



# FusionSolar<sup>®</sup> Residential & Commercial Smart PV Solution

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Employees  
**195,000+**

Interbrand's Top 100  
Best Global Brands  
**85**

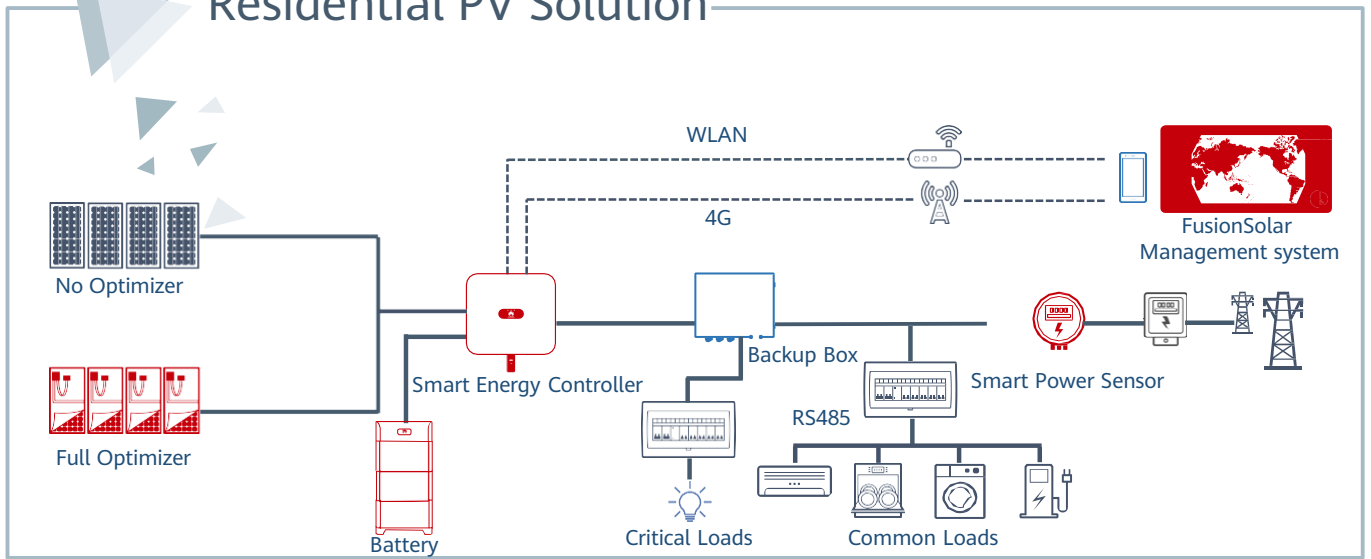
R&D Personnel  
**105,000+**

Fortune Global 500  
**44**

Countries  
**170+**

**200GW+**  
Accumulated global shipment  
by the end of 2021

# Residential PV Solution



## Optimal Electricity Cost

Up to 30% More Energy by Optimizers

2x POWER Battery Ready for More Energy Consumption

## Active Safety

AI Powered Active Arcing Protection

Pinpoint Arc Fault Positioning

## Better Experience

One-Fits-All Solution, Easier Business

Module Auto-Mapping within 5 sec





### Active Safety

AI Powered  
Active Arcing Protection



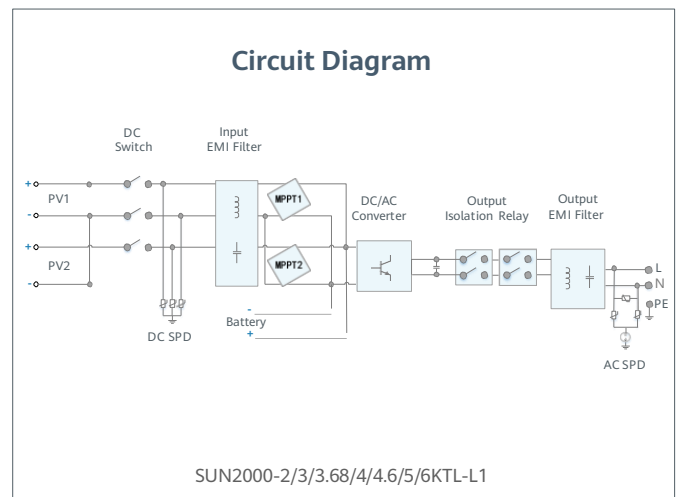
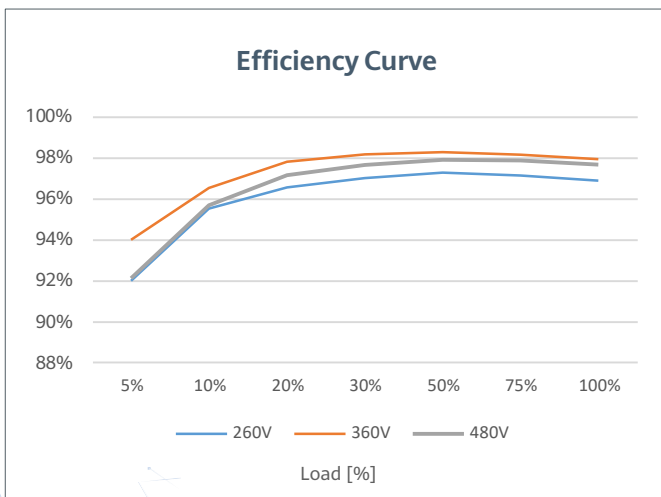
### Higher Yields

Up to 30% More  
Energy with Optimizer



### 2x POWER Battery Ready

5KW AC Output plus  
5KW Battery Charge



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

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -3.68KTL-L1	SUN2000 -4KTL-L1	SUN2000 -4.6KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1
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## Efficiency

Max. efficiency	98.2 %	98.3 %	98.4 %	98.4 %	98.4 %	98.4 %	98.4 %
European weighted efficiency	96.7 %	97.3 %	97.3 %	97.5 %	97.7 %	97.8 %	97.8 %

## Input (PV)

Recommended max. PV power <sup>1</sup>	3,000 Wp	4,500 Wp	5,520 Wp	6,000 Wp	6,900 Wp	7,500 Wp	9,000 Wp
Max. input voltage	600 V <sup>2</sup>						
Start-up voltage	100 V						
MPPT operating voltage range	90 V – 560 V <sup>2</sup>						
Rated input voltage	360 V						
Max. input current per MPPT	12.5 A						
Max. short-circuit current	18 A						
Number of MPP trackers	2						
Max. input number per MPP tracker	1						

## Input (DC Battery)

Compatible Battery	LG Chem RESU 7H_R / 10H_R						
Operating voltage range	350 ~ 450 Vdc						
Max operating current	10 A @7H_R / 15 A @10H_R						
Max charge power	3,500 W @7H_R / 5,000 W @10H_R						
Max discharge Power @7H_R	2,200 W	3,300 W	3,500 W	3,500 W	3,500 W	3,500 W	3,500 W
Max discharge Power @10H_R	2,200 W	3,300 W	3,680 W	4,400 W	4,600 W	5,000 W	5,000 W

Compatible Battery	HUAWEI Smart ESS Battery 5kWh – 30kWh						
Operating voltage range	350 ~ 560 Vdc						
Max operating current	15 A						
Max charge Power	5,000 W <sup>3</sup>						
Max discharge Power	2,200 W	3,300 W	3,680 W	4,400 W	4,600 W	5,000 W	5,000 W

