



W-DMX™ BlackBox

Indoor series receivers

R-512
R-512 Pro

The W-DMX™ BlackBox range represents the pinnacle of wireless engineering excellence applied to the control of lighting systems.

Now in their third generation, many thousands of W-DMX™ BlackBox units have been supplied around the globe and remain in regular use within temporary and permanent installations. The latest generation includes significant advances in receiver sensitivity as well as greatly improved interference blocking and noise suppression.

The indoor series receivers provide a full complement of front panel indicators to allow you to check on operation. Of particular use is the five bar signal strength indicator which is a valuable aid when positioning receiver units, especially at the limits of their range or where obstructions exist in the path to the transmitter. As with all BlackBox units, configuration control is enabled via a single push button to provide the easiest user interface in the industry.

The indoor series receivers can be powered either from a mains AC power supply (90 to 260VAC) or alternatively fed from a 12VDC supply as required by each installation. Such instant flexibility explains why these units are gaining so many fans in lighting communities around the world.

All units are delivered with a multi purpose bracket for easy mounting and rigging as well as a standard 2 dBi rubber whip antenna. A multitude of other antennae options are available to raise the standard range of 700m (2300 feet) to an impressive 2300m (7550 feet). The indoor series receivers use the licence free 2.45GHz ISM band and are specifically certified for use in the United States, Canada, Japan and all European Union countries.

There are two receiver options within the indoor series:

R-512 Single DMX universe receiver.

R-512 Pro Single DMX universe receiver with internal battery backup to provide up to two hours operation without power input.

Both types of indoor series receivers are housed within tough diecast aluminium casings which are suitable for both indoor and fair weather outdoor operation.

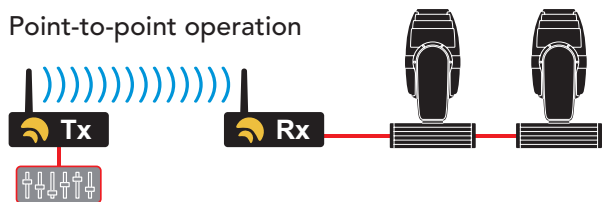
For all these reasons and more, in every independent comparison with competing products BlackBox W-DMX™ units continually take first place for distance covered, resilience against interference, and ease of installation and operation.



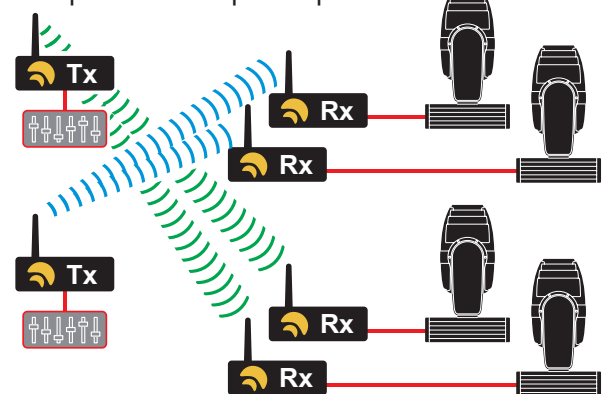
What is W-DMX™?

The W-DMX™ technology lies at the heart of every one of our BlackBox products. W-DMX™ is specifically engineered by Wireless Solution Sweden AB to provide the same quality, reliability and performance as any hardwired DMX data link. In fact W-DMX™ gives you greater freedom to create reliable point-to-point, point-to-multipoint and even multipoint-to-multipoint installations over large distances.

Point-to-point operation



Multipoint-to-multipoint operation



W-DMX™ is unique in its use of certain advanced radio techniques which are more often found in mobile phone and military communications. Rather than using fixed frequency channels, W-DMX™ uses adaptive frequency hopping technology (as well as TDMA and GFSK techniques) to continually check for interference and to rapidly move operation over to clear radio channels. The frequency hops occur one thousand times every second to ensure smooth, efficient and robust operation.

The advantage of such technology will quickly become clear to you: consistent and wide ranging control of your lighting systems over potentially great distances.



wireless
solution

Specifications

DMX interface

- Full compliance with USITT DMX-512 (1990) & 512-A standards
- Maximum number of transceivers on a single bus: 32 (compliant with the EIA/TIA RS-485 standard)
- Data Rate: 250 kbps (slew rate limited to minimise EMI)
- Electrostatic discharge protection: $\pm 15\text{kV}$
- DMX frame rate and frame size: Auto sensing
- Frame rate: 1 (min) to 44 (max) frames per second
- Frame size: 1 (min) to 512 (max) channels
- Loss of DMX input or radio link: After one second (if there is no resumption), the DMX output will cease to transmit and go into a high impedance mode.
- Recovery from loss of DMX input or radio link: Less than 1 second.

