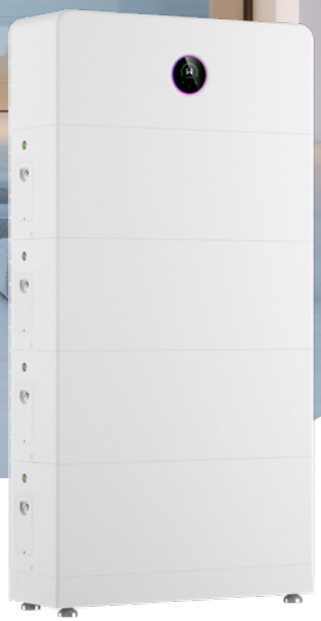
GOODWE

ESA Series

3-10kW/5-108kWh I Single Phase
AC Coupled

The GoodWe ESA Series is a fully integrated all-in-one energy storage solution that combines inverter and battery in a pre-wired, modular design-making installation significantly faster and easier. Engineered for flexibility, the ESA system allows seamless integration with existing solar installations and seamless expansion to meet evolving energy needs, with scalable battery capacity for future upgrades. With its streamlined setup, the ESA Series can reduce installation time by up to 50%, making it an ideal choice for efficient and adaptable residential energy systems. It also supports dynamic tariff optimization with AI-driven EMS.



*Initial stock may be supplied in a gloss white finish.

Optimized Performance

- 1C charge/discharge for rapid energy cycling
- Fanless design for quiet operation, noise <30dB

Flexible & Adaptable Applications

- Dual output ports for simplified installation & off-grid capability
- Flexible battery mixing with different capacity or old&new batteries
- Up to 63A bypass current for whole-home backup

Superb Safety & Reliability

- Advanced 6-layer safety protection
- Heating mode ensures reliable performance even in -20℃

Smart Control & Monitoring

- Seamless switching to backup <4ms
- One-click upgrade & one-click configuration

ESA Series / Power Module

GOODWE

Technical Data	GW3K-BHA G20	GW3.6K BHA-G20	GW5K-BHA G20	GW6K-BHA G20	GW8K-BHA G20	GW9.999K BHA-G20	GW10K-BHA -G20
Battery Side							
Battery Type				Li-ion			
Nominal Voltage (V)				380			
Voltage Range (V)				350 ~ 550			
Start-up Voltage (V)				380			
Number of Battery Inputs				1			
Max. Continuous Charging Current (A)	7.9	9.5	13.2	15.8	21.1	26.4	26.4
Max. Continuous Discharging Current (A)	8.7	10.5	14.5	17.4	23.2	29.0	29.0
Max. Charging Power (kW)	3.0	3.6	5.0	6.0	8.0	10.0	10.0
Max. Discharging Power (kW)	3.3	4.0	5.5	6.6	8.8	11.0	11.0
AC Side (On-grid)							
Rated Power (kW)	3.0	3.6	5.0	6.0	8.0	9.999	10.0
Max. Power (kW)	3.0	3.6	5.0	6.0	8.0	9.999	10.0
Rated Apparent Power from Grid (kVA)	3.0	3.6	5.0	6.0	8.0	9.999	10.0
Rated Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	9.999	10.0
Max. Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	9.999	10.0
Max. Apparent Power from Grid (kVA)	6.0	7.2	10.0	12.0	14.5	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			
Rated Current from 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	45.5 @ 220V 43.5 @ 230V 41.7 @ 240V	45.5 @ 220V 43.5 @ 230V 41.7 @ 240V
Rated 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	43.5 @ 220V 43.5 @ 230V 41.7 @ 240V
Max. Current from Grid (A)[*1]	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	63.0 @ 220V 63.0 @ 230V 60.5 @ 240V
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	43.5 @ 220V 43.5 @ 230V 41.7 @ 240V
Power Factor				0.8 leading ~ 0.8 lagging			
THDi				<3%			
Back-up Side							
Rated Apparent Power (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	10.0
Max. Apparent Power (kVA)	Off-grid: 3.0 (6.0, 10s) On-grid: 6	Off-grid: 3.6 (7.2, 10s) On-grid: 7.2	Off-grid: 5.0 (10.0, 10s) On-grid: 10	Off-grid: 6.0 (12.0, 10s) On-grid: 12	Off-grid: 8.0 (16.0, 10s) On-grid: 14.5	Off-grid: 10.0 (20.0, 10s) On-grid: 14.5	Off-grid: 10.0 (20.0, 10s) On-grid: 14.5
Nominal Voltage (V)				220 / 230 / 240, L / N / PE			
Nominal Frequency (Hz)				50/60			
Max. Current (A)	Off-grid: 13.7 @ 220V 13.1 @ 230V 12.5 @ 240V On-grid: 27.3	Off-grid: 16.4 @ 220V 15.7 @ 230V 15 @ 240V On-grid: 32.8	Off-grid: 22.8 @ 220V 21.8 @ 230V 20.9 @ 240V On-grid: 45.5	Off-grid: 27.3 @ 220V 26.1 @ 230V 25 @ 240V On-grid: 50	Off-grid: 36.4 @ 220V 34.8 @ 230V 33.4 @ 240V On-grid: 63	Off-grid: 43.5 @ 220V 43.5 @ 230V 41.7 @ 240V On-grid: 63	Off-grid: 43.5 @ 220V 43.5 @ 230V 41.7 @ 240V On-grid: 63
THDv (@Linear Load)				<3%			
On / Off-grid Switching Time (ms)				<10			
Efficiency							
Max. Battery to AC Efficiency	98.0%	98.0%	98.0%	98.0%	97.8%	97.8%	97.8%
Protection							
Residual Current Monitoring				Integrated			
Battery Reverse Polarity Protection				Integrated			
Anti-islanding Protection				Integrated			
AC Overcurrent Protection				Integrated			
AC Short Circuit Protection				Integrated			
AC Overvoltage Protection				Integrated			
AC Surge Protection				Type II			
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 ,4G + Bluetooth (Optional)			
Communication Protocols				Modbus-RTU, Modbus-TCP			
Weight (kg)	16.9	16.9	16.9	16.9	17.7	17.7	17.7
Dimension (W × H × D mm)				800 × 300 × 270			
Noise Emission (dB)	≤30	≤30	≤30	≤30	≤35	≤35	≤35
Ingress Protection Rating				IP66			
Mounting Method				Wall / Floor Mounted			

