

Specification for

Model : FTH

Revised : March 13, 2015
Original Release Date : April 11, 2014

OPHIT

Revision History

Version Number	Revision Date	Author	Description of Changes
0.1	April 11, 2014	H.S YANG	Initial Version
0.2	March 13, 2015	H.S YANG	The General Specification Modified.

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1. General Description

FTH, optical HDMI extension module, is designed to let digital flat panel display signal extend over 200 meters away from host based on HDMI standard by optical transmission technology. Its small package and transmit up to four video and one low-speed lane, while simultaneously receiving one low-speed signal, all on one multimode fiber.

- Long distance transmission of digital graphic signal corresponding to T.M.D.S -over 200 meter (656ft) by multi-mode one fiber.
- TMDS video signals and EDID data are transmitted by 1 channel multimode optical fiber.
- Maximum Support resolution – Ultra High Definition (3840x2160@30Hz)
- Supports HDCP by DDC channel.

2. General Specification

Parameter	Symbol	
	Transmitter	Receiver
Video Bandwidth(Input)	3.4 Gbps / Channel	
Module Dimension	106(4.1)x 70(2.7) x 23(0.9) mm(inch) - (W x D x H)	
Module Weight	75 g	75 g
Copper Connector	HDMI A Type Connector(Female)	
Optical Connector	1 Optical LC Connector	1 Optical LC Connector
Recommended Fiber	50/125 OM3 Multi-mode glass-fiber	
Power	DC 5V	
Maximum Supporting Resolution	UHD(Ultra High Definition) 3840 x 2160 @ 30Hz	

3. Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Power Supply	V_{CC}	-0.3	+5.5	V
Operating temperature	V_{OT}	0	+50	°C
Storage temperature	V_{ST}	-20	+70	°C
Relative Humidity	H_{RH}	10	80	RH

NOTICE

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings 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 Electrical Specification

4.1.1 Transmitter Module

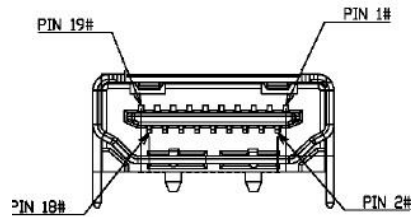
	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage (Option External Power)	V_{CC}	4.5	5.0	5.5	V	
	Supply Current	I_{CC}	-	420		mA	4K 30Hz
	Power Dissipation	P_O	-	2.1		W	4K 30Hz
T M D S	Reference voltage for graphic signal	V_{REF}	3.1	3.3	3.5	V	
	Single-ended high level input voltage	V_H	$V_{REF} - 0.01$		$V_{REF} + 0.01$	V	
	Single-ended low level input voltage	V_L	$V_{REF} - 0.6$		$V_{REF} - 0.4$	V	
	Single-ended input swing voltage	V_{ISWING}	0.4		0.6	V	
	Single-ended standby input voltage		$V_{REF} - 0.01$		$V_{REF} + 0.01$	V	
	Data Output Load	RLD		50		Ω	

4.1.2 Receiver Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage (External Power)	V_{CC}	4.5	5.0	5.5	V	
	Supply Current	I_{CC}	-	565		mA	4K 30Hz
	Power Dissipation	P_O	-	2.825		W	4K 30Hz
T M D S	Reference voltage for graphic signal	V_{REF}	3.1	3.3	3.5	V	
	Single-ended output swing voltage	V_{OSWING}	0.4		0.6	V	
	Data Input Load	RLD		50		Ω	

