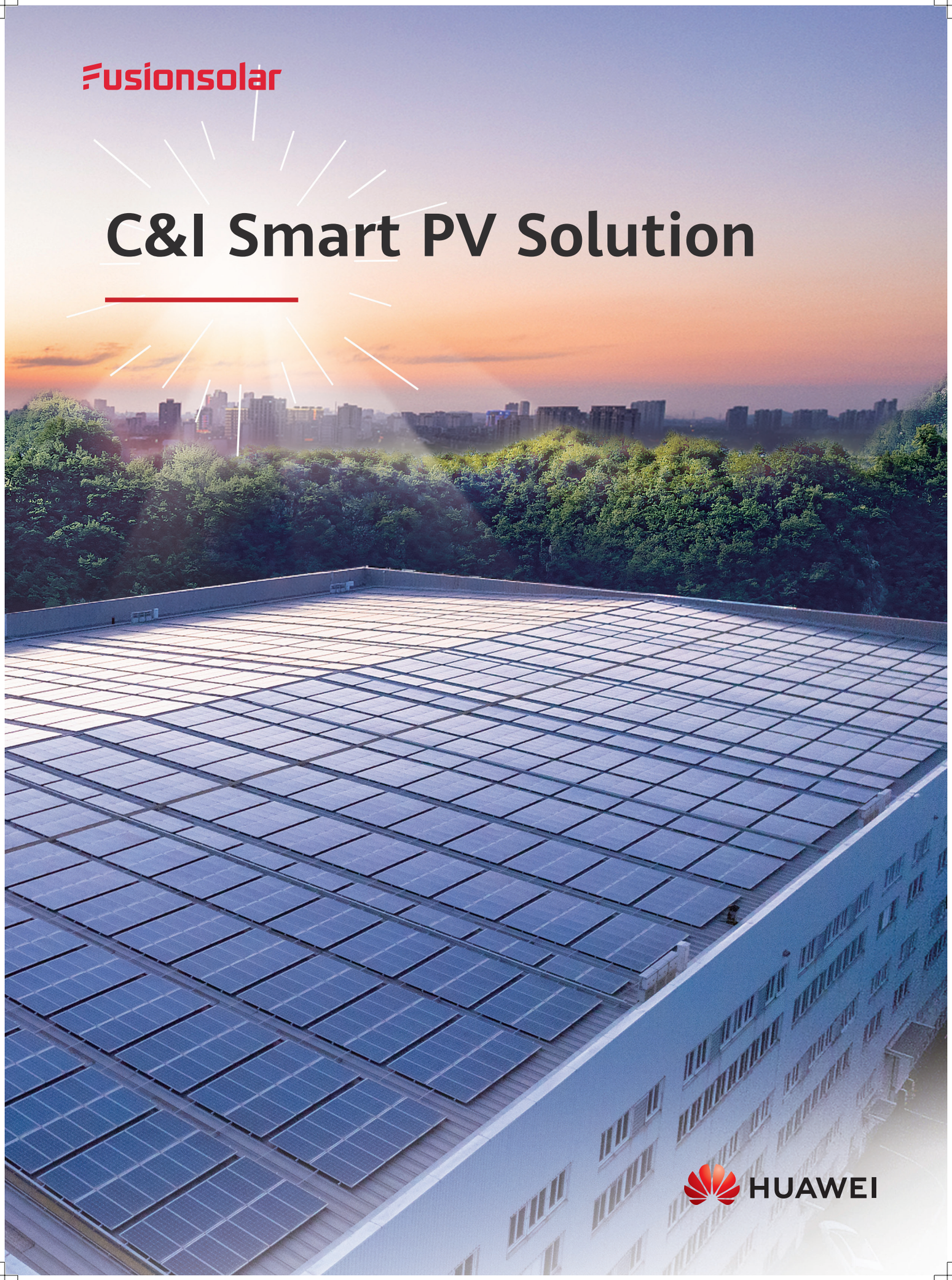
Fusionsolar

C&I Smart PV Solution



HUAWEI

SMART PV FOR GREENER FUTURE

Combine PV and energy storage, accelerating the green and smart PV to become a primary energy source for every home and organization.



695

Billion kWh Green Power Generated

330

Million Tons of CO_2 Emissions Reduced

451

Million Equivalent Trees Planted



FUSIONSOLAR FOR A SUSTAINABLE BUSINESS

FusionSolar launches C&I Smart PV Solution for business to meet different requirements of various industries, facilitating low-carbon transformation in thousands of industries and building sustainable business operations.





