W-DMX BlackBox
Outdoor series

S-1 Outdoor
S-2 Outdoor
R-512 Outdoor
RP-512 Outdoor

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

The outdoor series is where an already resilient family of products become even tougher. Whenever you require wireless control in unforgiving environments, whether permanently or temporarily installed, the outdoor series will provide the solution.

Every member of the outdoor series is contained within a fully sealed casing with high specification glands for all cable access points. Thanks to these measures, each unit achieves a full IP65 environmental rating, despite allowing for quick internal access. Internally, all components are specified to provide a wide operational range from -30°C to +55°C (-22°F to 131°F); making these units as comfortable with a Scandinavian winter as they are with a middle eastern summer.

All models exhibit the same ease of use as their indoor equivalents by utilising the same control panel with clear status indications and intuitive single button control. The outdoor units are also fully compatible with all other members of the W-DMX range so that they can be mixed and matched as necessary.

A choice of various antennae options are available to extend the standard transmission range of 700m (2300 feet) to an incredible 2300m (7550 feet). All outdoor series models use the licence free 2.45GHz ISM band and are specifically certified for use in the US, Canada, Japan and all European Union countries.

There are four options within the outdoor series:

S-1 Single DMX universe transmitter.

S-2 Dual DMX universe transmitter.

R-512 Single DMX universe receiver.

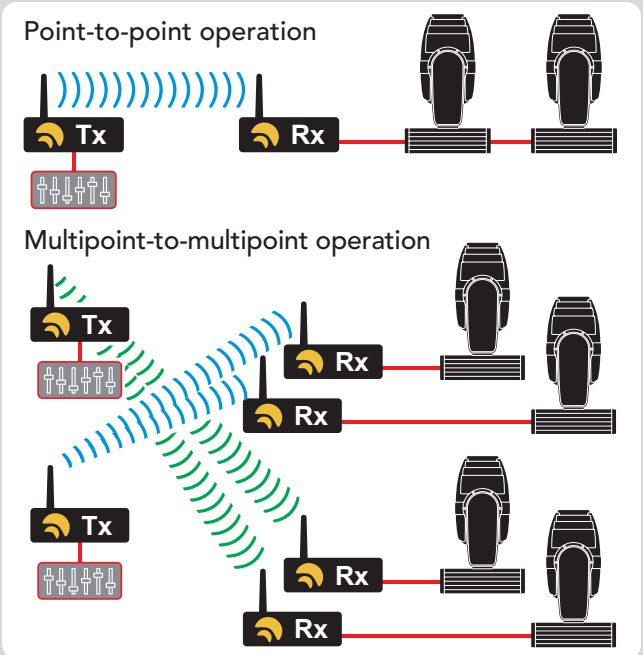
RP-512 Single DMX universe repeater.

The RP-512 repeater provides the ability to significantly extend the existing transmission range or to assist in negotiating around awkward obstacles in its role as a 'corner bender'.

To complete your installation in style, a range of enclosure covers are available for the outdoor series. In addition to their practical use in protecting the casing from direct sunlight, the covers are available in a range of colours to allow each installation to blend perfectly with its surroundings.

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.



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: ±15kV
- 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
- Low voltage output: 12VDC @ 300mA maximum
- Average current (receive mode): 200mA @ 12VDC
- Average current (transmit mode): 450mA @ 12VDC

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

- Injection moulded plastic casing, environmental rating: IP65
- Operating temperature range: -30°C to +55°C (-22°F to 131°F)
- Dimensions (W x H x D): 190 x 130 x 45mm (7.5" x 5.1" x 1.8")
- Weight: 750g / 26.45oz

Connectors

- AC input: 3-pole 5mm terminal via cable gland (Ø4-8mm)
- DC in/out: 3-pole 5mm terminal via cable gland (Ø4-8mm)
- DMX in/out: 3-pole 3.5mm terminal via cable gland (Ø4-8mm)
- W-DMX bus: 5-pole 3.5mm terminal via cable gland (Ø4-8mm)
- External MMI interface: 3-pole 3.5mm terminal
- N-type female radio antenna connector

Supplied accessories

- Standard antenna / 0.5 metre antenna cable / User guide

Part codes

	S-1	S-2	R-512	RP-512
ETSI/FCC approved *(power output: 100mW/275mW max.)*	A40002	A40004	A40103	A40201
Japan ARIB approved *(power output: 100mW max.)*	A40002J	A40004J	A40103J	A40201J

Control panel details

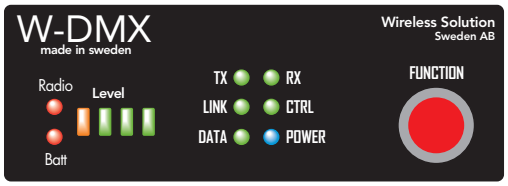
S-1 and R-512 Outdoor

RADIO ON: Indicates that *Level* display is showing signal strength

BATT Not used

Level Provides indication of radio input or output signal strength

FUNCTION Press and release to search for and link with receivers



LINK

S-1: ON: Normal operation; FLASH: Unlinking all receivers; RAPID FLASH: Linking with receivers

R-512: OFF: Not linked to a transmitter; ON: Linked to a transmitter; RAPID FLASH: Linking to a transmitter

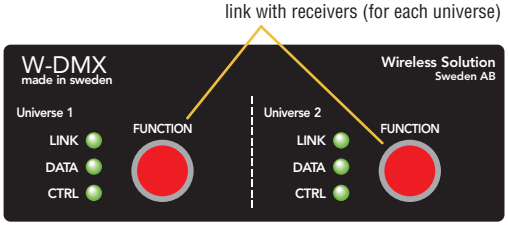
DATA ON: Transmitting DMX data

CTRL Not used

POWER ON: Correct power input present

S-2 Outdoor

FUNCTION Press and release to search for and link with receivers (for each universe)



LINK (for each universe) ON: Normal operation; FLASH: Unlinking all receivers; RAPID FLASH: Linking with receivers

DATA (for each universe) ON: Transmitting DMX data

CTRL (for each universe) ON: Indicates that W-DMX bus link is active

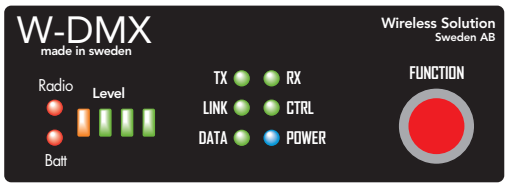
RP-512 Outdoor

RADIO ON: Indicates that *Level* display is showing signal strength

BATT ON: Indicates that *Level* display is showing battery charge

Level Provides alternate indications of radio signal strength and battery charge every two seconds.

FUNCTION Operation depends upon current operation mode: transmit or receive.



LINK

TX MODE: ON: Normal operation; FLASH: Unlinking all receivers; RAPID FLASH: Linking with receivers

RX MODE: OFF: Not linked to a transmitter; ON: Linked to a transmitter; RAPID FLASH: Linking to a transmitter

DATA ON: Transmitting/ receiving DMX data

TX/RX Indicate current operation mode

CTRL ON: Indicates that W-DMX bus link is active

POWER OFF: Off or using battery; ON: External power input; FLASH: Charging battery

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