



FusionSolar[®] Commercial & Industrial 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.



Employees

207,000+



R&D Personnel

55.4%



Countries

170+



Best Global Brands –
Interbrand

86



R&D Investment

4



Most Innovative Companies

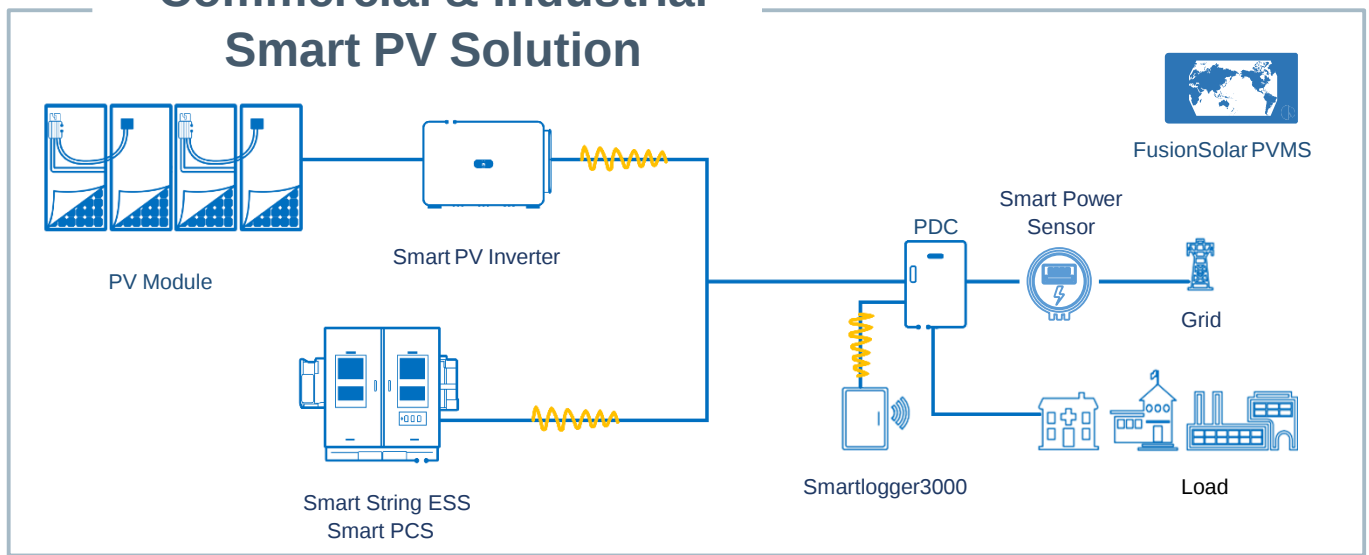
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300GW+

Inverter Shipment Accumulated

Commercial & Industrial Smart PV Solution



Active Safety

Level 4 AFCI, ahead in the industry
0V voltage shutdown
4 layer protections

Higher Yields

2 Strings per MPPT, More Energy Yields
Built-in PID Recovery, Secure Better Module Performance

Maintenance Free

No Fuse & Other Quick-wear Parts, Inverter Touch Free
Online Smart I-V Curve Diagnosis, Module Touch Free



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

Smart PV Controller



Active Safety

AI Powered Arcing Protection



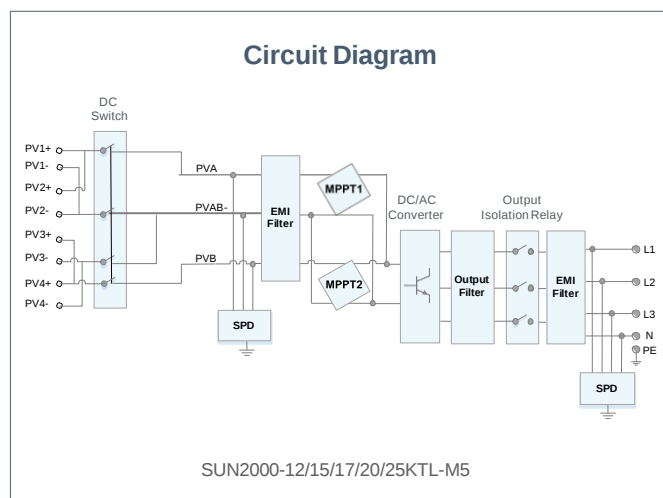
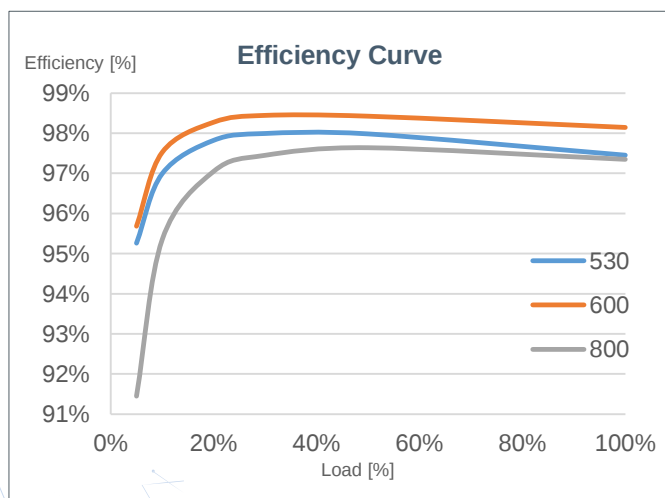
Higher Yields

Up to 30% More Energy with Optimizer



Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported



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

Technical Specification	SUN2000 -12KTL-M5	SUN2000 -15KTL-M5	SUN2000 -17KTL-M5	SUN2000 -20KTL-M5	SUN2000 -25KTL-M5
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Efficiency

Max. efficiency	98.4%	98.4%	98.4%	98.4%	98.4%
European weighted efficiency	97.9%	98.0%	98.1%	98.1%	98.2%

Input

Recommended max. PV power ¹	18,000 Wp	22,500 Wp	25,500 Wp	30,000 Wp	37,500 Wp
Max. input voltage ²	1100 V				
Full-load MPPT voltage range	370V~800V	410V~800V	440V~800V	480V~800V	530~800V
MPPT Operating voltage range ³	200 V ~ 1000 V				
Start-up voltage	200 V				
Rated input voltage	600 V				
Max. input current per MPPT	30 A (two string) / 20 A (single string)				
Max. short-circuit current	40 A				
Number of MPP trackers	2				
Max. number of inputs	4				

Output

Grid connection	Three phase				
Rated output power	12,000 W	15,000 W	17,000 W	20,000 W	25,000 W
Max. apparent power	13,200 W	16,500 VA	18,700 VA	22,000 VA	27,500 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 239.6 Vac / 415Vac, 3W + N + PE				
Rated AC grid frequency	50 Hz				
Max. output current	18.2A/380Vac 17.3A/400Vac 16.7A/415Vac	25.2A/380Vac 23.9A/400Vac 23.1A/415Vac	28.6A/380Vac 27.1A/400Vac 26.1A/415Vac	33.6A/380Vac 31.9A/400Vac 30.8A/415Vac	42.0A/380Vac 39.9A/400Vac 38.5A/415Vac
Adjustable power factor	0.8 leading ... 0.8 lagging				
Max. total harmonic distortion	≤ 3 %				

Features & Protections

Overvoltage Category	PV II/AC III
Input-side disconnection device	Yes
Anti-islanding protection	Yes
AC over-current protection	Yes
DC reverse-polarity protection	Yes
String fault detection	Yes
DC surge protection	TYPE II
AC surge protection	CLASS II
Residual current monitoring unit	Yes
Arc fault protection	Yes
Ripple control ripple 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	Smart air cooling
Display	LED Indicators; Integrated WLAN + FusionSolar App
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)
Weight (with mounting plate)	21kg (46.4 lb)
Dimensions (W x H x D) (incl. mounting plate)	546 x 460 x 228mm (21.5 x 18.1 x 9.0 inch)
Degree of protection	IP66
DC Connector	Staubli MC4

Optimizer Compatibility

DC MBUS compatible optimizer	SUN2000-600W-P, MERC-1100W/1300W-P
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Standard Compliance (more available upon request)

Safety	EN/IEC 62109-1, EN/IEC 62109-2
Grid connection standards	G99, EN 50549, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, C10/11, ABNT, VFR 2019, UNE 217001, UNE 217002, RD 244, TOR D4, IEC61727, IEC62116

^{*1} Inverter max input PV power is 12,000 Wp/string when long strings are designed and fully connected with SUN2000-600W-P power optimizers.

