

# SMWB/E01 Series

## Miniature Wideband Transmitters

### TECHNICAL DATA



**SMWB/E01**

**SMDWB/E01**

To meet the demand for both extended operating range and extended battery life, the “R/E01” series SM transmitters offer selectable output power from 10, 25 and 50 mW. With higher power output, the operating range is improved at the expense of battery life. When range is not an issue, the power can be reduced to extend the battery life.

The SMWB/E01 transmitters offer a *hands free* setup and adjustment using audible tones. The transmitters can be put to sleep to conserve battery power during setup while the transmitters are buried deep inside costuming, then awakened for normal operation when the production begins. Other features include frequency and audio level adjustment and control lockout.

The DSP-based design works with all Digital Hybrid receivers, and is backward compatible for use IFB receivers and some other brands of analog wireless receivers. (Companion receivers are covered in separate manuals.)

The input section features the unique servo bias input circuitry with a standard TA5M type jack for use with electret lavalier mics, dynamic mics, or line level signals. A DSP-controlled analog audio limiter is employed ahead of the first mic preamp to protect the entire audio chain from overload. The limiter has a range of more than 30 dB for excellent overload protection and a dual release envelope that makes the limiter acoustically transparent while maintaining low distortion. The limiter recovers quickly from brief transients, with no distortion.

- Selectable output power to maximize battery life or operating range
- Ultra-lightweight, corrosion resistant housing
- Water resistant seals for use in damp environments
- LCD interface with lockout option
- Programmable compatibility modes for use with a wide variety of different receivers
- Servo Bias input circuitry
- IR (infrared) port for fast setup
- Covers 3 standard frequency blocks
- Update firmware in the field via Micro SD card reader

A water resistant control panel with LCD, membrane switches and multi-color LEDs make input gain adjustments, frequency and compatibility mode selection quick and accurate. The battery compartment accepts lithium AA batteries.

The SMWB/E01 housing is machined from solid aluminum blocks to provide an extremely lightweight and rugged package. A special non-corrosive finish resists salt water exposure and perspiration in extreme environments.

### Alternate Recording Function

Instead of transmitting, the transmitters may also be used as a stand alone recorder. The industry standard .wav (BWF) file format is compatible with essentially any audio or video editing software.

**NOTE:** The transmitting and recording functions cannot be done simultaneously. Users must choose to transmit or record.



## Frequency Tuning Range

RF-intense multichannel and mobile venues must have a broad selection of frequencies available to alleviate interference problems, especially with the emergence of DTV telecasts. 3072 frequencies are selectable in 25 or 100 kHz steps across the 76.8 MHz tuning range of each frequency band.

## Specifications

### Transmitter

#### Operating frequencies:

Band A1: 470.100 - 537.575

Band B1: 537.600 - 614.375

Band B2: 563.200 - 639.975

Band C1: 614.400 - 691.175

#### Channel Spacing:

Selectable; 25 or 100 kHz

#### RF Power output:

Switchable; 10, 25 or 50 mW

#### Compatibility Modes:

Digital Hybrid Wireless® (NU Hbr),  
200 Series, 100 Series, Mode 3, Mode 6, IFB

#### Pilot tone (Digital Hybrid Mode):

25 to 32 kHz; 5 kHz deviation

#### Frequency stability:

± 0.002%

#### Deviation:

± 50 kHz max. (Digital Hybrid Mode)

#### Spurious radiation:

Compliant with ETSI EN 300 422-1

#### Equivalent input noise:

-125 dBV, A-weighted

#### Input level:

##### If set for dynamic mic:

0.5 mV to 50 mV before limiting  
Greater than 1 V with limiting

##### If set for electret lavalier mic:

1.7 uA to 170 uA before limiting  
Greater than 5000 uA (5 mA) with limiting

##### Line level input:

17 mV to 1.7 V before limiting  
Greater than 50 V with limiting

#### Input impedance:

##### Dynamic mic:

300 Ohms

##### Electret lavalier:

Input is virtual ground with servo adjusted  
constant current bias

##### Line level:

2.7 k ohms

#### Input limiter:

Soft limiter, 30 dB range

#### Bias voltages:

Fixed 5 V at up to 5 mA

Selectable 2 V or 4 V servo bias for any electret  
lavalier

#### Gain control range:

44 dB; panel mounted membrane switches

#### Modulation indicators:

Dual bicolor LEDs indicate modulation  
-20, -10, 0, +10 dB referenced to full modulation

