Electronic Links International, Inc.
Interconnecting Components and Systems.

Data Sheet

USB3.0 For Active Optical Cable SPECIFICATIONS

MODEL	
ELII PART NUMBER	Custom PART NUMBER
USB3AOC-A/1-A/1-(X)M-XXX	
USB3AOC-A/1-AF/1-(X)M-XXX	

☐ PRELIMINARY
☑ OFFICIAL

Ver: 3
Release Date: 2018-01-08

CUSTOMER BY

PREPARED BY

APPROVAL	CHECK BY	DESIGN BY
Victor	Jacky	Nick

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Data Sheet

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1. History

Version	Date	Made By	Description of Change
1.0	2015-01-26	Nick	Initial Release
2.0	2017-11-24	Nick	New Release
3.0	2018-01-08	Nick	Change package

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USB3.0 for Active Optical Cable

2. Description

1. Basics: USB3.0 Active Optical Cable (AOC) speed up to 5 Gbps
2. Dimension of USB3.0 Type A male plug conforming requirements (Size: 56.1 x 8 x 16 mm).
3. It requires two cables to be connected into one adapter in order to operate well with USB 3.0 function.
4. There is no USB 2.0 function in this cable, thus it only support USB 3.0 function.
5. USB3.0 AOC can extend high speed transmission distance up to 100m (330ft) of optical cable.

3. Features

- Extend High Speed 5Gbps to 100m (330ft)
- 850nm Laser Optical Transmission Technology
- 90 Ohm impedance, low RFI/EMI for sensitive environment
- Thin, light, all-in-one over mold dimension fits USB3.0 Type A male plug
- Plug and play, no software to be installed
- Supports OS

  windows system 7, 8.1, 10

  Linux fedora 20

  Scientific Linux 6.3

  MAC OS 10.8.5 above

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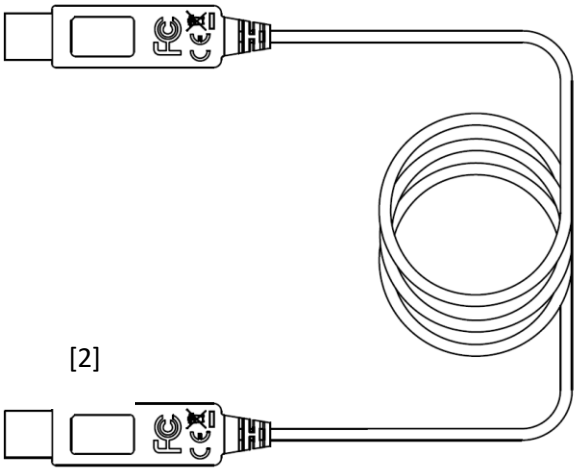
4. Applications

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

[1]



[3]

[2]

PS:

1. Plug **Device 1** into USB 3.0 Host PC or NB.

2. Bridge **Device 2 and 3.**

3. Finally, **Device 3** supply AC power.

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5. Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Supply Voltage	V_{CC}	4.75	5.25	V
Storage Temperature	T_{st}	-10	70	°C
Operation Temperature *	T_{op}	0	50	°C
Relative Humidity	RH	0	80	%

* Temperature change Rate not over 1℃/ min

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		20M	5G	5G	bps
	Rx		20M	5G	5G	bps
Ambient Temperature *		T_A	0	25	+50	°C

* Temperature change Rate not over 1℃/ min

7. Electrical Power Supply Characteristics

Parameter		Symbol	Minimum	Typical	Maximum	Unit
Supply Voltage		V_{CC}	+4.75	+5.0	+5.25	V
Supply Current *		I	40	55	100	mA
Power Dissipation		P	0.2	0.275	0.53	W
Impedance Differential	Tx	Z_{TX}		90		ohms
	Rx	Z_{RX}		90		ohms

* USB 3.0 AM Connector must be applied at least 100 mA with no device.

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8. Fiber Cable Specifications

Parameter	Value
Cable Jacket material	LSZH
Color	Orange
Optical Fiber	50/125 Multimode Fiber
Outer Diameter	3.0mm
Minimum Bending Radius	37.5mm
Maximum Tensile Load	0.7GN / m^2
Net Weight	8g/meter

9. USB AOC Plug Appearance

Parameter	Value
Plug case material	Plastic
Color	Black
Plug dimension	56.1 x 8 x 16mm

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

10. Mechanical Performance

Item	Test Condition	Requirement
Insertion and Withdrawal Force	Insert and extract applicable USB AM/AF at the speed rate of 12.5 mm/minute.	Insertion 3.57kgf MAX Withdrawal 1.02kgf MIN
Durability	Mate/Un-mate cycle at speed of 12.5 mm/minute.	1500 cycles

