

# Programmable PMD Emulator Solution

**PE4200**

# PMD

**F**IBERPRO's PMD(Polarization Mode Dispersion) Emulator Solution, PE4200, can simulate the effect of PMD of several hundreds kilometers of optical fiber on the signal.(Pseudo-Maxwellian distribution) With its unique all fiber technology, a user can control 1<sup>st</sup> order PMD, 2<sup>nd</sup> order PMD and generate random PMD for Maxwellian distribution. Furthermore, the variability of PE4200 makes itself to be easily customized for special request, such as special PMD range, tunable mean DGD function in random mode and speed control function etc.

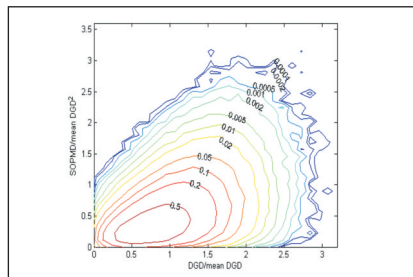




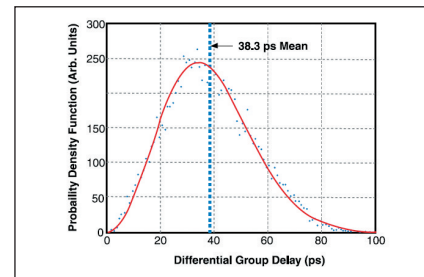
# Programmable PMD Emulator Solution

## Features

- All fiber configuration : Low Loss (IL : ~ 1.0 dB typ. PDL : ~ 0.1 dB typ.)
- Customized DGD configuration and PMD range : for 10G, 40G applications, etc.
- High repeatability / High stability
- All order PMD emulation : Independent generation of 1<sup>st</sup> order PMD (DGD) & 2<sup>nd</sup> order PMD (SOPMD), Higher order PMD
- Maxwellian distribution of PMD

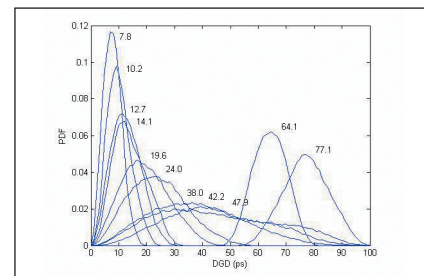


Joint probability density function :  
DGD-SOPMD

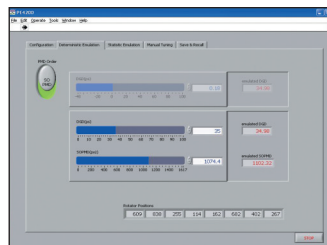
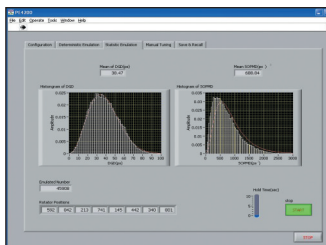


Maxwellian distribution of probability  
density function of PMD.

- Variable mean DGD : Tunable statistics
- Dynamic emulation speed control
- Powerful GUI : Deterministic Statistic Emulation,  
Virtual (trial) DGD mode, Manual Tuning

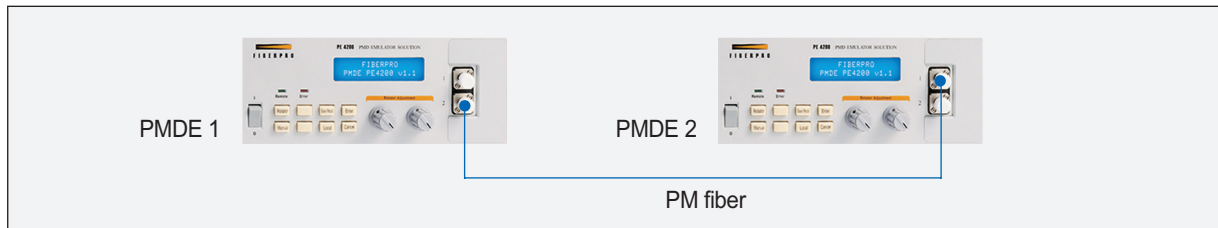


Several output DGD distributions  
simulated with various average DGD.



