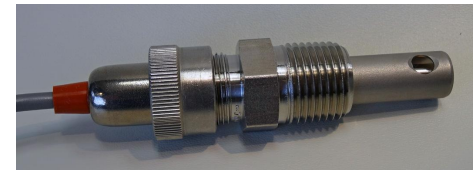


3TX Conductivity Controller, Transmitter & Datalogger Family



- Ranges: Conductivity 0.05 – 1,000,000 μS , Temperature 0-210 $^{\circ}\text{C}$
- Cell Constants: From 0.01–20.0 (Custom cell constants are available)
- Low conductivity versions for $K=0.01/\text{cm}$ (min 0-5 μS , max 0-20 μS) and $K=0.1/\text{cm}$ (min 0-50 μS , max 0-200 μS)
- 1-Point Gain calibration for agreement with lab analysis or standard solution to set effective cell constant, Max $\pm 70\%$ from nominal cell
- Offset calibration for a true zero reading for sensor dry in air
- Integrated temperature compensation via Pt 100/1000 Ohm element
- Display & Output Conductivity (in μS or mS) or Temperature
- Scalable Analog Output 0-20 mA or 4-20 mA for Conductivity or Temperature, optional RS-485 Modbus Digital Output
- Automatic correction for resistance and capacitance of sensor cable
- Galvanic isolation between sensor input and analog output (3000V)
- 4mA offset & 20mA gain trim calibrations for accurate 4-20mA output
- Standard or custom designed industrial grade sensors engineered and built to order for superior performance and lifetime with configuration and materials of construction specifically suited for intended field use

- 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) fittings. Special short style $K=0.01/\text{cm}$ cell to support smaller lines for inline low conductivity use.
- AST52 High 10.0 cell constant in compact size for a variety of applications including skid mounted R.O. systems, water treatment, chemical dilution.
- 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 $K=2.0/\text{cm}$, $3.0/\text{cm}$ and $5.0/\text{cm}$ style are ideal for chemical CIP inline installations to directly replace existing toroidal installation schemes.
- 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 $^{\circ}\text{C}$ and pressures up to 500 psig with PEEK insulator & 316SS electrodes standard.
- AST40 (not shown) 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.
- AST50 & AST60 (not shown) 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 μS all the way up to high 200,000 μS samples.



