

Active Electrical Cable (AEC) 400G QSFP-DD to QSFP Straight Cable with Marvell Re-Timer >

**400G (8x56G) PAM-4 QSFP-DD to 400G (4x112G) PAM-4 QSFP
and 200G (4x56G) PAM-4 QSFP-DD to 200G (2x112G) PAM-4 QSFP**

AECs use re-timers to efficiently extend the reach of copper cables, delivering superior performance and improved design flexibility while simultaneously reducing costs.



PRODUCT FEATURE HIGHLIGHTS

Active Electrical Cable (AEC) 400G QSFP-DD to QSFP Straight Cable with Marvell Re-Timer

- Gearbox solution
- >40 dB loss on the line and host interfaces
- Supports 8-lane QSFP-DD 56Gbps PAM-4 on P1
- Supports 4-lane QSFP 112Gbps PAM-4 on P2
- Host and line interface support loopbacks and PRBS generator/checker for diagnostic operations
- Performance monitoring features include signal-to-noise ratio, eye histogram and more
- Comprehensive test and debug capabilities

KEY ADVANTAGES

Achieve Next-Generation Digital Transmission Speeds

As digital transmission speeds continue to increase, the reach provided by traditional, passive, direct-attach cables (DAC) is insufficient. AECs bridge the gap between the place where retreating DACs end and where active optical cables (AOC) and optical modules begin.

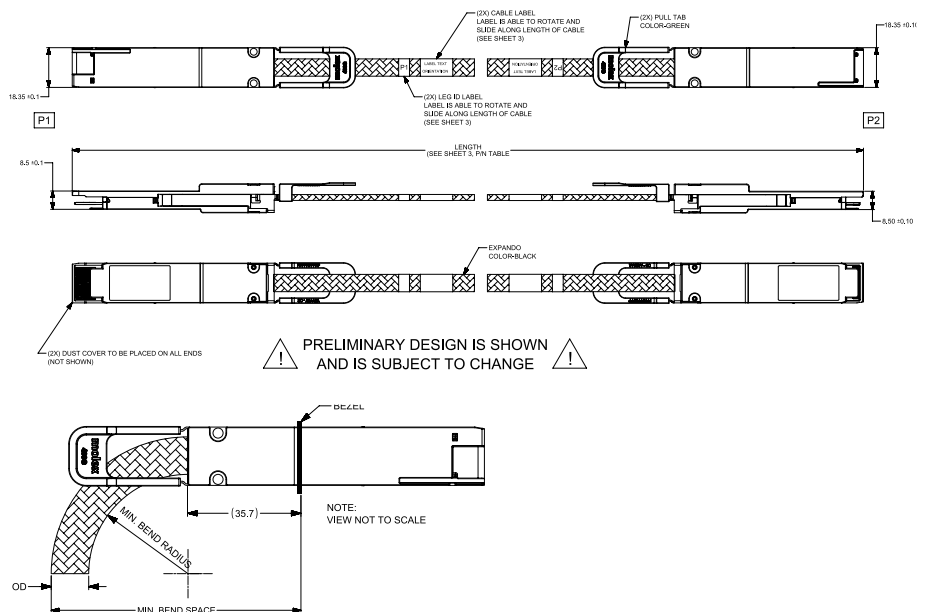
Future-Proof Infrastructure with Active Components

Re-timers in the cable assemblies reset loss and timing planes, regenerating signals and removing noise to deliver superior signal integrity over lengths up to 3.5 meters. AECs reduce cable bundle size, bend space, bend radius and airflow impedance. They also offer an extended loss budget of up to 40 dB depending on the re-timer.

Maximize Design Flexibility Between the ASIC and I/O

The Molex AEC design enables use of a wide variety of physical-layer (PHY)/re-timer integrated circuits. This gives customers the freedom to select the re-timer that best fits their application's needs. Straight, Y and X/H AEC cable configurations support shared top-of-rack (TOR) installations and network managed redundancy and security.

PRODUCT DRAWINGS



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MOLEX AEC SPECIFICATIONS

PHYSICAL	
Module Form Factor	DDQ-QSFP Cable Assembly
RoHS Compliant	Yes
Low-Smoke, Zero-Halogen Compliant	No
UL Compliance	E72548
Cable Flammability Rating	VW-1
Cable Construction	Expando over discrete twinax
MSA Compliance	QSFP-DD Rev 7.0, QSFP 2.5
Compliant to EIA Standard	Yes
Operating Temperatures	0 to +55°C ambient (0 to +70°C case)
Storage Temperatures	-40 to +85°C

ELECTRICAL	
Pre-FEC BER	<1e-9
Post-FEC BER	<1e-15
Default Data Rate	400G: 56Gbps PAM-4 (Data Rate = 53.125Gbps) 200G: 25Gbps NRZ (Data Rate = 25.78125Gbps)
Data Rate Capabilities	53.125 GHz PAM-4 26.5625 GHz PAM-4 25.78125 GHz NRZ
Host Max I2C Interface	400kbps
Number of Data Lanes	8 lane to 4 lane
Impedance	92-Ohm differential
CMIS Version Compliance	5.3
EMI Shielded	Yes
Full/Half Active	Full
Time to CMIS Ready	100 milliseconds
Time to Link	15 seconds
Hot Swappable/Pluggable	Yes
Typ. Power Consumption per End	6W on 8-lane end 4W on 4-lane end

COMMON CONFIGURATIONS

Part Number	Length (m)	AWG	Weight (g)	Outside Diameter (mm)	Min. Bend Radius (mm)	Min. Bend Space (mm)
3034602004	1.5	32	660	6.20	31.00	72.90
3034602005	2.0	32	687	6.20	31.00	72.90
3034602006	2.5	32	768	6.20	31.00	72.90
3034602008	3.0	32	1,152	6.20	31.00	72.90
3034602009	3.5	30	1,536	7.20	36.00	78.90

Details provided are for informational purposes only and subject to change. Contact us for more information.

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