



FusionSolar Residential & Commercial Smart PV Solution

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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.

Our 2018 sales revenue was US\$108.5 billion with 21% YoY growth.

Employees
180,000 +

R&D Personnel
80,000 +

Countries
170 +

Inerbrand's Top 100
Best Global Brands
68

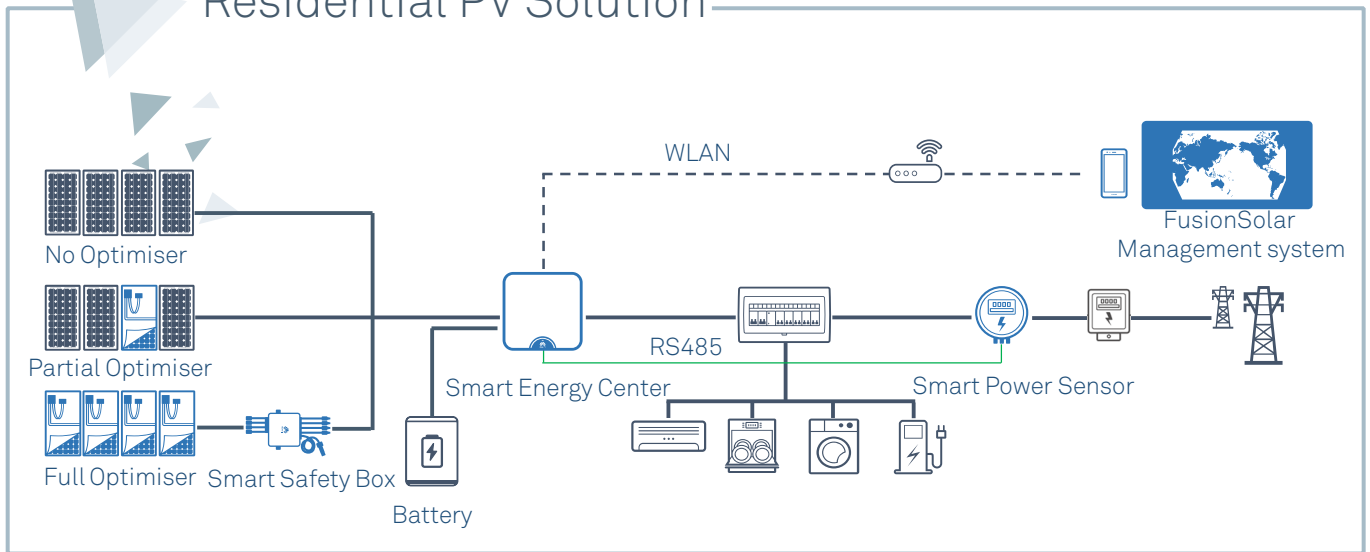
Fortune Global 500
72

Research institutes
/labs/centers
14

1
No.1
In global shipment 2015-2017

90GW+
Accumulated global shipment as of Dec. 2018

Residential PV Solution



Installer Benefits

More Sales, Easier Business	Faster Installation	Install & Forget
Partial optimiser to get more design flexibility & sales	Integrated battery interface for quick expansion anytime	Proven product reliability with 90+ GW global shipment

Homeowner Benefits

More Energy, Pay Less	Battery Ready, Secure Future	Visible Power, Easier Management
Optimizers only on affected roof, maximise yields but pay less	Battery ready by direct plug & play, future proof	Visible power flow for easy home energy management





reddot award 2016
winner



Higher Revenue

Max. efficiency 98.6%



Simple & Easy

Optimised AC connector



Battery Ready

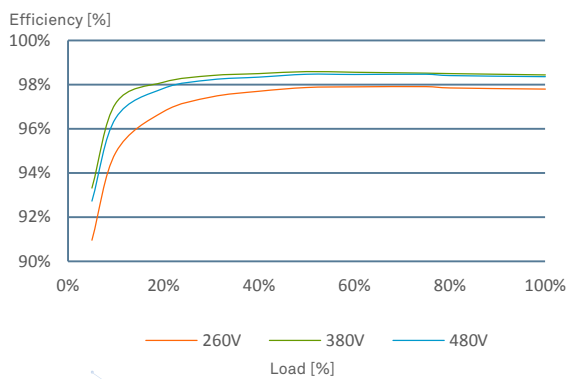
Plug & Play battery interface



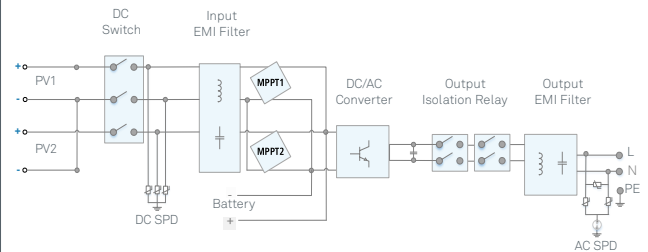
Safe & Reliable

DC & AC lightning protection

Efficiency Curve



Circuit Diagram



SUN2000L-2/3/4/4.6/5KTL

SUN2000L-2/3/4/4.6/5KTL
Technical Specification

Technical Specification	SUN2000L -2KTL	SUN2000L -3KTL	SUN2000L -4KTL	SUN2000L -4.6KTL	SUN2000L -5KTL
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Efficiency					
Max. efficiency	98.4 %	98.5 %	98.6 %	98.6 %	98.6 %
European weighted efficiency	97.0 %	97.6 %	97.9 %	98.0 %	98.0 %

Input					
Recommended max. PV power	3,000 Wp	4,500 Wp	6,000 Wp	6,900 Wp	7,500 Wp
Max. input voltage ¹	600 V / 495 V ¹				
Operating voltage range ¹	90 V~ 600 V / 90 V~ 495 V ¹				
Start-up voltage	120 V				
Full power MPPT voltage range	120 V ~ 480 V	160 V ~ 480 V	210 V ~ 480 V	260 V ~ 480 V	260 V ~ 480 V
Rated input voltage	380 V				
Max. input current per MPPT	11 A				
Max. short-circuit current	15 A				
Number of MPP trackers	2				
Max. number of inputs per MPPT	1				

