



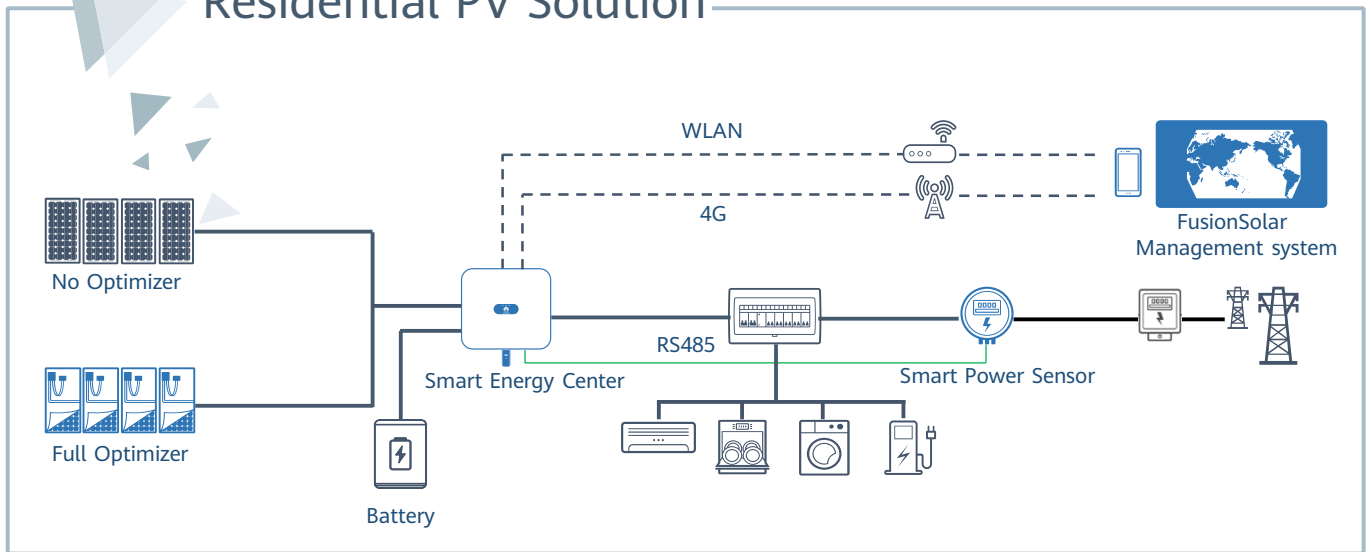
## About Huawei

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

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



## Residential PV Solution



### Installer Benefits

Easier design with optimizers meeting either simple or complex rooftops

Digital Turbo makes <1.5 min optimizer pairing & <5 sec physical layout creation

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

### Homeowner Benefits

Up to 30% more energy by optimizing each module performance

AI powered AFCI to proactively mitigate fire risk

Battery ready by direct plug & play, future proof



# Smart Energy Center



reddot award 2016  
winner



## Higher Revenue

Max. efficiency 98.6%



## Simple & Easy

Optimized AC connector



## Battery Ready

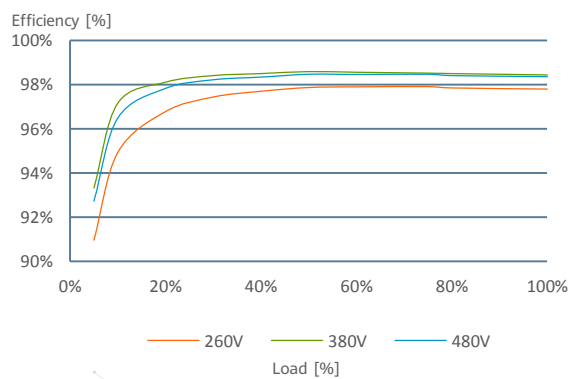
Plug & Play battery interface



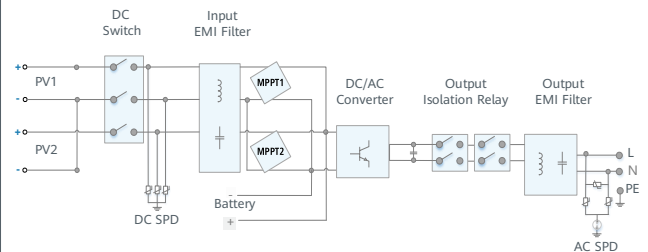
## Safe & Reliable

DC & AC surge protection

### Efficiency Curve



### Circuit Diagram



SUN2000L-2/3/4/5KTL

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

Technical Specification	SUN2000L -2KTL	SUN2000L -3KTL	SUN2000L -4KTL	SUN2000L -5KTL
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## Efficiency

Max. efficiency	98.4 %	98.5 %	98.6 %	98.6 %
European weighted efficiency	97.0 %	97.6 %	97.9 %	98.0 %

