

# PRODUCT DATA SHEET

## FTSM

*12G-SDI Optical Extension*



## Revision History

<b>Version Number</b>	<b>Revision Date</b>	<b>Page</b>	<b>Description of Changes</b>
1.0	Nov.21, 2018	ALL	Initial Version
1.1	Oct .15..2019	ALL	Renewal Specification
1.2	Jun.17.2021	11,12	Certification of CE, UKCA

### PROPRIETARY NOTE

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## 1. General Description

**FTSM**, The FTSM is one of OPHIT's 4K Optical Extender family which converts 12G-SDI video /Audio signals into optical signals for long distance transmission. The FTSM consist of pair Of transmitter, receiver and can transmit up to 12G SDI signals on a single port. It made in a small size for easy installation and portability. The transmitter and receiver Are same size.

- Transmits very high speed 12G-SDI signals over long distances through Optical techniques And it can transmit a maximum 4K Ultra HD resolution.
- 12G-SDI Ultra HD Video signal long distance optical extender
- Supports max resolution 4K 60p
- Supports video pathological patterns for SD-SDI, HD-SDI, 3G-SDI, 6G-SDI and 12G-SDI
- Maximum transmission distance : Max 5km
- Highest video signal with very low Latency
- SD / HD / 3G / 6G / 12G-SDI SFP Transceiver available
- SMPTE ST-297-2015, ST2081 and ST-2082 Compatible
- Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- Standalone small box type
- DC 5V Adapter

## 2. General Specification

### 2.1 Specification

Parameter	Transmitter	Receiver
Input Signal	SDI (BNC)	Optical (LC)
Output Signal	Optical (LC)	SDI (BNC)
Bandwidth	270Mbps ~ 11.88Gbps	
Maximum Supporting Resolution	12G-SDI (3840x2160 60p)	
Optical Converter	1310nm, 1Ch Transmitter	1310nm, 1Ch Receiver
Recommended Fiber	Single-mode fiber	
Module Dimension	87.0 x 27.3 x 27.0 mm (W x D x H)	
Module Weight	102g	102g

- ※ Internally Multi-mode fiber OM3 cable test passed ( Max Length : 100M ).  
However, we do not recommend it.

### 2.2 LED Description

LED		Power(Green)	Active(Yellow)
ON	TX	Power In and Operation Ready	Signal Detect and Optical TX OK
	RX		Optical RX OK and Signal Detect
OFF	TX	No Power	No Signal or Optical TX Error
	RX		No Signal or Optical RX Error

### 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 ~ 5.0 V
Relative Humidity	10 ~ 80 %
Lead solder temperature	380°C +/-30°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.

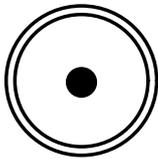
## 4. Electrical Specification

### 4.1 Power Characteristics

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage (Option External Power)	Vcc		+ 5		V	
	Supply Current	Icc		250		mA	Standby
				300			Working
	Power Dissipation	Po		1.25		W	Standby
				1.5			Working

