ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 086470 0229 Rev. 01

Holder of Certificate: **Ginlong Technologies Co., Ltd.**
No.57 Jintong Road
Binhai Industrial Park, Xiangshan
315712 Ningbo, Zhejiang
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter**
Hybrid inverter

Model(s): **S6-EH3P8K02-NV-YD-L, S6-EH3P10K02-NV-YD-L, S6-EH3P12K02-NV-YD-L, S6-EH3P15K02-NV-YD-L, S6-EH3P18K02-NV-YD-L**

Parameters: See next pages

Applicable standards: VDE-AR-N 4105:2018
DIN VDE V 0124-100 (VDE V 0124-100):2020

This Certificate of Conformity confirms the compliance with the above listed standards on a voluntary basis. It refers only to the sample submitted to TÜV SÜD Product Service GmbH and does not certify the quality or safety of the serial products. It was issued according to TÜV SÜD Product Service certification program Photovoltaics and Grid Integration. For details see: www.tuvsud.com/ps-cert

Test report no.: 7040924037119-01

Date, 2025-10-31

(Zhengdong Ma)

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

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Model	S6-EH3P8K02-NV-YD-L	S6-EH3P10K02-NV-YD-L
PV input parameters:		
Max. input voltage	DC 1000 V	
MPPT voltage range	DC 200, …, 850 V	
Max. input current	DC 20+40 A	
Isc PV (absolute maximum)	DC 30+50 A	
AC output parameters:		
Max. (Rated) apparent output Power	8000 VA	10000 VA
Nominal output voltage	3/N/PE ~ 230V/400V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 11.5 A	AC 14.4 A
Power factor range	-0.8, …, 1, …, +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, …, 60 V	
Max. Charge/discharge current	DC 180 A	DC 220 A

Model	S6-EH3P12K02-NV-YD-L	S6-EH3P15K02-NV-YD-L
PV input parameters:		
Max. input voltage	DC 1000 V	
MPPT voltage range	DC 200, …, 850 V	
Max. input current	DC 20+40 A	DC 2*40 A
Isc PV (absolute maximum)	DC 30+50 A	DC 2*50 A
AC output parameters:		
Max. (Rated) apparent output Power	12000 VA	15000 VA
Nominal output voltage	3/N/PE ~ 230V/400V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 17.3 A	AC 21.7 A
Power factor range	-0.8, …, 1, …, +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, …, 60 V	
Max. Charge/discharge current	DC 250 A	DC 290 A

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Model	S6-EH3P18K02-NV-YD-L
PV input parameters:	
Max. input voltage	DC 1000 V
MPPT voltage range	DC 200, …, 850 V
Max. input current	DC 2*42 A
Isc PV (absolute maximum)	DC 2*50 A
AC output parameters:	
Max. (Rated) apparent output Power	18000 VA
Nominal output voltage	3/N/PE ~ 230/400 V
Nominal Frequency	50 Hz
Max. (Rated) output current	AC 26.1 A
Power factor range	-0.8, …, 1, …, +0.8
Battery parameters:	
Battery Type	Li-ion/Lead-acid
Battery Voltage range	DC 40, …, 60 V
Max. Charge/discharge current	DC 320 A

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E.4 Unit certificate

Unit certificate	No. 7040924037119-01	
Manufacturer	Ginlong Technologies Co., Ltd. No.57 Jintong Road, Binhai Industrial Park, Xiangshan, Ningbo, 315712, Zhejiang, P.R. China	
Power generation unit type	[Hybrid inverter]: S6-EH3P8K02-NV-YD-L, S6-EH3P10K02-NV-YD-L, S6-EH3P12K02-NV-YD-L, S6-EH3P15K02-NV-YD-L, S6-EH3P18K02-NV-YD-L Remark: certified on representative model S6-EH3P15K02-NV-YD-L of family design products, results of the measurement of S6-EH3P8K02-NV-YD-L, S6-EH3P15K02-NV-YD-L can be transferred to the other models based on transferability rule of measurements in DIN VDE V 0124-100 (VDE V 0124-100):2020.	
☑ Inverter	▫ Asynchronous generator	▫ Synchronous generator
▫ Stirling generator	▫ Fuel cell	▫ others
Assessment values	Max. active power P_{Emax}	15 kW
	Max. apparent power S_{Emax}	15 kVA
	Rated voltage	3/N/PE ~ 230/400 V
Rated values	Rated current (AC) I_r	21.7 Aa.c.
Rated values	Max. current (AC) I_{max}	21.7 Aa.c.
Rated values	Initial short-circuit current I_k"	21.7 Aa.c.
Network connection rules	**VDE-AR-N 4105:2018-11/Corrigendum 1:2020-10** Generators connected to the low-voltage distribution network - Technical requirements for the connection to and parallel operation with low-voltage distribution networks.	
Test requirement	**DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Network integration of power generation system – Low voltage"** Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network.	
The above mentioned power generation unit meets the requirements of VDE-AR-N 4105.		

