

## Article Overview

100G ZR coherent QSFP28 modules provide high-capacity, long-reach optical connectivity for metro, access, and data center networks, and are available in New Zealand through distributors like Mouser.

## Overview of Coherent Optical Modules

Coherent optical modules, such as QSFP28 100G ZR, use digital coherent optics (DCO) technology to transmit 100 Gb/s over long distances with high spectral efficiency. Unlike traditional intensity modulation-direct detect (IM-DD) optics, coherent modules leverage advanced modulation formats (QPSK, DP-QPSK) and digital signal processors (DSPs) to enable dense wavelength division multiplexing (DWDM) and extended reach over single-mode fiber . These modules are compact, pluggable, and compatible with standard QSFP28 ports, making them suitable for data center interconnects (DCI), metro networks, and access aggregation.

## Key Features

- o Data Rate: 100 Gb/s per wavelength
- o Reach: Up to 80 km over dark fiber and up to 300 km over amplified DWDM links
- o Form Factor: QSFP28 pluggable modules, compatible with router and switch client ports
- o Power Consumption: Typically 5.5-6 W depending on operating temperature
- o Applications: Metro/access networks, DCI, PON aggregation, campus interconnects, and AI-driven data center deployments
- o Standards Compliance: IEEE 100GBase-ZR, ITU-T G.709.2, CMIS 5.2 management interface

## Leading Vendors

- o Coherent: Offers dual-laser 100G ZR QSFP-DCO modules for single-fiber bi-directional applications, enabling up to 10x capacity on existing 10G infrastructure .
- o Ciena: 100ZR QSFP28 transceivers support DWDM scaling up to 9.6 Tb/s on a single fiber pair, optimized for AI and data center networks .
- o Nokia: QDCO1 modules provide 100G coherent WDM line interfaces in compact QSFP28 form, supporting up to 300 km with amplification .
- o Cisco: QSFP28 100G ZR modules extend coherent links up to 300 km over DWDM, with low-latency and precise timing support .

## Availability in New Zealand



# New Zealand Solution Coherent Optical Module SFP

Distributors like Mouser Electronics New Zealand stock a range of fibre optic transmitters, receivers, and transceivers, including coherent QSFP28 modules. Pricing and datasheets are available online, and Mouser provides inventory for immediate procurement. Local network operators and enterprises can source these modules for upgrading metro, access, and data center networks.

## Summary

For New Zealand network deployments, 100G ZR coherent QSFP28 modules offer a cost-effective, high-capacity, and long-reach solution compatible with existing QSFP28 infrastructure. They are suitable for metro, access, and DCI applications, and are available through distributors like Mouser, enabling local procurement and support. These modules leverage coherent optics and DSP technology to maximize fiber utilization, reduce power consumption, and support modern high-speed networking requirements.

It delivers an always-on, wire-speed encryption solution, without impacting performance or adding operational complexity, to ensure

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Since 2001, Southern Photonics has designed and manufactured a range of optical pulse and modulation analysis equipment, which

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Understanding the working principle of optical modules--especially SFP transceivers--is critical for network



# New Zealand Solution Coherent Optical Module SFP

In the past, the optical transceiver used in these applications was fixed wavelength. It required the inventory management for each

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A key advancement is the 100G ZR QSFP28 coherent optical module, designed for high-capacity, long-distance data

Coherent Solutions, the New Zealand based company that has established itself as a supplier of coherent transmission test

100G SFP56-DD Loopback 25G SFP28 Loopback Optical Transceiver Adapters The GIGALIGHT 100G CFP to QSFP28 adapter,

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