High Power Pulsed Single Mode 1550nm Laser Source

(SM or PM output fiber, up to 10W output power)

DATASHEET

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Agiltron's high-power pulsed 1550nm fiber lasers deliver eye-safe, single-mode nanosecond pulses with up to 10W average output power and near diffraction-limited beam quality. Built with high-reliability, all-fiber construction using double-cladding fiber pumping technology, they efficiently convert multimode input into coherent single-mode output. Available as modules or turn-key units with feedback power stabilization and integrated power supplies, these lasers offer optional special high-reflection-power isolators for protection against strong back reflections. Custom designs, output beam collimators, and wavelength stabilization options are also available to meet specific application needs, ensuring optimal performance in demanding environments.

Warning: The standard connector is intended for low-power testing below 1W. Operating at higher power levels may cause damage to the connector and the laser core. For high-power applications, cutting off the connector and splicing is recommended. We also offer connectors capable of handling up to 10W, available by special order.

Features

- Low Cost
- High Stability
- High Reliability
- Both Repetition and Pulse Energy Adjustable
- SM Beam Quality
- All-fiber Construction
- High Output Power

Applications

- LIDAR
- Sensing
- Test and measurement
- Instrument

Specifications

Parameter	Min	Typical	Max	Unit
Central Wavelength	1545	1550	1552	nm
Average Output Power [1]	0.5		10	W
Output Power Adjustment Range	10		100	%
Repetition Rate	0		500	kHz
Spectral Line Width (FWHM)	0.1	0.2		nm
Pulse Energy Max (@10 kHz)			0.6	mJ
Pulse Width	6	8	10	ns
Beam Quality		1.2	1.7	M^2
Stability of Output Power (15min) [3]		± 0.5	± 1.0	%
Stability of Output Power (8h) [3]		± 1	± 2	%
Output Isolation	30			dB
Polarization Extinction Ratio [4]	17	20		dB
Operating Temperature	-25		50	°C
Storage Temperature	-40		85	°C

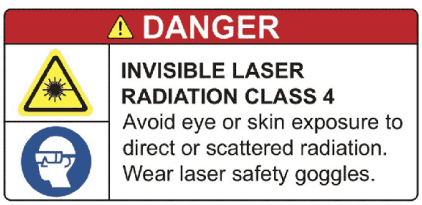
Notes:

[1]. Output power is optional, typical output power: 0.5W, 1W, 2W, 5W, 10W.

[2]. For PM version only.

[3] The output power stability is measured under 25℃, 30 minutes after warm-up.

[4] Excluding connector.



