



**BUREAU
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

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 V VDE V 0126-1-1:2006 (4.1 Functional safety)

Automatic disconnection device between a generator and the public low-voltage grid

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.

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

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

Certificate number: U22-0169

Date of issue: 2022-03-30

Certification body



Thomas Lammel



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. U22-0169

Appendix

Extract from test report according to EN 50549-1

No. ASUE-ESH-P22010034

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
MPP DC voltage range [V]	200-650	200-650	200-650	200-650
Input DC voltage range [V]	160-800	160-800	160-800	160-800
Input DC current [A]	13+13	13+13	13+13	26+13
Output AC voltage [V]	3L/N/PE 400, 50Hz/60Hz	3L/N/PE 400, 50Hz/60Hz	3L/N/PE 400, 50Hz/60Hz	3L/N/PE 400, 50Hz/60Hz
Output AC current [A]	7,6	9,1	12,1	15,2
Output power [W]	5000	6000	8000	10000
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
	SUN-12K-SG04LP3-EU	--	--	--
MPP DC voltage range [V]	200-650	--	--	--
Input DC voltage range [V]	160-800	--	--	--
Input DC current [A]	26+13	--	--	--
Output AC voltage [V]	3L/N/PE 400, 50Hz/60Hz	--	--	--
Output AC current [A]	18,2	--	--	--
Output power [W]	12000	--	--	--
Battery DC voltage range [V]	40-60	--	--	--
Battery charge current [A]	240	--	--	--
Battery discharge current [A]	240	--	--	--

Firmware version Beginning with 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.



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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

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

Certificate number: U23-0246

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

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



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Annex to the EN 50549-1 certificate of compliance No. U23-0246

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

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
PV Input voltage range	160-800 Vdc			
MPPT Input range	200-650 Vdc			
PV input current	13A+13A	13A+13A	13A+13A	26A+13A
Battery voltage range	40-60Vdc			
Max. charge current	120A	150A	190A	210A
Max. discharge current	120A	150A	190A	210A
Rated grid voltage	3L/N/PE 400V, 50Hz/60Hz			
Max. AC Output current	8,0A	9,6A	12,8A	15,9A
AC Output Rated. current	7,2A	8,7A	11,6A	14,5A
Rated active Power	5kW	6kW	8kW	10kW
Max. apparent Power	5,5kVA	6,6kVA	8,8kVA	11kVA
	SUN-12K-SG04LP3-EU	--	--	--
PV Input voltage range	160-800 Vdc	--	--	--
MPPT Input range	200-650 Vdc	--	--	--
PV input current	26A+13A	--	--	--
Battery voltage range	40-60Vdc	--	--	--
Max. charge current	240A	--	--	--
Max. discharge current	240A	--	--	--
Rated grid voltage	3L/N/PE 400V, 50Hz/60Hz	--	--	--
Max. AC Output current	19,1A	--	--	--
AC Output Rated. current	17,4A	--	--	--
Rated active Power	12kW	--	--	--
Max. apparent Power	13,2kVA	--	--	--



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Annex to the EN 50549-1 certificate of compliance No. U23-0246

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



Shenzhen BALUN Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

VERIFICATION OF CONFORMITY

Certificate No.: BL-DG2141022D01

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-6K-SG04LP3-EU, SUN-8K-SG04LP3-EU,
SUN-10K-SG04LP3-EU, SUN-12K-SG04LP3-EU

The submitted sample of the above product has been tested according with below Standard(s):

Applied Standards:	Report No.:
IEC 61727:2004; IEC 62116: 2014; IEC 61683:1999	BL-DG2141022-B01
IEC 60068-2-1: 2007; IEC 60068-2-2: 2007	BL-DG2141022-B02
IEC 60068-2-14: 2009; IEC 60068-2-30: 2005	BL-DG2141022-B03



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Dongguan BALUN Testing Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

VERIFICATION OF CONFORMITY

Certificate No.: BL-DG21C0658D01

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-5K-SG04LP3-EU, SUN-6K-SG04LP3-EU,
SUN-8K-SG04LP3-EU, SUN-10K-SG04LP3-EU,
SUN-12K-SG04LP3-EU

