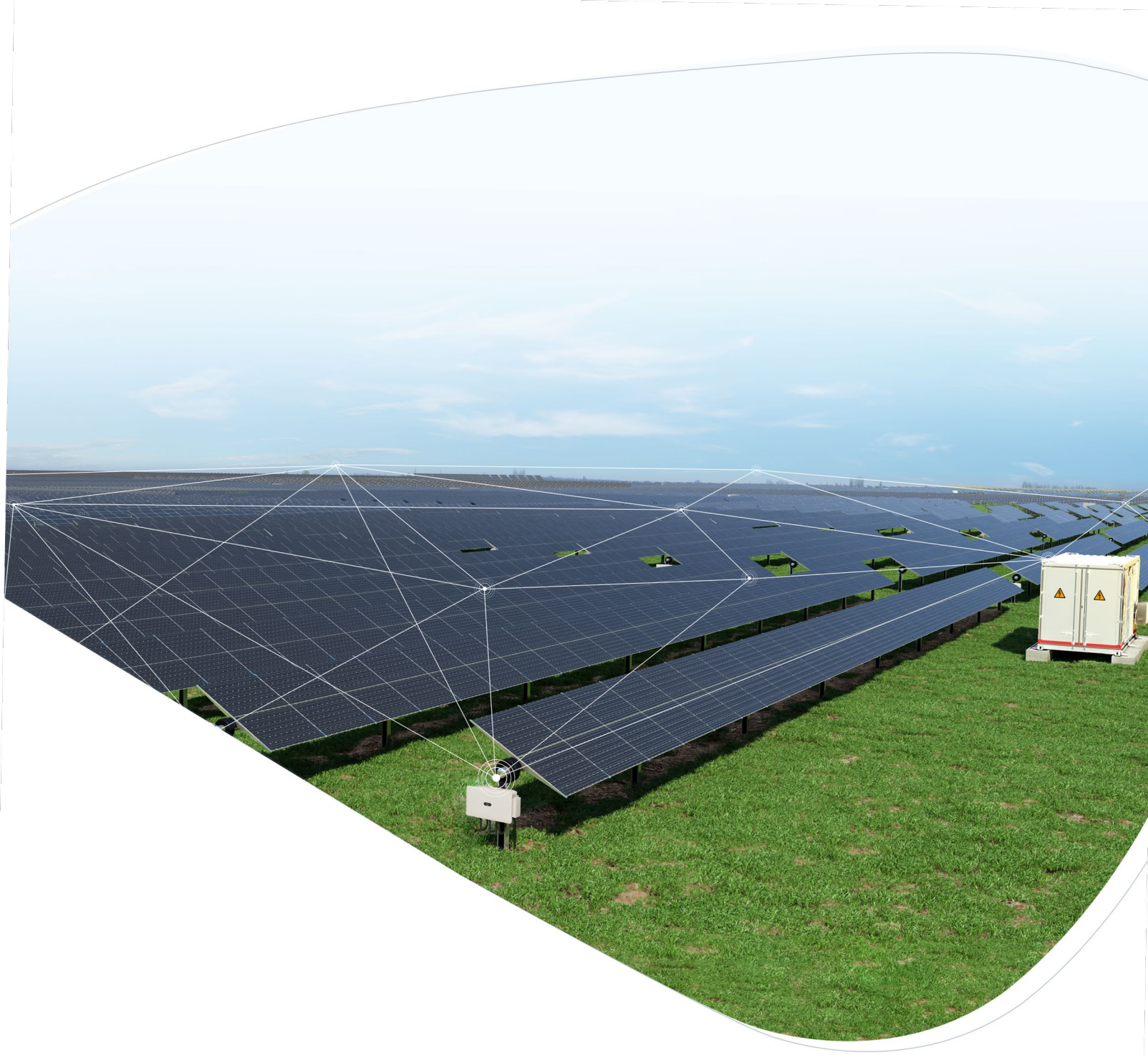


FusionSolar
Smart PV Solution

SOLAR.HUAWEI.COM

HUAWEI

HUAWEI

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
195,000+

R&D Personnel
105,000+

Countries
170+

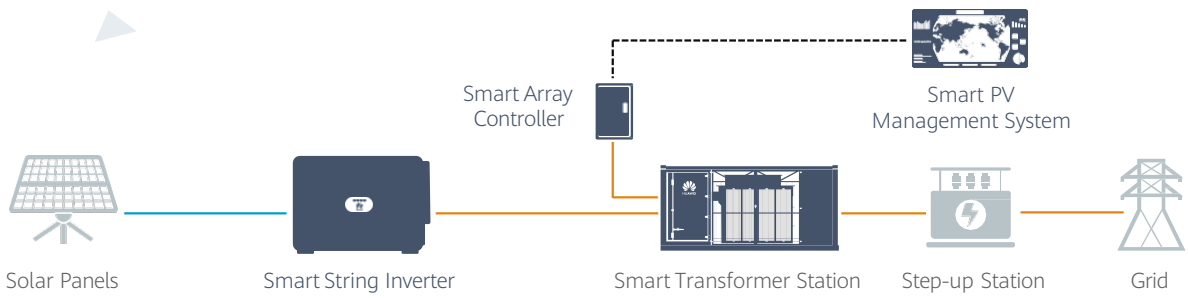
Interbrand's Top 100 Best Global Brands
85

Fortune Global 500
44

Research institutes /labs/centers
14

200GW+
Accumulated global shipment by the end of 2021

FusionSolar Utility-scale Smart PV Solution



Higher Yields	Smart O&M	Safe & Reliable
>2% Higher *	Lower OPEX	25-year's Reliability

* According to TUV Technical Due Diligence Report in 220MW PV Plant

SUN2000-330KTL-H1
Smart String Inverter

Max. Efficiency ≥99.0%

Smart Self Clean Fan

Smart DC Connector Temperature Detect

Smart String Level Disconnection

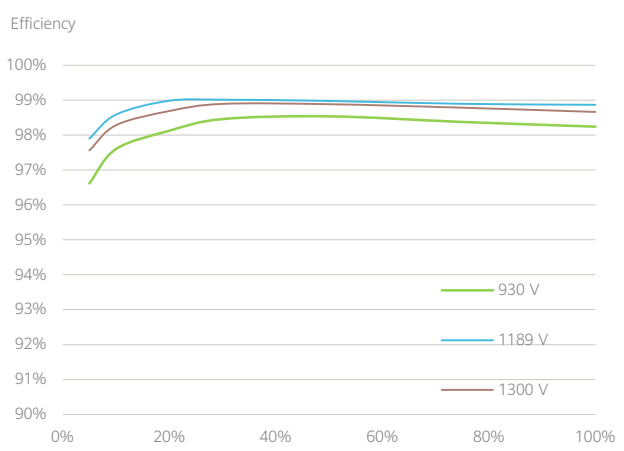
28 High Accuracy String Current Detect

Support IV diagnosis

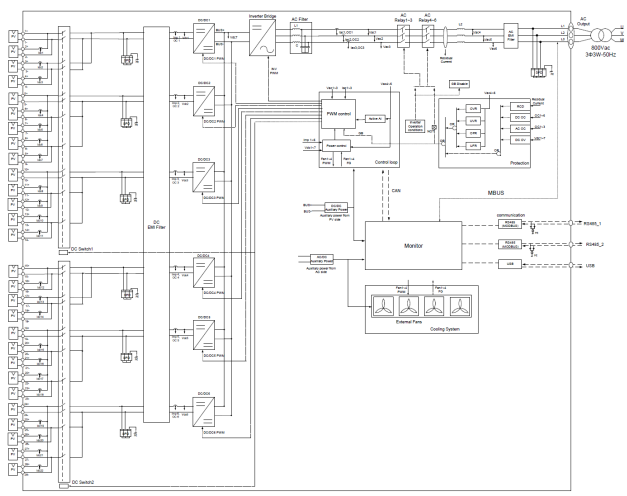
IP 66 protection

Surge Arresters for DC & AC

Efficiency Curve



Circuit Diagram



Technical Specifications

Efficiency	
Max. Efficiency	≥99.0%
European Efficiency	≥98.8%
Input	
Max. Input Voltage*	1,500 V
Number of MPP Trackers*	6
Max. Current per MPPT	65 A
Max. Short Circuit Current per MPPT*	115 A
Max. PV Inputs per MPPT	4/5/5/4/5/5
Start Voltage	550 V
MPPT Operating Voltage Range	500 V ~ 1,500 V
Nominal Input Voltage*	1,080 V
Output	
Nominal AC Active Power*	300,000 W
Max. AC Apparent Power*	330,000 VA
Max. AC Active Power (cosϕ=1)*	330,000 W
Nominal Output Voltage	800 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	216.6 A
Max. Output Current*	238.2 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Total Harmonic Distortion	< 1%
Protection	
Smart String-Level Disconnector(SSLD)	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
AC Grounding Fault Protection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, WLAN + APP
USB	Yes
MBUS	Yes
RS485	Yes
General	
Dimensions (W x H x D)	1,048 x 732 x 395 mm
Weight (with mounting plate)	≤112 kg
Operating Temperature Range	-25 ℃ ~ 60 ℃
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP 66
Topology	Transformerless

JUPITER-9000K-H1
Smart Transformer Station

Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

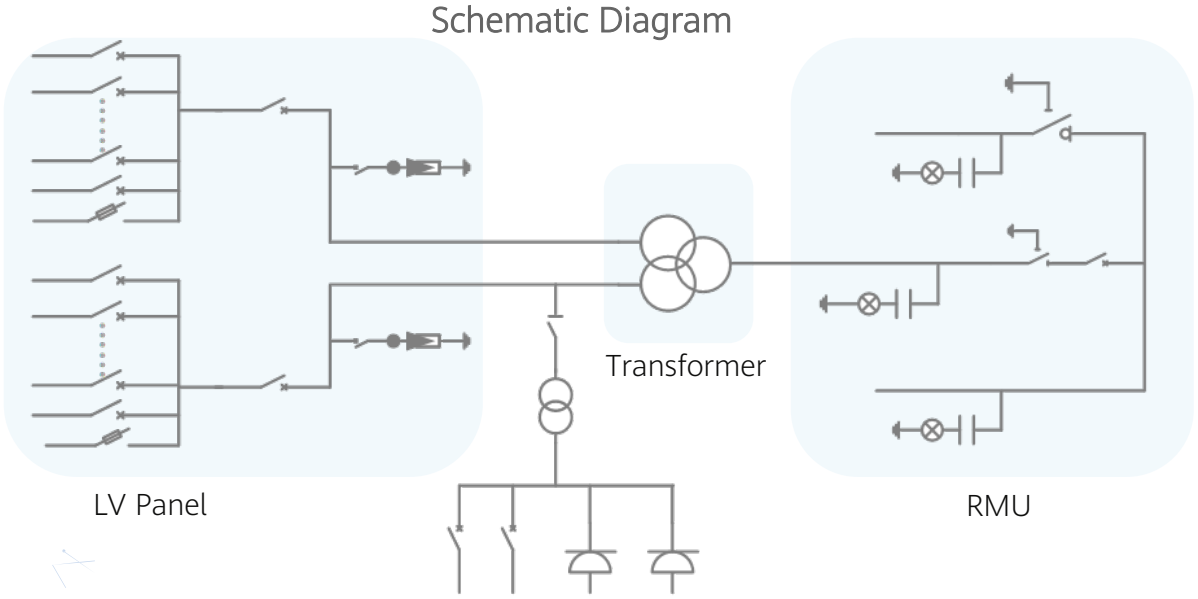
Smart

Real-time Monitoring of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M
Comprehensive Tests from Components, Device to Solution

Schematic Diagram

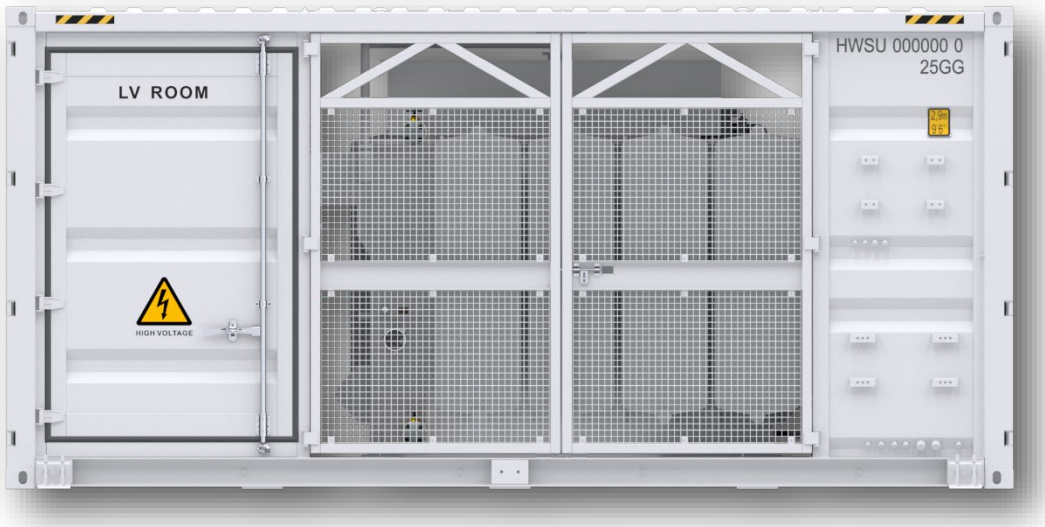


Technical Specifications

Input		
Available Inverters	SUN2000-330KTL-H1 / SUN2000-330KTL-H2	
Max. LV AC Inputs	30	
AC Power	9,000 kVA @40℃ / 8,250 kVA @50℃ [1]	
Rated Input Voltage	800 V	
LV Main Inputs	ACB (4,000 A / 800 V / 3P, 2 x 1 pcs), MCCB (400 A / 800 V / 3P, 2 x 15 pcs)	
Output		
Rated Output Voltage	22 kV, 30 kV, 33 kV, 34.5 kV, 35 kV [2]	33 kV, 34.5 kV [2]
Frequency	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type	
Transformer Cooling Type	ONAN	
Transformer Tappings	± 2 x 2.5%	
Transformer Oil Type	Mineral Oil (PCB Free)	
Transformer Vector Group	Dy11-y11	
Transformer Min. Peak Efficiency Index	In Accordance with EN 50588-1	
RMU Type	SF_6 Gas Insulated	
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit	
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit	
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Single-phase, li0	
Output Voltage of Auxiliary Transformer	230 / 127 Vac	
Protection		
Transformer Monitoring & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz	
Protection Degree of MV & LV Room	IP 54	
Internal Arcing Fault of STS	IAC A 20 kA 1s	
MV Relay Protection	50/51, 50N/51N	
LV Overvoltage Protection	Type I+II	
Anti-rodent Protection	C5-Medium in accordance with ISO 12944	
Features		
2 kVA UPS	Optional [3]	
MV Surge Arrester for Transformer	Optional [3]	
General		
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20’ HC Container)	
Weight	< 28 t	
Operating Temperature Range	-25℃ ~ 60℃ [4] (-13°F ~ 140°F)	
Relative Humidity	0% ~ 95%	
Max. Operating Altitude	1,000 m [5]	
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite	
	Smart Cooling without Air-across for Higher Availability	
Communication	Modbus TCP, Preconfigured with SmartACU2000D	
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1	

1 - More detailed AC power of STS, please refer to the de-rating curve.
2 - Rated output voltage from 10 kV to 35 kV, more available upon request
3 - Extra expense needed for optional features which standard product doesn’t contain, more options upon request.
4 -When ambient temperature ≥55℃, awning shall be equipped for STS on site by customer.
5- For higher operating altitude, please consult with Huawei.

JUPITER-6000K-H1
Smart Transformer Station



Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

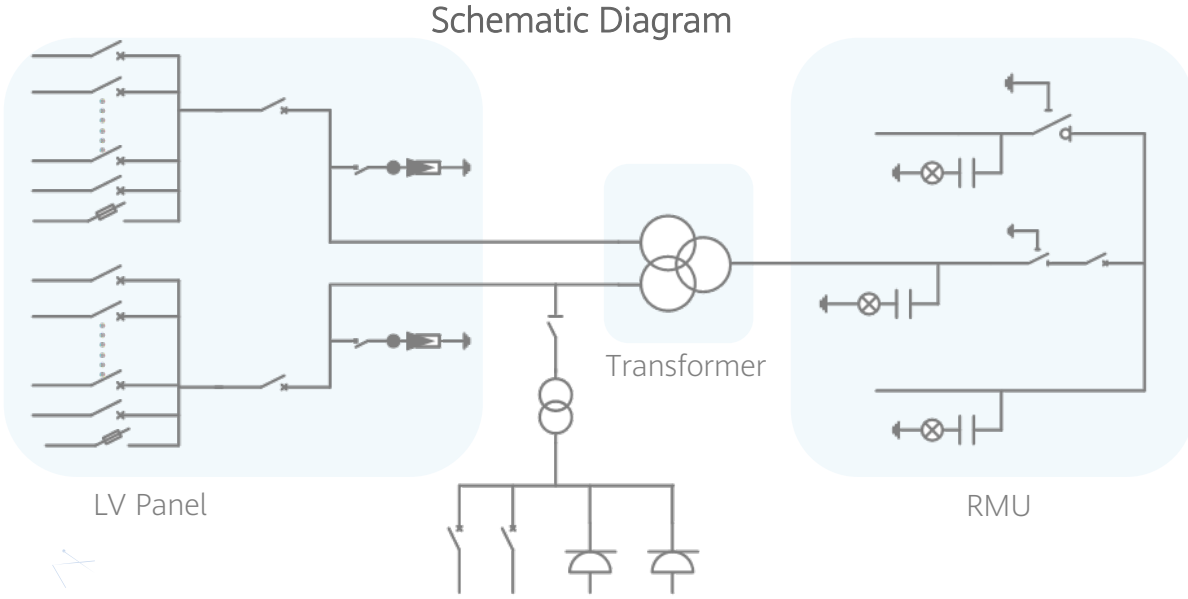
Smart

Real-time Monitoring of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M
Comprehensive Tests from Components, Device to Solution

