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FGR-Series

FGRM Industrial 900 MHz Radio

Overview:

The FreeWave® FGRM radios have 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 a 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, temperature range from –40° to +75°C, 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 connector and data interface connector. Please ask for our help.

Features:

- Separate diagnostic port - real time remote diagnostics and setup, transparent to network communications.
- The lowest current draw of any radio - at 12 Volts:

  < 6 mA in sleep mode with 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 gives a 10 dB improvement. A 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.

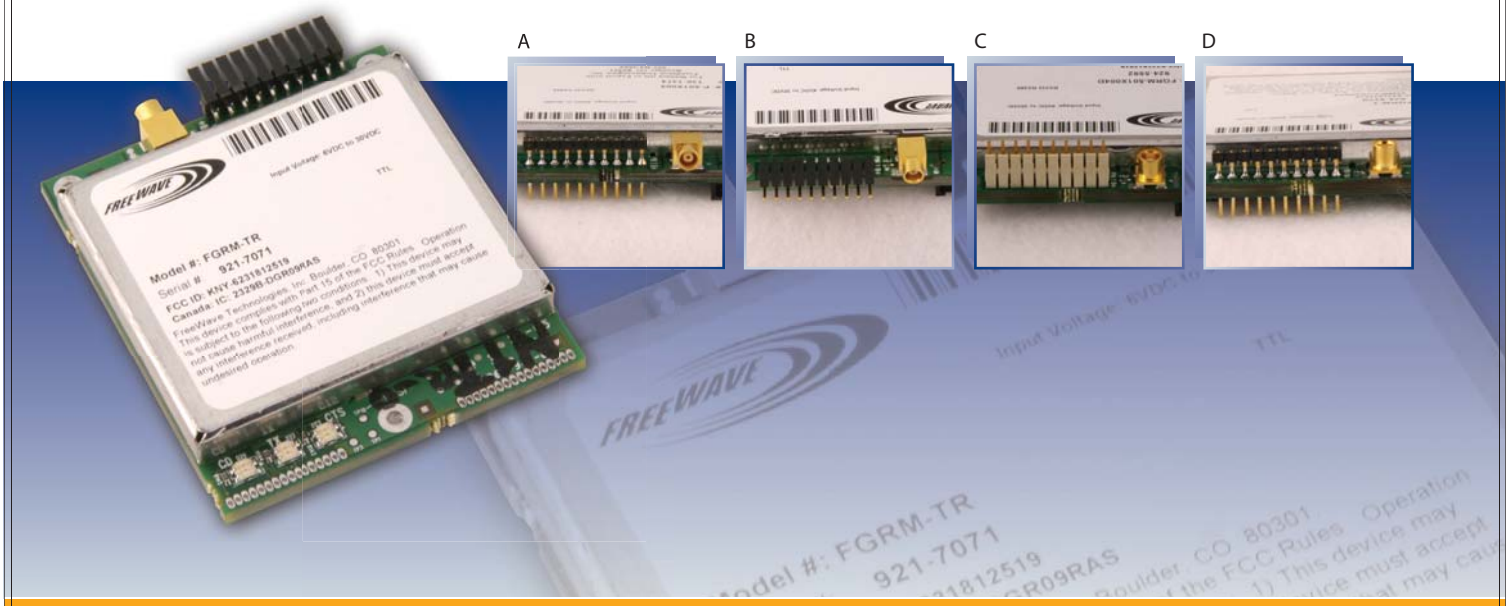
Connector Options:

A: Right Angle MCX (gold) Bottom, Non-locking 10-pin

B: Right Angle MCX (gold) Locking Right Angle Top 10-pin

C: Straight MCX (gold) Top, Reverse, Locking 10-pin

D: Straight MCX (gold) Standard, Bottom, Non-locking 10-pin



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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	138 dB
Data Transmission	
Error Detection	32 bit CRC, Retransmit on Error
Data Encryption	Substitution, Dynamic Key
Link Throughput**	115.2 Kbps standard speed, 80 Kbps low speed ** Uncompressed, measured assuming 75% frequency availability
Data Interface	Serial
Protocol	RS232 / 485 / 422 or TTL, 1200 Baud to 115.2 KBaud
Data Connector	10-pin header with optional locking ramp, 0.1" spacing power/data connector.
Diagnostics Interface	
Connector	3-pin PCB
Power Requirement	
Operating Voltage	6-30 VDC (5.5-7.5 VDC Available)
Current [mA]	

Mode	6VDC	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
Dimension	70 L x 62 W x 16 H (mm)
Weight	67 g
Humidity	0 to 95% non-condensing

FreeWave Radios Require Professional Installation.

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