

PRODUCT DATA SHEET

FTAD

AOC (Active Optical Cable) for DisplayPort Ver. 1.2a/1.4



Revision History

Version Number	Revision Date	Page	Description of Changes
0.1	Jun.25.2019	ALL	Initial Version
1.0	Oct.29.2019	ALL	Renewal Specification
1.1	Aug.21.2020	9,12~13	Renewal Packing Information & Certificate
1.2	Jul.22.2021	9, 15	Modified the safety regulation, Add the UKCA DoC
1.3	Dec.12.2025	10~12	Deleted Certification DoCs,—updated the Hybrid Cable Specification and Packing information modified

PROPRIETARY NOTE

***THIS DOCUMENT CONTAINS INFORMATION CONFIDENTIAL AND PROPRIETARY TO OPHIT CO.,LTD
AND SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS
OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS OBTAINED WITHOUT THE EXPRESSED
AND WRITTEN CONSENT OF OPHIT INCORPORATION**



TABLE OF CONTENTS

1. General Description4

1.1 Instruction

1.2 Features

1.3 Applications

2. Specification5

2.1 General Specification

2.2 Power Specification

2.3 Electrical Specification

3. Absolute Maximum Ratings6

4. Connector Pin Assignment7

4.1 Transmitter

4.2 Receiver

5. Mechanical Specification8

5.1 Transmitter and Receiver Case Dimension

5.2 Design drawing

5.3 Connection

6. Hybrid Cable Specification.....10

6.1 Profile View

6.2 Cable Structure and Parameters

7. Regulatory 11

7.1 EMC & Safety Agency approval

7.2 Safety

7.3 RoHS Compliance

7.4 EU REACH Compliance

7.5 EU POPs

8. Packing Information12

1. General Description

1.1 Introduction

FTAD is AOC (Active Optical Cable) for DisplayPort standard.

The FTAD consists of a transmitting part and a receiving part, both of which are Connected by a hybrid cable (Optical cable + electric cable). The FTAD's transmitter is connected to the Display Port source device, and the receiver is connected to the DisplayPort sink device.

With FTAD, Video/audio signals can be transmitted up to 100m when a system using Display Port standard is used. It is possible to transmit the DisplayPort specification signal of the UHD bandwidth without loss.

1.2 Features

- High speed and long distance transmission by optical system
- Input and Output Signal : DisplayPort 1.2a/1.4
- MMF optical fiber + copper hybrid cable structure
- DPCD/HDCP compliant
- AUX and Hot Plug channels are transmitted by copper line
- Gender or signal conversion equipment does not guarantee
- Maximum transmission distance : 100m
- Connector : DisplayPort 20pin (Male)
- No external power supply required

1.3 Applications

- Professional broadcasting and production studios
- Medical center and laboratory
- Presentation application
- Display application

2. Specification

2.1 General Specification

Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	1x4 Array 850nm Multi-mode VCSEL	1x4 Array photo Diode
Input and Output Signal	DisplayPort Signal (1.2a/1.4)	
Video Bandwidth	Per lane, 5.4Gbps(HBR2)/8.1Gbps(HBR3)	
Using electrical connector	20 pin DisplayPort Plug(Male)	20 pin DisplayPort Plug(Male)
Applied Fiber	50/125 μ m Multi-mode glass-fiber	

2.2 Power Specification

Parameter		Min.	Typ.	Max.	Units	condition
Supply Voltage(DC)	TX (Source side)	+2.25	+3.3	+3.6	V	From source
	RX (Sink side)	+2.25	+3.3	+3.6	V	From source
Supply Current	TX (Source side)	30		47	mA	DC +3.3V
	RX (Sink side)		36	46	mA	DC +3.3V
Power Dissipation	TX (Source side)		0.122	0.139	W	DC +3.3V
	RX (Sink side)		0.264	0.280	W	DC +3.3V

