SYSTIMAX® G2 ultra low-loss (ULL) solutions:

Connecting installed cabling to 400 Gbps and 800 Gbps equipment

COMMSCOPE®

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Application legend

Singlemode Multimode 100G-DR 200G-DR4 2 fiber = 50/100G*-Base SR = 100G-DR4/200G-DR4* applications 8 fiber = 400G-SR4.2/400G-VR4*/400G-SR4* 2 fiber = 400G-LR8/400G-FR8/800G-FR4* applications applications 16 fiber APC 8 fiber = 400G-DR4/800G-DR4* = 400G-SR8/800G-SR8*/800G-VR8* applications applications 16 fiber APC = 800G-DR8*/1600G-DR8* applications

Connecting installed cabling to 400 Gbps and 800 Gbps equipment

Data center managers are under intensifying pressure to do more with less. Data transfer speeds are accelerating—100G to 200G to 400G and beyond. Architectures are flattening and fiber densities increasing. Ultra-low-loss cabling and connectivity is fast becoming the rule, not the exception. And all of this is occurring as budgets, migration schedules and manpower continue to shrink.

In short, the rules of the game are changing in real time. CommScope keeps you two steps ahead with the Propel portfolio...

Designed for what's next, Propel is a modular, ultra-low loss, high-speed fiber platform that enables you to easily scale and adapt your infrastructure as needed, wherever it is needed. High-density fiber panels and interchangeable modules and adapters maximize design options while reducing deployment time, cost and complexity. New 16-fiber connectivity provides easier migration to more efficient 400G/800G deployments while fully supporting legacy 8-, 4- and 2-fiber applications. QR-coded components for optical performance verification make it easier to manage.

Backed by the global reach of an industry leader, the Propel fiber platform delivers the performance, support and product availability you need to thrive in a frenetic, fast-paced environment. It's everything you expect from CommScope—and then some.

About this guide

This design guide provides an at-a-glance reference for customers with installed G2 ultra-low loss data center cabling who need to efficiently support these higher speed applications. Propel transition cable assemblies, including patch cords and array cables, are referenced and shown with design graphics to simplify design choices. Propel is designed to help you customize an infrastructure platform to address your immediate needs as well as take you through multiple generations of upgrades. For more information on our SYSTIMAX portfolio and its capabilities, please contact your CommScope representative or visit https://www.commscope.com/solution-guide-systimax-ull/.



Applications covered in this guide

Ethernet multimode modules—speed >= 100Gb/s

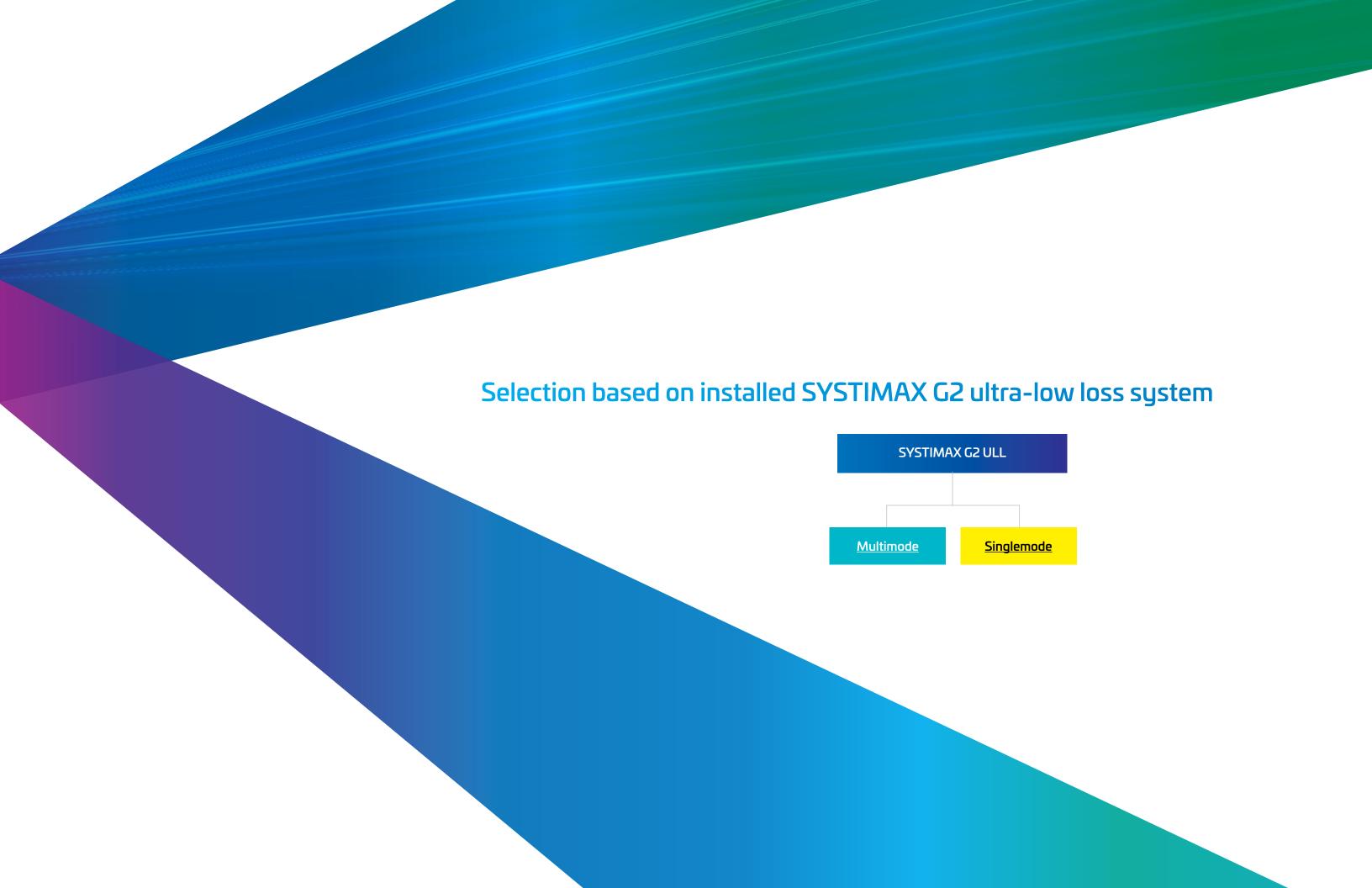
Data Rate	Ethernet standard	IEEE standard/	Adoption/	# of fiber		Optical		Reach (m)				
Gb/s	proprietary/MSA module	MSA/proprietary	introduction	pairs	# λ 's	modulation	OM3	OM4	OM5			
100	100GBASE-SR4	IEEE 802.3bm	2015	4	1	25G NRZ	70	100	100			
100	100G-SWDM4	MSA	2017	1	4	25G NRZ	75	100	150			
100	100G-BiDi	Proprietary	2017	1	2	50G PAM4	70	100	150			
100	100GBASE-SR2	IEEE802.3cd	2018	2	1	50G PAM4	70	100	100			
100	100GBASE-VR	IEEEP802.3db Task Force	IEEEP802.3db Task	IEEEP802.3db Task	IEEEP802.3db Task	IEEEP802.3db Task	2022 1	1	100G PAM4	30	50	50
100	100GBASE-SR		2022	I	I	100G PAM4	60	100	100			
200	200GBASE-SR4	IEEE802.3cd	2018	4	1	50G PAM4	70	100	100			
200	200GBASE-VR2	IEEEP802.3db Task	2022	2	1	100G PAM4	30	50	50			
200	200GBASE-SR2	Force	2022	2	I	100G PAM4	60	100	100			
400	400GBASE-SR8	IEEE002 2	2020	8	1	FOC DANAA	70	100	100			
400	400GBASE-SR4.2	IEEE802.3cm	2020	4	2	50G PAM4	70	100	150			
400	400GBASE-VR4	IEEEP802.3db Task Force	2022	4	1	1006 DANA	30	50	50			
400	400GBASE-SR4		2022	4	I	100G PAM4	60	100	100			
800	800GBASE-VR8	B400G Study Group	2022.24	0	1	100C DANA4	30?	50	40			
800	800GBASE-SR8		2023-24	8	I	100G PAM4	60?	100	100			

