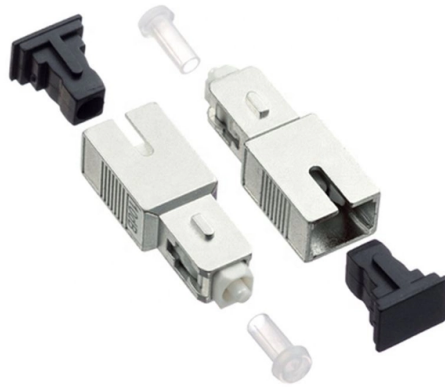


How many kilometers is a mid-range optical module



Overview

These modules primarily facilitate optical signal transmission with a range between 2 kilometers (KM) and 10 kilometers (KM), enabling high-speed, stable, and low-latency data transfer. This is why two modules with the same form factor can have dramatically different ranges—some limited to a few hundred meters, while others reliably reach tens of kilometers. A frequent source of confusion comes from real-world deployment experiences shared across engineering communities. Many. The global mid-distance optical module market size was valued at USD 520 million in 2024. The main focus is on four models: FR4/FR8 (2km) and LR4/LR8 (10km). It employs four non-cooled EML lasers with CWDM. At a wavelength of 850nm, a 100M optical module can transmit up to 2km, a 1G can transmit up to 550m, a 10G can transmit up to 300m, a 40G can transmit up to 400m, and 100G and 400G can transmit up to 100m. Common wavelengths include: 850nm: For multimode SFP modules, suitable for short-distance transmission.



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What Are the Key Parameters of Optical Modules

Understand the key parameters of optical modules, including transmission rate, distance, wavelength, and fiber compatibility, for better network

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The common optical modules are divided into short distance (≤2km), middle distance (10~20km), long distance (≥30km).

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SFP Modules Technical Parameters

3. SFP Modules Transmission Distance Indicates the maximum transmission distance the module supports, measured in meters (m) or kilometers

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The "LR" in QSFP-DD LR4 optical module denotes long-distance transmission of 10km. It utilizes four EML lasers with CWDM wavelengths (5nm

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The relationship between wavelength and transmission

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Basic Knowledge Of Optical Module Transmission Distance

Optical modules are generally categorized into short-range (less than 2 km), medium-range (10 km to 20 km), and long-range (more than 20 km) based on

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QSFP-DD Mid-Range Optical Modules There are various types of QSFP-DD optical modules for 2km-10km transmission. The main focus is on four

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What are the detailed parameters of the optical module

Transmission distance: Transmission distance refers to the distance that optical signals can be directly transmitted without relay amplification, and the unit is kilometers (also called

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