

MM2-M13 SERIES

MM2-M13 & MM2-M13-LV

1.3 GHZ RADIO



KEY FEATURES

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

Error free communication: 32 bit CRC with automatic retransmission

Industrial Grade Specifications:
100% tested for RF performance from -40°C to +75°C

Wide Input Voltage Range:
+8 to +30 VDC standard models and +5 VDC low voltage models

Noise Immunity: Superior performance in noise congested environments

Secure: FHSS Spread Spectrum Technology prevents detection and unauthorized access

Versatility: Repeater and simultaneous Endpoint and Repeater function in a single radio

Options: TDMA, Super Epoch TDMA, 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 UAVs to 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 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.

TECHNICAL SPECIFICATIONS

TRANSMITTER

Frequency Range	1.350 to 1.390 GHz
RF Data Rate	153 kbps or 115 kbps, user-selectable
Output Power	Up to 1 W
Data Link Range	40 miles
Modulation	2 level GFSK
Occupied Bandwidth	230 kHz
Hopping Channels	1 to 112 (out of 172), user-selectable
Hopping Bands	7, user-selectable
Hopping Patterns	15 per band, 105 total, user-selectable
RF Connector	MMCX or SSMC

RECEIVER

Sensitivity	-106 dBm @ BER 10^{-4} (115.2 kbps) -104 dBm @ BER 10^{-4} (153.6 kbps)
IF Selectivity	-20 dB at fc +/- 230 kHz
System Gain	136 dB

DATA TRANSMISSION

Error Detection	32 bit CRC, retransmit on error
Data Throughput	115.2 kbps
Data Encryption	FHSS technology
Protocol	RS232 / RS485 or TTL
Options	AES 128/192/256-bit encryption TDMA Super Epoch TDMA

POWER REQUIREMENTS

Operating Voltage	+5 VDC (MM2-M13-LV models only) +8 to +30 VDC (MM2-M13 models only)
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MM2-M13

+12 VDC Typical Current	Transmit: 500 mA Receive: 75 mA Idle: 20 mA
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+30 VDC Typical Current	Transmit: 200 mA Receive: 40 mA Idle: 9 mA
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MM2-M13-LV

+5 VDC Typical Current	Transmit: 1000 mA Receive: 120 mA Idle: 30 mA
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INTERFACES

Data Interface	Serial
Interface Connector	Dual row 14-pin header, 2mm pin spacing

GENERAL INFORMATION

Operating Temperature	-40°C to +75°C
Humidity	0 to 95%, non-condensing
Dimensions	2 L x 2 W x 0.3 H (in)
Weight	21 g

INFORMATION TO ORDER

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

SOLUTIONS



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