



1880 S. Flatiron Court, Suite F
Boulder, CO 80301

tf 866.923.6168
p 303.381.9200
f 303.786.9948

www.freewave.com
sales@freewave.com

MM2 Series**

MM2-TTL 900 MHz Series

Overview:

The FreeWave MM2 radio has been designed to provide the performance, reliability, and quality that our customers have come to know and expect in our products in a MM2 "Mega-Mini" form factor for applications where space is at a premium. The MM2 has all of the functionality of the larger footprint FGR Series of radios.

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

The MM2 is a "Mega-Mini" radio with BIG FreeWave performance and reliability.

Features:

- Improved Low Signal Performance: RISC-based signal demodulation with matched filter.
- Versatility: A single radio can operate as a master, slave, repeater, or slave/repeater.
- Unparalleled Signal Performance: GaAs FET RF front end with multistage SAW filtering has unmatched combination of overload immunity and sensitivity.
- High Noise Immunity: Superior performance in noise congested environments.
- TDMA: Time Divisible Multiple Access available.
- 115.2-153.6 kbps and 614 kbps-1.2 Mbps models available.
- Secure: Proprietary spread spectrum technology prevents detection and unauthorized access; 128 bit AES encryption available*.
- Reliability: Every radio 100% tested for RF performance from -40 °C to +85 °C.
- Size & Performance: Smallest data radio with the highest performance available.
- Low power consumption.
- UL Approved**

*Contact FreeWave for implementation details.

**Certain Models

All specifications are tested and guaranteed.



MM2 Series**

MM2-TTL 900 MHz Series Technical Specifications

	Standard	High Speed				
Transmitter						
Frequency Range	902-928 MHz (FHSS) (DTS)					
Output Power	10 mW to 1 W, 1.5 W* (*Military & export versions only.)					
Range - Line of Sight	60 miles	30 miles				
Modulation	2 level GFSK					
RF Data Rate	Selectable speeds 115.2 to 153.6 Kbps	Selectable speeds 614 kbps to 1.23 Mbps				
Occupied Bandwidth	230 kHz	1.5 MHz				
Hopping Patterns	15 per Band, 105 total, user selectable					
Hopping Channels	50 to 112, user selectable	1 to 40, user selectable				
Hopping Bands	7, user selectable					
Frequency Zones	16 Zones					
RF Connector	MMCX (Straight)					
Receiver						
Sensitivity	-108 dBm @ 115.2 kbps for BER 10 ⁻⁴ -103 dBm @ 153.6 kbps for BER 10 ⁻⁴	-98 dBm @ 614 kbps for BER 10 ⁻⁴ -97 dBm @ 867 kbps for BER 10 ⁻⁴ -93 dBm @ 1.2 Mbps for BER 10 ⁻⁴				
IF Selectivity	40 dB at fc +/- 230 kHz	40 dB at fc +/- 1.5 MHz				
RF Selectivity	50 dB at 896 MHz, 935 MHz					
Dynamic Range	+10 dBm 3rd Order Intercept Point at Input Connector					
Data Transmission						
Error Detection	32 bit CRC, Retransmit on error					
Data Encryption	Proprietary Spread Spectrum Technology					
Data Interface	1200 bps - 230.4 Kbps	9600 bps - 1380 Kbps				
Data Connector	Straight 14-pin dual row header 2.0mm spacing					
Data Throughput	115.2 Kbps	921 Kbps				
Power Requirements						
Operating Voltage	3.3 or 5.0 VDC					
Current [mA]	Mode	3.3 VDC	5 VDC	Mode	3.3 VDC	5 VDC
	Transmit	760 mA	635 mA	Transmit	850 mA	730 mA
	Receive	125 mA	135 mA	Receive	135 mA	145 mA
	Idle	38 mA	19 mA	Idle	45 mA	25 mA
	Sleep	8 mA	6 mA	Sleep	8 mA	6 mA
	Hibernate	0.5 mA	0.5 mA	Hibernate	0.5 mA	0.5 mA
General Information						
Operating Temperature Range	-40° C to +85° C (-40° F to +185° F)					
Dimensions	50.8mm L x 36mm W x 9.6mm H (2" L x 1.4" W x 0.38" H)					
Weight	14 g (0.49 oz)					
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 authorizations required to ensure compliance with these and other applicable U.S. Laws. Please contact FreeWave for export control information for specific products.

FreeWave Radios Require Professional Installation. Specifications may change at any time without notice. ©2010 FreeWave® Technologies, Inc.

3.12.10



1880 S. Flatiron Court, Suite F
Boulder, CO 80301

tf 866.923.6168
p 303.381.9200
f 303.786.9948

www.freewave.com
sales@freewave.com