

# PRODUCT DATA SHEET

## OMP-HM

*MPO/MTP type optical extender  
for HDMI Ver. 2.1*



## Revision History

Version No.	Revision Date	Page	Description of Changes
1.0	Aug. 25 <sup>th</sup> , 2020	ALL	Initial Version
1.1	Sep. 13 <sup>th</sup> , 2021		Power consumption, Drawing revision
1.2	Feb. 9 <sup>th</sup> , 2022		MPO/MTP Cable info.

### PROPRIETARY NOTE

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## 1. General Description

### 1.1 Introduction

**OMP-HM** is MPO/MTP type optical cable extender for HDMI standard.

The OMP-HM consists of a transmitting part and a receiving part, both of which are connected by a MPO/MTP optical cable. The OMP-HM's transmitter is connected to the HDMI source device, and the receiver is connected to the HDMI sink device. Video/audio signals can be transmitted up to 100m when a system using HDMI standard is used. It is possible to transmit the HDMI specification signal of the UHD bandwidth without loss.

### 1.2 Features

- High speed and long distance transmission by optical system
- Input and Output Signal : HDMI 2.1
- Support OM3 or OM4 fiber with MPO/MTP connector
- CEC capable and HDCP compliant
- I2C and Hot Plug channels are transmitted by optical fiber
- Maximum transmission distance : 100meter
- External power required in Tx and Rx

### 1.3 Applications

- Professional broadcasting and production studios
- Medical center and laboratory
- Presentation application
- Digital signage application

## 2. Specification

### 2.1 General Specification

Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	1x4 Array 850nm VCSEL 1xVCSEL, 1xPD	1x4 Array photo Diode 1xVCSEL, 1xPD
Input and Output Signal	HDMI Signal (Std. V2.1)	
Video Bandwidth	48Gbps	
Using electrical connector	HDMI A Type Plug(Male)	HDMI A Type Plug(Male)
Applied Fiber	MPO/MTP, 8core, OM3, 50/125 $\mu$ m Multi-mode fiber	

### 2.2 Power Specification

Parameter		Min.	Typ.	Max.	Units	condition
Supply Voltage(DC)	TX (5V adapter)	+4.75	+5.0	+5.4	V	External adapter
	RX (5V adapter)	+4.75	+5.0	+5.4	V	External adapter
Supply Current	TX (5V adapter)		150	180	mA	DC +5.0V
	RX (5V adapter)		190	220	mA	DC +5.0V
Power Dissipation	TX (Source side)		750		mW	DC +5.0V
	RX (5V adapter)		950		mW	DC +5.0V

### 2.3 Electrical Specification

Parameter	Min.	Typ.	Max.	Units	condition
Differential input voltage	200		1400	mV	
Differential impedance at TMDS Pair	80	100	125	Ohm	

Input data transition time	0		0.4	UI	20%, -80%
Output voltage swing	360	650	-	mVp	Differential
Output impedance at TMDS Pair	80	100	125	Ohm	

### 3. Absolute Maximum Ratings

Parameter	Rating
Storage temperature	-20°C ~ +70°C Non-Condensing
Operating temperature	0°C ~ +50°C Non-Condensing
Transportation temperature	-20°C ~ +70°C Non-Condensing
Power Supply	-0.3 ~ +5.5V
Relative Humidity	10 ~ 80 %
Lead solder temperature	260°C, 10 seconds

