emporia

A1-ESS-G2

All-in-one
Residential
Energy Storage
Solution

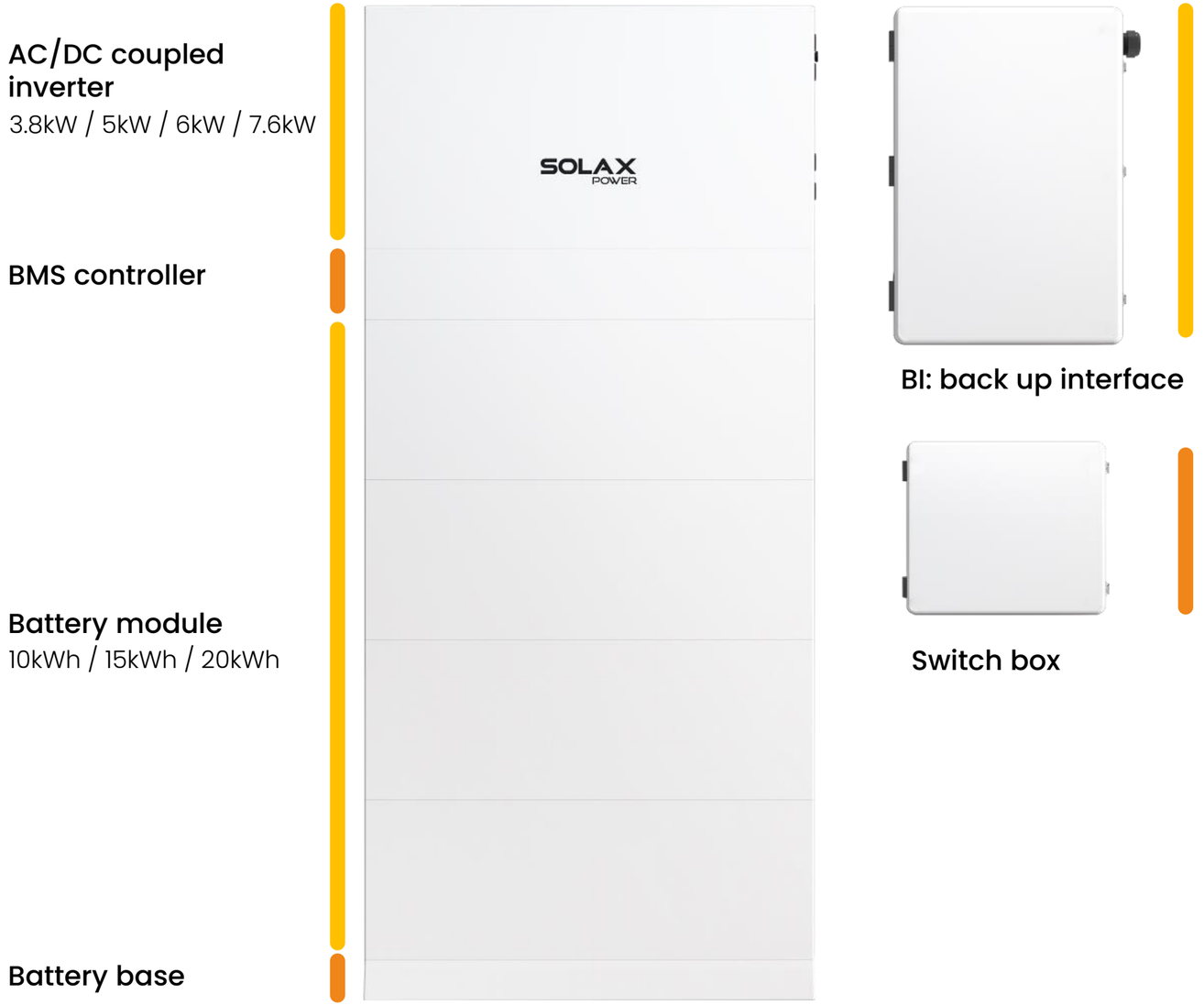
SOLAX
POWER

System Overview

A1-ESS G2 is an all-in-one energy storage system,

including a hybrid inverter, BMS, batteries, and a BI (Backup Interface) device. The BI device offers intelligent load grading management for energy optimization and ensures uninterrupted power during outages. For even more precise management, you can opt for the SWITCHBOX (see next slide) add-on.

The system supports up to 4 units in parallel, providing a capacity of up to 30kW/80kWh, making it suitable for residential, small commercial, and industrial applications.



Components of A1-ESS-G2

Inverter

A1-HYB-G2

- 200% PV oversize
- 2/3 MPPTs (16A)
- Max. efficiency (PV-GRID): 98%

Stackable Batteries

T-BAT-SYS-HV-5.0

- Long life & Safe LFP battery
- Up to 4 battery modules stacked, 20kWh
- Plug and play
- Module design & Easy installation
- Floor or wall mounted

Backup Interface

A1-BI-200-G2

- Max. 160A AC current
- whole home backup
- Up to 4 inverters in parallel 30kW/80kWh
- Built-in Energy Management Meter/CT

Switch Box

A1-SW-80-G2

- Support intelligent load controls (3 channels)
- Maximum four 120V load (two 240V load) and one 240V third-party inverter

33.46in
(850mm)

5.82in
(148mm)

66.25in
(148mm)

Born Neat, Sleek and Flexible

Up to 4 units in parallel

Max **30kW / 80kWh**

Flexible and Expandable, all as you need

Scenarios

Residential

Indoor

Outdoor

Small Commercial & Industrial

Indoor

Outdoor

Rated NEMA 4X, suitable for indoor and outdoor applications

Now,
Let’s take a closer look at

A1-ESS-G2

01 Key Features

02 System Solutions

03 Testimonials

Key Features

Fast Installation & Sleek design

- Stackable modular battery design
- All-in-one system
- Plug & Play
- Visually appealing

High Efficiency

- Up to 98% efficiency
- 200% PV oversizing
- Max. PV input 150%

Robust Backup

- Micro-grid supported
- Generator supported
- Switch to off-grid within 80ms

Intelligent & Economical

- Complies with NEM 3.0 regulations
- Smart load classification and remote management
- Smart home control (switch on/off)
- Black start

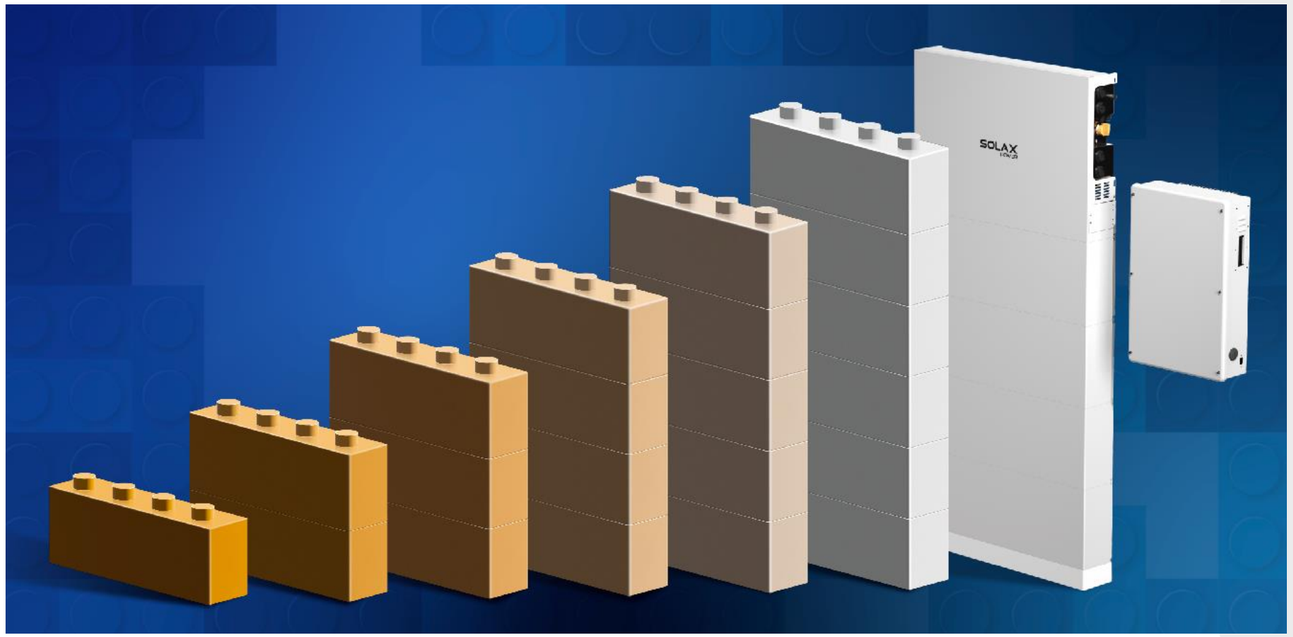
User-Friendly Control

- 7/24 live consumption monitoring
- 10s data refresh interval
- Works with Emporia Energy