Ethernet singlemode modules—speed >= 100Gb/s

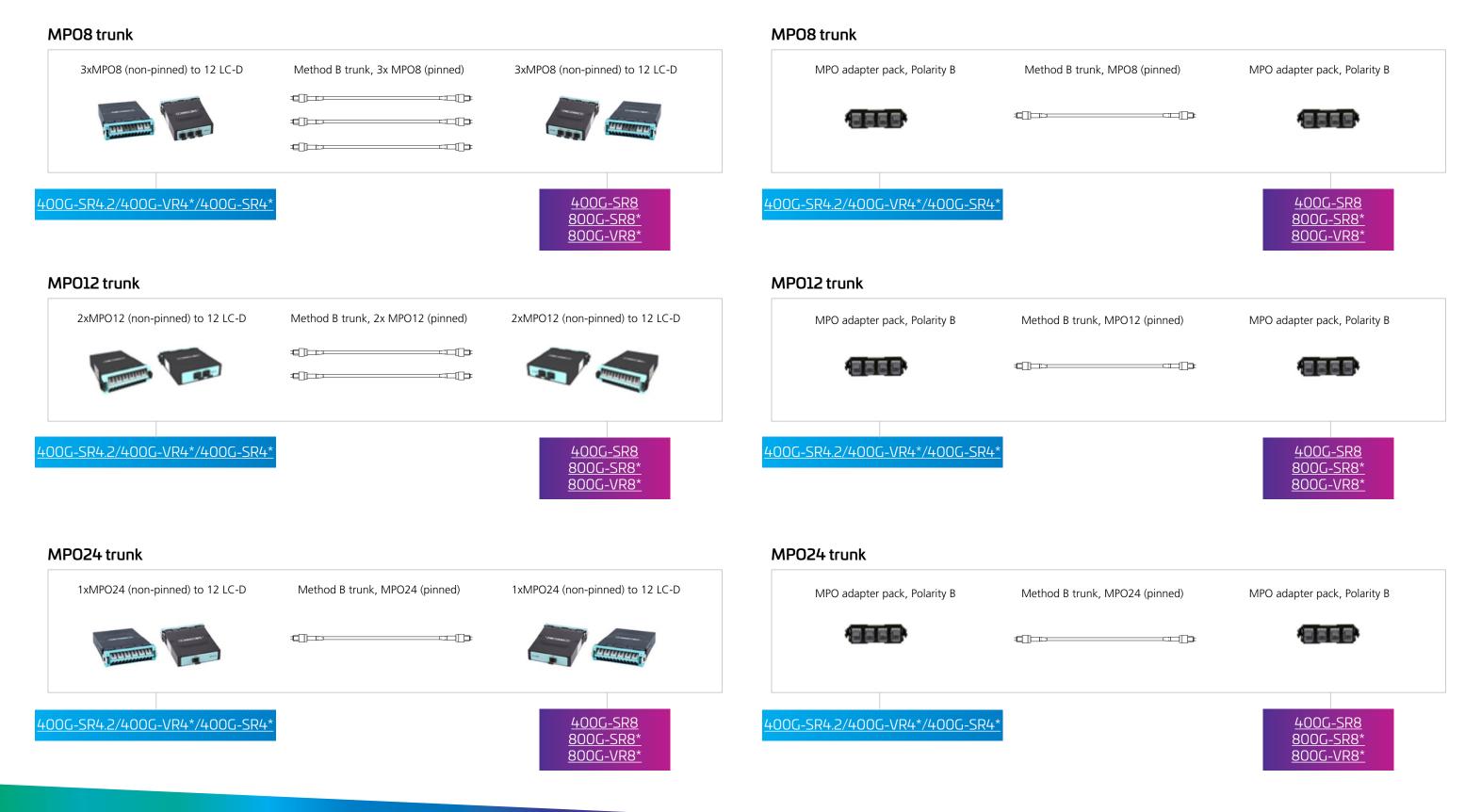
Data Rate Gb/s	Ethernet standard proprietary/MSA module	IEEE standard/ MSA/proprietary	Adoption/introduction	# of fiber pairs	# λ ′s	Optical modulation	Reach
100	100G-PSM4	MSA	2014	4	1	25G NRZ	500
100	100G-CWDM4	MSA	2014	1	4	25G NRZ	2,000
100	100GBASE-LR4	IEEE 802.3ba	2010	1	4	25G NRZ	10,000
200	200GBASE-DR4			4	1	50G PAM4	500
200	200GBASE-FR4	IEEE802.3bs	2017	1	1	FOC DANA	2,000
200	200GBASE-LR4			1	4	50G PAM4	10,000
400	400GBASE-FR8	IEEE802.3bs		1	8	50G PAM4	2,000
400	400GBASE-LR8		2017	1	8	SUG PAIVI4	10,000
400	400GBASE-DR4			4	1	100G PAM4	500
800	800GBASE-DR8		2022	8	1	100G PAM4	500/2,000
800	800GBASE-DR4	B400G Study Group	2025?	4	1		500/2,000
800	800GBASE-FR4		2025?	1	4	200G PAM4	2,000
1600	1600GBASE-DR8		2025?	8	1		500/2,000

Distances could vary based on configuration or connector type and count. Refer to the CommScope Fiber Performance Calculator, SYSTIMAX performance specifications and other documentation at commscope.com for our Application Assurance details.

