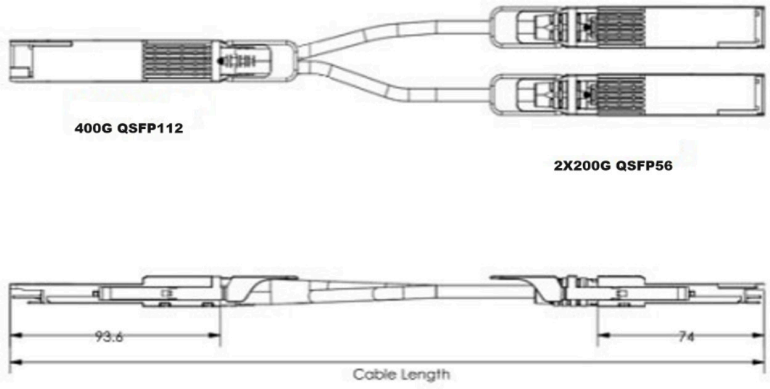
SHIFT AEC SPECIFICATION

Plug & Play AEC
for In-Rack Ethernet Applications in NIC-TOR

400G QSFP112 PAM4 to 2x200G QSFP56 PAM4

Credo's HiWire SHIFT Active Electrical Cable (SHIFT AEC)
A reliable, plug & play replacement of Active Optical Cable (AOC) for high-speed interconnects. Intended for rack-to-rack connectivity, HiWire SHIFT AEC cables support up to 2.75m reach, consume up to 75% less power than optics, cost up to 50% less than optics, and offer a 10- year service life.

Credo's CAC4XX321N2Q-C1-HW HiWire SHIFT AEC
Designed for telecom and data center use. It can sustain four lanes of 112G PAM4 signal in each direction and provides a breakout function to 2x112G QSFP112 connectors with software selectable 1x200G operation. The use and replacement of CAC4XX321N2Q-C1-HW AEC is simple and straightforward as it adopts standard QSFP112 & QSFP form factors and complies to MSA specifications.



Features

The following are the key features of the HiWire SHIFT AEC:

- Recognizable, purple PET braided jacket
- 400G to 2X200G data rate 200G side 4x56G
- CMIS4 compliant
- Single 3.3V power supply
- Typ. 10W power dissipation per 400G side; 5W per 200G side
- BER<10^{-15} (post FEC)
- Hot pluggable
- RoHS2 compliant
- I^2C management interface
- Operating case temperature range: 0 to +70°C

Supported Standards and Interfaces

- Common Management Interface Specification (CMIS) v4.0
- QSFP112 MSA v4.0

Key Features

Parameter	Value
Module Form Factor	QSFP112 and QSFP56
Number of Data Lanes	400G Side: 4 TX and 4 RX per module (PAM4) 2X200G Side: 2 x 4 TX and 4 RX per module (PAM4)
Maximum Aggregate Data Rate	400Gbps
Nominal Data Rate per Lane	400G Side: 112Gbps (PAM4) 2x200G Side: 56Gbps (PAM4)
Electrical Interface and Pin-out	38-pin edge connector (QSFP112) and 38-pin edge connector (QSFP56)
Pin Description	Per QSFP112& QSFP56 hardware specification
Management Interface	I^2C, serial, timing per Common Management Interface Specification for 8X/16X Pluggable Transceivers
Length of Copper AEC	1.0m – 2.75m
BER (Pre-FEC)*	Typ. $<10^{-8}$
BER (Post-FEC)*	$<10^{-15}$

* Tested with QPRBS31 pattern

Product Selections

Part Number	Length	AWG	Weight
CAC4XX321N2Q-C1-HW	1.0-2.75m	32	350-550g

• Length available in 0.5m increment
• Weight increases by 50g for every 0.5m increment

Mechanicals

Parameter	Cable Type	Typical
Diameter	2X4P 32AWG 2X8P 32AWG	6.0mm 6.8mm
Minimum Bend Radius	2X8P	18mm

About Credo

Credo's mission is to advance high-speed connectivity solutions that deliver optimized performance, reliability, energy efficiency, and security for the next generation of AI driven applications, cloud computing, and hyperscale networks.

Optimized for both optical and electrical applications, our solutions support port speeds up to 1.6Tb. At the core of our technology is our proprietary Serializer/Deserializer (SerDes) IP. Our diverse solutions portfolio includes system-level products such as Active Electrical Cables (AECs), a range of Integrated Circuits, including Retimers, Optical DSPs, SerDes chipsets, and SerDes IP Licensing.

For more information please visit **www.credosemi.com**
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