Dynamic power reduction for mixed systems with Fronius GEN24 Plus inverters

Application Guide

Version 1 04/2021

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1 GENERAL

When the Fronius GEN24 Plus is operated in combination with additional inverters, the following particularities must be observed with regard to dynamic power reduction.
This planning aid is intended to help you to identify the necessary components and apply specific settings depending on the system configuration.

How can a dynamic power reduction be implemented?

For the time being, a distinction must be made between two main types of mixed systems.

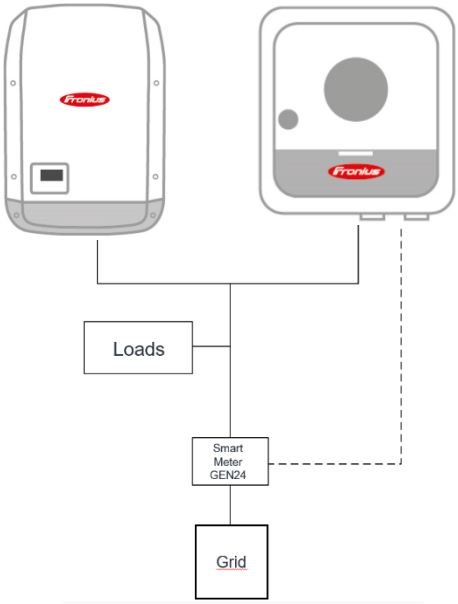
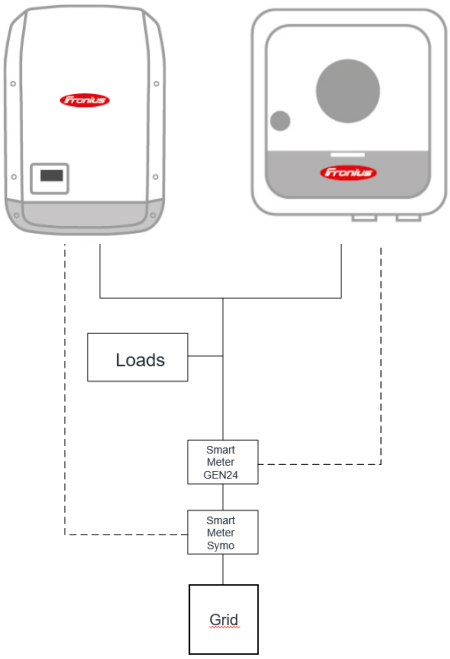
Scenario A: The GEN24 Plus inverter takes care of the power reduction of the entire system.

Scenario B: The additional inverters in the system take care of the power reduction of the entire system.

There is also the option of deploying an external control unit for the power reduction of the inverters. This is particularly recommended for large photovoltaic systems with several inverters operating in combination.
Tested third-party components:

- Solar-Log: Base Series (15, 100, 2000)
- meteocontrol: blue'Log X-Series

IMPORTANT!
Zero feed-in with mixed systems (GEN24 Plus in combination with other inverters) is possible only with the specified third-party components.

	Scenario A	Scenario B
Type of mixed system:	 Example: 10 kW 5 kW	 Example: 10 kW 20 kW
Conditions:	Feed-in limit for the entire system [W] **≥** Generator output to additional inverter(s) [Wp] +10% AC nominal capacity GEN24 [W]	Feed-in limit for the entire system [W] **<** Generator output to additional inverter(s) [Wp] +10% AC nominal capacity GEN24 [W]
Rule of thumb:	Systems in which the output of the additional inverter(s) is smaller than or equal to that of the Fronius GEN24 Plus inverter can usually effect the dynamic power reduction without additional components.	Systems in which the output of the additional inverter(s) is greater than that of the Fronius GEN24 Plus inverter usually require an additional Fronius Smart Meter for the dynamic power reduction.
Regulation of the dynamic power reduction by:	Fronius GEN24 Plus	The additional inverters in the system take over regulation
Additional components required:	None	Fronius Smart Meter
Necessary settings:	- Power limit on the GEN24 Plus - No limit for the additional inverter(s)	- Power limit for the additional inverter(s) - No limit on the GEN24 Plus
System diagram:		
Note		It is essential to create the two subsystems in Solar.web as separate systems. A third Smart Meter is required if you want to display these as a single system (special case – see Example 3)

2 EXAMPLE 1 - SCENARIO A

Total system power:	20 kWp	
Feed-in limit:	70% of the total system power = 14 kW	
System configuration:		
	Fronius GEN24 10.0 Plus	12 kWp
	Fronius Symo 7.0-3-M	8 kWp

Conditions: 14000 W ≥ 8000 Wp + 10% of 10000 W → 14000 W ≥ 9000 W → Conditions met

