HUAWEI DIGITAL POWER TECHNOLOGIES CO., LTD.

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HUAWEI

Fusionsolar

Residential Smart PV Solution

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

1141.3
Billion kWh
Green Power Generated

710
Million Tons of
CO_2 Emissions
Reduced

970
Million Equivalent
Trees Planted

140+ Global Technical Support and Spare Parts Centers

5 Technical Support Centers

9 Spare Parts Operation Centers

2 Spare Parts Repair Centers

130+ National Spare Parts Logistics Centers

5000+ Global Partners

360+ Sales Partners

100+ Service Partners

4200+ Certified Installers

17 Global Research Centers

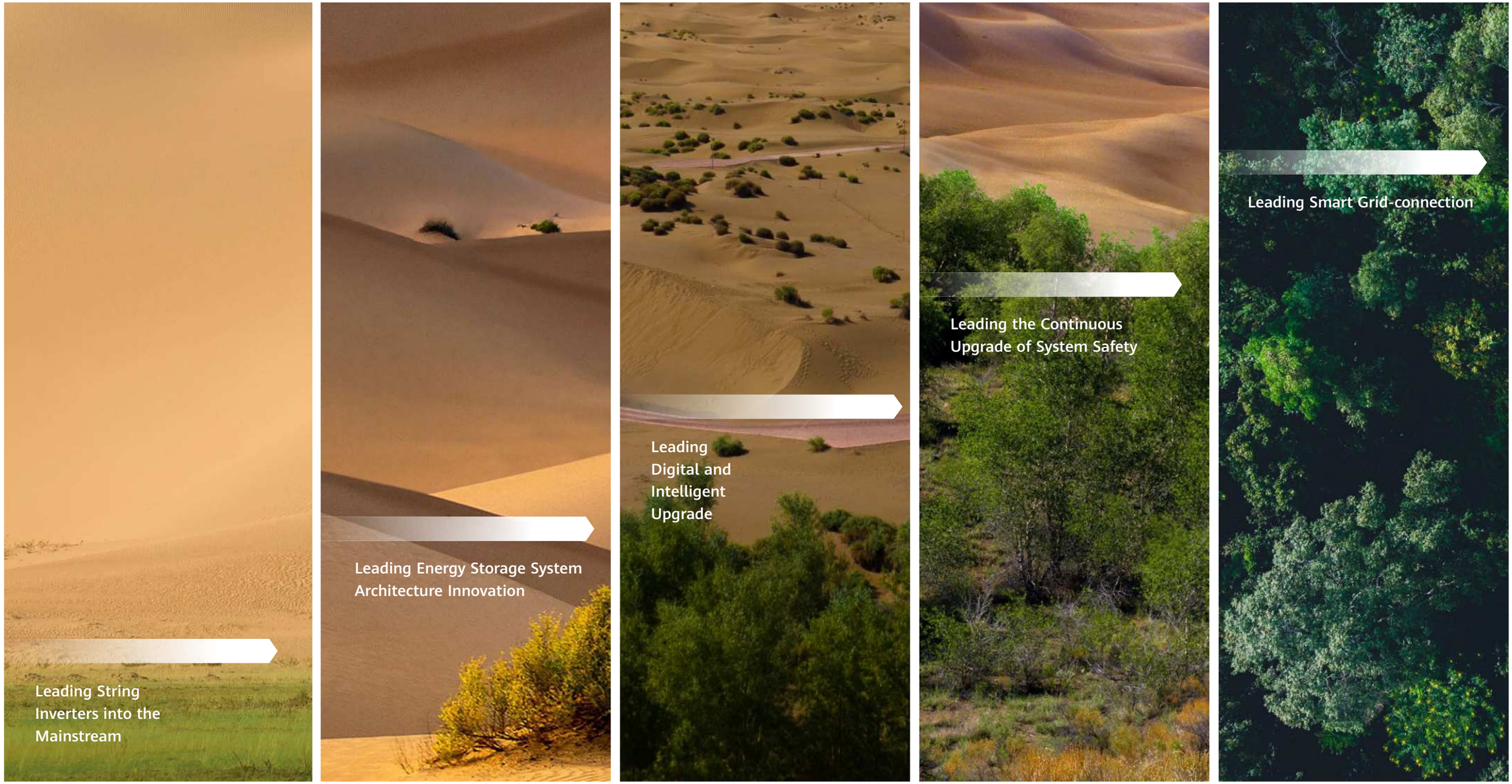
5 Competence Centers

12 R&D Centers

10%+ of Revenue on R&D

*Based on data available as of 2024.12

LEADING INNOVATIONS FOR THE MOST VALUABLE CREATIONS



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. ”

