

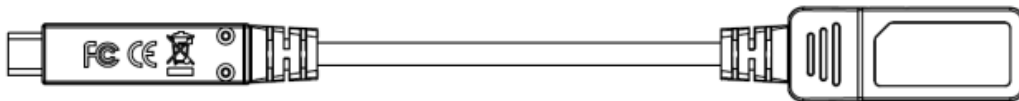


Electronic Links International, Inc.

Interconnecting Components and Systems.

Data Sheet

USB3.1 For Active Optical Cable SPECIFICATIONS



MODEL No.	
Model Number	Custom Model Number
USB3.1AOC-A/1-AF/1-(X)M-XXX	

PRELIMINARY
OFFICIAL

Ver : 0.1
Release Date: 2017-02-21

ElectronicLinks
international inc

Electronic Links International, Inc.
59 Court Street Binghamton, NY 13901 USA
P. +1.607.761.6886 M. +1.607.761.9952



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1. History

Version	Date	Made By	Description Of Change
0	2016-12-16	Nick	Initial Release
0.1	2017-02-21	Nick	Add outline Dimension





USB3.1 for Active Optical Cable



2. Description

1. Basics: USB3.1 Hybrid Active Optical Cable (AOC) speed up to 10 Gbps, USB 3.0 speed up to 5 Gbps.
2. Dimension of USB3.1 Type C male plug conforming requirements (Size: 40.84*11.86*7.18 mm) and the other side is USB3.1 Type C female Size:46.62*18.54*10.06 mm.
3. There is USB 2.0 function in this cable, thus it supports USB 3.1 and 3.0 function.
4. USB3.1 AOC can extend high speed transmission distance up to 5M of optical cable.

3. Features

- USB3.1 certified, extend High Speed USB3.1 up to 5M
- 850nm Laser Optical Transmission Technology
- 90 Ohm impedance, low RFI/EMI for sensitive environment
- Thin, light, all-in-one dimension fits USB3.1 Type C male plug
- Plug and play, no software to be installed
- Supports OS windows system 7, 8.1 , 10.



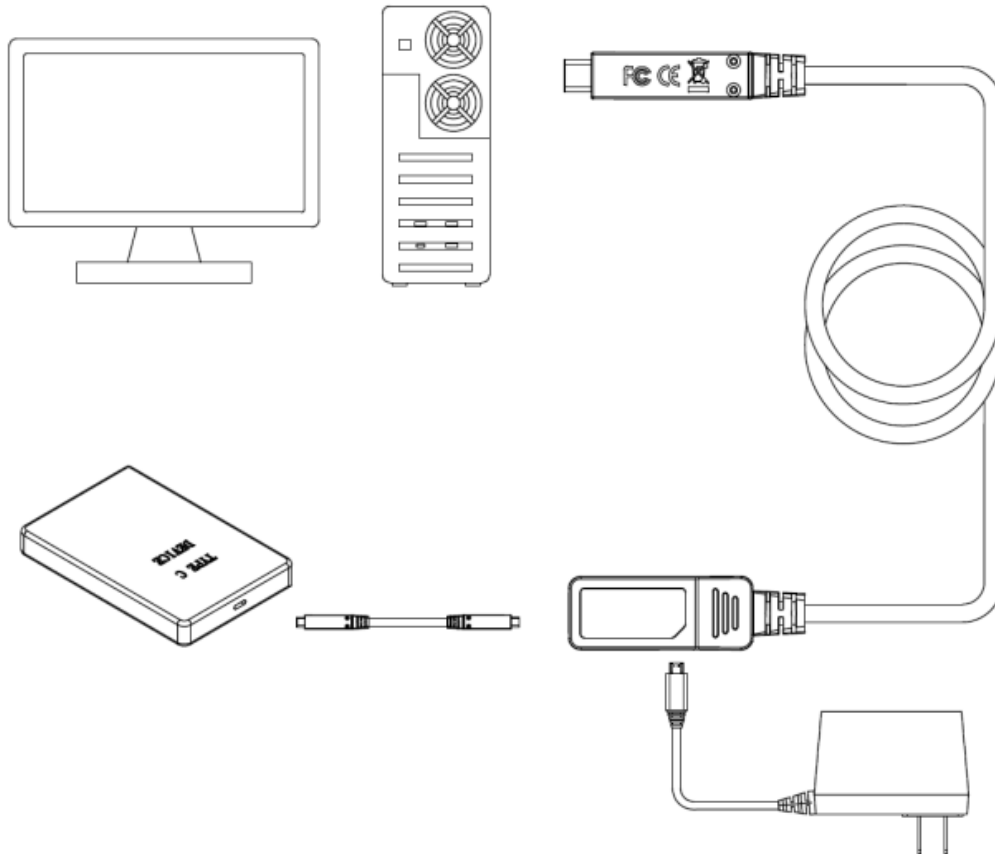
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4. Applications