CONTENTS



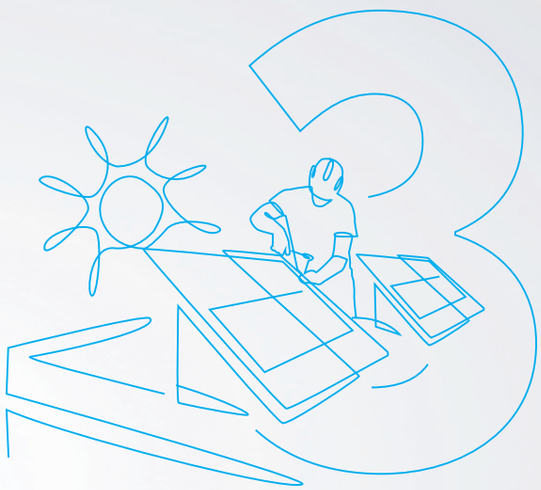
P12

SOLUTION VALUES



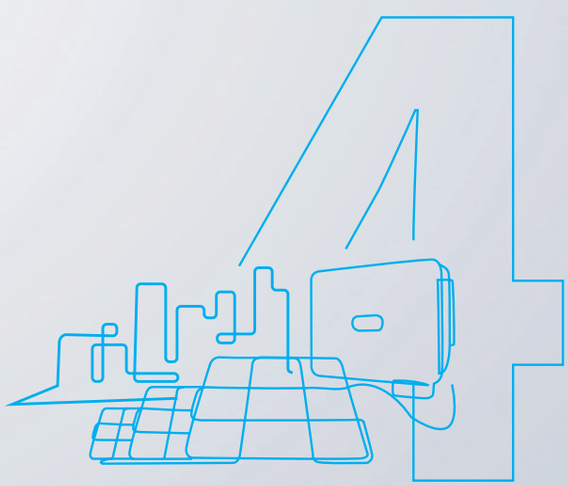
P24

CASE STUDY



P32

SERVICE



P34

PRODUCT PARAMETERS

C&I SMART PV SOLUTION

Active Safety

Optimal Electricity Cost



High Reliability

Smart O&M

3



PRODUCTS PORTFOLIO



Smart Module Controller

MERC-1100/1300W-P



Smart PV Controller

SUN2000-20/30/36/40KTL-M3
SUN2000-50KTL-M3
SUN2000-100KTL-M2
