



Flow Solution FS3700

CONTINUOUS FLOW ANALYZER

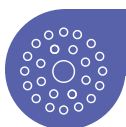
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O·i·Analytical 
a xylem brand

Automating Wet Chemistry for Optimal Productivity



Laboratories all around the world trust OI Analytical, a Xylem brand, for accurate, reliable continuous flow analyzers. The Flow Solution 3700 (FS3700) platform is the most efficient, flexible and easy-to-use system available for automation of wet chemistry analyses. Whether for segmented flow analysis (SFA), flow injection analysis (FIA), injected segmented flow analysis (iSFA) and segmented flow injection analysis (SFIA), all of the following benefits are possible with this versatile:



30-90 assays per hour, per channel with our automatic samplers



Simultaneously perform any combination of SFA, FIA, iSFA or SFIA with multiple detector options.



High-throughput, unattended performance of USEPA, ASTM, ISO, DIN and OI Analytical methods



Virtually eliminate off-range samples with the Expanded Range™ Photodetector and the ML600 Autodilutor



Automate digestion, distillation and/or dialysis



Get results right away with intuitive FlowView™ software, automating setup, analyses and reports

What Will You Do With the FS3700?

Pre-configured chemistry cartridges support a wide range of industry-standardized methods, and each comes with instructions for the setup and performance of the method. Methods for aqueous samples, soil or plant extracts support environmental compliance monitoring, process optimization and research applications. Our most popular methods are listed below, visit us online to learn how analyses can be performed for tobacco volatiles, nitrates in milk, and more!

Analyte	Technique	Method	Operating Range	MDL ¹	Throughput
Ammonia Nitrogen	FIA	USEPA Method 350.1	0.01-20 mg/L ammonia as nitrogen	0.002 mg/L	30 samples per hour
Available Cyanide	FIA	USEPA Method OIA-1677-09	2.0 µg/L-5.0 mg/L	0.5 µg/L	30 samples per hour
Nitrate/Nitrite	FIA	USEPA Method 353.2	0.01-10.0 ppm 10.0-10,000 ppb	0.001 ppm 1.0 ppb	60 samples per hour
	SFA		0.005-10.0 ppm	0.001 ppm	40 samples per hour
Nitrogen (Total Dissolved)	SFA	USEPA Method 353.2	0.01 - 20 mg/L	0.006 mg/L N as NO ₃ ⁻	20 samples per hour
Phenol In-line distillation	SFA	USEPA Method 420.4	1.0-500 ppb	0.5 ppb	22 samples per hour
Phenol (Post-Distillation)	FIA	USEPA Method 420.4	0.01-2.00 ppm 10.0-2,000 ppb	0.002 ppm 2.0 ppb	90 samples per hour
Phosphorus (All Forms)	FIA	USEPA Method 365.1	0.01-5.0 ppm 10.0-5,000 ppb	0.001 ppm 1.0 ppb	60 samples per hour
Phosphorus All Forms - Low Level	FIA	USEPA Method 365.1	0.001-0.1 ppm 1.0-100 ppb	0.0003 ppm 0.3 ppb	45 samples per hour
Phosphorus (Total)	FIA w/ In-line UV/Persulfate	Standard Method 4500-P-I	0.010 mg/L - 10 mg/L P	0.002 mg/L	30 samples per hour
Silica	SFA	Standard Method 4500-SiO ₂ E	0.02 - 20 mg/L SiO ₂	0.02 mg/L	60 samples per hour
Sulfate	FIA Photometric	USEPA Method 375.2	1.0 mg/L - 25 mg/L	0.1 mg/L	40 samples per hour
TKN Total Kjeldahl Nitrogen	SFA, Gas Diffusion	USEPA Method 351.2	0.01-20.0 ppm 10.0-20,000 ppb	0.001 ppm 1.0 ppb	40 samples per hour

¹ Method Detection Limit (MDL) determined in accordance with 40 CFR Part 136 Appendix B

² Channels include the cartridge, detector, and valve (if required).

Versatility and Ease...

Autosamplers

The compact and efficient 3180 (90 position), or the high-throughput 3360+ (360 position) can be adapted for any method and facilitate minimal sample handling, for fewer accidents, exposures or errors.

