Setup Guide

822.11bg Wireless Ethernet

Wi-Fi wireless Sensor System

Warranty/Disclaimer

Omega Engineering, Inc. assumes no responsibility, nor liability for any losses or damage whatsoever arising from the incorrect use of this product. The warranty on your product applies only to the original purchaser and is not transferable. The warranty is void if the unit is altered in any way or if the serial number has been removed or altered. The warranty does not apply to any unit that has been tampered with, repaired or modified by anyone other than an authorized Omega Service Center. This warranty is void if the unit does not return to Omega for repair. This warranty does not cover shipping damage or damage caused by the user, or by improper installation, misuse, accident, or use in a manner inconsistent with the instructions provided by Omega. The user agrees to use the unit in accordance with the instructions provided by Omega.

Specifications

Sensor Specifications

- Accurate Range: ±0.5°C for 5 to 45°C (±0.9°F for 41 to 113°F); up to ±1.5°C for -40 to 5°C and 45 to 124°C
- Resolution: 0.1°C
- Temperature: 
  - wTCP: 
    - 20°C to 45°C: ±0.5°C (±0.9°F); ±0.1% Full Range @ 25°C
    - 45°C to 85°C: up to ±1.5°C
  - Note: extended temp range is for Probe only
  - Controller's operating temp is up to ±5°C
- Resolution: 0°C
- BAROMETRIC PRESSURE (wTCP, wUDP, wHTTP, wFTP, wSMTP):
  - Input: free air
  - Output: 0 to 5 Vdc
  - Accuracy: ±0.1% Full Range @ 25°C
- Voltage Input:
  - Differential: ±0.1 Vdc
  - Single: ±0.05 Vdc
- Accuracy: ±0.005 Vdc
- Resolution: 0.001 Vdc
- Current Input: (wTCP, wUDP, wHTTP, wFTP, wSMTP):
  - Input: 0 to 10 mA
  - Output: 0 to 5 Vdc
  - Accuracy: ±0.01% Full Range @ 25°C
  - Resolution: 0.001 Vdc
- Calendar and Clock: 32-bit Java version 1.6 or higher
- Operating Temperature: 
  - Standard: -10 to 55°C (14 to 131°F), 90% RH non-condensing
  - Minimum: 20°C to 35°C (68°F to 95°F)
- Power Consumption:
  - AC Power Adapter: 120 Volt, 60 Hertz, 0.9 W
  - Back-up Alkaline Battery: 4 x AA (1.5 Vdc, supplied standard)
- Dimensions: 3.8 x 5.8 x 2"
- Weight: 0.7 lbs
- Environmental Considerations: 
  - Operating: 
    - Temperature: 
      - Range: -10 to 55°C (14 to 131°F)
      - Humidity: 90% max RH non-condensing
  - Storage: 
    - Temperature: 
      - Range: -20 to 85°C (41 to 185°F)
      - Humidity: 90% max RH non-condensing
- Power Adapter:
  - AC Power Adapter: 120 Volt, 60 Hertz, 0.9 W
  - Back-up Alkaline Battery: 4 x AA (1.5 Vdc, supplied standard)
- Specified for use in: 
  - U.S. and Canada
  - Europe
  - Asia
  - Australia
- No other warranties or representations, express or implied, are made by Omega Engineering, Inc. regarding the product. Omega Engineering, Inc. disclaims any implied warranties of merchantability or fitness for a particular purpose with regard to the product. Omega Engineering, Inc. accepts no liability for direct, indirect, or consequential incidental, or special damages.

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The OPC Server software makes it easy to integrate the wSeries wireless sensors and transmit data on a wireless Ethernet 802.11b/g network commonly referred to as "Wi-Fi." These Transmitters are not "stand-alone" devices, they transmit data to the Virtual Coordinator. The wireless sensor system provides Web-based monitoring of Analog Current and Voltage, Temperature, Humidity, and Barometric Pressure.

As with all Wi-Fi devices, the wSeries "Transmitters" are assigned unique IP addresses and connect to the LAN through a Wireless Access Point/Router. To conserve battery power, the Transmitters wake up, take readings, transmit data, and go back to sleep. The user can select the frequency of transmissions. Less frequent transmissions result in longer battery life. In applications where battery life is not an issue, the wSeries device can transmit an update every few seconds, or even at fixed intervals.

The wireless transmitter mounts discretely on the wall in commercial locations, laboratories, manufacturing plants, computer server rooms, warehouses, and any remote facility.

