
3TX-ISE for Fluoride Ion Controller, Transmitter & Datalogger



- Many drinking water facilities and fluoride waste treatment plants are devoting more money, effort and maintenance than necessary to measure and maintain fluoride for compliance & monitoring
- Analyzers designed for the most demanding wastewater and industrial applications are overkill for the typical process conditions found in most municipal drinking water plants and discharge compliance of fluoride treatment systems
- The Model 3TX-ISE Fluoride ion analyzer reduces the cost of ownership and simplify continuous online monitoring and process control of fluoride levels in drinking water systems and waste treatment systems both batch and continuous type
- Leading solid-state fluoride ion selective (ISE) sensors engineered for water and wastewater applications suitable for service from pH 0 to 11 and anywhere in between; sensor construction optimized as dictated by installation and site need

KEY FEATURES & BENEFITS

- No Reagents of Any Kind – are required for monitoring and process control of your system. You need only to perform grab sample analysis to standardize the inline sensor with the results of your tests used for reporting and compliance. The inline sensor will trend and track in agreement with reference method.
- Simplified Operation – Easy 1-point offset calibration synchronizes the instrument with your lab's results used for reporting WITHOUT removing sensor from service. Online tracking in agreement with your periodic grab sample analysis substantially minimizes the frequency with which such sampling is done.
- Reduced Maintenance – Eliminate the cost of online reagents, sensor service (contracts) and tip replacement. It's perfect for limited staff facilities as well as those who operate multiple water plants, or those who just want to save time and money for their inline ISE measurements.
- Flexibility – Base system includes measurement module (3TX-ISE) with 3-digit display as well as 4-20mA output, waterproof enclosure, and solid-state integrated fluoride ISE sensor with temperature compensation element. Available with or without pH compensation (3TX-TOT module) as dictated by the intended installation site. Sensor options include: severe duty temperature and chemical resistance, immersion or submersion types, screw in pipe tee or quick disconnect mounting and integrated or external preamplifiers. You can add additional measurement modules to create a multi-channel analyzer.
- You Buy Only the Technology You Need – in terms of instrumentation, water chemistry and budget.
- Systems Are Preconfigured & Pre-calibrated – Ready for service after a simple 1-point offset calibration!

Versions of the 3TX system to measure Total Fluoride (HF) in wastewater & etching media with low or high pH applications using alternate modules and sensors are available. Contact factory for more information.



SPECIFICATIONS: 3TX-ISE Fluoride Ion Analyzer / Transmitter / Controller

Measurement Type and Purpose:	Ion Selective Electrode (ISE) to monitor fluoride levels in real time and control chemical feed process
Application Range (Sensor 6100-A):	Fluoride ion concentration in drinking water through wastewater, pH range 5.5 – 9.5 continuous. Processes with pH below 5.5 require different specialized acid service sensors – Inquire to ASTI factory
Displayed Concentration Range:	999 to 0.02 ppm; Output Range Full Scale Selectable: High 0-999, Mid 0-100.0, Low 0-10.00 Output scalable down to 20% of selected full scale range with arbitrary setpoints for 4mA & 20mA
Lowest Displayed Limit of Detection:	0.01 ppm
Sample pH Range:	5.5 to 9.5 pH continuous (Max 11pH); Low pH service version available for 0-6 pH range up to 160 °F
Sample Temperature Range:	CPVC: +5 to 50°C; Ultem™: +5 to 70°C (<i>Maximum Temperature Rating is Specific Model Dependent</i>)
Pressure Range:	Typical installations 10 psig or less
Sample Flow Requirements:	Slipstream installation, continuous flow, max 10 GPM in 2" pipe / 1 foot per second max or submersible
Ion Sensor Specifications:	Solid state selective fluoride sensitive membrane, combination sensor completely sealed both ends
Sensor Body:	CPVC or Ultem™
Reference Half Cell:	Ag/AgCl, Saturated KCl, in excess to assure saturation at all temperatures & extend sensor life
Reference System: Primary Junction:	Porous Ceramic, Saturated KCl in cross linked polymer, resistant to heat, solvents, most chemicals
Secondary Junction:	Solid-State Cross-Linked Conductive Polymer with HDPE porous matrix support, Saturated KCl salt system in cross linked polymer, resistant to heat, solvents & most chemicals
Display:	Bright 3-digit red LED display visible in sunlight
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 output available as option
Instrument Mounting & Dimensions:	Wall, Pipe or Panel Mounting for 2, 3, 4, 6 or 7 modules per enclosure (NEMA 4X & CSA/UL Rated)

Module Description & Options:

Transmitter Modules: In addition to Fluoride, modules are available for pH, ORP, mV, Temperature, Conductivity, Dissolved Oxygen (DO), and other Ion Selective (ISE) measurement including Ammonia, Nitrite & Nitrate among others. All analog outputs have built-in trim calibration support, including both offset and span adjustments. Calibration of temperature element is available for all measurement modules via 1-point offset adjustment.

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: MODbus 3TX-DAT datalogger can support simultaneously datalogging from any 3TX module with MODbus output (3TX-pH, 3TX-ISE, 3TX-DO, 3TX-CON and 3TX-TOT) at frequencies from every second to every hour. Configuration of 3TX-DAT datalogger and downloading of data done via freely supply mating Windows PC software.

3TX-TOT Option: pH compensation module computes total fluoride (Free Fluoride + HF) using the free fluoride ion activity, pH, and temperature from the respective measurement modules' bridged outputs. The 3TX-TOT module includes a scalable 4-20mA output for total fluoride result and RS485 Modbus communications for all inputs and outputs. By using the bridged output for totalizing, you retain the use of free ion and pH 4-20mA outputs. **THE 3TX-TOT MODULE IS REQUIRED FOR pH BELOW 5.5 pH TO PROPERLY PERFORM FLUORIDE ISE MEASUREMENTS.**

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 modules purchased with MODbus output option or 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 (not 2-wire loop power) if you have a power supply onsite.

Last Revised November 27, 2012