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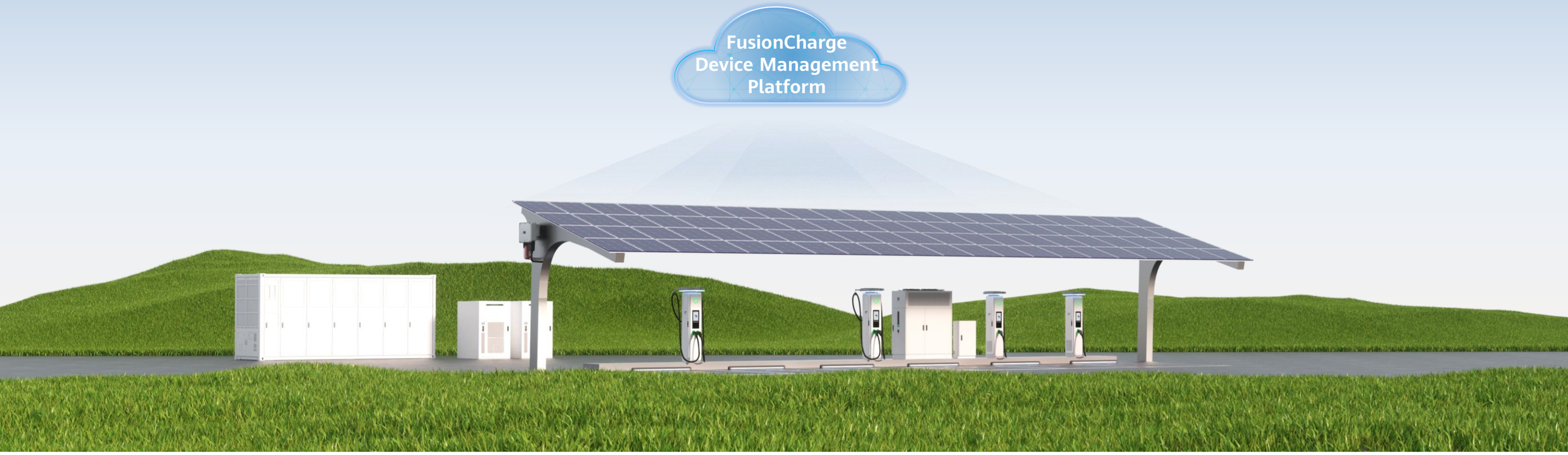
HUAWEI

One-stop PV+ESS+Charger Solution

Jointly charging the road ahead

One-stop PV+ESS+Charger Solution

End-to-End Self-Developed with Full-Chain System-Level Safty



PV

Smart PV Controller

Power 30-150kW

ESS

AC ESS

0.5C Discharge Rate
Capacity 215kWh

DC ESS

1C Discharge Rate
Capacity 215kWh

AC ESS

0.25C/0.5C Discharge Rate
Capacity 5MWh

Charger

Liquid-cooled ultra-fast charging, compatible with all vehicle models on one platform.

3 Unique Values

Ultimate Quality

Exceptional ROI

Paramount Safety

Ultimate Quality

High-Quality Design

- Self-developed intelligent hybrid cooling, intelligent dehumidification
- 10-year long lifespan

High-Quality Manufacturing

- High-standard automated production line
- High-quality indicator CPK > 1.67 (Grade A+)

High-Quality Testing

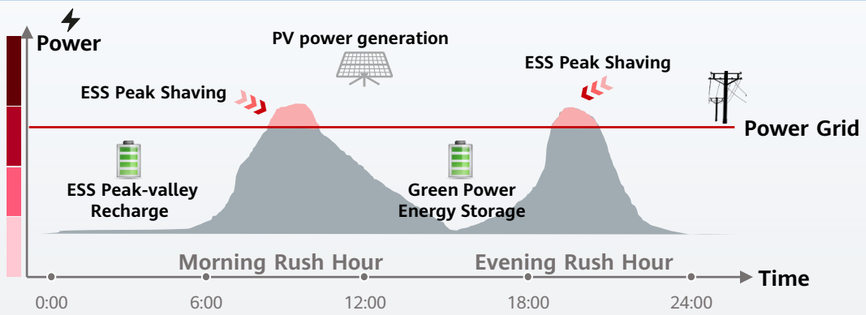
- Rigorous Full-Chain Testing
- 50+Test Items

All-Scenario Applications

- -30℃ extreme cold temperature
- 4000m high altitude low pressure

Exceptional ROI

No Grid Modification Required、Profit from Energy Arbitrage、Lower Electricity Costs、Maximized Charging Capacity



Paramount Safety

01 PV Safety

PV String I Smart PV Controller

Personal Safety:
High-precision monitoring of leakage current ensures no risk of electric shock to personnel.

Asset Safety:
DC ground protection, millisecond-level rapid disconnection of DC faults before and during grid connection.

Equipment Safety:
Intelligent string-level disconnection function, enabling 15-millisecond fast shutdown in case of abnormalities.

02 Charging Safety

Power Unit I Dispenser

Personal Safety:
Current particle tracking technology ensures safe vehicle charging.

Asset Safety:
Multi-level physical protection designed for the entire system.

Equipment Safety:
Full liquid cooling reliability design, integrated die-casting of modules and isolation of liquid and electricity.

03 ESS safety

Smart String ESS

Personal Safety:
Airbag protection, cell qualification testing, pack-level monitoring + pack-level isolation + cluster-level shutdown.

