

Armored HDMI 2.1 Active Optical Cable (AOC) Type A (Male) to Type A (Male) AOC

Model: VDC-HAF21-XXXM



PRODUCT OVERVIEW

Our **Armored HDMI 2.1 Active Optical Cable (AOC)** provides a robust and efficient solution for long-distance HDMI connections. With support for an impressive data rate of 12 Gbps per channel, totalling 48 Gbps, this cable guarantees high-speed performance. Its 200CU stainless steel armored construction ensures exceptional durability and protection against physical damage, while the lightweight and flexible design, featuring an ultra-small long-term bending radius of 45mm, allows for easy installation. The advanced optical engine embedded within the cable maintains full HDMI signal integrity over distances up to 100 meters. Additionally, it is a plug-and-play device that requires no external power, making it a convenient and reliable choice for any high-definition audio and video needs.



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KEY FEATURES

- **Compatible with HDMI 2.1 Standard:** Ensures compatibility with the latest HDMI standard for ultra-high-definition audio and video transmission up to 48Gbps.
- **Supports HDCP 2.3:** Allows secure transmission of encrypted content, essential for protected media playback.
- **Supports Computer Resolutions:** Capable of handling computer resolutions up to 8K@60Hz, delivering sharp and clear digital images.
- **Hybrid Optical Cable:** Combines fiber optics and copper wires to leverage the benefits of both technologies, ensuring reliable signal transmission.
- **Up to 100m Maximum Length:** Supports long-distance transmission up to 100 meters, with custom lengths available for specific installations.
- **Low Power Consumption:** Energy-efficient design with a maximum power consumption of 250mW, minimizing operational costs.
- **Plug and Play:** Easy installation with plug-and-play functionality, requiring no additional power source.
- **Self-Detecting Function for EDID Information:** Automatically detects and adjusts to connected devices' display capabilities, ensuring optimal performance.
- **No Loss of Signal:** Delivers crystal-clear digital images instantly, without signal degradation.
- **Crush Resistance:** Designed for durability, with a crush resistance of up to 100kg long-term and 200kg short-term, suitable for rigorous environments.

APPLICATIONS

Examples of professional, industrial, and demanding environments where the durability and protection of Armored HDMI 2.1 Active Optical Cables are beneficial include:

- Indoor and Outdoor Digital Signage, Event Displays and LED Signboards
- Medical Imaging Equipment
- Airplane On-board Video Systems
- TV Broadcast Stations
- Conference Room Video Equipment
- Security Systems
- Industrial Automation Systems
- Military and Defence Applications

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PRODUCT SPECIFICATIONS

Recommended Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Power Supply Voltage	VCC	4.75	5.0	5.25	V
Operating Temperature	Top	-40 (max rating 0)		80 (max rating 50)	°C
Storage Temperature	Ts	-40		70	°C
Relative Humidity	Hs	10		80	% RH

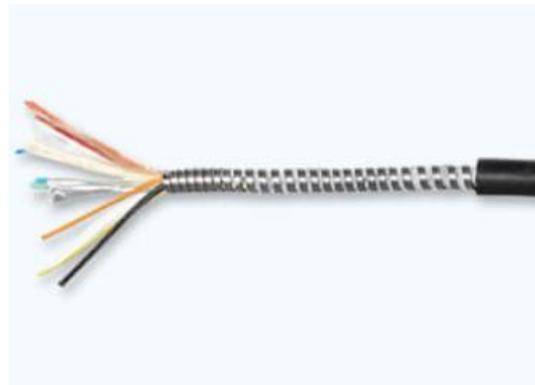
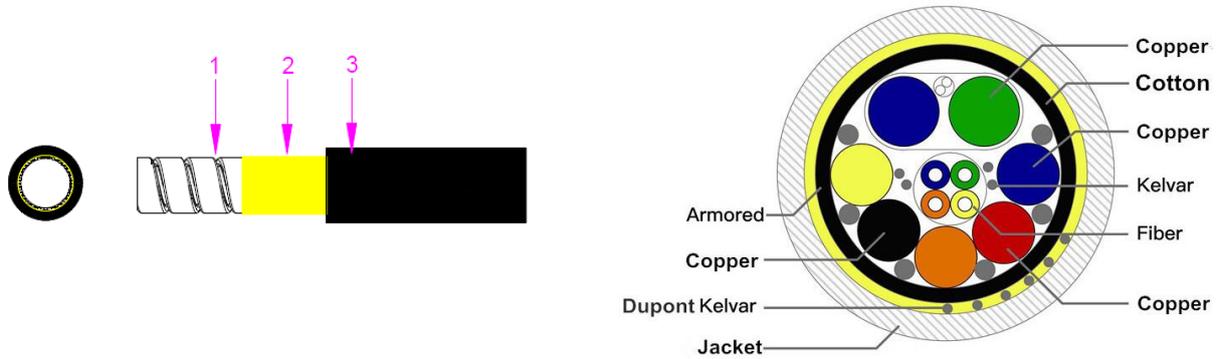
Specifications

