



HP-AHP20SA SERIES INVERTER/CHARGER

For 3.5-65KW Hybrid solar system

A decorative graphic in the top left corner consisting of a 3x3 grid of light blue squares of varying shades.

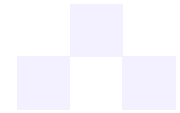
Content Outline

1. Introduction
2. Name and Definition
3. Block Diagram and Interior
4. Appearance & Connections
5. Multi Working Mode
6. Features
7. Others





Why We Needed HP-AH20SA Series?



No.	Parameter	UP Series	HP-AHP 20SA Series
1	AC Output Parallel Connection	No	Yes
2	Dual/Inputs	No	Yes
3	Power Conditions for Nominal PV Utilization	Higher Voltage Required	Lower Voltage acceptable
4	MPPT Voltage Range	Limited	Improved
5	Maximum Continuous Output Power of Bypass Mode	5000W	6000W (No Battery Mode), 8500W (Battery Mode)
6	Built-in Bluetooth	No	Yes
7	Non-Inverter Generator Support	No	Yes
8	SOC Management Mode	No	Yes
9	Charge Mode Options	Solar, Solar Priority, Solar & Utility	Solar, Solar Priority, Solar & Utility, Utility Priority
10	Discharge Mode Options	Inverter Priority, Utility Priority	PV>Bypass>Battery, PV>Battery>Bypass, Bypass>PV>Battery

Introduction



HP-AHP20SA

- EPEVER's new advanced inverter/charger
- Integrates utility, generator, solar power supply, and battery backup functions
- High-quality, stable, and reliable power supply



Introduction



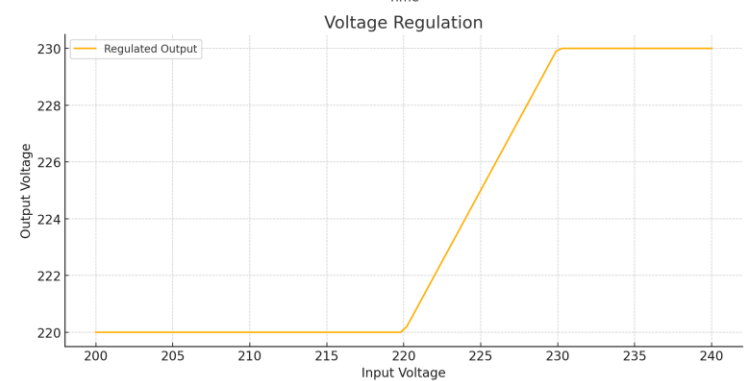
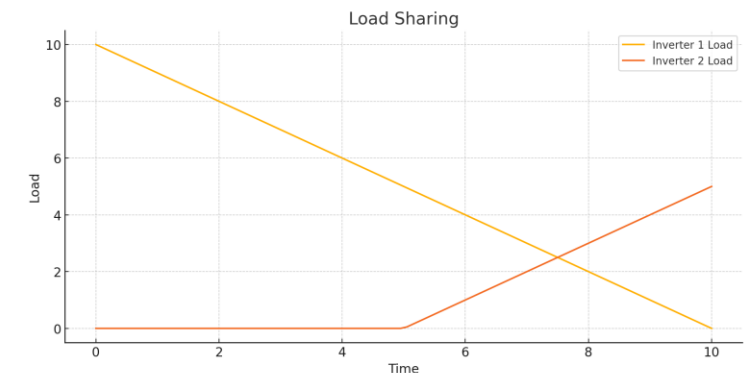
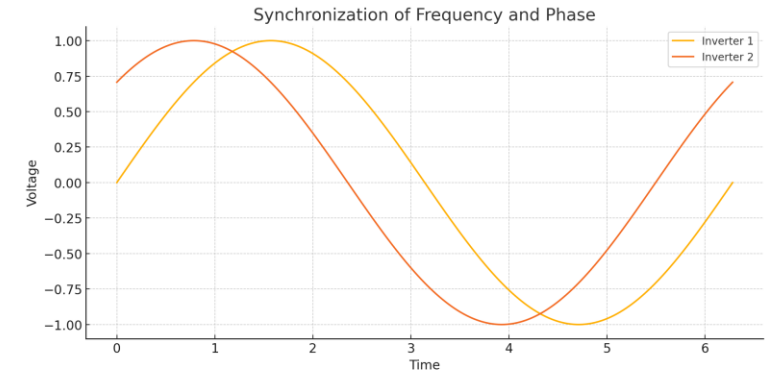
HP-AHP20SA

Parallel Operation:

- Supports up to 12 units in parallel
- Configurable for 220VAC single-phase or 380VAC three-phase systems

Digital Signal Processor (DSP):

