PARTEC

CyFlow® Cube 6

Immunology
Microbiology
Industrial Applications
Agrosciences | Aquaculture

reddot design award
best of the best 2013

Flow Cytometry: Simply elegant. Elegantly simple.

01 Applications

Medical Diagnostics | Research

- Immunology
- HIV/AIDS
- Leukemia
- Lymphoma
- Hematology
- Pathology
- Cancer Research
- DNA Analysis
- Stem Cells
- Apoptosis
- Cell Cultures
- Absolute Cell Counting
- Cell Cycle Analysis
- Cell Proliferation
- Cytokines
- Platelet Counting
- Leukocyte Depletion
- Viability
- Live/Dead Analysis

Microbiology | Industry

- Cell Counting
- Viability
- Live/Dead Analysis
- Cell Cycle Analysis
- Quality Control in Food & Beverage Industry
- Toxicology
- Quality Control in Dairy Industry & Milk Products
- Fermentation Process Control
- Detection of Microorganisms: Yeast/Bacteria/Viruses
- Biomonitoring
- Marine Biology & Algae

The CyFlow® Cube 6 has been designed by Partec as a high performance system which offers you the best and most reliable tool for routine and research work. Furthermore, the advanced flow cytometry technology of the CyFlow® Cube 6 is capable of a wide range of applications.

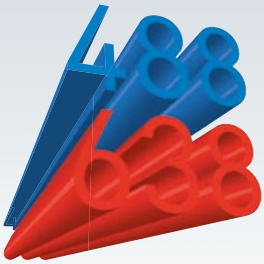
THE PERFECT SOLUTION FOR ALL YOUR CELL ANALYSIS APPLICATIONS: CYFLOW® CUBE 6

Agrosciences | Breeding | Aquaculture

- Bioreactor Process Optimisation
- Particle Counting
- Pharmaceutical Industry
- Quality Control in Cosmetics
- Research
- Detection of Ploidy Level
- Plant Genome Size
- DNA Analysis
- Aneuploids and Allopolyploids
- Detection of Apomixis and Reproduction Behaviour
- Detection of Hybrids
- Polysomy
- Polysomaty and Plant Chimera Analysis
- Gender Determination
- Cell Type Identification in Natural Populations
- Sperm Cell Counting
- Sperm Cell Viability
- Sperm Cell Function

Unique Instrument Design

Built-in 15" TFT Screen



Two different Wavelengths available

02 Highlights

MADE IN GERMANY

Intuitive Powerful FCM Software

Optional CyFlow® Robby 6 Autoloading Station

Minimal Setup Time

UNIQUE FLOW CYTOMETRY DESIGN BY PARTEC.

Superior Performance. Most Cost-effective Solution.

The CyFlow® Cube 6 from Partec opens a new dimension in flow cytometry.

CyFlow® Cube 6

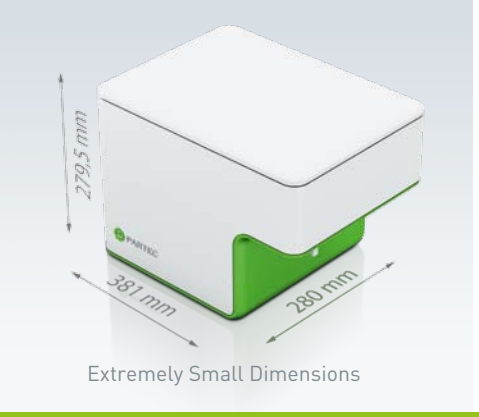
Optical Parameters (Colors)	6 (4 Colors + FSC + SSC)
Light Sources	1 or 2 lasers (488 nm blue and 638 nm red) (other wavelengths available upon request)
Options & Upgrades	CyFlow® Robby 6 Autoloading Station for tubes and well plates

High-performance, bench-top design with fully-integrated fluidics, built-in PC and a 15" TFT monitor

