Up to 100M HDMI 2.0 Transmission!

S-MODUL AOC

4K@60Hz
100M transmission!

LSZH flame retardant 3.5mm
slim cable no external power

S-MODUL
S-MODUL

HDMI 2.0 AOC KEY POINT

- Long Distance Transmission on UHD Video
- Easy Cable Installation
- No Need for separate external power
- No worry about optical fiber damage

S-MODUL AOC KEY POINT

- Slim Design
- Flame retardant jacket
- Excellent Bending Radius
- South Korea Brand

AOC (Active Optical Cable)

Hybrid cable of both optical fiber and copper wire constructed together.
HDMI 2.0 AOC is capable of transmitting UHD broadband video signal up to 100m, which cannot be transmitted via the conventional coaxial HDMI 2.0 cable.

S-MODUL AOC

A trademark indicating S-MODUL HDMI 2.0 AOC which is a premium HDMI 2.0 AOC supplied by Salrayworks.

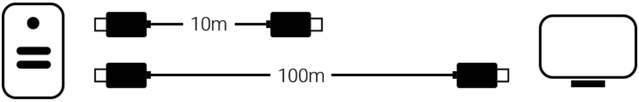
WHY

s.modul
HDMI
Display

WHY
HDMI AOC ?

Long Distance Transmission of UHD video / 4K@60Hz

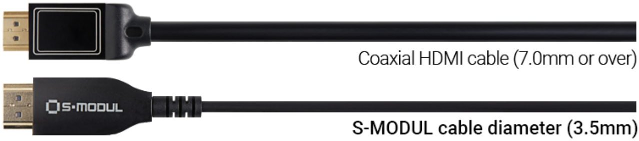
Up to 100m transmission of HDMI 2.0 AOC
VS 10m transmission of coaxial HDMI cable



PC DISPLAY

Easy Cable Installation

Thin S-MODUL cable diameter (3.5mm)
VS coaxial HDMI cable (7.0mm or over) diameter


Coaxial HDMI cable (7.0mm or over)
S-MODUL
S-MODUL cable diameter (3.5mm)

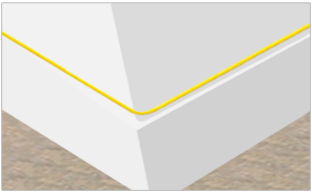
LIGHT FOX HD

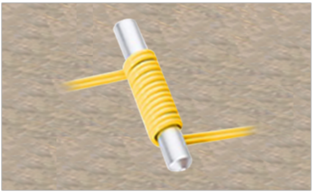
External power-based optical extender

S-MODUL AOC does not need separate external power and no additional power installation during interior construction.

No worry about fiber damage

The rotation diameter of S-MODUL optical fiber is 10mm and prevents possible fiber damage in general optical fiber (rotation diameter 30mm).





WHY

WHY S-MODUL AOC ?

Slim Cable Design & Simple HDMI Shell compared to Chinese branded AOCs.

S-MODUL vs Chinese branded AOC
for the slim & thin cable dia.(3.5mm) & shell

Flame retardant LSZH employed

PVC cable is cheap and very soft. However, some jackets emit black smoke, hydrochloric acid and other toxic gas when burned. PVC cables can easily cause burn and fire spreads easily along the PVC cables from room to room or floor to floor. The smoke released from PVC cables is toxic, corrosive and harmful for human health.

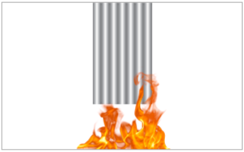
LSZH Cable is highly priced, solid, and esthetically nice. LSZH cables have flame retardant jacket that does not emit harmful gas with respect to burn, reducing the toxic and corrosive gas amount released when being burned. Excellent-performing LSZH cables automatically put out fire up to a specific point to help prevent fire spread.

