



## **SUMF-3020 SERIES**

### **USB 3.0 (Compatible with USB 2.0) AOC**

#### ***Description***

The USB 3.0 Active Optical Cable (AOC) is a USB 3.0 electrical to optical conversion module. This product can translate signals between USB 3.0 electrical and optical signals. AOC is a cabling technology that accepts the same electrical inputs as a traditional copper cable, but uses optical fiber "between the connectors". Ordinary USB3.0 active fiber cable's defect that can't supply power to device. AOC offer a quick solution to supply longer cable for USB3.0 application. The USB fiber cable length can be up to 50m with USB 3.0 version and also downward compatible with USB 2.0 and USB 1.1 at USB Female Side. Chip technology is capable of realizing mutual conversion between USB3.0 and USB2.0 protocols on remote side device, so as to enable USB2.0 equipment to share the super speed bandwidth (5Gbps) of USB3.0.

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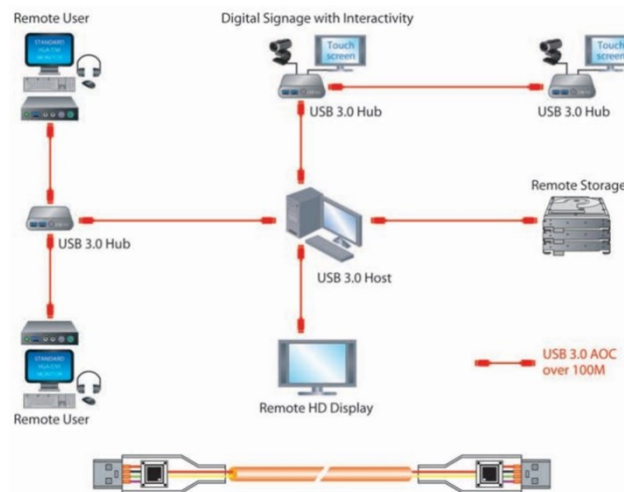
## ***KEY FEATURES***

- ◆ Extends USB 3.0 & USB 2.0 super speed devices up to 50 m
- ◆ Supports all USB 3.0 device types at Host: control, interrupt, bulk and isochronous at up to 5 Gbps
- ◆ Operates with USB 3.0 super speed host controllers
- ◆ Supports Window operating systems
- ◆ Number of devices can be increased using additional hubs
- ◆ A substantial increase in USB2.0 device bandwidth with special technology
- ◆ Power adapter at host is optional, can provide 5V 900mA power maximum to the remote device ;
- ◆ Ideal for a wide variety of USB devices, from printer, scanners, hard drives, and audio devices, to touch screens, web cams, and game controllers

## ***Applications***

- ◆ Industrial Control
- ◆ Digital Signage
- ◆ Home Network Integration
- ◆ Medical Device Connectivity
- ◆ KVM Extension
- ◆ Remote Desktop USB 3.0 Connections
- ◆ Security: web camera, access control
- ◆ USB 3.0 Device Sharing: print, scan, storage

## Applications Reference



## SPECIFICATIONS

Product Name	SUMF-3020 Series
Description	USB 3.0 Active Optical Cable downward compatible with USB 2.0
Connector	USB 3.0 Standard-A Male to A female plug
Max. data rate	5.0Gbps
Range	1650 ft( 50 m) over multimode optical fiber
Optical Transceiver	850 nm VCSEL (multimode)
Cable diameter	4.5 mm
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F).

Humidity	5% to 90% (non-condensing)
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### *Absolute Maximum Ratings*

Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	VCC	-0.5	5.5	V
Operating Temperature	Top	0	50	°C
Storage Temperature	Ts	-20	70	°C
Storage Relative Humidity	Hs	10	85	%RH

