

# Mini Dynamic Polarization Controller - PolaRITE™ III (MPC-3/4X)



In response to customer requests for low profile polarization controllers for system integration, General Photonics made a special effort in designing this third generation polarization controller, the PolaRITE™ III, with significantly reduced height and size. The height reduction is especially advantageous for integration in test equipment, fiber sensors, fiber lasers and optical network modules. Due to a special athermal design, the temperature stability is also significantly improved over our earlier version PolaRITE™ II. Like the other products in the PolaRITE™ family, PolaRITE™ III essentially eliminates insertion loss and back reflection with its unique all fiber construction. Combined with General Photonics' miniature piezo driver card, it can be controlled either by a digital or analog signal to obtain any desired polarization output from an arbitrary input polarization state.

## Specifications:

Intrinsic Insertion Loss	0.05 dB
Return Loss	> 65 dB
Wavelength	1260 to 1650 nm standard, others specify
Rise and Fall Time <sup>1</sup>	30 $\mu$ s max.
V <sub>TR</sub> at DC (at 23 °C)	35 volts max. @ 1550nm
Max. Activation Loss	0.01 dB (P grade), 0.05 dB (A grade) with 0 – 150VDC applied to all axes
Polarization Mode Dispersion	0.05 ps
Operating Temperature	-25 to 80 °C
Storage Temperature	-40 to 85 °C
Fiber Pigtail	9/125 $\mu$ m single mode fiber standard, others specify
Electrical Interface	8 pin 0.03 inch square, with 0.098 inch pitch
Dimensions	2.58" $\times$ 0.80" $\times$ 0.63" (3 axes) 3.27" $\times$ 0.80" $\times$ 0.63" (4 axes)
Maximum Applied Voltage	150 volts
Note: Values are referenced without connectors 1. 10 to 90% transition for a voltage change of V <sub>TR</sub>	

## Features:

- No intrinsic insertion loss
- No intrinsic back reflection
- Fast response
- Compact size

## Applications:

- PMD compensation
- Polarization stabilization
- Polarization demultiplexing
- Fiber sensor
- Fiber laser
- Testing equipment

## Related Products:

- Polarization Controller with Driver Card (PCD-M02)
- Components

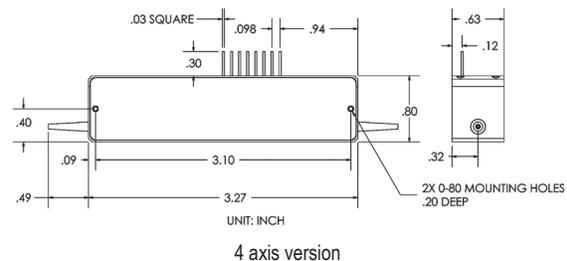
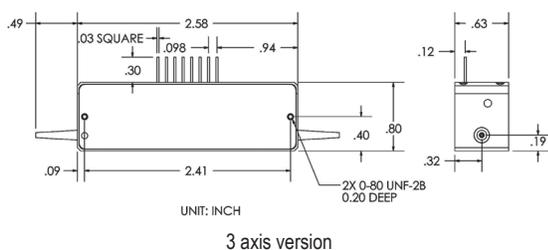
## Tech Info:

- [What is Polarization?](#)
- [Polarization in Fiber Systems: Squeezing out More Bandwidth](#)
- [Combat Polarization Impairments with Dynamic Polarization Controllers](#)
- [PolaRITE™ II/III Polarization Controllers/Scramblers Application Note](#)

## FAQ:

- [Polarization Controllers](#)

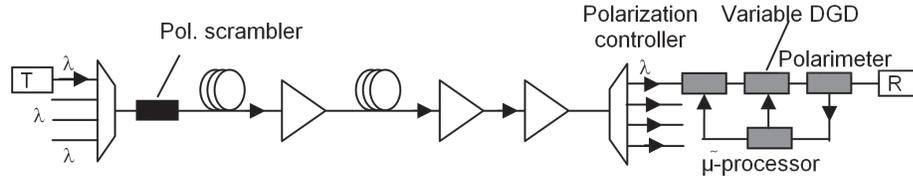
## Dimensions (in inches):



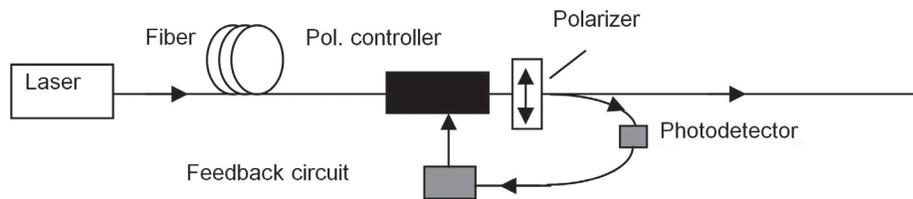
# Mini Dynamic Polarization Controller - PolaRITE™ III (MPC-3/4X)

