GoodWe Residential Solution



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Document Overview

The “Smart Guide for Residential Energy Systems” is a technical guide published by GoodWe Technologies Co., Ltd. (Global), Version 1.0 (August 2026). It is designed for installers and provides guidance on deploying residential energy storage systems for homeowners worldwide.

The guide provides an overview of the key components of residential energy solutions, including battery systems, micro inverters, grid-tied inverters, hybrid inverters, heat pumps, and EV chargers. It introduces complete GoodWe solutions, retrofit solutions, and solutions integrating HEMS (Home Energy Management Systems), as well as backup configurations and cloud-based EMS solutions.

GOODWE

Products
Residential On-grid Inverters

Single Phase



XS G3
0.7-3.3 kW
1 MPPT



DNS G4
3-6 kW
2 MPPT



MS G4
7.5-10 kW
2-3 MPPT



MS-US
5-11.4 kW
2-3 MPPT

Three Phase



SDT G3 4-6
4-6 kW
2 MPPT



SDT G3 8-40
8-40 kW
2-4 MPPT



SDT G5 50
50 kW
4 MPPT

- Comprehensive single- phase & three- phase power portfolio
- Single - phase: 0.7 - 11.4kW; Three - phase:4 - 50kW. Covers projects from small residential to light commercial rooftop.
- Flexible multi- MPPT options
- 1 - 4 MPPT trackers available. Optimize energy harvest for complex rooftops with multiple orientations and shading conditions.
- Region- specific model variants
- XS G3, DNS G4, MS G4 for global market; MS US tailored for North America, complying with diverse grid codes.
- Compact residential- oriented design
- High - integrated unit for easy installation & maintenance, delivering reliable grid - tie solution for residential PV systems.

Residential Storage Inverters

Single Phase



ES LD
5-10 kW
2 MPPT



ES US
5-11.4 kW
2-4 MPPT



EO G2
3-6 kW
1-2 MPPT



ES G2
3-6 kW
1-2 MPPT



ES G3
3-16 kW
1-3 MPPT



ES UNIQ
3-12 kW
1-2 MPPT



ESA 3-10kW
2-4 MPPT
5-108kWh

Three Phase



ET LV
5-20 kW
2-4 MPPT



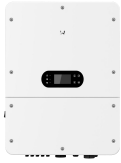
ESA 5-30K
3-4MPPT
5-108kWh



ET G2
6-15 kW
2-3 MPPT



ET
15-30 kW
2-3 MPPT



ET G3
25-50 kW
3-5MPPT

- Full power range for single- phase & three- phase
- Single- phase:3- 16kW; Three- phase:6- 50kW. Solutions for small residential solar - storage up to large- load home backup applications.
- Flexible MPPT for complex rooftops
- 1- 5 MPPT trackers optional. Optimize power generation for multi- orientation, multi-string and shaded rooftop conditions.
- Region- oriented & diversified variants for global markets
- ES- US / SBP US for North America; ESA all- in- one; ES- LD, EO G2, ES UNIQ, ET - LV and other variants, supporting low/high- voltage batteries and retrofit projects.
- Robust energy storage & backup capability
- Compatible with low - & high - voltage batteries with large expandable capacity. Support self- consumption, peak- valley arbitrage and off- grid backup power.

Residential Battery

Low Voltage Battery



LXA G3_5kWh



LXU G3_5kWh



LXA G4_16kWh



LXA G4_10kWh



LXA G4_5kWh

High Voltage Battery



LXF G2



LXD G1_5kWh



*LXD G2_5/6/8/9kWh

- Complete low- voltage & high- voltage portfolio
- Two product lines: Low- voltage Lynx A/U series and High- voltage Lynx D/F series, compatible with various inverter platforms.
- Flexible & scalable capacity
- Multiple capacity options, supporting stackable expansion for small residential to large-capacity energy storage setups.
- Diverse form- factors for full- scenario deployment
- Rack- mount, wall- mount and floor- standing versions available. Fit indoor & outdoor installation requirements.

*Note: The battery depicted includes a decorative cover. Please refer to the actual product

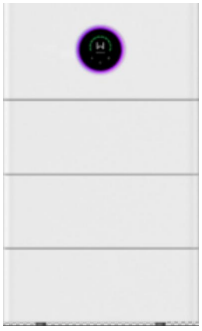
Micro Inverter Series



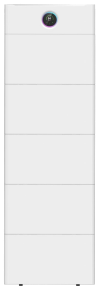
MIS (2-in-1)
799/800W
2 MPPT



MIS G2(4-in-1)
1.6-2.5 kW
1 MPPT



ESA Athena S2
800W
1.9-9.6kWh



ESA Athena S3
0.8/3kW
3-15kWh

- Module- level power optimization
- Multi - channel MPPT & ultra - low startup voltage. Maximize energy yield under complex irradiance & multi- angle rooftops, reduce power loss.
- Flexible installation and elegant appearance
- Plug- and- play, multi- unit parallel connection. Simplify rooftop/balcony installation for faster & more reliable deployment.
- Robust hardware for versatile scenarios
- Energy storage supports mix- and- match new/old batteries, fit for residential & small - commercial use.
- Multi- layer safety & off- grid backup power
- Built- in BMS & fire suppression. Support home emergency off- grid output.

