

# Sigenergy

## Products & Solutions



# Sigenenergy All-Scenario Solutions: One Masterpiece Each Year, Building a Leading Brand

Residential & Small C&I Solution

Large C&I BESS Solution

Large Utility PV Solution



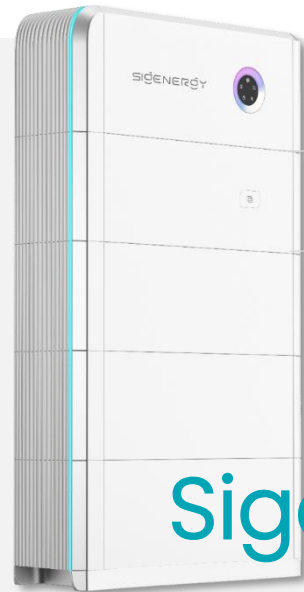
SigenStor Sigen Energy Gateway Sigen EV AC Charger Sigen Hybrid Inverter SigenMicro Inverter SigenMate

Modular BESS SigenStack C&I Hybrid Inverter C&I PV Inverter C&I Energy Gateway

New Sigenenergy Utility PV Inverter

# Sigenenergy Residential Product Family

1



## SigenStor EC

Sigen Energy controller  
Single Phase & Three Phase

## SigenStor EVDC

Sigen EV DC Charging Module

## SigenStor BAT

Sigen Battery

# SigenStor

2



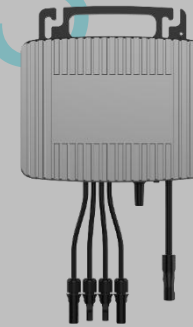
## Sigen Hybrid 2<sup>nd</sup>

Single Phase & Three Phase

▶ SigenStor BC

▶ SigenStor BAT

3



## Sigen Micro Inverter

Single Phase

▶ Sigen Battery  
2.688 kWh ▶



Sigen Cloud & mySigen APP



## Sigen Gateway

Single Phase & Three Phase



## Sigen EVAC

Sigen EV AC Charger

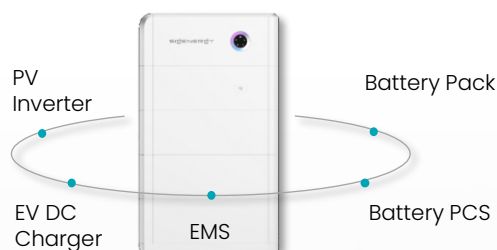
## Sigen CommMod



# Sigenenergy, Bring the New-generation ESS

Combing integrated, smart system with ultra safety to improve user-experience

## Highly integrated



### SigenStor

World-first 5-in-One energy system

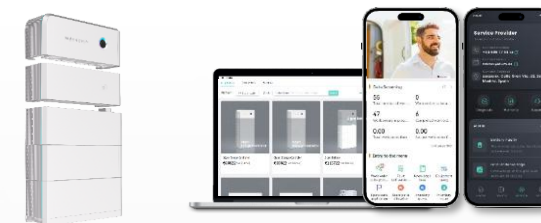
## Fully Intelligent



### mySigen App

World-first integrated with GPT-4o

## User Experience - oriented



### Simple & interactive

Stackable installation, trackable user friendly

5-layer battery protection  
5-layer system protection

Device safety protection

System safety protection

Personal safety protection

Data security protection



GDPR



ADPPA

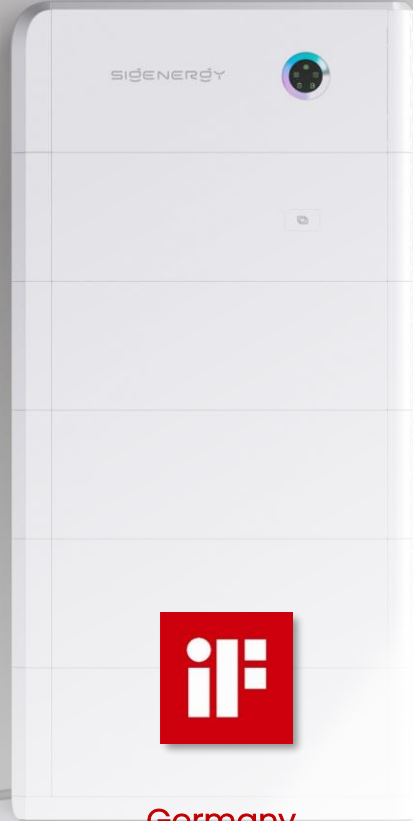
CCPA

CPRA



ISO27001

## Ultra Safe

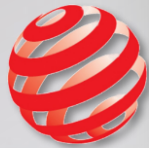


# SigenStor

A new way of producing, storing, charging and using home energy

# Harmonious

Blend with surroundings



Germany  
Red Dot  
Design Award



Germany  
IF Design  
Award



USA  
International Design  
Excellence Awards



Germany  
Innovation Awards



Germany  
TUV  
"Quality in China" Home Energy  
Storage System Winner Award



Germany  
THE Smarter E Award  
Top 10

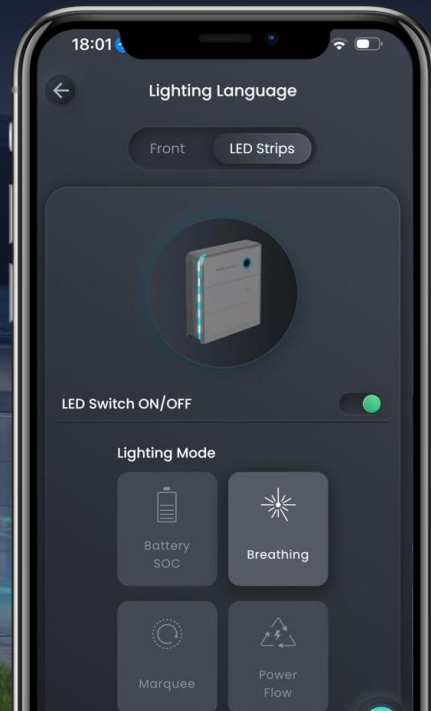
# Beauty of Scientific Aesthetics

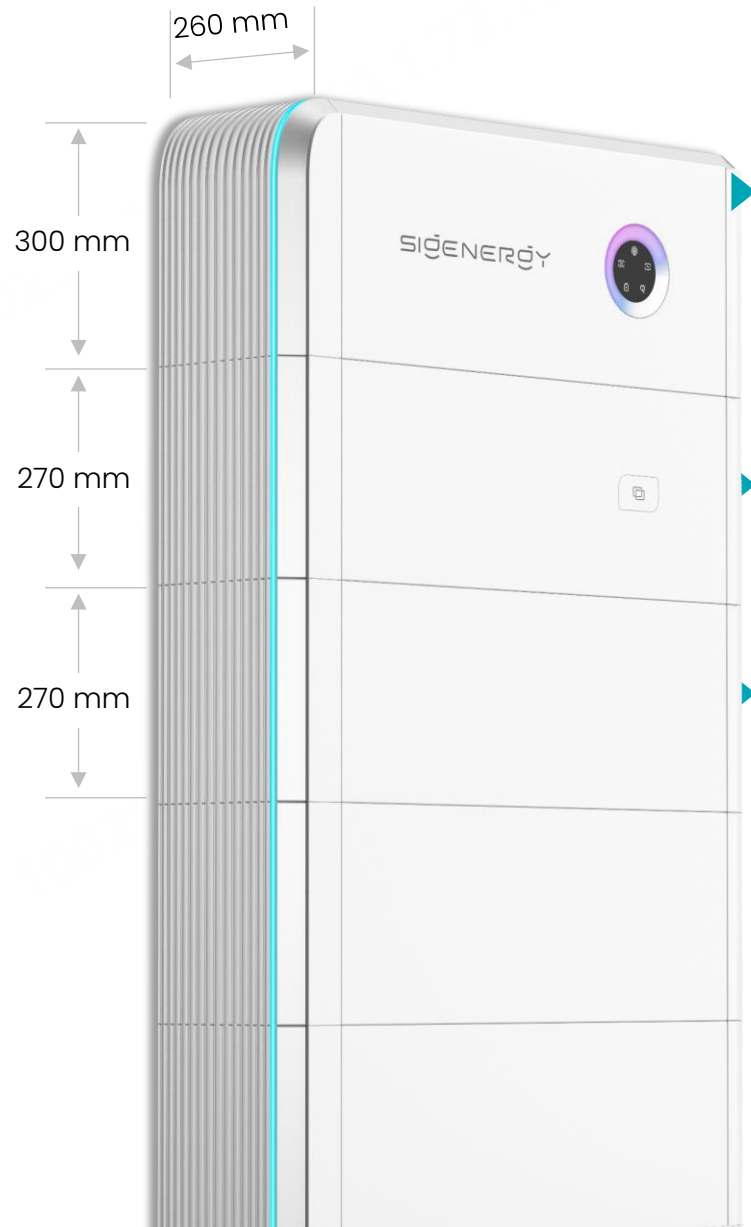
Surround your family with the beauty of art and intelligence

Fun ambient lighting setting  
Customizable lighting on mySigen App

No external wiring

Highly integrated, blending with surroundings





### Sigen Energy Controller for solar + storage system

Single phase grid connection (kW)

Three phase grid connection (kW)

5.0 10.0

5.0 10.0 20.0 25.0

### Sigen EV DC Charging Module (kW)

Ready for V2X

12.5 25

### Sigen Battery

6.0 10.0

Support **1 – 6** batteries combined for a single stack

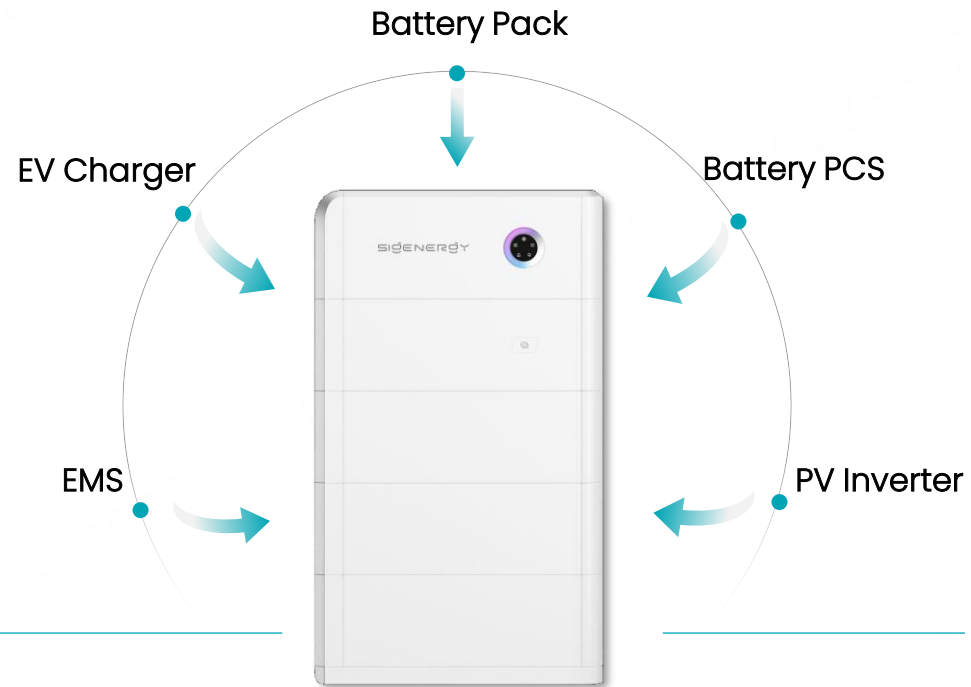
**IP66**  
Protection rating



\*Models in blue are only available in specific countries.

# Five-in-One

Simple Design, Powerful Function



Compatible with different scenarios

PV+ Energy Storage system

AC Coupled Storage system

PV + Energy Storage + EV Charging system

Off-grid system



Ready for more home loads to be connected in future



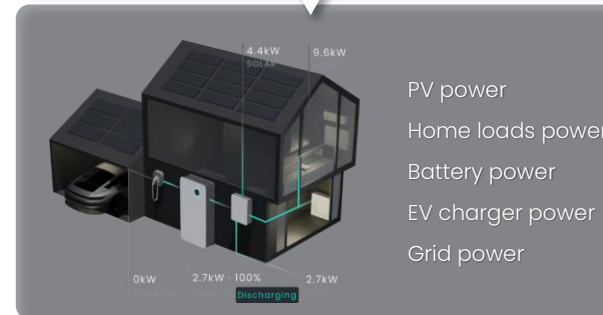
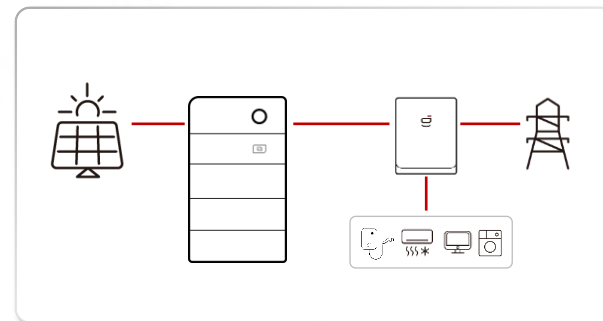
# Simple & Fast Installation

Do more business with less time per install, leave simplicity for installers

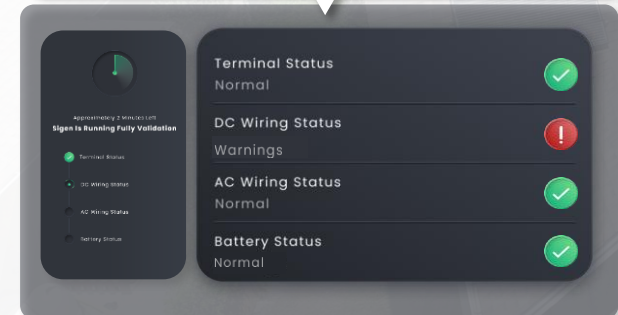
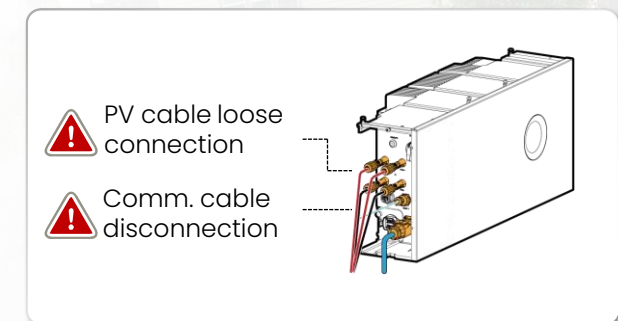
1 Quick connectors  
**15 mins** Installation



