



YDSAOC — Company Introduction

An Industry Leader in Active Optical Cable Manufacturing

Since **2007**, YDSAOC has established itself as a world-class manufacturer of highly reliable, user-friendly **Active Optical Cables (AOCs)** designed for USB, HDMI, DisplayPort, DVI, and high-performance computing applications. With over **two decades of dedicated expertise** in the fiber optics and cable assembly industry, we have become a trusted, innovative partner for next-generation connectivity solutions worldwide.

Who We Are

YDSAOC is an **OEM & ODM factory** specializing in the research and development of fiber optics technology. We are recognized as a **High-tech enterprise**, and for more than **20 years** we have been actively working within the fiber optics industry and USB cable assembly sector. This deep, long-standing experience has enabled us to accumulate extensive expertise and knowledge, positioning us as a premier factory for sourcing advanced connectivity products.

Our mission is simple yet ambitious: to deliver custom cable products and exceptional service that empower our clients to achieve the utmost quality and performance in every application.





YDSAOC
Active Optical Cable Manufacturer

An Industry Leader in
Active Optical Cable Manufacturing





ABOUT US

World-class manufacturer of
reliable Active Optical Cables (AOCs)

USB

HDMI

DisplayPort

DVI

High-Performance Computing



20+ Years

in Fiber Optics &
Cable Assembly



WHO WE ARE



OEM & ODM Factory —
Fiber Optics R&D



Recognized High-Tech
Enterprise



*To deliver custom cable
products and exceptional service*



ACTIVE OPTICAL CABLES

your best fiber optics partner

What We Produce

YDSAOC is the premier factory choice for sourcing:

- ♦ **Fiber Optic HDMI Cables**
- ♦ **Fiber Optic USB & USB-C Cables**
- ♦ **DisplayPort Cables**
- ♦ **AR & VR Headset Cables**
- ♦ **Toslink Cables**
- ♦ **Customized Connectivity Solutions**

Our products are engineered for high-definition audio, video, and data transmission needs, providing unmatched quality and reliability across every deployment.

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- **DisplayPort Cables**



- **AR & VR Headset Cables**



- **Toslink Cables**



- **Customized Connectivity Solutions**



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Our Commitment to Quality & Craftsmanship

Craftsmanship is at the heart of our company. We proudly call ourselves *craftspeople* to express our passion for creating durable, dependable cables. We are in a constant state of improvement, refining our manufacturing processes to ensure every project succeeds as expected.

We believe that only the most qualified staff can go the extra mile to meet our customers' expectations of perfection. That is why we never stop recruiting and developing cable experts within our electronics industry — investing in talent is investing in quality.

We guarantee:

- ☒ Only **premium materials** in every product
- ☒ **Quality engineering** in design and manufacturing
- ☒ **The highest quality control** throughout the entire production process

All of YDSAOC's products are manufactured in **ISO and UL certified facilities**, which underpin our solid reputation for excellent product performance and reliability.

Where Our Products Are Used

YDSAOC's cables are used every day across a diverse range of sectors that demand the utmost in quality and performance:

Government organizations

Educational institutions

Commercial enterprises

Any organization requiring high-performance cable solutions

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



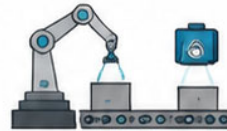
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



Environmental Responsibility & Operational Excellence

YDSAOC is deeply committed to **minimizing our impact on the environment**. The www.YDSAOC.com family operates globally from **state-of-the-art facilities** designed to run **completely pollution-free**.

Our significant investment in the **latest manufacturing technology** provides a dual benefit:

- ♦ **Environmental sustainability** — cleaner, more efficient production
- ♦ **Competitive pricing** — advanced automation reduces costs without sacrificing quality

With **8 automated production lines**, YDSAOC achieves greater output while maintaining the same uncompromising high-quality standards.

Innovation in Active Optical Cable Technology

YDSAOC is dedicated to constantly bringing **breakthrough products** to the market through continuous innovation.

Understanding Active Optical Cables (AOC)

An Active Optical Cable (AOC) is a cable with **optoelectronic modules in the connector heads** that convert electrical signals to light. The technology works as follows:

1. **Electrical input** is converted to photons via a specialized chipset or driver combined with laser(s).
2. **Photons travel** through the optical fiber to the other end of the cable.
3. **Photons are received** and converted back to electrical impulses.

Put simply, an AOC is an **optical fiber jumper cable terminated with optical transceivers on both ends**. It uses electrical-to-optical conversion at the cable ends to improve **speed and distance performance** — all without sacrificing compatibility with standard electrical interfaces.



Why AOC Technology Matters

As data rates rise and data center clusters grow in size, traditional copper cable technology is being stretched to its limits. **Active Optical Cables were invented to replace copper technology** in:

- ♦ **Data centers**
- ♦ **High-Performance Computing (HPC)**
- ♦ **A/V (Audio and Video) applications**

In the era of the optical network, AOC cables capture a major share of the high-speed optical inter-connectivity market on a global level. YDSAOC provides the most **technically capable optical solutions** available in plug-and-play Active Optical Cables, delivering:

- ♦ **Superior data transmission speed**
- ♦ **Extended transmission distance**
- ♦ **Enhanced stability and flexibility** compared to traditional copper cables
- ♦ **Full plug-and-play compatibility** with standard interfaces

Custom Solutions & OEM Partnerships

With decades of cable engineering experience, YDSAOC helps **OEMs and equipment manufacturers** develop reliable **USB and USB-C connectivity solutions** — guiding projects **from concept development all the way through to full production**.

We offer **bespoke solutions** for both HDMI and USB connectivity, custom-tailored to meet the specific technical and commercial requirements of each client.



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Why Choose YDSAOC?

Advantage	Description
Proven Experience	Over 20 years in the fiber optics & cable assembly industry
Certified Quality	ISO and UL certified manufacturing facilities
Premium Materials	Only top-tier components in every product
Advanced Production	8 automated lines for high output & competitive pricing
Environmental Care	State-of-the-art, pollution-free global facilities
Technical Leadership	Breakthrough AOC innovation for speed & distance
Custom OEM/ODM	Full support from concept to production
Trusted Worldwide	Serving government, education & enterprise



ACTIVE OPTICAL CABLES

your best fiber optics partner

Our Vision

YDSAOC continues to lead the evolution of high-speed optical connectivity. Through relentless innovation, uncompromising craftsmanship, and a steadfast commitment to our customers and the environment, we aim to remain the **premier global partner** for Active Optical Cables and fiber optic connectivity solutions.

Connect. Transmit. Perform. — With YDSAOC.

An Industry Leader in Active Optical Cable Manufacturing



For more information, visit us at www.YDSAOC.com



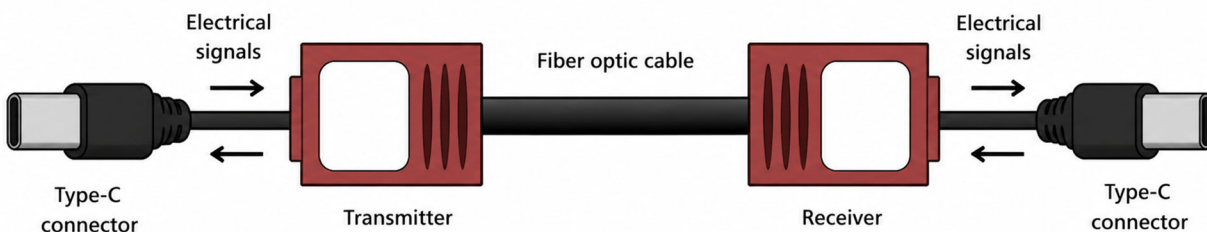
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INTRODUCTION

What is Active Optical Cable (AOC)?

An **Active Optical Cable (AOC)** is a cabling technology that integrates **fiber-optic components** into a standard cable form factor to transmit ultra-high-definition audio and video signals. Unlike traditional passive copper cables, AOCs contain active electronics (lasers/photodetectors) at both ends to convert electrical signals into optical signals and back again.



How AOC works (with Type-C Connectors)

Key Characteristics

Feature	Details
Core Technology	Fiber-optic transmission with active signal conversion at each end
Primary Use	Ultra-high-definition audio & video signal distribution
Resolution Support	Up to 8K @ 60 Hz over long distances
Signal Immunity	Immune to EMI (Electromagnetic Interference) and RFI (Radio Frequency Interference)
Power Requirement	No external power needed — bus-powered via the connected devices
Physical Design	Lightweight, compact, flexible — easy to route in tight spaces

Comparison: AOC vs. Traditional Copper Cables

Aspect	Active Optical Cable (AOC)	Copper Cable
Max Distance at 8K60	Very long distances	Limited range
Cable Bulk	Thin, lightweight, flexible	Thick, heavy, rigid
Interference	Immune to EMI/RFI	Susceptible to interference
Installation Complexity	Simple, no external power needed	Bulky, complicated setups
Signal Loss	Minimal interconnection loss	Higher signal degradation over distance
Multi-Source Setups	Excellent for video walls & complex AV systems	Difficult to manage

Primary Advantages

- ♦ **Long-Distance 8K Support** — Can transmit 8K60 video signals over distances that copper cables simply cannot reach without signal boosters or repeaters.
- ♦ **EMI/RFI Immunity** — Since the signal travels as light (not electricity), it is completely unaffected by electromagnetic or radio frequency interference — critical in data centers, industrial environments, or near power lines.
- ♦ **Zero External Power** — The active electronics are powered directly through the host device's interface (e.g., HDMI or USB power), meaning no separate power adapters or additional cabling is needed.
- ♦ **Compact & Lightweight** — The thin, flexible design allows for easy routing through cable management trays, wall conduits, and tight spaces — a significant advantage in **video wall deployments** where multiple sources converge.
- ♦ **High Audio Quality** — Supports high-quality, uncompressed audio formats alongside the video signal without degradation.



ACTIVE OPTICAL CABLES

your best fiber optics partner

- ♦ **Minimal Interconnection Loss** — The active optical design ensures that signal integrity is maintained from source to display, reducing the common problems of flickering, signal dropouts, or color degradation seen in long copper runs.

Ideal Use Cases

- ♦ **Video Walls** — Multiple displays driven by a single or multiple sources, where cable management and signal integrity are paramount
- ♦ **Digital Signage** — Long runs from media players to distant displays in retail, airports, or stadiums
- ♦ **Data Centers** — Server-to-switch connections requiring high bandwidth over distance
- ♦ **Home Theater** — Clean, hidden cable runs between AV receivers and projectors/TVs at long distances
- ♦ **Broadcast & Pro AV** — Mission-critical environments where signal reliability cannot be compromised

Active Optical Cables (AOC) represent a **significant advancement** in AV distribution technology. By combining the **bandwidth and distance benefits of fiber optics** with the **plug-and-play simplicity of standard cables**, AOCs solve the fundamental limitations of copper cabling — namely distance, bulk, and interference — without adding complexity for the end user. For any application demanding **8K resolution, long cable runs, and reliable signal integrity**, AOCs are the superior choice.

ACTIVE OPTICAL CABLE (AOC) COMPLETE GUIDE

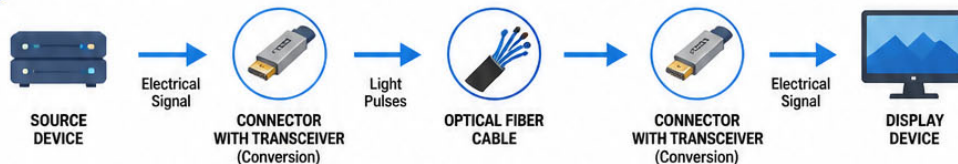


1 WHAT IS AOC?



Active Optical Cable (AOC) is a fiber-optic cabling technology that integrates optical transceiver modules at each end of the cable. It combines the plug-and-play convenience of copper cables with the high-bandwidth, long-distance performance of fiber optics. AOCs convert electrical signals to light pulses for transmission through optical fiber, then back to electrical signals at the receiving end, enabling ultra-high-definition AV signal transmission up to 8K60 over long distances.

2 HOW IT WORKS



⚡ AOC uses a hybrid fiber/copper design that draws power from the source device.

3 KEY BENEFITS



1. Ultra-High Bandwidth
Supports HDMI 2.0 up to 18 Gbps and DisplayPort 1.4 up to 48 Gbps over hundreds of meters



2. Long Distance
Transmits 8K60 signals hundreds of meters vs. copper's 2-5 meter limitation



3. EMI/RFI Immunity
Fiber-optic design eliminates electromagnetic and radio frequency interference



4. Lightweight & Thin
4.8mm thin; 10m AOC weighs under 300g vs. 5m copper weighing ~1kg



5. Plug & Play
No external power, software, or additional hardware needed



6. Immersive Audio
Supports Dolby TrueHD, DTS-HD, PCM 8-Channel, ARC, and up to 32 audio channels

4 KEY APPLICATIONS



Data Centers



Video Walls



Virtual Reality



Industrial Automation



Machine Vision



Consumer Electronics

5 AOC vs COPPER CABLE COMPARISON

Feature	AOC (Fiber)	Copper Cable
Max Distance	Hundreds of meters	2-5 meters (without extenders)
Bandwidth	Up to 48 Gbps (DP 1.4) / 18 Gbps (HDMI 2.0)	Limited by distance (degrades quickly)
EMI/RFI Resistance	Excellent immunity (fiber optic)	Highly susceptible to interference
Weight (10m)	Under 300 grams	Over 1.5 kilograms
Thickness	~4.8 mm	7-10 mm (depends on AWG)
Installation	Easy pull-through, flexible, tight bend radius	Bulky, stiff, difficult routing
Reliability	Single all-in-one cable, minimal failure points	Requires extenders, multiple connection points



AOC Technology is the Future-Proof Solution for Next-Gen AV Distribution

Applications of Active Optical Cables (AOC)

1. Traffic Monitoring (24/7)

Traffic monitoring operates in continuous, event-driven environments where uninterrupted connectivity is critical.

- ♦ **Purpose:** Maintain consistent connection to operator screens showing real-time data on traffic conditions, hazards, and delays.
- ♦ **Key benefit:** AOC is an all-in-one connectivity solution that **removes extenders and other potential points of failure**, providing consistent signal quality to keep traffic operations on time and safe.



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2. Security & Surveillance

Security surveillance centers require fail-safe cabling supporting the highest possible video quality.

- ♦ **Purpose:** Monitor criminal activity, emergencies, and dangerous events to protect property and people.

- ◆ **Key benefit:** AOCs support **HD, 4K, and 8K video resolutions over long distances** with a consistent, error-free signal.
- ◆ **Result:** Operators see everything clearly with **zero downtime**, keeping people and property safe.

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LONG DISTANCE
TRANSMISSION



FAIL-SAFE
PERFORMANCE



HIGH BANDWIDTH
HIGH RESOLUTION



ZERO DOWNTIME
RELIABILITY

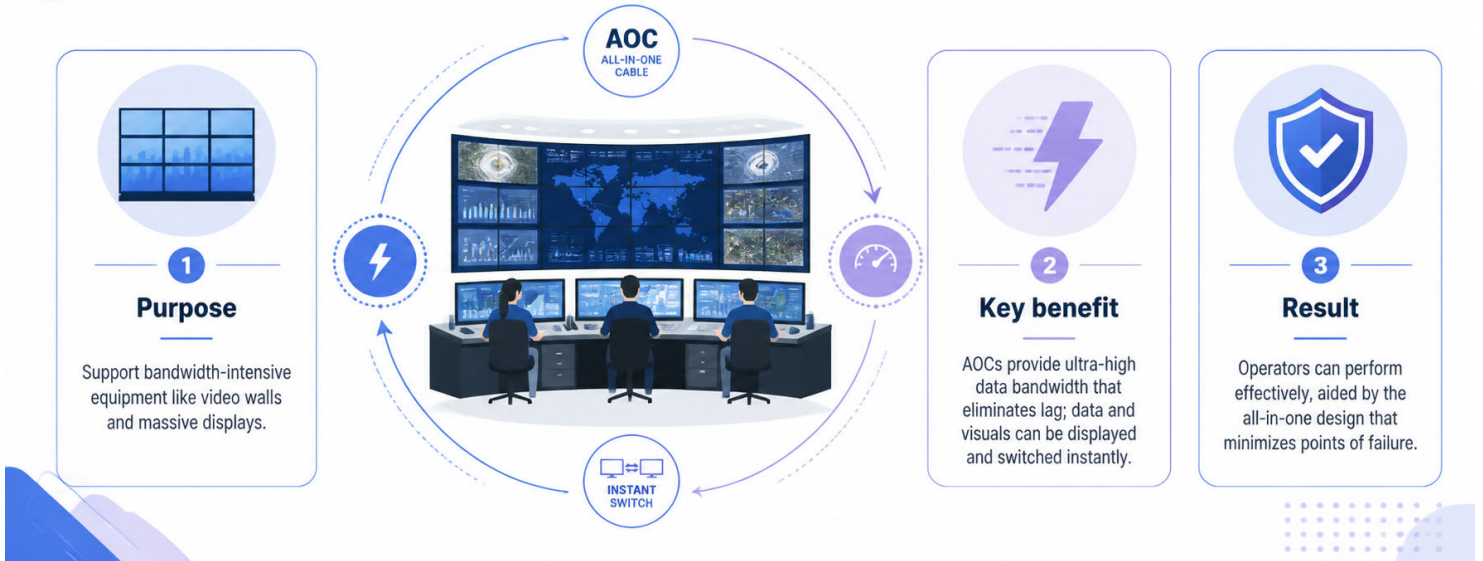
3. Control Rooms

Control and command centers depend on AV systems for split-second decisions that prevent disasters.

- ◆ **Purpose:** Support bandwidth-intensive equipment like video walls and massive displays.
- ◆ **Key benefit:** AOCs provide **ultra-high data bandwidth that eliminates lag**; data and visuals can be displayed and switched instantly.
- ◆ **Result:** Operators can perform effectively, aided by the all-in-one design that minimizes points of failure.

Control Rooms

Control and command centers depend on AV systems for split-second decisions that prevent disasters.



4. Healthcare & Medical

Hospitals rely on AV systems in imaging centers, labs, and other critical areas where disruption puts patients at risk.

- ◆ **Key benefit:** Unlike copper, AOCs feature a **zero RFI/EMI profile that eliminates electromagnetic interference** (critical around sensitive medical equipment).
- ◆ **Result:** Reliable signal transmission in operations where **zero downtime is a must**.

Sub-Applications:

- ◆ **Medical Imaging:** High-speed, low-latency, reliable transmission of high-quality image data between imaging devices, monitors, and workstations — improving diagnostic accuracy.
- ◆ **MRI Scan Imaging:** Tailored fiber solutions for comfortable patient experiences and guided interventions.
- ◆ **CT Scan Imaging:** Custom/retrofitted cables that enhance imaging quality for computer tomography scanners.

- ◆ **Diagnostics & Treatment:** Sensor-based and spectroscopic applications enabling early detection and cost-effective treatment.



Healthcare & Medical

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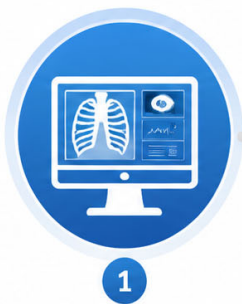


RESULT

Reliable signal transmission in operations where zero downtime is a must.



Sub-Applications



1

Medical Imaging

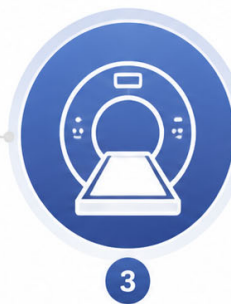
High-speed, low-latency, reliable transmission of high-quality image data between imaging devices, monitors, and workstations, improving diagnostic accuracy.



2

MRI Scan Imaging

Tailored fiber solutions for comfortable patient experiences and guided interventions.



3

CT Scan Imaging

Custom and retrofitted cables that enhance imaging quality for computer tomography scanners.



4

Diagnostics & Treatment

Sensor-based and spectroscopic applications enabling early detection and cost-effective treatment.

5. Education

Lecture halls are large spaces with numerous screens displaying lessons to hundreds of students.

- ♦ **Problem:** Copper cable struggles to extend to many screens without failure-prone extenders in large rooms.
- ♦ **Key benefit:** AOCs extend UHD video hundreds of meters without extra software or devices — ideal for lecture halls with multiple screens.



Education



Problem: Copper cable struggles to extend to many screens without failure-prone extenders in large rooms.



Key benefit: AOCs extend UHD video hundreds of meters without extra software or devices — ideal for lecture halls with multiple screens.



- ♦ **Sub-applications:**
- ♦ **AR/VR:** Virtual Reality Headset Cables enable immersive, interactive learning experiences.
- ♦ **HD Video Conference Systems:** Uninterrupted communication for distance learning.
- ♦ **Simulation Systems:** Real-time data transfer for fields like medical training.
- ♦ **Remote Learning:** Seamless online lessons, workshops, and seminars.

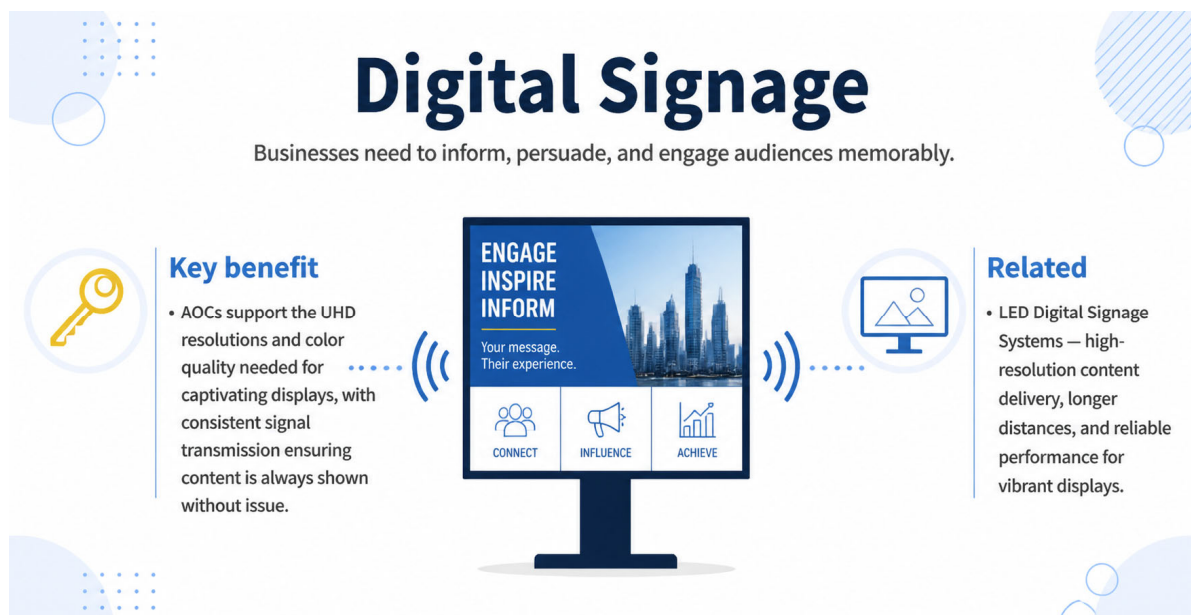
Sub-applications



6. Digital Signage

Businesses need to inform, persuade, and engage audiences memorably.

- ◆ **Key benefit:** AOCs support the **UHD resolutions and color quality** needed for captivating displays, with **consistent signal transmission** ensuring content is always shown without issue.
- ◆ **Related:** LED Digital Signage Systems — high-resolution content delivery, longer distances, and reliable performance for vibrant displays.



7. Conference Rooms

Presenters with limited technical experience must connect devices to screens easily.

- ◆ **Key benefit:** AOCs are a **plug-and-play solution** requiring no training or technician assistance.
- ◆ **HD Conferencing / Video Conference Systems**
- ◆ **Key benefit:** Deliver extended reach, flexible installation, and EMI immunity for high-definition video and audio.
- ◆ Support high-resolution video streams, crystal-clear audio, and low-latency transmission.
- ◆ Ideal for video conferencing, telepresence, and conference room setups.

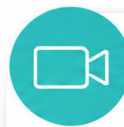
Conferencing Solutions



Conference Rooms



- ✓ AOC plug-and-play: No training needed
- ✓ Easy device-to-screen connections



HD Conferencing / Video Conference Systems



- ✓ Extended reach & flexible installation
- ✓ EMI immunity, low-latency
- ✓ Crystal-clear high-res video & audio

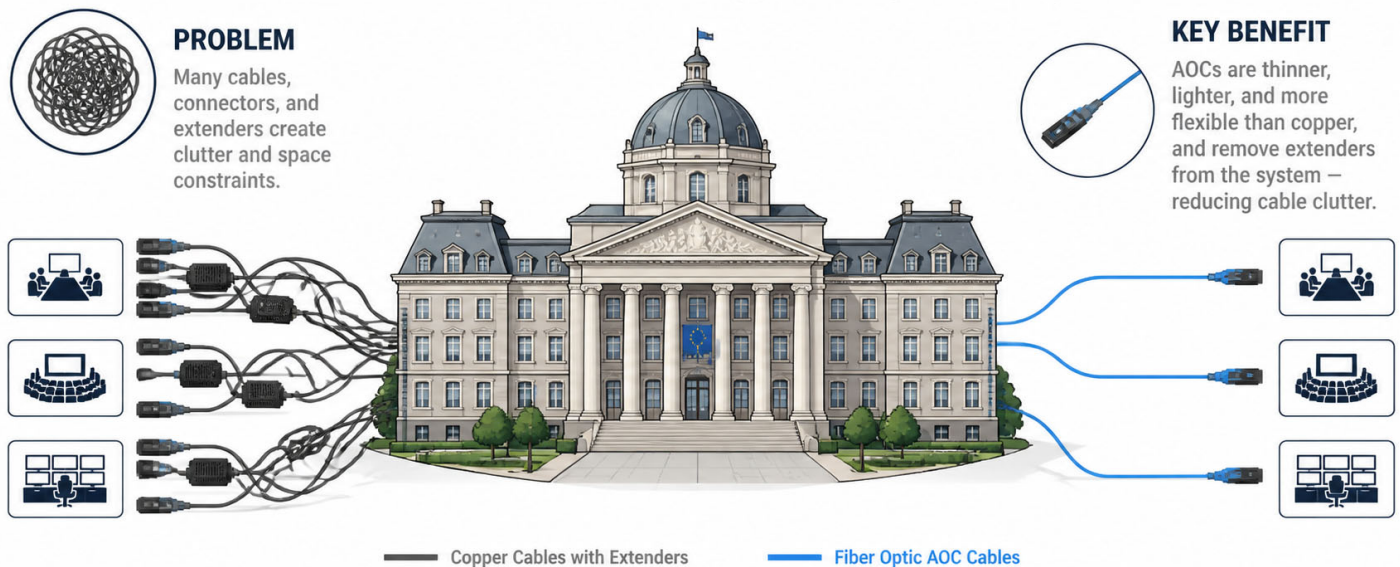
8. Government Campuses

Government installations contain vast AV equipment throughout their campuses.

- ♦ **Problem:** Many cables, connectors, and extenders create clutter and space constraints.
- ♦ **Key benefit:** AOCs are **thinner, lighter, and more flexible than copper**, and remove extenders from the system — reducing cable clutter.

Government Campuses

Government installations contain vast AV equipment throughout their campuses.



9. USB4 40Gb/s Active Optical Cable Applications

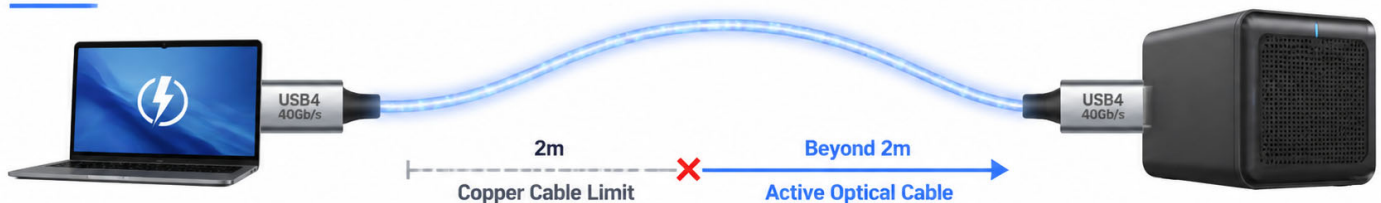
This cable breaks the two-meter distance limit of copper Thunderbolt/USB4 cables, enabling:

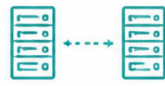
- ♦ **Relocating high-performance RAID storage** to reduce noise distraction.
- ♦ **Thunderbolt Share connectivity** between devices at greater distances in the same room.
- ♦ **Expanding device daisy-chain lengths.**

- ◆ **Placing/hiding externally powered devices** for a more aesthetic work environment.
- ◆ **Powering notebooks via Thunderbolt (USB-C) Power Delivery** — up to 240W (3M) or 60W (4.5M).
- ◆ **Enhancing cable management** by placing AV devices in a rack.
- ◆ **Camera freedom** with tethering during in-studio shoots.
- ◆ **Extending Thunderbolt/USB4 network connectivity** between rack-mounted devices.
- ◆ **Gaming:** Distancing an eGPU from a laptop for full immersion while freeing room for monitors, mic, and camera.
- ◆ **Audio Visual:** Crystal-clear audio, vibrant visuals, up to 8K resolution, and lag-free transmission.

USB4 40Gb/s Active Optical Cable Applications

Breaks the 2-meter limit of copper Thunderbolt/USB4 cables



- 
Relocate RAID storage, reduce noise
- 
Device connectivity across the room
- 
Extend daisy-chain lengths
- 
Hide devices for tidy workspace
- 
240W (3M) / 60W (4.5M) Power Delivery
- 
AV devices in a rack
- 
In-studio camera tethering freedom
- 
Rack-to-rack USB4 network
- 
Distance eGPU from laptop
- 
8K audio-visual, lag-free

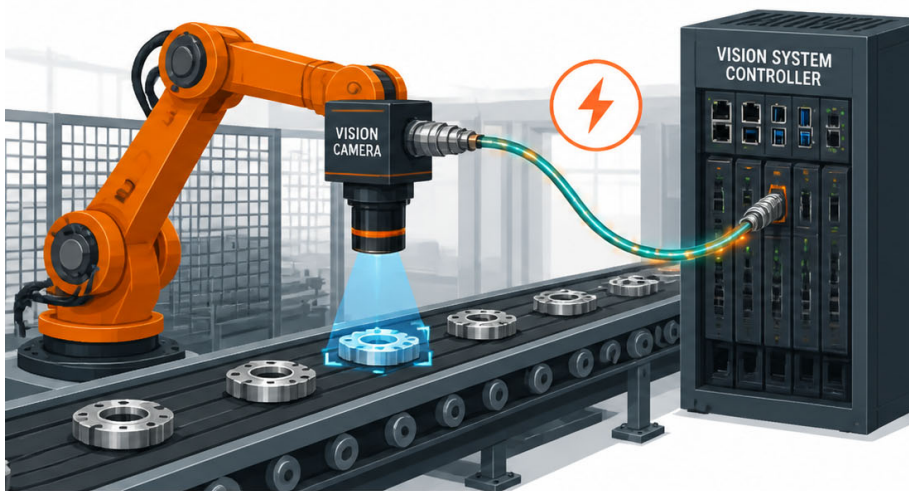
11. Industrial & Machine Vision

Industrial camera and vision sensor link cables are crucial for system stability and performance.

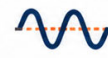
- ♦ **Key benefit:** Active fiber optic USB cables offer exceptional speeds, signal quality, extended distances, EMI immunity, and resistance to degradation — built to withstand industrial environments.

Industrial & Machine Vision

Industrial camera and vision sensor link cables are crucial for system stability and performance.



Exceptional Speeds



Signal Quality



Extended Distances



EMI Immunity



Resistance to Degradation



Built to withstand industrial environments.

Sub-Applications:

AOI Inspection (Automated Optical Inspection): USB 3.0 Vision cables detect defects in PCB/soldering production, improving accuracy and reducing manual inspection costs.

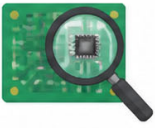
Manufacturing / Pharmacy: Ensures pill blister pack integrity, measures filling levels, verifies barcodes/QR codes, and checks package inserts.

Printing Industry: Detects color, material, printing, and QR code defects with high resolution, fast frame speed, and long cable length.

