

C2 AOM Modules

Comprehensive Ordering Guide



Amphenol
NETWORK SOLUTIONS™

Overview

C2 Advanced Optical Modules (AOMs) provide a diverse modular offering to support any aspect of your network. From a dedicated Base-8 Architecture to a standard Base-12, AOMs offer complete solution for your network needs. The modules are deployed in either the C2E or C2X chassis.

Key Benefits:

- Specific modules to support any architecture
- Total front access options available (TFA)
- Configurable to support Base-12 or Base-8 architecture
- Can be deployed in C2E or C2X chassis' options to match the type of environment
- Diverse offering supporting MPO, SC, or LC connectors
- Symmetrical single-width module can be installed forward or reverse

Available Configurations:

- MPO Base-12
- MPO Base-8
- TAPs
- Patch and Splice
- Pre-terminated
- Splitters
- DWDMs

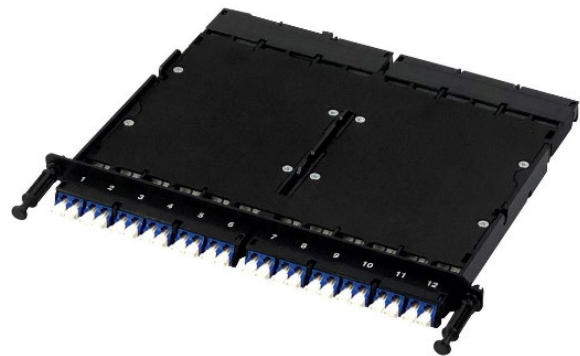


Fig: HX2-ML-24LCUA

Deployment Options:

- This C2 AOM technology can be installed in multiple chassis options
- See the datasheet for the chassis that is appropriate for your application
 - C2E (Base-8 or Base-12) 144f/1RU
 - C2X (Base-12) 96f/1RU - Requires the C2X Tray

BASE-12 MPO Modules (10G or 40G connectivity)

MPO modules in the C2 family can increase fiber density and decrease your fiber footprint. With single-mode or multimode (OM3 or OM4) versions available, the C2E and C2X can aide network architects in migrating to the 40/100 gigabit ethernet. The modules offer a 12-fiber MPO input on the rear which are terminated internally and routed to the LC duplex on the front. For optimal cable management, a 2 mm MPO bend insensitive fiber should be used.

C2 MPO modules come in either a standard type A or B polarity. “A” polarity uses straight-through type A backbones (pin1 to pin1) and type A (key-up to key-down) MPO adapters. “B” polarity uses cross-over type B backbones (pin1 to pin12) and type B (key-up to key-up) MPO adapters. However, type B adapters are used differently on the two ends (key-up to key-up versus key-down to key-down), which may require more planning effort and/or potential expense initially.

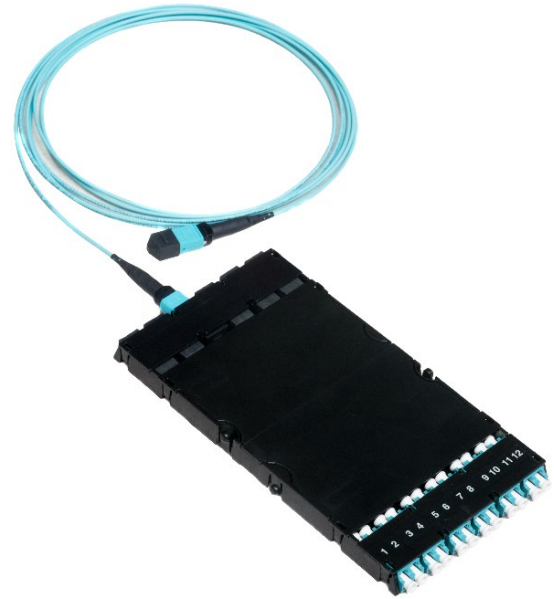


Fig: HX-ML-12LC4A

Single MPO Breakout Modules:

