TELEDYNE | Teledyne LABS

ASXPRESS® PLUS

Rapid Sample Introduction

AUTOMATION

Rapid Sample Introduction

The ASXPRESS PLUS Rapid Sample Introduction Accessory reduces the time required for autosampler movement, sample uptake, stabilization, and rinse operations, thereby reducing sample run times significantly.

The result: More sample throughput in less time. This accessory's design allows multiple functions to occur simultaneously. A high-speed vacuum pump loads sample and flushes the sample uptake path substantially faster than a conventional peristaltic pump.

Increase Throughput

- More sample throughput in less time by optimizing sample introduction
- Significantly reduce stabilization time by removing the need for "fast pumping," improving plasma stability

Reduce Maintenance

- Extend the service life of ICP-AES/ICP-MS components such as nebulizers, spray chambers, and sample cones by reducing their exposure to the sample matrix

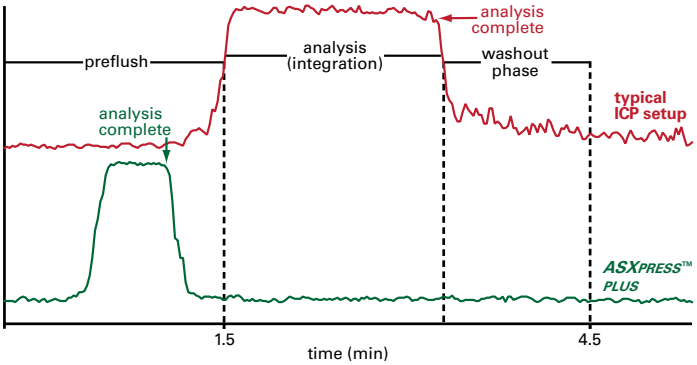
Cost-Effective

- Minimize sample consumption
- Reduce laboratory costs associated with argon and power consumption, peristaltic pump tubing replacement, and maintenance

Simple Operation

- Easy setup with minimal modification to the analysis method
- No additional complex software required; all system parameters are stored in the system's onboard processor

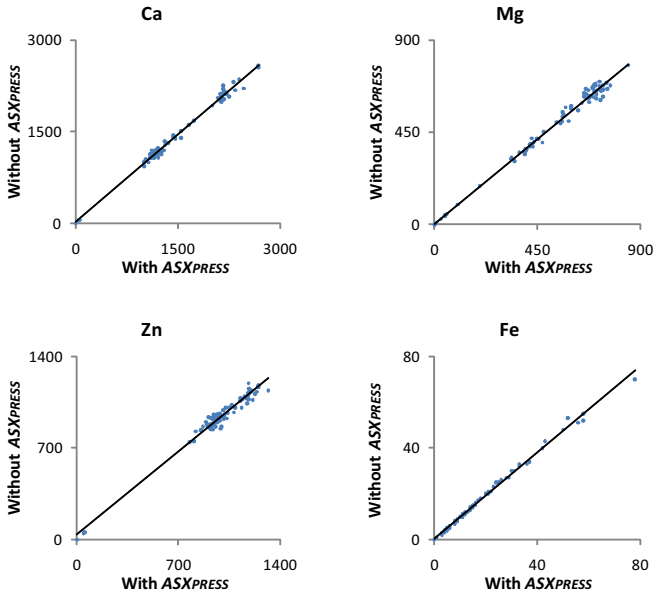
Timing



The *ASXPRESS PLUS* increases ICP-AES/ICP-MS analysis throughput by reducing sample delivery/rinse times without affecting measurement time. Multiple sample introduction steps occur simultaneously, resulting in significant reduction of stabilization and rinse times.

Data Quality

ICP data before and after ASXPRESS PLUS. The only difference between the runs is that half the time was saved using the ASXPRESS PLUS. Typical carryover has been measured at less than 0.1%.



Data generated from oil sample analysis.