#### Controls:

Control panel w/ LCD and 4 membrane switches

#### Low frequency roll-off:

Adjustable from 35 to 150 Hz

#### Audio Frequency Response:

35 Hz to 20 kHz, +/-1 dB

#### Signal to Noise Ratio (dB): (overall system, 400 Series mode)

| SmartNR | No Limiting | w/Limiting |
|---------|-------------|------------|
| OFF     | 103.5       | 108.0      |
| NORMAL  | 107.0       | 111.5      |
| FULL    | 108.5       | 113.0      |

(Note: the dual envelope "soft" limiter provides exceptionally good handling of transients using variable attack and release time constants. The gradual onset of limiting in the design begins below full modulation, which reduces the measured figure for SNR without limiting by 4.5 dB)

#### Total Harmonic Distortion:

0.2% typical (400 Series mode)

#### Audio Input Jack:

Switchcraft 5-pin locking (TA5F)



The battery door rotates to open and close on the transmitters. A knurled knob is tightened to maintain pressure on the battery contacts.



#### Antenna:

Flexible, unbreakable steel cable.

#### Battery:

AA lithium, disposable

#### Battery Life w/ Lithium AA:

|                      |          |
|----------------------|----------|
| SMWB 50 mW (1 AA):   | 4.4 hrs  |
| SMWB 100 mW (1 AA):  | 4.4 hrs  |
| SMDWB 50 mW (2 AA):  | 11.2 hrs |
| SMDWB 100 mW (2 AA): | 11.2 hrs |

#### Weight (w/ lithium batteries):

SMWB: 3.2 oz. (90.72 grams)  
SMDWB: 4.0 oz. (113.40 grams)

#### Overall Dimensions:

(without microphone)

SMWB: 2.366 x 1.954 x 0.642 inches;  
60.096 x 49.632 x 16.307 mm  
SMDWB: 2.366 x 2.475 x 0.642 inches;  
60.096 x 62.865 x 16.307 mm

#### Emission Designator:

180KF3E

## Recorder

#### Storage media:

microSDHC memory card

#### File format:

.wav files (BWF)

#### A/D converter:

24-bit

#### Sampling rate:

44.1 kHz

#### Recording modes/Bit rate:

- HD mono mode: 24 bit - 144 kbytes/s  
32 bit - 192 kbytes/s
- Split gain mode: 24 bit - 288 kbytes/s  
32 bit - 384 kbytes/s

#### Input

##### Type:

Analog mic/line level compatible;  
servo bias preamp for 2V and 4V lavalier  
microphones

##### Input level:

- Dynamic mic: 0.5 mV to 50 mV
- Electret mic: Nominal 2 mV to 300 mV
- Line level: 17 mV to 1.7 V

##### Input connector:

TA5M 5-pin male

#### Audio Performance

##### Frequency response:

20 Hz to 20 kHz; +0.5/-1.5 dB

##### Dynamic range:

110 dB (A), before limiting

##### Distortion:

< 0.035%

#### Operating temperature range

##### Celsius:

-20 to 50

##### Fahrenheit:

-5 to 122

Specifications subject to change without notice.



581 Laser Road NE • Rio Rancho, NM 87124 USA • [www.lectrosonics.com](http://www.lectrosonics.com)  
+1(505) 892-4501 • fax +1(505) 892-6243 • (800) 821-1121 US and Canada • [sales@lectrosonics.com](mailto:sales@lectrosonics.com)