

## Product Bulletin



### PS3 Series Polarization Dependent Loss Multimeters

The PS3 multimeters measure polarization dependent loss (PDL) and insertion loss of single-mode fiberoptic components, using either the internal or an external source. The PDL of a component is defined as the maximum change in the component's insertion loss over all input polarization states. The PS3 multimeters operate by measuring the loss of the device under test for four independent input polarization states. The PDL and average loss over all polarization states are calculated analytically using the Mueller matrix. The Mueller method has been internationally standardized under IEC 61300-3-12.

The PS3 multimeters can easily alternate from PDL and insertion loss (IL) measurements to return loss (RL) or power measurements rapidly. The PDL and insertion or average loss are measured and displayed simultaneously. The PDL, IL, and RL measurements are acquired within seconds.

The sophisticated optical design compensates for any change in the optical power at the internal reference detector to ensure that accurate loss measurements are made regardless of drift in the source power or coupling of the input light through the polarization state controller.

An external tunable or fixed source can be connected to the PS3 multimeter's external input port for swept wavelength PDL measurements. Switching between the different sources can be done using a 5V port found on the back of the PS3 meters.

GPIO and RS232C remote interfaces and a rack-mount kit are standard on all units.

#### Key Features

- Alternates from PDL and IL to RL measurements rapidly
- Acquires PDL, IL, and RL measurements in a few seconds
- Insertion loss and PDL are displayed simultaneously
- External tunable or single source capability via the PS3's external input port
- External and internal source multiple setting
- GPIO and RS232C remote interface functionality

#### Applications

- Passive component qualifications
- Instrument specifications
- Swept wavelength PDL measurements
- Research and development

#### Safety Information



## Specifications

Parameter		PS30x0 models		PS36x0 models
Built-in laser type		Fabry-Perot		
Laser wavelength		1310, 1480, 1550, 1625, 1650 ±10 nm		
Operating wavelength range <sup>1</sup>		1250 to 1350 nm and 1455 to 1665 nm		
Fiber type		Siecor 9/125 micron SM		
IEC61300-3-12		Polarization dependence of attenuation of a single-mode fiberoptic component: matrix calculation method.		
PDL and Average Loss Measurements				
Resolution		0.01, 0.001, or 0.0001 dB		
Absolute accuracy <sup>2</sup>	PDL	1250 to 1350 nm	±(0.010 dB + 5% of PDL) dB maximum	
		1455 to 1665 nm	±(0.004 dB + 2% of PDL) dB typical	
		±(0.002 dB + 1% of PDL) dB typical	±(0.005 dB + 5% of PDL) dB maximum	
	L <sub>av</sub> (insertion loss) <sup>9</sup>	±(0.05 dB + 2% of L <sub>av</sub> ) dB		
	Power	±0.25 dB @ -10 dBm		
Repeatability <sup>2</sup>	PDL	±(0.001 + 5% of PDL) dB		
	L <sub>av</sub> accuracy	±(0.001 + 2% of L <sub>av</sub> ) dB		
Dynamic range <sup>4</sup>	PDL range <sup>3</sup>	0 to 5 dB		
L <sub>av</sub> (insertion loss) (InGaAs 2 mm)	>60 dB			
Return Loss Measurements (PS36x0 multimeters only)				
Resolution		1, 0.1, or 0.01 dB		
Absolute accuracy		±1.0 dB		
Repeatability		±0.7 dB		
RL range for -15 dBm output power <sup>5</sup>		60 dB		
For All Models	Electrical	Input voltage	100 to 240 V AC, 50 to 60 Hz	
		Power consumption	80 VA maximum	
For All Models	Physical	Rack mounting 19 in (48.26 cm)	2 U high, 1/2 rack width	
		Weight	4 kg	
		Dimensions (W x H x D)	21.2 x 8.9 x 35.5 cm	
For All Models	Environmental	Storage temperature	-40 to 60 °C	
		Operating temperature	10 to 40 °C	
		Humidity	95% up to 40 °C decreasing 5% per °C from 40 to 60 °C	

- Specifications not guaranteed outside operating wavelength range.
- Using a low coherence length source (DFB and tunable lasers are modulated or have a large reflection at the output in order to reduce their coherence length) and following the recommended measurement procedure.
- Higher PDLs can be measured with reduced accuracy.
- A measurement taken with output power less than -25 dBm for the internal source and -30 dBm (dynamic range for -10 dBm at external input with the input fiber to the multimeter optimized for the most power) for an external source present at the multimeter's front panel detector can reduce resolution and/or accuracy.
- Output power is about 3 dB higher in RL mode than in PWR mode. Therefore, full RL range is obtained when the measured output power in PWR mode is -18 dBm.

## Ordering Information

Indicate your requirements by selecting one option from each configuration table. Please print the corresponding codes in the available boxes to form your part number. For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 613 727-1303, or by fax at 613 727-8284, or via e-mail at sales@ca.jdsunph.com, or visit our Web site at www.jdsunph.com.

Sample: PS3650+15

PS3   0+1 

Code	Optical Return Loss
0	Without
6	With

Code	Light Source Wavelength (nm)
0	Without
3	1310
4	1480
5	1550
6	1625
8	1650

Code	Optimized Wavelength
3	1310 nm
5	1550 nm <sup>1</sup>

1. Standard.

Note: The PS3 meter includes: two FC/APC connectors, one at the OUT port and another at the IN port, and FC adapter and detector cap for the front panel detector; two FC/APC-FC/PC test jumpers and, for the RL option, a calibrated jumper; and an AC power cord and a 19 in rack-mount kit. The GPIB and RS232C interfaces are standard.



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