

# WIRELESS TRANSMITTER for pH and ORP

- HIGH ACCURACY AND RELIABILITY for monitoring applications
- SELF-ORGANIZING NETWORK for high data reliability and network stability
- INDUSTRY LEADING WIRELESS SECURITY
- COMPATIBLE WITH 1420 WIRELESS GATEWAY and Emerson Process Management WirelessHART™ networks
- EASY TO READ two-line display with easy to use menus
- WirelessHART 7 Digital Communications
- SMART Sensor Enabled
- CONTINUOUS DIAGNOSTICS monitor sensor performance and health



## FEATURES AND APPLICATIONS

The Model 6081-P transmitter is ideal for monitoring applications, especially in hard-to-reach or cost-prohibitive locations. Model 6081-P measures pH and ORP and is compatible with most Rosemount Analytical pH and ORP sensors. The transmitter has a rugged, cast aluminum weatherproof and corrosion-resistant enclosure (NEMA 4X). The transmitter includes a two-line 16-character display with simple and intuitive menu screens. Plain language prompts in six (6) local languages guide the user through the programming and calibration procedures. Model 6081 is compatible with non-preamp pH and ORP sensors and SMART pH sensors from Rosemount Analytical.

Installation and start-up of the Model 6081-P wireless transmitter is simple. Just power the Model 6081-P and assign it to a wireless network with a Model 1420 Gateway. The unit will auto-locate the most efficient path to the host and will begin transmitting measurement data immediately via 2.4 GHz wireless communications. The Self-Organizing Network ensures exceptional data reliability and network stability. All of Emerson Process Management's wireless devices employ Encryption, Authentication, Verification, Anti-Jamming and Key

Management to ensure data transmission and security. Rosemount Analytical devices include intelligent power management to reduce power consumption and extend power module life while delivering highly reliable measurements with rich HART data and diagnostic information. HART digital communication allows access to AMS (Asset Management Solutions) for live process variables, useful diagnostics and troubleshooting information.

## SPECIFICATIONS - GENERAL

**Enclosure:** Cast aluminum. NEMA 4X.

**Dimensions:** 6.55" x 5.40" x 5.15" (166mm x 137mm x 131mm).

**Conduit Openings:** 3/4" FNPT

**Ambient Temperature:** 32 to 122°F (0 to 50°C)

**Storage Temperature:** -4 to 158°F (-20 to 70°C)

**Relative Humidity:** 0 to 95% (non-condensing)

**Weight/Shipping Weight:** 7 lbs/8 lbs (3.2/3.6 kg)

**RFI/EMI:** EN-61326

**Digital Communications:** HART 7 WirelessHART

## SPECIFICATIONS - WIRELESS

**Output:** WirelessHART V7

**Transmit Rate:** User selectable, 1/sec. to 1/60 min  
(via 1420 Wireless Gateway or AMS)

**Measurement update rate:** 1/sec. to 1/10 min

**Antenna:** PBT/PC integrated omni-directional antenna

**Radio Frequency:** 2.4 GHz DSSS

**Transmission distance - line of sight:** about 600 ft  
(ideal RF conditions and power module condition)

**Power:** Lithium thionyl chloride long life power module

## FUNCTIONAL SPECIFICATIONS

**pH Range:** 0 to 14

**ORP Range:** -1400 to +1400mV

Compatible with Rosemount Analytical SMART pH sensors

**Calibrations/standardization:** The automatic buffer recognition uses stored buffer values and their temperature curves for the most common buffer standards available worldwide. The transmitter also performs a stabilization check on the sensor in each buffer.

A manual two-point calibration is made by immersing the sensor in two different buffer solutions and entering the pH values. The microprocessor automatically calculates the slope which is used for self-diagnostics. An error message will be displayed if the pH sensor is faulty. This slope can be read on the display and/or manually adjusted if desired.

An on-line one-point process standardization is accomplished by entering the pH or ORP value of a grab sample.

