

OPIPHOTONICS

HIGH POWER BLUE LASERS

35 W LASER DIODE MODULE



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1 BRIGHTEX BLUE 35W PLATFORM

1.1 450nm, 35W LASER DIODE MODULE BL-035-200-xx

Applications

- Material processing
- Ti:Sapphire pumping

Features

- 35 W output power
- 200 μm fiber
- 95% power in 0.15 NA

1.1.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	35		
	Operating current first input (2)	A		2	2.5
	Operating voltage first input (2)	V		27	30
	Operating current second input (2)	A		2	2.5
	Operating voltage second input (2)	V		27	30
	Threshold current	A			0.4
	Beam NA (3)	-			0.15
	Wall plug efficiency	%	25		
	Central wavelength	nm		450	
	Wavelength temperature gradient	nm/°C		0.06	
Cable characteristics (4)	Fiber core diameter	μm		200	
	Fiber cladding diameter	μm		220	
	Fiber NA	-		0.22	
	Cable type	-	stainless steel armored cable		
	Cable length	m	1.5	2	2.5
	Cable termination	-	SMA-905 (5)		
Cooling requirements	Cooling method	-	water and glycol (from 20% to 30%)		
	Water connections	-	see drawings		
	Input water temperature	°C	18		25
	Water flow rate	l/min	1		2
	Cooling capacity	W	100		
Maximum ratings (6)	Operating temperature	°C	15		45
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Reverse voltage on connector pins	V			2

Notes

- (1) Values at 20°C cold plate temperature
- (2) The module has two floating inputs to simplify the laser driver choice, however they can be connected in series in case a single drive is preferred, then a 2.5 A, 60 V current source is needed
- (3) 95% of beam power within specified NA
- (4) Other options (length, jackets, termination) available upon request
- (5) AR coating available upon request
- (6) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure

1.2 450nm, 35W LASER DIODE MODULE BL-035-100-xx
Applications

- Material processing
- Ti:Sapphire pumping

Features

- 35 W output power
- 100 μm fiber
- 95% power in 0.15 NA

1.2.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	35		
	Operating current first input (2)	A		2	2.5
	Operating voltage first input (2)	V		27	30
	Operating current second input (2)	A		2	2.5
	Operating voltage second input (2)	V		27	30
	Threshold current	A			0.4
	Beam NA (3)	-			0.15
	Wall plug efficiency	%	25		
	Central wavelength	nm		450	
	Wavelength temperature gradient	nm/°C		0.06	
Cable characteristics (4)	Fiber core diameter	μm		100	
	Fiber cladding diameter	μm		140	
	Fiber NA	-		0.22	
	Cable type	-	stainless steel armored cable		
	Cable length	m	1.5	2	2.5
	Cable termination	-	SMA-905 (5)		
Cooling requirements	Cooling method	-	water and glycol (from 20% to 30%)		
	Water connections	-	see drawings		
	Input water temperature	°C	18		25
	Water flow rate	l/min	1		2
	Cooling capacity	W	100		
Maximum ratings (6)	Operating temperature	°C	15		45
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Reverse voltage on connector pins	V			2

