How to measure the luminous power of an optical module



Overview

An increasingly common special-purpose OPM, commonly called a "PON Power Meter" is designed to hook into a live PON (Passive Optical Network) circuit, and simultaneously test the optical power in different directions and wavelengths. This unit is essentially a triple power meter, with a collection of wavelength filters and optical couplers. Proper calibration is complicated by the varying duty cycle of the measured optical signals.

Key Takeaways

You can check the optical power of an optical module using an optical power meter or the module's built-in Digital Optical Monitoring (DOM/DDM) feature.Using an Optical Power Meter

An optical power meter (OPM) is the most accurate tool for measuring the transmitted (TX) and received (RX) optical power of a module. To use it:

• Select the correct wavelength: Ensure the power meter matches the module's operating wavelength (commonly 850 nm, 1310 nm, or 1550 nm) to get accurate readings .

• Clean connectors: Dirt or dust on fiber connectors can reduce power readings and cause signal loss .

• Connect the fiber: Insert the fiber from the optical module into the power meter.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

• Read the power: The meter displays optical power in dBm. Compare the reading to the module's datasheet to verify it is within the recommended range .

• Safety: Never look directly into the fiber end; laser light can damage your eyes. Wear safety glasses .
Using Digital Optical Monitoring (DOM/DDM)

Many modern SFP or optical modules support DOM/DDM, which provides real-time monitoring of optical power and other parameters:

• Access the switch or device CLI: Commands vary by vendor. For example, on Cisco Catalyst switches, use show interfaces transceiver detail to view TX and RX power .

• Check TX and RX values: TX indicates the light leaving the module, while RX shows the light received from the remote device. Values outside the low/high warning thresholds may indicate a problem .

• Regular monitoring: Periodically check optical power to detect degradation early, which helps prevent network outages .
Additional Tips
• Compare with datasheet: Always verify measured power against the module specifications to ensure proper operation .

• Test after changes: Check optical power after installing, replacing, or cleaning modules to confirm correct performance .

• Troubleshoot low power: Low TX power may indicate dirty connectors, damaged fiber, or a failing module . By combining optical power meters and DOM/DDM monitoring, you can accurately measure and maintain the luminous power of optical modules, ensuring reliable network performance.

Article Content

Optical power meter

OverviewWavelength-selective metersSensorsPower measuring rangeCalibration and accuracyExtended sensitivity metersPulse power measurementCommon fiber optic test applications

An increasingly common special-purpose OPM, commonly called a "PON Power Meter" is designed to hook into a live PON (Passive Optical Network) circuit, and simultaneously test the optical power in different directions and wavelengths. This unit is essentially a triple power meter, with a collection of wavelength filters and optical couplers. Proper calibration is complicated by the varying duty cycle of the measured optical signals. It may have a simple pass/ fail display, to facilitate easy use by operators wit

Related Video Reference

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://zithatech.co.za
Technical inquiry: https://zithatech.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved