Optical: Multi-fiber Push On (MPO)

Info

- MPO cables are typically 12 strands of singlemode or multimode fiber housed within a single jacket or trunk (other fiber counts are available). It has its own IEC spec.
- MTP is a brand name that falls within the MPO spec
- FS has a good polarity how to on their website (some of the below images came from FS)

Hardware

Optics

- 40G QSFP+ can have the ability to breakout into 4x10G interfaces
- See FlexOptix PLR4/QSFP+ 10G LR optics
- Juniper QSFP+ 10G LR breakout RX/TX mapping

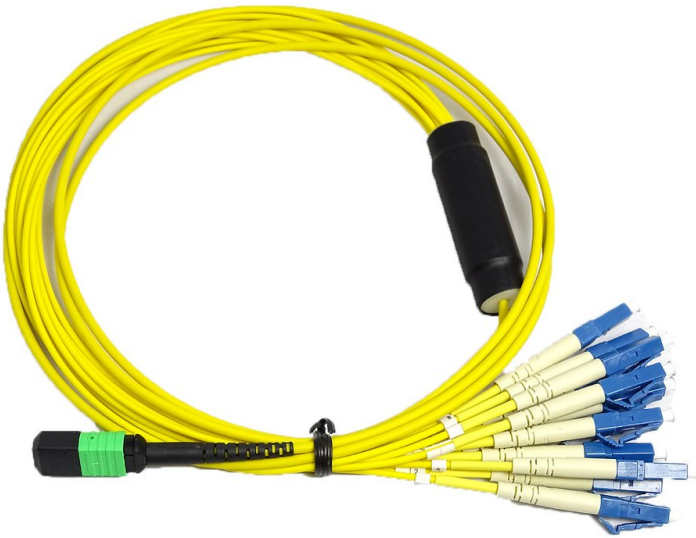   - interface 0 transmits on fiber strand #1 and receives on fiber strand #12

Strand	Router Interface	Interface Rx/Tx
1	0	Tx0 (Transmit)
2	1	Tx1 (Transmit)
3	2	Tx2 (Transmit)
4	3	Tx3 (Transmit)
5	Unused	Unused
6	Unused	Unused
7	Unused	Unused
8	Unused	Unused
9	3	Rx3 (Receive)
10	2	Rx2 (Receive)
11	1	Rx1 (Receive)
12	0	Rx0 (Receive)

Cables

Description	Image

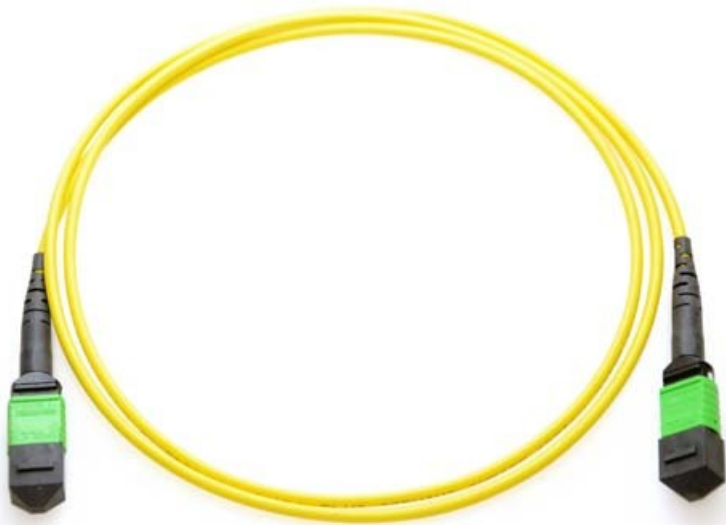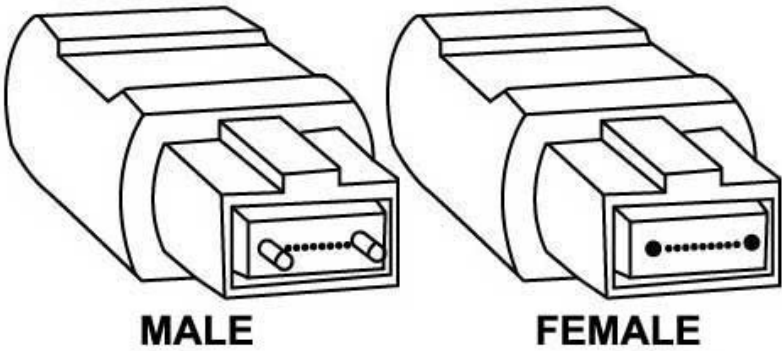|	
Example SM APC MPO to SM UPC LC breakout cable	
Example SM APC MPO to SM APC MPO	
Key	
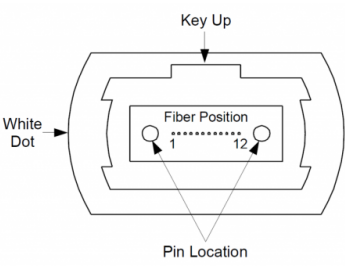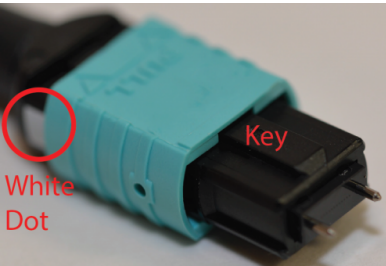
Male vs Female Coupled connectors must be matched male/female	 **MALE** **FEMALE**
Polarity	
Couplers	 **Type A (Key UP ---Key Down)**

