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## SFP ports for Fast Ethernet, Gigabit Ethernet and 10Gigabit Ethernet in a 19" switch



Grown networks are not always homogeneous. With new requirements and new devices, higher data transmission speeds are required. That this does not happen in any case everywhere at the same time is obvious.

In copper-based networks in general each switch port also supports all lower speeds. In fiber optic based networks, there is no automatic speed adjustment. The choice between Fast Ethernet, Gigabit Ethernet and 10G Ethernet must always be made on both sides.

The automatic speed adjustment, common between distributors and Ethernet devices with RJ-45 connectors, is not available for fiber optic connections. A change from Fast Ethernet to Gigabit Ethernet has to be implemented on both sides of the connection. Also installed multimode fiber optic cables may be a conversion obstacle because of the shorter distance range.

An interaction of modern fiber optic distributors with diverse SFP modules can provide a remedy in many cases:

The upgrade of a central fiber optic switch from Fast Ethernet to Gigabit Ethernet for example, can be made even if there remain Fast Ethernet devices on the other side of the fiber optic lines by equipping the central switch with Fast Ethernet SFPs. This only requires, that the central switch is applicable for Fast and Gigabit Ethernet SFPs as well. Upgrading the remote segments gradually only requires to replace the SFP transceivers of the corresponding ports of the switch.

Increasing transmission frequencies on multimode however cause shorter transmission ranges. The typical transmission range for Fast Ethernet via OM2 fiber e.g. is 2km. The transmission range for Gigabit Ethernet via OM2 fiber, however, about 500m to 550m (1000Base-SX standard at 850m, wavelength). By changing the wavelength, 2km can also be reached with Gigabit Ethernet.

If the existing fiber optic lines or the bandwidth are not sufficient, the number of available Ethernet channels can be doubled by switching to BiDi SFPs. UBF EDV Handel und Beratung provides this technology for Fast Ethernet and Gigabit Ethernet on multimode and single-mode fiber optic links. Additional Ethernet channels can be used to increase the bandwidth if installed multimode cables limit the upgrade to higher transmission frequencies.

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Deeplink Online Shop: [www.ubf.de/en/a0961280.htm](http://www.ubf.de/en/a0961280.htm)  
SFP overview: [www.ubf.de/en/sfp-mini-gbic-xfp-module.shtml](http://www.ubf.de/en/sfp-mini-gbic-xfp-module.shtml)  
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