

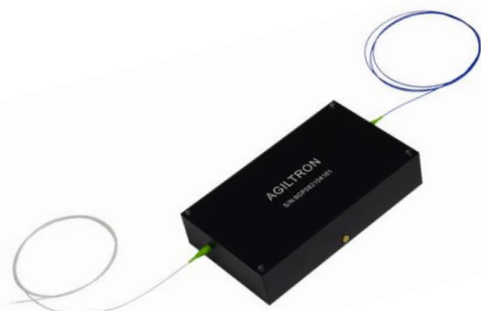
High Power Inline Variable Fiber Attenuator 0.1-12dB USB/RS232



(up to 100W high power, all fiber types, high precision 0.2dB repeatability)

DATASHEET

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Features

- Lossless
- Broadband
- High Power
- All Fiber Types
- Up To 20W

Applications

- Instrument
- Laboratory
- High Power Fiber
- Lasers

This All-Fiber Variable Lossless VOA offers near-lossless transmission in the open/transparent state and electrical control attenuation of up to 10dB with an optical power of up to 10W. Attenuation is generated by applying bending stresses to the fiber with a precision motor. The unique design is capable of maintaining high polarization extinction ratio under stress. The HPVO series of VOAs beneficially features high optical power handling, near-lossless in the open/transplant state, and ultra-broadband that preserves the fiber's intrinsic transmission characteristics. The design is compatible with all types of fibers.

The heat is transfer to the metal base that requires mounting onto a heat sink.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	300		5000	nm
Insertion Loss ^[1]	0.00	0.01	0.1	dB
Attenuation Resolution		Continuous		dB
Attenuation Range ^[2]	0		12	dB
Polarization Dependent Loss		0.02	0.1	dB
Stability ^[3]			1	dB
Return Loss	60			dB
Response Time			300	ms
Power Handling			10	W
DC Power Voltage		5		V
Power Consumption		0.5		W
Operating Temperature	-10		70	°C
Storage Temperature	-40		85	°C

Notes:

- [1]. Excluding connectors. Each connector add 0.3dB loss and 2dB ER reduction for PM fiber
- [2]. SM 9/125 fiber. Other type fiber may differ
- [3]. Measured at 10dB attenuation, low attenuation is more stable

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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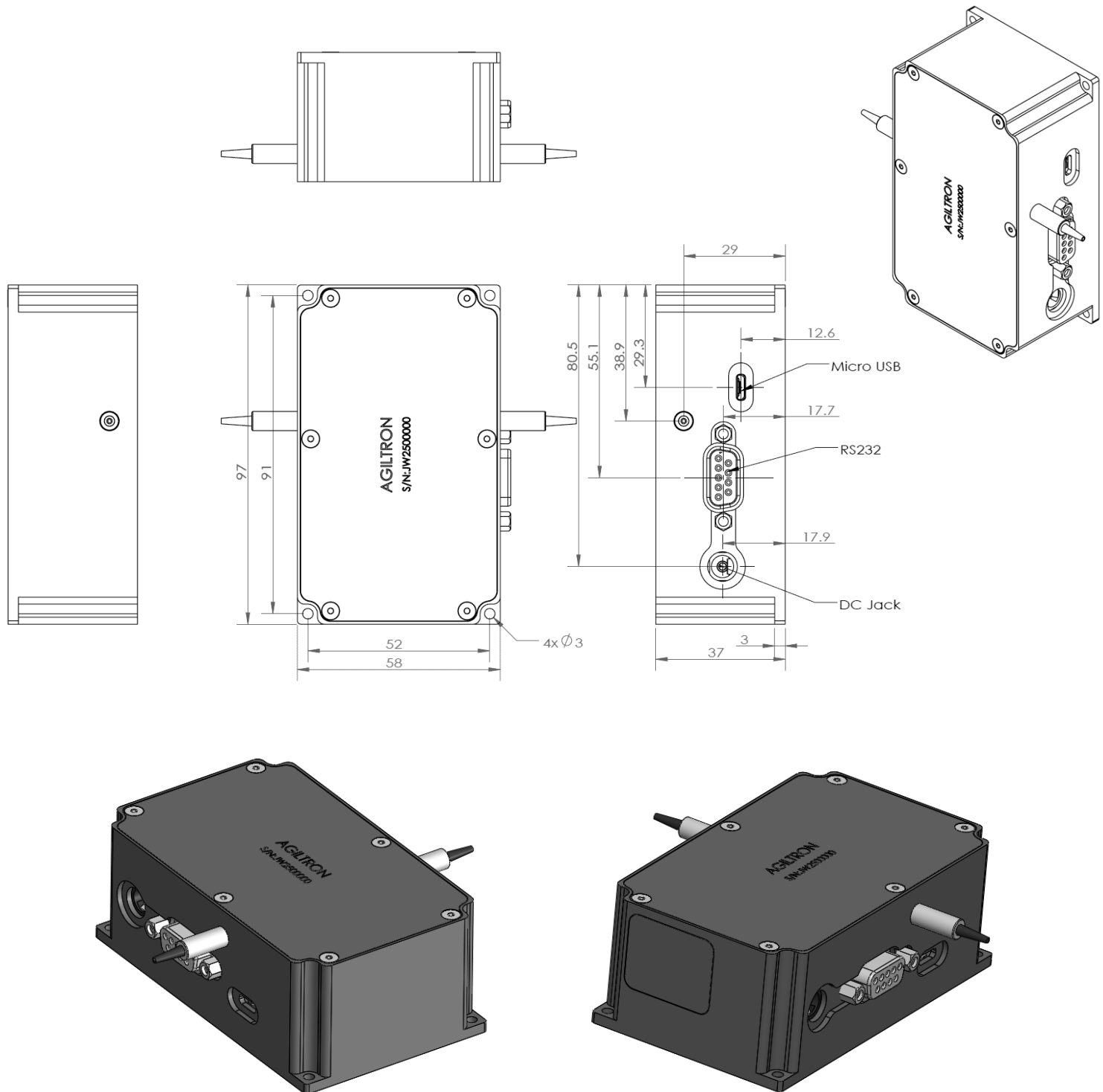
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Mechanical Dimensions (mm)