#### **NOTICE**

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

## 4. Connector Pin Assignment

### 4.1 Transmitter (Source side)

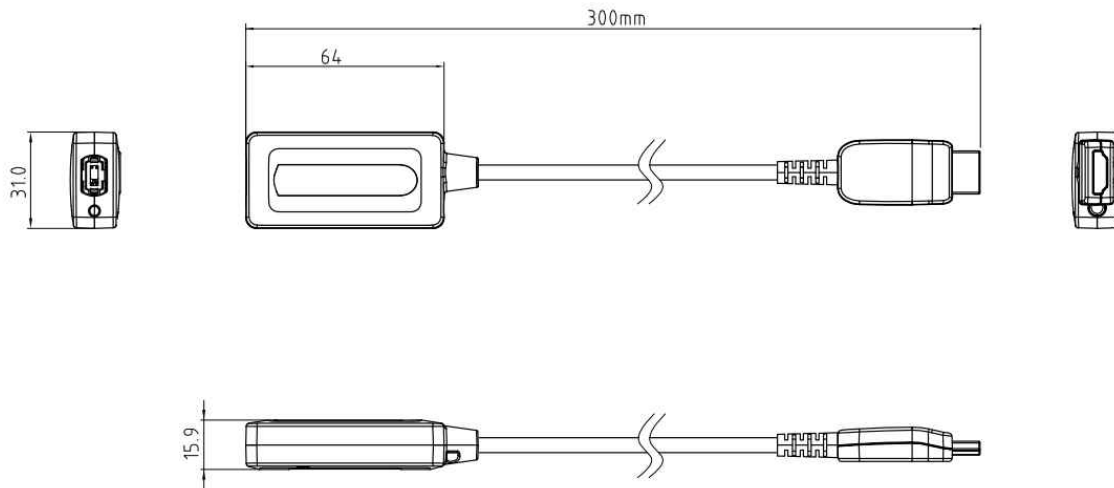
Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S Data 2+	2	T.M.D.S Data 2 Shield
3	T.M.D.S Data 2-	4	T.M.D.S Data 1+
5	T.M.D.S Data 1 Shield	6	T.M.D.S Data 1-
7	T.M.D.S Data 0+	8	T.M.D.S Data 0 Shield
9	T.M.D.S Data 0-	10	T.M.D.S Clock+
11	T.M.D.S Clock Shield	12	T.M.D.S Clock-
13	CEC	14	Reserved
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V Power
19	Hot Plug Detect		

### 4.2 Receiver (Sink side)

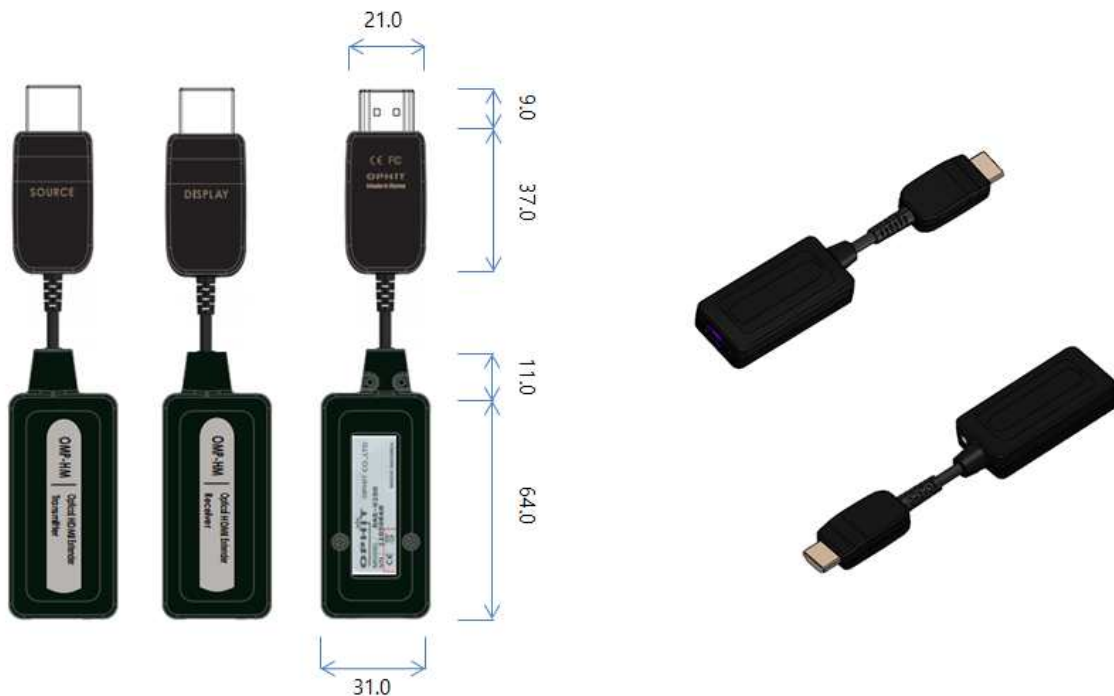
Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S Data 2+	2	T.M.D.S Data 2 Shield
3	T.M.D.S Data 2-	4	T.M.D.S Data 1+
5	T.M.D.S Data 1 Shield	6	T.M.D.S Data 1-
7	T.M.D.S Data 0+	8	T.M.D.S Data 0 Shield
9	T.M.D.S Data 0-	10	T.M.D.S Clock+
11	T.M.D.S Clock Shield	12	T.M.D.S Clock-
13	CEC	14	Reserved
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V
19	Hot Plug Detect		

