



# PV Grid-Connected Inverters

2015~2016

Green and Effective

[www.sungrowpower.com](http://www.sungrowpower.com)



## We are the second largest PV inverter manufacturer in the world

- With 18 years of proven experience in PV industry
- Over 12GW deployed globally
- Global shipment rank No.2
- The most requested Chinese PV inverter brand all around the world

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Company Profile · Products Overview

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SG3/4/5/6KTL-EC · SG2KTL/2K5/3K/3K6/4KTL-S  
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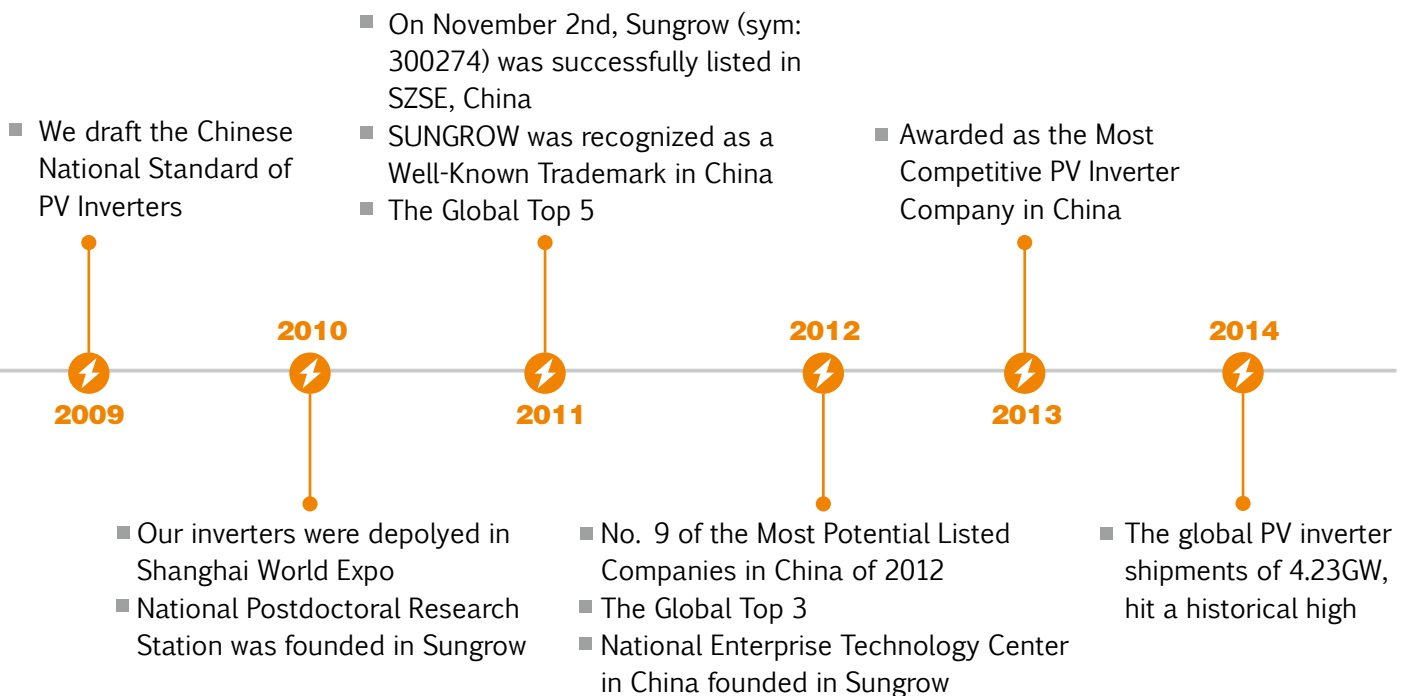




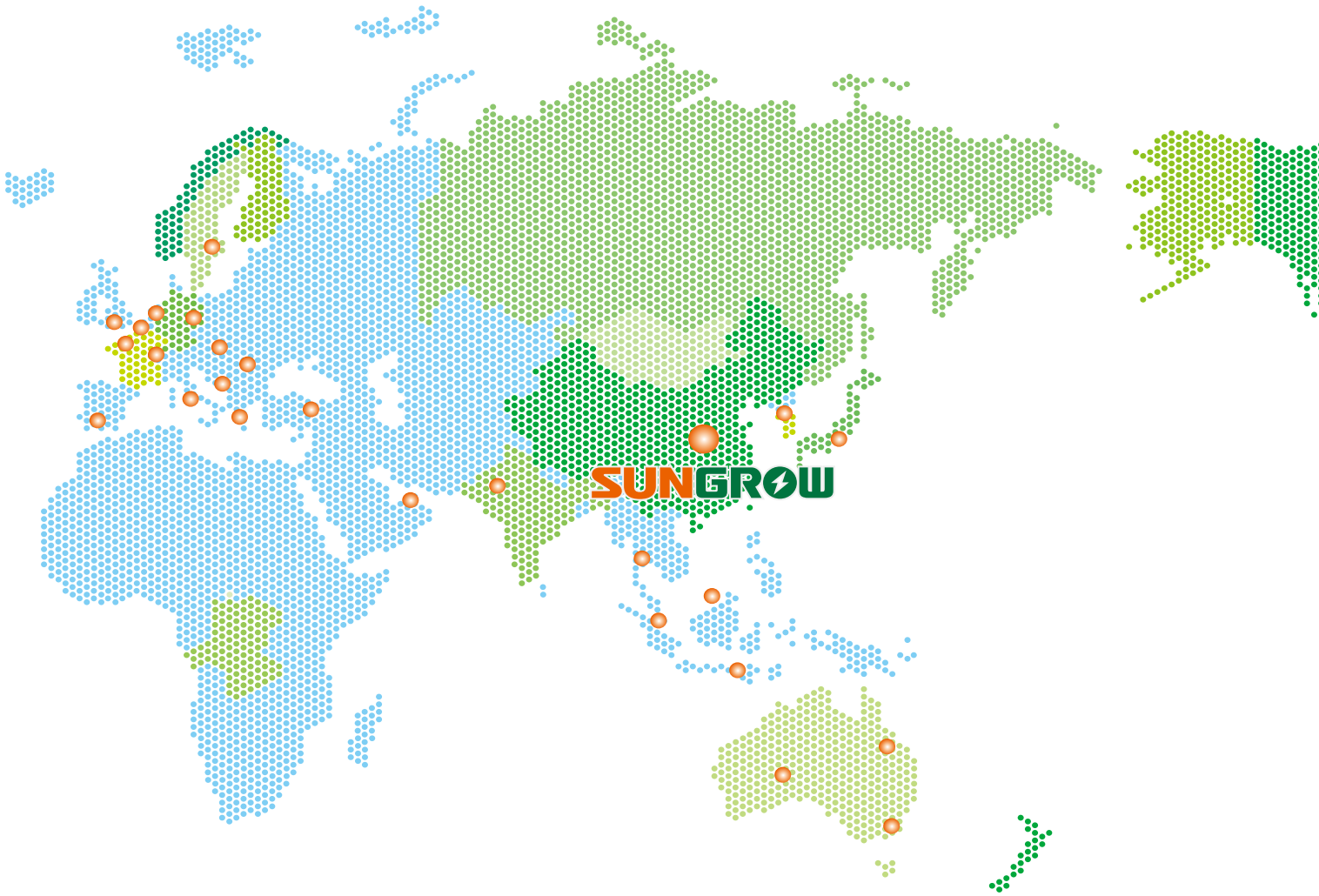
- SunGrow Power Supply Co., Ltd. was founded
  - We undertook the national project for rural off-grid power supporting
  - We undertook the Large-Scale PV Grid-Connected Inverter R&D Project and other 2 national R&D projects
- 1997
- 1998
- 2002
- 2003
- 2006
- 2008
- Our first self-developed PV inverter was installed for the Southern Xinjiang Railway
  - The first self-developed 10kW grid-connected PV inverter in China was successfully connected to the grid in Fengxian, Shanghai
  - Our inverters were deployed in the Bird Nest of Beijing Olympic Games
  - Our products were delivered into Spain and several other overseas markets



Sungrow Power Supply Co., Ltd. manufactures power supply equipment for solar PV and wind power projects. The company's products range from grid-connected PV inverters, wind power converters, to energy storage converters. We also provide development, construction, and operation management for renewable energy projects.





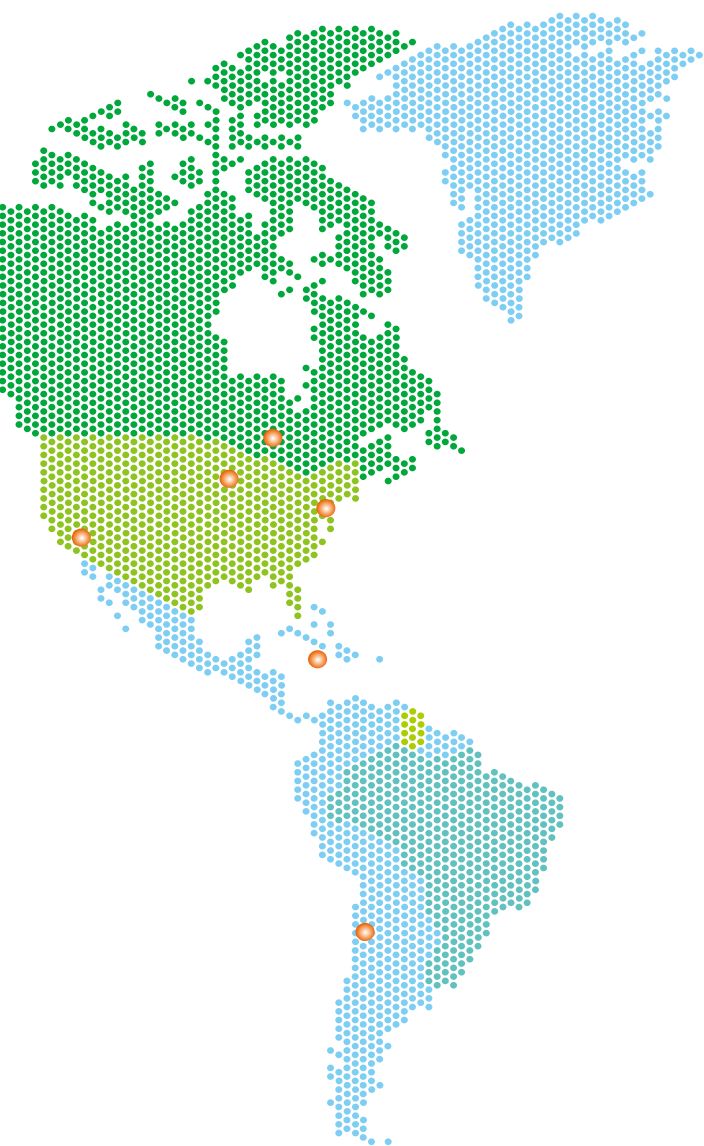


**90,000m<sup>2</sup>**  
Industry park

**1,100<sup>+</sup>**  
Employees

**35%<sup>+</sup>**  
R&D personnel

**No.2**  
Global industry ranking



Since 2005, Sungrow's PV inverters were delivered to Japan.

Since 2008, Sungrow's products were widely deployed in European & American markets on a large scale.

Today, Sungrow provides various products and solutions to Germany, US, Australia and many other countries, as well as establishing a mature and trustworthy service network all around the world.

In 2008, Sungrow launched professional monitoring system for PV plant operation, therefore the users could always be aware of their PV plants' real time performance via PC or mobile phone, and this system had already evolved into a comprehensive platform of design, monitoring and service for all kinds of PV plants across the world. Also in this year, we started a continuous cooperation with a well-known insurance group regarding the Commercial General Liability Insurance (CGLI) to provide security commitment to Sungrow's PV grid-connected inverters applied worldwide.

**12GW<sup>+</sup>**

Application around  
the world

**18Y**

Research and  
application experience  
of PV inverter

**510<sup>+</sup>**

Patents

PV Grid-Connected Inverter  
**Products Overview**



SG1000TS-MV



SG60KTL/SG60KU



SG50/60KTL-M



SG20KTL



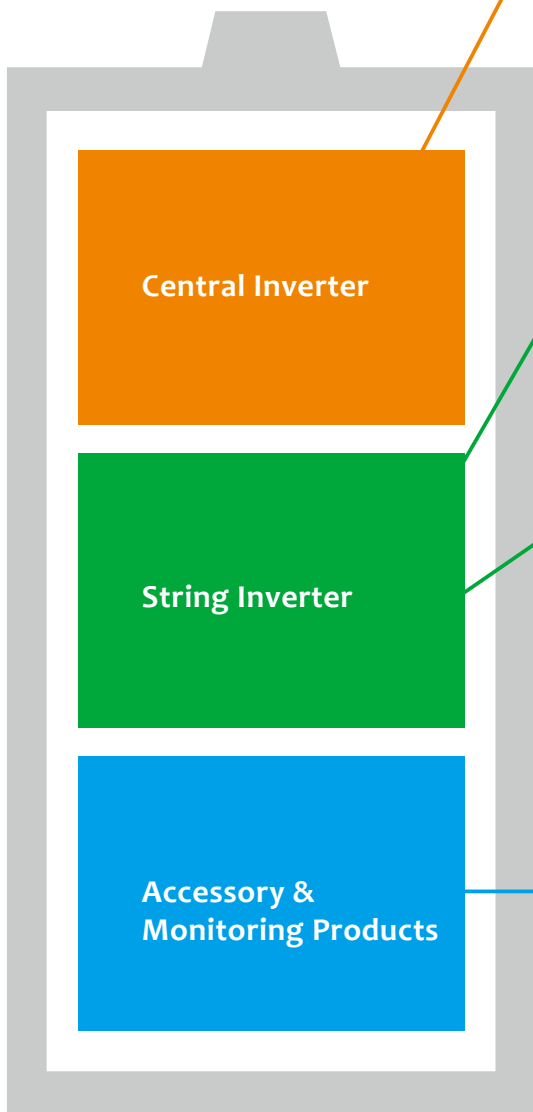
SG8/10/12KTL-EC



PV combiner box



Data logger







SG1000TS/1260TS/1000TS-M



SG1000MX



SG750/800MX



SG500MX



SG630MX



SG60KU-M



SG30KTL-M/SG40KTL



SG30/36KU



SG3/4/5/6KTL-EC



SG2KTL~4KTL-S  
SG3KTL~5KTL-D



Online Household PV  
Monitoring system



Online PV plant  
monitoring website

**SUNGROW**  
Green and Effective



# Central Inverter





# SG 1000 / I260TS



## Compact design

- 7 square meters area for megawatt-class equipment
- Transport and installation by forklift, more flexible and economical



## Convenient O&M

- Open door design of four sides, easy for installation and maintenance
- More flexible for inner devices overall replacement