- ◆ **Food Packaging:** Ensures package integrity, checks liquid levels and bottle caps, inspects appearance, and provides accurate counting.
- ◆ **Somatosensory Applications:** Extends USB signals for VR, AR, gaming, education, and medical treatment.
- ◆ **3D Scanning:** Extended distance and ultra-soft cable enable seamless integration of HD cameras and robot arms.

Sub-Applications

Versatile solutions across industries with reliable USB 3.0 Vision connectivity.

1 AOI Inspection (Automated Optical Inspection)	2 Manufacturing / Pharmacy	3 Printing Industry
 USB 3.0 Vision cables detect defects in PCB/soldering production, improving accuracy and reducing manual inspection costs.	 Ensures pill blister pack integrity, measures filling levels, verifies barcodes/QR codes, and checks package inserts.	 Detects color, material, printing, and QR code defects with high resolution, fast frame speed, and long cable length.
4 Food Packaging	5 Somatosensory Applications	6 3D Scanning
 Ensures package integrity, checks liquid levels and bottle caps, inspects appearance, and provides accurate counting.	 Extends USB signals for VR, AR, gaming, education, and medical treatment.	 Extended distance and ultra-soft cable enable seamless integration of HD cameras and robot arms.

12. Broadcast Systems

- ◆ **Purpose:** Transform broadcasting operations with **ultra-high bandwidth, low latency, and reliable transmission** for flawless live broadcasting and content distribution.

Broadcast Systems

Purpose: Transform broadcasting operations with ultra-high bandwidth, low latency, and reliable transmission for flawless live broadcasting and content distribution.



Ultra-high Bandwidth



Low Latency



Reliable Transmission



13. Simulation Systems

- ◆ **Purpose:** Enhance training and simulation with **real-time data transfer, low latency, and high-fidelity visuals and audio** for realistic, immersive simulations.

Simulation Systems

Purpose: Enhance training and simulation with real-time data transfer, low latency, and high-fidelity visuals and audio for realistic, immersive simulations.



REAL-TIME
DATA TRANSFER



LOW
LATENCY



HIGH-FIDELITY
VISUALS & AUDIO



14. Data Centers & High-Performance Computing (HPC)

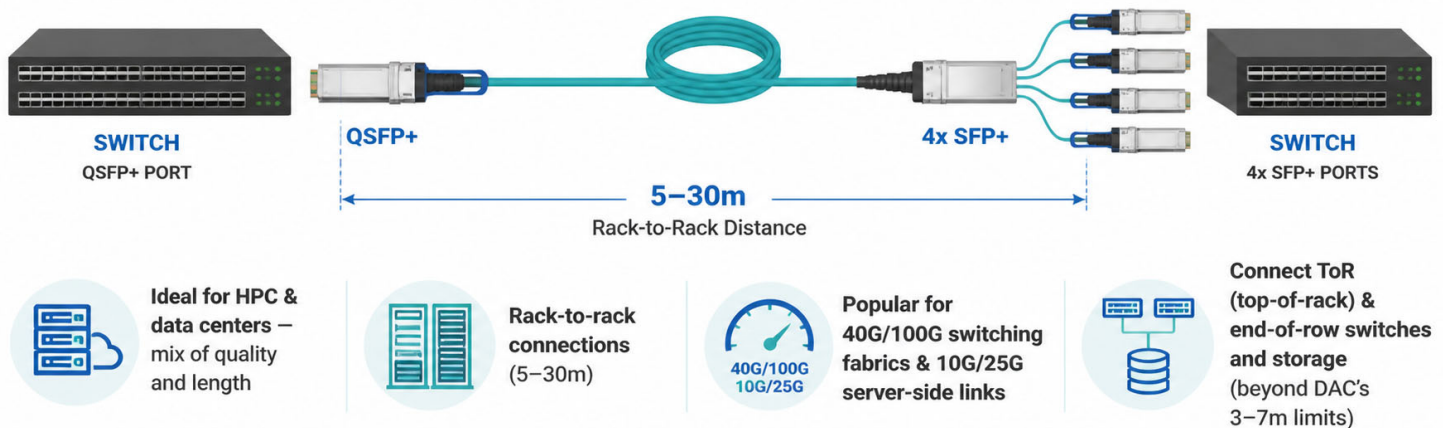
AOCs are deployed as an upgrade to conventional DAC (Direct Attach Copper) cables.

- ♦ Ideal for **high-performance computing and data centers** where a mix of quality and length is required.
- ♦ **Rack-to-rack connections** (5–30 meters).
- ♦ Popular in planning **40G/100G switching fabrics** and **10G/25G server-side connections**.
- ♦ Connect **top-of-row (ToR) and end-of-row switches** to each other and to storage subsystems (exceeding DAC's 3–7m limits).
- ♦ Example: A **40G QSFP+ to 4x SFP+ AOC** connects two switches.
- ♦ Common in PCs, HDTV, electronics, and supercomputers/mainframes.

Data Centers & HPC

Active Optical Cables (AOC)

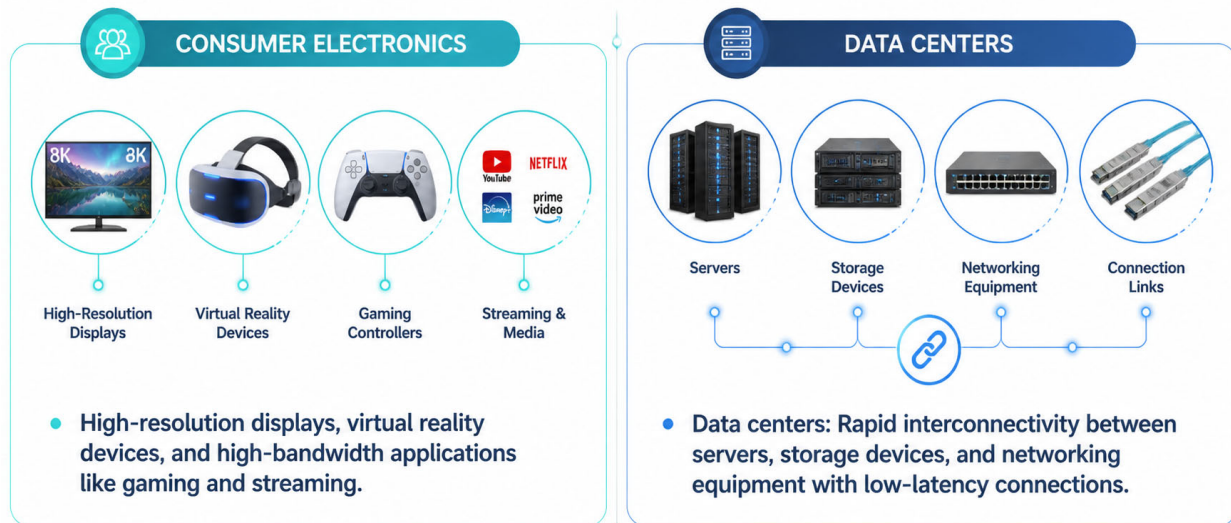
AOCs are deployed as an upgrade to conventional DAC (Direct Attach Copper) cables.



15. Consumer Electronics & IT

- ♦ **High-resolution displays, virtual reality devices,** and high-bandwidth applications like gaming and streaming.
- ♦ **Data centers:** Rapid interconnectivity between servers, storage devices, and networking equipment with low-latency connections.

Consumer Electronics & IT



16. Aerospace, Defense & Automotive

- ♦ AOCs find applications in these sectors where **high-speed and robust connectivity** are vital.

Aerospace, Defense & Automotive



 AOCs find applications in these sectors where high-speed and robust connectivity are vital.

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



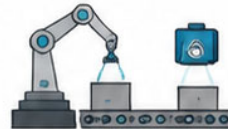
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play

Active Optical Cable (AOC) vs. Copper Cable

1. Structural Differences (Fiber Optics vs. Copper)

Component	Fiber Optics Cable	Copper Cable
Core	Central glass/silica core that carries light	Multiple copper wire strands
Layered covering	Cladding → Buffer Coating → Jacket	Wires twisted into Twisted Pairs
Shielding	EM-resistant by nature (light-based)	Pair Shields + Overall Shield (needed against EMI)
Signal medium	Light beams	Electrical signals

2. Performance & Distance Capabilities

Copper (DAC – Direct Attach Copper):

- ♦ Works well only over **short distances** — roughly **5 meters** for typical HDMI/ DisplayPort runs, and as little as **2–3 meters** for high-bandwidth data-center links.
- ♦ As bandwidth rises, copper's maximum reach **shrinks dramatically**. Passive copper already struggles with emerging **8K content** beyond short runs, and the cable must become bulkier, heavier, and more expensive to compensate.
- ♦ Longer copper runs require **active copper extenders**, which are large, complex, sometimes temperamental devices that often need external power.

Active Optical Cable (AOC):

- ♦ Built for **long reach** — typically **10 to 100+ meters** without signal loss. In AI and data-center deployments, AOCs routinely span **30–100 meters**.
- ♦ Maintains signal integrity at far higher speeds, transferring data at **250 Mbps up to 100 Gbps** — over 2000 times the speed of standard copper cabling.
- ♦ Keeps performance consistent regardless of distance, whereas copper degrades with length.

3. Weight, Space & Installation

- ◆ An AOC is roughly **one-quarter the weight** of an equivalent copper cable and has a **better bend radius**, making it far easier to route through ceilings, walls, and dense racks.
- ◆ AOCs are essentially "**plug-and-play**" — they behave like a simple copper cable but deliver optical reach. No special skills or termination equipment are required for installation.
- ◆ This is critical for **space-conscious AV applications** such as control rooms, digital signage, and mass transit, where copper's heavy, stiff, bulky assemblies become impractical.

4. Electromagnetic Interference (EMI) & Reliability

- ◆ Because AOCs transmit **light rather than electricity**, they are naturally **immune to electromagnetic interference**. They can run safely alongside other electronic devices without data corruption.
- ◆ Copper, by contrast, needs extensive shielding (Pair Shields + Overall Shield, as in your diagram) and is still prone to interference and signal loss in noisy environments.
- ◆ Optical cables are also **more durable and reliable** in the long term, being made from rugged glass and plastic, resistant to weather (rain, storms, flooding), and producing roughly **5× fewer faults** over their service life than copper.

5. Cost & Total Cost of Ownership (TCO)

- ◆ This is the one area where copper retains an advantage — initially:
- ◆ **Upfront cost:** Copper/DAC is always **cheaper per cable** at short distances; AOC is more expensive to procure.
- ◆ **Long-term TCO:** AOC wins over time due to **lower maintenance costs, higher reliability, and fewer faults**. The reduced need for replacement and upkeep makes optical cable more **cost-effective in the long run**, despite the higher sticker price.
- ◆ At longer distances, copper's cost advantage evaporates anyway — bulkier, power-hungry active copper solutions become as expensive as AOC while delivering less.

6. Emerging Context: AI & Higher Resolutions

The trend is decisive. In **400G data centers**, copper DAC reaches only ~10 feet; at **800G** that drops to ~6 feet. Meanwhile AOCs support **30–100+ meters** for large AI clusters and disaggregated systems. As 8K video and AI workloads become mandatory, **copper is ruled out on specs alone**, whereas AOC scales smoothly.

Feature	Active Optical Cable (AOC):	Copper Cable
Reach	10–100+ m	~2–5 m (shrinks at high speed)
Speed	Up to 100 Gbps	Limited at length
Weight/Flexibility	Thin, ~¼ copper weight	Thick, heavy, stiff
EMI Immunity	Excellent (light-based)	Needs heavy shielding
Installation	Easy, plug-and-play	Complex at distance
Upfront cost	Higher	Cheaper
Long-term TCO	Lower (reliable, low maintenance)	Higher (faults, replacement)

Bottom line: Copper remains sensible for **short, low-cost, fixed connections** (e.g., 4K at short range, rack-to-rack DAC in small data centers). But for **long distances, high bandwidth, EMI-prone environments, and future 8K/AI demands**, AOC is the superior — and increasingly the only practical — choice.

AOC vs. Copper Cable

Active Optical Cable & Traditional Copper — A Side-by-Side Comparison

AOC - Optical Fiber 	Copper Cable 
 Reach: 10–100+ meters	 Reach: only 2–5 meters
 Speed: Up to 100 Gbps	 Speed: Drops sharply with distance
 Light & flexible, about 1/4 copper weight	 Thick, heavy, and stiff
 Immune to electromagnetic interference	 Needs heavy shielding against EMI
 Easy plug-and-play installation	 Complex extenders for longer runs
 Higher upfront cost, lower long-term cost	 Cheaper upfront, higher maintenance cost

Key Differences

 Distance: Fiber wins — far longer reach without signal loss	 Speed: Fiber wins — up to 100 Gbps vs copper limits	 Total Cost: Fiber wins over time — fewer faults, less maintenance
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Bottom line: Copper suits short, low-cost links. AOC wins for long runs, high bandwidth, and future 8K/AI demands.



Active Optical Cable (AOC) vs. Traditional AV (Audio&Video) Extenders

1. What They Are

Feature	Active Optical Cable (AOC)	Traditional Copper AV Extender
Medium	Fiber optic core with embedded transceivers in connectors	Copper twisted-pair (CAT5e/6/6A) with external transmitter & receiver boxes
Construction	Single integrated cable; no separate transmitter/receiver units	System of multiple devices: transmitter, receiver, power adapters, and copper cabling
Signal Handling	Converts electrical signals to light at the source, back to electrical at the display	Pushes electrical signals directly over copper with signal amplification

2. Key Comparison Points

◆ Points of Failure

Active Optical Cable (AOC)	Traditional Copper AV Extender
One cable = one point of failure	Multiple devices = multiple failure points
No separate transmitter/receiver to debug	Technician must identify which box (Tx or Rx) failed
No reset necessary to restore connection — it is one cable, not a system."	Requires power cycling the transmitter and/or receiver when a connection drops



♦ Ease of Setup & Troubleshooting

AOC: Works exactly like a standard passive cable — plug and play. No configuration needed. Can connect directly to standard HDMI splitters and switches just like a normal cable.

Traditional Extender: Requires matching transmitter and receiver units, proper Ethernet cable termination (straight-through vs crossover often matters), and power sources at both ends.

♦ Distance Capability

Active Optical Cable (AOC)	Traditional Copper AV Extender
Up to 100–500 meters (330–1,640 ft) without signal degradation	Typically 15 meters (50 ft) for passive copper HDMI; extenders can push to 50–100m but with quality loss
Light-speed transmission — no signal loss over distance	Signal attenuation increases with distance; repeaters introduce latency

♦ Splitter / Switch Scenarios

With AOC: Active Optical Cables make this type of setup much easier by connecting directly to a standard HDMI splitter or switch just like a normal passive cable — the only points of failure being between the splitter/switch ports and the connected AOCs.

With Copper Extenders: Requires either a specialized extender with built-in splitter/switch + multiple receivers, OR combining standard splitters with multiple extender kits — much higher risk of incompatibility problems.



◆ Electrical Interference & Isolation

Active Optical Cable (AOC)	Traditional Copper AV Extender
Complete electrical isolation — no ground loops, no EM interference, safer between buildings	Susceptible to EMI/RFI; ground loops can occur between separate buildings; surge risk

◆ Physical Form Factor

AOC: Thinner, lighter, more flexible — easier to route through conduits or ceiling trays.

Copper: Thicker, heavier, less flexible, especially in longer runs.

◆ Cost

Active Optical Cable (AOC)	Traditional Copper AV Extender
Higher upfront cost — 2x - 3x more expensive per unit	Lower upfront cost for short runs; extender kits are relatively affordable
Lower total cost of ownership (fewer devices, less maintenance)	Hidden costs: additional transmitters/receivers, power supplies, troubleshooting labor

3. Summary Table

Criteria	Active Optical Cable (AOC)	Traditional Copper Extender	Winner
Simplicity	☑ Single cable, plug & play	✗ Multiple boxes, cables, power supplies	AOC
Reliability	☑ Minimal failure points	✗ Many potential failure points	AOC
Distance	☑ 100m+ with no loss	⚠ 15–100m with possible degradation	AOC
EMI Immunity	☑ Fiber — immune	✗ Copper — susceptible	AOC
Cost (upfront)	✗ Higher per cable	☑ Cheaper for short runs	Copper
Compatibility	☑ Works with standard switches/splitters	⚠ Higher risk of incompatibility	AOC
Flexibility	☑ Thinner, lighter, bend-friendly	✗ Heavier, less flexible	AOC
Power Requirement	⚠ Both ends need power (via HDMI or USB)	✗ Tx & Rx boxes each need AC power	AOC

4. Verdict

Choose Active Optical Cables when:

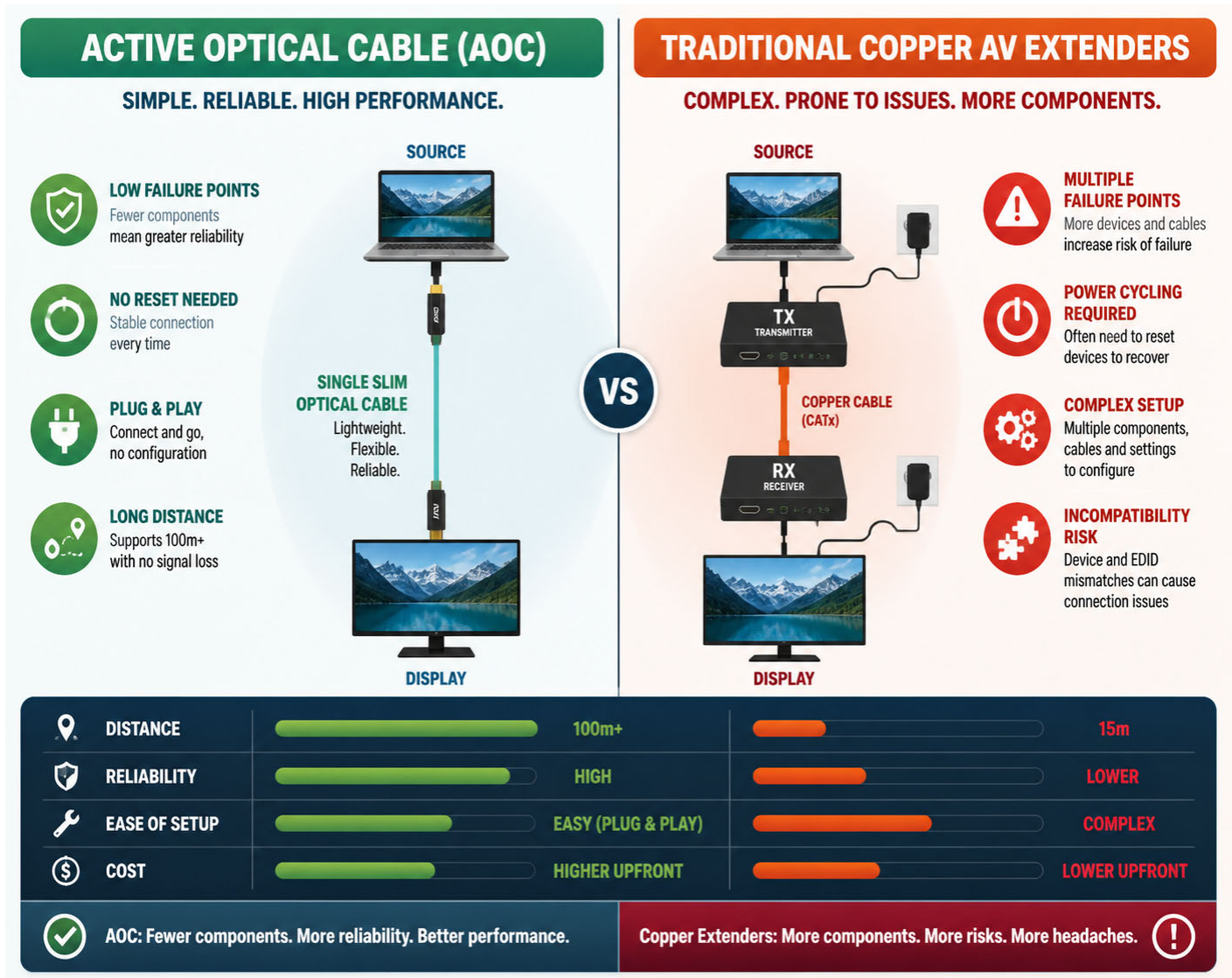
- ♦ Run length exceeds 15–20 meters
- ♦ Running through areas with high EMI (near motors, power lines, or between buildings)
- ♦ You need a clean, simple setup without multiple boxes to mount and power

Reliability and easy troubleshooting matter more than initial cost

Choose Traditional Copper Extenders when:

- ♦ Distance is under 15 meters
- ♦ Budget is the primary constraint
- ♦ You already own compatible extender equipment

Active Optical Cable (AOC) compares to Traditional Copper AV Extenders:



The infographic above visually illustrates the core distinction:

One sleek cable vs. a messy nest of boxes and adapters.

Copper-Fiber Hybrid Active Optical Cable vs. Fiber-Only Optical Cable

1. Overview of Active Optical Cables (AOCs)

Active Optical Cables (AOCs) are advanced connectivity solutions that convert electrical signals into optical signals at one end and back to electrical signals at the other, using embedded transceivers within the connector housings. Unlike passive copper cables, AOCs can transmit data over significantly longer distances—often measured in kilometers—without signal degradation.

There are **two primary variants** of AOCs:

Feature	Fiber-Only AOC	Copper/Fiber Hybrid AOC
Construction	Pure optical fibers	Optical fibers + copper conductors
Power Delivery	✗ No (requires external power)	☑ Yes (over copper conductors)
Low-speed signals	✗ No copper path	☑ CEC, DDC, EDID, HPD over copper
Best Use Case	Data centers, long-haul networking	AV applications, consumer electronics

2. Deep Dive: Fiber-Only AOC

How It Works

A fiber-only AOC uses **only optical fibers** for all signal transmission. The cable ends contain active transceivers that convert electrical input to light (typically using VCSEL lasers) and back to electrical output.

Pros

- ◆ **Maximum signal purity:** No electromagnetic interference (EMI) susceptibility
- ◆ **Longest distances:** Can transmit 10+ km without signal repeaters
- ◆ **Lightest weight:** Smallest diameter and lowest weight among cable types
- ◆ **High bandwidth:** Supports 40Gb/s, 100Gb/s, and beyond



Cons

- ♦ **No power delivery:** Cannot carry power over the optical core — the source and display both require independent power sources
- ♦ **External power needed:** For AV setups, this means bulky external power supplies for the AOC itself, which don't fit neatly behind ultra-thin displays
- ♦ **No low-speed signal path:** Protocols like CEC, EDID, and HPD require separate handling, often needing additional converters

Ideal Applications

- ♦ **Data center interconnects** (server rack to server rack)
- ♦ **High-performance computing (HPC)** clusters
- ♦ **Long-haul networking** where power is already available at both ends
- ♦ **Storage area networks (SANs)**

3. Deep Dive: Copper/Fiber Hybrid Active Optical Cable (AOC)

How It Works

The hybrid AOC uses a **dual-path architecture**:

Fiber strands → Handle all **high-bandwidth data** (video, audio, high-speed data like USB/Thunderbolt signals)

Copper wires → Carry **low-bandwidth control signals** (CEC, DDC, EDID, HPD) and **power delivery** (typically +5V up to 240W)

This design mirrors the pinout of traditional HDMI/USB-C copper cables, making it a **plug-and-play drop-in replacement** with no external adapters needed.



ACTIVE OPTICAL CABLES

your best fiber optics partner

Pros

- ♦ **Self-powered from source:** The cable draws power from the source device (e.g., laptop, media player) — no external power supply needed
- ♦ **Full signal compatibility:** All control signals (EDID for display negotiation, HDCP for content protection, CEC for device control, HPD for hot-plug detection) pass naturally over copper
- ♦ **Ideal for ultra-thin displays:** No bulky power bricks to hide behind wall-mounted TVs
- ♦ **Plug-and-play:** Behaves exactly like a standard copper cable from the user's perspective

Cons

- ♦ **Slightly thicker and less flexible** than pure fiber AOC due to the copper conductors
- ♦ **Moderate distance limits:** Power delivery over copper limits maximum length (typically up to 100m for signaling, but power voltage drop can be a factor)
- ♦ **Higher cost than passive copper cables**, though comparable or cheaper than fiber-only AOCs with external power solutions

Ideal Applications

- ♦ **AV systems:** Home theater, commercial displays, digital signage
- ♦ **USB-C/Thunderbolt extension:** The USB4 AOC can deliver up to 240W at 3m or 60W at 4.5m while providing 40Gb/s data transfer
- ♦ **Pro AV installations:** Conference rooms, lecture halls, command centers
- ♦ **Gaming setups:** Long-distance HDMI connections from PC to TV

4. Hybrid AOC Signal Breakdown

Here's exactly what travels over which path in a hybrid AOC:

Signal Type	Transmission Medium	Purpose
TMDS / High-speed data	Optical Fiber	Video, audio, high-bandwidth data
+5V Power	Copper Wire	Power the cable's electronics & connected low-power devices
DDC (Display Data Channel)	Copper Wire	EDID negotiation & HDCP authentication
CEC (Consumer Electronics Control)	Copper Wire	Device control (e.g., volume via TV remote)
HPD (Hot Plug Detect)	Copper Wire	Detects when a display is connected/disconnected

5. Active Optical Cable (AOC) vs. Passive Optical Cable (POC)

Aspect	Active Optical Cable (AOC)	Passive Optical Cable (POC)
Active Components	☒ Yes (lasers, photodetectors, amplifiers)	☒ No (direct fiber-to-fiber connection)
Max Distance	Up to 100+ km	5m – 300m
Transmission Speed	Very high (40Gb/s – 800Gb/s)	Limited by passive loss
Cost	Higher	Lower
Best For	Long-haul, high-speed, data centers	Short-distance, same-rack connections

6. Real-World Example: USB4 40Gb/s Active Optical Cable

- ♦ **Data Rate:** 40Gb/s (USB4 / Thunderbolt 4 compatible)
- ♦ **Lengths:** 3.0m (up to 15 ft) and 4.5m
- ♦ **Power Delivery (Hybrid feature!):**
 - ⇒ 3.0m model → **240W** (enough to charge high-end laptops)
 - ⇒ 4.5m model → **60W** (standard laptop charging)
- ♦ **Application:** Connecting Thunderbolt docks, eGPUs, PCIe expansion, RAID storage, and displays at distances impossible with standard passive USB-C cables

This is a **hybrid AOC** since it delivers power over copper while transmitting data over fiber — best of both worlds.

7. Decision Framework: Which Cable Should You Choose?

Choose Fiber-Only AOC if...

- ♦ You need the **absolute longest distance** (hundreds of meters to kilometers)
- ♦ Both endpoints **already have their own power** sources
- ♦ Weight and cable diameter are critical (e.g., aerospace, mobile installations)
- ♦ You're working in **data centers** where external power bricks are standard

Choose Copper/Fiber Hybrid AOC if...

- ♦ You're setting up **AV/home theater equipment** with ultra-thin displays
- ♦ You want a **clean installation** without visible power adapters
- ♦ You need **power delivery** over the cable (e.g., charging a laptop while using an external display)
- ♦ You need **full protocol support** (EDID, CEC, HDCP) without additional converters
- ♦ You're extending **USB-C/Thunderbolt** connections beyond the standard 2m limit while retaining power delivery



Choose Passive Optical Cable if...

- ♦ You're on a **tight budget**
- ♦ Your distances are **under 300m**
- ♦ Your application doesn't need the extreme bandwidth or speed of AOC

8. Summary Comparison Table

Feature	Fiber-Only AOC	Hybrid AOC	Passive Optical Cable	Standard Copper
Max Distance	★★★★★	★★★★★	★★★	★★
Bandwidth	★★★★★	★★★★★	★★★	★★★
Power Delivery	✗	☑	✗	☑
EMI Immunity	★★★★★	★★★★★	★★★★★	★★
Plug-and-Play AV	✗ Requires adapt-ers	☑	✗ Requires adapt-ers	☑
Weight	Lightest	Light	Light	Heaviest
Cost	High	High	Medium	Low
Typical Use	Data centers, HPC	AV, USB-C/ Thunderbolt extension	Short-range networking	Everyday consumer

Bottom Line: The hybrid AOC is the clear winner for **AV installations** and **USB-C/ Thunderbolt extension** because it eliminates external power supplies while maintaining all the bandwidth and distance advantages of optical transmission.

The fiber-only AOC remains the go-to choice for **pure data networking** where power isn't needed and maximum distance is the priority.

Copper-Fiber Hybrid AOC vs. Fiber-Only AOC

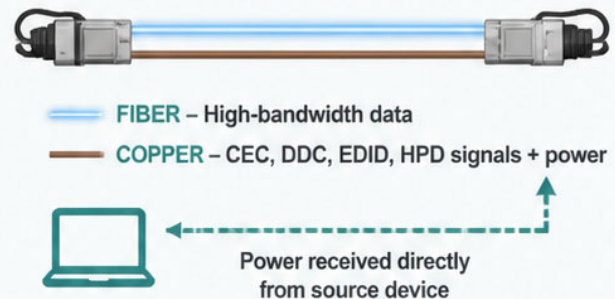
Fiber-Only AOC

- Best for applications that do NOT require power
- External power supply is needed if power is required
- NOT ideal for AV applications
- Relies on external power sources



Copper/Fiber Hybrid AOC

- Preferred for AV applications
- Eliminates bulky external power supplies
- Fiber transmits high-bandwidth data
- Copper transmits CEC, DDC, EDID, HPD signals + power
- Receives power directly from the source device



USB4 40Gb/s Active Optical Cable



Data transfer:
Up to 40Gb/s



Distance:
Up to 15 feet
stable performance



Power Delivery:
3.0M model up to 240W |
4.5M model up to 60W



Ideal for:
Thunderbolt devices, docks,
hubs, displays, eGPUs, PCIe
expansion, RAID storage

AOC (Active Optical Cable)



- Uses active components for electrical-to-optical conversion



- Long range: up to kilometers with no signal degradation



- High-speed transmission for data centers, HPC, networking



- Higher cost, but superior performance

POC (Passive Optical Cable)



- Direct connection with no active components



- Short distance: 5m to 300m



- Best for close spaces: server racks, data centers, SANs



- Lower cost

AOC vs POC Comparison

THE GENERATIONS OF USB

A Brief History of USB

USB was developed in **1994–1995** by a consortium of companies including **Intel, Microsoft, IBM, and Compaq**, aiming to replace the confusing mess of legacy ports (serial, parallel, PS/2, game ports, etc.) with a single, unified plug-and-play interface.

USB 1.x (1996–1998) — The Beginning

Version	Year	Max Speed	Key Notes
USB 1.0	1996	1.5 Mbps (Low Speed) / 12 Mbps (Full Speed)	Initial release, slow adoption
USB 1.1	1998	Same speeds	Improved compatibility & stability; first widely adopted version

- ◆ Perfect for basic peripherals: keyboards, mice, printers
- ◆ **Key innovation:** Hot-swapping (plug/unplug without rebooting)

USB 2.0 (2000) — The Breakthrough

Year	Max Speed	Key Feature
2000	480 Mbps (High Speed)	~40× faster than USB 1.1

- ◆ Introduced **High Speed** mode alongside backward-compatible Low/Full Speed
- ◆ Revolutionized use of external storage, high-res cameras, and faster peripherals
- ◆ **Legacy:** Still widely available on devices today
- ◆ This version truly made USB a household name

USB 3.x (2008–2017) — The Speed Revolution

The naming here got **notoriously confusing** due to rebranding:

Marketing Name	Original Name	Year	Speed	Also Known As
USB 3.2 Gen 1	USB 3.0	2008	5 Gbps	SuperSpeed
USB 3.2 Gen 2	USB 3.1	2013	10 Gbps	SuperSpeed+
USB 3.2 Gen 2×2	USB 3.2	2017	20 Gbps	Dual-lane SuperSpeed+

Key innovations in USB 3.x:

- ♦ **Full-duplex bidirectional** data transfer (send & receive simultaneously)
- ♦ Doubled the number of data lines from 4 to 8
- ♦ Improved **power delivery** and power management
- ♦ Introduced the blue-colored port (USB 3.0 standard)

USB4 (2019) — The Unification Era

Year	Max Speed	Key Feature
2019	40 Gbps	Integrates Thunderbolt 3 protocol

- ♦ **What USB4 brought:**
- ♦ **40 Gbps** — double USB 3.2's top speed
- ♦ Mandatory support for **Thunderbolt 3** compatibility
- ♦ **USB-C connector only** — the first standard to require it
- ♦ Simultaneous support for multiple **data and display protocols**
- ♦ Better **power delivery** up to 240W (USB PD 3.1)



USB4 v2.0 (2022) — The Cutting Edge

Year	Max Speed	Key Feature
2022	80 Gbps (up to 120 Gbps asymmetric)	Thunderbolt 4 integration

- ♦ **80 Gbps** symmetrical, or **120 Gbps** in asymmetric mode
- ♦ Backward compatible with all previous USB versions
- ♦ Supports next-gen displays, storage, and high-performance computing

The Connector Evolution

Connector	Shape	Introduced	Key Feature
USB-A	Rectangular	1996	The classic, one-way plug
USB-B	Square with bevel	1996	Printers & larger peripherals
Mini-USB	Smaller variant	Early 2000s	Older mobile devices
Micro-USB	Flat, compact	2007	Smartphones (pre-USB-C era)
USB-C	Oval, reversible	2014	The future — reversible, high power, high speed

USB-C is a game-changer:

reversible plug design, supports up to 240W power, video output

(DisplayPort Alt Mode), Thunderbolt, and all USB speeds up to USB4 v2.

