



FGR-Series Ethernet



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900 MHz Spread Spectrum Wireless Radios

The FGR-115RE is a long range, very robust Ethernet bridge. It is ideal for applications where an Ethernet interface is required, but an average throughput in the 100 Kbps range is sufficient. When using radio for data communications, there is always a tradeoff between throughput and range. This product provides both a long range and a significant data rate. For example, SCADA applications may need a long-range link, but they rarely need throughput above 100 Kbps.

Common features of the FGR series:

The FGR family is the latest improvement in our line of products, with features including:

- **New** Separate diagnostic port - real time remote diagnostics and setup, transparent to network communications.
- **New** Improved diagnostics - including RSSI levels in dBm, antenna VSWR and transmit current.
- **New** Wide input voltage range - 6 to 30 Volt DC.
- **New** The lowest current draw of any radio - at 12 Volts:
 - < 5 mA in sleep mode with no wake up delay
 - < 16 mA in idle mode
 - < 60 mA in full time receive
 - < 500 mA transmit current
- **New** Improved low signal performance - RISC-based signal demodulation with matched filter.
- **New** Synthesized waveform transmit data - reduces out of band modulation products.
- 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 full performance from -40 °C - +75 °C.

Particular features of these radios:

- Rugged enclosure
- Ethernet 10baseT interface
- Available in rugged or [OEM board-level module](#)
- 153 Kbps rate over the radio link
- RS232/RS422/RS485 interface version: [OEM board-level module](#) or [rugged](#) or [waterproof enclosure](#) .

Specifications:

Radio Link:	
Frequency Range	902-928 MHz
Method	Frequency hopping spread spectrum
Hopping Patterns	15 per band, 105 total, user selectable
Hopping Channels	50 to 112, user selectable
Hopping bands	7, user selectable
Range, Line-of-sight	60 miles
Occupied Bandwidth	230 KHz
Modulation	GFSK, 120 ~ 170 Kbps
RF Connector	Type N female
System Gain	140 dB
Transmitter:	
Output Power	100 mW to 1 Watt (+30 dBm)
Receiver:	
Sensitivity	-108 dBm for 10-6 BER
Data Transmission :	
Error Detection	32 bit CRC, retransmit on error
Data Encryption	Substitution, dynamic key

Link Throughput**	100 Kbps max								
** Uncompressed , measured assuming 75% frequency availability									
Data Interface:									
Protocol	Ethernet 10 Base-T (UTP, UTP-FDX)								
Connector	RJ45								
Crossover	Switch on rear panel								
Diagnostics Interface:									
Connector	separate 3-pin connector								
Power Requirements:									
Voltage	6 to 30 Vdc								
Receive Current	125 mA at 12 Vdc								
Idle Current	70 mA at 12 Vdc								
Environment and mechanical:									
Operating temperature	-40 °C - +75 °C								
Enclosure	Extruded Aluminum								
Dimensions	6.5 L x 2.93 W x 2.23 H ["] 165 L x 74.4 W x 56.6 H [mm]								
Weight	441 g / 15.5 oz								
Ordering Info:									
<table><tr><td>Model</td><td>Interface</td><td>Enclosure</td><td>Rear Panel</td></tr><tr><td>FGR-115RE</td><td>Ethernet</td><td>Rugged</td><td></td></tr></table>		Model	Interface	Enclosure	Rear Panel	FGR-115RE	Ethernet	Rugged	
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