## Output (On Grid)

Grid connection	Single phase						
Rated output power	2,000 W	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W <sup>4</sup>	6,000 W
Max. apparent power	2,200 VA	3,300 VA	3,680 VA	4,400 VA	5,000 VA <sup>5</sup>	5,500 VA <sup>6</sup>	6,000 VA
Rated output voltage	220 Vac / 230 Vac / 240 Vac						
Rated AC grid frequency	50 Hz / 60 Hz						
Max. output current	10 A	15 A	16 A	20 A	23 A <sup>7</sup>	25 A <sup>7</sup>	27.3 A
Adjustable power factor	0.8 leading ... 0.8 lagging						
Max. total harmonic distortion	≤ 3 %						

## Output (Off Grid)

Backup Box (Optional)	Backup Box – B0						
Maximum apparent power	2,000 VA	3,000 VA	3,680 VA	4,000 VA	4,600 VA	5,000 VA	5,000 VA
Rated output voltage	220 V / 230 V						
Maximum output current	9.1 A	13.6 A	16.7 A	18.2 A	20.9 A	22.7 A	22.7 A
Power factor range	0.8 leading ... 0.8 lagging						

<sup>\*1</sup> Inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.  
<sup>\*2</sup> The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.  
<sup>\*3</sup> 2,500 W @ 5kWh HUAWEI ESS battery  
<sup>\*4</sup> AS4777.2:4,991W. <sup>\*5</sup> VDE-AR-N 4105:4,600VA / AS4777.2:4,999VA. <sup>\*6</sup> AS4777.2:4,999VA / C10/11:5,000VA<sup>\*7</sup>. AS4777.2:21.7A.

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

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -3.68KTL-L1	SUN2000 -4KTL-L1	SUN2000 -4.6KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1 <sup>1</sup>
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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
Relative operating humidity	0 %RH ~ 100 %RH
Operating altitude	0 ~ 4,000 m (Derating above 2,000 m)
Cooling	Natural convection
Display	LED indicators; integrated WLAN + FusionSolar APP
Communication	RS485, WLAN via inverter built-in WLAN module Ethernet via Smart Dongle-WLAN-FE (Optional); 4G / 3G / 2G via Smart Dongle-4G (Optional)
Weight (incl. mounting bracket)	12.0 kg (26.5 lb)
Dimension (incl. mounting bracket)	365mm * 365mm * 156 mm (14.4 x 14.4 x 6.1 inch)
Degree of protection	IP65
Nighttime Power Consumption	< 2.5 W

Optimizer Compatibility	
DC MBUS compatible optimizer	SUN2000-450W-P, SUN2000-450W-P2, SUN2000-600W-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 4777.2, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, IEC61727, IEC62116

# Smart Energy Controller SUN2000-3-10KTL-M1



## Higher Revenue

Max. efficiency 98.6%



## Simple & Easy

17 kg



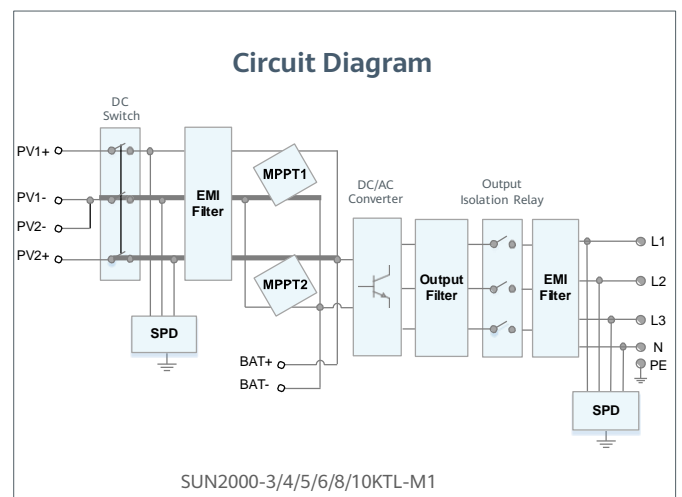
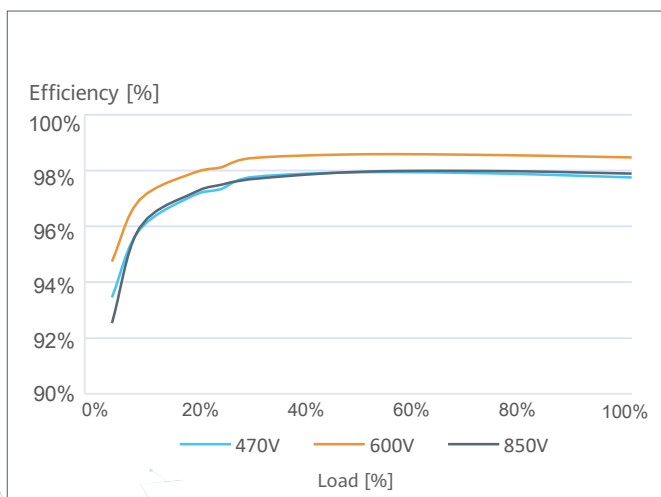
## Battery Ready

Plug & Play battery interface <sup>1</sup>



## Safe & Reliable

Arc fault protection



# SUN2000-3/4/5/6/8/10KTL-M1 Technical Specification

Technical Specification	SUN2000 -3KTL-M1	SUN2000 -4KTL-M1	SUN2000 -5KTL-M1	SUN2000 -6KTL-M1	SUN2000 -8KTL-M1	SUN2000 -10KTL-M1
<b>Efficiency</b>						
Max. efficiency	98.2%	98.3%	98.4%	98.6%	98.6%	98.6%
European weighted efficiency	96.7%	97.1%	97.5%	97.7%	98.0%	98.1%
<b>Input (PV)</b>						
Recommended max. PV power <sup>1</sup>	4,500 Wp	6,000 Wp	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp
Max. input voltage <sup>2</sup>	1,100 V					
Operating voltage range <sup>3</sup>	140 V ~ 980 V					
Start-up voltage	200 V					
Rated input voltage	600 V					
Max. input current per MPPT	11 A					
Max. short-circuit current	15 A					
Number of MPP trackers	2					
Max. input number per MPP tracker	1					
<b>Input (DC Battery)</b>						
Compatible Battery	HUAWEI Smart String ESS 5kWh – 30kWh					
Operating voltage range	600 V ~ 980 V					
Max operating current	16 A					
Max charge Power	10,000 W					
Max discharge Power	3,300 W	4,400 W	5,500 W	6,600 W	8,800 W	10,000 W
<b>Output (On Grid)</b>						
Grid connection	Three-phase					
Rated output power	3,000 W	4,000 W	5,000 W	6,000 W	8,000 W	10,000 W
Max. apparent power	3,300 VA	4,400 VA	5,500 VA	6,600 VA	8,800 VA	11,000 VA <sup>4</sup>
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE					
Rated AC grid frequency	50 Hz / 60 Hz					
Max. output current	5.1 A	6.8 A	8.5 A	10.1 A	13.5 A	16.9 A <sup>5</sup>
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3 %					
<b>Output (Off Grid)</b>						
Backup Box	Backup Box – B1					
Maximum apparent power	3,000 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA
Rated output voltage	220 V / 230 V					
Maximum output current	13.6 A	15 A	15 A	15 A	15 A	15 A
Power factor range	0.8 leading ... 0.8 lagging					
<b>Features &amp; Protections</b>						
Input-side disconnection device	Yes					
Anti-Islanding protection	Yes					
DC reverse polarity protection	Yes					
Insulation monitoring	Yes					
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
Residual current monitoring	Yes					
AC overcurrent protection	Yes					
AC short-circuit protection	Yes					
AC overvoltage protection	Yes					
Arc fault protection	Yes					
Ripple receiver control	Yes					
Integrated PID recovery <sup>6</sup>	Yes					
Battery reverse charging from grid	Yes					
<b>General Data</b>						
Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)					
Relative operating humidity	0 %RH ~ 100 %RH					
Operating altitude	0 ~ 4,000 m (13,123 ft.) (Derating above 2000 m)					
Cooling	Natural convection					
Display	LED Indicators; Integrated WLAN + FusionSolar App					
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G / 3G / 2G via Smart Dongle-4G (Optional)					
Weight (incl. mounting bracket)	17 kg (37.5 lb)					
Dimension (incl. mounting bracket)	525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch)					
Degree of protection	IP65					
Nighttime Power Consumption	< 5.5 W <sup>7</sup>					
<b>Optimizer Compatibility</b>						
DC MBUS compatible optimizer	SUN2000-450W-P, SUN2000-450W-P2, SUN2000-600W-P					
<b>Standard Compliance (more available upon request)</b>						
Certificate	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116, IEC 61727, G98/1 VER.2, G99/1 VER.2					
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA, IEC60068, IEC61683 <sup>8</sup>					