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E.5 Test report "Network interactions " for generating units with an input current > 75 A

Extract from test report for unit certificate "Determination of electrical properties"		No. 7040924037119-01
Generation unit manufacturer:	Ginlong Technologies Co., Ltd. No.57 Jintong Road, Binhai Industrial Park, Xiangshan, Ningbo, 315712, Zhejiang, P.R. China	
Manufacturer indications:	Type of system	Inverter for PV and Battery
	Max. active power P_{Emax}	8 kW (S6-EH3P8K02-NV-YD-L) 10 kW (S6-EH3P10K02-NV-YD-L) 12 kW (S6-EH3P12K02-NV-YD-L) 15 kW (S6-EH3P15K02-NV-YD-L) 18 kW (S6-EH3P18K02-NV-YD-L)
	Rated voltage	3/N/PE ~ 230/400 V
Period of measurement:	From 2024-09-15 to 2024-11-01 and From 2025-08-27 to 2025-10-27	

Rapid voltage changes and flicker (DIN EN 61000-3-11)

Phase		P_{st}	d(t) - 500ms [%]	dc [%]	dmax [%]
Limit		1.0	3.3%	3.3%	4%
1	L-N	0.35/0.35/0.35	0.00/0.00/0.00	0.13/0.14/0.17	0.30/0.72/0.58
2	L-N	0.35/0.35/0.36	0.00/0.00/0.00	0.04/0.26/0.14	0.71/0.59/0.33
3	L-N	0.34/0.35/0.35	0.00/0.00/0.00	0.06/0.09/0.18	0.66/0.63/0.28
4	L-N	0.35/0.35/0.35	0.00/0.00/0.00	0.05/0.14/0.15	0.17/0.79/0.48
5	L-N	0.20/0.20/0.21	0.00/0.00/0.00	0.11/0.18/0.15	0.55/0.18/0.82
6	L-N	0.35/0.35/0.35	0.00/0.00/0.00	0.02/0.19/0.28	0.54/0.79/0.29
7	L-N	0.35/0.36/0.36	0.00/0.00/0.00	0.19/0.20/0.25	0.61/0.66/0.27
8	L-N	0.20/0.20/0.21	0.00/0.00/0.00	0.02/0.02/0.04	0.56/0.32/0.74
9	L-N	0.35/0.35/0.36	0.00/0.00/0.00	0.25/0.12/0.03	0.29/0.53/0.68
10	L-N	0.35/0.35/0.35	0.00/0.00/0.00	0.02/0.10/0.32	0.55/0.71/0.32
11	L-N	0.16/0.16/0.17	0.00/0.00/0.00	0.07/0.01/0.07	0.38/0.36/0.80
12	L-N	0.35/0.35/0.36	0.00/0.00/0.00	0.25/0.16/0.14	0.25/0.55/0.65

$P_{lt\ measured}$	0.03/0.03/0.03	**$P_{lt\ limit}$**	0.65
	d(t) - 500ms [%]	dc [%]	dmax [%]
START	0.00/0.00/0.00	0.31/0.28/0.37	0.42/0.43/0.48
STOP	0.00/0.00/0.00	0.46/0.44/0.39	0.50/0.55/0.51
LIMIT	3.3%	3.3%	4%

Supplementary information:

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Harmonics (IEC 61000-3-2 (≤ 16A))(S6-EH3P8K02-NV-YD-L)												
L1												
Power P/Pn[%]	5	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	A	A	A	A	A	A	A	A	A	A	A	A
2	0.019	0.023	0.023	0.005	0.005	0.007	0.005	0.009	0.007	0.009	0.026	1.080
3	0.009	0.005	0.004	0.011	0.013	0.010	0.011	0.011	0.013	0.014	0.019	2.300
4	0.002	0.002	0.002	0.006	0.004	0.003	0.006	0.005	0.007	0.006	0.010	0.430
5	0.009	0.018	0.013	0.055	0.064	0.082	0.083	0.095	0.099	0.104	0.111	1.140
6	0.002	0.002	0.001	0.015	0.013	0.015	0.012	0.012	0.010	0.012	0.012	0.300
7	0.008	0.006	0.013	0.015	0.018	0.037	0.042	0.054	0.063	0.064	0.071	0.770
8	0.001	0.001	0.002	0.005	0.003	0.005	0.003	0.005	0.003	0.007	0.004	0.230
9	0.028	0.013	0.031	0.006	0.003	0.005	0.004	0.004	0.004	0.005	0.007	0.400
10	0.003	0.002	0.001	0.005	0.003	0.004	0.005	0.004	0.004	0.005	0.007	0.184
11	0.008	0.004	0.012	0.041	0.032	0.007	0.006	0.025	0.035	0.041	0.049	0.330
12	0.003	0.003	0.002	0.008	0.011	0.009	0.006	0.008	0.007	0.008	0.009	0.153
13	0.002	0.006	0.008	0.046	0.038	0.023	0.014	0.007	0.022	0.026	0.038	0.210
14	0.001	0.001	0.001	0.008	0.005	0.005	0.003	0.004	0.004	0.005	0.005	0.131
15	0.013	0.016	0.011	0.005	0.006	0.004	0.003	0.004	0.006	0.006	0.006	0.150
16	0.001	0.000	0.001	0.003	0.004	0.005	0.004	0.004	0.004	0.004	0.005	0.115
17	0.004	0.005	0.003	0.036	0.039	0.033	0.027	0.009	0.009	0.015	0.024	0.132
18	0.003	0.004	0.004	0.007	0.007	0.008	0.005	0.005	0.005	0.006	0.006	0.102
19	0.002	0.002	0.002	0.019	0.025	0.036	0.033	0.017	0.009	0.007	0.015	0.118
20	0.001	0.001	0.000	0.004	0.006	0.004	0.005	0.005	0.004	0.007	0.005	0.092