Parameter	Descriptions	
Units	Transmitter (Source)	Receiver (Sink)
HDCP & DDC	HDCP 2.3 supports bi-directional EDID and HDCP communications	
Video Bandwidth	48 Gbps total (12 Gbps per channel, 4 channels)	
Supported Resolution and Distance	480p, 720p, 1080i and 1080p deep color, 4Kp50/60/100/120 and 8Kp50/60 up to 100m	
O/E Converter	4 Channel 850nm VCSEL array	4 CH GaAs PD array
Connector Type	HDMI Type A	
Cable Type	Armored Hybrid Type with OM3 fiber and copper wire	
Cable Length Available*	10m, 15m, 20m, 25m, 30m, 40m, 50m, 70m, 90m, 100m	
Cable Outer Diameter	5.8mm	
Jacket Outer Material	TPU	
Cable Weight	Varies with Length	
Cable Color	Black	
Differential Input	100 ohm (Typical)	
Power Consumption	250mW (Max)	
Power Supply	External Power Adapter is not required	

* Item is subject to build on demand depending on stock availability. As such, a minimum order quantity of 5 per P/N may be required.

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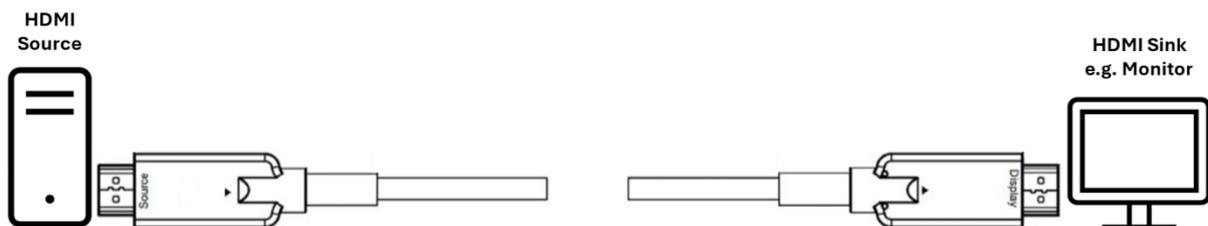
HYBRID CABLE PROFILE



Cable Structure		Material / Model	Specifications
1	Metal Tube	200CU Stainless Steel	4.4 ± 0.1
2	To Strengthen the Unit	Dupont Kevlar	1670D*4
3	Jacket	TPU	OD 5.8 ± 0.2mm

Tensile (N)		Crush Resistance (N/100mm)		Bending Radius (mm)		Temperature (°C)
Long Term	Short Term	Long Term	Short Term	Dynamic	Static	
400	800	1000	2000	10D	20D	

CONNECTION DIAGRAM



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Handling and Installation

Proper installation and handling of HDMI active optical cables are crucial to ensure optimal performance and longevity. When installing the cable, make sure to handle it with care, avoiding any sharp bends or kinks that could damage the delicate optical fibers inside. Securely connect one end of the cable to the HDMI source device, ensuring a snug fit to prevent any signal loss. Similarly, connect the other end to the display device, ensuring a secure connection. Avoid placing excessive strain on the connectors by providing adequate support and avoiding unnecessary tension. When handling the cable, avoid pulling or twisting it excessively, and always disconnect devices by gripping the connectors rather than pulling on the cable itself. Following these guidelines will help maintain signal integrity and ensure reliable transmission of high-definition content.

Additional Notes:

- **Directional Use:** This cable can only be used in one direction. The connectors are marked with “Source” and “Display”. Each connector must be plugged into the correct port to avoid signal loss.
- **No Intermediate Adapters and Cables:** It is not recommended to use intermediate adapters or cables between the connections. This can attenuate signal transmission performance and may result in insufficient power being supplied to the HDMI connection, preventing the internal fiber optic module from functioning correctly.

PACKAGE CONTENTS

- 1 × Armored HDMI 2.1 Active Optical Cable

WARRANTY

- 2-Year Limited Warranty
- Advance Replacement Warranty is available and optional

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ORDERING INFORMATION

Part Number*	Descriptions	Length
VDC-HAF21-010M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 10m	10m
VDC-HAF21-015M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 15m	15m
VDC-HAF21-020M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 20m	20m
VDC-HAF21-025M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 25m	25m
VDC-HAF21-030M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 30m	30m
VDC-HAF21-040M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 40m	40m
VDC-HAF21-050M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 50m	50m
VDC-HAF21-070M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 70m	70m
VDC-HAF21-090M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 90m	90m
VDC-HAF21-100M	Armored HDMI 2.1 Type A (Male) to Type A (Male) AOC, 8K60, 48Gbps, TPU, 100m	100m

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CONTACT INFORMATION

For more information, please visit our website or contact our customer service team:

- **Website:** www.dsgio.com
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