

SINGLE-MODE VERSUS MULTI-MODE FIBER CONVERTERS

Do you need to choose between single-mode and multi-mode optical fiber? Understanding the differences between the two will help determine what will work best for your facility or OB truck—and potentially save money.

Knowing the specifics about a given installation, including the transmission distance, connector type, data rate to be covered and the overall budget, can help pinpoint what will be most efficient for the particular installation.



SINGLE-MODE FIBER CONVERTERS OFFER:

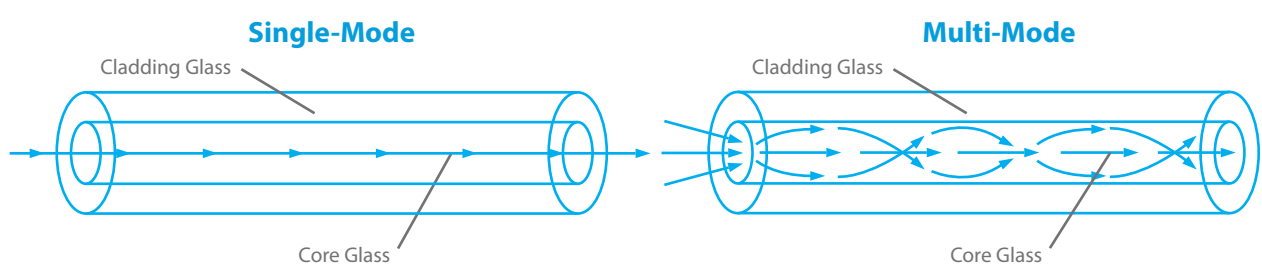
- Bandwidth advantages
- One mode of transmission, Nominal Wavelength: 1310 nm Elimination of distortion from overlapping light pulses
- Narrow diameter of 8.3 to 10 microns
- Lower signal attenuation
- Higher transmission data rate

MULTI-MODE FIBER CONVERTERS OFFER:

- Cable flexibility, which is ideal for in-wall installations
- Multiple modes of transmission, Nominal Wavelength: 850 nm
- Diameters of 50, 62.5 and 100 microns
- High bandwidth over medium distances

HOW THEY WORK

Single-mode fiber has a smaller core, resulting in less light diffraction over long distances. Multi-mode fiber uses a bigger core and uses a longer wavelength of light, resulting in more light diffraction over distance.



LET'S TALK COST

Single-mode fiber converters are two to four times more expensive than multi-mode because they provide a higher transmission rate and lower signal attenuation over longer distances. Multi-mode fiber cables are more affordable, but longer distances result in signal distortion.



COMPATIBILITY

Multi-mode and single mode fiber are not compatible. They cannot be mixed between two endpoints.



SPEED

Both can handle **10G** speeds.

SO, WHICH SHOULD YOU CHOOSE?

Multi-mode is ideal for end user applications that fall within the 700 m (2296 ft) for OM4 and 300 m (984 ft.) (OM3) for Multi-Mode —shorter distances. Single-mode is ideal for single channels over long distances—it works well for 50 times more distance than multi-mode.