

Article Overview

Single-fiber bidirectional (BiDi) optical modules in the UAE enable full-duplex communication over a single fiber strand, saving fiber resources while supporting high-speed network connectivity.

Overview of BiDi Optical Modules

BiDi optical modules allow simultaneous transmit and receive over a single fiber using two distinct wavelengths, typically through wavelength division multiplexing (WDM) technology . This full-duplex operation eliminates the need for separate fibers for each direction, effectively doubling fiber capacity and reducing installation and maintenance costs . Optical isolation within the module ensures that the transmit (Tx) and receive (Rx) signals do not interfere, maintaining data integrity .

Technical Specifications

- o Speed Ratings: Available in 1 Gbps, 10 Gbps (SFP+), and higher speeds such as 25G or 100G for advanced networks .
- o Wavelengths: Common configurations include Tx:1270 nm / Rx:1330 nm for 10G modules (e.g., ROBOfiber SFP-1010-WA) and Tx:1310 nm / Rx:1550 nm for other BiDi SFPs .
- o Distance: Modules support ranges from 3 km (1 Gbps) up to 10 km (10 Gbps) depending on the model and fiber type .
- o Compatibility: Many BiDi modules are compatible with major networking vendors such as Cisco, Juniper, Force10, and Ubiquiti, ensuring interoperability in multi-vendor environments .

Applications in the UAE

BiDi modules are widely used in data centers, campus networks, metro rings, and telecom backhaul in the UAE . They are particularly valuable in regions with fiber scarcity or high installation costs, allowing organizations to maximize existing fiber infrastructure while supporting high-speed connectivity . The UAE market for fiber optic transceivers is growing, driven by data center expansion, 5G backhaul, smart city projects, and enterprise digital transformation .

Local Suppliers and Availability

- o IRIX Computer Systems Trading LLC, Dubai: Offers a range of SFP, SFP+, SFP28, QSFP+, and QSFP28 transceivers compatible with multiple vendors, providing expert consultation and technical support .
- o Amazon.ae: Lists modules like the ROBOfiber SFP-1010-WA 10G BiDi, supporting 10 km distances and 10G Ethernet, SONET, SDH, or Fibre Channel networks .

UAE Single-Fiber Bidirectional Optical Module

- o Digital World Technology, Dubai: Supplies Ubiquiti 10 Gbps BiDi single-mode optical modules for distances up to 10 km .
- o Treee.ae: Offers UniFi 1 Gbps BiDi single-mode modules for shorter distances (up to 3 km), suitable for campus or small-scale deployments .

Benefits

- o Fiber Savings: Reduces fiber usage by up to 50%, lowering infrastructure costs .
 - o Simplified Installation: Fewer physical connections reduce deployment time and potential failure points .
 - o Scalability: Supports network upgrades without requiring additional fiber installation .
 - o Cost Efficiency: Compatible modules provide 40-70% savings compared to OEM-only options while maintaining performance .
- In summary, UAE Single-Fiber BiDi optical modules are a cost-effective, high-performance solution for organizations seeking to optimize fiber usage, support high-speed connectivity, and ensure compatibility across multi-vendor network environments. They are readily available through local suppliers and online marketplaces, supporting both enterprise and telecom applications.

Professional SFP modules Dubai from IRIX. Cisco, HP compatible SFP, SFP+, QSFP+ fiber transceivers. 1G, 10G, 40G optical

Ubiquiti 10G Bidirectional Single-Mode Optical Module, 10 Gbps Max Dat Buy Online with Best Price.

BiDi (Bidirectional) SFP - Single-fiber SFP modules for FTTH and fiber-efficient networking, allowing both

Working principle of BiDi single fiber bidirectional optical module As shown in the figure below, a general optical

In fiber optic communication systems, optical transceivers play a critical role in ensuring seamless data transmission.

Single-fiber optical modules and dual-fiber optical modules are two common types of optical modules. They all play an important role

The 1 Gbps Bidirectional Single-mode Optical Module is a simplex transceiver that delivers up to 1.25 Gbps speed over distances up

Bidirectional SFP modules are advanced optical transceivers designed to enhance network infrastructure by enabling data

UAE Single-Fiber Bidirectional Optical Module

Bidi single fiber bidirectional optical module can be installed in switches, optical fiber

Discover BIDI SFP optical transceivers, the single-fiber bidirectional modules that optimize fiber usage. Learn how they

How Does BiDi Module Work? Bidirectional (BiDi) transceivers are designed to enable two - way communication over

As fiber optic networks continue to evolve, selecting the right optical transceiver becomes

Naficon Fiber Optic Manufacturing LLC in Dubai, UAE serves as a major Manufacturing and Supply Centre

The structure of the single-fiber BiDi optical module is more complicated than that of the ordinary dual-fiber

Deploying or upgrading network infrastructure often hits a bottleneck: limited fiber strands. Running new fiber is

Complete your high-speed, long-distance fiber installation with the UACC-OM-SM-10G-S 10G SFP+

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