USB Standard Comparison Chart

	 USB 1.0/1.1	 USB 2.0	 USB 3.0	 USB 3.1	 USB 3.2	 USB 4	 USB 4 Version 2.0
 Max Transfer Speed	1.5 Mbps / 12 Mbps	480 Mbps	5 Gbps	10 Gbps	20 Gbps	40 Gbps	80 Gbps
 Certification Logo							
 Compatible Connector Types	 Type-A  Type-B	 Type-A  Type-B  Mini-A  Mini-B	 Type-A  Type-B  Micro-A  Micro-B	 Type-A  Type-B  Micro-A  Micro-B  Type-C	 Type-A  Type-B  Micro-A  Micro-B  Type-C	 Type-C	 Type-C

Active Optical Cable (AOC) USB works by converting electrical signals to **light pulses** at the source end, transmitting them through fiber optics, then converting back to electrical signals at the destination — giving you clean, high-speed signals over vastly longer distances.

USB-C's flexible interface with **AOC's fiber-optic performance** sets a new standard for data centers, VR/AR, machine vision, and industrial automation.

Conclusion of Active Optical Cable (AOC)

1. Core Value Proposition (The "Why")

Active Optical Cables (AOCs) are **pivotal in modern connectivity**, especially for transmitting ultra-high-definition video and data over long distances. This is strongly supported by current market reality. The global AOC market reached approximately **USD 4.9–5.0 billion in 2025**, with a CAGR projected between **13.5% and 18.9%**, reaching anywhere from **USD 8.7 billion to USD 23 billion by 2034–2035** depending on the analyst firm.

The fundamental argument is economically sound: as video resolutions progress from HD → 4K → 8K, **copper cabling becomes inadequate** due to bulk, higher cost, and inflexibility. This is a decisive technical point — copper HDMI is known to degrade significantly beyond just ~10 meters, while AOCs maintain signal integrity over hundreds of meters.

2. Popular Product Categories

Your document identifies three flagship AOC products, which align with the market's most common offerings:

- ♦ **USB-C AOC** – Multi-functionality (data, video, audio, charging) with signal integrity over long distances; ideal for VR, machine vision, and data centers.
- ♦ **HDMI AOC** – Solves signal loss over extended ranges, essential with 4K/8K adoption where data rates have tripled compared to earlier HDMI standards.
- ♦ **DisplayPort AOC** – High-volume data transfer without degradation; allows high-speed transmission of data, video, and audio in bulk.



USB-C AOC

Multi-functionality (data, video, audio, charging) with signal integrity over long distances; ideal for VR, machine vision, and data centers.

HDMI AOC

Solves signal loss over extended ranges, essential with 4K/8K adoption where data rates have tripled compared to earlier HDMI standards.

DisplayPort AOC

High-volume data transfer without degradation; allows high-speed transmission of data, video, and audio in bulk.

3. Key Advantages Confirmed

Benefit	Document's Claim	Internet Validation
High bandwidth	Easily handles ever-increasing UHD resolutions	AOCs support HDMI 2.0 at 18 Gbit/s and 4K @ 60Hz, plus 8K-capable variants
Long distance	Distances in the hundreds of meters	AOCs extend DisplayPort 1.4 / HDMI 2.0 up to 50m+
Easy installation	Plug-and-play, no technician needed	Confirmed as a plug-and-play, light-weight alternative
No external power	Eliminates bulky power supplies and failure points	Design converts electrical to optical signals at cable ends, removing failure points
EMI/RFI resistance	Ultra-secure against interference	Optical transmission inherently immune to electromagnetic interference
Thin, lightweight, bend-resistant	Saves space, easy installation	Consistently cited as lighter and more flexible than copper

4. Applications Across Industries

- ♦ **IT & Data Centers** — rapid server-to-storage interconnectivity, low latency
- ♦ **Consumer Electronics** — VR devices, gaming, 4K/8K displays
- ♦ **Healthcare** — medical imaging, telemedicine, remote diagnostics
- ♦ **Aerospace, Defense, Automotive, Industrial** — high-speed robust connectivity



5. Future Outlook and Market Drivers

- ♦ **Adoption of advanced standards** — 400G AOC segments are poised to revolutionize **AI and cloud computing**, with LightCounting predicting 15% CAGR through 2028.
- ♦ **Energy efficiency** — A key differentiator given data center power demands.
- ♦ **Cost reduction** — As manufacturing scales, prices fall, driving wider adoption.
- ♦ One nuance worth noting: **market size estimates vary widely** among analysts (from USD 8.7B to USD 86B by 2035), reflecting differences in scope (consumer vs. total). The **consumer AOC** segment specifically is growing even faster, at **~20% CAGR**.

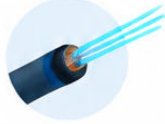
6. Sustainability & Responsible Development

This is increasingly important as Active Optical Cables (AOCs) offer advantages over copper by reducing material bulk, and their energy-efficient design supports sustainable data center operations. The document's call for balanced technological progress and eco-friendly development reflects current industry emphasis on sustainable digital infrastructure.

ACTIVE OPTICAL CABLE (AOC)

The Future of Ultra-High-Definition Connectivity

1 OVERVIEW



AOCs are critical for modern connectivity, supporting ultra-high-definition video and data transmission over long distances.

2 KEY BENEFITS



High Bandwidth
Supports UHD resolutions



Easy Installation
Plug-and-play solutions



EMI Resilience
Resistant to electromagnetic interference (EMI/RFI)



Long Distance
Maintains high data rates over hundreds of meters

3 POPULAR TYPES



USB-C

Addresses issues such as signal loss while maintaining high data rates over distances up to several hundred meters.



HDMI

Addresses issues such as signal loss while maintaining high data rates over distances up to several hundred meters.



DisplayPort

Addresses issues such as signal loss while maintaining high data rates over distances up to several hundred meters.

4 INDUSTRY APPLICATIONS



IT & Data Centers



Consumer Electronics



Healthcare



Defense

5 MARKET GROWTH



Global AOC market projected to grow from approximately **USD 4.9-5.0 billion** to between **USD 8.7 billion** and **USD 23 billion**, driven by increasing video resolutions that exceed traditional copper cabling capabilities.

6 FUTURE OUTLOOK

- ✓ Adoption of advanced standards
- ✓ Energy efficiency improvements
- ✓ Cost reduction in manufacturing
- ✓ Sustainability: smaller form factors and lower energy consumption than copper cables

 AOCs provide a comprehensive, technically accurate solution for modern data connectivity challenges.



YDSAOC-40G-USB4-CM-CM

40Gbps Active Fiber Optical USB 4.0 ThunderBolt4 Extension Cable

Overview

YDSAOC-40G-USB4-CM-CM is a **USB 4.0 Gen 2 Active Optical Cable (AOC)** featuring a **Type-C male to Type-C male** connector. It is designed to meet growing demands for high-bandwidth, long-distance connectivity by combining fiber optic technology with standard USB connectivity. This hybrid approach overcomes the distance and interference limitations of traditional copper cables while delivering reliable, high-performance connections.



Key Performance Specifications

- ◆ **High Bandwidth:** Compliant with the latest USB 4.0 Gen 2 standard, delivering super-speed data transfer up to **40Gbps**
- ◆ **Video Resolution:** Supports **8K at 60Hz** and **4K at 240Hz**
- ◆ **Backward Compatibility:** Compatible with USB 3.2 (10Gbps), USB 3.1, USB 3.0 (5Gbps), and USB 2.0/1.1 (within 5m); also compatible with **Thunderbolt 4/Thunderbolt 3** interfaces
- ◆ **Extended Range:** Delivers lossless signals over a maximum of **30 meters**, but **capped at 8m** in standard configurations (customizable longer lengths available)
- ◆ **Power Delivery:** Supports fast charging via **9–20V @ 3A**, up to **240W PD** power delivery to remote devices
- ◆ **Design:** Unidirectional, plug-and-play; requires **no external power supply** or drivers
- ◆ **Construction:** Premium OM3 optical fiber core, Kevlar reinforcement for strength and pull resistance, zinc-alloy housing with corrosion-resistant gold-plated connectors, and braided nylon exterior
- ◆ **EMI/RFI Resistance:** Practically zero electromagnetic/radio-frequency interference profile for a safe, radiation-free environment and flawless signal performance
- ◆ **Certifications:** Meets FCC/CE standards for EMI/RFI emissions.



ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Advantages

- ◆ **Placement Flexibility:** Long-distance connectivity enables optimal device arrangement in an organized, convenient, and quieter workspace
- ◆ **Uncompromised Speed:** Stable 40Gb/s data transfer even over extended distances
- ◆ **Versatile Connections:** Works with Thunderbolt 4/3 and USB4/3/2 USB-C devices, including docks, displays, eGPUs, PCIe expansion, external SSDs, and RAID storage
- ◆ **Diverse Displays:** Supports high-resolution displays up to 8K, including DisplayPort over Thunderbolt, Apple Pro Display XDR, and Apple Studio Display
- ◆ **Customizable:** OEM/ODM options include custom length, logo, and packaging

Applications

- ◆ **Professional AV & Digital Signage:** Long-distance USB-C links for media players, interactive displays, and LED video walls
- ◆ **Video Conferencing:** Compatible with systems such as Logitech Rally, Yealink MeetingBar, Poly Studio, Bose Videobar, and Crestron
- ◆ **Medical Imaging:** Stable, EMI-free transmission for ultrasound, medical cameras, and diagnostic workstations
- ◆ **Industrial & Machine Vision:** Factory automation, AI vision inspection, robotics, and control systems
- ◆ **Broadcasting & Live Streaming:** 8K/4K capture devices, PTZ cameras, and studio production systems
- ◆ **VR/AR & Gaming:** Extended reach for VR headsets (e.g., Quest 2) and immersive simulation environments
- ◆ **Artificial Intelligence:** AI robotics, data centers, and smart home/office/market systems, neural networks, machine learning, deep learning, smart technology, data processing, security and reliability
- ◆ **Other Uses:** Home theater, projectors, security monitoring, airplane on-board video, webcams, docking stations, and external storage

Ideal Use Case

This cable is best suited for environments requiring **extended transmission distances without on-site power**, offering **high reliability in electromagnetically complex environments** where conventional copper USB-C cables reach their limits.

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ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Specifications

YDSAOC Model Number	YDSAOC-40G-USB4-CM-CM
Order Part Numbers	YDSAOC-40G-USB4-CM-CM-1003 YDSAOC-40G-USB4-CM-CM-3009 YDSAOC-40G-USB4-CM-CM-50015 YDSAOC-40G-USB4-CM-CM-100030 YDSAOC-40G-USB4-CM-CM-200060
Length	1m(3ft), 3m(9ft), 5m(15ft), 10m(30t), 20m(60ft)
Maximum Support Length	up to 30m(90ft)
Maximum Data Speed	up to 40Gbps (Data) and 80Gbps (Video)
Connector A	USB4 Type-A Male
Connector B	USB4 Type-A Male
USB Protocols	USB4, Thunderbolt 4, Thunderbolt 3, USB 3.2, USB 3.0
Maximum Resolutions	8K 60Hz, 4K 240Hz, 4K 120Hz, 4K 60Hz 4:4:4
Cable Diameter	6.0mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x OM3 10G Optical Fiber + 8x Copper Wire Pro: 6x Fiber + 8x Copper. Plus: 8x Fiber + 8x Copper
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required
Support Fast Charging	Maximum PD3.1 240W <3m(9ft) or PD 120W < 5m(15ft)

YDSAOC



Neural
Networks



Machine
Learning



Deep
Learning

Artificial
Intelligence



Smart
Technology



Data
Processing



Secure
& Reliable



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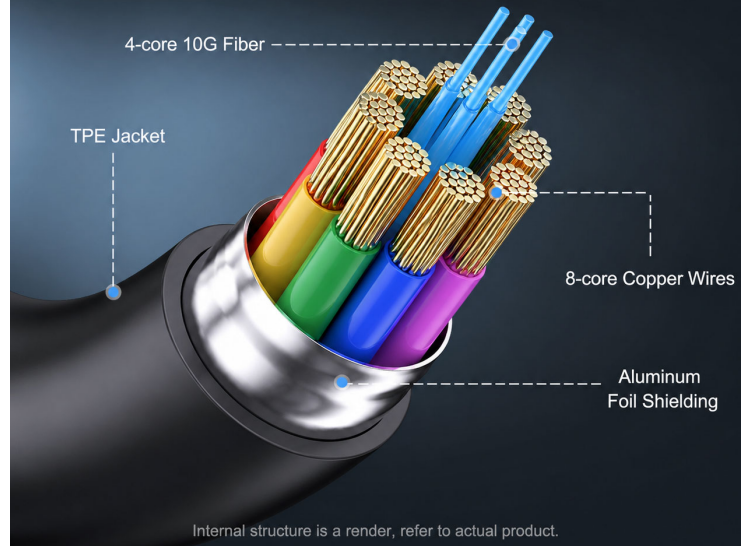
ACTIVE OPTICAL CABLES

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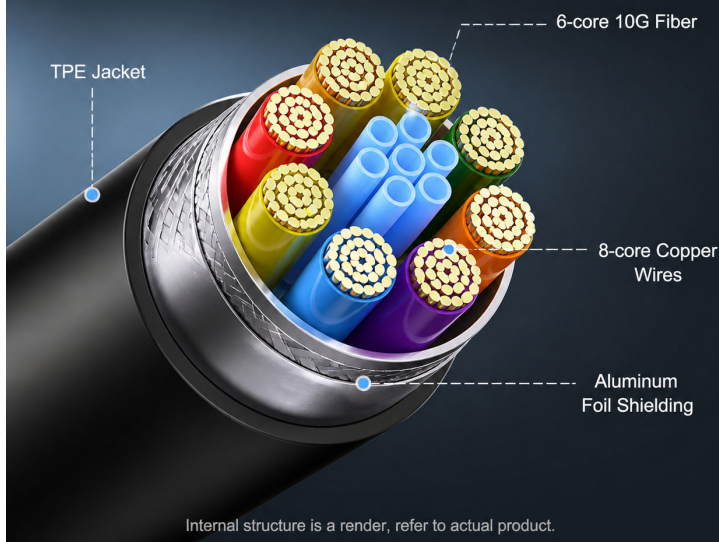
10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



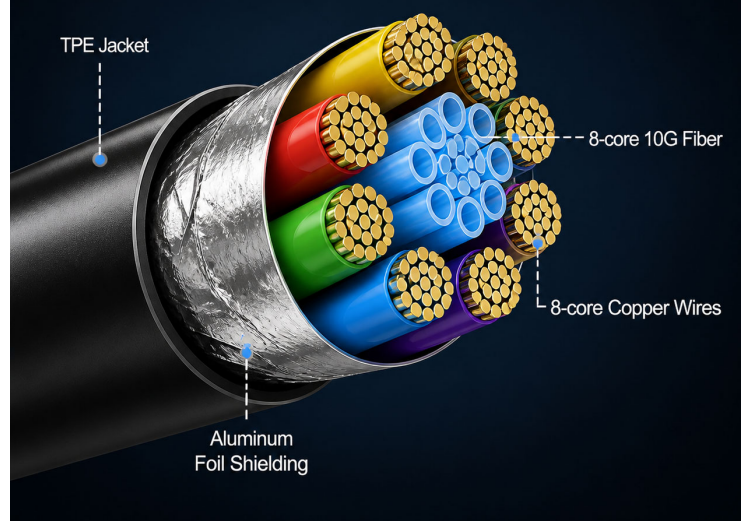
10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



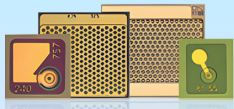
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ACTIVE OPTICAL CABLES

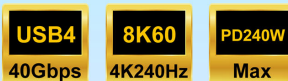
your best fiber optics partner



Mature long-life laser solution, lossless & anti-interference transmission



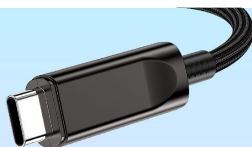
OM3 10G fiber with aramid reinforcement, ROHS compliant



40Gbps high-speed data transfer, supports PD 240W



15m fiber optic lossless transmission, solves copper attenuation



Zinc alloy painted casing, corrosion & scratch resistant



For monitors, PCs, GPUs, cameras, home & commercial use

Images for reference only, please refer to the actual product. PD240W length not exceeding 3 meters.

8K Ultra HD Transmission

Supports 8K@60Hz, delivers crisp 8K video and high-fidelity audio to monitors/TVs.



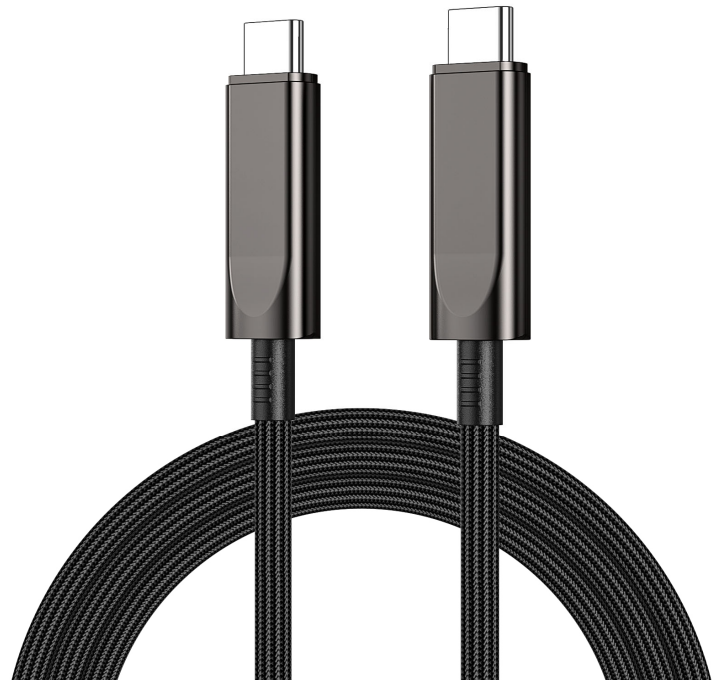
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ACTIVE OPTICAL CABLES

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Laptop to Big Screen

Smooth work & entertainment with synced audio/video.
Supports Type-C displays, 8K@60Hz, crisp visuals.



40Gbps File Transfer

Transfers a 10G file in 4 seconds, 2500MB/s high-speed transfer.

USB4 40Gbps

USB3.2 20Gbps

USB3.0 5Gbps



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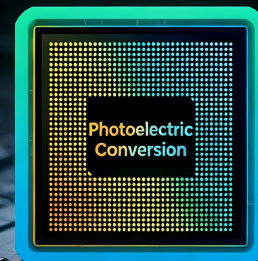
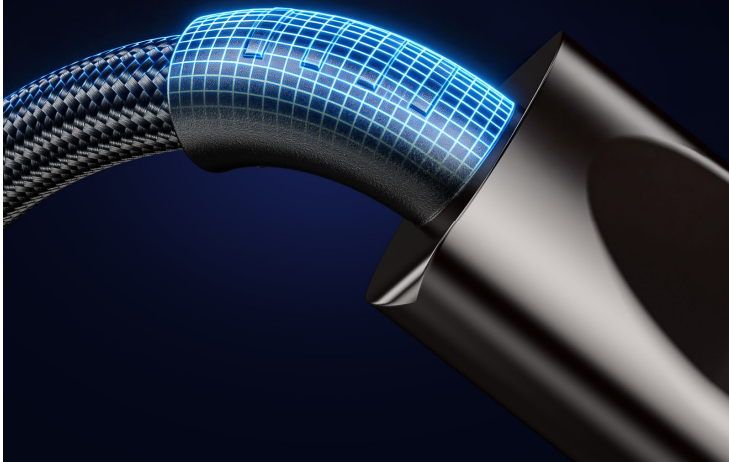
ACTIVE OPTICAL CABLES

your best fiber optics partner



Flexible Cable One-piece Design

One-piece molded connector & strain relief
for durable, break-resistant cable.



Photonic

Mature Long-life Laser & Chip

Opto-electronic chip design, near-zero signal
loss, reliable long-distance transmission.

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Lossless Transfer

15m Fiber Optic Lossless Transfer

OM3 10G fiber core, near-zero signal loss,
solves copper cable attenuation.



Compatible Docking Double transfer efficiency.

Works with Type-C docks, connects more devices.

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ACTIVE OPTICAL CABLES

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Product Specifications

Model: Fiber USB4 Type-C Straight Cable

Version: USB4 Full-Featured / 40Gbps + 8K60Hz + PD240W

Instructions for Use: USB4 C TO C 40Gbps (data) / 80Gbps (video), supports 8K/60Hz and 4K/240Hz.PD3.1 (supports 5A current and max. 240W power within 3 meters; supports 3A current and max. 120W power within 5 meters), backward compatible with USB 2.0 and USB 3.1 full functions.

Cable Core: OM3 10G Fiber + Copper Core

Attenuation: Near-zero loss $\leq 0.0035\text{db/m}$

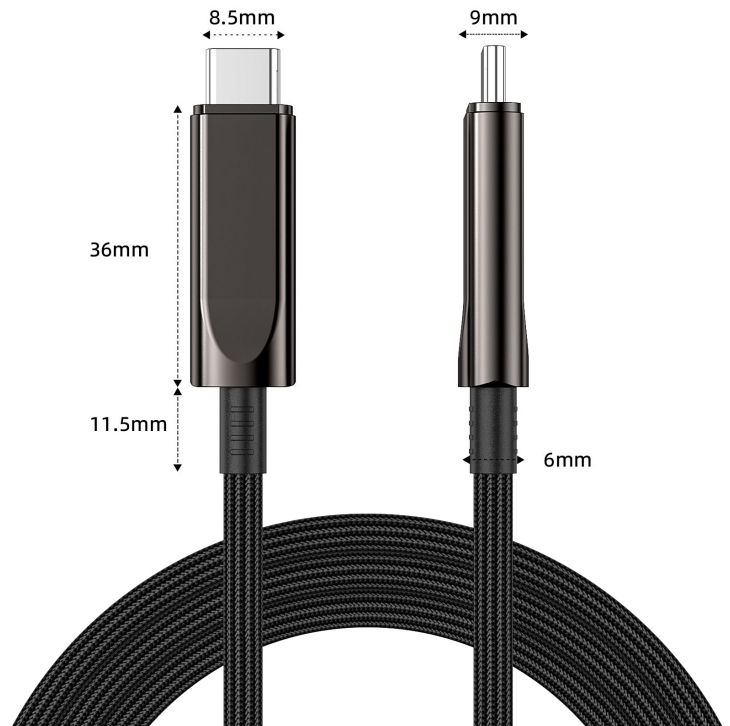
Feature: Bidirectional transmission, no direction limit

Length: 3m (Length customization available)

Packaging Size: 16.5*16.5*6cm

Weight with Box: 176g

Note: Manual measurement, slight size variations may occur.



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ACTIVE OPTICAL CABLES

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COMMERCIAL / AV APPLICATIONS



Digital Signage



LED Signboards



Projector



Home Theater / Blu-ray / 3D Video



Broadcast Stations
(Radio & TV)



Machine Vision Camera Links



Medical Imaging Equipment



DVR & Game Console Monitoring



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Touch Control Pass-Through

Touch-enabled interactive display,
not just a secondary screen.



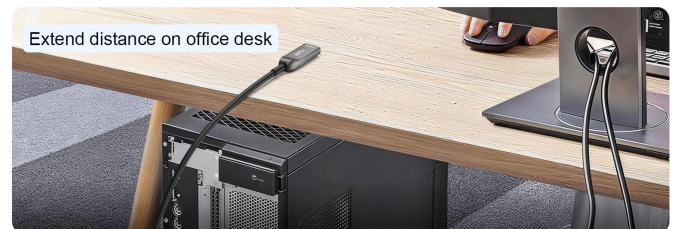
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

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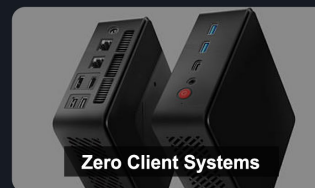


8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



Widely Compatible with USB-C Devices



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AI APPLICATIONS

Powering the Future with Intelligent Technology



01

Artificial Intelligence

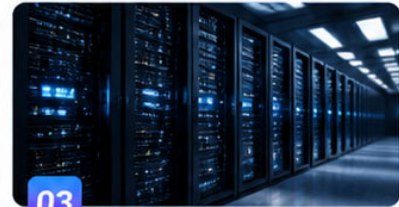
Computers solving complex problems with human-like intelligence.



02

AI Robotics

Intelligent robots performing tasks autonomously with precision.



03

Data Centers

High-performance infrastructure for AI training and data storage.



04

Smart Homes

AI-powered devices for automation, security, and energy efficiency.



05

Neural Networks

Systems inspired by the human brain for pattern recognition.



06

Machine Learning

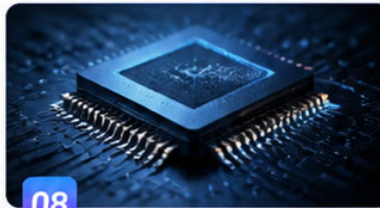
Algorithms that learn from data to make accurate predictions.



07

Deep Learning

Advanced AI models using deep neural network architectures.



08

Smart Technology

AI integrated into devices for smarter everyday experiences.



09

Data Processing

Processing large volumes of data for actionable insights.



10

Automation Manufacturing

AI-driven automation for efficient, precise, and scalable production.



11

Security and Reliability

AI-enhanced systems for threat detection, protection, and system reliability.



USB-C Fiber Optic Cable Applications

High-performance connectivity for demanding environments



1. Professional AV & Digital Signage

Long-distance USB-C links for media players, interactive displays, and LED video walls



2. Video Conferencing

Compatible with systems such as Logitech Rally, Yealink MeetingBar, Poly Studio, Bose Videobar, and Crestron



3. Medical Imaging

Stable, EMI-free transmission for ultrasound, medical cameras, and diagnostic workstations



4. Industrial & Machine Vision

Factory automation, AI vision inspection, robotics, and control systems



5. Broadcasting & Live Streaming

8K/4K capture devices, PTZ cameras, and studio production systems



6. VR/AR & Gaming

Extended reach for VR headsets (e.g., Quest 2) and immersive simulation environments



7. Artificial Intelligence

AI robotics, data centers, smart homes, neural networks, machine learning, deep learning, smart technology, data processing, automation manufacturing, security and reliability



8. Other Uses

Home theater, projectors, security monitoring, airplane on-board video, webcams, docking stations, and external storage





YDSAOC-40G-USB4-CM-CM

USB 4.0 Gen 2 Active Optical Cable



KEY PERFORMANCE



High Bandwidth
40Gbps
(USB 4.0 Gen 2)



Video Resolution
8K@60Hz,
4K@240Hz



Extended Range
Up to 30 meters



Power Delivery
240W
(9-20V @ 3A)



Construction
OM3 optical fiber,
Kevlar reinforcement



KEY ADVANTAGES



Placement Flexibility
Optimal device
arrangement



Uncompromised Speed
40Gb/s stable
transfer



Versatile Connections
Compatible with
Thunderbolt 4/3,
USB 4/3/2



Diverse Displays
High-resolution
up to 8K support



EMI/RFI Resistance
Zero interference
profile



APPLICATIONS



Professional AV &
Digital Signage



Video Conferencing
Systems



Medical Imaging &
Diagnostics



Industrial &
Machine Vision



Broadcasting &
Live Streaming



VR/AR & Gaming



Artificial Intelligence
& Robotics



Premium OM3 optical fiber | Zinc-alloy housing | Gold-plated connectors | Braided nylon exterior | Plug-and-play, no drivers required

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1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



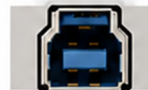
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



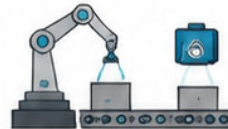
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-10G-USB32-AV-CM-CM

Audio and Video 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Overview

YDSAOC-10G-USB32-AV-CM-CM is an **Audio and Video USB 3.2 Gen 2 Active Optical Cable (AOC)**, also known as a Fiber Optic USB Cable, that combines fiber optic technology with USB-C connectivity. It is engineered to overcome the distance, interference, and bandwidth limitations of traditional copper cables while delivering fast, reliable, high-performance connections.



Key Features

High Bandwidth — Compliant with the latest USB 3.2 Gen 2 standard, supporting data rates up to 10Gbps SuperSpeed

Premium Resolution — Supports 8K at 60Hz and 4K at 120Hz for high-fidelity video

Long-Distance Transmission — Delivers lossless signals over extended distances (up to 50m / 20m / 8m depending on configuration)

Backward Compatible — Works with USB 3.0 (5Gbps), USB 2.0, and USB 1.1

Power Delivery — Supports fast charging of 9–20V @ 3A (up to 60W) to the remote device

Easy Installation — True plug-and-play on both ends with a unidirectional design; no external drivers or software required

Nearly Zero EMI/RFI — High resistance to electromagnetic interference for a safe, radiation-free environment

Hybrid Construction — Fiber/copper hybrid design requires no external power; features a zinc-alloy housing with corrosion-resistant gold-plated connectors

Customizable — Available in custom lengths, with custom logo and packaging options (OEM/ODM supported)

Applications

The cable suits a broad range of demanding use cases:

- ◆ Video conferencing systems (e.g., Logitech Rally, Yealink MeetingBar, Poly Studio, Bose Videobar)
- ◆ Professional AV and digital signage (interactive displays, LED video walls)
- ◆ Medical imaging and healthcare equipment
- ◆ Industrial vision and machine vision cameras
- ◆ Broadcasting and live streaming
- ◆ VR/AR headsets and gaming setups
- ◆ USB-C docking stations and external storage
- ◆ Home theater, projectors, set-top boxes, and security monitoring

Best For

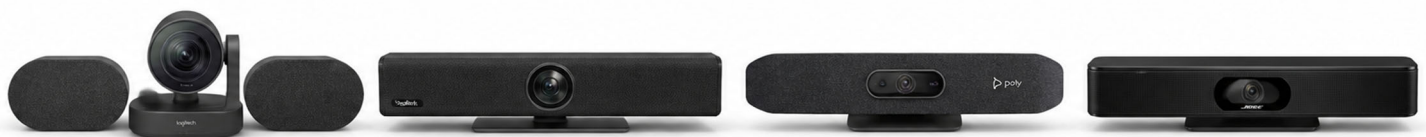
Environments that require extended data transmission distances without on-site power and demand high reliability in electromagnetically complex settings — where conventional copper cables reach their limits.

