



# WaveNet

Wireless Monitoring



 **RC SYSTEMS**

[www.rcsystemswireless.com](http://www.rcsystemswireless.com)

# WAVENET WIRELESS MONITORING

The RC Systems WaveNet Wireless Monitoring System consists of 1-32 battery-powered WaveCast Monitors (WCM) and at least one 32 channel WaveLink Receiver (WLR). WLRs take advantage our NRTL certified and field proven ST-90 hardware, but with newly designed firmware. A single WLR Multi-Interface option module is all that is required to add data logging, second wired and wireless Modbus port, plus a Wi-Fi port with web-server. The Wi-Fi feature is especially exciting since it allows remote HMI functionality via any web enabled device. This means our WLRs allow responders to view real time and historical data on smart phones and tablet devices prior to entering a hazardous area!

The battery powered wireless WaveCast Monitor (WCM) descends from our popular ST-48 wireless transmitter and is compatible with existing ST-48 systems. WCM enhancements include power On/Off via the magnetic wand, dual gas sensors, easier battery replacement, plus the ability to separate the sensor up to 15 feet using a 4 wire sensor separation kit.

The new WaveNet Wireless Monitoring System is designed for easy deployment of both permanent and temporary monitoring sites.

## WaveCast Monitor



## WaveLink Receiver



### FEATURES - WaveCast Monitor (WCM)

- Supports single or dual and local or remote "Smart" temperature compensated sensor modules
- Alarms, gas range and other parameters are stored in the Smart Sensor module and may be edited by the user. Changes are periodically broadcast to the WaveLink Receivers to insure identical readings at all locations
- Allows restore of factory settings from Smart Sensor plus backup and subsequent restore of user settings if parameters are accidentally lost
- Password protected with LOW and HIGH security levels
- Easy to change lithium battery
- Three adjustable independent alarm levels per sensor
- Readouts include Eunits, bar graphs, 1-hour trends
- "Legacy" setting makes WaveCast devices compatible with all Buckeye Fire Equipment controllers
- Magnetic mount option available
- License free 900MHz or 2.4 GHz FHSS client and server network
- 5 front panel LEDs indicate alarms and communication status
- Suitable for Division 2 hazardous locations
- Available either in rugged cast aluminum or economical and durable UL-94 injection molded enclosure

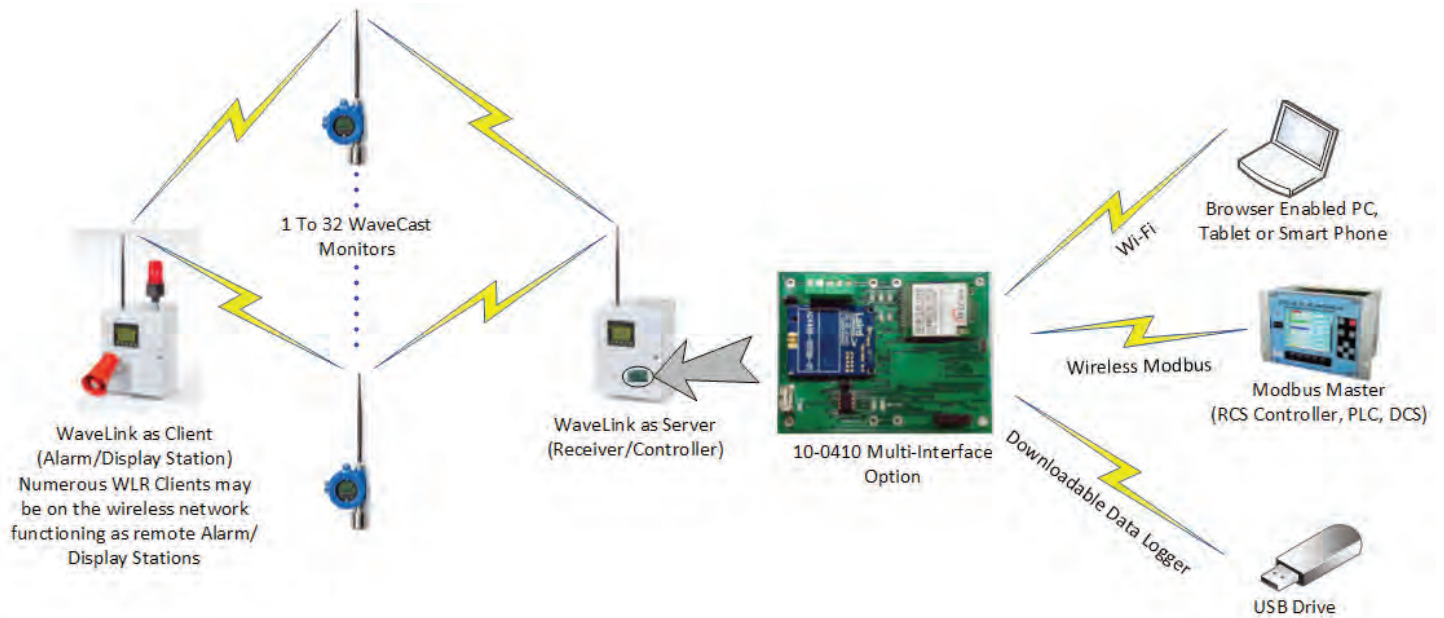
### FEATURES - WaveLink Receiver (WLR)

