TN034 – sonnenBatterie Hybrid 9.53 export control settings

The sonnenBatterie Hybrid 9.53 is now capable of limiting export from its DC-coupled PV following a new software update version 1.5.5 in December 2020. By referencing the measurement at the grid connection point and not at the AC output of the inverter, the sonnenBatterie Hybrid 9.53 can manage its DC-coupled PV generation to ensure the compliance with the applied export limit.

It is important to note that while this method accounts to all PV production from any available grid-connected PV inverters the sonnenBatterie Hybrid 9.53 can only limit its own PV production. Installers are still required to apply export limit on any third-party PV inverters as there is no communication established with the sonnenBatterie Hybrid 9.53.
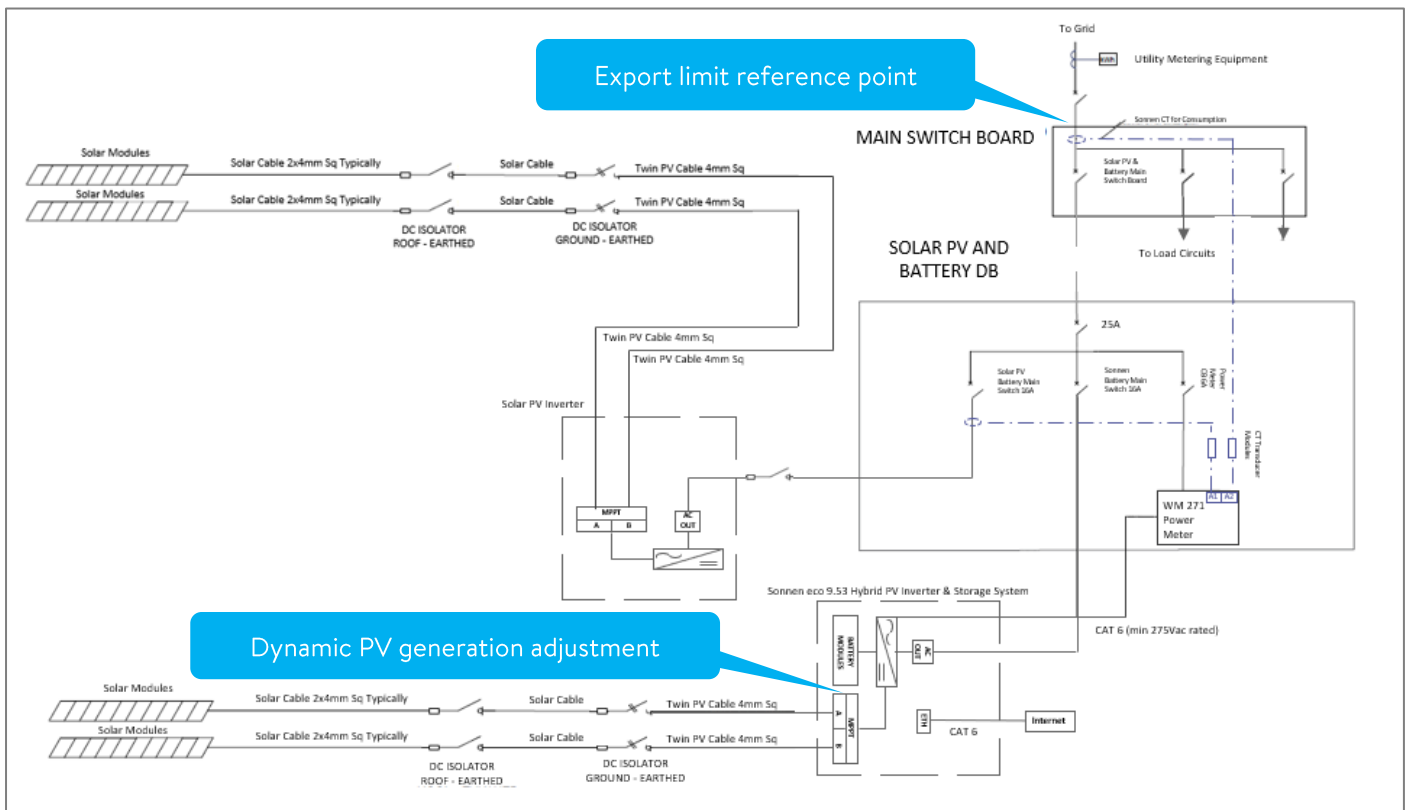