Green = defined by the IEEE Beyond 400G study group
Blue = defined by the IEEE 802.3db task force



Common SYSTIMAX G2 ULL multimode transmission channels



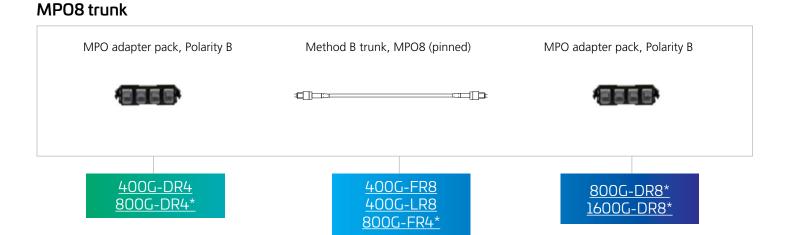
Common SYSTIMAX G2 ULL singlemode transmission channels

MP08 trunk 3xMPO8 (non-pinned) to 12 LC-D 3xMPO8 (non-pinned) to 12 LC-D Method B trunk, 3x MPO8 (pinned) 400G-FR8 400G-DR4 800G-DR8*

400G-LR8

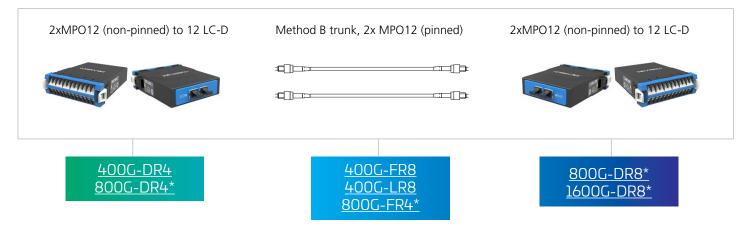
800G-FR4*

1600G-DR8*

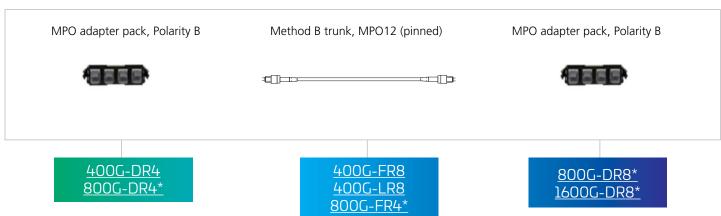


MPO12 trunk

800G-DR4*



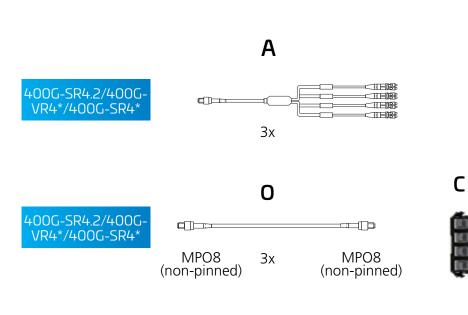
MPO12 trunk

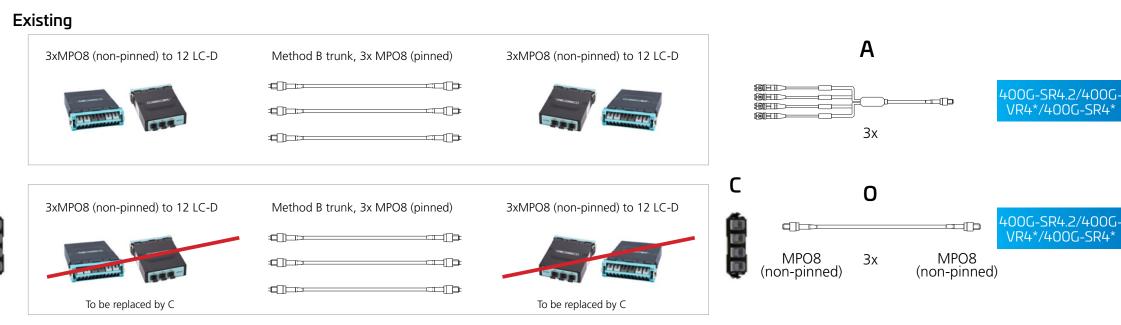


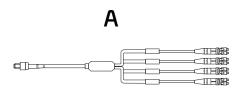


Connection to **400G-SR4.2/400G-VR4*/400G-SR4***

Maximum channel lengths					
OM4	100 m				
OM5	150 m				







MPO8 (non-pi duple:	nned) to 4 x LC x cord
Fiber type	Part number
OM4	UQXQPLUJ8
OM5	UQVQPLUJ8