Output					
Grid connection	Single phase				
Rated output power	2,000 W	3,000 W	4,000 W	4,600 W	4,990 W
Max. apparent power	2,200 VA	3,300 VA	4,400 VA	4,990 VA	4,990 VA
Rated output voltage	220 V / 230 V / 240 V				
Rated AC grid frequency	50 Hz / 60 Hz				
Max. output current	10 A	15 A	20 A	21.7 A	21.7 A
Adjustable power factor	0.8 leading ... 0.8 lagging				
Max. total harmonic distortion	≤ 3 %				

Protection	
Anti-Islanding protection	Yes
DC reverse polarity protection	Yes
Insulation monitoring	Yes
DC lightning protection	Yes
AC lightning protection	Yes
Residual current monitoring	Yes
AC overcurrent protection	Yes
AC short-circuit protection	Yes
AC overvoltage protection	Yes
Over-heat protection	Yes

General Data	
Operating temperature range	-30 ~ +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
Weight (incl. mounting bracket)	10.6 kg (23.4 lb)
Dimension (incl. mounting bracket)	375 x 375 x 161.5 mm (14.8 x 14.8 x 6.4 inch)
Degree of protection	IP65

Battery Compatibility	
Battery	LG Chem RESU 7H_R / 10H_R
Voltage range	350 ~ 450 Vdc
Max. current	10 A
Communication	RS485

Standard Compliance (more available upon request)	
Safety	EN/IEC 62109-1, EN/IEC 62109-2
Grid connection standards	AS/NZS 4777:2015

¹ Only applicable for PV string. The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.

The text and figures reflect the current technical state at the time of printing. Subject to technical changes. Errors and omissions excepted. Huawei assumes no liability for mistakes or printing errors. For more information, please visit solar.huawei.com. Version No.:01-(20190126)

Smart PV Optimiser



Higher Revenue

Max. efficiency 99.5%



Simple & Easy

Support partial optimiser



Safe & Reliable

IP68

Technical Specification	SUN2000P-375W
Input	
Rated input power	375 W
Absolute maximum input voltage	80 V
MPPT operating voltage range	10 - 80 V
Max. input current	12 A
Max. efficiency	99.5 %
Weighted efficiency	99.0 %
Overvoltage category	II
Output	
Max. output voltage	80 V
Max. output current	10 A
Output bypass	Yes
Standard Compliance	
Safety	IEC62109-1 (class II safety)
RoHS	Yes
General Specification	
Maximum allowed system voltage	1,000 V
Dimension (W x H x D)	125 x 85 x 25.5 mm (4.9 x 3.3 x 1.0 inch)
Weight (including cables)	0.7 kg (1.5 lb.)
Installation part	Star Washer (standard) / Grounding Plate, Grounding Lug, PV Module Frame Plate (optional)
Input connector	MC4
Output connector	MC4
Output wire length	1.2 m (3.9 ft.)
Operating temperature / humidity range	-40 °C ~ 85 °C / 0 %RH ~ 100 %RH
Degree of protection	IP68

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Smart PV Safety Box



Simple & Easy

Module-level management



Safe & Reliable

Module-level shutdown

Technical Specification	SmartPSB2000L
Input	
Maximum input voltage	600 V
Number of inputs	2
Maximum input current per input	15 A
Output	
Maximum output voltage	600 V
Number of outputs	2
Maximum output current per output	15 A
Feature	
Module-level remote management	Yes
Onsite master module shutdown	Yes
General Specification	
Dimension (H x W x D)	149 x 149 x 49 mm (5.9 x 5.9 x 1.9 inch)
Weight	0.8 kg (1.8 lb)
Display	LED Indicator
Communication with inverter	RS485
Input type	Amphenol HH4
Protection class (according to IEC 61140)	II
Operating temperature range	-30 °C ~ 55 °C
Degree of protection (according to IEC 60529)	IP65

Smart Power Sensor



Accurate

Class 1 measurement accuracy





Simple & Easy

LCD display, easy to set and check



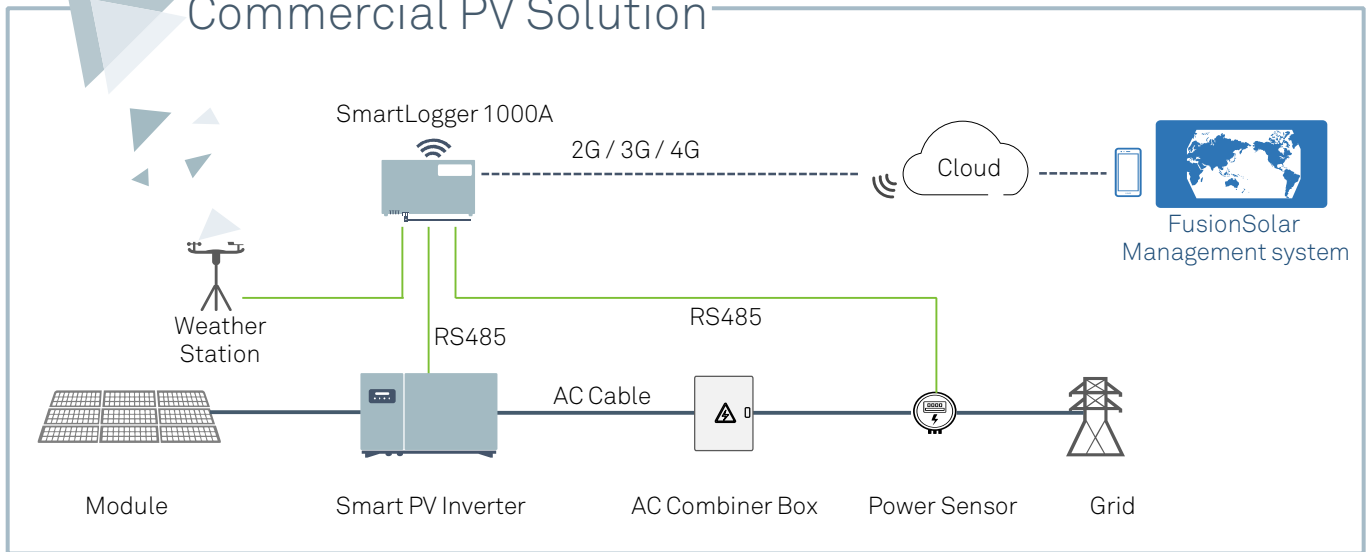
Energy Efficient

Overall power consumption ≤ 1 W

Technical Specification	DDSU666-H	DTSU666-H
General Specification		
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 power (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	
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	
Relative Operating humidity	5 %RH ~ 95 %RH (non-condensing)	
Others		
Accessories	RS485 Cable (10 m / 33 ft.)	
	1 CT 100 A / 40 mA (6 m / 19 ft.) 	3 CT 100 A / 40 mA (6 m / 19 ft.) 