GOODWE

EV Charger



HCA G2
7/11/22 kW



HCA G3
7/11/22 kW



HCA G3
7/11/22 kW

- 7/11/22kW power range
- Optimized for residential PV- storage systems for solar- prioritized EV charging.
- Deep PV- storage- charger integration & smart charging logic
- Smart phase switching, seamless connection with inverter and battery. Support solar-self- consumption charging & grid fast boost. Customizable modes via SEMS+ APP. OCPP & ISO 15118 supported.
- Comprehensive safety & access management
- User- friendly installation & high compatibility
- Novel design for easy installation and maintenance and Works with most EV brands.

Residential Heat Pump



R290 Air to Water Heat Pump
6KW - 24KW



R32 Air to Water Heat Pump
6KW - 34KW



R290 All in One Heat Pump
3KW +
210L/270L/320L



R32 Swimming Pool Heat Pump
5KW Mini / 7KW - 35KW

R290 Residential Product Highlights

- PV Direct Driven
- Heating + Cooling + DHW Function
- 3S Technology
- Max 75℃ Outlet Water Temperature
- Integrated Terminal Block
- Centralized Control
- Smart APP&WEB IOT Platform (HEMS)

R32 Residential Product Highlights

- PV Direct Driven
- Heating + Cooling + DHW Function
- 3S Technology
- Max 60℃ Outlet Water Temperature
- Screw-free Design
- Integrated Terminal Block
- Centralized Control
- Smart APP&WEB IOT Platform (HEMS)

GOODWE

EzManager3000

Meet our residential devices

EzManager3000 (HEMS)

Smart Home Energy Management System - Unified scheduling and optimization of home energy across PV, storage, EV charging, heat pump and smart loads.



Compatibility

- Up to 4 GoodWe hybrid inverter (Including: ES G2, ESA single/three phase, ET PLUS, ET G2, ETT, EH); Up to 4 GoodWe on-grid inverter [Including: XS G3, DNS G3, MS G3, SDT G2, SMT(≤36 kW)]; Hybrid inverter + On- grid inverter up to 8 units in total
- Up to 2 GoodWe EV chargers (G2 and above)
- Up to 1 GoodWe heat pump or 1 SG Ready heat pump
- Up to 2 Smart meter (Including: GMK110 / GMK330 / GM330 / GM3000, or Shelly meter; Below V12.5.4, only one meter can be connected)
- Up to 12 Smart plugs

Functionality

- Open Ecosystem Integration: Compatible with smart home systems, energy devices and third-party loads
- Smart Load Control: Optimizes EV charging, heating and appliance usage automatically
- Flexible Retrofit Support: Simple integration for both existing and new residential systems
- Working Mode: Self-Consumption Mode, TOU Mode, Peak-shaving Mode, Backup Mode
- • AI Mode: AI-optimized dispatch based on dynamic tariff, weather and consumption