MPO8 (non-pinned) to MPO8
(non-pinned) cord

Fiber type Part number

OM4 UQXQPQPJ8

OM5 UQVQPQPJ8

0



400G-SR8

800G-SR8*

800G-VR8*

Connection to

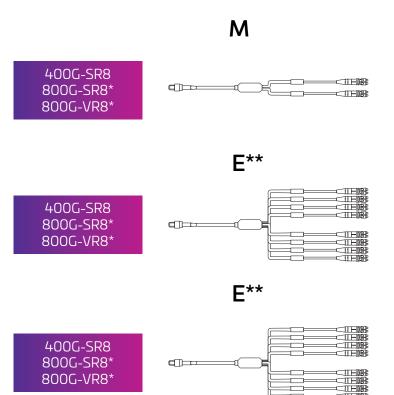
400G-SR8

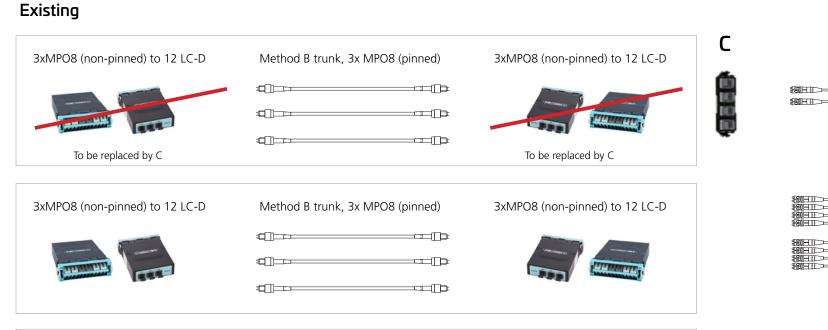
800G-SR8*

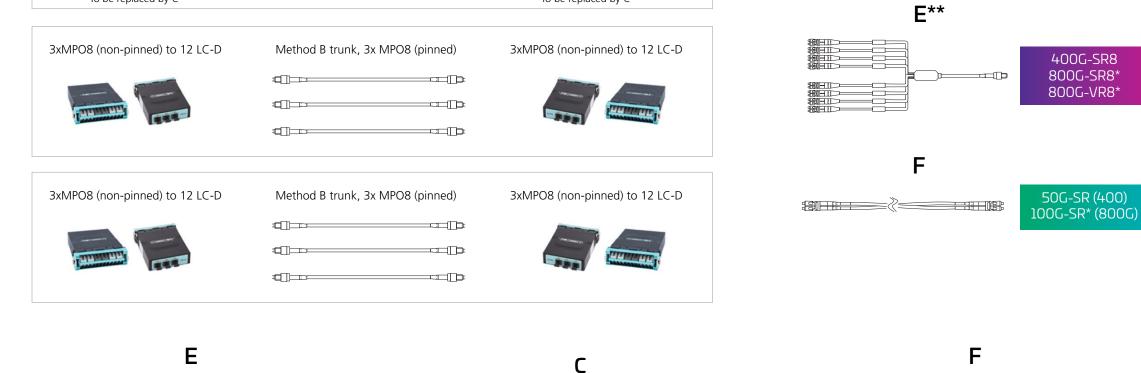
800G-VR8*

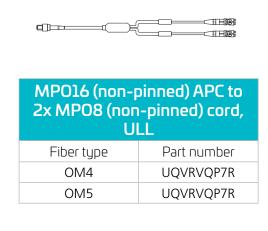


M

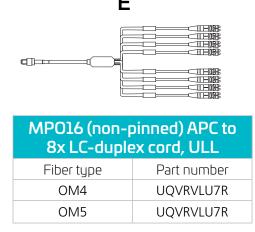


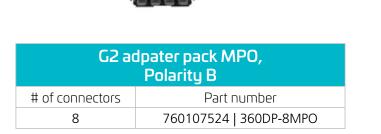






M





LC-duplex cord, ULL

Fiber type Part number OM4 UDXLULUK2 OM5 UDVLULU

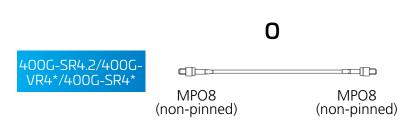
*Applications on the Ethernet roadmap

**Four LC-duplex ports will not be used by the shown port-to-port configuration. These ports can be part of another port-to-port configuration. To fully utilize the G2 modules using the "E" breakout array, 6x MPO16 to 8 LC-Duplex arrays would be necessary to bridge and support four G2 modules in a panel row.



Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths				
OM4	100 m			
OM5	150 m			





MPO adapter pack, Polarity B

0 400G-SR4.2/400G-VR4*/400G-SR4* MPO8 (non-pinned) MPO8 (non-pinned)





MPO8 (non-pinned) to MPO8 (non-pinned) cord, ULL				
Fiber type	Part number			
OM4	UQXQPQPJ8			
OM5	UQVQPQPJ8			

Maximum channel lengths OM4 100 m OM5 150 m

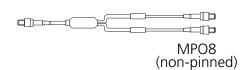
Connection to

400G-SR8 800G-SR8*

800G-VR8*

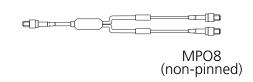
M

400G-SR8 800G-SR8* 800G-VR8*

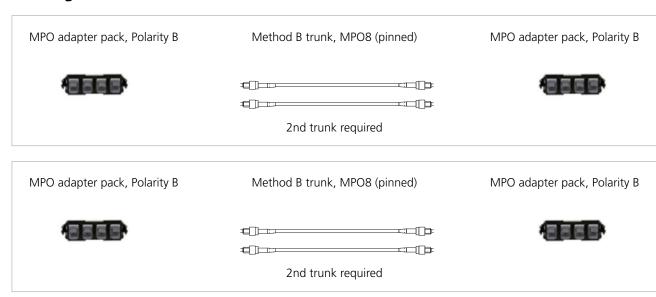


M

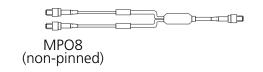
400G-SR8 800G-SR8* 800G-VR8*



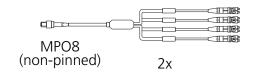
Existing











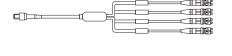
50G-SR (400) 100G-SR* (800G)

M



MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) cord, ULL				
Fiber type	Part number			
OM4	UQXRVQP7RM			
OM5	UQVRVQP7RN			

Α

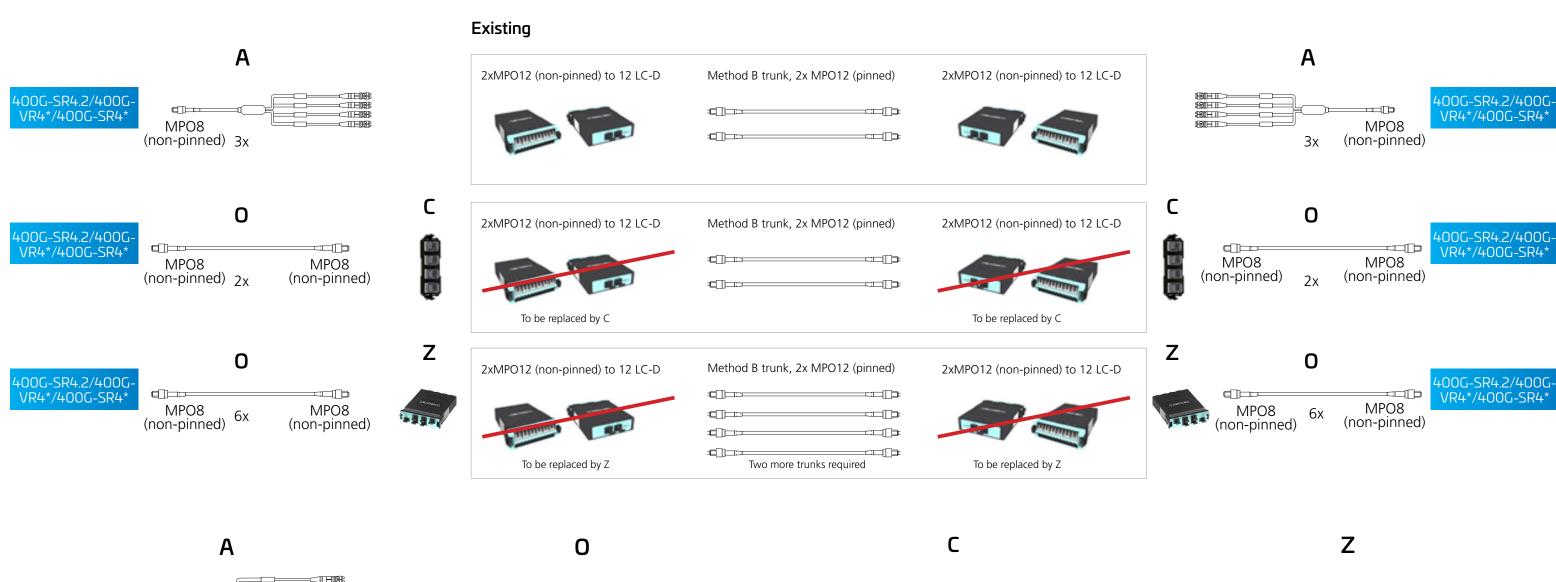


MPO8f to 4x LC-duplex cord, ULL				
Fiber type	Part number			
OM4	UQXQPLUJ8			
OM5	UQVQPLUJ8			

