

### SMB/E01 and SMB/E02 Miniature Transmitters

- 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 compandor. Instead, it is a technique which can be accomplished only in the digital domain.

The process eliminates compandor 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 606	606.000 - 631.500
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 - 861.900

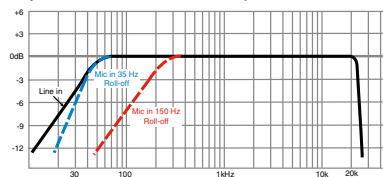
**NOTE: It's the user's responsibility to select the approved frequencies for the region where the transmitter is operating.**

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 lavaliere 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 lavaliere:	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 lavaliere.
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 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)
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
Weight:	SMB: 2.7 oz.. (75.9 grams) with lithium battery SMDB: 3.7 oz.. (105 grams) with lithium 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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