

APstorage Training







E = Energy Storage System

L = Low voltage (40...60V)

S = Single Phase

5K = 5kW puissance

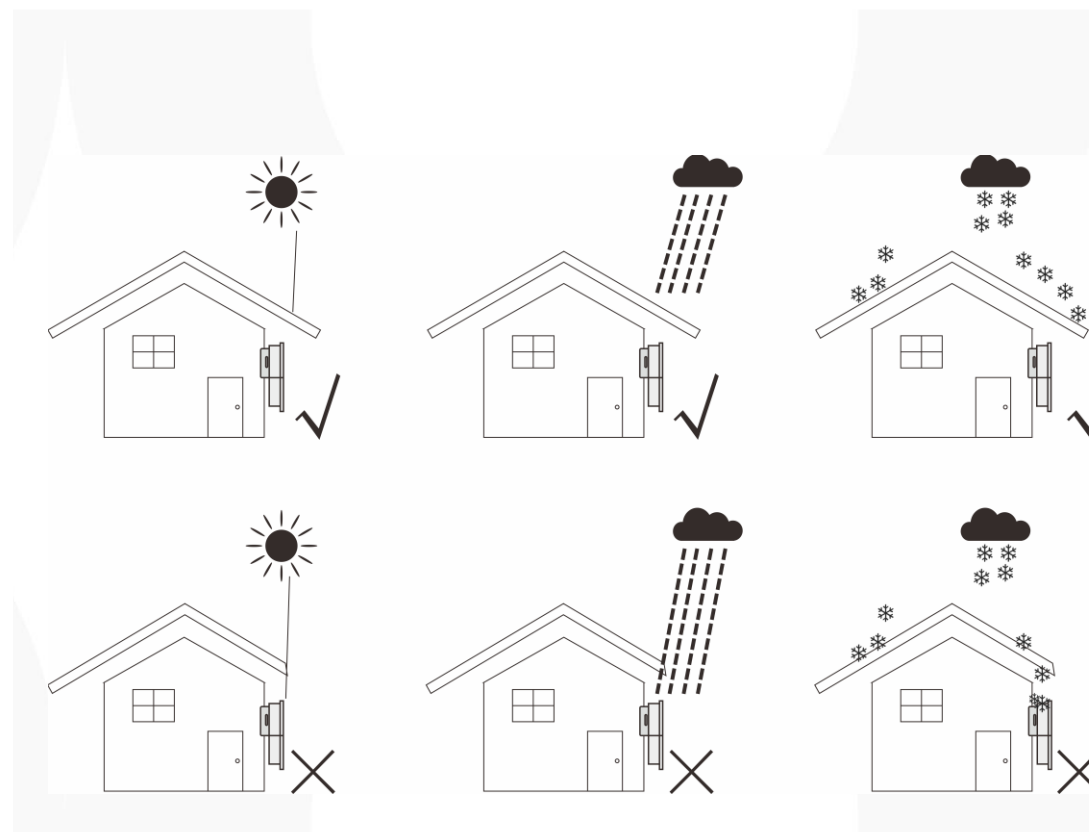
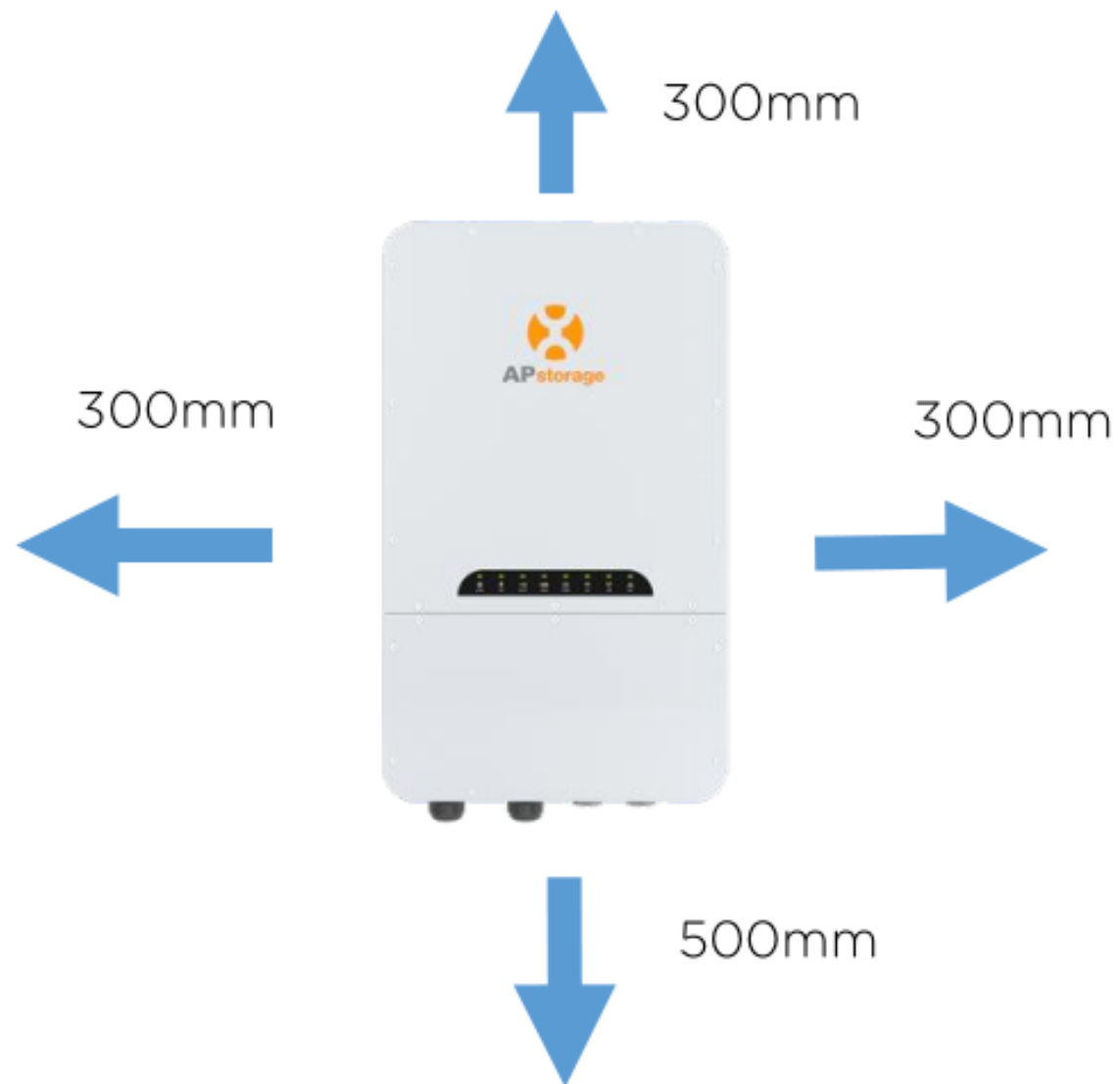


ELS-5k



- Chargeur PCS avec ECU-C intégré
- Compatible avec des batteries 48V
- 1 Chargeur PCS peut être connecté à plusieurs batteries
- 2 Chargeurs PCS connecté en parallèle maximum
- Peut fonctionner en mode backup
- DS3 compatible uniquement pour le moment en monophasé
- Monophasé uniquement
- Tension : 230V
- Puissance maximum 5000VA
- Puissance crete 7500VA
- Maximum Efficiency: 96.5%
- IP65
- Montage sur une platine avec vis M6
- Compatible avec : AP battery d'APStorage et Soluna (EOS 5K)
- Garantie 5 ans + 5 ans en option
- Dimension: 847×502×197mm
- Poids : 30 kgs

