

**Applicant:**

DESA International Inc.  
2901 Industrial Drive  
Bowling Green, KY. 42102

**Manufacturing Location:**

Heath Company LTD.  
Rm. 704-5 Star Centre  
443-451 Castle Peak Road  
Kwai Chung, Hong Kong

**Circuit Description**

The WB-SAW-TX is a Wireless Remote Doorbell Transmitter designed to operate all Heath®/Zenith door chime receivers in the SL (or private label) series of AC (plug-in) or battery powered models. These wireless systems consist of the -615x, -616x, -617x, -618x, -625x, and -628x series of products. The WB-SAW-TX will also be packaged as a stand-alone accessory and case style may vary depending on actual model. Two type CR-1220, 3V (6V total) batteries power the transmitter and are included with the product.

The transmitter is normally in a powered-down state (zero stand-by current) until the operator presses the switch (push button) to activate the unit. This switch is a front cover push button (momentary contact) that supplies power to the circuit as long as the button is pressed. When the button is released, power is removed and the transmission is stopped. The 6-volt supply from the battery is regulated to 4.4vots by an internal regulator of a custom IC used to encode functions and control the “rf” generator stage.

This custom IC (444-P008) is the same custom chip that was used in the previously certified transmitters (WB-94A-TX and WB-97-TX). This IC produces a serial bit stream that corresponds to the state of its address and data control lines. The data rate is approximately 1kHz and the pattern consists of 8 address bits, 4 data bits, and 1 “start” bit (a 13 bit information block). The logic data high bit (one) is represented by a 600 uS pulse-width and a logic low bit (zero) by a 300uS pulse-width. A minimum of four 13-bit information blocks are sent (transmitted) each time the push button is pressed and will repeat while the switch is held down.

A surface mounted mini dipswitch that is connected to the IC electrically sets the address and data control bits. When a switch is set to “0” or “OFF”, the data line floats (pulled high by the internal structure of the IC) and the bit is set at a logic zero.

The output of the custom encoder IC (U1) drives the “rf” oscillator Q1, frequency stabilized with a SAW (Surface Acoustical Wave) Resonator operating at 315 MHz. The “rf” is activated when U1’s output is set at logic high and deactivated when set at logic low. Transmission radiation comes from a small helical antenna that is mounted directly to the PCB and is located completely internal to the transmitter housing.

### **Alignment**

There are no user adjustments. The design and use of the SAW resonator locks the carrier frequency to 315 MHz.

### **Service**

There are no user serviceable parts in this product.

### **List of Generated Frequencies**

315 MHz 'rf' oscillator stage  
120kHz digital encoding stage

Modulation: digital data, AM pulse-width coding.