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CONFIDENTIAL- FOR ITS USE ONLY

TECHNICAL DESCRIPTION

REMOTE CONTROL TRANSMITTER

Introduction

This transmitter sends remote control commands to products such as window shades, blinds, lights, and other similar devices.

The transmitter operates at 433.42 MHz. The control signal consists of a control word, a sequence number to distinguish each button push, a transmitter identification number and a checksum for error control. The modulation is on-off keying with an average duty cycle of about 50 percent. Each data packet lasts for about 140 milliseconds. Packets are sent so long as one of the user push buttons is pressed, and stops when the button is released. Even if a button is continuously pressed as in a stuck switch, the transmitter output will stop in about 10 seconds until the button is released and pressed again.

Technical Specifications

Transmitter frequency	433.42 MHz +/- 200 kHz
Transmitter stabilization	SAW resonator
Microcontroller clock	1.00 MHz +/- 0.5% ceramic resonator
Modulation	On\ off keying
Data rate	Approximately 1 kbps
Power source	1 Lithium coin cell type 2450

Circuit Description

The transmitter uses a standard Colpits oscillator, the frequency of which is controlled by a SAW resonator. A second stage is an amplifier used to isolate the oscillator from the antenna. The antenna is a wire about 5 inches long.

The circuit is controlled by an 8 bit microcontroller. The microcontroller clock uses a 1 MHz ceramic resonator as the frequency determining element. When a used button switch is pressed, the microcomputer is woken up from sleep and turns the transmitter on and off to send the signal indicating which button is pressed.

Transmission occurs only while a button is held down. If a button is held down continuously, transmission stops after approximately 10 seconds.

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