### 4.2 Connector Pin Assignment

#### 4.2.1 BNC Connector

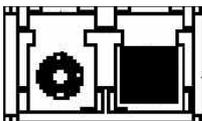


Female Connector  
<SDI BNC type>

Pin	Signal Assignment
1	1 plus screen

#### 4.2.2 LC Output Connector

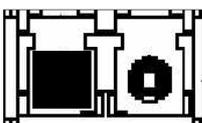
- TX module



Female Connector  
<LC Connector type>

Pin	Signal Assignment
1	SDI optical output
2	Not use

- RX module



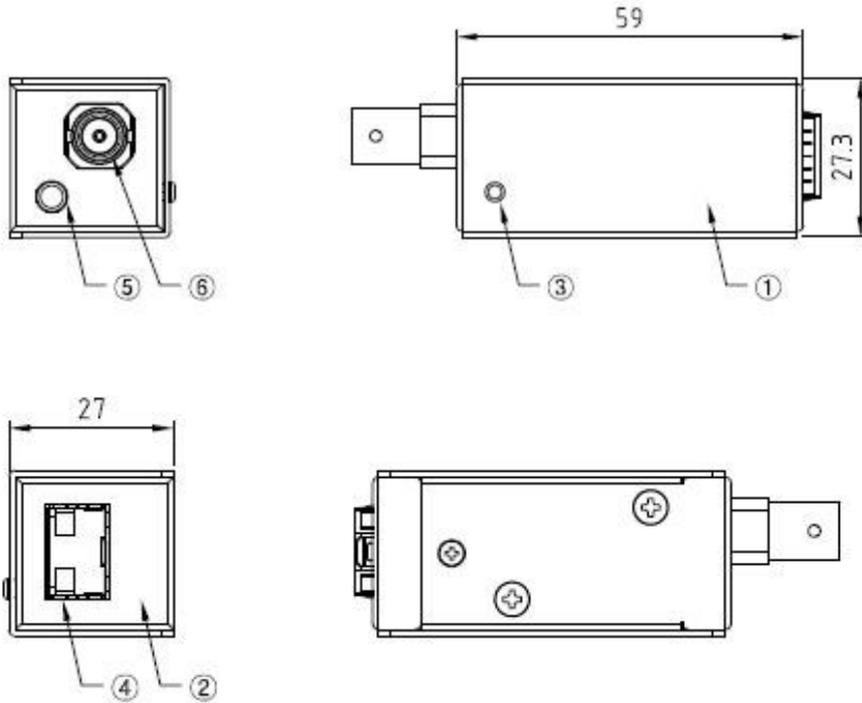
Female Connector  
<LC Connector type>

Pin	Signal Assignment
1	Not use
2	SDI optical input

- TX module is using the Left port
- RX module is using the Right port

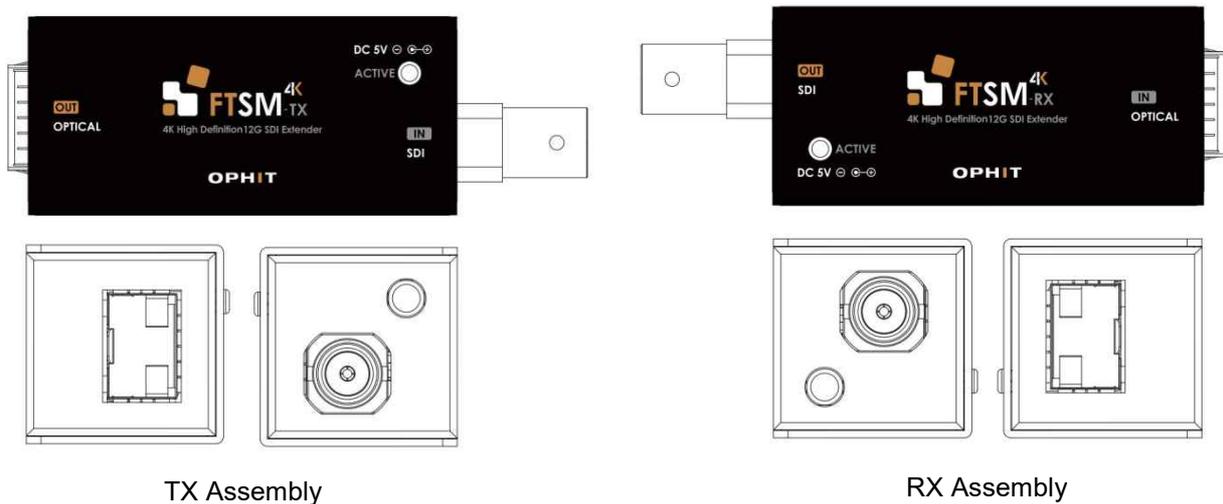
**5. Mechanical Specification**

5.1 Transmitter and Receiver Case Dimension



NO	PART NAME	NO	PART NAME	NO	PART NAME
1	TOP CASE	4	OPTICAL MODULE	-	
2	BOTTOM CASE	5	POWER JACK	-	
3	LED INDICATOR	6	BNC CONNECTOR	-	

