



Laboratory for Infectious Disease Research (LIDR)
Immunology Services Facility
University of Missouri, Columbia, MO



MACSQuant® Analyzer 10

Your trusted partner in automated flow cytometry

The MACSQuant® Analyzer 10 brings to life the versatility and power required for modern flow cytometry applications. Whether mining for rare cells, analyzing the efficiency of your cell manufacturing process or investigating signaling pathways, you are equipped for the task at hand.

Truly hands-free operation

With a range of automated features, the MACSQuant Analyzer 10 lays the foundation for true automation present in all instruments belonging to the MACSQuant Family of flow cytometers.



Application highlight: Automated assays

- In-process and quality control
- Cellular therapy, i.e., chimeric antigen receptor (CAR) T cell manufacturing
- Toxicological assays
- Whole blood analysis
- Cell counting
- Rare cell analysis
- Small particles / exosomes
- Cytokine arrays

Automated features of the MACSQuant Family

Startup, cleaning, and shutdown

Compensation

Labeling

Calibration and quality control (QC)



MACSQuant Analyzer 10 optical bench

405 nm

450/50 nm	VioBlue®
525/50 nm	VioGreen™

488 nm

488/10 nm	FSC
488/10 nm	SSC
525/50 nm	FITC
585/40 nm	PE
655-730 nm	PerCP-Vio® 700
750 nm LP	PE-Vio® 770

640 nm

655-730 nm	APC
750 nm LP	APC-Vio® 770



MACSQuant® Analyzer 10

Instrument specifications

Description

The MACSQuant® Analyzer 10 is a digital benchtop flow cytometer equipped with three lasers, 10 optical channels, and intuitive software to facilitate rapid and automated cellular analysis. The robust fluidics design and fixed optical bench are engineered to provide consistency and reproducibility in all assays. The MACSQuant Analyzer 10 is a versatile instrument for

both phenotypic analysis with fluorescent antibodies and functional analysis of fluorescently labeled cells. It is an excellent choice for researchers in the fields of cell manufacturing, immunology, systems biology, cell biology, neuroscience, and many other disciplines that require highly reliable and sensitive flow cytometric analyses.

Optics			
Laser excitation	405 nm, 40 mW diode 488 nm, 30 mW DPSS (diode pumped solid state) 640 nm, 20 mW diode		
Emission detectors	Channel	Filter	Dye
	FSC	488/10 nm	Size
	SSC	488/10 nm	Granularity
	V1	450/50 nm	VioBlue®
	V2	525/50 nm	VioGreen™
	B1	525/50 nm	FITC, GFP
	B2	585/40 nm	PE
	B3	655–730 nm	PerCP
	B4	750 nm LP	PerCP-Vio700
	R1	655–730 nm	PE-Vio770™
	R2	750 nm LP	APC
			APC-Vio770
Optical alignment	Fixed tree-like configuration, no user adjustments needed		
Fluorescence sensitivity and resolution	MESFs (CV <5%): FITC <200 PE <100 APC <150		
Flow cell dimensions	200×250 µm		
Fluorescence detectors	Optimized with spectrally matched PMTs for all channels		

Fluidics	
Minimal uptake volume¹	1 µL (25 µL recommended for volumetric counting applications)
Minimum sample particle size	1 µm (recommended)
Sample flow rate	25, 50, or 100 µL/minute or automated flow rate to maintain 500, 1000, or 2000 events/second
Maximum measurement rate	25 minutes for 96-well plate (5 µL per well)
Sample uptake	Uptake port (for y/z axis movements) with an automated washing station
Sheath fluid consumption	2–10 mL/minute
Buffers	Sheath: MACSQuant Running Buffer Maintenance: MACSQuant Washing Solution and Storage Solution Decontamination: MACS® Bleach Solution
Maximal event rate	Up to 15,000 events/second
System maintenance	Automated startup, PMT calibration, cleaning cycles, and shutdown

¹ At every uptake, an additional excess volume is aspirated by the instrument. The excess volumes are calibration- and process-dependent and do not exceed 10 µL for Fast, Standard, and Extended modes and 20 µL for Screen mode.

Performance	
MACS Cell Enrichment Unit	For pre-analysis enrichment of rare cells
Absolute counts performance²	Volumetric, reproducibility (CV) <7%
Sample carryover^{2,3}	Typical value of 0.01%
Fluorescence performance	5 decade logarithmic scales (10 ⁻² to 10 ³), display in lin, log, or hlog scales

² Dependent on sample material.

³ Value reflects an upper limit for a typical measurement with PBMCs (50 µL uptake, standard, low).

Data management	
Operating system	Microsoft® Windows®/MACSQuantify™ Software
Measurement parameters	Area, width, height for all parameters, with time and volume
Signal processing	24-bit fixed point data processing (typically >18-bit effective above noise in area measurement)
Compensation	Automated or manual with 8×8 matrix, during or post acquisition
Trigger	Threshold can be set for any channel by selecting the trigger value
Data files	.mqd (proprietary file type) .fcs (2.0, 3.0, 3.1 compatible)

Operation details	
Size	
Width×depth without MACS MiniSampler	605×400 (23.8×15.7")
Width×depth with MACS MiniSampler	605×500 (23.8×19.6")
Height (adjustable touchscreen)	393–520 mm (15.4×20.4")
Weight	50 kg (110 lbs)
Monitor	15.6" touchscreen (internal)
Power requirements	100–240 VAC, 50/60 Hz
Power consumption	350W
Ports	4× USB 2.0, 2× DisplayPort, VGA, LAN
Emission sound pressure level at workstation	<70 dB(A)
Certification	CE-marked