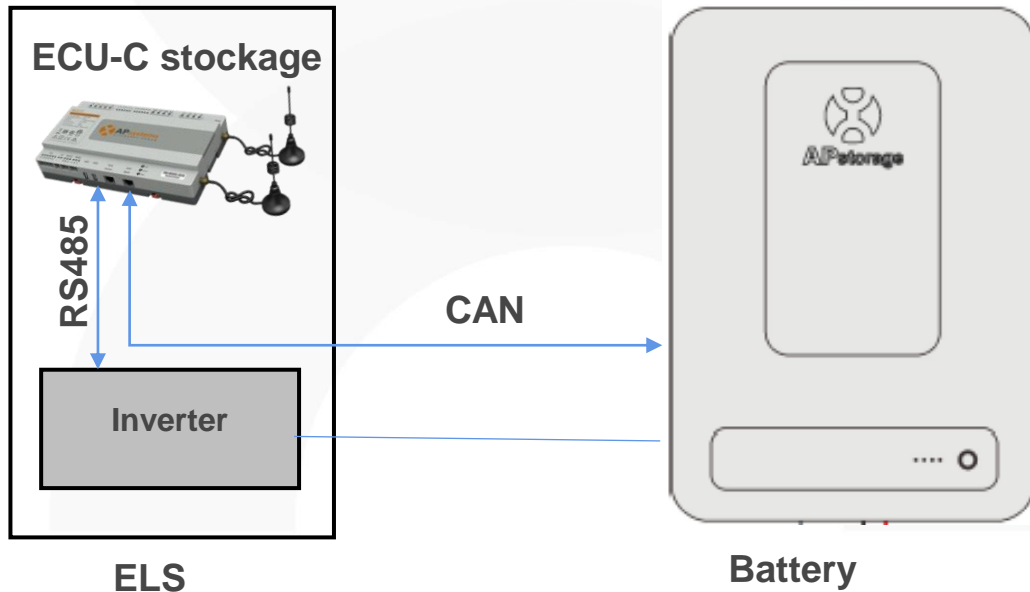
ELS installation



APstorage system

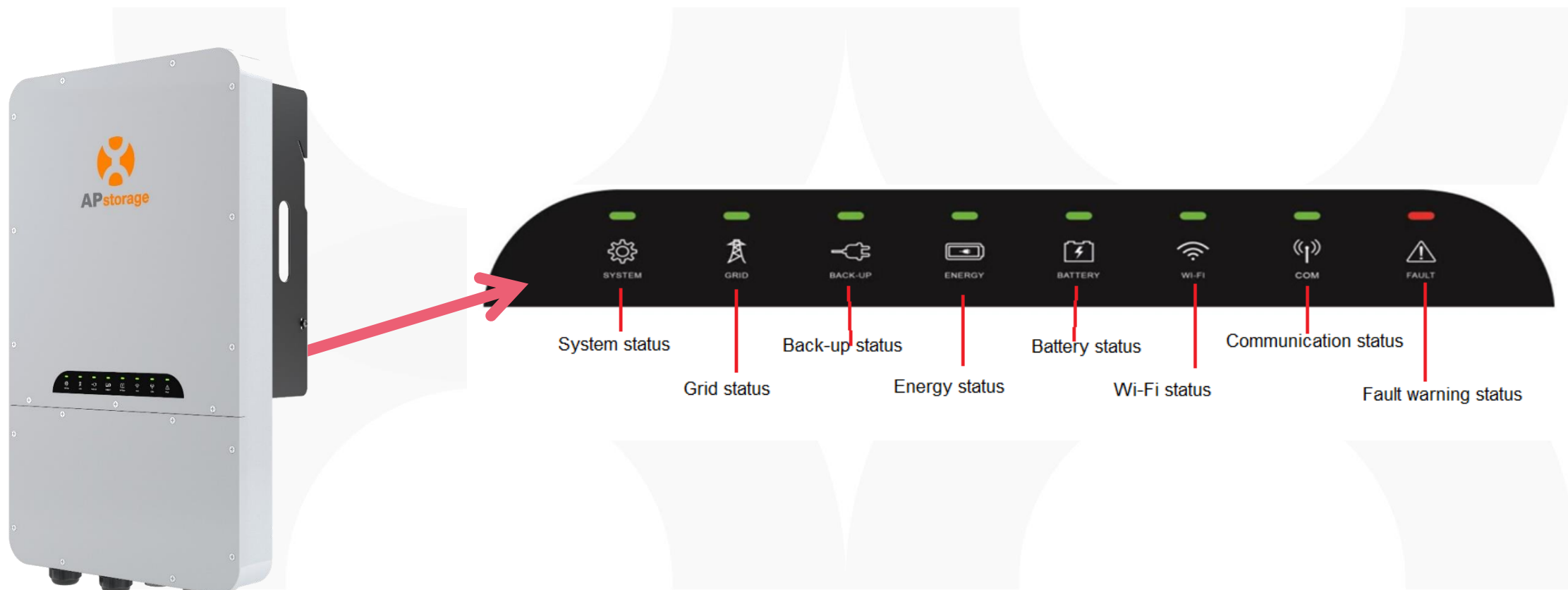
□ APstorage system:

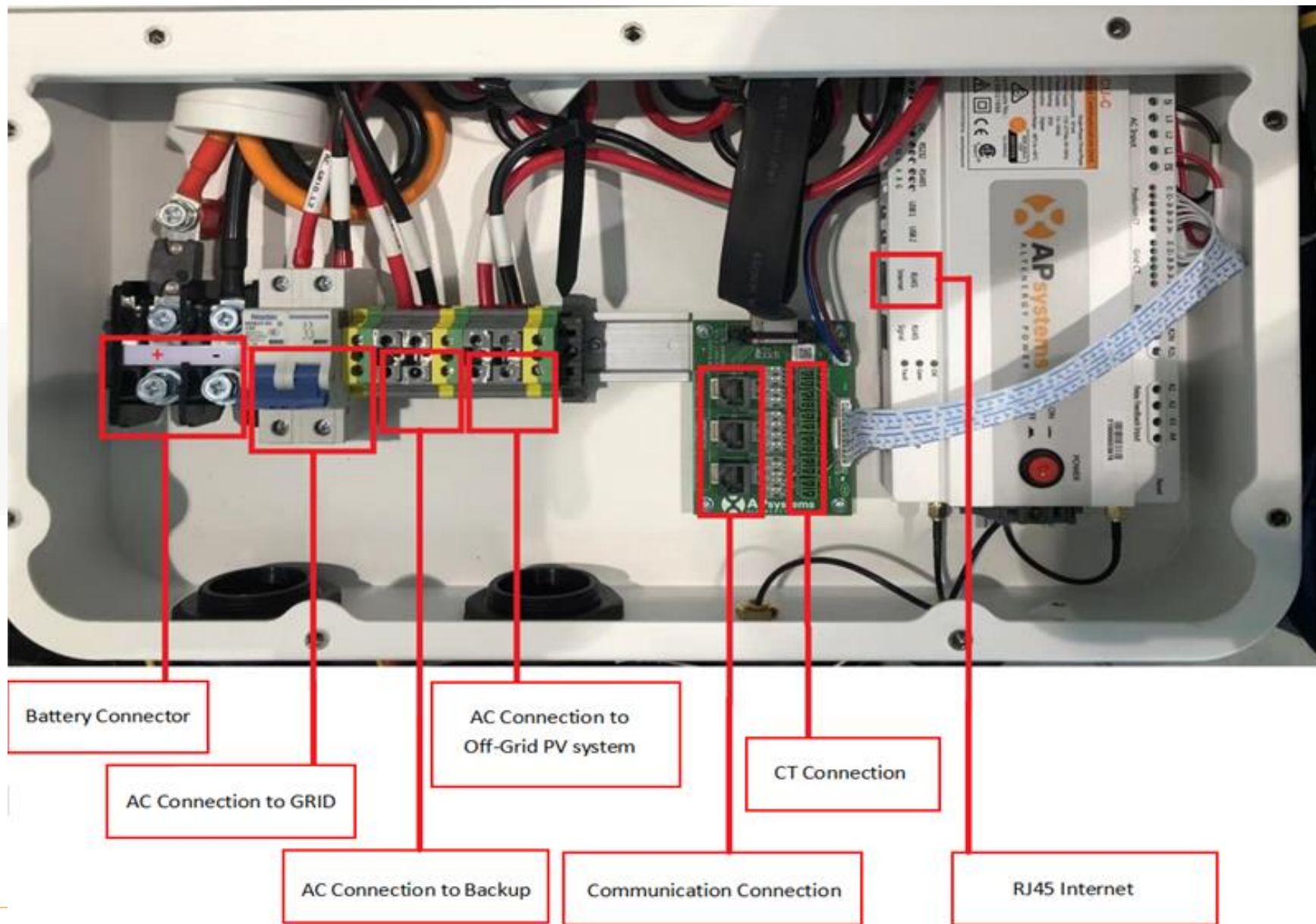
- APstorage ELS avec ECU intégré (seulement pour le stockage)
- Batterie(s) Compatible(s)



