



Wels, March 19<sup>th</sup> 2021

## CONFORMITY TO EN 50549-1 WITH SETUP SWEDEN

### Fronius International GmbH

hereby confirms that the Fronius inverters

- / Fronius Primo
- / Fronius Symo
- / Fronius Symo Hybrid
- / Fronius Eco
- / Fronius Primo GEN24\*
- / Fronius Symo GEN24\*
- / Fronius Tauro Eco\*

do fulfil the European standard EN 50549-1, as well as the country specific regulations in Sweden given by “Energimarknadsinspektionens föreskrifter om fastställande av generellt tillämpliga krav för nätanslutning av generatorer” (EIFS 2018:2). When choosing the inverter integrated “Setup Sweden”, the following are valid:

- / Relay protection settings as described in the table below:

Relay protection settings (found in inverter type test protocol)	Set Value	
	Time	Level
Overvoltage (step 2)	60 s	253 V
Overvoltage (step 1)	0.2 s	264.5 V
Undervoltage	0.2 s	195.5 V
Overfrequency	0.5 s*	51.5 Hz
Underfrequency	0.5 s*	47.5 Hz

*\* The overfrequency time and underfrequency time for Fronius GEN24 & Fronius Tauro Eco inverters is 0.1s and can be manually changed to the new value (0.5 s). It will be implemented in the “Setup Sweden” within the next software release.*

- / The inverters are equipped with a Loss of Mains trip function according to IEC 62116.
- / The inverters remain connected to the public electricity supply grid for:

At least 30 minutes in the frequency range 47.5 – 48.5 Hz
At least 30 minutes in the frequency range 48.5 – 49.0 Hz
Unlimited time in the frequency range 49.0 – 51.0 Hz
At least 30 minutes in the frequency range 51.0 – 51.5 Hz

- / The inverters have a rate of change of frequency (ROCOF) immunity of at least 2.0 Hz/s
- / The inverters reduce their active power output when the frequency exceeds 50.5 Hz
- / A static factor of 8% is preconfigured during LFSM-O.



- / The inverters will not reduce active power output by more than 3% per Hz for frequencies lower than 49.0 Hz, unless the availability of the primary energy requires otherwise.
- / Automatic reconnection occurs only within the frequency range of 47.5 – 50.1 Hz, and after the mains frequency has been within this range for at least 180 s.
- / A maximum gradient of 9.6%  $P_{\text{nominal}}/\text{min}$  is preconfigured for active power increase during automatic connection, for frequencies below 50.1 Hz. No increase in active power output occurs above 50.1 Hz.
- / During LFSM-O, the lowest level of control capacity that can be reached by the inverters is 0%  $P_{\text{nominal}}$ .

**Fronius International GmbH**

Business Unit Solar Energy

Froniusplatz 1

A-4600 Wels

A handwritten signature in blue ink, appearing to read "Bernhard Kossak".

Bernhard Kossak, MSc

Head of Systems Technology