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# MM2 Series\*\*

## Military 340-400 MHz Radio

### Overview:

FreeWave Technologies military products are designed to meet the rigorous demands of military, government and other users worldwide. This user-configurable 340-400 MHz product is available as an OEM board level radio. It is used in applications ranging from UAVs to UGVs, and more. FreeWave military products share the same features as our other radios that assure accurate data transmission such as 32 bit CRC error detection with automatic retransmission and high speed hopping.

The FreeWave MM2 series of radios has been designed to provide the performance, reliability, and quality that our customers have come to know and expect in our products. The MM2 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.

***The MM2 is a mega mini radio with BIG FreeWave performance and reliability.***

### Features: *All specifications are tested and guaranteed.*

- High Speed: 115.2 Kbps maximum throughput.
- Long Range: 60 mile range with clear line of sight
- Error-free Communications: 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications: Tested for RF performance from  $-40^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$ .
- Input voltage range is 8-30 VDC or 5 VDC (TTL version) at full RF output power. Receive current is less than 100 mA @ 12 VDC. Sleep mode only consumes 8 mA.
- Diagnostic port connector allows real-time local diagnostics and setup menu access.
- Diagnostics, including signal level in dBm.
- RS232 / 485 interface (TTL version also available).
- Noise immunity: Superior performance in noise congested environments.
- TDMA-Time Divisible Multiple Access available



# MM2 Series\*\*

## 340-400 MHz Radio Specifications

Transmitter				
Frequency Range	340 to 400 MHz			
Output Power	5mW to 2W			
Range - Line of Sight	60 Miles			
Modulation	2 level GFSK			
Occupied Bandwidth	230.4 kHz			
RF Connector	MMCX			
Receiver				
Sensitivity	-107 dBm for BER 10 <sup>-4</sup>			
System Gain	140 dB			
Data Transmission				
Error Detection	32 bit CRC, Retransmit on error			
Data Encryption	Proprietary Spread Spectrum Technology			
Link Throughput	115.2 Kbps maximum			
Data Interface	Serial			
Protocol	RS232 / 485, 1200 Baud to 230.4 kBaud (TTL also available)			
Data Connector	Board Level: 14-pin header			
Diagnostics				
Connector	Diagnostic port part of 14 Pin connector. RSSI pin connection.			
Power Requirements				
Operating Voltage	8 to 30 VDC; 5 VDC version also available			
Current [mA]	Mode	5 V	12 V	30 V
	Transmit	1.3 A	800 mA	320 mA
	Receive	160 mA	100 mA	50 mA
	Idle	41 mA	26 mA	15m A
	Sleep	10 mA	8 mA	3 mA
General Information				
Operating Temperature Range	-40° C to +75° C. Every radio is RF tested over this range.			
Dimensions	2 L x 2 W x 0.38 H (in); 50.8 x 50.8 x 9.7 (mm)			
Weight	0.74 oz (21 g)			
Humidity	0 to 95% non-condensing			

\*\*Some of these products are regulated under the U.S. International Traffic in Arms Regulations (ITAR). These regulations control the Export and Import of defense articles. These products may only be sold or transferred to a non-U.S. person (in the U.S. or abroad) after authorization is obtained from the U.S. Department of State. Customer (a) agrees to comply with ITAR regulations and (b) shall be responsible for obtaining all necessary U.S. Government authorization to ensure compliance with these and other applicable U.S. Laws. Please contact FreeWave for export control information for specific products.

