

OEM Coherent Optical Module DML



Article Overview

DML-based coherent optical modules are high-performance, cost-effective solutions for 100G–400G data center interconnects, offering compact form factors, low power consumption, and flexible deployment options.

Overview of DML-Based Coherent Modules

Directly Modulated Lasers (DMLs) are semiconductor lasers where the optical output is modulated directly by the driving current, eliminating the need for external modulators. In coherent optical modules, DMLs are used to generate high-speed optical signals with formats such as PAM4 for short- to medium-reach applications. Lumentum, for example, offers 100G PAM4 DMLs capable of 2 km reach, suitable for 400G+ applications in data center interconnects (DCI) and metro networks, providing a smaller footprint and lower power consumption compared to traditional external modulator solutions .

Key Features

- **High Data Rates:** DML-based coherent modules support bit rates from 100G to 400G, enabling next-generation DCI and metro/regional networks .
- **Compact Form Factor:** Modules are available in CFP2-DCO and other pluggable formats, facilitating easy integration into existing network equipment .
- **Cost and Power Efficiency:** DMLs reduce the number of components and power requirements, making them suitable for large-scale deployment in data centers .
- **Wavelength Control:** DMLs often use distributed feedback (DFB) diode lasers with Bragg reflectors to lock the wavelength accurately, ensuring stable coherent trans...

Article Content

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Coherent optical module

Coherent optical module refers to a typically hot-pluggable coherent optical transceiver that uses coherent modulation (BPSK / QPSK

Dec 26, 2025

EML vs. DML: Choosing the Right Laser Technology for Optical

Explore the differences between EML (Electro-absorption Modulated Laser) and DML (Directly Modulated Laser)

May 09, 2026

How to Distinguish and Choose Between EML and DML Lasers?

EML (External Cavity Laser) and DML (Directly Modulated Laser) are two types of lasers that play important roles in

Nov 25, 2025

GBC Photonics 100G Optical Modules

Compared with DML laser, EML laser consumes more power and is a more complicated optoelectronic system. Lasers of both types

Aug 10, 2025

Lumentum intros 400G CFP2-DCO coherent modules, PAM4 DMLs

At next week's virtual Optical Fiber Communication Conference (OFC) Lumentum will introduce new 400G CFP2-DCO

Aug 21, 2025

NEXT GENERATION OPTICAL INTERFACES

Summary The components for the next speed are coming: DML chips for the module industry EML chips for the module industry InP

Apr 16, 2026

Tracking the Coherent DSP Supply Chain - 2026

It examines the market share for coherent DSPs. For information on the total volumes shipped of each coherent

Oct 22, 2025

Coherent Corp Unveils Groundbreaking 400G Electro-Absorption

In a significant leap for optical communication technology, Coherent Corp has unveiled the industry's first 400G

Jan 18, 2026

Coherent Optical Module Market Size | Industry Growth Report 2035

Coherent Optical Module Market report highlights growth from USD 1.38 Billion in 2025 to USD 4.28 Billion by 2035, reflecting a

Nov 12, 2025

Designing a Module for High-Speed Optical Communication

This article explores MPS optical module solutions to meet the design requirements of high-speed optical communication as well as

Dec 31, 2025

Coherent Advances 1.6T Optics with 400G Differential EML

Coherent is demonstrating the industry's first 400G Differential Electro-Absorption Modulated Laser (D-EML) at OFC

Mar 05, 2026

Integrated Components and Solutions for High-Speed Short-Reach

With the development of low-cost coherent detection and monolithic integration technologies, VCSEL, DML, EML,

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How to Differentiate and Choose Between EML and DML Lasers

EML (External Cavity Laser) and DML (Distributed Feedback Laser) lasers play crucial roles in optical modules used

Apr 06, 2026

DLP-OMM-SEARCH Design tool | TI

DLP Products optical module search tool (DLP-OMM-SEARCH) is a list of production optical modules with detailed

Jan 03, 2026

Coherent Expands Its Portfolio of Silicon Photonics Transceivers for ...

Mar. 20, 2025. Coherent announces the launch of its 2x400G-FR4 Lite optical transceiver, a silicon photonics-based module

Jul 29, 2025

100G Coherent Transceivers

100G Optical Modules for Extended-Reach Data Center Interconnect; Metro and Regional Networks; and All Your Connectivity

Sep 23, 2025

What are the Differences between EML and DML Laser?

Both EML (Electro-Absorption-Modulated Laser) and DML (Directly Modulated Laser) lasers play important roles in

Aug 02, 2025

Data-Driven Modeling of Directly-Modulated Lasers

Data-driven DML modeling The overall goal is to emulate the response of any DML laser as closely as possible based only on I/O

Feb 28, 2026

Chinese Optical Modules Own 7 of the Top 10 Seats. So Why Are

Chinese Optical Modules Own 7 of the Top 10 Seats. So Why Are Chip Companies Still Making the Money? Assembly

Oct 15, 2025

SureLock

OEM Wavelength Stabilized Laser Coherent's Raman OEM Lasers are wavelength-stabilized, high-power, compact laser modules

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EML vs DML | Skylane Optics

Laser technology: EML vs DML 100G QSFP28 form factor transceivers are today heavily deployed and although the

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Coherent Demonstrates Industry's First 400G Differential Electro ...

Mar. 27, 2025. Coherent is demonstrating the industry's first 400 Gb/s Differential Electro-absorption Modulated Laser (D-EML) at

May 14, 2026

Coherent Demonstrates Industry's First 400G Differential Electro ...

Built on the success of its 200G D-EML, which was recognized in the 2025 Lightwave+BTR Innovation Reviews, this

Sep 30, 2025

Coherent Optical Modules: Technical Advantages and Application

Coherent optical modules use coherent light (waves with fixed phase relationships) for signal transmission and

Sep 29, 2025

EML vs DML: What Are the Differences?

EML and DML are two essential laser technologies used in 100G/200G/400G/800G transceivers. The key differences

May 05, 2026

(PDF) Directly Modulated Semiconductor Lasers

This paper presents a review and discussion of the directly modulated semiconductor lasers and their applications to

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DML or EML?

Comparison of DML and EML In general, DML are used in applications with lower data rates and shorter distances (up to 10 km),

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Coherent Distributor | DigiKey

Broad product offerings and innovative technology have made Coherent the world's largest supplier of

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DML and EML Modulation Techniques for Optical Module Lasers

In summary, DML and EML, as two important modulation technologies for optical modules, play an important role in

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Acousto-Optic Modulators | Coherent

Optics Acousto-Optic Modulators Pick pulses for amplification or to apply side-bands for heterodyne-sensing applications with one of

Sep 12, 2025

Coherent demos first 400G differential electro-absorption modulated

Built on the success of its 200G D-EML, which was recognized in the 2025 Lightwave+BTR Innovation Reviews, the

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