RUCKUS® ETHERNET OPTICS

High quality transceivers for CommScope switches and APs

BENEFITS

GUARANTEED COMPATIBILITY AND COMPLIANCE

- We guarantee compatibility with CommScope switches and APs and full compliance with industry standards. That's something you don't get from generic transceivers.
- Standards-based—802.3an, 802.3ah, 802.3u, 802.3ae, 802.3ak, 802.3ba, 802.3cu, SFF-8431, SFF-8402, SFF-8436, and SFF-8636—compliant as required
- Compliant with Restrictions on Hazardous Substances (RoHS), meeting RoHS 6 EU standards

FACTORY TESTED

- Every batch of CommScope transceivers is factory tested, so you're assured that they function properly and reliably

EASY TO DEPLOY AND UPGRADE

- Hot-swappable flexibility in the field for greater ease and lower total cost of ownership

Highly reliable, RUCKUS-qualified optics

CommScope offers a unique set of high-performance, reliable, and cost-effective optical transceivers to help enterprises and service providers meet the challenges of diverse network topologies. To ensure maximum quality, CommScope selects and tests the most reliable, highest-performing optical transceivers on the market, and then warrants their availability, capacity, and performance in CommScope product.

Extensive performance and reliability testing reflects an ongoing commitment to quality. CommScope tests transceivers using the industry's most advanced tools and instruments to help ensure that they provide the right mix of functionality and performance when used in conjunction with CommScope products. The speed, capacity, reliability, and low cost of ownership that CommScope is known for is also provided in all optical components.

By using CommScope-qualified components, organizations can be assured that their quality, warranty and service requirements will be met and that their CommScope products will continually provide the uptime, performance, and reliability required by today's leading enterprise service providers.

RUCKUS Global Services

RUCKUS Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 20 years of expertise in storage, networking, and virtualization, RUCKUS Global Services delivers world-class professional services, technical support, network monitoring services, and education, enabling organizations to maximize their CommScope investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

Maximizing Investments

To help optimize technology investments, CommScope and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a CommScope sales partner or visit www.ruckusnetworks.com.

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Ethernet Optics Family Features

The RUCKUS Ethernet optics family includes several offerings designed to meet the performance and scalability requirements of service provider and enterprise environments.

100 MbE SFP OPTICS	
• 100 Megabit Ethernet (MbE) transceivers support link lengths from 2Km to 40Km • Both SMF and MMF fiber types	• RoHS 5 and 6 compliant • Enterprise switching and routing
1 GbE SFP OPTICS	
• 1GbE transceivers support link lengths from 300m to 100Km • Both SMF and MMF fiber types • Coarse Wavelength Division Multiplexing (CWDM) support for distances of 80Km to 100Km	• RoHS 5 and 6 compliant • For core routers and security applications
10 GbE SFP+ OPTICS	
• 10GbE transceivers support link lengths of 26m to 80Km • Protocol-independent • Less than one-third the power and size of MSA optic • Hot-swappable • Digital Optical Monitoring (DOM) support	• RoHS 5 and 6 compliant • Application delivery and acceleration • High-Performance Computing (HPC) interconnects • Service provider traffic management
25 GbE SFP28 OPTICS	
• 25 GbE transceivers support link lengths of 70 m to 10 km • Hot-swappable • Digital Optical Monitoring (DOM) support	• RoHS 6 compliant • High-Performance Computing (HPC) interconnects • Service provider traffic management
40 GbE QSFP+ OPTICS	
• 40GbE transceivers support link lengths from 100 m to 40Km • Hot-pluggable • Industry-standard QSFP+	• Digital Optical Monitoring (DOM) support • High-density 40GbE connectivity options for data center, enterprise, and service provider applications
100 GbE QSFP28 OPTICS	
• 100 GbE transceivers support link lengths up to 40 km • Hot-pluggable • Industry-standard QSFP28	• Digital Optical Monitoring (DOM) support • Carrier, service provider, and cloud services • Enterprise campus core routing • RoHS 6 compliant

Specifications subject to change.

Product Support for Fast Ethernet

	ICX 7000 Series							ICX 8000 Series	
Fast Ethernet Optics	ICX 7150	ICX 7250	ICX 7450	ICX 7550	ICX 7650	ICX 7750	ICX 7850	ICX 8100	ICX 8200
E1MG-100FX-OM	●[2]		●	●[1]	●				●[3]
E1MG-100FX-A (EOL)	●[2]		●	●[1]	●				
E1MG-100FX-IR-OM (EOL)	●[2]		●	●[1]	●				
E1MG-100FX-LR-OM (EOL)			●	●[1]	●				

[1] Requires FI software 8.0.95d or later.
[2] Only compatible with ICX7150-24F model. Requires FI software 9.0.10 or later.
[3] Requires FI software 10.0.0c or later.