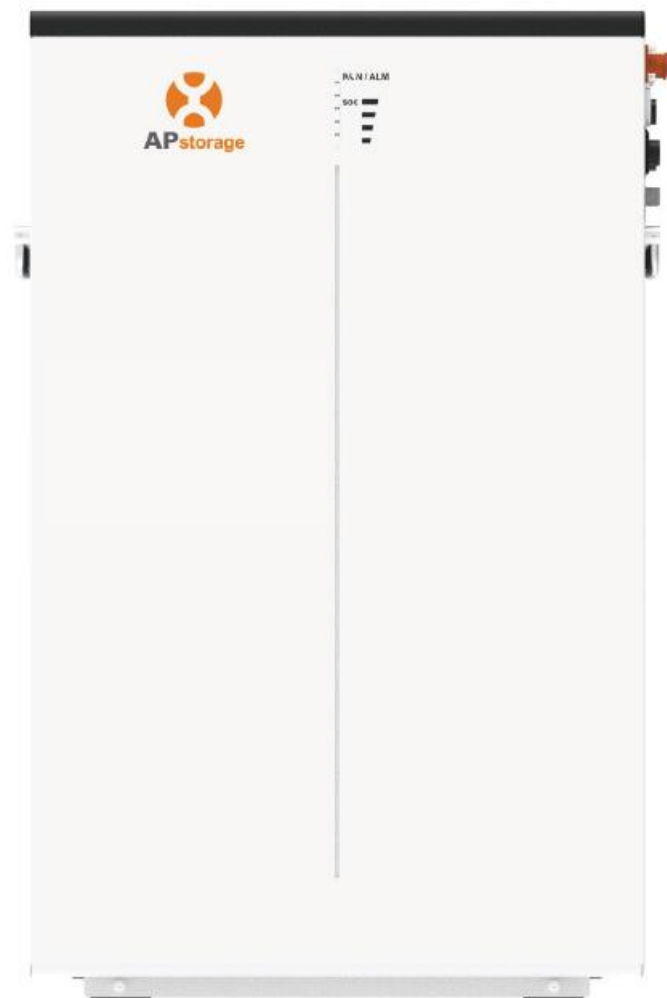
❖ Plusieurs batteries peuvent être connectées à un ELS

APstorage Chargeur ELS





APbattery-51.2V/6.5kWh



No.	Items	Specifications
1	Total Capacity/ Energy	128Ah/6.5kWh
	Rated/Usable Capacity/Energy	118Ah/6.0kWh
2	Nominal Voltage	51.2 V
	Operating Voltage	48~57.6V
3	Max. continuous charging current	-10°C≤T<0°C: 21.3A 0°C≤T<5°C: 32A 5°C≤T<15°C: 64A 15°C≤T<45°C: 104.2A 45°C≤T<50°C: 64A 50°C≤T<55°C: 32A
4	Max. continuous discharging current	-10°C≤T<0°C: 21.3A 0°C≤T<45°C: 104.2A 45°C≤T<50°C: 85.3A 50°C≤T<55°C: 32A
5	Peak Charging/Discharging Current	125A/3s
	Max. Charging/Discharging power	5kW (15°C~45°C)
	Peak Charging/Discharging power	6.9kW/3s (SOC≥20%, 25°C)
6	Operating ambient temperature	-10°C~50°C
	Recommended operating temperature	15°C~30°C
7	Storage conditions	Temperature: -20°C~+45°C, 6 months; -30°C~-20°C, 45°C~60°C, 7 days; (for shipping state) Humidity: 5%-95%RH Within 6 month after each charge
8	RTE	94%, 0.2C charge/discharge 25°C
9	DOD	94.5%
10	Calendar Life (25°C)	10 years
11	Cycle life	≥6000cycle/80%SOH (94.5%DOD,25°C)
12	Cooling	Natural cooling
13	Ingress protection	IP55
14	Max. operation altitude	≤2000m
15	Cell safety certification	IEC62619
16	Battery safety certification	IEC62619/CE/UL1973
17	UN transportation test standard	UN38.3+PI965 (Sea)
18	Environmental protection certification	RoHS, REACH
19	Communication with PCS	CAN
20	Parallel connection	Maximum 8 batteries

Liste batteries compatibles

PCS	Type of battery	Brand	Model
ELS Series	Lithium battery	Soluna	Soluna EOS 5K Pack
		UZ energy	Power Lite Series L051100-A1
			Power Lite Series L051100-B
		XinyiES	XINERGY-U-48V/5.76KWh
		Dyness	A48100
		APstorage	APbattery-48V/5.76kWh
			APbattery-51.2V/6.5kWh
		DMEGC	L02-48100
		Fortress	eFlex 5.4
		KSTAR	BluE-PACK5.1
		PYTES	E-BOX-48100R
		HOMEGRID	PF5-LFP04800-2A01/PF5-LFP09600-2A01 PF5-LFP14400-2A01/PF5-LFP19200-2A01 PF5-LFP24000-2A01/PF5-LFP28800-2A01 PF5-LFP33600-2A01/PF5-LFP38400-2A01

