

Sigenergy Product Training

2024/04/29



SIGENERGY

Content

Product knowledge training parts

Section 1 – Sigenergy Produktportfolio

Section 2 – Schaltpläne

Section 3 – Installation

Sigenergy Produkt Portfolio



Overview of Sigenergy product family

SigenStor



Sigen Energy Controller
Single Phase & Three Phase

Sigen EV DC Charging Module

Sigen Battery
5.0 kWh & 8.0 kWh



Sigen Hybrid Inverter
Single Phase & Three Phase



Sigen PV Inverter
Three Phase




Sigen Energy Gateway
Single Phase & Three Phase
Home & C&I version



Sigen EV AC Charger
Single phase 7.0
Three phase 11.0 / 22.0 kW



Sigen Communication Module



Sigen Cloud mySigen App

Naming principle of SigenStor

Main product
Name

Brand	Full name of product category	Capacity/Series	Grid (if any)	Other info (if any)
Sigen	Detailed product categories as below:	XX kW/XX kWh Max / Pro / -	Single/Three Phase	Eg: solution, supplier, region
Sigen Energy Controller	Sigen Storage Controller	Sigen Battery	Sigen Cloud	Sigen Energy Gateway
Sigen Power Sensor	Sigen Hybrid Inverter	Sigen PV Inverter	Sigen EV AC Charger	Sigen EV DC Charging Module

Main product
Model

Series	Category	Capacity/model	Grid-other info (if any)
SigenStor	EC Energy Controller	<i>Eg:</i> 3.0 → 3 kW	SP = Single Phase TP = Three Phase TPLV = Three Phase Low Voltage
	AC Storage Controller	25.0 → 25 kW 12.5 → 12.5 kW	
	BAT Battery	25 → 25 kW 5.0 → 5 kWh	
	EVDC EV DC Charging Module	8.0 → 8 kWh	

Product model/name needs to be uniform everywhere

1 Certificate & Test Report >>

Test item description	PV Inverter
Trade Mark	N/A
Manufacturer	
Model/Type reference	SigenStor EC x SP;Sigen Hybrid x SP;Sigen PV Max x SP(x:3.0,3.6,4.0,4.6,5.0,6.0)
Ratings	See marking label and model list

2 Delivery Inspection Report >>

Sigen Energy Controller Delivery Inspection Report	
Equipment Name	Equipment Model
Sigen Energy Controller	SigenStor EC 3.0-6.0 SP
Inspection Result	

3 Nameplate >>

SIGENERGY	
Model: SigenStor EC 6.0 SP	
Product Name: Sigen Energy Controller	
DC Input	
Max. PV Input Voltage: 600 Vd.c.	
MPPT Range: 50-550 Vd.c.	
Max. Input Current: 16 A/16 A	
Isc PV: 20 A/20 A	
Battery Voltage Range: 300-600 Vd.c.	
Battery Max. Continuous Current: 12 A	
AC Output	
Grid Output Nominal Voltage: 220 V/230 V/240 Vd.c.	

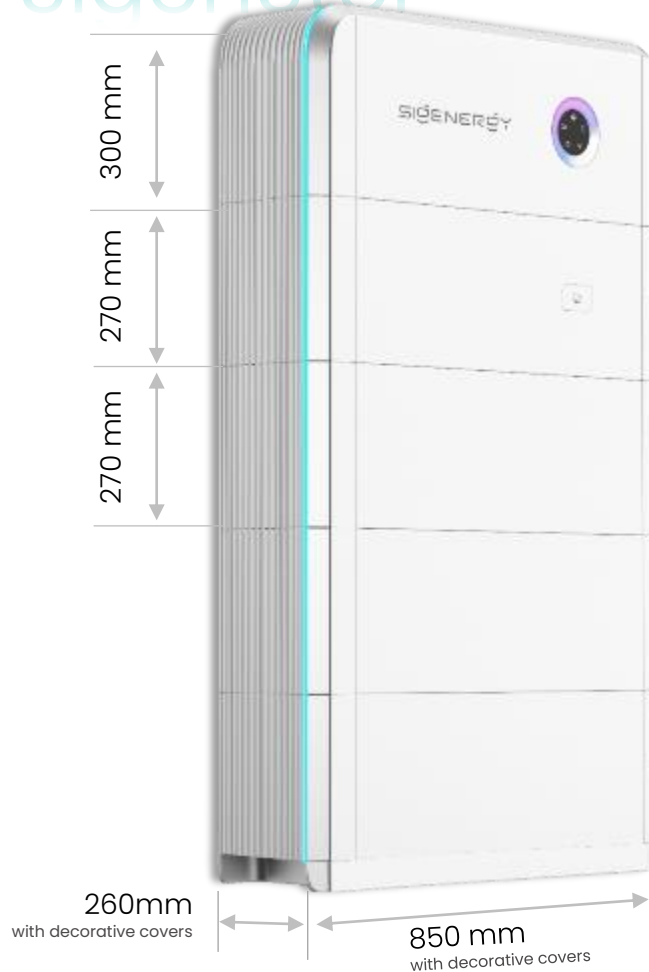
4 Packaging Label >>

Model: SigenStor EC 6.0 SP	
Product Name: Sigen Energy Controller	
SN: XXXXXXXXXX	QTY: 1 PCS 00
Gross Weight: 22 kg	Net Weight: 18.5 kg
Dimension: 800 mm x 410 mm x 340 mm	
EAN: 6 976162 690011	Only for Commissioning
MADE IN CHINA	

6 kW
Single Phase
Energy Controller

SigenStor, the world's first 5-in-One Solution

SigenStor



Sigen Energy Controller

Model: SigenStor EC

for solar + energy storage system

Single phase grid connection (kW)

3.0	3.68	4.0	4.6	5.0	6.0	8.0	10.0	12.0
-----	------	-----	-----	-----	-----	-----	------	------

Three phase grid connection (kW)

5.0	6.0	8.0	10.0	12.0	15.0	17.0	20.0	25.0	30.0
-----	-----	-----	------	------	------	------	------	------	------

Sigen EV DC Charging Module (kW)

Model: SigenStor EVDC

12.5	25
------	----

Sigen Battery (kWh)

Model: SigenStor BAT

5.0	8.0
-----	-----

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

5 kWh – 48 kWh

Energy capacity range for a single stack



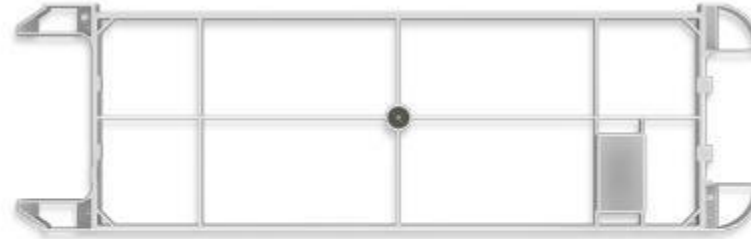
Installation Kit for SigenStor **Ground-mounted**



Decorative cover
(front left)



Decorative cover
(back left)



Mounting base



M5*12 Screws x10



Gaskets x 12



Cascade (left & right)



Handles x 2



Decorative cover (right)



Expansion bolts M8 x 2



Packing list



Inverter padlock parts x 2



Inverter wall fasteners x 2



Decorative cover (top)

Installation Kit for SigenStor **Wall-mounted**



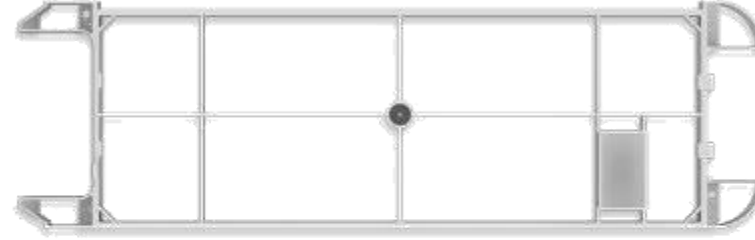
Decorative cover (front left)



Decorative cover (back left)



Decorative cover (right)



Mounting base



Hexagon head screw set_M8*25 x 4



Gaskets x 12



Cascade (left & right)



Tripod (left & right)



M5*12 Screws x 10



Expansion bolts M8 x 6



Packing list



Inverter padlock parts x 2



Handles x 2



Inverter wall fasteners x 2



Decorative cover (top)

Check the difference between three inverters

SigenStor



Sigen Energy Controller
Model:
SigenStor EC

Sigen EV DC Charging Module
Model:
SigenStor EVDC

Sigen Battery
Model:
SigenStor BAT

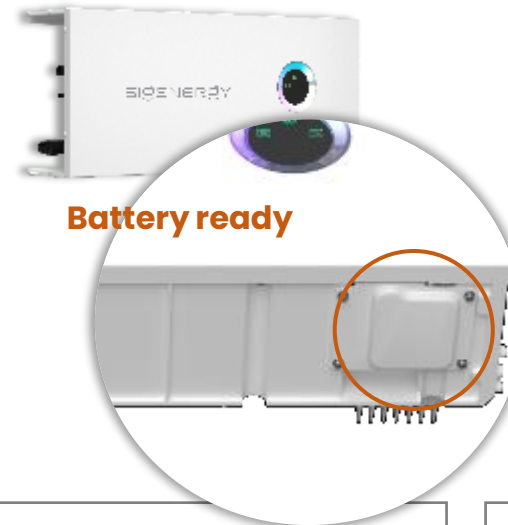
SigenStor EC



Quick connector

Battery connected by quick connectors

Sigen Hybrid



Battery ready

Notes: Sigen Hybrid inverters cannot work with Sigen Batteries without **connection license** which is charged separately.

Sigen PV Max



Cannot support Battery connection

Notes: Sigen PV inverters only work in solar only system, and cannot work with Sigen Batteries.

