

8K Ultra Slim Armored HDMI AOC CABLE

48Gbps Aggregate Bandwidth	8K@60Hz 4K@120Hz High-Resolution Video	30m Maximum Standard Length
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Model: SSAC-9860

Technical Specification

ECN Change History Form

Edition	Release Date	Change Details	Prepare	Examine and verify	Ratify
1.1	2026-09-07	Revised The Spec	HuangXiting		

I. Product Overview

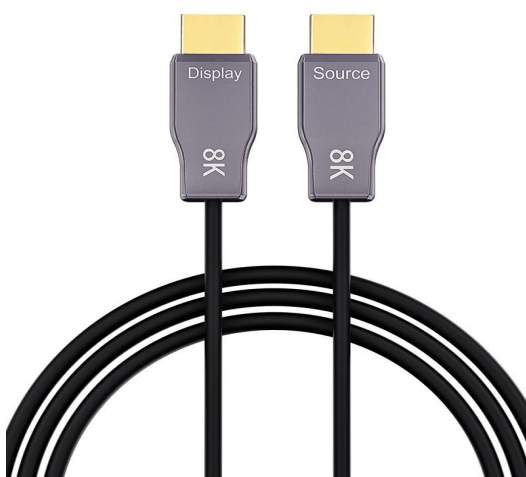
The Smartavlink SSAC-9860 is an ultra-slim armored HDMI 8K Active Optical Cable designed for space-constrained professional AV and residential installations. Its hybrid OM3 optical-fiber and copper architecture supports high-speed transmission over lengths up to 30 m while maintaining a cable outer diameter of only 3.8 mm.

Designed for HDMI 2.1 connectivity, the cable provides aggregate bandwidth up to 48 Gbps through FRL transmission and supports resolutions up to 8K60 and 4K120. It supports eARC, ARC, HDMI-CEC, VRR, Dynamic HDR, QMS, QFT, ALLM, DSC, HDCP 2.2/2.3 and bidirectional EDID communication. No external power supply is required under normal supported operating conditions.

Multi-Level Tensile Reinforcement

Reinforcement yarns are integrated into the individual conductors, functional elements and overall cable structure to distribute tensile stress more evenly. This design helps reduce mechanical strain on the fine copper conductors and optical fibers, improving structural stability during installation, bending and long-term use.

Combined with stainless-steel spiral armor and a durable TPU outer jacket, the cable provides enhanced protection against pulling, crushing, impact and everyday installation damage while maintaining a compact 3.8 mm outer diameter.



II. Important Information

1. Active Optical Cable Operation

This product is an Active Optical Cable with integrated electrical-to-optical and optical-to-electrical conversion. System compatibility can vary by source, display, adapter and firmware. Contact technical support if link training or compatibility issues occur.

2. Directional Installation

The cable is directional. Connect the plug marked SOURCE to the output device and the plug marked DISPLAY to the television, monitor or projector. Reversing the plugs will prevent normal signal transmission.

3. Installation and Bend Control

Handle the cable carefully and avoid sharp bends, kinks, twisting and excessive pulling. Maintain a long-term bending radius of at least 38 mm. Do not use the connector or HDMI contacts as the pulling point during installation.

4. Power Supply

The SSAC-9860 is designed to operate without an external power supply. Confirm that the source and display meet HDMI power requirements. If a specific project uses an auxiliary-power configuration, follow the instructions supplied with that configuration.

5. Electrostatic Discharge Protection

The optical conversion electronics are sensitive to electrostatic discharge. Do not touch the connector contacts. Keep both plugs clean and dry, and discharge static electricity before connection.

6. Environmental Conditions

Do not use or store the cable in wet, corrosive or out-of-range environments. Keep the connectors protected from dust and moisture. Operating temperature is 0 to 50 degrees C; storage temperature is -40 to 70 degrees C.

7. Basic Troubleshooting

If no image appears after power-up:

1. Confirm that SOURCE and DISPLAY are connected in the correct direction.
2. Select the correct HDMI input on the display.
3. Power-cycle the equipment and securely reconnect both plugs.
4. If the issue continues, test at a lower resolution and contact technical support.