High Reliability & Durability

- Operates from -22°F to 122°F
- Phosphate lithium-ion batteries with over 6000 cycles
- ACFI optional
- Rapid shutdown

Modular Design



Assembling as simple as building with bricks.
Say goodbye to repetitive site visits.

Modular Design

Plug & Play

Wide Operation Temperature

Operate efficiently within a broad temperature range, from **-22 to 122** degrees Fahrenheit.

This capability ensures reliable functionality, even in cold regions of the United States, such as Minnesota, North Dakota, Montana, and others.

Maximizing Efficiency & Saving Money

With 200% oversized PV input power capacity, the system empowers homeowners to double their PV panel installations compared to the inverter's capacity.

Coupled with its exceptional 98% efficiency, this allows homeowners to fully harness their solar energy, ensuring every investment yields substantial returns.

Strong Ability Against Unstable Grid

No Worries for Power Breakdown

Switch to emergency supply
within 80ms

Micro-grid Supported

Enable string inverters to harness
PV even during outages

Generator Supported

Power your load
with generator

Intelligent Loads Classifications

The system incorporates three load classifications, including:

Essential for crucial loads such as lighting and internet access,

Everyday for important appliances like Washer/Dryer,

Additional comforts for high-power appliances.

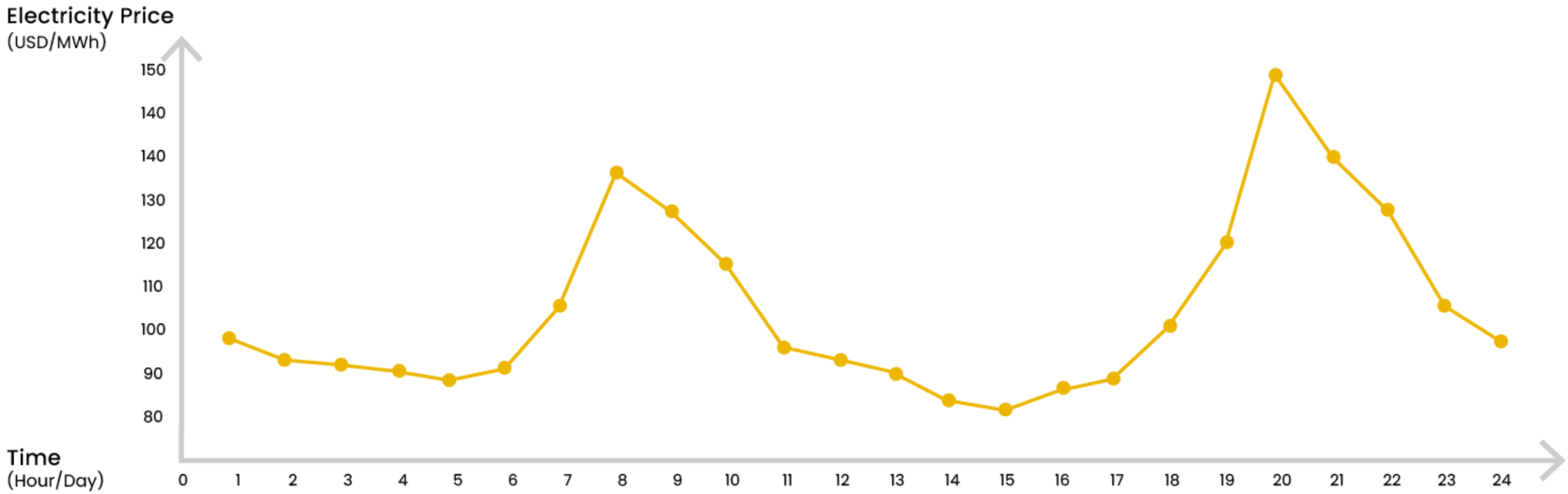
Homeowners can easily pre-classify their appliances and manage them remotely through Emporia app.

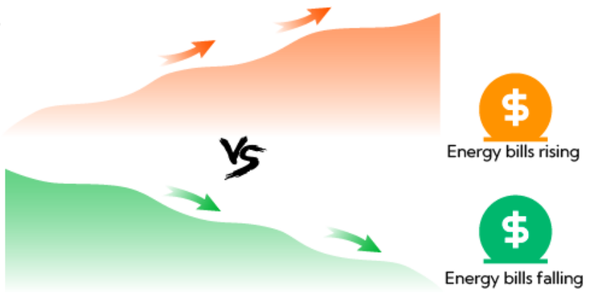
Reliability and Safety

- AFCI
- Rapid shutdown
- Phosphate lithium-ion batteries
- Over 6000 cycles

ESS, Tailored for NEM 3.0

- Sell excess electricity back to the grid and **earn credits**, as it is compliant with NEM 3.0
- **Maximize your profits** with the **24/7 Time of Use (ToU)** feature, despite NEM 3.0 reducing the export rate by approximately 75%: Paired with stackable batteries, the 24/7 ToU feature allows you to **easily customize your usage, storage, and selling times, down to 15 min per slot, up to 10 slots per day,** maximizing your profits.



