

FGR2-CE-U



FGR2 Series

FGR2 900 MHz Industrial Radio

FGR2-C-U



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.

Key Features

Versatility: Gateway, Endpoint, Repeater or simultaneous Endpoint and Repeater function in a single radio

Long Range: Up to 97 km (60 miles) with clear line of sight with the ability to extend through Repeaters

Noise Immunity: Superior performance in noise congested environments

Secure: Frequency Hopping Spread Spectrum (FHSS) technology prevents detection and unauthorized access

Error Free Communications: 32-bit CRC with automatic retransmissions

Low Power Consumption: Ideal for solar, battery, and DC applications

Industrial Grade: Operating temperature from -40°C to +75°C

UL Approved: Class I, Division 2

Available Options: 128- and 256-bit AES encryption

Transmitter	
Frequency Range	902 to 928 MHz
Output Power	Up to 1 W
Range	97 km (60 miles) with clear line of sight
Channel Spacing	230 kHz
RF Data Rate	115.2 kbps, standard speed 153.6 kbps, high speed user-selectable

Receiver	
Sensitivity	-108 dBm @ 115.2 for BER 10 ⁻⁴ -104 dBm @ 153.2 kbps BER 10 ⁻⁴
IF Selectivity	40 dB at fc +/- 460 kHz
RF Selectivity	65 dB at 896 MHz, 935 MHz
Maximum Input Power	+10 dBm

Data Transmission	
Type	Frequency Hopping Spread Spectrum
Modulation	2 level GFSK
Data Throughput	80 kbps, standard speed 115.2 kbps, high speed
Error Detection	32-bit CRC, retransmit on error
Data Encryption	Options: AES 128- / 256-bit encryption and PSST
Hopping Zones	16 zones, user-selectable
Hopping Channels	50 to 112, user-selectable
Hopping Patterns	15 per band, 105 total, user-selectable
Protocol	FGR2-C-U: RS232 / RS422 / RS485 FGR2-CE-U: RS232 / RS422 / RS485 FGR2-T-U: TTL

Power Requirements				
Operating Voltage	+6 to +30 VDC (+/- 5%) (>7.5 VDC recommended)			
Current Consumption	Voltage	Transmit	Receive	Idle
	+6 VDC	644mA	93 mA	48 mA
	+12 VDC	330 mA	60 mA	32 mA
	+30 VDC	125 mA	33 mA	23 mA
Note: All measurements at 25°C with LEDs disabled				

Interfaces	
Data Interface	Serial, 1200 bps to 230.4 kbps, DCE FGR2-C-U: 10-pin shrouded header for power and data, 2mm pin spacing FGR2-CE-U: DB9
Diagnostics Interface	Serial, RS232 or TTL FGR2-C-U: 20-pin header FGR2-CE-U: 3-pin plug FGR2-T-U: 20-pin header
RF Connector	FGR2-C-U: SMA Female FGR2-CE-U: TNC Female FGR2-T-U: SMA Female

General Information	
Operating Temperature	-40°C to +75°C (-40°F to +167°F)
Humidity	0 to 95%, non-condensing
Dimensions	FGR2-C-U: 127 L x 61 W x 12 H (mm) 5.0 L x 2.4 W x 0.47 H (in)
	FGR2-CE-U: 173 L x 107 W x 35 H (mm) 6.8 L x 4.2 W x 1.4 H (in)
	FGR2-T-U: 127 L x 61 W x 12 H (mm) 5.0 L x 2.4 W x 0.47 H (in)
Weight	FGR2-C-U: 58 g (0.13 lbs)
	FGR2-CE-U: 504 g (1.1 lbs)
	FGR2-T-U: 58 g (0.13 lbs)

Certifications	
Safety	Class I, Division 2 Groups A-D
FCC	Part 15

Information to Order	
Model Number	Description
FGR2-C-U	Board Level
FGR2-CE-U	Rugged Enclosure
FGR2-T-U	Board Level, TTL interface