



FGR2-PE

Industrial Grade 900 MHz Long Range Radio

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Overview:

The FGR2-PE offers industrial Serial and Ethernet wireless connectivity using license-free spread spectrum for data communication over long distances. The FGR2-PE is compatible with other FreeWave FGR plus family radios and now offers users a second, switched Ethernet port as well as two Serial ports to meet the demands of customers' wireless automation requirements. The future-proof combination of two Serial ports and two switched Ethernet ports give customers the ability to transition from Serial to Ethernet data communications without having to replace their wireless communications infrastructure. This cost-effective flexibility of the FGR2-PE product also reduces the need for additional hardware.

The FGR2-PE offers industrial grade wireless security and encrypted communications, all in one package. All radios are designed, manufactured and 100% tested in Boulder, Colorado.

Features:

- Wide Input Voltage range - 6 to 30 Volt DC.
- Low current draw, at 12 Volts:
 - 140 mA in full time receive
 - 550 mA transmit current
- Strong Signal Performance - Maintains high sensitivity even in harsh RF conditions.
- Versatile - A single radio can operate simultaneously as a slave and as a repeater.
- High Noise Immunity - Superior performance in noise congested environments.
- Secure - Proprietary spread spectrum technology helps prevent Denial of Service (DoS) attacks and unauthorized access.
- High Speed - Up to 154 kbps over-the-air throughput.
- Long Range:
 - Point-to-Point - Up to 60 miles with clear line of sight (LOS).
 - Point-to-Multipoint - Up to 60 miles with clear line of sight (LOS).
- Error Free - 32 bit CRC with automatic retransmission.
- Industrial Grade - 100% tested for RF performance from -40° C to +75° C.
- UL Class 1, Division2 (pending)



Shown with optional DIN rail

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Industrial Grade 900 MHz Long Range Radio Specifications

Transmitter				
Frequency Range	902-928 MHz (FHSS)			
Output Power	5 mW to 1 watt			
Range - Line of Sight	Point to Point: 60 Miles, Point to Multipoint: 60 miles			
Modulation	2 level GFSK			
Occupied Bandwidth	230.4 kHz			
Hopping Patterns	15 per Band, 105 total user selectable			
Hopping Channels	112			
Frequency Zones	16 Zones, 7-8 Channels per zone			
RF Connector	TNC			
Receiver				
Sensitivity	-110 dBm for BER 1×10^{-4} at 115 Kbs, -106 dBm for BER 1×10^{-4} at 153.6 Kbs			
Selectivity	20 dB at fc +/- 230 kHz			
System Gain	140 db			
Data Transmission				
Error Detection	32 bit CRC, Retransmit on Error			
Data Encryption	AES 128 bit encryption* and proprietary spread spectrum technology			
Data Interface	Ethernet, EIA-232,485,422			
Data Connector	Ethernet, 2x 10/100 Base T, Auto Crossover and 2x Serial, RJ45			
Protocol	Ethernet: IEEE 802.3 TCP/IP, DHCP, ICMP, UDP, ARP, Multicast, TFTP			
Data Interface				
Connector	2x Serial RJ 45, 2x 10/100 Ethernet RJ 45			
Power Requirements				
Operating Voltage	6 to 30 VDC			
Current [mA]	Mode	6 VDC	12 VDC	30 VDC
	Transmit	1.1 A	550 mA	220 mA
	Receive	252 mA	150 mA	63 mA
	Idle	140 mA	71 mA	32 mA
General Information				
Operating Temperature Range	-40° C to +75° C. (-40° F to +167° F)			
Dimensions	6.8 in (L) x 3.8 in (W) x 1.4 in (H) / 17.3 cm (L) x 9.6 cm (W) x 3.5 cm (H)			
Weight	1.3 lbs. / 0.6 kg			
Humidity	0 to 95% non-condensing			

*Contact FreeWave for implementation details