SUN2000-115KTL -M2



Smart String ESS

LUNA2000-200KWH-2H1



Smart Dongle

Smart Dongle-WLAN-FE
Smart Dongle-4G

SmartLogger

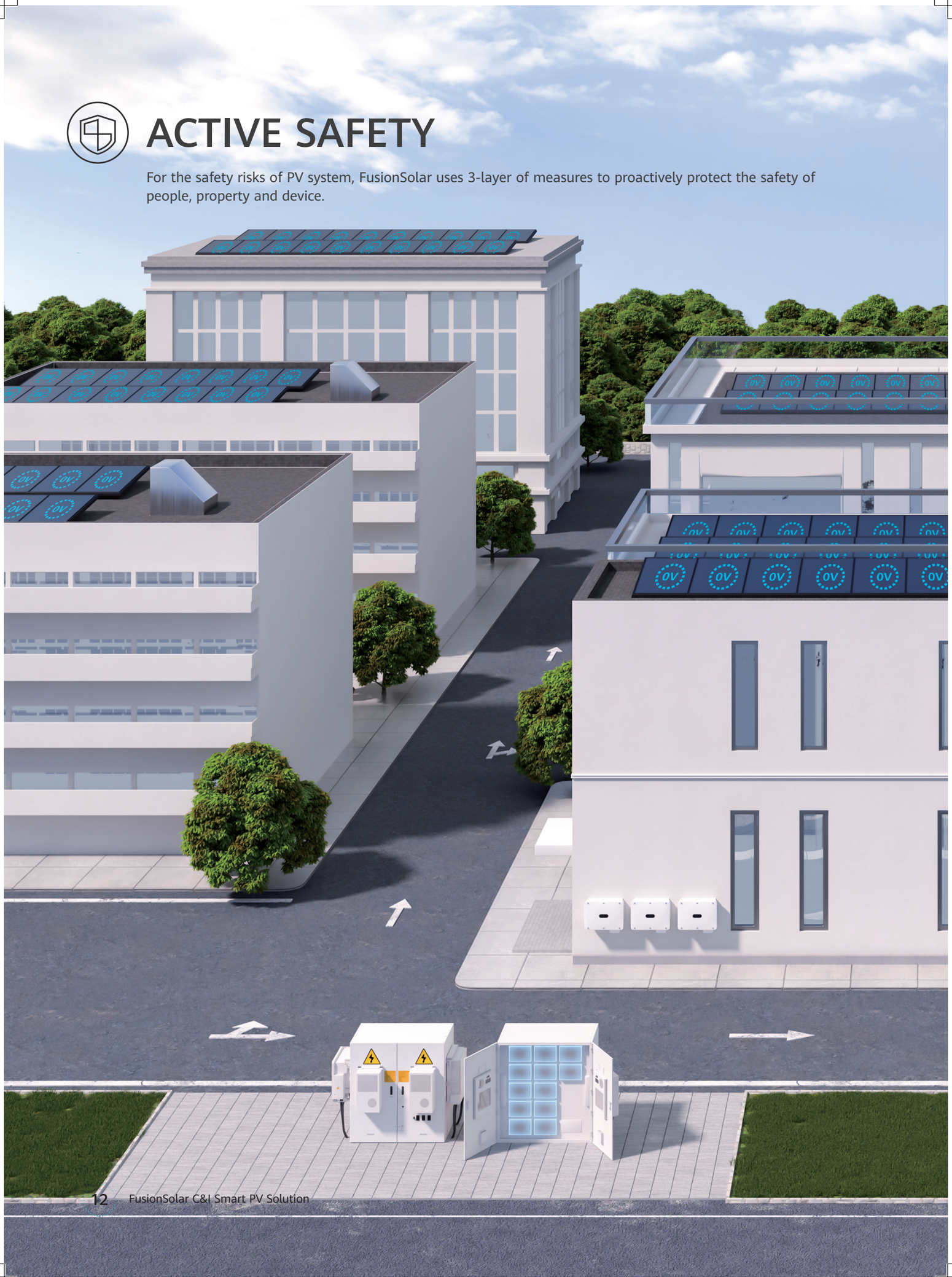
SmartLogger3000A

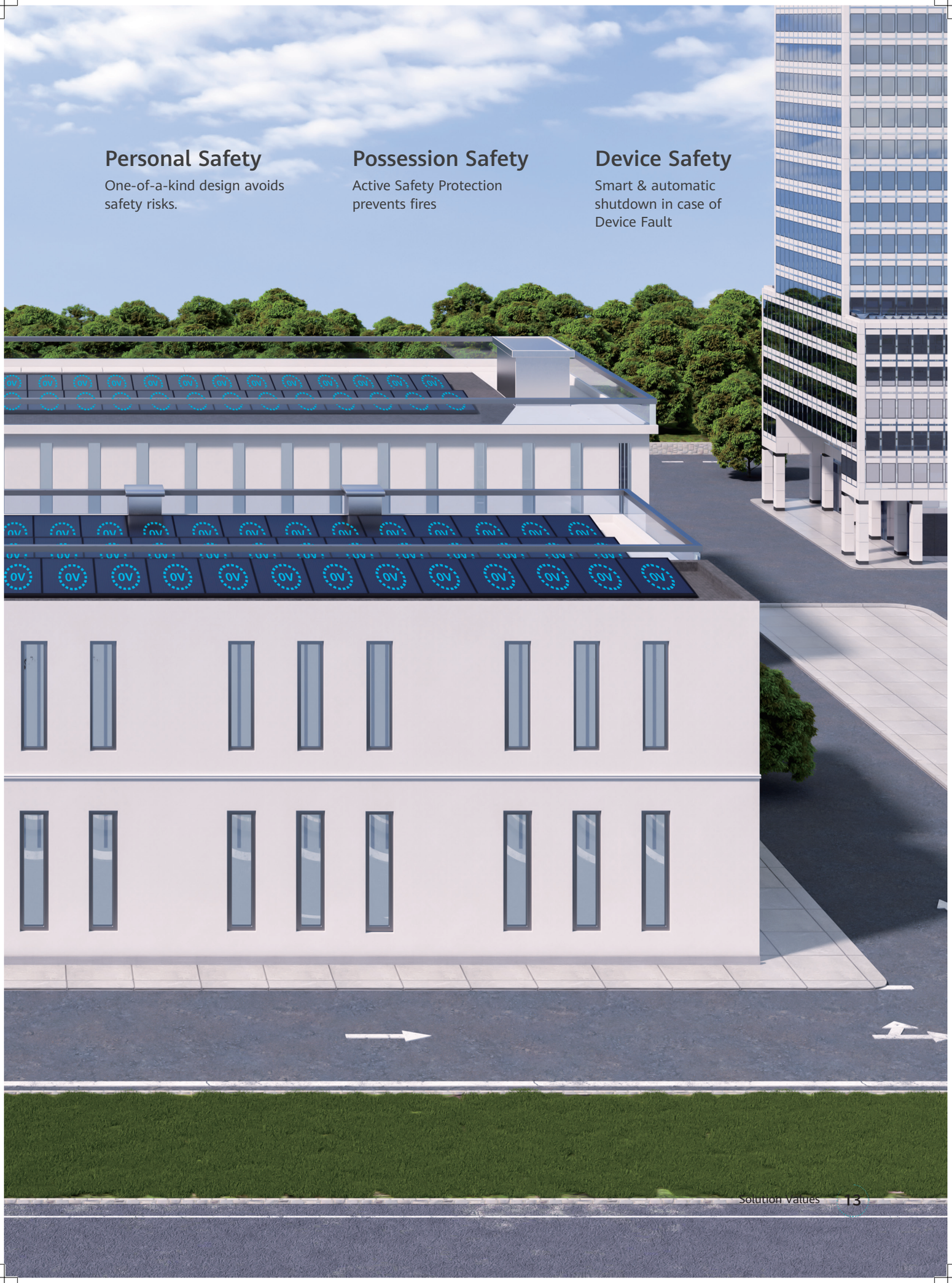
Smart Power Sensor

DDSU666-H
DTSU666-HW/YDS60-80

ACTIVE SAFETY

For the safety risks of PV system, FusionSolar uses 3-layer of measures to proactively protect the safety of people, property and device.




