



FGR2 Series

FGR2 900 MHz Industrial Radio

Overview:

The FreeWave FGR2 radio is the next generation of the FGR Series that has the same proven performance, reliability, and quality that our customers have come to know and expect in all of our products. The FGR2 is a cost effective solution that allows customers to incorporate wireless communications into a wide variety of applications. The FGR2 features a 6 to 30 VDC operating voltage, multiple interface options, a temperature range from -40°C to $+75^{\circ}\text{C}$, and is UL Class 1, Division 2 approved. Offered as a board level product and in an enclosure, the FGR2 provides tremendous flexibility for use in applications around the world ranging from oil and gas to golf carts, water systems, and more. The FGR2 is backward compatible with the FGR and DGR Series of FreeWave radios, enabling existing customers to leverage and extend their existing investment.

Features: *All specifications are tested and guaranteed.*

- Improved Low Signal Performance - RISC-based signal demodulation with matched filter.
- Long Range - 60 mile range with clear line of sight; ability to extend through repeaters.
- Versatile - A single radio can operate as a master, slave, repeater, or slave/repeater.
- UL Class 1, Division 2 approved.
- Unparalleled Signal Performance - GaAs FET RF front end with multistage SAW filtering has unmatched combination of overload immunity and sensitivity.
- High Noise Immunity - Provides superior performance in noise congested environments.
- Selectable Speeds - 115.2 Kbps & 153.6 Kbps.
- 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 $+75^{\circ}\text{C}$.
- Low Power Consumption - industry leading.
- Backward compatible with the FGR & DGR Series of FreeWave radios.



* Enclosed version available with optional mounting shoe and or din rail mount.

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FGR2 900 MHz Industrial 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	Type SMA, TNC-Enclosed version only (Female connectors)			
Receiver				
Sensitivity	-108 dBm for BER 1x10 ⁻⁶ , -110 dBm for BER 1x10 ⁻⁴			
IF Selectivity	40 dB at fc +/- 230 kHz			
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	Dynamic key substitution. 128 bit AES encryption available*.			
Link Throughput	115.2 Kbps Standard Speed; 80 Kbps Low Speed			
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	800 mA	380 mA	170 mA
	Receive	90 mA	55 mA	40 mA
	Idle	24 mA	16 mA	8 mA
	Sleep	8 mA	6 mA	3 mA
General Information				
Operating Temperature Range	-40 °C to +75 °C			
Dimensions	Board Level: 136mm L x 62mm W x 14mm H Enclosed: 173mm L x 107mm W x 35mm H			
Weight	Board Level: 58 g Enclosed: 509 g			
Humidity	0 to 95% non-condensing			

*Contact your FreeWave reseller or sales rep for implementation details.

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FreeWave Radios Require Professional Installation. Specifications may change at any time without notice. ©2009 FreeWave Technologies, Inc.



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