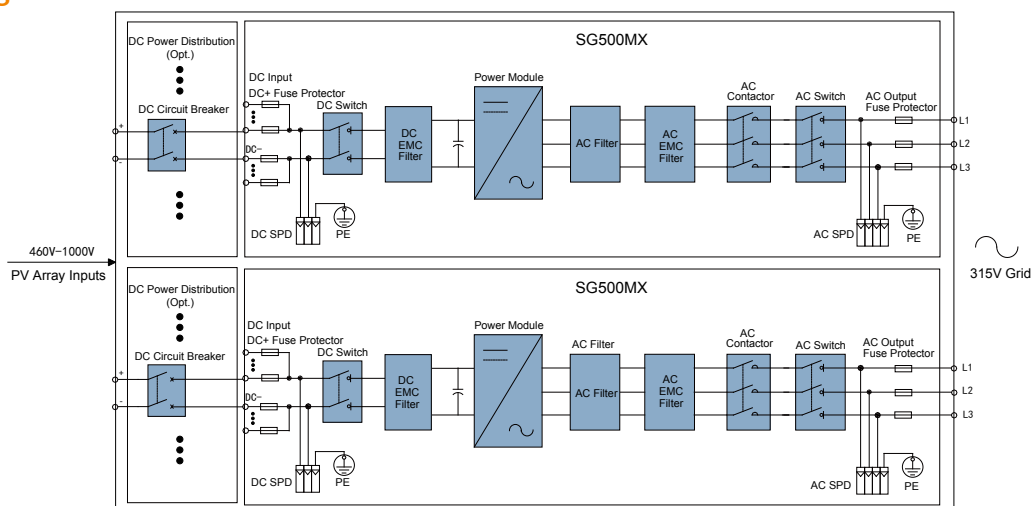


## Heat Dissipate, Dust Proof and Heat Insulation

- Efficient cooling patented design of combination inline and ventilation
- Patented structure design of inlet and outlet, effective dust proof
- Thick and efficient heat insulation layer

## Circuit Diagram

### SG1000TS



Input Side Data(DC)

SG1000TS

SG1260TS

Max. DC power (@ $\cos \phi = 1$ )	1120kW	1428kW
Max. input voltage	1000V	
Start voltage	500V	
Min. working voltage	460V	
Max. input current	2240A	3104A
MPPT voltage range	460~850V	
Number of DC inputs	16/32	2*8

Output Side Data(AC)

Rated power	1000kW	1260kW
Max. output AC power	1100kVA	1400kVA
Max. output current	2016A	2560A
Max. THD	<3% (at nominal power)	
Rated grid voltage	315V	
Grid voltage range	252~362V	
Rated grid frequency	50Hz/60Hz	
Grid frequency range	47~52Hz/57~62Hz	
Power factor at rated power	>0.99	
DC current injection	<0.5% of rated inverter output current	
Adjustable displacement factor	0.9 (leading) ~0.9 (lagging)	

Efficiency

Max. efficiency	98.70%
European efficiency	98.50%

Protection

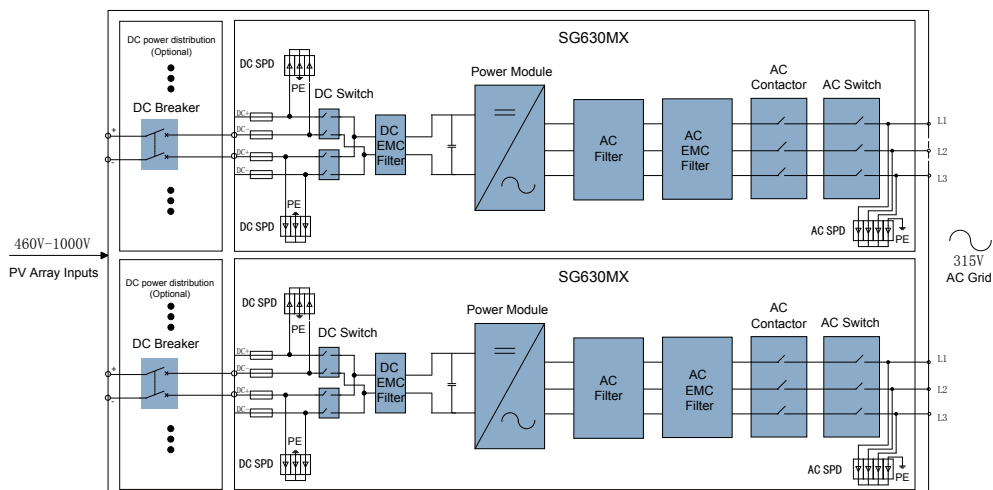
DC disconnect device	Switch-disconnector with fuses	DC Breaker
AC disconnect device	Switch-disconnector with fuses	AC Breaker
DC overvoltage protection	Yes	
AC overvoltage protection	Yes	
Grid monitoring	Yes	
Ground fault monitoring	Yes	
Overheat protection	Yes	
Insulation monitoring	Yes	

General Data

Dimensions (W*H*D)	2991*2591*2438mm	
Weight	Containing DC Distribution Cabinet: 4795kg Not Containing DC Distribution Cabinet: 4460kg	Containing DC Distribution Cabinet: 4839kg Not Containing DC Distribution Cabinet: 4504kg
Operating temperature range	-35~50°C	
External auxiliary supply voltage (Opt.)	380V	
Cooling concept	Temperature controlled air-cooling	
Degree of protection	IP54	
Max. permissible value for relative humidity (non-condensing)	0~95%, non -condensing	
Max. altitude	6000m (derating>3000m)	
Communication port/protocols	Standard: RS485 / Modbus, Internet Options: CDT, DNP3.0, 101, 103, 104, GPRS/CDMA module	

Circuit Diagram

SG1260TS



# SG 1000TS-M



## Compact design

- 7 square meters area for megawatt-class equipment
- Transport and installation by forklift, more flexible and economical



## Convenient O&M

- Open door design of four sides, easy for installation and maintenance
- More flexible for inner devices overall replacement



## Heat Dissipate, Dust Proof and Heat Insulation

- Efficient cooling patented design of combination inline and ventilation
- Patented structure design of inlet and outlet, effective dust proof
- Thick and efficient heat insulation layer



## Advanced inverter technology

- Advanced three-level circuit structure improves product performance
- 8-MPPT, wide MPP voltage range, flexible setting of 2 / 4 / 8 MPPT
- Comprehensive modular, draw-type design



## Environmental

- After the end of the life cycle of the container shell is recyclable, no concrete recycling issues



**Input Side Data(DC)**

Max. DC power (@ cos φ =1)	1120kW
Max. input voltage	1000V
Start voltage	520V
Min. working voltage	500V
Max. input current	2128A
MPPT voltage range	500~850V
Number of MPPTs	2/4/8
Number of DC inputs	2 x 8

**Output Side Data (AC)**

Rated power	1000kW
Max. output AC power	1100kVA
Max. output current	2036A
THD	<3% (Nominal power)
Nominal AC voltage	315V
AC voltage range	252~362Vac
Nominal grid frequency	50Hz/60Hz
Grid frequency range	47~52Hz/57~62Hz
Power factor	>0.99@default value at nominal power, adj. 0.9 leading ~ 0.9 lagging
Isolated transformer	No
DC current injection	<0.5% In

**Efficiency**

Max. efficiency	98.80%
European efficiency	98.60%

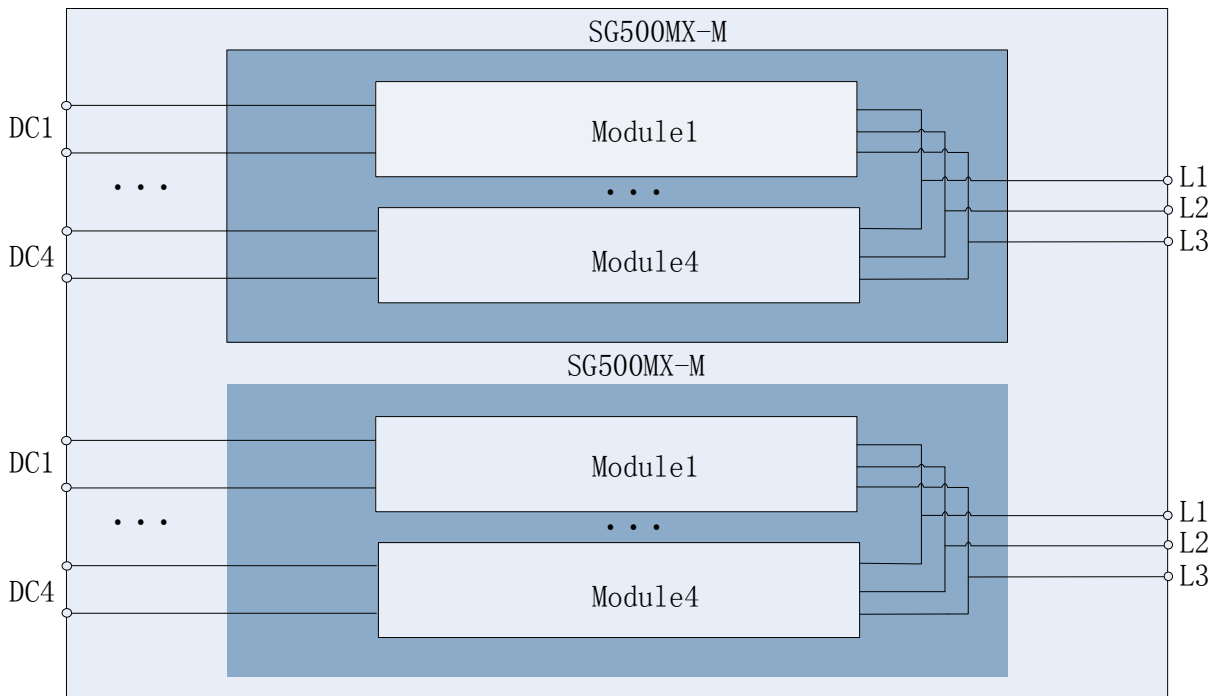
**General Data**

Dimensions (W*H*D)	2991*2591*2438mm
Weight	Containing DC Distribution Cabinet: 5169Kg, Not Containing DC Distribution Cabinet: 4834Kg
Operating ambient temperature range	-35~+50°C
External auxiliary supply voltage	380V
Cooling method	Temperature controlled air-cooling
Ingress protection rating	IP54
Allowable relative humidity range	0~95%, no condensing
Max. operating altitude	6000m (>3000m derating)
Communication port/protocols	Standard: RS485/ Modbus, Internet Options: CDT, DNP3.0, 101, 103, 104, GPRS/CDMA module

**Protection**

DC disconnect device	Switch-disconnector with fuses
AC disconnect device	Switch-disconnector with fuses
DC overvoltage protection	Yes
AC overvoltage protection	Yes
Grid monitoring	Yes
Ground fault monitoring	Yes
Over temperature protection	Yes
Insulation monitoring	Yes

**Circuit Diagram**



# SG 1000TS-MV



## Turn-key Solution, High Integration

- Integrated PV inverter, DC/AC power distribution (Option on request), medium-voltage transformer, system monitoring, fire alarm, environment monitoring (Option on request) functional modules and so on
- Save AC cables, lower consumption and promote users' benefits
- SCADA monitoring system integrated to reduce the costs and ensure the optimal status of the plant



## Easy for Transportation and Handling, Environment Adaptable

- Container design, easy for transportation
- Integral hoisting, easy to install, reduce the installation cost and risks
- Standard container enclose, integrated design for ventilation, sandproof, anti-corrosion and anti-low-temperature and other application requirements



## Advanced Technology, Grid-friendly

- Efficiency, energy-saving and reliability as with all Sungrow inverters
- Integrated with standard power dispatch interfaces, convenient and flexible access to power grid
- LVRT (Zero-voltage Ride-through), Reactive power control with power factor from 0.9 lagging to 0.9 leading, Give reactive power compensation to the grid at night according to directive

**Input Side Data(DC)**

Max. DC power (@ $\cos\phi = 1$ )	1120kW
Max. input voltage	1000V
Start voltage	500V
Min. working voltage	460V
Max. input current	2440A
MPPT voltage range	460~850V
Number of DC inputs	16/32

**Output Side Data(AC)**

Rated power	1000kW
Max. output AC power	1100kVA
Max. output current	63.5A
Max. THD	<3%(at nominal power)
Rated grid voltage	10-24kV
Rated grid frequency	50Hz/60Hz
Grid frequency range	47~52Hz /57~62Hz
Power factor at rated power	> 0.99
DC current injection	<0.5% of rated inverter output current
Adjustable displacement factor	0.9 (leading)~0.9 ( lagging)

**Efficiency**

Max. efficiency	98.00%
European efficiency	97.50%

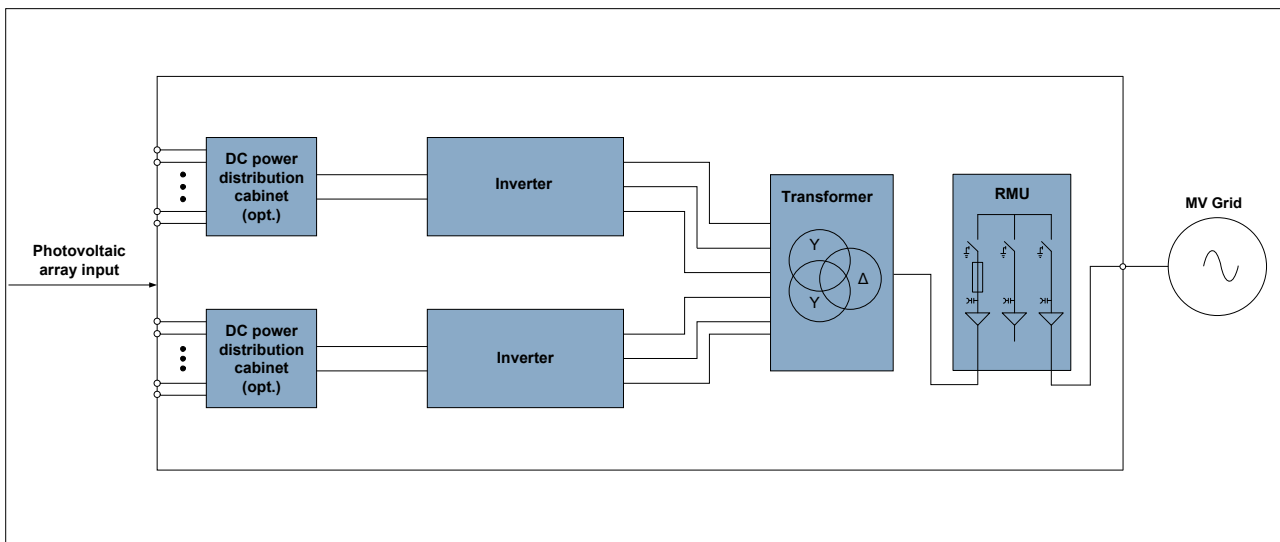
**General Data**

Dimensions (W*H*D)	6058*2591*2438mm
Weight	12T
Operating temperature range	-35~50°C
External auxiliary supply voltage (Opt.)	380V
Cooling concept	Temperature controlled air-cooling
Degree of protection	IP54
Max. permissible value for relative humidity (non-condensing)	0~95%, non -condensing 6000m (derating > 3000m)
Max. altitude	Standard: RS485/ Modbus, Internet
Communication port/protocols	Options: CDT, DNP3.0, 101, 103, 104, GPRS/CDMA module

