

### QSFP-4X10G-AOC10M-C

Cisco® QSFP-4X10G-AOC10M Compatible TAA Compliant 40GBase-AOC QSFP+ to 4xSFP+ Active Optical Cable (850nm, MMF, 10m)

#### Features

- Electrical interface compliant to QSFP+ connector (SFF-8436) and SFP+ connectors (SFF-8431)
- Hot Pluggable
- 850nm VCSEL transmitter, PIN photo-detector receiver
- Operating case temperature: 0 to 70°C
- All-metal housing for superior EMI performance
- RoHS compliant (lead free)



#### Applications

- 40 Gigabit Ethernet
- Fibre Channel Application
- InfiniBand QDR, SDR, DDR
- High-performance computing clusters
- Servers, switches, storage and host card adapters

#### Product Description

This is a Cisco® QSFP-4X10G-AOC10M compatible 40GBase-AOC QSFP+ to 4xSFP+ active optical cable that operates over multi-mode fiber with a maximum reach of 10.0m (32.8ft). At a wavelength of 850nm, it has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This active optical cable is TAA (Trade Agreements Act) compliant, and is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' active optical cables are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



## QSFP Interface Specifications

Parameter	Description
Module Form Factor	QSFP+ (Supports SFF8436/SFF8472)
Channel Data Rate	Rate 40Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70°C
Storage Temperature	-20 to + 85°C
Supply Voltage	3.3V
Supply current	180mA per end typical
Management Interface Serial	I <sup>2</sup> C (Supports SFF8472)

## Optical Characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Centre Wavelength	$\lambda_C$	840	850	860	nm	
RMS spectral width	$\Delta\lambda$			0.65	nm	
Average launch power, each lane	P <sub>out</sub>	-7.5		-2.5	dBm	
Difference in launch power between any two lanes (OMA)					dB	
Extinction Ratio	ER	3			dB	
Peak power, each lane				4	dBm	
Transmitter and dispersion penalty (TDP), each lane	TDP			3.5	dB	
Average launch power of OFF transmitter, each lane				-30	dB	
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3	0.23, 0.34, 0.43, 0.27, 0.33, 0.4					Hit Ratio = 5x10-5
Receiver						
Center Wavelength	$\lambda_C$	840	850	860	nm	
Stressed receiver sensitivity in OMA, each lane				-5.4		1
Maximum Average power at receiver input, each lane				2.4		
Receiver Reflectance				-12		
Peak power, each lane				4		
LOS Assert		-30				
LOS De-Assert – OMA				7.5		
LOS Hysteresis		0.5				

**Notes:**

1. Measured with conformance test signal at TP3 for BER = 10e-12.

**SFP+ Interface Specifications**

Parameter	Description
Module Form Factor	SFP+ (Supports SFF8431/SFF8432/SFF8472)
Channel Data Rate	Rate 1 to 10.3125Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70°C
Storage Temperature	-20 to + 85°C
Supply Voltage	3.3V
Supply current	455mA maximum
Management Interface Serial	I <sup>2</sup> C (Supports SFF8472)

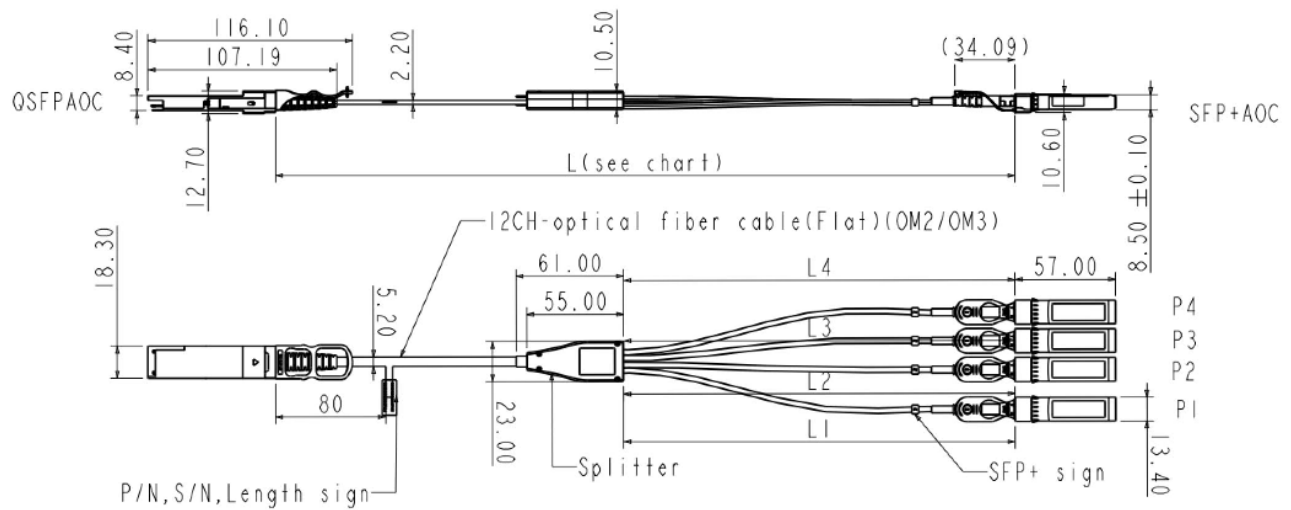
**Optical Characteristics**

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Center Wavelength	$\lambda_t$	840	850	860	nm	
RMS Spectral Width	Pm			Note 1	nm	
Average Optical Power	Pavg	-6.5		-1	dBm	2
Extinction Ratio	ER	3.5			dB	3
Transmitter Dispersion Penalty	TDP			3.9	dB	
Relative Intensity Noise	Rin			-128	dB/Hz	-12B reflection
Optical Return Loss Tolerance				12	dB	
<b>Receiver</b>						
Center Wavelength	$\lambda_r$	840	850	860	nm	
Receiver Sensitivity	Psens			-11.1	dBm	4
Stressed Sensitivity in OMA				-7.5	dBm	4
Los function	Los	-30		-12	dBm	
Overload	Pin			-1.0	dBm	4
Receiver Reflectance				-12	dB	

**Notes:**

1. Trade-offs are available between spectral width, center wavelength and minimum OMA, as shown in table 6.
2. The optical power is launched into MMF.
3. Measured with a PRBS  $231^{-1}$  test pattern @10.3125Gbps.
4. Measured with a PRBS  $231^{-1}$  test pattern @10.3125Gbps, BER  $\leq 10^{-12}$ .

**Mechanical Specifications**

## **About ProLabs**

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

## **Complete Portfolio of Network Solutions**

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

## **Trusted Partner**

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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