SUN2000-12-25KTL-M5



- Security Level:

HUAWEI



1

SUN2000-12-25KTL-M5

HUAWEI

Smart Energy Controller Your Magic PV Box

SUN2000-12-25KTL-M5

Available: Nov 2022



More Options

Full range optimizer supported

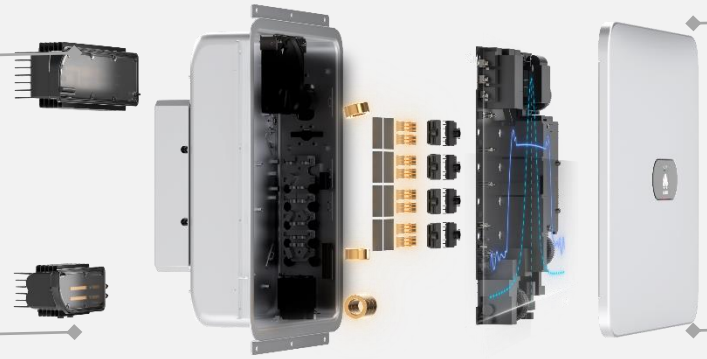
450W-1300W optimizer supported

Higher Compatibility

Support module power upgrade

MPPT Current **30A**

Support Module Impp **20A**



Higher Reliability

10-year warranty, 25-year design lifetime

IP65 → **IP66**

Easier Installation

1 person required

25KG → **21KG**

Specifications of SUN2000-12-25KTL-M5

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

Technical Specification

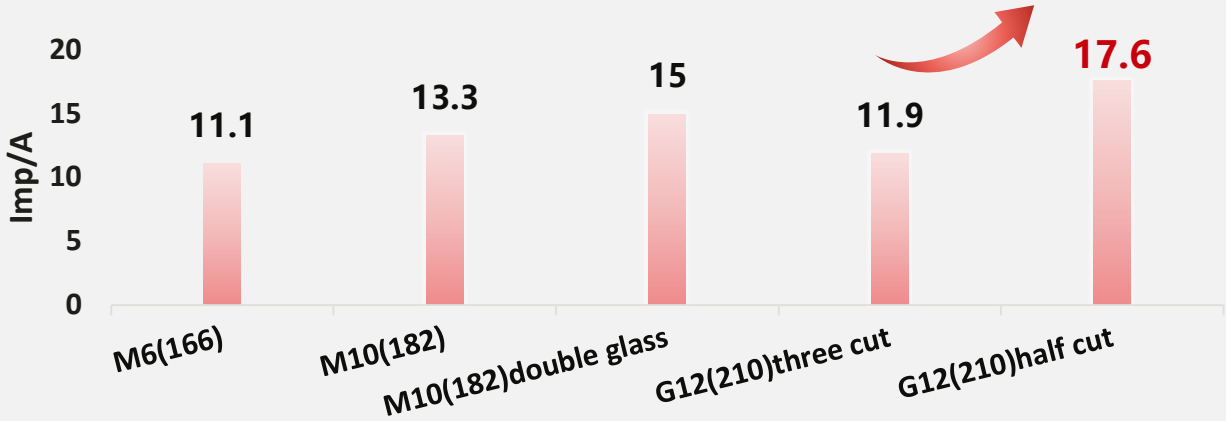
Technical Specification	SUN2000 -12KTL-M5	SUN2000 -15KTL-M5	SUN2000 -17KTL-M5	SUN2000 -20KTL-M5	SUN2000 -25KTL-M5
Efficiency					
Max. efficiency	98.4%	98.4%	98.4%	98.4%	98.4%
European weighted efficiency	97.9%	98.0%	98.1%	98.1%	98.2%
Input					
Recommended max. PV power [1]	18,000 Wp	22,500 Wp	25,500 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 %				

MPPT current upgradation

Support high power module better

SUN2000-12~25KTL-M5 MPPT Current 30A

	210 Half-cut	210 Three cut	182	182 Double glass
Imp	17.6A	11.9A	13.3A	15A
String number	2	4	4	4
Module number	23	23	19	19
String power	13.8kW	9.2kW	10.5kW	11.8kW
DC Power	27.6kW	36.8kW	42kW	47.2kW
DC/AC	≥1.1	≥1.4	≥1.6	≥1.8