Typical Analysis Setup

Sample Introduction Step	Time Required
1. Autosampler Movement	5 sec.
2. Sample Uptake	15 sec.
3. Stabilization	20 sec.
4. Measurement	10 sec.
5. Rinse	30 sec.
Total Time	**80 sec.**

ASXPRESS PLUS Analysis Setup

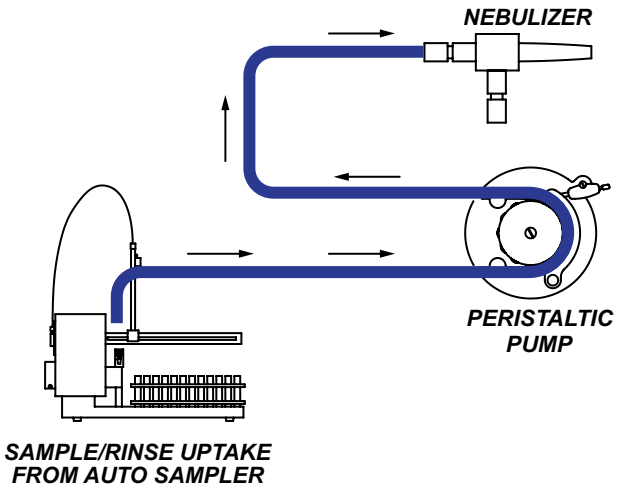
Sample Introduction Step	Time Required
1. Autosampler Movement, Sample Uptake, Stabilization, and Rinse	20 sec.
2. Measurement	10 sec.
Total Time	**30 sec.**

TIME SAVED WITH ASXPRESS PLUS

Number of Samples	Hours Saved
100	1.4
250	3.5
500	6.9

ASXpress plus Technology Description

The ASXpress plus Rapid Sample Introduction Accessory increases sample throughput for ICP and ICP-MS analysis by reducing sample loading, signal stabilization and washout times. Using proven technology, the ASXpress plus combines a metal-free, 6-port injection valve and inert, high-speed vacuum pump to rapidly load the sample loop for introduction to the nebulizer. The design of the ASXpress plus facilitates quickly rinsing the sample loop while simultaneously injecting sample into the ICP or ICP-MS nebulizer for analysis. The segmented stream washout technology effectively cleans liquid flow paths more completely and in less time. The result is additional time dedicated to sample analysis, more effective flow path rinse, and reduced time between samples.

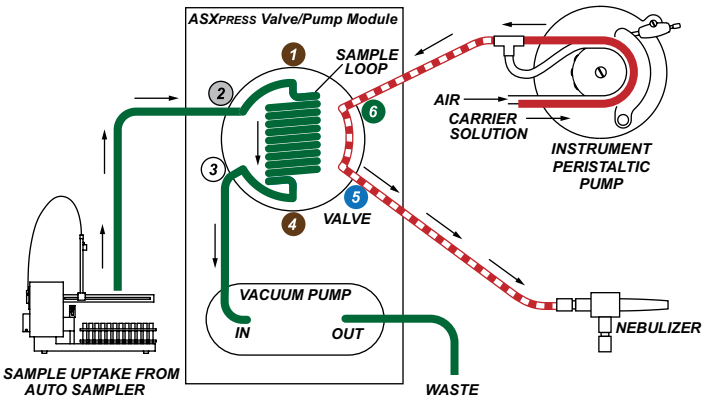


Conventional ICP / ICP-MS sample introduction configuration.

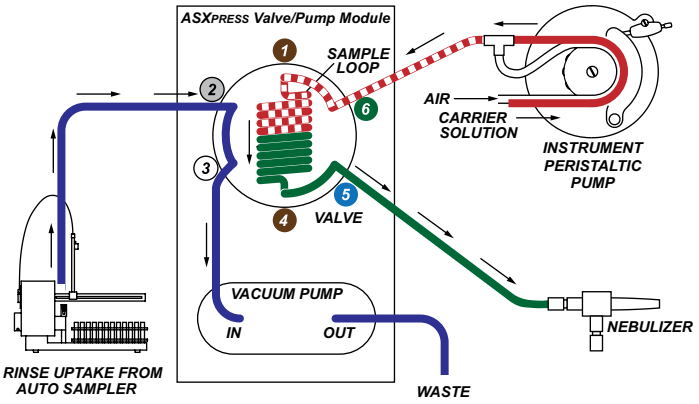
Analysis with ASXpress plus Technology

The ASXpress plus uses a high-speed vacuum pump in addition to the ICP/ICP-MS peristaltic pump. The 6-port valve allows the use of both pumps simultaneously, as is illustrated below, reducing total sample analysis time significantly.

Load



Inject



Load Position

The vacuum pump rapidly fills the sample loop (green path), while the ICP or ICP-MS peristaltic pump simultaneously transports carrier solution, keeping the plasma stable (red path).

Inject/Rinse Position

The loaded sample is then pushed into the nebulizer for analysis via the carrier solution flowing through the ICP or ICP-MS peristaltic pump (red/green path). Simultaneously, the autosampler probe is moved to the rinse station and the uptake flow path is flushed with rinse solution via the vacuum pump (blue path).