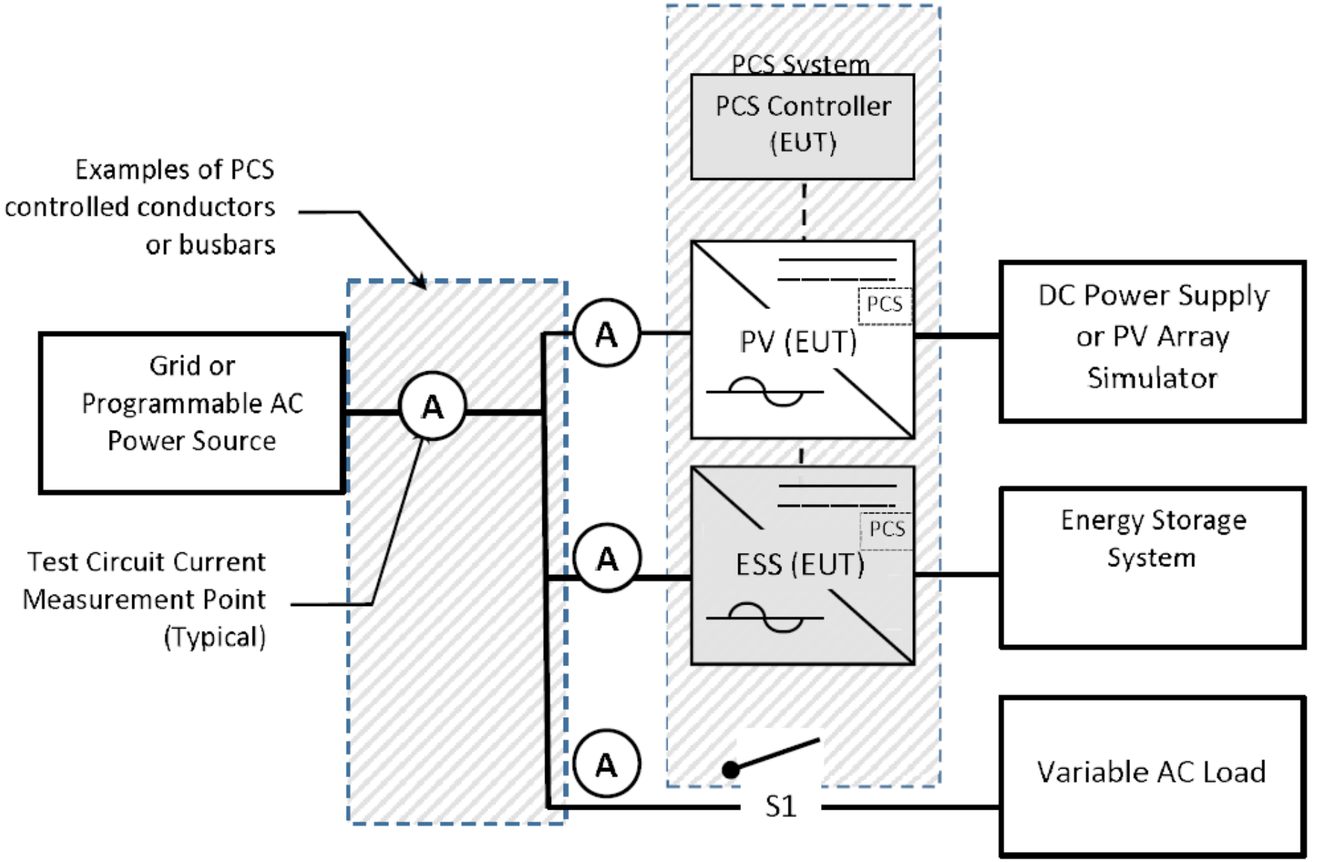


ESS, Tailored for regulation UL1741

A1-ESS G2 has developed a Power Conversion System to ensure compliance with US safety standards during operation, in accordance with UL1741 regulations.

- 4 modes available for various scenes: **Unrestricted Mode, Export Only Mode, Import Only Mode, No Exchange Mode**

- PCS also can **reduce your costs** for modifying home circuit systems in practical application.



Test Circuit AC Coupled System

ESS, Fireproofing under UL9540A

A1-ESS G2 has developed a Power Conversion System to ensure compliance with US safety standards during operation, in accordance with UL1741 regulations.

- 4 modes available for various scenes: **Unrestricted Mode, Export Only Mode, Import Only Mode, No Exchange Mode**

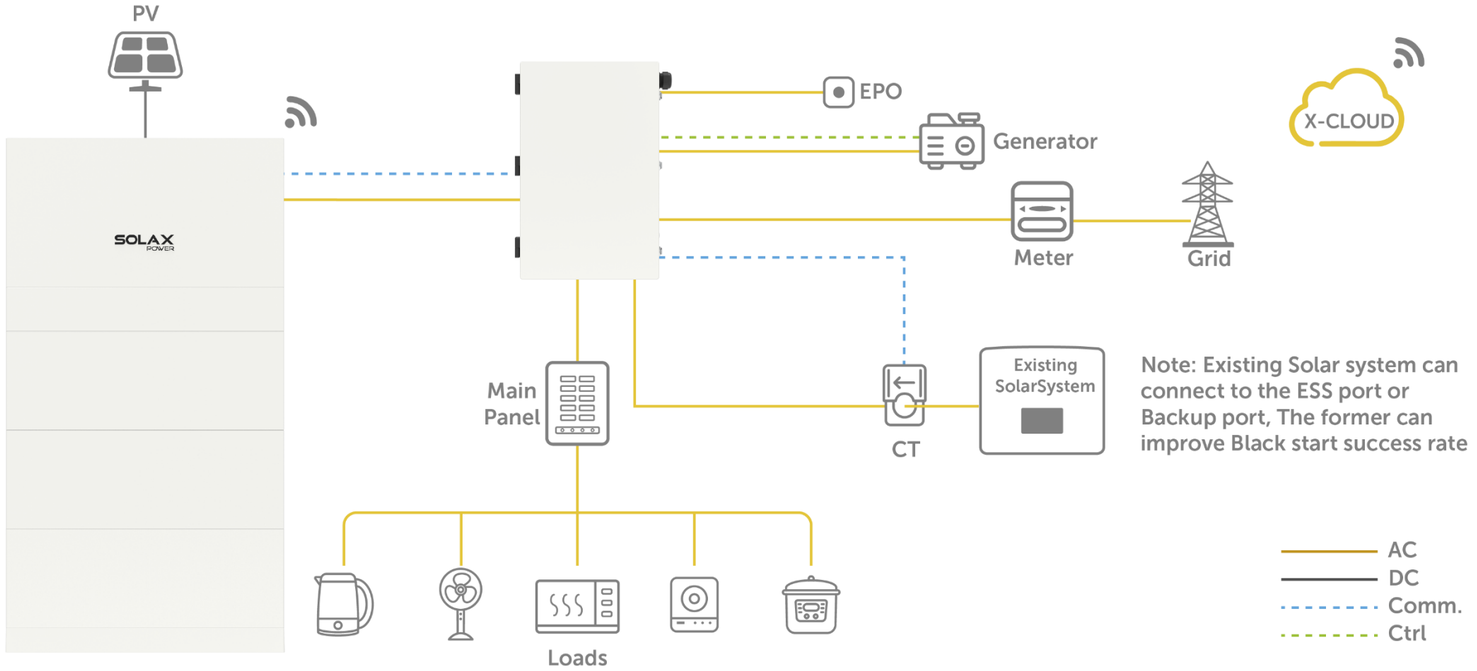
- PCS also can **reduce your costs** for modifying home circuit systems in practical application.

Micro-grid Ready

There are numerous traditional string inverters available in the market.

However, due to the Islanding Effect, these string inverters cannot function during off-grid situations causing users to lose the PV energy generated by the string inverter when off-grid.

The micro-grid function allows the hybrid inverter to simulate the grid and activate the string inverter during off-grid periods. By connecting the string inverter to the hybrid inverter's EPS port, the hybrid inverter can utilize PV or battery energy to activate the string inverter when utility power is lost.



*Note: Compatible with single-phase string inverters

Black Start

- Auto initiate during power outages or low battery situations
- No hassles for a manual start-up
- Guarantee maximum green energy generation at every available opportunity