Sigen Energy Controller

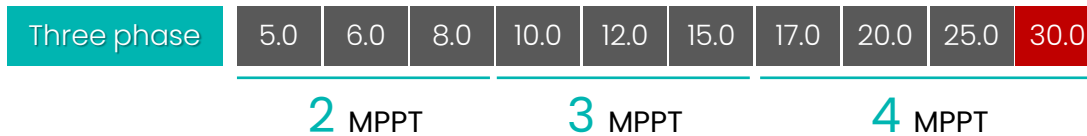
Sigen PV Inverter



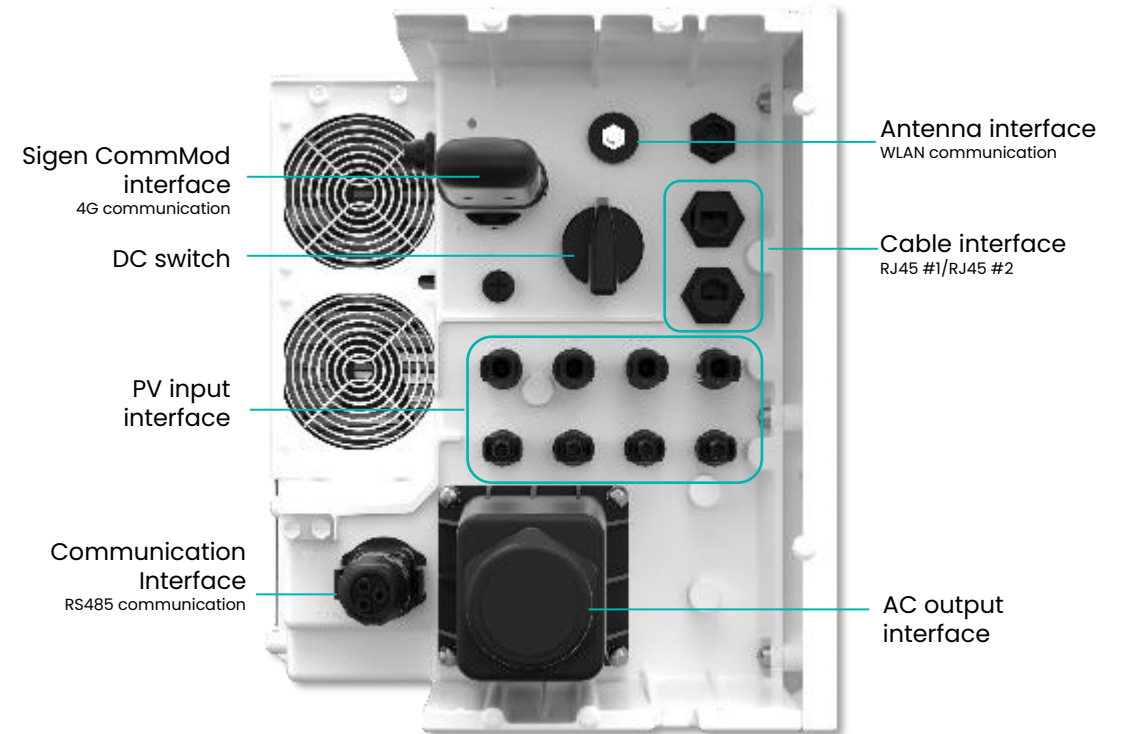
Higher DC/AC ratio
Up to **1.6** for three phase

More MPPT. Tracker
Up to **4** for three phase

IP66
protection rating



Sigen PV Inverter ports demonstration
Three phase inverter for example



If you want connect Sigen Hybrid with Sigen Battery, then you need to...

Homeowners need to purchase >>

1 Sigen Battery



SigenStor BAT 5.0/8.0

2 SigenStor BAT connection License

Activated via mySigen App, available in 2024 Q2



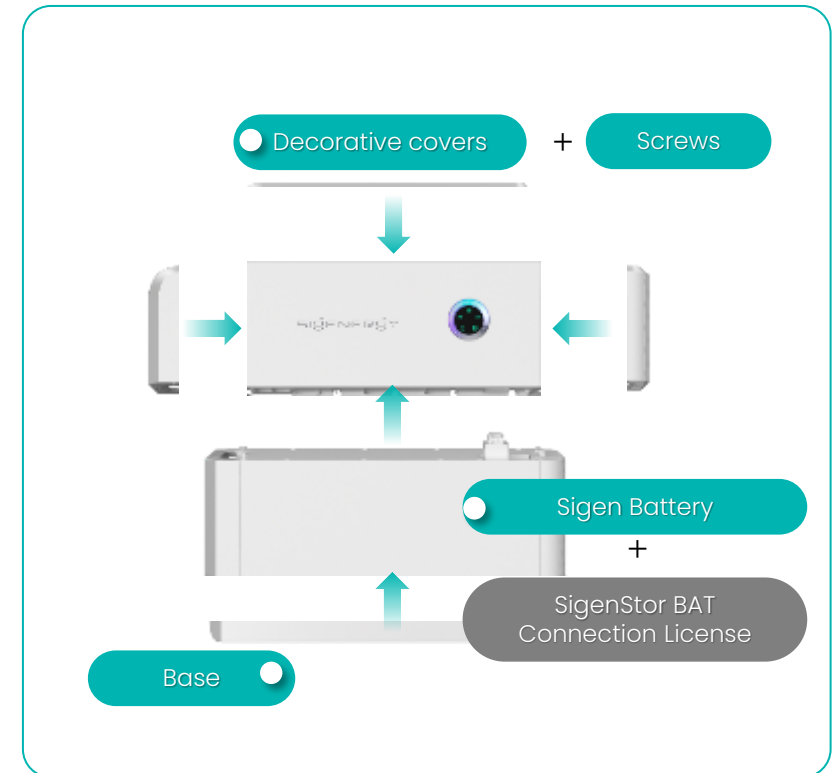
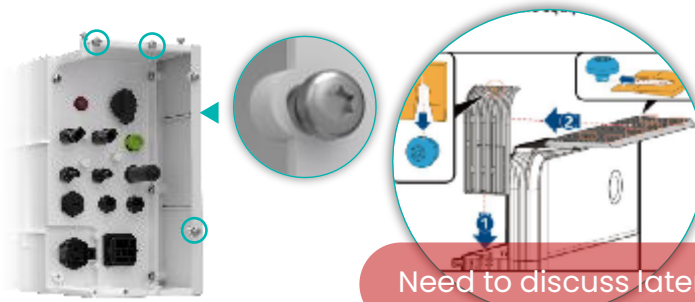
License must be purchased by End-user on mySigen APP

3 SigenStor Installation Kit Wall/Ground-mounted



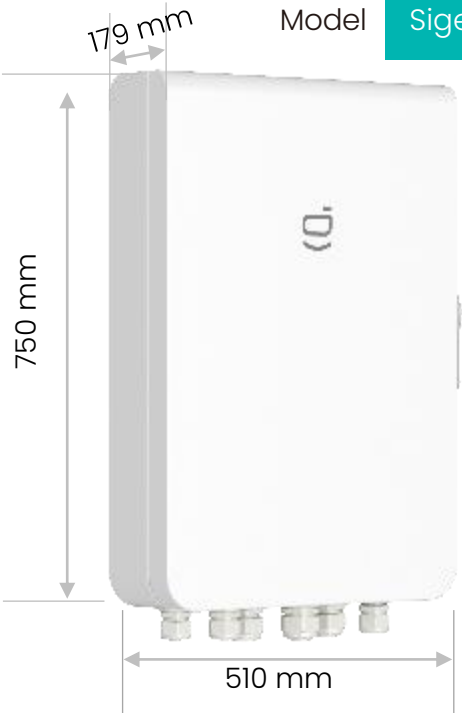
Decorative cover screws Kit

include M5 screw x 18 and M8 to M5 nut x 4, aiming for installing decorative covers



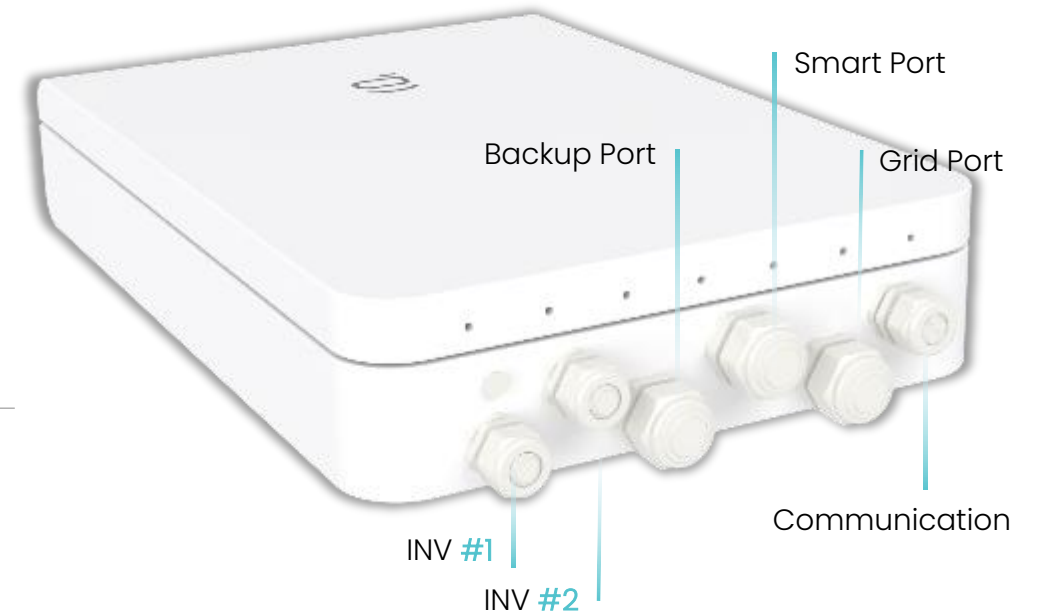
Sigen Energy Gateway, powerful energy hub

Sigen Energy Gateway HomeMax Three Phase

	Model	Sigen Gateway HomeMax TP	Nominal current
	Inv port # 1		38 A
	Inv port #2		38 A
	Backup port		76 A
	Grid connection		76 A
	Generator / Controllable load		76 A
Size	750 / 510 / 179 mm		

