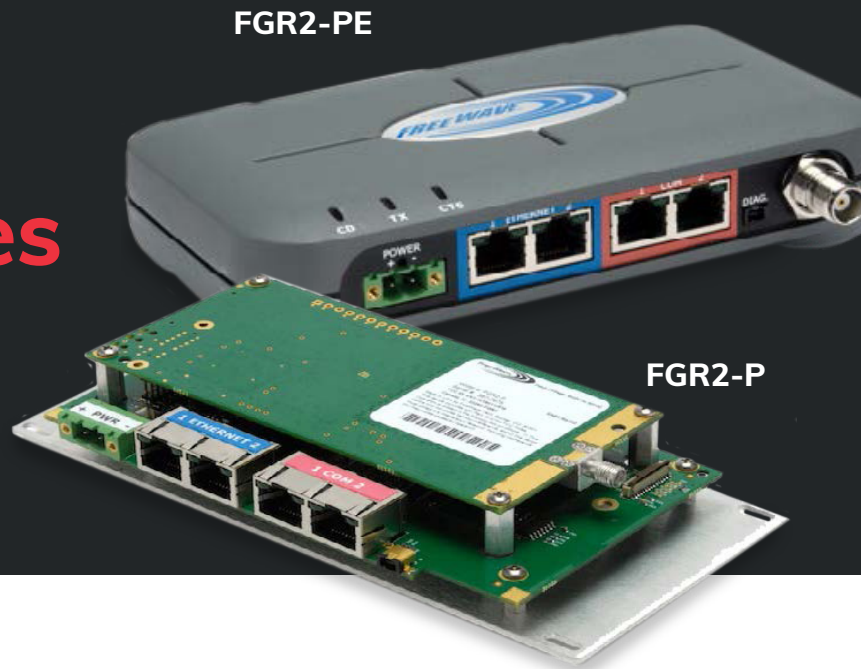


## FGR2 Plus Series

900 MHz Industrial Radio  
for Ethernet and Serial  
Data Communications



The FGR2-P and FGR2-PE offer a future-proof combination of serial and Ethernet ports and use the 900 MHz license-free spectrum to deliver reliable connectivity in RF harsh environments and over long data links.

Both FGR2 Plus radios offer two 10/100 Ethernet ports and two serial ports with industrial-grade AES encryption to meet the demands of wireless automation. The FGR2-P and FGR2-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 FGR2 Plus Series is fully compatible with the FGR2 family of radios and allows for the transition from serial to Ethernet communications without replacing existing wireless data communication infrastructure. They also reduce the need for additional radio inventory since all radios can be programmed to operate as Gateways, Repeaters, and End Points, delivering flexibility and cost savings.

### Key Features

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

**Long Range:** 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:** Using Frequency Hopping Spread Spectrum (FHSS) technology; available with 128- and 256-bit AES encryption

**Error Free Communications:** 32-bit CRC with automatic retransmissions

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

**Industrial Grade:** UL Class I, Division 2 certified; operating temperature from -40°C to +75°C

Transmitter	
Frequency Range	902 to 928 MHz
Output Power	Up to 1 W
Range	Up to 97 km (60 miles) with 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 <sup>-6</sup> -104 dBm @ 153.6 kbps BER 10 <sup>-6</sup>
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- 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 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	<b>FGR2-P:</b> SMA, female <b>FGR2-PE &amp; PE-U:</b> TNC, female

General Information	
Operating Temperature	-40°C to +75°C (-40°F to +167°F)
Humidity	0 to 95%, non-condensing
Dimensions	<b>FGR2-P:</b> 178 L x 83 W x 32 H (mm) 7.00 L x 3.27 W x 1.26 H (in)
	<b>FGR2-PE &amp; PE-U:</b> 173 L x 97 W x 36 H (mm) 6.81 L x 3.82 W x 1.42 H (in)
Weight	<b>FGR2-P:</b> 227 g (0.5 lbs) <b>FGR2-PE &amp; PE-U:</b> 635 g (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, Non-UL Approved, CID2
FGR2-PE-U	Rugged Enclosure, UL Approved