



Miltenyi Biotec



# MACSQuant® Analyzer 16

## Intrument specifications

The MACSQuant® Analyzer 16 is engineered to expand the revolutionary automation of the MACSQuant Analyzer line of flow cytometers. With 16 detection channels this instrument facilitates analysis of more parameters, while saving up to 40% of sample volume per run. In addition, it features fully automated housekeeping, calibration, sample labeling, and data acquisition.

For maximum flexibility, users can easily switch between 96-well plates, 24-tube racks, and single tubes. Due to its compact design, the MACSQuant Analyzer 16 is suited for basic research as well as advanced immune monitoring applications. It provides users with the flexibility and customization that are required for the increasing demands of modern laboratories.

► [miltenyibiotec.com/flowcytometry](http://miltenyibiotec.com/flowcytometry)

Optics			
<b>Laser excitation</b>	Spatially separated: 405 nm, 65 mW diode 488 nm, 50 mW DPSS (diode pumped solid state) 640 nm, 72 mW diode		
<b>Emission detectors</b>			
FSC	488/10 nm	B2	579/34 nm
SSC	405/10 nm	B3	615/20 nm
V1	450/50 nm	B4	667/30 nm
V2	525/50 nm	B5	725/40 nm
V3	579/34 nm	B6	785/62 nm
V4	615/20 nm	R1	667/30 nm
V5	667/30 nm	R2	725/40 nm
B1	525/50 nm	R3	785/62 nm
<b>Fluorescence sensitivity (MESF)</b>	FITC < 110 PE < 75 APC < 100		
<b>Fluorescence precision (CV)</b>	< 5% CV with alignment verification particles		
<b>Scatter resolution</b>	Scatter performance is optimized for resolving human peripheral blood lymphocytes, monocytes, and granulocytes		
<b>Flow cell dimensions</b>	200×250 µm		
<b>Fluorescence detectors</b>	Optimized with spectrally matched PMTs for all channels		
<b>Optical alignment</b>	Fixed tree-like configuration, no user adjustments needed		
<b>Laser spot size</b>	15×45 µm		

Performance	
<b>Absolute counts performance (reproducibility)<sup>1,2</sup></b>	CV < 7%
<b>Sample carryover<sup>1,3</sup></b>	0.01% (extended washing)
<b>Sample tube / plates allowed</b>	96-well plate (U, V, flat, deep well) FACS tubes (5 mL) Eppendorf tubes
<b>MACS® Cell Enrichment Unit</b>	For pre-analysis enrichment of rare cells

Fluidics	
<b>Minimum measurement volume</b>	1 µL (25 µL for full spectrum)
<b>Dead volume</b>	10 µL
<b>Sample flow rate</b>	25–100 µL/minute plus automated flow rate to maintain 500, 1000, or 2000 events/second
<b>Measurement speed<sup>1,4</sup></b>	25 minutes per 96-well plate (5 µL measurement volume; screen mode)
<b>Sample uptake</b>	Via robotic arm
<b>Maximum event rate</b>	15,000 events/second
<b>System maintenance</b>	Automated start-up, PMT calibration, cleaning cycles, and shutdown
<b>Sample mixing</b>	Aspiration

<sup>1</sup> Referred value indicates the average of multiple experiments and can differ for individual sample values.

<sup>2</sup> For counting performance, full 96-well plates were loaded with 200 µL/well of peripheral blood mononuclear cell (PBMC) suspension at a nominal concentration of 5000 cells/µL. The uptake volume was set to 50 µL at medium flowrate.

<sup>3</sup> For carry-over, full 96-well plates were loaded with 200 µL/well of PBMC suspension at a nominal concentration of 5000 cells/µL in every other well ("SRC-wells"). Alternating wells are loaded with an equal volume of MACSQuant® Running Buffer ("CO-wells"). The uptake volume was set to 50 µL at medium flowrate. The carry-over is defined by  $\text{sum}(\text{CO-singlet count})/\text{sum}(\text{SRC-singlet count}) \times 100\%$ .

<sup>4</sup> The measurement speed is determined by measuring the time between the first movement of the robotic arm into the first measured well and the first movement out of the last well. The measurements itself were carried out at the highest possible flow rate in fast mode measuring 5 µL per well.



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