



FusionSolar® Residential & Commercial Smart PV Solution

SOLAR.HUAWEI.COM/EU/



About Huawei

Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. With integrated solutions across four key domains – telecom networks, IT, smart devices, and cloud services – we are committed to bringing digital to every person, home and organization for a fully connected, intelligent world. Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. Through open collaboration with ecosystem partners, we create lasting value for our customers, working to empower people, enrich home life, and inspire innovation in organizations of all shapes and sizes. At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward.



Employees

194,000+



Interbrand's Top 100
Best Global Brands

74



R&D Personnel

96,000+



Fortune Global 500

49



Countries

170+



Research institutes
/labs/centers

14



No.1

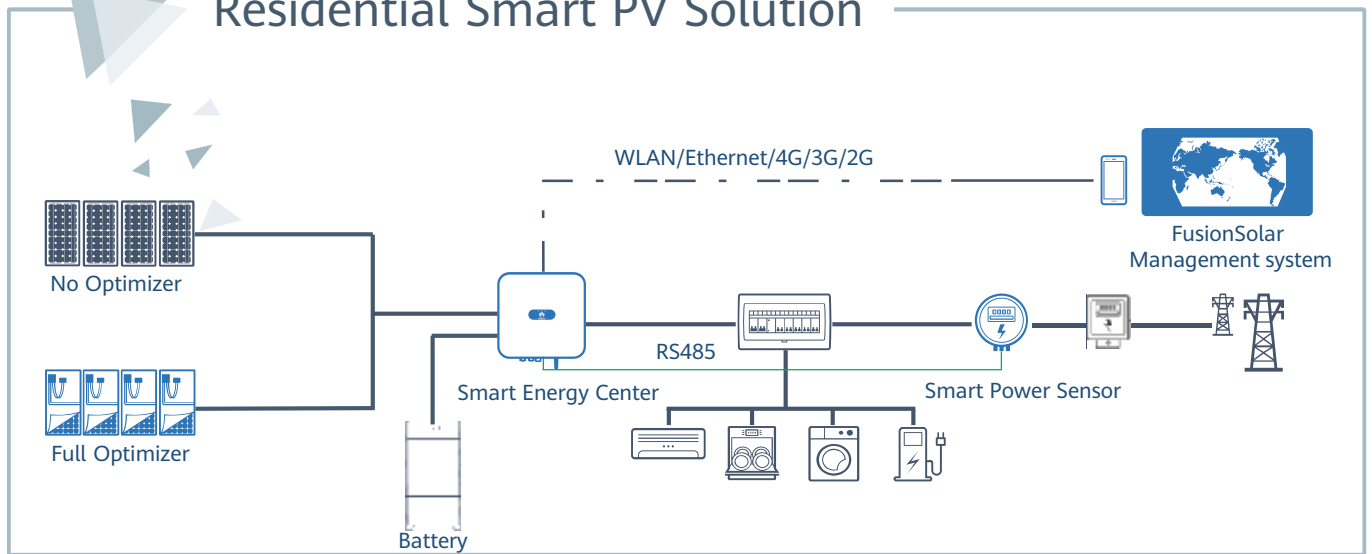
In global shipment 2015-2019



130GW+

Accumulated global shipment by the mid of 2020

Residential Smart PV Solution



Optimal Electricity Cost

Up to 30% More Energy by Optimizers

2x POWER Battery Ready for More Energy Consumption

Active Safety

AI Powered Active Arcing Protection

Pinpoint Arc Fault Positioning

Better Experience

One-Fits-All Solution, Easier Business

Module Auto-Mapping within 5 sec





Active Safety

AI Powered
Active Arcing Protection



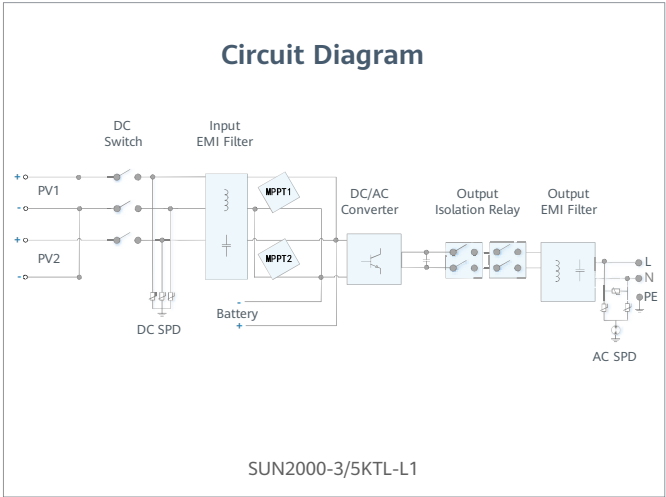
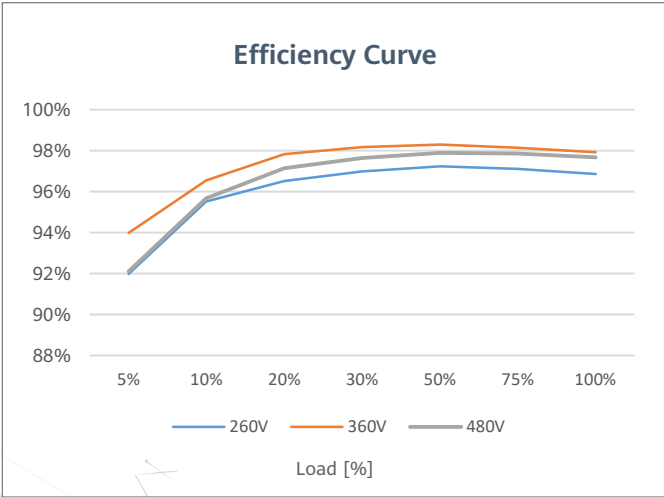
Higher Yields

Up to 30% More
Energy with Optimizer



2x POWER Battery Ready

5KW AC Output plus
5KW Battery Charge



SUN2000-3/5KTL-L1

Technical Specification

Technical Specification	SUN2000 -3KTL-L1	SUN2000 -5KTL-L1
Efficiency		
Max. efficiency	98.3 %	98.4 %
European weighted efficiency	97.3 %	97.8 %
Input (PV)		
Recommended max. PV power ²	4,500 Wp	7,500 Wp
Max. input voltage	600 V ³	
Start-up voltage	100 V	
MPPT operating voltage range	90 V – 560 V ³	
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. number of inputs	2	
Input (DC Battery)		
Compatible Battery	LG Chem RESU 7H_R / 10H_R	
Operating voltage range	350 ~ 450 Vdc	
Max operating current	10 A @7H_R / 15 A @10H_R	
Max charge power	3,500 W @7H_R / 5,000 W @10H_R	
Max discharge Power @7H_R	3,300 W	3,500 W
Max discharge Power @10H_R	3,300 W	5,000 W
HUAWEI Smart ESS Battery 5kWh – 30kWh ¹		
Compatible Battery		
Operating voltage range	350 ~ 560 Vdc	
Max operating current	15 A	
Max charge Power	5,000 W ⁴	
Max discharge Power	3,300 W	5,000 W
Output		
Grid connection	Single phase	
Rated output power	3,000 W	5,000 W ⁵
Max. apparent power	3,300 VA	5,500 VA ⁷
Rated output voltage	220 Vac / 230 Vac / 240 Vac	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	15 A	25 A ⁸
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Backup power output	Yes (via Backup Box-B0 ¹)	
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 reverse charging from grid	Yes	
General Data		
Operating temperature range	-25 ~ +60 °C (Derating above 45°C @ Rated output power)	
Relative operating humidity	0 %RH ~ 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 bracket)	12.0 kg (26.5 lb)	
Dimension (incl. mounting bracket)	365mm * 365mm * 156 mm (14.4 x 14.4 x 6.1 inch)	
Degree of protection	IP65	
Optimizer Compatibility		
DC MBUS compatible optimizer	SUN2000-450W-P	

Standard 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, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, IEC61727, IEC62116, PEA, MEA

*1 Available in 2021 Q1.