Schematic Diagram

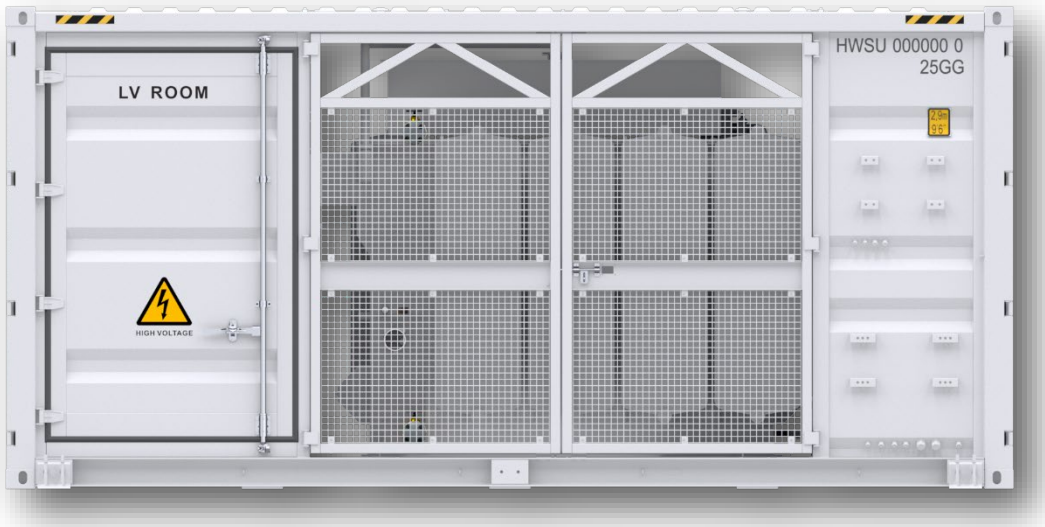


Technical Specifications

Input		
Available Inverters / PCS	SUN2000-330KTL-H1 / SUN2000-330KTL-H2	
Maximum LV AC Inputs	22	
AC Power	6,600 kVA @40℃ / 6,050 kVA @50℃ [1]	
Rated Input Voltage	800 V	
LV Main Switches	ACB (2,900 A / 800 V / 3P, 2 x 1 pcs), MCCB (400 A / 800 V / 3P, 2 x 11 pcs)	
Output		
Rated Output Voltage	10 kV, 11 kV, 13.2 kV, 15 kV, 20 kV, 22 kV, 23±10% kV, 30 kV, 33 kV, 34.5 kV, 35 kV [2]	12.47 kV, 13.8 kV, 23 kV, 33 kV, 34.5 kV [2]
Frequency	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type	
Transformer Cooling Type	ONAN	
Transformer Tappings	± 2 x 2.5%	
Transformer Oil Type	Mineral Oil (PCB Free)	
Transformer Vector Group	Dy11-y11	
Transformer Min. Peak Efficiency Index	In Accordance with EN 50588-1	
RMU Type	SF_6 Gas Insulated	
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit	
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit	
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Single-phase, li0	
Output Voltage of Auxiliary Transformer	230 / 127 Vac	
Protection		
Transformer Monitoring & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz	
Protection Degree of MV & LV Room	IP 54	
Internal Arcing Fault Classification of STS	IAC A 20 kA 1s	
MV Relay Protection	50/51, 50N/51N	
LV Overvoltage Protection	Type I+II	
Anti-rodent Protection	C5-Medium in accordance with ISO 12944	
Features		
2 kVA UPS	Optional [3]	
MV Surge Arrester for Transformer	Optional [3]	
General		
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20’ HC Container)	
Weight	< 23 t	
Operating Temperature Range	-25℃ ~ 60℃ [4] (-13°F ~ 140°F)	
Relative Humidity	0% ~ 95%	
Max. Operating Altitude	1,000 m [5]	
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite	
LV & MV Room Cooling	Smart Cooling without Air-across for Higher Availability	
Communication	Modbus-RTU, Preconfigured with Smartlogger3000B	
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1	

1 - More detailed AC power of STS, please refer to the de-rating curve.
2 - Rated output voltage from 10 kV to 35 kV, more available upon request
3 - Extra expense needed for optional features which standard product doesn’t contain, more options upon request.
4 -When ambient temperature ≥55℃, awning shall be equipped for STS on site by customer.
5- For higher operating altitude, please consult with Huawei.

JUPITER-3000K-H1
Smart Transformer Station



Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

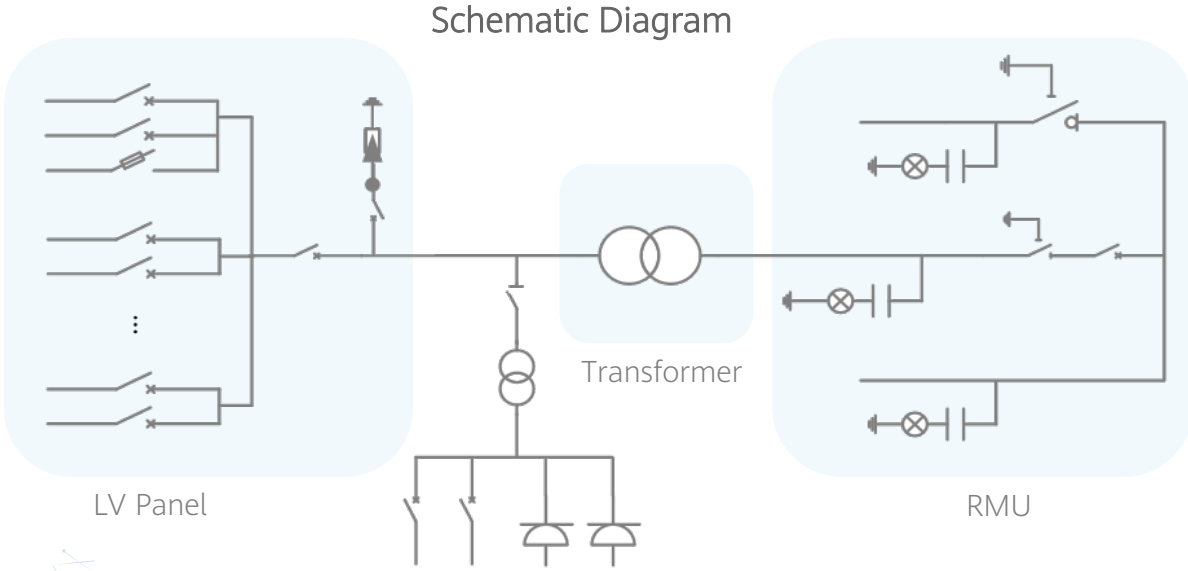
Smart

Real-time Monitoring of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M
Comprehensive Tests from Components, Device to Solution

Schematic Diagram



Technical Specifications

Input		
Available Inverters / PCS	SUN2000-330KTL-H1 / SUN2000-330KTL-H2	
Maximum LV AC Inputs	11	
AC Power	3,300 kVA @40℃ / 3,025 kVA @50℃ [1]	
Rated Input Voltage	800 V	
LV Main Switches	ACB (2,900 A / 800 V / 3P, 1 x 1 pcs), MCCB (400 A / 800 V / 3P, 11 pcs)	
Output		
Rated Output Voltage	10 kV, 11 kV, 13.2 kV, 15 kV, 20 kV, 22 kV, 23±10% kV, 30 kV, 33 kV, 34.5 kV, 35 kV [2]	13.8 kV, 33 kV, 34.5 kV [2]
Frequency	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type	
Transformer Cooling Type	ONAN	
Transformer Tappings	± 2 x 2.5%	
Transformer Oil Type	Mineral Oil (PCB Free)	
Transformer Vector Group	Dy11	
Transformer Min. Peak Efficiency Index	In Accordance with EN 50588-1	
RMU Type	SF_6 Gas Insulated	
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit	
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit	
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Single-phase, li0	
Output Voltage of Auxiliary Transformer	230 / 127 Vac	
Protection		
Transformer Monitoring & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz	
Protection Degree of MV & LV Room	IP 54	
Internal Arcing Fault Classification of STS	IAC A 20 kA 1s	
MV Relay Protection	50/51, 50N/51N	
LV Overvoltage Protection	Type I+II	
Anti-rodent Protection	C5-Medium in accordance with ISO 12944	
Features		
2 kVA UPS	Optional [3]	
MV Surge Arrester for Transformer	Optional [3]	
General		
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20’ HC Container)	
Weight	< 15 t	
Operating Temperature Range	-25℃ ~ 60℃ [4] (-13°F ~ 140°F)	
Relative Humidity	0% ~ 95%	
Max. Operating Altitude	1,000 m [5]	
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite	
LV & MV Room Cooling	Smart Cooling without Air-across for Higher Availability	
Communication	Modbus-RTU, Preconfigured with Smartlogger3000B	
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1	

1 - More detailed AC power of STS, please refer to the de-rating curve.
2 - Rated output voltage from 10 kV to 35 kV, more available upon request
3 - Extra expense needed for optional features which standard product doesn’t contain, more options upon request.
4 -When ambient temperature ≥55℃, awning shall be equipped for STS on site by customer.
5- For higher operating altitude, please consult with Huawei.

SmartACU2000D
Smart Array Controller

With SmartPID2000 Module

Without SmartPID2000 Module

Smart

Support one-click commissioning
Patented anti-PID module

Simple

SmartPID2000 & Smartlogger3000B
pre-installed with multiple interfaces

Reliable

Industrial-level application
and high reliability

Technical Specification	SmartACU2000D-D-00	SmartACU2000D-D-02	SmartACU2000D-D-01	SmartACU2000D-D-03
Configuration				
Smart Logger	SmartLogger3000B x 1			
SmartModule1000A	Optional			Standard with SmartModule1000A x 1
RS485	Supported			
No. of MBUS[1]	1	2	1	2
No. of SmartPID2000	0	0	1	2
Environment				
Operating Temperature Range	-40°C ~ 60°C (-40°F ~ 140°F)			
Relative Humidity	4% ~ 100%			
Max. Operating Altitude	4,000 m (13,123 ft.)			
Electrical				
AC Input Voltage for SACU	100 V ~ 240 V, L / N (L)+ PE			
AC Input Voltage for MBUS	380 V ~ 800 V, 3Ph			
AC Input Voltage for PID	380 V ~ 800 V, 3Ph + FE (Functional Earth)			
AC Input Frequency	50 / 60 Hz			
Power Supply	Standard: 12 V DC Optional: 24 V DC[2]			
Mechanical				
Cable Entries	Bottom in & out			
Maintenance	Front			
Dimensions (W x H x D)	640 x 770 x 315 mm (25.2 x 30.3 x 12.4 inch)		880 x 770 x 369 mm (34.6 x 30.3 x 14.5 inch)	
Weight	29 kg (63.9 lb.)	32 kg (70.5 lb.)	49 kg (108.0 lb.)	61 kg (134.5 lb.)
Protection Degree	IP65			
Installation Options	Wall Mounting, Rack Mounting, Pole Mounting			

1. Compatible with communication mode of PLC (Power Line Communication).
2. 24V DC power supply is optional to power devices that require 24Vdc input and output.

SmartPID2000 Module Inside Smart Array Controller

The SmartPID2000 Module is installed in the SmartACU2000D cabinet to reduce the negative effect of the Potential Induced Degradation (PID), and support 1000 V / 1100 V / 1500 V DC system.

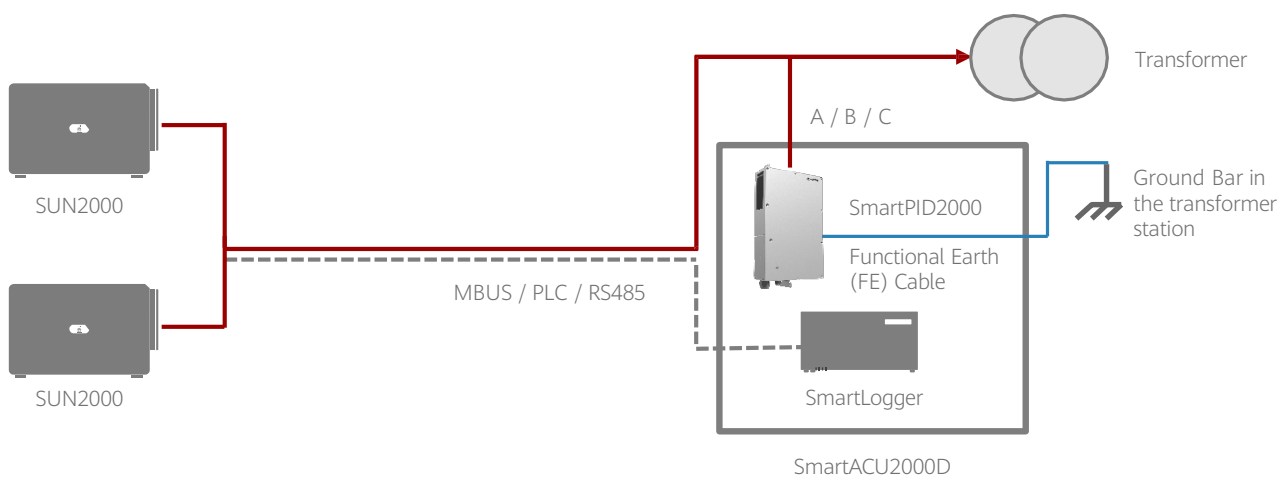
Smart

Data read and software upgrade through USB or the embedded Web

Reliable

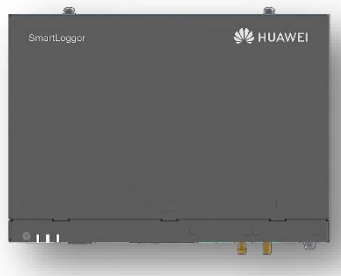
Protection degree of IP65

SmartPID2000 Solution Diagram

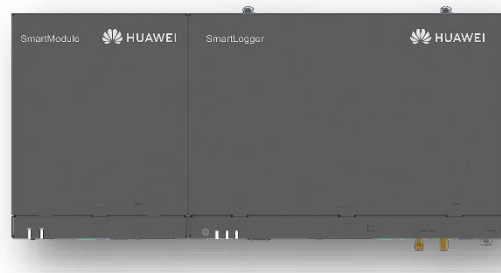


Note:
1. The Anti-PID solution could ONLY be deployed in utility installations which are normally connected to the medium voltage (MV) grid running WITHOUT neutral line.
2. The Anti-PID module must work with Huawei SmartLoggers and Huawei inverters.

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 / 1,000 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 (SmarModule1000A)
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 Adapter	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 PV Plant Management System

Refined

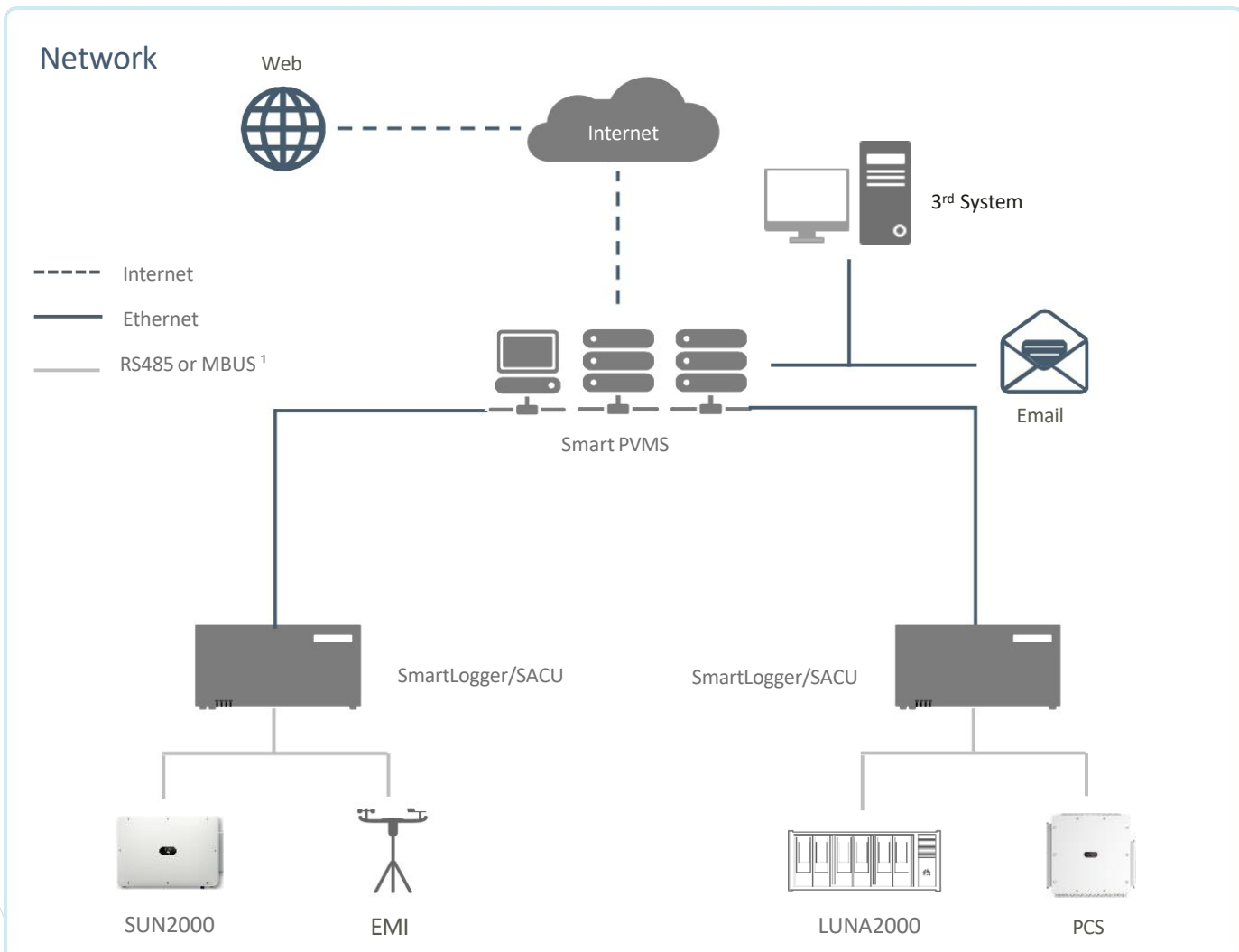
Multi-level management, from plant-level to string/battery cell-level

Efficient

Quick location of abnormal strings
Fault alarms via E-mail

Simple

Quick Construction
3D Visualized Monitoring of Battery Pack



1 - Compatible with communication mode of PLC (Power Line Communication).

