



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.

In 2018, we delivered US\$105.2billion in revenue. On July 30, 2019, we announced our business results for the first half of 2019: CNY 401.3billion in revenue, a 23.2% increase over the same period last year.



Employees
194,000+



R&D Personnel
96,000+



Countries
170+



Interbrand's Top 100
Best Global Brands
74



Fortune Global 500
61



Research institutes
/labs/centers
14

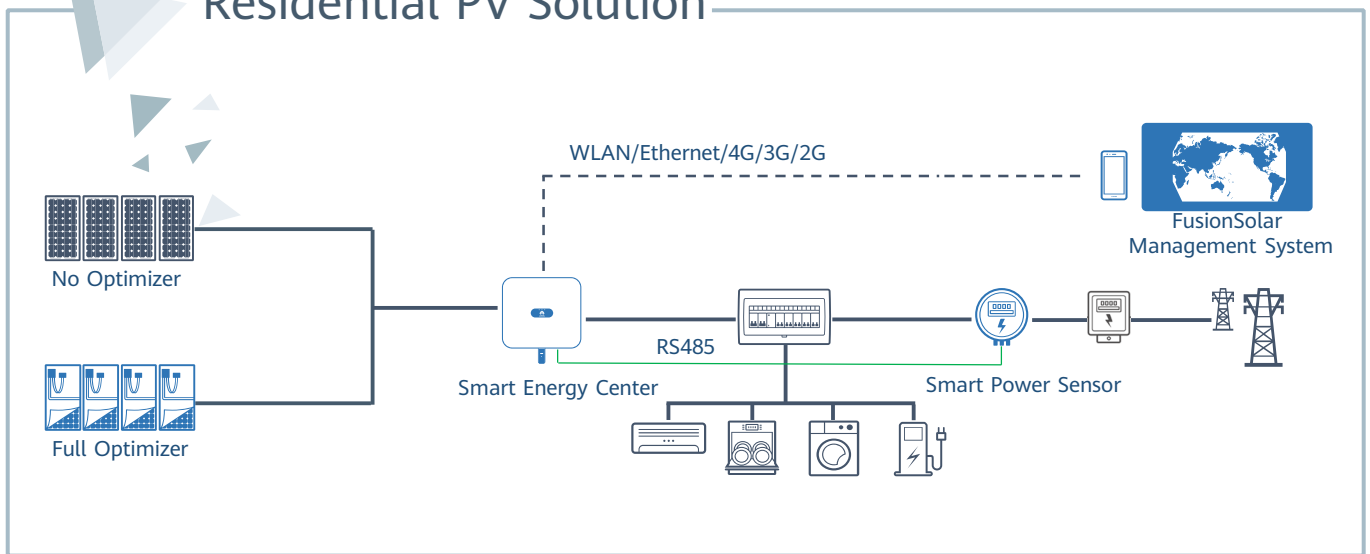


No.1
In global shipment 2015-2018



118GW+
Accumulated global shipment as end of 2019

Residential PV Solution



Installer Benefits

Easier design with optimizers meeting either simple or complex rooftops

Lighter inverter & optimized AC connector for one person easy installation

Proven product reliability with 90+ GW global shipment & <0.5% Inverter failure rate

Homeowner Benefits

Up to 30% more energy by optimizing each module performance

Build-in DC & AC surge protection

Visible power flow for easy home energy management





Upgraded Safety

AI BOOST AFCI
99.9% Accurate Arc Fault Detection



Higher Yields

Up to 30% More Energy
with Full Optimizer



Battery Ready

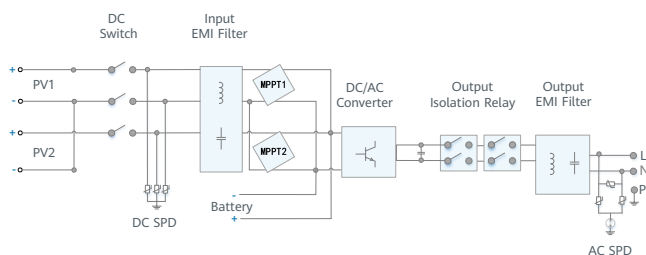
Plug & Play Battery Interface



'5+5' Battery Charge

5KW battery charging
plus 5KW AC output

Circuit Diagram



SUN2000-3/5KTL-L1

SUN2000-3/5KTL

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	13 A	
Max. short-circuit current	15 A	
Number of MPP trackers	2	
Max. number of inputs	2	
Input (DC Battery)		
Compatible Battery	LG Chem RESU 7H_R / 10H_R	HUAWEI PowerMate ESS Battery ¹
Number of connected battery	1	2
Operating voltage range	350 ~ 450 Vdc	350 ~ 560 Vdc
Max operating current	15 A	
Continuous Power	5,000 W	
Output		
Grid connection	Single phase	
Rated output power	3,000 W	5,000 W ⁴
Max. apparent power	3,300 VA	5,500 VA ⁶
Rated output voltage	220 V / 230 V / 240 V	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	15 A	25 A ⁷
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Backup power output	Yes (via Backup Box-5000 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	
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)	12.6 kg (27.8 lb)	
Dimension (incl. mounting bracket)	365mm * 365mm * 140 mm (14.4 x 14.4 x 5.5 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	

*1 Available in 2020 Q3.

