WIT 4-15K-HU
System Solution Introduction

Preliminary Version

GROWATT

SHENZHEN GROWATT NEW ENERGY CO.,LTD

Overseas Marketing Department
202506

CONTENTS

01 General Introduction

02 Flexible application in multiple scenarios

03 Product Introduction

04 Monitoring and Configuration

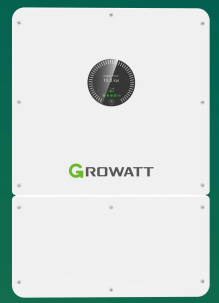

To Build the World's Largest
Intelligent Sustainable Energy Ecosystem for Human Kind

01

General Introduction

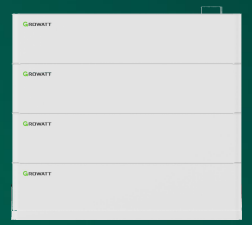
WIT Microgrid Products

Inverter



WIT 5-15K-HU
(4-15kW)

Battery



AXE 5.0L-C1
(5–400kWh)

ALP 5.0L-E2
(5–320kWh)

Hope 5.0L-B1
(5–240kWh)

Hope 14.3L-A1
(14.3-686.4kWh)

High Yields

More power with 1.6 DC/AC ratio

Maximum current per string up to 20A

Maximum PV input voltage up to 1000VDC

Scalable & Flexible

Compatible with third-party batteries

Scalable up to 90kW application

Support DC-coupled and AC-coupled system

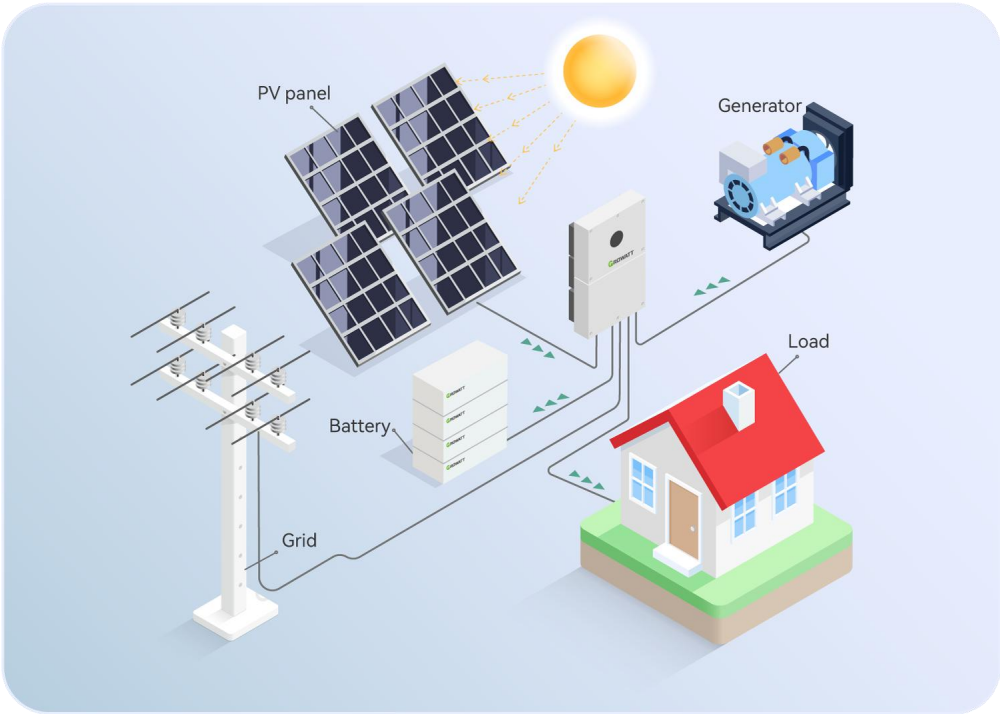
Smart & Reliable

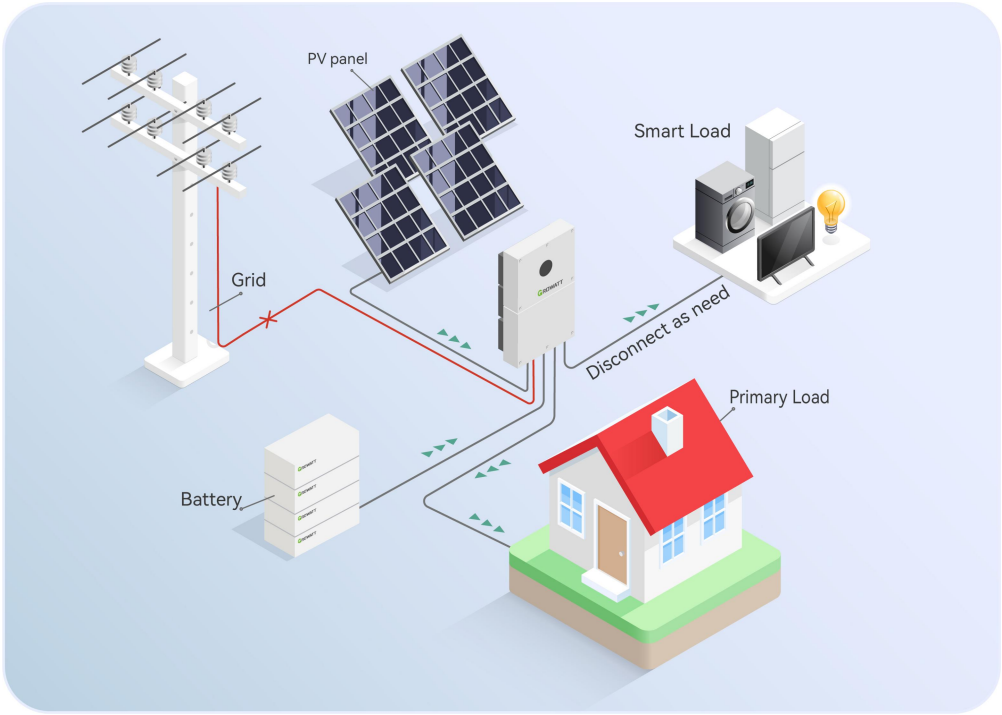
IP66 protection degree

One-click upgrade/diagnose

Support AFCI and online monitoring

Multiple Functions in GEN Port Integration





Generator as Backup Power Source

- Support generator supply power to load and charge the battery in off-grid mode;
- The generator will automatically start to charge the battery when the battery capacity reaches the Min. value

Smart Load Function

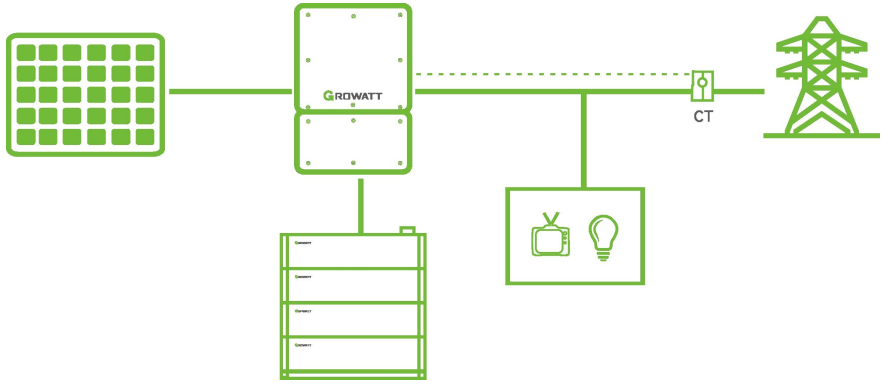
- The high-power smart load is connected through the GEN port, and can be disconnected based on battery SOC when in off-grid mode;
- Load control benefits for battery saving in off-grid situation

02

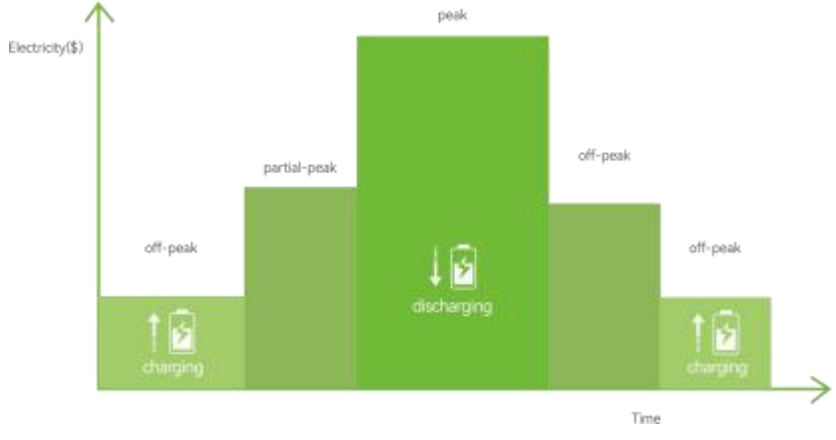
Flexible application in multiple scenarios

Energy Storage System Application

- **Export Limit:** Set a limit value on the feed power, and when it exceeds this power value, the PV output will be limited.

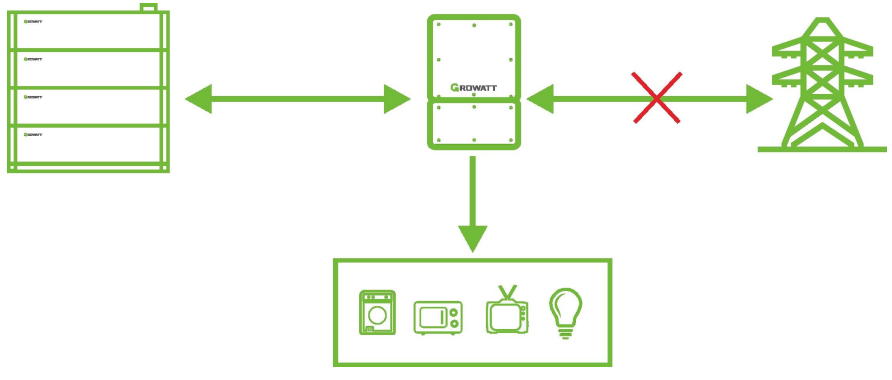


- **Time of Use:** Charge the battery at off-peak tariff and use it at peak tariff to reduce the electricity bill.



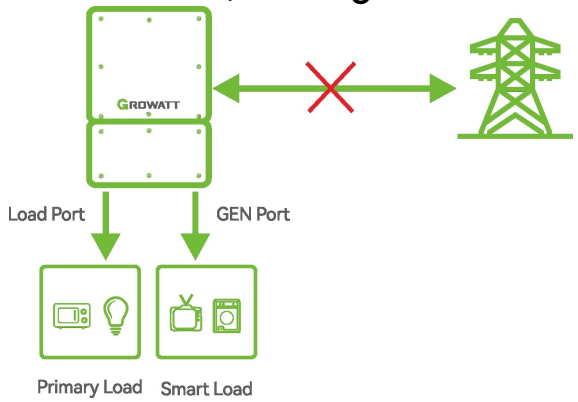
- **Self-Consumption:** Storing the surplus solar power into the battery during the day and using it at night, which maximizes the solar energy self-consumption rate.

- **Backup Power:** The energy storage system as a backup power will supply power to the load when the power grid fails.

