GENERAL pH & ORP CARE AND MAINTENANCE RECOMMENDATIONS

Note: The recommendations given in this document are valid for most Iotron™ Industrial pH and ORP sensors. Care and maintenance for your particular sensor may vary from that described here. Contact the factory for specific information regarding proper care and maintenance of your particular pH or ORP sensor for a given installation and application.

Storage

The standard shelf life for all Iotron™ pH and ORP sensors is one year from the date of shipment. Sensors stored longer than this period may still be functional but are no longer under warranty. Sensors should be stored in a cool, dry location with the sensor tip (where the pH/ORP element is located) oriented toward the ground. All sensors come standard with a conditioning solution in the cap. This conditioning solution is 50% pH 4 buffer and 50% saturated potassium chloride (mixed by volume). The sensor cap should be keep tightly affixed to the sensor body and sealed with common piping teflon tape when the sensor is not in use. Sensors that are to be returned for shelf life warranty claim must have the original sensor cap and conditioning solution intact to be eligible for warranty replacement. Contact the ASTI factory before returning any sensor for warranty claim to obtain a valid RMA.

Cleaning

Cleaning methods can vary greatly depending upon the application for which the sensor is used. Some common rules for cleaning include:

1) Never scratch or aggressively scrub the pH or ORP elements. These are delicate glass electrochemical electrodes. They can be broken easily by mechanical force.
2) The reference junction is a solid state non-porous cross-linked conductive polymer embedded in a porous kynar matrix. Since the reference is solid state, it can be cleaned with aggressive chemicals. This solid state reference can also be cleaned effective by using a sharp razor edged tool. GREAT CARE SHOULD BE TAKEN NOT TO SCRATCH THE pH GLASS OR ORP ELEMENT DURING CLEANING OF THE REFERENCE JUNCTION.

Common approved cleaning solutions include:

5-15% Hydrochloric Acid – (For Alkaline deposits)
5-15% Sodium Hydroxide – (For Organic Contaminants)
Surfactant (NON-IONIC SOAPS SUCH AS MICRO-90)

Please inquire to the factory if you plan to use any other cleaning agent.

Conditioning for Calibration

After the sensor has been cleaned, it must be thoroughly rinsed with deionized water to remove any residual cleaning reagents. The sensor can then be soaked in pH 4 buffer to recondition the pH and reference elements. Some sensors will also require a conditioning in saturated potassium chloride if the reference junction has been depleted of the ions in the solid state conductive polymer (typical for clean water applications). Condition the sensor in saturated potassium chloride and/or pH 4 buffer for whatever period of time is required to achieve optimal calibration results.

Sensor Selection for Individual Process Lines

No sensor should be used beyond the indicated temperature and pressure limitations for that given sensor. Sensors should only be used for the application(s) that an authorized ASTI representative has recommended. If you are unsure that your sensor is recommended for a particular application, please contact the factory.

DOES MY SENSOR NEED A WATERPROOFING OPTION?

RECOMMENDATIONS FOR INLINE, IMMERSION AND SUBMERSIBLE INSTALLATIONS

ASTI inline twist lock sensors and immersion sensors are NOT intended to have rain or other continuous form of water on the back of the cable. In this case, a shorting can result that can result in a variety of anomalous failure modes.
*** IF SUCH ANOMALOUS FAILURE MODES RELATED TO THIS OCCUR THIS IS ACTUALLY CONSIDERED AN IMPROPER INSTALLATION ISSUE AND THUS NOT COVERED UNDER THE STANDRAD ASTI WARRANTY ***

The sealing on the back of a twist lock and immersion sensors is water resistant, but not waterproof. The standard default isolation on the back of a sensor is a strain relief grommet. This allows for the sensor to be somewhat moved and for some minor water exposure without causing sensor failure. For more aggressive water exposure to the back of the sensor, additional precautions must be taken.

CASE 1: INLINE USE

INDOOR:

If a standard sensor (such as our immersion or twist lock sensor series) is used for inline installations only (no immersion or submersible use is planned) then no special precautions are required if it is for indoor use. This assumes that the back of the sensor will not be exposed to corrosive gas present and/or the plant will not cause any process media to get onto the back of the sensor, nor give it significant water exposure by washing down the area.

