



Stackable Energy Storage System

ALL-IN-ONE HOME ESS

Single-Phase | 3.6-12kW

Three-Phase | 5-20kW

Modular Energy, Simplified Setup



16 kWh per Module. Better Value.

Approx. 20% lower system cost than conventional 8 kWh stackable solutions ^[1].



Offline Wireless Zero-Export Solution

LoRa-based wireless energy management with CT monitoring, no internet required.



Lower Standby Power Consumption

The battery's DC-DC-free design enables negligible nighttime consumption and extended warehouse storage.



3.6-20kW power options



Rapid installation

200%

2x peak power output (10s)

97.6% 

Max. efficiency



200% PV oversizing



Scalable up to 96kWh



Max. 70A bypass current



8000+ life cycles^[2]



Max. 380A charge/
discharge current



Seamless on/
off-grid switching



Support short-term immersion
in 0.5m of water



-20-55°C
operation temperature

[1] Based on an equivalent-capacity comparison with conventional 8 kWh stackable systems. Actual cost savings may vary by system configuration and market.

[2] Tested at 25°C±2°C, 70%EOL.



All-in-One Home ESS Solution

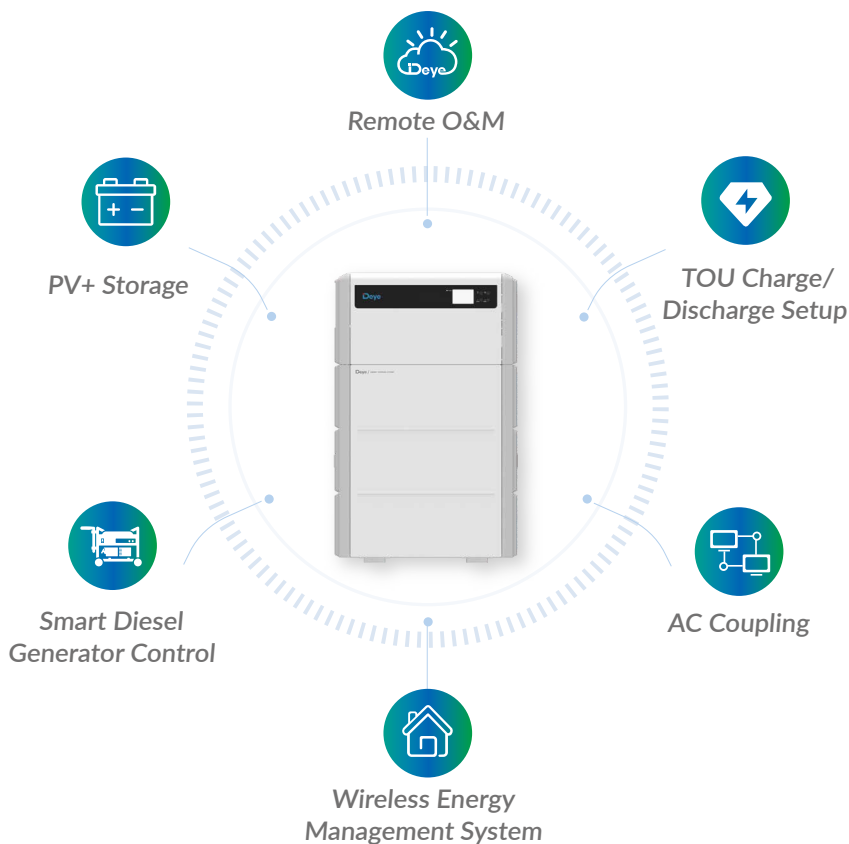


System Schematic

System Data

Battery Type	LiFePO ₄					
Max. Output Power	Single-Phase: 3.6/4/5/6/7.5/8/10/12kW, Three-Phase: 5/6/8/10/12/15/20kW					
Number of Batteries	1	2	3	4	5	6
Nominal Energy (kWh)	16	32	48	64	80	96
Ingress Protection(IP) Rating	IP66					
Operation Temperature Range	Charge: -20~+55°C (Heating On) / Discharge: -20~+55°C, >45°C Derating					
Permissible Ambient Humidity	0-100% (condensing)					
Max. Operation Altitude (m)	3000m					
Display	LCD+LED					
Type of Cooling	Natural Cooling					
Topology	Non-Isolated (solar), Isolated (battery)					
Communication Interface	WIFI, RS485, CAN, LORA, Bluetooth					
Warranty	Standard 5 Years, Extendable Warranty					
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, AS 4777.2					
Safety EMC/Standard	IEC 62477, IEC 62619, SA TS 5398, IEC 62040, IEC62109-1/-2, EN61000-6-1, EN61000-6, VDE 2510-50, VDE 2510-2					

