SYSTIMAX® InstaPATCH® 360:

Connecting installed cabling to
400 Gbps and 800 Gbps equipment

COMMSCOPE®

Contents

Application legend

Multimode

2 fiber applications = 50/100G*-Base SR

8 fiber applications = 400G-SR4.2/400G-VR4*/400G-SR4*

16 fiber APC applications = 400G-SR8/800G-SR8*/800G-VR8*

Singlemode

100G-DR 200G-DR4 = 100G-DR4/200G-DR4*

2 fiber applications = 400G-LR8/400G-FR8/800G-FR4*

8 fiber applications = 400G-DR4/800G-DR4*

16 fiber APC applications = 800G-DR8*/1600G-DR8*

*Applications on the Ethernet roadmap

Connecting installed cabling to 400 Gbps and 800 Gbps equipment

As data centers continue to migrate toward 400G and 800G speeds, network managers face tough decisions on how to update and keep their facilities on the cutting edge. One successful and cost-effective option used by data center operators to increase velocity and capacity involves the deployment of higher-speed fiber-optic switches. Upgrading to this equipment requires planning, as more efficient port breakouts using new ultra low-loss (ULL) connectivity options enhance the value and extend the life of your installed cabling.

By migrating toward these high-density and low-loss connectivity solutions, data centers can improve their network infrastructure while minimizing the total cost of ownership. Through the installation of preterminated plug-and-play solutions, data centers can lower deployment time while supporting faster data speeds and lower latency requirements and preparing your data center for future changes that are inevitable.

About this guide

This design guide offers an at-a-glance reference of SYSTIMAX® InstaPATCH® 360 components, configurations and data center applications while providing migration paths to 400G/800G application using Propel™— CommScope's 16-fiber connectivity solution that fully supports two-, four-, and eight-fiber applications. This guide 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 http://www.commscope.com/

Applications covered in this guide

Ethernet multimode 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 (m)		
							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	2022	1	1	100G PAM4	30	50	50
100	100GBASE-SR					100G PAM4	60	100	100
200	200GBASE-SR4	IEEE802.3cd	2018	4	1	50G PAM4	70	100	100
200	200GBASE-VR2	IEEEP802.3db Task Force	2022	2	1	100G PAM4	30	50	50
200	200GBASE-SR2					100G PAM4	60	100	100
400	400GBASE-SR8	IEEE802.3cm	2020	8	1	50G PAM4	70	100	100
400	400GBASE-SR4.2			4	2		70	100	150
400	400GBASE-VR4	IEEEP802.3db Task Force	2022	4	1	100G PAM4	30	50	50
400	400GBASE-SR4			4			60	100	100
800	800GBASE-VR8	B400G Study Group	2023-24	8	1	100G PAM4	30?	50	40
800	800GBASE-SR8						60?	100	100

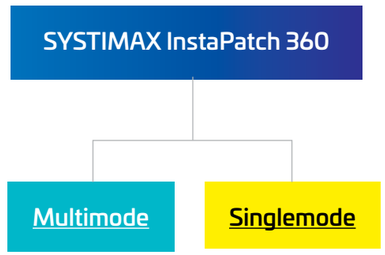
Ethernet singlemode modules—speed >= 100Gb/s

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	IEEE802.3bs	2017	4	1	50G PAM4	500
200	200GBASE-FR4			1	1	50G PAM4	2,000
200	200GBASE-LR4			1	4		10,000
400	400GBASE-FR8	IEEE802.3bs	2017	1	8	50G PAM4	2,000
400	400GBASE-LR8			1	8		10,000
400	400GBASE-DR4			4	1	100G PAM4	500
800	800GBASE-DR8	B400G Study Group	2022	8	1	100G PAM4	500/2,000
800	800GBASE-DR4		2025?	4	1	200G PAM4	500/2,000
800	800GBASE-FR4		2025?	1	4		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

