HUAWEI

Fusionsolar

Huawei Residential Solution 2024

2024-10-03

Haoran Teng
Stepan Larin

haoran.teng@huawei.com
stepan.larin@photomate.eu

A Home that Always Shines

photomate

HUAWEI Enterprise Partner Service

FOREIGN OFFICES

SALES OFFICES EUROPE AND ASIA

- **Č. Budějovice** ▶ Czechia and Slovakia
- **Prague** ▶ Czechia and Slovakia
- **Kyiv, Lviv** ▶ Ukraine
- **Warsaw** ▶ Poland
- **Budapest** ▶ Hungary
- **Sønderborg** ▶ Denmark
- **Stockholm** ▶ Sweden
- **Tallinn** ▶ Baltics
- **Bucharest** ▶ Romania
- **Plovdiv** ▶ Bulgaria
- **Tbilisi** ▶ Caucasus region
- **Tashkent** ▶ Uzbekistan
- **Almaty** ▶ Kazakhstan

photomate

BASIC FACTS

HUAWEI Enterprise Partner Service

INVERTER BUSINESS **SINCE 2008**

ACTIVE IN **25 COUNTRIES**

14 FOREIGN **OFFICES**

1

13.8+ GW HUAWEI INVERTERS SINCE 2016

550+ MWH BESS

400+ M EUR 2023

2

220 EMPLOYEES

70 TECHNICAL SUPPORT

3

900+ TRAININGS

***12500+** TRAINED INSTALLERS

4

photomate

INTRODUCING OUR TEAM

PHOTOMATE SCANDINAVIA | SWEDEN & FINLAND

William Petsén
Country Manager

MARKETING

Karen Rojas
Marketing Specialist

Carolina Carvalho
Sales and Marketing Support

SALES

Stepan Larin
Sales Manager

Robin Hammervold
Sales Manager

Simona Cary
Sales Support Specialist

Tim Borell
Key Account Manager

Antti Immonen
Sales Manager (Finland)

Daniella Bäckström
Sales Support Specialist

TECHNIQUE

Faisal Baryalai
Solutions Manager

Dharma Kurunthu
Technical Support Engineer

Henrik Kancsár
Technical Support Engineer

Vacant
Technical Support Engineer (Finland)

Anton Oldestam
Technical Support Engineer

Jimmy Morales
Technical Support Engineer

Karol Sidor
Technical Support Engineer

photomate

COOPERATION WITH HUAWEI

- SUPPORT FOR **8 REGIONAL HUAWEI BRANCHES**
- COOPERATION WITH HUAWEI TEAM OF **500 PEOPLE** IN THE AREAS OF **TECHNICAL SUPPORT, SALES, LOGISTICS AND MARKETING**

HUAWEI Enterprise Partner VAP

VALUE ADDED

Partner

HUAWEI Enterprise Partner Service ★★★

CERTIFIED SERVICE

Partner

photomate

HUAWEI PV PRODUCTS & SOLUTIONS

HUAWEI Enterprise Partner Service

1 RESIDENTIAL

2 COMMERCIAL AND INDUSTRIAL

3 UTILITY

1 **SMART BATTERY**
5-15-30 KWh

2 **RESIDENTIAL INVERTER**
2-10 KW

3 **SMART PV OPTIMIZER**
450W / 1100W

4 **SMART PV** MANAGEMENT SYSTEM

5 **COMERCIAL INVERTER**
12-100 KW

6 **SMART PV** MANAGEMENT SYSTEM

7 **SMART DATA LOGGER**

8 **SMART TRANSFORMER STATION**
3 / 6 / 9 MW

9 **UTILITY INVERTER**
215 / 330 KW

SMART PV MANAGEMENT SYSTEM

photomate

LOGISTICS

1
CENTRALIZED WAREHOUSE

DACHSER Č.BUDĚJOVICE
ELECTRONIC DATA INTERCHANGE

35000+ PALLET, 14000 m2

3 x BUFFER WAREHOUSE

INVENTORY IN CZ

+3500 M EUR

2
TRANSPORT

9000+ ROAD TRANSPORT IN 2023

LTL AND FTL TRANSPORT

CONTAINER TRANSPORT

SEA AND RAIL TRANSPORT FROM CHINA

INTERNATIONAL CUSTOMS BROKERS

photomate

HUAWEI Enterprise Partner Service

TECHNICAL SUPPORT

1 PRESALES SUPPORT

- STRING DESIGN
- PV+BESS+E-MOBILITY DESIGN SUPPORT
- PV SYST SIMULATION
- TRAININGS

2 AFTERSALES SUPPORT

- COMMISSIONING SUPPORT
- TRAININGS
- SERVICE
- SPARE PARTS MANAGEMENT

3 ENGINEERING

- ENERGY DATA MEASUREMENT & ANALYSIS
- SOLUTION STUDY & CONDITIONS
- DESIGN OF OPTIMAL PV PERFORMANCE & BESS CAPACITY
- EVALUATION OF INVESTMENT RETURN

HUAWEI FusionSolar Residential:
Leading innovation, helping families enjoy 100% green power
30%
2017
2018
70%
2020
2021
90%
2022
2023
100%
Self-consumption rate
100%
Self-sufficiency rate
Residential 1.0
PV-only | 2.0 Inverter + Optimizer
Residential 3.0
Optimizer + Inverter + ESS + Load + SmartPVMS
Residential 4.0
Optimizer + Inverter + ESS + Charger + Load + Grid + SmartPVMS
One-fits-all Solution
"Optimizer + Inverter + ESS + Charger + Load + Grid +SmartPVMS"

“Optimizer + Inverter + ESS + Charger + Load + Grid + SmartPVMS” One-fits-all Solution

