Deye

POWERING YOUR LIFE

www.deyeess.com / www.deyeinverter.com

Deye ESS / Deye New Energy



3.6kW~12kW/5~50kWh All-In-One Single/Three Phase Energy Storage Solution

AI-W5.1-B-ESS (SPRING SERIES)

All-in-One
Hybrid inverter and LFP battery in one sleek system

Smarter Energy Use
Peak-shaving, smart load, AC coupling, time of use

Scalable Capacity
Modular design expandable from 5 kWh to 50 kWh

Uninterrupted Supply
4 ms seamless switchover from grid to back-up for energy security

Effortless Installation
Tool-free stacking for quick and easy installation

Smart Control
Convenient management via App, PC, or touch display

ALL-IN-ONE POWER, READY IN MINUTES

6-in-One, Smart Integrated Design



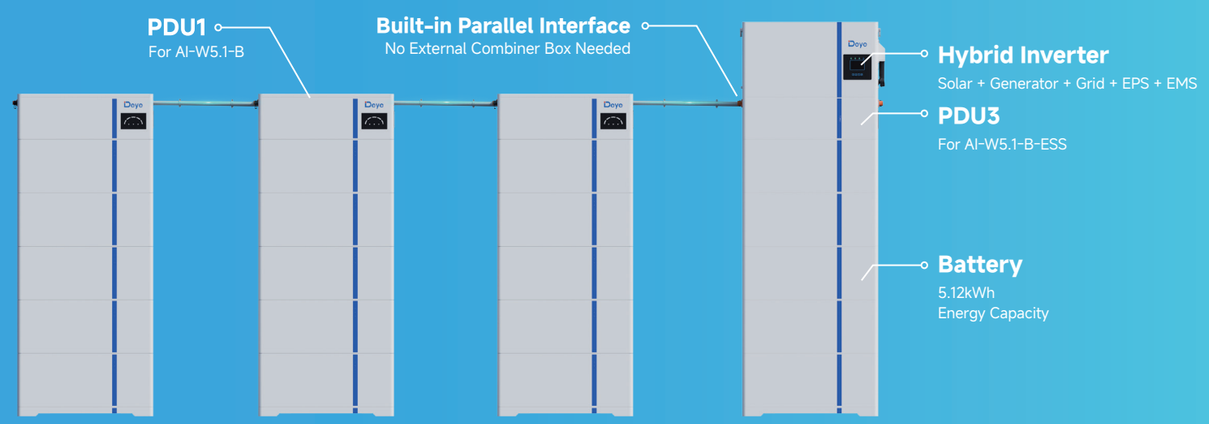
3.6-12kW
Single/Three-Phase Inverter

5-50kWh
Flexible System Capacity

Tool-Free
Stacking Installation

One-Click
System Setup

Gateway & DC Bus
Built-in



Scalable Energy for Every Need



Hybrid Inverter + PDU3 + Base	x1	x1	x1	x1	x1
Battery	x1	x2	x3	x4	x5
Energy Capacity	5.12kWh	10.24kWh	15.36kWh	20.48kWh	25.6kWh



PDU1 + Base	x1	x1	x1	x1	x1	x1
Battery	x1	x2	x3	x4	x5	x6
Energy Capacity	5.12kWh	10.24kWh	15.36kWh	20.48kWh	25.6kWh	30.72kWh

Power Distribution Unit

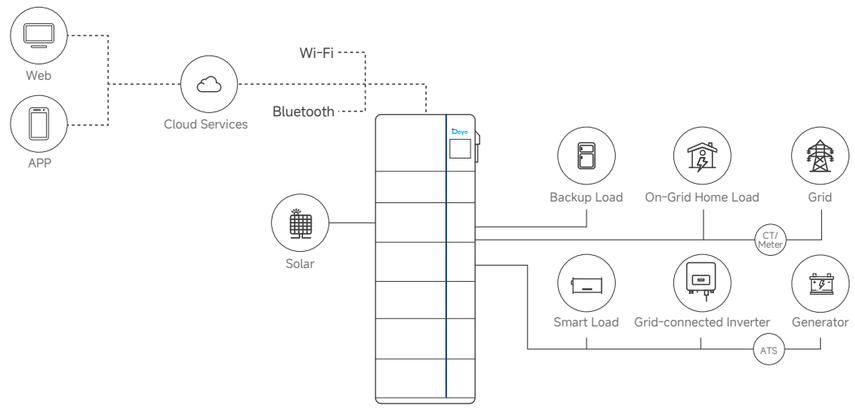


Model：AI-W5.1-PDU1-B
Application：For AI-W5.1-B，supporting inter-cluster capacity expansion and parallel operation
Details：720 × 254 × 239.8（W × D × H，mm），18.5kg
Built-in Circuit Breaker：Two-pole Molded Case，250A，1000V



