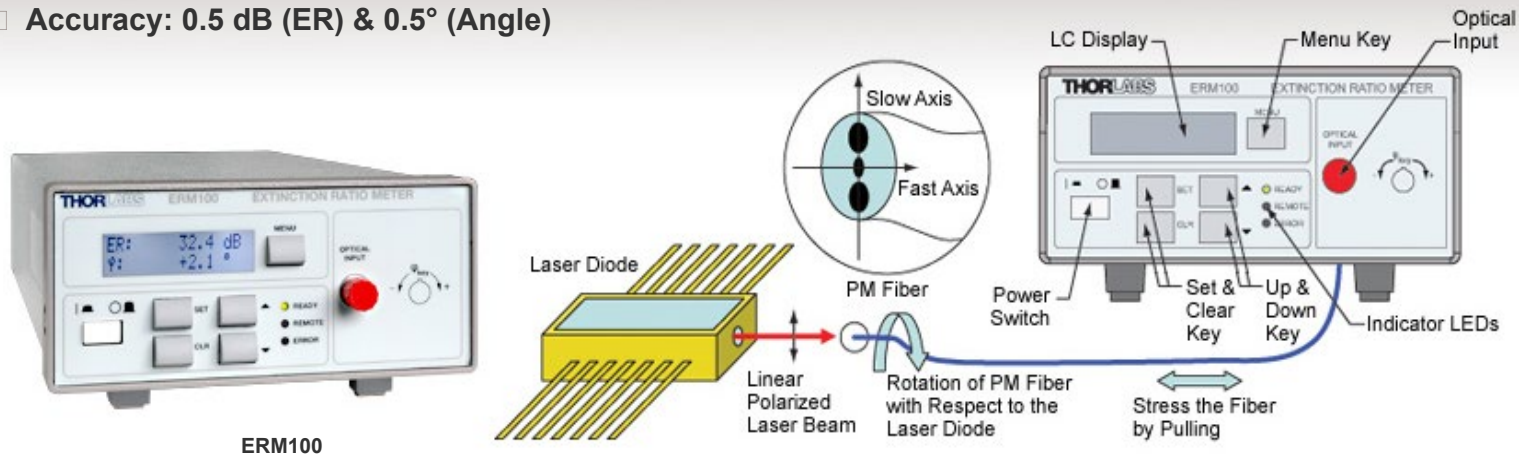# ERM100 - January 30, 2023

Item # ERM100 was discontinued on January 30, 2023. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

EXTINCTION RATIO METER

☐ **For Fast Alignment of Polarization-Maintaining Fibers**
☐ **Wavelength Range: 800 - 1700 nm**
☐ **Accuracy: 0.5 dB (ER) & 0.5° (Angle)**

ERM100

Hide Overview

OVERVIEW

ERM100 Applications

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

The ERM100 is an extinction ratio meter based on the rotating polarizer technique. This benchtop device offers a fast and simple way to measure the ER of Polarization Maintaining (PM) fibers. It is an easy-to-use device that may be utilized in many applications where the alignment of PM fibers is required.

How It Works
The ERM100 Extinction Ratio Meter contains a rotating polarizer followed by a detector, which generates a photocurrent. In general, 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.

Benefits
This benchtop instrument is an easy to use measurement device for any kind of PM fiber alignment application. A set of buttons and the LCD on the front panel allow quick adjustments and measurement procedure. Any PM alignment task can be performed efficiently.

The ERM100 is factory calibrated and can measure the ER, the misalignment angle, and the power. It can also be computer controlled via a USB connection. Drivers for LabVIEW™, LabWindows™/CVI™, MSVC, and Borland C are included.

The ERM100 is equipped with a FC/PC connector. For other connector types please contact our TechSupport.

Shipping Info
Each unit comes with the meter, a USB cable, software CD with LabVIEW™ and LabWINDOWS™CVI Driver Set, and a manual.

