Fact sheet

Fiber optics with FRITZ!

Fiber optics explained

Fiber optics is the fixed network technology of the future. Data can be transported over several kilometers via fiber optics without any loss of speed. The technology transmits the data within the fiber optic cable in the form of short pulses of infrared light. Since light is the transport medium, the technology is indifferent to electrical and magnetic interference and therefore offers symmetrical downstream and upstream speeds. The technology already enables speeds of 1 Gbit/s. In some European countries, connections with several gigabits per second are already available for private customers.

AVM's fiber optic router: FRITZ!Box 5530 Fiber

The FRITZ!Box 5530 Fiber can be directly connected to active (AON) or passive (GPON, XGS-PON) optical networks. It offers symmetrical transmission rates of several gigabits per second. Equipped with the new Wi-Fi 6 standard, the FRITZ!Box 5530 Fiber can distribute high gigabit speeds wirelessly throughout the home. In addition to high data rates, the FRITZ!Box's Wi-Fi 6 offers short response times and enables the simultaneous use of multiple devices in the Wi-Fi network. The integrated Mesh Wi-Fi ensures the optimal connection of all devices. For the wired home network, the FRITZ!Box 5530 Fiber features a fast 2.5-Gbit/s LAN port. In addition, the new FRITZ!Box includes a DECT base station for telephony and Smart Home. Find out more about the FRITZ!Box 5530 Fiber here: https://en.avm.de/products/fritzbox/fritzbox-5530-fiber/.

The advantages of fiber optics:

- **Top speeds:** Fiber optics offers stable, high speeds of usually around 1 Gbit/s for private customers. In other countries, up to 10 Gbit/s are already possible. These speeds meet the bandwidth requirements of current and future applications for the networked home and home-based working. The transmission remains fast even when used intensively by several people.

- **Future-proof technology:** Fiber is a major investment in the future to provide fast and stable internet across the country. With fiber technology, the next expansion stages in terms of speed can be implemented more easily, more cheaply and more quickly than with other technologies.

- **FRITZ! variety:** With the FRITZ!Box 5530 Fiber, users benefit not only from high fiber optic speeds, but also from all the advantages of the FRITZ! product family such as ease of use, long service life thanks to updates and a range of features such as fast Wi-Fi and secure, versatile networking .

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The technology behind fiber optics

Optical fibers used for telecommunications transmit large amounts of data over long distances with almost no loss. They are therefore clearly superior to existing copper-based connections, which for historical reasons were initially only designed for telephone connections. This ensures great range and high speeds in the gigabit range. The data reaches the gray cabinet on the side of the road via fiber optics. There are three terms that describe how the fiber continues from there:

FTTC – Fiber to the Curb

With FTTC, the fiber optic cables run to the distribution box on the side of the road. From there, the data is transmitted to the home via telephone line, i.e. copper twin wire (VDSL).

FTTB – Fiber to the Building

With FTTB, the fiber optic connection goes one step further and is laid all the way to a building, such as a multi-dwelling unit. As a rule, the fiber ends in the boundary of the building, such as the basement, where it is converted to copper-based connections. Technologies used here include Ethernet or the DSL technology G.Fast, for example.

FTTH – Fiber to the Home

FTTH is the real fiber optic connection that extends to the telephone jack in the home.

Standards for FTTH fiber optic connections

AON (Active Optical Network)

AON refers to active fiber-optic connections in which each connection receives its own fiber optic link to the internet provider's network.

GPON (Gigabit-based Optical Network)

With GPON connections, several connections share one fiber optic connection - thanks to the high fiber optic speeds, large bandwidths are still available for each individual connection.
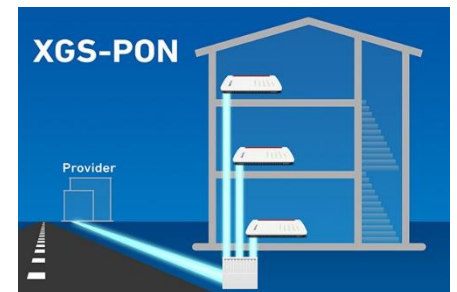
XGS-PON (10 Gigabit Symmetric Passive Optical Network)
XGS-PON accelerates data transmission in GPON infrastructures to speeds of up to 10 Gbit/s, optionally in both transmit and receive directions.

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Developed exclusively for fiber optics, the FRITZ!Box 5530 Fiber supports all important fiber optic standards and connections. This is ensured by two SFP modules, which are designed for the different connection types. When users connect their FRITZ!Box at home, it will automatically recognize whether the correct module is inserted.

Freedom of choice of terminal equipment

Since August 2016, German law states that consumers have the freedom of choice to operate their internet connection with a device from their provider or to connect their own device that they've purchased themselves. A number of representative opinion polls have confirmed that this freedom of choice is very much appreciated by users. They benefit from a high degree of flexibility when it comes to selecting a device. In addition, the level of security increases because updates from manufacturers are available more quickly. If they want to, users can choose a device that meets the requirements based on their ideas and wishes and which is not dependent on a device from their provider. This also applies to fiber optics as a new method of transmitting data.

Related links:

- AVM guide: Fiber optics
- Product information about FRITZ!OS

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