*2 Inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.

*3 The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.

*4 2,500 W @ 5kWh HUAWEI ESS battery

*5 AS4777.2: 4,991W. *6 VDE-AR-N 4105: 4,600VA / AS4777.2: 4,999VA. *7. AS4777.2: 4,999VA / C10/11: 5,000VA *8. AS4777.2: 21.7A.

Version No.:01-(20190716)

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Active Safety

AI Powered
Active Arcing Protection



Higher Yields

Up to 30% More Energy
with Optimizer



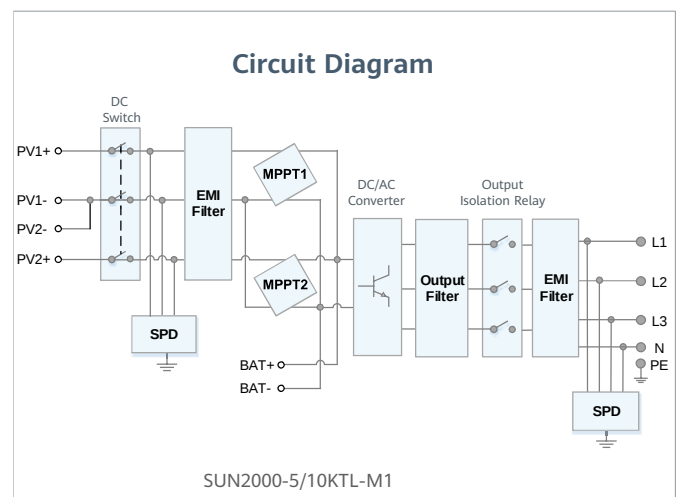
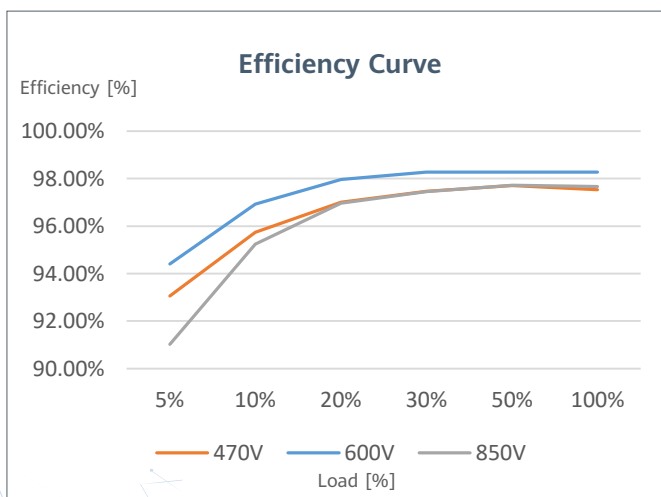
Battery Ready

Plug & Play battery interface ¹



Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported



*1. Will be compatible with HUAWEI smart string ESS in Q1, 2021

Technical Specification

Technical Specification	SUN2000-5KTL-M1	SUN2000-10KTL-M1
Efficiency		
Max. efficiency	98.4%	98.6%
European weighted efficiency	97.5%	98.1%
Input (PV)		
Recommended max. PV power ¹	7,500 Wp	15,000 Wp
Max. input voltage ²	1,100 V	
Operating voltage range ³	140 V ~ 980 V	
Start-up voltage	200 V	
Rated input voltage	600 V	
Max. input current per MPPT	11 A	
Max. short-circuit current	15 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 V ~ 980 V	
Max operating current	16A	
Max charge Power	10,000 W	
Max discharge Power	5,500 W	10,000 W
Output (On Grid)		
Grid connection	Three-phase	
Rated output power	5,000 W	10,000 W
Max. apparent power	5,500 VA	11,000 VA ⁴
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	8.5 A	16.9 A
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Output (Backup Power via Backup Box-B1) ⁶		
Maximum apparent power	3,300 VA	
Rated output voltage	220 V / 230 V	
Maximum output current	15 A	
Power factor range	0.8 leading ... 0.8 lagging	
Features & Protections		
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	
Integrated PID recovery ⁵	Yes	
Battery reverse charging from grid	Yes	
General Data		
Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)	
Relative operating humidity	0 %RH ~ 100 %RH	
Operating altitude	0 ~ 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 bracket)	17 kg (37.5 lb)	
Dimension (incl. mounting bracket)	525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch)	
Degree of protection	IP65	
Optimizer Compatibility		
DC MBUS compatible optimizer	SUN2000-450W-P	
Standard Compliance (more available upon request)		
Certificate	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 2.0,PEA,MEA	

^{*1} Inverter max input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-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.

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

^{*4} C10 / 11: 10,000 VA

^{*5} SUN2000-5~10KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

^{*6} Available in 2021 Q1.

Smart String Energy Storage System



More Usable Energy

100% Depth of Discharge
Pack Level Energy Optimization



Flexible Investment

5kWh Modular Design,
Scalable from 5 to 30 kWh



Safe & Reliable

Lithium Iron Phosphate (LFP) Cell



Easy Installation

12 kg Power Module
50 kg Battery Module



Quick Commissioning

Automatically Detected in App



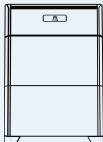
Perfect Compatibility

Compatible to Both Residential
Single & Three Phase Inverter



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 energy	5 kWh		
Number of battery Modules	1	2	3
Battery usable energy 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)	360 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			
Dimension (W*D*H)	670 * 150 * 600 mm (26.4 * 5.9 * 23.6 inch)	670 * 150 * 960 mm (26.4 * 5.9 * 37.8 inch)	670 * 150 * 1320 mm (26.4 * 5.9 * 60.0 inch)
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*D*H)	670 * 150 * 240 mm (26.4 * 5.9 * 9.4 inch)		
Power module weight	12 kg (26.5 lb)		
Battery module dimension (W*D*H)	670 * 150 * 360 mm (26.4 * 5.9 * 14.0 inch)		
Battery module weight	50 kg (110.2 lb)		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature	-10°C ~ + 55°C (14°F ~ 131°F) ²		
Operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 2,000 m)		
Relative humidity	5% ~ 95%		
Cooling	Natural convection		
Protection rating	IP 66		
Noise emission	<29 dB		
Cell technology	Lithium-iron phosphate (LiFePO4)		
Warranty	5 years ³		
Scalability	Max. 2 systems in parallel operation		
Compatible inverters	SUN2000-3/5KTL-L1, SUN2000-5/10KTL-M1		

Standard Compliance (more available upon request)	
Certificates	CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3

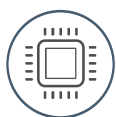
Ordering and Deliverable Part	
Product ordering model ⁴	LUNA2000-5KW-C0, LUNA2000-5-E0, LUNA2000 Wall Mounting Bracket

- Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C.
- Charge/discharge derating occurs when the operating temperature from -10°C to 5 °C & 45 °C to 55 °C.
- Refer to battery warranty letter for conditional application.
- Storage system is ordered and delivered in the form of power module and battery module separately with corresponding quantity.

