

Application Guide PV Point Fronius GEN24 Plus Series

Application Guide

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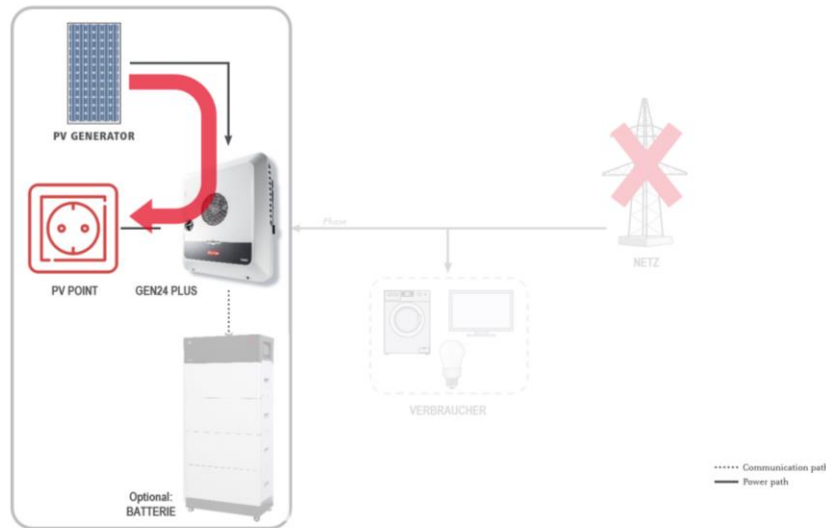
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Gender-specific wording refers equally to female and male form.

1 INTRODUCTION

The PV point represents the **basic emergency power function of the GEN24 Plus series** and is integrated as standard ex factory .It is a s socket that is only supplied in case of grid outage based on the currently available PV generator power (or available battery). The switch happens automatically by the inverter and doesn't require any additional grid separation components. Every important single phase consumer in the household **up to 3 kW** can be supplied by the PV point. A PV point installation **does not (necessarily) require battery storage** – an installation of a storage unit is optional. The function of the PV point is depicted in Picture 1.

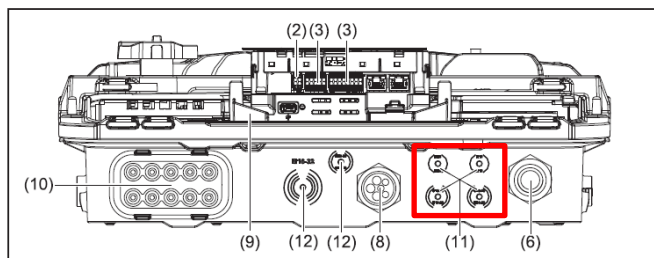


Picture 1: Scheme of the basic emergency power function (PV Point) of the Fronius GEN24 Plus Series

2 INSTALLATION

2.1 Preparation of the hardware

The installation of the PV Point requires a **modification of the base unit**. For this there are four predefined exit points marked on the bottom of the inverter, which can be used for the PV point installation. The bottom of the GEN24 Plus series including the exit points is shown in Picture 2.



Picture 2: Bottom of the GEN24 Plus inverter series including the four predefined markings for the exits.

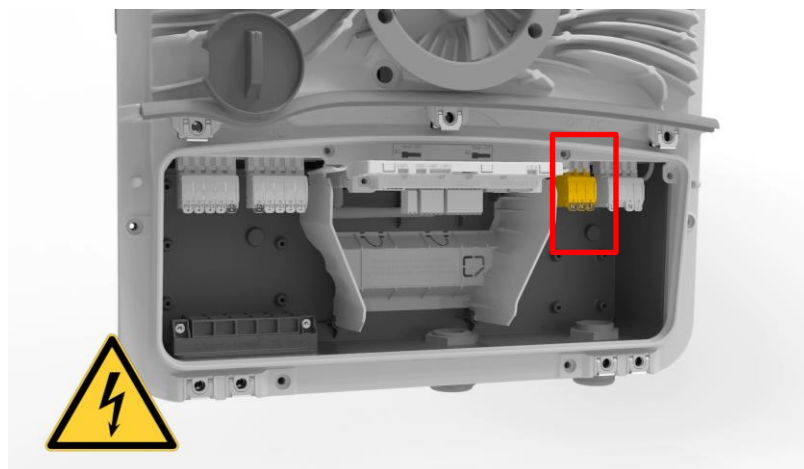
The first step consists of drilling through one of the four exit points on the base unit. It would be recommended to use a step drill (M16 / 16 mm diameter). As soon as the drilling is finished, a PG screw connection should be inserted on the modified area, in order to ensure the highest safety class IP66. The drilling process as well as the base unit with the inserted PG screw connection can be seen in Picture 3.