Smart PVMS Server Standard Version

10000 Equivalent devices supported

Software pre-installation, saving installation time by 70%

Leverages patented DEMT, better energy efficiency

Technical Specification	FusionServer 2288X V5
Max. Devices Supported	10,000 equivalent devices
Form Factor	2U rack server
Processors	2 * Intel Xeon Silver 4208 (2.1 GHz / 8-Core / 11 MB)
Memory	2 * 32 GB DDR4 RDIMM, ECC
Internal Storage	2 * 1.2 TB, SAS 2.5" HDD, 10,000 RPM
Operating System	Euler OS
Database	Gauss DB
RAID Support	RAID 1
Network Ports	Two PCIe NICs, each supporting four GE electrical ports
Power Supply Units	2 hot-swappable PSUs, 1+1 redundancy
Power Supply	Input: 100-240 V_{AC} / 11~5.5 A ; 240 V_{DC} / 5 A
Fan Modules	4 hot-swappable counter-rotating fan modules, N+1 redundancy
Operating Temperature	5℃ ~ 40℃
Dimensions (H x W x D)	86.1 x 447 x 748 mm
Weight	29 kg
Certification	CE, UL, FCC, CCC, RoHS

Smart PVMS Server Premium Version

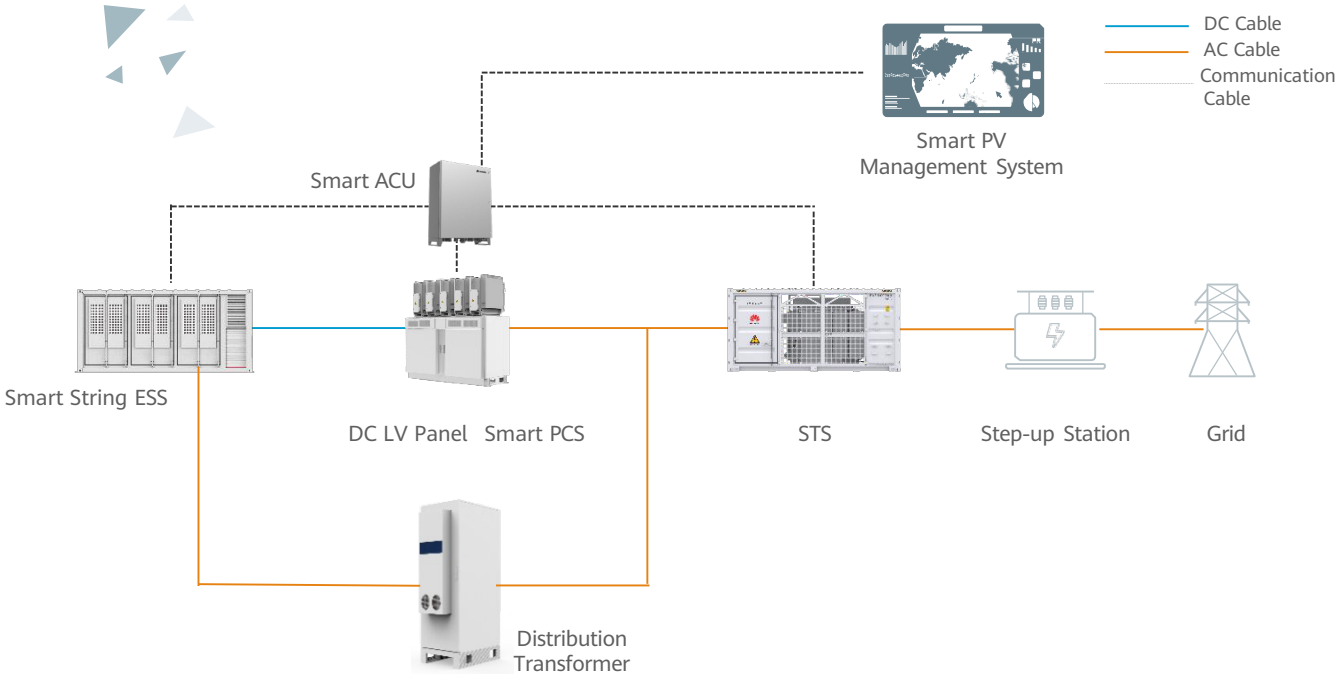
30000 devices supported

Software pre-installation, saving installation time by 70%

Leverages patented DEMT, better energy efficiency

Technical Specification	FusionServer Pro 2288X V5
Max. Devices Supported	30,000 equivalent devices
Form Factor	2U rack server
Processors	2 * Intel Xeon Gold 5218 (2.3 GHz / 16-Core / 22 MB)
Memory	4 * 32 GB DDR4 RDIMM, ECC
Internal Storage	2 * 1.2 TB + 8 * 1.8 TB, SAS 2.5" HDD, 10,000 RPM
Operating System	Euler OS
Database	Gauss DB
RAID Support	RAID 1, RAID 10
Network Ports	Two PCIe NICs, each supporting four GE electrical ports
Power Supply Units	2 hot-swappable PSUs, 1+1 redundancy
Power Supply	Input: 100-240 V_{AC} / 11~5.5 A ; 240 V_{DC} / 5 A
Fan Modules	4 hot-swappable counter-rotating fan modules, N+1 redundancy
Operating Temperature	5℃ ~ 40℃
Dimensions (H x W x D)	86.1 x 447 x 748 mm
Weight	30 kg
Certification	CE, UL, FCC, CCC, RoHS

FusionSolar Utility-scale Smart String ESS Solution



More Energy
Pack-level Optimization
Rack-level Optimization

Optimal Design
Support battery augmentation
Reducing Initial configuration

Simple O&M
No periodic balancing
No experts site visit

Safe & Reliable
Modular Design
High Availability

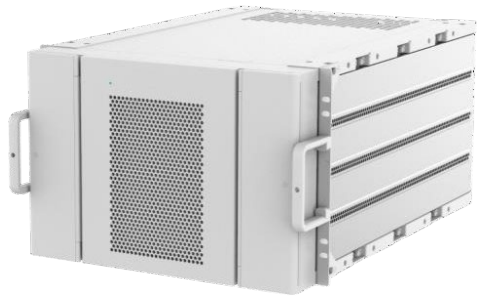
LUNA2000-2.0MWH-1H0/1H1/2H1
Smart String ESS

More Energy | **Optimal Investment** | **Simple O&M** | **Safe & Reliable**

Battery Container			
Model	LUNA2000-2.0MWH-1H0	LUNA2000-2.0MWH-1H1	LUNA2000-2.0MWH-2H1
DC Rated Voltage	1,200 V	1,250 V	1,250 V
DC Max. Voltage	1,500 V	1,500 V	1,500 V
Nominal Energy Capacity	2,064 kWh	2,032 kWh	2,032 kWh
Supported Charge & Discharge Rate	≤ 1 C	≤ 1 C	≤ 0.5 C
Rated Power	344 kW * 6	338.7 kW * 6	338.7 kW * 3
Container Configuration (W x H x D)	6,058 x 2,896 x 2,438 mm	6,058 x 2,896 x 2,438 mm	6,058 x 2,896 x 2,438 mm
Container Weight	≤ 30 t	≤ 30 t	≤ 30 t
Operation Temperature Range	-30°C ~ 55°C	-30°C ~ 55°C	-30°C ~ 55°C
Storage Temperature Range	-40°C ~ 60°C	-40°C ~ 60°C	-40°C ~ 60°C
Operation Humidity Range	0 ~ 100% (Without Condensation)	0 ~ 100% (Without Condensation)	0 ~ 100% (Without Condensation)
Max. Operating Altitude	4,000 m	4,000 m	4,000 m
Cooling Method	Smart Air Cooling	Smart Air Cooling	Smart Air Cooling
Configuration of HVAC	8 HVACs	8 HVACs	6 HVACs
Fire Suppression Agent	FM-200 / Novec 1230™	FM-200 / Novec 1230™	FM-200 / Novec 1230™
Communication Interface	Ethernet / SFP	Ethernet / SFP	Ethernet / SFP
Communication Protocol	Modbus TCP / IEC104	Modbus TCP / IEC104	Modbus TCP / IEC104
Protection Degree	IP55	IP55	IP55
Certificates (more available upon request)			
Environment	RoHS6		
Safety & Electrical	IEC62477-1, IEC62040-1, IEC61000-6-2, EN55011, UL9540A, IEC62619, UN3536, etc.		

Version No.:01-(20220730)

Smart String ESS
Battery Pack & Smart Rack Controller



Battery Pack

General			
Model	LUNA2000-2.0MWH-1H0	LUNA2000-2.0MWH-1H1 LUNA2000-1.0MWH-1H1 (Preliminary)	LUNA2000-2.0MWH-2H1
Cell Material	LFP	LFP	LFP
Pack Configuration	16S 1P	18S 1P	18S 1P
Rated Voltage	51.2 V	57.6 V	57.6 V
Nominal Capacity	320 Ah / 16.38 kWh	280 Ah / 16.13 kWh	280 Ah / 16.13 kWh
Supported Charge & Discharge Rate	≤ 1 C	≤ 1 C	≤ 0.5 C
Weight	≤ 140 kg	≤ 140 kg	≤ 140 kg
Dimensions (W x H x D)	442 x 307 x 660 mm	442 x 307 x 660 mm	442 x 307 x 660 mm

Smart Rack Controller

Efficiency			
Model	LUNA2000-2.0MWH-1H0	LUNA2000-2.0MWH-1H1 LUNA2000-1.0MWH-1H1	LUNA2000-2.0MWH-2H1
Max. Efficiency	99.0%	99.0%	99.0%
Battery Side			
Rated Voltage	1,075.2 V	1,209.6 V	1,209.6 V
Operating Voltage Range	40 V ~ 1,400 V	40 V ~ 1,400 V	40 V ~ 1,400 V
Rated Power Voltage Range	1,075 V ~ 1,320 V	1,075 V ~ 1,320 V	1,075 V ~ 1,320 V
Min. Start Voltage	350 V	350 V	350 V
Bus Side			
Max. DC Voltage	1,500 V	1,500 V	1,500 V
Rated Voltage	1,200 V	1,250 V	1,250 V
Rated Current	286.7 A	275.2 A	275.2 A
Rated Power	344,000 W	344,000 W	344,000 W
General			
Dimensions (W x H x D)	600 x 270 x 820 mm	600 x 270 x 820 mm	600 x 270 x 820 mm
Weight	≤ 90 kg	≤ 90 kg	≤ 90 kg
Cooling Method	Smart Air Cooling	Smart Air Cooling	Smart Air Cooling
Protection Degree	IP66	IP66	IP66

LUNA2000-200KTL-H0
Smart PCS

Max. Efficiency 99%

Modular Design

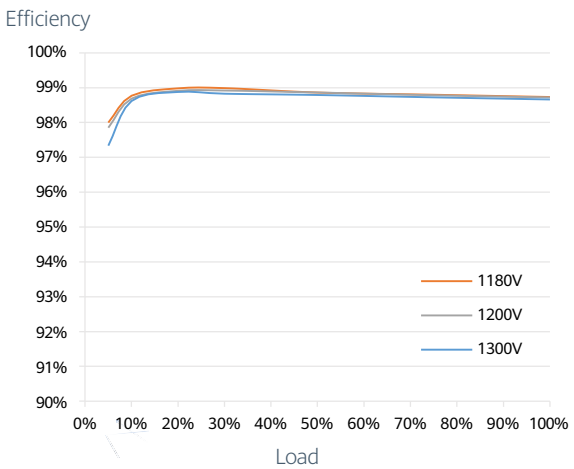
IP66 Protection

Surge Arresters for DC & AC

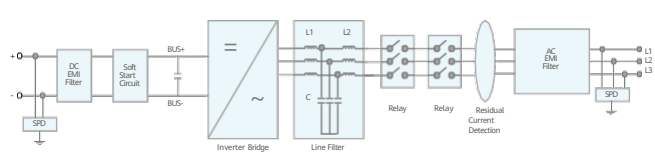
Ethernet Communication

Smart Grid Algorithm

Efficiency Curve



Circuit Diagram



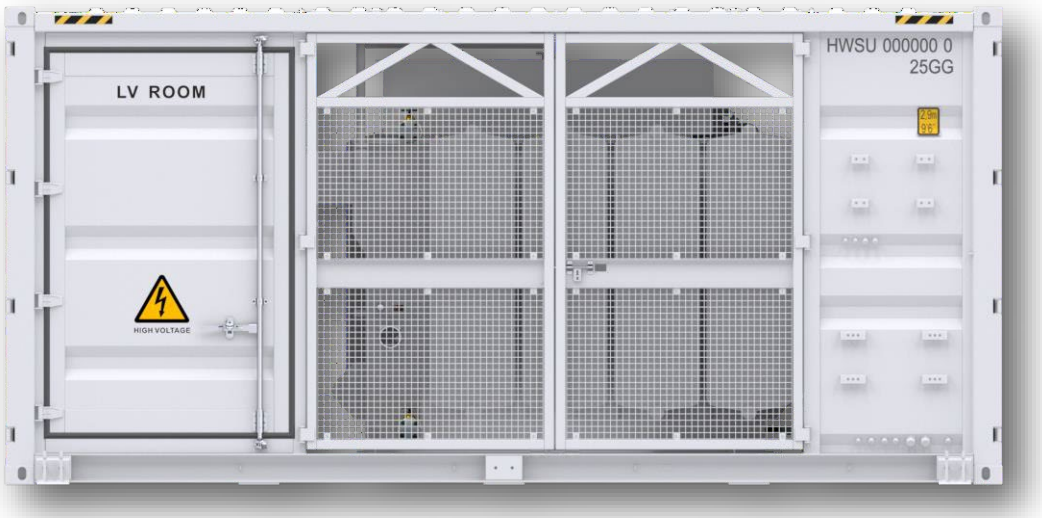
LUNA2000-200KTL-H0

Technical Specifications

Efficiency	
Max. Efficiency	99.0%
DC Side	
Rated DC Voltage	1,180 V
Max. DC Voltage	1,500 V
Operating DC Voltage Range	1,180 V ~ 1,500 V
Max. DC Current	207.6 A
Max. Number of Inputs	1
AC Side	
Rated AC Active Power	200,000 W @40°C
Rated AC Voltage	800 V
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
Residual Current Protection	Yes
DC Surge Protection [1]	Type II
AC Surge Protection [1]	Type II
Communication	
Display	LED Indicators, WLAN + APP
USB	Yes
Ethernet	Yes
General	
Dimensions (W x H x D)	875 x 820 x 365 mm
Weight	< 95 kg
Operating Temperature Range	-25°C ~ 60°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

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

STS-6000K-H1
Smart Transformer Station



Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

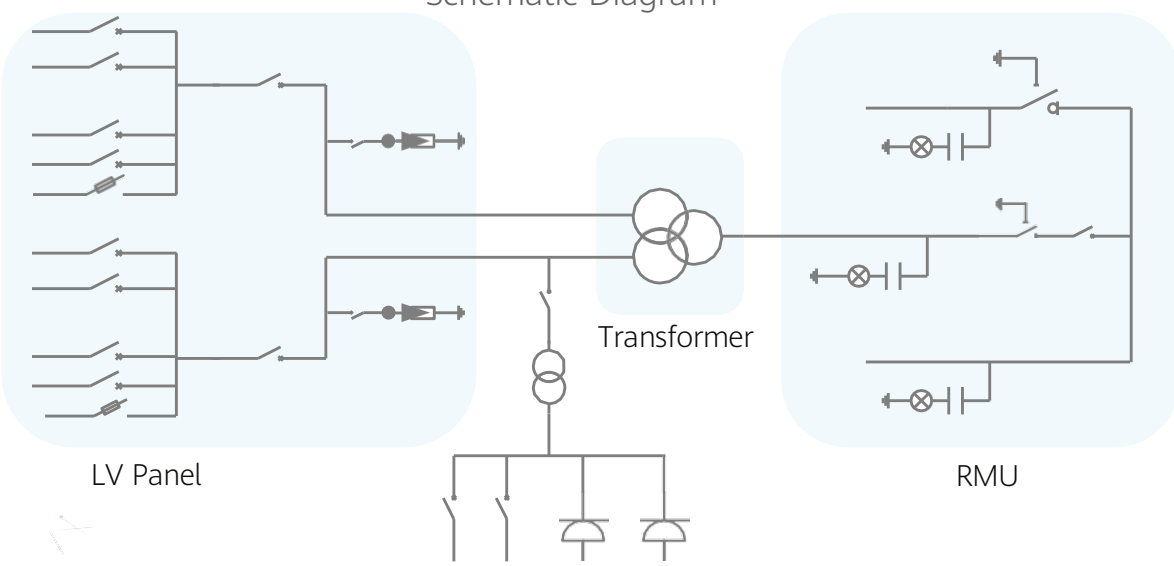
Smart

Real-time Monitoring of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M
Comprehensive Tests from Components, Device to Solution

Schematic Diagram

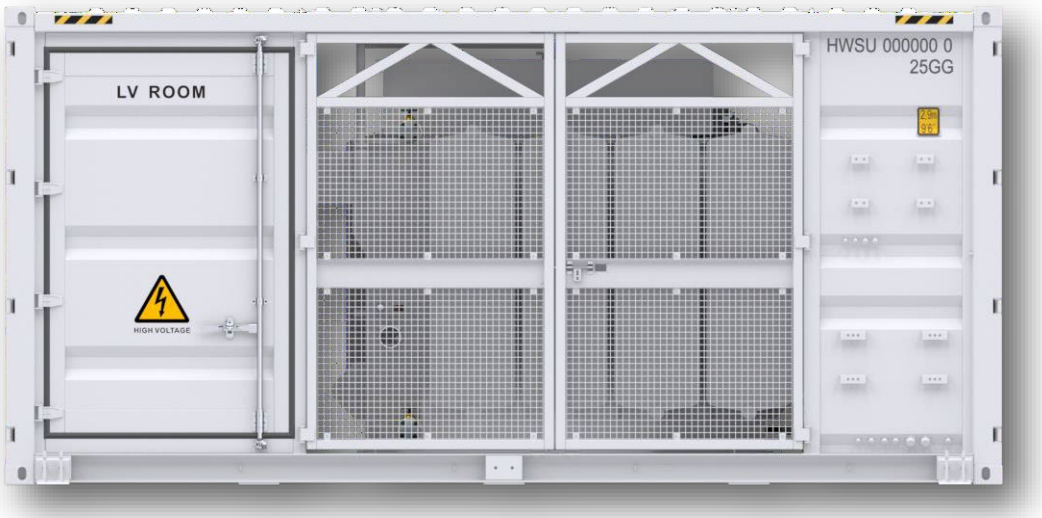


Technical Specifications

Input		
Available Inverters / PCS	SUN2000-200KTL / SUN2000-215KTL / SUN2000-185KTL / LUNA2000-200KTL	
Maximum LV AC Inputs	34	
AC Power	6,800 kVA @40℃ [1]	
Rated Input Voltage	800 V	
LV Main Switches	ACB (2,900 A / 800 V / 3P, 2 x 1 pcs), MCCB (250 A / 800 V / 3P, 2 x 17 pcs)	
Output		
Rated Output Voltage	11 kV, 15 kV, 20 kV, 22 kV, 30 kV, 33 kV, 35 kV [2]	13.8 kV, 34.5 kV [2]
Frequency	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type	
Transformer Cooling Type	ONAN	
Transformer Tappings	± 2 x 2.5%	
Transformer Oil Type	Mineral Oil (PCB Free)	
Transformer Vector Group	Dy11-y11	
Transformer Min. Peak Efficiency Index	Tier 1 or Tier 2 In Accordance with EN 50588-1	
RMU Type	SF_6 Gas Insulated	
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit	
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit	
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Dyn11	
Output Voltage of Auxiliary Transformer	400 / 230 Vac or 220 / 127 Vac	
Protection		
Transformer Monitoring & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz	
Protection Degree of MV & LV Room	IP 54	
Internal Arcing Fault Classification of STS	IAC A 20 kA 1s	
MV Relay Protection	50/51, 50N/51N	
LV Overvoltage Protection	Type I+II	
Corrosion Protection	C5 Medium in accordance with ISO 12944	
Features		
2 kVA UPS	Optional [3]	
MV Surge Arrester for MV VCB	Optional [3]	
General		
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20' HC Container)	
Weight	< 22 t	
Operating Temperature Range	-25℃ ~ 60℃ [4] (-13°F ~ 140°F)	
Relative Humidity	0% ~ 95%	
Max. Operating Altitude	1,000 m [5]	1,500 m [5]
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite	
LV & MV Room Cooling	Smart Cooling without Air-across for Higher Availability	
Communication	Modbus-RTU, Preconfigured with Smartlogger3000B	
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1	

1. More detailed AC power of STS, please refer to the de-rating curve.
2. Rated output voltage from 10 kV to 35 kV, more available upon request
3. Extra expense needed for optional features which standard product doesn't contain, more options upon request.
4. When ambient temperature ≥55℃, awning shall be equipped for STS on site by customer.
5. For higher operating altitude, please consult with Huawei.