Figure 1 – Typical sonnenBatterie Hybrid 9.53 installation with a single third-party PV inverter

Sonnen Australia Pty Ltd
Level 3, Suite 3.01 | 61 Dunning Avenue,
Rosebery | NSW 2018
ACN 611 337 547
13 SONNEN (137 666)
service@sonnen.com.au

The following steps describe the settings in Commissioning Assistant 2.0 to enable export control on the sonnenBatterie Hybrid 9.53.
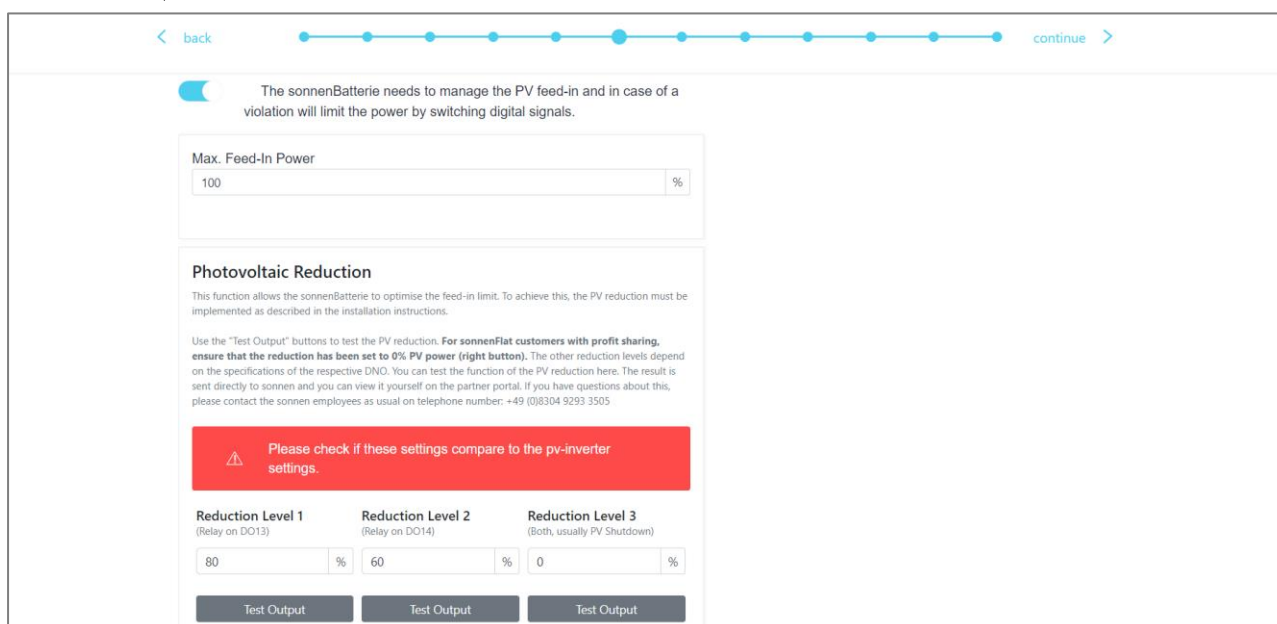
1. In Commissioning Assistant 2.0 navigate to the "PV System" section as below:
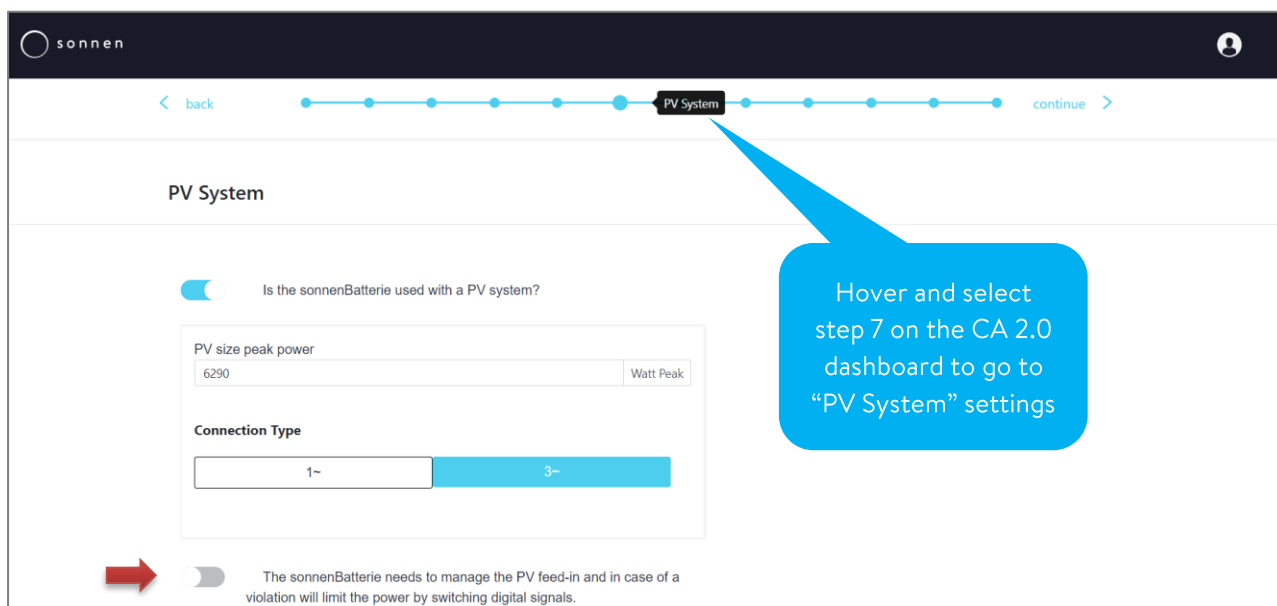
Note:
a) The **PV size peak power** refers to the combined total of PV array size connected to the DC-couple port on the sonnenBatterie Hybrid 9.53 and any AC-coupled PV via third party inverters.
b) Under the **Connection Type** is a toggle to enable the export limit feature. This needs to be enabled.

