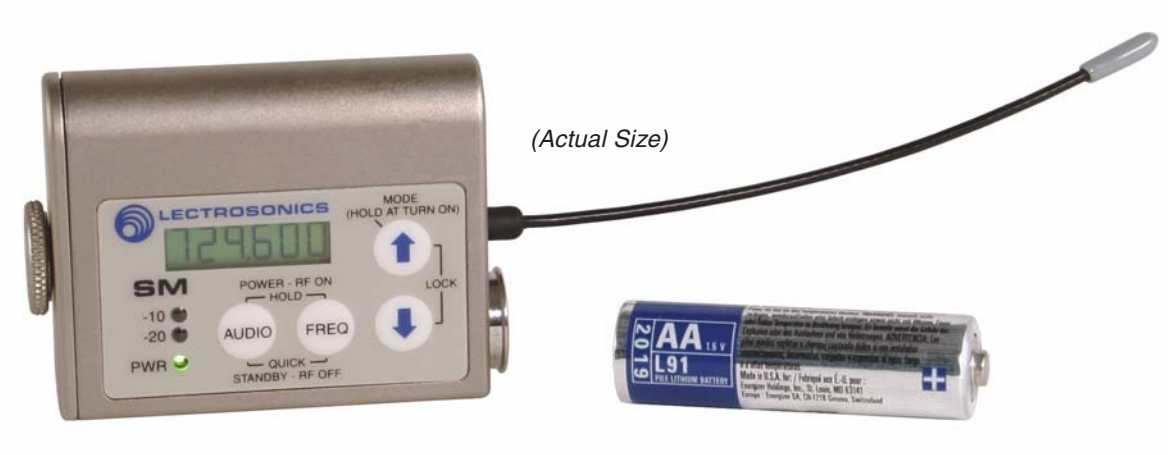
SM

TECHNICAL DATA

Digital Hybrid Wireless™ Super-Miniature UHF Transmitter



(Actual Size)

- **Digital Hybrid Wireless™ Technology***
- **LCD and membrane switch control panel**
- **256 synthesized UHF frequencies**
- **100 mW output power**
- **Wide input dynamic range**
- **Five-level audio metering**
- **DSP based pilot-tone signal**
- **Circulator/Isolator output stage**
- **Splash-proof, machined aluminum housing**
- **Non-corrosive, superhard finish**

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.

The design 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 a compandor and its artifacts, expanding the applications to include test and measurement of acoustic spaces and musical instruments.

*US Patent Pending

Lectrosonics sets a new standard for size, power, reliability and functionality with the ultra miniature SM transmitter. Not much bigger than two AA batteries, the 100 mW SM packs all user controls onto an easy-to-operate control panel that includes an LCD, four membrane switches for adjusting operating frequency and audio input level, plus LED modulation and power indicators.

Switching power supplies throughout the design allow nearly six hours of operation using a single AA lithium battery, or 4.5 hours with a rechargeable 2500 mAh NiMH battery. Even an alkaline AA will run for about 1.5 hours.

The innovative servo bias input on the standard 5-pin connector provides a programmable, regulated voltage to accommodate a wide variety of electret microphones. Two bicolor LEDs make adjusting input levels for proper modulation easy and accurate.

DSP-Based Pilot Tone & Compatibility

The DSP eliminates the need for fragile crystals, plus it allows a different pilot tone for each of the 256 frequencies in the tuning range of a system's frequency block. Individual pilot tones virtually eliminate squelch problems in multichannel systems where a pilot tone signal can appear in the wrong receiver via intermodulation products. A circulator/isolator in the output stage further ensures against intermodulation interference.

The DSP also allows for backward compatibility, allowing the SM to work with all of Lectrosonics Digital Hybrid Wireless receivers, IFB systems, 200 Series and 100 Series analog products, plus analog receivers from some other manufacturers.