Product Support for 1 Gigabit Ethernet

	ICX 7000 Series							ICX 8000 Series		Wi-Fi Access Points		Smart-Zone
1 GbE Fiber Optics	ICX 7150	ICX 7250	ICX 7450	ICX 7550	ICX 7650	ICX 7750	ICX 7850	ICX 8100	ICX 8200	T750	Fiber Backpack	SZ144
E1MG-SX-OM	●	●	●	●	●	●	●	●	●	●	●	
E1MG-SX-OM-T	●	●	●	●	●	●	●		●			
E1MG-SX-A	●	●	●	●	●	●	●	●	●			
E1MG-LX-OM	●	●	●	●	●	●	●	●	●	●	●	
E1MG-LX-OM-T	●	●	●	●	●	●	●		●	●		
E1MG-LX-A	●	●	●	●	●	●	●	●	●			
E1MG-LHA-OM (EOL)												
E1MG-LHA-OM-T (EOL)	●	●	●	●	●	●	●		●		●	
E1MG-BXD (EOL)	●	●	●	●	●	●[1]	●		●		●	
E1MG-BXU (EOL)	●	●	●	●	●	●[1]	●		●		●	
E1MG-BXD-TA	●[2]	●[2]	●[2]	●[2]	●[2]		●[2]	●	●			
E1MG-BXU-TA	●[2]	●[2]	●[2]	●[2]	●[2]		●[2]	●	●			
E1MG-TX (EOL)	●	●	●	●	●	●	●		●			
E1MG-TX-A	●	●	●	●	●	●	●	●	●			
1G-SFP-TWX-XXXX	●	●						●	●			

⊙ Optics supported for both stacking links and Ethernet data links.
● Optics supported for Ethernet data links only (i.e. not for stacking).
[1] Requires FI software 8.0.30b or later.
[2] Requires FI software 9.0.0 or later.

Specifications subject to change.

Product Support for 10 Gigabit Ethernet

	ICX 7000 Series							ICX 8000 Series		Wi-Fi Access Points		Smart-Zone
10 GbE Fiber Optics	ICX 7150	ICX 7250	ICX 7450	ICX 7550	ICX 7650	ICX 7750	ICX 7850	ICX 8100	ICX 8200	T750	Fiber Backpack	SZ144
10G-SFPP-USR (EOL)	⊙	⊙	⊙	●	●	●	●		⊙	●		
10G-SFPP-USR-SA (EOL)	⊙	⊙	⊙	●	●	●	●		⊙			
10G-SFPP-SR (EOL)	⊙	⊙	⊙	●	●	●	●	●	⊙	●		
10G-SFPP-SR-SA	⊙	⊙	⊙	●	●	●	●	●	⊙			
10G-SFPP-SR-S	⊙	⊙	⊙	●	●	●	●	●	⊙			
10G-SFPP-LR (EOL)	⊙	⊙	⊙	●	●	●	●	●	⊙	●		
10G-SFPP-LR-SA	⊙	⊙	⊙	●	●	●	●	●	⊙			
10G-SFPP-LR-S	⊙	⊙	⊙	●	●	●	●	●	⊙			●
10G-SFPP-ER (EOL)	●	●	●	●	●	●	●		●	●		
10G-SFPP-ZR (EOL)	●	●	●	●	●	●	●		●			
10G-SFPP-LRM (EOL)			●	●[5]	●		●[4]					
10G-SFPP-LRM-X-ADP (EOL)	●[1]	●[1]		●[7]		●[1]			●			
10G-SFPP-BXD-ER				●			●					
10G-SFPP-BXU-ER				●			●					
10G-SFPP-BXD-S (EOL)	⊙	⊙	⊙	●	●	●	●		⊙			
10G-SFPP-BXU-S (EOL)	⊙	⊙	⊙	●	●	●	●		⊙			
10G-SFPP-TX-A (EOL)		●[3]		●[3]		●[3]	●[3]		●			
10G-SFPP-TX-LP-A	●[6]	●[6]	●[6]	●[6]	●[6]	●[6]	●[6]	●	●			
10G-SFPP-TWX-XXXX	⊙	⊙	⊙	●	●	●	●	●	⊙			●
10G-SFPP-TWX-P-XXXX	⊙[2]	⊙	⊙	●	●	●	●	●	⊙			●
10GE-SFPP-AOC-XXXX (EOL)	●	●	⊙	●	●	●	●		⊙			

⊙ Optics supported for both stacking links and Ethernet data links.
● Optics supported for Ethernet data links only (i.e. not for stacking).
10G Copper GBIC is not compatible with 1G Speed.

[1] Requires FI software 8.0.61 or later.
[2] Stacking and uplinks not supported with the 5-meter passive cable on the 7150. 3-meter passive cable does not support cross-connection stacking on ICX7150 (for example, from n/3/1 to n/3/3); however, the cables can be used for same-port connections (for example, n/3/1 to n/3/1). https://support.ruckuswireless.com/articles/000011828
[3] Requires FI software 8.0.90a or later. Due to the high-power consumption, there is a limit on how many transceivers that can be installed, please refer to https://support.ruckuswireless.com/articles/000011205
[4] Optics supported only on the ICX7850-48FS natively.
[5] Optics supported only on the ICX7650-4X10GF modules.
[6] Requires FI software 8.0.95j or 9.0.10 and later.
[7] Requires FI software 10.0.0 and later.

Specifications subject to change.

Product Support for 25 Gigabit Ethernet

	ICX 7000 Series							ICX 8000 Series
25 GbE Fiber Optics	**ICX 7150**	**ICX 7250**	**ICX 7450**	**ICX 7550**	**ICX 7650**	**ICX 7750**	**ICX 7850**	**ICX 8200**
E25G-SFP28-SR							●[2]	⊙
E25G-SFP28-LR							●[2]	⊙
E25G-SFP28-AOC-1001 (EOL)							●[1]	⊙
E25G-SFP28-TWX-P-XXXX							●	⊙

⊙ Optics supported for both stacking links and Ethernet data links.
● Optics supported for Ethernet data links only (i.e. not for stacking).
25G Optics are not compatible with 10G Ports.
[1] Requires FI software 10.0.10 or later.
[2] Requires FI software 10.0.0 or later. 25G Optics are only compatible on ICX7850-48F

