

CERTIFICATE of Conformity



Registration No.: A3 50689162 0001

Report No.: CN244TKE 002

Holder: **Ginlong technologies Co., Ltd.**
No.57 Jintong Road, Binhai,
(seafront), Industrial
Park, Xiangshan
Ningbo
315712 Zhejiang
P.R. China

Product: **PV-Inverter**
(Hybrid Inverter)

Identification: Type Designation: S6-EH1P9.9K03-NV-YD-L
S6-EH1P12K03-NV-YD-L
S6-EH1P14K03-NV-YD-L
S6-EH1P16K03-NV-YD-L
S6-EH1P18K03-NV-YD-L
Firmware Version: A2
Remark(s) : Refer to report CN244TKE 002 for details.

Tested acc. to: EN 50549-1:2019+A1
EN 50549-10:2022

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.

Durch die DAKKS nach
DIN EN ISO/IEC 17065:2013

akkreditierte Zertifizierungsstelle.
Die Akkreditierung gilt nur für den in der
Urkundenanlage D-ZE-14169-01-02
aufgeführten Akkreditierungsumfang.

Certification Body

Date 07.08.2025



A. Chen
A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Certificate No.: A3 50689162 0001

Certificate Of Conformity

License holder: **Ginlong technologies Co., Ltd.**
No.57 Jintong Road, Binhai, (seafont), Industrial Park, Xiangshan
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S6-EH1P16K03-NV-YD-L, S6-EH1P18K03-NV-YD-L

Firmware version: A2

Standard: **EN 50549-1:2019+A1**
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
EN 50549-10:2022
Requirements for generating plants to be connected in parallel with distribution networks - Part 10: Tests for conformity assessment of generating units

Report No.: CN244TKE 002

Date of issue: 07.08.2025

The verification of conformity refers to the above mentioned product. This is to verify that the specimen is in conformity with the assessment requirement mentioned above. This verification does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.


A. Chen
Certifier

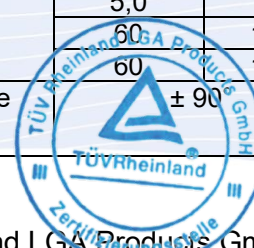


The logo is a circular seal for TÜV Rheinland LGA Products GmbH. It features a central triangle with a smaller triangle inside it. The text 'TÜV Rheinland' is written across the middle of the seal, and 'LGA Products GmbH' is written around the top inner edge. At the bottom, the word 'Zertifizierungsstelle' is written.

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EN 50549-1:2019+A1 Annex C Parameter Table

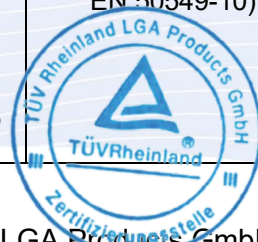
Clause(s) / sub-clause(s) of EN 50549-1:2019+A1	Parameter ^a	Remarks / additional information ^b	Typical value range	Value default	
4.4.2 Operating frequency range	47,0 – 47,5 Hz Duration	Unlimited	0 – 20 s	0s	
	47,5 – 48,5 Hz Duration	Unlimited	30 – 90 min	30 min	
	48,5 – 49,0 Hz Duration	Unlimited	30 – 90 min	30 min	
	49,0 -51,0 Hz Duration	Unlimited	not configurable	unlimited	
	51,0 – 51,5 Hz Duration	Unlimited	30 – 90 min	30 min	
	51, 5 – 52 Hz Duration	Unlimited	0 – 15 min	0 s	
4.4.3 Minimal requirement for active power delivery at underfrequency	Reduction threshold	Not configurable	49 Hz – 49,5 Hz	49,5 Hz	
	Maximum reduction rate	No reduction (≤ 10% P _M / Hz)	2– 10 % PM/Hz	≤ 2% PM/Hz	
4.4.4 Continuous operating voltage range	Upper limit	110% U _c	not configurable	110% U _n	
	Lower limit	85% U _c	not configurable	85% U _n	
4.5.2 Rate of change of frequency (ROCOF) immunity	ROCOF withstand capability (defined with a sliding measurement window of 500 ms)	Up to ± 3.5 Hz/s	not defined	±2 Hz/s	
4.5.3.2 Generating plant with non-synchronous generating technology	Maximum power resumption time	Not configurable	not defined	1 s	
	Voltage-Time-Diagram	Configurable (Default)	see Figure 6	Time [s]	U [p.u.]
				0,0	0,2
				0,15	0,2
			1,5	0,85	
4.5.4 Over-voltage ride through (OVRT)	Maximum power resumption time	Not configurable	Not configurable	1 s	
	Voltage-Time-Diagram	Configurable (Default requirement)	not configurable	Time [s]	U [p.u.]
				0,0	1,25
				0,1	1,25
				0,1	1,20
				5,0	1,20
				5,0	1,15
			60	1,15	
			60	1,10	
4.5.5 – Phase jump immunity	Phase jump immunity	Not configurable (Up to ± 90°)	Not configurable	± 90°	