Asset Security:
Active fire prevention, containment of spread.

Equipment Safety:
Proactive risk warning.

Liquid-cooled Power Unit

Huawei’s liquid-cooled power unit is a high-power charging architecture designed for new energy vehicles, featuring a fully liquid-cooled ultra-fast charging system that enables energy conversion and power distribution. Compared to traditional solutions, it innovatively employs a new liquid cooling technology and DC bus architecture. It can support up to 720 kW of power output (fully configured) and includes built-in 120 kW AC/DC and 60 kW DC/DC liquid-cooled modules along with a power sharing unit, allowing for expansion to support 12 charging connector outputs (fully configured).

Power Unit Specification

Basic Specifications	Dimensions (W x D x H)	800 mm × 1700 mm × 2150 mm	
	Model	DS720-720LEUA4	DS720-720LEUA4
	Power Configuration (AC/DC+DC/DC)	600kW + 720kW	240kW + 360kW
	Weight	< 1520kg(including coolant)	< 1270kg(including coolant)
	Installation Mode	Floor-mounted	
	Efficiency (Maximum)	96%	
	Cooling	Liquid cooling	
	IP Rating	IP55	
	Communication Interface	4G,Ethernet(Northbound communication)	
	Standby Power	35W	
Input Specifications	Rated Input Voltage	2 X 400Vac, three-phase five-wire system	
	Rated Frequency	45-66 Hz	
	Rated Input Current	≤931 A (Output: 600kW, Input: 400Vac)	≤373 A (Output: 240kW, Input: 400Vac)
	Input Module	120kW AC/DC liquid-cooled module	
	Power Factor	≥0.99 (Load≥50%)	
	THDi	≤5% (Load≥50%)	
Output Specifications	Output Voltage	200~1000 Vdc	
	Output Module	60kW DC/DC liquid-cooled module	
	Current Ripple	≤ 1.5A @frequency<10Hz; ≤ 6A@frequency<5000Hz; ≤ 9A@frequency<150kHz	
	Voltage Ripple	≤ ±5V	
	Charging Connector Number	Max. 12	Max. 6
Environ mental Specifications	Operating Temperature	-35°C to +50°C	
	Storage Temperature	-40°C to +70°C	
	Altitude	≤4000m	
	Relative Humidity	5%~95% (Non-condensing)	
	Noise	≤ 55 dB(A)@25℃ (silent Mode), ≤ 60 dB(A)@25℃ (standard mode)	
Compliance		IEC 61851-1, IEC 61851-23, IEC 61851-21-2	

* The test data is from the lab environment.

Dispenser

Huawei charging dispensers are user units designed for charging new energy vehicles, available in two types: liquid-cooled and natural-cooled. The liquid-cooled terminal is equipped with one charging connector, which can output a rated current of 425A per connector. The natural-cooled terminal is equipped with two charging connectors, each capable of delivering a rated current of 375A.

Dispenser Specification

Basic Specifications	Type	Liquid-cooled	Boost
	Model	DT500L1-EUA2	DT500N2-EUA2
	Dimensions (W x D x H)	≤395 mm × 495 mm × 2150 mm	≤395 mm × 495 mm × 2150mm
	Maximum Output Power *1	480kW	480kW
	Charging Connector Number	1 (CCS2)	2 (CCS2)
	Charging Cable Length	5m	5m
	Installation Mode	Floor-mounted	Floor-mounted
	IP Rating	IP55	IP55
	Cable Cooling	Liquid cooling	Natural cooling
	Authentication	RFID reader(ISO/IEC 14443 A / B, ISO/IEC 15693, NFC) / Credit card reader (Optional) / QR code	RFID reader(ISO/IEC 14443 A / B, ISO/IEC 15693, NFC) / Credit card reader (Optional) / QR code
	Standby Power *2	35W	35W
	Meter Certification	MID / LNE	MID / LNE
Environmental Specifications	Operating Temperature	-30°C to +55°C (derating from 40°C)	-30℃ to +55℃ (derating from 40℃)
	Noise	≤50dB(A) @25℃ (1m)	≤50dB(A) @25℃ (1m)
	Storage Temperature	-40°C to +70°C	-40°C to +70°C
	Relative Humidity	5%RH~95%RH	5%RH~95%RH
	Altitude	≤2000m	≤2000m
Output Specifications	Output Voltage	200~1000Vdc	200~1000Vdc
	Rated Output Current	425A (continuous)	2 × 375A (continuous)
	Maximum Output Current	500 A (73 min@25℃)	single connector 500 A (46 min@25℃)
Compliance	IEC 61851-1, IEC 61851-23, IEC 61851-24, IEC 61851-21-2, IEC 62196-1, IEC 62196-3, DIN 70121, ISO15118-2		
Protections	Overvoltage protection, short circuit protection, grounding protection, overtemperature protection, leakage protection, insulation detection, door opening protection		

*1 The output power is also limited by the power unit output capability.
*2 The assumption: ambient temperature is 25°C. The lamp on the top is off. The screen is off. No charging connector is inserted for charging and no solar radiation.

AC Energy Storage System

Huawei's AC ESS is a fully liquid-cooled heat dissipation energy storage product designed for solar, storage, and charging scenarios. A single energy storage system can accommodate up to 215 kWh of battery capacity.