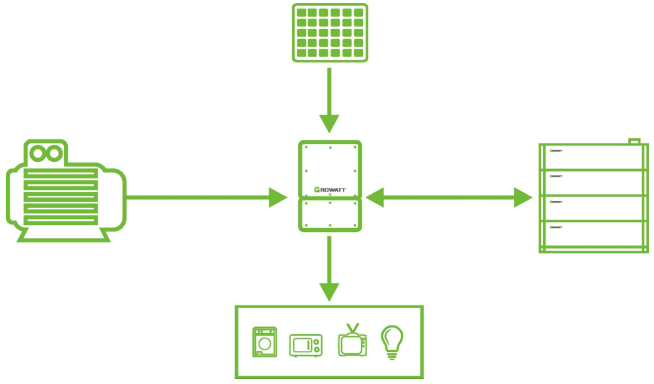


Energy Storage System Application

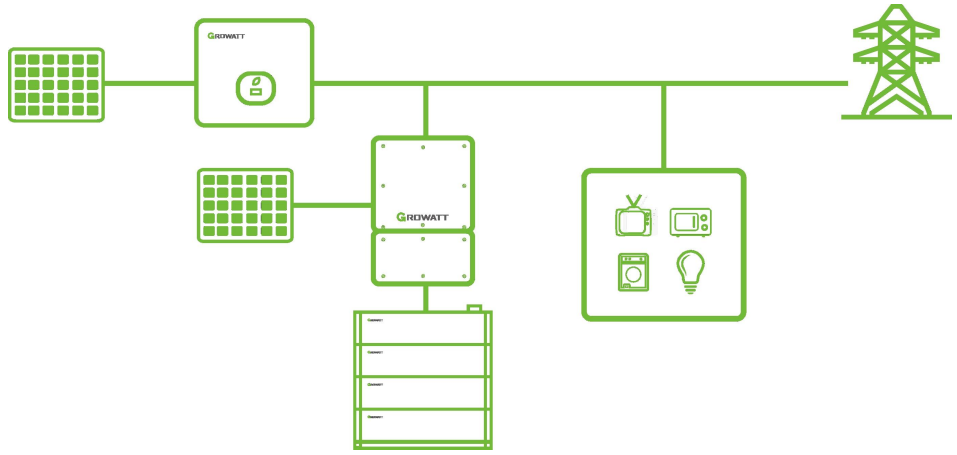
- **Smart Load:** The generator port can be used as an intelligent load output port. When in off-grid, the smart load will be disconneced, making load control more intelligent.



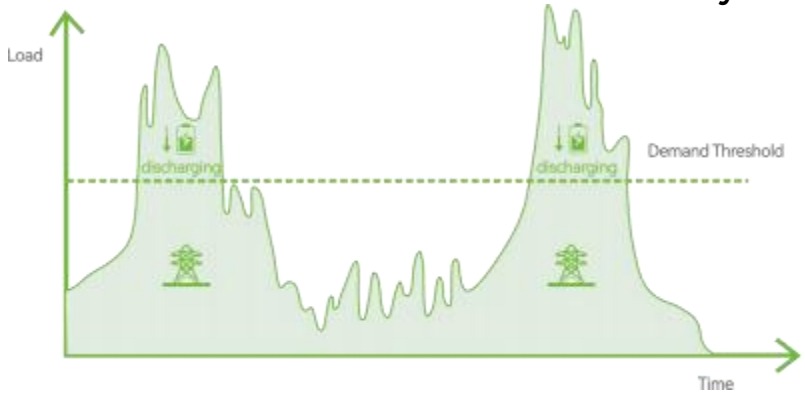
- **Micro-grid:** Work with multiple energy source to guarantee 24/7 power supply where there is no grid.



- **AC-Couple:** Hybrid inverter solution for retrofit project, support work with on-grid inverters.



- **Peak Shaving:** The battery will discharge to offset portions of the load consumption beyond the power demand threshold to reduce the electricity bill.



Solutions for WIT Application Scenarios

Application Scenario:

1. Stable grid
2. On/Off-grid solution
3. No need for back up box

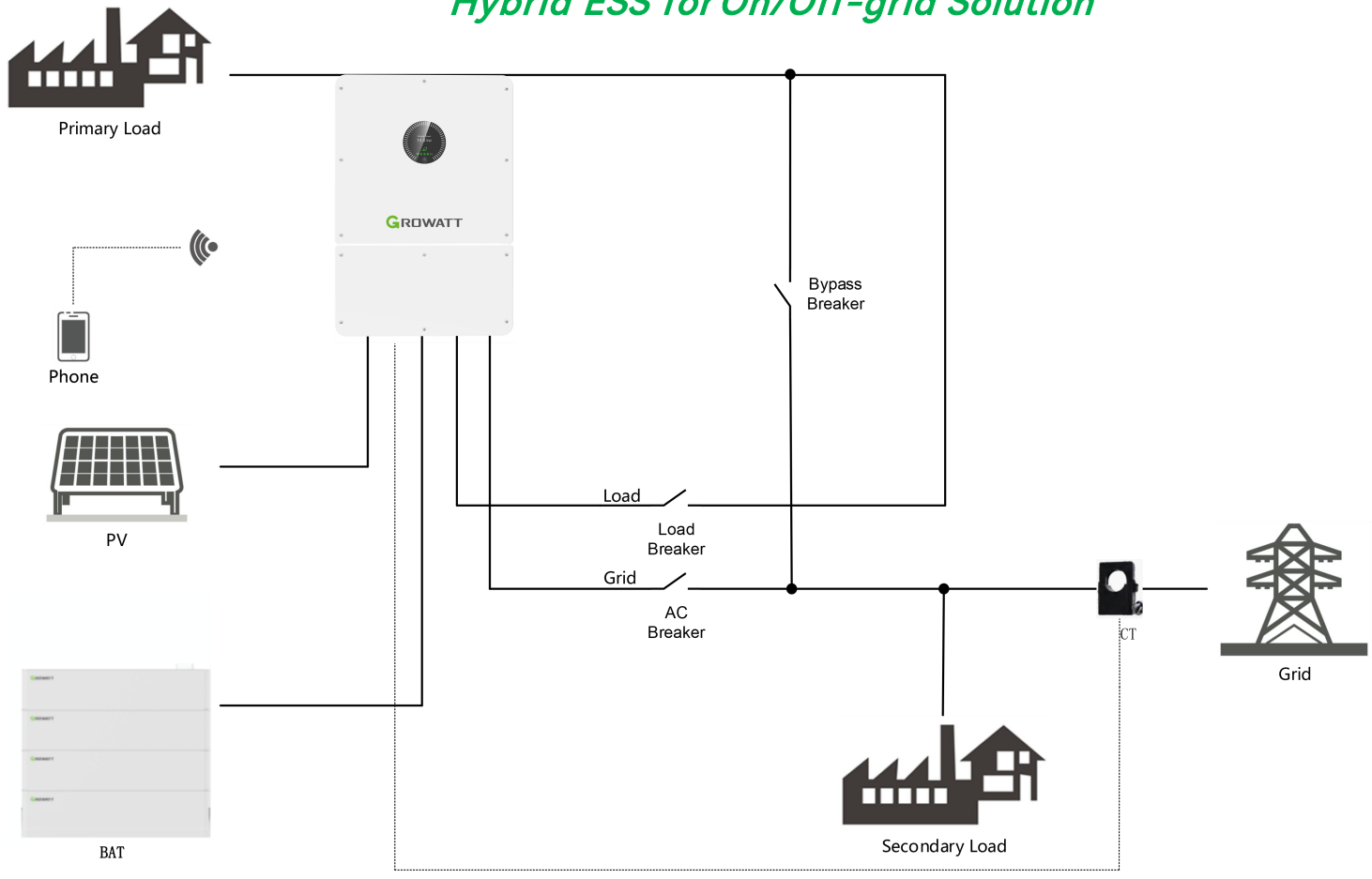
System Composition

- **Inverter:** WIT 4-15K-HU
- **BAT:** AXE 5.0L LV Battery
- **3CTs**

Remark:

- Support export limitation with CTs;
- On/Off-Grid transform time 10ms;
- Maximum off-grid power up to 2 times rated power, 10s.

Hybrid ESS for On/Off-grid Solution



Solutions for WIT Application Scenarios

Application Scenario:

1. Relatively unstable grid

2. Off-grid solution

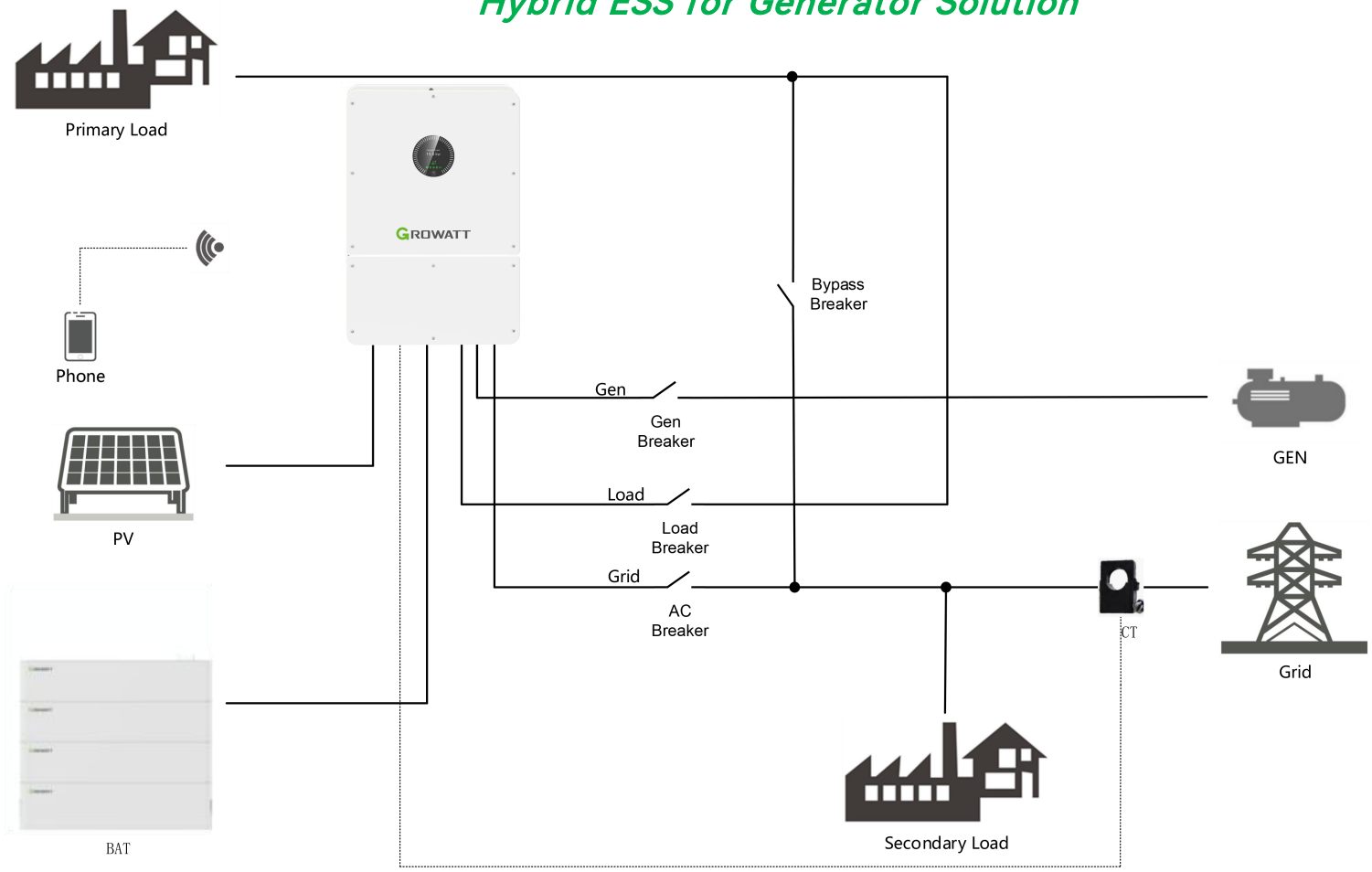
System Composition

- **Inverter:** WIT 4-15K-HU
- **BAT:** AXE 5.0L LV Battery
- **Generator**
- **3CTs**

Remark:

- Support export limitation with CTs;
- When the battery SOC is lower than the off-grid GEN start SOC, GEN will automatically be turned on to suply the load and charge the battery;
- Generator≤30kW.

Hybrid ESS for Generator Solution



* Support Growatt TPM-CT-E(SDM630MCT-MA). If the customer needs a meter, just order the meter separately. The CT used for the meter can use the CT that comes standard with WIT.