➔ Scenario A

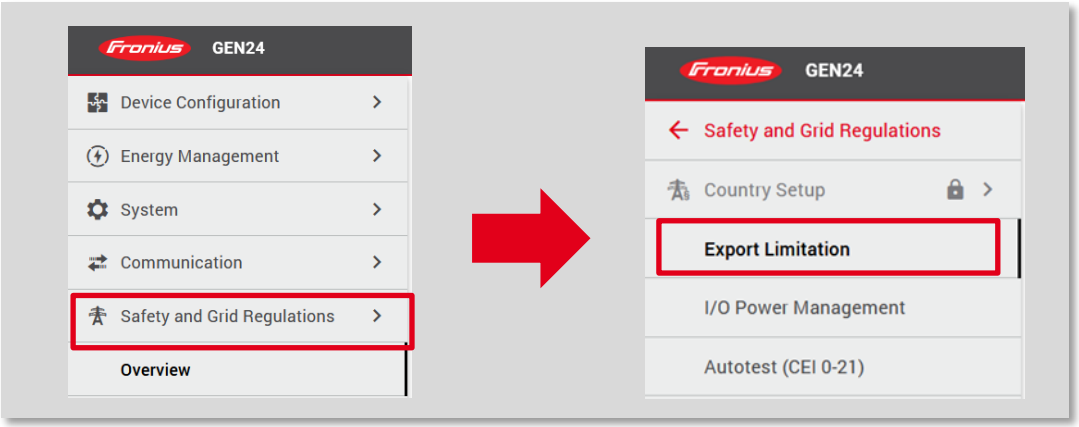
In this example, the Fronius GEN24 Plus can take over full regulation for the dynamic power reduction of the entire system. No additional components are required!

2.1 Web interface settings

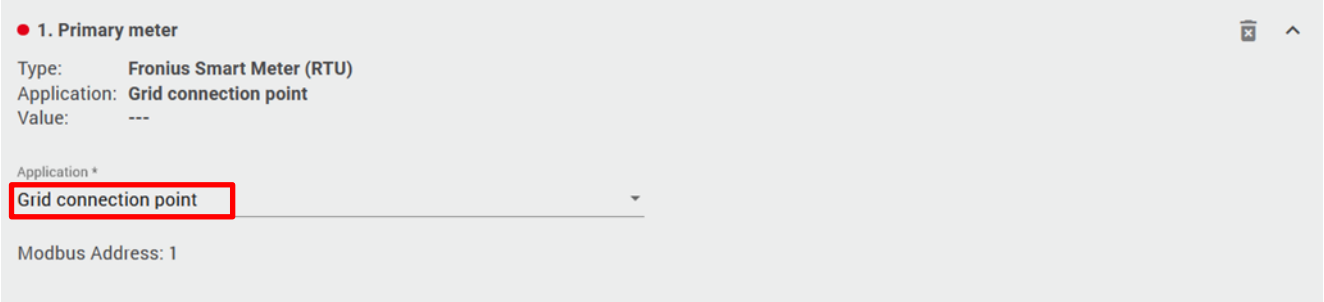
2.1.1 Settings on the web interface of the Fronius GEN24 10.0 Plus

Safety and grid requirements → Feed-in limit:

/ Select "Limit for the entire system." Enter the DC system power and feed-in limit



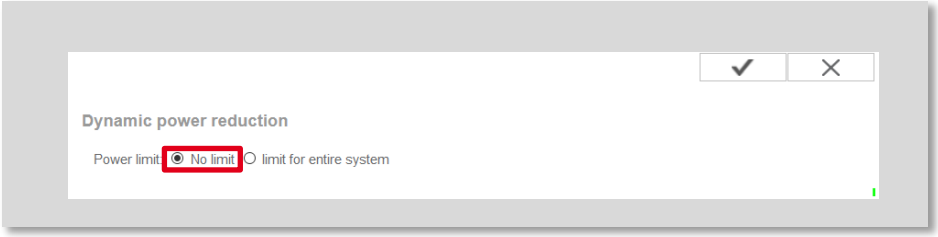
Please note that the meter must be installed at the feed-in point and configured:

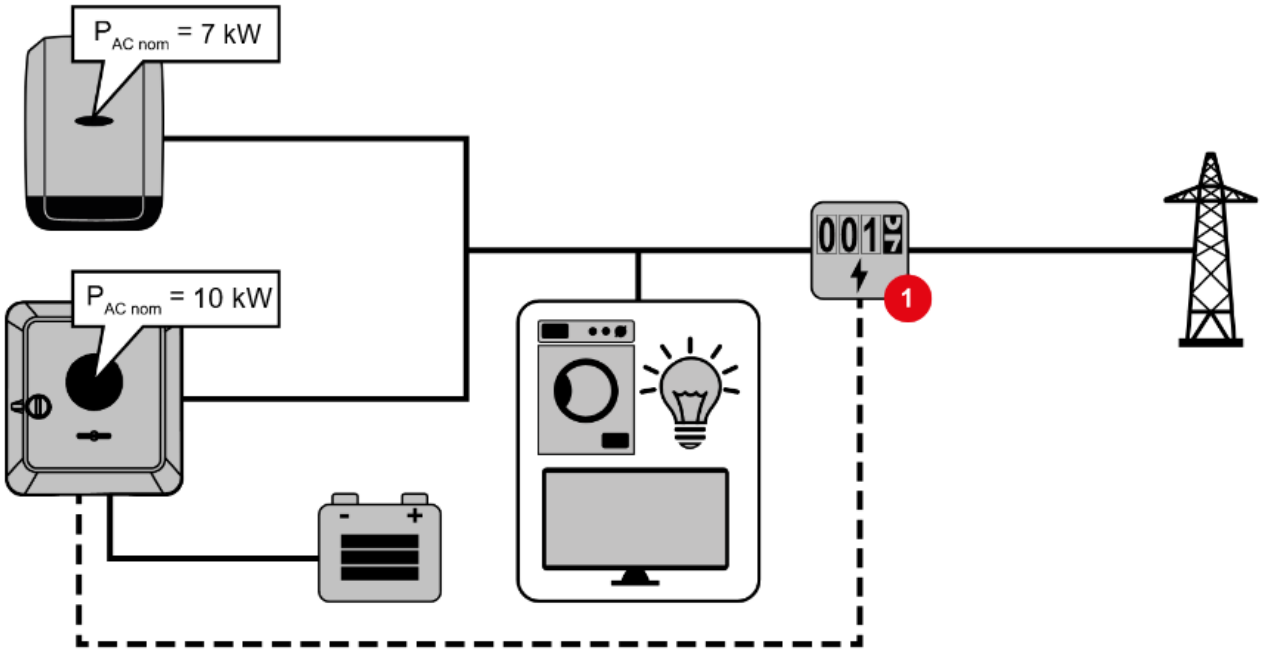


2.1.2 Settings on the web interface of the Fronius Symo 7.0-3-M (additional inverter)

➔ No particular setting necessary

2.2 System diagram





1 Primary meter

2.2.1 Solar.web connection

In this example, the photovoltaic system can be visualized and analyzed as a complete system in Fronius Solar.web. For this purpose, the GEN24 Plus inverter must be brought online and created in Solar.web. The additional inverter (in this example the Symo 7.0-3-M) is also brought online and then added as an additional data source in the GEN24 Plus system in Solar.web.

3 EXAMPLE 2 - SCENARIO A

Total system power:	25 kWp	
Feed-in limit:	70% of the total system power = 17.5 kW	
System configuration:		
	Fronius GEN24 10.0 Plus	12.5 kWp
	Fronius Symo 10.0-3-M	12.5 kWp

Conditions: 17500 W ≥ 12500 Wp + 10% of 10000 W → 17500 W ≥ 13500 W → Conditions met

➔ Scenario A

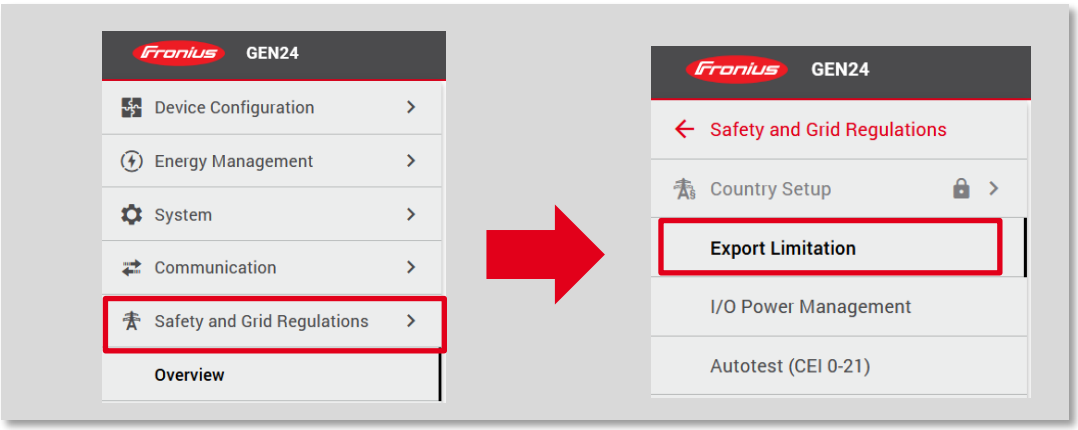
In this example, the Fronius GEN24 Plus can take over full regulation for the dynamic power reduction of the entire system. No additional components are required!

