



Commercial & Industrial Energy Storage System Solution Introduction



Overseas Marketing Department

SHENZHEN GROWATT NEW ENERGY CO., LTD

GROWATT

2025 July

01

ESS Application & Growatt Solution



Split Type Solution



WIT+AXE Combined System

Micro-Grid Scenarios



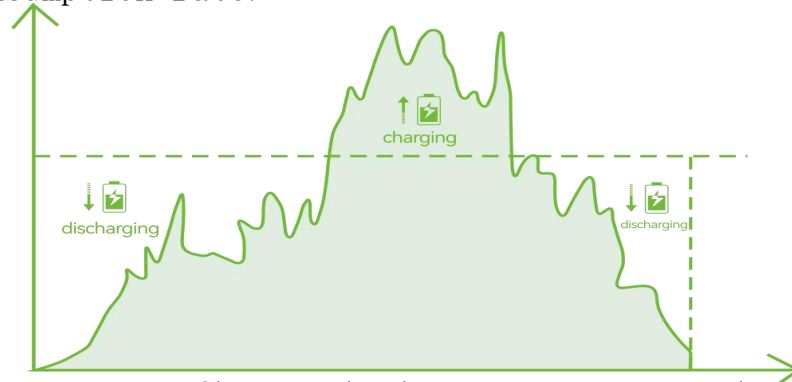
Commercial Scenarios



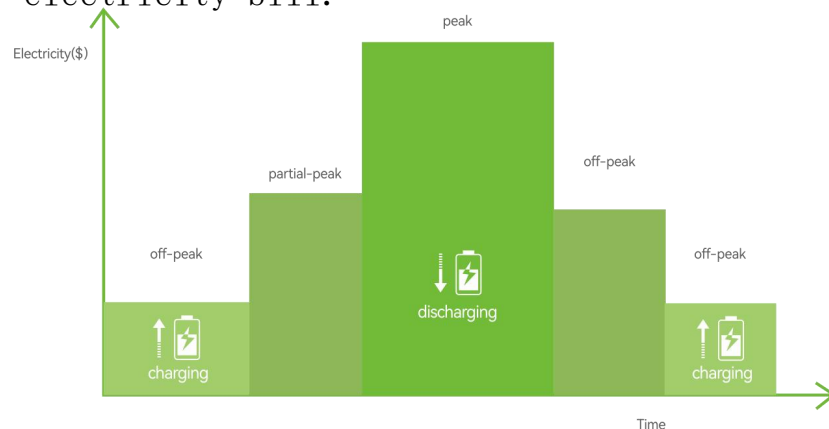
Industry Scenarios



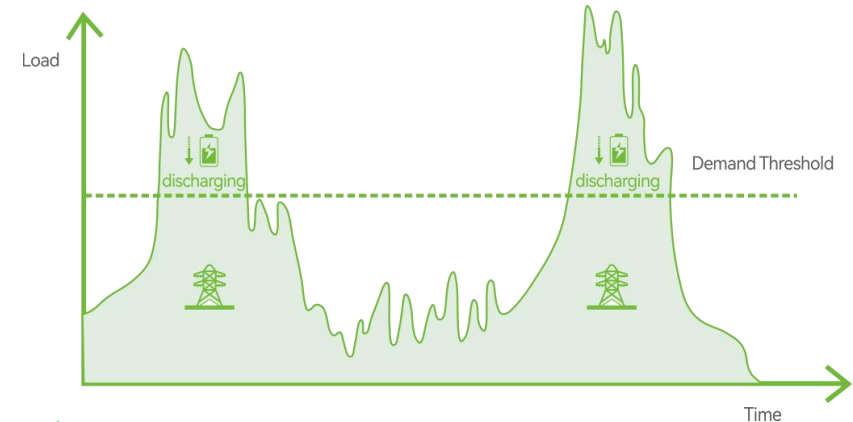
- **Self-Consumption:** Storing the surplus solar power into the battery during the day and using it at night, which maximizes the solar energy self-consumption rate.



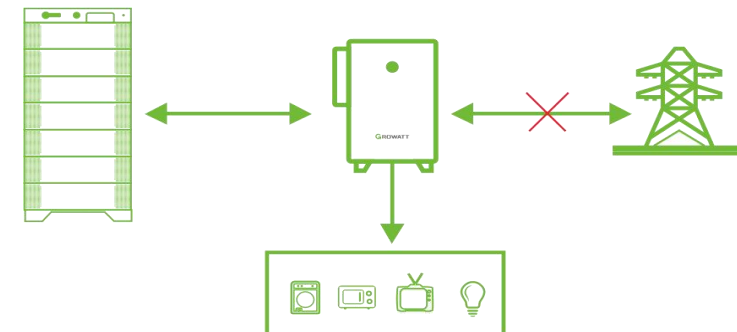
- **Time of Use:** Charge the battery at off-peak tariff and use it at peak tariff to reduce the electricity bill.



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



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



In addition to the above applications, it can also support microgrids, power quality improvement, grid services, etc

Growatt

WIT 29.9-50K-XHU
Energy Storage System Solution
Introduction



Commercial & Industry ESS Solution

Hybrid Inverter



WIT 29.9-50K-XHU (IP 66)

Commercial Battery System



AXE 30.0-60.0H-1HR-E1
(IP20)

All-in-one ESS



WIT 29.9-50K-XHU+
AXE 50.0/60.0H-1HT-S1
(IP66+IP55)

Part 1

WIT+AXE System Overview



WIT+AXE System



WIT Hybrid Inverter



AXE Indoor Battery System

- Nominal Output Power: 29.9/30/35/40/50kW
- Nominal AC Voltage: 380/400V
- Nominal AC Frequency: 50/60Hz
- Battery Energy: **Max 3 battery system** (30-60kWh for single rack)
- PV Input Power: 2 nominal power
- AC Grid Connection Type: 3P3W+PE/3P4W+PE
- Ingress Protection: IP66 (for hybrid inverter) /IP20 (for battery cabinet)
- Working Mode: On-grid and off-grid mode
- On/Off Switching Time: <10ms
- Installation Method: Indoor rack (battery) , Wall-mounted (Inverter)
- Parallel System for Inverter : **6 sets**



WIT 29.9-50K+AXE 50.0-60.0H-1HT-S1

WIT+AXE All-in-One System

- Nominal Output Power: 29.9/30/35/40/50kW
- Nominal AC Voltage: 380/400V
- Nominal AC Frequency: 50/55/60Hz
- Battery Energy: **Max 3 battery cabinet** (50/60kWh for single cabinet)
- PV Input Power: 2 nominal power
- AC Grid Connection Type: 3P3W+PE/3P4W+PE
- Ingress Protection: IP55
- Working Mode: On-grid and off-grid mode
- On/Off Switching Time: <10ms
- Installation Method: Outdoor Cabinet
- Parallel System for Inverter : **6 sets**

◆ Flexible Configuration

- Hybrid/Storage Inverter: 29.9/30/35/40/50kW,
- Battery system: 30~60kWh(single inverter) ,
Max 3 battery rack/cabinet for single WIT inverter
- Up to 6 pcs WIT inverter in parallel

◆ Flexible deployment

- Supports distributed or centralized deployment
- Supports battery rack/cabinet deployment at different times
- Supports battery rack/cabinet deployment with different capacity

◆ Safe and Reliable

- Superior safety using cobalt-free LFP battery
- Multi-level protections from Inverter, battery system
- Built-in aerosol in each battery pack

◆ Smart Management

- Supports local display and remote monitoring
- Remote firmware upgrade and lifespan smart online service
- Grid-support functions

Part 2

WIT29.9-50K-XHU Hybrid Inverter Overview

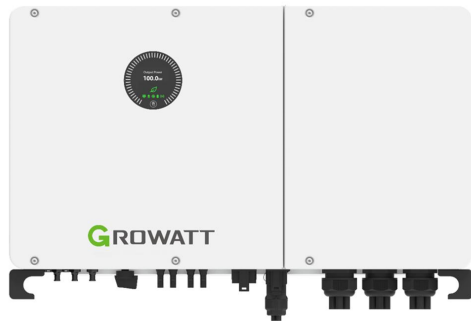


WIT 29.9-50K-XHU



Hybrid Inverter

- Nominal Output Power: 29.9*/30/35/40/50kW
 - Nominal AC Voltage: 380V/400V
 - Nominal AC Frequency: 50/60Hz
 - MPPT Input Number: 4
 - Battery Input Number: 3
 - MPPT Voltage Range: 180-1000V
 - Battery Voltage Range: 200-900V
 - AC Input Power: 2 times nominal power
 - Max AC Output Power: 110% rated power
 - Max Backup Power: 150% rated power(10s)
 - AC Grid Connection Type: 3P3W+PE or 3P4W+PE
 - Max. Efficiency: 98.1%
 - Ingress Protection: IP66
 - Wide Temperature Range: -30° C ~ 60° C
 - Communicaiton Interface: RS485/CAN/USB, WiFi/LAN (Opt)
- For 29.9kW model, the overloaded output is not available and the AC output and backup power is 29.9kW/kVA.
 - Please contact with Growatt technical team before matching third-party battery system.



WIT 29.9-50K-XHU



Higher Yields

- Up to 2.0 Ratio DC/AC
- Max. efficiency 98%
- String current 20A for high power modules
- 4 MPPTs, 3 battery input
- Build-in PID recovery function



