



Theory of Operation Statement

Antenna Description

The antenna used with the DTR4 reader is a tuned LC circuit. It is made up of two coils and some series capacitors tuned to peak the antenna current at 134.2 KHz.

Operational Description

The DTR4 reader is designed to read RFID transponders that operate at a frequency of 134.2 KHz. The reader sends out a magnetic field through the antenna coil at that frequency. Using the receiver coil antenna, the signal is received back from the transponder, sent through filters and decoded by the microprocessor. The resultant transponder ID is then sent out the RS232 port or the Blue Tooth Serial connection to a host computer. With the Blue Tooth operating from 2402 – 2480 Mhz. The DTR4 reader is designed to operate on an internal rechargeable battery.

Circuit Functions

Main Board

The main board contains the microprocessor and support circuitry for I/O functions such as serial communications through the RS232 port and communication through the Blue Tooth serial interface board. The main board also contains the tuned amplifier with circuitry to decode all ISO compliant tags. The CPU generates the 134.2KHZ signal by dividing the main clock signal.

Display Board

The display board contains an LCD display that gives status update of the reader, displaying read tag number, battery level, and other user required information. It also holds the Blue Tooth Board

This proprietary board allows us to communicate with a host computer using a Blue Tooth Serial Connection. This eliminates the need for an RS232 cable.

Vibration Board

The vibration board gives the user a physical feedback by using a small vibrating motor.