



HDMI 2.0 and DisplayPort 1.2 to HDMI 2.0 optical converter



User Manual *HDHF-4K*

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Warnings and Cautions

Please read this manual and follow its instructions carefully.

The words **warning**, **caution**, and **note** carry special meanings and should be carefully reviewed:

Warning The personal safety of the patient may be involved. Disregarding this information could result in personal injury.

Caution Special service procedures or precautions must be followed to avoid damaging the device.

The warranty will be void if any of the following warnings or cautions are disregarded.

Warnings

To avoid a potential serious injury to the user and the patient and/or damage to this device, please note the following warnings:

- Read this manual thoroughly and be familiar with its contents prior to using this device.
- Carefully unpack the device and check if any damage occurred during transport.
- This device is non-sterile and therefore should not be placed in the sterile field.
- Do not place the device or any other heavy object on the power connector. Damage to the connector can cause fire or electric shock.
- Do not place the device or any other heavy object on the power cord. Damage to the cable can cause fire or electric shock.
- This device should not be used adjacent to or stacked with other devices. If adjacent or stacked use is necessary, the device should be observed to verify normal operation in the configuration in which it will be used.
- Test this device prior to a surgical procedure. This device was fully tested at the factory before shipment.
- Do not attempt self repairs or adjustments not specifically detailed in this manual. Ensure that readjustments, modifications, and/or repairs are carried out by persons authorized by Opticis.
- Do not put any liquid or solid object into the device. If this occurs, unplug the device and have it checked by qualified personnel before operating it any further.
- Use appropriate caution to prevent contact with fluids if the device is being used with a power supply in patient environments.
- The use of cables and/or other accessories with this device, other than those specified, may result in increased emissions or decreased immunity of this device.

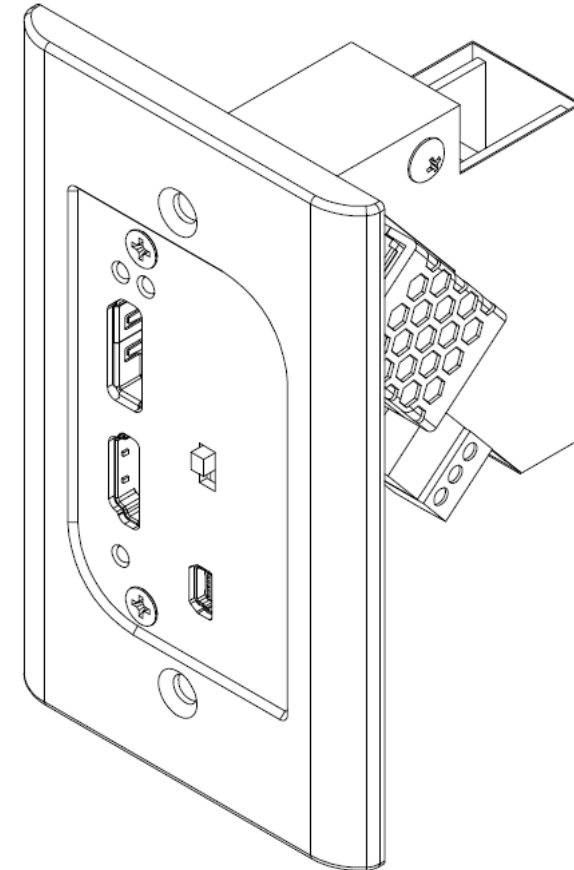
Cautions

- Connect the device to the AC adapter connected to a medical grade power cord ensuring the power cord is plugged into a grounded power outlet to achieve grounding reliability.
- Do not sterilize the device, as the delicate electronics cannot withstand this procedure.
- Use only the proprietary surgical display power supply for the display. Completely secure the connection between the DC power cord and the extension cord.
- Never operate the device immediately after transportation from a cold location to a warm location.
- To connect to a universal power supply, use an attachment plug appropriate for the power outlet, as outlined in the “Technical Specifications” section of this manual.
- Unplug the device if it is not to be used for an extended period of time. To disconnect the cord, unscrew the plug first, then pull the cord out by the plug. Never pull the cord itself.
- Allow adequate air circulation to prevent internal heat buildup. Do not place the device on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots. The device is cooled by natural convection and has no fan.
- Pay close attention to the cleaning instructions in this manual. A deviation may cause damage.
- Do not install the device near sunlight, excessive dust, mechanical vibration, or shock.
- Do not operate with the glass device screen facing downward.
- Handle the device with care.
- Changes or modifications not expressly approved by the party responsible for compliance could be void the user’s authority to operate the device.
- Place and fix device on the places where the easy plug and unplug of power supply can be done.
- To stop the operation of device immediately and safely, just unplug the power supply from the device.

