

### UHF Plug-on Transmitter

- Converts microphones with XLR jacks to wireless operation
- LCD and membrane switches for setup
- Selectable 5, 18 and 48 volt phantom power plus off position for dynamic microphones
- Adjustable low frequency roll-off
- Powered by two AA batteries
- 256 synthesized UHF frequencies
- 50 mW output power
- Rugged machined aluminum housing

The HM plug-on transmitter features a DSP-based Digital Hybrid Wireless™ design that allows the transmitter to operate in its native, compandor-free hybrid mode or in compatibility modes for IFB products. The body of the transmitter is machined from a solid billet and finished in a Teflon impregnated nickel plating for the ruggedness needed in field production.

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. Membrane switches and an LCD are used for all setup and operation, and the control panel can be locked out to prevent inadvertent changes.

The RF output circuit includes a one way circulator/isolator using a magnetically polarized ferrite. This device greatly reduces the RF intermodulation produced when multiple transmitters are used in close proximity to one another (several feet apart). The isolator also provides additional RF output stage protection.

The input amplifier uses an ultra low noise op-amp, gain

**Digital Hybrid Wireless™** is a revolutionary design that combines digital audio with an analog FM radio link to provide both outstanding audio quality and exemplary, noise-free RF performance.

Using a patented algorithm to encode 24-bit digital audio information in the transmitter into an analog format, the encoded signal is then transmitted over an analog FM wireless link.

At the receiver, the signal is then decoded to restore the original digital audio. This process eliminates compandor artifacts and produces an audio frequency response flat to 20 kHz.

*(US Patent 7,225,135)*

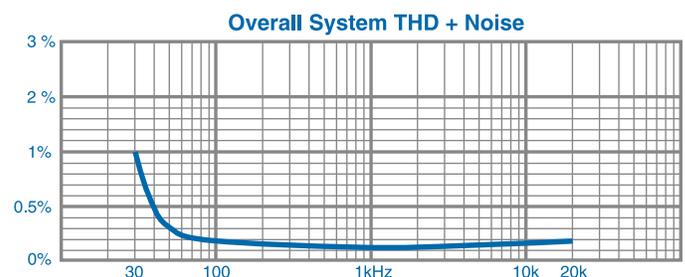


controlled with a DSP-based wide range dual envelope limiter to provide over 30 dB of headroom above full modulation. A 24-bit A-D converter digitizes the audio, then filters supersonic noise above 21 kHz. The resulting signal is encoded with a proprietary algorithm to produce an analog data signal for RF transmission. The underlying RF link is an optimized FM system with +/-50 kHz deviation for a high signal to noise ratio and wide dynamic range.

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 similar to a ground plane antenna when connected into a mixer.

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.

A DSP compatibility mode allows the HM to be used with Lectrosonics IFB receivers for special applications.

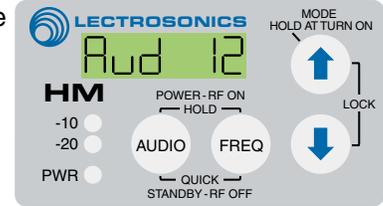




The battery compartment door is hinged to the housing and remains attached to the transmitter when opened. It securely latches in place and applies pressure to the batteries when closed. The two AA batteries are connected in series through a conductive plate on the door.

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 from being made.

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



## Specifications

### Operating Frequency Ranges (MHz):

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
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

<b>Frequency selection:</b>	256 frequencies in 100 kHz steps
<b>RF Power output:</b>	50 mW (nominal)
<b>Pilot tone:</b>	25 to 32 kHz; 2 kHz deviation (in the Digital Hybrid compatibility mode)
<b>Frequency stability:</b>	± 0.002%
<b>Deviation:</b>	± 50 kHz (max)
<b>Spurious radiation:</b>	60 dB below carrier
<b>Operating temperature range:</b>	-30° C to +60° C
<b>Equivalent input noise:</b>	-118 dBV (A-weighted)
<b>Input level:</b>	Nominal 3mV to 450 mV, before limiting. Greater than 10 V maximum, with limiting.
<b>Input impedance:</b>	1k Ohm
<b>Input limiter:</b>	Dual envelope "soft" limiter; greater than 30 dB range
<b>Gain control range:</b>	44 dB; semi-log rotary control
<b>Modulation indicators:</b>	Dual bi-color LEDs indicate modulation of -20, -10, 0, +10 dB referenced to full modulation

### Audio Performance (overall system):

<b>Frequency Response:</b>	35 Hz to 20 kHz (+/-1 dB); low frequency roll-off is adjustable
<b>THD:</b>	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.

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

### Input Dynamic Range:

125 dB (with full Tx limiting)

### Controls:

Four membrane switches and LCD on control panel for all setup and adjustment

### Audio Input Jack:

Standard 3-pin XLR (female)

### Phantom Power Selector:

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 AA; lithium or NiMH type

### Battery Life:

4.5 hours (alkaline); 12 hours (lithium) (battery life varies with battery brand, phantom power selection and mic current consumption)

### Weight:

6.7 ozs. - 190 grams (without batteries)

### Dimensions:

4.25 x 1.62 x 1.38 inches

### Emission Designator:

190KF3E

# CE 1313