Technical Specifications

Valve/Pump Module Dimensions

Height	12.8 cm	(5.0 in)
Width	5.8 cm	(2.3 in)
Depth	21.7 cm	(8.5 in)
Weight	1.30 kg	(2.8 lbs)

Electronics Module Dimensions

Height	25.4 cm	(10.0 in)
Width	8.3 cm	(3.3 in)
Depth	20.0 cm	(7.9 in)

Hardware Interfaces

RS-232 to autosampler

RS-232 and/or USB to host PC

External pump connector

Sample Load Loops

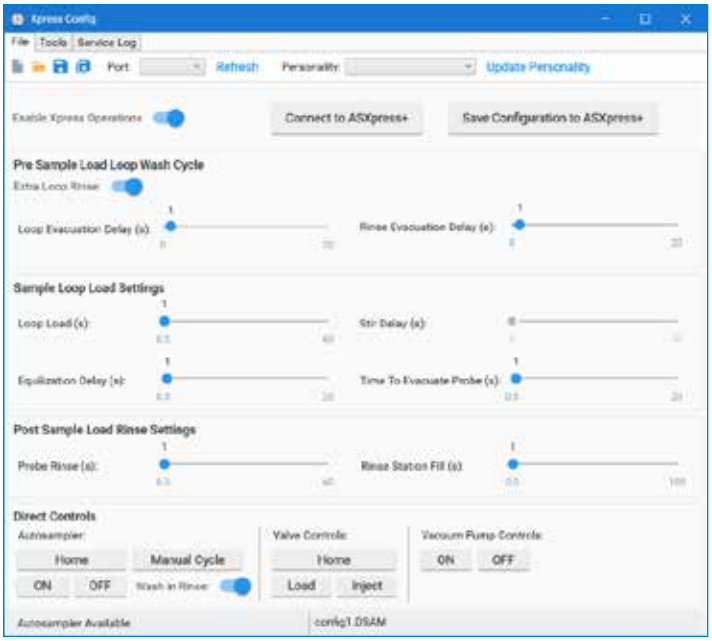
Sample load loops are available in multiple sizes for varying applications. Available sizes range from 0.5 mL to 5.25 mL. Contact us about additional sample load loop sizes.

Power Requirements

100-240 VAC ~ 47-63 Hz 1.9A

Xpress Configuration Tool

The Xpress Configuration Tool is a simple, one-screen interface to configure the ASXpress plus accessory and autosampler, as well as providing access to manual functions of the ASXpress plus and autosampler.



Xpress Configuration Tool for ASXpress plus

Minimum Computer Requirements

Configuration tool requires Microsoft Windows Vista or later release. No software is required for system operation.