From green power generation to intelligent power consumption, leading home energy management

Residential Smart PV Solution: Leading in PV Power Generation to Intelligent Power Consumption

Green power generation

Optimizer

SUN2000-450W-P2/600W-P

*SUN5000-8/12K-MAP0 New

PV

SUN2000-2-6KTL-L1
SUN2000-8-10K-LC0
SUN2000-3-10KTL-M1
SUN2000-5-12K-MAP0 New
SUN2000-12-25K-MB0

ESS

LUNA2000-5/10/15-S0
LUNA2000-7/14/21-S1 New

Intelligent power consumption

Charger

Scharger-7KS/22KT-S0

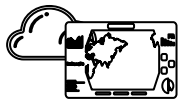
Load

EMMA-A02

Grid

SmartGuard-63A-S0/AUS0
SmartGuard-63A-T0/AUT0 New

Cloud



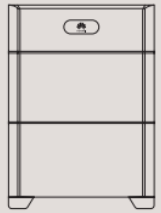
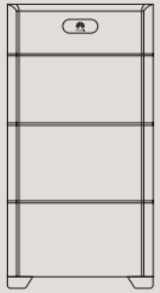
FusionSolar PVMS

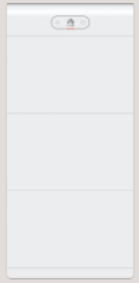
*The SUN5000 inverter and MERC optimizer only available in EU in 2024

Residential Smart PV Solution
Smart String Energy Storage System

LUNA2000-7/14/21-S1

Your reliable power bank

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 capacity	5 kWh		
Number of battery modules	1	2	3
Battery usable capacity [1]	5 kWh	10 kWh	15 kWh
Max. output power	2.5 kW	5 kW	5 kW

Technical Specification	LUNA2000-7-S1	LUNA2000-14-S1	LUNA2000-21-S1
			
Performance			
Power module	LUNA2000-10KW-C1		
Number of power modules	1		
Battery module	LUNA2000-7-E1		
Battery module capacity	6.9 kWh		
Number of battery modules	1	2	3
Battery usable energy [1]	6.9 kWh	13.8 kWh	20.7 kWh
Max. charging & discharging power	3.5 kW	7 kW	10.5 kW

HUAWEI

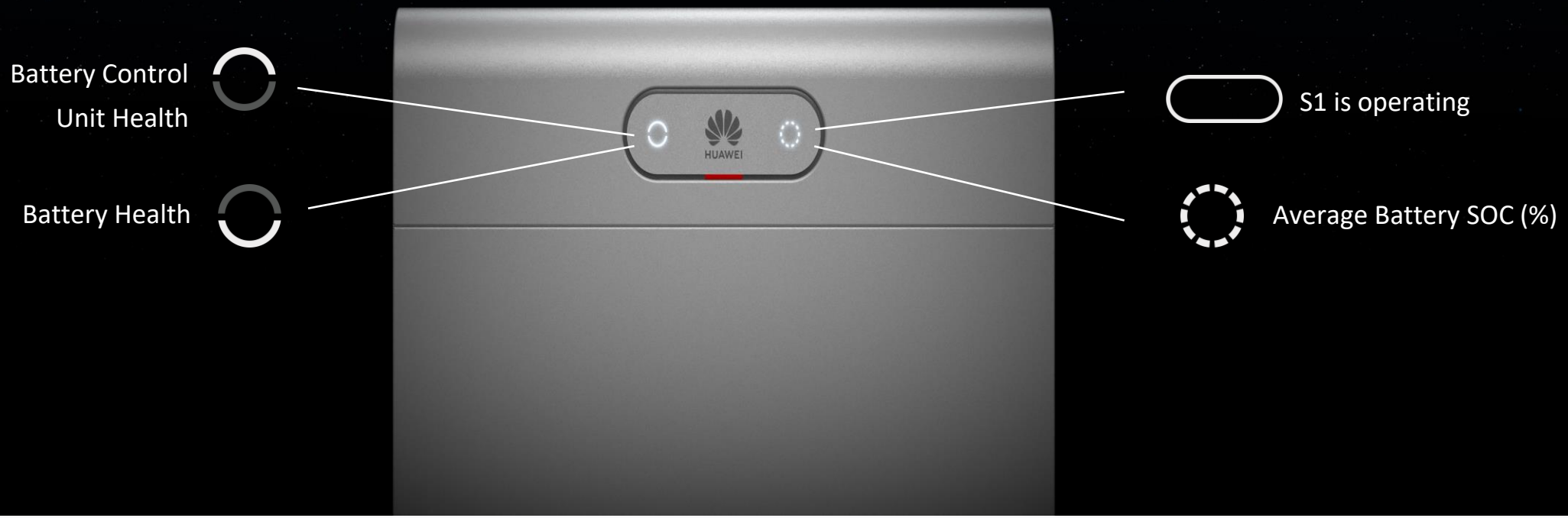
NOTE

S0 and S1 cannot be used together in the same network.