AC ESS Specifications

Basic Specifications	Model type	FusionCharge AES-215-2S10
	Rated power	108 kW
	Rated capacity	215 kWh
	Dimensions (W x D x H)	1150mm × 1800mm × 2100mm
	Weight	≤2800kg
	Noise level*	65dB(A)
	Maximum cycle rate	0.5CP
	Maximum cycle efficiency	91.3%
	Depth of charge and discharge	0~100%
	System battery configuration	240S1P
	Protection degree	IP55
	Power consumption standby	≤150 W
	Auxiliary power supply	176~264Vac, Single phase, ≤5 kW
	Communication port	Ethernet / Optical fiber
	Communication protocol	Modbus TCP
Environmental Specifications	Operating temperature range	-30 °C ~ 55 °C (> 50℃ Derating)
	Storage temperature range	-35°C ~ 60 °C
	Operating humidity range	0 ~ 100% RH (non-condensing)
	Maximum operating altitude	4,000m
	Installation requirements	Outdoor installation
	Lightning protection	Type II (AC port)
	Heat dissipation mode	Hybrid cooling
	EMC protection rating	Class B
	Environment	RoHS6
Smart Security Mode	Balance mode	Pack-level active balance
	SOC calibration mode	Automatic
	Fire suppression mode	Directional gas exhaust, Top explosion vent, Aerosol
	Protection mode	Anti-islanding protection, residual current detection, insulation resistance detection, AC overcurrent protection, and AC cable connection protection
Battery Parameters (DC)	Cell material	LFP
	Rated battery capacity	280Ah
	Number of battery packs	4
	Operating voltage range	648~864 V
	Rated DC current	140A
PCS Parameters (AC)	PCS model type	PCS2000-108K-MB1
	Rated output power	108 kW
	Rated AC current	164.1 A
	AC voltage & frequency	380 / 400 / 415 V (3P4W) , 50 / 60 Hz
	Adjustable power factor range	-1 ... +1
	AC current harmonics THDi*	≤1.5%
Compliance	Certification standards	UL9540A; UN38.3; IEC 62477-1; IEC 62040-1; IEC 61000-6-1/2/3/4; IEC61727

Note:
* Rated operating condition: In the on-grid scenario, the ambient temperature is 25°C, the charge/discharge rate is 0.5 CP, and the AC output voltage is 400 Vac.

DC Energy Storage System

Huawei's DC ESS is a fully liquid-cooled heat dissipation energy storage product designed for solar, storage, and charging scenarios. A single energy storage system can accommodate up to 215 kWh of battery capacity.

DC ESS Specifications

Basic Specifications	Model type	FusionCharge DES-215-2S10
	Rated power	108 kW (0.5P)
	Maximum output power	215 kW
	Rated voltage	820Vdc
	Rated capacity	215kWh
	Dimensions (W x D x H)	1150mm*1800mm*2100mm
	Weight	≤2800kg
	Noise level	65dB(A)
	Maximum cycle rate	≤1C@40℃
	Maximum cycle efficiency	92%
	Depth of charge and discharge	0~100%
	System battery configuration	240S1P
	Protection degree	IP55
	Power consumption standby	≤150 W
	Auxiliary power supply	176~300Vac
	Communication port	Ethernet / Optical fiber
	Communication protocol	Modbus TCP
Environmental Specifications	Operating temperature range	-30 °C ~ 55 °C (> 50℃ Derating)
	Storage temperature range	-35°C ~ 60 °C
	Operating humidity range	5~95%RH
	Maximum operating altitude	4,000m
	Lightning protection	Type II (DC port)
	Heat dissipation mode	Hybrid cooling
	EMC protection rating	Class A
	Environment	RoHS6
Smart Security Mode	Balance mode	Pack-level active balance
	SOC calibration mode	Automatic
	Fire suppression mode	Directional gas exhaust, Top explosion vent, Aerosol
	Protection mode	Residual current detection, insulation resistance detection, DC overcurrent protection, and DC cable connection protection
Battery Parameters (DC)	Cell material	LFP
	Rated battery capacity	280Ah
	Battery configuration	(1P60S)4S
	Operating voltage range	648~864 V
	Rated voltage	768A
Compliance	Certification standards	IEC62619；IEC62477-1；UN38.3...

DC Power Distribution Cabinet Specifications

Basic Specifications	Model type	PDC 820 293-DC N
	Rated voltage	820Vdc
	Rated current	293A
	Dimensions (W x D x H)	650mm*350mm*1200mm
	Weight	≤200kg
	Noise level	≤55dBA@1m
	Number of access paths	2
	Entry and exit methods	Inlet and outlet at the bottom
	Protection degree	IP55
	Communication methods	RS485
	Life cycle	≥10 Years
Environmental Specifications	Operating temperature range	-30 °C ~ 50 °C
	Operating humidity range	5~95%RH
	Maximum operating altitude	4,000m
	Installation requirements	Floor-mounted
	Lightning protection	10/20kA,8/20us
	Heat dissipation mode	Natural heat dissipation
	EMC protection rating	Class A
	DC leakage protection	Support
	Short circuit protection	Support
Compliance	Certification standards	CE

5MWh Energy Storage System

Huawei's Smart String Grid-Forming Energy Storage System manages the charging and discharging of DC energy received from the external power grid through the intelligent energy storage controller. Designed for solar, storage, and charging scenarios, a single energy storage system can reach up to 5 MWh of battery capacity.

