

## Description of the Transmitter and Receiver used in L.R.Nelson Solorain Product Line

The receiver and transmitter units are housed on a single printed circuit board to make up a digital transceiver. The 8060, 8040 and 8081 use the same receiver and transmitter chip sets. The 8060 and 8040 also incorporate an 8-bit microcontroller to encode and decode data to and from another transceiver pair.

The 8060 and 8040 transceivers will reside on small, battery powered water valve controllers used for commercial and consumer irrigation systems. The transceivers will enable wireless programming of the intelligent water valves using a battery powered console incorporating an 8081 transceiver radio. In most applications, the intelligent water valves will be housed underground within irrigation valve enclosures. The handheld consoles will be used by irrigation contractors to program the intelligent valves as needed.

Both the console and intelligent water valve incorporate microcontroller technology. Present communication between the two devices is accomplished using a three-wire serial connection. Wireless transmission will modulate the digital serial data using an OOK (On-Off Keying) technique. A mark symbol is represented in the presence of a sine wave carrier and a space symbol is the absence of that carrier. The console and intelligent water valve will operate the transceiver units in the same manner as the three-wire connection.