

## USB 3.1 Active Optical Cable

AM AF backwards compatible with USB 2.0

*Model: U31-AMAF32-xx*

*Datasheet V2.0*



## 1. DESCRIPTION

The Infobit USB 3.1 Active Optical Cable (AOC) is designed to be compliant with SuperSpeed USB electrical specifications, offering seamless interoperability between existing USB 3.0 hosts, hubs and devices, ensuring a trouble-free plug-and-play experience. With an ultra-thin profile and long reach, the USB 3.0 AOC breaks the distance barrier and introduces a cost-effective and high-performance solution enabling existing devices to be used in new ways such as for industrial and security cameras, Industrial and Medical machine control and High-Definition surveillance.

## 2. FEATURES

- USB 3.1 Type-A Male to USB 3.1 Type-A Female
- Extend USB 3.0 and 2.0 devices up to 50 meters
- Supports all USB 3.0 devices (**compatible with USB 2.0**)
- Convert USB electrical data signal to optical signal
- Supports USB 3.0 @ 10Gbps
- Plus and Play
- Fully featured Optical Transceiver integrated circuit includes a receiver and a transmitter
- 850nm VCSEL transmitter and PIN photo-detector receiver
- Supports all major operating systems including Windows, Mac OS, and Linux
- Number of devices can be increased using additional hubs
- Low power consumption
- 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 console.

### 3. APPLICATIONS

- Industrial Control
- Digital Signage
- Home Network Integration
- Medical Device Connectivity
- KVM Extension
- Remote Desktop USB 3.0 and 2.0 Connections
- Security: web camera, access control
- USB 3.0 and 2.0 Devices Sharing: printer, scanner, storage

### 4. SPECIFICATION

Product Name	USB 3.1 Active Optical Cable
Description	USB 3.1 Active Optical Cable backwards compatible with USB 2.0
Connector	USB 3.1 Standard-A Male to A female plug
Max. data rate	10Gbps
Range	50m 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)

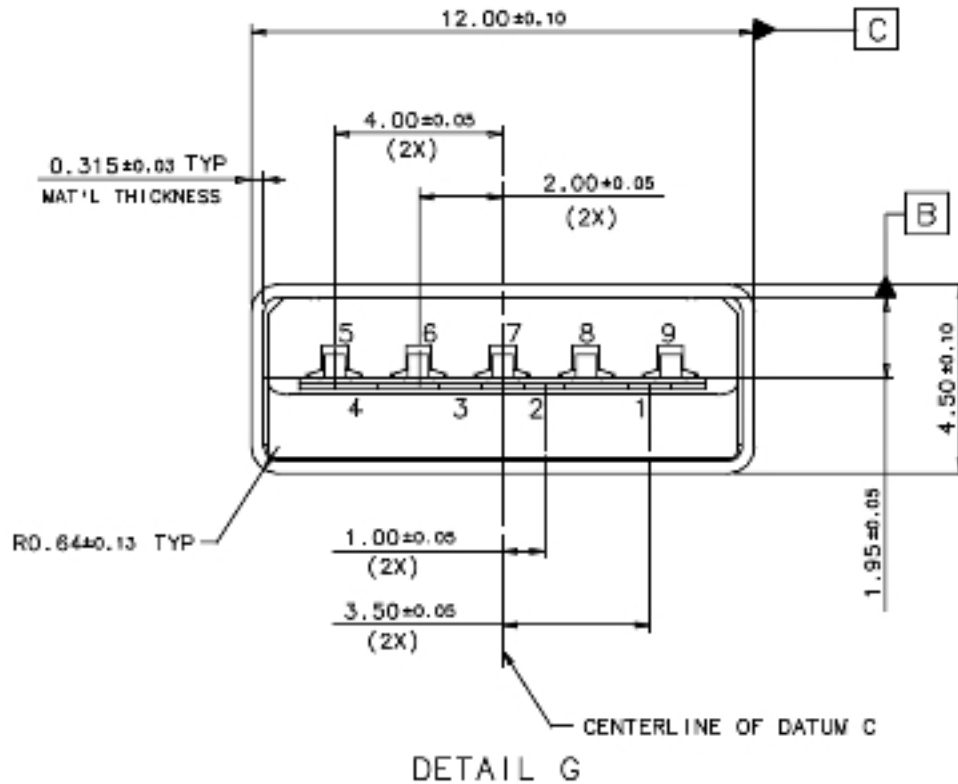
Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	VCC	-0.5	5.5	V
Operating Temperature	Top	0	50	°C

Storage Temperature	Ts	-20	70	°C
Storage Relative Humidity	Hs	10	85	%RH

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

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
<b>USB3.0 AOC TX Characteristic</b>					
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
<b>USB3.0 AOC RX Characteristic</b>					
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

## 5. ORDER CODE

<b>Model Number</b>	<b>Description</b>
U31-AMAF32-05	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 5m
U31-AMAF32-10	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 10m
U31-AMAF32-15	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 15m
U31-AMAF32-20	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 20m
U31-AMAF32-25	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 25m
U31-AMAF32-30	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 30m
U31-AMAF32-40	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 40m
U31-AMAF32-50	USB 3.1 Gen 2, 10Gbps, AM to AF, AOC cable, 50m