HUAWEI

Fusionsolar

Residential Smart PV Solution

ABOUT FUSIONSOLAR

921
Billion kWh Green Power Generated

405
Million Tons of CO_2 Emissions Reduced

554
Million Equivalent Trees Planted

160+
Global Technical Support and Spare Parts Centers

3
Technical Support Centers

9
Spare Parts Operation Centers

16
Spare Parts Repair Centers

130+
National Spare Parts Logistics Centers

1000+ Global Partners

300+
Sales Partners

70+
Service Partners

600+
Certified Installers

17 Global Research Centers

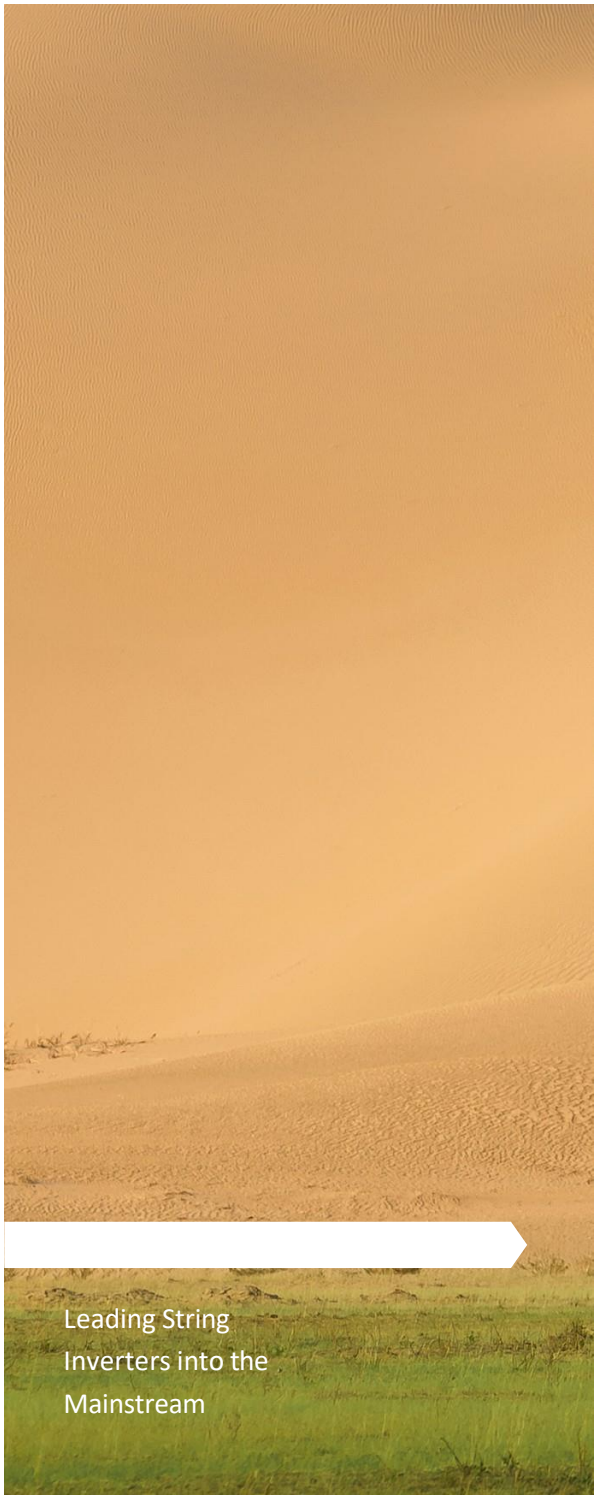
5
Competence Centers

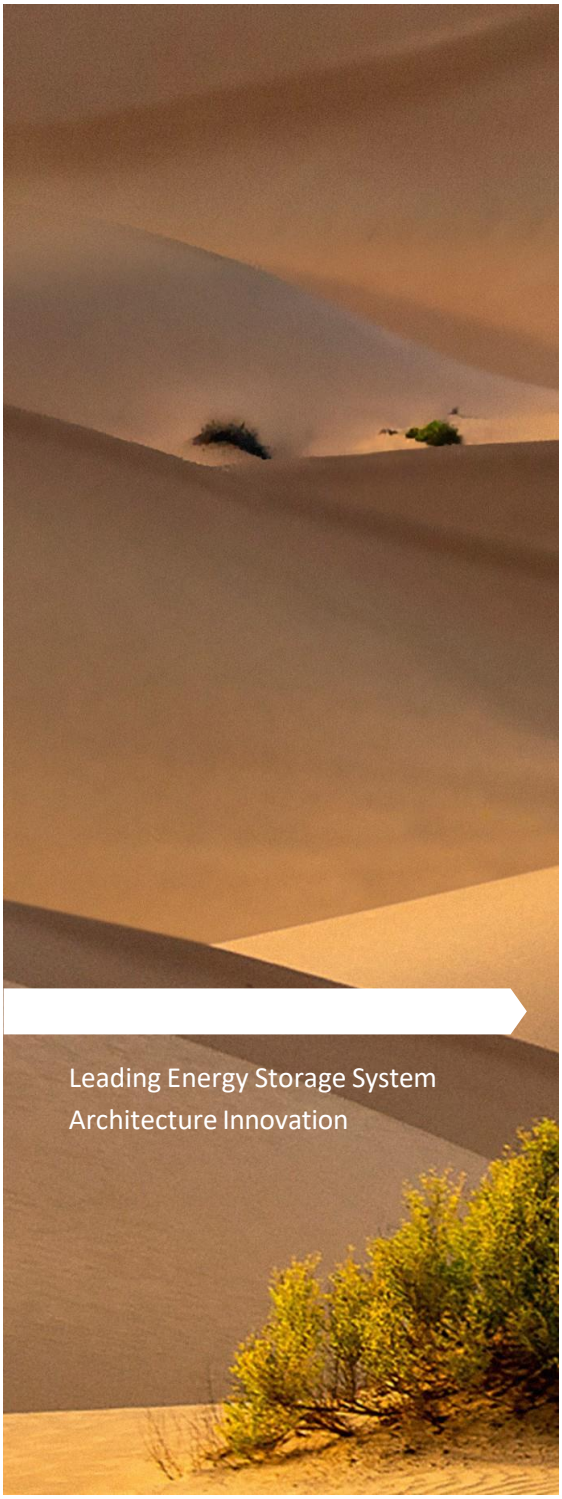
12
R&D Centers

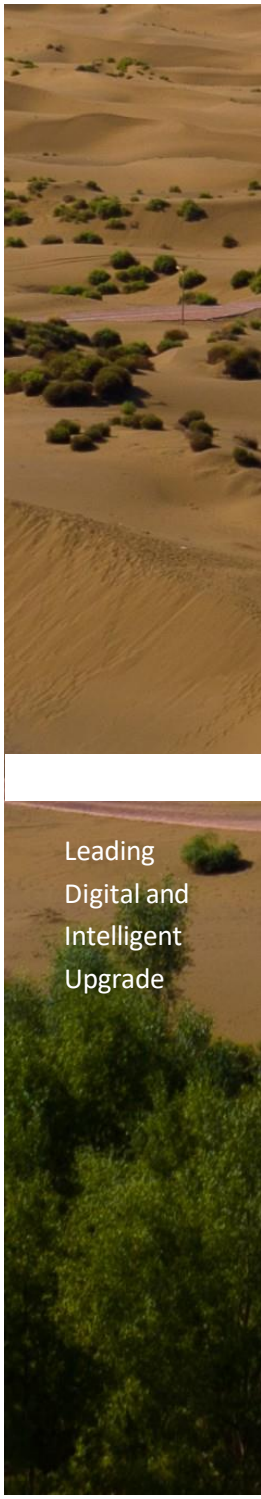
10%+
of Revenue on R&D

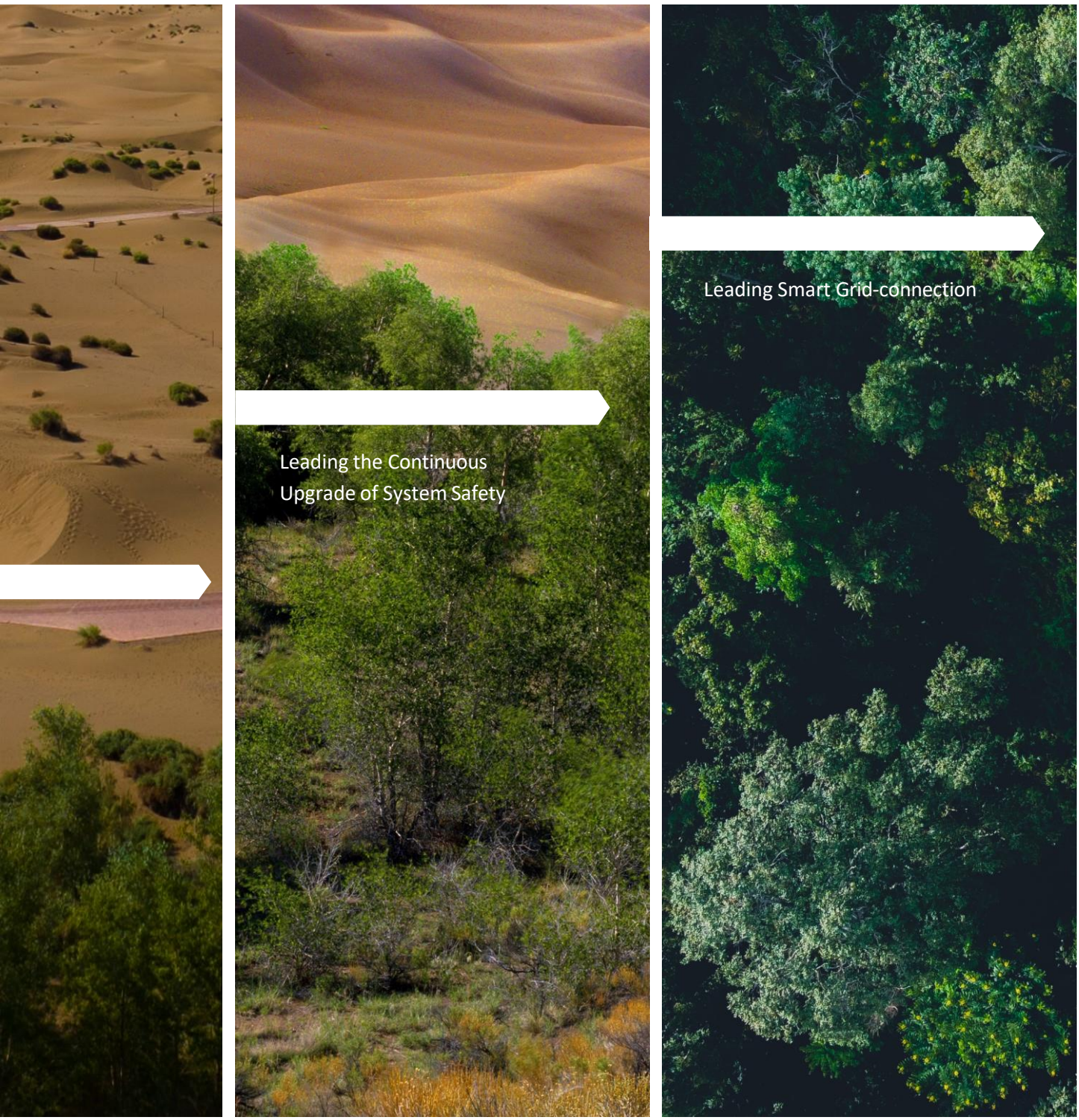
*Based on data available as of 2023.8

LEADING INNOVATIONS FOR THE MOST VALUABLE CREATIONS








