Theory of operation for the DB sensor

The DB sensor is an RF transmitter and is comprised of the following circuits; the oscillator, the encoder, the one shot power control, the trigger options and power supplies.

The transmitter drive circuit is designed around Q1 and resonator Y1 and operates as a 315Mhz saw resonator stabilized Colpitts oscillator.

Modulation for Q1 is supplied by U1 (an encoder chip which outputs a 9 bit serial word). The word consists of one start timing bit, two receiver annunciator control bits and six user security code bits. Words are set by an 8 position dip switch and are output in pairs for reliability.

The transmitter power control circuit is a one shot timer which supplies power to U1 and Q1.The 125ms on time allows the transmission of 3 to 5 encoded word pairs and lights the led indicator on the case.

The trigger circuitry supplies the start signal to the one shot timer. Multiple trigger options are available and are selected by SW3.

1. The case has a normally open push button switch to be used as a doorbell button (SW2).

2. Inside the case is an inductive pickup(L1) and buffer circuit (U2) to be used to sense the magnetic impulse from a buzzer or speaker.

3. The phone jack (J2) allows external connections and can be used to sense a switch closure normally open dry contact type.

4. Connected to a momentary 8-24v ac or dc supply, this will power all the circuitry and trigger the transmitter. The wide input voltage range is regulated by U3 and D7. The phone jack tip must be negative for DC voltage.
Remote operation utilizes a standard 9v alkaline battery as the power source.