^{*2} The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

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

^{*4} SUN2000-12~25KTL-M5 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 PV Controller



Smart

8 strings intelligent monitoring



Efficient

Max. efficiency 98.7%



Safe

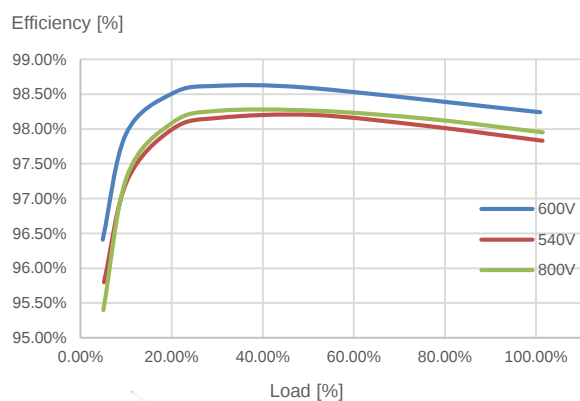
Fuse free design



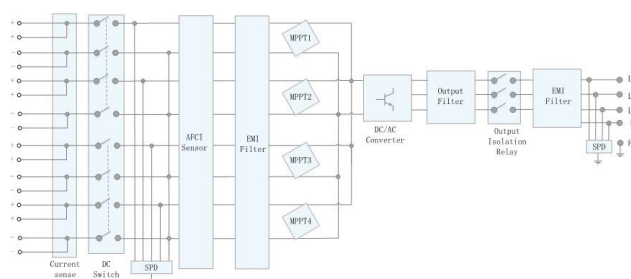
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



Circuit Diagram



SUN2000-30/36/40KTL-M3

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	27 A (per MPPT) / 20 A (per Input)		
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 ³	40,000 VA	44,000 VA
Rated Output Voltage	230 Vac / 400 Vac / 480 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)		

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)		
Operating Temperature Range	-25 ~ + 60 °C (-13 °F ~ 140 °F)		
Cooling Method	Natural Convection		
Max. Operating Altitude	4,000 m (13,123 ft.) (Derating above 2000 m)		
Relative Humidity	0% RH ~ 100% RH		
DC Connector	Amphenol Helios H4		
AC Connector	Waterproof Connector + OT/DT Terminal		
Protection Degree	IP 66		
Topology	Transformerless		
Nighttime Power Consumption	≤ 5.5W		

Optimizer Compatibility			
DC MBUS Compatible Optimizer	SUN2000-600W-P, MERC-1100W/1300W-P		

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

SUN2000-50KTL-M3 Smart PV Controller



Higher Yields

Up to 30% More Energy
with Optimizer



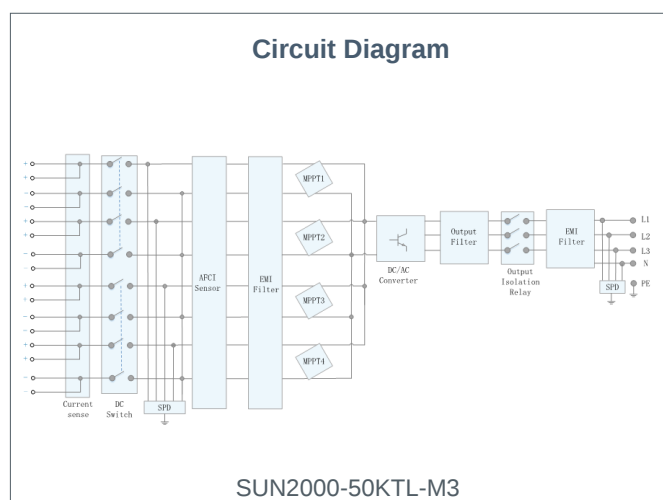
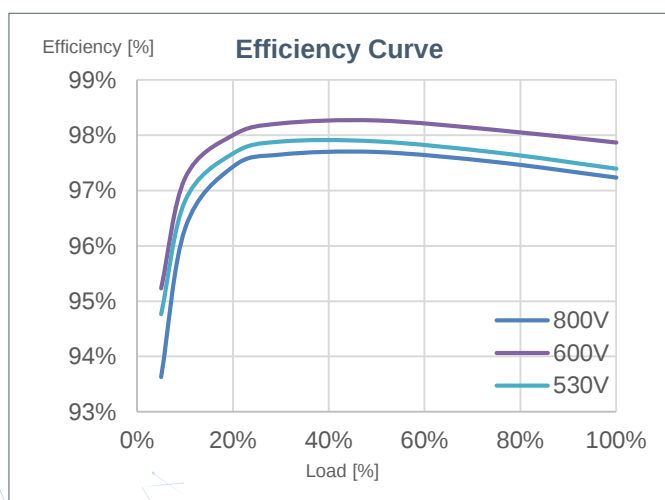
Active Safety

AI Powered
Active Arcing Protection



Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported



SUN2000-50KTL-M3
Technical Specification

Technical Specification	SUN2000-50KTL-M3
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Efficiency	
Max. Efficiency	98.5%
European Efficiency	98.0%

Input	
Max. Input Voltage ¹	1,100 V
Max. Current per MPPT	30 A
Max. Current per Input	20 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	200 V
MPPT Operating Voltage Range ²	200 V ~ 1,000 V
Rated Input Voltage	600 V
Number of Inputs	8
Number of MPP Trackers	4

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	400 Vac / 480 Vac, 3W+(N) + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	72.2 A @ 400Vac, 60.1 A @ 480Vac
Max. Output Current	79.8 A @ 400Vac, 66.5 A @ 480Vac
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
Ripple Receiver Control	Yes
Integrated PID Recovery ³	Yes

Communication	
Display	LED Indicators, Bluetooth + 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)

Optimizer Compatibility	
DC MBUS Compatible Optimizer ⁴	MERC-1100/1300W-P

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)	49 kg (108.1 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% RH ~ 100% RH
DC Connector	Amphenol HH4
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP 66
Topology	Transformerless
Nighttime Power Consumption	≤ 5.5W

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, 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. SUN2000-30~50KTL-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)

