solis

S5-GR3P(3-20)K

Made by Ginlong Technologies

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History

Focused solely on string inverters for over 15 years

2005 — Established in 2005, we are one of the most experienced and largest manufacturers of solar inverters

2009 — Completes new PV inverter production facility that includes entire industry chain

2012 — Develops joint academic workstation at Shanghai Jiaotong University

2015 — Ginlong (Solis) equipment installed at Eiffel Tower

2018 — The company to receive awards for 6 consecutive years(2016-2021)

2019 — First publicly traded company with a primary focus on string inverters **(Stock Code: 300763.SZ)**

2020 — 15th Anniversary of Ginlong (Solis)

2021 — Solis Second Manufacture Base will put into operation in Q3

Company Profile

$454M+
Total Assets

2000+
Global Employees

300+
Engineers

Established in 2005, Ginlong (Solis) Technologies (Stock Code: 300763.SZ) is one of the most experienced and largest manufacturers of PV string inverters. Presented under the Solis brand, the company's portfolio consists of innovative string inverter technology with first-class proven reliability in the field and 3rd-party validation.

Solis Bankability

Our financial and manufacturing strength is widely recognized among leading financial institutions:

Bank of America
MOSAIC
LOANPAL
JPMorgan Chase & Co.

Listed by leading US banks and financial institutions including BoA, JP Morgan Chase, Mosaic, Sungage Financial, Dividend, Sunlight Financial, etc..

TOP 3

Endorsed by BloombergNEF as a top 3 bankable Asian inverter brand

83%

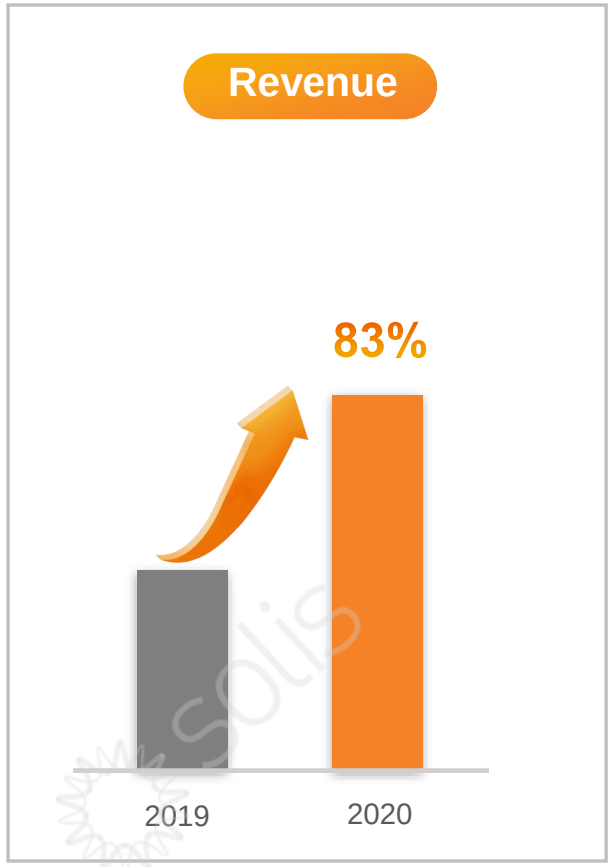
2020
Revenue
Strong financials with total assets at $454 million (USD) with no bank debt