- Displays monitored readings and alarms from 1 to 32 WaveCast Monitors
- Requires little setup since all channel parameters are periodically received from WaveCast Sensors via the wireless network
- Includes 8 programmable 5-amp relays to control lights, horns, fans etc
- "Acknowledge" feature allows audible devices to be silenced during alarms
- Graphic LCD displays large Eunits and bar graph for each active channels
- Clock / Calendar time and date stamps "Event Log" sensor items including Power-Up, Alarms, Calibration and Com Errors
- 100-240 VAC or 10-30 VDC standard power making it ideal for solar powered installations
- 900 MHz and 2.4 GHz FHSS models
- Touch and magnetic keypads are standard for non-intrusive operation
- Password protected with LOW and HIGH security levels

### 10-0410 MULTI-INTERFACE OPTION

- Wi-Fi access point for web enabled devices to view WaveLink embedded webpages including real time and historical sensor readings, channel parameters, and remote setup capability
- Data logger stores more than 1 year of readings and alarm history
- RS-485 and wireless Modbus Slave port for transmitting WaveNet data to our ST-71 Sixteen Channel and ST-72 64 Channel Controllers

# System Setup



A typical WaveNet FHSS Client / Server wireless monitoring system consists of one WaveLink Receiver (WLR) configured as the network's Server, receiving wireless data from up to 32 Single Gas, or 16 Dual Gas, WaveCast Monitors (WCMs). Additional WLRs may also receive the same WCM data and act as remote alarm stations and displays, but must be configured as a Clients since only one Server is permitted per network. WCMs are powered by an internal lithium battery while WLR's require either 100-240 VAC or 10-30VDC and are very easy to solar power.

The 10-0410 Multi-Interface Module is a plug in PCB option which adds a tremendous amount of functionality and is easily added to WaveLink Receivers. Features added by the 10-0410 include Data Logging of > 1 year of readings and alarms, a WiFi web server sending monitored data to browser enabled smart devices, and RS-485 / FHSS Wireless Modbus slave ports for transferring data to Modbus master devices such as Buckeye Fire Equipment ST-72 Sixty Four Channel Controllers.

## Accessories

### Sensor Separation Kit

**10-0411**



*Shown with 10-0247 stainless steel sensor head*

The 10-0411 Sensor Separation Kit allows WCM smart sensors to be mounted up to 15 feet away from the WCM. WCMs may be configured as single or dual sensor monitors so either one or two 10-0411 Sensor Separation kits may be connected to each WCM. When combined with the 10-0247 Stainless Steel sensor head, the 10-0411 is suitable for Division 2 hazardous locations.

### WaveRelayer/Alarm Bar



*Two Light 10-30VDC Alarm Bar for Division 2 Hazardous Locations*

The WaveNet Relayer (WNR) receives Alarm Status data from wireless WCM sensors for activating up to five configurable 5 amp SPDT relays. Relays may be configured to activate based upon 3 distinct alarm levels, Comm Error/Fault and Low Battery conditions. Add our Quick Connector option and cabling to make it easy to wire Relayers to 2/4 Alarm Bar light stack annunciators!

Order WNR-90 or WNR-24 for appropriate 900MHz or 2.4GHz WaveNet Monitoring Systems. Suitable for Division 2 Hazardous Areas. Available options include Single or Dual, Division 2 rated local Strobe Lights. Quick Connector Option allows easy connection to Alarm Bars for both Ordinary and Hazardous Locations

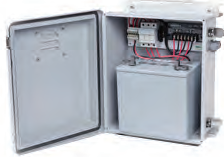


# Additional Plug-In and other Accessories

RC Systems has an offering of plug-in options for configuring a fit-for-purpose system and easily changing components as requirements vary. Other accessories are also available.