Sigen Energy Gateway ports demonstration

Sigen Gateway HomeMax TP



Sigen Power Sensor, accurate power control

Sigen Power Sensor



Sigen Sensor – Single Phase

Sigen Sensor – Three phase

SP-DH

SP-CT120-DH

TP-DH

TP-CT120-DH

TP-CT300-DH

SP-CT600-DH

Number of CT



1

–

3

3

3

Inner diameter of CT

–

16mm

–

16mm

24mm

36mm

Cable length

–

1m

–

1m

1m

1m

Max operating current of CT

–

120A

–

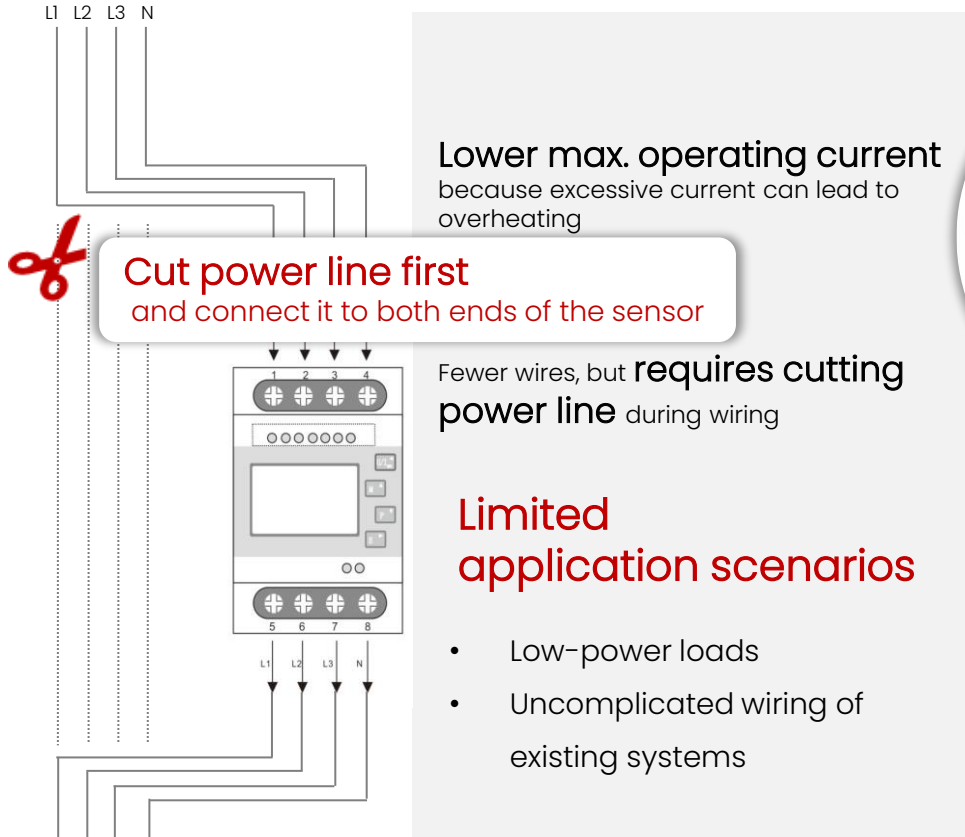
120A

300A

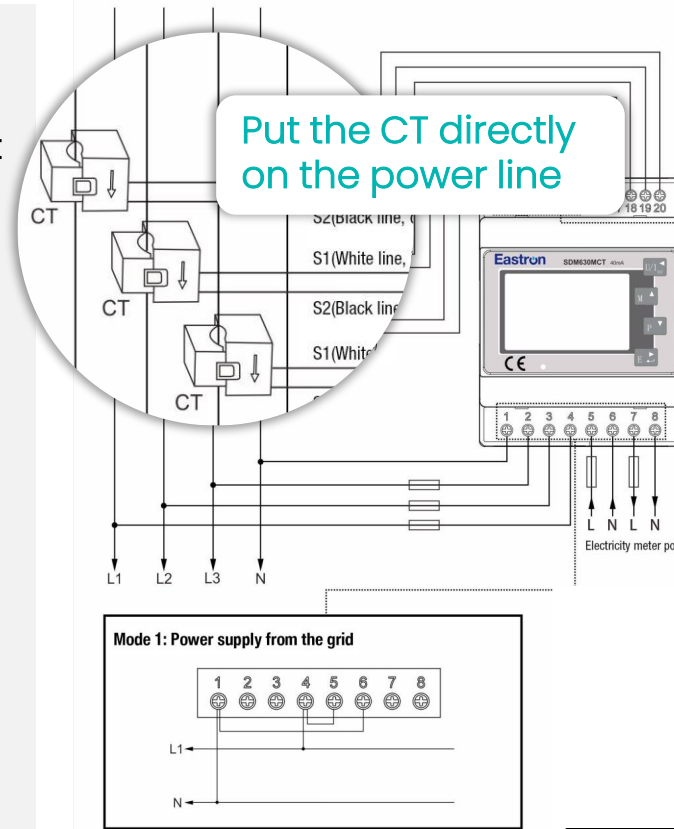
600A

Difference between built-in and external CT

Sigen Sensor TP-DH



Sigen Sensor TP-CT120-DH



✓ Recommend

Higher max operating current

Simplified actual wiring as there is no need to alter existing power cables

Flexible application scenarios

- Allow access to more loads
- Installation of Sigen products on existing power systems

*Partial wiring diagram

*Note: The direction of current flows from the grid to the load is positive.

Sigen Communication Module, optional data transfer

Model: Sigen CommMod

Sigen Communication Module



SigenStor EC/Sigen Hybrid

Sigen CommMod is an optional communication via 4G. For better data transferring, Fast ethernet is recommended for its reliable and fast communication.

Sigen CommMod

Europe version, available in **44** countries in EU
30 MB per month, for 2 years

Albania	Czech Rep	Hungary	Luxembourg	Poland	Switzerland
Andorra	Denmark	Iceland	Macedonia	Portugal	Turkey
Austria	Estonia	Ireland	Malta	Romania	UK
Belgium	Finland	Italy	Moldova	Serbia	Ukraine
Bosnia and Herzegovina	France	Kosovo	Monaco	Slovakia	More countries will be supported in the future...
Bulgaria	Germany	Latvia	Montenegro	Slovenia	
Croatia	Greece	Liechtenstein	Netherlands	Spain	
Cyprus	Guernsey	Lithuania	Norway	Sweden	

Sigen CommMod GL

Global version, available in **6** countries now
30 MB per month, for 2 years

Australia	Thailand	Malaysia	Indonesia	Vietnam	South Africa
More countries will be supported in the future...					

Sigen CommMod NS

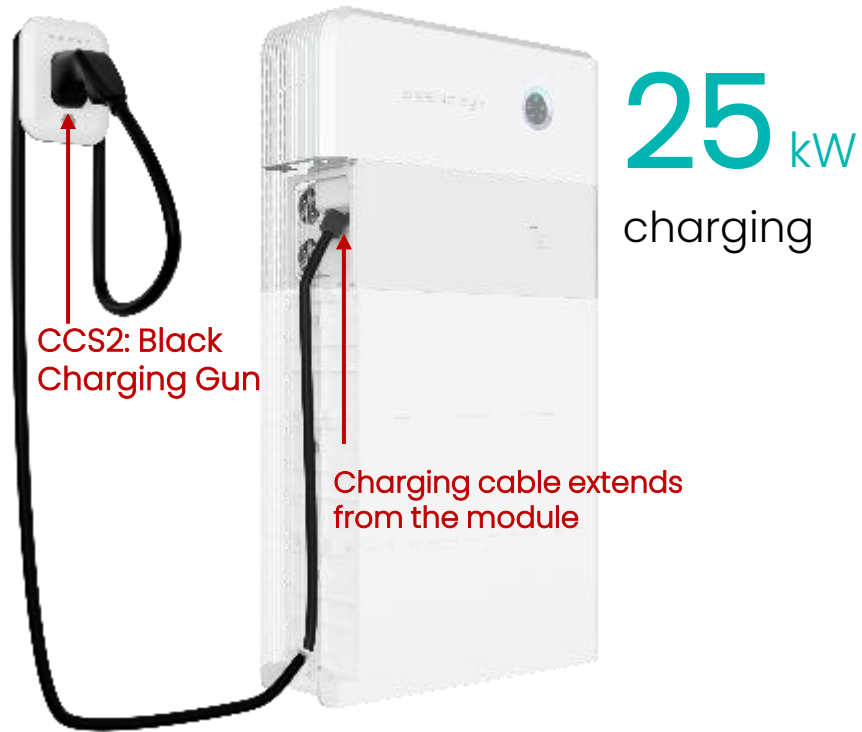
No SIM card version

Users purchase local SIM cards by themselves
 (need to confirm with our R&D in advance whether the telecom carrier card is supported)

Sigen EV DC Charging Module

Sigen EV DC Charging Module

CCS2 connector



About V2X

- When will the V2X feature be supported?

Our EVDC Charging Module **now supports** V2X functionality, but EVs need to support this functionality as well, and it is expected that **within this year** there will be V2X-enabled EVs with CCS2 in Europe!

- How to realize V2X function?

1. For EVs with CCS2 connector, ISO 15118 protocol support is required.
2. Users need to purchase the V2X license in mySigen App

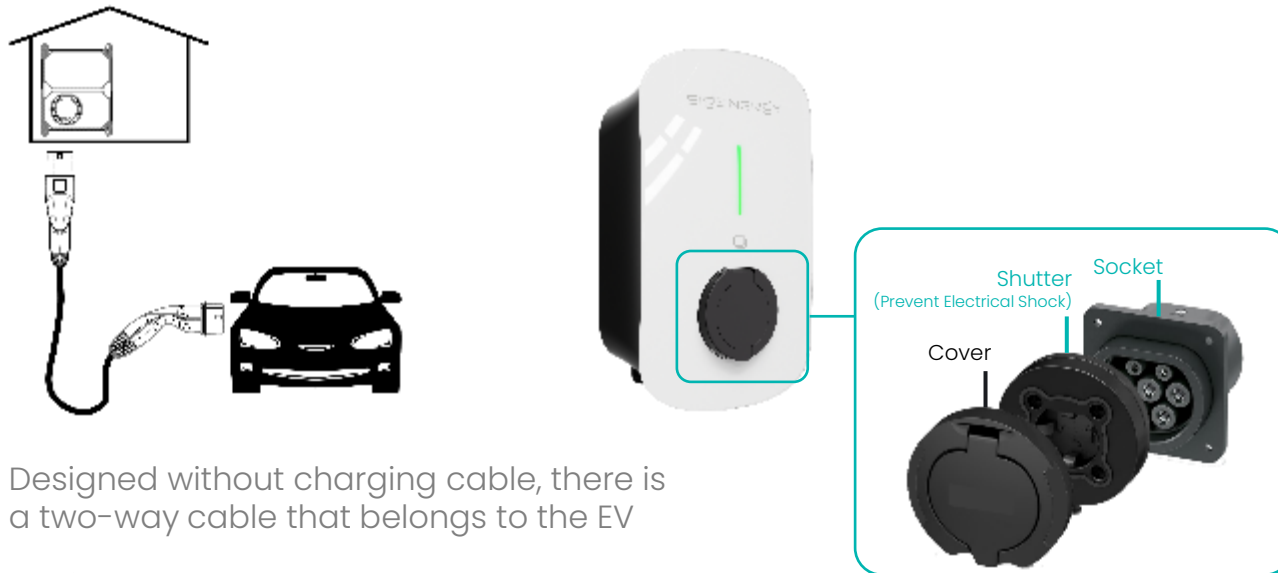
About Connector

CCS2: **Available now**. Widely used in Europe, SEA, MEA, Australia, Hong Kong, etc.

GB/T: **Available in 2024 Q3**. Widely used in mainland China.