Personal Safety
One-of-a-kind design avoids safety risks.
Possession Safety
Active Safety Protection prevents fires
Device Safety
Smart & automatic shutdown in case of Device Fault
0V

REDEFINE SAFETY HEIGHT

SOLUTION VALUES

Device Safety

Smart String Level Disconnection

15ms auto-shutdown

VS

Manual shutdown

Smart Short-Circuit Detection

24h

pre-warning

Smart Connector Temperature Detector

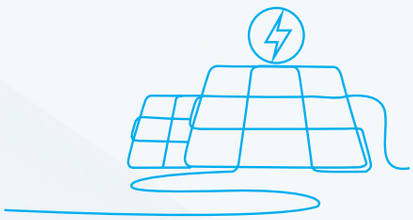
0.5s rapid shutdown

VS

No overtemperature detection

Smart ESS Temp Detection

- Temperature
- Voltage
- Battery Capacity



Possession Safety

Leading Arc-fault Circuit Interrupter Design

Detection Range

200m VS 80m

Shutdown Speed

0.5s VS 2.5s

MPPT Current

30A VS 16A

Compatible with 182/210 modules

ESS Active Isolation & Rapid Shutdown Function

Built-in optimizer

0V shutdown and fault isolation

DCDC controller

Rack-level isolation and over-current protection

Personal Safety

Module-level “0V” Rapid shutdown

Shutdown Speed

10s VS 30s

Shutdown Voltage

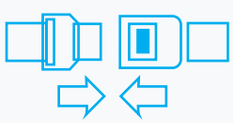
0V VS 1000V

Module-level Insulation Impedance Fault Location

Detection Precision

Module-level **VS** No fault locating

Directional Explosion Discharge



Airbag of the ESS

OPTIMAL ELECTRICITY COST

From PV modules to inverters to ESS, FusionSolar optimizes every link to achieve higher energy yield, enabling enterprises to operate economically sustainable.



Module-level Energy Optimization

More modules installed in the same space for higher energy yield.

Inverter-level Energy Optimization

Built-in PID recovery, reducing energy yield loss caused by potential induced degradation.

ESS-level Energy Optimization

Integrated battery pack optimizer, More power available.



SYSTEM-LEVEL OPTIMIZATION

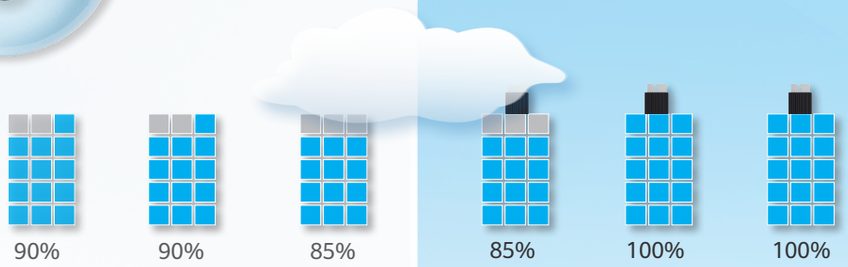
SOLUTION VALUES



Module-lever Optimization

5%-30%

Energy yield increase



Traditional solution:

PV module mismatch reduces the energy yield of the entire PV string.

FusionSolar solution:

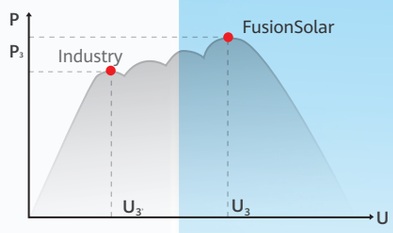
Leading module-level optimization, no fear of module mismatch, improving energy yield by up to 30%



Smart MPPT Algorithm

≥2%

Energy yield increase

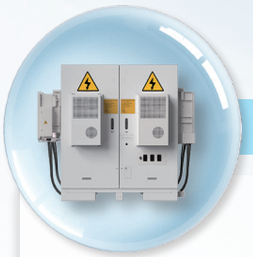


Traditional solution:

Difficult to track maximum power points due to solar irradiance changes

FusionSolar solution:

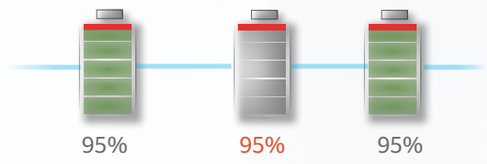
MPPT multi-peak scanning to accurately locate the maximum power point



Pack-level Optimization

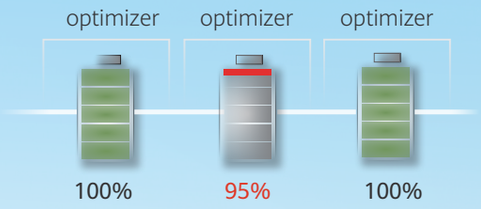
≥5%

More useable energy



Traditional solution:

Battery series mismatch (factory, temperature, and attenuation difference) leads to loss of available energy storage capacity, insufficient charging, and incomplete discharge.



FusionSolar solution:

Integrated battery pack optimizer, each battery pack can be fully charged without affecting each other.



Built-in PID Recovery

≥3%

Energy yield increase



Without PID recovery

Traditional solution:

Influenced by the PID effect,the performance of PV modules deteriorates significantly, resulting in energy yield loss.



With PID recovery

FusionSolar solution:

Built-in PID recovery ensures PV module performance and improves energy yield.

HIGH RELIABILITY

Faced with different harsh environments, FusionSolar uses the triple reliability design to ensure system stability and uninterrupted service operation.



Reliable Design

Up to 99.999% availability, no replacement required within its lifecycle.

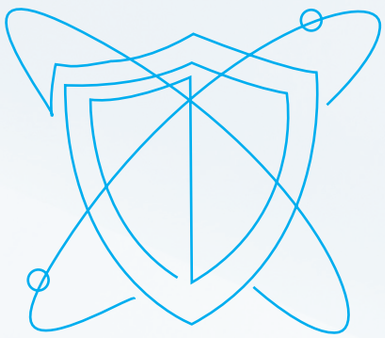
Reliable Performance

Fulfilling every commitment

Reliable power supply

Dependable power supply in on-grid and off-grid scenarios





ALL-ROUND RELIABILITY

SOLUTION VALUES

Reliable Design

Selection of high-quality materials

Backed by strict standards of certification and evaluation methods, fits different application scenarios

Design against risks

Industry's only comprehensive simulation system predicts risks to inform design improvements.

Test to the limit

1400+

Test cases

6

harsh field conditions

Detailed check to prevent faults

Aging test + Ongoing reliability testing (ORT)



Reliable Performance

Electromagnetic Compatibility Protection

The product parameters and technical specifications are well-tested, meeting 100% of the EMC standards

- **High shielding material**

  Ensur "watertight" and does not interfere with the outside world

- **Magnetic ring + Filter board**

  Double intense protection

- **Smart algorithm**

  Noise reduction at the source



Reliable Power Supply

On-grid reliability

Actively suppress current harmonics and improve grid-connected power quality of PV plants. Lower harmonics, better power quality

THDi

1% VS 3%

Off-grid reliability

Capable of powering important equipment in off-grid scenarios to ensure safe energy usage of enterprises.

- **Black start**

  One-click array-level black start with higher load capacity

- **High ratio of PV and ESS**

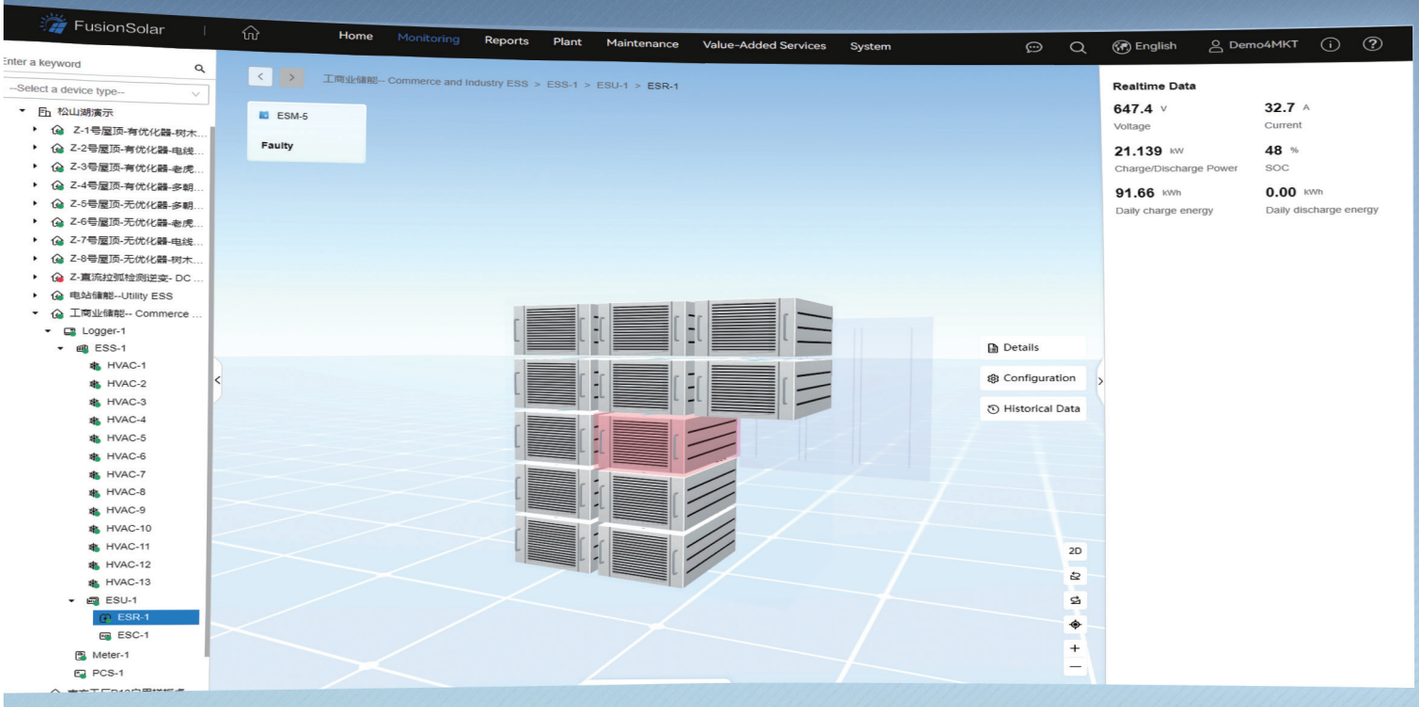
  Stable power supply at 2:1 high ratio of PV and ESS