LSZH Cable

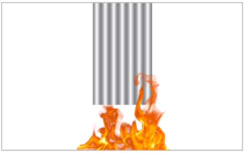
No smoke · No fire spread

1 minute
after fire

PVC Cable

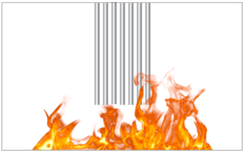


Smoke · 20% fire spread

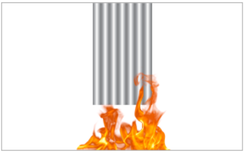


No smoke · No fire spread

2 minute
after fire

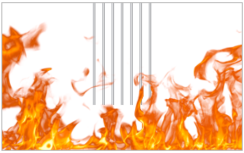


Smoke · 40% fire spread
Difficult to secure sight

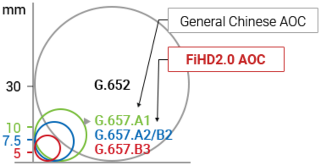


No smoke · No fire spread
Sight maintained

3 minute
after fire



Cable burned down
impossible to secure sight



Excellent bending radius

The whole bending radius of S-MODUL AOC is 35mm including the coaxial core wire. Excellent bending radius means outstanding optical fiber durability.

SALRAYWORKS
BE CURIOUS

South Korea manufacturer specialized in fiber optic components.

S-MODUL is a specialized manufacturer in optical parts with deep understanding of optical fiber and optical component characteristics.
(www.salrayworks.com)

S•MODUL

WHY

Disadvantages of other HDMI transmission solutions!

Coaxial HDMI cable with built-in amplification chip

Cable in thick (7~9mm)

HDMI extender HD base T

External power

HDMI AOC with USP power

Powered via the

diameter Limited transmission distance (20~30m)	required	USB port of a display device

Other specifications supported by S-MODUL AOC

HDMI ver.2.0 and lower versions are completely supported.

SPEC	1.0	1.1	1.2	1.3	1.4	2.0
CEC	○	○	○	○	○	○
DVD-Audio		○	○	○	○	○
SACD			○	○	○	○
Deep color				○	○	○
Wider Color Gamut				○	○	○
Dolby True HD				○	○	○
DTS-HD Master Audio				○	○	○
Auto Lip-Sync				○	○	○
Mini Connector				○	○	○
3D over HDMI					○	○
4K over HDMI					○	○
Micro Connector					○	○
Automotive Connector					○	○
HDMI Ethernet Channel					○	○
Audio Return Channel					○	○
4K@60						○
CEC Extensions						○
Dual-View						○
Multi-Stream Audio						○
21 : 9 Aspect Ratio						○
Dynamic Auto Lip-Sync						○

Spec

Support standard

Spec	Resolution	Scanning rate per second	Color sampling	Color depth
4K	3,840x2,160	30P	4:4:4	8-bit
4K	4.096x2,160	30P	4:2:0	16-bit
4K	4.096x2,160	30P	4:2:2	16-bit
4K	4.096x2,160	30P	4:4:4	8/12/16-bit
4K	4.096x2,160	60P	4:2:0	8/12/16-bit
4K	4.096x2,160	60P	4:2:2	8/12-bit
4K	4.096x2,160	60P	4:4:4	8-bit
4K	4.096x2,160	120P	4:2:0	8-bit
8K	7.680x4,320	30P	4:2:0	8-bit