- Controls the inverter for precise power supply



Introduction



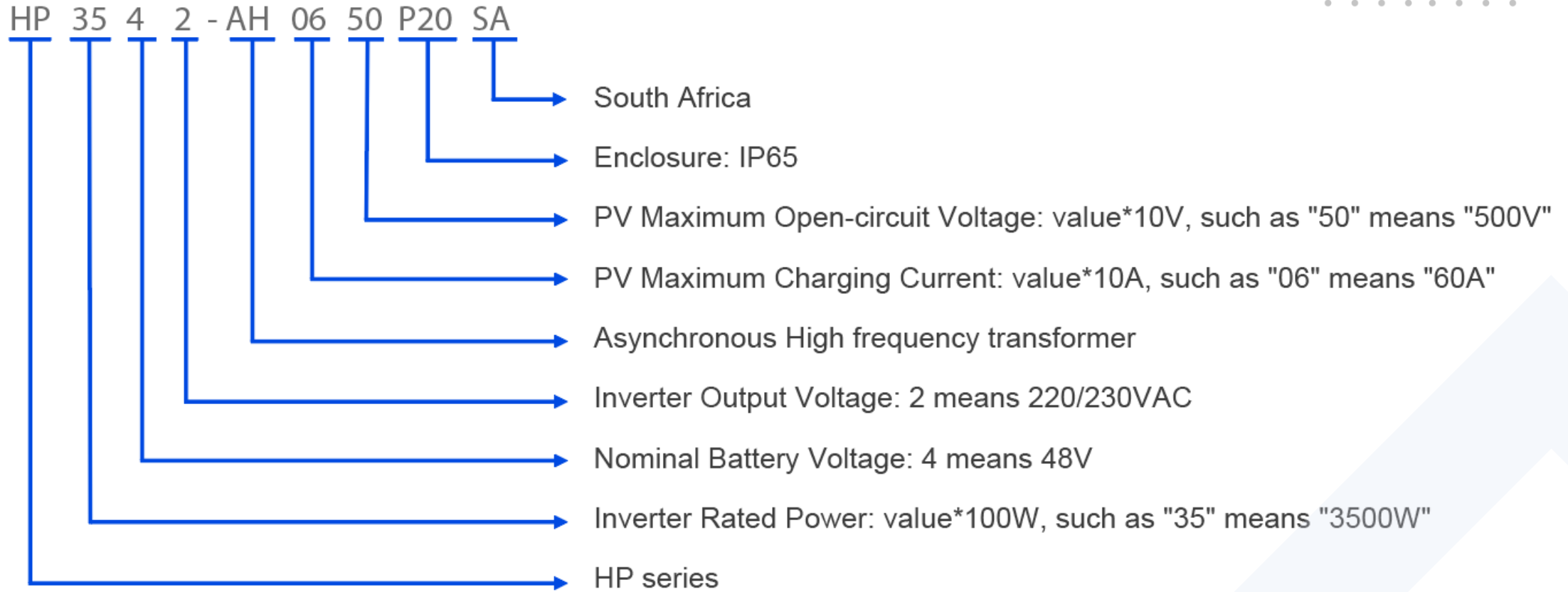
User-Friendly Interfaces:

- Customizable settings for different working conditions

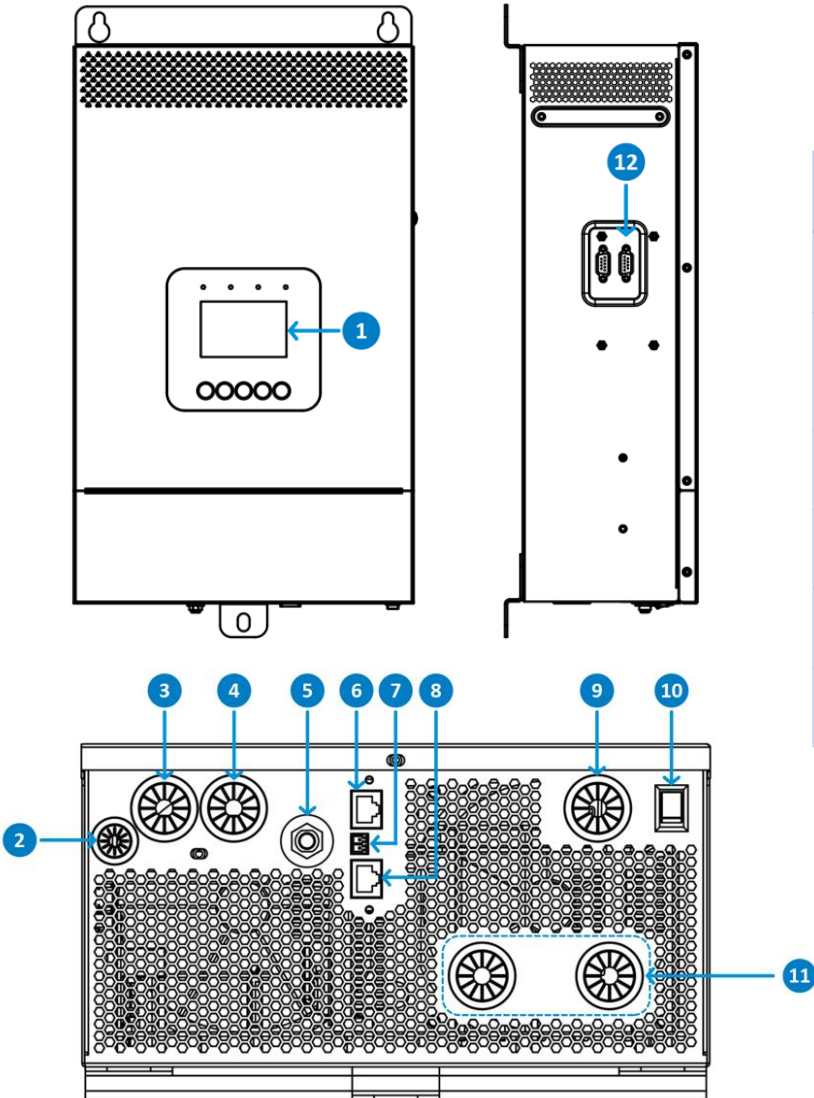
Advanced Protection Mechanisms:

- Comprehensive safety features to ensure reliable operation

Name and Definition

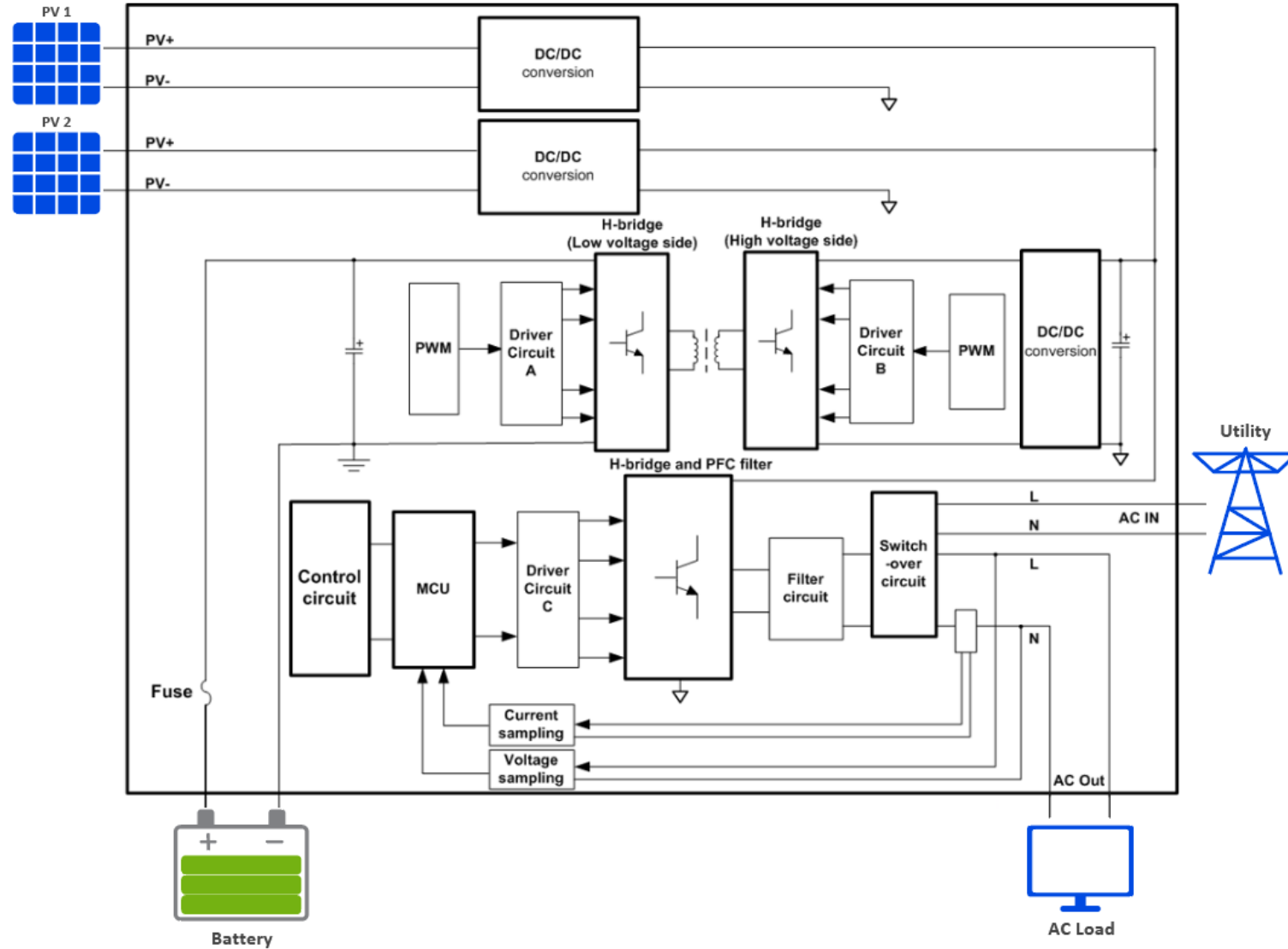


Appearance & Connections

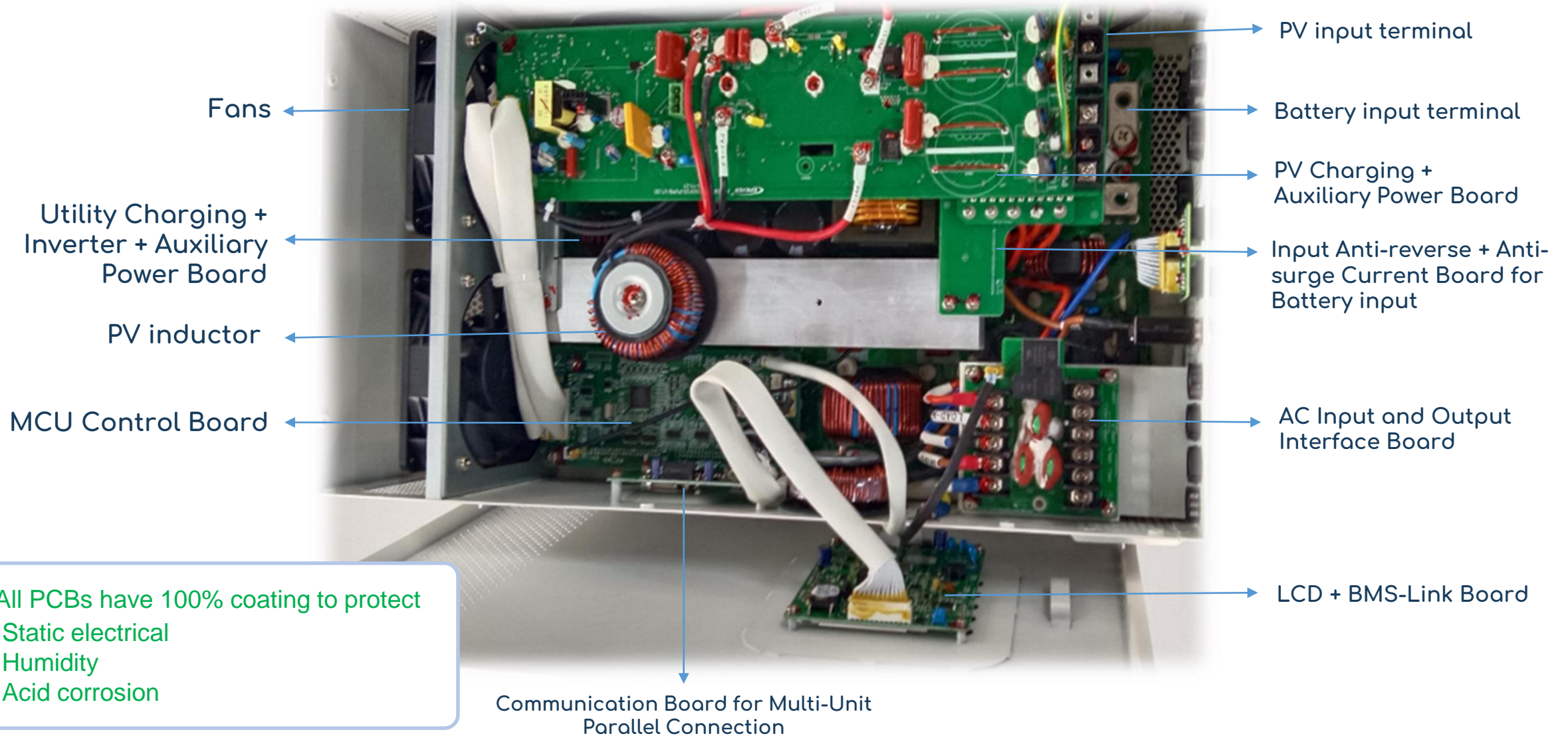


No.	Instruction	No.	Instruction
1	LCD	7	Dry contact interface
2	Grounding terminal	8	RS485 port (RJ45, with isolation design) 5VDC/200mA
3	AC input port	9	PV terminals
4	AC output port	10	Power switch
5	Utility over-current protector	11	Battery terminals
6	BMS port (RJ45, with isolation design)	12	Parallel connection interface