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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
 Euro. 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



SUN2000-8/12KTL Smart String Inverter



Smart

4 strings intelligent monitoring



Efficient

Max. efficiency 98.5%



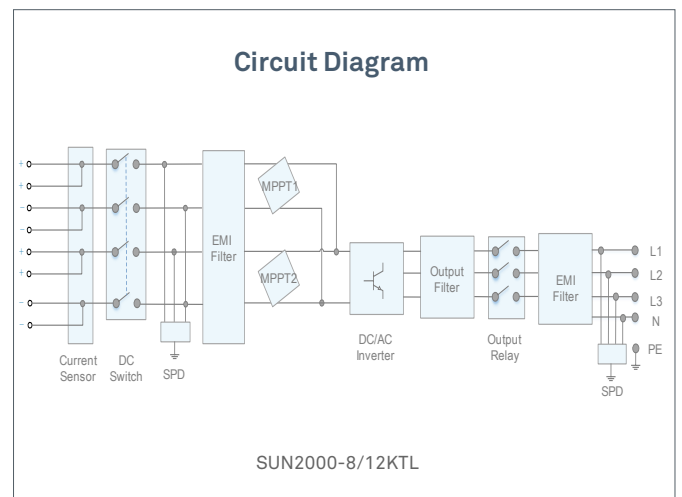
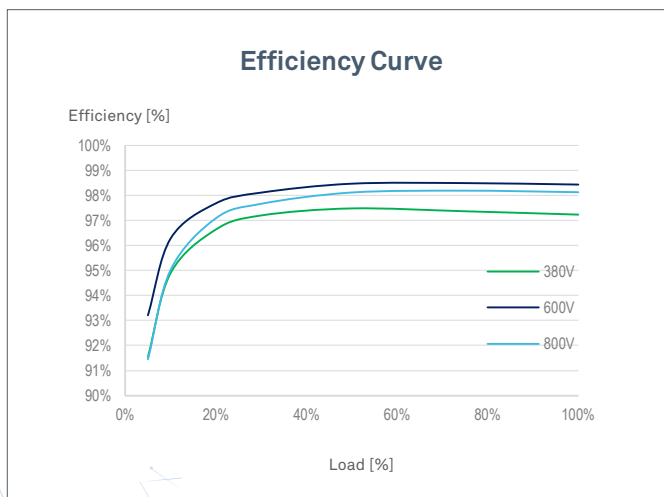
Safe

Fuse free design



Reliable

Type II surge arresters for DC & AC



Technical Specification	SUN2000-8KTL	SUN2000-12KTL
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Efficiency		
Max. efficiency	98.5%	
European efficiency	98.0%	

Input		
Max. Input Voltage	1,000 V	
Max. Current per MPPT	18 A	
Max. Short Circuit Current per MPPT	25 A	
Start Voltage	250 V	
MPPT Operating Voltage Range	200 V~950 V	
Rated Input Voltage	620 V	
Number of Inputs	4	
Number of MPP Trackers	2	

Output		
Rated AC Active Power	8,000 W	12,000 W
Max. AC Apparent Power	8,800 VA	13,200 VA
Max. AC Active Power (cosφ=1)	8,800 W	13,200 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, 3W + N + PE	
Rated AC Grid Frequency	50 Hz / 60 Hz	
Rated Output Current	12.2 A @380 V / 11.6 A @400 V	18.3 A @380 V / 17.4 A @400 V
Max. Output Current	13.4 A	20 A
Adjustable Power Factor Range	0.8 leading... 0.8 lagging	
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	Graphic LCD	
RS485	Yes	
USB	Yes	

General Data		
Dimensions (W x H x D)	520 x 610 x 266 mm (20.5 x 24.0 x 10.5 inch)	
Weight (with mounting plate)	42 kg (92.6 lb.)	
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)	
Cooling Method	Natural Convection	
Max. Operating Altitude	3,000 m (9,842 ft.)	
Relative Humidity	0 ~ 100%	
DC Connector	Amphenol Helios H4	
AC Connector	Amphenol C16 / 3	
Protection Degree	IP65	
Topology	Transformerless	

Standard Compliance		
Safety	EN 62109-1/-2, IEC 62109-1/-2	
Grid Connection Standards	ABNT, IEC 61727, IEC 62116, IEC 61683, IEC 60068, NB/T 32004-2013, VDE-AR-N-4105, VDE 0126-1-1, BDEW, G83/2 (Only 8KTL), G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, C10/11, EN 50438-Netherlands, EN 50438-Ireland, EN 50438-Turkey, RD 1699, AS 4777, PEA (Only 12&20KTL), MEA (Only 20KTL), DEWA, NRS 097-2-1	

SUN2000-17/20KTL Smart String Inverter



Smart

6 strings intelligent monitoring



Efficient

Max. efficiency 98.6%



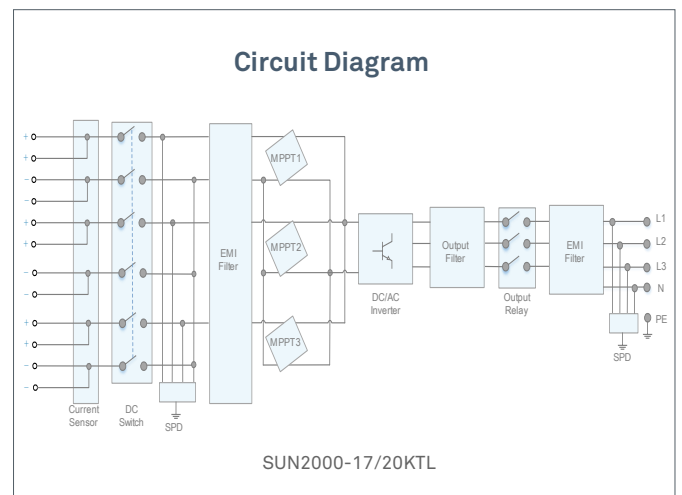
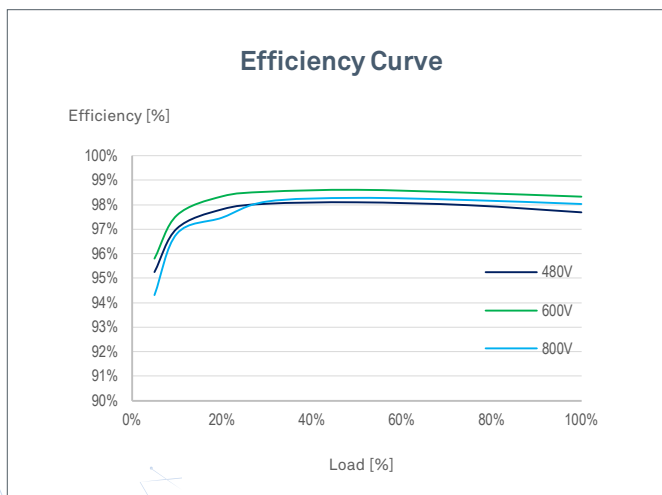
Safe

