

LabSmith SVM340

Synchronized Video Microscope

- ▶ High-sensitivity video output
- ▶ Synchronous pulsed fluorescence illuminator
- ▶ Motorized x-y traverse and autofocus
- ▶ Real-time image processing probes
- ▶ Innovative software tailored for microfluidics

The SVM340 is a research-grade, inverted fluorescence video microscope for imaging microfluidics and microbiology experiments. With a synchronously pulsed illuminator, sensitive camera, and powerful video analysis software, the SVM340 is a workhorse for microsystem research that's affordable enough to be dedicated to a single user or experiment—even in a crowded lab.



Publication-Ready Images

The compact SVM340 microscope and uScope™ software excels at producing high quality images, video and data. Sensitive video cameras and a synchronous pulsed illuminator support low-light imaging and fight blur and photo-bleaching. Lossless data recording, comprehensive triggers, post-save and instant replay make sure you capture any key event, no matter how rare or brief.

Easy Microsystem Monitoring

Combining bottom-up viewing and illumination with a motionless sample stage, the SVM340 lets you view microsystems without perturbing the fluid flow. Access for external connections is simple and unhindered.

Full Microfluidic System Automation

Combine the SVM340 with LabSmith's uProcess™ microfluidic hardware and software suite for full experiment automation. uScope image probes can be used to trigger uProcess actions such as switching a valve or starting a syringe pump.

Flexibility - Designed for Research

The SVM340's interchangeable optics modules and objectives let you configure for one or more fluorophores, with up to five channels of illumination. The EPI epifluorescence option improves signal-to-noise ratio and provides tighter wavelength selectivity.

Real-time Image Processing Probes

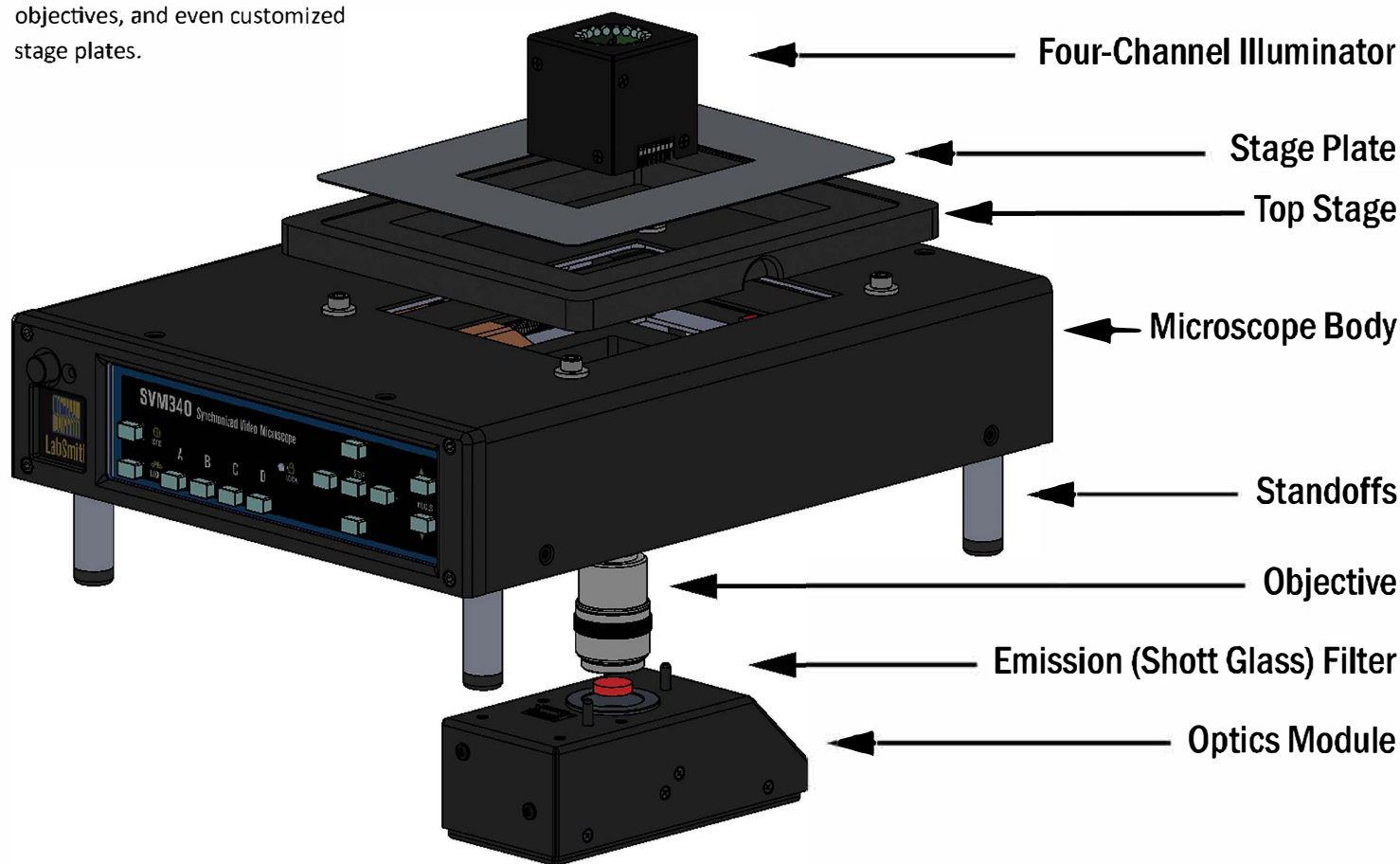
The uScope software (included with SVM340 purchase) has sophisticated probe capabilities that allow users to monitor image properties in user-selected regions of the image. Measurements can be recorded to disk or used to trigger real-time actions.