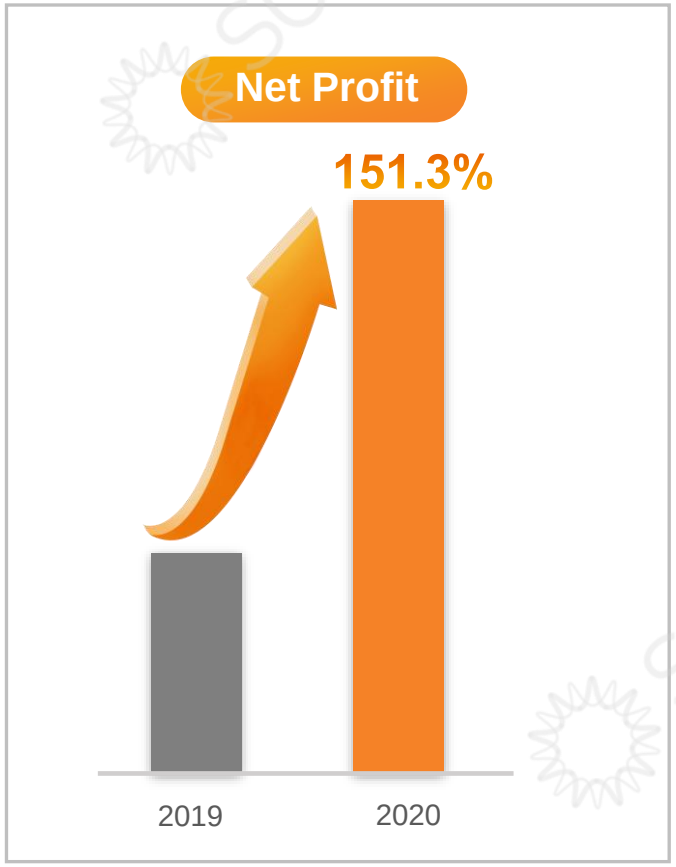
20GW

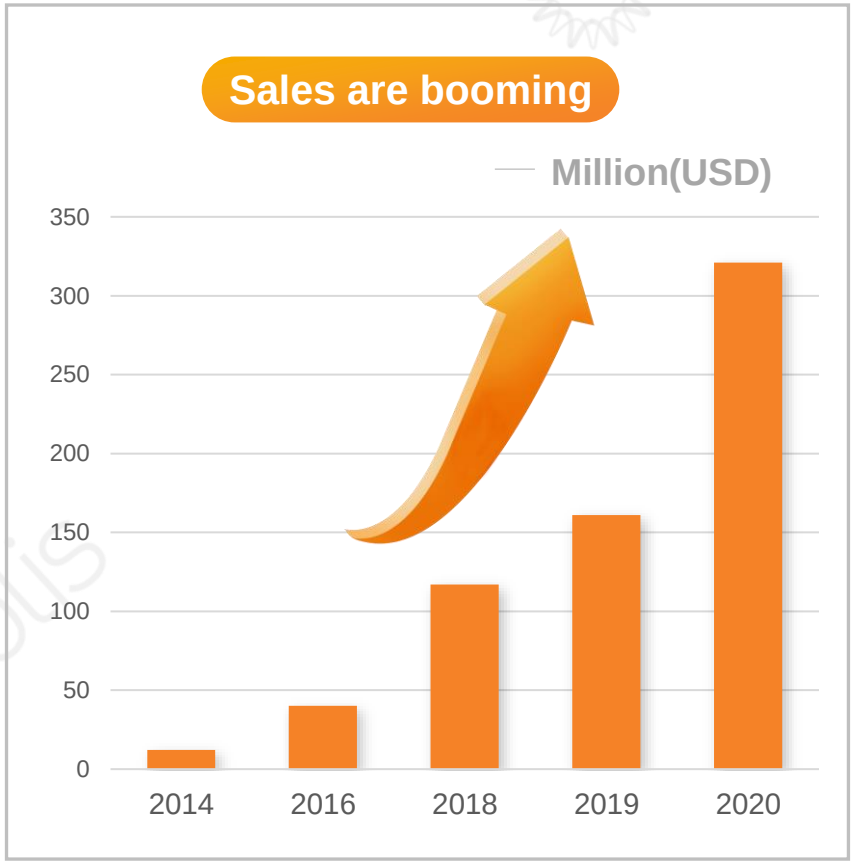
Leaders in string inverter technology reach 20GW global shipments milestone

Financial Report - With no bank debt

2020 reported operating income was US$454 million, an increase of 82.98% year-on-year.







CONTENTS

S5-GR3P(3-20)K

3K/4K/5K/6K/8K/9K/10K/12K/13K/15K/17K/20K

The S5-GR3P(3-20)K is a new generation of three-phase series inverters designed for residential and small C&I PV power stations. It has made many technical optimizations on the whole, Smaller size, higher efficiency, a variety of power models Available for selection. the biggest feature being a single string input current of up to 16A, which perfectly matches Bi-facial panels.

- Leading Features
- Over 98.7% Max. effciency
- Multiple protections levels
- Wide voltage range and low startup voltage
- 2 MPPT design with 32A of per MPPT
- THDi<2%, low harmonic distortion against grid
- Intergrated Export Power Manager (EPM)

360° View

S5-GR3P(3-20)K

Small LCD.