Selection based on installed InstaPATCH 360 system

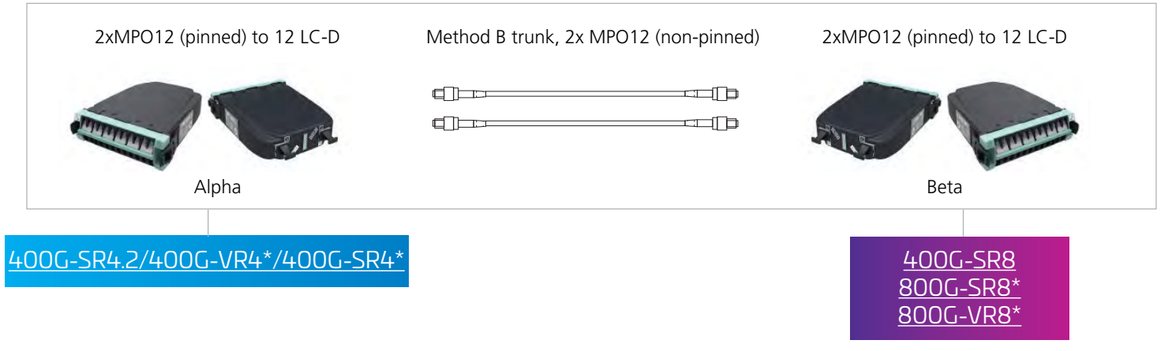


Back to system selection

Common G2 InstaPATCH 360 singlemode and multimode transmission channels

Multimode

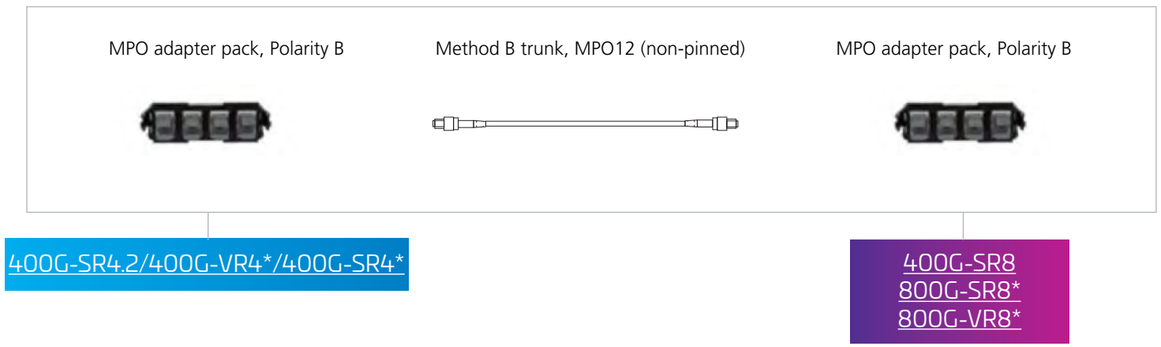
MPO12 trunk



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

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

MPO12 trunk

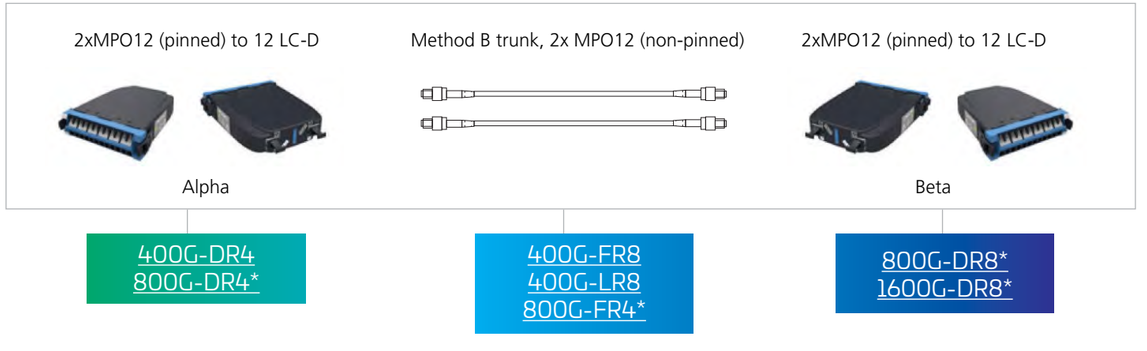


400G-SR4.2/400G-VR4*/400G-SR4*

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

Singlemode

MPO12 trunk

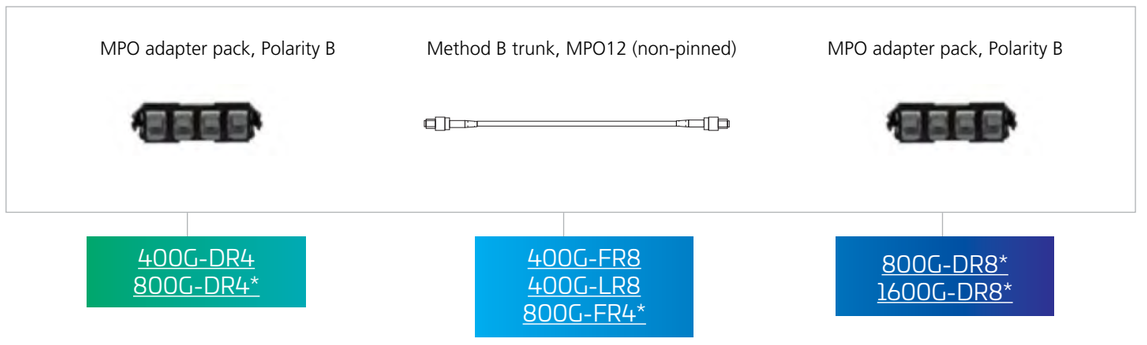


400G-DR4
800G-DR4*

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

800G-DR8*
1600G-DR8*

MPO12 trunk



400G-DR4
800G-DR4*

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

800G-DR8*
1600G-DR8*

*Applications on the Ethernet roadmap

InstaPATCH 360 multimode fiber

MPO12 to LC-duplex

2xMPO12 (pinned) to 12 LC-D

Alpha

Method B trunk, 2x MPO12 (non-pinned)