2.3 Electrical Specification

Parameter	Min.	Typ.	Max.	Units	condition
Differential input voltage	200		1400	mV	
Differential input impedance at per lane+/-	80	100	125	Ohm	
Input data transition time	0		0.4	UI	20%, -80%
Output voltage swing	180		380	mVp	Fixed 380mVp
Output impedance at per lane+/-	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
Relative Humidity	10 ~ 80 %

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)

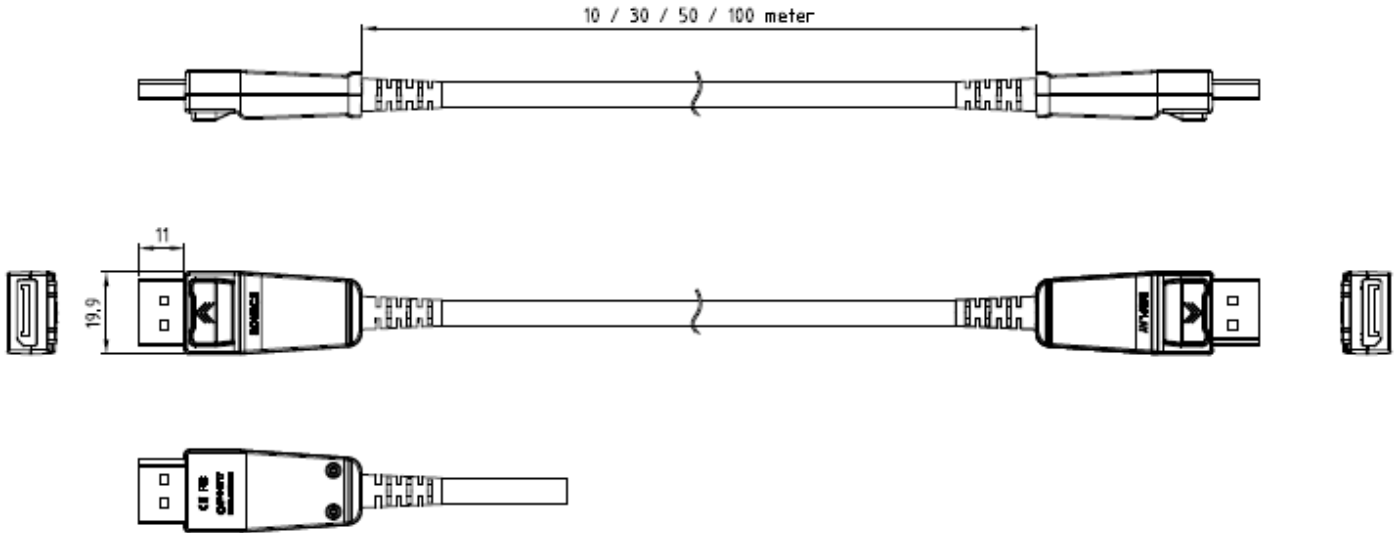
Pin	Signal Assignment	Pin	Signal Assignment
1	Main Link Lane 0 (Positive)	11	Ground
2	Ground	12	Main Link Lane 3 (Negative)
3	Main Link Lane 0 (Negative)	13	Config1 (Ground)
4	Main Link Lane 1 (Positive)	14	Config2 (Ground)
5	Ground	15	AUX Channel (Positive)
6	Main Link Lane 1 (Negative)	16	Ground
7	Main Link Lane 2 (Positive)	17	AUX Channel (Negative)
8	Ground	18	Hot Plug
9	Main Link Lane 2 (Negative)	19	Return
10	Main Link Lane 3 (Positive)	20	DP_PWR (+3.3V input)