<sup>\*1</sup> Inverter max input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.

<sup>\*2</sup> The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

<sup>\*3</sup> Any DC input voltage beyond the operating voltage range may result in inverter improper operating. <sup>\*4</sup> C10 / 11: 10,000 VA

<sup>\*5</sup> Max. output current will be limit to 16 A under Jordan and G98 grid code.

<sup>\*6</sup> SUN2000-3~10KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

<sup>\*7</sup> <10 W when PID recovery function is activated.

<sup>\*8</sup> IEC60068, IEC61683 is only available for 5/10KTL.



# Smart Energy Controller

## SUN2000-3-10KTL-M1 (High Current Version)



### Active Safety

AI Powered  
Active Arcing Protection



### Higher Yields

Up to 30% More Energy  
with Optimizer <sup>1</sup>



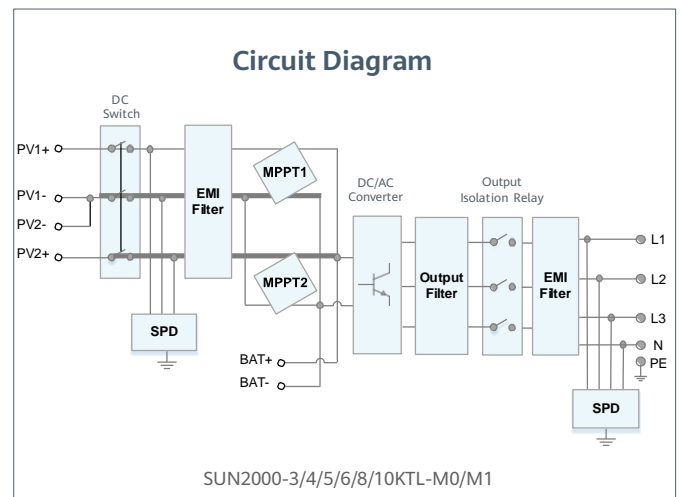
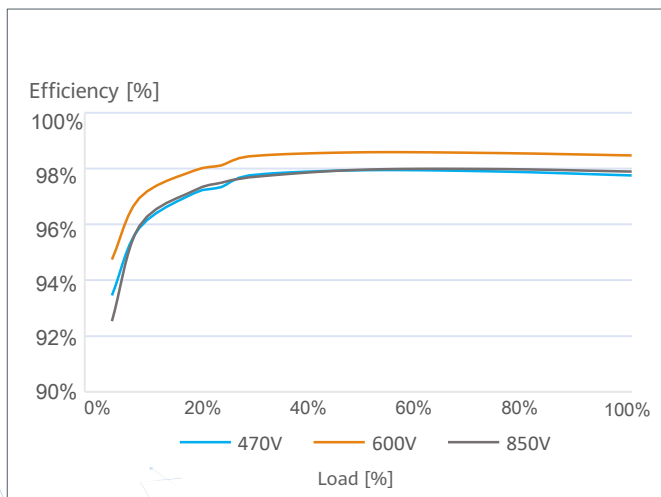
### Battery Ready

Plug & Play battery interface <sup>2</sup>



### Flexible Communication

WLAN, Fast Ethernet, 4G  
Communication Supported



<sup>\*1</sup> Only applicable to SUN2000-3/4/5/6/8/10KTL-M1 smart energy center.  
<sup>\*2</sup> SUN2000-3/4/5/6/8/10KTL-M0 will be compatible with HUAWEI smart string ESS in Q1, 2021

# SUN2000-3/4/5/6/8/10KTL-M1 (High Current Version)

## Technical Specification

Technical Specification	SUN2000-3KTL-M1	SUN2000-4KTL-M1	SUN2000-5KTL-M1	SUN2000-6KTL-M1	SUN2000-8KTL-M1	SUN2000-10KTL-M1
<b>Efficiency</b>						
Max. efficiency	98.2%	98.3%	98.4%	98.6%	98.6%	98.6%
European weighted efficiency	96.7%	97.1%	97.5%	97.7%	98.0%	98.1%
<b>Input (PV)</b>						
Recommended max. PV power <sup>1</sup>	4,500 Wp	6,000 Wp	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp
Max. input voltage <sup>2</sup>	1,100 V					
Operating voltage range <sup>3</sup>	140 V ~ 980 V					
Start-up voltage	200 V					
Rated input voltage	600 V					
Max. input current per MPPT	13.5 A					
Max. short-circuit current	19.5 A					
Number of MPP trackers	2					
Max. input number per MPP tracker	1					
<b>Input (DC Battery)</b>						
Compatible Battery	HUAWEI Smart String ESS 5kWh – 30kWh					
Operating voltage range	600 V ~ 980 V					
Max operating current	16.7 A					
Max charge Power	10,000 W					
Max discharge Power	3,300 W	4,400 W	5,500 W	6,600 W	8,800 W	10,000 W
<b>Output (On Grid)</b>						
Grid connection	Three-phase					
Rated output power	3,000 W	4,000 W	5,000 W	6,000 W	8,000 W	10,000 W
Max. apparent power	3,300 VA	4,400 VA	5,500 VA	6,600 VA	8,800 VA	11,000 VA <sup>4</sup>
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE					
Rated AC grid frequency	50 Hz / 60 Hz					
Max. output current	5.1 A	6.8 A	8.5 A	10.1 A	13.5 A	16.9 A <sup>5</sup>
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3%					
<b>Output (Off Grid)</b>						
Backup Box	Backup Box – B1					
Maximum apparent power	3,000 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA
Rated output voltage	220 V / 230 V					
Maximum output current	13.6 A	15 A	15 A	15 A	15 A	15 A
Power factor range	0.8 leading ... 0.8 lagging					
<b>Features &amp; Protections</b>						
Input-side disconnection device	Yes					
Anti-Islanding protection	Yes					
DC reverse polarity protection	Yes					
Insulation monitoring	Yes					
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
Residual current monitoring	Yes					
AC overcurrent protection	Yes					
AC short-circuit protection	Yes					
AC overvoltage protection	Yes					
Arc fault protection	Yes					
Ripple receiver control	Yes					
Integrated PID recovery <sup>6</sup>	Yes					
Battery reverse charging from grid	Yes					
<b>General Data</b>						
Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)					
Relative operating humidity	0 %RH ~ 100 %RH					
Max. operating altitude	4,000 m (13,123 ft.) (Derating above 2000 m)					
Cooling	Natural convection					
Display	LED Indicators; Integrated WLAN + FusionSolar App					
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G / 3G / 2G via Smart Dongle-4G (Optional)					
Weight (incl. mounting bracket)	17 kg (37.5 lb)					
Dimension (incl. mounting bracket)	525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch)					
Degree of protection	IP65					
Nighttime Power Consumption	< 5.5 W <sup>7</sup>					
<b>Optimizer Compatibility</b>						
DC MBUS compatible optimizer	SUN2000-450W-P, SUN2000-450W-P2, SUN2000-600W-P					
<b>Standard Compliance (more available upon request)</b>						
Certificate	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116, IEC 61727, G98/1 VER.2, G99/1 VER.2					
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA					

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

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

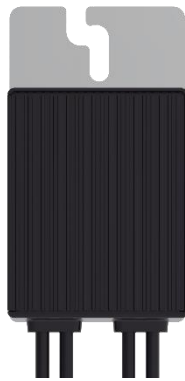
\*3 Any DC input voltage beyond the operating voltage range may result in inverter improper operating. \*4 C10 / 11: 10,000 VA

\*5 Max. output current will be limit to 16 A under Jordan and G98 grid code.