2xMPO12 (pinned) to 12 LC-D

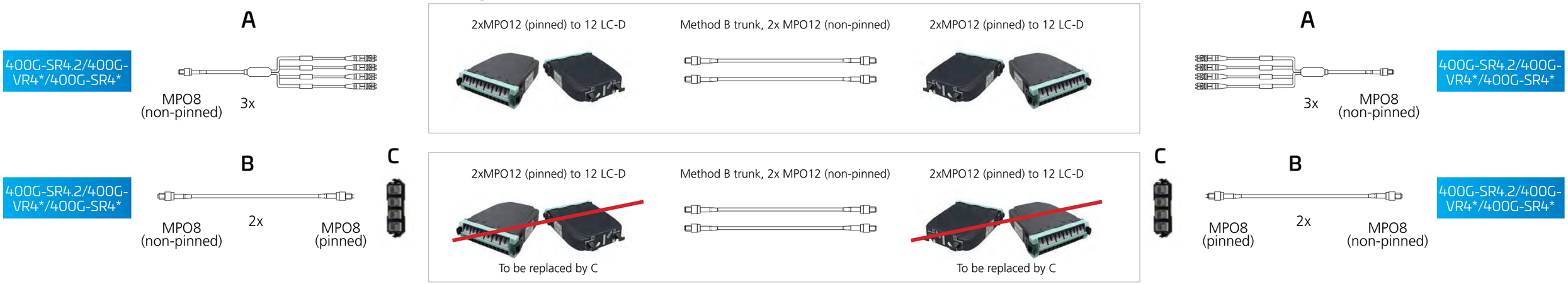
Beta

Back to system selection

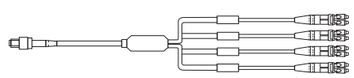
Connection to 400G-SR4.2/400G-VR4*/400G-SR4*

Maximum channel lengths	
OM4	100 m
OM5	150 m

Existing



A



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

B

MPO8 (non-pinned) to MPO8 (pinned) cord, ULL	
Fiber type	Part number
OM4	UQXQPQXJ8
OM5	UQVQPQXJ8

C

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

*Applications on the Ethernet roadmap

Back to system selection

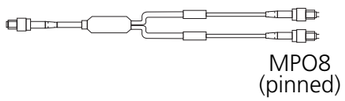
Maximum channel lengths	
OM4	100 m
OM5	100 m

Connection to
400G-SR8
800G-SR8*
800G-VR8*

Existing Alpha Beta

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

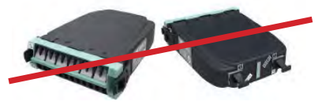
D



MPO8
(pinned)

C

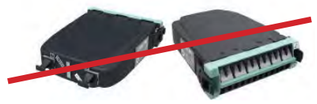
2xMPO12 (pinned) to 12 LC-D



To be replaced by C

Method B trunk, 2x MPO12 (non-pinned)