ML600 Autodilutor

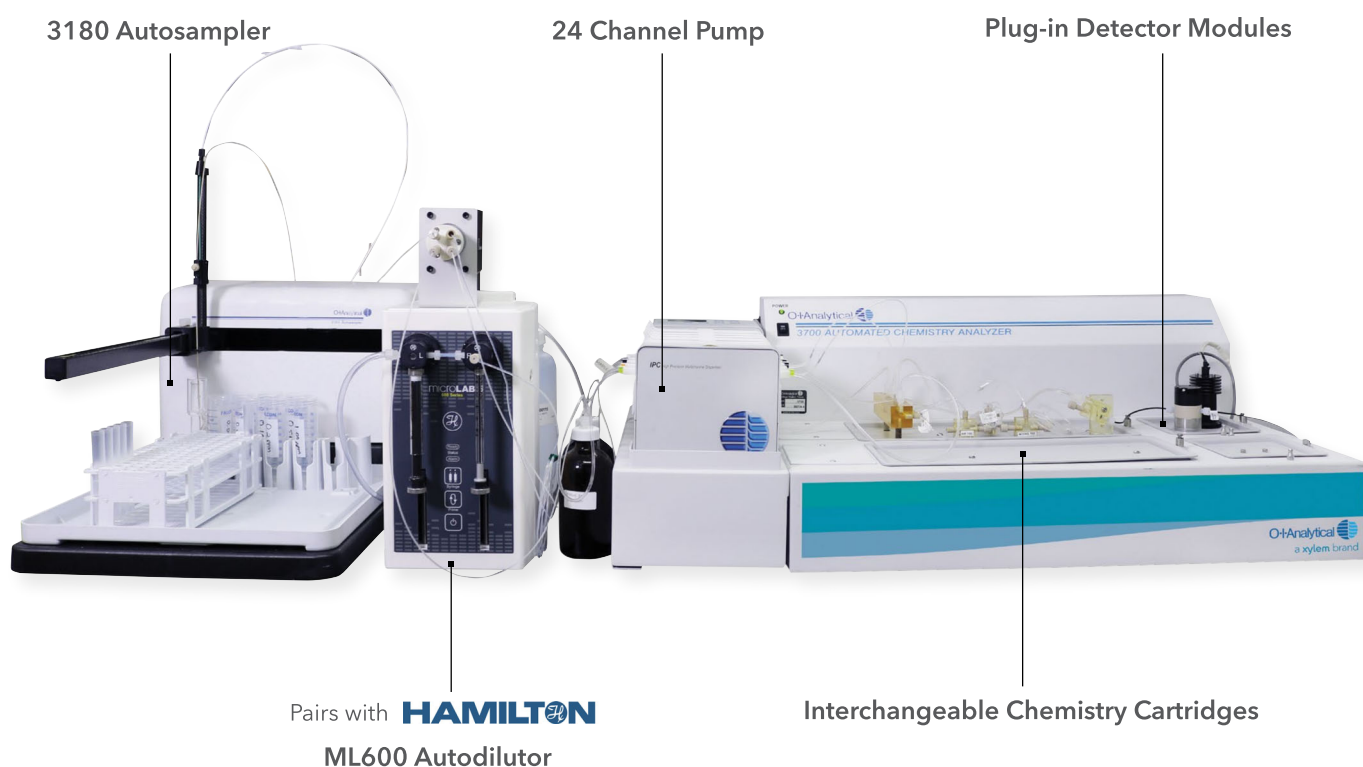
The classic Hamilton autodilutor was adapted specifically for the FS3700 platform with a unique valve system. With FlowView™ software, calibration curves can be automated, and overrange samples re-diluted without operator involvement. Use of the ML600 guarantees the best accuracy and precision, and saves technician time.

Multichannel Pump

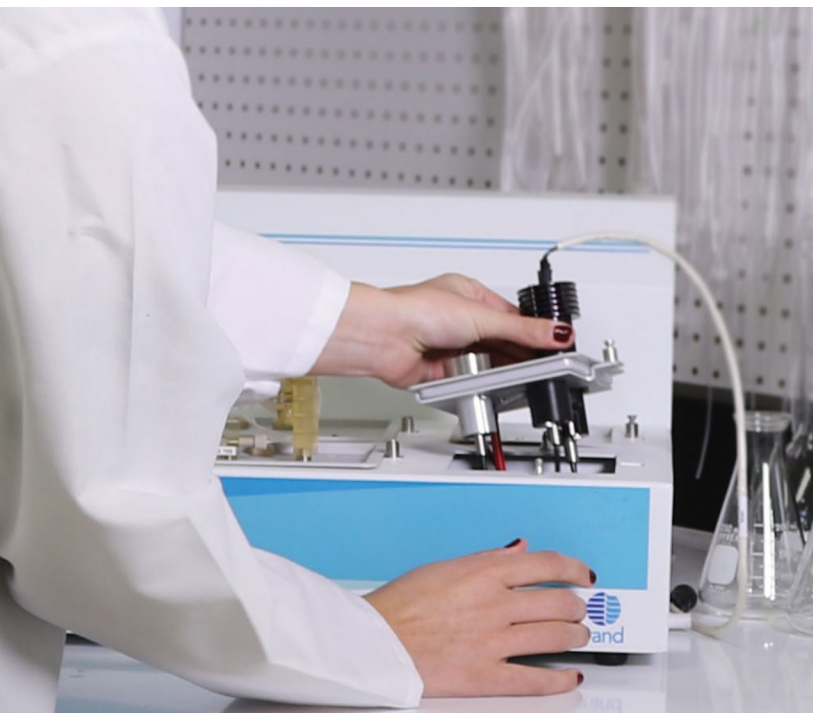
The durable peristaltic pump enables the FS3700 to run up to two channels simultaneously, each with its own chemistry cartridge. The pump makes additional channel configurations possible, even running FIA and SFA simultaneously on different channels.