S1: industry's flagship, 8 major upgrades

Usable energy ↑	+27% per kWh
Capacity ↑	5 kWh/30 kWh -> 6.9 kWh/82.8 kWh
Warranty ↑	Max 10 years-> Max 15 years
Noise ↑	Nature cooling, 29 dB
All new look ↑	Perfect balance of high performance and artistic design
Charge/discharge power ↑	Max 5kW-> Max 10.5kW
Installation experience ↑	Cable-free between modules
Safety ↑	New safety features: active pressure relief and fire prevention technology, 40cm water immersion protection

Smart Capsule Interface



Cable-free connection, saving installation time by **50%+**

Time-saving: No communications cable or power cable

Between power packs and battery packs

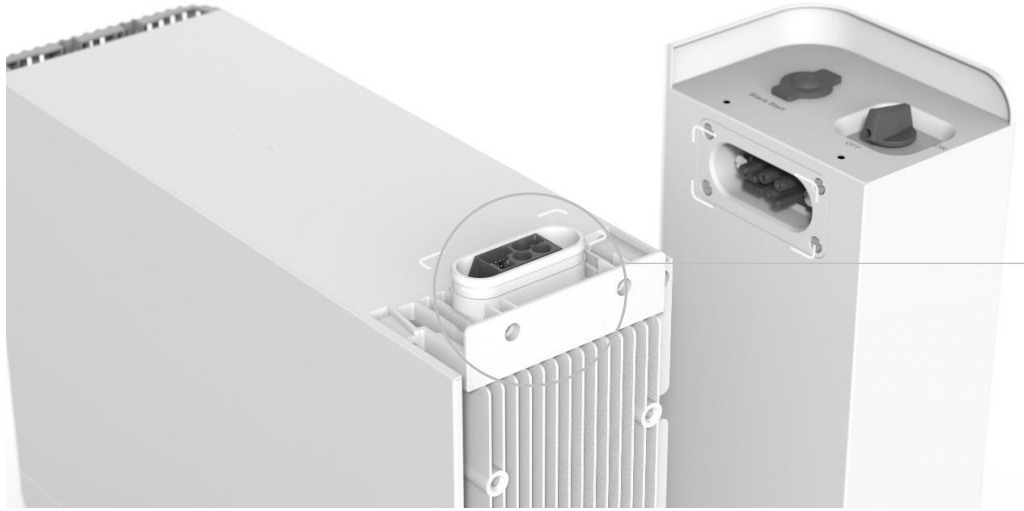
