



# W-DMX BlackBox Micro series

**S-1 Micro**  
**R-512 Micro**  
**R-512 Micro Lite**

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

The new Micro series builds upon the considerable successes of the full size BlackBox range. Thanks to advances in circuit miniaturisation, we have managed to fit the complete W-DMX system into a compact package with less than half the volume of the full size casing. Incredibly this includes a powerful battery backup system (not the Lite version) and even the antenna.

The battery backup system (not the Lite version) can be utilised in two ways depending on the installation requirements and availability of power. Where power is available but not always reliable, the Micro unit's battery system performs the role of an uninterruptable power supply, ensuring seamless operation during outages. Alternatively, in situations where power is difficult to feed to the Micro unit's location, it can provide up to eight hours continuous independent operation from a full charge. When power is available, the Micro units can accept low voltage inputs in the range 12 to 24VDC.

Drawing on our considerable experience in wireless communications, the internal antenna uses next generation AIDA® technology to provide extended operational range compared to conventional omnidirectional antennae.

Diminutive size does not mean that you lose the feature set expected of all W-DMX BlackBox products. The Micro series units present exactly the same control panel with its clear status indications and intuitive single button control. The Micro units are also fully compatible with all other members of the W-DMX range so that they can be mixed and matched as necessary.

There are three options within the Micro series:

**S-1 Micro** Single DMX universe transmitter with battery backup and internal antenna.

**R-512 Micro** Single DMX universe receiver with battery backup and internal antenna.

**R-512 Micro Lite** Single DMX universe receiver with internal antenna.

All Micro options are housed within a tough injection moulded plastic case featuring a multi-purpose mounting bracket for easy rigging in a variety of applications. The bracket can be rotated in 45 deg. increments to allow the Micro to be positioned in the optimum orientation.

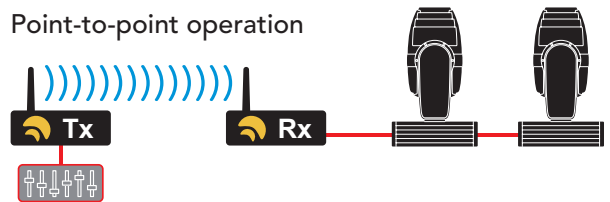
We believe that the impressive combination of miniaturisation, toughness, flexibility and ease of use makes the Micro series a natural selection for a variety of demanding applications. After using them, we feel sure that you will agree.



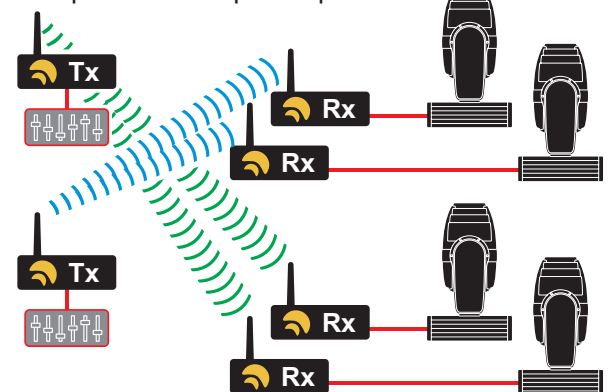
## What is W-DMX?

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  
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## 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

- Low voltage input: 12-24VDC
- Average current: 200mA @ 12VDC
- Maximum current (charging battery): 400mA @ 12VDC

### Battery operation

- Receivers: 6 hours operation from full charge
- Transmitters: 2 hours operation from full charge

### 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

- Operating temperature range: 0°C to +55°C (32°F to 131°F)
- Dimensions (W x H x D): 115 x 40 x 70mm (4.5" x 1.6" x 2.8")
- Weight: 250g / 8.8oz

### Connectors

- 1 Neutrik® XLR 5-pin gold plated DMX connector
- 1 RJ45, DMX over Cat5 cable link / power input

### Supplied accessories

- RJ45 (DC) power cord / Mounting bracket / User guide

### Part codes

	S-1 Micro	R-512 Micro	R-512 Micro Lite
ETSI/FCC approved (power output: 100mW/300mW max.)	A40006	A40101	A40100
Japan ARIB approved (power output: 100mW max.)	A40006J	A40101J	A40100J

## Front and end panel details

**S-1 Micro**

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

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

**LINK**  
ON: Normal operation  
FLASH: Unlinking all receivers  
RAPID FLASH: Linking with receivers

**Level** Provides alternate indications of radio signal strength & battery charge

**DATA**  
ON: Transmitting DMX data  
**RX & CTRL** Not used

**FUNCTION**  
Press and release to search for and link with receivers

**POWER**  
OFF: Switched off or using battery  
ON: External power input  
FLASH: Charging battery

**R-512 Micro**

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

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

**LINK**  
OFF: Not linked to a transmitter  
ON: Linked to a transmitter  
RAPID FLASH: Linking with a transmitter

**Level** Provides alternate indications of radio signal strength & battery charge

**DATA**  
ON: Receiving DMX data  
**TX & CTRL** Not used

**FUNCTION**  
Press for 5 seconds to unlink from transmitter

**POWER**  
OFF: Switched off or using battery  
ON: External power input  
FLASH: Charging battery

**R-512 Micro Lite**

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

**BATT**  
Not used

**DATA**  
ON: Receiving DMX data  
**TX & CTRL** Not used

**Level** Indicates radio signal strength

**LINK**  
OFF: Not linked to a transmitter ON: Linked to a transmitter  
RAPID FLASH: Linking with a transmitter

**FUNCTION**  
Press for 5 seconds to unlink from transmitter

**POWER**  
OFF: Switched off or using battery  
ON: External power input

XLR 5pin DMX connector

RJ-45 DMX connector plus DC power in

**Battery button & indicators** - Press to change between battery (green indicator) and external power input (red indicator) operation. Not Micro Lite.

**Fade button** - Press to fade off/on the top panel indicators. Note: When running from the internal battery, the indicators fade off automatically to conserve power. Not Micro Lite.

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