SUN2000-100KTL-M2

Smart PV Controller



10
MPP Trackers



98.6% (@400V)
Max. Efficiency



String-level
Management



Smart I-V Curve Diagnosis
Supported



MBUS
Supported



Support AFCI &
Smart String Level
Disconnect



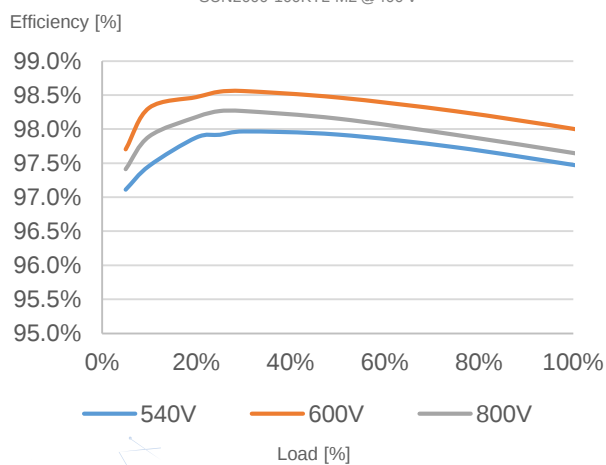
Surge Arresters for
DC & AC



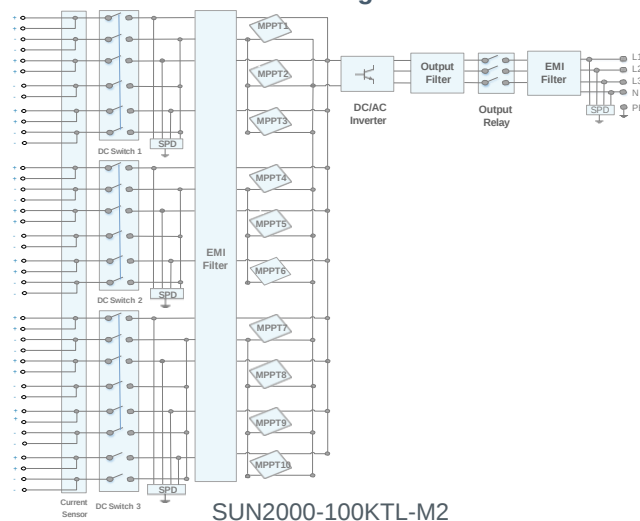
IP66
Protection

Efficiency Curve

SUN2000-100KTL-M2 @400 V



Circuit Diagram



SUN2000-100KTL-M2

Technical Specification

Technical Specification	SUN2000-100KTL-M2
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Efficiency	
Max. efficiency	98.6% @ 400 V, 98.8% @ 480 V
European efficiency	98.4% @ 400 V, 98.6% @ 480 V

Input	
Max. Input Voltage ¹	1,100 V
Max. Current per MPPT	30 A
Max. Current per Input ³	20 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	200 V
MPPT Operating Voltage Range ²	200 V ~ 1,000 V
Nominal Input Voltage	600 V @ 400 Vac, 720 V @ 480 Vac
Number of MPP trackers	10
Max. input number per MPP tracker	2

Output	
Nominal AC Active Power	100,000 W
Max. AC Apparent Power	110,000 VA
Max. AC Active Power (cosφ=1)	110,000 W
Nominal Output Voltage	380 V / 400 V / 480 V, 3W+(N)+PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	144.4 A @ 400 V, 120.3 A @ 480 V
Max. Output Current	160.4 A @ 400 V, 133.7 A @ 480 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
Arc Fault Protection	Yes
Smart String Level Disconnecter	Yes

Communication	
Display	LED indicators; WLAN adaptor + FusionSolar APP
RS485	Yes
USB	Yes
Smart Dongle-4G	Smart Dongle – 4G / WLAN (Optional)
Monitoring BUS (MBUS)	Yes (isolation transformer required)

General Data	
Dimensions (W x H x D)	1,035 x 700 x 365 mm
Weight (with mounting plate)	93 kg
Operating Temperature Range	-25°C ~ 60°C
Cooling Method	Smart Air Cooling
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless
Nighttime Power Consumption	< 3.5 W

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
Grid Connection Standards	VDE-AR-N4105, EN 50549-1, EN 50549-2, RD 661, RD 1699, C10/11

*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 Single-string access.

SUN2000-115KTL-M2

Smart PV Controller



10
MPP Trackers



98.6% (@400V)
Max. Efficiency



String-level
Management



Smart I-V Curve Diagnosis
Supported



MBUS
Supported



Support
Smart String Level
Disconnecter



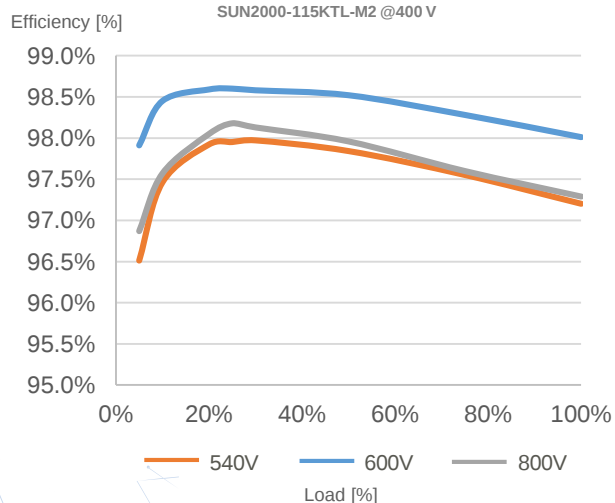
Surge Arresters for
DC & AC



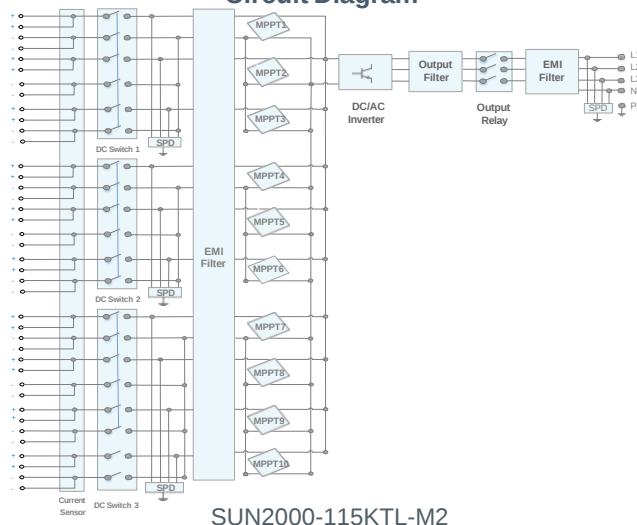
IP66
Protection

Efficiency Curve

SUN2000-115KTL-M2 @400 V



Circuit Diagram



Technical Specification	SUN2000-115KTL-M2
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Efficiency	
Max. efficiency	98.6% @400 V, 98.8% @480 V
European efficiency	98.4% @400 V, 98.6% @480 V

Input	
Max. Input Voltage ¹	1,100 V
Max. Current per MPPT	30 A
Max. Current per Input	20 A
Max. Short Circuit Current per MPPT	40 A
Start Voltage	200 V
MPPT Operating Voltage Range ²	200 V ~ 1,000 V
Nominal Input Voltage	600 V @400 Vac, 720 V @480 Vac
Number of MPP trackers	10
Max. input number per MPP tracker	2

Output	
Nominal AC Active Power	115,000 W
Max. AC Apparent Power	125,000 VA
Max. AC Active Power (cosφ=1)	125,000 W
Nominal Output Voltage	400 V / 480 V, 3W+(N)+PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	166.0 A @400 V, 138.4 A @480 V
Max. Output Current	182.3 A @400 V, 151.9 A @480 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
Smart String Level Disconnecter	Yes

Communication	
Display	LED indicators; WLAN adaptor + FusionSolar APP
RS485	Yes
USB	Yes
Smart Dongle-4G	4G / 3G / 2G via Smart Dongle – 4G (Optional)
Monitoring BUS (MBUS)	Yes (isolation transformer required)

General Data	
Dimensions (W x H x D)	1,035 x 700 x 365 mm
Weight (with mounting plate)	93 kg
Operating Temperature Range	-25 °C ~ 60 °C
Cooling Method	Smart Air Cooling
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless
Nighttime Power Consumption	< 3.5 W

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
Grid Connection Standards	VDE-AR-N4105, VDE 4110, EN 50549-1, EN 50549-2, RD 661, RD 1699, C10/11

*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.

