Wi-Fi Wireless Sensor System 802.11b/g Wireless Ethernet

The OMEGA™ wSeries transmitters communicate on a standard Wi-Fi network which is an ideal and economical solution for facilities with an existing Wi-Fi network as well as new installations.

OMEGA offers Wi-Fi transmitters for analog voltage and current, temperature from digital sensors and dual thermocouples, humidity, and barometric pressure.

Included with Wireless Sensor System is the Virtual Coordinator, a data logging software application running on a computer on the network. The “VC” collects and logs data from the transmitters and serves it to Web browsing clients. You can view charts and graphs, monitor and record readings from virtually any type of transducer over an Ethernet network or the Internet from any computer, tablet, or smart phone with a Web browser.

The Wi-Fi transmitters are powered by your choice of batteries or AC. The battery version comes with two ordinary alkaline “C-cell” batteries that can last for 2 years depending on the frequency of readings. The AC version comes with a universal AC adaptor that operates on any voltage worldwide (110 to 240 Vac) and also includes an alkaline “AA” backup battery.

The wSeries Wi-Fi transmitters are designed for demanding industrial applications and harsh outdoor environments. The electronics are protected in a rugged weatherproof, polycarbonate NEMA 4 (IP65) rated housing.

Alarm and Email
The wSeries wireless sensor system can trigger an alarm if variables go above or below a set point that you determine. You can even set alarms to be notified by email. Alarms can be sent to a single user or to a group distribution list, including text messages to cell phones.

Charts and Graphs
The wSeries system serves active web pages to display real time readings and charts of analog voltage and current, temperature, humidity, and barometric pressure. You can also log data in standard data formats for use in a spreadsheet or data acquisition program such as Excel® or Visual Basic®.

Quality and Technology
The innovative wSeries system features an extended one year warranty at no extra charge.
Specifications

RELATIVE HUMIDITY
wTHP, wTHP2, wBTHP
Accuracy/Range: ±2% for 10 to 90%; ±4% for 0 to 5% and 95 to 100%
Hysteresis: ±1% RH
Non-Linearity: ±3%
Repeatability: ±0.1%
Resolution: 0.1%

TEMPERATURE

Accuracy/Range*:
wTHP, wTHP2:
±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 (up to ±2.7°C for -40 to 41°F and 113 to 255°F)
wTP1, wTP2:
±0.5°C for 10 to 85°C (±0.9°F for 50 to 185°F); ±1°C for -40 to 10°C and 85 to 125°C (±1.8°F for -40 to 50°F and 185 to 257°F)
wBTHP:
±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 85°C (up to ±2.7°C for -40 to 41°F and 113 to 185°F)
wBTP:
±0.8°C @ 25°C (±1.5°F @ 77°F) ±4°C for -40 to 85°C (±7.2°F for -40 to 185°F)

* Note: Extended temperature range is for external probe only.

Resolution: 0.1°C

BAROMETRIC PRESSURE

wBTP, wBTHP
Accuracy/Range:
±2 mbar for 300 to 1100 mbar @ 0 to 50°C; ±3 mbar for 300 to 1100 mbar @ -40 to 85°C
Resolution: 0.1 mbar

ANALOG VOLTAGE AND CURRENT INPUT (wVI)

Voltage Input: Differential; bipolar; ±100 mV, ±1V, ±10V
Input Impedance: 38 kΩ for voltage
Current Input: Differential; bipolar; ±20 mA (5 Ω load)
Accuracy: ±0.1% full range @ 25°C
Reading Rate: Periodic (1 sample/update) or continuous (3 samples/second)
A/D Conversion: Sigma-delta
Resolution: 16 bits
Temperature Coefficient: ±50 ppm/°C
Common Mode Rejection: 105 dB
Normal Mode Rejection: 98 dB
Warm-Up to Rated Accuracy: 30 minutes

THERMOCOUPLE INPUT (wTC)