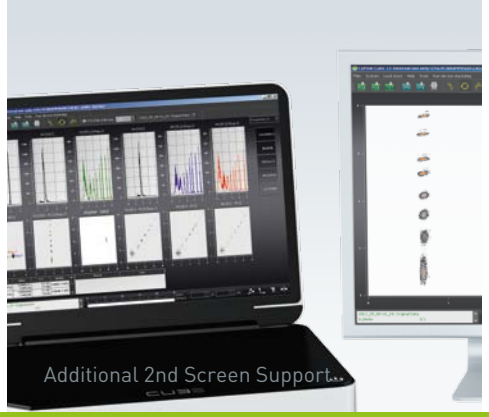
- 488 nm and 638 nm laser modules
- superior fluorescence sensitivity: ⩽ 100 MESF (FITC) | ⩽ 50 MESF (PE)
- down to nanotechnology: superior small particle detection ⩾ 50 nm
- flexible and modular CyFlow® Cube 6 system configurations
- optional CyFlow® Robby 6 Autoloading Station for well plates and tubes

CyFlow® Cube 6 — Selection of Available Light Sources

Excitation (nm)	Detector	Exemplary Dyes							
Blue 488	Green	FITC	GFP	Alexa Fluor 488	Syto 9-24	Oregon Green	JC-1 (monomers)	DiOC6(3)	H2-DCF-DA
	Orange	PE	YFP	Hydroethidine					
	Orange Red	PE-Texas Red	PI	ECD	EB		JC-1 (aggregates)		
	Red I	PE-Cy5	PerCP	PE-Dy647	Acridine Orange	7-AAD			
	Red II	PE-Cy5.5	PerCP-Cy5.5						
	Far Red	PE-Cy7							
Red 638	Red I	APC	APC-Cy5	Syto 59-63	Dy647	TO-PRO3	Alexa Fluor 647	Draq5	Cy5
	Red II	APC-Cy5.5	Cy5.5						
	Far Red	APC-Cy7	APC-H7	Alexa Fluor 750	Cy7				



Extremely Small Dimensions


Additional 2nd Screen Support...


Autoloader for Tubes and Well Plates

03 Instrument Design

FULL FLEXIBILITY FOR YOUR APPLICATIONS.

The CyFlow® Cube 6 offers flow cytometrists the most cost-efficient way to be perfectly equipped for current and new applications.

Intuitive easy-to-use flexible flow cytometer for any laboratory

The CyFlow® Cube 6 impressively demonstrates how state-of-the-art flow cytometry technology reduces set-up time and maintenance to a minimum, achieves intuitive easy instrument operation and therefore offers the highest possible time and cost efficiency in your daily laboratory work.

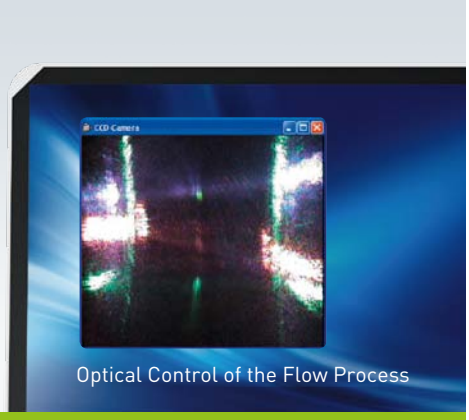
Due to its unique design and superior performance characteristics, the CyFlow® Cube 6 covers a wide range of applications, both in the medical and the non-medical fields. The CyFlow® Cube 6 has been built for offering a perfect workflow in your daily routine use. Furthermore, due to its most modern system architecture, based on the latest generation of cutting-edge component technologies (e.g. state-of-the-art laser modules, optoelectronics, signal processing boards, etc.), the CyFlow® Cube 6 is surprisingly compact and robust. Sample autoloading is optionally available with the CyFlow® Robby 6 Autoloading Station for well plates and sample tubes. Laboratories equipped with the CyFlow® Cube 6 therefore benefit from the best flow cytometry technology available on the market.

Truly stand-alone and fully integrated high performance instrument

With its small dimensions of only L 381 × W 280 × H 279,5 mm, the 2-laser CyFlow® Cube 6 features built-in Windows™ PC, 15" TFT screen (additional 2nd screen support), software-controlled pressure regulators and near-by sheath/waste containers. Additional space on or under your laboratory bench is no longer required. The CyFlow® Cube 6 is equipped with standard interfaces for USB, LAN, video output, etc.

The high performance and computing power of the CyFlow® Cube 6 allows real-time signal analysis, real-time signal processing and real-time display of each event generated by a cell or particle. This unique capability of an entirely real-time performing flow cytometer is a prerequisite for precise high speed analysis and accurate absolute counting. More than this, the CyFlow® Cube 6 offers the optimum in fluorescence sensitivity, DNA quantification, scatter resolution and small particle detection down to nanotechnology size (e.g. for virus or bacteria analysis).