Block Diagram



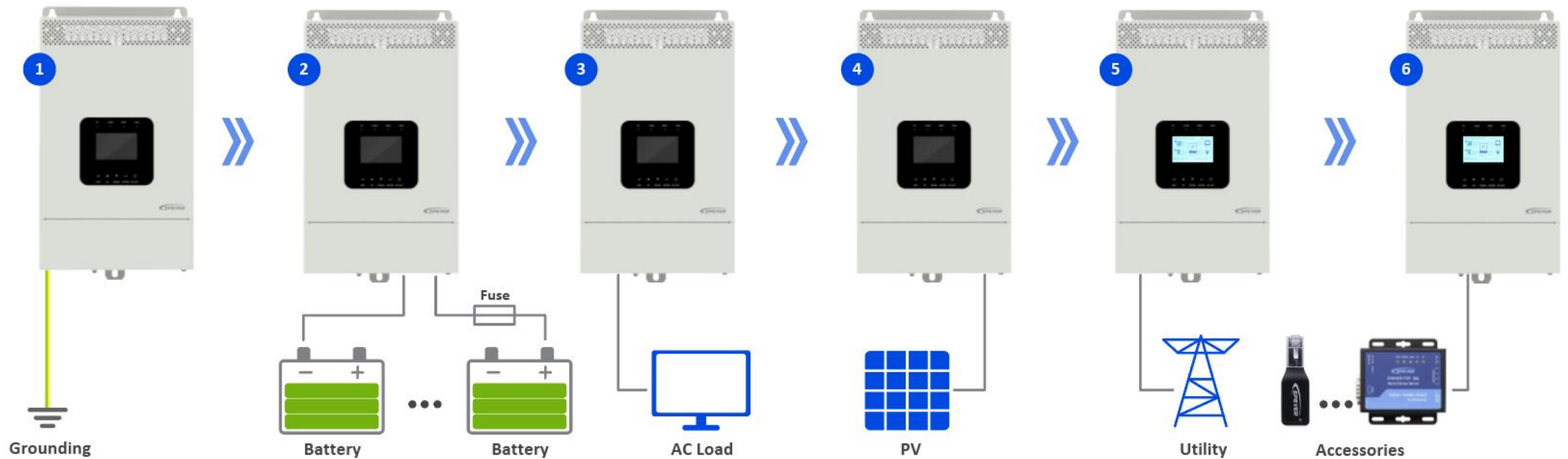
Interior



- * All PCBs have 100% coating to protect
- Static electrical
 - Humidity
 - Acid corrosion

Connections

- Single Unit connect order (power on): from ① to ⑥
- Disconnect order (power off): from ⑥ to ①



The cabinet, AC input, and output's PE terminal must be reliably grounded!



Install a fast-Acting fuse with a rated current of 1.5 to 2 times, and locate within 15cm from the battery!



The AC load's continuous output power and transient surge power must be lower than the specified limits!



In an area with frequent lightning strikes, it must install appropriate surge arrester on the PV input!



Do not ground the PV (+or-) and battery (+or-) if Utility is connected!

Multi Working Mode

2 working modes optional:

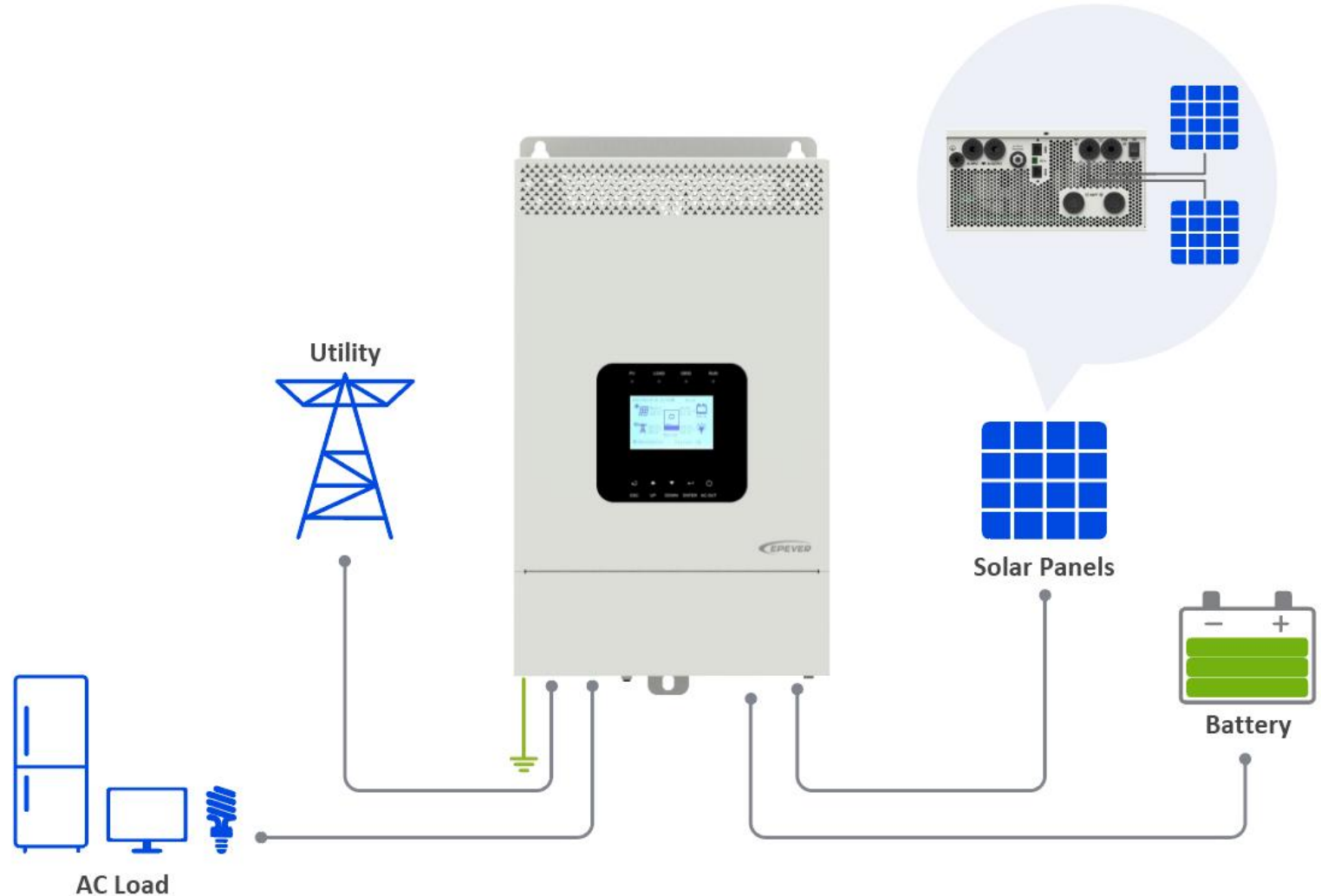
Battery Mode (Default)
No battery mode

4 charging modes optional:

Solar Only
Solar Priority
Solar+Utility(Default)
Utility Priority

3 output modes optional


PV>BP>BT (Default)
PV >BT>BP
BP> PV>BT

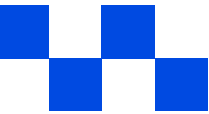




Features

General Features

1. Pure sine wave output, full load efficiency 93.2%, maximum efficiency 94.9%
 2. Advanced MPPT technology, the max. tracking efficiency is higher than 99.5%
 3. Three-stage charging method to ensure battery safety
 4. Accept AC input with a wide range of 90V-280V and 45Hz-65Hz
 5. Advanced PFC technology to achieve high PF when AC-DC charging, lowering the reactive power on the grid
 6. Stable lithium battery self-activation function to perform safe charging and discharging
 7. Supports SOC self-learning and management for greater flexibility in applications
 8. Adjustable total charge and discharge current for compatibility with different batteries.
 9. Adjustable maximum utility charging current for flexible configuration of grid charging power
 10. Strong impact resistance to meet the needs of various types of loads.
 11. Low power consumption design (<0.15A , extending the system's standby duration up to 4 times.
- 



Features



Protection

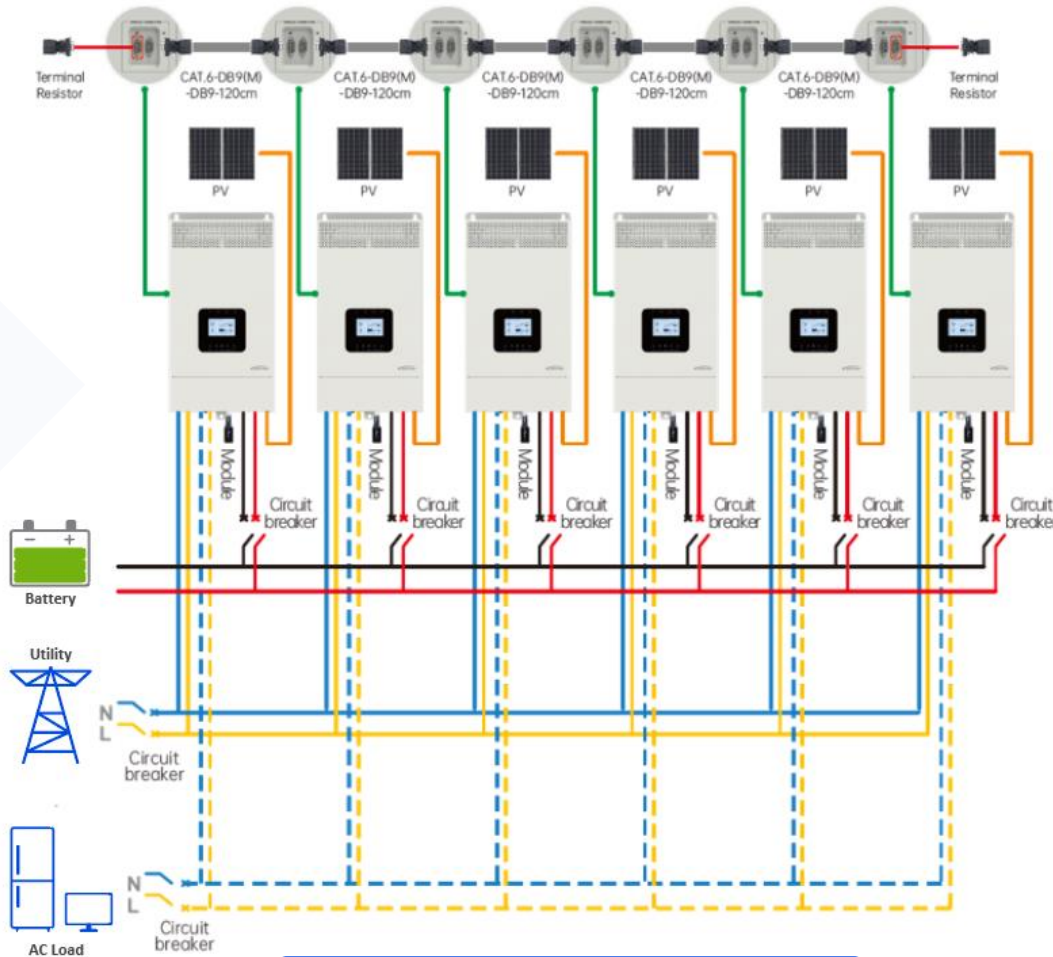
- ✓ Protection self-recovery 3 times (After overload)
- ✓ PV input protection: Current limiting/Power limiting, Short circuit protection ;
- ✓ Utility input protection: Over-voltage, Under-voltage, Over-load protection ;
- ✓ Battery protection: Reverse polarity, Over-voltage, Over-discharge, High/Low-temperature protection.
- ✓ Load Output protection: Short Circuit, Overload protection.
- ✓ Other protection: Overheat protection.
- ✓ Storage historical data recording reaches 25000 pieces, Data is not lost even when power off, and Can read and download history data via Cloud Website Portal or PC software (Solar Guardian).

The perfect dual protection system by both software and hardware can maximizing avoid the risk of equipment damage due to system failure, ensuring a safer, more stable, and longer-lasting operation of the power supply system.

