

Product Description 3500T Extend-A-Bell Transmitter

I Introduction

The 3500T Extend-A-Bell Transmitter is a repeater for a doorbell. Typically it is wired into a conventional doorbell. When the doorbell is activated, power is supplied to the solenoids, which is sensed by the 3500T. In response, the 3500T transmits an RF signal to a companion receiver, which makes a pleasant sound, alerting the occupants of the building. This companion receiver is typically placed far away from the existing doorbell, in a place where it could not have been heard. The 3500T and receiver communicate with each other using an AM modulated UHF radio signal.

II System Description

The 3500T receives power from the voltage applied to the doorbell when it is activated. This voltage is rectified, regulated and used to supply power to the rest of the circuit.

The 3500T transmits an ASK modulated 315 MHz signal. The modulating signal is a 32 kHz pulse train. This 32 kHz signal is produced by a crystal oscillator.

III Detailed Description

Referring to the schematic, power from the doorbell is applied either between P1 and P3, or P2 and P3. D1 and D4 rectify the voltage, D5 is a regulator. Q3 is used to activate the transmitter in response to applied voltage.

U1a and Y1 form a low frequency crystal oscillator. U1b and associated circuitry form a duty cycle limiting circuit. Q2 is used to power the transmitter oscillator switching it on and off in response to the signal from U1b. Q1 is a Colpitts oscillator tuned to 315 MHz. It is turned on and off in response to the crystal oscillator. This produces an ASK modulated signal.