980nm FBG PUMP Laser

up to 600mW, 0.2nm, integrated with monitor

DATASHEET

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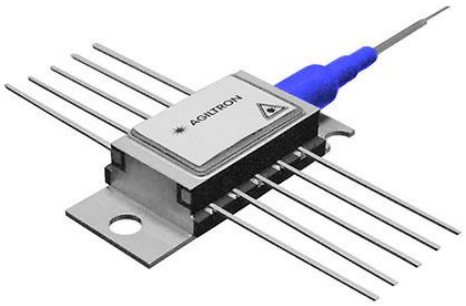

These lasers are designed as pump sources for erbium doped fiber amplifier (EDFA) applications. Processes and techniques of coupling the fiber to the laser allow high output powers that are very stable with both time and temperature.

The series pump module utilizes a fiber Bragg grating design for enhanced wavelength and power stability performance. This product has been designed to ensure superior wavelength locking over drive current, temperature and optical feedback changes.

Devices are available with kink free output powers to 600mW.

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.

Features

- High Output Power, up to 600mW Kink Free
- Single-Mode Fiber Pigtail
- Fiber Bragg Grating Stabilization
- 10 pin Mini- Butterfly Package
- Pin-out Compatibility With 14 pin BTF Package
- Internal Thermoelectric Heatpump and Monitor Photodiode
- Telcordia GR-468-CORE Compliant
- RoHS compliant

Applications

- Low Noise EDFAs
- Dense Wavelength Division Multiplexing (DWDM) EDFAs
- CATV Applications

Specifications

Parameter		Min	Typical	Max	Unit
Threshold current			50	70	mA
Operating forward voltage			1.7	2.0	V
Spectral width			0.2	1.0	nm
Optical Output Power				600	mW
Signal to noise ratio		20			dB
Temperature dependence of peak wavelength			0.008	0.01	nm/℃
Monitor detector responsivity		1	5	10	μA/mW
Monitor dark current				50	nA
Fiber power stability	>30mW			0.08	dB
	20 – 30mW			0.08	
	10 – 20mW			0.10	
	5 – 10mW			0.15	
Return loss		35			dB
Thermistor BETA value		3500		4100	K
Thermistor resistance		9.5	10.0	10.5	kΩ
TEC Current				2	A
TEC Voltage		-2.5		+2.5	V
Heat pump current				1.7	A
Heat pump voltage				2.6	V
Heat pump power				4.4	W
Total module power consumption				6.6	W
Operating case temperature		-20		75	℃
Storage temperature		-40		85	℃
Storage relative humidity		5		95	%
Operating relative humidity		5		85	%
Pigtail axial pull force				10.0	N
Pigtail side pull force				5.0	N
Fiber bend radius		13			mm
Lead soldering temperature				350	℃
Laser diode forward current				1100	mA
Laser diode current transient				1200	mA
Laser diode reverse current				10	μA
Laser diode reverse voltage				2.0	V
Heat pump current		-2.2		2.2	A
Heat pump voltage		-3.0		3.0	V
Fiber type		Corning HI1060 or equivalent			
Cut-off wavelength		870	920	970	nm
Mode field diameter @ 980nm		5.6	5.9	6.2	μm
Cladding diameter		124.5	125	125.5	μm
Fiber coating diameter		235	245	255	μm

Notes:

* Conditions unless otherwise stated: Case temperature -20 to 75°C, Monitor diode bias -5V, CW operation

