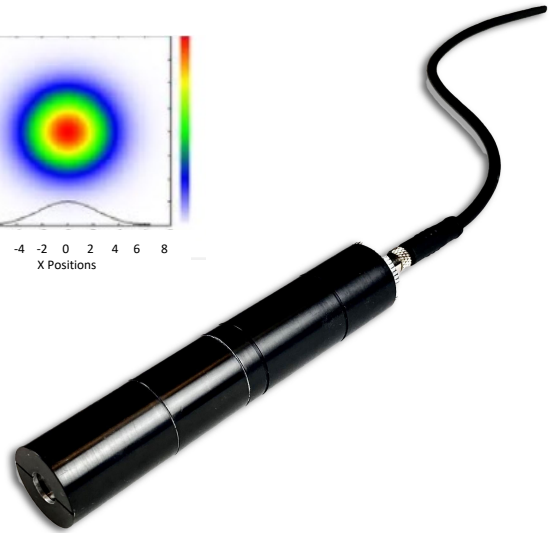
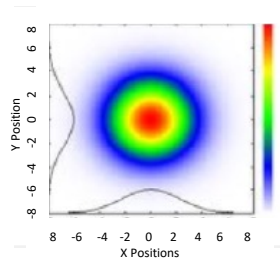


Applications

- Medical Instruments
- Machine Vision
- Alignment & Targeting
- Manufacturing
- Sorting & Inspection
- Instrumentation
- Life Sciences
- 3D Imaging

Features

- Lasers include; 405, 450, 488, 520, 635, 658, 785nm
- Water & Dust proof: Designed to IP67 rating
- Gaussian Beam Profile, $M^2 < 1.3$
- Integrated circuits: Drive, Modulation and ESD
- Power stability < 1%
- Variable power and analog modulation to 100KHz
- Collimated beam standard, focused and shaped beam options available



MiniLase Plus™ Industrial Grade Laser Module

MiniLase Plus™ is the newest member of MiniLase product family from Blue Sky Research. This compact high-performance laser is designed specifically for operation in demanding environments. The MiniLase Plus™ is ideal for aiming, aligning, and pointing in a wide range of application, such as industrial equipment, biomedical tools, and machine-vision systems. In this laser module, Blue Sky Research uses proprietary μlens™ technologies, advanced optics, robust package designs and decades of production experience. The high-performance MiniLase Plus™ can provide customized beam profiles for your specific application.

All configurations are available with laser wavelengths ranging from UV to infrared, including popular wavelength such as 405 nm, 520 nm, 635 nm, 658 nm, 785 nm, 808 nm, 830nm; other customized wavelengths available upon request. Different optical power levels are available ranging from 1mW to 240mW depending on the desired wavelength and the specific laser diode used. The standard MiniLase Plus™ module can be operated in CW mode with fixed or variable output power. The variable output option enables modulation speeds to 100kHz with external analog input.

All MiniLase Plus™ laser modules have a near-diffraction limited™ collimated beam output as standard. Customized beam profile, such as focused beam or line profile, can be generated with integrated optics inside laser module. The IP67 rated housing design enable customers to use the laser module in harsh environments. The electronic circuits inside the module includes functions such as LD drive, ESD protection, and automatic power control (APC). The APC function enhances laser stability by detecting laser power via a back facet monitor inside the laser diode housing (TO can). An error signal is generated to adjust LD driving current to lock power to preset value or user specified setting.

MiniLase Plus™ Specifications

Optical power stability is highly dependent on laser drive voltage (Vcc) stability, care should be taken in designing stable electrical circuits. To ease electrical design requirements, our MiniLase Plus™ drivers operate from 5V or 9V. For CW operation, a defined optical power levels are typically set at factory. If your system requires variable power or output modulation, you can apply a separate analog input to adjust V_{set} voltage (laser power output). An anodized Aluminum mechanical package is standard and provides a case neutral configuration. Blue Sky Research recommends all MiniLase Plus™ modules use electrical isolation mounting and a heat sink, it is required & essential for proper operation of all higher power modules.

Wavelength and Power

Wavelength (nm)	Output Power (mW)							
405	20	40	100					
450	60	80						
488	50							
520	40	65						
633	80							
638	1	5	10	15	25	85	140	
655/660	1	5	30	40	100			
670	1	5	10					
690	35	45						
785	1	5	10	20	80	120		
808	120							
830	40	160						
850	1	5	10	40	160			
905/915	8	80	240					
980	40	240						

Electrical Specifications

Parameter	Specification	Comments
Input Power Supply (V _{cc})	5.0Vdc +/- 10%, for wavelength > 532nm 9.0Vdc +/- 10%, for wavelength < 532nm	Vcc laser diode dependent
Modulation	< 100 kHz	Analog modulation on Vset
Electrical Case Polarity	Neutral	Anodized Aluminum housing

Optical Specifications

Parameter	Specification	Comments
Spectral Line Width	< 1.5nm typical	Will vary with individual laser diode
Beam Aspect Ratio	≤ 1.25	Typical, selected VPSL™ approaches 1.1
Polarization	>100:1	Typical
Power Stability	<1%	@1hr, At stable temperature
Beam Diameter Tolerance	+/- 25%	Beam size is the diameter measured at 1/e ² max power level at exit aperture
M ² Value	≤ 1.3	Typical, will vary with individual LD
Beam Pointing Stability	$\leq 50\mu\text{rad}$	@25°C, 8hr
Beam Pointing Accuracy	< 25mrad	@25°C
Centricity	< 0.25mm	Typical

