FRITZ!Powerline 500E

Installation and Operation

Table of Contents

Symbols and Highlighting

Symbols and emphasized text are used to mark certain information in this manual.

Symbols

This symbol marks useful hints and tips.

This symbol indicates important instructions that must be observed to avoid malfunctions.

Highlighting

Highlighting	Example
Quotation marks designate elements in the user interface, path entries, and names of folders and files	"Home Network" "C:\Pictures" "Info"
Blue, underlined text designates addresses to be entered in the browser	fritz.box
Blue text designates links and references within this manual	see page 36
Bold type emphasizes important words	Do **not** click …

1 FRITZ!Powerline 500E

FRITZ!Powerline 500E allows data to be transmitted over the electrical wiring in your home.

With FRITZ!Powerline 500E you connect network devices like computers, game consoles and televisions via electrical wiring in what is known as a powerline network. The powerline network can then be connected to your Internet router, Internet connection and home network.

In a powerline connection over electrical wiring a network device, for instance your computer, is connected to a FRITZ!Powerline 500E with a network cable. An additional network device, for instance your Internet router, is connected with the second FRITZ!Powerline 500E in the same way. Each FRITZ!Powerline 500E is plugged into a power outlet in your home to provide the connection between the two devices. With the powerline connection to the Internet router the connected computer receives access to the Internet.

The FRITZ!Powerline 500E Set includes two adapters, which require no setup. Upon delivery both FRITZ!Powerline 500E are configured such that connections are safely encrypted from the outset. Additional FRITZ!Powerline adapters, including adapters from other manufacturers, are easy to integrate into the powerline network to extend coverage.

FRITZ!Powerline 500E is the right solution whenever a network connection is necessary, but laying network cables is either impossible or undesirable. FRITZ!Powerline 500E is an economical solution for institutions as well, like offices, schools or hotels.
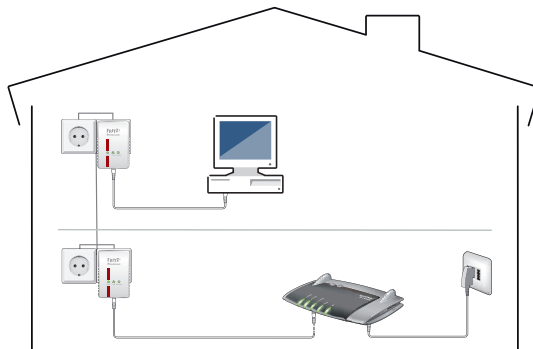
2 Before You Connect the FRITZ!Powerline

- Check the contents of your FRITZ!Powerline 500E package.
- Read the security instructions before connecting FRITZ!Powerline 500E.

2.1 Package Contents

- two FRITZ!Powerline 500E
- two network cables
- printed product information

2.2 Security Instructions

- Always plug FRITZ!Powerline 500E directly into a wall outlet. If at all possible, do not plug FRITZ!Powerline 500E into sockets on extension cords or multiple socket-outlets (power outlet strips).
- Insert FRITZ!Powerline 500E in outlets located in a dry place that is free of dust and protected from direct sunlight.
- FRITZ!Powerline 500E may heat up during operation. This is normal. The FRITZ!Powerline 500Es comply with the required safety regulations.
- Avoid operation in the direct vicinity of a radiator or heating unit and provide for sufficient ventilation. The slits and openings on the housing are for ventilation and must not be blocked or covered.
- The FRITZ!Powerline 500E is intended for indoor use only.
- Never let liquids get inside the FRITZ!Powerline 500E. Otherwise, electric shocks or short circuits may result.
- Do not open the FRITZ!Powerline 500E housings. The devices contain hazardous components and should only be opened by authorized repair technicians.
- Remove the device from the mains before cleaning. Clean the device using only a moist cloth.

2.3   LEDs, Buttons and Network Port

LEDs

FRITZ!Powerline 500E has three LEDs that display the operating status:

LED	Condition	Meaning
Power	on	FRITZ!Powerline has electrical power
	flashing	FRITZ!Powerline is restarting or configuring security settings
	flashing (every 15 seconds)	FRITZ!Powerline is on standby
	off	FRITZ!Powerline has no electrical power
LAN	on	The network port (LAN port) is occupied
	off	No network cable is connected, or the device connected to the network cable is switched off
Powerline	on	FRITZ!Powerline is connected with the powerline network and sending or receiving data
	off	FRITZ!Powerline did not detect any compatible powerline devices or did not detect any devices that use the same network key

If you do not want to use the LEDs, you can switch them off in the AVM FRITZ!Powerline program or in the user interface of a connected FRITZ!Box.

