

ESA Series

5-30kW/5-108kWh | Three Phase All-in-One (HV)

The GoodWe ESA Series 5-30kW/5-108kWh is a three-phase All-in-One ESS that integrates the inverter, battery, and intelligent energy management into a single system. Its pre-wired, modular design unifies the inverter and battery, delivering an installation-friendly structure that streamlines setup and accelerates commissioning. With four battery module options-5, 6, 8, and 9kWh-up to 12 modules can be connected for a total storage capacity of 108kWh. Featuring simplified configuration, large expandable storage, and an AI-driven EMS for dynamic tariff optimization, the ESA Series 5-30kW/5-108kWh provides an efficient, flexible, and future-ready solution for both residential and small commercial use.

: 6kWh & 9kWh coming soon



Optimized Performance

- Up to 200% DC oversizing & AC backup overload
- Up to 1C charge/discharge for rapid energy cycling
- Smart fan cooling for quiet operation, noise <35dB



Flexible & Adaptable Applications

- Dual-port design for whole-home backup
- Flexible battery mixing with different capacity or old & new batteries
- Supports on- and off-grid parallel operation



Superb Safety & Reliability

- Advanced 6-layer safety protection
- AI-driven AFCI 3.0 & IP66 protection
- Heating mode ensures reliable performance even in -20°C



Smart Control & Monitoring

- Ready for AI-driven EMS
- Seamless switching to backup < 4ms
- One-click upgrade & one-click configuration

ESA Series / Power Module

GOODWE

Technical Data	GW5K- ETA-G20	GW6K- ETA-G20	GW8K- ETA-G20	GW10K- ETA-G20	GW12K- ETA-G20	GW15K- ETA-G20	GW20K- ETA-G20	GW25K- ETA-G20	GW29.99K- ETA-G20
Battery Side									
Battery Type									
Nominal Voltage (V)					750				
Voltage Range (V)					700 ~ 950				
Start-up Voltage (V)					720				
Number of Battery Input					1				
Max. Continuous Charging Current (A)	6.7	8.1	10.7	13.4	16.1	20.1	26.7	33.3	40.0
Max. Continuous Discharging Current (A)	7.4	8.9	11.8	14.7	17.7	22.1	29.4	36.7	44.1
Max. Charging Power (kW)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	30.0
Max. Discharging Power (kW)	5.5	6.6	8.8	11.0	13.2	16.5	22.0	27.5	33.0
PV Side									
Max. Input Power (kW)	10	12	16	20	24	30	40	50	60
Max. Input Voltage (V) ¹					1000				
MPPT Operating Voltage Range (V) ²					120 ~ 950				
Start-up Voltage (V)					150				
Nominal Input Voltage (V)					750				
Max. MPPT Current (A)	21 / 21 / 21				21 / 21 / 21 / 21			21 / 21 / 42 / 42	
Max. MPPT Short Circuit Current (A)	26 / 26 / 26				26 / 26 / 26 / 26			26 / 26 / 52 / 52	
Number of MPPTs	3					4			
Number of Strings per MPPT	1 / 1 / 1				1 / 1 / 1 / 1			1 / 1 / 2 / 2	
AC Side (Grid Port)									
Rated Power (kW)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.99
Max. Power (kW)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.99
Rated Apparent Power to Grid (kVA)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.99
Rated Apparent Power from Grid (kVA)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.99
Max. Apparent Power to Grid (kVA) ³	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.99
Max. Apparent Power from Grid (kVA)	43.5 ⁴	43.5 ⁴	43.5 ⁴	43.5 ⁴	43.5 ⁴	43.5 ⁴	43.5 ⁴	55.2 ⁵	55.2 ⁵
Nominal Voltage (V)					220 / 380, 230 / 400, 3L / N / PE				
Voltage Range (V) (According to local standard)					180 ~ 260				
Nominal Frequency (Hz)					50 / 60				
Frequency Range (Hz)					45 ~ 55 / 55 ~ 65				
Rated Current to Grid (A)	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V
Rated Current from Grid (A)	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V
Max. Current to Grid (A) ⁶	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V
Max. Current from Grid (A) ⁶	63 ⁴	63 ⁴	63 ⁴	63 ⁴	63 ⁴	63 ⁴	63 ⁴	80 ⁵	80 ⁵
Power Factor					0.8 leading ~ 0.8 lagging				
THDi					<3%				
AC Side (Back-up Port)									
Rated Apparent Power (kVA)	5	6	8	10	12	15	20	25	30
Max. Apparent Power (kVA) ⁷	5.5 (10.0, 10s), on-grid: 43.5	6.6 (12.0, 10s), on-grid: 43.5	8.8 (16.0, 10s), on-grid: 43.5	11.0 (20.0, 10s), on-grid: 43.5	13.2 (24.0, 10s), on-grid: 43.5	16.5 (30.0, 10s), on-grid: 43.5	22.0 (30.0, 10s), on-grid: 43.5	27.5 (45.0, 10s), on-grid: 55.2	33.0 (45.0, 10s), on-grid: 55.2
Nominal Voltage (V)					220 / 380, 230 / 400, 3L / N / PE				
Nominal Frequency (Hz)					50 / 60				
Max. Current (A) ⁷	Off-grid: 11.4, on-grid: 63	Off-grid: 13.7, on-grid: 63	Off-grid: 18.2, on-grid: 63	Off-grid: 22.8, on-grid: 63	Off-grid: 27.3, on-grid: 63	Off-grid: 33.4, on-grid: 63	Off-grid: 33.4, on-grid: 63	Off-grid: 50.0, on-grid: 80	Off-grid: 50.0, on-grid: 80
THDv (@Linear Load)					<3%				
On / Off-grid Switching Time (ms)					<4				
Efficiency									
Max. Efficiency	98.0%	98.0%	98.0%	98.1%	98.1%	98.1%	98.1%	98.2%	98.2%
European Efficiency	96.4%	96.9%	97.1%	97.2%	97.2%	97.3%	97.3%	97.4%	97.4%
Max. Battery to AC Efficiency					98.0%				
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 Switch						Integrated			
DC Surge Protection	Type II	Type II	Type II	Type II	Type II	Type II	Type II	Type I + II	Type I + II
AC Surge Protection					Type II				
AFCI					Integrated				
Remote Shutdown					Integrated				
General Data									
Operating Temperature Range (°C)					-35 ~ +60				
Relative Humidity					0 ~ 100%				
Max. Operating Altitude (m)					4000 (>2000 derating)				
Cooling Method					Smart Fan Cooling				
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)	34	34	34	34	34	34	34	38	38
Dimension (W x H x D mm)					800 x 340 x 270				
Noise Emission (dB)	≤35	≤35	≤35	≤40	≤40	≤40	≤40	≤45	≤45
Ingress Protection Rating					IP66				
Mounting Method					Wall / Floor Mounted				