Highly Integrated Solution





Battery Type	LiFePO ₄							
Battery Voltage Range(V)	41.6-58.4							
Max. Charging/Discharging Current (A)	90	95	120	135	185	185	220	250
Number of Battery Input	1							

Max. PV access power (W)	7200	8000	10000	12000	15000	16000	20000	24000
Max. PV Input Power (W)	5760	6400	8000	9600	12000	12800	16000	19200
Max. PV Input Voltage (V)	500							
Start-up Voltage (V)	125							
MPPT Voltage Range (V)	150-425							
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 MPP Trackers/No. of Strings MPP Tracker	2/1+1				3/2+1+1			3/2+2+1

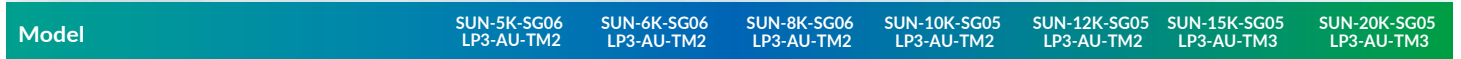
Rated AC Input/Output Active Power (W)	3600	4000	5000	6000	7500	8000	9999	12000
Max. AC Input/Output Apparent Power (VA)	3600	4000	5000	6000	7500	8000	9999	12000
Rated AC Input/Output Current (A)	15.7	17.4	21.8	26.1	32.7	34.8	43.5	52.2
Max. AC Input/Output Current (A)	15.7	17.4	21.8	26.1	32.7	34.8	43.5	52.2
Max. Continuous AC Passthrough (grid to load) (A)	50				63			
Peak Power (off-grid) (W)	2 times of rated power, 10s							
Power Factor Adjustment Range	0.8 leading to 0.8 lagging							
Rated input/output voltage	230/240V 0.85Un-1.1Un L+N+PE							
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55							
Total Current Harmonic Distortion THDi	<3%							
DC Injection Current	<0.5% In							

Max. Efficiency	97.6%
Euro Efficiency	96.5%
MPPT Efficiency	>99%

Integrated	DC Reverse Polarity Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Arc Fault Circuit Interrupter (AFCI) (optional), Anti-islanding Protection, DC Switch, Insulation Impedance Detection, Residual Current Detection
Surge Protection Level	TYPE II(DC), TYPE II(AC)

LCD/LED Display	LCD+LED
Communication Interface	WIFI, RS485, CAN, LORA, Bluetooth

Noise (dB)	<45		
Ingress Protection (IP) Rating	IP66		
Over Voltage Category	OVC II(DC), OVC III(AC)		
Cabinet Size (W×H×D mm)	662×331×255	662×354×255	
Weight (kg)	20.5	28	28.3
Type of Cooling	Intelligent Air Cooling		



