

B-SIM298 Fluorescence Microscope



B-SIM298

Introduction

New designed B-SIM298 Fluorescence microscope integrates observation and analysis. Automated control of imaging process, excellent for live cell imaging. B-SIM298 has powerful expansion functions, providing a more complete solution for life science research.

Feature

1. High optical resolution

X/Y axis resolution ratio: 240nm; Z-axis resolution ratio: 600nm.

2. High sensitivity backlit sCMOS camera

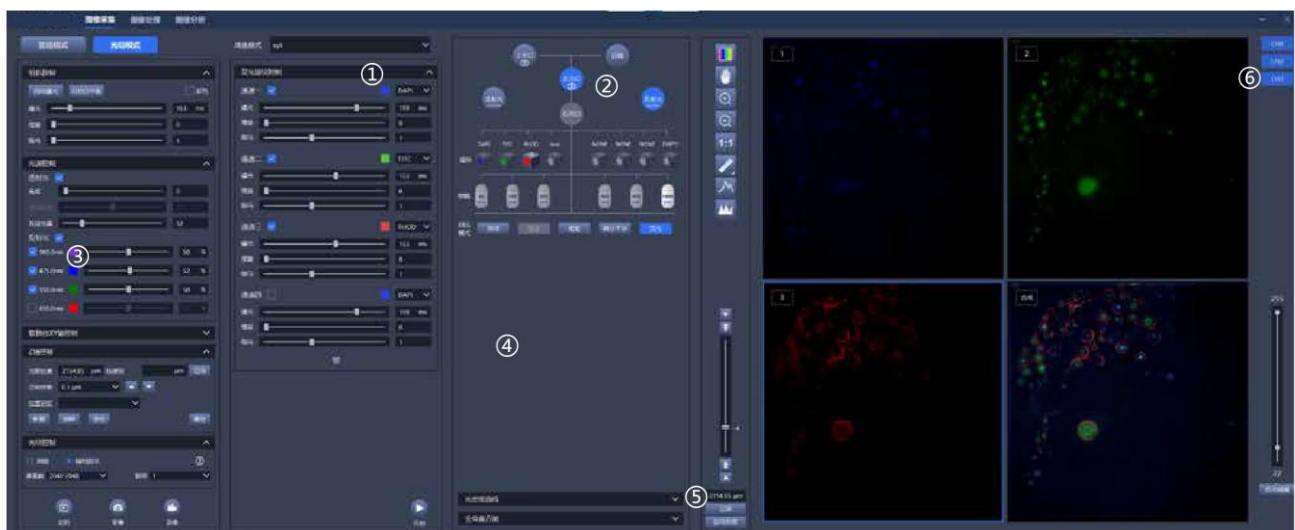
High sensitivity backlit sCMOS camera, with a frame rate of up to 100 frames per second and a quantum efficiency of up to 95% at 2048x2048 pixels, with a 6.5um pixel size.

3. Illumination

4-wavelength LED light source, long life, high brightness, low light toxicity, high uniformity lighting solutions.

4. Software

- Hardware control: 12-axis fully electric control, camera control, supports third-party light source, electric stage and other peripheral control.
- Image acquisition: x, y, z, λ , t, n, l, seven-dimensional acquisition, multi-dimensional, full process automated control.
- Image processing: 3D reconstruction and display, co-localization processing, co-localization linkage, image brightness, contrast, threshold processing, image flipping, mirroring, background removal, dynamic image generation, stack processing and ROI processing.
- Image analysis: distance, perimeter, area, roundness, maximum and minimum gray scale, and other parameter analysis, co-localization analysis, cell counting, particle counting, protein tracking, subpopulation analysis and cell cycle analysis.



