

Operational description of the Infrared Door Sensor, Model “Point Sensor IR Door”

**Description of the circuit functions, ground system and
antenna of the
IR DOOR SENSOR Wireless transmitter**

The Point Sensor IR door transmitter is a lithium battery powered, microprocessor based, 418 MHz. transmitter that transmits door status, open-state counter and transmit packet counters and a unique 30-bit serial number. The microprocessor is brought up from a power down state every 1 second by a DS2417 time of day clock interrupt output. The microprocessor switches power to IR LED for a short pulse and counts the total number of times that the IR pulse is seen by an IR sensor connected to an input of the microprocessor, and registers the current state of each opened or closed change. The microprocessor counts the 1-second interrupt cycles from the DS2417 clock until the transmit period has expired. The microprocessor then combines the counts and IR sensor status with serial number data from the onboard DS2417 and transmits the entire data packet serially with a Linx Technologies TXM-418-LC-R 418 MHz. Transmitter module. The microprocessor then powers down into a quiescent state to wait for the next interrupt from the DS2417 clock.

The PC board bottom layer is a ground plane and the antenna is a 1/4-wave spiral loop PC board that has been pressed against the enclosure top cover. The electronics is housed in a ABS enclosure held together with a screw.