



**BUREAU  
VERITAS**

# Certificate of compliance

**Applicant:** Renac Power Technology Co., Ltd  
Building 6, No.2, West Jinzhi Road, High-Tech District,  
Suzhou City, Jiangsu Province  
China

**Product:** Grid-tied photovoltaic (PV) inverter

**Model:** NAC4K-DS  
NAC5K-DS  
NAC6K-DS  
NAC7K-DS  
NAC8K-DS

**Use in accordance with regulations:**

Automatic disconnection device with single-phase mains surveillance in accordance with EN50549-1:2019 for photovoltaic systems with a single-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:** ABRE-19JY0905FCSHP

**Certification Program:** NSOP-0032-DEU-ZE-V01

**Certificate number:** U19-0578

**Date of issue:** 2019-10-30

**Certification body**



Holger Schaffer



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. ABRE-19JY0905FCSHP

**Type Approval and declaration of compliance with the requirements of EN 50549-1.**

<b>Manufacturer / applicant:</b>	Renac Power Technology Co., Ltd Building 6, No.2, West Jinzhi Road, High-Tech District, Suzhou City, Jiangsu Province China				
<b>Micro-generator Type</b>	Grid-tied photovoltaic inverter				
<b>Rated values</b>	NAC4K-DS	NAC5K-DS	NAC6K-DS	NAC7K-DS	NAC8K-DS
<b>MPP DC voltage range [V]</b>	100-500				100-550
<b>Input DC voltage range [V]</b>	600				
<b>Input DC current [A]</b>	10/10			18/10	
<b>Output AC voltage [V]</b>	230, 50Hz				
<b>Output AC current [A]</b>	19,2	24	28,7	33,5	34,8
<b>Output power [VA]</b>	4400	5500	6600	7700	8000
<b>Firmware version</b>	V1.2				
<b>Measurement period:</b>	2019-07-09 to 2019-09-20				

**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 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	Max. disconnection time	Min. operate time	Trip value
Over voltage (stage 1) <sup>a</sup>	3s	-	230V +10% (253V)
Over voltage (stage 2)	0,2s	0,1s	230V +15% (264,5V)
Under voltage	1,5 s	1,2 s	230V -15% (195,5V)
Over frequency	0,5 s	0,3 s	50Hz +4% (52 Hz)
Under frequency	0,5 s	0,3 s	50Hz -5% (47,5 Hz)
Reconnection settings for voltage	0,85Un (195,5V) ≤ U ≤ 1,10Un (253V)		
Reconnection settings for frequency	49,5 Hz ≤ f ≤ 50,1 Hz		
Reconnection time	≥ 60 s		
Active power gradient after reconnection	10% P <sub>E<sub>max</sub></sub> / per minute		
Permanent DC-injection	0,5% of rated inverter output current or 20mA		
Loss of mains according EN 62116 (LoM)	2,0 s		

**Note:**

<sup>a</sup> Over voltage – stage1: 10 min-mean-value corresponding to EN 50160.

Default interface setting according to EN 50438:2013a re used. The settings are password protected adjustable according to different requirements given by the grid operators if necessary.

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.

4.5.3 Low voltage ride through (LVRT) not tested.

4.5.4 High voltage ride through (HVRT) not tested.