Smart PV Optimizer



One-Fits-All Optimizer
Easier Business



<1.5 min Pairing with Inverter



<5s Module Auto-Mapping



Arc Fault Pinpoint
Positioning

Technical Specification		SUN2000-450W-P
		Input
Rated Input DC Power ¹		450 W
Absolute maximum input voltage		80 V
MPPT operating voltage range		8 - 80 V
Maximum Short Circuit Current (Isc)		13 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
Shutdown output voltage per optimizer ³		0 V
Shutdown output impedance per optimizer		1k ohm ± 10 %
		Standard Compliance
Safety		IEC62109-1 (class II safety)
RoHS		Yes
		General Data
Dimension (W x H x D)		71 x 138 x 25 mm (2.8 x 5.4 x 1.0 inch)
Weight (including cables)		0.55 kg (1.2 lb.)
Installation part (optional)		Grounding Plate, Grounding Lug, PV Module Frame Plate
Input connector		MC4
Output connector		MC4
Output wire length		1.2 m (3.9 ft.) ⁴
Operating temperature / humidity range		-40 °C ~ 85 °C ⁵ / 0 %RH ~ 100 %RH
Degree of protection		IP68
Compatible product		SUN2000-3/5KTL-L1, SUN2000-5/10KTL-M1, SUN2000-12/20KTL-M2

Long String Design (Full Optimizer)	SUN2000-3-5KTL-L1	SUN2000-5-10KTL-M1	SUN2000-12-20KTL-M2	SUN2000-30-40KTL-M3
Minimum optimizer number per string	4	6	6	6
Maximum optimizer number per string	25	50	50	50
Maximum DC power per string	5,000 W	10,000 W	10,000 W	10,000 W

^{*1} Rated power of the module at STC shall not exceed "Rated Input DC Power" of power optimizer. Modules with power up to +5% power tolerance are acceptable.

^{*2} Power optimizer is bypassed in the string connected to an operating inverter when it fails to work

^{*3} Power optimizer output 0Vdc when disconnecting to the inverter or inverter is shutdown.

^{*4} Fits PV module in landscape and portrait installation.

^{*5} Full power capability refers to online smart design tool.

Smart Power Sensor



Accurate

Class 1 measurement accuracy



Simple & Easy

LCD display, easy to set and check

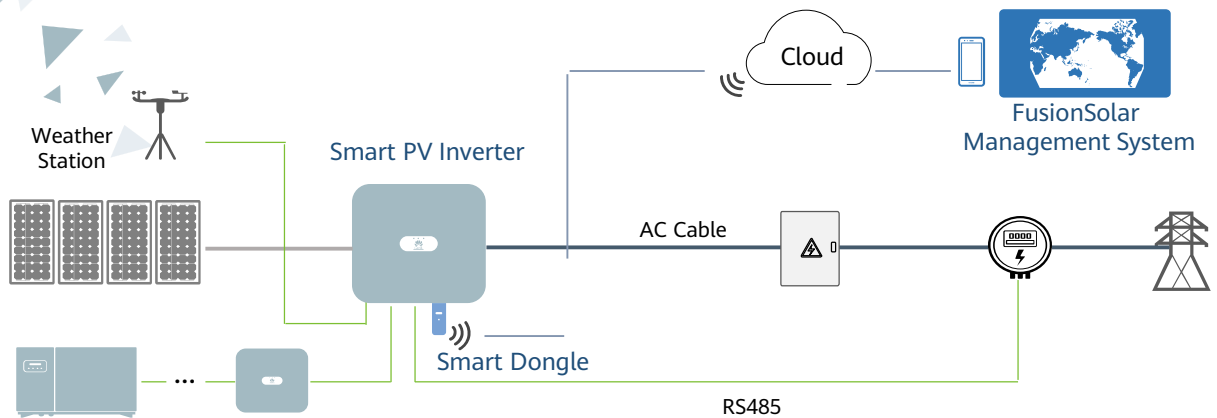


Energy Efficient

Overall power consumption ≤ 1 W

Technical Specification	DDSU666-H	DTSU666-H 250A/50mA
General Data		
Dimension (H x W x D)	100 x 36 x 65.5 mm (3.9 x 1.4 x 2.6 inch)	100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch)
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	3P4W
Input voltage (phase voltage)	176 Vac ~ 288 Vac	
Power consumption	≤ 0.8 W	≤ 1 W
Measurement Range		
Line voltage	/	304 Vac ~ 499 Vac
Phase voltage	176 Vac ~ 288 Vac	
Current	0 ~ 100 A	0 ~ 250 A
Measurement Accuracy		
Voltage	±0.5 %	
Current / 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 ~ 60 °C	
Storage temperature range	-40 °C ~ 70 °C	
Operating humidity	5 %RH ~ 95 %RH (non-condensing)	
Others		
Accessories	RS485 Cable (10 m / 33 ft.)	
	1 CT 100A / 40mA (5 m / 16.4 ft.) 	3 CT 250A / 50mA (5m / 16.4 ft.) 

Small-scale Commercial PV Solution



Smart Dongle supports Max. 10 devices¹

¹: Devices refer to: Inverter, meter, weather station devices and so on.

Ultimate Safety

AI Powered AFCI to mitigate fire risk

Fuse-free design for superior safety

Higher Yields

Multi-MPPT to reduce string mismatch

Max. Efficiency 98.65% for higher yields

Better Experience

WLAN/Ethernet/4G, flexible comm. options

One click I-V curve diagnosis making unhealthy modules visible



SUN2000-12/15/20KTL-M2 Smart PV Controller



Active Safety

AI Powered Arcing Protection



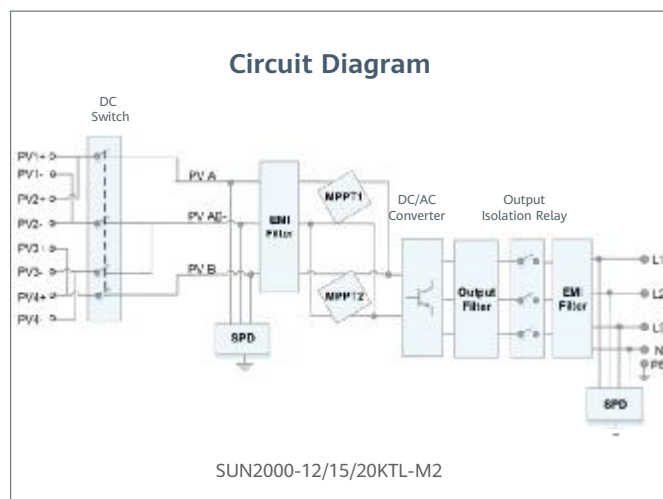
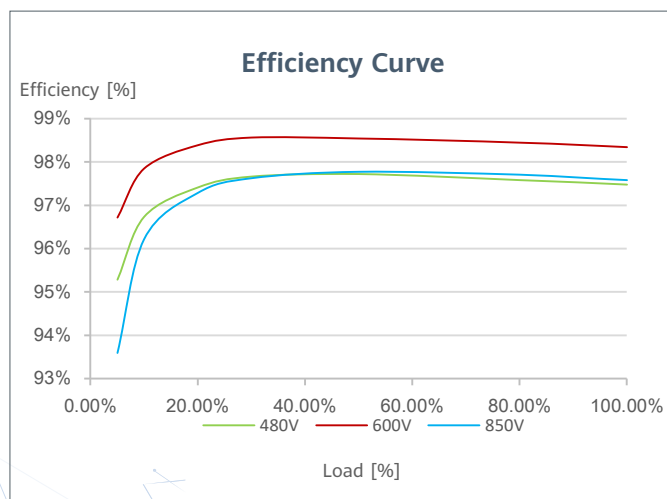
Higher Yields

