

DSW System

Encrypted Digital Wireless System

TECHNICAL DATA



- Six-channel modular design
- Built-in wideband antenna multicoupler with loop-thru for additional receivers
- 256-bit encryption - AES 256-CTR
- Transmitter tunes entire frequency range
- Extended operating range
- Analog and AES-EBU audio outputs
- Ethernet interface
- USB interface
- RS-232 serial interface
- Includes PC software for Windows/Mac

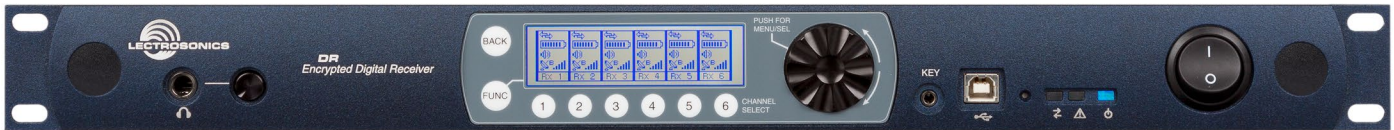
A completely new digital architecture was developed for the DSW wireless system. Extended operating range rivals the best analog and Digital Hybrid Wireless® systems, with remarkable audio quality and only 2.5 ms of latency. The system operates on standard UHF FCC Part 74 frequencies (TV channel band).

The DR receiver is a modular, six-channel design with a host mainframe that contains the DSP, microprocessor, antenna multicoupler and control interface. Receiver modules are installed on either side of the mainframe.

Antenna ports on the rear panel accept input from remote antennas, with a "loop-thru" output to another mainframe using the internal multicoupler. A kit is also available to mount antenna inputs (BNC connectors) on the front panel, with a coaxial cable routed inside the mainframe chassis to a rear panel location.

The DBa belt pack transmitter is encased in a solid machined aluminum housing with a membrane switch panel and backlit LCD interface. The servo bias input circuitry will work with a wide variety of microphones and line level sources. Input gain is adjustable over a wide range in 1 dB steps to optimize the signal to noise ratio and dynamics of the audio.

DR Receiver Front Panel



Front Panel Antenna Mounts

Convenient when the receiver is installed in a rack mount transit case.

Headphone Monitor

Monitor individual or a mix of any number of channels. Volume knob recesses into front panel.

LCD and Control Panel

Easy navigation of numerous setup parameters is provided by a backlit LCD, membrane pushbuttons and a rotary control wheel.

Encryption Key Interface

Encryption key transfer and complete transmitter setup is accessed through a TRS mini-jack connection.

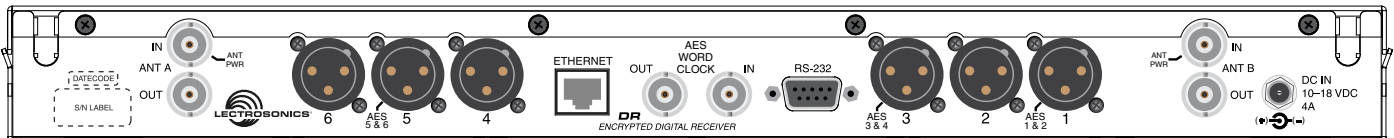
Front Panel USB Port

A standard USB interface is provided on the front panel for the PC interface.

LED Indicators

Operational and power status is indicated by three LEDs.

DR Receiver Rear Panel



Antenna Ports

Antenna inputs and outputs to an additional mainframe allow "stacking" of up to three mainframes with a single pair of antennas.

Audio Outputs

Six XLR jacks provide analog and AES-EBU outputs in various configurations as labeled on the rear panel.

Ethernet Port

Network connection is provided through a standard RJ-45 jack.

AES Word Clock

The mainframe can provide the master clock sync signal, or sync to an external clock.

RS-232 Port

Control with third party devices is enabled through an RS-232 serial port.

Power Supply

The mainframe is powered by 10 to 18 VDC from an external 4 amp source.

Modular Versatility

Individual receiver modules are nested on both sides of the mainframe assembly. The modules tune across a 25.6 MHz range and can be positioned in any of the six pockets in the chassis. Delrin retaining clips keep the modules securely in place.



The modules are fan cooled for reliable operation when installed in racks with limited ventilation. Unused modules installed in the mainframe can be powered on and off with the software or front panel controls.



DBa Belt Pack Transmitter



The belt pack transmitter is constructed of solid machined aluminum for lasting ruggedness. The exterior is finished with an ultra hard, black electroless nickel finish called **ebENi**.

Setup and adjustment is enabled through a backlit LCD, membrane switches and an intuitive menu structure. Input gain is adjustable over a wide range in 1 dB steps to optimize modulation and limiting. The servo bias input preamp adapts to any microphone or line level input with simple connector wiring.

A separate switch is provided on the top panel that can be configured as a mute or power switch, or be bypassed.

Firmware updates are made through a side panel mini-USB port.



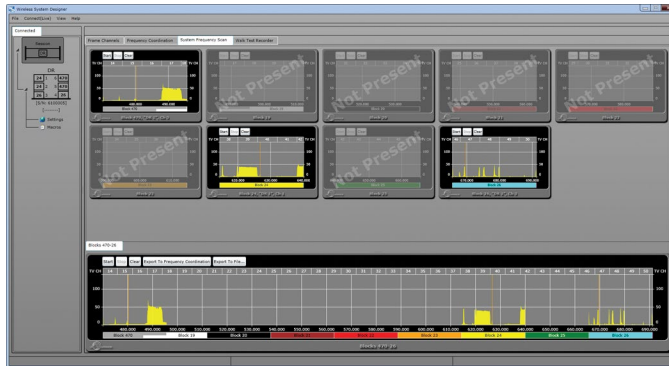
Top panel input jack, mute/power switch and antenna connection.