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4.6.1 Power response to over frequency	Threshold frequency f_1	Configurable	50,2 Hz – 52 Hz	50,2 Hz
	Droop	Configurable	2 % – 12 %	5 %
	Power reference	Configurable	PM Pmax	Pmax, for synchronous generating technology
	Intentional delay	Configurable	0 – 2 s	0s
	Deactivation threshold f_{stop}	Configurable	50,0 Hz – f_1	deactivated
	Deactivation time t_{stop}	Configurable	0 – 600 s	-
	Acceptance of staged disconnection	Not configurable	yes no	yes
4.6.2 Power response to underfrequency	Threshold frequency f_1	Configurable	49,8 Hz – 46 Hz	49,8 Hz
	Droop	Configurable	2 – 12 %	5 %
	Power reference	Not configurable (P_{max})	PM Pmax	Pmax
	Intentional delay	Configurable	0 – 2 s	0 s
4.7.2.2 Capabilities	Active factor / Reactive power (%Pd) range overexcited	0,9– 1 / 44% P_n – 0	0,9 – 1 / 48 %Pd - 0 0,95 – 1 / 33 %Pd - 0	0,9 – 1 / 44% P_n – 0
	Active factor / Reactive power (%Pd) range underexcited	0,9 – 1 / -44% P_n – 0	0,9 – 1 / 48 %Pd - 0 0,95 – 1 / 33 %Pd - 0	0,9 – 1 / -44% P_n – 0
4.7.2.3 Control modes	Enabled control mode	Configurable	Q setp. Q(U) Q(P) cos φ setp. cos φ (P)	Q setpoint
4.7.2.3.2 Setpoint control modes	Q setpoint and excitation	Configurable	0 – 48 % PD, 0 – 33 %PD	0
	Cos φ set point and excitation (ov and uv)	Configurable	1 – 0,9	1
	Time constant (τ)	Configurable (3 – 60 s)	3s-60s	3,33s
4.7.2.3.3 Voltage related control modes	Characteristic curve	Configurable Q(U)	D_{bchar} : -6% to +6 % U_n $Q_{max char}$: 10% – 100% of $Q_{max over}$ and $Q_{max under}$ Slope of the steepest: 1% – 100% Q_{max} / 1% U_n	indicate default characteristic (Figure 33 of EN 50549-10)