- ① Five-dimensional sequence acquisition of x, y, z, λ , t, realizes automatic acquisition control.
- ② Graphical interaction: switch optical port, filter block, objectives with one-click and changing observation mode.
- ③ Electric focusing, electric stage, electric fluorescence filter block, electric condenser, electric light source control, electric light path switching, realizing fully electric 12-axis control.
- ④ Real-time optical density measurement, real-time global histogram display.
- ⑤ Graphical focus control, focus position memory, automatic focus control.
- ⑥ Customize 1-8 channel acquisition, real-time pseudo-color display, arbitrary multi-channel overlay, and real-time display of multi-channel overlay map.



- ① Real-time display of comparison before and after image processing
- ② Record image information in detail, including detailed parameters such as acquisition channel, objectives, exposure time, etc.
- ③ Real-time image preview
- ④ 3D image reconstruction

Specification

Item	Specification		B-SIM298
Optical System	Infinity Color Correction Optical System		●
Viewing Head	High eye point wide field plan eyepiece PL10X/22mm, with adjustable diopter		●
Eyepiece	20-45 degree tilting binocular tube, interpupillary distance: 50-76mm		●
Objectives	Long Working Distance Plan Semi- Apochromatic Objectives	4X/NA=0.13, WD=17mm	○
		10X/NA=0.3, WD=8.8mm	○
		20X/NA=0.45, WD=6.5-7.6mm, coverslip thickness: 0-2mm	●
		40X/NA=0.6, WD=2.85-4.05mm, coverslip thickness: 0-2mm	●
		60X/NA=0.7, WD=1.42-2.1mm, coverslip thickness: 0-1.3mm	○
	Infinity Plan Semi-Apochromatic Objectives	4X/NA=0.16, WD=12.8mm	●
	Infinity Plan Super Apochromatic Objectives	10X/NA=0.4, WD=3.1mm	●
		20X/NA=0.8, WD=0.6mm	○
		40X/NA=0.95, WD=0.18mm	○
		(Oil) 60X/NA=1.42, WD=0.17mm	●
(Oil) 100X/NA=1.45, WD=0.13mm		○	
Microscope Body & Nosepiece	Low position coarse and fine coaxial electric focusing mechanism, range: 10.5mm, precision: 1μm. Built-in electric upper camera port, splitting ratio: 100:0 / 0:100. Built-in electric left camera port, splitting ratio: 0:100 / 50:50 / 100:0, dual optical path, with fluorescent light barrier. Electric bright field sextuple nosepiece with DIC slot and upper optical port CTV adapter.		●
	Base mounting bracket		○
	Right camera port, splitting ratio: 100:0 / 0:100, field of view: 16mm. Built-in 1X CTV, C-mount		○

