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

TÜV SÜD Product Service

Certificate

No. ESY 086470 0276 Rev. 00

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

Product: **PV inverter**
Grid-connected PV inverter

Model(s): **S6-GU3P275K06-EV-ND, S6-GU3P300K06-EV-ND, S6-GU3P333K06-EV-ND, S6-GU3P350K06-EV-ND**

Parameters: See next pages.

Applicable standards: EN 50549-2:2019
EN 50549-10:2022

This Certificate 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.: 704092514249-00

Date, 2025-11-10

(Zhengdong Ma)

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Parameters:

Models	S6-GU3P275K06-EV-ND	S6-GU3P300K06-EV-ND
PV-Input:		
Max. input voltage	DC 1500 V	
Mppt voltage range	DC 480 V, ..., 1500 V	
Max. input current	DC 6*70 A	DC 6*80 A
Isc PV (absolute maximum)	DC 6*105 A	DC 6*125 A
AC-Output (Grid side):		
Rated output voltage	3/PE AC 800 V	
Rated output frequency	50 Hz	
Rated output power	275000 W	300000 W
Max. output power	275000 W	300000 W
Max. apparent output power	275000 VA	300000 VA
Max. continuous output current	AC 198.5 A	AC 216.5 A
Power factor range	-0.8, …, 1, …, +0.8	

Models	S6-GU3P333K06-EV-ND	S6-GU3P350K06-EV-ND
PV-Input:		
Max. input voltage	DC 1500 V	
Mppt voltage range	DC 480 V, ..., 1500 V	
Max. input current	DC 6*80 A	
Isc PV (absolute maximum)	DC 6*125 A	
AC-Output (Grid side):		
Rated output voltage	3/PE AC 800 V	
Rated output frequency	50 Hz	
Rated output power	333000 W	350000 W
Max. output power	333000 W	350000 W
Max. apparent output power	333000 VA	350000 VA
Max. continuous output current	AC 240.3 A	AC 252.6 A
Power factor range	-0.8, …, 1, …, +0.8	

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Evaluated protection function and operational capabilities

Clause(s) / subclause(s) of EN 50549-2:2019	Applicable clause(s) / subclause (s) of EN 50549-10:2022	Remarks, optional modes and constraints	Verdict
4.4.2 Operating frequency range	5.2.1 Frequency operating range	--	Pass
4.4.3 Minimal requirement for active power delivery at underfrequency	5.2.1 Frequency operating range	--	Pass
4.4.4 Continuous operating voltage range	5.2.2 Voltage operating range	--	Pass
4.5.2 Rate of change of frequency (ROCOF) immunity	5.3.1 Immunity to disturbances – Rated of change of frequency (ROCOF)	--	Pass
4.5.3.2 Generating plant with non-synchronous generating technology	5.3.3 Immunity to disturbances - Fault ride through, over-voltage (OVRT) and under-voltage (UVRT)	--	Pass
4.5.4 Over-voltage ride through (OVRT)	5.3.3 Immunity to disturbances - Fault ride through, over-voltage (OVRT) and under-voltage (UVRT)	--	Pass
4.6.1 Power response to overfrequency	5.4 Active response to frequency deviation	--	Pass
4.6.2 Power response to underfrequency	5.4 Active response to frequency deviation	--	N/A
4.7.2.2 Voltage support by reactive power, Capabilities	5.5.1 Power capabilities assessment	--	Pass
4.7.2.3 Voltage support by reactive power, Control modes	5.5.2 Voltage support by reactive power - test to determine the reactive power control modes	Q setp. Q (U) Q (P) Cos φ setp. Cos φ (P)	Pass
4.7.2.3.2 Set point control modes	5.5.2.3 Verification procedure for set point control	Q setp. Cos φ setp.	Pass
4.7.2.3.3 Voltage related control modes	5.5.2.5 Verification procedure for power related control modes for reactive power	Q (U)	Pass
4.7.2.3.4 Power related control mode	5.5.2.5 Verification procedure for power related control modes for reactive power	Q (P) Cos φ (P)	Pass
4.7.3 Voltage related active power reduction	5.6 Voltage related active power reduction - P(U)	P (U)	Pass
NOTE 1 EN 50549-2:2019 evaluates reactive power delivery of generating plants above a defined power threshold at the POC. In this case, the accuracy chain for reactive power delivery for a specific generating plant is excluded from the scope of this conformity assessment but must be considered during design and tested during commissioning of a specific plant.			
4.7.4.2.1.1 Voltage support during faults and voltage steps – General	5.3.3 Immunity to disturbances - Fault ride through, over-voltage (OVRT) and under-voltage (UVRT)	--	Pass
4.7.4.2.1.2 Voltage support during faults and voltage steps – Optional Modes	5.3.3 Immunity to disturbances - Fault ride through, over-voltage (OVRT) and under-voltage (UVRT)	1. Active power priority 2. Reactive current limitation	Pass