Product Support for 40 Gigabit Ethernet

	ICX 7000 Series						
40 GbE Fiber Optics	**ICX 7150**	**ICX 7250**	**ICX 7450**	**ICX 7550**	**ICX 7650**	**ICX 7750**	**ICX 7850**
E40G-QSFP-SR4			⊙	⊙	⊙	⊙	⊙
E40G-QSFP-SR4-INT				●	●	●	●
E40G-QSFP-ESR4 (EOL)			●	⊙	●	⊙	⊙
E40G-QSFP-LR4			⊙	⊙	⊙	⊙	⊙
E40G-QSFP-LR4-A			⊙[5]	⊙[5]	⊙[5]		⊙[5]
E40G-QSFP-LR4-INT				●[5,6]		●	●[5,6]
E40G-QSFP-LM4 (EOL)			⊙	⊙	⊙	⊙	⊙
E40G-QSFP-ER4 (EOL)			●	⊙	⊙	⊙	⊙
E40G-QSFP-SR-BIDI (EOL)			●	⊙	⊙	⊙	⊙
E40G-QSFP-SR-SWLC				●			●
E40G-QSFP-4SFP-C-XXXX				●[5]		●	●
E40G-QSFP-4SFP-AOC-XXXX (EOL)				●[5]		●	●
E40G-QSFP-QSFP-C-XXXX			⊙	⊙	⊙	⊙	⊙
E40G-QSFP-C-XXXXX			⊙[1]	⊙[1]	⊙[1]	⊙[1]	⊙[1]
40G-QSFP-C-005XX			⊙	⊙	⊙	⊙	⊙
40G-QSFP-C-005XX-A			⊙[3]	⊙[3]	⊙[3]	⊙[3]	⊙[3]
E40G-QSFP-QSFP-P-XXXX			⊙	⊙	⊙	⊙	⊙
E40G-Q-Q-C-XXXX-A (EOL)			⊙[4]	⊙[4]	⊙[4]	⊙[4]	⊙[4]
E40G-QSFP-QSFP-AOC-XXXX			●	⊙	⊙	⊙	⊙

⊙ Optics supported for both stacking links and Ethernet data links.
● Optics supported for Ethernet data links only (i.e. not for stacking).

[1] Stacking not supported with the 5-meter passive cable.
[2] Breakout is not supported for ICX7650.
[3] Requires FI software 8.0.95b or later.
[4] Requires FI software 8.0.95c or later.
[5] Requires FI software 9.0.0 or later.
[6] Supports 1G breakout starting 9.0.10 or later.

Specifications subject to change.

Product Support for 100 Gigabit Ethernet

	ICX 7000 Series						
100 GbE Fiber Optics	**ICX 7150**	**ICX 7250**	**ICX 7450**	**ICX 7550**	**ICX 7650**	**ICX 7750**	**ICX 7850**
E100G-QSFP28-SR4				⊙[3]	⊙		⊙
E100G-QSFP28-SR4-A				⊙[4]	⊙[4]		⊙[4]
E100G-QSFP28-SR-SWLC				●			●
E100G-QSFP-ESR4 (EOL)				⊙[3]	⊙		⊙
E100G-QSFP28-DR1				●[2]	●[2]		●[2]
E100G-QSFP28-CWDM4-2KM (EOL)				⊙[3]	●		⊙
E100G-QSFP28-LR4L-2KM (EOL)					⊙		
E100G-QSFP28-FR1				●[2]	●[2]		●[2]
E100G-QSFP28-LR4-10KM (EOL)					⊙		
E100G-QSFP28-LR4-LP-10KM				⊙[3]	⊙		⊙
E100G-QSFP28-LR1				●[2]	●[2]		●[2]
E100G-QSFP28-ER4L				●	●		●
E100G-QSFP-QSFP-AOC-XXXX (EOL)				●	●		●
E100G-QSFP-QSFP-P-XXXX				⊙[3]	⊙		⊙
E100G-QSFP-4SFP-P-XXXX				●[4]			●

⊙ Optics supported for both stacking links and Ethernet data links.
● Optics supported for Ethernet data links only (i.e. not for stacking).
[1] Requires FI software 8.0.92a or later.
[2] Requires FI software 8.0.95 or later.
[3] Requires FI software 8.0.95c or later to stack.
[4] Requires FI software 9.0.0 or later.

Specifications subject to change.

Key Standards and Features

Part Number	IEEE Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
	Fast Ethernet						
E1MG-100FX-OM **E1MG-100FX-A**	802.3u	FDA 21CFR 1040.10 Class 1	EN 60825-1	1,310	MMF	2Km	Yes
E1MG-100FX-IR-OM	802.3			1,310	SMF	15Km	Yes
E1MG-100FX-LR-OM	802.3			1,310	SMF	40Km	Yes
Part Number	**1 GbE Fiber**						
E1MG-SX-OM/ **E1MG-SX-OM-T** **E1MG-SX-A**	802.3z	FDA 21CFR 1040.10 Class 1	EN 60825-1	850	MMF	220m to 550m	Yes
E1MG-LX-OM/ **E1MG-LX-OM-T** **E1MG-LX-A**	802.3z			1,310	MMF/SMF	550m to 10Km	Yes
E1MG-LHA-OM/ **E1MG-LHA-OM-T**	802.3z			1,550	SMF	70Km	Yes
E1MG-BXD	802.3ah			TX: 1,490 RX: 1,310		10Km	Yes
E1MG-BXU	802.3ah			TX: 1,310 RX: 1,490		10Km	Yes
E1MG-BXD-TA	802.3ah			TX: 1,490 RX: 1,310		20Km	Yes
E1MG-BXU-TA	802.3ah			TX: 1,310 RX: 1,490		20Km	Yes
Part Number	**1000BASE-T Copper**						
E1MG-TX	802.3ab			N/A	Cat5	100m	N/A
1G-SFP-TWX-0x01	802.3z	Direct Attach SFP copper cables				1m, 5m	No
Part Number	**10 GbE Fiber**						
10G-SFPP-USR	N/A	FDA 21CFR 1040.10 Class 1	EN 60825-1	850	OM3 MMF	100m	Yes
10G-SFPP-SR	802.3ae			850	OM3 MMF OM4 MMF	300m 400m	
10G-SFPP-LR	802.3ae			1,310	SMF	10Km	
10G-SFPP-ER	802.3ae			1,550	SMF	40Km	
10G-SFPP-ZR	802.3ae			1,550	SMF	80Km	
10G-SFPP-BXD-S	802.3ae			1330-TX/ 1270-RX	SMF	10Km	
10G-SFPP-BXU-S	802.3ae			1270-TX/ 1330-RX	SMF	10Km	
10G-SFPP-BXD-ER	802.3ae			1330-TX/ 1270-RX	SMF	40Km	
10G-SFPP-BXU-ER	802.3ae			1270-TX/ 1330-RX	SMF	40Km	
10G-SFPP-LRM	802.3ae			1,310	OM1/OM2 OM3 MMF OM4 MMF	220m 300m	
10G-SFPP-TX-LP-A	802.3an			N/A	Cat 6a/7	30m	No

