

## Low-noise configuration scheme for extinction ratio tester CIF price



### Overview

OZ Optics' Polarization Extinction Ratio Meter allows one to quickly measure the output extinction ratio of light from a fiber.

### Key Takeaways

A low-noise extinction ratio tester setup combines high-resolution polarizers, precise stepper motors, dark-level calibration, and dual-channel measurement capability to achieve accurate PER readings up to 50 dB.

Key Components for Low-Noise Configuration



1. High-Resolution Rotating Polarizer: Using a rotating polarizer with a high-resolution stepper motor, such as in the ERM-202, allows precise angular control ( $0.06^\circ$  resolution) and reduces mechanical noise, improving polarization extinction ratio (PER) measurement accuracy . 2. Low-Noise Electronics: Select testers with low-noise circuitry to minimize electronic offsets and fluctuations. This is critical for maintaining high dynamic range (up to 50 dB) and accurate detection of one and zero optical levels . 3. Dark-Level Calibration: Perform a dark-level calibration at the vertical scale used for measurement. This compensates for offsets in photodiode electronics and ensures that the measured extinction ratio reflects the true signal rather than instrument noise . 4. Dual-Channel Measurement: For devices with two polarization-maintaining outputs (e.g., PM couplers, PBS, or fiber gyros), a dual-channel tester allows simultaneous measurement of both channels, reducing measurement variability and improving repeatability . 5. Automated Data Acquisition: Integrate USB or RS232 interfaces with upper computer software to automate testing, record results, and perform digital zeroing and calibration. Automation reduces human-induced noise and ensures consistent measurement conditions .

#### Practical Setup Tips

- Vertical Scaling: Adjust the vertical scale to match the expected signal range to minimize dark-level offset effects.
- Environmental Control: Maintain stable temperature and vibration-free conditions to reduce external noise.
- Signal Averaging: Use multiple measurements and averaging to suppress random noise.
- Calibration Frequency: Regularly perform both dark-level and vertical calibration to maintain low-noise performance.

#### Market and CIF Price Considerations

- ERM-202: Offers single or dual-channel configurations with PER dynamic range up to 50 dB, suitable for PM fiber pigtailling, modulators, and laser diodes .
- Cost Factors: CIF price depends on channel configuration, software integration, and shipping. Dual-channel systems with automated software are typically higher in cost but provide better low-noise performance.
- Alternative Options: Other cost-effective testers provide wide power range, high test accuracy, and reliability, suitable for optical communication and fiber device testing . By combining high-resolution polarizers, low-noise electronics, proper calibration, dual-channel measurement, and automated data acquisition, you can achieve a low-noise extinction ratio testing setup suitable for both laboratory and production environments while considering CIF pricing for procurement.

## Article Content

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The optical power meter single/double channel extinction ratio meter (extinction ratio tester) can independently test polarization

Polarization Extinction Ratio Tester

It can be used for the measurement of extinction ratio of polarization-preserving optical fiber, extinction ratio of polarization

Extinction ratio

In telecommunications, extinction ratio ( $re$ ) is the ratio of two optical power levels of a digital signal generated by an optical source,

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