- The current of PV module keep increase in those days as the silicon size keep increase
- G12(210) Half cut module Imp achieve **17.6A**



For new SUN2000-12-25KTL-M5

Each MPPT support:
Two string connection :30A
(Connect two Impp 15A module strings)

One string connection:20A
(Connect one Impp 20A module string)

The DC/AC ratio for 210 half-cut module could reach 1.1

Support high power module better

Less weight, Easer for Installation

Easer for one person to do installation



SUN2000-12-20KTL-M2

25 kg



SUN2000-12-25KTL-M5

21 kg



25 kg to 21 kg, Easer for Installation

Higher Protection Level

Higher IP protection level for higher reliability



SUN2000-12-20KTL-M2

IP65



SUN2000-12-25KTL-M5

IP66



Upgrade IP65 to IP66, More Reliable

Embrace Optimizer Freedom

Compatible with optimizer from 450W-1300W



SUN2000-450/600W-P



MERC-1100/1300W-P

	SUN2000-12-25KTL-M5 Optimizer Compatibility
SUN2000-450W-P/P2	√
SUN2000-600W-P	√
MERC-1100W-P	√
MERC-1300W-P	√

More Flexible with Optimizer

Electro Magnetic Compatibility (EMC)

Providing Qualified Inverter

What is it?





- The ability of electrical equipment is limiting the unintentional generation of electromagnetic energy.

- The phenomenon of switching off the phone in airplane or hearing noise from Radio are EMC fact.

Industry Research











- One European Survey shows that only 25% of PV system passed the EMC test.

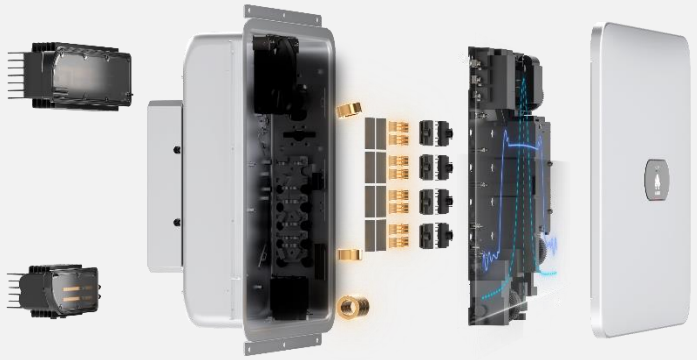
- The federal government has published some inverter companies and ask them to recall their inverters which didt pass EMC standard.

Recall or Upgrade in future for EMC

Electro Magnetic Compatibility

Providing Qualified Inverter

Unique 3-Layer EMC Protection Design



3-Layer EMC Protection Design

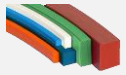
DC Side → AC Side → Enclosure



EMI Filter Board Design

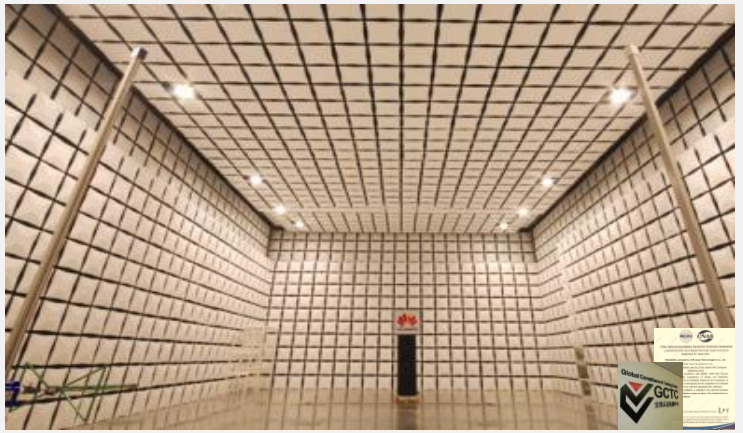


Magnetic Ring



Sealing Strip

EMC Test Center



10m Radiated Emissions Test Center

Ease from Mind of EMC

From DC Input to AC output, EMC protection covers all the sides.

