RESIDENTIAL ESS SOLUTION

AI-W5.1 Plus AI-W5.1-ESS Plus

Deye Spring AI Series

All-in-One
Integrated hybrid inverter
And LFP battery

Smarter
Peak-shaving, smart load
AC coupling, etc.

Scalable
Flat and stackable design
Capacity of 5kWh~30kWh

Swift Security
Fast switching time of 4ms
Ensuring energy security

Flexible
No wiring
Quick and easy installation

Convenient
Comfortable and easy control
Via APP, PC or Touch-Display

Deye Hybrid Inverter| 3.6-12kW Single-Phase

Model (Single-phase)	AI-W5.1-3.6P1-EU Plus	AI-W5.1-5P1-EU Plus	AI-W5.1-6P1-EU Plus	AI-W5.1-8P1-EU Plus	AI-W5.1-10P1-EU Plus	AI-W5.1-12P1-EU Plus
Battery Input Data						
Battery Type	Lithium-ion					
Battery Voltage	40-60					
Max. Charging Current(A)	90	120	135	185	220	250
Max. Discharging Current(A)	90	120	135	185	220	250
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	16000	20000	24000
Max. PV Input Power(W)	5760	8000	9600	12800	16000	19200
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			36+18+18		36+36+18
Max. Input Short-Circuit Current(A)	27+27			54+27+27		54+54+27
No.of MPPT Trackers/No.of String MPPT Tracker	2/1+1			3/2+1+1		3/2+2+1
Max. Inverter Backfeed Current to The Array	0					
AC Input/Output Data						
Rated AC Input/Output Active Power(W)	3600	5000	6000	8000	10000	12000
Max. AC Input/Output Apparent Power(VA)	3960	5500	6600	8800	11000	13200
Peak Power (off-grid)(W)	2 times of rated power, 10s					
Rated AC Input/Output Current(A)	16.4/15.7	22.8/21.8	27.3/26.1	36.4/34.8	45.5/43.5	54.6/52.2
Max. AC Input/Output Current(A)	18/17.3	25/24	30/28.7	40/38.3	50/47.9	60/57.4
Max. Continuous AC Passthrough (grid to load)(A)	50			70		
Max. Output Fault Current(A)	36	50	60	80	100	120
Max. Output Overcurrent Protection(A)	70	80		140		
Rated Input/Output Voltage/Range(V)	230V/240V 0.85Un-1.1Un					
Grid Connection Form	L+N+PE					
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz					
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					
Communication Interface	RS485, CAN					
Monitor Mode	WIFI/Bluetooth					
PV Connection	VP-D4					
General Data						
Operating Temperature Range	-40 to +60°C, >45°C Derating					
Permissible Ambient Humidity	0-100%					
Permissible Altitude	3000m					
Noise	<45dB					
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×450H×254D				720W×520H×254D	
Weight(kg)	32				37	
Warranty	10 Years					
Type of Cooling	Natural Cooling			Intelligent Air Cooling		
Grid Regulation	AS/NZS 4777.2					
Safety EMC/Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2					

Deye Hybrid Inverter| 5-12kW Three-Phase

Model (Three-phase)	AI-W5.1-5P3-EU Plus	AI-W5.1-6P3-EU Plus	AI-W5.1-8P3-EU Plus	AI-W5.1-10P3-EU Plus	AI-W5.1-12P3-EU Plus
Battery Input Data					
Battery Type	Lithium-ion				
Battery Voltage	40-60				
Max. Charging Current(A)	120	135	190	210	240
Max. Discharging Current(A)	120	135	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	15000	18000
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)	250-650			350-650	
Rated PV Input Voltage(V)	550				
Max. Operating PV Input Current(A)	20+20			26+26	
Max. Input Short-Circuit Current(A)	30+30			39+39	
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)	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)	7.6/7.3	9.1/8.7	12.2/11.6	15.2/14.5	18.2/17.4
Max. AC Input/Output Current(A)	8.4/8	10/9.6	13.4/12.8	16.7/16	20/19.2
Max. Continuous AC Passthrough (grid to load)(A)	45				
Max. Output Fault Current(A)	26			33.4	40
Max. Output Overcurrent Protection(A)	65				
Rated Input/Output Voltage/Range(V)	230V/400V 240V/415V 0.85Un-1.1Un				
Grid Connection Form	3L+N+PE				
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz				
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				
Communication Interface	RS485, CAN				
Monitor Mode	WIFI/Bluetooth				
PV Connection	VP-D4				
General Data					
Operating Temperature Range	-40 to +60°C, >45°C Derating				
Permissible Ambient Humidity	0-100%				
Permissible Altitude	3000m				
Noise	＜45dB	＜45dB	＜45dB	⩽55dB	⩽55dB
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×450H×254D			720W×520H×254D	
Weight(kg)	40			45	
Warranty	10 Years				
Type of Cooling	Natural 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				