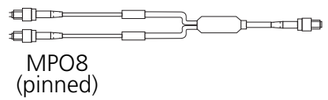
2xMPO12 (pinned) to 12 LC-D



To be replaced by C

C

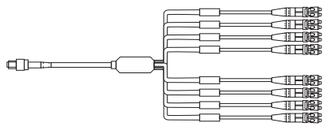
D



MPO8
(pinned)

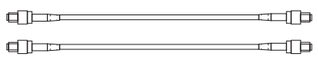
400G-SR8
800G-SR8*
800G-VR8*

E**



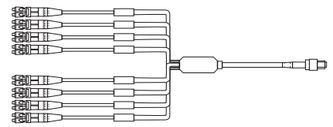
2xMPO12 (pinned) to 12 LC-D

Method B trunk, 2x MPO12 (non-pinned)



2xMPO12 (pinned) to 12 LC-D

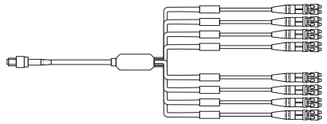
E**



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

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

E**



2xMPO12 (pinned) to 12 LC-D

Method B trunk, 2x MPO12 (non-pinned)

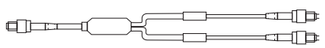
2xMPO12 (pinned) to 12 LC-D

F

8x

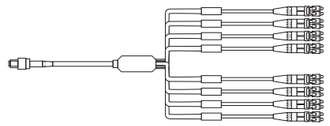
50G-SR (400)
100G-SR* (800G)

D



MPO16 (non-pinned) APC to 2x MPO8 (pinned) cord, ULL	
Fiber type	Part number
OM4	UQXRVQX7R
OM5	UQXRVQX7R

E



MPO16 (non-pinned) APC to 8x LC-Duplex cord, ULL	
Fiber type	Part number
OM4	UQXRVLU7R
OM5	UQXRVLU7R

C

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

F

LC-Duplex cord, ULL	
Fiber type	Part number
OM4	UDXLULU62
OM5	UDXLULU62

*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 360 modules using the "E" breakout array, 6x MPO16 to 8 LC-Duplex arrays would be necessary to bridge and support four 360 modules in a panel row.

InstaPATCH 360 multimode fiber

MPO12 trunks with MPO adapter packs

MPO adapter pack, Polarity B	Method B trunk, MPO12 (non-pinned)	MPO adapter pack, Polarity B
		

Back to system selection

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*

H

MPO12 (non-pinned) — MPO12 (pinned)

Existing

MPO adapter pack, Polarity B

Method B trunk, MPO12 (non-pinned)

MPO adapter pack, Polarity B

H

MPO12 (pinned) — MPO12 (non-pinned)

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

H

MPO12 (non-pinned) to MPO12 (pinned) cord, ULL	
Fiber type	Part number
OM4	UQXMPMXGD
OM5	UQVMPMXGD

*Applications on the Ethernet roadmap

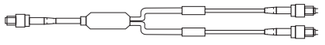
Back to system selection

Maximum channel lengths	
OM4	100 m
OM5	150 m

Connection to
400G-SR8
800G-SR8*
800G-VR8*

D

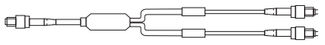
400G-SR8
800G-SR8*
800G-VR8*



MPO8
(pinned)

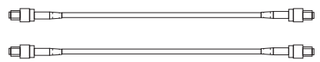
D

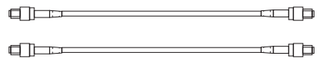
400G-SR8
800G-SR8*
800G-VR8*



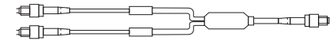
MPO8
(pinned)

Existing

MPO adapter pack, Polarity B	Method B trunk, MPO12 (non-pinned)	MPO adapter pack, Polarity B
	 2nd trunk required	

MPO adapter pack, Polarity B	Method B trunk, MPO12 (non-pinned)	MPO adapter pack, Polarity B
	 2nd trunk required	

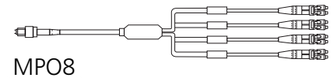
D



MPO8
(pinned)

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

K

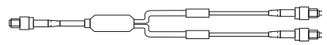


MPO8
(pinned)

2x

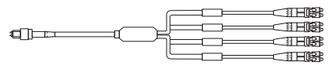
50G-SR (400)
100G-SR* (800G)

D



MPO16 (non-pinned) APC to 2x MPO8 (pinned) cord, ULL	
Fiber type	Part number
OM4	UQXRVQX7R
OM5	UQXRVQX7R

