Extinction Ratio Meter

ERM100
with USB Interface

Applications

- Extinction Ratio (ER) Measurements of Polarization Maintaining (PM) Fibers
- Alignment of PM Fiber to Connector Key
- Alignment of PM Fiber to Laser Source

Specifications[a]

- **Fiber Connector:** FC/PC (Narrow Key)
- **Wavelength Range:** 800 – 1700 nm
- **Max ER[b]:** >40 dB
- **ER Accuracy:[b]** 0.5 dB
- **ER Resolution:** 0.1 dB
- **Angle Accuracy:[b]** 0.5°
- **Angle Resolution:** 0.1°
- **Dynamic Range:[c]** 50 dB (-40 to 10 dBm)
- **Operating Temperature:** 5 – 40 °C
- **Line Voltage:** 100, 115, 230 VAC

a All specifications are valid at 23 ± 5 °C and 45 ± 15% relative humidity.

b For input power > -30 dBm at 1550 nm.

c Dynamic Range depends on specific wavelength.

This benchtop device offers a fast and simple way to measure the Extinction Ratio (ER) of polarization-maintaining (PM) fibers. It is an easy-to-use device that may be utilized in many applications where the alignment of polarization-maintaining fibers is required.

How it Works

The ERM100 contains a rotating polarizer followed by a detector, which generates a photocurrent. In general, for an arbitrary elliptical input state, this photocurrent will be a sinusoidal function in time with a DC offset. By simultaneously analyzing the DC offset and the depth of modulation, the meter is able to determine the degree to which the light field is linearly polarized, thereby yielding the extinction ratio (ER).

PM Alignment Application

Thorlabs' Extinction Ratio Meter can be used to align the axis of a PM fiber with the polarization axis of the linearly polarized incident light. This process is not trivial because PM fiber exhibits stress-induced birefringence that affects the ellipticity of the polarization state outputted from the fiber. For proper alignment of the polarization axis, a time-varying stress needs to be applied to the PM fiber while maximizing the extinction ratio of the transmitted light (e.g., continuously change the bend of the fiber). Since the alignment between the fiber axis and the polarization axis of the incident light field is improved, the effect of the time-varying stress will be reduced, thereby stabilizing the ER. At this point, the axis of the PM fiber will be optimally aligned with the polarization axis of the linearly polarized incident light.

Benefits

This benchtop instrument is an easy-to-use measurement device for many PM fiber alignment applications. A set of controls and the liquid crystal display on the front panel allow a quick adjustment and measurement procedure. Any PM alignment task can be performed efficiently. The ERM100 is factory-calibrated and provides the ER, misalignment angle, and power. It can also be controlled via USB. Drivers for LabVIEW™ and LabWindows™/CVI™ are included.

ITEM #	$	£	€	RMB	DESCRIPTION
ERM100	$ 2,550.00	£ 1,836.00	€ 2.218,50	¥ 20,323.50	Extinction Ratio Meter, 800 – 1700 nm, FC/PC