Model：AI-W5.1-PDU3-B
Application：For AI-W5.1-B-ESS，supporting inter-cluster capacity expansion and parallel operation
Details：720 × 254 × 239.8（W × D × H，mm），18.5kg
Built-in Circuit Breaker：Two-pole Molded Case，250A，1000V

Typical Scenario



Deye Hybrid Inverter

3.6-10 kW Single-Phase | 5-12 kW Three-Phase
5-50kWh System

4 ms ultra-fast grid to back-up power switching time

2× rated power for 10 seconds

Quick and **simple** setup

Smart **EMS** with **real-time** monitoring

One-click diagnostics via Deye Cloud

IP65 protection for reliable outdoor performance

3.6kW~12kW/5~50kWh Energy Storage System

1 × PDU1 + 5 × Battery + 1 × Base

1 × Inverter + 1 × PDU3 + 5 × Battery + 1 × Base

Model (Single-phase)	AI-W5.1-3.6P1-EU-B	AI-W5.1-5P1-EU-B	AI-W5.1-6P1-EU-B	AI-W5.1-7P1-EU-B	AI-W5.1-7.6P1-EU-B	AI-W5.1-8P1-EU-B	AI-W5.1-10P1-EU-B
Battery Input Data							
Battery Type	Lithium-ion						
Battery Voltage	40-60						
Max. Charging Current(A)	90	120	135	175	190	190	210
Max. Discharging Current(A)	90	120	135	175	190	190	210
Charging Strategy for Li-Ion Battery	Self-adaption to BMS						
Number of Battery Input	1						
PV String Input Data							
Max. PV access power(W)	7200	10000	12000	14000	15200	16000	20000
Max. PV Input Power(W)	5760	8000	9600	11200	12160	12800	16000
Max. PV Input Voltage(V)	500						
Start-up Voltage(V)	125						
PV Input Voltage Range(V)	125-500						
MPPT Voltage Range(V)	150-425						
Full Load MPPT Voltage Range(V)	300-425			200-425			250-425
Rated PV Input Voltage(V)	370						
Max. Operating PV Input Current(A)	18+18			32+32			
Max. Input Short-Circuit Current(A)	27+27			48+48			
No.of MPPT Trackers/No.of String MPPT Tracker	2/1+1			2/2+2			
Max. Inverter Backfeed Current to The Array	0						
AC Input/Output Data							
Rated AC Input/Output Active Power(W)	3600	5000	6000	7000	7600	8000	10000
Max. AC Input/Output Apparent Power(VA)	3960	5500	6600	7700	8360	8800	11000
Peak Power (off-grid)(W)	2 times of rated power, 10s						
Rated AC Input/Output Current(A)	16.4/15.7	22.7/21.7	27.3/26.1	31.9/30.5	34.5/33	36.4/34.8	45.5/43.5
Max. AC Input/Output Current(A)	18/17.2	25/23.9	30/28.7	35/33.5	38/36.3	40/38.3	50/47.9
Max. Continuous AC Passthrough (grid to load)(A)	35		40	50			
Max. Output Fault Current(A)	36	50	60	70	76	80	100
Max. Output Overcurrent Protection(A)	80			140			
Rated Input/Output Voltage/Range(V)	220V/230V 0.85Un-1.1Un						
Grid Connection Form	L+N+PE						
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz 60Hz/45Hz-65Hz						
Power Factor Adjustment Range	0.8 leading-0.8 lagging						
Total Current Harmonic Distortion THDi	<3% (of nominal power)						
DC Injection Current	<0.5%In						
Efficiency							
Max. Efficiency	97.60%						
Euro Efficiency	96.50%						
MPPT Efficiency	>99%						
Equipment Protection							
DC Polarity Reverse Connection Protection	Yes						
AC Output Overcurrent Protection	Yes						
AC Output Overvoltage Protection	Yes						
AC Output Short Circuit Protection	Yes						
Thermal Protection	Yes						
Arc fault circuit interrupter (AFCI)	Optional						
Power Network Monitoring	Yes						
Island Protection Monitoring	Yes						
Earth Fault Detection	Yes						
DC Input Switch	Yes						
Overvoltage Load Drop Protection	Yes						
Residual Current (RCD) Detection	Yes						
Anti-islanding Protection	Yes(Active Frequency Shift)						
Surge Protection Level	TYPE II(DC), TYPE II(AC)						
Interface							
Display	LCD+LED						
Communication Interface	RS232, RS485, CAN						
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN (optional)						
PV Connection	VP-D4						
General Data							
Operating Temperature Range	-40 to +60°C, >45°C Derating						
Permissible Ambient Humidity	0-100%						
Permissible Altitude	2000m						
Noise	<30 dB(A)						
Ingress Protection(IP) Rating	IP 65						
Inverter Topology	Non-Isolated						
Over Voltage Category	OVC II(DC), OVC III(AC)						
Cabinet size(W*H*D) [mm]	720W×399.2H×256D (Excluding connectors and brackets)						
Weight(kg)	31.6						
Warranty	5Years/10 Years the Warranty Period Depends the Final Installation Site of Inverter, More Info Please Refer to Warranty Policy						
Type of Cooling	Intelligent Air Cooling						
Grid Regulation	IEC 61727,IEC 62116,CEI 0-21,EN 50549, NRS 097,RD 140,UNE 217002,OVE-Richtlinie R25,G99,VDE-AR-N 4105						
Safety EMC/Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2						

