Schulmerich Bells, Inc.
Generation4 Outdoor Radio Remote Control
Description of Circuit Functions and Device Operation

References:
036-1717-000 Rev.E Transmitter Schematic
042-1218-000 Rev.A Transmitter Block Diagram

Power, Ground, and Antenna:

Power is provided by one user-replaceable 9V alkaline battery. An ON/OFF toggle switch provides a hard disconnect of the battery. An analog regulator reduces the voltage to 5.0V for all circuit power. The transmitter is handheld and has no connection to Earth ground. The antenna is a ¼-wave unloaded monopole. The Linx antenna is mounted by coaxial thread & nut to the plastic case. The antenna coax cable is molded into the antenna and the free end is soldered to the circuit board.

User inputs:

All inputs connect directly to the Holtek encoder. This includes a 4-bit rotary binary encoder, two pushbutton switches, two toggle switches, and a factory-set 4-position DIPswitch. The encoder stands idle until it gets an active signal on its Transmit Enable pin. Then it sends encoded data serially from its Data Out pin.

The two pushbuttons directly activate the Linx transmitter module by bringing its Power Down pin to the active state. The toggle switches (upon transition) activate one-shots, which in turn activate the transmitter's Power Down pin. There is also a keep-alive one-shot which activates the transmitter at 28 second intervals. Each activation means is isolated from the others by a steering diode.

When the transmitter module is brought out of power down mode, and is prepared to accept data, it asserts its Clear To Send pin. This pin is wired directly to the encoder's Transmit Enable pin, which causes the encoder to send serial data to the now active transmitter module. This activity continues for a one second burst or as long as one of the two pushbuttons is held down.

The Transmitter Module:

The module is supplied with a regulated 5V supply, a power down signal, serial data, and three frequency-select inputs. The frequency-select bits allow a carrier center of 903.37MHz to 921.37MHz, as charted on the referenced documents. All other transmitter parameters and functions are controlled by the module.