LK 100kWh 50kW PowerHub

DATASHEET

On-Grid 3P HV IP55 | SS-100-50-LK-INVBA-ONG-00
On-Grid with MPPT 3P HV IP55 | SS-100-50-LK-INVBA-ONGM-00
Hybrid 3P HV IP55 | SS-100-50-LK-INVBA-HYB-00
Hybrid with MPPT 3P HV IP55 | SS-100-50-LK-INVBA-HYBM-00
Hybrid & Aux Inverter 3P HV IP55 | SS-100-50-LK-INVBA-HYBA-00
Hybrid MPPT & Aux Inverter 3P HV IP55 | SS-100-50-LK-INVBA-HYBMA-00

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1. Product Introduction

1.1 Product Function

The LK PowerHub outdoor energy storage cabinet integrates:

- Energy storage batteries.
- Modular PCS (power conversion system).
- Energy management and monitoring system.
- Power distribution system.
- Environmental control.
- Fire protection system.

The modular PCS design allows for simple maintenance and future expansion, while the outdoor cabinet features front access servicing to reduce space requirements.

Key characteristics include:

- Safe and reliable operation.
- Rapid deployment.
- Low total cost of ownership.
- High efficiency and energy savings.
- Smart, automated management.

1.2 Operating Strategies

Peak Shaving & Valley Filling

- During off-peak (valley) tariff periods, the PowerHub automatically charges and then idles when full.
- During peak tariff periods, it discharges to offset energy costs, improving economic returns and system efficiency.

PV & Storage Integration

- Real-time monitoring of site load and PV generation.
- Prioritises self-generation and self-consumption.
- Surplus solar energy is stored for later use.
- When solar is insufficient, the battery supplies the shortfall.

System Description

- Supports grid-connected and off-grid applications.
- Configurations can include isolated transformer and photovoltaic input.
- Final wiring may vary by project and should follow the drawings supplied with the product.

1.3 Electrical Wiring Diagram

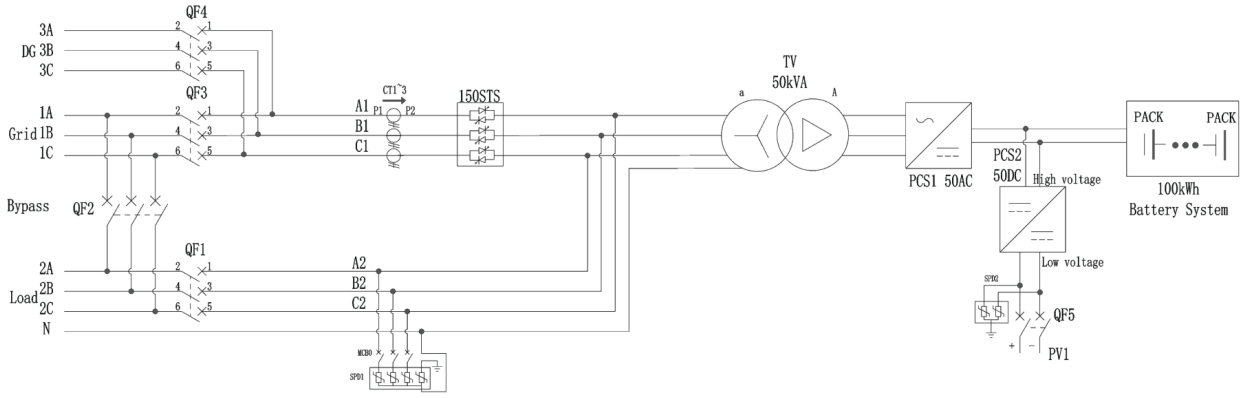


Figure 1.3 Electrical Wiring Diagram

Description:
The system scheme with grid-connected and off-grid capabilities, isolated transformer, and photo-voltaic input has different wiring configurations for different projects, and the actual wiring may vary slightly. Actual wiring should be based on the drawings provided with the product shipment.

