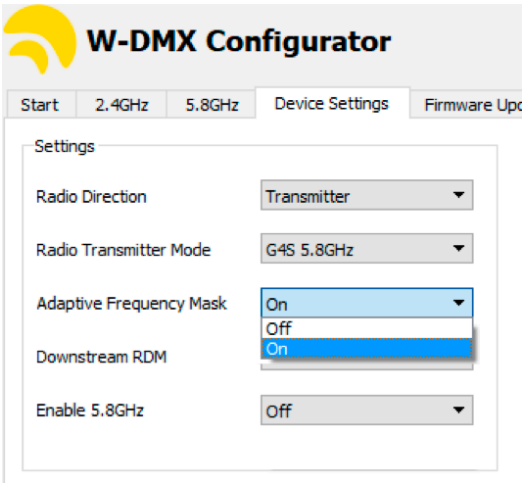
As default, all products come with RDM disabled. This must be enabled with the W-DMX™ Dongle and Configurator software, available from the website.



The changes must be done on the transmitter and on each receiver that needs to downstream RDM.
NOTE! R-512 units are not capable of receiving/transmitting RDM, as they do not have any transmitting capabilities to ping RDM back to the controller.

5.11. Adaptive Frequency Mask

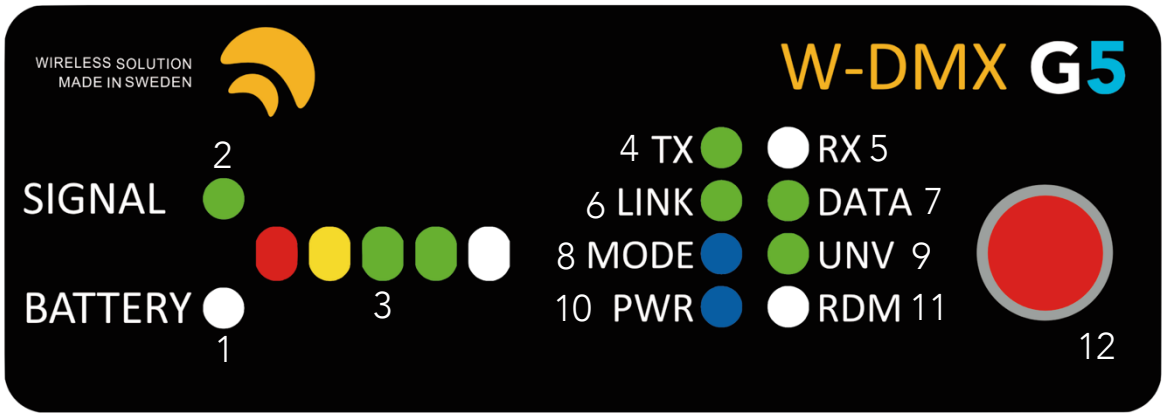
Adaptive Frequency Mask can be enabled to activate the frequency hopping. This will only work from modes G4S and above.
Activating this feature will enable the automatic hopping spread through the 13 channels in 2.4 GHz, or in the 5 GHz spectrum. To learn more about how this works, you can check our YouTube channel.



On F-2 or F-2500 units, this change only needs to be done on Radio A, as it'll automatically cross-feed to Radio B.

6. User Interface

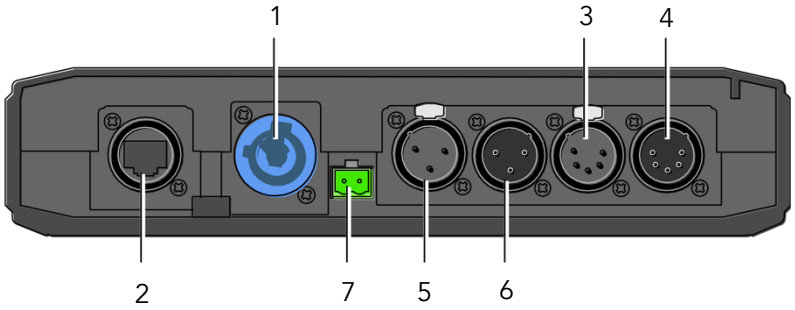
Though the interface display appears simple, there is a lot of information you can read back, which will help you troubleshooting and understanding how your device is operating.



1. **BATTERY** Only works on the Micro series. Indicates battery-life of the device.
2. **SIGNAL** Will stay always on, except on the Micro, where it warns about battery-life
3. **SIGNAL STATUS** On a transmitter, indicates the power output in mW. Full bar indicates 475mW, two green LEDs indicates 375mW (EU max.), one green LED indicates 100mW (DE max.), yellow LED indicates 25mW.
   On a receiver, indicates signal strength.
4. **TX** Device operating as a transmitter.
5. **RX** Device operating as a receiver.
6. **LINK** On a transmitter, it states it's ready to establish a link. On a receiver, if off, indicates it's got no active link, if on, it indicates it's already paired to a transmitter. If blinking intermittently, it indicates that it has lost its link [either the transmitter is out-of-range or turned off].
7. **DATA** It indicates whether data is being sent to the transmitter/receiver. If the LED is off, check if the DMX cable is plugged correctly to the transmitter.
8. **MODE** Indicates the radio mode [See chapter 5.5].
9. **UNV** Indicates double-up mode.
10. **PWR** States power condition of the device.
11. **RDM** Indicates whether RDM is active or disabled.
12. **Red function button.**