III. Key Features

- Ultra-slim 3.8 mm armored HDMI 2.1 Active Optical Cable for lengths up to 30 m
- HDMI 2.1 FRL transmission supports up to 8K50/60, 4K50/60/100/120, 1080p Deep Color, 1080i and 720p
- Up to 48 Gbps aggregate bandwidth
- Clearly marked SOURCE and DISPLAY plugs simplify directional installation
- Hybrid OM3 optical fiber and copper architecture for high-speed AV transmission
- Supports HDCP 2.2/2.3 and bidirectional EDID communication
- 4-channel 850 nm VCSEL transmitter and 4-channel GaAs photodiode receiver
- Supports Dynamic HDR and 3D video formats
- Optical signal path provides high immunity to EMI and RFI; automatic EDID detection
- Distributed reinforcement yarns help reduce tensile stress on conductors and optical fibers
- Stainless-steel spiral armor improves protection against crushing, impact and installation damage
- Durable TPU outer jacket and 38 mm long-term bending radius for confined routing
- Supports eARC, ARC and HDMI-CEC, plus VRR, ALLM, QFT, QMS and DSC

IV. Technical Specifications

4.1 SSAC-9860 performance and construction specifications are listed below.

Parameter	Specification
Connector	2 x HDMI Type A 19-pin male
Cable construction	Armored hybrid cable with OM3 multimode fiber, copper conductors and distributed reinforcement yarns
Video bandwidth	Up to 48 Gbps aggregate; 12 Gbps x 4 channels maximum
Supported video formats	480p, 720p, 1080i, 1080p Deep Color, 4K50/60/100/120 and 8K50/60
Maximum standard length	Up to 30 m; 5/10/15/20/30 m standard options eARC via 15M
Cable outer diameter	3.8 mm
Long-term bending radius	38 mm minimum
Outer jacket	Black TPU, custom options subject to confirmation
Armor	Stainless-steel spiral armor
Optical conversion	4-channel 850 nm VCSEL transmitter; 4-channel GaAs photodiode receiver

HDCP and EDID	HDCP 2.2/2.3; bidirectional EDID communication; HDMI-CEC support
Power consumption	250 mW maximum
Power supply	No external power supply required
Operating temperature	0 to 50 degrees C
Storage temperature	-40 to 70 degrees C
Relative humidity	10 to 80% RH
Signal direction	SOURCE to transmitting device; DISPLAY to receiving device
HDMI 2.1 functions	FRL transmission, eARC, ARC, HDMI-CEC, VRR, Dynamic HDR, QMS, QFT, ALLM and DSC

V.Interface Definition

5.1 SavLink8K Ultra High Speed HDMI Active Optical Cable pin configurations are perfectly mirrored to ensure reliable insertion detection and high-speed signal integrity.

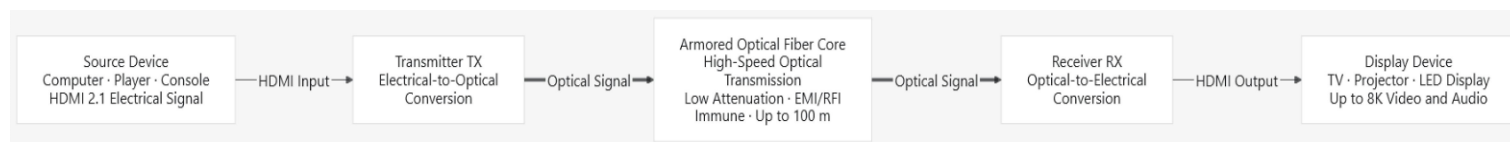
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VI. Operating Principle

Transmitter: The SOURCE-side module converts high-speed electrical HDMI signals into optical signals using a 4-channel 850 nm VCSEL array.