CONTENTS

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)

Energy Management Assistant

EMMA-A02

FusionSolar Smart PVMS & App

Smart Charger

SCharger-7KS-S0
(Single-Phase)

SCharger-22KT-S0
(Three-Phase)

*Available in specific regions only

Smart Module Controller

SmartGuard

Smart Energy Controller

Smart String ESS

Smart Charger

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

30s

Shutdown Time

30V

Voltage

Meets NEC 2017&2020

AFCI, active arc protection

TÜV Certification

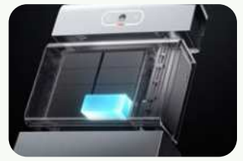
Safety Under the Rooftop

Unique 5-layer ESS Safety Protection in the Industry

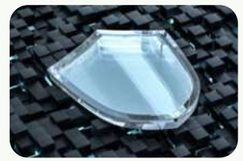
Structural Protection

Emergency Protection

Electrical Protection

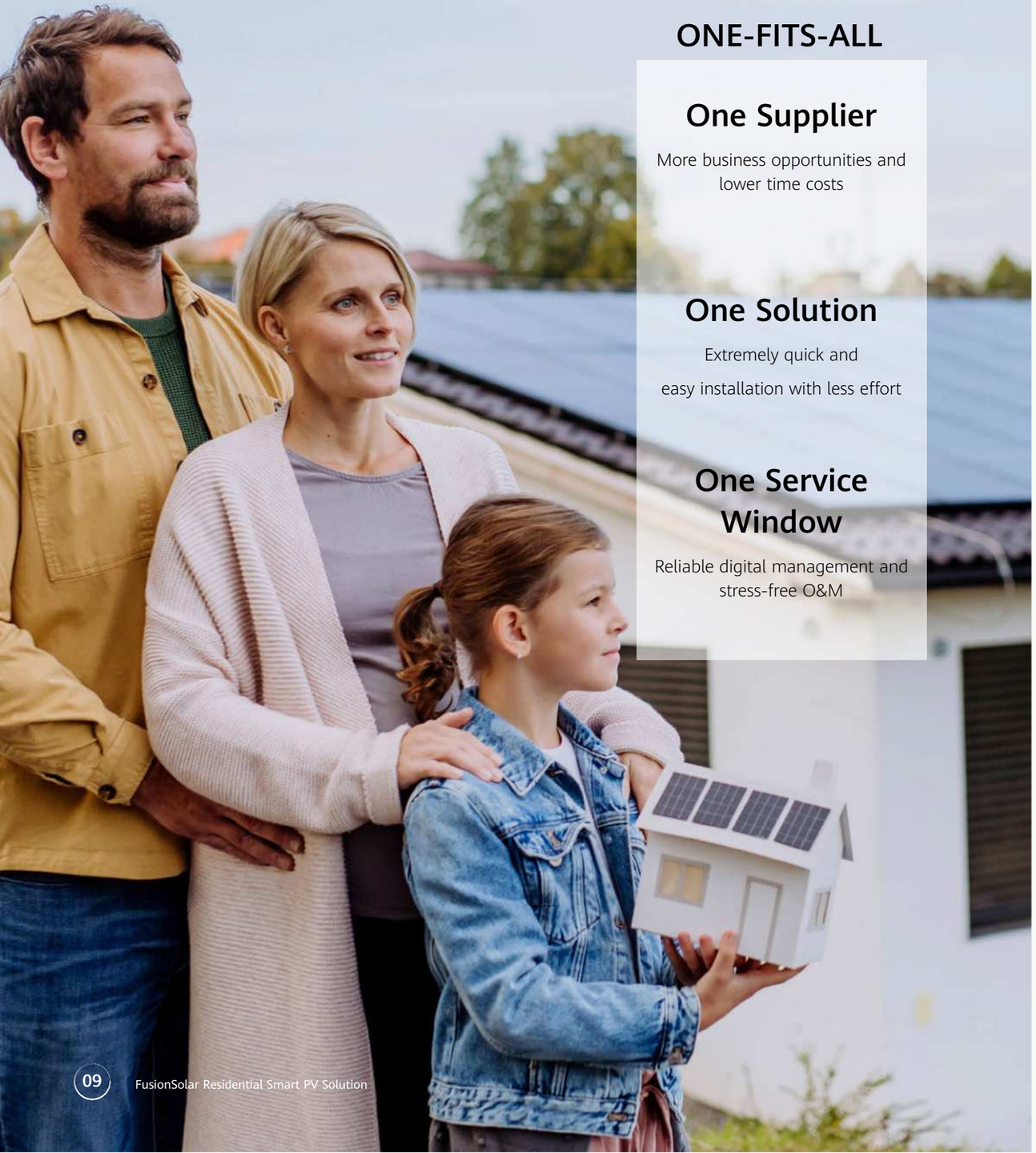


Cell-level Protection



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

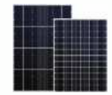
One Service Window

Reliable digital management and stress-free O&M

One supplier for all products

Optimizer | Inverter | Storage | Charger | Consumption | Management

One solution for all scenarios



One optimizer for all types of modules

On-Grid / Off-Grid

One inverter for on-grid and off-grid scenarios

One ESS for single-phase and 3-phase inverters

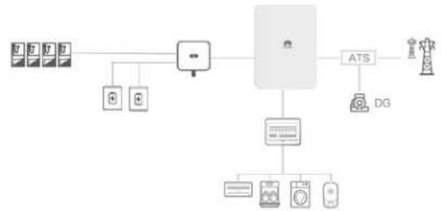
One app for all functions

Easier Purchase, Wider Utilization

Smart Design 2.0

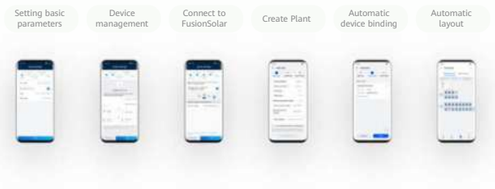
Design Easily, Sell Professionally

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 ENERGY-USING PROSPECT

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.

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 [1]	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 [2]	Yes	
Output voltage during standby [3]	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 [4]	
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 [5]/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	SUN5000-8K-MAP0	SUN5000-12K-MAP0
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 [1]	1100 V	
Operating voltage range [2]	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); EMMA (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 [3]	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/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 [4]	SUN5000-8K/12K-MAP0
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 [1]	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 [2]	Yes	
Output voltage during standby [3]	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 [4]	
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 [5]/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 [1]	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 [2]	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); EMMA (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 [3]	SUN2000-450W-P2, SUN2000-600W-P	
Standards Compliance (More Available Upon Request)		
Certificates	EN/IEC62109-1, EN/IEC62109-2	

PV System Design [4]	SUN5000-17/25K-MB0
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 & Plug, Whole-house Power Backup

Version No.: 04-202411

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 [1]	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 [1]						
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						

*1 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

Version No.: 01-202502

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 [1]	600 V					
Start-up voltage	50 V					
MPPT operating voltage range [3]	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); EMMA					
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

Version No.: 01-202411

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 [1]	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), EMMA	
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	

*1.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 [1]

Battery Ready
Plug & Play Battery Port [2]

Version No.: 01-202411

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 [1]	4,500 Wp	6,000 Wp	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp
Max. input voltage [2]	1,100 V					
Operating voltage range [3]	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[4]
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

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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)

Version No.: 01-202411

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

Technical Specification

Technical Specification [1]	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 [1]	9000 Wp	11,000 Wp	14,600 Wp	18,000 Wp	22,000 Wp
Max. input voltage [2]	1100 V				
Operating voltage range [3]	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); EMMA (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				

*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.

