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#### HUAWEI DIGITAL POWER TECHNOLOGIES CO., LTD.

Antuoshan Headquarters Towers, 33 Antuoshan 6th Road, Futian District, Shenzhen, P.R.C.  
solar.huawei.com

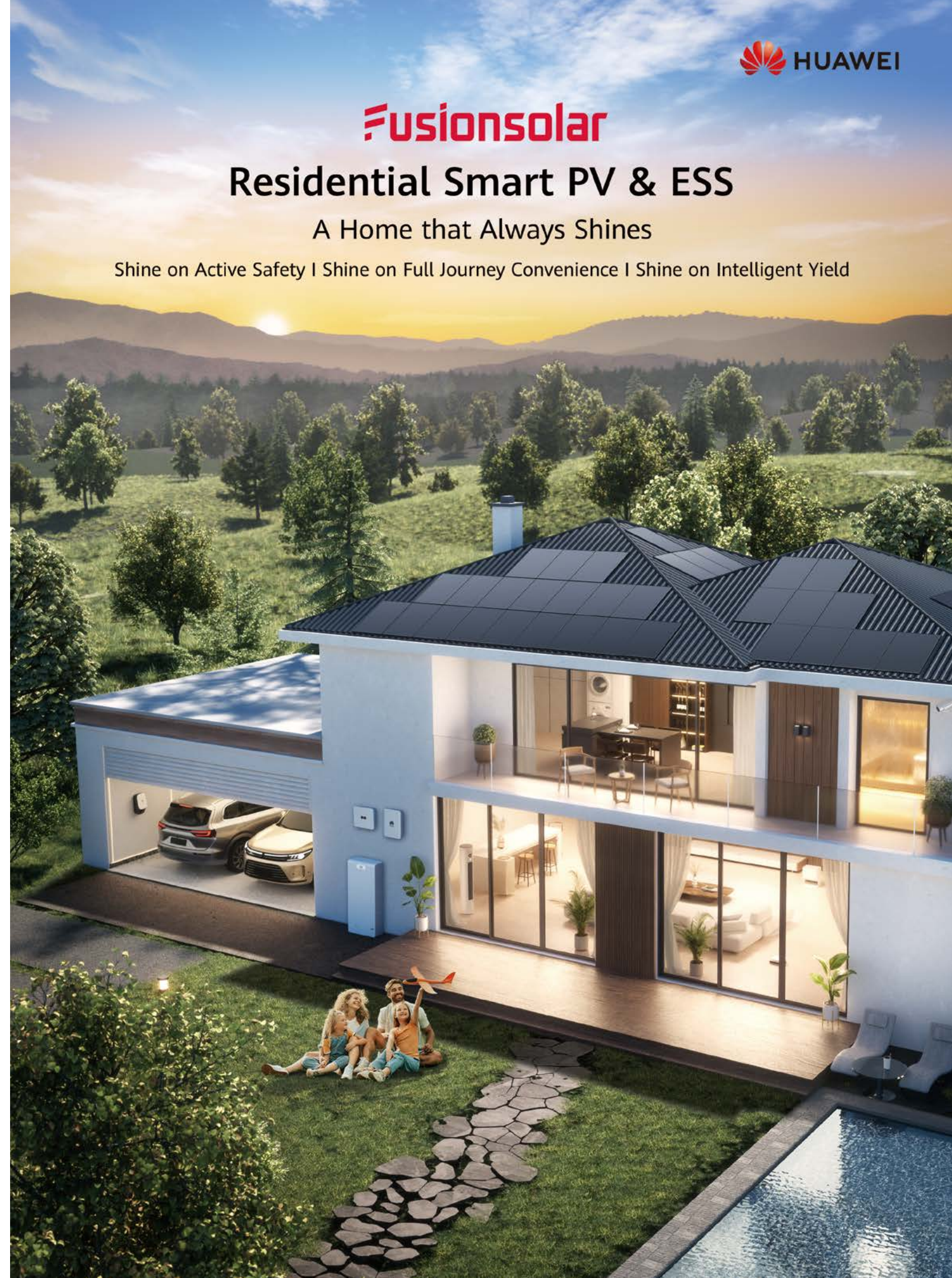


# Fusionsolar

## Residential Smart PV & ESS

A Home that Always Shines

Shine on Active Safety | Shine on Full Journey Convenience | Shine on Intelligent Yield





# A HOME THAT ALWAYS SHINES

## Our Mission

FusionSolar Residential Smart PV provides a one-fits-all solution from power generation, storage, to charging and power consumption. We always maximize efficiency and safety to power more households for a better, smarter, and more sustainable future

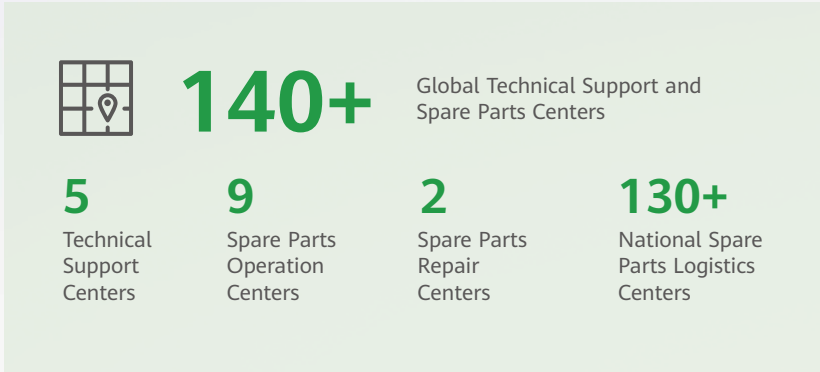
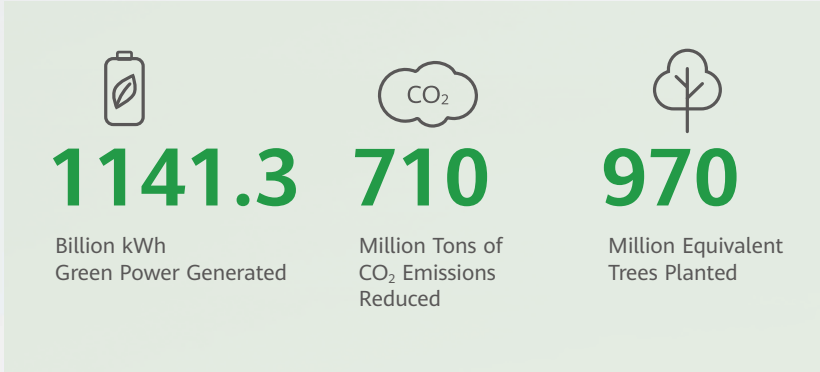
By the end of 2024,

FusionSolar has provided clean energy for **3.9** million homes in over **170** countries





# ABOUT FUSIONSOLAR



\*Based on data available as of 2024.12







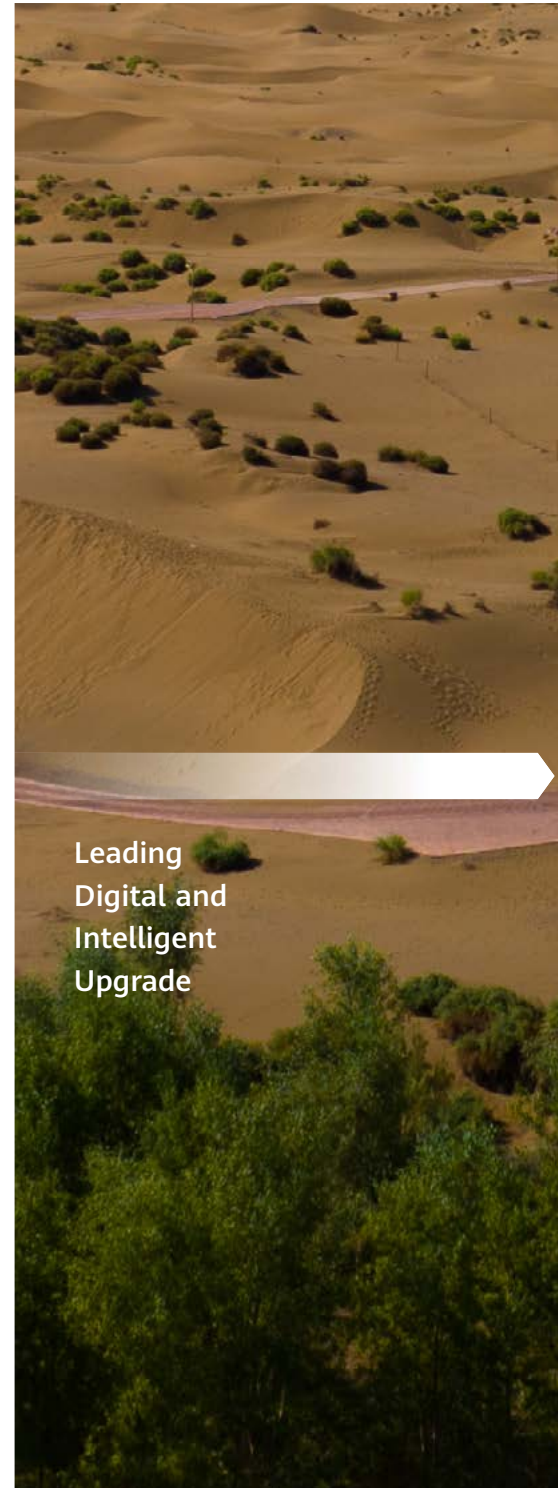
# LEADING INNOVATIONS FOR THE MOST VALUABLE CREATIONS



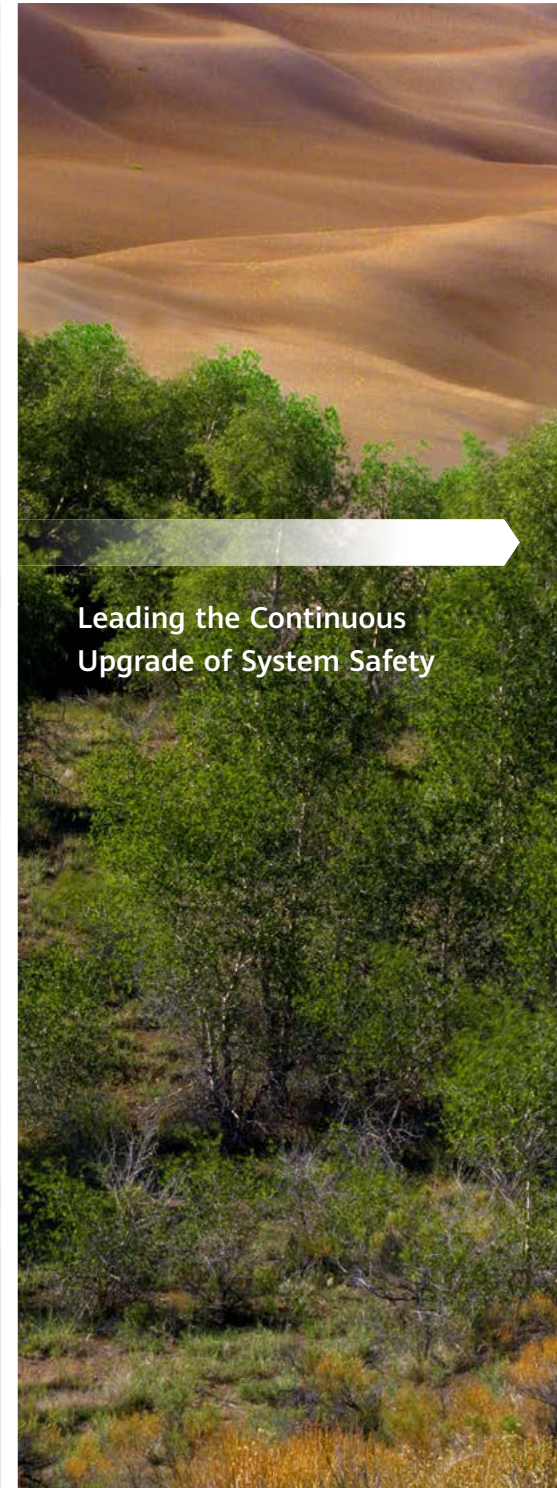
Leading String  
Inverters into the  
Mainstream



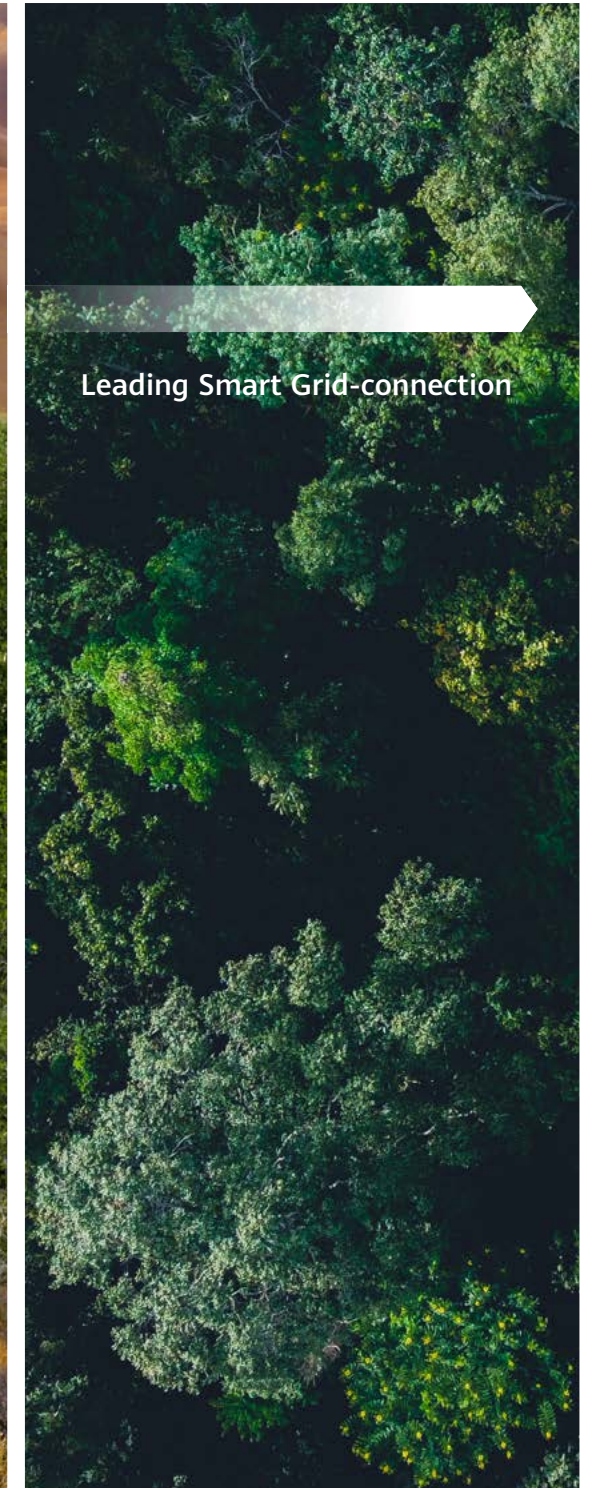
Leading Energy Storage System  
Architecture Innovation



Leading  
Digital and  
Intelligent  
Upgrade

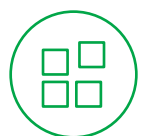


Leading the Continuous  
Upgrade of System Safety



Leading Smart Grid-connection





# MAKE SMART PV ACCESSIBLE TO EVERY HOME

## For Artists

“ It's better to add a touch of green to the earth than to the canvas. ”



## For the Seniors

“ I may be grey, but my power is green. ”



## For Professionals

“ Green is the new black. ”



## For Young People

“ Green energy gets you energized. ”



## For Homeowners

“ Visibility and control of your energy on the go. ”



## For Children

“ Future generations deserve a greener planet. ”







A HOME THAT ALWAYS SHINES

# C O N T E N T S

01

SOLUTION  
VALUE

P01

02

PRODUCT  
COLLECTION

P13

03

SERVICE

P65

04

CASE  
STUDY

P69





A modern two-story house with a white exterior and large glass windows. The roof is covered with dark solar panels. A silver car is parked in the driveway on the left. The house is surrounded by green grass and some landscaping. A green semi-transparent banner is overlaid on the middle of the image, containing the text '01' and 'SOLUTION VALUE'.

