



Proven solutions for the toughest process measurements for over 40 years

Advanced Liquid Analytical Solutions

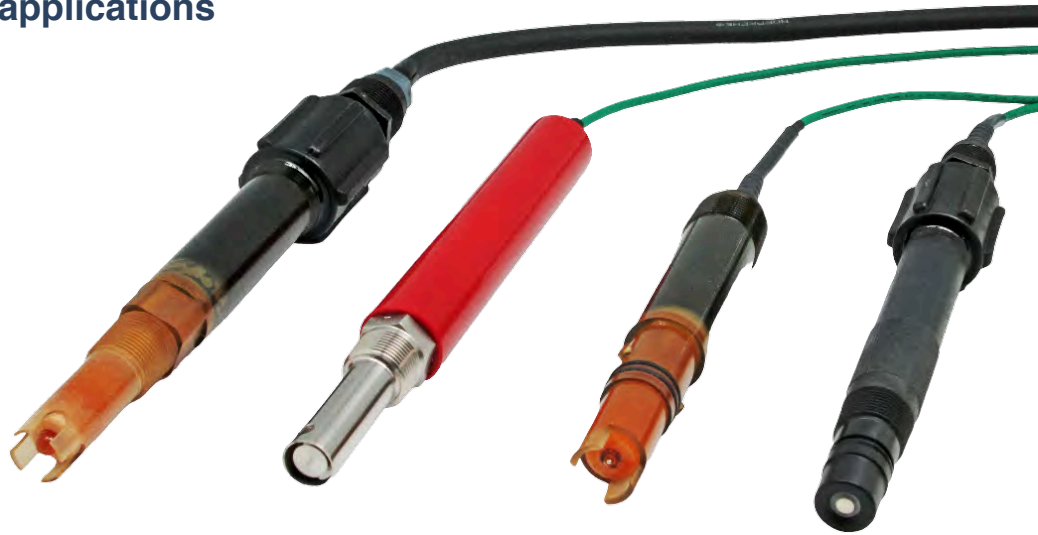
Overview of pH, ORP, ISE, DO, and Conductivity Measurement Products Lines



Manufacturing Custom Built to Order, Long-Lasting Industrial pH Sensors, ORP sensors, Ion Selective (ISE) Sensors, Conductivity Sensors and Dissolved Oxygen (DO) Sensors for Difficult Inline Process Control Measurement, Wastewater Treatment, and Environmental Monitoring Applications

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.

ASTI Product Line Overview

Smart MODBUS RTU Sensors - p. 4

Seamless hot-swap plug-and-play operation of field installations for reliable continuous measurements with minimal downtime and the ability to perform calibrations at any location of convenience.

Industrial pH and ORP Sensors - p. 5

Long-lasting analog and smart digital pH and ORP sensors built for harsh industrial applications available for a wide variety of installation styles.

HiQDTmA Loop Powered pH Sensors - p. 6

These versatile plug-and-play 2-wire pH sensors easily retrofit into any existing PLC, DCS, or SCADA system. Paired with a loop powered display: LED for safe areas or LCD or hazardous locations.

ZEUS™ Heavy-Duty pH and ORP Sensors - p. 7

ZEUS™ pH and ORP sensors offer a unique solution for the toughest industrial environments, with analog and smart digital options rated up to 200 psig and 150°C even in solvents and dissolved gases.

Industrial Ion Selective (ISE) Sensors - p. 8

Continuous measurement of ions, including the ONLY fluoride ion selective sensor in the industry that is suitable for harsh acid etching environments and can undergo strong acid cleaning.

Industrial Conductivity (EC) Sensors - p. 9

Industrial contacting and toroidal conductivity sensors for 0.55 μ S to 2,000 mS measurements in extreme conditions up to 500 psig and up to 205°C.

Industrial Dissolved Oxygen (DO) Sensors - p. 10

Thick membrane galvanic DO sensors built for aggressive applications are insensitive to dissolved gases such as sulfides. Suitable for use in very high turbidity conditions.

Industrial Process Control Instrumentation - p. 11

Comprehensive line of transmitters and controllers for liquid analysis, offering analog and digital outputs with NEMA 4X enclosures for field, panel, or pipe mounting.