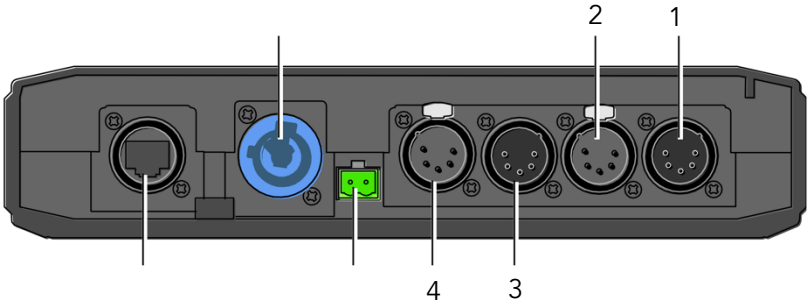
7. Hardware

7.1. BlackBox Series



1. AC Power Supply connector, standard PowerCon® 20A
   U_{ac} =110-240V / 50-60 Hz (for other voltage and frequency options, contact manufacturer)
2. EtherCon RJ45 port
   NOTE Ethernet port and power-over-ethernet power supply. Options to be purchased separately – contact manufacturer.
3. XLR female 5 pin [Universe 1 or Universe 2 in Double-Up Mode]
4. XLR male 5 pin [Universe 1]
5. XLR female 3 pin [Universe 2 in Double-Up mode]
6. XLR male 3 pin [Universe 1]
7. DC Power Supply Connector, Standard 5.08mm
   NOTE 12V DC power supply [Polarity marked on the box] ±20%, reverse polarity protected. Please use a UL/ETL certified power supply. Limited power supply (LPS) rated 12VDC, 1.25A max. (to power from 12V batteries, contact manufacturer)

7.1.1 BlackBox F-2 Double-Up explained



G3/G4S/G5 Mode:
1. Universe A In
2. Universe A Out
3. Universe B In
4. Universe B Out

Double-Up Mode:
1. Universe 1 In/Out
2. Universe 2 In/Out
3. Universe 3 In/Out
4. Universe 4 In/Out

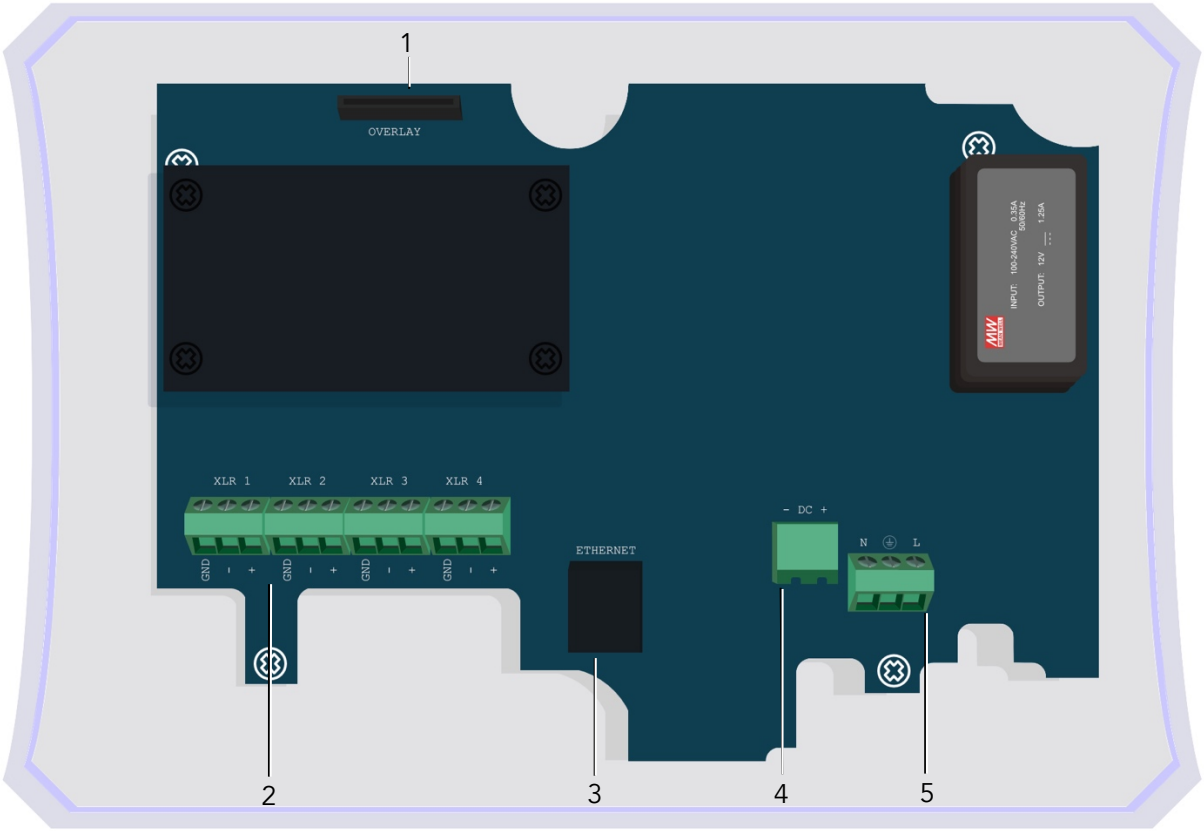
7.1.2 Contents included

When you purchase a new BlackBox, the following items are included:

- BlackBox device (R-512, F-1 or F-2)
- User Manual
- Antenna Adapter [90 Deg]
- 3dBi Antenna
- Mounting brackets
- DC connector

Working Temperature: -10° to 45° Celsius, storage temperature -20° to 50° Celsius. Max. humidity 80% (non-condensing). For working conditions outside this limit, contact manufacturer.
Dimensions: W x D x H: 260 x 210 x 70 mm [10.2" x 8.3" x 2.8"] | **Net:** 1 Kg [2.2 lb.]
NOTE Power cable is not included.