2 Auto-Networking  
**5 mins** commissioning



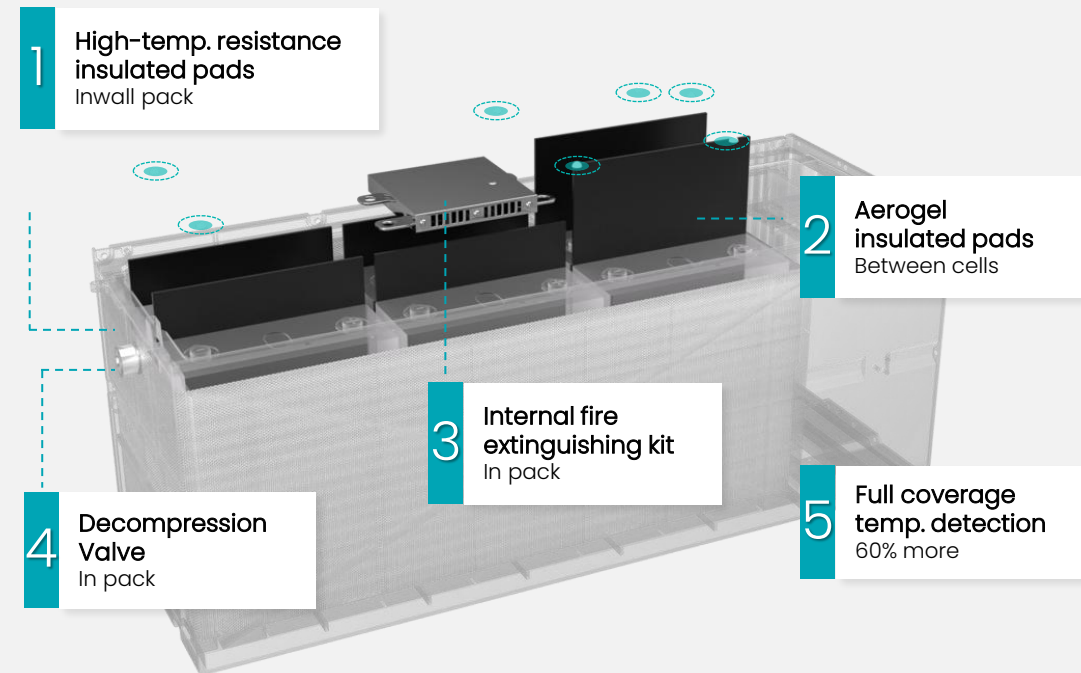
3 One-click diagnosis  
**Free from** rectification



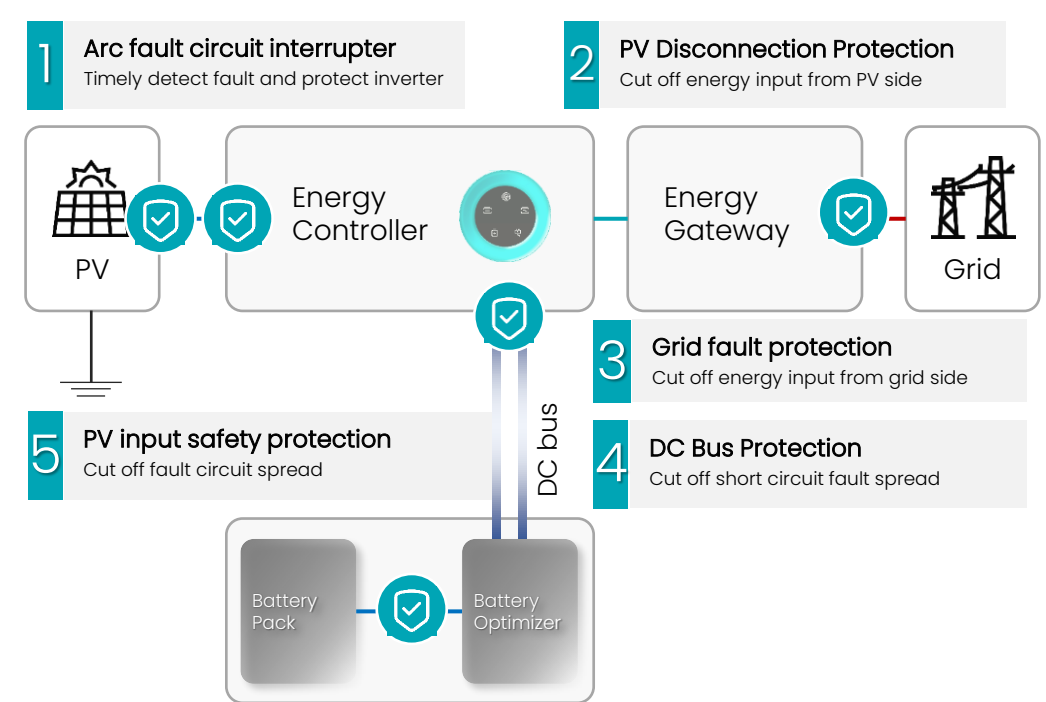
# All-round Safety Protection

Comprehensive protection, from battery cell level to system level

## 5 Layers of Battery Protection




## 5 Layers of System Protection



# World-first Integrated DC Charger

More powerful systems & abundant low-cost energy for electric vehicles



**25 kW**  
DC fast charging

SigenStor EVDC  
12.5 kW / 25 kW

\* The actual available mileage after charging 1 hour

Traditional Charger 7 kW	40 km
SigenStor EVDC 25 kW	130 km

Charging a 75 kWh EV from 10% to 90%<sup>2</sup> ▶ **2.5** hours

## V2X

More backup power for home

Bi-directional charging

Single SigenStor capacity **40 kWh**

Backup power **140 kWh**

Long range EV **100 kWh**

V2X testing in Europe: Success! \*



Tesla Model Y   Volvo EX30   KIA EV6   VW ID.5   Porsche Taycan   Hyundai Ioniq 5 ...

## Diverse Energy Source


Expanding charging capacity

Grid 10 kW  
Solar 10 kW  
Battery 5 kW

**25 kW full charging power**

No fear of power outage

Charge from Solar+Battery



1. V2X functionality is limited by the EV's capabilities. Once the relevant standards are published and tested, V2X feature can be upgraded through the OTA. For the official support of vehicle models and support timelines, please refer to future announcement made on the official website.

# Worry-free Energy Usage

Auto switch to backup power in a flash

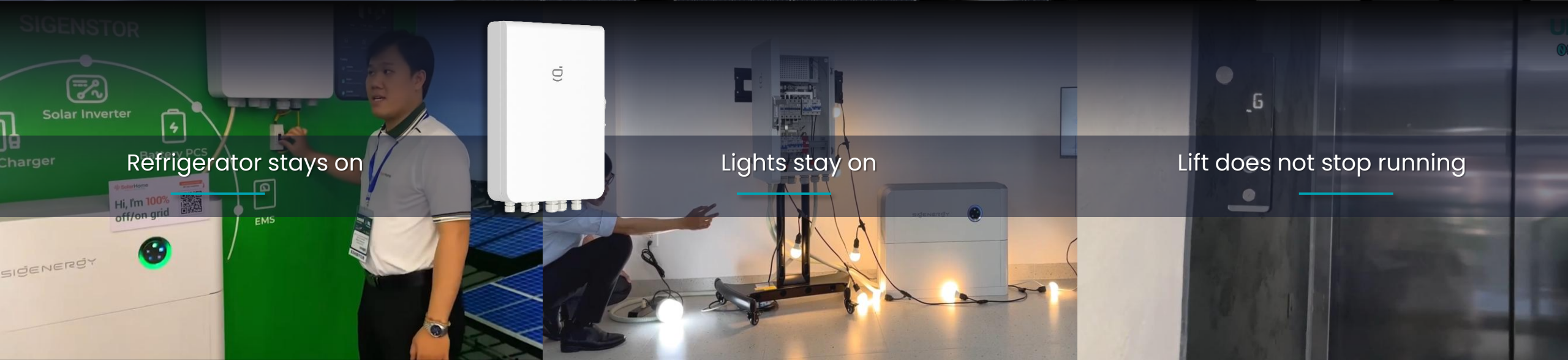
**0 ms** load-side disruption

Whole home backup supported

vs

The power outage lasts for **seconds**

Only support **partial home backup**



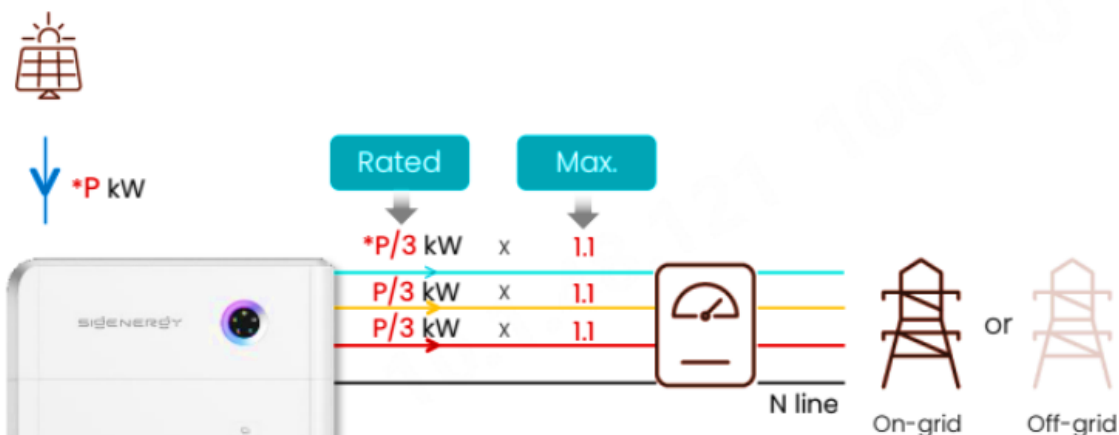
Refrigerator stays on

Lights stay on

Lift does not stop running

# Unbalanced 3-phase power output supported

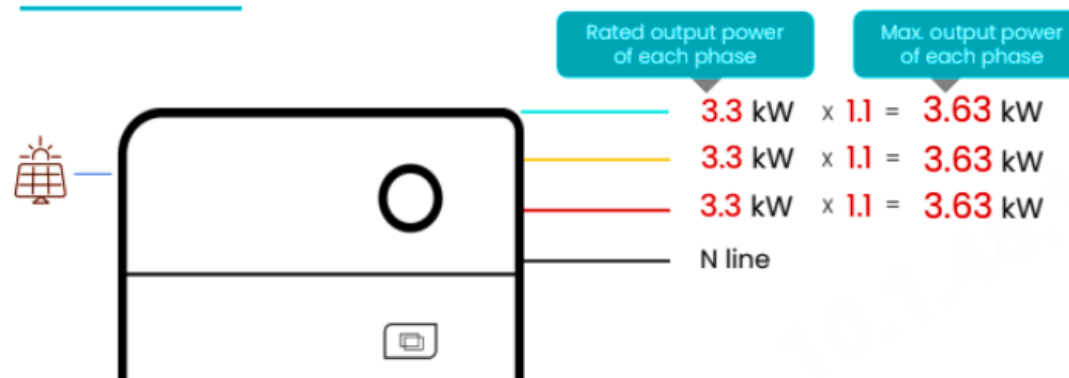
## SigenStor unbalanced output power capability



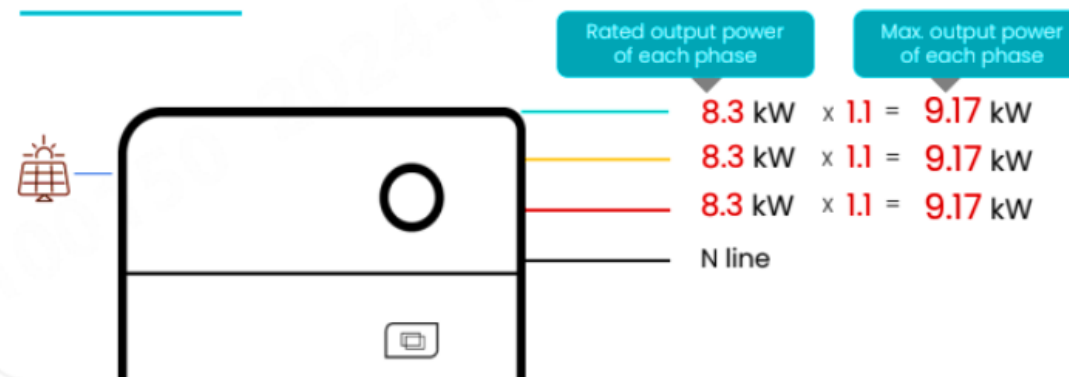
- 110% unbalanced 3-phase power output whether on-grid or off-grid
- 33.3% unbalanced **rated** output power **\*1.1** for **each phase**