Battery Input Data							
Battery Type	LiFePO ₄						
Battery Voltage Range(V)	41.6-58.4						
Max. Charging/Discharging Current (A)	120	135	190	210	240	300	380
Number of Battery Input	1						
PV String Input Data							
Max. PV access power (W)	10000	12000	16000	20000	24000	30000	40000
Max. PV Input Power (W)	8000	9600	12800	16000	19200	24000	32000
Max. PV Input Voltage (V)	800						
Start-up Voltage (V)	160						
MPPT Voltage Range (V)	200-650					160-650	
Rated PV Input Voltage (V)	550						
Max. Operating PV Input Current (A)	20+20			26+26		36+20+20	
Max. Input Short-Circuit Current (A)	30+30			39+39		54+30+30	
No. of MPP Trackers/No. of Strings MPP Tracker	2/1+1			2/2+2		3/2+1+1	
AC Input/Output Data							
Rated AC Input/Output Active Power (W)	5000	6000	8000	9999	12000	15000	20000
Max. AC Input/Output Apparent Power (VA)	5000	6000	8000	9999	12000	15000	20000
Rated AC Input/Output Current (A)	7.3	8.7	11.6	14.5	17.4	21.8	29
Max. AC Input/Output Current (A)	7.3	8.7	11.6	14.5	17.4	21.8	29
Max. Continuous AC Passthrough (grid to load) (A)	45					70	
Peak Power (off-grid) (W)	2 times of rated power, 10s						
Power Factor Adjustment Range	0.8 leading to 0.8 lagging						
Rated input/output voltage	230/400V, 240/415V 0.85Un-1.1Un 3L+N+PE						
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55						
Total Current Harmonic Distortion THDi	<3%						
DC Injection Current	<0.5% In						
Efficiency							
Max. Efficiency	97.6%					97.6%	
Euro Efficiency	96.5%					97.0%	
MPPT Efficiency	>99%					>99%	
Equipment Protection							
Integrated	DC Reverse Polarity Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Arc Fault Circuit Interrupter (AFCI) (optional), Anti-islanding Protection, DC Switch, Insulation Impedance Detection, Residual Current Detection						
Surge Protection Level	TYPE II(DC), TYPE II(AC)						
Interface							
LCD/LED Display	LCD+LED						
Communication Interface	WIFI, RS485, CAN, LORA, Bluetooth						
General Data							
Noise (dB)	<45			≤55		<60	
Ingress Protection (IP) Rating	IP66						
Over Voltage Category	OVC II(DC), OVC III(AC)						
Cabinet Size (W×H×D mm)	662×354×255			662×375×255		662×450×255	
Weight (kg)	26.2			34		/	
Type of Cooling	Intelligent Air Cooling						


Model
AI-W16-6
Main Parameter

Battery Chemistry	LiFePO ₄	
Built-in Circuit Breaker	250A, 80Vdc	
Rated Capacity (Ah) ^[1]	314	
Nominal Voltage (V)	51.2	
Operating Voltage(V)	44.8 ~ 57.6	
Nominal Energy (kWh) ^[1]	16	
Usable Energy (kWh) ^[1]	16	
Charge Current (A) ^[2]	Max.Continuous	160
	Peak	192
Discharge Current (A) ^[2]	Max.Continuous	220
	Peak	264

Other Parameter

Recommend Depth of Discharge	100% DoD	
Dimension (mm , W/H/D)	662 x 715 x 257 (Without base)	
Weight (kg)	120kg	
Display	LED(working, protecting, alarming)	
IP Rating of Enclosure	IP66	
Operating Temperature	Charge: -20-+55°C (Heating On), Discharge: -20°C- +55°C	
Storage Temperature	0°C~35°C	
Relative Humidity	95% (non-condensing)	
Cycle Life	≥8000(25°C±2°C, 70%EOL)	
Max. Energy RTE (DC) ^[1]	95%	
Installation	Floor-Mounted, Stack-Mounted	
Communication	CAN2.0	
Certification	UN38.3, CE, CB, CEC	
Energy Throughput ^[3]	50 MWh	
Warranty Period ^[3]	10 years	

[1] Test conditions : 25°C±2°C, at beginning of life, 0.2C charge & 0.2C discharge, 100% DOD.

[2] The current is affected by temperature and SOC.

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

[4] Made in China.



Key Enhancements

Stay Powered Through Extreme Weather



With IP66 protection rating, the ESS supports outdoor installation and saves indoor space. Its short-term immersion resistance at 50cm water helps withstand heavy rain, snowfall, and temporary water accumulation^[1].



Charge Temperature: $-20^{\circ}\text{C} - +55^{\circ}\text{C}$
Discharge Temperature: $-20^{\circ}\text{C} - +55^{\circ}\text{C}$

With heating module, low-temperature charging down to -20°C enables reliable operation in cold climates.

Home Power Backup Solution

Lights 100W	Refrigerator 200W	Washing Machine 500W	Microwave Oven 1500W	Air Fryer 1500W	Dishwasher 1500W	Hair Dryer 1800W	Water Heater 2000W	Air Conditioner 2500W	EV Charger 7000W

5-20kW Three-Phase

3.6-12kW Single-Phase

3.6-6kW

Essential Backup

Power all your daily essential loads to keep your family life running during an outage.

6-12kW

Extended Backup

Power more than just essential loads for elevated home comfort.

