

# WaveData<sup>®</sup> WIRELESS DATA COLLECTION SYSTEM WIRELESS DATA



### FEATURES

- For use with AquiStar<sup>®</sup> Smart Sensors
- Cellular Modems □ Internet Protocol (IP) □ AT&T or Verizon
- Radio Fequency Wireless Units □ License-free radio bands Long life batteries
  - Less expensive than cabling
- Power Supplies with Solar or Line Power Charging Options
- Modbus<sup>®</sup> Protocol
- Compact Easy to Install
- Weather Proof (IP66/67 or NEMA 4X)
- Easy to Use Software

## DESCRIPTION

WaveData® Wireless Data Collection Systems combine INW's patented AquiStar® Smart Sensor/Dataloggers with cellular modems and/or radio frequency modems to create powerful data collection and monitoring systems.

AquiStar<sup>®</sup> Smart Sensors communicate using industry standard digital RS485 interfaces and Modbus<sup>®</sup> communication protocols. They store thousands of records, operate on low power, and feature easy to use software with powerful features, including the ability to create complex test sequences and display uploaded data in tables and graphs. INW carries Smart Sensors for a variety of parameters, including pressure, temperature, pH, ISE, redox, and conductivity.

### Cellular and Land-Line Modems

Rugged, low-power cellular IP modems connect to multiple sensors or a radio frequency network, allowing site monitoring from anywhere phone service is available. The sturdy NEMA 4X or IP66/67 enclosures are weatherproof and easy to mount. Battery packs and solar charging systems render these cellular installations virtually maintenance free. Optional land-line modems are available for sites with hard-wired telephone lines.

### **Radio Frequency Units**

Operating on the 900 MHz radio band, the radio frequency modems are license free. Consuming very little power, they run for months on alkaline batteries or virtually forever on solar systems. Communication range varies from 300 feet to 5 miles, depending on line-of-sight obstructions, height and type of antennas, and additional store and forward repeaters. A master radio connected to a host computer can communicate with many remote radios, each of which can be connected to several Smart Sensors, thus creating a network to monitor an entire site or several nearby sites from one central location.

### Software

Aqua4Plus, INW's easy-to-use Windows-based software, communicates with and controls INW's state-of-the-art Smart Sensors. Aqua4Plus is designed as a multi-layered control program, capable of controlling a number of separate sensors via cable, radio, cellular or land-line modem, or some combination thereof. Use Aqua4Plus to create and store powerful test sequences as well as to upload and view data in either tabular or graphic format. Aqua4Plus also controls remote relays via WaveData units, allowing the user to remotely control attached equipment such as pumps or various other equipment. Also available is INW's automatic polling software, Aqua4Push, which captures data from multiple sites and pushes it up to an Internet site at specific timed intervals.



1-800-776-9355 http://www.inwusa.com



## WIRELESS DATA COLLECTION SYSTEM

## **Enclosures**

Depending on your choice of modem and power supply, the WaveData Wireless Data Collection System is available in various easy-mount weatherproof enclosures. (Drawings for illustration only - not to scale)









1-800-776-9355 http://www.inwusa.com Custom enclosures also available - call INW for information



## **SPECIFICATIONS**

## WaveData<sup>®</sup> Radio Frequency Units

| 1-Auxiliary Power Out | 50 mA, 12 VDC, for use                 |
|-----------------------|--|
|                       | by AquiStar <sup>®</sup> Smart Sensors |
| 2-Switched Power Out  | 9-24 VDC (6 amps)                      |
|                       | (High power model only)                |
|                       |  |
| RADIO TRANSCEIVER     |  |
| Frequency Ranges      | 902 - 928 MHz (Low power model)        |
|                       | 905 - 925 MHz (High power model)       |
| Туре                  | Frequency Hopping/Spread Spectrum      |
| Transmit Power Output | 0.01 to 1.0 Watt (depending on model)  |
| Rx Sensitivity        | -108 / -104 dBm (Low power model)      |
|                       | -110 / -100 dBm (High power model)     |
| Range - Indoor        | 300' to 1500'                          |
| Range - Outdoor       | Up to 5 miles (depending on model)     |
| FCC                   | Part 15.247 certification              |
|                       |  |

### POWER SUPPLY REQUIREMENTS

| Battery          | 12 VDC          |
|------------------|-----------------|
| Auxiliary        |                 |
| Low Power Model  |                 |
| Voltage          | 9 - 15 VDC      |
| Current          | 100 mA @ 12 VDC |
| High Power Model |                 |
| Voltage          | 9 - 15 VDC      |
| Current          | 500 mA @ 12 VDC |
|                  |                 |

## WaveData® Modems

| CELLULAR MODEM*                           |                              |  |
|---|------------------------------|--|
| AT&T                                      | Airlink Raven EDGE IP Modem  |  |
| Verizon                                   | Airlink Raven CDMA IP Modem  |  |
| * Customer must sign up for cellular plan |                              |  |
|   |                              |  |
| WIREDMODEM                                |                              |  |
| SixNet                                    | VT-MODEM-3 Industrial Modem  |  |
| Uses normal wired phone lines             |                              |  |
|   |                              |  |
| POWERSUPPLY                               |                              |  |
| Line Power System                         | 110 AC - 12 VDC Power Supply |  |
|   |                              |  |
| Solar Power System                        | 10 or 20 Watt Solar Panel    |  |
|   | 7 Amp/Hr Battery             |  |
|   | Regulator/Charger            |  |
|   |                              |  |

Information in this document is subject to change without notice.



