Deye

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	4ms Seamless on/ off-grid switching	IP66 Support short-term immersion in 0.5m of water	1-55 °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.

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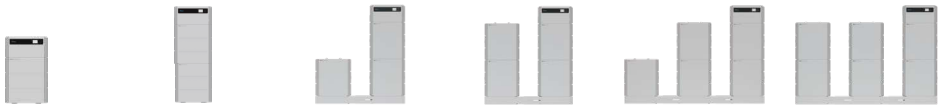
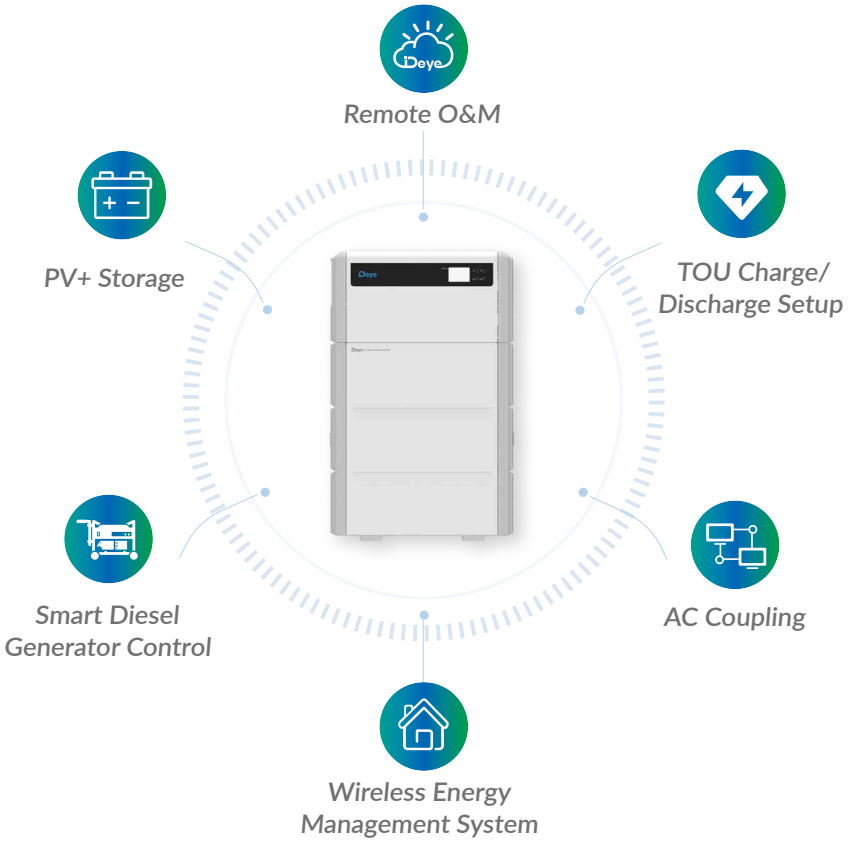
All-in-One Home ESS Solution



System Schematic

System Data						
Battery Type	$LiFePO_4$					
Max. Output Power	Single-Phase: 3.6/4/4.6/5/6/7.5/8/10/12kW, 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: 1°C- +55°C (-20°C-+55°C, with optional heating) / Discharge: -20°C- +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