12-20kW

Whole-Home Backup

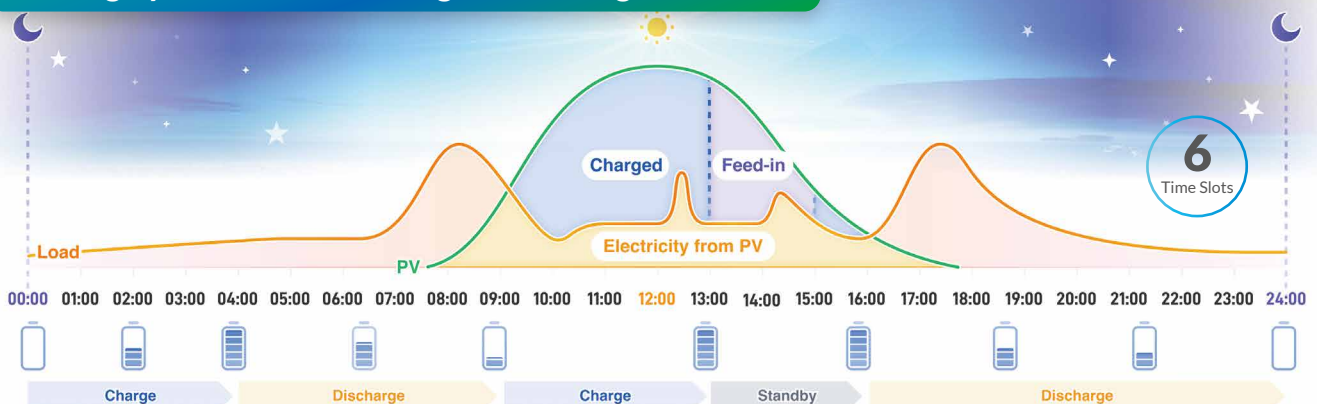
Power your entire house through any blackout, including high-power appliances.

20kW+

Ultimate Home Backup

Enjoy total energy independence and live life normally.

Highly Customizable Charge & Discharge Function



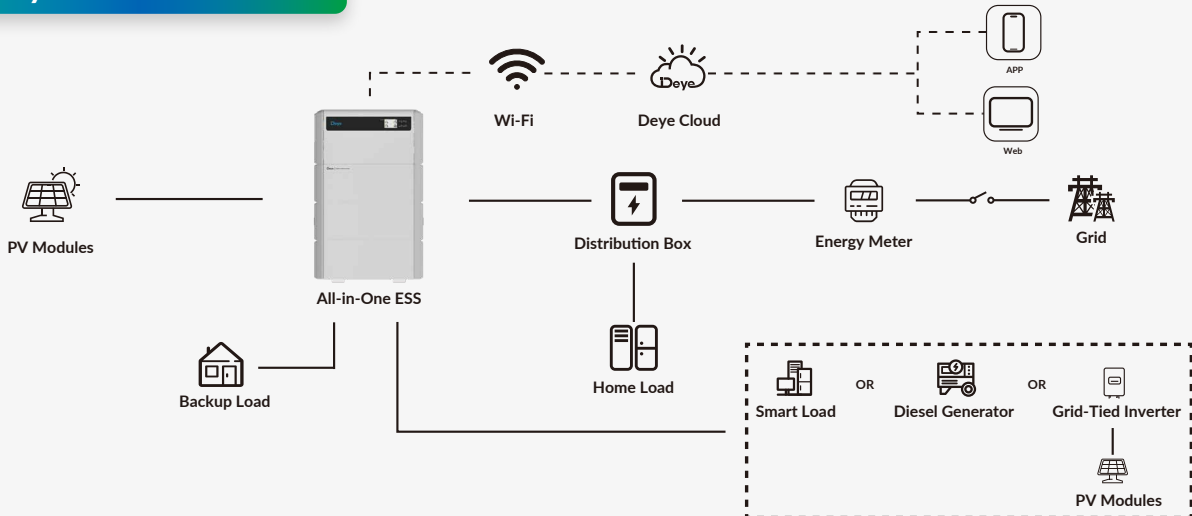
The system intelligently manages solar, battery, and grid power based on electricity tariffs. It stores energy during low-cost periods and supplies loads during peak-price hours, helping reduce electricity bills and improve energy efficiency.

[1] Tested under controlled conditions. Water resistance may decrease with wear and is not covered for liquid damage under warranty. The immersion capability requires intact seals and proper installation. Damage from improper installation or wear is excluded under warranty.



System Overview

System Architecture



Flexible Parallel Expansion

Modular expansion base minimizes wiring and installation time.