Different Types of Charger Cable Connections

Case B



Designed without charging cable, there is a two-way cable that belongs to the EV

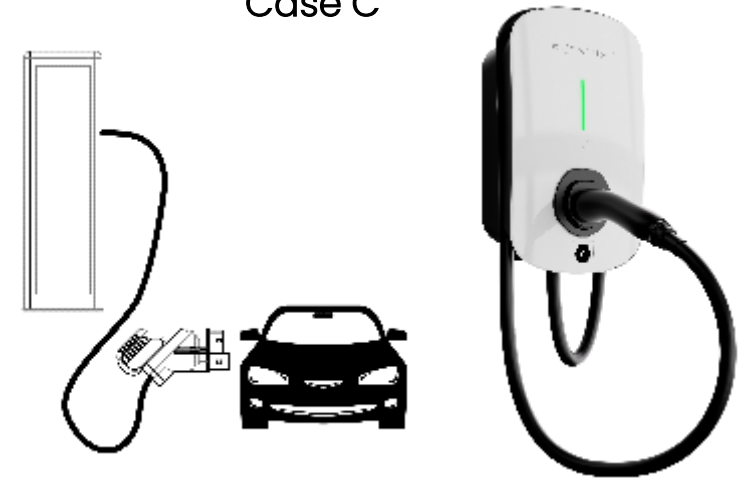
Naming example:

Power: 22 kW Type2 connector Socket with Shutter, **no cable**

Sigen EVAC 22 4G T2SH WH

4G supported Color: White

Case C



Designed with a charging cable (Type2 or Type1)

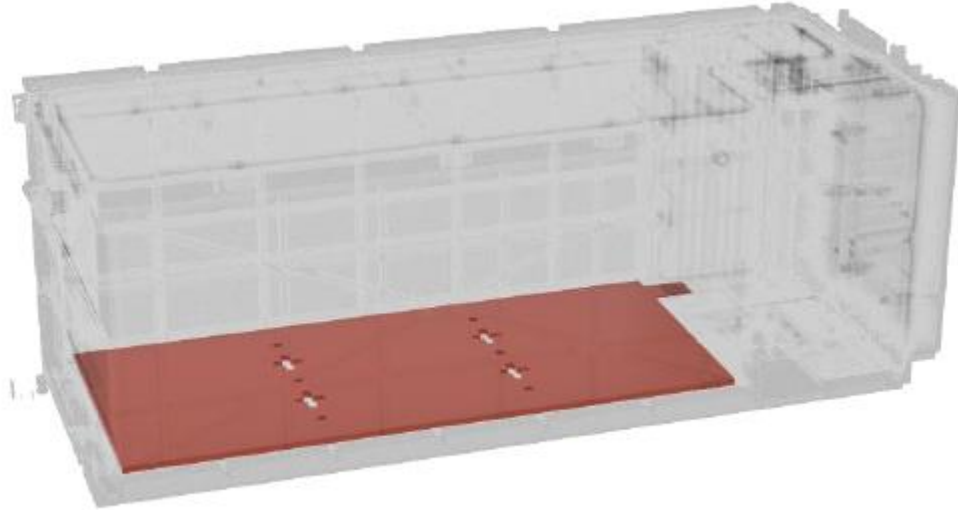
Naming example:

Power: 7 kW Type2 connector

Sigen EVAC 7 4G T2 WH

4G supported Color: White

Good to know – Sigenergy Battery Conditioning



Heating pads are underneath the battery cells

As soon as all of the following conditions are met, the heating pad will start to warm battery cell to ensure that the maximum charging power is available

Conditions

1. The battery is in charging state
2. The temperature of the battery cell is below 10 degrees
3. The charging power is restricted by low temperatures

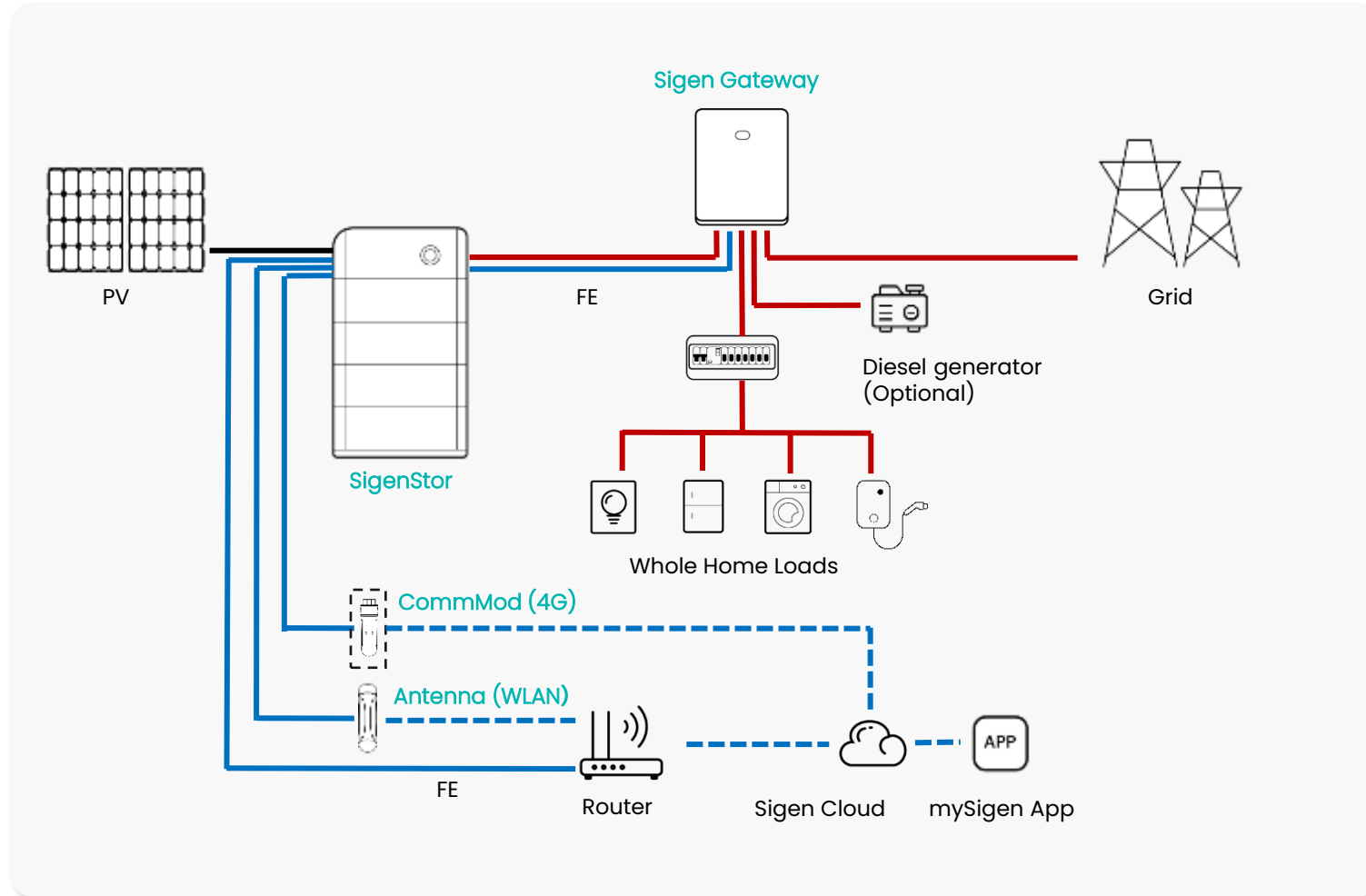
Battery Type	Full power of heating pad
Sigen Battery 5.0 kWh	250 W
Sigen Battery 8.0 kWh	350 W



Sigenergy Schaltpläne



Hybrid system – whole home backup



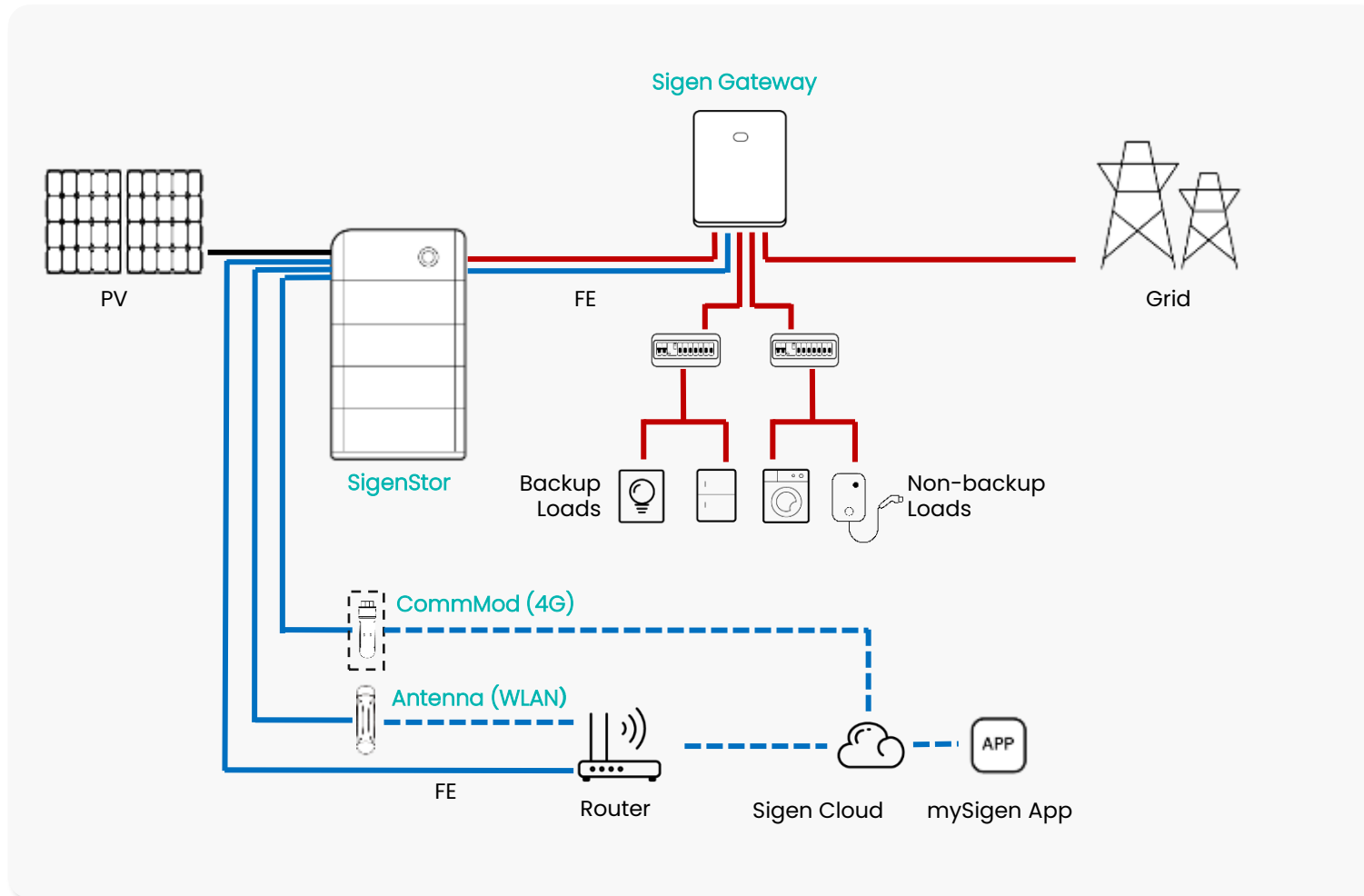
Whole Home Backup solution is mainly to support uninterrupted power to all the home loads if a grid failure happens.

Characteristics

1. Multiple SigenStor can connect to one Sigen Gateway.
2. Support mix use of 5/8kWh, old/new batteries.
3. 0 ms on-off grid switching.
4. Both AC&DC EV Charging supported.
5. Diesel generator supported.
6. Three choices of communication modes.
7. Self-generation & consumption supported.