Configuration Options

Partial Load

Whole Home Load

ESS with Switch BOX

Parallel Solution

PV-ONLY

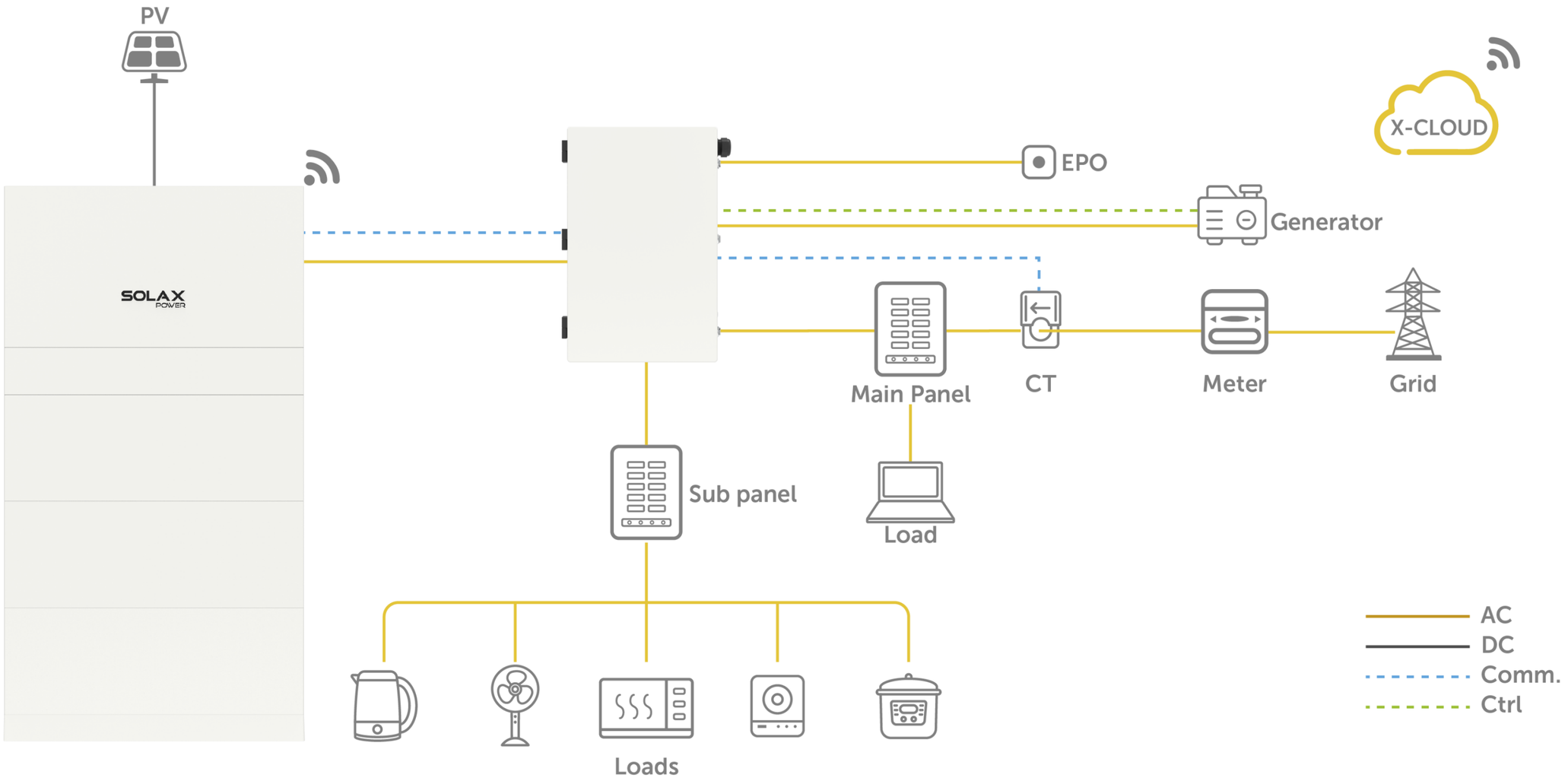
Grid-Support

ESS With Generator