Specifications subject to change.

Key Standards and Features

Part Number	IEEE Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
10GBASE DAC CABLE							
10G-SFPP-TWX-XXXX	802.3ak	Direct Attach SFP+ Twinax active copper cables				1m, 3m, 5m	No
10G-SFPP-AOC-XXXX	N/A	Direct Attach SFP+ active optical cables				7m, 10m	No
10G-SFPP-TWX-P-XXXX	802.3ak	Direct Attach SFP+ Twinax passive copper cables				1m, 3m, 5m	No
25 GbE SFP28 FIBER							
E25G-SFP28-SR	802.3by	North America: UL/CSA 60950, CDRH Class 1		850	OM3 MMF OM4 MMF	70m 100m	Yes
E25G-SFP28-LR	802.3bm	European Union: EN 60950, EB 60825 Class 1		1295, 1300, 1305, 1310	SMF	10Km	
25 GbE SFP28 DAC CABLE							
E25G-SFP28-AOC-1001	N/A	Direct Attach SFP28 to SPP28 active direct attach copper cables				10m	No
E25G-SFP28-TWX-P-00xxx	N/A	Direct Attach SFP28 to SPP28 passive direct attach copper cables				0.5m, 1m, 3m	N/A
40 GbE Fiber							
E40G-QSFP-SR4	802.3ba	FDA 21CFR 1040.10 Class 1	EN 60825-1	850	OM3 MMF OM4 MMF	100m 150m	Yes
E40G-QSFP-SR4-INT (compatible with 10GBASE-SR)	802.3ba				OM3 MMF OM4 MMF	100m 150m	Yes
E40G-QSFP-LR4 **E40G-QSFP-LR4-A**	802.3ba			1264.5 to 1337.5	SMF	10Km	Yes
E40G-QSFP-LR4-INT	802.3ba			1310	SMF	10Km	Yes
E40G-QSFP-ER4	802.3ba			1264.5 to 1337.5	SMF	40Km	Yes
E40G-QSFP-ESR4	802.3ba			850	OM3 MMF OM4 MMF	300m 400m	Yes
E40G-QSFP-LM4	802.3ba			1264.5 to 1337.5	OM3/OM4 MMF	160m	Yes
E40G-QSFP-SR-BIDI	802.3ba			850 to 900	OM3/OM4 MMF	100m	No
E40G-QSFP-SR-SWLC	802.3ba			850 to 900		300m 400m	No

Specifications subject to change.

Key Standards and Features

	IEEE Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
Part Number	40 GbE DAC CABLE						
E40G-QSFP-4SFP-C-XXXX	N/A	Direct Attach QSFP+ to 4 SFP+ active copper breakout cables				1m, 3m, 5m	No
E40G-QSFP-QSFP-C-XXXX E40G-Q-Q-C-XXXX-A	N/A	Direct Attach QSFP+ to QSFP+ active copper cables				1m, 3m, 5m	No
40G-QSFP-C-005XX E40G-QSFP-C-XXXX E40G-QSFP-QSFP-P-XXXX	N/A	Direct Attach QSFP+ to QSFP+ passive copper cables				0.5m, 1m, 3m, 5m	No
E40G-QSFP-QSFP-AOC-XXXX	N/A	Direct Attach QSFP+ to QSFP+ active optical cables				10m	No
E40G-QSFP-4SFP-AOC-XXXX	N/A	Direct Attach QSFP+ to 4 SFP+ active optical breakout cables				10m	No

Part Number	100 GbE QSFP28 FIBER					
E100G-QSFP28-SR4 E100G-QSFP28-SR4-A	802.3bm	North America: CDRH Class 1 European Union: EN 60825 Class 1	850	OM4 MMF	100m	Yes
E100G-QSFP28-SR-SWLC	802.3bm		850	OM4 MMF	150m	
E100G-QSFP-ESR4	802.3bm		850	OM4 MMF	300m	
E100G-QSFP28-DR1	802.3cu		1311	SMF	500m	
E100G-QSFP28-CWDM4-2KM	802.3am		1310	SMF	2Km	
E100G-QSFP28-LR4L-2KM	802.3ba		1295, 1300, 1305, 1310	SMF	2Km	
E100G-QSFP28-FR1	802.3cu		1311	SMF	2Km	
E100G-QSFP28-LR4-10KM	802.3bm		1295, 1300, 1305, 1310	SMF	10Km	
E100G-QSFP28-LR4-LP-10KM	802.3ba		1295, 1300, 1305, 1310	SMF	10Km	
E100G-QSFP28-LR1	802.3cu		1311	SMF	10Km	
E100G-QSFP28-ER4L	802.3bm		1295, 1300, 1305, 1310	SMF	40Km	

