USB 3.0 Active Optical Cable

AM AF backwards compatible with USB 2.0

Model: AOC-USB30-AMAF

The Infobit USB 3.0 (also called as USB3.1 Gen 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.

Features

- USB 3.0 Type-A Male to USB 3.0 Type-A Female
- Extend USB 3.0 and 2.0 devices up to 30 meters (100ft)
- Supports all USB 3.0 devices (**compatible with USB 2.0**)
- Convert USB electrical data signal to optical signal
- Supports USB 3.0 @ 5Gbps
- 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 wire variety of USB devices, from printer, scanners, hard drives,and audio devices, to touch screens, web cams, and game console.

Applications

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

Specs

Product Name	USB 3.0 Active Optical Cable
Description	USB 3.0 Active Optical Cable backwards compatible with USB 2.0
Connector	USB 3.0 Standard-A Male to A female plug
Max. data rate	5.0Gbps
Range	30m 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)

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_{BUS}	Current at USB Bus Power	49.5	55	60.5	mA
R_{DIFF}	Differential impedance		90		Ω
USB3.0 AOC TX Characteristic					
P_{TX}	Optical TX output power	0			dBm
R_j	Random jitter			3	ps
D_j	Deterministic jitter			60	ps
T_j	Total jitter at a 10-12 BER			100	ps
USB3.0 AOC RX Characteristic					
S_{RX}	RX sensitivity	-7.5			dBm
$C_{AC\text{-}COUPLING}$	AC coupling capacitor on RXOUT	75	100	200	nF

USB 3.0 Standard-A Plug Pin Assignment
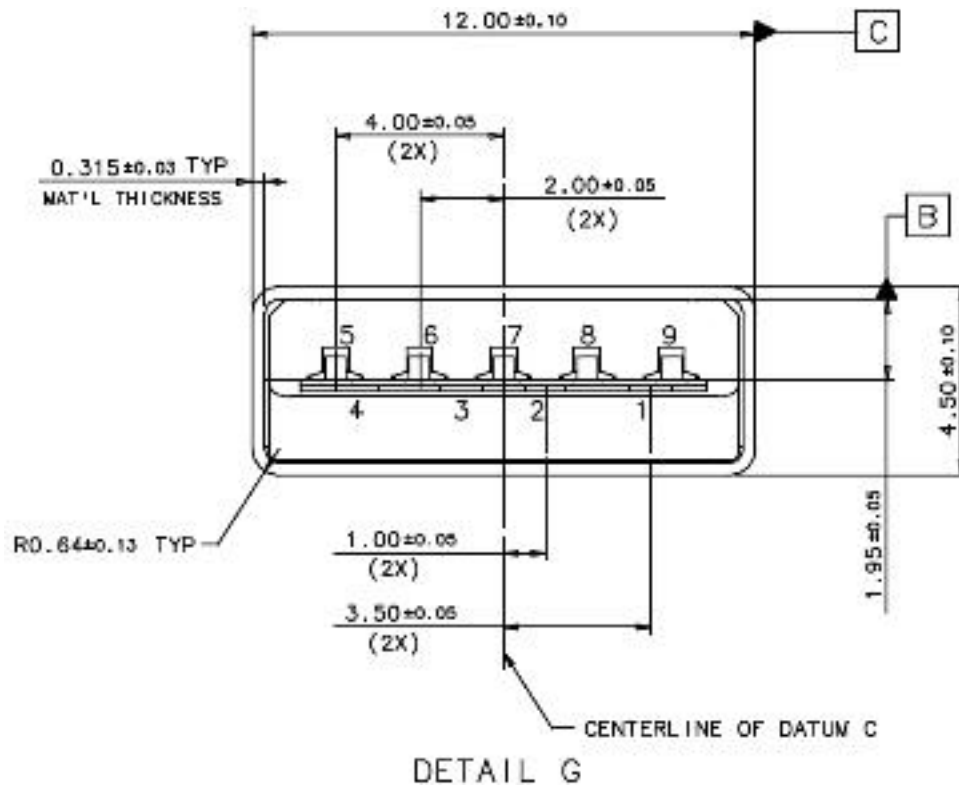
USB 3.0 Standard-A Plug Pin Assignment

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

Ordering Information

Part Number	Description
AOC-USB30-AMAF-05	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 5m/16ft.
AOC-USB30-AMAF-10	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 10m/32ft.
AOC-USB30-AMAF-15	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 15m/49ft.
AOC-USB30-AMAF-20	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 20m/65ft.
AOC-USB30-AMAF-25	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 25m/82ft.
AOC-USB30-AMAF-30	Infobit USB 3.0 Type A to A, Active Optical Cable, compatiable with USB 2.0, 30m/98ft.