\*P (kW) = Nominal output power of SigenStor

## 10 kW SigenStor unbalanced output power capability



## 25 kW SigenStor unbalanced output power capability



# Sigen Hybrid Inverter

Single phase /kW

- 2.0
- 3.0
- 3.6
- 4.0
- 4.6
- 5.0
- 6.0

<25dB

Super silent

99mm

Slimmest design



Three phase /kW

- 3.0
- 4.0
- 5.0
- 6.0
- 8.0
- 10.0
- 12.0

99.0%

Highest Max. Efficiency  
Three phase

IP66

Protection rating

# Residential Hybrid Inverter

New gen. of residential inverter, start with solar, grow with ESS



## Sigen Hybrid Inverter

Single phase /kW  
220/230 V

5.0

Three phase /kW  
380/400 V

10.0

### Battery ready

Future proof, more flexible



Upgraded with  
SigenStor BAT

### Fan-less design

More reliable and lower noise

### IP66 protection rating

Free of maintenance

Available

2025.Q3




# Slimmest in the industry

Industry's slimmest design with premium metallic texture

48% slimmer

Take less spaces  
Less install. requirements



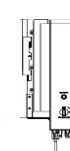
Decorative cover



Sigenergy

99 mm Depth

vs



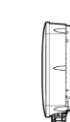
Vendor D

190 mm Depth



Vendor S

160 mm Depth



Vendor H

156 mm Depth

# Fan-less design, powerful yet quiet

Super silent, more reliable

Fully optimized thermal design

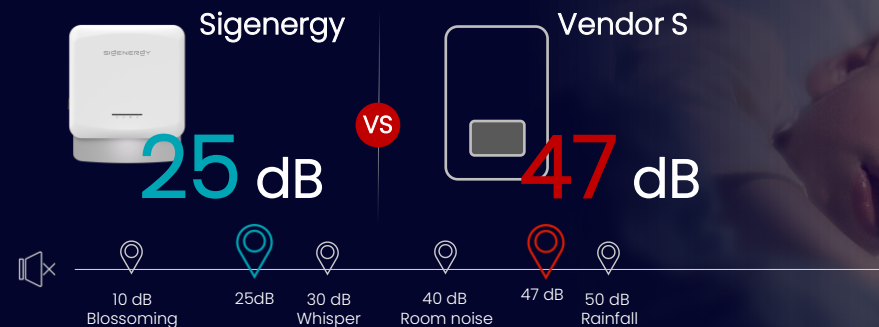


Efficient heat-conducting rear cover design

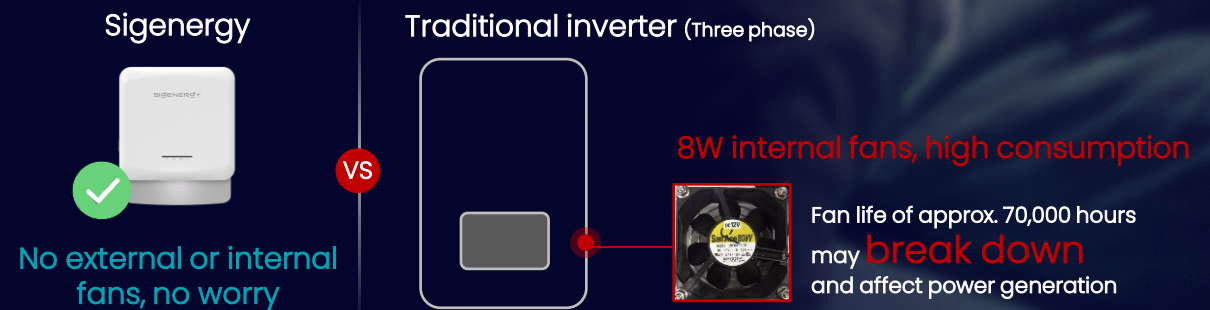
Comprehensive optimization of PCB

Die-cast metal enclosure, directly attached to key components

Super silent



More reliable



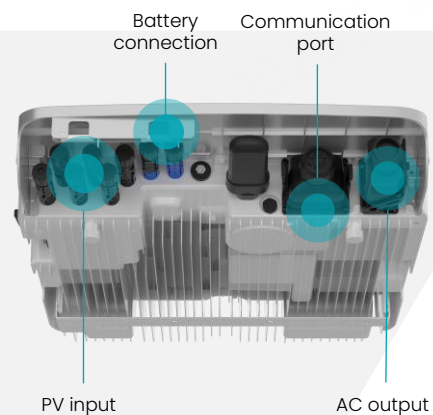
# Upgrade as needed

Operate as an integrated system

**1** Solar only

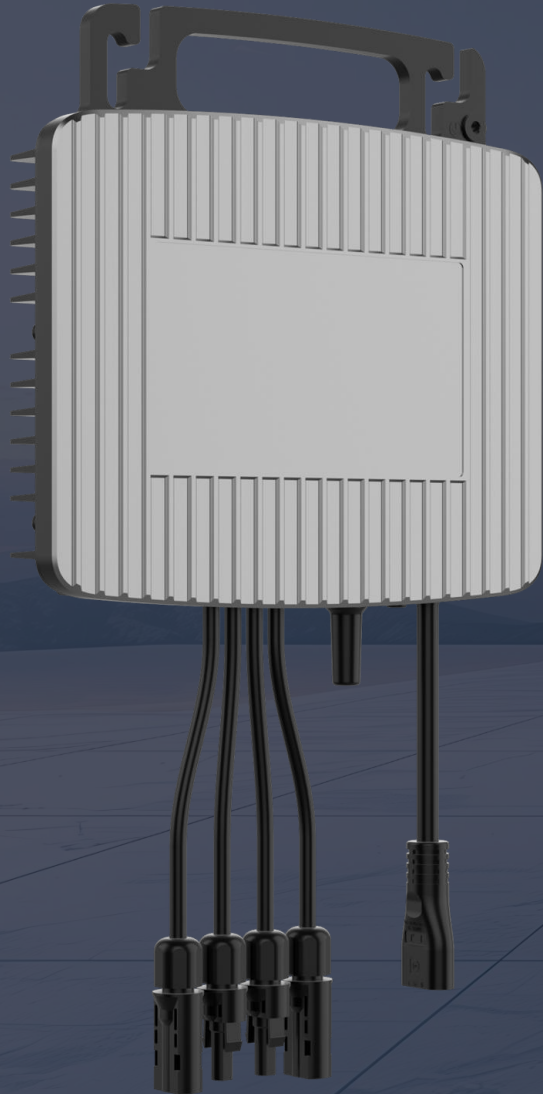
**2** + Energy Storage

**3** + Backup Energy for off-grid



- ✓ Fast Ethernet Comm.
- ✓ Fast Commissioning
- ✓ ONE System operation on *mySigen App*





# *Sigen Micro Inverter*

Efficiency Up, Install Easy

**WLAN Mesh**

auto network

**AI**

layout recognition

**97%+**

High efficiency

1-in-1

400w

500W

2-in-1

800w

1000W

# The easiest-to-install Micro Inverter ever

## Advanced network architecture, even beginners can install

SigenMicro Inverter (Single Phase)

2-in-1

1000W

### 5-min fast commissioning

First-ever AI recognition physical layout,  
WiFi mesh self-grouping

### EMS inside

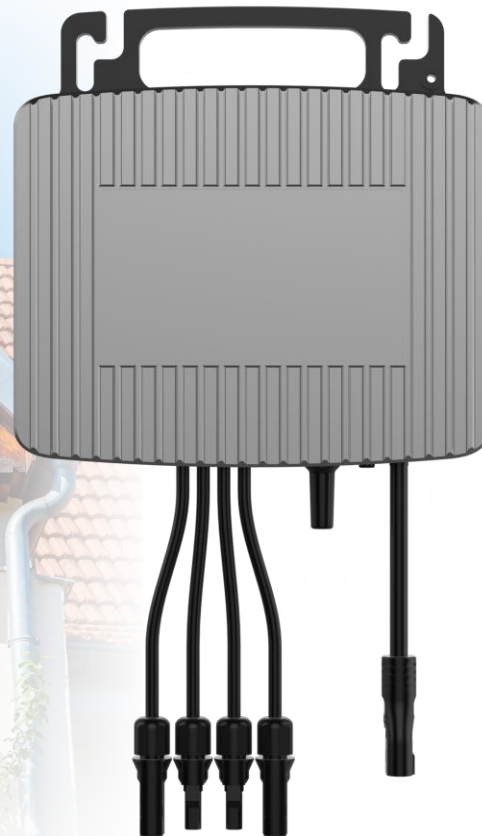
Free from network gateway to save CAPEX  
Competition for host, more reliable

### WiFi mesh network

Dynamic network topology & node self-recovery  
Easily scalable and maintainable

Available

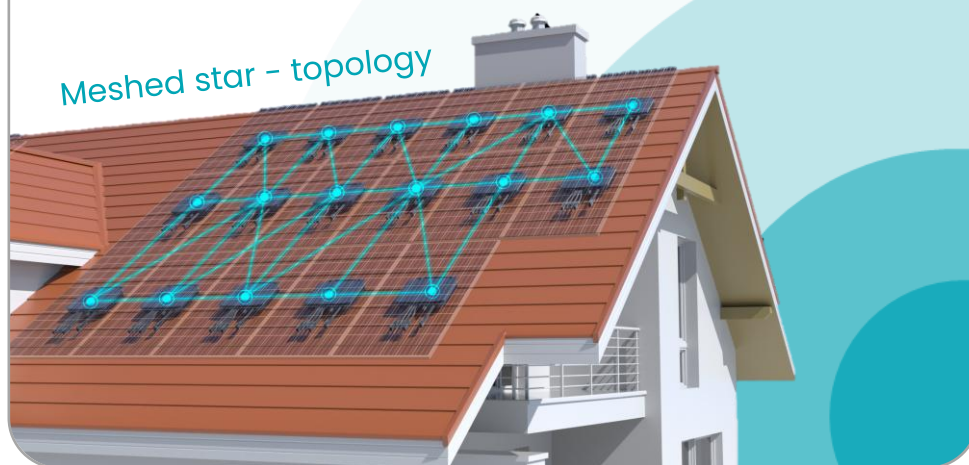
2025.Q3



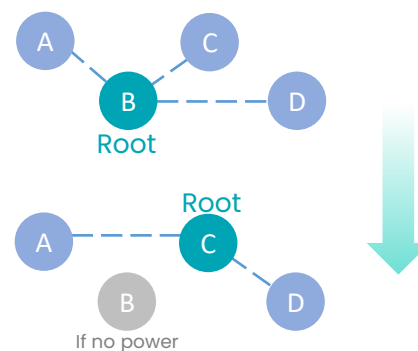
# The world's first WLAN Mesh

## Ultra coverage, ultra stable, ultra simple

**1600%** wider coverage  
compared to traditional Wi-Fi

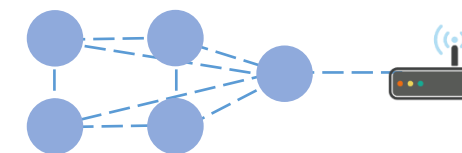


**150ms** Auto. Recovery  
Minimizes system downtime

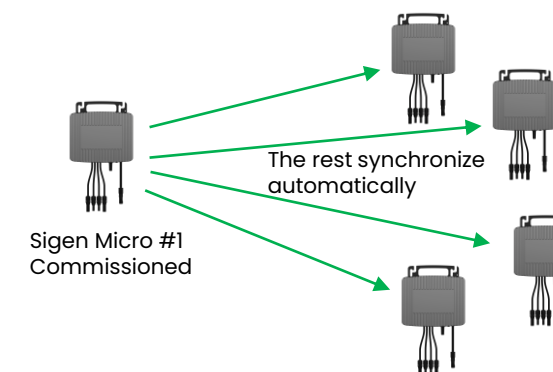


**WPA3 128-bit**  
Comprehensive data security

**Gateway-free system**  
Directly connect to router, Saving CAPEX



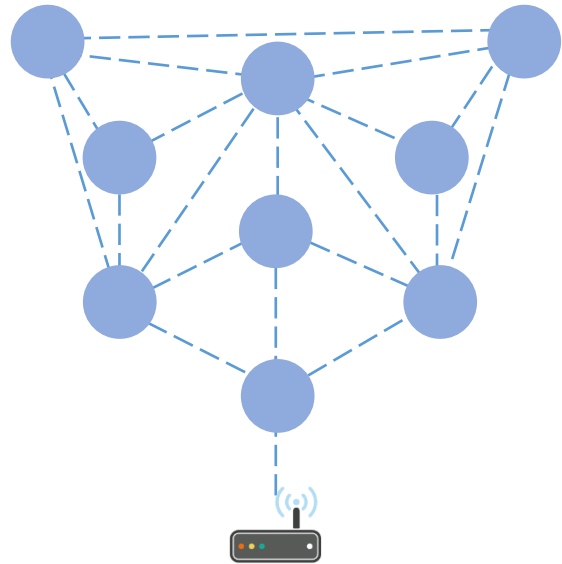
**One-step Commissioning**  
Auto. share data across the Mesh



# Meshed-topology network

## Ensure every point has access to the network

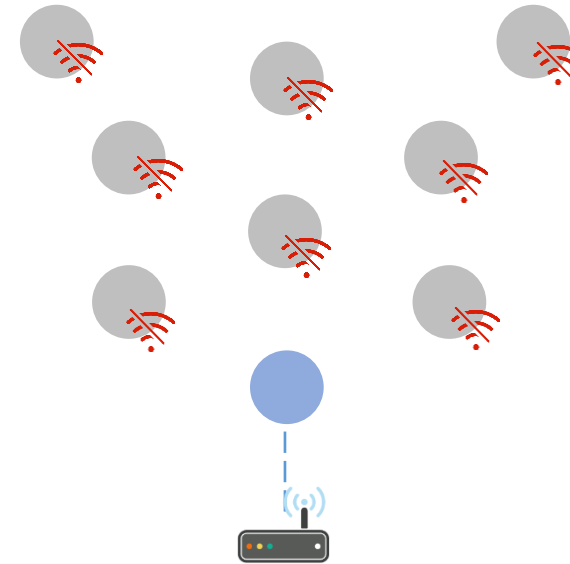
Mesh Networking, Wider Coverage



- ✓ 1600% increase in coverage range
- ✓ Just one point connected, the whole system connected
- ✓ Meshed star - topology network, SigenMicro relays info to others