Button

FRITZ!Powerline 500E has two buttons:

Button	Function
"Reset" Button	Restores the factory settings to FRITZ!Powerline.
"Security" Button	Integrates into an existing powerline network.

LAN Port

FRITZ!Powerline 500E has a network port (LAN port) for computers and other network devices.

This port is a gigabit Ethernet port.

3 Connecting the FRITZ!Powerline

With FRITZ!Powerline 500E Set you can set up a powerline network and expand it with further adapters.

3.1 Connecting FRITZ!Powerline 500E Set

1. Insert the first FRITZ!Powerline adapter in an outlet near your FRITZ!Box.
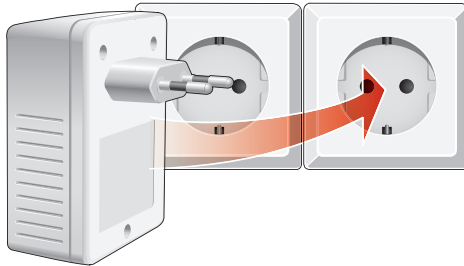
2. Connect your FRITZ!Box to the FRITZ!Powerline adapter with a LAN cable.
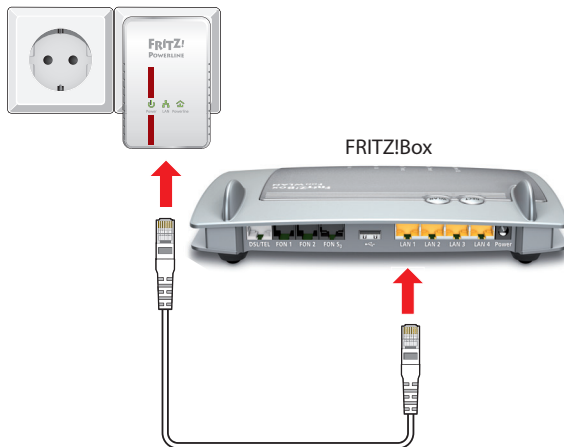
3. Plug the second FRITZ!Powerline adapter into any outlet in your home.

4. Use a LAN cable to connect a computer or another network device (such as a television) to the second FRITZ!Powerline adapter.
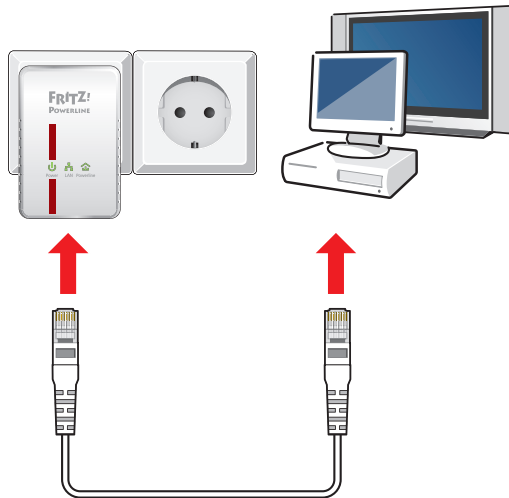
Now you can use the Internet connection of the FRITZ!Box on the network device.

3.2   Expanding a FRITZ!Powerline Network

An existing FRITZ!Powerline powerline network can be expanded with additional FRITZ!Powerline adapters.

1. Insert the new FRITZ!Powerline in an electrical outlet near a plugged in FRITZ!Powerline that is already part of the powerline network.

2. Press the "Security" button for one second to establish a new connection.

3. Within two minutes, press the "Security" button on an existing FRITZ!Powerline already connected in your network and hold it down until the "Powerline" LED stops flashing.

4. Now plug the new FRITZ!Powerline into the desired power outlet.

The new FRITZ!Powerline is now safely integrated in your network.

3.3   Connecting Powerline Adapters from Other Manufacturers

In a FRITZ!Powerline network you can also integrate powerline adapters from other manufacturers. The prerequisite for this is that they are powerline devices of the 500 and 200-Mbit/s category.

1. Plug the powerline adapter from the other manufacturer into any outlet in your home.

2. Press the "Security" button on a FRITZ!Powerline already integrated in the network for one second in order to start transmission of the network password to the powerline adapter from the other manufacturer.

Always establish a secure powerline connection. This keeps you from inadvertently integrating device in a neighboring powerline network.

3. Within 2 minutes, press the "Security" button on the powerline adapter from the other manufacturer to apply the new network password.

For detailed instructions, see the documentation of the powerline adapter or contact the manufacturer.