YDSAOC



Key Specifications

YDSAOC Model Number	YDSAOC-10G-USB32-AV-CM-CM
Order Part Numbers	YDSAOC-10G-USB32-AV-CM-CM-1003 YDSAOC-10G-USB32-AV-CM-CM-2006 YDSAOC-10G-USB32-AV-CM-CM-50015 YDSAOC-10G-USB32-AV-CM-CM-100030 YDSAOC-10G-USB32-AV-CM-CM-150045
Length	1m(3ft), 2m(6ft), 5m(15ft), 10m(30t), 15m(45ft)
Maximum Support Length	up to 20m(60ft)
Maximum Data Speed	up to 10Gbps
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz and 4K 120Hz
Connector A	USB 3.2 Type-C Male
Connector B	USB 3.2 Type-C Male
Display Port Protocols	4 Lane DP2.1, 2 Lane DP1.4
USB Protocols	USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer
Cable Diameter	6.0mm
Cable Jacket Type	TPE
Cable Color	Black
AOC Constructions	Hybrid, 6x Optical Fiber, 8x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional (Data), One Way Direction (Video)
Power Connect	No External Power is Required
Support Fast Charging	Maximum PD 60W, or PD 100W < 5m(15ft)



logitech
RALLY

Yealink
MEETINGBAR

poly
STUDIO

BOSE
VIDEOBAR

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ACTIVE OPTICAL CABLES

your best fiber optics partner



Why Choose Fiber Optic USB-C Cable

Long Range

Fiber optic for stable long-distance
signal transmission

Full-Featured USB-C Active Optical Cable

15m

Full-Featured USB-C Copper Cable

2m

Full-Featured USB-C Copper Cable

5m

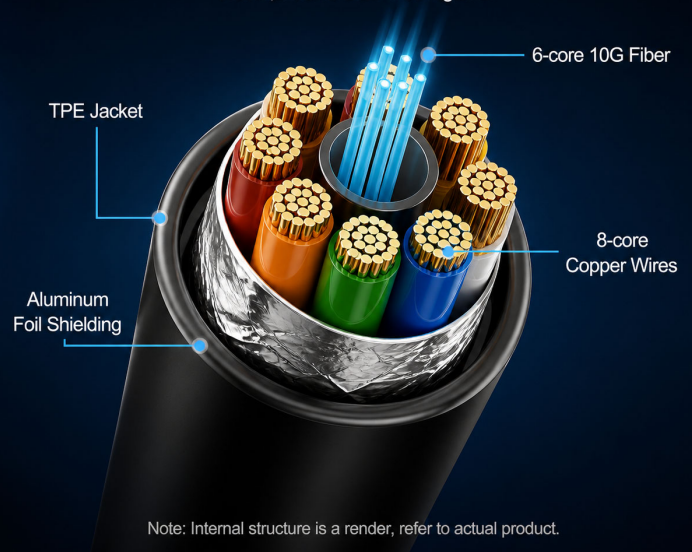
Power-Only USB-C Copper Cable

2m



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for
stable, interference-free signals.



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ACTIVE OPTICAL CABLES

your best fiber optics partner



Widely Compatible with USB-C Devices



Machine Vision



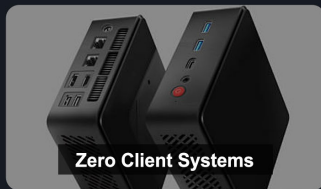
Industrial Printing



Security & Surveillance



Digital Signage & Video Walls



Zero Client Systems



Remote Storage Systems

10Gbps High-Speed Transfer

Tested Type-C transfer speed up to 957MB/s.
Transfer a 1GB file in just ~1.1 seconds.



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ACTIVE OPTICAL CABLES

your best fiber optics partner



Faster Scanning, Modeling & Tracking for Depth Cameras

Supports depth cameras, stereo cameras, and is widely compatible with Intel, Microsoft, ZED and other major depth cameras.

8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



VR Tethering · Faster No Frame Drops

Longer, lighter, thinner than copper cables.

Supports Oculus Quest, HTC VIVE, PICO & more VR devices



PD 60W Fast Charging

60W PD @10m, 40W PD @15m, E-marker Equipped



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Why Choose Fiber Optic Cables?

■ USB3.2 Fast Speed:

10Gbps high-bandwidth transfer

■ Long-Distance Stable:

No distance interference; zero-latency, anti-interference signal

■ Zero Radiation & Anti-Interference:

Resists EMI, fiber emits no radiation

■ Ultra-Stable & Low Latency:

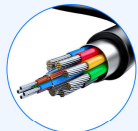
Micro-level photoelectric conversion ensures zero delay



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



ACTIVE OPTICAL CABLES

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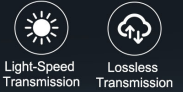
Tethered Shooting · Stable 5-8m Fast Transfer

Supports 10Gbps high bandwidth for stable, uninterrupted shooting. Widely compatible with professional cameras including Sony, Canon, Nikon, Fujifilm, and Hasselblad



Max Fiber Transmission Length: 5-8m

Ordinary copper cables cannot exceed 5m



TPE Cable Body

Smooth, flexible & elastic



10G Optical Fiber

Lossless signal transmission



High-Speed Transmission

10Gbps high bandwidth



High Power

For phones, laptops, tablets & game consoles

Lightweight & Flexible for Easy Use

The thin, soft optical fiber avoids the risk of VR headset slipping caused by heavy cables, ensuring a lighter and more comfortable VR experience.



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Professional / Industrial Applications



Machine Vision
Camera Links



Medical Imaging
Equipment



DVR & Game Console
Monitoring

YDSAOC



Gaming PCs



Virtual Reality Headsets



Hard Drives



Mobile Terminals



Touch Screens



Webcams



Scanners



Access Control Systems

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YDSAOC-10G-USB32-AV-CM-CM - Premium Active Fiber Optical USB 3.2 Cable

KEY FEATURES



High Bandwidth

USB 3.2 Gen 2 -
Up to **10Gbps** SuperSpeed



Premium Resolution

8K at 60Hz / **4K** at 120Hz



Long Distance

Lossless signals
up to **50m**



Power Delivery

9-20V @ 3A
(up to **60W**)

SPECIFICATIONS

- Type-C Male to Type-C Male connector
- Hybrid Fiber/Copper construction
- Backward Compatible: USB 3.0/2.0/1.1
- Zero EMI/RFI interference
- Plug-and-play installation
- Zinc-alloy housing with gold-plated connectors



APPLICATIONS



Video Conferencing Systems



Professional AV & Digital Signage



Medical Imaging Equipment



Machine Vision Cameras



Broadcasting & Live Streaming



Gaming & VR/AR Headsets



SuperSpeed
USB 3.2 Gen 2



Ultra High Definition
Video Support



Hybrid Fiber/Copper
Technology



Zero EMI/RFI
Interference



Plug-and-Play
Installation



Long Distance
Transmission



Power Delivery up
to 60W

YDSAOC



Machine Vision Camera Links



Medical Imaging Equipment



DVR & Game Console Monitoring





ACTIVE OPTICAL CABLES

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Specifications

Product Name: Full-Featured Type-C Optical Fiber Data Cable
(Type-C Active Optical Cable, AOC)

Connector Type: Type-C Male to Type-C Male

Adaptive Video Transmission Support: 4-lane DP2.1 + USB2.0
OR 2-lane DP1.4 + USB3.2 Gen2

Supported Resolutions: 8K@60Hz / 4K@144Hz / 4K@120Hz

Max Data Rate: 10Gbps

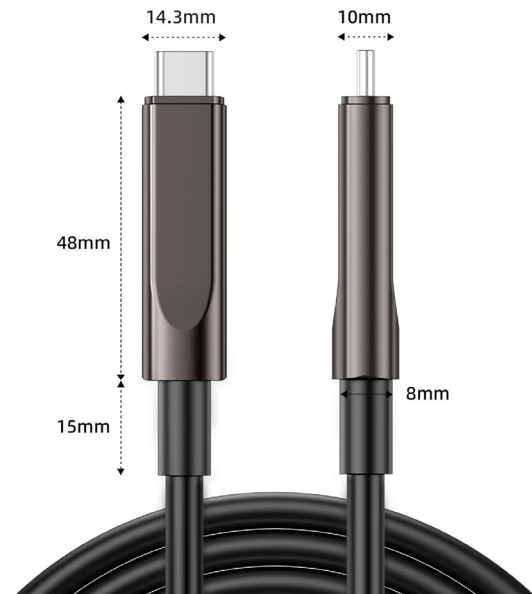
Power Delivery: Supports PD 60W Fast Charging

Core Material: Opto-Electrical Hybrid Cable

Cable Length: 15m (customizable)

Weight (with package): 1180g

PS: All product dimensions on this page are measured manually and may have minor deviations.



COMMERCIAL / AV APPLICATIONS



Digital Signage



LED Signboards



Projector



Home Theater / Blu-ray / 3D Video



Broadcast Stations
(Radio & TV)



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YDSAOC



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

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Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



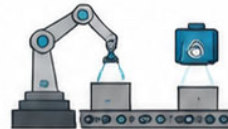
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-10G-USB32-CM-CM 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Overview

YDSAOC-10G-USB32-CM-CM is a USB 3.2 Gen 2 Type-C to Type-C Active Optical Cable (AOC) engineered for high-bandwidth connectivity. By combining fiber optic technology with USB connectivity, it overcomes the distance and interference limitations of traditional copper cables while delivering reliable, high-performance connections. It is also referred to as a USB-C AOC, Fiber Optic USB Cable, or USB Active Optical Cable.



Key Features

Performance & Compatibility

- ♦ **High Bandwidth:** Complies with USB 3.2 Gen 2 standards, delivering up to 10Gbps Super-Speed data transmission
- ♦ **Backward Compatible:** Supports USB 3.0 @ 5Gbps, USB 2.0, and USB 1.1
- ♦ **Long-Distance Transmission:** Delivers lossless signals over extended distances (up to 50m for the main model; up to 8m for the VR-tailored variant)

Power & Design

- ♦ **Power Delivery:** Supports 5V/900mA (up to 60W with 9–20V@3A fast charging on the VR variant)
- ♦ **Easy Installation:** Plug-and-play on both sides with a unidirectional design—no complicated setup required
- ♦ **Durable Construction:** Zinc-alloy housing with corrosion-resistant gold-plated connectors
- ♦ **No External Power Needed:** Hybrid fiber/copper design operates without on-site power

Environment & Customization

- ♦ **EMI Resistance:** High resistance to electromagnetic interference for a safe, radiation-free environment with a practically zero EMI/RFI profile
- ♦ **Customizable:** Available in custom lengths, with optional custom logo and packaging



ACTIVE OPTICAL CABLES

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Applications

The cable suits a broad range of demanding use cases:

- ♦ **Professional/Industrial:** Machine vision camera links, medical imaging equipment, DVR & game console monitoring
- ♦ **Commercial/AV:** Digital signage, LED signboards, projectors, home theater/Blu-ray/3D video, broadcast stations (radio & TV)
- ♦ **Collaboration:** Conference room & video conferencing equipment
- ♦ **Security & Transport:** Security monitoring systems, airplane on-board video systems
- ♦ **Consumer/VR:** Gaming PCs, virtual reality headsets, hard drives, mobile terminals, touch screens, webcams, scanners, and access control systems

Best For

This cable is ideal for environments requiring **extended data transmission distances without on-site power**, offering high reliability in electromagnetically complex settings. Specific strengths include:

- ♦ Zero EMI/RFI profile for flawless performance
- ♦ Hybrid fiber/copper design eliminating the need for external power
- ♦ Seamless plug-and-play compatibility with modern USB Type-C peripherals

YDSAOC



Gaming PCs



Virtual Reality Headsets



Hard Drives



Mobile Terminals



Touch Screens



Webcams



Scanners



Access Control Systems

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Key Specifications

YDSAOC Model Number	YDSAOC-10G-USB32-CM-CM
Order Part Numbers	YDSAOC-10G-USB32-CM-CM-1003 YDSAOC-10G-USB32-CM-CM-2006 YDSAOC-10G-USB32-CM-CM-50015 YDSAOC-10G-USB32-CM-CM-100030 YDSAOC-10G-USB32-CM-CM-150045
Length	1m(3ft), 2m(6ft), 5m(15ft), 10m(30t), 15m(45ft)
Maximum Support Length	up to 15m(45ft)
Maximum Data Speed	up to 10Gbps
Connector A	USB 3.2 Type-C Male
Connector B	USB 3.2 Type-C Male
USB Protocols	USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer
Cable Diameter	4.6mm
Cable Jacket Type	TPE
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 6x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required
Support Fast Charging	Maximum PD 60W, or PD 100W < 5m(15ft)

YDSAOC



Machine Vision Camera Links

Medical Imaging Equipment



DVR & Game Console Monitoring

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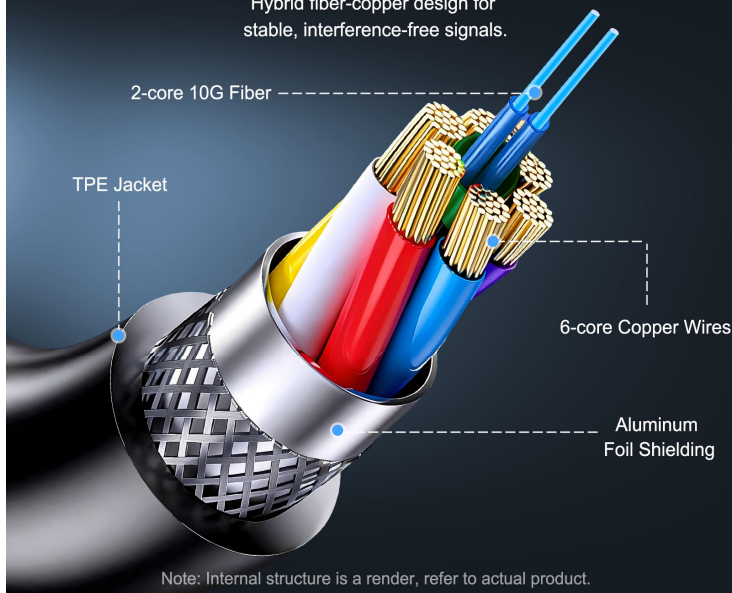
ACTIVE OPTICAL CABLES

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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Tethered Shooting · Stable 5-8m Fast Transfer

Supports 10Gbps high bandwidth for stable, uninterrupted shooting. Widely compatible with professional cameras including Sony, Canon, Nikon, Fujifilm, and Hasselblad



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 TPE Cable Body Smooth, flexible & elastic	 10G Optical Fiber Lossless signal transmission
 High-Speed Transmission 10Gbps high bandwidth	 High Power For phones, laptops, tablets & game consoles

10Gbps Ultra-Fast Transfer

Type-C real-world transfer speed up to 957MB/s,
1GB file transfer in ~1.1 seconds



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ACTIVE OPTICAL CABLES

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Lightweight & Flexible for Easy Use

The thin, soft optical fiber avoids the risk of VR headset slipping caused by heavy cables, ensuring a lighter and more comfortable VR experience.



VR Tethering - Faster No Frame Drops

Longer, lighter, thinner than copper cables.
Supports Oculus Quest, HTC VIVE, PICO & more VR devices



Max Fiber Transmission Length: 5-8m

Ordinary copper cables cannot exceed 5m



Light-Speed
Transmission



Lossless
Transmission



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Why Choose Fiber Optic Cables?

■ USB3.2 Fast Speed:

10Gbps high-bandwidth transfer

■ Long-Distance Stable:

No distance interference; zero-latency, anti-interference signal

■ Zero Radiation & Anti-Interference:

Resists EMI, fiber emits no radiation

■ Ultra-Stable & Low Latency:

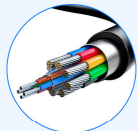
Micro-level photoelectric conversion ensures zero delay



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



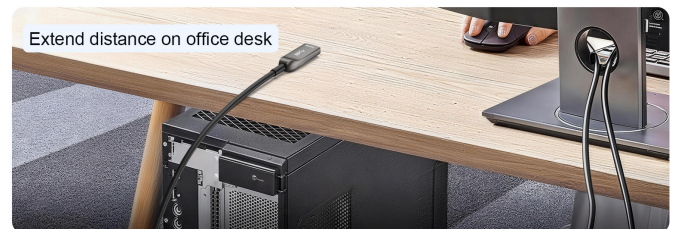
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



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ACTIVE OPTICAL CABLES

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PS: All product dimensions listed on this page are manually measured and may be subject to minor discrepancies.

Product Specifications

Product Name: Fiber Optic Type-C Data Cable (USB3.2 Version)

Transfer Bandwidth: 10Gbps

Core Spec: 2-core 10G optical fiber + 6-core copper wires

Jacket Material: TPE

Shell Material: Zinc alloy

Charging Power: PD 60W

Length: 5m

Package Dimensions: 16.5*16*6cm

Weight (with box): 264g



YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

YDSAOC-10G-USB32-CM-CM

USB 3.2
10 Gbps
SUPER-SPEED



USB Type-C



PERFORMANCE & COMPATIBILITY



High Bandwidth:
10Gbps Super-Speed
USB 3.2 Gen 2



Backward Compatible:
USB 3.0 @ 5Gbps,
USB 2.0, USB 1.1



Long-Distance:
Up to 50m
transmission



POWER & DESIGN



Power Delivery:
5V/900mA,
up to 60W VR variant



Plug-and-Play
Installation



Zinc-alloy Housing
with Gold-plated
Connectors



No External
Power Needed



ENVIRONMENT & FEATURES



Zero EMI/RFI
Profile



Hybrid Fiber/Copper
Design



Customizable
Lengths



Durable &
Corrosion-Resistant



APPLICATIONS



Machine Vision &
Medical Imaging



Digital Signage &
AV Equipment



Video
Conferencing



Gaming &
VR Headsets



Security
Systems



Broadcasting

UP TO
50m
TRANSMISSION



SUPER-SPEED
DATA TRANSFER



ACTIVE OPTICAL
TECHNOLOGY



RELIABLE.
STABLE. SECURE.

USB 3.2
GEN 2

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Digital Signage

LED Signboards

Projector

Home Theater / Blu-ray / 3D Video

Broadcast Stations
(Radio & TV)



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



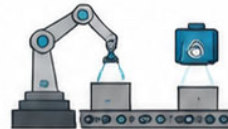
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-10G-USB32-AM-CM 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Overview

YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

(also known as a USB 3.2 AOC, Fiber Optic USB Cable, or USB Active Optical Cable) is designed to meet the growing demand for high-bandwidth connectivity. By combining fiber optic technology with USB connectivity, it overcomes the distance and interference limitations of traditional copper cables while delivering reliable, high-performance connections across long distances.



Key Features

- ◆ **Ultra-High Speed:** Complies with the USB 3.2 Gen 2 standard, delivering data transfer speeds up to 10Gbps.
- ◆ **Long-Distance Transmission:** Supports lossless signal delivery over distances up to 50 meters (150 ft).
- ◆ **Backward Compatibility:** Compatible with USB 3.2, 3.0, 2.0, and 1.1 — the first Gen 2 active optical cable to support downward compatibility with USB 2.0.
- ◆ **Power Supply:** Provides up to 5V / 900mA to the remote device.
- ◆ **Easy Installation:** True plug-and-play on both sides with a unidirectional design; hot-swappable, works seamlessly with both Windows and Mac operating systems.
- ◆ **EMI/RFI Resistance:** High resistance to electromagnetic interference with a virtually zero EMI/RFI profile, ensuring radiation-free, flawless performance.
- ◆ **No External Power Required:** Hybrid fiber/copper design eliminates the need for on-site power.
- ◆ **Durable Build:** TPE/PVC jacket provides long-lasting protection.
- ◆ **Customizable:** Custom length, logo, and packaging options available (up to 50m max length).

Supported Transfer Types

Supports all USB 3.2 device types, including **control, interrupt, bulk, and isochronous transfers**, ensuring smooth and reliable operation across a wide range of applications.



Typical Applications

- ◆ Machine Vision Camera Link
- ◆ Medical Imaging Equipment
- ◆ LED Signboards & Monitors
- ◆ Conference Room & Video Conference Equipment
- ◆ Digital Signage
- ◆ Home Theater, Blu-ray, 3D Video, Projectors & Set-top Boxes
- ◆ Radio and TV Broadcast Stations
- ◆ Airplane On-board Video Systems
- ◆ Security Monitoring Systems
- ◆ DVR & Game Console Monitoring Connections
- ◆ Gaming PCs, Hard Drives, Mobile Terminals
- ◆ Scanners, Touch Screens, Webcams & Access Control Systems
- ◆ SSD Storage and 4K Webcams

Best For

Environments requiring extended data transmission distances without on-site power, offering high reliability in electromagnetically complex settings. Ideal for extending webcams in surveillance systems, powering digital signage displays, and integrating devices across larger home or commercial networks.

YDSAOC

Airplane On-board Video Systems



High-Resolution
Entertainment



Seamless
Connectivity



Interactive
Experience



Reliable &
Secure

Powering the future of in-flight entertainment with high-speed connectivity and reliable video transmission.



Key Specifications

YDSAOC Model Number	YDSAOC-10G-USB32-AM-CM
Order Part Numbers	YDSAOC-10G-USB32-AM-CM-1003 YDSAOC-10G-USB32-AM-CM-50015 YDSAOC-10G-USB32-AM-CM-100030 YDSAOC-10G-USB32-AM-CM-200060 YDSAOC-10G-USB32-AM-CM-300090
Length	1m(3ft), 5m(15ft), 10m(30t), 20m(60ft). 30m(90ft)
Maximum Support Length	up to 50m(150ft)
Maximum Data Speed	up to 10Gbps
Connector A	USB 3.2 Type-A Male
Connector B	USB 3.2 Type-C Male
USB Protocols	USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer 5V/900mA
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required



High-Power Devices: Supports External Auxiliary Power

micro USB port: used for auxiliary power supply of devices with power consumption greater than 2W



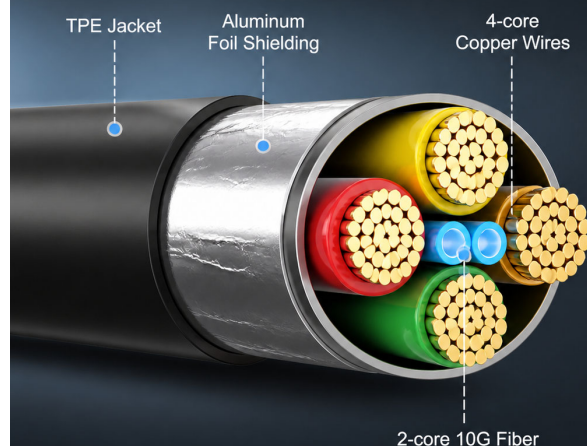
Zinc Alloy Shell: Effectively Protects the Module

Adopts gun-gray zinc alloy shell with exquisite craftsmanship. It boasts high hardness and long-lasting durability, offering stronger protection for internal modules.



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Note: Internal structure is a render, refer to actual product.



ACTIVE OPTICAL CABLES

your best fiber optics partner

Applications

Ideal for security cameras, home theater expansion, data storage, DVD/set-top boxes, and automotive data transmission.



Security Camera



Digital Home Theater



Expanded Data Storage



DVD / Set-Top Box



Automotive Data Transmission

Plug & Play, Bus-Powered

Fiber-optic transmission with integrated copper wires for device power delivery.



Up to 900mA at 5V.

Compatible with a Wide Range of Devices

Ideal for connecting to hosts, cabinets, and industrial cameras with this interface.



Blackfl



Hikvision



JAL



IDS



BASLER



Daheng

Fiber Optic, Interference-Free

Superior EMI Resistance



PS: Internal structure for rendering only.

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ACTIVE OPTICAL CABLES

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Widely Compatible with USB-C Devices



Machine Vision



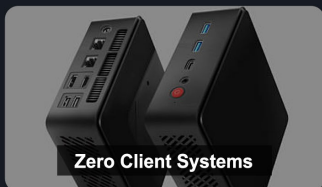
Industrial Printing



Security & Surveillance



Digital Signage & Video Walls



Zero Client Systems



Remote Storage Systems

Touch Control Pass-Through

Touch-enabled interactive display,
not just a secondary screen.



Faster Scanning, Modeling & Tracking for Depth Cameras

Supports depth cameras, stereo cameras, and is widely compatible with Intel, Microsoft, ZED and other major depth cameras.

10Gbps High-Speed Transfer

Tested Type-C transfer speed up to 957MB/s.
Transfer a 1GB file in just ~1.1 seconds.



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Fiber Optic Extension Cable - Product Features

USB 3.2 Fast Transmission: 50m transmission with no delay, no radiation, and anti-interference



1. USB 3.2 Fast Transmission
10Gbps high-speed bandwidth for fast and stable data transfer



2. No Delay Over Long Distances
50m length; optical signals resist interference for delay-free transmission



3. No Radiation & Anti-Interference
Fiber optic transmission generates no radiation and resists electromagnetic interference



4. Damage-Free Bending
Bending radius over 20mm results in nearly zero signal loss



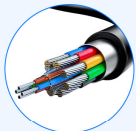
5. Slim & Flexible Cable
4.8mm cable diameter; 10N tensile strength capacity, 20N compression strength capacity



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



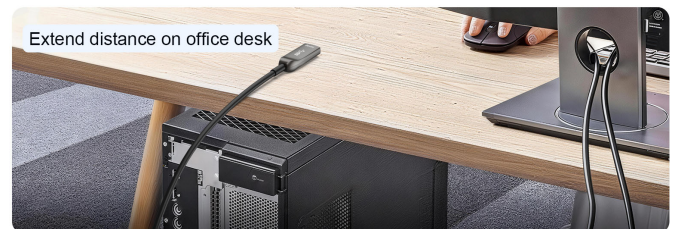
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



ACTIVE OPTICAL CABLES

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YDSAOC



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Product Specifications

Product Name: Fiber Optic USB3.2 Extension Cable

Shell: Zinc Alloy Shell

Bandwidth: 10Gbps

Material: PVC Sheath

Interface: USB3.2 Gen2 (Backward Compatible)

Warranty: 1 Year

Length: 50m

PS: The dimensions marked for the product on this page are measured manually, so slight variations may occur.



YDSAOC

10Gbps Active Fiber Optical USB 3.2 Extension Cable

Model: **YDSAOC-10G-USB32-AM-CM**



Ultra-High Speed

10Gbps
(USB 3.2 Gen 2)



Long-Distance

Up to 50 meters /
150 ft



Backward Compatible

USB 3.2, 3.0,
2.0, 1.1



Power Supply

5V / 900mA



EMI/RFI Resistance

Zero EMI/RFI
Profile



No External Power

Hybrid Fiber/Copper
Design



Durable

TPE/PVC
Jacket



Plug-and-Play

True Plug-and-Play
Installation

TYPICAL APPLICATIONS



Machine Vision
Cameras



Medical
Imaging



Digital
Signage



Gaming
PCs



4K
Webcams



Surveillance
Systems



Conference
Equipment



Video
Broadcasting



Best For

environments requiring extended data transmission without on-site power
in electromagnetically complex settings

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SMART SECURITY MONITORING SYSTEMS

Intelligent Monitoring. Real-time Protection.
Complete Security Solutions.

- 24/7 Real-time Monitoring**
Continuous surveillance and instant threat detection
- Smart Integration**
Seamless connection between cameras, devices and systems
- Instant Alerts**
Real-time notifications for rapid response
- Secure & Reliable**
Enterprise-grade security and data protection



SS3 USB 3.2

Reliable High-Speed Connection



128+

Cameras Connected



99.9%

System Uptime



2.5TB+

Data Managed Daily



24/7

Monitoring & Support



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

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Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



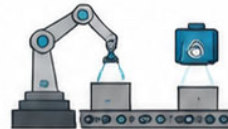
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-10G-USB32-AM-AM 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Overview

YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

USB 3.2 AOC (Type-A Male to Type-A Male) fuses fiber optic technology with USB connectivity to meet the growing demand for high-bandwidth connections. By replacing traditional copper cabling, it overcomes distance and interference limitations while delivering reliable, high-performance data transmission.



Key Features

- ♦ **High Bandwidth** – Compliant with the latest USB 3.2 standard, supporting SuperSpeed data rates up to 10Gbps
- ♦ **Long-Distance Transmission** – Delivers lossless signals over a maximum length of 50 meters
- ♦ **Backward Compatible** – Works with USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, 2.0, and 1.1 devices
- ♦ **On-Cable Power** – Supplies up to 5V / 900mA to the remote device; hybrid fiber/copper design requires no external power source
- ♦ **Easy Installation** – Plug-and-play on both ends with unidirectional design
- ♦ **EMI/RFI Resistance** – Near-zero electromagnetic/radio-frequency interference profile for a sAMe, radiation-free environment
- ♦ **Customizable** – Options for custom length, logo, and packaging (up to 50m)

Intended Applications

- ♦ Machine Vision & Camera Link
- ♦ Medical Imaging Equipment
- ♦ Conference Room & Video Conference Systems
- ♦ Digital Signage & LED Signboards
- ♦ Home Theater, Blu-ray, 3D Video, Projectors & Set-top Boxes
- ♦ Radio & TV Broadcast Stations



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- ◆ Airplane On-board Video Systems
- ◆ Security Monitoring Systems
- ◆ DVR & Game Console Monitoring
- ◆ Gaming PCs, Hard Drives, Scanners, Touch Screens, Webcams, Access Control, Mobile Terminals

Ideal For

Environments requiring extended transmission distances without on-site power, where high reliability in electromagnetically complex settings is essential.

Key Specifications

YDSAOC Model Number	YDSAOC-10G-USB32-AM-AM
Order Part Numbers	YDSAOC-10G-USB32-AM-AM-1003 YDSAOC-10G-USB32-AM-AM-50015 YDSAOC-10G-USB32-AM-AM-100030 YDSAOC-10G-USB32-AM-AM-200060 YDSAOC-10G-USB32-AM-AM-300090
Length	1m(3ft), 5m(15ft), 10m(30t), 20m(60ft). 30m(90ft)
Maximum Support Length	up to 50m(150ft)
Maximum Data Speed	up to 10Gbps
Connector A	USB 3.2 Type-A Male
Connector B	USB 3.2 Type-A Male
USB Protocols	USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer 5V/900mA
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required

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Zinc Alloy Shell: Effectively Protects the Module

Made of high-quality zinc alloy with a refined gun-gray finish, the shell offers high hardness, corrosion resistance, and long-lasting durability.



Premium Zinc Alloy Shell

Sturdy zinc alloy casing provides excellent protection for the internal module.



High Hardness & Durability

Resists wear, pressure, and impact for long-term reliability.



Corrosion-Resistant

Gun-gray finish resists corrosion, oxidation, and daily wear.



Exquisite Craftsmanship

Smooth edges, precise fit, and premium texture for a refined look and feel.



10G Fiber: Zero Radiation Anti-Interference

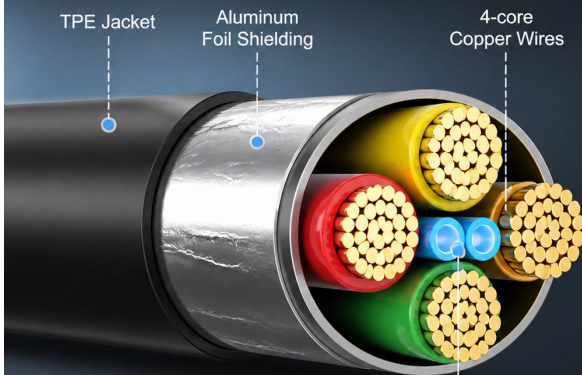
Hybrid fiber-copper design for stable, interference-free signals.

TPE Jacket

Aluminum
Foil Shielding

4-core
Copper Wires

2-core 10G Fiber



Note: Internal structure is a render, refer to actual product.

Fiber Optic Extension Cable - Product Features

USB 3.2 High-Speed Transmission, Stable & Reliable



1. USB 3.2 Fast Transmission

Up to 10Gbps super-speed data transfer.



2. No Delay Over Long Distances

Supports up to 50 meters with zero signal loss.



3. No Radiation & Anti-Interference

Fiber optic transmission ensures a stable and clean signal.



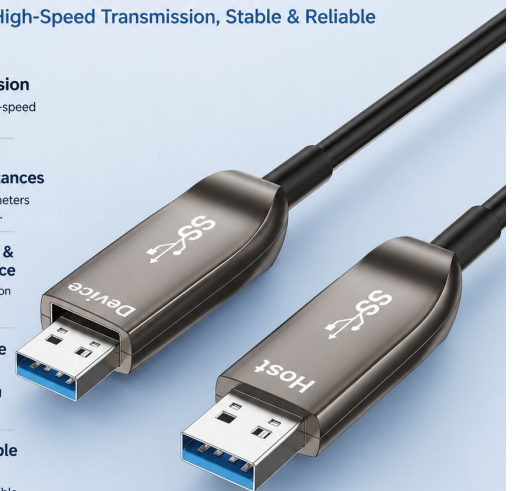
4. Damage-Free Bending

Resistant to bending and pulling, built for long-term use.