3.6-12kW Single-Phase Hybrid Inverter

Model	SUN-3.6K-SG06 LP1-EU-TM2	SUN-4K-SG06 LP1-EU-TM2	SUN-4.6K-SG06 LP1-EU-TM2	SUN-5K-SG06 LP1-EU-TM2	SUN-6K-SG06 LP1-EU-TM2	SUN-7.5K-SG06 LP1-EU-TM3	SUN-8K-SG06 LP1-EU-TM3	SUN-10K-SG06 LP1-EU-TM3	SUN-12K-SG06 LP1-EU-TM3
Battery Input Data									
Battery Type	$LiFePO_4$								
Battery Voltage Range(V)	41.6-58.4								
Max. Charging/Discharging Current (A)	90	95	120	120	135	185	185	220	250
Number of Battery Input	1								
PV String Input Data									
Max. PV access power (W)	7200	8000	9200	10000	12000	15000	16000	20000	24000
Max. PV Input Power (W)	5760	6400	7360	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
AC Input/Output Data									
Rated AC Input/Output Active Power (W)	3600	4000	4600	5000	6000	7500	8000	10000	12000
Max. AC Input/Output Apparent Power (VA)	3960	4400	4600	5500	6600	8250	8800	11000	13200
Rated AC Input/Output Current (A)	16.4/15.7	18.2/17.4	21.0/20.0	22.8/21.8	27.3/26.1	34.1/32.7	36.4/34.8	45.5/43.5	54.6/52.2
Max. AC Input/Output Current (A)	18/17.3	20/19.2	21.0/20.0	25.0/24.0	30.0/28.7	37.5/35.9	40.0/38.3	50.0/47.9	60.0/57.4
Max. Continuous AC Passthrough (grid to load) (A)	50					65			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	220/230V 0.85Un-1.1Un L+N+PE								
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55, 60/55-65								
Total Current Harmonic Distortion THDi	<3%								
DC Injection Current	<0.5% In								
Efficiency									
Max. Efficiency	97.6%								
Euro Efficiency	96.5%								
MPPT Efficiency	>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			
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								

5-20kW Three-Phase Hybrid Inverter

Model	SUN-5K-SG06 LP3-EU-TM2	SUN-6K-SG06 LP3-EU-TM2	SUN-8K-SG06 LP3-EU-TM2	SUN-10K-SG05 LP3-EU-TM2	SUN-12K-SG05 LP3-EU-TM2	SUN-15K-SG05 LP3-EU-TM3	SUN-20K-SG05 LP3-EU-TM3
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	10000	12000	15000	20000
Max. AC Input/Output Apparent Power (VA)	5500	6600	8800	11000	13200	16500	22000
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	22.8/21.8	30.4/29.0
Max. AC Input/Output Current (A)	8.4/8.0	10.0/9.6	13.4/12.8	16.7/16.0	20.0/19.2	25.0/24.0	33.4/31.9
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	220/380V, 230/400V 0.85Un-1.1Un 3L+N+PE						
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55, 60/55-65						
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			≤50		<55	
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						

AI-W16 Battery

Model		AI-W16	AI-W16-H
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)		41.6-58.4	
Nominal Energy (kWh) [1]		16	
Usable Energy (kWh) [1]		14.4	
Charge Current (A) [2]	Max.Continuous	160	
	Peak	192	
Discharge Current (A) [2]	Max.Continuous	220	
	Peak	264	
Other Parameter			
Recommend Depth of Discharge		90% 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: 1~55°C, Discharge: -20~55°C	Charge: -20~55°C (Heating On), Discharge: -20~55°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, UL9540A	
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, 90% DOD.

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

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

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].