The powerline adapter now connects with the FRITZ!Powerline network. Generally an LED indicates when this process has been completed.

3.4   Connecting Multiple Network Devices

You can also operate multiple network devices on FRITZ!Powerline if you connect a standard switch or hub to the network port on FRITZ!Powerline. All of the network devices connected to the switch or hub can then exchange data with all other devices in the local network.

4 Security in the Powerline Network

FRITZ!Powerline 500E is delivered with a preset individual network password. This protects connections within the FRITZ!Powerline from the outset.

The network password within a powerline network has two functions:

- The network password is the code word for exclusive access to the network. It identifies the adapter in the network.

  Up to four powerline networks can exist within a single circuit. They are separated from each other by their network passwords.

- The network password is used to encrypt the user data during data transmission.

4.1 Encryption

FRITZ!Powerline uses AES-128 Bit encryption. This encryption method is used both to identify FRITZ!Powerline in the power-line network and for encryption during data transmission. Both adapters from the FRITZ!Powerline Set are delivered with a preset individual network password. From the outset this guarantees secure connections in the FRITZ!Powerline net-work. Additional FRITZ!Powerline adapters are integrated into the network safely and securely at the push of a button.

4.2 Changing the Network Password

The network password should be changed whenever there are concerns about security or whenever one larger network is to be divided into two or more smallers ones.

There are two ways you to change the network password of a powerline if necessary:

- by button: a random new network password is generated automatically

- using the AVM FRITZ!Powerline program: specify your own network password

Changing the Network Password by Button

Plug all FRITZ!Powerline adapters in any outlet in your home.

For this operation it makes sense to plug all adapters that are supposed to receive the new network password next to each other in a multi-outlet strip.

1. Plug the first two adapters into the sockets, and press the "Security" button on both adapters for 12 seconds, until all LEDs briefly turn off.

    Now the FRITZ!Powerline restart and each one automatically assigns itself a randomly chosen network password.

2. Press the "Security" button on one of the two adapters for a second in order to start transmission of the new network password.

    The "Power" LED begins flashing.

3. Within 2 minutes, press the "Security" button on the other adapter so that it can receive the new network password.

    Now the powerline connection is established with the new network password. The process is concluded as soon as the "Powerline" LEDs on both adapters stop flashing.

4. Proceed as follows for every additional adapter that is to receive the new network password:

    Plug the adapter into a socket and press briefly the "Security" button on the adapter. Within 2 minutes, press the "Security" button on an adapter that already has the new network password.

Changing the Network Password in the AVM FRITZ!Powerline Program

1. Plug both FRITZ!Powerline adapter into outlets in your home.

2. Use a network cable to connect one FRITZ!Powerline adapter to a computer on which the AVM FRITZ!Powerline program is installed.

3. Restart the AVM FRITZ!Powerline software and click the icon of the FRITZ!Powerline adapter that is not connected with the computer.

   The "FRITZ!Powerline Device Profile" window opens.

4. Enter any password you like in the "New network password" field and then click "OK".

   The "Set Network Password" window opens.

5. Enter the device password of the FRITZ!Powerline in the "Device password" field and then click "OK". The device password of the adapter is printed on the sticker on the base of the adapter housing.

   Now FRITZ!Powerline will restart. As soon as the "Power" LED stops flashing, the device has been restarted.

6. Next, go to the AVM FRITZ!Powerline program and double-click the icon of the FRITZ!Powerline connected with the computer.

   The "FRITZ!Powerline Device Profile" window opens.

7. In the "New network password" field, enter the same password you entered before for the first adapter.

8. Click "OK".

   Now the FRITZ!Powerline connection is established with the new network password. The process is concluded as soon as the "Powerline" LEDs on both adapters stop flashing.

9. If there are more than two adapters in your network, then the adapters that still have the old network password will no longer be visible in the AVM FRITZ!Powerline program. In order to change their passwords as well, proceed as follows for each individual adapter:

    Connect the adapter with the computer on which the AVM FRITZ!Powerline program is installed and repeat steps 6 through 8.

5   Application Examples

The network devices connected in a network can exchange data among each other and share network resources. Computers exchange data, and share an Internet connection or a printer. The stereo system has access to the central music collection, and the TV plays back video on demand movies.

The following sections introduce several examples of how powerline networks can look.