Software CyView™


Optical Control of the Flow Process

04 Software

CYVIEW™: POWERFUL BUT INTUITIVE SOFTWARE FOR CYFLOW® CUBE 6.

The easy-to-use CyView™ data acquisition and data analysis software is your perfect control tool for operating the CyFlow® Cube 6 with maximum efficiency.

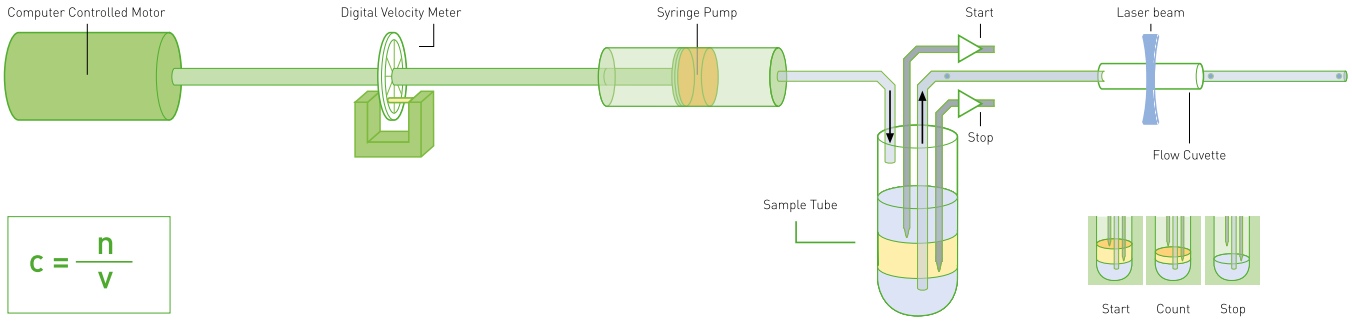
The Windows™ CyView™ software integrates instrument control including acquisition, on- and offline data analysis, on- and offline compensation into a complete software package. Predefined and freely adaptable instrument settings and panels facilitate switching between different applications. CyView™ is dedicated for all applications in immunophenotyping, microbiology, cell cycle analysis, DNA quantification, ploidy analysis, etc. Data are stored in FCS flow cytometry standard file format for easy exchange with other analysis software. One of the unique features is the digital on- and offline color crosstalk compensation of the spectral overlap of fluorescence from simultaneously analysed dyes. The N-color software compensation algorithm allows a correction of the crosstalk between any parameters without the need of rerunning a sample.

CyView™ optimally supports the True Volumetric Absolute Counting feature of the CyFlow® Cube 6, displaying particle concentrations for any subsets of cells, even if defined by a gate at a later time after the acquisition.

CyView™ Software Specifications

- Windows™ based CyView™ software for routine and research applications
- multiple language support for CyView™ software menues
- editable CyView™ user environments
- flow cytometry standard file format (FCS 2.0, 3.0, 3.1) for storage of original and evaluated data
- 8 parameter real-time data acquisition, real-time data analysis, real-time data display
- 64 calculated parameters plus time parameter
- one and two parameter histograms and dotplots
- 64 — 4096 channels resolution for 1P histograms
- 64/64 — 4096/4096 channels for 2P dotplots
- linear | 3-decade logarithmic | 4-decade logarithmic scale (selectable)
- software-based lin/log transformation
- single and multiple trigger on any parameter or combination of parameters (AND/OR)
- analysis pre-selectable on time, number of events, sample volume
- multiparameter online crosstalk compensation
- multiparameter online color gating
- doublet discrimination
- DNA cell cycle and DNA peak analysis
- software-controlled True Volumetric Absolute Counting
- peak and cluster analysis and statistics
- real-time sort trigger generation
- data display templates, plots, channels, regions and calculated results editable via XML files
- all steps of complete analysis runs editable via XML files
- compensation and XML configurations can be stored separately or included in the FCS file
- connection to well plate/sample tube autoloader
- multitube panel system with automated acquisition
- automated data transfer to laboratory information systems (LIS)
- support of 3rd party flow cytometry software (on request)

Several features are in preparation. Technical specifications are subject to change without notice.



$$c = \frac{n}{v}$$

05 TVAC (True Volumetric Absolute Counting)

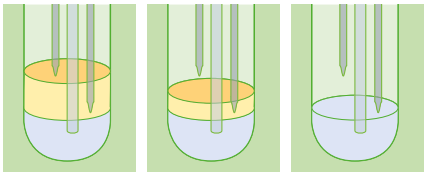
THE OPTIMUM IN PRECISION AND ACCURACY.