7.2. WhiteBox Series



1. Overlay connector
2. DMX input and/or output
3. Ethernet RJ45 port
   NOTE Ethernet port and power-over-ethernet power supply. Options to be purchased separately – contact manufacturer.
4. DC Power Supply Connector, Standard 5.08mm
   NOTE 12V DC power supply [- / +] ±20%, reverse polarity protected from UL/ETL certified, limited power supply (LPS) rated 12VDC, 1.25A max. (to power from 12V batteries, contact manufacturer). Please note the nominal copper wire diameter for the 12V connector is 2.5mm2, or a minimal diameter of 0.5mm2.
5. AC power input
   U_{ac} = 110-240V / 50-60 Hz (for other voltage and frequency options, contact manufacturer)
   N / EARTH / L
   Nominal copper wire diameter (single or multiple) for the 220V connector is 1.5mm2 – minimal is 0.5mm.

7.2.1 WhiteBox Double-Up explained

G3/G4S/G5 Mode:	Double-Up Mode:
XLR 1. Universe A In	XLR 1. Universe 1 In/Out
XLR 2. Universe A Out	XLR 2. Universe 2 In/Out
XLR 3. Universe B In	XLR 3. Universe 3 In/Out
XLR 4. Universe B Out	XLR 4. Universe 4 In/Out

7.2.2 WhiteBox installation guide

Installing the WhiteBox series does not require special tools – we recommend installing in a suitable location, like a flat surface. Please take care when installing and, in order to achieve best results, the transmitter and receiver must be in line-of-sight of each other.

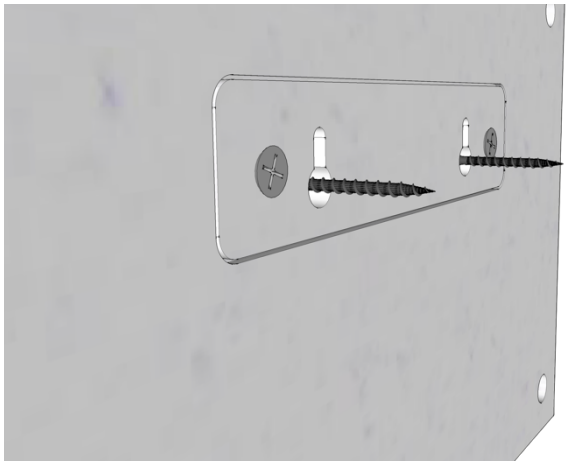


Fig. 1

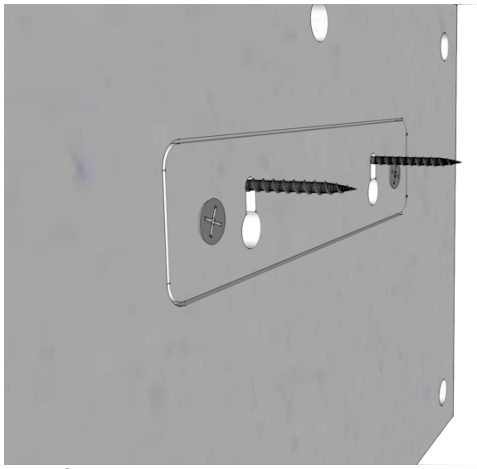


Fig. 2

Insert the back plate into the wall mount screws (Fig. 1) and slide the WhiteBox down to fix it into place (Fig. 2).

Fig 3.

Once adjusted, the WhiteBox should fix into place. Please note that, in order to prevent water getting inside the chassis, the unit must be mounted exclusively with the antennas facing down, as shown in figure 3.

7.2.3 Mains Wire installation and termination

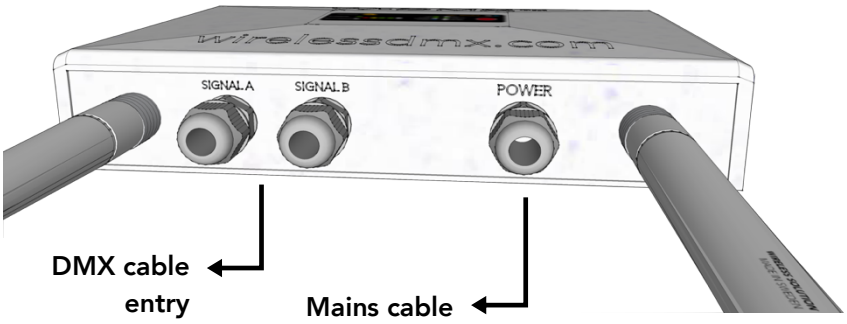


Fig. 4

Install the mains wire through the cable gland above shown (Fig. 4 and 5). Cable gland is M16x1.5 type, outer cable diameter should be between 4mm and 8mm. All glands shall be mounted and tight, or closed with a gland cap if not in use. If not closed, it may create condensation inside the box and damage the electronics, and will not be covered by warranty.
The mains connection is a 3-pole 5.08mm type PCB-mounted terminal block, with polarity engraved on the PCB and shown in 7.2 of this document.

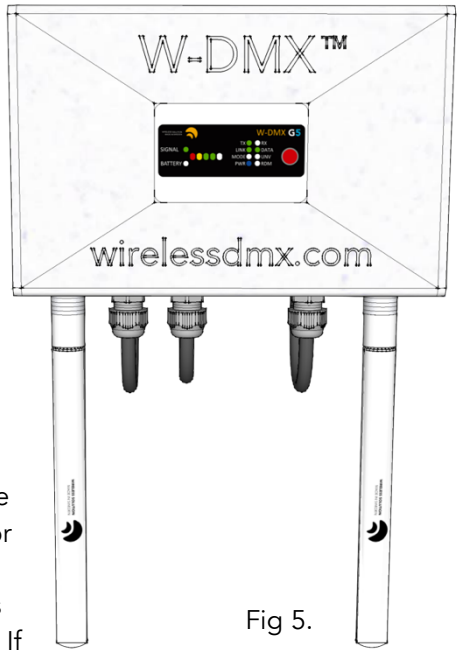


Fig 5.