## 5. Mechanical Specification

### 5.1 Extender Dimension

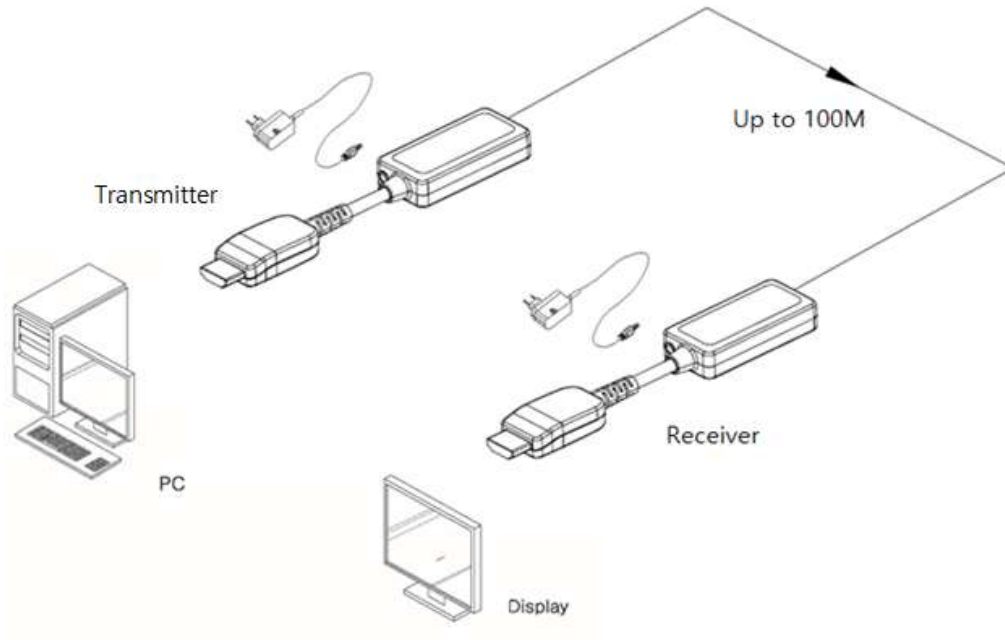


### 5.2 Design drawing





### 5.3 Connection



# OMP-HM

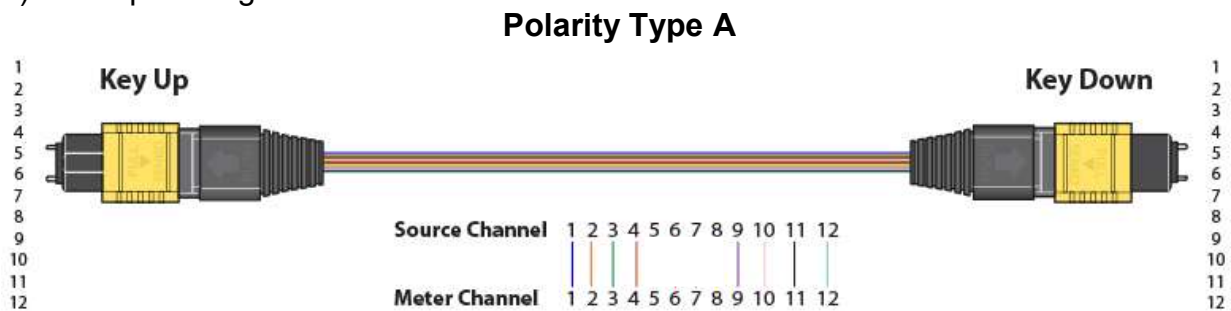
## 5.4 MPO/MTP Cable

Ophit recommend to use 8core (or 12core) MPO/MTP, OM3, 50/125  $\mu\text{m}$  Multi-mode fiber cable for optimized operation.

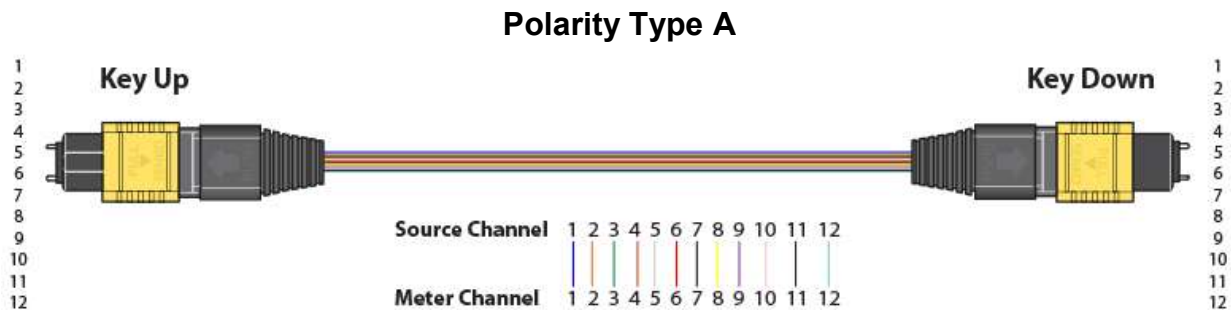
Ophit recommend to use 1) 8-core cable or 2) 12-core as below picture.