Picture 3: Drilling the base unit and inserting PG-screw connection at the modified area.

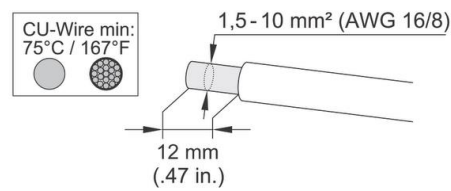
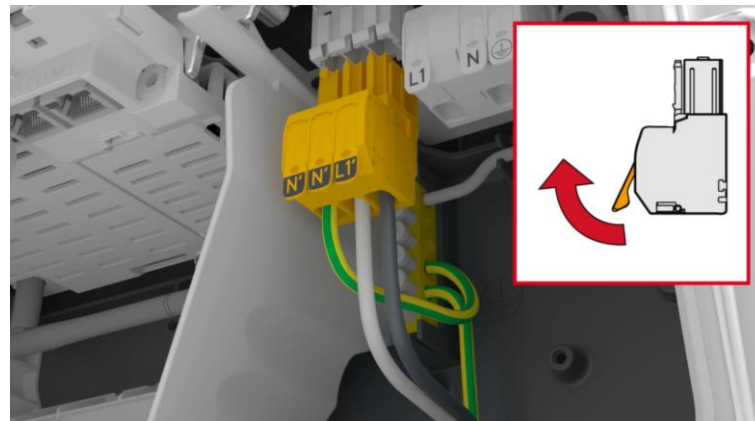
2.2 Cabling

After successfully inserting the cable gland, the cable can be pulled through and connected to the inverter. The GEN24 Plus series has its own intended exit / own push in spring clamp for the PV point on the AC side, that is depicted in Picture 4.



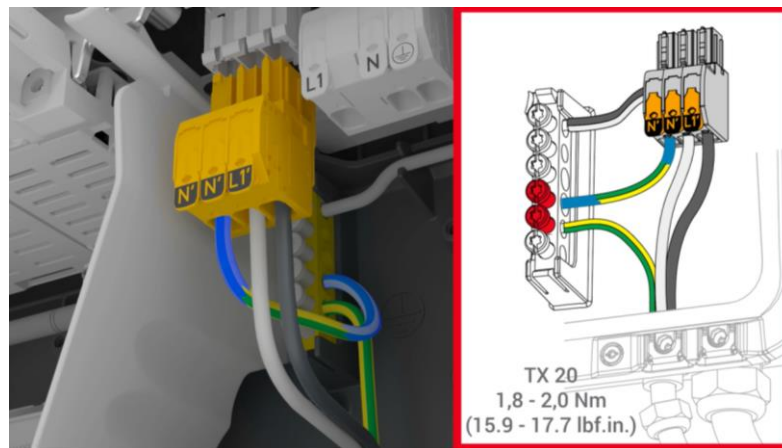
Picture 4: Fronius GEN24 Plus connection area with the PV point push in spring clamp

The push in spring clamp is distinguished by its easy usability, which enables a fast installation. When installing the PV point there are no special tools nor adding wire end ferrules to the cable required. Regarding cables Fronius recommends the usage of **a copper cable with a cable cross section of min. 1,5 mm² to max. 10 mm² for direct connection to the inverter.** Picture 5 shows the requirements for the cables as well as the handling and the functionality of the push in spring clamp:



Picture 5: Push in spring clamp and requirements for the installation cables of the PV Point

The push in spring clamp of the PV point can be removed with a push of the clasp on the backside. The grounding of the PV point has to be connected on top of the internal grounding terminal block. An additional grounding cable has to be executed from the grounding terminal block to the PV Point (PEN conductor). The cabling inside the inverter is depicted in Picture 6.