*1: When the input voltage ranges from 950V to 1000V, the inverter will enter the standby mode, and the voltage returns to 950V to enter the normal operation state.
*2: Please refer to the user manual for the MPPT Voltage Range at nominal Power.
*3: According to the local grid regulation.
*4: GOODWE ESA series has internal bypass 63A passthrough ability to support whole home backup solution. If the customer don't want to do any breaker upgrade, the main breaker size in SolarGo(or SEMS+)can be set as previous breaker size.
*5: GOODWE ESA series has internal bypass 80A passthrough ability to support whole home backup solution. If the customer don't want to do any breaker upgrade, the main breaker size in SolarGo(or SEMS+)can be set as previous breaker size.
*6: If the backup port is not used, select an appropriate circuit breaker based on the AC maximum output current.
*7: "Off grid" means the energy of backup output only comes from PV and battery. "On grid" means the energy of the backup output includes the energy from grid or generator(on-grid)side.
*: Please visit GoodWe website for the latest certificates.

Technical Data	GW5.1-BAT-D-G20	GW8.3-BAT-D-G20
Rated Energy (kWh)	5.12	8.32
Usable Energy (kWh) ¹	5.0	8.0
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)	12.0	19.0
Max. Output Current (System)(A)	13.2	21.0
Max. Input Power (System)(kW) ²	5.0	8.0
Max. Output Power (System)(kW) ²	5.0	8.0
Peak Output Power (System)(kW) ²	7.5 @ 10s	12 @ 10s
Charging Temperature Range (°C)	-18 ~ +55	
Discharging Temperature Range (°C)	-20 ~ +55	
Relative Humidity	5 - 95%	
Max. Operating Altitude (m)	4000	
Noise Emission (dB)	≤29	
Communication	CAN	
Weight (kg)	57.5 ± 1	79.0 ± 1
Dimensions (W × H × D mm)	800 × 326 × 270	
Optional Function Configuration	Heating (Integrated)	
Ingress Protection	IP66	
Max. Storage Time	12 months (-20°C ~ 35°C) 6 months (35°C ~ 45°C)	
Scalability	12pcs	
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.

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