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 [1]

Battery Ready
2 Battery Terminals; Compatible with LUNA2000-S0

Version No.: 01-202411

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

Technical Specification

Technical Specification [1]	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 [2]	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 [3]	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); EMMA (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				

*1 For Thailand, only SUN2000-12K-MB0 & SUN2000-15K-MB0 & SUN2000-20K-MB0 are available.
*2 The maximum 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.

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

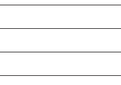
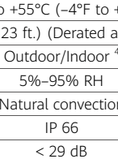
Easy Installation
12 kg Power Module
50 kg Battery Module

Quick Commissioning
Automatic Device Discovery by the App

Perfect Compatibility
Compatible to Single & Three Phase Inverters

Version No.: 01-202411

LUNA2000-5/10/15-S0
Technical Specification

Technical Specification	LUNA2000-5-S0	LUNA2000-10-S0	LUNA2000-15-S0
			
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 [1]	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) [2]		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature	–20°C to +55°C (–4°F to +131°F) [3]		
Max. operating altitude	4,000 m (13,123 ft.) (Derated above 2,000 m)		
Environment	Outdoor/Indoor [4]		
Relative humidity	5%–95% RH		
Cooling	Natural convection		
IP rating	IP 66		
Noise emission [5]	< 29 dB		
Cell technology	Lithium-iron phosphate (LiFePO4)		
Compatible inverters [6]	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-MAP0, SUN5000-8/12K-MAP0, SUN5000-17/25K-MB0		
Standards Compliance (More Available Upon Request)			
Certificates	CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3		
Ordering and Deliverable Part			
Available for ordering [7]	LUNA2000-5KW-C0, LUNA2000-5-E0, LUNA2000 Wall Mounting Bracket		

*1 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%.
*2 The weight of the battery modules varies with products, with a tolerance of ±3%.
*3 Refer to battery warranty letter for conditional application.
*4 Outdoor installation is recommended. For indoor installation, refer to the user manual for instruction.
*5 Noise level (typical): < 29 dB(A) @1 m, 30°C, power on and run stably for 2 hours
*6 Please contact a local engineer for compatibility information.
*7 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[8]

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

Technical Specification	LUNA2000-7-S1	LUNA2000-14-S1	LUNA2000-21-S1
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 [1]	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 [2]	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 [3]	68 kg (110.2 lb) [2]		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature [4]	–20°C to +55°C (–4°F to +131°F)		
Max. operating altitude [5]	4,000 m (13,123 ft.) (Derated above 2,000 m)		
Environment [6]	Outdoor / Indoor		
Relative humidity	5%–95%		
Cooling	Natural convection		
IP rating	IP 66		
Noise emission	< 29 dB [7]		
Cell technology	Lithium-iron phosphate ($LiFePO_4$)		
Scalability [8]	Max.4 systems in parallel operation		
Compatible inverters [9]	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		
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 [10]	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℃ , 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

Version No.: 01-202411

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

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P
Input		
Rated input DC power [1]	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 [2]	Yes	
Output voltage during standby [3]	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 [4]	
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 [5]/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 [6]	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

*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.
*6 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

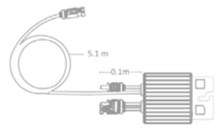
Version No.: 01-202411

MERC-1100/1300W-P
Technical Specification

Technical Specification	MERC-1100W-P	MERC-1300W-P
Input		
Rated input DC power [1]	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 [2]	Yes	
Safety output voltage [3]	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 [4]	
Input connector	Staubli MC4	
Input wire length	0.1 m (+/-) (short-input-cable version) [5]	
Output connector	Staubli MC4	
Output wire length	0.1 m (+), 5.1 m (-) (short-input-cable version) [5]	
Operating temperature	–40°C to +85°C [6]	
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 [7/8/9]	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

Short-input-cable Version



*1 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.
*2 Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.
*3 When the MERC-1100/1300W-P is disconnected from inverter or when the inverter is off, its output voltage will become 1 V.
*4 It is for PV module frame/extruded aluminum profile racking system installation.
*5 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.
*6 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.
*7 Each PV module under the same inverter must be equipped with a MERC-1100/1300W-P.
*8 SUN2000-450W-P2/600W-P and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.
*9 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.

