



Proven solutions for the toughest process measurements for over 40 years

# Industrial pH and ORP Sensors



## Key Benefits:

- **Reference technology: Application-Specific, Solid-State, Non-Porous Conductive Polymer.**
- **pH glass technology: Parabolic thick-wall, low-profile, break-resistant, and wide-range.**
- **The most high HF resistant and saturated sodium resistant pH glass in the industry.**
- **Flat disc platinum ORP sensing elements for high velocity media and abrasive slurries.**
- **Supports dissolved sulfides, heavy slurries, organic solvents, high temps and pressures.**
- **Extreme dehydration-resistant configurations can operate in intermittent wet and dry installations and endure long period of dryness during field use and storage.**
- **Analog configurations allow for interfacing with many existing transmitters. Smart Digital configurations provide operational advantages such as hot-swap plug and play use.**

# Unique ASTI Sensor Features

- Each sensor is custom built to order for optimal performance and cost.
- No internal washers or O-rings, ensuring maximum service lifetime.
- Solid-State Non-Porous Conductive Polymer Application-Specific Reference.
- Ready for severe service applications.
- Smart Digital Technology with MODBUS RTU.
- Available for fully submersible use.
- Sanitary & HOT-TAP valve retractable installations options for all sensor types.



All ASTI analog and smart digital sensors featuring HiQDT MODBUS RTU technology are engineered specifically for industrial markets, offering reliable performance in very demanding environments. Each smart digital sensor is equipped with an integral on-board microprocessor that calculates temperature compensated measurements, stores and uses on-board calibration data, and provides access to detailed diagnostic and analytic parameters. These advanced capabilities allow for reliable monitoring of sensor performance and process conditions with confidence. Seamless hot-swap plug and play operation reduces the cost of maintenance and ensures optimal reliability with nearly zero downtime.

ASTI Smart Digital Sensors eliminate the need for traditional transmitters or analyzers by embedding intelligence directly into the sensor body. With internally stored calibration data and fully calibrated digital outputs, they connect seamlessly to PLC, DCS, or SCADA systems, or just an HMI.

All ASTI Smart Digital Sensors offer the following features:

- Ships precalibrated and ready for immediate use. Can be reset back to factory calibration at any time.
- All calibration values are saved internally, allowing for seamless hot-swap plug and play in the field.
- Tracks time since the last calibration was performed.
- Tracks total usage time for reordering and inventory control
- Full factory traceability including date of manufacture, serial number, and item number.

# pH & ORP Sensors

## Smart Digital & Analog

### Smart Digital Sensors

Custom built-to-order Smart Digital pH and ORP sensors for intelligent digital transmitters provide ease of commissioning and optimal workflow with Industrial Internet of Things features.

- **Quick Swaps:** NEMA 6P-rated snap connectors enable fast and fully waterproof sensor changes in the field.
- **Auto Calibration:** Sensors load calibration data instantly with no manual steps required.
- **Easy Cloning and Backup:** Transmitter settings can be uploaded/downloaded for quick configuration, backups, or restoring previous setups.
- **Built-in Diagnostics:** Each sensor logs install dates, service time, and usage history to simplify inventory and maintenance planning.



### ZEUS™ Severe-Service Analog and Digital Sensors

Analog and Smart Digital pH and ORP sensors for the most difficult, high-temp and high-pressure process applications. Fully customizable for additional process conditions as required for your needs.

- **Versatile Installation:** 1"–1.25" MNPT sensors with RADEL housing for inline, immersion, or submersible use.
- **Built for Extremes:** Handles abrasive slurries, dissolved gases like sulfides, chlorine & ammonia as well as high pressure and temps, up to 200 psig and 150°C.
- **Flexible Configurations:** Available in analog versions with or without preamps and smart digital versions with RS-485 MODBUS RTU communications.