Up to 30% More Energy with Optimizer



Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported



SUN2000-12/15/20KTL-M2

Technical Specification

Technical Specification	SUN2000 -12KTL-M2	SUN2000 -15KTL-M2	SUN2000 -20KTL-M2
Efficiency			
Max. efficiency	98.50%	98.65%	98.65%
European weighted efficiency	98.00%	98.30%	98.30%
Input			
Recommended max. PV power ¹	18,000 Wp	22,500 Wp	30,000 Wp
Max. input voltage ²		1,080 V	
Operating voltage range ³		160 V ~ 950 V	
Start-up voltage		200 V	
Rated input voltage		600 V	
Max. input current per MPPT		22 A	
Max. short-circuit current		30 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	20,000 W
Max. apparent power	13,200 VA	16,500 VA	22,000 VA
Rated output voltage		220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W + N + PE	
Rated AC grid frequency		50 Hz / 60 Hz	
Max. output current	20 A	25.2 A	33.5 A
Adjustable power factor		0.8 leading ... 0.8 lagging	
Max. total harmonic distortion		≤ 3 %	
Features & Protections			
Input-side disconnection device		Yes	
Anti-islanding protection		Yes	
AC over-current protection		Yes	
AC short-circuit protection		Yes	
AC over-voltage 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	
Residual current monitoring unit		Yes	
Arc fault protection		Yes	
Ripple receiver control		Yes	
Integrated PID recovery ⁴		Yes	
General Data			
Operation temperature range		-25 ~ + 60 °C (-13 °F ~ 140 °F)	
Relative humidity		0 % RH ~ 100% RH	
Max. operating altitude		0 ~ 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 (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)	
Weight (with mounting plate)		25 kg	
Dimensions (W x H x D) (incl. mounting plate)		525 x 470 x 262 mm (20.7 x 18.5 x 10.3 inch)	
Degree of protection		IP65	
Optimizer Compatibility			
DC MBUS compatible optimizer		SUN2000-450W-P	
Standard Compliance (more available upon request)			
Safety		EN/IEC 62109-1, EN/IEC 62109-2	
Grid connection standards		G98, G99, EN 50549, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777.2, C10/11, ABNT, VFR 2019, RD 1699, RD 661, PO 12.3, TOR D4, IEC61727, IEC62116, DEWA	

*1 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 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.

*4 SUN2000-12~20KTL-M2 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly)

SUN2000-30/36/40KTL-M3 Smart String Inverter



Smart

8 strings intelligent monitoring



Efficient

Max. efficiency 98.7%



Safe

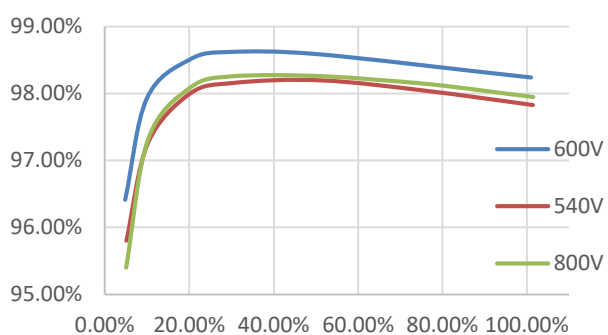
Fuse free design



Reliable

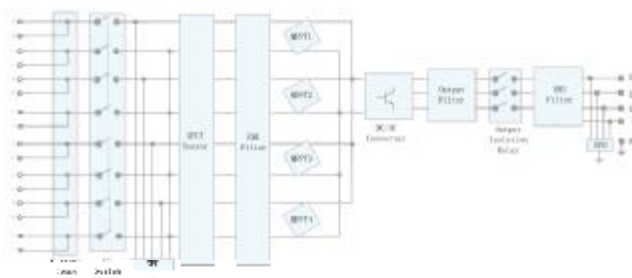
Type II surge arresters for DC & AC

Efficiency Curve



SUN2000-30/36/40KTL-M3

Circuit Diagram



SUN2000-30/36/40KTL-M3

Technical Specification

Technical Specification	SUN2000-30KTL-M3	SUN2000-36KTL-M3	SUN2000-40KTL-M3
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Efficiency			
Max. Efficiency	98.7%		
European Efficiency	98.4%		

Input			
Max. Input Voltage ¹	1,100 V		
Max. Current per MPPT	26 A		
Max. Short Circuit Current per MPPT	40 A		
Start Voltage	200 V		
MPPT Operating Voltage Range ²	200 V ~ 1000 V		
Rated Input Voltage	600 V		
Number of Inputs	8		
Number of MPP Trackers	4		

Output			
Rated AC Active Power	30,000 W	36,000 W	40,000 W
Max. AC Apparent Power	33,000 VA	40,000 VA	44,000 VA
Rated Output Voltage	230 Vac / 400 Vac, 3W/N+PE		
Rated AC Grid Frequency	50 Hz / 60 Hz		
Rated Output Current	43.3 A	52.0 A	57.8 A
Max. Output Current	47.9 A	58.0 A	63.8 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD		
Max. Total Harmonic Distortion	< 3%		

Protection			
Input-side Disconnection Device	Yes		
Anti-islanding Protection	Yes		
AC Overcurrent Protection	Yes		
DC Reverse-polarity Protection	Yes		
PV-array String Fault Monitoring	Yes		
DC Surge Arrester	Yes		
AC Surge Arrester	Yes		
DC Insulation Resistance Detection	Yes		
Residual Current Monitoring Unit	Yes		
Arc Fault Protection	Yes		
Ripple Receiver Control	Yes		
Integrated PID Recovery ³	Yes		

Communication			
Display	LED Indicators, Integrated WLAN + FusionSolar APP		
RS485	Yes		
Smart Dongle	WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)		
Monitoring BUS (MBUS)	Yes (Isolation Transformer required)		

General Data			
Dimensions (W x H x D)	640 x 530 x 270 mm (25.2 x 20.9 x 10.6 inch)		
Weight (with mounting plate)	43 kg (94.8 lb)		
Nosie Level	< 46 dB		
Operating Temperature Range	-25 ~ + 60 °C (-13 °F ~ 140 °F)		
Cooling Method	Natural Convection		
Max. Operating Altitude	0 - 4,000 m (13,123 ft.)		
Relative Humidity	0% RH ~ 100% RH		
DC Connector	Staubli MC4		
AC Connector	Waterproof Connector + OT/DT Terminal		
Protection Degree	IP 66		
Topology	Transformerless		
Nighttime Power Consumption	≤ 5.5W		