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21	0.005	0.003	0.001	0.005	0.003	0.004	0.005	0.005	0.005	0.004	0.005	0.107
22	0.001	0.000	0.000	0.005	0.005	0.005	0.004	0.005	0.005	0.006	0.008	0.084
23	0.002	0.003	0.001	0.010	0.005	0.030	0.031	0.018	0.013	0.012	0.013	0.098
24	0.001	0.000	0.001	0.006	0.009	0.007	0.007	0.005	0.006	0.004	0.005	0.077
25	0.001	0.002	0.001	0.023	0.013	0.018	0.027	0.022	0.018	0.015	0.012	0.090
26	0.001	0.0011	0.001	0.004	0.005	0.004	0.005	0.003	0.005	0.003	0.005	0.071
27	0.003	0.005	0.001	0.003	0.004	0.005	0.004	0.004	0.004	0.004	0.005	0.083
28	0.001	0.001	0.000	0.005	0.003	0.003	0.007	0.004	0.004	0.008	0.005	0.066
29	0.001	0.003	0.001	0.022	0.023	0.004	0.010	0.016	0.023	0.016	0.010	0.078
30	0.001	0.001	0.000	0.005	0.006	0.005	0.005	0.005	0.005	0.003	0.004	0.061
31	0.001	0.001	0.001	0.021	0.022	0.006	0.004	0.016	0.025	0.022	0.013	0.073
32	0.001	0.001	0.001	0.002	0.002	0.005	0.003	0.006	0.003	0.003	0.004	0.058
33	0.002	0.002	0.001	0.003	0.003	0.005	0.003	0.003	0.004	0.005	0.004	0.068
34	0.001	0.001	0.001	0.003	0.003	0.004	0.002	0.003	0.003	0.003	0.004	0.054
35	0.002	0.002	0.002	0.003	0.007	0.013	0.011	0.015	0.023	0.021	0.010	0.064
36	0.001	0.001	0.001	0.004	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.051
37	0.001	0.002	0.001	0.008	0.003	0.016	0.013	0.015	0.022	0.019	0.011	0.061
38	0.001	0.001	0.001	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.048
39	0.002	0.002	0.002	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.058
40	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.046

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L2												
Power P/Pn[%]	5	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	A	A	A	A	A	A	A	A	A	A	A	A
2	0.040	0.040	0.039	0.014	0.012	0.015	0.012	0.013	0.008	0.012	0.066	1.080
3	0.016	0.012	0.008	0.046	0.043	0.034	0.033	0.033	0.035	0.036	0.046	2.300
4	0.005	0.002	0.003	0.019	0.008	0.009	0.010	0.016	0.018	0.015	0.026	0.430
5	0.013	0.034	0.030	0.126	0.142	0.178	0.198	0.218	0.242	0.244	0.268	1.140
6	0.005	0.004	0.003	0.013	0.020	0.017	0.020	0.018	0.020	0.023	0.031	0.300
7	0.013	0.011	0.028	0.042	0.033	0.079	0.103	0.121	0.146	0.144	0.168	0.770
8	0.004	0.004	0.002	0.009	0.008	0.008	0.016	0.010	0.016	0.010	0.014	0.230
9	0.062	0.032	0.077	0.020	0.011	0.013	0.018	0.015	0.018	0.025	0.018	0.400
10	0.005	0.002	0.005	0.012	0.009	0.024	0.013	0.023	0.013	0.026	0.020	0.184
11	0.023	0.006	0.022	0.094	0.070	0.017	0.011	0.046	0.078	0.085	0.111	0.330
12	0.007	0.006	0.006	0.012	0.008	0.009	0.011	0.009	0.009	0.009	0.016	0.153
13	0.003	0.012	0.013	0.104	0.091	0.049	0.027	0.017	0.050	0.053	0.086	0.210
14	0.002	0.002	0.002	0.010	0.011	0.014	0.011	0.010	0.015	0.015	0.012	0.131
15	0.033	0.042	0.030	0.011	0.014	0.011	0.017	0.016	0.024	0.018	0.024	0.150
16	0.004	0.002	0.001	0.007	0.014	0.013	0.010	0.016	0.009	0.010	0.013	0.115
17	0.012	0.014	0.006	0.078	0.090	0.075	0.062	0.025	0.021	0.033	0.057	0.132
18	0.008	0.009	0.010	0.009	0.009	0.009	0.012	0.009	0.010	0.011	0.013	0.102
19	0.006	0.007	0.002	0.040	0.060	0.079	0.077	0.037	0.024	0.014	0.034	0.118
20	0.002	0.002	0.001	0.011	0.014	0.013	0.016	0.018	0.015	0.013	0.013	0.092

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21	0.010	0.008	0.003	0.018	0.013	0.014	0.016	0.022	0.014	0.020	0.020	0.107
22	0.002	0.002	0.001	0.018	0.011	0.012	0.008	0.011	0.011	0.015	0.017	0.084
23	0.007	0.007	0.002	0.033	0.009	0.058	0.071	0.046	0.031	0.034	0.038	0.098
24	0.003	0.002	0.001	0.008	0.011	0.010	0.009	0.009	0.009	0.009	0.013	0.077
25	0.004	0.007	0.002	0.061	0.031	0.046	0.063	0.048	0.045	0.037	0.033	0.090
26	0.001	0.001	0.001	0.010	0.013	0.016	0.013	0.015	0.012	0.012	0.017	0.071
27	0.005	0.011	0.003	0.010	0.009	0.009	0.012	0.013	0.009	0.012	0.013	0.083
28	0.002	0.002	0.001	0.011	0.009	0.013	0.009	0.015	0.009	0.010	0.010	0.066
29	0.004	0.007	0.002	0.049	0.052	0.007	0.022	0.038	0.059	0.046	0.030	0.078
30	0.002	0.002	0.001	0.009	0.009	0.009	0.012	0.009	0.008	0.008	0.011	0.061
31	0.002	0.004	0.002	0.047	0.050	0.019	0.010	0.040	0.058	0.054	0.033	0.073
32	0.001	0.001	0.001	0.007	0.007	0.009	0.008	0.013	0.008	0.015	0.012	0.058
33	0.004	0.005	0.005	0.009	0.008	0.012	0.010	0.007	0.011	0.010	0.016	0.068
34	0.002	0.001	0.001	0.014	0.009	0.018	0.011	0.008	0.012	0.009	0.010	0.054
35	0.004	0.006	0.004	0.008	0.022	0.037	0.025	0.032	0.051	0.050	0.027	0.064
36	0.001	0.001	0.001	0.009	0.006	0.007	0.007	0.012	0.006	0.008	0.011	0.051
37	0.003	0.005	0.003	0.023	0.006	0.038	0.034	0.041	0.055	0.048	0.029	0.061
38	0.001	0.001	0.001	0.006	0.006	0.007	0.008	0.010	0.007	0.010	0.010	0.048
39	0.005	0.004	0.004	0.007	0.009	0.010	0.009	0.010	0.010	0.011	0.008	0.058
40	0.002	0.001	0.001	0.007	0.008	0.005	0.011	0.006	0.006	0.008	0.010	0.046

