

Operational Description**WeatherTRAK Circuit Operation**

The WeatherTRAK Irrigation Controller consists of two basic subsystems:

1. A microController-based sprinkler timer of conventional design.
2. A radio receiver optimized to receive Paging signals in the 928-932MHz band.

The basic operating frequency of the microController is 16.000 MHz; radiation of this signal and its harmonics are very low because all of the high frequency signals are on-chip with very short radiating conductors.

The radio receiver is a direct conversion superheterodyne circuit. A ceramic chip antenna, or an Antenex TRA8903P 890-960MHz Helical antenna, is fed to a preamplifier with a gain of about 15dB. The signal is then down-converted to a 307 kHz IF by a local oscillator.

The 307 kHz signal is then digitally filtered and demodulated and decoded.

When an incoming message is detected, the microcontroller retrieves the message from the decoder chip and uses the data payload to influence the irrigation schedule in the sprinkler timer.