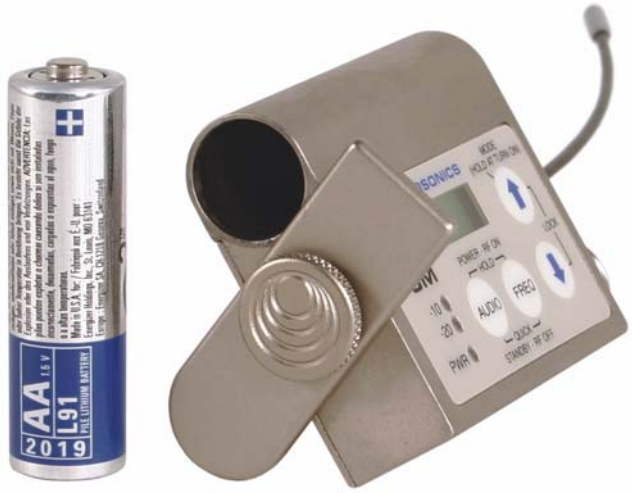
LECTROSONICS®
Rio Rancho, NM, USA
www.lectrosonics.com

Frequency Agile

Intense multichannel and mobile venues must have a broad selection of frequencies available to alleviate interference problems. Two membrane switches located on the LCD control panel are used to select 256 frequencies in 100 kHz steps over a 25.6 MHz bandwidth (frequency block).

Rugged

The splash-proof SM housing is machined out of a single block of aluminum, which is then plated with a superhard, noncorrosive coating. The unit is equally at home in theatre, television and film where temperature and environmental extremes demand superior performance under the most demanding conditions.



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

Specifications

Note: Some specifications apply only when the SM is operating in the 400 Series mode.

Operating Frequencies (MHz):
Block 21: 537.600 - 563.100
Block 22: 563.200 - 588.700
Block 23: 588.800 - 607.900 & 614.100 - 614.300
Block 24: 614.400 - 639.900
Block 25: 640.000 - 665.500
Block 26: 665.600 - 691.100
Block 27: 691.200 - 716.700
Block 28: 716.800 - 742.300
Block 29: 742.400 - 767.900

Frequency Range: 256 frequencies in 100 kHz steps for each 25.5 MHz wide block

Channel Spacing: 100 kHz

Frequency Selection: Control panel mounted membrane switches

RF Power output: 100 mW (nominal)

Compatibility Modes (5): Digital Hybrid Wireless™ (400 Series), 200 Series, 100 Series, IFB and Mode 3 (other analog)

Pilot tone: 25 to 32 kHz; 5 kHz deviation; unique pilot tone frequency for each selected carrier frequency (400 Series mode)

Frequency stability: ± 0.002%

Deviation: ± 75 kHz (max) (400 Series mode)

Spurious radiation: 60 dB below carrier

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: 1.7 uA to 170 uA before limiting. Greater than 5000 uA (5 mA) with limiting
Line Level Input: 5.0 mV to 500 mV (0.5 V) before limiting. Greater than 15 V with limiting

Input impedance:
Dynamic Mic: 300 Ohms
Electret Lavaliere: Virtual ground with servo adjusted constant voltage bias
Line Level: 2.7 k Ohms

Bias Voltages: Fixed 5 V at up to 5 mA
Selectable 2 V or 4 V for any electret lavaliere microphone

Input limiter: Soft limiter; 30 dB range

Gain control range: 44 dB; panel mounted membrane switches

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

Audio Performance:

Frequency Response: 35 Hz to 20 kHz (+/-1dB);
-3 dB @ 70 Hz low frequency roll-off,
18 dB/octave

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. Once activated, the limiter compresses 30+ dB of transmitter input range into 4.5 dB of receiver output range, thus reducing the measured figure for *SNR without limiting* by 4.5 dB.

THD: 0.2% (typical), (400 Series mode)

Audio Input Jack: Switchcraft 5-pin locking (TA5F)

Antenna: Flexible, unbreakable steel cable

Battery: 1.5 Volt AA lithium or rechargeable NiMH recommended

Battery Life: Alkaline: 1.5 hours
Lithium: over 5.5 hours (typical)
2500 mAh NiMH: 4 hours

Weight: 2.7 oz.. (75.9 grams) with lithium AA battery, excluding microphone

Dimensions: 2.3 x 1.8 x 0.64 inches, excluding antenna

Emission Designator: 180KF3E

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