Part Number	Description
HX-ML-12LCUA	12-FIBER MPO, LC/UPC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX-ML-12LCAA	12-FIBER MPO, LC/APC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX-ML-12LC4A	12-FIBER MPO, LC, MM (OM4), BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX-ML-12LC4B	12-FIBER MPO, LC, MM (OM4), BREAKOUT CASSETTE, B POLARITY, ULTRA LOW LOSS

Dual MPO Breakout Modules:

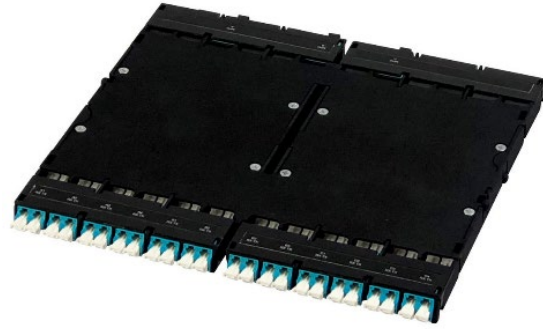
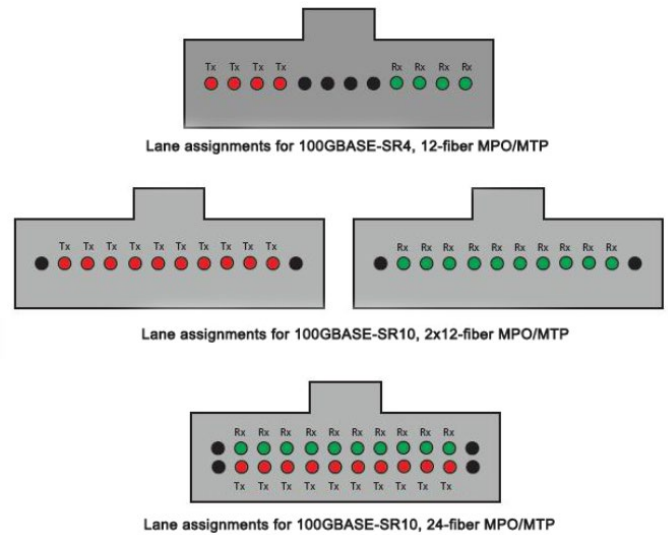


Fig: HX2-ML-24LC4A

Part Number	Description
HX2-ML-12SCUA	DUAL C2 AOM: 12F MPO, SC/UPC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX2-ML-12SCAA	DUAL C2 AOM: 12F MPO, SC/APC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX2-ML-12SCUB	DUAL C2 AOM: 12F MPO, SC/UPC, SM, BREAKOUT CASSETTE, B POLARITY, ULTRA LOW LOSS
HX2-ML-12SCAB	DUAL C2 AOM: 12F MPO, SC/APC, SM, BREAKOUT CASSETTE, B POLARITY, ULTRA LOW LOSS
HX2-ML-24LCUA	DUAL C2 AOM: 24F MPO, LC/UPC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX2-ML-24LCUB	DUAL C2 AOM: 24F MPO, LC/UPC, SM, BREAKOUT CASSETTE, B POLARITY, ULTRA LOW LOSS
HX2-ML-24LCAA	DUAL C2 AOM: 24F MPO, LC/APC, SM, BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX2-ML-24LC4A	DUAL C2 AOM: 24F MPO, LC, MM (OM4), BREAKOUT CASSETTE, A POLARITY, ULTRA LOW LOSS
HX2-ML-24LC4B	DUAL C2 AOM: 24F MPO, LC, MM (OM4), BREAKOUT CASSETTE, B POLARITY, ULTRA LOW LOSS

Transceiver Basics and Fiber Architecture

Today’s fiber architecture can be complex, troubleshooting and solving connectivity issues can be costly and time consuming. Using a simplified architecture of MPO and MPO jumper cables is a must. Knowing the basics of connecting Server-to-Switch, Switch-to-Switch, or Cross Connect or Interconnect is very important. The table below explains some basic standards of the transceivers used when deploying or migrating your connectivity:



Specifications	1G	10G	25G	40G	100G	400G
Transceiver Type/Size	SFP	SFP+	SFP28	QSFP+	QSFP28 (SR/LR4) CFP (SR/LR10)	OSFP or QSFP 28
Lane Options	1x 1G	1x 10G	1x 25G	4X 10G	4x 25G	8x25G 4x 50G
Architecture Terminology	BASE-12	BASE-12	BASE12	BASE-8	BASE-8	BASE-8/16
Connectors Used	LC/SC	LC/SC	MPO 12/24	MPO 8	MPO 8	MPO 8/16

Base-8 MPO Architecture (SR4, LR4)

Base-8 architecture still uses the MPO style connector, but only uses 8 of the 12 connections. Conventionally a Base-12 system has been used in the Data Center environment, but with the increasing need to increase bandwidth and decrease deployment and operational costs, an 8-fiber architecture has become a standard in environments where bandwidth is 40G+. Migration to using an 8-fiber architecture is the most important factor: Using as much existing infrastructure at as close to 100% efficiency is paramount.

Base-8 modules in either a dedicated Base-8 AOM module or a dual AOM module are available, with the capability to be deployed in the same chassis as the Base-12 architecture.



Base-8 Modules:



Fig: HX8-ML-08LC4A



Fig: HX8-ML-08LCUA

Part Number	Description
HX8-ML-08LC4A	AOM BASE 8,MPO:MM 8F MPO, LC/UPC,8-PORT,METHOD A POLARITY, SR4
HX8-ML-08LC4B	AOM BASE 8,MPO:MM 8F MPO, LC/UPC,8-PORT,METHOD B POLARITY, SR4
HX8-ML-08LCUA	AOM BASE 8,MPO:SM 8F MPO, LC/UPC,8-PORT,METHOD A POLARITY, PSM4
HX8-ML-08LCUB	AOM BASE 8,MPO:SM 8F MPO, LC/UPC,8-PORT,METHOD B POLARITY, PSM4

Standard footprint Base8 Modules:

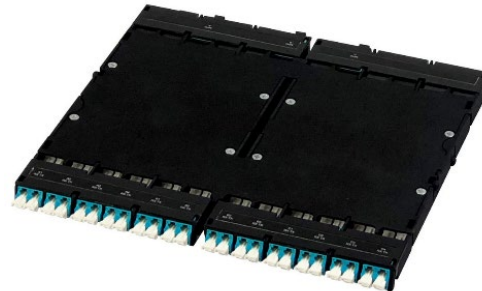


Fig: HX2-C23SR4-LCUA

Part Number	Description
HX2-C2PSM4-LCUA	DUAL C2 AOM: PSM4, 3 MPO TO 24F LC/UPC SINGLEMODE,UNIV
HX2-C23SR4-LCUA	DUAL C2 AOM: SR4, 3 MPO TO 24F LC/UPC MM OM4,UNIV
HX-C22X3-MPO1-SM	AOM, BASE8, PSM4, SM, MPO,TYPEB,2X3,CONVERSION MODULE
HX-C22X3-MPO1	AOM, BASE8, SR4, MM, MPO,TYPEB,2X3,CONVERSION MODULE
HX2-C2LR10-20LCUA	DUAL C2 AOM: PSM10, 24F MPO TO 20F LC/UPC SM, UNIV
HX2-C2SR10-20LCUA	DUAL C2 AOM: SR10, 24F MPO TO 20F LC/UPC OM4, UNIV

TAPs (10G, 40G, 100G, 400G)

Network test access points (TAPs) are a passive monitoring device that passes traffic from the live network to the monitoring devices and provides a demarcation between the live network and monitoring infrastructure. Enabling organizations to augment their monitoring infrastructure while reducing risk and preserving network performance. TAPs meet this demand and provide best-in-class density and cable management.