Safe and Reliable

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



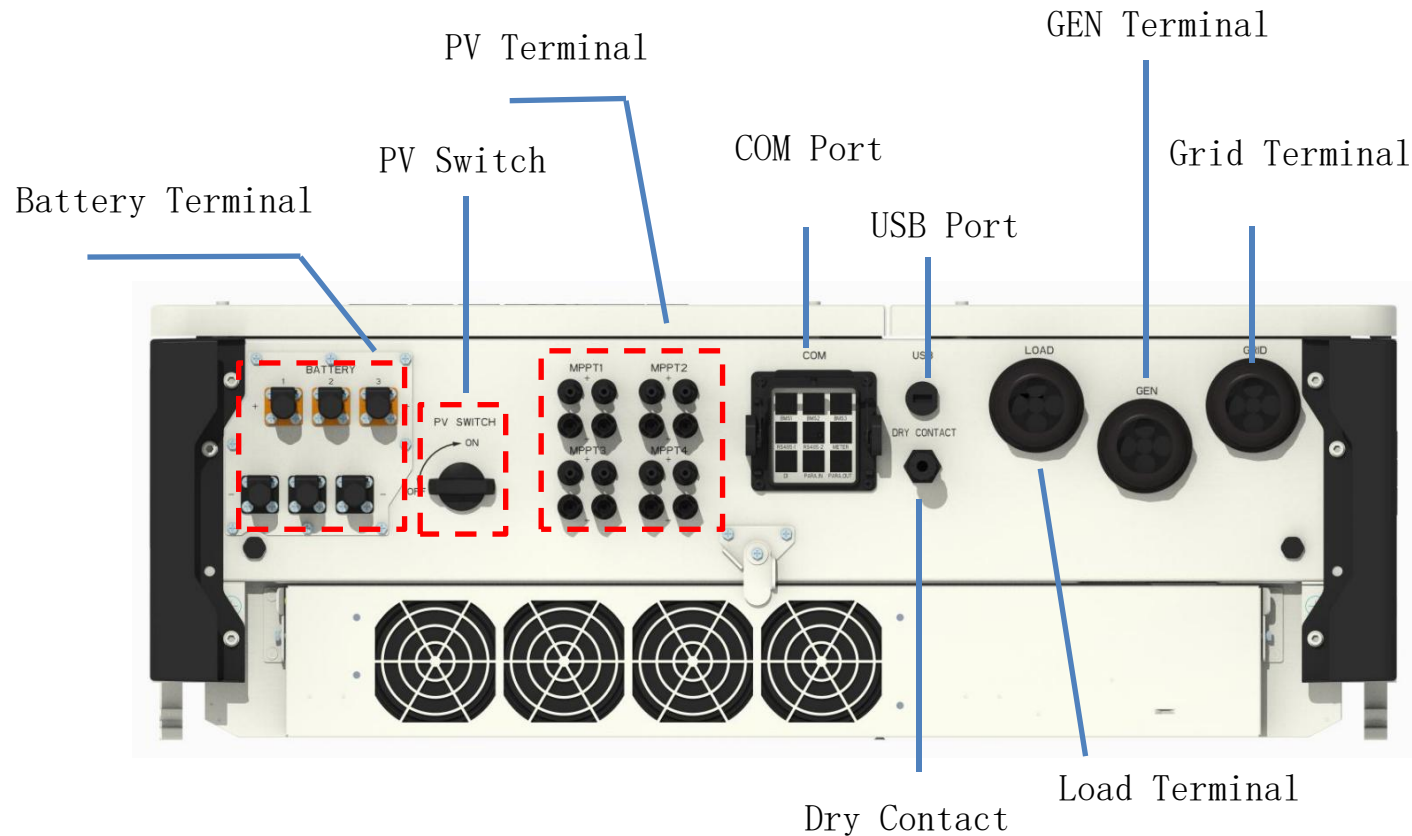
AC Power Ability

- 100% unbalanced load output
- 110% continuous AC overloading capacity
- 150% off-grid overload capacity
- Up to 6 sets of WIT work in parallel
- DG input and smart load function
- Less than 10ms switching time



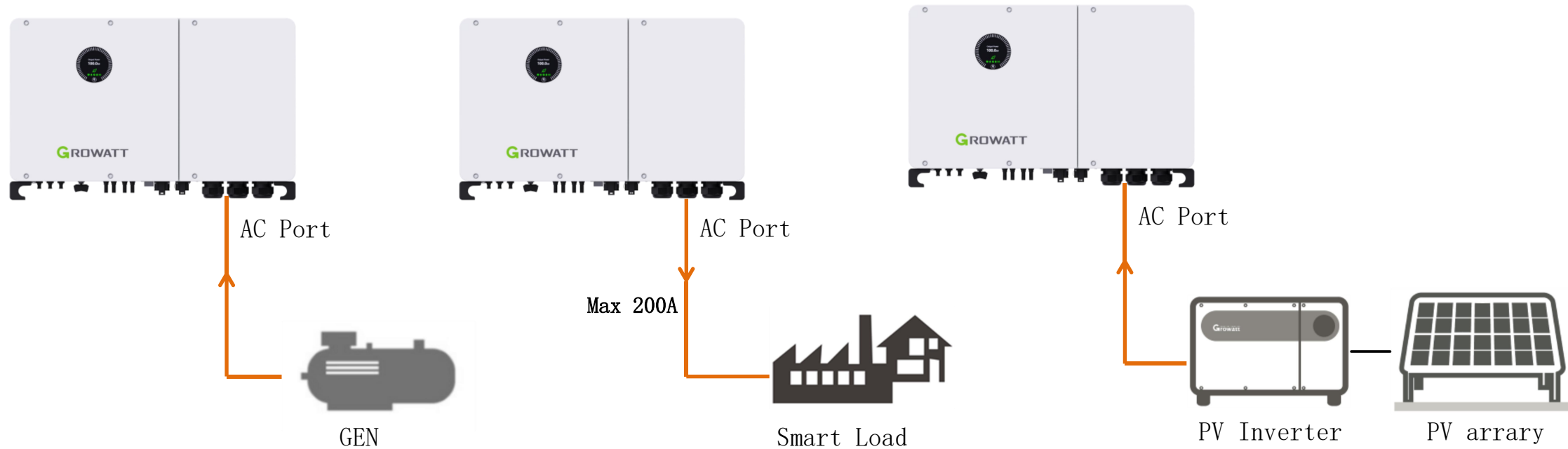
Smart

- Intelligent string monitoring
- Smart IV curve scanning
- One-click-diagnosis
- Remote online maintenance

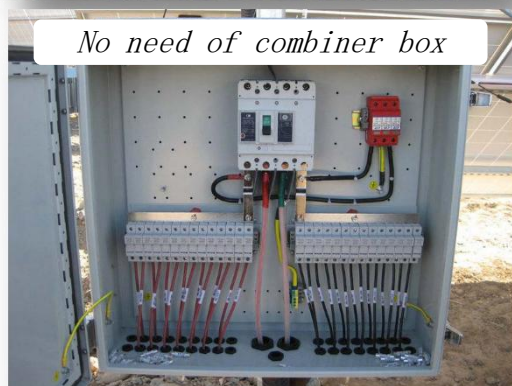


- 3 battery input
- 4 MPPT input
- 1 PV switch
- Load/GEN/Grid input port
- USB port : for datalogger
- Dry Contact: GEN start or close, emergency stop
- COM port: CAN/RS485/DRAM/DI

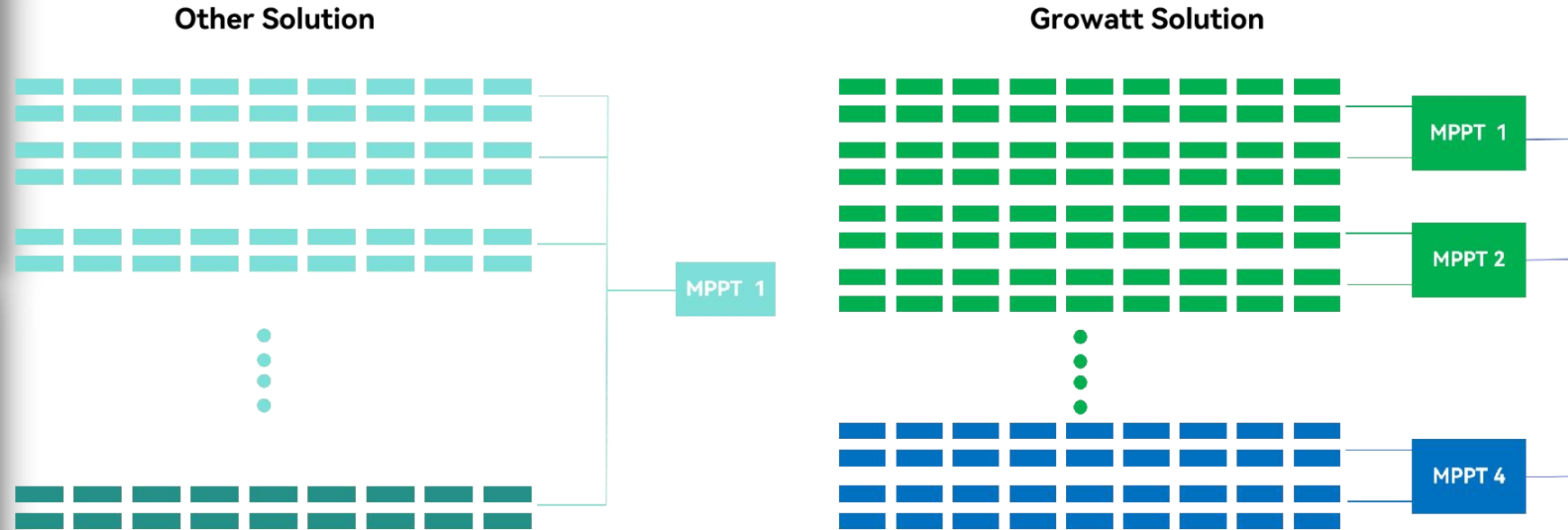
Multifunction AC Port, Meet Multiple Application Scenarios



- Supports diesel generator input, meet solar system+storage system+diesel generator application scenarios.
- Supports smart load output, max output current 200A.
- Supports PV inverter input, meet AC coupling solution.

