

DropletONE *Specification*

FLOW CONTROL

Pressure channels	3	
Pressure range (optional)	Pressure range	Required pressure supply
	0-25mbar	150mbar
	0-69mbar	
	0-345mbar	1100mbar
	0-1000mbar	
	0-2000mbar	2100mbar
	-800-0mbar; -345-0mbar; -69-0mbar; -25-0mbar	-800mbar
Pressure resolution	0.03% of full scale	
Pressure stability	<0.1% CV (measured)	
Pressure response time	As low as 30ms	
Pressure settling time	<70ms	
Number of flow meters	3 pcs	
Flowmeter model	XS/S/M/L/XL/M+/L+ (optional)	
Switching valves	2-Switch	
Number of switching valves	2	

IMAGING

Magnification	2.5 (customizable)
Frame Rate	210 fps @ 1280×1024 px; up to 10000 fps @ 400×32 px
Type	Monochrome; 10bit color depth; 1/2" active area
Sensitivity	Wavelength range 300-1000nm; 58% QE @ 550nm peak ; 62% QE @ 630nm; global shutter
Pixel size	4.8µm
Readout Regions	2 freely selectable, simultaneous readout regions, e.g. for two stage processes, immediate quality control or parallelization
Latency	Image capturing to analysis result <200µs; control precision <10 ns
Illumination Unit	Single-color pulsed illumination with 0.1–5 µs flash length for ultra-sharp imaging. Completely eliminates motion blur and minimizes photodegradation in sensitive samples.

SOFTWARE

Analysis	Real-time analysis of various detection parameters (see Experimental Features).
Plotting Engine	Comprehensive plotting features for easy visualization of data in scatter or line plots; direct access to image data, cross channel and intra channel visualization and gating; gate combining; arbitrary polygon gating

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Storage Format	RAW; AVI uncompressed; MJPEG; MP4; XLS; XLSX; CSV (infinite recording)
Triggers	Freely programmable and independent triggers; latency down to 200µs (frame rate dependent)
Gating	Freely configurable gating; graphical marking in scatter plot; arbitrary points polygon selection
Multi-Channel	Up to 4 simultaneous imaging settings by time multiplexing (on request)
Smart Imaging Mode	Yes (all images; only particles; one per particle; partial imaged particle removal). The intelligent imaging system captures only frames of specific relevant content and takes a picture of each object as a standard, ensuring efficiency and accuracy to optimize data quality and analysis accuracy.

DIMENSIONS

Size (L*W*H/mm)	428 * 380 * 322
Weight	25kg

EXPERIMENTAL FEATURES

Sorting Method	Active Dielectrophoretic
Sorting Efficiency	Up to 99 % demonstrated
Sorting Selectivity	Up to 99 % demonstrated
Sorting Purity	Up to 99 % demonstrated
Droplet Sizes	10 µm to 1 mm diameter
Detection Methods	Bright field image
Detection Parameters	Brightness/intensity; brightness contrast; circumference; area; surface roughness; colocalization; particle count; area contrast; fill factor; elongation; circularity; size; velocity; position; granularity; removal of small dirt particles; area of no contrast; contrast within particles; particles touching walls; particles touching image boundaries; particle position; particle velocity
Quality Control	In-line, multispectral image per particle pre & post sorting; all droplets recorded
Sample Viability	Further downstream usage of the sample; maximized cell viability
Assay-based Sorting	Yes

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FLOW SENSORS (OPTIONAL)

Model	Sensor inner diameter	Maximum withstand pressure	Material	Flow range	Flow control accuracy (medium is water)
XS	25µm	200bar	PEEK Quartz glass	0±1.5µL/min	>75nL/min, 10% <i>m.v.</i> <75 nL/7.5 nL/min
S	150µm	200bar	PEEK Quartz glass	0±7µL/min	>0.42µL/min, 5% <i>m.v.</i> <0.42µL/min, 21nL/min
M	430µm	100bar	PEEK Borosilicate glass	0±80µL/min	>2.4µL/min, 5% <i>m.v.</i> <2.4µL/min, 0.12µL/min
L	1mm	12bar	PEEK Borosilicate glass	0±1mL/min	>0.04mL/min, 5% <i>m.v.</i> <0.04mL/min, 1.5µL/min
XL	1.8mm	5bar	PEEK Borosilicate glass	0±5mL/min	>0.2mL/min, 5% <i>m.v.</i> <0.2mL/min, 10µL/min
M+	400µm	12bar	PPS Stainless steel 316L	0±2mL/min	>10µL/min, 5% <i>m.v.</i> <10µL/min, 0.5µL/min
L+	400µm	12bar	PPS Stainless steel 316L	0±40mL/min	>1mL/min, 5% <i>m.v.</i> >1mL/min, 5% <i>m.v.</i>