STS-3000K-H1
Smart Transformer Station



Simple

Prefabricated and Pre-tested, No Internal Cabling Needed Onsite
Compact 20' HC Container Design for Easy Transportation

Efficient

High Efficiency Transformer for Higher Yields
Lower Self-consumption for Higher Yields

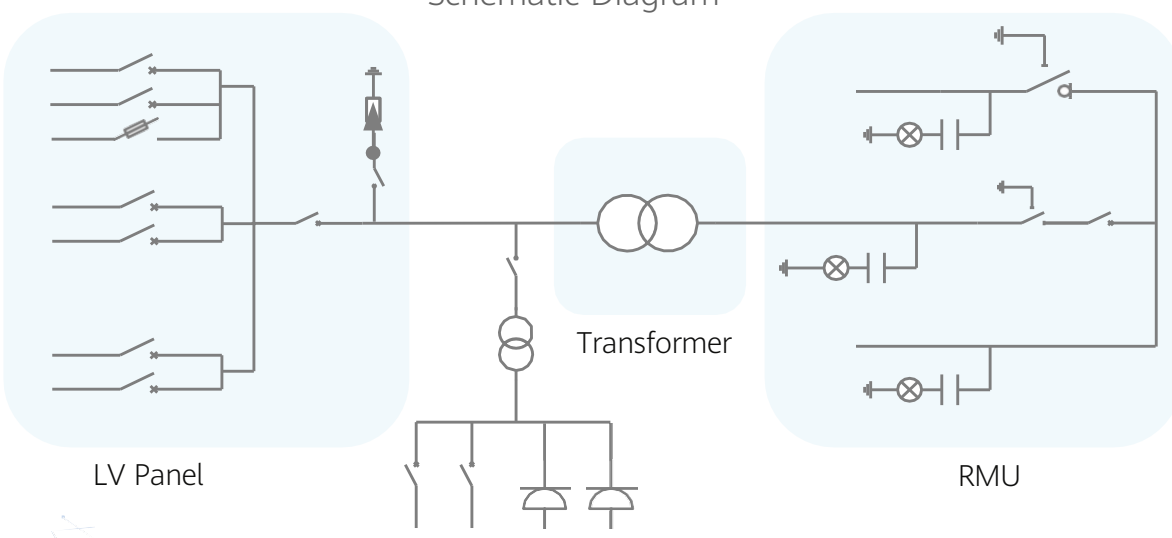
Smart

Real-time Monitoring of Transformer, LV Panel and RMU
High Precision Sensor of LV Electricity Parameters
Remote Control of ACB and MV Circuit Breaker

Reliable

Robust Design against Harsh Environments
Optimal Cooling Design for High Availability and Easy O&M
Comprehensive Tests from Components, Device to Solution

Schematic Diagram



Technical Specifications

Input		
Available Inverters / PCS	SUN2000-200KTL / SUN2000-215KTL / SUN2000-185KTL / LUNA2000-200KTL	
Maximum LV AC Inputs	17	
AC Power	3,400 kVA @40℃ [1]	
Rated Input Voltage	800 V	
LV Main Switches	ACB (2,900 A / 800 V / 3P, 1 pcs), MCCB (250 A / 800 V / 3P, 17 pcs)	
Output		
Rated Output Voltage	11 kV, 15 kV, 20 kV, 22 kV, 30 kV, 33 kV, 35 kV [2]	13.8 kV, 34.5 kV [2]
Frequency	50 Hz	60 Hz
Transformer Type	Oil-immersed, Conservator Type	
Transformer Cooling Type	ONAN	
Transformer Tappings	± 2 x 2.5%	
Transformer Oil Type	Mineral Oil (PCB Free)	
Transformer Vector Group	Dy11	
Transformer Min. Peak Efficiency Index	Tier 1 or Tier 2 In Accordance with EN 50588-1	
RMU Type	SF_6 Gas Insulated	
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker Unit	
RMU Cable Incoming / Outgoing Unit	Direct Cable Unit or Cable Load Break Switch Unit	
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Dyn11	
Output Voltage of Auxiliary Transformer	400 / 230 Vac or 220 / 127 Vac	
Protection		
Transformer Monitoring & Protection	Oil Level, Oil Temperature, Oil Pressure and Buchholz	
Protection Degree of MV & LV Room	IP 54	
Internal Arcing Fault Classification of STS	IAC A 20 kA 1s	
MV Relay Protection	50/51, 50N/51N	
LV Overvoltage Protection	Type I+II	
Corrosion Protection	C5 Medium in accordance with ISO 12944	
Features		
2 kVA UPS	Optional [3]	
MV Surge Arrester for MV VCB	Optional [3]	
General		
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20' HC Container)	
Weight	< 15 t	
Operating Temperature Range	-25℃ ~ 60℃ [4] (-13°F ~ 140°F)	
Relative Humidity	0% ~ 95%	
Max. Operating Altitude	1,000 m [5]	1,500 m [5]
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite	
LV & MV Room Cooling	Smart Cooling without Air-across for Higher Availability	
Communication	Modbus-RTU, Preconfigured with Smartlogger3000B	
Applicable Standards	IEC 62271-202, EN 50588-1, IEC 60076, IEC 62271-200, IEC 61439-1	

1. More detailed AC power of STS, please refer to the de-rating curve.
2. Rated output voltage from 10 kV to 35 kV, more available upon request
3. Extra expense needed for optional features which standard product doesn't contain, more options upon request.
4. When ambient temperature ≥55℃, awning shall be equipped for STS on site by customer.
5. For higher operating altitude, please consult with Huawei.

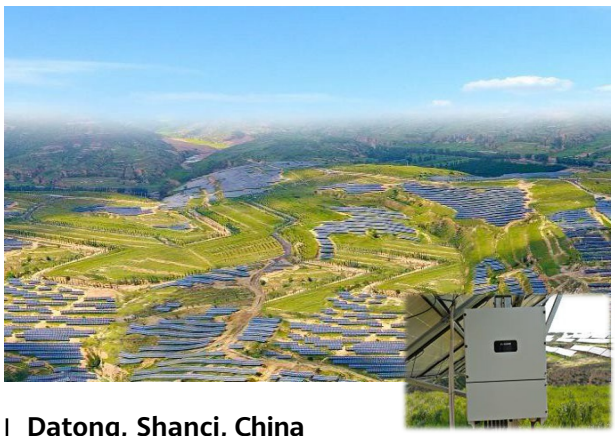
DCBOX-9/5-H0
DC LV Panel

Electrical	
Max. Input Voltage	1,500 V
Nominal Input Voltage	1,200 V
Max. Branch Current for Battery Rack Side	321 A
Max. Branch Current for PCS Side	193 A
Number of DC Circuit Breaker	14
Max. Input Number of Battery Rack	9
Max. Input Number of PCS	5
Max. Convergence Capacity	5 x 193 A
Protection	
DC Overcurrent Protection	Yes
Environment	
Operating Temperature Range	-30°C ~ 60°C
Relative Humidity	0 ~ 100%
Max. Operating Altitude	4,000 m
General	
Cable Entries	Top in for PCS & Bottom in for Battery Rack
Dimensions (W x H x D)	2,040 x 1,415 x 975 mm
Weight (Without Smart PCS)	≤ 750 kg
DC Connector / AC Connector	OT Terminal
Protection Degree	IP55
Installation Options	Grounding

DTS-200K-D0
Distribution Transformer

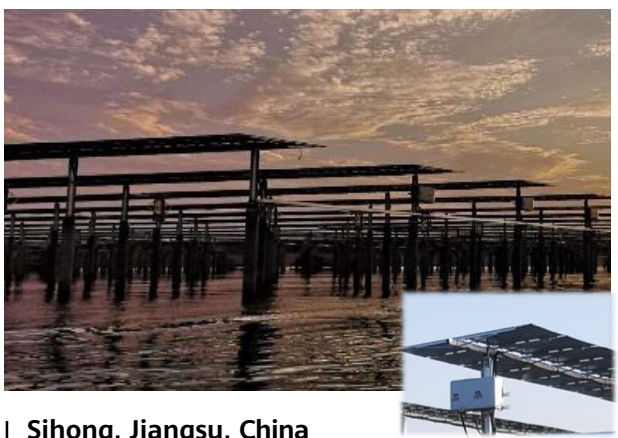
Electrical	
AC Power	210 kVA@ 400 Vac / 4 kVA@ 110 Vac
Rated Input Voltage	800 Vac
Max. Input Current at Nominal Voltage	151.6 A
Rated Output Voltage	400V (3P) /110V (1P)
Rated Frequency	50 / 60 Hz
Transformer Type	Dry Type
Transformer Cooling Type	AF
Transformer Vectoring Group	Dyn11yn11
Transformer Tappings	± 2 x 2.5%
Transformer Winding	Al
Transformer Insulation Class	H
Transformer Impedance (at 145°C)	4% (±10%) @50Hz / 4.8% (±10%) @60Hz
Transformer No-load Loss	≤ 500 W (+15%)
Transformer Load Loss	≤ 3,044 W (+15%)
Cablings	
Number of outputs	Five MCCBs, each connected to two outputs
Cabling mode	Routed in and out from the bottom
Protection	
Protection Degree	IP 55
LV SPD	Type II
Transformer Protection	Transformer Temperature Protection
Environment	
Operating Temperature Range	- 25℃ ~ 55℃ (-13°F ~ 131°F)
Relative Humidity	0% ~ 95%
Max. Operating Altitude	4,000 m
General	
Dimensions (W x H x D)	900 x 2,100 x 1,200 mm
Weight	< 1.3 t
Communication Mode	Dry Contacts
Cooling Type	Smart Cooling without Air-across for Higher Availability
Applicable Standards	IEC 60076, IEC 61439

Case Reference



Datong, Shanci, China
Mountain-mounted Smart PV Plant
Capacity: 100 MW
Inverter Model: SUN2000-40KTL

Hongdunzi, Ningxia, China
Largest Tracking System PV Plant Worldwide
Capacity: 700 MW
Inverter Model: SUN2000-50KTL



Sihong, Jiangsu, China
Water Surface Smart PV Plant
Capacity: 100 MW
Inverter Model: SUN2000-100KTL

Yanchi, Ningxia, China
Largest Single PV Plant Worldwide
Capacity: 1 GW
Inverter Model: SUN2000-40KTL

Sabah, Malaysia
Mountain-mounted Smart PV Plant
Capacity: 49 MW
Inverter Model: SUN2000-42KTL

Haining, Zhejiang, China
Largest Rooftop-mounted PV Plant Worldwide
Capacity: 300 MW
Inverter Model: SUN2000-28KTL, 36KTL, 50KTL

Case Reference

Pasir Gudang, Johor
Ground-mounted Smart PV Plant
Capacity: 25 MW
Inverter Model: SUN2000-185KTL-H1

Kamunting, Perak
Ground-mounted Smart PV Plant
Capacity: 30 MW
Inverter Model: SUN2000-185KTL-H1

Sik, Kedah
Ground-mounted Smart PV Plant
Capacity: 30 MW
Inverter Model: SUN2000-185KTL-H1

PV Park Pekan, Pahang
GPS Tracker PV Plant in Malaysia
Capacity: 45 MW
Inverter Model: SUN2000-90KTL-H2

Kuala Muda, Kedah
Ground-mounted Smart PV Plant
Capacity: 30 MW
Inverter Model: SUN2000-185KTL

Paka, Terengganu
Ground-mounted Smart PV Plant
Capacity: 30 MW
Inverter Model: SUN2000-90KTL-H1

Case Reference

Sungai Siput, Perak
Ground-mounted Smart PV Plant
Capacity: 49 MW
Inverter Model: SUN2000-42KTL

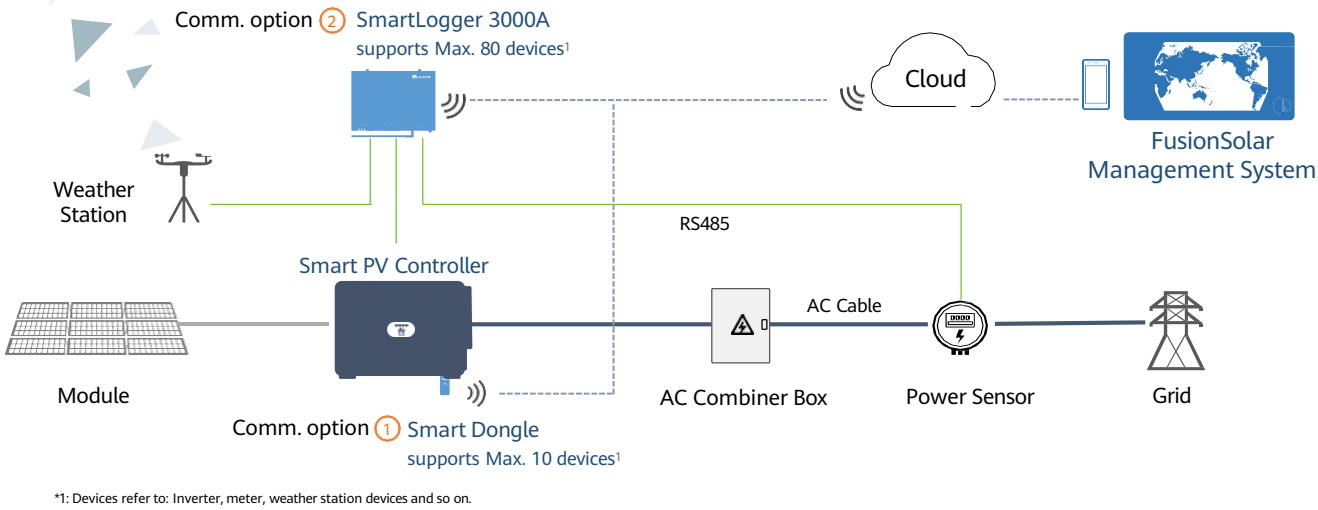
Kota Tinggi, Johor
Ground-mounted Smart PV Plant
Capacity: 29 MW
Inverter Model: SUN2000-90KTL-H1

Dungun, Terengganu
Ground-mounted Smart PV Plant
Capacity: 43.5MW
Inverter Model: SUN2000-42KTL

Kuala Ketil, Kedah
GPS Tracker PV Plant in Malaysia
Capacity: 50 MW
Inverter Model: SUN2000-42KTL

Paka, Terengganu
Ground-mounted Smart PV Plant
Capacity: 30 MW
Inverter Model: SUN2000-90KTL-H1

Large-scale Commercial PV Solution



*1: Devices refer to: Inverter, meter, weather station devices and so on.

Safe & Reliable	Higher Yields	Smart O&M
Fuse-free design for superior safety	Multi-MPPT to reduce string mismatch	String-level monitoring for fast trouble-shooting
Natural cooling fully sealed design for better reliability	Max. Efficiency 98.7% for higher yields	One click I-V curve diagnosis making unhealthy modules visible

SUN2000-115KTL-M2

Smart PV Controller

10
MPP Trackers

98.8% (@480V)
Max. Efficiency

String-level
Management

Smart I-V Curve Diagnosis
Supported

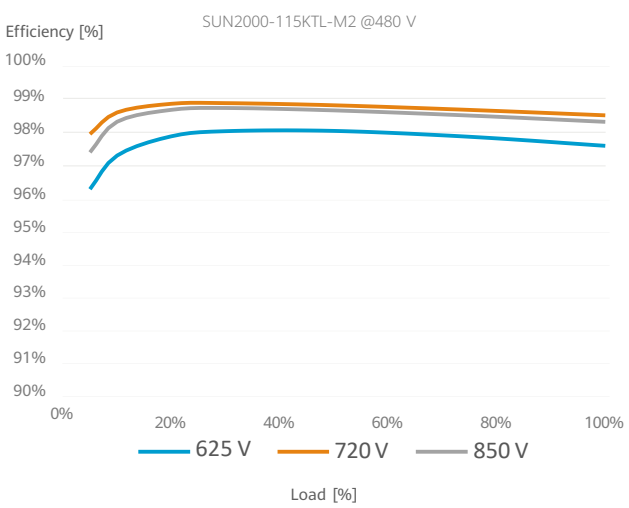
MBUS
Supported

Support
Smart String Level
Disconnector

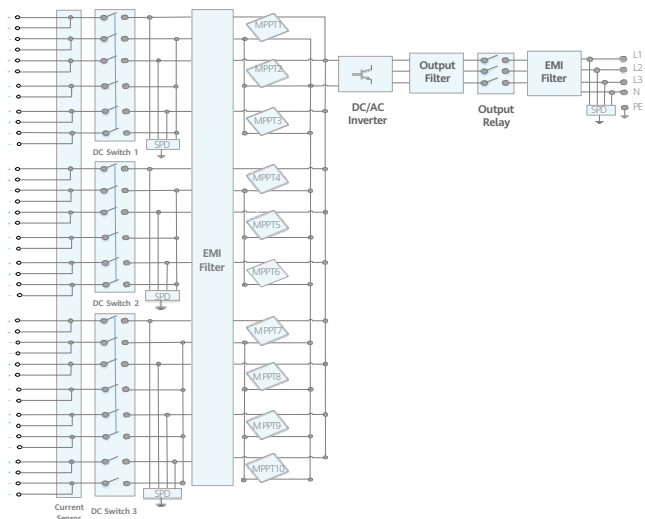
Surge Arresters for
DC & AC

IP66
Protection

Efficiency Curve



Circuit Diagram



Technical Specification	SUN2000-115KTL-M2
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 Disconnector	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, 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.

SUN2000-100KTL-M2

Smart PV Controller

10
MPP Trackers

98.8% (@480V)
Max. Efficiency

String-level
Management

Smart I-V Curve Diagnosis
Supported

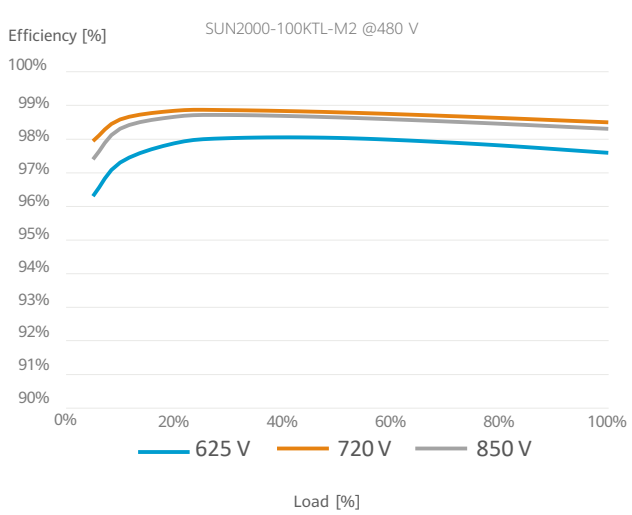
MBUS
Supported

Support AFCI &
Smart String Level
Disconnector

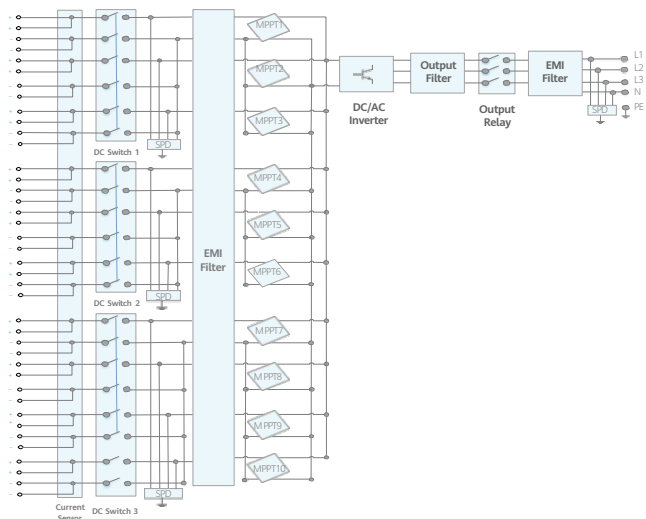
Surge Arresters for
DC & AC

IP66
Protection

Efficiency Curve



Circuit Diagram



Technical Specification

Technical Specification	SUN2000-100KTL-M2
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	100,000 W
Max. AC Apparent Power	110,000 VA
Max. AC Active Power (cosφ=1)	110,000 W
Nominal Output Voltage	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 Disconnector	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, 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.

