

PLUS Radios

FGR2 Ethernet 900 MHz
Industrial Radio



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

Reliable Communication: 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 |

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 encryp on FHSS technology |
| | RADIUS |
| Serial Interface | RS232/RS422/RS485, programmable (2) RJ-45 connectors |
| Ethernet Interface | 802.3, IPv4, TCP, UDP, DHCP, ICMP, ARP, Mul cast, TFTP, DNP3 over TCP (2) 802.3u, Fast Ethernet, RJ-45 |

POWER REQUIREMENTS

| | |
|----------------------------|-------------------|
| Operating Voltage | +6 VDC to +30 VDC |
| Transmit Current Transmit: | 6.6 W |
| | Receive: 1.8 W |
| | Idle: 0.8 W |

GENERAL INFORMATION

| | |
|-------------------|---|
| Operating Temp | -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



OIL & GAS



AGRICULTURE



UTILITIES



WATER/
WASTEWATER

CONTACT US

5395 Pearl Parkway, Boulder, CO 80301
TF 866.923.6168 T 303.381.9200
For more information, visit www.freewave.com