

Dual Wavelength Laser Diode

784.5/785.5 nm, 785/1064 nm, 105/125 μm fiber coupled, > 0.5 W each wavelength



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The DWLD is a high-power, narrow-linewidth, multimode laser diode that uniquely provides two grating-locked wavelengths simultaneously. Designed specifically for shifted excitation Raman difference spectroscopy (SERDS), it offers a compact and integrated solution for Raman spectroscopy applications. Featuring wavelength-locking technology based on volume Bragg gratings (VBGs) and thermoelectric (TE) cooling, the DWLD delivers stable optical power, a high side-mode suppression ratio (SMSR), and low temperature dependence of the lasing wavelengths. The laser diode is coupled to a 105/125 μm fiber for convenient optical delivery. A dedicated laser diode driver is also available, providing a compact and compatible drive solution for the DWLD.

Features

- Compact Design
- High Stability
- Excellent Reliability

Applications

- Medical Application
- Spectrum Analysis
- Scientific Research

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength of LD1/LD2	784.5/785.5, 785/1064			nm
CW Output Power	784.5/785.5 nm	600/600		mW
	785/1064 nm	500/800		
Wavelength Tolerance		± 0.5		nm
Spectral Width / $\Delta\lambda$		< 0.1		nm
Temperature Drift of Wavelength / $\Delta\lambda/\Delta T$		0.01		nm/ $^{\circ}\text{C}$
Threshold Current		0.4		A
Operating Current	784.5/785.5 nm	1.2		A
	785/1064 nm	1.2/1.5		
Operating Voltage	784.5/785.5 nm	2		V
	785/1064 nm	2/1.8		
Slope Efficiency		0.7		W/A
PD Parameter		< 2000		μA
Thermistor Resistance @25 $^{\circ}\text{C}$		10 $\pm$ 1%/3450		k Ω / β
TEC Max Current		8.5		A
TEC Max Voltage		6.7		V
Fiber Core Diameter		105		μm
Fiber Cladding Diameter		125		μm
Fiber Coating Diameter		250		μm
Numerical Aperture		0.22		NA
Operating Temperature	+10		+30	$^{\circ}\text{C}$
Storage Temperature	0		+70	$^{\circ}\text{C}$
Lead Soldering Temperature			250 (10s)	$^{\circ}\text{C}$
Connector	FC/PC, SMA905			

Note: All the data in the above table are the typical values obtained from the tests at room temperature of 25 $^{\circ}\text{C}$, and the final data is subject to the final test report.



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P +1 781-935-1200

E sales@agiltron.com

W www.agiltron.com

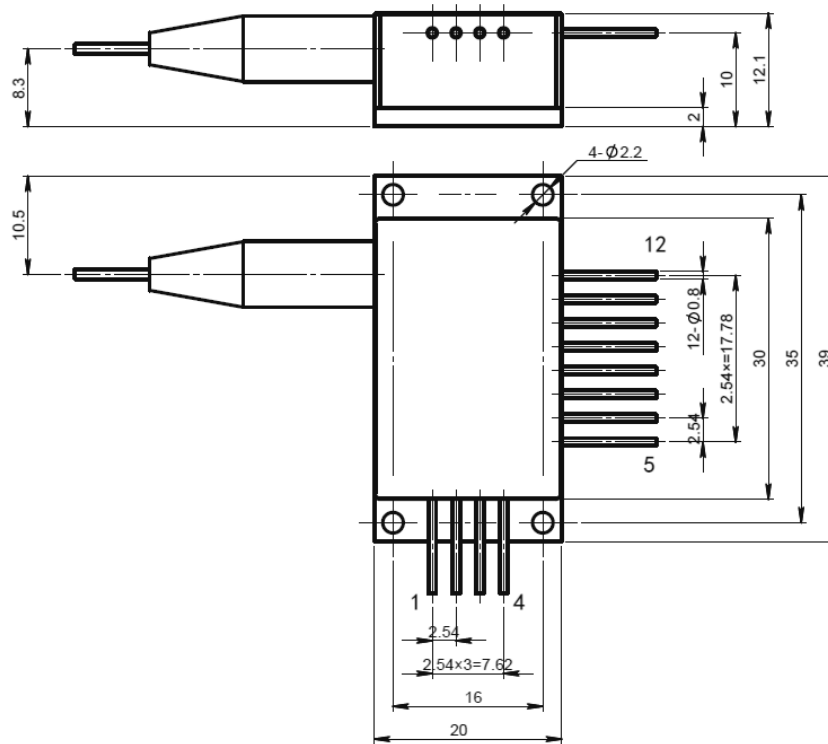
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Mechanical Dimension (mm)



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

PIN Assignment

PIN	Function
1	LD 1 (+)
2	LD 1 (-)
3	LD 2 (+)
4	LD 2 (-)
5	Thermistor
6	TEC (-)
7	Thermistor
8	TEC (+)
9	PD (-)
10	PD (+)

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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.