## Input

Recommended max. PV power	3,000 Wp	4,500 Wp	6,000 Wp	7,500 Wp
Max. input voltage	500 / 495 V <sup>2</sup>		600 / 495 V <sup>1</sup>	
Operating voltage range <sup>1</sup>	90 V~ 500 V / 90 V~ 495 V <sup>2</sup>		90 V~ 600 V / 90 V~ 495 V <sup>1</sup>	
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
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	5,000 W
Max. apparent power	2,200 VA	3,300 VA	4,400 VA	5,500 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 <sup>3</sup>	25 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 surge protection <sup>1</sup>	Yes
AC surge protection <sup>1</sup>	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
Nighttime Power Consumption	< 2 W

## Battery Compatibility

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

## Standard Compliance

Safety	EN/IEC 62109-1, EN/IEC 62109-2
Grid connection standards	ABNT, G83/2, G59/3, EN 50438, CEI 0-21, VDE-AR-N-4105, VDE 0126-1-1, AS 4777, C10/11, UTE C15-712, RD 1699, NRS 097-2-1, DEWA 2016, IEC 61727, IEC 62116, MEA(Only for 5KTL)

\*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.

\*2. Compatible TYPE II protection class according to EN/IEC 61643-11.

\*3. Max. output current will be limit to 16 A under Jordan and G98 grid code.



## Higher Revenue

Max. efficiency 98.6%



## Simple & Easy

17 kg



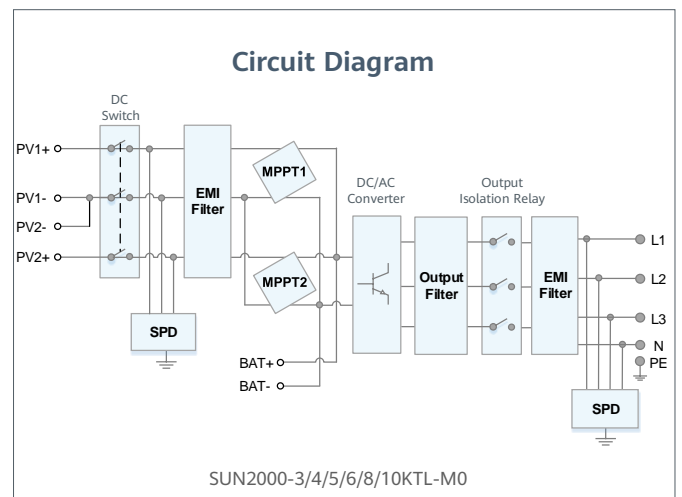
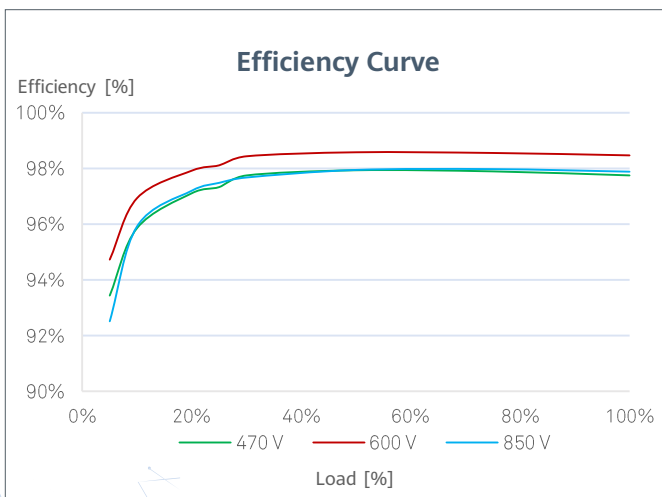
## Battery Ready

Plug & Play battery interface



## Safe & Reliable

Arc fault protection



# SUN2000-3/4/5/6/8/10KTL-M0 Technical Specification

Technical Specification	SUN2000 -3KTL-M0	SUN2000 -4KTL-M0	SUN2000 -5KTL-M0	SUN2000 -6KTL-M0	SUN2000 -8KTL-M0	SUN2000 -10KTL-M0
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## Efficiency

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%

## Input

	6,000 Wp	8,000 Wp	10,000 Wp	12,000 Wp	14,880 Wp	14,880 Wp
Recommended max. PV power	6,000 Wp	8,000 Wp	10,000 Wp	12,000 Wp	14,880 Wp	14,880 Wp
Max. input voltage <sup>1</sup>	1,100 V					
Operating voltage range <sup>2</sup>	140 V ~ 980 V					
Start-up voltage	200 V					
Full power MPPT voltage range	140 V ~ 850 V	190 V ~ 850 V	240 V ~ 850 V	285 V ~ 850 V	380 V ~ 850 V	470 V ~ 850 V
Rated input voltage	600 V					
Max. input current per MPPT	11 A					
Max. short-circuit current	15 A					
Number of MPP trackers	2					
Max. number of inputs	2					

## Output

	Three-phase					
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>3</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>4</sup>
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3 %					

## Features & Protections

Input-side disconnection device	Yes
Anti-Islanding protection	Yes
DC reverse polarity protection	Yes
Insulation monitoring	Yes
DC surge protection <sup>5</sup>	Yes
AC surge protection <sup>5</sup>	Yes
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

## General Data

Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F) (Derating above 45 °C @ Rated output power)
Relative operating humidity	0 %RH ~ 100 %RH
Operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 3000 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 166 mm (20.7 x 18.5 x 6.5 inch)
Degree of protection	IP65
Nighttime Power Consumption	< 5.5 W

## Battery Compatibility

Battery Interface	Integrated <sup>6</sup>
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## Standard Compliance (more available upon request)

Certificate	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA 2.0

\*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would damage inverter.