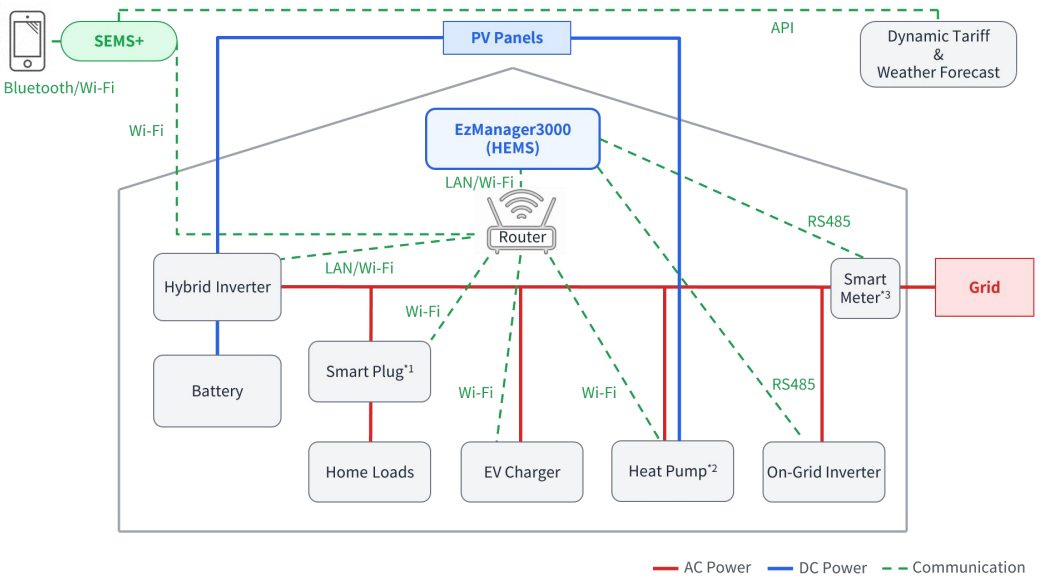
patterns

- Dynamic Tariff Available: Austria, Belgium, Bulgaria, Germany, Denmark, Estonia, Finland, France, UK, Lithuania, Latvia, Netherlands, Norway, Poland, Sweden, Romania, Spain, Portugal, Switzerland

Grid Compliance & Security

- RCR (Ripple Control Receiver) support: meets grid dispatch requirements in Germany and other regions
- EnWG § 14a compliance: controllable loads accept emergency dimming from grid operator (import limit up to 4.2 kW)
- Remote Shutdown function for emergency grid requirements
- Cyber Security certified: CE-RED (EN 18031), RCM
- Supports anti-backflow and limit current setting, with a higher priority than the inverter

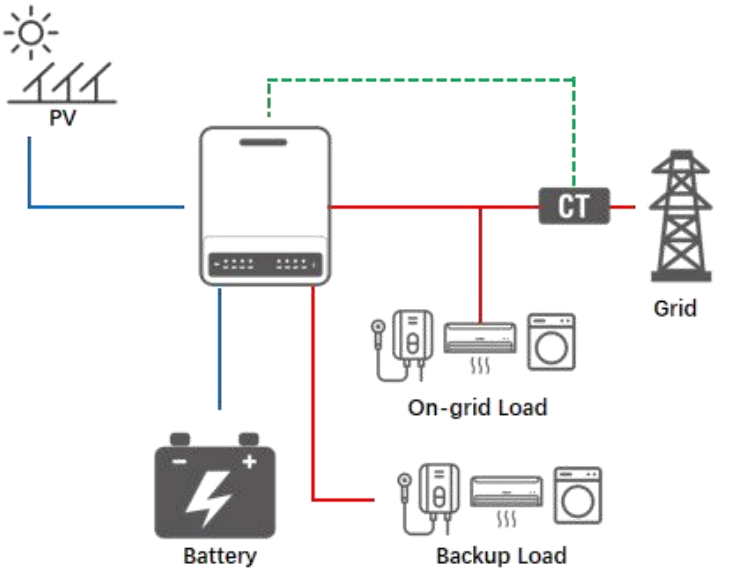
Product Solution



Typical Solution

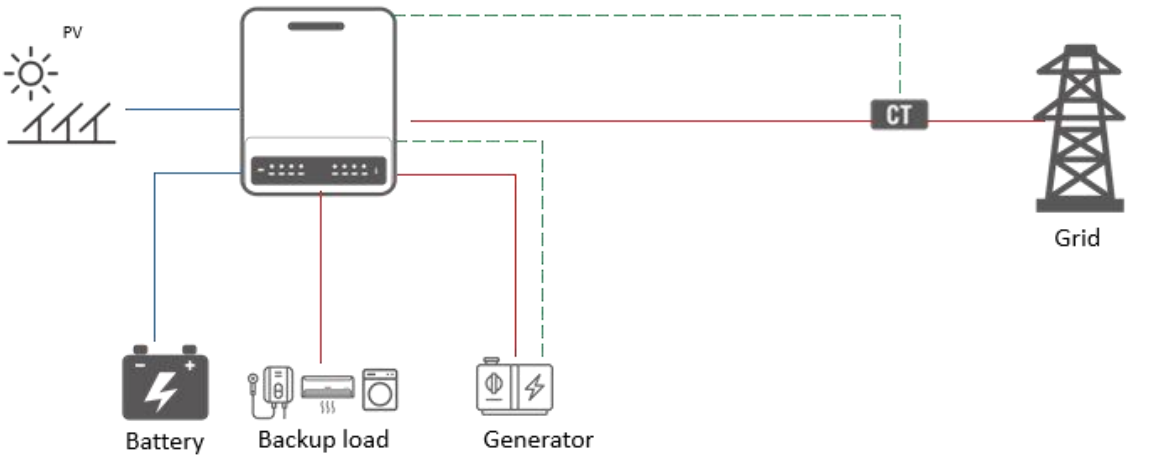
Single Inverter Solution

Without Smart Port



Compatible Model:	ESA 3-10K/5-30K, ES G2, ET G2, ET20-30K
Required Extra Accessory:	/
Solution Highlight:	✦Critical loads directly powered by back-up port without extra STS ✦On/off-grid switching within 4ms
Available Country:	Global