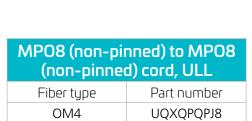


Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths					
OM4	100 m				
OM5	150 m				



MPO8f to 4 x l	LC duplex cord
Fiber type	Part number
OM4	UQXQPLUJ8
OM5	UQVQPLUJ8



UQVQPQPJ8

OM5

G2 adpater pack MPO, Polarity B			
# of connectors Part number			
8	760107524 360DP-8MPO		



G2 conversion module, 4 x MPO12 (non-pinned) to 6x MPO8 (pinned)	
Fiber type	Part number
OM4	CM12-4X6-LS-ULL
OM5	CM12-4X6-WB-ULL

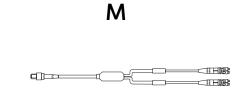
Connection to

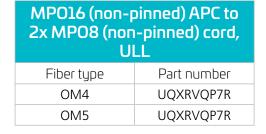
400G-SR8

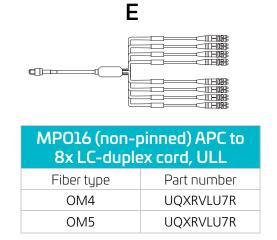
800G-SR8*

Maximum channel lengths		
OM4	100 m	
OM5	150 m	











C

F

LC-duplex cord, ULL	
Fiber type	Part number
OM4	UDXLULUK2
OM5	UDVLULU

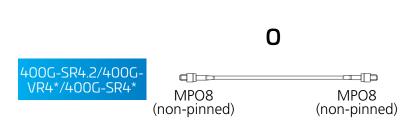
*Applications on the Ethernet roadmap

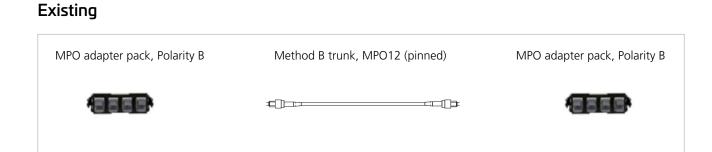
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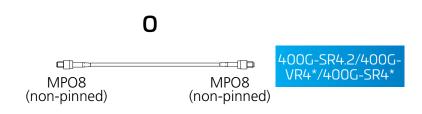


Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths	
OM4	100 m
OM5	150 m









MPO8 (non-pinned) to MPO8 (non-pinned) cord, ULL	
Fiber type	Part number
OM4	UQXQPQPJ8
OM5	UQVQPQPJ8

100 m

150 m

Maximum channel lengths

OM4

OM5

Connection to

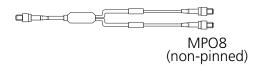
400G-SR8

800G-SR8*

800G-VR8*

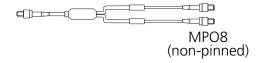
M

400G-SR8 800G-SR8* 800G-VR8*



M

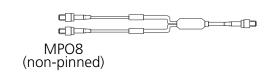
400G-SR8 800G-SR8* 800G-VR8*



Existing

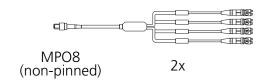


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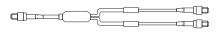


Α



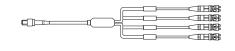
50G-SR (400) 100G-SR* (800G)

M



MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) cord, ULL		
Fiber type	Part number	
OM4	UQXRVQP7R	
OM5	UQXRVQP7R	

Α



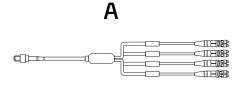
MPO8 (non-pinned) to 4x LC-duplex cord, ULL	
Fiber type	Part number
OM4	UQXQPLUJ8
OM5	UQVQPLUJ8



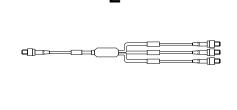
Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths	
OM4	100 m
OM5	150 m





MPO8 (non-pinned) to 4 x LC duplex cord		
Fiber type	Part number	
OM4	UQXQPLUJ8	
OM5	UQVQPLUJ8	



MPO8 (non-pir	ned) cord, ULL
Fiber type	Part number
OM4	UQX2PQPPHF
OM5	UQV2PQPHF

MPO24 (non-pinned) to 3x

 C (BEEE)

G2 adpater pack MPO, Polarity B		
# of connectors	Part number	
8	760107524 360DP-8MPO	



MPO24 (non-pinned) to 6 x MPO8 (pinned)	
Fiber type	Part number
OM4	CM24-2X6-LS-ULL
OM5	CM24-2X6-WB-ULL

