MICOM™-2

HF-SSB Mobile/Fixed Digital Signal Processing Radio

MICOM-2 is a multi-purpose HF-SSB radio designed to be used in a wide range of fixed and mobile configurations. It provides long range communications for voice, data and fax applications.

- ***1.6-30 MHz***
- ***100 Channels***
- ***125 Watts***

MICOM-2 is a compact unit, featuring a rugged design that can withstand the most punishing environmental conditions. This high performance radio excels with its outstanding combination of transmitter and receiver specifications and rugged construction.

MICOM-2 can be used as a standalone unit or integrated into complex advanced systems by taking advantage of its broad line of available accessories.

FEATURES

DSP-Based

MICOM-2 uses state-of-the-art DSP (Digital Signal Processing) technology, resulting in a significant reduction in the number of components and increased reliability. A powerful processor and software algorithms perform SSB modulation and demodulation, squelch, noise blanking, and other control functions.

Superior Voice Quality

This use of DSP techniques and algorithms in the MICOM-2 provide better voice quality, due to a high audio dynamic range and audio bandwidth equalization.

User Friendly

Its self-explanatory man-machine interface obviates the need to memorize complicated procedures. All MICOM-2 operations can be performed locally from the unit's front panel or remotely via a personal computer.

A user friendly Windows-based Radio Service Software (RSS) package allows flexible field programming of MICOM-2 radios.

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FEATURES

Quality

The MICOM-2 transceiver was developed under Motorola's full commitment to its Six Sigma quality level policy. This includes robust design methodologies and use of solid state power switching, SMDs (Surface Mounted Devices) and other production technologies to ensure the highest standards of quality and reliability.

Additional Product Features

- ► Can be programmed for up to 100 simplex or half-duplex channels
- ► Digital, Constant SINAD Squelch
- ► Built-In Test Equipment (BITE)
- ► Computer Interface for Remote Control (optional)
- ► Backlit Keypad and LCD Display
- ► Channel Scan at a selectable rate
- ► Continuous Duty Operation per EIA standard (optional)
- ► Selective calling per FS-1045A and MIL-STD-188-141A

Digital Signal Processing

MICOM-2 takes advantage of state-of-the-art technologies including VLSI (Very Large Scale Integration), and ASIC (Application Specific Integrated Circuits) radio building blocks. The use of DSP hardware and algorithms significantly reduces the loss of performance due to aging and eliminates the need for periodic adjustments. It also reduces the number of components in the radio, resulting in increased reliability and simpler servicing. A high level of performance is consistently ensured. The high dynamic range of the DSP processor ensures high quality transmit and receive audio signals. Future expansion and addition of features can be easily implemented.

Built-In Test Equipment (BITE)

Each time the radio is turned on, it undergoes a pre-designed self-test process, to inform the operator of its operational fitness condition. The BITE can also be activated manually, through the RSS software.

RF Power Indicator

A built-in, patented RF power and VSWR bar graph provides visual indication of both forward and reflected transmitter power.

100 Channel Capacity, Simplex or Half-Duplex

MICOM-2 can be programmed with up to 100 simplex or half-duplex channels.

Channel Scan

Any number of channels, in 5 groups of up to 100 channels per group, can be scanned at a user-selected scan rate.

Priority and Guard Channels

Priority (emergency) channels are activated with a single key stroke. When in Scan mode, a guard channel can be scanned more often than other channels.

Selective Calling Option

The Selective Calling option of the MICOM-2 is digital, highly reliable, and flexible to work with most network structures.

Radios equipped with this Selective Calling have the unique advantage of being easily integrated into ALE systems and enable MICOM-2 users to enjoy the benefits of more advanced systems.

FEATURES

Excellent Transmitter Performance

This includes 125W of transmitter power, automatic PA protection, automatic transmitter level control (ALC) and high frequency stability. Continuous duty operation is optional.

Excellent Receiver Performance

Includes high performance specifications for sensitivity, selectivity, intermodulation, crossmodulation and AGC (Automatic Gain Control) range.

High Frequency Stability Option

For applications requiring higher frequency stability (0.1 PPM), an optional frequency reference source is provided, replacing the standard 0.6 PPM source.

Voice Activated Digital Squelch

Motorola's patented CONSTANT SINAD squelch circuit operates on voice signals. By responding to human voice patterns, the drawbacks of conventional squelch circuits are eliminated. Squelch reliability is further improved through the use of digital signal processing algorithms.

Digital Noise Blanker (Optional)

A built-in noise blanker suppresses electrical impulse noise interference. Automotive ignition noise and other periodic electrical pulse type interference are reduced.

GENERAL OPTIONS AND ACCESSORIES

- ► 0.1 PPM Frequency Stability Option
- ► Digital Noise Blanker
- ► Radio Service Software (RSS) Programming Package
- ► Continuous Duty Operation per EIA (optional)
- ► RTTY/ARQ and FAX Interfaces
- ► Computer Interface RS-232 for radio control only
- ► Automatic Antenna Tuner
- ► Selective calling per FS-1045A and MIL-STD-188-141A
- ► Mobile Mounting Kit
- ► External Speaker
- ► AC Power Supplies
- ► Spare Boards Kit
- ► Linear Amplifier, HF Modems, SSB-FM Repeater Unit, Phone Patches, Large Variety of Mobile and Base Station Antennas

US MILITARY AND INDUSTRIAL STANDARDS

MICOM-2 meets the following US military and industrial standard requirements for adverse environmental conditions (without the use of external shock mounts).