The following calibration methods are supported:

- Two point calibration with Low and High buffer (pH only)
- Two point calibration with Automatic Buffer recognition (pH only)
- Single point standardization
- Single point Temperature Adjustment
- Automatic calibration upon live connection to RAI SMART pH sensors and upload of stored cal data to transmitter

**Automatic Temperature Compensation:** External 3-wire Pt100 RTD or Pt1000 RTD located in the sensor, compensates the pH reading for temperature fluctuations. Compensation covers the range -10 to 150°C (14 to 302°F). Manual temperature compensation is also selectable.

**Accuracy:**  $\pm 1$  mV @ 25°C  $\pm 0.01$  pH

**Repeatability:**  $\pm 1$  mV @ 25°C  $\pm 0.01$  pH

**Information and Status:** Information screens display faults and warnings, radio transmission status, network ID number, Power Module voltage, transmitter model, and software version.

**Diagnostics:** The internal diagnostics can detect:

- RTD Failure
- Glass Low Failure
- Glass High Failure
- Broken Glass Fault
- Reference High Failure
- CPU Error
- High Temperature Warning
- Low Temperature Warning
- Glass Impedance High Warning
- Glass Impedance Low Warning
- Reference Impedance High Warning
- EEPROM Warning
- Sense Line Open Warning
- Factory Cal Warning
- Keyboard Warning

Once a fault or warning is detected, the display will show a message describing the problem.

**Temperature Range:** -10 to 150°C (PT100 and PT1000)

**Display:** 2-line, 16 character display supports display of pH and mV units. Display shows temperature.

**Approvals:**

**RFI/EMI:** EN-61326



## ORDERING INFORMATION

Model 6081-P measures pH and ORP and is compatible with most Rosemount Analytical pH and ORP sensors. The transmitter has a rugged, cast aluminum enclosure (NEMA 4X). The device transmits live process variables and useful diagnostics via HART 7 digital communications to a Model 1420 Wireless Gateway. The Emerson Process Management complete wireless solution implements a Self-Organizing Network for high data transmission reliability and state-of-the-industry wireless security using robust 2.4 GHz DSSS radio transmissions. Model 6081 is compatible with non-preamp pH and ORP sensors and SMART pH sensors from Rosemount Analytical.

Model	Description
6081	Wireless Transmitter (must be operated with Model 1420 Gateway with Burst Rate, Operating Frequency and Protocol Ordering option "A3")
Measurement	Required Option
P	pH/ORP
Agency Approval	Required Option
60	None Required
67	FM Approved, Intrinsically Safe
69	CSA Approved , Intrinsically Safe
73	ATEX Approved, Intrinsically Safe
Spectrum Approval	Required Option
101	United States, Canada and Modular Approved Countries <sup>1</sup>
102	EU <sup>2</sup>
103	Mexico
104	Singapore
105	China
106	Australia
107	India
108	Brazil
109	France
110	Argentina
111	Ecuador
112	Japan
113	Malaysia
114	Peru
115	Qatar
116	Russia
117	Saudi Arabia
118	South Africa
119	South Korea
120	Turkey
121	Venezuela
122	United Arab Emirates

## ACCESSORIES

23820-00	Pipe/Wall Mounting Bracket kit for the Model 6081, carbon steel, painted
00753-9220-0001	Power Module

Note: One power module included in price of Model 6081, but not installed

1. Modular Approved Countries code -101: Aruba, Bahamas, Barbados, Belize, Bolivia, Bosnia & Herzegovina, Chile, Columbia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Kyrgyzstan, Montenegro, Morocco, Netherlands Antilles, Nicaragua, Panama, Puerto Rico, Serbia, Trinidad & Tobago.
2. EU Countries code -102: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden. Switzerland, and United Kingdom.