5. Slim & Flexible Cable

Lightweight and flexible design for easy installation in tight spaces.



USB 3.2
SuperSpeed+



10Gbps
Max Speed



50m
Max Distance



Stable &
Reliable



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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



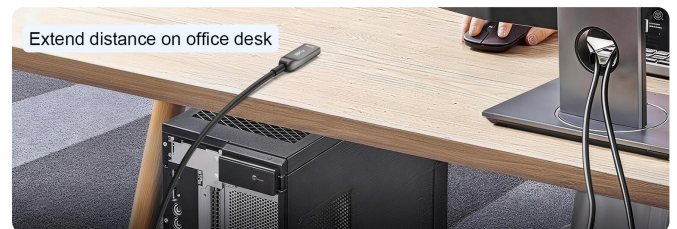
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

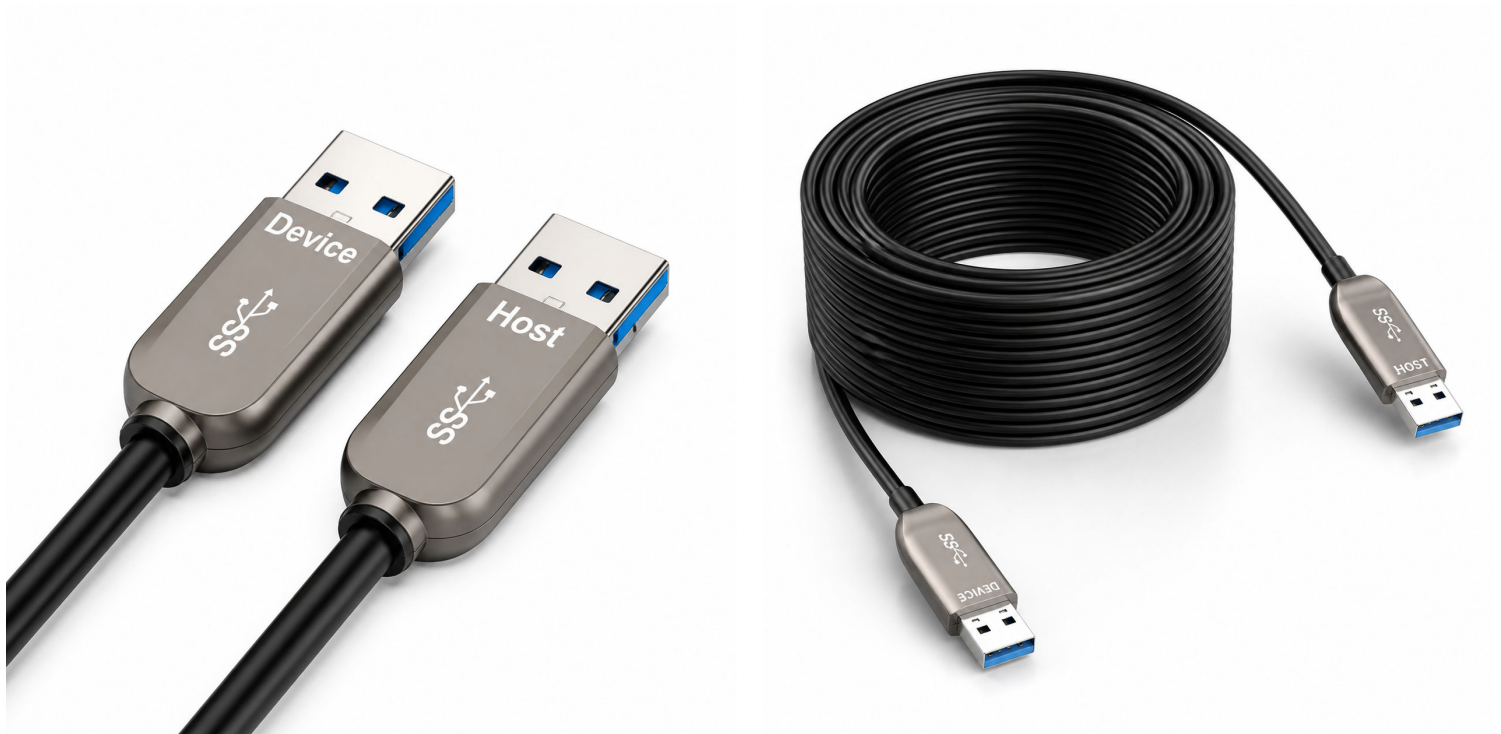
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YDSAOC



5Gbps



Stable
Transmission



Industrial
Grade



EMI
Protection

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Product Specifications

Product Name: Fiber Optic USB3.2 Extension Cable

Shell: Zinc Alloy Shell

Bandwidth: 10Gbps

Material: PVC Sheath

Interface: USB3.2 Gen2 (Backward Compatible)

Warranty: 1 Year

Length: 50m

PS: The dimensions marked for the product on this page are measured manually, so slight variations may occur.

Extension & Expansion: Handled Easily with One Cable

Male Port



Laptop



Desktop PC



TV



Game Console



Male Port



USB Flash Drive



Gaming Device



Keyboard/Mouse



Hard Drive/Reader



HD Camera



Kinect Sensor



YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Model: YDSAOC-10G-USB32-AM-AM | Type-A Male to Type-A Male

KEY FEATURES

10 Gbps

10Gbps SuperSpeed Data Rates
(USB 3.2 Standard)

50 m

Up to 50 Meters
Lossless Transmission



Backward Compatible
(USB 3.2 Gen 2/Gen 1, USB 3.0, 2.0, 1.1)



5V / 900mA On-Cable Power Supply
(No External Power Needed)



Plug-and-Play Installation



EMI/RFI Resistance
(Electromagnetically Safe)



Custom Length, Logo & Packaging Options



10Gbps

SuperSpeed

APPLICATIONS



Machine Vision & Camera Link



Medical Imaging Equipment



Conference Room & Video Conference Systems



Digital Signage & LED Signboards



Home Theater, Blu-ray, 3D Video, Projectors



Radio & TV Broadcast Stations



Airplane On-board Video Systems



Security Monitoring Systems



DVR & Game Console Monitoring



Gaming PCs, Hard Drives, Scanners, Webcams



Active Fiber Optical Technology
Ultra-long distance, high performance



Stable & Reliable Transmission
Low latency, zero data loss



10Gbps Bandwidth
Up to 10X faster than USB 2.0



Durable & Flexible
Tough jacket with high flexibility



Wide Operating Temperature
0°C to 50°C



Premium Quality
Tested for performance and reliability



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YDSAOC



Conference Room Systems

Professional audio & video solutions for modern meeting spaces.



Video Conferencing

Crystal-clear video, immersive audio, seamless collaboration.



High-Speed USB 3.2 AOC

Reliable, high-performance connectivity over long distances.



High-Speed USB 3.2 AOC Connectivity



10Gbps Data Transfer



100m+ Transmission



Stable & Reliable



YDSAOC USB 3.2 AOC Cable

Active Optical Cable for maximum performance and extended reach.

Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

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Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



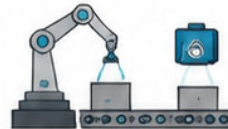
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-10G-USB32-AM-AF 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Overview

YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

USB 3.2 AOC (Type-A Male to Type-A Female) fuses fiber optic technology with USB connectivity to meet the growing demand for high-bandwidth connections. By replacing traditional copper cabling, it overcomes distance and interference limitations while delivering reliable, high-performance data transmission.



Key Features

- ♦ **High Bandwidth** – Compliant with the latest USB 3.2 standard, supporting SuperSpeed data rates up to 10Gbps
- ♦ **Long-Distance Transmission** – Delivers lossless signals over a maximum length of 50 meters
- ♦ **Backward Compatible** – Works with USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, 2.0, and 1.1 devices
- ♦ **On-Cable Power** – Supplies up to 5V / 900mA to the remote device; hybrid fiber/copper design requires no external power source
- ♦ **Easy Installation** – Plug-and-play on both ends with unidirectional design
- ♦ **EMI/RFI Resistance** – Near-zero electromagnetic/radio-frequency interference profile for a safe, radiation-free environment
- ♦ **Customizable** – Options for custom length, logo, and packaging (up to 50m)

Intended Applications

- ♦ Machine Vision & Camera Link
- ♦ Medical Imaging Equipment
- ♦ Conference Room & Video Conference Systems
- ♦ Digital Signage & LED Signboards
- ♦ Home Theater, Blu-ray, 3D Video, Projectors & Set-top Boxes
- ♦ Radio & TV Broadcast Stations



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- ◆ Airplane On-board Video Systems
- ◆ Security Monitoring Systems
- ◆ DVR & Game Console Monitoring
- ◆ Gaming PCs, Hard Drives, Scanners, Touch Screens, Webcams, Access Control, Mobile Terminals

Ideal For

Environments requiring extended transmission distances without on-site power, where high reliability in electromagnetically complex settings is essential.

Key Specifications

YDSAOC Model Number	YDSAOC-10G-USB32-AM-AF
Order Part Numbers	YDSAOC-10G-USB32-AM-AF-1003 YDSAOC-10G-USB32-AM-AF-50015 YDSAOC-10G-USB32-AM-AF-100030 YDSAOC-10G-USB32-AM-AF-200060 YDSAOC-10G-USB32-AM-AF-300090
Length	1m(3ft), 5m(15ft), 10m(30t), 20m(60ft). 30m(90ft)
Maximum Support Length	up to 50m(150ft)
Maximum Data Speed	up to 10Gbps
Connector A	USB 3.2 Type-A Male
Connector B	USB 3.2 Type-A Female
USB Protocols	USB 3.2 Gen 2, USB 3.1 Gen 2, USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer 5V/900mA
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required

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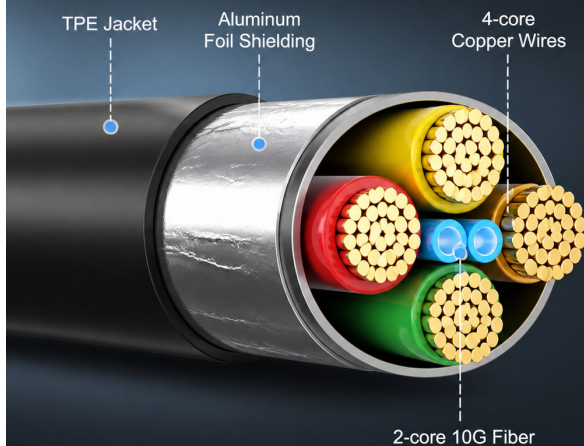
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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Note: Internal structure is a render, refer to actual product.

Zinc Alloy Shell: Effectively Protects the Module

Adopts gun-gray zinc alloy shell with exquisite craftsmanship. It boasts high hardness and long-lasting durability, offering stronger protection for internal modules.



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Fiber Optic Extension Cable - Product Features

USB 3.2 Fast Transmission: 50m transmission with no delay, no radiation, and anti-interference



1. USB 3.2 Fast Transmission
10Gbps high-speed bandwidth for fast and stable data transfer



2. No Delay Over Long Distances
50m length; optical signals resist interference for delay-free transmission



3. No Radiation & Anti-Interference
Fiber optic transmission generates no radiation and resists electromagnetic interference



4. Damage-Free Bending
Bending radius over 20mm results in nearly zero signal loss



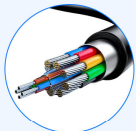
5. Slim & Flexible Cable
4.8mm cable diameter; 10N tensile strength capacity, 20N compression strength capacity



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



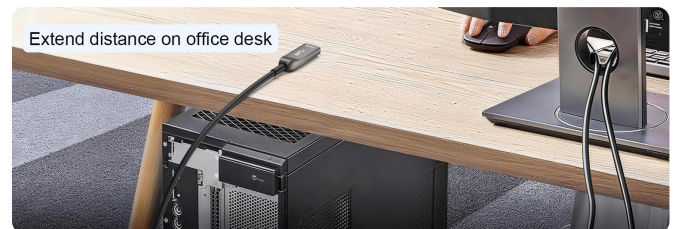
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



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Extension & Expansion: Handled Easily with One Cable

Male Port



Female Port



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High-Power Devices: Supports External Auxiliary Power

micro USB port: used for auxiliary power supply of devices with power consumption greater than 2W



Connect to the TV without the hassle of finding ports

Plug-and-play (no drivers) – smooth, device-safe use. Extend your TV's USB to desktop for easier leisure.



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Product Specifications

Product Name: Fiber Optic USB3.2 Extension Cable

Shell: Zinc Alloy Shell

Bandwidth: 10Gbps

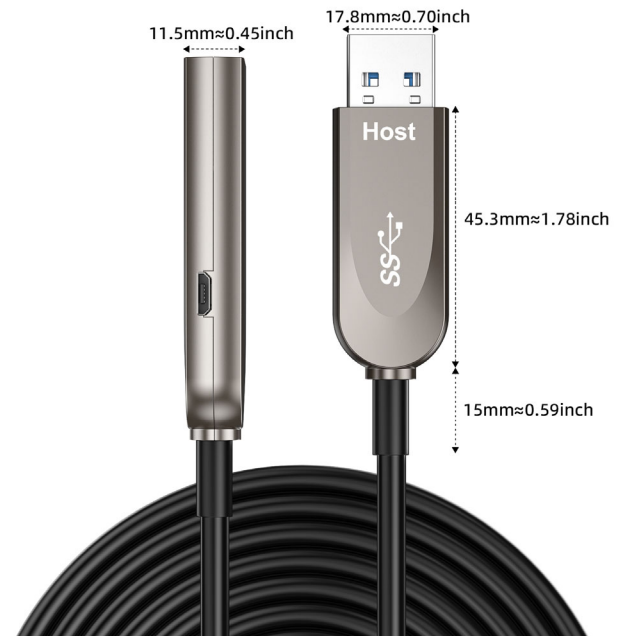
Material: PVC Sheath

Interface: USB3.2 Gen2 (Backward Compatible)

Warranty: 1 Year

Length: 50m

PS: The dimensions marked for the product on this page are measured manually, so slight variations may occur.



YDSAOC 10Gbps Active Fiber Optical USB 3.2 Extension Cable

Model: YDSAOC-10G-USB32-AM-AF | Type: USB 3.2 AOC (Type-A Male to Type-A Female)

★ 1 Key Features

- ✓ **High Bandwidth:** USB 3.2 SuperSpeed up to 10Gbps
- ✓ **Long-Distance:** Lossless signals up to 50 meters
- ✓ **Backward Compatible:** USB 3.2 Gen 2 / 3.1 / 3.0 / 2.0 / 1.1
- ✓ **On-Cable Power:** 5V / 900mA, no external power source
- ✓ **Easy Installation:** Plug-and-play, unidirectional
- ✓ **EMI/RFI Resistance:** Near-zero interference
- ✓ **Customizable:** Length, logo & packaging up to 50m

🏢 2 Intended Applications

- Machine Vision & Camera Link
- Medical Imaging Equipment
- Digital Signage & LED Signboards
- Conference Room & Video Conference Systems
- Home Theater, Projectors & Set-top Boxes
- Radio & TV Broadcast Stations
- Security Monitoring Systems
- Gaming PCs, Hard Drives & Webcams



Ideal for environments requiring extended transmission distances without on-site power, with high reliability in electromagnetically complex settings.

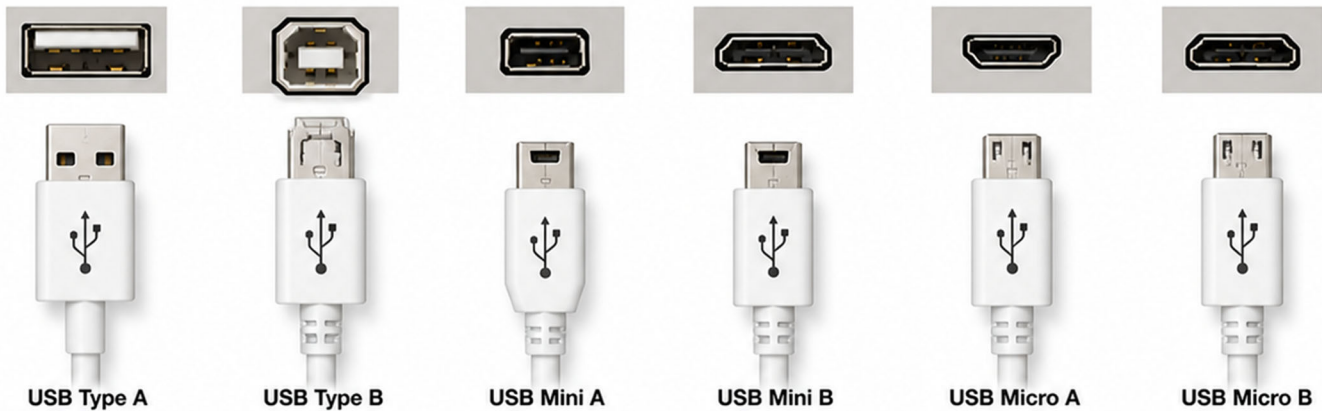
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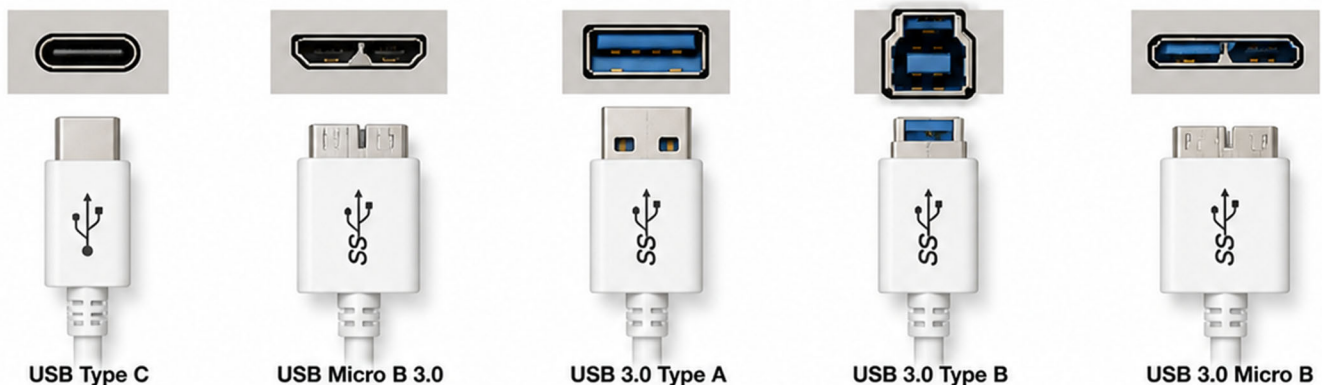
YDSAOC



Row 1 - Legacy/USB 2.0 Connectors



Row 2 - Modern Connectors



Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



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Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



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High-quality displays with consistent transmission of information.



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Plug-and-play design makes connectivity easy for presenters.



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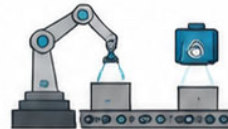
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Superior signal quality for home theaters and gaming.



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Durable, high-performance for automated inspection.



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High bandwidth and low latency for seamless content delivery.



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Real-time transmission for realistic training.



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Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-5G-USB3-AM-AF 5Gbps Active Fiber Optical USB 3.0 Extension Cable

YDSAOC 5Gbps Active Fiber Optical USB 3.0 Extension Cable

(Type-A Male to Type-A Female), also known as a USB 3.0 AOC, Fiber Optic USB Cable, or USB Active Optical Cable, is designed to address the growing demand for high-bandwidth connectivity. By combining fiber optic technology with USB connectivity, it overcomes the distance and interference limitations of traditional copper cables while delivering reliable, high-performance connections.



Highlight Features

- ♦ **High Bandwidth** – Complies with the latest USB 3.0 standard, delivering up to 5Gbps Super Speed
- ♦ **Backward Compatible** – Supports USB 3.0 @ 5Gbps up to 30 meters
- ♦ **Long-Distance Transmission** – Delivers lossless signals over a 30m maximum length
- ♦ **Power Supply** – Supports 5V / 900mA max to the remote device
- ♦ **Easy Installation** – Plug-and-play on both sides with unidirectional design
- ♦ **EMI Resistance** – High resistance to electromagnetic interference for a safe, radiation-free environment
- ♦ **Customizable** – Up to 30m maximum length; custom length, logo, and packaging available

Applications

- ♦ Machine Vision Camera Link
- ♦ Medical Imaging Equipment
- ♦ LED Signboards & Monitors
- ♦ Conference Room & Video Conference Equipment
- ♦ Digital Signage
- ♦ Home Theater, Blu-ray, 3D Video, Projectors & Set-top Boxes



ACTIVE OPTICAL CABLES

your best fiber optics partner

- ◆ Radio and TV Broadcast Stations
- ◆ Airplane On-board Video Systems
- ◆ Security Monitoring Systems
- ◆ DVR & Game Console Monitoring Connections

Best For

Environments requiring **extended data transmission distances without on-site power**, offering high reliability in electromagnetically complex environments.

Key Specifications

YDSAOC Model Number	YDSAOC-5G-USB3-AM-AF
Order Part Numbers	YDSAOC-5G-USB3-AM-AF-1003 YDSAOC-5G-USB3-AM-AF-2006 YDSAOC-5G-USB3-AM-AF-50015 YDSAOC-5G-USB3-AM-AF-100030 YDSAOC-5G-USB3-AM-AF-200060
Length	1m(3ft), 2m(6ft), 5m(15ft), 10m(30t), 20m(60ft)
Maximum Support Length	up to 30m(90ft)
Maximum Data Speed	up to 5Gbps
Connector A	USB 3.0 Type-A Male
Connector B	USB 3.0 Type-A Female
USB Protocols	USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required

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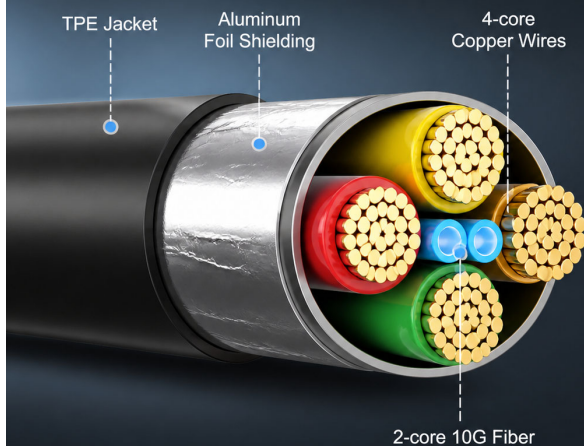
ACTIVE OPTICAL CABLES

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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Note: Internal structure is a render, refer to actual product.

Zinc Alloy Shell: Effectively Protects the Module

Adopts gun-gray zinc alloy shell with exquisite craftsmanship. It boasts high hardness and long-lasting durability, offering stronger protection for internal modules.



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Fiber Optic Extension Cable - Product Features

USB 3.0 Fast Transmission: 50m transmission with no delay, no radiation, and anti-interference

USB 3.0 Fast Transmission

5Gbps high-speed bandwidth for fast and stable data transfer

No Delay Over Long Distances

50m length; optical signals resist interference for delay-free transmission

No Radiation & Anti-Interference

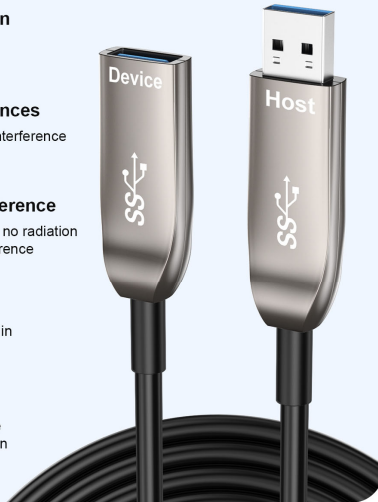
Fiber optic transmission generates no radiation and resists electromagnetic interference

Damage-Free Bending

Bending radius over 20mm results in nearly zero signal loss

Slim & Flexible Cable

4.8mm cable diameter; 10N tensile strength capacity, 20N compression strength capacity



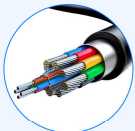
Tear-Resistant & Durable



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body



Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



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Extension & Expansion: Handled Easily with One Cable

Male Port



Female Port



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Product Specifications

Product Name: Fiber Optic USB 3.0 Extension Cable

Shell: Zinc Alloy Shell

Bandwidth: 5Gbps

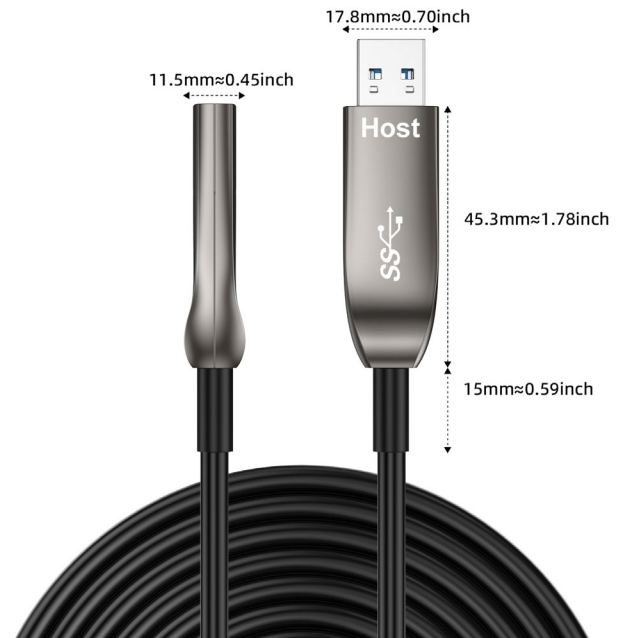
Material: PVC Sheath

Interface: USB 3.0

Warranty: 1 Year

Length: 15m/20m

PS: The dimensions marked for the product on this page are measured manually, so slight variations may occur.



YDSAOC

5Gbps Active Fiber Optical USB 3.0 Extension Cable

- 5Gbps Super Speed**
- 30m Length**
- 5V/900mA Power**
- USB 3.0 Backward Compatible**

- Plug-and-Play**
No drivers required
- EMI Resistance**
Stable & reliable transmission
- Customizable**
Length & specs tailored to your needs

Long Distance. High Speed. Uncompromised Performance.

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YDSAOC



5Gbps



Stable
Transmission



Industrial
Grade



EMI
Protection

Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



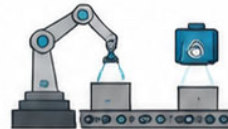
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-5G-USB3-AM-BM-SW 5Gbps Active Fiber Optical USB 3.0 Extension Cable

Overview

YDSAOC-5G-USB3-AM-BM-SW is a high-performance **5Gbps Active Fiber Optical (AOC) USB 3.0 Extension Cable**, connecting **USB Type-A Male to USB Type-B Male (with screws)**. Combining fiber optic and copper hybrid technology, it overcomes the distance and bandwidth limitations of traditional copper cables, delivering fast, reliable, and lossless data transmission over extended distances.



Highlight Features

- ◆ **Plug-and-Play Installation** – Unidirectional, both ends ready to use with no on-site power required
- ◆ **Long-Distance Transmission** – Reliable, lossless signals up to 30m
- ◆ **High EMI/RFI Resistance** – Virtually zero electromagnetic interference for safe, stable performance in complex environments
- ◆ **Hybrid Fiber/Copper Design** – Thin, flexible, lightweight cable; no external power supply needed
- ◆ **Wide Compatibility** – Seamlessly works across multiple USB standards
- ◆ **Fully Customizable** – Custom lengths (up to 30m), logos, and packaging available

Applications

- ◆ Machine vision camera links
- ◆ Medical imaging equipment
- ◆ Video conferencing and conference rooms
- ◆ Digital signage and LED signboards
- ◆ Home theater, Blu-ray, 3D video, projectors, set-top boxes, DVRs, and game consoles
- ◆ Broadcast (radio/TV) stations and airplane on-board video systems
- ◆ Security monitoring and remote monitoring systems



Best For

Environments requiring extended data transmission distances **without on-site power supply**, and applications demanding **high reliability in electromagnetically complex environments** — such as industrial, medical, broadcast, and enterprise settings.

Key Specifications

YDSAOC Model Number	YDSAOC-5G-USB3-AM-BM-SW
Order Part Numbers	YDSAOC-5G-USB3-AM-BM-SW-1003 YDSAOC-5G-USB3-AM-BM-SW-2006 YDSAOC-5G-USB3-AM-BM-SW-50015 YDSAOC-5G-USB3-AM-BM-SW-100030 YDSAOC-5G-USB3-AM-BM-SW-200060
Length	1m(3ft), 2m(6ft), 5m(15ft), 10m(30t), 20m(60ft)
Maximum Support Length	up to 30m(90ft)
Maximum Data Speed	up to 5Gbps
Connector A	USB 3.0 Type-A Male
Connector B	USB 3.0 Type-B Male with Screws
USB Protocols	USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required



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Plug & Play, Bus-Powered

Fiber-optic transmission with integrated copper wires for device power delivery.

Up to 900mA at 5V.

Compatible with a Wide Range of Devices

Ideal for connecting to hosts, cabinets, and industrial cameras with this interface.



Blackfl



Hikvision



JAL



IDS



BASLER



Daheng

Applications

Ideal for security cameras, home theater expansion, data storage, DVD/set-top boxes, and automotive data transmission.



Security Camera



Digital Home Theater



Expanded Data Storage



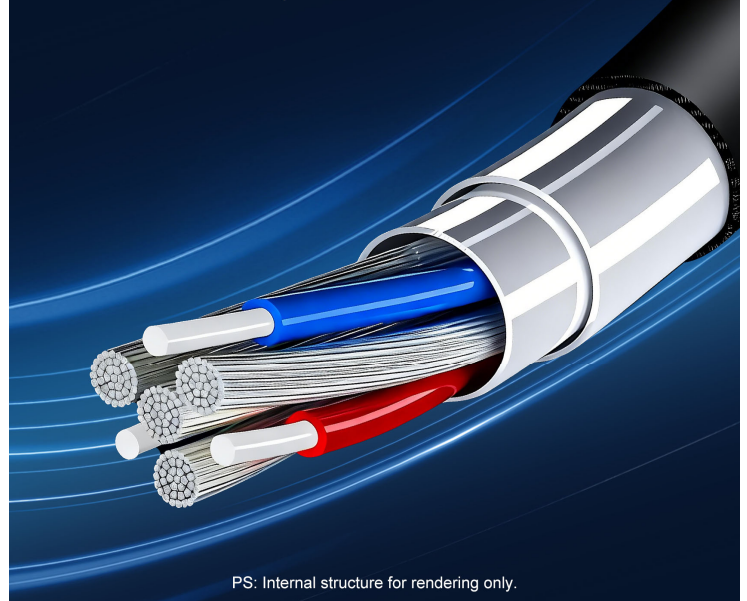
DVD / Set-Top Box



Automotive Data Transmission

Fiber Optic, Interference-Free

Superior EMI Resistance



PS: Internal structure for rendering only.

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Product Specifications

Product Name: Fiber Optic USB 3.0 Extension Cable

Shell: Zinc Alloy Shell

Bandwidth: 5Gbps

Material: PVC Sheath

Interface: USB 3.0

Warranty: 1 Year

Length: 15m/20m

PS: The dimensions marked for the product on this page are measured manually, so slight variations may occur.



YDSAOC-5G-USB3-AM-BM-SW

5Gbps Active Fiber Optical (AOC) USB 3.0 Extension Cable –
USB Type-A Male to USB Type-B Male (with screws)



**5Gbps
Speed**



**Up to 30m
Distance**



**No On-Site
Power**



PRODUCT SUMMARY

Combining fiber optic and copper hybrid technology, it overcomes the distance and bandwidth limitations of traditional copper cables, delivering fast, reliable, and lossless data transmission over extended distances.

FEATURES

- ✓ **Plug-and-Play Installation** – Unidirectional, both ends ready, no on-site power
- ✓ **Long-Distance Transmission** – Reliable, lossless signals up to 30m
- ✓ **High EMI/RFI Resistance** – Virtually zero electromagnetic interference
- ✓ **Hybrid Fiber/Copper Design** – Thin, flexible, lightweight cable
- ✓ **Wide Compatibility** – Works across multiple USB standards
- ✓ **Fully Customizable** – Custom lengths, logos, and packaging

APPLICATIONS

- Machine vision camera links
- Medical imaging equipment
- Video conferencing and conference rooms
- Digital signage and LED signboards
- Home theater, Blu-ray, 3D video, projectors, set-top boxes, DVRs, game consoles
- Broadcast (radio/TV) stations and airplane on-board video systems
- Security monitoring and remote monitoring systems



BEST FOR

Environments requiring extended data transmission distances without on-site power supply, and applications demanding high reliability in electromagnetically complex environments – **Industrial, Medical, Broadcast, and Enterprise** settings.