*1: GOODWE ESA series has internal bypass 63A passthrough ability to supprt whole home backup solution. If the customer don't want to do any breaker upgrade, the max current from grid in SolarGo(or SEMS+) can be set as previous breaker size.
*: Please visit GoodWe website for the latest certificates.

GoodWe-Single page-20260831-EN-V2.1. Information may be subject to change without notice during product improving.

ESA Series / Battery Module*

GOODWE

Technical Data		GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW5.1-BAT-D-G21	GW8.3-BAT-D-G21	GW6.0-BAT-D-G20	GW9.0-BAT-D-G20
Battery Type		LFP ($LiFePO_4$)					
Rated Energy (kWh)		5.12	8.32	5.12	8.32	6.0	9.0
Usable Energy (kWh)		5.0*1	8.0*1	5.0*1	8.0*1	5.8*2	8.7*2
Operating Voltage Range (V) (single phase system)		350 ~ 550					
Operating Voltage Range (V) (three phase system)		700 ~ 950					
Max. Input Current (System) (A)		12.0	19.0	12.0	19.0	7.1	10.7
Max. Output Current (System) (A)		13.2	21.0	13.2	21.0	7.9	11.8
Max. Input Power (System) (kW)*3		5.0	8.0	5.0	8.0	3.0	4.5
Max. Output Power (System) (kW)*3		5.0	8.0	5.0	8.0	3.0	4.5
Peak.Output Power (System) (kW)*3		7.5 @10s	12 @10s	7.5 @10s	12 @10s	4.5 @ 10s	6.75 @ 10s
Charging Temperature Range (°C)		-18 ~ +55	-18 ~ +55	+2 ~ +55	+2 ~ +55	-20 ~ +55	-20 ~ +55
Discharging Temperature Range (°C)		-20 ~ +55					
Relative Humidity		4 ~ 100%					
Max. Operating Altitude (m)		4000					
Noise Emission (dB)		≤29	≤29	≤29	≤29	≤27	≤27
Communication		CAN	CAN	CAN	CAN	CAN & 485	CAN & 485
Weight (kg)		57.5 ± 1	79 ± 1	57.5 ± 1	79 ± 1	61 ± 1	77± 1
Ingress Protection		IP66					
Dimensions (W × H × D mm)		800 × 326 × 270					
Function Configuration		Heating (Optional); Aerosol fire extinguishing (Integrated)		Aerosol fire extinguishing (Integrated)		Heating (Integrated); Aerosol fire extinguishing (Integrated)	
Max. Storage time		12 months (-20°C ~ +35°C) 6 months (+35°C ~ +45°C)					
Scalability*4		12 pcs					
Mounting Method		Floor stacked / Wall-mounted				Floor stacked / Wall-mounted / Grounded	
Cycle Life*5		≥8000	≥8000	≥8000	≥8000	≥10000	≥10000
Standard and Certification	Safety	IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC, VDE2510				IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC, Regulation 2023 / 1542, VDE2510-50	
	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: Test conditions, 100% DOD (cell 2.87~3.61V voltage range), 0.4P 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.
*3: Max. Input Power /Max. Output Power/Peak.Output Power derating will occur related to Temperature and SOC.
*4: For single-column stacked installations, the maximum number of parallel units is 6.
*5: Based on test data under specific laboratory conditions.
*: Based on Lynx D G2 Series technology
*: Please visit GoodWe website for the latest certificates.