

Unit Certificate / Einheitenzertifikat



Certificate holder / Inhaber des Zertifikats

STRONG Ges.m.b.H.

Teinfaltstraße 8/4.Stock. A-1010 Vienna. Austria

Date of Original Issue/ Datum der ursprünglichen Ausgabe : 2024-09-24

Date of Last Revision / Datum der letzten Überarbeitung : --

Date of Expiry / Verfallsdatum : 2027-09-23

Certificate number / Zertifikatsnummer : PCS-24-1142

Brand / Trademark / Warenzeichen

SKYWORTH or **STRONG ENERGY**

It is certified that the product / Es ist zertifiziert, dass das Produkt

Models / Modelle : See page 3

Type of generator / Generatortyp : All-in-One Energy Storage System

Technical Data / Technische Daten : See page 3 to page 4

Test Laboratory / Testlabor : SGS-CSTC Standards Technical Services Co., Ltd. Suzhou Branch

Test Report (s) / Testbericht(e) : SUEE240500005251

Test Standard(s) / Prüfnorm(en) : VDE-AR-N 4105:2018-11 + Correction 1:2020

In compliance with the Network connection rule / In Übereinstimmung mit der Anwendungsregel:

VDE-AR-N-4105:2018-11 + Correction 1:2020-10 "Generators connected to the low-voltage distribution network / Erzeugungsanlagen am Niederspannungsnetz" Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network / Technische Mindestanforderungen für Anschluss und Parallelbetrieb von Erzeugungsanlagen am Niederspannungsnetz

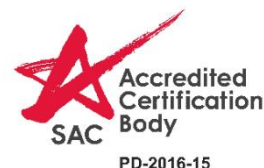
Based on tests requirements defined in / Basierend auf Tests Anforderungen definiert in:

VDE V 0124-100: 2020-06 "Network integration of power generation systems – Low voltage / Netzintegration von Erzeugungsanlagen" Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network / Niederspannung – Prüfanforderungen an Erzeugungseinheiten, vorgesehen zum Anschluss und Parallelbetrieb am Niederspannungsnetz

This is to certify that the product has been tested and was found to comply with the requirements of the standard(s). / Hiermit wird bescheinigt, dass das Produkt getestet wurde und den Anforderungen der Norm(en) entspricht.

The above-mentioned product is certified according to the requirements of ISO/IEC 17065:2012. / Das oben genannte Produkt ist gemäß den Anforderungen der ISO/IEC 17065:2012 zertifiziert.

Christopher Hee
Certification Officer



SGS Testing & Control Services Singapore Pte Ltd
30 Boon Lay Way #03-01 Singapore 609957



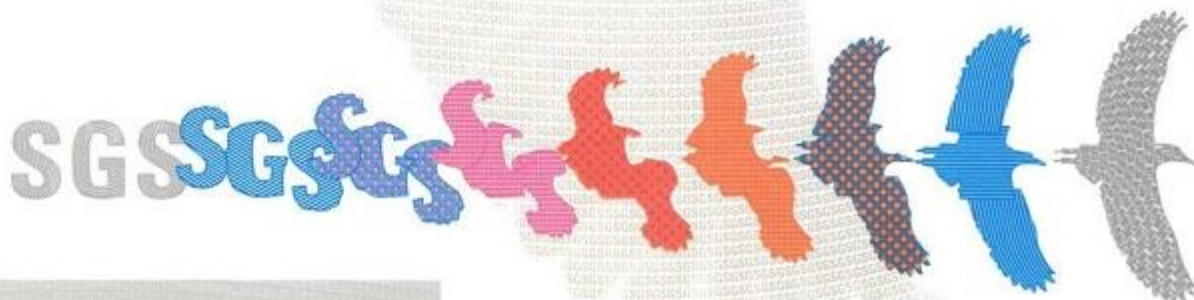
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APPENDIX(ANHANG)

