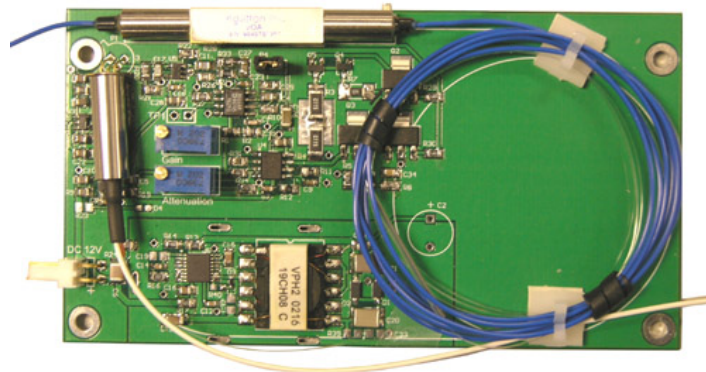


High Speed Optical Power Regulator

Product Description

The optical power regulator is a module that maintains a constant output power, regardless of the input fluctuations. This is achieved by using a detector to tap a small amount of light from the output and feed into a close-loop circuit to control a NS variable fiber optical attenuator connected between light input and output. The regulation output power range is preset according to customer spec. The module can also compensate slow polarization dependent loss changes and fast optical power surges. The optical power regulator provides an ultimate solution for optical power stabilizing and limiting. The non-mechanical device has passed the most stringent mil-spec and space flight qualifications, and is designed for over 20 years continuous operation. The unit comes with a wall-plug 12V power supply.



Performance Specifications

NOPR	Min	Typical	Max	Unit
Wavelength	400		1800	nm
Insertion Loss ¹		0.5	1	dB
Dynamic Range	18	25	30	dB
Return Loss	45	50		dB
Response Time			10	μS
Power Adjustment Resolution		Continuous		dB
Operating Optical Power (CW)		0.5	10	W
Operating Temperature ²		-5 ~ 70		°C
Storage Temperature		-40 ~ 85		°C

1. Excluding connectors.
2. Extended operation temperature is available

Features

- No Moving Parts
- High Reliability
- High Speed
- Precision

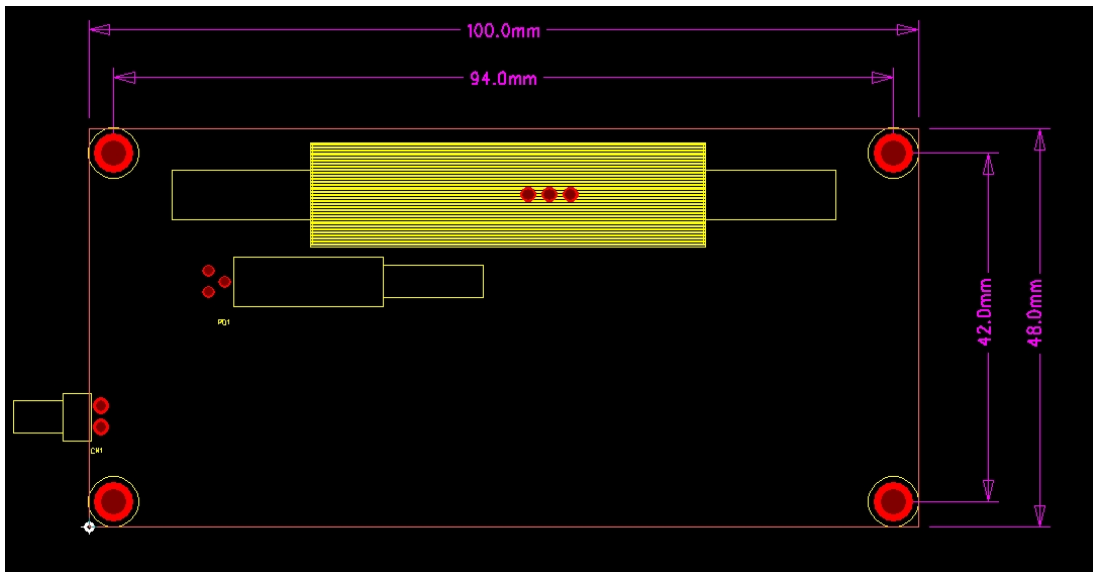
Applications

- Laser Power Regulation
- Surge Power Prevention
- Power Balance
- Instrumentation

Operation Instruction

- Plug in the accompanied power supply
- When the input power exceeds the power setting, the device starts regulating output to a constant
- The device is preset at a customer specified output power level. Adjusting Pot 1 (labeled on the board) will change output to some range about + - 10dBm. The device works best with some attenuation and will not provide output larger than the input.

PCB Layout



Ordering Information

NOPR-	1	1	<input type="checkbox"/>	<input type="checkbox"/>	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Optical Power	Package	Fiber Type	Fiber Length	Connector		
		1060=1 2000=2 1310=3 1480=4 1550=5 1625=6 780=7 850=8 650=E 550=F 400=G 1565-1620=L Special=0	0.5W=1 5W=2 10W=3 0.05W=5 0.1W=6 0.3W=7 1.0W=8 2.0W=9 Special=0		SMF-28=1 HI1060=2 HI780=3 PM1550/400=4 PM1550/250=5 PM850=8 PM980=9 Special=0	Bare fiber =1 900um tube=3 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 = 7 Special = 0	

Q&A

Q: Does NS device drift over time and temperature?

A: NS devices are based on electro-optical crystal materials that can be influenced to a certain range by the environmental variations. The insertion loss of the device is only affected by the thermal expansion induced miss-alignment. For extended temperature operation, we offer special packaging to -40 -100 °C. The extinction or cross-talk value is affected by many EO material characters, including temperature-dependent birefringence, V_p , temperature gradient, optical power, at resonance points (electronic). However, the devices are designed to meet the minimum extinction/cross-talk stated on the spec sheets. It is important to avoid a temperature gradient along the device length.

Q: What is the actual applying voltage on the device?

A: 100 to 400V depending on the version.

Q: How does the device work?

A: NS devices are not based on Mach-Zander Interference, rather birefringence crystal's nature beam displacement, in which the crystal creates two different paths for beams with different polarization orientations.

Q: What is the limitation for faster operation?

A: NS devices have been tested to have an optical response of about 300 ps. However, practical implementation limits the response speeds. It is possible to achieve a much faster response when operated at partial extinction value. We also offer resonance devices over 20MHz with low electrical power consumption.