INSTRUMENTS

PMD Emulation Platform – PMDE-301

This PMD emulation platform (PMDE) simulates the true nature of PMD. Using General Photonics' patented polarization controllers and differential group delay lines, the PMDE-301 generates an accurate Maxwellian Probability Density Function with a tunable mean DGD value. The dynamic PMD emulation platform has broad applications in PMD effects evaluation and in calibration of PMD testing setups. In addition, it can be used in performance evaluation of PMD compensators. The PMDE provides a large, tunable range of DGD values, with very high repeatability and temperature stability. Its 2nd order PMD value is 70% matched with that of real fiber (~95% when two PMDE-301s are cascaded). With its easily reconfigurable mainframe and control interface, the PMDE can perform advanced PMD emulation techniques, including importance sampling, multicanonical sampling, etc., with much higher efficiency than other systems currently on the market. The "all-in-one" platform provides most of the desired features for PMD emulation/compensation systems, including first-order and all-order PMD emulation, DGD generation, polarization control and scrambling, cascading feasibility, slow PMD dynamics, etc.

Specifications:

Data Rate[1]	10 Gb/s	40 Gb/s
DGD Range	0 ~ 135 ps	0 ~ 68 ps
DGD Range (single-stage)	-45 to +45 ps	0 to 22.5 ps
DGD Resolution	1.36 ps	0.36 ps
Average PMD	0 ~ 35 ps (tunable)	0 ~ 17 ps (tunable)
2nd Order PMD	0-500 ps^2 (corresponding to 1st order PMD)	
Configuration[2]	3 DGD units, 3 polarization controller units	
Operating Wavelength Range	1550 ± 50 nm	
Insertion Loss	7.5 dB	
Return Loss	50 dB	
PDL	0.25 dB per DGD module 0.05 dB per polarization controller	
Response Time	5 ms (typical)	
Optical Power Handling	300 mW min	
Operating Temperature	10 ~ 50 °C	
Storage Temperature	-20 ~ 60 °C	
Electrical Interface	Digital I/O control with laptop computer	
Software	Executable program with multiple functions (1st order or all-order PMD emulation, DGD generation, polarization control/scrambling, etc.)	
Power Supply[3]	100 - 120 VAC, 50 - 60 Hz, or 200 - 240 VAC, 50 - 60 Hz	
Connector Type	FC/PC female connectors	
Dimensions	3U height, 63HP width, 360 mm depth	

Notes:
1. The PMDE-301 optimized for 10 Gb/s systems can also be used for testing of 40 Gb/s systems, but will provide less resolution than the version optimized for 40 Gb/s systems.
2. Specifications in this table are for standard all-order PMD emulator configuration. Single-stage (1st order) PMDE configuration is also available.
3. Universal power supply.

Features:

- Multiple functions
- Rapid measurement
- All-order PMD emulation
- High accuracy and reliability
- Tunable statistics
- Reconfigurable
- Random or slow PMD dynamics

Applications:

- Emulating PMD effects on systems
- PMD compensator evaluation
- Calibrating PMD measurement devices
- Importance Sampling
- Distributed PMD compensation

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Ordering Information:

PMDE – 301 – □ – □ □

# stages:	Data rate:
3	10 = 10 Gb/s
1	40 = 40 Gb/s