LUNA2000-200KWH-2H1

Smart String ESS



More Energy



Simple O&M



Safe & Reliable

Energy Storage System Parameters	
Battery Configuration	12S1P
Maximum Battery Capacity of the Energy Storage System	193.5 kWh
Rated Power	100 kW
Dimensions (W x H x D), including DC/DC and PCS	2570mm×2135mm×1200mm
Dimensions (W x H x D)	1810mm×2135mm×1200mm
Weight (including the battery module)	≤2950kg
Weight (without the battery module)	≤1070kg
Operating Temperature Range	-30 °C ~ 55 °C
Storage Temperature Range	-40 °C ~ 60 °C
Operating Humidity Range	0 ~ 100% (non-condensing)
Maximum Operating Altitude	4,000 m
Installation Environment Requirement	Outdoor installation
Battery Temperature Control Mode	Industrial-grade air conditioner
Fire Suppression of Energy Storage System	YES
Auxiliary Power Supply	220Vac, ≤4.2kVA
Communication Port	Ethernet / SFP
Communication Protocol	Modbus TCP
Protection Degree	IP55
EMC Protection Rating	ClassA
DC Lightning Protection	Type II
Standards	
Environment	RoHS6
Certification Standards	GBT 36276-2018; IEC62619; UL9540A;UN38.3

Battery Pack & Smart Rack Controller

Smart String ESS



Battery Pack	
General	
Cell Material	LFP
Nominal Capacity	16.13 kWh
Supported Charge & Discharge Rate	$\leq 0.5\text{ C}$
Weight	$\leq 140\text{ kg}$
Dimensions (W x H x D)	442 x 308 x 660 mm



Smart Rack Controller	
Efficiency	
Max. Efficiency	$\geq 98.5.0\%$
Battery Side	
Rated Voltage	691.2@280Ah
Operating Voltage Range	40 V ~ 1,050 V
Min. Start Voltage	350 V
Bus Side	
Max. DC Voltage	1,100 V
Rated Voltage	665 V
Rated Current	76.3 A
General	
Dimensions (W x H x D)	600 x 270 x 820 mm
Weight	$\leq 90\text{ kg}$
Cooling Method	Smart Air Cooling
Protection Degree	IP66



LUNA2000-100KTL-M1

Smart PCS



Max. Efficiency 98.4%



Modular Design



IP66 Protection



Surge Arresters for
DC & AC

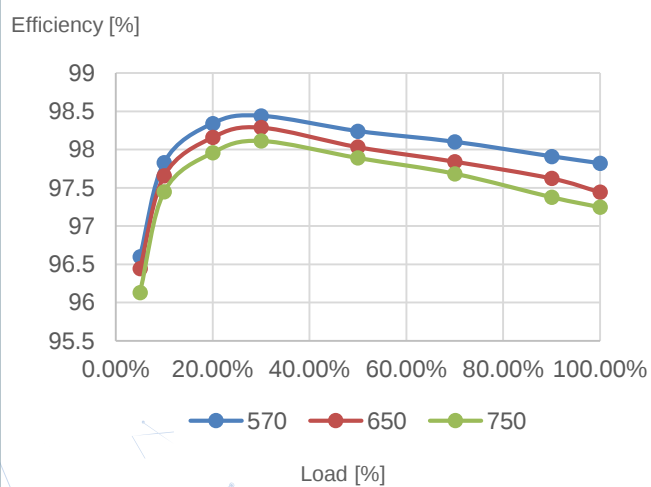


Ethernet
Communication

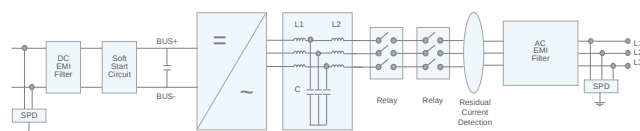


Smart Grid
Algorithm

Efficiency Curve



Circuit Diagram



LUNA2000-100KTL-M1

Technical Specifications

Efficiency

Max. Efficiency	98.4%
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DC Side

Rated DC Voltage	645 V
Max. DC Voltage	1,100 V
Operating DC Voltage Range	570 V ~ 1100 V
Max. DC Current	215.8 A
Max. Number of Inputs	1

AC Side

Rated AC Active Power	100,000 W @40°C
Rated AC Voltage	380 Vac / 400 Vac / 440Vac
Rated AC Grid Frequency	50 Hz / 60 Hz
Max. AC Current	173.2 A
Adjustable Power Factor Range	-1 ... +1
Max. Total Harmonic Distortion	< 3%

Protection

Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
Insulation Resistance Detection	Yes
Earth Fault Protection	Yes
Residual Current Protection	Yes
DC Surge Protection	Type II
AC Surge Protection	Type II

Communication

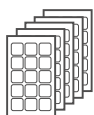
Display	LED Indicators, WLAN + APP
Networking Mode	Ethernet, CAN

General

Dimensions (W x H x D)	875 x 820 x 365 mm
Weight	< 95 kg
Operating Temperature Range	-25°C ~ 60°C (Derating above 40°C)
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,000 m
Relative Humidity	0 ~ 100%
DC Connector	OT/DT Terminal
AC Connector	OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless



MERC-1100/1300W-P Smart Module Controller



Long String Design
Better for C&I Scenarios



Up to 20 A Input Current
Fit All Type Module



< 5s
Module Auto-Mapping



Temperature Detection
Safety Enhanced



1V Safe Voltage Shutdown
Easier for Detection



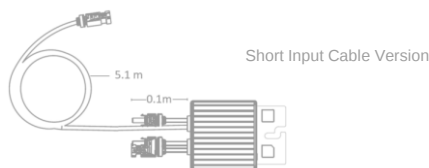
Arc Fault Pinpoint Positioning
Along PV Cable



MERC-1100/1300W-P

Smart Module Controller

Technical Specification	MERC-1100W-P				MERC-1300W-P			
Input								
Rated Input DC Power ¹	1100 W				1300 W			
Max. input voltage	125 V							
MPPT operating voltage range	12.5 – 105 V							
Max. short-circuit current (Isc)	20 A							
Max. efficiency	99.5 %							
Weighted efficiency	99.0 %							
Overvoltage category	II							
Output								
Max. output voltage	80 V							
Max. output current	22 A							
Output bypass ²	Yes							
Shutdown output voltage per optimizer ³	1 V							
Standards Compliance								
Safety	IEC62109-1 (class II safety)							
RoHS	Yes							
General Data								
Dimension (W x H x D)	149 mm x 104 mm x 49 mm (5.9 in. x 4.1 in. x 2.0 in.)							
Weight (including cables)	1.05 kg (2.2 lb.)							
Installation part (optional)	PV Module Frame Plate, T-shaped Bolt							
Input connector	MC4							
Input wire length	0.1 m (short input cable version) ⁴							
Output connector	MC4							
Output wire length	0.1 m (+), 5.1 m (–) (short input cable version) ⁴							
Operating temperature/humidity range	–40°C to +85°C ⁵ / 0%–100% RH							
Degree of protection	IP68							
Compatible Inverter	SUN2000-12/15/17/20KTL-M2 SUN2000-30/36/40KTL-M3 SUN2000-12/15/17/20/25KTL-M5 SUN2000-50KTL-M3							
String Configuration (Full Optimizer Configuration) * MERC-1100/1300W-P support full optimizer configuration only	SUN2000-12-20KTL-M2		SUN2000-12-25KTL-M5		SUN2000-20-40KTL-M3		SUN2000-50KTL-M3	
Minimum optimizers per string	6		6		6		6	
Maximum optimizers per string	25		25		25		20	
Recommend strings per inverter * Only one string can be connected to each MPPT. * The DC/AC ratio is 1.0 to 1.3 for this recommended configuration. For other ratios, refer to the user manual.	12KTL	15-20KTL	12KTL	15-25KTL	30/36KTL	40KTL	4	
	1	2	1	2	3	4		
Maximum DC power per string * It is recommended that strings have equal capacity. The capacity difference between strings should ≤ 2 kW. Otherwise, the energy yield might be adversely affected.	20,000 W		20,000 W		20,000 W		20,000 W	



*1 The rated power of modules under standard test conditions (STC) shall not exceed the rated DC input power of optimizers. The module power can be 5% higher than the rated optimizer power.

