



DOORKING Inc.

## Function Description of Model 8066 Handheld Garage Door Type Transmitter

The transmitter consists of encoder chip, SAW stabilized RF oscillator, and a 12 volt battery to power the device.

### Encoder

The processor/encoder chip is manufactured by Freescale Inc. The part number is MC68HC908JK1. The encoder is preprogrammed at Doorking with a serial number, which is used to later modulate the RF oscillator when the encoder is activated. The serial number is unique to each transmitter and is used to identify the transmitter.

The output ( pins 19,18,17,16 ) of the encoder stays low, (RF oscillator off), until switch SW1 is closed. SW1 applies power to the entire transmitter. The encoder starts to run with the serial number and button data output in a pulse position data modulation scheme. A 1ms pulse in the middle of a 6ms data window is a transmitted data 0. A 1ms. pulse at the end of a 6ms data window is data 1.

The output of the encoder turns on and off the RF oscillator at this rate.

### RF Oscillator/Antenna.

The RF oscillator consists of a single transistor colpitts oscillator. L1,C5,C6 form the basic LC tank circuit. The oscillator is stabilized to 318MHz by SAW resonator S1. No tuning of the oscillator is needed in production. When the output of the encoder is high, the transistor is biased on and the circuit oscillates. When the encoder output is low the transistor is biased off and the oscillator does not oscillate.

The oscillator is coupled to a stub antenna using L2. The stub antenna consists of a 2 inch length of printed circuit board etch.

### Battery/LED

The transmitter is powered by a 12 volt battery, Duracell type MN21 or equivalent. The LED provides reverse battery circuit protection and transmitter operation indicator.