Narrowline Multimode Fiber Coupled Diode Laser

<0.07nm, 105/125 μm fiber, 532, 638, 785, 808, 830, 976, 1064 nm

DATASHEET

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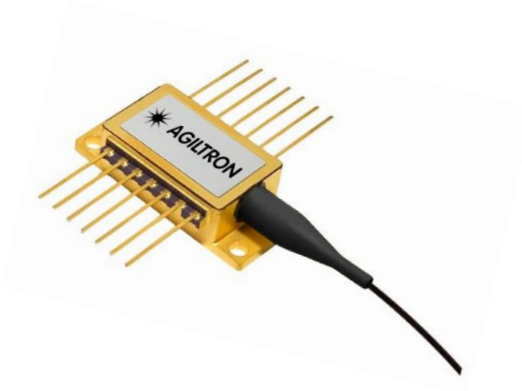

The NLML Series Narrowline Multimode Fiber-Coupled Diode Laser is designed for high-stability performance, delivering high-power laser output with a narrow spectral linewidth through a multimode fiber. It incorporates a volume Bragg grating (VBG) phase element within the laser cavity to achieve precise wavelength locking, excellent wavelength stability with minimal temperature dependence, a linewidth below 0.07 nm, and a high side-mode suppression ratio (SMSR). An integrated power monitor and thermoelectric (TEC) cooler ensure reliable and stable output in both power and wavelength. This makes the NLML series ideal for demanding applications requiring narrow linewidth, precise wavelength control, and stable high-power output — such as Raman spectroscopy and advanced sensing systems.

Features

- Compact Design
- High Stability
- Excellent Reliability

Applications

- Medical application
- Spectrum analysis
- Scientific research

Specifications

Parameter								Unit
Center Wavelength	532 [1]	638	785	808	830	976	1064	nm
CW Output Power	100	500	600	600	600	800	800	mW
Wavelength Tolerance	±0.5							nm
Spectral Width	<0.1	<0.1	<0.1	<0.3	<0.1	<0.3	<0.1	nm
Temperature Drift of Wavelength	0.01							nm/℃
Temperature Drift of Current	0.05	0.06	0.05	0.05	0.05	0.05	0.05	nm/A
SMSR	-	>35			>40			
Threshold Current	0.6	0.5	0.4	0.3	0.4	0.3	0.2	A
Operating Current	1	1.1	1.1	1.2	1.2	1.2	1.5	A
Operating Voltage	2.1	2.2	2	2	1.8	1.5	1.8	V
Slope Efficiency	-	0.8	0.7	0.9	0.8	0.9	0.6	W/A
PD Parameter	-	<2000						μA
Thermistor (25℃)	10%±5/3930							kΩ/β
TEC Max Current	2.5							A
TEC Max Voltage	6.3							V
Fiber Core Diameter	105							μm
Fiber Cladding Diameter	125							μm
Fiber Coating Diameter	250							μm
Fiber Length	100±10 (Customizable)							cm
Numerical Aperture	0.22							
Connector	FC/PC, SMA905							
Operating Temperature (min/max)	-10/40							℃
Operating Relative Humidity (min/max)	75							%
Storage Temperature (min/max)	-40/80							℃
Storage Relative Humidity	90							%
Lead Soldering Temperature	250(10Sec.)							℃

Notes:

[1]. 532nm is diode pumped solid-state laser.

* All the data in the above table are the typical values obtained from the tests at room temperature of 25℃, and the final data is subject to the final test report.