Temperature Range: Refer to thermocouple chart on next page
Temperature Accuracy: Refer to thermocouple chart on next page
Temperature Stability: 0.08°C/°C
Temperature Coefficient: ±25 ppm/°C
Thermocouple Cold End Tracking: 0.1°C/°C
Thermocouple Lead Resistance: 100 Ω max
Thermocouple Type (ITS 90):
Warm-Up to Rated Accuracy: 30 minutes
Reading Rate: Periodic (1 sample/update) or continuous (3 samples/second)
Meter Specifications

Supported Protocols Transmitter:
TCP/IP, UDP, ARP, ICMP, DHCP, HTTP and FTP

Supported Protocols VC: TCP/IP, UDP, HTTP, FTP, SMTP and Telnet

Wireless Communication
Standard: IEEE 802.11 b/g / Wi-Fi
Frequency: 2.4 GHz (2402 to 2480 MHz)
Range: 60 m (200’) indoor line-of-site or more depending upon sensitivity, data rate, wireless access point, and environmental considerations

Radio Power Output Level (Class 1):
91.4 mW EIRP (19.6 dBm EIRP)

Modulation:
802.11b Compatibility: DSSS (CCK-11, CCK-5.5, DQPSK-2, DBPSK-1)
802.11g: OFDM (default)
Channels: 1 to 13; channel 14 for Japan use only and is not certified

Channel Spacing (Bandwidth)/Transmission Rate (Over the Air):
20 MHz, refer to manual
802.11b: 1 to 11 Mbps
802.11g: 6 to 54 Mbps

Receiver Sensitivity: -85 dBm, typ

Power (wSERIES AC POWER)
Power Input: 5 Vdc
Consumption: 0.7 W max

AC Power Adaptor (Safety Qualified):
Nominal Output: 5 Vdc @ 0.6 A
Input: 100 to 240 Vac, 50/60 Hz

Back-Up Alkaline Battery: One “AA” 1.5 Vdc (included)

POWER (wSERIES-CCELL)
Alkaline Battery: 2 “CCELL” 1.5 Vdc (included)

Lifetime: Estimate of 4.3 year with frequency of 1 reading per 2 minutes (see chart this page)

Enclosure Packaging
Material: Polycarbonate
Protection: NEMA 4 (IP65) rated housing

Dimensions:
96.5 H x 146.3 W x 50.8 mm D (3.8 x 5.76 x 2”), not including connectors or antenna

General

Operating Temperature:
-10 to 55°C (14 to 131°F), 90% RH non-condensing

Thermocouple Chart

<table>
<thead>
<tr>
<th>Input Type</th>
<th>J</th>
<th>K</th>
<th>T</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Iron-Constantan</td>
<td>Copper-Constantan</td>
<td>CHROMEGA™-ALOMEGA™</td>
<td>CHROMEGA™-Constantan</td>
<td>Pt/13%Rh-Pt</td>
</tr>
<tr>
<td></td>
<td>CHROMEGA™ -Constantan</td>
<td>Pt/10%Rh-Pt</td>
<td>30%Rh-Pt/6%Rh-Pt</td>
<td>5%Re-W/26%Re-W</td>
<td>Nicrosil-Nisil</td>
</tr>
<tr>
<td></td>
<td>J DIN</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Estimated Alkaline Battery Lifetime

<table>
<thead>
<tr>
<th>Update Rate</th>
<th>C Cell Units</th>
<th>AA Back-Up/AC Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous* (wTC, wVI)</td>
<td>2 weeks</td>
<td>2 days</td>
</tr>
<tr>
<td>10 seconds* (default)</td>
<td>9.6 to 20.5 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>1 minute</td>
<td>2.4 to 7 years</td>
<td>3.6 to 9.6 months</td>
</tr>
<tr>
<td>2 minutes</td>
<td>4.3 to 7 years</td>
<td>6 months to 1.5 years</td>
</tr>
</tbody>
</table>

* Power save mode.
Important: Battery life is dependent on environmental conditions and transmitter settings.
Gadgets
Another way to display your data is by using our gadget feature.
This is a convenient way to view your process without keeping a web browser open, and you can display multiple IP addresses.
The values are always visible while you are working on your other computer tasks. It will automatically start when you restart your computer.
Download the gadget from the software section on OMEGA’s website.

