# FlowCam 8000 Series Configuration Guide

SUGGESTED ACCESSORY PAIRINGS AND CONTEXT SETTINGS

FlowCam optical systems have a specific depth of focus for each objective lens. It is important to use the correct combination of flow cell depth, syringe volume, AutoImage rate, and flow rate to optimize image collection and data accuracy for a specific objective.

Minimum particle size for a specific objective is based on the instrument's ability to count and size particles accurately, but it may be difficult to identify or classify particles at the lower end of the size range. Maximum particle size is typically limited by flow cell depth, but some larger particles may be captured, particularly if they are elongated.

While there is some flexibility to adjust flow rate in AutoImage mode (all FlowCam 8000 series models including FlowCam Cyano), it is important to closely control flow rate during trigger mode (FlowCam 8400 and FlowCam Cyano only). This is to ensure adequate time between trigger event and image capture before a particle exits the flow cell.
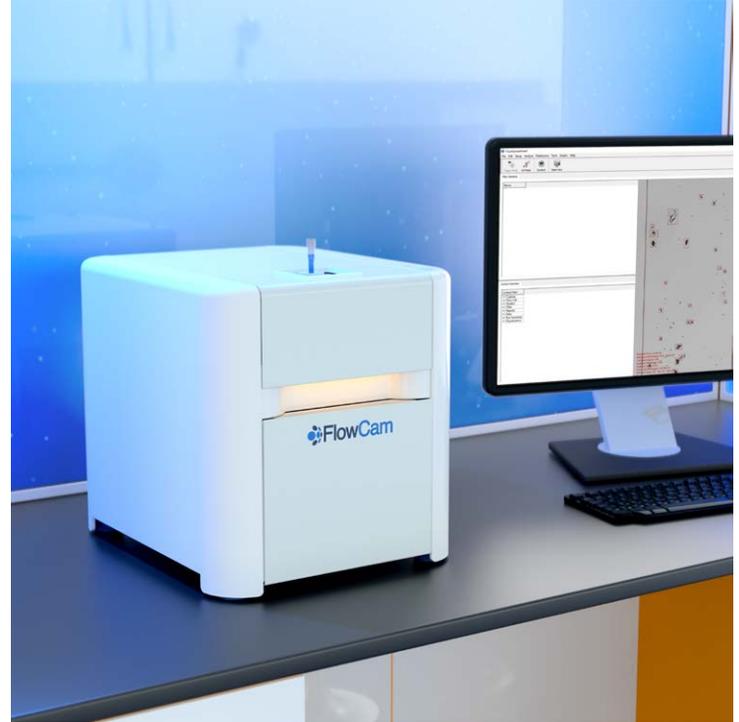
Accessory Pairings			Particle Size Range		Fluidics Settings		
Objective Lens	Flow Cell Depth (µm)	Syringe (mL)	Minimum Particle Size (µm)	Maximum Particle Size (µm)	AutoImage Rate	AutoImage Mode Flow Rate (mL/min)	Trigger Mode Flow Rate (mL/min)
2X	1000	12.5	70	1000	8	10.0	n/a
4X	600	5.0	10	600	18	4.0	2.0
4X	300	5.0	10	300	22	2.0	2.0
10X	100	1.0	2	100	30	0.2	0.15
10X	80	1.0	2	80	30	0.15	0.15
20X	50	0.5	2	50	38	0.03	0.03

SUGGESTED CAPTURE SETTINGS FOR SELECTED APPLICATIONS

Capture settings as defined in the Context dialog can greatly impact reported concentrations and particle sizing, and it is important to optimize these settings so that individual particles are treated as such. Suboptimal capture settings can result in multiple particles being captured as a single particle, resulting in artificially low concentrations and inflated sizes. Conversely, they can also result in single particles being erroneously segmented into multiple particles, resulting in falsely inflated concentrations and low sizes.

Capture settings are application dependent because optimal settings are reliant upon particle appearance. It is particularly important to use appropriate context settings for particles with transparent regions so that all pixels encompassed by a particle are included in image capture and particle measurements, rather than being treated as part of the background. This section includes suggested capture settings for the most commonly used objective configurations for plankton samples and protein formulations, two of the semi-transparent particle types commonly imaged by FlowCam users.

Phytoplankton Applications (Color Camera)
*Note: minimum suggested size is based on the ability to visually classify particle images into specific taxa

	20X	10X	4X
Capture			
Distance to Nearest Neighbor	8	8	10
Close Holes	1	1	1
Dark Pixels	17	17	20
Light Pixels	17	17	20
Capture Filter (Use ABD)			
Min	5	10	30
Max	10000	10000	10000

Biopharma Applications, including Protein Formulations (Grayscale Camera)

	20X	10X
Capture		
Distance to Nearest Neighbor	4	4
Close Holes	3	3
Dark Pixels	15	15
Light Pixels	15	15
Capture Filter (Use ABD)		
Min	2	2
Max	10000	10000

Please contact us if you have any questions about optimizing FlowCam for your specific sample and application type. You can reach us at support@fluidimaging.com or at 207-289-3200, Option 1.