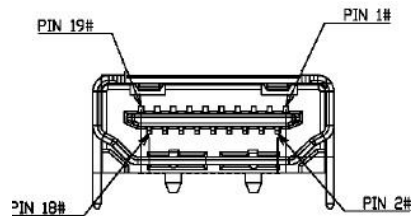
4.2 Connector Pin Assignment

4.2.1 Transmitter



Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2+	9	T.M.D.S. Data0-	17	Ground (for +5V)
2	T.M.D.S. Data2 Shield	10	T.M.D.S Clock+	18	+5V Power(Input)
3	T.M.D.S. Data2-	11	T.M.D.S Clock Shield	19	Hot Plug Detect
4	T.M.D.S. Data1+	12	T.M.D.S Clock-		
5	T.M.D.S. Data1 Shield	13	CEC		
6	T.M.D.S. Data1-	14	Reserved		
7	T.M.D.S. Data0+	15	DDC Clock (SCL)		
8	T.M.D.S. Data0 Shield	16	DDC Data (SDA)		

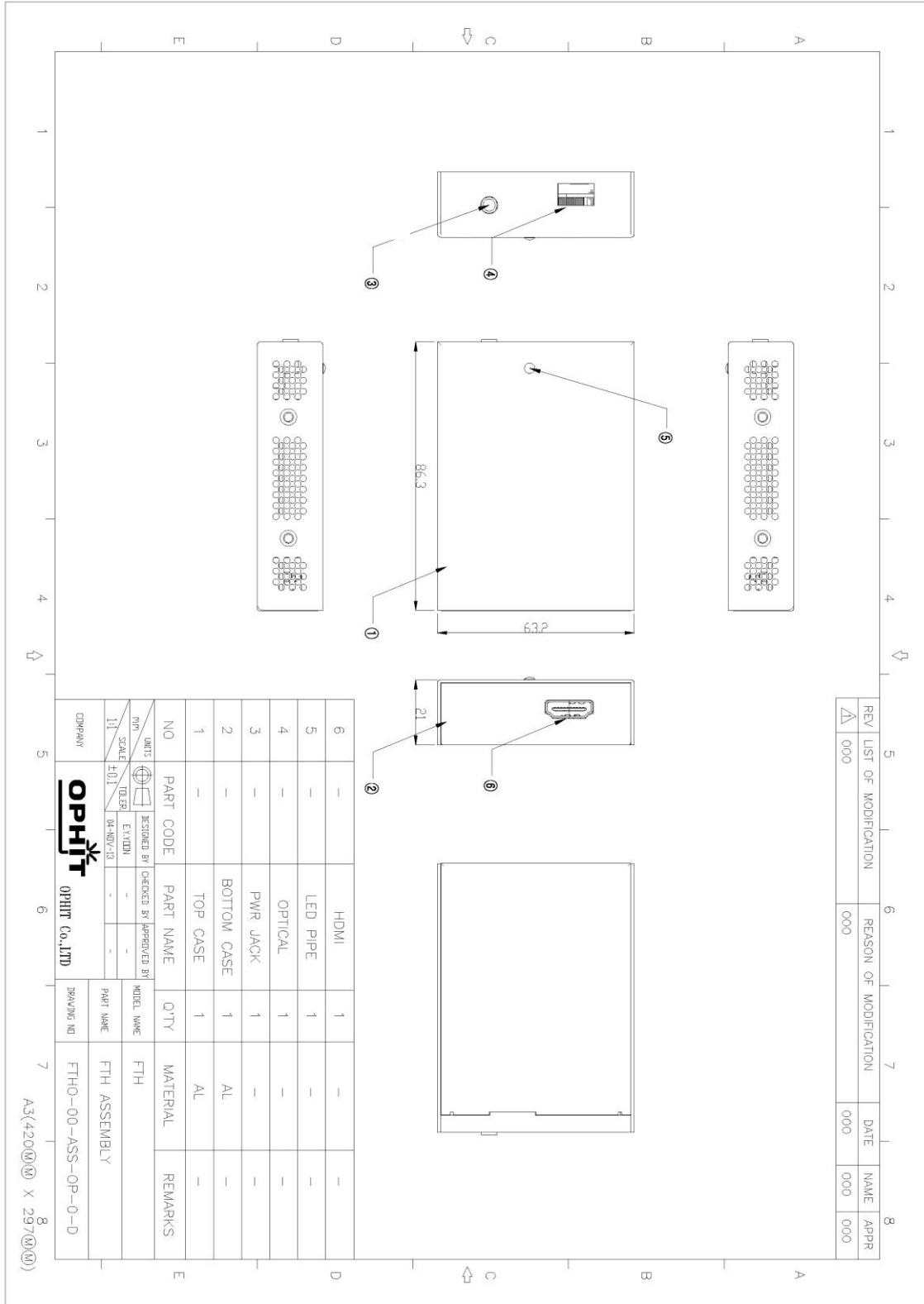
4.2.2 Receiver



Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2+	9	T.M.D.S. Data0-	17	Ground (for +5V)
2	T.M.D.S. Data2 Shield	10	T.M.D.S Clock+	18	+5V Power(Input)
3	T.M.D.S. Data2-	11	T.M.D.S Clock Shield	19	Hot Plug Detect
4	T.M.D.S. Data1+	12	T.M.D.S Clock-		
5	T.M.D.S. Data1 Shield	13	CEC		
6	T.M.D.S. Data1-	14	Reserved		
7	T.M.D.S. Data0+	15	DDC Clock (SCL)		