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

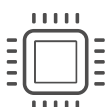
*3 The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.

*4 AS4777: 4990W. *5. VDE-AR-N 4105: 4600VA / AS4777: 4990VA. *6. AS4777: 4990VA. *7. AS4777: 21.7A.

Smart PV Optimizer



One-fits-all 60 & 72 Cell
Crystalline Silicon PV Module



Hisilicon Chipset Inside
<1.5 min Pairing with Inverter



Image Recognition
<5s Module Physical
View Auto Creation



Arc Fault Pinpoint Alert
Along PV Cable

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 134 x 25 mm (2.8 x 5.3 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		SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20KTL-M2

Long String Design (Full Optimizer)	SUN2000-2-6KTL-L1	SUN2000-3-10KTL-M1	SUN2000-12-20KTL-M2
Minimum optimizer number per string	4	6	6
Maximum optimizer number per string	25	50	50
Maximum DC power per string	5,000 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.

SUN2000-5/10KTL-M0 Smart Energy Center



Higher Revenue

Max. efficiency 98.6%



Simple & Easy

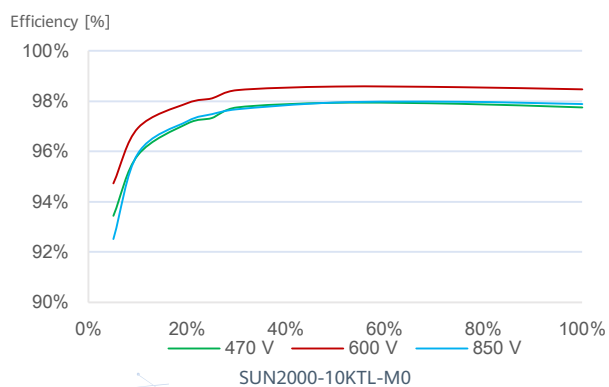
17 kg



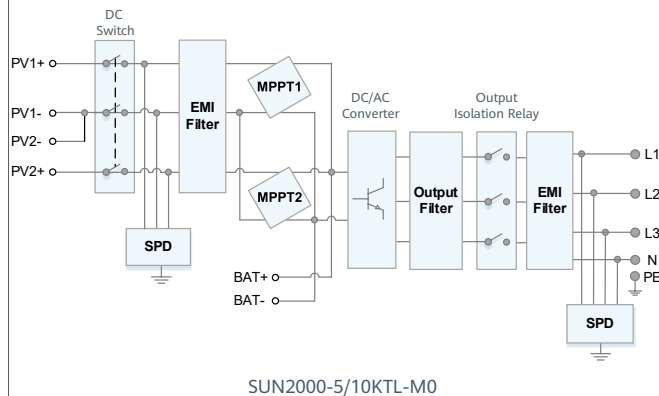
Safe & Reliable

Arc fault protection

Efficiency Curve



Circuit Diagram



SUN2000-5/10KTL-M0

Technical Specification

Technical Specification	SUN2000-5KTL-M0	SUN2000-10KTL-M0
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Efficiency		
Max. efficiency	98.4%	98.6%
European weighted efficiency	97.5%	98.1%

Input		
Max. input voltage ¹	1,100 V	
Operating voltage range ²	140 V ~ 980 V	
Start-up voltage	200 V	
Full power MPPT voltage range	240 V ~ 850 V	470 V ~ 850 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. number of inputs	2	

Output		
Grid connection	Three-phase	
Rated output power	5,000 W	10,000 W
Max. apparent power	5,500 VA	11,000 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac , default 3W / N+PE ; 3W+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 %	

Features & Protections		
Input-side disconnection device	Yes	
Anti-Islanding protection	Yes	
DC reverse polarity protection	Yes	
Insulation monitoring	Yes	
DC surge protection ³	Yes	
AC surge protection ³	Yes	
Residual current monitoring	Yes	
AC overcurrent protection	Yes	
AC short-circuit protection	Yes	
AC overvoltage protection	Yes	
Ripple receiver control	Yes	
Arc fault protection (AFCI)	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.)	
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 * 470 * 166 mm (20.7 * 18.5 * 6.5 inch)	
Degree of protection	IP65	
Night Time Power Consumption	< 5.5 W	

Standard Compliance (more available upon request)		
Safety	EN/IEC 62109-1, EN/IEC 62109-2, IEC62116	
Grid connection standards	G98, G99, IEC61727, EN 50438, CEI 0-21, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, DEWA 2.0, MEA, PEA	

