

## THEORY OF OPERATION

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The ES FM/FSK transmitter is capable of generating 1mW of output power into a 50-ohm load while maintaining harmonics and spurious emissions within legal limits. The transmitter is comprised of a VCO and a crystal-controlled frequency synthesizer. The frequency synthesizer, referenced to a precision crystal, locks the VCO to achieve a high-Q, low phase-noise oscillator.

The transmitter modulates the carrier with the baseband signal present at the TXDATA pin. If the signal is analog in nature, it will FM modulate the carrier. If the signal is digital, the modulation method becomes FSK. Modulation is achieved by direct modulation of the reference crystal. By modulating the transmitter in this manner, a wide modulation bandwidth is achieved. If the transmitter LO were modulated, the frequency synthesizer would track out modulation within the bandwidth of the loop filter (this is a common limitation of most synthesized FM transmitters).

No external components (excluding an antenna) are required. Linx offers a wide selection of antennas designed for use with the ES transmitter module.