	adapter	
Illumination	Pillar tilt mechanism, Koehler transmission illuminator, adjustable condenser holder with 65mm stroke. 4 filters holders with LBD, Green filter, Neutral filter for halogen models or Neutral filter for LED models	●
	12V/100W halogen illumination, filament center preset	○
	12V/100W halogen lamp	○
	10W cool color LED light illumination, color temperature 5000K	●
Condenser & Iris	Electric septuple condenser, NA 0.55, WD=27mm. 3 holds for Φ 30mm (phase contrast), 4 holds for Φ 38mm (DIC), support for bright field/phase contrast /DIC (with polarizing kit)	●
	Super long working distance manual condenser with 5 holes, NA 0.3, WD=73mm, support for 4X-60X phase contrast, simple polarizing observation and 10X-40X relief phase contrast observation.	○
	Cable 100cm	●
DIC	Transmitted DIC kit	●
	10X transmitted DIC ring (for BSIM2980022)	●
	20X transmitted DIC ring (for BSIM2980022)	●
	40X/60X transmitted DIC ring (for BSIM2980022)	●
	Analyzer kit (for BSIM2980022)	●
Fluorescent Module	Fluorescence attachment with 8 holes, with electric shutter	●
	Cable 30cm, connecting the fluorescence attachment to the frame	●
	Dust cap	●
	UV fluorescence filter house, EX: AT375/28X, 25mm, BS:AT415DC, 25.5*36*1mm, EM:AT460/50M, 25mm	●
	B fluorescence filter house, EX: AT480/30X, 25mm, BS: AT505DC, 25.5*36*1mm, EM: AT535/40M, 25mm	●
	G fluorescence filter house, EX: AT560/40X, 25mm, BS: AT600DC, 25.5*36*1mm, EM: AT635/60M, 25mm	●
	G fluorescence filter house, EX: AT620/50X, 25mm, BS: AT655DC, 25.5*36*1mm, EM: AT690/50M,25mm	●
	LED light source: 380/475/550/630 four wavelengths, four independent lamp beads, high-power, long-life LED light source.	●
Stage	Manual mechanical stage, size: 300mm(X)*240mm(Y), moving range: 135mm(X)*85mm(Y), stage thickness: 30mm. Right universal handle, X/Y axis limitable and lockable, moving range 50mm * 50mm after locked; with pressure clap for holding slices and culture flasks, with Φ 110mm replaceable disc (inner Φ 30), with metal stage plate with waist shaped hole.	●
Electric Control Box & PC	Electric control box, input voltage 90-265VAC wide voltage, output 12V100W or 12V10W. Digitally adjustable output voltage through CAN, in addition to three outputs of 24V5A/15V5A/5V5A, equipped with forced air cooling, including one 3C power cord.	●
	DB26 Cable 200cm, connecting the electric control box to the frame	●
	DELL 3020T computer: I7-12700 32GB RAM 1TB solid state, host RTX3060TI+8G independent display, Dell 34 display, curved USB-C display iS3423DWC, WIN10	●
	DB9 Cable 200cm, connecting the PC to the electric control box	●
	USB-CAN card. When the customer purchases computer by themselves and requires computer to control microscope electric control, it must be paired.	●
Structured Light	Grid size: 40um. Light transmission range: 400-750nm; liquid core fiber: core diameter: 3mm.	●

Components	Numerical aperture: 0.5. Transmission range: 240-740nm	
Camera	sCMOS back-illuminated black and white camera. Global pixels: 2048*2048, 4 million effective physical pixels. Pixel size: 6.5μm*6.5μm. Chip size: 13.3mm*13.3mm. Quantum efficiency: 95% @ 600nm. Frame rate: 100fps@CameraLink, 40fps@USB 3.0. Full well capacity: typical: 45 ke-. Dynamic range: 90dB. Readout noise: CMS: 1.1E-Median, 1.2E-RMS. Exposure time: 6.6μs-10s. Refrigeration method: air cooling, water cooling. Dark current: air cooling: 0.15e-/pixel/s@-15°C, water cooling: 0.10e-/pixel/s@-25°C. Bit depth: 11bit, 12bit, 16bit.	●
Hardware Control	Hardware control: Automatically control the structured light lighting system. Image acquisition: exposure time control, gain control, threshold control, gamma value control, image pixel number control, x, y, z, λ, t five-dimensional acquisition, custom xyz, xyt, xyzt, xyλ, xyλt, xyzλt, multiple collection modes. Start recording with one click. Supports real-time pseudo-color annotation and real-time optical density measurement. Image processing: 3D reconstruction and display, image flipping, mirroring, background removal, dynamic image generation, stack processing, ROI processing. Image analysis: perimeter, area, roundness, maximum gray level, minimum gray level and other parameter analysis, co-localization analysis, cell counting, point counting, protein tracking, subpopulation analysis.	●
Telescope	Telescope (Φ30)	○
Adapter	1X C-mount adapter, adjustable focus	●
Other Accessories	Fluorescent free oil 30ml	●
	Internal hexagonal Spanner M3 for phase contrast adjusting screw	●
	Internal hexagonal Spanner M4	●
	Internal hexagonal Spanner M5	●

Note: ● Standard Outfit, ○ Optional

Accessories

1. Infinity plan super apochromatic objectives



Sample Image