SUN2000-50KTL-M3

Smart PV Controller

Higher Yields

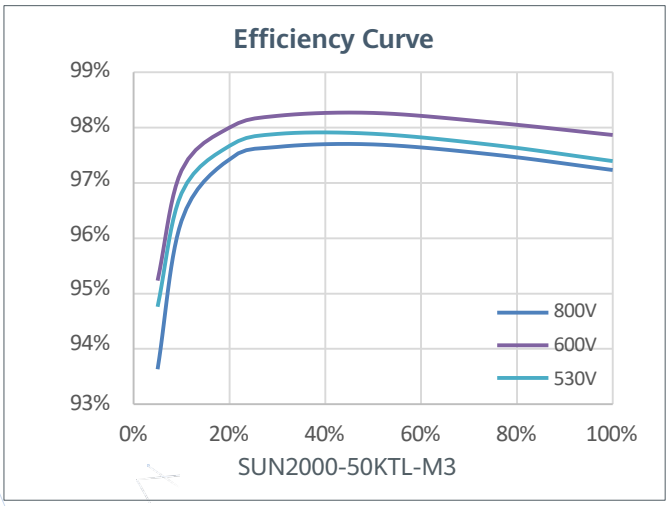
Up to 30% More Energy
with Optimizer

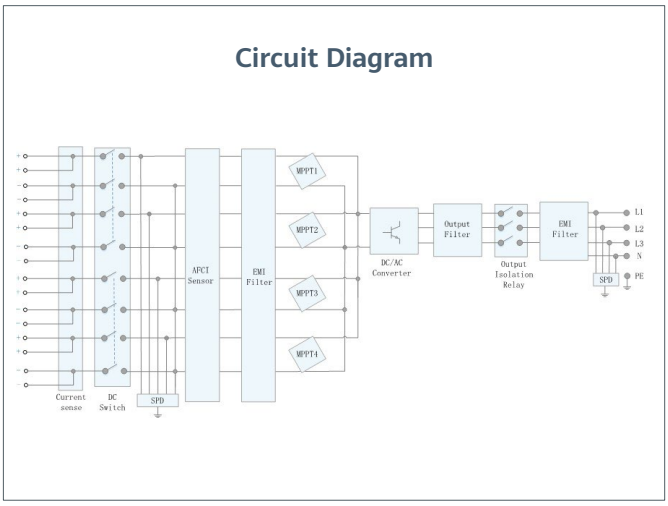
Active Safety

AI Powered
Active Arcing Protection

Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported





Technical Specification	SUN2000-50KTL-M3
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 @ 400 Vac, 60.1 A @ 480 Vac
Max. Output Current	79.8 A @ 400 Vac, 66.5 A @ 480 Vac
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	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 Helios H4
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, AS/NZS 4777.2, DEWA

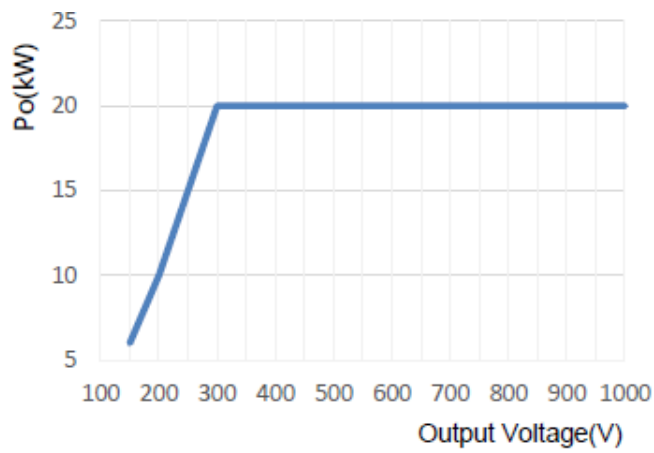
1. The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter
2. Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
3. SUN2000-30~40KTL-M3 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include:P-type (mono, poly),N-type (nPERT, HIT)

FusionCharge DC
20kW charging module

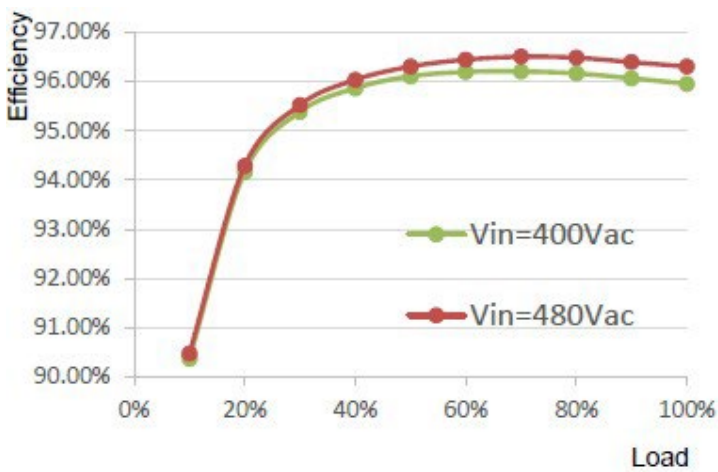
R100020G1 is a 20kW Charging module with high reliability, high efficiency & power density, with wide input voltage range (260Vac~528Vac), the maximum output power is 20kW , the output voltage range is 150~1000Vdc. It is designed with isolated CAN communication interface, monitor module integrated enables capability to adjust voltage and current.

Features

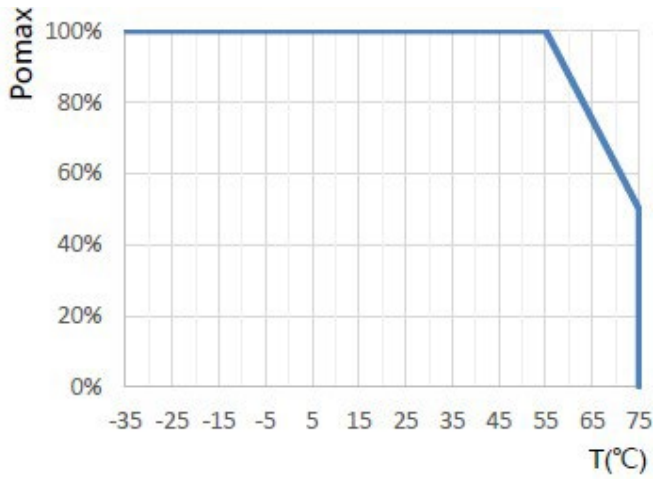
- Maximum efficiency at full load: 96.3%
- Maximum efficiency: 96.55%
- Input voltage range is 260Vac ~ 528Vac
- Operation temperature is −35℃ ~ +75℃
- THDi ≤ 5%
- Full digital control
- Support CAN communication
- Support voltage and current adjusted



Output Curve



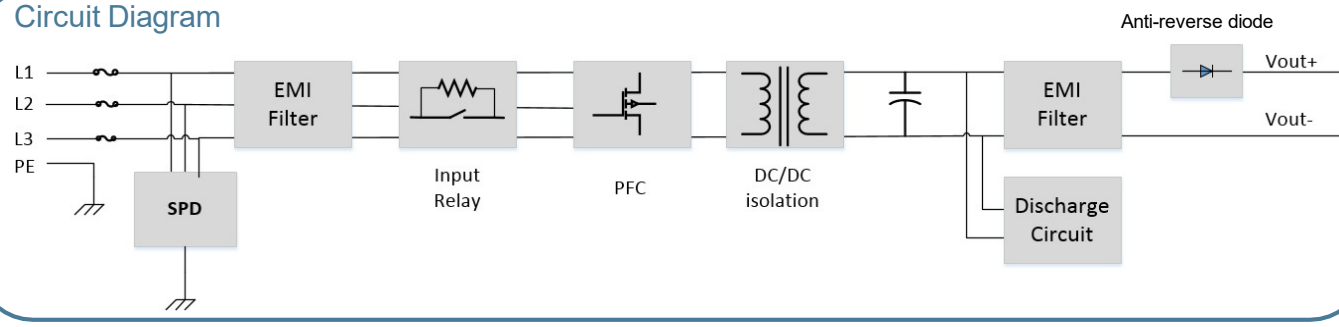
Efficiency CurveVout@800Vdc



Output Derating Curve

Technical Specification	R100020G1
Basic Specification	
Dimension(W×D ×H)	218 mm x 518 mm x 84 mm
Weight	≤ 16 kg
Efficiency	Maximum efficiency at full load: 96.3% (480Vac input), 95.9%(400Vac input); Maximum efficiency: 96.55% (480Vac input)
Cooling	Fan cooling
Self Consumption	<10W @ 400Vac
Output discharge time	<1s (with discharge circuit)
Input Specifications	
Input Voltage	260~528Vac
AC Input Mode	3W+PE
Input Frequency	40~70Hz, Rated Frequency: 50/60Hz
Input Current	≤ 38A
Power Factor	≥ 0.98 (Load ≥ 50%)
THDi	≤ 5% (400Vac input Load ≥ 50%)
Output Specifications	
Output Voltage	150-1000Vdc
Output Power	20000W(360~528Vac), 260~360Vac Linear Derating, 10000 W @260Vac
Current Ripple	≤ 1.5A @frequency<10Hz; ≤ 3A@frequency<5000Hz; ≤ 9A@frequency<150kHz (Test condition @1000Vdc/20A, 300Vdc/66.7A)
Voltage Ripple	Voltage Ripple(Peak-Peak) ≤ ±5V
Environmental Specifications	
Operating Temperature	- 35℃~ + 75℃
Storage Temperature	- 40℃~ + 75℃
Relative Humidity	5%~95% (non-condensing)
MTBF	> 500,000h
Noise	≤ 60 dB (25℃@Full Load, rated working condition) ≤ 55 dB (silent mode)
Standard Compliance	
Safety & Regulatory Standards	IEC 61851-1, IEC 61851-23, EN 61851-1, EN 61851-23, UL2202
EMC	IEC 61851-21-2, Class B

Circuit Diagram

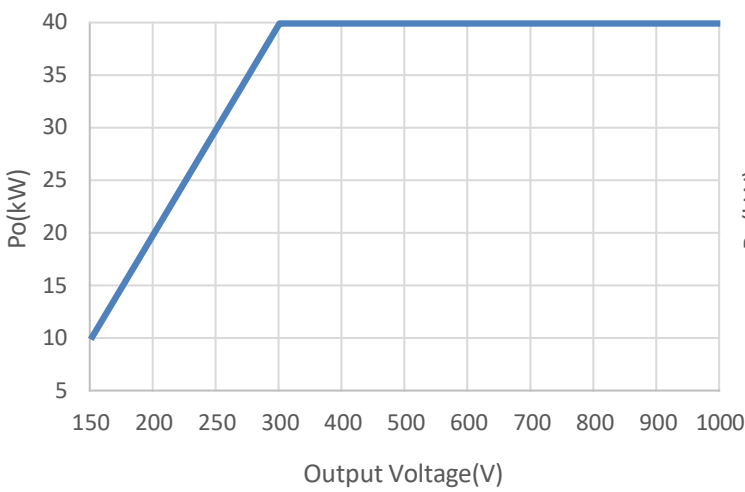


FusionCharge DC
40kW charging module

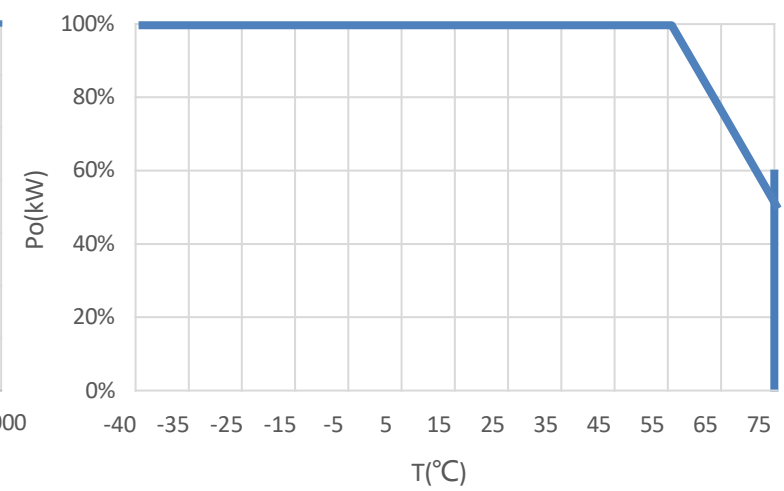
R100040G2 is a 40kW Charging module with high reliability, high efficiency & power density, with wide input voltage range(260Vac~485Vac), the maximum output power is 40kW, the output voltage range is 150~1000Vdc. It is designed with isolated CAN communication interface, monitor module integrated enables capability to adjust voltage and current.

Features

- **High efficiency**: Maximum efficiency : 96.5%, maximum efficiency at full load: 95.5%
- **Low-noise**: ≤ 60 dB@25℃, ≤ 65 dB@40℃ （Full Load, rated working condition）
- **Reliable**: Fully potting, fully isolated
- **One-fit-all**: EMC Class B; 150~1000V wide output voltage range
- **Safety**: Double or reinforced insulation between input and output, output and PE, input & output and SELV



Output Curve

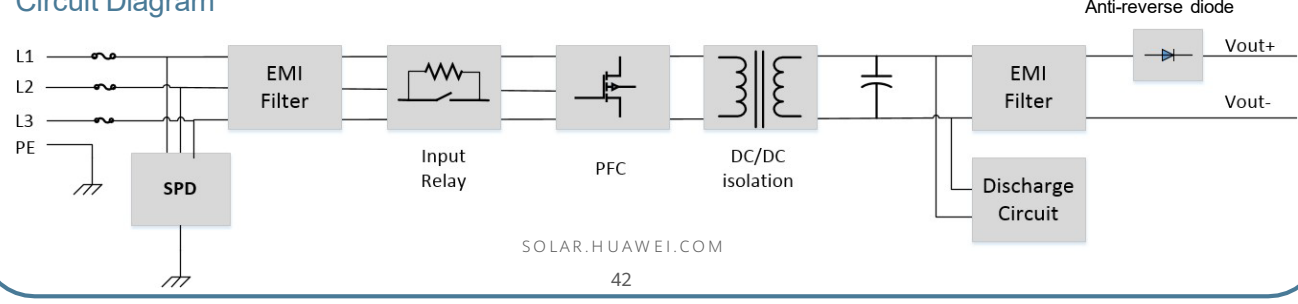


Output Derating Curve

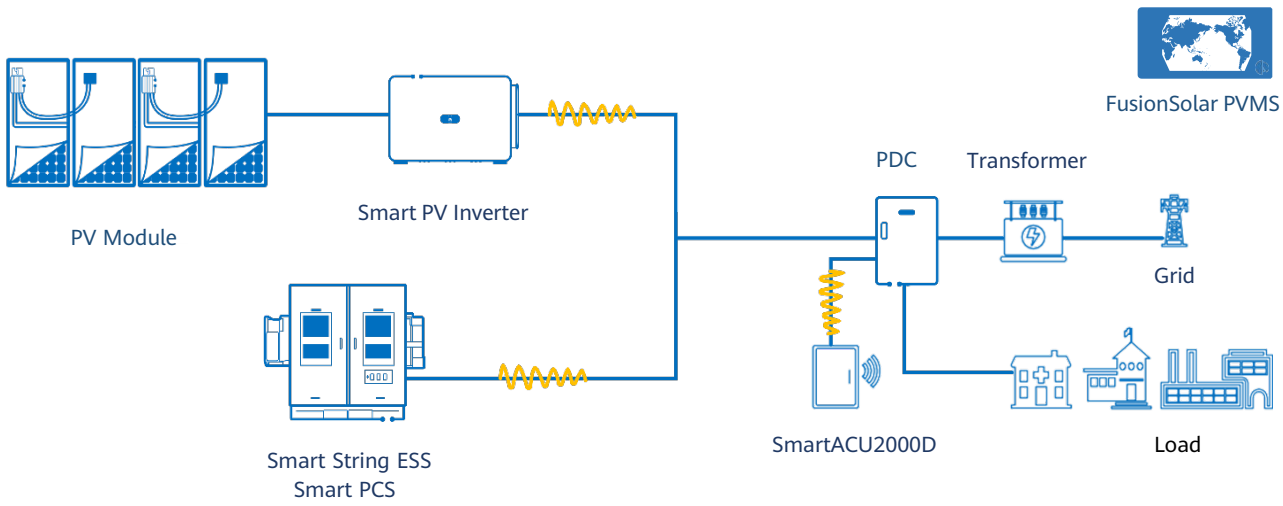
Technical Specification	R100020G2
Basic Specification	
Dimension(W×D ×H)	218 mm x 438 mm x 12 mm
Weight	≤ 17 kg
Efficiency	Maximum efficiency at full load: 95.5%* Maximum efficiency: 96.5%
Cooling	Fan cooling
Self Consumption	<10W @ 400Vac
Output discharge time	<1s (with discharge circuit)
Input Specifications	
Input Voltage	260~485Vac
AC Input Mode	3W+PE
Input Frequency	40~70Hz，Rated Frequency：50/60Hz
Input Current	≤ 70A
Power Factor	≥ 0.98 (Load ≥ 50%)
THDi	≤ 5% (Load ≥ 50%)
Output Specifications	
Output Voltage	150-1000Vdc
Output Power	40000W (260~360Vac Linear Derating, 20000 W @260Vac)
Current Ripple	≤ 1.5A @frequency<10Hz; ≤ 6A@frequency<5000Hz; ≤ 9A@frequency<150kHz
Voltage Ripple	Voltage Ripple ≤ ±5V
Environmental Specifications	
Altitudde	≤ 4000m
Operating Temperature	- 40℃~ + 75℃
Storage Temperature	- 40℃~ + 75℃
Relative Humidity	5%~95% (non-condensing)
MTBF	> 500,000h
Noise	≤ 60 dB (25℃@Full Load, rated working condition) ≤ 65 dB (40℃@Full Load, rated working condition) ≤ 55 dB (silent mode)
Standard Compliance	
Safety & Regulatory Standards	IEC 61851-1, IEC 61851-23, IEC 62477-1, EN 61851-1, EN 61851-23, EN 62477-1
	Double or reinforced insulation between input and output, output and PE, input & output and SELV
EMC	IEC 61851-21-2, EN61851-21-2, Class B

*: Input voltage@480Vac

Circuit Diagram



Commercial & Industrial Smart PV + BESS Solution



Active Safety	Higher Yields	Maintenance Free
Level 4 AFCI, ahead in the industry	2 Strings per MPPT, More Energy Yields	No Fuse & Other Quick-wear Parts, Inverter Touch Free
0V voltage shutdown	Built-in PID Recovery, Secure Better Module Performance	Online Smart I-V Curve Diagnosis, Module Touch Free
4 layer protections		