Stacked Battery (LV)

Model		AI-W5.1 Plus combinations					
Main Parameter							
Battery Model Number		AI-W5.1 Plus	AI-W10.2 Plus	AI-W15.3 Plus	AI-W20.4 Plus	AI-W25.6 Plus	AI-W30.7 Plus
Number of battery units in parallel (Optional)		1	2	3	4	5	6
Battery Chemistry		$LiFePO_4$					
Built-in Circuit Breaker		125A 2P, 60Vdc					
Battery Module Energy (kWh)		5.12					
Battery Module Voltage (V)		51.2					
Battery Module Capacity (Ah)		100					
Nominal Voltage (V)		51.2					
Operating Voltage (V)		44.8 ~ 57.6					
Nominal Energy (kWh)		5.12	10.24	15.36	20.48	25.6	30.72
Usable Energy (kWh) [1]		4.6	9.2	13.8	18.4	23	27.6
Rated DC Power (KW)		2.5	5	7.5	10	12	12
Charge / Discharge Current (A) [2]	Recommend	50	100	150	200	250	250
	Max.	100	200	250	250	250	250
	Peak (10s, 25°C)	150	270	360	360	360	360
Other Parameter							
Recommend Depth of Discharge		90%					
System Dimension (W × D × H, mm)		720×254×565	720×254×847	720x254x1129	720x254x1411	720x254x1693	720x254x1975
System Weight (kg)		74.5	127.5	180.5	233.5	286.5	339.5
Battery Module Dimension (W × D × H, mm)		720±3x254±1.5x282±1.5					
Battery Module Weight (kg)		53					
MasterLED Indicator		Battery module : 3LED (working, alarming, protecting) PDU module : LCD (SOC,working,alarming)					
IP Rating of Enclosure		IP65 (after stacking)					
Operating Temperature		Charge: 0~55°C (-20~55°C optional heating)/Discharge: -20~55°C					
Standard charging method by manufacturer		Charge at 25±2°C at constant current 50A until the voltage reaches 57.6V					
Standard discharging method by manufacturer		Discharge at 25±2°C at constant current 50A until the voltage reaches 44.8V					
Storage Temperature		0°C ~ 35°C					
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					

[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.

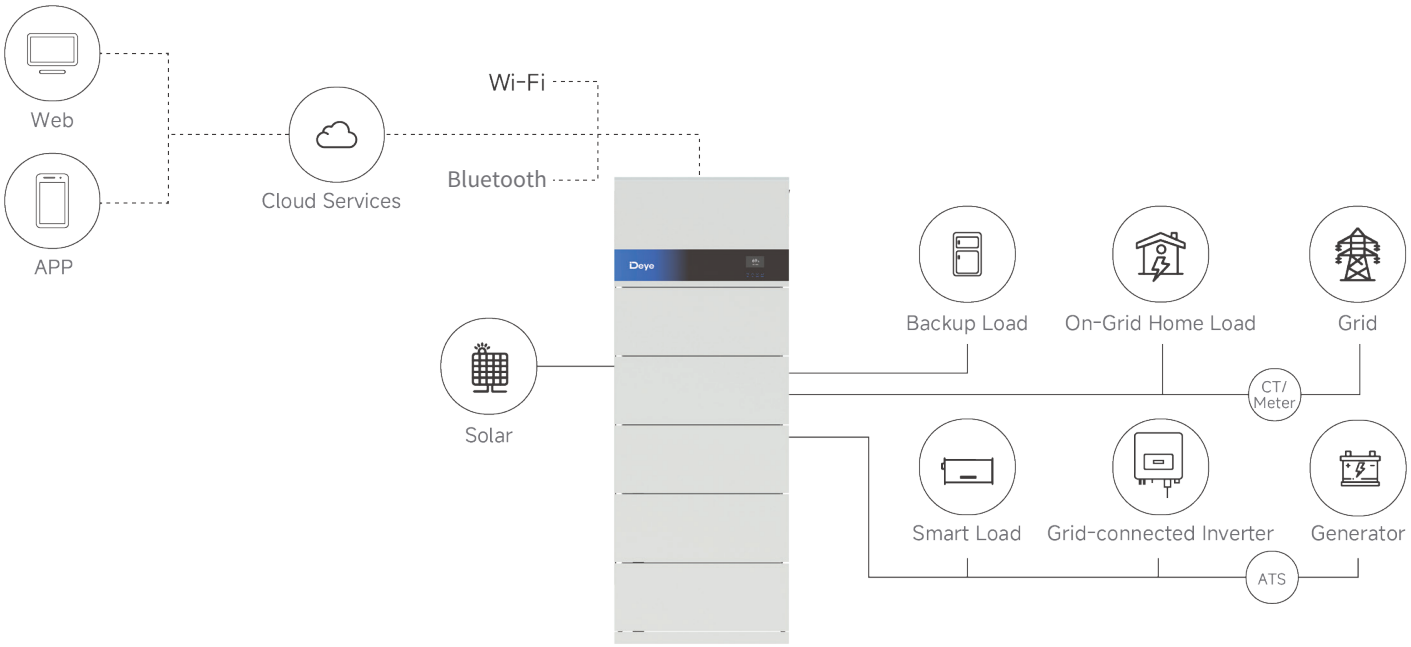
[3]Conditions apply, refer to Deye Warranty Letter.