Accessories	
MACS Minisampler Plus (# 130-105-745)	For measurement of up to 96 samples in a single run
MACS Chill Racks Chill 5 Rack (# 130-092-951) Chill 15 Rack (# 130-092-952) Chill 50 Rack (# 130-092-953) Chill 96 Rack (# 130-094-459)	Keep samples cool while running multiple 5 mL, 15 mL, 50 mL tubes, or 96 well plates
Reagent Rack 4 (# 130-094-574)	For automated addition of up to 4 reagents from 5 mL glass vials
Universal Reagent Rack (# 130-155-722)	For automated addition of up to 4 reagents from both 5 mL glass vials and 2 mL polypropylene vials
Automation	Custom integration into Liquid Handling Systems available

Consumables	
Buffers	MACSQuant Running Buffer (# 130-092-747) MACSQuant Washing Solution (# 130-092-749) MACSQuant Storage Solution (# 130-092-748) MACS Bleach Solution (# 130-093-663)
MACSQuant Calibration Beads (# 130-093-607)	For use with automated calibration program
MACSQuant Columns (# 130-094-458)	For enrichment of rare cell populations with MACS MicroBeads
MACS Comp Bead Kits	For optimal manual or automated compensation of fluorescence spillover of fluorochrome-conjugated antibodies

Reagents	
Antibodies	Works with all flow cytometry reagents. For a complete list visit www.macsantibodies.com
MicroBeads	Enrich rare cell populations with MACS MicroBeads. For further information visit www.macscellseparation.com

Service and Support	
Warranty	1 year warranty
MACSQuant Live Support	Real-time remote support directly from your flow cytometer

	Full Service (# 160-001-286)	Planned Maintenance (# 160-001-288)
Maintenance		
Planned maintenance	●	●
Replacement of wearing parts	●	●
Software updates	●	●
Labor, shipment, and product maintenance logistic costs	●	●
Maintenance intervals (visits per year)	2	2
Repairs service		
Repair and replacement	●	
Labor and travel expenses	●	
Replacement parts	●	
Laser head included	●	
Additional services		
Technical support services	●	●
Service documentation	●	●

MACSQuant® Instrument configurations at a glance

Channel	Laser	Filter	MACSQuant Analyzer 10	MACSQuant VYB
FSC	488	488/10	●	
FSC	561	561/10		●
SSC	488	488/10	●	
SSC	561	561/10		●
V1	405	450/50	●	●
V2	405	525/50	●	●
B1	488	525/50	●	●
B2	488	585/40	●	
B2	488	614/50		●
B3	488	655–730	●	
B4	488	750 LP	●	
R1	640	655–730	●	
R2	640	750 LP	●	
Y1	561	586/15		●
Y2	561	615/20		●
Y3	561	661/20		●
Y4	561	750 LP		●



Miltenyi Biotec

Miltenyi Biotec GmbH
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macs@miltenyibiotec.de

Miltenyi Biotec Inc.
2303 Lindbergh Street
Auburn, CA 95602-9562, USA
Phone 800 FOR MACS
Phone +1 530 888 8871
Fax +1 877 591 1060
macs@miltenyibiotec.com

Miltenyi Biotec Australia Pty. Ltd.
Phone +61 2 8877 7400
macs@miltenyibiotec.com.au

Miltenyi Biotec B.V. (Benelux)
macs@miltenyibiotec.nl

Customer service The Netherlands
Phone 0800 4020120
Customer service Belgium
Phone 0800 94016
Customer service Luxembourg
Phone 800 24971

Miltenyi Biotec Technology & Trading (Shanghai) Co., Ltd. (P.R. China)
Phone +86 21 62351005
macs@miltenyibiotec.com.cn

Miltenyi Biotec SAS (France)
Phone +33 1 56 98 16 16
macs@miltenyibiotec.fr

Miltenyi Biotec S.r.l. (Italy)
Phone +39 051 6 460 411
macs@miltenyibiotec.it

Miltenyi Biotec K.K. (Japan)
Phone +81 3 5646 8910
macs@miltenyibiotec.jp

Miltenyi Biotec Norden AB (Nordics and Baltics)
macs@miltenyibiotec.se
Customer service Sweden
Phone 0200-111 800

Customer service Denmark
Phone 80 20 30 10
Customer service Norway, Finland, Iceland, and Baltic countries
Phone +46 46 280 72 80

Miltenyi Biotec Asia Pacific Pte. Ltd. (Singapore)
Phone +65 6238 8183
macs@miltenyibiotec.com.sg

Miltenyi Biotec Korea Co., Ltd (South Korea)
Phone +82 2 555 1988
macs@miltenyibiotec.co.kr

Miltenyi Biotec S.L. (Spain)
Phone +34 91 512 12 90
macs@miltenyibiotec.es

Miltenyi Biotec Ltd. (UK)
Phone +44 1483 799 800
macs@miltenyibiotec.co.uk

www.miltenyibiotec.com

Miltenyi Biotec provides products and services worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

Unless otherwise specifically indicated, Miltenyi Biotec products and services are for research use only and not for therapeutic or diagnostic use. MACS, MACSQuant, and VioBlue are registered trademarks and MACSQuantify, VioGreen, and Vio770 are trademarks of Miltenyi Biotec GmbH. Cy is a trademark of GE Healthcare companies. All other trademarks mentioned in this publication are the property of their respective owners and are used for identification purposes only. Copyright © 2018 Miltenyi Biotec GmbH and/or its affiliates. All rights reserved.