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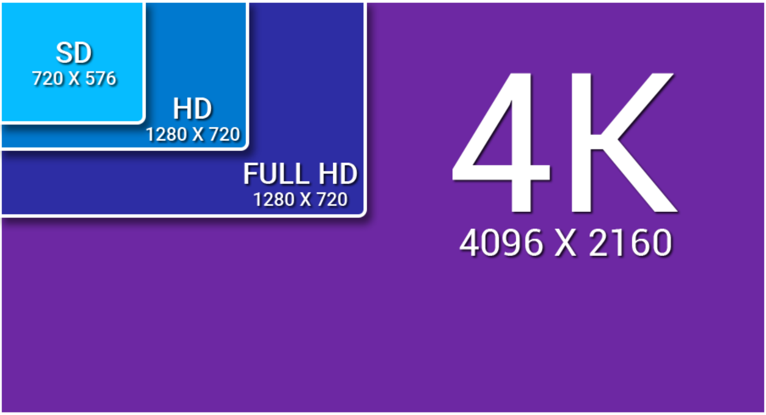
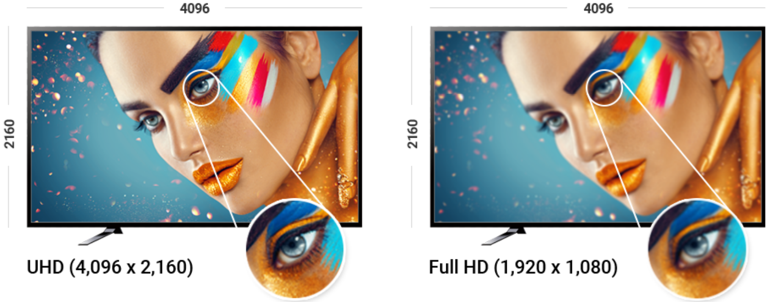
4,096 x 2,160 / 60Hz Resolution

4K ULTRA HD Support

The important aspect of HDMI2.0 is increased transmission bandwidth by 76% compared to the previous HDMI 1.4 to make it support up to 18Gbps. Unlike HDMI1.4 that can transmit no more than 30 frames of 4K UHD video, HDMI2.0 is capable of transmitting high-quality 4K UHD video produced in 60 frames per second as the complete quality of the original.





UHD (4,096 x 2,160)

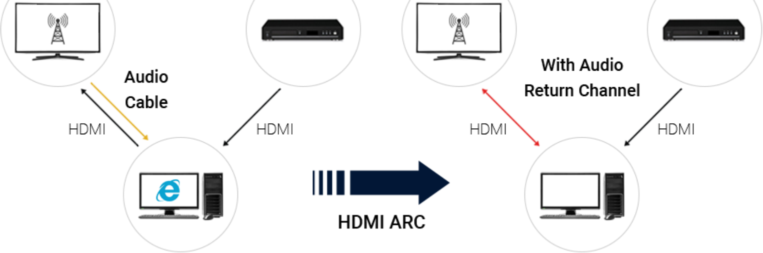
Full HD (1,920 x 1,080)

ARC

[Audio Return Channel]

Just a single cable is enough.

ARC, as in the lower right figure, is a function to send sound from a source device to a sound system without a separate cable. Without the function, a user has to additionally link a tosslink or optical audio cable between a TV and audio system.



HDCP (**High-bandwidth Digital Content Protection**) is a content protection device not to show properly on the screen any titles of illegally copied Blue Ray films or games.

HDR

[High Dynamic Range]

Brighter, darker. Vivid image output

Technology employed which extends the range of brightness closer to what people actually see with their eyes to make brighter the bright spots and darker the dark spots. HDR-applied video contents have clear contrast ratio to provide vivid images. If a user's display device supports the technology, the technology is applied for the user to enjoy more improved image quality.

SDR
Standard Dynamic Range
HDR
High Dynamic Range

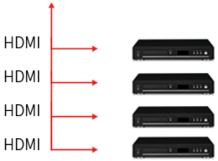
HEC

[HDMI Ethernet Channel]

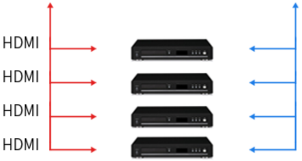
Complete ethernet support without any separate LAN cable.

HD video, audio and data can be integrated in a single table, and a high-speed two-way communication and IP-based application technology can be realized through HDMI cable. It is not necessary to connect ethernet LAN cables individually to HDMI2.0 supported devices, but connect it to only one single HDMI device and just connect cables to the other devices to enjoy ethernet communication sharing, inter-device content distribution, recording, and digital audio signal two-way transmission.