5MWh Energy Storage Specifications

Technical Specifications	Model Type	LUNA2000-5015-2S
	Battery Rack Model	LUNA2000-835-2R
	Nominal Energy per Box	5015 kWh
	Nominal power of the entire container	2507.5 kW
	Number of battery packs in the container	6
	Total weight of the container	≤42t *1
	Protection level of the container	IP55
	Container dimensions (width × height × depth)	20 feet: 6058mm × 2896mm × 2438mm
	Battery temperature control method	Liquid cooling
	Rated voltage of a single battery cluster	1331.2V
	Single battery cluster voltage range	1123V ~ 1497.6V
	Nominal energy of a single battery cluster	836 kWh
	Supported charge/discharge rate	≤0.5 CP @ 45° C
	Nominal power per cluster	418 kW
	Rated charge/discharge current per cluster	314 A
	Rated Voltage of Single Battery Cluster	1331.2V
	Balancing Method within the Cluster	Passive balancing between cells + Active balancing between PACKs *2
	Operating Temperature Range of the Entire System	-30° C to +55° C
	Storage Temperature Range for the Entire Unit	-40° C to +60° C
	Operating Humidity Range for the Entire Unit	0~100% (no condensation)
	EMC requirements for the entire unit	Class A
	Noise requirements for the entire unit	75 dBA @ 25° C
	Maximum operating altitude of the entire unit	4700m *3
	Coolant type	Ethylene glycol water solution
	Electrical protection	RCD Detection Protection, ISO Detection Protection
	System Communication Interface	Fiber Optic/Ethernet
	System Communication Protocol	Modbus TCP
	Power Communication Interface	CAN
	Certification Standards	IEC/EN 62477-1, EN 55011/CISPR 11, UL 9540A; UN38.3, etc.

*1 Weight reduction scenario for transportation: weight after reduction ≤ 30.5t.
*2 Supported only on certain models, depending on whether the battery pack has an active balancing interface.
*3 Supported only on certain models, as indicated by the nameplate on the side of the container.

SUN2000-30/40KTL-M3

Smart PV Controller

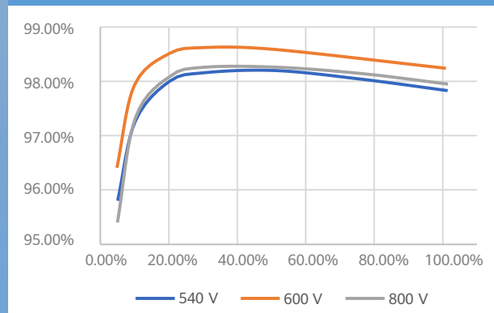
Smart
8 strings intelligent monitoring

Efficient
Max. efficiency 98.7%

Safe
Fuse free design

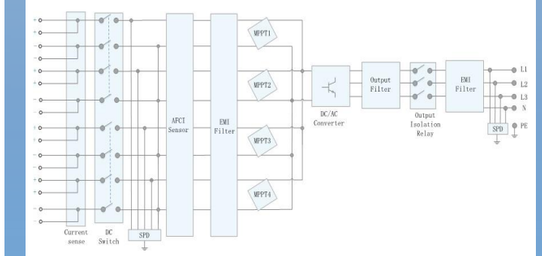
Reliable
Type II surge arresters for DC & AC

Efficiency Curve



SUN2000-30/40KTL-M3

Circuit Diagram



Technical Specification

		SUN2000-30KTL-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	27 A (per MPPT) / 20 A (per Input)	
	Max. Short Circuit Current per MPPT	40 A	
	Start Voltage	200 V	
	MPPT Operating Voltage Range *2	200 V ~ 1000 V	
	Rated Input Voltage	600 V	
	Number of Inputs	8	
	Number of MPP Trackers	4	
Output	Rated AC Active Power	30,000 W	40,000 W
	Max. AC Apparent Power	33,000 VA *3	44,000 VA
	Rated Output Voltage	230 Vac / 400 Vac / 480 Vac, 3W/N+PE	
	Rated AC Grid Frequency	50 Hz / 60 Hz	
	Rated Output Current	43.3 A	57.8 A
	Max. Output Current	47.9 A	63.8 A
	Adjustable Power Factor Range	0.8 LG ... 0.8 LD	
	Max. Total Harmonic Distortion	< 3%	
Protection	Input-side Disconnection Device	Yes	
	Anti-islanding Protection	Yes	
	AC Overcurrent Protection	Yes	
	DC Reverse-polarity Protection	Yes	
	PV-array String Fault Monitoring	Yes	
	DC Surge Arrester	Yes	
	AC Surge Arrester	Yes	
	DC Insulation Resistance Detection	Yes	
	Residual Current Monitoring Unit	Yes	
	Arc Fault Protection	Yes	
	Ripple Receiver Control	Yes	
	Integrated PID Recovery *3	Yes	
Communication	Display	LED Indicators, Integrated WLAN + FusionSolar APP	
	RS485	Yes	
	Smart Dongle	WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)	
General Data	Dimensions (W x H x D)	640 x 530 x 270 mm (25.2 x 20.9 x 10.6 inch)	
	Weight (with mounting plate)	43 kg (94.8 lb)	
	Operating Temperature Range	-25 ~ + 60 °C (-13 °F ~ 140 °F)	
	Cooling Method	Natural Convection	
	Max. Operating Altitude	4,000 m (13,123 ft.) (Derating above 2000 m)	
	Relative Humidity	0% RH ~ 100% RH	
	DC Connector	Amphenol Helios H4	
	AC Connector	Waterproof Connector + OT/DT Terminal	
	Protection Degree	IP 66	
	Topology	Transformerless	
	Nightime Power Consumption	≤ 5.5W	
Optimizer Compatibility	DC MBUS Compatible Optimizer	SUN2000-450W-P2, SUN2000-600W-P,MERC-1100W/1300W-P	
Standard Compliance (more available upon request)	Safety	EN 62109-1/-2, IEC 62109-1/-2, 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)