04

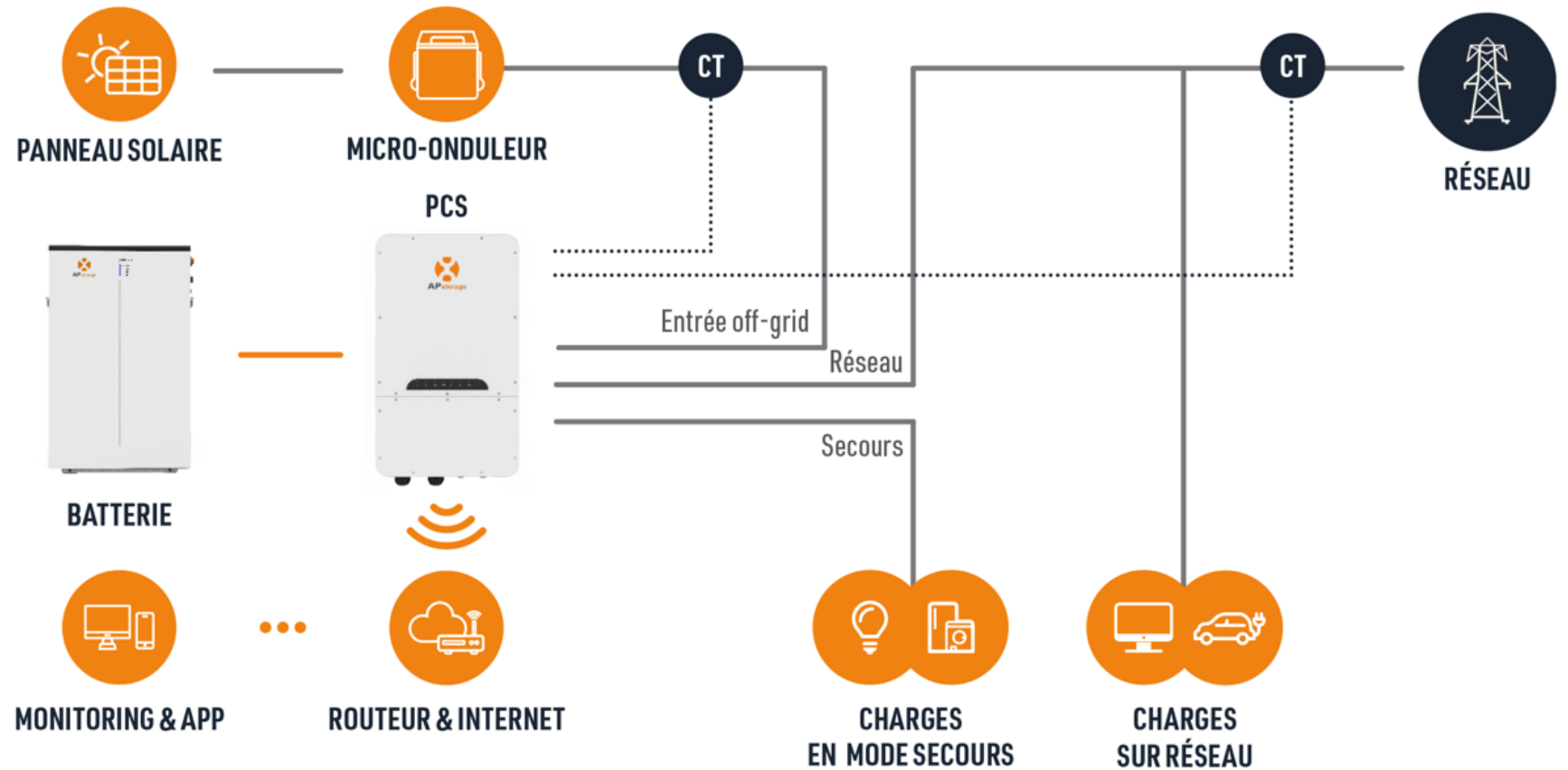


Schémas de principe de cablage

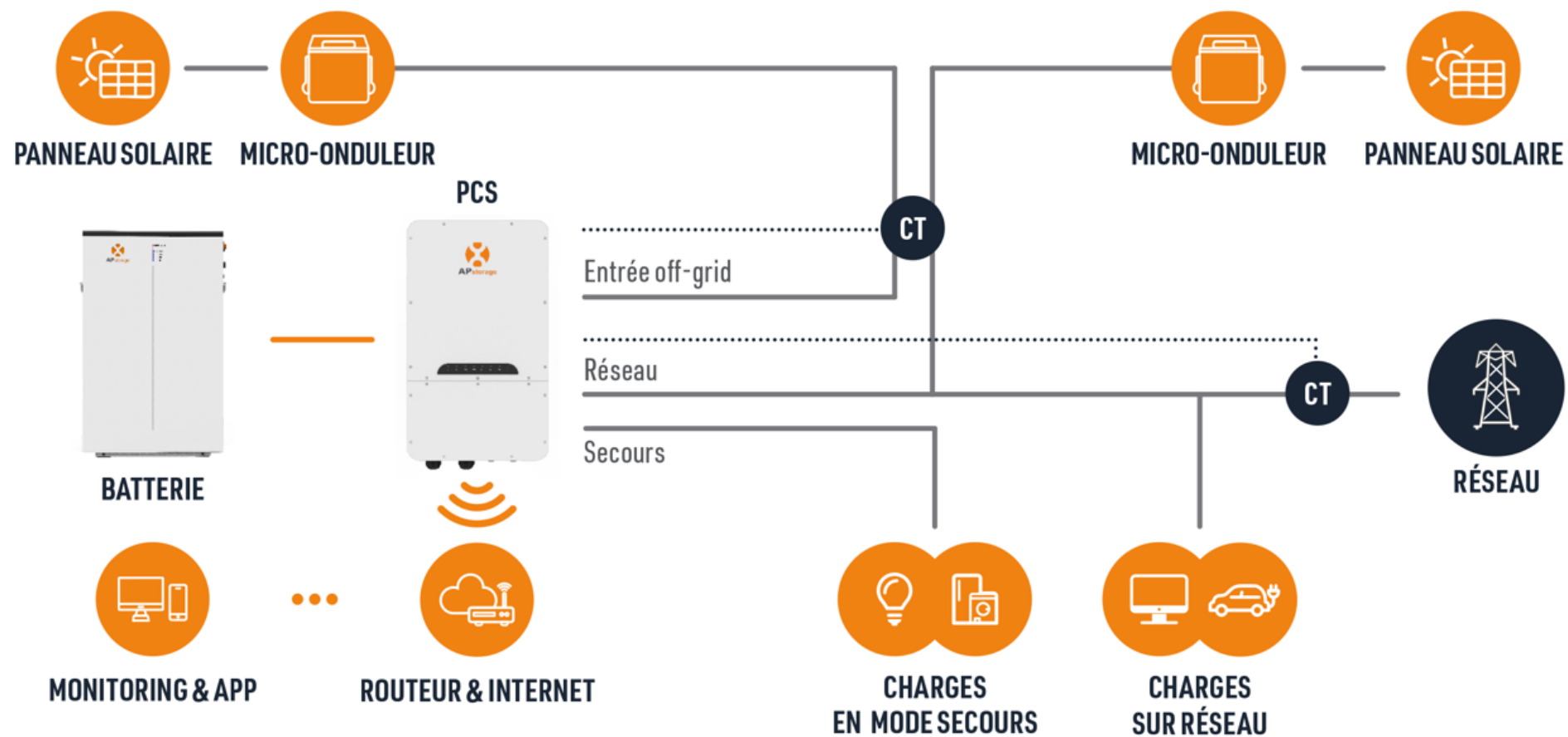


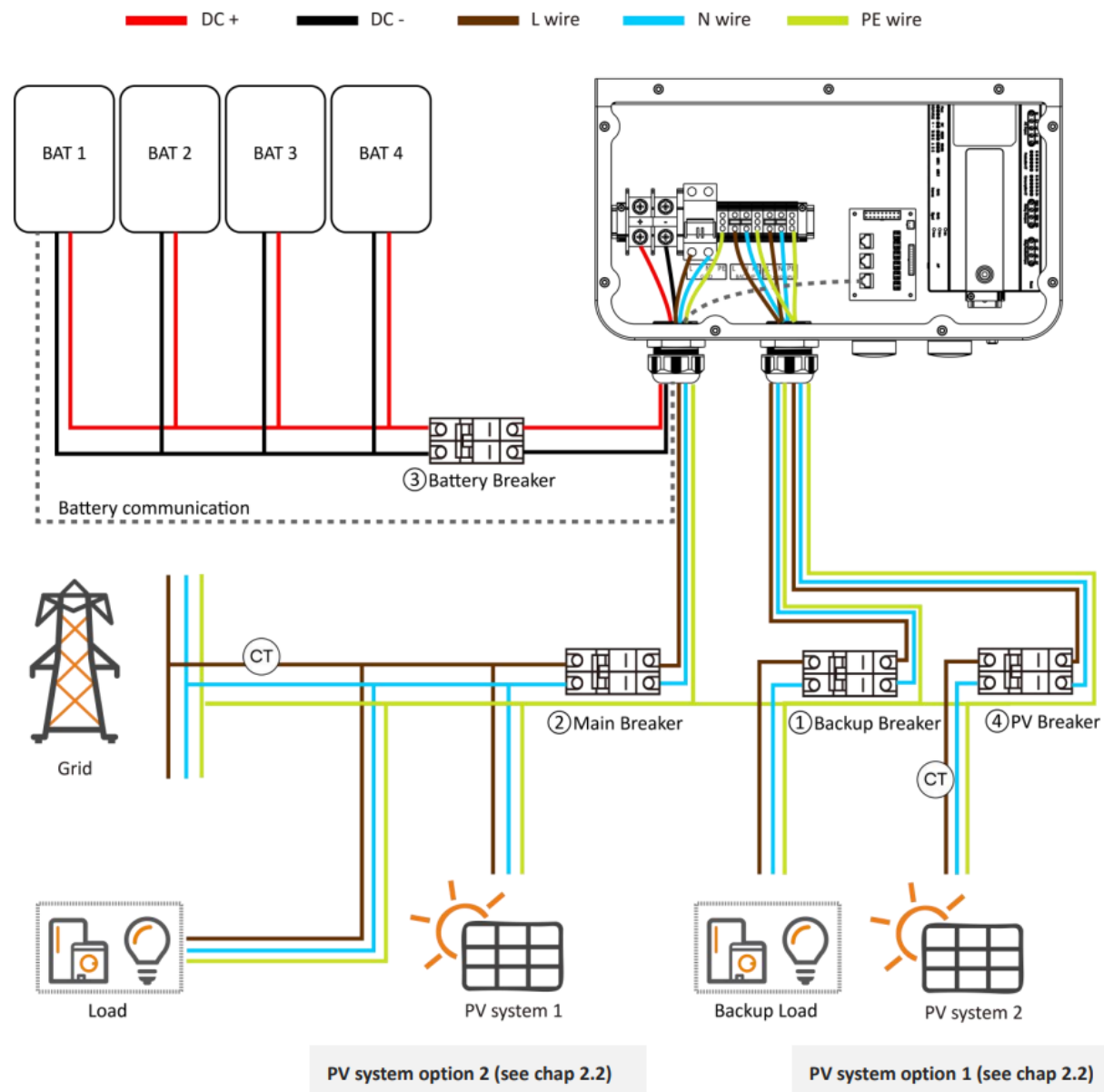
Option-1: PV fonctionne off-grid

- PV fonctionne en cas de coupure reseau
- Fonctionne seulement avec DS3.
- Limite d' installation de puissance PV



