

ESA Series

5-30kW/5-108kWh I 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 9*kWh-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 as low as 30dB*

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

*: 5-8kW | Operating noise as low as 30dB at 25°C ambient

ESA Series / Power Module

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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	GW29.999K-ETA-G20
Battery Side									
Battery Type	LFP ($LiFePO_4$)								
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	29.999
Max. Power (kW)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.999
Rated Apparent Power to Grid (kVA)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.999
Rated Apparent Power from Grid (kVA)	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.999
Max. Apparent Power to Grid (kVA)[*3]	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	29.999
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]	Off-grid: 5.5 (10.0, 10s), on-grid: 43.5	Off-grid: 6.6 (12.0, 10s), on-grid: 43.5	Off-grid: 8.8 (16.0, 10s), on-grid: 43.5	Off-grid: 11.0 (20.0, 10s), on-grid: 43.5	Off-grid: 13.2 (24, 10s), on-grid: 43.5	Off-grid: 16.5 (30, 10s), on-grid: 43.5	Off-grid: 22.0 (30.0, 10s), on-grid: 43.5	Off-grid: 27.5 (45.0, 10s), on-grid: 55.2	Off-grid: 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 × H × D mm)	800 × 340 × 270								
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 to950V 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 supprt 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 supprt 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.

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ESA Series / Battery Module

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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.
*: Please visit GoodWe website for the latest certificates.

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