Description of circuitry in Miltronics Detection System Transmitter.

As a reference to the following description refer to the Block Diagram – Transmitter sheet and the Sensor Transmitter schematic.

The Pyroelectric Infra Red (PIR) sensor along with the input lens form the sensing device used in the Miltronics motion sensing and notification systems. The PIR produces an output which varies with changes in radiation (temperature) levels, the change may can be caused by a person, animal, automobile or other object which has a radiation (temperature) level different from the background level. When the object passes in front of the PIR (denoted as PIR1 on the schematic) sensor a change in the output will be produced.

The PIR output is amplified, filtered and compared with the 4 sections of operational amplified U1. The output from U1 pin 7 will change states in response to a change in radiation at the PIR input indicating the presence of an object. The output of U1 will remain active for a few seconds and then return to an inactive state until another object passed in front of the PIR sensor.

The signal is then inverted by Q1 and applied to the enable pin of the encoding integrated circuit, a MC145026 (U2). When enabled (pin 14 low) the encoder IC will produce a coded pulse sequence at the output pin 15. The code sequence is determined by the settings of the 5 position DIP switch, S1.

The output from the encoder is applied to a Surface Acoustic Wave (SAW) resonator. When the encoder output is high the resonator will produce an oscillation at 303.825 Mhz, when the output is low the oscillation will stop. Thus when enabled the encoder will produce a sequence of oscillations, non-oscillations at the SAW.

The transistor, Q2, will amplify the oscillations from the SAW and apply an encoded power amplified signal to the antenna. The antenna will radiate RF energy in a modulated (determined by the encoding IC) burst mode each time an object is passed in the field of the PIR.

The antenna consist of a loop etched into the PCB and an 8 inch length of insulated wire.

A receiver tuned to the same 303 Mhz frequency in conjunction with a decoder integrated circuit will be used to detect and notify (by turning on a light or audio alarm) from a remote location, that an object has passed in front of the PIR sensor.