VS

Far from router, no signal

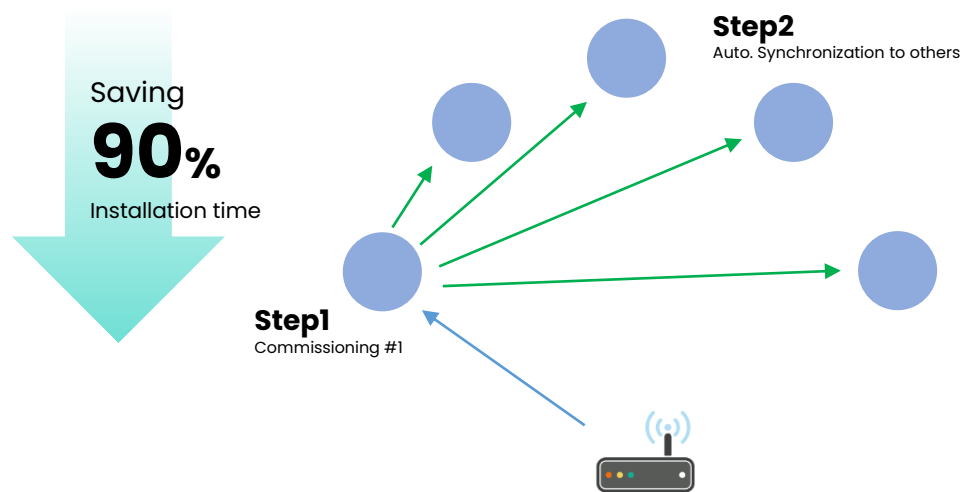


- ✗ Limited coverage, hard to serve complex rooftops
- ✗ Limits layout flexibility and complicates router placement

# Single-point commissioning

Only one needs to be commissioned—the rest auto. synchronize

Auto. share commissioning data

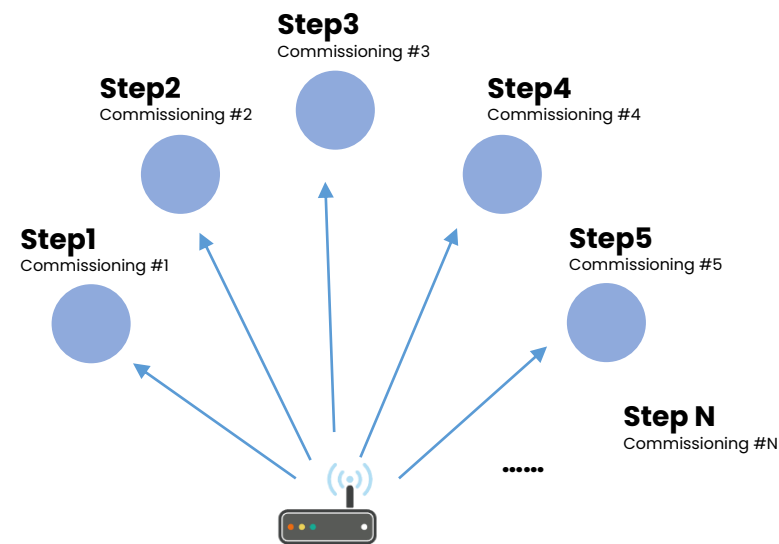


Saving  
**90%**  
Installation time

- ✓ 5mins fast commissioning
- ✓ Share commissioning data across the network
- ✓ Only one microinverter needs to be commissioned—the rest synchronize automatically.

VS

Commissioned one-by-one



- ✗ 45 mins complex commissioning
- ✗ Each rooftop unit must be individually commissioned with the WiFi router, requiring significant manual effort

# Self-healing mesh topology

Quick self-healing to ensure always extremely stable comm.

## Decentralized mesh network

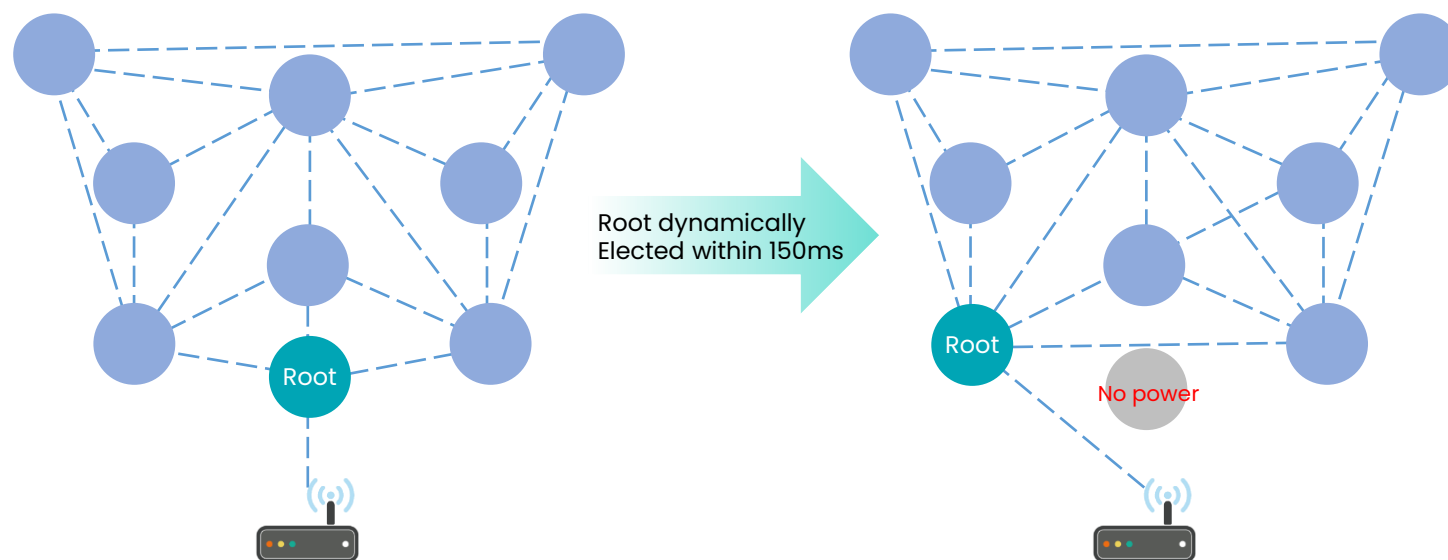
Dynamically selecting optimal communication paths

## Dynamically elected the root

Ensures optimal comm. between SigenMicro and router

## 150ms switch to another root

If a microinverter fails, traffic auto - reroutes via others

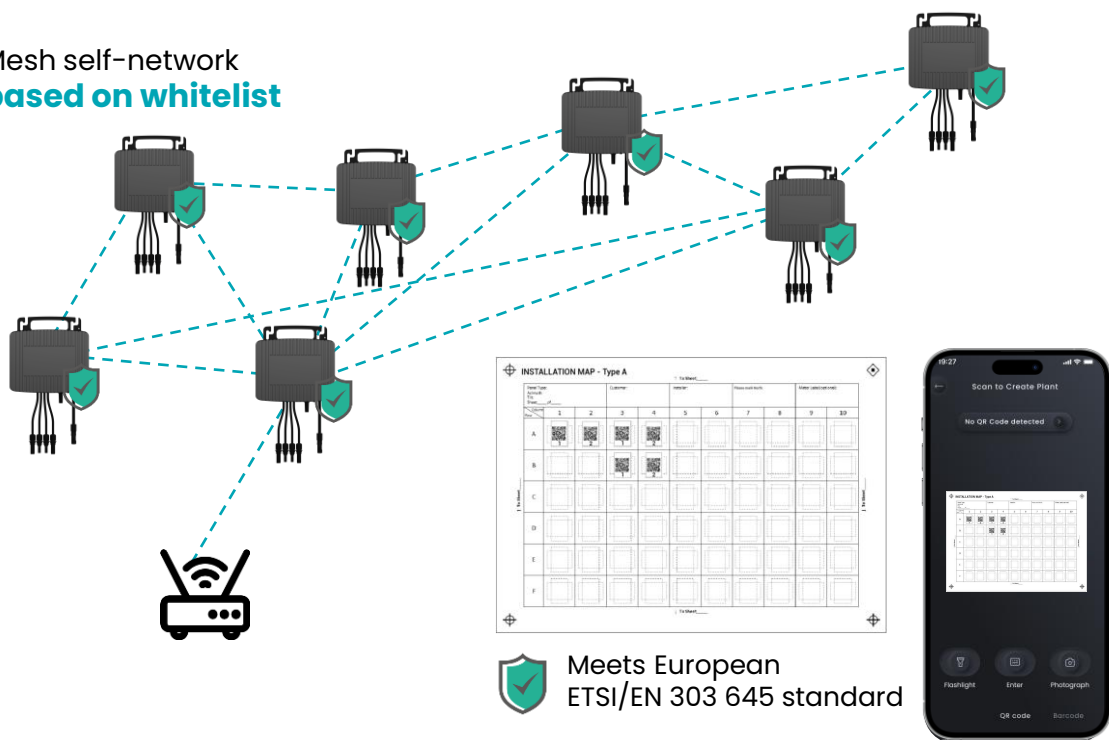


# More reliable & safe

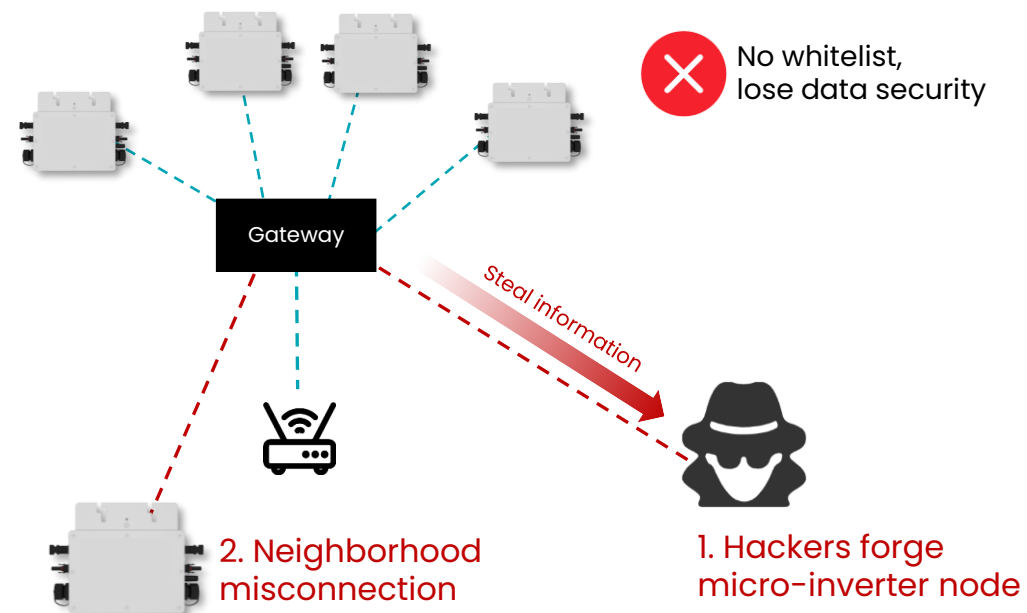
## Creating a safe, expandable wireless mesh network

### Sigenergy Whitelist Security

Mesh self-network  
based on whitelist



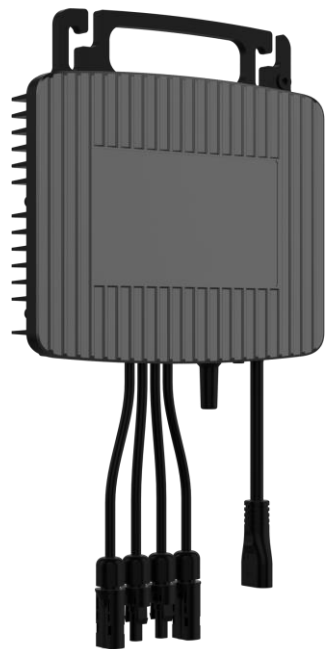
### Others without whitelist



# The world's first EMS inside

## Significantly simplifying system and enhancing stability

Industry-first built-in EMS, saving CAPEX

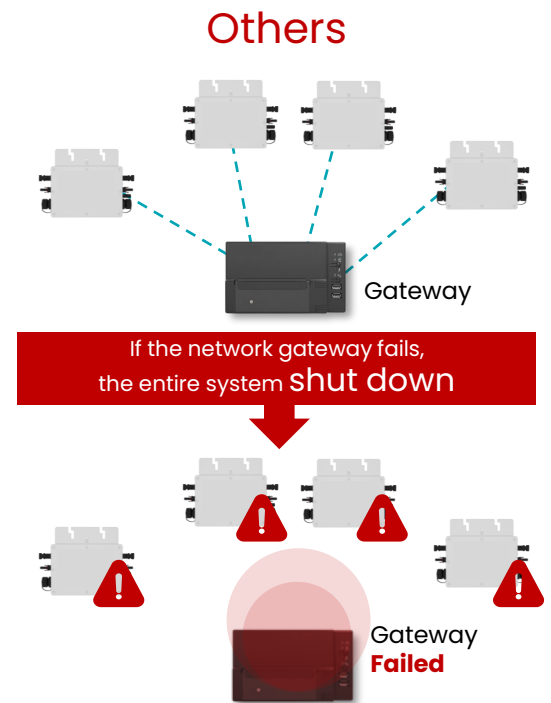
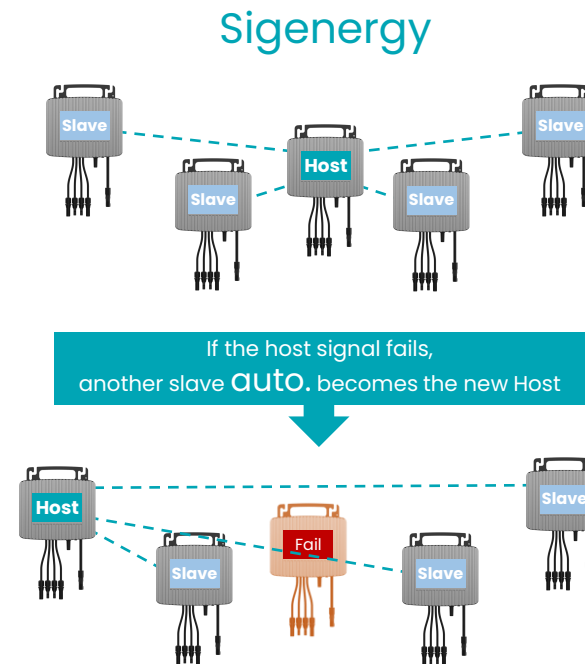


### EMS inside

- ✓ Native support 0-power injection\*
- ✓ Free from network gateway, saving CAPEX



Competition for host, more reliable comm.