To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wTP1-LCD</td>
<td>Temperature sensor with stick probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wTP2-LCD</td>
<td>Temperature sensor with lug mount probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wTHP-LCD</td>
<td>Temperature and humidity sensor with industrial probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wTHP2-LCD</td>
<td>Temperature and humidity sensor with short probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wBTHP-LCD</td>
<td>Barometric pressure, temp and humidity sensor with industrial probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wBTP-LCD</td>
<td>Barometric pressure and temperature sensor with industrial probe, AC powered, LCD display</td>
</tr>
<tr>
<td>wTC-LCD</td>
<td>Dual thermocouple inputs, AC powered, LCD display</td>
</tr>
<tr>
<td>wVI-LCD</td>
<td>Analog input, AC powered, LCD display</td>
</tr>
<tr>
<td>wTP1-LCD-CCELL</td>
<td>Temperature sensor with stick probe, battery powered, LCD display</td>
</tr>
<tr>
<td>wTP2-LCD-CCELL</td>
<td>Temperature sensor with lug mount probe, battery powered, LCD display</td>
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<td>wTHP-LCD-CCELL</td>
<td>Temperature and humidity sensor with industrial probe, battery powered, LCD display</td>
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<tr>
<td>wTHP2-LCD-CCELL</td>
<td>Temperature and humidity sensor with short probe, battery powered, LCD display</td>
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Replacement Probes

<table>
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<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zTP1-P</td>
<td>External stick probe with temperature sensor, 3 m (10') cable</td>
</tr>
<tr>
<td>zTP2-P</td>
<td>External lug mount probe with temperature sensor, 3 m (10') cable</td>
</tr>
<tr>
<td>zTHP-P</td>
<td>External industrial probe with temperature and humidity sensor, 3 m (10') cable</td>
</tr>
<tr>
<td>zTHP2-P</td>
<td>External short industrial probe with temperature and humidity sensor</td>
</tr>
<tr>
<td>wBTP-P</td>
<td>External industrial probe with barometric pressure, temperature sensor, 3 m (10') cable</td>
</tr>
<tr>
<td>wBTHP-P</td>
<td>External industrial probe with barometric pressure, temp and humidity sensor, 3 m (10') cable</td>
</tr>
</tbody>
</table>

Calibration for New Units

<table>
<thead>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAL-3-HU</td>
<td>NIST traceable calibration certificate, 3 humidity points: 25%, 50%, 75%, 1 temperature point 25°C (for new units)</td>
</tr>
<tr>
<td>CAL-3-HU-P-T</td>
<td>NIST traceable calibration certificate, 3 humidity, 3 barometric pressure, and 3 temperature points (for new units)</td>
</tr>
<tr>
<td>CAL-3-P</td>
<td>NIST traceable calibration certificate, 3 barometric pressure points and 1 temperature 25°C (for new units)</td>
</tr>
<tr>
<td>CAL-3-T</td>
<td>NIST traceable calibration certificate, 3 temperature points (for new units)</td>
</tr>
<tr>
<td>CT485B-CAL-KIT</td>
<td>Calibration kit, 33% and 75% RH standards</td>
</tr>
</tbody>
</table>

Comes complete with 2 “CCELL” batteries or AC power adaptor, and “AA” backup battery.

Ordering Example: Two wTP1-LCD, wireless transmitters with LCD, AC power and external temperature sensor with 3 m (10') cable, and two CAL-3-T, NIST traceable calibration certificates; zTP1-CAL-3-T, a calibrated replacement probe including calibration certificate.

Note: Two Type K thermocouples with 1 m (3') of 24 AWG PFA insulated wire with stripped lead termination included with wTC models.