

9. Operational Description

Please refer to Exhibit 3 (Block Diagram) and Exhibit 4 (Schematic/parts lists) for component detail.

This reader is a member of the same family as devices FCC ID OQL-PAC-LP and OQL-PAC-DT. Unlike the other devices in this family, this reader has a PCB coil (rather than wire wound) and is mounted in a metal enclosure, so the range is extremely low (typically less than 1”).

Reader PCB.

The microcontroller generates a fixed frequency of 125 KHz (derived from its crystal clock of 8 MHz) which is then fed via an H-bridge to the series LC resonant circuit (formed by the tuning capacitors and the primary winding of the toroidal transformer). The toroid is used to impedance match for the low inductance of the PCB coil.

The ‘L’ of the secondary 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.

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 LED input, sounder input, sounder control, EEPROM and Sig B output have no function in this reader variant. No connection is made to these inputs and outputs.

Front Panel Main board.

The front panel is an optional administration device for a door controller (e.g. PAC 2100 or PAC 2200 range).

The front panel main board connects to the reader PCB via a 4-way connector, which supplies +5v and 0v (Ground) to power the reader PCB and routes the serial code generated by the reader back to the door controller (for example, the PAC2200 controller)

The front panel main board decodes and displays information (sent by the door controller) on a 16 character display.

This board also decodes the attached 6x8 keypad, and sends this data back to the door controller.

A sounder and associated circuitry fitted to the front panel main board is controlled by the door controller.

Connection of the front panel main board to the door controller is made via a 26-way ribbon cable.

Description of Peripherals

The front panel unit is typically connected to an door 'controller' unit (for example, the PAC2200 controller). This unit sends data to be decoded and displayed on the 16 character display, and receives serial user ID codes and keypad information from the front panel unit.

The door controller unit 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 door controller unit will generally indicate success by changing the data displayed on the 16 character display, or by briefly enabling the sounder.

Contact Details

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References

FCC ID OQL-PAC-FP

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