*Applications on the Ethernet roadmap

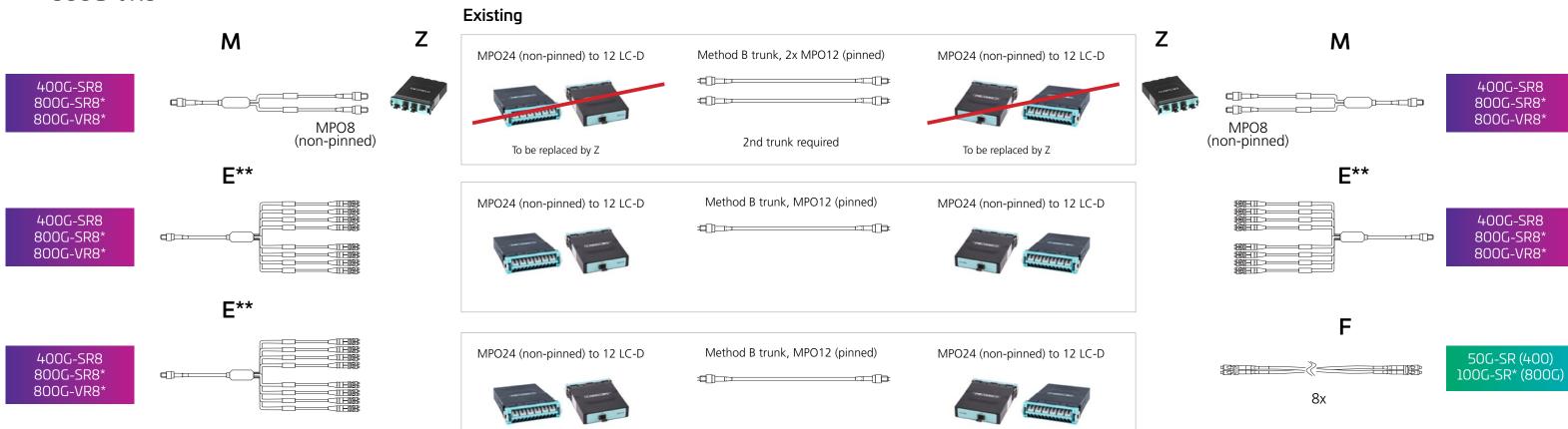
Connection to

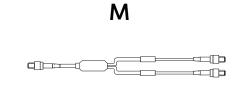
400G-SR8

800G-SR8*

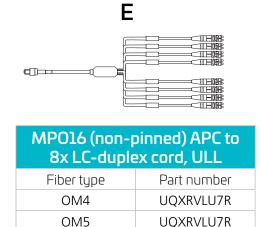
800G-VR8*

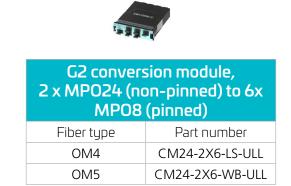
Maximum channel lengths OM4 100 m OM5 150 m





MP016 (non-pinned) APC to 2x MP08 (non-pinned) cord, ULL	
Fiber type	Part number
OM4	UQXRVQP7R
OM5	UQXRVQP7R





Z

F

LC-duplex cord, ULL	
Fiber type	Part number
OM4	UDXLULUK2
OM5	UDVLULU

*Applications on the Ethernet roadmap

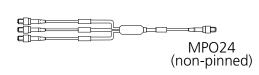
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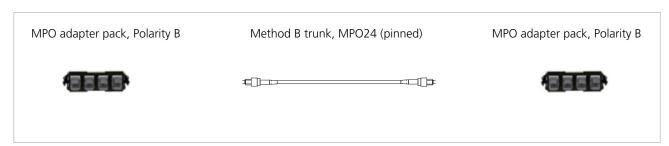
Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths	
OM4	100 m
OM5	150 m

400G-SR4.2/400G-VR4*/400G-SR4*



Existing



+00G-SR4.2/400G-VR4*/400G-SR4* MPO24 (non-pinned)



MPO24 (non-pinned) to 3 MPO8 (non-pinned) cord, ULL		
Fiber type	Part number	
OM4	UQX2PQPPHF	
OM5	UQV2PQPHF	

50G-SR (400)

100G-SR* (800G)

Connection to

400G-SR8

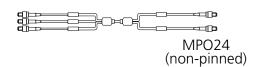
800G-SR8*

800G-VR8*



S

400G-SR8 800G-SR8* 800G-VR8*



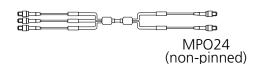
T



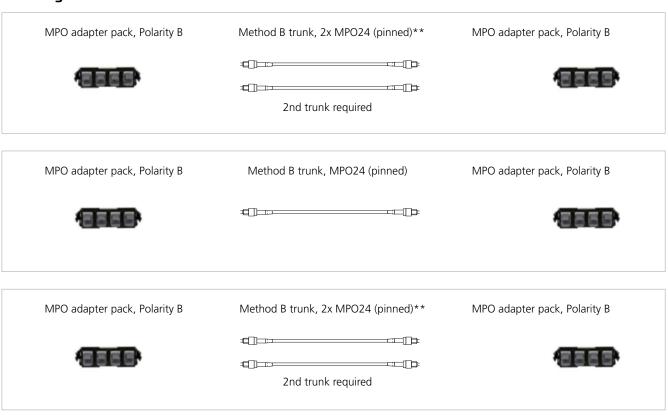


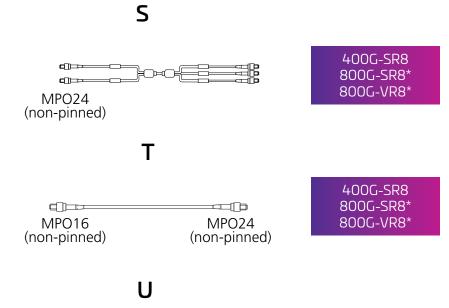
S

400G-SR8 800G-SR8* 800G-VR8*



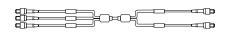
Existing



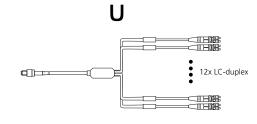


• 12x LC-duplex





MPO24 (non-pinned) cord, ULL		
Fiber type	Part number	
OM4	UQX2PRVBH-MAxxxx	
OM5	UQV2PRPBH-NAxxxx	



MPO24 (non-pinned) to 12x LC-duplex cord, ULL	
Part number	
UQX2PLUHF	
UQV2PLUHF	



MPO24

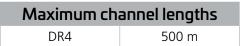
(non-pinned) 2x

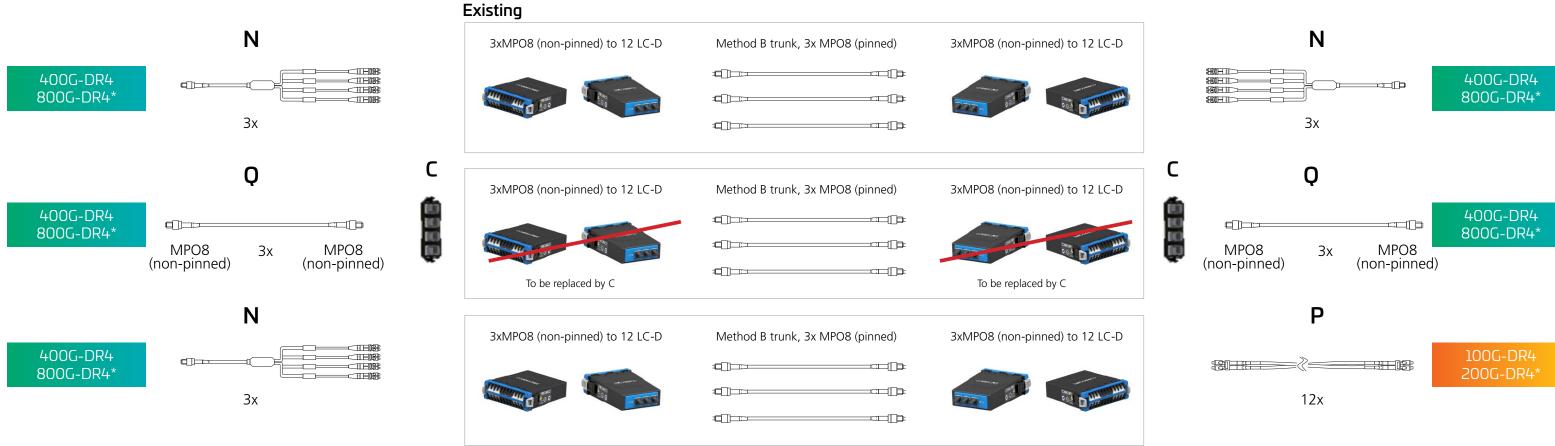
MP016 (non-pinned) APC to MP024 (non-pinned) cord	
Fiber type	Part number
OM4	UQX2PRVBH
OM5	UQV2PRVBH