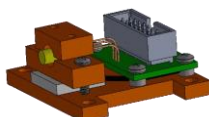
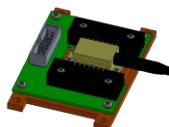
For details please click: <https://agiltron.com/product/laser-diode-tec-controllers-module/>

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/>



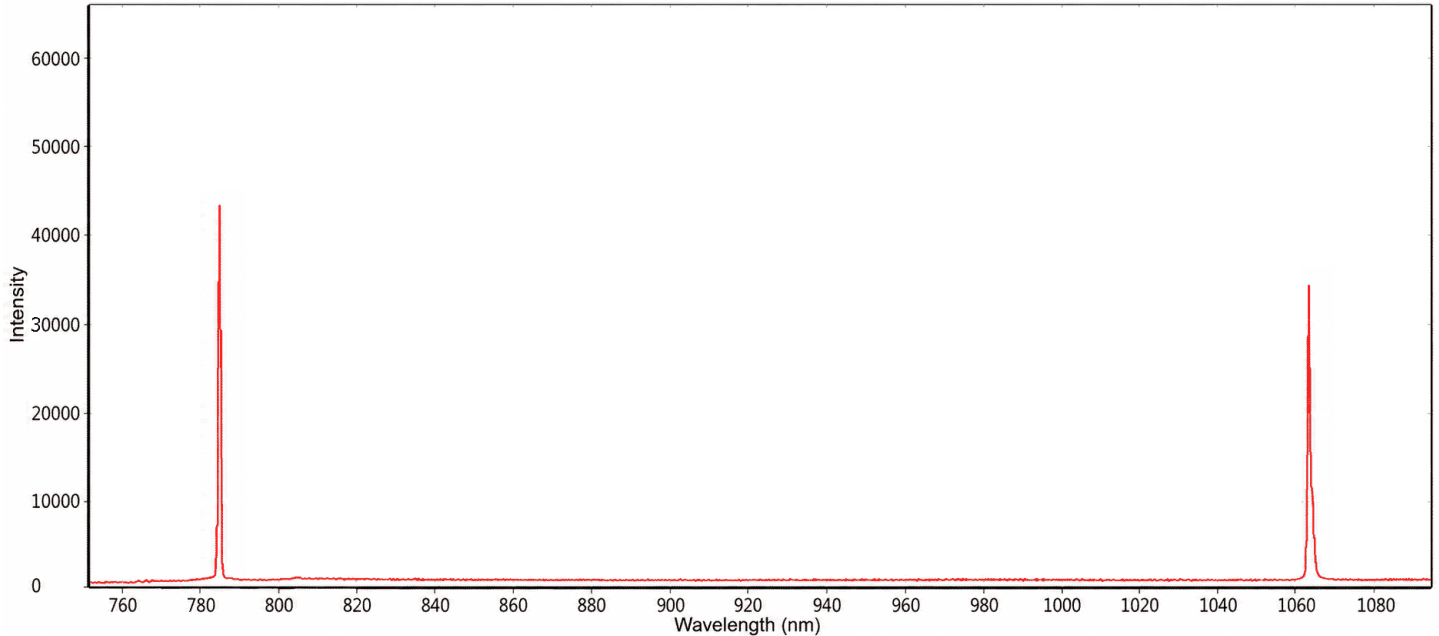
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Typical Spectrum (785 & 1064 nm)



Ordering Information (Part Number)

	☐ ☐ ☐ ☐	☐	2	1	3	2	☐	☐
Prefix	Wavelength	Linewidth	PD	Fiber Type	Fiber Buffer	Fiber Length	Connector	Driver ^[1]
DWLD-	784.5/785.5nm = 7847 785/1064 nm = 7851 Special = 0	0.1nm = 1 0.06nm = 6	Yes = 2 No = 1	105/125 = 1 Special = 0	0.9mm Tube = 3 Bare = 1 Special = 0	0.25 m = 2 0.5 m = 1 Special = 0	SMA = S FC/PC = F Special = 0 Non = N	Non = N Benchtop = B Module = M

[1]: The benchtop integrated driver and power supply as well as metal protection. It is a plug-play unit

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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 μ m.

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.