Partec True Volumetric Absolute Counting and the CyFlow® Cube 6 flow cuvette ensure that cells and particles are analysed and counted with the highest possible precision and accuracy.

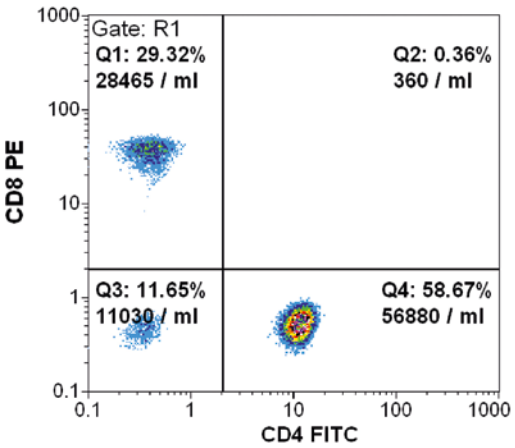
The CyFlow® Cube 6 analyses concentrations of any particle or cell subpopulation using True Volumetric Absolute Counting (TVAC). This advanced technology is solely based on the fundamental definition of absolute counting i.e.: the particle concentration (c) is equal to the counted number (n) of cells in a given volume (v), c = n/v. In the CyFlow® Cube 6, the volume is precisely measured directly by mechanical means, rather than indirectly with expensive and sometimes problematic beads, thus eliminating any errors related to varying bead concentrations or bead aggregations. The CyFlow® Cube 6 allows the analysis of a fixed volume as defined by the distance between two platinum electrodes. The desired volume can also be freely selected, based on digital sample speed control by software.

Highlights of TVAC

- absolute counts with CV ⩽ 2%
- no expenses for calibration beads
- no errors related to calibration
- reduction in cost, time and preparation steps because neither reference beads nor hematology reference counts are required