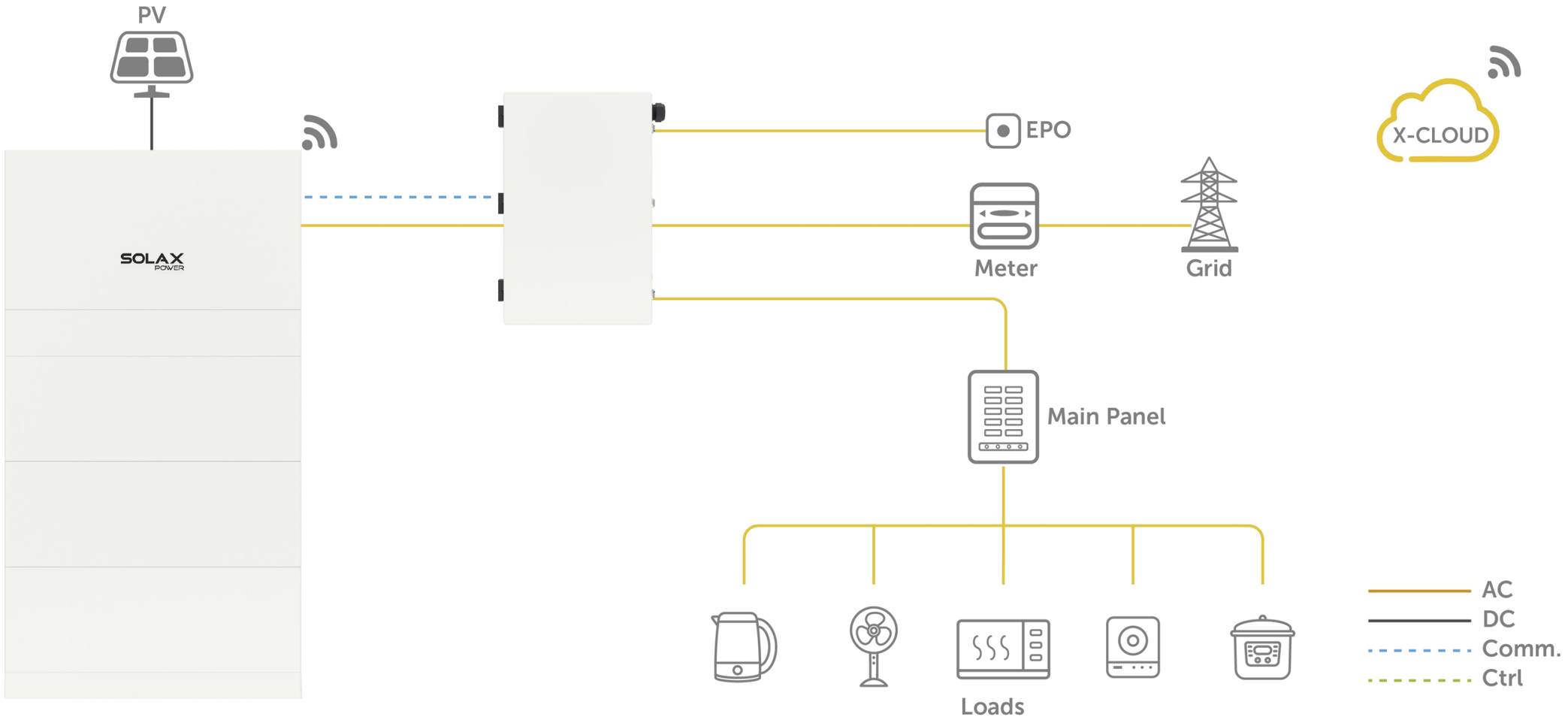
ESS Micro Grid

AC-Couple Micro Grid

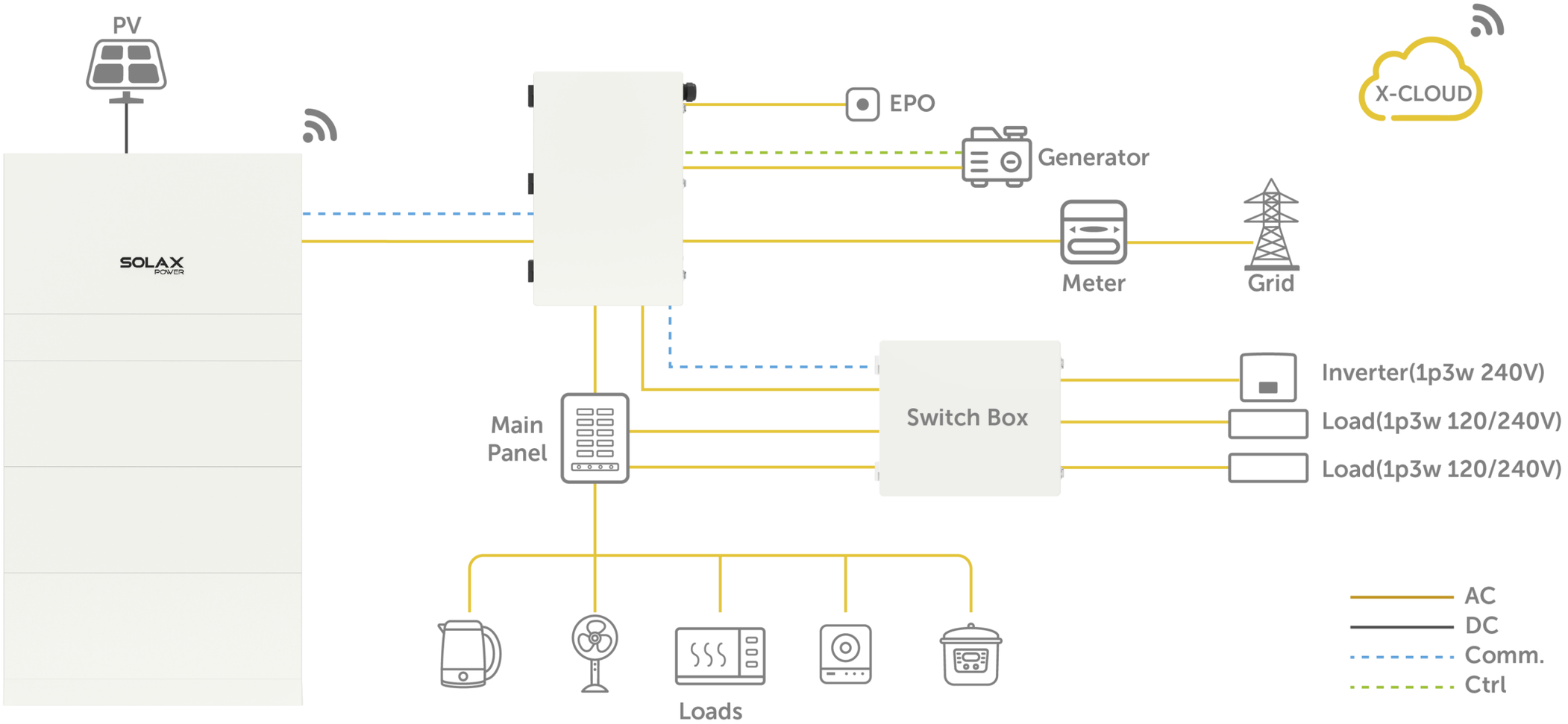
Configuration | Partial Load



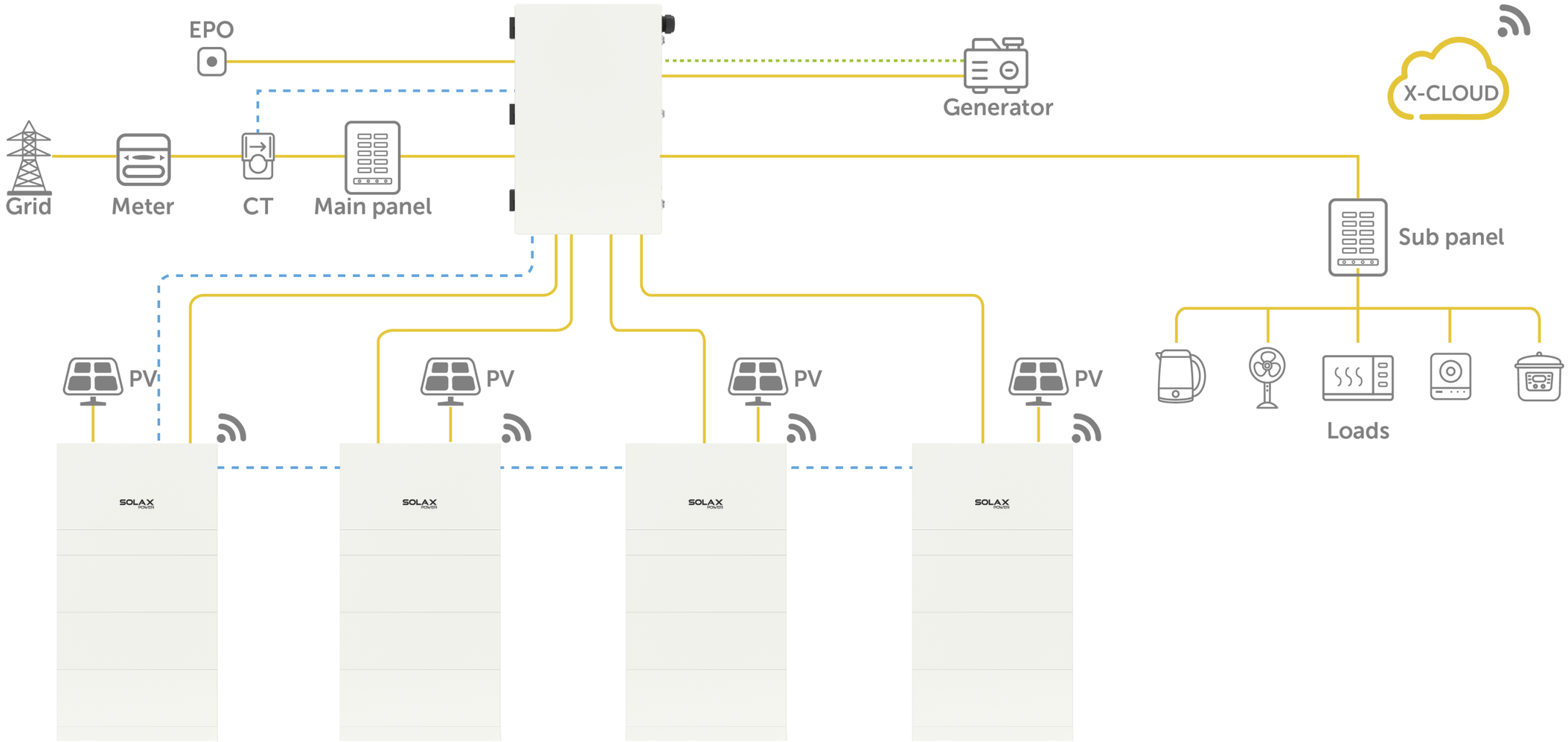
Configuration | Whole Home Load