### **Typical Installation**



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# WaveData<sup>®</sup> WIRELESS DATA COLLECTION SYSTEM **WIRELESS DATA**

## **HOW TO ORDER**

### WAVEDATA® RADIO UNITS

### **Ordering Notes:**

- · You cannot mix low and high power units. A network must be all one or the other.
- · Order power supplies separately.

#### WaveData<sup>®</sup> RF Low Power Unit (0.01 watt) with XCite<sup>™</sup> radio module (900 MHz)

| 3B487 | Host Unit (5.5" x 3" / IP66/67 enclosure)   |
|-------|---|
| 3B488 | Remote Unit (5.5" x 3" / IP66/67 enclosure) |
| 3B483 | Host Unit (5" x 7" / IP67 enclosure)        |
| 3B484 | Remote Unit (5" x 7" / IP67 enclosure)      |

#### WaveData<sup>®</sup> RF High Power Unit (1.0 watt) with XTend™ radio module (900 MHz) and dipole ante

| with <b>x</b> tend | " radio module (900 MHz) and dipole antenna |
|--------------------|---|
| 3B562              | Host Unit (5.5" x 3" / IP66/67 enclosure)   |
| 3B563              | Remote Unit (5.5" x 3" / IP66/67 enclosure) |
| 3B550              | Host Unit (5" x 7" / IP67 enclosure)        |
| 3B555              | Remote Unit (5" x 7" / IP67 enclosure)      |

### MODEMS

### **Ordering Note:**

| • | Order power supplies and enclosures separately. |  |
|---|---|--|
|   | 3B576   | Cellular Modem Package for Verizon Network |
|   |   | (Requires Verizon cellular data plan)      |
|   | 3B577   | Cellular Modem Package for AT&T Network    |
|   |   | (Requires AT&T cellular data plan)         |
|   | 3B578   | SixNet VT-MODEM-3 Industrial Modem         |

### **POWER SUPPLIES**

| For 5.5" x 3" radio units             |                                    |
|---------------------------------------|------------------------------------|
| 6D755                                 | 12 V, AA cell pack                 |
| 6D732                                 | 3-watt solar power supply          |
| For 5" x 7" radio units               |                                    |
| 6D755                                 | 12 V, AA cell pack                 |
| 6D733                                 | 7-watt solar power supply          |
| For modem and modem/radio combo units |                                    |
| 6D744                                 | 11-watt solar power supply         |
| 6D403                                 | Rechargeable 12 VDC battery system |
|                                       | with wall charger (7 amp/hr)       |
| 6D091                                 | Alkaline D-cell pack               |
| 6D093                                 | Lithium D-Cell pack                |
| 6D094                                 | 110 VAC - 12 VDC wall supply       |
|                                       |                                    |

Call INW for other power supply options.

## Instrumentation Northwest, Inc.

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### **ENCLOSURES FOR MODEMS AND** MODEM/RADIO COMBOS

| 3B580   | 10" X 12" Fiberglass box                          |
|---|---|
|   | (11.875" x 13.75" front cover)                    |
| 3B581   | 13.375" x 11.625" Pelican 1400 case               |
| ACCESSORI   | ES  |
| 3B860   | Junction box (2 sensors)                          |
|   | (Ask for pigtail if needed for connecting         |
|   | to radio/modem boxes)                             |
| 3B838   | Additional connections to junction box (up to 10) |
| 3P902   | 2" Well seal adapter                              |
| 3P904   | 4" Well seal adapter                              |
| 3P830   | RS232/RS485 adapter                               |
| 3P869   | Null modem adapter                                |
| 3B565   | Band & rail pipe mounting kit for 1" pipe         |
| 3B566   | Band & rail pipe mounting kit for 2" pipe         |
| 3B567   | Band & rail pipe mounting kit for 4" pipe         |
| 3B568   | Pole mounting kit                                 |
| CABLING   |   |
| <b>Communication cable for host radio</b> (5-pin female round connector to 9-pin D-sub connector)   |   |
| 3B835   | 6 foot with curly cord                            |
| 3B892   | 25 foot with PU cable                             |
| 3B893   | 50 foot with PU cable                             |
| Extension cable - sensor to remote radio or cell modem (5-pin male to 5-pin female round connector) |   |
| 3B883   | 6 foot with curly cord                            |
| 3B884   | 25 foot with PU cable                             |
| 3B885   | 50 foot with PU cable                             |
| Custom Cabling  |   |
| 6E540   | PU cable - specify length                         |
| 3B832   | 5-pin male round connector - field installable    |
| 3B833   | 5-pin female round connector - field              |
|   | Installadie                                       |
| SYSTEMEN  | GINEERING AND INSTALLATION                        |
| C   | Call INW for details and pricing.                 |

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