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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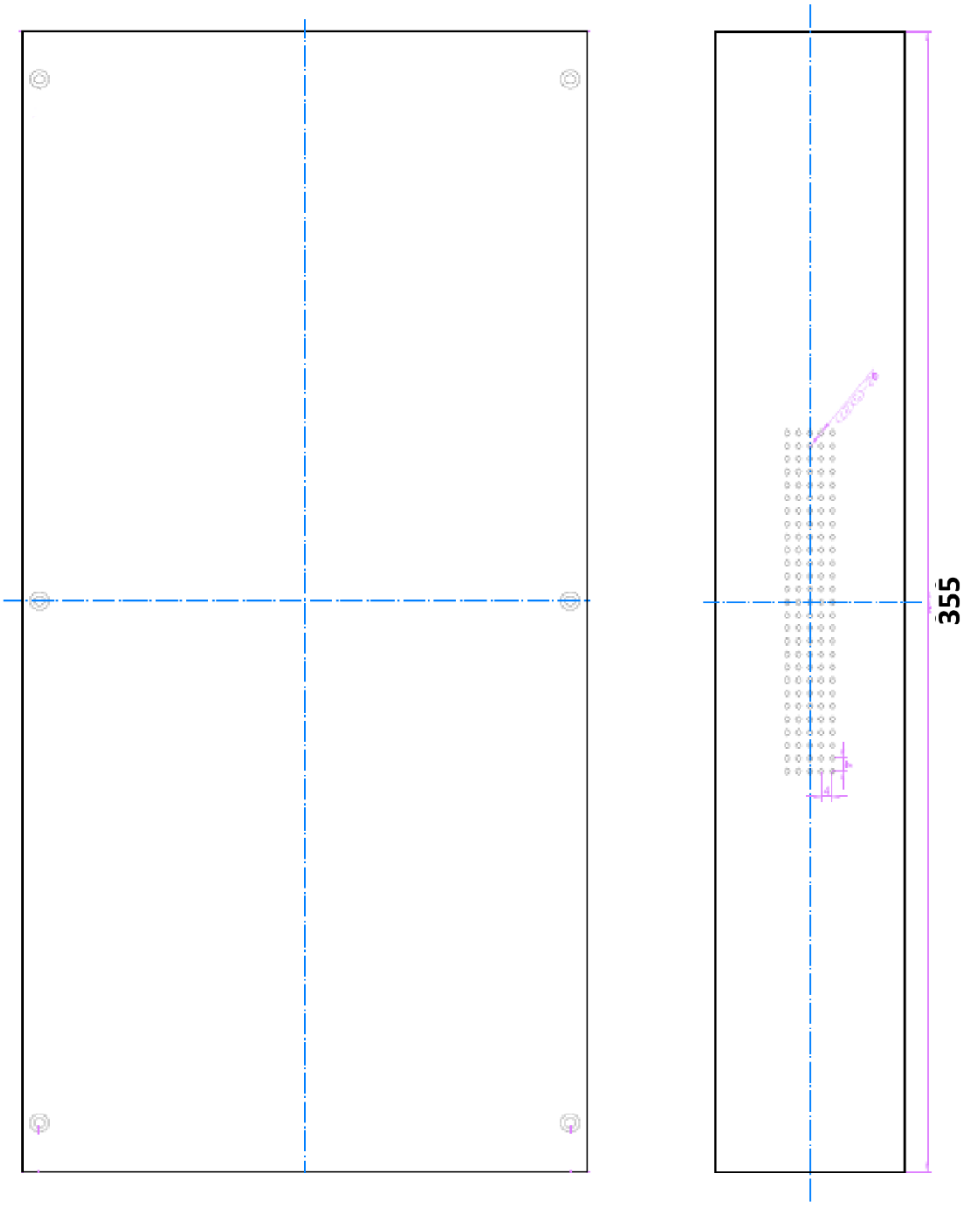
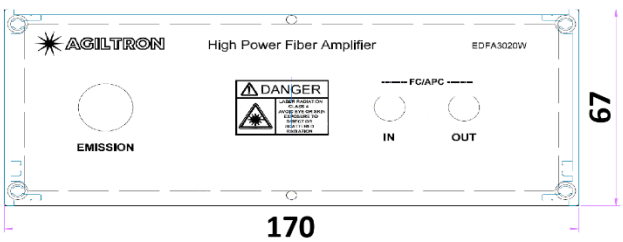
Mechanical Dimensions (mm)