K



MPO8f to 4x LC-Duplex cord, ULL	
Fiber type	Part number
OM4	UQXQXLUJ8
OM5	UQXQXLUJ8

*Applications on the Ethernet roadmap

InstaPATCH 360 singlemode fiber

MPO12 to LC-duplex

2xMPO12 (pinned) to 12 LC-D

Alpha

Method B trunk, 2x MPO12 (non-pinned)

2xMPO12 (pinned) to 12 LC-D

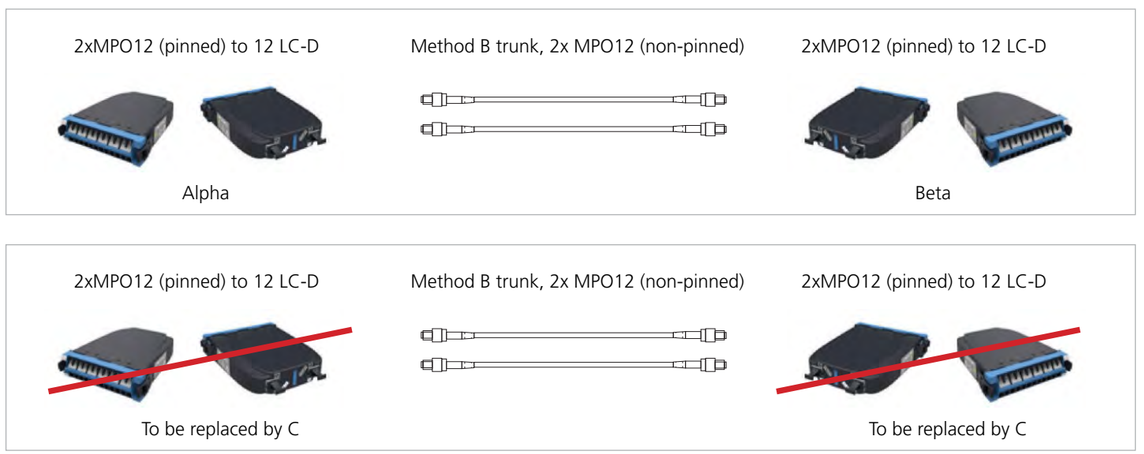
Beta

Back to system selection

Connection to
400G-DR4
800G-DR4*

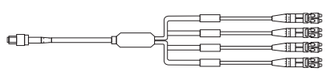
Maximum channel lengths	
DR4	500 m

Existing



N

400G-DR4
800G-DR4*



3x

G

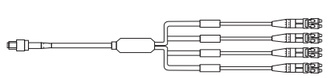
400G-DR4
800G-DR4*

MPO12 (non-pinned) 2x MPO12 (pinned)

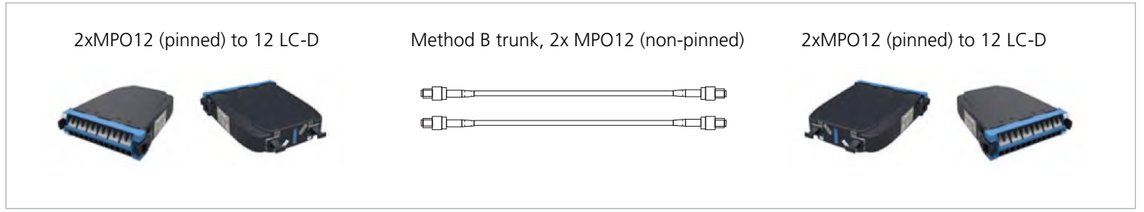
C

N

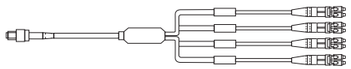
400G-DR4
800G-DR4*



3x



N



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

G

MPO12 (non-pinned) APC to MPO12 (pinned) APC cord, ULL	
Fiber type	Part number
OS2	UQGMPMXGD

C

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

C

G

400G-DR4
800G-DR4*

MPO12 (pinned) 2x MPO12 (non-pinned)

P

100G-DR4
200G-DR4*

12x

P

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

*Applications on the Ethernet roadmap

Back to system selection

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

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

P

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

12x

Existing

2xMPO12 (pinned) to 12 LC-D

Alpha

Method B trunk, 2x MPO12 (non-pinned)