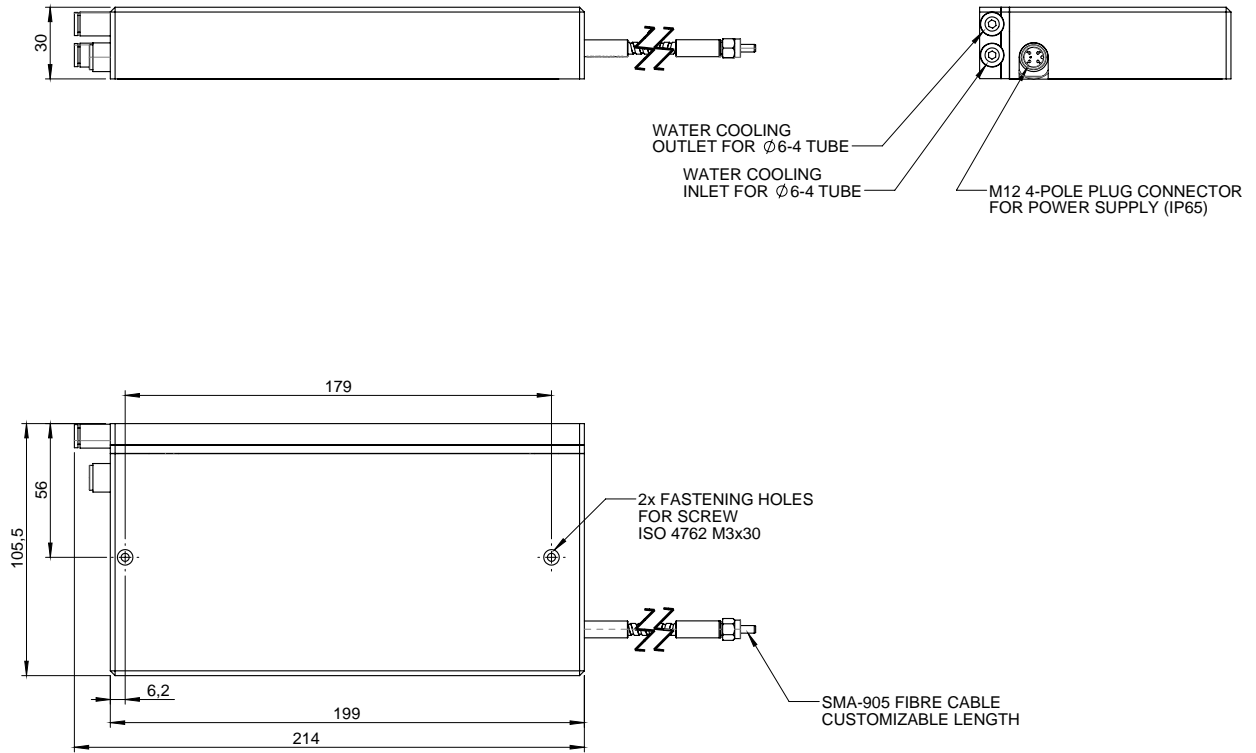
Notes

- (1) Values at 20°C cold plate temperature
- (2) The module has two floating inputs to simplify the laser driver choice, however they can be connected in series in case a single drive is preferred, then a 2.5 A, 60 V current source is needed
- (3) 95% of beam power within specified NA
- (4) Other options (length, jackets, termination) available upon request
- (5) AR coating available upon request
- (6) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure



1.3 TECHNICAL DRAWINGS 35W PLATFORM

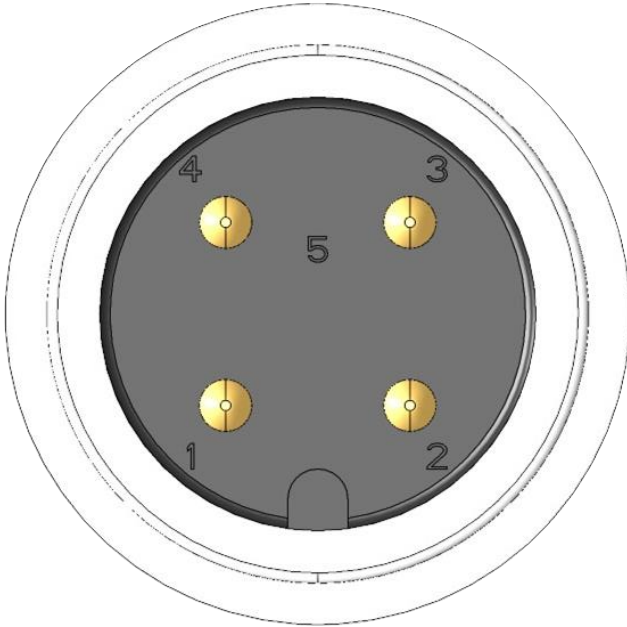
All dimensions are in millimeters.





1.4 CONNECTOR PINOUT 35W PLATFORM

The connector is a M12 4 poles circular connector by ERNI (PN 235171), which can be mated to a standard cable by ERNI (PN 223866).