Solutions for WIT Application Scenarios

Application Scenario:

1. Relatively stable grid
2. On/Off-grid solution
3. Different load scenarios

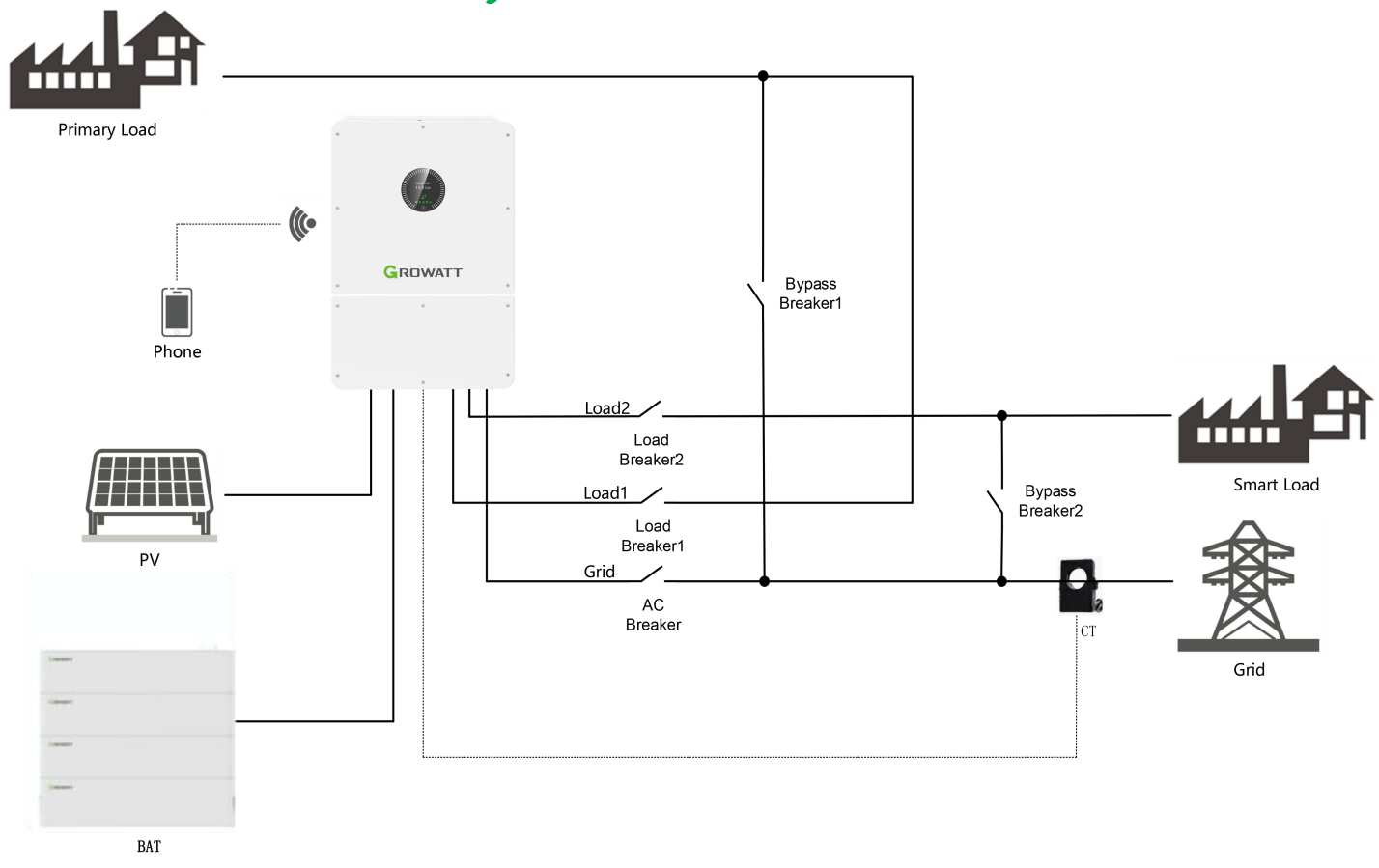
System Composition

- **Inverter:** WIT 4-15K-HU
- **BAT:** AXE 5.0L LV Battery
- **3CTs**

Remark:

- The smart load is connected through the GEN port, and it will be intelligently cut off when in off-grid mode;
- Smart load≤15kW;
- The SOC for smart load cut off can be set;
- Allows customers to prioritize home loads.

Hybrid ESS for Smart Load Solution

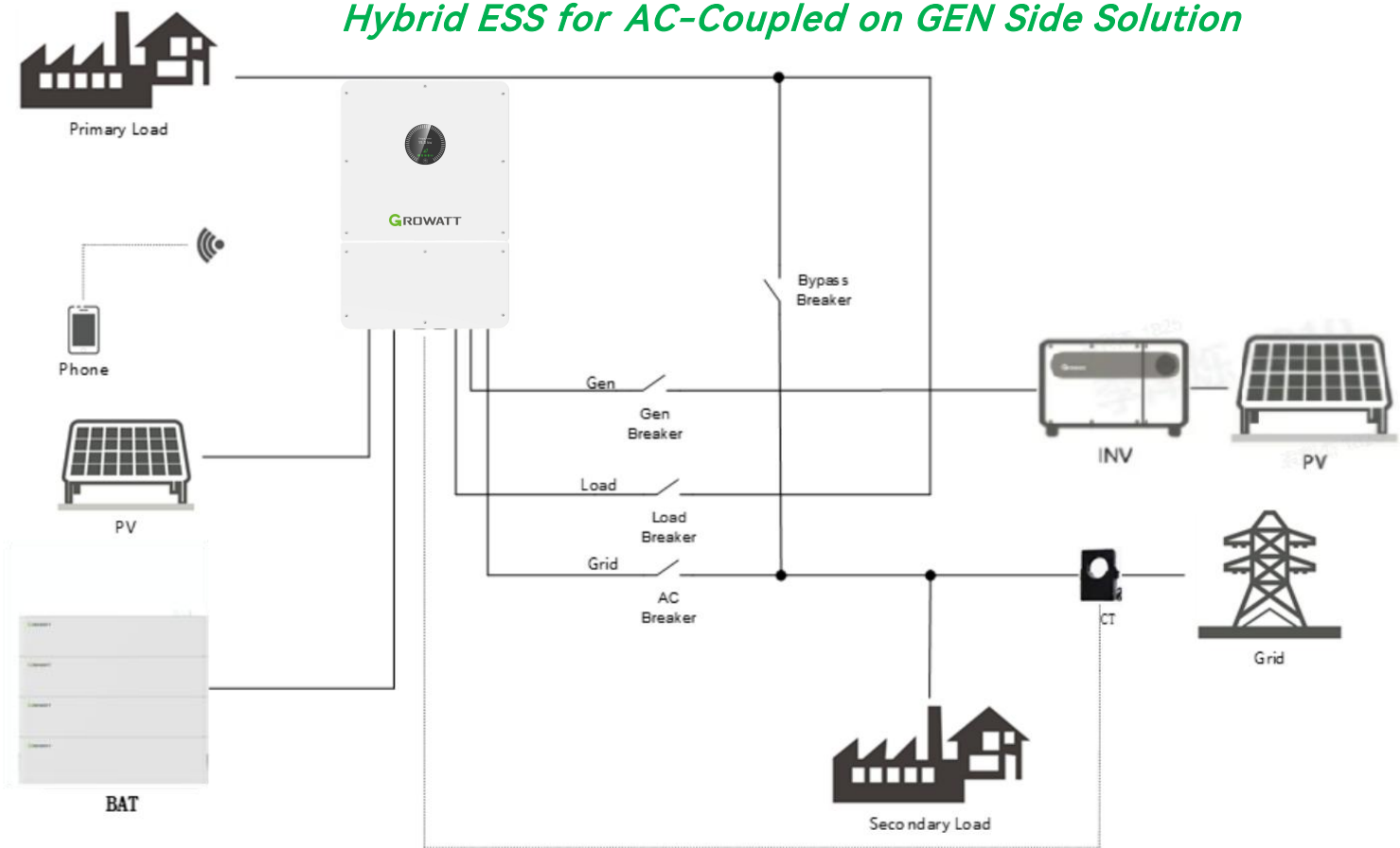


Solutions for WIT Application Scenarios

Application Scenario:

1. Stable grid
2. Original PV inverter
3. Easy to extended energy storage

Hybrid ESS for AC-Coupled on GEN Side Solution



System Composition

- **Inverter:** WIT 4-15K-HU
- **BAT:** AXE 5.0L LV Battery
- **Meter/3CTs**

Remark:

- The PV inverter is connected through the GEN port;
- The PV inverter should be from Growatt and its power should not be greater than that of WIT;
- PV inverters will work normally when in off-grid operation.

* The inverter connected to the GEN port requires a GROWATT inverter with a power less than or equal to the inverter's power and battery charging/discharging power. And no meter needs to be installed between WIT and PV inverter.

Solutions for WIT Application Scenarios

Application Scenario:

1. Relatively stable grid

2. On/Off-grid solution

3. AC-Coupled inverter basic solution for retrofit project

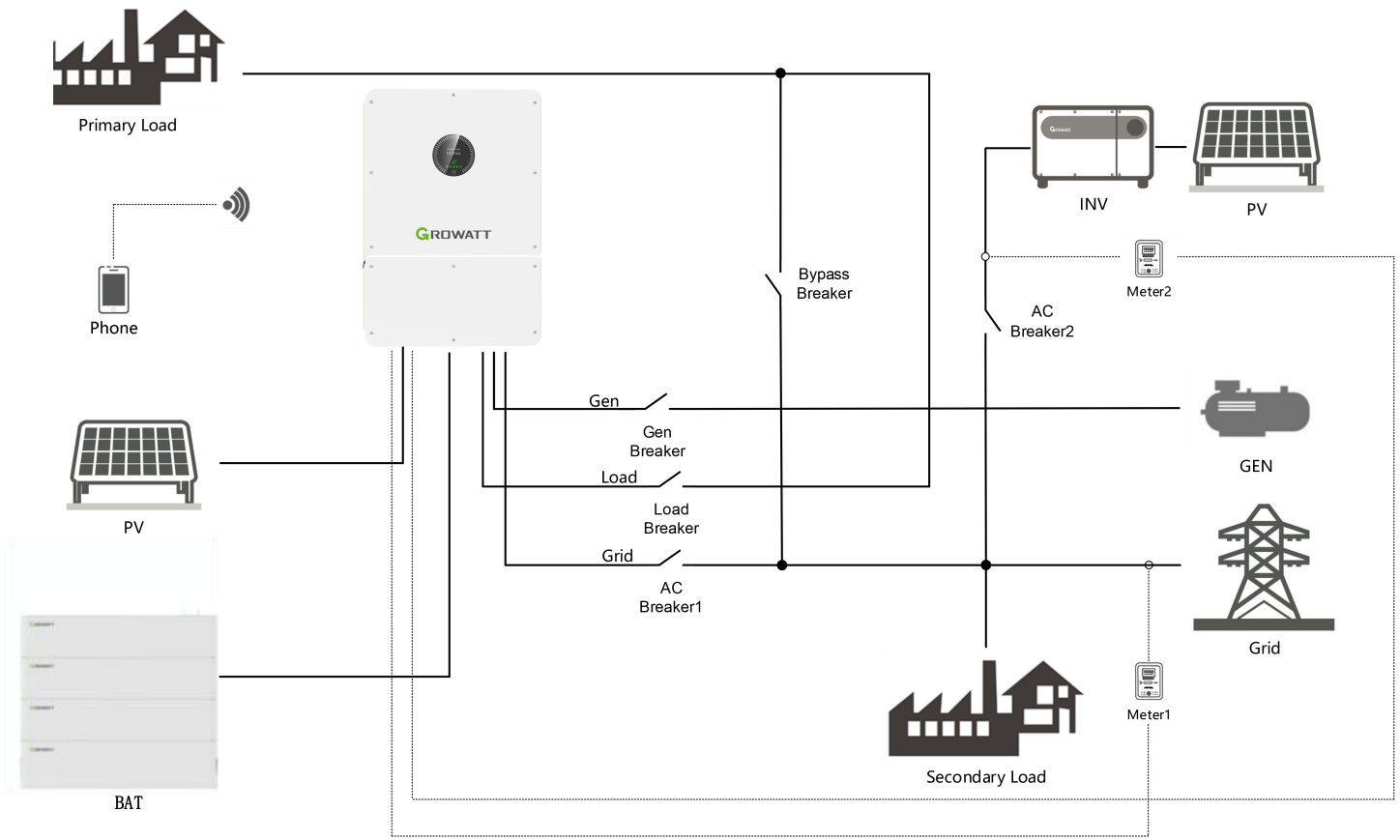
System Composition

- **Inverter:** WIT 4-15K-HU
- **BAT:** AXE 5.0L LV Battery
- **Generator**
- **Meter*2 / Meter+3CTs(Opt)**

Remark:

- The PV inverter is connected through the grid side;
- The PV inverter can be a third-party inverter;
- The PV inverter will not work when in off-grid operation.