Best-in-class Reliability

Built to last for Decades



XX Brand

No protect shield on the top, object easy to fall in to the fan

- Use ordinary fan with poor strength blade
- No protection on the fan top. Leaves and rain fall cause high failure rate

VS







Outer Protection Shield

HW

Fan Design Lifetime
90,000h @ 40℃

40℃ Operating Period
>31Year
*Assume inverter daily operate 8 hours

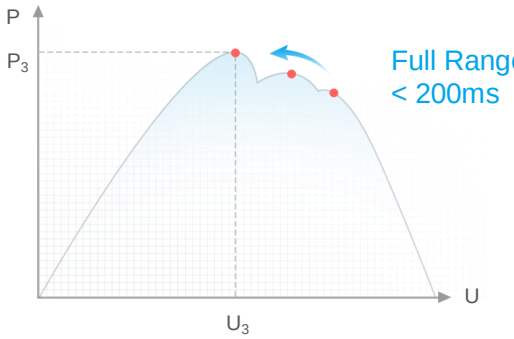
Fan Annual Failure Rate(for outer fan)
<0.5%

- External fan blade, bearings, and lubricants are reinforced to provide longer lifetime and lower failure rate.

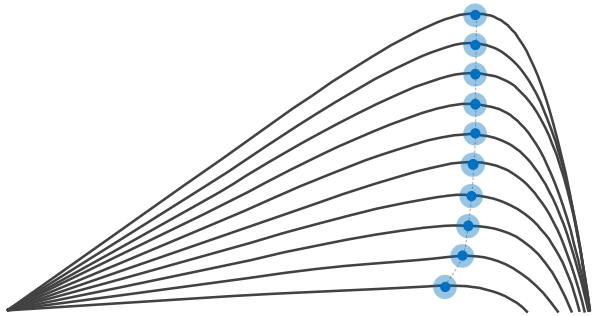
Smart MPP Tracking Algorithm

Smarter & Faster Multi-peak Tracking for Higher Yields

Multi-peak tracking when shading



Fast MPP Tracking when solar radiation vary



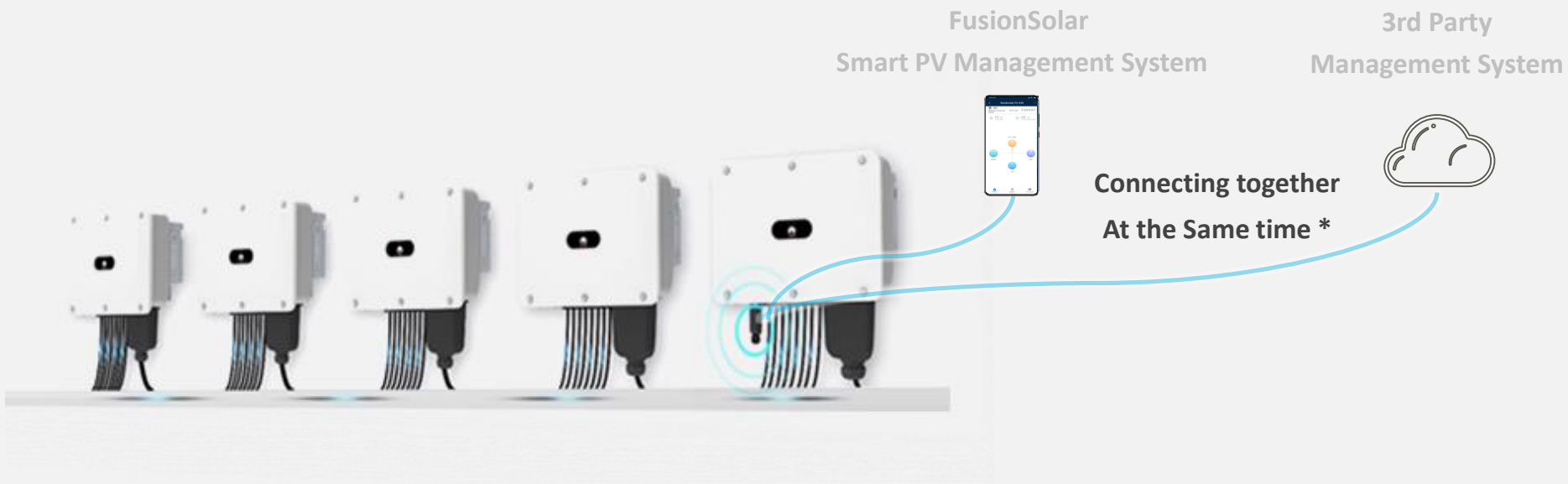


Max. Efficiency	European Efficiency
98.4%	98.2%

HUAWEI

10 Devices

One Smart Dongle Supports Up to 10 Devices



Inverters commissioning can be synchronized via a single dongle

Grid-connected Power Control can be achieved through the WLAN-FE/4G dongles

Wireless AP is built-in for local commissioning *

One Dongle For One PV Plant

*Supported After 2022.9.30

HUAWEI

Smart Design Tool

More Easier but Professional



EASY MODELING

with Satellite View

PROFESSIONAL LAYOUT

make the most of roof

VIVID REPORT

everything at a glance

Fit with SmartDesign 2.0 for Better Experience

HUAWEI

Smart PV Controller and Smart Module Controller



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

Three-phase inverter

- 2× 30 A MPPT, 4× PV strings
- Equipped with intelligent air cooling system
- RS485 communication
- Support 450W/600W/1100W/1300W Optimizer
- Supports AFCI, PID repair, and IV diagnosis.



SUN2000-450W-P2/P2

SUN2000-600W-P

- Communicate through the DC MBUS.
- Short circuit current is 13 / 14.5 A
- Each PV module works at the maximum power point
- Module-level monitoring
- 1 kΩ open circuit resistance, used for wiring detection during installation
- When the inverter is not working, reduce the system voltage to 0 V.



MERC-1100W/1300W-P

- Communicates through the DC MBUS.
- Short circuit current is 20 A
- Each PV module works at the maximum power point.
- Module-level monitoring
- Test voltage: 1V, used for wiring test during installation
- When the inverter is not working, reduce the system voltage to safe level.

HUAWEI

Smart Dongle



Smart Dongle-WLAN-FE
SDongleA-05(AP+STA)

- A maximum of 10 devices are supported.
- Plug-and-play, connected to the inverter through a USB port
- Communicate through FE or Wi-Fi
- Communicate to 3rd party Management System and FusionSolar System at the same time
- Local deployment is supported (when the inverter does not have WLAN hotspots)