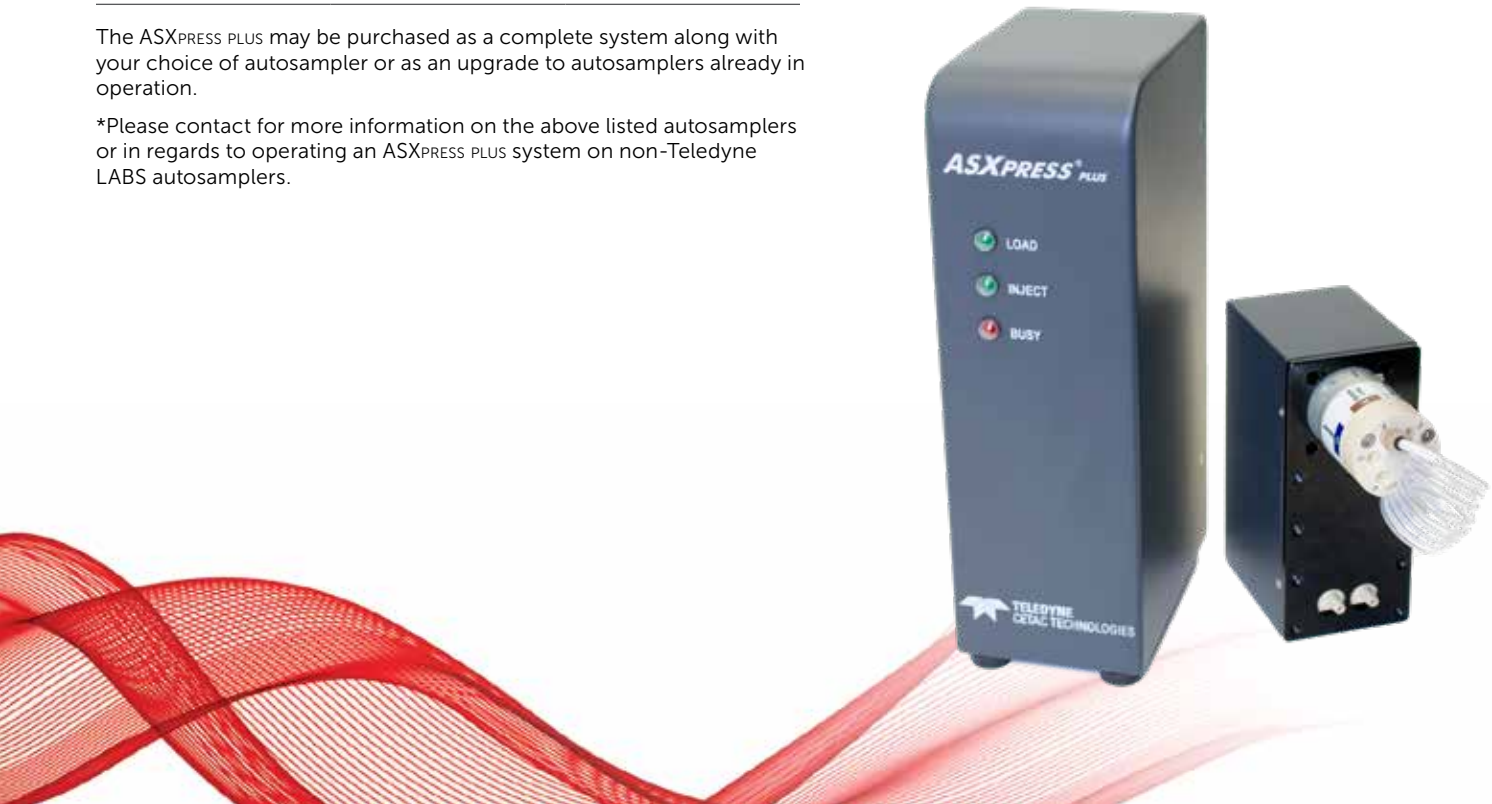
ASXpress plus requires any combination of two RS-232 and/or USB communication ports.

Autosampler Compatibility

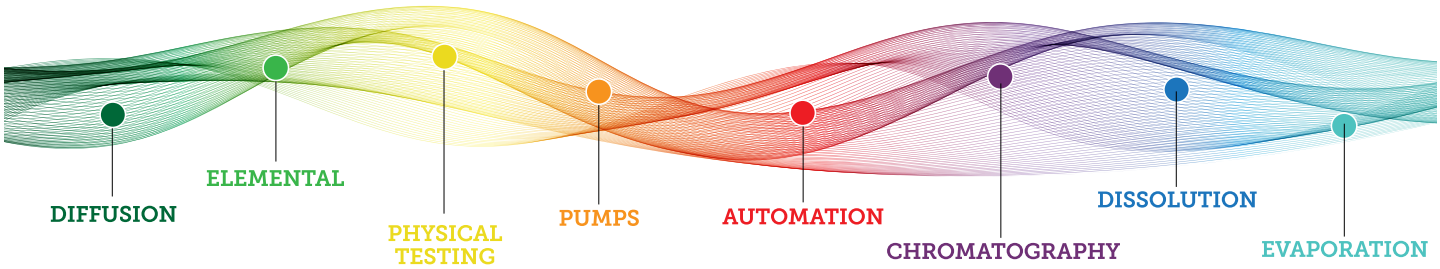
ASX-260	ASX-520HS	ASX-1400/1600
ASX-280	ASX-560	ASX-7000 series
ASX-500	EXR-8	Oils 7400/7600
ASX-510	XLR-8	Non-CETAC autosamplers*
ASX-520	XLR-8$_{60}$	

The ASXpress plus may be purchased as a complete system along with your choice of autosampler or as an upgrade to autosamplers already in operation.

*Please contact for more information on the above listed autosamplers or in regards to operating an ASXpress plus system on non-Teledyne LABS autosamplers.



Teledyne LABS enhances the visibility for our brands, products, and services, aiding customers in finding solutions that meet their current and future needs. The existing Teledyne brands will remain, providing ongoing value to customers.



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