4.2 Receiver (Sink side)

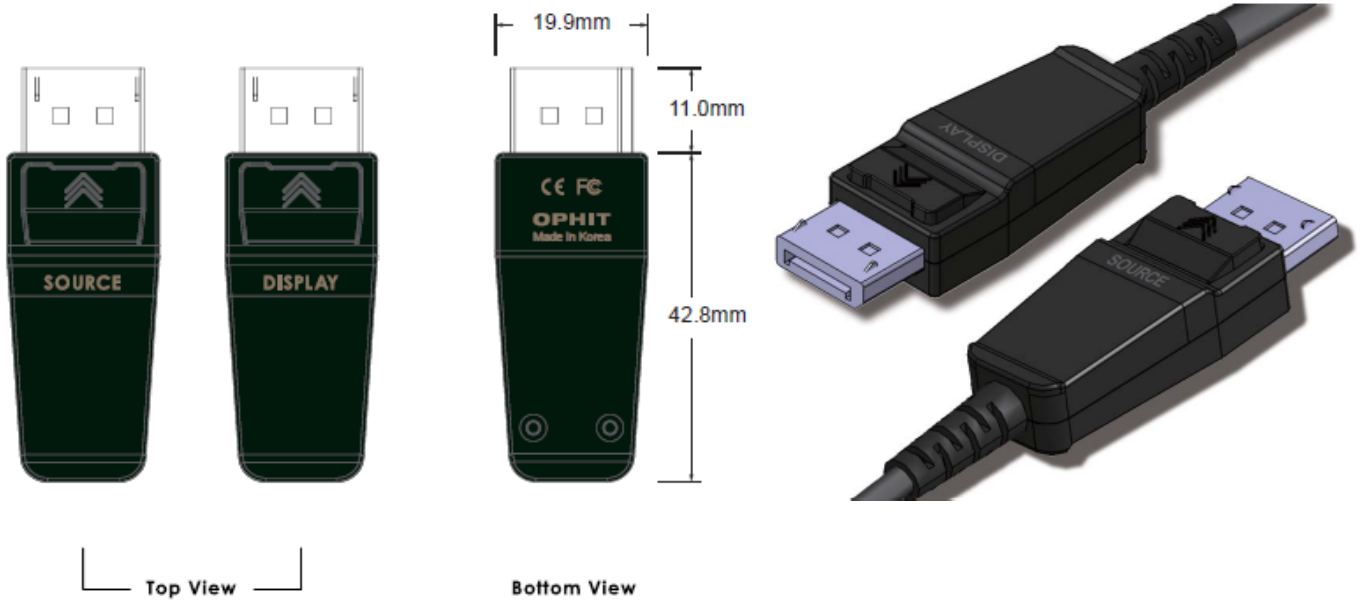
Pin	Signal Assignment	Pin	Signal Assignment
1	Main Link Lane 3 (Negative)	11	Ground
2	Ground	12	Main Link Lane 0 (Positive)
3	Main Link Lane 3 (Positive)	13	Config1 (Ground)
4	Main Link Lane 2 (Negative)	14	Config2 (Ground)
5	Ground	15	AUX Channel (Positive)
6	Main Link Lane 2 (Positive)	16	Ground
7	Main Link Lane 1 (Negative)	17	AUX Channel (Negative)
8	Ground	18	Hot Plug
9	Main Link Lane 1 (Positive)	19	Return
10	Main Link Lane 0 (Negative)	20	DP_PWR (+3.3V input)

