



Advantages of Fronius GEN24 Plus backup power solutions

Feature description

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1 Introduction

Use of PV systems for self-supply is now widespread and is contributing to sustainable energy generation. In times of power outages, the question arises as to how a photovoltaic system can be used to maintain the power supply. This is where the importance of intelligent hybrid inverters comes into play.

Not every PV system is also capable of functioning as a backup power source – for this, hybrid inverters are indispensable. The Fronius GEN24 Plus hybrid inverter goes a step further by offering demand-oriented backup power options that ensure maximum flexibility and independence.

In the next chapter, we will discuss Fronius backup power solutions in detail and highlight the benefits of these innovative technologies. We will show how these solutions help reliably maintain the power supply even during power outages.

2 Backup power options for Fronius GEN24 Plus inverters

This chapter describes the demand-oriented backup power options PV Point and Full Backup for Fronius GEN24 Plus inverters.

2.1 PV Point - description and advantages

PV Point is a **backup power function** that is integrated into the GEN24 and GEN24 Plus inverters as standard, ex works and free of charge. This innovative function makes it possible to reliably supply a socket or small consumer circuits with energy in the event of a power failure. PV Point provides up to 3 kW of continuous single-phase power, making it ideal for maintaining the power supply to important consumers or household appliances.

Another feature of PV Point is its ability to provide higher power for a short period of 5 seconds. This is particularly useful for supplying loads with higher starting currents. Depending on the inverter model, such as the Symo GEN24 and GEN24 Plus, PV Point can even provide up to 4.1 kW of power during this period. For Primo GEN24 and GEN24 Plus, this output is 4.7 kW. This makes it possible to operate appliances and machines with increased power requirements at short notice, without having to rely on additional external backup power sources.

The transition to backup power operation is fully automatic.

A decisive advantage of PV Point is its simple installation and low installation costs. Unlike some other backup power solutions, PV Point does not require any additional switching components in the switch cabinet. This means you save time and money, as no extensive conversions or additions are required. The only requirement is to protect the consumer circuit or socket outlet with a type A 30 mA RCD.

Another significant advantage of PV Point is its independence from batteries, provided that sufficient energy is generated by the PV modules. This means PV Point can operate in backup power mode without relying on a battery. This provides a cost-effective solution for maintaining the power supply if you already have a PV system installed. Of course, PV Point also works optimally in combination with a battery.

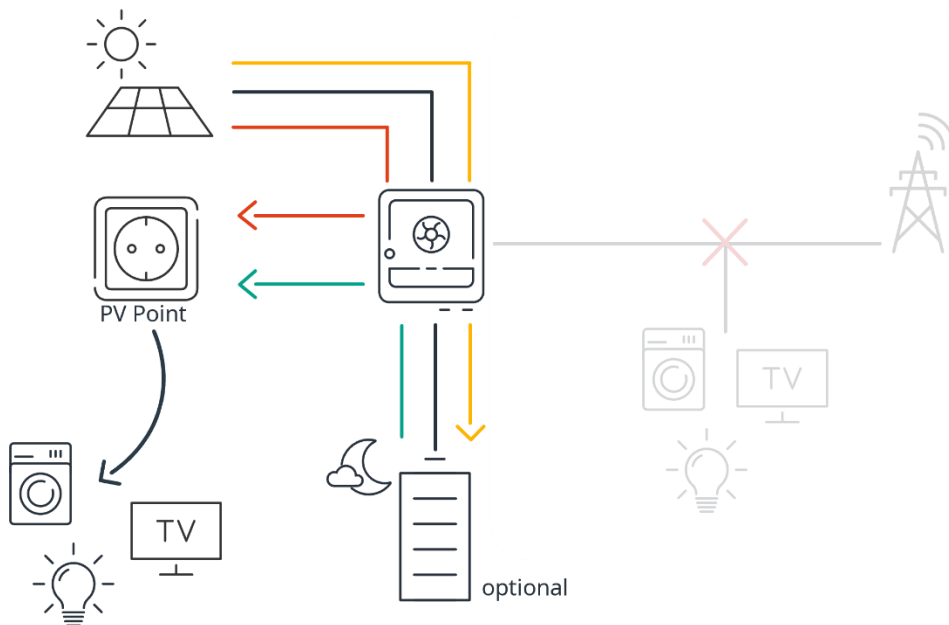


Figure 1: Representation of the energy flows in PV Point operation

Overall, PV Point offers an efficient and cost-effective way to maintain the power supply to important consumers when the public power grid fails.