30 Watt solar power supply with 55AH battery; Div 2



Tripod



Straight Rubber antenna  
900MHz and 2.4GHz  
1000-2189  
1000-2300



Antenna lightning Protector  
1000-2310

Antenna Base Station 2.4GHz, Collinear  
1000-2312



Yagi Antenna  
900MHz  
1000-2310

Antenna Base Station  
900MHz, Collinear  
10-0289



Sun Shield for Improved LCD Readout Visibility



Four Light 10-30VDC Alarm Bar for Division 2 Hazardous Locations



Four Light 10-30VDC Alarm Bar for Ordinary Locations (Shown with three strobes)



110 Decibel Horn Suitable for Division 2 Hazardous Areas



Two Light 10-30VDC Alarm Bar for Division 2 Hazardous Locations



Two Light 10-30VDC Alarm Bar for Ordinary Locations



RP-TNC Low Coax Antenna Cable (See Guide)



Antenna Base Station  
900MHz, Collinear  
10-0289



Quick Connect Cable Sets



Two Light 10-30VDC Alarm Bar for Division 2 Hazardous Locations



Two Light 10-30VDC Alarm Bar for Ordinary Locations



Stand, WaveCast Monitor



Antenna, 2 dBi Dipole, Division 1



Power Supply, DIN Rail, 24VDC 50 Watt



WaveCast Monitor (WCM) Replacement Lithium Battery



Multicolor Strobe  
(Not Shown: Clear or Purple Strobes or Green Solid)



WLR Multi-function Option

## WAVECAST MONITOR

|                     |  |
|---------------------|--|
| WCMAL90-Single/Dual | Single or Dual channel 900 MHz monitor (rubber dipole antenna included) suitable for Div 2 Installation  |
| WCMAL24-Single/Dual | Single or dual channel 2.4 GHz monitor (rubber collinear antenna included) suitable for div 2 installation   |
| WCMPY90-Single/Dual | Single or Dual channel 900 MHz monitor (rubber dipole antenna included); UL-94 injection molded enclosure (dual requires at least one Sensor Separation kit) |
| WCMPY24-Single/Dual | Single or Dual channel 2.4 GHz monitor (rubber dipole antenna included); UL-94 injection molded enclosure (dual requires at least one Sensor Separation kit) |

## OPTIONS/ACCESSORIES

|           |  |
|-----------|--|
| 10-0381   | Series 4 EC smart sensor board (artic heater standard)               |
| 10-0392   | Series 4 low powered IR smart sensor board                           |
| 10-0247   | Smart sensor head stainless steel (CSA IS / XP)                      |
| 10-0247IS | Smart sensor head stainless steel without sinter                     |
| 10-0411   | WCM XP sensor separation kit with 15ft. com cable (includes 10-0247) |
| 10-0203   | Sensor head calibration adaptor                                      |
| 10-0198   | Sensor head splash guard with remote calibration port                |
| 10-0322   | Magnetic mounting kit for instrument enclosure (2 magnets)           |

## SPARE PARTS

|           |   |
|-----------|---|
| 1000-2691 | Replacement WCM battery with pull tab                           |
| 1000-2215 | Explosion-Proof Enclosure (Limatherm)                           |
| 10-0403   | Replacement board for 10-0411 sensor separation kit             |
| 1000-2720 | Replacement 15 ft. Data cable for 10-0411 separation kit        |
| 10-0404-C | Replacement WCM display/radio board (less radio)                |
| 10-0407   | Replacement WCM battery board (less battery)                    |
| 10-0400   | 3/4 NPT 900 MHz antenna fitting RP-TNC suitable for Div 2 areas |
| 10-0401   | 3/4 NPT 2.4 GHz antenna fitting RP-TNC suitable for Div 2 areas |

## WAVENET RELAYER

|                 |   |
|-----------------|---|
| WNRAL90/WNRAL24 | Suitable for Div 2 Installation; 32 Channel 900MHz or 2.4 GHz wireless Relayer/Repeater; five configurable 5amp SPDT relays |
| WNRPY90/WNRPY24 | UL-94 injection molded enclosure 32 channel 900MHz or 2.4GHz wireless Relayer/Repeater; five configurable 5amp SPDT relays  |

