

EG conformity declaration

Name and address of manufacturer Smart Power Electronics GmbH & Co. KG
 Fraunhoferstraße 1a
 25524 Itzehoe
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 Mail: info@smart-power-electronics.de
 Registry court: Country court Pinneberg HRA 5772 PI, CEO's:
 Jörg Grismann, Hagen Reese, Michael Thies

Product description **Smart!wind SW-5.5**
Smart!wind SW-7.5
Smart!wind SW-10

The listed products correspond with the regulations of the following EU-guidelines..

2004/108/EG Council Directive on the approximation of laws of the Member States relating to electromagnetic compatibility

2006/95/EG Directive of the European Parliament and Council Directive on the approximation of laws of the Member States relating to electrical equipment for use within specified voltage limits

The conformity is proved by compliance with the following standards:

electromagnetic interference	EN 61000-6-4:2007 + A1:2011
immunity	EN 61000-6-2:2006
	EN 61000-6-1:2007
circuit feedback	EN 61000-3-2:2006
	EN 61000-3-3:2008
	EN 61000-3-11:2000
equipment safety	EN 50178:1997

Therefore the CE mark is attached to the products listed above.

Itzehoe, July 24th 2013
 Smart Power Electronics GmbH & Co. KG



Hagen Reese



Michael Thies



Jörg Grismann

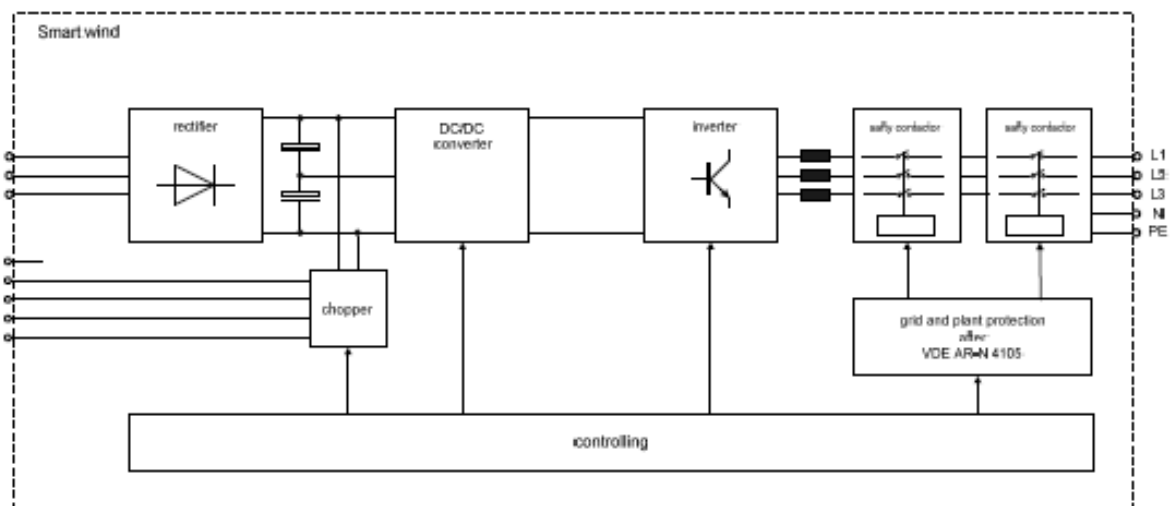
Note: This conformity declaration will lose validity, if the products listed above are converted, added or changed without explicit consent of Smart Power Electronics (SPE) or if devices not being released by SPE are built into the products, as well as on misuse or on incorrectly use.

Evidence of Conformity Production Unit					
manufacturer	Smart Power Electronics GmbH & Co. KG				
Type production unit	Smart!wind SW-10 (starting from firmware Vers. 2.03) Smart!wind SW-7.5 (starting from firmware Vers. 2.03) Smart!wind SW-5.5 (starting from firmware Vers. 2.03)				
	<table border="1"> <tr> <td>max. effective power $P_{E_{max}}$</td> <td rowspan="3">see table on the following page</td> </tr> <tr> <td>max. apparent power $S_{E_{max}}$</td> </tr> <tr> <td>rated voltage</td> </tr> </table>	max. effective power $P_{E_{max}}$	see table on the following page	max. apparent power $S_{E_{max}}$	rated voltage
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rated voltage					
Grid code	VDE AR-N-4105 „Generating plants connected to low voltage grid“ Minimum requirements for connection and parallel operation for generating plants being connected to the low voltage grid				
The production units listed above meet the requirements of VDE AR-N-4105					
<ul style="list-style-type: none"> • technical data of production unit • schematic construction • summarized information on features see following page Itzehoe, July 24 th 2013 Smart Power Electronics GmbH & Co. KG <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;">  Hagen Reese </td> <td style="text-align: center; border: none;">  Michael Thies </td> <td style="text-align: center; border: none;">  Jörg Grimsmann </td> </tr> </table>		 Hagen Reese	 Michael Thies	 Jörg Grimsmann	
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Technical data of production unit:

	Smart!wind SW-5.5	Smart!wind SW-7.5	Smart!wind SW-10
max. effective power $P_{E_{max}}$	5.5 kW	7,5 kW	10 kW
max. apparent power $S_{E_{max}}$	5.5 kVA	7,5 kVA	10 kVA
feed-in to grid	three-phase current, symmetrical feed-in on 3 phases		
rated voltage	230/400 V	230/400 V	230/400 V
rated current	8 A	10,9 A	14,5 A
short-circuit current	0,026 kA	0,026 kA	0,026 kA
initial current	not applicable for converter		
converter type	self-driven, frequency 16 kHz		
harmonics	currents after EN 61000-3-2 are observed		

Schematic construction of production unit:



Evidence of conformity grid and plant protection integrated in inverter	
manufacturer	Smart Power Electronics GmbH & Co. KG
type grid and plant protection	integrated
associated with production units	Smart!wind SW-10 (starting from firmware vers. 2.03) Smart!wind SW-7.5 (starting from firmware vers. 2.03) Smart!wind SW-5.5 (starting from firmware vers. 2.03)
Grid code	VDE AR-N-4105 „Generating plants connected to low voltage grid“ Minimum requirements for connection and parallel operation for generating plants being connected to the low voltage grid

The integrated grid and plant protection inside the production units listed above meets the requirements of VDE AR-N-4105

- The setting values and switch-off times are the following:

	Settings	Trigger value	Trigger time
voltage decrease protection U <	184,0 V	184,0 V	75,1 ms
voltage increase protection U >*	253,0 V	---	496 s
voltage increase protection U >>	264,5 V	264,5 V	72,5 ms
frequency decrease protection f <	47,50 Hz	47,50 Hz	86,6 ms
frequency increase protection f >	51,50 Hz	51,50 Hz	83,6 ms

*moving 10-minutes-averaging protection.

- Islanding detection is verified by oscillating circuit test.
- Review of entire functional claim grid and plant protection – coupling switch led to successful shut down.
- Conformity after VDE AR-N-4105 is guaranteed for the inverter listed above according to description and firmware version..

Itzehoe, July 24th 2013
 Smart Power Electronics GmbH & Co. KG


 Hagen Reese


 Michael Thies


 Jörg Grimsmann

**Inspection report for integrated grid and plant protection
 according to F.4 VDE-AR-N 4105 and VDE 0126-1-1/A1**

Abstract of the inspection report for grid and plant protection „Determination of electrical properties“	GLGH-4280 12 09093 258-R-0001-A																										
Type grid and plant protection: SPE NWA (integrated)	additional manufacturer's data:																										
Software-Version: 2.03	Associated with production unit type:																										
Manufacturer: Smart Power Electronics GmbH & Co. KG Fraunhoferstr. 1a 25524 Itzehoe	Smart!wind SW-10 Smart!wind SW-7.5 Smart!wind SW-5.5 Integrated coupling switch Type switchgear assembly 1: power relay Type switchgear assembly 2: power relay																										
Period of measuring: 17.-18.04.2012 and 03.05.2012																											
<table border="1"> <thead> <tr> <th>Schutzfunktion</th> <th>Settings</th> <th>Trigger value</th> <th>Switch-off-time</th> </tr> </thead> <tbody> <tr> <td>Voltage decrease protection U <</td> <td>0,8 * U_n</td> <td>0,80 * U_n</td> <td>75,1 ms</td> </tr> <tr> <td>Voltage increase protection U ></td> <td>1,15 * U_n</td> <td>1,15 * U_n</td> <td>55,2 ms</td> </tr> <tr> <td>Frequency decrease protection f <</td> <td>47,50 Hz</td> <td>47,50 Hz</td> <td>86,6 ms</td> </tr> <tr> <td>Frequency increase protection f ></td> <td>51,50 Hz</td> <td>51,50 Hz</td> <td>83,6 ms</td> </tr> <tr> <td>thereof own trigger time of coupling switch</td> <td colspan="3">< 10ms</td> </tr> </tbody> </table>				Schutzfunktion	Settings	Trigger value	Switch-off-time	Voltage decrease protection U <	0,8 * U _n	0,80 * U _n	75,1 ms	Voltage increase protection U >	1,15 * U _n	1,15 * U _n	55,2 ms	Frequency decrease protection f <	47,50 Hz	47,50 Hz	86,6 ms	Frequency increase protection f >	51,50 Hz	51,50 Hz	83,6 ms	thereof own trigger time of coupling switch	< 10ms		
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<p>The switch-off time (total of trigger time grid and plant protection plus own trigger time of coupling switch) may not exceed 200ms.</p> <p>The inspection of entire functional chain „grid and plant protection – coupling switch“ led to successful shut-down.. <input checked="" type="checkbox"/></p>																											