Passive and Active Copper Cables

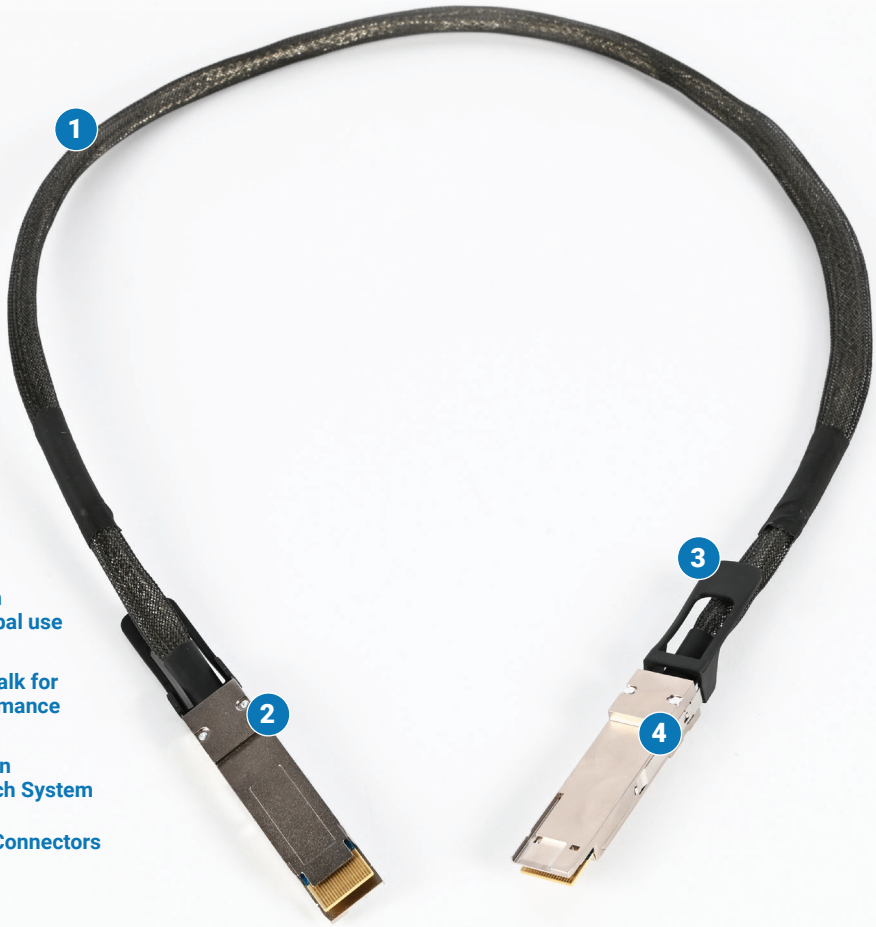
400G PAM4 QSFP-DD Straight Throughs and Breakouts

Regional Availability — Global

Siemon's 400G (50G per lane) PAM4 Ethernet QSFP-DD passive and active copper cables are designed to exceed industry standard performance offering a cost-effective, low latency, low power option for high-speed data center network equipment direct connections. The industry's smallest minimum bend radius is achieved with our mesh sleeves.

Passive DACs[1] are available up to 3 meters with the lowest power consumption. ACCs[2] offer longer lengths up to 5 meters while still providing a low-power option. Both are available in 0.5 meter increments in 1:1 straight-throughs and 1:2, 1:4 and 1:8 breakouts.

1: DAC – **Direct Attach Copper** *Passive cable assembly.*
2: ACC – **Active Copper Cable** *Analog re-driver based active cable assembly.*



1. **LSZH Compliant UL94 VW-1 Mesh Available for Global use**
2. **Ultra-Low Crosstalk for Enhanced Performance**
3. **Positive Retention Pull-Release Latch System**
4. **MSA Compliant Connectors**

Breakout Options Available

Numbered Breakouts

Mesh Sleeve Provides Best-in-Class Cable Routing

Applications

- Ethernet 400GBASE CR8
- Top-of-Rack
- Rack-to-Rack
- Switch-to-Switch
- Switch-to-Server
- Network Interface Adapter
- Accelerator Cards
- Storage
- Routers
- Servers

Standards Compliance

QSFP-DD	OSFP-RHS	QSFP56	SFP-DD	SFP56
IEEE 802.3cd	IEEE 802.3cd	IEEE 802.3cd	IEEE 802.3cd	IEEE 802.3cd
QSFP-DD MSA	OSFP MSA	SFF-8661	SFP-DD MSA	SFF-8402
CMIS	CMIS	SFF-8672	SFP-DD MIS	SFF-8071
		SFF-8679		SFF-8419
		CMIS		SFF-8472

PHYSICAL PROPERTIES – CONNECTORS

CONNECTOR TYPE		QSFP-DD	QSFP56	OSFP-RHS	QSFP56	OSFP-RHS	SFP-DD	SFP56
LANES UTILIZED		CR8	CR4	CR4	CR2	CR2	CR2	CR1
CONNECTOR SIDE(S)		A/B	B	B	B	B	B	B
CABLE ASSEMBLY TYPE		1:1	1:2	1:2	1:4	1:4	1:4	1:8
POWER CONSUMPTION PER END (Max)	DAC Ethernet	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W
	ACC Ethernet	1.5 W	0.9 W	0.9 W	0.6 W	0.6 W	0.6 W	0.3 W
SUPPLY VOLTAGE		3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC
INSERTION FORCE (Max)		90N	60N	55N	60N	55N	40N	18N
EXTRACTION FORCE (Max)		50N	30N	45N	30N	45N	30N	12.5N
RETENTION FORCE (Max)		90N	90N	125N	90N	125N	90N	90N
DURABILITY (Min)		50 cycles	250 cycles	50 cycles	250 cycles	50 cycles	50 cycles	250 cycles
OPERATING TEMPERATURE		0 to 70°C (32 to 158°F)						
STORAGE TEMPERATURE		-40 to 85°C (-40 to 185°F)						

