



Digital Hybrid Wireless™ UHF Belt Pack Transmitter



- Optimized for musical instrument pickups
- Digital Hybrid Wireless™ technology (US patent pending)
- Multi-mode compatibility with Digital Hybrid and analog receivers
- 256 synthesized frequencies
- Greater than 50mW output power
- DSP-based pilot tone signal
- DSP controlled, dual envelope input limiter
- 5-pin input jack for mic, line level and musical instrument pickup signals
- Rugged machined aluminum construction

For decades, musicians have searched for a wireless system that sounds as good as a cable. The IM belt pack transmitter is designed using new technology to operate with musical instruments such as guitars, basses, stringed instruments and horns by providing a wide, flat frequency response and wide dynamic range. By using the proprietary Digital Hybrid Wireless™ system, the IM transmitter avoids audio artifacts created by analog compandor circuits found in typical wireless systems.

A locking 5-pin input jack is designed to operate with the MI33A instrument cables or with a high-quality microphone. When used as part of the IS400 Instrument System, the IM becomes an integral part of an award winning package, providing crystal-clear sound for your instrument.

Digital Hybrid Wireless™ is a patent-pending, revolutionary new design that combines digital audio with an analog FM radio link to provide outstanding audio quality and the extended operating range of the finest analog wireless systems. The process eliminates a compandor and its artifacts.

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, even though the audio inputs and outputs are analog signals.

Two 16-position rotary switches adjust the transmitter's operating frequency over a 25.6 MHz bandwidth in 100 kHz increments. A removable low profile stainless steel wire belt clip is provided for conventional use. Remove the belt clip for use in pouches or concealment in costumes or clothing.



Audio level control with a 43 dB range and two front panel mounted bicolor LEDs ensure precise input gain adjustment, minimum distortion and maximum signal to noise ratio.

The IM addresses the problem of finding clear operating channels offering 256 different synthesized frequencies in each of nine standard Lectrosonics frequency blocks between the UHF range of 537.600 and 767.900 MHz. Each frequency block has a 25.6 MHz bandwidth.

A DSP-based pilot tone system ensures that the receiver remains muted until it receives the pilot tone from the matching transmitter, even when a competing RF signal is present on the carrier frequency. This process also means that all transmitters in a system have different pilot tone frequencies so that even spurious RF from a different transmitter in the same system will not open the squelch on the wrong receiver.

For use with electric guitars, basses, or acoustic guitars with pickups, the MI33ARA (right angle) and MI33AST (straight) instrument cables are the perfect compliment to the IM transmitter. A super high-impedance JFET input* circuit inside the 1/4" connector ensures that your instrument's tone and dynamics are preserved. The MI33A cables are 33 inches long and made with Belden 9397 cable material. A locking TA5F connector at the transmitter end ensures a rugged connection for touring and stage use.



* Passive cables also available for high-output, low-impedance instruments.



The machined aluminum battery door is hinged to the housing. Battery contacts automatically adjust to a wide variety of alkaline and lithium 9V batteries.

A single 9 V lithium battery can power the 50 mW transmitter for up to 13 hours (up to 6 hours with an alkaline battery). The IM transmitter is housed in a rugged machined aluminum shell that is powder coated, then laser engraved for long-term legibility. A removable stainless steel wire belt clip is provided.

Specifications

Operating Frequencies: Block 21 537.600 - 563.100
 Block 22 563.200 - 588.700
 Block 23 588.800 - 607.900 and 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 Selection: 256 frequencies in 100 kHz steps

Channel Separation: 100 kHz

RF Power output: Greater than 50 mW

Pilot tone: 25 to 32 kHz; 5 kHz deviation (400 Series only)

Frequency Stability: ± 0.002%

Deviation: ± 75 kHz max. (400 Series only)

Spurious radiation: 60 dB below carrier

Equivalent input noise: -120 dBV (A-weighted)

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

Input impedance: 2k Ohm

Input limiter: Dual env. "soft" limiter; >30 dB range

Note: The dual envelope "soft" limiter provides exceptionally good handling of transients using variable attack and release time constants.

Gain control range: 43 dB; semi-log rotary control

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

Audio Performance (400 Series Compatibility Mode):

Frequency Response: 40 Hz to 20 kHz (+/-1dB)

Low frequency roll-off: -12 dB/octave; 35 Hz

THD: 0.2% (typical)

SNR at receiver output:

SmartNR	No Limiting	W/ Limiting
OFF	103.5	108.0
NORMAL	107.0	111.5
FULL	108.5	113.0

The gradual onset of limiting in the design begins below clipping level, which reduces the measured figure for SNR without limiting by 4.5 dB)

Controls:

- Two position "ON-OFF" power switch
- Audio input gain control on front panel
- Two 16-position rotary switches adjust transmitter frequency

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

Antenna: Galvanized steel, flexible wire

Battery: Precision compartment auto-adjusts to accept any known alkaline 9 Volt battery.

Battery Life: 6 hours (alkaline); 13 hours (lithium)

Weight: 6.3 ounces, including lithium 9 V battery and antenna

Dimensions: 3.1 x 2.4 x .75 inches

Emission Designator: 180KF3E



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