\*2 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.

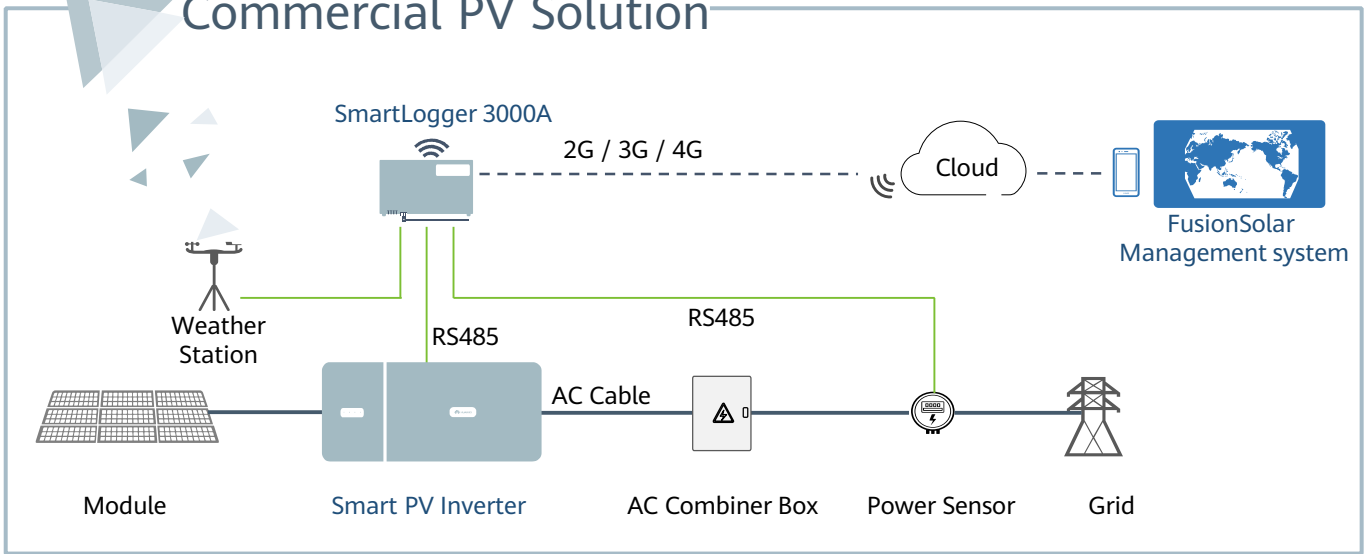
\*3 VDE-AR-N-4105: 10,000 VA; C10 / 11: 10,000 VA.

\*4 Max. output current will be limit to 16 A under Jordan and G98 grid code.

\*5 Compatible TYPE II protection class according to EN/IEC 61643-11.

\*6 Compatible battery solution will be available in 2020 H2.

# 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



# Smart String Inverter



## Higher Revenue

Max. efficiency 98.65%



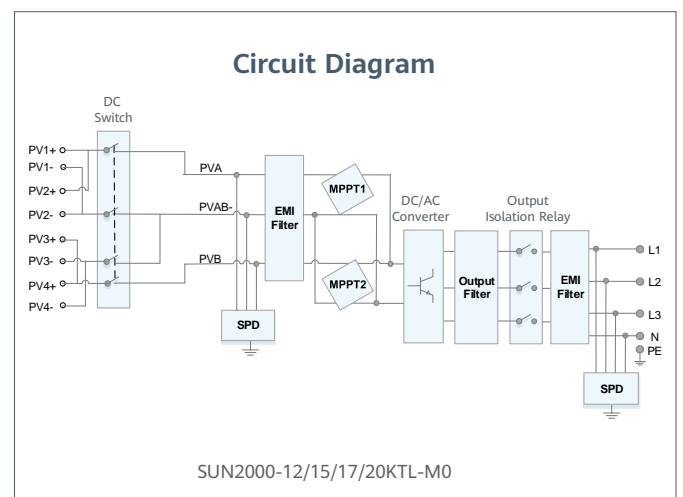
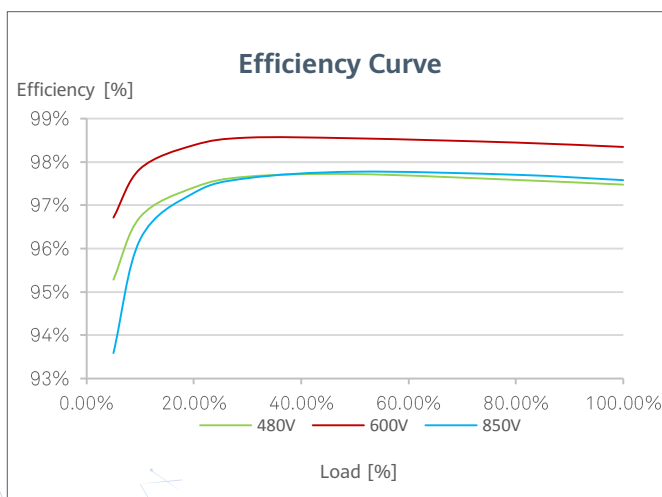
## Simple & Easy