\*6 SUN2000-3-10KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

\*7. <10 W when PID recovery function is activated.

# Smart PV Optimizer



One-Fits-All Optimizer  
Easier Business



<5s Module Auto-Mapping



Arc Fault Pinpoint  
Positioning Along PV Cable

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P		
<b>Input</b>				
Rated Input DC Power <sup>1</sup>	450 W	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			
<b>Output</b>				
Max. output voltage	80 V			
Max. output current	15 A			
Output bypass <sup>2</sup>	Yes			
Shutdown output voltage per optimizer <sup>3</sup>	0 V			
Shutdown output impedance per optimizer	1k ohm ± 10 %			
<b>Communication</b>				
Communication Method	MBUS			
<b>Standard Compliance</b>				
Safety	IEC62109-1 (class II safety)			
RoHS	Yes			
<b>General Data</b>				
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 <sup>4</sup>			
Input connector	MC4			
Input wire length	0.15m (0.49 ft.)			
Output connector	MC4			
Output wire length	1.3 m (4.3 ft.) <sup>5</sup>			
Operating temperature / humidity range	-40 °C ~ 85 °C <sup>5</sup> / 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, SUN2000-30/36/40KTL-M3			
Long String Design (Full Optimizer)	SUN2000-2-6KTL-L1	SUN2000-3-10KTL-M1	SUN2000-12-20KTL-M2	SUN2000-30-40KTL-M3
Minimum optimizer number per string <sup>6</sup>	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

<sup>\*1</sup> In the STC environment, The rated power of the module shall not exceed 1.05 times of the optimizer rated input power.

<sup>\*2</sup> Power optimizer is bypassed in the string connected to an operating inverter when it fails to work

<sup>\*3</sup> Power optimizer output 0Vdc when disconnecting to the inverter or inverter is shutdown.

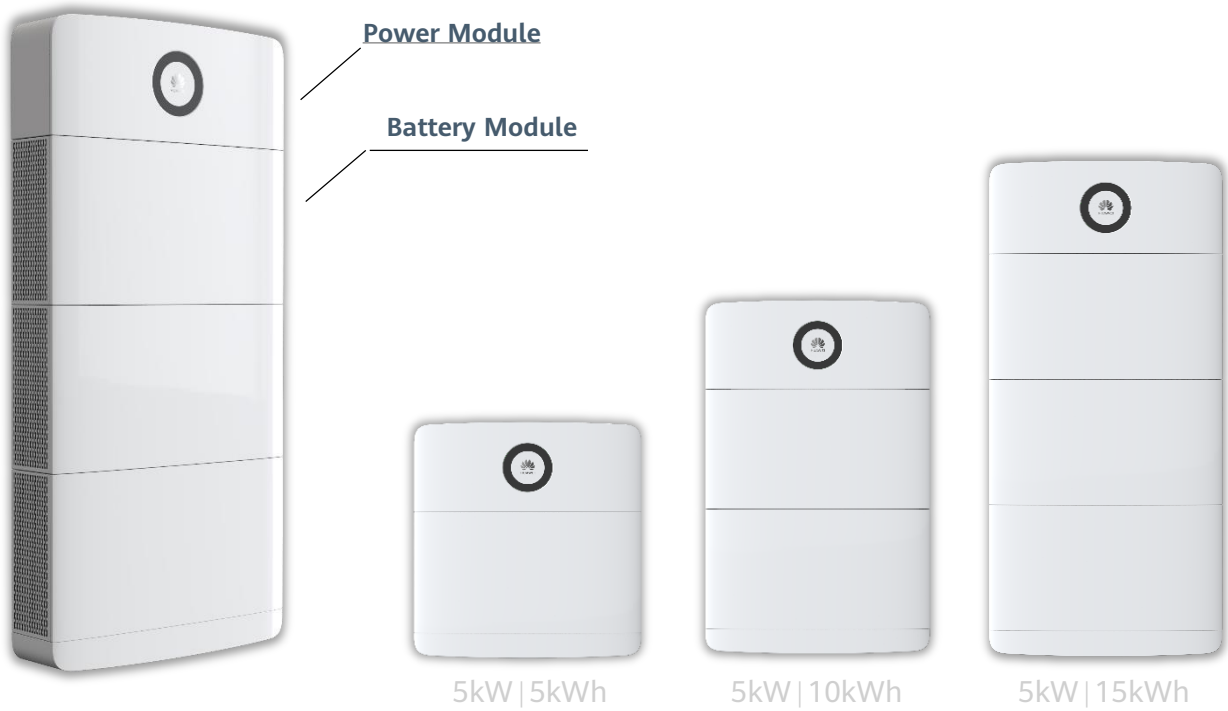
<sup>\*4</sup> Allow PV module frame installation / extruded aluminum profile installation

<sup>\*5</sup> Fits PV module in landscape and portrait installation.

<sup>\*6</sup> Require standard 60 cells module to meet the inverter minimum startup voltage

<sup>\*7</sup> Full power capability refers to online smart design tool.

# iSitePower-M



## 24 hours power supply

100% Depth of Discharge  
Pack Level Energy Optimization



## Safe & Reliable

Lithium Iron Phosphate (LFP) Cell  
Built-in extinguish bag  
Cell level monitoring



## High quality Experience

Operating sound < 29dB  
One app for all control

Basic Parameters	
Dimensions (W * H * D)	Single power module: 700 mm x 246 mm x 152 mm Single battery module: 700mm x 390 mm x 158 mm Base (mandatory for floor installation): 700 mm x 65 mm x 147 mm Base (mandatory for wall-mounted installation): 643 mm x 110 mm x 176 mm
Weight	Approx. 17 kg for a single power module Approx. 50 kg for a single energy storage module
Installation Mode	Wall-mounted/ground-mounted
Degree of protection	IP66
AC input	
Input voltage	200/208/220/230/240V AC
Input current	Max. 30 A
Frequency	50/60Hz
Maximum bypass input power	6kW
Lightning protection	Differential mode: 3KA; common mode (two-wire pair PE): 5KA; 8/20 μs

