Integrate photovoltaic systems with Powerline adapters into your home network

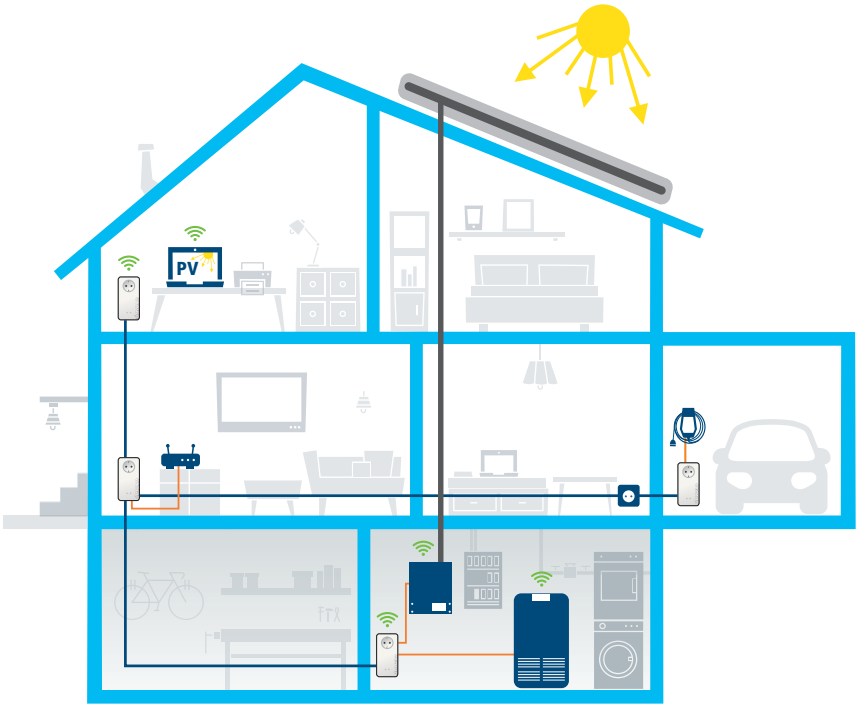
Renewable energies are on the rise around the globe. In particular, photovoltaic systems are a popular choice among homeowners. Technology has rapidly advanced in recent years. Photovoltaic systems (PV systems) have outgrown their role as "dumb" devices that just feed regenerative current into the public mains supply. They are now digitally networked. Owners can use a web portal or an app to get information about the performance and yield of their systems at any time. Incorporation of the PV system into an energy management system to ensure optimum use of your own electricity (keyword: self-consumption) is also standard these days.

Aside from the inverter, there are other devices which can be integrated into the entire system. Examples of these are an energy storage, a heat pump and a wall box in the garage – for charging the electric vehicle with your own electricity.

Background:
Photovoltaic systems are making a significant contribution to the energy revolution. The level of demand and interest from consumers and companies is still high. Apps and web-based applications are used for monitoring the systems and integrating them into energy management systems.

Challenge:
Inverters and, in certain cases, energy storage and wall boxes require a connection to the Internet. Routing Ethernet cables all over the house is complicated, and the spots where devices are installed often don't have stable Wi-Fi.

Solution:
With Powerline adapters, the Internet signal of the router can be distributed throughout the home over the electrical wiring. The result: Your inverter, storage system and wall box are reliably connected under the roof, in the basement or in the garage.



Plug & play: The inverter and other devices are connected to the Internet in no time. Just use an Ethernet cable to connect devices to the electrical socket adapter – and you're done! Wi-Fi-capable products don't even need a cable connection to the adapter.