With Smart Port



Compatible Model: ET LV, ES Uniq, ES G3, EO G2, ET G3

Required Extra Accessory: /

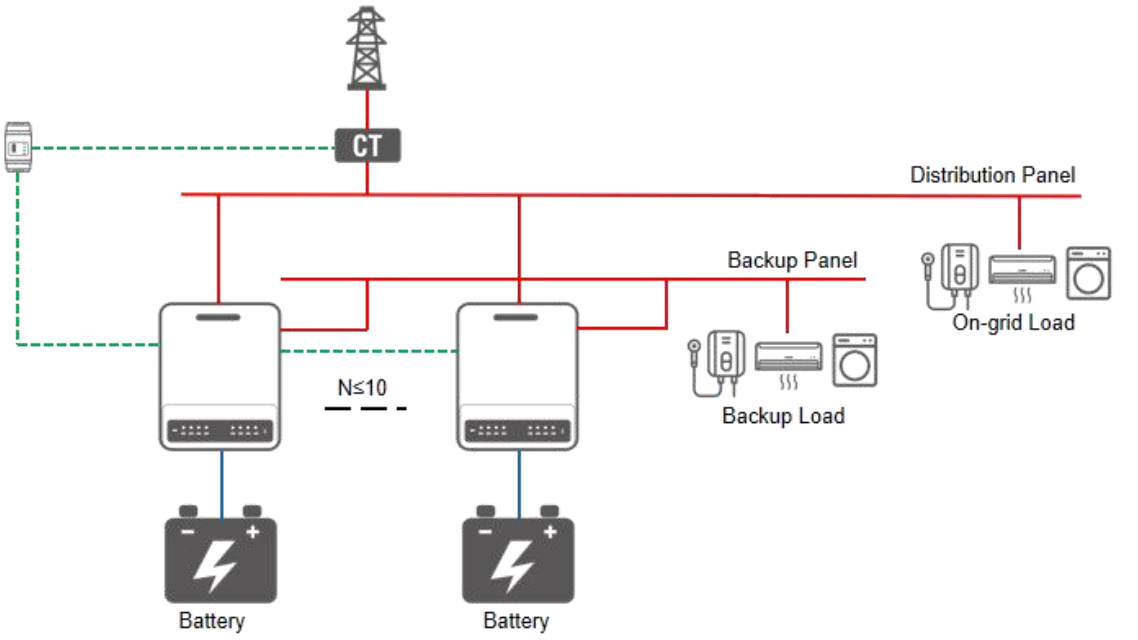
Solution Highlight:

- ✦Comprising grid, back-up, and smart load (or diesel generator) — enables independent output routing for each channel
- ✦Built-in 4ms on/off-grid switching

Available Country: Global

Parallel Solution (on/off-grid)

RS485 Parallel Solution



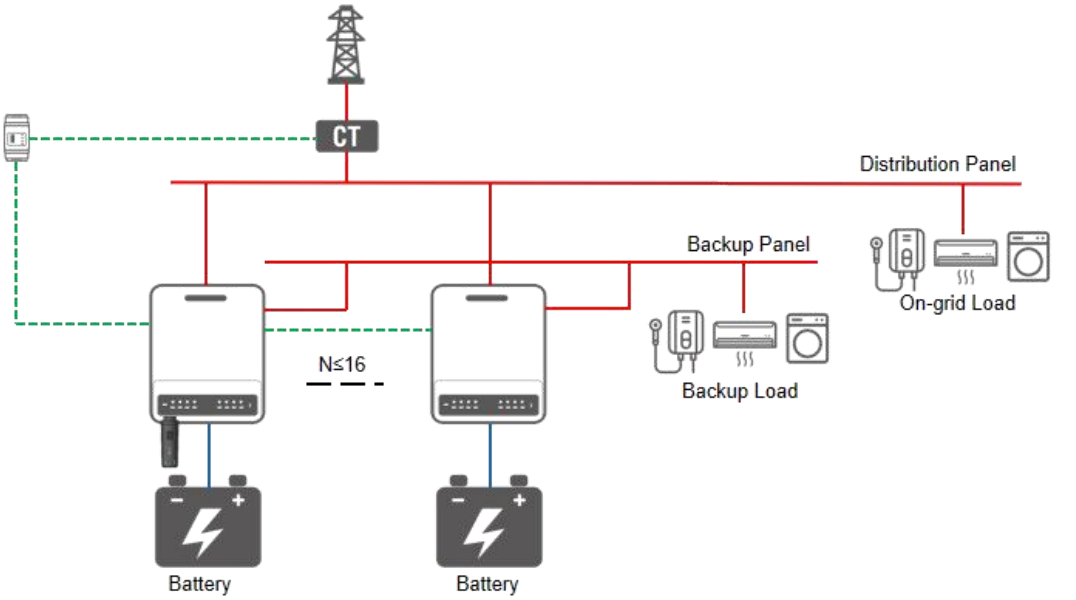
Compatible Model: ESA 3-10K/5-30K, ET LV, EO G2, ES G3, ET G3

