

Fiber Coupled Laser Multimode High Power

450nm, up to 200W, 200µm 0.22NA Fiber



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Features

- 450nm Center Wavelength
- 200W High output power
- 200µm 0.22NA Fiber
- RoHS Compliance

Applications

- OCT
- Medical care
- Printing
- Material processing
- Pump source



The FCMH series diode lasers deliver up to 500 W of power through a 200 µm fiber. They provide high brightness and simplified thermal management by distributing the diodes (heat sources), allowing for a water-cooled architecture with reliable, predictable performance. A turn-key benchtop unit is available, integrating the power supply, water cooling, power control, and safety shut-off features. Blue lasers generate significant heat; ~70% of power is lost as heat; thus proper heat sink is required in operation.

Due to their high sensitivity to electrostatic discharge, warranty coverage applies only to fully metal covered modules the benchtops, which include proper protection. Other versions of the lasers and photodetectors are not covered by any warranty. Please use them with great caution.

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength λ	440	450	460	nm
Output Power		50		W
Spectral Width FWHM		6		nm
Operating Current Iop		2.5	3.5	A
Threshold Current Ith		0.3		A
Operating Voltage Vop		50	200	V
Thermistor (K Ω)/ β (25°C)	7	10	13	%/3477
Fiber Bend Radius		90		mm
Fiber Core Diameter		200		µm
Fiber Numerical Aperture		0.22		NA
Fiber Connector		Bare end		
Fiber Length		1		m
Operating Temperature	15		35	°C
Storage Temperature	-20		70	°C
Wavelength Temperature Coefficient		0.3		nm/°C

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

*The contact resistance between the diode and the heat sink is less than 1cm² K/W.

Warning: The device can be damaged by a spike in applying voltage. Do not touch by hand or use a regular power supply. The device mounted on PCB is a cost-effective OEM module for professional system integration only, not intended for laboratory use, which be a protected turn-key boxed package. Information is believed to be accurate and is subject to change without notice. Some specific combinations of options may not be available. The user assumes all risks and liability in connection with the use of a product or its application.

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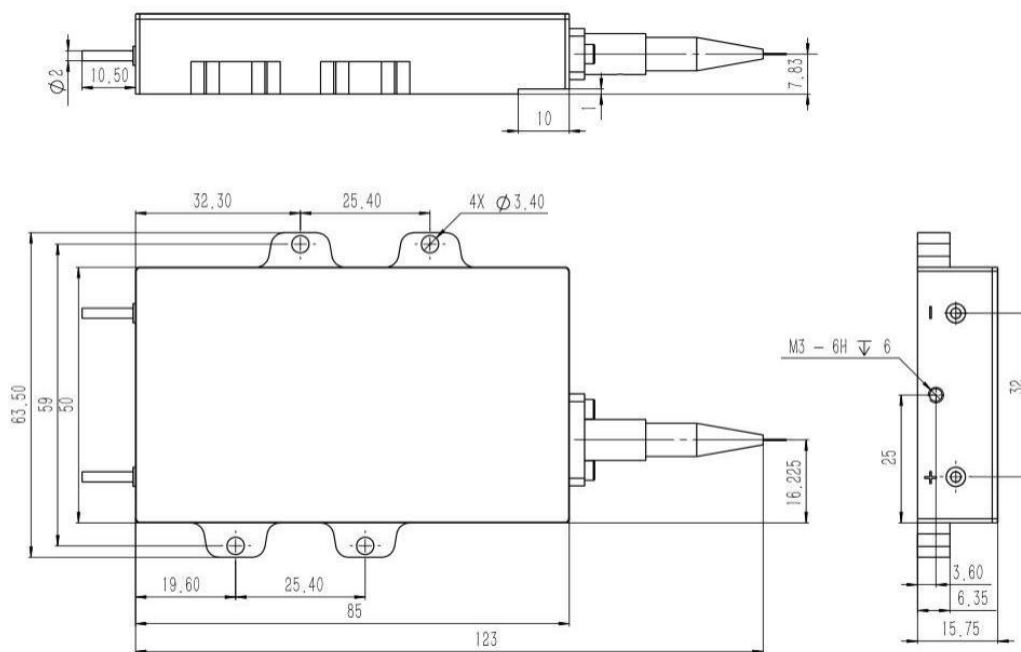
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Mechanical Dimensions (mm) 200W



