

Q-MAC Electronics

MX9015 HF-90M VEHICLE PACKAGE

TACTICAL COMMUNICATIONS

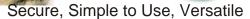
Tactical HF Radio

HF-90M

MIL-STD 810F

FREQUENCY HOPPING





The MX9015 HF-90M Vehicle Package is a military grade communication set specifically designed for tactical vehicles. The MX9015 is purpose rated to withstand complete immersion, vibration, drop and temperature tests to Mil-Std 801F.

The HF-90M transceiver is an extremely compact and light weight unit, featuring only essential controls to ensure ease of operation. The HF-90M is available with a secure, jam-resistant ECCM Frequency Hopping option which can be field upgraded after the initial deployment.

Military users will appreciate the solid construction and ease of use of Q-MAC transceivers. The mechanical design of the HF-90M provides the fastest field service time of any transceiver with only 4 fasteners providing access to all modules. Emphasis in the design of the HF-90 has been placed on value-engineering to ensure low cost of ownership over a long service life.

Designed for Tactical Use

The HF-90M is efficient to use in tactical situations with only essential controls on the front panel. Advanced programming functionality is available in submenus or via a PC programming package.

The unit can operate at selected power levels up to 50 Watt, whilst achieving the lowest battery consumption compared to other military transceivers . The HF-90M is extremely reliable due to the advanced SMD manufacturing process used and overall mechanical design efficiency.

The HF-90M incorporates superior signal handling capability which ensures excellent reception even in the most crowded radio environments.

The mechanical design of the HF-90M provides the fastest field service time of any transceiver with only 4 fasteners providing access to all modules. Emphasis in the design of the HF-90 has been placed on value-engineering to ensure low cost of ownership over a long service life.

ECCM Frequency Hopping

The HF-90M is available with a secure, jam-resistant ECCM Frequency Hopping option. The development of the HF-90M Frequency Hopping Option represents a significant breakthrough in the field of military HF communications. For the first time, end users have access to a product which is affordable, yet offers a very high grade of voice security.

In short, this revolutionary new transceiver incorporates the very latest in RF design technology, making the HF-90M the most compact, versatile, high performance HF SSB transceiver available in the military market today suitable for Manpack, Vehicle and Base Station applications.

MX9015 Package Contents

- HF-90M Military Transceiver
- TA-90 Military Automatic Antenna Tuner
- Military Telephone Handset
- Vehicle Whip Antenna
- Vehicle Mounting HardwareCables and Connectors
- User Manual

MX9015 Optional Accessories

Frequency Hopping Option

- DTMF Handset Option
- Military Grade Sectional Whip Antenna and Base

MX9015 Vehicle Package is available in two versions;

MX9015 - Separate Tuner and Transceiver Installation MX9015i - Integrated Transceiver and Tuner



Low Cost

Frequency Hopping

Anti-Jam Algorithm

Rapid Synchronisation

Secure Code Entry

Smart Hopping

Selcall

Small Size

50Watt PEP

Auto Tuning

255 Channels

Optional Sectional

Antenna and Base



MX9015i Integrated Tuner & Transceiver



Q-MAC Electronics

MX9015 HF-90M VEHICLE PACKAGE



Specifications

Tactical HF Radio

HF-90M

MIL-STD 810F

FREQUENCY HOPPING



GENERAL

Frequency range 2 - 30 MHz

Modes of operation USB, LSB (J3E),

CW (Optional)

CW (Optional), Hopping(Optional), AM (Rx Only),FSK

Number of channels 255 Channel resolution 100Hz

Supply voltage 12 - 24V DC Nominal

Power consumption

- Transmit 2A - 10A (subject to pre-set power output)

- Receive 310mA

Frequency stability $\pm 2ppm (\pm 1ppm 0^{\circ}C-40^{\circ}C)$

Antenna impedance 50 Antenna connector BNC

Handsets Speaker microphone

DTMF microphone & telephone handset

Selcall system Based on CCIR 493-4

(Australian Standard)

Programming Via front panel & DTMF

mic/handset or IBM PC 4800,8,1,N

BITE Micro, Rx, Tx Tests

MTTR 4 Minutes MTBF 6000 Hours

PHYSICAL CHARACTERISTICS

Dimensions (mm) 112(W) X47(H) X220(D)

Weight 1kg (HF-90 Only)

Construction All metal extruded sleeve with front panel and

heatsink

Finish Black anodised Aluminium

TA-90M AUTO TUNER SPECIFICATIONS

Frequency range 4-20 MHz

VSWR Typically less than 2
Tuning time 3 Seconds max
Antenna type Vehicle Whip

Dimensions 221(L) x 146(W) x 56(D) mm

Weight 5Kg
Supply current (idle) 300mA
Input Voltage 12V or 24V DC
Input Impedance 50 Ohm

TRANSMITTER

Power output 50Watt PEP 2-12Mhz (derated above)

(derated above)

Unwanted sideband Better than -45dB
Carrier suppression Better than -50dB
Harmonic suppression Better than -40dB
Audio Response 270Hz - 2800Hz

RECEIVER

Sensitivity 0.25µV For10dB S+N/N

Selectivity 2.3kHz@-6dB

4.8kHz @ -60dB

Image rejection Better than -50dB
Intermodulation Better than -70dB

3rd order intercept +18dBm(GaAsFETMixer)

Intermediate freq's 83.16MHz,455kHz

AGC Less than 3dB from 3uV - 1V

Audio response 270Hz 2800Hz

Audio output 2 Watt
Audio load impedance 8 Ohms

FREQUENCY HOPPING (Optional)

Mode SSB (J3E) speech plus FSK sync

Hop rate 5 hops per sec

Hop channels per band 256

Number of Hop bands 103 contiguous bands (2-30M

Hop sequence Pseudo-random

Late entry sync time Average 26 secs

Number of sync channels 8

Hope code entry 11 decimal digits, via DTM

Hop code binary size 56 bits

Possible codes 7.2 x 10¹⁶

Hop algorithm Modified DES

ENVIRONMENTAL - HF-90M

Operating temperature -30°C - 60°C
Storage temperature -30°C - 80°C
Environmental rating Per MIL-STD 810F

Immersion Shock & Vibration



Q-MAC Electronics Pty Ltd 142 Hasler Road Osborne Park WA 6017 Australia

> Tel + 618 9242 2900 Fax + 618 9242 3900

Email info@qmac.com Web www.QMAC.com