

# LED Light Source for Microscopy



niji 虹

Data Sheet

# The niji from Bluebox Optics is a revolutionary and innovative LED light source that is ideally suited to the demands of fluorescence microscopy.



With light emission from up to seven individually addressable, individually filtered LED channels that simultaneously emit light through a single combined light guide, the niji delivers powerful, multi-wavelength excitation from the UV to the NIR, specifically for single and multiband fluorescence microscopy.

## The niji takes LEDs to a new level.



### Features

<b>Modular Channels</b>	Up to seven channels – user fit*
<b>Sources</b>	Solid state LED
<b>Wavelength Range</b>	380 - 730 nm available
<b>Noise Level</b>	Approx. 47 dB
<b>Bandpass Filters</b>	Individual bandpass filter holders for each channel
<b>Light Interface</b>	Liquid light guide with microscope collimators, available separately
<b>Connection</b>	USB -A (powered), USB-B, RS232 (serial), and TTL via a 15-way connector
<b>Operation</b>	Control via dedicated software, MicroManager, tablet, or third party software
<b>Programmable Commands</b>	XML upload for complete flexibility
<b>Optical Safety</b>	Key switch, light guide, and lid-off interlock
<b>Dimensions (L x W x H)</b>	315 x 288 x 107 mm
<b>Weight</b>	4.7 kg
<b>Warranty</b>	12 months, optional 3 years

\*The niji modular chassis allows user upgrades.

### Light Output

	UV	HPUV*	Royal Blue	Blue	Cyan	Green/Yellow	Red	Far Red
<b>Wavelength (nm)</b>	395	390	445	470	505	556	635	725
<b>Bandwidth FWHM (nm)</b>	10	15	18	19	31	62	18	38
<b>Typ. Optical Power (mW)</b>	120	330	200	185	90	700	250	140
<b>Recommended Filter Sets</b>	LED-DAPI-A-000	LED-DAPI-A-000	LED-CFP-A-000	LED-FITC-A-000	LED-YFP-A-000	LED-TRITC-A-000 LED-mCherry-A-000	LED-Cy5-A-000	LED-Cy7-A/B-000

\* Option requires HPUV chassis

**Note:** Optical output powers are given for a ø3 mm liquid light guide, use of a ø5 mm light guide will provide approximately 50% more power. Wavelengths and powers are approximate and may vary on LED batch. Each niji will be supplied with full optical power and wavelength test data.



Based around a uniquely reconfigurable mainframe, LEDs and filters can be changed by the user in minutes, offering additional excitation centre wavelengths, excitation bands, and output power options, dramatically expanding the capability of the niji.

Wavelength, power, and emission channel can all be controlled, individually or simultaneously, using the manual controller (tablet) or via software.

Constant current and constant optical power LED drive modes are both selectable, enabling fast imaging speed and high excitation power stability over long periods.

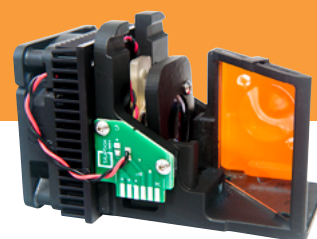
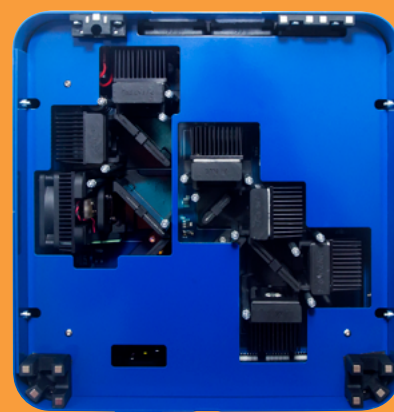
Software control options are numerous and the niji can be integrated into a microscope application in a variety of ways.

Fully compatible with MicroManager and MicroManager 2, the niji can also be operated with a wide range of industry standard microscope software packages (when operating in compatibility mode via RS232).

The niji is also mechanically compatible with most standard microscopes. Numerous adaptors, light guides, and collimators are available off the shelf, to help to simplify the task.

Furthermore, great care has been taken to make the niji one of the quietest LED sources on the market. With optimised fans running only when needed, you'll be able to hear yourself think and work, knowing that vibrations at the microscope are minimised.

If funds are tight or you don't know what wavelengths you might need in future, the niji provides the perfect solution, combining a low cost entry point with a low cost upgrade path.