Interchangeable Chemistry Cartridges

Pre-configured for rapid setup and quick changes from one assay to the next, chemistries are also easily configured with magnetic mixing tees, injection valves that minimize noise and pressure fluctuations, and in-line heating or UV digestion that is programmable.



... With No Compromises in Data Quality



Plug-In Detector Modules

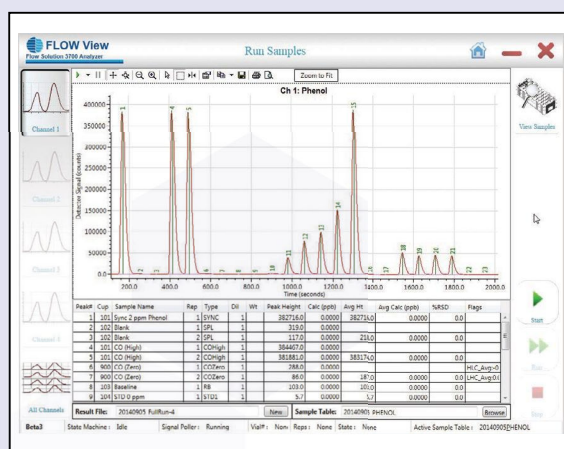
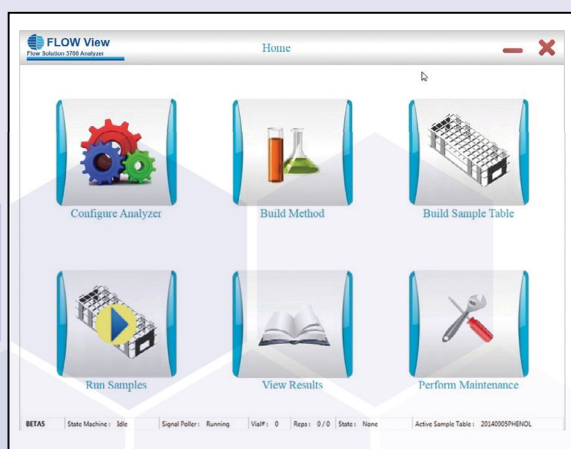
The FS3700 comes standard with two detector boards, each capable of supporting photometric, amperometric and third-party detectors, or ion-selective electrodes, right out of the box. This provides the flexibility to tailor methods for research or quality control while utilizing fluorescence, flame photometric or other detectors.

Our highly refined detector design optimizes signal-to-noise ratios and the FS3700 has twice the sensitivity of predecessor platforms.

The Expanded Range™ photometric detector and auto-scaling software, especially when combined with the ML600 Autodilutor, virtually eliminate off-scale samples. Calibration curves can span four orders of magnitude while still delivering accurate results for your samples on your first run, without the need for additional injections.

FlowView™ Software

The intuitive user interface of FlowView™ software is unparalleled in competitive systems, and is one of the features users love most. Designed for 32- or 64-bit Windows® operating systems, the interface streamlines scheduling and report generation for unattended operation, saving you valuable time. The icon-driven UI simplifies navigation, peak identification and instantly generators visible results even enable one to make adjustments on the fly. FlowView™ will be like another member of your team in the lab.



Application Example: Nutrient Pollution and Water Quality

Nutrient Pollution: A Global and Growing Problem

Nutrient enrichment of waterways, called eutrophication, generally refers to the addition of nitrogen and phosphorus beyond levels that can be assimilated by the normal biological and non-biological components of an aquatic ecosystem. Eutrophication can lead to outcomes like harmful algal blooms and hypoxia, and even “dead zones” where dissolved oxygen is no longer sufficient to support most life.

In June of 1998 the U.S. Environmental Protection Agency issued a National Strategy for Development of Regional Nutrient Criteria to help states in developing nutrient water quality standards for lakes, reservoirs, rivers, streams, wetlands, estuaries, and coastal waters. The European Commission took similar action in Directive 91/676/EEC which requires member states to identify nitrate vulnerable zones (NVZs) and take steps to monitor, control, and reduce water pollution from excessive use of fertilizers.

In characterizing the problem of nutrient pollution the USEPA stated; “Cultural eutrophication (human-caused inputs of excess nutrients in waterbodies) is one of the primary factors resulting in impairment of surface waters in the US.” Nutrient pollution reduction is a priority for USEPA regions because states have listed over 10,000 nutrient-related Clean Water Act Section 303 (d) impairments.