5. Mechanical Specification

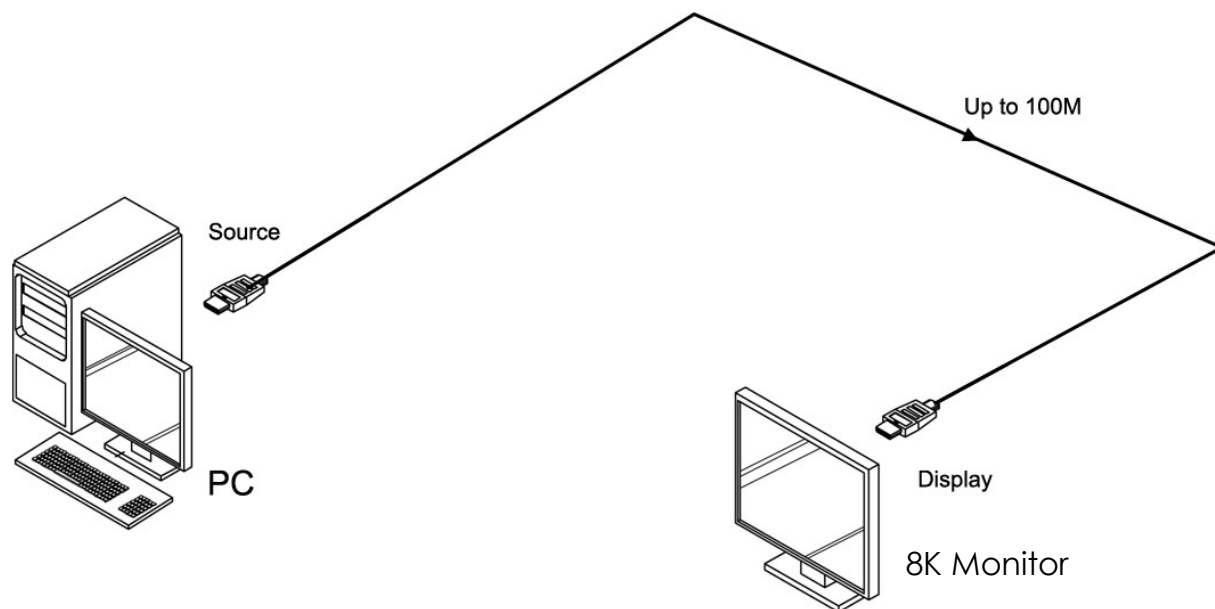
5.1 Cable Dimension



5.2 Design drawing

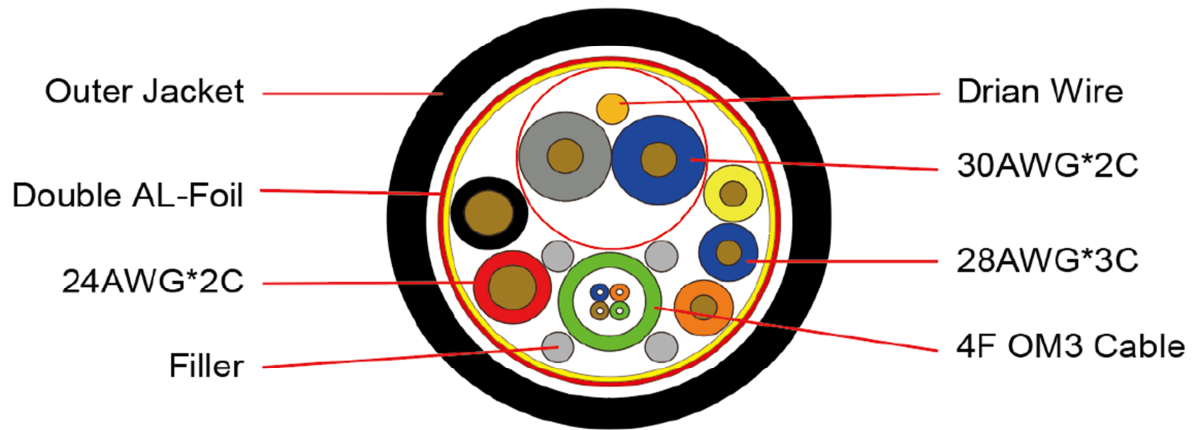


5.3 Connection



6. $\Phi 4.8\text{mm}$ Hybrid Cable Specification

6.1 Profile view



6.2 Cable Structure and Parameters

No	Description	Model	Color	Insulation	Specifications
1	Optical Cable	LSZH	Sheath LSZH Green Fiber : Blue Orange, Green, Brown	LSZH	$1.0 \pm 0.1\text{mm}$
2	Filter	Glass Yarn	-	-	-
3	Strength Member	Aramid Yarn /Cotton Yarn	-	*	$6 \times 1100\text{D}$
4	Copper Wire	30AWG $\times 2$	Pink, White	FM-PE	$1.3 \pm 0.05\text{mm}$
5	Copper Wire	28AWG $\times 3$	Yellow, Orange, Blue	PP	$0.62 \pm 0.05\text{mm}$
6	Copper Wire	24AWG $\times 2$	Black, Red	PP	$0.9 \pm 0.05\text{mm}$
7	Drain Wire	Copper wire , TC	-	-	$7/0.10\text{mm}$
8	Outer Jacket	OFNP(UL)	Black	OFNP(UL)	$4.8 \pm 0.15\text{mm}$
9	Pull Strength Long Term	-	-	-	450N 100lbs
10	Pull Strength Short Term	-	-	-	900N 200lbs

* The "Hybrid Fiber Optical Cable" assembled for FTAD is certified with UL 1651.

7. Regulatory

7.1 EMC & Safety Agency approval

7.1.1 CE-EMC compliance:

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

7.1.2 Technical Documentation

This product technical documentation for this product has been prepared in accordance with EN IEC 63000:2018.

The product has been assessed and meets the requirements for UKCA marking under applicable UK statutory instruments

7.1.3 FCC compliance:

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

7.2 Safety

7.2.1 EU Safety Information (GPSR)

According to General Product Safety Regulation (GPSR) EU/2023/988 requirements

We shall observe the following :

- Risk Analysis of product by responsibilities of Manufacturer.
- Draw up the technical documentation
- Mandatory EU representative
- Traceability rules and products identification
