

# Fast Dispersion Analyzer

**NEW** Modulation Phase-Shift and Jones Matrix Eigen-Analysis

## FDA-2100K

### Key Features

- High group delay resolution  $<0.05\text{ps}$
- 1,000 measurement per second
- Modulation phase-shift method up to 10GHz
- Jones Matrix Eigen-Analysis for PMD measurement
- Ultra-precise Rubidium frequency standard
- Compatible with most third-party tunable lasers

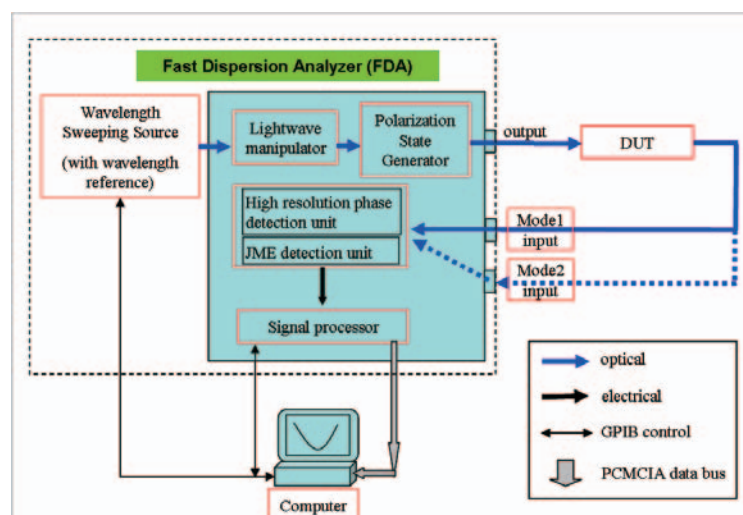


The Fast Dispersion Analyzer (FDA-2100J) features fast speed and high accuracy for measuring dispersion parameters of optical fiber and components. With Alnair Labs proprietary phase detection technology, the instrument can resolve group delay (GD) or differential group delay (DGD) better than 100fs. The instrument is interfaced with user friendly software which allows chromatic dispersion (CD), polarization mode dispersion (PMD), power or insertion loss (IL) and other important polarization parameters such as polarization dependent loss (PDL) and principle state of polarization (PSPs) Polarization parameters are measured based on Jones Matrix Eigen-analysis (JME).

### Applications

- Optical fiber characterization : SMF, DSF, DCF, highly nonlinear fiber
- Passive optical component characterization : Fiber Bragg gratings, isolators, circulators
- Optical link characterization : Measurement across multiple amplifiers

### Functional Diagram



### Specifications

Category	Parameter	Specification	Unit
Optical output	Output power range	0 ~ +3	dBm
Optical input	Input power range	-20 ~ +8	dBm
Wavelength	Wavelength range	1450 ~ 1600	nm
	Resolution, Accuracy	<±2, <±10	pm
Group delay (GD)	Resolution	<0.1 (Mode 1) <3.33 (Mode 2)	ps
Chromatic dispersion (CD)	Range	1,000 (Mode 1) 33,333 (Mode 2)	ps/nm
	Uncertainty	±(0.05 + 1% of CD) (Mode 1) ±(3.33 + 1% of CD) (Mode 2)	ps/nm
Dispersion slope (DS)	Uncertainty	±(0.06 + 0.3% of DS) (Mode 1)	ps/nm
		±(2.0 + 0.3% of DS) (Mode 2)	
PMD	Range <sup>1</sup> , Resolution, Repeatability	0.005 – 400, ±0.002, ±0.003	ps
PDL	Range <sup>2</sup> , Repeatability <sup>3</sup>	0 – 35, ±0.02	dB
Insertion Loss	Dynamic range, Accuracy	>50, ±0.1	dB
Power	Range, Accuracy	-45 ~ +10, ±0.05	dBm
Connector	Optical input	FC/SPC or FC/APC	
Electrical	Power supply	AC 100V, 50/60Hz	
Operating Conditions	Operating Temperature	+15 to +35 °C	
	Humidity (non-condensing)	<80% RH	
Physical	Dimensions (W x H x D)	600 x 450 x 800 mm	
	Weight	<60kg	

Note: The specifications are subjected to change without prior notice. Please contact Alnair Labs for more details.

1. Valid for laser wavelength step between 0.01nm to 10nm. 2. Valid for input power of > -10dBm. 3. Valid for PDL of < 3dB.

### Measurement Examples

#### Group Delay Measurement

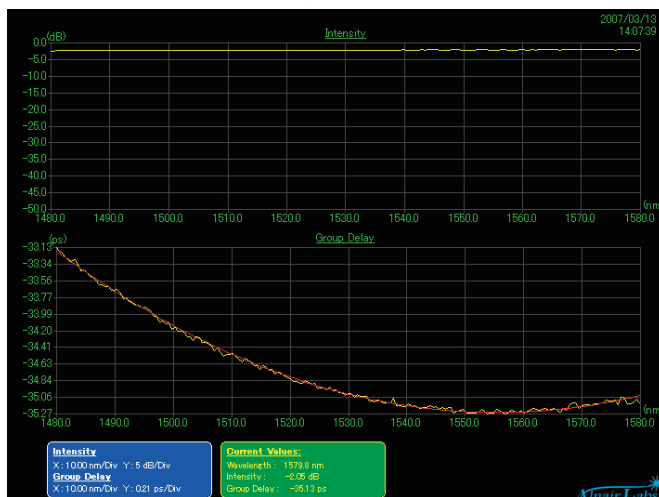


Fig. 1 Measured DUT: High Nonlinear Fiber (27m)

#### PMD Measurement

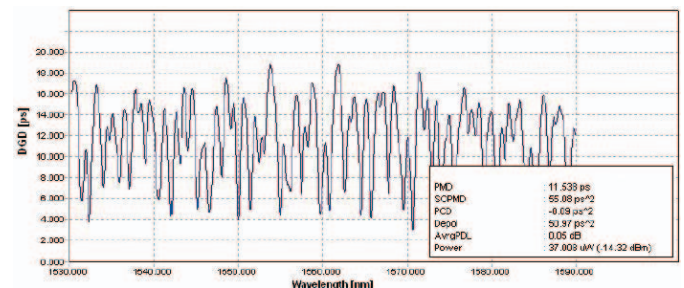


Fig. 2 Measured DUT: Photonic crystal fiber

### Ordering Information

## FDA-2100K

\* Contact Alnair Labs for tunable laser options.