

## Arista 25G Transceivers and Cables: Q&A

### What 25G Transceivers and Cables are available from Arista?

Arista supports a full range of copper cables and optical transceivers for 25GbE, compliant to the IEEE standards. Arista offers 25G SFP to SFP copper cables and Active Optical Cables, to enable short reach options, as well as a range of optical transceivers in an SFP form factor for various fiber types and reach requirements.

Product Number	Product Description
<b>25G SFP Transceivers</b>	
SFP-25G-SR	25GBASE-SR SFP transceiver up to 70m over parallel OM3 or 100m over OM4 multi-mode fiber
SFP-25G-LR	25GBASE-LR SFP transceiver, up to 10km over single-mode fiber
<b>25G SFP to SFP Active Optical Cables</b>	
AOC-S-S-25G-3M	25GbE SFP to SFP Active Optical Cable, 3m
AOC-S-S-25G-5M	25GbE SFP to SFP Active Optical Cable, 5m
AOC-S-S-25G-7M	25GbE SFP to SFP Active Optical Cable, 7m
AOC-S-S-25G-10M	25GbE SFP to SFP Active Optical Cable, 10m
AOC-S-S-25G-15M	25GbE SFP to SFP Active Optical Cable, 15m
AOC-S-S-25G-20M	25GbE SFP to SFP Active Optical Cable, 20m
AOC-S-S-25G-25M	25GbE SFP to SFP Active Optical Cable, 25m
AOC-S-S-25G-30M	25GbE SFP to SFP Active Optical Cable, 30m
<b>25G SFP to SFP Twinax Copper Cables</b>	
CAB-S-S-25G-1M	25G SFP to SFP twinax copper cable, 1M
CAB-S-S-25G-2M	25G SFP to SFP twinax copper cable, 2M
CAB-S-S-25G-3M	25G SFP to SFP twinax copper cable, 3M
CAB-S-S-25G-5M	25G SFP to SFP twinax copper cable, 5M
<b>100G QSFP to 25G SFP Twinax Copper breakout Cables</b>	
CAB-Q-4S-100G-1M	100GBASE-CR4 QSFP to 4 x 25GbE SFP Twinax Copper Cable, 1 meter
CAB-Q-4S-100G-2M	100GBASE-CR4 QSFP to 4 x 25GbE SFP Twinax Copper Cable, 2 meter
CAB-Q-4S-100G-3M	100GBASE-CR4 QSFP to 4 x 25GbE SFP Twinax Copper Cable, 3 meter

### What is the maximum supported distance for 25G Transceivers and Cables?

The maximum currently supported distance for 25G is 10km with SFP-25G-LR product. Additional optics may be released in the future to support longer distances.

### What are the industry standards defined 25G Transceivers and Cables?

Below are the industry standard 25G Optics:

Standard	Supported Distance	Arista Supported Products
25GBASE-SR	Up to 70m over Parallel OM3 Multi-mode fiber and 100m over parallel OM4 Multi-mode fiber	SFP-25G-SR
25GBASE-LR	Up to 10km over Single-mode fiber	SFP-25G-LR
25GBASE-AOC	Up to 30m pre-terminated 25GbE SFP Active optical cable	AOC-S-S-25G-xM (x: 3 to 30 meters)
25GBASE-CR	Up to 5m pre-terminated 25GbE SFP twinax copper cable	CAB-S-S-25G-xM (x: 1, 2, 3, 5 meters)

### What is the difference between SFP28 and 25G SFP?

They are the same. The “SFP” form factor was originally defined for speeds lower than 10G. When it was adopted for 10G, the name became SFP+ to denote the higher aggregate performance. The same familiar “SFP” form factor was later adopted for 25G but the electrical interface had to be upgraded to handle 25Gbps/lane. The electrical interface can handle up to 28Gbps, hence the engineering and industry name is SFP28. Arista refers to the 25G form factor as SFP to avoid any confusion.