CUSTOM SENSOR DESIGN & FABRICATION AVAILABLE UPON REQUEST



GENERAL SPECIFICATIONS: 3TX-CON Conductivity Transmitter & Controller

Measurement Type:	Single or multi-channel inline Contacting Conductivity and Temperature		
Applications:	Drinking water through wastewater, chemical processes, pollution control, long service life with low maintenance applications, support for remote installation locations; can be powered on and off at will		
Conductivity & Temperature Ranges:	Conductivity Ranges for each Cell Shown Below, Temperature Range 0-210 °C, Accuracy ±0.2%		
Pressure Ranges:	Standard 100 psig @ 150°C, High Pressure 250 psig @ 205°C, Both Versions Max 500 psig @ 100°C		
<u>Wetted Materials of Construction</u>			
Sensing Electrodes	316 Stainless Steel (316SS), Titanium, Monel, Hastelloy C, Nickel, Zirconium and others upon request		
Insulators	CPVC, TEFLON (PTFE), KYNAR (PVDF), PEEK and others upon request		
"O"-Rings	EPDM, EPR & Viton-75 and others upon request		
Sealing Fittings	316SS, Monel, Propylene, KYNAR (PVDF) and others upon request		
Supported Measuring Ranges & Cells:	<u>Cell Constant</u>	<u>Full Scale Maximum Range</u>	<u>Minimum Scaling Available</u>
	20.0 (6.0-34.0)	0 to 1,000,000 microSiemens(μS)/cm	0 to 100,000 microSiemens(μS)/cm
	10.0 (3.0-17.0)	0 to 500,000 microSiemens(μS)/cm	0 to 50,000 microSiemens(μS)/cm
	2.0 (0.6-3.4) *	0 to 100,000 microSiemens(μS)/cm *	0 to 10,000 microSiemens(μS)/cm *
	1.0 (0.3-1.7)	0 to 50,000 microSiemens(μS)/cm	0 to 5,000 microSiemens(μS)/cm
	0.2 (0.06-0.34)*	0 to 10,000 microSiemens(μS)/cm *	0 to 1,000 microSiemens(μS)/cm *
	0.1 (0.03-0.17)	0 to 5,000 microSiemens(μS)/cm	0 to 500 microSiemens(μS)/cm
	0.1L (0.05-0.15)	0 to 200 microSiemens(μS)/cm	0 to 50 microSiemens(μS)/cm
	0.01 (0.005-0.015)	0 to 500 microSiemens(μS)/cm	0 to 50 microSiemens(μS)/cm
	0.01L (0.005-0.015)	0 to 20 microSiemens(μS)/cm	0 to 5 microSiemens(μS)/cm
	* Extended Ranges: K=2.0/cm 0-200mS (min 0-20mS); K=0.2/cm 0-20mS (min 0-2mS)		
	NOTES: Alternate cell constants/ranges upon request. Full scale range/cell must be defined at the time of order and cannot be changed after dispatch. See 3TX-CON-E high resolution MODbus supplement for cells and ranges.		
Sensor Installation options:	Inline ½" & ¾" MNPT, Immersion, Submersible, Valve Retractable (HOT-TAP) and Sanitary Tri-Clover		
Display:	Bright 3-digit red LED display visible in sunlight of Conductivity or Temperature with 6 LED indicators		
Power Supply:	CSA/UL/CE approved universal 100-240 VAC power supply, consumption 60mA max per module		
Signal Output:	Scalable 0-20mA or 4-20 mA DC 500 Ω max, Additional RS-485 Modbus digital output optional		
Enclosures & Mounting Supported:	Wall, Pipe or Panel Mounting for 2, 3, 4, 6 or 7 modules per enclosure (NEMA 4X Rated & UL Listed)		

Module Description & Available Options:

Transmitter Modules: In addition to conductivity, measurement modules are available for pH, ORP, dissolved oxygen (DO) and ions including fluoride, ammonia, nitrate, nitrite and calcium (and others). Each module includes 3-digit LED display and scalable 4-20mA output. Analog outputs have trim offset and span adjustment. Calibration of temperature via 1-point offset. User selectable auto or manual temperature compensation modes.

Preamplifier Support: Unlike many low cost systems, the 3TX-pH and 3TX-ISE transmitter series supports optional external preamplifiers for noisy environments or to avoid opening the analyzer enclosure for sensor service, and to minimize sensor replacement costs (no long cables need be pulled).

3TX-REL Option: Alarm and relay controller module provides (2 each) 5 Amp contact relays and controller that is fully configurable by the user for control mode and variables for each control algorithm. Control modes include: 1) Alarm functions only; 2) On/Off control with a user-configurable dead band; 3) Time proportional control; and 4) Proportional frequency control (variable pulse controller).

3TX-DAT Data Logging Option: Simultaneously datalogging from any 3TX module with MODbus output (3TX-pH, 3TX-ISE, 3TX-CON, 3TX-DO, 3TX-TOT) at frequency from every second to every hour. Configuration and downloading of data done via free mating ASTI Windows PC software.

3TX-TOT Option: Computes the total concentration of ammonia, fluoride and cyanide using the free ion activity, pH, and temperature inputs from the respective measurement modules' bridged outputs. Provides scalable 4-20mA & MODbus output for computed total ISE and all used inputs.

Modbus Option: Available as RS-485 output option for measurement module or by adding 3TX-TOT module at any time. Free of charge Windows Graphing & Datalogging software supplied with all 3TX measurement modules purchased with MODbus output option and 3TX-TOT.

Enclosure Options: NEMA 4X Enclosures (UL Listed) for 2, 3, 4, 6, or 7 modules for Wall, Panel or Pipe Field Mounting or 35mm Din-Rail Only

Power Options: Universal 100-240 VAC with power supply or 3-wire 24VDC use with dedicated power supply (not a 2-wire loop powered device).

Last Revised January 2, 2015