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	Time constant	Configurable (3 s– 60 s)	3 s – 60 s	3,33 s
	Min cos φ	Configurable	0,0 – 1	0,9
	Lock in power(P/P _n)	Configurable	0 % – 20 %	deactivated
	Lock out power(P/P _n)	Configurable	0 % – 20 %	deactivated
4.7.2.3.4 Power related control mode	Characteristic curve	Configurable Cos φ (P) Q(P)	Q _{max char.} : 10% – 100% of Q _{max over} and Q _{max under} Slope of the steepest: 2% – 200% Q _{max} / 10% P _n	indicate default characteristic (Figure 36 of EN 50549-10)
	Time constant (τ)	Configurable	3 s – 60 s	3,33 s
	Lock-in voltage (U/U _n)	Configurable	100% – 110%	deactivated
	Lock-out voltage (U/U _n)	Configurable	90% – 100%	deactivated
4.7.4.2.2 Zero current mode for converter connected generating technology	Enabling	Configurable	enable disable	disabled
	Static voltage range overvoltage	Configurable	100 % U _n – 120 % U _n	120 % U _n
	Static voltage range undervoltage	Configurable	20 % U _n – 100 % U _n	50 % U _n
4.9.2 Requirements on voltage and frequency protection	Threshold for protection as dedicated device [in A or kW, kVA]	Configurable	16 A – 250 kVA	
	Undervoltage threshold stage 1	Configurable	0,2 U _n – 1 U _n	
	Undervoltage operate time stage 1	Configurable	0,1 s – 100 s	
	Undervoltage threshold stage 2	Configurable	0,2 U _n – 1 U _n	
	Undervoltage operate time stage 2	Configurable	0,1 s – 5 s	
	Overvoltage threshold stage 1	Configurable	1,0 U _n – 1,2 U _n	
	Overvoltage operate time stage 1	Configurable	0,1 s – 100 s	
	Overvoltage threshold stage 2	Configurable	1,0 U _n – 1,3 U _n	
	Overvoltage operate time stage 2	Configurable	0,1 s – 5 s	
	Overvoltage threshold 10 min mean protection	Configurable	1,0 U _n – 1,15 U _n	
	Underfrequency threshold stage 1	Configurable	47,0 Hz– 50,0 Hz	



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	Underfrequency operate time stage 1	Configurable	0,1 s – 100 s	
	Underfrequency threshold stage 2	Configurable	47,0 Hz – 50,0 Hz	
	Underfrequency operate time stage 2	Configurable	0,1 s – 5 s	
	Overfrequency threshold stage 1	Configurable	50,0 Hz – 52,0 Hz	
	Overfrequency operate time stage 1	Configurable	0,1 s – 100 s	
	Overfrequency threshold stage 2	Configurable	50,0 Hz – 52,0 Hz	
	Overfrequency operate time stage 2	Configurable	0,1 s – 5 s	
4.10.2 Automatic reconnection after tripping	Lower frequency	Configurable	47,0 Hz – 50,0 Hz	49,5 Hz
	Upper frequency	Configurable	50,0 Hz – 52,0 Hz	50,2 Hz
	Lower voltage	Configurable	50 % Un – 100 % Un	85 % Un
	Upper voltage	Configurable	100 % Un – 120 % Un	110 % Un
	Observation time	Configurable	10 s – 600 s	60 s
	Active power increase gradient	Configurable	6 % – 3000 %/min	10 % /min
4.10.3 Starting to generate electrical power	Lower frequency	Configurable	47,0 Hz – 50,0 Hz	49,5 Hz
	Upper frequency	Configurable	50,0 Hz – 52,0 Hz	50,1 Hz
	Lower voltage	Configurable	50 % – 100 % Un	85 % Un
	Upper voltage	Configurable	100 % – 120 % Un	110 % Un
	Observation time	Configurable	10 s – 600 s	60 s
	Active power increase gradient	Configurable	6 % – 3000 %/min	disabled
4.11.1 Ceasing active power	Remote operation of the logic interface	Configurable	yes no	No (Digital input by RS485/Wi-Fi port/Bluetooth)
4.11.2 Reduction of active power on set point	Remote operation NOTE: If yes further definition is provided by the DSO	Configurable	yes no	No (Digital input by RS485/Wi-Fi port/Bluetooth)
4.12 Remote information exchange	Remote information exchange required NOTE: If yes further definition is provided by the DSO	Configurable	yes no	No (The protocols will be agreed between the local DSO and PGUs at final installation.)

Supplementary:

Complémentaire

ov: Over-excited; uv: Under-excited

^a If additional parameters have been evaluated during the test, these shall be added as additional lines in the table.

^b This column should be used for manufacturer specific parameter descriptions.