2.2 Full Backup - description and advantages

The Full Backup solution for Primo and Symo (6.0 - 10.0) GEN24 Plus hybrid inverters provides a backup power function that supplies the entire house with single-phase and three-phase power during a power

outage. This also includes large consumers such as heat pumps and real three-phase consumers such as motors. In principle, the full output power of the inverter can also be called up in backup power mode (e.g. 10 kW for the Symo GEN24 10.0 Plus). In addition, the Full Backup solution can provide higher power for a short time (5 seconds), with the Primo GEN24 Plus (all power classes) reaching 6,200 watts and the Symo GEN24 6.0 - 10.0 Plus 12,400 watts.

Switching to Full Backup mode can be done either **manually** or **fully automatically**. With **manual switchover**, the customer is in control and can decide when they want to switch to backup power mode by pressing a switch. This robust manual switchover requires fewer components and enables space-saving installation in the control cabinet.

In contrast, with **automatic switchover**, the transfer to backup power mode takes place automatically after the mains has failed. This offers the advantage that critical consumers such as cooling appliances are supplied even if the homeowners are not at home during the power failure. To install the automatic transfer switch, the necessary components are either integrated directly into the switch cabinet, or a switch box is installed outside the switch cabinet.

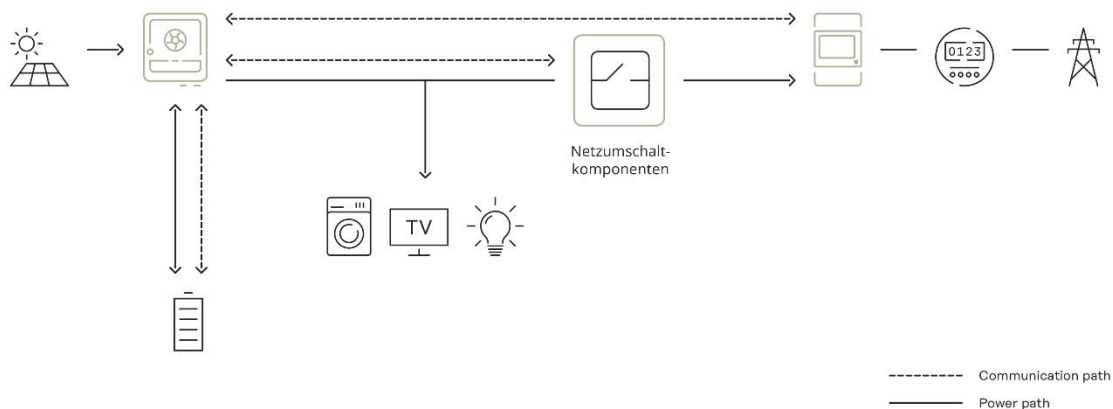


Figure 2: Illustration of a PV system with Full Backup option

It is important to note that many backup power systems available on the market advertise inverter-integrated backup power solutions for the entire household, but these systems have some significant disadvantages:

- Only a few loads can be operated when using a backup power supply. If the power limit is exceeded, the inverter switches off and the loads are no longer supplied. This could happen, for example, with heat pumps with higher starting currents or when charging an electric car. This also applies in normal grid-connected operation and during maintenance work on the inverter.

- Emergency circuits must be defined, which can be extremely complex, especially for retrofits in existing buildings.
- Certain loads are excluded from the integrated backup power function, which can lead to undesirable problems. One example of this is asymmetrically operated loads, such as a multi-stage hair dryer on level 1, which can impair or damage other loads in backup power mode.

The Full Backup solution for the Primo GEN24 Plus and Symo GEN24 6.0 - 10.0 Plus inverters overcomes these limitations and offers a comprehensive and reliable backup power supply for the entire house and all loads, including large three-phase appliances or asymmetrically operated loads such as the hair dryer on level 1. This makes them an outstanding option for those who require maximum availability and performance in the event of a power failure.

3 Conclusion

In this paper we have presented the demand-oriented backup power options for the Fronius GEN24 Plus inverter from Fronius. Each backup power solution offers its own unique advantages. This gives each customer the opportunity to choose the best solution according to their individual needs. This guarantees maximum independence and ensures that the power supply can be reliably maintained during a power outage. The variety of options available enables users to find the right backup power solution and retain control over their energy supply.