Part Number	100 GbE QSFP28 DAC CABLE			
E100G-QSFP-QSFP-AOC-1001	N/A	Direct Attach QSFP28 to QSFP28 active optical cables	10m	No
E100G-QSFP-QSFP-P-XXXX	N/A	Direct Attach QSFP28 to QSFP28 passive copper cables	1m, 3m, 5m	N/A
E100G-QSFP-4SFP-P-XXXX	N/A	Direct Attach QSFP28 to 4 SFP28 passive copper breakout cables	1m, 3m, 5m	N/A

Specifications subject to change.

TX and RX Power

		TX		RX	
SKU	Description	Min (dBm)	Max (dBm)	Min (dBm)	Max (dBm)
E1MG-100FX-A / E1MG-100FX-OM	100BASE-FX SFP optic MMF, LC connector, optical monitoring capable	-20	-15	0	-30
E1MG-SX-A / E1MG-SX-OM	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring capable	-9	-2.5	0	-18
E1MG-LX-A / E1MG-LX-OM	1000BASE-LX SFP optic, SMF, LC connector, optical monitoring capable	-9.5	-3	0	-19
10G-SFPP-USR / 10G-SFPP-USR-SA	10GBASE-USR, SFP+ optic (LC), target range 100m over MMF	-7.3	-1.3	-1	-11.1
10G-SFPP-SR / 10G-SFPP-SR-S / 10G-SFPP-SR-SA	10GBASE-SR, SFP+ optic (LC), target range 300m over MMF	-4.3	-1	-1	-11.1
10G-SFPP-LR / 10G-SFPP-LR-S / 10G-SFPP-LR-SA	10GBASE-LR, SFPP SMF (LC), for up to 10km over SMF	-8.2	0.5	0	-14.4
10G-SFPP-LRM	10GBASE-LRM SFP+ optic (LC), for up to 220m over MMF	-6.5	0.5	1.5	-6.5
E40G-QSFP-SR-BIDI	40GBASE-SR QSFP+ optic (LC), bidirectional, 100 m over OM3 MMF, 150 m over OM4 MMF	-4	5	-6	5
E40G-QSFP-LR4	40GBASE-LR4 QSFP+ optic (LC), for up to 10km over SMF	-6	3.5	-13.7	2.3
E100G-QSFP28-SR4	100GBASE-SR4 QSFP28 optic (MTP 1x12), for up to 100 m over MMF	-8.4	2.4	-10.3	2.4

Max Distances with CommScope LazrSPEED® Multimode Fiber Cables

Thanks to advanced design and superior build quality, CommScope LazrSPEED fiber solutions expands the maximum distances specified in the standards.

	OM4 MMF		OM5 MMF	
Part Number	Max distance on standard fiber	Max distance on CommScope LazrSPEED fiber	Max distance on standard fiber	Max distance on CommScope LazrSPEED fiber
10G-SFPP-SR 10G-SFPP-SR-SA 10G-SFPP-SR-S	400m	500m	400m	500m
E25G-SFP28-SR	100m	130m	100m	130m
E40G-QSFP-SR-BiDI	150m	150m	200m	210m
E40G-QSFP-SR4	150m	215m	150m	215m
E40G-QSFP-eSR4	400m	500m	400m	500m
E100G-QSFP28-SR4	100m	130m	100m	130m

Specifications subject to change.

RUCKUS Ethernet Optics Ordering Information

Part Number	100 MbE SFP Transceivers
E1MG-100FX-A	100BASE-FX SFP optic MMF, LC connector, optical monitoring capable, TAA compliant
E1MG-100FX-A8	100BASE-FX SFP optic MMF, LC connector, optical monitoring capable, TAA compliant, 8-pack
E1MG-100FX-IR-OM	100BASE-FX IR SFP optic for SMF with LC connector, optical monitoring capable. For distances up to 15Km
E1MG-100FX-LR-OM	100BASE-FX LR SFP optic for SMF with LC connector, optical monitoring capable. For distances up to 40Km
E1MG-100FX-OM	100BASE-FX SFP optic MMF, LC connector, optical monitoring capable
E1MG-100FX-OM-8	100BASE-FX SFP optic MMF, LC connector, optical monitoring capable, 8-pack