SUN2000-50KTL-M3

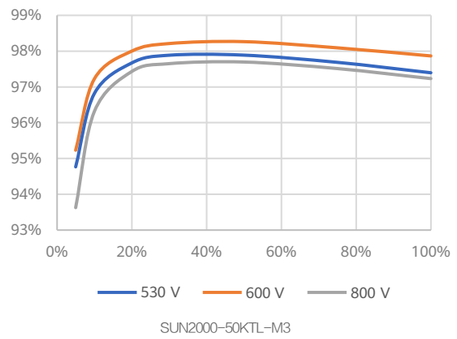
Smart PV Controller

Higher Yields
Up to 30% More Energy with Optimizer

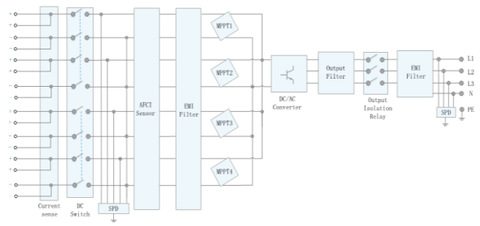
Active Safety
AI2Powered Active Arcing Protection

Flexible Communication
WLAN, Fast Ethernet, 4G Communication Supported

Efficiency Curve



Circuit Diagram



Technical Specification

Efficiency	Max. Efficiency	98.5%
	European Efficiency	98.0%
Input	Max. Input Voltage *1	1,100 V
	Max. Current per MPPT	30 A
	Max. Current per Input	20 A
	Max. Short Circuit Current per MPPT	40 A
	Start Voltage	200 V
	MPPT Operating Voltage Range *2	200 V ~ 1,000 V
	Rated Input Voltage	600 V
	Number of Inputs	8
	Number of MPP Trackers	4
Output	Rated AC Active Power	50,000 W
	Max. AC Apparent Power	55,000 VA
	Max. AC Active Power (cosϕ=1)	55,000 W
	Rated Output Voltage	400 Vac / 480 Vac, 3W+(N) + PE
	Rated AC Grid Frequency	50 Hz / 60 Hz
	Rated Output Current	72.2 A @ 400Vac, 60.1 A @ 480Vac
	Max. Output Current	79.8 A @ 400Vac, 66.5 A @ 480Vac
	Adjustable Power Factor Range	0.8 LG ... 0.8 LD
	Max. Total Harmonic Distortion	<3%
Protection	Input-side Disconnection Device	Yes
	Anti-islanding Protection	Yes
	AC Overcurrent Protection	Yes
	DC Reverse-polarity Protection	Yes
	PV-array String Fault Monitoring	Yes
	DC Surge Arrester	Type II
	AC Surge Arrester	Type II
	DC Insulation Resistance Detection	Yes
	Residual Current Monitoring Unit	Yes
	Arc Fault Protection	Yes
	Ripple Receiver Control	Yes
	Integrated PID Recovery *3	Yes
Communication	Display	LED Indicators, WLAN + 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)	49 kg (108.1 lb)
	Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
	Cooling Method	Smart Air Cooling
	Max. Operating Altitude	4,000 m (13,123 ft.)
	Relative Humidity	0% RH ~ 100% RH
	DC Connector	Amphenol HH4
	AC Connector	Waterproof Connector + OT/DT Terminal
	Protection Degree	IP 66
	Topology	Transformerless
	Nighttime Power Consumption	≤ 5.5W
Standard Compliance (more available upon request)	Safety	EN 62109-1/-2, IEC 62109-1/-2, IEC 62116, IEC 60068, IEC 61683
	Grid Connection Standards	IEC 61727, VDE-AR-N4105, VDE 0126-1-1, BDEW, G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, RD 661, RD 1699,P.O. 12.3,RD 413, EN-50438-Turkey, EN-50438-Ireland, C10/11, MEA, Resolution No.7, NRS 097-2-1, DEWA

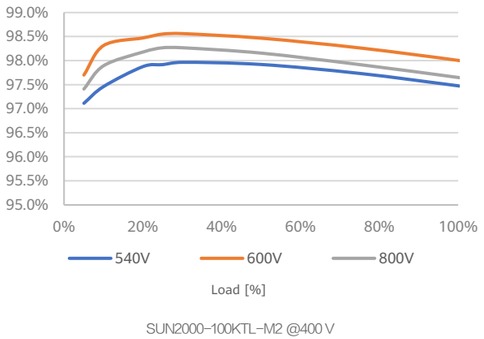
*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*2 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
*3 SUN2000-30~50KTL-M3 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly),N-type (nPERT, HIT)