## OPTIONS/ACCESSORIES

|           |  |
|-----------|--|
| 10-0322   | Magnetic mounting kit for instrument enclosure (2 magnets)                     |
| AB4G/AB4H | Four light 10-30VDC alarm bar for general purpose or Div 2 Hazardous locations |
| AB2G/AB2H | Two light 10-30VDC alarm bar for general purpose or Div 2 Hazardous locations  |
| 10-0281   | 110 decibel horn suitable for Div 2 hazardous areas                            |
| 10-0284   | Red strobe light suitable for Div 2 hazardous areas                            |
| 10-0285   | Amber strobe light suitable for Div 2 hazardous areas                          |
| 10-0316   | Blue strobe light suitable for Div 2 hazardous areas                           |
| 1000-2757 | Alarm Bar Cable; 15 meter  |
| 1000-2756 | Alarm Bar Cable; 8 meter   |
| 1000-2755 | Alarm Bar Cable; 3 meter   |

## SPARE PARTS

|           |   |
|-----------|---|
| 1000-2215 | Explosion-Proof Enclosure (Limatherm)                           |
| 10-0404-R | Replacement WNR display/radio board (less radio)                |
| 10-0425   | Replacement WNR relay/power supply board                        |
| 10-0400   | 3/4 NPT 900 MHz antenna fitting RP-TNC suitable for Div 2 areas |
| 10-0401   | 3/4 NPT 2.4 GHz antenna fitting RP-TNC suitable for Div 2 areas |

## WAVENET ANTENNAS

|           |  |
|-----------|--|
| 1000-2189 | Antenna, 900 MHz dipole, rubber, Div 2                         |
| 1000-2193 | Antenna, 900 MHz, dipole, explosion-proof, Div 1               |
| 1000-2310 | Antenna, 900 MHz, Yagi, Stainless Steel                        |
| 10-0288   | Antenna, 900 MHz collinear, 8 dBi Fiberglass Omni Base Station |
| 1000-2300 | Antenna, 2.4 GHz collinear, rubber, Div 2                      |
| 1000-2301 | Antenna, 2.4 GHz, dipole, explosion-proof, Div 1               |
| 1000-2309 | Antenna, 2.4 GHz Yagi, 12DBi, tilt mount                       |
| 1000-2312 | Antenna, 2.4 GHz collinear, 9 dBi Fiberglass Omni Base Station |
| 1000-2188 | Replacement WCM/WNR 900 MHz radio module                       |
| 1000-2454 | Replacement WCM/WNR 2.4 GHz radio module                       |
| 10-0328   | Replacement WLR 900 MHz board kit (includes antenna and cable) |
| 10-0355   | Replacement WLR 2.4 GHz board kit (includes antenna and cable) |
| 1000-2732 | Antenna 900MHz spring base 2dBi dipole omni                    |
| 1000-2733 | Antenna 2.4GHz spring base 4dBi dipole omni                    |

## WAVELINK RECEIVER

|                 |  |
|-----------------|--|
| WLRPY90/WLRPY24 | Poly N4 32 channel 900MHz or 2.4GHz wireless receiver (includes 1000-2189)                 |
| WLRPS90/WLRPS24 | Painted carbon steel N4 32 Channel 900MHz or 2.4GHz wireless receiver (Includes 1000-2189) |
| WLRSS90/WLRSS24 | 316 Stainless Steel N4 32 Channel 900MHz or 2.4 GHz wireless receiver (Includes 1000-2189) |
| WLRN790/WLRN724 | Explosion proof N7 32 channel 900MHz or 2.4GHz wireless receiver (Includes 1000-2193)      |