Hybrid ESS for AC-Coupled on Grid Side Solution



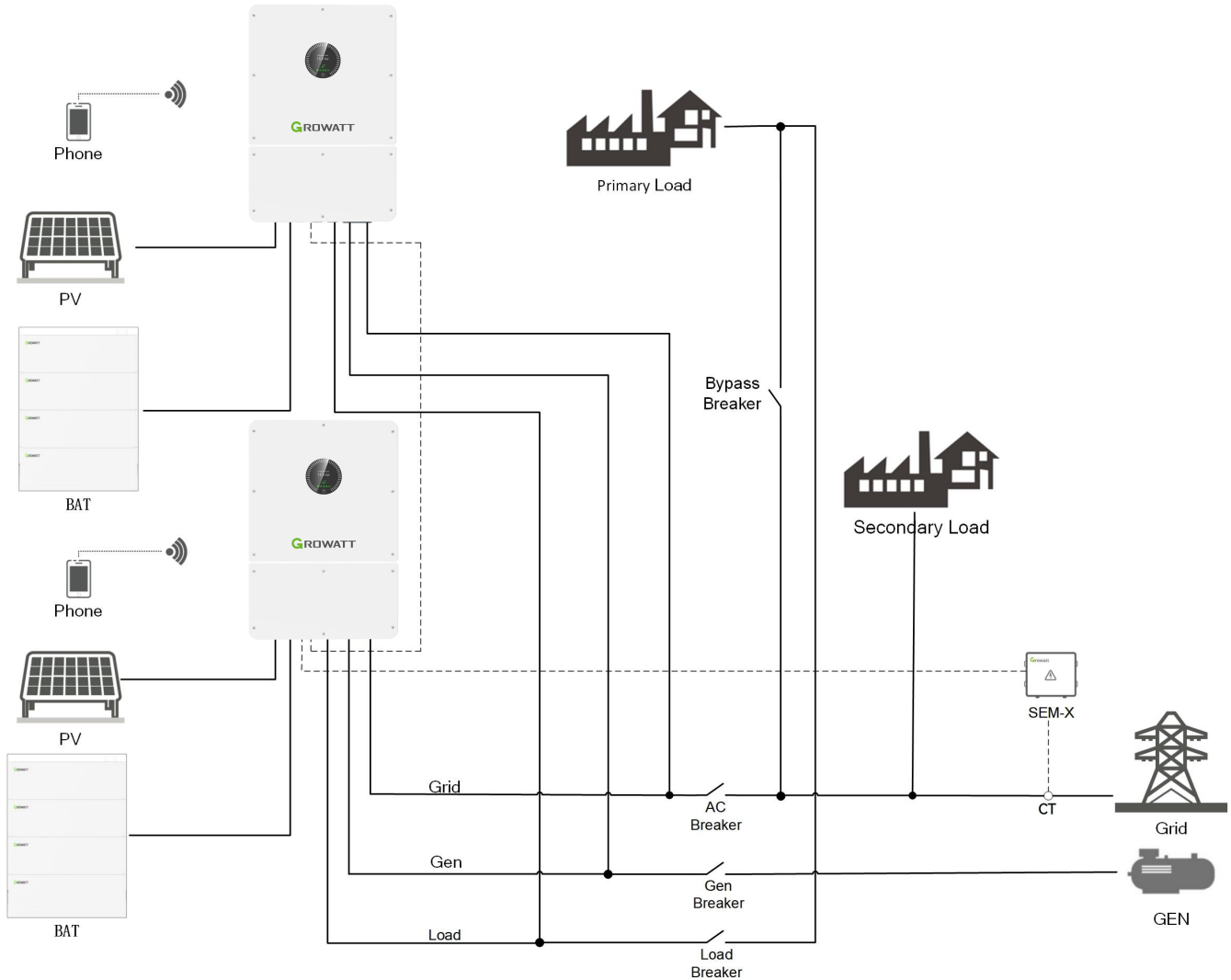
* A meter needs to be connected between WIT and PV inverter. The meter model is TPM-CT-E.

Solutions for WIT Application Scenarios

Application Scenario:

1. Relatively stable grid
2. On/Off-grid solution
3. Small C&I application

Hybrid ESS for Parallel Solution



System Composition

- **Inverter:** WIT 4-15K-HU*6
- **BAT:** AXE 5.0L LV Battery System*6
- **Generator**
- **SEM-X**
- **3*CT**

Remark:

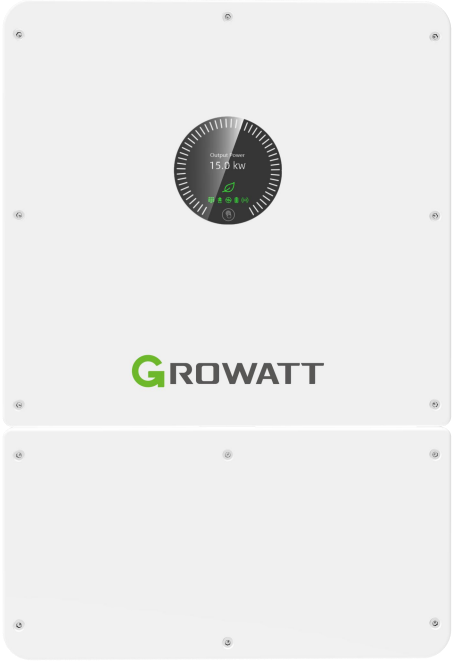
- Up to 6 pcs inverter in parallel;
- Support in on/off-grid scenario;
- Meter is included in SEM-X.

* Note: The inverter parallel function in the early stage can be achieved through remote upgrade.

03

Product Introduction

WIT Product Main Parameters



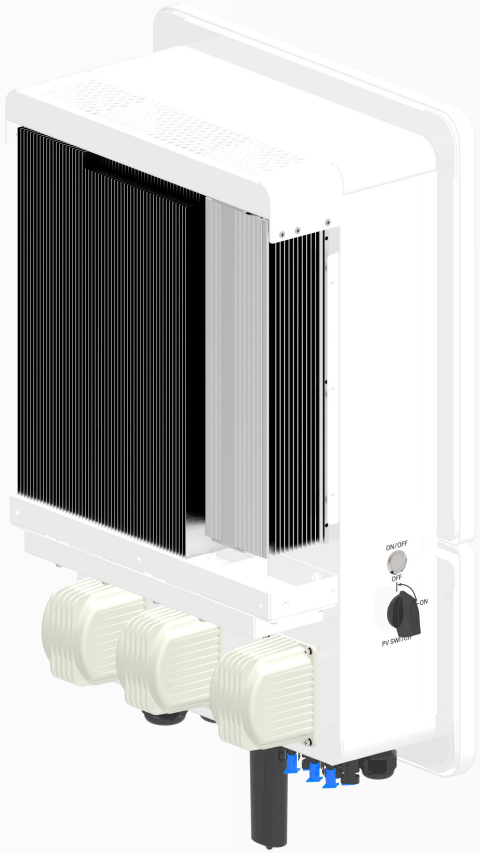
WIT 4-15k-HU

Main Parameter

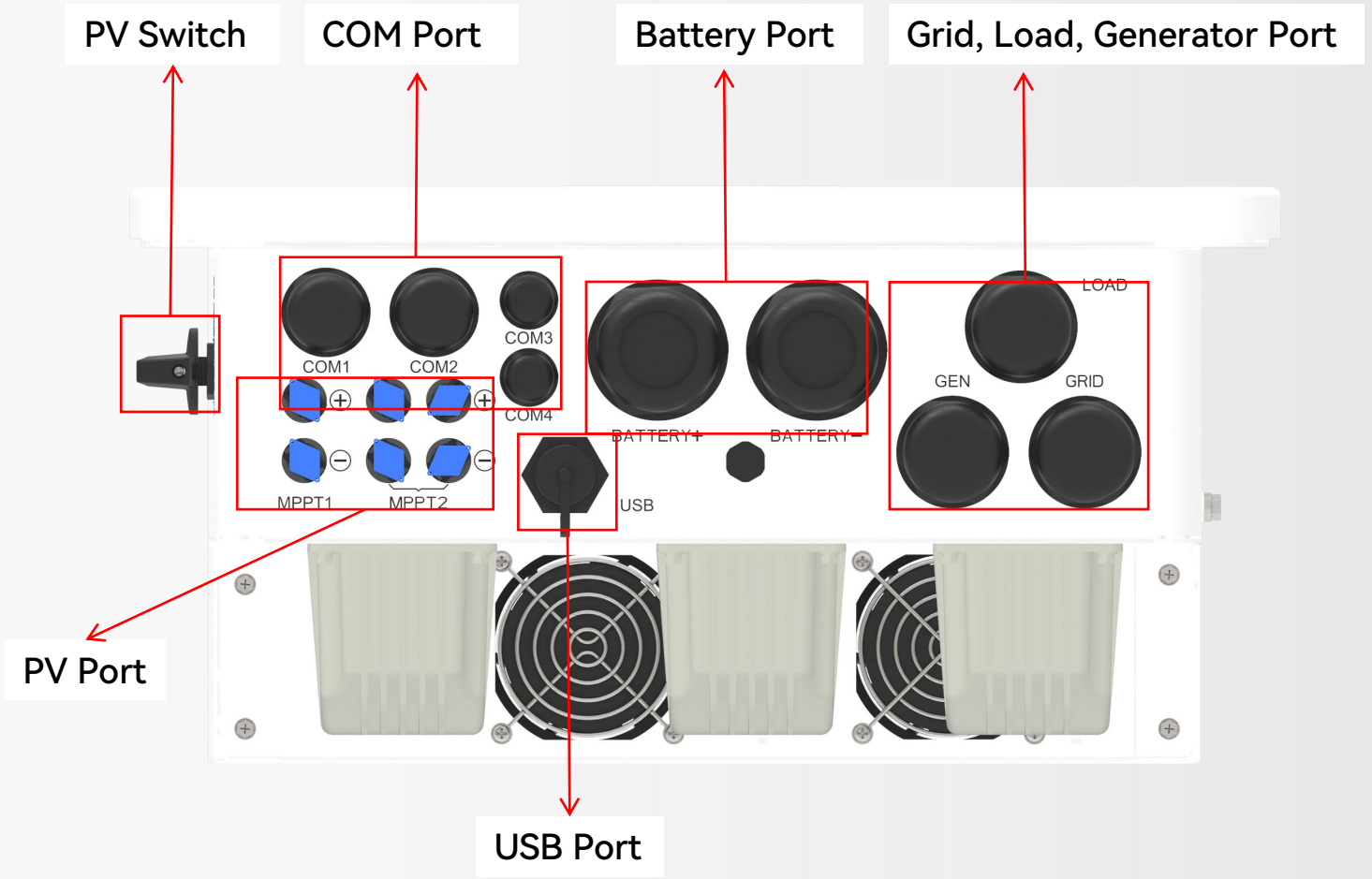
- **Product Model:** WIT 4/5/6/8/10/12/15k-HU
- **Max. input voltage:** 1000V
- **Max. input current per string:** 20A
- **Nominal Output Power:** 4/5/6/8/10/12/15k
- **Nominal AC Voltage:** 380V/400V
- **Nominal AC Frequency:** 50/60Hz
- **Max Continuous AC Outpot Power:** 110% rated power
- **AC Grid Connection Type:** 3P3W+PE or 3P4W+PE
- **Max. Efficiency:** 97.6%
- **Ingress Protection:** IP66
- **Wide Temperature Range:** -30°C ~ 60°C