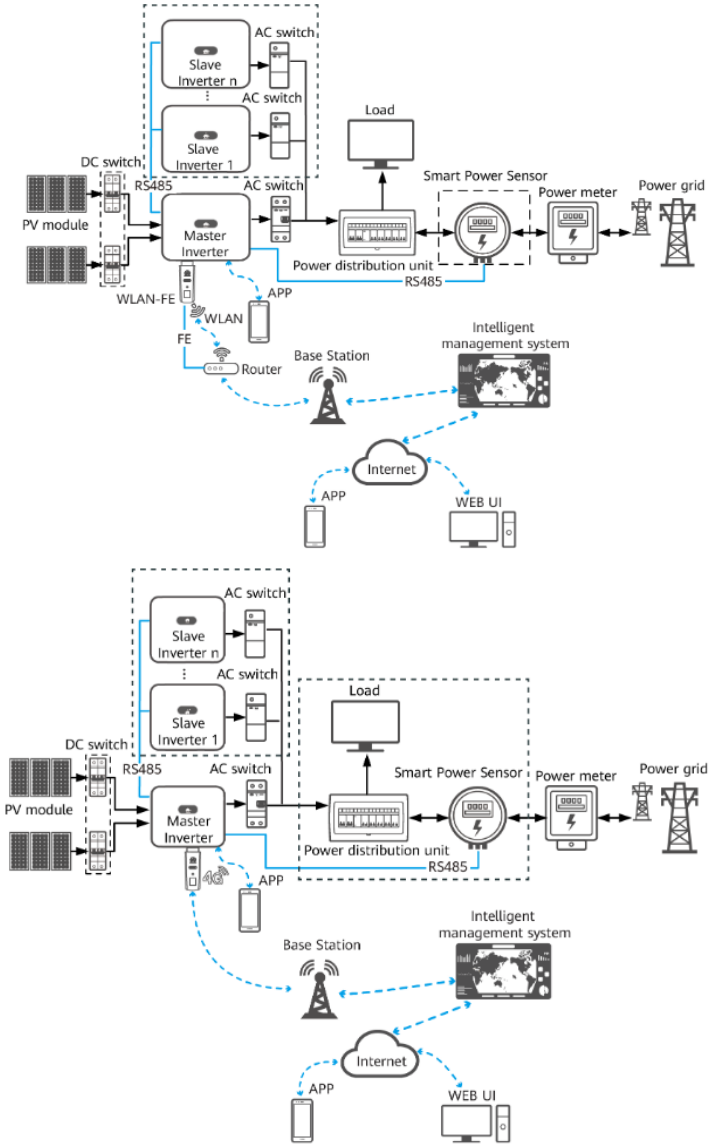


Smart Dongle-4G
SDongleB-06

- Supports 10 devices.
- Plug-and-play, connected to the inverter through a USB port
- Communicate through 4G.
- Communicate to 3rd party Management System and FusionSolar System at the same time
- Local deployment is supported (when the inverter does not have WLAN hotspots)

HUAWEI

Dongle Upgrading



Dongle 2.0

Management System:
Communicate with one of FusionSolar or 3rd party Management System

Deployment:
Deployment can be performed only through the inverter hotspot.



Smart Dongle-WLAN-FE
SDongleA-05



Smart Dongle-4G
SDongleA-06-EU/KR/AU/JP
4G/3G/2G

Dongle 2.0+

Double throw:
Communicate with FusionSolar and 3rd party Management System at the same time.

*3rd party management system should be compatible with Huawei SDongle MODBUS Interface Definitions. Currently only for M5 inverters.

Deployment:
Deployment can be implemented through the Dongle hotspot.

When all inverters support WLAN hotspot, hotspot of Dongle will be disabled by default. When at least 1 inverter doesn't support WLAN hotspot, hotspot of Dongle will be enabled by default for local deploying.



Smart Dongle-WLAN-FE
SDongleA-05(AP+STA)



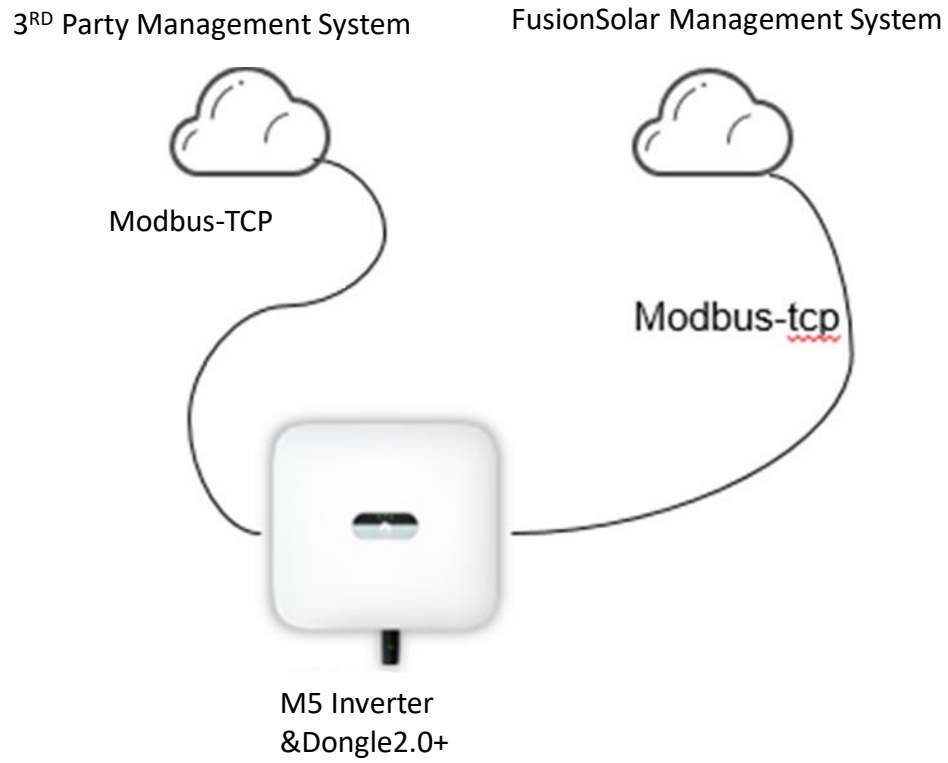
Smart Dongle-4G
SDongleB-06-EU
4G
SDongleB-06-AU
4G/3G/2G
SDongleB-06-NH
4G