Fuse free design



Reliable

Type II surge arresters for DC & AC



SUN2000-17/20KTL
Technical Specification

Technical Specification	SUN2000-17KTL	SUN2000-20KTL
Efficiency		
Max. efficiency	98.6%	
European efficiency	98.3%	
Input		
Max. Input Voltage	1,000 V	
Max. Current per MPPT	18 A	
Max. Short Circuit Current per MPPT	25 A	
Start Voltage	250 V	
MPPT Operating Voltage Range	200 V~950 V	
Rated Input Voltage	620 V	
Number of Inputs	6	
Number of MPP Trackers	3	
Output		
Rated AC Active Power	17,000 W	20,000 W
Max. AC Apparent Power	18,700 VA	22,000 VA
Max. AC Active Power (cosφ=1)	18,700 W	22,000 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, 3W + N + PE	
Rated AC Grid Frequency	50 Hz / 60 Hz	
Rated Output Current	25.8 A @380 V, 24.7 A @400 V	30.4 A @380 V, 29 A @400 V
Max. Output Current	28.5 A	33.5 A
Adjustable Power Factor Range	0.8 leading... 0.8 lagging	
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	Graphic LCD	
RS485	Yes	
USB	Yes	
General Data		
Dimensions (W x H x D)	520 x 610 x 266 mm (20.5 x 24.0 x 10.5 inch)	
Weight (with mounting plate)	50 kg (110.2 lb.)	
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)	
Cooling Method	Natural Convection	
Max. Operating Altitude	3,000 m (9,842 ft.)	
Relative Humidity	0 ~ 100%	
DC Connector	Amphenol Helios H4	
AC Connector	Amphenol C16 / 3	
Protection Degree	IP65	
Topology	Transformerless	
Standard Compliance		
Safety	EN 62109-1/-2, IEC 62109-1/-2	
Grid code	ABNT, IEC 61727, IEC 62116, IEC 61683, IEC 60068, NB/T 32004-2013, VDE-AR-N-4105, VDE 0126-1-1, BDEW, G83/2 (Only 8KTL), G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, C10/11, EN 50438-Netherland, EN 50438-Ireland, EN 50438-Turkey, RD 1699, AS 4777, PEA (Only 12&20KTL), MEA (Only 20KTL), DEWA, NRS 097-2-1	

SUN2000-29.9KTL Smart String Inverter



Smart

8 strings intelligent monitoring



Efficient

Max. efficiency 98.6%



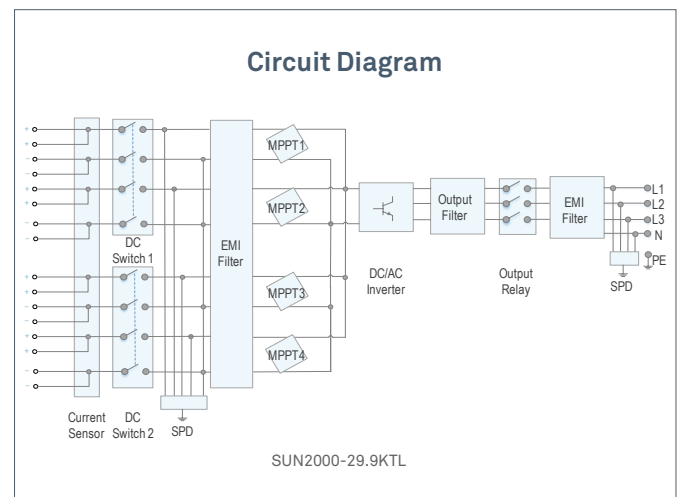
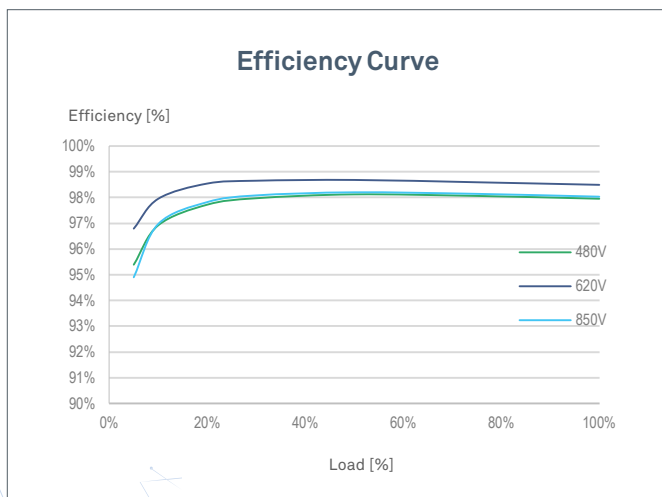
Safe

Fuse free design



Reliable

Type II surge arresters for DC & AC



Technical Specification	SUN2000-29.9KTL
Efficiency	
Max. Efficiency	98.6%
European Efficiency	98.4%
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
Number of Inputs	8
Number of MPP Trackers	4
Output	
Rated AC Active Power	29,900 W
Max. AC Apparent Power	29,900 VA
Max. AC Active Power (cosφ=1)	29,900 W
Rated Output Voltage	400 V, 3W + N + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	43.2 A
Max. Output Current	43.2 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	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, Bluetooth + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes
General	
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
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683
Grid Code	IEC 61727, AS/NZS 4777.2