Model (Three-phase)	AI-W5.1-5P3-EU-B	AI-W5.1-6P3-EU-B	AI-W5.1-8P3-EU-B	AI-W5.1-10P3-EU-B	AI-W5.1-12P3-EU-B
Battery Input Data					
Battery Type	Lithium-ion				
Battery Voltage	40-60				
Max. Charging Current(A)	120	130	190	210	240
Max. Discharging Current(A)	120	130	190	210	240
Charging Strategy for Li-Ion Battery	Self-adaption to BMS				
Number of Battery Input	1				
PV String Input Data					
Max. PV access power(W)	10000	12000	16000	20000	24000
Max. PV Input Power(W)	8000	9600	12800	16000	19200
Max. PV Input Voltage(V)	800				
Start-up Voltage(V)	160				
PV Input Voltage Range(V)	160-800				
MPPT Voltage Range(V)	200-650				
Full Load MPPT Voltage Range(V)	350-650				
Rated PV Input Voltage(V)	550				
Max. Operating PV Input Current(A)	20+20			36+20	
Max. Input Short-Circuit Current(A)	30+30			54+30	
No.of MPPT Trackers/No.of String MPPT Tracker	2/1+1			2/2+1	
Max. Inverter Backfeed Current to The Array	0				
AC Input/Output Data					
Rated AC Input/Output Active Power(W)	5000	6000	8000	10000	12000
Max. AC Input/Output Apparent Power(VA)	5500	6600	8800	11000	13200
Peak Power (off-grid)(W)	2 times of rated power, 10s				
Rated AC Input/Output Current(A)	7.6/7.2	9.1/8.7	12.1/11.6	15.2/14.5	18.2/17.4
Max. AC Input/Output Current(A)	8.4/8	10/9.6	13.4/12.8	16.7/15.9	20/19.1
Max. Continuous AC Passthrough (grid to load)(A)	45				
Max. Output Fault Current(A)	16.8	20	26.8	33.4	40
Max. Output Overcurrent Protection(A)	70				
Rated Input/Output Voltage/Range(V)	220/380V,230/400V 0.85Un-1.1Un				
Grid Connection Form	3L+N+PE				
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz 60Hz/55Hz-65Hz				
Power Factor Adjustment Range	0.8 leading-0.8 lagging				
Total Current Harmonic Distortion THDi	<3% (of nominal power)				
DC Injection Current	<0.5%In				
Efficiency					
Max. Efficiency	97.6%				
Euro Efficiency	97.0%				
MPPT Efficiency	>99%				
Equipment Protection					
DC Polarity Reverse Connection Protection	Yes				
AC Output Overcurrent Protection	Yes				
AC Output Overvoltage Protection	Yes				
AC Output Short Circuit Protection	Yes				
Thermal Protection	Yes				
Arc fault circuit interrupter (AFCI)	Optional				
Power Network Monitoring	Yes				
Island Protection Monitoring	Yes				
Earth Fault Detection	Yes				
DC Input Switch	Yes				
Overvoltage Load Drop Protection	Yes				
Residual Current (RCD) Detection	Yes				
Anti-islanding Protection	Yes(Active Frequency Shift)				
Surge Protection Level	TYPE II(DC), TYPE II(AC)				
Interface					
Display	LCD+LED				
Communication Interface	RS232, RS485, CAN				
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN (optional)				
PV Connection	VP-D4				
General Data					
Operating Temperature Range	-40 to +60°C, >45°C Derating				
Permissible Ambient Humidity	0-100%				
Permissible Altitude	2000m				
Noise	⩽ 55 dB				
Ingress Protection(IP) Rating	IP 65				
Inverter Topology	Non-Isolated				
Over Voltage Category	OVC II(DC), OVC III(AC)				
Protection Level	Class I				
Cabinet size(W*H*D) [mm]	720W×460.5H×254D (Excluding connectors and brackets)				
Weight(kg)	44				
Warranty	5 Years/10 Years the Warranty Period Depends the Final Installation Site of Inverter, More Info Please Refer to Warranty Policy				
Type of Cooling	Intelligent Air Cooling				
Grid Regulation	IEC 61727,IEC 62116,CEI 0-21,EN 50549,NRS 097,RD 140, UNE 217002,OVE-Richtlinie R25,G99,VDE-AR-N 4105				
Safety EMC/Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2				