8	T.M.D.S. Data0 Shield	16	DDC Data (SDA)		

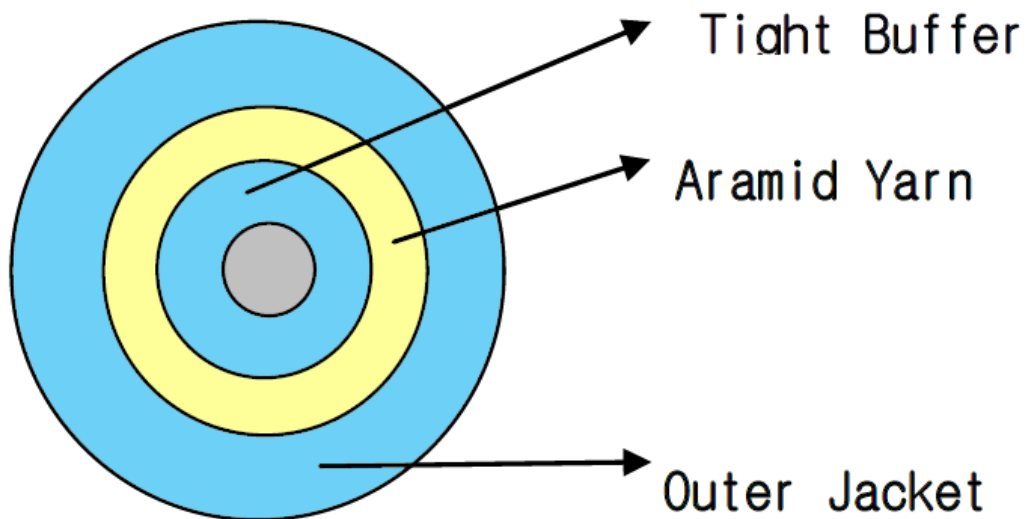
5. Mechanical Specification

5.1 Case Dimension





5.2 Cable Information

- Optical Fiber LC Cable (MMF 50/125)



6. RoHS

Declaration of RoHS Compliance

DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 27. January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Product Name : FTH

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 products.

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

Substance	RoHS Limity by Weight	RoHS Limity by % (PPM)
Lead (PB)	1000mg/kg	0.1% (1000 PPM)
Mercury (Hg)	1000mg/kg	0.1% (1000 PPM)
Hexavalent Chromium (CR VI)	1000mg/kg	0.1% (1000 PPM)
Polybrominated Biphenyls (PBB)	1000mg/kg	0.1% (1000 PPM)
Polybrominated Diphenyl Ethers (PBDE)	1000mg/kg	0.1% (1000 PPM)
Cadmium (CD)	100mg/kg	0.01% (100 PPM)

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