SUN2000-36KTL Smart String Inverter



Smart

8 strings intelligent monitoring



Efficient

Max. efficiency 98.6%



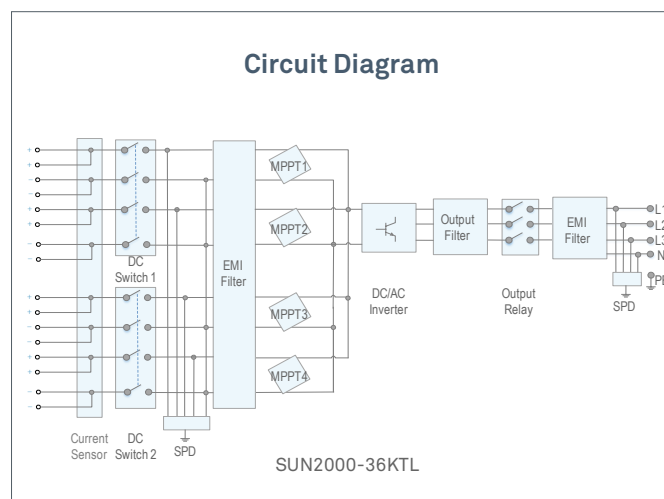
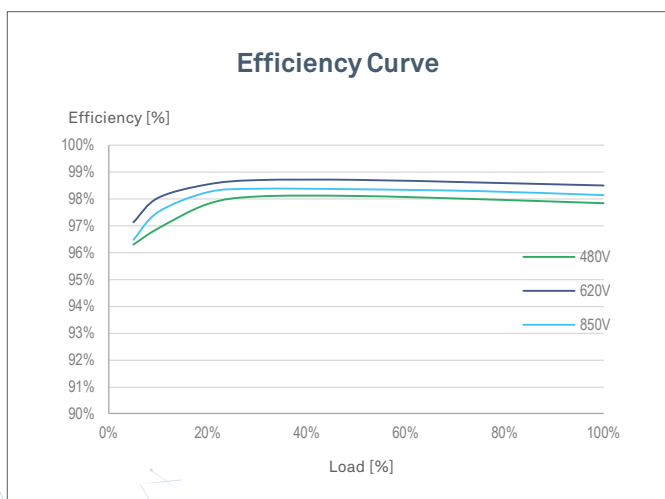
Safe

Fuse free design



Reliable

Type II surge arresters for DC & AC



Technical Specification	SUN2000-36KTL
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Efficiency	
Max. Efficiency	98.6%
European Efficiency	98.4%

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
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)	Default 40,000 W; 36,000 W optional in settings
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
Max. Output Current	60.8 A @380 V / 57.8 A @400 V
Adjustable Power Factor Range	0.8 leading... 0.8 lagging
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, Bluetooth + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes

General	
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

Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683
Grid Code	IEC 61727, AS/NZS 4777.2, 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

SUN2000-50KTL-M0 Smart String Inverter



Smart I-V Curve
Diagnosis supported



Max. efficiency 98.7%



Fuse free design



Protection degree of IP65



12 strings intelligent
monitoring and fast
trouble-shooting



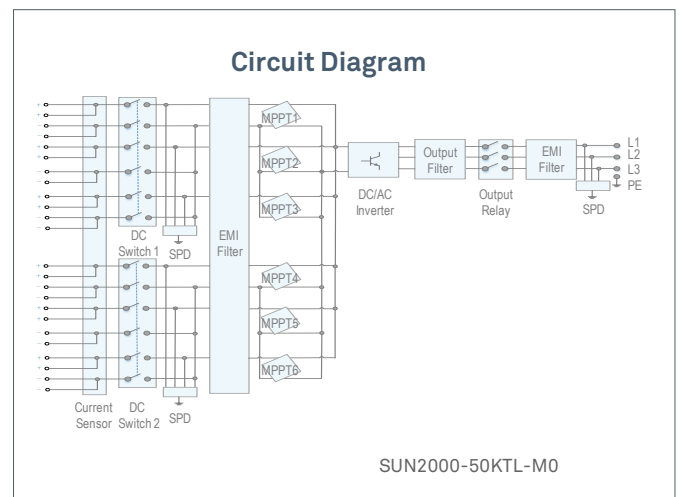
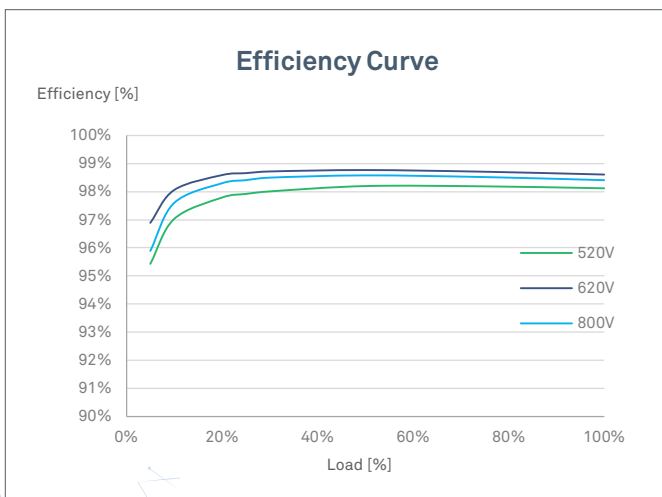
Type II surge arresters
for both DC and AC



Residual Current
Monitoring Unit (RCMU)
integrated



MBUS supported



Technical Specification	SUN2000-50KTL-M0
Efficiency	
Max. Efficiency	98.7%
European Efficiency	98.5%
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
Number of Inputs	12
Number of MPP Trackers	6
Output	
Rated AC Active Power	50,000 W
Max. AC Apparent Power	55,000 VA
Max. AC Active Power (cosφ=1)	55,000 W
Rated Output Voltage	220 V / 230 V, default 3W + N + PE; 380 V / 400 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	76 A @380 V / 72.2 A @400 V
Max. Output Current	83.6 A @380 V / 79.4 A @400 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, Bluetooth + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes
General	
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
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 62910, IEC 60068, IEC 61683
Grid Code	IEC 61727, G59/3, AS/NZS 4777.2, EN50438, VDE4105/0126

**Smart**

2G/3G/4G communication ¹
Support 3rd-party monitoring system ²

**Simple**

Plug & Play
Support max. 10 devices

**Reliable**

IP65
Support auto reconnection

Technical Specification	Smart Dongle-4G-AU
General Parameter	
Max. number of manageable devices	10
Max. number of manageable inverters	10 (Inverters connected via RS485)
Connection interface	USB
Installation	Plug-and-play ³
Indicator	LED Indicator
Dimensions (W * H * D)	130 * 48 * 33 mm (5.1 * 1.9 * 1.3 inch)
Weight	90 g (0.2 lb.)
Protection degree	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 ⁴
Environment	
Operation temperature range	-30 °C to +65 °C (-22 °F to 149 °F)
Relative humidity	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	RCM

1: 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).