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		3. Zero current threshold	
4.7.4.2.2 Zero current mode for converter connected generating technology	5.3.3 Immunity to disturbances - Fault ride through, over-voltage (OVRT) and under-voltage (UVRT)	--	Pass
4.9.3. Requirements on voltage and frequency protection	5.8.5 Verification procedure for generating plants to be connected to a MV distribution network	A dedicated device is required	N/A
NOTE 2 If the interface protection is designed as dedicated device, the disconnection chain and the accuracy of the measuring chain including voltage transformers for a specific generating plant is excluded from the scope of this conformity assessment but must be considered during design and tested during commissioning of a specific plant.			
4.9.4 Means to detect island situation	5.8.6 Islanding detection	Active methods tested with a resonant circuit according to EN 62116	Pass
4.10.2 Automatic reconnection after tripping	5.9.3 Automatic reconnection after tripping	--	Pass
4.10.3 Starting to generate electrical power	5.9.4 Starting to generate electrical power	--	Pass
4.11.1 Ceasing active power	5.10 Active power reduction on set point	--	Pass
4.11.2 Reduction of active power on set point	5.10 Active power reduction on set point	--	Pass
4.12 Remote information exchange	5.11 Remote information exchange	Standardized communication protocol not provided by manufacturer	N/A
4.13 single fault tolerance of interface protection system and interface switch	5.12 Requirements regarding single fault tolerance of interface protection system and interface switch	--	N/A

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Evaluated parameter and parameter range

Name of parameter set		EN50549-2			
Specific technical requirement (e.g. grid codes)		EN 50549-2:2019			
Clause(s) / subclause(s) of EN 50549-2:2019	Parameter	Remarks/ additional information	Configurable value range	Default value	
4.4.2 Operating frequency range	47.0 – 47.5 Hz Duration	--	0 – 20 s	Unlimited with protection setting only	
	47.5 – 48.5 Hz Duration	--	30 – 90 min	Unlimited with protection setting only	
	48.5 – 49.0 Hz Duration	--	30 – 90 min	Unlimited	
	49.0 – 51.0 Hz Duration	--	not configurable	Unlimited	
	51.0 – 51.5 Hz Duration	--	30 – 90 min	Unlimited with protection setting only	
	51. 5 – 52 Hz Duration	--	0 – 15 min	Unlimited with protection setting only	
4.4.3 Minimal requirement for active power delivery at underfrequency	Reduction threshold	--	not configurable	No reduction	
	Maximum reduction rate	--	not configurable	N/A	
4.4.4 Continuous operating voltage range	Upper limit	--	not configurable	110% U_n	
	Lower limit	--	not configurable	90% U_n	
4.5.2 Rate of change of frequency (ROCOF) immunity	ROCOF withstand capability (defined with a sliding measurement window of 500 ms)	--	not configurable	2 Hz/s	
4.5.3.2 Under-voltage ride through (UVRT) Generating plant with non-synchronous generating technology	Maximum power resumption time	--	not configurable	1 s	
	Voltage-Time-Diagram	--	See figure 6 default requirement curve of EN 50549-2:2019	Time [s]	U [p.u.]
				0.0	0.05
				0.25	0.05
				3	0.85
				180	0.85
				180	0.90
4.5.4 Over-voltage ride through (OVRT)	Voltage-Time-Diagram	--	not configurable See figure 8 of EN 50549-2:2019	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
4.6.1 Power response to overfrequency	Threshold frequency f_1	--	50.2 Hz – 52 Hz	50.2 Hz	
	Droop	--	2 % – 12 %	5 %	
	Power reference	--	P_M | P_{max}	P_M	
	Intentional delay	--	0 – 2 s	0 s	
	Deactivation threshold f_{stop}	--	50.0 Hz – f_1	deactivated	
	Deactivation time t_{stop}	--	0 – 600 s	-	

