

SMB Series

TECHNICAL DATA

Super Miniature Transmitters

SMB/E01, SMDB/E01, SMB/E02, SMDB/E02

- **Digital Hybrid Wireless® Technology**
US Patent 7,225,135
- **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 variety of different receivers**
- **AA battery powered with Sleep mode**
- **Servo Bias input circuitry**
- **Goretex® vent moisture prevention**

SMB Series transmitters are ideal for motion picture and television production, live theater and other productions where costuming is prevalent and the wireless must be concealed. Despite their tiny size, the transmitters are feature rich and well suited to demanding production environments where outstanding audio quality and RF performance are mandatory in the midst of temperature and moisture extremes.

Both models are compatible with the LectroRM app for **hands free** setup and adjustment. The transmitter can be put to sleep to conserve battery power during setup while the transmitter is buried deep inside costuming, then awakened for normal operation when the production begins. Other features include frequency and audio level adjustment and control lockout.

Digital Hybrid Wireless® is a revolutionary new design that combines digital audio with an analog FM radio link to provide outstanding audio quality and the exemplary RF performance of the finest analog wireless systems.

This overcomes channel noise in a dramatically new way, digitally encoding the audio in the transmitter and decoding it in the receiver, yet still sending the encoded information via an analog FM wireless link. This proprietary algorithm is not a digital implementation of an analog compander. Instead, it is a technique which can be accomplished only in the digital domain.

The process eliminates compander artifacts, expanding the applications to include test and measurement of acoustic spaces and musical instruments.



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 before the A-D converter. 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.

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 or rechargeable AA batteries.

The housings are 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.

Specifications and Features

Operating frequencies:

Block 470 470.100 - 495.600
 Block 19 486.400 - 511.900
 Block 20 512.000 - 537.500
 Block 21 537.600 - 563.100
 Block 22 563.200 - 588.700
 Block 23 588.800 - 614.300
 Block 24 614.400 - 639.900
 Block 25 640.000 - 665.500
 Block 26 665.600 - 691.100

E02 Additional Frequencies:

Block 27 691.200 - 716.700
 Block 28 716.800 - 742.300
 Block 29 742.400 - 767.900
 Block 30 768.000 - 793.500
 Block 31 793.600 - 819.100
 Block 32 819.200 - 844.700
 Block 33 844.800 - 869.300

NOTE: It's the user's responsibility to select the approved frequencies for the region where the transmitter is operating.

Frequency range:

256 frequencies in 100 kHz steps for one 25.5 MHz wide block

Channel Spacing:

100 kHz

Type of Modulation:

FM

Frequency selection:

Control panel mounted membrane switches

RF Power output:

E01: 50 mW (nominal)
 E02: 10 mW

Compatibility Modes:

E01: Digital Hybrid Wireless® and IFB
 E02: Digital Hybrid Wireless®, Mode 3, and IFB

Pilot tone:

E01: 25 to 32 kHz; 3 kHz deviation in hybrid mode
 E02: 1.9 kHz

Frequency stability:

± 0.002%

Deviation:

± 50 kHz max. in hybrid mode

Spurious radiation:

Compliant 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:

40 dB; panel mounted membrane switches

Modulation indicators:

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

Controls:

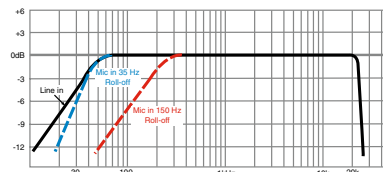
Control panel with LCD and four membrane switches.



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

Low frequency roll-off:

Adjustable from 35 to 150 Hz.



Audio Frequency Response:

35 Hz to 20 kHz, +/-1 dB (The low frequency roll-off is adjustable - see graph above)

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

Total Harmonic Distortion:

0.2% typical (400 Series mode)

Audio Input Jack:

Switchcraft 5-pin locking (TASF)

Antenna:

Flexible, unbreakable steel cable.

Batteries:

1.5 Volt AA lithium or rechargeable NiMH recommended

Battery Life:

SMB: 2 hours (alkaline); 7.25 hours (lithium), 5 hours with 2500mAh NiMH
 SMDB: 6 hours (alkaline); 14.5 hours (lithium), 8.5 hours with 2500mAh NiMH
 SMB: 2.7 oz.. (75.9 grams) with lithium battery
 SMDB: 3.7 oz.. (105 grams) with lithium

Weight:

batteries

Overall Dimensions:

SMB: 2.3 x 1.8 x 0.64 inches (not including microphone)
 58 x 46 x 16 mm (not including microphone)
 SMDB: 2.3 x 2.4 x 0.64 inches (not including microphone)
 58 x 60 x 16 mm (not including microphone)

Specifications subject to change without notice.



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