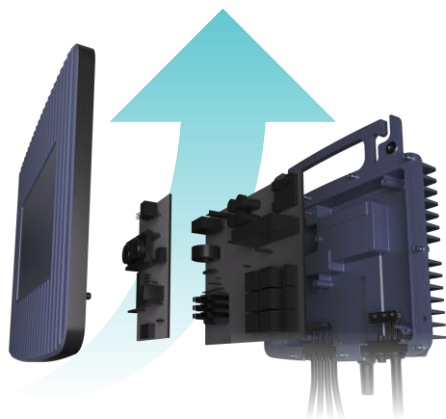


\*To achieve this functionality, you need to purchase Sigenergy Smart Meter.

# Innovative DAB topology

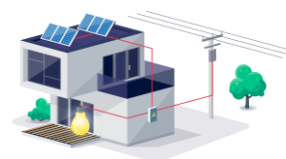
## High-Gain, Isolated, Efficient & Reactive-Power-Capable

**97.5%** efficiency  
The highest in the industry\*



Sigenergy	Vender En	Vender AP	Vender Ho	Vender De
> 97%	> 97%	>95%	>95%	>95%

**600%+** reactive power  
Compared with traditional topology

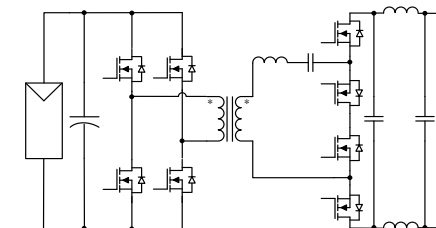


DAB 1000W rated power	Flyback 1000W rated power
±600VAR	< 100VAR

- ✓ Maintain voltage stability
- ✓ Enhance grid stability

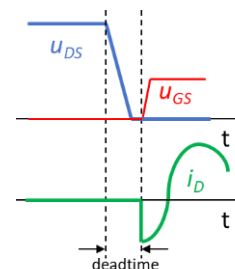
**30%** volume reduction  
Higher power density

**Sigenergy patented technology**  
Breakthroughs in both software and hardware



- ✓ Precise nonlinear control algorithms
- ✓ Sophisticated transformer modeling and power calculations

**Zero Voltage Switching (ZVS)**  
All MOSFETs in DAB microinverters achieve ZVS

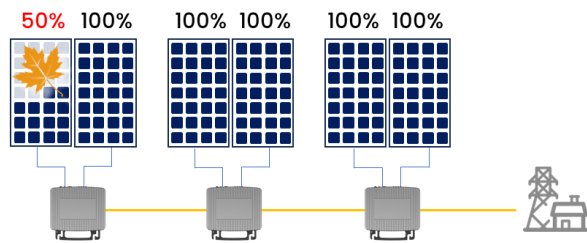


- ✓ MOSFET switching power loss is significantly reduced
- ✓ More green power generation  
More yield

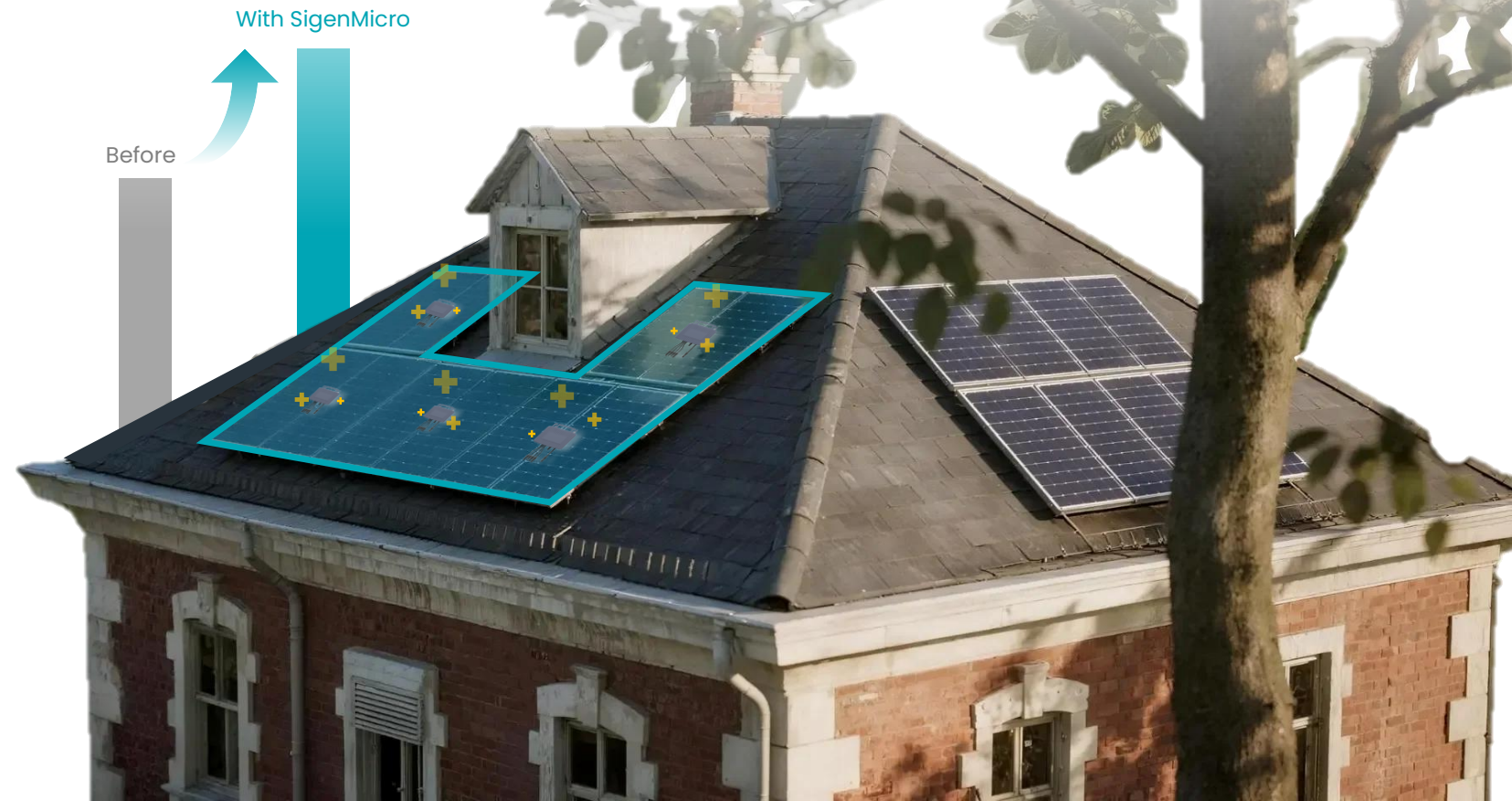
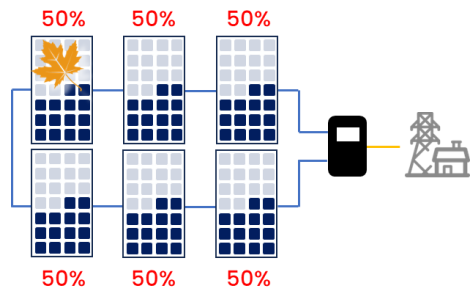
# Fearless of shadow, more revenue

## Ideal for SigenStor to boost system yield

Module-level MPPT for higher yields



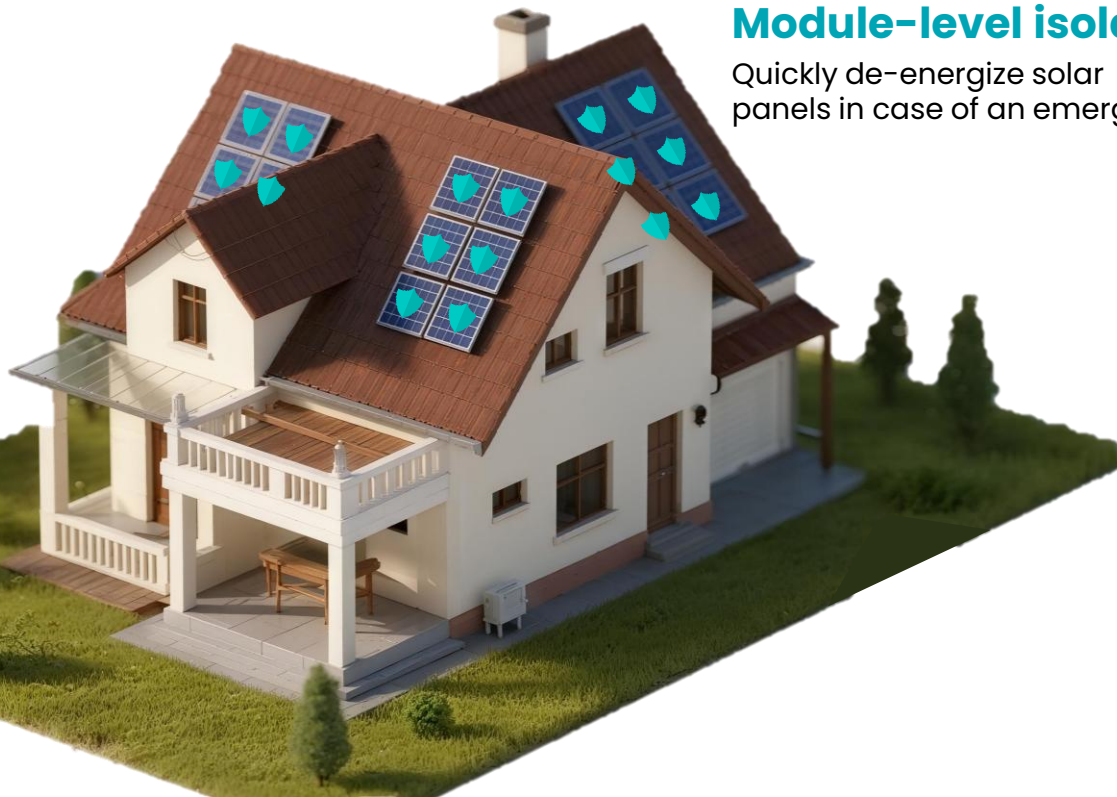
VS



# Module-level isolation for enhanced safety

## Engineered for safety, safeguard home and loved ones

Built-in rapid shutdown

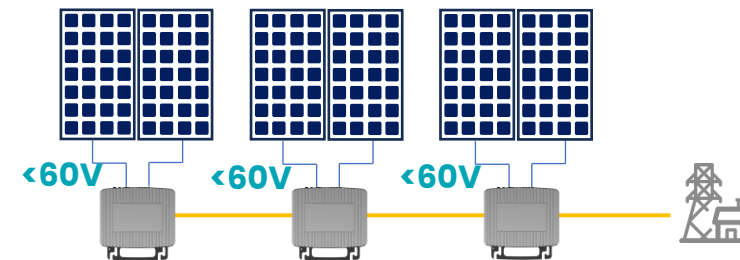


### Module-level isolation

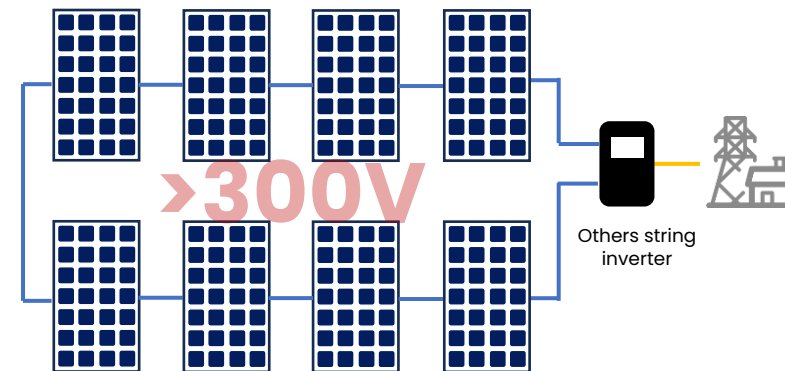
Quickly de-energize solar panels in case of an emergency

< 60 V DC Voltage, NO Need of AFCI

With SigenMicro DC voltage less than **60V**



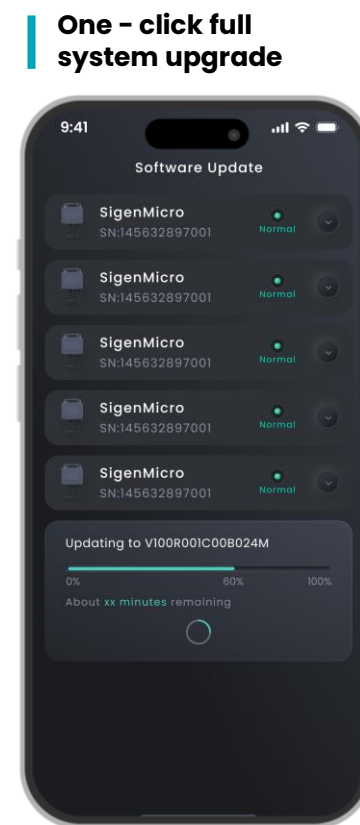
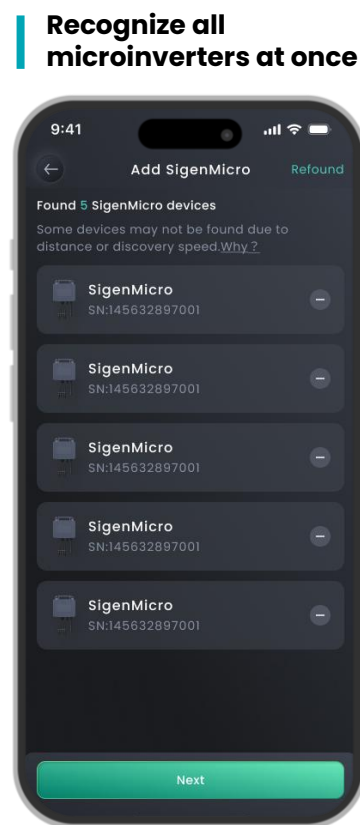
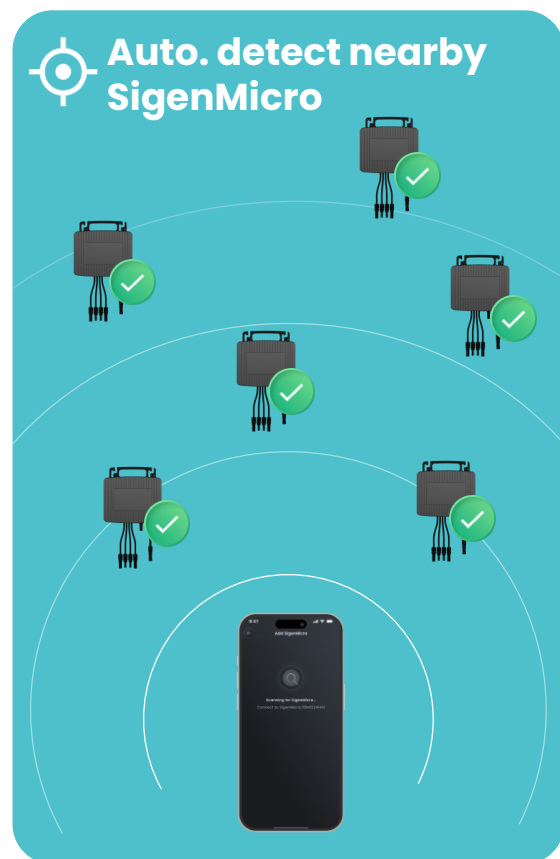
May initiate a high-voltage arc DC voltage more than **300V**



\*UL and NEC safety regulations stipulate that DC systems above 80V need to pay attention to arcs.