Internet
Internet



With HDMI Ethenet Channel



Without HDMI Ethenet Channel

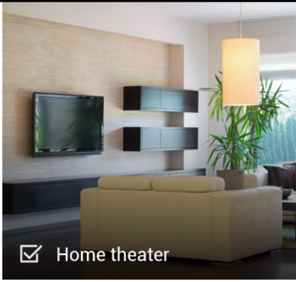
CEC (**Consumer Electronics Control**) is a technology to control multiple devices connected through HDMI simultaneously. In the event of connecting a TV supporting the CEC with a set top box, a user can use just a single remote controller to simultaneously turn on and off the devices, control volume, etc. conveniently.

Enjoy application to Diverse areas

Video conference · ceiling monitor in café / shop / classroom · game
Home theater · digital signage · endoscope and medical image equipment

☑ Game · Screen golf course
Screen baseball

☑ Video conference

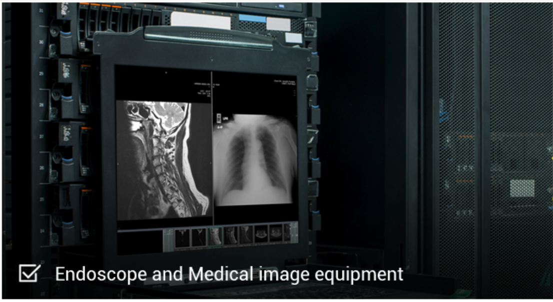


☑ Home theater

☑ Ceiling monitor in café · Shop · Classroom

AD
VER
TIS
ING

☑ Digital signage

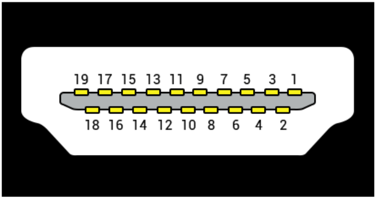


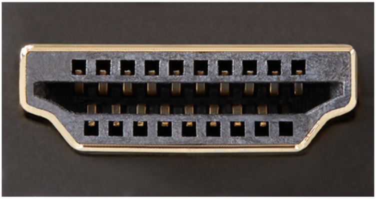
☑ Endoscope and Medical image equipment

Excellent compatibility

HDMI 19Pin Supported

Standard pin arrangement ensures excellent compatibility with various devices such as a Set top box · Slim port · PC · 3D DVD · PS3

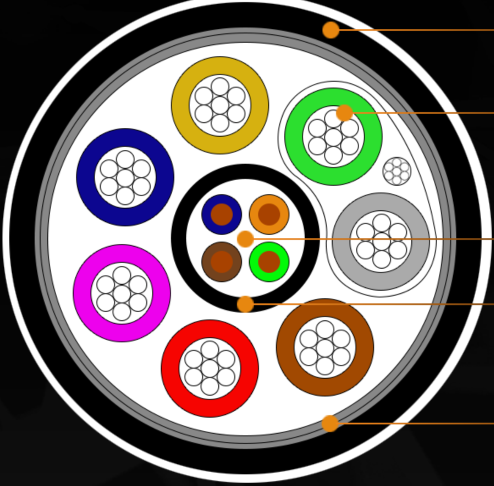




Pin-1	TMDS Data2+	Pin-11	TMDS Clock Shield
Pin-2	TMDS Data2 Shield	Pin-12	TMDS Clock-
Pin-3	TMDS Data2-	Pin-13	CEC
Pin-4	TMDS Data1+	Pin-14	Utility / HEAC+
Pin-5	TMDS Data1 Shield	Pin-15	SCL
Pin-6	TMDS Data1-	Pin-16	SDA
Pin-7	TMDS Data0+	Pin-17	CEC Ground
Pin-8	TMDS Data0 Shield	Pin-18	+5V Power
Pin-9	TMDS Data0-	Pin-19	Hot Plug Detect / HEAC-
Pin-10	TMDS Clock+		

AOC Cable cross-section

4K RESOLUTION



External covering : Black · LSZH

Coaxial line : 28AWG 7C
LSZH Jacket

Glass optical fiber : Multi-mode
optical fiber (50/125㎛ · 850㎚)
4 wires

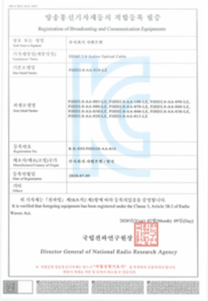
Internal covering : Cylindrical
white PVC Exterior line: 1.2mm

