



## Contacting & Toroidal Conductivity Sensors

### Wetted Materials of Construction:

- Contacting Conductivity Cells
  - Sensing Electrode
    - 316 Stainless Steel, Titanium, Monel, Hastelloy C, Nickel, Zirconium and others upon request
  - Insulator
    - CPVC, TEFLON (PTFE), PEEK KYNAR (PVDF), and others available upon request
  - "O"-Rings
    - EPDM & EPR, Viton, Kalrez, and others upon request
  - Sealing Fittings
    - 316SS, KYNAR (PVDF), PolyPropylene & others
- Toroidal Conductivity Sensors
  - Polypropylene, and others available upon request

### Selected Applications & Uses:

- High-Temperature and High-Pressure Applications up to 250 psig @ 205 degrees Celsius or 500 psig @ 100 degrees Celsius
- Resistance to strong acid, bases, slurries and organic solvents
- Cell Constants 0.01, 0.02, 0.05, 0.1, 0.2, 1, 2, 5, 10 & 20 available and other specials upon request
  - Measure in solutions from ultra-pure water (0.01 microSiemens) to saturated electrolytes, acid and bases (600,000 microSiemens a.k.a. 600 milliSiemens)
- Integrated temperature compensation elements:
  - 100 & 1000 Ohm Platinum, 10K Thermistor, 3K Balco, 8.55K NTC and many others
- Custom designs are available upon request (Inquire to factory)
- Sanitary applications requiring USDA FDA 3A compliance are supported
- High slurry media as well as aggressive and corrosive process media and environments

### COST EFFECTIVE & LONG-LASTING

Superior performance and lifetime compared to most any OEM sensor due to optimal selection of materials, design and workmanship for each built-to-order sensor. A very low total cost of ownership is possible due to superior service lifetime and extremely competitive sensor unit cost comparable to much lesser quality sensors from competitors. **All sensors are made in the USA.**

### MEASURE IN TOUGH APPLICATIONS

These conductivity sensors can operate in the most difficult of process conditions and interface with most existing instrumentation. Alternatively, complete electrochemical systems including mating transmitter can also be readily supplied. Through our custom built-to-order design philosophy and business model, many applications that cannot be serviced by our competitors are quite feasible for our conductivity product line.

A selection of photos to represent the various types of conductivity sensors are shown below together with various technical specification sheet for the same. These photos are not meant to be exhaustive but rather only illustrative. Many additional photos, drawings and other technical details are available upon request from the factory and you are encouraged to inquire.

**AST10 & AST51 1/2" (12mm) Contacting Conductivity Sensors - For Inline Installations  
(Immersion/Submersion Styles Also Supported)**



*AST51 Sensor with K=0.1/cm Cell,  
316SS Compression Fitting*



*AST10 Sensor with K=0.01/cm Short Style Cell,  
PolyPropylene Compression Fitting*



*AST10 Sensor with K=10.0/cm Cell, PolyPropylene Compression Fitting*

AST10 is available cell constants 0.01 to 10.0 & AST51 is available in cell constants 0.1 to 1.0, compact sensors for general purpose use and mounting into 3/4" or 1" pipe fittings to avoid the use of special flow cells. With polypropylene, stainless steel, or KYNAR (PVDF) compression fittings available for all models. Special short style K=0.01/cm cell to support smaller lines for inline low conductivity use (shown above). The longer AST10 Inline & Immersion Contacting Conductivity Sensor with Cell Constant K=10 is also shown.

**AST41 High Temperature & Pressure Inline Contacting Conductivity Sensors**



*AST41 with K=0.1/cm Cell*



*AST41 with K=1.0/cm Cell*

AST41 High temperature & pressure boiler condensate and blow down control. Double seal design extends sensor life over twice that of single or epoxy sealed units. Cell constants: 2.0, 1.0, 0.2, 0.1, 0.05. Temperatures to 205 °C and pressures up to 500 psig with PEEK insulator & 316SS electrodes standard.