^{*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} Compatible TYPE II protection class according to EN/IEC 61643-11

Smart Power Sensor



Accurate

Class 1 measurement accuracy



Simple & Easy

LCD display, easy to set and check

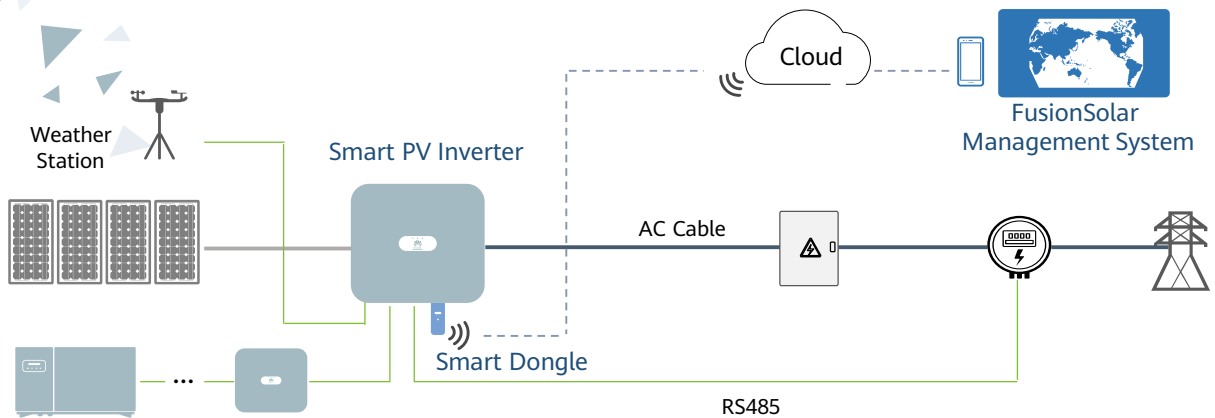


Energy Efficient

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



SUN2000-12/20KTL-M0 Smart String Inverter



Higher Revenue

Max. efficiency 98.65%



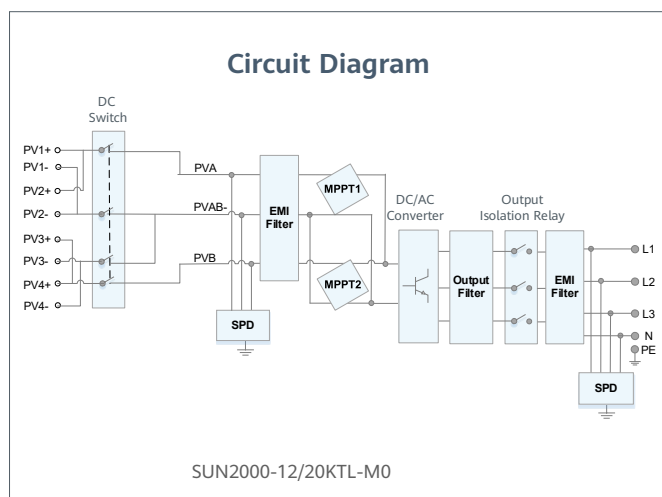
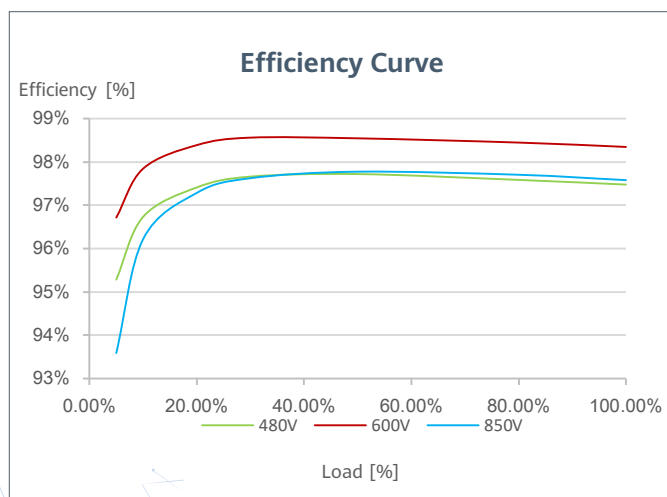
Simple & Easy

25 kg



Safe & Reliable

Arc fault protection



SUN2000-12/20KTL-M0

Technical Specification

Technical Specification	SUN2000 -12KTL-M0	SUN2000 -20KTL-M0
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Efficiency		
Max. efficiency	98.50%	98.65%
European weighted efficiency	98.00%	98.30%

Input		
Max. input voltage ¹	1,080 V	
Operating voltage range ²	160 V ~ 950 V	
Start 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	20,000 W
Max. apparent power	13,200 VA	22,000 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac , default 3W / N+PE ; 3W+PE	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	20 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 ³	Yes	
AC surge protection ³	Yes	
Residual current monitoring unit	Yes	
Arc fault protection	Yes	
Ripple receiver control	Yes	