DMX Wire termination

Connection of DMX data to the WhiteBox series is provided with a mount terminal block on the PCB. Input and Output connections are shown in 7.2, and engraved on the PCB with GND (for ground), - (for Data -) and + symbols (for Data +). Cable gland is M16x1.5 type, outer cable diameter should be between 4mm and 8mm. All glands shall be mounted and tight, or closed with a gland cap if not in use. If not closed, it may create condensation inside the box and damage the electronics, and will not be covered by warranty.
The mains connection is a 3-pole 5.08mm type PCB-mounted terminal block, with polarity engraved on the PCB and shown in 7.2 of this document.

Installing the cover and overlay

Before closing the cover lid, connect the overlay flat (FFC) cable with the contacts facing the main PCB. The 6 screws (M6, hex type) on the back shall be tightened with a force limited torque wrench or screwdriver. Recommended min to max force is 1.5-2Nm. It's crucial that the lid is properly tightened in order to secure full water proof capability. If the box is not closed properly, humidity and water ingress will damage the electronics, and will not be covered by warranty.
If screw nest is damaged – replace the box with a new one. If cable gland, O-ring, insulation washer or humidity vent is damaged – replace them immediately with a new piece.

For extreme temperatures and weather conditions contact manufacturer for further recommendations.

7.2.4 Contents included

When you purchase a new WhiteBox, the following items are included:

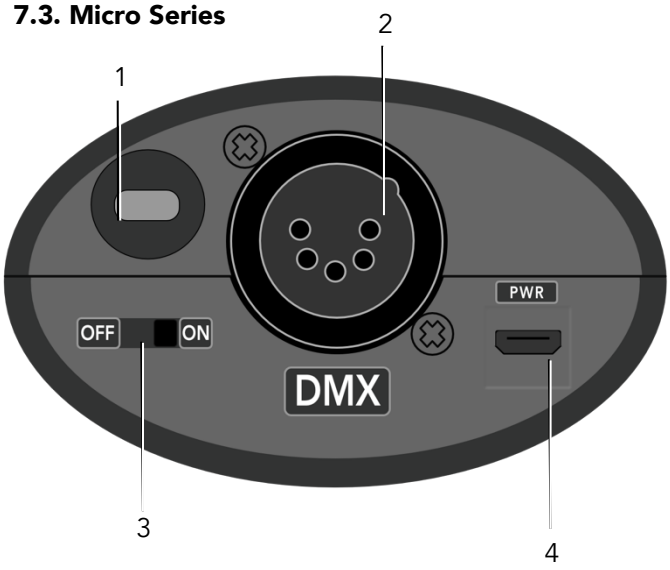
- WhiteBox device (F-1 or F-2)
- User Manual
- 3dBi Antennae
- DC connector

Working Temperature: -20° to 45° Celsius, storage temperature -20° to 50° Celsius. Max. humidity 90%. IP 66. Pre-heat is needed for temperatures lower than -5°C – the product should not be shut down in freezing conditions, in order to prevent power-supply failure and/or complete inability to operate. For working conditions outside this limit, contact manufacturer.

Dimensions: W x D x H: 245 x 160 x 45 mm [9.6" x 6.3" x 1.8"] | **Net:** 1.2 Kg [2.2 lb.]

NOTE Power or DMX cables are not terminated or included with this device.

7.3. Micro Series



1. Kensington security slot
2. XLR female 5 pin (Female on R-512 models, male for F-1 models)
3. Power switch
   Power switch only works when operating with batteries, not with USB power.
4. Micro USB 5V power connector
   Power supply function only, 5DVC ±10%/500mA max.

BATTERY-TYPE: This product works with 4x AAA batteries. The product accepts rechargeable batteries, although does not recharge them when plugged to its USB power-supply.

BATTERY LIFE: Customers should expect up to 8 hours of charge in RX mode, and up to 4 hours in TX mode. These estimations vary depending on the battery and working conditions of the product.