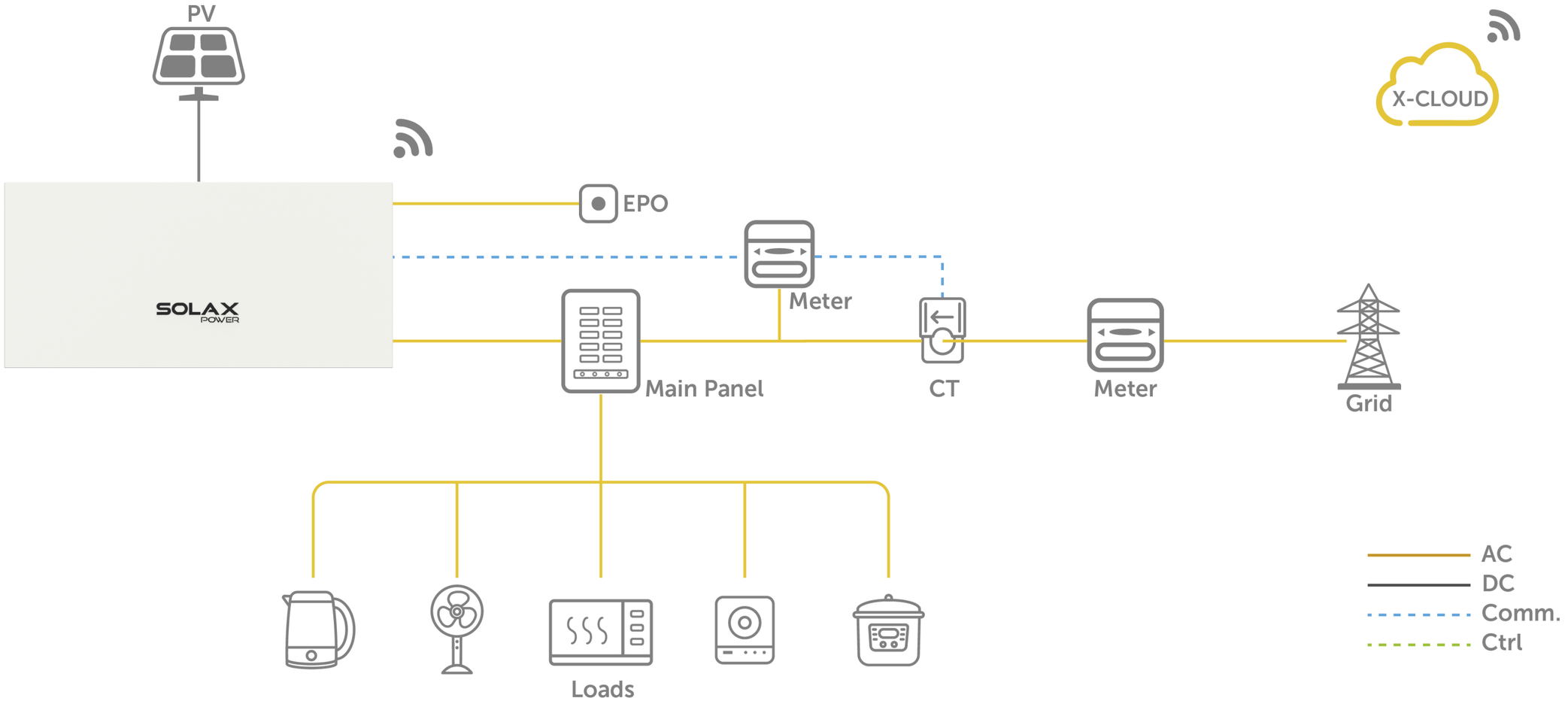
Configuration | ESS with Switch BOX



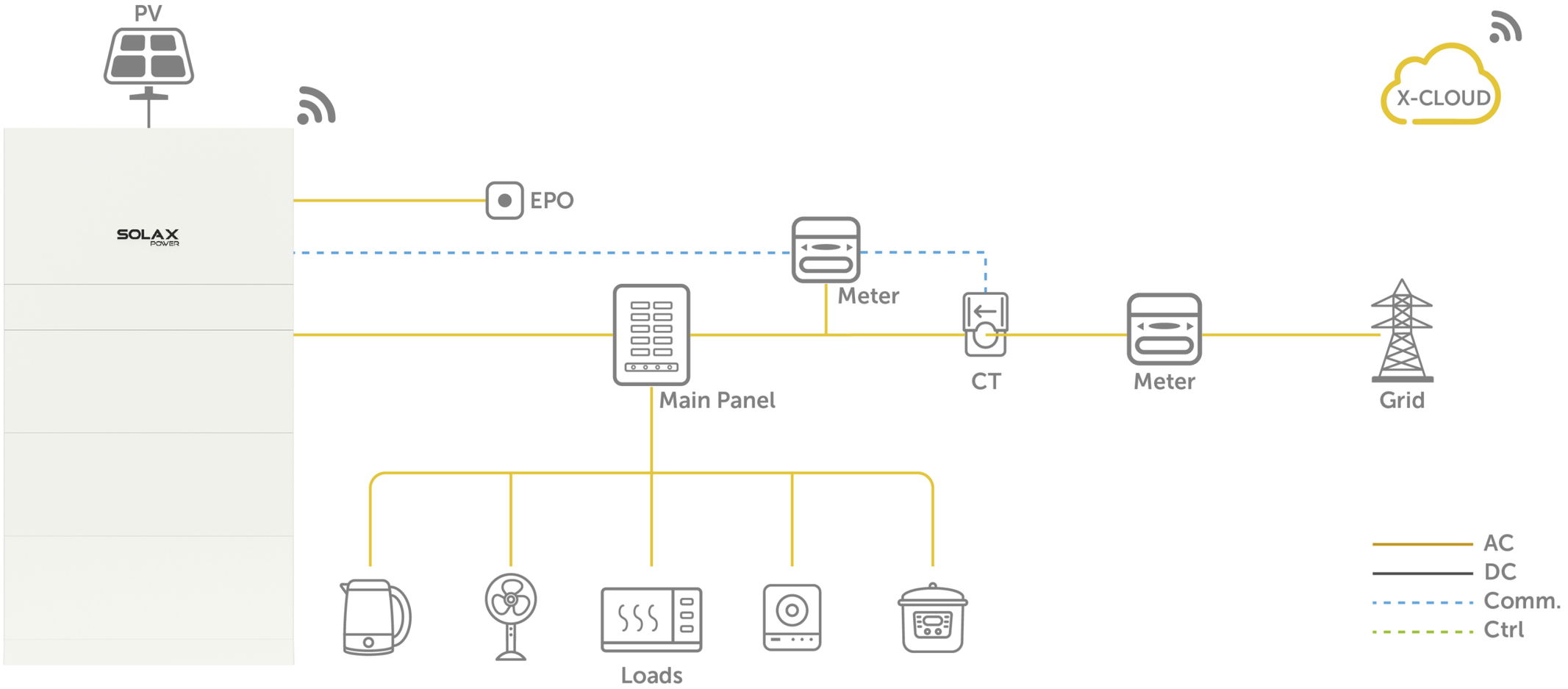
Configuration | In Parallel



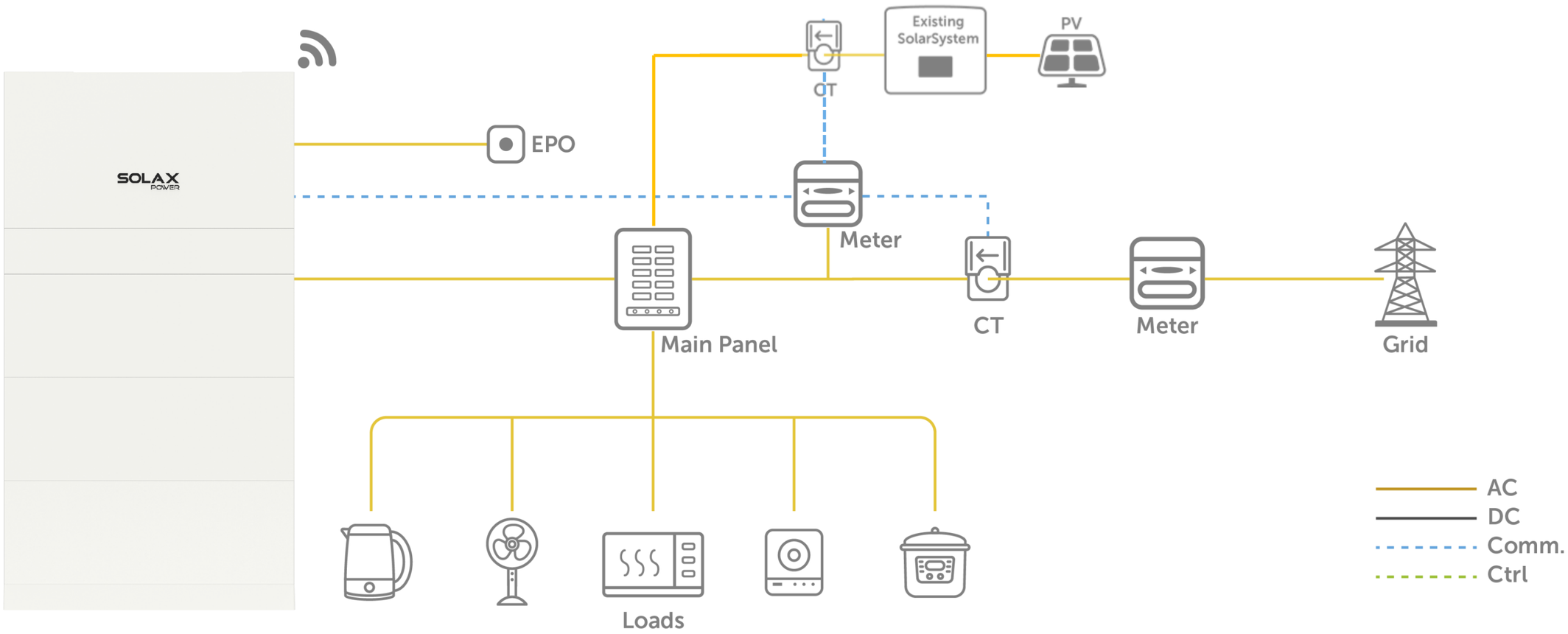
