

RIVO MULTITRADE OPTICAL SYSTEMS

Optical module to Type-C



Overview

Description USB 3.2 Gen 2x1 Type C Active Optical Cable, USC-CC32 transmits Superspeed USB 10Gbps data up to 15m (50ft).

Key Takeaways

Connecting an optical module to a USB Type-C interface is achievable using USB active optical cables (AOCs) that convert electrical signals to optical signals for high-speed data transmission. Understanding Optical Modules

An optical module is a hot-pluggable transceiver that converts electrical signals from a system into optical signals for fiber optic transmission, and vice versa. These modules typically have an electrical interface on one side and an optical interface on the other, supporting standards like SFP, SFP+, or CFP for high-bandwidth applications. The optical interface often uses LC, SC, or MPO connectors depending on the network infrastructure. Optical modules are widely used in data centers, high-speed networking, and long-distance communication.

USB Type-C Active Optical Cables

To connect an optical module to a USB Type-C port, you can use USB Type-C Active Optical Cables (AOCs). These cables integrate optical transceivers within the cable itself, allowing high-speed data transmission over longer distances than traditional copper cables. Key features include:

- High data rates: USB 3.2 Gen 2x1 Type-C AOCs can transmit up to 10Gbps, while USB4 AOCs support up to 40Gbps.

- Power delivery: Some cables provide up to 100W over 10 meters, enabling charging or powering devices like laptops and webcams .
- Video support: DisplayPort Alt Mode allows 4K@60Hz video transmission over two DisplayPort lanes .
- Backward compatibility: Many AOCs support USB 2.0 and 1.1 devices, ensuring broad interoperability .
- Plug-and-play: No additional drivers are required, and the cables maintain signal integrity over longer distances than copper alternatives .

Practical Use Cases

- High-speed data transfer: Connecting storage devices, cameras, or VR systems to laptops or workstations.
- Video output: Driving 4K displays or multi-monitor setups via USB-C with DisplayPort Alt Mode.
- Extended reach: Optical cables allow longer distances (up to 50ft/15m) without signal degradation.
- Power delivery: Charging laptops or powering peripherals while transmitting data.

Deployment Considerations

- Ensure the optical module type (e.g., SFP, SFP+) matches the intended network or device interface.
- Verify the USB-C AOC supports the required data rate and power delivery for your devices.
- Check for connector compatibility and cable length limitations to avoid signal loss or insufficient power.
- Some AOCs include locking mechanisms to prevent accidental disconnection . By using a USB Type-C active optical cable, you can effectively bridge the gap between traditional optical modules and modern USB-C devices, enabling high-speed, long-distance, and versatile connectivity.

Article Content

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The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right

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Optical fiber connector

An optical fiber connector is a device used to link optical fibers, facilitating the efficient transmission of light

What is Optical Link Module?

The optical link module, known as Optical Transceiver in English, is a general term for various module categories, including optical

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