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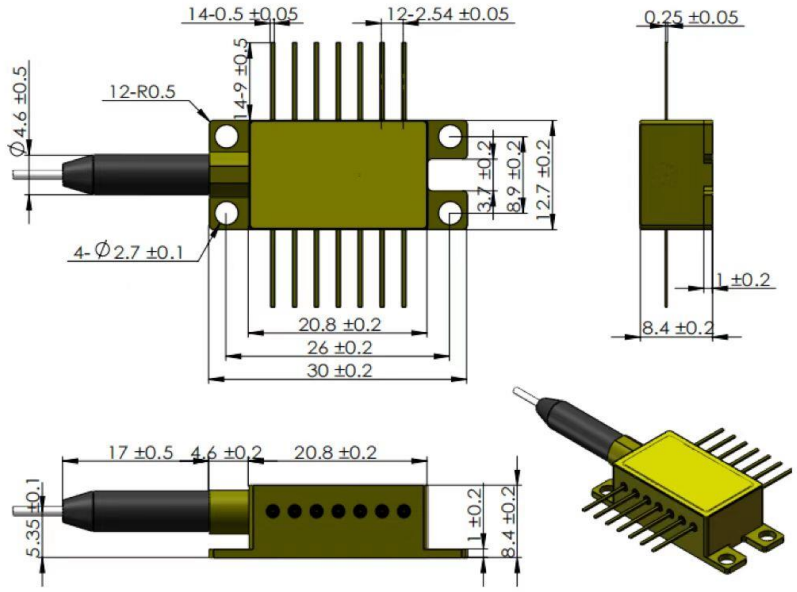
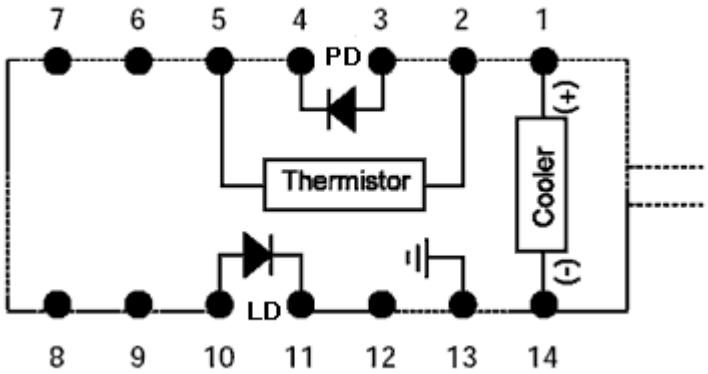
Mechanical Dimension (mm)



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

PIN Assignment



PIN	Function
1	Thermoelectric Cooler (+)
2	Thermistor
3	Monitor PD Anode (+)
4	Monitor PD Cathode (-)
5	Thermistor
6	NC
7	NC
8	NC
9	NC
10	Laser Anode (+)
11	Laser Cathode (-)
12	NC
13	Case Ground
14	Thermoelectric Cooler (-)

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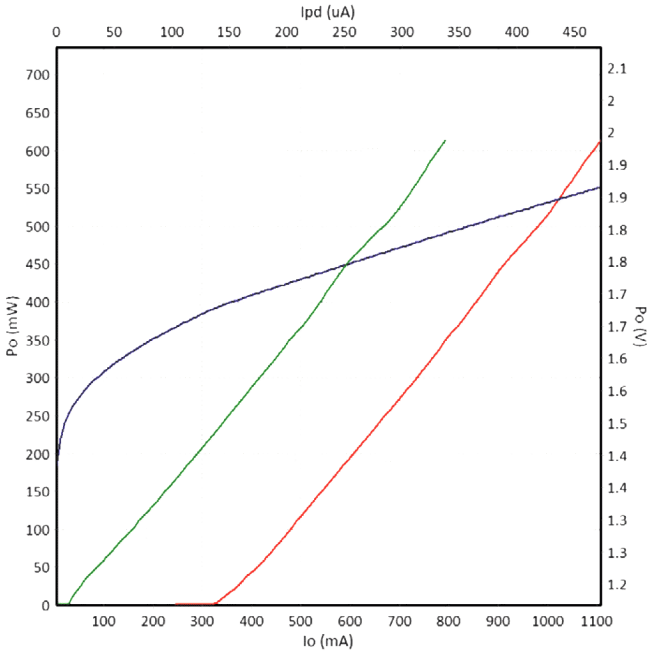
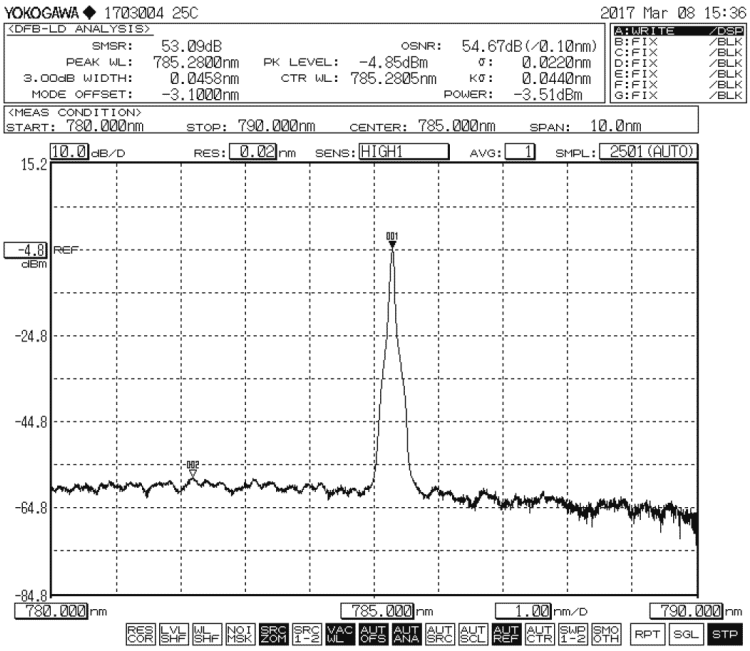
Typical Spectrum