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L3												
Power P/Pn[%]	5	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	A	A	A	A	A	A	A	A	A	A	A	A
2	0.040	0.035	0.034	0.018	0.018	0.027	0.019	0.024	0.292	0.025	0.070	1.080
3	0.023	0.014	0.012	0.022	0.015	0.016	0.026	0.022	0.029	0.032	0.056	2.300
4	0.008	0.009	0.007	0.008	0.010	0.009	0.011	0.014	0.068	0.012	0.033	0.430
5	0.019	0.036	0.028	0.126	0.149	0.189	0.203	0.227	0.247	0.254	0.271	1.140
6	0.003	0.008	0.006	0.026	0.017	0.019	0.013	0.013	0.061	0.010	0.018	0.300
7	0.018	0.017	0.029	0.052	0.042	0.087	0.105	0.132	0.127	0.156	0.174	0.770
8	0.005	0.002	0.004	0.007	0.009	0.014	0.014	0.017	0.040	0.015	0.015	0.230
9	0.065	0.032	0.075	0.011	0.009	0.009	0.014	0.010	0.024	0.016	0.013	0.400
10	0.006	0.003	0.005	0.015	0.011	0.021	0.010	0.018	0.028	0.018	0.017	0.184
11	0.019	0.010	0.025	0.096	0.076	0.024	0.011	0.045	0.055	0.089	0.112	0.330
12	0.007	0.007	0.008	0.011	0.021	0.019	0.009	0.017	0.021	0.018	0.015	0.153
13	0.005	0.014	0.015	0.108	0.086	0.042	0.034	0.021	0.041	0.063	0.084	0.210
14	0.006	0.005	0.005	0.015	0.009	0.012	0.011	0.009	0.021	0.013	0.011	0.131
15	0.032	0.040	0.029	0.009	0.009	0.012	0.015	0.011	0.015	0.013	0.013	0.150
16	0.005	0.004	0.003	0.008	0.011	0.013	0.012	0.016	0.017	0.009	0.013	0.115
17	0.009	0.011	0.005	0.077	0.087	0.070	0.055	0.024	0.027	0.032	0.058	0.132
18	0.008	0.009	0.010	0.019	0.013	0.022	0.021	0.016	0.020	0.016	0.012	0.102
19	0.005	0.007	0.003	0.045	0.061	0.085	0.082	0.034	0.041	0.011	0.034	0.118
20	0.002	0.002	0.002	0.008	0.008	0.009	0.012	0.013	0.022	0.011	0.012	0.092

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21	0.011	0.007	0.003	0.011	0.013	0.012	0.011	0.014	0.021	0.016	0.017	0.107
22	0.002	0.002	0.001	0.010	0.008	0.011	0.012	0.018	0.021	0.013	0.011	0.084
23	0.005	0.005	0.001	0.035	0.010	0.069	0.073	0.042	0.035	0.032	0.036	0.098
24	0.001	0.003	0.001	0.016	0.017	0.012	0.018	0.010	0.025	0.010	0.014	0.077
25	0.003	0.007	0.001	0.063	0.038	0.050	0.069	0.055	0.040	0.035	0.028	0.090
26	0.001	0.002	0.001	0.010	0.008	0.013	0.010	0.015	0.024	0.011	0.012	0.071
27	0.006	0.011	0.002	0.012	0.007	0.010	0.010	0.010	0.017	0.012	0.013	0.083
28	0.001	0.002	0.001	0.009	0.011	0.013	0.010	0.010	0.021	0.014	0.012	0.066
29	0.003	0.006	0.002	0.057	0.050	0.009	0.021	0.041	0.047	0.038	0.026	0.078
30	0.002	0.001	0.002	0.008	0.015	0.007	0.007	0.011	0.027	0.008	0.010	0.061
31	0.003	0.004	0.002	0.046	0.053	0.016	0.007	0.038	0.048	0.059	0.031	0.073
32	0.002	0.001	0.002	0.007	0.007	0.010	0.006	0.007	0.023	0.013	0.009	0.058
33	0.004	0.005	0.003	0.009	0.007	0.008	0.007	0.010	0.018	0.008	0.011	0.068
34	0.001	0.001	0.002	0.012	0.006	0.016	0.010	0.006	0.016	0.009	0.009	0.054
35	0.003	0.005	0.003	0.007	0.015	0.034	0.025	0.033	0.034	0.041	0.025	0.064
36	0.002	0.001	0.002	0.011	0.007	0.007	0.007	0.008	0.017	0.007	0.007	0.051
37	0.004	0.005	0.003	0.024	0.006	0.043	0.037	0.039	0.036	0.053	0.028	0.061
38	0.002	0.001	0.002	0.006	0.010	0.010	0.010	0.007	0.018	0.011	0.011	0.048
39	0.004	0.004	0.004	0.009	0.007	0.007	0.010	0.009	0.011	0.009	0.008	0.058
40	0.001	0.000	0.002	0.007	0.006	0.006	0.008	0.007	0.013	0.008	0.007	0.046