※ Please CHECK the pin connection of before installing!!

### 1)8-core pin assignment



### 2)12-core pin assignment



## 6. Regulatory

### 6.1 EMC & Safety Agency approval

#### 6.1.1 CE-EMC compliance:

This Product is investigated to EN55032:2015, EN55035:2017, EN61000-3-2:2014 and EN61000-3-3:2013

### 6.1.2 FCC compliance:

This Product is investigated to FCC 47CFR part 15(ANSI C63.4:2014)

### 6.1.3 Safety

The basic standard used to investigate products in this category is [UL 1651](#), "Optical Fiber Cable."

## 7. Packing Information

Set(Unpacking, OMP-HM Set Only) Package(1PCS, Inner Box Packing) Package(Multi, 150CS Packing)	TBD	
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*Note :*

## 8. RoHS

OPHIT is fully aware of the requirement under the **Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive EU 2015/863(RoHS3), which adds four new restricted substances to the previous Directive 2011/65/EU(RoHS2).**

Hereby we guarantee that we do not intentionally use the substances described below and based on third party chemical analysis the thresholds of the substances as indicated are not exceeded for our all products.

Substance	CAS #	RoHS Limity by % (PPM)
Lead (PB)	7439-92-1	0.1% (1000 PPM)
Mercury (Hg)	7439-97-6	0.1% (1000 PPM)
Hexavalent Chromium (CrVI)	15840-29-9	0.1% (1000 PPM)
Polybrominated Biphenyls (PBB)	-	0.1% (1000 PPM)
Polybrominated Diphenyl Ethers (PBDE)	-	0.1% (1000 PPM)
Cadmium (Cd)	7440-43-9	0.01% (100 PPM)
Bis(2-Ethylhexyl) phthalate(DEHP)	117-81-7	0.1% (1000 PPM)
Benzyl butyl phthalate(BBP)	85-68-7	0.1% (1000 PPM)
Dibutyl Phthalate(DBP)	84-74-2	0.1% (1000 PPM)
Diisobutyl Phthalate(DIBP)	84-69-5	0.1% (1000 PPM)

Banned Substances by RoHS Directive 2011/65/EU+2015/863/EU, EN50581:2012

OPHIT will continue to monitor any new amendments/changes to Directive and subsequently review our all products with regards to compliance. OPHIT will also ensure that any new information is communicated to its customers, suppliers and stakeholders as required.

Signature : Jong-Kook, Moon



Title/Issue date : President/Aug.25.2020

## 9. REACH

**The European REACH Regulation 1907/2006 on Registration, Evaluation, Authorization, and Restriction of Chemicals(REACH), Annex XVII** entered into Force in June 2009, and affects all companies producing, Importing, using, or placing Products on the European market. The aim of the REACH regulation is to ensure a high Level of protection of human health and the environment from chemical substances.

OPHIT Co., Ltd substances management system follow and complies with the current revision of the REACH Regulation on the substances as identified by ECHA(European Chemical Agency).

OPHIT Co., Ltd products are considered articles as defined in REACH Article 3(3). These products/articles under normal and reasonable conditions of use do not have intended release of substances. Therefore the requirement in REACH Article 7(1)(b) for registration of substances contained in these products/articles does not apply.

OPHIT Co., Ltd products/articles, do not contain **Substances of very High Concern** or if there **SVHC** in the product/article, the content is less than the 0.1%(wt/wt) as defined by REACH Article 57, Annex XIV, Directive 67/548/EEC. Therefore the requirement in REACH Article 7(2) to notify ECHA if a product/article contains more than 0.1% wt/wt of an SVHC and tonnage exceeding 1 tone per importer per year is not applicable.

OPHIT's European operations do not manufacture or import chemicals, therefore OPHIT Co., Ltd has no obligation to register substances.

Signature : Jong-Kook, Moon



Title/Issue date : President/Aug.25.2020

**OPHIT Co., Ltd ACCEPTS NO DUTY TO NOTIFY USERS OF THIS OF DECLARATION OF UPDATES OR CHANGES TO THIS DECLARATION.**