**Protection**

DC input side disconnection device	Switch-disconnector with fuses
AC output side disconnection device	Switch-disconnector with fuses
DC overvoltage protection	Yes
AC overvoltage protection on the LV side	Yes
Grid monitoring	Yes
Ground fault monitoring	Yes
Overheat protection	Yes
Insulation monitoring	Yes

**Circuit Diagram**





# SG 1000MX



## Grid-friendly

- Full grid support, including LVRT, OVRT, FRT, and power curtailment
- Overload capability, maintaining real power output while satisfying power factor requirement
- Adjustable active power (0 -110%)
- Adjust automatically adjust reactive power according to the grid voltage
- Adjust automatically adjust active power according to the grid frequency
- Reactive power control with power factor adjustment from 0.8 leading / 0.8 lagging
- Nighttime reactive power compensation capability
- Intelligent control, compliance with multiple regional utility standards



## Efficient

- Max. Efficiency at 98.8%
- Efficient MPPT control design for higher yield
- Efficient control algorithm, low consumption on switch device
- Temperature controlled air-cooling, energy saving



## Qualified

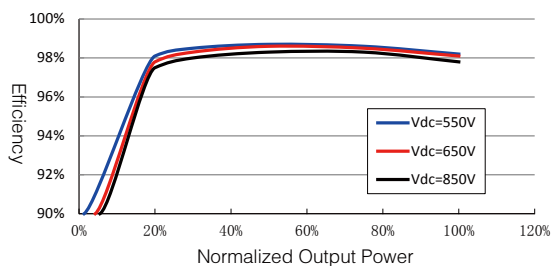
- TÜV, cCSAus, compliance with BDEW



## Adaptable

- -30°C ~ +55°C continuously operating at rated power
- NEMA 3R (IP54) for easy outdoor installation
- Continuously and stably working in high altitude environment
- Auxiliary heater (Optional)

## Efficiency Curve



### Input (DC)

Max. PV input voltage	1000V
Max. PV input current	2000A
MPP voltage range	550~850V
No. of DC inputs	1, 8-14
PV array configuration	Negative ground (standard), floating or positive ground (optional)

### Output (AC)

Nominal AC output power	1000kW
Max. AC output apparent power	1100kVA
Max. AC output current	1650A
THD	<3 % (Nominal power)
Nominal AC voltage	385V
AC voltage range	338~424V
Nominal grid frequency	50Hz/60Hz
Grid frequency range	47~52Hz/57~63Hz
Power factor	0.8 overexcited ~0.8 underexcited
Isolated transformer	No
DC current injection	<0.5 % I <sub>n</sub>

### Efficiency

Max. efficiency	98.80%
European efficiency	98.40%
CEC efficiency	98.50%

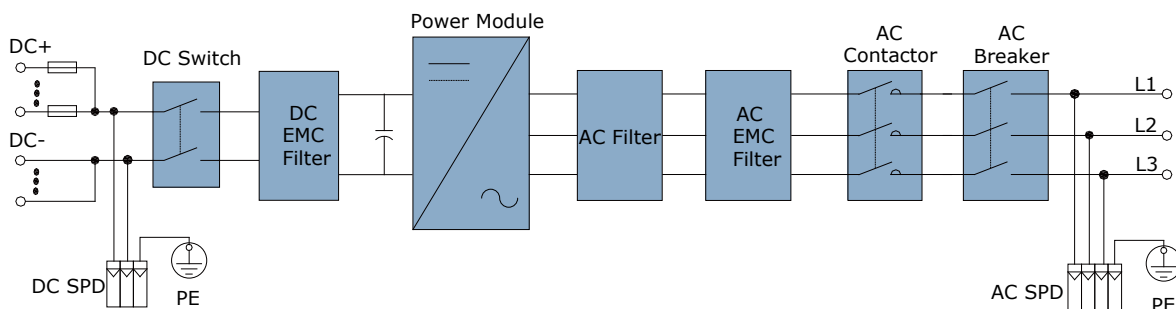
### Protection

Input side disconnection device	DC load switch; Breaker (Optional)
Output side disconnection device	Breaker
DC overvoltage protection	Yes
AC overvoltage protection	Yes
Grid monitoring	Yes
Ground fault monitoring	Optional
Over temperature protection	Yes
Insulation monitoring	Optional

### General Data

Dimensions (W*H*D)	2598*2164*1000mm
Weight	2050kg
Operating ambient temperature range	-30~+60°C (>55°C derating)
Night power consumption	<20W
External auxiliary supply voltage	400/480V (3/N/PE)
Cooling method	Temperature controlled air-cooling
Ingress protection rating	NEMA 3R (IP54)
Allowable relative humidity range	0~95%, no condensing
Max. operating altitude	4000m (>2000m derating)
Fresh air consumption	4425m <sup>3</sup> /h
Display	LCD
Communication	RS485/Modbus, Ethernet

### Circuit Diagram



# SG 750 / 800MX



## Efficient and flexible

- Transformerless inverter, max. efficiency of 98.7%, CEC efficiency of 98.5% for SG800MX, max. efficiency of 98.6%, CEC efficiency of 98.0% for SG750MX
- Employing a patented thermal management system, the inverter is able to operate from -13°F to 140°F (-25°C to 60°C), and up to 19,600' (6,000 m)



## Grid-friendly

- Continuous active power control
- Advanced grid support functionality, meet grid requirements around the world
- Full remote and local power curtailment, PF, HVRT, LVRT, FRT controls via ModBus & Ethernet



## Easy Installation

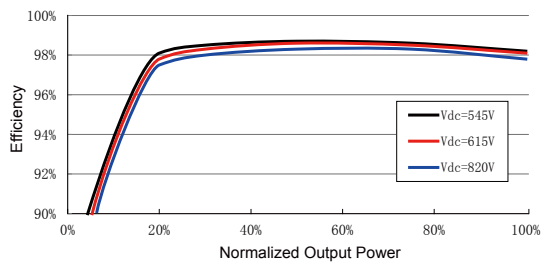
- High power density, small equipment footprint
- DC disconnect, AC circuit breaker, separate DC & AC cabinets
- Max. DC input voltage is 1000V, can be mounted on a skid or an e-house, giving maximum design flexibility and lowering installation costs



## Reliable

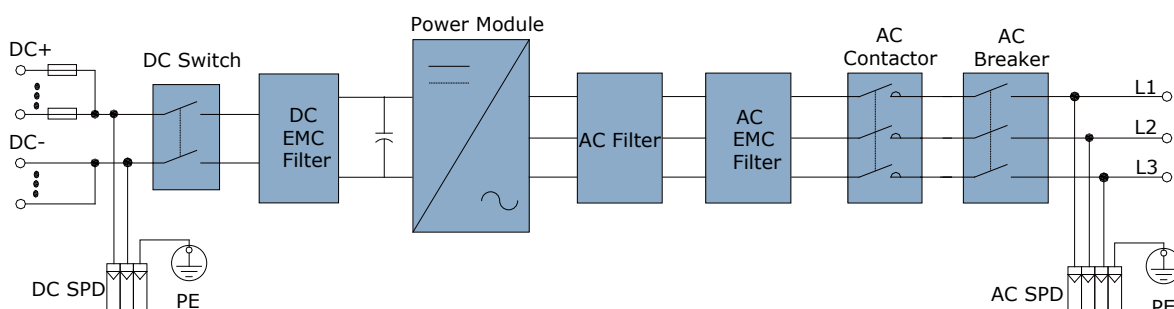
- Designed for 20+ years of operating life
- NEMA4X electronics cabinet

## Efficiency Curve



Input (DC)	SG 750MX	SG 800MX
Max. PV input power	850kW	900kW
Max. PV input voltage	1000V	
Start voltage	520V	565V
Min. operation voltage	500V	545V
Max. PV input current	1600A	
MPP voltage range	500~820V	545~820V
No. of DC inputs	1,6-12	
PV array configuration	Negative ground (standard), floating or positive ground (optional)	
Output (AC)		
Nominal AC output power	750kW	800kW
Max. AC output apparent power	825kVA	880kVA
Max. AC output current	1512A	
THD	<3% (nominal power)	
Nominal AC voltage	315V	342V
AC voltage range	277~347Vac	300~377Vac
Nominal grid frequency	50Hz/60Hz	
Grid frequency range	47~52Hz/57~63Hz	
Power factor	>0.99@default value at nominal power, adj. 0.8 leading ~ 0.8 lagging	
Isolated transformer	No	
DC current injection	<0.5% I <sub>n</sub>	
Efficiency		
Max. efficiency	98.60%	98.70%
European efficiency	98.30%	98.40%
CEC efficiency	98.00%	98.50%
Protection		
Input side disconnection device	DC load switch	
Output side disconnection device	Breaker	
DC overvoltage protection	Yes	
AC overvoltage protection	Yes	
Grid monitoring	Yes	
Ground fault monitoring	Optional	
Over temperature protection	Yes	
Insulation monitoring	Optional	
General Data		
Dimensions (W*H*D)	2598*2164*1000mm	
Weight	2340kg	
Operating ambient temperature range	-25~+60°C (>55°C derating)	
Noise emission	<70dB	
Night power consumption	<100W	
External auxiliary supply voltage	480/600V (3/N/PE)	
Cooling method	Temperature controlled air-cooling	
Ingress protection rating	NEMA 3R (IP54)	
Allowable relative humidity range	0~95%, no condensing	
Max. operating altitude	6000m (>3000m derating)	
Fresh air consumption	4425m <sup>3</sup> /h	
Display	LCD	
Communication	RS485/Modbus, Ethernet (opt.)	

## Circuit Diagram



# SG 630MX



## Grid-friendly

- LVRT / ZVRT
- Active power continuously adjustable (0~100%)
- Reactive power control with power factor adjustment from 0.9 overexcited to 0.9 underexcited
- Give reactive power compensation to the grid at night according to directive



## Efficient

- Max. efficiency at 98.7%
- DC input voltage up to 1000V



## Adaptable

- -30°C ~ +55°C continuously operating at rated power
- Continuously and stably working in high altitude environment
- Auxiliary heater (opt.)



## Qualified

- Highly reliable thin-film capacitor, product's lifetime is more than 20 years
- TÜV, CGC certified, compliance with BDEW

### Input (DC)

Max. PV input power	714kW
Max. PV input voltage	1000V
Start voltage	500V
Min. operation voltage	460V
Max. PV input current	1552A
MPP voltage range	460~850V
Number of MPPTs	1
Number of DC inputs	2 x 4

### Protection

Input side disconnection device	DC Breaker
Output side disconnection device	AC Breaker
DC overvoltage protection	Yes
AC overvoltage protection	Yes
Grid monitoring	Yes
Ground fault monitoring	Yes
Over temperature protection	Yes
Insulation monitoring	Yes

### Output (AC)

Nominal AC output power	630kW
Max. AC output apparent power	700kVA
Max. AC output current	1280A
THD	<3% (nominal power)
Nominal AC voltage	315V
AC voltage range	252~362V
Nominal grid frequency	50/60Hz
Grid frequency range	47~52/57~62Hz
Power factor	>0.99@default value at nominal power, adj. 0.9 leading ~ 0.9 lagging

Isolated transformer	No
DC current injection	<0.5% I <sub>n</sub>

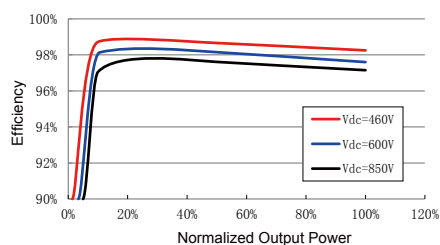
### General Data

Dimensions (W*H*D)	1606*2034*860mm
Weight	1250kg
Operating ambient temperature range	-30~55°C
Night power consumption	<20W
External auxiliary supply voltage	380V, 3A
Cooling method	Temperature controlled air-cooling
Ingress protection rating	IP21
Allowable relative humidity range	0~95%, no condensing
Max. operating altitude	6000m (> 3000m derating)
Fresh air consumption	4500m <sup>3</sup> /h
Display	Colored touch screen
Communication	RS485/Modbus, Ethernet (opt.)
Qualified	CE, CGC certified, compliance with BDEW

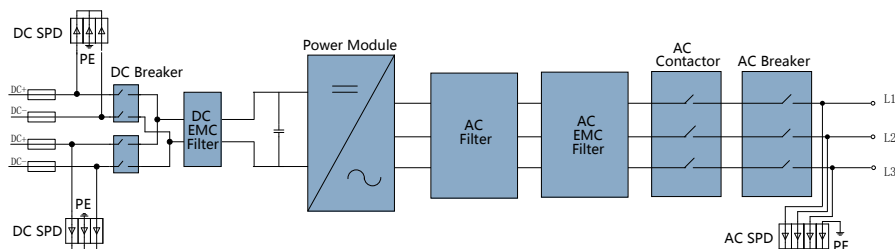
### Efficiency

Max. efficiency	98.70%
European efficiency	98.50%

### Efficiency Curve



### Circuit Diagram





# SG 500MX



### Grid-friendly

- LVRT
- Overload capacity enhanced 10%, max. output power up to 550kW
- Active power continuously adjustable (0~100%)
- Reactive power control with power factor adjustment from 0.9 overexcited to 0.9 underexcited
- Intelligent control, meet all requirements of the grid



### Efficient

- Max. efficiency at 98.7%
- Efficient MPPT control design, more power yields
- Redundant power solution of dual power improving system reliability
- Efficient PWM algorithm, low consumption on power device
- Temperature controlled air-cooling, energy saving



### Adaptable

- -30°C ~ +55°C continuously operating at rated power
- Continuously and stably working in high altitude environment
- Auxiliary heater (opt.)



### Qualified

- TÜV, CGC certified, compliance with BDEW

### Input (DC)

Max. PV input power	560kW
Max. PV input voltage	1000V
Start voltage	500V
Min. operation voltage	460V
Max. PV input current	1220A
MPP voltage range	460~850V
No. of DC inputs	8/16

### Protection

Input side disconnection device	DC load switch
Output side disconnection device	AC load switch
DC overvoltage protection	Yes
AC overvoltage protection	Yes
Grid monitoring	Yes
Ground fault monitoring	Yes
Over temperature protection	Yes
Insulation monitoring	Yes

### Output (AC)

Nominal AC output power	500kW
Max. AC output apparent power	550kVA
Max. AC output current	1008A
THD	<3% (nominal power)
Nominal AC voltage	315V
AC voltage range	252~362V
Nominal grid frequency	50/60Hz
Grid frequency range	47~52/57~62Hz
Power factor	>0.99@default value at nominal power, adj. 0.9 leading ~ 0.9 lagging
Isolated transformer	No
DC current injection	<0.5% In

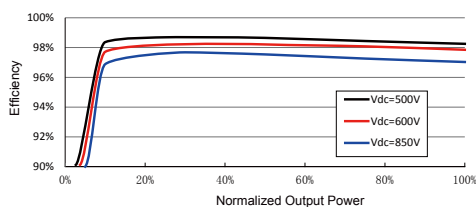
### General Data

Dimensions (W*H*D)	1606*2034*860mm
Weight	1250kg
Operating ambient temperature range	-30~+55°C
Night power consumption	<20W
External auxiliary supply voltage	380V, 3A
Cooling method	Temperature controlled air-cooling
Ingress protection rating	IP21
Allowable relative humidity range	0~95%, no condensing
Max. operating altitude	6000m (> 3000m derating)
Fresh air consumption	4500 m³/h
Display	Colored touch screen
Communication	RS485/Modbus, Ethernet (opt.)

