



## Digital Hybrid Wireless® Belt-Pack Transmitter

### LT, LT/E01, LT/E06, LT/X

- Digital Hybrid Wireless® for compandor-free audio
- Selectable 50 or 100mW output power (varies per model - see specifications)
- Compatibility modes for use with analog receivers
- 25 or 100 kHz tuning steps (varies per model)
- Integrated multi-function switch for mute or talkback modes
- Wide range input gain control in 1 dB steps
- IR port for setup with IR enabled receivers
- USB port for firmware updates
- Menu selectable mic or instrument input
- Optional battery eliminator
- Detachable antenna

The LT transmitter offers a full set of professional features in a compact, rugged package. The unit is compatible with all Digital Hybrid Wireless® receivers and even some from other manufacturers, making it comfortable in a wide variety of applications from video production to theater, stage and house of worship.

The LT can be configured to operate as a “one touch” device with a single power on/off switch on the top panel, or with full access to all operational parameters using the side panel membrane switches and LCD interface. The top panel switch can also be configured to provide a mute or **talkback** function.

Frequencies are selectable in 25 kHz or 100 kHz steps. An IR port on the membrane panel enables automatic setup when coupled with an IR enabled receiver. A USB port on the side panel allows firmware updates to be made easily.

The servo bias input accepts mic or line level signals with a wide range of gain adjustment in 1 dB steps. A menu selectable instrument level input is available on the LCD. Accurate LED indications on the top panel and a bar graph indicator on the LCD allow precise gain adjustments to be made for the maximum signal to noise ratio and minimum distortion.

Digital Hybrid Wireless® is a patented design that combines 24-bit 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 design overcomes channel noise in a dramatically different 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.



\*US Patent 7,225,135

The limiter in the preamp can cleanly handle signal peaks over 30 dB above full modulation, allowing the input gain to be set high enough to achieve the maximum signal to noise ratio with no risk of overload distortion.

The unit is powered by two AA batteries or an optional battery eliminator that replaces the hinged battery door. Wired or spring loaded belt clips are available.

The housing is machined from a solid aluminum billet, finished with an ultra hard, black electroless nickel finish called **ebENI**.

**WARNING: Moisture, including talent's sweat, will damage the transmitter. Wrap the LT in a plastic baggie or other protection to avoid damage, or see the LTCVR.**



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# Specifications

## Operating Frequencies:

|         |           |                   |
|---------|-----------|-------------------|
| US:     | Band A1:  | 470.100 - 537.575 |
|         | Band B1:  | 537.600 - 607.950 |
|         | Band 606: | 606.000 - 631.500 |
|         | Band C1:  | 614.400 - 691.175 |
| LT/E01: | Band A1:  | 470.100 - 537.575 |
|         | Band B1:  | 537.600 - 614.375 |
|         | Band 606: | 606.000 - 631.500 |
|         | Band C1:  | 614.400 - 691.175 |
| LT/E06: | Band B1:  | 537.600 - 614.375 |
|         | Band C1:  | 614.400 - 691.175 |
| LT/X:   | Band A1:  | 470.100 - 537.575 |
|         | Band B1:  | 537.600 - 614.375 |
|         | Band C1:  | 614.400 - 691.175 |

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

Frequency Selection Steps: US: Selectable; 100 kHz or 25 kHz  
 E01: Selectable; 100 kHz or 25 kHz  
 E06: Selectable; 100 kHz or 25 kHz  
 X: Selectable; 100 kHz or 25 kHz

RF Power output: US: Selectable: 50 or 100mW  
 E01: 50mW  
 E06: < 100 mW EIRP  
 X: 50 or 100 mW

Compatibility Modes: US: Nu Hybrid, IFB, Mode 3  
 E01: Hybrid, IFB  
 E06: Hybrid, IFB  
 X: Hybrid, IFB

Pilot tone: 25 to 32 kHz; 3 kHz deviation (Digital Hybrid)  
 25 to 32 kHz; 3.5 kHz deviation (Nu Hybrid)

Frequency Stability: ± 0.002%

Spurious radiation: US: Compliant with ETSI EN 300 422-1 v1.4.2  
 E01/E06/X: 60 dB below carrier

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

## Input level:

Mic: • Nominal 2 mV to 300 mV, before limiting  
 Greater than 1V maximum, with limiting

Instrument: • 1M Ohm high level

Input impedance: Line: 2k Ohm; Mic: 300 Ohm

Input limiter: DSP controlled, dual envelope "soft" limiter with greater than 30 dB range

Gain control range: 44 dB; digital control

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

Controls: • Top panel slide switch; programmable as **power**, **mute**, **talkback** or **no** (off) function  
 • Side panel membrane switches with LCD interface for power on/off and all setup and configuration controls

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

Antenna: Galvanized steel, flexible wire  
 Battery: Two AA; alkaline, lithium, NiMH rechargeable  
 Battery Life: • Duracell Quantum: 4.75 hours  
 • Eneloop 2400 mAh NiMH: 5.5 hours  
 Weight: 5.9 ounces (169 grams), with lithium AA batteries  
 Dimensions: 2.85 x 2.45 x .75 in. (72 x 62 x 19 mm)  
 Emission Designator: 110KF3E (LT)  
 180KF3E (E01/E06/X)

## Audio Performance (Overall System - Digital Hybrid mode)

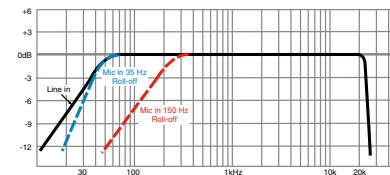
### Frequency Response:

Line/Instrument: 35 Hz to 20 kHz (+/-1dB)

Mic input: 35 Hz to 20 kHz (+/-1dB)

Mic input LF roll-off: Selectable knee at 35, 50, 70, 100, 120, 150 Hz

THD: 0.2% (typical)



The roll-off slope steepens at lower frequencies.

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 with **no 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       |



Specifications subject to change without notice.