SUN2000-100KTL-M2

Smart PV Controller

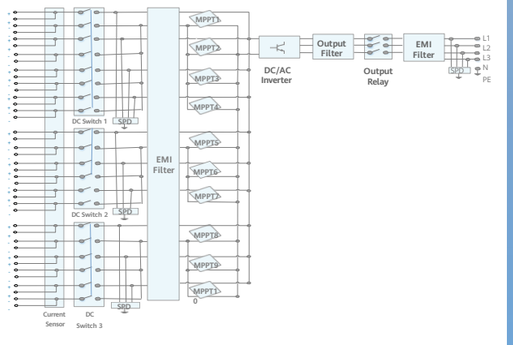
- Surge Arresters for DC & AC
- 98.8% (@480V) Max. Efficiency
- IP66 Protection
- Smart I-V Curve Diagnosis Supported
- String-level Management
- 10 MPP Trackers
- MBUS Supported
- Support AFCI & Smart String Level Disconnector

Efficiency Curve



SUN2000-100KTL-M2 @400 V

Circuit Diagram



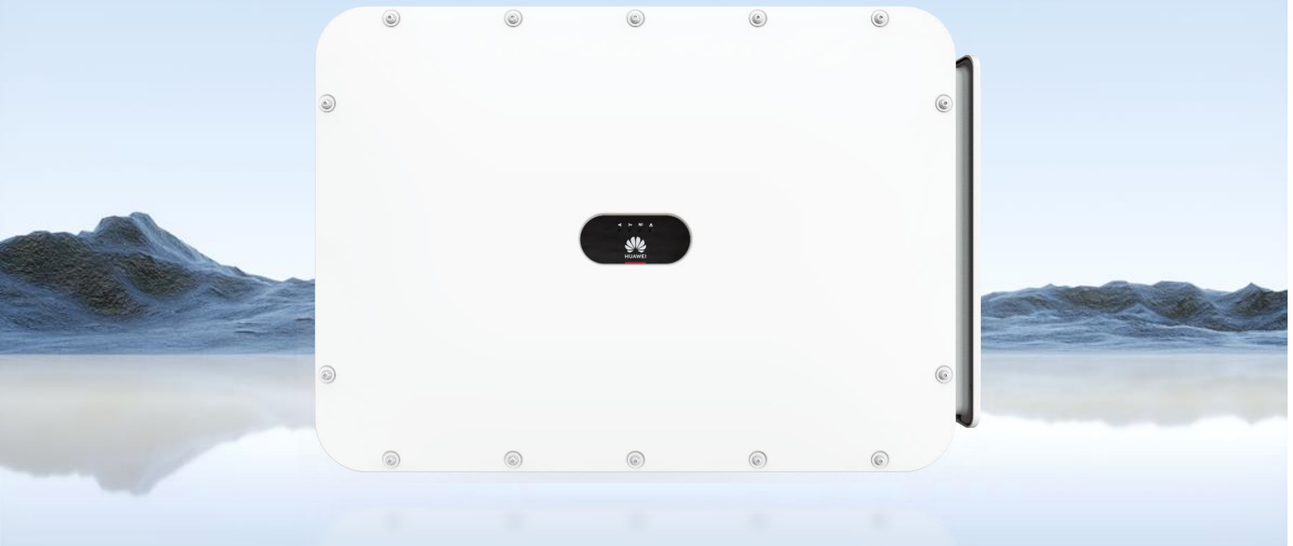
Technical Specification

Efficiency	Max. efficiency	98.6% @ 400 V, 98.8% @ 480 V
	European efficiency	98.4% @ 400 V, 98.6% @ 480 V
Input	Max. Input Voltage *1	1,100 V
	Max. Current per MPPT	30 A
	Max. Current per Input *3	20 A
	Max. Short Circuit Current per MPPT	40 A
	Start Voltage	200 V
	MPPT Operating Voltage Range *2	200 V ~ 1,000 V
	Nominal Input Voltage	600 V @ 400 Vac, 720 V @ 480 Vac
	Number of MPP trackers	10
	Max. input number per MPP tracker	2
Output	Nominal AC Active Power	100,000 W
	Max. AC Apparent Power	110,000 VA
	Max. AC Active Power (cosϕ=1)	110,000 W
	Nominal Output Voltage	380 V/ 400 V/ 480 V, 3W+(N)+PE
	Rated AC Grid Frequency	50 Hz / 60 Hz
	Nominal Output Current	144.4 A @ 400 V, 120.3 A @ 480 V
	Max. Output Current	160.4 A @ 400 V, 133.7 A @ 480 V
	Adjustable Power Factor Range	0.8 leading... 0.8 lagging
	Max. Total Harmonic Distortion	< 3%
Protection	Input-side Disconnection Device	Yes
	Anti-islanding Protection	Yes
	AC Overcurrent Protection	Yes
	DC Reverse-polarity Protection	Yes
	PV-array String Fault Monitoring	Yes
	DC Surge Arrester	Type II
	AC Surge Arrester	Type II
	DC Insulation Resistance Detection	Yes
	Residual Current Monitoring Unit	Yes
	Arc Fault Protection	Yes
	Smart String Level Disconnector	Yes
Communication	Display	LED indicators; FusionSolar APP
	RS485	Yes
	USB	Yes
	Smart Dongle	Smart Dongle – 4G / Smart Dongle – WLAN-FE (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, IEC 62116, IEC 61727, IEC 60068, IEC 61683
	Grid Connection Standards	VDE-AR-N4105, EN 50549-1, EN 50549-2, RD 661, RD 1699, C10/11

*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*2 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
*3 Single-string access.