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

Home Power Backup Solution

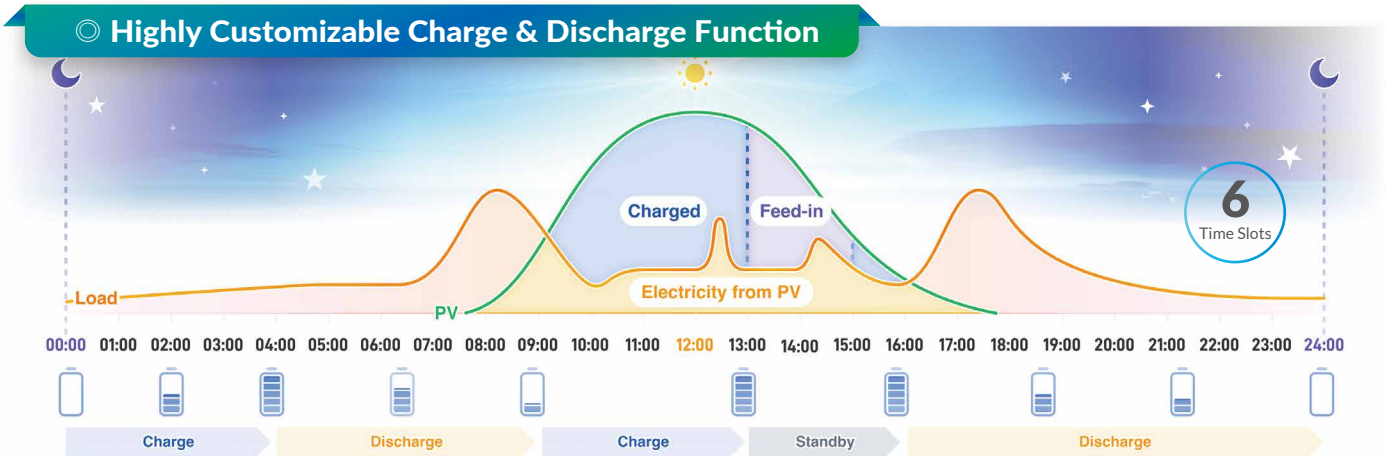
Lights	Refrigerator	Washing Machine	Microwave Oven	Air Fryer	Dishwasher	Hair Dryer	Water Heater	Air Conditioner	EV Charger
100W	200W	500W	1500W	1500W	1500W	1800W	2000W	2500W	7000W

5-20kW Three-Phase

3.6-12kW Single-Phase

3.6-6kW	6-12kW	12-20kW	20kW+
Essential Backup	**Extended Backup**	**Whole-Home Backup**	**Ultimate Home Backup**
Power all your daily essential loads to keep your family life running during an outage.	Power more than just essential loads for elevated home comfort.	Power your entire house through any blackout, including high-power appliances.	Enjoy total energy independence and live life normally.

Highly Customizable Charge & Discharge Function

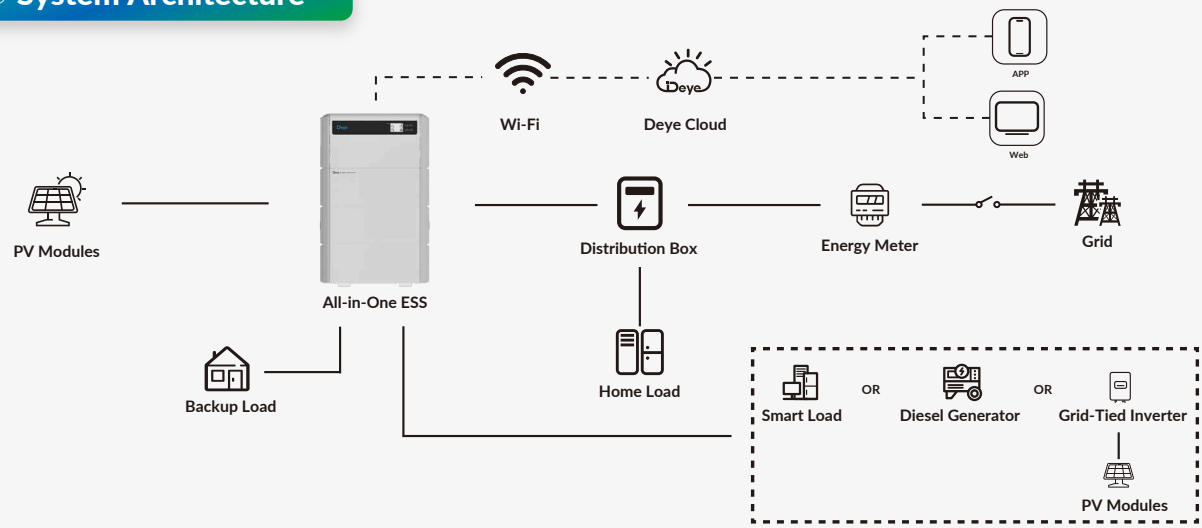


The system intelligently manages solar, battery, and grid power based on electricity tariffs. It stores energy during low-cost periods and supplies loads during peak-price hours, helping reduce electricity bills and improve energy efficiency.