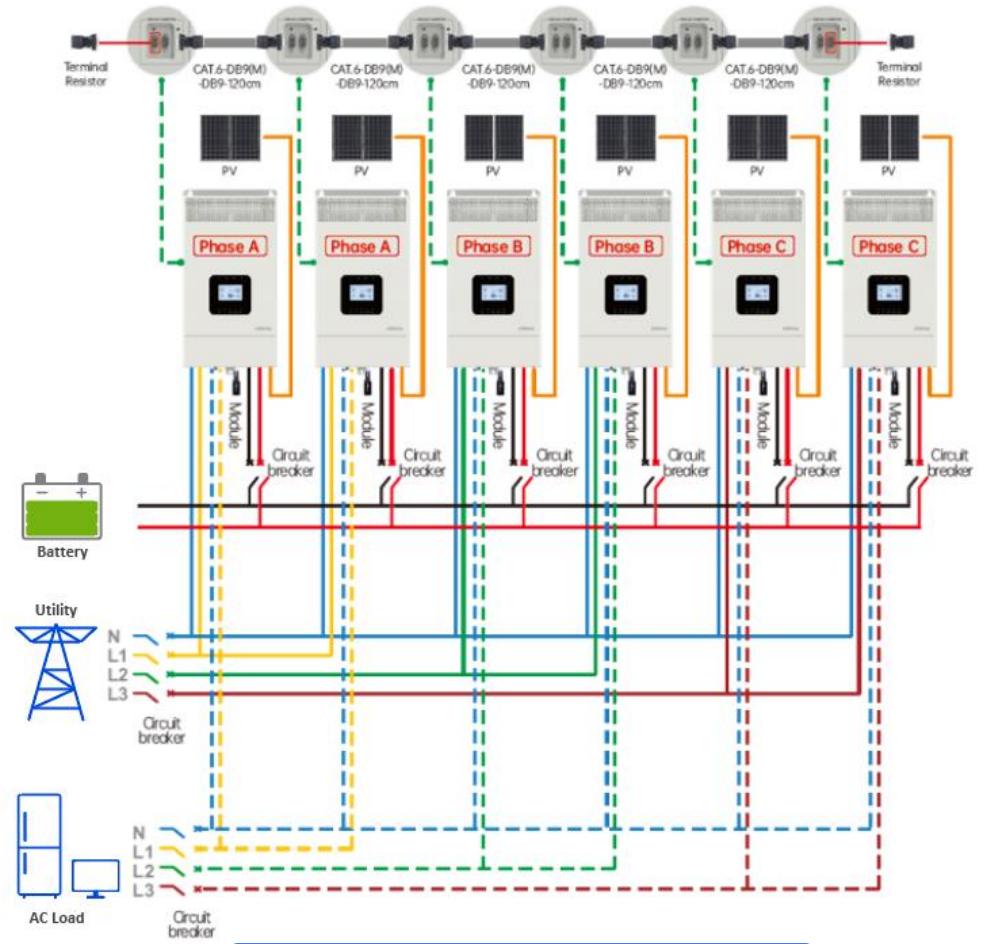


Features

Support multi-unit parallel output, Maximum 12 times the system capacity



Signal Phase



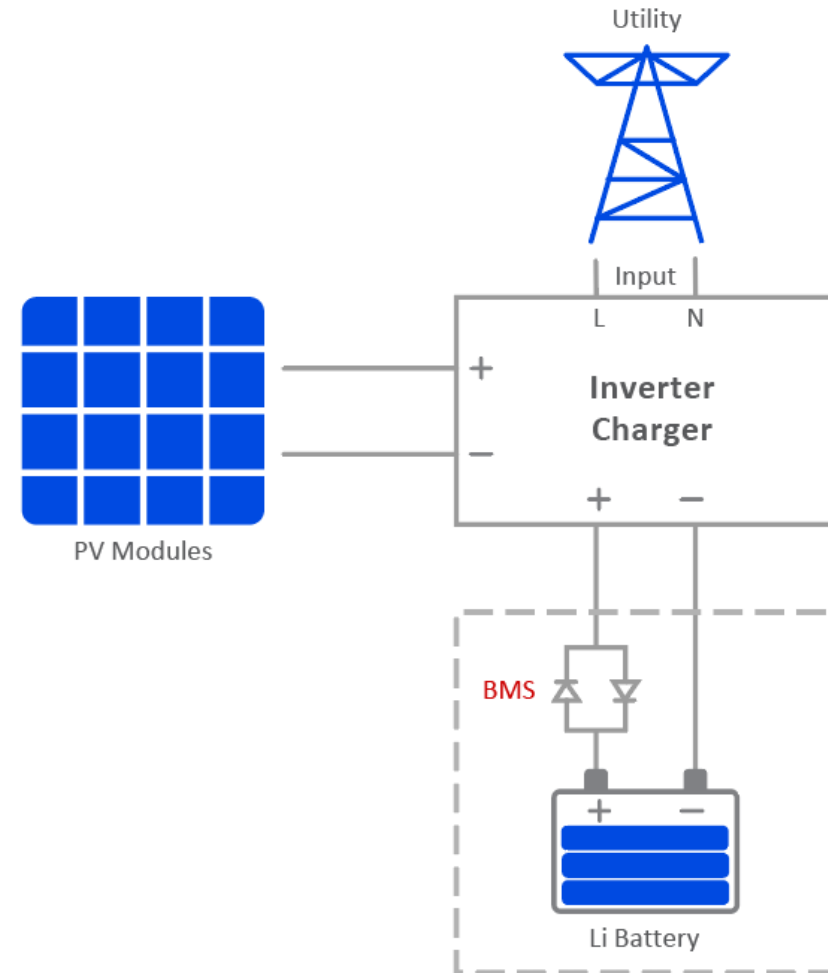
Three Phase

Features

Support both Lead-acid and Lithium batteries

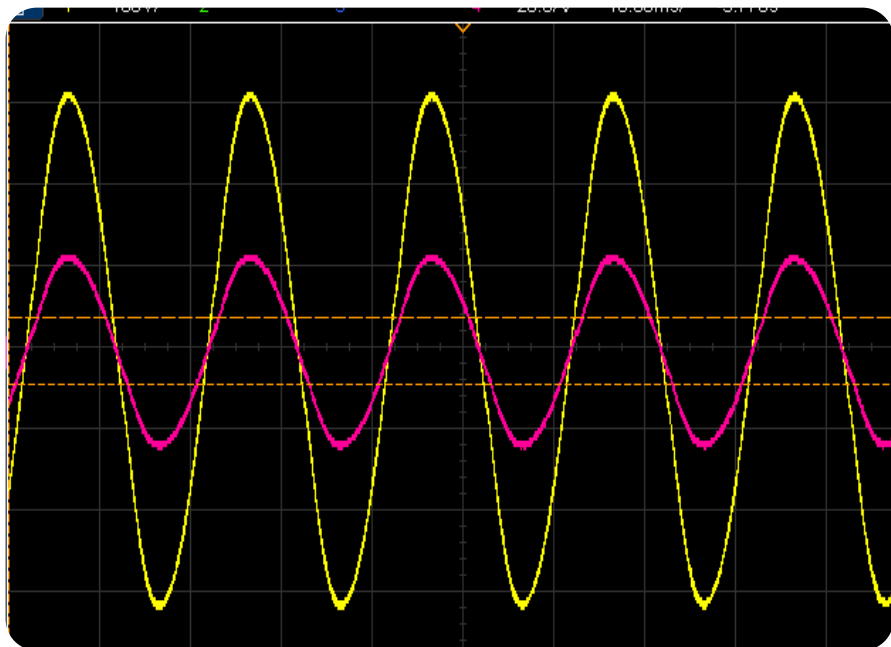
Type	Default Battery Types	Note
Lead Acid	AGM (Default)	<p>Once the default type is selected, it can directly utilize the default values. You can also make parameters adjustment based on the default values.</p> <p>Parameter adjustment range: Lead-acid 42.4~64V; Lithium-ion 43~64V</p>
	GEL	
