

## 3TX pH & ORP Controller, Transmitter & Datalogger Family



- The 3TX pH/ORP analyzer is available with sensors engineered for applications ranging from general purpose drinking water to harsh chemical conditions including low or high temperatures & high pressures
- Modular electronics gives flexibility from single channel transmitter to an analyzer with alarms, relay contacts for control as well as remote datalogging
- You may select multi-parameter analyzer with any combination up to 7 each pH, ORP, conductivity, dissolved oxygen (DO) or ion selective (ISE) sensors
- Sensors are rugged industrial grade with components and options optimized for your application use with mating instrument designed for accuracy & longevity
- 3TX transmitters are available for wall, pipe or panel mounting enclosure styles for 2, 3, 4, 6 or 7 modules; Supports 24VDC or 115/230 VAC power operation

### Application Engineered pH Sensors:

- Municipal Drinking Water: General purpose pH measurement for compliance and process control.
- Wastewater: Systems specifically for municipal and food processing waste streams featuring break resistance and harsh chemical resistance material of construction.
- Food, Beverage and Dairy processing: Solid state sensors for sanitary CIP applications and temperatures from -30°C to 150°C, with dehydration resistant reference and heavy wall crack resistant pH glass.
- Tough Applications: Temperatures to 150°C, pressure to 150 PSIG, resistance to chlorine & chlorine dioxide gas, acid/fluoride, saturated sodium, sulfide, cyanide & a variety of solvents and hydrocarbons
- Replacement pH Sensors: Compatible with almost every brand of pH transmitter or controller are available, including the 5-wire differential type pH sensors found in many drinking water plants.
- Sensor Body Materials: CPVC, RYTON® (PPS), ULTEM™ (PEI), PEEK

### Standard Features:

- ✓ Fully scalable analog output 4-20mA or 0-20mA for pH/mV, ORP or temperature. Active 4-20mA can support external displays in control panels or secondary locations.
- ✓ Supports 2-point and 3-point slope calibration to provide a precise acid slope and a precise alkaline slope. One-point offset calibration done with the sensor in service quickly synchronizes the unit with grab sample or laboratory determined measurements.
- ✓ Galvanic isolation between sensor input, power & analog output (3000V rating)
- ✓ Optional external preamplifier makes it unnecessary to open the analyzer for sensor replacement and optimizes performance for long cable runs or electrically noisy environments.
- ✓ Combination solid state, double & triple- junction pH sensors in various mounting styles and thread sizes, including inline pipe tee, twist lock quick disconnect, immersion, submersible, valve retractable. Sensor life is often two to ten times (2X to 10X) that of competitor's sensors.



**GENERAL SPECIFICATIONS: 3TX-pH pH/ORP Transmitter / Analyzer / Controller**

Measurement Type:	Single or multi-channel inline pH / ORP / mV / Temperature
Application :	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
Transmitter pH / mV Range & Accuracy:	0-14 pH (-2 to +16 pH with 3TX-pHE version), ±1000mV, 0-210 °C. Accuracy ±0.2% Absolute (Ideal)
Sample Temperature Range:	CPVC: +5 to 60 °C; RYTON: -5 to +70 °C; ULTEM™: -5 to +105 °C; PEEK: -30 to +150 °C
Pressure Range:	CPVC: 1- 50 PSIG; RYTON & ULTEM™: 1-100 PSIG; PEEK: 1 to 150 PSIG; Twist Lock: 1-100 PSIG
Sensor Body:	CPVC, Ryton®, Ultem™, PEEK
Measuring glass types:	Most applications use most universal green glass, high HF resistant, and saturated sodium resistant
Glass configuration:	Hemispherical and Flat
Sensor Installation options:	1.05" or 1.31" diameter, screw-in inline 3/4" and 1" MNPT, immersion & submersion, valve retractable, 1" NPT twist lock quick disconnect inline
Reference System:	Double junction, Ag/AgCl, cross linked polymer is resistant to heat, solvents, and most chemicals. Sensor holds an excess of KCl, assuring saturation at all temperatures and extending sensor life. Solid-state conductive polymer minimizes effects of contaminants and permits sensor to be left dry for extended periods. Special order "Extreme" Dehydration resistant option available upon request.
Reference System - Primary Junction:	Porous Ceramic, Saturated KCl in cross linked polymer
Secondary Junction:	High Density Porous Polyethylene (HDPE) or porous KYNAR (PVDF), Sat. KCl in cross linked polymer
Display:	Bright 3-digit red LED display visible in sunlight of pH/mv or temperature with 6 LED indicators
Power Supply:	CSA/UL/CE approved universal 115/230 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 & CSA/UL Rated)
ORP Sensors:	Platinum Low-Profile Slurry & High-Pressure & High-Flow Resistant Ball Style ORP Sensing Element - 1000 to +1000 mV for various pressures, temperatures & chemical resistance

**Module Description & Available Options:**

**Transmitter Modules:** Precise sensor calibration support both 2-point & 3-point slope calibrations for a precise acid slope (pH below 7) and a precise alkaline slope (pH above 7) for optimal measurement accuracy. Grab sample 1-point offset calibration means that you can standardize to any buffer or sample of known pH to allow for precise agreement with any reference method. In addition to pH, ORP, mV and temperature, measurement modules are available for conductivity, dissolved oxygen (DO) and ions including fluoride, ammonia, nitrate and calcium (and others). Each module includes 3-digit LED display and scalable 4-20mA output. Analog outputs have built-in trim offset and span calibration adjustments. Calibration of temperature for all measurement modules 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 via freely supply mating Windows PC software.

**3TX-TOT Option:** Computes 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 output for computed total ISE and Modbus output for 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 (CSA/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 115/230 VAC power supply, or 3-wire 24VDC operation if you have a power supply onsite (not 2-wire loop powered).

*Last Revised November 27, 2012*