Standard Configuration

1 Inverter + 16 kWh Battery



Capacity Expansion (DC Side)

Up to 6 Batteries in Parallel
(Max. 96 kWh)



Power Expansion (AC Side)

Up to 3 Inverters in Parallel
(Max. 60 kW / 3-Phase, 36 kW / 1-Phase)

Application Scenarios



Indoor Application

Sleek, silent, and seamlessly integrated:
the perfect modular ESS for your modern home



Outdoor Application

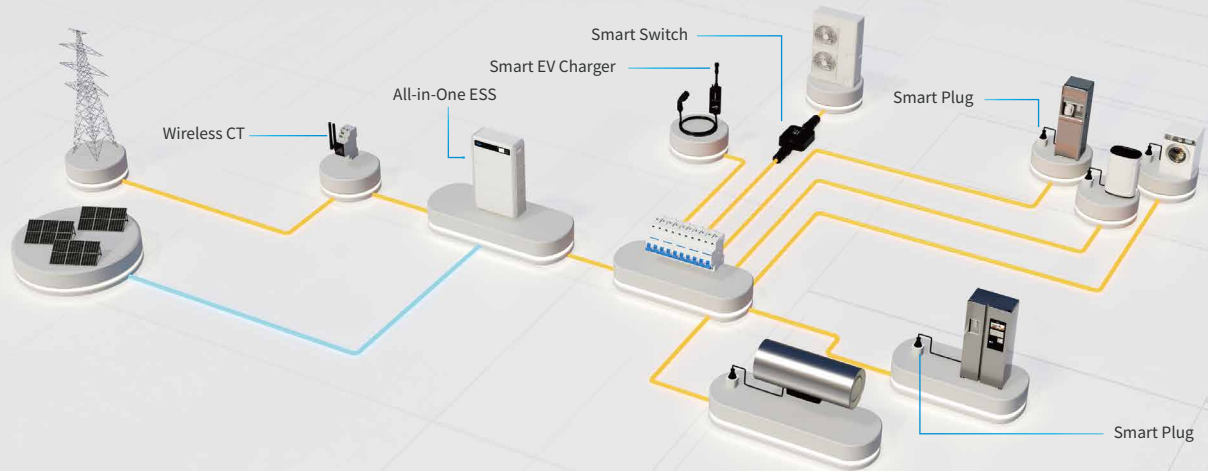
Consistent, all-season power delivery backed by
an IP66 rating for outdoor durability



Smart Home Energy Management

All-in-One Power, Build Your Home Energy Ecosystem

Seamlessly connects with Wireless Energy Management System, a smart load management and home automation solution based on LoRa communication.



+ **Intelligent Load Control**
Automatically toggles essential and non-essential appliances based on solar generation and battery status.

+ **Easy & Wireless Installation**
Reduces installation costs and time through wireless zero-export function.

+ **Maximize ROI**
Optimizes self-consumption and overall energy efficiency.

Deye Wireless CT

Installed in the distribution box to monitor real-time power consumption, supporting both LoRa and RS485 communication.



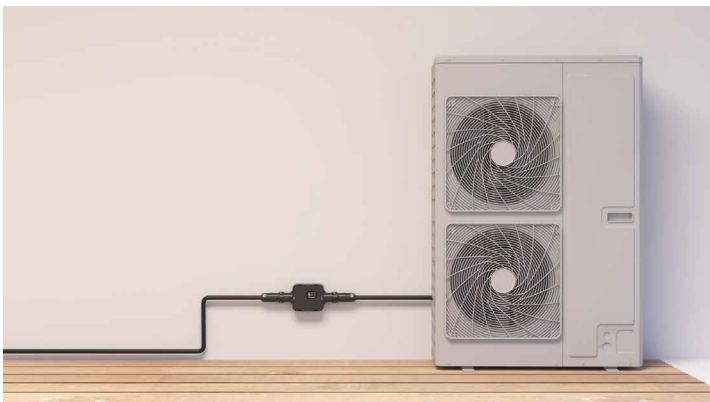
Deye Smart Plug

Easily installed in any standard socket, instantly upgrading the appliance plugged in to a smart device.



Deye Smart Switch

Designed for outdoor high-power loads, offering the same logic control as Smart Plug and supporting both single-phase and three-phase loads.