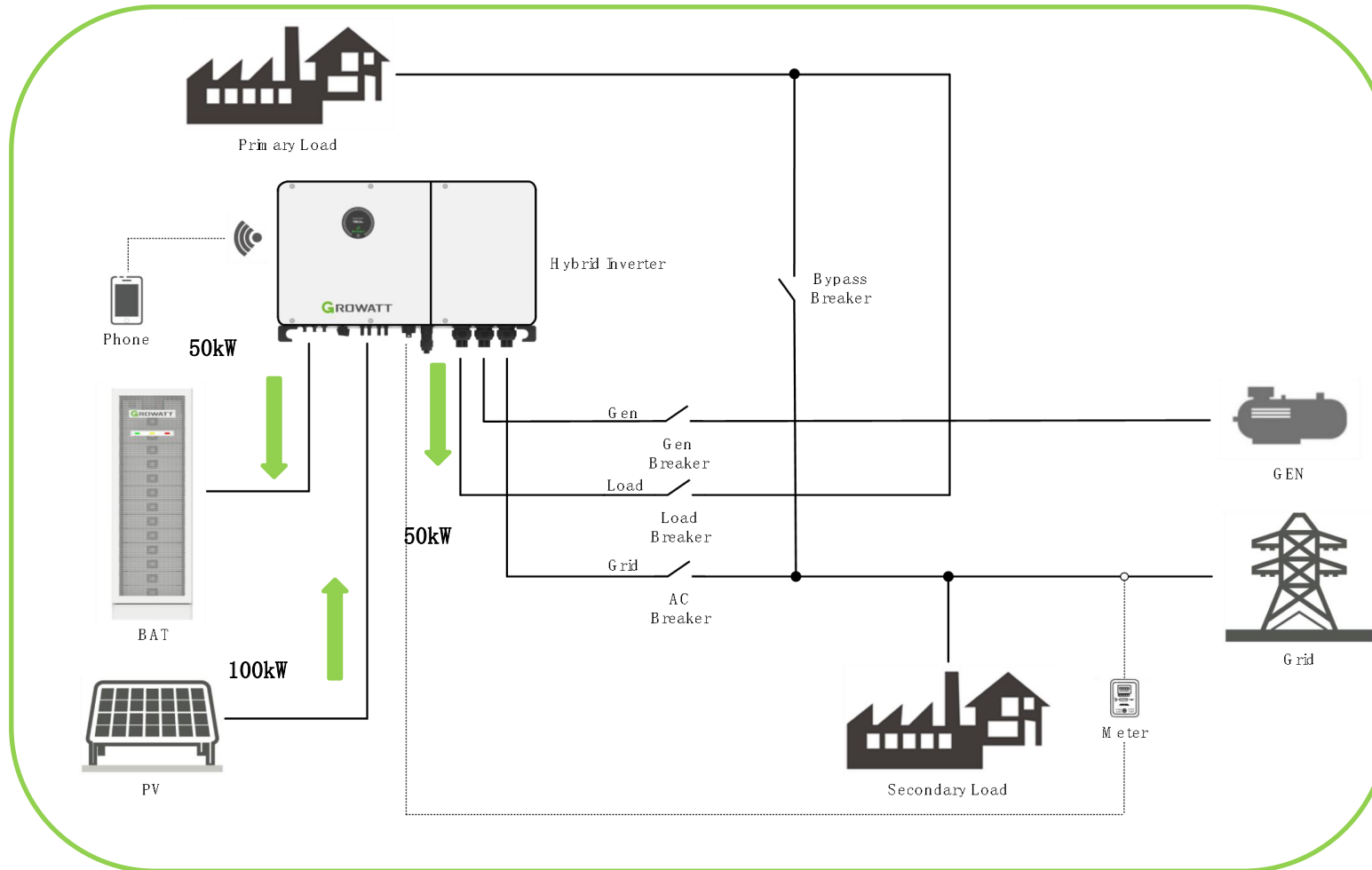


Multiple MPPTs, More Energy Yields



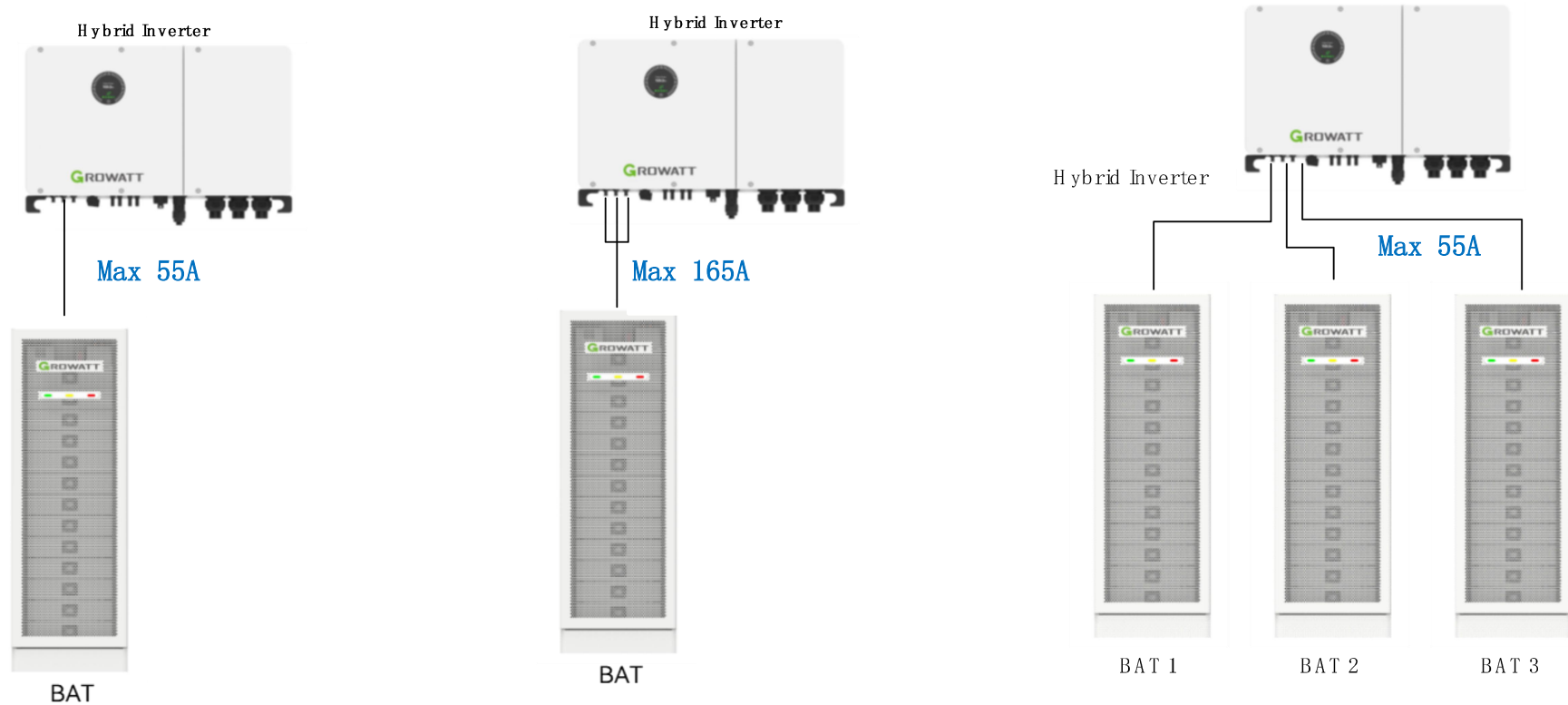
- No additional cost for PV combiner box
- Up to 4 MPP trackers, 2 strings per MPPT, 8 strings with intelligent string monitoring
- Versatile adaptations to different layouts, minimize string mismatch and energy loss, achieve more energy yields

2X DC/AC Ratio, More Energy Yields



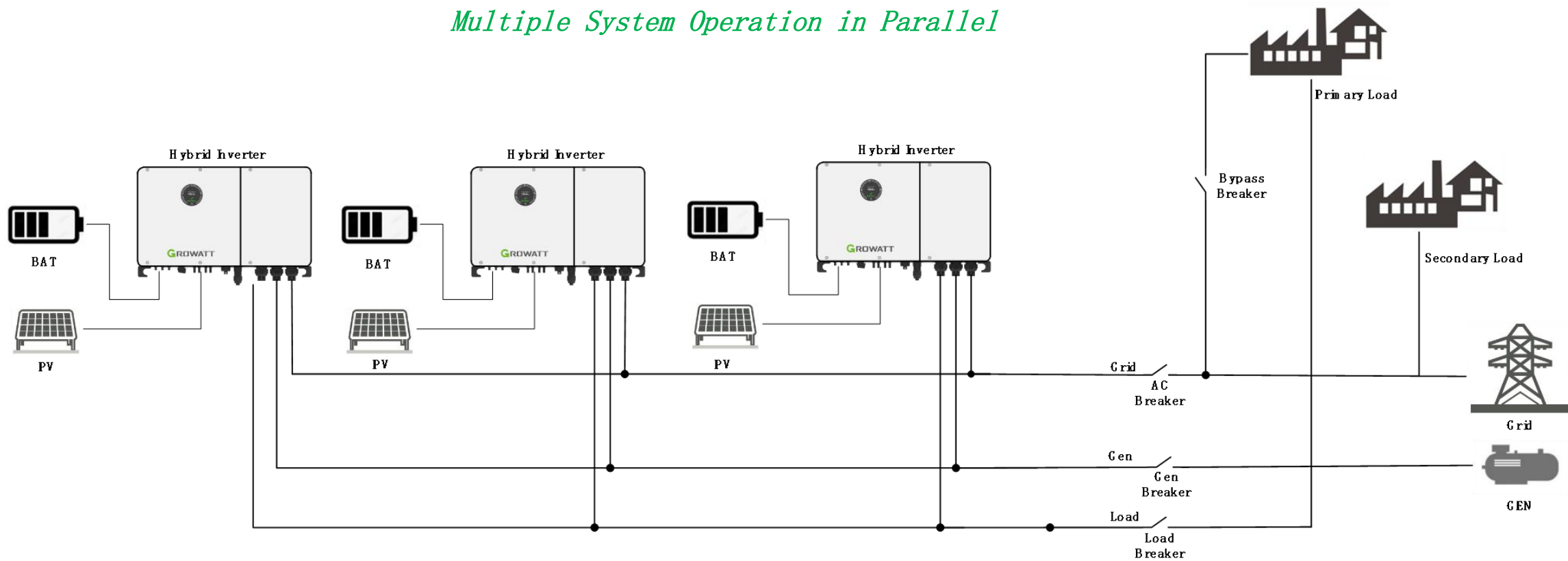
- The maximum input power of PV is twice that of AC rated power which achieves full power supply to the load, and the maximum power to charge the battery at the same time.

Multiple Battery Input, Easier Expansion



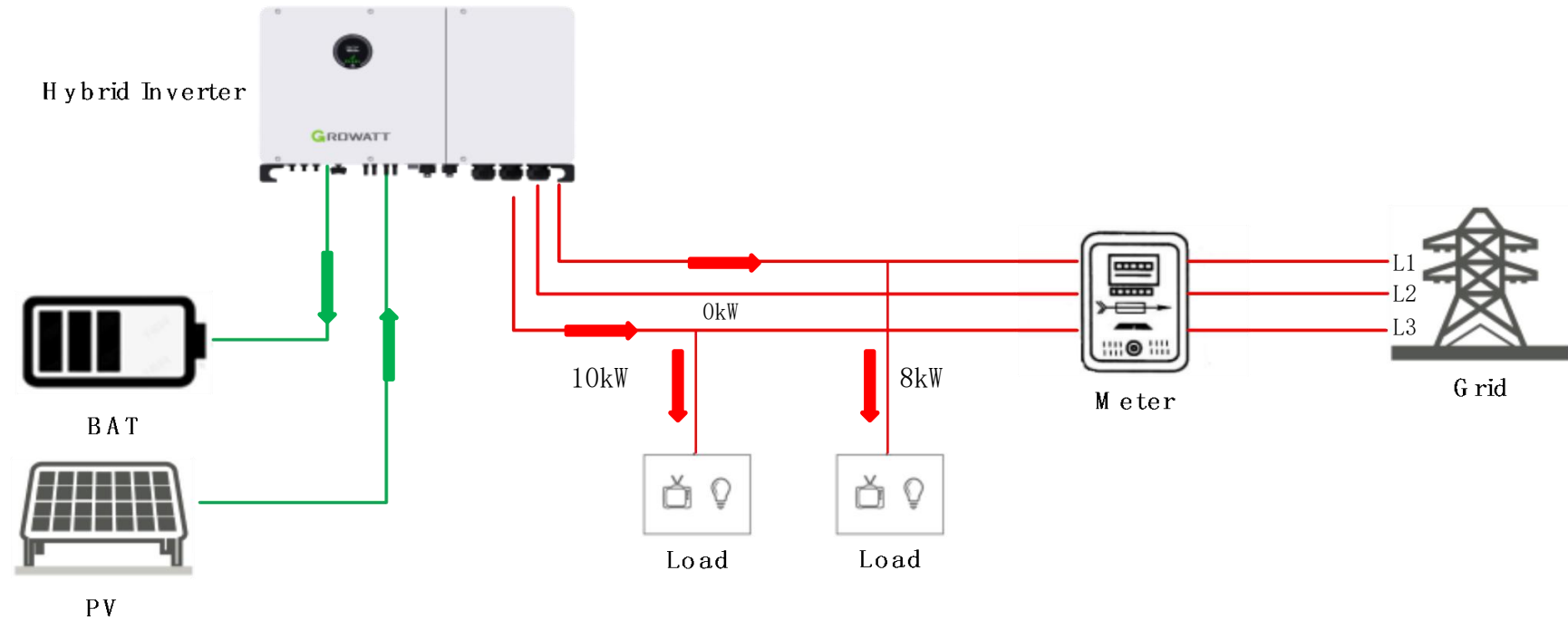
- Supports max **3 battery inputs** independently, each input charge/discharge current reach **55A**
- 3 battery inputs can be combined into one input **via battery junction box** to increase the charge and discharge current, max current **165A**.
- Supports each battery installation in different stage, saving customers' initial cost.