[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

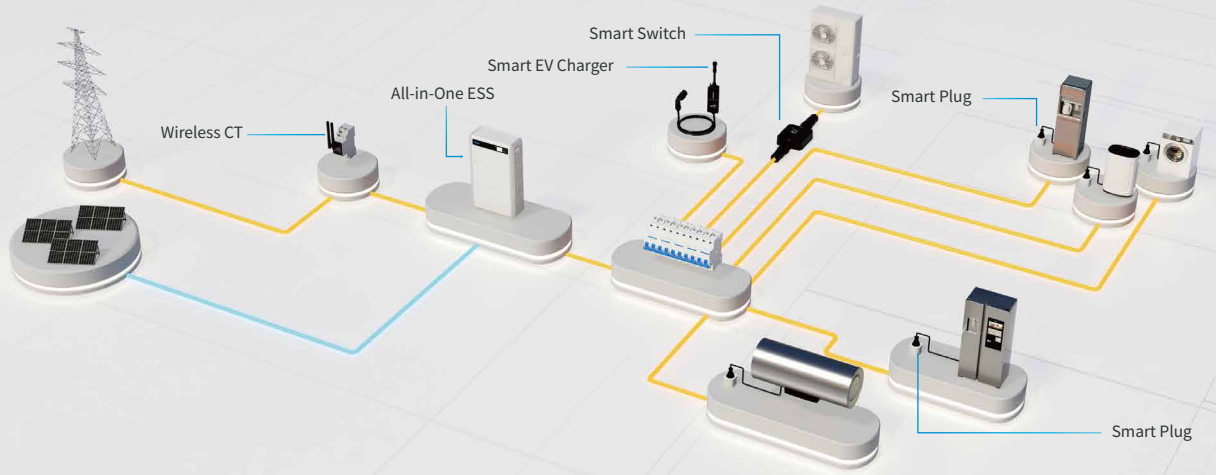
Outdoor Application

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.

Deye Cloud
Intelligent Energy Management

- 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

AI Assistant

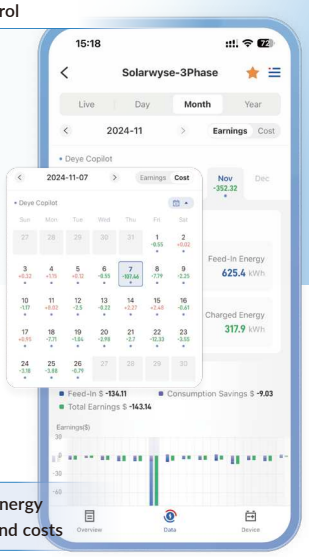
Offer response suggestions and personalized support experience

