T900 TRANSMITTER

THEORY OF OPERATION

The T900 is a high-performance, eight-channel, FM transmitter board capable of transmitting analog or digital data.

Digital information is modulated at the transmitter using FSK (frequency shift keying), the binary form of frequency modulation.

An accurate 12.00 MHz VCXO (voltage-controlled crystal oscillator) serves s the frequency reference for the transmitter. The modulation input pin is connected to the VCXO through a two-pole low-pass filter. The low-pass filter is used to shape the incoming data and limit the transmission bandwidth to 25kHZ.

The modulated 12.00 MHz reference frequency is applied to the Phase-Locked Loop (PLL). The PLL, combined with a 902-928 MHz VCO, forms a stable frequency synthesizer that can be programmed to oscillate at a number of preset frequencies via the channel select lines.

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 data by asserting the CTS line high.

A buffer amplifier is used to isolate the VCO from the antenna. The output of the buffer amplifier is connected to a LPF which is used to suppress harmonic emissions.

An RF pad is used to adjust the transmitter level to the antenna to meet FCC Part 15 Regulations.