PIN NUMBER	PIN NAME	FUNCTION	NOTES
1	Y_A	Second positive input	Anode contact for diodes first row - floating
2	X_C	First negative input	Cathode contact for diodes second row - floating
3	Y_C	Second negative input	Cathode contact for diodes first row - floating
4	X_A	First positive input	Anode contact for diodes second row - floating

2 BRIGHTEX BLUE 100W PLATFORM

2.1 450nm, 100W LASER DIODE MODULE BL-100-200-xx

Applications

- Material processing
- Ti:Sapphire pumping

Features

- 100 W output power
- 200 μm fiber
- 95% power in 0.15 NA

2.1.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	100		
	Operating current per each input (2)	A		2	2.5
	Operating voltage per each input (2)	V		40	45
	Threshold current	A			0.4
	Beam NA (3)	-			0.15
	Wall plug efficiency	%	25		
	Central wavelength	nm		450	
	Wavelength temperature gradient	nm/ $^{\circ}\text{C}$		0.06	
Cable characteristics (4)	Fiber core diameter	μm		200	
	Fiber cladding diameter	μm		220	
	Fiber NA	-		0.22	
	Cable type	-	stainless steel armored cable		
	Cable length	m	1.5	2	2.5
	Cable termination	-	SMA-905 (5)		
Cooling requirements	Cooling method	-	water and glycol (from 20% to 30%)		
	Water connections	-	see drawings		
	Input water temperature	$^{\circ}\text{C}$	18		25
	Water flow rate	l/min	1		2
	Cooling capacity	W	300		
Maximum ratings (6)	Operating temperature	$^{\circ}\text{C}$	15		45
	Relative humidity	%	35		60
	Storage temperature	$^{\circ}\text{C}$	-20		85
	Reverse voltage on connector pins	V			2

Notes

- (1) Values at 20 $^{\circ}\text{C}$ cold plate temperature
- (2) The module has four floating inputs that can be connected in series
- (3) 95% of beam power within specified NA
- (4) Other options (length, jackets, termination) available upon request
- (5) AR coating available upon request
- (6) Exceeding absolute maximum ratings may lead to device degraded performance, shorter lifetime or sudden failure

2.2 450nm, 100W LASER DIODE MODULE BL-100-100-xx
Applications

- Material processing
- Ti:Sapphire pumping

Features

- 100 W output power
- 100 μm fiber
- 95% power in 0.2 NA

2.2.1 Specifications

	Parameter	Unit	Minimum	Typical	Maximum
Electro-optical characteristics (1)	CW output power	W	100		
	Operating current per each input (2)	A		2	2.5
	Operating voltage per each input (2)	V		40	45
	Threshold current	A			0.4
	Beam NA (3)	-			0.15
	Wall plug efficiency	%	25		
	Central wavelength	nm		450	
	Wavelength temperature gradient	nm/°C		0.06	
Cable characteristics (4)	Fiber core diameter	μm		100	
	Fiber cladding diameter	μm		140	
	Fiber NA	-		0.22	
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	Cooling capacity	W	300		
Maximum ratings (6)	Operating temperature	°C	15		45
	Relative humidity	%	35		60
	Storage temperature	°C	-20		85
	Reverse voltage on connector pins	V			2

Notes

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2.3 TECHNICAL DRAWINGS 100W PLATFORM

All dimensions are in millimeters.

TBD



2.4 *CONNECTOR PINOUT 100W PLATFORM*

TBD

PIN NUMBER	PIN NAME	FUNCTION	NOTES

3 ORDERING INFORMATION

Model	-	Power	-	Fiber Core	-	Customization
BL-035-200-xx		35 W		200 μ m		00 (standard) or 01-99
BL-035-100-xx		35 W		100 μ m		00 (standard) or 01-99
BL-100-200-xx		100 W		200 μ m		00 (standard) or 01-99
BL-100-100-xx		100 W		100 μ m		00 (standard) or 01-99

4 SAFETY AND OPERATING PRECAUTIONS

4.1 *Electrostatic discharge (ESD)*

ESD is the primary cause of device sudden failure. Use good ESD practice (wrist straps, dissipative working surfaces, air ionizers etc...) whenever handling the device.

4.2 *Operating instructions*

Laser diodes may be damaged by excessive bias current or transient current spikes. Use proper electronics to drive the device.

Contact OPI Photonics for driving electronics recommendation and reference design solutions.

4.3 *Laser safety*

Extremely **dangerous visible laser radiation** is emitted by this laser diode when in operation. Laser radiation can be emitted by the laser only when connected to a power supply and current is flowing through the connecting pins.

Wear the proper protecting devices selected for the laser beam power and wavelength.

Apply all safety measures in the area where the device is operated (warning signals, controlled access, safety interlocks).

This device is not certified for 21CFR 1040.10 or IEC 60825-1:2014, since it is meant for system integration. Certification is to be performed at system level.