Mid-size Benchtop

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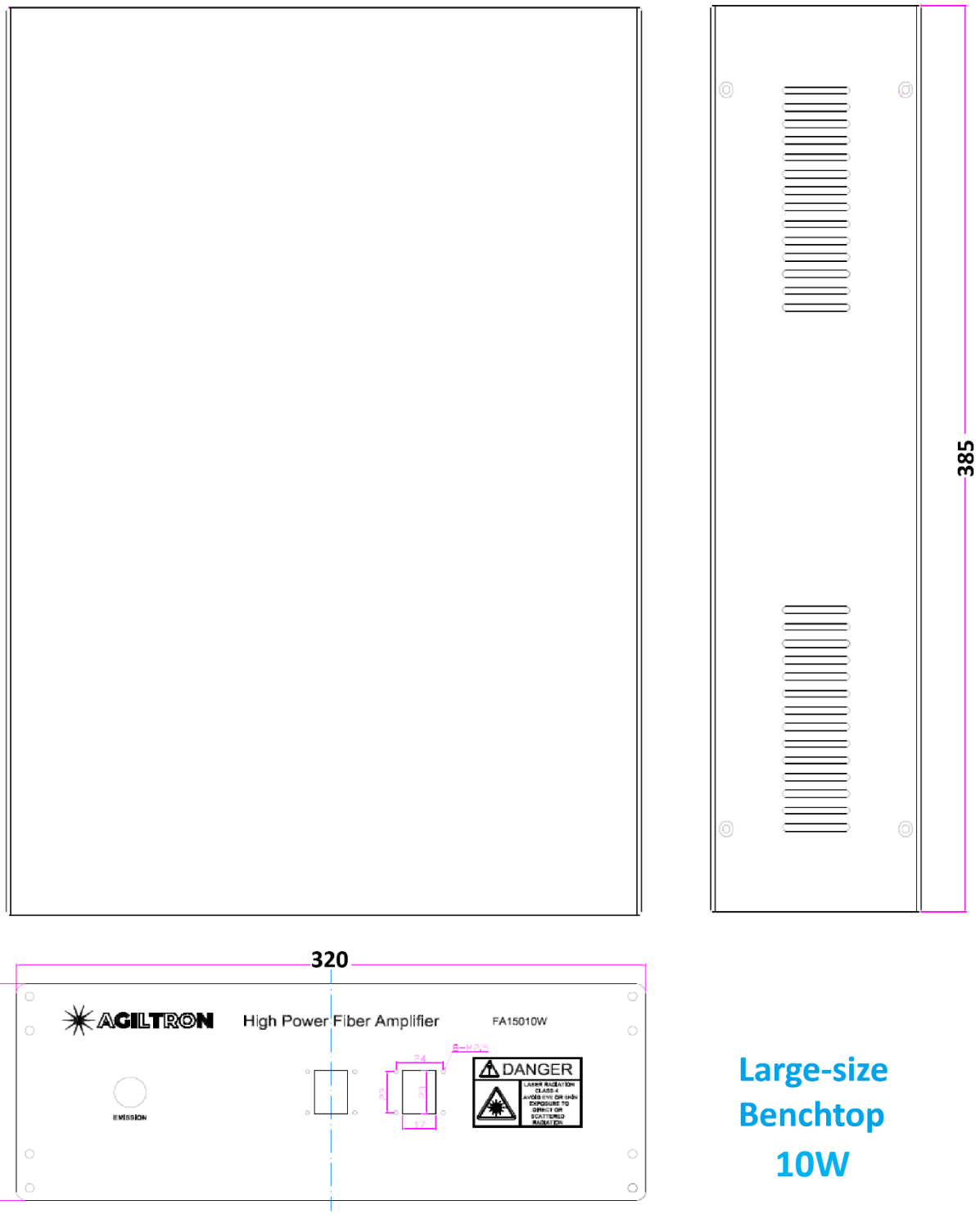
Mechanical Dimensions (mm)



Large-size Benchtop 10W

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Ordering Information (Part Number)

	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Wavelength**	**Output Power**	**Mode [1]**	**Linewidth**	**Interface**	**Fiber Type [1]**	**Fiber Cover**	**Fiber Connector [2][4]**	**Back reflection Protector**
HPPL-	1550nm = 5	10W = T 5W = 5 2W = 2 1W = 1 Special = 0	Random = 1 PMER18dB = 2 PMER25dB = 3 PMER30dB = 4	4nm = 1 1nm = 2 Special = 0	USB = 1 RS232 = 2	SM28 = 1 PM1550 = 2	0.9mm tube = 1 3mm tube = 2 Special = 0	Non = 1 High Power FC/PC = 2 Collimator 4/50mm [3] = C	Non = 1 Yes = B

[1]. PMER- Polarization Maintaining Extinction Ratio. When select PM fiber, the max PM output is 5W

[2]. High-power FC/PC connector works in pairs with maximum rating of 5W. The system includes a front panel connector and a matching patch cable, where one end features the high-power FC/PC connector, and the other end is bare fiber for splicing. This product is priced at $950

[3]. 4mm beam diameter with 50 mm working distance

[4]. 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.

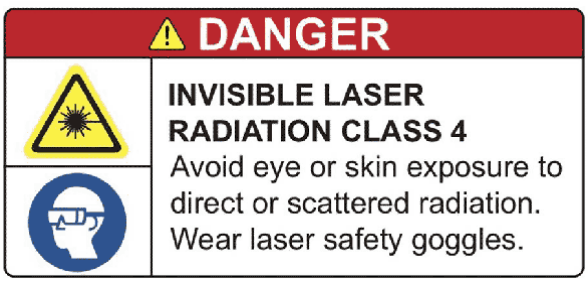
Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

Laser Safety



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