TAPs are designed and tested to pass traffic at 1, 10, 40 and 100G bandwidths with various connector types and split ratios. TAPs use high-quality Senko adapters and connectors to ensure low insertion and return loss. LC TAPs monitor ports are color coded to guarantee ease of installation and reduce installation errors.

TAP Model	Part Number	Description
Singlemode LC	HX-TAP3-55SML	AOM,3 TAPS:MON,LC/UPC,50/50,SM
	HX-TAP3-64SML	AOM,3 TAPS:MON,LC/UPC,60/40,SM
	HX-TAP3-73SML	AOM,3 TAPS:MON,LC/UPC,70/30,SM
	HX-TAP3-82SML	AOM,3 TAPS: MON,LC/UPC,80/20,SM
	HX-TAP3-91SML	AOM,3 TAPS: MON,LC/UPC,90/10,SM
	HX-TAP2-55SML-FA	AOM,2 TAPS:FRONT ACCESS,LC/APC,50/50,SM
	HX-TAP2-73SML-FA	AOM,2 TAPS:FRONT ACCESS,LC/APC,70/30,SM
Multimode LC	HX-TAP3-55MML	AOM,3 TAPS: MON,LC/UPC,50/50,MM OM4
	HX-TAP3-64MML	AOM,3 TAPS: MON,LC/UPC,60/40,MM OM4
	HX-TAP3-73MML	AOM,3 TAPS: MON,LC/UPC,70/30,MM OM4
	HX-TAP3-82MML	AOM,3 TAPS: MON,LC/UPC,80/20,MM OM4
	HX-TAP2-55SMM-FA	AOM,2 TAPS:F MON,LC/APC,50/50,MM
	HX-TAP2-73SMM-FA	AOM,2 TAPS:F MON,LC/APC,70/30,MM
Multimode MPO (SR4)	HX-C2SR4-MPO1	AOM,2 TAPS, BASE8,OM4, MM,MPO,TYPEB,70/30
	HX-C2SR4-MPO2	AOM,2 TAPS, BASE8,OM4, MM,MPO,TYPEB,50/50
	HX-C2SR4-MPO1FA	AOM,1 TAP FRONT ACCESS,BASE8,OM4, MM,MPO,TYPEB,70/30
	HX-C2SR4-MPO2FA	AOM,1 TAP FRONT ACCESS,BASE8,OM4, MM,MPO,TYPEB,50/50

Patch and Splice

Patch and splice modules enable splicing within the C2X and C2E panels. The C2 patch and splice module combines splicing of up to 12 fibers within a compact footprint. Pigtailed are included with each module.



Part Number	Adapter Type	Front Adapter Cou	Adapter Color	Pigtail
HX-SC-12LCSU-S	Duplex LC UPC	12	Blue	Quantity 12 SM 250 µm fibers
HX-SC-12LCSU-R	Duplex LC UPC	12	Blue	Quantity 1 SM 12 fiber ribbon
HX-SC-12LCSA-S	Duplex LC APC	12	Green	Quantity 12 SM 250 µm fibers
HX-SC-12LCSA-R	Duplex LC APC	12	Green	Quantity 1 OM3 12 fiber ribbon
HX-SC-6SCSU-R	SC/APC	6	Green	Quantity 6 SM 250 µm fibers
HX-SC-12LCM4-S	Duplex LC UPC	12	Aqua	Quantity 12 OM4 250 µm fibers
HX-SC-12LCM4-R	Duplex LC UPC	12	Aqua	Quantity 1 12 fiber ribbon
HX-SC-12LCM3-S	Duplex LC APC	12	Aqua	Quantity 12 OM3 250 µm fibers
HX-SC-12LCM3-R	Duplex LC APC	12	Aqua	Quantity 1 OM3 12 fiber ribbon

Patch Modules

Jumper to jumper interconnect or cross-connect is facilitated by 12-fiber LC, six-fiber SC or MPO adapter modules.

Adapter modules easily snap into the trays from the front or back of the chassis.