25 kg



## Safe & Reliable

Arc fault protection





# SUN2000-12/15/17/20KTL-M0 Technical Specification

Technical Specification	SUN2000 -12KTL-M0	SUN2000 -15KTL-M0	SUN2000 -17KTL-M0	SUN2000 -20KTL-M0
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## Efficiency

Max. efficiency	98.50%	98.65%	98.65%	98.65%
European weighted efficiency	98.00%	98.30%	98.30%	98.30%

## Input

Recommended max. PV power	24,000 Wp	29,760 Wp	29,760 Wp	29,760 Wp
Max. input voltage <sup>1</sup>	1,080 V			
Operating voltage range <sup>2</sup>	160 V ~ 950 V			
Start voltage	200 V			
Rated input voltage	600 V			
Max. input current per MPPT	22 A			
Max. short-circuit current	30 A			
Number of MPP trackers	2			
Max. number of inputs	4			

## Output

Grid connection	Three phase			
Rated output power	12,000 W	15,000 W	17,000 W	20,000 W
Max. apparent power	13,200 VA	16,500 VA	18,700 VA	22,000 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W + N+PE			
Rated AC grid frequency	50 Hz / 60 Hz			
Max. output current	20 A	25.2 A	28.5 A	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging			
Max. total harmonic distortion	≤ 3 %			

## Features & Protections

Input-side disconnection device	Yes
Anti-islanding protection	Yes
AC over-current protection	Yes
AC short-circuit protection	Yes
AC over-voltage protection	Yes
DC reverse-polarity protection	Yes
DC surge protection <sup>3</sup>	Yes
AC surge protection <sup>3</sup>	Yes
Residual current monitoring unit	Yes
Arc fault protection	Yes
Ripple receiver control	Yes

## General Data

Operation temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F) (Derating above 45 °C @ Rated output power)
Relative humidity	0 % RH ~ 100% RH
Max. operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 2000 m)
Cooling	Natural Convection
Display	LED Indicators
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)
Weight (with mounting plate)	25 kg
Dimensions (W x H x D) (incl. mounting plate)	525 x 470 x 262 mm (20.7 x 18.5 x 10.3 inch)
Degree of protection	IP65
Nighttime Power Consumption	< 1 W

## Standard Compliance (more available upon request)

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

<sup>\*1</sup> The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would damage inverter.

<sup>\*2</sup> Any DC input voltage beyond the operating voltage range may result in inverter improper operating.

<sup>\*3</sup> Compatible TYPE II protection class according to EN/IEC 61643-11

# SUN2000-36KTL Smart String Inverter



## Smart

8 strings intelligent monitoring



## Efficient

Max. efficiency 98.6%



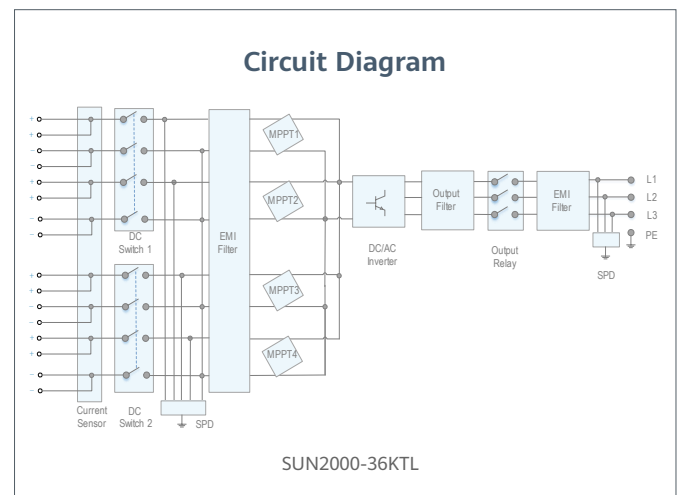
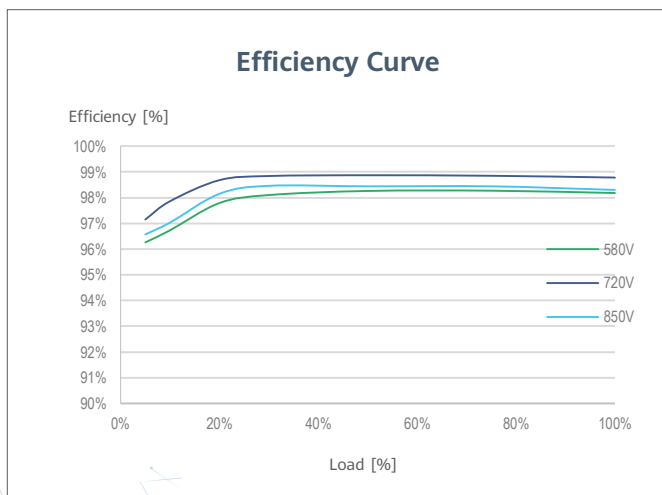
## Safe