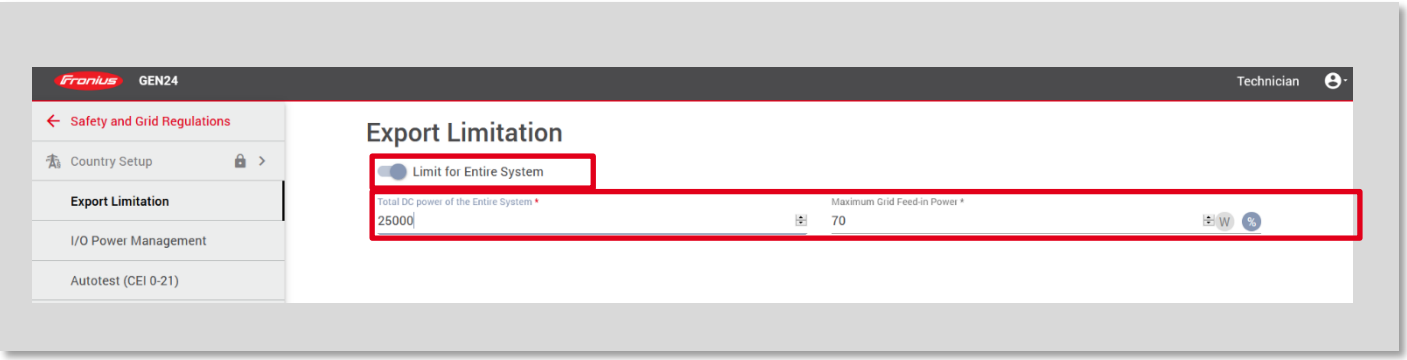
3.1 Web interface settings

3.1.1 Settings on the web interface of the Fronius GEN24 10.0 Plus:

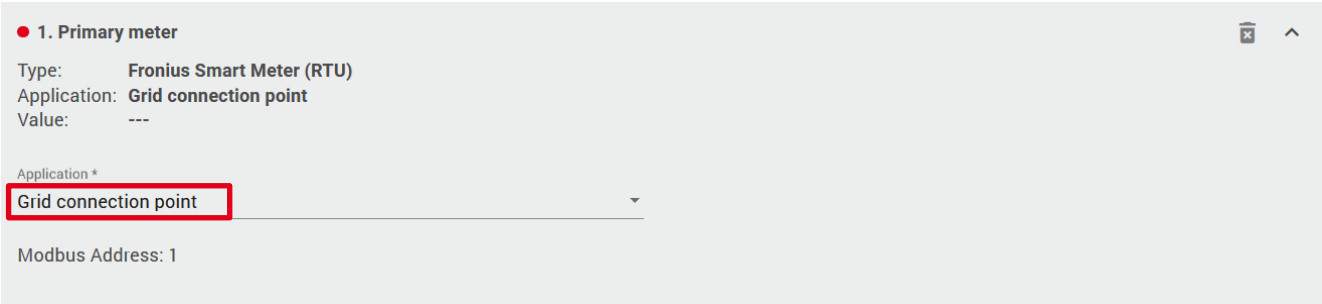
Safety and grid requirements → Feed-in limit:

/ Select "Limit for the entire system." Enter the DC system power and feed-in limit



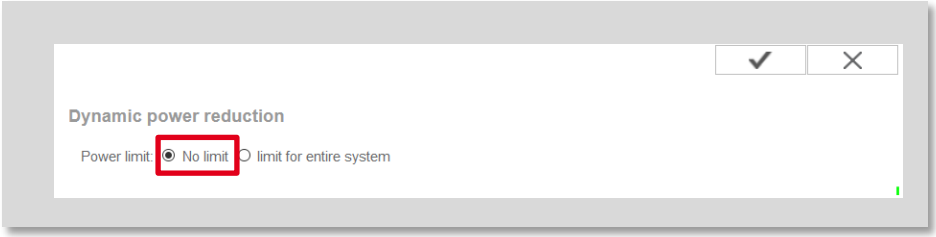


Please note that the meter must be installed at the feed-in point and configured:

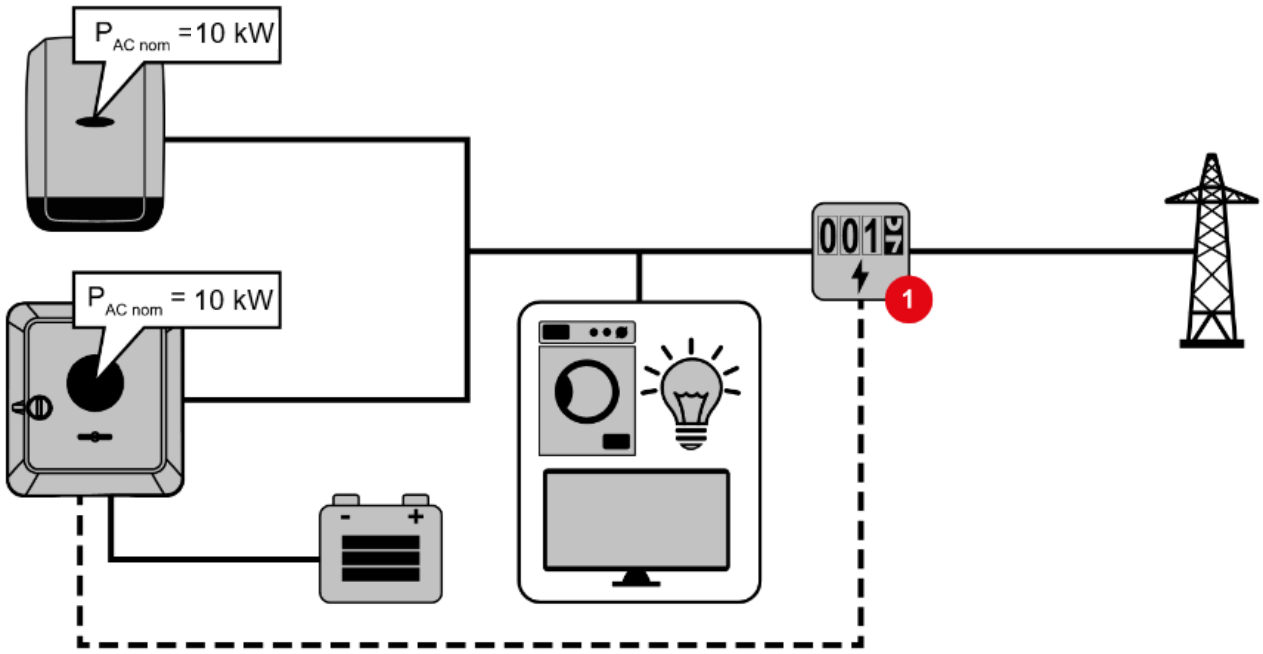


3.1.2 Settings on the web interface of the Fronius Symo 7.0-3-M (additional inverter):

➔ No particular setting necessary



3.2 System diagram



1 Primary meter

3.2.1 Solar.web connection

In this example, the photovoltaic system can be visualized and analyzed as a complete system in Fronius Solar.web. For this purpose, the GEN24 Plus inverter must be brought online and created in Solar.web. The additional inverter (in this example the Symo 10.0-3-M) is also brought online and then added as an additional data source in the GEN24 Plus system in Solar.web.

4 EXAMPLE 3 - SCENARIO B

Total system power:	25 kWp	
Feed-in limit:	50% of the total system power = 12.5 kW	
System configuration:		
	Fronius GEN24 10.0 Plus	10 kWp
	Fronius Symo 15.0-3-M	15 kWp

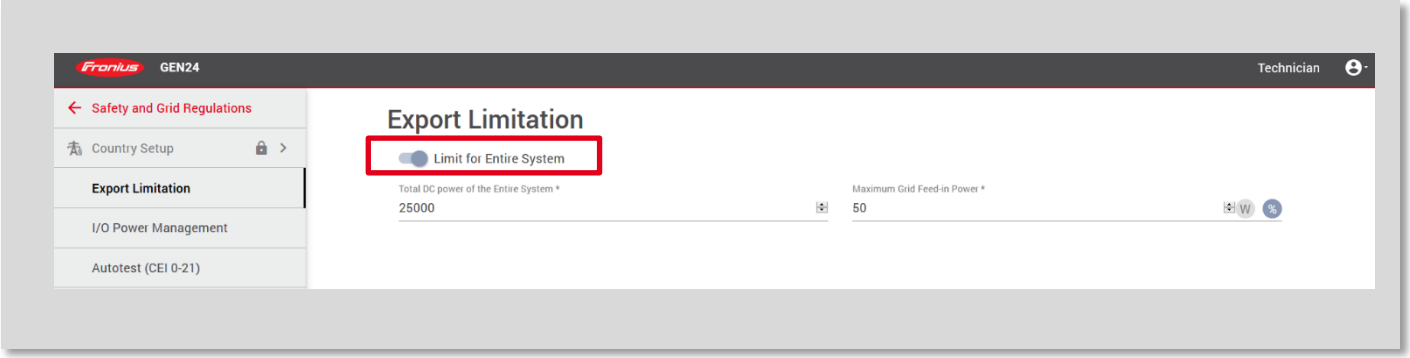
Conditions 1: 12500 W ≥ 15000 Wp + 10% of 10000 W → 15000 W ≥ 16000 W → Conditions NOT met

→ Scenario B

In this example, the GEN24 Plus CANNOT take over full regulation for the dynamic power reduction of the entire system. Additional components are required!
The second inverter – in this example a Fronius Symo 15.0-3-M – already has an integrated Fronius Datamanager 2.0. You just need a second Fronius Smart Meter at the feed-in point, which is connected to the Fronius Symo 15.0-3-M and takes over regulation.

