PANIO COC

Full-Featured USB-C Active Optical Cable (AOC)

High-Speed Data, Ultra-HD Video & Power Delivery All-in-One Solution

Product Overview

The COC is a full-featured USB-C Active Optical Cable (AOC) designed specifically for stable, lossless long-distance transmission of high-speed data, ultra-high-definition (UHD) video, and reliable power. It integrates a hybrid architecture of fiber optics and tinned copper, delivering exceptional performance in high-demand environments such as IT server rooms, AV automation systems, conference venues, live production studios, and professional workstations.
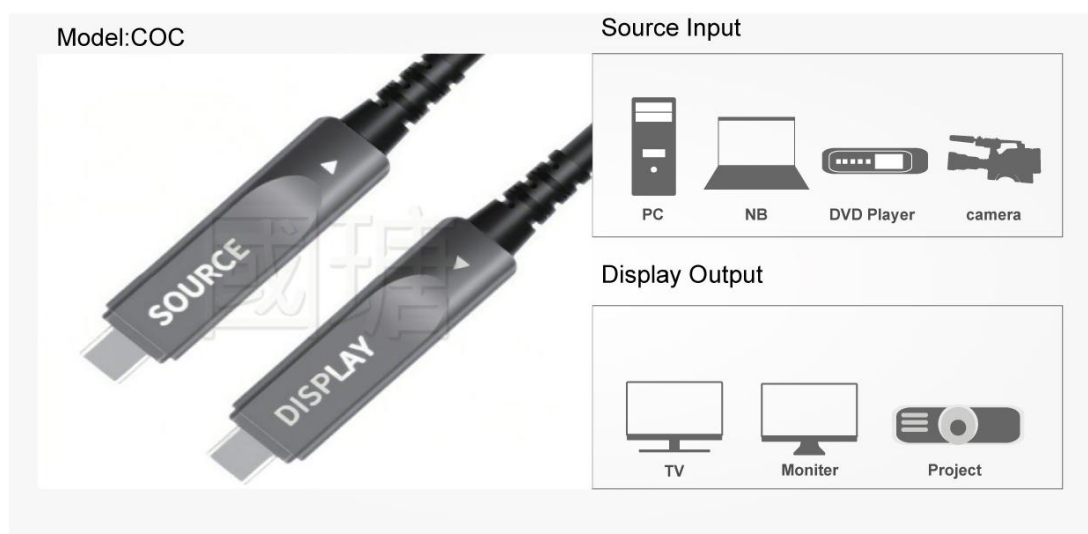
Supporting USB 3.2 Gen 2 (10Gbps) data transfer, 8K@60/4K@144 video via DisplayPort (DP) Alt Mode, and 60W USB-PD 3.0 (with reverse power), the COC replaces multiple cables with a single, slim (6.5mm diameter) solution to eliminate clutter. It offers plug-and-play functionality, robust EMI/RFI interference resistance, and durable metal connectors—making it the ideal choice for connecting laptops, UHD TVs, projectors, game consoles, and high-speed peripherals.

Product Features

- **Hybrid Fiber-Copper Architecture**: Combines optical fibers (for high-speed data/video lanes) with tinned copper (for low-speed data and power), enabling stable, lossless transmission up to 15m—far outperforming traditional copper-only USB-C cables.

- **8K/High-Refresh Video via DP Alt Mode**: Seamlessly auto-switches between 4-lane DP 2.1 + USB 2.0 (8K@60/4K@144) and 2-lane DP 1.4 + USB 3.2 10G (4K@60), delivering cinema-quality clarity for professional AV setups or high-precision visuals for gaming/editing workflows.

- **10Gbps Data & 60W USB-PD**: Transfers large files (e.g., 4K videos, design projects) at 10Gbps for efficient workflows; supplies up to 60W (20V/3A) via USB-PD 3.0 and supports reverse power from compatible displays to laptops—eliminating extra adapters and streamlining setups.

- **Installation-Friendly Design**: With a slim 6.5mm diameter, tight bend radius, and lightweight build, it simplifies in-wall runs, rack-to-desk routing, and clean cable management in homes, offices, or professional studios.

- **Plug-and-Play Reliability**: Equipped with a built-in E-Mark chip to safely negotiate power and mode settings—no external power required. Backward compatibility with USB 2.0/1.1 peripherals ensures broad usability across existing devices.

- **EMI/RFI Resistance**: Shielded construction minimizes electromagnetic and radio-frequency interference, guaranteeing stable performance in noise-prone environments (e.g., server rooms, live event spaces).

- **Durable Construction**: Nickel-plated metal connectors withstand 10,000+ mating cycles; a wear-resistant, flame-retardant PVC jacket protects internal fibers and copper from physical damage.

- **Touch-Back Support**: Enables interactive USB-C displays to control connected host devices (e.g., laptops), enhancing usability for presentations, collaborative work, or interactive AV setups.

Is one-way transmission, divided into input and output.

Specification

Parameter	Details
Model Name	COC
USB Transfer Rate	USB 3.2 Gen 2 (10Gbps); backward compatible with USB 2.0/1.1
Full-Function Modes	4-lane DP 2.1 + USB 2.0; 2-lane DP 1.4 + USB 3.2 10G (seamless auto-switching)
Video Resolution	4-lane: Up to 8K@60 / 4K@144/120; 2-lane: Up to 4K@60 (requires DP Alt Mode)
Wavelength	850 nm
Cable Length Options	5 m / 10 m / 15 m

ESD Protection	IEC 61000-4-2: ±8kV (air-gap discharge) / ±4kV (contact discharge)
Connectors	Source: 1 × USB Type-C male (nickel-plated metal); Display: 1 × USB Type-C male (nickel-plated metal)
Cable Structure	Hybrid fiber optic + tinned copper; Ø 6.5 mm; black PVC jacket (wear-resistant, flame-retardant)
Power & Charging	No external power required; operating voltage 5V±0.25; USB-PD 3.0 60W (20V/3A); reverse power supported
Compatible Devices	Laptops/desktops, smartphones, cameras, USB drives, live streaming mixers, game consoles, TV boxes, UHD TVs, projectors, VR headsets
Environmental Conditions	Operating: 0–40 °C; Storage: −20–60 °C; Humidity: 20–90% RH (non-condensing)

Cable & Connection Diagram

Cable Details

- **Cable Diameter**: 6.5mm (black PVC jacket, wear-resistant, flame-retardant)
- **Connector Type**: USB Type-C male (source & display ends), nickel-plated metal housings

Connection Flow

Source Input → COC → **Display Output**

Package Contents

- 1 × COC Full-Featured USB-C Active Optical Cable (selected length: 5m / 10m / 15m)
- 1 × Quick Start Guide