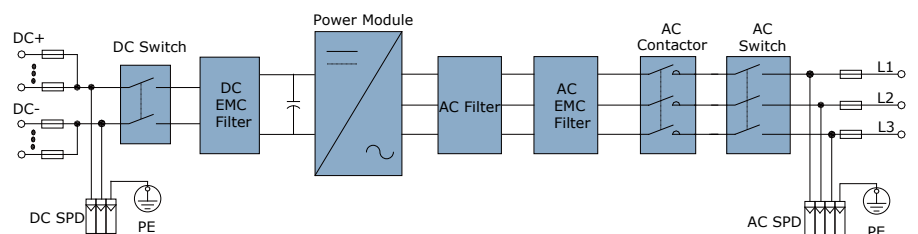
### Efficiency

Max. efficiency	98.70%
European efficiency	98.50%

### Efficiency Curve



### Circuit Diagram



**SUNGROW**  
Green and Effective



# String Inverter



NEW

# SG 60KTL



### Efficient and flexible

- String inverter up to maximum power of 66kW and:
  - Max. efficiency up to 99% (EU efficiency = 98.7%)
  - Maximal power density (66kVA / 55kg)
- Output power up to 66kVA / 66kW at power factor of 1



### Grid-friendly

- Active power continuously adjustable (0~100%)
- Fulfill a variety of reactive power adjustment requirements with power factor 0.8 overexcited ~ 0.8 underexcited
- Integrated LVRT and HVRT function
- Includes RS-485 interface, compatible with all common monitoring systems



### Intelligent design

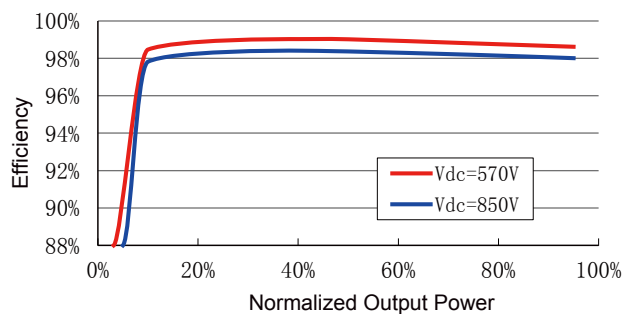
- Integrated combiner box: 12 x MC4 connector pairs with DC string fuses, Type II overvoltage protection and DC switch, more safety and lower the system cost
- Optional: Screw clamp terminal for connection of external combiner box



### Reliable

- Product certification: TÜV, CE, G59/3, BDEW, CGC and GB-T19964
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve



**Grid Type** 230V/400Vac

### Input Side Data

Max. PV input power	67500W
Max. PV input voltage	1000V
Startup voltage	620V
MPP voltage range	570~950V
MPP voltage range for nominal power	570~850V
No. of MPPTs	1
Max. number of PV strings per MPPT	12
Max. PV input current	120
Max. current for input connector	12A

### Output Side Data

Nominal AC output power	60000W
Max AC output power (PF=1)	66000W
Max. AC output apparent power	66000VA
Max. AC output current	96A
Nominal AC voltage	3P+N+PE/3P+PE, 230/400Vac
AC voltage range	310~480Vac
Nominal grid frequency	50Hz/60Hz
Grid frequency range	45~55Hz/55~65Hz
THD	<3% (Nominal power)
DC current injection	<0.5%In
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)

### Protection

Anti-islanding protection	Yes
LVRT	Yes
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Yes
AC switch	Optional
DC fuse	Yes
PV String detection	Optional
ARC detection	Optional
DC Overvoltage protection	DC Type II DIN rail surge arrester (40KA)
AC Overvoltage protection	Optional AC Type II DIN rail surge arrester (40KA)

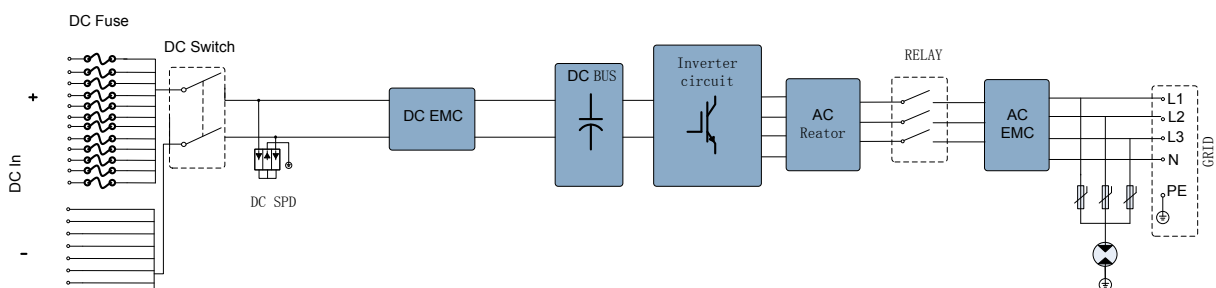
### System Data

Max. efficiency	99.00%
Max. European efficiency	98.70%
Isolation method	Transformerless
Ingress protection rating	IP65
Night power consumption	<1W
Operating ambient temperature range	-25~60°C (>50°C derating)
Allowable relative humidity range	0~100%
Cooling method	Smart forced air cooling
Max. operating altitude	4000m (>3000m derating)
Display	Graphic LCD
Communication	RS485
DC connection type	MC4/Screw Clamp terminal
AC connection type	Screw Clamp terminal
Certification	VDE0126-1-1, EN62109-1, EN62109-2, G59/3, BDEW, GB/T 19964, GB/T 29319

### Mechanical Data

Dimensions (W*H*D)	634*959*267mm
Mounting method	Wall bracket
Weight	55kg

## Circuit Diagram





NEW

# SG 50 / 60KTL-M



## Efficient and flexible

- High flexibility for complex configurations due to 4 MPP trackers and a wide input voltage range
- High yields due to efficiency up to 98.9% and EU efficiency of 98.5%
- Output power up to 55kVA / 55kW(SG50KTL-M) and 66kVA / 66kW(SG60KTL-M) at power factor of 1



## Grid-friendly

- Active power continuously adjustable (0~100%)
- Fulfill a variety of reactive power adjustment requirements with power factor 0.8overexcited ~0.8 underexcited
- Integrated LVRT and HVRT function
- Includes RS-485 interface, compatible with all common monitoring systems



## Intelligent design

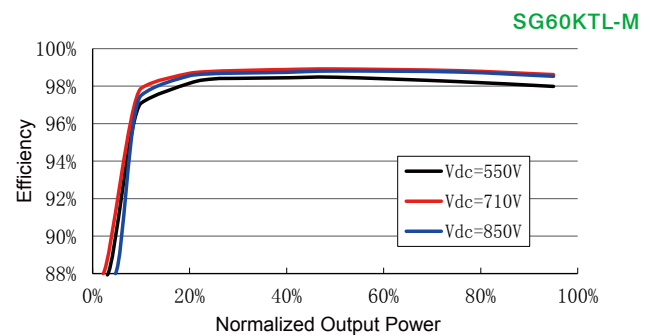
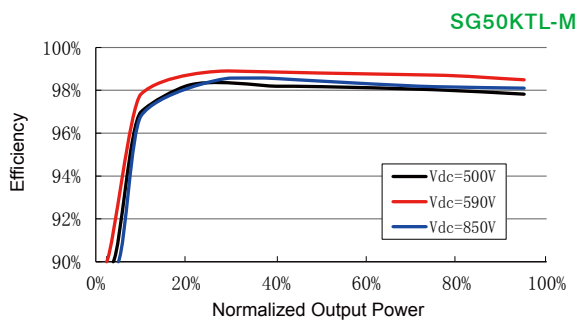
- Integrated combiner box: 12 x MC4 connector pairs with DC string fuses, Type II overvoltage protection and DC switch, more safety and lower the system cost



## Reliable

- Product certification: TÜV, CE, G59/3, BDEW, CGC and GB-T19964
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

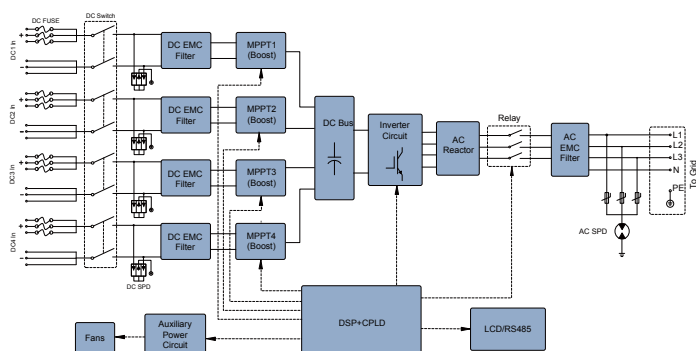
## Efficiency Curve



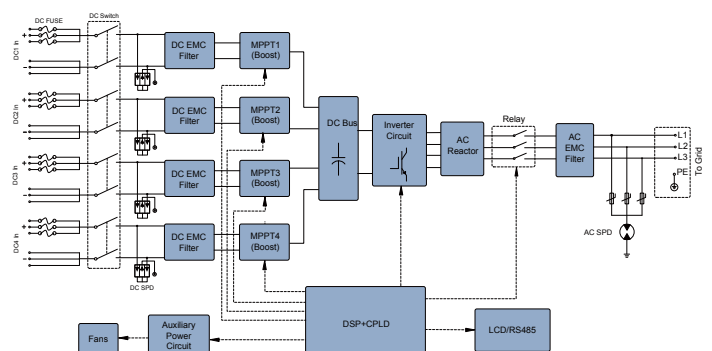
Input Side Data	SG50KTL-M	SG60KTL-M	
Max. PV input power	56200W	67500W	
Max. PV input voltage	1000V		
Startup voltage	300V		
Nominal input voltage	620V	710V	
MPP voltage range	300~950V		
MPP voltage range for nominal power	500~850V	550~850V	
No. of MPPTs	4		
Max. number of PV strings per MPPT	3		
Max. PV input current	104A (26A/26A/26A/26A)	112A (28A/28A/28A/28A)	
Max. current for input connector	12A		
Output Side Data			
Nominal AC output power	50000W	60000W	
Max AC output power (PF=1)	55000W	66000W	
Max. AC output apparent power	55000VA	66000VA	
Max. AC output current	80A		
Nominal AC voltage	3/N/PE, 230/400Vac	3/PE, 480Vac	
AC voltage range	310~480Vac	422~528Vac	
Nominal grid frequency	50Hz/60Hz		
Grid frequency range	45~55Hz /55~ 65Hz		
THD	<3% (Nominal power)		
DC current injection	<0.5%In		
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)		
Protection			
Anti-islanding protection	Yes		
LVRT	Yes		
DC reverse connection protection	Yes		
AC short circuit protection	Yes		
Leakage current protection	Yes		
DC switch	Yes		
DC fuse	Yes		
Overvoltage protection	Type II DIN rail surge arrester (40kA)		
System Data			
Max. efficiency	98.90%		
Max. European efficiency	98.50%	98.60%	
Isolation method	Transformerless		
Ingress protection rating	IP65		
Night power consumption	<1W		
Operating ambient temperature range	-25~60°C (>50°C derating)		
Allowable relative humidity range	0~100%		
Cooling method	Smart forced air cooling		
Max. operating altitude	4000m (>3000m derating)		
Display	Graphic LCD		
Communication	RS485		
DC connection type	MC4		
AC connection type	Screw Clamp terminal		
Certification	VDE0126-1-1, EN621091, EN621092, G59/3, BDEW, GB/T 19964, GB/T 29319		
		Mechanical Data	
		Dimensions (W*H*D)	665*906*256 mm
		Mounting method	Wall bracket
		Weight	70kg

## Circuit Diagram

## SG50KTL-M



## SG60KTL-M



NEW

# SG 60KU



## Efficient and flexible

- String inverter up to maximum power 63.36kW and:
  - Max. efficiency up to 99% (CEC efficiency = 98.5%)
  - Maximal power density (63.36kVA / 55kg)
- Output power up to 63.36kVA / 63.36kW at power factor of 1



## Grid-friendly

- Active power continuously adjustable (0~100%)
- Fulfill a variety of reactive power adjustment requirements with power factor 0.8 overexcited ~ 0.8 underexcited
- Integrated LVRT and HVRT function
- Includes RS-485 and Ethernet interface, compatible with all common monitoring systems



## Intelligent design

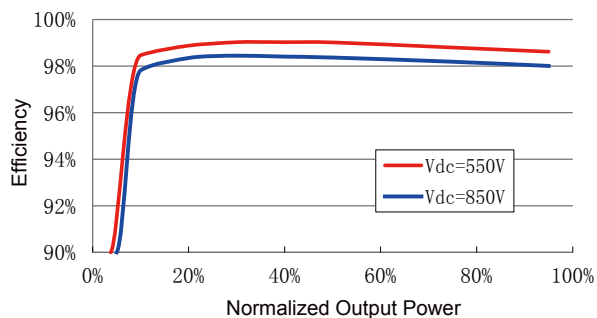
- Integrated combiner box: 8 x H4 connector pairs with DC string fuses (both positive and negative), Type II overvoltage protection (both DC and AC), DC and AC switch, more safety and lower the system cost
- Integrated string detection function and arc fault detection



## Reliable

- Product certification: UL 1741, IEEE 1547 IEEE 1547.1, CSA C22.2#107.1-01-2001, FCC Part 15 Sub-part B Class B Limits
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve



## Input Side Data

220/380Vac

Max. PV input power	65000W
Max. PV input voltage	1000V
Start-up voltage (Voc)	620V
Stop Voltage	540
MPP voltage range	550~950V
MPP voltage range for nominal power	550~850V
No. of MPPTs	1
Max. number of PV strings per MPPT	8
String Fuse	Positive and Negative
Max. PV operating current	120A
maximum DC short circuit current	200A
Max. current for input connector	25A
Arc Flash Detection	Standard
DC Disconnect	Standard
Insulation Detection	Yes
DC Surge Arrestor	Type II DIN rail surge arrester

## Output Side Data

Nominal AC output power	60000W
Max AC output power (PF=1)	63360W
Max. AC output apparent power	63360VA
Max. AC output current	96A
Nominal AC voltage	3Ø/3W, 220/380Vac
AC voltage range	295~456Vac
Nominal grid frequency	60Hz
Grid frequency range	55~ 65Hz
THD	<3% (Nominal power)
DC current injection	<0.5%In
Power Factor@FL	>0.99@default value at nominal power
Power Factor Range	0.8LG-0.8LD
AC Maximum Cable Size	0AWG, Cu or Al
AC Surge Arrestor	Type II DIN rail surge arrester
AC Leakage Current Detection	Yes
AC Disconnect	Yes

## Protection

Anti-islanding protection	Yes
Low Voltage Ride Through	Standard
DC reverse connection protection	Yes
AC short circuit protection	Yes