General Data		
Operation temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F) (Derating above 45 °C @ Rated output power)	
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	
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	
Night Time Power Consumption	< 1 W	

Standard Compliance (more available upon request)		
Safety	EN/IEC 62109-1, EN/IEC 62109-2, IEC62116	
Grid connection standards	G98, G99, IEC61727, EN 50438, CEI 0-21, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, DEWA 2.0, MEA, PEA	

^{*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} Compatible TYPE II protection class according to EN/IEC 61643-11

SUN2000-36KTL Smart String Inverter



Smart

8 strings intelligent monitoring



Efficient

Max. efficiency 98.6%



Safe

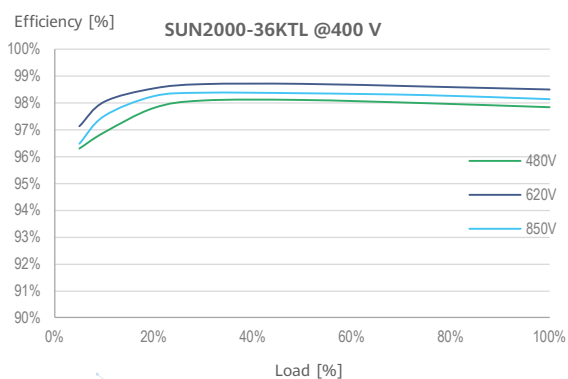
Fuse free design



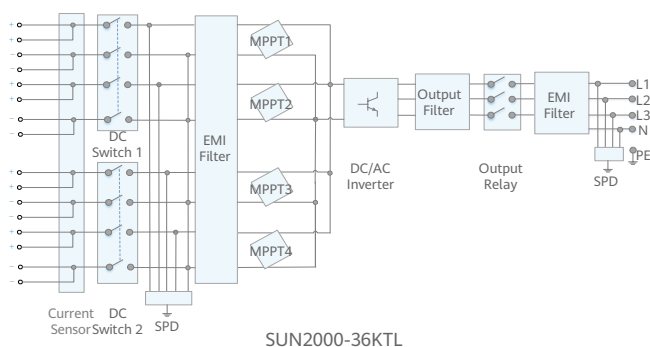
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



