

# Fiber-Loop Optical-Microwave Phase Detector (FLOM-PD)

## PD2000

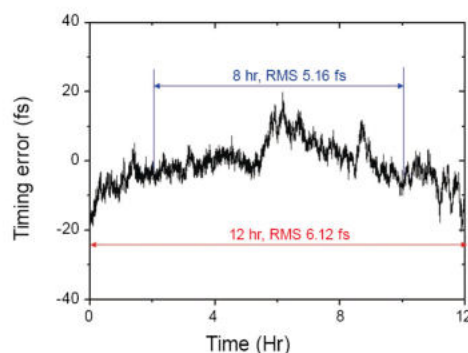
FIBERPRO's Fiber Loop Optical Microwave Phase Detector (FLOM-PD, PD2000) is a high-performance phase detection and synchronization system that enables stable performance transmission between optical signals and RF signal areas.



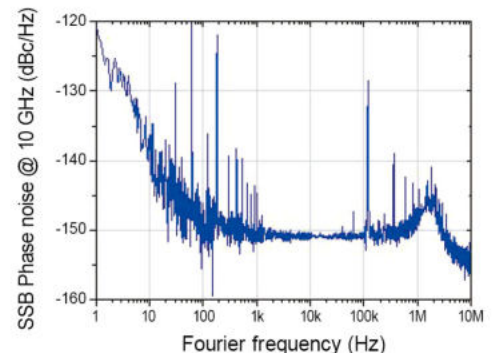
## Features

- High Sensitivity : 0.5 mV/fs
- High Resolution : < 0.1 fs
- Ultra Low Timing Jitter : < 7 fs
- Super Wide Locking Bandwidth : > 2,000 kHz
- Ultra Low SSB Phase Noise : ~ -150 dBc/Hz
- USB remote interface

## Measurement Data



Out-of-loop Timing Drift between Optical Pulses and RF-reference.



Out-of-loop Phase Noise Spectrum

## Applications

- Ultrasensitive timing jitter measurement between ultrafast lasers and RF signals
- Precise synchronization between ultrafast lasers and RF signals
- Precise synchronization of RF signals to the output of stabilized fiber links
- Synchronization of external Voltage Controlled Oscillators (VCO)

## Specifications

Model	PD2000	PD2100 <sup>1)</sup>
Detector Sensitivity	0.5 mV/fs <sup>2)</sup>	
Detector Resolution	< 0.10 fs	
Control System	Included	
Auto Lock	Included <sup>3)</sup>	Included
VCO	Not Included	Included
Timing Jitter	< 7 fs RMS (12 hours)	
Bandwidth of Error Signal	> 10 MHz	
Locking Bandwidth	> 2,000 kHz	
Output Impedance	50 $\Omega$	
VCO frequency	None	10 GHz <sup>4)</sup>
RF Output Power	None	12 dBm
RF Connector	SMA	
Error Signal Output Connector	SMA	
Loop Filter	Included	
Power Supply	AC 100 ~ 240 V (50/60 Hz)	
Dimensions (W x D x H)	234 mm x 410 mm x 108 mm (With rubber cover) 212 mm x 380 mm x 86 mm (Without rubber cover)	

Requirements		
RF Input Power	> 12 dBm	None
Optical Input Wavelength	1550 nm $\pm$ 40 nm	
Optical Input Power	> 13 dBm	
Optical Input Type	PM Fiber	
Pulse Repetition Rate	< 10 GHz	

1) PD2000 + VCO

2) At 14 dBm optical input.

3) For the case when external RF source is used.

4) Other frequencies are available. Specify when you order.

\* Above specifications are subjected to change without prior notice.



FIBERPRO Headquarters  
FIBERPRO USA  
FIBERPRO CHINA  
www.fiberpro.com

Tel : +82-42-360-0030 Fax : +82-42-360-0050  
Tel : +1-408-835-7796 Fax : +1-408-521-0402  
Tel : +86-27-8663-5497 Fax : +86-27-8663-5701  
sales@fiberpro.com