Deye AI-W5.1-B Battery

5.12kWh I LFP I Stacked Battery Module
5.12kWh~30.72kWh Per Stack

Highly **scalable** and **flexible** capacity

Intelligent **BMS** for safety and longer lifespan

Real-time battery monitoring via Deye Cloud

Auto-networking and remote fimware upgrades

Wide operating temperature range with natural cooling

IP65 protection for reliable outdoor performance

100% DOD
Maximises subsidies at lower cost

Built-in **Parallel Interface**
No External Combiner Box Needed



Stacked Battery (LV)

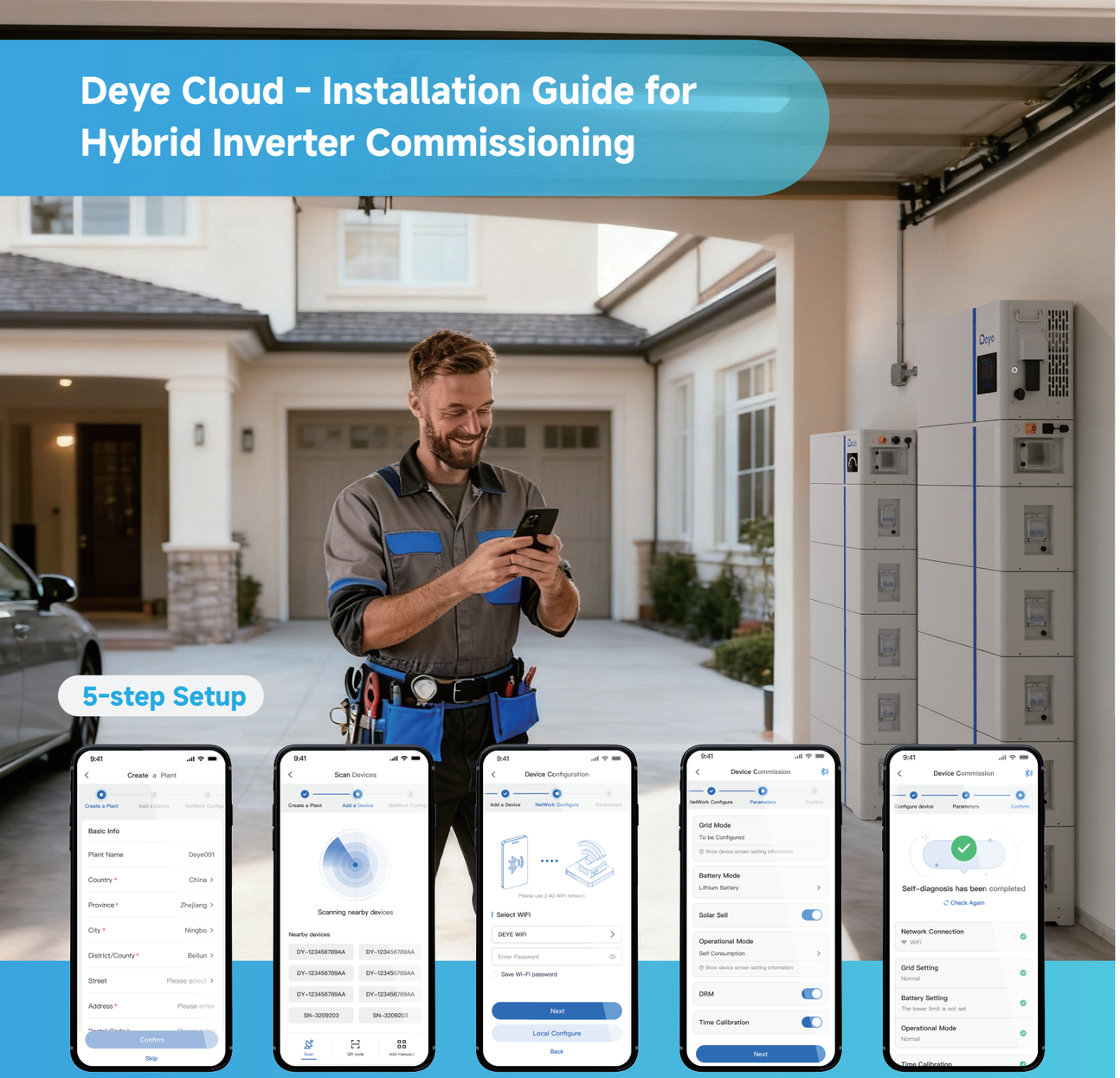
Model		AI-W5.1-B
Main Parameter		
Battery Chemistry		LiFePO4
Built-in Circuit Breaker		125A 2P, 60Vdc
Nominal Energy (kWh)		5.12
Usable Energy (kWh)[1]		4.6
Capacity (Ah)		100
Nominal Voltage (V)		51.2
Operating Voltage(V)		44.8~57.6
Rated DC Power （kW）		2.5
Charge/Discharge Current (A) [2]	Recommend	50
	Max.	100
	Peak(10s,25°C)	150
Other Parameter		
Recommend Depth of Discharge		90%
Battery Dimension (W/D/H, mm)		720*255*300 (without terminal parts)
Battery Weight (kg)		53
Master LED Indicator		Battery module: 3LED (working, alarming, protecting), PDU module: 5LED(SOC:20%~ 100%)&3LED (working, alarming, protecting)
Operating Temperature		Charge: 0～55°C (-20°C~55°C optional heating) / Discharge: -20°C~55°C
Storage Temperature		0°C ~ 35°C
IP Rating of Enclosure		IP65 (after stacking)
Humidity		5%~95%, non-condensing
Altitude		⩽3000m
Installation		Floor-Mounted
Communication Port		CAN2.0, RS485
Cycle Life		⩾6000(25°C±2°C ,0.5C/0.5C,70%EOL)
Energy Throughput		16MWh(Battery Module @70%EOL)
Warranty Period [3]		10 years
Certification		UN38 .3, IEC62619, CE, UK, VDE2510-50, CEI0-21,CE-LVD, CEC, FCC, UL1973, UL9540A