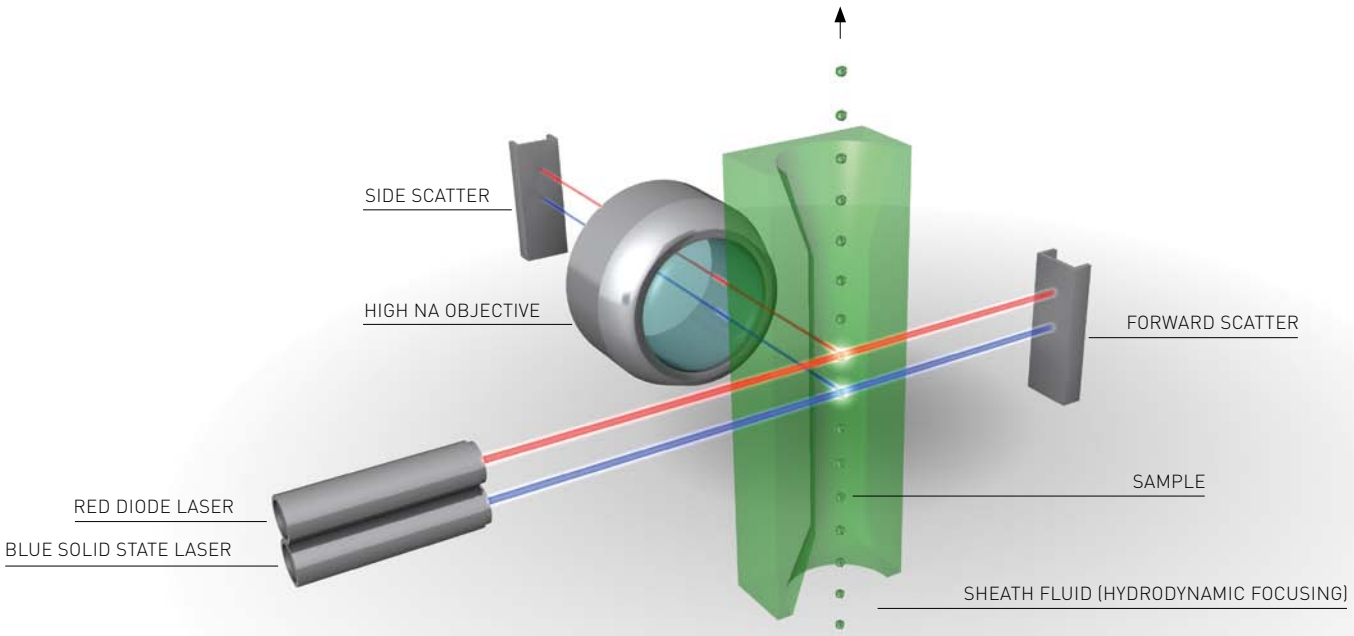
Start Count Stop



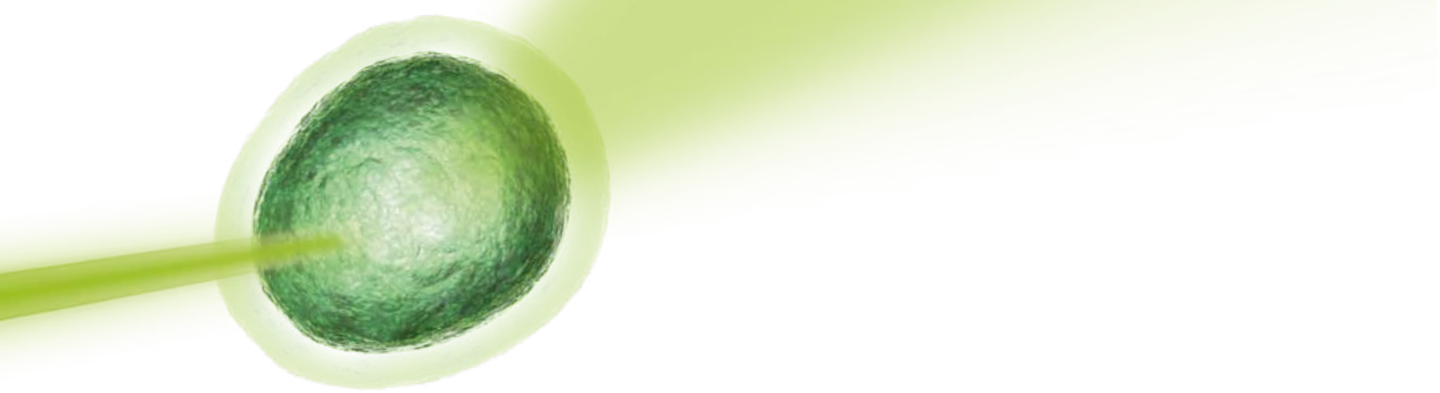
06 Partec Quartz Flow Cuvette

THE HEART OF THE FLOW CYTOMETER.

The CyFlow® Cube 6 quartz flow cuvette design is based on Partec's unique experience having introduced fluorescence-based flow cytometry in 1968.



The design of the CyFlow® Cube 6 quartz flow cuvette incorporates more than 40 years of Partec experience in handling fluids with nanoliter precision. This high-precision analysis is achieved by hydrodynamic focusing of the particles as they flow through the cuvette, one optimally — aligned particle at a time as they pass the laser beam. Due to the optical and mechanical design of the Partec flow cuvette, superior results are guaranteed for all parameters, e.g. coefficients of variation (CVs) of about ⩽ 2.5% on all fluorescence channels.



07 Specifications

CYFLOW® CUBE 6 SPECIFICATIONS.

Superior performance and state-of-the art technology at a glance.