[4]Made in China.

Scalable Energy for Every Need

Hybrid Inverter(10kW P1)	x1	x1	x1	x1	x1
Battery module	x1	x2	x3	x4	x5
Energy Capacity	5.12kWh	10.24kWh	15.36kWh	20.48kWh	25.6kWh
System Dimension (W/D/H, mm)	720*254*852	720*254*1134	720*254*1416	720*254*1698	720*254*1980

PDU	x1	x1	x1	x1	x1	x1
Battery module	x1	x2	x3	x4	x5	x6
Energy Capacity	5.12kWh	10.24kWh	15.36kWh	20.48kWh	25.6kWh	30.72kWh
System Dimension (W/D/H, mm)	720*254*565	720*254*847	720*254*1129	720*254*1411	720*254*1693	720*254*1975



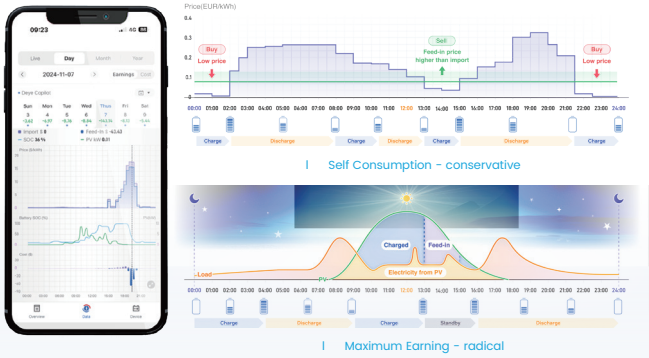
Deye Cloud

FW Update | APP & Web | Alert Notifications | Localized Data Centers | AI Assistant

Deye Cloud is an advanced platform specifically designed for Deye Inverter and ESS, providing users with an outstanding online experience. Through Deye Cloud, users can easily connect their photovoltaic or energy storage systems to the internet, supporting real-time monitoring of electricity usage and load conditions, cloud-based parameter adjustment, and online firmware updates.

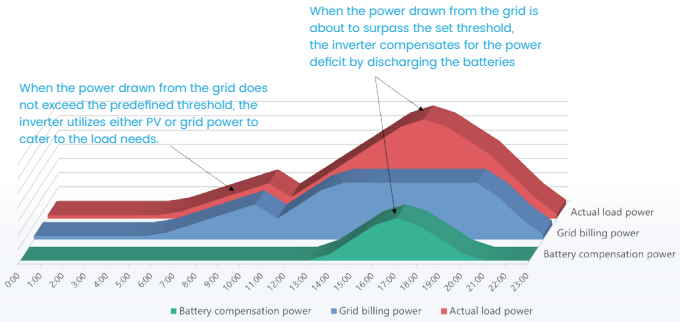
Deye Copilot

6 time slots + AI trading = smarter, cheaper energy use.