Sigen Configuration		Quantity
SigenStor	Sigen Energy Controller SigenStor EC XX	1
	Sigen Battery SigenStor BAT XX	1 ~ 6 per stack
Sigen Energy Gateway HomeMax		1
Sigen CommMod		1

Hybrid system – partial home backup



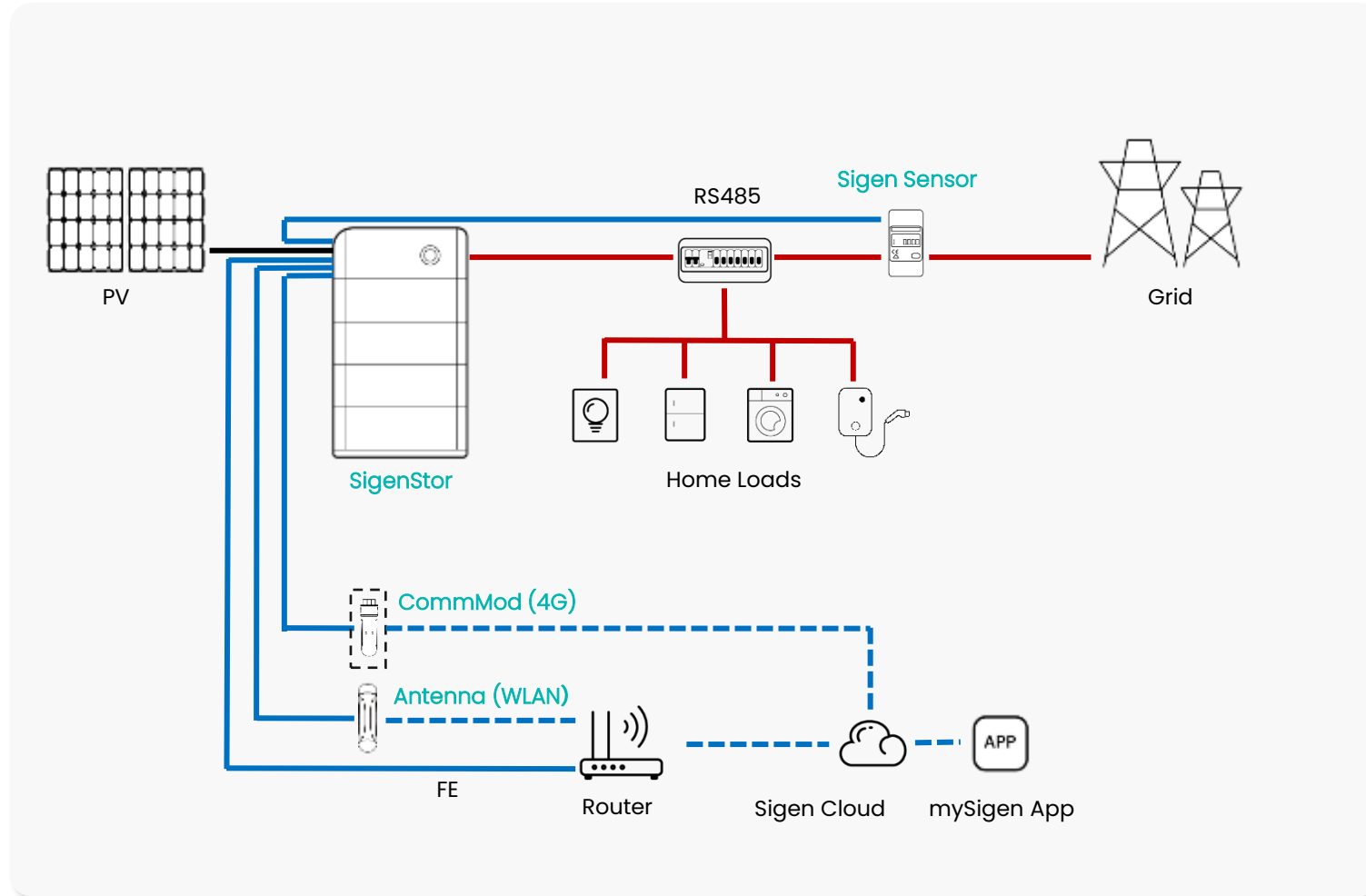
Partial Home Backup solution is mainly to cut off secondary loads and support uninterrupted power to critical home loads if a grid failure happens.

Characteristics

1. Multiple SigenStor can be connected to one Sigen Gateway.
2. Support mix use of 5/8kWh, old/new batteries.
3. 0ms on-off grid switching.
4. Both AC&DC EV Charging supported.
5. Three choices of communication modes.
6. Self-generation & consumption supported.

Sigen Configuration		Quantity
SigenStor	Sigen Energy Controller SigenStor EC XX	1
	Sigen Battery SigenStor BAT XX	1 ~ 6 per stack
Sigen Energy Gateway HomeMax		1
Sigen CommMod		1

On-grid only system – PV + energy storage



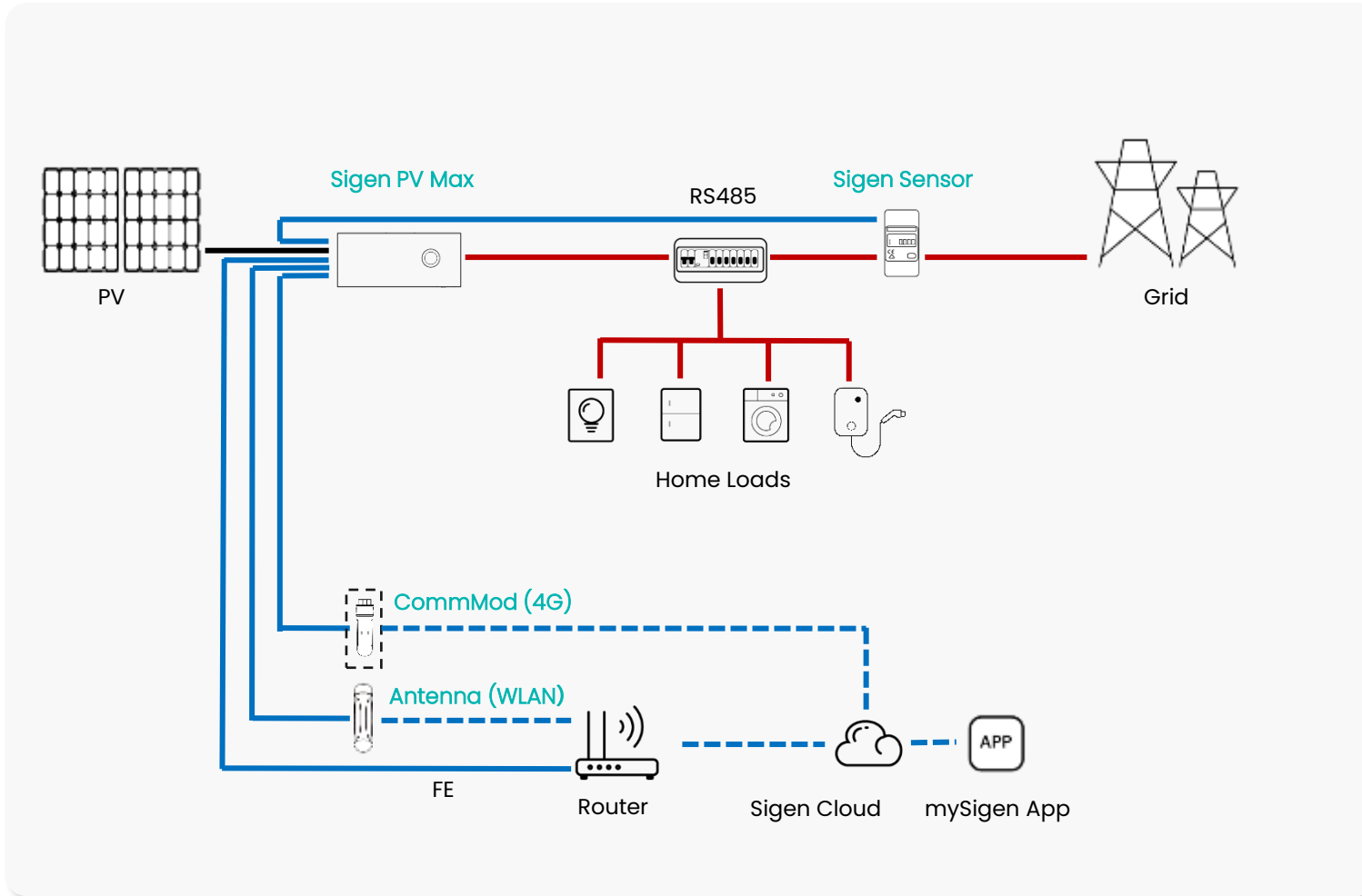
PV + energy storage solution is mainly used to support the scenario where the grid power supply is stable and no backup power needs.

Characteristics

1. Up to 10 SigenStor in parallel connection.
2. Support mix use of 5/8kWh, old/new batteries.
3. Both AC&DC EV Charging supported.
4. Three choices of communication modes.
5. Self-generation & consumption supported.

Sigen Configuration		Quantity
SigenStor	Sigen Energy Controller SigenStor EC XX	1
	Sigen Battery SigenStor BAT XX	1 ~ 6 per stack
	Sigen Sensor	1
	Sigen CommMod	1

On-grid only system – PV only



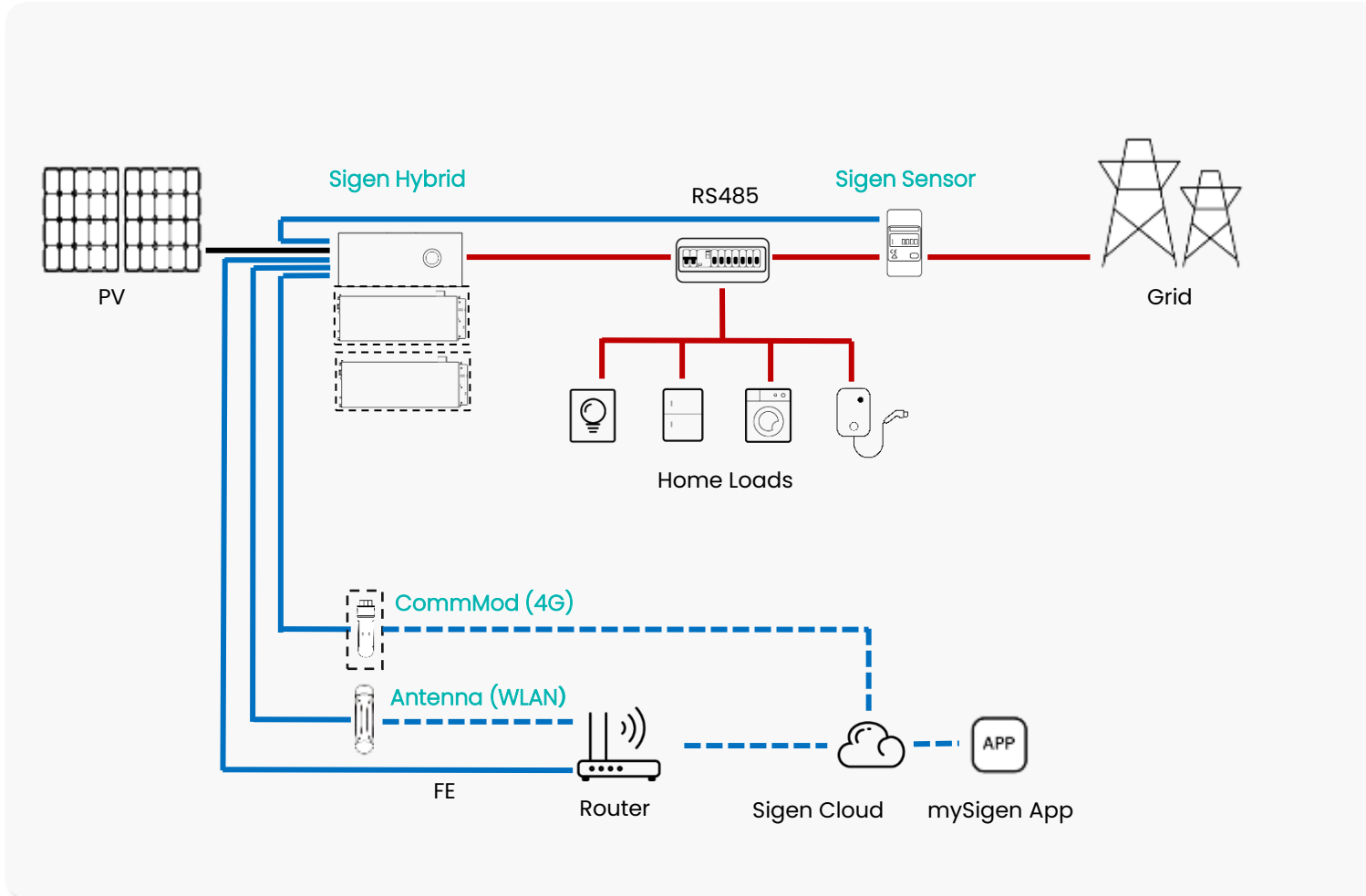
PV Only solution is mainly used in the scenario where there is only PV module installed and no ESS requirement.