- Accidents, product recalls and market surveillance

7.3 RoHS compliance

This product is in compliance with the Restriction of Hazardous Substances directive EU 2015/863 and 2011/65, also contains the directive GB/T 39560(China RoHS2) of the Chinese Ministry of industry and information Technology(MIIT).

7.4 EU REACH compliance

This product 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.

7.5 EU POPs

This product complies with the requirements of Regulation EU)2024/2555 &(EU)2024/2570on Persistent Organic Pollutants (POPs).

8. Packing Information

Length(M)	Net Weight(g)	Giftbox Dimension (W x L x H)mm	Gross Weight(g)	Carton Box Dimension (W x L x H)mm	TOTAL Weight(Kg)
10	290	217 x 203 x 43	420	595 x 305 x 345	8.8
20	565	217 x 203 x 43	690	595 x 305 x 345	13.7
30	820	247 x 233 x 83	1,025	595 x 305 x 345	9.5
40	1,080	247 x 233 x 83	1,280	595 x 305 x 345	11.5
50	1,365	247 x 233 x 83	1,565	595 x 305 x 345	13.8
60	1,745	307 x 293 x 93	1,880	595 x 305 x 345	10.7
70	1,895	307 x 293 x 93	2,185	595 x 305 x 345	12.5
80	2,165	307 x 293 x 93	2,500	595 x 305 x 345	13.8
90	2,440	307 x 293 x 93	2,810	595 x 305 x 345	15.3
100	2,695	307 x 293 x 93	2,895	595 x 305 x 345	15.8

Note : Maximum load Quantity

-10~20M : 18EA

-30~50M : 8EA

-60~100M : 5EA

Package Contents

- FTAD-AXXX('XXX' is Cable Length)
- User Manual

Note: This package does not include OMP-HM- Reciever, DisplayPort and HDMI copper cables.

8.1 UDI-DI (Device Identifier)

Unit packaging-

Lenth(M)	GTIN-14	Lenth(M)	GTIN-14
10	08809540081867	60	08809540082284
20	08809540081874	70	08809540081980
30	08809540081881	80	08809540081911
40	08809540081898	90	08809540082291
50	08809540081904	100	08809540081928

Bundled packaging- - 8809540081935

8.2 UDI-PI(Production Identifier)

(01) UDI-DI

(10) Product LOT No.

(11) Manufacturing Date