2: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.

3: Smart Dongle-4G-AU can be installed on SUN2000-50 / 60KTL-M0.

4: For recommended carriers list and details on supported frequencies, please contact local distributors

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SmartLogger 1000



Smart

Active & reactive power control



Simple

Including up to 80 inverters



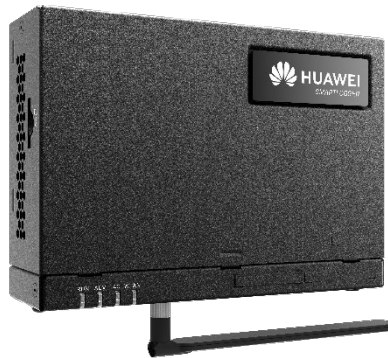
Reliable

Max. communication range 1,000m

Technical Specification	SmartLogger 1000
Device Management	
Max. Number of Manageable Devices	80
Max. Number of Manageable Smart Inverters	80
Communication Interface	
Electrical Ethernet	ETH x 1, 10 / 100 Mbps
RS485	COM x 3, 2400 / 4800 / 9600 / 19200 / 115200 bps
Digital / Analog Input / Output	DI x 4, DO x 3, AI x 2
Communication Protocol	
Ethernet	Modbus-TCP, IEC 60870-5-104
RS485	Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
Interaction	
LCD	3.5 inch Graphic LCD
LED	LED Indicator x 3
WEB	Embedded WEB
USB	USB 2.0 x 1
Environment	
Operating Temperature Range	-20°C ~ 60°C (-4°F ~ 140°F)
Relative Humidity (Non-condensing)	5% ~ 95%
Max. Operating Altitude	4,000 m (13,123 ft.)
Electrical	
Power Supply	100 V ~ 240 V, 50 Hz / 60 Hz
Power Consumption	Typical 3 W, Max. 7 W
Mechanical	
Dimensions (W x H x D)	225 x 140 x 50 mm (8.9 x 5.5 x 2.0 inch)
Weight	0.5 kg (1.1 lb.)
Protection Degree	IP20
Installation Options	Wall Mounting, DIN Rail Mounting, Tabletop Mounting

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SmartLogger 1000A



Smart

Smart zero export control design



Simple

2G / 3G / 4G communication¹



Reliable

Safety improvement by SPD inside

Technical Specification	SmartLogger 1000A
Device Management	
Max. Number of Connected Devices	80
Communication Interface	
Electrical Ethernet	ETH x 1, 10 / 100 Mbps
RS485	COM x 3, 2400 / 4800 / 9600 / 19200 / 115200 bps, 1000 m
2G / 3G / 4G	LTE FDD, LTE TDD, WCDMA, GSM ²
Digital / Analog Input / Output	DI x 4, DO x 2, AI x 4
Active DO	12V, 100mA (connection with relay, sensor)
SPD Inside	Yes
Communication Protocol	
Ethernet	Modbus-TCP, IEC 60870-5-104
RS485	Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
Interaction	
LED	LED Indicator x 4 – RUN, ALM, 4G, WLAN
WEB	Embedded Web
USB	USB 2.0 x 1
APP	Communication by WLAN
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	20 ~ 30 V
Power Consumption	Typical 8 W, Max. 15 W
Mechanical	
Dimensions (W x H x D)	200 x 140 x 53 mm (7.9 x 5.5 x 2.1 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.

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FusionSolar Smart PV Management System



Simple & Swift

- Simple commissioning by APP
- One-click commissioning by import saved configuration



Convenient & Reliable

- Home 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 solution with Smart PV Safety Box required

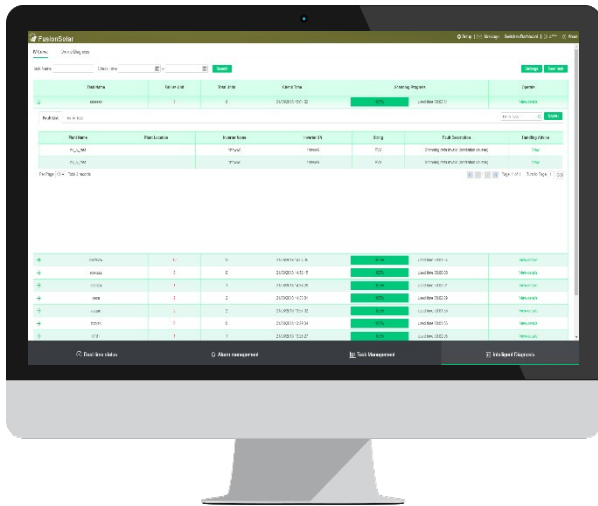
Feature List		WEB	APP
Basic Feature	Swift Installation & Registration	●	●
	Data Collection	●	
	Dashboard	●	●
	Energy Flow	●	●
	Energy Generation & Consumption	●	●
	Device Management	●	●
	Report Management	●	●
	Alarm Management	●	●
	System Configuration	●	
Advanced Feature	Intelligent O&M	○	
	Mobile O&M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

● Basic ○ Optional

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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