# AutoLink commissioning

## Paperless setup, auto-detect surrounding SigenMicro

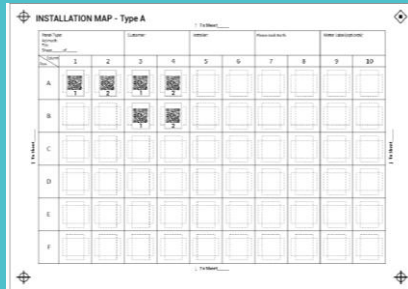


# AI layout recognition

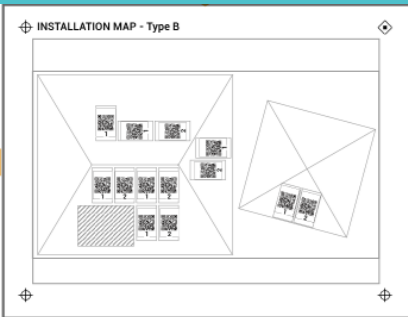
## Save all the tedious manual adjustment steps

### 2 - type maps for diverse requirements

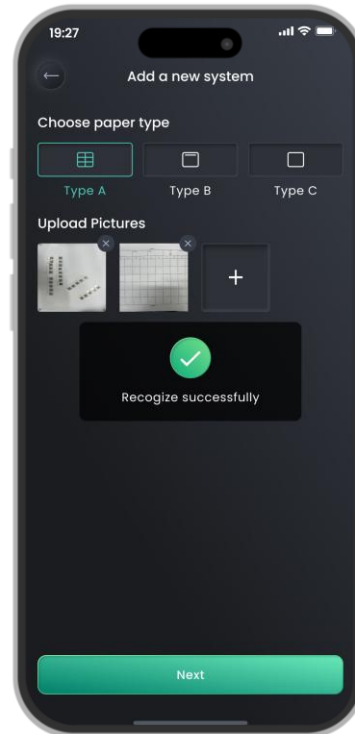
Type A: Regular arrangement



Type B: Irregular arrangement



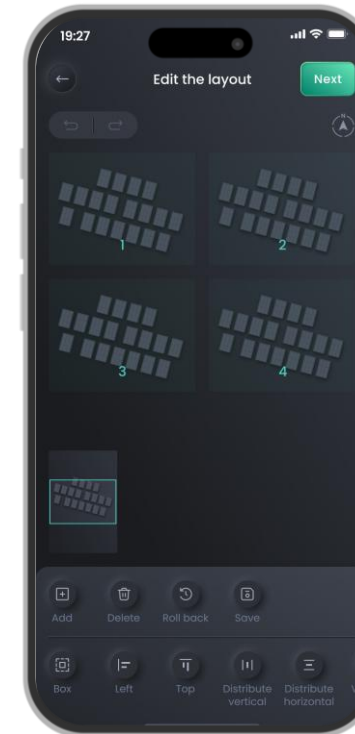
Recognize multiple photos at once



AI Quickly recognize the entire layout



Recognize multiple drawings simultaneously



Real-time viewing of module-level info



# Reliable Sigen EV AC Charger

High environmental adaptability, peace-of-mind for most environments

## IK10 Impact Resistance

Industry's highest impact resistance standard



20

joules of impact

Or can bear

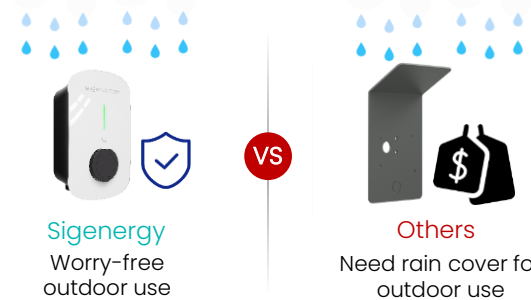


5 kg

drop from

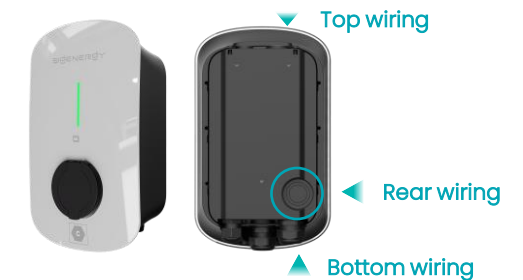
0.4 m

## IP65 protection



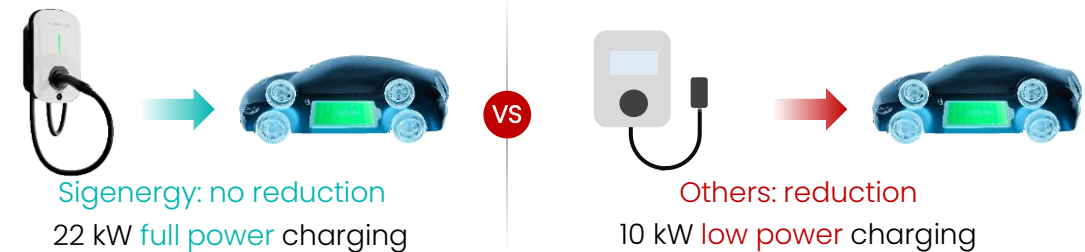
## Flexible routing

Adapt to different installation environments



## No power derating at high altitudes and temperature

55°C/4000m extreme environments



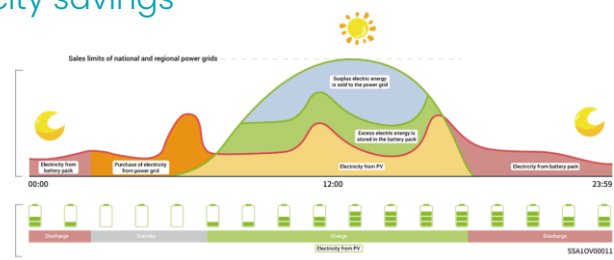
# Multiple working modes flexibly match user needs

## Flexibly choose your ideal operation mode

### 1 Sigen AI Mode Customize home energy solutions Maximize electricity savings

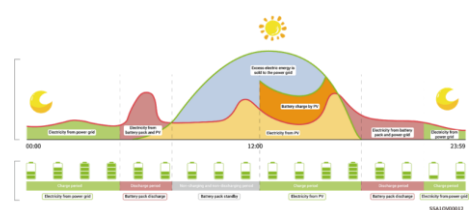
- Operation data
- Local tariff
- Humidity
- Irradiance
- Cloud amount
- Temperature
- Temporal features
- Association features

- Full range of forecasts
- Load consumption
- Energy analysis
- Power generation
- Electricity price
- Revenue comparison



XGBoost forecast of tomorrow  
Neural network forecast of today

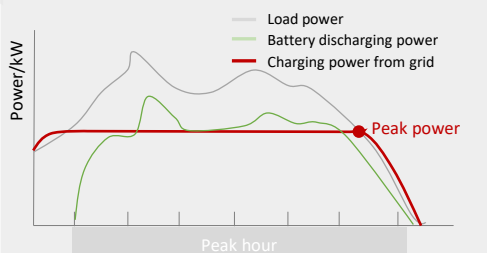
### 2 TOU (Time of Use) Mode



Peak valley arbitrage  
Maximize returns



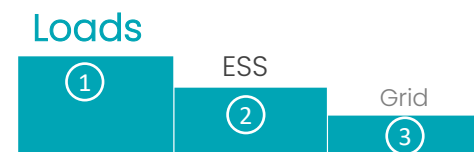
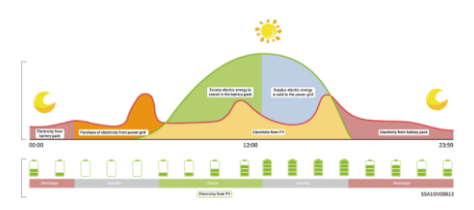
### 3 Peak Shaving Mode



Reduced demand charge	Limit peak power
Other fees (e.g., tax)	Utilize ESS to meet peak loads
Basic energy charges	Reduce demand charge

Composition of bill

### 4 Max. self-consumption

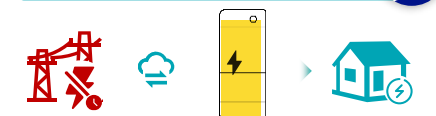


### 5 Fully Fed to Grid



Maximize the PV energy for grid connection.

### 6 Load Shedding



21:00 ~ 23:00  
19:00 ~ 21:00  
Automatically obtain power outage times, and charge ESS in advance.

# Sigenenergy C&I Product Family

## C&I Inverter

### On-grid PV inverter

50 60 80  
100 110 125

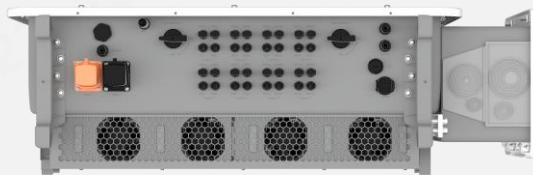


### On-grid Hybrid inverter

50 60 80  
100 110 125



### Micro-grid Hybrid inverter



50 60 80 100 110

## C&I Energy Storage System

### SigenStack



Battery Controller  
SigenStack BC

0.5C 0.5C-BST  
1C-BST

Sigen Battery  
SigenStack BAT

12.0



Data logger  
Sigen Logger AI-01



Comm. Bridge  
Sigen CommBridge



Sigen Cloud



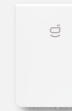
Dongle

## Energy Gateway

### For SigenStor connection



C60-2

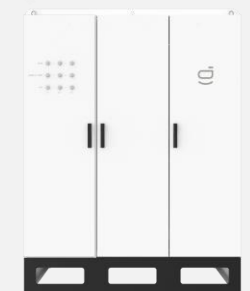


C120-6



C180-9

C300-12



C600

C1200

### For HYB series connection



C600/1200-B



C1600/2000/2400-B Series

# SigenStack, upgraded for large-scale ESS

## Also flexible, even more powerful

- SigenStack BC
 

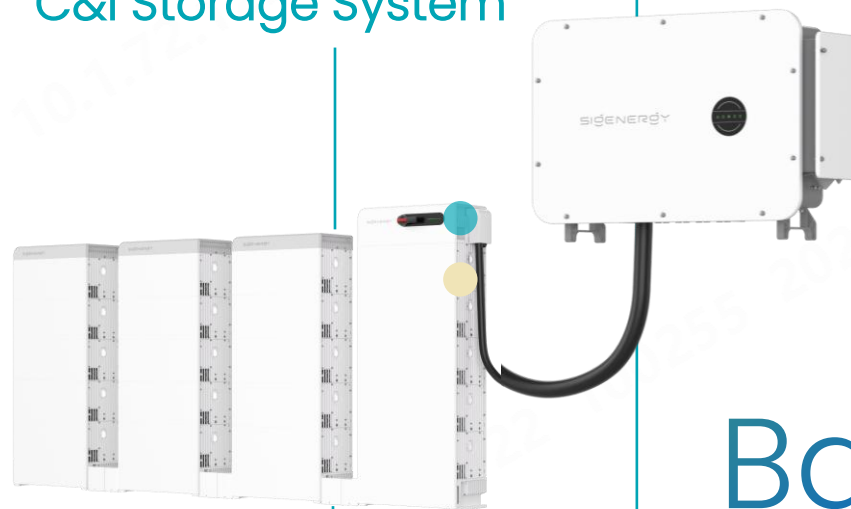
---

 Battery Controller
  - Max. output current 180 A
  - Max. input current 180 A
  - Voltage range 550 – 1100 V
- SigenStack BAT 12.0
 

---

 Battery module
  - Energy capacity 12.06 kWh
  - Nominal charge rate 0.5C
  - Maximum charge rate 1.0 C

### C&I Storage System



### C&I Inverter

PV(solar only)	50 kW	110 kW	125 kW
HYA(on-grid)	50 kW	110 kW	125 kW
HYB(Micro-grid)	50 kW	110 kW	
Start-up voltage	180 V		
Max. DC input voltage	1100 V		
Max. short-circuit current per MPPT	60 A		