Between battery packs

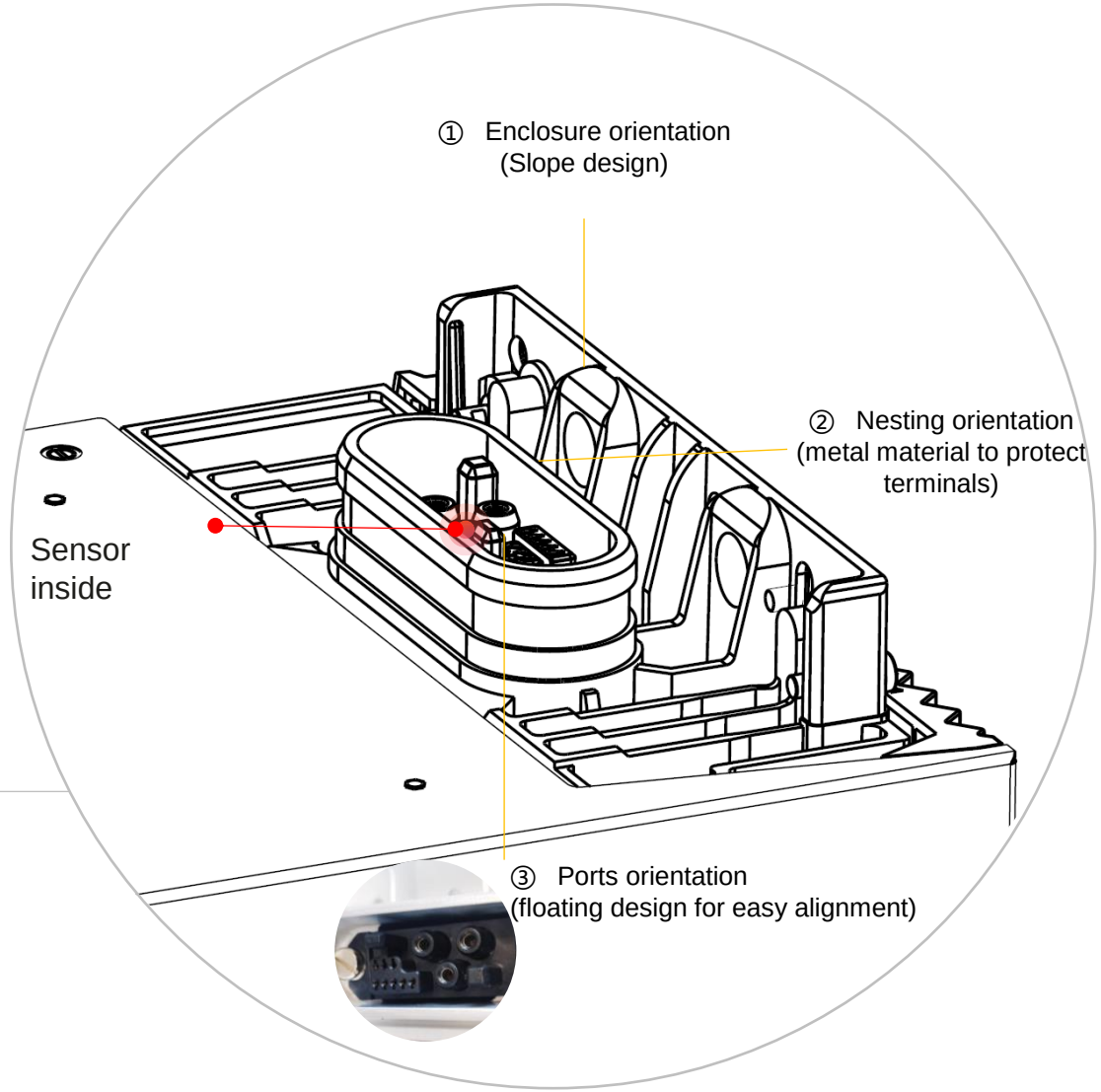
Labor-saving: Convenient docking

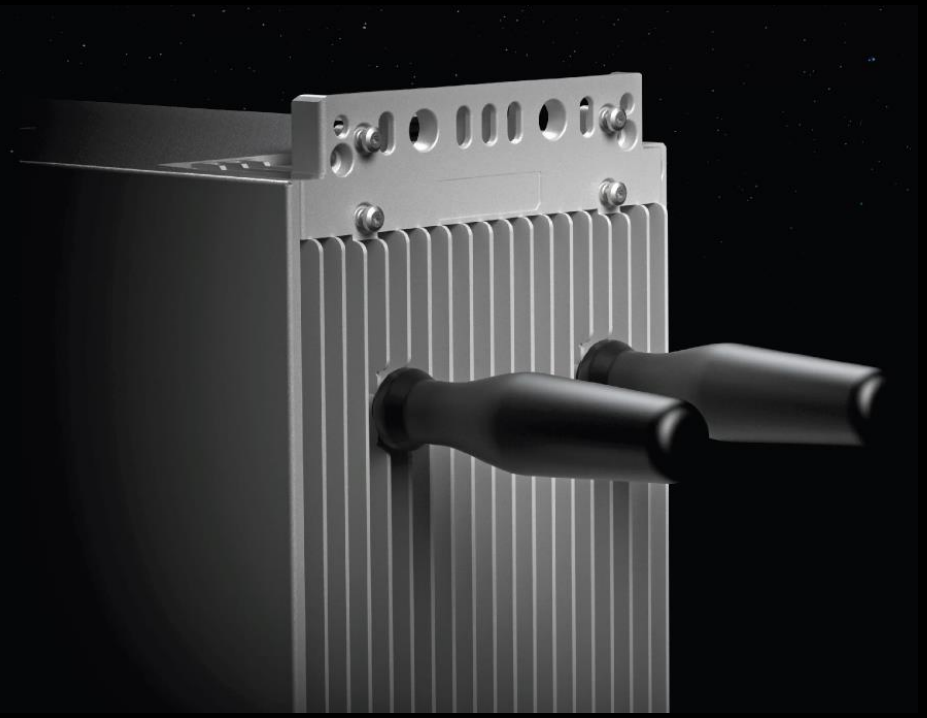
3-layer orientation design for easy docking

Free from worry: Intelligent ports detection

Sensor inside, identifies faults through temperature detection intelligently

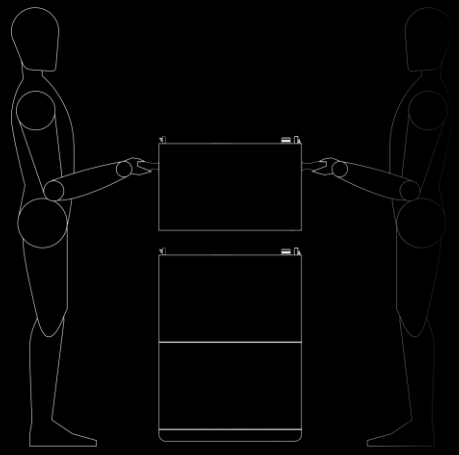






Ergonomic Carrying Handles

We looked for the best possible way to carry our battery expansion modules, making the installation more enjoyable and respectful of human factors and ergonomics



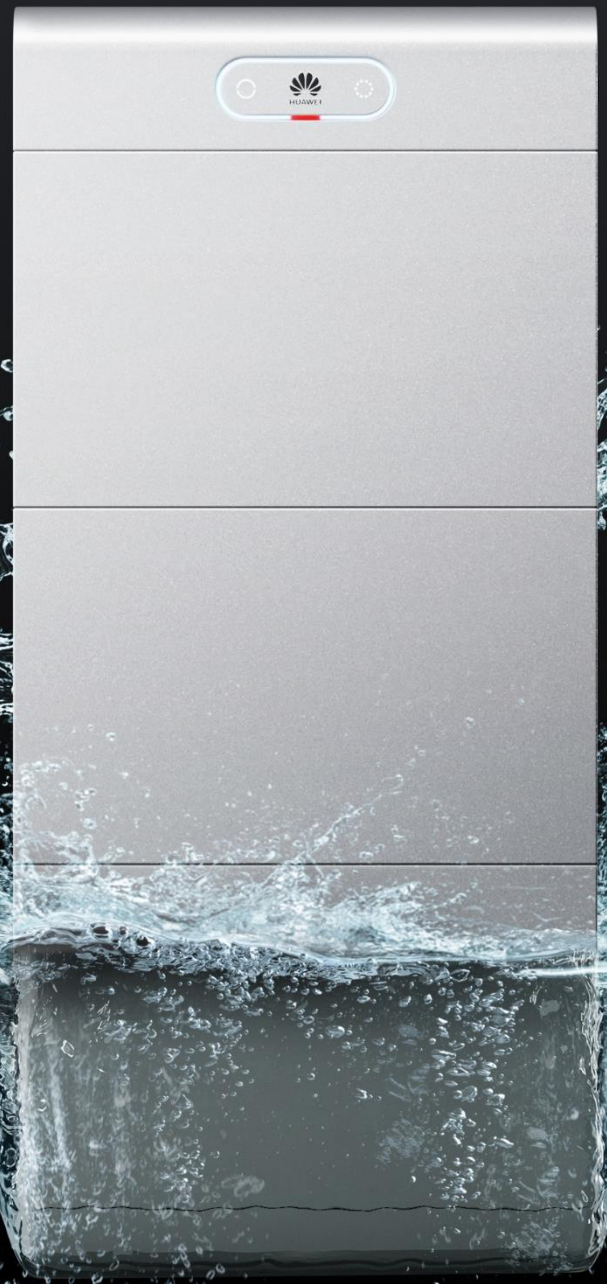
Architectural Look & Feel

Minimalism and elegance, to blend into people’s home.