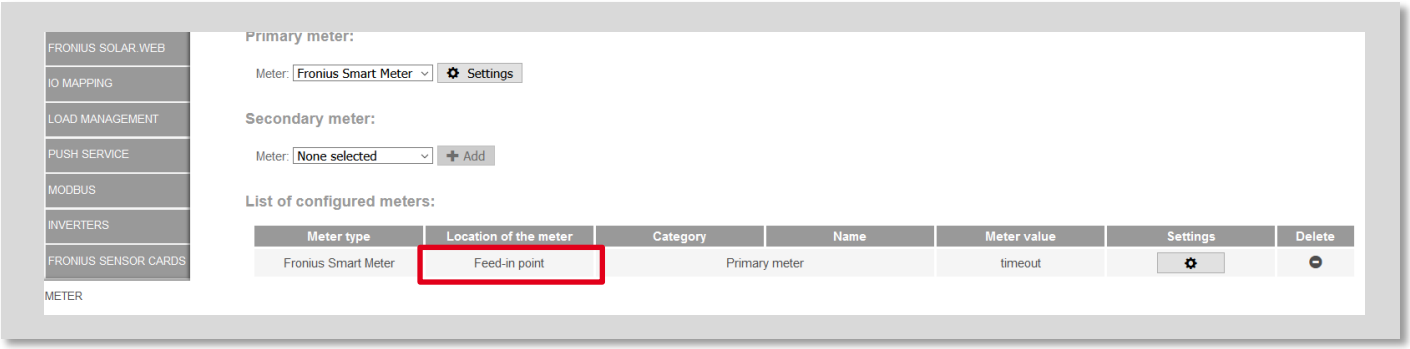
4.1 Web interface settings

4.1.1 Settings on the web interface of the Fronius GEN24 10.0 Plus



4.1.2 Settings on the web interface of the Fronius Symo 20.0-3-M (additional inverter)

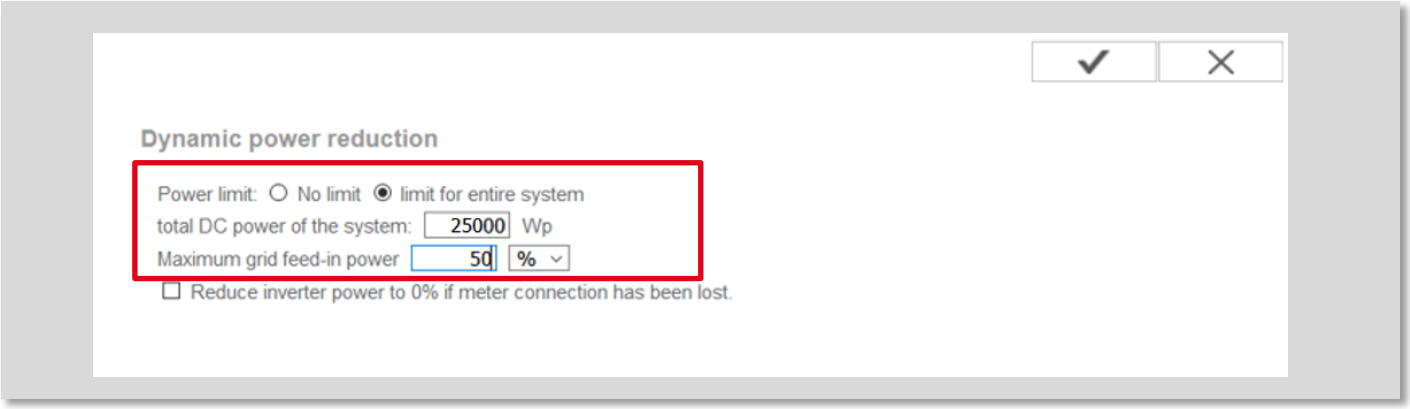
Settings → Meter:



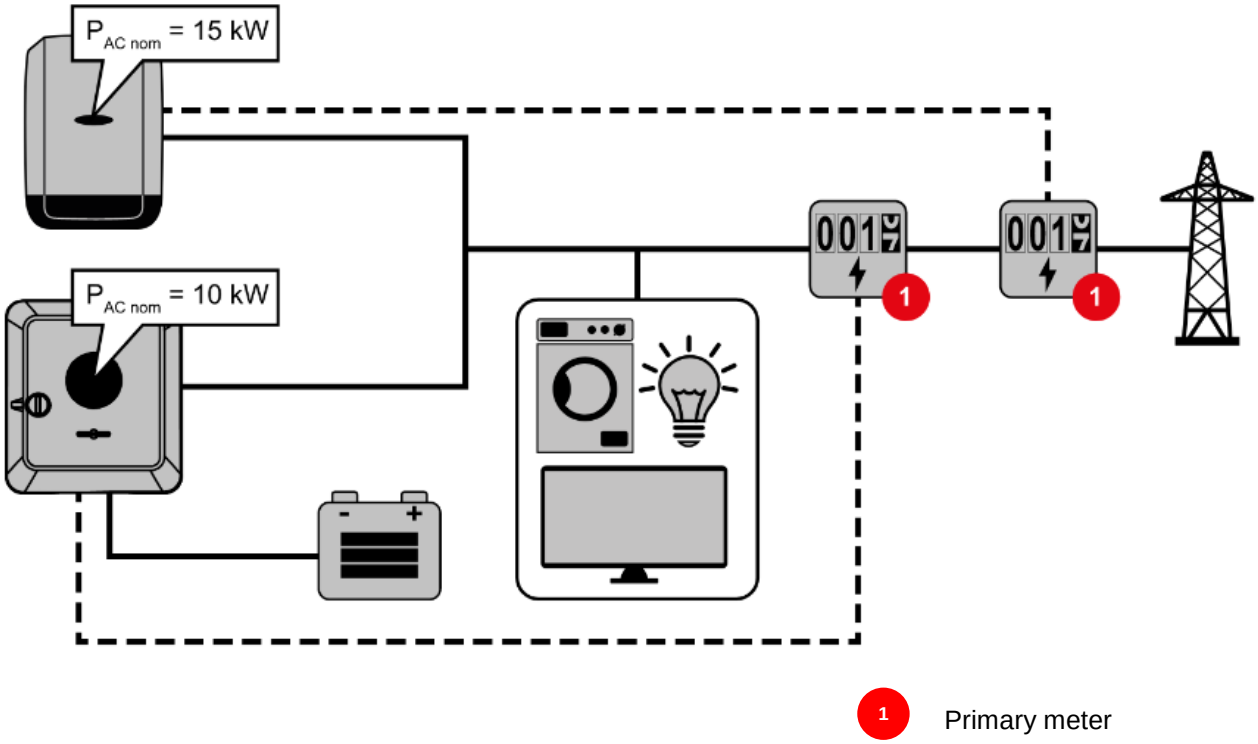
/ The meter at the "feed-in point" is compulsory!

Settings → UC Editor:

- Select "Limit for the entire system"
- Enter the total DC system power
- Set limit in % or W