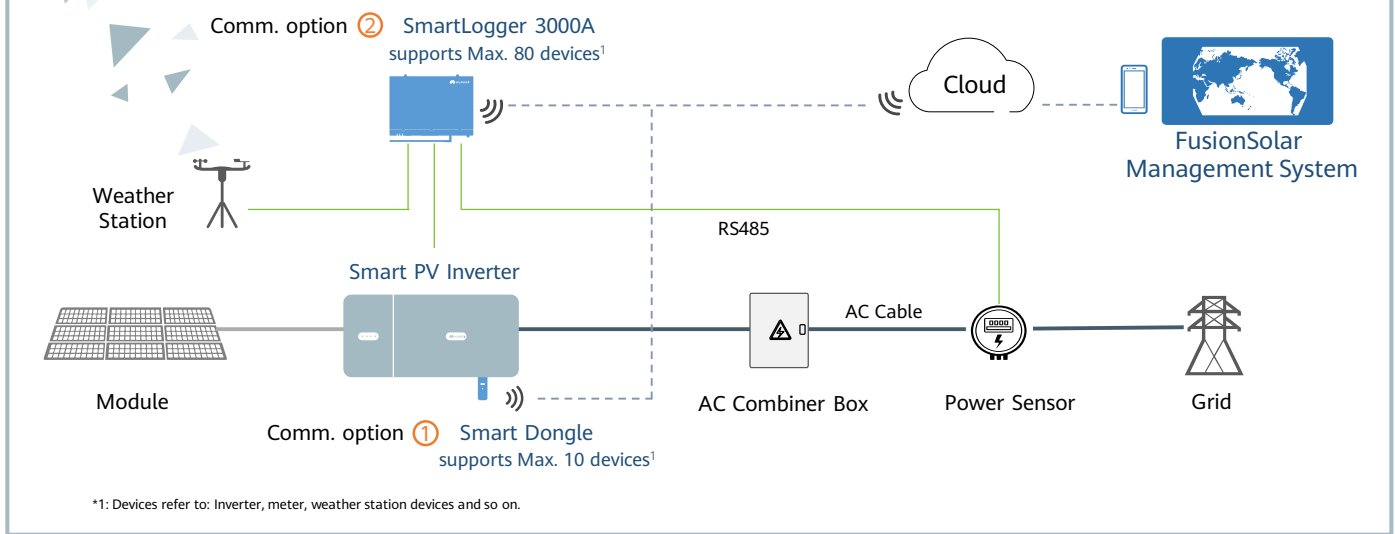
Circuit Diagram



SUN2000-36KTL
Technical Specification

Technical Specification	SUN2000-36KTL
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	22 A
Max. Short Circuit Current per MPPT	30 A
Start Voltage	250 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	620 V @380 V / 400 V, 720 V @480 V
Number of Inputs	8
Number of MPP Trackers	4
Output	
Rated AC Active Power	36,000 W
Max. AC Apparent Power	40,000 VA
Max. AC Active Power (cosφ=1)	40,000 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, default 3W + N + PE; 3W + PE optional in settings
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	54.6 A @380 V, 52.2 A @400 V, 43.4 A @480 V
Max. Output Current	60.8 A @380 V, 57.8 A @400 V, 48.2 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	Yes (Optional)
Communication	
Display	LED Indicators, APP
RS485	Yes
USB	Yes
MBUS	Yes (isolation transformer required)
General Data	
Dimensions (W x H x D)	930 x 550 x 283 mm (36.6 x 21.7 x 11.1 inch)
Weight (with mounting plate)	62 kg (136.7 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	< 2.5 W
Standard Compliance (more available upon request)	
Safety	EN 62109-1/-2, IEC 62109-1/-2
Grid Connection Standards	IEC 61727, IEC 62116, EN 50530, IEC 60068, IEC 61683, AS/NZS 4777.2, G59/3, PEA, MEA, Philippine Resolution No.7, VDE 0126-1-1

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

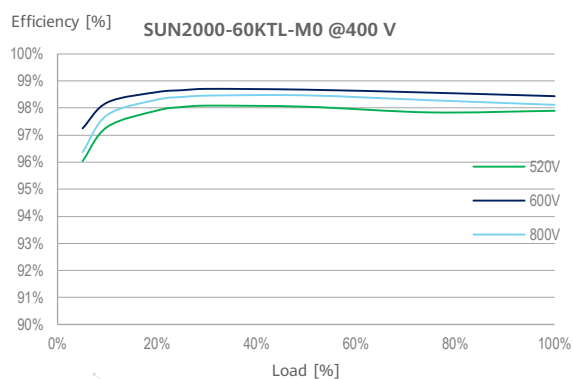
Fuse free design



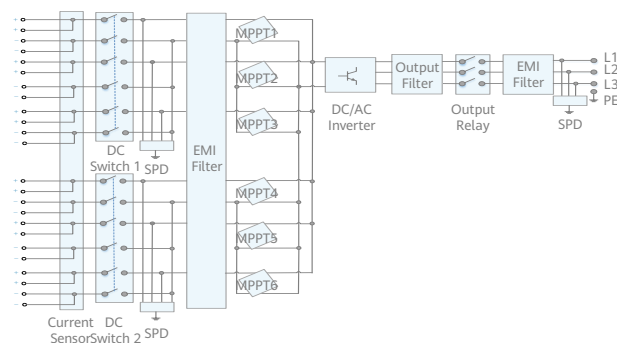
Reliable

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 String Inverter



Smart

Smart I-V Curve Diagnosis supported



Efficient

Max. efficiency 98.8%



Safe

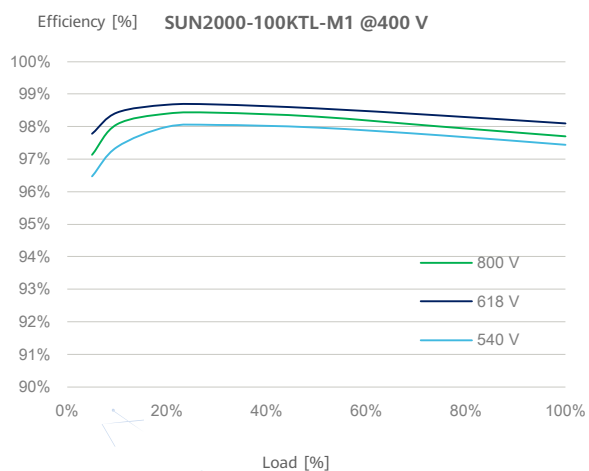
Fuse free design



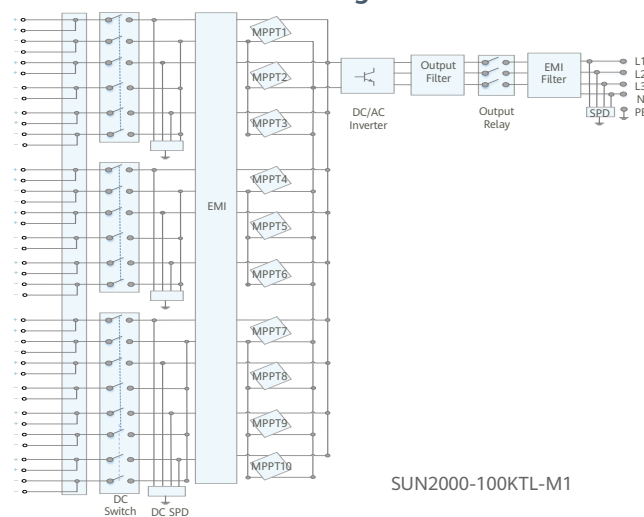
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