Configuration | PV-ONLY



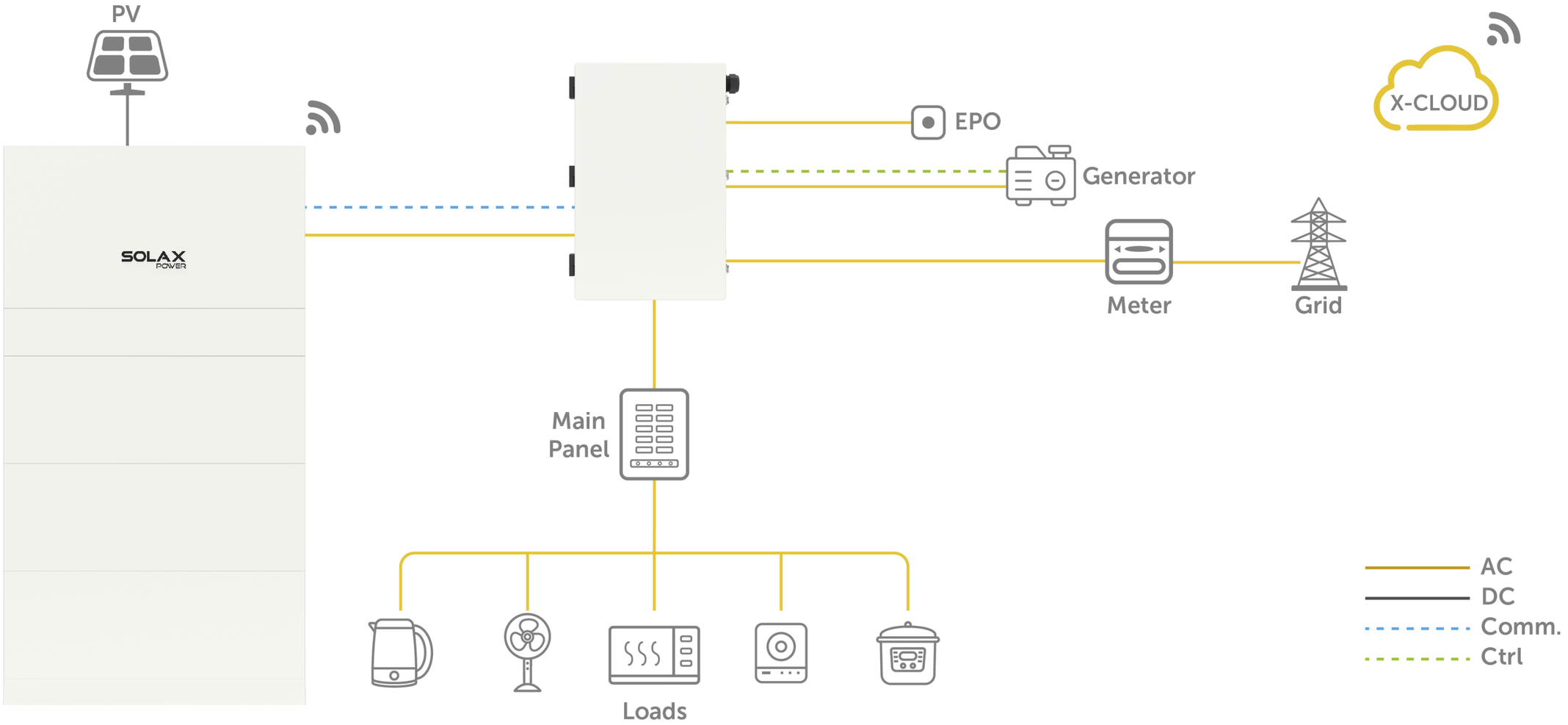
Configuration | Grid-Support



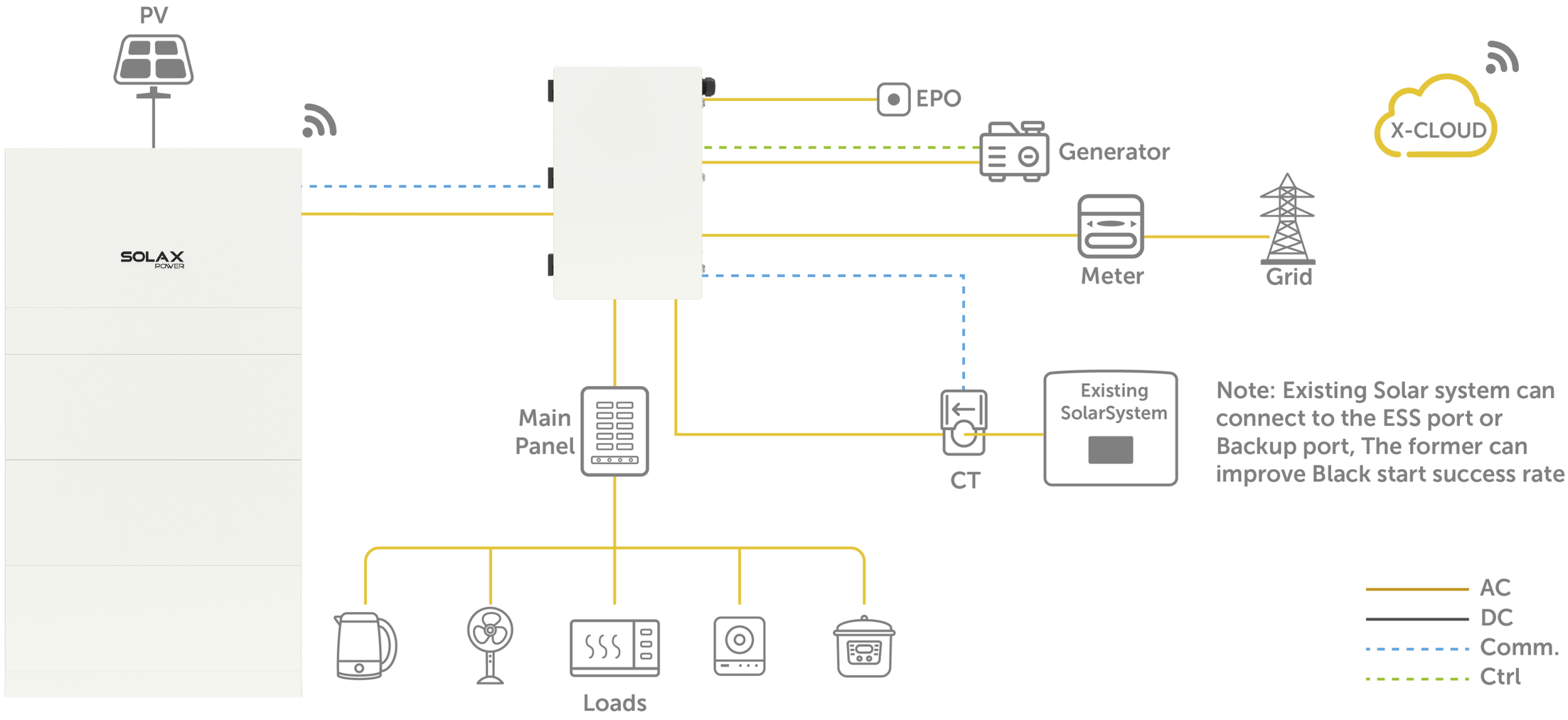
Configuration | Grid-Support (existing solar)



