



FGR-Series

FGRM 900 MHz Industrial Radio

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

Overview

The FreeWave FGRM 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 compact form factor for applications where space is at premium. The FGRM has all of the features and functionality of the larger footprint FGR Series of radios: a 6-30 VDC operating voltage, multiple interfaces, FCC approval at the board level with no additional RF shielding required and Class 1 Div 2 classification to name a few. The FGRM is also available in a PC/104 format, providing a highly compact stackable form factor that complies with PC/104 specifications. The radio is available in many combinations of RF connectors and data interface connector.

Features

- Separate Diagnostic Port: Real-time remote diagnostics and setup, transparent to network communications.
- Lowest Current Draw at 12 volts:
 - 6 mA in sleep mode w/no wake up delay
 - 21 mA in idle mode
 - 86 mA in full time receive
 - 500 mA transmit current
- Improved Low Signal Performance: RISC-based signal demodulation with matched filter.
- Synthesized Waveform Transmit Data: Reduces out of band modulation products.
- Versatile: A single radio can operate simultaneously as a Slave and as a Repeater.
- Improved Strong Signal Performance: RF front end provides a 10 dB improvement. An optional setting is available for strong signal applications in which the radio's overload level improves an additional 8 dB (18 dB over DGR Series radios) while still maintaining a -106 dBm sensitivity level.
- High Noise Immunity - Superior Performance in noise congested environments.
- Secure - Proprietary spread spectrum technology prevents detection and unauthorized access
- Industrial Grade Specifications - 100% tested for RF performance from -40° C to +75°C.

Model Numbers:

FGRM-CR2: MCX-R; Comb

FGRM-CS2: MCX-S; Comb

FGRM-T2: MCX-S; TTL

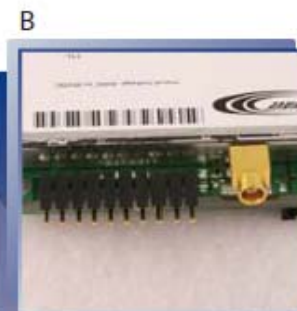
FGRM-TR2: MCX-R; TTL

All 4 model numbers also come with any of your choice of the 10 pin connector option:

A: Standard, Bottom, Non-locking 10-pin

B: Locking Right Angle Top 10-pin

C: Reverse, Locking 10-pin



Model #: FGRM-TR
921-7071
1812519
R09RAS
Boulder, CO

FGR-Series

FGRM 900 MHz Industrial Radio Technical Specifications

Transmitter				
Frequency Range	902-928 MHz (FHSS)			
Output Power	5 mW to 1 Watt			
Range - Line of Sight	60 miles			
Modulation	2 level GFSK, 115.2 Kbps or 153.6 Kbps			
Occupied Bandwidth	230 kHz			
Hopping Patterns	15 per Band, 105 total, user selectable			
Hopping Channels	50 to 112, user selectable			
Hopping Bands	7, user selectable			
Frequency Zones	16 zones, 7 Channels per zone			
RF Connector	MCX (Straight or Right Angle)			
Receiver				
Sensitivity	-106 dBm for BER 1x10 ⁻⁶ , -108 dBm for BER 1x10 ⁻⁴			
Selectivity	20 dB at fc +/- 230 kHz			
System Gain	50 dB at 896 MHz, 935 MHz			
Data Transmission				
Error Detection	32 bit CRC, Retransmit on error			
Data Encryption	AES 128 bit encryption* and proprietary spread spectrum technology			
Link Throughput	115.2 Kbps Standard Speed; 80 Kbps Low Speed <i>Uncompressed, measured assuming 75% frequency availability.</i>			
Data Interface	Serial			
Protocol	RS232 / 485 / 422, 1200 Baud to 230.4 KBaud			
Data Connector	Board Level: 10-pin header with locking ramp, 0.1 inch spacing, power/data connector Enclosed (ruggedized): DB9			
Diagnostics				
Connector	Board Level: Separate 20-pin PCB header Enclosed (ruggedized): 3-pin PCB header.			
Power Requirements				
Operating Voltage	6 to 30 VDC			
Current	Mode	6 VDC	12 VDC	30 VDC
	Transmit	1 A	500 mA	200 mA
	Receive	152 mA	86 mA	43 mA
	Idle	40 mA	21 mA	12 mA
	Sleep	8 mA	6 mA	3 mA
General Information				
Operating Temperature Range	-40 °C to +75 °C (-40° F to + 167° F)			
Dimensions	Board Level: 78mm L x 62mm W x 18mm H			
Weight	Board Level: 60 g			
Humidity	0 to 95% non-condensing			

*Contact FreeWave for implementation details.