Picture 6: Cabling of the PV point inside the inverter

The completion of the installation is the screwing of the cable entry, which is shown in Picture 7.



Picture 7: Screw connection of the cable entry

2.3 Manual switchover to PV Point backup power operation

PV Point backup power operation can also be realised with a manual switchover. For example, a specific circuit (single-phase, up to 3 kW) can be supplied via the PV Point. The advantage of this is that this circuit is also supplied in grid-connected operation. If a backup power situation arises, the switch must be activated and the circuit is supplied via the PV Point, as long as energy is available from the PV system or the battery storage.

Important: For manual switchover, a switch with zero position (grid operation-0-backup power operation) is required as shown in Figure 8.

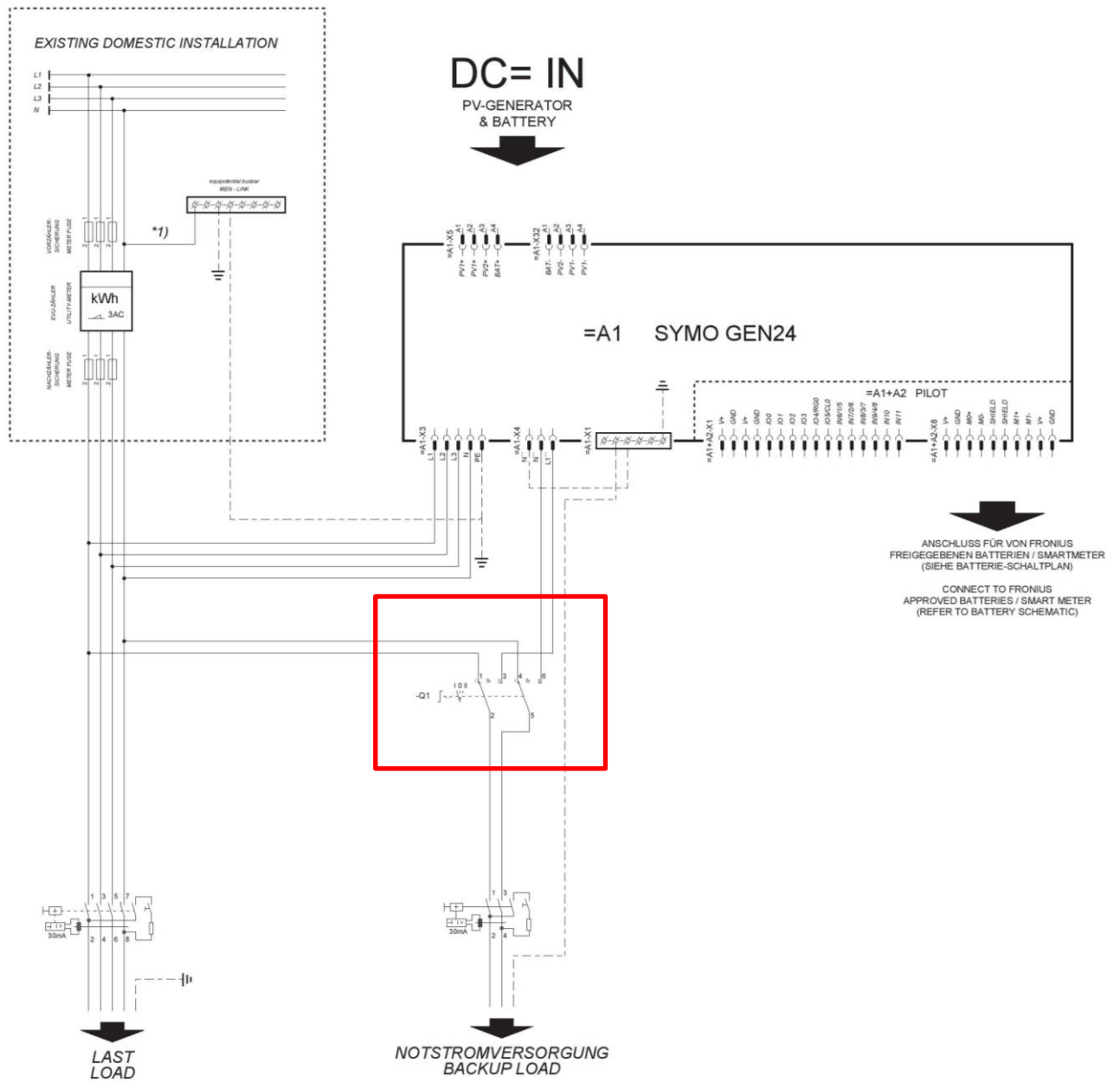
After the failure of the public grid, the inverter terminates grid-connected operation.

