



Professional SFP Modules for AV-over-IP

In recent years, a groundbreaking innovation has emerged in the market: the BiDi (Bidirectional) fiber optic module. This cutting-edge technology is rapidly gaining traction and finding applications in AV-over-IP systems. Let's delve into the world of BiDi modules and explore the trans-formative capabilities they bring to the table.



What is a BiDi Single-Fiber Module?

Derived from the term "Bidirectional," BiDi technology enables simultaneous two-way data transmission over a single optical fiber. Unlike traditional dual-fiber modules, which require separate fibers for transmitting and receiving signals, BiDi modules leverage Wavelength Division Multiplexing (WDM) technology. By utilizing light signals of different wavelengths, these modules can distinguish between upstream and downstream data, effectively halving the need for fiber optic cables. This not only streamlines the cabling infrastructure but also translates into significant cost savings, making it an attractive solution for a wide range of applications.





Working Principle of BiDi Fiber Optic Modules

At the heart of BiDi modules lies the ingenious application of wavelength division multiplexing technology, which operates on the principle of wavelength separation:

Transmitter (TX): The module's transmitter emits data signals at a specific wavelength, such as 1310nm.

Receiver (RX): Conversely, the receiver is designed to detect signals at a different wavelength, typically 1550nm.

WDM Filter: A critical component within the module, the WDM filter plays a pivotal role in separating light signals of varying wavelengths. This ensures that transmitted and received signals can coexist within the same fiber without interference, maintaining the integrity and reliability of data transmission.



Application Scenarios

The versatility of BiDi single-fiber technology makes it a preferred choice across diverse industries and applications:

Fiber-Constrained Environments: Ideal for scenarios where fiber resources are limited, such as building cabling projects, internal data center connections, or long-distance transmissions with high fiber deployment costs.

FTTH (Fiber to the Home): Revolutionizing home broadband access, BiDi technology enables two-way communication between service providers and end-users using a single fiber, simplifying installation and reducing infrastructure requirements.

AV-over-IP Systems: By minimizing cabling complexity and enhancing system reliability, BiDi modules play a crucial role in AV-over-IP setups, ensuring seamless transmission of high-definition audio and video signals.



100G Fiber Module

SWM-100GM	100G QSFP28 module, SR4 multimode dual - core, dual - LC interface, wavelength 850nm, transmission distance 100m.
SWM-100GS	100G QSFP28 module, LR4 single - mode dual - core, dual - LC interface, wavelength 1310nm, transmission distance 10km
SWM-100GSv2T	100G QSFP28 single mode, single core, BiDi module, Wavelength Tx1270nm/Rx1330nm, 10km
SWM-100GSv2R	100G QSFP28 single mode, single core, BiDi module, Wavelength Tx1330nm/Rx1270nm, 10km

40G Fiber Module

SWM-40GM	40G QSFP module, SR4 multimode multi - core, MPO interface, wavelength 850nm, requires matching multimode optical fiber, maximum transmission distance 400m
SWM-40GS	40G QSFP module, LR single - mode dual - core, dual - LC interface, wavelength 1310nm, transmission distance 10km

25G Fiber Module

SWM-25GM	25G SFP28 module, SR multimode dual - core, dual - LC interface, wavelength 850nm, transmission distance 100m
SWM-25GS	25G SFP28 module, LR single - mode dual - core, dual - LC interface, wavelength 1310nm, transmission distance 10km
SWM-25GSv2T	25G SFP28 single mode, single core, BiDi module, wavelength Tx1270nm/Rx1330nm, 10km
SWM-25GSv2R	25G SFP28 single mode, single core, BiDi module, wavelength Tx1330nm/Rx1270nm, 10km

10G Fiber Module

SWM-10GT	10G SFP + Copper module, RJ45 interface, transmission distance 100m
SWM-10GM	10G SFP + module, multimode dual - core, dual - LC interface, wavelength 850nm, transmission distance 300m
SWM-10GS	10G SFP + module, single - mode dual - core, dual - LC interface, wavelength 1310nm, transmission distance 10km
SWM-10GSv2T	10G SFP+ single mode, single core, BiDi module, wavelength Tx1270nm/Rx1330nm, 10km
SWM-10GSv2R	10G SFP+ single mode, single core, BiDi module, wavelength Tx1330nm/Rx1270nm, 10km

1G Fiber Module

SWM-1GM	1G SFP module, multimode dual - core, dual - LC interface, wavelength 850nm, transmission distance 550m
SWM-1GS	1G SFP module, single - mode dual - core, dual - LC interface, wavelength 1310nm, transmission distance 20km
SWM-1GSv2T	1G SFP single mode, single core, BiDi module, wavelength Tx1310nm/Rx1550nm, 20km
SWM-1GSv2R	1G SFP single mode, single core, BiDi module, wavelength Tx1550nm/Rx1310nm, 20km
SWM-1GT	1G SFP Copper port module - (RJ45)



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