## Mechanical Data

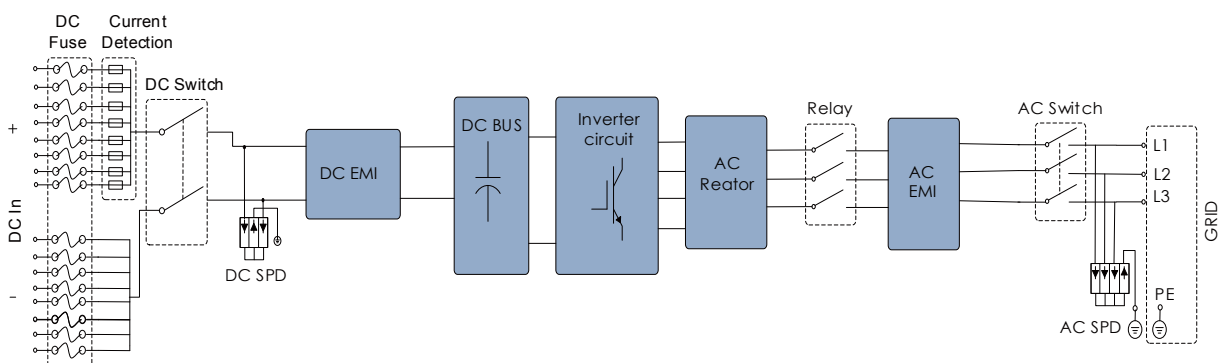
Dimensions (W*H*D)	634*959*267mm	25*37.8*10.5inch
Mounting method	Wall bracket	
Weight	55kg (121lbs)	

## System Data

Max. efficiency	99.00%	RS485	Standard
CEC efficiency	98.50%	Ethernet	Standard
Topology	Transformerless	I/O dry contact	Standard
protection rating	NEMA4X	Protocol	Modbus
Night power consumption	<1W		
Operating ambient temperature range	-25~60°C (>50°C derating)		-13...+140°F (>122°F derating)
Allowable relative humidity range	0~100%		
Cooling method	Smart forced air cooling		
Noise(dB)	<55dB		
Max. operating altitude	4000m (>3000m derating)		13,000ft (>9,800ft derating)
Display	Graphic LCD		
DC connection type	H4		
AC connection type	Screw Clamp terminal		
Certification	cCSAus		
Safety and EMC Standard	UL 1741, IEEE 1547, IEEE1547.1, CSA C22.2#107.1-01-2001, FCC Part 15 Sub-part B, Class B Limits		

## Communication

## Circuit Diagram



NEW

# SG 60KU-M



## Efficient and flexible

- High flexibility for complex configurations due to 4 MPP trackers and a wide input voltage range
- High yields due to efficiency up to 98.9% and CEC efficiency of 98.6%
- Output power up to 66kVA / 60kW at power factor of 1



## Grid-friendly

- Active power continuously adjustable (0~100%)
- Fulfill a variety of reactive power adjustment requirements with power factor 0.8 overexcited ~ 0.8 underexcited
- Integrated LVRT and HVRT function
- Includes RS-485 and Ethernet interface, compatible with all common monitoring systems



## Intelligent design

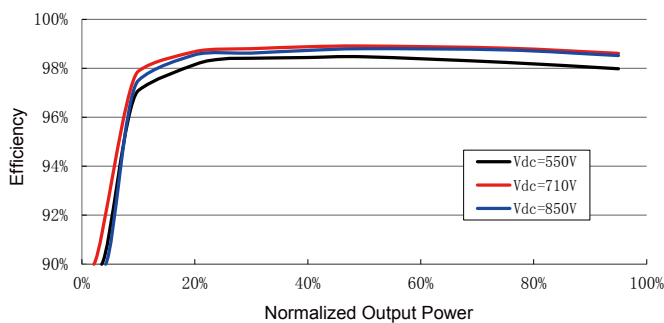
- Integrated combiner box: 16 x Screw terminal pairs with DC string fuses (both positive and negative), Type II overvoltage protection (both DC and AC), DC and AC switch, more safety and lower the system cost
- Integrated string detection function and arc fault detection



## Reliable

- Product certification: UL 1741, IEEE 1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve





Input Side Data

Max. PV input power	67500W
Max. PV input voltage	1000V
Startup voltage	300V
Stop Voltage	280V
MPP voltage range	300~950V
MPP voltage range for nominal power	550~850V / 513~850V
String Fuse	Positive and Negative
No. of MPPTs	4
Max. number of PV strings per MPPT	4
Max. PV input current	112A (28A/28A/28A/28A)
Maximum DC short circuit current	200A
Max. current for input connector	12A
Max. Cable Size	10AWG, Cu or Al
Arc Flash Detection	Yes
DC Switch	Yes
Insulation Detection	Yes
DC Surge Arrestor	Type II DIN rail surge arrester

Output Side Data

Nominal AC output power	60000W / 56000W
Max AC output power (PF=1)	66000W
Max. AC output apparent power	66000VA
Max. AC output current	80A
Nominal AC voltage	3Ø/3W +Ground, 480Vac
AC voltage range	422~528Vac
Nominal grid frequency	60Hz
Grid frequency range	55~65Hz
THD	<3% (Nominal power)
DC current injection	<0.5%In
Power factor	>0.99@default value at nominal power, (adj. 0.8 eading ~ 0.8 lagging)
Max. Cable Size	0AWG, Cu or Al
AC Surge Arrestor	Type II DIN rail surge arrester (40kA)

Protection

Anti-islanding protection	Yes
Low Voltage Ride Through	Yes
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
Overvoltage protection	Type II DIN rail surge arrester
AC switch	Yes

Mechanical Data

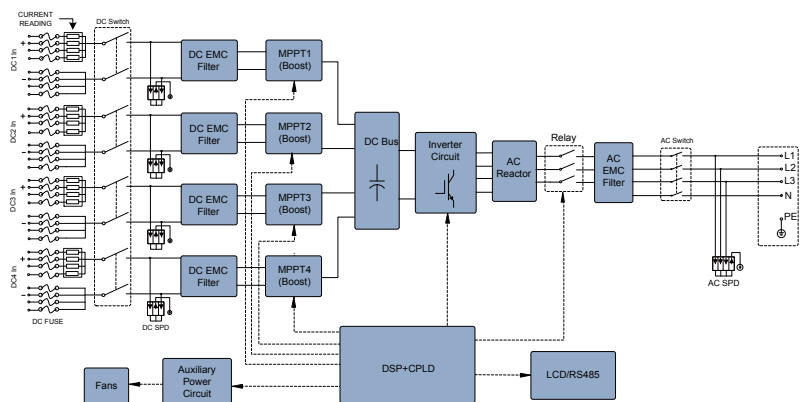
Dimensions (W*H*D)	665*915*276 mm	26.2*36*10.9inch
Mounting method	Wall bracket	
Weight	70kg	154lbs

System Data

Max. efficiency	98.90%	RS485	Standard
CEC efficiency	98.60%	Ethernet	Standard
Isolation method	Transformerless	I/O dry contact	Standard
Ingress protection rating	NEMA4X	Protocol	Modbus
Tare Loss	<1W		
Operating ambient temperature range	-25~60°C (>50°C derating)	-13...+140°F (>122°F derating)	
Allowable relative humidity range	0~100%		
Cooling method	Smart forced air cooling		
Max. operating altitude	4000m (>3000m derated)	13,000ft (>9,800ft derated)	
Display	Graphic LCD		
Communication	RS485 / Ethernet		
DC connection type	Screw terminals		
AC connection type	Screw clamp terminal		
Certification	cCSAus		
Safety and EMC Standard	UL 1741, IEEE 1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits		

Communication

Circuit Diagram



# SG40KTL



## Efficient and flexible

- Full 36kW effective power at power factor of 0.9 due to apparent power reserves up to 39.8kVA
- Max. Efficiency at 98.3%
- Dual MPP trackers control



## Grid-friendly

- Active power continuously adjustable (0~100%)
- Reactive power control with power factor 0.8 overexcited ~ 0.8 underexcited
- Includes RS-485 interface, compatible with all common monitoring systems



## Intelligent design

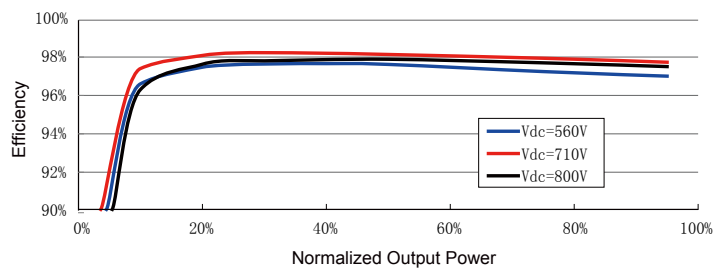
- Reduced cabling on AC side due to higher output voltage of 480Vac
- Integrated combiner box: 8 x MC4 connector pairs with DC string fuses, Type II overvoltage protection and DC switch, more safety and lower the system cost
- Can be wall-mounted without lifting equipment, weight 65 kg



## Reliable

- TÜV, BDEW, CGC, SGS, GB/T 19964, France Certification, India Certification

## Efficiency Curve



## Input Side Data

## SG 40KTL

Max. PV input power	40500W
Max. PV input voltage	1000V
Startup voltage	300V
Nominal input voltage	710V
MPP voltage range	280~950V
MPP voltage range for nominal power	560~800V
No. of MPPTs	2
Max. number of PV strings per MPPT	4
Max. PV input current	66A (33A/33A)
Max. current for input connector	12A

## Output Side Data

Nominal AC output power	36000W
Max. AC output power (PF=1)	39800W
Max. AC output apparent power	39800VA
Max. AC output current	48A
Nominal AC voltage	3/N/PE, 277/480Vac or 3/PE, 480Vac
AC voltage range	422~528Vac
Nominal grid frequency	50Hz/60Hz
Grid frequency range	45~55Hz/55~65Hz
THD	<3% (Nominal power)
DC current injection	<0.5 %In
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)

## Protection

Anti-islanding protection	Yes
LVRT	Yes
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Yes
DC fuse	Yes
Overvoltage protection	DC Type II DIN rail surge arrester (40kA)

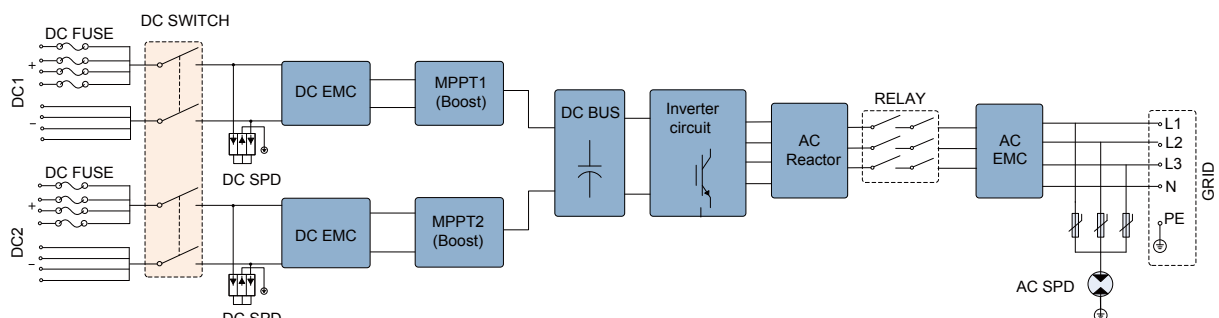
## System Data

Max. efficiency	98.30%
Max. European efficiency	98.00%
Isolation method	Transformerless
Ingress protection rating	IP65
Night power consumption	<1W
Operating ambient temperature range	-25~60°C (>45°C derating)
Allowable relative humidity range	0~100%
Cooling method	Smart forced air cooling
Max. operating altitude	4000m (>3000m derating)
Display	Graphic LCD
Communication	RS485 (RJ45 connector)
DC connection type	MC4
AC connection type	Screw Clamp terminal
Certification	VDE0126-1-1, EN62109-1, EN62109-2, BDEW, CGC, NRS 097-2-1, GB/T 19964, UTE C15-712-1, IEC 61683, IEC 60068-2, IEC61727, IEC62116, IEC62109-1, IEC62109-2, EN50178, IEC62103, EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4

## Mechanical Data

Dimensions (W*H*D)	634*820*257mm
Mounting method	Wall bracket
Weight	65kg

## Circuit Diagram



# SG 30KTL-M



## Efficient and flexible

- Full 30 kW effective power at power factor of 0.9 due to apparent power reserves up to 33.12 kVA
- Photon test results "very good", with a maximum efficiency of 98.3% (Photon Profi 2-2013)
- Dual MPP trackers control



## Grid-friendly

- Active power continuously adjustable (0~100%)
- Reactive power control with power factor 0.8 overexcited ~ 0.8 underexcited
- Includes RS-485 interface, compatible with all common monitoring systems



## Intelligent design

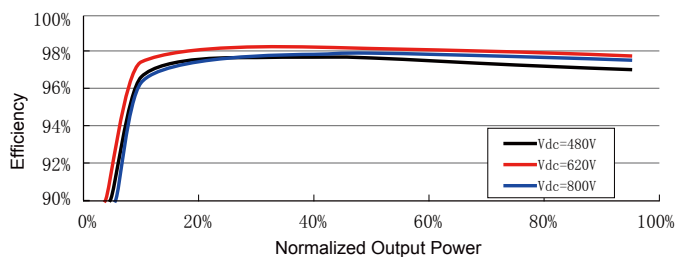
- Integrated combiner box: 8 x MC4 connector pairs with DC string fuses, Type II overvoltage protection and DC switch, more safety and lower the system cost
- Can be wall-mounted without lifting equipment, weight 65 kg



## Reliable

- TÜV, CE, G59/3, AS4777, BDEW, VDE AR N 4105, CEI 0-21, CEI 0-16, CGC certification, SGS, France certification, India certification and Thailand certification

## Efficiency Curve



## Input Side Data

## SG 30KTL-M

Max. PV input power	30800W
Max. PV input voltage	1000V
Startup voltage	300V
Nominal input voltage	620V
MPP voltage range	280~950V
MPP voltage range for nominal power	480~800V
No. of MPPTs	2
Max. number of PV strings per MPPT	4
Max. PV input current	66A (33A/33A)
Max. current for input connector	12A

## Output Side Data

Nominal AC output power	30000W
Max. AC output apparent power	33120VA
Max. AC output current	48A
Nominal AC voltage	3/N/PE, 230/400Vac
AC voltage range	310~480Vac
Nominal grid frequency	50Hz/60Hz
Grid frequency range	45~55Hz/55~65Hz
THD	<3% (Nominal power)
DC current injection	<0.5 %In
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)

## Protection

Anti-islanding protection	Yes
LVRT	Yes
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Yes
DC fuse	Yes
Overvoltage protection	DC Type II DIN rail surge arrester (40KA)