### Can 10G SFP+ and 1G SFP transceivers be plugged into Arista 25G SFP ports?

Yes, Arista 25G SFP ports allow the flexibility to run multiple speeds and support a full range of 10G SFP+ and 1G SFP transceivers. There might be some port level restrictions on speed mix and match as described below in the port configuration section

### Can 25G SFP transceivers and cables support 10/25G dual rate?

Currently Arista 25G transceivers do not support 10G data rate. They will operate at 25G data rate only.

### Are Arista 25G Transceivers interoperable with other 25G transceivers available in the industry?

Yes, as long as the non-Arista 25G transceivers meet the associated industry standard specifications, Arista 25G transceivers are fully interoperable.

### Which 25G SFP transceivers and cables are interoperable with 100G QSFP transceivers and cables?

The table below summarizes interoperability between 25G SFP and 100G QSFP transceivers and cables.

25G SFP Transceiver/Cable	100G QSFP Transceiver/Cable	Cable needed to connect interfaces	Interoperability details
SFP-25G-SR	QSFP-100G-SR4	MTP12 to 4xLC MMF fiber breakout cable	Up to 70m over parallel OM3 or 100m over OM4 multi-mode fiber
SFP-25G-LR	QSFP-100G-PSM4	MTP12 to 4xLC SMF fiber breakout cable	Up to 500m over parallel single mode fiber (500m distance specified by 100G PSM4 MSA)
CAB-Q-4S-100G-xM	Up to 5m pre-terminated 100G QSFP to 4x 25GbE SFP twinax copper cable	N/A: Cable included	100G QSFP to 4x 25G SFP, up to 5m

### What is the maximum power consumption of 25G SFP transceivers?

The table below summarizes the power consumption of Arista 25G SFP transceivers.

Product Number	Max Power Consumption
SFP-25G-SR	1.0W
SFP-25G-LR	1.5W
AOC-S-S-25G-xM	1.0W
CAB-S-S-25G-xM	1.0W
CAB-Q-4S-100G-xM	1.0W

### What will happen if I plug in 25G SFP transceivers that consume greater than 2W?

All Arista 25G SFP switch ports are designed to handle SFP transceivers that draw up to 2.0W. If a 25G SFP draws greater than 2.0W Arista cannot guarantee the performance since there are other dependencies like airflow direction, ambient temperature, elevation etc.

### Fiber and Copper Cables

#### What cable type is needed for 25G Transceivers?

The table below details the connector type of each 100G Transceiver and the cable type to be used.

Product Number	Termination/Connector Type	Fiber Type to be used
SFP-25G-SR	Duplex LC	Multi-mode Fiber OM3 or OM4
SFP-25G-LR	Duplex LC	Single-mode Fiber
AOC-S-S-25G-xM	N/A	Pre-terminated
CAB-S-S-25G-xM	N/A	Pre-terminated
CAB-Q-4S-100G-1M	N/A	Pre-terminated

#### Where can customers buy splitter cables for 100G to 4x25G connectivity?

A large number of cabling companies have the MTP-LC multimode fiber breakout cables available and are supplying these in volumes to customers for 40G to 4x10G. The same fiber splitter cable can be used for 100G to 4x25G.

Product Description	Corning P/N	Leviton P/N	Wave2Wave P/N
OM4 MTP12 to 4 LC - Direct connect for 1x QSFP+ SR4 to 4 SFP+ SR, 5m	HE67908QPH-KB005M	FH-FH008MR1624K	51PU-8080P-5M
OM4 MTP12 to 4 LC - Direct connect for 1x QSFP+ SR4 to 4 SFP+ SR, 3m	HE67908QPH-KB003M	FH-FH008MR1024K	51PU-8080P-3M
SM MTP12 to 4 LC - Direct connect for 1x QSFP+ PLRL4 to 4 SFP+ LR, 5m	HE87808GPH-KB005M	FH-AH008MR1624K	51PU-3084P-5M
SM MTP12 to 4 LC - Direct connect for 1x QSFP+ PLRL4 to 4 SFP+ LR, 3m	HE87808GPH-KB003M	FH-AH008MR1024K	51PU-3084P-3M

#### Can 25G SFP copper cables be used for 10G?

Yes, Arista 25G SFP copper cables can be used for 10G, but not vice versa.