*2 Failed optimizers will be bypassed so that other optimizers and inverters will not be affected.

*3 When the optimizer output is an open circuit or the inverter connected to the optimizer is shut down, the default optimizer output is 1 V DC voltage.

*4 For the short input cable version (input cable 0.1m (+/-), output cable 0.1m(+), 5.1m(-)), ensure that the PV module cables are long enough to connect to the optimizers. For split junction box module with a short cable, the long-input cable version of optimizer is available (input cables: 1.3 m (+/-); positive output cable: 0.1 m; negative output cable: 2.9 m) on request.

*5 When the operating temperature of the optimizer is 70°C to 85°C, the optimizer may shut down for overtemperature protection and report an overtemperature alarm. After the operating temperature drops to 70°C or below, the optimizer automatically recovers with no risk of damage.

*6 The SUN2000-450/600W-P cannot be mixed with the MERC-1100/1300W-P under the same inverter.

*7 The temperature detection function is only available on the short output cable (0.1 m).

*8 It is allowed to connect single PV module to the MERC-1100/1300W-P.

SUN2000-600W-P

Smart Module Controller



One-Fits-All Optimizer
Easier Business



<5s Module Auto-Mapping



Arc Fault Pinpoint Positioning
Along PV Cable

Technical Specification		SUN2000-600W-P			
		Input			
Rated Input DC Power ¹		600 W			
Absolute maximum input voltage		80 V			
MPPT operating voltage range		10 - 80 V			
Maximum Short Circuit Current (Isc)		14.5 A			
Max. efficiency		99.5 %			
Weighted efficiency		99.0 %			
Overvoltage category		II			
		Output			
Max. output voltage		80 V			
Max. output current		15 A			
Output bypass ²		Yes			
Shutdown output voltage per optimizer ³		0 V			
Shutdown output impedance per optimizer		1k ohm ± 10 %			
		Communication			
Communication Method		MBUS			
		Standard Compliance			
Safety		IEC62109-1 (class II safety)			
RoHS		Yes			
		General Data			
Dimension (W x H x D)		75 x 140 x 28 mm (3.0 x 5.5 x 1.1 inch)			
Weight (including cables)		0.6 kg (1.3 lb.)			
Installation part (optional)		Frame Mounting Bracket / T-shaped Bolt ⁴			
Input connector		MC4			
Input wire length		0.15m (0.49 ft.)			
Output connector		MC4			
Output wire length		1.3 m (4.3 ft.) ⁵			
Operating temperature / humidity range		-40 °C ~ 85 °C ⁵ / 0 %RH ~ 100 %RH			
Degree of protection		IP68			
Compatible product		SUN2000-2/3/4/5/6KTL-L1, SUN2000-5/8/10KTL-M1, SUN2000-12/15/17/20KTL-M2, SUN2000-12-25KTL-M5, SUN2000-30/36/40KTL-M3			
Long String Design (Full Optimizer)		SUN2000-2-6KTL-L1	SUN2000-3-10KTL-M1	SUN2000-12-25KTL-M5	SUN2000-30-40KTL-M3
Minimum optimizer number per string ⁶		4	6	6	6
Maximum optimizer number per string		25	35	35	25
Maximum DC power per string		6,000 W	10,000 W	12,000 W	12,000 W

^{*1} In the STC environment, The rated power of the module shall not exceed 1.05 times of the optimizer rated input power.

^{*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} Allow PV module frame installation / extruded aluminum profile installation

^{*5} Fits PV module in landscape and portrait installation.

^{*6} Require standard 60 cells module to meet the inverter minimum startup voltage

^{*7} Full power capability refers to online smart design tool.

Smart Dongle-WLAN-FE



Smart

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



Simple

Plug & Play
Support max. 10 devices



Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-05(AP+STA)
General Data	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * 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	AP + 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	
Inverter Model	SUN2000-2/3/4/5/6KTL-L1 SUN2000-5/8/10KTL-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-12-25KTL-M5 SUN2000-30/36/40/50KTL-M3 SUN2000-100/115KTL-M2

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

Smart Dongle-4G



Smart

4G communication ¹

Support 3rd-party monitoring system ²



Simple

Plug & Play

WLAN-AP for local deploying ³



Reliable

IP65

Support auto reconnection

Technical Specification	SDongleB-06-EU
General Data	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	162*48*28mm
Degree of protection	IP65
Power consumption (typical)	3.5W
Wireless Parameter	
Sim card type	mini-sim (15 mm*25 mm)
Supported standards & frequencies ⁴	LTE-FDD : B1/B3/B7/B8/B20/B28 LTE-TDD : B38/B40/B41 GSM : 850/900/1800/1900MHz
Wifi Operation Mode	AP
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	CE
Inverter Compatibility	
Inverter model	SUN2000-2/3/4/5/6KTL-L1, SUN2000-5/8/10KTL-M1, SUN2000-12-25KTL-M5, SUN2000-12/15/17/20KTL-M2, SUN2000-30/40/50TL-M3, SUN2000-60KTL-M0, SUN2000-100KTL-M1, SUN2000-100KTL-M1 Pro, SUN2000-100/115KTL-M2

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: When all inverters support WLAN hotspot, hotspot of Dongle will be disabled by default.

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



Smart

Smart zero export control design



Simple

Easy to install on site



Reliable

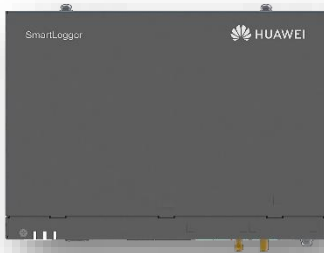
Safety by lightning protection module

Technical Specification	SmartLogger3000A00GL ¹
Device Management	
Max. Number of Connected 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
WEB	Embedded Web
USB	USB 2.0 x 1
APP	Communication 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	12 V / 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 including Inverter, Smart Power Meter, EMIs...etc..