### OVERVIEW

wSeries wireless Transmitters take readings from the attached sensors, and transmit data on a wireless Ethernet 802.11bg network commonly referred to as "Wi-Fi." These Transmitters are not "stand-alone" devices, they transmit data to the Virtual Coordinator.

The wSeries wireless sensor system provides Web-based monitoring of Analog Current and Voltage, Temperature, Humidity, and Barometric Pressure. As with all Wi-Fi devices, the wSeries "Transmitters" are assigned unique IP addresses and connect to the LAN through a Wireless Access Point/Router. To conserve battery power, the Transmitters wake up, take readings, transmit data, and go back to sleep. The user can select the frequency of transmissions. Less frequent transmissions result in longer battery life. In applications where battery life is not an issue, the wSeries device can transmit an update every few seconds, or even at fixed intervals.

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### THE VIRTUAL COORDINATOR (VC) WEB SERVER

The "Virtual Coordinator" is a data collection software running on a Windows or Linux computer somewhere on the network. The VC collects data from the Virtual Coordinator. The VC is a computer that can display readings, charts, and record data sent by the Transmitters. The readings, data, and charts are viewed from a Web browser.

The browser accessing the VC Web server, can be the same computer on which the VC is installed—or any other device with Web browsing capabilities on the local network or the Internet (a computer, tablet, or smart phone).

For Windows PCs

- The VC runs as a "Service" in the background, rather than a "Program." As long as the computer and its network connection is functioning correctly, the VC will collect data from the transmitters and send it to the Web browser as requested. The VC can also provide data to popular Data Acquisition and Process Control programs running elsewhere on the network. Meanwhile, the computer running the VC server can be used for other tasks.
- Chart scales are fully adjustable on the fly. For example, the chart can display a value one minute, one hour, one day, one week, one month or even one year. Temperature and humidity can be charted across the full span (-40 to 125°C, and 0 to 100% RH) or within any narrow range (such as 20 to 30°C).

The OPC Server software makes it easy to integrate the wSeries wireless sensor system with a variety of other data collection and Automation programs offered by Omega, Wonderware, iConics, Intellution, Rockwell Automation, and National Instruments, among others.

### ACCESS POINT/WIRELESS ROUTER

You will need access to a Wireless Router. You will need the following information to install a virtual device works correctly:
- Wireless Access PointSSID
- Password/Security Settings
- IP Address (for transmitter)
- Netmask
- Gateway Address
- IP Address of computer that will run the "Virtual Coordinator" service.

### 1. JAVA ENVIRONMENT

#### 1.1. Java Runtime Environment

This PC needs to have the Java Runtime Environment (JRE) installed. First check if the JRE installed. Go to Control Panel and look for the icon named Java. Clicking on it will launch the Java Control Panel where you can update it.

Note the version number. It should be something like 1.6.0.x. If the version number is anything less than 1.6 then go to http://www.java.com, and download and install the latest version of JRE.

#### 1.2. Firewalls

- The firewall exception is now open that will block the readings sent from the sensor (transmitter) to the VC Software.
- Configure the firewall to allow this data to go through. Refer to Appendix K and L in the Operators manual to configure the firewall.

#### 1.3. Firewall Exception

- You will need access to the Virtual Coordinator port number. This port will start the Java Control Panel. Go to the Java tab and click on View button.

### 2. BATTERY INSTALLATION

#### 2.1. Battery Installation

- Install two C-cell batteries, or connect AC adapter.
- Do not remove the battery if the Transmitter is powered ON. If a battery is removed before power is turned OFF, the Transmitter will lose its configuration.
- Do not release the white reset button until the blue LED comes on solid (not blinking).

### 3. configanto the Transmitter

#### 3.1. Connecting Sensors

- Connect the sensors: digital probes, thermocouples, or analog inputs.
- The digital probes for temperature, humidity, and barometric pressure use a NEMA 4, IP65 M12 connector.
- Thermocouple wires and analog voltage & current wires thread through the endpoint of the IP65 cable gland to the J1 terminals as shown in Figure 3.

#### 3.2. Battery Installation

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- Note the version number. It should be something like 1.6.0.x. If the version number is anything less than 1.6 then go to http://www.java.com, and download and install the latest version of JRE.

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### 4. IP ADDRESS

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### 5. Powering on the Transmitter

- This is the only page in the Transmitter's Web server designed to access point/wireless router.
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### 6. Access Point Security

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### 7. Screen on Windows PC

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### 8. Locking on the Transmitter

- Make sure the red power switch is OFF.
- Connect to this network by double clicking it. On connected it should show the windows for initial configuration. Enter the settings here. Refer to Figure 7.