## Multi-channel 7 LED light source for fluorescence microscopy

User changeable LEDs and filters

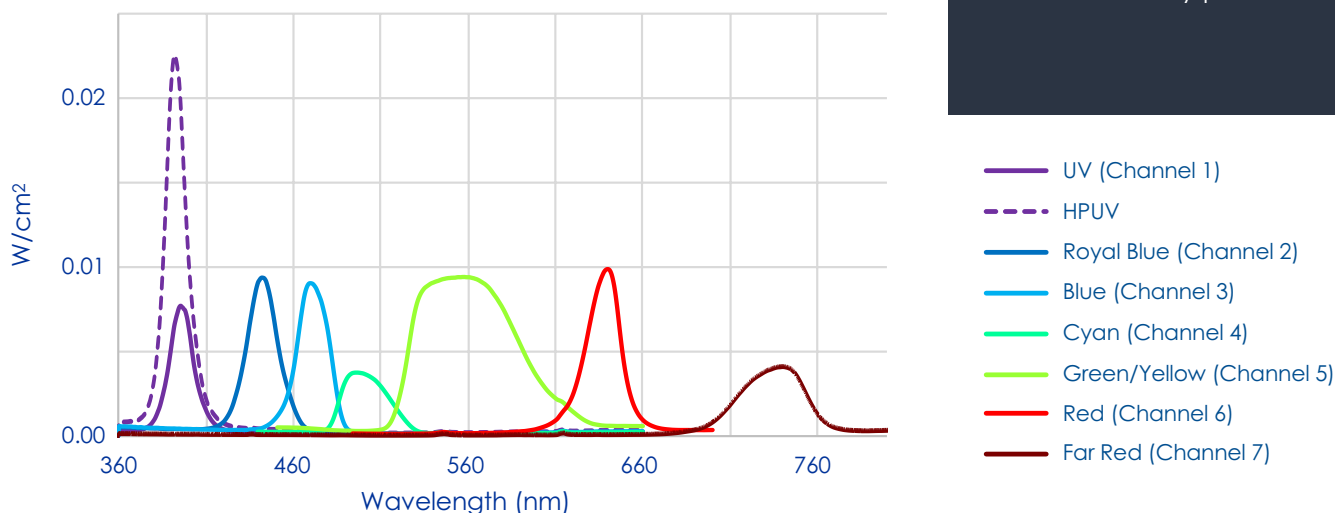
Individual excitation filters

Fully compatible with most microscopes and microscope software

Future-proofed investment and upgrade path

Low cost entry point

### Individual Wavelength Spectrum

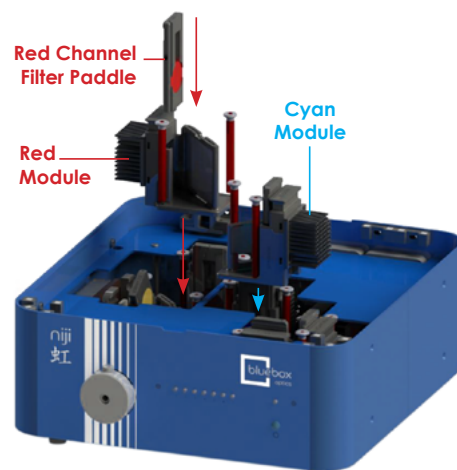


- UV (Channel 1)
- - - HPUV
- Royal Blue (Channel 2)
- Blue (Channel 3)
- Cyan (Channel 4)
- Green/Yellow (Channel 5)
- Red (Channel 6)
- Far Red (Channel 7)

## Data Sheet

### Product Codes

<b>BN7-MF-7-3-002</b>	Complete niji system including all 7 LED modules (no filters)
<b>BN7-MF-0-3-002</b>	niji 7 mainframe only with no modules
<b>BN7-MF-7-3-003 HPUV</b>	Complete HPUV niji system including all 7 LED modules (no filters)
<b>BN7-MF-0-3-003 HPUV</b>	niji 7 mainframe only with no modules (HPUV)
<b>BN7-LED-390-001</b>	niji 7 UV 390nm LED module
<b>BN7-LED-390HP-002</b>	niji 7 High power UV 390nm LED module (requires HP mainframe)
<b>BN7-LED-440-001</b>	niji 7 Royal Blue 440nm LED module
<b>BN7-LED-470-001</b>	niji 7 Blue 470nm LED module
<b>BN7-LED-510-001</b>	niji 7 Cyan 510nm LED module
<b>BN7-LED-550-001</b>	niji 7 GY 550nm LED module
<b>BN7-LED-630-001</b>	niji 7 Red 630nm LED module
<b>BN7-LED-720-001</b>	niji 7 Far Red 720nm LED module



### Operating Requirements

<b>Line Voltage</b>	110V & 240V AC
<b>Line Frequency</b>	50/60 Hz
<b>Power Consumption</b>	350 VA
<b>Operating Temperature</b>	10 to 40 °C
<b>Storage Temperature</b>	-10 to 60 °C
<b>Humidity</b>	40% to 70% RH

### Safety Certification

CE Declaration of Conformity | EMC Directive 2014/30/EU  
 Low Voltage Directive 2014/35/EU | RoHS Directive 2011-65-EU  
 Regulation (EC) No 1907/2006 | REACH | WEEE Directive  
 IEC/EN 62471, Photobiological Safety of Lamps and Lamp Systems  
 UL-certified AC power adapter

To find out more about the niji, to see a demo, or to book your free evaluation unit, call Bluebox Optics or your nearest distributor today.

At Bluebox Optics, we always provide evaluations at zero cost, and there is never an obligation for you to buy.

## LED sources have a number of advantages over mercury lamps:

Low power consumption delivers significant savings in whole life cost

Zero toxicity materials are safer and easier to dispose of

Reduced out-of-band photo bleaching and filter bleed-through delivers clearer images

Controllable low level light results in reduced photo toxicity