Leading Smart Grid-connection
Leading the Continuous
Upgrade of System Safety

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 September 2023,

FusionSolar has provided clean energy for 2.7 million homes in over 170 countries

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 Professionals

"Green is the new black."

For Homeowners

"Visibility and control of your energy on the go."

For the Seniors

"I may be gray, but my power is green."

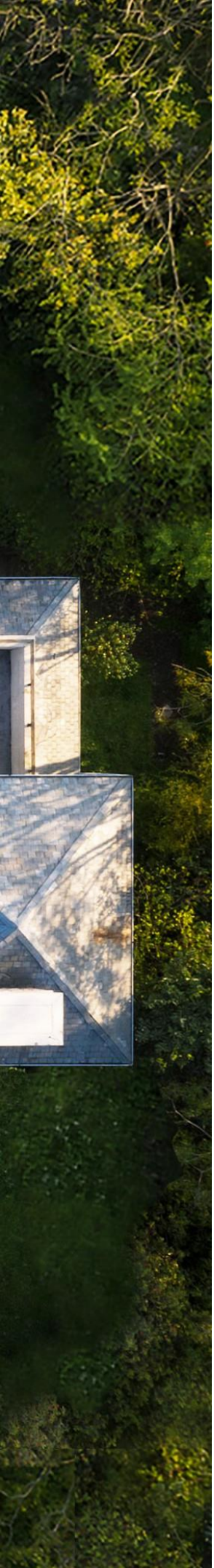
For Young People

"Green energy gets you energized."

For Children

"Future generations deserve a greener planet."

A HOME THAT ALWAYS SHINES



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)

SUN2000-8/10K-LC0
(Single-Phase)

SUN2000-3/4/5/6/8/10KTL-M1
(Three-Phase)

SUN2000-12/15/17/20/25KTL-M5
(Three-Phase)

SUN2000-12/15/17/20/25K-MB0
(Three-Phase)