Fuse free design



## Reliable

Type II surge arresters for DC & AC



Technical Specification	SUN2000-36KTL
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Efficiency	
Max. Efficiency	98.8% @480 V; 98.6% @380 V / 400 V
European Efficiency	98.6% @480 V; 98.4% @380 V / 400 V

Input	
Max. Input Voltage	1,100 V
Max. Current per MPPT	22 A
Max. Short Circuit Current per MPPT	30 A
Start Voltage	250 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	620 V @380 Vac / 400 Vac; 720 V @480 Vac
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 277 V / 480 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	54.6 A @380 V, 52.2 A @400 V, 43.4 A @480 V
Max. Output Current	60.8 A @380 V, 57.8 A @400 V, 48.2 A @480 V
Adjustable Power Factor Range	0.8 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/WLAN + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes

General Data	
Dimensions (W x H x D)	930 x 550 x 283 mm (36.6 x 21.7 x 11.1 inch)
Weight (with mounting plate)	62 kg (136.7 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Natural Convection
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Waterproof PG Terminal + OT Connector
Protection Degree	IP65
Topology	Transformerless
Nighttime Power Consumption	< 2.5 W

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, VDE-AR-N4105, VDE 0126-1-1, BDEW, G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, RD 661, RD 1699, P.O. 12.3, RD 413, EN-50438-Turkey, EN-50438-Ireland, C10/11, MEA, Resolution No.7, NRS 097-2-1, AS/NZS 4777.2, DEWA

# SUN2000-50KTL-M0 Smart String Inverter



## Smart

Smart I-V Curve Diagnosis supported



## Efficient

Max. efficiency 98.7%



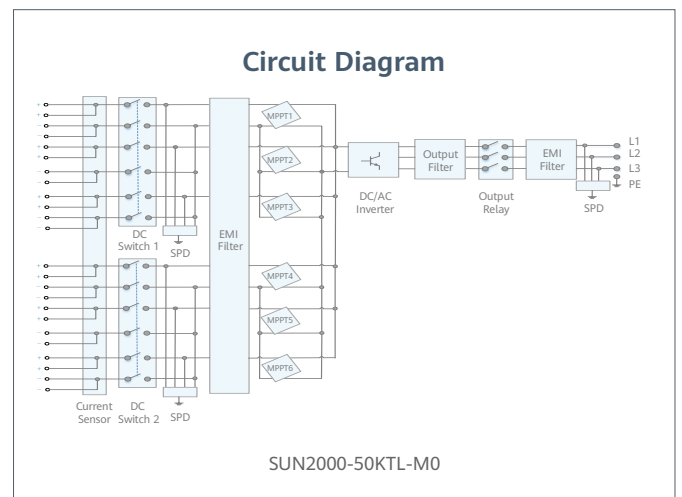
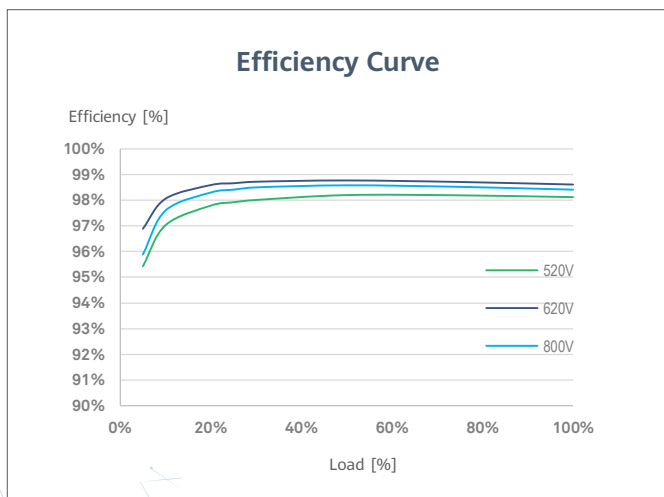
## Safe

Fuse free design



## Reliable

Type II surge arresters for DC & AC



Technical Specification	SUN2000-50KTL-M0
<b>Efficiency</b>	
Max. Efficiency	98.7%
European Efficiency	98.5%
<b>Input</b>	
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
<b>Output</b>	
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 / 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	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%
<b>Protection</b>	
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
<b>Communication</b>	
Display	LED Indicators, Bluetooth + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes
<b>General Data</b>	
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	Waterproof PG Terminal + OT Connector
Protection Degree	IP65
Topology	Transformerless
<b>Standard Compliance (more available upon request)</b>	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 62910, IEC 60068, IEC 61683, IRR-DCC-MV, G99
Grid Code	IEC 61727, G59/3, DEWA, NRS 097-2-1, IEEE 1547, SASO, DEWA