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Ordering Information (Part Number)

	450	☐	☐	☐	☐	☐	☐
Prefix	Wavelength	Output Power	Package	Fiber Type	Fiber Buffer	Fiber Length	Connector ^[1]
FCMH-	450nm = 450	3W = 03 10W = 01 50W = 05 100W = 10 200W = 20 250W = 25 300W = 30 320W = 32 340W = 34 900W = 90	A = A	200 µm = 2 105 µm = 5 400 µm = 4 135 µm = 1	0.9mm Tube = 1 3mm Tube = 3 Armor = A	0.5m = 1 1m = 2 1.5m = 3	Non = 1 SMA = 2

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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Benchtop Turnkey Unit



The HPML series High Power Fiber Coupled Laser Source is a turn-key unit, featuring ease of use and low cost with a manual or USB/GUI control. These all-in-one benchtop lasers integrate a laser, output tap monitor, controller, and heat dissipator, providing a convenient and reliable high-power laser source. The control has three options: low-cost constant current mode, and feedback constant output mode (having an output monitor). The unit can generate pulse output via modulating the laser directly (power and duration are settable via USB interface). Moreover, we offer a red-laser integrated fiber output for visual aid as well as a collimator at the fiber end options. A safety interlock is provided at the back. For power below 50W, the unit is cooled with internal fans. For higher power water cooling is required. We further offer matching chiller.

For details please click: <https://agiltron.com/product/high-power-fiber-coupled-laser-source-multimode/>

Ordering Information (Part Number)

Prefix	Wavelength	Power	Feedback ^[1]	Red Laser ^[2]	Cooling	Modulation	Fiber Core	Fiber Length	Connector ^[3]	Collimator ^[4]
HPML-	980nm = 9 880nm = 8 808nm = 7 650nm = 6 532nm = 5 455nm = 4 355nm = 3 967nm = B 915nm = A Special = 0	5W = AA5 8W = AA8 10W = A10 22W = A12 ... 100W = 100 ... 200W = 200 280W = 280 500W = 500	No = 1 Yes = 2	No = 1 Yes = 2	Fan = 1 Water = 2	No = 1 Yes = 2	135μm = 1 200μm = 2 105μm = 5 400μm = 4 Special = 0	0.25m = 1 0.5m = 2 1m = 3 1.5m = 4 2m = 5 Special = 0	No = 1 SMA = 2 Special = 0	No = 1 Yes = 2

[1]. Feedback control automatically maintains a constant laser power \$2350

[2]. This option provided visual of the laser spot. \$980

[3]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

[4]. Collimator selections go to <https://agiltron.com/product/high-power-fiber-optic-collimator/>

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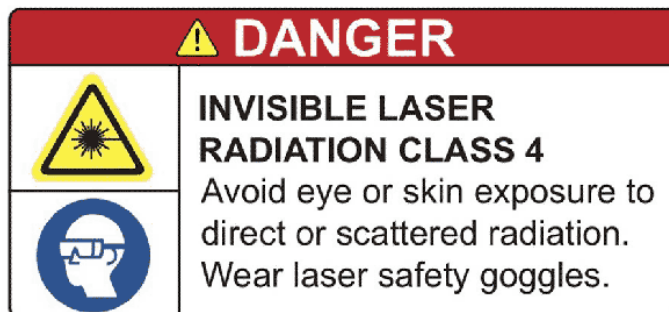
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Laser Safety



Electrostatic Sensitivity



- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.
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