

PLUS Radios

FGR2 Ethernet 900 MHz Industrial Radio



FGR2-PE



FGR2-P

KEY FEATURES

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

Long Range: 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 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.

Available Options: TDMA, Super Epoch TDMA, 128-bit and 256-bit AES encryption.

OVERVIEW

The FGR2-P and FGR2-PE offer Ethernet and serial data communications using 900MHz license-free spectrum for reliable connectivity in RF harsh environments and over long data links.

Both FGR2 Ethernet radios offer two 10/100 Ethernet ports as well as two serial ports, and industrial grade AES encryption to meet the demands of wireless automation. The FGR2-P/PE continue FreeWave's tradition of making radios that perform as expected in the harshest environments on the planet, with class-leading receiver sensitivity that enables link reliability that other radios simply can't match.

The flexibility and cost effectiveness of the FGR2 Ethernet line also reduces the need for additional radio inventory since all radio can be programmed to operate as Gateways, Repeaters and End Points.

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

SOLUTIONS



DRONES & ROBOTICS



EARTH MONITORING



GOV & DEFENSE



IRRIGATION & PRECISION AGRICULTURE



ASSET TRACKING



OIL & GAS



WATER & WASTEWATER



SMART CITIES



UTILITIES

TECHNICAL SPECIFICATIONS

TRANSMITTER

Frequency Range	902 to 928 MHz
Output Power	Up to 1 W
Range	Up to 97 km (60 mi.), clear line of sight
Channel Spacing	230.4 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 ⁻⁶ -104 dBm @ 153.6 kbps BER 10 ⁻⁶
IF Selectivity	40 dB at fc +/- 460 kHz
RF Selectivity	65 dB at 896 MHz, 935 MHz

DATA TRANSMISSION

Type	Frequency Hopping Spread Spectrum Options: TDMA, Super Epoch TDMA
Modulation	2 level GFSK
Data Throughput	115.2 kbps and 153.6 kbps
Error Detection	32-bit CRC, retransmit on error
Data Encryption	Options: 128-bit and 256-bit AES encryption
Hopping Zones	16 zones, user-selectable
Hopping Channels	7 to 8 (out of 112), user-selectable
Hopping Patterns	15 per band, 105 total, user-selectable
Protocol	RS232 / RS485 Ethernet: IEEE 802.3 TCP, UDP, DHCP, ICMP, ARP multicast TFTP DNP3 over TCP
User Interface Rates	Ethernet Rate 10/100 Mbps Serial Rate Up to 115.2 kbps

POWER REQUIREMENTS

Operating Voltage	+6 VDC to +30 VDC		
Current Consumption			
Voltage	Transmit	Receive	Idle
+6 VDC	1100 mA	252 mA	140 mA
+12 VDC	550 mA	150 mA	71 mA
+30 VDC	220 mA	63 mA	32 mA

INTERFACES

Data Interface	2 Ethernet: IEEE 802.3, 10/100 Mbps 802.3u, Fast Ethernet, RJ45 2 Serial: RJ45 RS232, RS422, RS485, programmable
Diagnostics Interface	Serial, RS232 or TTL
Antenna Connector	
FGR2-P	SMA, female
FGR2-PE & PE-U	TNC, female

GENERAL INFORMATION

Operating Temperature	-40°C to +75°C (-40° to +167°F)
Humidity	0 to 95%, non-condensing
Dimensions	
FGR2-P:	178 L x 83 W x 32 H (mm) 7.00 L x 3.27 W x 1.26 H (in.)
FGR2-PE & PE-U:	173 L x 97 W x 36 H (mm) 6.81 L x 3.82 W x 1.42 H (in.)
Weight	
FGR2-P:	227g (0.5 lbs.)
FGR2-PE & PE-U:	635g (1.4 lbs.)

CERTIFICATIONS

FCC	Part 15.247 / IC RSS-210
UL	Class I, Division 2

INFORMATION TO ORDER

Model Number	Description
FGR2-P	Board Level, UL Approved, CID2
FGR2-PE	Rugged Enclosure, UL Approved, CID2
FGR2-PE-U	Rugged Enclosure, Non-UL Approved

CONTACT US

5395 Pearl Parkway, Boulder, CO 80301
 TF: 866-923-6168 T: (303) 381-9200
 For more information, visit www.freewave.com