

## Water Quality Monitor

### Q45P-R pH-ORP Transmitter

#### OVERVIEW

Measurement and control of pH is important in a wide variety of industries. Water and wastewater, boiler feed water, food processing wash water, chemical plant make-up water and many other aqueous system require reliable pH monitoring.

The pH transmitter provides the combination of durability, accuracy, and versatility required for virtually any pH monitoring application.

The Oxidation-Reduction Potential (ORP) transmitter provides the same reliable monitoring system for ORP applications.

Q45 pH and ORP transmitters use “differential” type sensors designed for long life in the most demanding applications. Differential sensors are well suited for applications that quickly poison conventional pH or ORP sensors, and can be easily serviced by operators. A variety of sensor styles are available to meet almost any application.



#### SENSOR OPTIONS

#### APPLICATIONS

- **Cooling Towers**
- **Potable Water Treatment**
- **Wastewater Treatment**
- **Chemical Process Control**
- **Plating Baths**
- **Metals Precipitation**
- **Streams and Rivers**
- **Boiler Feedwater**

#### FEATURES

- Differential sensors for long life
- Loop-powered or battery-operated
- External 5...17V DC version for solar power applications
- Submersion, in-line or sanitary-style sensors
- Special high purity sensor option
- Adapts to conventional pH or ORP sensors
- Large, easy-to-read LCD display
- Clear, menu-driven user interface
- NEMA 4X (IP-66) enclosure
- Wall or pipe mounting bracket standard
- Built-in PID controller



Figure 1: Differential sensors



Figure 2: Conventional sensor

## SPECIFICATIONS

### Electronic Monitor

|                            |                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Display Range</b>       | pH: 0.00 ... 14.00<br>ORP: -1000 ... 2000 mv                                                                                                         |
| <b>Accuracy</b>            | 0.02 pH or 2 mv                                                                                                                                      |
| <b>Repeatability</b>       | 0.01 pH or 1 mv                                                                                                                                      |
| <b>Sensitivity</b>         | 0.01 pH or 1 mv                                                                                                                                      |
| <b>Linearity</b>           | 0.1% of scale                                                                                                                                        |
| <b>Temperature Drift</b>   | 0.1% of span/° C                                                                                                                                     |
| <b>Sensor Type</b>         | pH: Series Q25P Differential or Conventional types<br>ORP: Series Q25R Differential or Conventional types                                            |
| <b>Temperature Input</b>   | Pt1000 or Pt100 RTD for temperature compensation                                                                                                     |
| <b>Power</b>               | 2-wire unit: 17 ... 30V DC, 25 mA maximum<br>Battery unit: Two AA alkaline batteries<br>External DC: 5 ... 17V DC, 10 mA maximum                     |
| <b>Analog Outputs</b>      | 2-wire unit: Single 4 ... 20 mA DC, 450 Ω maximum<br>Battery unit: Two 0 ... 2.5V DC, 50K Ω minimum<br>External DC: Two 0 ... 2.5V DC, 50K Ω minimum |
| <b>Output Isolation</b>    | 600V galvanic isolation                                                                                                                              |
| <b>Enclosure</b>           | NEMA 4X (IP66) polycarbonate, V-0 flammability                                                                                                       |
| <b>Mounting Options</b>    | Wall or pipe mounting bracket supplied                                                                                                               |
| <b>Conduit Entries</b>     | Two PG9 cord grips, 0.16 ... 0.31 in. diameter cable                                                                                                 |
| <b>Ambient Temperature</b> | Operating: -40° ... 140° F (-40° ... 60° C)<br>Storage: -40° ... 158° F (-40° ... 70° C)                                                             |
| <b>Ambient Humidity</b>    | 0 ... 95%, non-condensing                                                                                                                            |
| <b>Size</b>                | 4.4 (H) × 4.4 (W) × 3.5 (D) in. (111 × 111 × 90 mm)                                                                                                  |
| <b>Weight</b>              | 2-wire or External DC unit: 1 lb (0.45 kg)<br>Battery unit: 2 lb (0.9 kg)                                                                            |
| <b>Certifications</b>      | CE marked to BS EN 61326-1:2006 standard<br>UL and CSA general purpose                                                                               |