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Ordering Information

Prefix	Configuration	Type	Test Wavelength ^[1]	Fiber Type	Fiber Cover	Fiber Length	Connector ^[2]
HPVO-		Normally Open = 1	450 = 4 532 = 5 630 = 6 780 = 7 850 = 8 980 = 9 1060 = 1 1310 = 3 1550 = C 2000 = 2 Special = 0	Select from the table below	900um tube = 3 3mm tube = 4 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/UPC = 7 Special=0

[1]. The device is ultra-broadband, limited by the fiber transmission.

[2]. High power connector need order specially about \$420 each

Fiber Type Selection Table:

01	SMF-28	34	PM1550	71	MM 50/125μm
02	SMF-28e	35	PM1950	72	MM 62.5μm
03	Corning XB	36	PM1310	73	105/125μm
04	SM450	37	PM400	74	FG105LCA
05	SM1950	38	PM480	75	FG50LGA
06	SM600	39	PM630	76	STP 50/125
07	Hi780	40	PM850	77	IRZS23
08	SM800	41	PM980	78	IRZS32
09	SM980	42	PM780	E	105/NA.22
10	Hi1060	43		F	200/NA.22
11	SM400	44	PM405	G	300/NA.22
12		45	PM460	H	400/NA.22
13		K	800/NA.22	J	600/NA.22

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.

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Operation Instructions – Plug and Play

1. Connect the optical fibers.
2. Connect the included power supply.
3. Connect the device to a computer using the provided interface cable.
4. Load the GUI software onto the computer using the supplied memory disk.
5. Launch the GUI; the device will operate according to specifications.

Command List

Control via UART command (in HEX):

The baud rate setting is 115200-N-8-1.

1. Set Attenuation DB num:
0x01 0x12 <DB higher byte> <DB lower byte>
Return: None
Example: 0x01 0x12 0x03 0xE8 -> set device to -10.00 DB
2. Check Current Attenuation Level DB num:
0x01 0x1A 0x00 0x00
Return <Current DB higher byte> <Current DB Lower byte>
Example: 0x01 0x1A 0x00 0x00 RTN: 0x03 0xE8 -> The current DB is set to -10.00 DB
3. Check The Communication with The HPVO:
Explain: This command can be used to check whether the correct COM port is used.
0x01 0x02 0x00 0x00
Return 0x41 0x30

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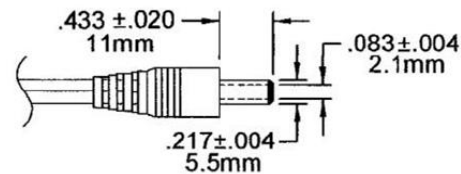
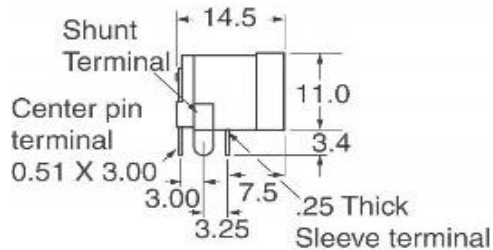


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Power Connector

Power Barrel Connector Jack 2.00mm ID (0.079"), 5.50mm OD (0.217") Through Hole, Right Angle



12V Wall Plug DC Power Supply Interface

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RS232 Connector

DB9 (DE-9)