INDUSTRIAL



MEDICAL



BROADCAST



ENTERPRISE

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YDSAOC



VIBRANT DISPLAY
High brightness and
stunning visuals



VERSATILE SOLUTIONS
Ideal for retail, corporate,
hospitality and more



SEAMLESS CONNECTIVITY
Reliable performance for
digital signage systems



BUILT TO PERFORM
Stable, durable and
engineered to last

Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

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Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



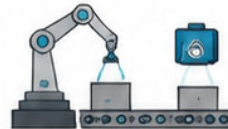
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-5G-USB3-AM-MBM-SW 5Gbps Active Fiber Optical USB 3.0 Extension Cable

Overview

YDSAOC-5G-USB3-AM-MBM-SW is a high-performance USB 3.0 Active Optical Cable (AOC) that combines fiber-optic technology with USB connectivity to overcome the distance and signal limitations of traditional copper cables. Adopting a hybrid copper-and-optical-fiber design, it converts USB electrical signals to optical signals, enabling extended and reliable high-bandwidth data transmission over long distances.



Connectors: USB 3.0 Type-A Male to USB 3.0 Micro Type-B Male (with screws)

Highlight Features

- ♦ **High bandwidth** — conforms to latest USB 3.0 standard with SuperSpeed performance up to 5Gbps
- ♦ **Long-distance transmission** — supports lossless signals over a maximum of 30m, exceeding copper cable limits
- ♦ **Backward compatible** — supports USB 3.0/2.0/1.1/1.0
- ♦ **Remote device power** — supports up to 5V/900mA
- ♦ **Easy installation** — truly plug-and-play; no on-site power supply required
- ♦ **High EMI/RFI resistance** — nearly zero electromagnetic/radio-frequency interference for stable, safe, radiation-free operation in complex environments
- ♦ **OS compatibility** — supports Windows, Mac OS, and Linux
- ♦ **Scalability** — number of connected devices can be increased using additional hubs
- ♦ **Low power consumption** — integrated fully-featured optical transceiver (receiver + transmitter); designed for self-powered peripherals
- ♦ **Customizable** — custom lengths (up to 30m), logos, and packaging available

Applications

- ◆ Machine vision / Camera Link systems
- ◆ Home theater, Blu-ray, 3D video, projectors, set-top boxes, DVR, game console control and monitor connection
- ◆ Medical imaging equipment and device connectivity
- ◆ LED signboards & monitors
- ◆ Radio and TV broadcast stations
- ◆ Airplane on-board video systems
- ◆ Conference rooms and conference room cameras
- ◆ Digital signage
- ◆ Video conferencing equipment
- ◆ Security monitoring systems (web cameras, access control)
- ◆ Industrial control and medical machine control
- ◆ Home network integration
- ◆ KVM extension and remote desktop USB 3.0 connections
- ◆ USB 3.0 device sharing (print, scan, storage)
- ◆ Immersive AR/VR experiences

Ideal Use Case

Best suited for environments requiring extended data transmission distances **without on-site power supply**, and where high reliability is needed in electromagnetically complex environments — such as industrial, medical, and broadcast settings.

YDSAOC

DVR & Game Console Monitoring Connections



Key Specifications

YDSAOC Model Number	YDSAOC-5G-USB3-AM-MBM-SW
Order Part Numbers	YDSAOC-5G-USB3-AM-MBM-SW-1003 YDSAOC-5G-USB3-AM-MBM-SW-2006 YDSAOC-5G-USB3-AM-MBM-SW-50015 YDSAOC-5G-USB3-AM-MBM-SW-100030 YDSAOC-5G-USB3-AM-MBM-SW-200060
Length	1m(3ft), 2m(6ft), 5m(15ft), 10m(30t), 20m(60ft)
Maximum Support Length	up to 30m(90ft)
Maximum Data Speed	up to 5Gbps
Connector A	USB 3.0 Type-A Male
Connector B	USB 3.0 Micro Type-B Male with Screws
USB Protocols	USB 3.0, USB 2.0
Support Functions	Data Transfer, Power Transfer
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 2x Optical Fiber, 4x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	Bidirectional, No Check on Directions
Power Connect	No External Power is Required

YDSAOC



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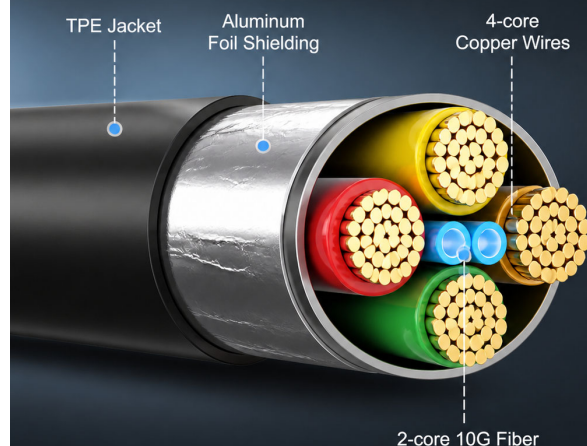
Rustproof & Durable

Rustproof, withstands repeated plugging.



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Note: Internal structure is a render, refer to actual product.

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Applications

Ideal for security cameras, home theater expansion, data storage, DVD/set-top boxes, and automotive data transmission.



Security Camera



Digital Home Theater



Expanded Data Storage



DVD / Set-Top Box



Automotive Data Transmission

Compatible with a Wide Range of Devices

Ideal for connecting to hosts, cabinets, and industrial cameras with this interface.



Blackfl



Hikvision



JAL



IDS



BASLER



Daheng

Important Notice

Device port must be Micro USB 3.0 Type-B.
Check your port before ordering to avoid mistakes.



Micro USB 3.0
(Supported)



Mini USB 3.0
(Not Supported)





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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



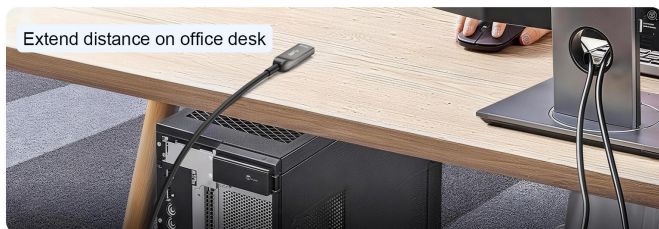
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

Touch Control Pass-Through

Touch-enabled interactive display,
not just a secondary screen.



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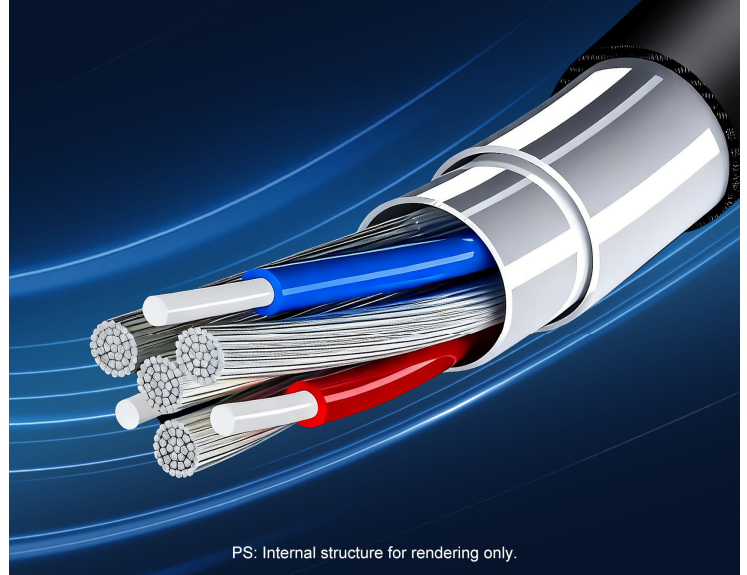
1GB File Transfer in Seconds

Zero signal latency, no signal attenuation, no compression, and excellent anti-interference performance.



Fiber Optic, Interference-Free

Superior EMI Resistance



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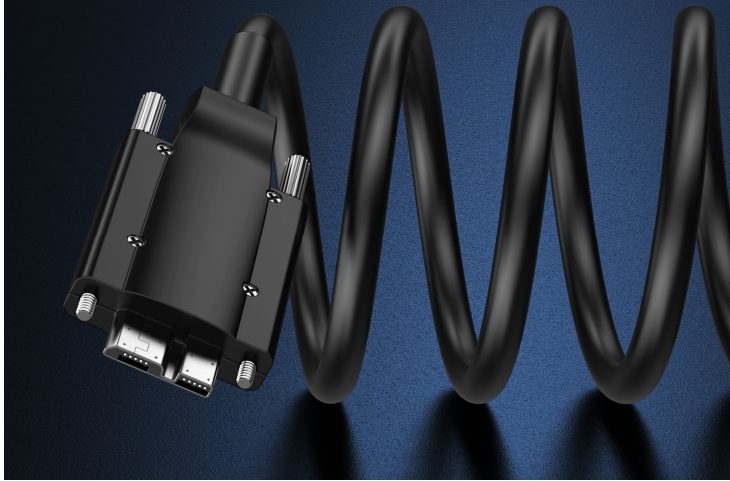


ACTIVE OPTICAL CABLES

your best fiber optics partner

High-Flex PVC Cable | Flexible Tensile & Bend-Resistant

Superior bend & lateral pressure
resistance, easy cabling, cost-effective.



Eliminates Loose Connections and Disconnections



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Product Specifications

Product Name: USB3.0 to micro-B Optical Fiber Cable

Interface: Nickel-plated

Jacket: Eco-friendly PVC

Core: Optical Fiber

Speed: 5Gbps

Color: Black

Features: High flex resistance, shielding against interference

Compatible Models: Basler, Dalsa, Hikvision, JAIFLIR

Product Weight with Box: 780g

Package Dimensions: 16.5*16*6cm

Length: 20m

Supported Protocols: USB3.0, USB2.0 (copper wire)

Plug & Play, Bus-Powered

Fiber-optic transmission with integrated copper wires for device power delivery.

Up to 900mA at 5V.



YDSAOC

YDSAOC-5G-USB3-AM-MBM-SW

5Gbps Active Fiber Optical USB 3.0 Extension Cable

KEY SPECIFICATIONS



SPEED

Up to 5Gbps
(USB 3.0 SuperSpeed)



MAX LENGTH

Up to 30 meters,
lossless signal
transmission



POWER

5V / 900mA
max support



BEND RADIUS

Only 50mm
(patented hybrid-
cable design)

HIGHLIGHT FEATURES



High bandwidth — conforms to latest USB 3.0 standard with SuperSpeed performance up to 5Gbps



Long-distance transmission — supports lossless signals over 30m, exceeding copper cable limits



Backward compatible — supports USB 3.0/2.0/1.1/1.0



Remote device power — supports up to 5V/900mA



High EMI/RFI resistance — nearly zero electromagnetic/radio-frequency interference



OS compatibility — supports Windows, Mac OS, and Linux



Scalability — additional hubs can increase connected devices



Low power consumption — integrated optical transceiver



APPLICATIONS



Machine Vision



Home Theater



Medical Imaging



LED Signboards



Video Conferencing



Digital Signage



Industrial Control



Security Systems



KVM Extension



AR/VR

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YDSAOC

USB 3.0 Device Sharing

Connect and share multiple USB devices with ease and speed.

**Print****Scan****Storage**

Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



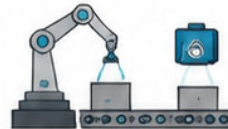
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play

YDSAOC-48G-USB-CM-HDMI-AM**USB 3.2 Type-C to HDMI 2.1 48Gbps Active Fiber Optical Extension Cable****Overview**

YDSAOC-48G-USB-CM-HDMI-AM is a specialized active fiber optical cable (AOC) designed to transmit high-definition audio and video signals from USB-C devices to HDMI displays. It enables extending signals up to 30 meters (90 feet) without any external power supply, making it a convenient plug-and-play solution for connecting laptops, tablets, phones, and other USB-C enabled devices to monitors, projectors, and TVs.

**Key Technical Specifications**

- ♦ **High Resolution Support:** Delivers video resolutions up to 8K@60Hz and 4K@60Hz (3840×2160), along with 4K@30Hz, 1080p, 1080i, and 720p
- ♦ **High Data Rate:** Provides a full 48Gbps bandwidth
- ♦ **Reversible Connector:** USB-C plugs attach in either direction for easy use
- ♦ **Both Mirror and Extend Modes:** Supports flexible multi-display configurations

Core Features & Benefits

- ♦ **Hybrid Fiber/Copper Design:** Eliminates the need for external power while minimizing signal loss
- ♦ **Superior Signal Quality:** Provides extremely low signal attenuation and high resistance to electromagnetic (EMI) and radio-frequency (RFI) interference for flawless, radiation-free performance
- ♦ **Plug-and-Play:** No driver installation required, with ultra-low power consumption
- ♦ **Broad Compatibility:** Compliant with USB-C DisplayPort Alternate Mode, compatible with all DisplayPort 1.2 standard devices, and backward compatible with USB 3.0/2.0/1.1
- ♦ **Robust Build:** Zinc alloy shell provides anti-electromagnetic interference protection and enhanced durability, suitable for pipe wiring
- ♦ **Customizable:** Available in custom lengths up to 30m, with custom logo and packaging options



ACTIVE OPTICAL CABLES

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Applications The cable is suited for a wide range of professional and consumer environments, including:

- ♦ **Video Conferencing:** Compatible with Logitech Rally Bar, Yealink MeetingBar, Poly Studio X, Bose Videobar, and Crestron systems
- ♦ **Professional AV & Digital Signage:** For media players, interactive displays, and LED video walls
- ♦ **Medical Imaging & Healthcare:** Stable, EMI-free transmission for ultrasound systems, medical cameras, and diagnostic workstations
- ♦ **Industrial & Machine Vision:** Reliable for factory automation, AI inspection, and robotics
- ♦ **Broadcasting & Live Streaming:** For 4K capture devices, PTZ cameras, and production systems
- ♦ **VR/AR & Gaming:** Enables longer extension distances for VR headsets without signal degradation
- ♦ **Home Entertainment:** Home theater, gaming PCs, projectors, and set-top boxes
- ♦ **Security & Monitoring:** Security camera systems and DVR connections

Best For Environments that require extended data transmission distances without on-site power, offering high reliability in electromagnetically complex settings.

YDSAOC

BROADCASTING & LIVE STREAMING

Professional Solutions for Every Production



8K Capture
Ultra HD Quality



4K PTZ Cameras
Smooth. Precise. Reliable.



Production Systems
Powerful. Flexible. Scalable.



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Key Specifications

YDSAOC Model Number	YDSAOC-48G-USB-CM-HDMI-AM
Order Part Numbers	YDSAOC-48G-USB-CM-HDMI-AM-1003 YDSAOC-48G-USB-CM-HDMI-AM-50015 YDSAOC-48G-USB-CM-HDMI-AM-100030 YDSAOC-48G-USB-CM-HDMI-AM-150045 YDSAOC-48G-USB-CM-HDMI-AM-200060
Length	1m(3ft), 5m(15ft), 10m(30t), 15m(45ft). 20m(60ft)
Maximum Support Length	up to 30m(90ft)
Maximum Data Speed	up to 48Gbps (12Gbps per channel)
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	USB 3.2 Type-C Male
Connector B (Display)	HDMI2.1 Type-A Male
USB Protocols	USB Type-C Conversion to DP ALT Mode
Support Functions	DP: HBR3, HDMI2.1: 48Gbps
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 5x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. USB (Source) to HDMI (Display)
Power Connect	No External Power is Required



Digital Signage



LED Signboards



Projector



Home Theater / Blu-ray / 3D Video



Broadcast Stations
(Radio & TV)

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Why Choose Fiber Optic USB-C Cable

Long Range

Fiber optic for stable long-distance signal transmission

Full-Featured USB-C Active Optical Cable

15m

Full-Featured USB-C Copper Cable

2m

Full-Featured USB-C Copper Cable

5m

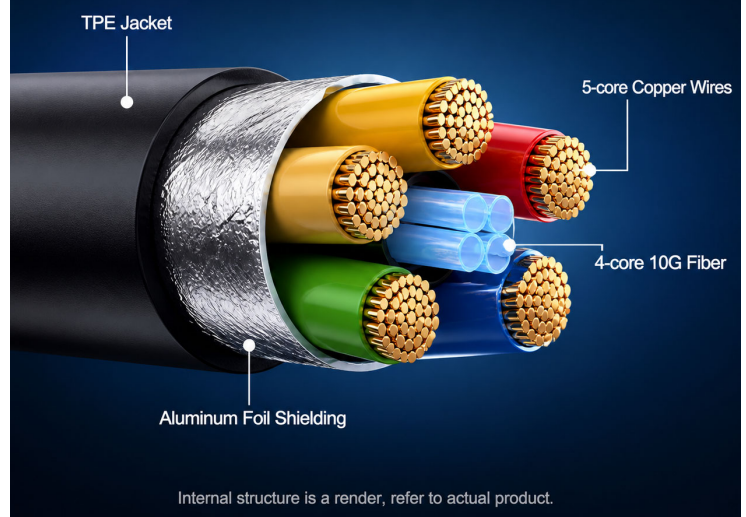
Power-Only USB-C Copper Cable

2m



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



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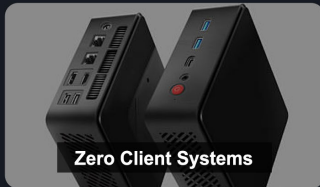


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Widely Compatible with USB-C Devices



8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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Faster Scanning, Modeling & Tracking for Depth Cameras

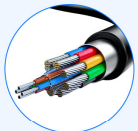
Supports depth cameras, stereo cameras, and is widely compatible with Intel, Microsoft, ZED and other major depth cameras.



Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



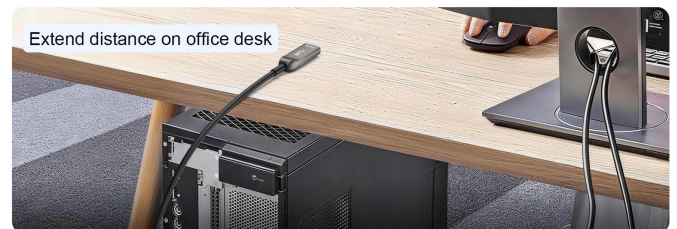
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk



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YDSAOC

Broadcasting & Live Streaming



4K Capture



PTZ Cameras



Streaming Workstations



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YDSAOC

Professional AV & Digital Signage



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YDSAOC 48Gbps Active Fiber Optical USB-C to HDMI 2.1 Extension Cable

The YDSAOC USB-C to HDMI 2.1 Active Fiber Optical Extension Cable delivers ultra-high definition video, immersive audio, and reliable performance over long distances with zero compression. Built for professionals who demand the best.



KEY TECHNICAL SPECIFICATIONS



High Resolution Support
8K@60Hz and 4K@60Hz (3840×2160),
4K@30Hz, 1080p, 1080i, 720p



High Data Rate
Full 48Gbps bandwidth



Reversible Connector
USB-C plugs attach in either direction



Multi-Display
Supports Mirror and Extend Modes



CORE FEATURES & BENEFITS



Hybrid Fiber/Copper Design
No external power required for convenient, clutter-free installation.



Superior Signal Quality
Low attenuation and excellent EMI/RFI resistance ensure stable, high-fidelity transmission.



Plug-and-Play
No driver installation needed. Simple and seamless setup.



Broad Compatibility
USB-C with DisplayPort Alt Mode compliant with laptops, tablets, smartphones, and more.



Robust Build
Premium zinc alloy shell provides excellent durability, corrosion resistance, and heat dissipation.



Customizable
Available up to 30m with custom length options to meet your specific needs.

APPLICATIONS



Video
Conferencing



Professional
AV



Medical
Imaging



Industrial
Vision



Broadcasting



VR/AR
Gaming



Home
Entertainment



Security
Monitoring

8K
60Hz

4K
60Hz

48
Gbps

HDMI
2.1

USB-C

FC

CE

RoHS
COMPLIANT

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



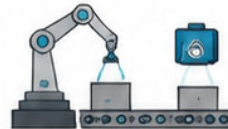
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play

YDSAOC-32G-USB-CM-DP-AM**USB 3.2 Type-C to DP 1.4 32.4Gbps Active Fiber Optical Extension Cable****Overview**

YDSAOC-32G-USB-CM-DP-AM is a high-performance USB-C to DisplayPort 1.4 Active Optical Cable (AOC) engineered for professional-grade video and audio transmission. Using a hybrid fiber/copper construction, it extends ultra-high-definition signals up to **20 meters (about 60 ft)**, which copper cables cannot reliably achieve.

**Key Capabilities**

- ◆ **Video:** Supports up to 8K @ 60Hz (7680 × 4320, 4:2:0) and 4K @ 60Hz, along with 4K 30Hz, 1080p, 1080i, and 720p
- ◆ **Data rate:** 32.4 Gbps bandwidth per DisplayPort 1.4 specification
- ◆ **Audio:** Up to 32 audio channels with 1536 kHz sampling, supporting PCM 8-Channel, DTS -HD, and Dolby Digital True HD Surround Sound
- ◆ **Enhanced visuals:** HDR, BT.2020 colorimetry, 21:9 cinema aspect ratio, dual video stream delivery
- ◆ **Mode flexibility:** Supports both mirror and extend display modes

Design & Durability

- ◆ Hybrid fiber/copper build delivers near-zero EMI/RFI, providing a radiation-free, stable signal
- ◆ No external power required (power delivered over the cable); ultra-low power consumption
- ◆ Slim, lightweight, and highly flexible with a tight bend radius for easy routing in tight spaces
- ◆ Zinc alloy connectors and latching design for durability and to prevent accidental disconnection
- ◆ Fully plug-and-play — no drivers or software needed



Compatibility

- ◆ Supports USB-C DisplayPort Alternate Mode and is backward compatible with DisplayPort 1.2 devices and USB 3.0/2.0/1.1
- ◆ Works with laptops (MacBook, Dell XPS 15), tablets (iPad Pro), phones, monitors, projectors, TVs, and more

Customization

Up to 20m maximum length; custom lengths, logos, and packaging available on request

Applications

- ◆ **Video conferencing:** Compatible with Logitech Rally Bar/Camera/Tap, Yealink MeetingBar A20/A30/A50, Poly Studio X, Bose Videobar VB1, Crestron Videobar 70
- ◆ **Professional AV & Digital Signage:** Media players, control systems, interactive displays, LED video walls
- ◆ **Medical imaging & healthcare:** Ultrasound systems, medical cameras, diagnostic workstations
- ◆ **Industrial & machine vision:** Factory automation, AI vision inspection, robotics
- ◆ **Broadcasting & live streaming:** 4K capture devices, PTZ cameras, streaming workstations
- ◆ **VR/AR & gaming:** Long-distance high-speed connections for VR headsets
- ◆ **Other uses:** USB-C docks, SSD enclosures, NAS, home theater, security monitoring, conference rooms, educational settings, mass transit

Key Takeaway:

This AOC is ideal for environments requiring long-distance, uncompromised Ultra HD transmission without on-site power or cabling clutter, delivering exceptional reliability and picture/audio quality in electromagnetically complex settings.



ACTIVE OPTICAL CABLES

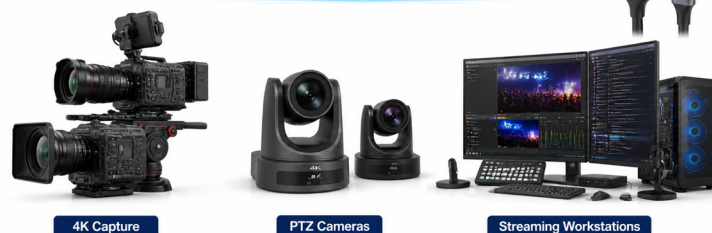
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Key Specifications

YDSAOC Model Number	YDSAOC-32G-USB-CM-DP-AM
Order Part Numbers	YDSAOC-32G-USB-CM-DP-AM-1003 YDSAOC-32G-USB-CM-DP-AM-50015 YDSAOC-32G-USB-CM-DP-AM-100030 YDSAOC-32G-USB-CM-DP-AM-150045 YDSAOC-32G-USB-CM-DP-AM-200060
Length	1m(3ft), 5m(15ft), 10m(30t), 15m(45ft). 20m(60ft)
Maximum Support Length	up to 20m(60ft)
Maximum Data Speed	up to 32.4Gbps (8.1Gbps per channel)
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	USB 3.2 Type-C Male
Connector B (Display)	DisplayPort 1.4 Type-A Male
USB Protocols	USB Type-C Conversion to DP ALT Mode
Support Functions	DP: HBR3, DisplayPort 1.4: 32.4 Gbps
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 5x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. USB (Source) to DP 1.4 (Display)
Power Connect	No External Power is Required

YDSAOC

Broadcasting & Live Streaming



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Why Choose Fiber Optic USB-C Cable

Long Range

Fiber optic for stable long-distance
signal transmission

Full-Featured USB-C Active Optical Cable

15m

Full-Featured USB-C Copper Cable

2m

Full-Featured USB-C Copper Cable

5m

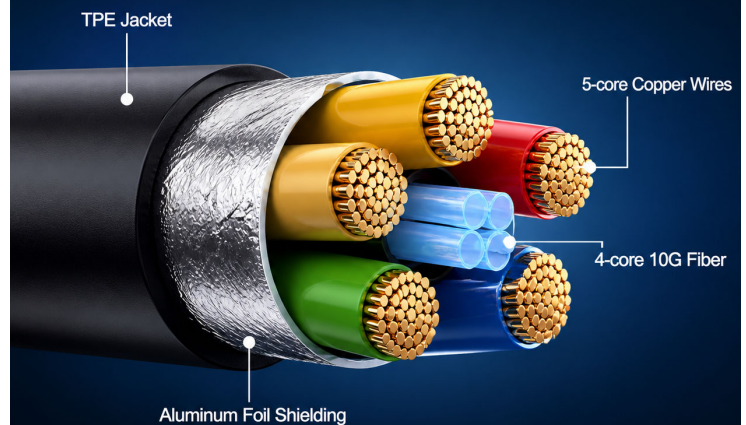
Power-Only USB-C Copper Cable

2m



10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Internal structure is a render, refer to actual product.

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Widely Compatible with USB-C Devices



Machine Vision



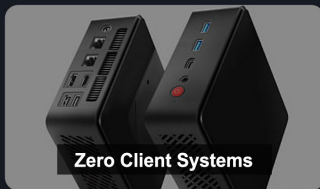
Industrial Printing



Security & Surveillance



Digital Signage & Video Walls



Zero Client Systems



Remote Storage Systems

8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



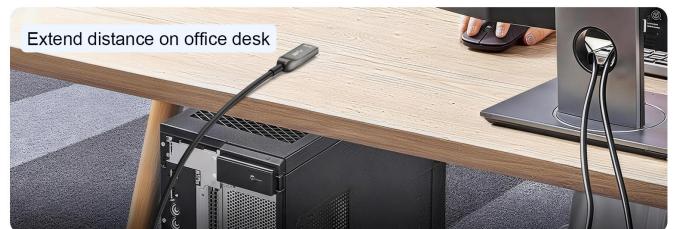
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

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ONE CABLE. ENDLESS POSSIBILITIES.

USB-C to DisplayPort Cable – Connect What Matters

1 Video conferencing

- Compatible with
- Logitech Rally Bar/Camera/Tap
- Yealink MeetingBar A20/A30/A50
- Poly Studio X
- Bose Videobar VB1
- Crestron Videobar 70



2 Professional AV & Digital Signage

- Media players
- Control systems
- Interactive displays
- LED video walls



3 Medical imaging & healthcare

- Ultrasound systems
- Medical cameras
- Diagnostic workstations



4 Industrial & machine vision

- Factory automation
- AI vision inspection
- Robotics



5 Broadcasting & live streaming

- 4K capture devices
- PTZ cameras
- Streaming workstations



6 VR/AR & gaming

- Long-distance high-speed connections for VR headsets



7 Other uses

- USB-C docks
- SSD enclosures
- NAS
- Home theater
- Security monitoring
- Conference rooms
- Educational settings
- Mass transit





YDSAOC-32G-USB-CM-DP-AM

USB-C to DisplayPort 1.4 Active Optical Cable (AOC)



KEY CAPABILITIES



Video: 8K @ 60Hz, 4K @ 60Hz



Data Rate: 32.4 Gbps



Audio: Up to 32 channels



Cable Length: Up to 20 meters



APPLICATIONS



Video Conferencing



Professional AV & Digital Signage



Medical Imaging & Healthcare



Industrial & Machine Vision



Broadcasting & Live Streaming



VR/AR & Gaming



DESIGN & DURABILITY



Hybrid Fiber/Copper Construction



Zero EMI/RFI



No External Power Required



Zinc Alloy Connectors



Plug-and-Play



COMPATIBILITY



USB-C DisplayPort Alternate Mode



Backward Compatible with
DisplayPort 1.2



Works with Laptops, Tablets,
Phones, Monitors, Projectors, TVs

8K

ULTRA HIGH
RESOLUTION

Stunning clarity up to 8K @ 60Hz

32.4 Gbps

HIGH BANDWIDTH
PERFORMANCE

Uncompressed, high-speed
signal transmission



RELIABLE & STABLE
CONNECTION

Active Optical Technology
for long-distance performance

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



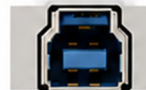
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

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4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



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Plug-and-play design makes connectivity easy for presenters.



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Thinner and more flexible than copper, reducing cable clutter.



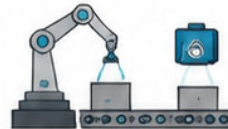
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Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-48G-HDMI-AM-AM 48Gbps Active Fiber Optical HDMI 2.1 Extension Cable

Overview

YDSAOC-48G-HDMI-AM-AM is a high-performance, active optical cable (AOC) engineered to deliver ultra-high-definition audio and video transmission over extended distances. It is designed to connect HDMI source devices—such as MacBooks, iPad Pros, Dell XPS laptops, and HDMI-enabled mobile phones—directly to HDMI monitors, projectors, or TVs with no driver installation required.



Key Specifications

- ◆ **Resolution Support:** Up to 8K (7680 × 4320p) at 60Hz and 4K at 120Hz, with additional modes including 8K 30Hz, 4K 60/30Hz, and 1080p/i/720p
- ◆ **Maximum Length:** Up to 200m (600ft) for extended installations (with shorter custom options available)
- ◆ **Bandwidth:** High data rate of 48Gbps (HDMI 2.1 spec)
- ◆ **Compatibility:** Backward compatible with HDMI 2.1, 2.0, and 1.4 standards
- ◆ **Connection Type:** HDMI (AM) to HDMI (AM), with a reversible connector that attaches in either direction

Design & Construction

- ◆ **Hybrid Fiber/Copper Design:** Combines 4 optical fibers and 7 copper wires for lossless, low-attenuation transmission
- ◆ **Robust Build:** Zinc-alloy housing and corrosion-resistant gold-plated connectors for durability
- ◆ **No External Power Required:** Plug-and-play operation with ultra-low power consumption
- ◆ **Interference Resistance:** Practically zero EMI/RFI profile, ensuring a safe, radiation-free environment
- ◆ **Lightweight Construction:** Slim design reduces cable clutter and simplifies installation compared to traditional copper cable



ACTIVE OPTICAL CABLES

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Advanced Features

- ♦ **High-Quality Audio:** Supports up to 192kHz, 24-bit uncompressed 5.1 and 7.1, Dolby lossless formats, and 32-channel audio
- ♦ **Enhanced Audio Return Channel (eARC):** Simplifies connectivity and audio optimization
- ♦ **Dynamic HDR:** Optimizes contrast, depth, brightness, and color gamut frame-by-frame (compatible with HLG, HDR-10/+ , Dolby Vision, and others)
- ♦ **VRR & Gaming Support:** Enables fluid gameplay with minimal lag, judder, and frame tearing
- ♦ **Additional Protocols:** Supports EDID with self-detection, ALLM, QMS, and QFT
- ♦ **Future-Ready:** Prepared for HDCP 2.3 content encryption
- ♦ **Display Flexibility:** Supports mirror mode and extend mode

Applications

The cable is suited to a wide range of consumer and professional environments, including:

- ♦ **Home Entertainment:** Home theater, Blu-ray, 3D video, projectors, set-top boxes, gaming consoles, and VR/AR headsets
- ♦ **Professional AV & Digital Signage:** Conference rooms, LED video walls, digital signage, and broadcast stations
- ♦ **Medical & Healthcare:** Ultrasound systems, diagnostic workstations, and medical imaging equipment
- ♦ **Industrial & Machine Vision:** Factory automation, AI vision inspection, robotics, and security monitoring systems
- ♦ **Broadcasting & Live Streaming:** 4K capture devices, PTZ cameras, and production systems
- ♦ **Specialized Settings:** Airport boarding systems, airplane on-board video, shipboard installations, and military applications

Customization

Length, logo, and packaging can be customized to suit specific project requirements, making the cable a versatile choice for demanding installations that require reliable long-distance HDMI connectivity without on-site power.