# 01

SOLUTION  
VALUE





# FUSIONSOLAR RESIDENTIAL SMART PV SOLUTION

## Smart Energy Controller

- SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 (Single-Phase)
- SUN2000-3/3.68/4/4.6/5/6K-LB0 (Single-Phase)
- SUN2000-8/10K-LC0 (Single-Phase)
- SUN2000-3/4/5/6/8/10KTL-M1 (Three-Phase)
- SUN2000-5/6/8/10/12K-MAP0 (Three-Phase)
- SUN2000-12/15/17/20/25K-MB0 (Three-Phase)
- SUN5000-8/12K-MAP0 (Three-Phase)
- SUN5000-17/25K-MB0 (Three-Phase)

## Smart Module Controller

- SUN2000-450W-P2  
SUN2000-600W-P
- MERC-1100W-P  
MERC-1300W-P

## Smart String ESS

- LUNA2000-5/10/15-S0
- LUNA2000-7/14/21-S1

## SmartGuard

- SmartGuard-63A-S0 (Single-Phase)
- SmartGuard-63A-T0 (Three-Phase)

## SmartAssistant



## FusionSolar Smart PVMS & App



## Smart Charger

- SCharger-7KS-S0 (Single-Phase)
- SCharger-22KT-S0 (Three-Phase)

\*Available in specific regions only

Smart Module  
Controller

Smart Charger

SmartGuard

Smart Energy  
Controller

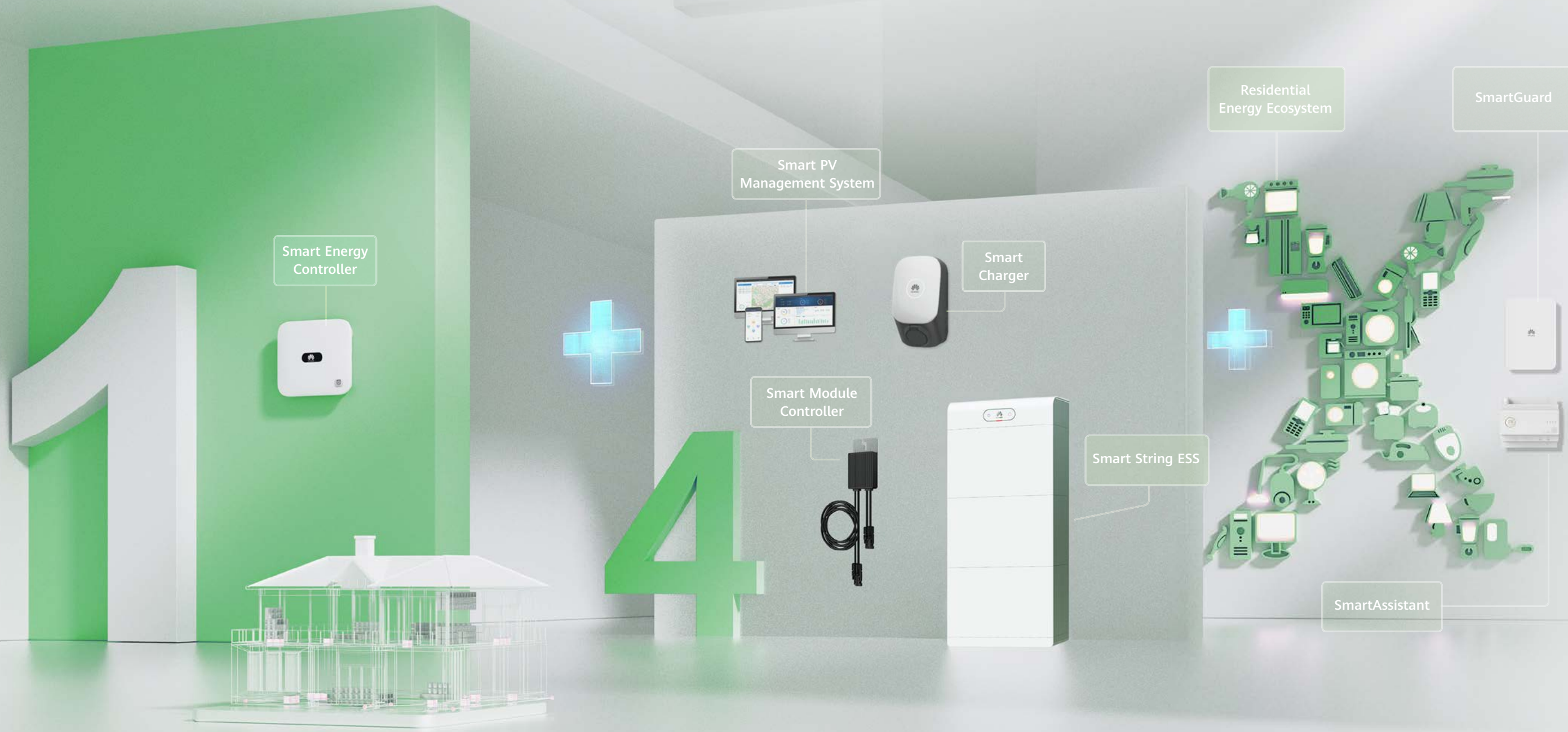
Smart  
String ESS

FusionSolar  
App





# FUSIONSOLAR RESIDENTIAL SMART PV SOLUTION







# SHINE ON ACTIVE SAFETY

System Safety is always our priority. FusionSolar Residential Smart PV Solution meets the highest industry standard to ensure safety with advanced technologies applied in optimizers, inverters, and energy storage system.

## Safety On the Rooftop

Making DC Safety Protection a Mainstream Feature

Rapid shutdown, safe voltage



Shutdown Time



Voltage

Meets NEC 2017&2020

AFCL, active arc protection



TÜV Certification

## Safety Under the Rooftop

Unique 5-layer ESS Safety Protection in the Industry



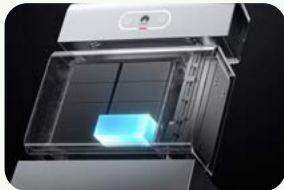
Structural Protection



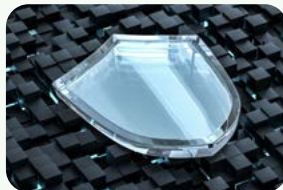
Emergency Protection



Electrical Protection



Cell-level Protection



Active Protection







# SHINE ON FULL JOURNEY CONVENIENCE

## ONE-FITS-ALL

### One Supplier

More business opportunities and lower time costs

### One Solution

Extremely quick and easy installation with less effort

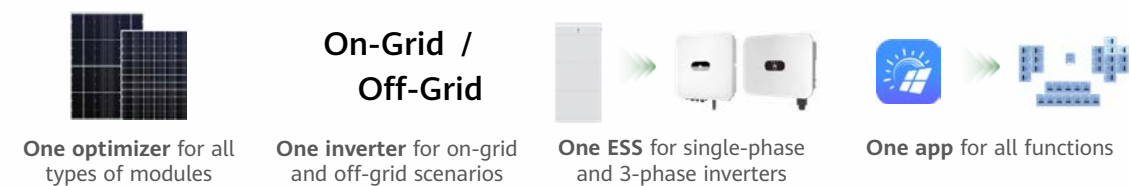
### One Service Window

Reliable digital management and stress-free O&M

## One supplier for all products



## One solution for all scenarios



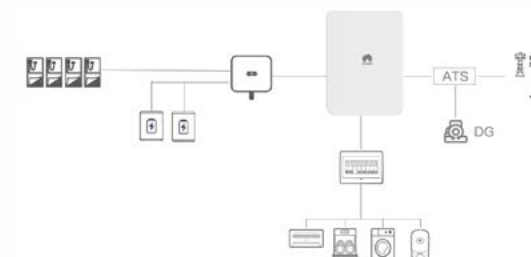
Easier Purchase, Wider Utilization

## Smart Design 2.0



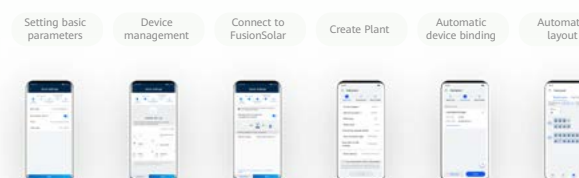
Design Easily, Sell Professionally

## SmartGuard for whole home backup



0 Modification for Whole Home Backup

## Commissioning with setup assistant



One-stop Commissioning with Setup Assistant

## Remote diagnosis

Disconnection detection



PV panel fault locating



## Real-time data

Rapid data refreshing



Intelligent Management without Site Visit





## SHINE ON INTELLIGENT YIELD

FusionSolar Residential Smart PV Solution provides stable and reliable power and supports seamless on-grid/off-grid switchover



Higher energy yield



More energy storage



Seamless switchover



Intelligent management



Attractive design

The design of the product appearance integrates natural elements with technologies. All product outlines, colors, and styles are consistent. Smart charger and FusionSolar APP have won the iF Product Design Award.





A modern, multi-story house is shown at night. The house has a dark roof and large glass windows that are illuminated from within, showing a living room with a sofa and a dining area. A car is parked in the driveway on the left. A large green rectangular overlay is positioned in the center of the image, containing the text '02' in large white numbers and 'PRODUCT COLLECTION' in smaller white capital letters. The background is a dark night sky with a full moon and stars.

# 02

PRODUCT  
COLLECTION



FUSIONSOLAR RESIDENTIAL SMART PV SOLUTION  
SUN5000 Series



**Efficiency Evolution**  
Creating Profitable Return  
Module-level Optimization  
Increasing Yield by 5% to 30%



**Safety Evolution**  
Protecting Electricity Usage Safety  
On the Rooftop  
AFCI + RSD



**Convenience Evolution**  
Embracing PV Lifestyle  
Module-level Management  
Disconnection Detection and Location

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P
	Input	
Rated input DC power <sup>1</sup>	450 W	600 W
Absolute max. input voltage	80 V	
MPPT operating voltage range	10–80 V	
Max. short-circuit current (Isc)	14.5 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
	Output	
Max. output voltage	80 V	
Max. output current	15 A	
Output bypass <sup>2</sup>	Yes	
Output voltage during standby <sup>3</sup>	0 V	
Output impedanceduring standby	1 kΩ ± 10%	
	Communication	
Communication protocol	MBUS	
	Standards Compliance	
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2018-12	
	General Specifications	
Dimensions (W x H x D)	75 mm x 140 mm x 28 mm (3.0 in. x 5.5 in. x 1.1 in.)	
Weight (including cables)	0.6 kg (1.3 lb.)	
Installation part (optional)	Frame mounting bracket/T-shaped bolt <sup>4</sup>	
Input connector	Staubli MC4	
Input wire length	0.15 m (0.49 ft.)	
Output connector	Staubli MC4	
Output wire length	1.3 m (4.3 ft.)	
Operating temperature/humidity range	–40°C to +85°C <sup>5</sup> /0%-100%	
IP rating	IP68	

\*1 The maximum power of PV module at STC shall NOT exceed the "Rated Input DC Power" of the power optimizer. PV modules with up to +5% power tolerance are allowed.

\*2 Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.

\*3 Once the power optimizer stops working, its output voltage is reduced to 0 V.

\*4 It is for PV module frame/extruded aluminum profile racking system installation.

\*5 When the operating temperature of the SUN2000-450W-P2/600W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.