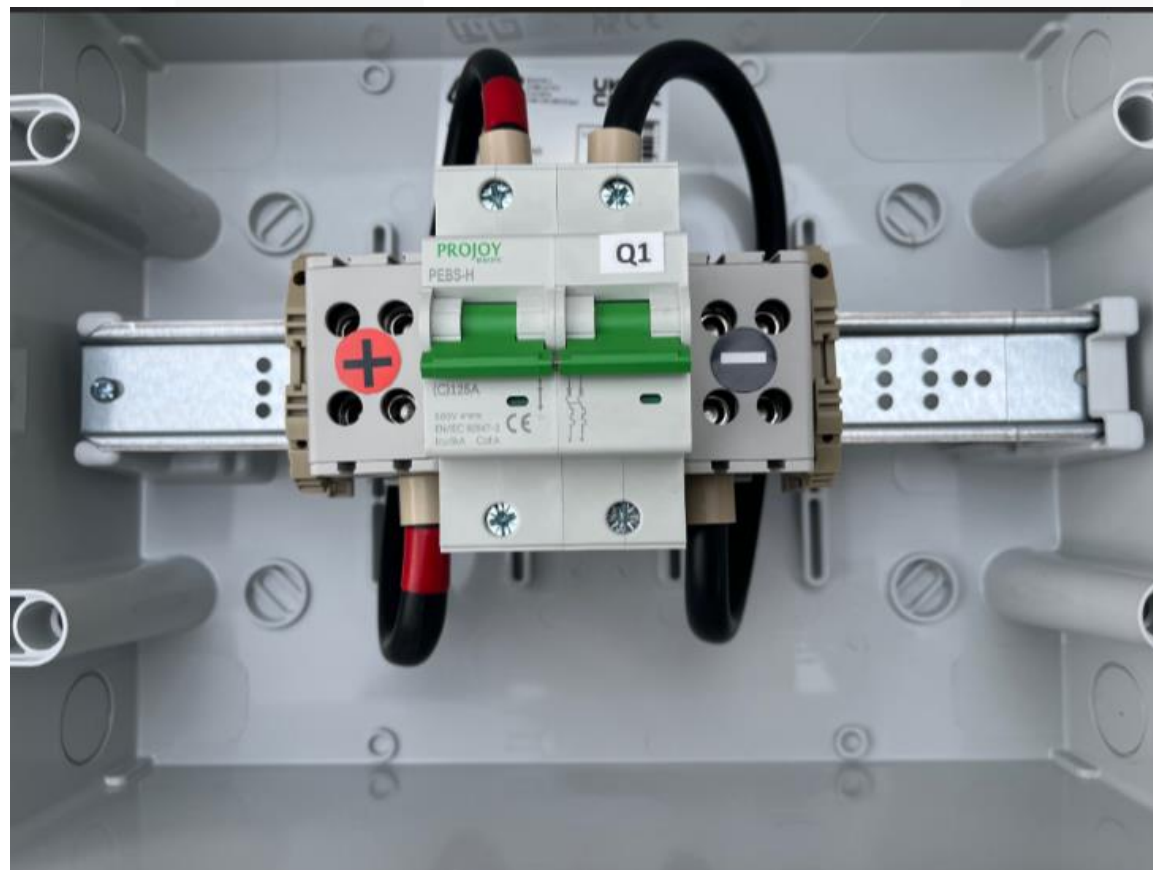
Option-3 Mix option 1 et 2



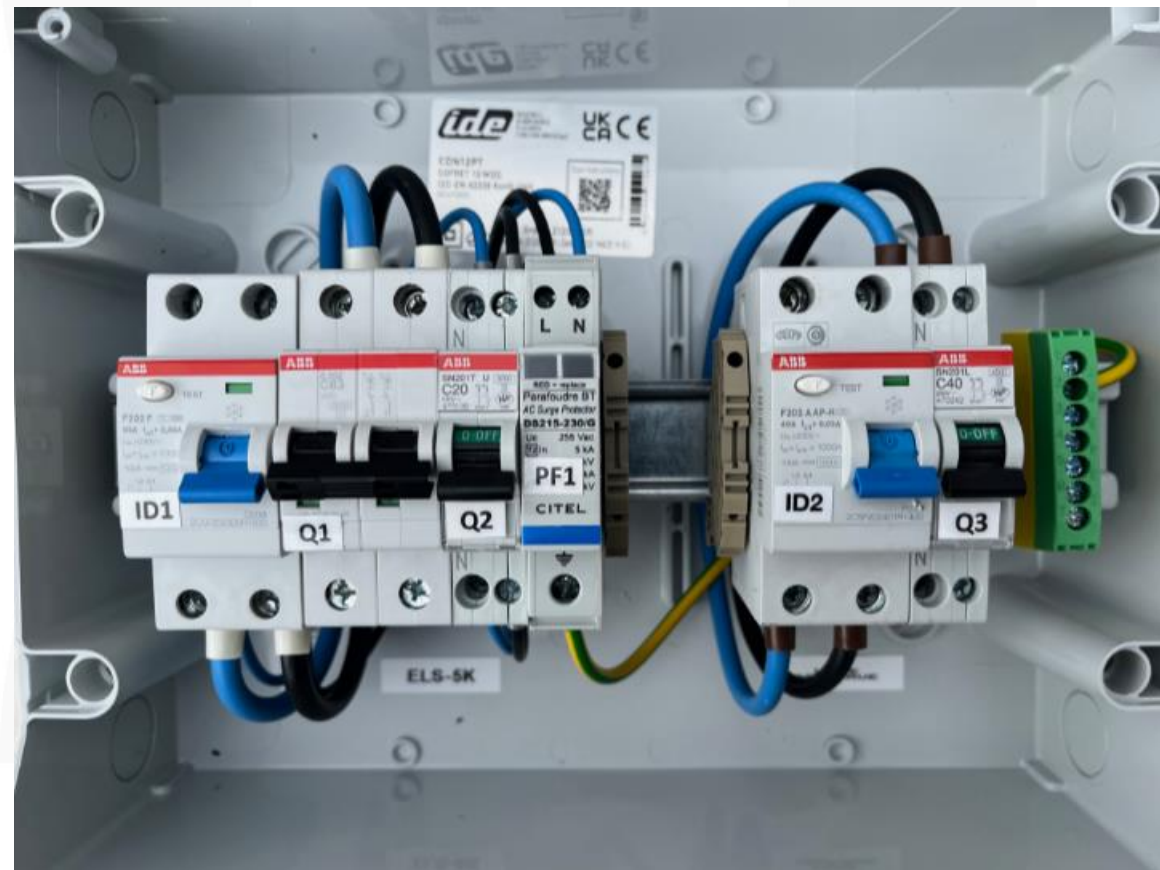


Exemple de coffrets de protection

DC batterie(s)



AC réseau + back up



02



Mode de fonctionnement



1. Backup mode

Priorité: Garder les batteries chargées



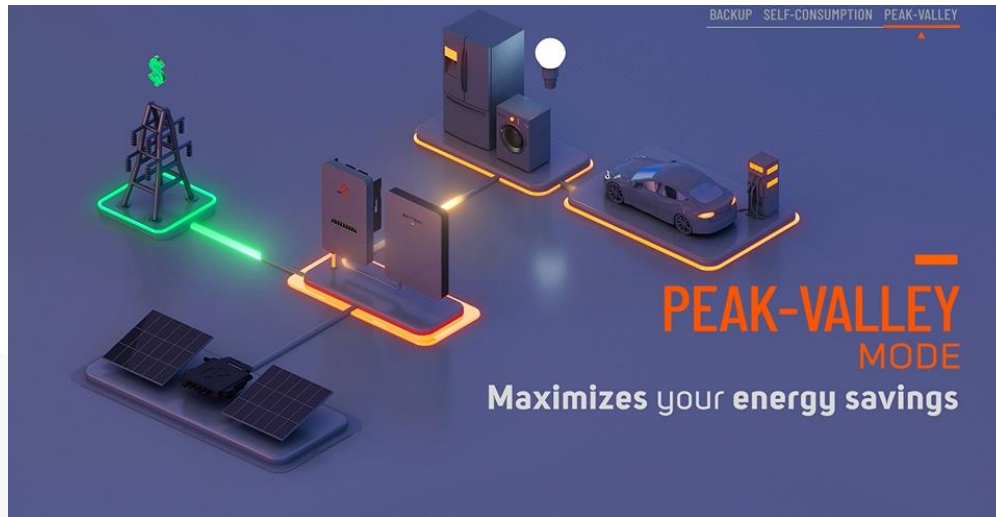
- **Backup mode:**
 - Réseau: PCS charge les batteries à pleine puissance, (priorité PV puis réseau si nécessaire)
 - Hors réseau: PV system branché hors réseau fonctionne normalement. APstorage va fournir du courant seulement au backup.