Industry-leading
IP66 residential ESS

	LUNA S1	Vendor B	Vendor P	Vendor S
Ingress Protection Rating	**IP66**	IP55	IP55	IP55

Easily cope with **rain** and **water splashes**



Industry-leading
water immersion protection residential ESS

40cm

72h

Safe in case of **waterlogging, ice, and snow coverage**

*The LUNA S1 is a non-professional waterproof device, pls. keep it away from water sources duri

High-strength chassis

Resistance to **5T** heavy pressure

Accidental bumping in the garage

Impact during moving objects

*Severe impact affects the stability of the ESS. Avoid impact whenever possible.

Active pressure release technology, preventing combustion from basic logic

	LUNA S1	Vendor B	Vendor P	Vendor S
Emergency protection	**Dual-protection mechanism**	NA	NA	NA

Principle: Active pressure relief exhaust, reducing oxygen concentration and eliminating combustion aids

Thermal runaway

- Internal failure mechanism of Lithium batteries
- External causes such as mechanical, electrical, and thermal

Active Pressure Relief Exhaust

- Exhaust oxygen from the battery pack to form an oxygen-free environment. The high-strength and high-sealing chassis does not open seams, block the elements of combustion

Auto closure

- Prevent oxygen from entering after pressure relief is complete.

Three elements of combustion:
combustible, ignition source, and combustion aid (oxygen)

Emergency fire suppression, an extra protection for families

Emergency Fire Suppression Module

Working Principles

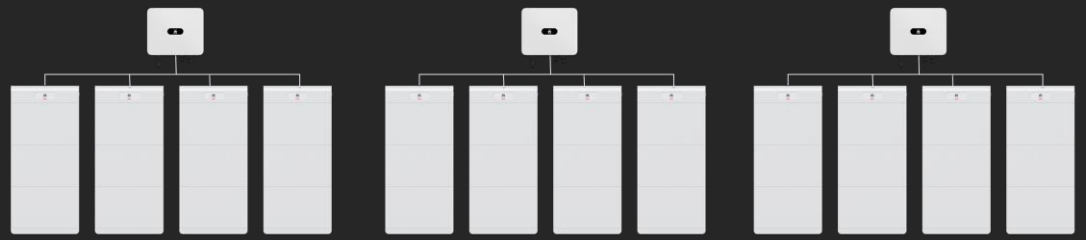
Step 1: Start at a high temperature (190±15°C).

Step 2: The fire extinguishing package releases the cleaning extinguishing agent

- A large amount of gas produced quickly
- The extinguishing agent is pushed to erupt from the module in a pulse mode, instantly producing a large amount of gas to blow out the flame
- The eruption gas can absorb the free radicals and realize the chemical suppression of the flame

SUN2000-MB0: Possibility to connect to 4 battery units, now also Checkwatt compatible!

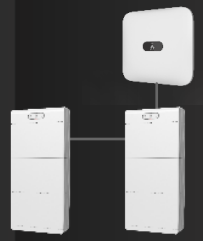
3 Inverters (SUN2000-12~25K-MB0) + **12** LUNA-S1 max



1GWh

Throughput in 15 years

Inverters support ESS capacity expansion

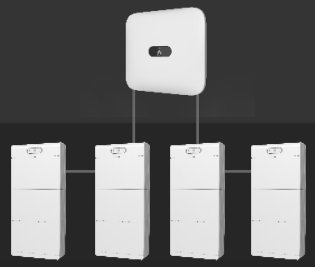


LUNA2000-7/14/21-S1

For LC0, M1, MAP0 inverters:

Max. two S1

41.4kWh

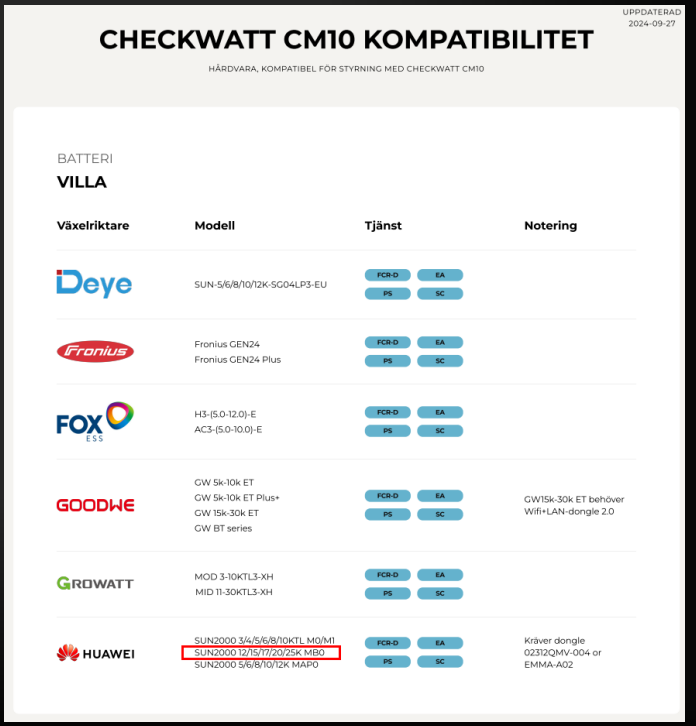


LUNA2000-7/14/21-S1

For MB0 inverter:

Max. four S1

82.8kWh



UPPDATERAD 2024-09-27

CHECKWATT CM10 KOMPATIBILITET

HÅRDVARA, KOMPATIBEL FÖR STYRNING MED CHECKWATT CM10

BATTERI

VILLA

Växelriktare	Modell	Tjänst	Notering
Deye	SUN-5/6/8/10/12K-SG04LP3-EU	FCR-D EA PS SC	
Fronius	Fronius GEN24 Fronius GEN24 Plus	FCR-D EA PS SC	
FOX ESS	H3-(5.0-12.0)-E AC3-(5.0-10.0)-E	FCR-D EA PS SC	
GOODWE	GW 5k-10k ET GW 5k-10k ET Plus+ GW 15k-30k ET GW BT series	FCR-D EA PS SC	GW15k-30k ET behöver Wifi+LAN-dongle 2.0
GROWATT	MOD 3-10KTL3-XH MID 11-30KTL3-XH	FCR-D EA PS SC	
HUAWEI	SUN2000 3/4/5/6/8/10KTL M0/M1 SUN2000 12/15/17/20/25K MB0 SUN2000 5/6/8/10/12K MAP0	FCR-D EA PS SC	Kräver dongle 02312QMV-004 or EMMA-A02

All-round upgraded three-phase inverter, better experience

Three-phase Asymmetric Inverter

SUN5000-8/12K-MAP0 **New**

SUN2000-5/6/8/10/12K-MAP0 **New**

Higher MPPT Capability

16 A, 2 MPPT

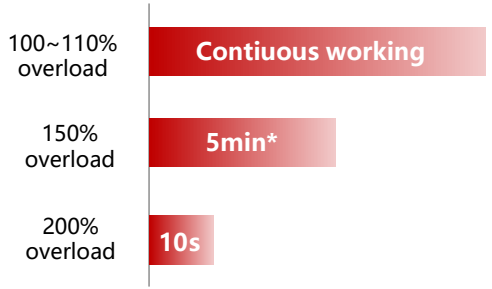
Asymmetric Output

Supported

ESS Awake By Grid

Supported

Superb Off-grid Adaptability



Note: 5min for 150% overload only apply for single-phase, 1min for 3-phase

Battery Ready, Scale Smoothly

max. 2 LUNA S0

30 kWh For S0

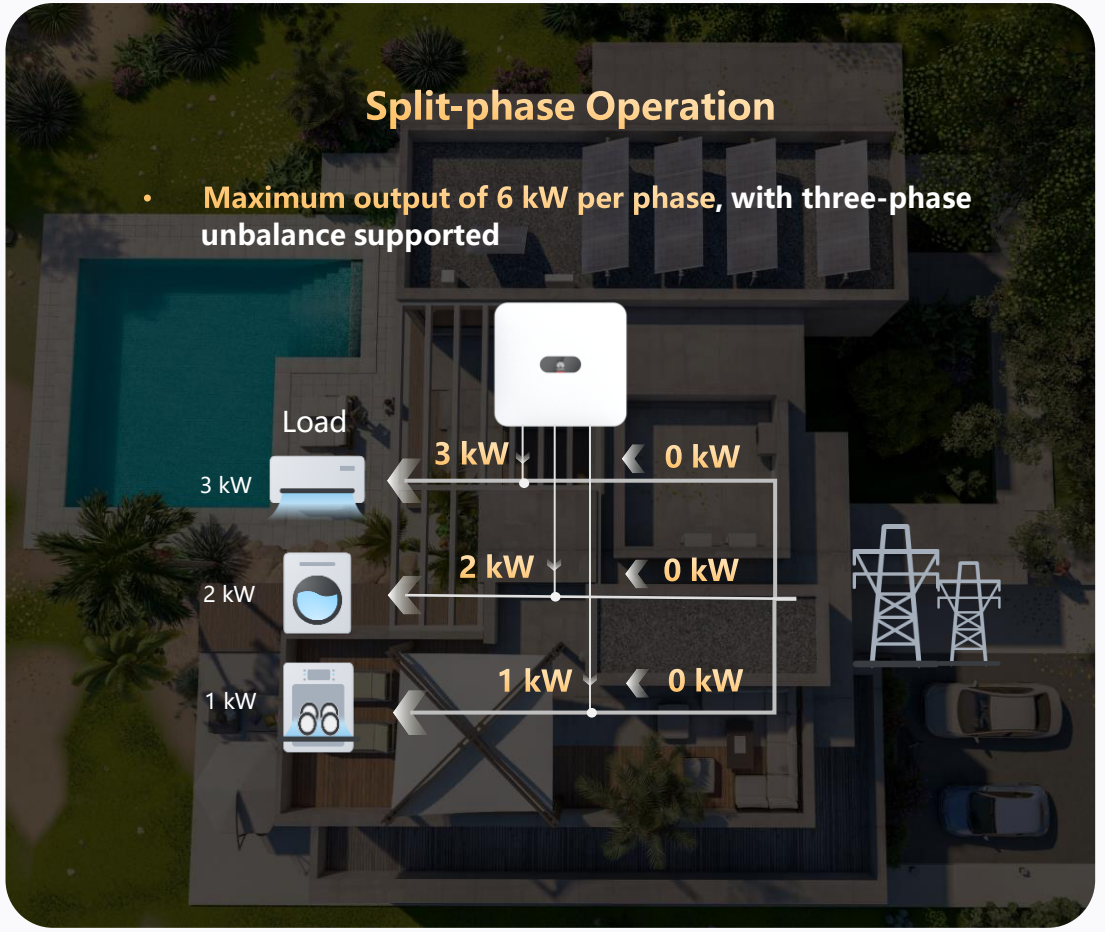
OR

max. 2 LUNA S1

41.4 kWh For S1

Three-phase Asymmetric for 50% Higher self-consumption Rate

Result: Still need purchase 3kW from Grid, leading to a revenue loss