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	Acceptance of staged disconnection	--	yes | no	No
4.6.2 Power response to underfrequency	Threshold frequency f_1	--	49.8 Hz – 46 Hz	49.8 Hz
	Droop	--	2 – 12 %	5 %
	Power reference	--	P_M | P_{max}	P_M
	Intentional delay	--	0 – 2 s	0 s
4.7.2.2 Voltage support by reactive power - Capabilities	Active factor / Reactive power (%Pd) range overexcited	--	0.8 – 1 / 66.67 % P_D – 0	0.8 – 1 / 66.67 % P_D – 0
	Active factor / Reactive power (%Pd) range underexcited	--	0.8 – 1 / 66.67 % P_D – 0	0.8 – 1 / 66.67 % P_D – 0
4.7.2.3 Voltage support by reactive power - Control modes	Enabled control mode	--	Q setp. Q(U) Cos φ setp. Cos φ (P)	Cos φ setp.
4.7.2.3.2 Voltage support by reactive power - Setpoint control modes	Q setpoint and excitation	--	0 –66.67 % P_D	0
	cos φ setpoint and excitation	--	1 – 0.8	1
4.7.2.3.3 Voltage support by reactive power - Voltage related control modes	Characteristic curve – Q (U)	--	--	Indicate default characteristic
	Point a	--	50%Un – 100%Un	93 %Un
	Point b	--	50%Un – 100%Un	94 %Un
	Point c	--	100%Un – 120%Un	106%Un
	Point d	--	100%Un – 120%Un	108 %Un
	Min. reactive power	--	0 –66.67 % P_D ($Q_{max\ under}$)	66.67 % P_D
	Max. reactive power	--	0 –66.67 % P_D ($Q_{max\ over}$)	66.67 % P_D
	Time constant	--	3 s – 60 s	3.0 s
	Min cos φ	--	0.0 – 1	0.4
	Lock in power	--	0 % – 20 %	20%
	Lock out power	--	0 % – 20 %	5%
4.7.2.3.4 Voltage support by reactive power - Power related control mode	Characteristic curve – Cos φ (P)	--	--	Indicate default characteristic
	Point a	--	0 – 100%Pn/ PF:-0.8, …,+0.8	15%Pn/ PF=0.8
	Point b	--	0 – 100%Pn/ PF:-0.8, …,+0.8	20%Pn/ PF=1
	Point c	--	0 – 100%Pn/ PF:-0.8, …,+0.8	80%Pn/ PF=1
	Point d	--	0 – 100%Pn/ PF:-0.8, …,+0.8	90%Pn/ PF=-0.8
	Cos φ	--	0.8 – 1	0.8
	Time constant	--	3 s – 60 s	3.33 s
	Lock in voltage	--	105 %Un	deactivated
	Lock out voltage	--	100 %Un	deactivated
	Characteristic curve – Q (P)	--	--	Indicate default
	Point a	--	0 – 100%Pn/ Q: -0.6Pn– 0.6Pn	15%Pn/ Q=0.6Pn
	Point b	--	0 – 100%Pn/ Q: -0.6Pn– 0.6Pn	20%Pn/ Q=0
	Point c	--	0 – 100%Pn/ Q: -0.6Pn– 0.6Pn	80%Pn/ Q=0