- File system to file system
- Long Distance Communication and outside application
- Conference Room System
- High Speed Data Transfer





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5. Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Supply Voltage	V _{CC}	4.75	5.25	V
Supply Current *	Amp	0.5	2	A
Storage Temperature	T _{st}	-10	70	?C
Operation Temperature	T _{op}	0	50	?C
Relative Humidity	RH	0	80	%

*Note: Adapter Supply Current must apply 5V/2A for device use.

6. Recommended Operating Conditions

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Voltage	V _{CC}	+4.75	+5.0	+5.25	V
Center Wavelength	Tx	λ	850	-	nm
	Rx	λ	850	-	
Data Rate	Tx	-	10G	10G	bps
	Rx	-	10G	10G	bps
Ambient Temperature	T _A	0	+25	+50	?C

7. Electrical Power Supply Characteristics

Type CM Parameter	Symbol	Minimum	Typical	Maximum	U
CM Supply Voltage	V _{CC}	+4.75	+5.0	+5.25	V
USB3.1 Current Output	I	-	50	100	mA
CM Power Dissipation	Watt	-	0.25	0.525	W
USB3.1 CF Current *	I	-	1000	2000	mA
CM Power Dissipation	Watt	-	5	10.5	W
USB2.0 Impedance	Z _{2.0}	75	90	105	ohms
CM Impedance Differential	Tx Z _{TX}	76	85	94	ohms
CM Impedance Differential	Rx Z _R	76	85	94	ohms

Note1: * : adapter supply need Micro USB B plug and output 5V/2A for CF use.



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Fiber Cable Specifications

Parameter	Value
Cable Jacket material	LSZH
Color	BLACK
Optical Fiber	50/125 Multimode Fiber
Output Diameter	4.3mm ^{+0.3mm} / _{-0.3mm}
Minimum Bending Radius	TBD
Maximum Tensile Load	TBD
Net Weight	TBD

8. USB AOC Plug Appearance

Parameter	CM Value	CF Value
Connector material	Metal	Metal
Color	Black	Black
Connector dimension	40.84x11.86x7.18mm	46.62x18.54x10.06mm
Type C Connector	8.25x6.65x2.4mm	8.34x6.05x2.56mm

NOTES:

1. All dimensions in mm.
2. Tolerance (except cable length): XXXX =±5, XXX.x =±1, XX.x =±0.5

9. EMC Test

EMI: FCC CLASS B (ICES-003) and CE CLASS B		
Standards		Con
EN 55 022 (CISPR22)	CE (Conducted Emission)	Meet Class B
FCC; PART 15 SUBPART B	RE (Radiated Emission)	Meet Class B
EN 61 000-3-2 (IEC 61000-3-2)	Harmonics	Meet Class B
EN 61 000-3-2 (IEC 61000-3-3)	Flickers	Meet Class B
EMS: CE STANDARDS (EN 55024) and CISPR24 EQUIVALENTS		
Standards		Con
EN 61 000-4-2: 2008	Electrostatic Discharge Immunity (Air: 8kV, Contact: 4kV)	Meet Class B
EN 61 000-4-3: 2010	Radiated RF E-Field (80–1000MHz) 3V/m (AM 80%, 1kHz)	Meet Class B
EN 61 000-4-4: 2012	Fast Transients (5kHz, 60sec)	Meet Class B
EN 61 000-4-5: 2005	Surge Transients	Meet Class B
EN 61 000-4-6: 2008	Conducted Susceptibility (CS) Radiated Susceptibility (RS)	Meet Class B
EN 61 000-4-8: 2009	Power Frequency Magnetic Field	Meet Class B
EN 61 000-4-11: 2004	Voltage Dips, Interruption & Variation	Meet Class B

