

Compliance Document

No. D 086470 0129 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

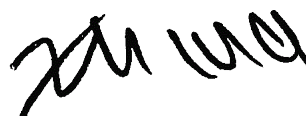
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Test report no.:

704092304814-00

Date,

2023-03-31



(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 6.

Tested according to: EN 50549-1:2019/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.	3*36A+3*32 A	4*36A+4*32 A		10*36 A
Isc PV(absolute maximum) d.c.	6*50 A	8*50 A		10* 50A
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			

Interface protection system default settings and power controls in inverter (based on EN 50549-1:2019)				
Clause(s) / subclause(s) of EN 50549	Ref	Parameter	Typical value range	Value default
4.3.2 Interface switch	n.a.	Single fault tolerance for interface switch required	yes no	yes
4.4.2 Operating frequency range	A,B	47.0 – 47.5 Hz Duration	0 – 20 s	100 s
	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	100 s
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 % P _M /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	B	Maximum power resumption time	not defined	1s
	B	Voltage-Time-Diagram	see Figure 6	Time [s] U [p.u.]

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technology				0,25	0,05
				1,10	0,30
				2,50	0,70
				3,00	0,85
4.5.3.3 Generating plant with synchronous generating technology	B	Maximum power resumption time	not defined	N/A	
	B	Voltage-Time-Diagram	see Figure 7 (N/A)	Time [s]	U [p.u.]
				-	-
				-	-
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
				60,0	1,15
			60,0	1,10	
4.6.1 Power response to overfrequency	A,B	Threshold frequency f_1	50.2 Hz – 52 Hz	50,2 Hz	
	A,B	Droop	2 % – 12 %	5 %	
	A,B	Power reference	P_M P_{max}	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 – f_1	0s	
	n.a.	Deactivation time t_{stop}	0 – 600 s	30 s	
	A	Acceptance of staged disconnection	yes no	yes	
4.6.2 Power response to underfrequency	n.a.	Threshold frequency f_1	49.8 Hz – 46 Hz	N/A	
	n.a.	Droop	2 – 12 %	N/A	
	n.a.	Power reference	P_M P_{max}	N/A	
	n.a.	Intentional delay	0 – 2 s	N/A	
4.7.2.2 Capabilities	B	Active factor range overexcited	0.9 – 1	1	
	B	Active factor range underexcited	0.9 – 1	1	
4.7.2.3 Control modes	n.a.	Enabled control mode	Q setp. Q(U) cos φ setp. cos φ (P)	Q setpoint	
4.7.2.3.2 Setpoint control modes	n.a.	Q setpoint and excitation	0 – 60 % S_{max}	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	10 s	
	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	-	disabled	
4.7.4.2.2 Zero current mode for converter connected generating	n.a.	Enabling	enable disable	disabled	
	n.a.	Static voltage range overvoltage	100 % U_n – 120 % U_n	115 % U_n	

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technology	n.a	Static voltage range undervoltage	20 % U_n – 100 % U_n	85 % U_n
4.9.2 Requirements on voltage and frequency protection	n.a	Threshold for protection as dedicated device [in A or kW, kVA]	16 A – 250 kVA	Interface protection integrated
	B	Undervoltage threshold stage 1	0.2 U_n – 1 U_n	0,8 U_n
	B	Undervoltage operate time stage 1	0.1 s – 100 s	3 s
	B	Undervoltage threshold stage 2	0.2 U_n – 1 U_n	0,4 U_n
	B	Undervoltage operate time stage 2	0.1 s – 5 s	1,5 s
	B	Overvoltage threshold stage 1	1.0 U_n – 1.2 U_n	1,2 U_n
	B	Overvoltage operate time stage 1	0.1 s – 100 s	5 s
	B	Overvoltage threshold stage 2	1.0 U_n – 1.3 U_n	1,25 U_n
	B	Overvoltage operate time stage 2	0.1 s – 5 s	0,1 s
	B	Overvoltage threshold 10 min mean protection	1.0 U_n – 1.15 U_n	1,10 U_n
	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	
4.10.2 Automatic reconnection after tripping	B	Lower frequency	47.0 Hz – 50.0 Hz	49,5 Hz
	B	Upper frequency	50.0 Hz – 52.0 Hz	50,2 Hz
	B	Lower voltage	50 % U_n – 100 % U_n	85 % U_n
	B	Upper voltage	100 % U_n – 120 % U_n	110 % U_n
	B	Observation time	10 s – 600 s	60 s
B	Active power increase gradient	6 % – 3000 %/min	10 % P_n /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 % U_n	85 % U_n
	A,B	Upper voltage	100 % – 120 % U_n	110 % U_n
	A,B	Observation time	10 s – 600 s	60 s
	A,B	Active power increase gradient	6 % – 3000 %/min	10 % P_n /min
4.11.1 Ceasing active	A,B	Remote operation of the	yes no	Digital input

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power		logic interface		
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	N/A

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 EN50549-1 for local DSO network management reasons and is not considered as cross border issues.