HOT-TAP Valve Retractable Assemblies - p. 12

HOT-TAP valve retractable assemblies enable safe sensor insertion and removal without shutdown, with high-temp seals and robust blow-out prevention for secure operation even at high pressures.

Fully Submersible Assemblies with Waterproofing Seal - p. 13

Waterproof sealing options extend sensor life by enabling fully submersible use even without the use of an immersion rod or at installations where washdowns are performed or high moisture is present.

Smart Digital MODBUS RTU Sensors



Smarter Monitoring. Seamless Integration.

With smart digital sensors featuring MODBUS RTU communication, you get plug-and-play installation, all calibrations stored in memory, and live diagnostics — all with no traditional transmitters required. When paired with color touchscreen controllers, the system delivers intuitive monitoring, multi-channel control, and remote troubleshooting for maximum up-time and efficiency.

Key Benefits:

- **RS-485 MODBUS RTU for direct integration with PLC if no local display is needed**
- **Convenient configuration and calibration with handheld communicator or Windows software**
- **Waterproof NEMA 6P rated snap connectors for safe and easy hot-swap plug and play operation in the field.**
- **Smart predictive maintenance with time since last calibration and total time in use values continuous updated**
- **Tight integration with touchscreen controllers for a complete solution, including local display at installation**



Industrial pH and ORP Sensors



Custom Built to Order Analog and Digital Sensors

Built for harsh industrial conditions and optimized for each particular application and installation, analog pH and ORP sensors are compatible with many transmitters, allowing easy retrofit with existing installations. Some key benefits listed below may require an integral preamplifier to be present, or are only available for Smart Digital sensor configurations.

Smart Digital pH and ORP sensors make monitoring and maintenance easier than ever with a simple setup process for fast deployment and smarter process control. With factory pre-calibration, hot-swap with fully waterproof snap connectors, and RS-485 MODBUS RTU digital communications, these sensors can be connected directly to PLCs or SCADA systems; no transmitter required if not desired.

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 heavy slurries, dissolved sulfides, organic solvents, high temperature and pressure**
- **Installation types: Inline, Immersion, Submersible, Sanitary & HOT-TAP Valve Retractable**
- **Touchscreen controllers with MODBUS TCP, full remote access, and integral datalogging**
- **Extreme dehydration-resistant configurations can operate in intermittent wet and dry installations and endure long period of dryness during field use and storage**

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 (right) 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.**

ZEUS™ pH and ORP Sensors



Engineered for the most severe service applications

ZEUS™ industrial pH and ORP sensors are specifically designed for the most punishing inline, immersion, and submersible installations. Built with extremely rugged construction, these sensors thrive in severe service environments where others fail. Available in both analog and Smart Digital configurations to solve critical process challenges. Customization is also possible for the ZEUS™ line of pH and ORP sensors, just like the completely built to order Immersion series models.

Key Benefits:

- Rugged build for severe process environments
- Analog or Smart Digital configurations
- Inline, Immersion or Submersible Installations
- Use in presence of aggressive dissolved gases, such as ammonia or hydrogen sulfide
- Rated for high-temperatures and pressures
- Optional: solvent- or dehydration-resistant versions