Characteristics

1. 2 / 1.6 PV capacity ratio for single/three phase system.
2. Three choices of communication modes.
3. Self-generation & consumption supported.

Sigen Configuration	Quantity
Sigen PV Inverter	1
Sigen Sensor	1
Sigen CommMod	1

On-grid only system – PV + future ESS expansion



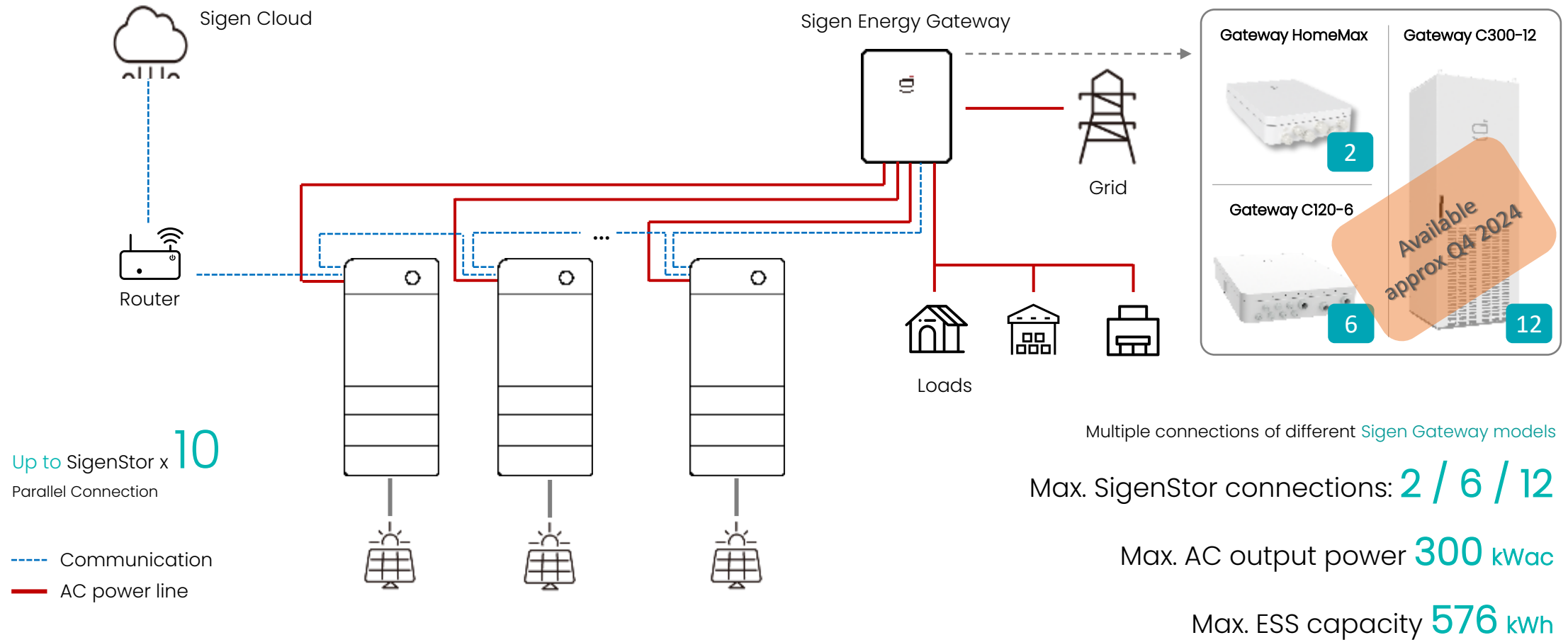
Battery ready solution is mainly used to support the scenario where there is only PV module installed with future ESS expansion intention.

Characteristics

1. Future battery expansion supported.
2. Three choices of communication modes.
3. Self-generation & consumption supported.

Sigen Configuration	Quantity
Sigen Hybrid Inverter	1
Sigen Sensor	1
Sigen CommMod	1

Hybrid-grid C&I Solution, worry-free energy usage



Sigenergy

Installation



Fast installation: 15-min installation on '1+3' systems



Step 1

Place the pack on the base



Step 2

Stack other packs and the inverter



Step 3

Secure the brackets between modules



Step 4

Connect the cables on the inverter



Step 5

Put covers on (no screws)



Finished

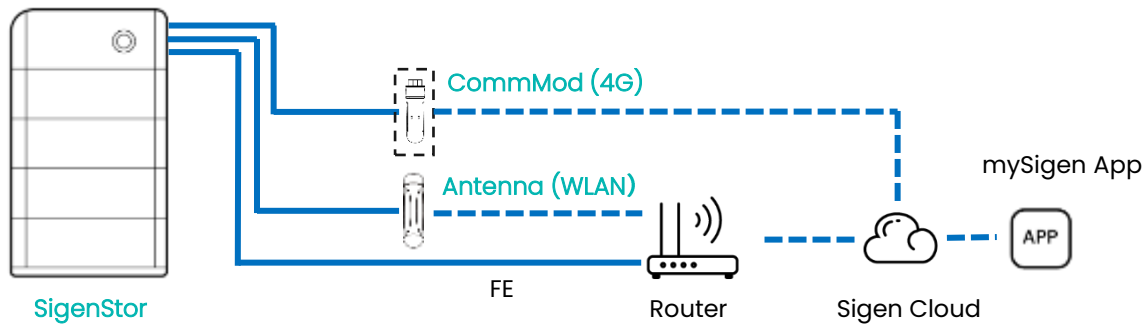
15 mins

Installation
on '1+3' system

70% time-saving

How to Connect to the Internet before Commissioning

Communication Method :



Recommend

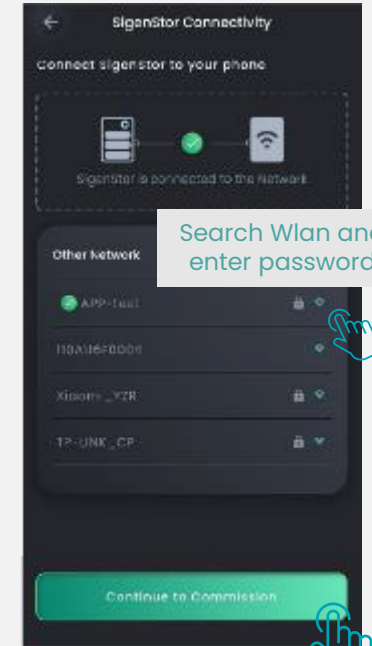
- 1 FE (RJ45, self-preparation)
- 2 WLAN (Antenna, inside the package)
- 3 4G (Sigen CommMod, need to buy separately)



How to get SigenStor connected with WLAN



Step 1: Establish connection between mobile phone and SigenStor
Connect device hotspot, which is named by inverter SN code.



Step 2: Establish connection between Sigen Cloud and SigenStor
by using mobile phone to search Wlan and enter password

! The equipment hotspot is **available for 2 hours**.
Please connect to the hotspot as soon as possible.

Fast installation: 5-min fast commissioning



Step 1

Scan QR code
Create new plant



Step 2

Basic setting
Easy and key info. to filled out



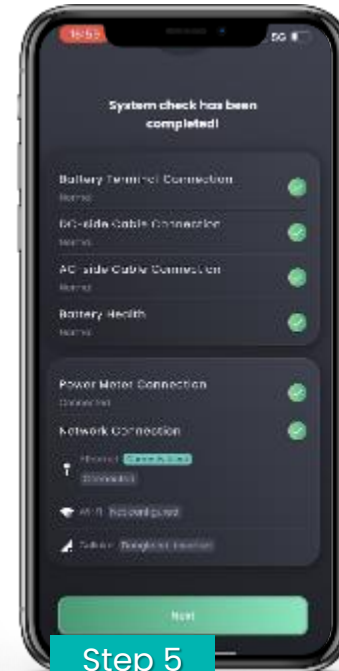
Step 3

Update software
Only take 2 minutes



Step 4

Confirm parameters
Quick to check preset parameters



Step 5

One-click diagnosis
Identify installation problems



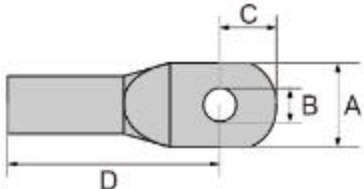
Finished

Finish & Confirm

Installation -> Installationsanleitung

ACHTUNG: Es liegt dem Gerät keine ausgedruckte Installationsanleitung bei.