Result: Improving 50%+ self-sufficiency rate of PV+ESS system

More Reliable Backup, More Power Choices

Whole Home Backup

SmartGuard-63A-T0/AUT0 New

Reliable Backup Power

max.**36kW**

Three-phase off-grid backup power for MAP0

Bypass Mode

When a fault occurs, manual bypass is supported

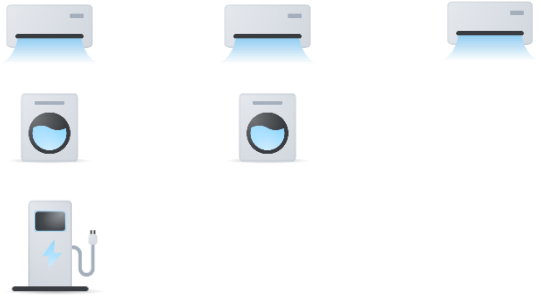
Seamless Switchover

Continuously working as if no power outage

More Loads Backup Supported

Hierarchical shutdown for longer backup time

On-grid	Off-grid	SOC<50%



- **MAP0 supports three-phase loads backup**
- M1/MB0 only support single-phase loads backup

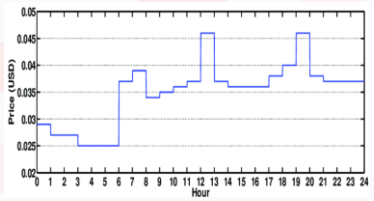
Smart Scheduling: Utilize the Big Data and Algorithm for Optimum Revenue of PV&ESS

HUAWEI

Challenge: Fixed scheduling cannot maximize benefits.

Currently, the fixed ESS scheduling policies (Maximum self-consumption and TOU) cannot handle the real-time changes.

Floating electricity price



Electricity price varies greatly with external factors such as fuel price, season and market.

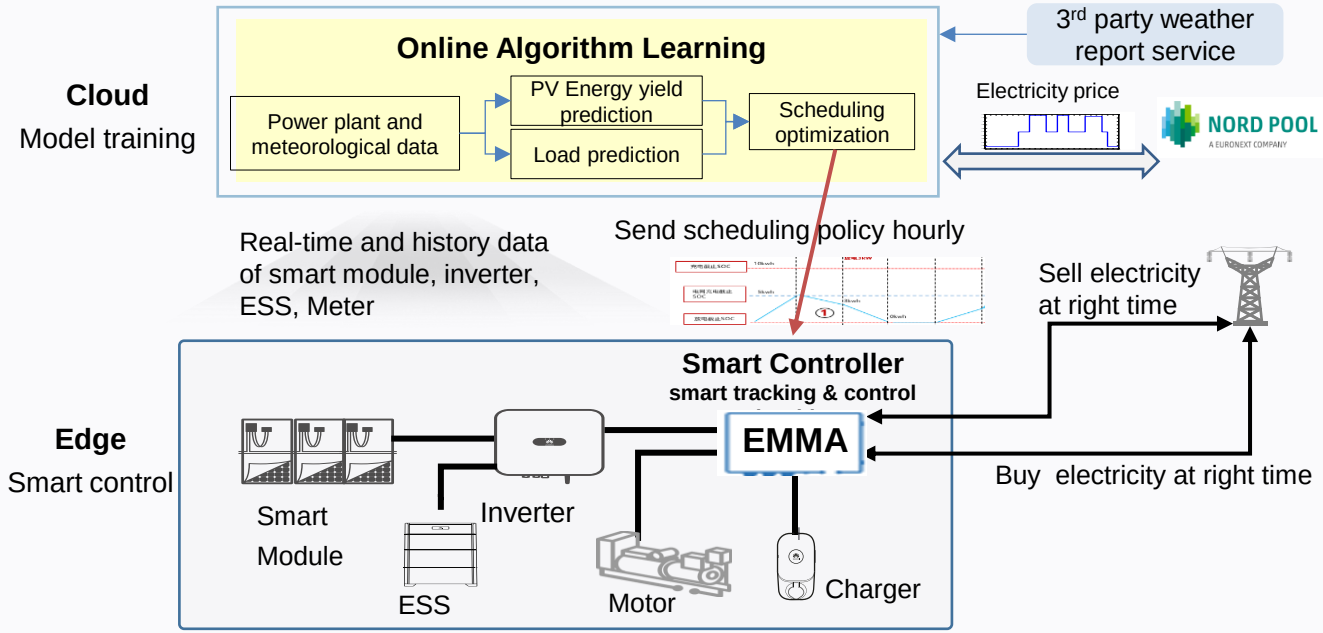
Changing weather

The PV energy yield is uncertain due to weather factors, and the fixed scheduling policy cannot change every day

Variable load

The load curve varies greatly between weekdays and weekends, and fixed scheduling is difficult to cope with