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11. EMC Test

EMI: FCC CLASS A (ICES-003) and CE CLASS A		
Standards		**Conditions**
EN 55 022 (CISPR22) FCC; PART 15 SUBPART B	CE (Conducted Emission) RE (Radiated Emission)	Meet Class A
EN 61 000-3-2 (IEC 61000-3-2)	Harmonics	Meet Class A
EN 61 000-3-2 (IEC 61000-3-3)	Flickers	Meet Class A

EMS: CE STANDARDS (EN 55024) and CISPR24 EQUIVALENTS		
Standards		**Conditions**
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 A
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 A
EN 61 000-4-8: 2009	Power Frequency Magnetic Field	Meet Class A
EN 61 000-4-11: 2004	Voltage Dips, Interruption & Variation	Meet Class A

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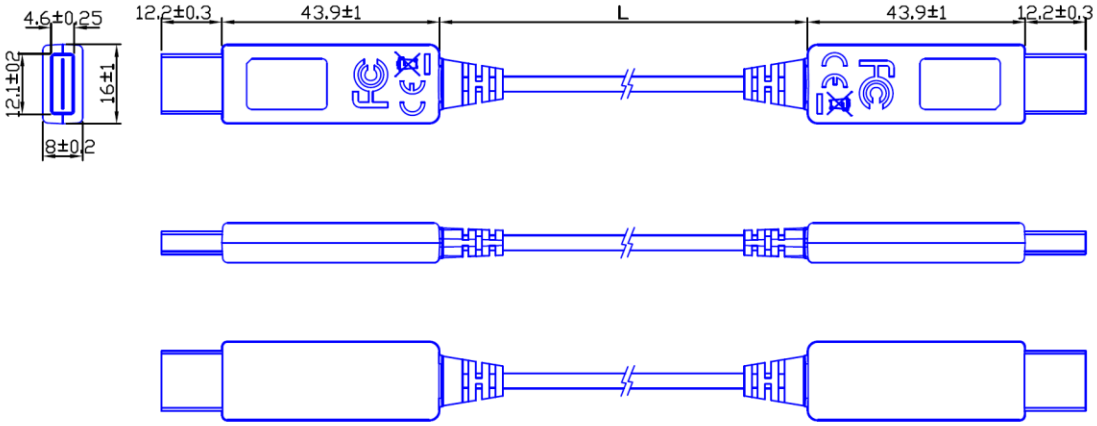
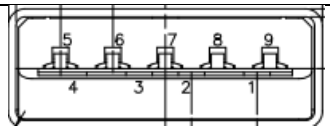
12. Drawing



Fiber print: Optical Cable OM3 50 /125 LSZH OFNR (UL) c(UL) 75°C E316737 (F.RoHS) MM/YY XXXXM

or PLUS CORNING ClearCurve OM3 OPTICAL FIBER LSZH-OFNR (UL) c(UL) E227931 (F. RoHS) MM/YY 0000M

Item	AM
length	Length $=L^{+80cm}_{-0cm}$
dimension	(49.3*16*8)mm
Connector define	
Fiber print	Optical Cable OM3 50 /125 LSZH OFNR (UL) c(UL) 75°C E316737 (F.RoHS) MM/YY XXXXM or PLUS CORNING ClearCurve OM3 OPTICAL FIBER LSZH-OFNR (UL) c(UL) E227931 (F. RoHS) MM/YY 0000M

POSITION	DESCRIPTION
1	+5V Power
2	D-(N.C is ok)
3	D+(N.C is ok)
4	GND
5	StdA_SSRx-
6	StdA_SSRx+
7	GND_DRAIN
8	StdA_SSTx-
9	StdA_SSTx+
Shell	Shield

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13. Label 1

USB3.0 Label：

- Label size: 15.8mm * 9.8mm.
- Label define:
  Use QR code display, and the code define are

