

## 200G (4x56G) QSFP56 PAM4 to Two 100G (4x28G) QSFP28 NRZ

Plug & Play Active Electrical Cable for Speed Shifting Ethernet Applications

### Description

Credo's HiWire™ SHIFT Active Electrical Cable (SHIFT AEC) is a lower power, lower cost replacement to Active Optical Cable (AOC) for high speed interconnects (up to 400Gbps). Powered by Credo's best-in-class signal processing technology, this Plug & Play cable provides connectivity between PAM4 and NRZ ports with speedshifting and FEC termination in-cable over thin copper cables without using any optical components.

Credo's CAC2XXXX1Q1P-A0-HW HiWire SHIFT AEC is designed for telecom and data center use. The 200G cable breaks out from one 200G (4x56G-PAM4) QSFP56 end into two 100G (4x28G-NRZ) QSFP28 ends with built-in gearbox feature. The use and replacement of CAC2XXXX1Q2P-A0-HW AEC is simple and straightforward as it adopts the standard QSFP form factor and complies to MSA specifications.

### Product Features

The following are key features of the HiWire SHIFT AEC:

- Recognizable, purple PVC jacket (with fire retardant coating)
- 200G to 2x100G with gearbox function
- SFF-8636 compliant
- Single 3.3V power supply
- Low power consumption:  
Typ 4.5W power dissipation (QSFP56 end)  
Typ 3.5W power dissipation (QSFP28 end)
- BER < 10<sup>-15</sup> (post FEC)
- Hot pluggable
- RoHS2 compliant
- I<sup>2</sup>C management interface
- Operating case temperature range: 0° to +70°C



1:2 Breakout SHIFT AEC

### Product Selections

Part Number	Length	AWG	Weight
CAC23X301Q2P-A0-HW	3 meters	30	410g
CAC25X301Q2P-A0-HW	5 meters	30	790g

### Mechanicals

Parameter	Cable Type	Typical
Diameter	4P 30AWG	5.3mm
<b>QSFP56 End</b>		
Minimum bend radius	4P 30AWG x 2	59.0mm
<b>QSFP28 End</b>		
Minimum bend radius	4P 30AWG	54.5mm

### Supported Standards

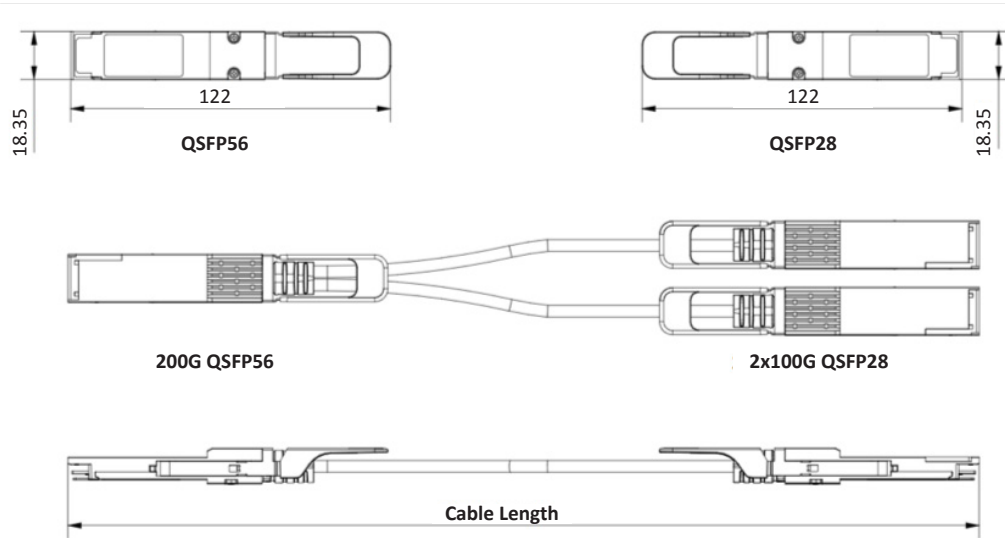
The following are the key features of the HiWire cable:

- SNIA SFF-8636 Management Interface for 4 Lane Modules and Cables
- SNIA SFF-8679 QSFP28 Electrical Specification



### General Product Characteristics

Parameter	Value
Module Form Factor	QSFP56 and QSFP28
Number of Data Lanes	QSFP56 4 TX and 4 RX per Module (PAM4)
	QSFP28 Line Side: 2 TX and 2 RX per module (20G NRZ) Host Side: 4 TRX and 4 RX per module (10G NRZ)
Maximum Aggregate Data Rate	200 Gbps
Nominal Data Rate per Lane	QSFP56: 53.125Gbps (PAM4), KP4 FEC must be enabled
	QSFP28: 25.78125Gbps (NRZ), KP4 FEC must be enabled
Electrical Interface and Pin-out	38-pin edge connector
Pin Description	Per SFF-8679
Management Interface	I <sup>2</sup> C, serial, timing per SFF-8636
Length of Copper AEC	3m, 5m
BER (Pre-FEC)*	<10 <sup>-8</sup> * Tested with QPRBS31 pattern
BER (Post-FEC)*	<10 <sup>-15</sup> * Tested with QPRBS31 pattern



For more information please visit [www.credosemi.com/hiwire-aec](http://www.credosemi.com/hiwire-aec) or email [hiwire@credosemi.com](mailto:hiwire@credosemi.com)

**Credo Semiconductor Inc.**  
San Jose, CA  
USA

**Credo Technology (HK) Limited**  
Pak Shek Kok, N.T.  
Hong Kong

**Credo Technology (TW) Limited Taiwan Branch**  
Zhubei City, Taiwan

**Credo Technology (SH) Ltd.**  
Shanghai, China

**Credo Technology Japan Office**  
Tokyo, Japan