Three phase PV inverter

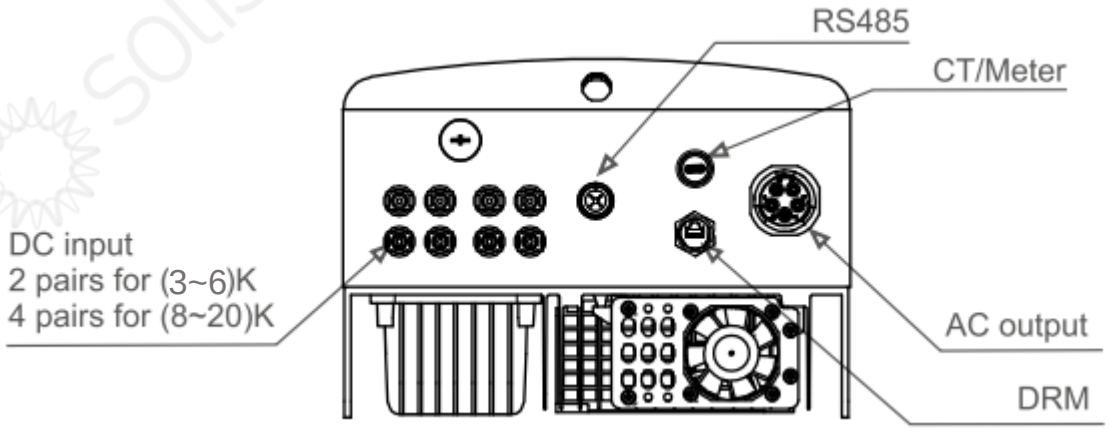
2 MPPT.	2 DC inputs	(3-10kW)
2 MPPT.	4 DC inputs	(12-20kW)

Model:

S5-GR3P3K S5-GR3P4K S5-GR3P5K S5-GR3P6K
S5-GR3P8K S5-GR3P9K S5-GR3P10K S5-GR3P12K
S5-GR3P13K S5-GR3P15K S5-GR3P17K S5-GR3P20K

Suitable for three phase L-L voltage 380V/400V
Small residential system
Support internal export power control function(Zero feed-in)

External Interface



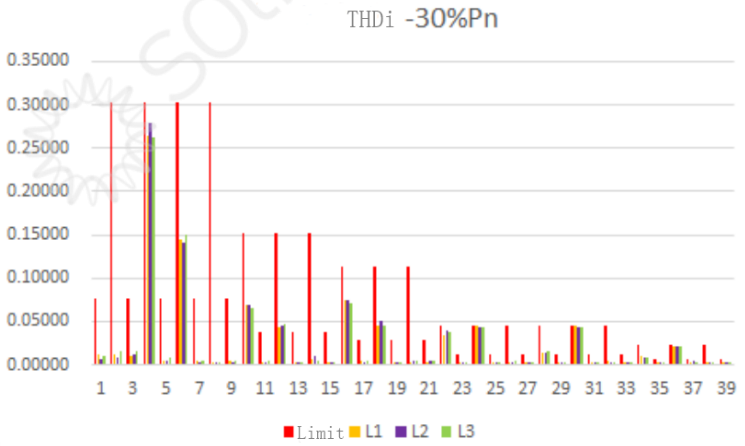
Optional DC switch

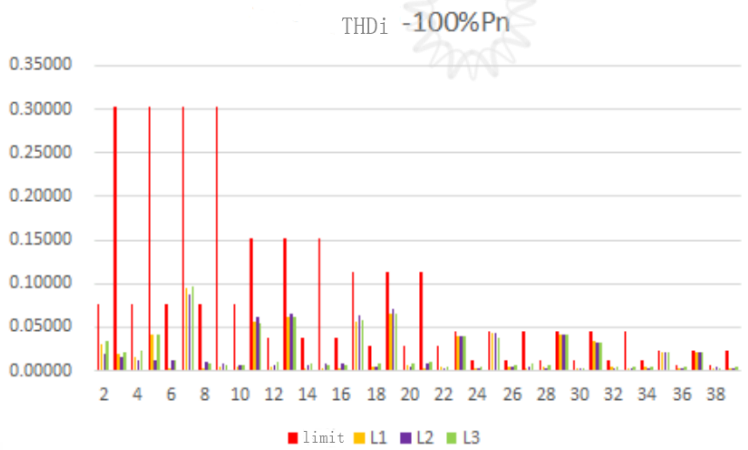
1* 4-pin RS485 port for monitoring stick or upgrade stick

1* Meter port for Internal export power control function

1* DRM port (Demand response management)

