datasheet

Polarization Dependent Loss Multimeters

PS3 Series

The JDS Uniphase Polarization Dependent Loss Multimeters are the fastest and most accurate multimeters available. They measure polarization dependent loss (PDL) of single-mode fiberoptic components using either an internal laser or an external source. The multimeters measure the loss of a device under test for four independent input polarization states. The PDL and the average loss over all polarization states are calculated using the Mueller matrix, internationally standardized under IEC (613)00-3-12.

The multimeters easily and rapidly change from measuring PDL and insertion loss (IL) to measuring return loss (RL) or power. The PDL and IL are measured and displayed simultaneously in less than two seconds.

The multimeters have a sophisticated optical design that compensates for changes in optical power at the internal reference detector. The design ensures accurate loss measurements regardless of drift in the source power or the coupling efficiency of the input light through the polarization state controller. The integrated PDL standard source is particularly convenient for verifying the meter's calibration. An external tunable laser or two fixed laser sources can be selected for various wavelength measurements. The multimeters are ideal for PDL-sensitive components, such as isolators, DWDMs, fiber Bragg gratings (FBGs), optical circulators, switches, attenuators, couplers, and other devices for which high test accuracy and optimum production speed are crucial.

Two models are available: the PS3 single internal laser source and PS3 dual internal laser source. The internal lasers available for the single internal laser source are: 980, 1310, 1480, 1550, 1625, or 1650 nm. The dual internal laser source is available with 1310/1550, 1550/1625, 1550/1650, 1480/1550 nm. Other accessories, such as detector adapters and hybrid jumpers, are also available.

Key Features & Benefits

Uses the Mueller method

Rapidly changes from PDL and IL to RL measurements

Measurements take only a few seconds

Displays IL and PDL simultaneously

External tunable source capability

GPIB and RS232 remote control

Integrated PDL standard source

FDA[1], CE and cULus compliant

Applications

Passive component qualifications

Optical attenuator specifications

Optical switch specifications

Safety Information

1. FDA CFR21: 1040.10

Technical Specifications

PARAMETER		PS30x0 AND PS36x0 MODELS		PS3x20 MODELS
Built-in laser type	Fabry-Perot	1310,1480,1550,1625,1650 ± 10nm		980 ± 10nm
Fiber type		9/125 µm SM		5/125 µm Flexcor 1060
IEC 61300-3-12		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		
Optimization		1550 nm	1310 nm	980 nm
Absolute accuracy	PDL 960-1060 nm (maximum)			± (0.005 dB + 5 % of PDL) dB
	(typical)			± (0.002 dB + 1 % PDL) dB
	PDL 1455-1665 nm (maximum)	± (0.005 dB + 5 % of PDL) dB	± (0.010 dB + 5 % of PDL) dB	
	(typical)	± (0.002 dB + 1 % of PDL) dB	± (0.004 dB + 2 % of PDL) dB	
	PDL 1250-1350 nm (maximum)	± (0.010 dB + 5 % of PDL) dB	± (0.005 dB + 5 % of PDL) dB	
	(typical)	± (0.004 dB + 2 % of PDL) dB	± (0.002 dB + 1 % of PDL) dB	
	L_{av} (insertion loss)	± (0.05 dB + 2 % of L_{av}) dB		
	power	± 0.25 dB at - 10 dBm		
Repeatability	PDL	± (0.001+ 5 % of PDL) dB		
	L_{av} accuracy	± (0.001+ 2 % of L_{av}) dB		
Dynamic range[1]	PDL range[2]	0-5 dB		
	L_{av} (insertion loss) (InGaAs 3 mm)	> 60 dB		
GENERAL				
Input voltage		100-240 V AC, 50-60 Hz		
Power consumption		80 VA maximum		
Rack mounting 19 inch (48.26 cm)		2 U high, half-rack width		
Dimensions W x H x D		21.2 x 8.9 x 35.5 cm		
Weight		4 kg		
Operating temperature		0 to 40°C		
Storage temperature		- 40 to 60 °C		
Humidity		maximum 95 % up to 40 °C decreasing 5 % per °C from 40 to 60 °C		
(FOR MULTIMETERS WITH RETURN LOSS OPTIONS ONLY) - PS36x0				
Resolution		1, 0.1, or 0.01 dB (For multimeters with return loss options only)		
Accuracy		± 1.0 dB		
Repeatability		± 0.7 dB		
RL range for - 15 dBm output power[3]		> 60 dB		

1. 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.
2. Higher PDLs can be measured with reduced accuracy.
3. Output power is about 3 dB higher in RL mode than in power mode. Therefore, full RL range is obtained when the measured output power in power mode is - 18 dBm.

Ordering Information

Sample Order: PS3650+25

PS3 □ □ 0+2 □

code	optical return loss
0	Without
6	With

code	light source wavelength (nm)
0	Without
2	980
3	1310
4	1480
5	1550
6	1625
7	1310/1550
8	1650
A	1550/1625
B	1550/1650
C	1480/1550

code	optimized wavelength (nm)
2	980[1]
3	1310
5	1550[2]

1. Only for models with a 980 nm internal source.
2. Standard.

The multimeter includes: two FC/APC connectors (one at the OUT port and another at the IN port); an FC detector adapter and detector cap for the front panel detector; one FC/APC-FC/PC test jumpers and, for the RL option, a calibrated jumper; an AC power cord; and a 19 inch rack-mount kit. The GPIB and RS232 interfaces are standard.

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Indicate your requirements by selecting one option from each configuration table. Print the corresponding codes in the available boxes to form your part number.

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