

Transmitter Theory of Operation

The HP-TXM is a high performance, eight channel, FM transmitter capable of transmitting digital data. Digital information is modulated at the transmitter using FSK , the binary for of frequency modulation.

An accurate 12.00MHz VCXO serves as the frequency reference for the transmitter. The modulation input pin is connect to the VCXO through a 25kHz two pole low pass filter. The low pass filter is used to shape the incoming date and limit the transmission bandwidth to 25 KHz.

The reference frequency is directly modulated. The modulated 12.00 MHz reference frequency is applied to the phase locked loop. The PLL combined with the 902-928 MHz VCO forms a stable frequency synthesizer which is programmed to oscillate at a number of preset frequencies. An on board micro controller reads the channel selection lines and programs the PLL to the desired channel frequency. The micro controller also monitors the status of the PLL and indicates when the transmitter is stable and ready to transmit.

A buffer amplifier is used to isolate the VCO from the antenna and to increase the output power of the transmitter. The output of the buffer amplifier is connected to a low pass filter which is used to suppress the harmonics emissions.