1.4 Product Features

- Fully commercialised system, integrating batteries, converters, energy management, distribution, environmental control, and fire protection.
- Complete real-time system monitoring for operational status and risk control.
- Prioritises PV generation for self-use, with surplus stored. Battery supply kicks in when PV is insufficient.
- IP55 protection rating, ensuring resilience in varied outdoor weather conditions.
- Door-mounted, embedded air conditioning , maximises cabinet space, improves structural integrity, and enhances waterproofing.
- Local control screen supports:
  – System monitoring.
  – Customisable energy management strategies.
  – Remote software upgrades.

1.5 Product Parameters

Note

Specifications, approvals and certification are subject to change without prior notice. Please confirm the current status with Sunsynk before placing an order.

Model	LK 100kWh 50kW PowerHub					
	On-Grid	On-Grid+MPPT	Hyb	Hyb+MPPT	Hyb+Aux Inv	Hyb+MPPT+Aux Inv
Battery Parameters						
Battery Rated Capacity	100kWh					
Battery Rated Voltage	844.8V					
Battery Voltage Range	739.2V~950.4V					
Battery Type	LFP					
Battery Cell Capacity	1P*24S*11S					
Cell Capacity	120Ah					
Max. Charging/Discharging Power	100kW					
Max. Charge/Discharge Current	120A					
PV Parameters						
Rated Power[1]	-	50kW	-	50kW	-	50kW
PV Open-Circuit Voltage Range	-	250V~719V	-	250V~719V	-	250V~719V
PV Max. Current[2]	-	160A or 80A	-	160A or 80A	-	160A or 80A
MPPT Quantity[3]	-	1 or 2	-	1 or 2	-	1 or 2
AC Parameters						
Rated AC Power	50kW					
Rated AC Current	72A					
Rated AC Voltage	400V, 3W+N+PE					
Rated AC Frequency	50/60Hz					
THDi	<3 (Rated Power)					
Power Factor	-1 Leading to +1 Lagging					
THDV	<3% (Linear Load)					
STS Parameters						
Rated Power	-	-	300kW			
Switching Time	-	-	<10ms			
AUX PCS Parameters						
Rated AC Power	-	-	-	-	50kW	
Rated AC Current	-	-	-	-	72A	
Rated AC Voltage	-	-	-	-	400V, 3W+N+PE	
Rated AC Frequency	-	-	-	-	50/60Hz	
HVAC Parameters						
Rated AC Power	2kW					

Model	LK 100kWh 50kW PowerHub					
	On-Grid	On-Grid+MPPT	Hyb	Hyb+MPPT	Hyb+Aux Inv	Hyb+MPPT+Aux Inv
Transformer Parameters						
Rated Power	-	-	50kVA			
Insulation Class	-	-	H			
Connection Group	-	-	Dyn11			
Input/Output Voltage	-	-	400V			
Input/Output Current	-	-	144A			
Frequency	-	-	50Hz			
Operating Temperature	-	-	-40°C to +50°C			
Efficiency	-	-	>97.5%			
General Parameters						
Protection Rating	IP55					
Protection Level	I					
Isolation Mode	-	-	Isolation Transformer			
Shutdown Self-Discharge	<0.1% Rated Power (Without Transformer)					
Display	LCD					
Relative Humidity	0~95% (No Condensation)					
Noise	<78dB					
Ambient Temperature	-25˚C to +60˚C (Derating Above 45˚C)					
Cooling Mode	Intelligent Air-Cooling					
Communication Interface	CAN/Ethernet/485					
Dimension (WxDxH)	1300x1165x2300mm					
Weight (Approx.)	1835kg			2100kg		
Certification Standards	Approvals and certifications are subject to change without prior notice. Please confirm the current status with Sunsynk before placing an order.					

[1] Rated Power - MPPT modules can be increased upon request.
[2] Max. PV Current - 1 MPPT=160A or 2 MPPT=80A each.
[3] MPPT Quantity - configurable to one or two connections upon request.

Note

Battery expansion packs are available using the battery specified above.

1.6 Performance Features

Inverter Efficiency Curve

- Both PowerHub-LK models achieve >98% peak efficiency at rated load.
- Efficiency remains above 96% from 20%–100% load, minimising energy losses.

