



<p>Certificate of Compliance for Grid and PV System Protection Integrated in the Inverter</p>											
<p>Manufacturer</p>	<p>SMA Solar Technology AG</p>										
<p>Type of grid and PV system protection</p>	<p>see Table 1 (Grid Guard version)</p>										
<p>Assigned to type of power generation unit</p>	<p>See Table 1</p>										
<p>Grid connection rule</p>	<p>VDE-AR-N 4105:2011-08 "Power generation systems connected to the low-voltage distribution network" Technical minimum requirements for the connection to and parallel operation with low-voltage distribution networks</p>										
<p>The grid and PV system protection integrated into the power generated units according to Table 1 fulfils the requirements of VDE-AR-N 4105.</p>											
<ul style="list-style-type: none"> • The settings and disconnection times (total disconnection times) are as follows: <table style="margin-left: 20px; border: none;"> <tr> <td>Voltage decrease protection U <:</td> <td>184 V, ≤ 200 ms</td> </tr> <tr> <td>Voltage increase protection U < *:</td> <td>253 V, ≤ 200 ms</td> </tr> <tr> <td>Voltage increase protection U >>:</td> <td>264.5 V, ≤ 200 ms</td> </tr> <tr> <td>Frequency decrease protection f <:</td> <td>47.5 Hz, ≤ 200 ms</td> </tr> <tr> <td>Frequency increase protection f >:</td> <td>51.5 Hz, ≤ 200 ms</td> </tr> </table> <p>* Moving 10 minute average protection per EN 50160.</p> • Islanding detection has been verified via a resonant circuit test. • VDE-AR-N 4105 compliance is guaranteed in all SMA inverters listed in table 1, as of the respective firmware version. 		Voltage decrease protection U <:	184 V, ≤ 200 ms	Voltage increase protection U < *:	253 V, ≤ 200 ms	Voltage increase protection U >>:	264.5 V, ≤ 200 ms	Frequency decrease protection f <:	47.5 Hz, ≤ 200 ms	Frequency increase protection f >:	51.5 Hz, ≤ 200 ms
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<p>Niestetal, 2018-06-29 SMA Solar Technology AG  ppa. Dr.-Ing. Johannes Kneip EVP Development Center & IT</p>											

VDE-AR-N 4105 Certificate of Compliance for Grid and Plant Protection Integrated in the Inverter

Inverter type	Grid Guard version	Requirements of VDE-AR-N 4105 fulfilled as of firmware version
SB1.5-1VL-40	6	2.00
SB2.5-1VL-40	6	2.00
SBS2.5-1VL-10	6	2.02
SB3.0-1AV-40	7	1.01
SB3.6-1AV-40	7	1.01
SB4.0-1AV-40	7	1.01
SB5.0-1AV-40	7	1.01
SB 3000TL-21	3	1.50
SB 3600TL-21	3	2.10
SB 4000TL-21	3	1.50
SB 5000TL-21	3	1.50
SB 3600SE-10	3	2.00
SB 5000SE-10	3	2.00
SB 240-10 (Multigate-10)	5	1.01
STP3.0-3AV-40	7	2.11
STP4.0-3AV-40	7	2.11
STP5.0-3AV-40	7	2.11
STP6.0-3AV-40	7	2.11
STP 5000TL-20	4	2.01
STP 6000TL-20	4	2.01
STP 7000TL-20	4	2.01
STP 8000TL-20	4	2.01
STP 9000TL-20	4	2.01
STP 10000TL-20	4	2.52
STP 12000TL-20	4	2.52
STP 15000TL-10	4	2.31
STP 15000TL-30	4	2.83
STP 20000TL-30	4	2.80
STP 25000TL-30	4	2.80
STP 50-40	4	1.01

Table 1: SMA inverters compliant with VDE-AR-N 4105.