

From the top of

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

**New Products**

# The Signal

Your **FREEWAVE** newsletter

## Fall!

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## T-Series Radio for Traffic Signal Control

FreeWave Technologies has introduced a new family of spread spectrum radio products for traffic signal control networks.

The new T-Series Family includes two models, the 900 MHz T9 and the 2.4 GHz T24. Both models employ FreeWave's proprietary frequency hopping technology to provide secure, reliable, error-free communications at line-of-sight ranges of up to 60 miles. Both models are designed to install into and draw power from a single slot in a standard loop detector card rack for convenient use with 170, 2070 or NEMA controllers. Both models are compatible with all leading brands of traffic signal controllers.

The T-Series models are fully compatible with FreeWave's standard 900 MHz or 2.4 GHz products and offer the same extensive set of features including user-programmable RS-232, RS-485, or RS-422 interface, 6 to 30 volt DC operation, 100% tested -40°C to +75°C operation, and 115.2 Kbps true network bandwidth. Like all FreeWave products, the T-Series models can be programmed to function as a master, slave, single-radio repeater, or single-radio slave/repeater. The number of radios that can be installed in a network is unlimited, and the number of repeaters that can be used in any network path is also unlimited.

The T-Series models are compatible with FreeWave CommControl network management software and are provided with a two-year warranty. Other support available from FreeWave for the T-Series models includes fixed-cost out of warranty repair, network design services, technical support, installation support, and training.

Contact FreeWave Sales at 303-444-3862 or [www.freewave.com](http://www.freewave.com)





## New Model Supports SEL Mirrored Bit Protocol



FreeWave Technologies has announced its second-generation 900 MHz spread spectrum radio designed to support Schweitzer Engineering Laboratories Mirrored Bit (MB8) protocol.

The new model FGR-115MB provides high-speed Mirrored Bit communications at 9600 bps or 38.4 Kbps to a maximum line-of sight range of 25 miles. Additional FGR-115MB radios, configured as Mirrored Bit repeaters may be added to a link to extend the range to 50 miles with one repeater or 75 miles with two or to provide communications over or around obstructions. Typical latency for the FGR-115MB is less than 2 ms allowing real-time ½ cycle transfer trip operations to be transmitted reliably even in congested RF environments. FreeWave's proprietary, serial-number-dependent, frequency-hopping technology prevents false operations and insures absolute network security against unauthorized access.

For SCADA and other electric power applications, the FGR-115MB can be programmed for full compatibility with FreeWave's standard 900 MHz products and offers the same extensive set of features.

The FGR-115MB is compatible with FreeWave CommControl network management software and is provided with a two-year warranty. Other support available from FreeWave for the FGR-115MB includes fixed-cost out of warranty repair, network design services, phone-in technical support, on-site installation support, and on-site training.

Contact FreeWave Sales at 303-444-3862 or [www.freewave.com](http://www.freewave.com)

## FreeWave CommControl™

FreeWave is launching a new version of a network management software tool called CommControl. The software is a GUI layer that is required only for installation at the Master radio. From there, the user can monitor or make programming changes to radios out in the network.

### Easy Installation

The software is easy to install. Upon installation of the software, the tool begins searching for radios in your network. As the radios are found, the software automatically creates a hierarchical tree view of your existing network.

### Easy Monitoring

In the first release of the software, many functions formerly requiring great familiarity with radio networks are now much more intuitive and easy to perform. For example, at the Radio Status Tab it is now very easy to monitor network performance by tracking trend lines and monitoring the colors of the radios in the network.

While you are monitoring your communications network the trend lines are constantly running (see figure 1). The colors of the lines correspond to the attribute that you have checked in the header above the trend line box.



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# FreeWave CommControl™

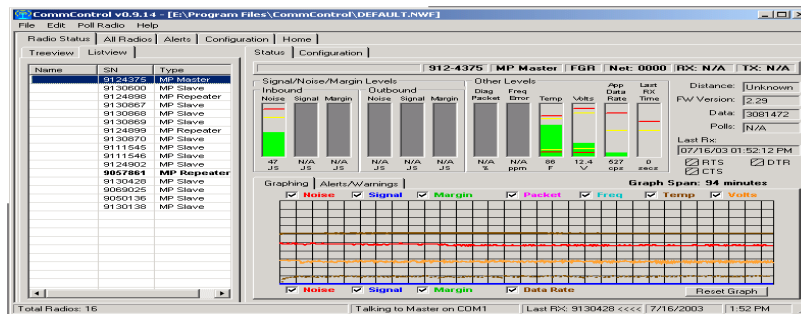


Figure 1

## Time Saving Tools

These color codes add another powerful feature offered by FreeWave CommControl. As a radio goes into either a warning or alarm condition, the radio serial number (or name that you have chosen) listed in the tree view turns yellow or red. This feature makes finding a trouble spot extremely easy. No more time consuming, clumsy scrolling and searching for a condition that might be hard to spot (see figure 2).

