

# **RE-RF345-01**

## **OPERATIONAL DESCRIPTION/PURPOSE OF EXPERIMENT**

### **DESCRIPTION OF EQUIPMENT/THEORY OF OPERATION:**

The RE-RF345-01 is a small sensor with a wireless transmitter. This device is intended to be installed near a door or window and used in conjunction with a security system. The sensor uses reed switches and magnets to detect whether the window is opened or closed. A microcontroller monitors the reed switch sensors and transmits data packets when the window is opened or closed.

The transmitter circuit consists of a 345MHz SAW resonator, an oscillator transistor, an amplifier transistor, and associated passives. The amplifier stage is turned on and off to modulate the carrier. A printed antenna on the PCB radiates the RF signal.

The transmitted packet is ASK modulated and has an on-time of 12.96ms. Precautions are taken in the firmware to ensure that there is at least 100ms between packets.

### **OBJECTIVES SOUGHT TO BE ACCOMPLISHED:**

The goal of this experimental testing is to confirm that this design can provide reliable wireless communication from the transmitters located on/near the doors and windows of a home to the security system, which will be located within the same building. 10-12 wireless sensors will be mounted in each home location for this testing.