Optimizer Compatibility			
DC MBUS Compatible Optimizer	SUN2000-450W-P		

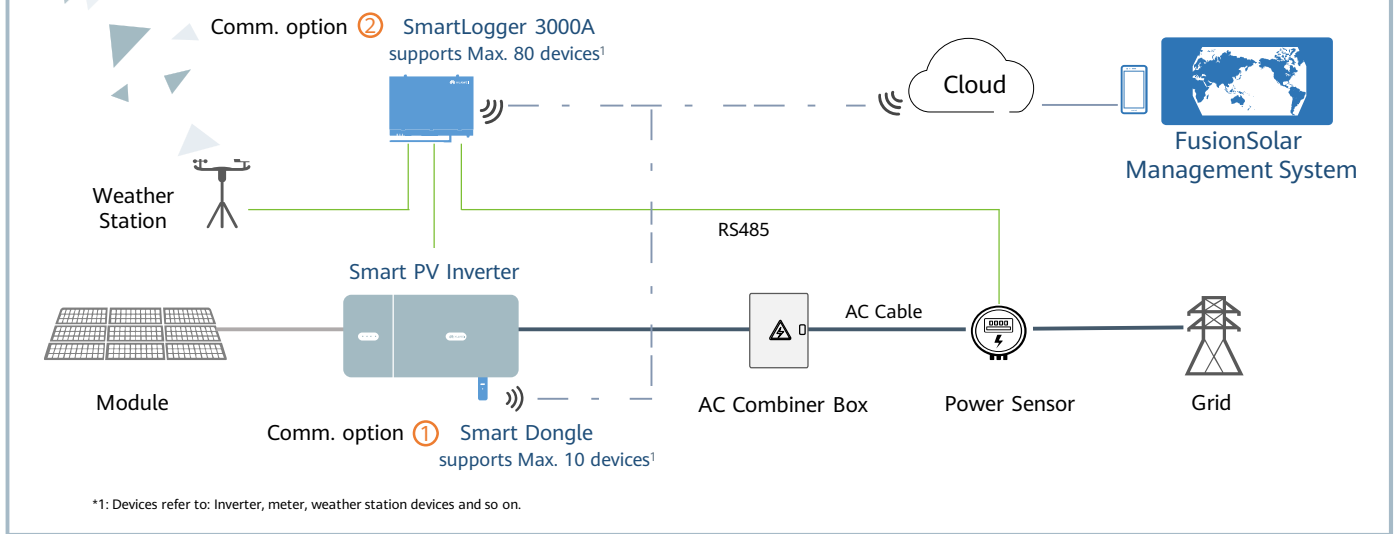
Standard Compliance (more available upon request)			
Safety	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683		
Grid Connection Standards	IEC 61727, VDE-AR-N4105, VDE 0126-1-1, BDEW, G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, RD 661, RD 1699, P.O. 12.3, RD 413, EN-50438-Turkey, EN-50438-Ireland, C10/11, MEA, Resolution No.7, NRS 097-2-1, AS/NZS 4777.2, DEWA		

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. SUN2000-30~40KTL-M3 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly), N-type (nPERT, HIT)

Large-scale Commercial PV Solution



Safe & Reliable

Fuse-free design for superior safety

Natural cooling fully sealed design for better reliability

Higher Yields

Multi-MPPT to reduce string mismatch

Max. Efficiency 98.7% for higher yields

Smart O&M

String-level monitoring for fast trouble-shooting

One click I-V curve diagnosis making unhealthy modules visible



SUN2000-60KTL-M0 Smart String Inverter



Smart

Smart I-V Curve Diagnosis supported



Efficient

Max. efficiency 98.7%



Safe

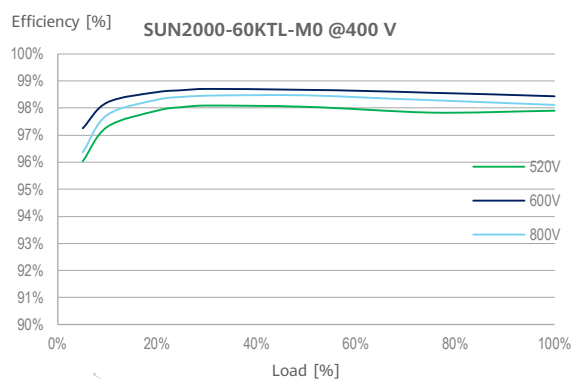
Fuse free design



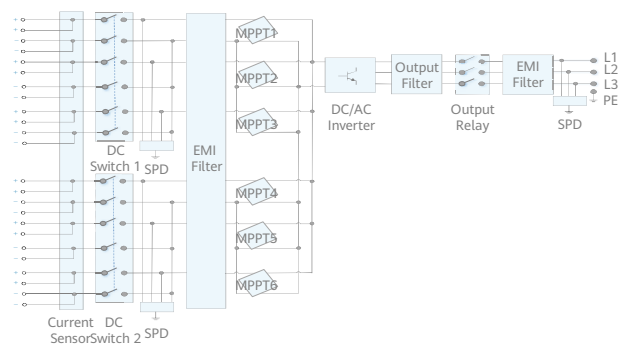
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



Circuit Diagram



SUN2000-60KTL-M0

SUN2000-60KTL-M0

Technical Specification

Technical Specification	SUN2000-60KTL-M0
Efficiency	
Max. Efficiency	98.9% @480 V, 98.7% @380 V / 400 V
European Efficiency	98.7% @480 V, 98.5% @380 V / 400 V
Input	
Max. Input Voltage	1,100 V
Max. Current per MPPT	22 A
Max. Short Circuit Current per MPPT	30 A
Start Voltage	200 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	600 V @380 V / 400 V, 720 V @480 V
Number of Inputs	12
Number of MPP Trackers	6
Output	
Rated AC Active Power	60,000 W
Max. AC Apparent Power	66,000 VA
Max. AC Active Power (cosφ=1)	66,000 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, default 3W + N + PE; 3W + PE optional in settings; 277 V / 480 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	91.2 A @380 V, 86.7 A @400 V, 72.2 A @480 V
Max. Output Current	100 A @380 V, 95.3 A @400 V, 79.4 A @480 V
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	<3%
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, APP
RS485	Yes
USB	Yes
MBUS	Yes (isolation transformer required)
General Data	
Dimensions (W x H x D)	1,075 x 555 x 300 mm (42.3 x 21.9 x 11.8 inch)
Weight (with mounting plate)	74 kg (163.1 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Natural Convection
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Cable Gland + OT Terminal
Protection Degree	IP65
Topology	Transformerless
Night Time Power Consumption	< 2 W
Standard Compliance (more available upon request)	
Safety	EN 62109-1/-2, IEC 62109-1/-2, IEC 62116
Grid Connection Standards	IEC 61727, EN 50530, IEC 62910, IEC 60068, IEC 61683, VDE 4105/0126, UTE C 15-712-1, EN 50438, CLC/TS 50549-1, CEI 0-16/21, C10/11, RD 1699, PO 12.9, Philippine Resolution No. 07, AS/NZS 4777.2, DEWA, NRS 097-2-1, IEEE 1547, ABNT, PEA, MEA, NB/T 32004-2013

SUN2000-100KTL-M1 Smart PV Controller



Smart

Smart I-V Curve Diagnosis supported



Efficient

Max. efficiency 98.8%



Safe

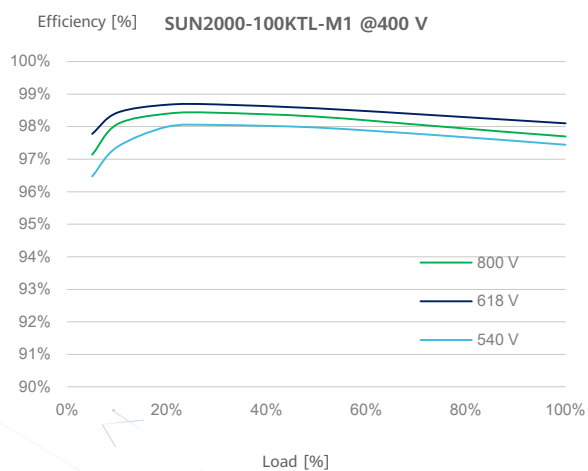
Fuse free design



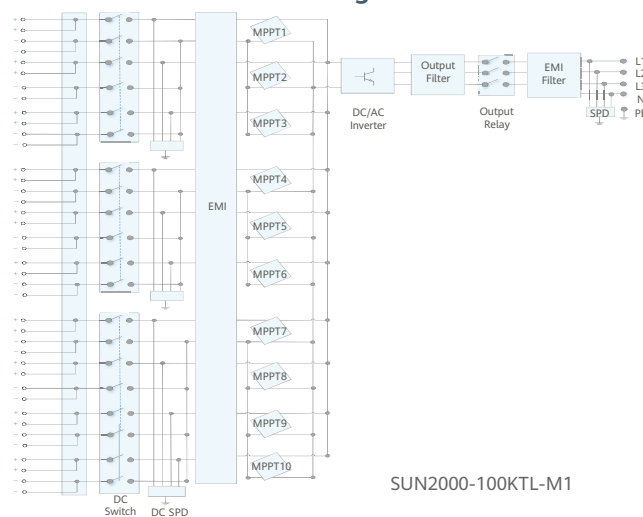
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