# EMERSON'S SMART WIRELESS SOLUTION

## SELF-ORGANIZING, ADAPTIVE MESH ROUTING

- No wireless expertise required, devices automatically find the best communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion and reconfiguration
- Supports both star and mesh topologies

## INDUSTRY STANDARD RADIO WITH CHANNEL SEQUENCING

- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually steps through channels to avoid interference and increase reliability
- Direct Sequence Spread Spectrum (DSSS) technology delivers high reliability in challenging radio environment

## SELF-HEALING NETWORK

- If an obstruction is introduced into the mesh network, devices will automatically find the best alternate communication path. This alternate path will be created and the information will continue to flow.

## SEAMLESS INTEGRATION TO EXISTING HOSTS

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry protocols



## Model 6081P – Rosemount Analytical pH Sensor compatibility

### Compatible with standard pH/ORP non-preamp sensors


**PERpH-X<sup>®</sup>**

3300HT  
3300HTVP  
3400HT  
3400HTVP  
3500  
3500VP




**TUpH**

396  
396P  
396PVP  
396R  
396RVP  
396VP  
397  
398  
398R  
398RVP  
398VP




General Purpose

381  
381+  
399  
399VP



Triple Junction

385  
385+  
389  
389VP



**PUR-SENSE<sup>™</sup>**

3800  
3800VP



Special Purpose

3200HP  
328A  
370  
371  
372  
TF396

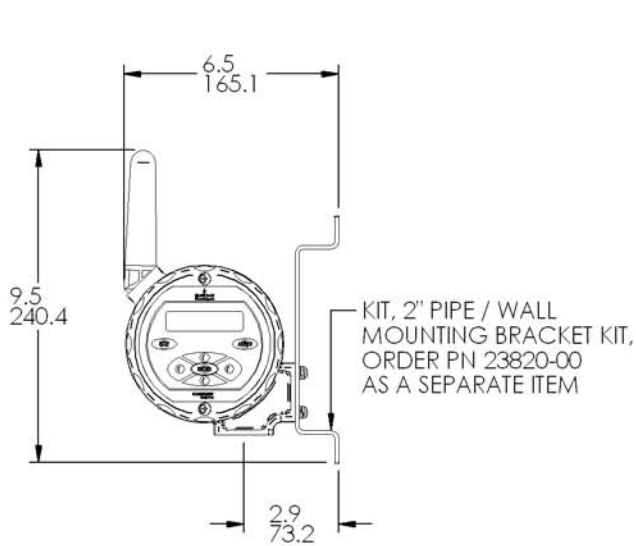


### Compatible with all SMART preamp pH sensors

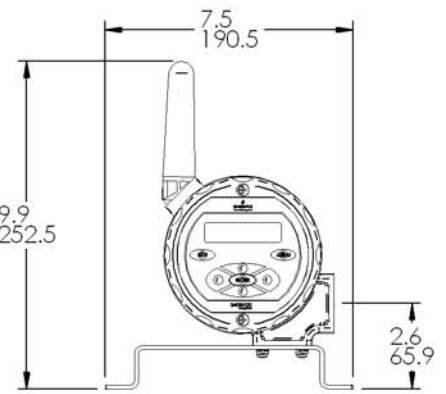
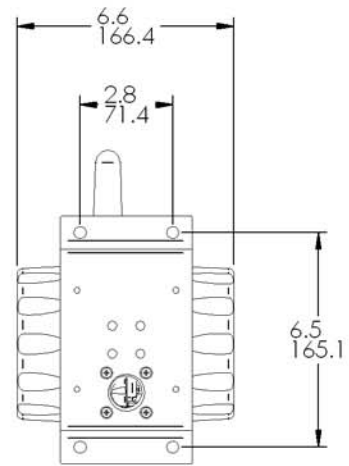
SMART pH/ORP sensors	SMART pH/ORP sensors with VP8 connection
3500	3500VP, 3300HTVP, 3400HTVP
396P	396VP, 396PVP, 396RVP
399	399VP
389	389VP
385+	398RVP

Rosemount Analytical's SMART sensors extend the capabilities of traditional pH sensors. SMART sensor technology allows automatic calibration of sensors. Calibration data is automatically transferred to Model 6081 upon live connection of the sensor. Advanced diagnostics are displayed to indicate sensor health and predict sensor life.