Technical Specification

Technical Specification	SUN5000-8K-MAPO	SUN5000-12K-MAPO
Efficiency		
Max. efficiency	98.6%	98.6%
European weighted efficiency	98.0%	98.2%
Input (PV)		
Recommended max. PV power	14,600 Wp	22,000 Wp
Max. input voltage <sup>1</sup>	1100 V	
Operating voltage range <sup>2</sup>	160-1000 V	
Startup voltage	160 V	
Rated input voltage	600 V	
Max. input current per MPPT	16 A	
Max. short-circuit current	22 A	
Number of MPP trackers	2	
Max. input per MPP tracker	1	
Input (DC Battery)		
Compatible battery	LUNA2000-5/10/15-S0 / LUNA2000-7/14/21-S1	
Operating voltage range	600-980 V	
Max. operating current	20 A	
Max. charging power	12,000 W	
Max. discharging power	8000 W	12,000 W
Output (On Grid)		
Grid connection	Three-phase	
Rated output power	8000 W	12,000 W
Max. apparent power	8800 VA	13,200 VA
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE	
Overload capability	110%	
Rated AC grid frequency	50 Hz/60 Hz	
Max. output current	13.3 A	20.2 A
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3%	
Output (Off Grid)		
Compatible backup device	SmartGuard-63A-T0 (3 phase)	
Rated output power	8000 W	12,000 W
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE	
110% overload	Continuous	
150% overload	5 min (3-phase) / 5 min (Single-phase)	1 min (3-phase) / 5 min (Single-phase)
200% overload	10 seconds	
Automatic switchover time	≤ 20 ms (with SmartGuard-63A-T0)	
Protection Feature		
Asymmetric load	Yes, supports 100% three-phase asymmetric load	
Input-side disconnection device	Yes	
Anti-islanding protection	Yes	
DC reverse polarity protection	Yes	
Insulation detection	Yes	
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
Residual current detection	Yes	
AC overcurrent protection	Yes	
AC short-circuit protection	Yes	
AC overvoltage protection	Yes	
Arc fault protection	Yes	
Terminal temperature detection	Yes (PV & Battery & Optimizer connectors)	
Ripple receiver control	Yes	
Battery charging from grid	Yes	
RSD function	Yes	
General Specification		
Operating temperature range	-25°C to +60°C (-13°F to +140°F)	
Relative operating humidity	0 % - 100% RH	
Max. operating altitude	4000 m	
Cooling	Natural convection	
Noise	≤ 29 dB	
Display	LED Indicators; Integrated WLAN + FusionSolar APP	
Communication	RS485; WLAN / Ethernet via Smart Dongle-WLAN-FE (Optional) 4G/3G/2G via Smart Dongle-4G (Optional); SA4H-A02 (Optional)	
Weight (incl. mounting brackets)	21 kg	
Dimensions (incl. mounting brackets)	490 mm x 460 mm x 130 mm	
IP rating	IP66	
Nighttime power	< 5.5 W	
Optimizer Compatibility		
DC MBUS compatible optimizer <sup>3</sup>	SUN2000-450W-P2, SUN2000-600W-P	
Safety	Standards Compliance (More Available Upon Request) EN/IEC62109-1, EN/IEC62109-2	
Grid connection standards	IEC61727, IEC62116, MEA/PEA, G99/G100, Philippine Grid Code Resolution No. 07, NRS 097-2-1, EN50549-1, VDE4105, UTE15-712-1/VFR 2019, UNE217002, NTS631, RD244(UNE217001), PPDS, ROGA, TOR Erzeuger, CEI 0-21:2020-12 V1, C10/C11	
PV System Design <sup>4</sup>		
Min. string length (power optimizers)	6	
Max. string length (power optimizers)	35	
Max. DC power per string	12,000 W	

\*1 The max. input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.

\*2 Any DC input voltage beyond the operating voltage range may result in inverter malfunction.

\*3 The SUN5000 Series Inverters must be fully equipped with optimizers, otherwise the system will report errors and can not work.

\*4 SUN2000-450W-P2/600W-P, MERC-600W-PA0 can NOT be used in mixture under the same Smart Energy/PV Controller.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



FUSIONSOLAR RESIDENTIAL SMART PV SOLUTION

SUN5000 Series



**Efficiency Evolution**  
Creating Profitable Return  
Module-level Optimization  
Increasing Yield by 5% to 30%



**Safety Evolution**  
Protecting Electricity Usage Safety  
On the Rooftop  
AFCI + RSD



**Convenience Evolution**  
Embracing PV Lifestyle  
Module-level Management  
Disconnection Detection and Location

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P
	Input	
Rated input DC power <sup>1</sup>	450 W	600 W
Absolute max. input voltage	80 V	
MPPT operating voltage range	10–80 V	
Max. short-circuit current (Isc)	14.5 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
	Output	
Max. output voltage	80 V	
Max. output current	15 A	
Output bypass <sup>2</sup>	Yes	
Output voltage during standby <sup>3</sup>	0 V	
Output impedanceduring standby	1 kΩ ± 10%	
	Communication	
Communication protocol	MBUS	
	Standards Compliance	
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2018-12	
	General Specifications	
Dimensions (W x H x D)	75 mm x 140 mm x 28 mm (3.0 in. x 5.5 in. x 1.1 in.)	
Weight (including cables)	0.6 kg (1.3 lb.)	
Installation part (optional)	Frame mounting bracket/T-shaped bolt <sup>4</sup>	
Input connector	Staubli MC4	
Input wire length	0.15 m (0.49 ft.)	
Output connector	Staubli MC4	
Output wire length	1.3 m (4.3 ft.)	
Operating temperature/humidity range	–40°C to +85°C <sup>5</sup> /0%-100%	
IP rating	IP68	

\*1 The maximum power of PV module at STC shall NOT exceed the "Rated Input DC Power" of the power optimizer. PV modules with up to +5% power tolerance are allowed.

\*2 Any power optimizer, which is connected to an operating inverterin a PV string, will be bypassed when it fails.

\*3 Once the power optimizer stops working, its output voltage is reduced to 0 V.

\*4 It is for PV module frame/extruded aluminum profile racking system installation.

\*5 When the operating temperature of the SUN2000-450W-P2/600W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.

Technical Specification

Technical Specification	SUN5000-17K-MB0	SUN5000-25K-MB0
Efficiency		
Max. efficiency	98.4%	98.4%
European weighted efficiency	98.1%	98.2%
DC Input		
Recommended max. PV power	25,500 Wp	37,500 Wp
Max. input voltage <sup>1</sup>	1,100 V	
Max. input current per MPPT	30 A (two strings) / 20 A (single string)	
Max. short-circuit current	40 A	
Start-up voltage	200 V	
MPPT operating voltage range <sup>2</sup>	200 V–1,000 V	
Full-load MPPT voltage range	440 V–800 V	530 V–800 V
Rated input voltage	600 V	
Max. number of inputs	4	
Number of MPP trackers	2	
Smart String Energy Storage System Terminal		
Compatible Smart String ESS	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1	
Number of terminals	2	
Max. charging power	21 kW (Single string) / 25 kW (Two strings)	
Max. discharge power	18.7 kW	25.0 kW
Max. operating current	26.25 A (per string)	
Operating voltage range	600 V–980 V	
Output		
Rated output power	17,000 W	25,000 W
Max. apparent power	18,700 VA	27,500 VA
Max. active power (cosφ = 1)	18,700 W	27,500 W
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 240 Vac / 415 Vac; 3 W / N + PE	
Rated output current	24.5 A / 400 Vac	36.1 A / 400 Vac
Max. output current	28.6 A / 380 Vac	42.0 A / 380 Vac
Rated AC grid frequency	50 Hz / 60 Hz	
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3%	
Feature & Protection		
Overvoltage category	PV II / AC III	
Input-side disconnection device	Yes	
Anti-islanding protection	Yes	
AC over-current protection	Yes	
DC reverse-polarity protection	Yes	
DC surge protection	TYPE II	
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
DC insulation resistance detection	Yes	
Residual current monitoring unit	Yes	
Arc fault protection	Yes	
RSD function	Yes	
General Data		
Operating temperature range	-25 °C–60 °C (-13 °F–140 °F)	
Relative humidity	0 % RH–100 % RH	
Max. operating altitude	4,000 m (13,123 ft.) (Derated above 2000 m)	
Cooling	Smart air cooling	
Display	LED indicators, Integrated WLAN + FusionSolar APP	
Communication	RS485; WLAN / Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional); SA4H-A02 (Optional)	
Weight	21 kg	
Dimensions (W x H x D)	546 x 460 x 228 mm	
Protection level	IP66	
Max. number of paralleled unit (with Smart String ESS)	3	
Optimizer Compatibility		
DC MBUS Compatible optimizer <sup>3</sup>	SUN2000-450W-P2, SUN2000-600W-P	
Standards Compliance (More Available Upon Request)		
Certificates	EN/IEC62109-1, EN/IEC62109-2	
PV System Design <sup>4</sup>		
Min. string length (power optimizers)	6	
Max. string length (power optimizers)	35	
Max. DC power per string	12,000 W	

\*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

\*2 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.

\*3 The SUN5000 Series Inverters must be fully equipped with optimizers, otherwise the system will report errors and can not work.

\*4 SUN2000-450W-P2/600W-P, MERC-600W-PA0 can NOT be used in mixture under the same Smart Energy/PV Controller.

Disclaimer: the preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART ENERGY CONTROLLER

Model: SUN2000-2/3/3.68/4/4.6/5/6KTL-L1



**Active Safety**  
Active Arcing Protection



**Higher Yields**  
Up to 30% More Energy  
with Optimizer



**Battery Ready**  
Plug & Play, Whole-house  
Power Backup

## SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 Technical Specification

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -3.68KTL-L1	SUN2000 -4KTL-L1	SUN2000 -4.6KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1
Efficiency							
Max. efficiency	98.2%	98.3%	98.4%	98.4%	98.4%	98.4%	98.4%
European weighted efficiency	96.7%	97.3%	97.3%	97.5%	97.7%	97.8%	97.8%
Input (PV)							
Recommended max. PV power <sup>1</sup>	3,000 Wp	4,500 Wp	5,520 Wp	6,000 Wp	6,900 Wp	7,500 Wp	9,000 Wp
Max. input voltage	600 V						
Startup voltage	100 V						
MPPT operating voltage range	90–560 V						
Rated input voltage	360 V						
Max. input current per MPPT	12.5 A						
Max. short-circuit current	18 A						
Number of MPP trackers	2						
Max. inputs per MPP tracker	1						
Input (DC Battery)							
Compatible battery	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1 <sup>1</sup>						
Operating voltage range	350–560 V DC						
Max. operating current	15 A						
Max. charge power	5,000 W						
Max. discharge power	2,200 W	3,300 W	3,680 W	4,400 W	4,600 W	5,000 W	5,000 W
Output (On Grid)							
Grid connection	Single-phase						
Rated output power	2,000 W	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W	6,000 W
Max. apparent power	2,200 VA	3,300 W	3,680 W	4,400 VA	5,000 VA	5,500 W	6,000 VA
Rated output voltage	220 V AC/230 V AC/240 V AC						
Rated AC grid frequency	50 Hz/60 Hz						
Max. output current	10 A	15 A	16 A	20 A	23 A	25 A	27.3 A
Adjustable power factor	0.8 leading ... 0.8 lagging						
Max. total harmonic distortion	≤ 3%						
Power output	Yes (via SmartGuard-63A-S0)						
Protection Feature							
Anti-islanding protection	Yes						
DC reverse polarity protection	Yes						
Insulation monitoring	Yes						
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11						
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11						
Residual current monitoring	Yes						
AC overcurrent protection	Yes						
AC short-circuit protection	Yes						
AC overvoltage protection	Yes						
Over-heat protection	Yes						
Arc fault protection	Yes						
Battery charging from grid	Yes						
General Specification							
Operating temperature range	–25°C to +60°C (Derated above 45°C @ Rated output power)						
Relative operating humidity	0%–100% RH						
Operating altitude	0–4,000 m (Derated above 2,000 m)						
Cooling	Natural convection						
Display	LED indicators; integrated WLAN + FusionSolar app						
Communication	RS485, WLAN via inverter built-in WLAN module, Ethernet via Smart Dongle-WLAN-FE (Optional); 4G/3G/2G via Smart Dongle-4G (Optional)						
Weight (incl. mounting brackets)	12.0 kg (26.5 lb)						
Dimensions (incl. mounting brackets)	365 mm x 375 mm x 156 mm						
IP rating	IP65						
Nighttime power	< 2.5 W						
Optimizer Compatibility							
DC MBUS compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P						
Standards Compliance (More Available Upon Request)							
Safety	EN/IEC 62109-1, EN/IEC 62109-2						
Grid connection standards	G98, G99, EN 50549-1, CEI 0-21, VDE-AR-N-4105, AS 4777.2, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, IEC61727, IEC62116						

<sup>\*1</sup> The inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with optimizers.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART ENERGY CONTROLLER

Model: SUN2000-3/3.68/4/4.6/5/6K-LB0



**Active Safety**  
Active Arcing Protection



**Higher Yields**  
Up to 30% More Energy  
with Optimizer



**Battery Ready**  
Plug & Play Battery  
Interface

## SUN2000-3/3.68/4/4.6/5/6K-LB0 Technical Specification

Technical Specification	SUN2000 -3K-LB0	SUN2000 -3.68K-LB0	SUN2000 -4K-LB0	SUN2000 -4.6K-LB0	SUN2000 -5K-LB0	SUN2000 -6K-LB0
Efficiency						
Max. efficiency	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%
European weighted efficiency	96.6%	96.8%	96.8%	97.0%	97.1%	97.2%
Input (PV)						
Recommended max. PV power	4,500 Wp	5,520 Wp	6,000 Wp	6,900 Wp	7,500 Wp	9,000 Wp
Max. input voltage <sup>1</sup>	600 V					
Start-up voltage	50 V					
MPPT operating voltage range <sup>3</sup>	40–560 V					
Rated input voltage	360 V					
Max. input current per MPPT	16 A					
Max. short-circuit current	20 A					
Number of MPP trackers	2					
Max. inputs per MPP tracker	1					
Input (DC Battery)						
Compatible battery	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1					
Operating voltage range	350–560 Vdc					
Max. operating current	16.5 A					
Max. charge power	6,000 W					
Max. discharge power	3,300 W	3,680 W	4,400 W	4,600 W	5,500 W	6,600 W
Output (On Grid)						
Grid connection	Single-phase					
Rated output power	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W	6,000 W
Max. apparent power	3,300 W	3,680 VA	4,400 VA	5,000 VA	5,500 VA	6,600 VA
Rated output voltage	220 V AC/230 V AC/240 V AC					
Rated AC grid frequency	50 Hz/60 Hz					
Max. output current	15 A	16 A	20 A	23 A	25 A	30 A
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3%					
Backup power output	Yes (via SmartGuard-63A-S0)					
Protection Feature						
Anti-islanding protection	Yes					
DC reverse polarity protection	Yes					
Insulation monitoring	Yes					
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
Residual current monitoring	Yes					
AC overcurrent protection	Yes					
AC short-circuit protection	Yes					
AC overvoltage protection	Yes					
Arc fault protection	Yes					
Battery charging from grid	Yes					
General Specification						
Operating temperature range	–25°C to +60°C (–13°F to +140°F)					
Relative operating humidity	0%–100% RH					
Operating altitude	0–4,000 m (Derated above 2000 m)					
Cooling	Natural convection					
Display	LED Indicators; Integrated WLAN + FusionSolar App					
Communication	RS485, WLAN via inverter built in WLAN module Ethernet via Smart Dongle-WLAN FE (Optional); 4G / 3G / 2G via Smart Dongle-4G (Optional); SA4H-A02					
Weight (incl. mounting brackets)	< 15 kg					
Dimensions (incl. mounting plate)	425 mm x 376.5 mm x 150 mm					
IP rating	IP66					
Nighttime power	< 3 W					
Optimizer Compatibility						
DC MBUS compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P					
Standards Compliance (More Available Upon Request)						
Safety	EN/IEC 62109-1, EN/IEC 62109-2					
Grid connection standards	G98, G99, G100, EN 50549-1, CEI 0-21, VDE-AR-N-4105, C10/11, P140, UTE C15-712, TOR Erzeuger, IEC61727, IEC62116					

