Certificate of Conformity

Certificate Number: CN-PVES-250113R1

On the basis of the tests undertaken, the sample<s> of the below product have been found to comply with the requirements of the referenced specification<s>/standard<s> at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture(s). The manufacturer(s) shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Applicant:	Shanghai Sunplus New Energy Technology Co., Ltd. Room 806, Building 58, NO.260 Maoyuan Road, Fengxian District, Shanghai China
Product: **Ratings & Principle Characteristics:**	Hybrid Inverter See appendix of Certificate of Conformity
Model:	SP1S-1P3K-L, SP1S-1P3.6K-L, SP1S-1P4K-L, SP1S-1P4.6K-L, SP1S-1P5K-L, SP1S-1P6K-L, SP1A-1P3K-L, SP1A-1P3.6K-L, SP1A-1P4K-L, SP1A-1P4.6K-L, SP1A-1P5K-L, SP1A-1P6K-L.
Brand Name<s>:	Sunplus
Product Complies with:	EN 50549-1: 2019, Requirements for generating plants to be connected in parallel with distribution networks Part 1: Connection to a LV distribution network - Generating plants up to and including type B Type approval for type B
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai West Area, 2nd Floor, No. 707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China Accredited by ACCREDIA in accordance with ISO/IEC 17065:2012
Test Report No.<s>:	250220063GZU-001, Revision 1: 11 Mar. 2025

According to Annex H of the standard EN 50549-1:2019, generating plants compliant with the clauses of this European Standard are considered to be compliant with the relevant Article of COMMISSION REGULATION (EU) 2016/631, provided that all settings as provided by the DSO and the responsible party are complied with. Additional information in Appendix.

Replaces certificate CN-PVES-250113 dated 07 March 2025

Signature

Certification Manager: Grady Ye

Date: 12 March 2025

PRD N° 306B

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PVES-250113R1

Model	SP1S-1P3K-L	SP1S-1P3.6K-L	SP1S-1P4K-L	SP1S-1P4.6K-L	SP1S-1P5K-L	SP1S-1P6K-L
PV terminal parameters						
Maximum PV voltage [V_{DC}]	600					
Rated voltage [V_{DC}]	360					
MPPT voltage range [V_{DC}]	100-550					
MPPT voltage range (full load) [V_{DC}]	250-520					
Maximum input current [A_{DC}]	16					
Isc PV [A_{DC}]	20					
MPPT tracker number	2					
Maximum input power [W]	8000	8600	9000			
Number of Strings per MPPT	1					
Battery input/output parameters						
Battery type	Lithium-ion/Lead-acid					
Battery rated voltage [V_{DC}]	51.2					
Battery voltage range [V_{DC}]	42-60					
Maximum charge power [W]	5000					
Maximum discharge power [W]	5000					
Maximum charge current [A_{DC}]	100					
Maximum discharge current [A_{DC}]	100					

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APPENDIX: Certificate of Conformity

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AC input terminal parameters						
Rated input voltage [V_{AC}]	L/N/PE, 230					
Rated input frequency [Hz]	50/60					
Maximum continuous input current from grid to battery [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Maximum continuous input current [A_{AC}]	26.0	32.0	34.8	40.0	43.5	43.5
Maximum continuous input power from grid to battery [W]	3000	3680	4000	4600	5000	6000
Maximum continuous input active power [W]	6000	7360	8000	9200	10000	10000
Maximum input power [W]	6000	7360	8000	9200	10000	10000
AC output terminal parameters						
Rated output voltage [V_{AC}]	L/N/PE, 230					
Rated output frequency [Hz]	50/60					
Rated output current [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Maximum continuous output current [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Rated output active power [W]	3000	3680	4000	4600	5000	6000
Maximum output active power [W]	3000	3680	4000	4600	5000	6000
Power factor range	0.8 leading – 0.8 lagging					

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General parameter	
Ingress protection rating	IP66
Operation temperature range [°C]	-25~+60 (Derating above 40°C)
Operating altitude range [m]	4000（>2000m derating）
Protection class	Class I

