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Amtsgericht Kassel (District court) Kassel HRB (registration number) 3972
Vorsitzender des Aufsichtsrats (Chairman of the Supervisory Board): Uwe Kleinkauf
Vorstand (Managing Board): Ulrich Hadding, Dr.-Ing. Jürgen Reinert

Manufacturer's Declaration

Decoupling protection in accordance with VDE-AR-N 4110

Protective functions (internal decoupling protection of the inverter) are independent of open-loop and closed-loop control functions (particularly of the LVRT control/configuration).

The inverters can operate continuously in the voltage and frequency ranges shown in table 1:

Inverter	AC voltage range	Frequency range
SHP 150-20	480 V – 690 V (L-L)	44 Hz – 65 Hz
SHP 100-20	304 V – 477 V (L-L)	44 Hz – 65 Hz
STP 110-60	320 V – 460 V (L-L)	44 Hz – 65 Hz
SHP 75-10, STP 60-10, STPS60-10	324 V – 530 V (L-L)	44 Hz – 65 Hz
STP 50-40, STP 50-41	195,5 V – 305 V (L-N)	44 Hz – 65 Hz
STP 25000TL-30, STP 20000TL-30, STP 15000 TL-30	180 V – 280 V (L-N)	44 Hz – 65 Hz

Table 1: AC voltage range and frequency range for each power generating unit

With the corresponding configuration of the respective disconnection times, the inverter can be disconnected with a delay in order to prevent the dynamic grid support from being disturbed. The defined voltage and frequency range matches the settings for the decoupling protection. Voltages and/or frequencies outside of this range persisting longer than the defined disconnection time results in grid disconnection (self-protection).

The decoupling protection unit and the integrated circuit breakers of the inverters are supplied with voltage on the DC side (PV energy). A grid voltage failure does not impact the functionality of the integrated decoupling protection unit including the respective circuit breaker. The following requirements are complied with: the protective device being supplied with auxiliary power which is not taken from the grid (protective functions are available for at least 5 seconds which can be the duration of a grid failure) and the circuit breaker being tripped immediately in case the protective device is not supplied with auxiliary power.

The inverters are equipped with a fail-safe operation decoupling protection that was checked during the certification as defined in the IEC 62109 but which is not equipped with connecting terminal plates for on-site testing. This internal protection is accepted by some grid operators as an interface protection of the generating unit. The latter must be agreed with the grid operator and documented.

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However, if an on-site testing is required for each generating unit, then this would be very costly for plants with many decentralized generating units (with verification of protection in each individual unit). In this case, it is generally recommended to install an intermediate protection with an associated external circuit breaker as a separate unit. The technical design or alternative solution concepts for the implementation of an interface protection with test terminals for on-site testing shall be agreed with the grid operator and set out in writing.

Niestetal, 2021-12-2
SMA Solar Technology AG

i.V. Sven Bremicker

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Head of Technology Development Center