

MM2-M13 SERIES

MM2-M13 & MM2-M13-LV

1.3 GHZ RADIO



KEY FEATURES

Versatility: Gateway, Endpoint, Repeater or simultaneous Endpoint and Repeater function in a single radio.

Long Range: 40 miles with clear line of sight with the ability to extend through Repeaters.

Noise Immunity: Superior performance in noise congested environments.

Secure: Frequency Hopping Spread Spectrum technology prevents detection and unauthorized access. Optional: 128, 192, and 256-bit AES encryption.

Error Free Communications: 32-bit CRC with automatic retransmissions.

Low Power Consumption: Ideal for solar, battery, and DC applications.

Industrial Grade: Operating Temperature from -40°C to +75°C.

Available Options: TDMA, Super Epoch TDMA, and 128, 192, and 256-bit AES encryption.

OVERVIEW

FreeWave Technologies' products are designed to meet the rigorous demands of military, government, and international users worldwide. This user-configurable 1.3 GHz product is available as an OEM board level radio. It is used in applications ranging from Unmanned Aircraft Vehicles (UAVs) to Unmanned Ground Vehicles (UGVs), and more.

FreeWave MM2-M13 Series share the same features as our other radios that assure accurate data transmission, such as 32-bit CRC error detection with automatic retransmission and more.

The FreeWave MM2-M13 Series of radios is designed to provide the performance, reliability, and quality that our customers have come to know and expect in our products. The MM2-M13 Series combines high performance with a small size making it ideal for applications where space is at a premium.

All radios are designed, manufactured and tested in Boulder, CO.

SOLUTIONS



DRONES & ROBOTICS



EARTH MONITORING



GOV & DEFENSE



IRRIGATION & PRECISION AGRICULTURE



ASSET TRACKING



OIL & GAS



WATER & WASTEWATER



SMART CITIES



UTILITIES

TECHNICAL SPECIFICATIONS

TRANSMITTER

Frequency Range	1.350 to 1.390 GHz
Output Power	Up to 1 W
Range	Up to 64 km (40 mi.), clear line of sight
Channel Spacing	230 kHz
RF Data Rate	153 kbps or 115 kbps, user-selectable

RECEIVER

Sensitivity	-106 dBm @ 115.2 for BER 10 ⁻⁴ -104 dBm @ 153.6 kbps BER 10 ⁻⁴
Selectivity	-20 dB at fc +/- 230 kHz
System Gain	136 dB

DATA TRANSMISSION

Type	Frequency Hopping Spread Spectrum Options: TDMA, Super Epoch TDMA
Modulation	2 level GFSK
Data Throughput	80 or 115.2 kbps
Error Detection	32-bit CRC, retransmit on error
Data Encryption	Options: AES 128 / 192 / 256-bit encryption
Hopping Zones	16 zones, user-selectable
Hopping Bands	7, user-selectable
Hopping Channels	1 to 112 (out of 172), user-selectable
Hopping Patterns	15 per band, 105 total, user-selectable
Protocol	RS232 / RS485 or TTL

POWER REQUIREMENTS

Operating Voltage	+5 VDC (MM2-M13-LV models only) +8 to +30 VDC		
Current Consumption			
Voltage	Transmit	Receive	Idle
MM2-M13-LV			
+5 VDC	1000 mA	120 mA	30 mA
MM2-M13			
+12 VDC	500 mA	75 mA	20 mA
+30 VDC	200 mA	40 mA	9 mA

INTERFACES

Data Interface	14-pin dual row header for power, data, and diagnostics 2mm pin spacing
Diagnostics Interface	Serial
RF Connector	MMCX or SSMC

GENERAL INFORMATION

Operating Temperature	-40°C to +75°C (-40°F to +167°F)
Humidity	0 to 95%, non-condensing
Dimensions	50.8 L x 50.8 W x 7.62 H (mm) 2.0 L x 2.0 W x 0.3 H (in.)
Weight	21 g (0.5 lbs.)

INFORMATION TO ORDER

Model Number	Description
MM2-M13-C	Board Level, RS232, MMCX
MM2-M13-LV-C	Board Level, 5.0 VDC, RS232, MMCX
MM2-M13-T	Board Level, TTL, MMCX
MM2-M13-LV-T	Board Level, 5.0 VDC, TTL, MMCX
MM2-M13-C-SR	Board Level, RS232, SSMC
MM2-M13-T-DEVKIT	2 MM2-M13-LV-T and accessories

CONTACT US

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