Certificate of compliance

Applicant:	**SMA Solar Technology AG** **Sonnenallee 1** **34266 Niestetal** **Germany**
Product:	**Grid-tied photovoltaic (PV) inverter**
Model:	**STP 15000TL-30** **STP 17000TL-30** **STP 20000TL-30** **STP 25000TL-30**

Use in accordance with regulations:

Automatic disconnection device with three-phase mains surveillance in accordance with EN50549-1:2019 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter.

Applied rules and standards:

EN 50549-1:2019
Requirements for parallel connection of installations with distribution networks - Part 1: Connection to an LV distribution network - Production of installations up to and including Type B

DIN V VDE V 0126-1-1:2006 (4.1 Functional safety)
Automatic disconnection device between a generator and the public low-voltage grid

At the time of issue of this certificate the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

Report number:	**14TH0304-EN50549-1_1**	**Certification Program:**	**NSOP-0032-DEU-ZE-V01**
Certificate number:	**U20-0135**	**Date of issue:**	**2020-03-13**

Certification body

Holger Schaffer

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

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

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

Appendix

Extract from test report according to EN 50549-1 **Nr. 14TH0304-EN50549-1_1**

Type Approval and declaration of compliance with the requirements of EN 50549-1.				
Manufacturer / applicant:	SMA Solar Technology AG Sonnenallee 1 34266 Niestetal Germany			
Micro-generator Type	Grid-tied photovoltaic inverter			
	STP 15000TL-30	STP 17000TL-30	STP 20000TL-30	STP 25000TL-30
MPP DC voltage range [V]	240 – 800	275 – 800	320 - 800	390 - 800
Input DC voltage range [V]	240 – 1000	275 - 1000	320 - 1000	390 - 1000
Input DC current [A]	nom. 2 x 16 max. 2 x 33			
Output AC voltage [V]	400 3 / N / PE @ 50 / 60 Hz			
Output AC current [A]	29	29	29	36,2
Output power [kVA]	15	17	20	25
Firmware version	Beginning with 03.10.04.R			
Measurement period:	2019-12-27 to 2020-02-26			

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 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.

Setting of the interface protection:

Parameter	**Min. disconnection time**	**Max. disconnection time**	**Min. operate value**	**Max. operate value**	**Standard set value**
Over voltage (stage 1) [a]	0,1s	100s	$1,0V_n$	$1,2V_n$	$0,2s/1,2V_n$
Over voltage (stage 2)	0,1s	5s	$1,0V_n$	$1,3V_n$	$0,1s/1,25V_n$
Under voltage (stage 1)	0,1s	100s	$0,2V_n$	$1,0V_n$	$10s/0,2V_n$
Under voltage (stage 2)	0,1s	5s	$0,2V_n$	$1,0V_n$	$3s/0,8V_n$
Over frequency	0,1s	100s	$1,0f_n$	$1,04f_n$	$0,1s/1,03f_n$
Over frequency (stage 1)	0,1s	5s	$1,0f_n$	$1,04f_n$	$0,1s/1,03f_n$
Under frequency	0,1s	100s	$0,94f_n$	$1,04f_n$	$0,1s/0,95f_n$
Under frequency (stage 2)	0,1s	5s	$0,94f_n$	$1,04f_n$	$0,1s/0,95f_n$
Reconnection settings for voltage	0,85Vn min, 1,1Vn max Adjustement range Min: 0-1Vn, Max:1-2Vn				$0,85V_n$ (195,5V) ≤ V ≤ $1,10V_n$ (253V)
Reconnection settings for frequency	49,5Hz min,50,2Hz max Adjustement range: Min: 44-60 Hz, Max: 50-66 Hz				49,5Hz ≤ f ≤ 50,1Hz
Reconnection time	60s Adjustement range: 0-6000s				≥ 60s
Active power gradient after reconnection	10% Adjustement range: 1-10000%				10%PEmax / per minute
Permanent DC-injection	0,5% of rated inverter output current				
Loss of mains according EN 62116 (LoM)	2s				

Appendix

Extract from test report according to EN 50549-1 **Nr. 14TH0304-EN50549-1_1**

Note:

[a] Over voltage – stage1: 10 min-mean-value corresponding to EN 50160.

The settings of the interface protection are password protected adjustable in the stated range above.

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 50549-1:2019. 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 of the EN 50549-1:2019.