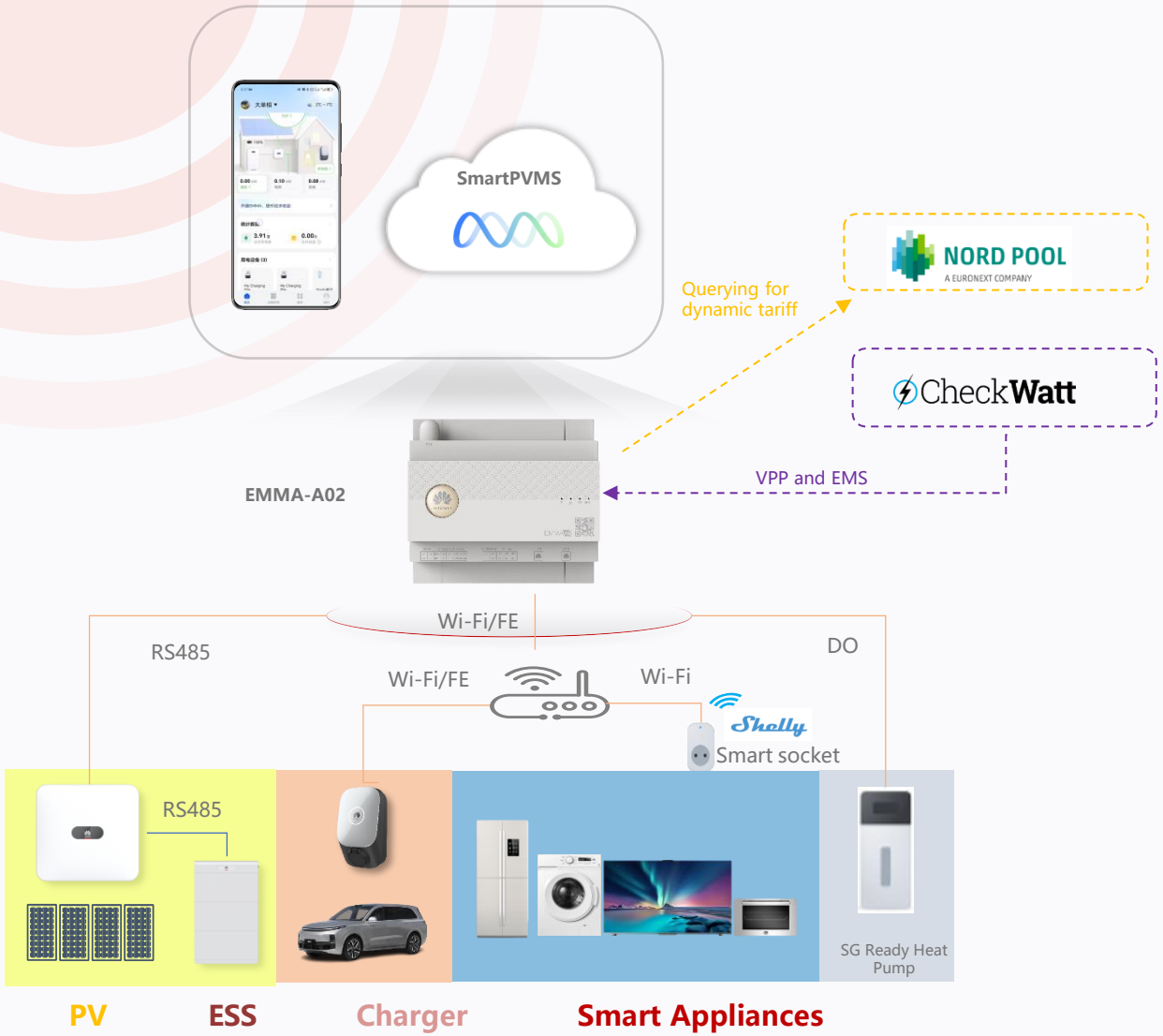
Smart EMS: Cloud-Edge collaboration, PV+ESS convergence, scheduling policy optimized hourly



Solution Advantage

- **Higher revenue**: The revenue in dynamic electricity price scenarios increases by 5%~10% on average.
- **Higher accuracy of optical power prediction**: the average prediction accuracy in the next 24H can reach 93% which is 1% higher than the industry.
- **Higher accuracy of load prediction**: the average prediction accuracy in the next 24H can reach 90% which is 2% higher than the industry.
- **Leading architecture**: Cloud-Edge collaboration continuously improves the scheduling algorithm precision.

EMMA: A Smart, Open, New Generation Home Energy Management Assistant



Note:

1. ***The EMMA solution comprises the EMMA-A02 controller and the FusionSolar SmartPVMS.***
2. ***We highly recommend upgrading the EMMA-A02 controller to the V100R024C00SPC100 version.***

Smart Energy Management

- One-stop management of inverters, ESS, optimizers, chargers and appliances. Device status, power usage, consumption statistics, and real-time App monitoring.
- Home appliances can be flexibly controlled through Shelly sockets, supporting power usage priority sorting and scheduled power usage.
- Supports access to SG Ready standard heat pumps.
- Peak shaving, PV preference, and power limitation at the grid connection point (within 2 seconds).
- Automatic startup and shutdown of Diesel Generator (D.G.). ***New***

Smart Scheduling

- Automatically connect to NordPool power market and obtain dynamic tariff in real time. ***New***
- Using big data and machine learning, the system integrates electricity prices, weather, and load for optimized solar and ESS scheduling. This approach enhances price arbitrage, allows for zero-power grid connection during negative prices, and boosts average revenue by 5% to 10% in dynamic pricing scenarios ***Capability enhancement***

Open to 3rd parties

- The controller supports the Modbus-TCP standard protocol, integrates with 3rd VPPs, enables FCR-D frequency modulation, and responds to control instructions within 2.5 seconds. ***New***
- SmartPVMS offers open REST APIs, enabling integration and management with 3rd party smart home systems and virtual power plants (VPPs).

Service Excellence Makes the Difference

24/7 online customer service

AI
Robotics

Always accessible via:
https://digitalpower.huawei.com/robotchat

Huawei Support Hotline:
24/7 hotline: 00800 3366 6666

30 min

24/5 technical support:
eu_inverter_support@huawei.com
Customer Service Engineer always avaliable in Europe

CTAC
Dedicated analytical and engineering resources for Nordic **8/5**

Huawei sparepart warehouse in Sweden for faster spare part delivery

Follow us on social media!

Linkedin

Facebook

Facebook community

HUAWEI

Fusionsolar

Thank You

A Home that Always Shines