1550nm Fiber Coupled DFB Laser Source

Single mode, up to 5-60mW, 0.2nm, Benchtop or Module

DATASHEET

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Agiltron provides cost-effective fiber-coupled laser sources with a wide range emitting spectrum from 370nm to 2000nm and line width from 10kHz to broadband to select. Each benchtop laser source features a pigtailed laser and 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. Each unit features a front fiber output connector and a universal power supply compatible with 100 to 240 VAC. We offer two packages: benchtop for ease of use and compact module for system integration. The user interface benchtop includes an intuitive LCD display for independent control of output power and temperature via two front rotating knobs. The module has two front output power and temperature settings. All units have a built-in isolator option to prevent reflection-induced laser emissions instability. We produce fiber-coupled isolators from 370nm to 2000nm. An isolator is essential to obtain stable laser output.

Features

- Turnkey Laser Source
- High Stability
- Advanced Feedback Control

Applications

- Medical Laser Treatment
- Biotechnology
- Others

Specifications

Parameter	Min	Typical	Max	Unit
Operating Case Temperature	-20		65	°C
Storage Temperature	-40		70	°C
Laser Forward Current	-		150	mA
Laser Reverse Bias	-		1	V
Photodiode Reverse Bias	-		10	V
TEC Current	-2		+2	A
TEC Voltage	-2.5		+2.5	V
Thermistor Temperature	-20		65	°C
ESD	-500		+500	V
Lead Solder Temperature	-		260	°C
Lead Soldering Time	-		10	S
Environmental Operating Humidity	-		95	%
Environmental Storage Humidity	-		95	%
Fiber Bend Radius	-		20	mm
Fiber Yield Strength	-		1	kgf
Optical & Electrical Characteristics				
Center Wavelength	1540	1550	1560	nm
Spectral Width (-20dB)	-	0.2	0.5	nm
Optical Output Power	-	10	60	mW
Optical Isolation	30	35	-	dB
Side-mode Suppression Ratio	30	35	-	dB
Threshold Current	-	5	15	mA
Operating Current	-	-	100	mA
Forward Voltage	-	1.2	2.0	V
Monitor Current	100	-	1500	µA
Monitor Dark Current	-	-	100	nA
Operating Case Temperature	-20	-	60	°C
Tracking Error	-1	-	1	dB
Thermistor Resistance	9.5	-	10.5	KΩ
Thermistor B Constant		3900		K
TEC Current	-	-	1.0	A
TEC Voltage	-	-	2.0	V
Cut-off Frequency	4	-	-	GHz
Frequency Range	45	-	2500	MHz

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]:

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Benchtop Laser Source Operation Manual

- Plug in power cable
- Turn on Power Switch
- Setting the Output Power by rotating the knob
- Setting the laser diode Temperature by rotating the knob
- Connect a fiber path cable with matching connector (FC/APC is the default)
- Push the Emission switch to turn on the laser
- Measure the output power to verify

Module Laser Source Operation Manual

- Plug in power cable
- Turn on Power Switch
- Setting the Output Power by rotating the screw
- Setting the laser diode Temperature by rotating the screw
- Connect a fiber path cable with matching connector (FC/APC is the default)
- Push the Emission switch to turn on the laser
- Measure the output power to verify

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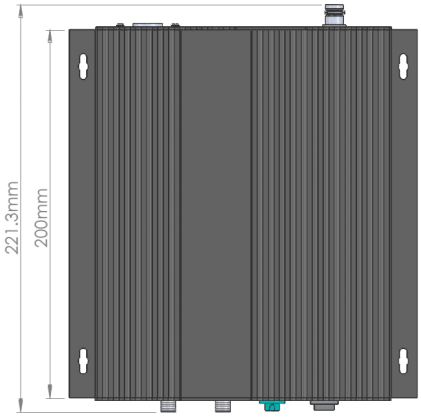
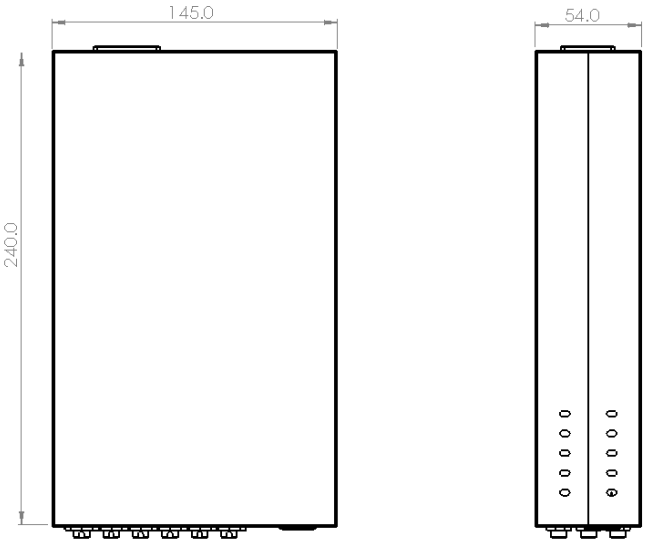
Module (mm): Plug-Play (Power Supply Included)