OUTDOOR:

If a standard sensor (such as an immersion or twist lock sensor series) is used for inline installations only (no immersion or submersible use is planned) then there generally ARE special precautions required for outdoor inline use. The most common is to seal the back end of the sensor in conduit to isolate the back end of the sensor. The most common approach so to use sufficient TEFLON tape and a NPT coupling to create this back sensor seal, and then either a rigid or flexible conduit back to the transmitter where is the lead wires are terminated for cable isolation. This creates a barrier that makes the sensor suitable for conditions were rain and other outdoor elements could damage the seal on the back of the sensor. Specifically, this can prevent water from attacking along the sensor cable and causing internal shorting to solder joins inside the unit itself.

Another approach for sealing the back of the sensor if there will be significant water exposure is to add a waterproofing option. In general, for such cases just the least expensive WPIT option is which sufficient, with a 3/8"X1/2" vinyl tubing properly installed. The WPIT waterproofing option has a slight surcharge for extended cable lengths. In some cases the more robust WPA option can also be used to fulfill this purpose. Unfortunately waterproofing options cannot be added once a sensor has been fabricated but rather must be installed at the time of manufacture.

http://www.astisensor.com/prosub.htm

http://www.astisensor.com/prosubh2oIT.htm

CASE 2: IMMERSION USE

Immersion use is defined as when the sensor is immersed into the process media, but the entire sensor is not submersed. This mean that the back of the sensor is NOT completely below the process media level. Immersion installations always require the back of the sensor/waterproofing to be sealed with a mating 1" FNPT coupling and the cable run in conduit. The WPIT, WPA or WPC waterproofing options can be added if desired/required to make the sensor life better even for such immersion installations. It is possible to use the standard immersion or twist lock sensor for immersion use without adding a waterproofing option if VERY GOOD care is taken to seal the back of the sensor with a coupling and properly running the cable in conduit back to the transmitter.

http://www.astisensor.com/prosubh2oA.htm

http://www.astisensor.com/prosubh2oC.htm

CASE 3: SUBMERSIBLE USE

Submersible use is defined as when the sensor is COMPLETELY immersed into the process media (anywhere from 1 feet below the fluid level to much much deeper). In this case the entire sensor IS submersed. This mean that the back of the sensor IS completely below the process media level. Submersible installations always require the back of the sensor/waterproofing to be sealed with a mating NPT coupling and the cable run in conduit. For additional sealing option a WPA, WPC or WPB waterproofing option can be added if desired/required. There is a special surcharge if the sensor has a longer cable length that the standard 10 feet for the WPIT and WPB waterproofing options only. It is possible to use the standard immersion or twist lock sensor for submersible use without adding a waterproofing option is VERY, VERY GOOD care is taken to seal the back of the sensor with a coupling and properly running the cable in conduit back to the transmitter. The use of Waterproofing Option WPA, WPB or WPC is VERY STRONGLY recommended (although not strictly required) for submersible installations.

http://www.astisensor.com/prosubh2oB.htm

LAST COMMENTS ON WATERPROOFING OPTIONS

The waterproofing options offer nominal isolation to extreme isolation in the following order going from least isolating to most isolating:

WPIT << WPA << WPC << WPB

Where WPIT, WPA, WPC and WPB actually represent entire FAMILIES of waterproofing options (see link below):

http://www.astisensor.com/prosubdocs.htm

Most users will only ever require the WPIT, WPA, WPC or WPB options but the more extreme version that support the presence of oxidizing chemicals and organic solvents are provided for such customers (and also readily available just like the standard waterproofing options). In general, the WPB is only really required for submersible type installations. Note that ONLY the WPIT and WPB provide for COMPLETE cable isolation all the way back to the transmitter. There are line drawing of each option posted on our website, and I have provided direct links below for your convenience:

http://www.astisensor.com/Series_IT_Waterproofing.pdf

http://www.astisensor.com/Series_A_Waterproofing.pdf

http://www.astisensor.com/Series_C_Waterproofing.pdf

http://www.astisensor.com/Series_B_Waterproofing.pdf

If you should have any doubt about whether the exact sensor model that you are using is appropriate for the installation style that you are planning to implement, please contact the factory for further assistance!