Grid peak shaving

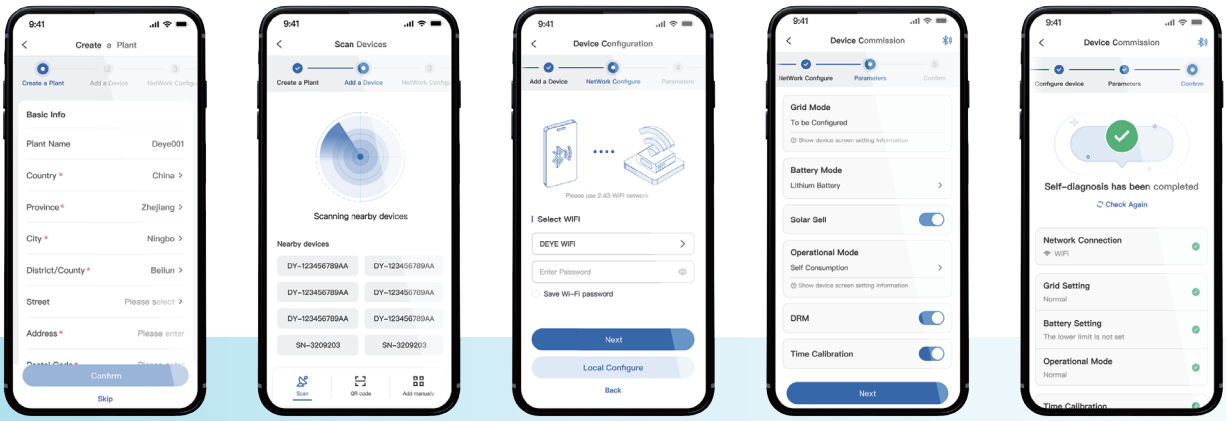
Battery discharges when demand is high to avoid costly grid usage.



Deye Cloud - Installation Guide

for Hybrid Inverter Commissioning

5-step Setup:



1. Create a Plant
2. Discover Devices
3. Configure Network
4. Set Parameters
5. Confirm

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 automatically configures voltage, grid, and battery settings, speeding up setup and avoiding errors.

Full Communication Checks

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

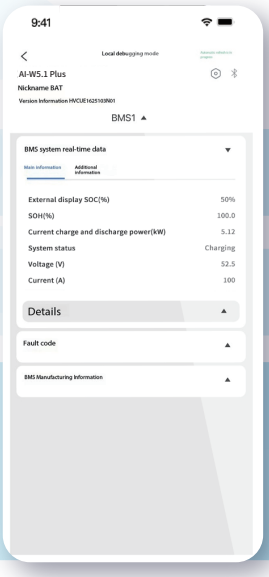
Quick and Hassle-Free

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

Deye APP

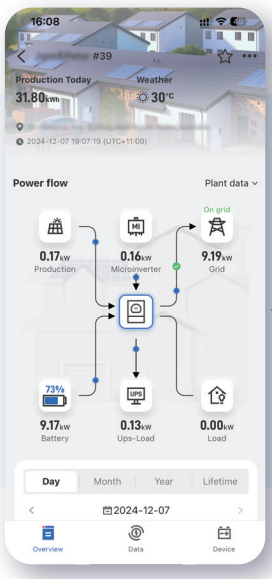
Local monitoring mode for battery

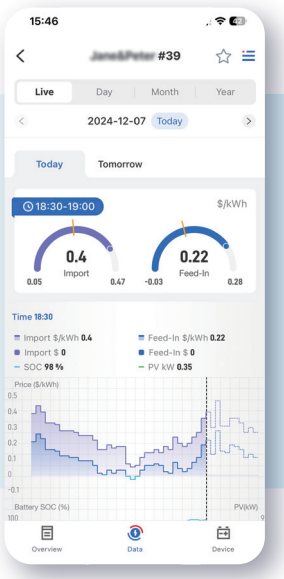
- Bluetooth APP Monitoring
- Low Power (Bluetooth LE)
- Automated upgrade



- Quick Pairing
- No Internet Needed
- Portable Control

Remote monitoring mode for ESS(Deye Inverter&Battery)





- Real-time Equipment Monitoring
- Intelligent Charging/Discharging Strategies
- AI Data Analytics
- Customized Maintenance

Smarten Up Your Home Energy

→

Download Deye APP to join us!

Embrace a seamless, effortless energy experience that's both ecofriendly and budget-friendly with our intelligent assistant