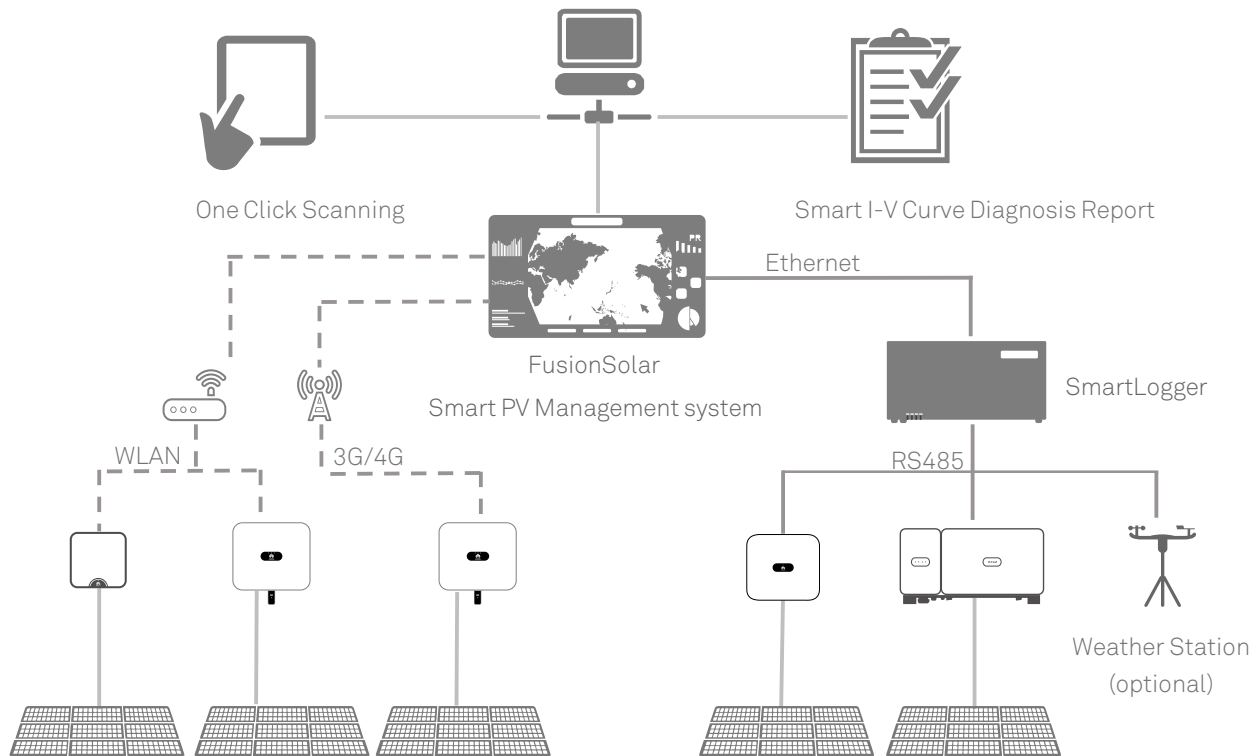
- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion




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	SUN2000L-2/3/4/4.6/5KTL*, SUN2000-29.9/36KTL, SUN2000-50KTL-M0
Communication	SmartLogger2000, SmartLogger1000A, SmartLogger1000, Smart Dongle
Management System	FusionSolar Smart PV Management System, NetEco1000s
Scanning Time	< 1s (1 string)
Sampling Points per I-V Curve	128
Certification	 TÜVRheinland® TUV

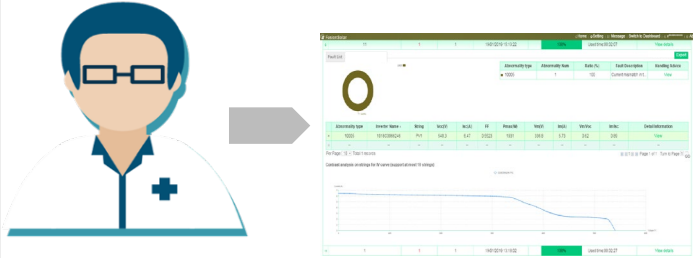
* I-V curve diagnosis is not supported when inverter is connected with power optimizer.

String-level Management



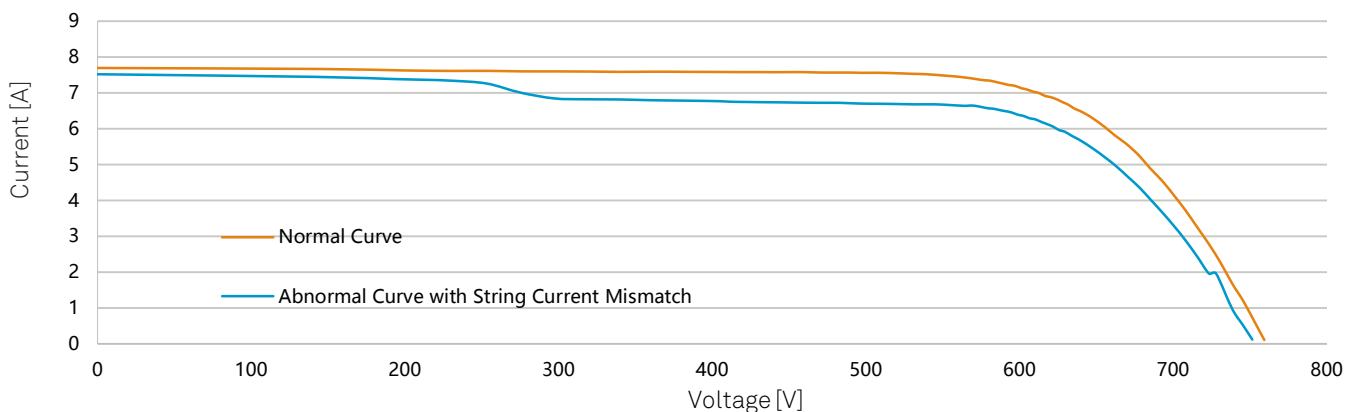
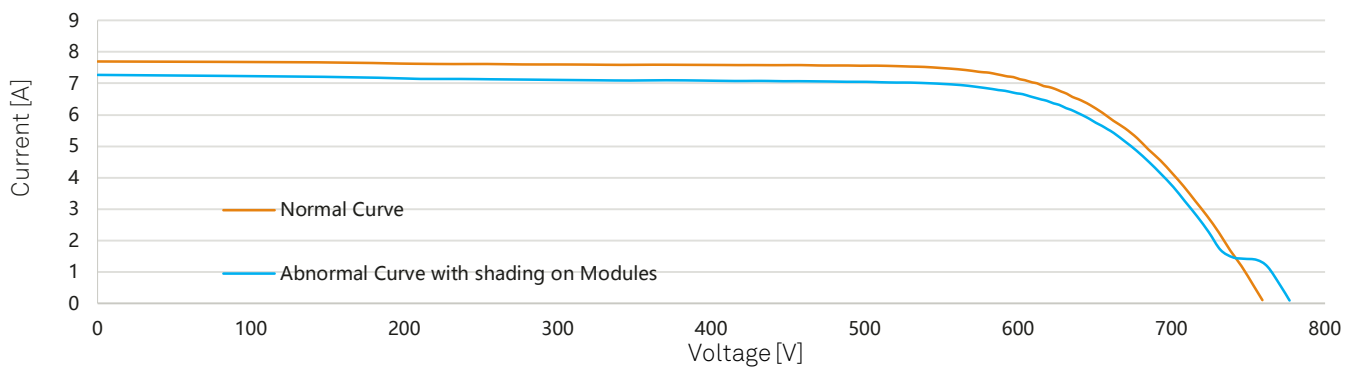
Real time monitoring

