

TYPE 0001 PROXIMITY READER
TECHNICAL DESCRIPTION OF OPERATION

The Type 0001 Proximity Reader's intended purpose is to read unique identification codes programmed into passive transponders, accept PINs through a keypad, if present, and display a response on two or five LEDs. The maximum read range is about 6". The unit is connected by cable to a Multinode-2 controller which provides the necessary control/interface signals.

All the circuitry is contained on a single PCB and this is mounted in a plastic enclosure (125mm x 100mm x 45mm or 5" x 4" x 1.5" approx.). The antenna is mounted on the rear of the PCB, while the terminal block for power and signals is on the component side of the PCB, the cable exiting through the large hole in the back of the unit.

The power supply operating range is 9V - 14V d.c. which is used to power the comms to the controller. The antenna is driven from the input supply while a 5V regulator powers the remainder of the circuit. The LEDs may be powered from either the input supply or the 5V rail giving two levels of brightness.

The antenna is a coil of wire that emits a 125kHz magnetic field. The field 'powers up' a passive transponder or tag which is brought into the vicinity of the antenna. The transponder, when powered, operates as a field disturbance device and returns a serial data stream representing its ID code.

With no transponder in the field (99% of the time) the carrier is switched on for 25ms in every 100ms. This is repeated until a transponder is detected at the edge of the field when it changes to 25ms every 50ms. With the card properly in the field the carrier pattern changes to 100ms in every 500ms. The carrier duty cycle is controlled by the proximity processor.

The control processor handles the communications between the reader and the controller, responding to commands received and passing card data and status information back to the controller. The control processor also carries out housekeeping tasks such as scanning the keypad, when present, and monitoring the tamper switch.

The unit has a second serial port for use with a remote door control unit. The data to and from this port is also processed by the control processor.