Required Extra Accessory: GM330

Solution Highlight:
- ✦RS485 parallel solution without any extra communication device
- ✦Built-in 10ms on/off-grid switching

Available Country: Global

Ezlink3000

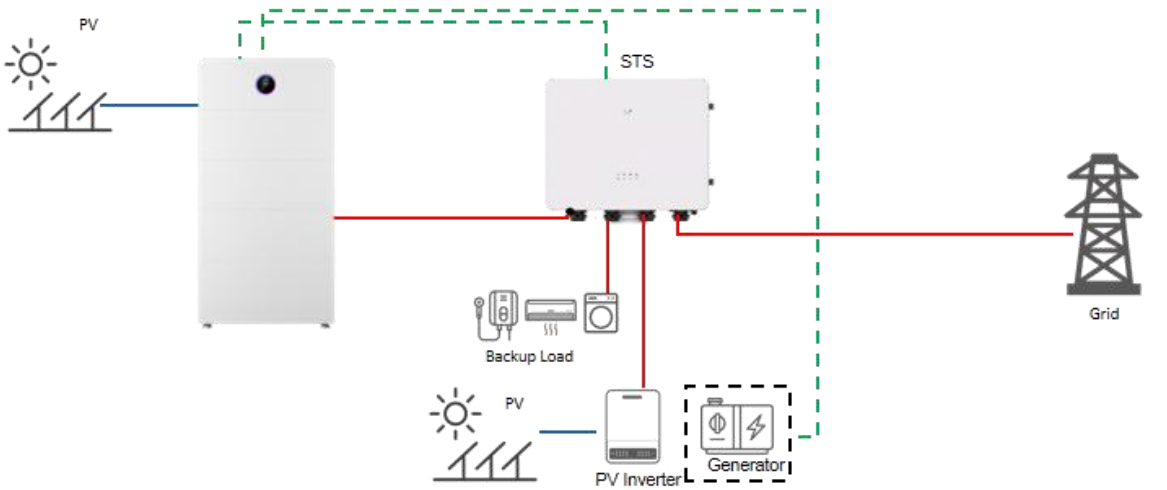


Compatible Model:	ES G2
Required Extra Accessory:	Ezlink3000, GM330
Solution Highlight:	✦Only necessary to configure the master inverter via Ezlink3000 ✦Built-in 10ms on/off-grid switching
Available Country:	Global

Mirco-grid Solution

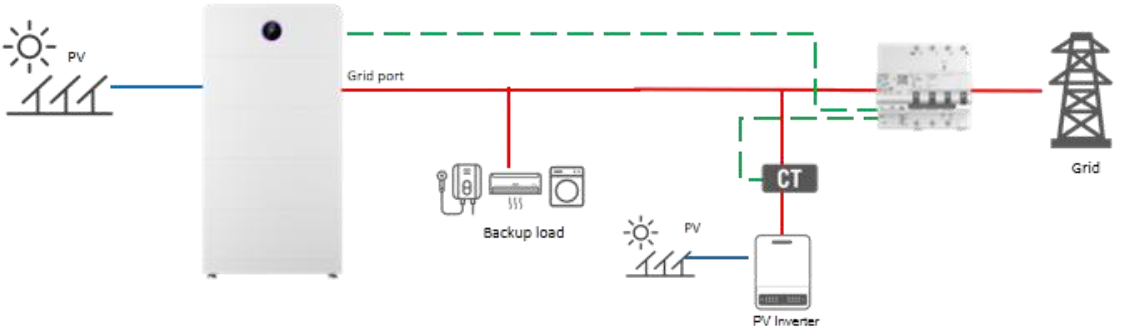
Without Smart Ports

STS Solution



Inverter:	ESA 3-10K, ESA 5-30K
Required Extra Accessory:	STS
Solution Highlight:	✦Built-in 4ms on/off-grid switching ✦Support 3rd party PV inverter work normally during grid outage ✦Support generator integration without extra ATS
Available Country:	Global

