



The HMa/E01 UHF plug-on transmitter features a DSP-based design that allows the transmitter to operate in its native Euro Digital Hybrid Wireless® mode and Lectrosonics IFB modes. A unique multi-voltage phantom power feature allows the transmitter to be used with virtually any microphone, including high-current condenser types, expanding its usefulness in high-end applications such as motion picture production.

The transmitter provides up to 3072 frequencies selected with the membrane switch keypad. The input amplifier uses an ultra low noise op-amp for quiet operation. It is gain controlled with a wide range dual envelope limiter, providing over 30 dB of headroom above full modulation. A 24-bit A-D converter digitizes the audio, then filters supersonic noise above 21 kHz. The resulting signal is encoded with a proprietary algorithm to produce an analog data signal for RF transmission.

The antenna is formed between the lower housing of the transmitter and the attached system. It functions as a dipole radiator when attached to a hand-held microphone and somewhat like a ground plane antenna when connected into a mixer. The conical shaped collar on the input coupler is made of DuPont™ Delrin® to improve the ERP of the antenna in the uppermost frequency blocks.

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 compandor artifacts, expanding the applications to include test and measurement of acoustic spaces.

*US Patent 7,225,135

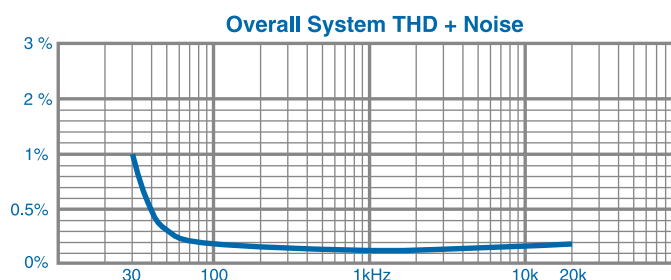
- Accepts audio from any microphone or audio source with an XLR connector
- Selectable 5, 15 and 48 volt phantom power plus off position for dynamic microphones
- 76 MHz tuning range in 100 kHz or 25 kHz steps for up to 3072 frequencies
- LCD and membrane switches for setup
- Remote controlled “dweedle” tones (audio tone set-up control)
- Adjustable low frequency roll-off
- Powered by two AA batteries
- Selectable 25/50 mW output power
- Rugged machined aluminum housing

DSP-Based Pilot Tone & Compatibility

A DSP generated pilot tone eliminates the need for fragile crystals, plus it allows a different pilot tone for each frequency within each of the three 25.6 MHz blocks across the 76 MHz tuning range. Individual pilot tones virtually eliminate squelch problems in multichannel systems where a pilot tone signal can appear in the wrong receiver via IM (intermodulation) products.

Outstanding Audio Performance

The audio performance of the overall hybrid system is depicted in the graph below. Distortion in the overall system is extremely low over the entire audio bandwidth.

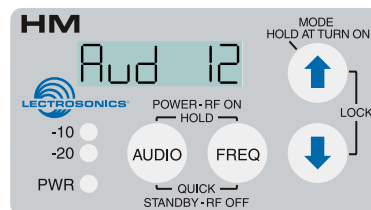




The battery compartment door is hinged to the housing and remains attached to the transmitter when opened. It securely latches in place and applies pressure to the batteries when closed. The two AA batteries are connected in series through a conductive plate on the door.

Setup and adjustments are made with the control panel membrane switches and LCD. The transmitter can be powered up without the transmitter output enabled to allow frequency adjustments without causing interference to other wireless systems nearby. The switches can also be bypassed to prevent accidental changes.

Dual color LEDs indicate audio input level. The power LED changes color under low battery condition.



Specifications

Operating Frequencies:

Block A1: 470.100 - 537.575
Block B1: 537.600 - 614.375
Block C1: 614.400 - 691.175

Frequency Selection Steps:

Selectable; 100 kHz or 25 kHz

RF Power output:

Selectable 25/50 mW

Pilot tone:

25 to 32 kHz; 3 kHz deviation
(in the Digital Hybrid Wireless operating mode)

Frequency stability:

$\pm 0.002\%$

Deviation:

± 50 kHz (Digital Hybrid Wireless mode)

Spurious radiation:

60 dB below carrier

Equivalent input noise:

-125 dBV (A-weighted)

Input level:

Nominal 2 mV to 300 mV, before limiting.
Greater than 1V maximum, with limiting.

Input impedance:

1K Ohm

Input limiter:

Dual envelope "soft" limiter; greater than 30 dB range

Gain control range:

55 dB; panel mounted membrane switches

Modulation indicators:

Dual bi-color LEDs indicate modulation of
-20, -10, 0, +10 dB referenced to full modulation

Audio Performance (overall system):

Frequency Response:

35 Hz to 20 kHz (+/-1dB);

Low frequency Roll-off:

Adjustable for -3dB @ 30, 50, 70 Hz)

THD:

0.2% (typ. 100 Hz to 20 kHz - see graph)

SNR at receiver output:

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.

Input Dynamic Range:

125 dB (with full Tx limiting)

SmartNR	no limiting	w/limiting
OFF	103.5	108.0
NORMAL	107.0	111.5
FULL	108.5	113.0

Controls & Indicators:

- Power/Phantom "ON-OFF"
- Phantom voltage selector
- Audio input gain
- LCD w/membrane switches
- LED audio level indicators

Audio Input Jack:

Standard 3-pin XLR (female)

Phantom Power:

5V @ 18 mA max., 15V @ 15 mA max.
and 48 V @ 4 mA max., plus "OFF"

Antenna:

Housing and attached microphone form the antenna

Battery:

Two 1.5 Volt AA alkaline

Battery Life (Duracell Quantum alkaline):

AA alkaline; No Phantom Power 5 hours*
AA alkaline; 47V Phantom Power 3 hours, 30 minutes**

*Tested with a dynamic microphone

**Tested with a Sanken CS1 for a phantom-powered microphone

Weight:

6.7 oz (190 grams) without batteries

Dimensions:

4.25x1.62x1.38 inches

Emission Designator:

180KF3E



581 Laser Road NE • Rio Rancho, NM 87124 USA • www.lectrosonics.com
(505) 892-4501 • (800) 821-1121 • fax (505) 892-6243 • sales@lectrosonics.com

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