The submitted sample of the above product has been tested according with below Standard(s) used for showing compliance with the essential requirements in the **LVD directive (2014/35/EU)** :

Applied Standards:	Report No.:
EN 62109-1:2010; EN 62109-2:2011	BL-DG21C0658-B01 BL-DG21C0658-B01 attachment 1





Dongguan BALUN Testing Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

VERIFICATION OF CONFORMITY

Certificate No.: BL-DG21C0658D02

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-5K-SG04LP3-EU, SUN-6K-SG04LP3-EU,
SUN-8K-SG04LP3-EU, SUN-10K-SG04LP3-EU,
SUN-12K-SG04LP3-EU

The submitted sample of the above product has been tested according with below Standard(s):

Applied Standards:	Report No.:
IEC 62109-1:2010; IEC 62109-2:2011	BL-DG21C0658-B01 BL-DG21C0658-B01 attachment 1





VERIFICATION OF CONFORMITY

Dongguan BALUN Testing Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

Certificate No.: BL-DG2141023D04

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-5K-SG04LP3-EU, SUN-6K-SG04LP3-EU, SUN-8K-SG04LP3-EU, SUN-10K-SG04LP3-EU, SUN-12K-SG04LP3-EU, SUN-5K-SG04LP3-AU, SUN-6K-SG04LP3-AU, SUN-8K-SG04LP3-AU, SUN-10K-SG04LP3-AU, SUN-12K-SG04LP3-AU

The submitted sample of the above product has been tested according with below Standard(s) used for showing compliance with the essential requirements in the **EMC directive (2014/30/EU)** :

Applied Standards:	Report No.:
EN IEC 61000-6-1:2019; EN IEC 61000-6-2:2019 EN 61000-6-3:2007+A1:2011+AC:2012; EN IEC 61000-6-4:2019; EN IEC 61000-3-2:2019; EN 61000-3-3:2013+A1:2019; EN IEC 61000-3-11:2019; EN 61000-3-12:2011	BL-DG2141023-404(G1)



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VERIFICATION OF CONFORMITY

Dongguan BALUN Testing Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

Certificate No.: BL-DG2141023D05

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-5K-SG04LP3-EU, SUN-6K-SG04LP3-EU, SUN-8K-SG04LP3-EU, SUN-10K-SG04LP3-EU, SUN-12K-SG04LP3-EU, SUN-5K-SG04LP3-AU, SUN-6K-SG04LP3-AU, SUN-8K-SG04LP3-AU, SUN-10K-SG04LP3-AU, SUN-12K-SG04LP3-AU

The submitted sample of the above product has been tested according with below Standard(s) :

Applied Standards:	Report No.:
IEC 61000-6-1:2016; IEC 61000-6-2:2016; IEC 61000-6-3:2020; IEC 61000-6-4:2018; IEC 61000-3-2:2018+AMD1:2020; IEC 61000-3-3:2013+AMD1:2017; IEC 61000-3-11:2017; IEC 61000-3-12:2011	BL-DG2141023-403(G1)





Shenzhen BALUN Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

VERIFICATION OF CONFORMITY

Certificate No.: BL-DG2141022D01

Applicant: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Manufacture: NingBo Deye Inverter Technology Co., Ltd.

Address: No.26 South YongJiang Road, Daqi, Beilun, NingBo, China.

Product: Hybrid inverter

Brand name: 

Model name: SUN-6K-SG04LP3-EU, SUN-8K-SG04LP3-EU,
SUN-10K-SG04LP3-EU, SUN-12K-SG04LP3-EU

The submitted sample of the above product has been tested according with below Standard(s):

Applied Standards:	Report No.:
IEC 61727:2004; IEC 62116: 2014; IEC 61683:1999	BL-DG2141022-B01
IEC 60068-2-1: 2007; IEC 60068-2-2: 2007	BL-DG2141022-B02
IEC 60068-2-14: 2009; IEC 60068-2-30: 2005	BL-DG2141022-B03



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