GOODWE

# ESA Series 5-30kW/5-108kWh

Three Phase | All-in-One (HV)

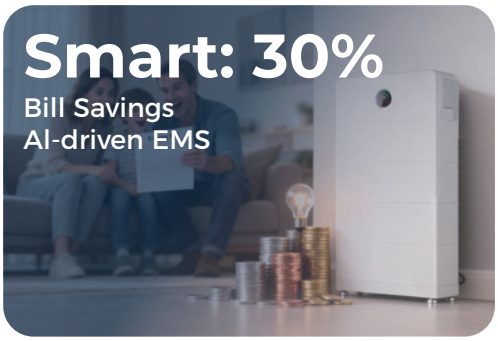
Power in Silence. Life in Balance.



4S Silent Smart Secure Simple

## Smart: 30%

Bill Savings
AI-driven EMS



## Simple: 10-min

Installation
Plug. Power .Go



## IP66

protection



## <4ms

Backup switching



## Built-in Aerosol Fire Suppression

Secure: 6-Layer Protection




## STS Ready

Built for more scenarios

## Up to 80A

Bypass Current
Whole-home backup



## Silent: 30dB*

1st TÜV-certified low-noise residential integrated system



## -20°C to 55°C

Operation[1]
Reliable power, any weather

## 5-108kWh

Mix capacities.
Mix old & new batteries



## 200%

DC oversizing &
AC backup overload




1: Optional functions or devices are purchased separately
*5~8kW I Operating noise as low as 30dB at 25°C ambient.

# ESA Series / Power Module

GOODWE

| Technical Data | GW5K-ETA-G20 | GW6K-ETA-G20 | GW8K-ETA-G20 | GW9.999K-ETA-G20 | GW12K-ETA-G20 | GW15K-ETA-G20 | GW20K-ETA-G20 | GW25K-ETA-G20 | GW29.999K-ETA-G20 |
|---|---|---|---|---|---|---|---|---|---|
| **Battery Side** | | | | | | | | | |
| Battery Type | LFP (LiFePO4) | | | | | | | | |
| 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 | 6 | 8 | 9.999 | 12 | 15 | 20 | 25 | 29.999 |
| Max. Power (kW) | 5 | 6 | 8 | 9.999 | 12 | 15 | 20 | 25 | 29.999 |
| Rated Apparent Power to Grid (kVA) | 5 | 6 | 8 | 9.999 | 12 | 15 | 20 | 25 | 29.999 |
| Rated Apparent Power from Grid (kVA) | 5 | 6 | 8 | 9.999 | 12 | 15 | 20 | 25 | 29.999 |
| Max. Apparent Power to Grid (kVA)*3 | 5 | 6 | 8 | 9.999 | 12 | 15 | 20 | 25 | 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<br>7.3@400V | 9.1@380V<br>8.7@400V | 12.2@380V<br>11.6@400V | 15.2@380V<br>14.5@400V | 18.2@380V<br>17.4@400V | 22.8@380V<br>21.8@400V | 30.4@380V<br>29.0@400V | 37.9@380V<br>36.3@400V | 45.5@380V<br>43.5@400V |
| Rated Current from Grid (A) | 7.6@380V<br>7.3@400V | 9.1@380V<br>8.7@400V | 12.2@380V<br>11.6@400V | 15.2@380V<br>14.5@400V | 18.2@380V<br>17.4@400V | 22.8@380V<br>21.8@400V | 30.4@380V<br>29.0@400V | 37.9@380V<br>36.3@400V | 45.5@380V<br>43.5@400V |
| Max. Current to Grid (A)*6 | 7.6@380V<br>7.3@400V | 9.1@380V<br>8.7@400V | 12.2@380V<br>11.6@400V | 15.2@380V<br>14.5@400V | 18.2@380V<br>17.4@400V | 22.8@380V<br>21.8@400V | 30.4@380V<br>29.0@400V | 37.9@380V<br>36.3@400V | 45.5@380V<br>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 I + II optional) | | | | | | | | |
| AC Surge Protection | Type II | | | | | | | | |
| Rapid Shutdown | Optional | | | | | | | | |
| 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 | | | | | | | | |
| Country of Manufacture | China | | | | | | | | |

*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 homebackup solution. If the customer don't want to do any breaker upgrade, the main breaker sizein 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.

GoodWe-Single page-20261101-AU-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*2 | 5.0*1 | 8.0*2 | 5.9*3 | 8.85*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)<br>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), trransport and storage factors.
*2: Test conditions, 96% DOD (cell 2.85~3.6V voltage range), 0.2P charrge & 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, 98% 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
*: Please visit GoodWe website for the latest certificates.