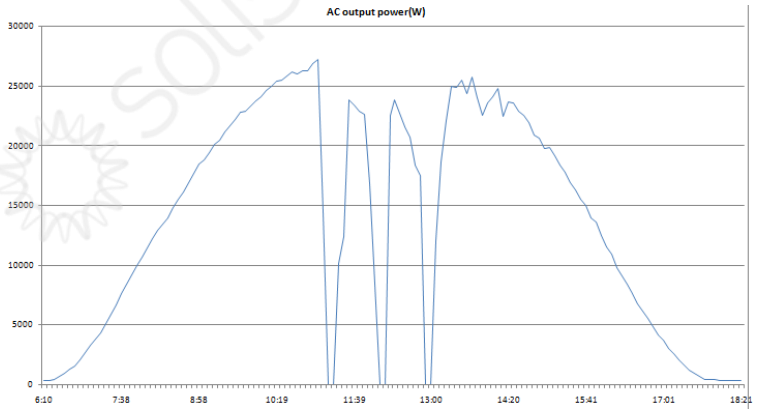
Low THDi



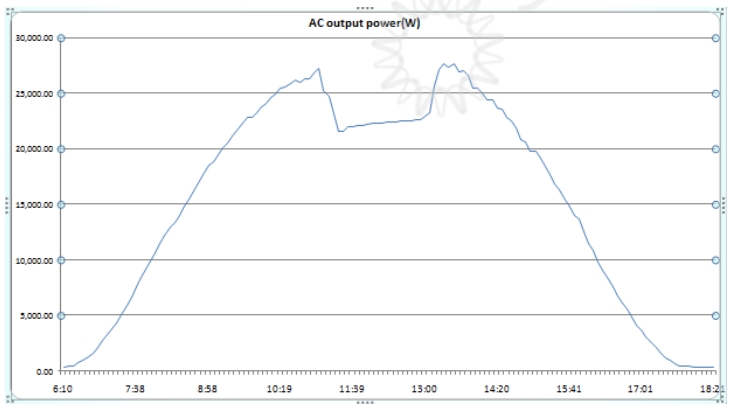


Unique harmonic suppression algorithm, making the inverter output THDi < 2%

Smooth And Stable Output



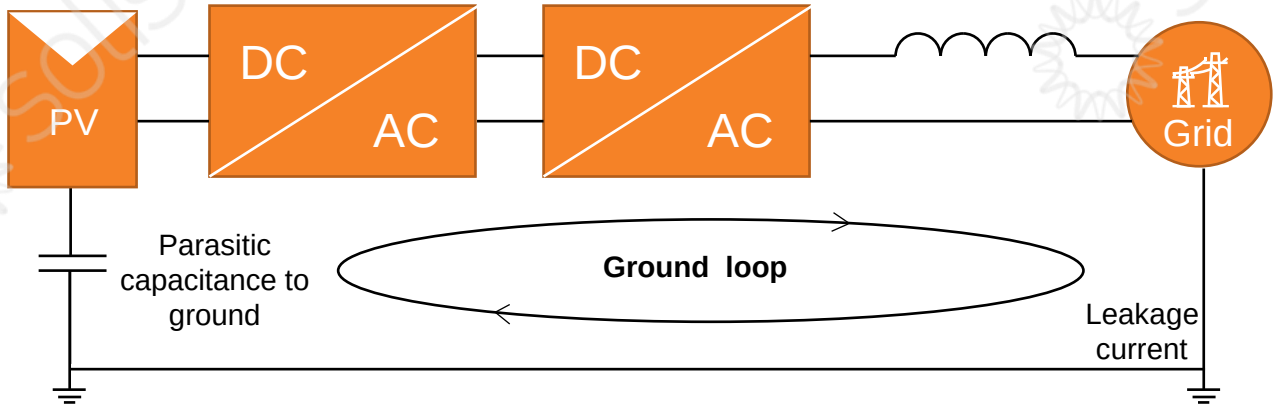
Volt/watt Disabled



Volt/watt Enabled

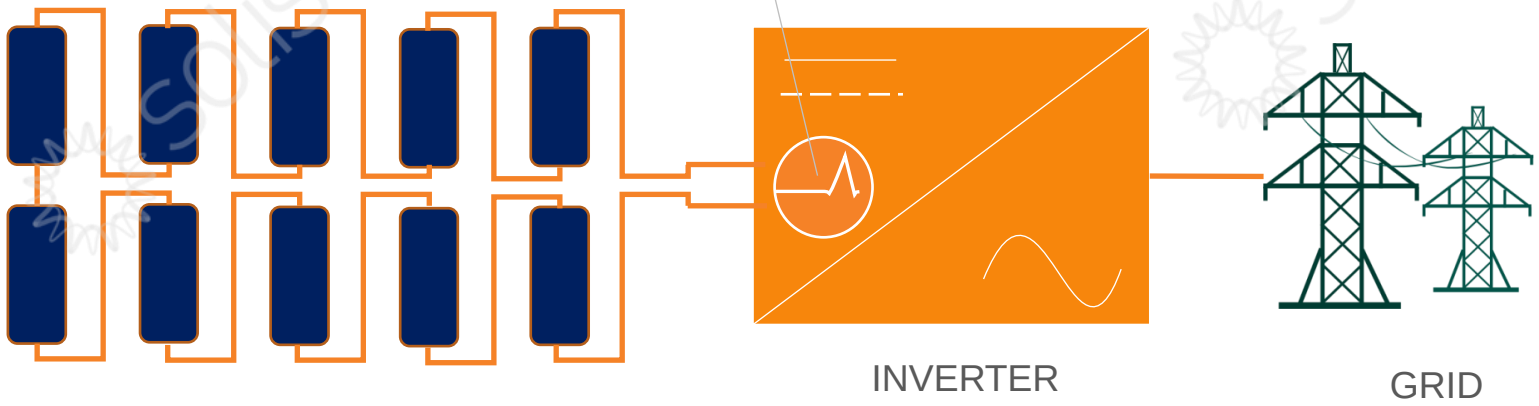
For weak grid areas, grid voltage is unstable. overvoltage issues will trigger the inverter protection and shutdown