Smart String ESS

LUNA2000
-5/10/15-S0

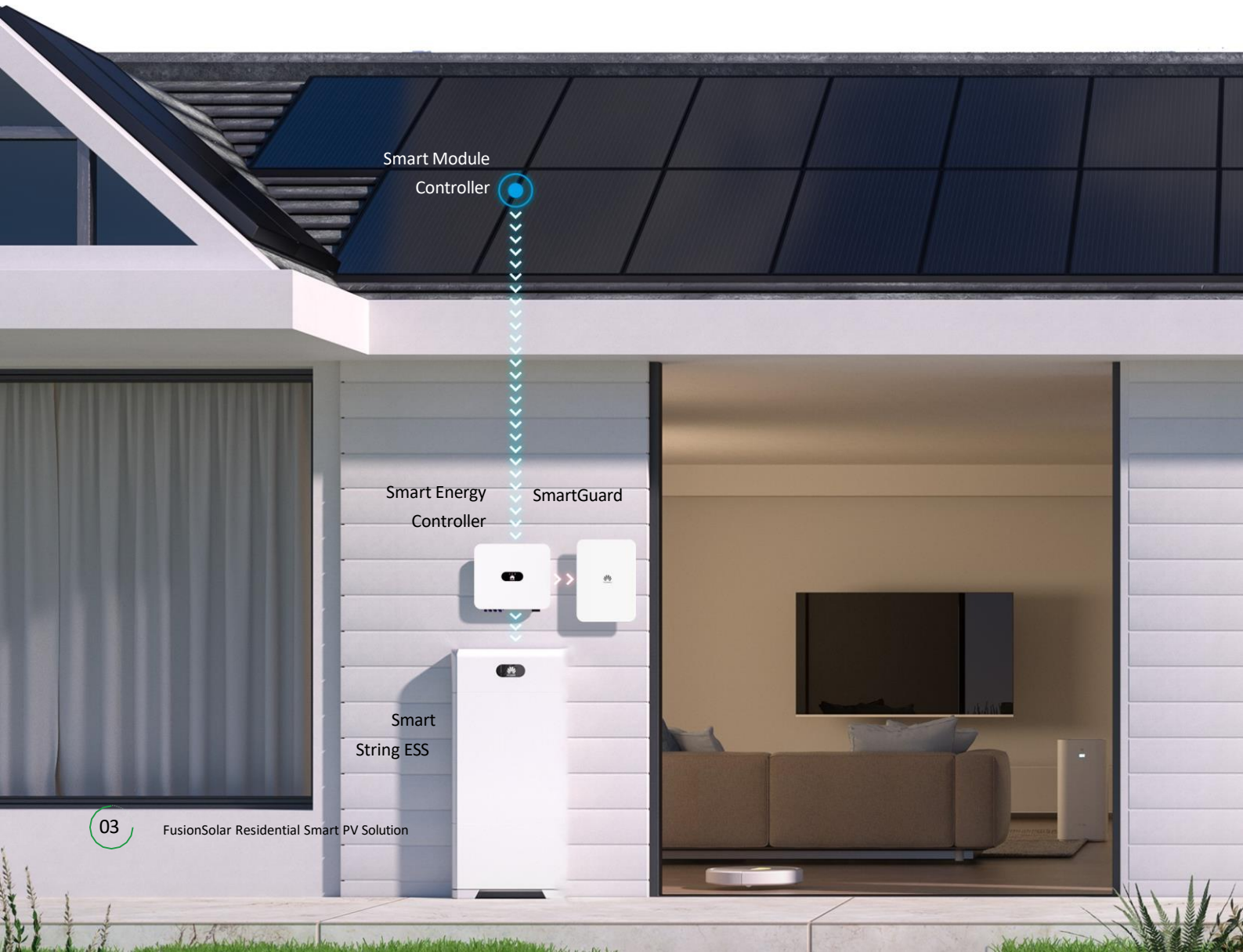
Power-M-
5/10/15

*Available in specific regions only

Smart Module Controller

SUN2000-450W-P2
SUN2000-600W-P

MERC-1100W-P
MERC-1300W-P



Smart Charger

SCharger-7KS-S0
(Single-Phase)

SCharger-22KT-S0
(Three-Phase)

*Available in specific regions only

SmartGuard

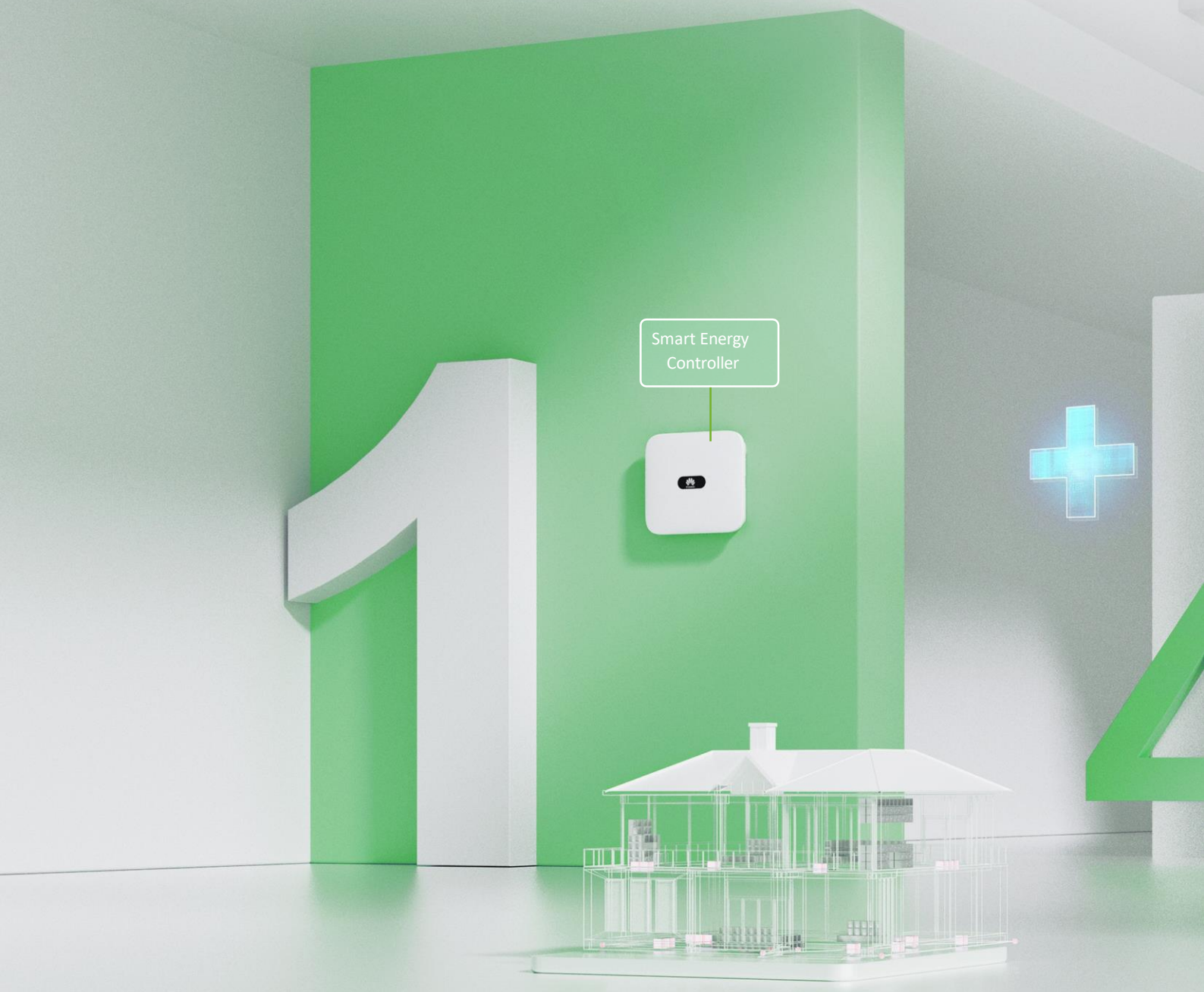
SmartGuard-63A-S0
(Single-phase)

