



**APOGEE**  
FLOW SYSTEMS

## Universal Flow Cytometer Technical Specifications

The Universal Flow Cytometer offers excellent performance in a wide range of applications.



Sensitivity:	Light scatter sensitivity 200nm (polystyrene beads). Fluorescence sensitivity down to <100 MESF. For any flow cytometer, the minimum measurable number of fluorescent molecules is dependent on the sample (e.g. unbound dye), choice of laser, choice of photomultiplier detector, optical filter choice and instrument settings.
Resolution:	40nm (polystyrene bead size resolution by light scatter)
Configurations:	Up to 9 fluorescence colour detectors Up to 2 light scatter detectors Up to 4 lasers Optional Autosampler (96 well plate format) Volumetric sample system gives absolute counts for every region of interest
Speed:	>100k events/sec Up to 45 samples per hour
Typical Applications:	All analytical (not cell sorting) flow cytometry applications
Size:	W32 x H50 x D48cm (W50 x H50 x D48cm with AutoSampler option)
Weight:	Approx. 20 to 35kg depending on configuration
Power consumption:	Less than 250 Watts Requires two standard wall sockets rated for at least 5 Amperes
Operating conditions:	10 to 30 degrees Centigrade operating environment No external cooling requirements.
Sample Fluidics:	Volumetric sample injection Adjustable sample aspiration volume, 50 to 400µl (+ option for up to 900ul) Software selectable sample flow rate from 0.7 to 150ul/min Sample concentrations up to 10 <sup>9</sup> per ml
Sheath Fluidics:	Normal laboratory deionised water sheath fluid keeps running costs down. Optional closed loop ultra-pure sheath fluid system also offered.
Waste Fluidics:	No special requirements. Bleach may be used in waste tank if desired



Performance insensitive to waste tank height

Electronics & Data Management

- Fast electronics: >100,000 events/sec
- Threshold software selectable on all channels with 'AND' or 'OR' logic
- Pulse height & area measurements on all channels
- Trigger width measurement
- Event time stamp for each particle
- 22 bit data from a 26 bit data acquisition path
- Internal PC with Windows 7/8/10 64 bit operating system
- Optional external desktop or laptop PC (LAN connection)

Optics:

- Numerical Aperture 0.85
- Up to 4 lasers may be installed (choose between 375nm, 405nm, 488nm, 532nm, 552nm, 635nm - contact Apogee for more options)
- High sensitivity photomultiplier detectors (choice of sensitivities available)
- Fluorescence filter blocks may be changed by operator without realignment
- Custom fluorescence filter blocks are available on request.
- Fluorescence optics capable of detecting from 400 to 800nm
- Large (side) and small (forward) light scatter photomultiplier detectors
  
- Optional medium angle light scatter detector
- Optional deep red detector (#3491) to extend the fluorescence range up to 900nm
- Optional extra-high sensitivity photomultipliers for the highest possible fluorescence sensitivity

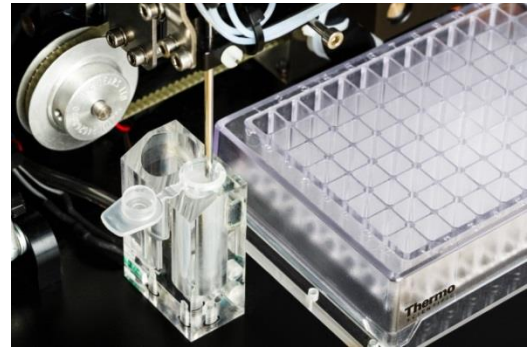
Software:

- Apogee Histogram software with Work List sample management
- FCS 3 file format
- Histogram resolution software selectable from 32 to 65535 with zoom feature
- Display modes: linear and/or logarithmic gain selection for each parameter
- Unlimited number of histograms and cytograms
- Amorphous regions of interest (gates)
- Gating using AND, OR and NOT logic
- RATIO parameter configurable for any 2 detectors
- Autocycle module
- Gain and subtraction settings adjustable during and after acquisition
- Export of statistics from multiple files to Microsoft Excel
- Export of histogram data in '.csv' format
- Quick copy to clipboard feature for datagrams
- Overlaying histograms for easy data comparison
- Work List window for sample queuing and sample to sample data comparison
- Automatic fluidic shutdown option
- Automatic power off option



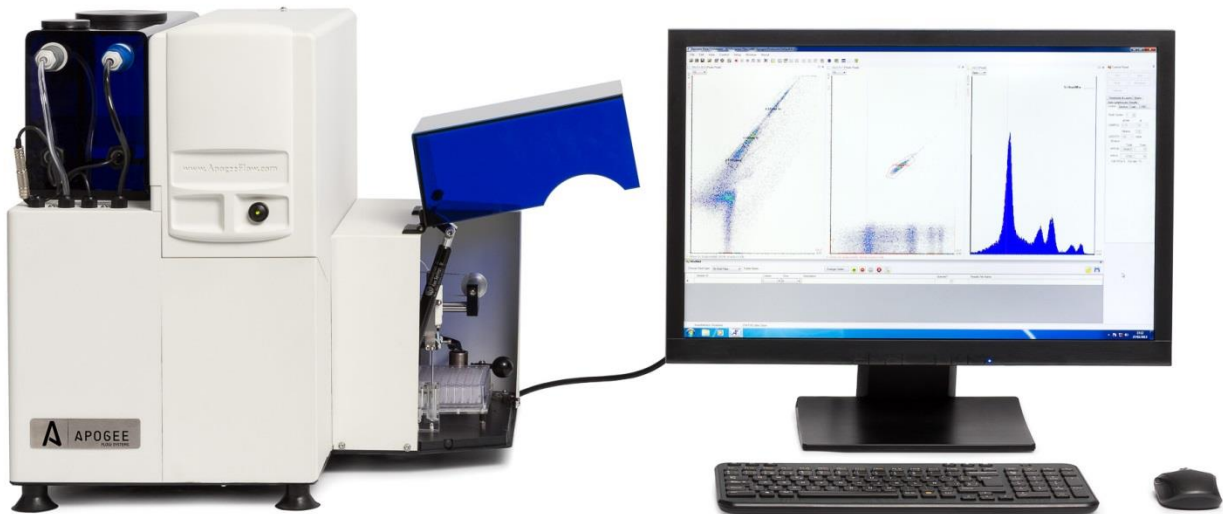
**OPTIONAL AutoSampler (Cat# 2259)**  
(not included unless explicitly stated)

Apogee's flow cytometers can be fitted with an automatic sampling robot to sample from 96 well format plates or racks of tubes. It is compatible with deep well or standard (300ul) plates. Autosampler operation is managed via the Histogram Software's Work List. A separate holder for individual microcentrifuge tubes allows the operator to run individual samples as well as plates/racks.



**Features:**

- 'Suck & spit' capability to re-suspend samples before aspiration from the well/tube
- 'Plate shake' agitator to re-suspend samples before aspiration from the well/tube
- Email notification when the Work List is finished or to notify the operator of a fault condition (e.g. empty sheath fluid tank).
- Automatic fluidic shut-down and power off option when the Work List finishes.
- Up to 50 samples per hour (2 hours per 96 well plate)



- The Histogram Software offers a 'Work List' to manage the samples. In addition to the sample location, sample identifier and description, statistics columns may be added so that a table of results can be easily compiled. Results are saved in csv format.