Circuit Diagram



Technical Specifications

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
Nominal Input Voltage	570 V @380 V; 600 V @400 V; 720 V @480 V
Number of Inputs	20
Number of MPP Trackers	10
Output	
Nominal 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
Nominal 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
Nominal 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 Protection ¹	Yes
AC Surge Protection ¹	Yes
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, APP
USB	Yes
RS485	Yes
MBUS	Yes (isolation transformer required)
General	
Dimensions (W x H x D)	1,035 x 700 x 365 mm (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 without Derating	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
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 61727, IEC 60068, IEC 61683, PEA, MEA, EN 50549, VDE 4105/0126, UTE C15-712-1, UNE 206006 IN, CEI 0-16

1: Compatible Type II protection class according to IEC / EN 61643-11

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	SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0

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 system¹



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	SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0 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

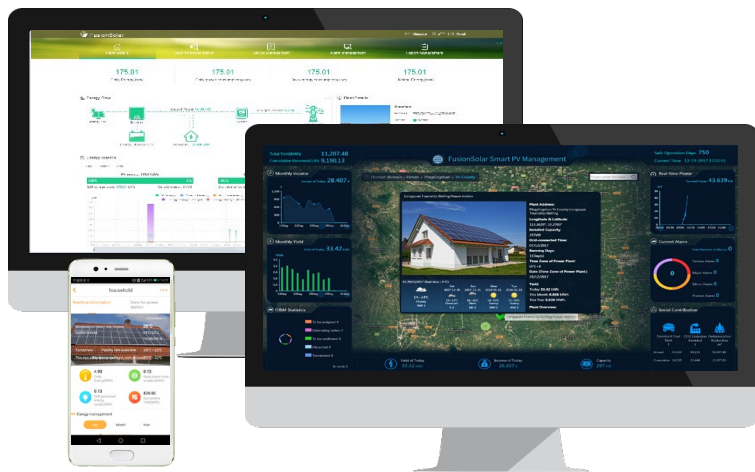
Safety by lightning protection module

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

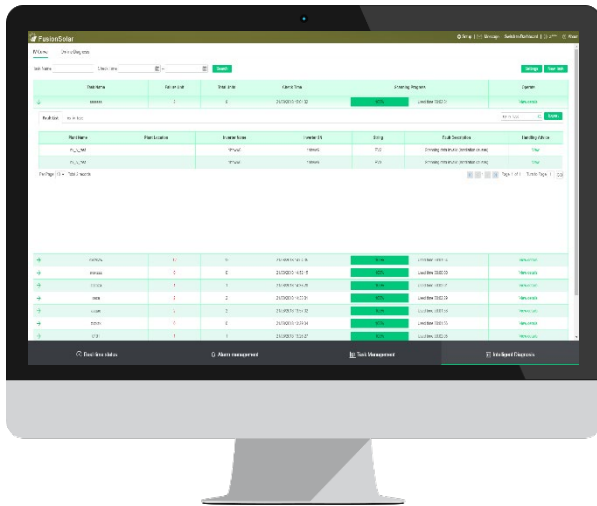
Feature List		WEB	APP
Basic Feature	Swift Installation & Registration	●	●
	Data Collection	●	
	Dashboard	●	●
	Energy Flow	●	●
	Energy Generation & Consumption	●	●
	Device Management	●	●
	Report Management	●	●
	Alarm Management	●	●
	System Configuration	●	
Advanced Feature	Intelligent O&M	○	
	Mobile O&M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

● Basic ○ Optional

* Only for residential scenario. Optimizer with Smart PV Safety Box required.