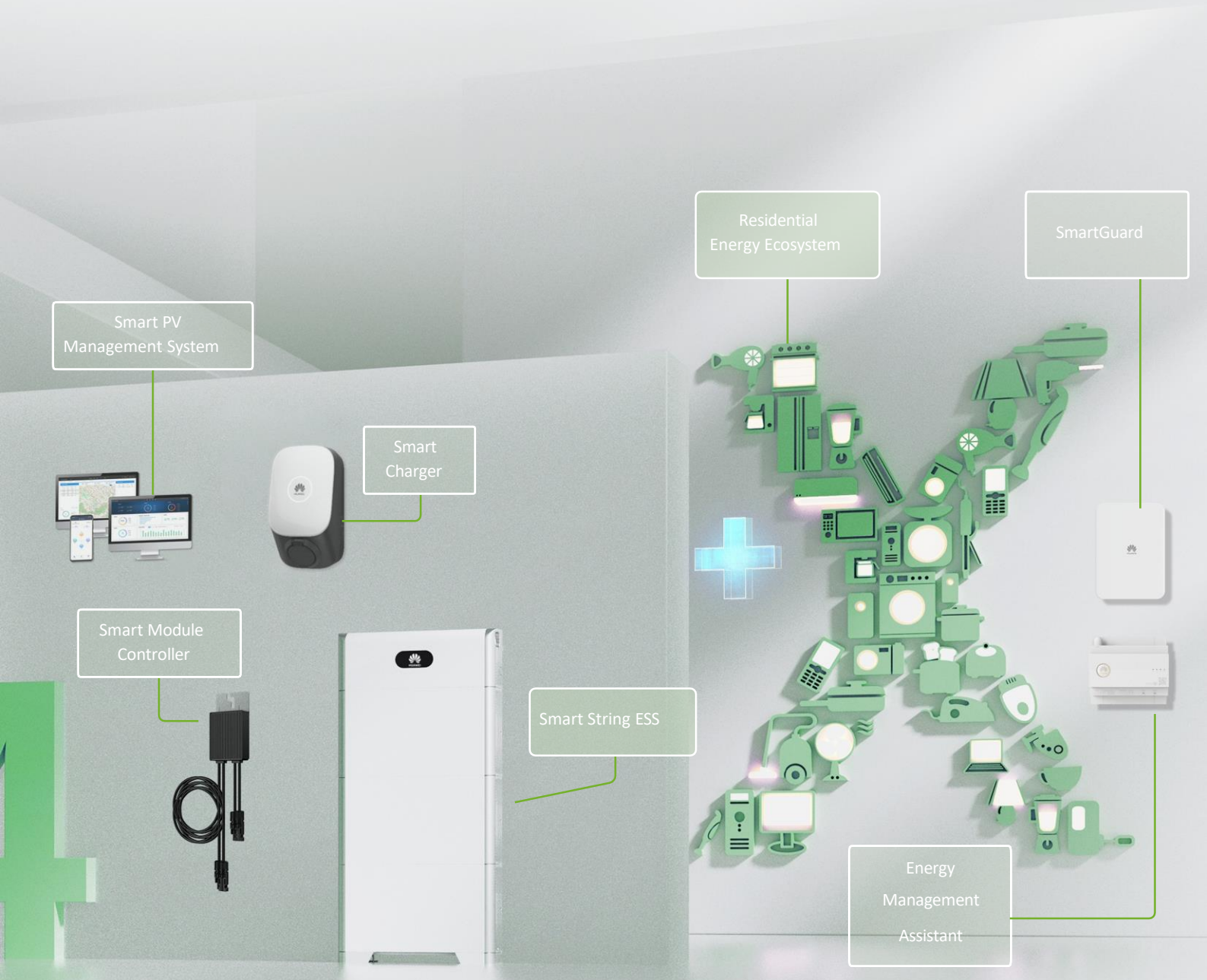
Energy Management Assistant

EMMA-A02

FusionSolar Smart PVMS & App

FUSIONSOLAR RESIDENTIAL SMART PV SOLUTION





Shine on Active Safety

Shine on Full Journey Convenience

Shine on Energy-using Prospect

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 used in optimizers, inverters, and energy storage system.

Safety On the Rooftop:

Leading DC Safety Protection to be the Mainstream

Rapid shutdown,
safe voltage

30V

Voltage

30s

Shutdown Time

Meets NEC 2017&2020

AFCI,
active arc protection

TÜV Certification

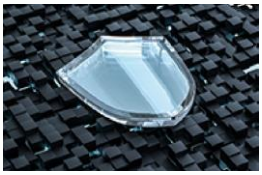
Safety Under the Rooftop:

Unique 5-layer ESS Safety Protection in the Industry

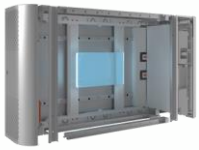
Cell-level
Protection

Electrical
Protection

Structural
Protection



Active
Protection



Emergency
Protection

SHINE ON FULL JOURNEY CONVENIENCE

ONE-FITS-ALL

One Supplier

More business opportunities,

Lower time costs

One Solution

Extremely quick and

easy installation with less effort

One Service Window

Reliable digital management,

Stress-free O&M

One supplier for all products

Optimizer

Inverter

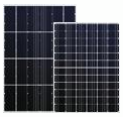
Storage

Charger

Consumption

Management

One solution for all scenarios



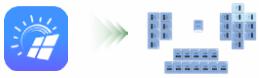
One optimizer for all types of modules

On-Grid

Off-Grid

One inverter for on-grid and off-grid scenarios

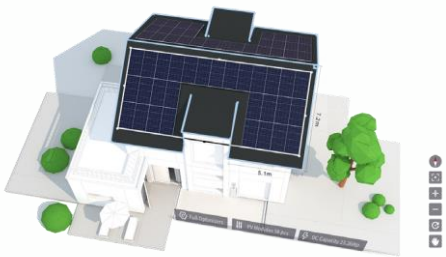
One ESS for single-phase and 3-phase inverters



One app for all functions

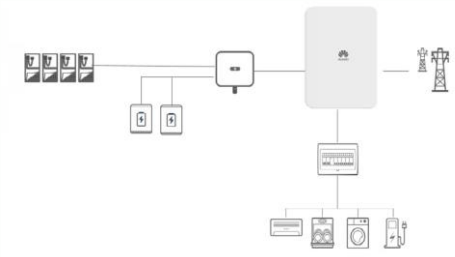
Easier Purchase, Wider Utilization

Smart Design2.0



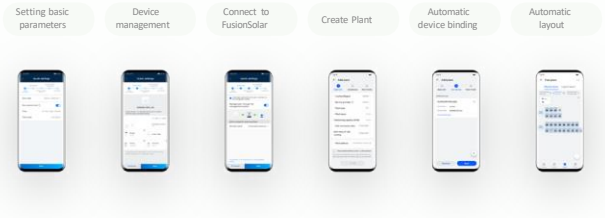
Design Easily, Sell Professionally

SmartGuard, Whole home backup



0 Modification for Whole Home Backup

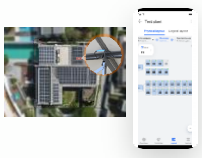
Commissioning with setup assistant



One-stop Commissioning with Setup Assistant

Remote diagnosis

Disconnection detection



PV panel fault locating

Real-time data

Rapid data refreshing

Intelligent Management, Free of Onsite 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

Module-level monitoring

Attractive design

The Smart Energy Controller, Smart String Energy Storage Systems, FusionSolar app, and Smart Charger won international design awards.

02

PRODUCT COLLECTION

SMART ENERGY CONTROLLER

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

Active Safety AFCI
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-L11
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 [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%						
Backup power output	Yes (via Backup Box - B0, 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 (Derating above 45°C @ Rated output power)						
Relative operating humidity	0%-100% RH						
Operating altitude	0-4,000 m (Derating 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 365 mm x 156 mm (14.4 in. x 14.4 in. x 6.1 in.)						
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

SUN2000-2/3/3.68/4/4.6/5/6KTL-L1
(High Current Version)

*Only launched in UK & Latin America & Middle East & Africa & APAC

Active Safety AFCI
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(High Current Version)

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-L11
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 [2]	600 V						
Startup voltage	100 V						
MPPT operating voltage range	90 ~ 530 V						
Rated input voltage	360 V						
Max. input current per MPPT	13.5 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						
Operating voltage range	350 ~ 560 Vdc						
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 Vac / 230 Vac / 240 Vac						
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%						
Backup power output	Yes (via Backup Box - B0, 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						
Relative operating humidity	0% ~ 100% RH						
Operating altitude	0-4,000 m (Derating 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); EMMA						
Weight (incl. mounting brackets)	12.0 kg (26.5 lb)						
Dimensions (incl. mounting brackets)	365 mm x 365 mm x 156 mm (14.4 in. x 14.4 in. x 6.1 in.)						
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 Inverter single MPPT max. input power is 6 ,000 Wp when long strings are designed and fully connected with SUN2000 450W P 2, SUN2000 600W P power optimizers.

*2 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

SUN2000-8/10K-LC0

Active Safety
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 [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	
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 Vac / 230 Vac / 240 Vac, 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 ~ 140 °F)	
Relative operating humidity	0% ~ 100% RH	
Operating altitude	0-4,000 m (Derating above 2,000 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(available from 30/11/2023)	
Weight	14.5 kg	15 kg
Dimensions (W x H x D) (incl. mounting plate)	425 mm x 365 mm x 150 mm (16.7 x 14.4 x 5.9 inch)	
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 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.