Kevlar fiber : Aramid Yarn

Cable color	Black 90
Cable diameter	3.5mm
HDMI connector size	Type-A : 40 x 20 x 10mm
Optical fiber / Optical photoelectric bending radius	10mm/35mm
Length	10 ~ 100m
Weight	10M/0.2kg · 20M/0.35kg · 30M/0.5kg · Etc.
Cable horizontal tensile strength	800N (180lbs)
Cable contact terminal material	Nickel or Gold-plated Phosphorous Bronze
Connector tensile strength	100N · 200N (long term · short term)
Power consumption	250mW
Storage temperature	-5 to 85˚C
Case temperature in use	-20 to 60˚C
Humidity	0 to 85% RH

Certificate on EMI & ESD

KC (South Korea)



방송통신기자재등의 적합등록 필증

Registration of Broadcasting and Communication Equipments

HDMI 2.0 Active Optical Cable

FiHD2.0-AA-010-LZ

2020-07-09

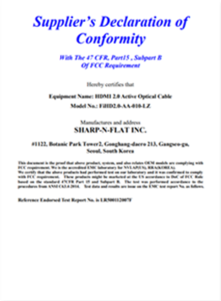
It is verified that foregoing equipment has been registered under the Clause 3, Article 58-2 of Radio Waves Act.

2020년(Year) 07월(Month) 09일(Day)

국립전파연구원장

Director General of National Radio Research Agency

FCC (US)



Supplier's Declaration of Conformity

With The 47 CFR, Part15 , Subpart B
Of FCC Requirement

Hereby certifies that

Equipment Name: HDMI 2.0 Active Optical Cable

Model No.: FiHD2.0-AA-010-LZ

Manufactures and address

SHARP-N-FLAT INC.

#1122, Botanic Park Tower2, Gonghang-daero 213, Gangseo-gu,
Seoul, South Korea

This document is the proof that above product, system, and also relates OEM models are complying with FCC requirement. We is the accredited EMC laboratory for NVLAP(US), RRA(KOREA).
We certify that the above products had performed test on our laboratory and it was confirmed to comply with FCC requirement. These products might be marketed at the US accordance to DoC of FCC Rule based on the standard 47CFR Part 15 and Subpart B. The test was performed accordance to the procedures from ANSI C63.4-2014. Test data and results are issue on the EMC test report No. as follows.

Reference Endorsed Test Report No. is LR500112007F

Product information

HDMI™
S-MODUL
FiHD2.0
• Active Optical Cable
• Support 4K 60Hz FPS
• EMI / RFI resistance
• Cable Length 1-150m
• LSZH compliant
• Cable OD 3.5mm
S-MODUL
HDMI

Product name & model	S-MODUE FiHD2.0 AOC
Certification/license by law	Refer to the product detail page.
Country of manufacturing/origin	Korea
Manufacturer/seller	SALRAYWORKS INC

Warranty service & technological support	SALRAYWORKS INC
About shipment/return purchase	Contact the product seller (see the lower part of the shopping mall page.)
Warranty standard	In case of an abnormality in the product, the product shall be compensated in accordance with the Criteria for Consumer Dispute Settlement in the Notification of the Korea Fair Trade Commission.

※ **S-MODUL** is the brand name for optical parts of SALRAYWORKS Inc.

Notices

- Do not hold the cable to pull out the FiHD2.0 connector and hold the connector terminal and disconnect.
- Do not separate the connector or cut the cable.
- In the event of burying in a wall, check the FiHD2.0 compatibility of your source device and display device. Some foreign products or smaller-company devices may not be compatible.
- Distinguish the display terminal and source terminal of S-MODULFiHD2.0 and connect.
- Do not watch with your eyes the end of optical fiber using an optical instrument such as magnifier after cutting an photoelectric cable. Laser signal may cause an eye injury.

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