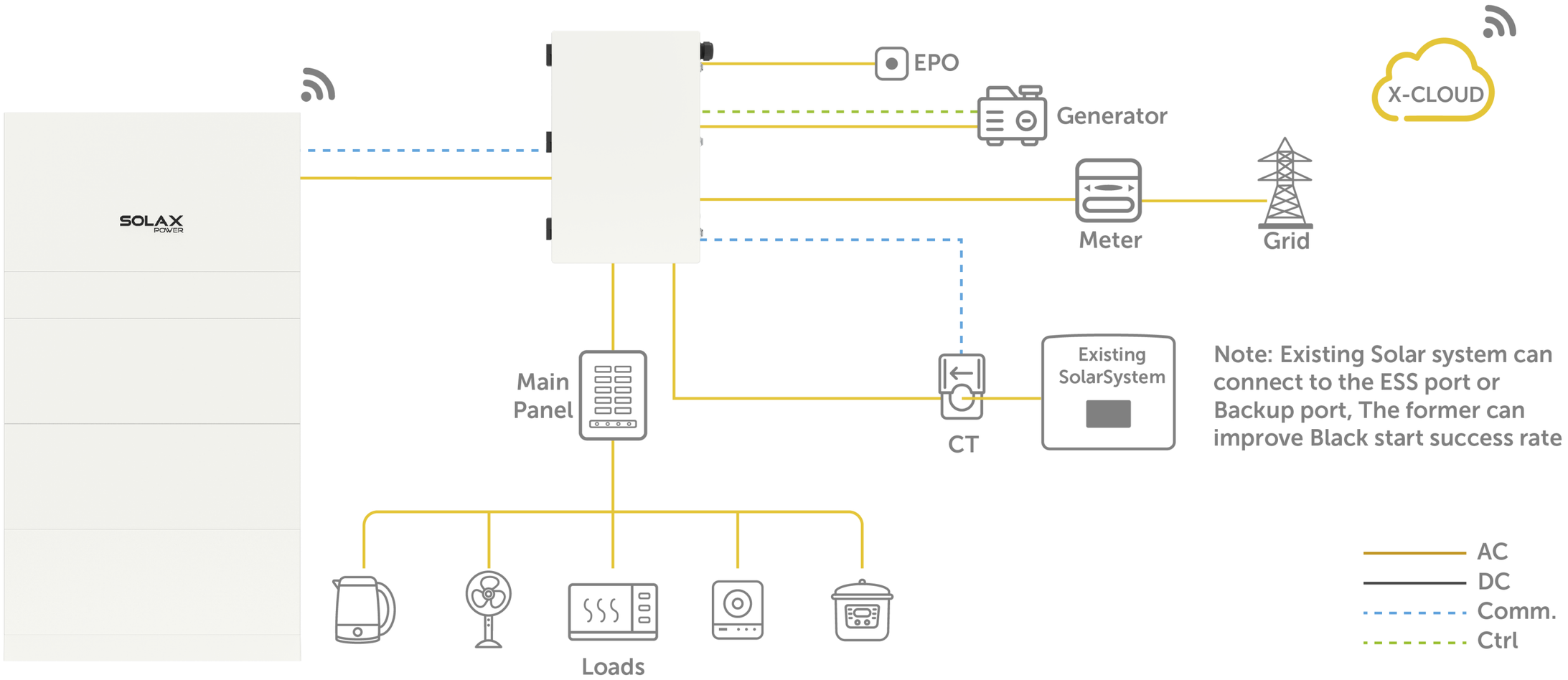
Configuration | ESS With Generator



Configuration | ESS Micro Grid



Configuration | AC-Couple Micro Grid

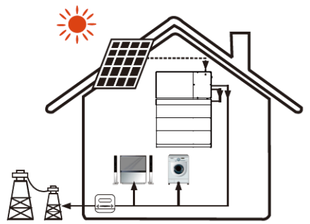


Simple and intuitive remote operation

- The latest generation of **SolaxCloud** has embraced a brand-new UI design style, featuring a simpler and more informative visual interface.
- On SolaxCloud V5, users have the flexibility to customize their dashboards according to their preferences.
- SolaX batteries work with **Emporia Energy** to bring comprehensive smart home energy management tools and savings to each homeowner.

Multiple work modes

A1-HYB-G2 series inverter provides multiple work modes based on different requirements. Some basic work modes of A1-HYB-G2 are shown below. Contact us for additional or more complex application requirements.



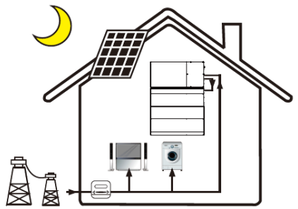
➢ Work mode: Self Use

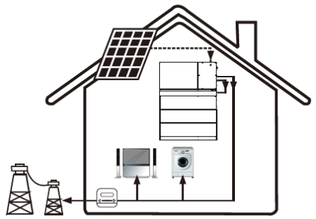
The self-use mode is suitable for areas with low
feed-in tariffs and high electricity prices.

① When the power of PV is sufficient
The power generated from PV will be used to supply the local loads first, then proceed to charge the battery bank.
If the battery is fully charged, the excess power will be exported to the public grid.(The inverter will limit the output if Feed-in limit or zero feed-in is needed)
(PV＞Load, PV→ Load → Battery→ Grid)

② When the power of PV is insufficient
The power from PV and battery will be used to supply the local loads. If the power is still not enough, the remaining power will be taken from the grid.
(PV＜Load, PV + Battery + Grid→Load)

③ Without PV power
The power from battery will be used to supply the local loads firstly. If the battery power is not enough, the remaining power will be taken from the grid. The inverter will enter into the standby state.
(PV=0, Battery+Grid→Load)





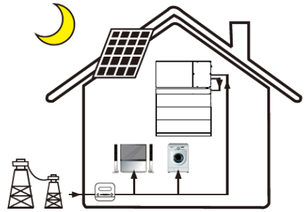
➢ Work mode: Feed-in priority

The Feed-in priority mode is suitable for areas with high feed-in tariffs, but has feed-in power limitation.

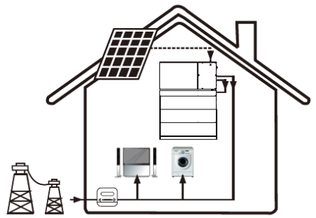
① When the power of PV is sufficient
The power generated from PV will be used to supply the local loads firstly, and the excess power will feed-in to the grid.
PV＞Load, PV→ Load→ Grid)

②When the power of PV is insufficient
The power from PV and battery will be used to supply the local loads.
If the power is still not enough, the remaining power will be taken from the grid.
(PV＜Load, PV + Battery + Grid→Load)

③ Without PV power
The power from battery will be used to supply the local loads firstly. If the battery power is not enough, the remaining power will be taken from the grid. The inverter will enter into the standby state.
(PV=0, Battery+Grid→Load)

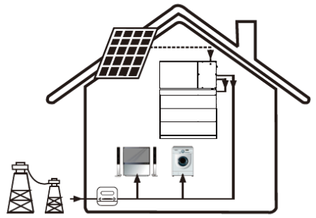


Multiple work modes



➢ Work mode: Backup mode

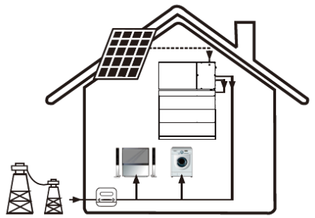
Priority: battery > load > grid
This mode applies to regions with frequent power outages. This work mode will ensure the battery to reserve a minimum capacity for grid outage.
In this work mode, the battery will be charged at the set time and will never discharge when the grid is on. You can also choose whether to charge from the grid or not.



➢ Work mode: Time of Use mode

The Time of Use mode applies to areas that have different electricity prices depending on the day, time and season.

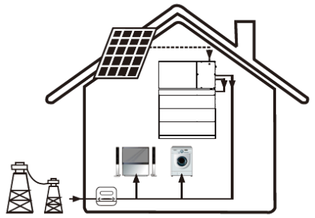
Priority: load > battery > grid (when discharging)
Priority: battery > load > grid (when charging)
The power generated from PV will be used to supply the local loads first, then proceed to charge the battery bank. The excess power will be exported to the public grid.
Charges the battery during two available charging windows from PV or grid (if enabled), then functions as in Self-use mode



➢ Work mode: Demand Mode

The demand mode is suitable for the areas with high Critical Peak Pricing or areas with limited capacity of distribution transformers.

In this mode, battery discharges during two discharge windows to limit demand charge (if enabled) (Similar to Time of Use mode but on Demand Mode the system will allow grid consumption up to a threshold limit defined by the user.)



➢ Work mode: constant power

Constant Power Discharge Mode, during the specified time period, outputs power at a constant rate.
This mode is primarily designed for certain electricity selling requirements in Hawaii.

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THANK YOU

Revolutionizing Home Energy

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