Environmental Specifications

Parameter	Units	Specification		Conditions
		Min	Max	
Operating Temperature	°C	0 0	50 60	All laser diode wavelengths 830nm, 850nm
Storage Temperature	°C	-10	85	
Storage Humidity	%	10	90	Non-Condensing

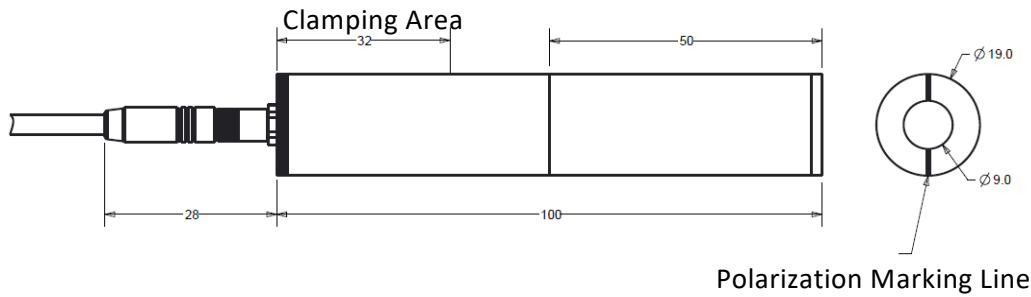
- Designed to meet IP67 rating for water and dust proof: optical window, electrical connection, and housing.

Beam Characteristics

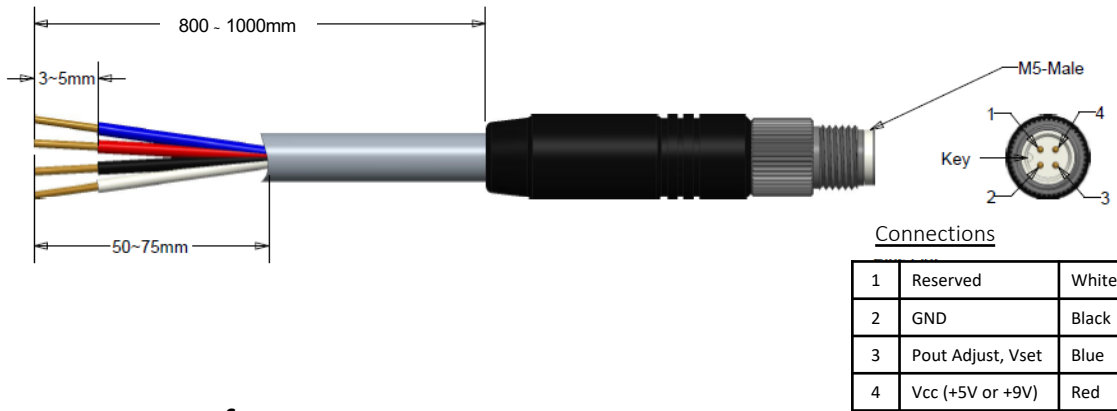
Wavelength (nm)	Profile	Beam Diameter (mm)	Beam Divergence (mrad)	Comments
405 - 520	Collimated	1.0	0.66	For 405nm, other wavelength has slightly different parameters
		1.5	0.48	
		2.5	0.36	
		4.0	0.30	
633 - 980	Collimated	1.0	0.95	For 633nm, other wavelength has slightly different parameters
		1.5	0.70	
		2.5	0.48	
		4.0	0.40	

- For focused beam and shaped optical profile options of MiniLase Plus™, contact Sales@blueskyresearch.com

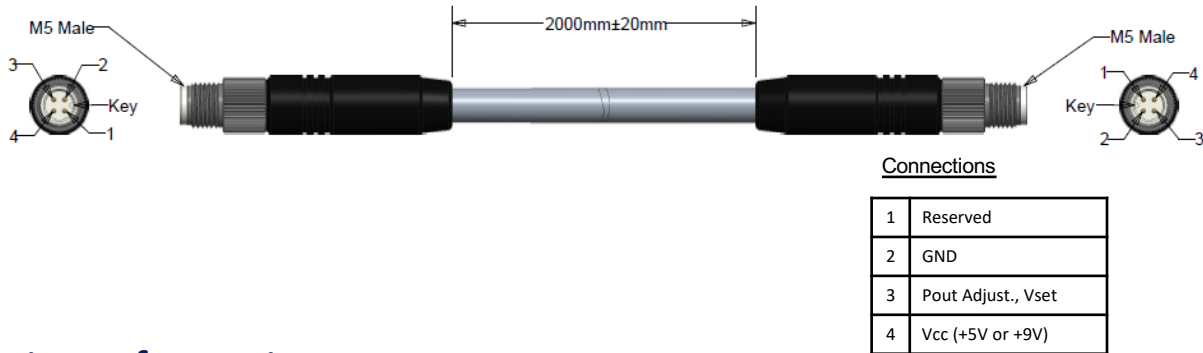
MiniLase Plus™ Mechanical Specifications (mm)



Wire Interface



M5 Connector Interface



Ordering Information:

MINIP – XXX – VVV – RC - ZZ

XXX – Wavelength(nm)

VVV – Power level (mW), 000 to 999

R - Beam size (mm):

A=1.0mm, B=1.5mm, C=2.5mm and D=4.0mm

C - Collimated

ZZ - Electrical options: for fixed CW operation: 2W= 2 wire leads, 2M = M5 connector;
for variable output: 3W= 3 wire leads, 3M = M5 connector

Blue Sky Research

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ISO 9001:2015 Certified
RoHS 3 Compliant