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

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
Interface [2]

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	HUAWEI Smart String ESS 5kWh-30kWh					
Operating voltage range	600 ~ 980 V					
Max. operating current	16.7 A					
Max. charge power	10,000 W					
Max. discharge power	3,300 W	4,400 W	5,500 W	6,600 W	8,800 W	10,000 W
Output (On Grid)						
Grid connection	Three-phase					
Rated output power	3,000 W	4,000 W	5,000 W	6,000 W	8,000 W	10,000 W
Max. apparent power	3,300 VA	4,400 VA	5,500 VA	6,600 VA	8,800 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)						
BackupBox	BackupBox-B1					
Max. apparent power	3,000 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA	3,300 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.) (Derating 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 fully connected with SUN2000-450W-P2, 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

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

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 ~ 1,000 V				
Full-load MPPT voltage range	370 V ~ 800 V	410 V ~ 800 V	410 V ~ 800 V	410 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				
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 Vac / 380 Vac, 230 Vac / 400 Vac, 240 Vac / 415 Vac; 3 W / N + PE				
Rated output current	18.2 A / 380 Vac	22.8 A / 380 Vac	25.8 A / 380 Vac	30.4 A / 380 Vac	38.0 A / 380 Vac
	17.3 A / 400 Vac	21.7 A / 400 Vac	24.5 A / 400 Vac	28.9 A / 400 Vac	36.1 A / 400 Vac
	16.7 A / 415 Vac	20.9 A / 415 Vac	23.7 A / 415 Vac	27.8 A / 415 Vac	34.8 A / 415 Vac
Max. output current	20.2 A / 380 Vac	25.2 A / 380 Vac	28.6 A / 380 Vac	33.6 A / 380 Vac	42.0 A / 380 Vac
	19.1 A / 400 Vac	23.9 A / 400 Vac	27.1 A / 400 Vac	31.9 A / 400 Vac	39.9 A / 400 Vac
	18.5 A / 415 Vac	23.1 A / 415 Vac	26.1 A / 415 Vac	30.8 A / 415 Vac	38.5 A / 415 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				
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.) (Derating 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 x 460 x 228 mm (21.5 x 18.1 x 9.0 inch)				
Protection level	IP66				
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 inverter.

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

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

SUN2000-12/15/17/20/25KTL-M5

Active Safety AFCI
Active Arcing
Protection

Higher Yields
Up to 30% More Energy
with Optimizer

Flexible Communication WLAN,
Fast Ethernet, and 4G
Communication Supported

SUN2000-12/15/17/20/25KTL-M5

Technical Specification

Technical Specification	SUN2000 -12KTL-M5	SUN2000 -15KTL-M5	SUN2000 -17KTL-M5	SUN2000 -20KTL-M5	SUN2000 -25KTL-M5
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%
Input					
Recommended max. PV power [1]	18,000 Wp	22,500 Wp	25,500 Wp	30,000 Wp	37,500 Wp
Max. input voltage [2]	1100 V				
Full-load MPPT voltage range	370 ~ 800 V	410 ~ 800 V	440 ~ 800 V	480 ~ 800 V	530 ~ 800 V
MPPT operating voltage range [3]	200 ~ 1000 V				
Start-up voltage	200 V				
Rated input voltage	600 V				
Max. input current per MPPT	30 A (two-string)/20 A (single string)				
Max. short-circuit current	40 A				
Number of MPP trackers	2				
Max. number of inputs	4				
Output					
Grid connection	Three-phase				
Rated output power	12,000 W	15,000 W	17,000 W	20,000 W	25,000 W
Max. apparent power	13,200 W	16,500 VA	18,700 VA	22,000 VA	27,500 VA
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 239.6 V AC/415V AC, 3W + N + PE				
Rated AC grid frequency	50 Hz/60 Hz				
Max. output current	18.2 A/380 V AC 17.3 A/400 V AC 16.7 A/415 V AC	25.2 A/380 V AC 23.9 A/400 V AC 23.1 A/415 V AC	28.6 A/380 V AC 27.1 A/400 V AC 26.1 A/415 V AC	33.6 A/380 V AC 31.9 A/400 V AC 30.8 A/415 V AC	42.0 A/380 V AC 39.9 A/400 V AC 38.5 A/415 V AC
Adjustable power factor	0.8 leading ... 0.8 lagging				
Max. total harmonic distortion	≤ 3%				
Protection Feature					
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				
String fault detection	Yes				
DC surge protection	TYPE II				
AC surge protection	CLASS II				
Residual current monitoring unit	Yes				
Arc fault protection	Yes				
Ripple receiver control	Yes				
General Specification					
Operating temperature range	–25°C to +60°C (–13°F to +140°F)				
Relative humidity	0% ~ 100% RH				
Max. operating altitude	4,000 m (13,123 ft.) (Derating 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)				
Weight (with mounting plate)	21 kg (46.4 lb)				
Dimensions (W x H x D) (incl. mounting plate)	546 mm x 460 mm x 228 mm (21.5 in. x 18.1 in. x 9.0 in.)				
IP rating	IP66				
Optimizer Compatibility					
DC MBUS compatible optimizer	SUN2000-450W-P2, SUN2000-600W-P, MERC-1100W-P, MERC-1300W-P				
Standards Compliance (More Available Upon Request)					
Safety	EN/IEC 62109-1, EN/IEC 62109-2				
Grid connection standards	G99, EN 50549, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, C10/11, ABNT, VFR 2019, UNE 217001, UNE 217002, RD 244, TOR D4, IEC61727, IEC62116				

*1 The inverter max. input PV power is 40,000 Wp when long strings are designed and fully connected with SUN2000-450W-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 input DC voltage beyond the operating voltage range may result in inverter malfunction.

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SMART STRING ENERGY STORAGE SYSTEM

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

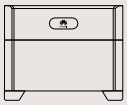
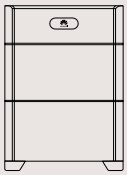
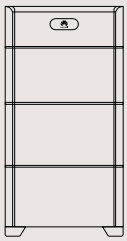
Easy Installation 12 kg
Power Module 50 kg
Battery Module

Quick Commissioning
Automatic Device Discovery by the App

Perfect Compatibility Compatible to Single & Three Phase Inverters

LUNA2000-5/10/15-S0

Technical Specification

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, 10 s	7 kW, 10 s	7 kW, 10 s
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.) (Derating 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, SUN2000-8/10K-LC0 SUN2000-3/4/5/6/8/10KTL-M1 , SUN2000-12/15/17/20/25K-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 module is subject to the actual product, 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 local engineer for the compatibility.
*7 Storage system is ordered and delivered in the form of power module and battery module separately with corresponding quantity.

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SMART STRING ENERGY STORAGE SYSTEM