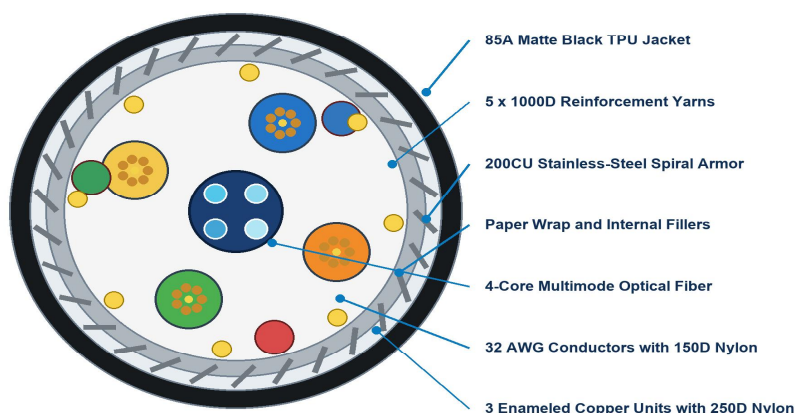
Hybrid cable: High-speed signals travel through OM3 multimode optical fibers, while copper conductors support control, power and low-speed communication functions. The optical path provides strong immunity to electromagnetic interference.

Receiver: The DISPLAY-side module uses a 4-channel GaAs photodiode array to convert the optical signals back into electrical HDMI signals for the display.



3.8 mm Slim Armored Hybrid Cable

Layered construction schematic - not to scale



Nominal finished OD: 3.8 +/- 0.2 mm

VII. Applications

- Digital Signage
- LED signboards in streets and in stadiums
- Medical Imaging Equipment
- Airplane On-board Video System
- Home Theater
- Blue-ray, 3D video, Projector, Set-up box, DVR, Game Consoles and Computer

- TV Broadcast Station
- Conference Room Video Equipment
- Security systems



VIII. Questions and Answers

Q1. What do SOURCE and DISPLAY mean?

A1. SOURCE connects to the device transmitting the HDMI signal.

Examples include a computer, game console, Blu-ray player, media player or set-top box. DISPLAY connects to the television, monitor or projector. Example receiving devices: television, monitor or projector.

Q2. What should I check if there is no signal, a black screen or intermittent video?

A2. Confirm cable direction and display input, reconnect both plugs, power-cycle the equipment and temporarily reduce the source resolution. Test the source and display with a known-good HDMI cable to isolate the installation. If the issue remains, contact technical support.

Q3. What is the recommended installation sequence?

A3. Identify SOURCE and DISPLAY, connect both devices, test the required resolution and refresh rate, then route the cable while maintaining a bend radius of at least 38 mm and avoiding excessive pulling.

Q4. Does the SSAC-9860 support ARC, eARC and HDMI-CEC?

A4. Yes. The SSAC-9860 supports ARC, enhanced Audio Return Channel (eARC) and HDMI-CEC functions. For audio return applications, connect the plug marked DISPLAY to the television and the plug marked SOURCE to the AV receiver or soundbar. Both connected devices must support and enable the required ARC or eARC function. but the Max Length is 15M.

The high-bandwidth FRL video path remains directional from SOURCE to DISPLAY, while the ARC/eARC return-audio and HDMI-CEC control channels operate in the required reverse or bidirectional path.

Enable ARC/eARC and HDMI-CEC in the device menus. For eARC systems, select the appropriate digital-audio output or pass-through mode when required by the television and audio equipment.

Q5. How can I protect the cable during installation?

Issue	Checks and Corrective Actions
No image or black screen	Confirm SOURCE/DISPLAY direction; select the correct HDMI input; reconnect both plugs; power-cycle source and display.
Intermittent image or flicker	Maintain at least 38 mm bend radius; inspect for crushing or excessive pulling; test at a lower resolution; verify source/display firmware and compatibility.
Worked before routing but fails after installation	Inspect the route for tight bends, pinching, impact or tensile load. Test the cable outside the route to isolate installation damage.
Laptop or adapter cannot output	Use an adapter that supports the required HDMI bandwidth; confirm display mode and resolution; test without intermediate adapters where possible.
Cannot achieve 4K120 or 8K60	Use HDMI 2.1 ports on both devices; enable Enhanced Format or Game Mode; verify the source supports the selected resolution, refresh rate and color format.
ARC or eARC application	Connect DISPLAY to the television and SOURCE to the AV receiver or soundbar. Enable ARC/eARC and HDMI-CEC on both devices, select pass-through or the appropriate digital-audio output mode, and confirm that the connected HDMI ports support the selected audio-return function.