



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 and tested in Boulder, Colorado.

Features:

- Wide Input Voltage Range: +6 to +30 VDC.
- 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 Communications: 32 bit CRC with automatic retransmission.
- Industrial Grade: 100% tested for RF performance from -40° C to +75° C.
- UL approved for Class 1 Division2.



Shown with optional DIN rail

FGR2-PE

Industrial Grade 900 MHz Long Range Radio Specifications

| Transmitter | | | | |
|-----------------------------|--|---------------|----------------|----------------|
| Frequency Range | 902-928 MHz (FHSS) | | | |
| Output Power | 5 mW to 1 W | | | |
| 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 | -108 dBm for BER 1x10 ⁻⁴ at 115 Kbps, -105 dBm for BER 1x10 ⁻⁶ at 153.6 Kbps | | | |
| 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, DNP3 over TCP | | | |
| Data Interface | | | | |
| Connector | 2x Serial RJ 45, 2x 10/100 Ethernet RJ 45 | | | |
| Power Requirements | | | | |
| Operating Voltage | +6 to +30 VDC | | | |
| Current | 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 | | | |