# SUN2000-60KTL-M0 Smart String Inverter



## Smart

12 strings intelligent monitoring



## Efficient

Max. efficiency 98.7%



## Safe

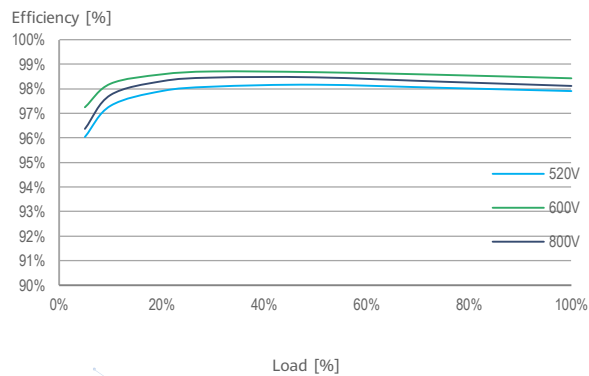
Fuse free design



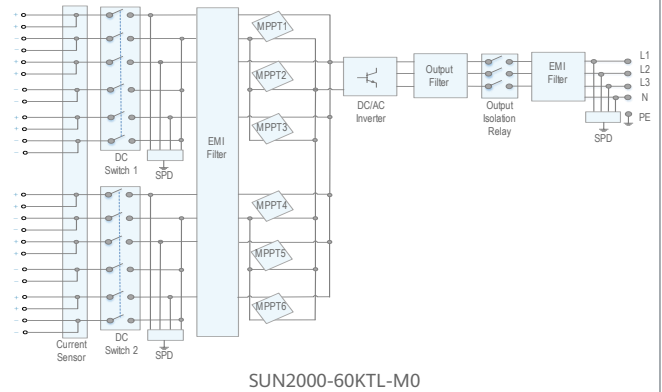
## Reliable

Type II surge arresters for DC & AC

### Efficiency Curve



### Circuit Diagram



Technical Specification	SUN2000-60KTL-M0
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Efficiency	
Max. efficiency	98.9% @480 V; 98.7% @380 V / 400 V
European efficiency	98.7% @480 V; 98.5% @380 V / 400 V

Input	
Max. Input Voltage	1,100 V
Max. Current per MPPT	22 A
Max. Short Circuit Current per MPPT	30 A
Start Voltage	200 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	600 V @380 Vac / 400 Vac; 720 V @480 Vac
Number of Inputs	12
Number of MPP Trackers	6

Output	
Rated AC Active Power	60,000 W
Max. AC Apparent Power	66,000 VA
Max. AC Active Power (cosφ=1)	66,000 W
Rated Output Voltage	220 V / 380 V, 230 V / 400 V, default 3W + N + PE; 3W + PE optional in settings; 277 V / 480 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	91.2 A @380 V, 86.7 A @400 V, 72.2 A @480 V
Max. Output Current	100 A @380 V, 95.3 A @400 V, 79.4 A @480 V
Adjustable Power Factor Range	0.8 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 Data	
Dimensions (W x H x D)	1,075 x 555 x 300 mm (42.3 x 21.9 x 11.8 inch)
Weight (with mounting plate)	74 kg (163.1 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Natural Convection
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Waterproof PG Terminal + Terminal Clamp
Protection Degree	IP65
Topology	Transformerless
Nighttime Power Consumption	< 2 W

Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683, IRR-DCC-MV, G99
Grid Connection Standards	IEC 61727, VDE-AR-N4105, VDE 0126-1-1, BDEW, VDE 4120, 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, DEWA

# 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
<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	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>	
Supported Master Inverter Model	SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0

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



# Smart Dongle-4G



## Smart

2G, 3G, 4G communication <sup>1</sup>  
Support 3rd-party monitoring system <sup>2</sup>



## Simple

Plug & Play  
Support max. 10 devices



## Reliable

IP65  
Support auto reconnection

Technical Specification	SDongleA-03-EU
<b>General Data</b>	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	130 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	3.5 W
<b>Wireless Parameter</b>	
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 <sup>3</sup>
<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	CE, MIC
<b>Inverter Compatibility</b>	
Inverter model	SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0 SUN2000-50/60KTL-M0

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: 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
<b>Device Management</b>	
Max. Number of Manageable Devices	80
<b>Communication Interface</b>	
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)
<b>Communication Protocol</b>	
Ethernet	Modbus-TCP, IEC 60870-5-104
RS485	Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
<b>Interaction</b>	
LED	LED Indicator x 3 – RUN, ALM, 4G
WEB	Embedded Web
USB	USB 2.0 x 1
APP	Communication by WLAN for Commissioning
<b>Environment</b>	
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.)
<b>Electrical</b>	
AC Power Supply	100 V ~ 240 V, 50 Hz / 60 Hz
DC Power Supply	12V / 24 V
Power Consumption	Typical 8 W, Max. 15 W
<b>Mechanical</b>	
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