WIT Product Appearance

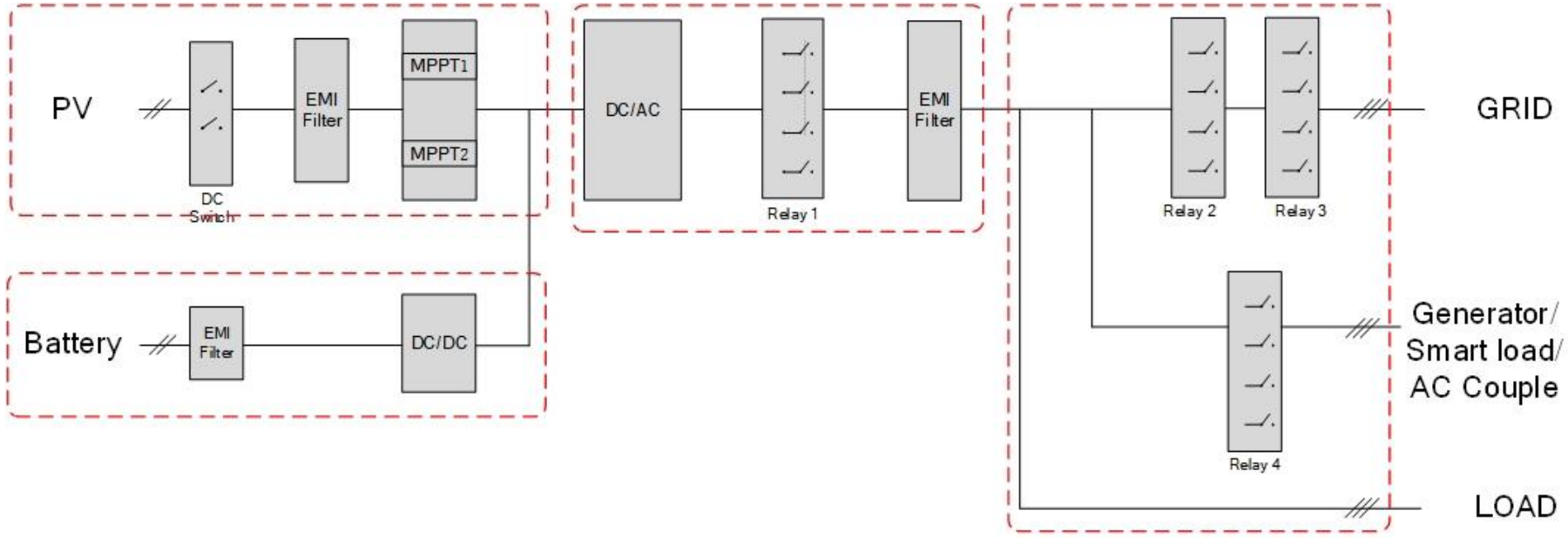
Dimensions (W / H / D)
475/698/240mm



WIT 4-15k-HU



Hybrid Inverter(HU Model)Topology



- The hybrid inverter receives DC inputs from PV strings which go through the MPPT routes. The DC power is then converted into AC power through the inverter circuit to power the loads and feed power into the grid;
- The PV strings can supply power to charge the battery through the MPPT routes;
- Convert battery power to AC power supplies for the loads and feeding to the grid;
- Charge the battery from the grid through a rectifier circuit;
- Generator/Smart Load/AC-Couple port for different output requirements.

Product Features

Higher Yields

- Up to 1.6 DC/AC Ratio
- PV max. voltage 1000V，operating voltage range150V-850V
- String current 20A for high power modules
- Dual battery input port for two cluster of battery system in parallel
- Build-in PID recovery function

Safe and Reliable

- Fuse free design
- IP66 protection degree
- Type II/III SPD on DC/AC side
- Active ARC protection (AFCI)

AC Power Ability

- Support smart load function
- 100% unbalanced output: each phase up to 50% of rated power
- Support connect to GEN to supply the load and charge the battery

Smart and Flexible

- Compatible with ALP/AXE/Hope and third party battery
- Intelligent string monitoring
- Online monitoring and maintenance
- MODBUS TCP available

Higher Yields

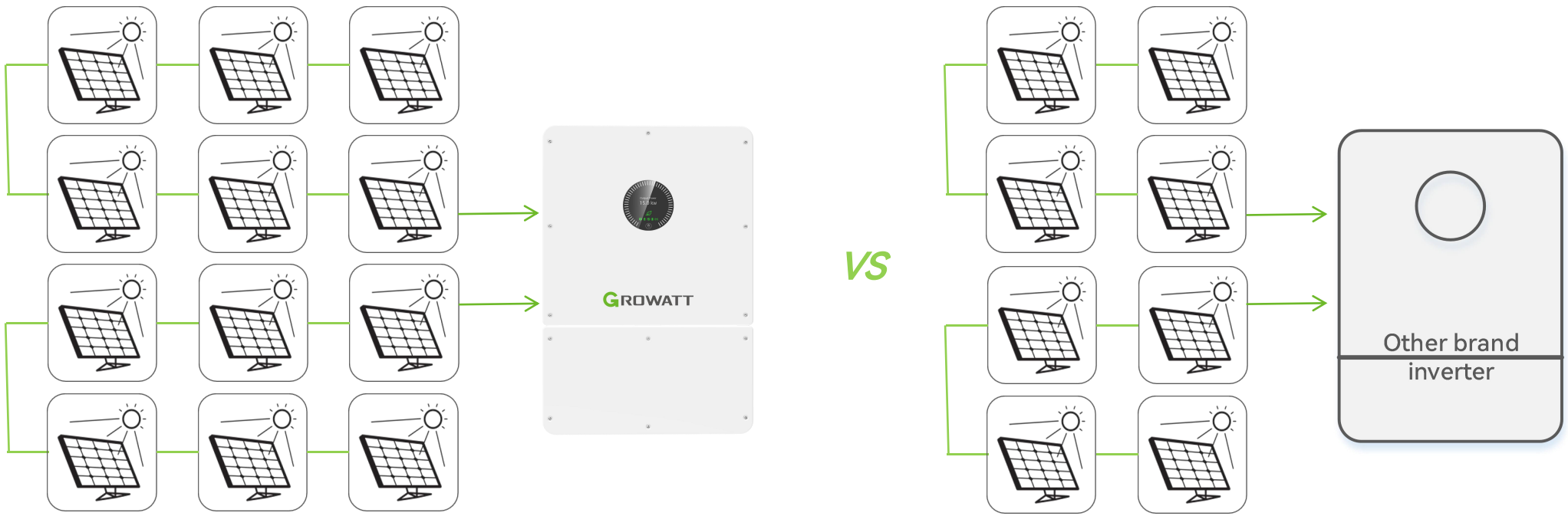
Excellent PV Side Performance Allows More PV Panels

WIT 4-15k-HU

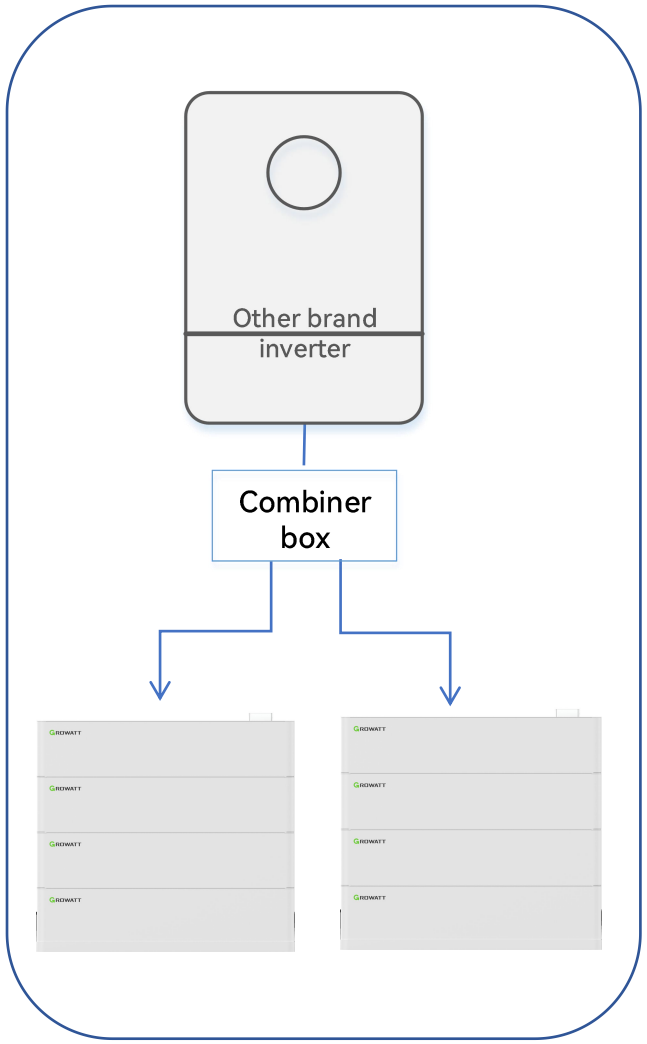
- Up to 1.6 DC/AC Ratio
- Max. PV input voltage up to 1000V
- Max. string current up to 20A
- Up to 3 string PV inputs for 12kW and 15kW model

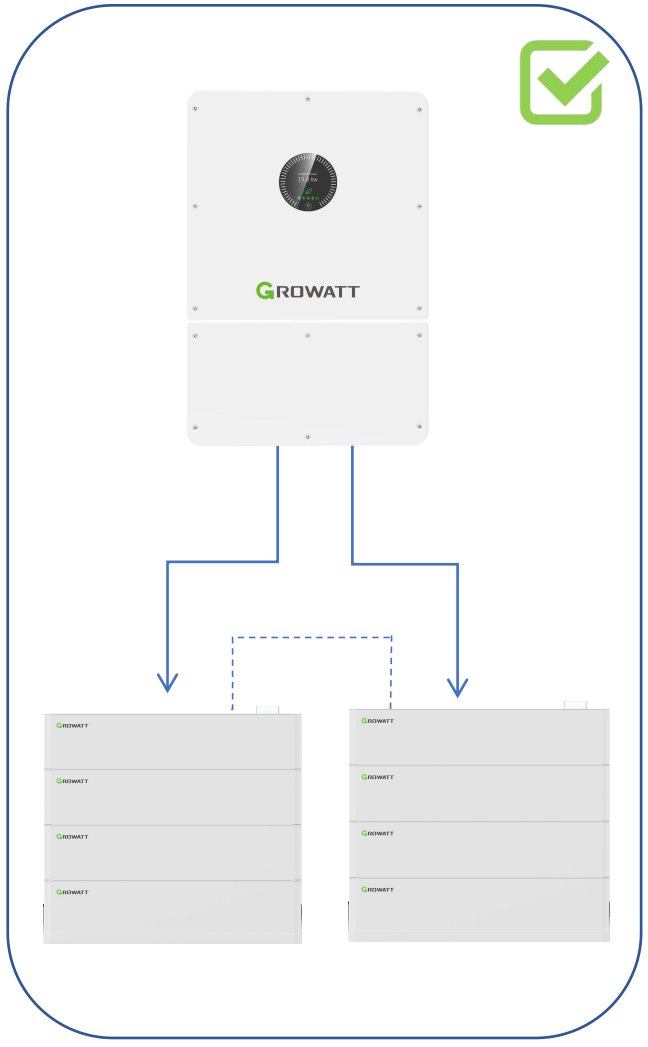
Other inverters

- Up to 1.5 DC/AC Ratio
- Max. PV input voltage 800V
- Max. string current 20A
- Up to 2 string PV inputs for 12kW



Dual Battery Inputs





- Battery charging and discharging current/power up to 290A/15kW
- Dual battery input port for two clusters of battery system in parallel
- No need for an additional battery combiner box, simplifying the installation process and reducing costs.