Duplex LC adapters have been spaced apart to facilitate easier finger access and are aligned straight across the front of each module. This is critical for inspection with a standard fiber inspection scope and probe.



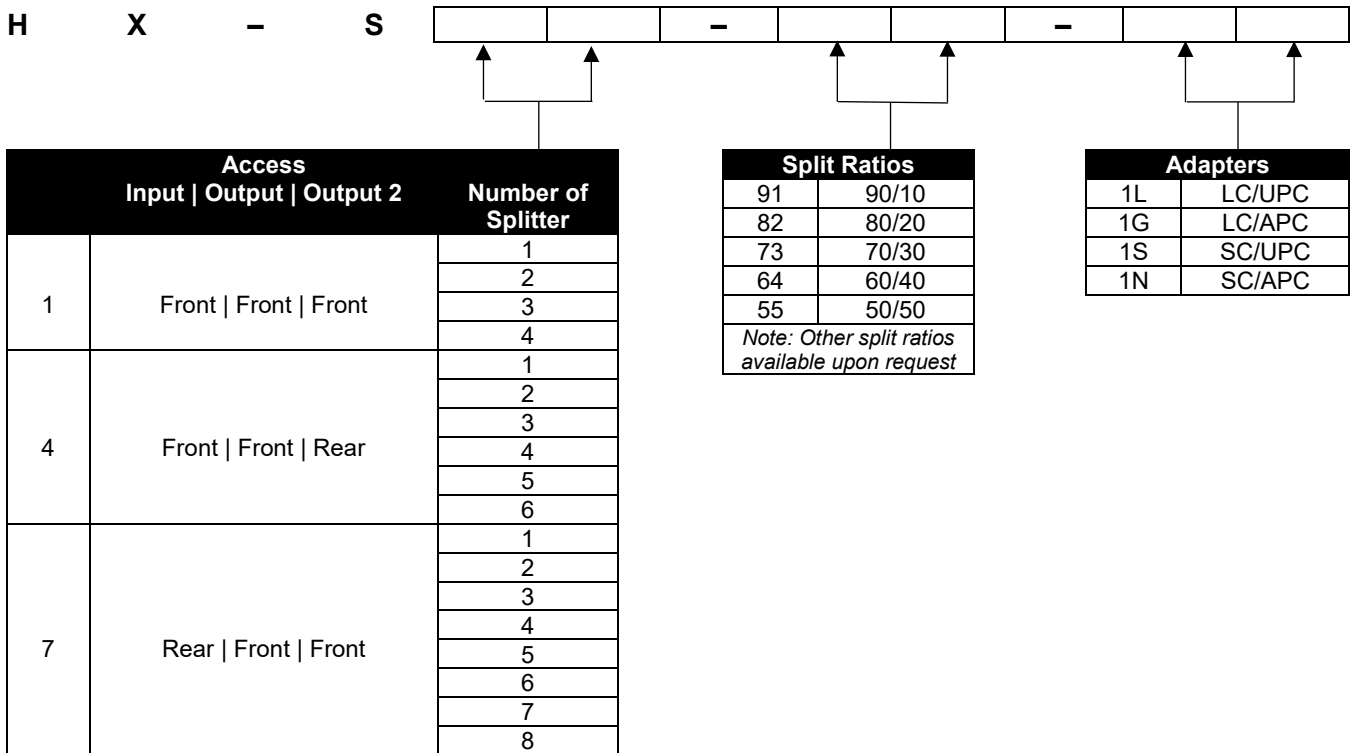
Part Number	Front Adapter Type	Front Adapter Count	Adapter Color	Fiber Type
HX-PC-12LCMM	Duplex LC MM	12	Aqua	OM3/OM4
HX-PC-12LCSA	Duplex LC/APC	12	Green	SM (OS2)
HX-PC-12LCSU	Duplex LC/UPC	12	Blue	SM (OS2)
HX-PC-06SCSU	SC/UPC	6	Blue	SM (OS2)
HX-PC-06SCSA	SC/APC	6	Green	SM (OS2)
HX-PC-06SCMM	SC MM	6	Beige	OM3/OM4
HX-PC-04MMUD	MPO Type A	4	Aqua	OM3/OM4
HX-PC-04MMUU	MPO Type B	4	Aqua	OM3/OM4
HX-PC-04MSUD	MPO Type A	4	Black	SM (OS2)
*HX-PC-06MMUD	MPO Type A	6	Aqua	OM3/OM4
*HX-PC-06MMUU	MPO Type B	6	Aqua	OM3/OM4
*HX-PC-06MSUD	MPO Type A	6	Black	SM (OS2)