### Sensor Options

|                |                                                             |
|----------------|-------------------------------------------------------------|
| <b>07-0100</b> | Sensor junction box, NEMA 4X                                |
| <b>31-0057</b> | Sensor interconnect cable                                   |
| <b>03-0029</b> | Cable assembly with connector, 25 ft                        |
| <b>00-0628</b> | Submersion mounting hardware for standard sensor            |
| <b>07-0209</b> | 1 in. NPT Tee, CPVC                                         |
| <b>07-0221</b> | 1-1/2 in. NPT Union/Tee mount, CPVC, (requires 44-0219 tee) |
| <b>07-0210</b> | 2 in. NPT Union/Tee mount, CPVC, (requires 44-0233 tee)     |
| <b>00-1391</b> | External preamp for conventional sensors, NEMA 4X           |
| <b>00-1527</b> | Sealed flow cell for 63-0013 or 63-0008 sensors             |
| <b>63-0017</b> | 3/4 in. flow tee adapter for 63-0008 or 63-0013 sensors     |
| <b>63-0021</b> | 1 in. flow tee adapter for 63-0008 or 63-0013 sensors       |
| <b>47-0005</b> | 2 in. U-bolt, 304SS                                         |
| <b>05-0068</b> | Panel mount bracket kit                                     |

## ORDERING INFORMATION

### Model Q6-A-BB-CC-DD-EE pH/ORP Transmitter

#### Suffix A - Power

|   |                                                   |
|---|---------------------------------------------------|
| 5 | 12 ... 24V DC, 2-wire (single output)             |
| 6 | Portable battery with two 0 ... 2.5V outputs      |
| 7 | External 5 ... 17V DC with two 0 ... 2.5V outputs |

#### Suffix BB - Parameter

|          |          |
|----------|----------|
| 1P - pH  | 1P - pH  |
| 1R - ORP | 1R - ORP |

#### Suffix CC - Electrode Type

|    |                      |
|----|----------------------|
| P1 | pH: industrial glass |
| P2 | pH: municipal glass  |
| R1 | ORP: platinum metal  |
| R2 | ORP: gold metal      |
| WW | None                 |

#### Suffix DD - Sensor Type

|    |                                                                     |
|----|---------------------------------------------------------------------|
| C1 | 1 in. NPT convertible-style PEEK                                    |
| C2 | Insertion-style, 316SS                                              |
| C3 | 1-1/2 in. sanitary-style, 316SS                                     |
| C4 | 2 in. sanitary-style, 316SS                                         |
| C5 | Convertible-style, PEEK, with connector (See "Notes 1 and 2" below) |

#### Suffix EE - Sensor Cable Length

|    |                |
|----|----------------|
| AC | 15 ft (4.6 m)  |
| AF | 30 ft (9.2 m)  |
| AN | 60 ft (18.4 m) |
| WW | None           |

### Notes:

1. Sensor with integral connector is not waterproof. Used for indoor applications only.
2. Suffix DD, Option C5 requires 03-0029 cable.
3. Pipe mount requires 2 in. U-bolts (47-0005).

### Conventional pH/ORP Sensors

|                |                                                                  |
|----------------|------------------------------------------------------------------|
| <b>63-0013</b> | Flow type pH sensor, 25 ft cable, Pt100, twist-lock              |
| <b>63-0009</b> | Submersible pH sensor, 25 ft cable, Pt100                        |
| <b>63-0008</b> | Flow type Pt. ORP sensor, 25 ft cable, no temp., twist-lock      |
| <b>63-0023</b> | Submersible Pt. ORP sensor, 25 ft cable, no temp.                |
| <b>07-0092</b> | Q25 style combination sensor with connector (req. 03-0029 cable) |
| <b>07-0149</b> | Q25 style combination sensor, 30 ft cable                        |