- ▶ **Micro PIV** Easy-to-use Micro Particle Image Velocimetry (μ PIV) probes are used to measure velocity profiles in a microfluidic channel. Multiple probes can be used simultaneously for complex flow analysis.
- ▶ **Particle Counting and Tracking** Analyze, count, and track particle movement in real-time. Image filters for particle size and shape allow the user to create fully-characterized image profiles.
- ▶ **Intensity Probes** Used to track the color spectrum or fluorescence intensity inside a defined region. Options for arbitrary shaped probes (to fit a region of interest), and multi-pixel arrays, to obtain spatially resolved intensity data.

SVM340 Microscope Components

Modular Design for Customized Applications

The easily-configurable SVM340 modules let you tailor the optics and illumination for your particular application. Choose from black and white, color, or epifluorescence optics modules. Select from multiple illuminator options, objectives, and even customized stage plates.



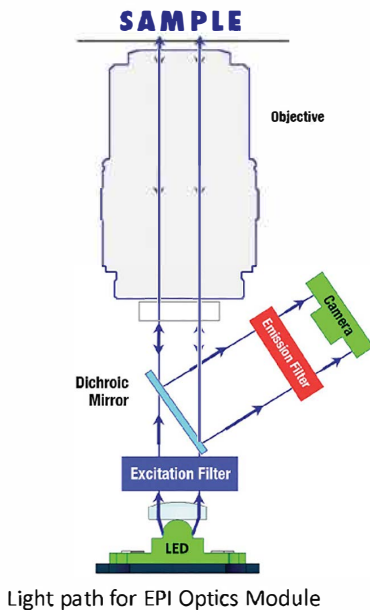
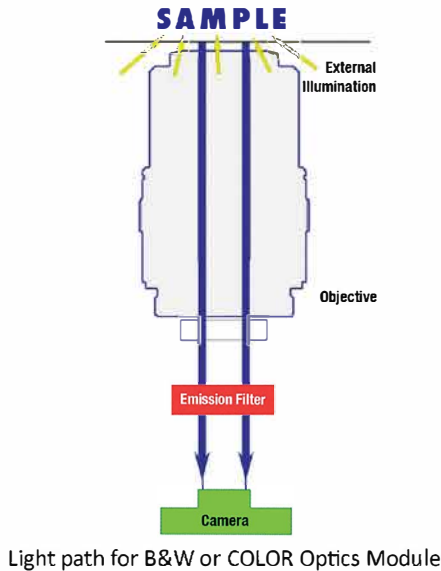
EXTERNAL ILLUMINATOR MODULE:	
Four-channel array of 24 high brightness LEDs synchronized with camera frame rate	
LED-B	3 blue channels (464 – 476 nm), one white channel
LED-G	3 green channels (520 – 535 nm), one white channel
LED-Y	3 yellow channels (590 nm), one white channel
LED-R	3 red channels (625 nm), one white channel
LED-W	4 white channels
LED-X	One channel each of blue, green, red and white
Contact LabSmith for custom illuminator or filter options	