# Smart Power Sensor



## Accurate

Class 1 measurement accuracy





## Simple & Easy

LCD display, easy to set and check

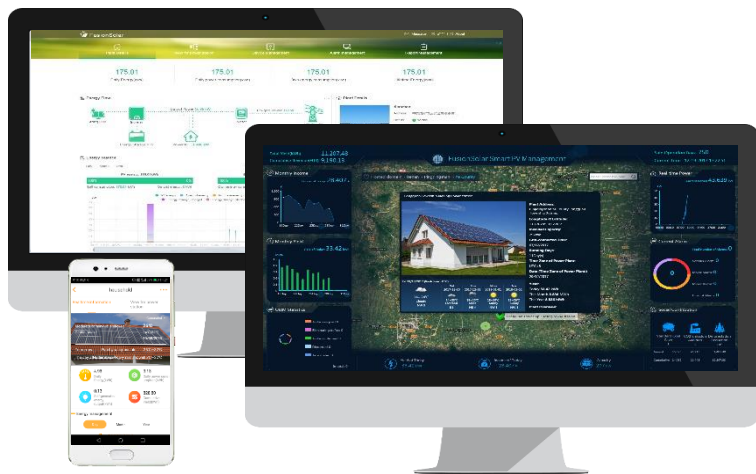


## Energy Efficient

Overall power consumption  $\leq 1$  W

Technical Specification	DDSU666-H	DTSU666-H 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)
Mounting type	DIN35 Rail	
Weight (including cables)	1.2 kg (2.6 lb)	1.5 kg (3.3 lb)
<b>Power Supply</b>		
Power grid type	1P2W	3P4W
Input voltage (phase voltage)	176 Vac ~ 288 Vac	
Power consumption	$\leq 0.8$ W	$\leq 1$ W
<b>Measurement Range</b>		
Line voltage	/	304 Vac ~ 499 Vac
Phase voltage	176 Vac ~ 288 Vac	
Current	0 ~ 100 A	0 ~ 250 A
<b>Measurement Accuracy</b>		
Voltage	$\pm 0.5$ %	
Current / 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>		
Accessories	RS485 Cable (10 m / 33 ft.)	
	1 CT 100 A/40 mA (5 m/16.4 ft.) 	3 CT 250 A/50 mA (5 m/16.4 ft.) 

# FusionSolar Smart PV Management System



## Simple & Swift

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



## Convenient & Reliable

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



## Improved O&M Experience

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


\*Full optimizer 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




# Smart I-V Curve Diagnosis

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	 TÜV Rheinland® TÜV

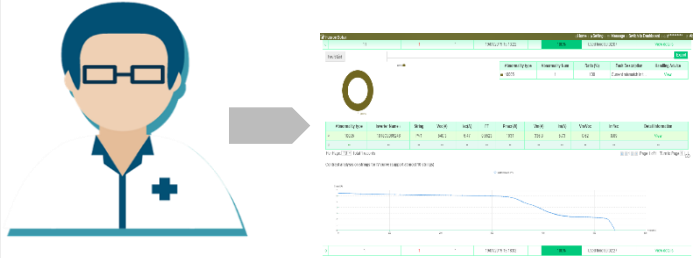
\* I-V curve diagnosis is not supported when inverter is connected with power optimizer.

### String-level Management



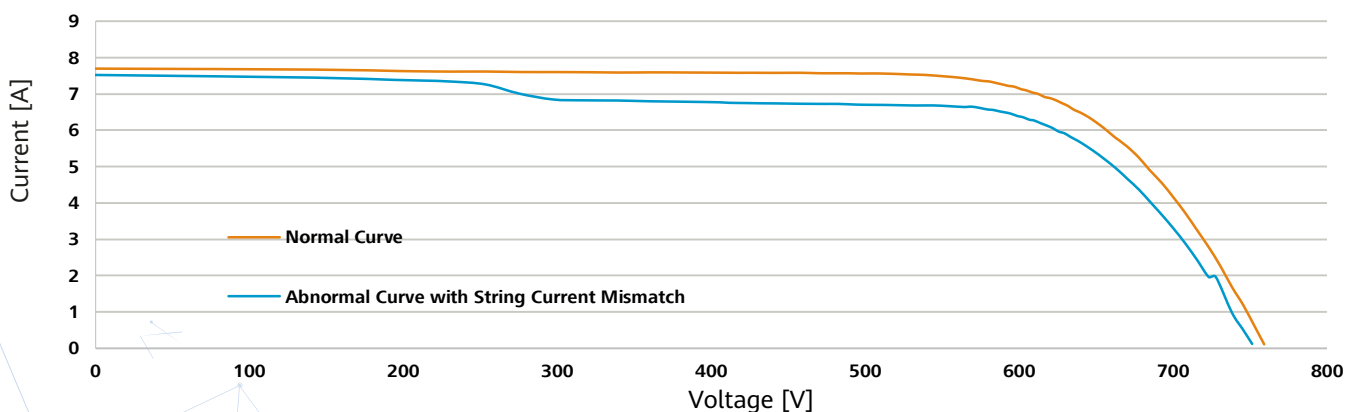
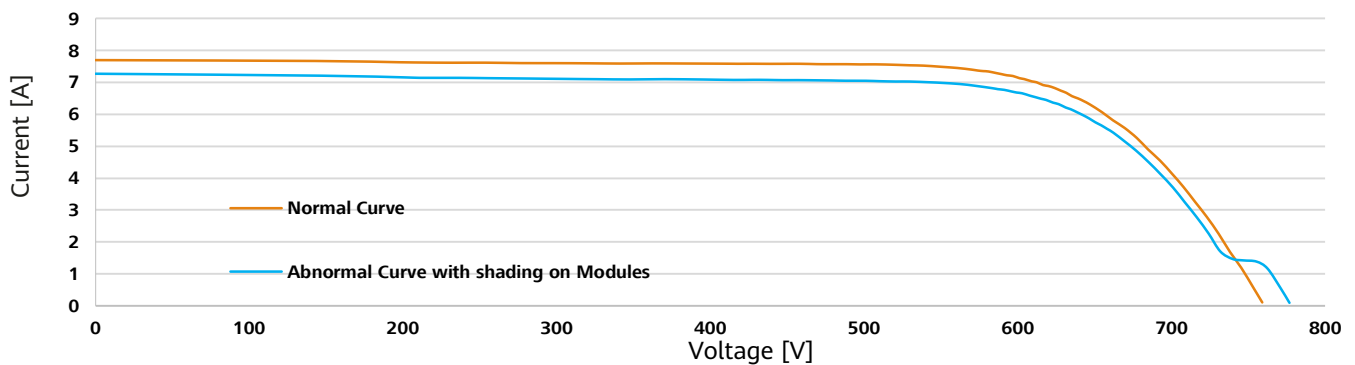
**Real time monitoring**