\*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART ENERGY CONTROLLER

Model: SUN2000-8/10K-LC0



**Active Safety**  
AFCI,  
Active Arcing Protection



**Higher Yields**  
Up to 30% More Energy  
with Optimizer



**Battery Ready**  
Plug & Play, Whole-house  
power backup

## SUN2000-8/10K-LC0 Technical Specification

Technical Specification	SUN2000-8K-LC0	SUN2000-10K-LC0
Efficiency		
Max. efficiency	98.1%	
European weighted efficiency	97.5%	
Input (PV)		
Recommended max. PV power <sup>1</sup>	12,000 Wp	15,000 Wp
Max. input voltage	600 V	
Startup voltage	50 V	
MPPT operating voltage range	40–560 V	
Rated input voltage	360 V	
Max. input current per MPPT	16 A	
Max. short-circuit current	20 A	
Max. number of inputs	3	
Number of MPP trackers	3	
Input (DC Battery)		
Compatible battery	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1	
Operating voltage range	350–560 V DC	
Max. operating current	25 A	
Max. charge power	8,000 W	10,000 W
Max. discharge power	8,000 W	10,000 W
Output (On Grid)		
Grid connection	Single-phase	
Rated output power	8,000 W	10,000 W
Max. apparent power	8,800 VA	10,000 VA
Rated output voltage	220 V AC/230 V AC/240 V AC, L/N+PE	
Max. output current	40.0 A	45.5 A
Rated AC grid frequency	50 Hz/60 Hz	
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3%	
Backup power output	Yes (via Smartguard-63A-S0)	
Features & Protection		
Anti-islanding protection	Yes	
DC reverse polarity protection	Yes	
Insulation monitoring	Yes	
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
Residual current monitoring unit	Yes	
AC overcurrent protection	Yes	
AC short-circuit protection	Yes	
AC overvoltage protection	Yes	
Over-heat protection	Yes	
Arc fault protection	Yes	
Battery charging from grid	Yes	
General Data		
Operating temperature range	–25°C to +60°C (–13°F to +140°F)	
Relative operating humidity	0%–100% RH	
Operating altitude	0–4000 m (Derated above 2000 m)	
Cooling	Natural convection	Smart Air Cooling
Display	LED indicators; integrated WLAN + FusionSolar app	
Communication	RS485, WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G/3G/2G via Smart Dongle-4G (Optional), SA4H-A02	
Weight	14.5 kg	15 kg
Dimensions (W x H x D) (incl. mounting plate)	425 mm x 376.5 mm x 150 mm	
Degree of protection	IP66	
Optimizer Compatibility		
Compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P	
Standards Compliance (More Available Upon Request)		
Certificates	IEC62109-1, IEC62109-2, EN 61000-6 series , EN 62920 EMC, EN 55011 EMC, ETSI EN 301-489-1 EMC, ETSI EN 301 489-17 EMC, EN 61000 3-11, EN 61000 3-12, IEC61000 2-2	
Grid connection standards	ABNT16149/16150:2013, NRS 097-2-1, PEA, MEA	

<sup>\*1</sup>The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.

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# SMART ENERGY CONTROLLER

Model: SUN2000-3/4/5/6/8/10KTL-M1  
(High Current Version)



**Active Safety**  
AFCI Active Arcing  
Protection



**Higher Yields**  
Up to 30% More Energy  
with Optimizer <sup>1</sup>



**Battery Ready**  
Plug & Play Battery  
Port <sup>2</sup>

## ● SUN2000-3/4/5/6/8/10KTL-M1 (High Current Version) Technical Specification

Technical Specification	SUN2000 -3KTL-M1	SUN2000 -4KTL-M1	SUN2000 -5KTL-M1	SUN2000 -6KTL-M1	SUN2000 -8KTL-M1	SUN2000 -10KTL-M1
Efficiency						
Max. efficiency	98.2%	98.3%	98.4%	98.6%	98.6%	98.6%
European weighted efficiency	96.7%	97.1%	97.5%	97.7%	98.0%	98.1%
Input (PV)						
Recommended max. PV power <sup>1</sup>	4,500 Wp	6,000 Wp	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp
Max. input voltage <sup>2</sup>	1,100 V					
Operating voltage range <sup>3</sup>	140–980 V					
Startup voltage	200 V					
Rated input voltage	600 V					
Max. input current per MPPT	13.5 A					
Max. short-circuit current	19.5 A					
Number of MPP trackers	2					
Max. input number per MPP tracker	1					
Input (DC Battery)						
Compatible battery	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1					
Operating voltage range	600–980 V					
Max. operating current	16.7 A					
Max. charge power	10,000 W					
Max. discharge power	3300 W	4400 W	5500 W	6600 W	8800 W	10000 W
Output (On Grid)						
Grid connection	Three-phase					
Rated output power	3000 W	4000 W	5000 W	6000 W	8000 W	10,000 W
Max. apparent power	3300 VA	4400 VA	5500 VA	6600 VA	8800 VA	11,000 VA <sup>4</sup>
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 3W/N+PE					
Rated AC grid frequency	50 Hz/60 Hz					
Max. output current	5.1 A	6.8 A	8.5 A	10.1 A	13.5 A	16.9 A
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3%					
Output (Off Grid)						
Max. apparent power	3000 VA	3300 VA	3300 VA	3300 VA	3300 VA	3300 VA
Rated output voltage	220 V/230 V					
Max. output current	13.6 A	15 A	15 A	15 A	15 A	15 A
Power factor range	0.8 leading ... 0.8 lagging					
Protection Feature						
Input-side disconnection device	Yes					
Anti-islanding protection	Yes					
DC reverse polarity protection	Yes					
Insulation monitoring	Yes					
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
Residual current monitoring	Yes					
AC overcurrent protection	Yes					
AC short-circuit protection	Yes					
AC overvoltage protection	Yes					
Arc fault protection	Yes					
Ripple receiver control	Yes					
Battery charging from grid	Yes					
General Specification						
Operating temperature range	–25°C to +60°C (–13°F to +140°F)					
Relative operating humidity	0%–100% RH					
Max. operating altitude	4,000 m (13,123 ft.) (Derated above 2000 m)					
Cooling	Natural convection					
Display	LED Indicators; Integrated WLAN + FusionSolar app					
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G/3G/2G via Smart Dongle-4G (Optional)					
Weight (incl. mounting brackets)	17 kg (37.5 lb)					
Dimensions (incl. mounting brackets)	525 mm x 470 mm x 146.5 mm (20.7 in. x 18.5 in. x 5.8 in.)					
IP rating	IP65					
Nighttime power	< 5.5 W					
Optimizer Compatibility						
DC MBUS compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P					
Standards Compliance (More Available Upon Request)						
Safety	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116					
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA					

\*1 The inverter max input PV power is 20,000 Wp when long strings are designed and connected to SUN2000-450W-P2 or SUN2000-600W-P power optimizers.

\*2 The max. input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.

\*3 Any DC input voltage beyond the operating voltage range may result in inverter malfunction.

\*4 C10/11: 10,000 VA

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART ENERGY CONTROLLER

Model: SUN2000-5/6/8/10/12K-MAP0



**Asymmetric Load**  
Three-phase asymmetric output  
200% overload



**Active Safety**  
AFCI & RSD (with optimizer)  
Connector temperature detection



**Future Ready**  
LUNA S0 or S1  
Whole home backup  
(with SmartGuard)

## SUN2000-5/6/8/10/12K-MAP0 Technical Specification

Technical Specification <sup>1</sup>	SUN2000-5K-MAP0	SUN2000-6K-MAP0	SUN2000-8K-MAP0	SUN2000-10K-MAP0	SUN2000-12K-MAP0
Efficiency					
Max. efficiency	98.4%	98.6%	98.6%	98.6%	98.6%
European weighted efficiency	97.5%	97.7%	98.0%	98.1%	98.2%
Input (PV)					
Recommended max. PV power <sup>1</sup>	9000 Wp	11,000 Wp	14,600 Wp	18,000 Wp	22,000 Wp
Max. input voltage <sup>2</sup>	1100 V				
Operating voltage range <sup>3</sup>	160–1000 V				
Max. short-circuit current	160 V				
Startup voltage	600 V				
Max. input current per MPPT	16 A				
Max. short-circuit current	22 A				
Number of MPP trackers	2				
Max. input per MPP tracker	1				
Input (DC Battery)					
Compatible battery	LUNA2000-5/10/15-S0 / LUNA2000-7/14/21-S1				
Operating voltage range	600–980 V				
Max. operating current	20 A				
Max. charging power	12,000 W				
Max. discharging power	5500 W	6600 W	8800 W	11,000 W	12,000 W
Output (On Grid)					
Grid connection	Three-phase				
Rated output power	5000 W	6000 W	8000 W	10,000 W	12,000 W
Max. apparent power	5500 VA	6600 VA	8800 VA	11,000 VA	13,200 VA
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE				
Rated AC grid frequency	50 Hz/60 Hz				
Max. output current	18.3 A	10.0 A	13.3 A	16.7 A	20.2 A
Adjustable power factor	0.8 leading ... 0.8 lagging				
Max. total harmonic distortion	≤ 3%				
Output (Off Grid)					
Compatible backup device	SmartGuard-63A-T0 (3 phase)				
Rated output power	5000 W	6000 W	8000 W	10,000 W	10,000 W
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE				
110% overload	Continuous				
150% overload	5 min (3-phase) / 5 min (Single-phase)			1 min (3-phase) / 5 min (Single-phase)	
200% overload	10 seconds				
Automatic switchover time	≤ 20 ms (with SmartGuard-63A-T0)				
Protection Feature					
Asymmetric load	Yes, supports 100% three-phase asymmetric load				
Input-side disconnection device	Yes				
Anti-islanding protection	Yes				
DC reverse polarity protection	Yes				
Insulation detection	Yes				
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11				
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11				
Residual current detection	Yes				
AC overcurrent protection	Yes				
AC short-circuit protection	Yes				
AC overvoltage protection	Yes				
Arc fault protection	Yes				
Connector temperature detection	Yes (PV & Battery connectors)				
Ripple receiver control	Yes				
Battery charging from grid	Yes				
General Specification					
Operating temperature range	–25°C to +60°C (–13°F to +140°F)				
Relative operating humidity	0 % - 100% RH				
Max. operating altitude	4000 m				
Cooling	Natural convection				
Noise	≤ 29 dB				
Display	LED Indicators; Integrated WLAN + FusionSolar APP				
Communication	RS485; WLAN / Ethernet via Smart Dongle-WLAN-FE (Optional) 4G/3G/2G via Smart Dongle-4G (Optional); SA4H-A02 (Optional)				
Weight (incl. mounting brackets)	21 kg				
Dimensions (incl. mounting brackets)	490 mm x 460 mm x 130 mm				
IP rating	IP66				
Nighttime power	< 5.5 W				
Optimizer Compatibility					
DC MBUS compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P				
Standards Compliance (More Available Upon Request)					
Safety	EN/IEC62109-1, EN/IEC62109-2				
Grid connection standards	IEC61727, IEC62116, MEA/PEA, G99, IRR-DCC-MV/IRR-TIC, Philippine Grid Code Resolution No. 07, NRS 097-2-1, EN50549-1, VDE4105, UTE15-712-1/VFR 2019, UNE217002, NTS631, RD244(UNE217001), PPDS, ROGA, TOR Erzeuger, CEI 0-21:2020-12 V1, CEI-016, C10/C11				

<sup>\*1</sup> The max. input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.

<sup>\*2</sup> Any DC input voltage beyond the operating voltage range may result in inverter malfunction.