7.3.1 Contents included

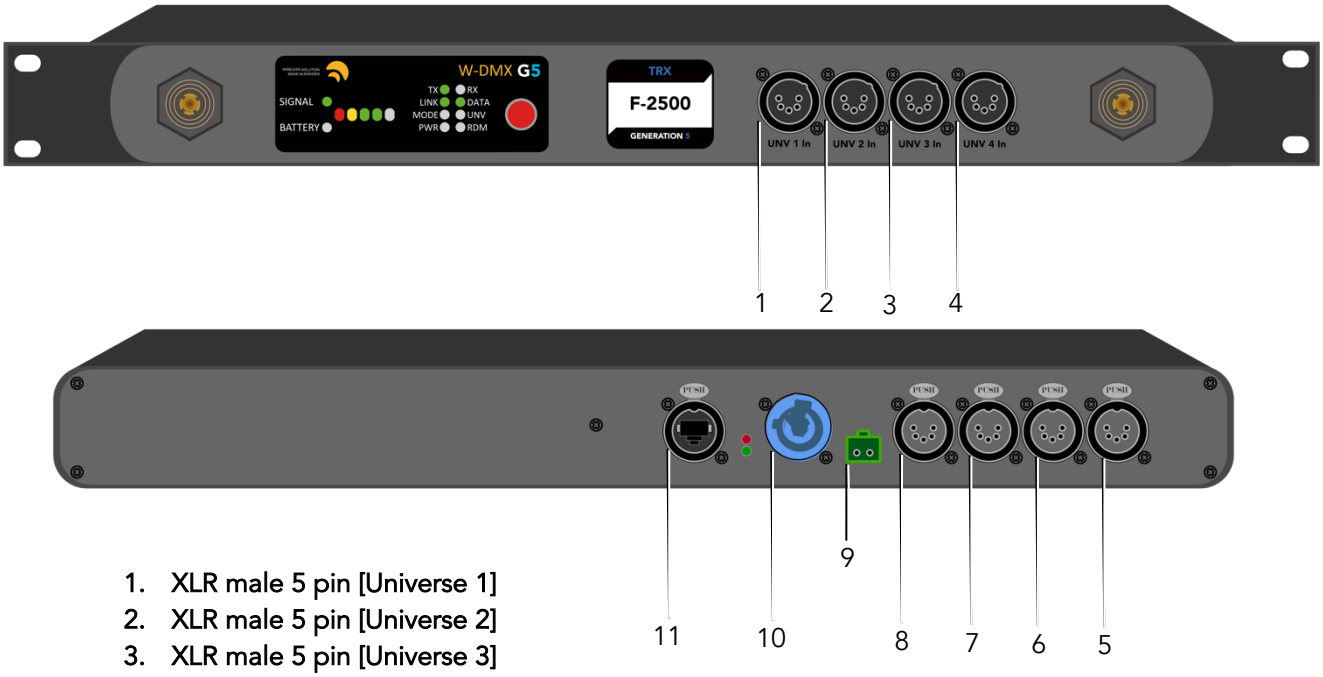
When you purchase a new Micro unit, the following items are included:

- Micro device (R-512 or F-1)
- User Manual
- USB adaptor with universal plugs
- Velcro strap

Working Temperature: 0° to 45° Celsius, storage temperature -10° to 50° Celsius. Max. humidity 90%. For working conditions outside this limit, contact manufacturer.
Dimensions: W x D x H: 100 x 40 x 65 mm [3.94" x 1.57" x 2.56"] | Net: 190g [4.60 oz.] (w/o battery)

NOTE Micro series do not operate in double-up mode or in triple-band.

7.4. ProBox Series



1. XLR male 5 pin [Universe 1]
2. XLR male 5 pin [Universe 2]
3. XLR male 5 pin [Universe 3]
4. XLR male 5 pin [Universe 4]
5. XLR female 5 pin [Universe 4]
6. XLR female 5 pin [Universe 3]
7. XLR female 5 pin [Universe 2]
8. XLR female 5 pin [Universe 1]
9. DC Power Supply Connector, Standard 5.08mm
   NOTE 12V DC power supply [- / +] ±20%, reverse polarity protected from UL/ETL certified, limited power supply (LPS) rated 12VDC, 1.25A max. (to power from 12V batteries, contact manufacturer)
10. AC Power Supply connector, standard PowerCon® 20A
    U_{ac} = 110-240V / 50-60 Hz (for other voltage and frequency options, contact manufacturer)
11. EtherCon RJ45 port

7.4.1 Contents included

When you purchase a new ProBox, the following items are included:

- ProBox F-2500 device
- User Manual
- 2x Antenna Adapter [90 Deg]
- 2x 3dBi Antenna
- DC connector

Working Temperature: -10° to 45° Celsius, storage temperature -20° to 50° Celsius. Max. humidity 90%. For working conditions outside this limit, contact manufacturer.
Dimensions: W x D x H: 530 x 220 x 90 mm [20.9" x 8.7" x 4.7"] | **Net:** 1.5 Kg [3.3 lb.]

NOTE Power cable is not included.

8. Upgrades and Updates

8.1. Ethernet Upgrade

Coming soon.

8.2. Firmware Update

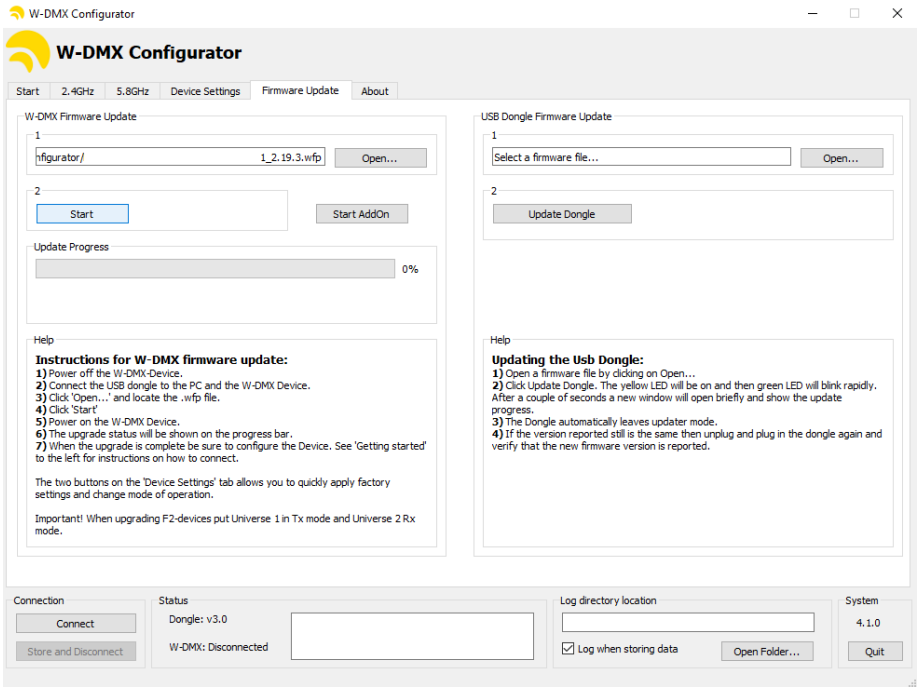
Wireless Solution is committed to developing and improving its wireless technology – though firmware updates are not constant, occasionally there is a need to release a new version, whether related to the transmission itself, glitches with the interface or RDM implementation.
All products are updatable, including OEM devices. For that, it's necessary to obtain a W-DMX™ Dongle – this is a USB to DMX interface that connects straight to any device. We encourage to get one per W-DMX™ kit.