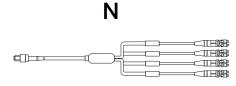
*Applications on the Ethernet roadmap ** Trunks have to be under the same sheath



Connection to 400G-DR4 800G-DR4*







MPO8 (non-pinned) APC to 4x LC-duplex cord, ULL	
Fiber type	Part number
OS2	UQGQPLUJ8



MPO8 (non-pinned) APC to MPO8 (non-pinned) APC cord, ULL	
Fiber type	Part number
OS2	UQGQPQPJ8



G2 adpater pack MPO, Polarity B	
# of connectors	Part number
8 760107524 360DP-8MPO	

	200G-DR4
12x	
	_
ŀ)

LC-duplex	cord, ULL
Fiber type	Part number
OS2	UDGLULUK2

^{*}Applications on the Ethernet roadmap

Connection to

400G-FR8

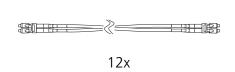
400G-LR8

800G-FR4*

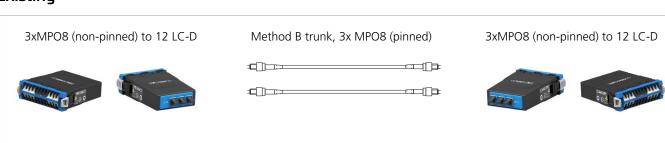
Maximum channel lengths	
FR4	2 km
FR8	2 km
LR8	10 km

Ρ

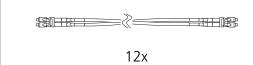
400G-FR8 400G-LR8 800G-FR4*



Existing



P



400G-FR8 400G-LR8 800G-FR4*

P



LC-duplex cord, ULL	
Fiber type	Part number
OS2	UDGLULUK2

Connection to 800G-DR8* 1600G-DR8*

Maximum channel lengths	
DR8	500 m

C R Existing R 3xMPO8 (non-pinned) to 12 LC-D Method B trunk, 3x MPO8 (pinned)** 3xMPO8 (non-pinned) to 12 LC-D 800G-DR8* 800G-DR8* 1600G-DR8* 1600G-DR8* MPO8 MPO8 (non-pinned) (non-pinned) To be replaced by C To be replaced by C

R

MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) APC cord Part number Fiber type URGRPQP7R OS2

G2 adpater pack MPO, Polarity B # of connectors Part number 760107524 | 360DP-8MPO



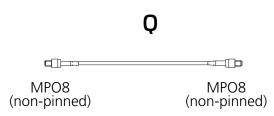
Connection to

400G-DR4

800G-DR4*

Maximum channel lengths DR4 500 m

400G-DR4 800G-DR4*









MPO8 (non-pinned) to MPO8 (non-pinned) cord, ULL		
Fibe	r type	Part number
C)S2	UQGQPQPJ8

Connection to 400G-FR8

400G-LR8

800G-FR4*

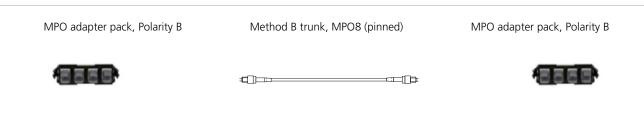
Maximum channel lengths	
FR4	2 km
FR8	2 km
LR8	10 km

Ν

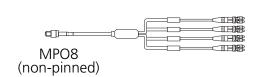
400G-FR8 400G-LR8 800G-FR4*



MPO8 (non-pinned)

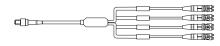


Ν



400G-FR8 400G-LR8 800G-FR4*

Ν

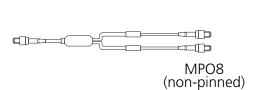


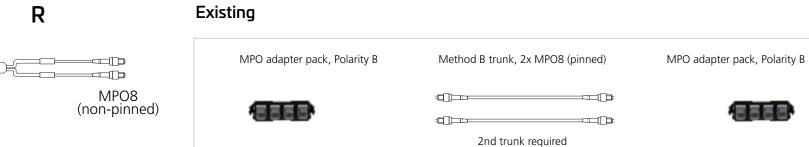
MPO8 (non-pinned) to 4 x LC-duplex cord, ULL	
Fiber type	Part number
OS2	UQGQPLUJ8