If the PV Point backup power function is activated and all required connection tests have been carried out, the inverter starts backup power operation. Voltage is now present at the “OP” connection terminal of the inverter, to which the PV Point is connected. Switch Q1 can be used to switch from switch position 1 (grid operation) via switch position 0 to switch position 2 (backup power operation). All loads that are integrated in the backup power circuit are supplied via the PV Point. The remaining loads and the public grid are safely separated.

When the public grid is available again and is considered stable, the inverter automatically terminates the PV Point backup power operation. No voltage is present at the “OP” terminal of the inverter, to which the PV Point is connected. The inverter restarts grid-connected operation. Switch Q1 can be used to switch from switch position 2 (backup power operation) via switch position 0 to switch position 1 (grid operation). The loads in the backup circuit are supplied from the public grid like the other loads.

The changeover switch Q1 used must be dimensioned for the fuses installed upstream or for the maximum current intensity occurring. The backup circuits must be protected with their own residual current circuit breaker.

Attention / Note: This manual override configuration is NOT compliant in Australia and therefore should NOT be used in Australia



Picture 8: Circuit diagram for manual switchover to PV Point backup power operation

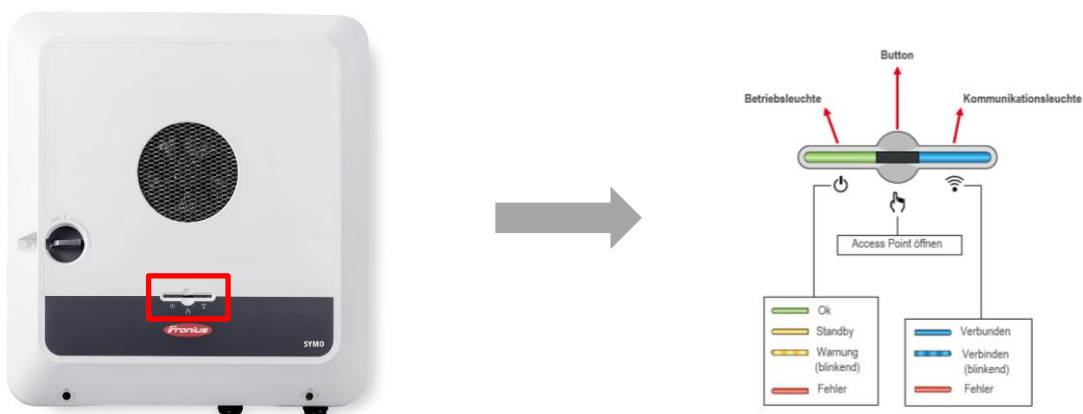
3 COMMISSIONING

The commissioning of the PV Point is done via the web user interface of the inverter and can be activated during the initial commissioning (or in a later state). Fronius recommends implementing the commissioning via the “**Fronius Solar.start**” app, which is available for free in the Google Play Store as well as for IOS. The Fronius Solar.start app is identified by the following icon. (Picture 9)



Picture 9: Fronius Solar.start app icon

The basic requirement for both of the ensuing options is the access to the web user interface of the Fronius GEN24 Plus devices. The inverter opens its local network automatically with a singular and quick press of the button on the front of the device, on which every mobile end device (laptop, smartphone, etc....) can be connected. The LED communication interface with its function is depicted in Picture 10.