## OPTIONS/ACCESSORIES

|           |  |
|-----------|--|
| 10-0410   | Multi-interface board with standard data-logging and wired Modbus 485/232 slave port   |
| 10-0410-1 | Multi-interface board with standard data-logging and wireless Modbus 485/232 slave port with 900 MHz Wireless Modbus radio kit                                     |
| 10-0410-2 | Multi-interface board with standard data-logging and wireless Modbus 485/232 slave port with 2.4 GHz Wireless Modbus radio kit                                     |
| 10-0410-3 | Multi-interface board with standard data-logging, wired Modbus 485/232 slave port and Wi-Fi radio kit with embedded web page                                       |
| 10-0410-4 | Multi-interface board with standard data-logging, wireless Modbus 485/232 slave port, 900 MHz Wireless Modbus radio kit and Wi-Fi radio kit with embedded web page |
| 10-0410-5 | Multi-interface board with standard data-logging, wireless Modbus 485/232 slave port, 2.4 GHz Wireless Modbus radio kit and Wi-Fi radio kit with embedded web page |
| 10-0319   | Magnetic mounting kit (includes 4 magnets)   |
| 10-0334   | 30 Watt solar power supply with 55AH battery; Div 2  |
| 10-0333   | Fiberglass tripod mounting kit with clamps and 8 Ft. aluminum pole   |
| AB4G/AB4H | Four light 10-30VDC alarm bar for general purpose or Div 2 Hazardous locations   |
| AB2G/AB2H | Two light 10-30VDC alarm bar for general purpose or Div 2 Hazardous locations  |
| 10-0281   | 110 decibel horn suitable for Div 2 hazardous areas  |
| 10-0284   | Red strobe light suitable for Div 2 hazardous areas  |
| 10-0285   | Amber strobe light suitable for Div 2 hazardous areas  |
| 10-0316   | Blue strobe light suitable for Div 2 hazardous areas   |
| 10-0382   | WLR Sunshield  |
| 1000-2259 | 50 watt AC/DC power supply module; Div 2   |
| 1000-2373 | 120 Watt AC/DC power supply module; Div 2  |
| 1000-2498 | Transmitter stand (requires 1000-2499)   |
| 1000-2499 | 1.5" Pole mount bracket plate with U-Bolt (requires 1000-2498)   |

## SPARE PARTS

|             |   |
|-------------|---|
| 10-0214-WLR | Replacement WLR display board                                   |
| 10-0215     | Replacement WLR mother board without radio and relay boards     |
| 10-0222     | Replacement WLR discrete relay board (6 relays)                 |
| 1000-1992   | Fuse, 2 AMP on motherboard                                      |
| 1000-2638   | Quick connector; 3/4" NPT; Div 2, Generation 2                  |
| 1000-2641   | Quick connector; female 3/4" NPT for XP sensor J-box end; Div 2 |
| 1000-2639   | Quick connector; panel; Div 2, Generation 2                     |
| 1000-2640   | Lockfast cable guard; Div 2, Generation 2                       |
| 1000-2620   | 3 Meter cable set; Div 2, Generation 2                          |
| 1000-2621   | 8 Meter cable set; Div 2, Generation 2                          |
| 1000-2622   | 15 Meter cable set; Div 2, Generation 2                         |
| 1000-2482   | Antenna Cable, RP-TNC, 50 feet, Low Loss                        |

\* All cables offered in armored cable style (call for details)

\*\* Call for details regarding additional cable sizes.



NEMA 4X Polyester  
Enclosure



NEMA 7 Aluminum  
Enclosure



NEMA 4X 316  
Stainless Steel  
Enclosure



NEMA 4  
Powder Coated  
Carbon Steel  
Enclosure



WaveCast 900 MHz  
Single Gas Monitor  
Polycarbonate



WaveCast 2.4 GHz  
Single Gas Monitor  
N4X Cast Aluminum





## **SPECIFICATIONS**

### **RELAYS**

Relays are Form C 5AMP @ 30VDC and 240VAC resistive

### **PERFORMANCE**

2.4GHz frequency range: 2400 - 2483.5 MHz with 42 hops

2.4GHz conducted transmit power is 125mW / 21dBm

2.4GHz indoor/urban range: Up to 1500 feet with 7dBi collinear antenna

2.4GHz outdoor RF LOS range: Up to two miles with high-gain antenna

2.4GHz receiver sensitivity: -98dBm

900MHz frequency range: 902 - 928 MHz with 50 hops

900MHz conducted transmit power (selectable): 10mW-1W/ 0-30dBm

900MHz indoor/urban range: Up to 3000 feet with 2dBi dipole antenna

900MHz outdoor RF LOS range: Up to five miles with high-gain antenna

900MHz receiver sensitivity : -100dBm

### **DISPLAY**

64 x 128 pixel LCD

### **AMBIENT TEMPERATURE RANGE**

-40 - 60 degrees C

### **POWER SUPPLY**

10 - 30 VDC at less than 2 watts



Represented by:

**C A Briggs Company**

622 Mary Street; Suite 101  
Warminster, PA 18974

Phone: 267-673-8117 - 800-352-6265

Fax: 267-673-8118

[Sales@cabriggs.com](mailto:Sales@cabriggs.com) - [www.cabriggs.com](http://www.cabriggs.com)

8621 Highway 6, Hitchcock, TX 77563

Tel: (409) 986-9800

Fax: (409) 986-9880

[www.rcsystemswireless.com](http://www.rcsystemswireless.com)