Smartlogger3000B



Without SmartModule1000A



With SmartModule1000A



Smart

Connecting up to 150 inverters,
One-click commissioning



Simple

Deployment wizard allowed, including
parameters configuration, devices connection



Reliable

Safety improvement
by lightning protection module

Technical Specifications	SmartLogger3000B	SmartLogger3000B with SmartModule1000A
Device Management		
Max. Number of Manageable Devices	200	
Max. Number of Manageable Inverters	150	
Communication Interface		
WAN	WAN x 1, 10 / 100 / 1,000 Mbps	
LAN	LAN x 1, 10 / 100 / 1,000 Mbps	LAN x 3, 10 / 100 / 1,000 Mbps
Optical Ethernet	SFP x 2, 100 / 1000 Mbps	
MBUS	MBUS x 1, 115.2 kbps, Compatible with PLC	
RS485	COM x 3, 1,200 / 2,400 / 4,800 / 9,600 / 19,200 / 115,200 bps	COM x 6, 1,200 / 2,400 / 4,800 / 9,600 / 19,200 / 115,200 bps
Digital / Analog Input / Output	DI x 4, DO x 2, AI x 4	DI x 8, DO x 2, AI x 7
PT100 / PT1000	0	2
Active DO	12 V, 100 mA (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	LED Indicator x 5 – RUN, ALM, 4G (Smartlogger3000B) & RUN, ALM (SmartModule1000A)
WEB	Embedded Web	
USB	USB 2.0 x 1	
APP	Communication by WLAN for commissioning	
Environment		
Operating Temperature Range	-40°C ~ 60°C (-40°F ~ 140°F)	
Storage Temperature Range	-40°C ~ 70°C (-40°F ~ 158°F)	
Relative Humidity (Non-condensing)	5% ~ 95%	
Max. Operating Altitude	4,000 m (13,123 ft.)	
Electrical		
Power Adaptor	AC input: 100 V~240 V, 50 Hz / 60 Hz; DC output: 12 V, 2 A	
DC Power Supply	24 V, 0.8 A	
Power Consumption	Typical 9 W, Max. 15 W	Typical 10 W, Max. 18 W
Mechanical		
Dimensions (W x H x D, without mounting ears)	225 x 160 x 44 mm (8.9 x 6.3 x 1.7 inch)	350 x 160 x 44 mm (13.8 x 6.3 x 1.7 inch)
Weight	2 kg (4.4 lb.)	3 kg (6.6 lb.)
Protection Degree	IP20	
Installation Options	Wall Mounting, DIN Rail Mounting, Tabletop Mounting Integrated Inside SmartACU2000D	

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	DTSU666-H 250A/50mA
General Data	
Dimension (H x W x D)	100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch)
Mounting type	DIN35 Rail
Weight (including cables)	1.5 kg (3.3 lb)
Power Supply	
Power grid type	3P3W/3P4W
Input voltage (phase voltage)	176 Vac ~ 288 Vac
Power consumption	≤ 1 W
Measurement Range	
Line voltage	304 Vac ~ 499 Vac
Phase voltage	176 Vac ~ 288 Vac
Current	0 ~ 250 A
Measurement Accuracy	
Current / Voltage	± 0.5 %
Power / Energy	± 1 %
Frequency	± 0.01 Hz
Communication	
Interface	RS485
Baud rate	9,600 bps
Communication protocol	Modbus-RTU
Environment	
Operating temperature range	-25 °C ~ 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.)
	3 CT 250A / 50mA (5m / 16.4 ft.)



Smart Power Sensor



Accurate

Class 1 measurement accuracy



Simple & Easy

LCD display, easy to set and check



Energy Efficient

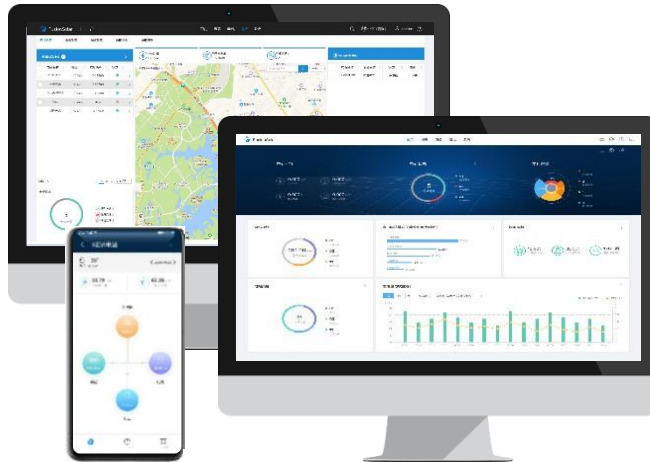
Overall power consumption ≤ 1.5 W

Technical Specification	DTSU666-HW/YDS60-80
General Data	
Dimension (H x W x D)	100 x 72 x 80 mm (3.9 x 2.8 x 3.1 inch)
Mounting type	DIN35 Rail
Weight (including cables)	< 0.5 kg
Power Supply	
Power grid type	3P4W/3P3W
Input voltage (line voltage)	90 ~ 500 Vac
Power consumption	≤ 1.5 W
Measurement Range	
Line voltage	90 Vac ~ 1000 Vac (> 500 with external PT ¹)
Phase voltage	52~577 Vac
Current	0 ~ 80 A(>80 with external CTs ²)
Measurement Accuracy	
Voltage / Current	± 0.5 %
Power / Energy	± 1 %
Frequency	± 0.01 Hz
Communication	
Interface	RS485
Baud rate	4800/9600/19200/115200 (Default 9600bps)
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 2nd voltage of CT should be 100V. And accuracy should be better than Class 0.5

*2 2nd current of CT should be 1A or 5A. And accuracy should be better than Class 0.5

FusionSolar Smart PV Management System



Better experience

- One APP for all access procedure
- Auto-definition of local components
- Module auto-mapping within 5s



Energy visualization

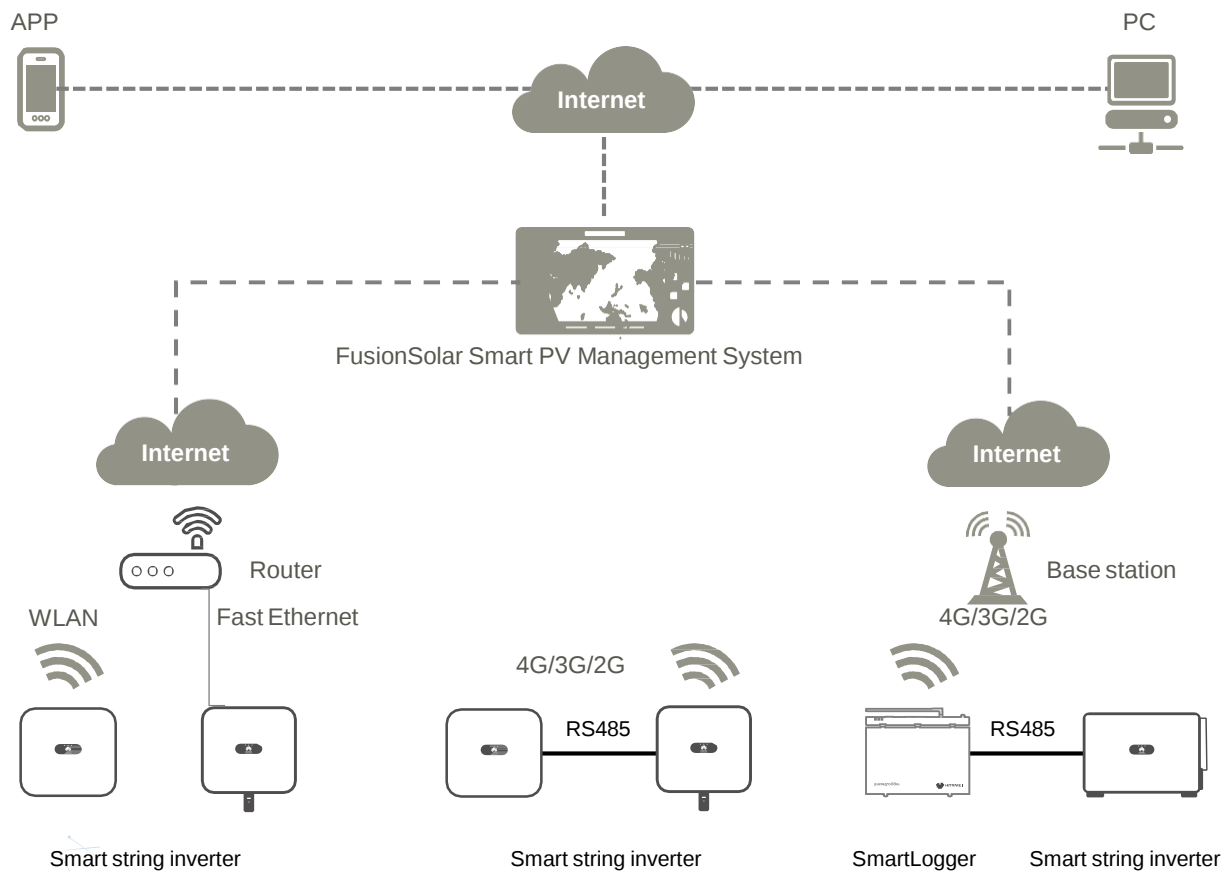
- KPI Dashboard, centralized management of multiple plants
- Module-level monitoring
- Report subscription and real-time alarm push