DIN OBJECTIVES				
Power	Numerical Aperture	Working Distance	Focal Length	Field of View
4X	0.10	15.97 mm	31.0 mm	2.1 x 1.7 mm
10X	0.25	6.3 mm	16.76 mm	0.8 x 0.7 mm
20X	0.40	3.3 mm	8.55 mm	0.4 x 0.3 mm

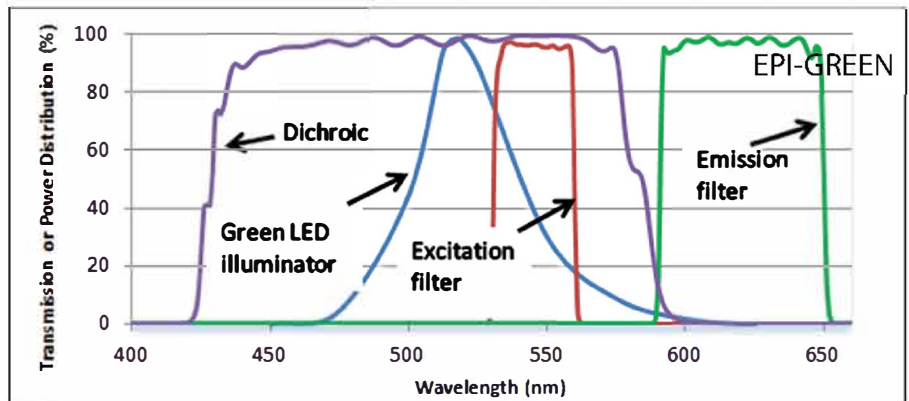
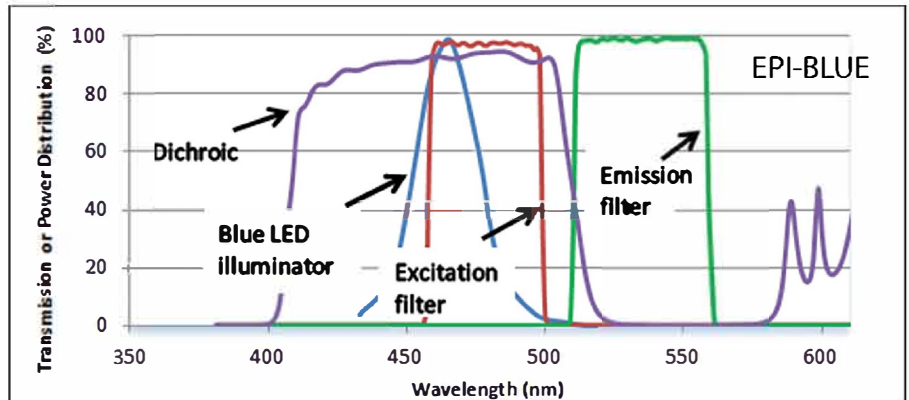
SVM340 Optics Modules

When to Use Epifluorescence

EPI modules are designed for applications that require greater wavelength discrimination and increased signal-to-noise (SNR), such as cell imaging or Micro Particle Image Velocimetry (μ PIV). The EPI Optics Modules include a high-sensitivity camera, excitation filter, emission filter, dichroic mirror, high-power LED illuminator, and an objective mount. EPI modules are compatible with new or existing SVM340 models and exchange in seconds for complete flexibility. Use an EPI module's integral illuminator on its own or with the SVM ring illuminator for increased intensity.



OPTICS MODULES		
Snap-in modules with digital camera, optional fluorescence filter and threading for standard DIN microscope objective.		
	DP1-B&W DP1-COLOR	DP5-B&W DP5-COLOR DP5-EPI
PIXELS	1296 X 966	2448 X 2048
MAX FRAME RATE	22 FPS	38 FPS @ 2448x2048 370 FPS @ 640x480
COMPUTER INTERFACE	USB2.0	USB3.0
GAIN CONTROL	auto or manual	auto or manual
SCAN	progressive	progressive
SENSOR	Sony SXVGA CCD	Sony IMX264LQ Pregius CMOS
SENSOR THERMAL MANAGEMENT	not available	optional integrated Peltier cooling
OPTICS MODULE EMISSION (SCHOTT) FILTER		
495, 515, 530, 550, 570, 590, 610, 630, 645, 665 nm wavelengths		



SVM340 EPI Optics Module spectral specifications. Light transmitted vs. wavelength for light source and filters for EPI-BLUE and EPI-GREEN modules.

