

Smart and scalable residential all-in-one energy storage solution

- ✓ Fast, hassle-free and lower cost installation
- ✓ Scalable and flexible solution
- ✓ Highest safety and optimized performance
- ✓ Smart, Seamless Energy Management

The GoodWe ESA Series is an all-in-one residential energy storage solution (ESS) that combines reliability and advanced functionality. It integrates the inverter, battery, UPS-grade switching, and battery enclosure in a pre-wired modular system-streamlining installation and reducing costs.

Compact, elegantly designed, and IP66-rated for durability, the unit operates reliably indoors or outdoors in any weather conditions. With smart controls, scalable storage, and flexible configurations, the ESA empowers homeowners to manage their energy needs with confidence and ease.

The innovative modular and stackable design ensures adaptability, growing alongside your household energy demands and making true energy independence simpler than ever.



 AI-driven EMS and <4ms UPS-level switching

 Smart home integration with multi-protocol communications

 Allows different capacities of old and new batteries mixing

 Supports 6 batteries per stack, scalable up to 48kWh

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Technical Data		GW3K-EHA-G20	GW3.6K-EHA-G20	GW5K-EHA-G20	GW6K-EHA-G20	GW8K-EHA-G20	GW10K-EHA-G20
Battery Side							
Battery Type	LFP(LiFePO ₄)						
Nominal Battery Voltage (V)	380						
Battery Voltage Range (V)	350 ~ 550						
Start-up Voltage (V) ¹	380						
Number of Battery Input	1						
Max. Continuous Charging Current (A)	11.9	14.3	19.8	23.7	31.6	35.6	
Max. Continuous Discharging Current (A)	8.7	10.5	14.5	17.4	23.2	29.0	
Max. Charging Power (kW)	4.5	5.4	7.5	9.0	12.0	13.5	
Max. Discharging Power (kW)	3.3	3.96	5.5	6.6	8.8	11.0	
PV Side							
Max. Input Power (kW)	6.0	7.2	10.0	12.0	16.0	20.0	
Max. Input Voltage (V) ²	600						
MPPT Operating Voltage Range (V) ³	40 ~ 560						
Start-up Voltage (V)	50						
Nominal Input Voltage (V)	400						
Max. MPPT Current (A)	20						
Max. MPPT Short Circuit Current (A)	26						
Number of MPPTs	2	2	2	2	4	4	
Number of Strings per MPPT	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1 / 1 / 1	1 / 1 / 1 / 1	
AC Side (On-grid)							
Nominal Power (kW)	3.0	3.6	5.0	6.0	8.0	10.0	
Nominal Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	
Max. Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	
Max. Apparent Power from Grid (kVA)	6.0	7.2	10.0	12.0	14.5	14.5	
Nominal Voltage (V)	220 / 230 / 240, L / N / PE						
Voltage Range (V)	170 ~ 280						
Nominal Frequency (Hz)	50 / 60						
Frequency Range (Hz)	45 ~ 55 / 55 ~ 65						
Max. Current to Grid (A)	13.7 @ 220V 13.1 @ 230V 12.5 @ 240V	16.4 @ 220V 15.7 @ 230V 15.0 @ 240V	22.8 @ 220V 21.8 @ 230V 20.9 @ 240V	27.3 @ 220V 26.1 @ 230V 25.0 @ 240V	36.4 @ 220V 34.8 @ 230V 33.4 @ 240V	43.5 @ 220V 43.5 @ 230V 41.7 @ 240V	
Max. Current From Grid (A)	27.3 @ 220V 26.1 @ 230V 25.0 @ 240V	32.8 @ 220V 31.4 @ 230V 30.0 @ 240V	45.5 @ 220V 43.5 @ 230V 41.7 @ 240V	50.0 @ 220V 50.0 @ 230V 50.0 @ 240V	63.0 @ 220V 63.0 @ 230V 60.5 @ 240V	63.0 @ 220V 63.0 @ 230V 60.5 @ 240V	
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)						
THDi	<3%						
Back-up Side							
Nominal Output Apparent Power (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	
Max. Output Apparent Power (kVA)	3.0 (6.0, 10s)	3.6 (7.2, 10s)	5.0 (10.0, 10s)	6.0 (12.0, 10s)	8.0 (16.0, 10s)	10.0 (20.0, 10s)	
Max. Output Apparent Power (Bypass) (kVA)	6.0	7.2	10.0	12.0	14.5	14.5	
Max. Output Current (A)	13.7	16.4	22.8	27.3	36.4	43.5	
Max. Output Current (Bypass) (A)	27.3	32.8	45.5	50.0	63.0	63.0	
Nominal Output Voltage (V)	220 / 230 / 240, L / N / PE						
Nominal Output Frequency (Hz)	50 / 60						
THDv (@Linear Load)	<3%						
Efficiency							
Max. Efficiency	97.6%	97.6%	97.6%	97.6%	97.5%	97.5%	
European Efficiency	96.5%	96.5%	96.8%	97.0%	96.8%	96.8%	
Max. Battery to AC Efficiency	98.0%	98.0%	98.0%	98.0%	97.8%	97.8%	
Protection							
PV String Current Monitoring	Integrated						
PV Insulation Resistance Detection	Integrated						
Residual Current Monitoring	Integrated						
PV Reverse Polarity Protection	Integrated						
Battery Reverse Polarity Protection	Integrated						
Anti-islanding Protection	Integrated						
AC Overcurrent Protection	Integrated						
AC Short Circuit Protection	Integrated						
AC Overvoltage Protection	Integrated						
DC Surge Protection	Type II						
AC Surge Protection	Type II						
RSD	Optional						
AFCI	Integrated						
Remote Shutdown	Integrated						
General Data							
Operating Temperature Range (°C)	-35 ~ +60 (Derating at +40)						
Relative Humidity	0 ~ 95%						
Max. Operating Altitude (m)	4000 (>2000 derating)						
Cooling Method	Natural convection						
User Interface	LED, WLAN + APP						
Communication with BMS	CAN						
Communication	RS485, WiFi + LAN + Bluetooth						
Communication Protocols	Modbus-RTU, Modbus-TCP						
Weight (kg)	24	24	24	24	26	26	
Dimension (W x H x D mm)	800 x 300 x 270						
Noise Emission	≤30	≤30	≤30	≤30	≤35	≤35	
Topology	Non-isolated						
Ingress Protection Rating	IP66						
Mounting Method	Wall / Floor Mounted						

