

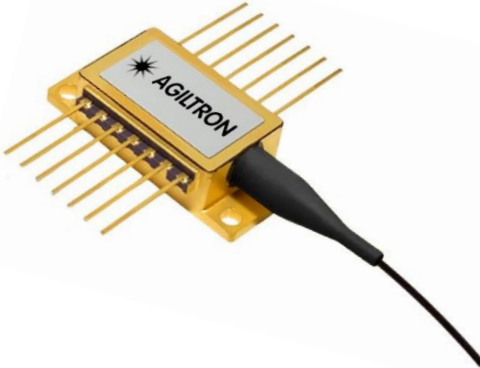
# Narrow Line Fiber Coupled Lasers

(100, 200, 300, 400, 500, 600, 5kHz, 1550nm)



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## Features

- Narrow Linewidth
- Low RIN and Phase Noise
- High Stability
- RoHs
- Telcordia GR468

## Applications

- Test
- Communication
- Instrument



The NDFB serial fiber coupled laser features narrow spectral linewidth, low noise, and cost-effectiveness. It is based on semiconductor on chip technologies combining on-chip grating, external grating, and external cavity depend on the line width requirements. They have maximum output power of about 20mW and a built-in power monitor for precision power control as well as TEC cooling for wavelength stability. They are available at 1550nm. A heat sink is required to remove the heat preventing damage.

We offer driving electronics to precisely control both the output power and temperature (wavelength)

## Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength		1550		nm
Wavelength Tuning		0.1		nm/°C
Output Power	2	20	40	mW
Spectral Width, -3dB	100	200	5	kHz
Side Mode Suppression Ration (SMSR)		30	36	dB
Polarization Extinction Ratio	18		30	dB
Laser Operation Current	10		300	mA
Laser Threshold Current (I <sub>th</sub> )	50	70	80	mA
Forward Voltage (V <sub>f</sub> )		1.2	2	V
Reverse Voltage			1.5	V
Slope Efficiency		0.1		W/A
Reflection Isolation (built-in isolator)	30			dB
Speed		1.25		Gb/s
PD Capacitance		10	15	pF
PD Dark Current			0.1	μA
PD Operation Current			1	mA
PD Reverse Voltage			15	V
Pin Solder Temperature			250	°C
Thermistor Resistance (25°C)		10	10.5	kΩ
B Constant of R <sub>th</sub>		3938		K
TEC Voltage			4	V
TEC Current			2	A
Thermistor Temperature	-20		65	°C
ESD	-500		+500	V
Lead Solder Temperature	-		260	°C
Lead Soldering Time	-		10	S
Operating Temperature	-20		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 468			

**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](#):

**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.

Rev 03/25/25

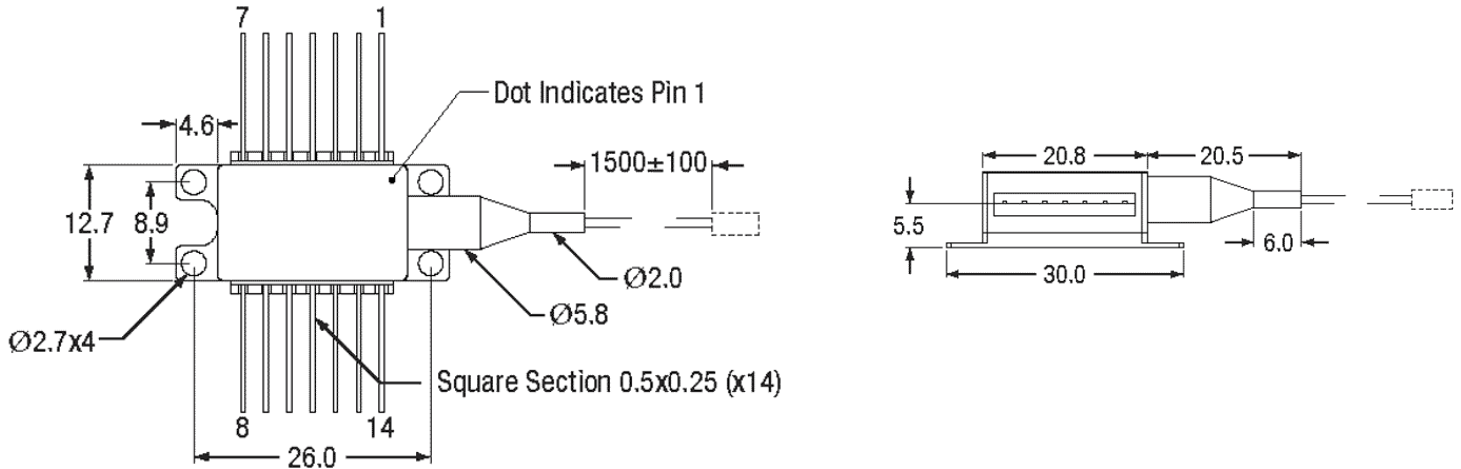
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### Mechanical Dimensions (mm)