# SMART ENERGY CONTROLLER

Model: SUN2000-12/15/17/20/25K-MB0



**Active Safety**  
AFCI Active Arcing  
Protection



**Higher Yields**  
Up to 30% More Energy  
with Optimizer <sup>1</sup>



**Battery Ready**  
2 Battery Terminals;  
Compatible with LUNA2000-S0

## SUN2000-12/15/17/20/25K-MB0 Technical Specification

Technical Specification <sup>1</sup>	SUN2000-12K-MB0	SUN2000-15K-MB0	SUN2000-17K-MB0	SUN2000-20K-MB0	SUN2000-25K-MB0
Efficiency					
Max. efficiency	98.4%	98.4%	98.4%	98.4%	98.4%
European weighted efficiency	97.9%	98.0%	98.1%	98.1%	98.2%
DC Input					
Recommended max. PV power	18,000 Wp	22,500 Wp	22,500 Wp	30,000 Wp	37,500 Wp
Max. input voltage <sup>2</sup>	1,100 V				
Max. input current per MPPT	30 A (two strings) / 20 A (single string)				
Max. short-circuit current	40 A				
Start-up voltage	200 V				
MPPT operating voltage range <sup>3</sup>	200 V~1000 V				
Full-load MPPT voltage range	370 V~800 V	410 V~800 V	440 V~800 V	480 V~800 V	530 V~800 V
Rated input voltage	600 V				
Max. number of inputs	4				
Number of MPP trackers	2				
Smart String Energy Storage System Terminal					
Compatible Smart String ESS	LUNA2000-5/10/15-S0, LUNA2000-7/14/21-S1				
Number of terminals	2				
Max. charging power	21 kW (Single string) / 25 kW (Two strings)				
Max. discharge power	13.2 kW	16.5 kW	18.7 kW	22.0 kW	25.0 kW
Max. operating current	26.25 A (per string)				
Operating voltage range	600 V ~ 980 V				
Output					
Rated output power	12,000 W	15,000 W	17,000 W	20,000 W	25,000 W
Max. apparent power	13,200 VA	16,500 VA	18,700 VA	22,000 VA	27,500 VA
Max. active power (cosφ = 1)	13,200 W	16,500 W	18,700 W	22,000 W	27,500 W
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 Vac, 240 V AC/415 V AC; 3 W/N + PE				
Rated output current	18.2 A/380 V AC	22.8 A/380 V AC	25.8 A/380 V AC	30.4 A/380 V AC	38.0 A/380 V AC
	17.3 A/400 V AC	21.7 A/400 V AC	24.5 A/400 V AC	28.9 A/400 V AC	36.1 A/400 V AC
	16.7 A/415 V AC	20.9 A/415 V AC	23.7 A/415 V AC	27.8 A/415 V AC	34.8 A/415 V AC
Max. output current	20.2 A/380 V AC	25.2 A/380 V AC	28.6 A/380 V AC	33.6 A/380 V AC	42.0 A/380 V AC
	19.1 A/400 V AC	23.9 A/400 V AC	27.1 A/400 V AC	31.9 A/400 V AC	39.9 A/400 V AC
	18.5 A/415 V AC	23.1 A/415 V AC	26.1 A/415 V AC	30.8 A/415 V AC	38.5 A/415 V AC
Rated AC grid frequency	50 Hz/60 Hz				
Adjustable power factor	0.8 leading ... 0.8 lagging				
Max. total harmonic distortion	≤ 3%				
Feature & Protection					
Overvoltage category	PV II/AC III				
Input-side disconnection device	Yes				
Anti-islanding protection	Yes				
AC over-current protection	Yes				
DC reverse-polarity protection	Yes				
DC surge protection	TYPE II				
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11				
DC insulation resistance detection	Yes				
Residual current monitoring unit	Yes				
Arc fault protection	Yes				
General Specification					
Operating temperature range	-25 °C to +60 °C (-13 °F to 140 °F)				
Relative humidity	0 % RH~100 % RH				
Max. operating altitude	4,000 m (13,123 ft.) (Derated above 2,000 m)				
Cooling	Smart air cooling				
Display	LED indicators, Integrated WLAN + FusionSolar APP				
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G/3G/2G via Smart Dongle-4G (Optional); SA4H-A02 (Optional)				
Weight	21 kg				
Dimensions (W x H x D)	546 mm x 460 mm x 228 mm (21.5 x 18.1 x 9.0 inch)				
Protection level	IP66				
Nighttime power	< 5.5W				
Max. number of paralleled unit (with Smart String ESS)	3				
Optimizer Compatibility					
Compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P, MERC-1100W-P, MERC-1300W-P				
Standards Compliance (More Available Upon Request)					
Certificates	EN/IEC62109-1, EN/IEC62109-2				
Grid connection standards	IEC61727, IEC62116, IEC61683, EN50530, ABNT NBR 16149/16150, MEA/PEA, G99, IRR-DCC-MV/IRR-TIC, Philippine Grid Code Resolution No. 07, NRS 097-2-1, EN50549-1, VDE4105, UTE15-712-1/VFR 2019, UNE217002, NTS631, RD244(UNE217001), PPDS, ROGA, TOR Erzeuger, CEI 0-21:2020-12 V1, CEI-016, C10/C11, EN50549-2, VDE4110				

<sup>\*1</sup> For Thailand, only SUN2000-12K-MB0 & SUN2000-15K-MB0 & SUN2000-20K-MB0 are available.

<sup>\*2</sup> The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.

<sup>\*3</sup> Any DC input voltage beyond the operating voltage range may result in inverter malfunction.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART STRING ENERGY STORAGE SYSTEM

Model: LUNA2000-5/10/15-S0



**More Usable Energy**  
100% Depth of Discharge and  
Pack-Level Energy Optimization



**Flexible Investment**  
5 kWh Modular Design,  
Scalable from 5 to 30 kWh



**Safe & Reliable**  
5-layer Safety Protection  
IP66



**Easy Installation**  
12 kg Power Module  
50 kg Battery Module


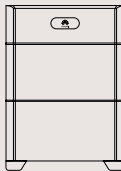



**Quick Commissioning**  
Automatic Device  
Discovery by the App



**Perfect Compatibility**  
Compatible to Single & Three  
Phase Inverters

## LUNA2000-5/10/15-S0 Technical Specification

	LUNA2000-5-S0	LUNA2000-10-S0	LUNA2000-15-S0	
Technical Specification				
	Performance			
	Power module	LUNA2000-5KW-C0		
	Number of power modules	1		
Battery module	LUNA2000-5-E0			
Battery module capacity	5 kWh			
Number of battery modules	1	2	3	
Battery usable capacity <sup>1</sup>	5 kWh	10 kWh	15 kWh	
Max. output power	2.5 kW	5 kW	5 kW	
Peak output power	3.5 kW, 10s	7 kW, 10s	7 kW, 10s	
Nominal voltage (single-phase system)	450 V			
Operating voltage range (single-phase system)	350–560 V			
Nominal voltage (three-phase system)	600 V			
Operating voltage range (three phase system)	600–980 V			
Communication				
Display	SOC status indicator, LED indicator			
Communication	RS485/CAN (only for parallel operation)			
General Specification				
Dimensions (W x D x H)	670 mm x 150 mm x 600 mm (26.4 in. x 5.9 in. x 23.6 in.)	670 mm x 150 mm x 960 mm (26.4 in. x 5.9 in. x 37.8 in.)	670 mm x 150 mm x 1320 mm (26.4 in. x 5.9 in. x 60.0 in.)	
Weight (Floor stand toolkit included)	63.8 kg (140.7 lb)	113.8 kg (250.9 lb)	163.8 kg (361.1 lb)	
Power module dimension (W x D x H)	670 mm x 150 mm x 240 mm (26.4 in. x 5.9 in. x 9.4 in.)			
Power module weight	12 kg (26.5 lb)			
Battery module dimensions (W x D x H)	670 mm x 150 mm x 360 mm (26.4 in. x 5.9 in. x 14.0 in.)			
Battery module weight	50 kg (110.2 lb) <sup>2</sup>			
Installation	Floor stand (standard), Wall mount (optional)			
Operating temperature	–20°C to +55°C (–4°F to +131°F) <sup>3</sup>			
Max. operating altitude	4,000 m (13,123 ft.) (Derated above 2,000 m)			
Environment	Outdoor/Indoor <sup>4</sup>			
Relative humidity	5%–95% RH			
Cooling	Natural convection			
IP rating	IP 66			
Noise emission <sup>5</sup>	< 29 dB			
Cell technology	Lithium-iron phosphate (LiFePO4)			
Compatible inverters <sup>6</sup>	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8/10K-LC0 SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25K-MB0, SUN2000-5/6/8/10/12K-MAPO, SUN5000-8/12K-MAPO, SUN5000-17/25K-MB0, SUN5000-3/6K-LB0			
Standards Compliance (More Available Upon Request)				
Certificates	CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3			
Ordering and Deliverable Part				
Available for ordering <sup>7</sup>	LUNA2000-5KW-C0, LUNA2000-5-E0, LUNA2000 Wall Mounting Bracket			

<sup>\*1</sup> Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C, at the beginning of life. If no PV modules are installed or the system has not detected sunlight for at least 24 hours, the minimum end-of-discharge SOC is 15%.

<sup>\*2</sup> The weight of the battery modules varies with products, with a tolerance of ±3%.

<sup>\*3</sup> Refer to battery warranty letter for conditional application.

<sup>\*4</sup> Outdoor installation is recommended. For indoor installation, refer to the user manual for instruction.

<sup>\*5</sup> Noise level (typical): < 29 dB(A) @1 m, 30°C, power on and run stably for 2 hours

<sup>\*6</sup> Please contact a local engineer for compatibility information.

<sup>\*7</sup> The power module and battery modules of the storage system are separately ordered in the required quantity.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART STRING ENERGY STORAGE SYSTEM

Model: LUNA2000-7/14/21-S1



### Flexible Capacity

6.9 kWh per Battery Module  
Scalable from 6.9 kWh to 20.7 kWh per Group  
Max. 4 Groups with 82.8 kWh for an Inverter<sup>8</sup>



### More Usable Energy

Module+ Architecture, Built-in Energy Optimizer  
Ultra-long Service Time  
100% Depth of Discharge



### 5-layer Safety Protection

Cell-level, Electrical-level, Structural-level  
Active Protection, Emergency Protection



### Ultimate Use Experience

-20°C to +55°C Operating Temperature  
Max 10.5 kW Charging & Discharging Power per Group  
Super Quiet Operation



### Easy Installation


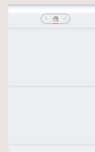
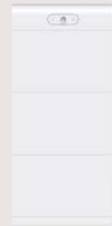
Cable Free Connection Between Modules  
Horizontal Adjustment Design  
Quick Commissioning



### Aesthetically Pleasing Design

Breathing Star Ring Display  
Silky Curve Design  
Simplistic and Borderless

## LUNA2000-7/14/21-S1 Technical Specification

	LUNA2000-7-S1	LUNA2000-14-S1	LUNA2000-21-S1	
Technical Specification				
	Performance			
	Power module	LUNA2000-10KW-C1		
	Number of power modules	1		
Battery module	LUNA2000-7-E1			
Battery module capacity	6.9 kWh			
Number of battery modules	1	2	3	
Battery usable energy <sup>1</sup>	6.9 kWh	13.8 kWh	20.7 kWh	
Max. charging & discharging power	3.5 kW	7 kW	10.5 kW	
Operating voltage range (single-phase system)	350~560 V			
Operating voltage range (three phase system)	600~980 V			
Communication				
Display	SOC status indicator, LED indicator			
Communication <sup>2</sup>	RS485/FE/CAN			
General Specification				
Dimensions (W x D x H)	590 mm x 255 mm x 510 mm	590 mm x 255 mm x 870 mm	590 mm x 255 mm x 1230 mm	
Weight (Floor stand toolkit included)	80 kg	148 kg	216 kg	
Power module dimensions (W x D x H)	590 mm x 255 mm x 150 mm			
Power module weight	10 kg			
Battery module dimensions (W x D x H)	590 mm x 255 mm x 360 mm			
Battery module weight <sup>3</sup>	68 kg (110.2 lb) <sup>2</sup>			
Installation	Floor stand (standard), Wall mount (optional)			
Operating temperature <sup>4</sup>	-20°C to +55°C (-4°F to +131°F)			
Max. operating altitude <sup>5</sup>	4,000 m (13,123 ft.) (Derated above 2,000 m)			
Environment <sup>6</sup>	Outdoor / Indoor			
Relative humidity	5%~95%			
Cooling	Natural convection			
IP rating	IP 66			
Noise emission	< 29 dB <sup>7</sup>			
Cell technology	Lithium-iron phosphate (LiFePO <sub>4</sub> )			
Scalability <sup>8</sup>	Max.4 systems in parallel operation			
Compatible inverters <sup>9</sup>	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-5/6/8/10/12K-MAP0, SUN2000-12/15/17/20/-25K-MB0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0, SUN5000-3/6K-LB0			
Standards Compliance (More Available Upon Request)				
Certificates	CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3, ISO13849, REACH, RoHS			
Ordering and Deliverable Part				
Available for ordering <sup>10</sup>	LUNA2000-7-E1, LUNA2000-10KW-C1, Wall Mounting Bracket for LUNA2000-7/14/21-S1			

\*1 Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C , at the beginning of service life.  
\*2 CAN is for communication between ESSs in parallel scenarios only. The launch time of the FE communication version is to be determined. Please confirm with your local product manager of Huawei for information about the final version.  
\*3 The weight of the battery modules varies with products, with a tolerance of ±3%.  
\*4 The output power may be affected by temperature. Please refer to the output derating curve for details.  
\*5 The output power may be affected by altitude. Please refer to the output derating curve for details.  
\*6 Outdoor installation is recommended. For indoor installation instructions, please refer to the user manual.  
\*7 The data is from Huawei lab, and the test condition is 1m distance and typical working voltage.  
\*8 Only SUN2000-12/15/17/20/25K-MB0 supports 4 energy storage systems in parallel operation.  
\*9 For details on the timetable of compatibility with SUN2000-8/10K-LC0 and SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, please confirm with your local product manager of Huawei for final version.  
\*10 The power module and battery modules of the storage system are separately ordered in the required quantity.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART MODULE CONTROLLER

Model: SUN2000-450W-P2/SUN2000-600W-P



**Higher Yields**  
Module-level Optimization  
Increases System Energy  
Yield by 5% to 30%



**Active Safety**  
Module-level Rapid  
Shutdown for worry-free  
firefighting



**Flexible Design**  
Easier Module Layout  
and 30% Higher Installed  
Capacity on Average



**Smart O&M**  
Module-level  
Visibility and Refined  
Management

## SUN2000-450W-P2/SUN2000-600W-P Technical Specification

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P
	Input	
Rated input DC power <sup>1</sup>	450 W	600 W
Absolute max. input voltage	80 V	
MPPT operating voltage range	10–80 V	
Max. short-circuit current (Isc)	14.5 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
	Output	
Max. output voltage	80 V	
Max. output current	15 A	
Output bypass <sup>2</sup>	Yes	
Output voltage during standby <sup>3</sup>	0 V	
Output impedance during standby	1 kΩ ± 10%	
	Communication	
Communication protocol	MBUS	
	Standards Compliance	
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2018-12	
	General Specifications	
Dimensions (W x H x D)	75 mm x 140 mm x 28 mm (3.0 in. x 5.5 in. x 1.1 in.)	
Weight (including cables)	0.6 kg (1.3 lb.)	
Installation kit (optional)	Frame mounting bracket/T-shaped bolt <sup>4</sup>	
Input connector	Staubli MC4	
Input wire length	0.15 m (0.49 ft.)	
Output connector	Staubli MC4	
Output wire length	1.3 m (4.3 ft.)	
Operating temperature/humidity range	–40°C to +85°C <sup>5</sup> /0%–100%	
IP rating	IP68	
Compatible inverters	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8K/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-5/6/8/10/12K-MAP0, SUN2000-12/15/17/20/25KTL-M5, SUN2000-12K/15K/17K/20K/25K-MB0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0, SUN2000-30K/36K/40K-M3	

PV System Design <sup>6</sup>	SUN2000-2~6KTL-L1	SUN2000-3~6K-LB0	SUN2000-8K/10K-LC0	SUN2000-3~10KTL-M1	SUN2000-5~2K-MAP0	SUN2000-12~25KTL-M5	SUN2000-12~25K-MB0	SUN5000-8/12K-MAP0	SUN5000-17/25K-MB0	SUN2000-30~40K-M3
Min. string length (power optimizers)	4	4	4	6	6	6	6	6	6	6
Max. string length (power optimizers)	25	25	25	35	35	35	35	35	35	25
Max. DC power per string	6,000 W	6,000 W	6,000 W	10,000 W	12,000 W	12,000 W	12,000 W	12,000 W	12,000 W	12,000 W