Picture 10: Opening the local network (Wi-Fi access point) of the Fronius GEN24 Plus inverter series and description of the LED pattern functions

The response of the inverter is signified by a blinking blue light of the communication LED and the connection to the inverter can be executed (via app or Wi-Fi/LAN). The network (via Wi-Fi connection) can be spotted by following parameters:

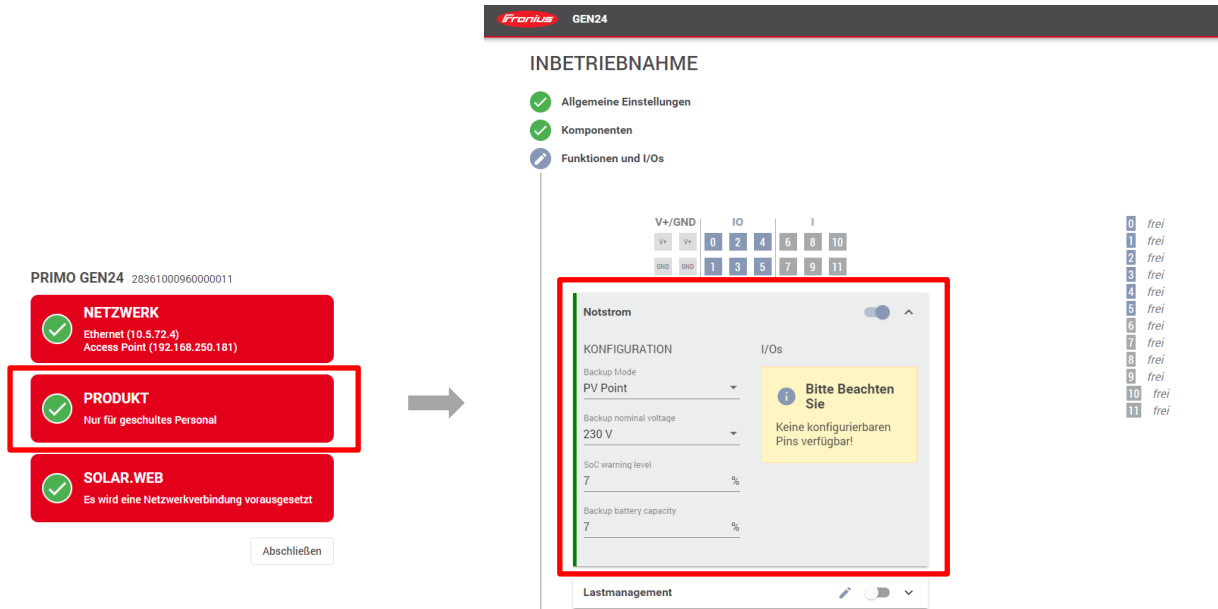
- / **Name:** FRONIUS_Pilot-series number
- / **Password:** 12345678

Opening a web browser (Fronius recommendation: Google Chrome) and typing in the IP address **192.168.250.181** starts the installation assistant. A LAN connection demands a different IP address. The mandatory IP address for such a LAN connection is 169.254.0.180.