**Not for use in C2LINX*

Splitters

Splitters are passive devices and an integral, widely used component in most fiber optic networks. Amphenol Network Solutions splitter modules provide fiber optic networks with vast configurability and flexibility. Fiber optic splitters alone enable a signal on an optical fiber to be distributed among two or more fibers. Capitalize on this by housing them on the C2E high-density optical distribution panel and a market-leading number of splitters that can be loaded on to 1RU, 2RU and 4RU panels.

Part Configurator:



WDM Passives

Wavelength division multiplexing (WDM) is an optical technology that increases bandwidth on existing fiber networks by multiplying the number of optical signals transmitted over a single optical fiber. The WDM combines and simultaneously transmits multiple signals at different wavelengths over the same fiber. This allows many channels of data to be transmitted on a single optical fiber, multiplying the network bandwidth. Amphenol Network Solutions offers both Dense Wavelength Division Multiplexing (DWDM) and Coarse Wavelength Division Multiplexing (CWDM) passive products. Used primarily in long-haul networks, DWDM will be the essential technology in future all-optical networks.

Key Benefits:

- Channel counts up to 48ch
- LC or SC adapter ports
- Optional test ports (Tx, Rx, or both)
- Optional express and upgrade ports
- Custom port configurations
- Single or dual cassettes
- Optional pigtail leads



DWDM Specifications	
Operating Wavelengths	ITU-T Grid
Channel Spacing	0.8nm (ITU 100GHz)
Power Handling	300mW
Connector Type	LC or SC; UPC or APC
Operating Temperature	-20 to +65°C
Storage Temperature	-40 to +85°C



DWDM Center Wavelengths per ITU-T Grid

Channel	Wavelength	Channel	Wavelength
12	1567.95	39	1546.12
13	1567.13	40	1545.32
14	1566.31	41	1544.53
15	1565.50	42	1543.73
16	1564.68	43	1542.94
17	1563.86	44	1542.14
18	1563.05	45	1541.35
19	1562.23	46	1540.56
20	1561.42	47	1539.77
21	1560.61	48	1538.98
22	1559.79	49	1538.19
23	1558.98	50	1537.40
24	1558.17	51	1536.61
25	1557.36	52	1535.82
26	1556.55	53	1535.04
27	1555.75	54	1534.25
28	1554.94	55	1533.47
29	1554.13	56	1532.68
30	1553.33	57	1531.90
31	1552.52	58	1531.12
32	1551.72	59	1530.33
33	1550.92	60	1529.55
34	1550.12	61	1528.77
35	1549.32	62	1527.99
36	1548.51	63	1527.22
37	1547.72	64	1526.44
38	1546.92	65	1525.66

CWDM Specifications	
Center Wavelength Range	1271 to 1611nm (ITU-T)
Wavelength Spacing	20nm
Power Handling	300mW
Connector Type	LC or SC; UPC or APC
Operating Temperature	-20 to +65°C
Storage Temperature	-40 to +85°C

CWDM Center Wavelengths per ITU-T Grid

Code	Wavelength	Code	Wavelength	Code	Wavelength
27	1271	39	1391	51	1511
29	1291	41	1411	53	1531
31	1311	43	1431	55	1551
33	1331	45	1451	57	1571
35	1351	47	1471	59	1591
37	1371	49	1491	61	1611