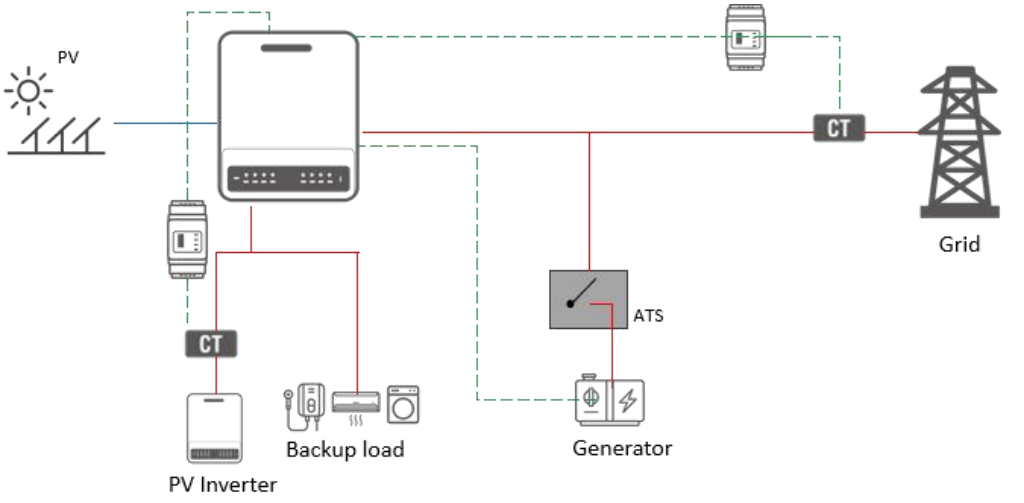
PowerLink Solution



Inverter:	ESA 3-10K, ESA 5-30K
Required Extra Accessory:	PowerLink, CT (on 3rd party PV inverter side)
Solution Highlight:	✦Bypass, meter, switch, CT integrated into one powerlink ✦Built-in 10ms on/off-grid switching ✦Support 3rd party PV inverter work normally during grid outage
Available Country:	Global

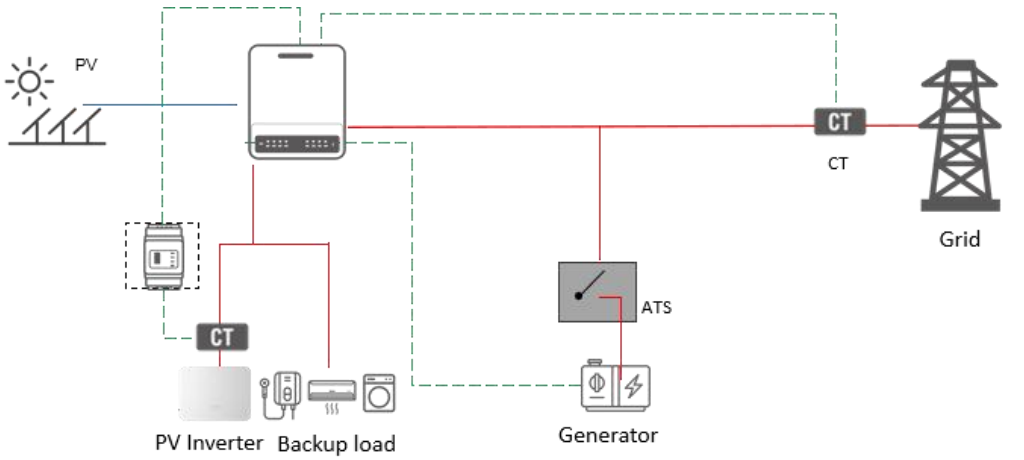
ATS Solution

ES G2



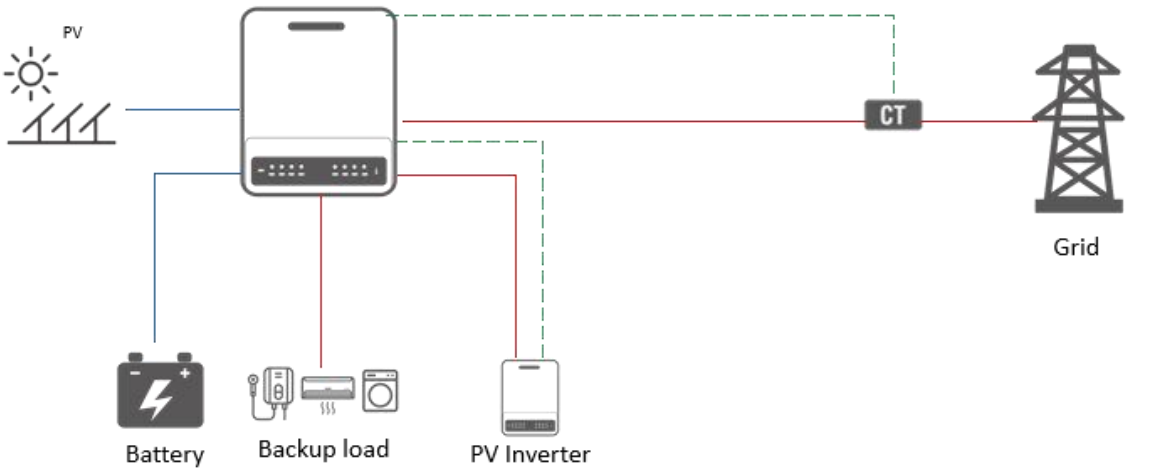
Inverter:	ES G2
Required Extra Accessory:	GMK110/GMK110D(on grid side), GMK110/GMK110D(3rd party PV inverter side)
Solution Highlight:	✦Built-in 10ms on/off-grid switching ✦Flexibly available with GOODWE multiple battery series
Available Country:	AU, EU

