

# Fiber Optic Depolarizer - PolaZero™ (DEP)



Capable of depolarizing lasers with coherence lengths of kilometers, General Photonics' passive depolarizer is miles ahead of the competition. This patented device comes in a package as small as 85 × 60 × 10 mm for lasers with coherence lengths less than 10 meters. Devices for coherence lengths in the kilometer range can be custom made in a larger package, with nominal customization fees. This device is ideal for minimizing the polarization sensitivity of fiber optic sensor systems such as systems for quasi-distributed temperature and strain sensing based on fiber Bragg gratings (FBG), systems for distributed temperature and strain sensing based on Brillouin or Raman scattering, and systems for distributed acoustic sensing based on Rayleigh scattering. It can also help to eliminate the effects of PDL or polarization sensitivity of optical components and instruments. Equally important, it can be used for depolarizing pump lasers to eliminate the polarization sensitivity of Raman amplifiers. The rugged package provides high performance and superb environmental stability. The internal structure and package size may be different depending on the coherence length or spectral width of the light signal to be depolarized (see standard package drawings below). Contact General Photonics for an optimized configuration for your intended applications.

## Specifications:

Center Operating Wavelength <sup>1</sup>	1310 nm, 1550 nm
Operating Wavelength Range	± 50 nm
Coherence Length of Light Source	DEP-002: 0 to 30mm (for broadband sources) DEP-003: 0 to 300m (for narrowband sources)
Output Degree of Polarization	< 5%
Insertion Loss <sup>2</sup>	1.0 dB typical, 1.4 dB max.
Residual Extinction Ratio	< 0.5 dB
Return Loss <sup>2</sup>	55 dB
Optical Power Handling	300 mW min.
Operating Temperature	0 to 70 °C
Storage Temperature	-40 to 85 °C
Fiber Type <sup>3</sup>	Input: PM Panda fiber, Output: SMF-28
Dimensions	85 × 85 × 15 mm for DEP-003 85 × 60 × 10 mm or 85 × 85 × 15 mm for DEP-002, depending on the coherence length of the light source Note: Depolarizers with coherence lengths >10 mm (DEP-002) or 200m (DEP-003) may not fit in the standard enclosures.

**Notes:**

Values are referenced without connectors

- Contact General Photonics regarding other wavelengths.
- For DEP-003 with 10m coherence length.
- DEP-002 can be built for an SM output light source. Please specify that requirement when ordering.

## Features:

- For lasers with coherence length up to and beyond 10m
- Low degree of polarization
- Wide operating wavelength range
- Low insertion loss
- Compact size

## Applications:

- Minimize polarization sensitivity of FBG based fiber sensor systems
- Reduce polarization sensitivity of Brillouin, Raman, or Rayleigh scattering based distributed fiber sensor systems
- Remove polarization sensitivity of Raman amplifiers
- Eliminate polarization sensitivity of optical instruments
- Reduce PDL effects of optical components

## Related Products:

- Polarization Scrambler Modules ([PCD-005](#), [PCD-003](#), [PSM-002](#))

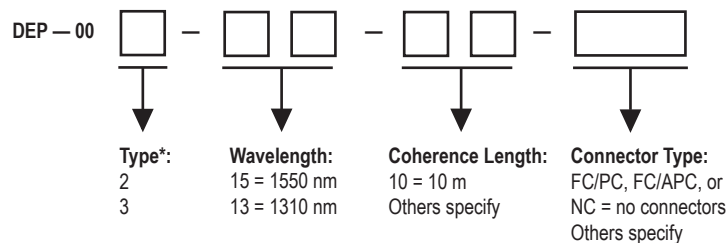
## Tech Info:

- Scrambling to Minimize Polarization Related Impairments

## FAQ:

- Depolarizers

## Ordering Information:



**Notes:**

To be determined by General Photonics depending on customer requirements

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## Typical Performance Data:

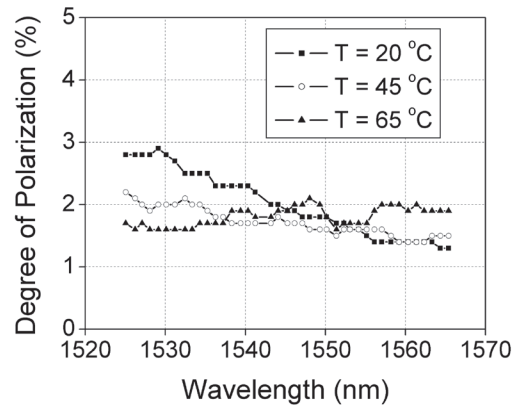
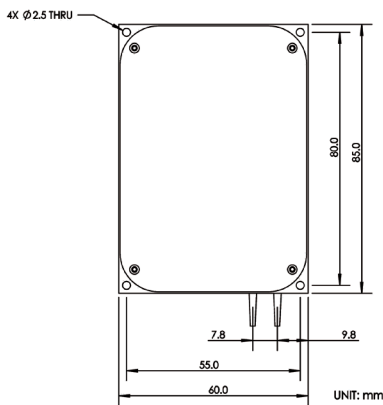
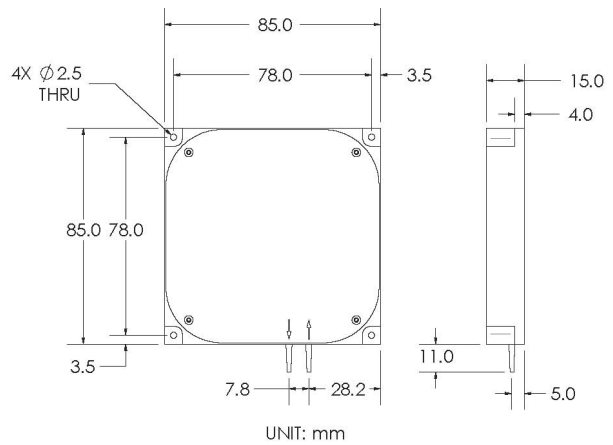
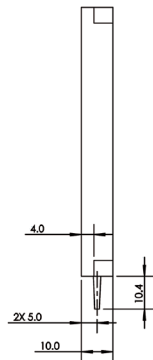


Figure 1. Degree of Polarization (DOP) as function of wavelength and temperature.

## Dimensions (standard packages in mm):



Alternate smaller package for depolarizers with small coherence lengths



Standard package for DEP-003

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