FGR2 Series
FGR2 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

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, and a temperature range from –40° to +75°C. 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.

Features   *All specifications are tested and guaranteed.*

- 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 - 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°C.
- Low Power Consumption - industry leading.
- Backward compatible with the FGR & DGR Series of FreeWave radios.

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

FGR2 Series

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

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 *Uncompressed, measured assuming 75% frequency availability.*
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 ^{o}C to +75 ^{o}C
Dimensions	Board Level: 128 L x 62 W x 12 H (mm) | Enclosed: 173 L x 62 W x 16 H (mm)
Weight	Board Level: 136 g | Enclosed: 590 g
Humidity	0 to 95% non-condensing

Contact your FreeWave reseller or sales rep for implementation details.