1-3 Cautions

About Your Device

This HDMI 2.0 and DisplayPort 1.2 to HDMI 2.0 optical converter, HDHF-4K receives HDMI, DisplayPort into optical HDMI signal and transmits it up to 200m(OM3) (656ft) over one (1) multi-mode fiber without any data compression or latency. To recover electrical HDMI signal, one (1) fiber HDMI receiver, HDFX-500-RX or HDFX-700-RX should be used at the display end. And HDFX-700-Rx should be compatible version of HDFX-500-Rx not ARC support version.



HDMI 2.0 and DisplayPort 1.2 to HDMI 2.0 optical converter,
HDHF-4K

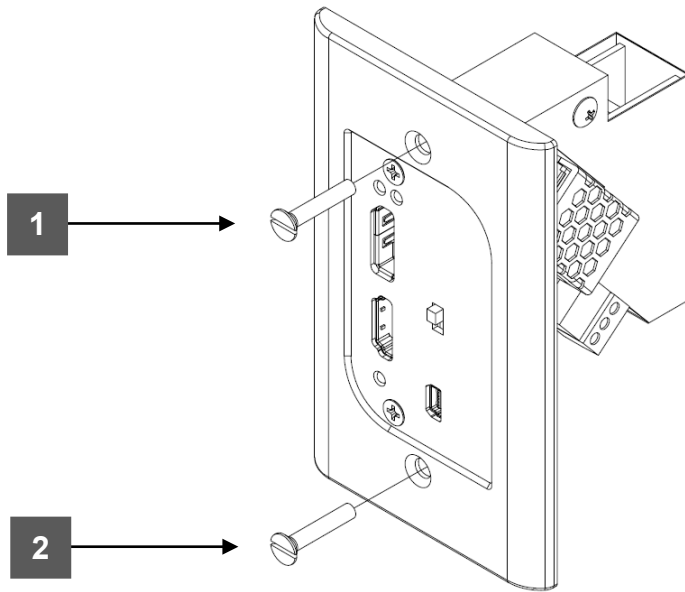
1-4 About your device

Intended Use

This video signal converter is an equipment that converts HDMI, DisplayPort signals which received from various medical devices into optical HDMI to relay it to the other devices or displays.

Installation Guidance

This wall mounting type converter is installed in US standard gang (metal enclosure) preinstalled in boom equipment or wall. After insert this converter into the gang, tighten two screws to assemble with it as shown below.



Installation Condition

- Make sure this converter is required to install in cement wall or boom equipment with preinstalled US standard gang (metal enclosure) and internal combustion material preventing any damage or danger from internal fire.

After installation and assembly, internal of this wall-mounting type converter cannot be touched or modified.