HUAWEI

Dongle connect to 2 management Systems

This is used when the inverter need to be connected to a 3rd-party Mmanagement System. To ensure O&M, the inverter want also to be connected to FusionSolar Management system:

Classification	Management System Port- 0	Management System Port- 1
Protocol	Standard Modbus protocol	Standard Modbus protocol
Management System	1. FusionSolar Management System 2. 3rd-party Management System	1. 3rd-party Management System
Inverters	All SUN2000 Inverters	Only for M5 Inverters by local commissioning now



Smart Power Sensor



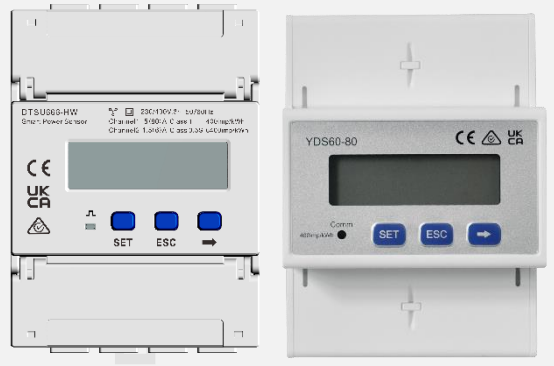
DTSU666-H 100A
(three phase)

- Connects to the inverter through RS485.
- Class 1 precision for power and energy
- Power control at the grid-connected point
- External CT attached with the box, 100A range
- 485 cable with 10m length is attached with the box



DTSU666-H 250A
(three phase)

- Connects to the inverter through RS485.
- Class 1 precision for power and energy
- Power control at the grid-connected point
- The external CT is attached with the box, and the current range is 250A.
- 485 cable with 10m length is attached with the box



DTSU666-HW/YDS60-80
(three phase)

NEW

- Connects to the inverter through RS485.
- Class 1 precision for power and energy
- Power control at the grid-connected point
- Built-in CT, current range 80A
- External CT is supported for current lager than 250A
- The precision of the external CT should not worse than Class 0.5. The current on the 2nd side should be 1 A or 5 A.
- 485 cable with 10 m length is attached with the box.

HUAWEI



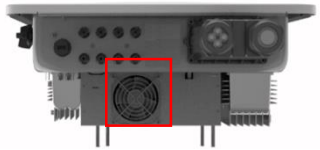
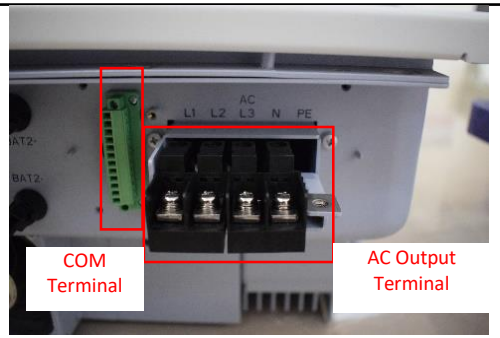
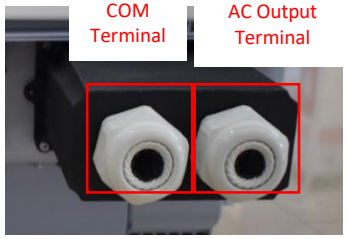
2 Product Key Change Point

Key Feature Changes Summary

	SUN2000-12-20KTL-M2	SUN2000-12-25KTL-M5
Rated Power	12/15/17/20	12/15/17/20/25
Max. efficiency	98.65%	98.4%
European weighted efficiency	98.3%	98.2%
Max. input current per MPPT	27A(two stings)/18A(single string)	30A(two stings)/20A(single string)
Dimensions (W x H x D)	525*470*262(mm)	546*460*228(mm)
Weight	25kg	21kg
Cooling	natural convection	Smart air cooling
Degree of protection	IP65	IP66

HUAWEI

Hardware Feature Changes Summary

Hardware difference		
	Old version	**New Version**
	SUN2000-8-20KTL-M2	SUN2000-12-25KTL-M5
Cooling method		
	Natural cooling	Fan at bottom, Smart air cooling
AC Connector		
	AC output aviation connector	AC output OT connector
COM & AC output terminal protection shield		
	COM & AC output terminal separated	COM & AC output terminal in one protection shield

HUAWEI

Thank you.

HUAWEI