Power-M-5/10/15/20/25/30

*Only launch in Middle East & Africa & APAC

24 Hours Power Supply
Fully discharge with energy optimizer

Safe & Reliable
Four-layer safety protection

High Quality Experience
One app for all management

Power-M-5/10/15/20/25/30

Technical Specification

System Specifications						
Power module	iSitePower-M-MAP05A1					
Output/Input power per module	2.5 kW					
Battery module	iSitePower-M-MAB05B1					
Battery module capacity	5 kWh					
Number of power modules	1					
Number of battery modules	1	2	3	4	5	6
Battery usable capacity [1]	5 kWh	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Max. output power	2.5kW	5 kW	5 kW	5 kW	5 kW	5 kW
Communication						
Display	SOC status indicator					
Communication	CAN (for parallel communications between power modules, between battery modules and power modules, and between battery modules); WLAN/FE/4G (for connecting to the SmartPVMS)					
General Specification						
Power module dimension (W x H x D)	700 mm x 246 mm x 152 mm					
Power module weight	17 kg					
Battery module dimension (W x H x D)	700 mm x 390 mm x 158 mm					
Battery module weight	50 kg					
Base dimension (W x H x D)	700 mm x 65 mm x 147 mm (floor installation) 643 mm x 110 mm x 176 mm (wall-mounted installation)					
Base weight	1.5 kg (floor installation) 5.5 kg (wall-mounted installation)					
Installation mode	Wall-mounted/Floor-mounted					
IP rating	IP 66					
Cell technology	Lithium-iron phosphate (LiFePO4)					
AC input						
Input voltage	200/208/220/230/240 V AC					
Input current	Max. 30 A					
Frequency	50/60 Hz					
Maximum bypass input power	6 kW					
Lightning protection	Differential mode (between live and neutral): 3 kA; 8/20 µs Common mode (between live or neutral and PE, between live/neutral pair and PE): 5 KA; 8/20 µs					
PV input						
MPPT voltage range	90-420 V DC					
Maximum input capacity of the MPPT	5.5 kWp					
PV string quantity	2 strings					
Number of MPPT channels	1 channel					
Maximum input current for one string	12.5 A					
Maximum short circuit current per string	18 A					
Lightning protection	Common mode (between PV+/PV- pair and PE): ±10 KA; 8/20 µs					
AC output						
Output	Single-phase 200/208/220/230/240 V AC. The default value is 220 V AC					
Output frequency	50/60 Hz. The default value is 50 Hz.					
Maximum output current	30 A					
Output power	6 kVA/5 kW					
Power factor	0.8					
Overload capacity						
102% ≤ Load ≤ 125%	30s					
125% < Load ≤ 150%	10s					
>150%/short circuit	0.3s					
AC Parallel Box						
Dimensions (W * H * D)	350 mm x 450 mm x 150 mm					
Weight	Approx. 12 kg					
Input voltage	200/208/220/230/240 V AC. The default value is 220 V AC.					
Input current	Max. 90 A					
Output voltage	200/208/220/230/240 V AC. The default value is 220 V AC.					
Output current	Max. 90 A					
Cable outlet mode	Bottom in and bottom out					
Installation mode	Wall-mounted or pole-mounted installation					
IP rating	IP55					
Environmental parameters						
Operating temperature	0°C to 45°C					
Relative humidity	5% ~ 95% (RH)					
Operating altitude	0-4000 m (The operating temperature decreases by 1°C per 200 m when the altitude is 2000 m to 4000 m)					
Standards Compliance						
Certifications	IEC62920: 2017, CISPR11: 2015+A1: 2016/EN55011: 2016+A1: 2017, EN62040-2, ETSI EN 301 489-1, ETSI EN 301 489-17, IEC61000-3, IEC 62619, IEC 62109-1, IEC 62109-2, RoHS, EN 50385, RCM, UKCA, ICE 60730, UN38.3					

*1 Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25 °C, at the beginningof 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 module is subject to the actual product, with a tolerance of ±3%.

*3. Refer to battery warranty letter for conditional application.

*4. Improper storage system installation may compromise product warranty and operation safety. Please follow the user manual during the installation, use, and maintenance of the storage system.

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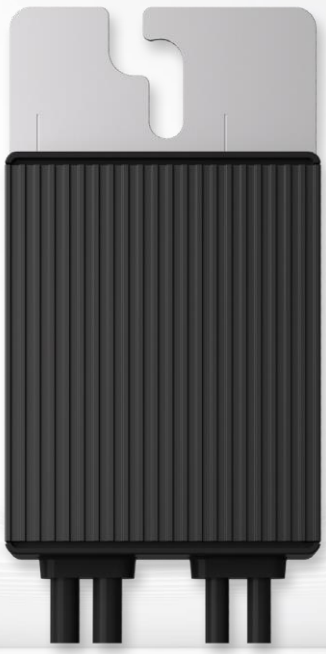
SMART MODULE CONTROLLER

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



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

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

Flexible Design
Easer 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 [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 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	
Compatible inverters	SUN2000-12K/15K/17K/20K/25K-MB0, SUN2000-8K/10K-LC0, SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20/25KTL-M5	

PV System Design [6]	SUN2000-2~6KTL-L1	SUN2000-8K/10K-LC0	SUN2000-3~10KTL-M1	SUN2000-12~25KTL-M5	SUN2000-12K/15K/17K/20K/25K-MB0
Min. string length (power optimizers)	4	4	6	6	6
Max. string length (power optimizers)	25	25	35	35	35
Max. DC power per string	6,000 W	6,000 W	10,000 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.

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SMART MODULE CONTROLLER

MERC-1100/1300W-P

Higher Yields
Module-level Optimization
Increase 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

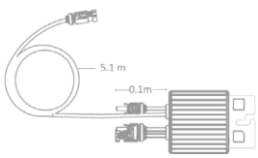
MERC-1100/1300W-P

Technical Specification

Technical Specification	MERC-1100W-P	MERC-1300W-P
Input		
Rated input DC power [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		
Dimension (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 part (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	SUN2000-8/10/12/15/17/20KTL-M2, SUN2000-30/36/40KTL-M3, SUN2000-12/15/17/20/25KTL-M5, SUN2000-50KTL-M3	

PV System Design [7/8/9]	SUN2000-8~20KTL-M2	SUN2000-12~25KTL-M5	SUN2000-30~40KTL-M3	SUN2000-50KTL-M3
Minimum String Length (Power Optimizers)	8	8	8	8
Maximum String Length (Power Optimizers)	25	25	25	20
Maximum DC Power per String	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 +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 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.

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

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 [2]	
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 [3]	
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 (derating 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 OCPP is planned to be available via software upgrade in 2023.Q4

*3 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

SmartGuard-63A-S0

Simple
Whole home backup, no need of additional switchboard

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

Reliable Provide bypass mode when a fault occurs

Intelligent
Intelligent load control with built-in EMMA

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)	220/230/240V L/N+PE
Max. current (from Grid)	63 A
Max. current (from Inverter)	60 A
Max. current (to Backup Load)	63 A
Max. current (to Non-BackupLoad) [1]	63 A
Self consumption	10 W
Low-Voltage ride-through	Supported
Switchover time	≤ 20ms (in Seamless Mode)
Bypass operation mode	Manual
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
Digital output	×2, ≤ 20m
Measurement Range	
Current range	≤ 63 A
Voltage range	1P (L-N): 85 ~ 299 Vac
Energy accuracy	± 1%
Device Management	
Smart energy controllers	up to 1
Smart chargers	up to 2
Heat pump	up to 1[2]
Shelly device	up to 20
Environment	
Noise emission	≤ 29dBA
Cooling	Natural Convection
Relative humidity range	5%-95% RH (non condensing)
Max. operating altitude	4000m (derating over 2000m)
Degree of protection	IP55
Operating temperature range	-25°C~50°C [3]
Compatible Device	
Smart energy controller	SUN2000-2-6KTL-L1 / 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 [4]

*1 The sum of the output current of the backup port and the non-backup port could not be more than 63A
*2 1 SG-ready Heat Pump can be connected directly. Others can be connected via shelly devices.
*3 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
*4 Firmware version should be: 0.12.99 plugsprod1 or 0.14.4 for Shelly Plus Plug S, 0.10.2 beta4 for Shelly Plus 2PM, 0.10.2 beta1 or 1.0.3 for Shelly Pro 2PM

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ENERGY MANAGEMENT ASSISTANT

EMMA-A02

Accurate
Class 1 measurement accuracy

Easy
Built-in WLAN module for easy commissioning

Intelligent Optimization of PV and ESS scheduling based on prediction

Flexible
Management for PV, ESS, Charger and home appliances

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			
WLAN	SUN2000-2-6KTL-L1 SUN2000-8-10K LC0 SUN2000-3-10KTL-M1 SUN2000-12-25KTL-M5 SUN2000-12-25K-MB0		
Smart charger	SCharger-7KS/22KT-S0		
Heat pump	SG-ready		
Shelly device	Shelly Plus Plug S, Shelly Plus 2PM, Shelly Pro 2PM [3]		