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Harmonics IEC 61000-3-12(>16 A and ≤75 A) (S6-EH3P15K02-NV-YD-L)													
L1													
Power P/Pn [%]	5	10	20	30	40	50	60	70	80	90	100	IEC 61000-3-12 limit	
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	1 phase [%]	3 phase [%]
2	0.086	0.105	0.107	0.024	0.025	0.032	0.025	0.040	0.033	0.040	0.119	8%	8%
3	0.043	0.025	0.019	0.049	0.062	0.046	0.051	0.052	0.059	0.066	0.088	21.6%	Not stated
4	0.010	0.008	0.010	0.029	0.020	0.016	0.026	0.024	0.032	0.028	0.045	4%	4%
5	0.040	0.084	0.058	0.255	0.293	0.376	0.383	0.436	0.457	0.477	0.512	10.7%	10.7%
6	0.011	0.009	0.003	0.068	0.062	0.067	0.055	0.057	0.046	0.054	0.056	2.67%	2.67%
7	0.036	0.027	0.058	0.071	0.081	0.172	0.195	0.249	0.292	0.293	0.329	7.2%	7.2%
8	0.006	0.006	0.007	0.021	0.014	0.024	0.015	0.022	0.016	0.032	0.020	2%	2%
9	0.127	0.062	0.141	0.026	0.016	0.022	0.018	0.018	0.019	0.025	0.034	3.8%	Not stated
10	0.012	0.009	0.006	0.022	0.014	0.019	0.025	0.017	0.018	0.023	0.033	1.6%	1.6%
11	0.037	0.020	0.053	0.187	0.148	0.031	0.028	0.113	0.159	0.188	0.226	3.1%	3.1%
12	0.015	0.012	0.011	0.036	0.049	0.042	0.028	0.035	0.031	0.037	0.040	1.33%	1.33%
13	0.007	0.026	0.035	0.211	0.177	0.105	0.063	0.034	0.101	0.119	0.173	2%	2%
14	0.004	0.005	0.003	0.035	0.025	0.024	0.015	0.020	0.017	0.021	0.022	-	-
15	0.062	0.074	0.052	0.025	0.029	0.017	0.015	0.020	0.027	0.028	0.028	-	-
16	0.004	0.002	0.003	0.015	0.018	0.023	0.020	0.017	0.018	0.018	0.024	-	-
17	0.019	0.025	0.014	0.166	0.180	0.154	0.126	0.041	0.040	0.069	0.110	-	-
18	0.016	0.018	0.019	0.033	0.032	0.038	0.025	0.023	0.023	0.027	0.029	-	-
19	0.007	0.010	0.007	0.089	0.114	0.166	0.154	0.078	0.043	0.031	0.069	-	-
20	0.002	0.005	0.002	0.017	0.027	0.019	0.021	0.023	0.018	0.030	0.022	-	-

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21	0.023	0.015	0.006	0.025	0.016	0.020	0.022	0.023	0.022	0.020	0.022	-	-
22	0.003	0.002	0.001	0.024	0.023	0.022	0.018	0.022	0.021	0.029	0.039	-	-
23	0.010	0.013	0.004	0.048	0.023	0.136	0.142	0.081	0.061	0.054	0.058	-	-
24	0.004	0.002	0.002	0.029	0.040	0.030	0.033	0.024	0.026	0.020	0.024	-	-
25	0.005	0.011	0.003	0.107	0.061	0.082	0.125	0.100	0.085	0.068	0.054	-	-
26	0.001	0.002	0.002	0.020	0.021	0.018	0.024	0.015	0.023	0.015	0.021	-	-
27	0.012	0.021	0.004	0.016	0.020	0.021	0.020	0.018	0.018	0.018	0.024	-	-
28	0.003	0.003	0.002	0.024	0.014	0.012	0.030	0.019	0.018	0.036	0.025	-	-
29	0.006	0.012	0.005	0.101	0.105	0.018	0.048	0.073	0.104	0.074	0.044	-	-
30	0.003	0.004	0.001	0.021	0.029	0.021	0.023	0.022	0.023	0.015	0.018	-	-
31	0.004	0.006	0.005	0.098	0.102	0.028	0.020	0.072	0.115	0.100	0.058	-	-
32	0.002	0.002	0.001	0.011	0.011	0.023	0.015	0.028	0.014	0.012	0.018	-	-
33	0.008	0.010	0.005	0.014	0.014	0.021	0.015	0.013	0.018	0.021	0.018	-	-
34	0.003	0.001	0.001	0.012	0.013	0.020	0.010	0.016	0.013	0.012	0.017	-	-
35	0.007	0.011	0.007	0.013	0.032	0.061	0.049	0.069	0.104	0.098	0.047	-	-
36	0.002	0.002	0.002	0.019	0.018	0.021	0.020	0.017	0.019	0.020	0.020	-	-
37	0.006	0.009	0.006	0.039	0.013	0.076	0.061	0.069	0.101	0.088	0.049	-	-
38	0.002	0.003	0.001	0.014	0.013	0.013	0.012	0.015	0.015	0.012	0.014	-	-
39	0.009	0.009	0.007	0.012	0.014	0.017	0.012	0.013	0.016	0.015	0.015	-	-
40	0.002	0.002	0.001	0.008	0.010	0.009	0.011	0.010	0.011	0.015	0.018	-	-
THC/Iref	0.190	0.181	0.216	0.490	0.489	0.538	0.538	0.572	0.637	0.657	0.724	23%	13%
PWHD	0.316	0.382	0.248	1.344	1.342	1.453	1.438	1.176	1.410	1.258	1.006	23%	22%