253 kWh per inverter, parallel 100 inverters = 25 MWh

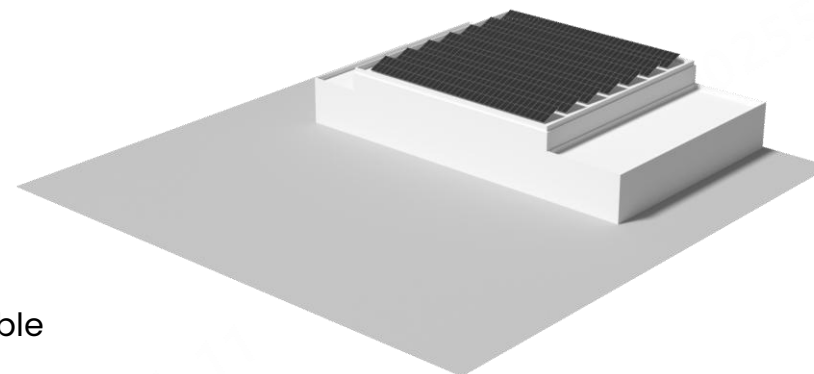
# Battery Ready

# Universal Adaptation Flexible Layout

Belgium 1 MWh Factory Project

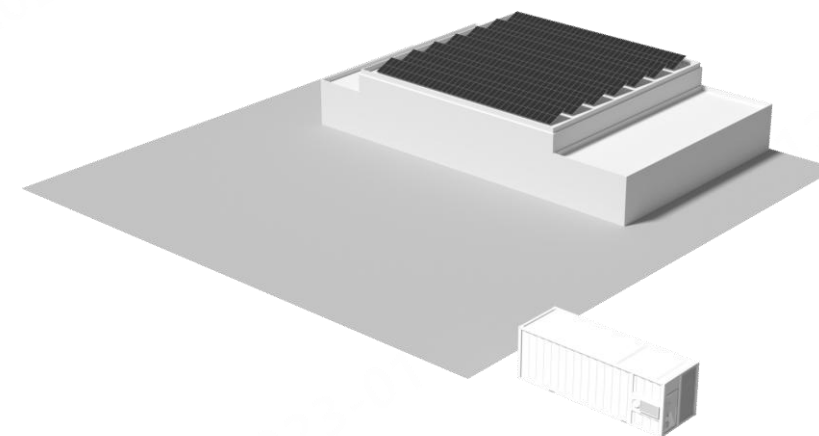
## — Sigenergy Modular Solution —

- ✓ No requirement for O&M access
- ✓ Reduced footprint
- ✓ Noise  $\leq 65$  dB, indoor installation available



## — Traditional Solution —

- ✗ Extra O&M access
- ✗ Space occupation
- ✗ Noise  $\sim 80$  dB, additional installation location away from the working area



Only 1m wide

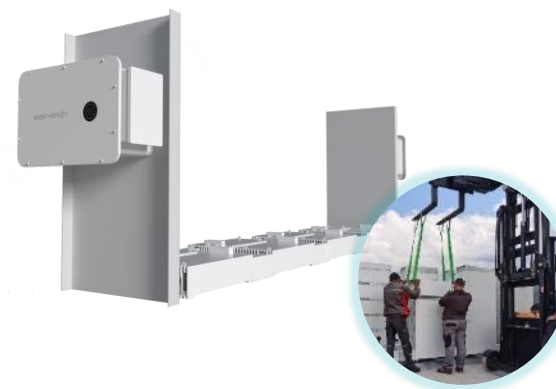
## Sigenergy Modular Solution

20 MWh Project Capacity

**5** People - **10** Days

Device auto-recognition, system self-networking

✓ **15mins** commissioning



## Traditional Solution

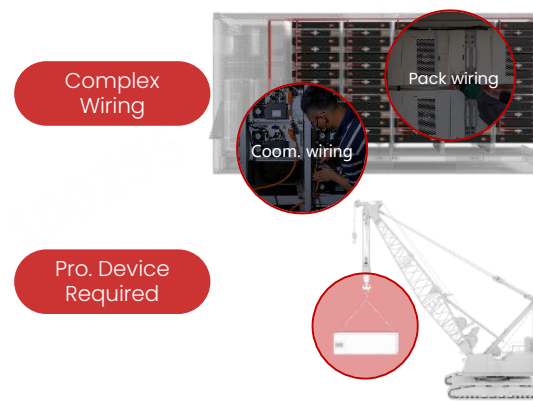
20 MWh Project Capacity

**60** Days

Site survey, fire access compliance, transport constraints, and limited lifting conditions

Supervision & Standalone commissioning

✗ **6days** commissioning



Crane lifting capacity > 50t Working radius > 10m

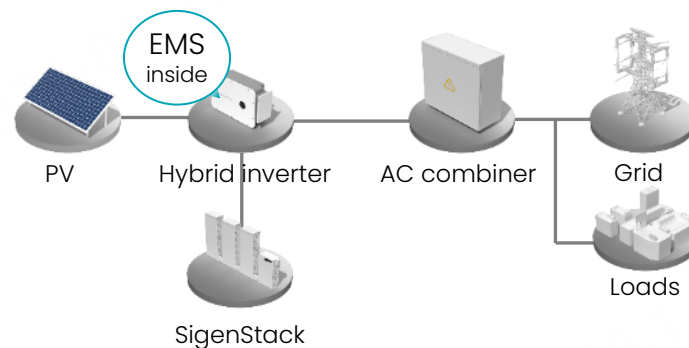
# Stackable Design Cuts Installation Cost

Bulgaria 10MW/20MWh  
Utility PV+BESS Project

# Fewer Devices, Lower Costs, Maximize Savings

Hainan 6MW/5MWh Distributed PV+BESS Project, China

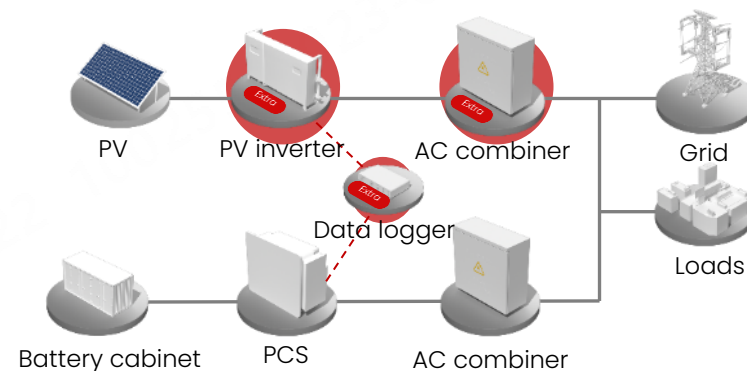
## Sigenergy Modular Solution



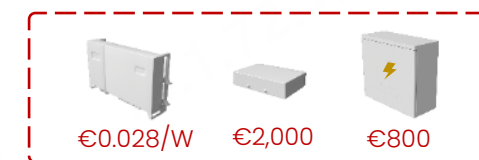
### Simplify system

- ✓ Save PV Inverters
- ✓ Save a data logger
- ✓ Save an AC combiner

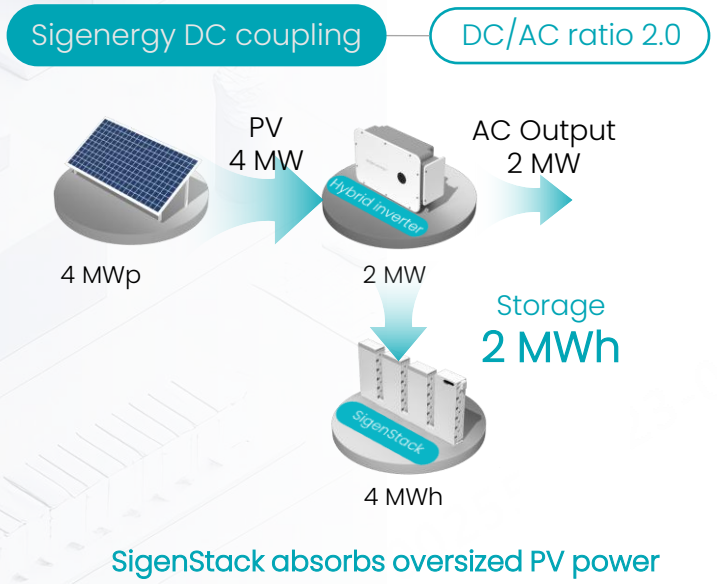
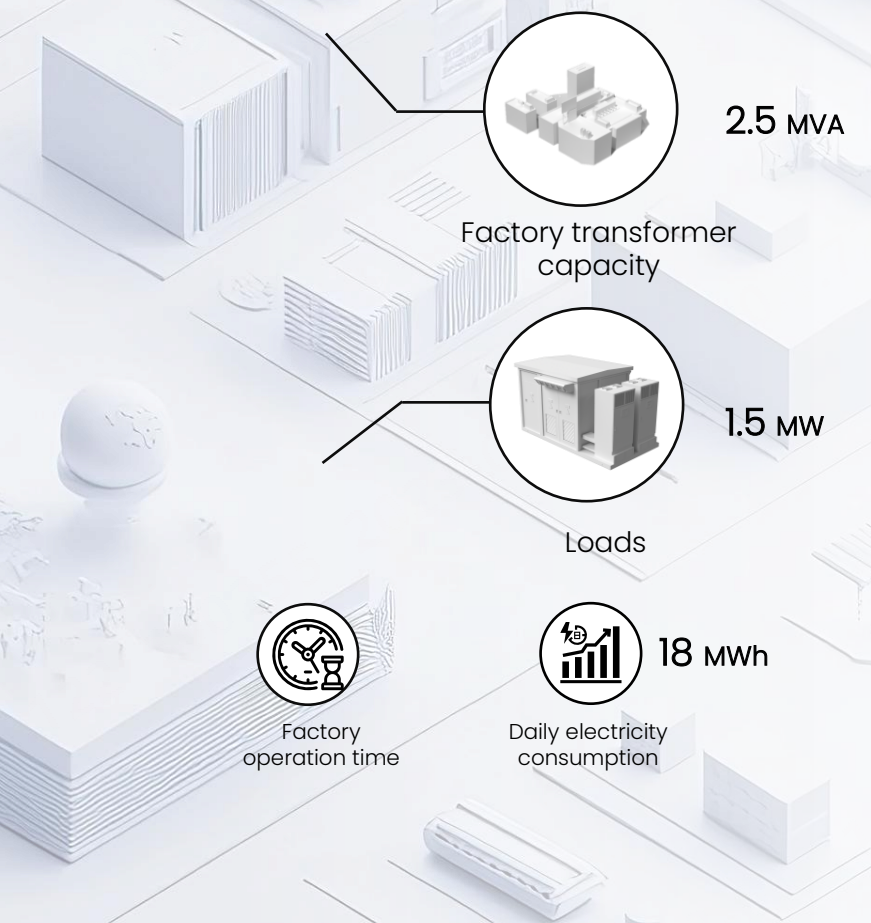
## Traditional Solution



### Extra devices needed



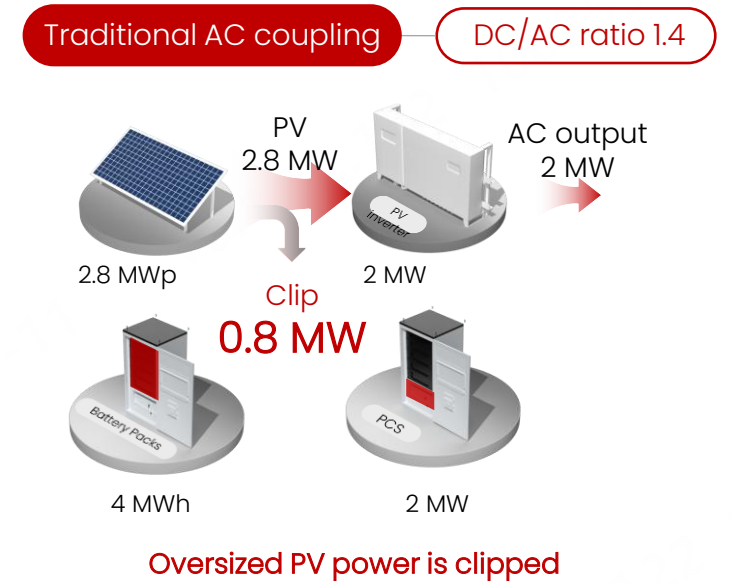
# Higher Revenue Support 2.0 Max. DC/AC ratio, more PV power input



3.5 hours PV power equivalent operating hours

14 MWh PV daily generation

77.8% Percentage of PV utilization



3.5 hours PV power equivalent operating hours

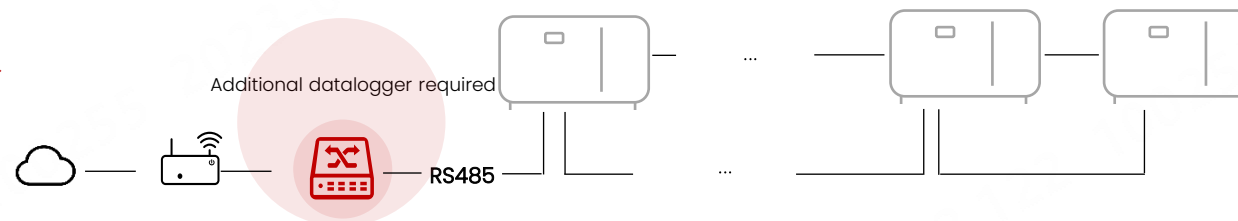
9.1 MWh PV daily generation

50.5% Percentage of PV utilization

# Lower CAPEX Free of datalogger, improves comm. reliability

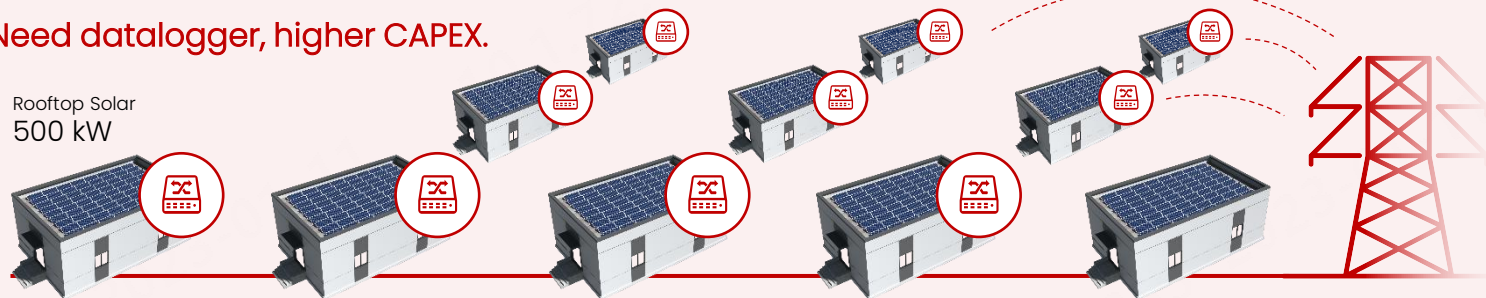
## Traditional comm. solutions

Additional Data logger/Dongle required,  
Additional Communication Node = Additional Failure Node