Multiple System Operation in Parallel



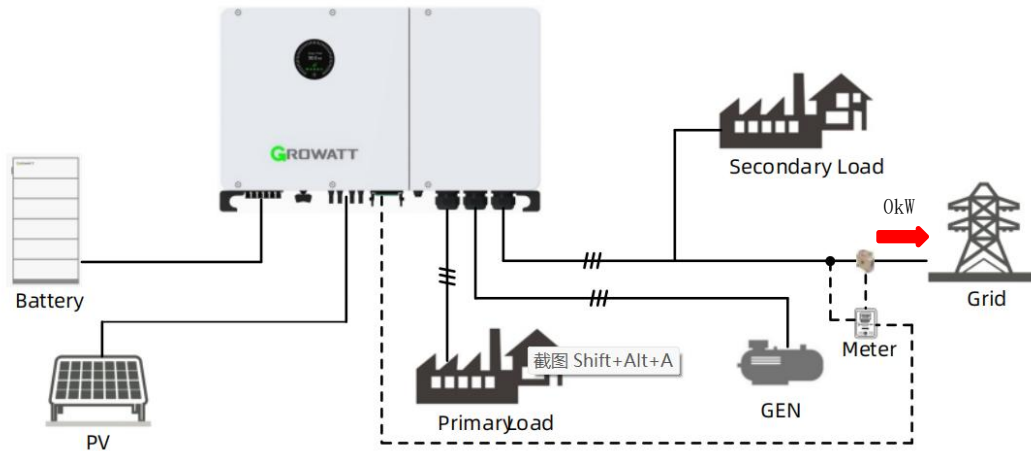
- Supports max **6 hybrid inverter (300kW)** in parallel
- Supports **automatic switching** between on-grid mode and off-grid mode

Three Phase 100% Unbalanced Output Function



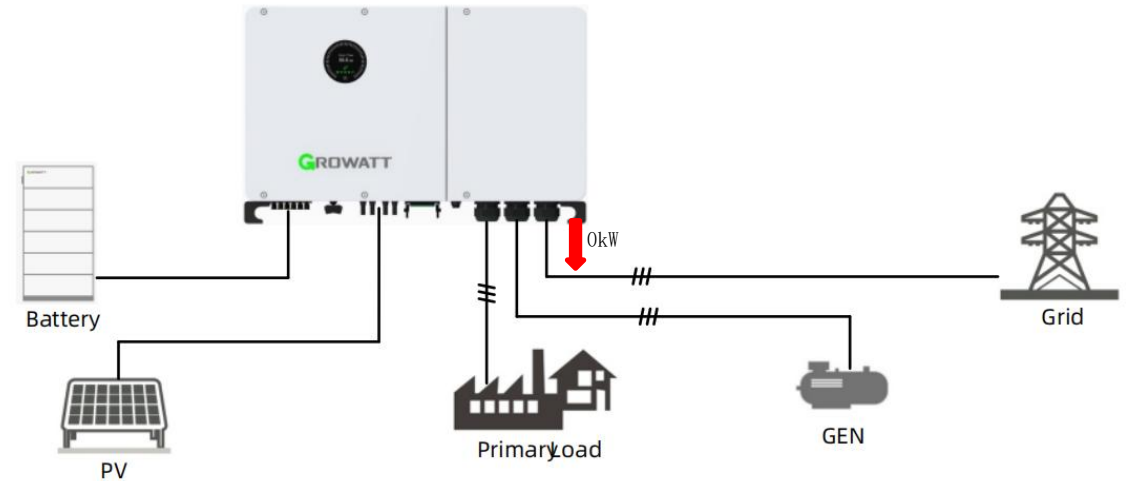
Remark: Customer needs to enable export limit function, Max. power output of single phase is one-third of nominal power (e.g. 16.7kW for 50kW).

Zero Export to Meter (External CT)



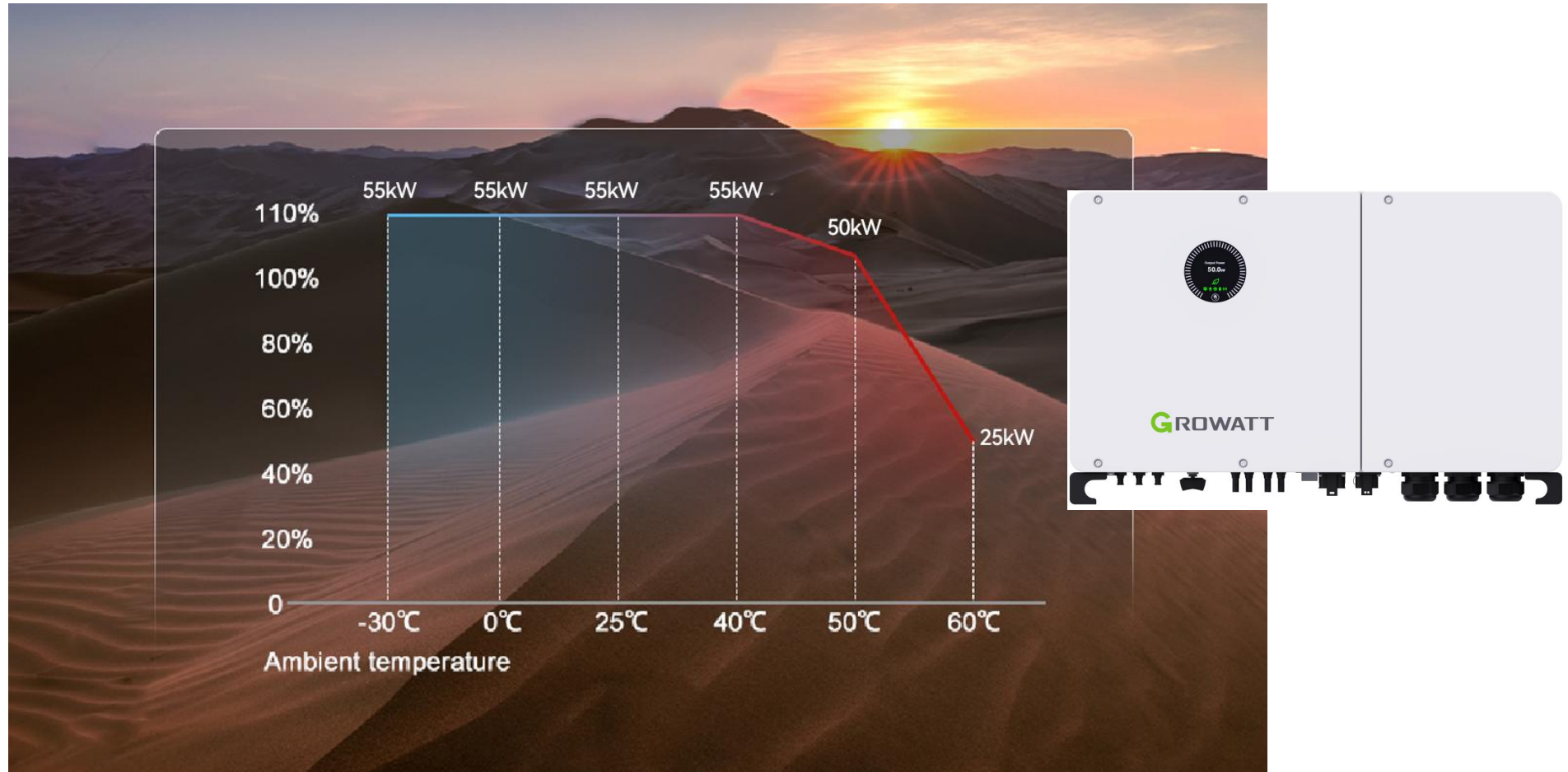
- In this mode, no solar power or battery energy will be fed to the grid. The inverter output is only supplied to the loads connected before the external meter connection point. **Meter and CT is required.**

Zero Export to Grid Port (Internal CT)



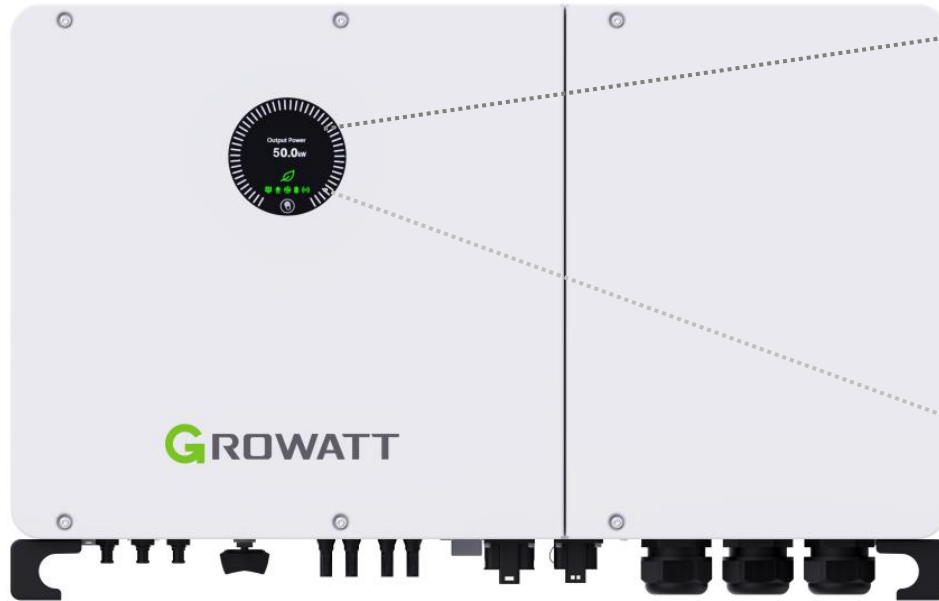
- In this mode, there is no output at the inverter's GRID port. The solar and battery power can only be supplied to Primary Loads via the LOAD port. **Meter and CT is not required.**

Wide Operating Temperature



The operating temperature range of WIT is -30°C ~ 60°C , and it supports full power operation within 50°C .

Ultimate User Experience



OLED Screen plus Touch Key

Get everything at a glance like battery soc, the state of PV/grid/battery, working modes, communication state, output power, alarm, fault etc.