No need of combiner box

Battery System

Growatt LV Battery

AXE 5.0L – C1

- IP20, 5.0kWh / Module
- Max Charge/discharge Current: 160A
- Max charge and discharge rate: 0.5C

ALP 5.0L-E2

- IP66, 5.0kWh / Module
- Max Charge/discharge Current: 130A
- Max charge and discharge rate: 0.7C

HOPE 14.3L-R1

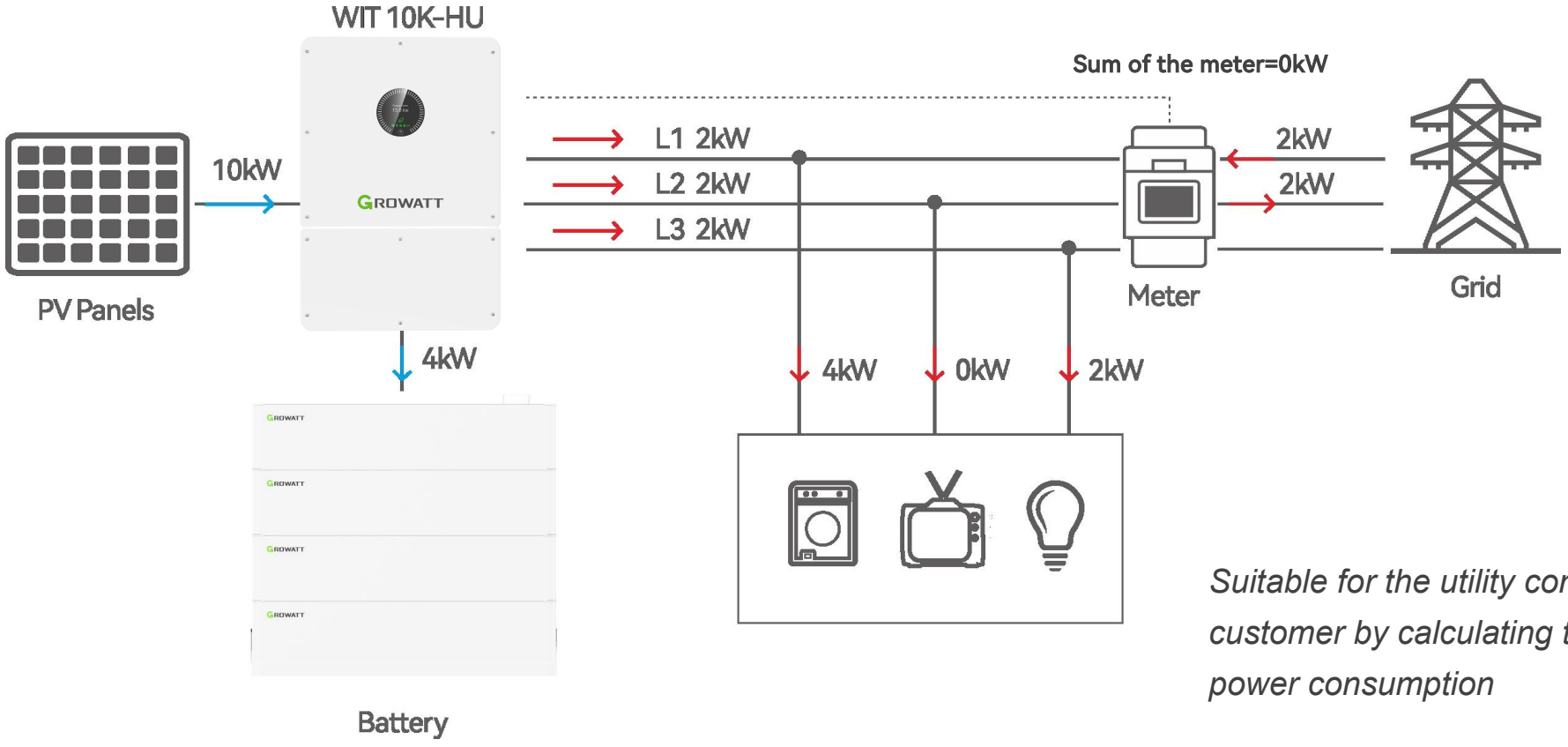
- IP20, 14.3kWh / Module
- Max Charge/discharge Current: 220A
- Max charge and discharge rate: 0.8C

Hope 5.0L-B1

- IP20, 5.0kWh / Module
- Max Charge/discharge Current: 100A
- Max charge and discharge rate: 1C

*WIT 4-15K-HU can also be matched with batteries from third-party manufacturers. For details, please contact the sales for consultation.

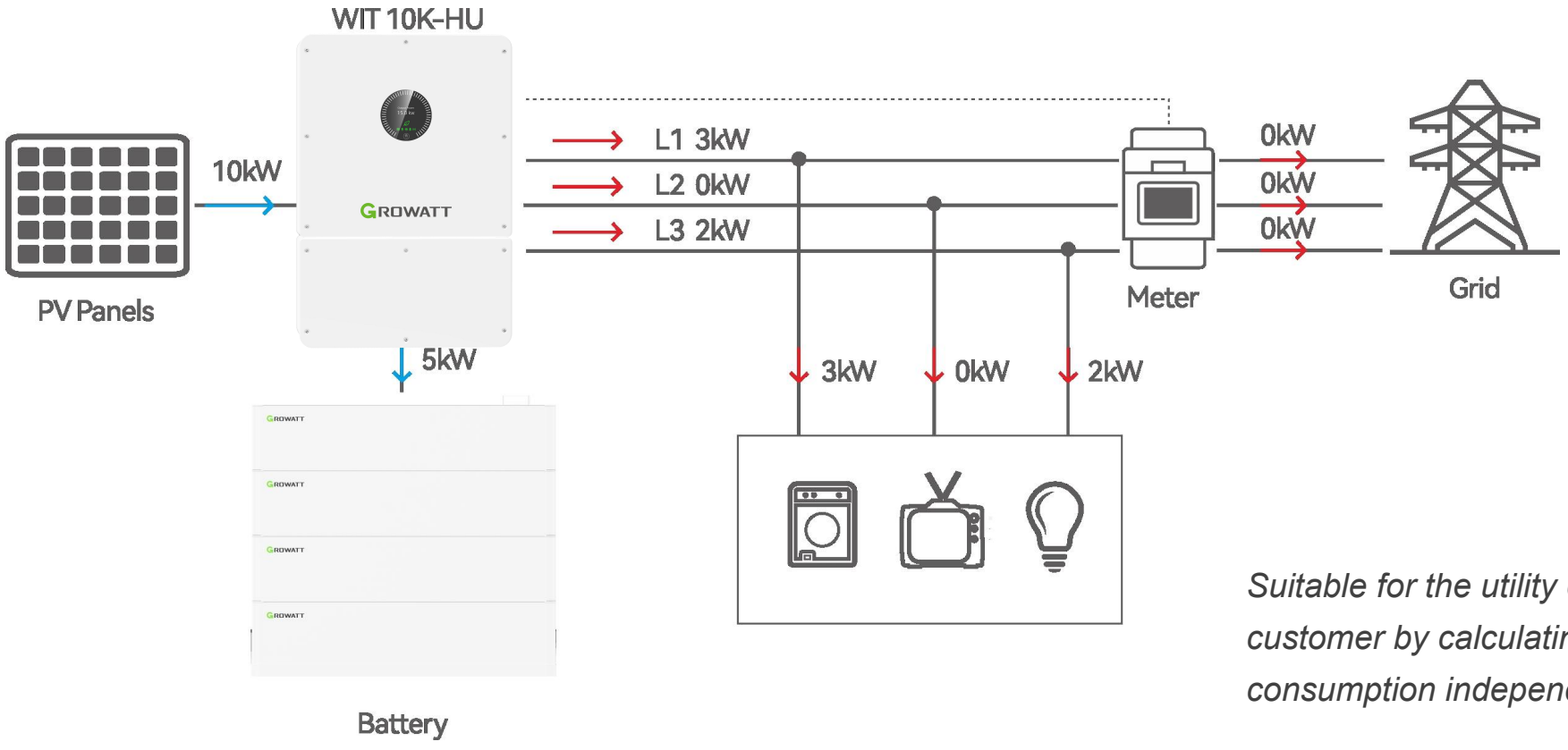
Standard Three-phase Power Control Basic Solution



Suitable for the utility company which charges customer by calculating total three phase power consumption

*Note: It's a default mode and suits most areas in EU

Smart Phase-level Power Control Basic Solution

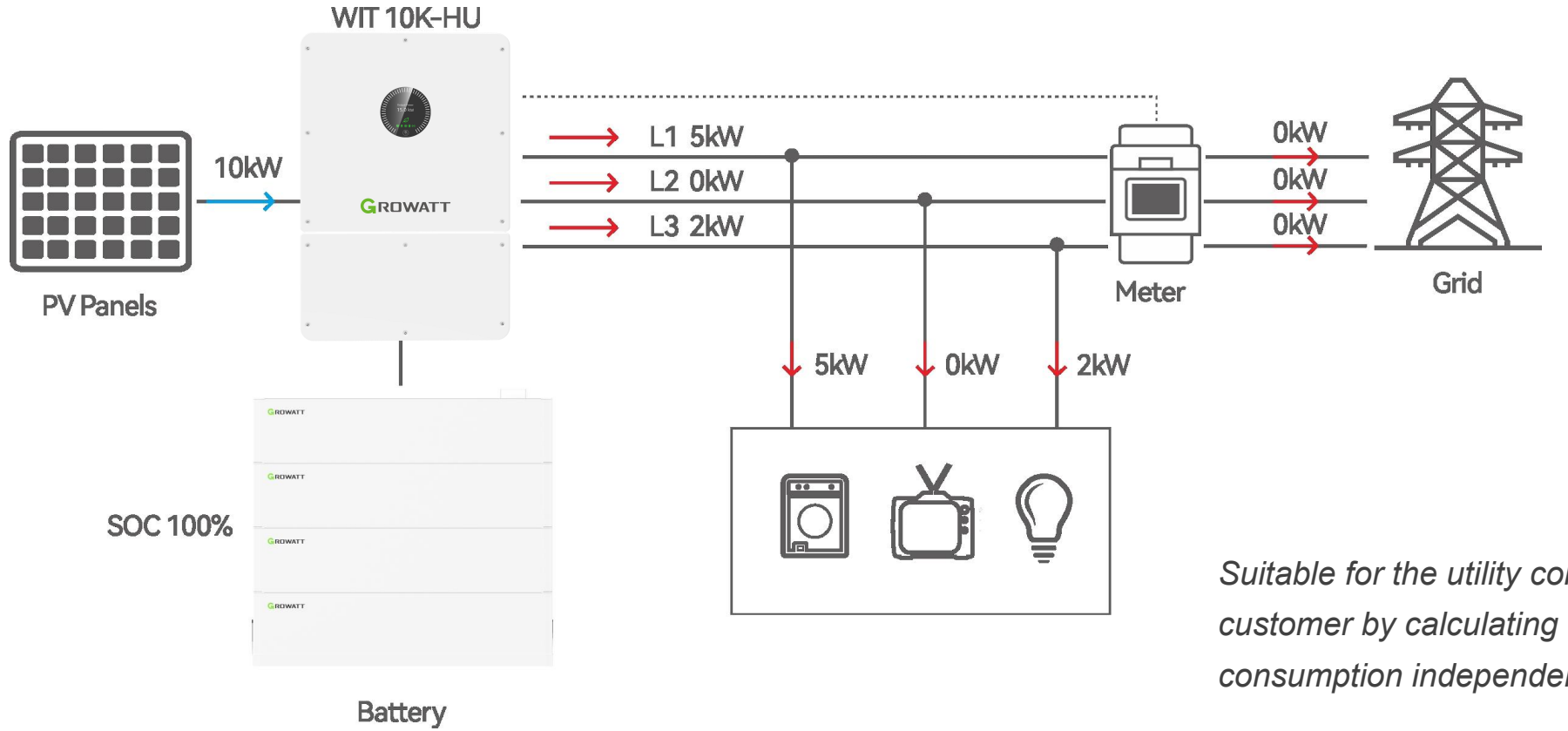


Suitable for the utility company which charges customer by calculating each phase power consumption independently

*Customer needs to enable single phase control function, especially design for the grid in Czech, Portugal, part of the Denmark
**The inverter will prioritize load output and not feed to the grid, and the excess power will be charged to the battery.