## Immersion Sensors



- **Flexible Fit:** NPT threads on front & back of sensors for inline, immersion, or submersible installations.
- **Built to Order:** Each sensor is customized to match specific application demands for optimal lifetime.
- **Severe Service Ready:** Resistant to conditions that destroy other sensors such as organic solvents, high HF, slurries, dissolved gases at high temperatures & pressures.
- **Durable Materials:** Available in a wide range of plastic body housings to suit diverse process conditions.

## Twist Lock Sensors

- **Quick-Connect Design:** Bayonet-style twist lock allows fast sensor insertion and removal without tools.
- **High Performance Even at High Pressures:** Offers rugged features and chemical resistance while protecting cable from coiling with secure external O-ring seals.
- **Versatile Materials:** Receptacles available in CPVC, KYNAR (PVDF) or PEEK with standard Viton 75 external O-rings. Optional upgrade available to external Kalrez O-rings for enhanced sealing.



## HOT-TAP Valve Retractable Sensors

- **Retractable Design:** Enables sensor insertion and removal under pressure—no shutdowns required.
- **Built Tough:** Supports up to 41" insertion depth with robust blow-out protection and watertight sealing.
- **Robust Materials:** 316SS standard with external Viton O-rings; other materials available upon request.
- **Full Port Options:** 1.5" and 2.0" assemblies. Purge port for ease of flushing in demanding industrial applications.

## Sanitary Sensors

- **Clean-in-Place (CIP) Ready:** Designed to withstand aggressive cleaning cycles in sanitary environments.
- **Solid-State Reliability:** Resistant to dehydration, harsh chemicals, and gas exposure.
- **Built to Last:** Thick wall glass resists cracking under extreme heat and pressure.
- **Extreme Option:** Optional "EXTREME" reference system handles dryness and/or intermittent use.
- **Flexible Installations:** Available for any insertion depth desired with TRI-CLOVER flanges from 1.5" up to 2.5"



# HiQDTmA Loop Powered Sensors



These versatile plug-and-play 2-wire pH sensors easily retrofit into any existing PLC, DCS, or SCADA system.

They provide the ease and convenience of hot-swapping pre-calibrated sensors in the field, made possible with smart digital technology.

The scalable 4-20 output reflects the calibrated, temperature-compensated pH value, set to either inverted or non-inverted mode.

HiQDTmA loop powered pH sensors are paired with either an LED display (above) for safe areas or an LCD display (left) approved for use in hazardous areas.

All installation packages feature analog trim offset and span adjustment for the 4-20mA signal, ensuring precise readings with the connected control system.



## Key Benefits:

- **ASTI's entire line of proven pH sensors is available in the HiQDTmA configuration, including inline, immersion, submersible, twist lock, sanitary, and HOT-TAP retractable.**
- **HiQDTmA smart digital sensors store calibration data, enabling quick plug-and-play hot swaps and reducing pH measurement downtime.**
- **Calibration and configuration can be performed with a cost-effective portable battery-powered Handheld Communicator (HHC), Windows software, or any compatible MODBUS RTU master device, including a touchscreen controller. A single HHC can be used for multiple installations.**
- **All features of the smart digital RS-485 HiQDT MODBUS RTU sensors are included in the HiQDTmA version. The ONLY difference is that the HiQDTmA version adds a simultaneous analog 2-wire 4-20mA current loop output.**



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## Contact Information

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## Manufacturing Custom Built to Order Measurement Solutions

Analog sensors and Smart Digital pH, ORP, Dissolved Oxygen (D.O.), Ion Selective (ISE) and Conductivity (EC) sensors for the Industrial Internet of Things (IIoT). Our smart digital sensors support direct integration with customer PLC, DCS, and SCADA for inline, immersion, submersible, sanitary & HOT-TAP valve retractable installations.

Interface sensors directly via RS-485 MODBUS RTU or MODBUS TCP (Modbus over Ethernet) with advanced menu-driven multi-channel touchscreen controllers with full remote access capabilities for HMI and remote download of logged data over FTP.

## Ready To Inquire About Your Application?

To help us determine the best ASTI solution to meet your measurement and control needs, please visit the link at the bottom of the page and fill out the form as completely as possible. We look forward to the opportunity to assist you.