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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,
AI-W5.1-5P3-EU-B, AI-W5.1-6P3-EU-B, AI-W5.1-8P3-EU-B,
AI-W5.1-10P3-EU-B, AI-W5.1-12P3-EU-B

The device is designed to work as a generation unit of the type: A and B

Inverter for single-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.*

* cl. 4.5 only zero-current mode was tested

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-R3 **Certification Program:** NSOP-0032-DEU-ZE-V01
Certificate number: U24-0190 **Date of issue:** 2024-03-15

Certification body



Domenik Koll
Head of Energy Systems



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



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Annex to the EN 50549-1 certificate of compliance No. U24-0190

Appendix

Extract from test report according to EN 50549-1

No. ASUE-ESH-P22010034-R3

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

Manufacturer / applicant	NingBo Deye Inverter Technology Co., Ltd. No. 26 South YongJiang Road, Daqi, Beilun, NingBo China			
Micro-generator Type	Photovoltaic and battery inverter			
	SUN-5K-SG04LP3-EU	SUN-6K-SG04LP3-EU	SUN-8K-SG04LP3-EU	SUN-10K-SG04LP3-EU
Photovoltaic (DC)				
MPP DC voltage range [V]	200-650	200-650	200-650	200-650
Max DC voltage [V]	800	800	800	800
Input DC current [A]	13+13	13+13	13+13	26+13
Battery (DC)				
Battery DC voltage range [V]	40-60	40-60	40-60	40-60
Battery charge current [A]	120	150	190	210
Battery discharge current [A]	120	150	190	210
Connection (AC)				
Output AC voltage [V]	3L/N/PE 400, 50Hz/60Hz			
Max. AC current [A]	8,0	9,6	12,8	15,9
Rated AC current [A]	7,2	8,7	11,6	14,5
Active Power [kW]	5	6	8	10
Apparent power [kVA]	5,5	6,6	8,8	11
	SUN-12K-SG04LP3-EU	--	--	--
Photovoltaic (DC)				
MPP DC voltage range [V]	200-650	--	--	--
Max DC voltage [V]	800	--	--	--
Input DC current [A]	26+13	--	--	--
Battery (DC)				
Battery DC voltage range [V]	40-60	--	--	--
Battery charge current [A]	240	--	--	--
Battery discharge current [A]	240	--	--	--
Connection (AC)				
Output AC voltage [V]	3L/N/PE 400, 50Hz/60Hz	--	--	--
Max. AC current [A]	19,1	--	--	--
Rated AC current [A]	17,4	--	--	--
Active Power [W]	12	--	--	--
Apparent power [VA]	13,2	--	--	--



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	AI-W5.1-5P3-EU	AI-W5.1-6P3-EU	AI-W5.1-8P3-EU	--
Photovoltaic (DC)				
MPP DC voltage range [V]	200-650	200-650	200-650	--
Max DC voltage [V]	800	800	800	--
Max. Input DC current [A]	13+13	13+13	13+13	--
Battery (DC)				
Battery DC voltage range [V]	40-60	40-60	40-60	--
Battery charge current [A]	120	150	190	--
Battery discharge current [A]	120	150	190	--
Connection (AC)				
Output AC voltage [V]	3L/N/PE, 230/400, 50/60 Hz			--
Rated AC current [A]	7,2	8,7	11,6	--
Max. AC current [A]	8,0	9,6	12,8	--
Active Power [W]	5000	6000	8000	--
Apparent power [VA]	5500	6600	8800	--
	AI-W5.1-10P3-EU	AI-W5.1-12P3-EU	AI-W5.1-5P3-EU-B	AI-W5.1-6P3-EU-B
Photovoltaic (DC)				
MPP DC voltage range [V]	200-650	200-650	200-650	200-650
Max DC voltage [V]	800	800	800	800
Max. Input DC current [A]	26+13	26+13	13+13	13+13
Battery (DC)				
Battery DC voltage range [V]	40-60	40-60	40-60	40-60
Battery charge current [A]	210	240	120	150
Battery discharge current [A]	210	240	120	150
Connection (AC)				
Output AC voltage [V]	3L/N/PE, 230/400, 50/60 Hz			
Rated AC current [A]	14,5	17,4	7,2	8,7
Max. AC current [A]	15,9	19,1	8,0	9,6
Active Power [W]	10000	12000	5000	6000
Apparent power [VA]	11000	13200	5500	6600
	AI-W5.1-8P3-EU-B	AI-W5.1-10P3-EU-B	AI-W5.1-12P3-EU-B	--
Photovoltaic (DC)				
MPP DC voltage range [V]	200-650	200-650	200-650	--
Max DC voltage [V]	800	800	800	--
Max. Input DC current [A]	13+13	26+13	26+13	--
Battery (DC)				
Battery DC voltage range [V]	40-60	40-60	40-60	--



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Battery charge current [A]	190	210	240	--
Battery discharge current [A]	190	210	240	--
Connection (AC)				
Output AC voltage [V]	3L/N/PE, 230/400, 50/60 Hz			--
Rated AC current [A]	11,6	14,5	17,4	--
Max. AC current [A]	12,8	15,9	19,1	--
Active Power [W]	8000	10000	12000	--
Apparent power [VA]	8800	11000	13200	--

Firmware version 1143

Description of the structure of the power generation unit:

The power generation unit is equipped with a DC 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.