



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
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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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