Circuit Diagram



SUN2000-100KTL-M1
Technical Specification

Technical Specification	SUN2000-100KTL-M1
-------------------------	-------------------

Efficiency	
Max. Efficiency	98.8% @480 V; 98.6% @380 V/400 V
European Efficiency	98.6% @480 V; 98.4% @380 V/400 V

Input	
Max. Input Voltage	1,100 V
Max. Current per MPPT	26 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	200 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	570 V @380 V; 600 V @400 V; 720 V @480 V
Number of Inputs	20
Number of MPP Trackers	10

Output	
Rated AC Active Power	100,000 W (380 V / 400 V / 480 V @40°C)
Max. AC Apparent Power	110,000 VA
Max. AC Active Power (cosφ=1)	110,000 W
Rated Output Voltage	220 V / 230 V, default 3W + N + PE; 380 V / 400 V / 480 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	152.0 A @380 V; 144.4 A @400 V; 120.3 A @480 V
Max. Output Current	168.8 A @380 V; 160.4 A @400 V; 133.7 A @480 V
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	<3%

Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Arc Fault Protection	Optional

Communication	
Display	LED Indicators, APP
RS485	Yes
USB	Yes
MBUS	Yes (isolation transformer required)

General Data	
Dimensions (W x H x D)	1,035 x 700 x 365mm (40.7 x 27.6x 14.4 inch)
Weight (with mounting plate)	90 kg (187.4 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Smart Air Cooling
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Staubli MC4
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless
Night Time Power Consumption	≤ 3.5 W

Standard Compliance (more available upon request)	
Safety	EN 62109-1/-2, IEC 62109-1/-2, IEC 62116
Grid Connection Standards	EN 50530, IEC 61727, IEC 60068, IEC 61683

Smart Dongle-WLAN-FE



Smart

WLAN & Fast Ethernet (FE) communication
Support 3rd-party monitoring system ¹



Simple

Plug & Play
Support max. 10 devices²



Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-05
General Data	
Max. Devices ² Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	2.5 W
Operation Mode	STA
Encryption Algorithm	Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES
Wireless Parameter	
Supported standards & frequencies	802.11b/g/n (2.412G—2.484G)
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.)
Standard Compliance (more available upon request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Supported Master Inverter Model	SUN2000-3/5KTL-L1,SUN2000-5/10KTL-M0/M1 SUN2000-12/20KTL-M0,SUN2000-12/15/20KTL-M2 SUN2000-30/36/40KTL-M3

1: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.
2: Devices refer to: Inverter, meter, weather station devices and so on.

Smart Dongle-4G



Smart

Smart zero export control design
Support 3rd-party monitoring system ¹



Simple

Plug & Play
Support max. 10 devices²



Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-03-EU
General Data	
Max. Devices ⁴ Supported	10
Connection interface	USB
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	130 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	3.5 W
Wireless Parameter	
Sim card type	mini-sim (15 mm*25 mm)
Supported standards & frequencies	4G: FDD-LTE / TDD-LTE 3G: WCDMA / HSDPA / HSUPA / HSPA+ 2G: GSM / GPRS / EDGE ²
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.)
Standard Compliance (more available upon request)	
Certificate	CE, Type Approval for Thailand, MIC
Inverter Compatibility	
Inverter model	SUN2000-3/5KTL-L1,SUN2000-5/10KTL-M0/M1 SUN2000-12/20KTL-M0,SUN2000-12/15/20KTL-M2 SUN2000-30/36/40KTL-M3 SUN2000-60KTL-M0 SUN2000-100KTL-M1

*1: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.

*2: For recommended carriers list and details on supported frequencies, please contact local distributors.

*3: To ensure stable data transmission, Huawei suggests 4G dongle to be installed in areas with stable mobile signal (2G signal ≥4 bars, 3G/4G signal ≥3 bars).

*4: Devices refer to: Inverter, meter, weather station devices and so on.

SmartLogger3000A



Smart

Smart zero export control design



Simple

Easy to install on site



Reliable

Safety by lightning protection module

Technical Specification		SmartLogger3000A01EU
Device Management		
Max. Number of Manageable Devices ³		80
Communication Interface		
WAN		WAN x 1, 10 / 100 / 1000 Mbps
LAN		LAN x 1, 10 / 100 / 1000 Mbps
RS485		COM x 3, 1200 / 2400 / 4800 / 9600 / 19200 / 115200 bps, 1000 m
2G / 3G / 4G ¹		LTE(FDD) : B1,B2,B3,B4,B5,B7,B8,B20 DC-HSPA+/HSPA+/HSPA/UMTS : 850/900/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz ²
Digital / Analog Input / Output		DI x 4, DO x 2, AI x 4
Active DO		12V, 100mA (connection with relay, sensor)
Communication Protocol		
Ethernet		Modbus-TCP, IEC 60870-5-104
RS485		Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
Interaction		
LED		LED Indicator x 3 – RUN, ALM, 4G
WEB		Embedded Web
USB		USB 2.0 x 1
APP		FusionSolar APP Communicated by WLAN for Commissioning
Environment		
Operating Temperature Range		-40°C ~ 60°C (-40°F ~ 140°F)
Storage Temperature		-40°C ~ 70°C (-40°F ~ 158°F)
Relative Humidity (Non-condensing)		5% ~ 95%
Max. Operating Altitude		4,000 m (13,123 ft.)
Electrical		
AC Power Supply		100 V ~ 240 V, 50 Hz / 60 Hz
DC Power Supply		12V / 24 V
Power Consumption		Typical 8 W, Max. 15 W
Mechanical		
Dimensions (W x H x D)		225 x 160 x 44 mm (8.9 x 6.3 x 1.7 inch, without mounting ears and antenna)
Weight		2 kg (4.4 lb.)
Protection Degree		IP20
Installation Options		Wall Mounting, DIN Rail Mounting, Tabletop Mounting

*1: When putting inside metal box, extended antenna will be needed.

*2: For recommended carriers list and details on supported frequencies, please contact local distributors.

*3: Devices refer to: Inverter, meter, weather station devices and so on.

SmartLogger3000A



Smart

Smart zero export control design



Simple

Easy to install on site



Reliable

Safety by lightning protection module

Technical Specification	SmartLogger3000A00GL
Device Management	
Max. Number of Manageable Devices ²	80
Communication Interface	
WAN	WAN x 1, 10 / 100 / 1000 Mbps
LAN	LAN x 1, 10 / 100 / 1000 Mbps
RS485	COM x 3, 1200 / 2400 / 4800 / 9600 / 19200 / 115200 bps, 1000 m
Digital / Analog Input / Output	DI x 4, DO x 2, AI x 4
Active DO	12V, 100mA (connection with relay, sensor)
Communication Protocol	
Ethernet	Modbus-TCP, IEC 60870-5-104
RS485	Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
Interaction	
LED	LED Indicator x 3 – RUN, ALM, 4G ¹
WEB	Embedded Web
USB	USB 2.0 x 1
APP	FusionSolar APP Communicated by WLAN for Commissioning
Environment	
Operating Temperature Range	-40°C ~ 60°C (-40°F ~ 140°F)
Storage Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Relative Humidity (Non-condensing)	5% ~ 95%
Max. Operating Altitude	4,000 m (13,123 ft.)
Electrical	
AC Power Supply	100 V ~ 240 V, 50 Hz / 60 Hz
DC Power Supply	12V / 24 V
Power Consumption	Typical 8 W, Max. 15 W
Mechanical	
Dimensions (W x H x D)	225 x 160 x 44 mm (8.9 x 6.3 x 1.7 inch, without mounting ears and antenna)
Weight	2 kg (4.4 lb.)
Protection Degree	IP20
Installation Options	Wall Mounting, DIN Rail Mounting, Tabletop Mounting

*1: 4G is not available in this model.