<sup>\*1</sup> The maximum power of PV module at STC shall NOT exceed the “Rated Input DC Power” of the power optimizer. PV modules with up to +5% power tolerance are allowed.  
<sup>\*2</sup> Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.  
<sup>\*3</sup> Once the power optimizer stops working, its output voltage is reduced to 0 V.  
<sup>\*4</sup> It is for PV module frame/extruded aluminum profile racking system installation.  
<sup>\*5</sup> When the operating temperature of the SUN2000-450W-P2/600W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.  
<sup>\*6</sup> SUN2000-450W-P2/600W-P and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART MODULE CONTROLLER

Model: MERC-1100/1300W-P



**Higher Yields**  
Module-level Optimization  
Increases System Energy  
Yield by 5% to 30%



**Flexible Design**  
Long String Design to  
Reduce Bos



**Active Safety**  
Firefighting and O&M  
Safety with Module-  
level Rapid Shutdown



**Smart O&M**  
Pinpointing Open-  
Circuit Fault for Quick  
Troubleshooting

## MERC-1100/1300W-P Technical Specification

Technical Specification	MERC-1100W-P	MERC-1300W-P
	Input	
Rated input DC power <sup>1</sup>	1100 W	1300 W
Absolute max. input voltage	125 V	
MPPT operating voltage range	12.5–105 V	
Max. short-circuit current (Isc)	20 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
	Output	
Max. output voltage	80 V	
Max. output current	22 A	
Output bypass <sup>2</sup>	Yes	
Safety output voltage <sup>3</sup>	1 V	
	Standards Compliance	
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
	General Specification	
Dimensions (W X H X D)	149 mm x 104 mm x 48.8 mm (5.9 in. x 4.1 in. x 1.9 in.)	
Weight (including wires)	1.0 kg (2.2 lb.)	
Installation kit (optional)	PV Module Frame Plate/T-shaped Bolt <sup>4</sup>	
Input connector	Staubli MC4	
Input wire length	0.1 m (+/-) (short-input-cable version) <sup>5</sup>	
Output connector	Staubli MC4	
Output wire length	0.1 m (+), 5.1 m (-) (short-input-cable version) <sup>5</sup>	
Operating temperature	–40°C to +85°C <sup>6</sup>	
Relative humidity	0%–100%	
IP rating	IP68	
Compatible inverters	SUN2000-12-25K-MB0, SUN2000-12-25KTL-M5, SUN2000-30-40KTL-M3, SUN2000-50KTL-M3, SUN5000-150K-MG0	

PV System Design <sup>7/8/9</sup>	SUN2000-12~25K-MB0	SUN2000-12~25KTL-M5	SUN2000-30~40KTL-M3	SUN2000-50KTL-M3	SUN5000-150K-MG0
Min. string length (power optimizers)	8	8	8	8	12
Max. string length (power optimizers)	25	25	25	20	20
Max. DC power per string	20,000 W	20,000 W	20,000 W	20,000 W	20,000 W



<sup>\*1</sup> The maximum power of PV module at STC shall NOT exceed the “Rated input DC power” of MERC-1100/1300W-P. PV Modules with up to ±10% power tolerance are allowed.

<sup>\*2</sup> Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.

<sup>\*3</sup> When the MERC-1100/1300W-P is disconnected from inverter or when the inverter is off, its output voltage will become 1 V.

<sup>\*4</sup> It is for PV module frame/extruded aluminum profile racking system installation.

<sup>\*5</sup> Pay attention to the PV module wire length. To match PV modules with a split junction box and short output wire, the long-input-cable version (input wire: 1.3 m (+/-); output wire: 0.1m (+)/2.9m (-)) of MERC-1100/1300W-P is available upon request.

<sup>\*6</sup> When the operating temperature of the MERC-1100/1300W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.

<sup>\*7</sup> Each PV module under the same inverter must be equipped with a MERC-1100/1300W-P.

<sup>\*8</sup> SUN2000-450W-P2/600W-P and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.

<sup>\*9</sup> It is recommended that strings under the same inverter have an equal capacity. If this is not feasible, the capacity difference between strings under the same inverter must not exceed 2 kW. Otherwise, the energy yield will be reduced.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART CHARGER

Model: SCharger-7KS-S0/SCharger-22KT-S0



Single-Phase

**7.4 kW/32 A**  
SCharger-7KS-S0

Three-Phase

**22 kW/32 A**  
SCharger-22KT-S0

\*Available in specific regions only



**PV Power**  
Power Your Car with Solar  
Make EV Even Greener



**Dynamic Charging Power**  
Automatic Detection and  
Adjustment  
No Worry about Overload



**3 Ways of Authentication**  
Authentication through  
Bluetooth, RFID and APP



**3-Step Installation**  
Fast Installation in 15  
Minutes  
Wiring-free Maintenance

## SCharger-7KS-S0/SCharger-22KT-S0 Technical Specifications

Technical Specification	SCharger-7KS-S0	SCharger-22KT-S0
Inputs and Outputs		
Charge power (configurable)	1.4 kW to 7.4 kW	1.4 kW <sup>1</sup> to 22 kW
Nominal voltage	230 V ± 20% (1-phase)	400 V ± 20% (3-phase)
Nominal current (configurable)	6–32 A (1-phase)	6–32 A (3-phase or 1-phase)
Nominal frequency	50 Hz/60 Hz ± 1 Hz	
Vehicle connection	Type 2 socket	
Cable cross-sectional area	Up to 10 mm <sup>2</sup>	
Network types	TN, TT, IT	TN, TT
User Interface & Communications		
Protocol	Modbus TCP, OCPP 1.6	
Communication	Wi-Fi/Ethernet	
Charger status information	WRGB LED and app	
Authentication	RFID (ISO-14443-A), app, Bluetooth	
Remote control & monitoring	App	
Working mode	Normal Charge Scheduled Charge PV Power Preferred Next Trip <sup>2</sup>	
Protection		
Cable protection	Cable E-Lock via app	
Residual current protection (RCD)	Type A (30 mA) + DC 6 mA integrated	
Fire class	UL94	
Overcurrent protection	IEC 61851-1	
Over-temperature protection	Yes	
Surge protection	CAT II	
General Specification		
Operating temperature range	–35°C to +45°C	–35°C to +50°C @ 16A –35°C to +40°C @ 32A
Application environment	Outdoor/Indoor	
Storage temperature	–40°C to +70°C	
Relative humidity	5%–95% RH	
Altitude	≤ 2000 m (Derated between 2000–4000 m)	
Dimensions (H x W x D)	335 mm x 180 mm x 145 mm	
Weight	3 kg	3.1 kg
Installation mode	Wall-mounted	
IP rating	IP54	
Impact protection level	IK10	
Standby self-consumption	< 6 W	
Standards Compliance (More Available Upon Request)		
Safety & health	EN IEC 61851-1 2019, EN 62311 2008, EN IEC 62311 2020, EN 50665 2017, EN 50364 2018	
EMC	EN IEC 61851-21-2 2021, EN 301 489-1 V2.2.3 2019, EN 301 489-3 V2.1.1 2019, EN 301 489-17 V3.2.4 2020	
Radio	ETSI EN 300 328 V2.2.2, ETSI EN300 330 V2.1.1	
RoHS	EN IEC 63000:2018	
Others		
Accessories	RFID Card * 2	

<sup>\*1</sup> 1.4 kW for 1-phase charging and 4. 2 kW for 3-phase charging

<sup>\*2</sup> Next Trip mode is only available with SA4H-A02

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMARTGUARD

Model: SmartGuard-63A-T0



**Simple**  
Three-phase whole home backup supported



**Seamless**  
≤20ms Ultra-fast switchover to power backup mode



**Reliable**  
Provide bypass mode when a fault occurs



**Intelligent**  
Ready for DG, intelligent loads management with SA4H-A02

## SmartGuard-63A-T0 Technical Specifications

Technical Specification	SmartGuard-63A-T0
General Data	
Dimensions (W x H x D)	490 mm × 600 mm × 170 mm
Weight (not including mounting plate )	17 kg
Performance	
AC Voltage (Nominal)	380/400/415V, 220/230/240V, L1/L2/L3/N+PE
Max. current (from/to Grid)	63 A
Max. current (from/to Inverter)	60 A
Max. current (to Backup Load)	63 A
Max. current(to Non-BackupLoad) <sup>1</sup>	63 A
Low-Voltage ride-through	Supported
Switchover time	≤ 20ms (MAP0), ≤ 100ms (M1/MB0) <sup>2</sup>
Bypass operation mode	Manual
DG mode	Remote control
Interface	
Power output	9.5–13.2V @ 100mA, ≤ 3m
LAN	10/100Mbps, ≤ 100m
WAN	10/100Mbps, ≤ 100m
WLAN	AP Mode, 802.11b/g/n (2.412GHz–2.484GHz)
RS485	9600/19200/115200bps,× 2, ≤ 50m
Digital input	×2, ≤ 20m; Active port <sup>3</sup>
Digital output	×2, ≤ 20m
DG Do Port	Passive Port, 1-100mA ≤24V
ATS	Need prepare the ATS, which supports automatic control and automatic switch-in and reset.
Measurement Range	
Current range	≤ 63 A
Energy accuracy	± 1%
Device Management	
Smart energy controllers	up to 3
Smart chargers	up to 2
Heat pump	up to 1 <sup>4</sup>
Shelly device	up to 20
Environment	
Cooling	Natural Convection
Relative humidity range	5%-95% RH (non condensing)
Max. operating altitude	4000m (derated over 2000m)
Degree of protection	IP55
Operating temperature range	-25°C–50°C <sup>5</sup>
Compatible Device	
Smart energy controller	Max. 3 inverters supported in parallel connection (MAP0) Max. 1 inverter supported (M1/MB0)
Smart charger	SCharger–7KS/22KT-S0
Heat pump	SG-ready
Shelly device	Shelly Plus Plug S, Shelly Plus 2PM, Shelly Pro 2PM <sup>6</sup>

<sup>\*1</sup> The sum of the output current of the backup port and the non backup port could not be more than 63A

<sup>\*2</sup> Seamless switching is disabled by default and needs to be manually enabled.

<sup>\*3</sup> The position feedback signal must be a passive port that works with an external circuit and can work at a current of less than or equal to 0.7 mA@12 V.  
The low impedance of the circuit for the position feedback signal is less than or equal to 100 ohms.

<sup>\*4</sup> 1 SG ready Heat Pump can be connected directly. Others can be connected via shelly devices.

<sup>\*5</sup> On grid Mode: 25–30°C, no derating; 30–50°C, linear derating from 63A to 43A;  
Off grid Mode: 25–40°C, no derating; 40–50°C, linear derating from 60A to 50A

<sup>\*6</sup> The supported firmware version of shelly devices can be found in user manual.

Disclaimer: the preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMARTGUARD

Model: SmartGuard-63A-S0



**Simple**

Whole home backup,  
no need of additional  
switchboard



**Seamless**

≤ 20 ms ultra-fast switchover to  
power backup mode



**Reliable**

Provide bypass mode  
when a fault occurs



**Intelligent <sup>1</sup>**

Intelligent load control with  
built-in SA4H-A02

## SmartGuard-63A-S0 Technical Specifications

Technical Specification	SmartGuard-63A-S0
General Data	
Dimensions (W x H x D)	355 mm × 485 mm × 150 mm
Weight	≤14 kg
Performance	
AC Voltage (nominal)	220/230/240 V L/N+PE
Max. current (from Grid)	63 A
Max. current (from Inverter)	60 A
Max. current (to backed-up load)	63 A
Max. current (to non-backed-up load) <sup>2</sup>	63 A
Self consumption	10 W
Low-voltage ride-through	Supported
Switchover time	≤ 20 ms (in Seamless Mode)
Bypass operation mode	Manual
Interface	
Power output	9.5–13.2V @ 100mA, ≤ 3m
LAN	10/100 Mbps, ≤ 100 m
WAN	10/100 Mbps, ≤ 100m
WLAN	AP Mode, 802.11b/g/n (2.412 GHz–2.484 GHz)
RS485	9600/19200/115200 bps,× 2, ≤ 50m
Digital input	×2, ≤ 20 m
Digital output	×2, ≤ 20 m
Measurement Range	
Current range	≤ 63 A
Voltage range	1P (L-N): 85–299 V AC
Energy accuracy	± 1%
Device Management	
Smart energy controllers	up to 1
Smart chargers	up to 2
Heat pump	up to 1 <sup>3</sup>
Shelly device	up to 20
Environment	
Noise emission	≤ 29 dBA
Cooling	Natural Convection
Relative humidity range	5%-95% RH (non condensing)
Max. operating altitude	4000m (derated over 2000m)
IP rating	IP55
Operating temperature range	-25°C–50°C <sup>4</sup>
Compatible Device	
Smart energy controller	SUN2000-2-6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8-10K-LC0
Smart charger	SCharger-7KS-S0
Heat pump	SG-ready
Shelly device	Shelly Plus Plug S, Shelly Plus 2PM, Shelly Pro 2PM <sup>5</sup>

<sup>\*1</sup> The intelligent energy scheduling feature is available for a 2-year free trial. After the trial, it will be available at no more than €99 per site per year.

<sup>\*2</sup> The sum of the output current of the backup port and the non-backup port could not be more than 63A

<sup>\*3</sup> 1 SG-ready Heat Pump can be connected directly. Others can be connected via shelly devices

<sup>\*4</sup> On-grid Mode: 25–30 °C, no derating; 30–40 °C, linear derating from 63A to 50A; 40–50 °C, linear derating from 50A to 40A  
Off-grid Mode: 25–40 °C, no derating; 40–50 °C, linear derating from 54.5A to 50A

<sup>\*5</sup> The supported firmware version of shelly devices can be found in user manual

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMARTASSISTANT

Model: SA4H-A02



**Unified management**  
One-stop management of inverters, ESS, optimizers, chargers and appliances



**More intelligent**  
Peak shaving, PV preference, feed-in power limitation, and automatic start/stop of diesel generators.



**More economical**  
Automatically connect to dynamic electricity markets, supporting peak-valley price arbitrage and zero-power feed-in during negative price periods.