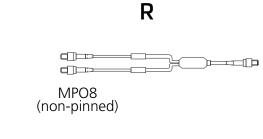
Connection to 800G-DR8* 1600G-DR8*

Maximum ch	annel lengths
DR8	500 m

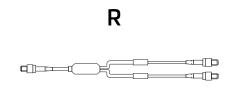
800G-DR8* 1600G-DR8*









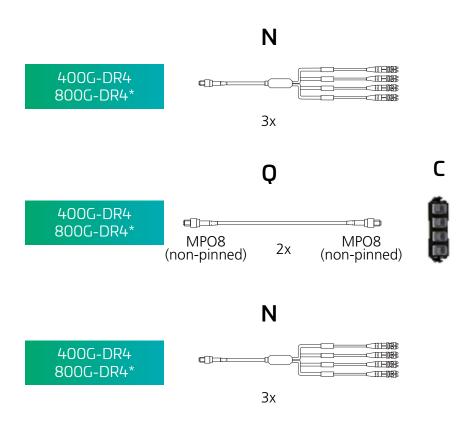


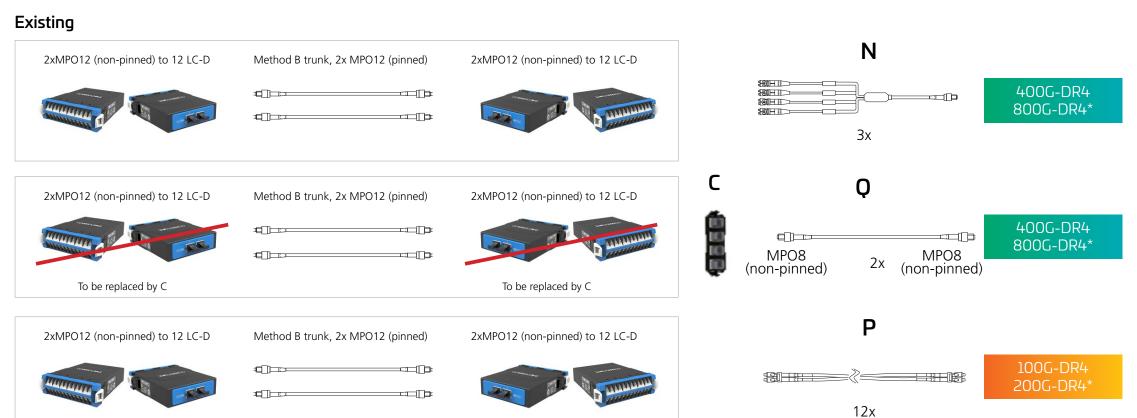
MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) APC cord	
Fiber type	Part number
OS2	UQGRPQP7RJ

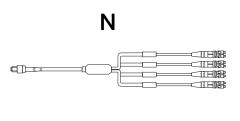


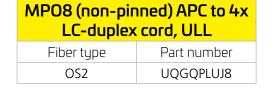
Connection to 400G-DR4 800G-DR4*

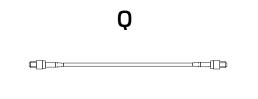
Maximum channel lengths	
OS2	500 m











MPO8 (non-pinned) APC to MPO8 (non-pinned) APC cord, ULL	
Fiber type	Part number
OS2	UQGQPQPJ8

C	
8558	

G2 adpater pack MPO, Polarity B	
# of connectors	Part number
8	760107524 360DP-8MPO

Р	

LC-duplex cord, ULL	
Part number	
UDGLULUK2	

^{*}Applications on the Ethernet roadmap

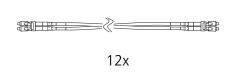
Connection to 400G-FR8

400G-LR8 800G-FR4*

Maximum channel lengths	
FR4	2 km
FR8	2 km
LR8	10 km

Ρ

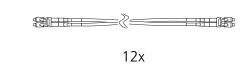
400G-FR8 400G-LR8 800G-FR4*



Existing



Ρ



400G-FR8 400G-LR8 800G-FR4*

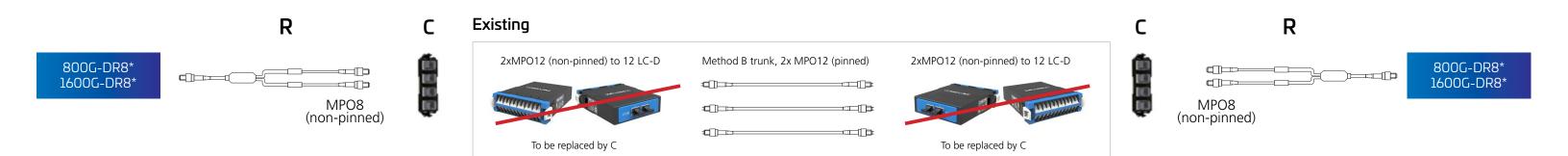
Р



LC-duplex cord, ULL	
Fiber type	Part number
OS2	UDGLULUK2

Connection to 800G-DR8* 1600G-DR8*

Maximum cha	annel lengths
DR8	500 m





MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) APC cord	
Fiber type	Part number
OS2	UQGRPQP7RJ

G2 adpater pack MPO, Polarity B		
# of connectors	Part number	
8	760107524 360DP-8MPO	



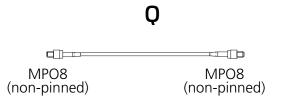
Connection to

400G-DR4

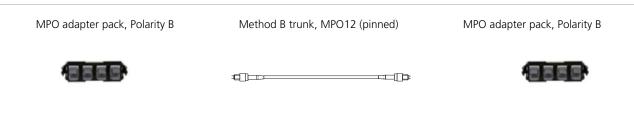
800G-DR4*

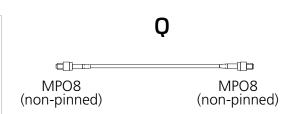
Maximum channel lengths DR4 500 m

400G-DR4 800G-DR4*









400G-DR4 800G-DR4*



	d) cord, ULL
Fiber type	Part number
OS2	UQGQPQPJ8

Connection to

400G-FR8

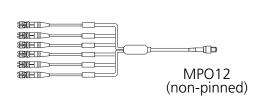
400G-LR8

800G-FR4*

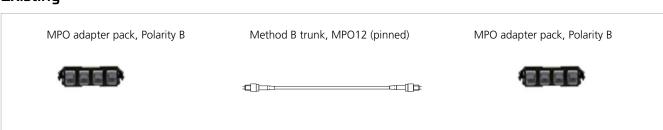
Maximum channel lengths	
FR4	2 km
FR8	2 km
LR8	10 km

Α

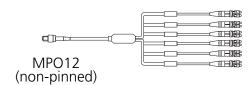
400G-FR8 400G-LR8 800G-FR4*



Existing

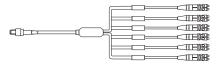


Α



400G-FR8 400G-LR8 800G-FR4*

Α



MPO12 (non-pinned) to 6 x LC-duplex cord, ULL

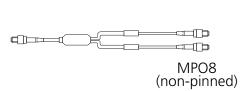
Fiber type	Part number
OS2	UQGMPLUUD

Connection to 800G-DR8* 1600G-DR8*

Maximum cha	annel lengths
DR8	500 m

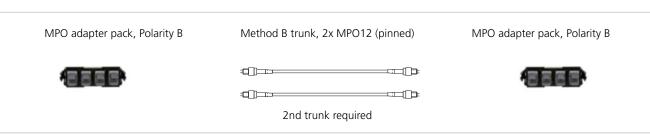
R

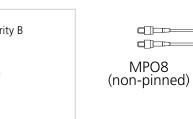
800G-DR8* 1600G-DR8*



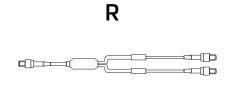
R











MPO16 (non-pinned) APC to 2x MPO8 (non-pinned) APC cord	
Fiber type	Part number
OS2	UQGRPQP7R

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