3.1 Activating the PV point during the initial commissioning process

The PV point can already be activated in the commissioning assistant “product wizard” under the menu item “functions and I/O’s” during the initial commissioning process. It is important to activate the basic emergency

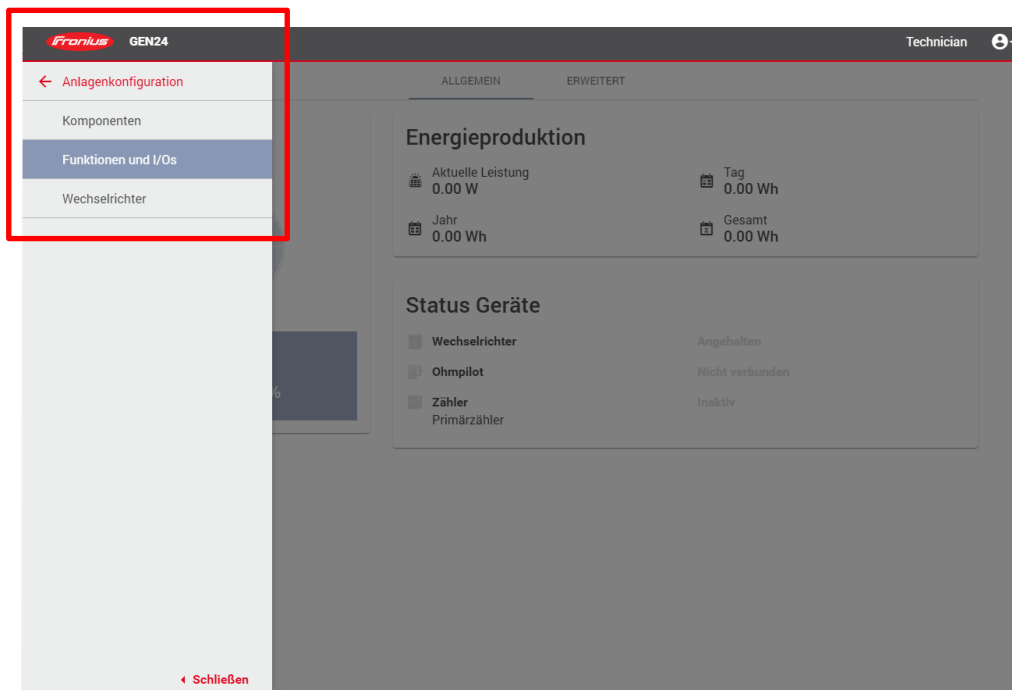
power function and the mode “PV point”. Picture 11 depicts a photo gallery of the most important steps and settings.

