



FX-300-F Online Fluoride Ion Analyzer / Controller for Drinking Water

Many drinking water facilities are devoting more money, effort and maintenance than necessary to measure and maintain fluoride levels.

Analyzers designed for the most demanding wastewater and industrial applications are often overkill for the typical process conditions found in most municipal drinking water plants.

Foxcroft offers the Model FX-300-F Fluoride ion analyzer to reduce the cost of ownership and simplify continuous online monitoring and feed control of free fluoride in drinking water

systems and wastewater treatment. The system is designed for process control rather than reporting.

To measure Fluoride in acidic wastewater please refer to the FX-300 F/AS literature or contact us for more information.

FEATURES & BENEFITS

- **No Reagents of Any Kind** – are required for monitoring / process control.
- **Simplified Operation** – Operates using 3 buttons without menus to navigate. Easy 1-point offset calibration synchronizes the instrument with your grab sample results used for reporting WITHOUT removing the sensor from service. *Offset calibration using a portable photometer or lab instrument is required.*
- **Reduced Maintenance** – Eliminate the cost of reagents, sensor service and tip replacement. It's perfect for limited staff facilities, those who operate multiple water plants, or those who just want to save time and money.
- **Flexibility** – The modular base system includes measurement module with 3-digit display, 4-20mA output, NEMA 4X enclosure, and twist lock combination sensor. Options include: alarm contacts & control functions, pH compensation, RS485 Modbus output and data logging. You can even add additional measurement modules such as pH, conductivity or ammonium to create a multi-parameter analyzer.
- **Systems Are Preconfigured, Pre-calibrated** – Ready to place into service and use after performing the required 1-point offset calibration. Analyzer can be mounted on a wall, 2" pipe, or on an optional wall mount flow panel.





SPECIFICATIONS: FX-300-F Fluoride Ion Analyzer / Process Controller

Measurement Type and Purpose:	Ion Selective Electrode (ISE) to monitor fluoride ion activity for process control, not for governmental reporting
Application Range (Sensor SF-8T-UL):	Fluoride ion concentration in drinking water through wastewater, pH range 5.5 – 9.5 continuous. Processes with pH below or above this range require different sensors
Displayed Concentration & Operating Range:	0-999 ppm; Output Range Full Scale: High 0-999, Mid 0-100.0, Low 0-10.00. Output scalable down to 20% of selected full scale range with arbitrary set points for 4mA & 20mA
Lowest Displayed Limit of Detection, Transmitter Accuracy:	0.01 ppm; Transmitter accuracy +/- 0.2%
Sample pH Range:	5.5 to 9.5 pH continuous (Max 10.5pH); Low pH service version available for 0-6 pH range up to 160 °F
Sample Temperature Range per Sensor:	Standard RADEL +5 to 50°C; (Optional PVC/CPVC: +5 to 60°C; Ultem™: -5 to + 105°C; PEEK: -30 to +150°C)
Pressure Range:	Maximum 20 psig or less
Sample Flow Requirements:	Inline, submersible or slipstream installation, continuous flow, about 2 GPH, 1 foot per second max. velocity
Ion Sensor Specifications:	Double junction solid state selective fluoride sensitive membrane, combination sensor completely sealed both ends
Sensor Body:	RADEL ®R-5000 NT (Poly-Phenyl-Sulfone, PPSU) Standard, Ryton®, PEEK optional
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, interfaced to secondary junction
Secondary Junction:	Solid-State Non-Porous Cross-Linked Conductive Polymer embedded in HDPE/Kynar support matrix, excess 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:	Operating power 24VDC +/- 10%, CSA/UL/CE approved universal 115/230 VAC power supply input, consumption 60mA max.
Signal Output:	Selectable, scalable 0-20mA or 4-20 mA DC 250 Ω max, RS-485 Modbus digital output available optionally
Instrument Mounting & Dimensions:	Wall Mount IP65/NEMA 4X polycarbonate enclosure, 180mm H x 110D x 110, 182 or 254mm wide. 2" pipe mount available. Sensor 1" MNPT inline mounted in 1" schedule 80 pipe tee or submerged using 1"MNPT rear pipe threads.

Module Description & Options:

Transmitter Modules: All analog outputs have built-in trim calibration support, including both offset and span adjustments. Galvanic isolation between sensor input, power & analog output (3000V rating). 4-20mA can support remote external secondary displays. 35mm Din rail mounting. Calibration of temperature element is available for all measurement modules. Temperature output transmission requires separate module or Modbus output.

Preamplifier Support: Unlike many low cost systems, the FX-300 series supports optional external preamplifiers for electrically noisy environments. Permanent wiring from preamplifier to monitor allows the use of short sensor cables to minimize sensor replacement cost, and avoids the need to open the monitor enclosure for sensor service.

FX-REL Option: Alarm relay and controller module provides (2) each 5 Amp dry contact relays and (2) independent limits. (1) required for each measurement module. Controller is fully configurable 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; 4) Proportional frequency control (variable pulse controller). Hold function to disable relays during calibration. Includes start timer to avoid alarms during startup and reaction timers for each limit to avoid nuisance alarming if limits are momentarily exceeded.

Data Logging Option: Removable USB data logger records up to 32,000 readings over a 4-20mA DC range or by separate FX-300-DAT data logging module with onboard 8MB serial flash memory and data download via RS232 or USB with included Windows software.

FX-TOT Option: pH compensation module computes total fluoride (Fluoride + HF) in fluids 5.5pH or less, using the free ion activity, pH, and temperature from the respective measurement modules' bridged outputs. Includes a scalable 4-20mA output for total unbound fluoride and RS485 Modbus communications for all inputs and outputs. By using the bridged output for totalizing, you retain the use of pH, ion, and temperature outputs. THIS MODULE IS REQUIRED IN FLUIDS WITH 5.5 pH or less.

Modbus Option: Available by ordering the measurement module to include RS485 Modbus (only on initial order), or by adding the separate FX-TOT module.

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General Brochure FX-300-F G6.5