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# ETHERNET-SERIES

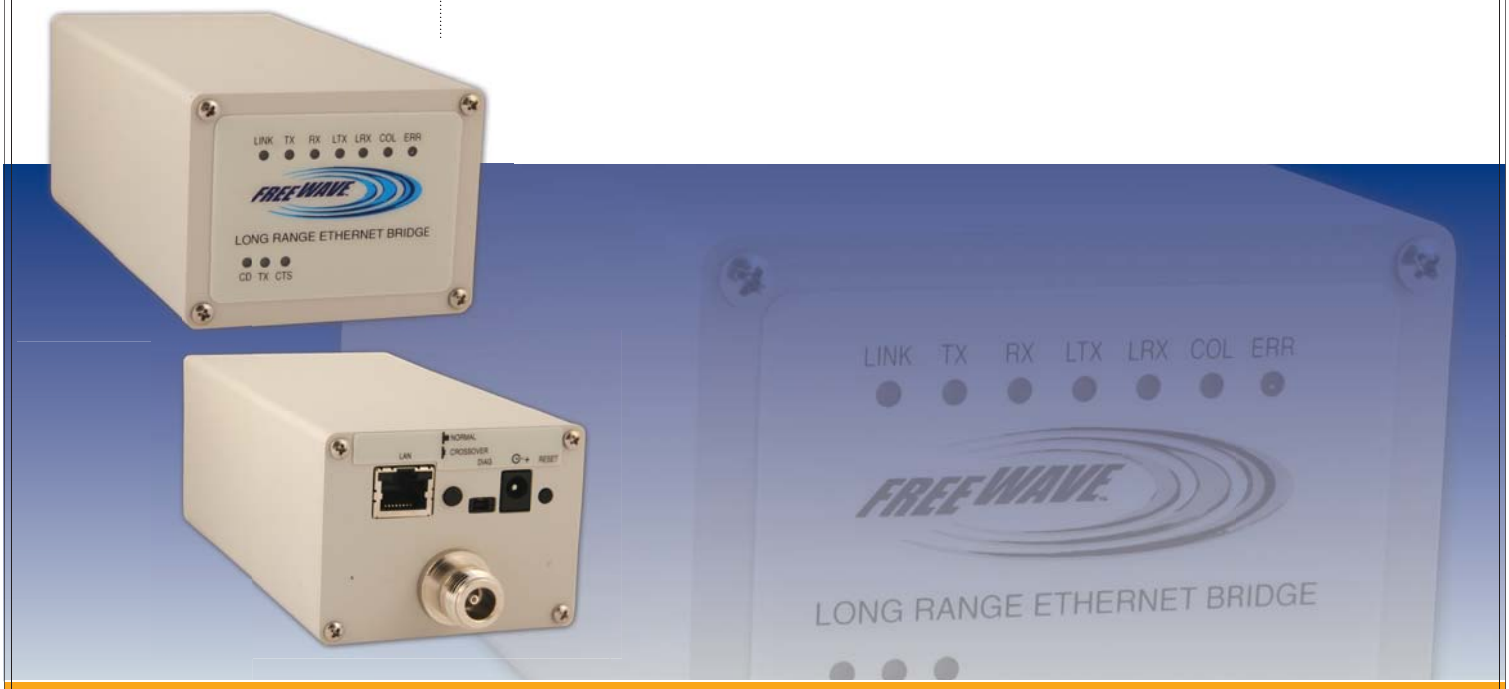
## *FGR115RE Industrial 900 MHz Radio*

### Overview:

The FreeWave® Technologies long range, very robust, very secure Ethernet wireless bridge is ideal for applications where an Ethernet interface is needed, yet throughput in the megabit range is not required. Customers may need an Ethernet interface, but they do not need the throughput over 100 Kbps.
The FreeWave Ethernet radio provides the best of both worlds. All radios are built and tested in our world class manufacturing facility in Boulder, Colorado to operate over the temperature range of -40° to +75°C, making the Ethernet radio ideal for the demanding needs of the industrial market.

### Features:

- Separate diagnostic port - real time remote diagnostics and setup, transparent to network communications.
- Wide input voltage range - 6 to 30 Volt DC.
- The lowest current draw of any radio - at 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.
- 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 °C.



# ETHERNET-SERIES

## *FGR115RE Industrial 900 MHz Radio*

Technical Specifications

| Transmitter | |
|---|---|
| Frequency Range | 902-928 MHz |
| 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 |
| Spreading Method | Frequency Hopping |
| 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 |
| **Receiver** | |
| Sensitivity | -108 dBm for BER $1x10^{-6}$, -110 dBm for BER $1x10^{-4}$ |
| Selectivity | 20 dB at fc ± 460 kHz (2nd IF) |
| System Gain | 140 dB |
| **Data Transmission** | |
| Error Detection | 32 bit CRC, Retransmit on Error |
| Data Encryption | Substitution, Dynamic Key |
| Maximum Throughput | 115.2 Kpbs |
| Data Interface | RS232 / 485 / 422 or TTL |
| Data Connector | 10 pin header with locking ramp, 0.1 inch spacing, power/data connector. Separate Diagnostics connector |
| **Power Requirement** | |
| Operating Voltage | 6 to 30 Vdc |
| Current [mA] | |

| Mode | 6VDC | 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 | |
|---|---|
| Temperature Range | -40 °C to +75 °C |
| Antenna Connector | varies (Professional Installation Only) |
| Weight | varies |
| Humidity | 0 to 95% non-condensing |

FreeWave Radios Require Professional Installation.



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