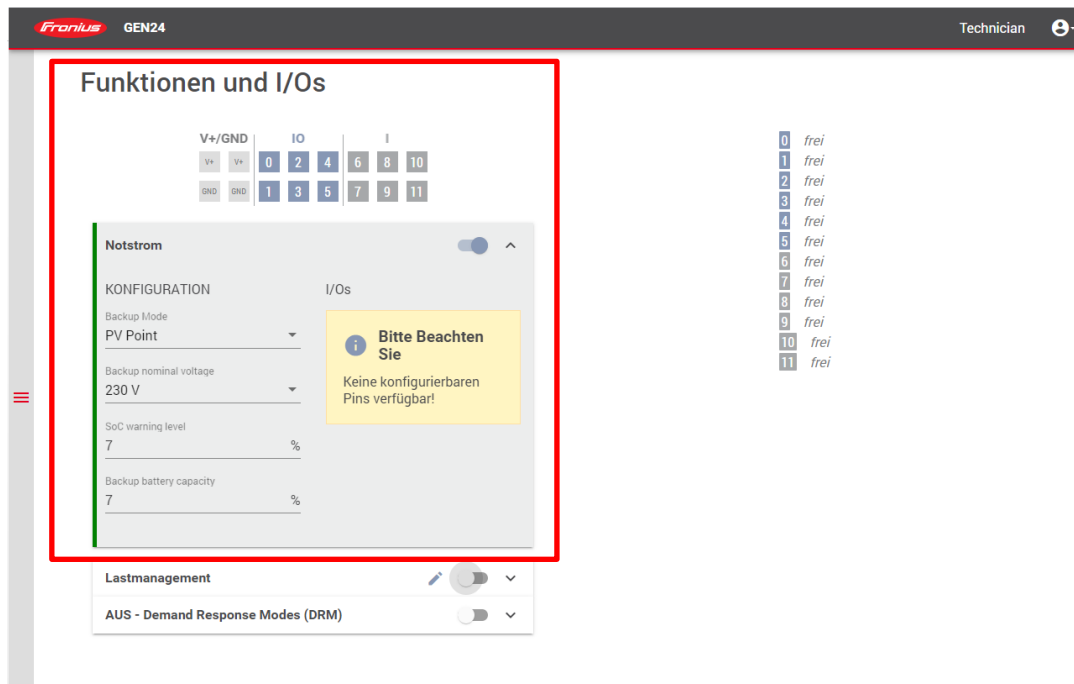


Picture 11: Activation of the PV point in the product wizard during the initial commissioning process of the GEN24 Plus inverter

3.2 Activating the PV point at a later time

The PV point can also be installed and activated any time after the installment of the inverter. In this case too, it is mandatory to connect to the web user interface of the inverter after the installation. For the activation you have to navigate through the home page to the menu item “system configurator” and afterwards to “functions and I/O’s”, where again basic emergency power function and the mode “PV point” can be set. Picture 12 shows a photo gallery of the most important steps and settings.





Picture 12: Activation of the PV point on the web user interface at a later stage

After the successful installation and commissioning Fronius recommends a functional test with the PV point. The switch over time takes below 90 seconds.

4 WHAT DO YOU NEED TO CONSIDER REGARDING THE SOCKET?

Important for the socket of the PV point is, that it is secured with a RCD (type A 30 mA) in order to guarantee personal protection and to secure conformity to standards. An easy option would be a sockets with integrated RCD, which is shown in Picture 13:



Picture 13: Socket with integrated RCD

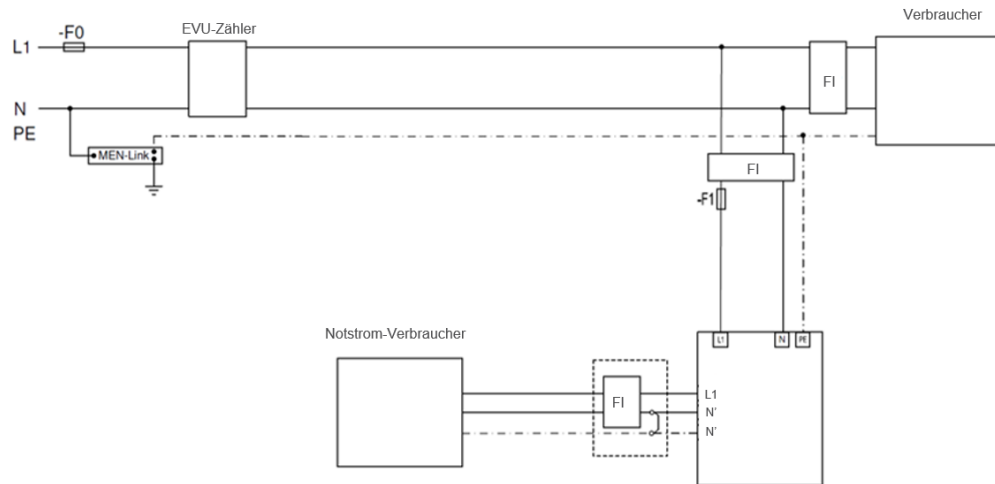
A possible manufacturer of sockets with integrated RCD would be (type designation)

- / Busch-Jaeger 3120 EWB-53 FI-SCHUKOMAT Schuko-socket with earth leakage circuit breaker

In addition to the solution with an integrated RCD, there is also the cheaper option of installing the necessary components in a small distribution board. The following components can be used for this purpose, for example:

- / 1 piece surface-mounted housing with 5 partition units and transparent cover
- / 1 piece RCD circuit breaker type A 30mA
- / 1 piece Schuko socket outlet for top-hat rail

5 ATTACHMENT



Fronius International GmbH
Solar Energy

Wels, 05.06.2020