

FGR2 Series

FGR2 900 MHz Industrial Radio



Key Features

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

Secure: Proprietary Spread Spectrum Technology prevents detection and unauthorized access; AES 128/256 bit encryption available

Selectable Speeds: 115.2 kbps & 153.6 kbps

Versatile: A single radio can operate as a Gateway, Endpoint, Repeater or Endpoint/Repeater

Backward Compatible: 100% compatible with all existing 900 MHz FreeWave serial radios

Unparalleled Signal Performance: GaAs FET RF front end with multistage SAW filtering has unmatched combination of overload immunity and sensitivity

UL Approved: Class 1 Division 2

Overview

The 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.

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.

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

Specifications

MODEL	FORM FACTOR	OPTIONS
FGR2-CE-U	173 L x 107 W x 35 H (mm)	Enclosed
FGR2-C-U	127 L x 61 W x 12 H (mm)	Board Level
FGR2-T-U	127 L x 61 W x 12 H (mm)	TTL/Board Level



FGR2 900 MHz Industrial Radio: Technical Specifications

TRANSMITTER

Frequency Range	902 to 928 MHz (FHSS)
Output Power	5 mW to 1 W
Data Link Range	60 miles, clear line of sight
Modulation	2 level GFSK, 115.2 kbps or 153.6 kbps
RF Data Rate	153.6 kbps high speed, 115.2 kbps standard speed
Occupied Bandwidth	230 kHz
Hopping Patterns	15 per band, 105 total, user-selectable
Hopping Channels	50 to 112, user-selectable
Frequency Zones	16 zones, 7 channels per zone

RECEIVER

Nominal Sensitivity	-105 dBm at high speed 1×10^{-4} BER
	-109 dBm at standard speed 1×10^{-4} BER
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 Security	AES 128/256 bit encryption* and PSST**
Data Throughput	115.2 kbps at high speed RF data rate
	80 kbps at standard speed RF data rate
Data Interface	Serial, 1200 bps to 230.4 kbps, DCE
Protocol	RS232/RS422/RS485 (-C), TTL (-T)

Data Connector	Board Level: 10-pin shrouded header
	Enclosed: DB9

DIAGNOSTICS

Connector	Board Level: 20-pin header
	Enclosed: 3-pin header

POWER REQUIREMENTS

Operating Voltage	+6 VDC to +30 VDC (>7.5 VDC recommended)
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+6 VDC Typical Current

Transmit: 700 mA	Receive: 85 mA	Idle: 19 ma
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+12 VDC Typical Current

Transmit: 365 mA	Receive: 48 mA	Idle: 11 mA
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+30 VDC Typical Current

Transmit: 150 mA	Receive: 26 mA	Idle: 8 mA
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GENERAL INFORMATION

Operating Temperature	-40°C to +75°C
Humidity	0 to 95%, non-condensing
Dimensions	Board Level: 127 L x 61 W x 12 H (mm)
	Enclosed: 173 L x 107 W x 35 H (mm)
Weight	Board Level: 58 g
	Ruggedized Enclosure: 504 g

FGR2 900 MHz Industrial Radio: Applications



Oil and Gas



Agriculture



Utilities

Contact your FreeWave reseller or sales rep for implementation details.

FreeWave Technologies, Inc.

5395 Pearl Parkway, Suite 100, Boulder, CO 80301 TF 866.923.6168 T 303.381.9200

For more information, visit www.freewave.com

Specifications are subject to change without notice.

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