Part 3

AXE Battery Storage System Overview
(Rack form IP20 and Cabinet form IP55)





AXE 30.0-60.0H-1HR-E1

AXE 30.0-60.0H-1HC(R)-E1

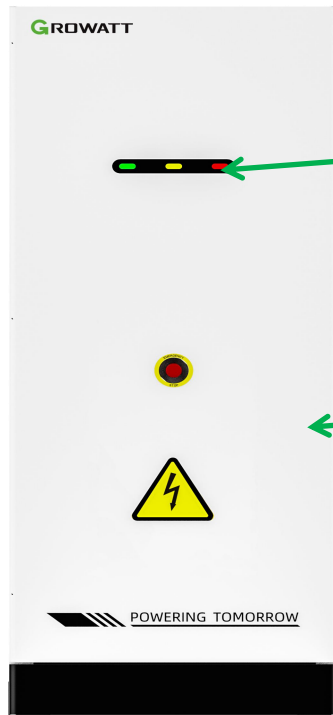
- Nominal Energy: 30/35/40/50/60kWh (6~12 battery module)
- Battery Module Energy: 5.12kWh (51.2V100Ah)
- Battery Type: LFP
- DOD: 90%
- Continuous Charge/discharge Current: 1C
- Ingress Protection: IP20
- Cooling Mode: Air cooling (one fan for each pack)
- Wide Temperature Range: $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$
- Communication Interface: RS485/CAN
- Installation Method: Indoor Rack

AXE 50.0/60.0H-1HT-S1

- Nominal Energy: 50/60kWh (10/12 battery pack)
- Battery Module Energy: 5.12kWh (51.2V100Ah)
- Battery Type: LFP
- DOD: 90%
- Continuous Charge/discharge Current: 1C
- Ingress Protection: IP55
- Cooling Mode: air conditioner
- Wide Temperature Range: $-25^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Communication Interface: RS485/CAN
- Size: W800*D1000*H2200mm
- Installation Method: Outdoor Cabinet
- Transportation Method: Whole cabinet transportation



AXE 50.0-60.0H-1HT-S1



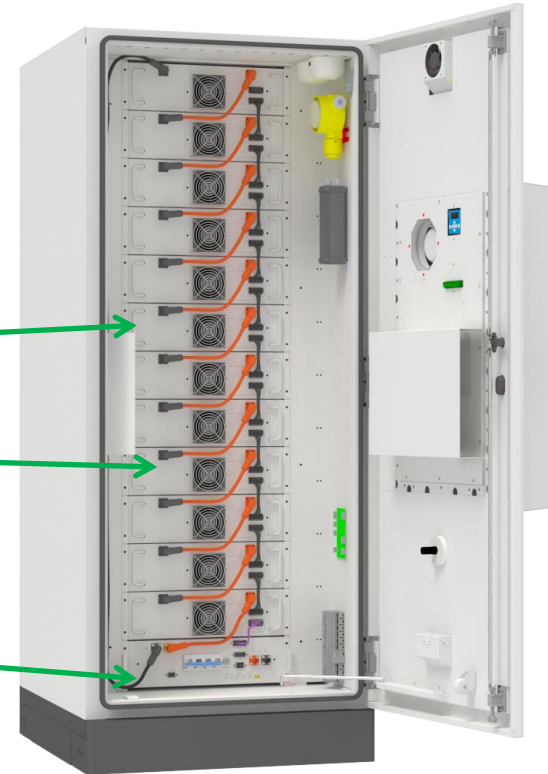
Indicator Light

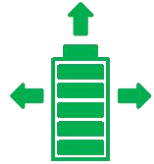
Indoor Cabinet

BM: Battery Module
Max 12 pcs

Power Cable

CM: Control Module





Flexible Expansion Design

- 5kWh scalable battery pack
- 30kWh-60kWh scalable energy capacity for single battery rack/cabinet



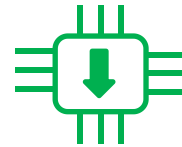
Flexible and Convenience

- Support distributed or centralized deployment
- Easy installation and maintenance
- Two people to complete single BM installation



Safe and Reliable

- Prismatic LFP Cell
- Multiple Level Protection
- Built-in aerosol (Opt) in battery pack



Smart

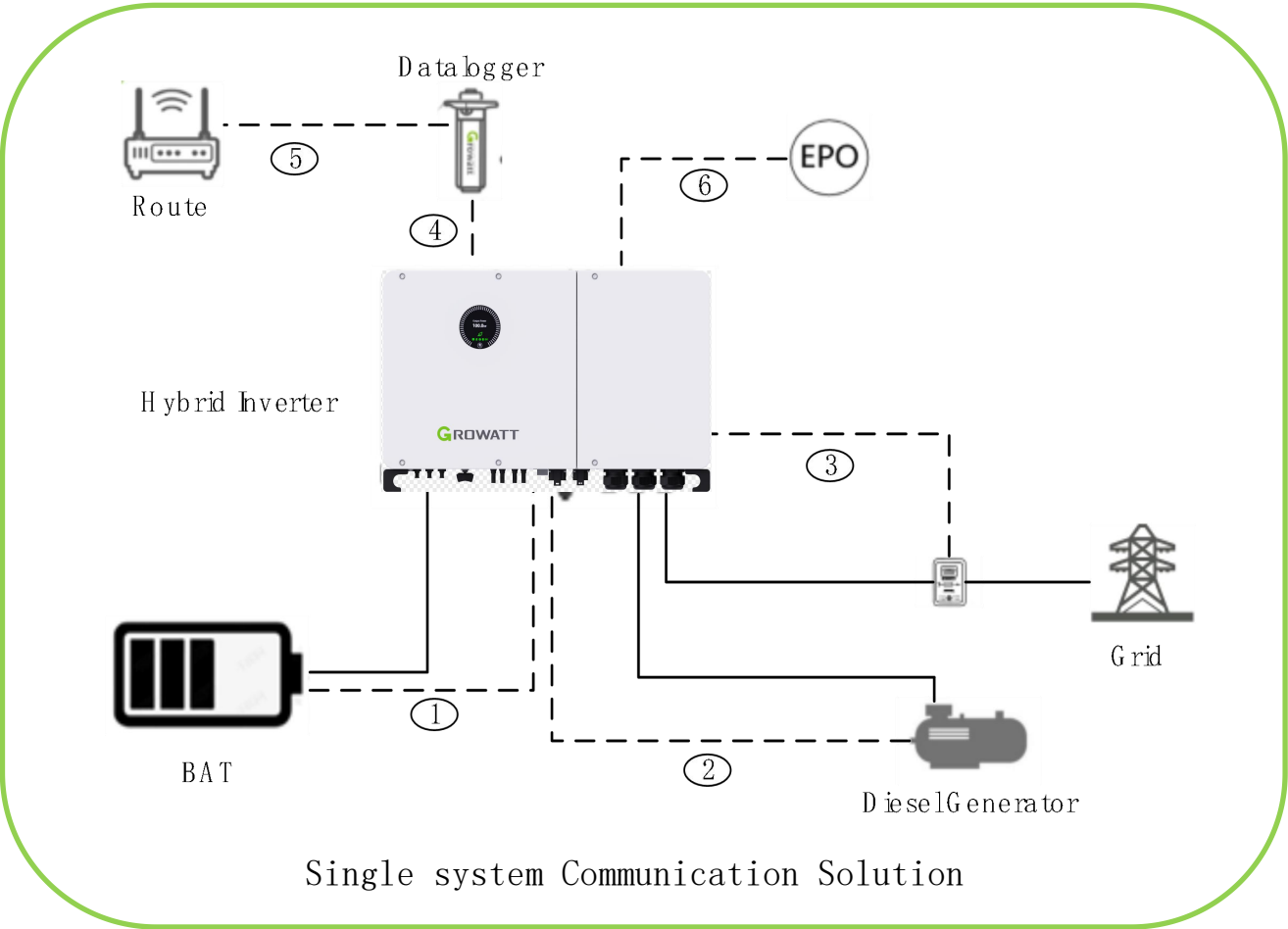
- Support USB upgrade
- Integrated BMS to monitor system status in real time

Part 4

System Communication Solution



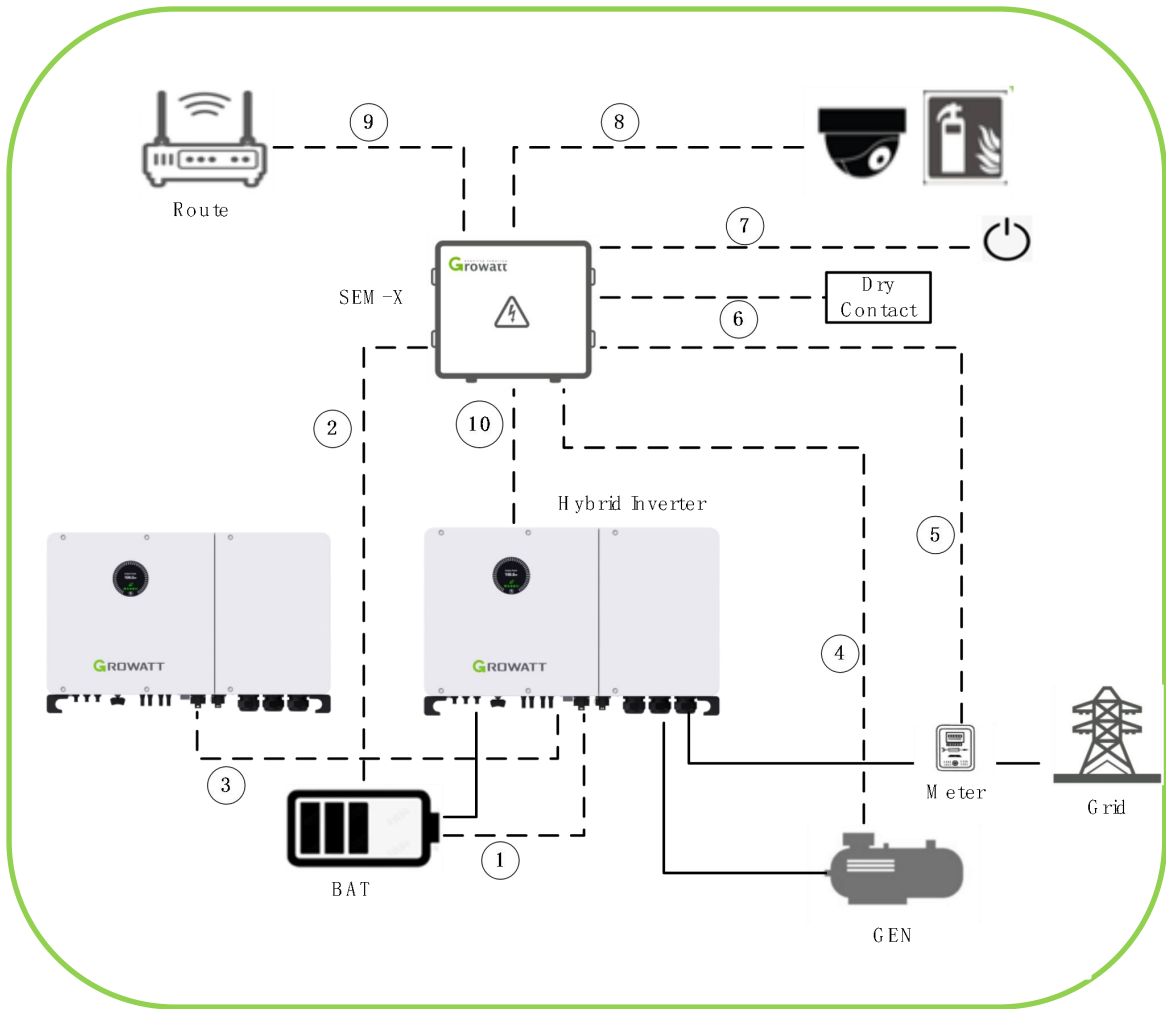
Single System Communication Topology



Datalogger supports ShineWiLAN-X2

No	Communication	Connection	Function
①	CAN/RS485	Hybrid inverter and Battery	Battery system communication and control
②	Dry Contact	Hybrid inverter and Generation	Generator start up and stop
③	RS485	Hybrid inverter and Smart meter	Power flow information and export limit function
④	USB/RS485	Datalogger and hybrid/storage inverter	Acquire the whole system information without all battery cell information
⑤	LAN/WIFI	Network	Local or Cloud Platform connection
⑥	Dry Contact	EPO	Emergency Stop

