
MX920 Product Description and Application Note

GENERAL APPLICATION

The MX920 is a new fully integrated Repeater and Base Station solution for analog FM voice communications. The MX920 is a purpose designed and built product, that results in the cost effective replacement of back to back mobile radio packages yet boasts a significantly higher level of RF specifications. This is attributed to the simplified construction and new innovative design methodology used throughout. Apart from the standard horizontal form factor, an industry first Vertical Tower version case is also offered for desktop applications.

Key Features

- ❖ Low cost
- ❖ High Specifications
- ❖ Desktop, Office or remote installation
- ❖ Base Station or Repeater
- ❖ Horizontal or New Vertical Tower case
- ❖ Wall mountable with bracket
- ❖ Rack mount with Rack Tray
- ❖ Internal PSU or 13.8V DC input
- ❖ Room for Internal Duplexer
- ❖ Internal Simplex Relay option
- ❖ Desk Mic available
- ❖ Includes Multi format tone signalling
- ❖ Popular VHF and UHF bands
- ❖ Room for internal battery backup
- ❖ Software defined setup
- ❖ 99+ channels

Functional Description

The MX920 may be broken up into 4 main sections.

Front Panel

The front panel consists of a Speaker, 99 channel Selector Switch, 6 LED Display, Volume Control, Squelch (Mute) Control, Repeater Select button, Accessory Select button and Microphone socket.

The front panel channel selector can select up to 99 pre-programmed channels. When Channel "00" is selected the actual channel selection is done under software or remote control. In this mode, 255 channels are possible. This is the same type of function as in the MX800 Repeater.

The LED display function is normally fixed. The display LEDs' are a high brightness type which can be viewed in Sunlight. Should this be too bright for indoor use, the intensity may be reduced by changing the software parameters. Some LED functions may be configured under software control.

The Accessory button may be configured under software control. It also initiates the function of Flash firmware upgrade when depressed on power up.

The Microphone socket will allow for the connection of a Desk Microphone or many other generic Microphone types. The socket also has a basic VF and control interface intended for testing purposes as well as a high speed serial port. If the serial port is used on a continual basis then a separate serial cable MUST be used from the Microphone cable. An RJ45 double adaptor may be used for this

purpose. The serial port is used for Firmware upgrades, Programming, Diagnostics, Remote or local console use and other advanced functions.

Rear panel

The rear panel consists of of an N-type connector for the Receiver input and an N-Type connector for the Transmitter output. Should a Duplexer be fitted, then the Duplexer connectors will be accessible at the rear. No other interface is provided for.

When the internal PSU is fitted, the AC Mains cord is plugged directly into the PSU case, which is visible and partly recessed into the MX920 chassis. The PSU has an power ON/OFF rocker switch and a 15 AMP DC Fuse. The AC cord may be stored in the rear MX920 cavity if not used. For DC only application the DC cord which would normally go to the PSU is now passed out the rear of the chassis via a grommet. When an internal battery is fitted or if an external battery is used for power backup purposes, then a connection should be made to the Battery terminals on the PSU. The PSU will charge the battery and transparently change over from AC power to DC power. As the power management is quite simple yet flexible, a Qualified Technician should take care and wire the DC power as appropriate for the end users application.

Internal

The internal construction consists of a Main RF Module assembly, a PA Module and the ability to fit various brackets. The main RF Module contains a powerful 16bit Microprocessor that provides the user with the ability to configure over 100 parameters.

As also described above, the PSU may be installed as standard or easily retrofitted at a later date. The Technician may also choose to install and connect the following items and combinations.

- ❖ One PSU and one Duplexer with mounting bracket. A universal Duplexer mounting bracket is available.
- ❖ One Duplexer and one Battery bracket.
- ❖ One PSU and one Battery bracket. A battery mounting bracket is available which holds two 6 Volts 7AH cells for series use.
- ❖ Two Battery brackets. This will provide 12 Volts at typical 14AH capacity.

External

Due to the modular design of the MX920, the Technician can easily change various aspects of the chassis and mounting.

For Wall mounting installations, use the vertical version of the MX920 together with the L shaped mounting bracket. Firstly Affix the bracket to the wall and ensure the screws can withstand the appropriate weight. A fully optioned system may weigh as much as 15kg. Press fit four Nylon clips to the underside of the MX920 chassis into the four square holes. From the underside of the bracket, inset the self-tapper screws through the bracket and into the clips. The vertical chassis could also be used for portable applications especially with the addition of a top carry handle.

For rack mounting, install the Rack Tray into the rack. Position the Horizontal version MX920 into the tray. No fixing of the chassis to the tray is allowed for in this case.

The MX920 can easily be converted from a horizontal type chassis to a vertical type chassis very quickly. In order to do this, remove the two covers, knobs, channel selector and front panel. Move the rubber feet to the chassis holes on the right side of the chassis. Fit a vertical type front panel and refit the channel selector switch, which can be rotated 90 degrees for this purpose. Replace knobs in the appropriate position and fit new vertical type cover.

For additional information please refer to the MX920 Manual.