- **Microgrid adaptability**

  The intelligent algorithm is able to sense microgrid situations.

SMART O&M

The Smart PVMS enables real-time visualization and management of all devices and smart optimization, reducing O&M costs and improving O&M experience.







Unified Platform

The Smart PVMS implements unified management of all products in all scenarios, including optimizers, inverters, and ESS.

Smart Optimization

Module-level monitoring, Auto SOC calibration, Smart I-V Curve Diagnosis online detection.

Online Upgrade & Future Evolution

Module-level IV diagnose, VPP, Carbon trading, Grid dispatching.

O&M CORE TECHNOLOGY

SOLUTION VALUES

Operation

Refined management and visibility of possession online

Centralized visibility



Device information is viewable online via a unified platform, facilitating one-stop management of all scenarios and products

Design Tools



Simplify power station design and generate power station reports online

Module-level Monitoring

Frequent inspection :

2-3 times /quarter

Intelligent inspection :

NO Manual inspection

Smart I-V Curve Diagnosis

Traditional solution:

Low precision:

70% accuracy

Poor report availability:

No fault analysis or O&M solution reference is available

FusionSolar solution:

High precision:

>95% accuracy

High report availability:

Provide fault diagnosis reports and fault O&M solutions.



Maintenance

Simplified process and efficient maintenance of equipment

Automatic Generation of Physical Layout Diagrams



Manual Drawing



Auto Draw

Upgrades at Ease

- WiFi Local upgrade
- App commissioning

Automatic SOC Calibration

Traditional solution:

High cost:

CNY 2000/time

Reduced benefits:

ESS shutdown during calibration

Low precision:

Manual calibration

FusionSolar solution:

0 cost:

No need for experts to visit sites

0 time consumption:

Auto-calibration does not stop

High precision:

Intelligent algorithms ensure accuracy

Battery Pack-level Fault Location



Intelligent BMS

BMS enables quick location of battery pack-level faults

CASES STUDY

Green & Sustainable Solar Business Park





1.5 MW

Solar Park @Austria

System configuration:

SUN2000-100KTL-M1, SUN2000-60KTL-M0

ROI: 3.5 Years

Energy Yield: 1.5 Million kWh/Year

Carbon Reduction: 1469 Tons/Year

Integration of PV + ESS + charger





40kW PV + 200kWh

Charging station @China

System configuration:

SUN2000-20KTL-M2, LUNA2000-200KWH-2H1

ROI: 6 years

Benefit: CNY60000/Year

Carbon Reduction: 1.7 Tons/Year

SERVICE

Online scheduling of over **130 s**pare parts warehouses worldwide **7 x 24**

100,000+ spare parts product types and 1+ million spare parts inventory



The on-time requirement fulfillment rate is greater than **95%**



Hotline Service

Hotline service 7 × 24 hours without closing, 365 days without dead ends

Remote support

Professional engineers provide online guidance for troubleshooting.

Spare Parts Service

Local coverage of spare parts warehouses to provide timely and accurate spare parts services.

Training Services

Provide online training for all optical storage products

Maintenance Services

Complete maintenance services to extend service life as needed.