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	Point d	--	0 – 100%Pn/ Q: -0.6Pn– 0.6Pn	90%Pn/ Q=-0.6Pn
4.7.3 Voltage related active power reduction	Characteristic curve - P (U)	--	--	Indicate default characteristic
	Point a	--	0 – 100%Pn/ U:0 V, …,264.5 V	100%Pn/ U=207 V
	Point b	--	0 – 100%Pn/ U:0 V, …,264.5 V	100%Pn/ U=230 V
	Point c	--	0 – 100%Pn/ U:0 V, …,264.5 V	100%Pn/ U=253 V
	Point d	--	0 – 100%Pn/ U:0 V, …,264.5 V	0%Pn/ U=264.5 V
	Time constant	--	3 s – 60 s	3.33 s
4.7.4.2.1 Voltage support during faults and voltage steps – General / Generating plant with non-synchronous generator	Enabling	--	enable | disable	disable
	Static voltage range overvoltage	--	100 % U_n – 120 % U_n	120 % U_n
	Static voltage range undervoltage	--	80 % Un – 100 % U_n	80% U_n
	Insensitivity range of ΔU50per	--	0 % – 15 %	5%
	Gradient k1	--	0 - 6	2
	Gradient k2	--	0 - 6	2
4.7.4.2.1.2 Optional Modes / Generating plant with non-synchronous generator	Active power priority	--	enable | disable	disable
	Reactive current limitation [% rated current]	--	0 % – 100 %	90 %
	Zero current threshold	--	20 % U_n – 100 % U_n	50 %U_n
4.7.4.2.2 Zero current mode for converter connected generating technology	Enabling	--	enable | disable	disable
	Static voltage range overvoltage	--	100 %U_n – 120 %U_n	120 %U_n
	Static voltage range undervoltage	--	20 %U_n – 100 %U_n	50 %U_n
4.9.3 Requirements on voltage and frequency protection	Threshold for protection as dedicated device [in A or kW. kVA]	--	16 A – 250 kVA	A dedicated device is required
	Undervoltage threshold stage 1	--	0.2 U_n – 1 U_n	--
	Undervoltage operate time stage 1	--	0.1 s – 100 s	--
	Undervoltage threshold stage 2	--	0.2 U_n – 1 U_n	--
	Undervoltage operate time stage 2	--	0.1 s – 5 s	--
	Overvoltage threshold stage 1	--	1.0 U_n – 1.2 U_n	--
	Overvoltage operate time stage 1	--	0.1 s – 100 s	--
	Overvoltage threshold stage 2	--	1.0 U_n – 1.3 U_n	--
	Overvoltage operate time stage 2	--	0.1 s – 5 s	--
	Overvoltage threshold 10 min mean protection	--	1.0 U_n – 1.15 U_n	--

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	Underfrequency threshold stage 1	--	47.0 Hz– 50.0 Hz	--
	Underfrequency operate time stage 1	--	0.1 s – 100 s	--
	Underfrequency threshold stage 2	--	47.0 Hz – 50.0 Hz	--
	Underfrequency operate time stage 2	--	0.1 s – 5 s	--
	Overfrequency threshold stage 1	--	50.0 Hz – 52.0 Hz	--
	Overfrequency operate time stage 1	--	0.1 s – 100 s	--
	Overfrequency threshold stage 2	--	50.0 Hz – 52.0 Hz	--
	Overfrequency operate time stage 2	--	0.1 s – 5 s	--
	ROCOF protection	--	--	--
	ROCOF operate time	--	0 - 1 s	--
4.10.2 Automatic reconnection after tripping	Lower frequency	--	47.0 Hz – 50.0 Hz	49.5 Hz
	Upper frequency	--	50.0 Hz – 52.0 Hz	50.2 Hz
	Lower voltage	--	50 %U_n – 100 %U_n	90 %U_n
	Upper voltage	--	100 %U_n – 120 %U_n	110 %U_n
	Observation time	--	10 s – 600 s	60 s
	Active power increase gradient	--	5% – 3000%/min	10 %/min
4.10.3 Starting to generate electrical power	Lower frequency	--	47.0 Hz – 50.0 Hz	49.5 Hz
	Upper frequency	--	50.0 Hz – 52.0 Hz	50.1 Hz
	Lower voltage	--	50 %U_n – 100 %U_n	90 %U_n
	Upper voltage	--	100 %U_n – 120 %U_n	110 %U_n
	Observation time	--	10 s – 600 s	60 s
	Active power increase gradient	--	5% – 3000 %/min	disabled
4.11.1 Ceasing active power	Activation option	--	Can be achieved by APP or Solis cloud, acceptance should be made by the DSO and responsible party	
4.11.2 Reduction of active power on set point	Activation option	--	Can be achieved by APP or Solis cloud, acceptance should be made by the DSO and responsible party	
4.12 Remote information exchange	Available communication standards	--	Standardized communication protocol not provided by manufacturer	