- 1) Installationsanleitung ausdrucken und mitbringen
- 2) Jederzeit auf die jeweils aktuellste Version online zugreifen
- 3) Nicht im Lieferumfang enthaltenes Material besorgen und zur Installation mitbringen

S/N	Kabelbezeichnung	Empfohlene Spezifikationen										
1	Erdungskabel Wechselrichtergehäuse	<p>Einadriges Kupferkabel für den Außenbereich</p> <ul style="list-style-type: none"> • SigenerStor EC/SigenerStor AC/Sigener Hybrid (5.0-12.0) TP: Querschnittsfläche Leiterkern: 4-6 mm² • SigenerStor EC/SigenerStor AC/Sigener Hybrid (15.0-20.0) TP: Querschnittsfläche Leiterkern: 6-10 mm² • SigenerStor EC/SigenerStor AC/Sigener Hybrid 25.0 TP: Querschnittsfläche Leiterkern: 10-16 mm² 										
2	AC-Kabel	<p>Fünfadriges Kupferkabel für den Außenbereich (L1, L2, L3, N, PE)</p> <ul style="list-style-type: none"> • SigenerStor EC/SigenerStor AC/Sigener Hybrid (5.0-12.0) TP: Querschnittsfläche Leiterkern: 4-6 mm²; Außendurchmesser: 13-19 mm • SigenerStor EC/SigenerStor AC/Sigener Hybrid (15.0-20.0) TP: Querschnittsfläche Leiterkern: 6-10 mm²; Außendurchmesser: 13-25 mm • SigenerStor EC/SigenerStor AC/Sigener Hybrid 25.0 TP: Querschnittsfläche Leiterkern: 10-16 mm²; Außendurchmesser: 13-25 mm <p>Anforderungen für M5-OT-Klemme: Bitte kaufen Sie die OT-Klemmen entsprechend den folgenden Anforderungen.</p> <table border="1" style="display: inline-table; vertical-align: middle;"> <thead> <tr> <th>Punkt</th> <th>Beschreibung</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>≤15 mm</td> </tr> <tr> <td>B</td> <td>5,3-5,5 mm</td> </tr> <tr> <td>C</td> <td>≤7,5 mm</td> </tr> <tr> <td>D</td> <td>≤ 26mm</td> </tr> </tbody> </table> 	Punkt	Beschreibung	A	≤15 mm	B	5,3-5,5 mm	C	≤7,5 mm	D	≤ 26mm
Punkt	Beschreibung											
A	≤15 mm											
B	5,3-5,5 mm											
C	≤7,5 mm											
D	≤ 26mm											

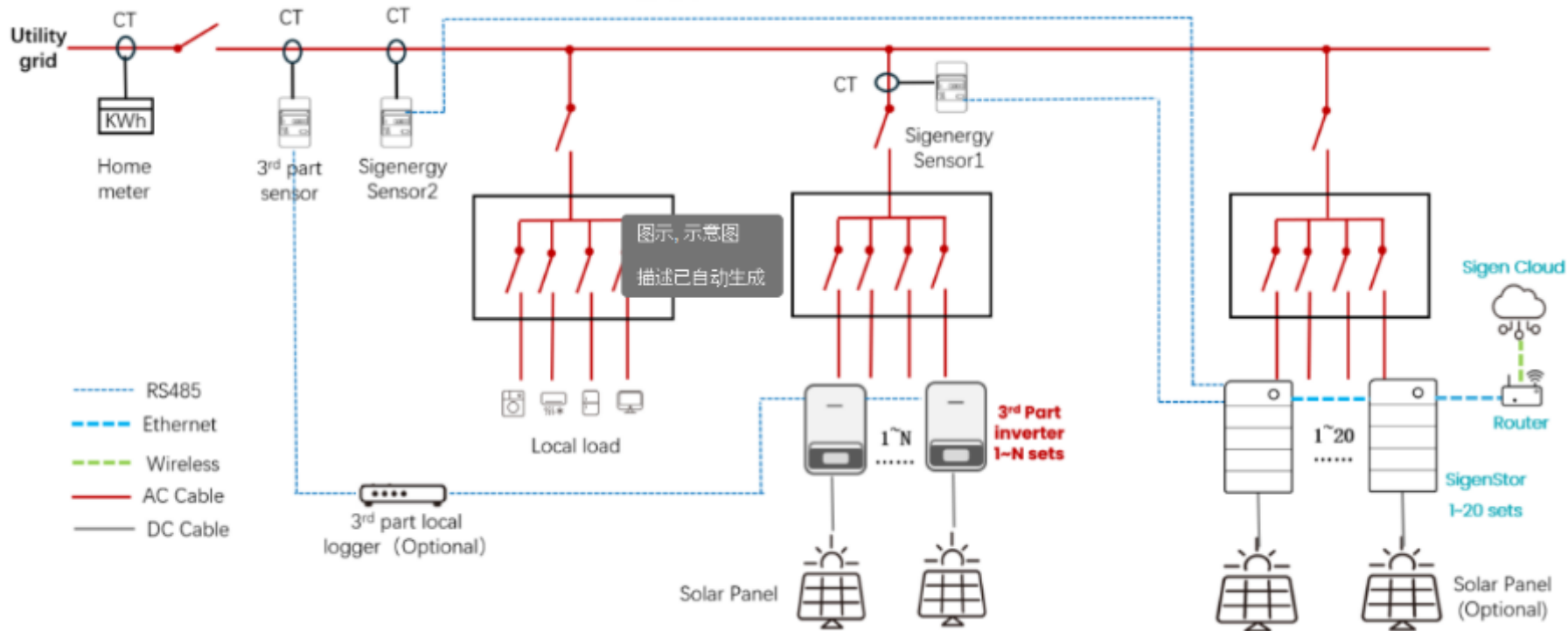
Installation -> Installationsanleitung

1) Nicht im Lieferumfang enthaltenes Material besorgen und zur Installation mitbringen

S/N	Kabelbezeichnung	Empfohlene Spezifikationen
3	Signalkabel RS485	Abgeschirmtes Twisted-Pair-Kabel (STP-Kabel) für den Außenbereich Querschnittsfläche Leiterkern: 0,5-0,75 mm ² (mehradriges flexibles Kabel, Aderendhülse erforderlich) 0,5-1 mm ² (einadriges starres Kabel, keine Aderendhülse erforderlich) Außendurchmesser: 4,5–6,5 mm Kabellänge: ≤ 1000 m Baudrate: ≤ 9600 bps
4	RJ45 Netzkabel	Achtadriges abgeschirmtes Twin-Twisted-Pair-Kabel für den Außenbereich Querschnittsfläche Leiterkern: 0,13-0,2 mm ² Außendurchmesser: 4–7,5 mm Einfache Kabellänge: ≤ 100 m ^[2]
5	DC-Eingangskabel des Wechselrichters (Kabel nicht relevant für SigenStor AC-Wechselrichter)	PV-Kabel für den Außenbereich Querschnittsfläche Leiterkern: 4-6 mm ² Außendurchmesser: 5,5-9 mm



Einbindung Bestandsanlage

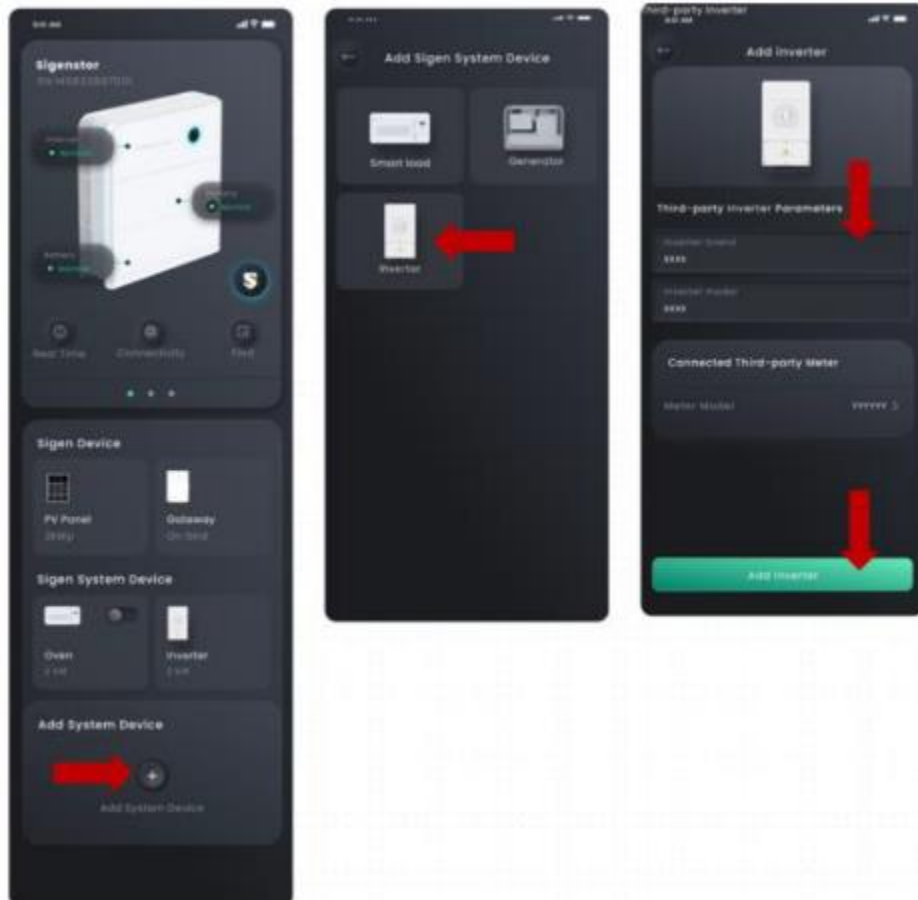


ACHTUNG: Bei Exportlimit bitte folgendes beachten.

- 1) Der SigenStor kann nur den DC seitig gekoppelten Generator steuern. Daher ist ein dritter Sensor erforderlich.
- 2) Das Exportlimit des SigenStor muss auf -100W eingestellt werden, während das Exportlimit des Zusatzwechselrichters auf 0W einzustellen ist.