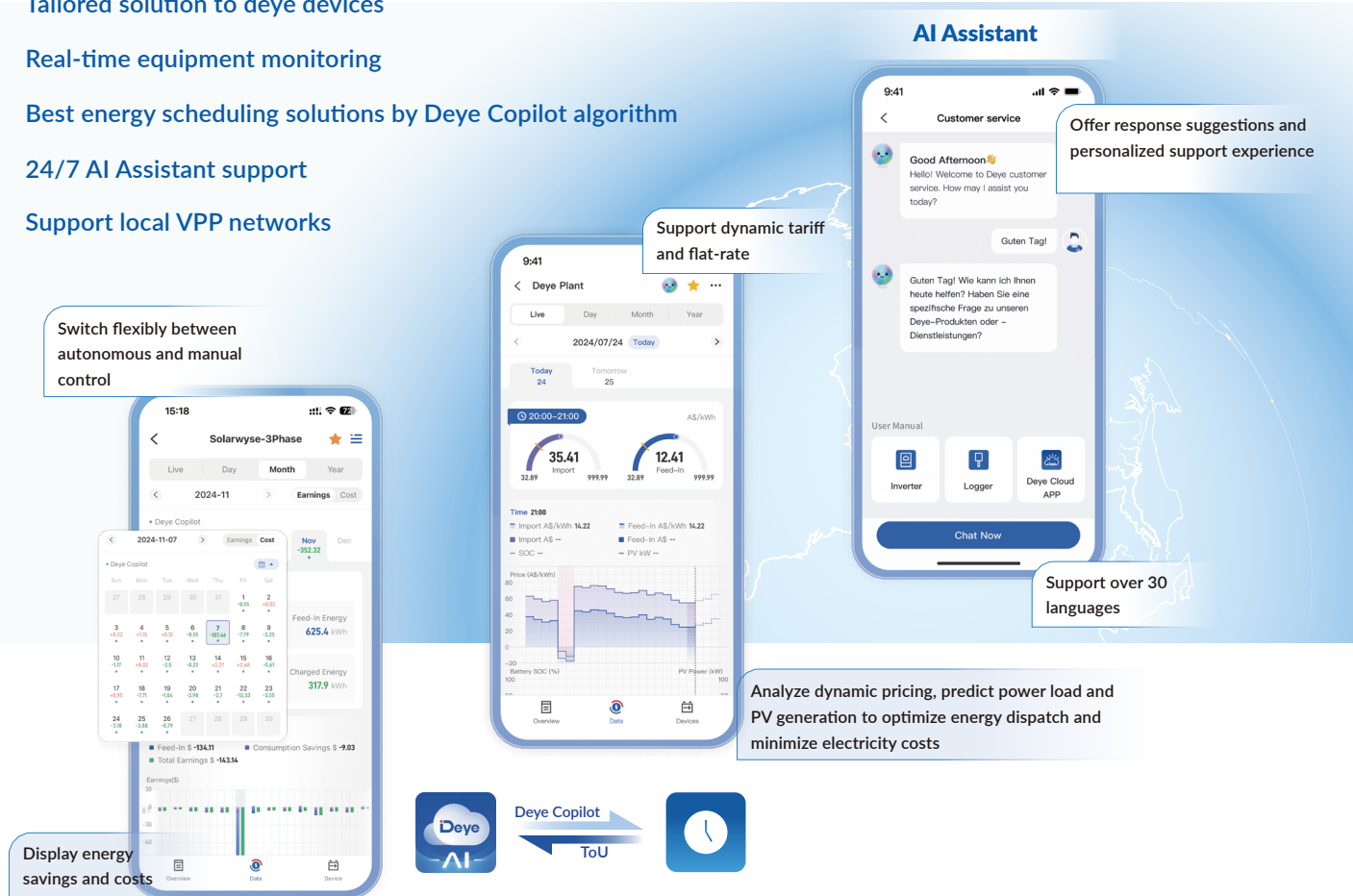


Deye Smart EV Charger

Directly connects to any AC port of the inverter via LoRa communication, charging your EV with 100% clean solar energy.



