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FGR Series

FGR115RC/FGR115WC Industrial 900 MHz Series

Overview:

FreeWave Technologies provides wireless data solutions for applications around the world ranging from mission critical to recreational. While most users deploy the FGR Board level radio, this radio is often used for base stations.

All radios are designed, built and 100% tested in our world class manufacturing facility in Boulder, Colorado. The quality and versatility of these radios has led to their use in locations ranging from Mount Everest and Antarctica to the Amazon rainforest.

Features:

- Separate Diagnostic Port: Real time remote diagnostics and setup, transparent to network communications.
- Wide Input Voltage Range: 6.5 to 30 VDC.
- The lowest current draw of any radio: 12 Volts.
 - 6 mA in sleep mode with no wake up delay
 - 21 mA in idle mode
 - 86 mA in full time receive
 - 500 mA transmit current
- Synthesized Waveform transmit data: Reduces out of band modulation products.
- Backward Compatible: 100% compatible with all existing 900 MHz FreeWave Raidos.
- 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: 115.2 Kbps continuous throughput.
- Long Range: 60 mile line of sight range.
- Error Free Communications: 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications: 100% tested for RF performance from -40° C to $+75^{\circ}$ C.



FGR Series

FGR115RC / FGR115WC Industrial 900 MHz Radio Specifications

Transmitter				
Frequency Range	902-928 MHz (FHSS)			
Output Power	5 mW to 1 Watt			
Range, Line of Sight	60 miles			
Modulation	2 level GFSK, 115.2 Kbps or 153.6 Kbps			
Occupied Bandwidth	230 kHz			
Hopping Patterns	15 per Band, 105 total, user selectable			
Hopping Channels	50 to 112, user selectable			
Hopping Bands	7, user selectable			
Frequency Zones	16 Zones, 7 channels per zone			
RF Connector	N Type			
Receiver				
Sensitivity	108 dBm for BER 1x10 ⁻⁶ , -110 dBm for BER 1x10 ⁻⁴			
Selectivity	20 dB at fc +/- 230 kHz			
System Gain	140 dB			
Data Transmission				
Error Detection	32 bit CRC, Retransmit on error			
Data Encryption	Proprietary Spread Spectrum Technology			
Link Throughput**	115.2 Kbps standard speed, 80 Kbps low speed <i>**Uncompressed, measured assuming 75% frequency availability</i>			
Data Interface	Serial			
Protocol	RS232 / 485 / 422, 1200 Baud to 115.2 KBaud, DCE			
Data Connector	DB9			
Data Interface				
Connector	3-pin PCB header (RC), Fischer 11-pin (WC)			
Power Requirements				
Operating Voltage	6.5 to 30VDC			
Current [mA]	Mode	6.5 VDC	12 VDC	30 VDC
	Transmit	1 A	500 mA	200 mA
	Receive	152 mA	86 mA	43 mA
	Idle	40 mA	21 mA	12 mA
	Sleep	8 mA	6 mA	3 mA
General Information				
Operating Temperature Range	-40 °C to +75 °C (-40°F to +175°F)			
Ruggedized Dimensions	165 L x 74 W x 59 H (mm)			
Ruggedized Weight	441 g			
Waterproof Dimensions	165 L x 78 W x 60 H mm			
Waterproof Enclosure	496 g			

