Certificate of compliance

Applicant:	**SMA Solar Technology AG** **Sonnenalle 1** **34266 Niestetal** **Germany**
Product:	**Photovoltaic (PV) inverter**
Model:	**SHP 100-21** **SHP 150-21** **SHP 172-21** **SHP 180-21**

Inverter for three-phase parallel connection to a LV and MV distribution network.

Applied rules and standards:

EN 50549-2:2019
Requirements for generating plants to be connected in parallel with distribution networks - Part 2: Connection to a MV distribution network - Generating plants up to and including Type B

4.4 Normal operating range
4.5 Immunity to disturbances
4.6 Active response to frequency deviation
4.7 Power response to voltage variations and voltage changes
4.8 EMC and power quality
4.9 Interface protection
4.10 Connection and starting to generate electrical power
4.11 Ceasing and reduction of active power on set point

Commission Regulation (EU) 2016/631 of 14 April 2016
Establishing a network code on requirements for grid connection of generators (NC RFG).
Type approval for generation units to use in Type B, Type C and Type D plants.

Note:
This certificate proofs the conformity of a generating unit based on NC RFG. However, some requirements, such as frequency sensitive mode (FSM), reactive power capacity etc. can be applicable on the generating plant level, which assessment can be out of the scope of this certificate. Consequently, it is possible that the conformity assessment of a generating unit does not cover all aspects of the above-mentioned standardization documents, typically when a requirement is rather evaluated on a plant level.

At the time of issue of this certificate, the representative product listed above corresponds to the stated rules and standards.

Report number:	**18TH0282_SHP 1xx-21_EN50549-2_0**	**Certification Program:**	**NSOP-0032-DEU-ZE-V01**
Certificate number:	**U22-0652**	**Date of issue:**	**2022-10-21**

Certification body

Thomas Lammel

DAkkS Deutsche Akkreditierungsstelle D-ZE-12024-01-00

Certification body Bureau Veritas Consumer Products Services Germany GmbH accreditation to DIN EN ISO/IEC 17065

Testing laboratory accredited according to DIN EN ISO/IEC 17025

A partial representation of the certificate requires the written approval of Bureau Veritas Consumer Products Services Germany GmbH

Annex to the EN 50549-2 certificate of compliance No. U22-0652

Appendix

Extract from test report according to EN 50549-2 **No. 18TH0282_SHP 1xx-21_EN50549-2_0**

Type Approval and declaration of compliance with the requirements of EN 50549-2 and Commission Regulation (EU) 2016/631 of 14 April 2016.				
Manufacturer / applicant	SMA Solar Technology AG Sonnenalle 1 34266 Niestetal Germany			
Generator Type	Photovoltaic inverter			
	SHP 100-21	SHP 150-21	SHP 172-21	SHP 180-21
MPP DC voltage range [V]	590 - 1000	880 - 1450	968 - 1450	1012 - 1450
Input DC voltage [V]	max. 1000	max. 1500	max. 1500	max. 1500
Input DC current [A]	max. 180 Isc: 325	max. 180 Isc: 325	max. 180 Isc: 325	max. 180 Isc: 325
Output AC voltage [V]	400, 50/60Hz	600, 50/60Hz	660, 50/60Hz	690, 50/60Hz
Max AC current [A]	max. 151	max. 151	max. 151	max. 151
Active Power [W]	100	150	172	180
Apparent power [VA]	100	150	172	180
Firmware version	beginning with 03.16.15.R			

Description of the structure of the power generation unit

The power generation unit is equipped with a PV and line-side EMC filter. The power generation unit has no galvanic isolation between DC input and AC output. Output switch-off is performed with single-fault tolerance based on the inverter bridge and two series-connected relays in each line and neutral. This enables a safe disconnection of the power generation unit from the network in case of error.

Note:

In case the above stated generators are used with an external protection device, the protection settings of the inverters are to be adjusted according to the manufacturer's declaration.

The above stated generators are tested according to the requirements in the EN 50549-2:2019 Commission Regulation (EU) 2016/631 of 14 April 2016. Any modification that affects the stated tests must be named by the manufacturer/supplier of the product to ensure that the product meets all requirements.