The software interface can be found on Wireless Solution's website:
www.wirelessdmx.com/download

New firmware versions can be found on Wireless Solution's RMA portal: www.wirelessdmx.com/rma

Instructions:

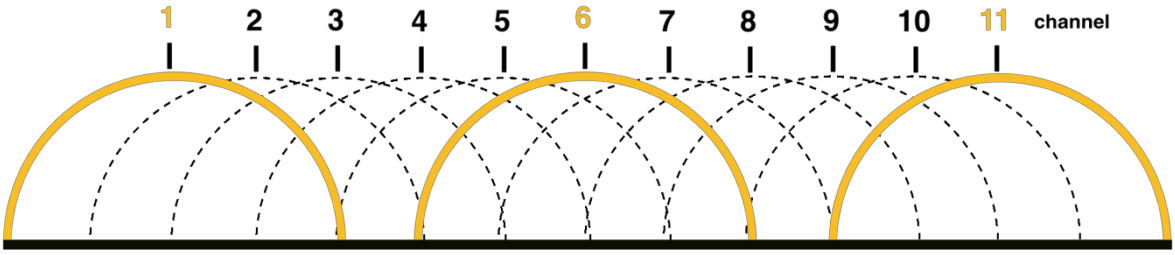
1. Connect the dongle to your computer, and the DMX cable to the W-DMX™ device.
2. Before powering-up the device, load the new firmware version.
3. Press start and turn on the device.



NOTE Follow carefully all the instructions in the 'Help' section, within the software.

8.3. W-DMX™ Configurator

To understand the use of our W-DMX™ dongle, you need to know how wireless works. Wireless transmission is like a highway with 13 lanes, where most traffic happens on channels 1, 6 and 11, leaving plenty of room for operating a Wireless DMX system.
This condition is specific to wi-fi traffic, for transmitting normal internet over wireless – this is because these channels do not overlap, like having lanes with no traffic.



Our co-existence dongle is the perfect device when we need to route our traffic to a specific channel in the spectrum. By default, our transmitters will send data on all 13 channels in the spectrum.
By routing all the traffic to a specific channel, you will stop interfering with other devices, and avoid getting interference from any other wireless transmitter.

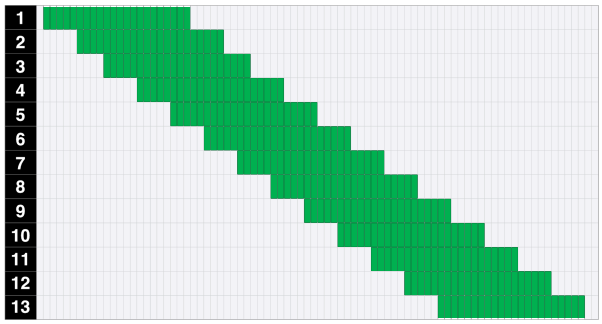


Fig 1. – Transmitting on all channels.

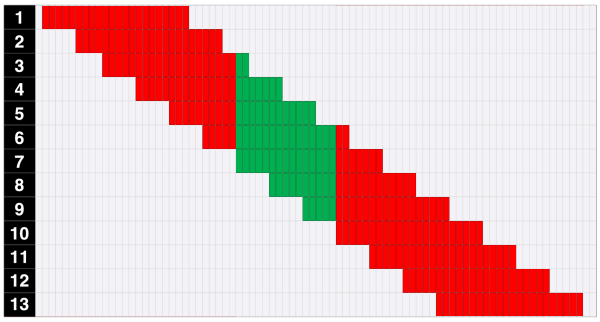


Fig 2. – Masked channels 1 – 6 and 10 – 13. Transmitting on 7 – 9 only.

In the configurator, you will see 13 channels vertically – these are the wi-fi channels. Each square in the configurator represents a W-DMX™ channel, each 1 MHz wide. Because the most common Wi-Fi protocols are 22 MHz wide, you will see 22 W-DMX channels per Wi-Fi channel.

Because wi-fi channels overlap, if for example you block out Wi-Fi channel number 1, you will take out a lump of W-DMX™ channels up to a portion of channel 5.

You can use the masking shortcuts in the configurator to your advantage, e.g., masking channels 1, 6 or 11, or simply masking odd or even channels.

Masking out F-2 or F-2500 units: The masking only needs to be done on Radio A. The changes will automatically take effect on Radio B after you power cycle the unit upon masking.

NOTE! If you use several transmitters in the same area, it is recommended that you mask out different portions of the spectrum for each transmitter, so they don't conflict with each other. For example, if you have 4 BlackBox F-2 transmitters, it's recommended that you allocate ¼ of the spectrum for each device.

8.4. ArtNet Browser

Before starting, please note that not all products come with ArtNet as standard. If you haven't purchased the ArtNet extension, your product does not have ArtNet enabled.

Download the **W-DMX™ Brower**: www.wirelessdmx.com/download

Launching Browser

Remember to physically connect your device to your computer or network (with a CAT5 cable)! Get going in three easy steps:

1. Click on the "Dongles" button

The software will automatically detect all devices physically connected to the network. They will appear in the "Unused Dongles" list.