### *Recommended Operating Conditions*

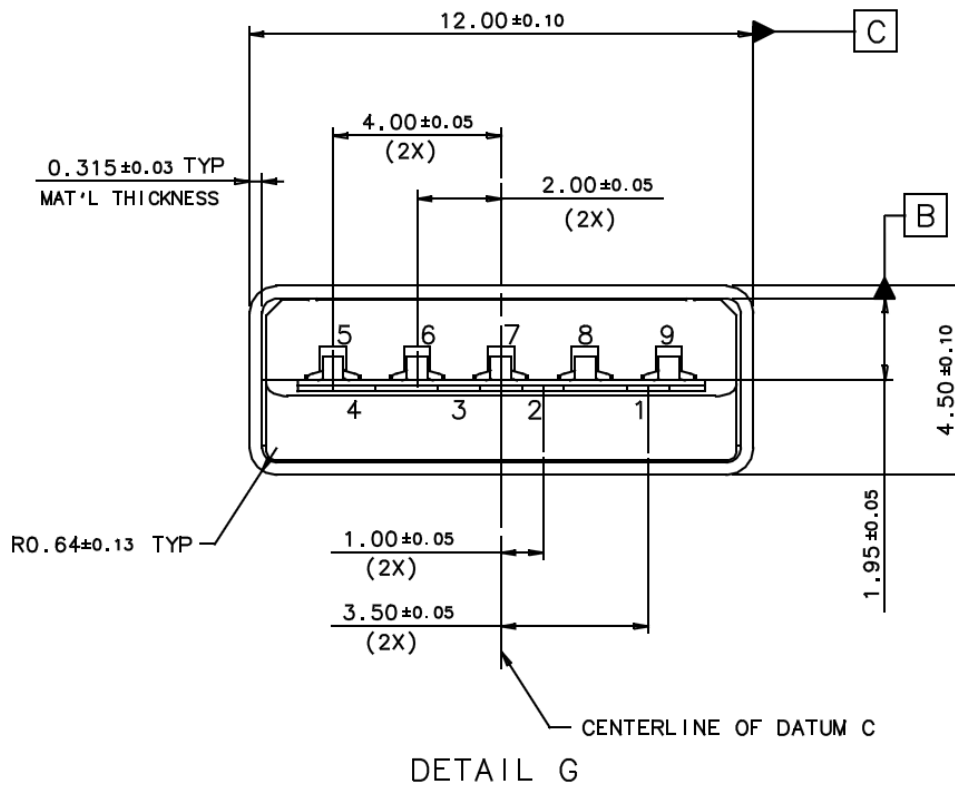
Parameter	Symbol	Minimum	Typical	Maximum	Units
Supply Voltage	VCC	4.75	5	5.25	V
Operating Temperature	Top	0		50	°C

### *Characteristics*

Parameter	Description	Minimum	Typical	Maximum	Units
VCC	Supply Voltage	4.75	5	5.25	V
I <sub>BUS</sub>	Current at USB Bus Power	49.5	55	60.5	mA
R <sub>DIFF</sub>	Differential impedance		90		Ω
USB3.0 AOC TX Characteristic					
P <sub>TX</sub>	Optical TX output power	0			dBm

R <sub>j</sub>	Random jitter			3	ps
D <sub>j</sub>	Deterministic jitter			60	ps
T <sub>j</sub>	Total jitter at a 10-12 BER			100	ps
USB3.0 AOC RX Characteristic					
S <sub>RX</sub>	RX sensitivity	-7.5			dBm
C <sub>AC-COUPLING</sub>	AC coupling capacitor on RXOUT	75	100	200	nF

### USB 3.0 Standard-A Plug Pin Assignment



USB 3.0 Standard-A Plug Pin Assignment

Pin number	Signal Name	Description
1	VBUS	Power
2	D-	USB 2.0 differential pair
3	D+	
4	GND	Ground for power return
5	SSTX-	SuperSpeed transmitter differential pair
6	SSTX+	
7	GND	Ground for signal return
8	SSRX-	SuperSpeed receiver differential pair
9	SSRX+	
Shell	Shield	Shield

## Ordering Information

Part Number	Description
SUMF-3020-010	USB 3.0 AOC, 5Gbps,Length 10m
SUMF-3020-020	USB 3.0 AOC, 5Gbps,Length 20m
SUMF-3020-030	USB 3.0 AOC, 5Gbps,Length 30m
SUMF-3020-050	USB 3.0 AOC, 5Gbps,Length 50m