

## **Functional Description Of SaviTag 412, Model ST-412-XXX**

### **1. Power Supply**

The power supply consists of a single 3.6 volt AA lithium battery.

### **2. 433 MHz Receiver, Wide Area Communication**

The receiver consists of a single transistor RF amplifier followed by a mixer/IF detector. A SAW controlled local oscillator operates at 423.22 MHz to down convert the incoming signal to a 10.7 MHz IF frequency. This receiver processes control and data commands from a reader.

### **3. 433 MHz Transmitter**

The transmitter converts digital data from the microcontroller into a 433.92 MHz FSK signal which is then transmitted via the antenna to the reader (interrogator). The transmitter consists of a SAW controlled oscillator, single transistor buffer stage and a discrete component output filter.

### **4. CPU**

A Philips 87C51RD with a clock frequency of 8 MHz. The 8 MHz is divided by 6 to generate a 1.33 MHz Address Latch Enable for the EPROM.

### **5. EEPROM**

4Kbyte serial EEPROM (nonvolatile) for the tag ID configuration data and user data.

### **6. Beeper**

It is self-contained and is controlled directly by the microcontroller which provides operating power at 3.0 to 3.6 volts. The beeper will emit two beeps when the tag powers up. The beeper will emit one beep when the tag powers down.

### **7. Reed Switch**

The Reed Switch is closed when placed in proximity of a magnet. The mounting bracket for this tag has a magnet such that the Reed Switch closes only when the Tag is inserted into its bracket. Closing the Reed Switch provides power to the tag.