5.1   Internet Connection for All Network Devices
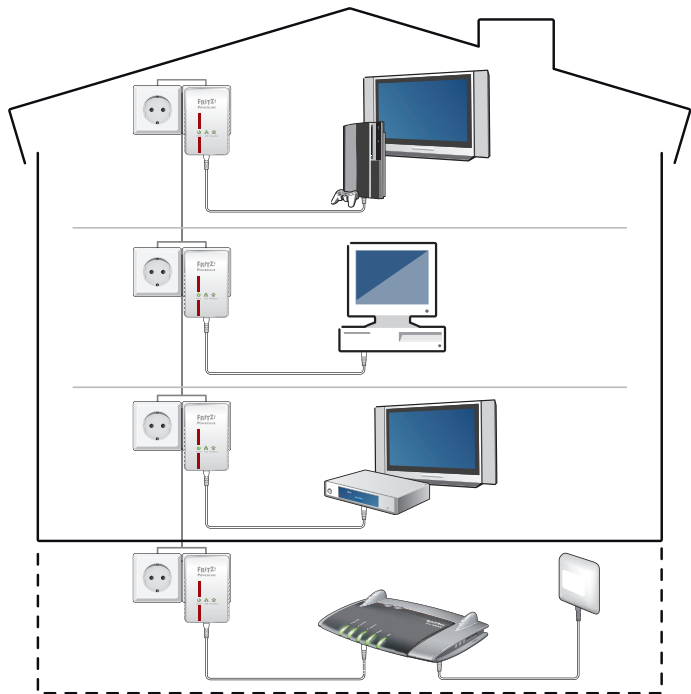
Network devices like computers, game consoles or televisions are scattered over different rooms or even different floors of your home. But generally there is only one Internet connection. With FRITZ!Powerline you use the electrical wiring to connect all devices with the Internet connection. In contrast to a wireless network, this type of

connection is not limited by structural components like reinforced concrete or clay plaster, delivers high transmission speeds and can be set up easily and economically.

5.2   Networking Computers
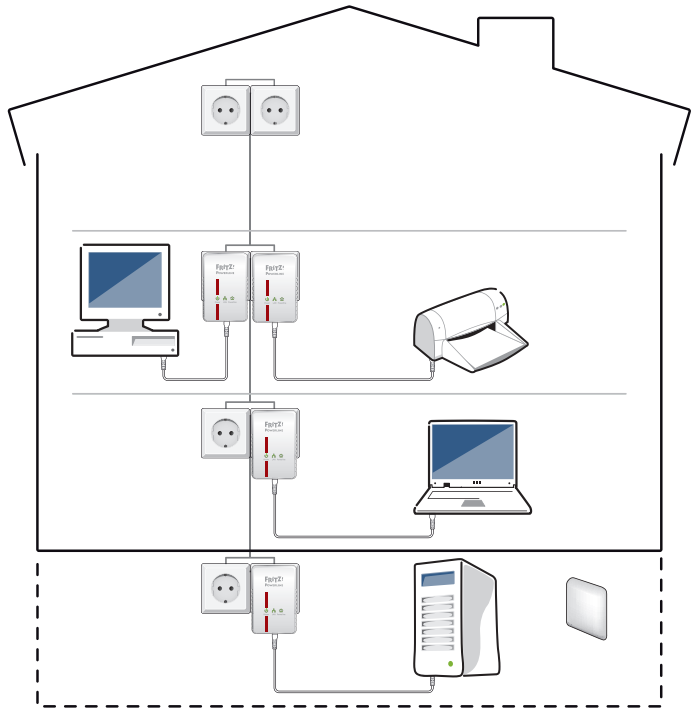
Computers connected with each other in a network can exchange data among each other and share hard drives or printers. Portable computers (laptop, notebook, tablet, etc.) can be integrated into the home network temporarily.

With FRITZ!Powerline 500E you connect your computers via electrical wiring in a powerline network.

