

GOODWE

ESA Series 3-10kW/5-108kWh

Single Phase | All-in-One (HV)

Redefining Home Energy, All-in-One

4S



Silent



Smart



Secure



Simple

Smart: 30%

Bill Savings
AI-driven EMS

Simple: 10-min

Installation
Plug. Power. Go

Silent: <30dB

Fanless Design for
Quiet Operation

Secure: 6-Layer

Protection
From Cell to System

-20°C to 55°C

Operation¹
Reliable power, any weather

5-108kWh

Mix capacities.
Mix old & new batteries

IP66
protection

<4ms
Backup switching

STS Ready

Built for more scenarios

Up to **63A**
Bypass Current
Whole-home backup

200%
PV Oversizing
Charge and power
simultaneously

1: Optional functions or devices are purchased separately

Technical Data		GW3K-EHA-G20	GW3.6K-EHA-G20	GW5K-EHA-G20	GW6K-EHA-G20	GW8K-EHA-G20	GW9.999K-EHA-G20
Battery Side							
Battery Type	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	9.999	
Nominal Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	9.999	
Max. Apparent Power to Grid (kVA)	3.0	3.6	5.0	6.0	8.0	9.999	
Max. Apparent Power from Grid (kVA) ⁴	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) ⁴	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) ⁵	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. Output Current (Bypass) (A) ⁵	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 ,4G + Bluetooth (Optional)						
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						
Country of Manufacture	China						

*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.

*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: If the Back-up port is not used, select an appropriate circuit breaker based on the AC Max. Output Current.

*: Please visit GoodWe website for the latest certificates.

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 ^{*2}	5.0 ^{*1}	8.0 ^{*2}	5.8 ^{*3}	8.7 ^{*3}
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) ^{*4}		5.0	8.0	5.0	8.0	3.0	4.5
Max. Output Power (System) (kW) ^{*4}		5.0	8.0	5.0	8.0	3.0	4.5
Peak.Output Power (System) (kW) ^{*4}		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 (Integrated); 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 ^{*5}			12 pcs				
Mounting Method			Floor stacked / Wall-mounted			Floor stacked / Wall-mounted / Grounded	
Cycle Life ^{*6}		≥8000	≥8000	≥8000	≥8000	≥10000	≥10000
Country of Manufacture			China				
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, 98% 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. AActual available energy may vary depending on charge/discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*2: Test conditions, 96% 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. AActual available energy may vary depending on charge/discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*3: 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.

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

*5: For single-column stacked installations, the maximum number of parallel units is 6.

*6: Based on test data under specific laboratory conditions.

*: Based on Lynx D G2 Series technology

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