Part Number	1 GbE SFP
E1MG-BXD	1000BASE-BXD SFP optic SMF, transmits at 1490nm and receives at 1310nm, LC connector, single strand SMF fiber. This optic should only be connected to an E1MG-BXU at the far end.
E1MG-BXU	1000BASE-BXU SFP optic SMF, transmits at 1310nm and receives at 1490nm, LC connector, single strand SMF fiber. This optic should only be connected to an E1MG-BXD at the far end.
E1MG-BXD-TA	1000BASE-BXD SFP optic SMF, transmits at 1490nm and receives at 1310nm, LC connector, 20km single strand SMF fiber, optical monitoring capable, industrial temperature (-40°C to 85°C), TAA Compliant. This optic should only be connected to an E1MG-BXU-TA at the far end.
E1MG-BXU-TA	1000BASE-BXU SFP optic SMF, transmits at 1310nm and receives at 1490nm, LC connector, 20km single strand SMF fiber, optical monitoring capable, industrial temperature (-40°C to 85°C), TAA Compliant. This optic should only be connected to an E1MG-BXD-TA at the far end.
E1MG-LHA-OM	1000BASE-LHA SFP optic, SMF, LC connector, optical monitoring capable
E1MG-LHA-OM-T	1000BASE-LHA SFP optic, SMF, LC connector, optical monitoring capable, industrial temperature (-40°C to 85°C)
E1MG-LX-A	1000BASE-LX SFP Optic, SMF, LC connector, TAA compliant, industrial temperature (-40°C to 85°C)
E1MG-LX-A8	1000BASE-LX SFP Optic, SMF, LC connector, TAA compliant, 8-pack, industrial temperature (-40°C to 85°C)
E1MG-LX-OM	1000BASE-LX SFP optic, SMF, LC connector, optical monitoring capable
E1MG-LX-OM-8	1000BASE-LX SFP optic, SMF, LC connector, optical monitoring capable, 8-pack
E1MG-LX-OM-T	1000BASE-LX SFP optic, SMF, LC connector, optical monitoring capable, industrial temperature (-40°C to 85°C)
E1MG-SX-A	1000BASE-SX SFP Optic, MMF, (LC), TAA compliant
E1MG-SX-A8	1000BASE-SX SFP Optic, MMF, (LC), TAA compliant, 8-pack
E1MG-SX-OM	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring capable
E1MG-SX-OM-8	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring capable, 8-pack
E1MG-SX-OM-T	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring capable, industrial temperature (-40°C to 85°C)
E1MG-TX	100/1000BASE-T SFP Copper, RJ-45 connector
E1MG-TX-A	100/1000BASE-T SFP Copper, RJ-45, TAA compliant
E1MG-TX-A8	100/1000BASE-T SFP Copper, RJ-45, TAA compliant, 8-pack
1G-SFP-TWX-0101	1GbE Direct Attach SFP to SFP active copper cable, 1m
1G-SFP-TWX-0501	1GbE Direct Attach SFP to SFP active copper cable, 5m

Part Number	10 GbE SFP+
10G-SFPP-BXD-S	10GBASE-LR SFP+ Optic (LC) bidirectional downstream, standard temperature (0°C to 70°C)
10G-SFPP-BXU-S	10GBASE-LR SFP+ Optic (LC) bidirectional upstream, standard temperature (0°C to 70°C)
10G-SFPP-BXD-ER	10GBASE-ER SFP+ Optic (LC) bidirectional downstream, standard temperature (0°C to 70°C) TAA compliant
10G-SFPP-BXU-ER	10GBASE-ER SFP+ Optic (LC) bidirectional downstream, standard temperature (0°C to 70°C) TAA compliant
10G-SFPP-ER	10GBASE-ER SFP+ optic (LC), for up to 40Km over SMF
10G-SFPP-ER-2	10GBASE-ER SFP+ optic (LC), for up to 40Km over SMF, 2-pack
10G-SFPP-LR	10GBASE-LR, SFP+ optic (LC), for up to 10Km over SMF (-40°C to 85°C)

RUCKUS Ethernet Optics Ordering Information

10G-SFPP-LR-8	10GBASE-LR, SFPP SMF (LC), for up to 10Km over SMF, 8-pack (-40°C to 85°C)
10G-SFPP-LR-S	10GBASE-LR, SFPP SMF (LC), for up to 10Km over SMF, standard temperature (0°C to 70°C)
10G-SFPP-LR-S8	10GBASE-LR, SFPP SMF (LC), for up to 10Km over SMF, standard temperature (0°C to 70°C), 8-pack
10G-SFPP-LR-SA	10GBASE-LR, SFP+ optic (LC), for up to 10Km over SMF, standard temperature (0°C to 70°C), TAA compliant
10G-SFPP-LR-SA8	10GBASE-LR, SFP+ optic (LC), for up to 10Km over SMF, standard temperature (0°C to 70°C), TAA compliant, 8-pack
10G-SFPP-LRM	10GBASE-LRM SFP+ optic (LC), for up to 220m over MMF
10G-SFPP-LRM-1-ADP	10GBASE-LRM SFP+ optic (LC), for up to 220m over MMF, w/ 1-LRM Optic, 1-Dual Port Adapter, & L-Bracket Mount for ICX7150, ICX7250 and ICX7750 (Optional 8 unit rack-mount shelf available)
10G-SFPP-LRM-2-ADP	10GBASE-LRM SFP+ Optic (LC), for up to 220m over MMF, w/ 2-LRM Optic, 1-Dual Port Adapter, & L-Bracket Mount for ICX7150, ICX7250 and ICX7750 (Optional 8 unit rack-mount shelf available)
10G-SFPP-LRM-8	10GBASE-LRM SFP+ optic (LC), for up to 220m over MMF, 8-pack
10G-SFPP-SR	10GBASE-SR, SFP+ optic (LC), target range 300m over MMF (-40°C to 85°C)
10G-SFPP-SR-8	10GBASE-SR, SFPP MMF LC connector, 8-pack (-40°C to 85°C)
10G-SFPP-SR-S	10GBASE-SR, SFPP MMF LC connector, standard temperature (0°C to 70°C)
10G-SFPP-SR-S8	10GBASE-SR, S FPP MMF LC connector, standard temperature (0°C to 70°C), 8-pack
10G-SFPP-SR-SA	10GBASE-SR, SFP+ optic (LC), target range 300m over MMF, standard temperature (0°C to 70°C), TAA compliant
10G-SFPP-SR-SA8	10GBASE-SR, SFP+ optic (LC), target range 300m over MMF, standard temperature (0°C to 70°C), TAA compliant, 8-pack
10G-SFPP-TWX-0101	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 1m
10G-SFPP-TWX-0108	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 1m, 8-pack
10G-SFPP-TWX-0301	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 3m
10G-SFPP-TWX-0308	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 3m, 8-pack
10G-SFPP-TWX-0501	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 5m
10G-SFPP-TWX-0508	10GbE Direct Attach SFP+ to SFP+ Active copper cable, 5m, 8-pack
10G-SFPP-TWX-P-0101	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 1m
10G-SFPP-TWX-P-0108	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 1m, 8-pack
10G-SFPP-TWX-P-0301	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 3m
10G-SFPP-TWX-P-0308	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 3m, 8-pack
10G-SFPP-TWX-P-0501	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 5m
10G-SFPP-TWX-P-0508	10GbE Direct Attach SFP+ to SFP+ Passive copper cable, 5m, 8-pack
10G-SFPP-USR	10GBASE-USR, SFP+ optic (LC), target range 100m over MMF
10G-SFPP-USR-8	10GBASE-USR, SFP+ optic (LC), target range 100m over MMF, 8-pack
10G-SFPP-USR-SA	10GBASE-USR, SFP+ Optic (LC), Range 100m MMF, standard temperature (0°C to 70°C), TAA compliant
10G-SFPP-USR-SA8	10GBASE-USR, SFP+ Optic (LC), Range 100m MMF, standard temperature (0°C to 70°C), TAA compliant, 8-pack
10G-SFPP-ZR	10GBASE-ZR SFP+ optic (LC), for up to 80Km over SMF
10G-SFPP-ZR-2	10GBASE-ZR SFP+ Optic (LC), for up to 80Km over SMF, 2-pack
10GE-SFPP-AOC-0701	10GbE Direct Attach SFP+ to SFP+ Active Optical Cable, 7m
10GE-SFPP-AOC-1001	10GbE Direct Attach SFP+ to SFP+ Active Optical Cable, 10m
10G-SFPP-TX-A	10G-BASE-TX RJ-45 up to 30M over CAT 6a/7 cable TAA Applicable
10G-SFPP-TX-LP-A	10G-BASE-TX RJ-45 up to 30M over CAT 6a/7 cable TAA Applicable Low Power