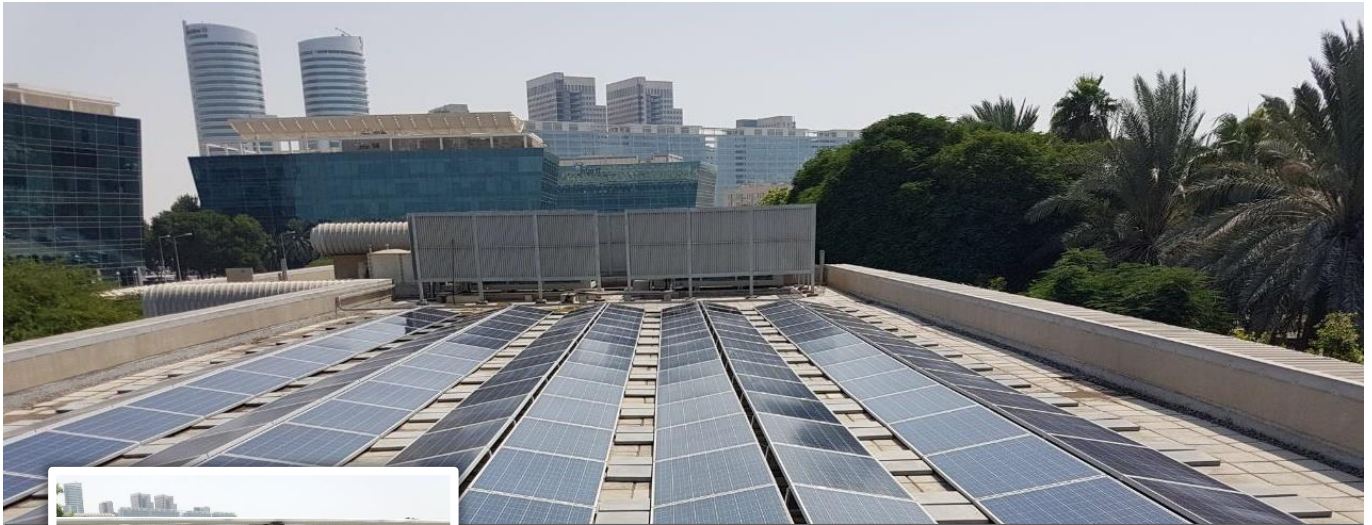
### Smart I-V Curve Diagnosis



**Fault Analysis**

## String I-V Curve Comparison





**25.8MWp**

Distributed PV Systems in Dubai

### System Configuration

- SUN2000-(8-36)KTL

COD  
Jul, 2017



**8.2MWp**

Distributed PV System by Philadelphia Solar, Jordan

### System Configuration

- SUN2000-42KTL

COD  
Aug, 2019



**1.03MWp**

Distributed PV System for Pepsi in Chouefat, Lebanon

**System Configuration**

- SUN2000-36 / 60KTL

COD  
2019



**1MWp**

Distributed PV System in World Trade Center, Dubai

**System Configuration**

- SUN2000-36KTL

COD  
Mar, 2018





## 616KWp

Distributed PV System in Multan, Pakistan

### System Configuration

- SUN2000-36 KTL
- SUN2000-60 KTL

COD  
Oct, 2019



## 1.25MWp

Distributed PV System in South Africa

### System Configuration

- SUN2000-60KTL

COD  
Sep, 2019