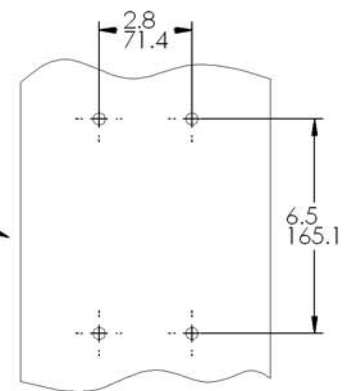
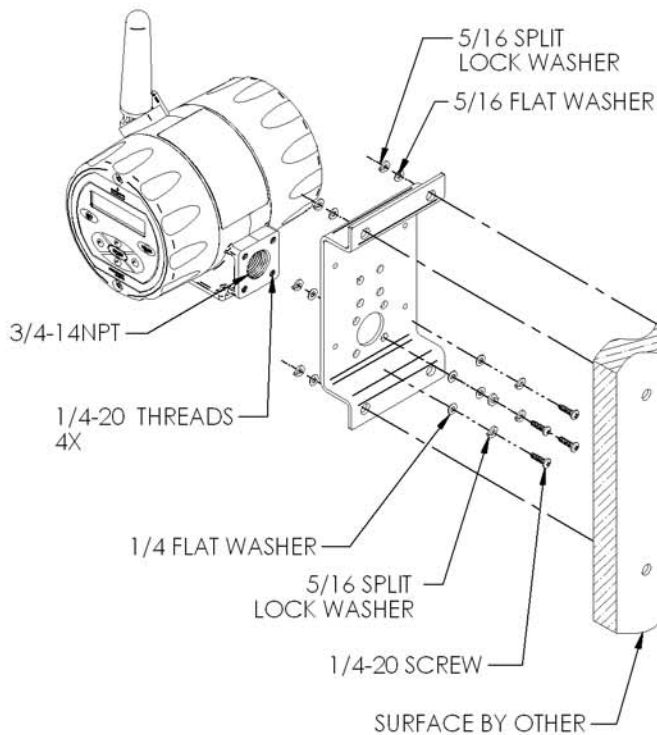




VERTICAL WALL MOUNTING

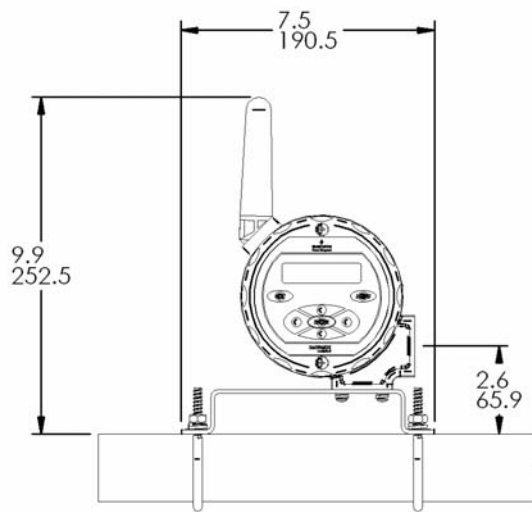


HORIZONTAL WALL MOUNTING



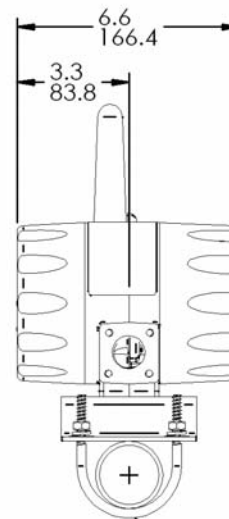
HOLES PATTERN FOR WALL MOUNTING

Wall Mounting Installation Model 6081. Use Pipe/Wall Mounting Bracket Kit, PN 23820-00  
 Note: PN 23820-00 mounting bracket kit includes mounting hardware for pipe mounting only.  
 Wall mounting hardware to be provided by customer. Only use suitable fasteners and hardware  
 to securely fasten the bracket and transmitter to the wall surface.