2. Mode auto-consommation



- Réseau:
 - Quand PV produit **plus** que la conso de la maison, the **surplus charge** les batteries. Quand la batterie est pleine, le surplus peut être réinjecté dans le reseau ou bridé.
 - Quand PV produit **moins** que la conso de la maison, la batterie se **décharge**, et fournit du courant au back up et tout ce qui est branché au reseau.
- Hors réseau:
 - PV system branché hors reseau fonctionne normalement. APstorage fournit du courant seulement au back up,

3. Heure pleines/ creuses(Mode avancé)



- **Mode avancé:**

- Réseau:

- Heures pleines:

- Quand PV produit **plus** que la conso de la maison, the **surplus charge** les batteries. Quand la batterie est pleine, le surplus peut être réinjecté dans le reseau ou bridé.

- Quand PV produit **moins** que la conso de la maison, la batterie se **décharge**, et fournit du courant au back up et tout ce qui est branché au reseau.

- Heures creuses (valley) time:

- PCS charge les batteries à pleine puissance, (priorité PV puis réseau si nécessaire)

- Flat time (ni heures creuses ni pleines):

- Quand PV produit **plus** que la conso de la maison, the **surplus charge** les batteries. Pas de décharge.

Economiseur batterie/ Charge forcée batterie

- **PCS veille/réveil:** quand le PCS est inactive pendant 1h, il peut se mettre en veille si la fonction est activée.
- **Charge forcée batterie:** si la charge batterie atteint un seuil critique, le PCS va forcer la charge avec le réseau automatiquement pour la protéger,

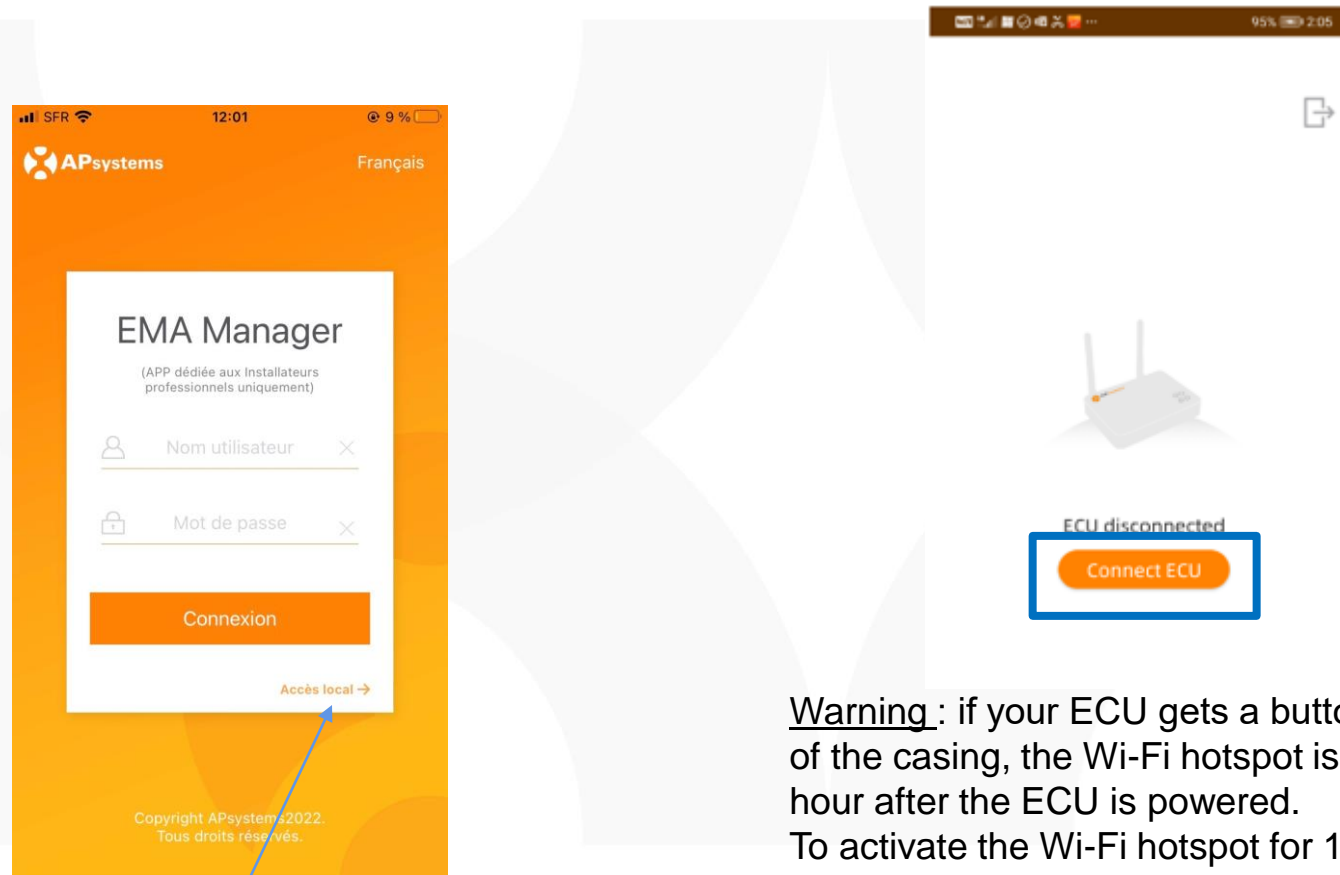
02



EMA Manager Mise en service



Connect your smartphone to ECU



Warning : if your ECU gets a button “AP” on the side of the casing, the Wi-Fi hotspot is activated for 1 hour after the ECU is powered.
To activate the Wi-Fi hotspot for 1 hour again, press the “AP” button



Click “Accès local”