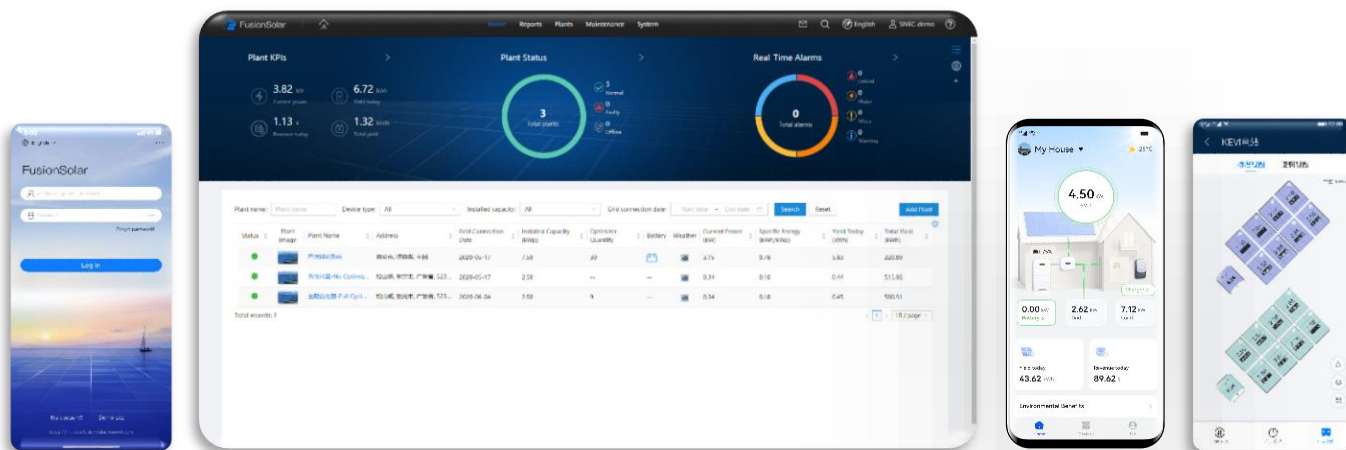
Smart O&M

- One-screen mgmt. of site, personnel, status
- One-click ticket dispatching & site navigation
- Online Smart I-V Curve Diagnosis, 15mins required for a 100MW plant diagnosis

Networking



FusionSolar Smart PV Management System

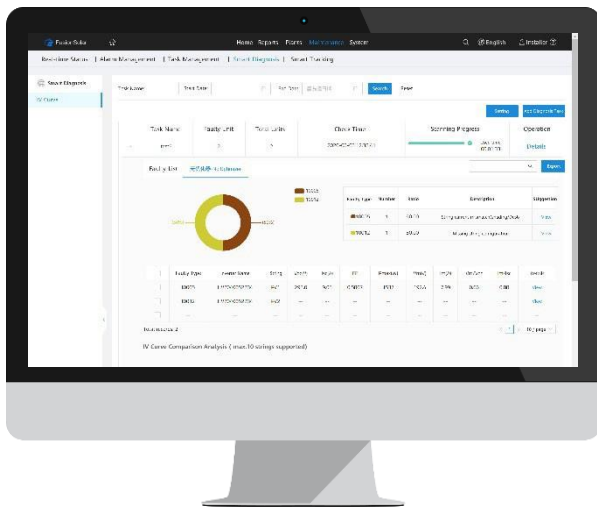


Category	Function	Web	APP
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management	●	●
	Smart IV-Curve Diagnose	●	
KPI Dashboard	KPI Dashboard	●	
Homepage of Single Plant	Energy Flow	●	●
	Energy Management	●	●
	Plant Layout	●	●
	Kiosk Mode	●	
System Setting	Plant Management	●	●
	Company Management	●	
Demo	Demo Site	●	●

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

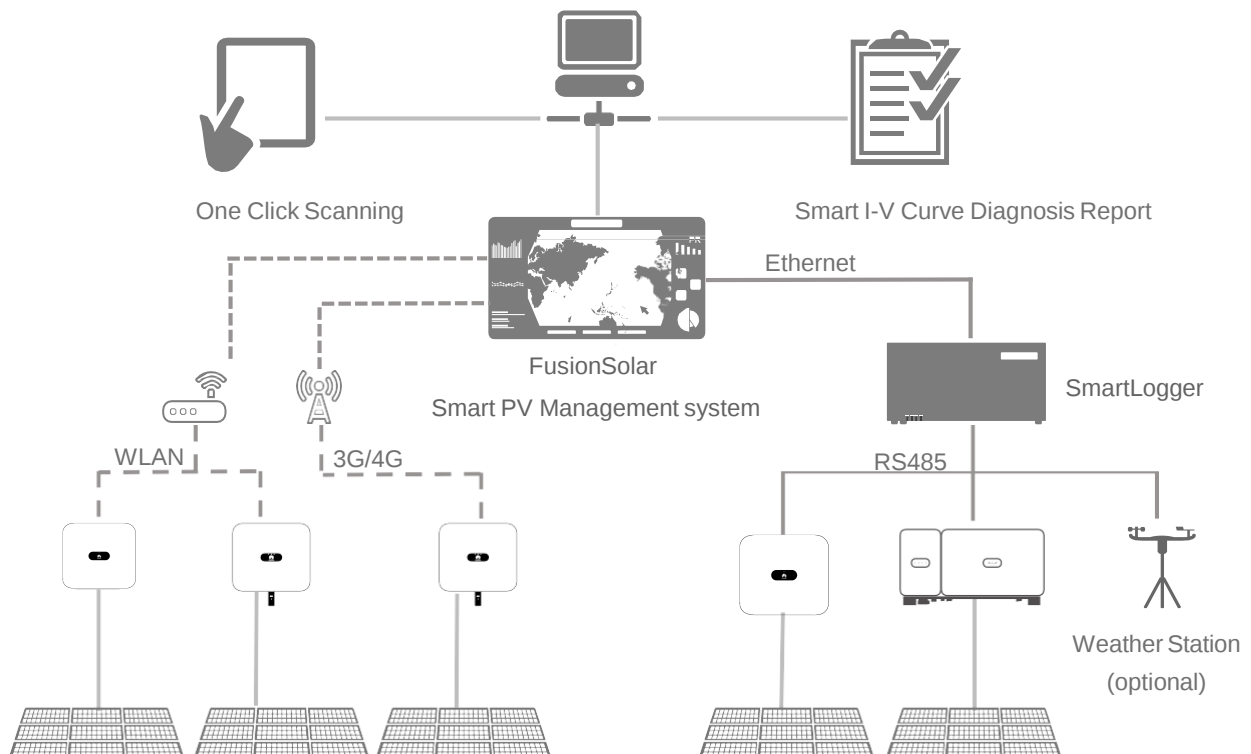
- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion



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

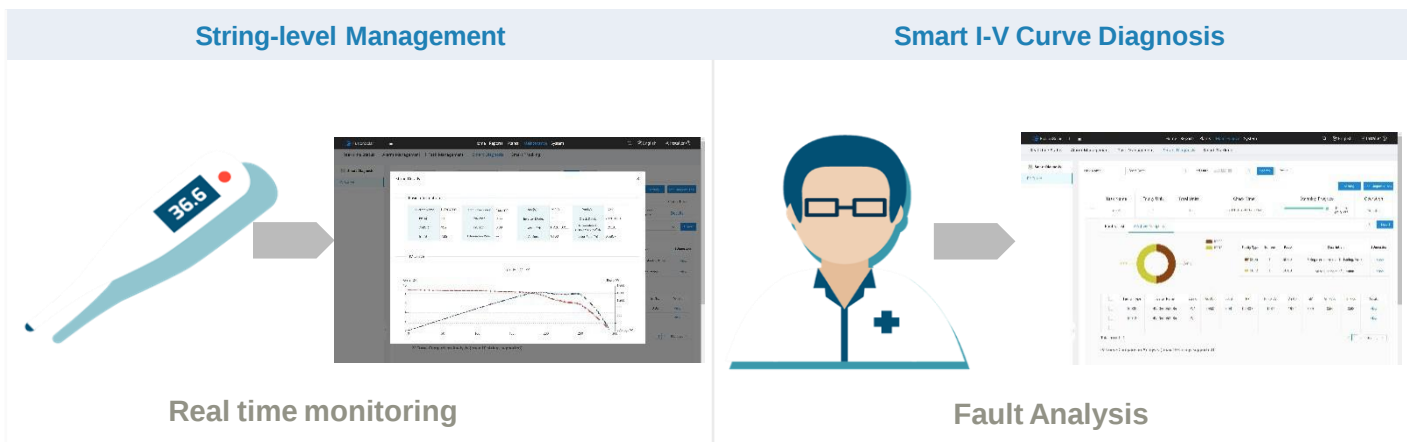
Networking



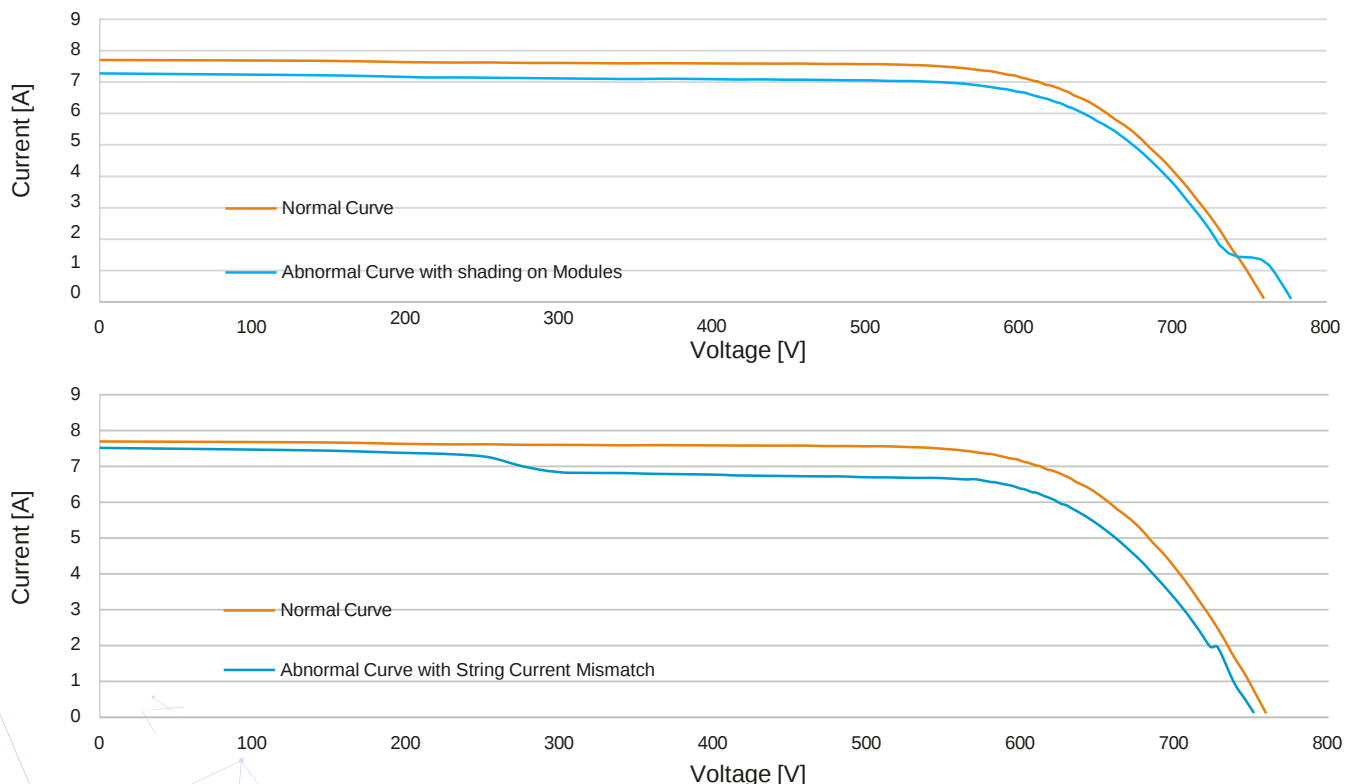
Smart I-V Curve Diagnosis

Technical Specifications	Smart I-V Curve Diagnosis	
Smart PV Inverter*	SUN2000-2/3/4/5/6KTL-L1, SUN2000-5-10KTL-M1, SUN2000-12-20KTL-M2, SUN2000-12-25KTL-M5, SUN2000-30/36/40/50KTL-M3, SUN2000-60KTL-M0, SUN2000-100KTL-M1, SUN2000-100KTL-M1 Pro, SUN2000-100/115KTL-M2	
Communication	SmartLogger3000A, Smart Dongle-WLAN-FE/4G	
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 I-V Curve Comparison



**Location**

Ho Chi Minh City

Capacity

400 kW

System

- SUN2000-40KTL-M3

**Location**

Binh Phuoc Province

Capacity

3 MW

System

- SUN2000-100KTL-M1

**Location**

Dong Nai Province

Capacity

6 MW

System

- SUN2000-60KTL-M0



Location
Zhejiang Province

Capacity
200kWh

System
• ESS LUNA2000-200KWH-2H0



Location
Dong Nai Province

Capacity
1 MW

System
• SUN2000-60KTL-M0



Location
Binh Phuoc Province

Capacity
3 MW

System
• SUN2000-100KTL-M1



HUAWEI

Digital Power

Professional PaaS & SaaS for energy

Green power generation



PV/Wind/ESS



Micro-grid



Smart grid



Digitalized power plant



EV



Charging network



Site power



Data center



Campus



Building

Energy flow

Data flow

Evolve the society from low carbon to zero carbon



HUAWEI

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