Polarization Extinction Ratio Meter-Manual

(all connector types and bare fiber input interface)

(Protected by pending patents)

DATASHEET

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Applications

- Component Fabrication
- Quality Control
- Laboratory Use
- Connector Fabrication

Features

- Low Cost
- Wide Wavelength
- Ease of Use
- Reliable
- Compact
- Bare Fiber Adaptor

The PERM-800 optical power meter is a cost effective solution to directly measure the output polarization extinction ratio from a fiber. It features unmatched low cost, large dynamic range, high resolution, and ease to use. The design adds a manual rotary polarizer to an optical power meter. As the polarizer rotates about 90 degrees, maximum and minimum intensity readings are obtained and the ratio is ER. The rotation is continuous, providing high resolution and accuracy. For the connector test, the polarizer rotary is pre-aligned to the key. The ease of operation has been proven in production and laboratory environments. ***Some practice and patient is required to obtain peak reading***. The design accepts all types of fiber connectors as well as free space laser beam. The PERM-800 is ideal for PM fiber pigtailing of laser diodes, PM fiber patch cord manufacturing, PM fiber connectorization, PM fiber fusion splicing, PM fiber coil production, and quality assurance for fiber gyros.

One option is bare fiber can be conveniently insert into the meter, which matches our PM fusion splicer fiber holder. The PERM-800 is also an optical power meter.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength Range	357		403	nm
	475		625	
	510		800	
	600		1000	
	900		1650	
	1700		2400	
PER Dynamic Range		50		dB
PER Range (0 to 50 dB)	-5		10	dBm
Extinction Ratio Accuracy [1]		1		dB
Extinction Ratio Resolution		0.01		dB
Power Resolution		≤ 0.01		dB
Power Accuracy		≤ ±1		
Polarization Angle Resolution		≤ 0.12		degree
Connector Angular Accuracy [2]		0.3		degree
Dynamic Range	-50		26	dBm
Input Optical Power	0.05		380	mW
Measurement Speed		≥ 2.5		Hz
Interface		RS-232C		
Optical Connector		FC		
Connector Polish		APC		
Weight		0.49		kg
Size		145(W) x 240(D) x 54(H)		mm
Maximum Power Consumption			35	W
Operating Temperature	-10		50	°C
Storage Temperature	-40		60	°C
Storage Humidity		< 90% RH non condensing		
Supply Voltage		220Vrms, 50Hz		

Notes:

[1]. ER is sensitive to fiber bending, temperature, and light source RE

[2]. For FC style connector with high tolerance keyway

Special Note: The rotation should be slow and smooth. Otherwise, the reading may jump due to electronic amplification processing algorism.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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Dimensions

5 cm x 10 cm x 13 cm

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Operation Instruction

1. Turn on the meter
2. Ignore the wavelength selection (affect the result small)
3. Plug the fiber into the input via a connector or bare fiber adaptor. The instrument accepts both FC and APC
4. Manually rotating the big round-shape polarizer rotator located on the top of the meter
5. Find the smallest value while slowly turning near the measurement valley and back and forth to stay at the lowest value. Then, push the dB button to zero the meter. The display shows 0 dB
6. Find the largest value while slowly turning near the peak and back and forth to choose the largest value. The value is the ER

Accessories

Bare Fiber Adaptor

$290

Ordering Information (Part Number)

	800	☐	☐	2	1	☐	☐
Prefix	**Type**	**Wavelength**	**Power Supply**	**Package**	**Configuration**	**Bare Fiber Adaptor**	**Connector Adaptor** [1]
PERM-		900-1650 = 1 1700-2400 = 2 600-1000 = 6 510-800 = 5 475-625 = 4 357-403 = 3 Special = 0	None = 0			None = 0 Yes = 1	FC/PC/APC = 1 LC/PC/APC = 4 Special = 0

"Special" – this category is to provide special performance beyond the parameters listed on the datasheet. NRE charge may be needed when this is selected.

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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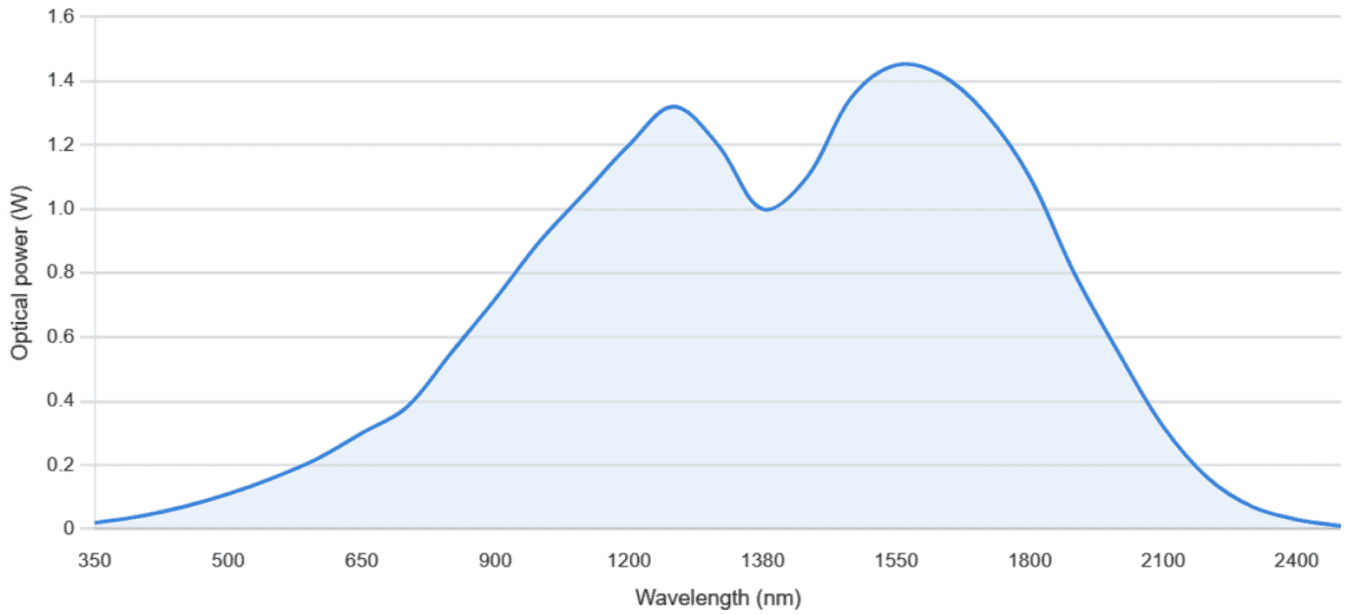
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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