4.2 System diagram version 1 – Display as two systems in Solar.web

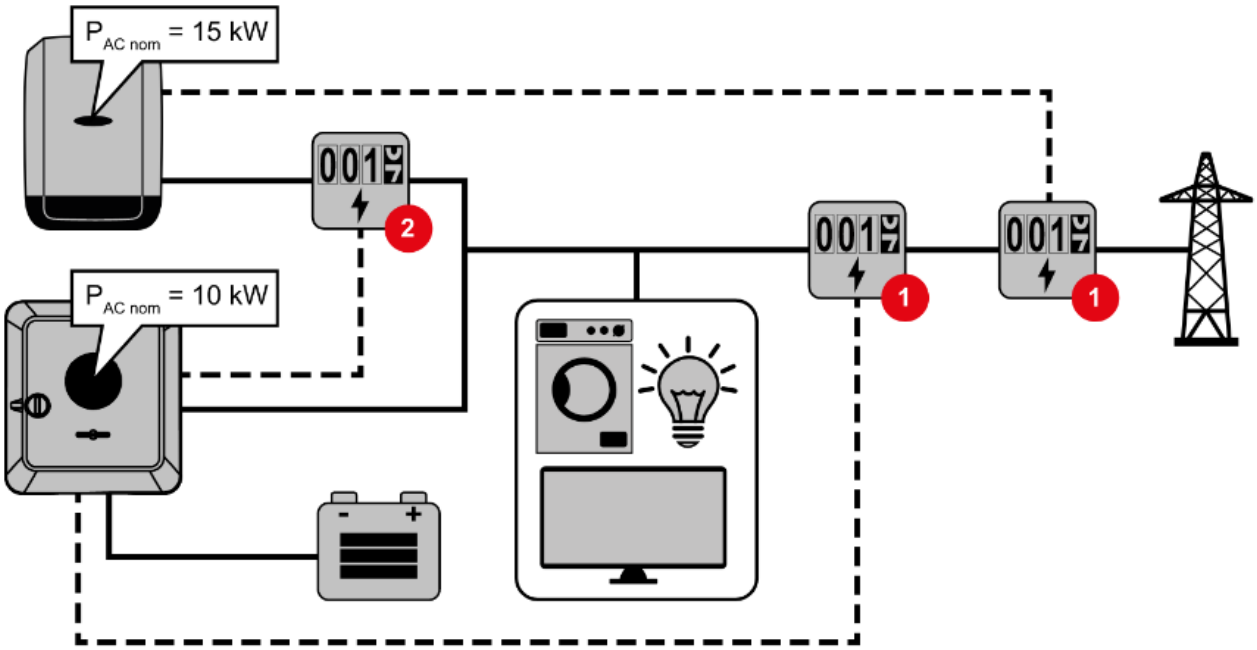


4.2.1 Solar.web connection

In this example (with two primary meters at the feed-in point and no secondary meter), the Fronius SnapINverter and Fronius Symo GEN24 Plus cannot be displayed as a combined photovoltaic system in Solar.web. Two individual photovoltaic systems must be created in Solar.web.

4.3 System diagram version 2 – Display as one system in Solar.web

An additional Smart Meter is required to visualize the system as a combined photovoltaic system in Solar.web. In this case, proceed as follows:



1 Primary meter

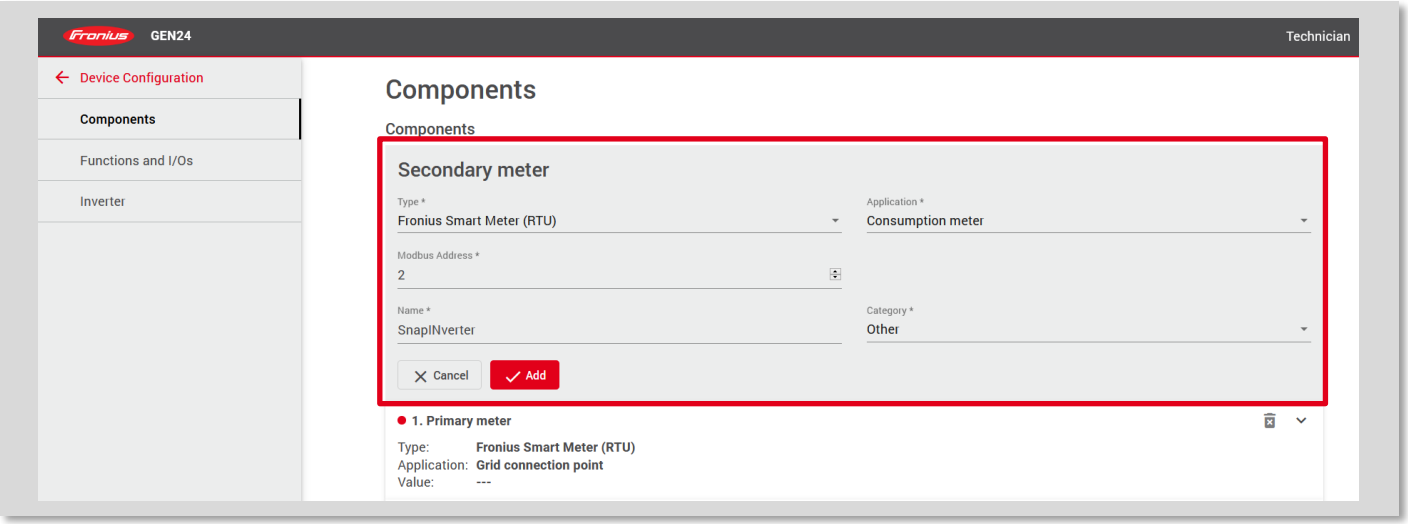
2 Secondary meter

Two primary meters and one secondary meter are required for the inverters.

4.3.1 Solar.web connection

In order to record all the data from the photovoltaic system in Solar.web, only the Fronius Symo GEN24 inverter may be created in this photovoltaic system. The Fronius SnapINverter data is transferred from the secondary meter to the Fronius Symo GEN24 inverter and thereby displayed in Solar.web.

For this purpose, a second Smart Meter (generator meter) is created in the device configuration of the GEN24 inverter:



It is recommended that you also create the Fronius SnapINverter as its own photovoltaic system in Solar.web for service and maintenance work (e.g. status codes, online updates, etc.).