Power characteristics

- High voltage input: 90-260VAC
- Low voltage input: 12VDC (R-512 Pro: 12-24VDC)
- Average current : 200mA @ 12VDC

Battery operation (R-512 Pro only)

- 2 hours operation from fully charged

RF characteristics

W-DMX™ uses Adaptive Frequency Hopping Spread Spectrum (AFHSS) and changes frequency every 910uS

- Operational frequency range: 2402-2479MHz (ISM band)
- EU/ASIA RF output power: 20dBm or 100mW
- FCC RF output power: 25dBm or 275mW
- Channel bandwidth: 1 MHz
- Sensitivity at 0.1% Packet Error Rate: 95dBm
- Tested link range 450m (Low power EU mode using standard antennae in an urban area)

Approvals

- FCC: 15.247&68 Class B; Canada ICES 003; Japan ARIB STD-T66
- CE; EN 301 489-1; 301 489-17; EN 300-328-1; EN 300-328-2; EN 609 50

Enclosure

- Diecast aluminium casing
- Operating temp range: R-512: 0°C to +55°C (32°F to 131°F)
R-512 Pro: -20°C to +55°C (-4°F to 131°F)
- Dimensions (W x H x D): 219 x 45 x 131mm (8.6" x 1.8" x 5.2")
- Weight: 1005g / 35.45oz

Connectors

- N-type female antenna connector, N – RP-SMA adaptor included
- 2 Neutrik® XLR 5-pin gold plated DMX connectors
- 2 RJ45, DMX over Cat5 cable links
- 1 DC input, pluggable terminal strip, Phonix® MSTB 2,5
- 1 AC input, IEC-6C

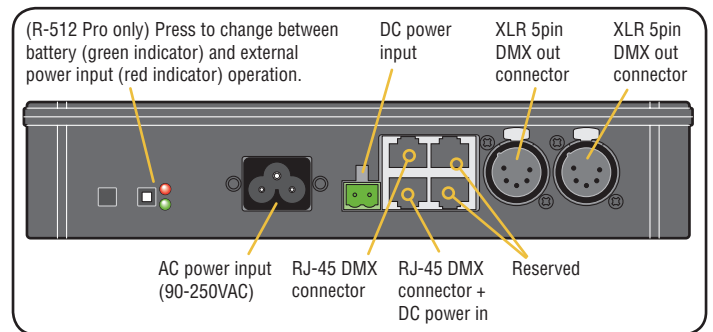
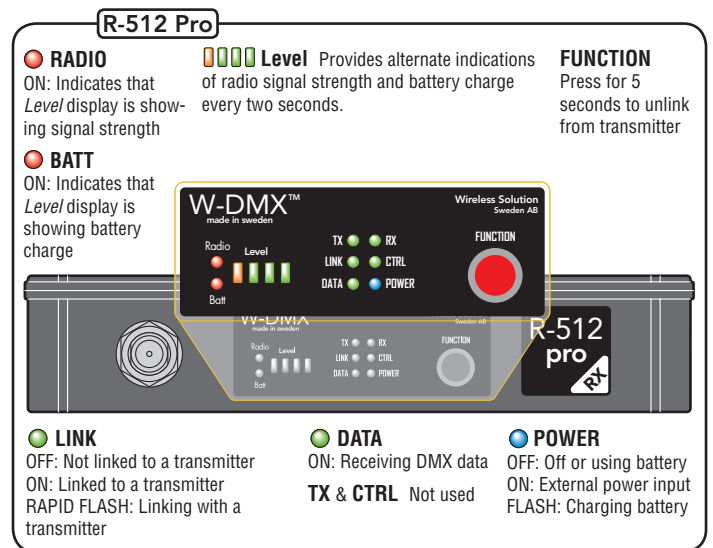
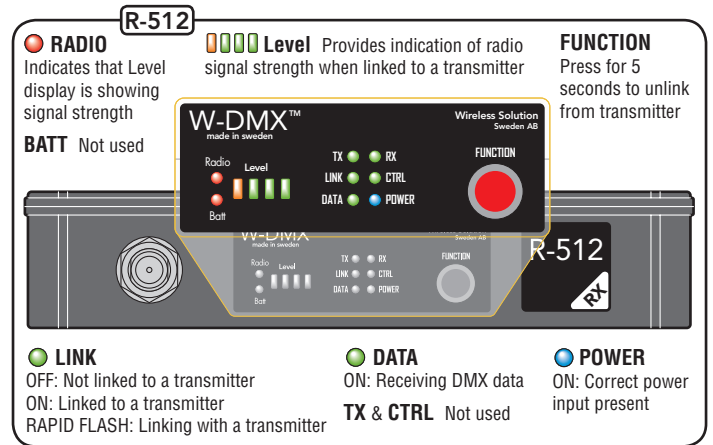
Supplied accessories

- AC power cord / DC power connector / Standard antenna
Antenna adaptor / Mounting brackets / User guide

Part codes

| | R-512 | R-512 Pro |
|---|---------|-----------|
| ETSI/FCC approved (power output: 100mW/300mW max.) | A40102 | A40104 |
| Japan ARIB approved (power output: 100mW max.) | A40102J | A40104J |

Front and rear panel details



Release 1-0d (October 2007) Specifications subject to change without notice

