PDL Multimeter

The JDS Uniphase Polarization Dependent Loss Multimeter is the fastest and most accurate multimeter available. It measures polarization dependent loss (PDL) of single-mode fiberoptic components using either an internal laser or an external source. The multimeter measures 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 multimeter easily and rapidly changes 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 multimeter is 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: a single internal laser source model and a dual internal laser source model. 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

Applications

Passive component qualifications

Optical attenuator specifications

Optical switch specifications

Safety Information

Complies to CE requirements plus UL3101-1 and CAN/CSA-C22.2 No. 1010.1

Meets the requirements of Class 1 in standard IEC 60825-1(2002) and complies with 21CFR1040.10 except deviations per Laser Notice No. 50, July 2001.

CLASS 1 LASER PRODUCT
(IEC 60825-1, 2002)

Specifications

PARAMETER		PS30 x 0 AND PS36 x 0 MODELS		PS3 x 20 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[4] 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)	NA	NA	± (0.005 dB + 5 % of PDL) dB
	(typical)	NA	NA	± (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	NA
	(typical)	± (0.002 dB + 1 % of PDL) dB	± (0.004 dB + 2 % of PDL) dB	NA
	PDL 1250-1350 nm (maximum)	± (0.010 dB + 5 % of PDL) dB	± (0.005 dB + 5 % of PDL) dB	NA
	(typical)	± (0.004 dB + 2 % of PDL) dB	± (0.002 dB + 1 % of PDL) dB	NA
	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		100 VA maximum		
Rackmounting 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.
4. Flexcor is a trademark of Corning Incorporated.

Ordering Information

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

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 rackmount kit. The GPIB and RS232 interfaces are standard.

10109642 Rev. 004 06/04

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