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

### Electrical Connection

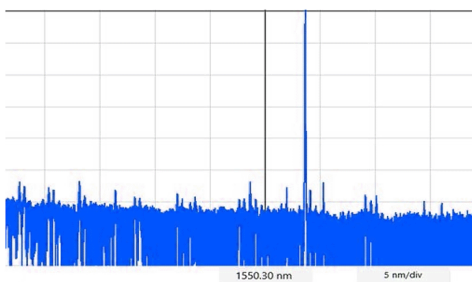
#### Type 1

PIN	Description	PIN	Description
1	Thermistor	8	NA
2	Thermistor	9	NA
3	LD-	10	NA
4	MPD+	11	LD+(CASE)
5	MPD-	12	LD-
6	TEC+	13	LD+(CASE)
7	TEC-	14	NA

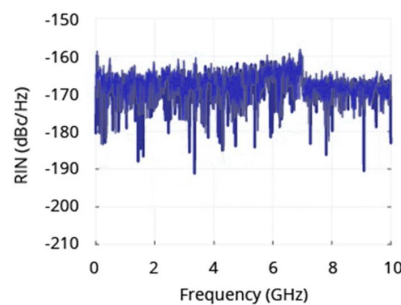
#### Type 2

PIN	Description	PIN	Description
1	TEC+	8	NA
2	Thermistor	9	NA
3	MPD+	10	LD+
4	MPD-	11	LD-
5	Thermistor	12	NA
6	NA	13	CASE
7	NA	14	TEC-

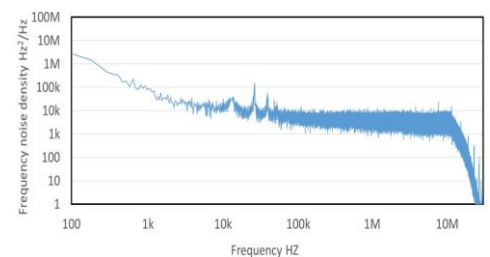
### Typical Performance - Ultranarrow 5K Linewidth Laser



SMSR > 50 dB)



RIN~ -150dB/Hz



Frequency Noise

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### Ordering Information

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prefix	Wavelength	Output Power	Linewidth	Driver	PD	Fiber Type	Fiber Buffer	Fiber Length	Connector
NDFB-	1550nm = 5 Special = 0	10mW = 1 20mW = 2 30mW = 3 40mW = 4 120mw = C 150mw = E	100kHz = 1 200kHz = 2 300kHz = 3 400kHz = 4 500kHz = 5 600kHz = 6 3kHz = 7 10kHz = 8 5kHz = N 50kHz = 9 Special = 0	No = 1 Yes = 2	Yes = 1	SM28 = 1 PM1550 = 4 Special = 0	900µm Tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 1.5 m = 5 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/UPC = U 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.

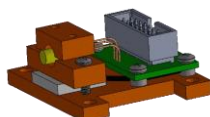
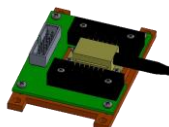
For details please click: <https://agiltron.com/product/laser-diode-tec-controllers-module/>

### 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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### 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  $\mu\text{m}$ . Maximum power = 30 mW.



### 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



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