

9. Operational Description

The microcontroller generates a fixed frequency of 125 KHz (derived from its crystal clock of 8 MHz) which is then fed to the series LC resonant circuit via a driver/buffer circuit. The resonant circuit is tuned during manufacture by selecting components on test.

The 'L' of the resonant circuit is the coil which is the inductive link with the passive identification tag. The passive ID tag (or card) is a very low power device, which is powered by the carrier field from the coil, and which modulates a tuned circuit with its unique ID code. The code picked up by the inductive link is detected by the demodulator. This is then amplified and band-pass filtered before being converted to a digital signal by the comparator.

The microcontroller takes the digital signal that has been detected from the passive ID device, and uses it to generate a 4800 Baud serial code via the output Sig A. The microcontroller also monitors the inputs 'LED Control'. This input is pulled up to 5V with a resistor. If the 'LED Control' input is pulled low by a peripheral device, then the LED colour will change from red to green.

Several components -whilst superfluous to the operation of this reader- are fitted to the PCB to facilitate manufacture of several reader variants from a generic build. Circuits associated with sounder input, sounder control, EEPROM, +5v supply and Sig B output have no function in this reader variant. No connection is made to these inputs and outputs.

Description of Peripherals

The Desktop Reader is typically connected to an 'Administration' unit. This unit provides power to the Desktop Reader, and passes any user ID codes on the Desktop Reader's signal line on to other controlling peripherals connected to the Administration Unit (for example, a PC or a PAC 2200 controller)

The controlling peripheral detects ID codes and assigns or removes permission for the holder of the device with this ID code to access particular areas covered by the Access Control system. Once the operation is complete, the controlling peripheral will generally pull the Desktop 'LED In' input low, so that the Desktop LED changes from red to green- indicating to the user that the code has been validated.

Most administration units make use of 4 connections to the Desktop Reader:

- 0v (-ve power and signal / LED reference)
- +ve power
- Signal
- LED