

# Compliance Document

No. D 086470 0129 Rev. 01

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

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PEOPLE'S REPUBLIC OF CHINA

**Product:**

**PV inverter**  
**Grid-Connected PV Inverter**

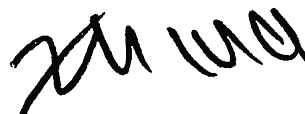
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**Test report no.:**

704092304814-01

**Date,**

2023-11-28



( Zhengdong Ma )



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**Model(s):** Solis-50K-LV-5G-PRO, Solis-60K-LV-5G-PRO,  
Solis-75K-LV-5G-PRO, Solis-80K-5G-PRO,  
Solis-100K-5G-PRO, Solis-110K-5G-PRO,  
Solis-125K-5G-PRO

**Parameters:**  
Please see pages 3 to 5.

**Tested according to:** EN 50549-1:2019

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Models	Solis-50K-LV-5G-PRO	Solis-60K-LV-5G-PRO	Solis-75K-LV-5G-PRO
PV input parameters			
Max. input voltage d.c.	800 V		
MPP voltage range d.c.	160, ...,800 V		
Max. input current d.c.	8*20 A	12*20 A	12*20 A
Isc PV(absolute maximum) d.c.	8*50 A	8*50 A	8*50 A
AC output parameters			
Rated output power	50000 W	60000 W	75000 W
Max. AC output active power	55000 W	66000 W	75000 W
Max. AC output apparent power	55000 VA	66000 VA	75000 VA
Rated grid voltage a.c.	3/(N)/PE~, 230V	3/(N)/PE~, 230V	3/(N)/PE~, 230V
Rated grid frequency	50 Hz	50 Hz	50 Hz
Max. continuous output current a.c.	138.1 A	165.7 A	188.3 A
Adjustable cos $\phi$	-0.8, ...,1, ...,+0.8		

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*40A+3*32 A	4*40A+4*32 A	4*40A+4*32 A	10*36 A
Isc PV(absolute maximum) d.c.	6*50 A	8*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 $\phi$	-0.8, ...,1, ...,+0.8			

Clause(s) /subclause(s) of this EN	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 <sub>m</sub> /Hz	-
4.4.4 Continuous operating voltage range	n.a.	Upper limit	not configurable	110%Un
	n.a.	Lower limit	not configurable	85%Un

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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	2Hz/s	
		non-synchronous generating technology:		2Hz/s	
		synchronous generating technology:		N/A	
4.5.3.2 Generating plant with non-synchronous generating technology	B	Maximum power resumption time	not defined	1 s	
	B	Voltage-Time-Diagram	see Figure 6	Time [s]	U [p.u.]
				0.25	0.05
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	1.15
4.6.1 Power response to overfrequency	A,B	Threshold frequency $f_1$	50.2 Hz – 52 Hz	50.2 Hz	
	A,B	Drop	2 % – 12 %	5 %	
	A,B	Power reference	$P_M$   $P_{max}$	$P_M$	
	n.a.	Intentional delay	0 – 2 s	0s	
	n.a.	Deactivation threshold $f_{stop}$	50.0 Hz – $f_1$	50.2 Hz	
	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.	Drop	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	0.9	
	B	Active factor range underexcited	0.9 – 1	0.9	
4.7.2.3 Control modes	n.a.	Enabled control mode	Q setp. Q(U) cos $\phi$ setp. cos $\phi$ (P)	Q setpoint	
	n.a.				
4.7.2.3.2 Setpoint control modes	n.a.	Q setpoint and excitation	0 – 60 % $S_{max}$	0	
	n.a.	cos $\phi$ 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 $\phi$	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 technology	n.a.	Enabling	enable   disable	disabled	
	n.a.	Static voltage range overvoltage	100 % $U_n$ – 120 % $U_n$	115% $U_n$	
	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	

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	B	Undervoltage threshold stage 2	$0.2 U_n - 1 U_n$	$0.4 U_n$
	B	Undervoltage operate time stage 2	$0.1 \text{ s} - 5 \text{ s}$	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	$0.1 \text{ s} - 100 \text{ s}$	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	$0.1 \text{ s} - 5 \text{ s}$	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	$0.1 \text{ s} - 100 \text{ s}$	0.5 s
	B	Underfrequency threshold stage 2	47.0 Hz – 50.0 Hz	47 Hz
	B	Underfrequency operate time stage 2	$0.1 \text{ s} - 5 \text{ s}$	0.1 s
	B	Overfrequency threshold stage 1	50.0 Hz – 52.0 Hz	51.5 Hz
	B	Overfrequency operate time stage 1	$0.1 \text{ s} - 100 \text{ s}$	0.5 s
	B	Overfrequency threshold stage 2	50.0 Hz – 52.0 Hz	52.0 Hz
	B	Overfrequency operate time stage 2	$0.1 \text{ s} - 5 \text{ s}$	0.1 s
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	$50 \% U_n - 100 \% U_n$	$85\%U_n$
	B	Upper voltage	$100 \% U_n - 120 \% U_n$	$110\%U_n$
	B	Observation time	$10 \text{ s} - 600 \text{ s}$	60s
	B	Active power increase gradient	$6 \% - 3000 \%/\text{min}$	$10\%P_n/\text{min}$
4.10.3 Starting to generate electrical power	A,B	Lower frequency	47.0 Hz – 50.0 Hz	49.5Hz
	A,B	Upper frequency	50.0 Hz – 52.0 Hz	50.1Hz
	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	$10 \text{ s} - 600 \text{ s}$	60s
	A,B	Active power increase gradient	$6 \% - 3000 \%/\text{min}$	$10 \%P_n /\text{min}$
4.11.1 Ceasing active power	A,B	Remote operation of the logic interface	yes   no	yes
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	yes
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.