Industrial Ion Selective Sensors



ISE Analysis in the Toughest Environments

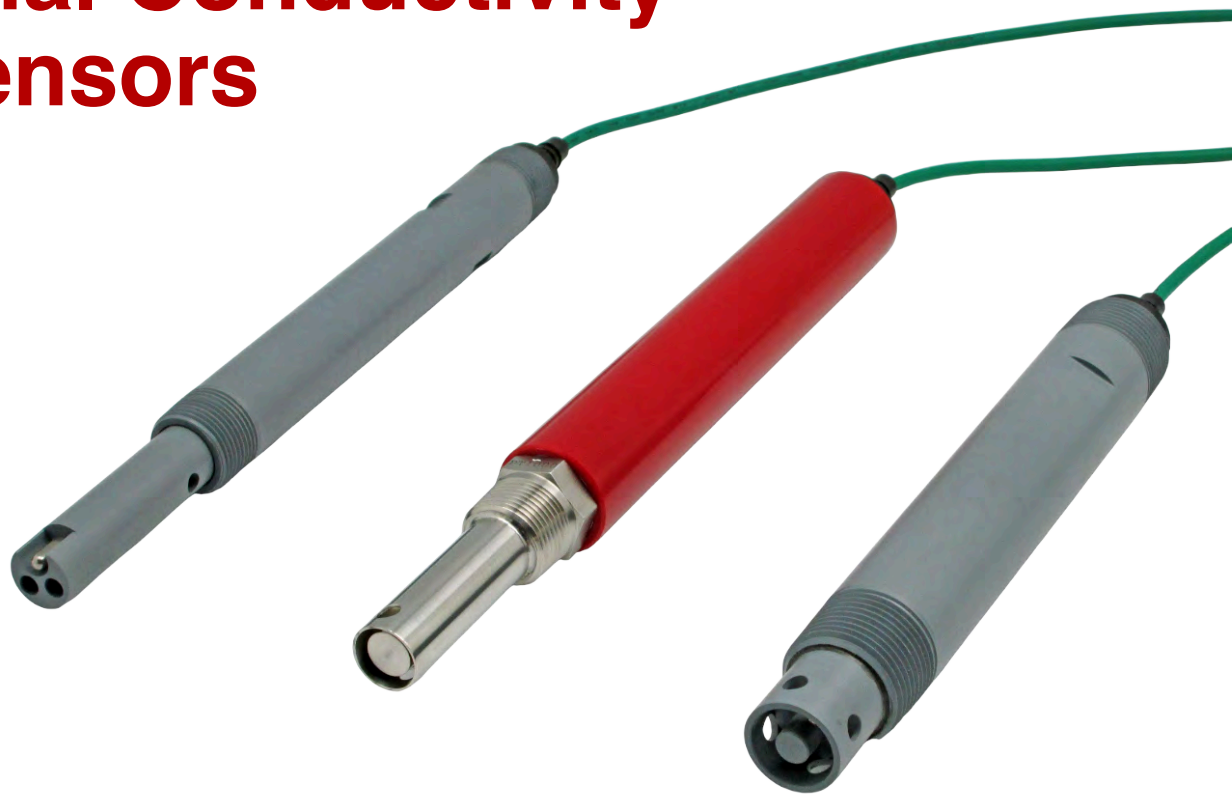
These industrial ion selective (ISE) sensors provide the most proven solution in the industry for continuous measurement of ions in industrial applications. The Inline, Immersion, Submersible, Sanitary, and HOT-TAP valve retractable ISE sensor configurations deliver reliable real-time trending for critical ion measurements, such as fluoride, ammonium, calcium, lithium, and more. The AB 6100 model is the **ONLY** fluoride ion selective sensor in the industry able to withstand both operations in low pH conditions and strong acid cleaning for maximum field service lifetime.

Selected ISE sensor models:

- Fluoride ISE sensors for use in acid etching applications in semiconductor, metal, and glass industries
- Ammonium ISE sensors support elevated temperatures and high selectivity over potassium and sodium
- Calcium ISE sensors for both low and high level samples serve as an excellent proxy for water hardness
- Lithium ISE sensors both for low level leak detection and control at higher concentrations in refining applications



Industrial Conductivity (EC) Sensors

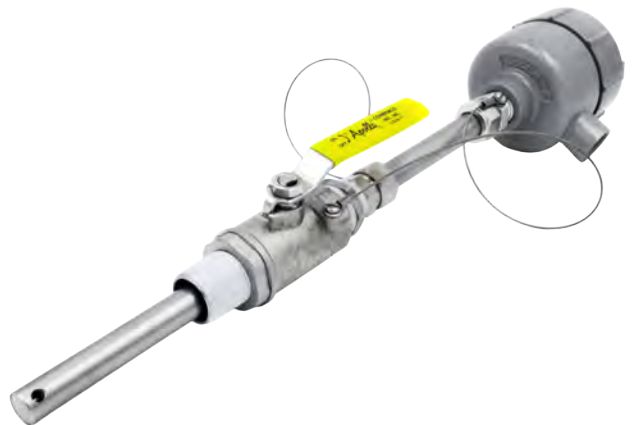


Robust Conductivity Measurement

Highly reliable conductivity sensors serve a wide range of applications, from ultra-pure water systems to highly corrosive chemical processes. Available in contacting and toroidal (inductive) styles in both analog and Smart Digital configurations, each sensor is built-to-order and equipped to handle high temperatures, high pressures, and aggressive process media. Choice of materials of construction and cell constants for contacting cells helps yield both optimal accuracy and durability for any application.