SUN2000-150K-MG0

Smart PV Controller



PV Ground-Fault Protection

Arc Fault Protection

PID Recovery

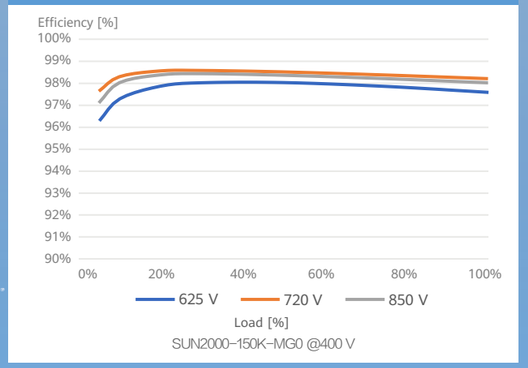
Smart Connector Temperature Detector

Smart String Level Disconnector

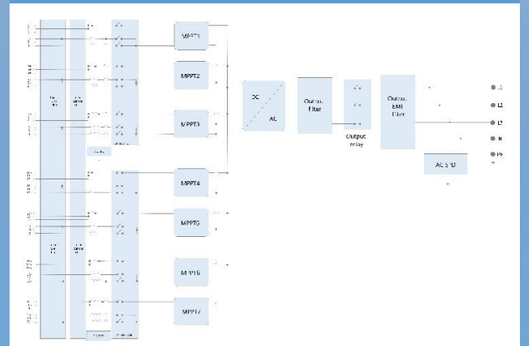
MBUS

MBUS

Efficiency Curve



Circuit Diagram



Technical Specification

Efficiency	Max. efficiency	98.6% @400V, 98.8% @480V
	European efficiency	98.4%
Input	Max. Input Voltage *1	1,100 V
	Max. Current per MPPT	48A
	Max. Current per Input	23A
	Max. Short Circuit Current per MPPT	66A
	Start Voltage	200 V
	MPPT Operating Voltage Range *2	200 V ~ 1,000 V
	Number of MPP trackers	7
	Max. input number per MPP tracker	3
Output	Nominal AC Active Power	150,000 W
	Max. AC Apparent Power	165,000 VA
	Max. AC Active Power (cosϕ=1)	165,000 W
	Nominal Output Voltage	380 V/400 V/480Vac
	Rated AC Grid Frequency	50 Hz / 60 Hz
	Nominal Output Current	227.9 A @380 V, 216.5 A @400 V, 180.4A @480Vac
	Max. Output Current	253.2 A @380 V, 240.5 A @400 V, 200.5A @480Vac
	Adjustable Power Factor Range	0.8 leading... 0.8 lagging
	alternating current THDi	< 1%
Protection	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
	Arc Fault Protection	Yes
	Terminal Temperature Detection	Yes
	PID Recovery	Yes
	PV Ground-Fault Protection	Yes
Communication	Display	LED indicators; FusionSolar APP
	RS485	Yes
	USB	Yes
	Smart Dongle-4G	Smart Dongle – 4G / WLAN (Optional)
	Monitoring BUS (MBUS)	Yes (isolation transformer required)
General Data	Dimensions (W x H x D)	1,000 x 710 x 395 mm
	Weight (without mounting plate)	≤ 99 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 HH4
	AC Connector	Waterproof Connector + OT/DT Terminal
	Protection Degree	IP66
	Topology	Transformerless
Standard Compliance (more available upon request)	Certificate	EN 62109-1/-2, IEC 62109-1/-2, 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

MERC-1100/1300W-P

Smart Module Controller

Higher Yields

Module-level Optimization
Increase System Energy
Yield by 5% to 30%

Flexible Design

Long String Design
to Reduce Bos

Active Safety

Safe Voltage Shutdown
Ensure Firefighting and
Maintenance Safety

Smart O&M

Pinpointing Open-
Circuit Fault for Quick
Troubleshooting

Technical Specification

		MERC-1100W-P	MERC-1300W-P
Input	Rated Input DC Power	1100W	1300W
	Max. Input DC Power	1155W *1	1430W *1
	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	Rated Output DC Power	1100W	1300W
	Max. Output DC Power	1155W	1430W *2
	Max. output voltage	80 V	
	Max. output current	22 A	
	Output bypass *3	Yes	
	Shutdown output voltage per optimizer *4	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 1.9 in.)	
	Weight (including cables)	1.0 kg (2.2 lb.)	
	Installation part (optional)	PV Module Frame Plate/T-shaped Bolt *5	
	Input connector	Staubli MC4	
	Input wire length	0.1 m (short input cable version) *6	
	Output connector	Staubli MC4	
	Output wire length	0.1 m (+), 5.1 m (–) (short input cable version) *6	
	Operating temperature/ humidity range	–40°C to +85°C *7/ 0%–100% RH	
	Degree of protection	IP68	
	Compatible Inverter	SUN2000-8/10/12/15/17/20KTL-M2; SUN2000-30/36/40KTL-M3 SUN2000-12/15/17/20/23/25KTL-M5; SUN2000-50KTL-M3	

String Configuration (Full Optimizer Configuration) *8/*9/*10 * MERC-1100/1300W-P support full optimizer configuration only	SUN2000-8~20KTL-M2	SUN2000-12~25KTL-M5	SUN2000-30~40KTL-M3	SUN2000-50KTL-M3
Minimum optimizers per string	8	8	8	8
Maximum optimizers per string	25	25	25	20
Maximum DC power per string	20,000 W	20,000 W	20,000 W	20,000 W

*1 MERC-1100W-P can connect to PV modules with power ≤605W at STC. MERC-1300W-P can connect to PV modules with power ≤800W at STC.

*2 When the ambient temperature around the optimizer is ≤60℃ and the module STC power is ≤715W, the MERC-1300W-P has no DC output power limit.