Hide Application

APPLICATION

Application: PM Alignment

The ERM100 Extinction Ratio Meter can be used to align the axis of a PM fibers. The incident light of a PM fiber has to be linear polarized and must be coupled parallel to one of the main axes of the fiber to maintain the linear polarization. The ERM100 provides a convenient way to achieve this. There are two different common setups for such fiber alignments depending on the light source.

Broadband Sources (SLED)
Due to the wavelength dependent birefringence of these sources, only the coupling angle has to be changed until the optimal angle with the maximum ER value is found.
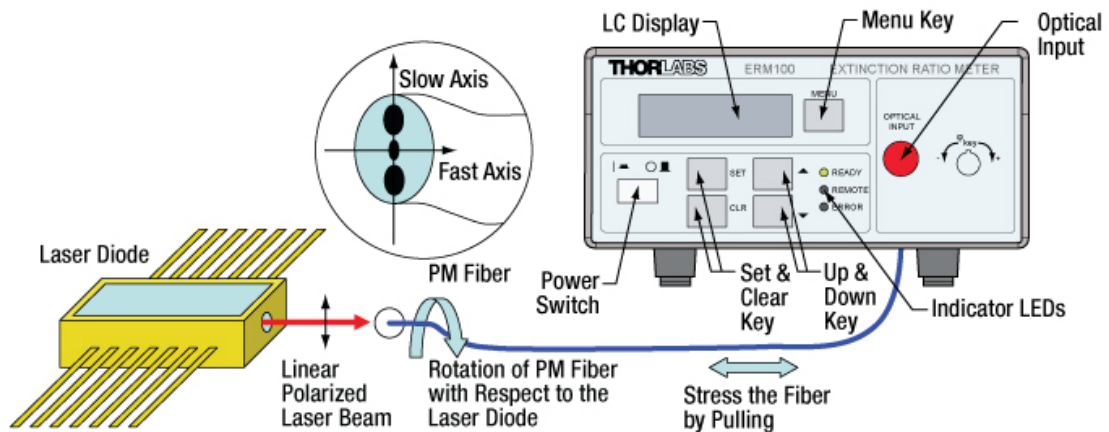
Narrow Band Sources (Laser Diodes)
There is neglectible wavelength depending birefringence for narrow band sources. To get a reliable value for the ER of the PM fiber all phaseshifts between fast and slow axes of the polarization states must be analysed. This can be achieved by stressing the fiber (stress induced birefringence) during the measurement while adjusting the coupling angle. For the optimal angle the maximum ER value should be stable and not depend on the stress on the fiber.

Typical Applications

- Optimized Coupling of Linear Polarized Light into PM Fibers
- Optimized Alignment to Connector Key
- Pigtailing (Alignment of Laser Diodes to PM Fibers)

ER Measurement on Narrow Band Sources

SPECS

ERM100 Specifications[a]	
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]	-40 to 10 dBm
Operating Temperature	5 to 40 °C
Line Voltage	100 V, 115 V, 230 V +15%/-10%

- a. All specifications are valid at 23 ± 5°C and 45 ± 15% relative humidity.
- b. For input power > -30 dBm.
- c. Dynamic Range depends on specific wavelength.

[Hide Software](#)

SOFTWARE

Software for the ERM100 Series Extinction Ratio Meters:

The available software is organized into the following categories:

1. Applications: Standard application-software packages and graphical user interfaces .
2. Drivers: Instrument drivers for the National Instruments™, LabWindows™/CVI and LabVIEW™ development environments.
3. Firmware: Low level software for the internal operation of the device.
4. Utilities: Software tools for general use.

[Hide Part Numbers](#)

Part Number	Description	Price	Availability
ERM100	**Extinction Ratio Meter Benchtop**	**$3,144.50**	**Lead Time**

THORLABS   ERM100   EXTINCTION RATIO METER

ER: 32.4 dB
Ψ: +2.1 °

MENU

OPTICAL
INPUT

φ_key
− +

SET   ▲   ● READY
                    ● REMOTE
CLR   ▼   ● ERROR