*1 2nd current should be 50mA, length ≤ 30m
*2 1 Heat Pumps are allowed to directly connect to EMMA-A02. More can be connected via shelly device
*3 Firmware version should be: 0.12.99 plugsprod1 or 0.14.4 for Shelly Plus Plug S, 0.10.2 beta4 for Shelly Plus 2PM,

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BACKUPBOX

Simplicity
Automatic Detection & Switchover

Reliability
Reliable Backup Power

Black Start
System Restarts After Battery Shutdown

BackupBox-B0/B1

Technical Specifications

Technical Specification	BackupBox-B0	BackupBox-B1
AC Output (On-Grid Mode)		
Grid connection	Single-phase	Three-phase
Rated voltage	220 V/230 V	380 V/400 V
AC frequency	50 Hz/60 Hz	
AC output voltage range	198-253 V	342-440 V
AC Output (Backup Mode)		
Load connection	Single-Phase	Single-Phase
Rated voltage	220 V/230 V	220 V/230 V
AC frequency	50 Hz/60 Hz	
Max. apparent power	5,000 VA	3,300 VA
Max. output current	22.7 A	15.2 A
Switchover time	< 3s	
AC Input (Inverter Input Port)		
Rated voltage	220 V/230 V	380 V/400 V
AC frequency	50 Hz/60 Hz	
Compatible inverter	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1	SUN2000-3/4/5/6/8/10KTL-M1
General Specification		
Operating temperature range	–20°C to +45°C (–4°F to +113°F)	
Relative humidity range	0% ~ 100% RH	
Dimensions (W x H x D)	400 mm x 350 mm x 130 mm (15.8 in. x 13.8 in. x 5.1 in.)	
Weight	11 kg	
IP rating	IP65	

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

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 SUN2000-8/10K-LC0 SUN2000-3/4/5/6/8/10KTL-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-12/15/17/20/25K-MB0 SUN2000-12/15/17/20/25KTL-M5 SUN2000-30/36/40/50KTL-M3 SUN2000-100/115KTL-M2

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 for
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	SUN600-5/6KTL-L0 SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 SUN2000-8/10K-LC0 SUN2000-3/4/5/6/8/10KTL-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-12/15/17/20/25K-MB0 SUN2000-12/15/17/20/25KTL-M5 SUN2000-30/36/40/50KTL-M3	SUN2000-50/60KTL-M0 SUN2000-50KTL-JPM1 SUN2000-63KTL-JPM0 SUN2000-75KTL-M1 SUN2000-100KTL-M0/M1 SUN2000-100KTL-INM0 SUN2000-100/115KTL-M2	

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

Accurate
Class 1 Measurement Accuracy

Simple & Easy
Lcd Display, Easy to Set and Check

Energy Efficient Overall Power Consumption ≤ 1.5 W

Smart Power Sensor

Technical Specifications

Technical Specification	DDSU666-H	DTSU666-H
General Specification		
Dimensions (H x W x D)	100 mm x 36 mm x 65.5 mm (3.9 in. x 1.4 in. x 2.6 in.)	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)	1.2 kg (2.6 lb)	1.5 kg (3.3 lb)
Power Supply		
Power grid type	1P2W	3P3W/3P4W
Input voltage (phase voltage)	176 V AC ~ 288 V AC	
Power consumption	≤ 0.8 W	≤ 1 W
Measurement Range		
Line voltage	/	304 V AC-499 V AC
Phase voltage	176 V AC ~ 288 V AC	
Current	0-100 A	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.)	
	1 CT 100 A / 40 mA (5 m / 16.4 ft.) 	3 CT 100 A / 40 mA (5 m / 16.4 ft.) 

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FUSIONSOLAR SMART PV MANAGEMENT SYSTEM

Better Experience

One app for All Products
Auto-Discovery of Local Components
Module 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
One-click Ticket Dispatching & Site Navigation
Online Smart I-V Curve Diagnosis in 15 Min. for A 100Mw Plant

FusionSolar Smart PV Management System

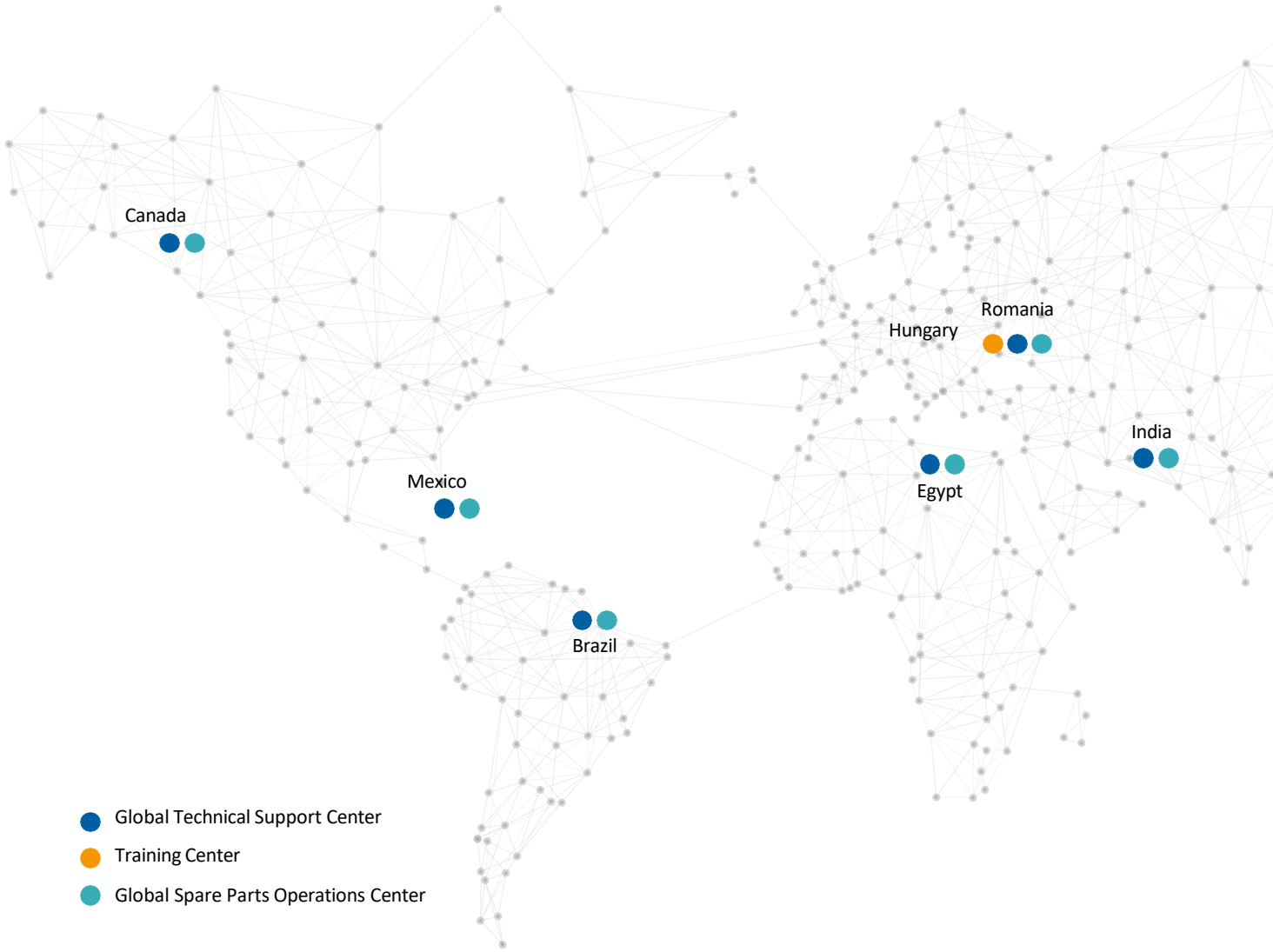
Category	Function	Web	App
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management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