Windows of GUI. PE4200

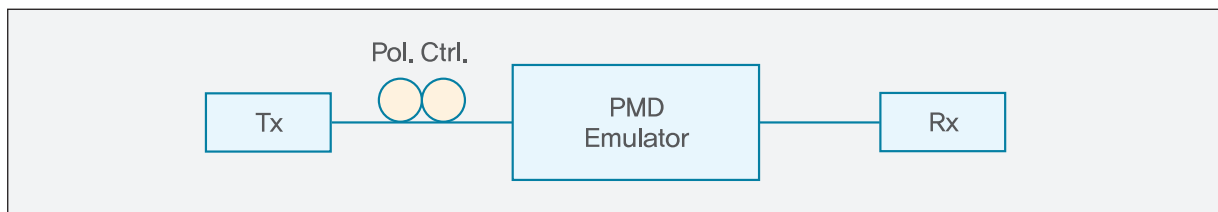
- Easy expansion (Cascading mode. PM fiber option)



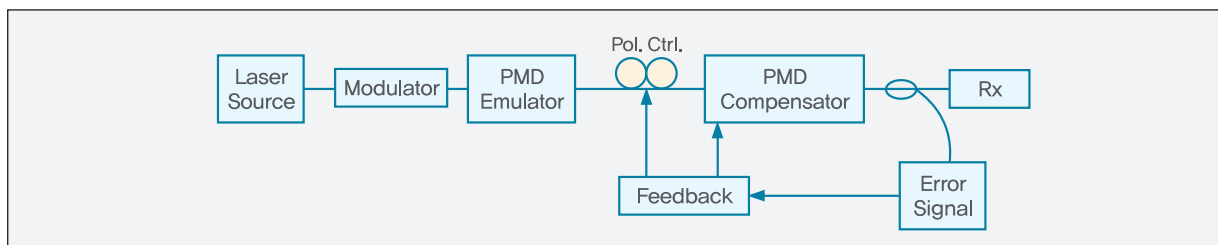
- Various customized options

## Applications

**(1) Evaluating performance of optical networks and cables in the presence of PMD**



**(2) PMD Emulations for testing PMD Compensator / PMD Compensation experiment**



**(3) FEC (Forward Error Correction) Performance Test against PMD stress**

## Specification

Function	Controllable 1 <sup>st</sup> order PMD generation (DGD) Controllable 2 <sup>nd</sup> order PMD generation Random PMD generation (Maxwellian distribution)
Standard DGD Range	0 ~ +100 ps <sup>1)</sup>
Average PMD	38 ps (tunable) <sup>2)</sup>
2nd order PMD Range	0 ~ +2,500 ps <sup>2</sup> <sup>3)</sup>
Response time	< 300 ms <sup>4)</sup>
Operating Wavelength Range	1520 - 1620 nm
IL variation	≤ 0.1 dB
PDL	< 0.2 dB
Return Loss	< 60 dB
Interface	Operating software by GPIB / RS232
Optical Power Handling	> 23 dBm
Connector type	FC/PC or FC/APC
Operating Temperature	10 °C ~ 50 °C
Storage Temperature	0 °C ~ 60 °C
Power Supply	100 ~ 125 V, 210 ~ 250 V, 50Hz/60Hz
Dimensions (W x H x D)	210 x 82 x 470 mm <sup>3</sup>

<sup>1)</sup> Other ranges are available (ex. 0~30 ps, 0~120 ps, 0~200 ps)

<sup>2)</sup> In case DGD is 0~100 ps. Tunable mean DGD function available. (Various mean DGDs can be generated.)

<sup>3)</sup> In case DGD is 0~100 ps. 2nd order PMD range depends on DGD range.

<sup>4)</sup> Speed control function available

## Ordering Code

### PE4200 - (1) - (2) - (3)

1. PMD Range → ex) 100 : 0~100 ps (10G system application)  
25 : 0~25 ps (40G system application)
2. Other Options → X : None  
P : PMF output (please specify the length)  
S : Splitting power monitor
3. Connector Type : F/P (FC/PC), F/A (FC/APC)