Specifications subject to change.

RUCKUS Ethernet Optics Ordering Information

Part Number	25 GbE SFP28
E25G-SFP28-SR	25GE SR SFP28 (LC), 100 m over MMF OM4, 70 m over MMF OM3, 1-pack
E25G-SFP28-LR	25GE LR SFP28 (LC), 10km over SMF, 1-pack
E25G-SFP28-AOC-1001	25GE SFP28 AOC 10m 1-pack
E25G-SFP28-TWX-P-00501	25GE Direct Attached SFP28 to SFP28 Passive Copper cable, 0.5m, 1-pack
E25G-SFP28-TWX-P-0101	25GE Direct Attached SFP28 to SFP28 Passive Copper cable, 1m, 1-pack
E25G-SFP28-TWX-P-0301	25GE Direct Attached SFP28 to SFP28 Passive Copper cable, 3m, 1-pack

Part Number	40 GbE QSFP+
E40G-QSFP-SR4	40GBASE-SR4 QSFP+ optic (MTP 1×8 or 1×12), 100m over MMF OM3. 150m over MMF OM4
E40G-QSFP-SR4-8	40GBASE-SR4 QSFP+ optic (MTP 1×8 or 1×12), 100m over MMF OM3. 150m over MMF OM4, 8-pack
E40G-QSFP-SR4-INT	40GBASE-SR4 QSFP+ optic (MTP 1x8 or 1x12), 100m over MMF, compatible with 10GBASE-SR, 10G breakout-capable
E40G-QSFP-ESR4	40GBASE-ESR4 QSFP+ optic (MTP 1x8 or 1x12), 300m over MMF
E40G-QSFP-ESR4-8	40GBASE-ESR4 QSFP+ optic (MTP 1x8 or 1x12), 300m over MMF, 8-pack
E40G-QSFP-ER4	40GBASE-ER4 QSFP+ optic (LC), for up to 40Km over SMF
E40G-QSFP-LR4	40GBASE-LR4 QSFP+ optic (LC), for up to 10Km over SMF
E40G-QSFP-LR4-8	40GBASE-LR4 QSFP+ optic (LC), for up to 10Km over SMF, 8-pack
E40G-QSFP-LR4-A	40GBASE-LR4 QSFP+ optic (LC), for up to 10Km over SMF TAA Compliant
E40G-QSFP-LR4-INT	40GBASE-LR4 QSFP+ to 4 SFP+ optic (MTP 1x8 or 1x12), for up to 10Km over SMF (compatible with 10GBASE-LR, 10G breakout-capable)
E40G-QSFP-LM4	40GBASE-LM4 QSFP+, 1310nm, 160m over duplex LC OM4 MMF
E40G-QSFP-SR-BIDI	40GbE SR QSFP+ optic (LC), bidirectional, 100m over OM3 MMF
E40G-QSFP-SR-SWLC	40GbE SR QSFP+ optic (LC), SWDM4, 400m over OM4 MMF
E40G-QSFP-4SFP-AOC-1001	4x10GbE Direct Attach QSFP+ to 4 SFP+ Active Optical Breakout Cable, 10m
E40G-QSFP-4SFP-C-0101	4x10GbE Direct Attach QSFP+ to 4 SFP+ Active Copper Breakout Cable, 1m
E40G-QSFP-4SFP-C-0301	4x10GbE Direct Attach QSFP+ to 4 SFP+ Active Copper Breakout Cable, 3m
E40G-QSFP-4SFP-C-0501	4x10GbE Direct Attach QSFP+ to 4 SFP+ Active Copper Breakout Cable, 5m
E40G-QSFP-QSFP-AOC-1001	40GbE Direct Attach QSFP+ to QSFP+ Active Optical Cable, 10m
E40G-QSFP-QSFP-C-0101	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 1m
E40G-QSFP-QSFP-C-0301	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 3m
E40G-QSFP-QSFP-C-0501	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 5m
E40G-Q-Q-C-0101-A	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 1 m, TAA Compliant
E40G-Q-Q-C-0301-A	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 3 m, TAA Compliant
E40G-Q-Q-C-0501-A	40GbE Direct Attach QSFP+ to QSFP+ Active Copper cable, 5 m, TAA Compliant
40G-QSFP-C-00501	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 0.5m
40G-QSFP-C-00501-A	40GE QSFP Direct Attach Copper Cable, 0.5m, 1-pack, passive TAA Compliant
40G-QSFP-C-00508	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 0.5m, 8-pack
E40G-QSFP-C-0101	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 1m
E40G-QSFP-QSFP-P-0101	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 1m
E40G-QSFP-QSFP-P-0301	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 3m
E40G-QSFP-C-0501	40GbE Direct Attach QSFP+ to QSFP+ Passive Copper Cable, 5m