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ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Specifications

YDSAOC Model Number	YDSAOC-48G-HDMI-AM-AM
Order Part Numbers	YDSAOC-48G-HDMI-AM-AM-1003 YDSAOC-48G-HDMI-AM-AM-50015 YDSAOC-48G-HDMI-AM-AM-100030 YDSAOC-48G-HDMI-AM-AM-5000150 YDSAOC-48G-HDMI-AM-AM-10000300
Length	1m(3ft), 5m(15ft), 10m(30t), 50m(150ft), 100m(300ft)
Maximum Support Length	up to 200m(600ft)
Maximum Data Speed	up to 48Gbps (12Gbps per channel)
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	HDMI2.1 Type-A Male
Connector B (Display)	HDMI2.1 Type-A Male
HDMI Protocols	HDMI2.1, HDMI2.0, HDMI1.4
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 7x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. HDMI (Source) to HDMI (Display)
Power Connect	Additional Power Supply Required for Long Distance
OEM/ODM Design	Customize on CEC, EDID, eARC within 30m(90ft)

YDSAOC



Home Theater System



Blu-ray Player



3D Video Technology



Projector



Set-top Box



Gaming Console



VR/AR Headset



HDMI 2.1
HIGH SPEED
HIGH PERFORMANCE

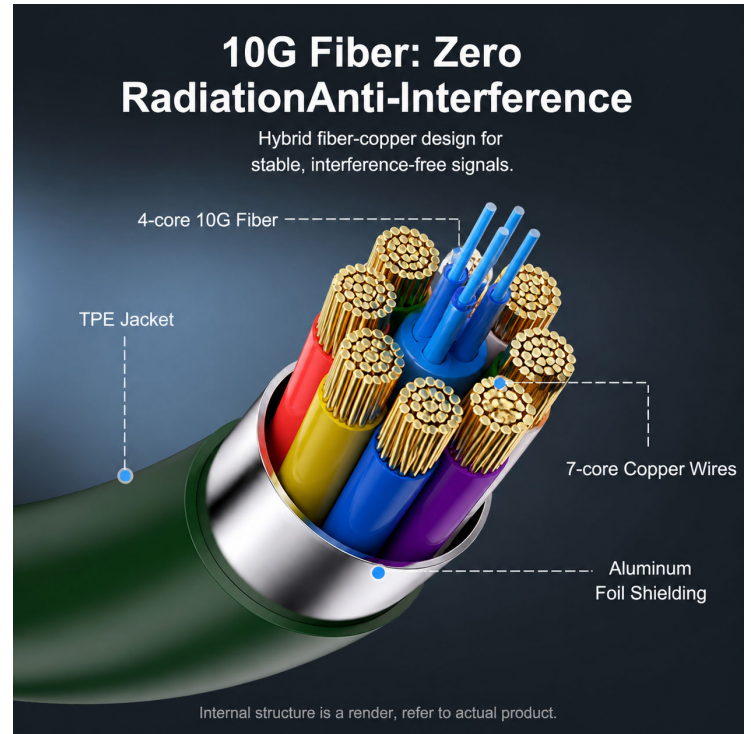
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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



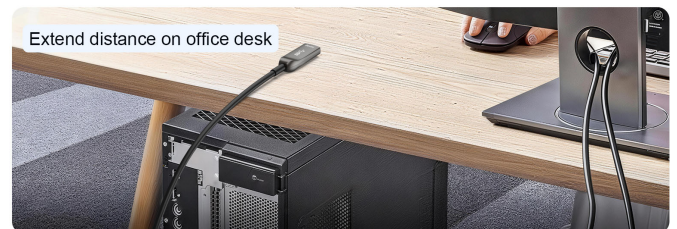
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

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One Cable. Endless Possibilities.

Powerful Performance for Every Application.



1 Home Entertainment



- Home theater
- Blu-ray, 3D video, projectors
- Set-top boxes, gaming consoles
- VR/AR headsets



2 Professional AV & Digital Signage



- Conference rooms
- LED video walls, digital signage
- Broadcast stations



3 Medical & Healthcare



- Ultrasound systems
- Diagnostic workstations
- Medical imaging equipment



4 Industrial & Machine Vision



- Factory automation
- AI vision inspection
- Robotics, security monitoring systems



5 Broadcasting & Live Streaming



- 4K capture devices
- PTZ cameras
- Production systems



6 Specialized Settings



- Airport boarding systems
- Airplane on-board video
- Shipboard installations
- Military applications



YDSAOC 48Gbps Active Optical HDMI 2.1 Cable

Ultra-High-Definition Audio & Video Transmission



KEY SPECIFICATIONS



Resolution
Up to 8K at 60Hz,
4K at 120Hz



Maximum Length
Up to 200m (600ft)



Bandwidth
48Gbps (HDMI 2.1)



Compatibility
HDMI 2.1, 2.0,
and 1.4 standards



Connection
HDMI (AM) to
HDMI (AM)



DESIGN & CONSTRUCTION



Hybrid Fiber/Copper Design
4 optical fibers,
7 copper wires



**Zinc-alloy housing with
gold-plated connectors**



**No external power
required - Plug and play**



**Zero EMI/RFI
interference**



**Lightweight,
slim design**



ADVANCED FEATURES



High-Quality Audio
Up to 192kHz, 24-bit
uncompressed,
Dolby formats



**Enhanced Audio
Return Channel (eARC)**



Dynamic HDR
with HLG, HDR-10+,
Dolby Vision



VRR & Gaming Support
with minimal lag



**HDCP 2.3
Future-Ready**

APPLICATIONS

HOME ENTERTAINMENT



PROFESSIONAL AV



MEDICAL & HEALTHCARE



INDUSTRIAL & MACHINE VISION



BROADCASTING & LIVE STREAMING



SPECIALIZED SETTINGS



48Gbps
ULTRA-HIGH BANDWIDTH



8K 8K@60Hz
4K@120Hz



**ACTIVE OPTICAL
TECHNOLOGY**



**RELIABLE. STABLE.
FUTURE-READY.**

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



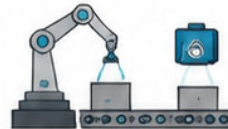
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-48G-HDMI-DM-DM

48Gbps Active Fiber Optical Micro HDMI Type-D Extension Cable

Overview

YDSAOC-48G-HDMI-DM-DM is a high-performance Active Optical Cable (AOC) featuring **MICRO HDMI Type-D to MICRO HDMI Type-D** connectors. It is purpose-built for transmitting ultra-high-definition audio and video signals over extended distances — up to **200 meters** — without requiring external power.



Highlight Features

- ◆ **High-Resolution Support** — Delivers pristine visuals up to 8K (7680×4320p) 4:4:4 at 60Hz, with 4K at 120Hz for razor-sharp motion.
- ◆ **High Bandwidth** — 48Gbps capacity ensures smooth, uninterrupted signal transmission.
- ◆ **Lossless Long-Distance Transmission** — Active optical technology maintains signal integrity up to 200m with virtually zero signal loss.
- ◆ **Near-Zero Interference** — Low EMI/RFI profile for flawless, radiation-free performance.
- ◆ **Hybrid Fiber/Copper Design** — No external power supply required, with ultra-low power consumption.
- ◆ **Fast Refresh / Gaming Features** — Includes VRR for fluid gameplay with minimal lag, judder, and frame tearing.
- ◆ **Advanced Video & Audio** — Dynamic HDR, eARC, and high-bitrate audio up to 192kHz/24-bit, 5.1/7.1 uncompressed, Dolby lossless, and 32-channel audio.
- ◆ **Smart Protocols** — Supports EDID with self-detecting function, ALLM, QMS, and QFT; HDCP 2.3 ready.
- ◆ **Flexible Display Modes** — Supports both mirror and extend modes.
- ◆ **Durable Build** — Zinc-alloy housing with corrosion-resistant gold-plated connectors, suitable for pipe wiring.
- ◆ **Broad Compatibility** — Works with MacBook, iPad Pro, Dell XPS 15, and HDMI-enabled mobile devices; no driver required.
- ◆ **Customizable** — Custom lengths, logos, and packaging available.

Applications

- ◆ **Professional AV & Digital Signage** — Long-distance connections for media players, control systems, interactive displays, and LED video walls.
- ◆ **Medical Imaging & Healthcare** — Stable, EMI-free transmission for ultrasound, medical cameras, diagnostic workstations, and imaging devices.
- ◆ **Industrial & Machine Vision** — Factory automation, AI vision inspection, robotics, and industrial control systems.
- ◆ **Broadcasting & Live Streaming** — 4K capture devices, streaming workstations, PTZ cameras, and production systems.
- ◆ **VR/AR & Gaming** — Extended distances for high-speed VR headsets and immersive simulations.
- ◆ **HDMI Docking & Storage** — Reliable connectivity for docks, SSD enclosures, NAS, and editing workflows.
- ◆ **Home & Consumer Use** — Home theater, Blu-ray, 3D video, projectors, set-top boxes, and game consoles.
- ◆ **Other Environments** — Conference rooms, education, security monitoring, airports, stadiums, and on-board aircraft video systems.

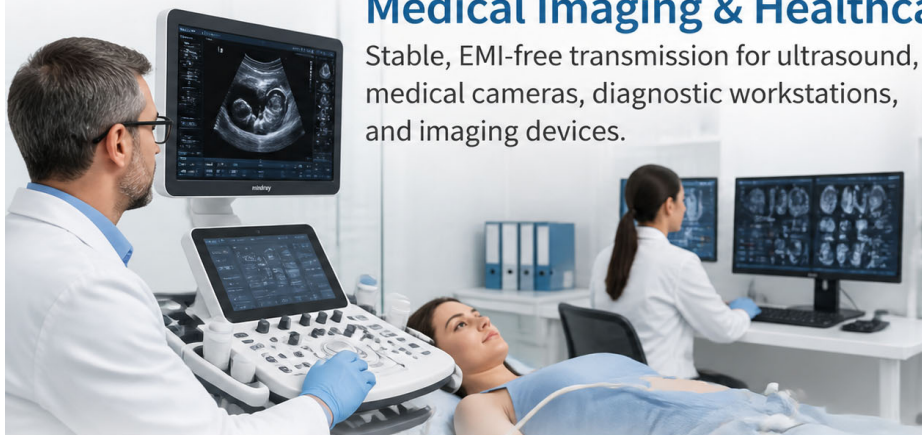
Best For

Environments demanding **extended transmission distances without on-site power** and high reliability in **electromagnetically complex conditions** — including medical surgery, live event rental, military, shipboard, and temporary staging applications.

YDSAOC

Medical Imaging & Healthcare —

Stable, EMI-free transmission for ultrasound, medical cameras, diagnostic workstations, and imaging devices.



EMI-free
Transmission



High-Resolution
Support



Medical-Grade
Reliability



Stable &
Durable



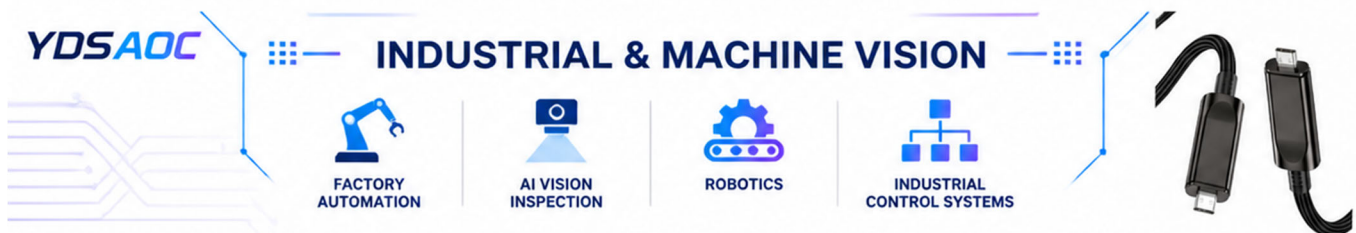


ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Specifications

YDSAOC Model Number	YDSAOC-48G-HDMI-DM-DM
Order Part Numbers	YDSAOC-48G-HDMI-DM-DM-1003 YDSAOC-48G-HDMI-DM-DM-50015 YDSAOC-48G-HDMI-DM-DM-100030 YDSAOC-48G-HDMI-DM-DM-5000150 YDSAOC-48G-HDMI-DM-DM-10000300
Length	1m(3ft), 5m(15ft), 10m(30t), 50m(150ft), 100m(300ft)
Maximum Support Length	up to 200m(600ft)
Maximum Data Speed	up to 48Gbps (12Gbps per channel)
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	Micro HDMI2.1 Type-D Male
Connector B (Display)	Micro HDMI2.1 Type-D Male
HDMI Protocols	HDMI2.1, HDMI2.0, HDMI1.4
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 7x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. HDMI (Source) to HDMI (Display)
Power Connect	Additional Power Supply Required for Long Distance
OEM/ODM Design	Customize on CEC, EDID, eARC within 30m(90ft)

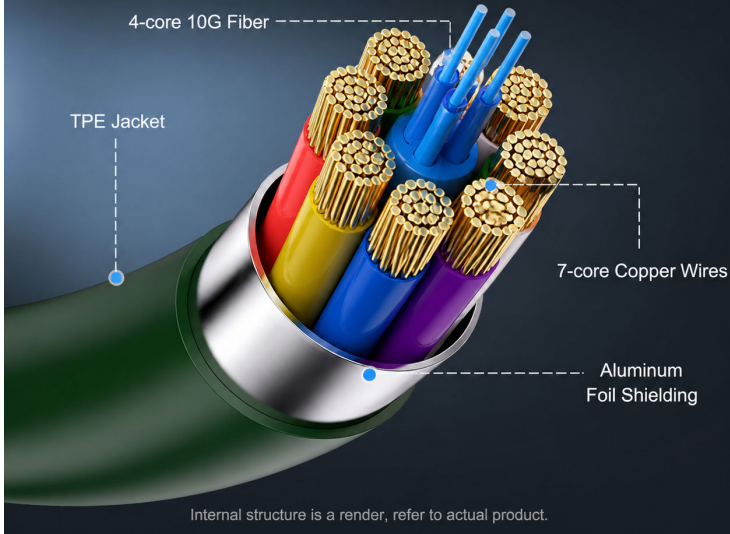


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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.





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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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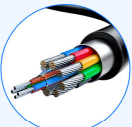




Zinc Alloy Shell



Sturdy Connector



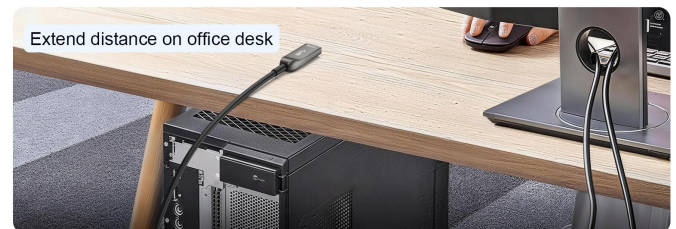
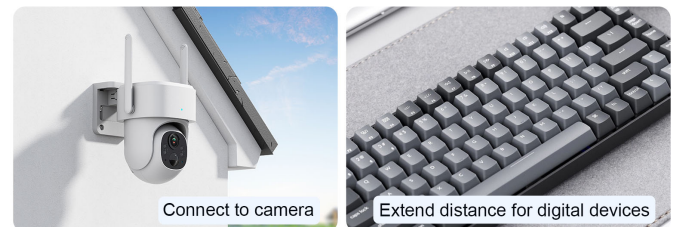
Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable





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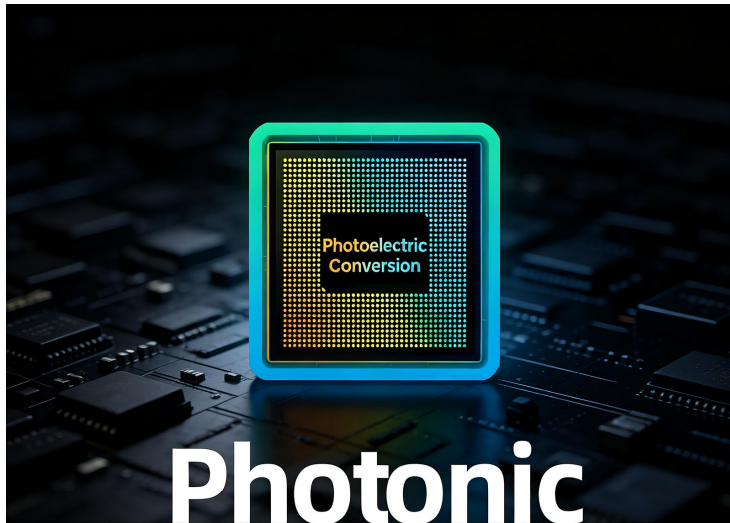
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Photonic

Mature Long-life Laser & Chip

Opto-electronic chip design, near-zero signal loss, reliable long-distance transmission.



Flexible Cable One-piece Design

One-piece molded connector & strain relief for durable, break-resistant cable.

YDSAOC



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WIDE APPLICATIONS

Designed for long-distance, high-performance HDMI connections in every professional and everyday scenario.

1



Professional AV & Digital Signage

Long-distance connections for media players, control systems, interactive displays, and LED video walls.



2



Medical Imaging & Healthcare

Stable, EMI-free transmission for ultrasound, medical cameras, diagnostic workstations, and imaging devices.



3



Industrial & Machine Vision

Factory automation, AI vision inspection, robotics, and industrial control systems.



4



Broadcasting & Live Streaming

4K capture devices, streaming workstations, PTZ cameras, and production systems.



5



VR/AR & Gaming

Extended distances for high-speed VR headsets and immersive simulations.



6



HDMI Docking & Storage

Reliable connectivity for docks, SSD enclosures, NAS, and editing workflows.



7



Home & Consumer Use

Home theater, Blu-ray, 3D video, projectors, set-top boxes, and game consoles.



8



Other Environments

Conference rooms, education, security monitoring, airports, stadiums, and on-board aircraft video systems.





YDSAOC-48G-HDMI-DM-DM Active Optical Cable



OVERVIEW

High-performance Active Optical Cable (AOC) featuring MICRO HDMI Type-D to MICRO HDMI Type-D connectors, transmitting ultra-high-definition audio and video signals over extended distances up to 200 meters without requiring external power.

KEY FEATURES

**High-Resolution Support**

8K (7680x4320p) 4:4:4 at 60Hz,
4K at 120Hz

**High Bandwidth**

48Gbps capacity

**Lossless Long-Distance Transmission**

Active optical technology up to 200m

**Near-Zero Interference**

Low EMI/RFI profile

**Hybrid Fiber/Copper Design**

No external power, ultra-low consumption

**Fast Refresh/Gaming Features**

VRR support

**Advanced Video & Audio**

Dynamic HDR, eARC,
up to 192kHz/24-bit audio

**Smart Protocols**

EDID, ALLM, QMS, QFT, HDCP 2.3

**Flexible Display Modes**

Mirror and extend modes

**Durable Build**

Zinc-alloy, gold-plated connectors

**Broad Compatibility**

MacBook, iPad Pro,
Dell XPS 15, mobile devices

**Customizable**

Custom lengths, logos, packaging

APPLICATIONS



Professional AV &
Digital Signage



Medical Imaging &
Healthcare



Industrial &
Machine Vision



Broadcasting &
Live Streaming



VR/AR & Gaming



HDMI Docking &
Storage



Home &
Consumer Use



Conference rooms
and Other Environments

**BEST FOR**

Environments demanding extended transmission distances without on-site power and high reliability in electromagnetically complex conditions including medical surgery, live event rental, military, shipboard, and temporary staging applications.

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



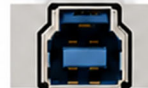
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



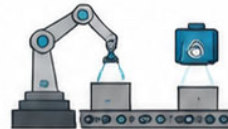
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-40G-DP-M-M 40Gbps Active Fiber Optical DisplayPort 2.1 Extension Cable

Overview

YDSAOC-40G-DP-M-M is a high-performance **DisplayPort 2.1 to DisplayPort 2.1 Active Optical Cable (AOC)** that transmits ultra-high-definition video and audio signals over long distances using advanced fiber optic technology.

Supported Resolutions

8K @ 60Hz, 8K @ 30Hz, 4K @ 144Hz, 4K @ 60Hz, 4K @ 30Hz, 1080p, 1080i, and 720p.



Performance & Signal Quality

- ◆ **Lossless long-distance transmission** — delivers uncompressed 8K, VR, and 3D signals without degradation even over long runs
- ◆ **Practically zero EMI/RFI profile** — high resistance to electromagnetic interference for a safe, radiation-free environment; fiber provides extremely low signal attenuation
- ◆ **Dynamic HDR** — optimizes contrast, depth, brightness, and color gamut on a frame-by-frame basis; compatible with HLG, HDR-10, HDR-10+, Dolby Vision, and Perceptual Quantizer standards
- ◆ **HDCP ready** — future-proof design supports HDCP 2.3 content encryption

Audio Capabilities

- ◆ Supports eARC (Enhanced Audio Return Channel) audio standard
- ◆ High-bitrate audio up to 192kHz / 24-bit
- ◆ Uncompressed 5.1 and 7.1 channel audio
- ◆ Dolby lossless formats and 32-channel uncompressed audio

Gaming & Display Technologies

- ◆ **VRR (Variable Refresh Rate)** — fluid gameplay with minimal lag, judder, and frame tearing
- ◆ **ALLM, QMS, and QFT** support for improved gaming and display performance
- ◆ **EDID with self-detecting function** for automatic configuration
- ◆ **Design & Usability**
- ◆ **Plug-and-play** — no external power supply or driver installation required; ultra-low power consumption (hybrid fiber/copper design)
- ◆ **Detachable, reversible connectors** — attaches in either direction for flexible installation and easy cable management/storage
- ◆ **Durable construction** — corrosion-resistant gold-plated connectors and a strong zinc-alloy housing providing EMI shielding and improved robustness
- ◆ **Customizable** — custom lengths, branding (logo), and packaging available

Compatibility

Backward compatible with DisplayPort **2.1, 2.0, and 1.4** standards

Compatible with all DisplayPort 2.1, 1.4, and 1.2 devices

Works with MacBook, iPad Pro, Dell XPS 15, DisplayPort-enabled mobile phones, Blu-ray players, game consoles, and 4K/8K televisions

YDSAOC





Applications

Professional & Commercial:

- ◆ Digital signage and LED signboards (streets, stadiums, hospitals, malls)
- ◆ Conference rooms and video conferencing equipment
- ◆ Broadcasting and live streaming (4K capture devices, PTZ cameras, production systems)
- ◆ TV and radio broadcast stations
- ◆ Professional AV setups and media players

Industrial & Healthcare:

- ◆ Medical imaging equipment and diagnostic workstations
- ◆ Machine vision and industrial automation systems
- ◆ Security monitoring systems and access control

Consumer & Specialty:

- ◆ Home theater and entertainment systems (Blu-ray, 3D video, projectors, set-top boxes, DVR)
- ◆ Gaming PCs and gaming consoles
- ◆ VR/AR headsets and immersive simulation environments
- ◆ Airport boarding video information systems
- ◆ Airplane on-board video systems
- ◆ DisplayPort docking stations, SSD enclosures, and NAS systems

Best For

Environments requiring **extended data transmission distances without on-site power**, offering **high reliability in electromagnetically complex settings**. Copper cables typically struggle to transmit 4K@60Hz beyond 5 meters and require modular extenders; this fiber optic cable provides a single-cable solution ideal for future-proofing 8K upgrades in demanding scenarios such as medical surgeries, live event rentals, military applications, shipboard installations, and temporary staging.



ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Specifications

YDSAOC Model Number	YDSAOC-40G-DP-M-M
Order Part Numbers	YDSAOC-40G-DP-M-M-1003 YDSAOC-40G-DP-M-M-50015 YDSAOC-40G-DP-M-M-100030 YDSAOC-40G-DP-M-M-5000150 YDSAOC-40G-DP-M-M-10000300
Length	1m(3ft), 5m(15ft), 10m(30t), 50m(150ft), 100m(300ft)
Maximum Support Length	up to 200m(600ft)
Maximum Data Speed	up to 40Gbps (10Gbps per channel)
Full Feature AV Functions	HPD, HDCP2.2, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	DisplayPort 2.1 Type-A Male
Connector B (Display)	DisplayPort 2.1 Type-A Male
DisplayPort Protocols	DP2.1 (UHBR10), DP1.4, DP1.2
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 6x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. DP 2.1 (Source) to DP 2.1 (Display)
Power Connect	Additional Power Supply Required for Long Distance

YDSAOC
Connect Everything. Experience More.



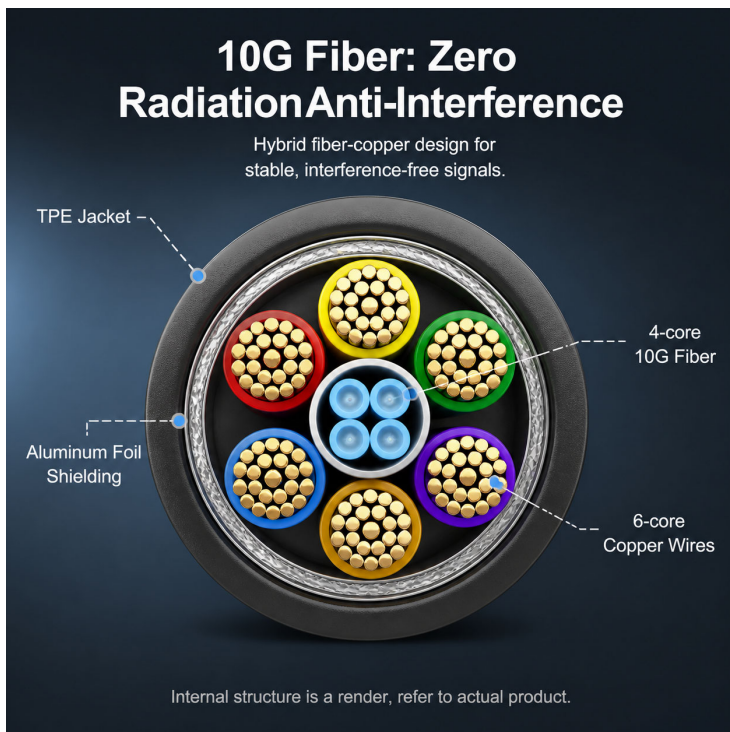
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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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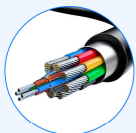
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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



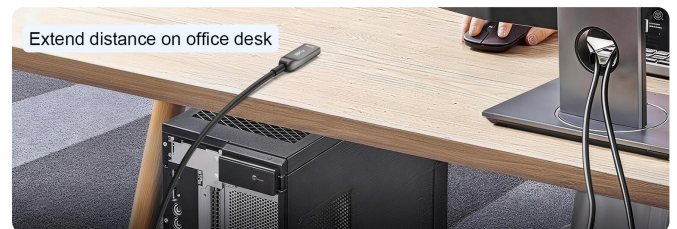
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

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Photonic

Mature Long-life Laser & Chip

Opto-electronic chip design, near-zero signal loss, reliable long-distance transmission.



Flexible Cable One-piece Design

One-piece molded connector & strain relief for durable, break-resistant cable.



Touch Control Pass-Through

Touch-enabled interactive display, not just a secondary screen.



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DisplayPort 2.1 Applications

Powering next-generation displays, systems, and experiences across industries.



PROFESSIONAL & COMMERCIAL	INDUSTRIAL & HEALTHCARE	CONSUMER & SPECIALTY
Digital signage and LED signboards Streets, stadiums, hospitals, malls	Medical imaging equipment and diagnostic workstations	Home theater and entertainment systems Blu-ray, 3D video, projectors, set-top boxes, DVR
Conference rooms and video conferencing equipment	Machine vision and industrial automation systems	Gaming PCs and gaming consoles
Broadcasting and live streaming 4K capture devices, PTZ cameras, production systems	Security monitoring systems and access control	VR/AR headsets and immersive simulation environments
TV and radio broadcast stations	Airplane on-board video systems	Airport boarding video information systems
Professional AV setups and media players	DisplayPort docking stations, SSD enclosures, and NAS systems	DisplayPort docking stations, SSD enclosures, and NAS systems

DP 2.1

Built for Performance.
Designed for the Future.

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YDSAOC-40G-DP-M-M: 8K DisplayPort 2.1 Active Optical Cable

High-performance DisplayPort 2.1 to DisplayPort 2.1 Active Optical Cable (AOC) for ultra-high-definition video and audio transmission over long distances using fiber optic technology.

SUPPORTED RESOLUTIONS



HIGHLIGHT FEATURES



Performance & Signal Quality

- Lossless long-distance transmission
- Practically zero EMI/RFI profile
- Dynamic HDR support
- HDCP 2.3 ready



Audio Capabilities

- eARC audio standard
- High-bitrate audio up to 192kHz/24-bit
- Dolby lossless formats
- 32-channel uncompressed audio



Gaming & Display

- VRR (Variable Refresh Rate)
- ALLM, QMS, QFT support
- EDID auto-configuration



Design & Usability

- Plug-and-play installation
- Reversible connectors
- Corrosion-resistant connectors
- Customizable lengths and branding



APPLICATIONS

Professional



Digital signage



Broadcasting



Conference rooms

Industrial



Medical imaging



Machine vision



Security monitoring

Consumer



Home theater



Gaming



VR/AR headsets



COMPATIBILITY

Backward compatible with DisplayPort 2.1, 2.0, 1.4, and 1.2 standards. Works with MacBook, iPad Pro, Dell XPS 15, mobile phones, Blu-ray players, game consoles, and 4K/8K televisions.



Laptop



Tablet



Smartphone



Blu-ray Player



Game Console



4K/8K TV



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1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



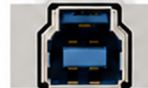
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



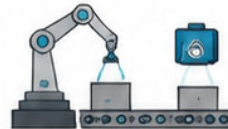
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-32G-MINIDP-M-M

32.4Gbps Active Fiber Optical Mini DisplayPort 1.4 Extension Cable

Overview

YDSAOC-32G-MINIDP-M-M is a high-performance **fiber active optical cable (AOC)** designed to transmit ultra-high-definition 8K video and audio signals over long distances. It connects Mini DisplayPort devices directly to monitors, projectors, TVs, and other display equipment.



Supported Resolutions

8K @ 30Hz, 4K @ 144Hz, 4K @ 60Hz, 4K @ 30Hz, 1080p, 1080i, and 720p.

Key Specifications

- ◆ **Connector type:** Mini DisplayPort 1.4 to Mini DisplayPort 1.4
- ◆ **Maximum length:** Up to 200 meters (600 ft)
- ◆ **Bandwidth:** 32.4 Gbps (HBR3)
- ◆ **Resolution support:** 8K (7680 × 4320)@30Hz, 4K@144Hz, 5K@30Hz, 1080P, 1080i, 720P
- ◆ **Compatibility:** Backward compatible with DisplayPort 1.4, and 1.2 devices

Core Features

- ◆ **8K Ultra HD support** with lossless, uncompressed transmission up to 200m without signal degradation
- ◆ **Plug-and-play** — no drivers or external power required (hybrid fiber/copper design powers over cable)
- ◆ **Minimal signal loss** — extremely low attenuation and near-zero EMI/RFI interference
- ◆ **Advanced video technology** — supports Dynamic HDR, eARC, VRR (gaming), ALLM, QMS, and QFT
- ◆ **High-quality audio** — up to 192kHz, 24-bit, uncompressed 5.1/7.1, Dolby lossless formats, and 32-channel audio
- ◆ **Robust construction** — zinc-alloy housing, corrosion-resistant gold-plated connectors, flexible thin design (4.8mm OD)
- ◆ **Customizable** — available in custom lengths, with custom logo and packaging options



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Compatible Devices

Minimizes setup complexity by working with devices such as MacBook, iPad Pro, Dell XPS 15, and any DisplayPort-enabled phone — no driver installation needed.