Reduction of nutrient pollution levels requires monitoring and control of the major sources of excess nutrients, and discharges are controlled in the U.S. through the EPA's National Pollutant Discharge Elimination System (NPDES) permits.

Several factors make monitoring of nutrient pollutants, specifically ammonia, a challenging analytical task. The physicochemical properties of samples from water treatment facilities are considerably different than samples from lakes, rivers, wetlands and marine environments. The concentration of nutrients in samples from impaired and unimpaired water bodies can vary significantly. Nutrient levels can also fluctuate seasonally and after storms. In some cases, (e.g.; pore water from marine sediments), the amount of sample available for testing may be limited. Sample pretreatment and/or analytical procedures may require adjustments to address these factors.

The FS3700 is an ideal platform to address these challenges.



The FS3700: The High-Throughput Solution for USEPA Method 350.1

US EPA Method 350.1, the determination of ammonia nitrogen by semi-automated colorimetry, and Standard Methods 4500-NH₃H are among the most widely-used methods globally to monitor for nutrient pollution.

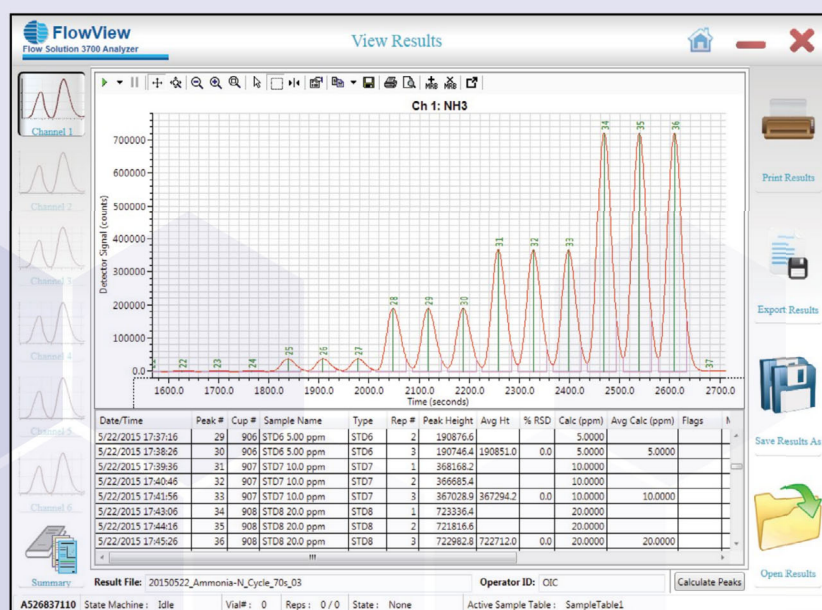
The applicable range for the Method 350.1 is 0.01-2.0 mg/L of ammonia nitrogen. Note that the environmental limits for ammonia in surface water in the US range from 0.25 to 32.5 mg/L, and highly eutrophic systems can reach much higher than that. Thus, environmental waters collected for analysis are likely to be well in excess of the original method's range.

Method Performance

Range	0.01-20 mg/L ammonia as nitrogen
Rate	51 samples/hour
Precision	1% RSD at mid-point of range
Method Detection Limit (MDL)	0.002 mg/L

OI Analytics has developed Chemistry Cartridge 330354CT specifically to support these methods, and it can also be used for the determination of ammonia nitrogen in potassium chloride (KCl) extracts of soil and plants. This method abstract is available online, and the full method is provided with the cartridge. As the method performance parameters make clear, the range is well capable of meeting the 350.1 requirements calibration series are stable and highly reproducible.

Importantly, though, with the Expanded Range™ photometric detector and auto-scaling in FlowView™ software, and the ML600 Autodilutor, overrange samples will be measured right the first time, saving invaluable technician time and improving laboratory throughput. An FS3700 paired with the ML600 and a 3360+ Autosampler can facilitate 360 samples per run with this method. These features are why the FS3700 is one of the leading solutions used worldwide for nutrient pollution monitoring.



Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

Xylem Lab Solutions' global brands have been leaders in the laboratory instrumentation market for decades, and are relied upon every day across more than 150 countries. Working in true partnership with our clients, we listen, learn and adapt to individual needs, offering deep application expertise built upon our long history of innovation in instruments and services. Our solutions for analysis, measurement and monitoring help enable many of today's modern laboratories and industrial processes, and provide our customers the trusted and high performing solutions they need to succeed.

Xylem Lab Solutions is part of Xylem Inc., a global company focused on solving the world's most challenging and fundamental water issues. As accurate analysis is crucial to the water industry, Xylem Lab Solutions taps its diverse product brands for leadership in that field and beyond, providing the best laboratory and field monitoring instrumentation across a wide variety of industries.

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