Connect your smartphone to ECU



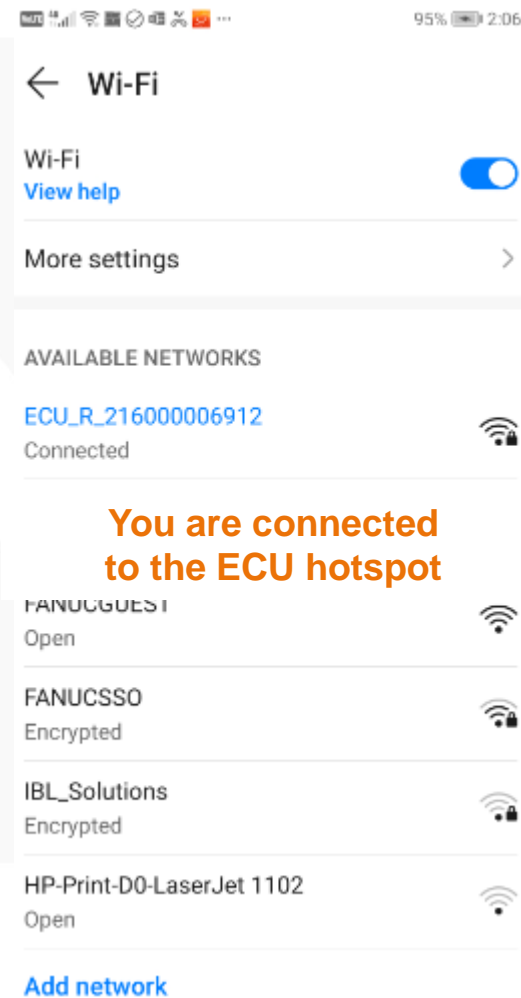
CANCEL

CONNECT

**Select ECU Wi-Fi hotspot
in the list**

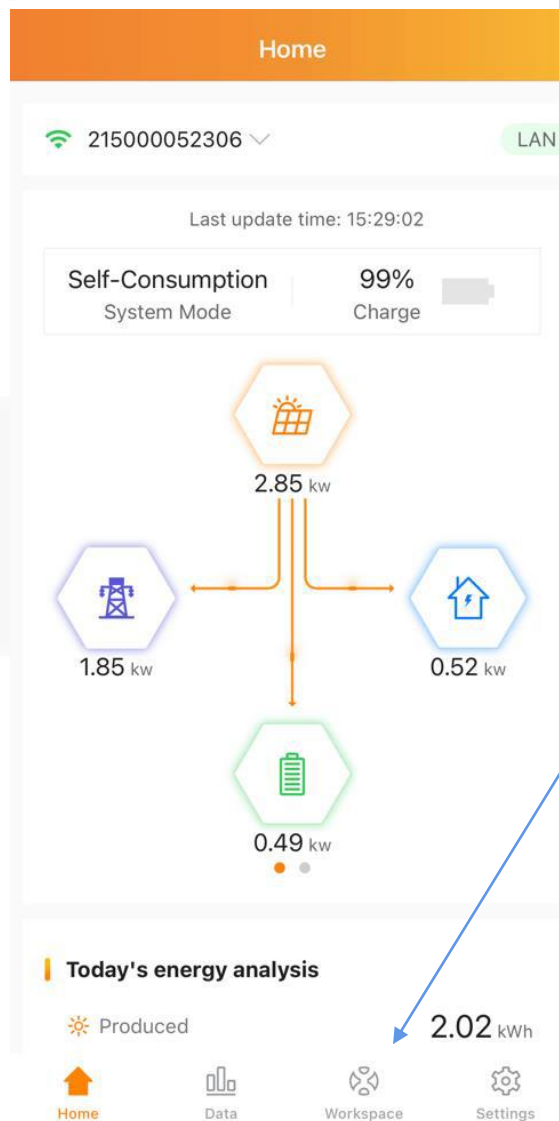
**ECU-R/ or ECU-B :
Enter password 88888888
ECU-C :
no password**

then click “connect”



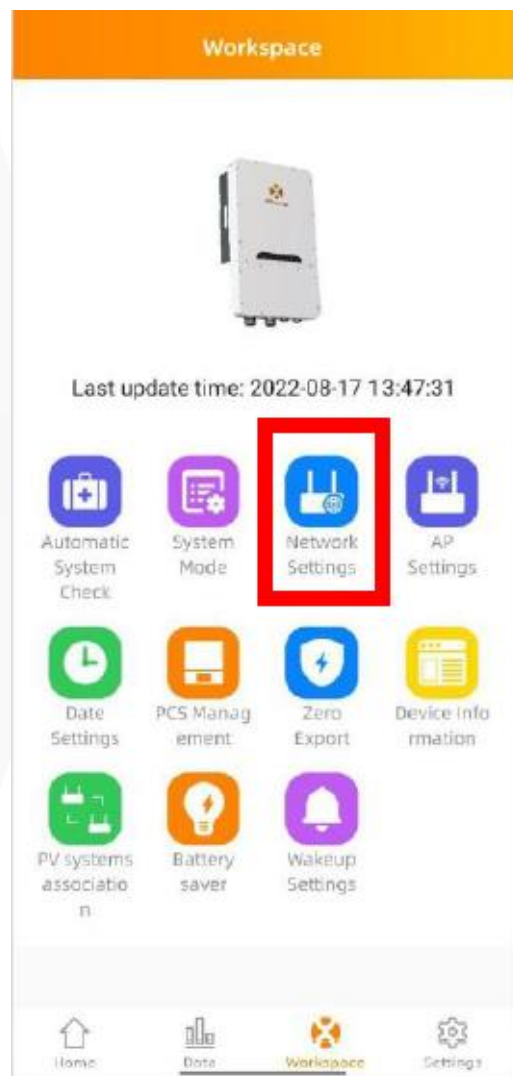
**You are connected
to the ECU hotspot**

ECU Configuration



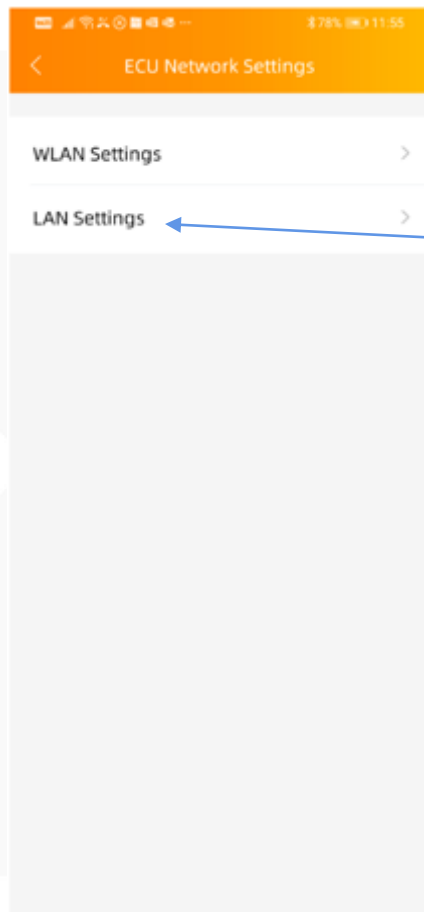
then
click “Workspace”

ECU Internet Connection



click “ECU Network Settings”

ECU Internet Connection: LAN



If ECU is connected
to the internet router
via Ethernet cable

click "LAN Settings"

check setting is
"Obtain an IP address automatically"

and IP address is not
192.168.131.228

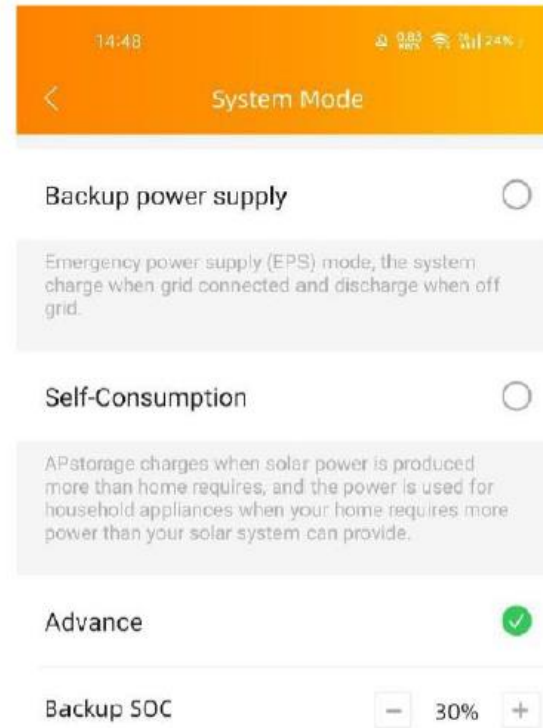
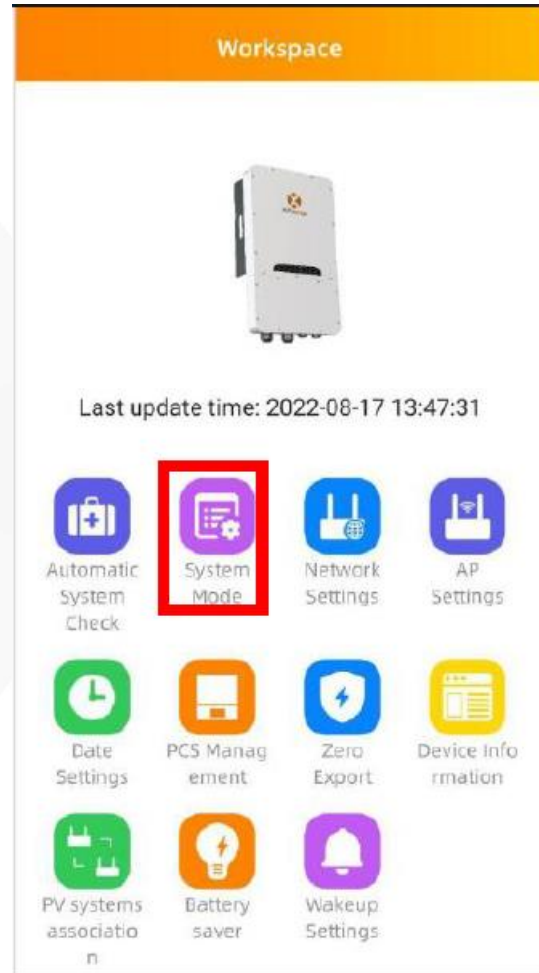