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
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
Rated Voltage	57.6 V
Nominal Capacity	16.13kWh
Supported Charge & Discharge Rate	≤ 0.5 C
Weight	≤ 140 kg
Dimensions (W x H x D)	442 x 308 x 660 mm

Smart Rack Controller	
Efficiency	
Max. Efficiency	99.0%
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	≤ 90 kg
Cooling Method	Smart Air Cooling
Protection Degree	IP66

LUNA2000-100KTL-M1
Smart PCS

Surge Arresters for DC & AC

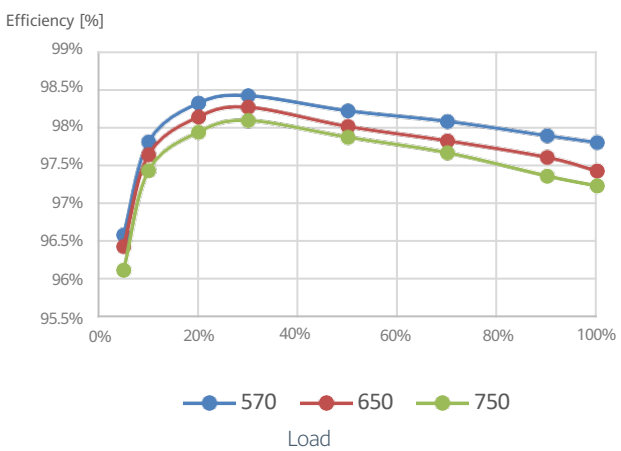
Modular Design

IP66 Protection

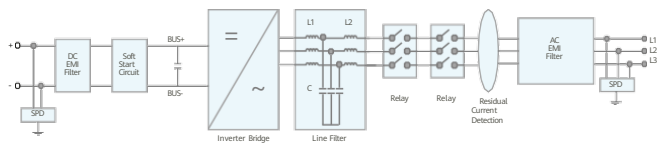
Ethernet Communication

Smart Grid Algorithm

Efficiency Curve



Circuit Diagram



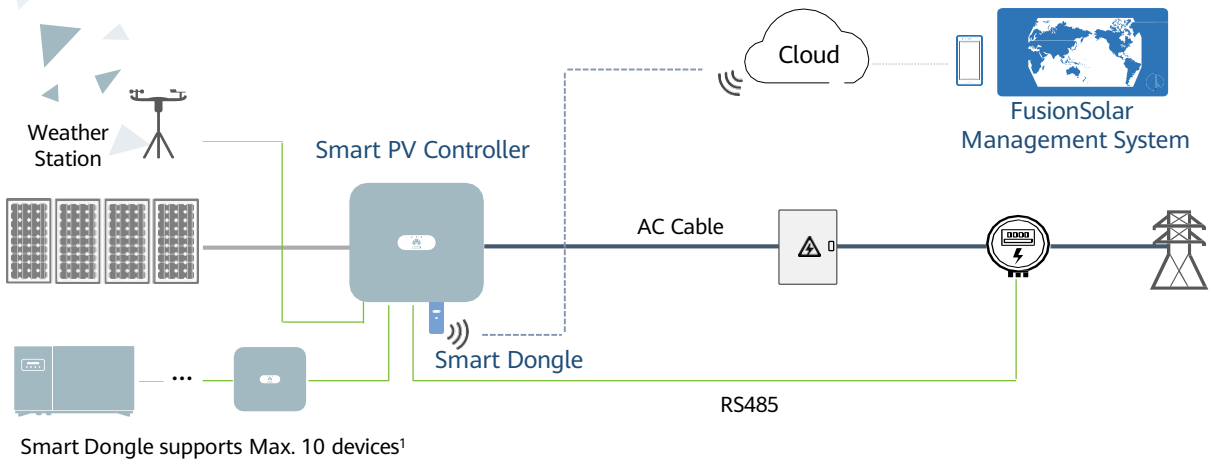
LUNA2000-100KTL-M1

Technical Specifications

Efficiency	
Max. Efficiency	98.4%
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 / 440 Vac
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
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

Small-scale Commercial PV Solution



*1: Devices refer to: Inverter, meter, weather station devices and so on.

Ultimate Safety	Higher Yields	Better Experience
AI Powered AFCI to mitigate fire risk	Multi-MPPT to reduce string mismatch	WLAN/Ethernet/4G, flexible comm. options
Fuse-free design for superior safety	Max. Efficiency 98.65% for higher yields	One click I-V curve diagnosis making unhealthy modules visible

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

Smart PV Controller

Active Safety

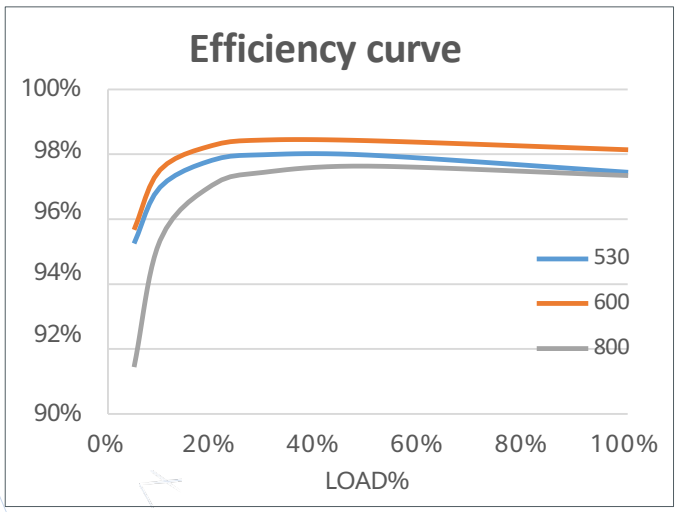
AI Powered Arcing Protection

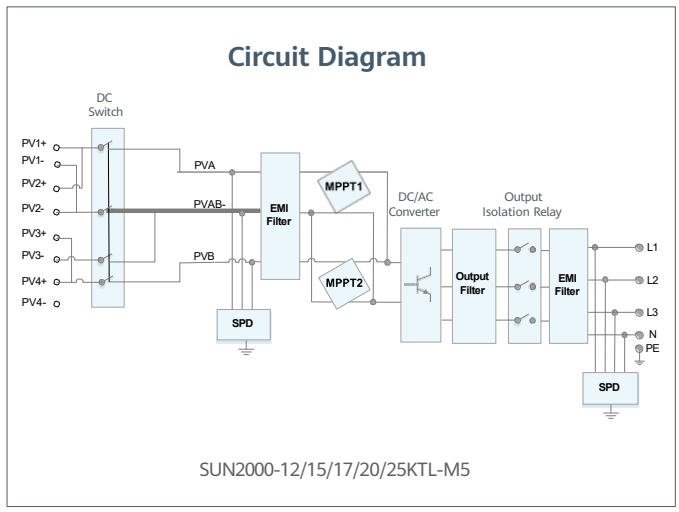
Higher Yields

Up to 30% More Energy with Optimizer

Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported





Technical Specification

Technical Specification	SUN2000 -12KTL-M5	SUN2000 -15KTL-M5	SUN2000 -17KTL-M5	SUN2000 -20KTL-M5	SUN2000 -25KTL-M5
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 / 60 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				
Optimizer Compatibility					
DC MBUS compatible optimizer	SUN2000-450W-P, SUN2000-450W-P2, SUN2000-600W-P, MERC-1100W-P, MERC-1300W-P				
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 40,000 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. SUN2000-12~20KTL-M2 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)

Version No.:01-(20220818)

SUN2000-30/36/40KTL-M3

Smart String Inverter

Smart

8 strings intelligent monitoring

Efficient

Max. efficiency 98.7%

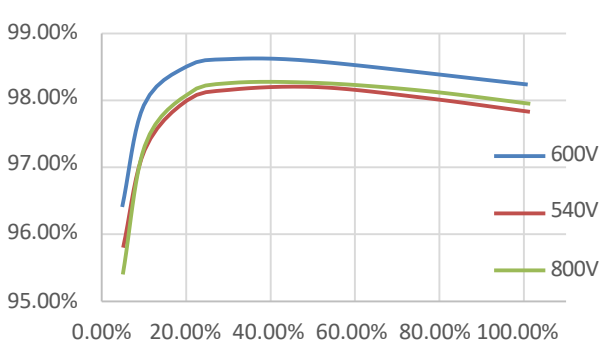
Safe

Fuse free design

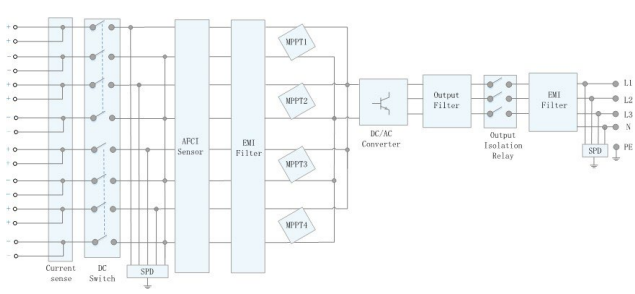
Reliable

Type II surge arresters for DC & AC

Efficiency Curve



Circuit Diagram



Technical Specification

Technical Specification	SUN2000-30KTL-M3	SUN2000-36KTL-M3	SUN2000-40KTL-M3
Efficiency			
Max. Efficiency	98.7%		
European Efficiency	98.4%		
Input			
Max. Input Voltage [1]	1,100 V		
Max. Current per MPPT	26 A		
Max. Short Circuit Current per MPPT	40 A		
Start Voltage	200 V		
MPPT Operating Voltage Range [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	40,000 VA	44,000 VA
Rated Output Voltage	230 Vac / 400 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)		
Monitoring BUS (MBUS)	Yes (Isolation Transformer required)		
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)		
Nosie Level	< 46 dB		
Operating Temperature Range	-25 ~ + 60 °C (-13 °F ~ 140 °F)		
Cooling Method	Natural Convection		
Max. Operating Altitude	0 - 4,000 m (13,123 ft.)		
Relative Humidity	0% RH ~ 100% RH		
DC Connector	Amphenol Helios H4		
AC Connector	Waterproof Connector + OT/DT Terminal		
Protection Degree	IP 66		
Topology	Transformerless		
Nightime Power Consumption	≤ 5.5W		
Optimizer Compatibility			
DC MBUS Compatible Optimizer	SUN2000-450W-P, SUN2000-450W-P2, SUN2000-600W-P, MERC-1100W-P, MERC-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		
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, 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), N-type (nPERT, HIT)

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

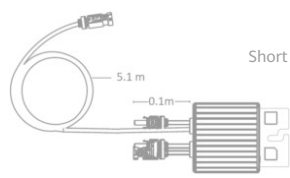
Arc Fault Pinpoint Positioning
Along PV Cable

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 SUN2000-12/15/17/20/23/25KTL-M5 SUN2000-30/36/40KTL-M3 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		SUN2000-30-40KTL-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



Short Input Cable Version

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.

Version No.:01-(20221213)

SmartLogger3000A

Smart
Smart zero export control design

Simple
Easy to install on site

Reliable
Safety by lightning protection module

Technical Specification	SmartLogger3000A01EU
	Device Management
Max. Number of Manageable Devices[3]	80
	Communication Interface
WAN	WAN x 1, 10 / 100 / 1000 Mbps
LAN	LAN x 1, 10 / 100 / 1000 Mbps
RS485	COM x 3, 1200 / 2400 / 4800 / 9600 / 19200 / 115200 bps, 1000 m
2G / 3G / 4G [1]	LTE(FDD): B1,B2,B3,B4,B5,B7,B8,B20 DC-HSPA+/HSPA+/HSPA/UMTS: 850/900/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz [2]
Digital / Analog Input / Output	DI x 4, DO x 2, AI x 4
Active DO	12V, 100mA (connection with relay, sensor)
	Communication Protocol
Ethernet	Modbus-TCP, IEC 60870-5-104
RS485	Modbus-RTU, IEC 60870-5-103 (standard), DL / T645
	Interaction
LED	LED Indicator x 3 – RUN, ALM, 4G
WEB	Embedded Web
USB	USB 2.0 x 1
APP	FusionSolar APP Communicated by WLAN for Commissioning
	Environment
Operating Temperature Range	-40°C ~ 60°C (-40°F ~ 140°F)
Storage Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Relative Humidity (Non-condensing)	5% ~ 95%
Max. Operating Altitude	4,000 m (13,123 ft.)
	Electrical
AC Power Supply	100 V ~ 240 V, 50 Hz / 60 Hz
DC Power Supply	12V / 24 V
Power Consumption	Typical 8 W, Max. 15 W
	Mechanical
Dimensions (W x H x D)	225 x 160 x 44 mm (8.9 x 6.3 x 1.7 inch, without mounting ears and antenna)
Weight	2 kg (4.4 lb.)
Protection Degree	IP20
Installation Options	Wall Mounting, DIN Rail Mounting, Tabletop Mounting

*1: When putting inside metal box, extended antenna will be needed.
*2: For recommended carriers list and details on supported frequencies, please contact local distributors.
*3: Devices refer to: Inverter, meter, weather station devices and so on.

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 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40 ℃ to +70 ℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13, 123 ft.)
Standard Compliance (more available upon request)	
Certificate	CE
Inverter Compatibility	
Inverter Model	SUN2000-2~6KTL-L1 SUN2000-3~10KTL-M1 SUN2000-8~20KTL-M2 SUN2000-12~25KTL-M5 SUN2000-20~50KTL-M3 SUN2000-60KTL-M0 SUN2000-100KTL-M0/M1 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 [1]

Simple

Plug & Play
Support max. 10 devices[2]

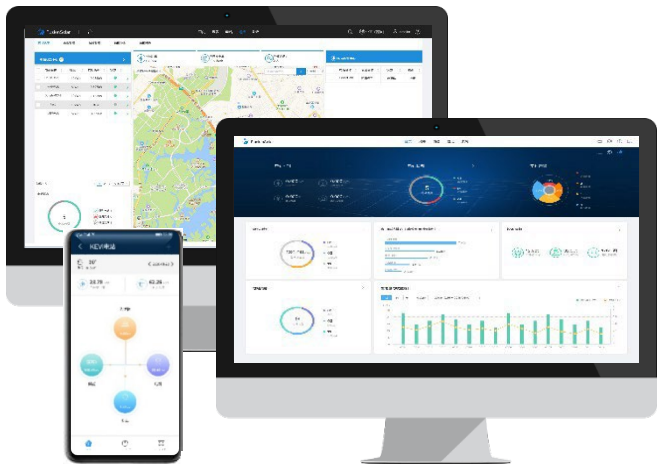
Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-05
General Data	
Max. Devices[2] Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	2.5 W
Operation Mode	STA
Encryption Algorithm	Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES
Wireless Parameter	
Supported standards & frequencies	802.11b/g/n（2.412G—2.484G）
Environment	
Operating temperature range	-30 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40℃ to +70℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13,123 ft.)
Standard Compliance (more available upon request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Supported Master Inverter Model	SUN2000-2/3/4/5/6KTL-L1 SUN2000-5/8/10KTL-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-30/36/40KTL-M3

1. 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.
2. Devices refer to: Inverter, meter, weather station devices and so on.

FusionSolar Smart PV Management System



Better experience

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

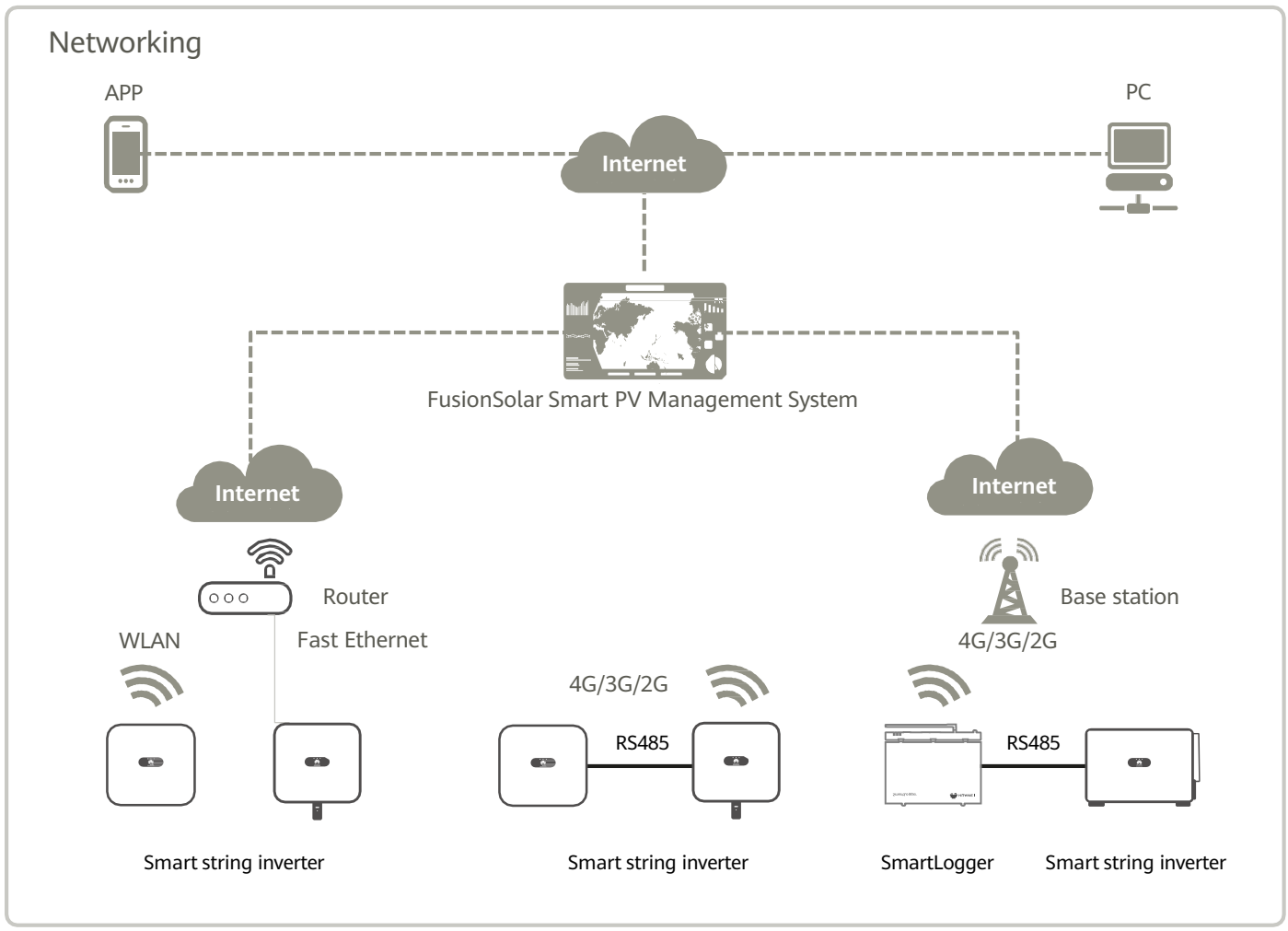
Energy visualization

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

Smart O&M

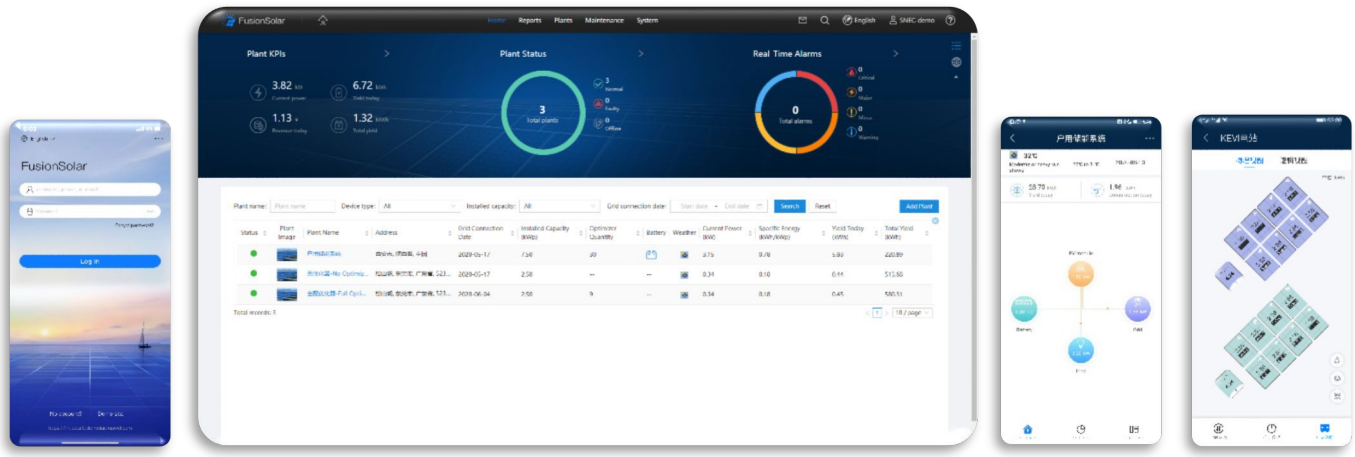
- One-screen mgmt. of site, personnel, status
- One-click ticket dispatching & site navigation
- Online Smart I-V Curve Diagnosis, 15mins required for a 100MW plant diagnosis [1]

