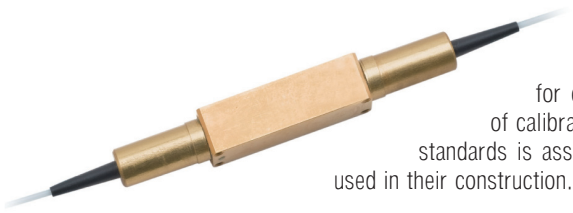
PMD and PDL Calibration Standards



PMD and PDL are important considerations in many applications, especially high data-rate communications. With the development of high precision test equipment and tighter-tolerance systems, a need has arisen for extremely precise calibration standards. General Photonics offers a range of calibration standards for DGD, second order PMD, and PDL. The accuracy of the standards is assured by the intrinsic optical and birefringence properties of the materials used in their construction.

Specifications:

DGD Calibration Standard	
Mean DGD (1500 to 1600nm)	0.314 or 0.628 ps
Material	Quartz
Calibration Wavelength Range	1460 to 1620nm
DGD Uncertainty	±1.5 fs over 1460 to 1620 nm
PDL	< 0.05 dB typical, 0.1 dB max.
Insertion Loss	< 0.5 dB typical, 0.7 dB max w/o connectors
Return Loss	50 dB without connectors
Temperature Stability	DGD value × 0.0003/°C
Fiber Type	SMF-28
Power Handling	300 mW
Operating Temperature	23 ± 5°C
Storage Temperature	-40 to 80 °C
Package Dimensions	2.28" (L) × 0.31" (W) × 0.31" (H)

Second Order PMD (SOPMD) Calibration Standard[1]	
Mean SOPMD (1500 to 1600nm)	2.04 ps^2 (Mean DGD 2.02 ps) 8.16 ps^2 (Mean DGD 5.89 ps) 16.31 ps^2 (Mean DGD 11.51 ps) 32.63 ps^2 (Mean DGD 8.08 ps)
Material	YVO_4
Polarization Dependent Chromatic Dispersion (PDCD)	0
Calibration Wavelength Range	1460 to 1620nm
SOPMD Uncertainty	±1% over 1460 to 1620 nm
PDL	< 0.05 dB typical, 0.1 dB max.
Insertion Loss	< 0.5 dB typical, 0.7 dB max w/o connectors
Return Loss	50 dB without connectors
SOPMD Temperature stability	SOPMD value × 0.0006/°C
Fiber Type	SMF - 28
Power Handling	300 mW
Operating Temperature	23 ± 5°C
Storage Temperature	-40 to 80°C
Package Dimensions	2.28" (L) x 0.43" (W) x 0.36" (H)

Note:

1. Values listed in this table are nominal values. Exact specifications will be provided with individual units.

Special Polarization Components

PMD and PDL Calibration Standards

PDL Calibration Standard	
PDL	0.05, 0.1, 0.2, 0.4, 0.5, 1.0, 1.5 or 2.0 dB
Calibration Wavelength Range	1520 to 1620 nm or 1260 to 1360 nm
Insertion Loss	PDL + 0.5 dB w/o connectors
Return Loss	50 dB without connectors
Temperature Stability	0.001 dB / ˚C
PDL Uncertainty	± (0.005 dB + PDL * 1%)
Fiber Type	SMF-28
Power Handling	300 mW
Operating Temperature	23 ± 5˚C
Storage Temperature	-40 to 80 ˚C
Dimensions	2.28" (L) × 0.43" (W) × 0.36" (H)

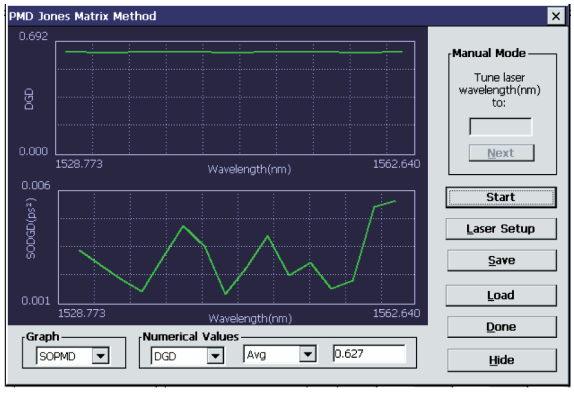
Features:

· Compact size
· Accurate and precise
· Large range of values available

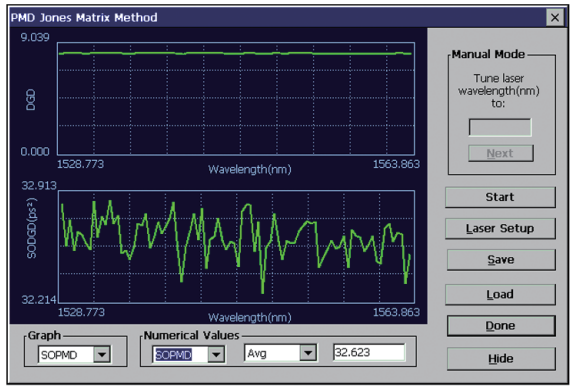
Applications:

· Measurement equipment testing and calibration
· System testing

Typical Performance Data:

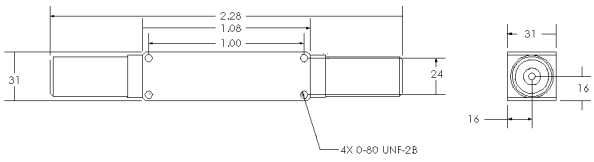


DGD (1st order PMD) calibration standard: 1st and 2nd order PMD measurement of 20mm quartz crystal. Specified DGD=0.628ps, SOPMD = 0 ps^2, Measured DGD=0.627ps, SOPMD <0.006 ps^2

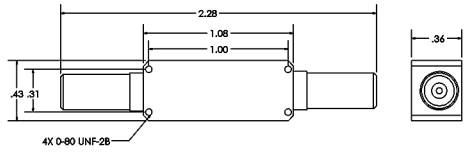


2nd order PMD calibration standard: 1st and 2nd order PMD measurement of two 8mm YVO_4 crystals with 45˚ relative orientation. Specified DGD=8.078 ps, SOPMD=32.627ps^2, Measured DGD=8.180 ps, SOPMD = 32.623 ps^2

Dimensions (in inches):



DGD/SOPMD standards



PDL standards

Ordering Information:

Calibration standards are customized to user requirements. Contact General Photonics for details.