14+

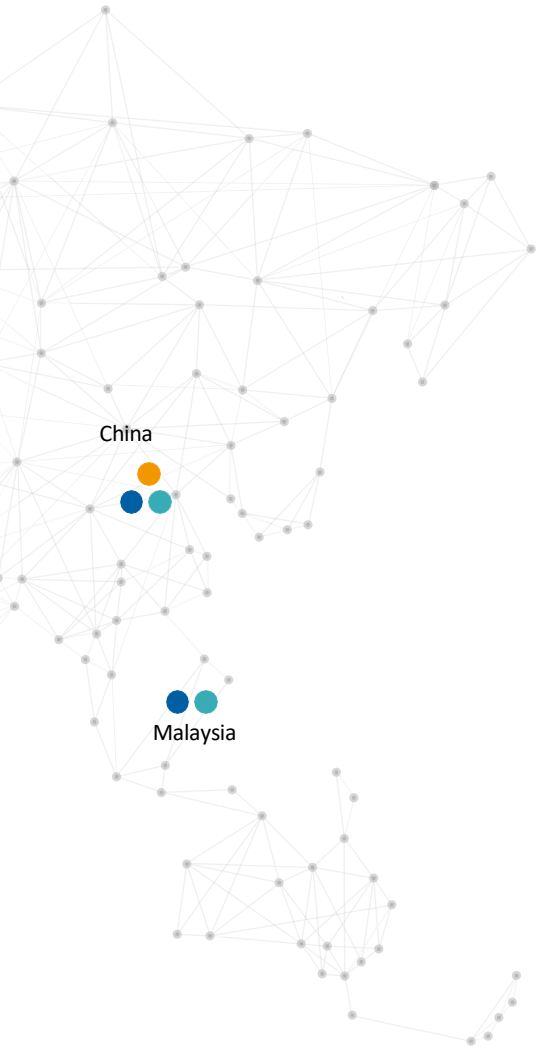
Languages

600+

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 and real-time response

Remote troubleshooting by experts

Online technical support

Spare parts support

Software update authorization

Extended warranty service

Inverter extended to 20 years

Extended energy storage to 10 years(but Japan to 15 years)

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

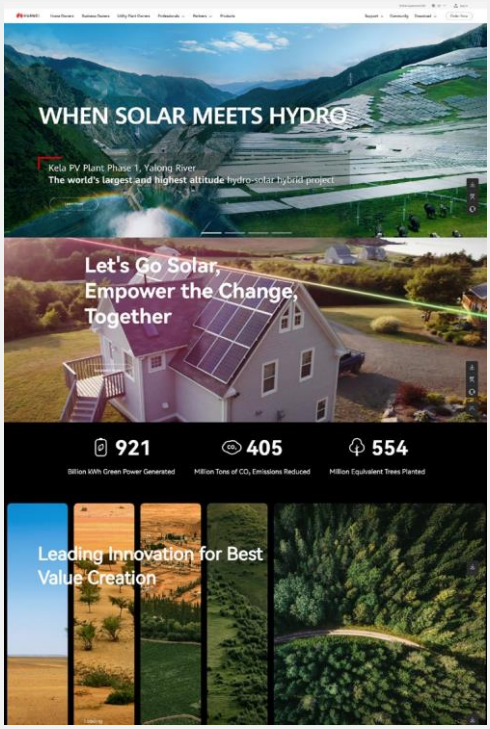
Monitor your energy system anytime anywhere AI-based customer support robot for your request All service accessible on the App

FUSIONSOLAR PARTNER

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

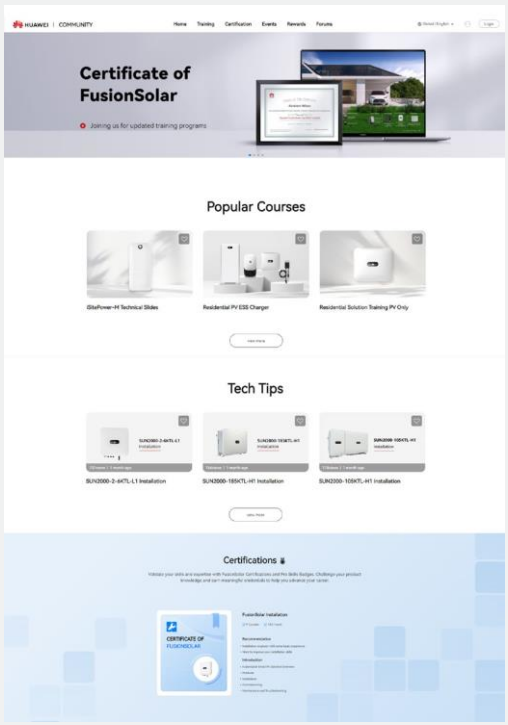
01 Official Website

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



02 Community

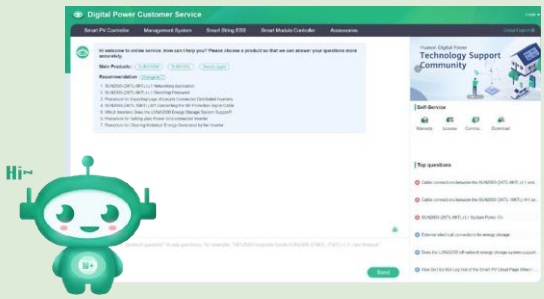
Knowledge learning, certification, communication, and rewards center.



Have more questions? Contact us and get support

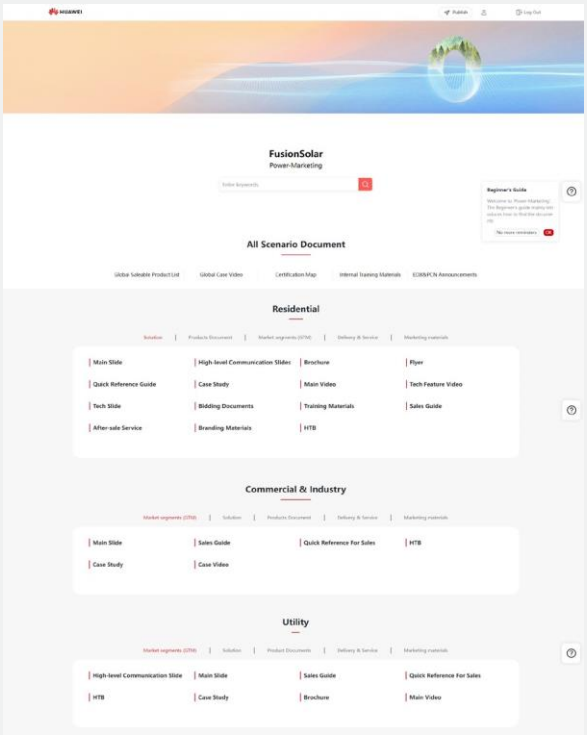
Online Service

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



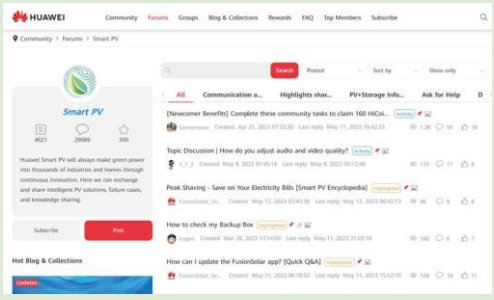
03 Materials Center

Professional materials for online view, download and sharing.



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 STUDIES

CASES

PV+ESS Scenario

Residential PV system in Villa Argentino, Italy

Capacity: 6 kWp

System Configuration

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

Scan the code to learn more

PV Only Scenario

Residential PV system in Silesian Voivodeship, Poland

Capacity: 7.5 kWp

System Configuration

+ SUN2000-6KTL-M1

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

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