*2: Devices refer to: Inverter, meter, weather station devices and so on.

FusionSolar Smart PV Management System



Simple & Swift

- Simple commissioning by APP
- Auto-detection of system equipment
- Registering your plant by scanning any device



Convenient & Reliable

- Energy flow illustration
- Real-time data at anytime from anywhere
- Performance data back-up



Improved O&M Experience

- Physical & logical module layout
- Module-level performance management*
- Smart I-V Diagnosis

* Full optimizer is required for SUN2000-2-6KTL-L1;

Feature List		WEB	APP
Basic Feature	Swift Installation & Registration	●	●
	Data Collection	●	
	Dashboard	●	●
	Energy Flow	●	●
	Energy Generation & Consumption	●	●
	Device Management	●	●
	Report Management	●	●
	Alarm Management	●	●
	System Configuration	●	
Advanced Feature	Intelligent O&M	○	
	Mobile O&M	○	○
	Proactive Diagnosis	○	○
	Smart I-V Curve Diagnosis	○	○

● Basic ○ Optional



Smart I-V Curve Diagnosis

Smart I-V Curve Diagnosis is able to carry out online I-V curve analysis on entire strings with advanced diagnosis algorithm. The scanning would help to find out and identify the strings with low performance or faults, which would help to achieve proactive maintenance, higher O&M efficiency and lower operation cost.



Smart

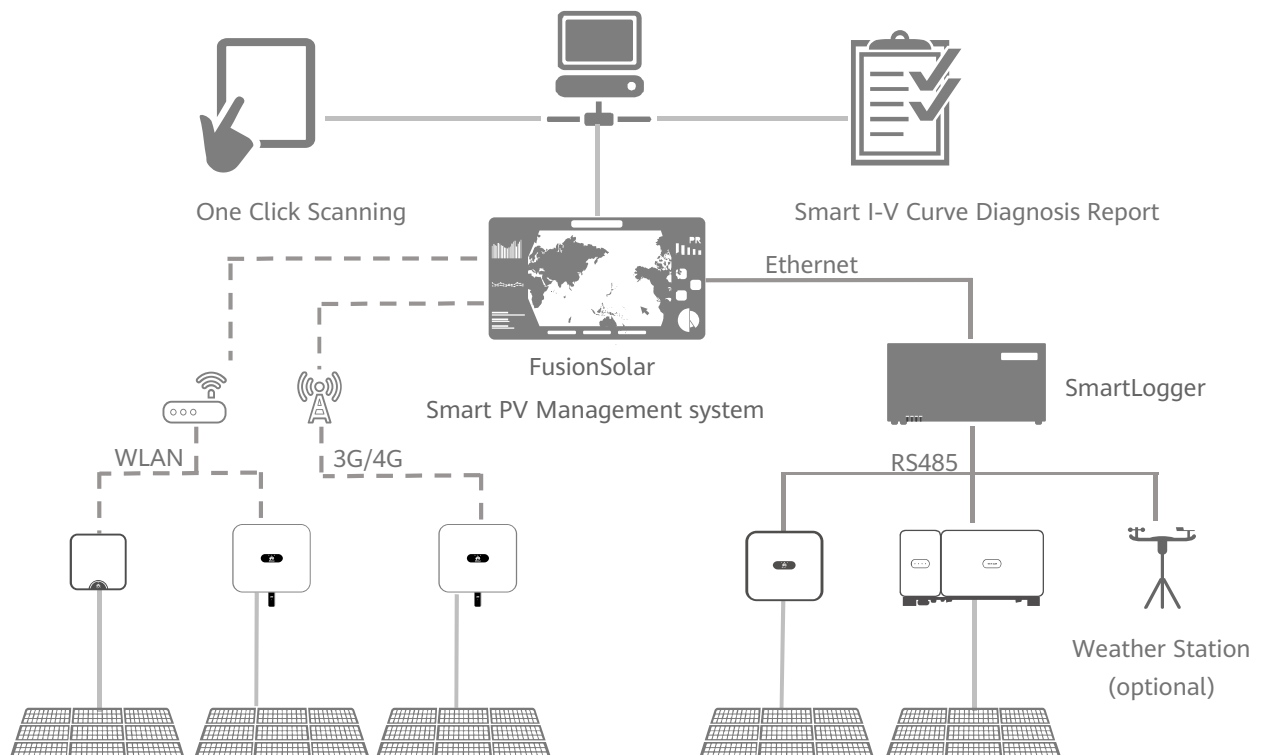
- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion



Efficient

- One-click scanning without onsite experts or equipment
- Online I-V curve scanning on entire strings of 5 MW plant within 5min
- Automatic report generation of 5 MW plant within 15min