	FLD	
Lithium-ion	LFP15S	
	LFP16S	
	LNCM13S	
	LNCM14S	

- Automatic temperature compensation function for Lead-acid batteries
- Stable lithium battery self-activation function and low-temperature protection function,
- Adjustable total charge and discharge current with different batteries
- Adjustable maximum utility charging current for flexible configuration of grid charging power
- Can work at the temperature range “-20°C to 50°C”





Features



Pure Sine Wave Output



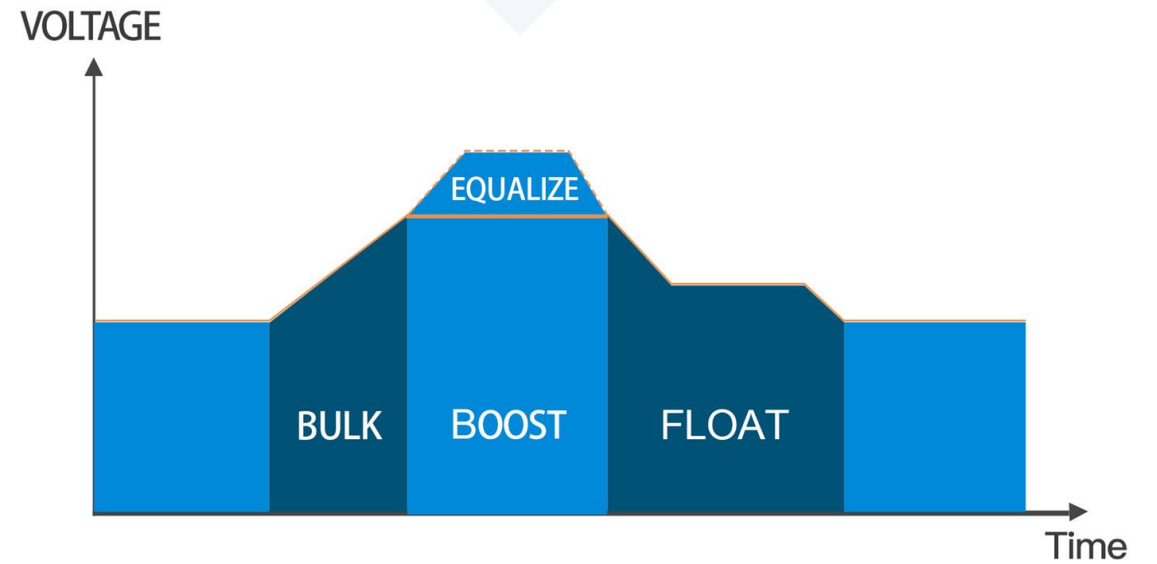
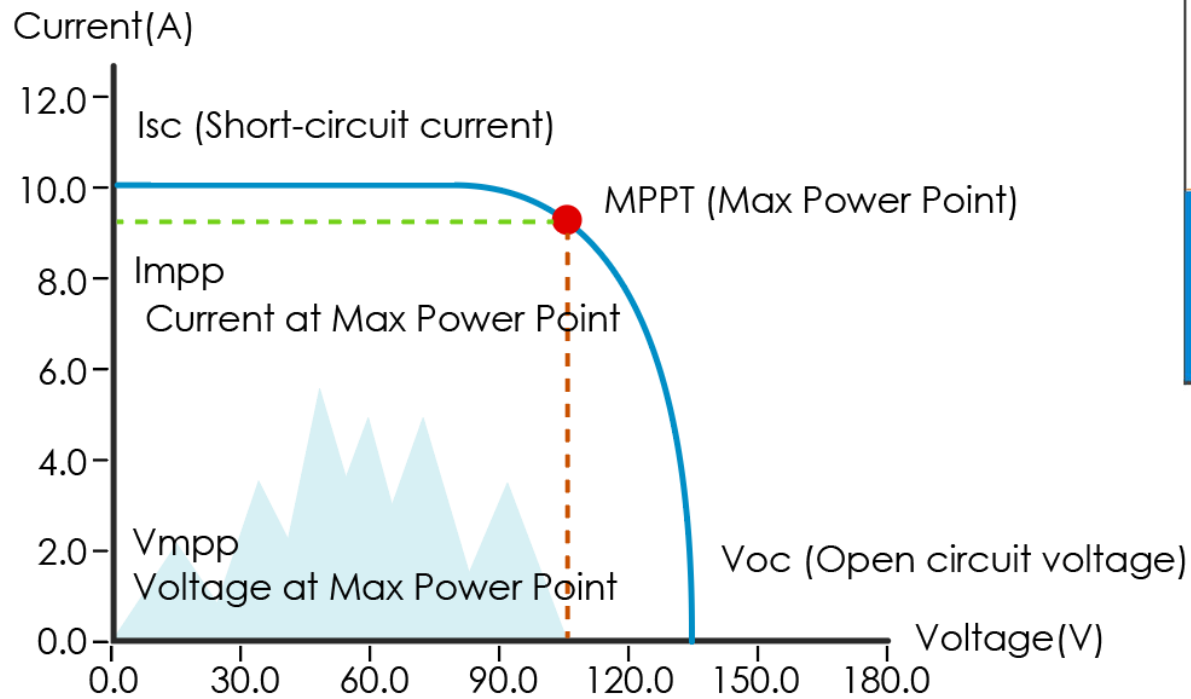
Utility Power factor 0.99