ET G2



Inverter:	ET G2
Required Extra Accessory:	GM330 /GMK330
Solution Highlight:	✦Built-in 10ms on/off-grid switching ✦Flexibly Available with GOODWE multiple battery series
Available Country:	Global

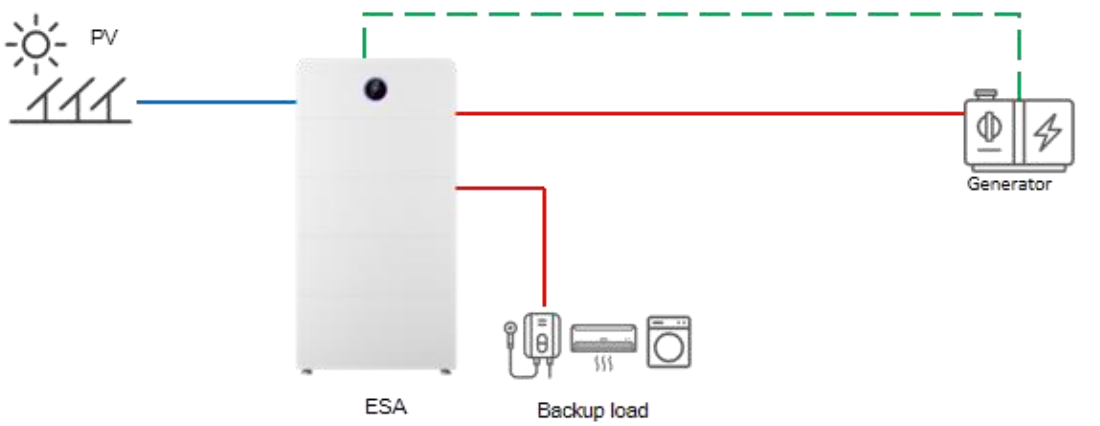
With Smart Port



Inverter:	ETLV、ES Uniq、ET G3、EO G2
Required Extra Accessory:	/
Solution Highlight:	✦Separate output to connect third-party on-grid inverter ✦PV works normally during grid outage
Available Country:	Global

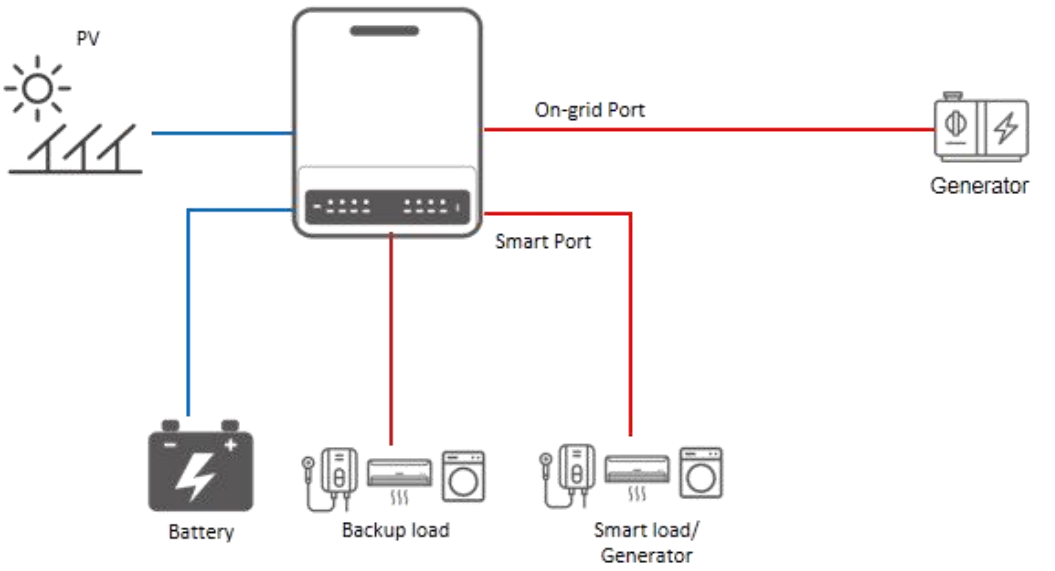
Pure Off-grid Solution

Without Smart Port



Inverter:	ESA 3-10K, ESA 5-30K
Required Accessory:	/
Solution Highlight:	✦System work normally even without grid connection ✦Generator supports to power both loads and batteries
Available Country:	Global