PHYSICAL PROPERTIES – CABLE

JACKET TYPE		MESH/VW-1			LSZH/AWM		
JACKET MATERIAL		PET Plastic Mesh			LSZH		
FLAMMABILITY RATING		UL94 VW-1			UL94 V-0 (AWM)		
TWINAX PAIRS PER CABLE LEG		16	8	4	8	4	2
CABLE ASSEMBLY CONFIGURATION		1:1	1:2	1:4	1:2 , 1:1*	1:4	1:8
CABLE CONFIGURATION		CR8/CR8	CR8/CR4	CR8/CR2	CR8/CR4, CR8/CR8	CR8/CR2	CR8/CR1
CABLE O.D. PER AWG	30AWG	9.5 mm	5.7 mm	5.1 mm	7.5 mm	6.0 mm	4.6 mm
	27AWG	10.7 mm	7.6 mm	6.3 mm	–	–	–
	26AWG	12.1 mm	8.3 mm	6.8 mm	9.8 mm	7.4 mm	5.6 mm
CONSTRUCTION		Twinaxial					
SHIELD		Braid/Foil					
CONDUCTOR		Solid					
IMPEDANCE		100 ± 5 ohms					
GREEN FEATURES		RoHS, Lead-Free and REACH					

*The 1:1 straight-through LSZH/AWM conventionally jacketed cable assembly is constructed with two parallel 8-pair cables

		DAC MAX LENGTH		ACC MAX LENGTH	
		MESH/VW-1	LSZH/AWM	MESH/VW-1	LSZH/AWM
MAX LENGTH	30AWG	2 m	2m	4 m	4 m
	27AWG		-	5 m	-
	26AWG	3 m	3 m	*	5 m*

* Longer ACC lengths available upon request for specific applications

Ordering Information

400G PAM4 QSFP-DD

(XXX) (XXX) (X) (XX.X) -8 (X) (X)

CONNECTOR TYPE	Side A	Side B	PROTOCOL	CABLE TYPE	LENGTH	JACKET TYPE	JACKET COLOR
D1D D2Q D2R D4Q DSD D4R D8S	QSFP-DD (CR8) QSFP-DD (CR8) QSFP-DD (CR8) QSFP-DD (CR8) QSFP-DD (CR8) QSFP-DD (CR8) QSFP-DD (CR8)	QSFP-DD (CR8) 2xQSFP (CR4) 2xOSFP-RHS (CR4) 4xQSFP (CR2) 4xSFP-DD (CR2) 4xOSFP-RHS (CR2) 8xSFP (CR1)	-56 = 50G PAM4 Ethernet	P = DAC *Direct Attach Copper*	00.5 = 0.5 m 01.0 = 1.0 m 01.5 = 1.5 m 02.0 = 2.0 m 02.5 = 2.5 m 03.0 = 3.0 m	Z = Mesh/VW-1	B = Black W = White R = Red U = Blue S = Silver N = Orange
				A = ACC *Active Copper Cable*	03.5 = 3.5 m 04.0 = 4.0 m 04.5 = 4.5 m 05.0 = 5.0 m	L = LSZH/AWM	B = Black

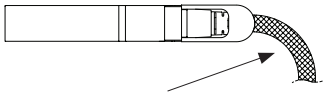
Please contact our Technical Sales Group if you require connectivity or cable configurations that are not listed above.

Part Number Examples:

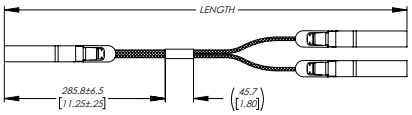
Part Number	Description
D1D-56P01.0-8ZB	DAC, 400G PAM4, CR8/CR8, QSFP-DD, 1m, Mesh/VW-1, Black
D1D-56A05.0-8ZW	ACC, 400G PAM4, CR8/CR8, QSFP-DD, 5m, Mesh/VW-1, White
D2R-56P02.0-8LB	DAC, 400G PAM4, CR8/CR4, QSFP-DD/2OSFP-RHS, 2m, LSZH/AWM, Black
D4Q-56P03.0-8ZR	DAC, 400G PAM4, CR8/CR2, QSFP-DD/4QSFP56, 3m, Mesh/VW-1, Red

Notes:
OSFP-RHS is OSFP Riding Heat Sink (also called Flat Top).
RS-FEC is always on

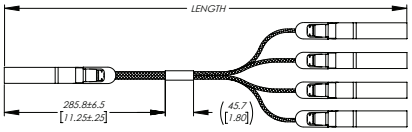
Straight Through



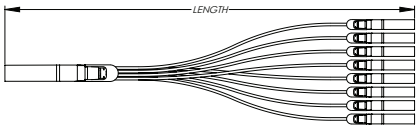
1:2 Breakout



1:4 Breakout



1:8 Breakout



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