1-5 Intended Use/Installation Guidance/Installation Condition

Indications

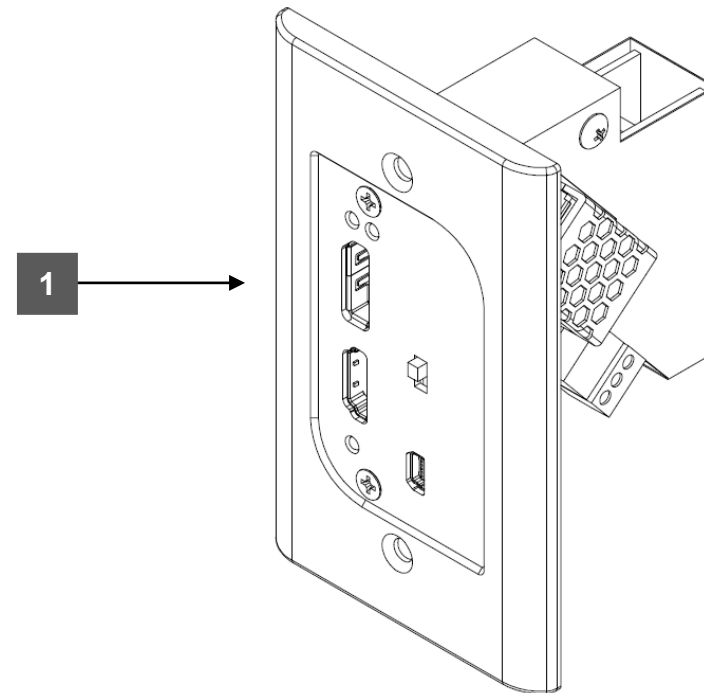
This device is indicated for general surgery for surgical procedures, for example Endoscopy etc.

This converter is non-sterile, reusable device not intended for use in the sterile field and intended for use by qualified physicians having complete knowledge of these surgical procedures.

Contraindications

There are no known contraindications for this device.

Package Content



Package Content

1. Wall Plate type 4K optical converter
2. User Manual

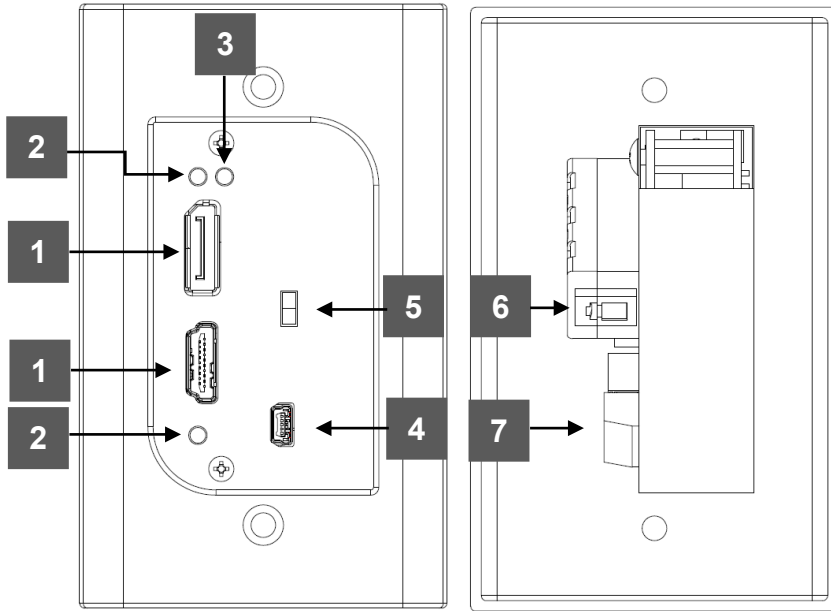
Part Number

HDHF-4K

1-6 Indications/Contraindications/Package Content

Device Features

A list of the HDHF-4K parts and their functions is provided below.



Front panel

1. 2 input signal ports

- HDMI and DisplayPort input ports with mechanical locking structure

2. Video Input Status LED

- Indicates current input status. Shines Upper Green if the DisplayPort is connected; Lower Green shines if HDMI is connected.

3. Power LED

- Indicates current status. Shines Amber if the converter is powered on; Amber light turns off if the power is disconnected.

4. Mini USB Port

- To maximize compatibility with various input sources having customized or unique output resolutions, easy firmware update can be done via front mini USB port for troubleshooting. (TBD)

5. DIP switch

- To select DisplayPort 1.2 or HDMI 2.0 get converted and transmitted. Upper part is for DisplayPort; Lower part is for HDMI.

Back panel

6. Optical video output port

- Transmits optical HDMI signal. Please remove dust cover to connect to multi-mode LC terminated fiber.