-  **Unlock significant savings**
-  **Individual Add-on for dynamic tariff**
-  **Intelligent charging/discharging strategies**
-  **Tailored solution to deye devices**
-  **Real-time equipment monitoring**
-  **Best energy scheduling solutions by Deye Copilot algorithm**
-  **24/7 AI Assistant support**
-  **Support local VPP networks**



Switch flexibly between autonomous and manual control

Support dynamic tariff and flat-rate

AI Assistant
Offer response suggestions and personalized support experience

Support over 30 languages

Analyze dynamic pricing, predict power load and PV generation to optimize energy dispatch and minimize electricity costs

Display energy savings and costs

Deye Copilot ToU

Activate Smart Electricity Dispatch Now

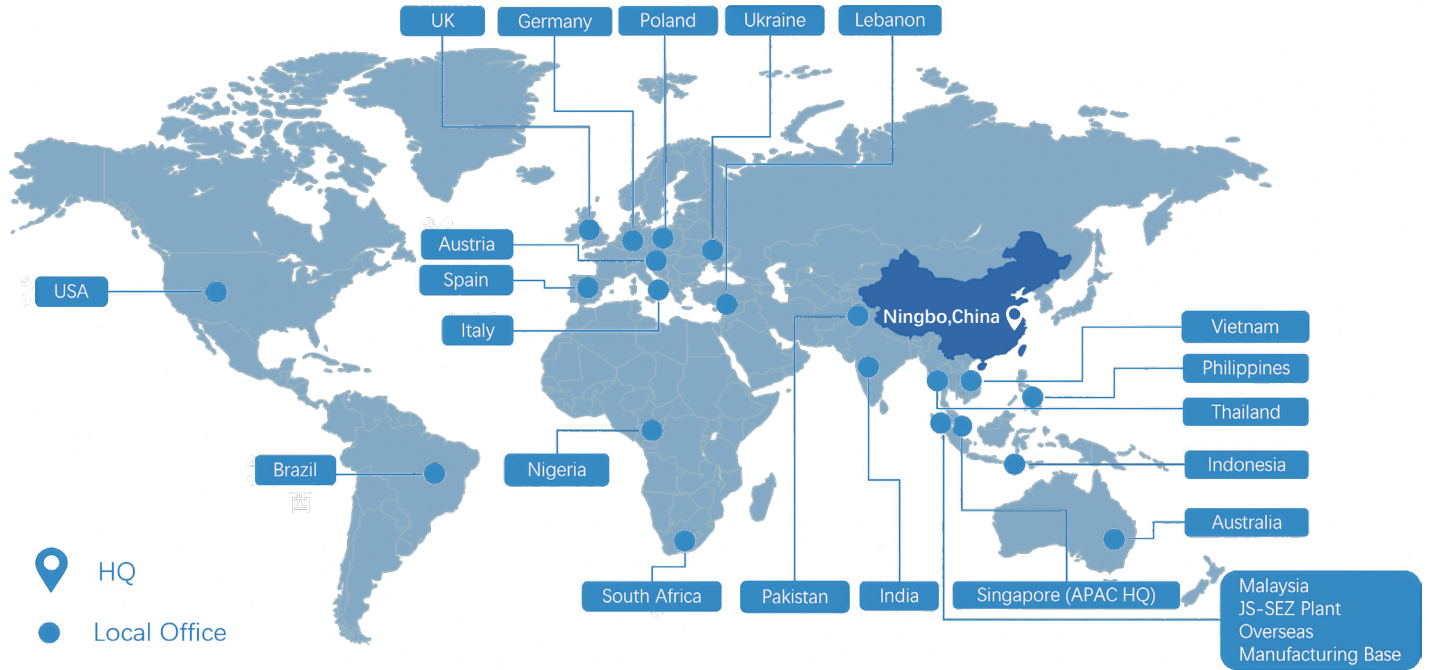
Partner with local electricity retailers to enable automated smart charging and high-reward FiT exports.



 APP & Web Manage your energy effortlessly	 Cloud-edge Collaboration Faster and more efficient	 Accelerated Connection Optimized for speed and performance	 Localized Data Centers Ensure data sovereignty and compliance in EU & US	 Deye Copilot AI-powered energy analysis and control	 AI Assistant 24/7 support, fast, efficient, in your language
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Founded in 2000 (Stock Code: 605117.SH), Deye is a globally leading provider of photovoltaic (PV) inverter and energy storage system solutions. Deye has built an integrated value chain spanning R&D, design, production, sales and service, supported by modern intelligent manufacturing bases in Ningbo, Jiaxing and Johor, Malaysia, equipped with comprehensive production and testing facilities.

Through years of dedicated innovation, Deye has developed industry-leading R&D capabilities and scale advantages, delivering integrated solar PV and energy storage solutions for residential, commercial, industrial and utility-scale applications. Recognized for outstanding performance and reliability, Deye has established a global sales network covering over 160 countries and regions.



World-Class R&D and Manufacturing



After-Sales Service & Warranty



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Deye Inverter Website



Deye ESS Website

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