

Fiber Coupled Laser Multimode High Power

915nm, 940nm, 976nm, up to 10W, 50/125μm, 105/125 Fiber



DATASHEET

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Features

- 915-976nm Single Emitting laser
- Up to 900W High Output Power
- 50/125μm Fiber
- RoHS Compliance

Applications

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

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.



The FCMH series diode lasers deliver up to 500 W of power through a 50/125 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.

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 (915nm)

Parameter	Min	Typical	Max	Unit
Operating output power	10		300	W
Range of available wavelength	905	915	925	nm
Spectral width @ FWHM		4.5	6	nm
Threshold current		1.5	2.5	A
Operating current at Pout		28	30	A
Operating voltage at Pout		15.5	16.5	V
Power conversion efficiency		50		%
Wavelength temperature coefficient		0.3		nm/°C
Slope efficiency		7.0		W/A
Fiber bend radius	50			mm
1064ISO		30		dB
Fiber numerical aperture	0.2	0.22	0.24	
Beam numerical aperture (95% power)		0.18		NA
Fiber length	1.0	1.5		m
Loose tube		0.9		mm
Lead soldering temperature			250 (5sec.)	°C
Reverse Humidity	5%		95%	
Operating temperature range	15		55	°C
Storage temperature range	-30		70	°C

Specifications (940nm)

Parameter	Min	Typical	Max	Unit
Center Wavelength λ	930	940	950	nm
	966	976	986	
Output Power	10	320		W
	10	900		
Back Reflection Isolation Range	1040		1200	nm
Fiber Core Diameter		50/125		μm
Fiber Numerical Aperture		0.22		NA
Fiber Length	1.5	1	2	m
Operating Current	940nm	22		A
	976nm		30	
Threshold Current	940nm	1.0		A
	976nm	2.0		
Operating Voltage	940nm	31		V
	976nm	60		
Operating Temperature	15		55	°C
Storage Temperature	-30		70	°C

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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P +1 781-935-1200

E sales@agiltron.com

W www.agiltron.com

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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)

Prefix	Wavelength	Output Power	Package	Fiber Type	Fiber Buffer	Fiber Length	Connector ^[1]
FCMH-	915nm = 915 940nm = 940 976nm = 976	10W = 01 50W = 05 100W = 10 200W = 20 250W = 25 300W = 30 320W = 32 340W = 34 900W = 90	A = A	105/125 µm = 1 50/125 µm = A 200 µm = 2 400 µm = 4	Bare = 1 0.9mm Tube = 2 3mm Tube = 3 Armor = A	0.25m = 2 1m = 1	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 *	Red Laser **	Cooling	Modulation	Fiber Core	Fiber Length	Connector ^[1]	Collimator ***
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

* Feedback control automatically maintains a constant laser power \$2350

** This option provided visual of the laser spot. \$980

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

[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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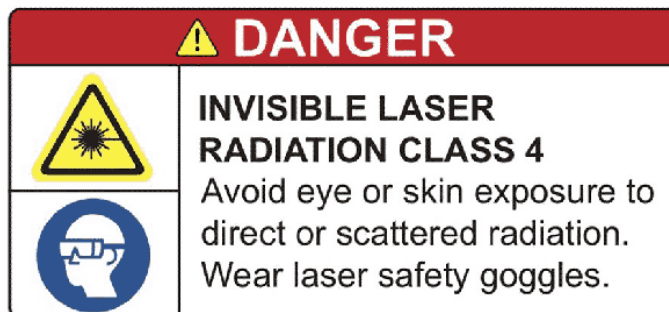
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Laser Safety



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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