SUN2000-30/36/40KTL-M3

SMART PV CONTROLLER



Smart

8 strings intelligent monitoring

Efficient

Max. efficiency 98.7%

Safe

Fuse free design

Reliable

Type II surge arresters for DC & AC

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	27 A (per MPPT) / 20 A (per Input)		
Max. Short Circuit Current per MPPT	40 A		
Start Voltage	200 V		
MPPT Operating Voltage Range [2]	200 V ~ 1000 V		
Rated Input Voltage	600 V		
Number of Inputs	8		
Number of MPP Trackers	4		
Output			
Rated AC Active Power	30,000 W	36,000 W	40,000 W
Max. AC Apparent Power	33,000 VA [3]	40,000 VA	44,000 VA
Rated Output Voltage	230 Vac / 400 Vac / 480 Vac, 3W/N+PE		
Rated AC Grid Frequency	50 Hz / 60 Hz		
Rated Output Current	43.3 A	52.0 A	57.8 A
Max. Output Current	47.9 A	58.0 A	63.8 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD		
Max. Total Harmonic Distortion	< 3%		
Protection			
Input-side Disconnection Device	Yes		
Anti-islanding Protection	Yesx		
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, 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 3. 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

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 @ 400Vac, 60.1 A @ 480Vac	
Max. Output Current	79.8 A @ 400Vac, 66.5 A @ 480Vac	
Adjustable Power Factor Range	0.8 LG ... 0.8 LD	
Max. Total Harmonic Distortion	<3%	
Protection		
Input-side Disconnection Device	Yes	
Anti-islanding Protection	Yes	
AC Overcurrent Protection	Yes	
DC Reverse-polarity Protection	Yes	
PV-array String Fault Monitoring	Yes	
DC Surge Arrester	Type II	
AC Surge Arrester	Type II	
DC Insulation Resistance Detection	Yes	
Residual Current Monitoring Unit	Yes	
Arc Fault Protection	Yes	
Ripple Receiver Control	Yes	
Integrated PID Recovery [3]	Yes	
Communication		
Display	LED Indicators, Bluetooth + APP	
RS485	Yes	
Smart Dongle	WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional)	4G / 3G / 2G via Smart Dongle-4G (Optional)
Monitoring BUS (MBUS)	Yes (Isolation Transformer required)	
Optimizer Compatibility		
DC MBUS Compatible Optimizer	MERC-1100/1300W-P	
General Data		
Dimensions (W x H x D)	640 x 530 x 270 mm (25.2 x 20.9 x 10.6 inch)	
Weight (with mounting plate)	49 kg (108.1 lb)	
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)	
Cooling Method	Smart Air Cooling	
Max. Operating Altitude	4,000 m (13,123 ft.)	
Relative Humidity	0% RH ~ 100% RH	
DC Connector	Amphenol HH4	
AC Connector	Waterproof Connector + OT/DT Terminal	
Protection Degree	IP 66	
Topology	Transformerless	
Nighttime Power Consumption	≤ 5.5W	
Standard Compliance (more available upon request)		
Safety	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 60068, IEC 61683	
Grid Connection Standards	IEC 61727, VDE-AR-N4105, VDE 0126-1-1, BDEW, G59/3, UTE C 15-712-1, CEI 0-16, CEI 0-21, RD 661, RD 1699,P.O. 12.3,RD 413, EN-50438-Turkey, EN-50438-Ireland, C10/11, MEA, Resolution No.7, NRS 097-2-1, DEWA	

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

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

*3 SUN2000-30~50KTL-M3 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly),N-type (nPERT, HIT)

SUN2000-100/115KT-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

Technical Specification	SUN2000-100/115KTL-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	100,000/115,000 W
Max. AC Apparent Power	110,000/125,000 VA
Max. AC Active Power (cosϕ=1)	110,000/125,000 W
Nominal Output Voltage	400 V/ 480 V, 3W+(N)+PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	144.4/166.0 A @ 400 V, 120.3/138.4 A @ 480 V
Max. Output Current	160.4/182.3 A @ 400 V, 133.7/151.9 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
Arc Fault Protection	Yes(100K)
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, VDE 4110, EN 50549-1, EN 50549-2, RD 661, RD 1699, C10/11

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

LUNA2000-200KWH-2H1

SMART STRING ESS



More Energy

Simple O&M

Safe & Reliable

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

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

Module Auto-Mapping

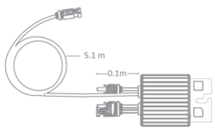
Temperature Detection Safety Enhanced

1V Safe Voltage Shutdown Easier for Detection

Arc Fault Pinpoint Positioning Along PV Cable

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	SUN2000-8/10/12/15/17/20KTL-M2 SUN2000-20/29.9/30/36/40KTL-M3 SUN2000-12/15/17/20/23/25KTL-M5 SUN2000-50KTL-M3	

