Attune Xenith Flow Cytometer

The spectrally enabled Invitrogen Attune Xenith Flow Cytometer delivers reliable, clog-resistant performance with acoustic-assisted hydrodynamic focusing and automated maintenance. Equipped with UV and NIR lasers, it supports both traditional compensation and spectral unmixing for flexible, high-quality analysis. Built for high-throughput workflows, the Attune Xenith Flow Cytometer handles challenging samples with ease and consistency.

Technical specifications

Optics: fluorescence detection	Laser power	Laser	Wavelength (nm)	Power (mW)
		UV	349	54
		Violet	405	100
		Blue	488	50
		Yellow	561	50
		Red	637	90
		NIR	781	90
	Laser excitation	Optimized excitation for reduced stray laser-line noise and losses to reflection		
	Laser profile	10 x 50 µm flat-top laser enables robust alignment		
	Flat-top laser specified at the flow cell	Coefficient of variation (CV) <3% over the width of the flat-top laser		
	Emission filters	57 channels with wavelength-tuned photomultiplier tubes (PMTs) (51 fluorescent channels); user-changeable, keyed filters UV 349 laser: 12 detectors Violet 405 laser: 12 detectors Blue 488 nm laser: 7 detectors Yellow 561 nm laser: 12 detectors Red 637 laser: 5 detectors NIR 781 laser: 3 detectors		
	Laser separation	103 µm		
	Optical alignment	Fixed alignment with pre-aligned welded fiber; no user maintenance required		
	Onboard thermoelectric cooler	Maintains stability throughout use		
Fluidics	Flow cell	Quartz cuvette gel coupled to 1.0 numerical aperture (NA) collection lens, 200 x 200 µm		
	Sample analysis volume	20 µL to 4 mL		
	Custom sample flow rates	12.5–1,000 µL/min		
	Sample delivery	Positive displacement syringe pump for volumetric analysis		
	Sample input	0.5 mL, 1.5 mL, and 2.0 mL microcentrifuge tubes; sample tubes; 12 x 75 mm flow cytometry tubes; 384-, 96-standard and deep well plates through connection to CytKick and CytKick Max Autosampler		
	Fluid-level sensing	Continuous		
	Fluid cart	20 L focusing fluid tank, 20 L waste tank, 1 L shutdown solution tank, 1 L wash solution tank, 1 L bleach, 1 L dH_2O		
	Automated maintenance cycles	≤5 min of hands-on start-up and shutdown; deep clean, sanitize, de-bubble modes, rinse, unclog, and flow cell clean. <15 min of hands-on long term shut down and system decontamination		

Technical specifications, continued

Fluidics, cont.	Fluorescence resolution	CV <3% for the singlet peak of propidium iodide–stained chicken erythrocyte nuclei (CEN)
	Fluorescence sensitivity	FITC <30 molecules of equivalent soluble fluorochromes PE <10 molecules of equivalent soluble fluorochromes (off the 561 nm laser) APC <10 molecules of equivalent soluble fluorochromes
	Fluorescence linearity	Doublet/singlet ratio PI stained CEN 2.00 +/-0.05
	Data acquisition rate	Up to 35,000 events/sec
	Maximum electronic speed	>100,000 events/sec with all parameters
	Carryover	Single tube format: ≤0.1% running tubes
	Sample injection probe (SIP)	After each acquisition a SIP wash cleans the inside and outside of the sample probe
	Forward and side scatter sensitivity	Resolve platelets from system noise
	Forward and side scatter resolution	Optimized to resolve lymphocytes, monocytes, and granulocytes in lysed whole blood where each population contains <10% of cells belonging to adjacent populations
	Forward scatter	6 total PMTs: standard and depolarized 488 nm, standard 405 nm
	Side scatter	
	Fluorescence detectors	51 individual detectors
	Electronic pulse	Measured area; height and width pulse for all detectors
	Minimum particle size	0.2 µm on side scatter using Invitrogen™ ViroCheck NanoParticle Reference Kit (Cat. No. V10425), or 0.16 µm on side scatter under the following conditions: using the optional 0.050 µm sheath filter
Flow cytometry software features	Compensation	Automated and manual modes; on-plot compensation tools for fine adjustment; use of tubes and wells
	Spectral unmixing	Spectral unmixing with autofluorescence subtraction and live unmixing, and use of tubes and wells
	Flow rate	Discrete flow-rate control via software; no hardware adjustments
	Live streaming	Live update of statistics during event acquisition of up to 35,000 events/sec
	Sample recovery	System able to return unused samples
	Concentration	Direct concentration measurement without use of counting beads within +/-10%
	Bubble detection technology	Stops automated run to preserve sample integrity
	Maximum single-event file	100 million events
	Sample map	Set up for definition of plate and tube layouts
	Threshold	Up to 2 individual thresholds with user option to apply OR and AND logic
	Gating	Hierarchical gating
	Voltage	User-adjustable, QC optimized spectral voltage
	Area scaling factor (ASF)	QC optimized and user-adjustable
	Acquisition settings	Acquisition volume; flow rate; stop criteria based on time, volume, or events; auto rinse and recovery options; storage gate
	Templates	Create from existing experiments
	Tube-to-plate conversion	One-click transition from tubes to plates and vice versa; no disassembly, no additional QC, no reboot required for conversion between plates and tubes

Technical specifications, continued

Flow cytometry software features, cont.	User account	Administrative creation of individual user accounts with designated roles; administrator and user level accounts
	Administration	Management of individual accounts; user time tracking reports
	Keyword management	User-defined
	Instrument tracking	Automated baseline and daily QC with Levey-Jennings charts
	Warranty	1 year
Quality and regulatory	Production verification testing	Each instrument is tested and verified for assembly integrity and performance to specifications
	Quality management system	Manufacturing standards comply with the requirements of ISO 13485:2003
	Robust installation specifications	Units installed by engineer; preplanning checklist, delivery, and installation; performance verification compliance with standardized procedure
	Regulatory status	For Research Use Only
Computer	Monitor	32 in. flat panel (4K resolution)
	Computer	Minitower desktop
	Operating system	Microsoft™ Windows™ 11 software, 64-bit
	Data format	FCS 3.1
	Processor (CPU)	Intel™ Core™ i9 processor
	RAM	64 GB
	Hard drives	2 x 8 TB SSD, 560 MB/sec; controller RAID1, integrated
	GPU	NVIDIA RTX™ A2000
Installation requirements	Electrical requirements	100–240 VAC, 50/60 Hz, <1,500 W
	Compliance certificates	Thermo Fisher Scientific certifies that Invitrogen™ Attune™ flow cytometers conform to relevant directives to bear the CE mark. These instruments also conform to the UL and CAN/CSA general requirements (61010.1). Attune flow cytometers are Class I laser products per Center for Devices and Radiological Health (CDRH) regulations and EN/IEC 60825.
	Heat dissipation	<250 W
	Temperature operating ranges	15–30°C (59–86°F)
	Operating humidity	20–80%, noncondensing
	Audible noise	<71 dBA at 1.0 m
	Instrument size (H x W x D)	Instrument: 86 x 61 x 50 cm (34 x 24 x 19.5 in.) Fluid cart: 76 x 60 x 65 cm (30 x 24 x 26 in.)
	Weight	Instrument: 65 kg (143 lb); fluid cart: 30 kg (66 lb)

Schedule your Attune Xenith demo and see how acoustic focusing delivers speed, precision, and confidence in every run.

Learn more at **thermofisher.com/attunexenith**

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