Multiple System Communication Solution



No	Communication	Connection	Function
①	CAN/RS485	Inverter and battery	Battery system communication and control
②	RS485	EMS and Battery	Battery system control and battery data acquisition, Function reserved
③	RS485/CAN	Inverter and inverter	Communication between inverter and inverter
④	Dry Contact	SEM-X and GEN	Generator start up and stop
⑤	RS485	SEM-X and Smart Meter	Power flow information and export limit function
⑥	Dry Contact	SEM-X Extended port	Dry Contact Control
⑦	D0	SEM-X Control	Function reserved
⑧	DI	SEM-X Control	Emergency stop, security and protection, Fire protection
⑨	LAN	EMS and Internet	Local or Cloud Platform connection
⑩	RS485	Inverter and SEM-X	Acquire the inverter system information

Part 5

C&I System Components



Single System Components			
Product Type	Product Model Name	Product Information	Note
Battery Rack/Battery Cabinet	AXE 30.0-60.0H-1HR-E1 AXE 50/60H-1HT-S1	30/35/40/50/60kWh for single battery rack/cabinet	Max 3 pcs battery rack/cabinet for single hybrid inverter
Hybrid Inverters	WIT 29.9-50K-XHU	29.9/30/35/40/50kW for single hybrid inverter	
Datalogger	Datalogger	ShineWiLAN-X2	included in the inverter package by default, no need to order additionally
Smart Meter	TPM-CT-C-EU/TPM-CT-E-EU	250/5A, 600/5A, 1200/5A	Single sytem application, select different CT according to needs
Battery Terminal Junction Box	WIT-XHU Battery Terminal Junction Box		When the charging and discharging current of a single battery rack is greater than 55A, this component is required

Multiple System Components			
Product Type	Product Model Name	Product Information	Note
Battery Rack/Battery Cabinet	AXE 30.0-60.0H-1HR-E1 AXE 50/60H-1HT-S1	30/35/40/50/60kWh for single battery rack/cabinet	Max 3 pcs battery rack/cabinet for single hybrid inverter
Hybrid Inverters	WIT 29.9-50K-XHU	29.9/30/35/40/50kW for single hybrid inverter	Max. 6 units in parallel
Datalogger	Datalogger	ShineWiLAN-X2	included in the inverter package by default, no need to order additionally
Monitoring Device	SEM-XA-R	Smart energy management, used for local or cloud platform connection and complex applications	Multiple system or AC coupling application, include meter, CT needs to be ordered separately for procurement
CT	CT	250A (600A) (1200A) (2000A) /5A	Select specific CT according to needs,used together with SEM-XA-R
Battery Terminal Junction Box	WIT-XHU Battery Terminal Junction Box		When the charging and discharging current of a single battery rack is greater than 55A, this component needs to be configured
Parallel Cable	Parallel Cable		Clients prepares for standard ethernet cable themselves

System Options



System Option					
AXE 60.0H-E1*3 (184.32kWh)	✓	✓	✓	✓	✓
AXE 50.0H-E1*3 (153.6kWh)	✓	✓	✓	✓	✓
AXE 40.0H-E1*3 (122.88kWh)	✓	✓	✓	✓	✓
AXE 35.0H-E1*3 (107.52kWh)	✓	✓	✓	✓	✓
AXE 30.0H-E1*3 (92.16kWh)	✓	✓	✓	✓	✓
AXE 60.0H-E1*2 (122.88kWh)	✓	✓	✓	✓	✓
AXE 50.0H-E1*2 (102.4kWh)	✓	✓	✓	✓	✓
AXE 40.0H-E1*2 (81.92kWh)	✓	✓	✓	✓	✓
AXE 35.0H-E1*2 (71.68kWh)	✓	✓	✓	✓	✓
AXE 30.0H-E1*2 (61.44kWh)	✓	✓	✓	✓	✓
AXE 60.0H-E1*1 (61.44kWh)	✓	✓	✓	✓	✓
AXE 50.0H-E1*1 (51.2kWh)	✓	✓	✓	✓	✓
AXE 40.0H-E1*1 (40.96kWh)	✓	✓	✓	✓	Limited (Max 40kW)
AXE 35.0H-E1*1 (35.84kWh)	✓	✓	✓	Limited (Max 35kW)	
AXE 30.0H-E1*1 (30.72kWh)	✓	✓	Limited (Max 30kW)		
	WIT 29.9K-XHU	WIT 30K-XHU	WIT 36K-XHU	WIT 40K-XHU	WIT 50K-XHU

Labeled with “✓” means the system can have a full load AC output when only battery, and labeled with “Limited” means the AC max output of the system cannot be realized.

Part 6

C&I System Diagram for Different Scenarios

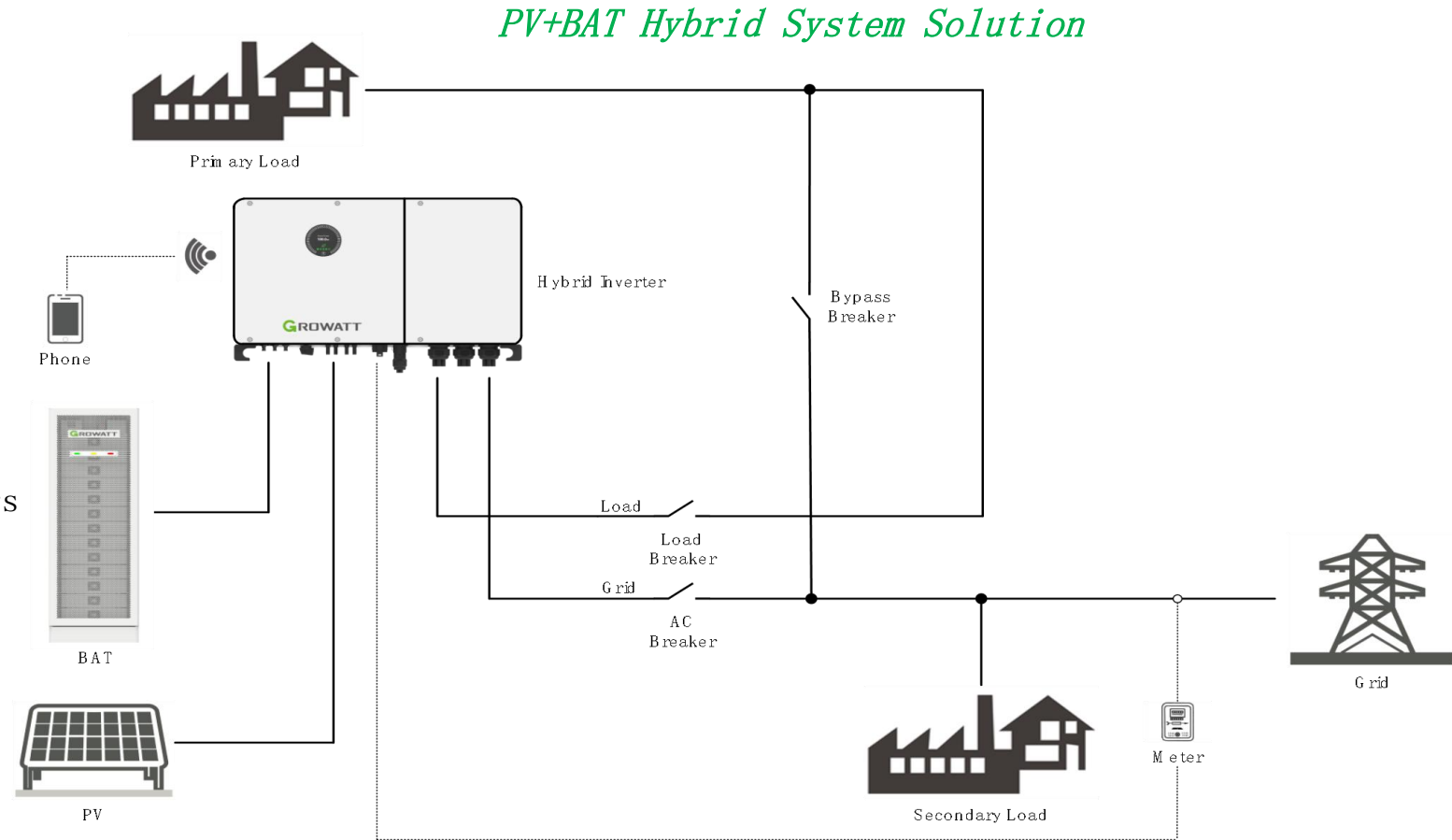


Application Scenario:

1. Relative stable grid, without diesel generator
2. Available for solar installation
3. Need backup for crucial loads

Solution Benefit:

- Maximize solar energy self-consumption
- Ensure continuous operation of critical loads
- Reduce electricity cost for users