2xMPO12 (pinned) to 12 LC-D

Beta

P

12x

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

P

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

*Applications on the Ethernet roadmap

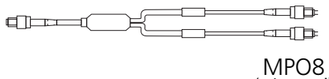
Back to system selection

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

Maximum channel lengths	
DR8	500 m

800G-DR8*
1600G-DR8*

J



MPO8
(pinned)

C

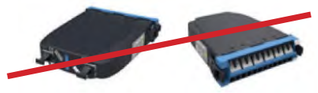
Existing

2xMPO12 (pinned) to 12 LC-D

To be replaced by C

Method B trunk, 2x MPO12 (non-pinned)

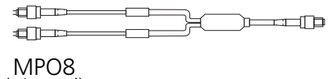
2xMPO12 (pinned) to 12 LC-D



To be replaced by C

C

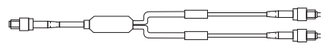
J



MPO8
(pinned)

800G-DR8*
1600G-DR8*

J



MPO16 (non-pinned) APC to 2x MPO8 (pinned) APC cord	
Fiber type	Part number
OS2	UQGRPQX7R

C

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

*Applications on the Ethernet roadmap

InstaPATCH 360 singlemode fiber

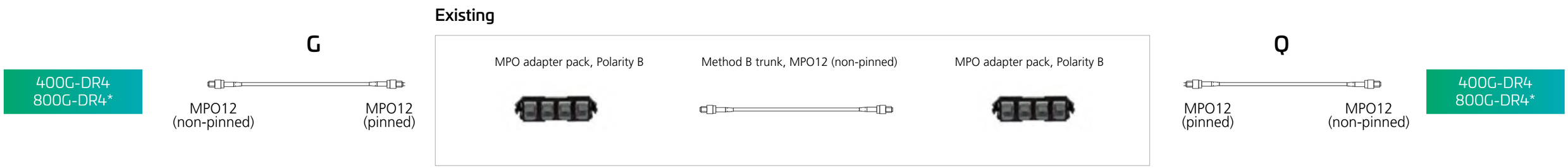
MPO12 trunks with MPO adapter packs

MPO adapter pack, Polarity B	Method B trunk, MPO12 (non-pinned)	MPO adapter pack, Polarity B
		

Back to system selection

Connection to 400G-DR4 800G-DR4*

Maximum channel lengths	
DR4	500 m



MPO12 (non-pinned) APC to MPO12 (pinned)APC cord, ULL	
Fiber type	Part number
OS2	UQGMPMXGD

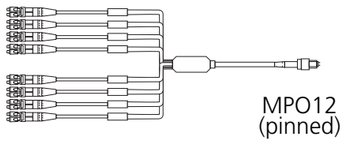
*Applications on the Ethernet roadmap

Back to system selection

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

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

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

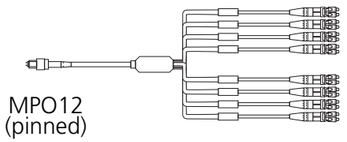


Existing

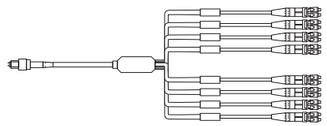
MPO adapter pack, Polarity B

Method B trunk, MPO12 (non-pinned)

MPO adapter pack, Polarity B



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



MPO12 (pinned) to 6 x LC-Duplex cord, ULL	
Fiber type	Part number
OS2	ULGMXLUCD

*Applications on the Ethernet roadmap

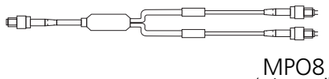
Back to system selection

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

Maximum channel lengths	
DR8	500 m

800G-DR8*
1600G-DR8*

J



MPO8
(pinned)

C

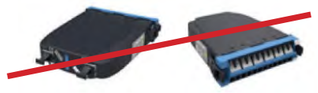
Existing

2xMPO12 (pinned) to 12 LC-D

To be replaced by C

Method B trunk, 2x MPO12 (non-pinned)

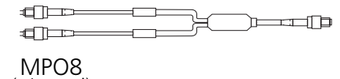
2xMPO12 (pinned) to 12 LC-D



To be replaced by C

C

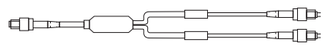
J



MPO8
(pinned)

800G-DR8*
1600G-DR8*

J



MPO16 (non-pinned) APC to 2x MPO8 (pinned) APC cord	
Fiber type	Part number
OS2	UQGRPQX7R

C

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

*Applications on the Ethernet roadmap

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