String Configuration (Full Optimizer Configuration) * MERC-1100/1300W-P support full optimizer configuration only	SUN2000-12-20KTL-M2		SUN2000-12-25KTL-M5		SUN2000-20-40KTL-M3		SUN2000-50KTL-M3
Minimum optimizers per string	6		6		6		6
Maximum optimizers per string	25		25		25		20
Recommend strings per inverter * Only one string can be connected to each MPPT. * The DC/AC ratio is 1.0 to 1.3 for this recommended configuration. For other ratios, refer to the user manual.	12KTL	15-20KTL	12KTL	15-25KTL	30/36KTL	40KTL	4
	1	2	1	2	3	4	
Maximum DC power per string * It is recommended that strings have equal capacity. The capacity difference between strings should ≤ 2 kW. Otherwise, the energy yield might be adversely affected.	20,000 W		20,000 W		20,000 W		20,000 W



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.

SMART DONGLE-WLAN-FE



Smart

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

Simple

Plug & Play Support max. 10 devices

Reliable

IP65
Support auto reconnection

Technical Specification

Technical Specification	SDongleA-05(AP+STA)
General Data	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	2.5 W
Operation Mode	AP + STA
Encryption Algorithm	Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES
Wireless Parameter	
Supported standards & frequencies	802.11b/g/n (2.412G—2.484G)
Environment	
Operating temperature range	-30 °C to +65 °C (-22 °F to 149 °F)
Relative humidity range	5 - 95% RH
Storage temperature range	-40 °C to +70 °C (-40 °F to 158 °F)
Max. operating altitude	4,000 m (13,123 ft.)
Standard Compliance (more available upon request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Inverter Model	SUN2000-2/3/3.68/4/4.6/5/6-L1 SUN2000-3/4/5/6/8/10-M1 SUN2000-12/15/17/20KTL-M2 SUN2000-12/15/17/20/25KTL-M5 SUN2000-30/36/40/50KTL-M3 SUN2000-100/115KTL-M2 SUN2000-110KTL-INM2

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

Technical Specification	SDongleB-06-EU	SDongleB-06-AU	SDongleB-06-NH
General Data			
Max. Devices Supported	10		
Max. Inverters Supported	10		
Connection interface	USB		
Installation	Plug-and-play		
Indicator	LED Indicator		
Dimensions (W * H * D)	162*48*28mm		
Degree of protection	IP65		
Power consumption (typical)	3.5W		
Wireless Parameter			
Sim card type	mini-sim (15 mm*25 mm)		
Supported standards & frequencies [4]	LTE-FDD: B1/B3/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B3/B8/B18/B19/B26 LTE-TDD: B41 WCDMA: B1/B6/B8/B19
Wifi Operation Mode	AP		
Supported standards & frequencies	802.11b/g/n (2.412G—2.484G)		
Environment			
Operating temperature range	-30 °C to +65 °C (-22 °F to 149 °F)		
Relative humidity range	5 - 95% RH		
Storage temperature range	-40 °C to +70 °C (-40 °F to 158 °F)		
Max. operating altitude	4,000 m (13, 123 ft.)		
Standard Compliance (more available upon request)			
Certificate	CE	RCM	TELEC
Inverter Compatibility			
Inverter model	SUN600-5/6KTL-L0 SUN2000-2~6KTL-L1 SUN2000-3~10KTL-M1 SUN2000-8~20KTL-M2 SUN2000-12~25KTL-M5 SUN2000-20~50KTL-M3	SUN2000-50/60KTL-M0 SUN2000-63KTL-JPM0 SUN2000-75KTL-M1 SUN2000-100KTL-M0/M1 SUN2000-100KTL-INM0 SUN2000-110KTL-INM2 SUN2000-100/115KTL-M2	

*1 To ensure stable data transmission, Huawei suggests 4G dongle to be installed in areas with stable mobile signal (2G signal ≥4 bars, 3G/4G signal ≥3 bars).
*2 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.
*3 When all inverters support WLAN hotspot, hotspot of Dongle will be disabled by default.
*4 For recommended carriers list and details on supported frequencies, please contact local distributors.

SMARTLOGGER3000A



Smart

Smart zero export control design

Simple

Easy to install on site

Reliable

Safety by lightning protection module

Technical Specification

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,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	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 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.

SMARTLOGGER3000A



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/50mA
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	3P3W/3P4W	3P3W/3P4W
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			
Current / Voltage	±0.5 %		
Power / Energy	±1 %		
Frequency	±0.01 Hz		
Communication			
Interface	RS485		
Baud rate	9,600 bps		
Communication protocol	Modbus-RTU		
Environment			
Operating temperature range	-25°C ~ 60 °C		
Storage temperature range	-40 °C ~ 70 °C		
Operating humidity	5 %RH ~ 95 %RH (non-condensing)		
Others			
Accessories	RS485 Cable (10 m / 33 ft.)		
	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.)

HUAWEI

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