Support over 30 languages

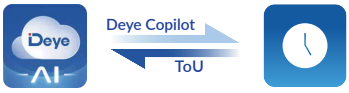
Support dynamic tariff and flat-rate

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

Switch flexibly between autonomous and manual control



Display energy savings and costs



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

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

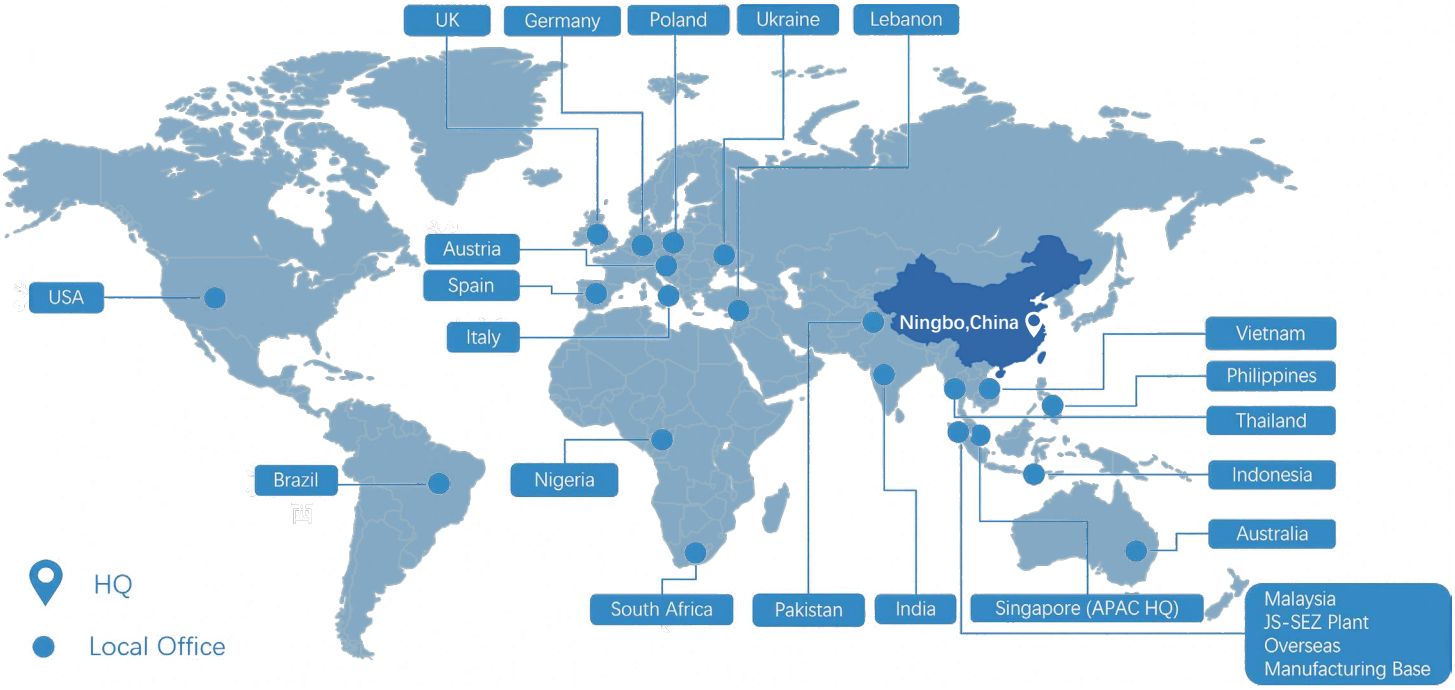
Deye Copilot
AI-powered energy analysis and control

AI Assistant
24/7 support, fast, efficient, in your language

About Deye

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.



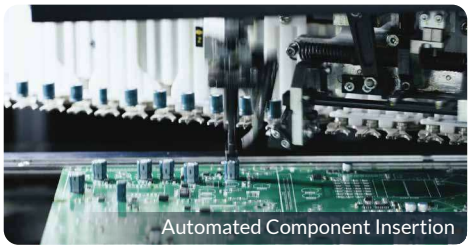
- World-Class R&D and Manufacturing

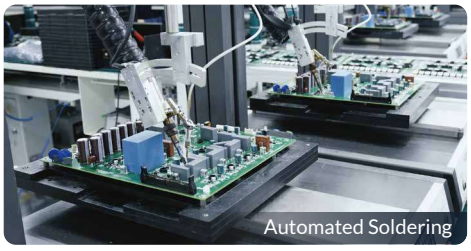
Electronic Component Testing

Rain and Snow Testing

Full-Load Endurance Testing

SMT Placement


Automated Component Insertion


Automated Soldering

Assembly Workshop

Aging Testing

ATE Functional Testing

Notes:

Business Card

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Website: www.deyeess.com

Information is subject to change without notice. Please scan the QR code or contact Deye representative for the latest updates.

Deye Inverter Website

Deye ESS Website

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