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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 [1] 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^2	
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 [2]	
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	

*1 1.4 kW for 1-phase charging and 4. 2 kW for 3-phase charging
*2 Next Trip mode is only available with EMMA-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 EMMA

Version No.: 01-202411

SmartGuard-63A-T0

Technical Specifications

Technical Specification	SmartGuard-63A-T0
General Data	
Dimensions (W x H x D)	600 mm × 170 mm × 490 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) [1]	63 A
Low-Voltage ride-through	Supported
Switchover time	≤ 20ms (MAP0), ≤ 100ms (M1/MB0) [2]
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 [3]
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[4]
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 [5]
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 [6]

*1 The sum of the output current of the backup port and the non backup port could not be more than 63A
*2 Seamless switching is disabled by default and needs to be manually enabled.
*3 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.
*4 1 SG ready Heat Pump can be connected directly. Others can be connected via shelly devices.
*5 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
*6 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 [1]
Intelligent load control with built-in EMMA

Version No.: 01-202411

SmartGuard-63A-S0

Technical Specifications

Technical Specification	SmartGuard-63A-S0
General Data	
Dimensions (W x H x D)	485 mm × 150 mm × 355 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) [2]	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 [3]
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℃–50℃ [4]
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 [5]

*1 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.
*2 The sum of the output current of the backup port and the non-backup port could not be more than 63A
*3 1 SG-ready Heat Pump can be connected directly. Others can be connected via shelly devices
*4 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
*5 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.

ENERGY MANAGEMENT ASSISTANT

Model: EMMA-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 Nord Pool, 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.

EMMA

Technical Specifications

Technical Specification	EMMA-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 (2.412GHz ~ 2.484GHz)		
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[1] : > 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[2]		
Shelly device	up to 20		
Environment			
Operating temperature range	-25 °C~ +60 °C		
Storage temperature range	-40 °C~ +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		
Shelly device	Shelly Plus Plug S, Shelly Plus 2PM, Shelly Pro 2PM [3]		
Smart Scheduling [4]	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 Nord Pool electricity market and obtain day-ahead dynamic tariff. (Available in Sweden, Denmark, Finland, Norway, Lithuania, Estonia, Latvia, and the Netherlands.)		

*1. The secondary current of an external CT connected shall be 50 mA, and the cable length can be up to 30 m.
*2. A heat pump can be directly connected to EMMA-A02. More appliances can be connected through a Shelly device.
*3. For the Shelly device firmware version supported, please refer to the user manual.
*4. The smart scheduling function of the EMMA 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 [1]

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

Reliable
IP65 Protection

Version No.: 01-202411

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)	146 mm x 48 mm x 33 mm (5.1 in. x 1.9 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 [1]
Support for 3rd-party [2]
Monitoring System

Simple
Plug-and-play WLAN-AP
Local Deployment [3]

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)	162 mm x 48 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 [4]	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-MAP0, SUN5000-8/12K-MAP0, 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