2. Mark your desired dongle/device as "Active"

This will display the dongle's ports on the screen. The number of port icons you see will correspond to the number of universes available in the model that you have.

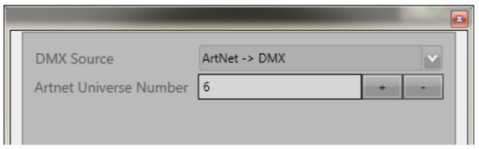
The dongle will move to the Active Dongles section. Its connection status should change to "Connected". If this is not the case, see the next section on IP Addressing.

3. Close the window. That's it!

You are now ready to...

Configure DMX modes

Hover over the port icon and click on the settings. There are several modes available for you to choose from. Here's the more important ones:



1. ArtNet -> DMX

This option allows you to convert an ArtNet stream and output it as DMX. The device supports Artnet I/II/III. Choose this for receiving ArtNet from a console (TX mode).

2. DMX -> ArtNet

This option does the opposite of the previous, and takes in a DMX stream and converts it to an ArtNet stream over Ethernet. Choose this for sending ArtNet to a light/switch (RX mode).

3. sACN -> DMX

This option allows you to convert a Streaming ACN stream and output it as DMX. Choose this for receiving sACN from a console (TX mode).

4. DMX -> sACN

This option does the opposite of the previous and takes in a DMX stream and converts it to a Streaming ACN stream over Ethernet. Choose this for sending sACN to a light/switch (RX mode).

You can define the start Universe address in this chapter. This window can be accessed from the button while hovering over the device.

IP Addressing

Communications between the computer and the device is over IP. This is the same for all lighting control protocols, e.g. Art-Net and Streaming ACN.

Each device on the network must have its own unique IP address.
Two devices (e.g. a computer and a dongle) directly connected to each other, whether via an Ethernet cable or over a switching hub, must be in the same IP address range (known as the "subnet").

If you find that when you mark a dongle as active, it does not connect, you may need to check if the dongle's and computer's IP addresses are within the same range, or subnet.

Computer's IP addressing

IP Range	Subnet Mask	IPs in the same range	Description
192.168.0.x	255.255.255.0	192.168.0.1 to 192.168.0.254	A common non-Internet range in small networks.
10.x.x.x	255.0.0.0	10.0.0.1 to 10.255.255.254	A common non-Internet range in larger networks. Art-Net secondary range.
2.x.x.x	255.0.0.0	2.0.0.1 to 2.255.255.254	Art-Net primary range. Do not use on Internet connected systems.

Device's IP address

To change the device's IP address, select the device and expand "IP Address Settings".
There are several options with configuring the IP addresses of the device.

1. Manually Configured

You can manually assign the IP address, subnet mask and gateway of the device to be on the same ranges as your private network.

2. DHCP

This option will tell your network to automatically assign an IP address to the device which will not conflict with another device on the network. We do not recommend this outside testing scenarios.

3. ArtNet Primary

This option automatically assigns an ArtNet IP to the device in the 2.x.x.x range to be compatible with other ArtNet 2.x.x.x devices in your rig.

4. ArtNet Secondary

This option automatically assigns an ArtNet IP to the device in the 10.x.x.x range to be compatible with other ArtNet 10x.x.x devices in your rig.

Once the IP address is changed, the device will automatically be removed from the list of Active Dongles as it will restart itself. You will need to manually mark it as active to view it on the screen again.

9. Recommendations

There are several tips and tricks that could make your wireless transmission work better. Here's a few that should be followed:

Fig.1: It's important that all antennas point to the same axis – wireless waves have a radial pattern that should be valued. There are a number of accessories that can help maintaining directionality.