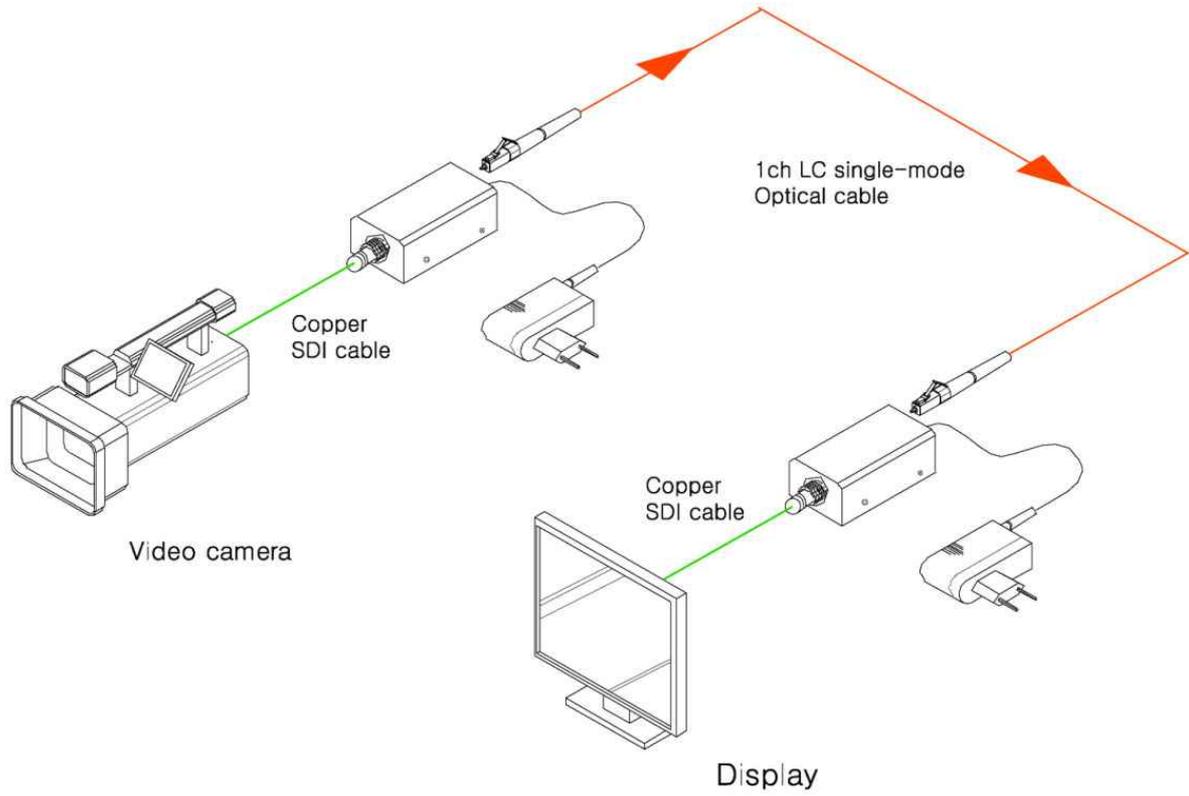
5.2 Design drawing



TX Assembly

RX Assembly

**5.3 Connection**



**6. Regulatory**

**6.1 EMC & Safety Agency approval**

**6.1.1 CE-EMC compliance:**

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

**6.1.2 FCC compliance:**

This Product is investigated to FCC 47CFR part 2 and part 15

**7. Packing Information**

Set(Unpacking, FTSM Only)	87.3mm*27.5mm*27.0mm	204.0g
Package(1Set, Inner Box Packing)	242.0mm*185.0mm*70.0mm	660.0g
Package(Multi, 15PCS Packing)	595.0mm*305.0mm*345.0mm	11.0Kg

## 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/July.22.2019**

## 9. REACH

**The European REACH Regulation 1907/2006 on Registration, Evaluation, Authorization, and Restriction of Chemicals(REACH), Annex XV II** 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 resister substances.



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Jong-Kook, Moon  
President

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



## Declaration of Conformity

OPHIT CO., LTD

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Gyeonggi-do, Korea

EU Authorized Representative : Foreseeson GmbH

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Declare under our sole responsibility that the product

Product : 12G-SDI Optical Extension

Model : FTSM

To which this declaration relates in conformity with the following standards or normative documents;

EMC Part

EN 55032 : 2015

EN 55035 : 2017

EN 61000-3-2 : 2014(IEC61000-3-2 : 2014)

EN 61000-3-3 : 2013(IEC61000-3-3 : 2013)

RoHS

RoHS Directive 2011/65/EU+2015/863/EU

We, the undersigned, hereby declare that the equipment  
specified above conforms to the above Directive(s)

Manufacture Signature

Date of issue : Jun, 2019

Signature : Jong-Kook, Moon

## UKCA Declaration of Conformity

OPHIT CO., LTD

3F Suntechnovil, 77Deyoung-daero 1471beon-gil, Yongtong-gu, Suwon-city  
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UK Authorized Representative : Foreseason UK

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(Tel : +44 (0) 208 546 1047 / Fax : +44 (0) 208 391 4953)

Declare under our sole responsibility that the product

Product : 12G-SDI Optical Extension  
Model : FTSM

The objective of the declaration described above is in conformity with the relevant UK  
Statutory instruments(and their amendments):

2016 No. 1091	The Electromagnetic Compatibility Regulations 2016
2016 No. 1101	The Electrical Equipment Safety Regulations 2016
2012 No. 3032	The Restriction of the Use of Certain Hazardous Substances in Electrical And Electronic Equipment Regulations 2012

EMC Part

EN 55032:2015  
EN 55035:2017  
EN 61000-3-2:2014  
EN 61000-3-2:2013

RoHS

RoHS Directive 2011/65/EU+2015/863/EU

*The technical documentation for the product is available from :*

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Signed for and on behalf of : Jong-Kook, Moon

Place of Issue : Suwon-city, KOREA

Date of issue : Jan.01.2021

Function : CEO

Signature : 