



MACSQuant® VYB

Instrument specifications

Description

The MACSQuant® VYB is a digital benchtop flow cytometer equipped with three lasers, 10 optical channels and intuitive software to facilitate rapid and simple cellular analysis. Configured with a 561 nm laser for enhanced analysis of fluorescent molecules in the yellow/green excitation range, the MACSQuant VYB is a versatile instrument for both phenotypic and functional

analyses with fluorescent antibodies, dyes, and proteins. The flexible platform of the MACSQuant Instruments allows for analysis of many types of samples. The MACSQuant VYB is an excellent choice for researchers in the fields of immunology, systems biology, cell biology, neuroscience, cancer biology, and many other disciplines that require highly reliable and sensitive flow cytometric analyses.

Optics			
Laser excitation	405 nm, 40 mW diode 488 nm, 50 mW DPSS (diode pumped solid state) 561 nm, 100 mW diode		
Emission detectors	Channel	Filter	Dye
	FSC	561/10 nm	Size
	SSC	561/10 nm	Granularity
	V1	450/50 nm	VioBlue®, CFP, DAPI
	V2	525/50 nm	VioGreen™
	B1	525/50 nm	GFP, FITC, YFP
	B2	614/50 nm	PI, Lss-mKate
	Y1	586/15 nm	PE
	Y2	615/20 nm	mCherry, dsRed, TexasRed
	Y3	661/20 nm	APC, PE-Cy™5, m-Kate
	Y4	750 nm LP	APC-Vio770™, PE-Vio770, m-Plum
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 volume	25 µL (recommended)
Minimum sample particle size	1 µm (recommended)
Sample flow rate	25–100 µL/minute plus automated flow rate to maintain 500, 1000, or 2000 events/second
Maximum measurement rate	30 minutes for 96-well plate (10 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 10 ⁴ events/second
System maintenance	Automated startup, PMT calibration, cleaning cycles, and shutdown

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

Data management	
Operating system	Microsoft® Windows®/MACSQuantify™ Software
Measurement parameters	Area, width, height for all parameters, with time and volume
Signal processing	>18 bit dynamic range in area with 32 bit floating point signal processing
Compensation	Automated or manual with 8x8 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	12" touchscreen (internal)
Power requirements	100–240 VAC, 50/60 Hz
Power consumption	350 W
Ports	4× USB 2.0, 2× HDMI, VGA, LAN
Emission sound pressure level at workstation	<70 dB(A)
Certification	UL-listed and CE-marked

Accessories	
MACS MiniSampler (# 130-092-535)	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, with incubation times
Laminar Hood Plate (# 130-093-246)	Allows placement into a laminar flow hood Plate dimensions: (length×width×height) 45×42.5×2.5 cm
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	Reliable technical support in real time

	Full Service VYB (# 160-001-637)	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	MACSQuant 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	638	655–730	●	●	
R2	638	750 LP	●	●	
Y1	561	586/15			●
Y2	561	615/20			●
Y3	561	661/20			●
Y4	561	750 LP			●



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