PV input	
MPPT voltage range	90-420V DC
Maximum input capacity of the MPPT	5.5kWp
PV string quantity	2 strings
Number of MPPT channels	1 channel
Maximum input current for one string	12.5A
Maximum short circuit current for one string	18A
Lightning protection	Complies with EN/IEC 61643-11 TYPE II
AC output	
Output voltage system	Single-phase 200/208/220/230/240V AC. The default value is 220V AC
Output frequency	50/60 Hz. The default value is 50 Hz.
Maximum output current	30A
Output power	6kVA/5kW
Power factor	0.8
Overload capacity	
102% ≤ Load ≤ 125%	30s
125% < Load ≤ 150%	10s
> 150%/short circuit	0.3s
Battery parameters	
Rated capacity	5 kWh per module
Maximum capacity	Single system scenario: max. support 6 pcs batteries, 5 kW output (5Kw@30kWh) Parallel system scenarios: max. 3 power modules can be paralleled. Each power module supports max. 3 batteries (15Kw@45kWh)
Maximum output/input power	2.5 kW per module
AC parallel box	
Dimensions (W * H * D)	350 mm x 450 mm x 150 mm
Weight	Approx. 12 kg
Input voltage	200/208/220/230/240 V AC. The default value is 220 V AC.
Input current	Maximum 90A
Output voltage	200/208/220/230/240 V AC. The default value is 220 V AC.
Output current	Max. 90A
Cable outlet mode	Bottom in and bottom out
Installation Mode	Wall-mounted or pole-mounted installation
Degree of protection	IP55
Environmental parameters	
Operating temperature	0°C to 45°C (without +1120w/m <sup>2</sup> solar radiation)
Transport temperature	- 40° C -+ 70° C
Storage temperature	- 40° C -+ 70° C
Relative humidity	5%-95% (RH)
Altitude Requirements	0~4000m (The operating temperature decreases by 1° C per 200m when the altitude is 2000 m to 4000 m.)

1. Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C, at the beginning of life. If no PV modules are installed or the system has not detected sunlight for at least 24 hours, the minimum end of discharge SOC is 15%.
2. The weight of the battery module is subject to the actual product, with a tolerance of ±3%
3. Refer to battery warranty letter for conditional application.
4. Improper storage system installation may compromise product warranty and operation safety. Please follow the user manual during the installation, use, and maintenance of the storage system.
5. Noise Level(Typical):<29dB(A) @1m, 30°C, Power On and Run Stably for 2 Hours

# Smart String Energy Storage System

## LUNA-5/10/15-S0



### More Usable Energy

100% Depth of Discharge  
Pack Level Energy Optimization



### Flexible Investment

5kWh Modular Design,  
Scalable from 5 to 30 kWh



### Safe & Reliable

Lithium Iron Phosphate (LFP) Cell



### Easy Installation

12 kg Power Module  
50 kg Battery Module



### Quick Commissioning

Automatically Detected in App



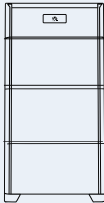


### Perfect Compatibility

Compatible to Both Residential  
Single & Three Phase Inverter

# LUNA2000-5/10/15-S0

## Technical Specification

Technical Specification	LUNA2000-5-S0	LUNA2000-10-S0	LUNA2000-15-S0
			

Performance			
Power module	LUNA2000-5KW-C0		
Number of power modules	1		
Battery module	LUNA2000-5-E0		
Battery module energy	5 kWh		
Number of battery Modules	1	2	3
Battery usable energy <sup>1</sup>	5 kWh	10 kWh	15 kWh
Max. output power	2.5 kW	5 kW	5 kW
Peak output power	3.5 kW, 10 s	7 kW, 10 s	7 kW, 10 s
Nominal voltage (single phase system)	360 V		
Operating voltage range (single phase system)	350 – 560 V		
Nominal voltage (three phase system)	600 V		
Operating voltage range (three phase system)	600 – 980 V		

Communication	
Display	SOC status indicator, LED indicator
Communication	RS485 / CAN (only for parallel operation)

General Specification			
Dimension (W*D*H)	670 * 150 * 600 mm (26.4 * 5.9 * 23.6 inch)	670 * 150 * 960 mm (26.4 * 5.9 * 37.8 inch)	670 * 150 * 1320 mm (26.4 * 5.9 * 60.0 inch)
Weight (Floor stand toolkit included)	63.8 kg (140.7 lb)	113.8 kg (250.9 lb)	163.8 kg (361.1 lb)
Power module dimension (W*D*H)	670 * 150 * 240 mm (26.4 * 5.9 * 9.4 inch)		
Power module weight	12 kg (26.5 lb)		
Battery module dimension (W*D*H)	670 * 150 * 360 mm (26.4 * 5.9 * 14.0 inch)		
Battery module weight	50 kg (110.2 lb)		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature	-10°C ~ +55°C (-4°F ~ 131°F) <sup>2</sup>		
Operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 2,000 m)		
Environment	Indoor / Outdoor		
Relative humidity	5% ~ 95%		
Cooling	Natural convection		
Protection rating	IP 66		
Noise emission	<29 dB		
Cell technology	Lithium-iron phosphate (LiFePO4)		
Scalability	Max. 2 systems in parallel operation		
Compatible inverters	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M0 <sup>4</sup> , SUN2000-3/4/5/6/8/10KTL-M1		

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

Ordering and Deliverable Part	
Product ordering model <sup>5</sup>	LUNA2000-5KW-C0, LUNA2000-5-E0, LUNA2000 Wall Mounting Bracket

1. Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C

2. Charge/discharge derating occurs when the operating temperature from -20°C to 5°C & 45°C to 55°C.

3. Limited supporting, available in Q1, 2021\*

4. Storage system is ordered and delivered in the form of power module and battery module separately with corresponding quantity.

# Backup Box



## Simple

Automatic detection & switchover



## Reliable

Provide reliable backup power

Technical Specification	Backup Box-B0	Backup Box-B1
<b>AC Output (On grid)</b>		
Grid connection	Single Phase	Three Phase
Rated voltage	220 V / 230 V	380 V / 400 V
AC frequency	50Hz / 60Hz	
AC output voltage range	198 V ~ 253 V	342 V ~ 440 V
<b>AC Output (Backup)</b>		
Load connection	Single Phase	Single Phase
Rated voltage	220 V / 230 V	220 V / 230 V
AC frequency	50Hz / 60Hz	
Maximum apparent power	5,000 VA	3,300 VA
Maximum output current	22.7 A	15.2 A
Switchover time	< 3 s	
<b>AC Input (Inverter)</b>		
Rated voltage	220 V / 230 V	380 V / 400 V
AC frequency	50Hz / 60Hz	
Compatible inverter	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1	SUN2000-3/4/5/6/8/10KTL-M1
<b>General Specification</b>		
Operating temperature range	-20 °C to +45 °C (-4 °F to 113 °F)	
Relative humidity range	0 %RH ~ 100 %RH	
Dimensions (W * H * D)	400 x 350 x 130 mm (15.8 x 13.8 x 5.1 inch)	
Weight	11 kg	
Degree of protection	IP 65	



# Smart Dongle-4G



## Smart

4G communication <sup>1</sup>

Support 3rd-party monitoring system <sup>2</sup>



## Simple

Plug & Play

WLAN-AP for local deploying <sup>3</sup>



## Reliable

IP65

Support auto reconnection

Technical Specification	SDongleB-06-EU	SDongleB-06-AU	SDongleB-06-NH
-------------------------	----------------	----------------	----------------

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 <sup>4</sup>	LTE-FDD: B1/B3/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B3/B8/B18/B19/B26 LTE-TDD: B41 WCDMA: B1/B6/B8/B19
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	RCM	TELEC

