

## **RX-500 CIRCUIT DESCRIPTION**

### **IP9RX500**

The RX-500 Intelligent Desktop/Mobile Receiver is powered by an internal 9VDC 1604 battery or from an external DC supply of 10 to 16 volts, with automatic changeover back to the internal battery in the event of external supply failure.

It comprises a main PC board connected by ribbon cables to a smaller PC board located behind the sloping front panel of the receiver and by cabling to connectors mounted on the metal rear panel. The main PC 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. Also included are two 5-volt regulators, an audio amplifier, relay switching circuitry, and a serial data interface.

On the front panel is an On/Off power switch, a Green Alert On/Off switch, four pairs of Red and Green LED's, a green Power LED, a smaller yellow Signal LED, as well as a volume control, reset push button and a ceramic buzzer. An upward facing loudspeaker is fitted into the top of the case in order to produce a louder audible signal when the receiver is powered from an external supply.

The appropriate MINDA 'family code' can be programmed into the EEPROM of the microprocessor along with other user-selectable operating parameters by connecting a suitable lead from an IBM compatible PC to the 8-way DIN socket on the rear of the receiver. The numerous programmable options available are fully described in the operator's manual.

The receiver's 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 green LED on the front panel lights whenever power is applied to the receiver and the yellow LED lights on receipt of any signal above the pre-set carrier threshold, thereby giving the user an indication of activity on the radio channel being monitored.

When a valid signal is received, the microprocessor decodes the serial data from the Radiometrix module and displays the result by lighting one of the four pairs of LED's on the front panel and sounding the 'buzzer' or producing a loud tone through the loudspeaker. The front panel display will show the unit identity and status of the originating transmitter and the condition of its battery. 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 any LED remaining alight by pressing and releasing the reset push button on the front panel of the receiver.

A BNC connector on the rear panel of the unit allows a suitable antenna to be connected to the Radiometrix receiver module.

The serial data interface built into the RX-500 enables all of the programmable functions to be read out or modified by the use of an IBM compatible PC running the MINDA programming software. Furthermore, by connecting a second lead from the RX-500 to any intelligent MINDA transmitter, the receiver's serial interface can also be used to program those transmitters, if required.