**IOTRON™ SENSORS**

**INTEGRATED INDUSTRIAL ORP SENSOR**

<table>
<thead>
<tr>
<th>Sensor Part Number &amp; Short Description:</th>
<th><strong>2812</strong> – Oxidation Reduction Potential (ORP) Inline Sensor (Without Tines Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>½&quot; or ¾&quot; MNPT on Front for Inline Use; ¾&quot; MNPT on Rear for sealing cable w/ conduit</td>
</tr>
</tbody>
</table>

**Configuration Type:**

*Front threads interface ½" or ¾" FNPT tee or process tank for Inline Use; Rear threads only for sealing sensor cable with conduit to ensure watertight seal for cable isolation*

**General Sensor Specifications:**

<table>
<thead>
<tr>
<th>Operating Temperature Range:</th>
<th>CPVC Body -5 to +70°C with HDPE junction, -5 to +95°C with Polypropylene junction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure Range:</td>
<td>RYTON Body -5 to +70°C with HDPE junction, -5 to +105°C with Polypropylene junction</td>
</tr>
<tr>
<td>Sensor Body Material:</td>
<td>Chlorinated-Polyvinyl-Chloride (CPVC) Standard or RYTON® R-4-230BL (Poly-Phenylene-Sulfone, PPS) when Alpha Prefix “PPS” is invoked</td>
</tr>
<tr>
<td>Junction Support Matrix Material:</td>
<td>Compact Style High-Density Polyethylene (HDPE) or Polypropylene (PP) - <strong>2812PP</strong></td>
</tr>
<tr>
<td></td>
<td>Junction is protruded from sensor tip to maximize surface area in contact with solution</td>
</tr>
<tr>
<td>External Dimensions:</td>
<td>See Drawing 6-9-Pt (Separate Drawings for ½&quot; &amp; ¾&quot; NPT Inline Sensor Styles)</td>
</tr>
<tr>
<td>ORP Measurement Specifications:</td>
<td></td>
</tr>
<tr>
<td>Measurement mV Range:</td>
<td>-2,000 to +2,000 mV absolute</td>
</tr>
<tr>
<td>Measuring Glass Type:</td>
<td>Low Profile Platinum Ball; Suitable for use in Slurries &amp; High Pressure/Velocity Lines</td>
</tr>
<tr>
<td>pH Glass Dimensions:</td>
<td>0.197” (5.0 mm) DIA</td>
</tr>
</tbody>
</table>

**Reference System Specifications:**

| Type:                                 | Double Junction Standard |
| Reference Half Cell:                  | Ag/AgCl, Saturated KCl |
| Primary Junction:                     | Porous Ceramic, Sat. KCl in crosslinked polymer, Interfaced to Secondary Junction |
| Secondary Junction:                   | Compact Style Solid-State Non-Porous Cross-Linked Conductive Polymer embedded in HDPE or Polypropylene (PP) Support Matrix holds gross excess of KCl crystals assuring saturation at all temperatures for stability & long sensor service life in cases where little or no maintenance will be performed such as remote installations |

**Supported Order Options with Alpha Prefix Order Code Designation:**

| 3-Wire TC (“M”) or Shielded Preamp Cable (“BL”) |

**Inquire to factory for specials**

**Example Recommended Applications:**

Any process media where the redox (ORP) potential is monitored or controlled. Can be combined with other sensor options available for pH sensors such as slurry & viscous material resistant, acid fluoride & HF resistant, or saturated brine resistant. Any measurement where aggressive chemical cleaning is needed to remove fouling or low-maintenance operation is required with minimal cleaning and re-calibration.

**Storage and Shelf Life:**

One (1) year from date of dispatch from factory when stored at indoor ambient room temperature with proper orientation & protector cap.

**Available Configurations & Options:**

- Temperature Compensation Element (compatible type must be specified)
- Analog Conventional Preamplifier (Contact factory for available options)
- Smart digital sensor board for 3TX-HIQ-pH Intelligent pH & ORP transmitters

**Analog Sensors without integral preamplifier:**

Terminated with Male BNC connector (-MBNC) or Tinned Lead Wires (-TL)

**Analog Sensors with integral preamplifier:**

Terminated with Tinned Lead Wires (-TL) or Quick Disconnect NEMA 6P Snap (-Q7M)

**Digital Smart Sensors:**

Terminated with quick disconnect IP67/NEMA 6P rated waterproof & corrosion resistant snap HIQ4M connector. For 3TX-HIQ-pH Intelligent pH & ORP transmitters or HIQDT with RS-485 MODBUS RTU to interface with any suitable PLC or SCADA
1. All dimensions are in inches, unless otherwise indicated with tolerances as detailed below.
2. Sensor body material of construction is CPVC standard or RYTON when Alpha Prefix "PPS" is invoked.
3. Drawing shown in the standard without protective tines configuration used for inline installations.
4. Protective tines option is not available for 2X12 series pH/ORP sensors. These sensors are intended for inline type installations only. The recommended line size is a standard 3/4" FNPT pipe tee.
5. The rear 3/4" MNPT threads are only intended for sealing the back of cable with 3/4" conduit.
6. Use alternate sensor models available with protective tines option for immersion or submersion use.
7. Do not use any sensor beyond the factory defined maximum temperature or pressure rating.

Advanced Sensor Technologies U.S.A.
Website: http://www.astisensor.com
1. All dimensions are in inches, unless otherwise indicated with tolerances as detailed below.
2. Sensor body material of construction is CPVC standard or RYTON when Alpha Prefix "PPS" is invoked.
3. Drawing shown in the standard without protective tines configuration for use in inline installations only.
4. Protective tines option is not available for 2X12 series pH/ORP sensors. These sensors are intended for inline type installations only. The recommended line size is a standard 1/2" FNPT pipe tee.
5. The rear 3/4" MNPT threads are only intended for sealing the back of cable with 3/4" conduit.
6. Use alternate sensor models available with protective tines option for immersion or submersion use.
7. Alternate insertion depths from standard 0.86 inch length are available as special order configurations.
8. Do not use any sensor beyond the factory defined maximum temperature or pressure rating.

NOTE:
1/2"-14 NPT
3/4"-14 NPT
Knurled Section Max 1.12" Diameter
Platinum Low-Profile Ball ORP Sensing Element
Compact HDPE or PP Junction

1 Place: ± 0.1
2 Places: ± 0.01
3 Places: ± 0.005
4 Places: ± 0.0005
Angular: ± 0.25°