Key Benefits:

- Analog and Smart Digital configurations
- Cell constants from $K = 0.01$ to $20.0 / \text{cm}$
- 316SS, Titanium, or Hast C-276 metals
- TEFLON, KYNAR, PEEK, or CPVC insulators
- High pressure sensors up to 500 psig for boilers and reverse osmosis (RO) systems
- Sanitary Tri-Clover installations from $\frac{1}{2}$ " to $2\frac{1}{2}$ " flanges
- HOT-TAP Valve Retractable installations rated up to 150 psig



Industrial Dissolved Oxygen (DO) Sensors



Reliable DO Monitoring in Tough, High-Load Environments

Engineered for precise and stable oxygen measurement in process streams with high turbidity, heavy biological content, and extreme environmental conditions. Featuring a rugged galvanic design with thick membranes, these sensors offer consistent performance in wastewater, fermentation, and other oxygen-sensitive operations such as refining operations in high sulfide containing gold ore.

Key Benefits:

- High tolerance for harsh media
- Versatile mounting configurations
- Long cable runs with signal integrity
- Rugged galvanic sensor design
- Quick-connect, waterproof cabling
- Low maintenance, high performance



Industrial Process Instrumentation



Smart Controllers for pH, ORP, ISE, DO, and Conductivity

Continuous measurement and control when paired with electrochemical sensors for liquid analysis across a wide range of industries. Advanced smart touchscreen controllers for ease of commissioning and operation with Smart Digital sensors come standard with analog outputs and MODBUS TCP digital output, enabling integration with any PLC, SCADA, DCS, or other control system. Includes secure remote access and intuitive sensor management, built into rugged, field-ready enclosures.

Key Benefits:

- Full set of Industrial Internet of Things (IIoT) features
- Intuitive touchscreen interface
- Analog 4-20mA output(s) for each sensor
- MODBUS TCP for access to all process values, calibration, and analytic information
- Optional: Handheld Communicator (HHC) for portable, convenient configuration and calibration at any location
- Optional: Programmable relays for local closed loop control and alarm functions



HOT-TAP Valve Retractable Assemblies



Safe Sensor Access Without Process Shutdown

Designed for installation into high-pressure and/or high-temperature pipelines and tanks, these assemblies are ideal for continuous operation where the process cannot be easily shut down to remove a sensor and slipstreams are not feasible. With 316SS construction, chemically-resistant Teflon seats and ferrules, secure Viton seals, and robust blowout protection, these HOT-TAP assemblies deliver safe and fast insertion and removal from even the most demanding processes.

Key Benefits:

- Purge port for flushing
- Robust, high-pressure design
- Secure, leak-proof seals
- Blowout-resistant safety features
- Compatible with multiple sensor types



Fully Submersible Assemblies with Waterproofing Seals



Waterproof Designs for High-Moisture Environments

Fully submersible sensor assemblies are factory-built with integrated waterproof sealing, allowing direct deployment into tanks, sumps, and open channels with no need for external guide rods, standpipes, or additional waterproofing installation hardware.



Waterproofing Style "B" Series

Suitable for the most aggressive agitated slurry solutions and corrosive liquids with complete cable isolation with rugged tubing factory installed.



Waterproofing Style "C" Series

Suitable for aggressive agitated slurry solutions and corrosive liquids when paired with additional sealing (Fully submersible when installed with an immersion tube)



Waterproofing Style "IT" Series

Suitable for most submersible applications, and the most cost-effective waterproofing option



Proven solutions for the toughest process measurements for over 40 years

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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.