DDSU666-H YDS70-C16 DDSU1079-CT DDSU71

Accurate
Class **|** Measurement Accuracy

Simple & Easy
LCD Display, Easy to Set and Check

Energy Efficient
Overall Power Consumption ≤ 1.5 W

Version No.: 01-202411

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 1 Measurement Accuracy

Simple & Easy
LCD Display, Easy to Set and Check

Energy Efficient
Overall Power Consumption ≤ 1.5 W

Version No.: 01-202411

SmartPS-250A-T0

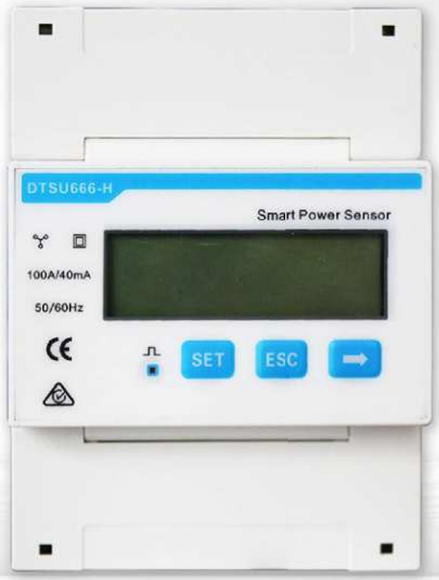
Technical Specifications

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 | Measurement Accuracy

Simple & Easy
LCD Display, Easy to Set and Check

Energy Efficient
Overall Power Consumption ≤ 1.5 W

Version No.: 01-202411

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	≤ 1 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	±0.5%
Power/Energy	±1%
Frequency	±0.01 Hz
Communication	
Interface	RS485
Baud rate	9,600 bps
Communication protocol	Modbus-RTU
Environment	
Operating temperature range	–25°C to +60°C
Storage temperature range	–40°C to +70°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

Version No.: 01-202411

FusionSolar Smart PV Management System

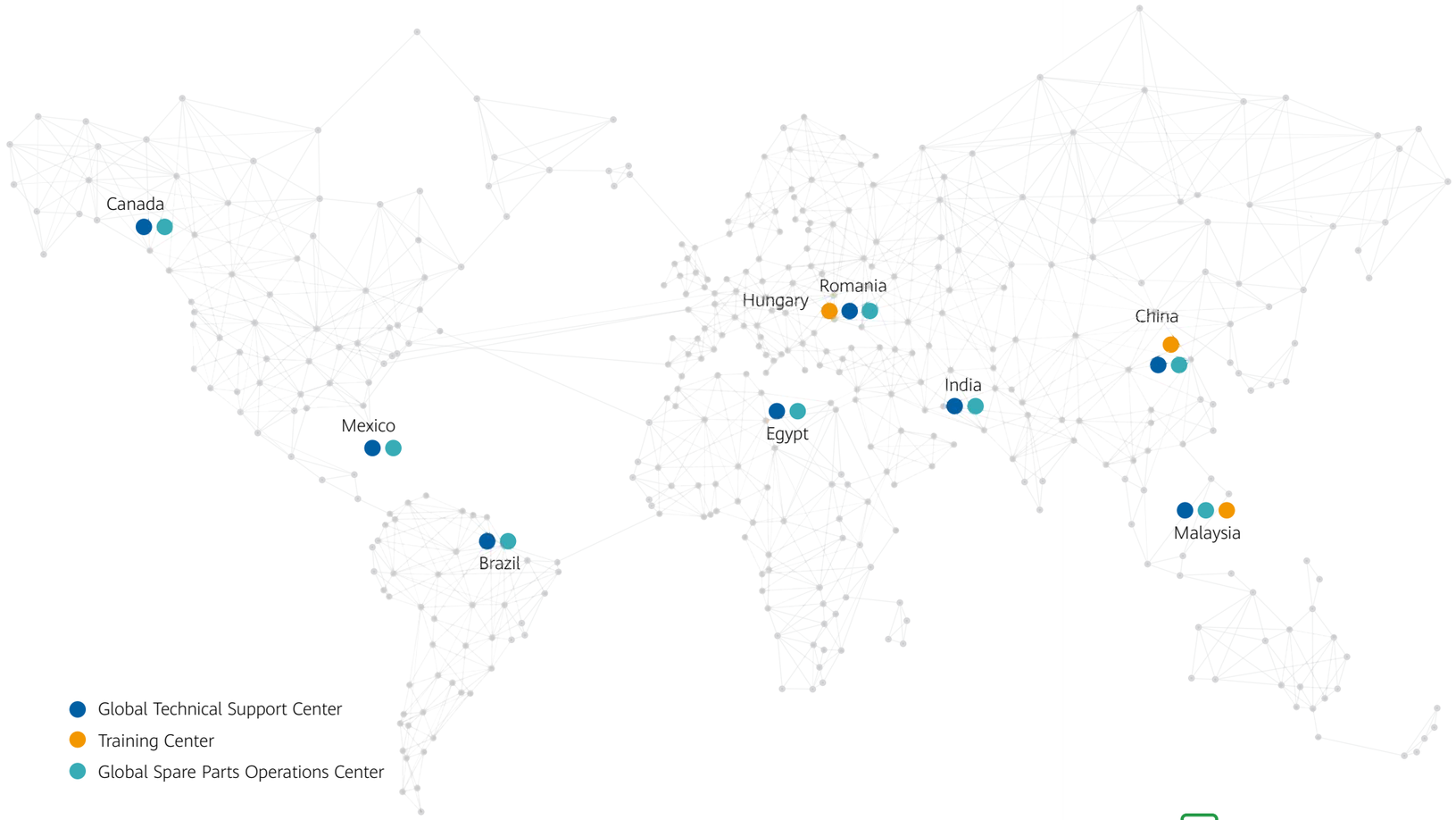
Category	Function	Web	App
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management	●	●
	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	●	●