5.3   Game Consoles on the Internet Connection or in the Home Network
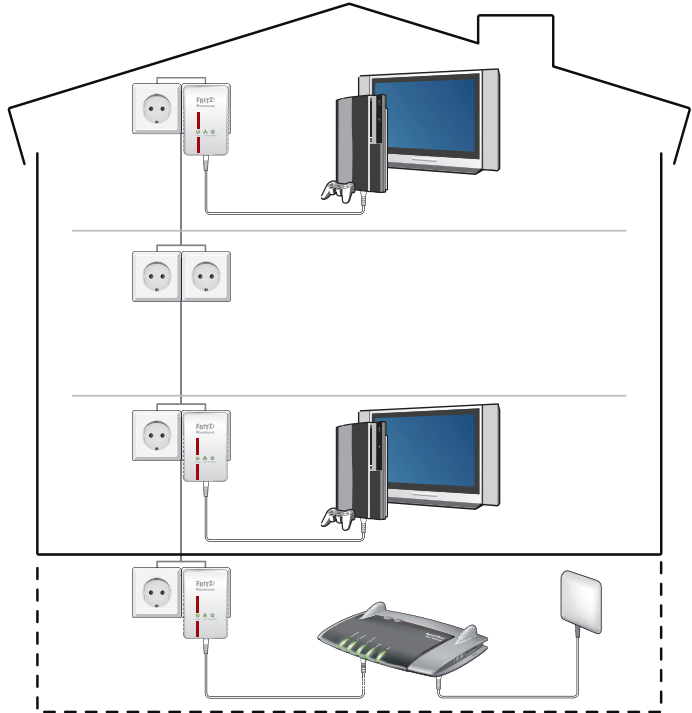
With FRITZ!Powerline 500E you can integrate your game console into your network. If the network is connected to the Internet, you can play against users all over the world and download game add-ons.

5.4   TVs and Stereo Systems in the Network
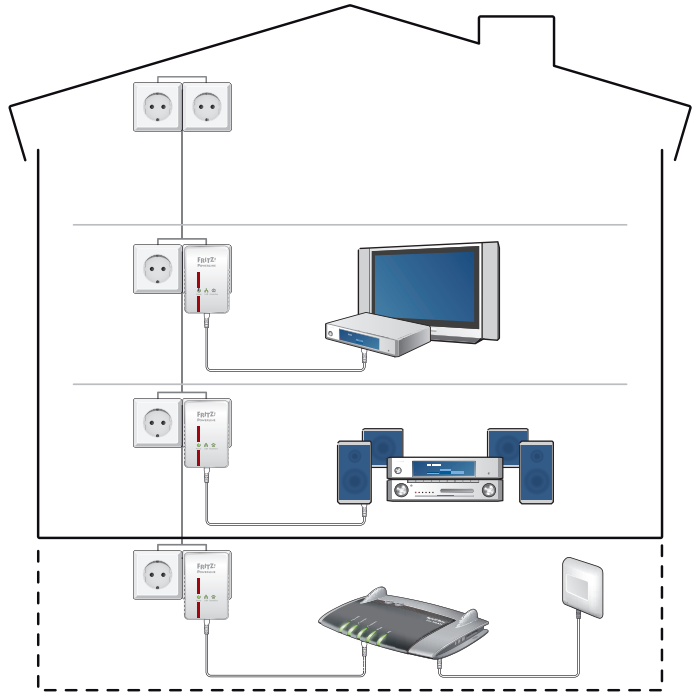
With FRITZ!Powerline 500E you can integrate your TV and your stereo system into your network. When the network is connected with the Internet, the TV can use services like video on demand, IP TV or services available in the Internet like YouTube and Flickr. The stereo system can receive web radio stations. Both devices also enjoy access to the collections of photographs, videos and music available in the home network, which can be accessed on network storage.

6   The AVM FRITZ!Powerline Program

For FRITZ!Powerline there is the AVM FRITZ!Powerline program, a user interface for the FRITZ!Powerline network. The program offers you an overview of the FRITZ!Powerline adapters used in the network and the adapters from other manufacturers. An individual device profile can be displayed for each adapter.

Download for Free

You can download AVM FRITZ!Powerline from the Internet free of change from www.avm.de/en/powerline.

Operating Systems

The program is available for the Windows 7, Vista und XP operating systems.

Features

- Graphical overview of all powerline adapters in the network
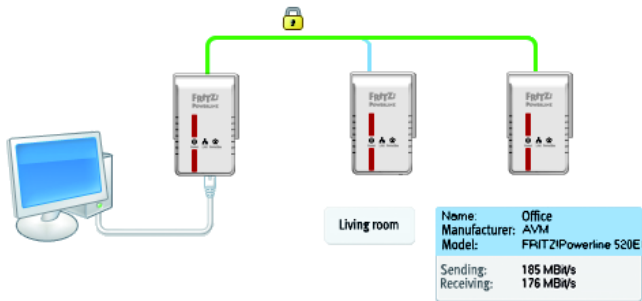
- Additional powerline adapters can be added to the secure powerline network

- Support in locating the best outlet

- LEDs can be switched on and off

- Energy savings through reduced throughput rates on the network port

- Additional network encryption options

- Naming the adapters in the network

- Display of the individual device profile for each adapter

- Factory settings can be restored to each adapter

- Firmware updates of visible FRITZ!Powerline adapter

When you use FRITZ!Powerline in a FRITZ!Box home network, the FRITZ!Box user interface gives you additional information about the network.