Rev 10/01/26

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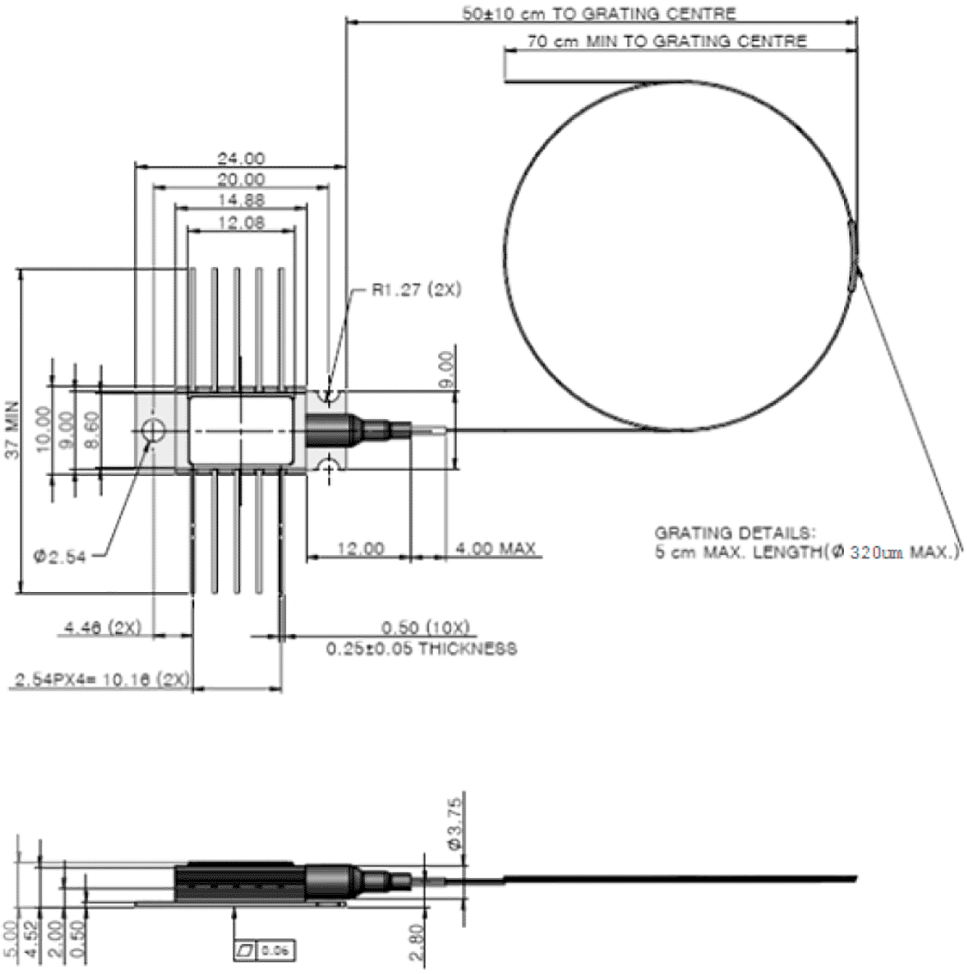
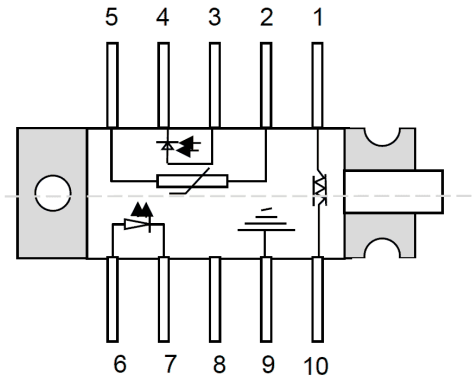
Mechanical Dimension (mm)



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

PIN Assignment



PIN	Description	PIN	Description
1	TEC (+)	6	Laser Anode (+)
2	Thermistor	7	Laser Cathode (-)
3	Monitor Anode (-)	8	NC
4	Monitor Cathode (+)	9	Package Ground
5	Thermistor	10	TEC (-)

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Typical Spectrum

Ordering Information (Part Number)

	☐☐☐☐	☐☐	☐	☐	☐	☐	☐
Prefix	**Wavelength**	**Output Power**	**PD**	**Fiber Type**	**Fiber Buffer**	**Fiber Length**	**Connector** [1]
FLBF-	980nm = 0980 Special = 0	>400mW = 40 >600mW = 60	None = 1 Yes = 2	Hi1060 = 2 PM980 = 9 Special = 0	0.9mm Tube = 3 Bare = 2 Special = 0	0.5 m = 1 1 m = 3 Special = 0	None = 1 FC/APC = 3 Special = 0

[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 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

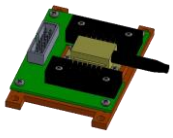
The Agiltron LDCM series laser source module is designed for OEM applications and features all-in-one high reliability and highly stable laser output. The LDCM contains high-precision, low-noise, auto-feedback laser diode drive electronics to ensure constant output power or driving current and an integrated 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.