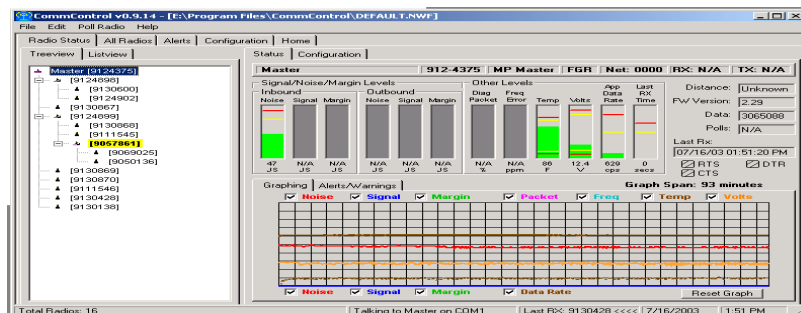


Figure 2

Another time saving view accessible from the Radio Status Tab is the List view. Click on this tab and you will see a “spreadsheet” view of the radios in the network. In this view, your radios that create warning or alarm conditions are sorted to the top and highlighted by appearing in **bold** letters. This is another easy way to manage your network.

## Over The Air

FreeWave CommControl has tools built in that allow even a novice user to trouble-shoot and make configuration changes over the air. The color schemes described above make using the trouble-shooting tools even easier.

If there is a need to change the configuration of a radio for any reason, CommControl can be used with a few clicks of the mouse to make the changes and send the changes to the radio. On occasion you may want to change the sub-network ID so that you can improve radio communication efficiency. You can do so easily with CommControl.

Visit our web site at [www.freewave.com](http://www.freewave.com) for more information on the new FreeWave Comm Control.

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# FreeWave Enterprise Gateway™

FreeWave is launching a new software tool that allows customers to access devices from the web that were previously inaccessible. Network management from remote locations has become more and more important. Many devices allow such access but many are not IP addressable and, therefore, present a challenge now answered with FreeWave Enterprise Gateway.

## How does it work?

FreeWave Enterprise Gateway is a software layer that resides on the same LAN or WAN as the master radio. The master radio must be an Ethernet master to allow for web-based access. In a nutshell, the software assigns an IP address for those devices in the network that are not already IP addressable or do not, in other words, already have IP addresses assigned at the device such as many RTUs are today.

## Easy Installation

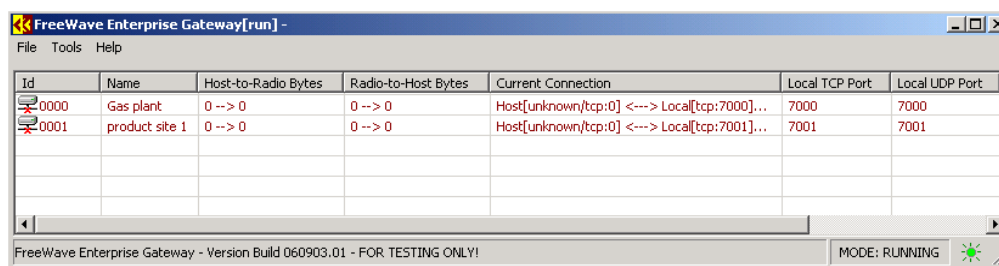
The FreeWave objective is to combine its best-in-class radio networks with tools that make them also the easiest to use. FreeWave Enterprise Gateway's installation process meets that objective.

There are a handful of step-by-step instructions included as a Getting Started Guide. Onboard in the software is a complete set of Help tools that will allow you to troubleshoot the software in the uncommon event that something requires investigating. You will be able to assign an IP address by following instructions imbedded in the software.

In minutes the software will be installed on your computer. You will be ready to begin monitoring and, better yet, managing your critical information network.

## Easy Monitoring

Once your software is installed, it will require very little attention. If you want to check in from time to time, simply click onto the icon and monitor data flow from your desktop. Below is an example of what you will see when you check in.



Id	Name	Host-to-Radio Bytes	Radio-to-Host Bytes	Current Connection	Local TCP Port	Local UDP Port
0000	Gas plant	0 --> 0	0 --> 0	Host[unknown/tcp:0] <---> Local[tcp:7000]...	7000	7000
0001	product site 1	0 --> 0	0 --> 0	Host[unknown/tcp:0] <---> Local[tcp:7001]...	7001	7001

FreeWave Enterprise Gateway - Version Build 060903.01 - FOR TESTING ONLY! MODE: RUNNING

## Sharing the Power

Whether your assignment is to run the business from headquarters or to run the network on-site, you can now see the entire operation, run your polling software or change network parameters all from any location where you have web access.

If there comes a time for a meeting that requires looking at the network all at once from multiple locations, FreeWave Enterprise Gateway will be a key tool in that success. If you can log into the same network, you will be able to share the same view making discussion and communication far more effective than ever before.

## Staying Ahead with FreeWave Enterprise Gateway

This is another step in what is just the beginning of automated, remote network management and control. FreeWave Enterprise Gateway is ideally suited for large networks but will facilitate successful monitoring of any size network. If you are an especially busy network manager, this is another in the collection of the right tool for you from FreeWave just as our radios are the right radios for your network.

Visit our web site at [www.freewave.com](http://www.freewave.com) for more information on the new FreeWave Enterprise Gateway.



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