

World's First Non-contact MPO Optical Fiber Connector Invented

10/17/2016, Arrayed Fiber Optics Corporation announced the world's first Non-Contact MPO (NC-MPO) optical fiber connector.

MPO optical fiber connector has an order of magnitude increase in fiber connector density than single-fiber optical connector, and is widely used in data centers and optical transmission systems. It is a recent hot-selling fiber optical product.

Traditional MPO connectors require all fiber end faces to be in close physical contact at the same time. This is because of the fact that if there is an air gap, the light will be reflected between the end faces of the optical fiber (Fabry-Perot cavity) and seriously affects the stability of the signal. To ensure that all fiber end faces are in close contact at the same time, the fiber end face needs to protrude significantly from the surrounding surface, and a large working pressure is required on the optical fiber connector. Because of the design, there are numerous problems with traditional MPO connectors:

- Dust-sensitive;
- Often can not guarantee simultaneous contact of all the fibers;
- Repeatability is not good;
- Easy to damage fiber end face;
- Protruded fiber polishing is not easy to achieve;
- Requires expensive 3D interferometer for strict 3D profile detection.

NC-MPO fiber connector has an optical fiber end face lower than the plastic ferrule surface, and an anti-reflection coating is on all the fiber end faces (Fig. 1). When NC-MPO connectors are mated, there is a small air gap between all the fiber end faces. Anti-reflection coating can prevent multiple reflection of light, while the lower fiber end face (Fig. 2) ensures that the mating fiber end face is not damaged. The working pressure on the NC-MPO connector is very small, and the fiber end face does not need to protrude, greatly simplifying the polishing process, and reducing test equipment costs.



Figure 1. Next to a regular MPO connector, NC-MPO connector has a visible AR coating

To date, NC-MPO connectors for single-mode and multi-mode fibers are both developed.

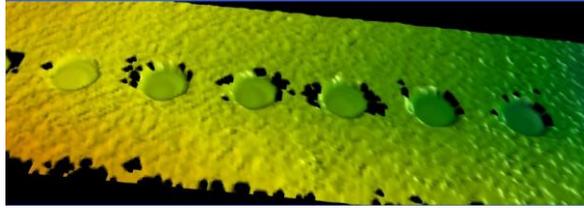


Figure 2. Fibers are recessed from the surrounding ferrule surface in a NC-MPO connector (interferometer image)

NC-MPO fiber connector has the following performance advantages:

- Low insertion loss: 0.05dB typical;
- High return loss: ≥ 70 dB (single mode);
- Interchangeability: guaranteed connection between any pair of connectors;
- Good insertion loss repeatability: ≤ 0.01 dB;
- Long connector mating life: $\geq 5,000$ matings (10 times traditional MPO);
- Not sensitive to dust;
- Does not damage the surface of the device under test;
- NC- MPO can mate traditional MPO;
- Cost of production is comparable to traditional MPO connectors.

Arrayed Fiberoptics Corporation is the original inventor of Non-Contact fiber optic connectors (patent pending). NC-MPO optical fiber connector will expand the non-contact optical fiber connector in a field of urgent need.

NC-MPO fiber connectors are now available for sampling.

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