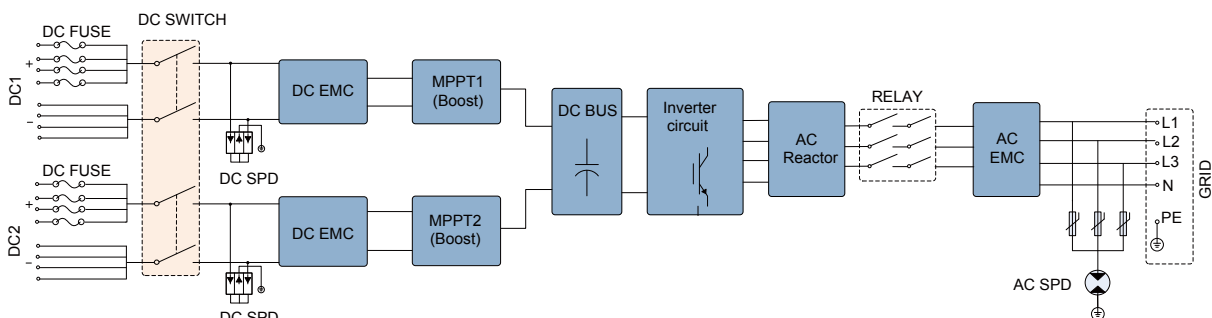
## System Data

Max. efficiency	98.30%
Max. European efficiency	98.00%
Isolation method	Transformerless
Ingress protection rating	IP65
Night power consumption	<1W
Operating ambient temperature range	-25~60°C(>45°C derating)
Allowable relative humidity range	0~100%
Cooling method	Smart forced air cooling
Max. operating altitude	4000m (>3000m derating)
Display	Graphic LCD
Communication	RS485 (RJ45 connector)
DC connection type	MC4
AC connection type	Clamping yoke connector
Certification	VDE0126-1-1, EN62109-1, EN62109-2, G59/3, CEI 0-21, CEI 0-16, AS/NZS 3100,AS4777.2, AS4777.3, VDE-AR-N-4105, BDEW, CGC, NRS 097-2-1, UTE C15-712-1, IEC 61683, IEC 60068-2, IEC 61727, IEC 62116, IEC62109-1, IEC62109-2, EN50178, IEC62103, EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4

## Mechanical Data

Dimensions (W*H*D)	634*820*257mm
Mounting method	Wall bracket
Weight	65kg

## Circuit Diagram





# SG 30 / 36KU



## Efficient and flexible

- High yields due to efficiency up to 98.5% and CEC efficiency of 98.0%
- Dual MPP trackers control



## Grid-friendly

- Continuous active power control
- Reactive power control with power factor 0.8 overexcited ~ 0.8 underexcited
- Includes RS-485 interface, compatible with all common monitoring systems



## Intelligent design

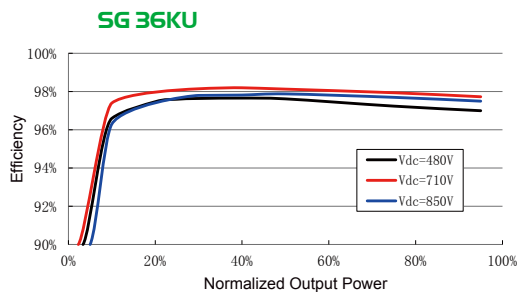
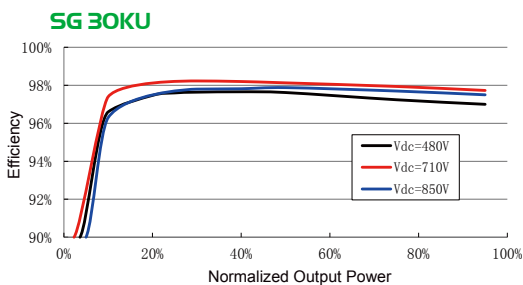
- Integrated combiner box: 10 x Screw terminal pairs with DC string fuses, Type II overvoltage protection and DC switch, more safety and lower the system cost
- Can be wall-mounted without lifting equipment, weight 65 kg
- Can be mounted vertically as well as horizontally, giving maximum design flexibility and lowering installation costs



## Reliable

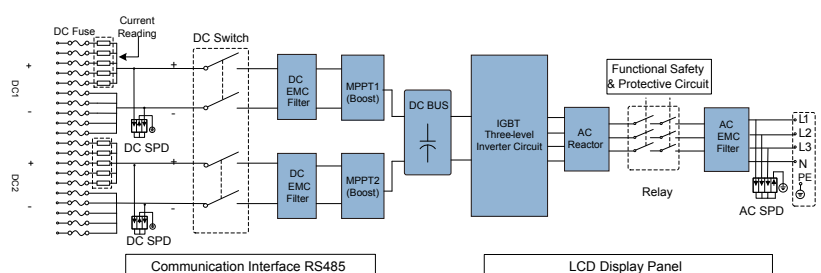
- Product certification: cCSAus, UL 1741, IEEE 1547, IEEE1547.1, CSA C22.2, 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve



Input Side Data	SG 30KU	SG 36KU
Max. PV input power	34100W	41000W
Max. input voltage	1000Vdc	
Startup voltage	300V	
Nominal input voltage	710V	
MPP voltage range	280~950Vdc	
MPP voltage range for nominal power	480~850Vdc	560~850Vdc
No. of MPPTs	2	
Max. number of PV strings per MPPT	5	
Max. PV input current(DC1/DC2)	33A*2	
Max. input current for input connector	12A	
Short-circuit current of PV input	40A*2	
Output Side Data		
Nominal AC output power	30000W	36000W
Max. AC output power(PF=1)	33240W	39800W
Max. AC output apparent power	33240VA	39800VA
Max. AC output current	40A	48A
Nominal AC voltage	480Vac	
AC voltage range	422~528Vac	
Grid Connection Type	3Ø/3W or 4W+Ground	
Normal output frequency	60Hz	
Grid frequency range	57~63Hz	
THD	<3% (at nominal power)	
DC current injection	<0.5%In	
Power factor	>0.99 default value at nominal power, adj. 0.8 leading ~ 0.8 lagging	
Protection		
Anti-islanding protection	Yes	
LVRT	Yes	
DC reverse connection protection	Yes	
AC short circuit protection	Yes	
Leakage current protection	Yes	
DC switch	Integrated	
DC fuse	Integrated	
Overvoltage protection	Type III surge arrester (optional Type II DIN rail surge arrester)	
AC switch	Optional	
AC fuse	Optional	
System Data		
Max. efficiency	98.5%	
CEC efficiency	98.0%	
Isolation method	Transformerless	
Ingress protection rating	NEMA4X	
Night power consumption	<1W	
Ambient operating temperature range	-25~ + 60°C (>45°C derating)	-13~+140°F (>113°F derating)
Allowable relative humidity range	0~100%	
Cooling method	Smart forced air cooling	
Max. operating altitude	4000m (>3000m derating)	13000ft(>9800ft derating)
Display	Graphic LCD	
Communication	RS485 (optional Ethernet)	
DC connection type	Screw terminals	
AC connection type	Spring clamp terminal	
Certification	cCSAus	
Safety and EMC Standard	UL 1741, IEEE 1547, IEEE1547.1, CSA C22.2#107.1-01-2001, FCC Part 15 Sub-part B, Class B Limits	
Mechanical Data		
Dimensions (W*H*D)	622*880*250mm	25*34.6*9.8inch
Mounting method	Wall bracket or floor bracket	
Weight	65kg	143lbs

## Circuit Diagram



# SG 20KTL



## Efficient and flexible

- Full 20 kW effective power at power factor of 0.9 due to apparent power reserves up to 22.2 kVA
- Photon test results "very good", with a maximum efficiency of 98% (Photon Profi 2-2012)
- Dual MPP trackers control



## Grid-friendly

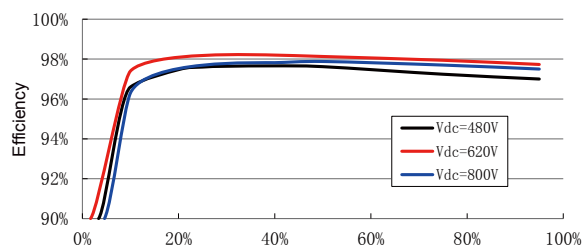
- Active power continuously adjustable (0~100%)
- Reactive power control with power factor 0.8 overexcited ~ 0.8 underexcited
- Includes RS-485 interface, compatible with all common monitoring systems



## Reliable

- TÜV, CE, G59/3, AS4777, BDEW, VDE AR N 4105, CGC certification, CEI 0-21, compliance with Italian medium voltage grid requirement

## Efficiency Curve



## Input Side Data

Max. PV input power	21000W (10500W/10500W)
Max. PV input voltage	1000V
Startup voltage	300V
Nominal input voltage	620V
MPP voltage range	280~950V
MPP voltage range for nominal power	480~800V
No. of MPPTs	2
Max. number of PV strings per MPPT	3
Max. PV input current	42A(21A/21A)
Max. current for input connector	12A

## SG 20KTL

## Output Side Data

Nominal AC output power	20000W
Max. AC output power (PF=1)	22200W
Max. AC output apparent power	22200VA
Max. AC output current	33A
Nominal AC voltage	3/N/PE, 230/400Vac
AC voltage range	310~480Vac
Nominal grid frequency	50Hz/60Hz
Grid frequency range	47~53Hz/57~63Hz
THD	<3% (nominal power)
DC current injection	<0.5 %In
Power factor	>0.99@default value at nominal power, adj. 0.8 leading ~ 0.8 lagging

## Protection

Anti-islanding protection	Yes
LVRT	Yes
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Yes
DC fuse	No
Overvoltage protection	Varistors

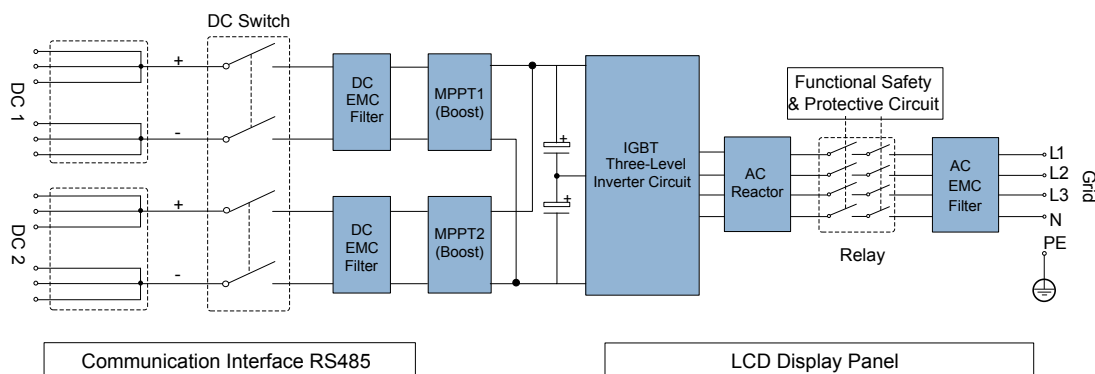
## System Data

Max. efficiency	98.00%
Max. European efficiency	97.30%
Isolation method	Transformerless
Ingress protection rating	IP65
Night power consumption	<1W
Operating ambient temperature range	-25~60°C (>45°C derating)
Allowable relative humidity range	0~100%
Cooling method	Smart forced air cooling
Max. operating altitude	4000m (>3000m derating)
Display	Graphic LCD
Communication	RS485 (RJ45 connector)
DC connection type	MC4
AC connection type	Plug and play connector
Certification	EN62109-1, EN62109-2, EN61000-6-2, EN61000-6-3, VDE0126-1-1, CEI 0-21, AS/NZS3100, AS4777.2, AS4777.3, VDE-AR-N-4105, BDEW, CGC

## Mechanical Data

Dimensions (W*H*D)	648*686*246mm
Mounting method	Wall bracket
Weight	55kg

## Circuit Diagram



# SG 8 / 10 / 12 KTL-EC



## Efficient and flexible

- Flexible design due to dual MPP tracking that is equipped to obtain full nominal power, 3-phase supply
- High energy yield due to maximum efficiency up to 98%



## Intelligent design

- Low noise level and internal consumption due to natural cooling
- Integrated theft protection



## Abundant Functions

- Integrated intelligent management for household appliances (DO function), a substantial increase in the rate of self-consumption
- Integrated power management function, easy to receive the adjustable command from grid
- Extensive communication: RS-485, Ethernet, 4 digital inputs for ripple control receivers, 2 digital outputs for controlling internal consumption

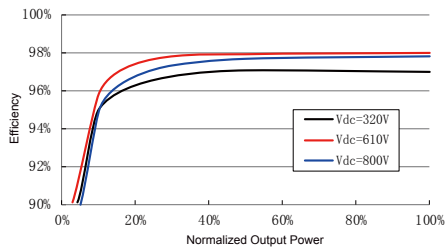


## Reliable

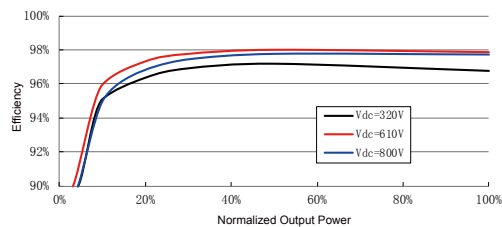
- Product certification: TÜV, VDE 0126-1-1, EN 62109-1/-2, CE, CEI 0-21 and G59/3, VDE-AR-N 4015
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve

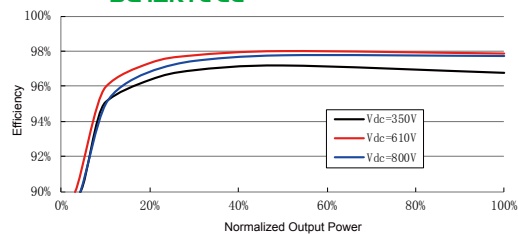
SG 8KTL-EC



SG 10KTL-EC



SG 12KTL-EC



Input Side Data	SG 8KTL-EC	SG 10KTL-EC	SG 12KTL-EC
Max. PV input power	8440W	10550W	12650W
Max. PV input voltage	1000V		
Startup voltage	250V		
Nominal input voltage	610V		
MPP voltage range	200~900V		
MPP voltage range for nominal power	320~800V	320~800V	350~800V
No. of MPPTs	2		
Max. number of PV strings per MPPT	3/1		
Max. PV input current	33A (22A/11A)	33A (22A/11A)	36A (24A/12A)
Max. current for input connector	12A		
Short-circuit current of PV input	42A (28A/14A)	42A (28A/14A)	45A (30A/15A)

### Output Side Data

Nominal AC output power	8000W	10000W	12000W
Max. AC output power (PF=1)	8000W	10000W	12000W
Max. AC output apparent power	8000VA	10526VA	13300VA
Max. AC output current	11.6A	15.3A	19.3A
Nominal AC voltage	3/N/PE, 230/400Vac		
AC voltage range	310~480Vac (May vary as per corresponding country's grid standard)		
Nominal grid frequency	50Hz		
Grid frequency range	45~55Hz (May vary as per corresponding country's grid standard)		
THD	<3% (Nominal power)		
DC current injection	<0.5% I <sub>n</sub>		
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)		

### Protection

Anti-islanding protection	Yes
LVRT	No
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Integrated
DC fuse	No
Overvoltage protection	III