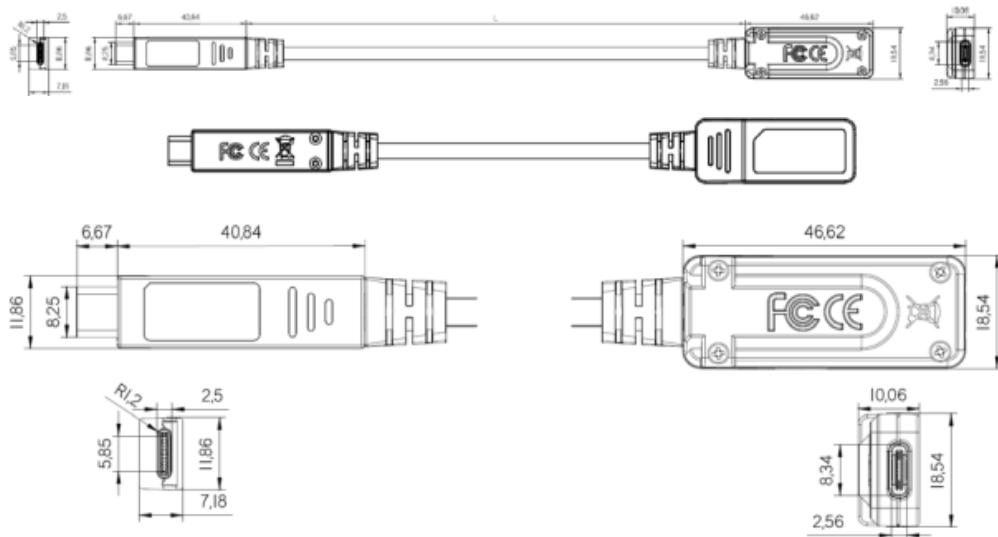


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10. Drawing



Item	USB 3.1 Type CM CF											
length	L= 5m ^{?30CM} / _{?0CM}											
dimension	(54.65x12x6)mm											
Connector define CM	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1
	GND	RX2+	RX2-	VBUS	SBU1	D-	D+	CC	VBUS	TX1-	TX1+	GND
	GND	TX2+	TX2-	VBUS	VCONN			SBU2	VBUS	RX1-	RX1+	GND
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
Connector define CF	B12	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
	GND	TX1+	TX1-	VBUS	CC1	D+	D-	SBU1	VBUS	RX2-	RX2+	GND
	GND	RX1+	RX1-	VBUS	SBU2	D-	D+	CC2	VBUS	TX2-	TX2+	GND
	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1

PS : The drawings above are for reference only, final dimensions and label content should be based on physical samples received from ELII,



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Label 1

USB3.1 Label:

- Label size : Type CM :18mm * 8.5mm
Type CF :25mm * 11mm

- Label define:
Use QR code display, and the code define are



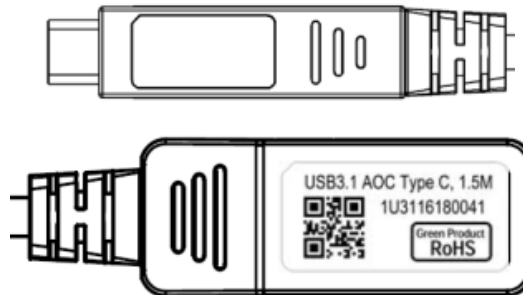
1 2 3 4 5 6 7 8 9 10 11 12

code	Define function
1	1: (TW)
2~4	U31:USB3.1
5, 6	Year: 16=2016, 17=2017,etc the year number needs to follow alphabetical order.)
7, 8	Week (1~53 Week/year)
9~12	Series number (001~999 / Week)

- Label image:



- Label Paste locate place:



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11. Package

Fiber Winding inside diameter $d=15.5\text{cm}\pm 0.5\text{cm}$ (sponge diameter $>15\text{cm}$), Rubber cable ties *2 & Wire Tie *2



Carton size: 470*340*300 mm

