

# WIN-PMD



## PMD Analyzer

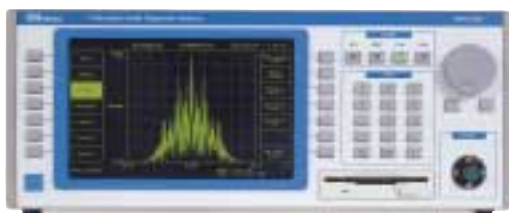
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**GNI Nettest**  
*The colors of WDM*

# PMD ANALYZER

## WIN-PMD

WIN-PMD is an interferometric PMD analyzer meeting all PMD measurement requirements in one turn-key, stand-alone package. It is the ideal tool for fast, stable, and extremely accurate measurements from 0.06 to 80 ps on installed cables or in fiber manufacturing.



### > PDM description

Polarization mode dispersion (PMD), a pulse broadening mechanism due to the random residual birefringence in the fiber, is a limiting factor in very long, high-bandwidth transmission systems.

### > Operation at both 1.3 $\mu\text{m}$ and 1.5 $\mu\text{m}$

WIN-PMD comes with WIDE, a 1.3 and 1.5  $\mu\text{m}$  broadband source, connected to one end of the fiber link under test. An interferometric analyzer connected to the other end measures the broadening of the coherence function of light after propagation, thus performing a direct measurement of the total PMD along the transmission link. Optional high-power sources allow extreme high-dynamic-range measurements.

### > Fast and accurate characterization of fiber cables

The interferometric technique is fast, accurate, and not sensitive to perturbations inflicted on the fiber link during the measurements. In addition, it does not require any communication between the source and the analyzer, making it the ideal tool for measurements on installed cables.

### > 0.06 ps to 80 ps PMD range

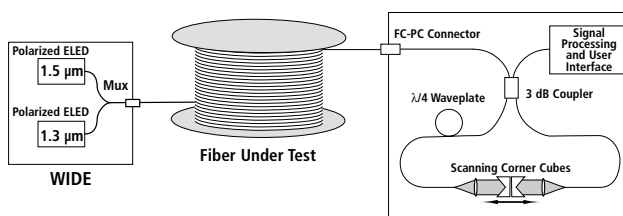
The PMD range, 0.06 ps to 80 ps, covers all needs for measurements on installed cables or for fiber manufacturing.

### > Large graphic display and intuitive user interface

WIN-PMD integrates all necessary data processing capabilities. It comes with a built-in floppy disk drive, a printer output, and an IEEE-488 interface. As an option, the sources can be integrated inside the analyzer. An optional built-in printer is also available.

### > Proprietary broad spectrum interferometric technique

The coherence analyzer is based on a patented modified Michelson interferometer, which provides a more accurate PMD measurement. The computed PMD value for strongly coupled fibers is the wavelength average of the Differential Group Delay, calculated using a cumulative algorithm. WIN-PMD complies with IEC document TS 61941 and TIA FOTP-124.



*Principle of operation*

### > Portable field instrument: UBI-PMD

When PMD measurements in the field are necessary, GN Nettest also offers the UBI-PMD, a member of our UBICS product line. This modular portable instrument features a PMD plug-in for fast, stable, and accurate measurements in the field as well as in the factory.

## IMPROVED DYNAMIC RANGE CONFIGURATION

Measurements with higher in-line attenuation can be performed using the optional higher power source:

FIBERWHITE-IN-P: Polarized ASE erbium-doped fiber source.

Specifications are modified as follows:

Source	FIBERWHITE-IN-P
Operating wavelength	1.55 $\mu\text{m}$
Minimum measurable PMD	0.4 ps
Dynamic range (for a 10 ps PMD)	50 dB

# SPECIFICATIONS

Optical specifications			
Operating wavelengths		1.3 μm and 1.55 μm	
Minimum measurable PMD		0.06 ps (0.03 ps typ.)	
Maximum scanning range <sup>(1)</sup>		160 ps	
Dynamic range		35 dB	(for a 1 ps PMD)
		30 dB	(for a 10 ps PMD)
Accuracy		1% ±0.06 ps	(for a birefringent fiber)
Repeatability		1% ±0.06 ps	(for a random coupled fiber)
Measurement time	low PMD range	6 s	(for a PMD < 10 ps)
	high PMD range	30 s	(for a PMD > 10 ps)
Optical interface		FC-PC connectors on Corguide™ SMF-28 fiber	
User interface			
Data storage		3.5", 1.44 MB floppy disk drive	
Printer output		parallel port, Sub-D 25 connector	
Remote control		IEEE-488.2	
Environment			
Operating temperature range		+10 to +40 °C (+50 to +105 °F)	
Analyzer dimensions (W x H x D)		448 x 180 x 370 mm <sup>3</sup>	
Weight		15 kg	
WIDE source			
Operating wavelengths		1.3 μm and 1.5 μm	
Output power		-20 dBm (@ 1.3 μm) and -23 dBm (@ 1.5 μm)	
Spectral width		60 nm (typ.)	
Dimensions (W x H x D)		190 x 72 x 280 mm <sup>3</sup>	
Weight		2 kg	

## NOTE

(1) PMD range is half the scanning range for random coupled fiber.

## OPTIONS

*E* . . . . . Built-in dual wavelength E-LED source  
*FW* . . . . . FIBERWHITE-IN-P source  
*P* . . . . . Built-in printer  
*M* . . . . . Remote control with modem  
*S* . . . . . PMD sample (birefringent fiber): 1 ps  $\pm$ 0.2 ps  
*RCC* . . . . . Ruggedized carrying case (for the analyzer)

# ORDERING INFORMATION

> Please specify:

WIN-PMD /   / Option1 / Option2 / ...  
     └── WIDE Standard dual wavelength E-LED source  
     └── E Built-in dual wavelength E-LED source  
     └── FW FIBERWHITE-IN-P source

At least one of the available sources must be chosen.

> Use the following code references that correspond to the available options:

*P* Built-in printer  
*M* Remote control with modem  
*S* PMD sample  
*RCCA* Ruggedized carrying case (for the analyzer)  
*RCCF* Ruggedized carrying case (for the FIBERWHITE-IN-P source)

# WIN-PMD

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GN Nettest develops, manufactures and markets advanced equipment and systems for the test and measurement of telecommunication, data communication and optical networks. We provide carriers, vendors, enterprises and research laboratories with the network testing solutions they need to troubleshoot and optimise performance in today's complex, hybrid networks and in those planned for tomorrow.

GN Nettest undertakes a continuous and intensive product development program to ensure that its instruments and systems perform to the highest technical standards. As a result, the specifications in this document are subject to change without notice.



The proprietary configuration of WIN-PMD is patented (US patent # 5,712,704).