Type B (Key-UP ---Key Up)

TYPE "B" ADAPTER CONFIGURATION

POS. 1

MALE W/PINS

POS. 12

POS. 12

POS. 1

KEY- UP TO KEY- UP

FEMALE W/O PINS
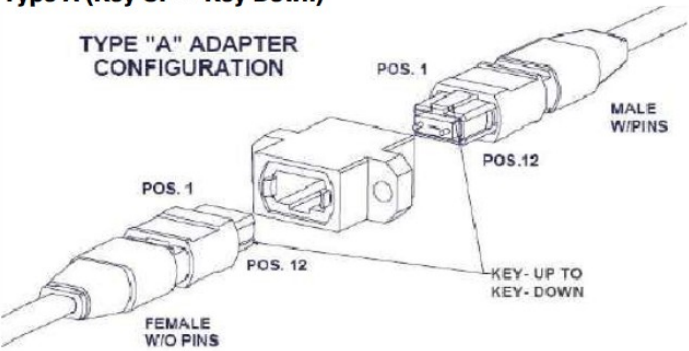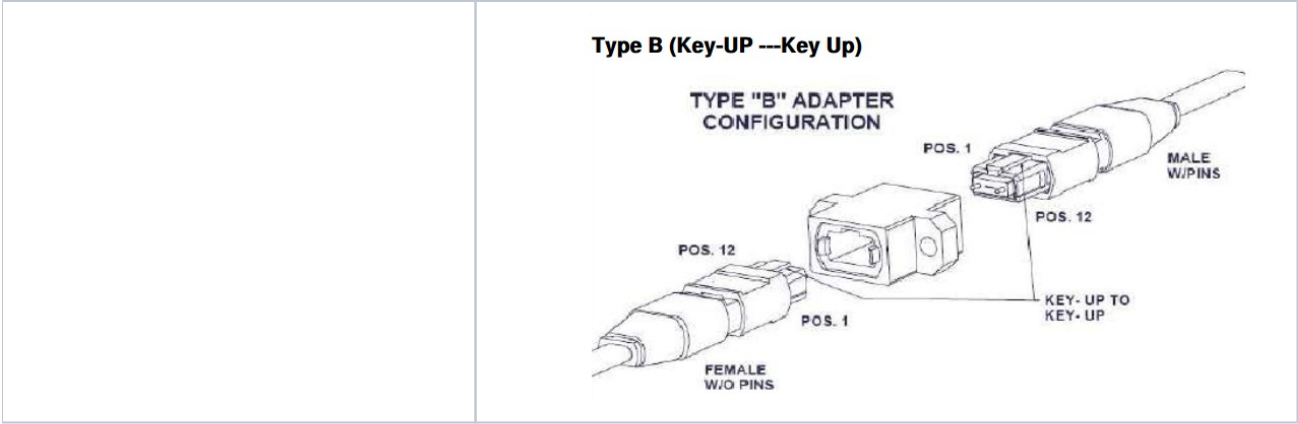
WiscNet Hardware

Note: Type B/Method B seems to be the standard cable type

Hardware	Requires	Notes
PLR4	MPO/MTP APC Female	Method B/Type B cable to connect MPO breakout boxes to PLR4
MPO QSFP+ 4x10G to LC Breakout Box	MPO/MTP APC Female	Method B/Type B cable to connect MPO breakout boxes to PLR4

To help item creation:

End A Type	Male/Female (M/F)	APC/UPC	End Z Type	Male/Female (M/F)	APC/UPC	Cable Type	Number of Fiber Strands (F)	Cable Length

Example:
MPO F APC to MPO F APC Type A 12F 6m = MPO Female pinned APC to MPO Female pinned APC Type A 12 strands 6 meters