it very frequently, Volt-Watt Mode can stabilize the voltage to adapt to the working condition of weak grid.

Anti System Leakage Current Technology



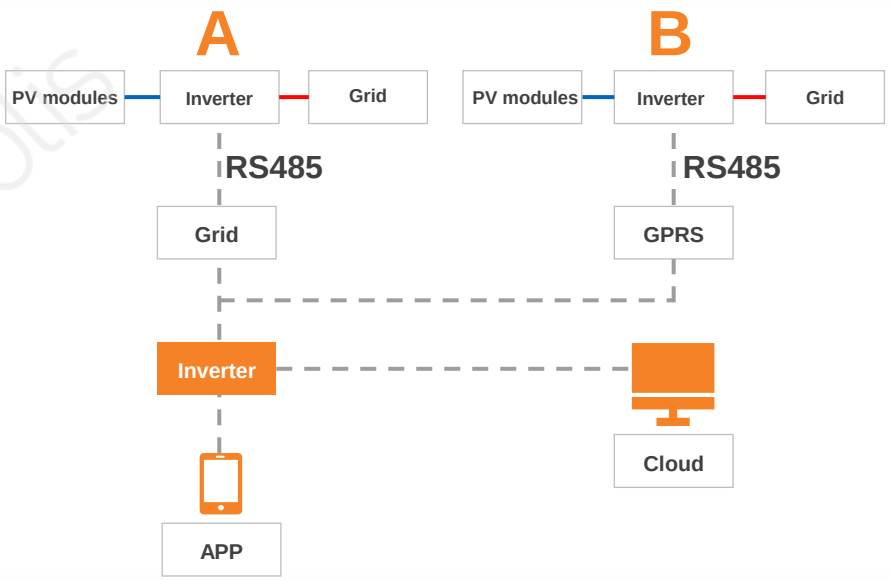
Solis passes the filtering hardware circuit and the self-created filtering algorithm can reduce up to **50%-60%** leakage current faults

AFCI Function



- Secure System Safety
- Lower Upfront and Maintenance Cost
- Regulation Compliance

