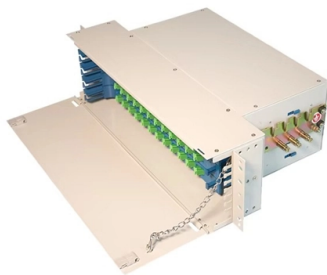


The optical module spans many kilometers



Overview

Backbone networks often span hundreds to thousands of kilometers, connecting multiple cities, regions, or countries. Long-reach optical modules employ wavelength division multiplexing (WDM) and optical amplifiers to transmit data over continental distances. Optical modules typically have an electrical interface on the side that connects to the inside of the system and an optical interface on the side that connects to the outside. If the optical module works at a wavelength near 850nm (880nm) or 910nm (940nm), then the module is a multi-mode fiber (MMF) optical transceiver, and if the working wavelength is 1310nm or 1550nm, it is a single-mode fiber (SMF) optical module. Generally, the maximum transmission distance (generally, this is where 100G QSFP28 80km BiDi optical modules start to make sense. Loss occurs because the light energy dissipates due to medium absorption, scattering, and leakage during optical fiber transmission, dissipating energy at a certain rate as the transmission distance increases.



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Optical module

OverviewOptical modulation and multiplexing typesElectrical Interface TypesIn-module componentsElectrical cable equivalentFront panel optical module MSAsOn-Board Optical module MSAsUsers of Optical Modules

Many different forms of optical modulation and multiplexing have been employed in optical modules. The most common modulation technique historically has been on-off keying or NRZ. Pulse-amplitude modulation (PAM-4) has also been extensively used. In the 2010s, coherent optical modulation has been used. Techniques include Dual Polarization Quadrature Phase Shift Keying (DP-QPSK) and QAM-16.

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MAINTENANCE: Fiber optic cables costs much less to maintain. In recent years it has become apparent that fiber-optics are steadily replacing copper wire as an

Contact Us

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