

From the top of Mt. Everest to the oil fields of West Texas...FreeWave Technologies gives you...

The Signal

Your  newsletter

Winter!

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Common Features on the 900 MHz FGR Series



The FGR family is the latest improvement in our 900 MHz line of products, with the following new features:

- ♦ **Separate diagnostic serial connector** that allows real time local diagnostics and setup menu access.
- ♦ **Improved diagnostics** - including local signal strength indication (RSSI) and transmit current.
- ♦ **Wide input voltage range** - 6 to 30 Volt DC.
- ♦ **The lowest current draw of any radio - at 12 Volts:**
 - < 5 mA in sleep mode with 160 microseconds wake up delay
 - < 20 mA in idle mode
 - < 75 mA in full time receive
 - < 500 mA transmit current
- ♦ **Backward compatible** - 100% compatible with all existing 900 MHz FreeWave radios.
- ♦ **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 clear line of sight range.
- ♦ **Error Free Communications** - Guaranteed with our 32 bit CRC with automatic retransmission.



- ♦ **Industrial Grade Specifications** - 100% tested for full performance from -40 °C - +75 °C.
- ♦ **RS232/RS484/RS422 Interface.** The 900 MHz products are available with a user-programmable RS232/RS485/RS422 interface



New 900 MHz FGR Series



FreeWave Technologies has released its new FGR Series of spread spectrum frequency hopping radios in the 902-928 MHz band. The FGR series is available at the board level or in a professional ruggedized or waterproof enclosure.

The FGR series of 900 MHz radios has all the same features and functionality of the DGR series of radios plus new features and enhancements.

The FGR series of radios is 100% backward compatible with every 900 MHz FreeWave radio ever built. With more interface options available, a 6-30 VDC operating voltage, a temperature range -40°C to +75°C, no additional RF shielding and a board level product that is Class 1 Div 2 rated, the new FGR series of products have tremendous flexibility for use in applications around the world.

900 MHz Features

- ◆ **Frequency Hopping**
- ◆ **High Speed:** 115.2 kbps true throughput
- ◆ **Long Range:** 60+ mile clear line of sight range, ability to extend through repeaters
- ◆ **Error Free Communications:** 32 bit CRC with automatic retransmission
- ◆ **Industrial Grade Specifications:** 100% tested for full performance from -40°C to +75°C
- ◆ **Repeater** and simultaneous Slave and Repeater function all in a single radio
- ◆ **Improved supply voltage range and power consumption.** Input voltage is now 6-30 VDC at full RF output power. Receive current is less than 75 mA @ 12 VDC. A new sleep mode consumes only 5 mA. A unit in sleep mode will wake up, synchronize with the network, and accept data in less than 150 microseconds.
- ◆ **Separate diagnostic serial connector** allows real time diagnostics and setup menu access
- ◆ **RS485/RS422/RS232 Interface.** The FGR Series is available with a user-programmable RS-232/RS-485/RS-422 interface
- ◆ **100% backward compatible** with every 900 MHz FreeWave radio ever shipped

FreeWave's New 900 MHz M-Series Board

The FreeWave M-Series of 900 MHz board-level OEM modules are designed to provide the performance, reliability, and quality of our other products, but in a smaller compact footprint for applications where space is at a premium. The M Series has all the features and functionality of the larger FGR series of radios but at approximately 1/3 of the volume. The M-Series board level has a miniature MCX right angle output connector so small RG-174 coax can be used in the system. Incorporating a 10 pin straight I/O connector that is mounted with its pins facing down eliminates any interconnecting cable and a miniature 3 pin right angle connector is used to connect to the independent diagnostics port. The M-Series board can be plugged directly onto your board by simply mounting it with 3/16" long standoffs. The M-Series has the following features:

- The same functionality and features of our standard 900 MHz products.
- ~1/3 the volume of our standard OEM modules.
- RS232 / RS422 or RS485 data (software selectable), or TTL.
- MCX RF connector.
- Separate diagnostics port
- 10 pin straight I/O connector
- Available in a PC-104 format—contact Microbee Systems at www.microbee-systems.com