Three-phase 100% Unbalanced Output

Three-phase 100% Unbalanced Output and Smart Phase-level Export Limit Function

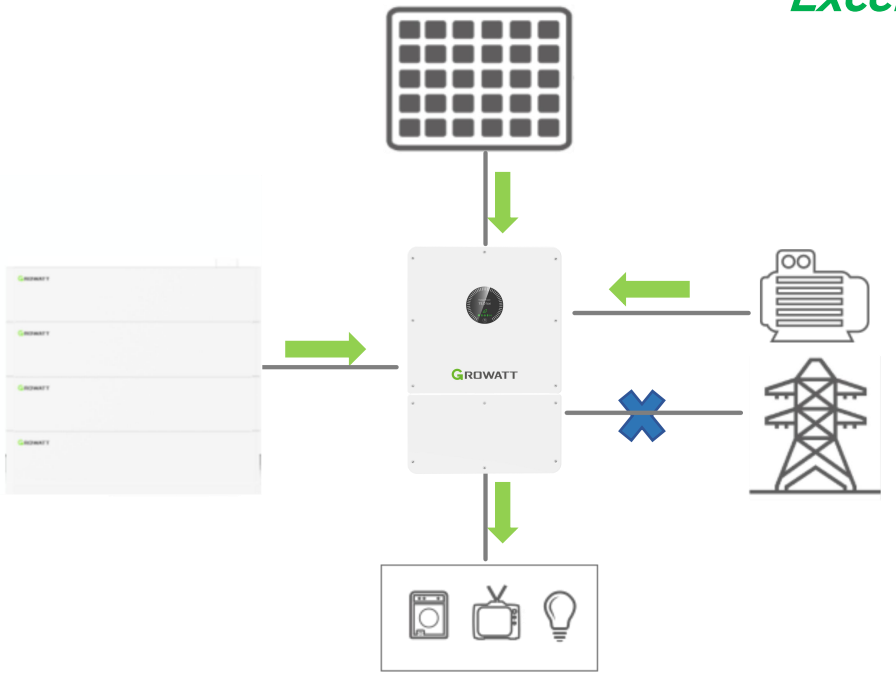


Suitable for the utility company which charges customer by calculating each phase power consumption independently

*Customer needs to enable single phase control function, especially design for the grid in Czech, Portugal, part of the Denmark
**Max. power output of single phase is 5kW, and the system will draw the power from the grid once exceeding it.

Direct Generator Input Serves as a Backup Source

Excellent Off-grid Performance

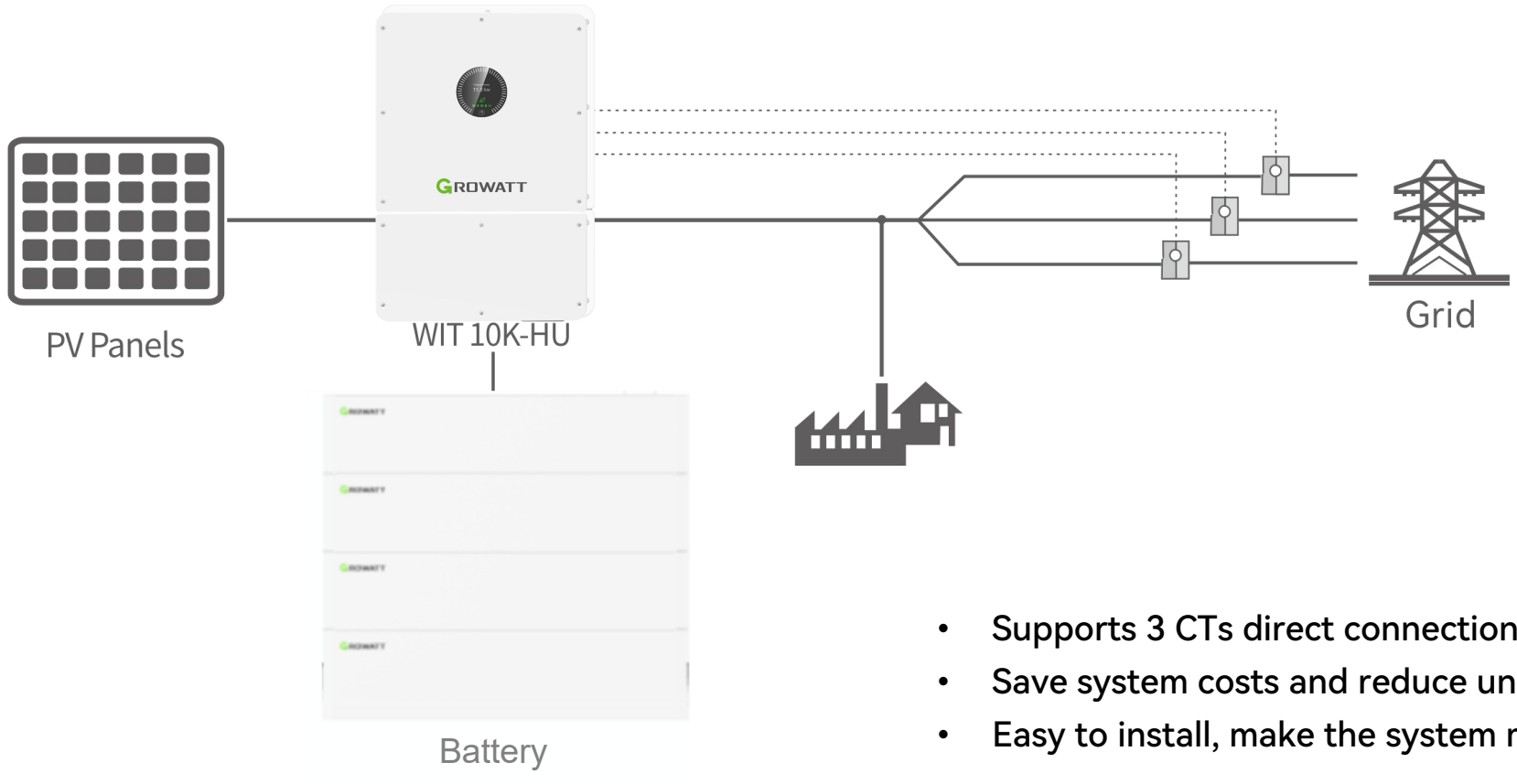


- Direct generator input as backup source
- 10ms transition from on-grid to off-grid mode
- 100% unbalanced output: each phase up to 50% of rated power
- 110% continuous overloading
- 200% overloading for 10s

Backup power (AC)*							
Rated AC output power	4000W	5000W	6000W	8000W	10000W	12000W	15000W
Max. AC apparent power	2 time of rated power, 10s						
Rated AC output voltage	220V/380V, 230V/400V						
Nominal AC output frequency	50/60Hz						
Max. output current	12.2A@220V 11.6A@230V	15.2A@220V 14.4A@230V	18.2A@220V 20.0A@230V	24.2A@220V 23.2A@230V	30.3A@220V 29A@230V	36.4A@220V 34.8A@230V	45.5A@220V 43.4A@230V
THDv	3% (Linear load)						
Load unbalance	100% three-phase unbalanced						
On/off grid transfer time	10ms						

3 CTs Direct Connection

Cost-effective and Easy Installation Solution



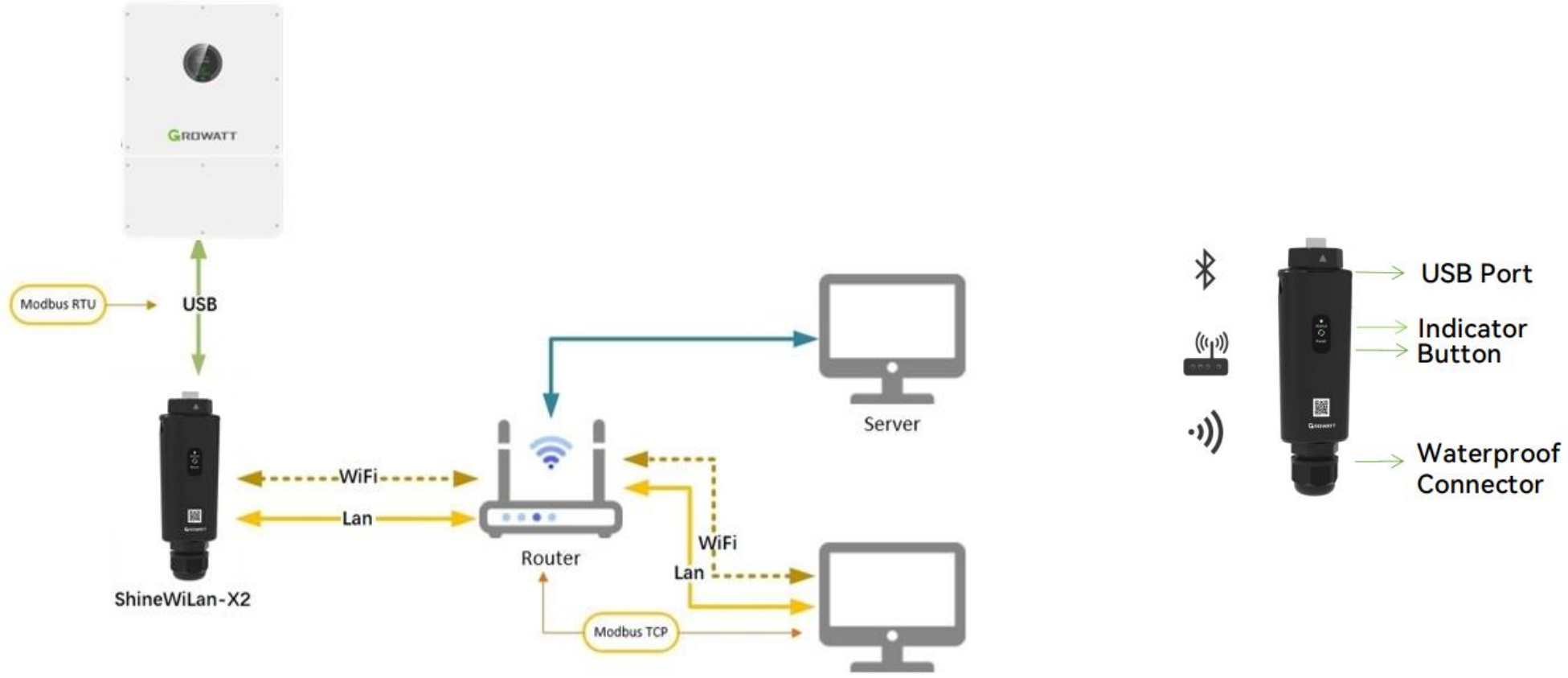
- Supports 3 CTs direct connection
- Save system costs and reduce unnecessary expenses
- Easy to install, make the system more concise

* WIT comes standard with 3 CTs. Customers can also purchase additional meters(TPM-CT-E) according to different needs.
**The CT direction is from grid to the load and supports remote correction when reversed.