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

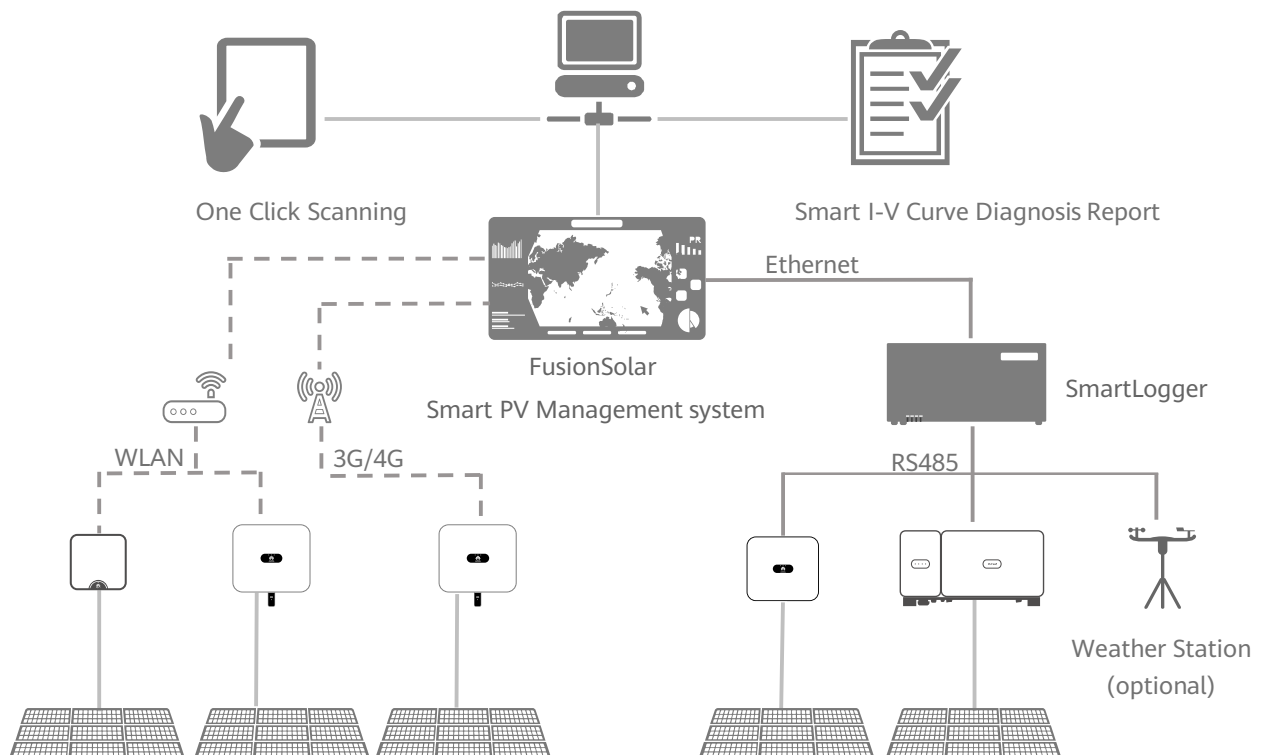
- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion



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

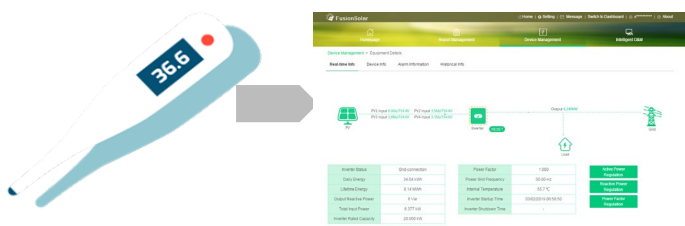


Smart I-V Curve Diagnosis

Technical Specifications	Smart I-V Curve Diagnosis	
Smart PV Inverter*	SUN2000-2/3/4/5KTL-L0, SUN2000-3-10KTL-M0, SUN2000-12-20KTL-M0, 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	 TÜVRheinland®	TUV

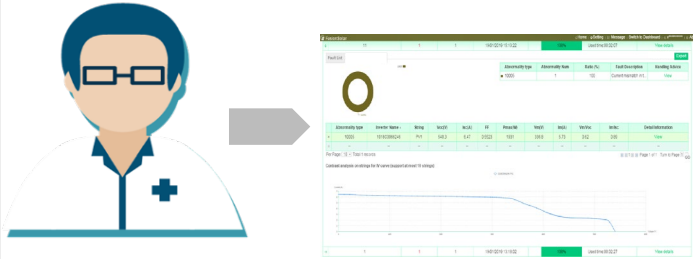
* I-V curve diagnosis is not supported when inverter is connected with power optimizer.