Parallel expansion

	Battery Pack Quantity	1	2	3	4	5	6
Battery system	System Usable Energy (kWh) [1]	4.6	9.2	13.8	18.4	23	27.6
	System Recommend Charge/Discharge Current (A)	50	100	150	200	250	250
	System Max. Charge/Discharge Current (A) [2]	100	200	250	250	250	250
	System Rated DC Power （kW）	2.5	5	7.5	10	12	12
	System Dimension (W/D/H, mm) (With PDU, Base)	720×255×608	720×255×908	720×255×1208	720×255×1508	720×255×1808	720×255×2108
	System Weight (kg) (With PDU, Base)	78	131	184	237	290	343

[1]DC Usable Energy, test conditions: 90%DOD, 0.5C charge & discharge at 25°C . System usable energy may vary due to system configuration parameters.
[2]The current is affected by temperature and SOC.
[3]Conditions apply, refer to Deye Warranty Letter.
[4]Made in China.

Deye Cloud - Installation Guide for Hybrid Inverter Commissioning



Easy Step-by-Step Guide

Clear instructions take you from wiring to config, right in the app, simplifying the process.

Smart Parameter Setup

The app checks and sets key settings like voltage, grid, and battery automatically, making the process faster while eliminating any chance of mistakes.

Full Communication Checks

Scans WiFi, Bluetooth to ensure everything's linked up perfectfy.

Quick and Hassle-Free

Built-in tips and tracking keeps things efficient, saving time and avoidng the need for return trips.

Deye Cloud

All-in-one Energy & Device Management Platform

- Unlock Significant Savings
- Individual Add-On for Dynamic Tariff
- Intelligent Charging/Discharging Strategies
- Tailored Solution to Deye Devices
- Real-time Equipment Monitoring



Smarten Up Your Home Energy

Download Deye Cloud APP to join us!
Embrace a seamless, effortless energy experience that's both eco-friendly and budget-friendly with our intelligent assistant

All in One

Smarter home energy and device management

Cloud-edge Collaboration

Faster and more efficient control

Accelerated Connectivity

Optimized for speed and performance

Advanced Smart Energy

A smarter way to manage your electricity bills