Networking



1. Require separate license from Smart PV Management System

FusionSolar Smart PV Management System

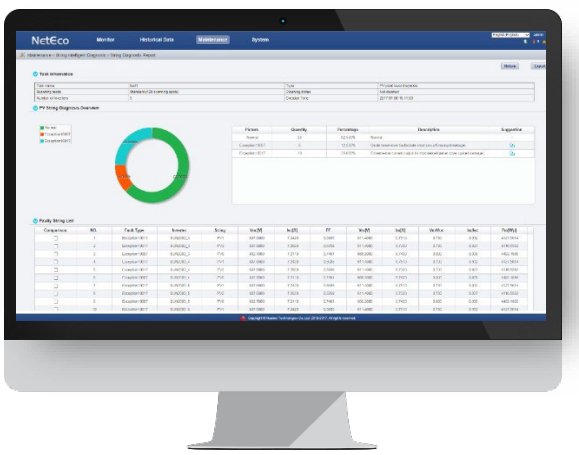


Category	Function	Web	APP
Homepage	PV Plants List	●	●
	Add Plant	●	●
Report Management	Plant Report	●	
	Inverter Report	●	
	Battery Report	●	
Device Management	Device Details	●	●
	Remote Parameter Setting	●	
	Remote Optimizer Search	●	
Intelligent O&M	Real-time Status	●	
	Alarm Management	●	●
	Task Management	●	●
	Smart IV-Curve Diagnose [1]	●	
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	●	●

1. Require separate license from Smart PV Management System

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 malfunction, 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

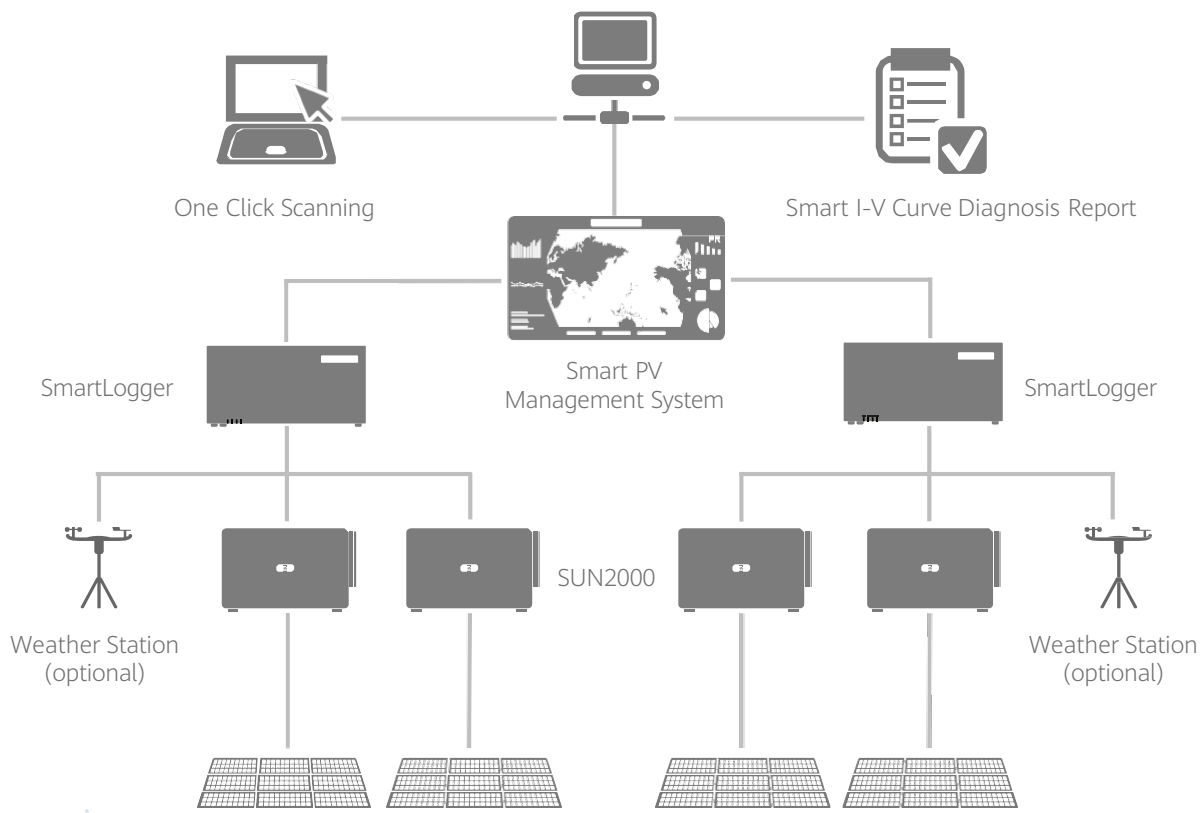
Automatically identify different failure types and provide recovery suggestion

Efficient

One-click scanning without onsite experts or equipment

Completing online I-V curve scanning on all strings of 100 MW plant within 15 minutes

Network Structure



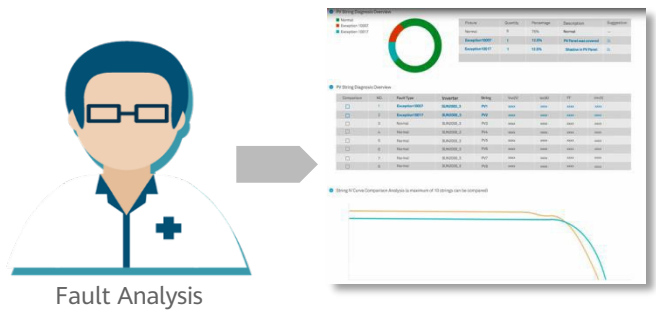
Smart I-V Curve Diagnosis

Technical Specifications	
Smart String Inverter	SUN2000-12/15/17/20KTL-M2, SUN2000-12/15/17/20/25KTL-M5, SUN2000-30/36/40KTL-M5, SUN2000-50KTL-M3, SUN2000-100KTL-M2, SUN2000-115KTL-M2
Control Unit	SmartLogger3000
Management System	Smart PV Management System [1]
Scanning Time	<1s per string
Sampling Points per I-V Curve	128
Voltage Accuracy	0.5%rdg. + 1dgt. (rdg.>5, dgt.= 0.3)
Current Accuracy	0.5%rdg. + 2dgt. (rdg.>0.3, dgt.= 0.006)
TÜVRheinland®	Smart I-V Curve Diagnosis is TUV Verified.

String-level Management

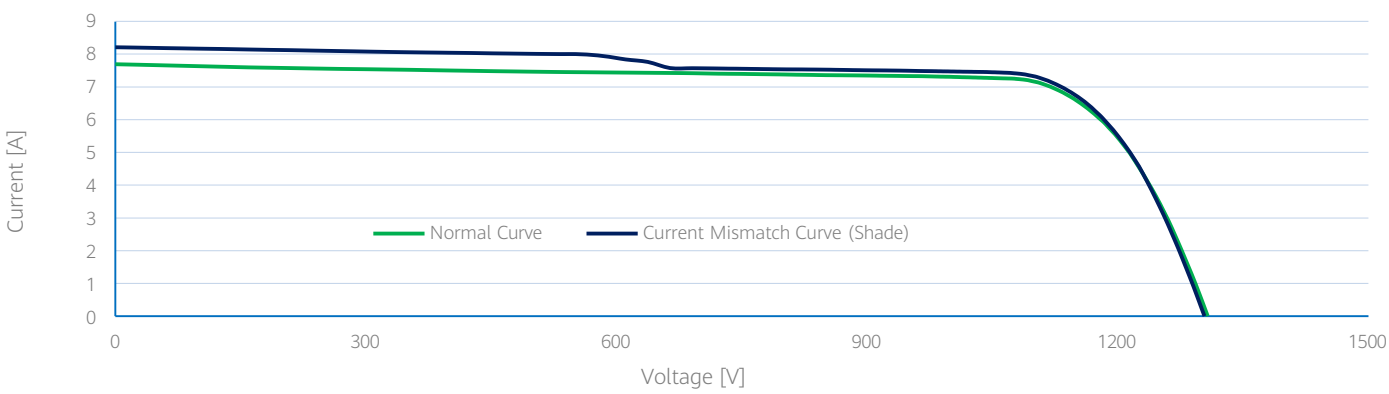
Real-time Monitoring

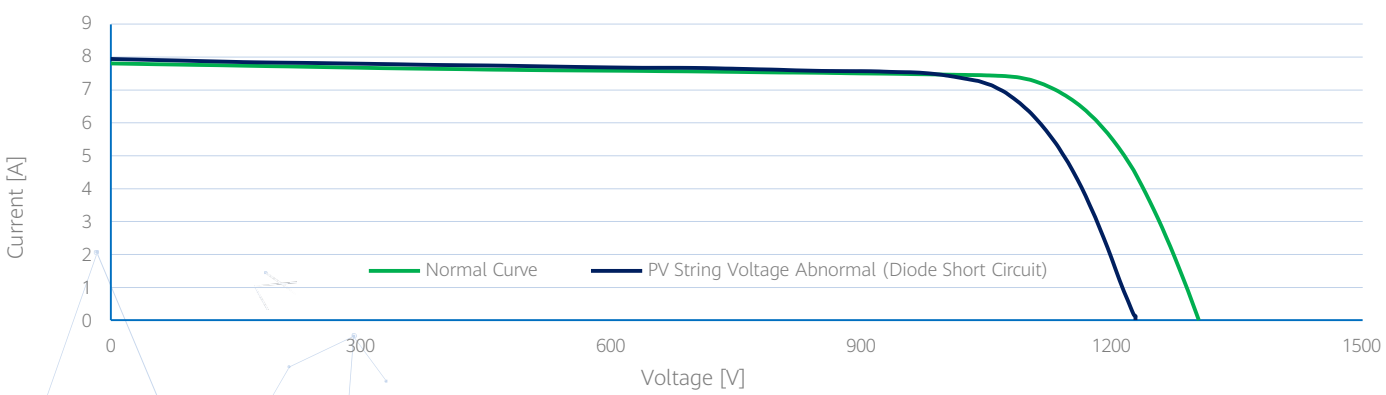
Smart I-V Curve Diagnosis



Fault Analysis

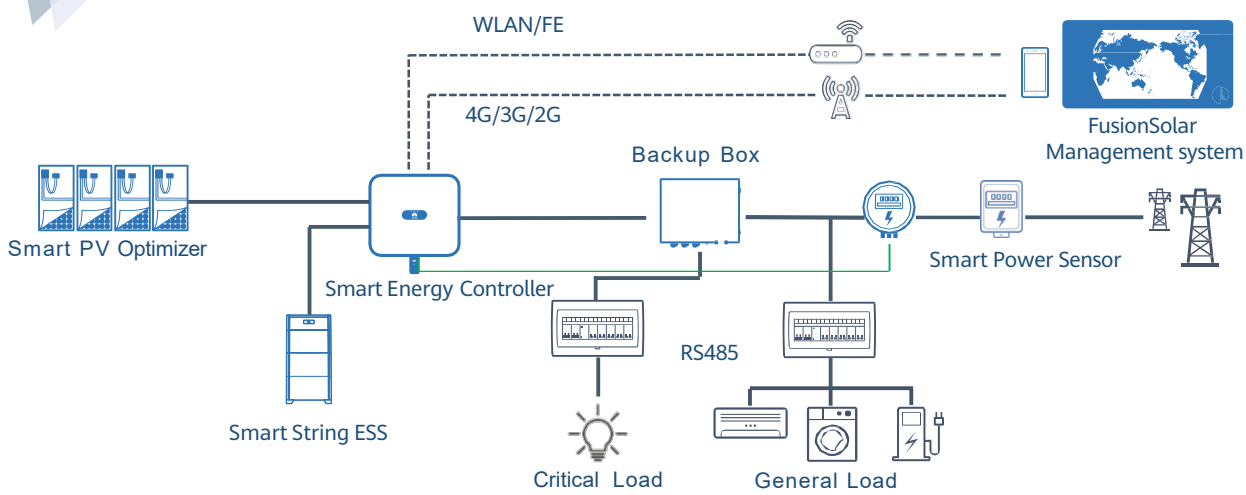
String I-V Curve Comparison





1. Require separate license from Smart PV Management System

Residential Smart PV Solution



Optimal Electricity Cost

Up to 30% More Energy by Optimizers

2x POWER Battery Ready for More Energy Consumption

Active Safety

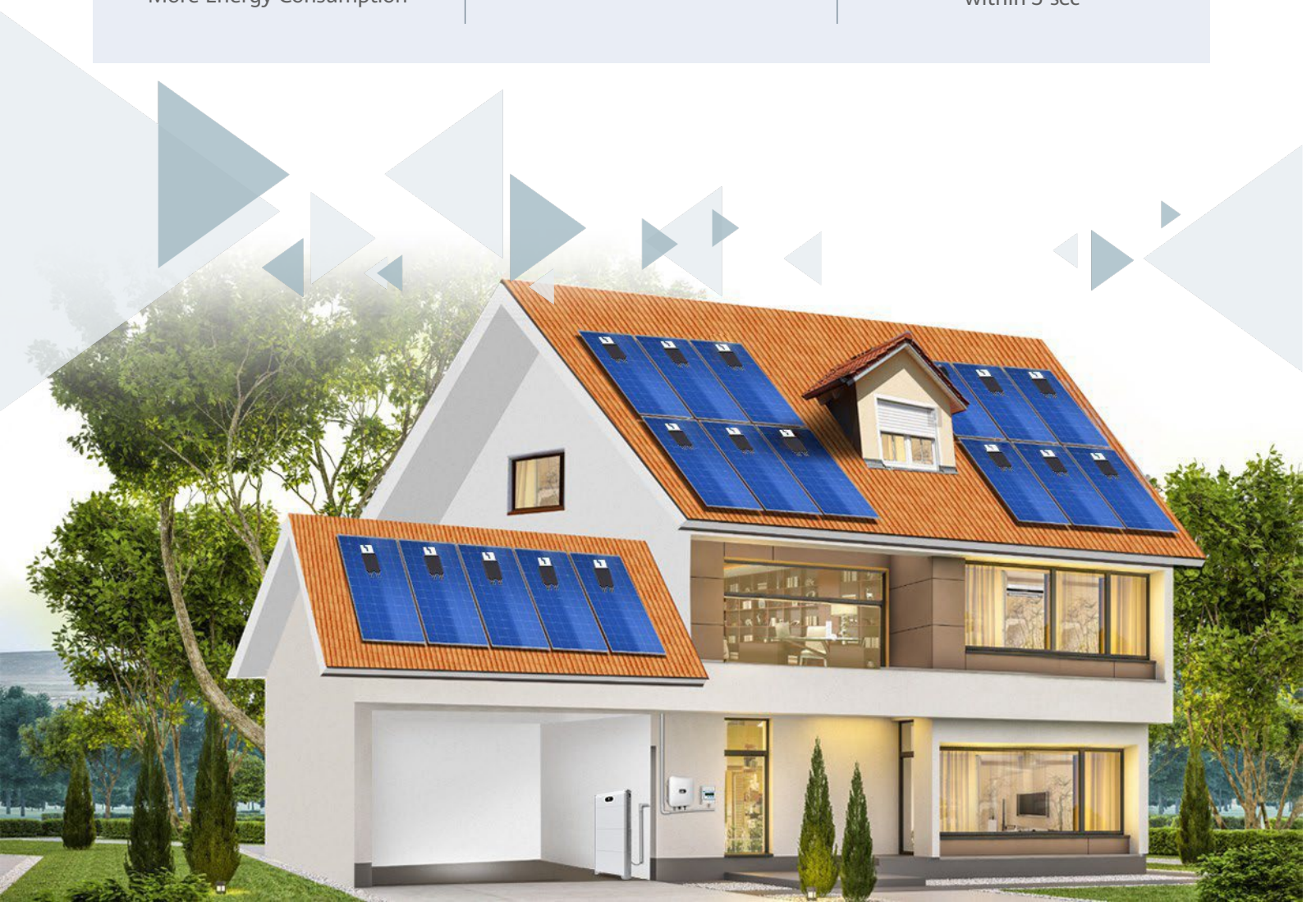
AI Powered Active Arcing Protection

Pinpoint Arc Fault Positioning

Better Experience

One-Fits-All Solution, Easier Business

Module Auto-Mapping within 5 sec

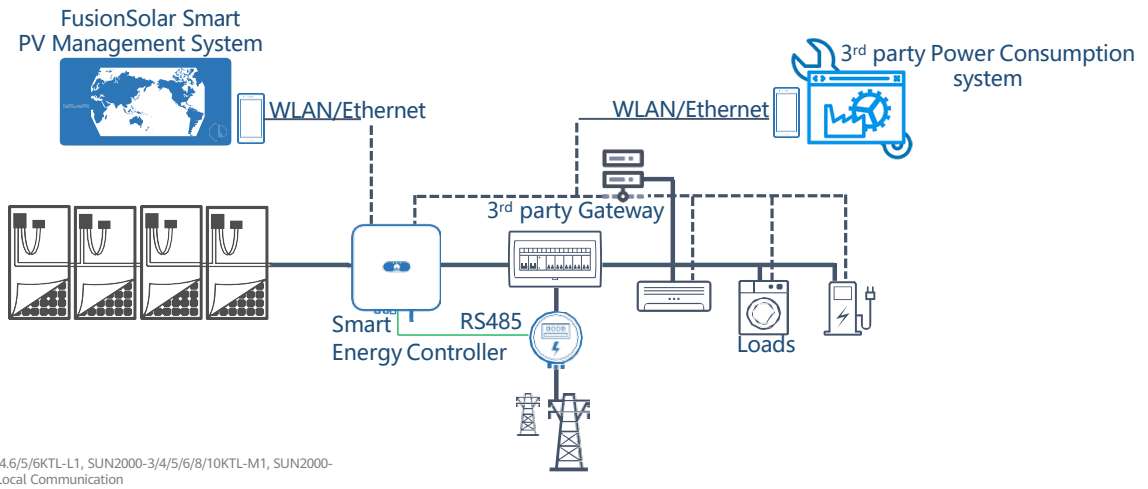


Smart Home Energy Management

Powerful Ecosystem
Expanding supported partners

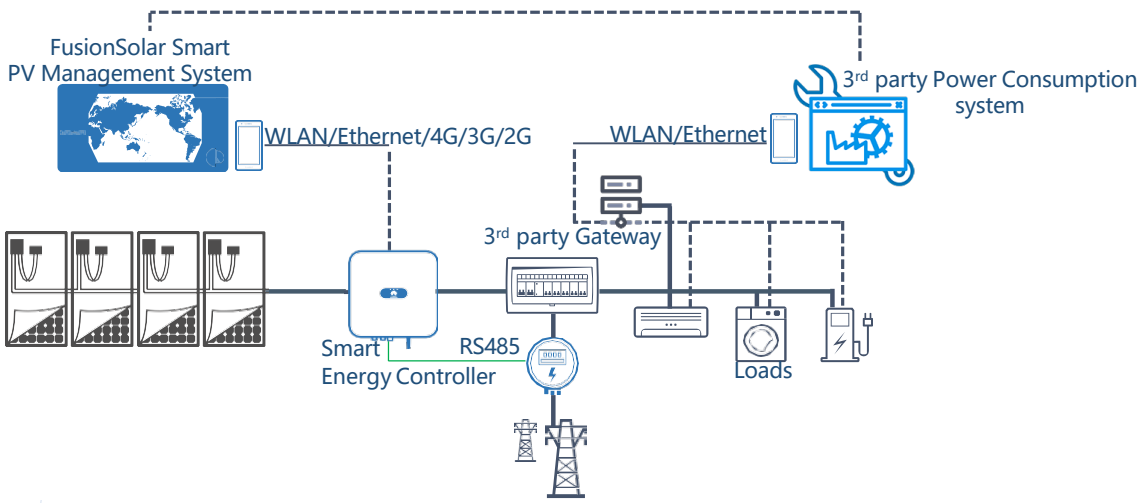
AI Management
Higher Self-consumption Rate