General

- compact flow cytometer for automated sequential analysis of single cells and microscopic particles
- scatter particle size range: 50 nm - 200 µm
- fluorescence sensitivity: < 100 MESF (FITC)
  < 50 MESF (PE)
- fluorescence resolution: CV ⩽ 2%
- DNA quantification: CV ⩽ 1%
- configurations with up to 4 colors, 6 optical parameters + time parameter

Light Sources

- up to 2 light sources simultaneously
- blue solid state laser: 20, 50, 100 mW@488 nm
- red diode laser: 25, 40 mW@638 nm
- other laser power and laser wavelengths available

Optics

- modular optical system with up to 6 optical parameters with selected PMTs with integrated electronic preamplifier for FSC, SSC, FL1-FL4
- standard setup and filters
- color CCD camera for video flow monitor
- standard objective mount with high numerical aperture
- immersion gel coupling, e.g. for detection of weak cytokines (option)
- separated intermediate image planes for optimized spatial filtering by diaphragms

Flow System

- synthetic quartz flow cuvette for laminar sample transport with sheath fluid
- sample port with computer controlled BioSafety cleaning system, avoids sample droplets and minimizes cross contamination
- True Volumetric Absolute Counting based on mechanical volume measurement, no need for reference particles
- contamination-free computer controlled precision syringe pump for sample transport and True Volumetric Absolute Counting, pump speed continuously adjustable from 0–20 µl/s, sheath fluid pressure continuously adjustable from 0–800 mbar
- easily accessible sheath fluid and waste reservoirs with fluid level sensors

Electronics

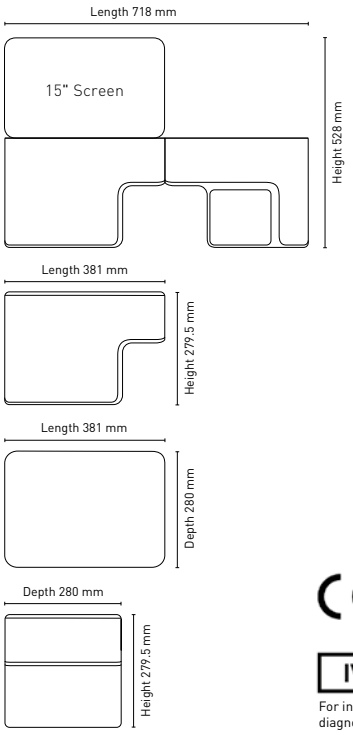
- parallel signal processing for each of the optical channels with 16 bit analog-to-digital converters
- single and multiple trigger on any parameter or combination of parameters (AND/OR)
- individual threshold level settings

Computer | Display

- built-in latest industry standard Windows™ PC
- integrated 15" TFT LCD display
- CCD video camera for flow monitor
- dual screen setup (optional)
- keyboard, mouse
- 100 MB/s and 1000 MB/s Ethernet connection
- DeskJet color printer, b&w or color laser printer (optional), printing via network

Software

- Windows™ based FCM software CyView™ for real-time data acquisition, real-time data analysis and real-time data display
- for detailed specifications please see page 7



CE

IVD

For in vitro diagnostic use.

08 Company

FLOW CYTOMETRY MADE BY PARTEC.

Excellence for new applications and increasing requirements
in clinical routine and research applications.

More than 40 Years of Experience and Professional Expertise

Partec (est. 1967) — pioneer in flow cytometry for 45 years — continues this tradition by introducing the newest generation of CyFlow® Analysers and CyFlow® Sorters featuring innovative computer controlled fluidic systems, modular optical bench systems with advanced PMTs for all optical channels, state-of-the-art computer and digital electronic technologies as well as real-time data acquisition and real-time data display.

Covering more than 100 countries worldwide
www.partec.com/worldwide

Highest Quality Warranty

Quality, performance, precision and cost effectiveness of Partec instruments and reagents profit from a unique production depth for manufacturing modules and components in optics, electronics, laser technology, fluidics and mechanics, employing a modern and sophisticated production line and Quality Managment System with certified highest international standards. This includes research, development, production compliant to cGMP, service and customer support.

www.tuv.com TÜVRheinland ID 0000024953
- Certified Management System
- EN ISO 9001
- EN ISO 13485

Product Fact Sheet
CyFlow® Cube 6

Product Picture

Product name
CyFlow® Cube 6

Manufacturer information
The CyFlow® Cube 6 is manufactured by Sysmex Partec GmbH.

Sysmex Partec is an ISO 9001:2008 and ISO 13485:2012 certified company.

Summary
The CyFlow® Cube 6 is a compact bench top flow cytometer for analysis of single cells and microscopic particles. The CyFlow® Cube 6 with its standardized 2 laser configuration system is an optimal solution for dedicated applications. The easy-to-use CyView™ software provides instrument control, data acquisition and data storage. Furthermore CyFlow® Cube 6 offers the True Volumetric Absolute Counting (TVAC) feature which allows displaying of particle concentrations for any subsets of cells without the need of reference beads, even if defined by a gate at a later time after the acquisition.