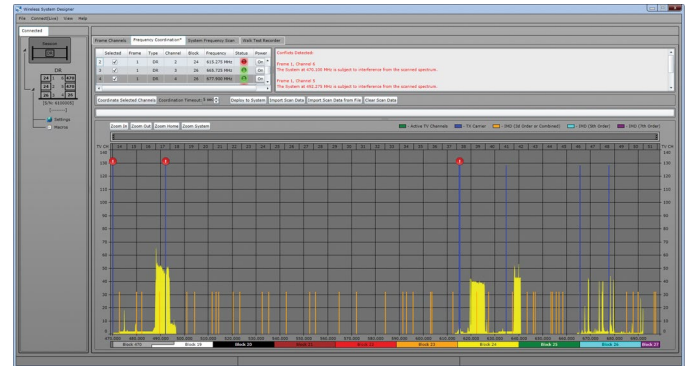
Battery compartment uses two AA batteries connected in series. Aluminum door latches securely.

Wireless Designer Software

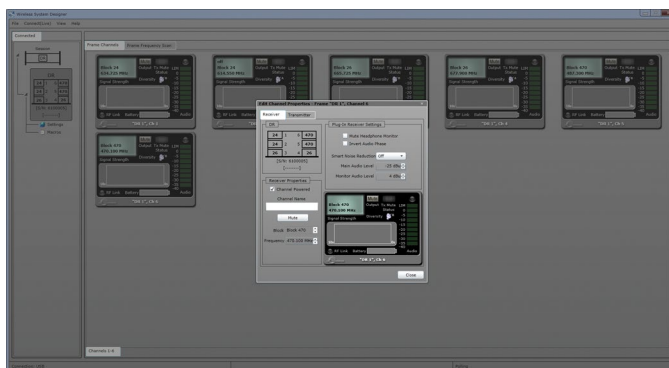
The software GUI provides an overall view of the system, including all mainframes connected. The display is scalable to fit and screen size and several color themes are provided.



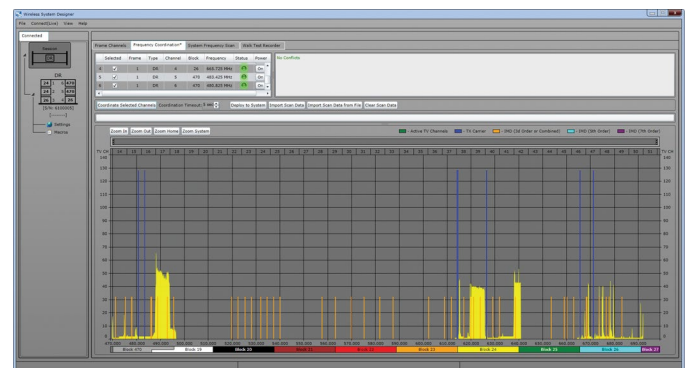
System overview with scan results



Overview before frequency coordination



Frame view with popup for individual receiver setup



Overview after frequency coordination

Specifications

System

Operating Frequencies:	470.100 - 691.175 MHz in 25 kHz steps
Sampling Size and Rate:	24-bit, 48 kHz
Digital Modulation:	8PSK
Symbol rate:	128 k
Data Compression:	Proprietary ADPCM
Encryption:	AES 256-CTR (per FIPS 197 and FIPS 140-2)
System Latency:	2.5 ms
Audio Frequency Response:	20 - 20 kHz, +/- 1 dB
Distortion:	0.05% THD+N, 1 kHz @ -10dBFS
Dynamic Range:	108 dB A-wtd, NR=NORMAL

DR Receiver

Sensitivity:	-98 dBm for 10^{-5} BER
Diversity Technique:	Noiseless antenna switching
Antenna Inputs:	Dual BNC female, 50 ohm impedance
Audio Outputs:	
XLR:	Balanced, -50 to +5 dBu analog or AES-EBU
Headphone:	1/4 inch phone jack
External DC Power:	10 to 18 VDC; 40 Watts fully populated
Weight:	6.58 lbs.; 2984 grams
Dimensions:	19 x 1.75 x 10.6 in. 483 x 44 x 269 mm.

DBa Transmitter

RF Output Power:	50 mW
Spurious Emissions:	>90 dB below carrier
Audio Input Jack:	TA5F 5-pin locking
Equivalent Input Noise:	-128 dBV
Input Impedance:	Mic: 300 ohms Line: 2k ohms
Input Limiter:	Dual envelope type; 30 dB range
Gain Control Range:	44 dB in 1 dB steps; digital control
LF rolloff:	-3 dB @ 35, 50, 70, 100, 120, 150 Hz
Antenna Connection:	SMA; 50 ohms
Battery:	Two AA Duracell Quantum recommended
Battery Life:	5 hours; Duracell Quantum alkaline
Weight:	6.24 ozs. (177 grams) with 2 alkaline AA batteries and belt clip
Dimensions:	3.2 x 2.5 x .74 in. (81 x 64 x 19 mm)