ECU Internet Connection: WLAN

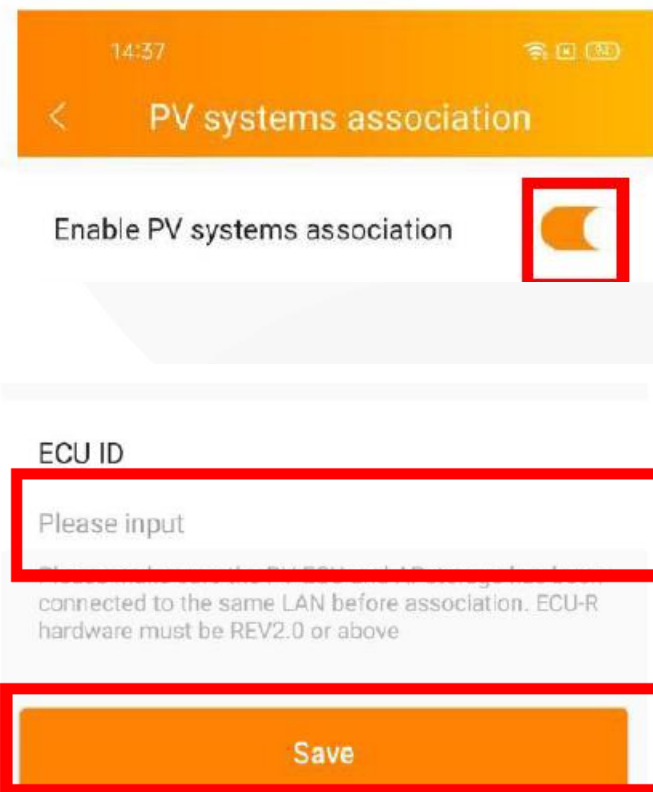
In case wire connection via RJ45 port is not possible,
you may connect ECU to the internet router through Wi-Fi :



Système mode



Association PV



02



EMA Dashboard overview



ECU INFO

Collect the ECU of PV system. ECU ID is a 12-digit number located on the top of ECU, as well as on the front flap of the shipping box.

ECU LIST

+ Add

Delete

Export

<input type="checkbox"/>	ID	ECU ID	ECU Name	Timezone	Storage	Meter	Action
<input type="checkbox"/>	1			Europe/Paris	√	--	Edit
<input type="checkbox"/>	2			Europe/Paris	--	--	Edit

Displaying 1 to 2 of 2 items

ADD ECU

Note: Input the right ECU ID.

Device Type ☐ ECU for micro-inverter ☐ ECU for APstorage

<

1

>

Go

1

10

▼

ADD ECU

Note: Input the right ECU ID.

Device Type ☐ ECU for micro-inverter ☒ ECU for APstorage

ECU ID *
12-digit number located on the top of ECU, or on the front flap of the shipping box.











ECU Name
Custom ECU name

Storage model

ELS-5K

▼

OK

-  **DASHBOARD**
-  **MODULE**
-  **REPORT** 
-  **HISTORY** 
-  **REMOTE CONTROL -- PHOTOVOLTAIC** 
-  **REMOTE CONTROL -- STORAGE** 
 - TIMEZONE SETTING
 - ZERO EXPORT SETTING
 - WORK MODE**
 - BATTERY SAVER
 - PV SYSTEMS ASSOCIATION
 - PCS DEBUGGING

Storage Work Mode

The working mode of the energy storage system can be set, including residual power for self use, standby battery, advanced settings and Peak-Shaving.

SETTING WORK MODE

Select Storage

215000023977 Storage 

Work Mode

Backup power supply 

Submit

Emergency power supply (EPS) mode, the system charge when grid connected and discharge when off grid.

ENERGY STORAGE OPERATION STATUS



Charge

Work Mode
Advanced Mode

Battery
68%

0 10.24kWh

TODAY'S ENERGY USAGE



9.38 kWh
Produced



0.12 kWh
Discharged



0 kWh
Imported



3.43 kWh
Consumed



6.07 kWh
Charged



0 kWh
Exported

System Time: 2022-07-27 14:48:08

SYSTEM INFORMATION



jx Zhejiang China's Mainland

Create Date 2022-05-07

System Size 4.8kW

Inverter Type YC600

SYSTEM BENEFITS



776.01 (kWh)
Total Produced



1.22 (MWh)
Total Consumed



570.6 (kg)
CO2

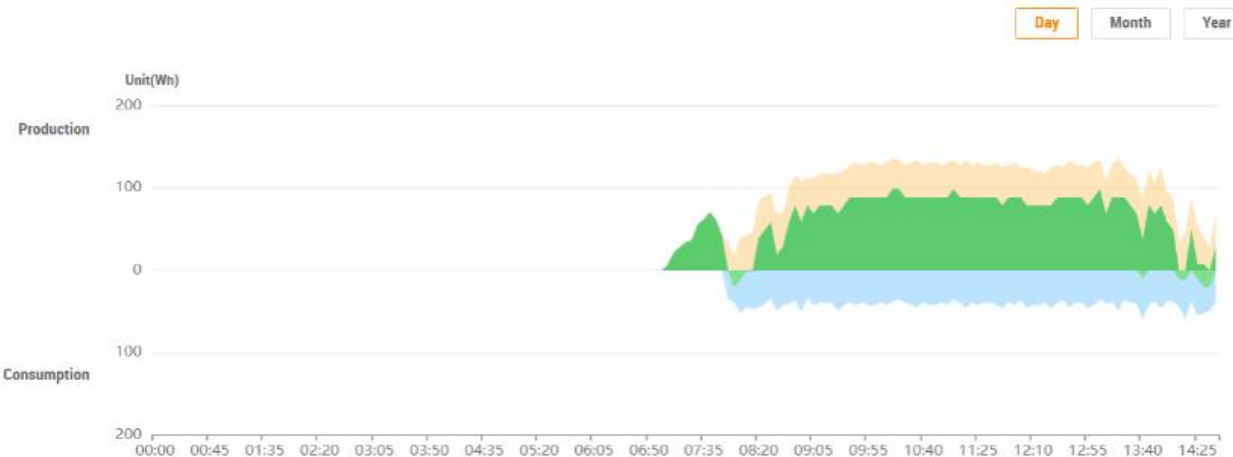
CONTACT INFORMATION

Company Name APsystems

Telephone --

Email emasupport@apsystems.cn

ENERGY USAGE



Produced **9.38** kWh

Charged **6.07** kWh

Exported **0** kWh

Consumed **3.43** kWh

Discharged **0.12** kWh

Imported **0** kWh

How to calculate the Max PV system power under system wiring

- 1. Identify the largest maximum single load power rating (kW) that you want to backup, and select the absolute minimum number of PCS units . A maximum of 2 ELS 5K units can be connected in parallel.
- 2. Based on the estimated backup loads for the user defined time period, calculate the required energy storage (kWh) capacity and the minimum number of battery required.
- 3. Refer the Table below to calculate the maximum PV system power (PV system 1) to connect to the backup side, if the total PV system power is larger than Max PV system power, connect the excess power (PV system 2) to the grid side.

Table 1: Maximum PV system power for storage system for backup operation

ELS-5K units	Battery units	Max PV system power (kWac)
1	1	3.12
1	>=2	6.25
2	2	6.25
2	3	9.37
2	>=4	12.5

ELS-3K units	Battery units	Max PV system power (kWac)
1	1	3.12
1	>=2	4.6
2	2	6.25
2	3	9.2

Exemples d'installations