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Certificate of Conformity

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L2													
Power P/Pn [%]	5	10	20	30	40	50	60	70	80	90	100	IEC 61000-3-12 limit	
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	1 phase [%]	3 phase [%]
2	0.074	0.054	0.036	0.214	0.196	0.158	0.154	0.151	0.160	0.166	0.211	8%	8%
3	0.023	0.008	0.016	0.086	0.037	0.042	0.046	0.073	0.083	0.069	0.121	21.6%	Not stated
4	0.059	0.158	0.137	0.581	0.656	0.822	0.911	1.006	1.116	1.124	1.233	4%	4%
5	0.024	0.019	0.012	0.061	0.091	0.079	0.092	0.085	0.094	0.106	0.145	10.7%	10.7%
6	0.062	0.049	0.129	0.194	0.152	0.362	0.475	0.556	0.675	0.663	0.773	2.67%	2.67%
7	0.017	0.018	0.011	0.040	0.039	0.039	0.073	0.047	0.072	0.045	0.066	7.2%	7.2%
8	0.286	0.148	0.353	0.093	0.049	0.060	0.083	0.068	0.081	0.116	0.085	2%	2%
9	0.023	0.011	0.021	0.056	0.043	0.112	0.058	0.104	0.059	0.119	0.094	3.8%	Not stated
10	0.108	0.029	0.103	0.431	0.322	0.080	0.050	0.212	0.361	0.391	0.512	1.6%	1.6%
11	0.034	0.026	0.027	0.057	0.039	0.041	0.050	0.040	0.043	0.040	0.073	3.1%	3.1%
12	0.014	0.057	0.062	0.480	0.418	0.226	0.126	0.077	0.231	0.243	0.395	1.33%	1.33%
13	0.010	0.009	0.009	0.045	0.052	0.063	0.049	0.047	0.069	0.071	0.055	2%	2%
14	0.150	0.192	0.140	0.052	0.066	0.049	0.078	0.074	0.110	0.084	0.110	-	-
15	0.019	0.010	0.006	0.034	0.066	0.059	0.045	0.073	0.043	0.045	0.062	-	-
16	0.057	0.065	0.027	0.361	0.415	0.347	0.285	0.116	0.097	0.152	0.264	-	-
17	0.038	0.042	0.045	0.042	0.041	0.040	0.057	0.043	0.047	0.052	0.059	-	-
18	0.026	0.034	0.008	0.183	0.275	0.365	0.356	0.170	0.111	0.063	0.155	-	-
19	0.007	0.007	0.005	0.049	0.064	0.059	0.075	0.084	0.068	0.059	0.061	-	-
20	0.074	0.054	0.036	0.214	0.196	0.158	0.154	0.151	0.160	0.166	0.211	-	-

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21	0.048	0.036	0.015	0.082	0.060	0.066	0.076	0.102	0.064	0.091	0.094	-	-
22	0.011	0.007	0.004	0.085	0.050	0.055	0.039	0.052	0.052	0.067	0.079	-	-
23	0.030	0.031	0.008	0.154	0.042	0.268	0.326	0.214	0.142	0.155	0.177	-	-
24	0.012	0.008	0.004	0.038	0.051	0.048	0.043	0.042	0.041	0.043	0.058	-	-
25	0.017	0.031	0.009	0.280	0.142	0.212	0.291	0.219	0.207	0.170	0.152	-	-
26	0.004	0.005	0.004	0.045	0.060	0.076	0.059	0.068	0.053	0.053	0.077	-	-
27	0.024	0.049	0.013	0.047	0.041	0.041	0.056	0.061	0.043	0.055	0.059	-	-
28	0.008	0.007	0.003	0.051	0.043	0.062	0.041	0.070	0.040	0.045	0.046	-	-
29	0.017	0.032	0.008	0.228	0.241	0.034	0.103	0.177	0.273	0.210	0.139	-	-
30	0.007	0.010	0.004	0.043	0.040	0.040	0.055	0.043	0.037	0.037	0.052	-	-
31	0.010	0.019	0.010	0.218	0.230	0.088	0.048	0.185	0.269	0.248	0.151	-	-
32	0.005	0.005	0.005	0.030	0.030	0.040	0.038	0.058	0.035	0.067	0.054	-	-
33	0.019	0.023	0.021	0.041	0.035	0.055	0.044	0.031	0.050	0.046	0.073	-	-
34	0.007	0.004	0.004	0.065	0.043	0.083	0.050	0.038	0.054	0.041	0.044	-	-
35	0.017	0.027	0.017	0.035	0.100	0.169	0.115	0.147	0.236	0.229	0.126	-	-
36	0.005	0.006	0.005	0.042	0.028	0.033	0.034	0.055	0.027	0.035	0.050	-	-
37	0.016	0.023	0.014	0.107	0.026	0.175	0.157	0.187	0.255	0.219	0.134	-	-
38	0.004	0.006	0.005	0.026	0.029	0.030	0.035	0.046	0.032	0.048	0.044	-	-
39	0.022	0.020	0.020	0.034	0.042	0.044	0.041	0.044	0.045	0.050	0.038	-	-
40	0.007	0.005	0.003	0.034	0.037	0.025	0.052	0.026	0.028	0.036	0.045	-	-
THC/Iref	0.422	0.381	0.484	1.137	1.107	1.189	1.277	1.324	1.533	1.529	1.742	23%	13%
PWHD	0.780	0.976	0.646	3.155	3.105	3.336	3.377	2.939	3.448	3.160	2.698	23%	22%

