



**SPECTRA
ENGINEERING**

PROFESSIONAL RADIO BASE STATION REPEATER

MX800

The Radio System Solution

The Spectra Engineering MX800 packs more power and performance into a compact 2RU case than any other Base Station/Repeater in its class.

With advanced modular construction techniques, as found in military grade equipment, you will be assured of reliable and long lasting performance.

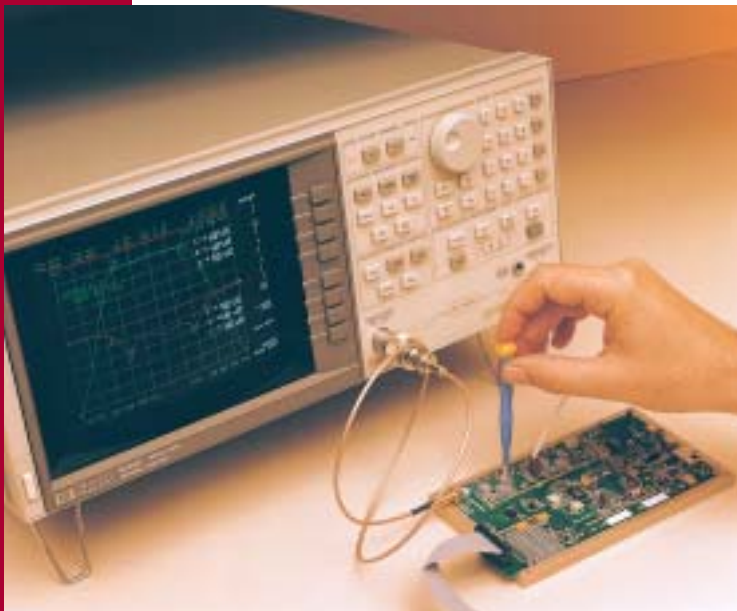


■ Performance

The MX800 advanced design, uses the latest component technology to achieve superior performance in high RF environments.

The sensitive receiver features a wide switching bandwidth and at the same time, maintains good blocking, intermodulation and adjacent channel performance.

The broadband transmitter exciter module has very low spurious emission levels, and is followed by an efficient RF power amplifier. The optimised PA heatsink design results in lower transmitter temperature rise during continuous operation.



■ Reliability

Reliability is designed into the MX800 and effective manufacturing quality control carries this into the finished product.

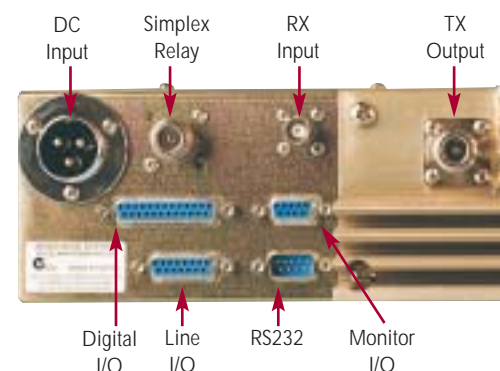
Rugged machined module housing construction and extensive use of surface mount technology provides outstanding reliability under the harshest conditions.

■ Construction

The MX800 is a compact lightweight transceiver housed in a 2RU height (89 mm) fully welded steel case. The unit conforms to the 19" rack mounting standard and an optional slider rail kit can be fitted. The module construction has been designed for international EMC/EMI rules compliance and all RF modules are individually screened.

■ Features

- Complementing the wide RF switching bandwidth (up to 35 MHz) the MX800 has an exceptional frequency coverage between 30 MHz and 960 MHz.
- Per channel programmable operating parameters, including: frequency, power, CTCSS/DCS, RF mode and channel bandwidth.
- Networking function permits multistation monitoring and control through a single RS232 port.
- An extended low frequency RX discriminator and TX modulator response (DC to 3.4 kHz) permits the use of the MX800 in paging and other data applications.
- Fast mute action, combined with fast TX and controlled soft key up, makes the MX800 ideal for many trunking and data systems.
- Functionally independent TX and RX mean that crossbanding is easily accomplished.
- A non-predictive CTCSS decoder will recognise any valid tone and transmit a user associated TX tone.
- Continuously rated at full operating power, the MX800 has a thermally controlled high MTBF fan ensuring cooler PA operation.
- Low current consumption on both TX and RX.
- 255 RF channel capability with operating channels optionally selectable from rear inputs, front panel switch, internal DIP switch or via RS232 port.
- An automatic PA protection circuit reduces the output power at high VSWR and high temperature.
- Advanced fractional synthesizer design.
- Fully configurable by hardware and software for special applications.
- Channel scan function and base morse ID.





■ User Interface

RF, analog and digital signal line accessibility at the rear panel means that the MX800 is a versatile transceiver which can be used in systems configured to your requirements. For trunking applications, special system control functions are included.