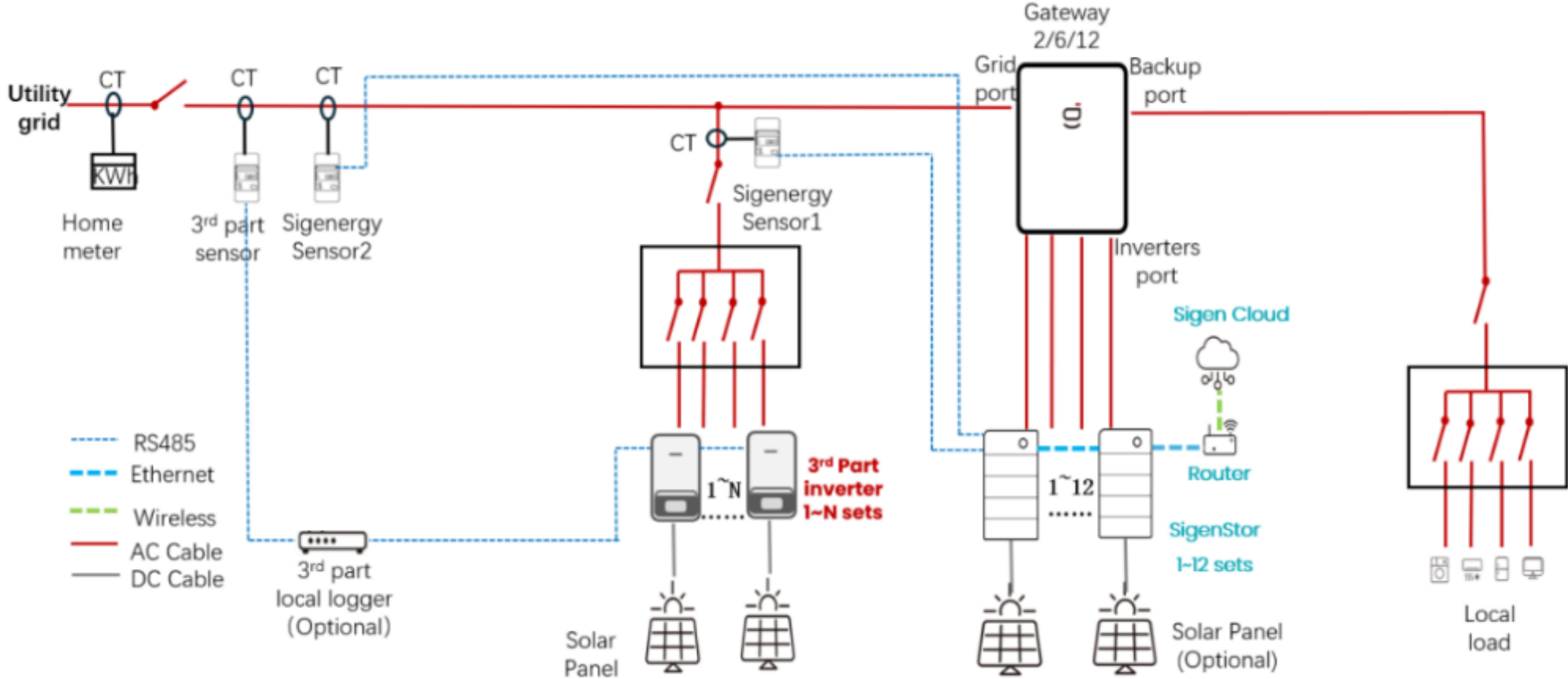
Einrichtung zweiter Sensor

ACHTUNG: Der zweite Sensor kann nur über den Endkundenzugang aktiviert werden!

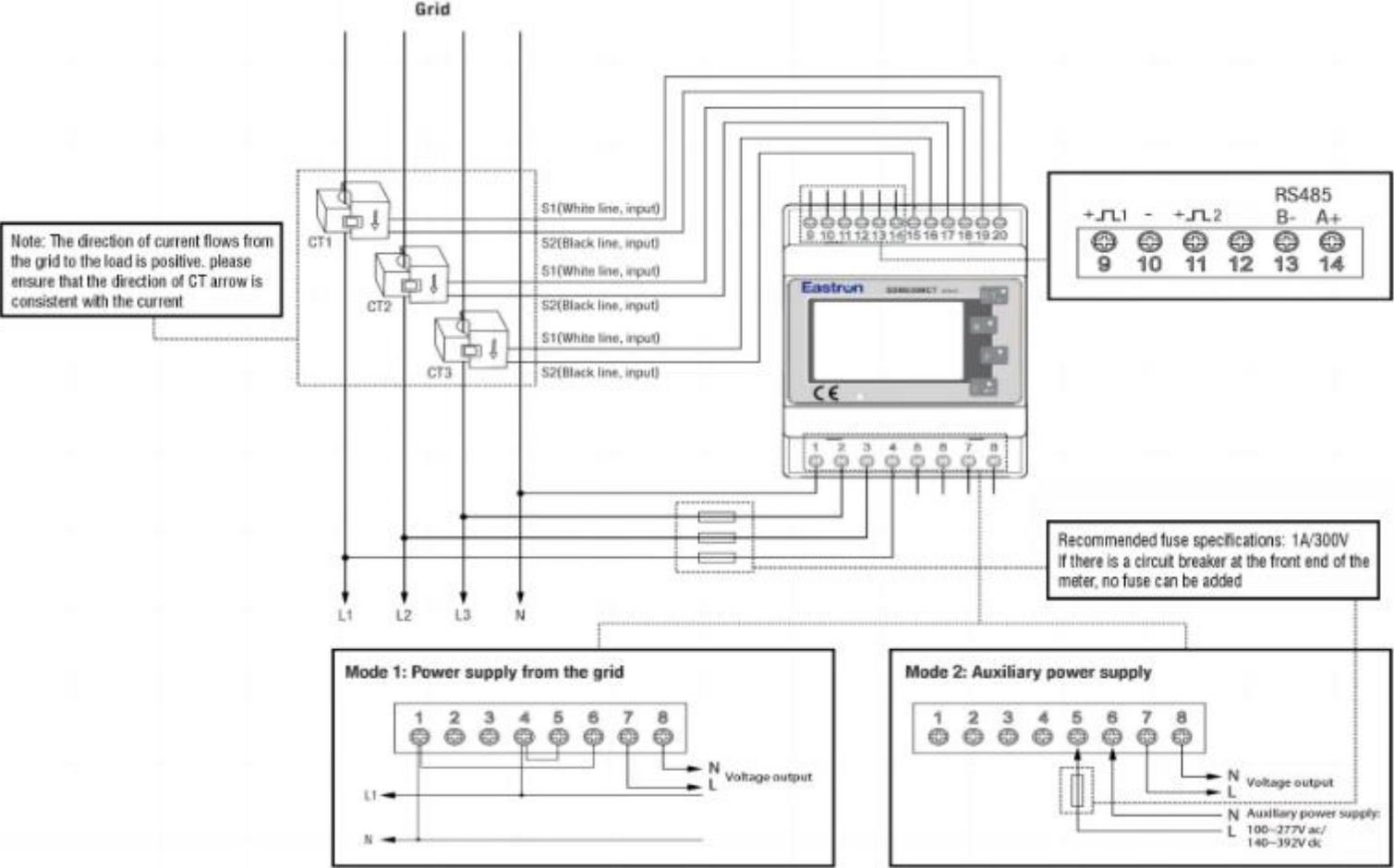


Netzersatzbetrieb mit AC-Kopplung

ACHTUNG: Die AC gekoppelte Anlage wird im Netzersatzbetrieb abgeschaltet und liefert keine Energie

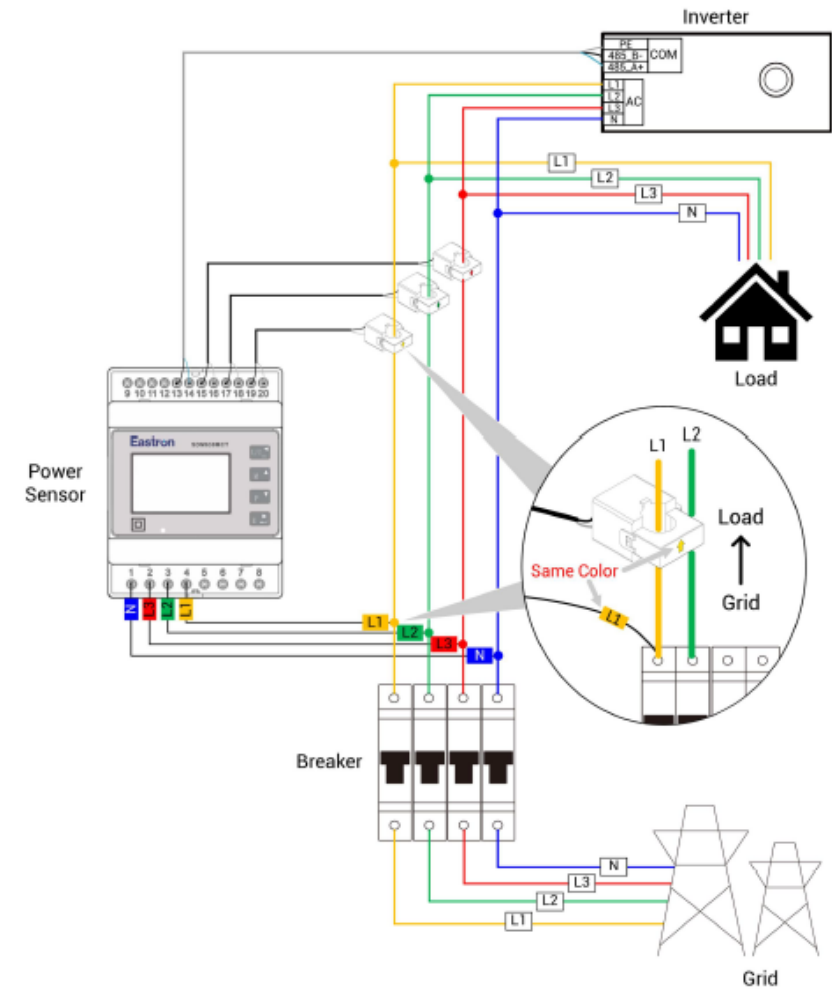


Hinweise zum Anschluss Sensoren mit Wandlern



Änderungshinweis Sensoren

Ab sofort werden die Wandler farbcodiert vorkonfektioniert und die Brücken für die Stromversorgung vorverdrahtet. Bitte darauf achten, welche Version zur Verfügung steht. Außerdem ist ein QR Code für den Download der Installationsanleitung aufgebracht.



Hinweise zu FI Schaltern

Im SigenStor ist ein interner FI Schutz integriert. Gemäß IEC 62109 – 2 schaltet er den Wechselrichter wie folgt ab:

Inverter Capacity	Max. Continuous Residual Current Limit	Time to Disconnect from the Grid
Less than or equal to 30 kVA	300 mA	0.3 s

Bei einer Veränderung des Fehlerstroms schaltet er nach folgender Tabelle ab:

Residual Current Sudden Change	Max. Time to Disconnect the Inverter from the Grid
30 mA	0.3 s
60 mA	0.15 s
150 mA	0.04 s



Hinweise zu FI Schaltern

Sollte ein externer FI Schalter gemäß lokaler Richtlinien bei der Installation vorgeschrieben sein, so empfiehlt Sigenergy die Folgenden FI Schalter des Typ A

Inverter Model	Recommended External Type A RCD Rating
SigenStor EC 3.0/3.6/4.0/4.6/5.0/6.0 SP Sigen Hybrid 3.0/3.6/4.0/4.6/5.0/6.0 SP Sigen PV Max 3.0/3.6/4.0/4.6/5.0/6.0 SP SigenStor AC 3.0/3.6/4.0/4.6/5.0/6.0 SP	100 mA
SigenStor EC 5.0/6.0/8.0/10.0 TP Sigen Hybrid 5.0/6.0/8.0/10.0 TP Sigen PV Max 5.0/6.0/8.0/10.0 TP SigenStor AC 5.0/6.0/8.0/10.0 TP	100 mA
SigenStor EC 12.0/15.0/17.0/20.0/25.0 TP Sigen Hybrid 12.0/15.0/17.0/20.0/25.0 TP Sigen PV Max 12.0/15.0/17.0/20.0/25.0 TP SigenStor AC 12.0/15.0/17.0/20.0/25.0 TP	300 mA



API

Das Sigenergy System ist ein offenes System, das einfach in bestehende Öko-Systeme eingebunden werden kann.

Folgende Schnittstellen stehen gegen die Unterzeichnung eines NDA zur Verfügung

1. Lokale Schnittstelle über Modbus
2. Backend TCP/IP Schnittstelle



Thank you.

畅享绿色能源

Enjoy Green Energy



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