PLUS Radios

FGR2 Ethernet 900 MHz Industrial Radio

FGR2-P

FGR2-PE / FGR2-PE-U

Key Features

Outstanding RF Performance: Maintains high receiver sensitivity and noise immunity even in harsh RF conditions

High Speed: Up to 154 kbps over-the-air throughput

Secure: Frequency Hopping Spread Spectrum (FHSS) technology and AES encryption prevent unauthorized access

Synthesized Waveform Transmit Data: Reduces out-of-band modulation products

Error Free Communications: 32 bit CRC with automatic retransmission

Versatile: Operates as a Gateway, Repeater or End Point

Backward Compatible: 100% compatible with all existing 900 MHz FreeWave FGRPlus radios

Input Voltage Range: +6 to +30 VDC

UL Approved: Class 1 Division 2

Overview

The FGR2-PE and FGR2-P 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. This future-proof combination of serial and switched Ethernet ports are fully compatible with the FGRPlus family of radios and allow for the transition from serial to Ethernet communications without having to replace existing wireless communication infrastructure. 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.

Specifications

MODEL	FORM FACTOR	OPTIONS
FGR2-PE	6.8 L x 3.8 W x 1.4 H (in)	Enclosed
FGR2-PE-U	6.8 L x 3.8 W x 1.4 H (in)	Enclosed
FGR2-P	7 L x 3.25 W x 1.25 H (in)	Board Level

FreeWave®

FGR2 Ethernet 900 MHz Industrial Radio: Technical Specifications

TRANSMITTER	
Frequency Range	902 to 928 MHz (FHSS/ FCC DTS)
Output Power	5 mW to 1 W
Data Link Range	60 miles, clear line of sight
Modulation	2 level GFSK
RF Data Rate	115.2 kbps standard speed 153.6 kbps high speed
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

RECEIVER	
Sensitivity	-108 dBm, at standard speed, 1 x 10^{-6} BER -104 dBm, high speed, 1 x 10^{-6} BER

DATA TRANSMISSION	
Error Detection	32 bit CRC, retransmit on error
Data Security	AES 128 bit encryption FHSS technology RADIUS
Serial Interface	RS232/RS422/RS485, programmable (2) RJ-45 connectors
Ethernet Interface	802.3, IPv4, TCP, UDP, DHCP, ICMP, ARP, Multicast, TFTP, DNP3 over TCP (2) 802.3u, Fast Ethernet, RJ-45

POWER REQUIREMENTS	
Operating Voltage	+6 VDC to +30 VDC
Typical Power	Transmit: 6.6 W Receive: 1.8 W Idle: 0.8 W

GENERAL INFORMATION	
Operating Temperature	-40°C to +75°C
Humidity	Up to 95% non-condensing
Dimensions	Board Level: 178 x 83 x 32 (mm) Enclosed: 173 x 97 x 36 (mm)
Weight	Board Level: 227 g Enclosed: 635 g
Antenna Connector	Board Level: SMA, female Enclosed: TNC, female
Certifications	FCC Part 15.247 / IC RSS-210 UL Class 1, Division 2

FGR2 Ethernet 900 MHz Industrial Radio: Applications


Utilities


Oil and Gas


Agriculture


Water and Wasterwater

Contact your FreeWave reseller or sales rep for implementation details.

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For more information, visit www.freewave.com
Specifications are subject to change without notice.