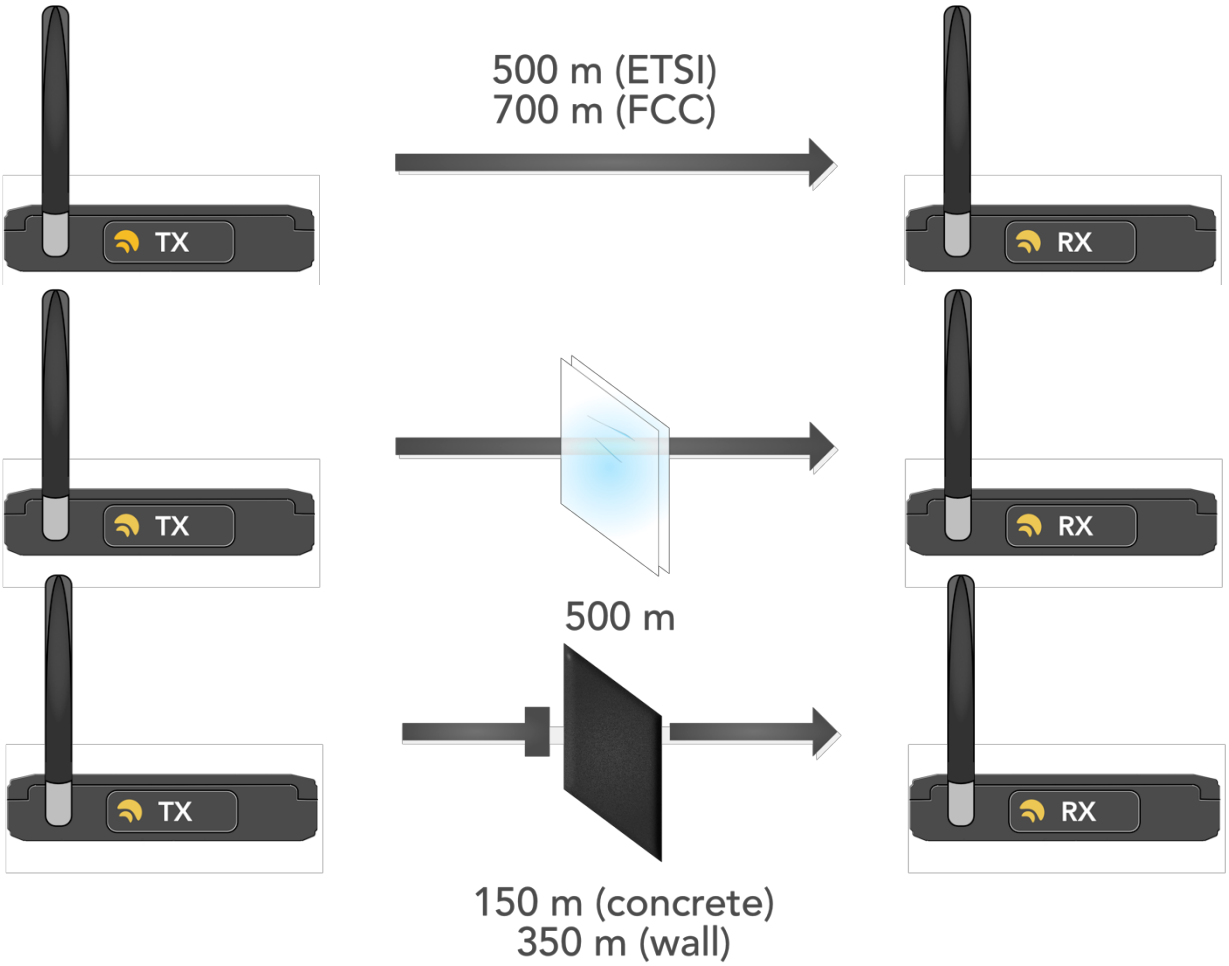
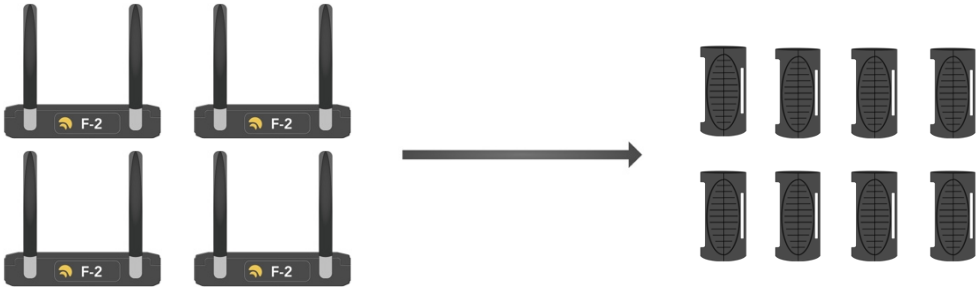


Fig.2: There are limitations to how wireless waves propagate through air. Physical barriers like glass, concrete and walls will limit the transmission range. Always try to have clear line-of-sight between transmitters and receivers.

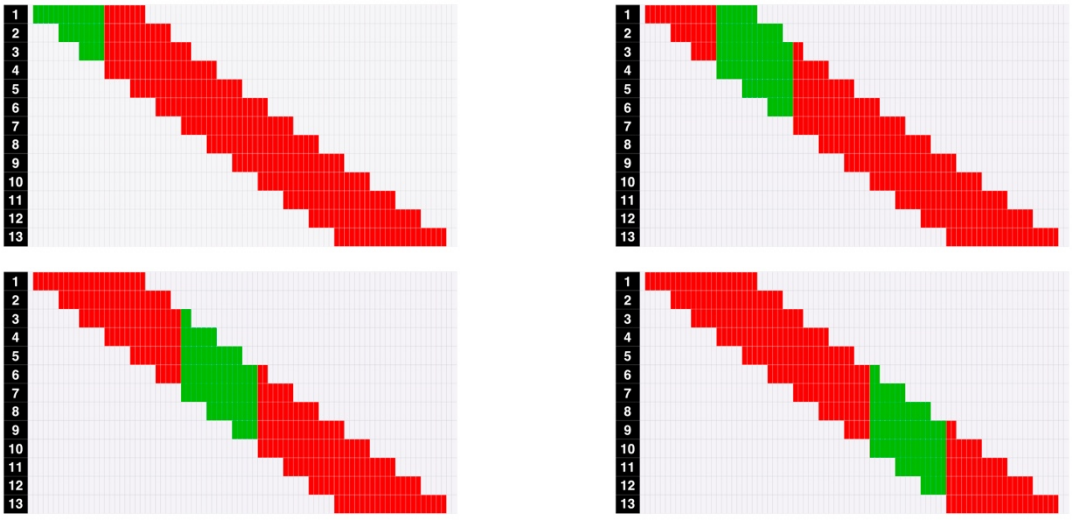
Fig.3: Micros like to be seen – just because it's small, don't throw it inside a box! They have a very sensitive antenna that doesn't like barriers. And most of all, always point their display to each other – that's where their optimum performance is!

Multiple Transmitters

If you have multiple transmitters sending data to multiple receivers, it's worth masking out channels with the Co-Existence dongle, so they don't end up interfering with each other.



In a setup like this, where you have one Micro R-512 linked to each universe of the BlackBox F-2 transmitters, you should separate each BlackBox to a ¼ of the spectrum:



Each screen shows the spectrum split into ¼ to accommodate all 4 BlackBox F-2 units. The masking only needs to be done on Radio A, as Radio B will copy the masking settings. There is no need to re-link the units after masking has been applied.

helpdesk@wirelessdmx.com