

Compliance Document

No. D 086470 0131 Rev. 00

Holder of Certificate: **Ginlong Technologies Co., Ltd.**

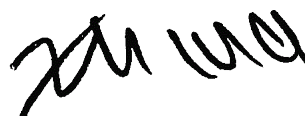
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PEOPLE'S REPUBLIC OF CHINA

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

This Compliance document confirms the compliance with the listed standards on a voluntary basis. It refers only to the sample submitted for testing and certification and does not certify the quality or safety of the serial products. For details see: www.tuvsud.com/ps-cert

Test report no.: 704092304816-00

Date, 2023-04-04



(Zhengdong Ma)



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Model(s): Solis-80K-5G-PRO, Solis-100K-5G-PRO,
Solis-110K-5G-PRO, Solis-125K-5G-PRO

Parameters:
Please see pages 3 to 7.

Tested according to: EN 50549-2:2019/AC:2019



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Models	Solis-80K-5G-PRO	Solis-100K-5G-PRO	Solis-110K-5G-PRO	Solis-125K-5G-PRO
PV input parameters				
Max. input voltage d.c.	1100 V			
MPP voltage range d.c.	160-1000 V			
Max. input current d.c.	3x36A+3x32 A	4x36A+4x32 A		10x36 A
Isc PV(absolute maximum) d.c.	6x50 A	8x50 A		10x50A
AC output parameters				
Rated output power	80000 W	100000 W	110000 W	125000 W
Max. AC output active power	88000 W	110000 W	121000 W	137500 W
Max. AC output apparent power	88000 VA	110000 VA	121000 VA	137500 VA
Rated grid voltage a.c.	3/N/PE~, 230/400 V			
Rated grid frequency	50 Hz			
Max. continuous output current a.c.	133.7 A	167.1 A	183.8 A	198.5 A
Adjustable cos φ	-0.8...1...+0.8			

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Protection settings and power controls in inverter

(based on EN 50549-2:2019)

Clause(s) / subclause(s) of this EN	Ref	Parameter	Typical value range	Value default	
4.4.2 Operating frequency range	A,B	47.0 – 47.5 Hz Duration	0 – 20 s	100s	
	A,B	47.5 – 48.5 Hz Duration	30 – 90 min	Unlimited	
	A,B	48.5 – 49.0 Hz Duration	30 – 90 min	Unlimited	
	A,B	49.0 – 51.0 Hz Duration	not configurable	Unlimited	
	A,B	51.0 – 51.5 Hz Duration	30 – 90 min	Unlimited	
	A,B	51.5 – 52 Hz Duration	0 – 15 min	100s	
4.4.3 Minimal requirement for active power delivery at underfrequency	A,B	Reduction threshold	49 Hz – 49.5 Hz	No Reduction	
	A,B	Maximum reduction rate	2 – 10 % PM/Hz	N/A	
4.4.4 Continuous operating voltage range	n.a.	Upper limit	not configurable	110% Un	
	n.a.	Lower limit	not configurable	85% Un	
4.5.2 Rate of change of frequency (ROCOF) immunity	A,B	ROCOF withstand capability (defined with a sliding measurement window of 500 ms)	not defined	2 Hz/s	
		non-synchronous generating technology:			
		synchronous generating technology:		N/A	
4.5.3.2 Generating plant with non-synchronous generating technology	B	Maximum power resumption time	not defined	1s	
		Voltage-Time-Diagram			see Figure 6
		0.0	0.2		
		0.15	0.2		
		1.5	0.85		
		180	0.85		
	180	0.9			
4.5.3.3 Generating plant with synchronous generating technology	B	Maximum power resumption time	not defined	N/A	
		Voltage-Time-Diagram			see Figure 7 (N/A)
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4.5.4 Over-voltage ride through (OVRT)	n.a.	Voltage-Time-Diagram	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				

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4.6.1 Power response to overfrequency	A,B	Threshold frequency f1	50.2 Hz – 52 Hz	50.2Hz
	A,B	Droop	2 % – 12 %	5%
	A,B	Power reference	PM Pmax	P _M for other non-synchronous generating technology.
	n.a.	Intentional delay	0 – 2 s	0s
	n.a.	Deactivation threshold f _{stop}	50.0 Hz – f1	Deactivation
	n.a.	Deactivation time t _{stop}	0 – 600 s	-
	A	Acceptance of staged disconnection	yes no	yes
4.6.2 Power response to underfrequency	n.a.	Threshold frequency f1	49.8 Hz – 46 Hz	-
	n.a.	Droop	2 – 12 %	-
	n.a.	Power reference	PM Pmax	-
	n.a.	Intentional delay	0 – 2 s	-
4.7.2.2 Capabilities	B	Reactive power range overexcited	0 – 0.6	0
	B	Reactive power range underexcited	0 – 0.6	0
4.7.2.3 Control modes	n.a.	Enabled control mode	Q setp. Q(U) Q(P) cos φ setp. cos φ (P)	Q setpoint
4.7.2.3.2 Setpoint control modes	n.a.	Q setpoint and excitation	0-60%Smax	0
	n.a.	cos φ setpoint and excitation	1-0.9	1
4.7.2.3.3 Voltage related control modes	n.a.	Characteristic curve	-	-
	n.a.	Time constant	3 s – 60 s	10s
	n.a.	Min cos φ	0.0 – 1	0.9
	n.a.	Lock in power	0 % – 20 %	20%
	n.a.	Lock out power	0 % – 20 %	5%
4.7.2.3.4 Power related control mode	n.a.	Characteristic curve	-	disable
4.7.4.2.1 Voltage support during faults and voltage steps - General	B.	Enabling	enable disable	disable
	B.	Static voltage range overvoltage	100 % Un – 120 % Un	110%
	B.	Static voltage range undervoltage	20 % Un – 100 % Un	90%
	B.	Insensitivity range of ΔU50per	0 % – 15 %	5%
	B.	Gradient k1	0 – 6	2
	B.	Gradient k2	0 – 6	2
4.7.4.2.1.2 Optional Modes	n.a.	Active power priority	enable disable	disable
	n.a.	Reactive current limitation [% rated current]	0 %–100 %	50%
	n.a.	Zero current threshold	20 % Un – 100 % Un	50% Un
4.7.4.2.2 Zero current mode for converter connected generating technology	n.a.	Enabling	enable disable	disable
	n.a.	Static voltage range undervoltage	20 % Uc – 100 % Uc	50% Uc
4.9.3 Requirements on voltage and frequency	B	Undervoltage threshold stage 1	0.2 Un – 1 Un	0.8 Un