Remote Control

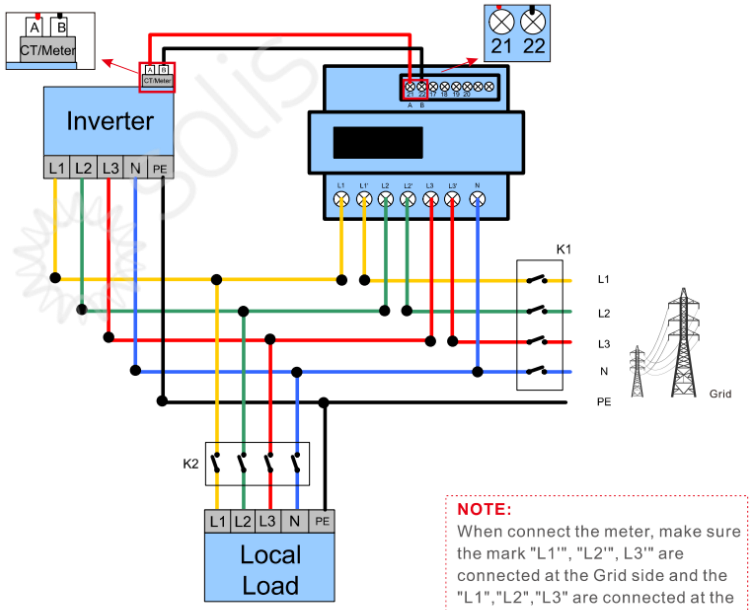


Support remotely control the inverter

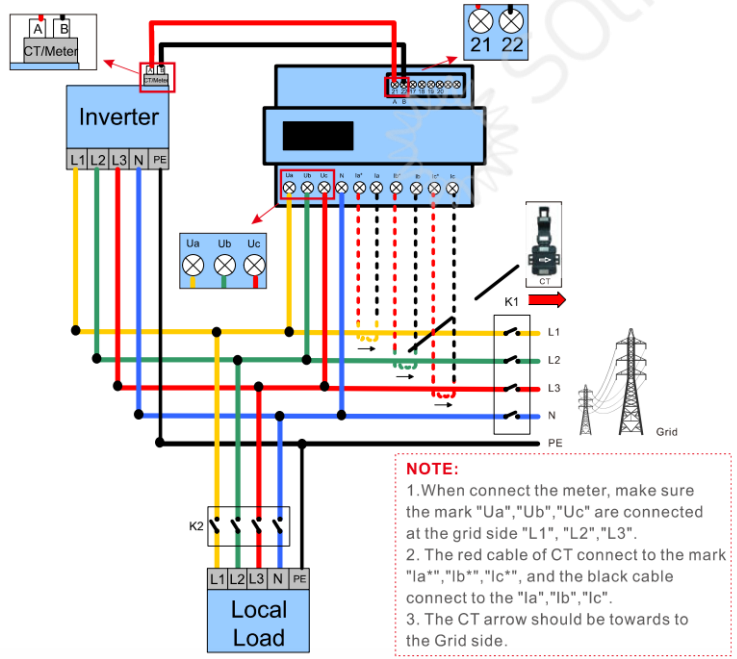
- Firmware upgrade
- Turn ON/OFF
- Change safety standards

Can reduce the **time/cost** on maintenance

EPM Function



NOTE:
When connect the meter, make sure the mark "L1'", "L2'", L3'" are connected at the Grid side and the "L1","L2","L3" are connected at the load/inverter side.



NOTE:
1.When connect the meter, make sure the mark "Ua","Ub","Uc" are connected at the grid side "L1", "L2","L3".
2. The red cable of CT connect to the mark "Ia*","Ib*","Ic*", and the black cable connect to the "Ia","Ib","Ic".
3. The CT arrow should be towards to the Grid side.

Internal export power control function

Use a **Meter** to measure the power flow at the system output. Dynamically control the inverter output power to ensure a certain power is exported to the grid (0 for zero feed-in).

Two types of three phase meter are available. One is direct-insert type, the other is external CT type.