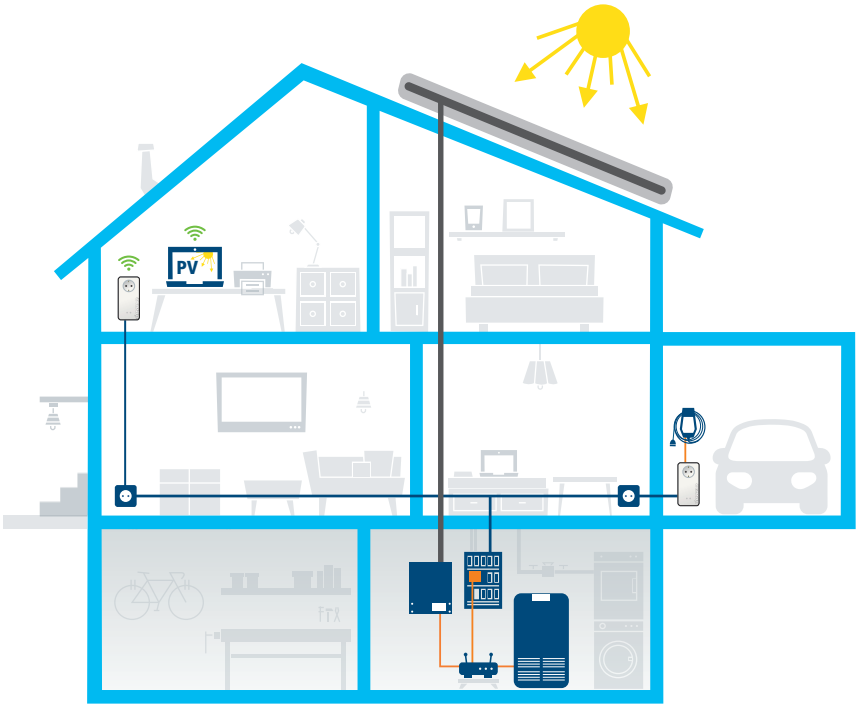
Internet in the basement

When renewable energy systems are installed or expanded, there is always a question about Internet availability at the specific location where the devices are installed. The Internet router is usually located in the living area. It's rarely in the basement, where inverters and storage systems are usually located. Network cabling is more the exception than the rule in residential buildings. And in most cases, the Wi-Fi signal hardly reaches the basement – let alone the garage where your electric car is parked. This presents a challenge to every solar installer and property owner.

Easily integrating an inverter and other devices into a home network

Using Powerline technology from devolo (also called PLC) provides a quick and easy solution that enables data communication over the household electrical wiring, allowing PV systems to be connected to the home network. These adapters transform the mains supply into a data highway that transports the Internet signal to any power socket in the home. There are various options for networking via PLC.

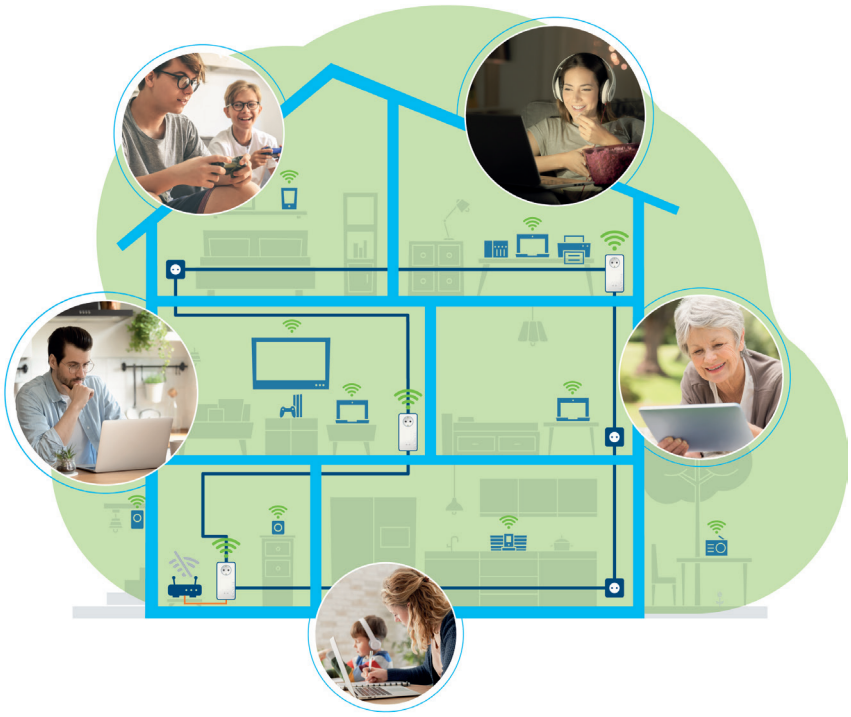
Option No. 1: Plug a PLC adapter into a power socket near the router and connect the adapter to the router with a cable. This feeds the Internet signal into the mains supply network. Additional devices can then be plugged into any power socket in the home – for example, in the immediate vicinity of the inverter, energy storage or wall box. They are then connected via LAN cable as well, which establishes the Internet connection. If the PV devices are Wi-Fi-capable, they can alternatively be connected to the Internet using the powerful Wi-Fi access point provided by a Powerline adapter from devolo.