785nm P-I-V Graph



785nm Spectrum (SMSR>40dB)



Ordering Information

	☐	A	1	2	2	1	☐	☐	☐
Prefix	**Wavelength**	**Output Power**	**Linewidth**	**TEC Cooling**	**PD**	**Fiber Type**	**Fiber Buffer**	**Fiber Length**	**Connector**
NLML-	638nm = 6 785nm = 7 808nm = 8 830nm = 3 975nm = 9 1060nm = 1	*Listed on Spec*	<0.1nm = 1	Yes = 2	None = 1 Yes = 2	105/125 = 1 Special = 0	0.9mm Tube = 3 Special = 0	1.0 m = 1 Special = 0	FC/APC = 3 SMA = S Special = 0

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Benchtop Matching Laser Diode Driver

Agiltron cost-effective LDCB series benchtop control kit is designed for easy laser diode mounting and precise control. It incorporates a high-precision, low-noise auto-feedback drive electronics to ensure constant output power or a constant driving current and an integrated temperature control unit maintains optimal operating conditions. The system provides up to 1A driving current and up to 2A TEC cooling current. Each system features a front fiber output connector. The user interface includes an intuitive LCD display for independent control of output power and temperature via two front rotating knobs. The LDCB also includes a universal power supply compatible with 100 to 240 VAC. The LDCB has a built-in isolator option to prevent reflection-induced laser emissions instability. The LDCB is designed as a laser diode and TEC controller kit for customer to install laser diode. It has three types of pluggable laser mounts of butterfly, DIL, and TOCAN. The TOCAN mount contains an external TEC that maintains a constant temperature for wavelength stability.

For details please click: https://agiltron.com/product/laser-diode-tec-controllers-benchtop-kit/

Turn-Key Module Matching The Laser Diode

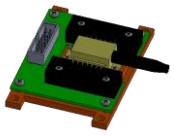
The Agiltron LDCM series laser source module is designed for OEM applications and features all-in-one high reliability and highly stable laser output. The LDCM contains high-precision, low-noise, auto-feedback laser diode drive electronics to ensure constant output power or driving current and an integrated temperature controller that maintains optimal operating conditions. An optional fiber optical isolator can be integrated to prevent reflection-induced laser emission instability, which is essential for achieving highly stable lasers. Agiltron produces isolators from 370nm to 2600nm. The system provides up to 1A driving current and up to 2A TEC cooling current. Each unit features a single FC/APC connector output and two front rotating knobs for independent setting of laser output power and temperature. A toggle switch allows selection between constant current control mode and feedback constant output power mode.

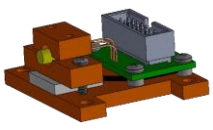
For details please click: https://agiltron.com/product/laser-diode-tec-controllers-module/

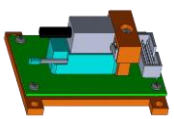
Laser Driver Kit

Agiltron cost-effective LDCD series module control kit is designed for easy laser diode mounting and precise control. It incorporates a high-precision, low-noise auto-feedback drive electronics to ensure constant output power or a constant driving current and an integrated temperature control unit maintains optimal operating conditions. The system provides up to 1A driving current and up to 2A TEC cooling current. It has three types of pluggable laser mounts of butterfly, DIL, and TOCAN. The TOCAN mount contains an external TEC that maintains a constant temperature for wavelength stability. It comes with cables to connect between the mounting module to the driving module, making integration convenient.

For details please click: https://agiltron.com/product/laser-diode-tec-controllers-compact/







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Caution Electrostatic Sensitivity

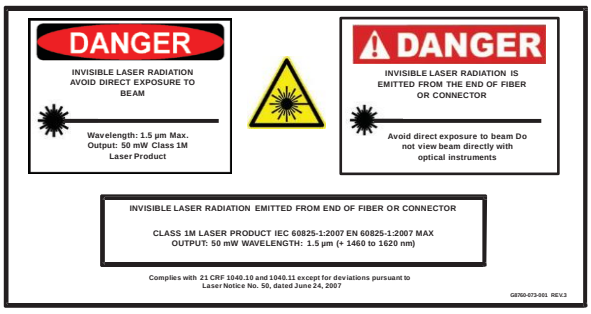
- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



*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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