Local Communication



*1 Only 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 support Local Communication

Cloud Open API



Smart Energy Controller

Active Safety

AI Powered
Active Arcing Protection

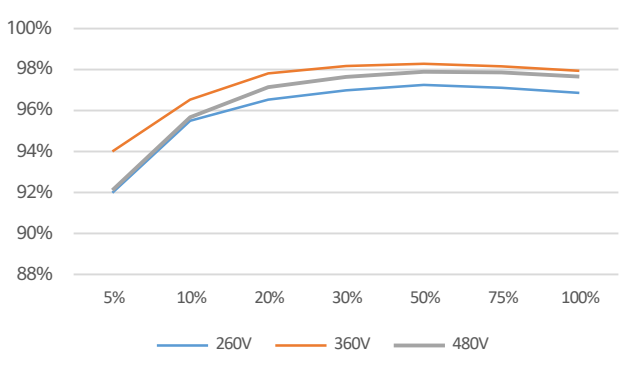
Higher Yields

Up to 30% More
Energy with Optimizer

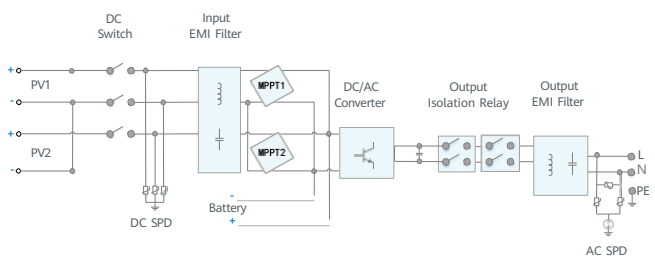
2x POWER Battery Ready

5KW AC Output plus
5KW Battery Charge

Efficiency Curve



Circuit Diagram



SUN2000-2/3/4/5/6KTL-L1

Technical Specification

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -4KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1
Efficiency					
Max. efficiency	98.2 %	98.3 %	98.4 %	98.4 %	98.4 %
European weighted efficiency	96.7 %	97.3 %	97.5 %	97.8 %	97.8 %
Input (PV)					
Recommended max. PV power [1]	3,000 Wp	4,500 Wp	6,000 Wp	7,500 Wp	9,000 Wp
Max. input voltage8	600 V [2]				
Start-up voltage	100 V				
MPPT operating voltage range*	90 V – 560 V [2]				
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	HUAWEI Smart ESS Battery 5kWh – 30kWh				
Operating voltage range	350 ~ 560 Vdc				
Max operating current	15 A				
Max charge Power*	5,000 W [3]				
Max discharge Power*	2,200 W	3,300 W	4,400 W	5,000 W	5,000 W
Output (On Grid)					
Grid connection*	Single phase				
Rated output power*	2,000 W	3,000 W	4,000 W	5,000 W [4]	6,000 W
Max. apparent power*	2,200 VA	3,300 VA	4,400 VA	5,500 VA [6]	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	20 A	25 A [7]	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	4,000 VA	5,000 VA	5,000 VA
Rated output voltage			220 V / 230 V		
Maximum output current	9.1 A	13.6 A	18.2 A	22.7 A	22.7 A
Power factor range	0.8 leading ... 0.8 lagging				

1. Inverter max. input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-P2/600W-P power optimizers.
2. The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.
3. 2,500 W @ 5kWh HUAWEI ESS battery
4. AS4777.2: 4,991W.
5. VDE-AR-N 4105: 4,600VA / AS4777.2: 4,999VA.
6. AS4777.2: 4,999VA / C10/11:5,000VA
7. AS4777.2: 21.7A.

Technical Specification

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -4KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1
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				

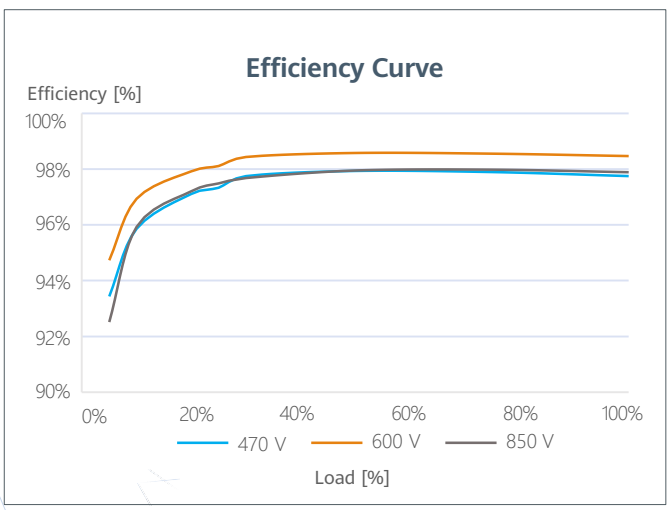
Smart Energy Controller
SUN2000-3-10KTL-M1 (High Current Version)

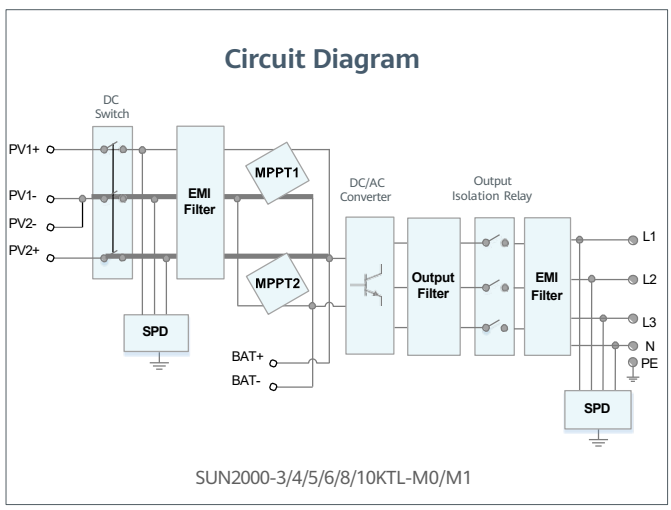
Active Safety
AI Powered
Active Arcing Protection

Higher Yields
Up to 30% More Energy with Optimizer [1]

Battery Ready
Plug & Play battery interface [2]

Flexible Communication
WLAN, Fast Ethernet, 4G Communication Supported





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

Technical Specification	SUN2000 -5KTL-M1	SUN2000 -6KTL-M1	SUN2000 -8KTL-M1	SUN2000 -10KTL-M1
Efficiency				
Max. efficiency	98.4%	98.6%	98.6%	98.6%
European weighted efficiency	97.5%	97.7%	98.0%	98.1%
Input (PV)				
Recommended max. PV power [1]	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp
Max. input voltage [2]	1,100V			
Operating voltage range [3]	140V ~ 980V			
Start-up voltage	200V			
Rated input voltage	600V			
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			
Input (DC Battery)				
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	5,500 W	6,600 W	8,800 W	10,000 W
Output (On Grid)				
Grid connection	Three-phase			
Rated output power	5,000 W	6,000 W	8,000 W	10,000 W
Max. apparent power	5,500 VA	6,600 VA	8,800 VA	11,000 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	8.5 A	10.1 A	13.5 A	16.9 A
Adjustable power factor	0.8 leading ... 0.8 lagging			
Max. total harmonic distortion	< 3 %			
Output (Off Grid)				
Backup Box	Backup Box – B1			
Maximum apparent power	3,300 VA			
Rated output voltage	220 V / 230 V			
Maximum output current	15 A			
Power factor range	0.8 leading ... 0.8 lagging			
Features & Protections				
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 [4]	Yes			
Battery reverse charging from grid	Yes			
General Data				
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 [5]			
Optimizer Compatibility				
DC MBUS compatible optimizer	SUN2000-450W-P, SUN2000-450W-P2 & SUN2000-600W-P			
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, 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 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P2/600W-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. SUN2000-3~10KTL-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).
5. 10 W when PID recovery function is activated..

FusionCharge AC

Single Phase

7 kW/32A

Three Phase

22 kW/32A

Green Power Preferred

Power Your Car with Fully Sunshine

Make EV even Greener

3 to 1 Phase Switch

Automatic Switch during Charging

More Usable Green Power

One-fits-all APP

Full Control Through One APP

E-Lock Control for Anti-theft

Load Balancing

Automatic Detection and Balancing

No Warry about Power Tripping

3 Steps Click-in

16 mins Fast Installation

Wiring-free Maintenance

Standalone Applicable

Scheduled Charging Support

Full Power Charging Support

Technical Specification

Technical Specification	7kW/32A	22kW/32A
Inputs and outputs		
Charge power	1.4 kW to 7 kW (configurable)	1.4 kW to 22 kW (configurable)
Nominal voltage	230V(1-phase)	400V(3-phase)
Nominal current	32A single-phase	32A three-phase
Nominal frequency	50Hz/60Hz	
Vehicle connection	Type 2 SOCKET	
Mains supply types	TN, TT, IT	TN, TT
Communications		
Wi-Fi / Ethernet	Yes	
RFID (ISO-14443 A)	Yes	
RS485	Yes	
Protection		
Residual current protection (RCD)	Type A + DC 6mA integrated	
Overcurrent protection	Yes	
Residual current protection	Yes	
Surge protection	Yes	
Over/under-voltage protection	Yes	
Over/under-frequency protection	Yes	
Over/under-temperature protection	Yes	
General Specification		
Operating temperature range	- 35 ~ + 55°C	
Application environment	Outdoor / Indoor	
Storage temperature	- 40 ~ + 70°C	
Relative humidity	5% RH - 95% RH	
Altitude	≤2000m	
Dimensions (W x D x H)	180mm*145mm*335mm	
Weight	3kg	
Installation mode	Wall-mounted and installed on the floor with columns	
Enclosure degree	IP54	
Impact protection level	IK10	
Metering	2%	
Status indication	Standby, charging, fault, and upgrade	
Standby Self-consumption	<8W	
Standard Compliance (more available upon request)		
Certificate	CE, RoHS 2.0, IEC 61851-1, IEC 62196-2	

Smart String Energy Storage System

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

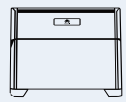
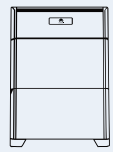
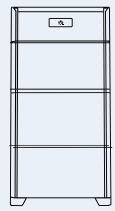
Quick Commissioning

Automatically Detected in App

Perfect Compatibility

Compatible to Both Residential
Single & Three Phase Inverter

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 [1]	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)	450 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) [2]		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature	-20℃ ~ + 55℃ (-4℉ ~ 131℉) [3]		
Max. operating altitude	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 [4], 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 [5]	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℃, at the beginning of life.
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. Please contact local engineer for the compatibility between the SUN2000-3/4/5/6/8/10KTL-M0 with the LUNA2000.
5. Storage system is ordered and delivered in the form of power module and battery module separately with corresponding quantity.

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
Input		
Rated Input DC Power [1]	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	
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	
Output connector	MC4	
Output wire length	1.3 m (4.3 ft.) [5]	
Operating temperature / humidity range	-40 ℃ ~ 85 ℃ [5] / 0 %RH ~ 100 %RH	
Degree of protection	IP68	
Compatible product	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20KTL-M2, 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 [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-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 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40 ℃ to +70 ℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13, 123 ft.)
Standard Compliance (more available upon request)	
Certificate	CE
Inverter Compatibility	
Inverter Model	SUN2000-2~6KTL-L1 SUN2000-3~10KTL-M1 SUN2000-8~20KTL-M2 SUN2000-12~25KTL-M5 SUN2000-20~50KTL-M3 SUN2000-60KTL-M0 SUN2000-100KTL-M0/M1 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 [1]

Simple

Plug & Play
Support max. 10 devices[2]

Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-05
General Data	
Max. Devices[2] Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	2.5 W
Operation Mode	STA
Encryption Algorithm	Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES
Wireless Parameter	
Supported standards & frequencies	802.11b/g/n（2.412G—2.484G）
Environment	
Operating temperature range	-30 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40℃ to +70℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13,123 ft.)
Standard Compliance (more available upon request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Supported Master Inverter Model	SUN2000-2/3/4/5/6KTL-L1 SUN2000-5/8/10KTL-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-30/36/40KTL-M3

1. 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.
2. Devices refer to: Inverter, meter, weather station devices and so on.

Version No.:03-(20200409)

Backup Box

Simple

Automatic detection & switchover

Reliable

Provide Reliable backup power

Technical Specification	Backup Box-B0	Backup Box-B1
AC Output (On grid)		
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
AC Output (Backup)		
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	
AC Input (Inverter)		
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
General Specification		
Operating temperature range	-20 ℃ to +45 ℃ (-4 ℉ to 113 ℉)	
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 Power Sensor

Accurate
Class 1 measurement accuracy

Simple & Easy
LCD display, easy to set and check

Energy Efficient
Overall power consumption ≤ 1 W

Technical Specification	DDSU666-H	DTSU666-H	DTSU666-H 250A
General Data			
Dimension (H x W x D)	100 x 36 x 65.5 mm (3.9 x 1.4 x 2.6 inch)	100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch)	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)
Power Supply			
Power grid type	1P2W	3P4W	3P4W/3P3W
Input voltage (phase voltage)	176 Vac ~ 288 Vac		
Power consumption	≤ 0.8 W	≤ 1 W	≤ 1 W
Measurement Range			
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
Measurement Accuracy			
Voltage	±0.5 %		
Current / Power / Energy	±1 %		
Frequency	±0.01 Hz		
Communication			
Interface	RS485		
Baud rate	9,600 bps		
Communication protocol	Modbus-RTU		
Environment			
Operating temperature range	-25 ℃ ~ 60 ℃		
Storage temperature range	-40 ℃ ~ 70 ℃		
Operating humidity	5 %RH ~ 95 %RH (non-condensing)		
Others			
Accessories	RS485 Cable (10 m / 33 ft.) 1 CT 100A / 40mA (5 m / 16.4 ft.) 	3 CT 100A / 40mA (5m / 16.4 ft.) 	3 CT 250A / 50mA (5m / 16.4 ft.) 

Case Reference

Malaysia
Capacity: 636 kWac
Inverter Model: SUN2000-100KTL-M1
SUN2000-36KTL-M3

Malaysia
Large Green Building Category in ASEAN Energy Awards 2019
Capacity: 1 MWp
Inverter Model: SUN2000-36KTL

Malaysia
Capacity: 0.6 MW
Inverter Model: SUN2000-36KTL

Singapore
Capacity: 2.8 MWp
Inverter Model: SUN2000-36KTL

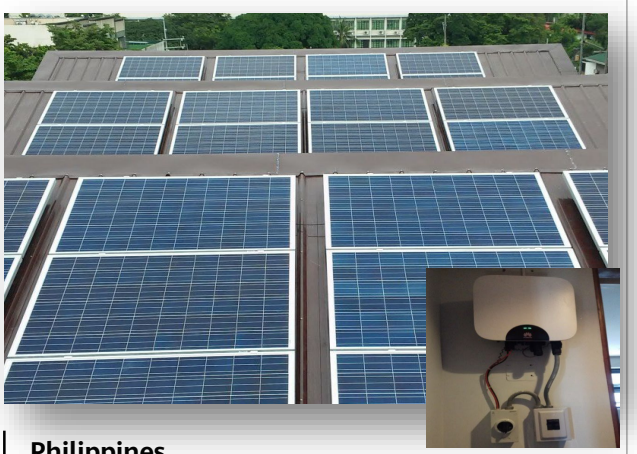
Philippines
Capacity: 604.5 kWp
Inverter Model: SUN2000-42KTL

Vietnam
Capacity: 760kWp
Inverter Model: SUN2000-36KTL

Case Reference

Taiwan
Capacity: 4.5MW
Inverter Model: SUN2000-40KTL

Philippines
Capacity: 15kW
Inverter Model: SUN2000-5KTL



Philippines
Capacity: 3kW
Inverter Model: SUN2000-3KTL

Hong Kong
Capacity: 5kW
Inverter Model: SUN2000-5KTL

Belgium
Capacity: 6 kWp
Inverter Model: SUN2000-4KTL

Thailand
Capacity: 5kW
Inverter Model: SUN2000-5KTL

HUAWEI TECHNOLOGIES (M) SDN BHD
Suite 32-01, Level 32, Integra Tower,
The Intermark, 348, Jalan Tun Razak,
50400 Kuala Lumpur, Malaysia
Tel: +603-2175 5550
Fax: +603-2175 5397

HUAWEI TECHNOLOGIES CO., LTD.
Huawei Industrial Base, Bantian Longgang
Shenzhen 518129, P.R. China
Tel.: 400-822-9999
solar.huawei.com