Vibration	EIA RS152B MIL-STD-810C Method 514.2 MIL-STD-810D Method 514.3 MIL-STD-810E Method 514.4
Shock	EIA RS152B MIL-STD-810C Method 516.2 MIL-STD-810D Method 516.3 MIL-STD-810E Method 516.4
Rain	MIL-STD-810C Method 506.1 MIL-STD-810D Method 506.2 MIL-STD-810E Method 506.3
Dust	MIL-STD-810C Method 510.1 MIL-STD-810D Method 510.2 MIL-STD-810E Method 510.3
Salt Fog	MIL-STD-810C Method 509.1 MIL-STD-810D Method 509.2 MIL-STD-810E Method 509.3

US FCC and Canadian Department of Communications (DOC) for channel occupancy, spurious, interference and frequency tolerance.

US Electronic Industry Association (EIA) for applicable environmental and test procedures.

MICOM-2 is manufactured according to the demanding standards of ISO 9000, and EMC (Electromagnetic Compatibility).

MICOM™-2

SPECIFICATIONS

HF-SSB Mobile/Fixed Digital Signal Processing Radio

GENERAL	
Parameter	**Value**
Model Number:	M70AMK0KV5A_N
Frequency Range XMIT:	1.6-30 MHz
Frequency Range RX:	0.1-30 MHz (0.1-1.6 MHz reduced spec)
RF Input Impedance:	50 Ohms
Number of Channels:	100 SIMPLEX or HALF DUPLEX
Scanning:	5 groups with up to 100 channels per group, including 1 guard channel Programmable scan rate: 1-6 sec. per channel, In 1 sec. steps 0.2 to 0.5 sec. per channel in selcall scan mode
Frequency Stability:	0.6 PPM (0.1 PPM Optional) @ -30° to +60°C
Frequency Drift (Aging):	1 PPM/year
Synthesizer Lock Time:	10 msec maximum
Frequency Resolution:	10 Hz
Operating Temp. Range:	-30° to + 60°C
Storage Temp. Range:	-40° to + 85°C
Humidity:	95% @ 50°C
Remote Control Interface:	RS232C (optional)
Modes of Operation:	J3E SSB R3E PILOT H3E AME J2A CW J2B RTTY, ARQ, FEC, PACKET, MCW B8C FAX, DATA, FSK
Operating Voltage:	13.8V DC ± 20% Negative ground
Dimensions:	93 H x 302 W x 288 D mm 3.7 H x 11.9 W x 10.6 D inch
Weight:	5.8 kg (12.8 lb)

CURRENT CONSUMPTION @ 13.8 VDC		
XMIT	**Voice (125 W P.E.P.):**	13 Amp
	2 Tones (125 W P.E.P.):	22 Amp
	Single Tone:	27 Amp
Receive	**Full Audio:**	2 Amp
	Squelched:	1.7 Amp

FCC INFORMATION	
Model Series:	M7OAMKOKV5A_N
Transmitter Peak Envelope Power (P.E.P.):	125 Watts
Frequency Range:	1.6 - 30 MHz
Emissions Authorized:	J3E, R3E, H3E, J2A, J2B, B8C
FCC Applicable Parts of Rules:	15, 80, 90
FCC Type Acceptance Number:	ABZ9QCC1635 ABZ9QCC1634 (0.1 PPM option)

TRANSMITTER	
Output Power:	125W P.E.P. and average
Reduced Power Levels:	25W, 62W, 100W (RSS programmable)
Audio Bandwidth:	350 to 2700 Hz at –6 dB
Audio Bandwidth Ripple:	3 dB
Intermodulation:	–31 dB/P.E.P. (–35 dB/PEP Typical. Note 1)
Harmonic Emissions:	–64 dB/P.E.P. (–70 dB/PEP Typical. Note 1)
Spurious Emissions:	–64 dB/P.E.P. (–70 dB/PEP Typical. Note 1)
Carrier Suppression:	–50 dB/P.E.P.
Undesired Sideband Suppression:	–55 dB/P.E.P.
Audio Distortion:	2.5%
1/2 Power Mic. Sensitivity:	25 to 125mV (RMS)/600 Ohms
Hum & Ripple:	–50 dB
Inband Noise:	–60 dB (30 Hz BW)
TX/RX Switching Time:	10 msec
TX Tuning Adjustments:	None

RECEIVER	
Sensitivity (SINAD) SSB:	0.5 µV for 10 dB SINAD (0.35 µV Typical. Note 1) 0.1-1.6 MHz with reduced performance
1/2 Rated Power Sensitivity:	1 µV for 2.5 W audio at speaker
Selectivity:	-6 dB @ 350 to 2700 Hz -60 dB @ -1 kHz; +4 kHz
Image Rejection:	-80 dB
IF Rejection:	-85 dB
Undesired Sideband Rejection:	-55 dB @ -1 kHz
Spurious:	-80 dB
Intermodulation:	-80 dB
Crossmodulation:	-100 dB @ 100 kHz
Desensitization:	-100 dB @ 100 kHz
Reciprocal Mixing:	-100 dB @ 100 kHz
Audio Power at Speaker:	5 W @ 2.5% distortion
RGC Range:	5 µV to 1V (2 dB change in output level)
RGC Time Constants	
Voice:	Attack time 10 msec Release time 1500 msec
Data:	Attack time 10 msec Release time 10 msec
Squelch:	Constant SINAD (digital)
Clarifier Range:	± 200 Hz in 10 Hz steps
Receiver Tuning Adjustments:	None
Maximum Antenna Input:	20 kV transient, 100V RMS for 2 minutes

CONTROLS
Standard and optional: volume, on/off, scroll, squelch, scan, USB/LSB, call, monitor, priority, function and accessory/programming connector.

Note 1: Values noted as "Typical" are valid over 90% or more of the frequency range.
Specifications subject to change without notice.

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