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TÜV SÜD Product Service

Certificate of Conformity

No. ESY 086470 0229 Rev. 01

L3													
Power P/Pn [%]	5	10	20	30	40	50	60	70	80	90	100	IEC 61000-3-12 limit	
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	1 phase [%]	3 phase [%]
2	0.184	0.161	0.157	0.082	0.083	0.125	0.089	0.112	1.347	0.116	0.322	8%	8%
3	0.104	0.066	0.053	0.100	0.071	0.075	0.118	0.100	0.132	0.146	0.256	21.6%	Not stated
4	0.037	0.043	0.032	0.039	0.047	0.043	0.050	0.065	0.313	0.055	0.153	4%	4%
5	0.086	0.168	0.127	0.579	0.685	0.869	0.936	1.048	1.136	1.169	1.247	10.7%	10.7%
6	0.012	0.035	0.027	0.120	0.077	0.087	0.061	0.062	0.280	0.044	0.082	2.67%	2.67%
7	0.081	0.077	0.134	0.240	0.195	0.400	0.483	0.609	0.587	0.719	0.800	7.2%	7.2%
8	0.022	0.010	0.018	0.034	0.042	0.064	0.065	0.079	0.186	0.070	0.067	2%	2%
9	0.301	0.148	0.345	0.049	0.042	0.040	0.065	0.048	0.110	0.072	0.060	3.8%	Not stated
10	0.029	0.013	0.025	0.069	0.050	0.096	0.048	0.083	0.128	0.085	0.078	1.6%	1.6%
11	0.088	0.044	0.114	0.444	0.349	0.112	0.052	0.208	0.255	0.409	0.514	3.1%	3.1%
12	0.031	0.031	0.038	0.049	0.098	0.089	0.042	0.079	0.099	0.084	0.070	1.33%	1.33%
13	0.025	0.063	0.067	0.496	0.398	0.195	0.158	0.095	0.189	0.291	0.387	2%	2%
14	0.027	0.025	0.021	0.068	0.042	0.057	0.050	0.041	0.095	0.060	0.052	-	-
15	0.149	0.184	0.134	0.041	0.041	0.053	0.069	0.052	0.070	0.059	0.062	-	-
16	0.024	0.020	0.012	0.038	0.050	0.062	0.054	0.075	0.078	0.043	0.062	-	-
17	0.042	0.049	0.023	0.356	0.402	0.324	0.253	0.111	0.126	0.147	0.266	-	-
18	0.038	0.043	0.046	0.088	0.060	0.100	0.095	0.073	0.090	0.075	0.057	-	-
19	0.022	0.034	0.013	0.206	0.283	0.394	0.378	0.158	0.190	0.050	0.157	-	-
20	0.010	0.007	0.007	0.038	0.035	0.042	0.054	0.058	0.103	0.052	0.054	-	-

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21	0.052	0.034	0.013	0.050	0.061	0.053	0.050	0.065	0.098	0.075	0.079	-	-
22	0.011	0.008	0.004	0.046	0.035	0.051	0.057	0.083	0.099	0.059	0.052	-	-
23	0.021	0.023	0.004	0.159	0.045	0.319	0.336	0.194	0.163	0.147	0.165	-	-
24	0.004	0.012	0.004	0.075	0.079	0.054	0.085	0.046	0.116	0.045	0.066	-	-
25	0.015	0.033	0.004	0.290	0.175	0.229	0.319	0.252	0.182	0.160	0.127	-	-
26	0.006	0.011	0.004	0.047	0.035	0.062	0.045	0.068	0.110	0.050	0.053	-	-
27	0.027	0.050	0.009	0.053	0.034	0.047	0.046	0.047	0.081	0.053	0.060	-	-
28	0.004	0.008	0.006	0.041	0.051	0.059	0.046	0.045	0.097	0.065	0.053	-	-
29	0.012	0.027	0.007	0.264	0.232	0.042	0.095	0.190	0.217	0.177	0.122	-	-
30	0.007	0.006	0.008	0.036	0.067	0.031	0.031	0.051	0.123	0.035	0.046	-	-
31	0.015	0.019	0.010	0.213	0.243	0.072	0.031	0.176	0.219	0.270	0.142	-	-
32	0.007	0.004	0.008	0.030	0.032	0.044	0.028	0.034	0.107	0.061	0.040	-	-
33	0.020	0.023	0.014	0.040	0.034	0.039	0.031	0.045	0.082	0.039	0.051	-	-
34	0.005	0.006	0.009	0.053	0.029	0.076	0.046	0.028	0.073	0.040	0.043	-	-
35	0.013	0.024	0.013	0.034	0.067	0.155	0.116	0.151	0.158	0.190	0.114	-	-
36	0.009	0.006	0.009	0.050	0.030	0.033	0.031	0.037	0.080	0.034	0.033	-	-
37	0.019	0.024	0.015	0.111	0.029	0.199	0.170	0.179	0.165	0.242	0.129	-	-
38	0.008	0.005	0.008	0.028	0.048	0.047	0.044	0.032	0.081	0.049	0.050	-	-
39	0.020	0.020	0.017	0.041	0.030	0.034	0.046	0.042	0.053	0.042	0.038	-	-
40	0.006	0.002	0.007	0.034	0.027	0.027	0.039	0.030	0.060	0.035	0.034	-	-
THC/Iref	0.442	0.382	0.474	1.155	1.121	1.248	1.306	1.374	2.058	1.588	1.757	23%	13%
PWHD	0.766	0.934	0.623	3.273	3.106	3.499	3.468	2.894	3.351	3.074	2.479	23%	22%