**Open to 3rd parties**  
Supports Modbus-TCP and third-party VPP integration, enabling FCR-D frequency modulation.

## SA4H-A02 Technical Specifications

Technical Specification	SA4H-A02		
General Data			
Dimension(W × H × D)	108 mm × 100 mm × 65 mm		
Mounting type	DIN35 Rail		
Height requirement of cabinet	≥ 47.5 mm		
Weight	0.5 kg		
Power Supply			
AC Voltage	1P2W: 100 ~ 240V, 50 / 60Hz	3P3W: 346 ~ 415V, 50 / 60Hz	3P4W: 346 ~ 415V, 50 / 60Hz
Typical power consumption	4 W		
Interface			
Power output	9.5 ~ 13.2V @ 100mA, ≤ 3m		
LAN	10 / 100Mbps,≤ 100m		
WAN	10 / 100Mbps,≤ 100m		
WLAN	AP + STA, 802.11b/g/n (2.4GHz ~ 2.4835GHz)		
RS485	9600 / 19200 / 115200bps,× 2, ≤ 50m		
Digital input	× 2, ≤ 20 m		
Digital output	× 2, ≤ 20 m		
Interaction			
LED	LED Indicator × 3 RUN, ALM, COM		
Button	RST		
APP	Communication by WLAN for Commissioning		
Measurement Range			
Current range	Direct connection: ≤ 63 A, external CT <sup>1</sup> : > 63 A		
Voltage range	1P (L-N): 85 ~ 299 Vac; 3P (L L): 148 ~520 Vac		
Energy accuracy	±1%		
Device Management			
Smart energy controllers	up to 3		
Smart chargers	up to 2		
Heat pump	up to 1 <sup>2</sup>		
Shelly device	up to 20		
Environment			
Operating temperature range	-25 °C to +60 °C		
Storage temperature range	-40 °C to +85 °C		
Relative humidity range	5% ~ 95% RH (non condensing)		
Max. operating altitude	4000m (derating over 2000m)		
Degree of protection	IP2X		
Compatible Device			
Smart energy controller	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25KTL-M5, SUN2000-5/6/8/10/12K-MAP0, SUN2000-12/15/17/20/25K-MB0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0		
Smart charger	SCharger-7KS/22KT-S0		
Heat pump	SG-ready, Vaillant aroTHERM plus		
Third-Party EV Charger	ABL eM4 Single, Mennekes AMTRON® Professional, KEBA KeContact P30		
Heater	Askoma ASKOHEAT+		
Shelly device	Shelly Plus Plug S, Shelly Plus 2PM, Shelly Pro 2PM <sup>3</sup>		
Smart Scheduling <sup>4</sup>	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25KTL-M5, SUN2000-12/15/17/20/25K-MB0, SUN2000-5/6/8/10/12K-MAP0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0+ LUNA2000-5/10/15-S0 / LUNA2000-7/14/21-S1		
Dynamic tariff	Automatically connect to the dynamic electricity market and obtain day-ahead dynamic tariffs. Nord Pool: Available in Sweden, Denmark, Finland, Norway, Lithuania, Estonia, Latvia, Netherlands, Germany, Belgium, Poland ESIOS: Available in Spain EPEX Spot: Available in Germany, Luxembourg, Austria, France, UK, Switzerland TGE:Available in Poland		

<sup>\*1</sup>. The secondary current of an external CT connected shall be 50 mA, and the cable length can be up to 30 m.  
<sup>\*2</sup>. A heat pump can be directly connected to SA4H-A02. More appliances can be connected through a Shelly device.  
<sup>\*3</sup>. For the Shelly device firmware version supported, please refer to the user manual.  
<sup>\*4</sup>. The smart scheduling function of the SmartAssistant is offered free of charge for two years from the trial start date.  
After this period, we reserve the right to charge for this service.  
Disclaimer: the preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART DONGLE-WLAN-FE



**Smart**  
WLAN & Fast Ethernet (FE)  
Communication, Support 3rd-  
Party Monitoring System <sup>1</sup>



**Simple**  
Plug-and-play, with a  
Maximum of 10 Devices  
Connected



**Reliable**  
IP65 Protection

## Smart Dongle-WLAN-FE Technical Specifications

Technical Specification	SDongleA-05 (AP+STA)
General Specification	
Max. devices supported	10
Max. inverters supported	10
Connection interface	USB
Ethernet interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W x H x D)	48 mm x 146 mm x 33 mm (1.9 in. x 5.1 in. x 1.3 in.)
Weight	90 g (0.2 lb.)
IP rating	IP65
Power (typical)	2.5 W
Working mode	AP + STA
Security	Security protocol: WPA/WPA2 Encryption: TKIP/CCMP/AES
Radio Specification	
Supported standards & frequencies	802.11b/g/n (2.412–2.484 GHz)
Environment	
Operating temperature range	–30°C to +65°C (–22°F to +149°F)
Relative humidity range	5%–95% RH
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Max. operating altitude	4,000 m (13,123 ft.)
Standards Compliance (More Available Upon Request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Inverter model	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB0, SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25KTL-M5, SUN2000-12/15/17/20/25K-MB0, SUN2000-5/6/8/10/12K-MAP0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0

1: 3rd-party management system shall support the communication protocol used on Huawei Smart Dongle.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART DONGLE-4G



**Smart**  
4G Communication <sup>1</sup>  
Support for 3<sup>rd</sup>-party <sup>2</sup>  
Monitoring System



**Simple**  
Plug-and-play WLAN-AP  
Local Deployment <sup>3</sup>



**Reliable**  
IP65  
Auto Reconnection

## Smart Dongle-4G Technical Specifications

Technical Specification	SDongleB-06-EU		SDongleB-06-AU	SDongleB-06-NH
General Specification				
Max. devices supported	10			
Max. inverters supported	10			
Connection interface	USB			
Installation	Plug-and-play			
Indicator	LED indicator			
Dimensions (W x H x D)	48 mm x 162 mm x 28 mm			
IP rating	IP65			
Power (typical)	3.5 W			
Wireless Parameter				
SIM card type	Mini-SIM (15 mm x 25 mm)			
Supported standards & frequencies <sup>4</sup>	LTE-FDD: B1/B3/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: 850/900/1800/1900 MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900 MHz	LTE-FDD: B1/B3/B8/B18/B19/B26 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	
Wi-Fi operation mode	AP			
Supported standards & frequencies	802.11b/g/n (2.412–2.484 GHz)			
Environment				
Operating temperature range	–30°C to +65°C (–22°F to +149°F)			
Relative humidity range	5%–95% RH			
Storage temperature range	–40°C to +70°C (–40°F to +158°F)			
Max. operating altitude	4,000 m (13,123 ft.)			
Standards Compliance (More Available Upon Request)				
Certificate	CE	RCM	TELEC	
Inverter Compatibility				
Inverter model	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/3.68/4/4.6/5/6K-LB, SUN2000-8/10K-LC0, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25KTL-M5, SUN2000-12/15/17/20/25K-MB0, SUN2000-5/6/8/10/12K-MA0, SUN5000-8/12K-MA0, SUN5000-17/25K-MB0, SUN2000-4.95KTL-JPL1, SUN2000-4.95KTL-NHL2, SUN2000-4.95KTL-LB0-NH			

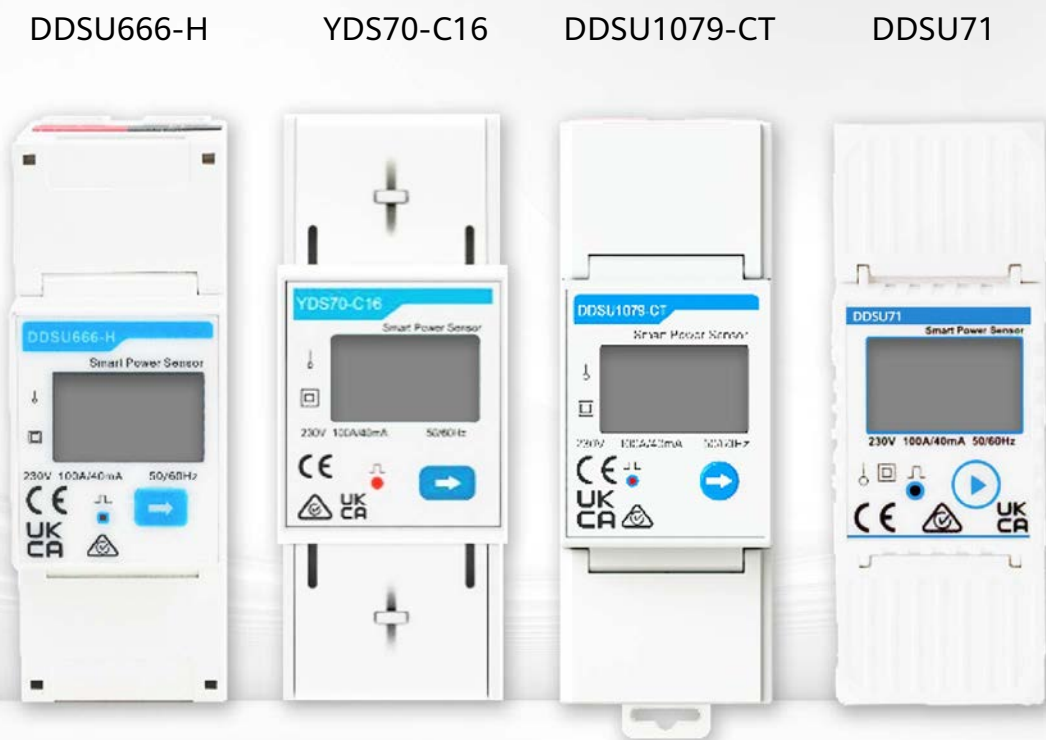
1: To ensure stable data transmission, Huawei recommends that a 4G Dongle be installed in areas with stable mobile signal (2G signal ≥4 bars, 3G/4G signal ≥3 bars).  
2: 3rd-party management system shall support the communication protocol used on Huawei Smart Dongle.  
3: When all inverters support WLAN hotspot, hotspot of Dongle will be disabled by default.  
4: For recommended carriers list and details on supported frequencies, please contact local distributors.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART POWER SENSOR

Model: SmartPS-100A-S0



**Accurate**  
Class I Measurement Accuracy



**Simple & Easy**  
LCD Display, Easy to Set and Check



**Energy Efficient**  
Overall Power Consumption ≤ 1.5 W

## SmartPS-100A-S0 Technical Specifications

Technical Specification	SmartPS-100A-S0			
	DDSU666-H	YDS70-C16	DDSU1079-CT	DDSU71
General Specification				
Dimensions (H x W x D)	100mm x 36mm x 65.5mm	101mm x 36mm x 66mm	99mm × 36mm × 66 mm	99mm × 36mm × 66 mm
Mounting type	DIN35 Rail			
Weight (including cables)	0.2kg	0.133kg	0.15kg	0.196kg
Power Supply				
Power grid type	1P2W			
Input voltage (phase voltage)	230V			
Power consumption	<1.5W			
Measurement Range				
Line voltage	/			
Phase voltage	176VAC-288VAC			
Current	0.5-100A			
Measurement Accuracy				
Current/Voltage	±0.5%			
Power/Energy	±1%			
Frequency	±0.01 Hz			
Communication				
Interface	RS485			
Baud rate	4800/9600(Default)/19200/115200			
Communication protocol	Modbus-RTU			
Environment				
Operating temperature range	-25°C to +60°C	-35°C to +70°C	-25°C to +60°C	-25°C to +60°C
Storage temperature range	-35°C to +70°C	-40°C to +85°C	-35°C to +70°C	-40°C to +85°C
Operating humidity	5% RH-95% RH (non-condensing)			
Others				
Accessories	RS485 Cable (10 m / 33 ft.)			
	1 CT 100 A/40 mA			

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.

# SMART POWER SENSOR

Model: SmartPS-250A-T0

DTSU666-H 250A/50mA



YDS60-C24



DTSU71



DHSU1079-CT



**Accurate**  
Class I Measurement  
Accuracy



**Simple & Easy**  
LCD Display, Easy to Set  
and Check



**Energy Efficient**  
Overall Power  
Consumption ≤ 1.5 W

## SmartPS-250A-T0 Technical Specifications

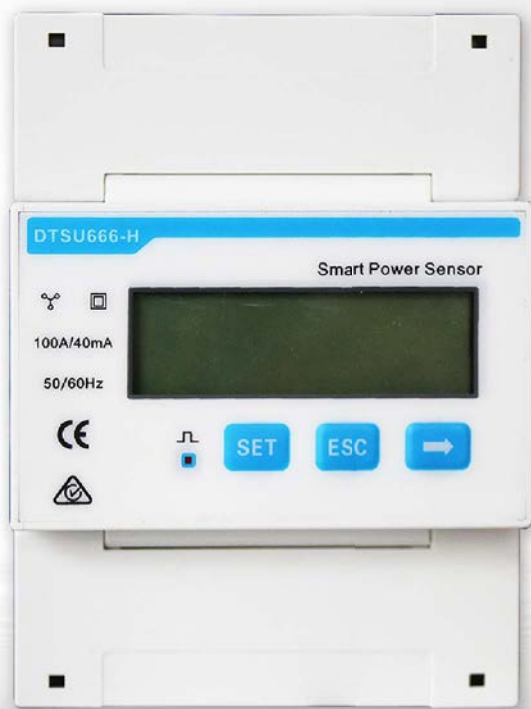
Technical Specification	SmartPS-250A-T0			
	DTSU666-H 250A/50mA	YDS60-C24	DTSU71	DHSU1079-CT
General Specification				
Dimensions (H x W x D)	100mm x 72mm x 65.5mm	101mm x 72mm x 66mm	100mm × 72mm × 66mm	99mm × 72mm × 66mm
Mounting type	DIN35 Rail			
Weight (including cables)	0.3kg	0.285kg	0.248kg	0.26kg
Power Supply				
Power grid type	3P3W/3P4W			
Input voltage (phase voltage)	230 V AC/400 V AC			
Power consumption	<1.5W			
Measurement Range				
Line voltage	304V–500V			
Phase voltage	176 V AC–288 V AC			
Current	0–250A			
Measurement Accuracy				
Current/Voltage	±0.5%			
Power/Energy	±1%			
Frequency	±0.01 Hz			
Communication				
Interface	RS485			
Baud rate	4800/9600(Default)/19200/115200			
Communication protocol	Modbus-RTU			
Environment				
Operating temperature range	–25°C to +60°C	–25°C to +60°C	–25°C to +60°C	–25°C to +60°C
Storage temperature range	–40°C to +85°C	–40°C to +85°C	–35°C to +70°C	–40°C to +85°C
Operating humidity	5% RH–95% RH (non-condensing)			
Others				
Accessories	RS485 Cable (10 m / 33 ft.)			
	3 CT 250 A/50 mA			

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.