Applications

- ◆ Home theaters and entertainment systems
- ◆ Professional AV, conference rooms, and video conferencing
- ◆ Digital signage and LED displays
- ◆ Medical imaging and healthcare equipment
- ◆ Machine vision / industrial automation
- ◆ Gaming and VR/AR setups
- ◆ Broadcasting and live streaming
- ◆ Security monitoring systems
- ◆ Airplane on-board video systems

Best For

Environments requiring **extended-distance transmission without on-site power**, offering high reliability even in electromagnetically complex or demanding conditions — such as medical facilities, live events, broadcasting, military, and shipboard installations.

YDSAOC



Home Theaters and Entertainment Systems



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Key Specifications

YDSAOC Model Number	YDSAOC-32G-MINIDP-M-M
Order Part Numbers	YDSAOC-32G-MINIDP-M-M-1003 YDSAOC-32G-MINIDP-M-M-50015 YDSAOC-32G-MINIDP-M-M-100030 YDSAOC-32G-MINIDP-M-M-5000150 YDSAOC-32G-MINIDP-M-M-10000300
Length	1m(3ft), 5m(15ft), 10m(30t), 50m(150ft), 100m(300ft)
Maximum Support Length	up to 200m(600ft)
Maximum Data Speed	up to 32.4Gbps (8.1Gbps per channel)
Full Feature AV Functions	HPD, HDCP2.2, HDCP, HDR
Maximum Resolutions	8K 60Hz, 4K 60Hz, 4K 30Hz, 1080p, 1080i, 720p
Connector A (Source)	Mini DisplayPort 1.4 Male
Connector B (Display)	Mini DisplayPort 1.4 Male
HDMI Protocols	DP1.4, DP1.2
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 5x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	One Way Direction. DP 1.4 (Source) to DP 1.4 (Display)
Power Connect	Additional Power Supply Required for Long Distance



YDSAOC

EMPOWERING MACHINE VISION AND AUTOMATION



COMPUTER VISION



ROBOTICS



AUTOMATION



QUALITY CONTROL



DATA PROCESSING



RELIABLE CONNECTION

HIGH-RESOLUTION TRANSMISSION

BUILT FOR INDUSTRIAL ENVIRONMENTS

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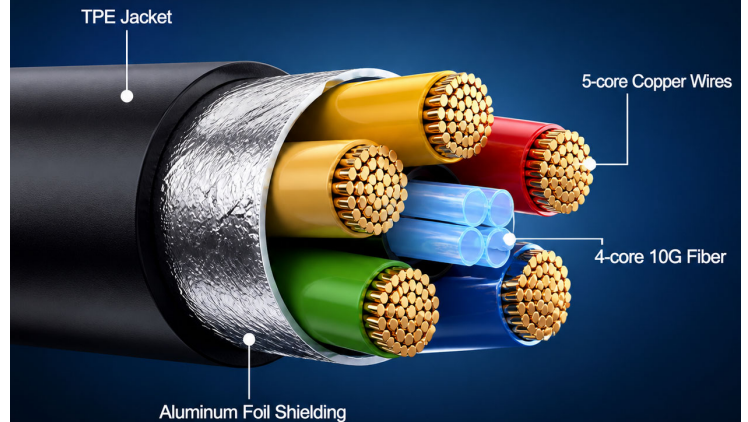
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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Internal structure is a render, refer to actual product.



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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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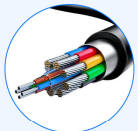
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Zinc Alloy Shell



Sturdy Connector



Tinned Copper Core



Flexible Cable Body

Tear-Resistant & Durable



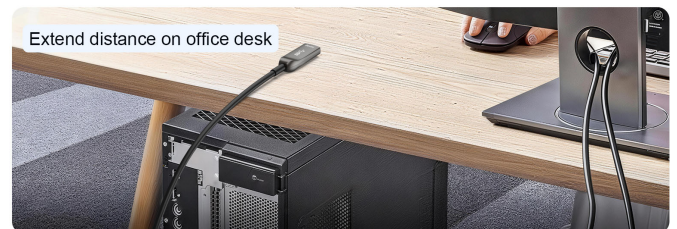
Connect to printer



Connect to camera



Extend distance for digital devices



Extend distance on office desk

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WIDE RANGE OF APPLICATIONS



1 Home theaters and entertainment systems



2 Professional AV, conference rooms, and video conferencing



3 Digital signage and LED displays



4 Medical imaging and healthcare equipment



5 Machine vision / industrial automation



6 Gaming and VR/AR setups



7 Broadcasting and live streaming



8 Security monitoring systems



9 Airplane on-board video systems



ONE CABLE. ENDLESS POSSIBILITIES.

Powerful performance for every professional and personal need.



HIGH SPEED
TRANSMISSION



STABLE &
RELIABLE



DURABLE
BUILD



CRYSTAL-CLEAR
VISUALS



PLUG & PLAY
SIMPLICITY

YDSAOC-32G-MINID P-M-M



Mini DisplayPort 1.4 Active Optical Cable (32.4Gbps)



SPECIFICATIONS



Connector type:

Mini DisplayPort 1.4 to Mini DisplayPort 1.4



Maximum length:

Up to 200 meters (600 ft)



Bandwidth:

32.4 Gbps (HBR3)



Resolution support:

8K (7680 × 4320)@30Hz,
4K@144Hz, 5K@30Hz

KEY FEATURES



8K Ultra HD support

with lossless transmission up to 200m



Plug-and-play

with no drivers or external
power required

Minimal signal loss

and near-zero EMI/RFI interference



Advanced video technology support

(Dynamic HDR, eARC, VRR, ALLM)



High-quality audio

up to 192kHz, 24-bit

Robust corrosion-resistant
construction

APPLICATIONS

Home
theatersProfessional
AVDigital
signageMedical
imagingMachine
visionGaming and
VR/AR

Broadcasting

Security
monitoring32.4Gbps
High Bandwidth8K@30Hz
High ResolutionAOC Technology
Long Distance TransmissionReliable & Durable
Premium Quality

* Specifications are subject to change without notice.

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



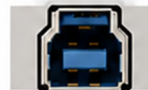
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



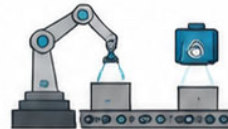
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play



YDSAOC-32G-DP-AM-HDMI-AM

DP 1.4 Type A to HDMI 2.1 32.4Gbps Active Fiber Optical Extension Cable

Overview

YDSAOC-32G-DP-AM-HDMI-AM is a high-performance **Active Optical Cable (AOC)** that converts and extends video/audio signals from a **DisplayPort 1.4** source to an **HDMI 2.1** display. It supports resolutions up to **8K @ 60Hz** and **4K @ 120Hz** over distances of up to **100 meters (300 feet)** — well beyond the reach of traditional copper cables.



Key Features

- ◆ **High Resolution Support:** Delivers 8K60, 4K120, 4K60, 4K30, 1080p/1080i, and 720p video signals.
- ◆ **High Data Rate:** Provides up to **32.4 Gbps** of bandwidth per the HDMI 2.1 specification.
- ◆ **Hybrid Fiber/Copper Design:** Combines fiber and copper for extremely low signal loss, superior EMI/RFI immunity, and a thinner, lighter, more flexible cable.
- ◆ **Plug-and-Play:** Requires **no external power supply or driver installation**; operates with ultra-low power consumption (**<0.5W per end**).
- ◆ **Zero EMI/RFI Interference:** Practically radiation-free operation for flawless performance in sensitive environments.
- ◆ **Audio/Video Synchronization:** Transmits audio and video simultaneously, supporting mirror and extend display modes.
- ◆ **Enhanced Audio & Visuals:** Supports HDR, BT.2020 colorimetry, 21:9 cinema aspect ratio, and up to **32 audio channels** (1536 kHz sampling); includes PCM 8-Channel, DTS-HD, and Dolby TrueHD.
- ◆ **Broad Compatibility:** Backward compatible with DP 1.2, HDMI 1.4, and HDMI 2.1 devices; supports HDCP, EDID, CEC, and DDC.
- ◆ **Robust Construction:** Zinc alloy connectors with latching design for durability and anti-interference; suitable for pipe wiring and tight-space routing.
- ◆ **Unidirectional Design:** Dedicated source and display connectors for simple, foolproof installation.
- ◆ **Customizable:** Available in lengths up to 100m, with options for custom length, logo, and packaging.



Intended Applications

- ◆ Home entertainment and home theater systems
- ◆ Professional AV, broadcast, and live streaming setups
- ◆ Conference rooms and video conferencing (e.g., Logitech Rally, Yealink MeetingBar, Poly Studio, Bose, Crestron)
- ◆ Digital signage and LED video walls
- ◆ Medical imaging and healthcare equipment
- ◆ Industrial/machine vision and AI inspection systems
- ◆ VR/AR headsets and gaming setups
- ◆ Airplane on-board video, security monitoring, and DVR systems
- ◆ DP docking stations and external storage workflows

Ideal Use Case The cable is best suited for environments requiring **long-distance data transmission without on-site power**, where high reliability is needed in electromagnetically complex settings. Its plug-and-play, all-in-one design eliminates the multiple failure points typical of traditional extender setups, making it an ideal solution for demanding Ultra HD AV applications.

YDSAOC

Conference Rooms & Video Conferencing





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Key Specifications

YDSAOC Model Number	YDSAOC-32G-DP-AM-HDMI-AM
Order Part Numbers	YDSAOC-32G-DP-AM-HDMI-AM-1003 YDSAOC-32G-DP-AM-HDMI-AM-50015 YDSAOC-32G-DP-AM-HDMI-AM-100030 YDSAOC-32G-DP-AM-HDMI-AM-150045 YDSAOC-32G-DP-AM-HDMI-AM-200060
Length	1m(3ft), 5m(15ft), 10m(30t), 15m(45ft). 20m(60ft)
Maximum Support Length	up to 100m(300ft)
Maximum Data Speed	up to 32.4Gbps (8.1Gbps per channel)
Full Feature AV Functions	HPD, HDCP, HDR
Maximum Resolutions	8K 60Hz/30Hz, 4K 120Hz/60Hz/30Hz, 1080p/I, 720p
Connector A (Source)	DisplayPort 1.4 Type-A Male
Connector B (Display)	HDMI 2.1 Type-A Male
DisplayPort Protocols	DP1.4 Conversion to HDMI 2.1 ALT Mode
Support Functions	DP: HBR3, DisplayPort 1.4: 32.4 Gbps
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 5x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Installation Direction	One Way Direction. DP1.4 (Source) to HDMI (Display)
Power Connect	No External Power is Required

YDSAOC



DIGITAL SIGNAGE & LED VIDEO WALLS

Powerful Visuals. Seamless Connection.

Deliver stunning 4K/8K content with unmatched clarity and reliability. Our HDMI 2.1 solutions ensure high-performance connectivity for digital signage and LED video wall applications.



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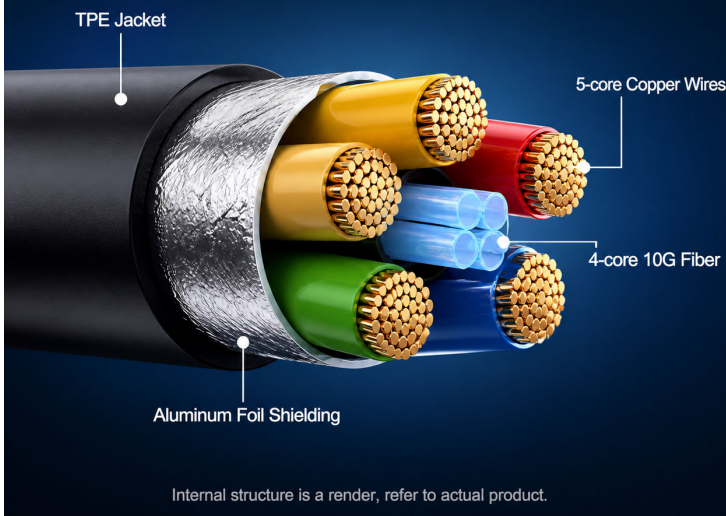
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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Touch Control Pass-Through

Touch-enabled interactive display, not just a secondary screen.



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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



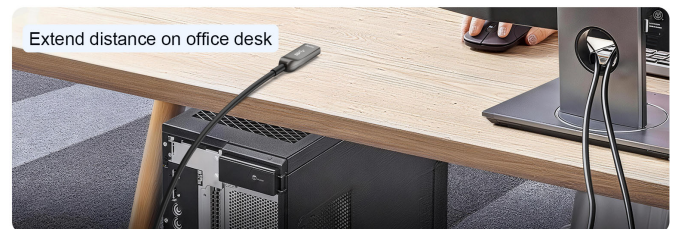
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ACTIVE OPTICAL CABLES

your best fiber optics partner



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Photonic

Mature Long-life Laser & Chip

Opto-electronic chip design, near-zero signal loss, reliable long-distance transmission.



Flexible Cable One-piece Design

One-piece molded connector & strain relief for durable, break-resistant cable.



Fiber Optic, Interference-Free

Superior EMI Resistance

PS: Internal structure for rendering only.

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DP 1.4 to HDMI 2.1 Cable

WIDE RANGE OF APPLICATIONS



1 Home entertainment and home theater systems



2 Professional AV, broadcast, and live streaming setups



3 Conference rooms and video conferencing



4 Digital signage and LED video walls



5 Medical imaging and healthcare equipment



6 Industrial/machine vision and AI inspection systems



7 VR/AR headsets and gaming setups



8 Airplane on-board video, security monitoring, and DVR systems



9 DP docking stations and external storage workflows.



8K
60Hz
8K Ultra HD
Up to 8K@60Hz
and 4K@120Hz



48
Gbps
High Bandwidth
Up to 48Gbps
for ultra-smooth
performance



HDR
Dynamic HDR
Vivid colors and
enhanced contrast



VRR
VRR & ALLM
Lag-free gaming
with variable
refresh rate



Durable Build
Premium materials
for reliable
performance



Plug & Play
No drivers required,
easy and convenient
to use



☞ From Source to Stunning Display | ☞ One Cable. Limitless Possibilities.

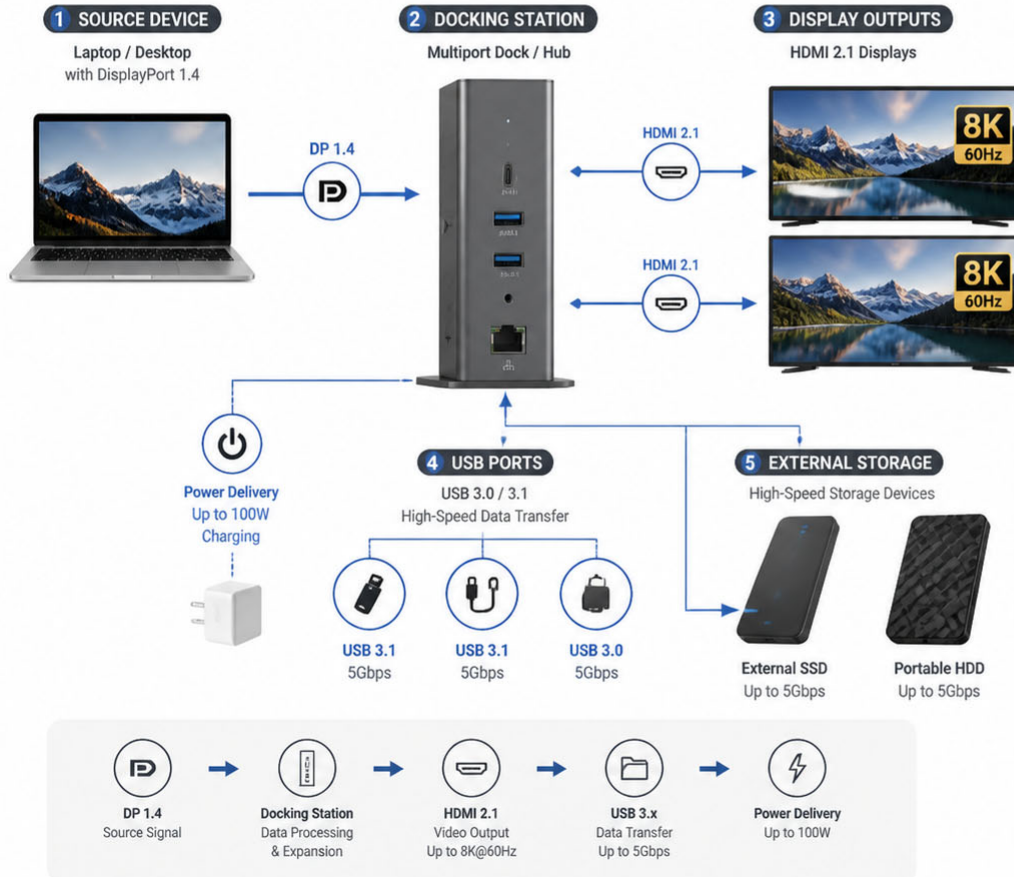
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YDSAOC

DP DOCKING STATION & EXTERNAL STORAGE WORKFLOW

Connect • Expand • Transfer • Display



DP 1.4 to HDMI 2.1 Cable

- DP 1.4 to HDMI 2.1** High Performance Unidirectional Cable
- 8K 60Hz** 8K@60Hz / 4K@120Hz Ultra HD Display Support
- Premium Build** Nylon Braided Cable
- Plug & Play** No Drivers Required



Home Entertainment System

Home Theater Setup

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YDSAOC-32G-DP-AM-HDMI-AM

DisplayPort 1.4 to HDMI 2.1 Active Optical Cable



PRODUCT OVERVIEW

High-performance Active Optical Cable (AOC) that converts and extends video/audio signals from DisplayPort 1.4 source to HDMI 2.1 display.

Supports resolutions up to 8K @ 60Hz and 4K @ 120Hz over distances up to 100 meters (300 feet).

KEY FEATURES



High Resolution Support:

8K60, 4K120, 4K60, 4K30, 1080p/1080i, 720p



High Data Rate:

32.4 Gbps bandwidth (HDMI 2.1)



Hybrid Fiber/Copper Design:

Low signal loss, superior EMI/RFI immunity



Plug-and-Play:

No external power or drivers needed (<0.5W per end)



Zero EMI/RFI Interference:

Radiation-free operation



Enhanced Audio & Visuals:

HDR, 32 audio channels, PCM 8-Channel, DTS-HD, Dolby TrueHD

TECHNICAL HIGHLIGHTS



100 Meters Range

Long distance capability for flexible installations



32.4 Gbps

High bandwidth for ultra-high performance



Plug & Play

Easy installation without external power or drivers

APPLICATIONS



HOME ENTERTAINMENT & THEATER



Perfect for 8K home theaters, gaming setups, and premium entertainment systems.



PROFESSIONAL AV & BROADCASTING



Ideal for studio, live events, digital signage, and professional AV installations.



MEDICAL & HEALTHCARE IMAGING



Supports high-resolution medical imaging and diagnostic display applications.

High Performance • Long Distance • Zero Interference • Future Ready

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1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



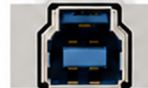
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

Applications of Active Optical Cable (AOC)

High-speed, long-distance connectivity across diverse industries.



1 Traffic Monitoring

Uninterrupted connectivity for real-time traffic data, safety and efficiency.



2 Security & Surveillance

HD/4K/8K video support, effective monitoring without downtime.



3 Control Rooms

Ultra-high bandwidth for instantaneous data and video switching.



4 Healthcare

EMI/RFI immunity ensures reliable transmission in medical environments.



5 Education

Connectivity in large lecture halls, overcoming copper cable limits.



6 Digital Signage

High-quality displays with consistent transmission of information.



7 Conference Rooms

Plug-and-play design makes connectivity easy for presenters.



8 Government Campuses

Thinner and more flexible than copper, reducing cable clutter.



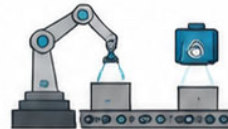
9 USB4 Applications

Extends reach while maintaining power and signal integrity.



10 Audio Visual Entertainment

Superior signal quality for home theaters and gaming.



11 Industrial & Machine Vision

Durable, high-performance for automated inspection.



12 Broadcast Systems

High bandwidth and low latency for seamless content delivery.



13 Simulation Systems

Real-time transmission for realistic training.



14 Data Centers & HPC

Pivotal for high-performance computing and extensive configurations.



15 Consumer Electronics & IT

High-res displays, VR devices, and high-bandwidth apps.



16 Aerospace, Defense & Automotive

High-speed, robust connectivity for critical sectors.

Core Benefits



Reliability



Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play

YDSAOC-4G-DVI-D-M-M 4.455Gbps Active Fiber Optical DVI-D Extension Cable

Overview

YDSAOC-4G-DVI-D-M-M is a high-speed **DVI-D Active Optical Cable (AOC)** that integrates fiber optic technology with DVI connectivity to overcome the distance and interference limitations of traditional copper cables. Also referred to as a Fiber Optic DVI Cable, Optical DVI Cable, or Hybrid DVI AOC, it delivers lossless, plug-and-play high-bandwidth connections at up to **4.455Gbps** over distances of up to **200 meters**.



Key Features

- ♦ **High Bandwidth:** Compliant with the latest DVI-D standards, supporting super-speed data transfer up to 4.455Gbps.
- ♦ **Extended Distance:** Delivers lossless signal transmission up to 200 meters (600 feet), far exceeding copper cable limits.
- ♦ **Easy Installation:** Plug-and-play on both ends with a unidirectional design—no configuration required.
- ♦ **No External Power Needed:** Powered by the DVI source via DDC 5V, eliminating the need for AC adapters or USB power.
- ♦ **Excellent EMI/RFI Resistance:** Nearly zero electromagnetic/radio-frequency interference profile, ensuring stable, radiation-free operation in complex environments.
- ♦ **Hybrid Fiber/Copper Design:** Combines optical fibers with copper wiring for a thinner, lighter, and more flexible cable (50mm bend radius) compared to conventional copper cables.
- ♦ **Customizable Options:** Available in custom lengths (up to 200m), logos, and packaging.
- ♦ **Broad Compatibility:** Supports DVI 1.0 and HDCP 1.4; works with Windows, Mac OS, and Linux.
- ♦ **Lossless Transmission:** Transmits WUXGA (1920x1200) at 60Hz or 1080p/4K30Hz signals without scaling or compression.
- ♦ **Certifications:** Meets FCC/CE standards for EMI/RFI emissions.



Technical Specifications

- ♦ **Interface:** DVI-D Male to DVI-D Male (locked screws on connectors)
- ♦ **Data Rate:** Up to 1.485 Gbps per lane / 4.455 Gbps total
- ♦ **Maximum Length:** 200 meters
- ♦ **Power:** Supports 5V / 900mA max, sourced directly from the DVI port
- ♦ **Signal Compliance:** DVI 1.0, HDCP 1.4, EDID, DDC communications

Applications

The cable is well-suited for environments requiring extended distances, no on-site power, and high reliability in electromagnetically complex settings:

Machine vision and Camera Link systems

Medical imaging equipment

Home theater, Blu-ray, 3D video, projectors, set-top boxes, DVRs, and game consoles

LED signboards and stadium displays

Radio and TV broadcast stations

Airplane on-board video systems

Conference rooms and video conferencing equipment

Digital signage and security monitoring

Industrial control and device sharing (print, scan, storage)

KVM extension and remote desktop connections

Best Use Cases

Ideal for environments demanding **long-distance data transmission without on-site power**, combined with **high reliability in electromagnetically noisy surroundings**—particularly machine vision, medical imaging, digital signage, and broadcast applications.



ACTIVE OPTICAL CABLES

your best fiber optics partner

Key Specifications

YDSAOC Model Number	YDSAOC-4G-DVI-D-M-M
Order Part Numbers	YDSAOC-4G-DVI-D-M-M-SW1003 YDSAOC-4G-DVI-D-M-M-SW50015 YDSAOC-4G-DVI-D-M-M-SW100030 YDSAOC-4G-DVI-D-M-M-SW5000150 YDSAOC-4G-DVI-D-M-M-SW10000300
Length	1m(3ft), 5m(15ft), 10m(30t), 50m(150ft), 100m(300ft)
Maximum Support Length	up to 200m(600ft)
Maximum Data Speed	up to 4.455Gbps (1.485Gbps per channel)
Full Feature AV Functions	EDID
Maximum Resolutions	1080p, 1080i, 720p
Connector A (Source)	DVI-D Male with Screws
Connector B (Display)	DVI-D Male with Screws
Cable Diameter	4.8mm
Cable Jacket Type	PVC
Cable Color	Black
AOC Constructions	Hybrid, 4x Optical Fiber, 5x Copper Wire
Minimum Bending Radius	50mm
Operating Temperature	0°C to 70°C
Storage Temperature	- 40°C to 85°C
Installation Direction	One Way Direction. DVI-D (Source) to DVI-D (Display)
Power Connect	Additional Power Supply Required for Long Distance

YDSAOC

Reliable Connectivity for Broadcast Excellence

High-performance DVI cable assembly solutions designed for professional broadcast environments.

- High Definition**
Crystal-clear signal transmission
- Reliable Performance**
Stable connectivity for 24/7 operation
- Professional Grade**
Built for broadcast and media applications
- Easy Integration**
Plug-and-play compatibility



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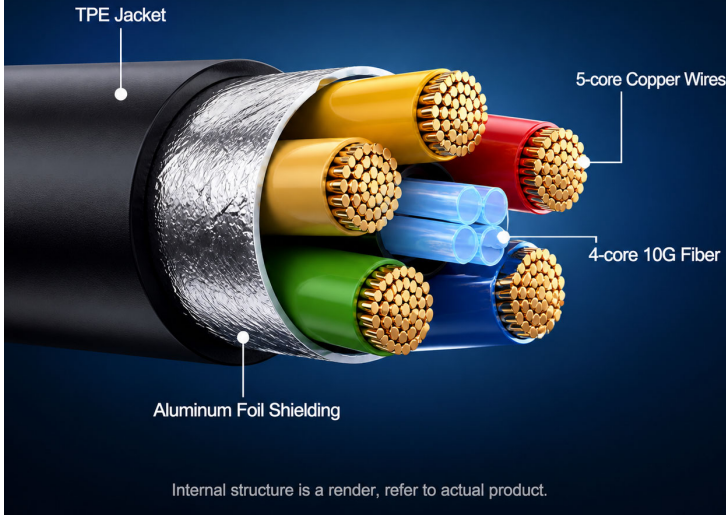


ACTIVE OPTICAL CABLES

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10G Fiber: Zero Radiation Anti-Interference

Hybrid fiber-copper design for stable, interference-free signals.



Touch Control Pass-Through

Touch-enabled interactive display, not just a secondary screen.



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8K Ultra HD Screen Mirroring

Up to 8K@60Hz, 4K@144Hz/120Hz Resolution



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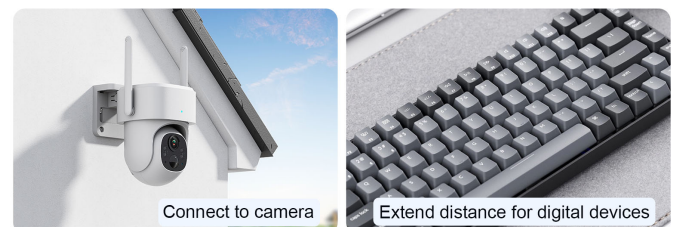
Zinc Alloy Shell

Sturdy Connector

Tinned Copper Core

Flexible Cable Body

Tear-Resistant & Durable



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YDSAOC

AIRPLANE ON-BOARD VIDEO SYSTEMS



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KVM Extension

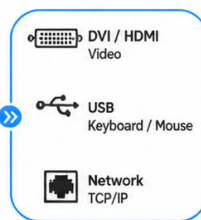
Remote Desktop Connection

Extended Reach

YDSAOC



Computer / Server



KVM Extender



Remote Desktop



TCP/IP Network



Extended Reach
Transmit KVM signals over long distances via TCP/IP network



High Performance
Support up to 1080P high-definition video transmission



KVM Control
Keyboard, mouse and video control over the network



Stable & Reliable
Low latency, stable connection for mission-critical applications

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Applications

Reliable high-speed connectivity for demanding environments



Well-suited for extended distances, no on-site power, and high reliability in electromagnetically complex settings.



Machine vision and Camera Link systems



Medical imaging equipment



Home theater, Blu-ray, 3D video, projectors, set-top boxes, DVRs, and game consoles



LED signboards and stadium displays



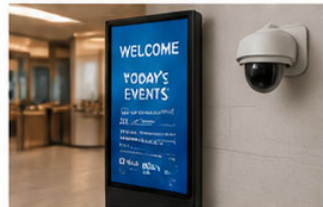
Radio and TV broadcast stations



Airplane on-board video systems



Conference rooms and video conferencing equipment



Digital signage and security monitoring



Industrial control and device sharing (print, scan, storage)



KVM extension and remote desktop connections



YDSAOC 4.455Gbps Active Fiber Optical DVI-D Extension Cable



PRODUCT OVERVIEW

YDSAOC-4G-DVI-D-M-M is a high-speed DVI-D Active Optical Cable that integrates fiber optic technology with DVI connectivity. Delivers lossless, plug-and-play connections at up to 4.455Gbps over distances of up to 200 meters.



KEY FEATURES



High Bandwidth
Up to 4.455Gbps data transfer



Extended Distance
200 meters lossless transmission



Installation
Plug-and-play, no configuration



No External Power
Powered directly by DVI source via 5V DDC



EMI/RFI Resistant
Zero electromagnetic interference



Hybrid Design
Thinner, lighter, flexible (50mm bend radius)



Customizable
Available in custom lengths and packaging



Broad Compatibility
DVI 1.0, HDCP 1.4, Windows/Mac/Linux



TECHNICAL SPECIFICATIONS

	Interface:	DVI-D Male to DVI-D Male
	Data Rate:	4.455 Gbps total
	Maximum Length:	200 meters
	Power:	5V / 900mA max from DVI port
	Signal Compliance:	DVI 1.0, HDCP 1.4, EDID, DDC



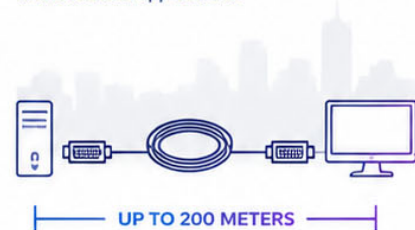
APPLICATIONS

- Machine vision
- Medical imaging
- Home theater
- LED displays
- Broadcast
- Airplane systems
- Video conferencing
- Digital signage
- Security monitoring
- Industrial control



BEST USE CASES

Ideal for long-distance transmission without on-site power in electromagnetically complex environments—particularly machine vision, medical imaging, digital signage, and broadcast applications.



Lossless Transmission
High-quality, uncompressed video at up to 4.455Gbps



Lightweight & Flexible
Hybrid fiber design for easy routing and installation



Reliable & Durable
Built for demanding environments



Global Compatibility
Works across major platforms and systems

1. DisplayPort 1.4



2. Mini DisplayPort



3. HDMI 2.1



4. Mini HDMI (Type C)



5. Micro HDMI (Type D)



6. DVI-D



7. VGA



8. USB-C



9. Thunderbolt 4
(USB-C form factor,
40 Gbps) ⚡



10. Toslink



Row 1 - Legacy/USB 2.0 Connectors



USB Type A



USB Type B



USB Mini A



USB Mini B



USB Micro A



USB Micro B

Row 2 - Modern Connectors



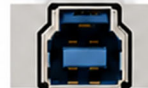
USB Type C



USB Micro B 3.0



USB 3.0 Type A



USB 3.0 Type B



USB 3.0 Micro B

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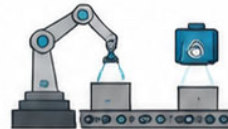
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Long Distance



EMI Immunity



High Bandwidth



Flexible Installation



Power Delivery



Plug-and-Play