*3 Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.

*4 When the MERC -1100/1300W-P is disconnected from inverter or when the inverter is off, its output voltage will be 1 V.

*5 It is for PV module frame/extruded aluminum profile racking system installation.

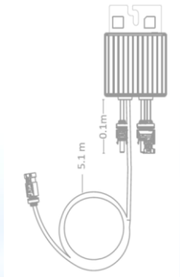
*6 Pay attention to PV module wire length. To match PV modules with a split junction box and short output wire, the long-input-cable version (input wire: 1.3 m(+/-); output wire 0.1m(+)/2.9m (-)) of MERC -1100/1300W-P is available upon request.

*7 When the operating temperature of the MERC -1100/1300W-P reaches 70 ℃ to 85 ℃, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without any damage.

*8 Each PV module under the same inverter must be equipped with a MERC -1100/1300W-P.

*9 SUN2000-450W-P2/600W-P and MERC -1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV controller.

*10 It is recommended that strings under the same inverter have an equal capacity. If it is not feasible, the capacity difference between strings under the same inverter must not exceed 2 kW. Otherwise, the energy yield will be reduced.



Short Input Cable Version

SmartLogger3000A

Smart
Smart zero export control design

Simple
Easy to install on site

Reliable
Safety by lightning protection module

Technical Specification

		SmartLogger3000A03EU	SmartLogger3000A01EU
Device Management	Max. Number of Connected Devices	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	
	MBUS	MBUS x 1, 115.2 kbps, Compatible with PLC	No MBUS Communication Interface
	2G / 3G / 4G *1	LTE(FDD): B1,B2,B3,B4,B5,B7,B8,B20DC-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	Communication by WLAN for Commissioning	
Environment	Operating Temperature Range	-40°C ~ 60°C (-40°F ~ 140°F)	
	Storage Temperature	-40°C ~ 70°C (-40°F ~ 158°F)	
	Relative Humidity (Non-condensing)	5% ~ 95%	
	Max. Operating Altitude	4,000 m (13,123 ft.)	
Electrical	AC Power Supply	100 V ~ 240 V, 50 Hz / 60 Hz	
	DC Power Supply	12 V / 24 V	
	Power Consumption	Typical 8 W, Max. 15 W	
Mechanical	Dimensions (W x H x D)	225 x 160 x 44 mm (8.9 x 6.3 x 1.7 inch, without mounting ears and antenna)	
	Weight	2 kg (4.4 lb.)	
	Protection Degree	IP20	
	Installation Options	Wall Mounting, DIN Rail Mounting, Tabletop Mounting	

*1: When putting inside metal box, extended antenna will be needed.
*2: For recommended carriers list and details on supported frequencies, please contact local distributors.

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
Support one-click commissioning Patented anti-PID module

Technical Specification

		SmartACU2000 D-D-00	SmartACU2000 D-D-02	SmartACU2000 D-D-01	SmartACU2000 D-D-03
Configuration	Smart Logger	SmartLogger3000B x 1			
	SmartModule1000A	Optional			Standard with SmartModule 1000A 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.

SPPC2000

Smart Power Plant Controller

POC PT/CT
Direct Sampling

PV&ESS
Synergy

Power Oscillation
Damping

Fast Power
Response

Technical Specification

		SPPC2000-A01	SPPC2000-A02
Device Management	Networking Mode	Active/Standby and Master-Slave Control Mode	
Features	Smart Reactive Power Compensation	System-level 30ms-40ms Dynamic Reactive Power Response	
	Low frequency oscillation suppression	0.1~2.5 Hz	
	Waveform Recording Function	Current/Voltage Instantaneous Value Recording, Rms Long-term Recording	
	Time Synchronization Function	IRIGB (≤ 1 ms) and Other Time Synchronization Protocols (e.g., NTP)	
	Breaker Status Acquisition and Control	Yes	
	Simulation Model	PSSE, DigSILENT, PSCAD	
	PT/CT Sampling current	1A	5A
Communication Interface	Ethernet	6 + 2	
	Optical Ethernet	SFP x 2, 100 / 1,000 Mbps	
	RS485	COM x 4	
	Current/Voltage Sampling	6U + 6I	
	CAN	2	
	Communication Protocol	Modbus-TCP, IEC60870-5-104, IEC 61850 GOOSE	
Interaction	WEB	Yes	
	HMI	SPMS2000 / SmarPVMS(Plant)	
General	Dual Power Supply	AC: 90 V ~ 264 V, 47 Hz ~ 63 Hz DC: 110 V ± 10%, 220 V ± 10%	
	Rated DC Power	60 W (Excluding Network Switches)	
	Rated AC Power	90W	
	Rated AC Input Frequency	50Hz/60Hz	
	DC/AC Surge Arrester	Type II	
	Current Sampling Precision	0.2%	
	Voltage Sampling Precision	0.2%	
	Power Precision	0.5%	
	Weight	≤ 80 kg (Without Pallet and Optional Components)	
	Dimensions (H x L x W)	1000 x 650 x 650 mm (Within Base 100mm)	
	Operating Temperature Range	-25℃ ~ 60℃ (free from sunlight)	
	Relative Humidity	0% ~ 100% (Non-condensing)	
	Max. Operating Altitude	4,000 m	
	Protection Degree	IP55	
	Anti-corrosion Protection	C5-Medium	
	Installation Options	Floor Mounting / Wall Mounting	