

RX-400 CIRCUIT DESCRIPTION

IP9RX400

The RX-400 Intelligent Receiver is built around a pair of interconnecting PCB's. The main board contains a Radiometrix RX2 418 MHz receiver module, a PIC 16F84-04P microprocessor with a 4.19 MHz crystal and other associated peripheral components. It also contains a 5-volt regulator, a vibration motor, a 2-way on-off-on power switch, a momentary-action 'reset' push button, and other discrete components. The smaller 'front-panel' PC board contains four pairs of red and green LED's and a smaller red LED. A ceramic 'buzzer' is attached to the case and connected to the main PCB by a short lead. A 9-volt MN1604 battery provides power.

A user can decide whether, on receipt of a valid signal, the receiver should produce an audible alert or vibrate (almost) silently, by switching the on-off-on power switch in the appropriate direction.

The MINDA 'family code' is pre-programmed into the EEPROM of the microprocessor along with other user-selectable operating parameters by connecting the lead from programming kit (connected to an IBM compatible PC) to the 8-wya socket on the PCB. The numerous programmable options available are fully described in the user's operating manual.

The microprocessor controls the operation of a battery-economizer circuit which powers the receiver module for a brief period at regular intervals until such time as a valid signal is detected after which power is applied continuously until that signal disappears. The small red LED on the front panel lights whenever the receiver is powered, thereby giving the user an indication of activity on 418 MHz.

When a valid signal is received (one bearing the same family code as the RX-400 microprocessor has been pro-programmed to expect) the PIC decodes the serial data from the RX2 module and displays the results by lighting one of the four pairs of LED's on the front panel and sounding the 'buzzer' or activating the vibration motor. The display will show the unit identity (1,2,3,or 4) and status (red to green) of the originating transmitter and the condition of its battery (OK or LOW). Low transmitter battery voltage is displayed by causing the appropriate lit LED to blink out briefly at regular intervals.

Once an incoming signal has been received, decoded and acted upon, the user can extinguish and LED remaining alight by pressing and releasing the 'reset' button on the front panel of the receiver.