With the devolo Magic 2 DINrail on the top-hat rail of the mains distribution panel, the router's Internet signal is distributed throughout the home over all 3 phases.

Option No. 2: Feed the Internet signal into the mains supply network. If the router is located near the fuse box, it makes sense to install a DIN rail adapter. This adapter is installed right inside the fuse box by the installer and connected to the router by cable. The DIN rail adapter from devolo maximises Powerline network performance using automatic phase coupling and devolo's patented signal coupling process.

Whether you choose the first or second option, the major advantage of Powerline technology for the PV installer and homeowner is that connecting the various PV system components to the Internet does not require routing any LAN cables through the home. Additional devices can also be connected seamlessly – even at a later point in time. There's nothing preventing you from expanding the PV system into an energy management system with an energy storage, heat pump or a wall box for electric vehicles – more specifically, the Wi-Fi signal won't be hindered by any ceilings or walls.



Making the whole house digital

Using a Powerline adapter for quickly and easily connecting an inverter and other devices to the Internet is not restricted to this one application scenario. The Powerline network reliably carries the broadband Internet signal from the router to any corner of the home and to any power socket. From online gaming in the children's room and video conference calls in the office to streaming shows in 4k quality in the living room: When installing a Powerline network for the purpose of connecting a PV system, you should take into account these other application options and simply set up a high-performance, future-proof home network.

devolo, the network specialist based in Aachen, Germany, offers what are currently the fastest Powerline adapters in the world today – namely the products from the devolo Magic 2 series. They are available as a LAN variant with up to three gigabit connections and as a Wi-Fi variant with two gigabit ports. Another feature of the Magic 2 series Wi-Fi products is that they provide a high-performance mesh network in the home. This means no more connection interruptions and it ensures that mobile devices such as smartphones, tablets and the like are automatically connected to the strongest Wi-Fi access point in the home.

The benefits of the Powerline network:

Plug & Play solution
No drilling or cable routing at the customer's location

Stable connection
The location doesn't matter – this even includes the basement or the garage

Ethernet or Wi-Fi
The right connection for any device

Maximum security
The latest encryption standard (WPA2 / WPA3)

The Powerline home network:

- Internet at any power socket
- Strong mesh Wi-Fi in any room
- The fastest Powerline adapter in the world
- It's easy to expand your home network by making additional purchases in retail stores or online

State-of-the-art Powerline technology

devolo is the first European provider of technology ever to rely on the second-generation G.hn* chips. The update to G.hn* means that the speed of the Powerline backbone has been increased enormously (currently as high as 2400 Mbps). The update also features improved stability and a greater range of up to 500 metres. G.hn chips are found both in Magic products as well as in Powerline solutions for industrial applications.

Our private lives are becoming more and more digitalised as we speak. More and more devices are being integrated into household networks, including home technology with photovoltaic and heating systems or the latest electric vehicles. Having a Powerline-based communication infrastructure lays the foundation for setting up an Ethernet or Wi-Fi access point for digital devices in any room.

You can find additional information on our website:
www.devolo.global/pv

*G.hn

G.hn is a technical standard developed by the International Telecommunication Union (ITU) and supported by numerous organisations, including the HomeGrid Forum industrial association. devolo AG experts are playing an active role in the development of this standard.

Do you have questions for us?

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Find out for yourself
which devolo solution suits your requirements.

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