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VERITAS**

# Certificate of compliance

**Applicant:** NingBo Deye Inverter Technology Co., Ltd.  
No. 26 South Yongjiang Road, Daqi, Beilun, NingBo,  
China

**Product:** Photovoltaic (PV) and battery inverter

**Model:** SUN-5K-SG04LP3-EU  
SUN-6K-SG04LP3-EU  
SUN-8K-SG04LP3-EU  
SUN-10K-SG04LP3-EU  
SUN-12K-SG04LP3-EU  
AI-W5.1-5P3-EU  
AI-W5.1-6P3-EU  
AI-W5.1-8P3-EU  
AI-W5.1-10P3-EU  
AI-W5.1-12P3-EU

Inverter for three-phase parallel connection to the public grid. The network monitoring and disconnection device is an integral part of the above-mentioned model.

**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

- 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
- 4.13 Requirements regarding single fault tolerance of interface protection system and interface switch

**DIN VDE V 0124-100:2020 (5.5.2.1 Functional safety of network and system protection)**

Grid integration of generator plants - Low-voltage - Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks

**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 A and Type B plants.

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:** ASUE-ESH-P22010034-R2      **Certification Program:** NSOP-0032-DEU-ZE-V01  
**Certificate number:** U23-0246      **Date of issue:** 2023-04-06

**Certification body**

Georg Loritz



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 50549-1 certificate of compliance No. U23-0246

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**Appendix**  
 Extract from test report according to EN 50549-1 No. ASUE-ESH-P22010034-R2

**Type Approval and declaration of compliance with the requirements of EN 50549-1 and Commission Regulation (EU) 2016/631 of 14 April 2016**

<b>Manufacturer / applicant</b>	NingBo Deye Inverter Technology Co., Ltd. No. 26 South Yongjiang Road, Daqi, Beilun, NingBo, China
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Micro-generator Type	Photovoltaic and battery inverter			
	SUN-5K-SG04LP3-EU	SUN-6K-SG04LP3-EU	SUN-8K-SG04LP3-EU	SUN-10K-SG04LP3-EU
<b>PV Input voltage range</b>	160-800 Vdc			
<b>MPPT Input range</b>	200-650 Vdc			
<b>PV input current</b>	13A+13A	13A+13A	13A+13A	26A+13A
<b>Battery voltage range</b>	40-60Vdc			
<b>Max. charge current</b>	120A	150A	190A	210A
<b>Max. discharge current</b>	120A	150A	190A	210A
<b>Rated grid voltage</b>	3L/N/PE 400V, 50Hz/60Hz			
<b>Max. AC Output current</b>	8,0A	9,6A	12,8A	15,9A
<b>AC Output Rated. current</b>	7,2A	8,7A	11,6A	14,5A
<b>Rated active Power</b>	5kW	6kW	8kW	10kW
<b>Max. apparent Power</b>	5,5kVA	6,6kVA	8,8kVA	11kVA
	SUN-12K-SG04LP3-EU	--	--	--
<b>PV Input voltage range</b>	160-800 Vdc	--	--	--
<b>MPPT Input range</b>	200-650 Vdc	--	--	--
<b>PV input current</b>	26A+13A	--	--	--
<b>Battery voltage range</b>	40-60Vdc	--	--	--
<b>Max. charge current</b>	240A	--	--	--
<b>Max. discharge current</b>	240A	--	--	--
<b>Rated grid voltage</b>	3L/N/PE 400V, 50Hz/60Hz	--	--	--
<b>Max. AC Output current</b>	19,1A	--	--	--
<b>AC Output Rated. current</b>	17,4A	--	--	--
<b>Rated active Power</b>	12kW	--	--	--
<b>Max. apparent Power</b>	13,2kVA	--	--	--



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Appendix				
Extract from test report according to EN 50549-1			No. ASUE-ESH-P22010034-R2	

	AI-W5.1-5P3-EU	AI-W5.1-6P3-EU	AI-W5.1-8P3-EU	AI-W5.1-10P3-EU
<b>Battery voltage range</b>	40-60 Vd.c.			
<b>Max.Charge/Discharge current</b>	120/120 Ad.c.	150/150 Ad.c.	190/190 Ad.c.	210/210 Ad.c.
<b>Max.DC voltage</b>	800 Vd.c.			
<b>MPPT voltage range</b>	200-650 Vdc			
<b>Max. PV current</b>	13+13 Ad.c.			
<b>Rated grid voltage</b>	3L/N/PE, 230/400 Va.c., 50/60 Hz			
<b>Rated AC Output current</b>	7,2 Aa.c.	8,7 Aa.c.	11,6 Aa.c.	14,5 Aa.c.
<b>Max. AC Output current</b>	8 Aa.c.	9,6 Aa.c.	12,8 Aa.c.	15,9 Aa.c.
<b>Rated AC active Power</b>	5000 W	6000 W	8000 W	10000 W
<b>Max. AC apparent Power</b>	5500 VA	6600 VA	8800 VA	11000 VA
	AI-W5.1-12P3-EU	--	--	--
<b>Battery voltage range</b>	40-60 Vd.c.	--	--	--
<b>Max.Charge/Discharge current</b>	240/240 Ad.c.	--	--	--
<b>Max.DC voltage</b>	800 Vd.c.	--	--	--
<b>MPPT voltage range</b>	200-650 Vd.c.	--	--	--
<b>Max. PV current</b>	26+13 Ad.c.	--	--	--
<b>Rated grid voltage</b>	3L/N/PE, 230/400 Va.c., 50/60 Hz	--	--	--
<b>Rated AC Output current</b>	17,4 Aa.c.	--	--	--
<b>Max. AC Output current</b>	19,1 Aa.c.	--	--	--
<b>Rated AC active Power</b>	12000 W	--	--	--
<b>Max. AC apparent Power</b>	13200 VA	--	--	--
<b>Max. apparent Power</b>				
<b>Firmware version</b>	V1090			

**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:**  
 The settings of the interface protection are password protected adjustable.  
 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 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.