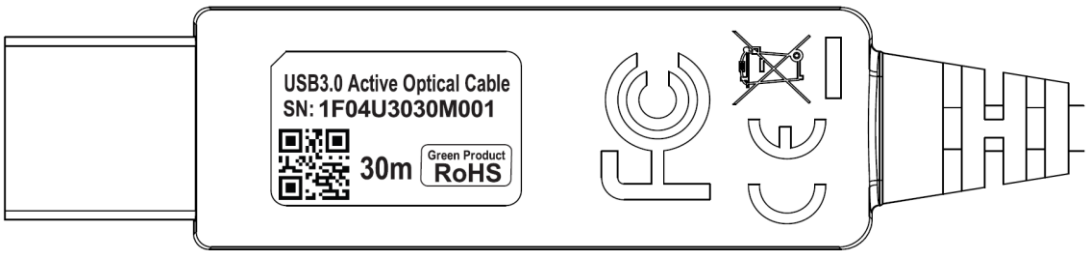
□□□□□□□□□□□□□

1 2 3 4 5 6 7 8 9 10 11 12 13

code	Define function
1	1: (TAIWAN) 2: (CHINA)
2	Year: (2000=0, 2001=1... 2010=A.. 2015=F, 2016=G, 2017=H, 2018=I, 2019=J, the year number needs to follow alphabetical order.)
3, 4	Week: (1~53 Week/year)
5, 6	Product: (U3:USB3.0)
7 ~ 9	Fiber length: (020=20 fiber unit, 100=100 fiber unit)
10	Fiber Unit: (M:Meter C:CM)
11 ~ 13	Series number (001~999)

- Label 1 image:

- Label Paste locate place:



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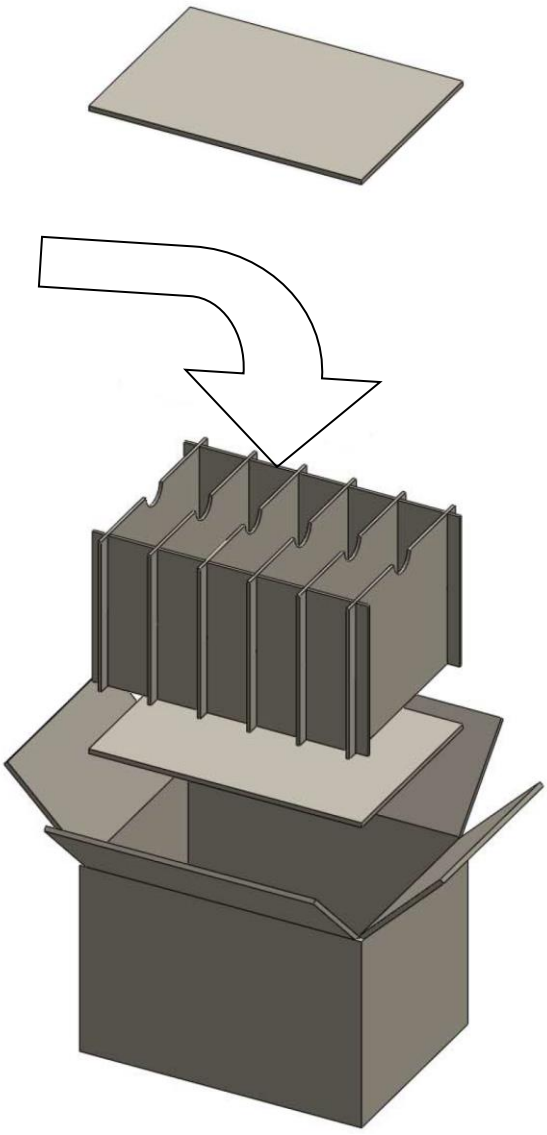
14. Package 1

1M~10M Package



Note;

1. Carton size：470*340*300 mm (L x W x H)

2. For example: Length at 3M USB3.0 AOC package will be 5*5=25pcs in one carton.

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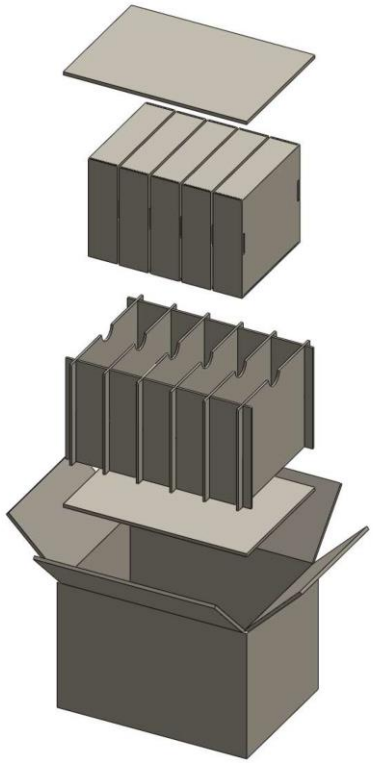
15. Package 2

15M~100M Package

Fiber Winding inside diameter d=15.5cm±0.5cm (sponge diameter >15cm) Rubber cable ties *2



Sample Fig

Carton size：470*340*300 mm

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