Recommended Solution for C&I Application Scenarios

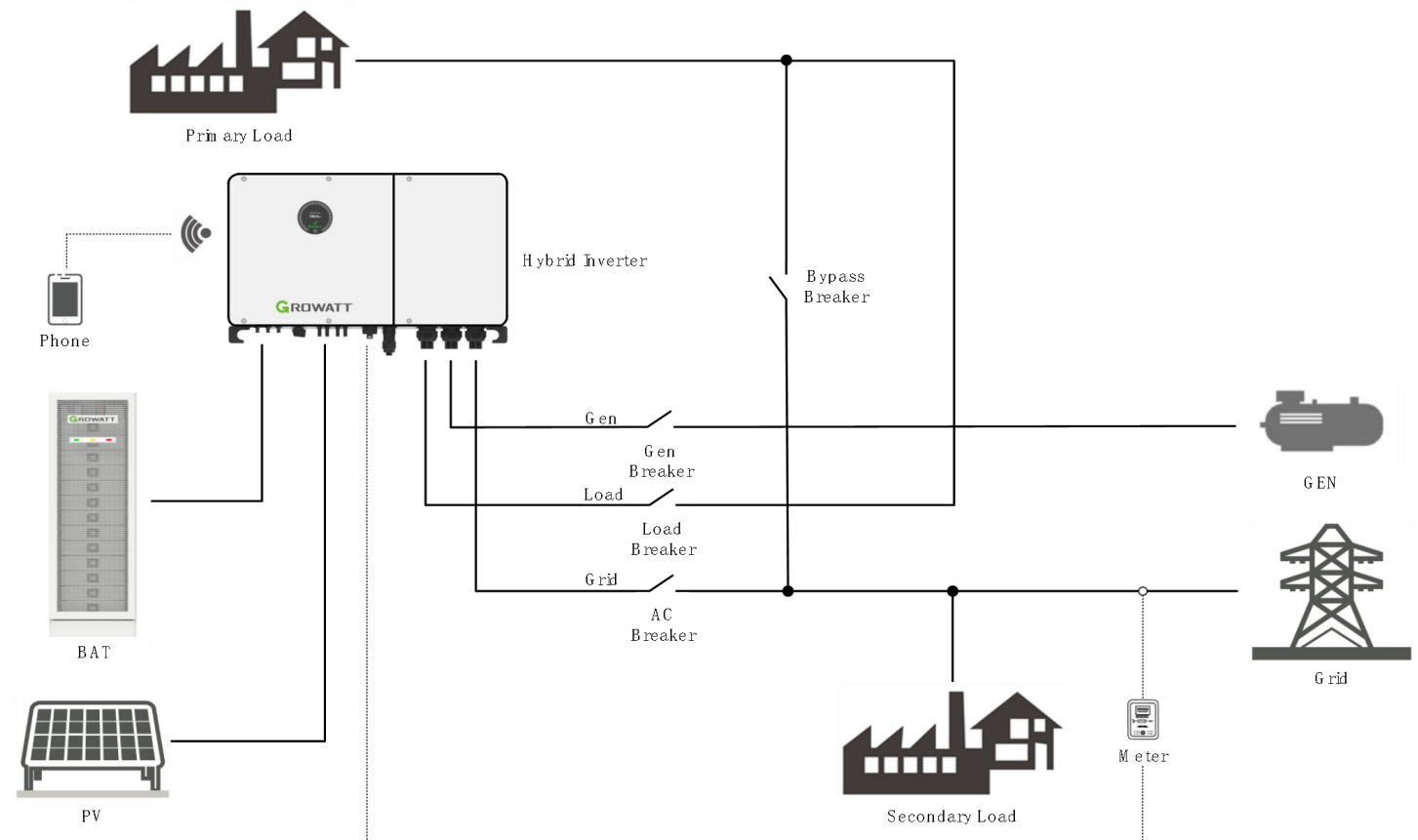
Application Scenario:

1. Poor grid, frequent power outage, with diesel generator
2. Available for solar installation
3. Need backup for crucial loads

PV+BAT +GEN Hybrid System Solution

Solution Benefit:

- Maximize solar energy self-consumption
- Ensure critical loads 24*7h operation
- Reduce electricity cost for users
- Reduce diesel generators cost



Recommended Solution for C&I Application Scenarios

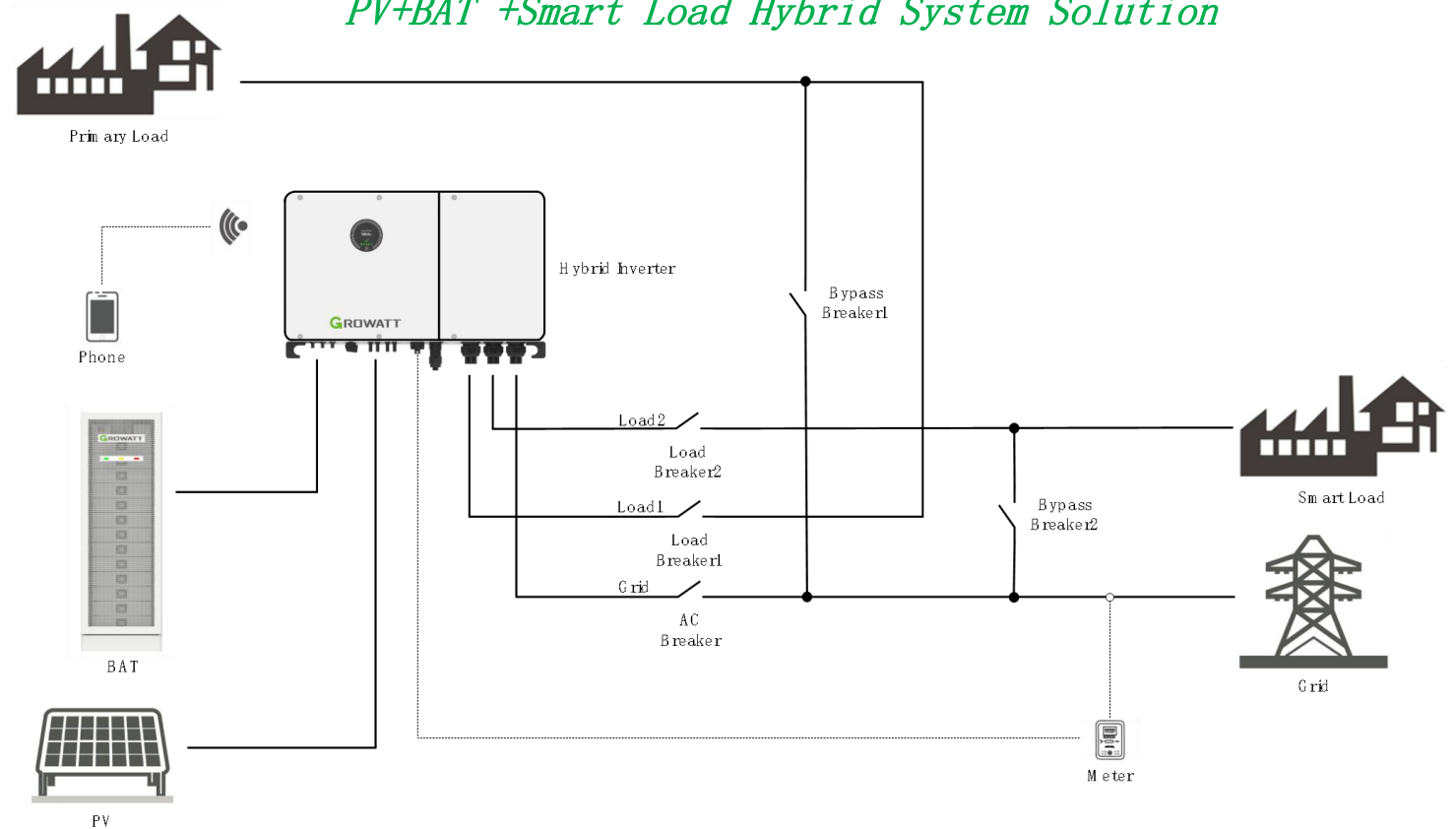
Application Scenario:

1. *Relative stable grid, without diesel generator*
2. *Available for solar installation*
3. *Need backup for crucial loads*
4. *No redundant power distribution ports to connect smart loads*

Solution Benefit:

- Maximize solar energy self-consumption
- Ensure continuous operation of critical loads
- Real-time monitoring smart load power
- Reduce electricity cost for users

PV+BAT +Smart Load Hybrid System Solution



Recommended Solution for C&I Application Scenarios

Application Scenario:

1. Relative stable grid, without diesel generator
2. Available for solar installation, the total solar power less than 150kWp for single system
3. All solar systems can operate in off-grid mode
4. Need backup for crucial loads

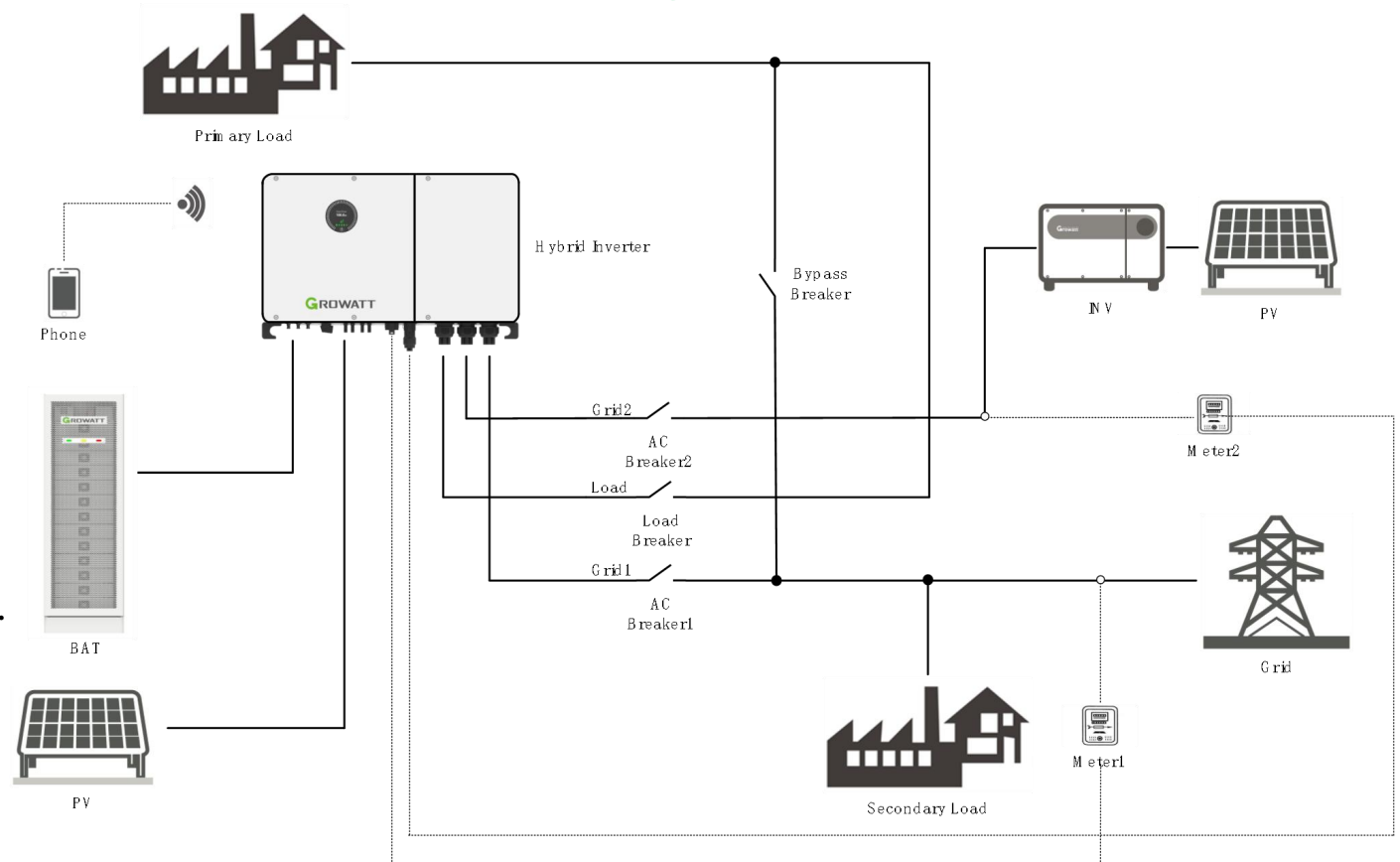
Solution Benefit:

- Maximize solar energy self-consumption
- Ensure continuous operation of critical loads
- Reduce electricity cost for users

Remark:

- Preferred Growatt PV inverter, MAX/MID.