## Applications:

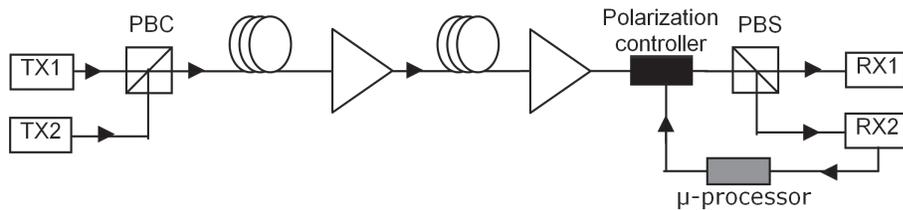
Polarization Mode Dispersion (PMD) compensation



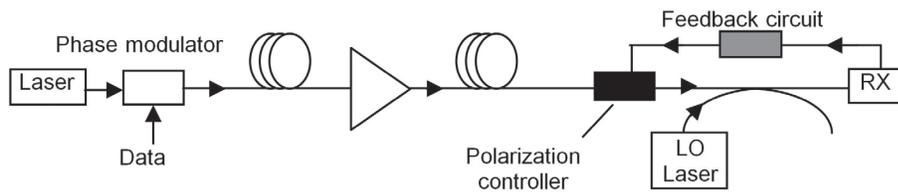
Polarization stabilization



Polarization demultiplexing



Coherent communications



- PMD emulation
- PDL (polarization dependent loss) measurement
- PDL elimination in optical instruments, such as optical spectrum analyzers
- Automatic polarization stabilization for E/O modulator and interferometers
- Reduction of EDFA polarization dependent gain
- Improvement of signal-to-noise ratio in long-haul transmission systems
- Output stabilization in fiber laser systems

# Mini Dynamic Polarization Controller - PolaRITE™ III (MPC-3/4X)

## Typical Performance Data:

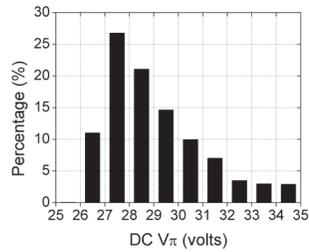


Figure 1. Histogram of DC V<sub>π</sub>. In most cases, DC V<sub>π</sub> is less than 30 volts

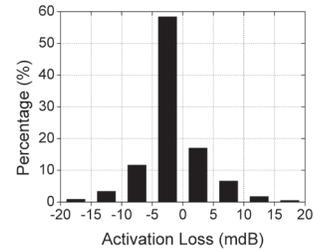


Figure 2. Histogram of activation loss. In most cases, activation loss is less than 0.01 dB.

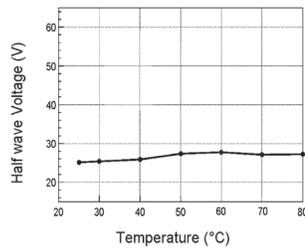


Figure 3. DC V<sub>π</sub> as function of operating temperature.

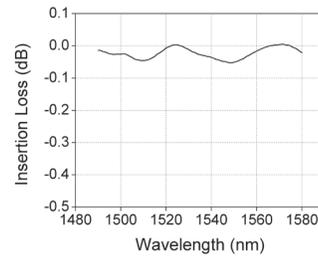
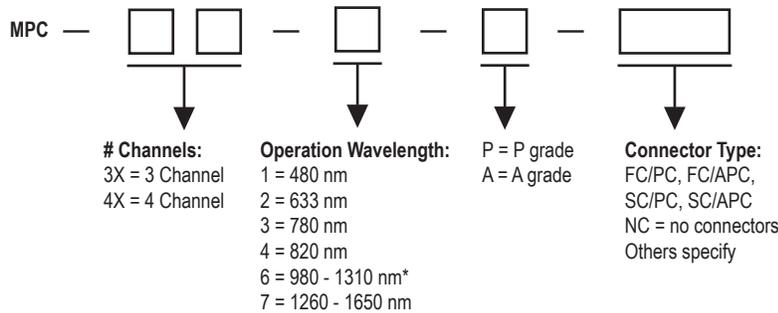


Figure 4. Insertion loss vs wavelength

## Ordering Information:



Notes:  
1260-1650nm and 980-1310 nm are the standard wavelength ranges for this product.  
Please contact General Photonics for information on other wavelength options.  
Please specify P grade or A grade if activation loss is important for your application.

\*This fiber can handle wavelengths up to 1650nm, but if it is coupled to SMF-28 fiber, the performance may not be quite as good as normal due to mode mismatch.