Inverter Compatibility	
Inverter model	SUN600-5/6KTL-L0 SUN2000-2~6KTL-L1 SUN2000-3~10KTL-M1 SUN2000-8~20KTL-M2 SUN2000-12~25KTL-M5 SUN2000-20~50KTL-M3 SUN2000-50/60KTL-M0 SUN2000-50KTL-JPM1 SUN2000-63KTL-JPM0 SUN2000-75KTL-M1 SUN2000-100KTL-M0/M1 SUN2000-100KTL-INM0 SUN2000-110KTL-INM2 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 Dongle-WLAN-FE



## Smart

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



## Simple

Plug & Play  
Support max. 10 devices



## Reliable

IP65  
Support auto reconnection

Technical Specification	SDongleA-05(AP+STA)
<b>General Data</b>	
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
<b>Wireless Parameter</b>	
Supported standards & frequencies	802.11b/g/n (2.412G—2.484G)
<b>Environment</b>	
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.)
<b>Standard Compliance (more available upon request)</b>	
Certificate	SRRC, CE, RCM
<b>Inverter Compatibility</b>	
Inverter Model	SUN2000-2/3/3.68/4/4.6/5/6-L1 SUN2000-3/4/5/6/8/10-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-12/15/17/20/25KTL-M5 SUN2000-30/36/40/50KTL-M3 SUN2000-100/115KTL-M2 SUN2000-110KTL-INM2

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



# Smart Power Sensor DDSU666-H/DTSU666-H



## Accurate

Class 1 measurement accuracy



## Simple & Easy

LCD display, easy to set and check



## Energy Efficient

Overall power consumption  $\leq 1$  W

Technical Specification	DDSU666-H	DTSU666-H 100A	DTSU666-H 250A/50mA
<b>General Data</b>			
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)	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)	1.5 kg (3.3 lb)
<b>Power Supply</b>			
Power grid type	1P2W	3P4W	3P4W/3P3W
Input voltage (phase voltage)		176 Vac ~ 288 Vac	
Power consumption	$\leq 0.8$ W	$\leq 1$ W	$\leq 1$ W
<b>Measurement Range</b>			
Line voltage	/	304 Vac ~ 499 Vac	304 Vac ~ 499 Vac
Phase voltage		176 Vac ~ 288 Vac	
Current	0 ~ 100 A	0 ~ 100 A	0 ~ 250 A
<b>Measurement Accuracy</b>			
Voltage / Current	$\pm 0.5$ %		
Power / Energy	$\pm 1$ %		
Frequency	$\pm 0.01$ Hz		
<b>Communication</b>			
Interface	RS485		
Baud rate	9,600 bps		
Communication protocol	Modbus-RTU		
<b>Environment</b>			
Operating temperature range	-25 °C ~ 60 °C		
Storage temperature range	-40 °C ~ 70 °C		
Operating humidity	5 %RH ~ 95 %RH (non-condensing)		
<b>Others</b>			
	RS485 Cable (10 m / 33 ft.)		
	1 CT 100A / 40mA (5 m / 16.4 ft.)	3 CT 100A / 40mA (5m / 16.4 ft.)	3 CT 250A / 50mA (5m / 16.4 ft.)

Accessories

# Smart Power Sensor

## DTSU666-HW/YDS60-80



### Accurate

Class 1 measurement accuracy



### Simple & Easy

LCD display, easy to set and check



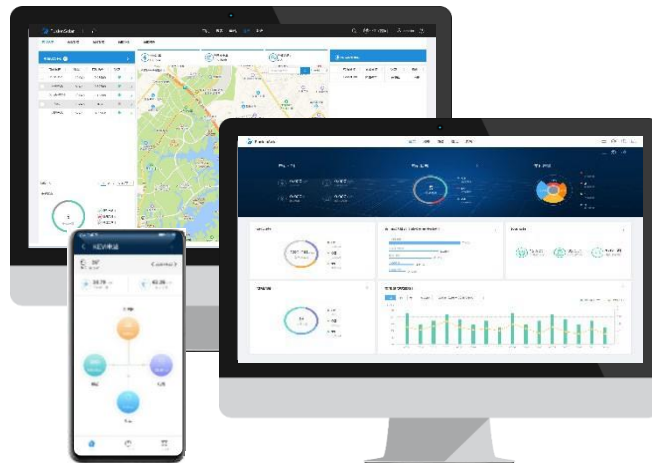
### Energy Efficient

Overall power consumption  $\leq 1.5$  W

Technical Specification	DTSU666-HW/YDS60-80
<b>General Data</b>	
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
<b>Power Supply</b>	
Power grid type	3P4W/3P3W
Input voltage (line voltage)	90 ~ 500 Vac
Power consumption	$\leq 1.5$ W
<b>Measurement Range</b>	
Line voltage	90 Vac ~ 1000 Vac (> 500 with external PT <sup>1</sup> )
Phase voltage	52~577 Vac
Current	0 ~ 80 A(>80 with external CTs <sup>2</sup> )
<b>Measurement Accuracy</b>	
Voltage / Current	$\pm 0.5$ %
Power / Energy	$\pm 1$ %
Frequency	$\pm 0.01$ Hz
<b>Communication</b>	
Interface	RS485
Baud rate	4800/9600/19200/115200 (Default 9600bps)
Communication protocol	Modbus-RTU
<b>Environment</b>	
Operating temperature range	-25 °C ~ 60 °C
Storage temperature range	-40 °C ~ 70 °C
Operating humidity	5 %RH ~ 95 %RH (non-condensing)
<b>Others</b>	
Accessories	RS485 Cable (10 m / 33 ft.)

\*1 2<sup>nd</sup> voltage of PT should be 100V. And accuracy should be better than Class 0.5  
 \*2 2<sup>nd</sup> 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

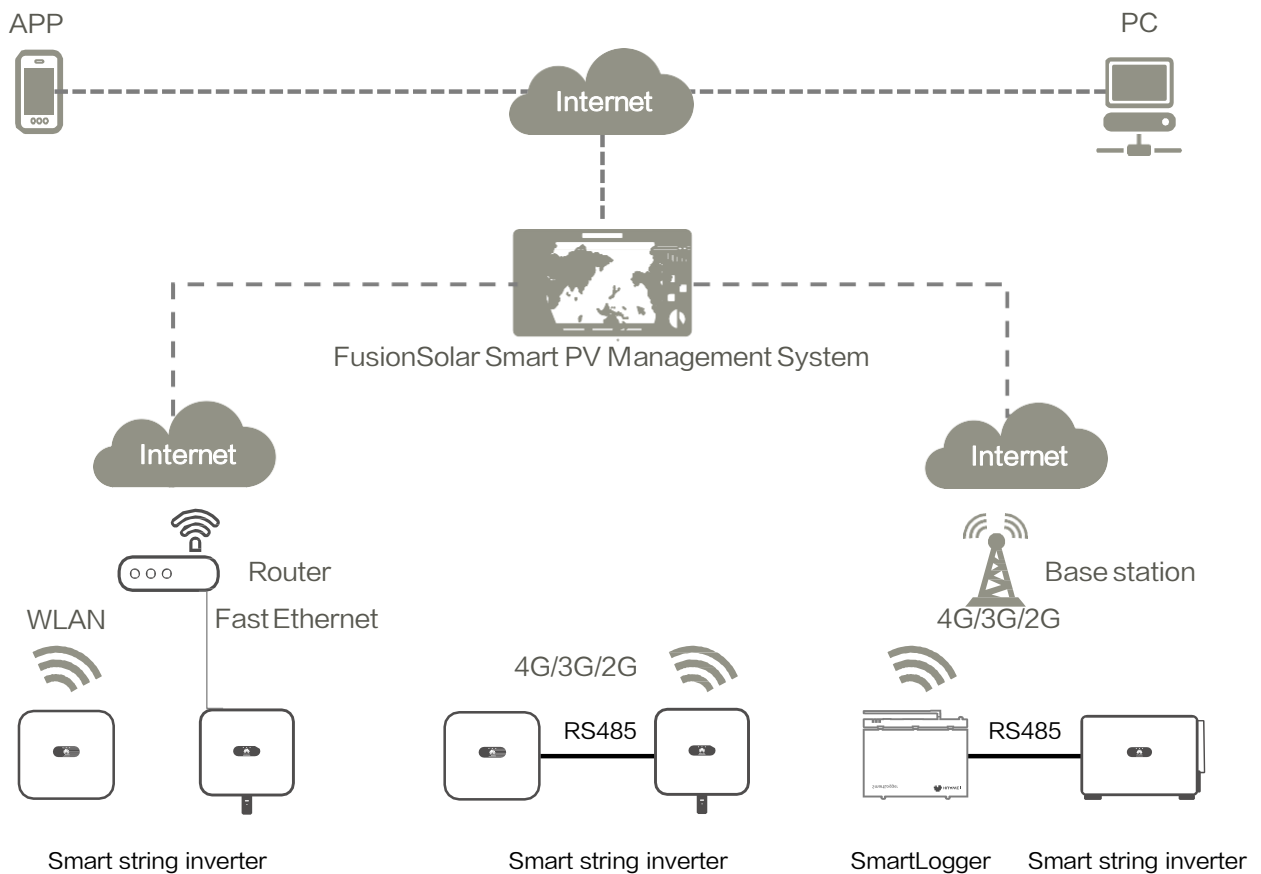
- KPI Dashboard, centralized management of multiple plants
- Module-level monitoring
- Report subscription and real-time alarm push