Specifications subject to change.

RUCKUS Ethernet Optics Ordering Information

Part Number	100 GbE QSFP28
E100G-QSFP28-SR4	100GBASE-SR4 QSFP28 optic (MTP 1x12), for up to 100m over MMF, 25G breakout capable
E100G-QSFP28-SR4-A	100GBASE-SR4 QSFP28 optic (MTP 1x12), for up to 100m over MMF TAA Compliant, 25G breakout capable
E100G-QSFP28-SR-SWLC	100GBASE-SR QSFP28 optic LC, SWDM4 for up to 150m OMF over MMFOM4
E100G-QSFP-ESR4	100GBASE-ESR4 QSFP+ optic (MTP 1x8 or 1x12), for up to 300m over MMF
E100G-QSFP28-DR1	100GBASE-DR QSFP28 PAM4 optic, LC, 500m over SMF, FEC enabled
E100G-QSFP28-CWDM4-2KM	100GBASE-CWDM4 QSFP28 optic (LC), for distances up to 2Km over SMF
E100G-QSFP28-LR4L-2KM	100GBASE-LR4 Lite QSFP28 transceiver 2Km over SMF
E100G-QSFP28-FR1	100GBASE-FR QSFP28 PAM4 optic, LC, 2km over SMF, FEC enabled
E100G-QSFP28-LR4-10KM	100GBASE-LR4 QSFP28 optic (LC), for distances up to 10Km over SMF
E100G-QSFP28-LR4-LP-10KM	100GBASE-LR4 Low Power, QSFP28 optic (LC), for distances up to 10Km over SMF
E100G-QSFP28-LR1	100GBASE-LR QSFP28 PAM4 optic, LC, 10km over SMF, FEC enabled
E100G-QSFP28-ER4L	100GBASE-ER4 Lite QSFP28 (LC), SMF, 30Km NO FEC, 40Km w/ FEC
E100G-QSFP-QSFP-P-0101	100GbE QSFP28 to QSFP28 Direct Attach, Passive Copper Cable, 1m
E100G-QSFP-QSFP-P-0301	100GbE QSFP28 to QSFP28 Direct Attach, Passive Copper Cable, 3m
E100G-QSFP-QSFP-P-0501	100GbE QSFP28 to QSFP28 Direct Attach, Passive Copper Cable, 5m
E100G-QSFP-QSFP-AOC-1001	100GbE QSFP28 to QSFP28 Direct Attach, Active Optical Cable, 10m
E100G-QSFP-4SFP-P-0101	4x25GE Direct Attached QSFP28 to 4 SFP28 PASSIVE Copper Breakout Cable, 1m, 1-pack
E100G-QSFP-4SFP-P-0301	4x25GE Direct Attached QSFP28 to 4 SFP28 PASSIVE Copper Breakout Cable, 3m, 1-pack
E100G-QSFP-4SFP-P-0501	4x25GE Direct Attached QSFP28 to 4 SFP28 PASSIVE Copper Breakout Cable, 5m, 1-pack

Specifications subject to change.

Understanding Part Number Descriptions

Operating Temperature Ranges: When no temperature range is mentioned in the description, the transceiver temperature range is 0°C to 70°C. “industrial temperature” means -40°C to 85°C.

Multi-Unit Bundles: 8-pack means the SKU is a bundle of 8 units. 2-pack, a bundle of 2 units.

TAA Compliance: TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581). TAA requires that the U.S. Government may acquire only “U.S. made or designated country end products”. This act requires that contractors must certify that each end product meets the applicable requirements. End products are ‘those articles, materials and supplies to be acquired for public use’.” This includes items which have been “substantially transformed” in the United States.

Warranty

RUCKUS optics are covered by the RUCKUS switching products standard limited warranty. For details, visit www.ruckuswireless.com/warranty.

Legal disclaimer

Product features, functionality and specifications may change or be discontinued without notice. Nothing in this document shall be deemed to create a warranty of any kind, either express or implied, statutory or otherwise, including but not limited to, any implied warranties of merchantability, fitness for a particular purpose, non-infringement of third-party rights or availability with respect to any products and services.

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About RUCKUS Networks

RUCKUS Networks builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

www.ruckusnetworks.com

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