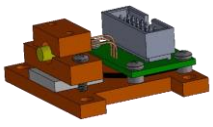
For details please click: https://agiltron.com/product/laser-diode-tec-controllers-module/

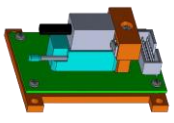
Laser Driver Kit

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

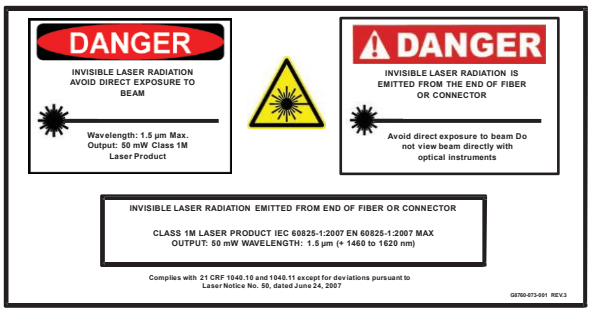
- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

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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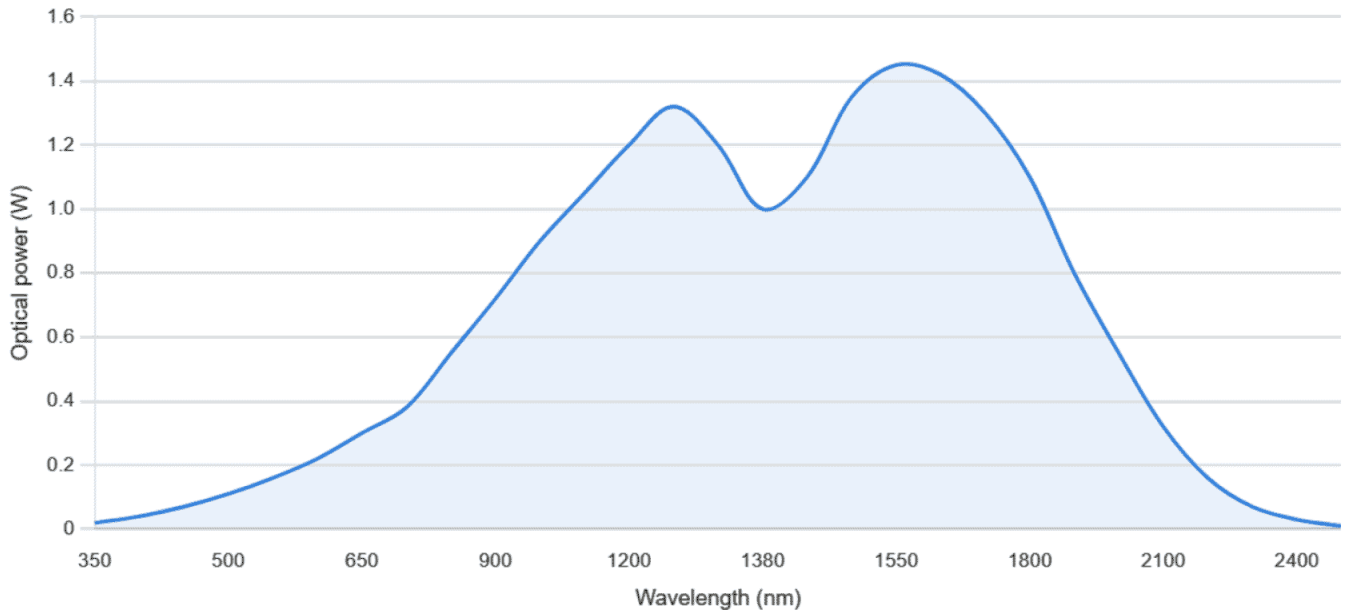
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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