Productivity values
High-performance, bench-top design with integrated fluidics, built-in PC and a 15" TFT monitor

Main features of CyFlow® Cube 6
- ✓ Configurations with up 6 optical parameters (up to 4 colours)
- ✓ 488 nm blue laser and 638 nm red laser
- ✓ Particle size: 0.1 – 100 µm
- ✓ Fluorescence resolution: CV ≤ 2%
- ✓ Fluorescence sensitivity: ≤ 100 MESF (FITC) | ≤ 50 MESF (PE)
- ✓ Maximum acquisition rate 15.000 particles/s
- ✓ Flexible system configurations
- ✓ Automatic absolute counting by electrodes (TVAC) and syringe controlled volumetric counting
- ✓ Optional CyFlow® Robby 6 Autoloading Station for well plates and tubes
- ✓ Start-up time < 5min
- ✓ Easy to use acquisition software

Specifications

Feature	Description
Parameters	• 5 to 6 optical parameters (3 to 4 colours + FSC & SSC)
Light Sources	• Up to 2 simultaneous light sources (laser) o Blue laser: 50mW @488nm o Red laser: 25 mW @638nm
Optics	• Modular optical system with selected PMTs with integrated electronic preamplifier for FSC, SSC, FL1-FL4 • Exchangeable optical filters • Standard objective mount with high numerical aperture • Separated intermediate image planes for optimized spatial filtering by diaphragms
Flow System	• Quartz flow cuvette for laminar sample transport and hydrodynamic focusing • Completely closed fluidic system • Sample port with biosafety cleaning system • True Volumetric Absolute Counting based on mechanical volume measurement • Computer controlled precision Syringe pump, speed continuously adjustable from 0–20 µl/s • Easily accessible sheath fluid and waste reservoirs with fluid level sensors

Electronics	• Parallel signal processing for each optical channel • Single and multiple trigger on any parameter or combination of parameters • Individual threshold level settings • 16 bit analog-to-digital converters
Computer	• Built-in Windows™ PC • Microsoft Windows™ 7 professional 64-bit operating system • Integrated 15" TFT LCD display • Dual screen setup (optional) • Keyboard, mouse • 4 USB ports • 100MB/s and 1000MB/s Ethernet connection • DeskJet colour printer, printing via network
Software	• Windows™ based FCM software CyView™ for real-time data acquisition, real-time data analysis and real-time data display • Editable CyView™ user environments • Guided prime and shut down procedures • Easy experimental template set up (configuration files) • Flow cytometry standard data (FCS) format for storage of original and evaluated data • 1 parameter histograms and dot plots • 64 — 4096 channels resolution for 1 parameter histograms • 64/64 — 4096/4096 channels for 2 parameter dot plots • Time parameter • Selectable linear scale or 4 decade logarithmic scale • Software-based lin/log transformation • Analysis pre-selectable on time, number of events or sample volume • Multi parameter online/offline crosstalk compensation • Multi parameter gating (colour highlighting feature) • Compensation can be stored separately or included in the FCS file • FCS Express RUO software (Dongle version) for data analysis and reporting
Dimensions	• Standalone instrument: L 385 mm x W 280 mm x H 290 mm • With Autoloading Station: L 745 mm
Weight	• 18 kg
QC functions	• Control of instrument operation
Interface	• USB, LAN, video output
Operative temperature	• 15-30°C
Operative humidity	• 20-85%, non-condensing

Noise	• <70 dBA
Electrical Specification	• 2/II
Nominal voltage	• 100 – 240 VAC
Power consumption	• 200 VA

Article number

Article no.	Item	Description
CY-S-3060R_V1_S	CyFlow® Cube 6	488/50-5P+638/25-1P
CY-S-3060R_V2_S	CyFlow® Cube 6	488/50-5P
CY-S-3060R_V3_S	CyFlow® Cube 6	488/50-6P
CY-S-3080-6	CyFlow® Robby 6 Autoloading Station	

This product is intended ‘For Research Use Only’ (RUO).

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Use the above details to contact us if this literature doesn't answer all your questions.

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.