Certificate number / Zertifikatsnummer: PCS-24-1142

E.5 Requirements for the test report for power generation units E.5 Prüfbericht „Netzurückwirkungen“ für Erzeugungseinheiten mit einem Eingangsstrom > 75 A (*)											
Extract from test report for unit certificate "Determination of electrical properties" Auszug aus dem Prüfbericht für Erzeugungseinheiten Bestimmung der elektrischen Eigenschaften"										No. SUEE240500005251	
System Manufacturer Anlagenhersteller:				Shenzhen Skyworth Energy Storage Technology Co., Ltd.							
Manufacturer indications: Herstellerangaben:				Type of system: Anlagenart:			All-in-One				
				Max. active power PEmax max. Wirkleistung PEmax			CRHAST-10K-24000Wh				
							11000 W				
				Rated voltage: Bemessungsspannung			3L/N/PE, 230 Vac				
Measuring period: 2024-03-24 to 2024-05-12											
Flicker		Network impedance angle ψ_k Netzimpedanzwinkel ψ_k						32°			
		Initial flicker factor C ψ Anlagenflickerbeiwert C ψ						33%Pn	66%Pn	100%Pn	
								7.875	7.875	8.500	
Model: CRHAST-10K-24000Wh											
Harmonics Phase A Oberschwingungen											
Active power P/Pn [%] Wirkleistung P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100
Ordinal number Ordnungszahl	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)	I(%)
2	0.019	0.014	0.006	0.006	0.007	0.008	0.010	0.013	0.015	0.019	0.030
3	0.085	0.087	0.094	0.088	0.088	0.086	0.090	0.092	0.092	0.090	0.183
4	0.030	0.019	0.014	0.018	0.023	0.027	0.029	0.030	0.033	0.035	0.040
...											
40	0.007	0.006	0.001	0.003	0.001	0.001	0.003	0.004	0.004	0.003	0.003
Harmonics Phase B Oberschwingungen											
2	0.017	0.005	0.005	0.008	0.006	0.005	0.007	0.006	0.006	0.009	0.012
3	0.089	0.074	0.061	0.057	0.054	0.054	0.052	0.050	0.048	0.046	0.148
4	0.036	0.015	0.016	0.023	0.025	0.034	0.036	0.037	0.039	0.038	0.038
...											
40	0.007	0.006	0.004	0.005	0.004	0.005	0.008	0.009	0.009	0.007	0.008
Harmonics Phase C Oberschwingungen											
2	0.015	0.011	0.008	0.008	0.010	0.010	0.012	0.013	0.015	0.018	0.031
3	0.171	0.159	0.157	0.147	0.142	0.137	0.137	0.136	0.135	0.131	0.302
4	0.008	0.007	0.009	0.017	0.018	0.022	0.022	0.020	0.020	0.019	0.031
...											
40	0.004	0.006	0.004	0.003	0.004	0.005	0.005	0.005	0.005	0.004	0.005

(*) the inverter outputs a current <75 A, thus Inter-harmonics and High Frequencies are not evaluated in accordance with the standard



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Full list of product references and nominal characteristics / Vollständige Liste der Produktreferenzen und nominalen Merkmale:

System model:						
Models	Series		8K		10K	
	Brand					
	Number of batteries	4	CRK4ST-8K -9600Wh	CRK4SW-8K -9600Wh	CRH5ST-10K -12000Wh	CRH5SW-10K -12000Wh
		5	CRK5ST-8K -12000Wh	CRK5SW-8K -12000Wh	CRH6ST-10K -14400Wh	CRH6SW-10K -14400Wh
		6	CRK6ST-8K -14400Wh	CRK6SW-8K -14400Wh	CRH7ST-10K -16800Wh	CRH7SW-10K -16800Wh
		7	CRK7ST-8K -16800Wh	CRK7SW-8K -16800Wh	CRH8ST-10K -19200Wh	CRH8SW-10K -19200Wh
		8	CRK8ST-8K -19200Wh	CRK8SW-8K -19200Wh	CRH9ST-10K -21600Wh	CRH9SW-10K -21600Wh
		9	CRK9ST-8K -21600Wh	CRK9SW-8K -21600Wh	CRHAST-10K -24000Wh	CRHASW-10K -24000Wh
		10	CRKAST-8K -24000Wh	CRKASW-8K -24000Wh	/	/
Input (PV)						
Max. input voltage		1000V				
MPPT operating voltage range		160-950V				
Max. input power		15000W				
Max. input current		20A/30A				
Max. short circuit current		30A/40A				
Max. number of PV strings		3(1/2)				
No. of MPPTs		2				



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Input (battery)		
Compatible battery type	Lithium-ion	
Battery voltage range	150-600V	
Nominal Battery voltage (full load)	250-600V	
Max. charge/ discharge current	50A/50A	
Max. charge/ discharge power	15000W/9100W	15000W/11300W
Output (on grid)		
Rated grid voltage	380V/400V/415V; 3WN+PE	
Rated grid frequency	50/60Hz	
Nom. Power (output)	8000W	10000W
Max. power (output)	8800W	11000W
Apparent power (output)	8800VA	11000VA
Nom. current	3*11.6A	3*14.5A
Max. current	3*25.0A	
Output (backup)		
Rated grid voltage	380V/400V/415V; 3WN+PE	
Nom. Power	8000VA	10000VA
Max. power (5mins)	9600VA	12000VA
Max. power (10s)	12000VA	15000VA
General (for inverter)		
Topology	Transformerless	
Cooling	Natural cooling	
Dimensions (W)*(H)*(D)	530*550*213mm	
Weight	32kg	
General (for system):		
Degree of protection	IP65	
Operation temperature range	0~50°C (>45°C derating)	
Weight	215.3kg / 6 batteries (standard package)	
Dimension (W)*(H)*(D)	780*1760*240mm / 6 batteries (standard package)	