#### Can customers use third party 25G SFP to SFP and QSFP breakout cables?

Arista does not restrict the use of third party passive copper cables. These cables need to comply with the associated IEEE specifications, to allow them to be correctly identified and recognized by the Arista switch. Interfaces with cables not recognized correctly will be disabled.

### What is the Forward Error Correction (FEC) requirement for Arista 25G Copper Cables?

The IEEE 802.3by spec has 3 different 25G cable types (CA-N, CA-S, CA-L), which are aligned to 3 different loss classification categories and have a minimum FEC requirement.

CA-N	12.98dB loss	the highest grade, and no FEC is required
CA-S	16.48dB loss	the middle grade, and BASE-R FEC is required
CA-L	22.48dB loss	the lowest grade, and RS FEC is required

The table below summarizes the loss specification of Arista 25G copper cables

Arista 25G SFP and 100G-4x25G Copper Cables		
	25G SFP to SFP Cables	100G QSFP-4SFP Cables
Loss Characteristics spec	1, 2, 3 meters: CA-N 5 meter cable: CA-L	1, 2 meter cables: CA-N 3 meter cable: CA-S 5 meter cable: CA-L

### What is the thickness of the 25G copper cables?

See the table below:

Arista 25G SFP and 100G-4x25G Copper Cables		
	25G SFP to SFP	100G QSFP-4SFP
Cable Type	Twinax	Twinax
Cable Thickness (Wire AWG)	1, 2 meter cables: 30 AWG 3, 5 meter cables: 26 AWG	1, 2 meter cables: 30 AWG 3, 5 meter cables: 26 AWG

### What additional resources are available on Transceivers and Cables?

Below is a list of additional resources available on the transceivers and cables page of [www.arista.com](http://www.arista.com).

Document	Description
Arista Transceivers Quick Look	Arista's transceiver portfolio, Why use Arista transceivers, cables and interoperability
Transceiver Datasheet	Detailed specifications and ordering information
Transceiver and Cable Guide	Arista EOS support, physical attributes, laser safety and fiber cleaning instructions
FAQ Documents	100G, 40G and 25G Frequently asked questions
Whitepapers	Arista 40G UNIV white paper
Partner Documents	Fiber cabling reference guides and loss budget guidelines from Cabling companies like Corning and Leviton

### Port Configuration

#### Can Arista 25G SFP ports be used in 10G mode?

Yes, 10GbE SFP+ transceivers will be detected and enabled upon insertion. There are some port level restrictions on speed mix and match as described below

#### 25G ports on Arista 7160:

25G ports can be configured to 25G, 10G or 1G on a port-by-port basis without any restrictions

#### 25G ports on Arista 7060X2, 7280R and 7500R:

25G ports on Arista 7060X2, 7280R and 7500R allow the flexibility to run multiple speeds, allowing for migration with the speed common to groups of 4 ports. For example, in a fixed system, starting from port 1 (Et1), every four consecutive SFP 25G interfaces (Et1-4, Et5-8 etc) share a SerDes Quartet and can either be configured to run at 25G or a mix of 10G/1G.

#### How do you change 25G SFP ports to support 10G SFP+ transceivers?

Configure the desired speed as 10G:  
(config)# interface Et1  
(config-if-Et1)# speed forced 10000full

#### How do you change 100G QSFP ports from 100GbE mode to 4x25G mode?

Configure the desired speed as 25G:  
(config)# interface Et1/1-4  
(config-if-Et1/1-4)# speed forced 25gfull

#### Can I configure a 100G port to a mix of 10G and 25G speeds?

No, a 100G-port can either be configured as 4x25G or 4x10G. Mix and match 10G/25G is not supported with a single 100G port.

#### How do you change 25G SFP ports back to the default mode?

Configure the port to default mode:  
(config)# interface Et1  
(config-if-Et1)# no speed