## Smart O&M

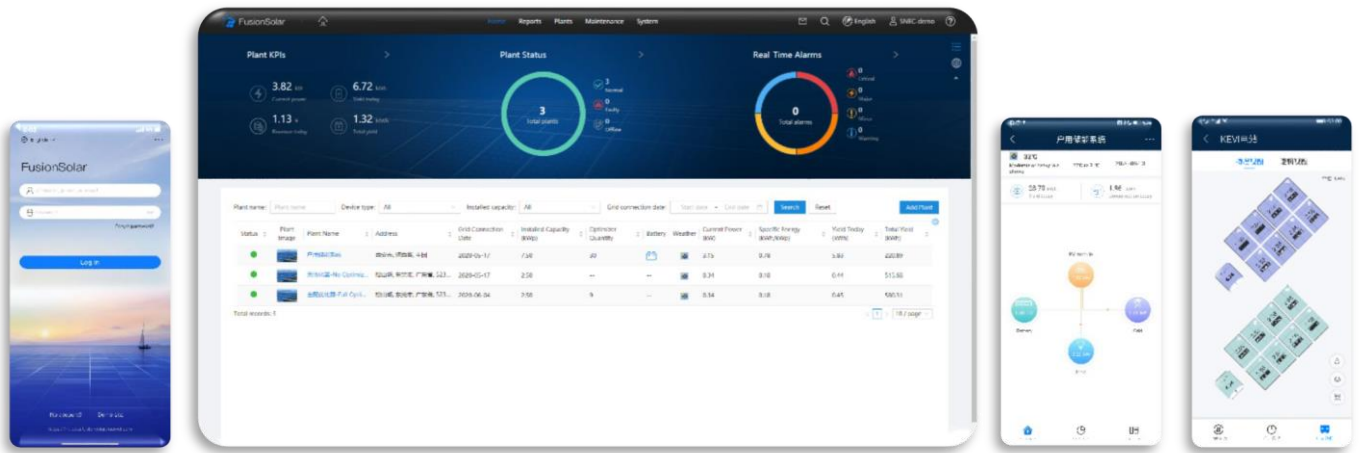
- One-screen mgmt. of site, personnel, status
- One-click ticket dispatching & site navigation
- Online Smart I-V Curve Diagnosis, 15mins required for a 100MW plant diagnosis

## Networking





# FusionSolar Smart PV Management System

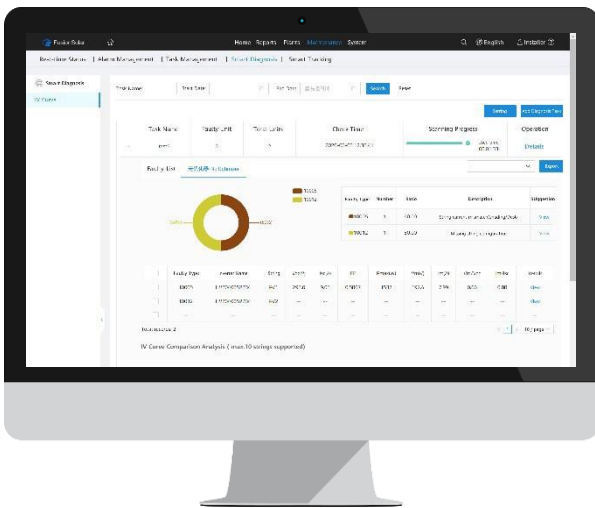


Category	Function	Web	APP
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management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

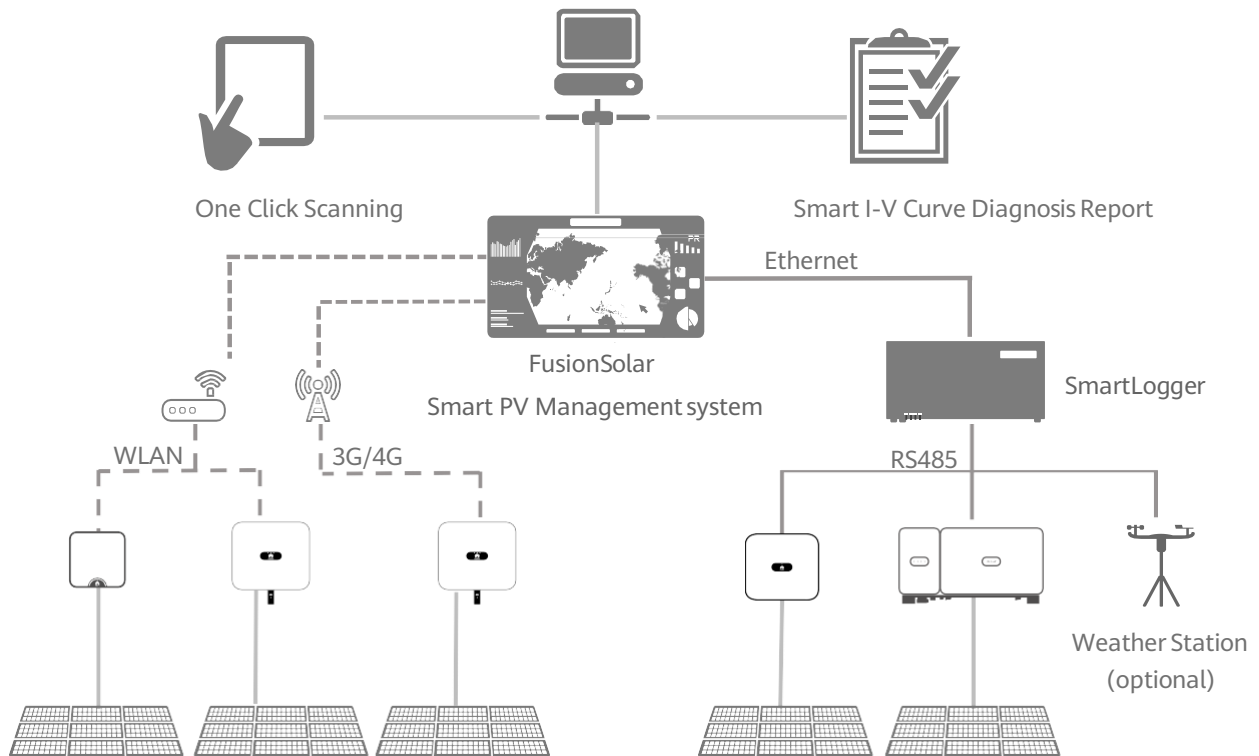
- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion



## Efficient

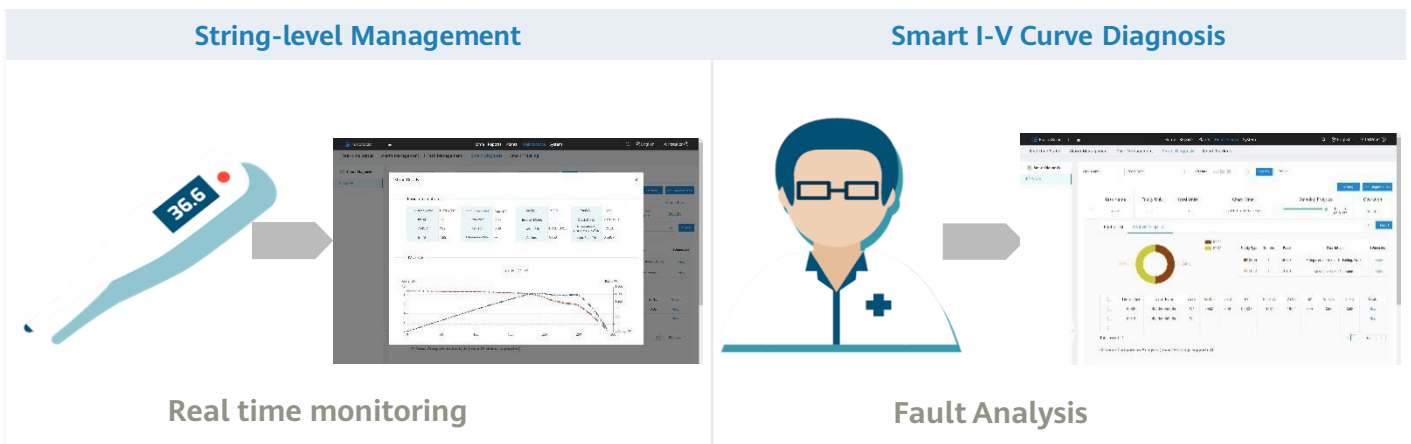
- One-click scanning without onsite experts or equipment
- Online I-V curve scanning on entire strings of 5 MW plant within 5min
- Automatic report generation of 5 MW plant within 15min

## Network

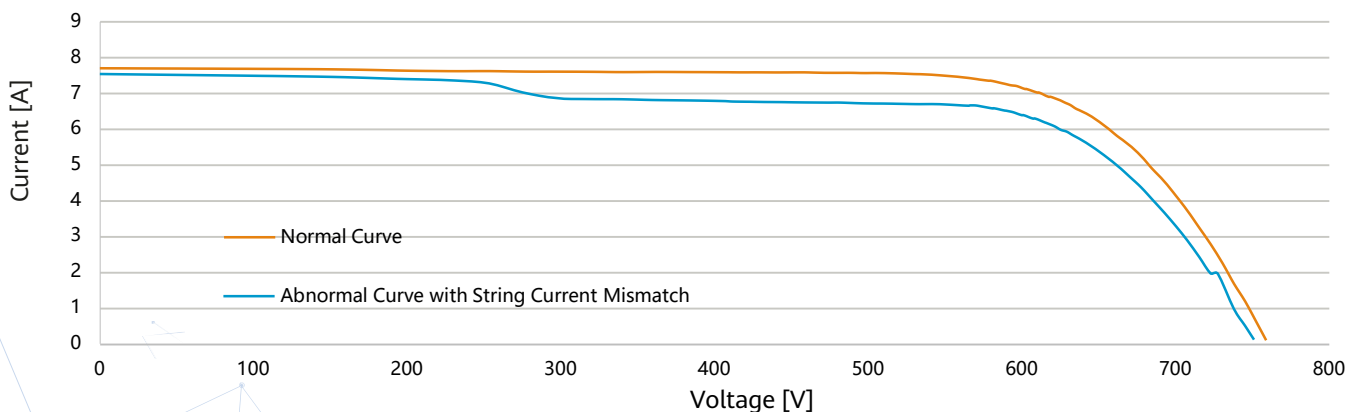
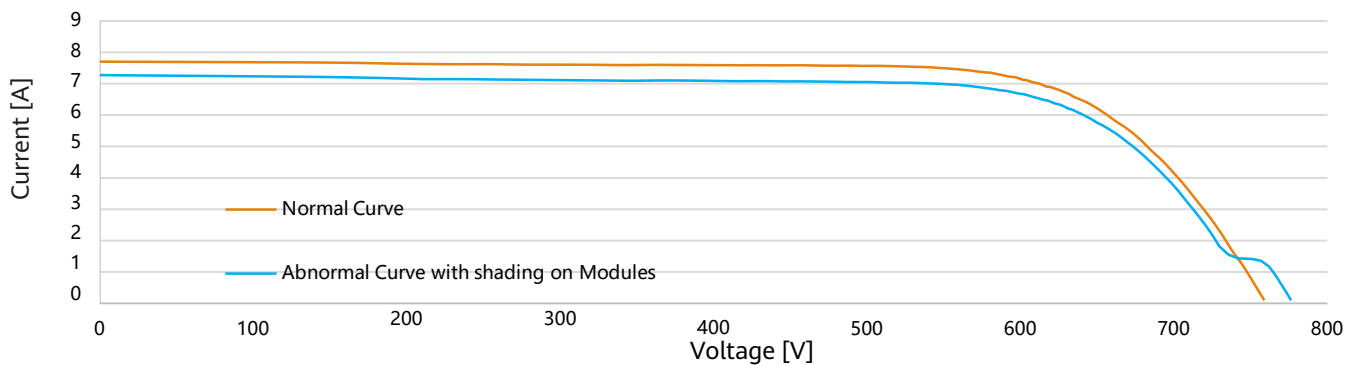


Technical Specifications	Smart I-V Curve Diagnosis
Smart PV Inverter*	SUN2000L-2/3/4/5KTL, SUN2000-3/4/5/6/8/10KTL-M0, SUN2000-12/15/17/20KTL-M0, SUN2000-36KTL, SUN2000-50/60KTL-M0
Communication	SmartLogger2000, SmartLogger1000A, SmartLogger3000A, Smart Dongle
Management System	FusionSolar Smart PV Management 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 I-V Curve Comparison





# Case Reference



## 1.8kWp

Residential PV System in Amsterdam, Netherlands

### System Configuration

- 6 × 300Wp modules
- 6 × 450W optimizers
- SUN2000L-2KTL-L1

COD

July, 2020



## 25kWp

Residential PV System in Hungary

### System Configuration

- 84 × 295Wp modules
- SUN2000-20KTL-M0

COD

May, 2019

# Case Reference



## 12KWp

Residential PV System in Oosterzele, Belgium

COD  
Mar 2016

### System Configuration

- 36 × 340Wp Modules
- SUN2000-8KTL-M0



## 33kWp

Residential PV system in Hanadacho Chokushi, Japan

COD  
April, 2018

### System Configuration

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



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