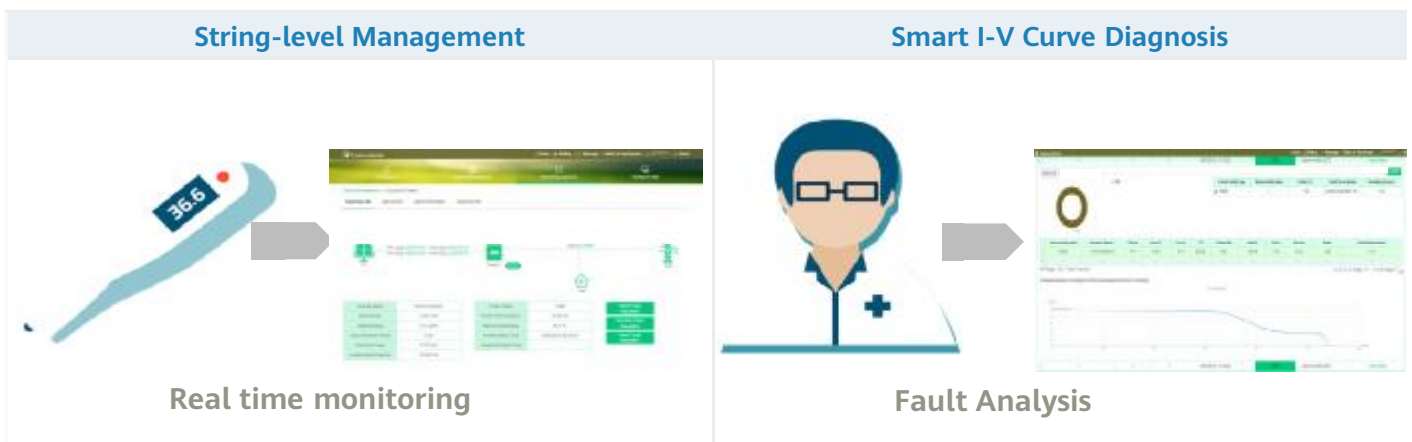
Network



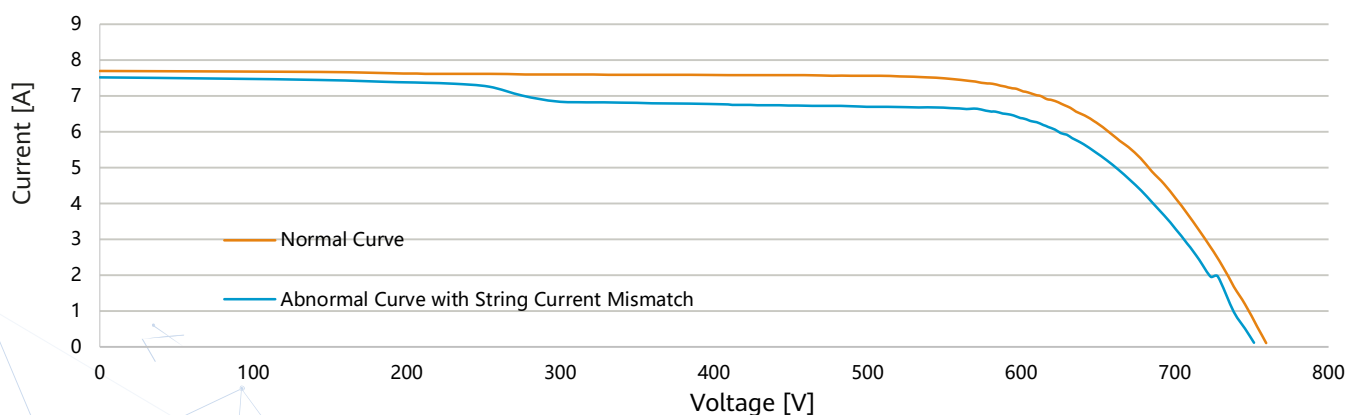
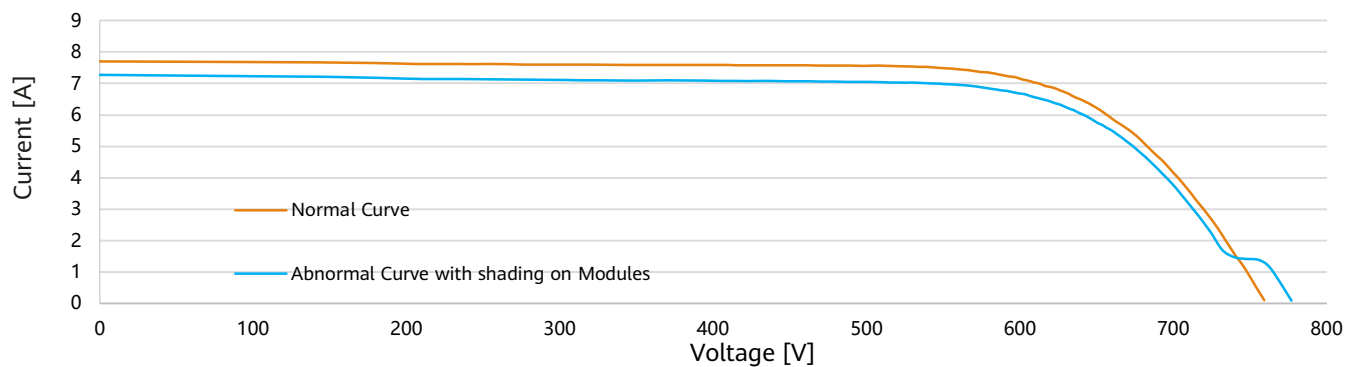
Smart I-V Curve Diagnosis

Technical Specifications	Smart I-V Curve Diagnosis
Smart PV Inverter*	SUN2000-2/3/4/5KTL-L1, SUN2000-3-10KTL-M0/M1, SUN2000-12-20KTL-M0/M2, SUN2000-36KTL, SUN2000-60KTL-M0, SUN2000-100KTL-M1
Communication	SmartLogger3000A, Smart Dongle-WLAN-FE, Smart Dongle-4G
Management System	FusionSolar Smart PV Management System
Scanning Time	< 1s (1 string)
Sampling Points per I-V Curve	128
Certification	 TÜV

* I-V curve diagnosis is not supported when inverter is connected with power optimizer.



String I-V Curve Comparison



Case Reference



3kW

Residential PV System in Quezon City, Philippines

System Configuration

- SUN2000L-3KTL

COD

June, 2018



5kW

Residential PV System in Hong Kong, China

System Configuration

- SUN2000L-5KTL

COD

Nov, 2018



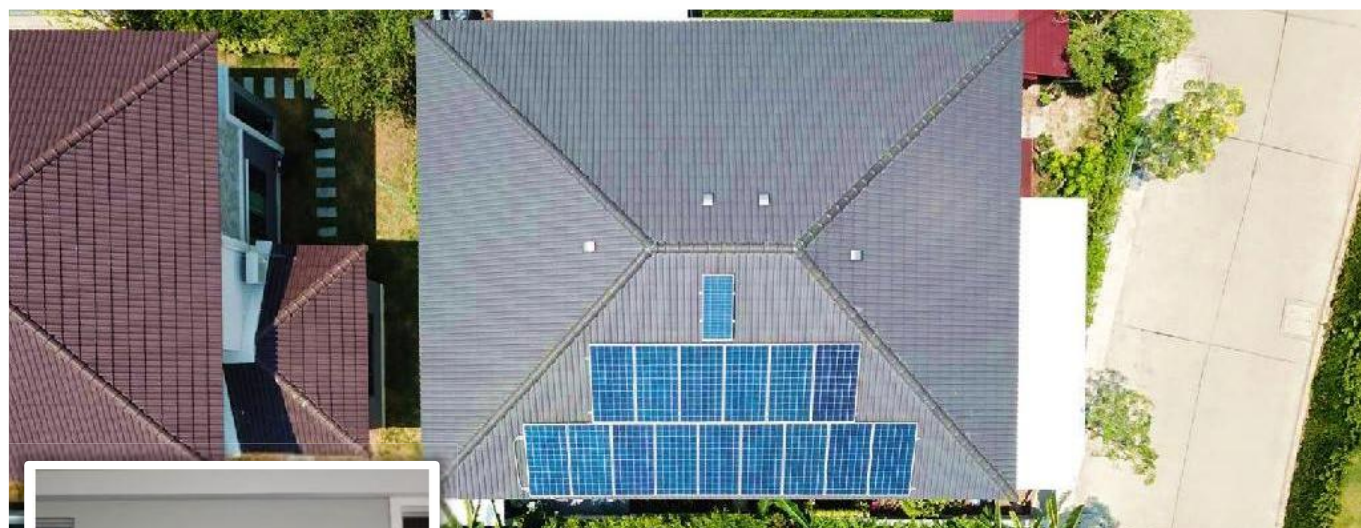
4kW

Residential PV System in Waregem, Belgium

System Configuration – Partial Optimizer

- 18 × 295Wp modules
- 6 × 375W optimizers
- SUN2000L-4KTL, WLAN
- Smart PV safety box

COD
May, 2018



5kW

Residential Energy System in Bangkok, Thailand

System Configuration

- SUN2000L-5KTL

COD
April, 2019



15kW

Residential PV System in Philippines

System Configuration

- 80 modules
- 3 × SUN2000L-5KTL

COD
Mar, 2019



4.5MW

Distributed PV System in Taichung, Taiwan

System Configuration

- SUN2000-40KTL

COD
May, 2019



2.8MWp

Distributed PV System in Changi Airport, Singapore

System Configuration

- SUN2000-36KTL

COD
Dec, 2016



1MWp

Distributed PV System in Kuala Lumpur, Malaysia

System Configuration

- SUN2000-36KTL

COD
Mar, 2016

Case Reference



604.5 kWp

Distributed PV System in Philippines

System Configuration

- SUN2000-42KTL

COD
Jan, 2019



760kWp

Distributed PV System in Vietnam

System Configuration

- SUN2000-36KTL

COD
July, 2018

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