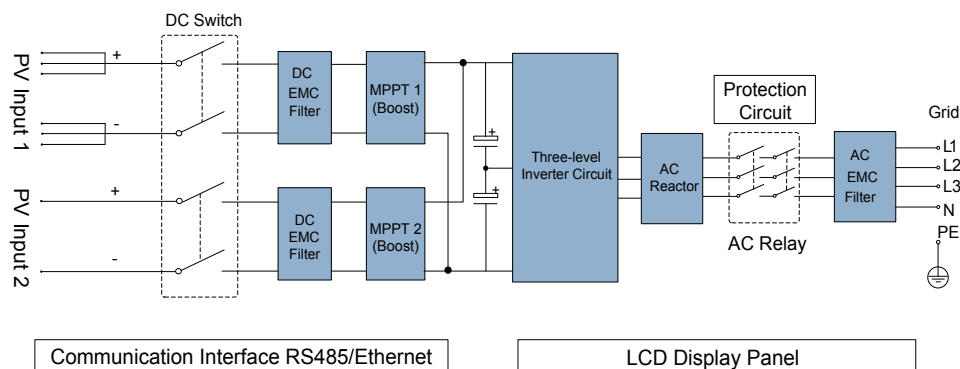
### System Data

Max. efficiency	98.0%	98.0%	98.0%
Max. European efficiency	97.5%	97.6%	97.5%
Isolation method	Transformerless		
Ingress protection rating	IP65		
Night power consumption	<1W		
Operating ambient temperature range	-25~60°C (>45°C derating)		
Allowable relative humidity range	0~100%		
Cooling method	Natural cooling		
Noise	≤ 29dB	≤ 29dB	≤ 35dB
Max. operating altitude	2000m		
Display	Graphic LCD		
Communication	2 × Ethernet, 2 × RS485 (RJ45 connector), 4 × Digital Inputs, 2 × Digital outputs		
DC connection type	MC4		
AC connection type	Plug and play connector		
Certification	VDE0126-1-1, EN62109-1, EN62109-2, G83/1, VDE-AR-N-4105, CEI 0-21		

### Mechanical Data

Dimensions (W*H*D)	535*710*220mm		
Mounting method	Wall bracket		
Weight	36kg	36kg	45kg

### Circuit Diagram



# SG 3 / 4 / 5 / 6KTL-EC



## Efficient and flexible

- Flexible design due to dual MPP tracking that is equipped to obtain full nominal power, 3-phase supply
- High energy yield due to maximum efficiency up to 98.1%



## Abundant Functions

- Access to Home WiFi system and enjoy cloud services via smart phones
- Integrated power management function, easy to receive the adjustable command from grid
- Extensive communication: RS-485, Ethernet, WLAN / WiFi, 4 digital inputs for ripple control receivers



## Intelligent design

- Low noise level and internal consumption due to natural cooling
- Integrated theft protection

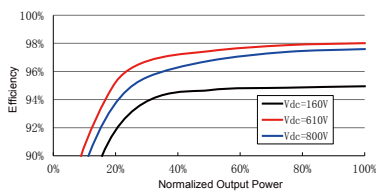


## Reliable

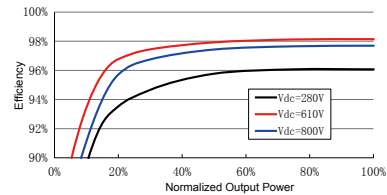
- Product certification: TÜV, VDE 0126-1-1, EN 62109-1/-2, CE, G83/1, VDE-AR-N 4105
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000

## Efficiency Curve

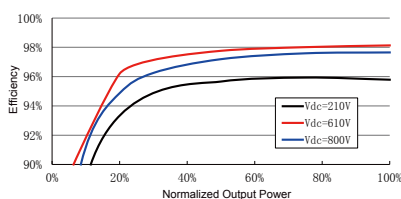
### SG 3KTL-EC



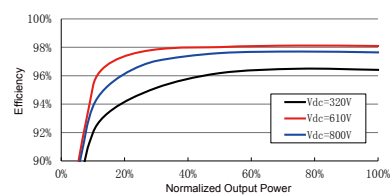
### SG 5KTL-EC



### SG 4KTL-EC



### SG 6KTL-EC





Input Side Data	SG 3KTL-EC	SG 4KTL-EC	SG 5KTL-EC	SG 6KTL-EC
Max. PV input power	3191W	4255W	5265W	6312W
Max. PV input voltage	1000V			
Startup voltage	200V	200V	250V	250V
Nominal input voltage	610V			
MPP voltage range	140~900V	140~900V	200~900V	200~900V
MPP voltage range for nominal power	160~800V	210~800V	280~800V	320~800V
No. of MPPTs	2			
Max. number of PV strings per MPPT	1/1			
Max. PV input current	19.8A (9.9A/9.9A)			
Max. current for input connector	12A			
Short-circuit current of PV input	24.8A(12.4A/12.4A)			

### Output Side Data

Nominal AC output power	3000W	4000W	5000W	6000W
Max. AC output power (PF=1)	3000W	4000W	5000W	6000W
Max. AC output apparent power	3000VA	4000VA	5000VA	6000VA
Max. AC output current	4.4A	5.8A	7.3A	8.7A
Nominal AC voltage	3/N/PE,230/400Vac			
AC voltage range	310~480Vac (May vary as per corresponding country's grid standard)			
Nominal grid frequency	50Hz			
Grid frequency range	45~55Hz (May vary as per corresponding country's grid standard)			
THD	<3% (Nominal power)			
DC current injection	<0.5% In			
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading~0.8 agging)			

### Protection

Anti-islanding protection	Yes
LVRT	No
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
DC switch	Integrated
DC fuse	No
Overvoltage protection	III

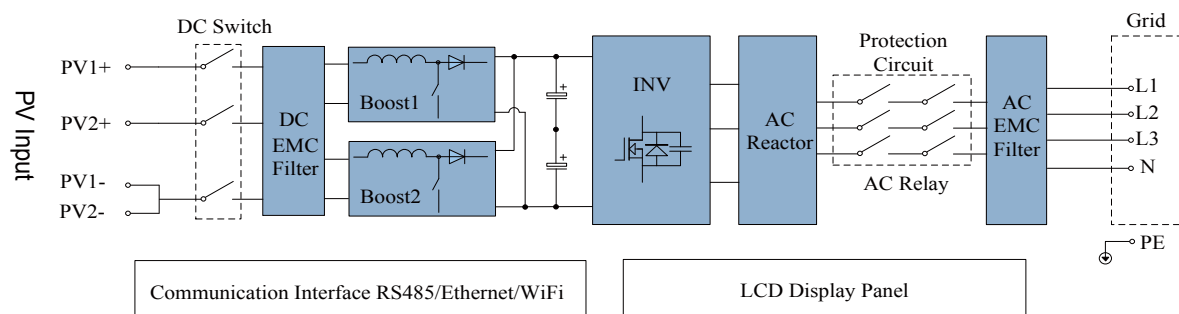
### System Data

Max. efficiency	98.0%	98.1%	98.1%	98.1%
Max. European efficiency	96.2%	96.8%	97.2%	97.3%
Isolation method	Transformerless			
Ingress protection rating	IP65			
Night power consumption	<1W			
Operating ambient temperature range	-25~60°C (>45°C derating)			
Allowable relative humidity range	0~100%			
Cooling method	Natural cooling			
Noise	≤29dB			
Max. operating altitude	2000m			
Display	Graphic LCD			
Communication	Ethernet, RS485 (RJ45 connector), 4 × Digital Inputs, WiFi			
DC connection type	MC4			
AC connection type	Plug and play connector			
Certification	VDE0126-1-1, EN62109-1, EN62109-2,G83/1, VDE-AR-N-4105			

### Mechanical Data

Dimensions (W*H*D)	403*518*190mm
Mounting method	Wall bracket
Weight	22kg

### Circuit Diagram



NEW

# SG2K / 2K5 / 3K / 3K6 / 4KTL-S



## Efficient and flexible

- Max. input voltage 600V, compatible with different PV panel and string design
- Only 9kg, easy for handling and installation
- Max. Efficiency at 98.0%



## Reliable

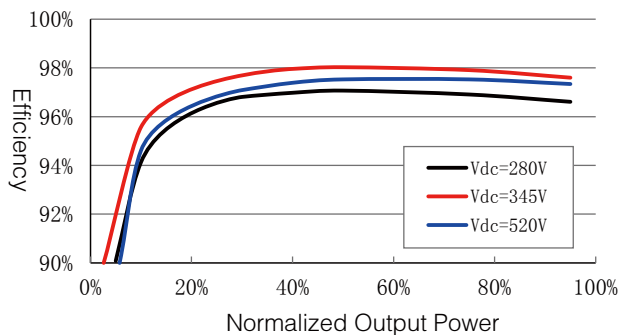
- Product certification: TÜV, CE, AS4777, AS/NZS 3100, VDE AR N 4105
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000



## Intelligent design

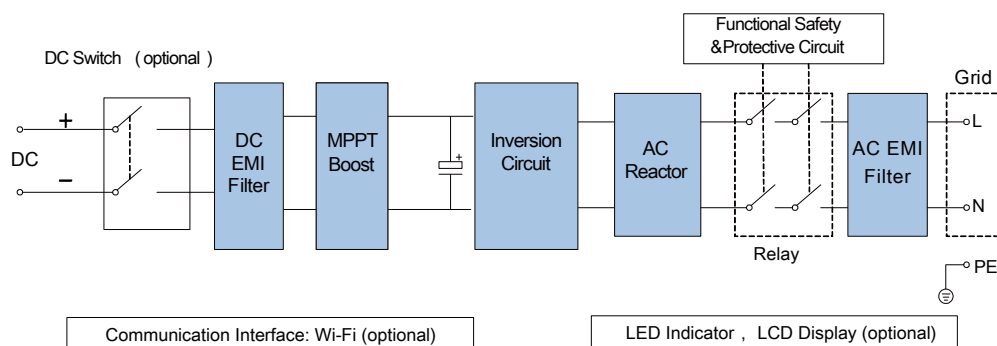
- Ultra-quiet, suitable for residential use
- Access to home WiFi system, easy to enjoy the online monitoring
- Wireless communication design, intelligent mobile phone local and remote monitoring

## Efficiency Curve



Input Side Data	SG2KTL-S	SG2K5TL-S	SG3KTL-S	SG3K6TL-S	SG4KTL-S
Max. PV input power	2300W	2800W	3300W	3900W	4300W
Max. PV input voltage	600V				
Startup voltage	150V				
Nominal input voltage	345V				
MPP voltage range	125~560V				
MPP voltage range for nominal power	210~520V	240~520V	280~520V	220~520V	240~520V
No. of MPPTs	1				
Max. number of PV strings per MPPT	1	1	1	2	2
Max. PV input current	11A	11A	11A	18A	18A
Max. current for input connector	20A				
<b>Output Side Data</b>					
Nominal AC output power	2000W	2490W	3000W	3680W	4000W
Max. AC output power (PF=1)	2150W	2490W	3150W	3680W	4210W
Max. AC output apparent power	2150VA	2490VA	3150VA	3680VA	4210VA
Max. AC output current	9.5A	11.5A	13.7A	16.0A	18.3A
Nominal AC voltage	230Vac (single phase)				
AC voltage range	180~276Vac				
Nominal grid frequency	50Hz/60Hz				
Grid frequency range	45~55Hz/55~65Hz				
THD	<3% (nominal power)				
DC current injection	<0.5 %In				
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)				
<b>Protection</b>					
Anti-islanding protection	Yes				
LVRT	No				
DC reverse connection protection	Yes				
AC short circuit protection	Yes				
Leakage current protection	Yes				
DC switch	Optional				
DC fuse	No				
Overvoltage protection	Varistors				
<b>System Data</b>					
Max. efficiency	98.00%				
Max. European efficiency	97.00%	97.40%	97.50%	97.50%	97.50%
Isolation method	Transformerless				
Ingress protection rating	IP65				
Night power consumption	<1W				
Operating ambient temperature range	-25~60°C (>45°C derating)				
Allowable relative humidity range	0~100%				
Cooling method	Natural cooling				
Max. operating altitude	4000m (>2000m derating)				
Display	LED , LCD (optional)				
Communication	WiFi (optional)				
DC connection type	MC4				
AC connection type	Plug and play connector				
Certification	IEC61000-6-2, IEC61000-6-3, AS/NZS3100, AS4777.2, AS4777.3, VDE-AR-N-4105, VDE0126-1-1, CE,G83/2, C10/11, EN50438, CGC				
<b>Mechanical Data</b>					
Dimensions (W*H*D)	300*370*125 mm				
Mounting method	Wall bracket				
Weight	9kg				

## Circuit Diagram



NEW

# SG3K / 3K6 / 4K6 / 5KTL-D



## Efficient and flexible

- Max. input voltage 600V, compatible with different PV panel and string design
- Dual MPPT, compatible with different residential rooftop system design
- Only 11kg, easy for handling and installation
- Max. Efficiency at 98.0%



## Reliable

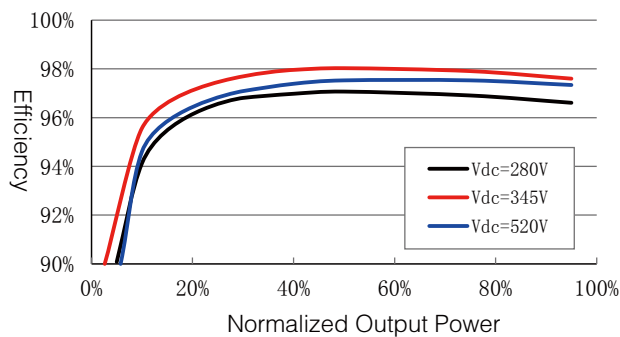
- Product certification: TÜV, CE, AS4777, AS/NZS 3100, VDE AR N 4105
- Manufacturer certification: ISO 9001, ISO 14001, OHSAS 18000



## Intelligent design

- Ultra-quiet, suitable for residential use
- Access to home WiFi system, easy to enjoy the online monitoring
- Wireless communication design, intelligent mobile phone local and remote monitoring