03

SERVICE

CUSTOMER SERVICE

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



- Global Technical Support Center
- Training Center
- Global Spare Parts Operations Center

16+
Languages

2000+
Professional Technical Engineers

24/7
Support

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

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

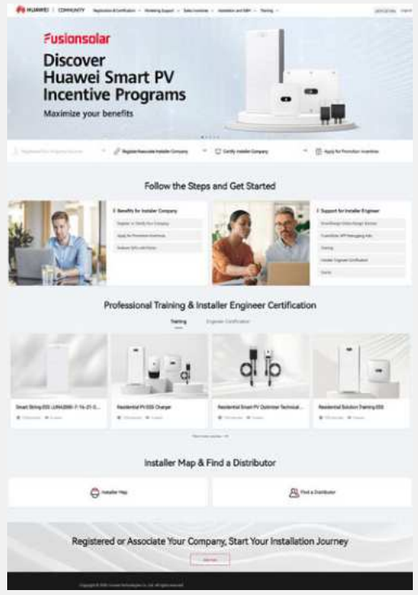
Please click the link to join us: **https://community.solar.huawei.com**

01 Official Website

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

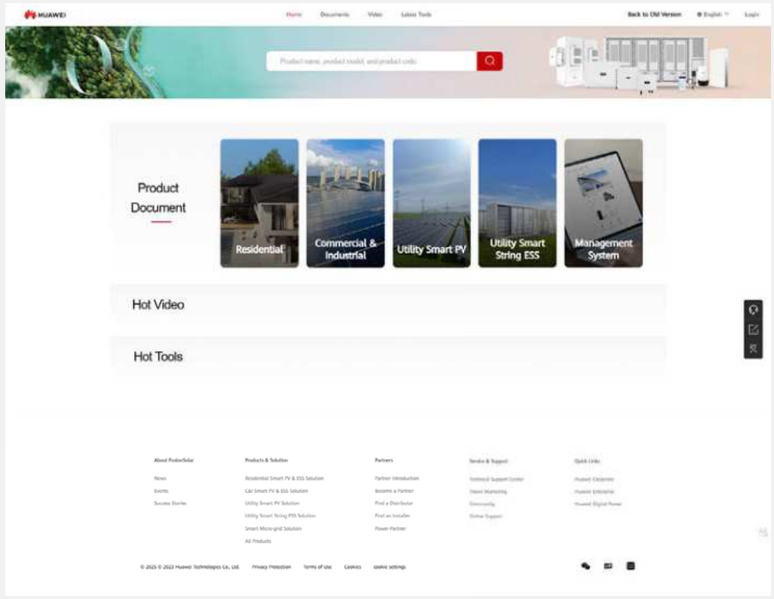
02 Community

Knowledge learning, certification, communication, and rewards center.



03 Documents Center

Professional materials for online view, download and sharing.



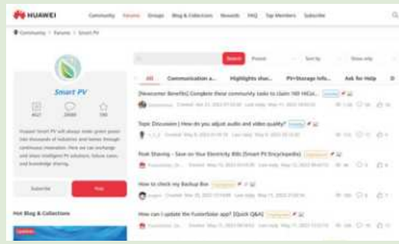
Have more questions? Contact us and get support

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



04

CASE STUDY

◆ 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
+ EMMA-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
+ EMMA-A02

Scan the code to learn more

◆ 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