



ETHERNET - SERIES

FGRplus RE Industrial 900 MHz Radio

Overview:

The FreeWave® Technologies FGRplus RE is a leap forward for customers who need an industrial grade high speed Ethernet radio that operates in harsh and challenging RF environments. Designed to the same high level of quality that FreeWave® products are known for, the FGRplus RE is a rugged and reliable solution that delivers communication without barriers.

The FGRplus RE supports TCP, industrial grade wireless security and serial communications, all in one package. All radios are built and tested at FreeWave's world class manufacturing facility in Boulder, Colorado.

Features:

- Wide input voltage range - 6 to 30 Volt DC.
- The low current draw radio at 12 Volts:
 - 140 mA in full time receive
 - 550 mA transmit current
- Strong Signal Performance - Maintains high sensitivity even in marginal 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 prevents detection and unauthorized access.
- High Speed - 154 Kbps over-the-air throughput.
- Point-to-Point Range - 60 miles with clear line of sight.
- Point-to-Multipoint Range - 60 miles with clear line of sight.
- Error Free Communications - 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications - 100% tested for RF performance from -40° C to +75° C.



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Technical 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 |
| Hopping Bands | 7, user selectable |
| 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 $f_c \pm 230$ 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 |
| Authentication | RADIUS |
| Data Interface | Ethernet |
| Protocol | Ethernet: IEEE 802.3 TCP/IP, DHCP, ICMP, UDP, ARP multicast TFTP |
| Data Connector | Ethernet 10/100 Base T Auto-crossover and 2x Serial DB9 |

Diagnostics Interface

| | |
|-----------|--------------------|
| Connector | Under Construction |
|-----------|--------------------|

Power Requirement

| | | | | |
|-------------------|-----------------|-------------|---------------|---------------|
| Operating Voltage | 6 to 30 VDC | | | |
| Current [mA] | Mode | 6VDC | 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 |
| Dimension | 165 L x 74 W x 59 H (mm) |
| Weight | 427 g |
| Humidity | 0 to 95% non-condensing |

FreeWave® Radios Require Professional Installation. Specifications may change at any time without notice. ©2009 FreeWave Technologies, Inc



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