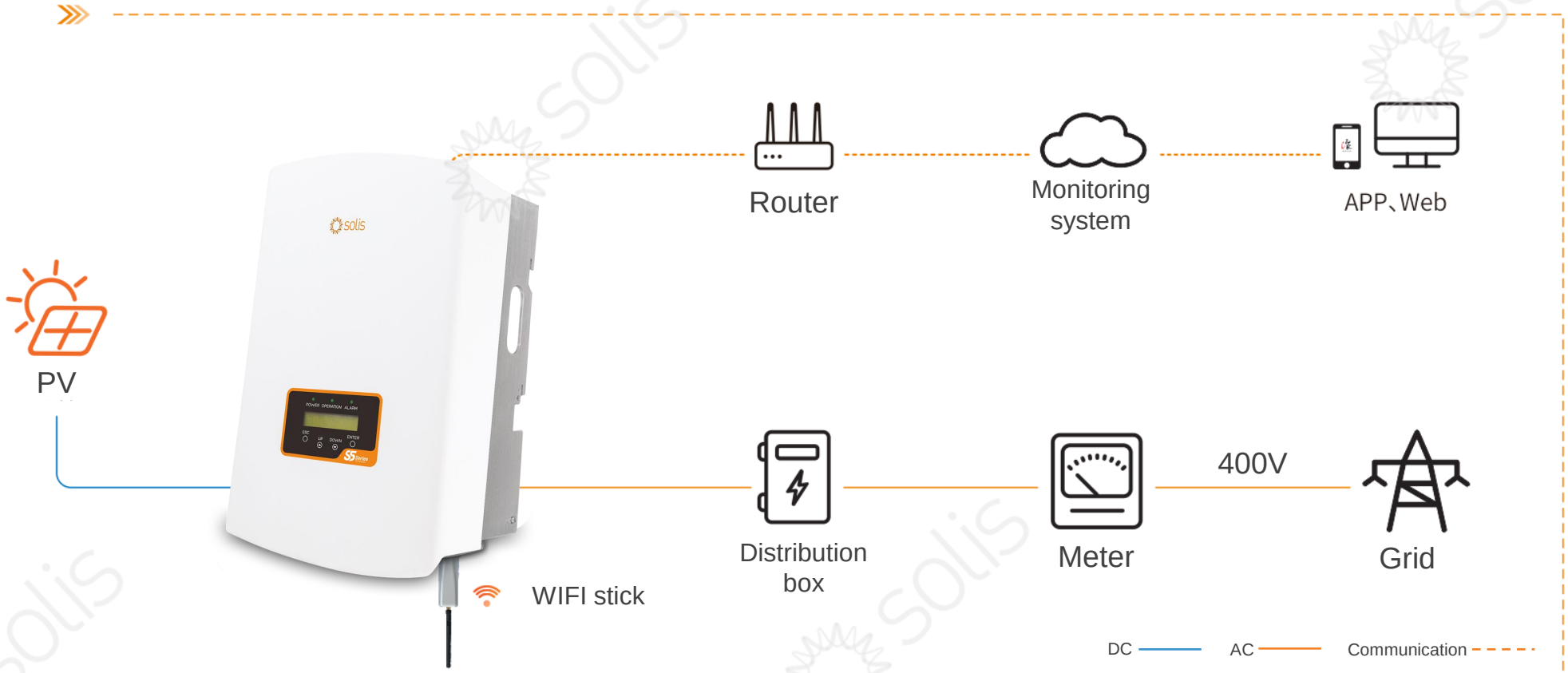
Datasheet

Datasheet

Model Name	S5-GR3P3K	S5-GR3P4K	S5-GR3P5K	S5-GR3P6K	S5-GR3P8K	S5-GR3P9K	S5-GR3P10K	S5-GR3P12K	S5-GR3P13K	S5-GR3P15K	S5-GR3P17K	S5-GR3P20K
Input DC												
Recommended max. PV power	4.5 kW	6 kW	7.5 kW	9 kW	12 kW	13.5 kW	15 kW	18 kW	19.5 kW	22.5 kW	25.5 kW	30 kW
Max. input voltage	1100 V											
Rated voltage	600 V											
Start-up voltage	180 V											
MPPT voltage range	160-1000 V											
Max. input current	16 A / 16 A							32 A / 32 A				
Max. short circuit current	25 A / 25 A							50 A / 50 A				
MPPT number/Max. input strings number	2/2							2/4				
Output AC												
Rated output power	3 kW	4 kW	5 kW	6 kW	8 kW	9 kW	10 kW	12 kW	13 kW	15 kW	17 kW	20 kW
Max. apparent output power	3.3 kVA	4.4 kVA	5.5 kVA	6.6 kVA	8.8 kVA	9.9 kVA	11 kVA	13.2 kVA	14.3 kVA	16.5 kVA	18.7 kVA	22 kVA
Max. output power	3.3 kW	4.4 kW	5.5 kW	6.6 kW	8.8 kW	9.9 kW	11 kW	13.2 kW	14.3 kW	16.5 kW	18.7 kW	22 kW
Rated grid voltage	3/N/PE, 220 V / 380 V, 230 V / 400 V											
Rated grid frequency	50 Hz / 60 Hz											
Rated grid output current	4.6 A / 4.3 A	6.1 A / 5.8 A	7.6 A / 7.2 A	9.1 A / 8.7 A	12.2 A / 11.5 A	13.7 A / 13.0 A	15.2 A / 14.4 A	18.2 A / 17.3 A	19.8 A / 18.8 A	22.8 A / 21.7 A	25.8 A / 24.6 A	30.4 A / 28.9 A
Max. output current	4.7 A	6.4 A	7.9 A	9.5 A	12.7 A	14.3 A	15.9 A	19.1 A	20.7 A	23.8 A	27 A	31.8 A
Power Factor	>0.99 (0.8 leading - 0.8 lagging)											
THDi	<2%											
Efficiency												
Max. efficiency	98.3%				98.5%			98.6%			98.7%	
EU efficiency	97.9%				98.1%			98.2%			98.2%	