7 Factory Settings

The adapters from the FRITZ!Powerline Set are delivered with preset values for the adapter name, LED control, power-saving function (green mode) and network password settings. These four settings can be changed as needed. There are two ways to restore the factory settings later.

Restoring Factory Settings with the "Reset" Button

1. Plug a FRITZ!Powerline adapter into an outlet.

2. Press the "Reset" button on the adapter and hold it down for ca. two seconds. Use a pointed object to do this, for instance a paper clip or a mechanical pencil, since the button is recessed in the top of the housing to keep it from being pressed by accident.

All LEDs go out for a moment and then the adapter will restart. As soon as the "Power" LED stops flashing, the procedure has been concluded.

Restoring Factory Settings with AVM FRITZ!Powerline

1. Plug a FRITZ!Powerline adapter into an outlet.

2. Use a network cable to connect the FRITZ!Powerline adapter to a computer on which the "AVM FRITZ!Powerline" program is installed.

3. Start the "AVM FRITZ!Powerline" program and double-click the icon of the FRITZ!Powerline adapter.

   The "FRITZ!Powerline Device Profile" window opens.

4. Click the "Reset" button and then "OK".

All LEDs go out for a moment and then the adapter will restart. As soon as the "Power" LED stops flashing, the procedure has been concluded.

8   Power-saving Features of FRITZ!Powerline 500E

FRITZ!Powerline is equipped with modern power-saving features and adjusts its energy consumption to the given state of operation.

Maximum Power Consumption

- in normal operation: less than 4 W

- in standby: less than 1 W

Standby Mode

FRITZ!Powerline automatically switches to standby mode approximately five minutes after the connected network device has been switched off. The LEDs on the adapter switch off as well.

Computers that can be started over the network (Wake on LAN) are not switched off completely, so FRITZ!Powerline does not switch to standby operation. To allow standby operation of the adapter in spite of this, you must either disable the Wake on LAN function, or completely cut off the computer from the power supply using a multi-outlet strip with its own power switch.

Green Mode

The data rate on the network port of a FRITZ!Powerline adapter amounts to 1 Gbit/s. This data rate can be limited to 100 Mbit/s for each adapter in order to reduce the energy consumption under load by up to 1 watt.

This limit is configured in the AVM FRITZ!Powerline program. The setting for limiting data rates is called "Green Mode".

For many applications in the home network a net data rate of 100 Mbit/s is sufficient.

9 Optimizing Transmission Capacity

The power mains and the installed wiring are not designed for fast data transmission. However, if you follow the tips in this chapter, with FRITZ!Powerline you can use the power outlet as a fast data port.

Finding the Ideal Power Outlet

The power mains does not offer shielded transmission, which is generally the case for computer network cabling. Thus every branch, every socket and every switch on the way between two stations reduces transmission capacity. The shorter and more direct route over the electrical wiring, the higher the transmission capacity.

In the AVM FRITZ!Powerline program the utilizable transmission capacity is displayed for each FRITZ!Powerline to help you determine the ideal power outlet.

Avoiding Multi-Outlet Strips

Multi-outlet strips have two disadvantages:

- they constitute a branch and thus reduce transmission capacity

- devices plugged into the multi-outlet strip that operate in parallel can interfere with the powerline signal

Therefore the FRITZ!Powerline should be operated directly at a wall outlet rather than at a multi-outlet strip to allow a higher transmission capacity.

Multi-outlet strips with surge protection should never be used in front of powerline. The filters implemented for surge protection can block the powerline signal completely.

10   FAQs

This section presents answers to questions that may arise about powerline adapters and powerline networks.

10.1   Multiple Powerline Networks in Once Circuit

Can multiple powerline networks exist in a single circuit?

Multiple FRITZ!Powerline networks can exist within one circuit.

A powerline network consists of multiple adapters, all of which use the same network password. The network password is the code word for exclusive access to the network. It identifies the adapter in the network, and is also used to encrypt the user data. The network password ensures that the network users can communicate securely and without interference.

Up to four powerline networks can exist within a single circuit. Each network uses its own individual network password. No network interferes with the communication of another network.

10.2   FRITZ!Powerline across Various Phases in the Power Supply

Can FRITZ!Powerline be used across different phases of the power supply?

Yes, home networking with FRITZ!Powerline is possible even when the adapters are used in different phases (phase conductors) of the home's power supply.