# SMART POWER SENSOR

Model: DTSU666-H 100A



**Accurate**  
Class I Measurement Accuracy




**Simple & Easy**  
LCD Display, Easy to Set and Check



**Energy Efficient**  
Overall Power Consumption  $\leq 1.5\text{ W}$

## Smart Power Sensor Technical Specifications

Technical Specification	DTSU666-H
General Specification	
Dimensions (H x W x D)	100 mm x 72 mm x 65.5 mm (3.9 in. x 2.8 in. x 2.6 in.)
Mounting type	DIN35 Rail
Weight (including cables)	1.5 kg (3.3 lb)
Power Supply	
Power grid type	3P3W/3P4W
Input voltage (phase voltage)	176 V AC–288 V AC
Power consumption	$\leq 1\text{ W}$
Measurement Range	
Line voltage	304 V AC–499 V AC
Phase voltage	176 V AC–288 V AC
Current	0–100 A
Measurement Accuracy	
Current/Voltage	$\pm 0.5\%$
Power/Energy	$\pm 1\%$
Frequency	$\pm 0.01\text{ Hz}$
Communication	
Interface	RS485
Baud rate	9,600 bps
Communication protocol	Modbus-RTU
Environment	
Operating temperature range	$-25^{\circ}\text{C}$ to $+60^{\circ}\text{C}$
Storage temperature range	$-40^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
Operating humidity	5% RH–95% RH (non-condensing)
Others	
Accessories	RS485 Cable (10 m / 33 ft.)
	3 CT 100 A/40 mA (5 m/16.4 ft.)
	

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.

# FUSIONSOLAR SMART PV MANAGEMENT SYSTEM



### Better Experience

One app for All Products  
Auto-Discovery of Local  
Components  
Modular Auto-mapping Within 5S



### Energy Visualization

KPI Dashboard and Centralized  
Management of Multiple Plants  
Module-level Monitoring  
Report Subscription and Real-time  
Alarm Push



### Smart O&M

Site, Personnel, and Status Management on  
One Screen

## ● FusionSolar Smart PV Management System

Category	Function	Web	App
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management	●	●
	Smart IV-Curve Diagnose	●	
KPI Dashboard	KPI Dashboard	●	
Homepage of Single Plant	Energy Flow	●	●
	Energy Management	●	●
	Plant Layout	●	●
	Kiosk Mode	●	
System Setting	Plant Management	●	●
	Company Management	●	
Demo	Demo Site	●	●



An aerial photograph of a modern, two-story house with a white facade and a dark grey tiled roof. The roof is covered with a large array of solar panels. The house has a balcony with a glass railing and a small garden area with some plants. A large green rectangular overlay is positioned in the center of the image, featuring the number '03' in large white font and the word 'SERVICE' in smaller white font to its right.

# 03

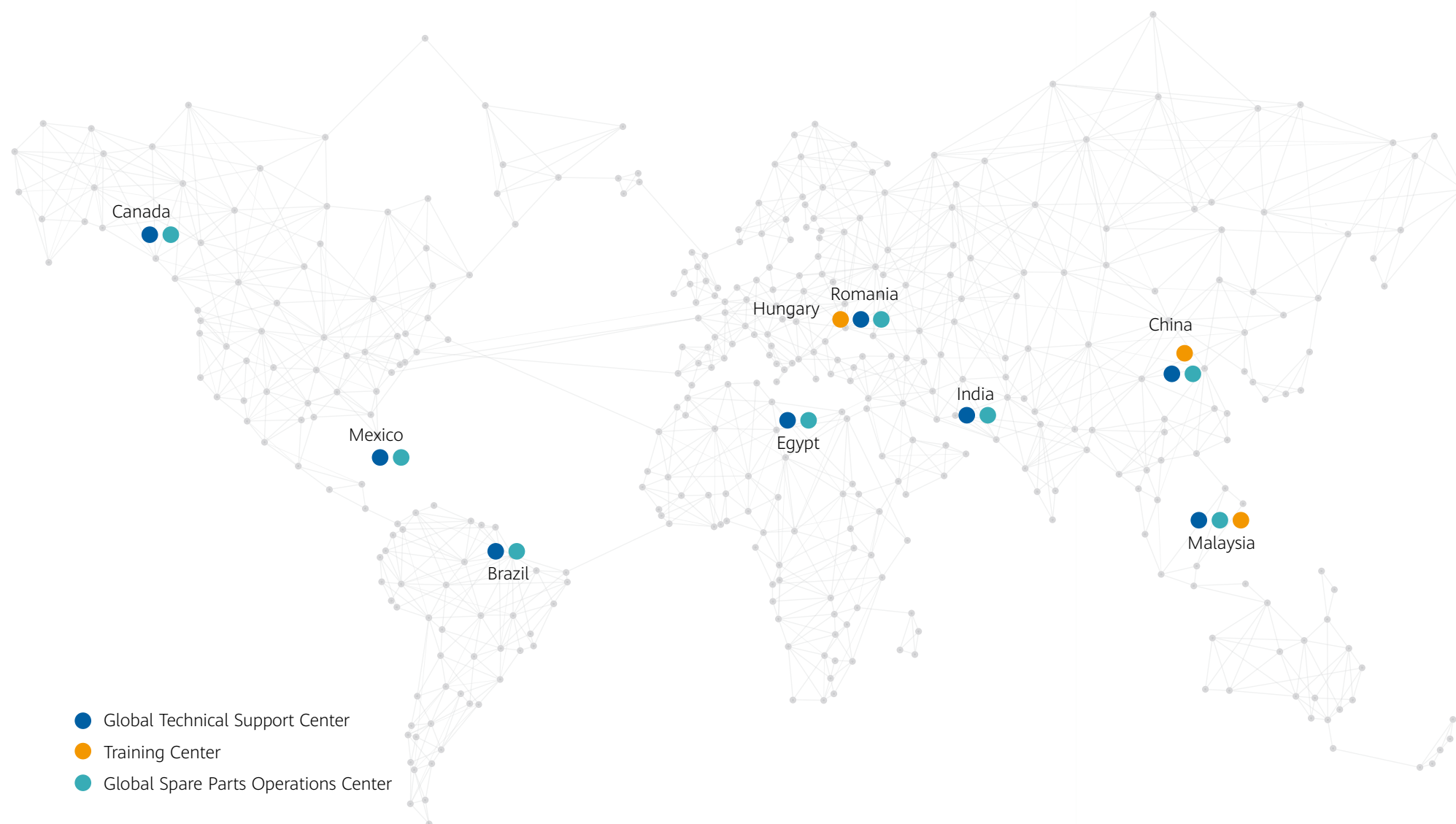
SERVICE





## CUSTOMER SERVICE

FusionSolar global service centers cover more than 170 countries, supporting 1/3 of the world's population



### Warrant service Your energy system guardian

If product quality defects occur under warranty, Huawei would provide the following services:

- 24/7 timely response
- Remote troubleshooting
- Online technical support
- Software support service
- Hardware support service (advance spare parts replacement within 2BD)

### For longer-lasting warranty services

Flexibly select the services you need based on your actual requirements

- Remote technical support
- Spare parts support



# 16+

Languages



# 2000+

Professional Technical Engineers



# 24/7

Support



#### Process and Method Maintenance

Issue to Resolution (ITR) process: The "technology + management escalation" mechanism ensures the involvement of experts and mid- and high-level executives in the process.



#### Organization and Personnel

The three-level support system provides reliable technical support for global customers.



#### Smart tools-FusionSolar

Monitor your energy system anytime anywhere  
AI-based customer support robot for your request  
All service accessible on the App





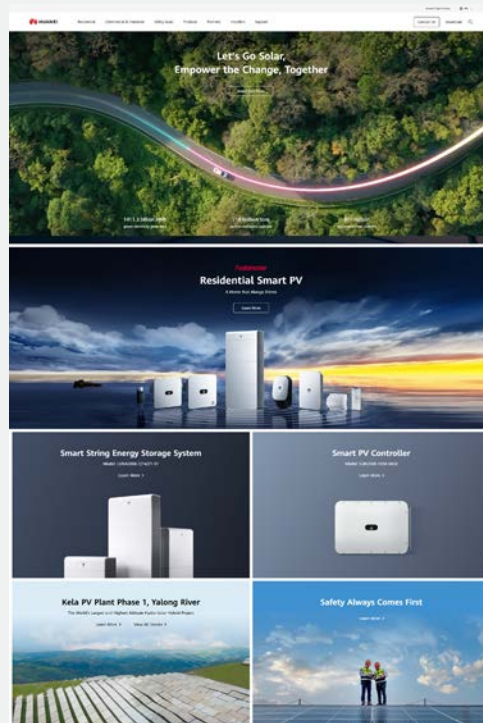
# FUSIONSOLAR PARTNER

Please click the link to join us: <https://community.solar.huawei.com>

01

## Official Website

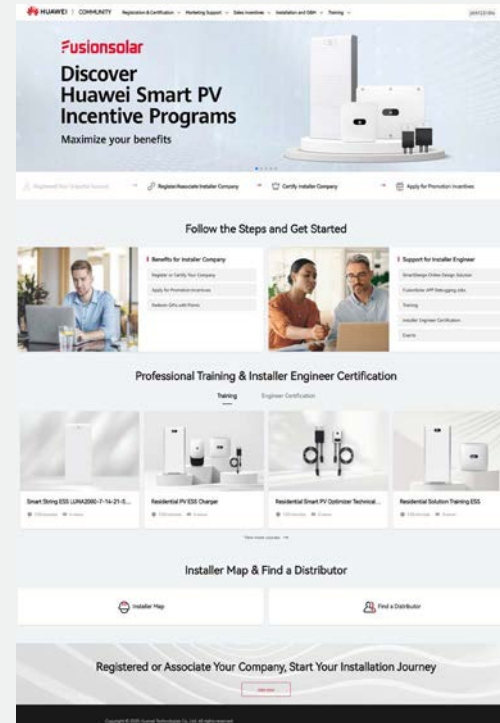
Provide solution, products, service, and news related information.



02

## Community

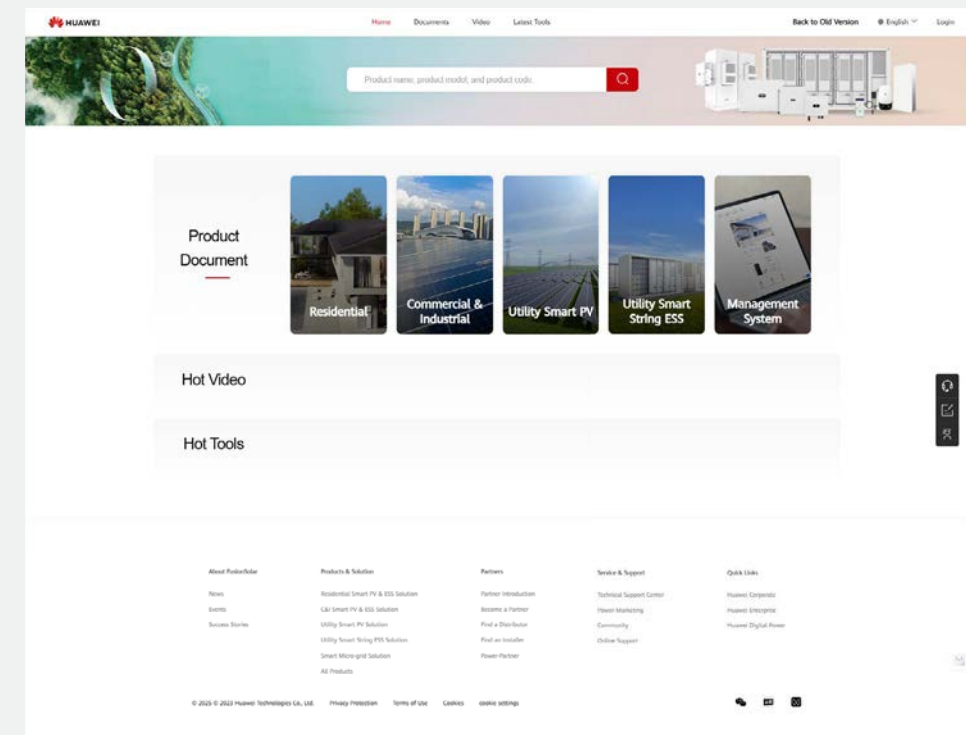
Knowledge learning, certification, communication, and rewards center.



03

## Documents Center

Professional materials for online view, download and sharing.



## Have more questions? Contact us and get support

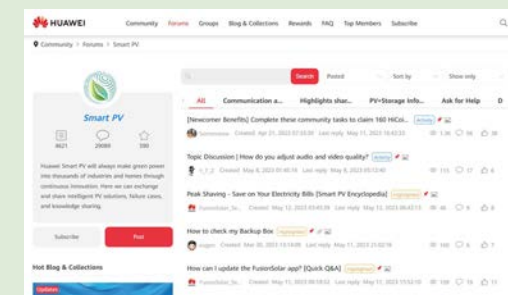
### Online Service

The online Digital Power Customer Service is available now. You can find it in the floating window on the website or FusionSolar app, and get help anytime, anywhere



### Installer Forums

You also can post your questions on the online forum to discuss with other installers. The technical experts also would respond to the questions



A modern living room interior with light wood flooring, a large circular rug, and a curved sofa. A green semi-transparent rectangle is overlaid on the center of the image, containing the text '04 CASE STUDY'.

# 04

## CASE STUDY



CASES

◆ PV+ESS Scenario



Residential PV systems in Gnesta, Sweden

Capacity: 10 MWp

System Configuration

- + SUN2000-450W-P2
- + SUN2000-600W-P
- + SUN2000-10KTL-M1
- + SCharger-22KT-S0
- + LUNA2000-5/10/15-S0
- + SmartGuard-63A-T0
- + SA4H-A02



Scan the code to learn more

◆ PV+ESS Scenario



Residential PV System in Milan, Italy

Capacity: 20 kWp

System Configuration

- + SUN2000-450W-P2
- + SUN2000-10K-MAP0
- + LUNA2000-14-S1
- + SCharger-22KT-S0
- + SmartGuard-63A-T0
- + SA4H-A02



Scan the code to learn more

CASES

◆ PV+ESS Scenario



Residential PV system in Xanten, Germany

Capacity: 11 kWp

System Configuration

- + SUN2000-5KTL-M1
- + SUN2000-6KTL-M1
- + LUNA2000-10-S0



Scan the code to learn more

◆ PV+ESS Scenario



Residential PV system in Ho Chi Minh, Vietnam

Capacity: 5 kWp

System Configuration

- + SUN2000-5KTL-L1
- + LUNA2000-5-S0
- + SUN2000-450W-P



Scan the code to learn more