Smart I-V Curve Diagnosis



Fault Analysis

String I-V Curve Comparison



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



4kW

Residential PV System in Waregem, Belgium

System Configuration

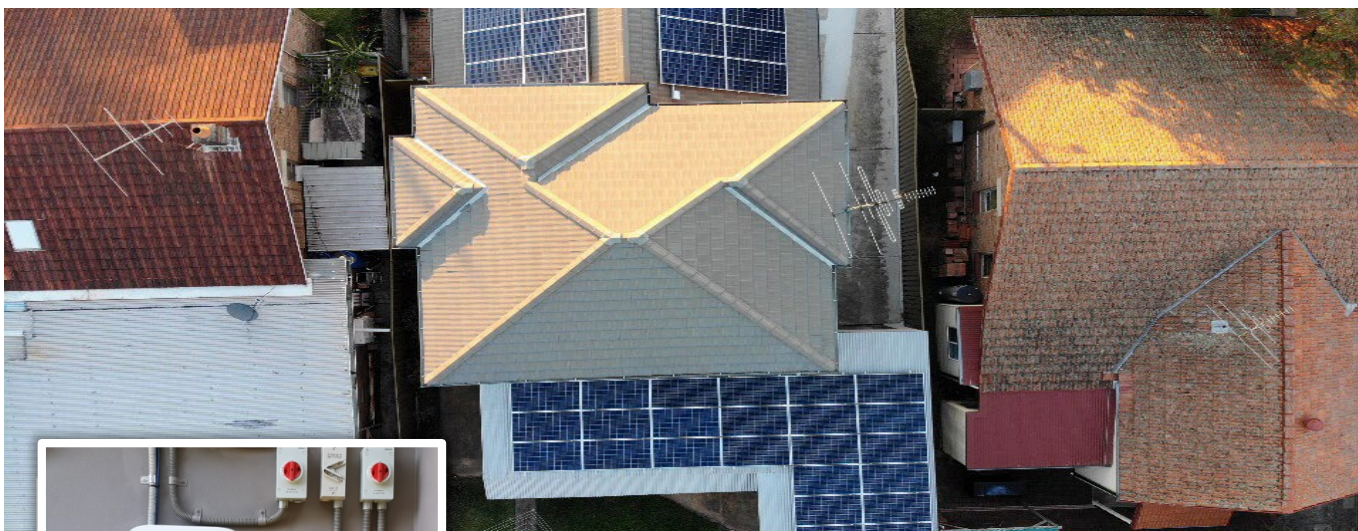
- 18 × 295Wp modules
- 6 × 375W optimizers
- SUN2000L-4KTL, WLAN
- Smart PV safety box

COD

May, 2018

Distributor

Wattkraft



8kW

Residential Energy System in Sydney, Australia

System Configuration

- 36 × 270Wp modules
- 24 × 375W optimizers
- SUN2000L-3KTL & -5KTL
- LG Chem RESU10H Type R

COD

Dec, 2017

Distributor

ASC



10kW

Residential Energy System in NSW, Australia

System Configuration

- 32 × 310Wp modules
- 2 × SUN2000L-5KTL
- WLAN Communication

COD
Jan, 2019

Retailer
JT Solar



5kW

Residential PV System in NSW, Australia

System Configuration

- 18 × 310Wp modules
- 1 × SUN2000L-5KTL
- WLAN Communication

COD
Jan, 2019

Retailer
JT Solar



3kW

Residential PV System in Amsterdam, Netherlands

System Configuration

- 11 × 280kWp Modules
- 11 × 375W optimizers
- SUN2000L-3KTL
- PV safety Box

COD
May, 2018

Distributor
VAMAT



5kW

Residential PV System in Hong Kong, China

System Configuration

- SUN2000L-5KTL

COD
Nov, 2018



15kW

Residential PV System in NSW, Australia

System Configuration

- 37 x 310Wp Longi modules, 12 x existed old modules
- 3 x SUN2000L-5KTL
- WLAN communication

COD

Feb, 2019

Retailer

JT Solar



33kW

Residential PV System in Hanadacho Chokushi, Japan

System Configuration

- 120 x 275Wp modules
- 8 x SUN2000L-4.125KTL-JP
- SmartACBox12in1

COD

April, 2018

Distributor

DMM.com



1.12MW

Distributed PV System in Dandenong, Australia

System Configuration

- 4000 x Jinko 305Wp modules
- 34 x SUN2000-33KTL
- SmartLogger1000

COD
2019



550kWp

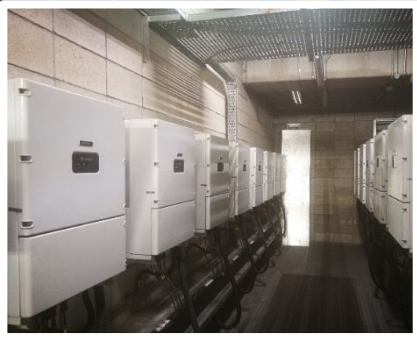
Commercial PV Project in NSW, Australia

System Configuration

- 1679 x 320Wp Jinko modules
- 17 x SUN2000-33KTL

COD
May, 2018

Distributor
Megawatt Power



1MWp

Distributed PV System in Kuala Lumpur , Malaysia

System Configuration

- SUN2000-36KTL

COD

Mar, 2016



2.8MWp

Distributed PV System in Singapore Changi Airport

System Configuration

- SUN2000-36KTL

COD

Dec, 2016



1.153MWp

Distributed PV System in Robinson Chonburi, Thailand

System Configuration

- SUN2000-36KTL

COD

May, 2018



300MWp

Distributed PV System in Zhejiang, China

System Configuration

- SUN2000-33KTL, SUN2000-40KTL

COD

2016



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