FRITZ!Powerline routes the transmission data to the electrical wiring as high-frequency signals. This process is called modulation. During a phase shift the powerline signal shifts from one phase to another as soon as the phase conductors run parallel over a certain distance. Since this is the case in almost all buildings, FRITZ!Powerline can also be used across different phases.

10.3   Electricity Meter, Fuse Box, GFCI Ground Fault Circuit Interrupter

Can a powerline connection extend over an electricity meter, fuse box or GFCI?

The signal of powerline adapters can be received even on the other side of an electricity meter, fuse box or GFCI (or RCCB: residual-current circuit breaker)—even by unauthorized users like neighbors. However, data traffic in your FRITZ!Powerline network is protected from unauthorized access. The FRITZ!Powerline network is secured upon delivery with an individual network password (128 Bit-AES key).

Most powerline adapters from other manufacturers allow data exchange over powerline with no more than a standard, preset network password. However, this does not protect access to the network and data transmission. Use the "Security" button to establish a secure connection as soon as possible.

10.4   Adapters from Other Manufacturers in the Powerline Network

Can I integrate adapters from other manufacturers in my powerline network?

The FRITZ!Powerline comply with the IEEE P1901 standard and thus can be connected with all standard 200 and 500 Mbit/s category powerline adapters. For integration into the FRITZ!Powerline network you must share the network password with the other powerline adapter (see Connecting Powerline Adapters from Other Manufacturers on page 11).

10.5   Kinds of Devices on the Powerline Adapter

What kinds of devices can be connected to powerline?

All network devices that comply with the Ethernet IEEE 802.3 standard can be connected to the adapters.

The network devices in the computer field include, for instance, network cards, network hubs, network switches, routers and printer servers.

Network devices in the consumer electronics field can include, for instance, set top boxes, game consoles, stereo systems, media receivers and Blu-ray players.

IP telephones are also network devices.

11   Powerline: Technical Background

Powerline is a network technology that uses existing electrical wires for data transmission. The data signals are modulated onto the power lines.

Data Transmission through Modulation (OFDM)

Powerline uses OFDM (Orthogonal frequency division multiplexing) for this modulation.

The powerline adapter works as a power line communication system.

Sending adapters modulate the data signals to a carrier frequency; in other words, the carrier frequency is changed. Receiving adapters demodulate the data signals, meaning that they change the modulated frequency back to the carrier frequency and the original data signal.

Standard: IEEE P1901

FRITZ!Powerline complies with the IEEE P1901 standard.

IEEE P1901 is a standard that defines the settings for networks over power lines.

IEEE P1901 provides for data transmission rates of up to 500 Mbit/s.

12 Electromagnetic Interference

There are norms that limit the emission of high-frequency interference for all electronic devices. For FRITZ!Powerline the norm EN 55022 (Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement) applies. FRITZ!Powerline thus does not cause any more interference than power drills, refrigerators or similar consumers.

- Disturbance of wireless communications applications: No disturbance of wireless communications applications is to be expected. Radio reception is generally restricted to the FM band between 87.20 and 108.00 MHz. The FRITZ!Powerline band is considerably lower, at 2 to 68 MHz.

- Interference in the amateur radio bands: No disturbance of amateur radio bands are to be expected, either. Within the frequency bands of amateur radio, FRITZ!Powerline transmits at a lower level; the transmitting capacity is relatively low and through symmetrical coupling only a very small part of it is radiated by the power line.

13   Comparison with other Network Technologies

powerline is suitable for building small to medium-sized networks, like private home networks, networks in offices, practices, hotels, schools and similar institutions. For this size of network the WLAN radio technology or Ethernet technology are also suitable. Ethernet technology has become the premiere LAN technology for applications of this size.

Transmission Medium

powerline	Data transmission over the power lines
WLAN	Data transmission over radio
Ethernet	Data transmission over cabling intended exclusively for the data network (by cable)

Data Throughput

Powerline

Depending on the standard used, gross transmission rates of 200 Mbit/s and 500 Mbit/s are currently possible.

Branches, sockets and switches reduce transmission speed on the way between two stations. The shorter and more direct the route, the higher the transmission speed.

WLAN

Depending on the WLAN standard used and the antenna technology, gross transmission values of between 11 and 450 Mbit/s are possible.

Structural conditions and the number of wireless networks in the vicinity influence the transmission speed.

Ethernet

Gross transmission rates of 10 Mbit/s, 100 Mbit/s (Fast Ethernet), 1000 Mbit/s (gigabit Ethernet) and 10 Gbit/s are specified.

The greater the distance between sender and recipient, the lower the transmission speed.