AC coupling Hybrid System Solution



Recommended Solution for C&I Application Scenarios

Application Scenario:

1. Stable grid, installed solar system already
2. Newly built solar system and ESS, very large PV power, for away between solar system and ESS

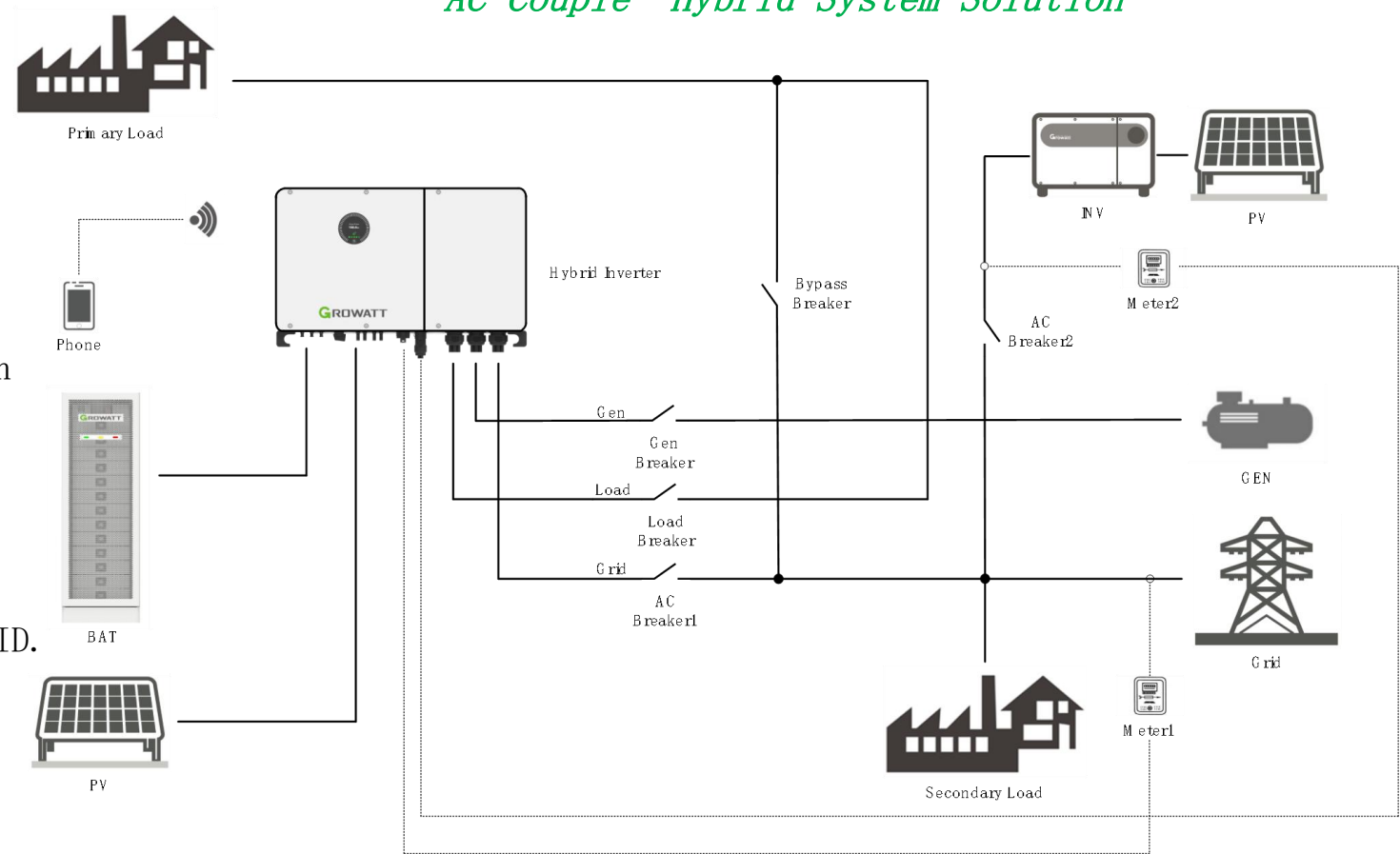
AC Couple Hybrid System Solution

Solution Benefit:

- Maximize solar energy self-consumption
- Ensure critical loads 24*7h operation
- Reduce electricity cost for users
- Reduce diesel generators cost

Remark:

- Preferred Growatt PV inverter, MAX/MID.



Recommended Solution for C&I Application Scenarios

Application Scenario:

1. Poor grid, frequent power outage, with diesel generator
2. Available for solar installation
3. Need backup for crucial loads

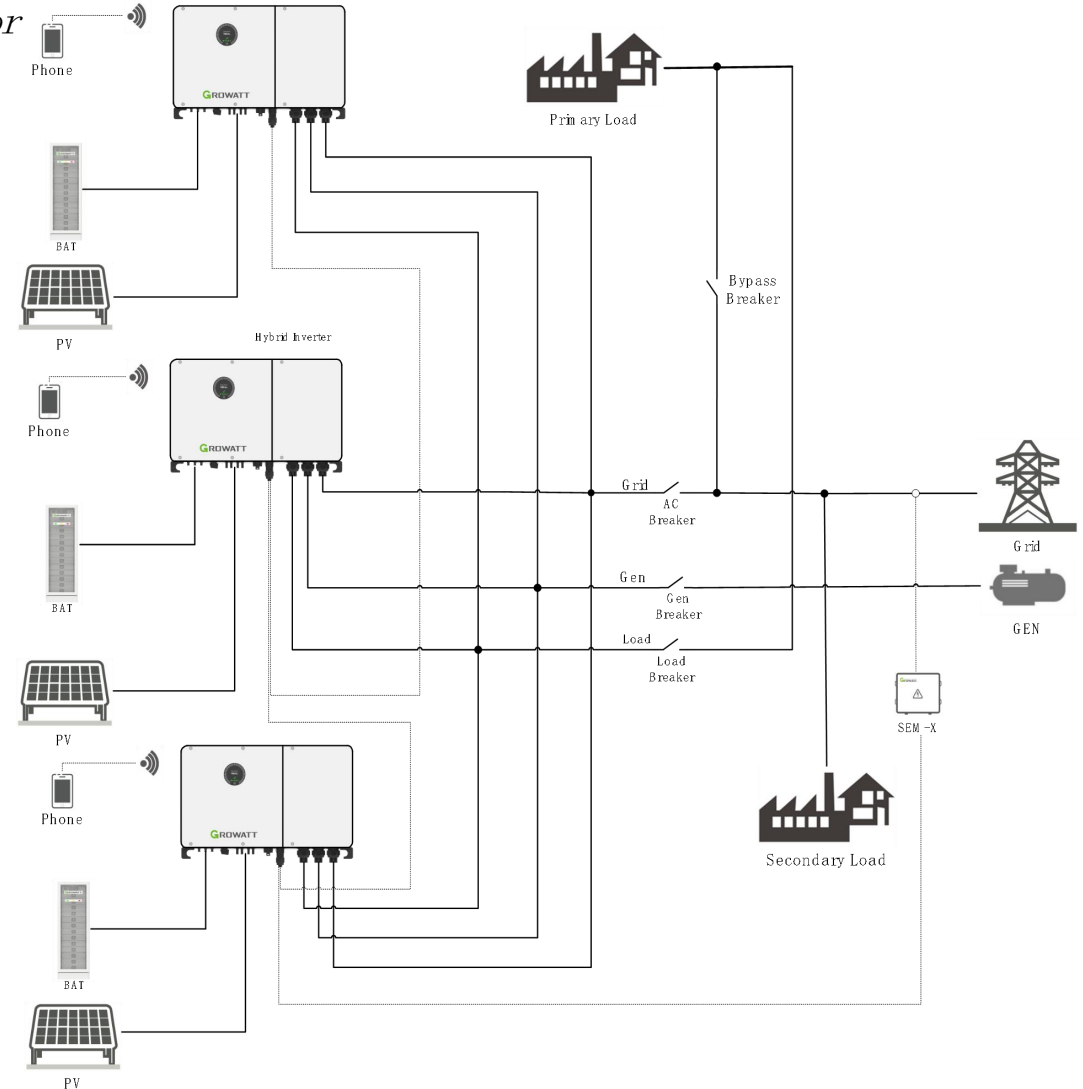
Solution Benefit:

- Maximize solar energy self-consumption
- Ensure critical loads 24*7h operation
- Reduce electricity cost for users
- Reduce diesel generators cost

Remark:

- Up to 6 inverters in parallel in off-grid mode
- Built-in meter in SEM-XA-RM

Multiple System Solution



Part 7

Project Case



Myanmar



- Project Location: Myanmar
- Project Size: 50kW/100kWh
- Project Configuration: WIT 50K-XHU + 2* AXE 50.0H-1HR-E1
- Application: Self-consumption, backup

- Project Location: Myanmar
- Project Size: 50kW/60kWh
- Project Configuration: WIT 50K-XHU + AXE 60.0H-1HT-S1
- Application: Self-consumption, backup

Myanmar





Myanmar

- Project Location: Myanmar
- Project Size: 50kW/180kWh
- Project Configuration: WIT 50K-XHU + third-party battery system
- Application: Self-consumption, backup



Nigeria

- Project Location: Nigeria
- Project Size: 100kW/209kWh
- Project Configuration: WIT 100K-HU + ACE 209H-2H
- Application: Self-consumption, backup

Myanmar



- Project Location: Myanmar
- Project Size: 50kW/60kWh
- Project Configuration: WIT 50K-XHU + AXE 60.0H-1HR-E1
- Application: Self-consumption, backup

Myanmar



- Project Location: Myanmar
- Project Size: 50kW/52.2kWh
- Project Configuration: WIT 50K-XHU + third-party battery system
- Application: Self-consumption, backup

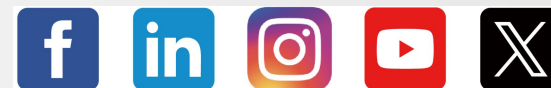
Thanks!

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Growatt New Energy