String-level Management



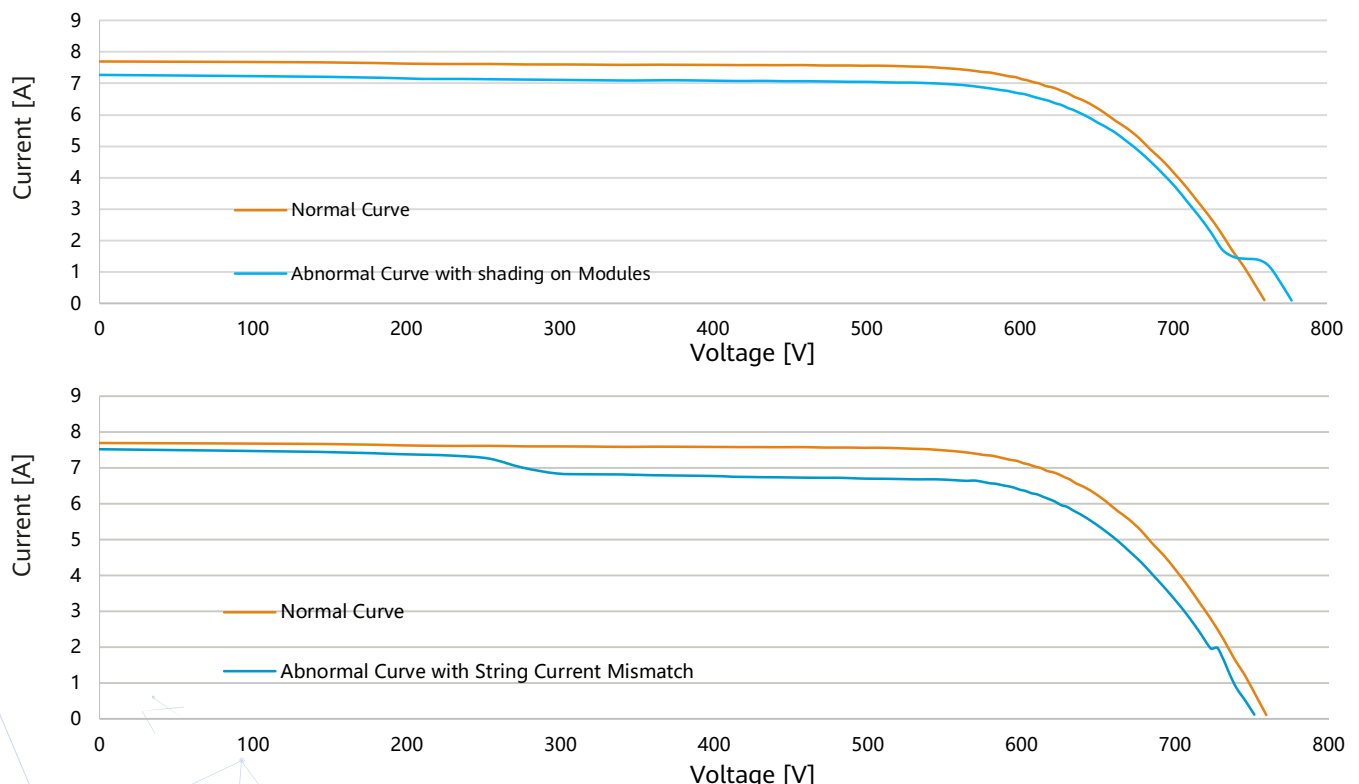
Real time monitoring

Smart I-V Curve Diagnosis



Fault Analysis

String I-V Curve Comparison





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



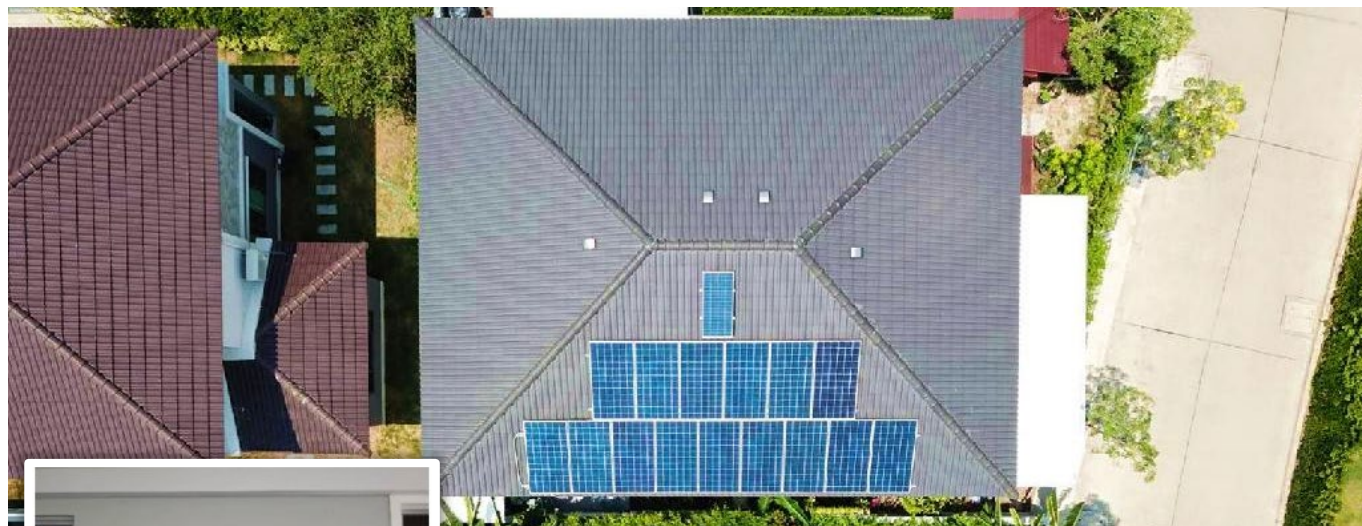
4kW

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