Features

Advanced MPPT technology,

- ✓ Wide MPPT voltage range: 85~400V
- ✓ ax. tracking efficiency is higher than 99.5%



Features








Strong impact resistance to meet the needs of various types of loads



— Internal current sampling
 — Inverter output voltage
 — Inverter output current





Others

1. Optional Accessory:

NO.	Name	Model	Image	Application	Notes
1	USB to RS485 cable* (Included Accessory)	CC-USB-RS485-150U		①Real time monitoring, parameter settings, and historical data query and export of inverter/charger can be achieved through PC monitoring software ②Firmware update	Software SolarGuardian download link: https://www.epever.com/support/softwares
2	WiFi 2.4G Adapter	EPEVER WiFi 2.4G RJ45 D		Compatible with mobile app or cloud platform (Local mode & Remote mode) for wireless monitoring and parameter configuration of the inverter/charger via WiFi signal	 Google Play
3	Bluetooth Adapter	EPEVER BLE RJ45 D		Compatible with mobile app (Local mode only) for wireless monitoring and parameter configuration of the inverter/charger via Bluetooth signal	
4	Serial Device Server	EPEVER TCP 306		Compatible with mobile app or cloud platform for remote wireless monitoring and parameter configuration of the controller via TCP network communication. LAN (local area network) monitoring can be achieved using PC configuration tools and PC software	 Apple App Store
5	4G Wireless Data Transmission Terminal	EPEVER RTU 4G HE01		Compatible with mobile app or cloud platform for remote wireless monitoring and parameter configuration of the inverter/charger via a GSM/GPRS SIM card	

Others

1. Optional Accessory:

NO.	Name	Model	Image	Application	Notes
6	DB9 male-female 1.2m parallel communication cables	CAT.6-DB9(M)-DB9-120cm		Used for connecting multiple inverter/chargers through the parallel communication port	Cables Quantity= (Actual parallel inverter/chargers-1) pcs
7	CAN communication termination resistor (DB9 parallel kits CAN -R120)	DB9-CAN-R120		When multiple inverter/chargers are connected in parallel, the termination resistors should be installed on the first and last inverter/charger	/
		DB9(M)-CAN-R120			
8	RS485 to RS485	CC-RJ45-RJ45-200		Use for communicate between HP20 and EPEVER Lithium battery	



Technical Specifications

Product model		HP3542-AH0650P20SA	HP5542-AH1050P20SA
Utility Input	Utility Voltage	176VAC~264VAC(Default), 90VAC~280VAC (Configurable)	
	Utility Frequency	45Hz~65Hz	
	Max. Utility Charging Current	60A	100A
	Switch Response Time	Switch Response Time-Inverter to Utility: 10ms; Switch Response Time-Utility to Inverter (when the load power is higher than 100W): 20ms	
Inverter Output	Inverter Rated Power (@30°C)	3500W	5500W
	Surge Output Power (3s Transient)	7000W	8500W
	Inverter Output Voltage	220/230VAC±3%	
	Inverter Frequency	50/60Hz±0.2%	
	Output Voltage Waveform	Pure sine wave	
	Load Power Factor	0.2~1 (VA ≤ Inverter Rated Power)	
	THD (Total Harmonic Voltage Distortion)	≤3% (48V Resistive Load)	
	Max. Load Efficiency	92%	92%
	Max. Inverter Efficiency	94%	94%
Solar controller	PV Max. Open-circuit Voltage	500V (At minimum operating environment temperature); 440V (At 25°C)	
	MPPT Voltage Range	85~400V	
	PV Max. Input Power	4000W	6000W
	MPPT Input Channels	One Way	Two Ways
	PV Max. Input Current	13A	When two PV arrays are connected independently: 15A/way When two PV arrays are connected in parallel: 30A

Technical Specifications

Product model		HP3542-AH0650P20SA	HP5542-AH1050P20SA
Solar controller	PV Max. Charging Current	60A	100A
	MPPT Max. Efficiency	≥99.5%	
Battery	Battery Rated Voltage	48VDC	
	Battery Work Voltage Range	43.2VDC~60VDC	
	Battery Max. Charging Current	60A	100A
Others	No-load Losses	<0.7A	<1.0 A
		Test Condition: Disconnect Utility,PV and Load,turn on the AC Out,Fan not running,48Vinput voltage	
	Standby Current	<0.15A	
		Test Condition: Disconnect Utility,PV and Load,turn off the AC Out,Fan not running,48Vinput voltage	
	Working Temperature Range	-20°C~+50°C (>30°C need running in derated capacity)	
	Storage Temperature Range	-25°C~+60°C	
	Enclosure	IP20	
	Relative Humidity	<95% (No Condensation)	
Mechanical Parameters	Altitude	<4000m (Altitude exceed 2000 meters need running in derated capacity)	
	External Dimensions (length x width x height)	534mm x 288mm x 163mm	590mm x 288mm x 163mm
	Install Dimensions(length x width)	512mm x245mm	568mm x 245mm
	Mounting Hole Size	Φ9mm/Φ10mm	
	Net Weight	12.0kg	14.8kg

The logo for EPEVER, featuring the word "EPEVER" in a bold, white, sans-serif font. The text is enclosed within a white, horizontal, oval-shaped swoosh that has a slight 3D effect, set against a dark blue square background with rounded corners.

EPEVER

*Thank
you*

For your attention

www.epever.com