¹: If there's no PV, start-up voltage will be 380V.

²: When the input voltage is 560V-600V, the inverter will enter standby mode, and the voltage returns to 560V to enter the normal operation state.

³: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*: Please visit GoodWe website for the latest certificates.

ESA Series / Battery Module

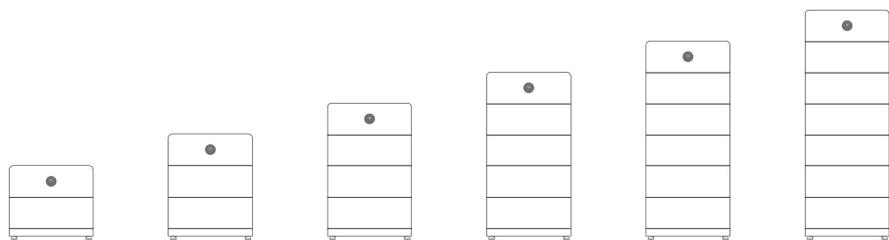


Technical Data	GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW5.1-BAT-D-G21	GW8.3-BAT-D-G21
Rated Energy (kWh)	5.12	8.32	5.12	8.32
Usable Energy (kWh) ¹	5	8	5	8
Battery Type	LFP (LiFePO ₄)			
Operating Voltage Range (V) (single phase system)	350 ~ 550			
Operating Voltage Range (V) (three phase system)	700 ~ 950			
Max. Input Current (System) (A)	12	19	12	19
Max. Output Current (System) (A)	13.2	21.0	13.2	21.0
Max. Input Power (System) (kW) ²	5	8	5	8
Max. Output Power (System) (kW) ²	5	8	5	8
Peak Output Power (System) (kW) ²	7.5 @ 10s	12 @ 10s	7.5 @ 10s	12 @ 10s
Charging Temperature Range (°C)	-18<T≤55	-18<T≤55	2<T≤55	2<T≤55
Discharging Temperature Range (°C)	-20<T≤55	-20<T≤55	-20<T≤55	-20<T≤55
Relative Humidity	5 - 95%			
Max. Operating Altitude (m)	4000			
Noise Emission (dB)	≤29			
Communication	CAN			
Weight (kg)	57.5 ± 1	79.0 ± 1	57.5 ± 1	79.0 ± 1
Dimensions (W × H × D mm)	800 × 326 × 270			
Optional Function Configuration	Heating	Heating	-	-
Ingress Protection	IP66			
Max. Storage Time	12 months (-20°C<T≤35°C) 6 months (35°C<T≤45°C)			
Scalability	6 pcs			
Mounting Method	Floor stacked / Wall-mounted			
Standard and Certification	Safety	IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC		
	EMC	CE, RCM		
	Transportation	UN38.3, ADR		

*1: Test conditions, 100% DOD (cell 2.85 ~ 3.6V voltage range), 0.2P charge & discharge at 25 ± 2°C for battery system at the beginning of life. Usable energy is defined by its initial design value. Actual available energy may vary depending on charge / discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*2: Max. Input Power / Max. Output Power / Peak Output Power derating will occur related to Temperature and SOC.

*: Please visit GoodWe website for the latest certificates.



Number of Battery Modules (pcs)	1	2	3	4	5	6
Total Energy Capacity (kWh, with 5.1 batt module)	5.12	10.24	15.36	20.48	25.60	30.72
Total Energy Capacity (kWh, with 8.3 batt module)	8.32	16.64	24.96	33.28	41.60	49.92