## Need datalogger, higher CAPEX.

Rooftop Solar  
500 kW



C&I projects totaling **100 MWac**

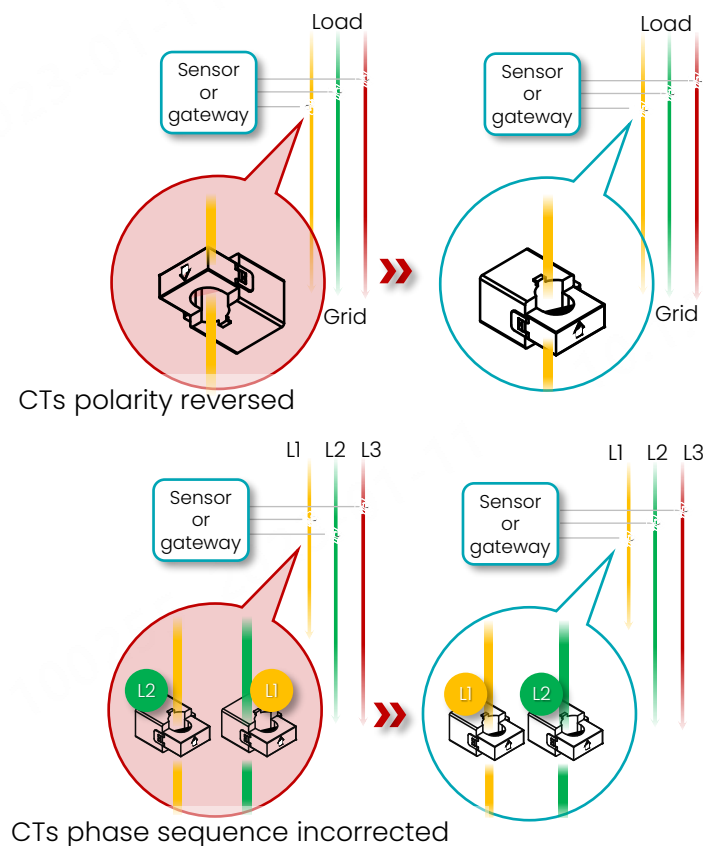
Require **200** datalogger  
**x 2000** EUR/unit

## Logger-Free comm. solutions

Reliable communication,  
any inverter can be the master



# Lower CAPEX with self-adaptive phase sequence AC side wiring without worries



## Traditional solution

Take **0.5** days

Each Rectification

### Positioning



Determine the location of the error, power down the system, and record the current wiring status.

### Inspection



Test and check that overload and short-circuit protection devices have not been affected.

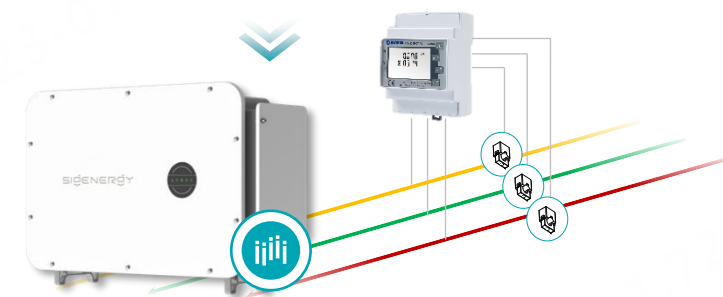
### Correction



Rewire and calibrate, correct and verify meter and protective device functionality, and finally restore power.

## Sigenergy Lower wiring difficulty, no manual correction required

The inverter is automatically adjusted during commissioning:



## Arbitrary Wiring

## Automatic Adjust

\*Note: The phase voltage sampling of the power sensor must correspond to the current sampling.

# Lower CAPEX Fast commissioning with system self-networking

— SigenStack, ultra-fast commissioning —

**Auto**. networking



about **15 mins**  
on the whole system

— Traditional solutions, time-consuming  
with one-by-one devices connecting —



**Need supervisor service**

Project site requires professional installation guidance

Onsite technical disclosure & training

Installation and construction guide

Grid-connection commissioning guide

About **€3,840** For 1 MWh project

...

# Lower OPEX

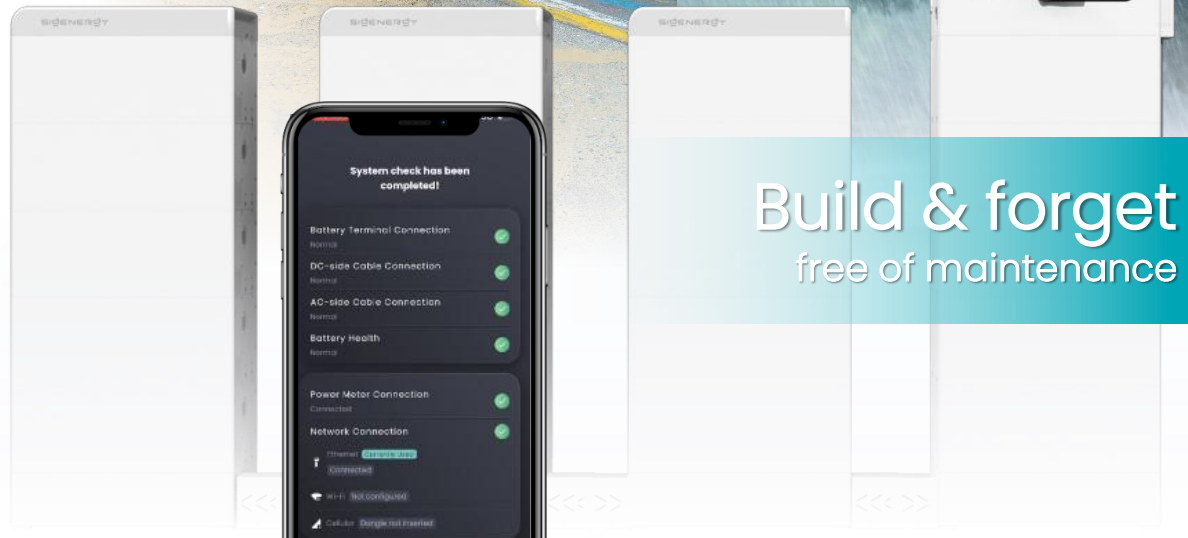
## Free of complex and regular cabinet ESS O&M

### SigenStack, High protection rating



6X: No ingress of dust; complete protection against contact

X6: Protection from water, even from powerful jets of water



**Build & forget**  
free of maintenance

### Multiple check items brings high OPEX



Check per  
**6 months**

Air conditioner

Smoke sensors

Power supply

Temp. sensors

Check per  
**12 months**

Air inlet/outlet

Wire connection

Safety function

Software version

Check per  
**12 months**

Earthing

SPD

Fan

Screw

Check per  
**24 months**

Battery capacity

Internal resistance

Switch box

Refrigerant

Annual Maintenance Cost

**€22,610**

*\*Take a 1000 kWh ESS (200 kWh cabinet x 5) as an example*

ESS fire safety check

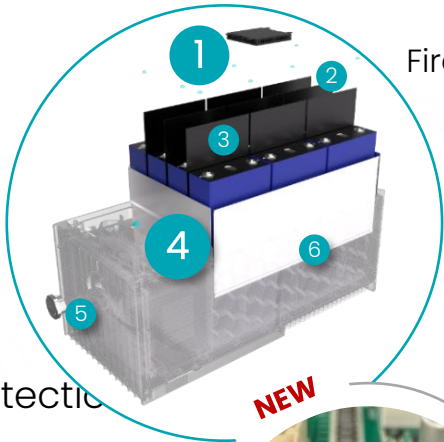
Check per  
**1 months**



# Lower OPEX

## Pack-level safety protection, accurate safety control

### Pack-level fire extinguisher




Fire suppression system per **12 kWh**

**6**-layer safety protection

- 1 Fire extinguishing kit
- 2 Full-coverage temp. detection
- 3 High-temp. resistant insulated pad
- 4 **Smoke Sensor**
- 5 Decompression valve
- 6 Insulation and heat isolation layer

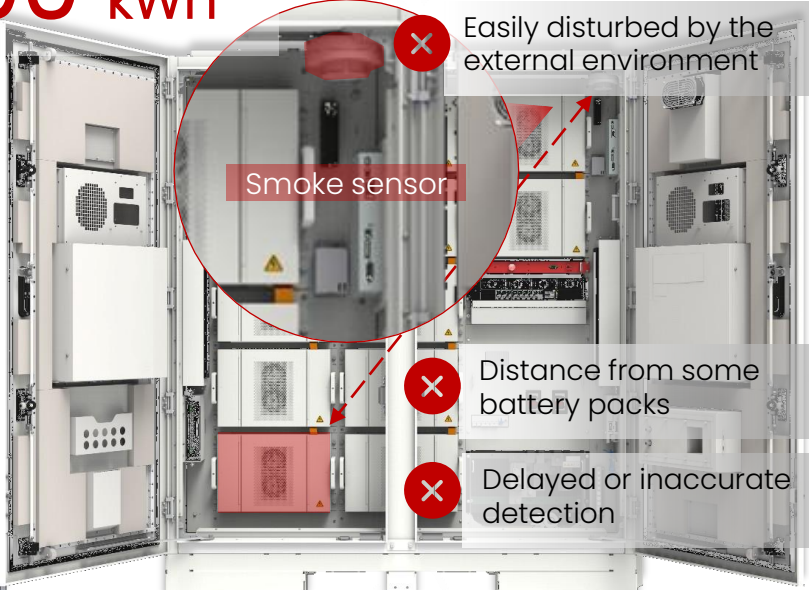
**NEW**



**Smoke Sensor**  
The real-time detection of thermal runaway reduces response time by **60** seconds

### Cabinet-level fire extinguisher

Fire suppression system per **200 kWh**



**Smoke sensor**

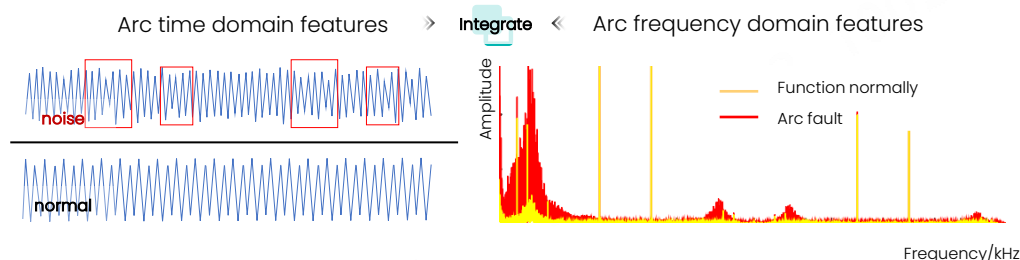
- ✗ Easily disturbed by the external environment
- ✗ Distance from some battery packs
- ✗ Delayed or inaccurate detection

# Lower OPEX with super AFCI detection

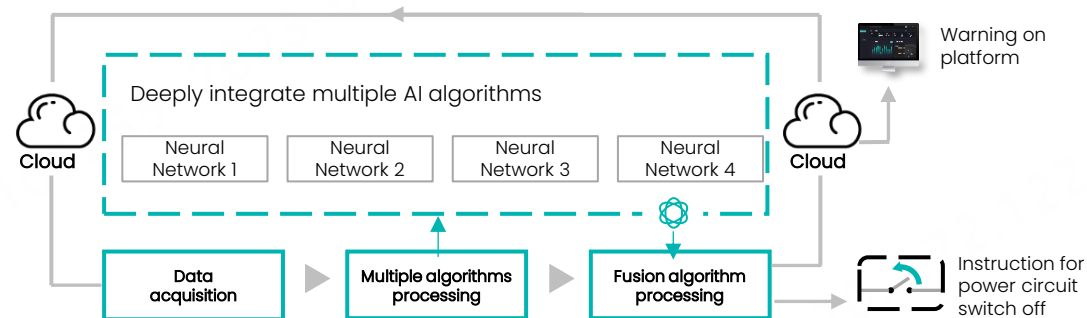
## Enables all-application scenarios adaptation

### Sigenergy software detection strategy

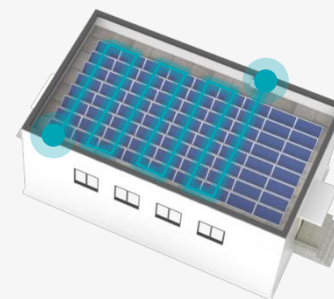
#### 1 Feature fusion



#### 2 Algorithm fusion



#### Sigenergy solution



Detecting arc faults with **higher accuracy & speed**

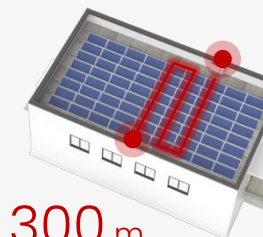
**500 m**  
Max. detection distance\*

#### Industry-leading solution



**450 m**  
Max. detection distance\*

#### Others solution



**300 m**  
Max. detection distance

\* Scenario-specific measured distances

# Extreme Fire Testing on SigenStack

Self Containment During Thermal Event

## Extreme thermal runaway test

Manually triggered thermal runaway of one battery pack under extreme conditions

1

All active safety protections  
removed  
for extreme testing

2

No fire propagation  
pack-to-pack

3

No fire propagation  
stack-to-stack



Hubei, China



2025.03

Thank you.

Enjoy Green Energy



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