New 2.4 GHz I-Series

2.4 GHz Features

- ◆ **Frequency Hopping**
- ◆ **High Speed:** 115.2 kbps true throughput
- ◆ **Long Range:** 20 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 to +75°C
- ◆ **Repeater** and simultaneous Slave and Repeater function all in a single radio
- ◆ **Improved supply voltage range and power consumption.** Input voltage is now 9.5-30 VDC at full RF output power. Receive current is less than 100 mA @ 12 VDC. A new sleep mode consumes only 5 mA. A unit in sleep mode will wake up, synchronize with the network, and accept data in less than 150 microseconds
- ◆ **Separate diagnostic serial connector** allows real time diagnostics and setup menu access
- ◆ **RS232 Interface**
- ◆ **100% backward compatible** with every 2.4 GHz FreeWave radio ever shipped



FreeWave Technologies has released its new I-series of spread spectrum frequency hopping radios in the 2.4 to 2.4835 GHz range.

The I-Series is available at the board level or in a professional ruggedized or waterproof enclosure.

The I-Series has all the features and functionality that the DGMR and DGR24 2.4 GHz radios had plus added enhancements that make the new I-series a versatile radio that can be used in locations ranging from Mount Everest and Antarctica to the Amazon rainforest.

MicroBee PC/104

MicroBee Systems PCFW-001 PC/104 FreeWave Data Radio Interface is designed for compact embedded systems requiring high quality data transmission. The 8 BIT interface is ideal for remote process monitoring, vehicle and aircraft tracking.

Features:

- 3.6W X 3.8L X 0.6H inches.
- Radio can be powered from either the PC/104 bus 12 Volt signal or externally with 6-30 Volts.
- Radio setup menu accessed by either on board switch or 2 pin connector for remotely located setup switch.
- Utilizes 16C550 UART and supports baud rates up to a maximum of 115,200.
- Full 16 bit bus address decoding to eliminate address aliasing.
- Supports IRQ interrupt levels 3, 4, 5, 7, 10, 11, 14 and 15.



- Utilize virtually any bus address from 0x0008 to 0x07FF.
- Tested under DOS, Win 98, Win NT, Win 2000, Win XP and Red Hat Linux.
- 8 or 16 Bit Bus Installation. 8 bit bus installation limits the user to IRQ's 3,4,5 and 7.

For more information visit www.microbee-systems.com

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Red hat Linux is a trademark of Red Hat Corporation





Reaching new heights
in wireless data solutions

900 MHz Ethernet Bridge

Ethernet Features

- ◆ **Frequency Hopping**
- ◆ **License Free**
- ◆ **High Speed:** Over the air data rate of 120-170 kbps
- ◆ **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 to +75°C
- ◆ **Master, Slave, Repeater** functions in a single radio
- ◆ **Improved supply voltage range and power consumption.** Input voltage is now 6-30 VDC at full RF output power. Receive current is less than 130 mA @ 12 VDC.
- ◆ **Separate diagnostic serial connector** allows real time diagnostics and setup menu access
- ◆ **10Base-T Interface**
- ◆ **Built in Crossover Button:** Ensures you are never caught with the wrong cable
- ◆ Available at the board level or in a rugged enclosure



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. You may need an Ethernet interface, but you do not need the throughput over 100 Kbps. The FreeWave Ethernet radios have mixed network capacity. The Ethernet radios are network compatible with standard non-Ethernet FreeWave radios allowing connectivity to both IP addressable and non IP addressable devices in a single network.

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°C to +75°C, making the Ethernet radio ideal for the demanding needs of the industrial market.

-Military Frequencies Available-

FreeWave Technologies has the following military frequencies available:

- 1.428—1.454 GHz
- 225-400 MHz
- 138-144 MHz
- 138-144 MHz Narrow Band
- 138-144 MHz Circular Format

Contact FreeWave for more details or visit our website!

Don't forget to reach us on the web at:

WWW.  .COM

Tell us your best FreeWave stories!

If we use your story in our next newsletter we will send you a Garmin 12XL GPS Receiver.

Send your stories to moreinfo@freewave.com



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