With Smart Port



Compatible Model:	ET LV、ES Uniq、ET G3、EO G2
Required Accessory:	/
Solution Highlight:	✦System work normally even without grid connection ✦Generator connects to inverter directly ✦Generator supports to power both loads and batteries
Available Country:	Global

Cloud EMS Solution

Cloud EMS

Cloud-Based Energy Management System - AI-driven prediction, user-defined automation, precision dynamic tariff, and comprehensive scheduling visibility. No extra hardware required.



Compatibility

- GoodWe ESA 3 – 10K / 5 – 30K / ESA Athena S3 (single unit; more series of inverters are being matched)
- Easy access via SEMS+ App and Web portal (Android 6.0+ / iOS 13.0+)

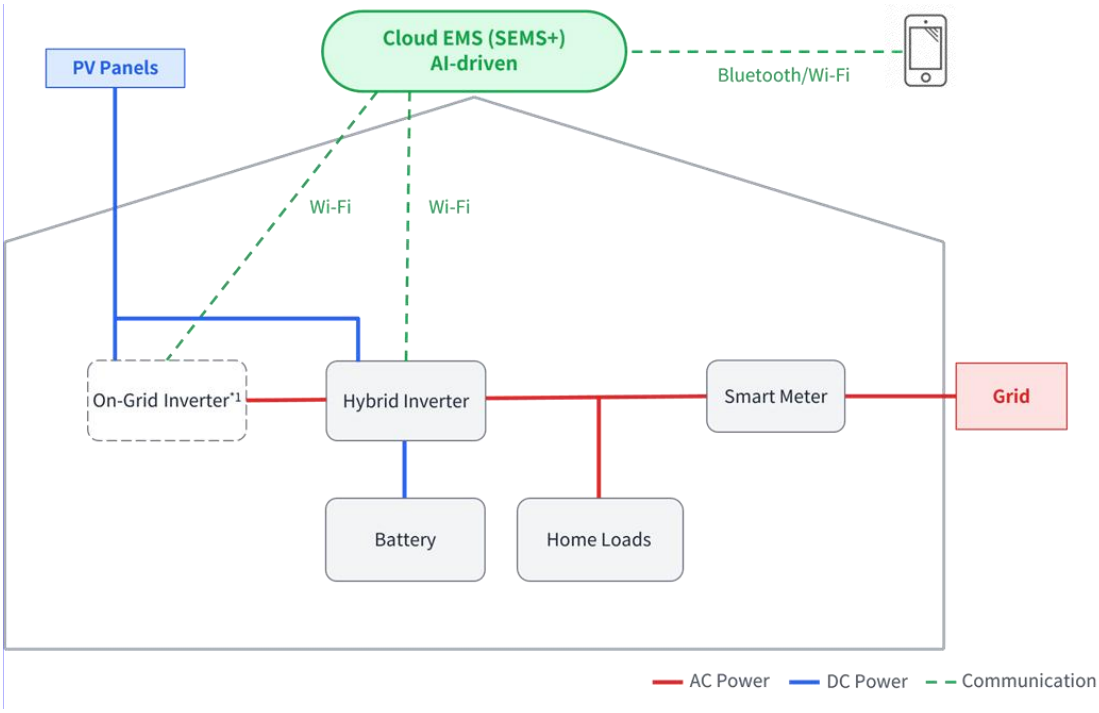
Core Functionality

- AI Mode: synthesizes PV output, loads, dynamic tariff, grid constraints, and battery SOC for optimal charge/discharge decisions
- Supports Self-Consumption Mode, TOU Mode, Peak-shaving Mode, Backup Mode
- Build custom workflows with a When/Then/End block-based logic to unlock smart energy automation
- Full traceability for every schedule

Market & Grid Coverage

- Countries supporting dynamic tariffs are the same as those for HEMS
- AI Mode released on Europe server
- VPP-ready scheduling integration for grid services

Product Solution



Announcements

- •No additional smart meter or hardware gateway is required. Cloud EMS is a cloud-only solution with zero cost
- • No plug-in/DIN-rail module needed, and all configuration is done remotely via the SEMS+ APP
- •Only applicable in single hybrid inverter scenarios so far, and it will support with multi-hybrid, on-grid + hybrid, or micro-grid
- •Strategy response frequency is < 5 minutes; not suitable for sites requiring real-time load control
- AI offline control lasts only 5 minutes if the network drops beyond that, the system reverts to default behavior. Please ensure reliable network coverage

WE, THE SMART ENERGY INNOVATOR

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