Battery Cycle Life

- Integrated LFP battery packs rated for 8,000 full cycles at 0.5C, equivalent to 10+ years of daily cycling.
- Capacity retention remains above 80% at end-of-life.

Thermal Management

- Intelligent forced-air cooling with compartmentalised design.
- Independent fan-cooled sections reduce thermal stress and extend battery lifespan.

Operating Modes

- On-Grid – peak shaving, load shifting, export.
- Off-Grid – stable 400 Vac three-phase supply for grid-isolated sites.
- Hybrid – seamless switchover between grid, solar, and battery for maximum resilience.

Applications

- Commercial & industrial load management.
- Renewable energy integration (solar + storage).
- EV charging hubs.
- Data centres, schools, hospitals & critical infrastructure.
- Rural electrification & microgrids.

1.7 System Highlights

The LK PowerHub is designed for the real-world demands of today's energy landscape. Built on modular LK architecture, each cabinet integrates advanced power electronics, long-life lithium storage, and intelligent system control into a compact, turnkey solution.

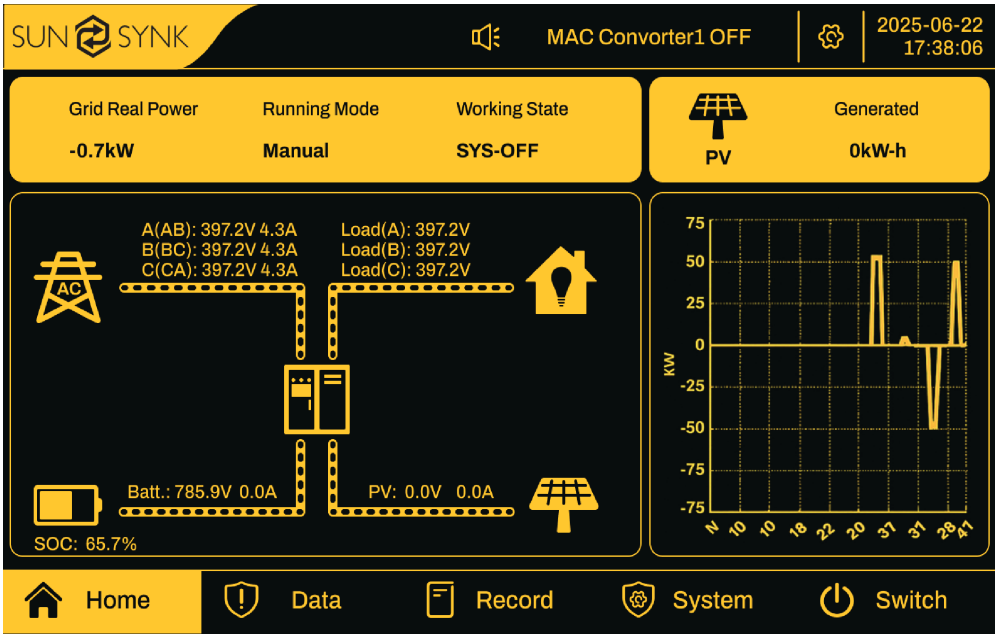
Unlike conventional hybrid inverters, the PowerHub offers true scalability, rapid deployment, and seamless integration with PV, grid, or standby generation.

Whether for peak shaving, backup resilience, or complete grid independence, PowerHub delivers unrivalled reliability and efficiency.

1.8 Key Benefits

- Turnkey Storage – Factory-assembled, tested, ready to deploy.
- Resilient Supply – Seamless transfer <10ms keeps critical loads powered.
- Maximise ROI – Peak-shaving, load shifting, grid trading create new revenue streams.
- Safe & Proven – Lithium iron phosphate chemistry for maximum safety and cycle life.
- Future-Ready – Integrates with Sunsynk Connect Pro for AI-driven optimisation and fleet management.
- Scalable Architecture – Expandable with modular or containerised systems.
- Global Standards – Built to IEC & CE compliance, with UL and regional options available.

1.9 Human-Machine Interface Introduction



The home page interface displays real-time power, voltage, current, generated energy, operation mode, working status and other information of the system.

1.10 Appearance Diagram

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