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Certificate of Conformity

No. ESY 086470 0229 Rev. 01

E.6 Certificate of the network and system protection

Certificate of NS protection	No. 7040924037119-01		
Manufacturer	Ginlong Technologies Co., Ltd. No.57 Jintong Road, Binhai Industrial Park, Xiangshan, Ningbo, 315712, Zhejiang, P.R. China		
Type of NS protection			
Central NS protection	☐		
Integrated NS protection	☑	Assigned to power generation unit type	S6-EH3P8K02-NV-YD-L, S6-EH3P10K02-NV-YD-L, S6-EH3P12K02-NV-YD-L, S6-EH3P15K02-NV-YD-L, S6-EH3P18K02-NV-YD-L
Network connection rules	**VDE-AR-N 4105:2018-11/Corrigendum 1:2020-10** Generators connected to the low-voltage distribution network - Technical requirements for the connection to and parallel operation with low-voltage distribution networks.		
Test requirement	**DIN VDE V 0124-100 (VDE V 0124-100):2020-06 “Network integration of power generation system – Low voltage”** Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network.		
The network and system protection mentioned above meets the requirements of VDE-AR-N 4105.			

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E.7 Requirement for the test report for the NS protection

Extract from test report for NS protection "Determination of electrical properties"		No. 7040924037119-01
NS protection test report		
Type of NS system:	Integrated NS protection	**Other Manufacturer indications**
Software version:	A1	
Manufacturer:	Ginlong Technologies Co., Ltd. No.57 Jintong Road, Binhai Industrial Park, Xiangshan, Ningbo, 315712, Zhejiang, P.R. China	
Measuring period:	From 2024-09-15 to 2024-11-01 and From 2025-08-27 to 2025-10-27	

	Inverter(s) (S6-EH3P15K02-NV-YD-L)		
Protection function	**Setting value**	**Tripping value**	**Break time NS protection** *
Rise-in-voltage protection *U* >>	1.25 * U_n	L1-N/L2-N/L3-N: 287.5 V / 287.3 V / 287.5 V L1-N: 287.4 V L2-N: 287.4 V L3-N: 287.6 V L1-L2: 497.3 V L2-L3: 497.3 V L3-L1: 497.7 V	L1-N/L2-N/L3-N: 109 ms L1-N: 134 ms L2-N: 127 ms L3-N: 135 ms L1-L2: 117 ms L2-L3: 122 ms L3-L1: 122 ms
Rise-in-voltage protection *U* >	1.10 * U_n	1.10 * Un	ms**
Voltage drop protection *U* <	0.8 * U_n	L1-N/L2-N/L3-N: 184.3 V / 184.3 V / 184.3 V L1-N: 184.1 V L2-N: 184.1 V L3-N: 184.1 V L1-L2: 319.3 V L2-L3: 318.9 V L3-L1: 320.0 V	L1-N/L2-N/L3-N: 3028 ms L1-N: 3018 ms L2-N: 3018 ms L3-N: 3023 ms L1-L2: 3028 ms L2-L3: 3023 ms L3-L1: 3023 ms
Voltage drop protection *U* <<	0.45 * U_n	L1-N/L2-N/L3-N: 103.5 V / 103.5 V / 103.5 V L1-N: 103.6 V L2-N: 103.9 V L3-N: 103.9 V L1-L2: 179.2 V L2-L3: 179.4 V L3-L1: 179.2 V	L1-N/L2-N/L3-N: 332 ms L1-N: 333 ms L2-N: 330 ms L3-N: 333 ms L1-L2: 319 ms L2-L3: 319 ms L3-L1: 318 ms
Frequency decrease protection *f* <	47.5 Hz	47.50 Hz	122 ms
Frequency increase protection *f* >	51.5 Hz	51.50 Hz	123 ms

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*: The tripping time includes the period from the limit value violation *U/f* until the tripping signal to the interface switch. When planning the power generation system, the response time of the interface switch shall be added to the maximum time value obtained as indicated above. The disconnection time (sum of tripping time of the NS protection plus response time of the interface switch) shall not exceed 200 ms. **: Verification disconnection time of moving 10-min-average value. Disconnecting time as below: 1. 519.7 s (L1-N) / 513.8 s (L2-N) / 527.3 s (L3-N) (from 600s@Un to 112%Un) 2. Continuous operation (L1-N/L2-N/L3-N) (from 600s@Un to 108%Un) 3. 332.9 s (L1-N) / 325.3 s (L2-N) / 342.1 s (L3-N) (from 600s@106%Un to 114%Un)	
☑ as integrated NS protection	
Assigned to power generation unit type	Hybrid inverter: S6-EH3P8K02-NV-YD-L, S6-EH3P10K02-NV-YD-L, S6-EH3P12K02-NV-YD-L, S6-EH3P15K02-NV-YD-L, S6-EH3P18K02-NV-YD-L
Integrated interface switch type	Series-connected relays for both the neutral conductor and the line conductor; Power relay type: HF161F-40W/12-HTF(967)
Response time of interface switch for integrated NS protection	The response time of the interface switch: Operate time: Max. 20 ms Release time: Max. 10 ms
Verification of the entire functional chain “integrated NS protection – interface switch” has resulted in successful disconnection.	☑