

Fiber Optical Power Regulator

(450-2500nm, SM, MM, PM, feedback output power regulator)

(US patent 8,666,218 and other patents pending)



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The optical power regulator is engineered to maintain a constant output power by compensating for input fluctuations. It operates by tapping a small portion of the output light with a detector and feeding it into a precision closed-loop circuit, which controls a MEMS variable fiber optical attenuator positioned between the input and output. With a wide dynamic range, it effectively limits output against input surges of up to 40 dB. The output power level can be adjusted manually via a set screw or remotely through a USB-connected GUI. The system requires an insertion loss of approximately 2 dB to regulate the output power effectively. Additionally, it compensates for polarization-dependent loss (PDL) variations along with optical power fluctuations. This regulator provides a cost-effective solution for stabilizing and limiting optical power and is powered by a 5V wall-plug power supply included with the module.

Features

- Low Loss
- 0.1dB Repeatable
- Broadband
- 40dB Dynamic Range
- SM,PM,MM
- USB
- Linear Response

Applications

- Power Control
- Power Regulation
- Surge Protection
- Instrumentation

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	450		2500	nm
Insertion Loss ^[1]	1	1.2	2	dB
Attenuation Range	40	45	70	dB
Accuracy ^[2]	0.6-30dB	0.05	0.1	dB
	30-60dB	0.2	0.6	dB
	60-80dB	1	3	dB
Extinction Ratio (PM version only)	18	23	25	dB
Polarization Mode Dispersion (SM version only)		0.01	0.05	ps
Return Loss	55			dB
Response Time ^[3]	5	10	150	ms
Power Consumption			0.5	W
Optical Power handling (CW)		300	500	mW
Operating Temperature	-10		75	°C
Storage Temperature	-40		85	°C
Weight		30		g

Notes:

- [1]. Without connector and at room temperature
- [2]. Within 40nm wavelength range
- [3]. Related to the light intensity fluctuation level

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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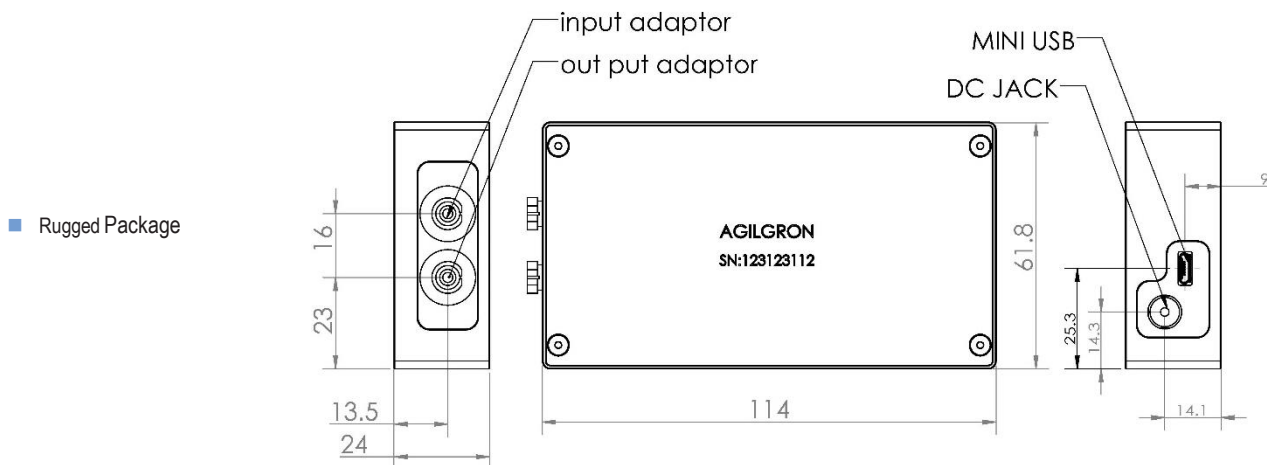
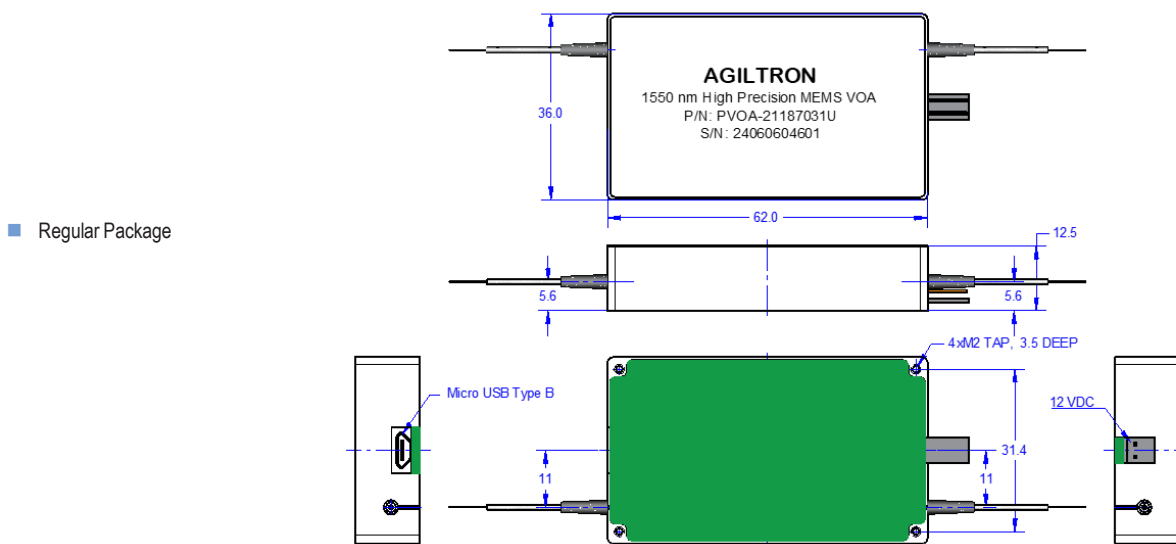
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Electrical Control Interface

The VOA can be controlled by a computer via a USB interface. It uses a Micro USB type B connector that also provide power to the VOA at the same time. The device accept UART command and recognized as a serial device by the PC.

- Pin 1 – 0V
- Pin 2 – 5V DC Power
- Pin 4 – 0V
- Pin 5 – 0-5V Control

Mechanical Footprint Dimensions (mm)



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

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Ordering Information

Prefix	1 1	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prefix	Input Power	Wavelength	Output power ^[1]	Dynamic	Fiber Type	Fiber Length	Connector ^[2]
MOPR-	< 0.5W = 11	1550 = 5 2000 = 2 1310 = 3 1480 = 4 1060 = 1 1625 = 6 780 = 7 850 = 8 650 = E 550 = F 400 = G Special = 0	0.001W = A1 0.002W = A2 ... 0.01W = B1 0.02W = B2 0.03W = B3 0.04W = B4 0.05W = B5 0.06W = B6 0.07W = B7 0.08W = B8 0.09W = B9 0.1W = C1 0.2W = C2 0.3W = C3 0.4W = C4 0.5W = C5	40dB = 1 70dB = 2	SMF-28 = 1 HI1060 = 2 780HP = 3 PM1550 = 5 PM850 = 8 PM980 = 9 SM400 = 4 SM450 = A PM400 = B PM460 = C SM600 = 6 PM630 = D PM780 = 7 SM800 = E 50/125 = F SM1950 = G PM1950 = H Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

[1]: Output power must be smaller than the input power.

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.

