CommScope Parallel Connectivity Color Identification

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Minimize Your Installation Time

With today's ever-complex network topology and physical infrastructure, ensuring system compatibility and functionality means differentiating the various types of connectors is crucial.

Unlike LC and SC connectors, MPO connectors cannot be rapidly terminated and deployed in the field—manual field terminations, troubleshooting, and error corrections mean extended deployment times, higher installation costs and increased downtime. CommScope's broad pre-terminated cabling and modular solutions portfolio is designed for rapid deployment to ensure quality performance, support your network today, and cost-effectively migrate to higher speed applications into the future. In addition, mating correct connectors can help avoid damages to the connector end faces and minimize installation time.

Figure 1. Connector housing color code

MPO CONNECTOR COLOR CODE

CommScope's MPO connector types can be classified according to the connector housing and connector boot color. Pinned MPO connectors are used here for illustration purposes, but identical color codes apply also to unpinned MPO connectors.

The connector housing designates the fiber type (i.e., OM3, OM4, OM5, and SM), shown in Figure 1.

The connector boot, also referred to as "strain relief," designates the fiber count (i.e., 8-fiber, 12-fiber and 24-fiber), shown in Figures 2-4.

Figure 2. 8-fiber MPO connectors are designated by a gray boot

Figure 3. 12-fiber MPO connectors are designated by a black boot

Figure 4. 24-fiber MPO connectors are designated by a red boot

16-FIBER ANGLED PHYSICAL CONTACT (APC) MULTIMODE MPO CONNECTOR

With the standardization of 400GBASE-SR16 and 400GBASE-SR8 applications, a 16-fiber based (16-fiber and 32-fiber) MPO connector has surfaced in the market. One major differentiation between the existing MPO connectors and the 16-fiber based connector is the key position. For 8F, 12F and 24F MPO connectors, the key is positioned in the center of the ferrule. For 16F and 32F MPO connectors, the key is positioned on the left side of the ferrule (viewing the end face with key up). This offset key position was designed to prevent the erroneous mating of incompatible connectors, such as mating a 16-fiber MPO to an 8-fiber, 12-fiber or 24-fiber MPO connector.

Until recently, multimode MPO connectors have had flat physical contact (PC) end faces, and single-mode MPO connectors have had angled physical contact (APC) end faces. Several cloud-scale data center operators have been pushing for a 16-fiber multimode APC MPO connector. The motivation behind this initiative is because higher modulation (i.e., PAM4) transmitters are more susceptible to optical reflection than traditional NRZ transmitters. APC connectors exhibit RL performance superior to PC connectors, resulting in better system-level performance. 16-fiber multimode PC MPO connectors have been standardized in TIA (ANSI/TIA-604-18), and the standardization of the 16-fiber multimode APC MPO connector is currently under development within the IEC and TIA standard committees. The TIA-TR42.11 subcommittee has agreed to designate green as the color for multimode APC MPO connectors (both multimode and single-mode). The cable jacket color would differentiate a single-mode APC cable assembly and a multimode APC cable assembly.
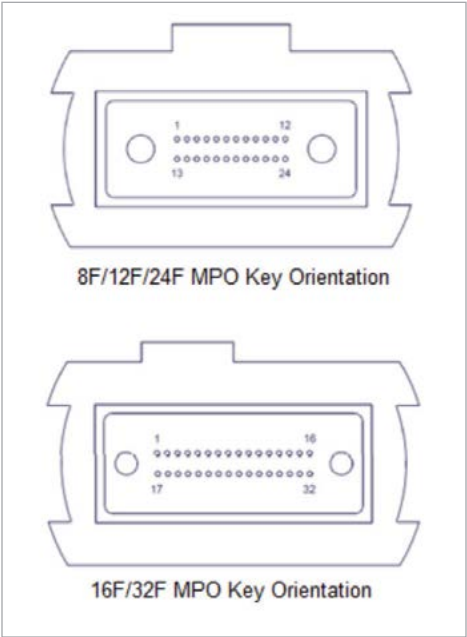

Figure 5. MPO connector key orientation (References: ANSI/TIA-604-5 and ANSI/TIA-604-18)

OPTICAL FIBER CABLE COLOR CODE

As a global leader in fiber optics, CommScope designs and manufactures a comprehensive line of fiber optic cables—from outside plant to indoor/outdoor and fire-rated indoor fiber cables. CommScope's fiber optic cables are classified by the color code system below.

Fiber Cable Jacket Color Code			
Application	Fiber Type	Jacket Color	
Indoor	50 µm (LazrSPEED)	Aqua	
Indoor	50 µm WBMMF (LazrSPEED)	Lime Green	
Indoor	62.5 µm (OptiSPEED)	Orange or Slate	
Indoor	Single-mode (TeraSPEED)	Yellow	
Indoor/Outdoor	All	Black	
Outdoor (OSP)	All	Black	

MODULE/CASSETTE COLOR CODE

CommScope's modules and cassettes are classified by the front and rear bezel colors, similar to the MPO connector housing colors.

Figure 6. OM3/OM4 MPO-LC G2 module—aqua

Figure 7. OM3/OM4 MPO-LC DM module—aqua

Figure 8. WB OM5 MPO-LC G2 and DM Module—lime

Figure 9. SM PC MPO-LC G2 module—blue

Figure 10. SM PC MPO-LC DM module—blue

Figure 11. SM APC MPO-LC G2 module—green

EHD MODULES

The only color identification for EHD modules is the fiber type, which can be found at two locations—the LC connector panel (front) and MPO color label (rear). The number of fiber or fiber routing is indicated by the configuration label seen on the top of the module.

Figure 12. EHD OM4 MPO-LC module (8-fiber, 12-fiber and 24-fiber)

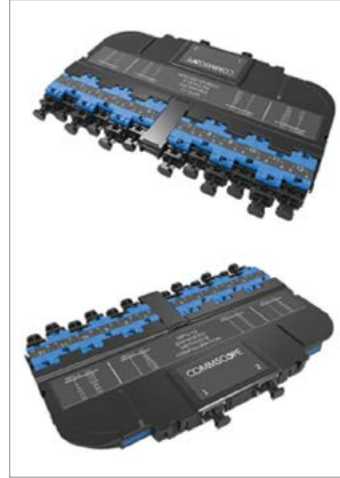Figure 13. EHD WB OM5 MPO-LC module (8-fiber, 12-fiber and 24-fiber)

Figure 14. EHD SM PC MPO-LC module (8-fiber, 12-fiber and 24-fiber)

Figure 15. EHD SM APC MPO-LC module (8-fiber, 12-fiber and 24-fiber)

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