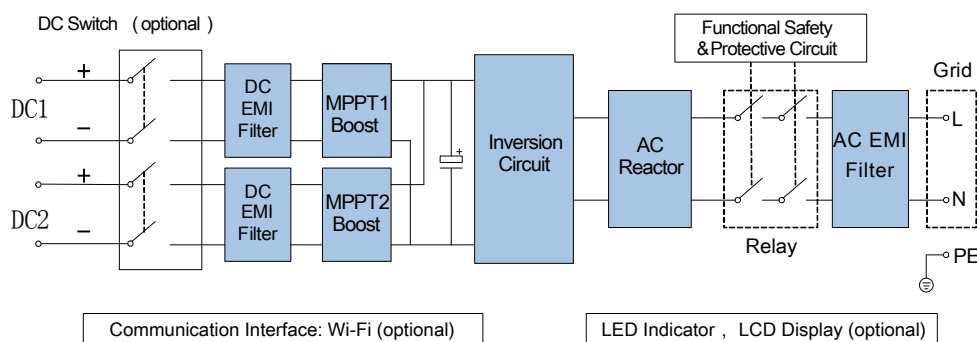
## Efficiency Curve



Input Side Data	SG3KTL-D	SG3K6TL-D	SG4K6TL-D	SG5KTL-D
Max. PV input power	3300W	3900W	4900W	5400W
Max. PV input voltage	600V			
Startup voltage	150V			
Nominal input voltage	345V			
MPP voltage range	125~560V			
MPP voltage range for nominal power	150~520V	180~520V	220~520V	240~520V
No. of MPPTs	2			
Max. number of PV strings per MPPT	1			
Max. PV input current	22A (11A/11A)			
Max. current for input connector	20A			
<b>Output Side Data</b>				
Nominal AC output power	3000W	3680W	4600W	5000W/4600W *(Australia)
Max. AC output power (PF=1)	3150W	3680W	4600W	5000W
Max. AC output apparent power	3150VA	3680VA	4600VA	5000VA
Max. AC output current	13.7A	16.0A	20A	21.7A/20A *(Australia)
Nominal AC voltage	230Vac (single phase)			
AC voltage range	180~276Vac			
Nominal grid frequency	50Hz/60Hz			
Grid frequency range	45~55Hz/55~65Hz			
THD	<3% (nominal power)			
DC current injection	<0.5 %In			
Power factor	>0.99@default value at nominal power, (adj. 0.8 leading ~ 0.8 lagging)			
<b>Protection</b>				
Anti-islanding protection	Yes			
LVRT	No			
DC reverse connection protection	Yes			
AC short circuit protection	Yes			
Leakage current protection	Yes			
DC switch	Optional			
DC fuse	No			
Overvoltage protection	Varistors			
<b>System Data</b>				
Max. efficiency	98.00%			
Max. European efficiency	97.50%			
Isolation method	Transformerless			
Ingress protection rating	IP65			
Night power consumption	<1W			
Operating ambient temperature range	-25~60°C (>45°C derating)			
Allowable relative humidity range	0~100%			
Cooling method	Natural cooling			
Max. operating altitude	4000m (>2000m derating)			
Display	LED , LCD (optional)			
Communication	WiFi (optional)			
DC connection type	MC4			
AC connection type	Plug and play connector			
Certification	IEC61000-6-2, IEC61000-6-3, AS/NZS3100, AS4777.2, AS4777.3, VDE-AR-N-4105, VDE0126-1-1, CE,G83/2, C10/11, EN50438, CGC			
<b>Mechanical Data</b>				
Dimensions (W*H*D)	360*390*133 mm			
Mounting method	Wall bracket			
Weight	11kg			

\* When the country parameter of SG5KTL-D is set to Australia, nominal output is 4600W and maximum output current is 20A.

## Circuit Diagram



**SUNGROW**  
Green and Effective



# Accessory & Monitoring Products





# SunBox™ PVS-8M / PVS-16M

## PV combiner box



The product applicable to Europe, Asia, Africa and manual installation. design for a large-scale grid-connected PV system. It is a general practice to install a DC combining device in between the PV modules and inverters for the sake of minimizing the cable distance between them, facilitating maintenance and improving reliability. With many years of PV Grid-connected system design experience, our PVS PV array combiner box series is specially-designed for meeting the need of high performance and high reliability of PV systems.



### Flexible

- IP65 protection class, meet the need of outdoor installation and usage
- Self-powered power supply with SPD protection
- Standard output terminal for copper core cable 70mm<sup>2</sup> (MAX. 95mm<sup>2</sup>)
- MC4 output terminal (requires optional accessory)



### Efficient and Safe

- Independent patent technology
- PV dedicated DC fuses, both positive and negative
- PV dedicated high-voltage SPD
- Fuse boxes with spacer and special Bus part with protection
- String current and voltage abnormal alarm
- SPD failure alarm



### Qualified

- CGC certified

Parameters	PVS - 8M	PVS - 16M	Standard Accessories	
MAX. PV array voltage	1000Vdc	1000Vdc	DC circuit breaker	Yes
MAX. PV array parallel inputs	8	16	PV dedicated SPD	Yes
Rate fuse current for each string (replaceable)	10A/15A	10A/15A	PV Self-Powered	Yes
Input terminal type	4~6 mm <sup>2</sup>	4~6 mm <sup>2</sup>	Current monitor for each string and PV voltage monitor	Yes
Output terminal type	50mm <sup>2</sup>	70mm <sup>2</sup>	SPD failure monitoring	Yes
Protection class	IP65	IP65	<b>Optional Accessory</b>	
Environment temperature	-25°C~+60°C	-25°C~+60°C	Monitor for Circuit breaker state	Optional
Environment humidity	0~95%	0~95%		
Dimensions (W*H*D)	670*570*170mm	720*590*170mm		
Weight	25kg	31kg		

## SolarInfo™ Logger Data logger

Logger is used for PV plants in the collection, recording status, operational information of inverters, PVS and EM.



### Flexible

- Integrated SolarInfo Bank for remote monitoring the PV plant from any PC or smart phone around the world.
- Multiple communication connections: RS485, RS232, Ethernet. Interconnecting devices quickly
- Real-time clock
- Communication with up to 30 devices
- Support external memory (Micro SD Card, 2GB)
- Support BDEW power scheduling
- Wall or guide rail attachable, easy for on-site installation and maintenance



### Efficient and Safe

- All ports with electrical isolation protection, switch input port isolation voltage is 1000V, RS485 port isolation voltage is 1000V



### Qualified

- Industrial design, multilevel gray LCD screen with high brightness
- High flexibility, beautiful and durable touch sensor keys



### Communication

Inverter communication	RS485
PC communication	10/100Mbit Ethernet/RS232/RS485

### Max. Communication Range

RS485/Ethernet/RS232	1200m/100m/5m
----------------------	---------------

### Interface Design

RS485	3
RS232	1
Digital input port	4
Digital output port	4
Analog input port	2 (0~10VDC/4~20mA)
Ethernet port	1

### Power Supply

Power module	AC-DC power adapter
Adapter input voltage	100~240VAC (50/60Hz)
Power consumption	Typ.3W/max.10W
Logger input voltage	5VDC

### Environmental Conditions

Ambient temperature	-20~60°C
Humidity	0%~95%, no condensing

### Memory

Internal	4MB circulating memory
External	MicroSD card , 2GB (optional)

### General data

Dimensions (W*H*D)	205*132*38mm
Weight	550g
Usable range	Indoors
Installation options	DIN rail installation, wall mounting
Display	LCD, LED
Language versions- software/manual	Chinese, English, German, Italian

### Accessories

MicroSD card	2GB Optional
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# SolarInfo™ Bank

## Online PV plant monitoring website

[www.solarinfobank.com](http://www.solarinfobank.com)



SolarInfo Bank is a remote data monitoring system of PV plant. Whenever and wherever you can access the PV Data, which including PV power and profits, CO2 emissions benefits, equipment running status, real-time and historical data, etc. Multiple formats of charts are available for quick and easy review of the operating conditions and performance of the PV plant.



### Efficient

- Information browsing fast, timely and comprehensive understanding of the power plant information
- Unattended, is a powerful assistant manage your station
- 24-hour monitoring



### Easy

- Via Wi-Fi, Ethernet and other network mode, easy access
- Support browsers, mobile terminal browser access
- Operation is simple, practical content



### Quality

- Friendly interface, power access, easy to use, low maintenance costs
- Whenever and wherever you can understand the power plant operating conditions
- Feature-rich, providing comparative analysis of various data template
- Various reports fully meet the needs of the daily management

### Technical Data

Language	English, German, Japanese, Italian, Chinese, French
Browser	Internet Explorer as of version 8, Firefox as of version 5, Google Chrome as of version 14, Safari as of version 5, Opera as of version 11
APP	IOS 6.x and later, Android 4.x and later
Data transmission interval	5 mins
Fault alert	Timely notify through e-mails
Report	Custom daily report, weekly report, monthly report and yearly report through regular e-mails
Data output format	CSV, EXCEL, PDF
Display mode	Display the data of plant and equipment by charts and forms
Support Device	Inverter EM Combiner box Meter etc
Advanced features	Annual analysis comparing unit, investment income compared Power management, device management, power generation compensation, full-screen display, a custom report

## SolarInfo™ Home Online Household PV Monitoring system



### Product Overview

- SolarInfo Home for House PV Plant Monitoring systems, which is characterized by ease of deployment, maintenance-free, extremely easy to use. You can access SolarInfo Home data via computer, mobile phone remote, you can also use mobile phones and other mobile terminals to obtain data directly through an inverter to run wifi locally. A variety of ways to access data, to meet the different network environments, to provide you with comprehensive data support.



### Qualified

- User-friendly, easy to use, low maintenance costs
- Whenever and wherever you can access the PV Data



### Technical Data

Language	English, German, Japanese, Italian, Chinese, French
Browser	Internet Explorer as of version 8, Firefox as of version 5, Google Chrome as of version 14, Safari as of version 5, Opera as of version 11
APP	IOS 6.x and later, Android 4.x and later
Data transmission interval	5 mins,
Fault alert	Timely notify through e-mails
Report	Custom daily report, weekly report, monthly report and yearly report through regular e-mails
Data output format	CSV, EXCEL, PDF
Display mode	Display the data of plant and equipment by charts and forms
Support Device	Inverter

**SUNGROW**  
Green and Effective



# Reference & Service



By the end of 2014, over 1.5GW of Sungrow's PV inverters were deployed in various market of Spain, Germany, Italy, Belgium, Australia and many other countries overseas.

**In Europe**

- 8.3MW, Berlin, Germany
- 5MW, Tenerife, Spain
- 18MW, Rome, Italy
- 10MW, Antwerp, Belgium
- 12MW, Sardinia, Italy
- 3MW, Italy
- 10MW, Domsühl, Germany
- 2.4MW, Friedland & Neuheilenbach, Germany
- 10MW, Domsühl, Germany
- 8.3MW, Berlin, Germany
- 8MW, Hamburg, Germany
- 50MW in total, Greece
- 3.6MW Milan, Italy
- 1.8MW, Mozzecane, Italy
- ... ..

**In America**

- 20MW, Lancaster, CA, USA
- 5MW, Carver, USA
- 2MW, Chicago, IL, USA
- 1MW, Imperial Valley, CA, USA
- 1MW, Ontario, Canada
- ... ..

**In China**

- 520MW, Qinghai
- 6.68MW, Hongqiao, Shanghai
- 50MW, Baosteel, Shanghai
- ... ..

**In Southeast Asia**

- 2MW, Bali, Indonesia
- 5MW, Rajasthan, India
- ... ..



> 5MW, Carver, USA



> 1MW, Ontario, Canada



> 2MW, Bali, Indonesia





> 5MW, Tenerife, Spain



> 18MW, Rome, Italy



> 10MW, Antwerp, Belgium



> 8.3MW, Berlin, Germany



> 12MW, Sardinia, Italy



> 3MW, Italy



> 2MW, Chicago, IL, USA



> 2.4MW, Friedland & Neuheilenbach, Germany



> 10MW, Domsühl, Germany



> 5MW, Maniago, Italy





> 1.8MW, Mozzecane, Italy



> 20MW, Lancaster, CA, USA



> 50kW, Vianen, Netherlands



> 6.68MW, Hongqiao Shanghai  
PV rooftop power system comprehensive transportation hub



> 50MW Baosteel, Shanghai  
PV rooftop power system



> 520MW, Gonghe, Qinghai  
The world's largest PV plant

We are committed to the clean and efficient energy, and to bring more green electricity to all mankind

We have a thorough understanding of customers' needs to provide them with comprehensive and perfect services:



### Consulting services:

Sungrow has set up marketing service agencies in France, Germany, Italy, Austria, the United States, Canada, Australia and other countries to provide customers with professional and convenient project advisory services.



### System design services:

Our senior system engineers have abundant PV power generation system design experience for years, who's able to develop tailored solutions accurately. The system design profile, budget, power generating capacity, and data as carbon dioxide emissions will be taken into account and provided to the customer as well.



### Quality assurance services:

We pursue high quality all the time. Every product is under quality inspections during manufacturing process, and needs to pass the complete machine test before shipment to ensure that it can be stably operated. Detailed and rapid warranty services are guaranteed by on-line monitoring system, hardware/software upgrades, regular inspection and training.



### Training services:

We provide customers with comprehensive, professional technical training and guidance by delivering the knowledge of power system and equipment's daily use and maintenance.



### On-site service:

Our technical service engineers can provide customers with professional and rapid installation and debugging services according to requirements, to ensure that customers' projects would be successfully completed and connected to the grid perfectly.

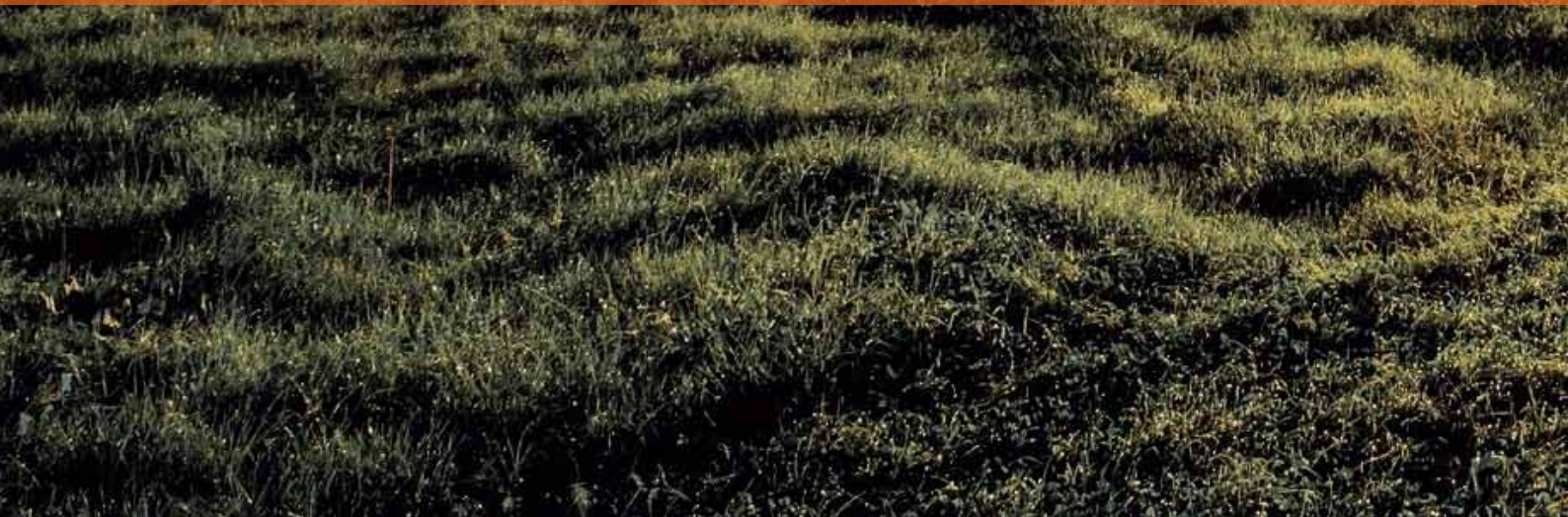








The world leading provider for new energy generation equipment & system access scheme









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