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Optical fiber duplex patch cord LC/PC, Multi-mode (MM) OM3, LSFH indoor

Multi-mode (MM) optical-fiber duplex patch cord Pre-terminated with LC/PC connectors for the connection of the elements of an optical network. Furthermore, since they are duplex, they are suitable for use in point-to-point networks that use the same window for both upstream and downstream traffic. The sheath being LSFH, it is recommended for indoor use. Supplied in individual packing.

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Highlights

- Includes identifiers for each of the fibers
- Includes aramid fibers to reinforce its structure
- Multimode OM3 ITU-T G.651.1 fiber type
- Duplex patch cord: two fiber cables
- LSFH sheath, aqua blue
- LC/PC connectors
- 2m long

Discover

Multimode fiber types

Multimode (MM) optical fiber is that which can transmit **more than one light mode simultaneously**, allowing multiple signals to be propagated at the same time. Its main advantage over single-mode (SM) fiber is the lower cost of both the fiber and the optical devices, making it an **ideal solution for short distances**, such as enterprise networks, communications rooms or data centers.

Multimode fiber cables are classified into **5 categories**, called OM (Optical Multimode), from OM1 to OM5, and are mainly differentiated by their **transmission speed in relation to distance**.

The following table shows the distance that each category reaches according to the transmission speed:

| Category | Fast Ethernet | Gigabit Eth. | 10Gigabit Eth. | 40Gigabit Eth. | 100Gigabit Eth. |
|----------|---------------|--------------|----------------|----------------|-----------------|
| OM1 | 2000m | 275m | 33m | - | - |
| OM2 | 2000m | 550m | 82m | - | - |
| OM3 | 2000m | - | 300m | 100m | 70m |
| OM4 | 2000m | - | 550m | 150m | 150m |
| OM5 | - | - | 550m | 150m | 150m |

Additionally, multimode fibers differ in several factors:

- **OM1** fibers have a core **diameter** of **62.5µm**, while **OM2, OM3, OM4 and OM5** fibers have a smaller core of **50µm**
- **OM1 and OM2** were the first to be developed. They are designed for use with **LED light** sources and are now tending towards disuse, as they are not suitable for high-speed networks. The next categories, **OM3, OM4 and OM5**, have been designed for use with **laser emitters** (VCSEL) achieving higher levels of bandwidth and speed
- **OM3 and OM4** fibers work with **850 nm** wavelengths, however, **OM5** fiber has been optimized for **WDM** (Wave Division Multiplexing) applications. It is capable of transmitting up to **4 channels at higher wavelengths** (880, 910 and 940 nm), obtaining a very high bandwidth

The following table summarizes the main characteristics of each type of multimode fiber:

| Category | Core/cladding diameter | Usual external color | Optical source | Bandwidth |
|----------|------------------------|----------------------|----------------|--------------|
| OM1 | 65,2/125µm | Orange | LED | 200 MHz·km |
| OM2 | 50/125µm | Orange | LED | 500 MHz·km |
| OM3 | 50/125µm | Aqua blue | Laser (VCSEL) | 2000 MHz·km |
| OM4 | 50/125µm | Magenta | Laser (VCSEL) | 4700 MHz·km |
| OM5 | 50/125µm | Lime green | Laser (VCSEL) | 28000 MHz·km |

What is the difference between OM3 and OM4?

Among the different categories of multimode (MM) fiber, **OM3 and OM4** fibers stand out as the **most widely used today**, since they achieve high transmission speed and bandwidth at an affordable price. **OM4 fiber is an evolution of OM3**, thanks to its improved internal construction, it has **lower attenuation** and thus manages to operate with a **higher bandwidth** than OM3, reaching **greater distances**.

Technical specifications

| | | |
|--------------------------------------|-------|----------------------------|
| Fiber core type | | Multi-mode (ITU-T-G.651.1) |
| Optical fiber type category | | OM3 |
| Fiber core diameter | μm | 50 |
| Fiber cladding diameter | μm | 125 |
| Coating buffer diameter | μm | 250 |
| Cable structure | | Tight buffer |
| Plastic buffer diameter | mm | 0.85 |
| Outer sheath Diameter | mm | 3 |
| Outer sheath Material | | LSFH |
| Blocking jelly | | No |
| Attenuation 1310nm | dB/km | < 1 |
| Insertion losses in connector 1 | dB | < 0.5 |
| Insertion losses in connector 2 | dB | < 0.5 |
| Return losses in connector 1 | dB | > 30 |
| Return losses in connector 2 | dB | > 30 |
| Optical connector type 1 | | LC |
| Polishing type (Optical connector 1) | | PC |
| Optical connector type 2 | | LC |
| Polishing type (Optical connector 2) | | PC |
| Short tension | N | 450 |
| Long tension | N | 200 |
| Structure reinforcement element | | Aramid fibers |
| Short crush (@100mm) | N | 500 |
| Long crush (@100mm) | N | 100 |
| Minimum bending radius | mm | 15 |
| Operating temperature | °C | -20 ... 70 |