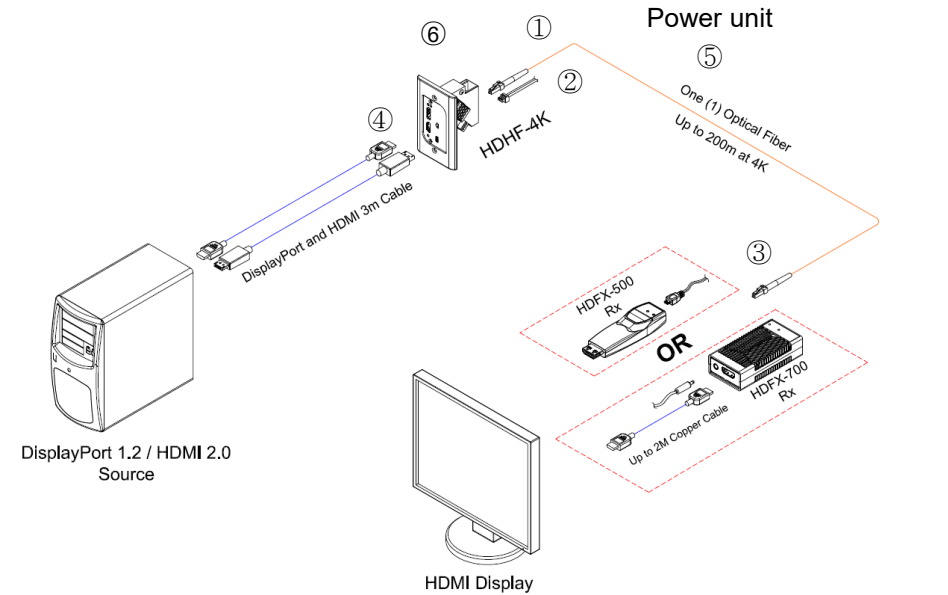
7. Power connector cover

- Cover of power connector. It should be removed when user connect power supplying cable.

1-7 Device Features

Basic Connection Setup

Please follow the step as below



- ① Connect Power cables into 3-pin power connector of HDHF-4K.
- ② Connect LC connector of optical cable to the optical video output port of HDHF-4K.
- ③ Connect the opposite side of LC connector into LC port of One Fiber HDMI Receiver, HDFX-500-RX or HDFX-700-RX. For power, connect supplied 5V Power supply to DC jack of One Fiber HDMI Receiver. After that attach it to the HDMI display directly.
- ④ Connect the output of source equipment to HDHF-4K using source cable. If the output signal of source equipment is active, Status LED on HDHF-4K will be turned ON (Amber).
- ⑤ When all the procedures above are completed, turn the unit power ON. Ensure the Power LED on HDHF-4K is turned ON (Green).
- ⑥ Through using DIP switch, control what source will be used. In order to use HDMI line, turn it to upper part; DisplayPort line for lower part.

1-8 Connection Setup

Technical Specifications

Item	Details	Remark
Input	· HDMI, DisplayPort	Front panel
Output	· 1 x LC multi-mode fiber · LC terminated 1 core multi-mode fiber (62.5um)	Back panel
Supporting resolution	· Up to WQUXGA (4096x2160) at 60Hz for HDMI and DisplayPort input	
Max. distance	· 200m (656feet) @WQUXGA, 60Hz	
Power supplying	· 8~15V	
Power consumption	· < 0.5W	
LED indicator	· Power (Green), Video input status (Amber)	Front panel
Dimension	· US standard 1 gang size, PCB: 68 x 85mm	
Operating temperature	· 0 ~ 50℃	

Warranty Information

1 (One) Year Warranty

Opticis warrants this **HDHF-4K** to be free from defects in workmanship and materials, under normal use and service, for a period of one (1) year from the date of purchase from Opticis or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Opticis shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item or refund to customer the purchase price paid for the defective product.

All products that are replaced will become the property of Opticis.

Replacement products may be new or reconditioned.

Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Opticis shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to Opticis for repair under warranty or not.

Warranty Limitation and Exclusion

Opticis shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Opticis or its authorized agents, causes other than from ordinary use or failure to properly use the product in the application for which said product is intended.

Dispose of Old Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate systems)



This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

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For technical support, check with the Opticis web site www.opticis.com or contact techsupp@opticis.com