04

Monitoring and Configuration

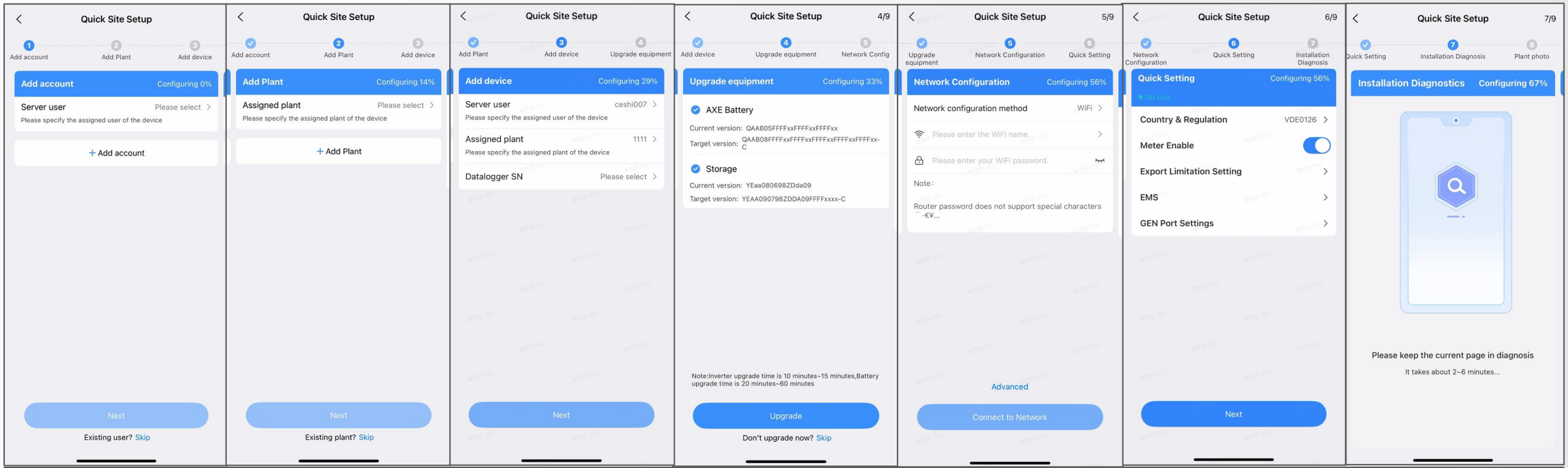
MODBUS TCP Available



- By using the newest software version, ShineWiLan-X2 could be used to support SCADA control based on MODBUS TCP protocol for the third party.
- The third party system is connected to the router through a LAN cable, the ShineWiLan-X2 is connected to the router through WiFi, and the ShineWiLan-X2 communicates with the inverter via the USB port, and the customer still needs to read and set the inverter values according to Growatt's inverter protocol registration table.

System Solution-Shinetools Quick Site Setup

Shinetools---Quick Site Setup



①Add account	②Add plant	③Add device	④Upgrade equipment	⑤Network Configuration	⑥Quick setting	⑦Installation Diagnosis

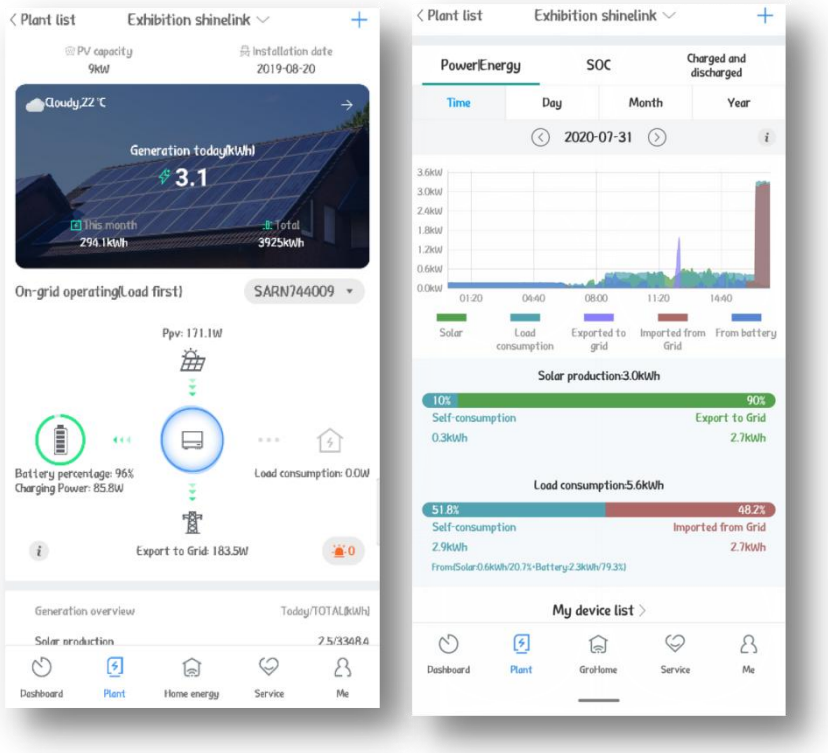
* This function of Shinetools is mainly for installers, and is used to quickly set up and upgrade the WIT system after installation on-site, as well as perform one - click diagnosis. It can more accurately assist installers in completing the installation and is also helpful for subsequent operation and maintenance.

Online Smart Diagnosis

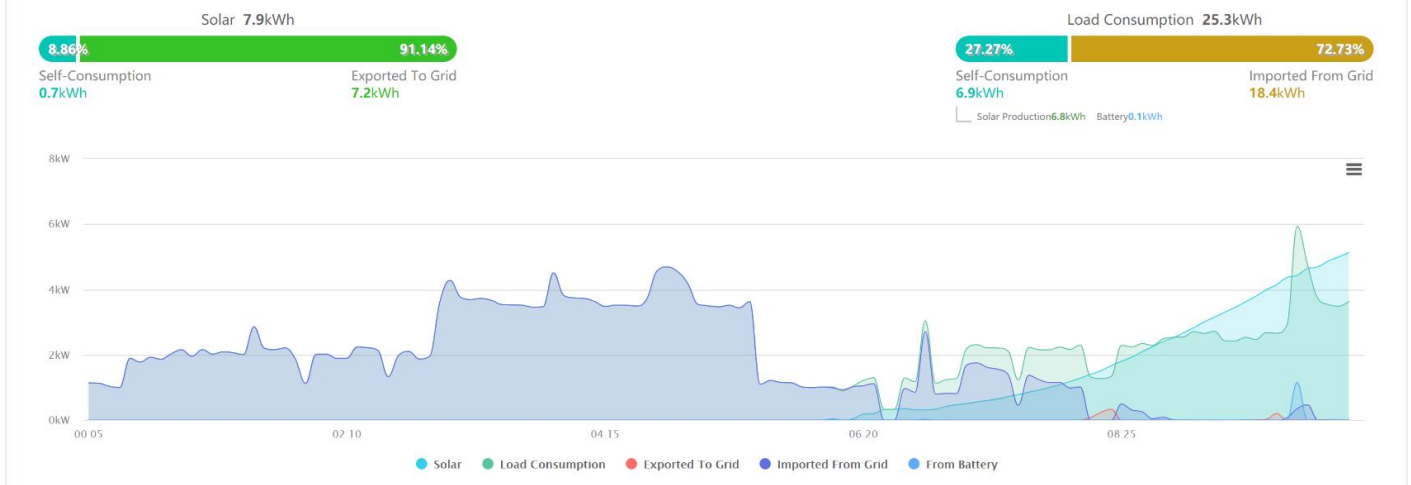
- One-click-diagnosis for solar input side, no need professional people or equipment
- Intelligent I-V curve detection, realizing intelligent operation and maintenance
- Accurate fault location and trouble-shooting guide

Smart Maintenance

Monitoring of Real-time data and system status.
Resumes transmission at break-points

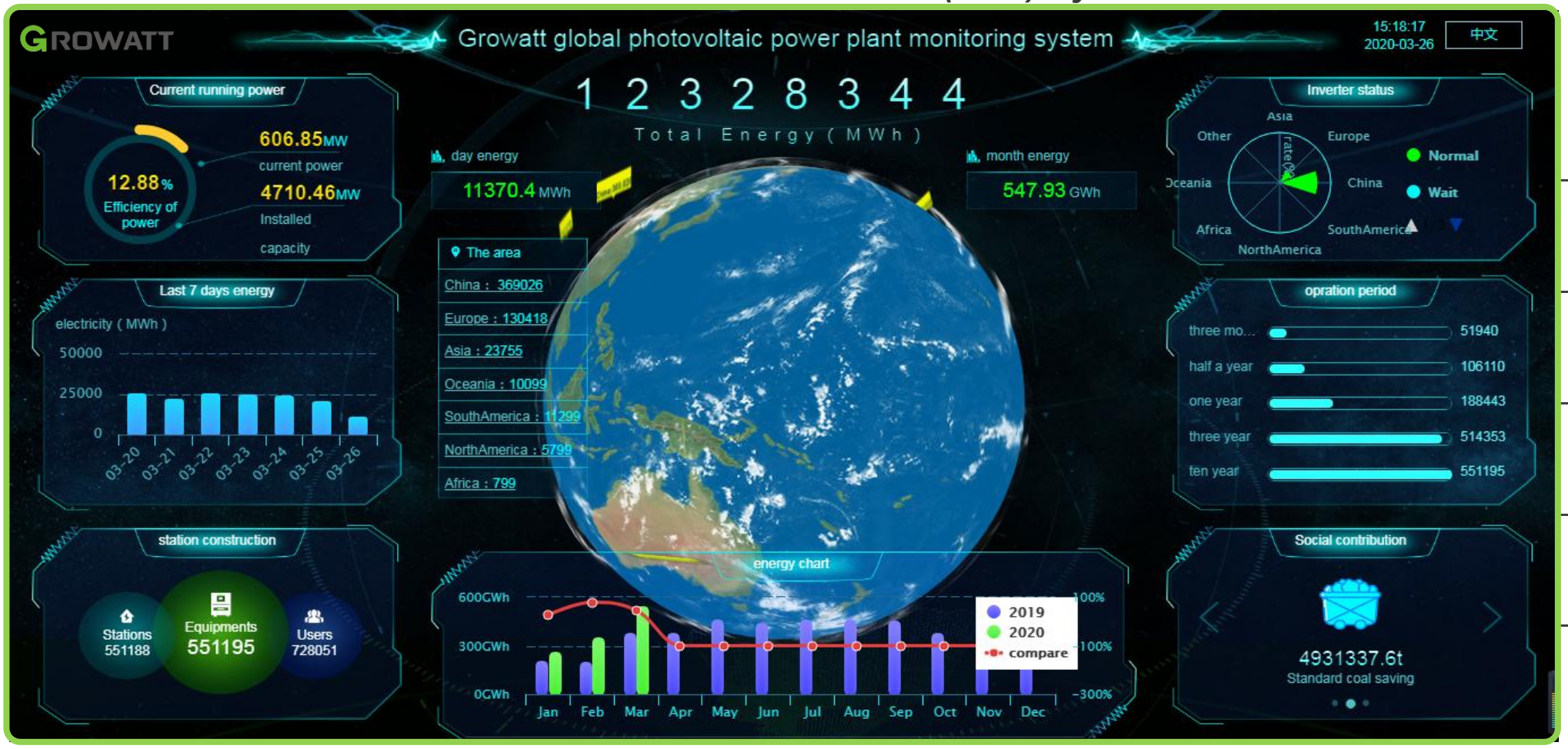


ShinePhone App



Server Monitor

Online Smart Service (OSS) System



- Online failure reporting
- Remote parameter setting
- Remote firmware upgrading
- No need site travelling
- Reduce maintenance cost

Thanks!

www.ginverter.com

Growatt New Energy