Range

Powerline	up to several hundred meters
WLAN	not specified, because rates depend so strongly on structural conditions
Ethernet	up to 100 meters

14   Technical Specifications

- Up to several hundred meters range on the power line

- Gigabit LAN Port

- Encryption: AES 128 Bit (ex works)

- Transmission rate: up to 500 Mbit/s. This is a gross value; the attainable user data rate is lower. The power lines and ambient conditions can also lower the transmission rate.

- Quality of Service: Data prioritization for video transmission and Internet telephony free of interference

- Low power consumption of less than 4 W during operation, efficient energy-saving feature with less than 1 W on standby

- Power: 100 to 240 V, 50/60 Hz

- Multicast: supports multicast sessions using IGMP

- Support for IPv6

- Compatible with IEEE P1901

- Compatible with 200 and 500 Mbit/s powerline adapters

- Implementation is possible in parallel with a powerline network compliant with an older standard.

- Dimensions: 92 x 61 x 72 mm (LxWxH)

- Weight: ca. 170 g

15   Customer Service

Be it product documentation, frequently asked questions, tips or support: this chapter presents information on all important service topics.

15.1   Information in the Internet

On its web site AVM presents comprehensive information on your AVM product.

AVM Knowledge Base

We would like to make our products as easy to use as possible. If you still have problems, sometimes you need just a tip to resolve them.

In our AVM knowledge base you find immediately help and answers to your questions in easy dialogs. In a guided navigation we provide for customized solutions. You find the AVM knowledge base on the AVM Internet pages in the "Service" area:

service.avm.de/support/en/skb

15.2   Support from the Support Team

Should problems with your FRITZ!Powerline arise, first we advise:

* Read our tips from the AVM Knowledge Base in the "Service" area.

  service.avm.de/support/en/skb

  This site contains answers to questions our customers have frequently asked our Support team.

Support by E-mail

You can send us an English-language e-mail request at any time using the "Service" area of our web site. The "Service" area can be reached at:

www.avm.de/en/service

1.   Select the product group and your product for which you need support from the "Support" area.

     You will receive a selection of FAQs.

2.   If you need more help, click the "Contact support" button to open the e-mail support form.

3.   Fill out the form and send it to AVM by clicking the "Submit support request".

Our Support team will respond by e-mail as quickly as possible.

15.3   Manufacturer's Warranty

Within the warranty period, we will remove defects to the product which are demonstrably due to faults in materials or manufacturing. Our warranty does not cover defects which occur due to incorrect installation, improper use, non-observance of instructions in the user manual, normal wear and tear or defects in the environment of the system (third-party hardware or software). We may, at our discretion, repair or replace the defective product. Claims other than the right to the removal of defects which is mentioned in these terms of warranty are not constituted.

We guarantee that the software conforms with general specifications, not, however, that the software meets your individual requirements. Delivery costs will not be reimbursed. Products which have been replaced revert to our ownership. Claims recognized under warranty entail neither an extension or recommencement of the warranty period. If we reject a warranty claim, this claim lapses no later than six months after being rejected by us.

This warranty shall be governed by German substantive law, to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).

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Declaration of CE Conformity

The manufacturer AVM GmbH
Alt-Moabit 95
D 10559 Berlin

herewith declares that the product

FRITZ!Powerline 500E
Powerline adapter

complies with the following directives:

2004/108/EC	EMC Directive: Electromagnetic Compatibility
2006/95/EC	Low Voltage Directive: Electrical equipment designed for use within certain voltage limits
2009/125/EC	EU directive: ecodesign requirements for energy-related products

The following norms were consulted to assess conformity:

- EN 60950-1:2006 + A11:2009 + A1:2010
- EN 55022:2010
- EN 55024:2010

- EN 50412-2-1:04.2006
- EN 61000-3-2:2006/A2:2009
- EN 61000-3-3:2008

$C\!\in$ The CE symbol confirms that this product conforms with the above mentioned norms and regulations.

Berlin, 08-01-2012   Peter Faxel, Technical Director

Disposal Information

In accordance with European regulations and the Waste Electrical and Electronic Equipment Directive (WEEE), the FRITZ!Powerline 500E, as well as all devices and electronic components contained in the package, may **not** be disposed with household waste.

Please bring FRITZ!Powerline 500E to a collection point in your local community for the disposal of electric and electronic appliances after use.
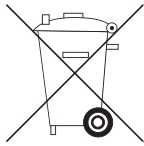
Symbol for the separate collection of electric and electronic devices

Note the symbol for the separate collection of electric and electronic devices. FRITZ!Powerline 500E and the electronic parts included with delivery must be disposed of separately from household waste.

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