2. Once the export limit feature is enabled the following PV reduction settings will become available.

Sonnen Australia Pty Ltd
Level 3, Suite 3.01 | 61 Dunning Avenue,
Rosebery | NSW 2018
ACN 611 337 547
13 SONNEN (137 666)
service@sonnen.com.au

3. The **Max. Feed-In Power** parameter will be the setting for export limiting the sonnenBatterie Hybrid 9.53 and is a relative factor in percentage of the 'PV size peak power' (combined DC-coupled and AC-coupled PV size). It can be set between 0-100 as required.

4. Below are some examples to illustrate how the settings mentioned earlier can be applied.

   a) If a system is installed with $5kW_p$ of DC-coupled PV and without AC-coupled PV, the **PV size peak power** parameter will need to be set to **5000W**. To achieve a maximum export of $2.5kW_{ac}$ the **Max. Feed-In Power** will then need to be set to **50%**.

   b) Suppose that the batteries are fully charged, while the DC-coupled PV is generating $4kW_{ac}$, therefore:

      i. if the load is $2kW_{ac}$, the hybrid inverter will not reduce the PV as the grid export in this scenario will be under the $2.5kW_{ac}$ limit (grid export= $2kW_{ac}$).

      ii. however, if the load is $1kW_{ac}$, the hybrid inverter will then reduce the PV to $3.5kW_{ac}$ to meet the $2.5kW_{ac}$ export limit requirement.

   c) If a system is installed with $5kW_p$ of DC-couple PV and integrated with a $5kW_p$ AC-coupled PV through a third-party inverter, the **PV size peak power** will then need to be set to **10000W**. To achieve a maximum export $2.5kW_{ac}$ the **Max. Feed-In Power** will then need to be set to **25%**.

In general, the calculation can be expressed as:

$$\text{Max. Feed In Power} = \frac{\text{Export Limit [W]}}{\text{PV size peak power [W]}} * 100\%$$

If you have any further questions or require support or assistance, please contact us at service@sonnen.com.au.

Yours faithfully,

Aylmer Ambu
Technical Sales Engineer Australia & New Zealand