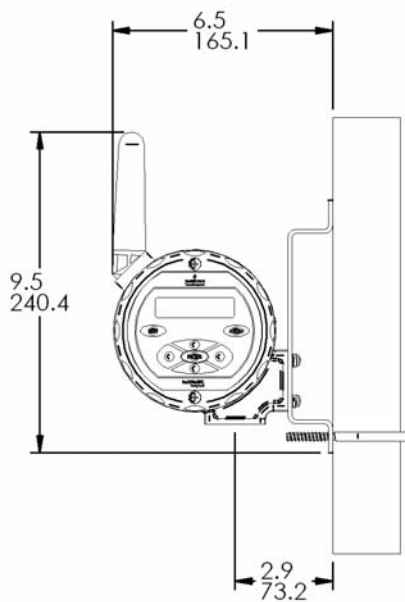


HORIZONTAL PIPE MOUNTING

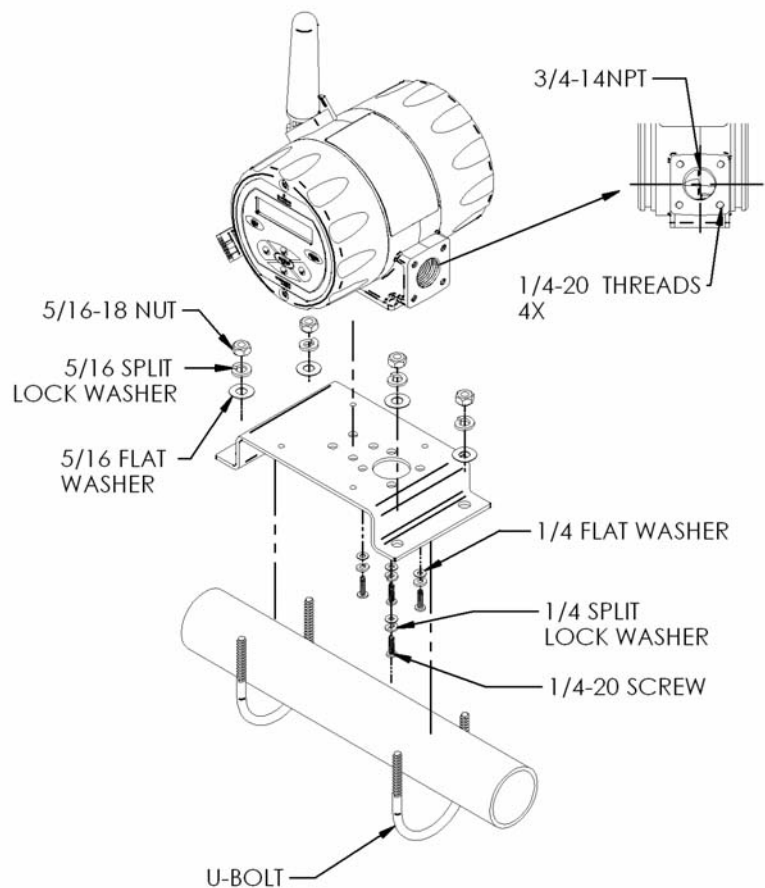
2" PIPE SUPPLIED BY CUSTOMER



KIT, 2" PIPE / WALL MOUNTING BRACKET KIT, ORDER PN 23820-00 AS A SEPARATE ITEM



VERTICAL PIPE MOUNTING



Pipe Mounting Installation Model 6081. Use Pipe/Wall Mounting Bracket Kit, PN 23820-00



*The right people,  
the right answers,  
right now.*

**ROSEMOUNT ANALYTICAL  
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1-800-854-8257**



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