**ASTXX-TRI Sanitary Tri-Clover & Ladish Contacting Conductivity Sensors**



*AST10-TRI with K=1.0/cm Cell & 1.5" Tri-Clover*



*AST40-TRI with K=2.0/cm Cell & 2" Tri-Clover*

ASTXX-TRI small size sensor available with optional TRI sanitary clean in place (CIP) flange. FDA compliant food grade materials. Flange sizes 1/2", 1", 1.5", 2" and 2.5". Rated for use up to 150 psig at 130 degree Celsius. Cell Constants from 0.01 to 10.0. Special K=2.0/cm style ideal for chemical CIP inline installation to directly replace existing toroidal installation schemes.

**AST10, AST40 & AST42 for "HOT-TAP" Valve Retractable Installations**



*AST10 with K=0.05/cm Cell,  
3/4" HOT-TAP Valve Retractable Assembly*



*AST10 with K=1.0/cm Cell,  
1" HOT-TAP Valve Retractable Assembly*

AST40 is a sensor for cell constant range of 0.01 to 20.0 and various mountings, including insertion, submersible or valve retractable assemblies for insertion/removal under line pressure. Wetted materials 316 SS & PEEK, with double O-ring seals for high chemical concentrations of acid, bases and salts. Alternate materials of construction are available for the sensor body, electrodes and insulator upon request. The AST40 3/4" O.D. Contacting Conductivity Sensor is available for 1" MNPT "HOT-TAP" Valve Insertion & Retraction installation with various cell constants, including K=10.0/cm for higher range measurements (Max Pressure 50 psig). The AST10 1/2" O.D. Contacting Conductivity Sensor for 3/4" MNPT "HOT-TAP" Valve Insertion & Retraction installation with Cell Constant K=0.1, 1.0 & 10.0 (and other upon request), for a max pressure of 150 psig.

**AST52, ASTX-37PP and Other Sensors for High Conductivity Measurements**



*ASTX-37PP Toroidal Sensor  
Shown with PolyPropylene Encapsulation*



*AST52 with K=10.0/cm Cell  
(CPVC Shown, PTFE - TEFLON Version Optional)*

AST52 High 10.0 cell constant in compact size for a variety of applications including skid mounted R.O. systems, water treatment, chemical dilution. The insulator comes standard as CVPC but can also be supplied with TEFLON (PTFE) upon request. Alternative materials of construction are also available for the measuring electrodes (316SS standard).

ASTX-37PP toroidal conductivity sensor is a perfect choice for high conductivity solutions and applications where little or no maintenance is required. Chemically resistant copolymer polpropylene plastic is ideal for aggressive process applications. Versions can be supplied that are compatible with most major OEM toroidal conductivity transmitter including but not limited to HACH (GLI), Rosemount and Foxboro.

**AST50 & AST60 for Inline, Immersion & Submersible Installations**  
**Low Maintenance, Easy to Clean for Slurry & Dirty Solutions**



*AST50 with K=1.0/cm Cell*



*AST60 with K=2.0/cm Cell*



*AST50 with K=0.1/cm Cell*

AST50 & AST60 are compact double threaded 1"-1" MNPT bodied sensors for cell constants 0.1 to 2.0 offer fouling resistance & low maintenance for RO, drinking water inline quality measurements to wastewater submersion installations from low 50  $\mu$ S all the way up to high 50,000  $\mu$ S samples.

**Custom Applications & Special Materials of Construction**

Very many custom sensors are available upon request for specific needs. Although in some cases minimum orders may be required, quite often such minimums are quite modest. You are encouraged to inquire to the factory for all special order needs. A few selected examples are below for various custom sensors that have been done for others before. One example is a special high cell constant  $K=10.0/cm$  sensor for high HF Applications (a.k.a. rinse tank applications). Another example is a special AST60 high pressure low-fouling sensor for inline slurries with a cell constant  $K=0.1/cm$  or  $K=0.2/cm$ . With special mating instrumentation, these cell constant can be operated as high as 20,000  $\mu$ S.

In addition to altogether special conductivity sensor design with custom form factor and functionality, most of the standard sensors are available in alternate materials of construction upon request, including USP Class VI material traceability requirements and USDA FDA 3A certifications.

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