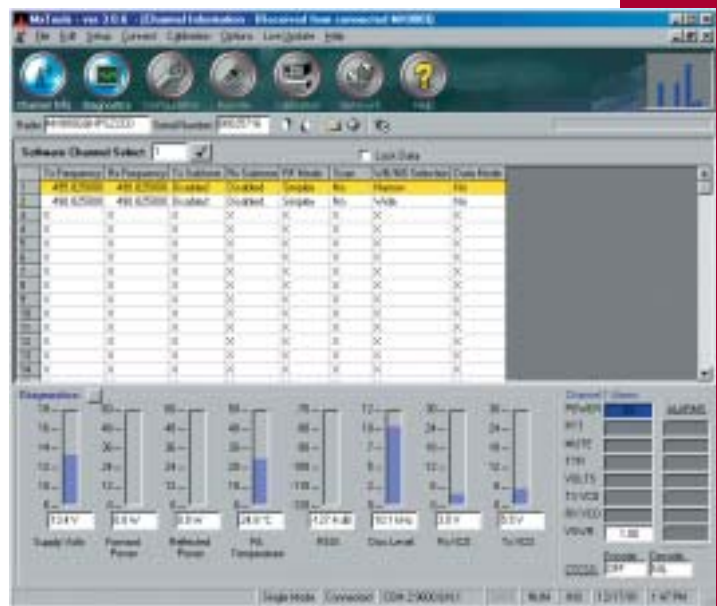
The base station is serially programmable on a per channel basis using MXTOOLS programming software. This software utility also permits remote monitoring, control and diagnostics of the MX800.

Parameters such as PTT, Mute/squelch, Alarms, Digital I/O etc. can also be monitored or controlled independently. Real time measured analog parameters include: CTCSS decoded frequency, CTCSS encoded frequency, Forward and Reflected RF power, PA temperature, RSSI, RX and TX VCO volts, Discriminator output audio level and DC supply volts.

■ Applications

Typical applications for the MX800 include:

- Conventional professional mobile radio base stations and repeaters. A simplex option is available with an internally mounted changeover relay. In full duplex mode the MX800 is suitable for link applications.
- RF transceiver for trunked systems. The DC modulator permits operation in a wide variety of trunking systems.
- Simulcast and wide area systems using external reference oscillator I/P.
- Paging transmitter. The standard MX800 will accept a digital signal for transmission of POCSAG data.
- Mobile data systems. Fast TX and RX response times reduce message overhead and increase data throughput. Low group delay distortion permits data rates to 19.2 kbps.



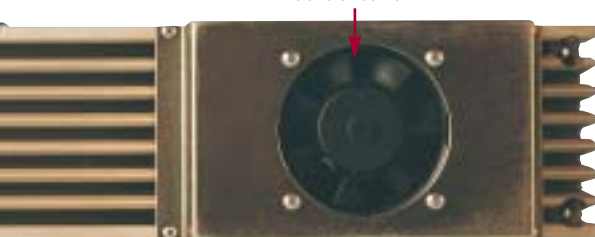
■ Options

The following are standard MX800 options:

- CTCSS encoder/decoder
- Programmable 12.5 kHz /25 kHz channel spacing
- Front panel speaker, mic socket and channel change
- Balanced and isolated line VF I/O with E/M
- Full duplex DCS/DPL operation
- Simplex changeover relay
- Low RX standby current option
- VF delay for noiseless mute function
- -30°C temperature frequency stability.

Consult Spectra for other applications.

Thermally
Controlled Fan



MX800 Rear view

■ MX800 Brief Specifications

Ask for our full technical data sheet

General

Frequency Range:	Band A2 to A3: 30–50 MHz Band A to B: 66–88 MHz Band C to Q2: 135–532 MHz Band R2, R3: 746–794 MHz Band R to X: 805–960 MHz
Switching Bandwidth:	10–35 MHz band dependent
Channel Spacing:	25 kHz or 12.5 kHz
RF Channels:	255
Power Supply:	13.8 VDC +/-20%
Temperature Range:	-10 to +60°C
Duty Cycle:	100% continuous
Dimensions (W x D x H):	483 mm x 330 mm x 89 mm
Weight:	9 kg
Antenna Connection:	TX: N type RX: BNC

Receiver

Sensitivity (12 db SINAD):	< -117 dBm (0.3 μ V)
Intermodulation:	> 80 dB
Blocking:	> 100 dB
Frequency Stability:	2.5 PPM, 1.5 PPM or 1 PPM
Disc Output Bandwidth:	DC to greater than 3 kHz
Audio Output Bandwidth:	300 Hz to 3 kHz
Audio Output Level:	+6 to -15 dBm @ 600 Ω (unbal)
Audio Distortion:	< 2%
De-emphasis:	6 dB per octave (+1, -3 dB)
Current Drain Receive:	450 mA typical (TX VCO off)

Transmitter

RF Power 30–870 MHz:	5 to 50 Watts programmable
RF Power 870–960 MHz:	5 to 35 Watts programmable
Frequency Stability :	20 PPM, 2.5 PPM, 1.5 PPM or 1 PPM
TX spurious:	< -90 dBc
Deviation Limiting:	2.5 kHz / 5 kHz programmable
Data I/P Mod Bandwidth:	DC to 3.4 kHz
Audio Input Bandwidth:	300 Hz to 3 kHz
Audio Input Level:	+6 to -15 dBm @ 600 Ω (Unbal)
Audio Distortion:	< 2%
Pre-emphasis:	6 dB per octave (+1, -3 dB)
Current Drain Transmit:	< 11 A

Compliance

Minimum design performance to exceed:

- AS4295-1995
- ETS 300 086, Jan 1991
- ETS 300 113
- FCC Part 90
- TIA/EIA-603
- BAPT 225 ZV 1/2098 (German Softkeying)
- CEPT T/R 24-01 E, Sept 1998
- EC Marking, EC EMC Directive 89/336/EEC
- RFS25, 26, 32

Consult Spectra Engineering regarding current type approvals.

MIL Standard

The MX800 Base Station is designed to meet or exceed most requirements for MIL-STD810 C, D and E.

Specifications subject to change without notice and are measured in accordance with EIA standards.

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MX800 shown with optional slide rail fitted.



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