Protection				
DC reverse-polarity protection	Yes			
Short circuit protection	Yes			
Output over current protection	Yes			
Surge protection	Yes			
Grid monitoring	Yes			
Anti-islanding protection	Yes			
Temperature protection	Yes			
Integrated AFCI (DC arc-fault circuit protection)	Yes [1]			
Integrated DC switch	Optional			
General Data				
Dimensions (W*H*D)	310*563*219 mm			
Weight	17.3 kg	18 kg	18.9 kg	20.3 kg
Topology	Transformerless			
Self consumption (night)	<1 W			
Operating ambient temperature range	-25 ~ +60°C			
Relative humidity	0-100%			
Ingress protection	IP66			
Cooling concept	Natural convection		Intelligent redundant fan-cooling	
Max. operation altitude	4000 m			
Grid connection standard	G98 or G99, VDE-AR-N 4105 / VDE V 0124, EN 50549-1, VDE 0126 / UTE C 15 / VFR:2019, RD 1699 / RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR, EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530			
Safety/EMC standard	IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4			
Features				
DC connection	MC4 connector			
AC connection	Quick connection plug			
Display	LCD			
Communication	RS485, Optional: Wi-Fi, GPRS			

Solis Residental PV Solution



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Solis Reliability

Global certification

The company to receive awards for 6 consecutive years

TÜVRheinland®
Precisely Right.

2019 Awarded PV Inverter for Commercial Use (20kW)

2020 Awarded PV Inverter for Commercial Use (50kW)

Less than 0.2% failure rates reported in the independent DNV-GL reliability audit

Top-of-range Lifespan Projection in String Inverter Category as Validated by DNV-GL

Manufacturing Reliability


Surface Mounted Technology Workshop


Feeder


Printed Circuit Board Coating Room


Assembly Line


Automated Optical Inspection


Surface Mounted Technology Machine


Solder Paste Inspection


Spraying Machine


Automated Test Equipment

Reliability of Components

Germany: Infineon IGBT

USA: Zettler LCD

Japan: Panasonic Connectors

- 100% of inverters produced are tested before shipment
- All inverters today and in the future will have a display
- We only use genuine MC4 connectors (Staubli)

Top-of-range Lifespan Projection in String Inverter Category as Validated by DNV-GL

DNV·GL

The inverter life models presented are positively impacted by the long and impressive track record of PV inverters designed and manufactured by Ginlong. The useful life projections are at or near the top of the string inverter life projections.

— DNV-GL

BloombergNEF

Most Bankable Asian Inverter

— BloombergNEF

EuPD Research

Sustainable Management

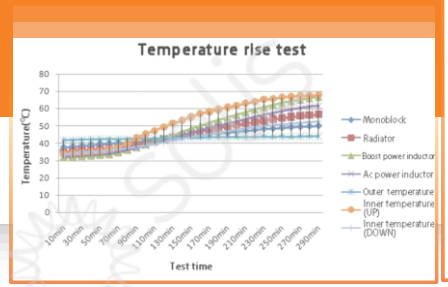
The company to receive awards for 6 consecutive years

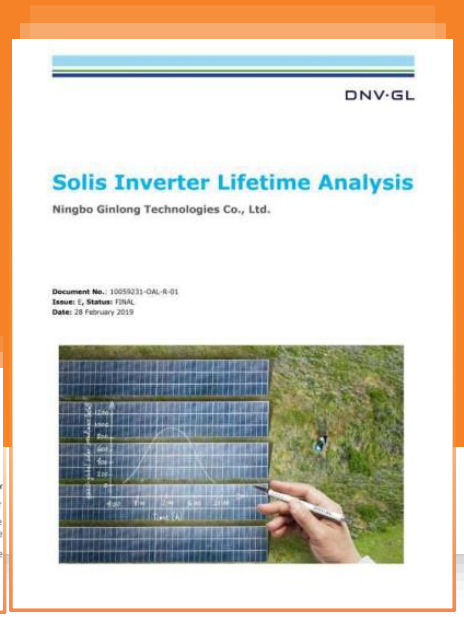
— EUPD

Long Life

25+ years

The inverter life models presented were positively impacted by the long and impressive track record of PV inverters designed and manufactured by Ginlong. The useful life projections are at or near the top of the string inverter life projections by DNV-GL.





DNV·GL | Source DNV-GL

THANKS

Ginlong Technologies Co.,Ltd

NO.57 Jintong Road, Xiangshan,Ningbo, Zhejiang, China

Ginlong Technologies Co.,Ltd
www.solisinverters.com

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