SVM340 Specifications

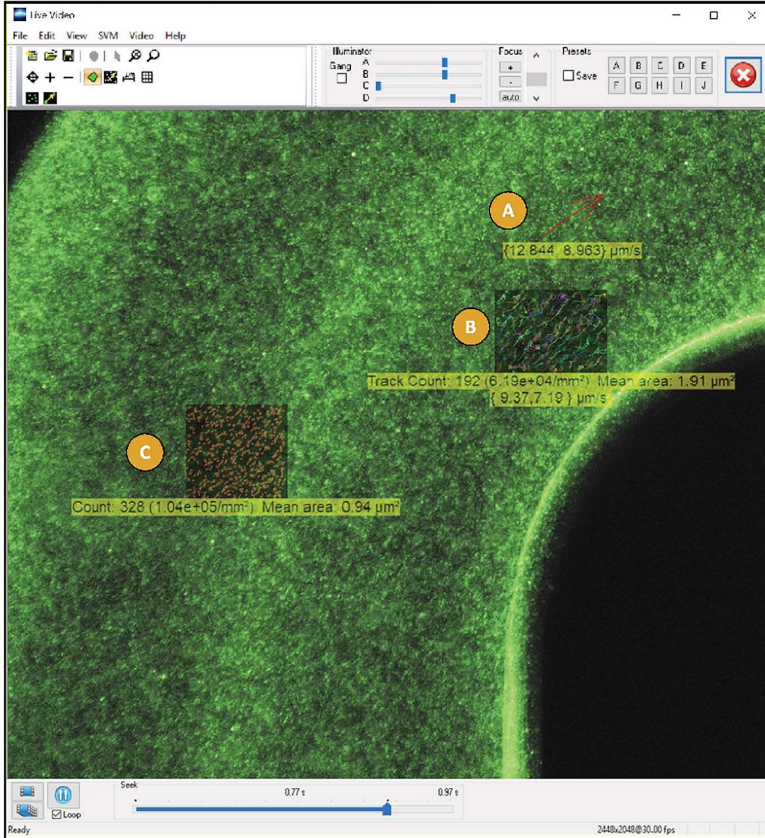


Image Processing Probes: 0.5 μm fluorescent beads in a microfluidic channel. Image captured using uScope Software and SVM340 microscope with DP5-EPI-Blue optics module and 10x objective.

- A μ PIV Probe
- B Particle Tracking Probe
- C Particle Counting Probe

PHYSICAL		
Dimensions	21 x 27 x 10.3 cm (W x L x H)	
Enclosure	Black enamel-coated, anti-RFI steel enclosure	
Weight	3 kg	
Power	Voltage	90-264 VAC, 47-63
	Current	0.5 A
Mounting	4 x 8-32 threaded holes on 17.8 x 22.9 cm rectangle	
TRAVERSE-FOCUS		
Motorized traverse and focus controlled through software or front panel		
	Range	Resolution
X-Y traverse	50 mm x 75 mm	10 μm
Z-traverse (Focus)	3 mm	1 μm
SAMPLE STAGE		
Black Delrin [®] sample stage with stainless steel stage plate		
Dimensions	14 cm x 17.5 cm x 1.2 cm (W x L x H)	
Stage Plates	- Standard plate has 55 x 80 mm opening - Optional stage plate has 14 x 75 mm and 21 x 66 mm rectangular openings	
Light Shield	Optional A-SHIELD sits on top of SVM to block ambient light	

CONTROL & ACQUISITION SOFTWARE
uScope™ software features <ul style="list-style-type: none"> - Automated controls for illuminator, x-y traverse and focus - Autofocus - Save and process videos and images - Real-time image processing: <ul style="list-style-type: none"> - Particle Image Velocimetry - Intensity Probes - Particle counting and tracking
LabVIEW™ drivers and Software Developers' Kit (C, C++) available
Computer Requirements: <ul style="list-style-type: none"> - Windows® 7, 8, or 10 - 1 GB Ram min (4-8 GB recommended) - 100 GB hard disk min (500 GB recommended) - 2 x USB 2.0 port - USB 3.0 port (required for DP5 optics modules)
DIGITAL INPUTS & OUTPUTS
For synchronization and coordination: <ul style="list-style-type: none"> - 4 programmable inputs - 3 programmable outputs - External LED/Laser illuminator trigger/driver - RS232; optional USB adaptor sold separately

Contact us for more information

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