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protection – inverter self-protection	B	Undervoltage operate time stage 1	0.1 s – 100 s	3 s
	B	Undervoltage threshold stage 2	0.2 Un – 1 Un	0.4 Un
	B	Undervoltage operate time stage 2	0.1 s – 5 s	1.5 s
	B	Overvoltage threshold stage 1	1.0 Un – 1.2 Un	1.2 Un
	B	Overvoltage operate time stage 1	0.1 s – 100 s	5 s
	B	Overvoltage threshold stage 2	1.0 Un – 1.3 Un	1.25 Un
	B	Overvoltage operate time stage 2	0.1 s – 5 s	0.1 s
	B	Overvoltage threshold 10 min mean protection	1.0 Un – 1.15 Un	1.10 Un
	B	Underfrequency threshold stage 1	47.0 Hz– 50.0 Hz	47.5 Hz
	B	Underfrequency operate time stage 1	0.1 s – 100 s	0.5 s
	B	Underfrequency threshold stage 2	47.0 Hz – 50.0 Hz	47 Hz
	B	Underfrequency operate time stage 2	0.1 s – 5 s	0.1 s
	B	Overfrequency threshold stage 1	50.0 Hz – 52.0 Hz	51.5 Hz
	B	Overfrequency operate time stage 1	0.1 s – 100 s	0.5 s
	B	Overfrequency threshold stage 2	50.0 Hz – 52.0 Hz	52.0 Hz
	B	Overfrequency operate time stage 2	0.1 s – 5 s	0.1 s
	B	Positive sequence under-voltage protection threshold	20 % – 100 %	Deactivated
	B	Positive sequence under-voltage protection operate time	0.2 s – 100 s	Deactivated
	B	Negative sequence over-voltage protection threshold	1 % – 100 %	Deactivated
	B	Negative sequence over-voltage protection operate time	0.2 s – 100 s	Deactivated
B	Zero sequence over-voltage protection threshold	0 % – 100 %	Deactivated	
B	Zero sequence over-voltage protection operate time	0.2 s – 100 s	Deactivated	
4.10.2 Automatic reconnection after tripping	B	Lower frequency	47.0 Hz – 50.0 Hz	49.5Hz
	B	Upper frequency	50.0 Hz – 52.0 Hz	50.2Hz
	B	Lower voltage	50 % Un – 100 % Un	90%Un
	B	Upper voltage	100 % Un – 120 % Un	110%Un
	B	Observation time	10 s – 600 s	60s

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	B	Active power increase gradient	6 % – 3000 %/min	10%Pn/min
4.10.3 Starting to generate electrical power	A,B	Lower frequency	47.0 Hz – 50.0 Hz	49.5 Hz
	A,B	Upper frequency	50.0 Hz – 52.0 Hz	50.1 Hz
	A,B	Lower voltage	50 % – 100 % Un	90%Un
	A,B	Upper voltage	100 % – 120 % Un	110%Un
	A,B	Observation time	10 s – 600 s	60s
	A,B	Active power increase gradient	6 % – 3000 %/min	10%Pn/min
4.11.1 Ceasing active power	A,B	Remote operation of the logic interface	yes no	Digital input
4.11.2 Reduction of active power on set point	B	Remote operation NOTE: If yes further definition is provided by the DSO	yes no	Digital input
4.12 Remote information exchange	B	Remote information exchange required NOTE: If yes further definition is provided by the DSO	yes no	no

The Column Ref specifies if a parameter is relevant for COMMISSION REGULATION 2016/631 and for what type of generating module the parameter is relevant. If n.a. is set, this parameter is: not applicable for 2016/631, but is introduced into EN50549-2 for local DSO network management reasons and is not considered as cross border issues.

Unauthorized access to factory safety parameters setting and software should be prohibited.

A reset to the factory safety parameters requires retesting and verification in conjunction with the end-use system.