Benchtop (mm): Plug-Play 100-240VAC, USB



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

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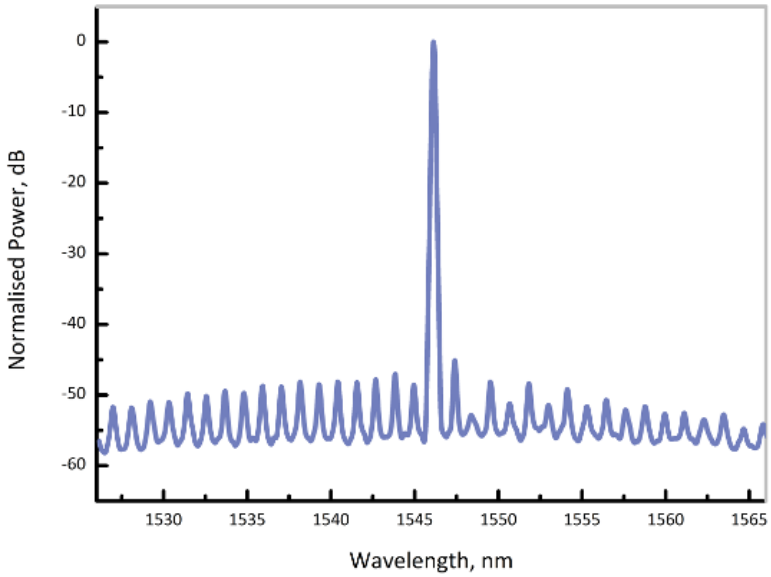
Typical Spectrum



Ordering Information (Part Number)

	☐☐☐☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Wavelength**	**Power**	**Linewidth**	**Package**	**Isolator**	**Control Mode**	**TEC Cooling**	**Fiber Type**	**Connector [1]**
FCLS-	1550nm = 1550	>5mW = 5 >15mW = A 60mW = F	0.2nm = 1	Benchtop = 1 Module = 2	None = 1 Yes = 2	Constant Current = 2 Constant Power = 1	No = 1 Yes = 2	SM28 = 1 PM1550 = 5 PM1310 = 3 Special = 0	FC/APC = 3 FC/PC = 2 Non = 1 SC/PC = 4 SC/APC = 5 LC/PC = 7 LC/UPC = U 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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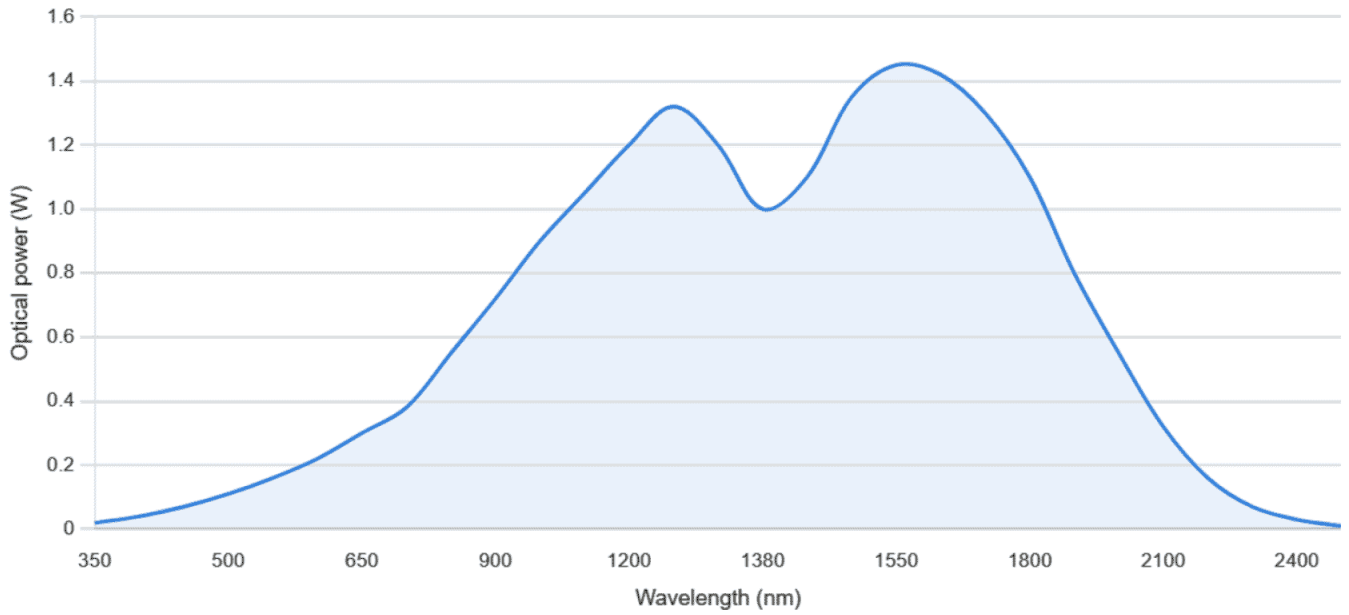
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



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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