

# Certificate of Conformity

Certificate Number: CN-PV-210129

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

Applicant Name & Address:	Shenzhen Growatt New Energy Co., Ltd. 2F and 3F, Building 4, Jiayu Company Industrial Park, Xibianling, Shangyu Village, Shiyan Street, Bao'an District, Shenzhen, China
Product Description:	Hybrid inverter / AC Coupled inverter
Ratings & Principle Characteristics:	See Annex to Certificate of Conformity
Models/Type References:	SPH 4000TL3 BH-UP, SPH 5000TL3 BH-UP, SPH 6000TL3 BH-UP, SPH 7000TL3 BH-UP, SPH 8000TL3 BH-UP, SPH 10000TL3 BH-UP, SPA 4000TL3 BH-UP, SPA 5000TL3 BH-UP, SPA 6000TL3 BH-UP, SPA 7000TL3 BH-UP, SPA 8000TL3 BH-UP, SPA 10000TL3 BH-UP
Brand Name:	GROWATT
Specification/Standard:	EN 50549-1: February 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, 2 <sup>nd</sup> Floor, No. 707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China
Test Report Number:	210121014GZU-007

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.



**Signature**

**Certification Manager: Grady Ye**

**Date: 03 June 2021**

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## APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-210129.

Model	SPH 4000 TL3 BH-UP	SPH 5000 TL3 BH-UP	SPH 6000 TL3 BH-UP	SPH 7000 TL3 BH-UP	SPH 8000 TL3 BH-UP	SPH 10000 TL3 BH-UP
<b>Input data(DC)</b>						
Max. recommended PV power (for module STC)	6000W	7500W	9000W	10500W	12000W	15000W
Max. DC voltage	1000V	1000V	1000V	1000V	1000V	1000V
Start voltage	120V	120V	120V	120V	120V	120V
Nominal voltage	600V	600V	600V	600V	600V	600V
MPP voltage range	120~1000V	120~1000V	120~1000V	120~1000V	120~1000V	120~1000V
No. of MPP trackers	2	2	2	2	2	2
No. of PV strings per MPP trackers	1	1	1	1	1	1
Max. input current per MPP trackers	13.5/13.5A	13.5/13.5A	13.5/13.5A	13.5/13.5A	13.5/13.5A	13.5/13.5A
Max. short-circuit current per MPP trackers	16.9A/16.9A	16.9A/16.9A	16.9A/16.9A	16.9A/16.9A	16.9A/16.9A	16.9A/16.9A
<b>Output / Input data(AC)</b>						
AC nominal power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Nominal AC voltage	3W+N+PE , 230V/400V;					
AC grid frequency	50 Hz;					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Power factor	0.8leading ~ 0.8lagging					

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Stand alone(AC power)						
AC nominal output power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000 VA	6000 VA	7000 VA	8000 VA	10000 VA
Nominal AC voltage	3W+N+PE , 230V/400V;					
Nominal AC frequency	50/60Hz					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Battery data ( DC )						
Battery voltage range	100~550V					
Max. charging / discharging current	25A					
Continuous charging / discharging power	4000W	5000W	6000W	7000W	8000W	10000W
Type of battery	lithium battery / Lead-acid battery					
Capacity of battery	7.68~76.8kWh					
Others						
Technology	Transformerless					
Protection degree	IP 65					
Operating temperature range	-25 °C ~ +60 °C With derating above 45 °C					
Pollution degree	III					
Protective Class	Class I					
Software Version	YA1.0					

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Model	SPA 4000 TL3 BH-UP	SPA 5000 TL3 BH-UP	SPA 6000 TL3 BH-UP	SPA 7000 TL3 BH-UP	SPA 8000 TL3 BH-UP	SPA 10000 TL3 BH-UP
<b>Output / Input data(AC)</b>						
AC nominal power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Nominal AC voltage	3W+N+PE , 230V/400V;					
AC grid frequency	50Hz;					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
Power factor	0.8leading ~ 0.8lagging					
<b>Stand alone(AC power)</b>						
AC nominal output power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000 VA	6000 VA	7000 VA	8000 VA	10000 VA
Nominal AC voltage	3W+N+PE , 230V/400V;					
Nominal AC frequency	50/60Hz					
Max. output current	6.1A	7.6A	9.1A	10.6A	12.1A	15.2A
<b>Battery data ( DC )</b>						
Battery voltage range	100~550V					
Max. charging / discharging current	25A					
Type of battery	lithium battery / Lead-acid battery					
Capacity of battery	7.68~76.8kWh					
<b>Others</b>						
Technology	Transformerless					
Protection degree	IP 65					
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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 to EN 62116	Within 2s		

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