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Model	SP1A-1P3K-L	SP1A-1P3.6K-L	SP1A-1P4K-L	SP1A-1P4.6K-L	SP1A-1P5K-L	SP1A-1P6K-L
PV terminal parameters						
Maximum PV voltage [V_{DC}]	600					
Rated voltage [V_{DC}]	360					
MPPT voltage range [V_{DC}]	100-550					
MPPT voltage range (full load) [V_{DC}]	250-520					
Maximum input current [A_{DC}]	16					
Isc PV [A_{DC}]	20					
MPPT tracker number	2					
Maximum input power [W]	8000	8600	9000			
Number of Strings per MPPT	1					
Battery input/output parameters						
Battery type	Lithium-ion/Lead-acid					
Battery rated voltage [V_{DC}]	51.2					
Battery voltage range [V_{DC}]	42-60					
Maximum charge power [W]	5000					
Maximum discharge power [W]	5000					

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Maximum charge current [A_{DC}]	100					
Maximum discharge current [A_{DC}]	100					
AC input terminal parameters						
Rated input voltage [V_{AC}]	L/N/PE, 230					
Rated input frequency [Hz]	50/60					
Maximum continuous input current from grid to battery [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Maximum continuous input current [A_{AC}]	26.0	32.0	34.8	40.0	43.5	47.8
Maximum continuous input power from grid to battery [W]	3000	3680	4000	4600	5000	6000
Maximum continuous input active power [W]	6000	7360	8000	9200	10000	10000
Maximum input power [W]	6000	7360	8000	9200	10000	10000

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AC output terminal parameters						
Rated output voltage [V_{AC}]	L/N/PE, 230					
Rated output frequency [Hz]	50/60					
Rated output current [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Maximum continuous output current [A_{AC}]	13.0	16.0	17.4	20.0	21.7	26.0
Rated output active power [W]	3000	3680	4000	4600	5000	6000
Maximum output active power [W]	3000	3680	4000	4600	5000	6000
Power factor range	0.8 leading – 0.8 lagging					
General parameter						
Ingress protection rating	IP66					
Operation temperature range [°C]	-25~+60 (Derating above 40°C)					
Operating altitude range [m]	4000（>2000m derating）					
Protection class	Class I					

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Interface protection settings according to EN 50549-1:2019			
Parameter	Max. disconnection time	Min. operate time	Trip value
Undervoltage threshold stage 1 [27 <]	100s	0.1s (0.1 s steps)	Trip value Config. from 0.2 to 1 Un (0.01 Un steps)
Undervoltage threshold stage 2 [27 <<]	5s	0.1s (0.05 s steps)	Trip value Config. from 0.2 to 1 Un (0.01 Un steps)
Overvoltage threshold stage 1 [59 >]	100s	0.1s (0.1 s steps)	Trip value Config. from 1.0 to 1.2 Un (0.01 Un steps)
Overvoltage threshold stage 2 [59>>]	5s	0.1s (0.05 s steps)	Trip value Config. from 1.0 to 1.3 Un (0.01 Un steps)
Overvoltage 10 min mean protection	Trip time Config≤ 3s not adjustable Time delay setting = 0 ms		Trip value Config. from 1.0 to 1.15Un (0.01 Un steps)
Underfrequency threshold stage 1 [81 <]	100s	0.1s (0.1s steps)	Trip value Config. from 47.0 to 50.0Hz (0.1Hz steps)
Underfrequency threshold stage 2 [81 <<]	5s	0.1s (0.05 s steps)	Trip value Config. from 47.0 to 50.0Hz (0.1Hz steps)
Overfrequency threshold stage 1 [81 >]	100s	0.1s (0.1s steps)	Trip value Config. from 50.0 to 52.0Hz (0.1Hz steps)
Overfrequency threshold stage 2 [81 >>]	5s	0.1s (0.05 s steps)	Trip value Config. from 50.0 to 52.0Hz (0.1Hz steps)
Starting to and reconnection settings for voltage		50%-120% adjustable, 85%Un≤ U≤1.10Un default	
Starting to generate electrical power		47Hz – 52Hz adjustable, 49.5Hz≤ U≤50.1Hz default	
Reconnection settings for frequency		47Hz – 52Hz adjustable, 49.5Hz≤ U≤50.2Hz default	
Observation time		10s-60s adjustable, 60s default	
Active power increase gradient		6%-3000%/min adjustable, 10%/min default	
Permanent DC injection		0.5% of rated inverter output	
Loss of mains according t0 EN 62116		Within 2s	

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