

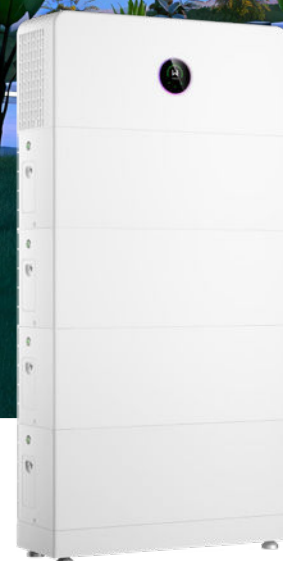
# GOODWE

## 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

| Technical Data                                  |  | GW5K-<br>ETA-G20 | GW6K-<br>ETA-G20 | GW8K-<br>ETA-G20 | GW10K-<br>ETA-G20                                        | GW12K-<br>ETA-G20                              | GW15K-<br>ETA-G20                              | GW20K-<br>ETA-G20                               | GW25K-<br>ETA-G20                             | GW29.999K-<br>ETA-G20                         |                                                 |                                                 |                                                 |
|-------------------------------------------------|--|------------------|------------------|------------------|----------------------------------------------------------|------------------------------------------------|------------------------------------------------|-------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Battery Side                                    |  |                  |                  |                  |                                                          |                                                |                                                |                                                 |                                               |                                               |                                                 |                                                 |                                                 |
| Battery Type                                    |  |                  |                  |                  | LFP (LiFePO <sub>4</sub> )                               |                                                |                                                |                                                 |                                               |                                               |                                                 |                                                 |                                                 |
| 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) <sup>1</sup>             |  |                  |                  |                  | 1000                                                     |                                                |                                                |                                                 |                                               |                                               |                                                 |                                                 |                                                 |
| MPPT Operating Voltage Range (V) <sup>2</sup>   |  |                  |                  |                  | 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) <sup>3</sup>  |  |                  |                  |                  | 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 <sup>4</sup>                                        | 43.5 <sup>4</sup>                              | 43.5 <sup>4</sup>                              | 43.5 <sup>4</sup>                               | 43.5 <sup>4</sup>                             | 43.5 <sup>4</sup>                             | 43.5 <sup>4</sup>                               | 55.2 <sup>5</sup>                               | 55.2 <sup>5</sup>                               |
| 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) <sup>6</sup>           |  |                  |                  |                  | 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) <sup>6</sup>         |  |                  |                  |                  | 63 <sup>4</sup>                                          | 63 <sup>4</sup>                                | 63 <sup>4</sup>                                | 63 <sup>4</sup>                                 | 63 <sup>4</sup>                               | 63 <sup>4</sup>                               | 63 <sup>4</sup>                                 | 80 <sup>5</sup>                                 | 80 <sup>5</sup>                                 |
| 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) <sup>7</sup>          |  |                  |                  |                  | Off-grid:<br>5.5 (10.0, 10s),<br>on-grid: 43.5           | Off-grid:<br>6.6 (12.0, 10s),<br>on-grid: 43.5 | Off-grid:<br>8.8 (16.0, 10s),<br>on-grid: 43.5 | Off-grid:<br>11.0 (20.0, 10s),<br>on-grid: 43.5 | Off-grid:<br>13.2 (24, 10s),<br>on-grid: 43.5 | Off-grid:<br>16.5 (30, 10s),<br>on-grid: 43.5 | Off-grid:<br>22.0 (30.0, 10s),<br>on-grid: 43.5 | Off-grid:<br>27.5 (45.0, 10s),<br>on-grid: 55.2 | Off-grid:<br>33.0 (45.0, 10s),<br>on-grid: 55.2 |
| Nominal Voltage (V)                             |  |                  |                  |                  | 220 / 380, 230 / 400, 3L / N / PE                        |                                                |                                                |                                                 |                                               |                                               |                                                 |                                                 |                                                 |
| Nominal Frequency (Hz)                          |  |                  |                  |                  | 50 / 60                                                  |                                                |                                                |                                                 |                                               |                                               |                                                 |                                                 |                                                 |
| Max. Current (A) <sup>7</sup>                   |  |                  |                  |                  | Off-grid: 11.4,<br>on-grid: 63                           | Off-grid: 13.7,<br>on-grid: 63                 | Off-grid: 18.2,<br>on-grid: 63                 | Off-grid: 22.8,<br>on-grid: 63                  | Off-grid: 27.3,<br>on-grid: 63                | Off-grid: 33.4,<br>on-grid: 63                | Off-grid: 33.4,<br>on-grid: 63                  | Off-grid: 50.0,<br>on-grid: 80                  | Off-grid: 50.0,<br>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) <sup>*1</sup>                    |                | 5.0                                                      | 8.0             |
| Battery Type                                         |                | LFP (LiFePO <sub>4</sub> )                               |                 |
| Operating Voltage Range (V)<br>(single phase system) |                | 350 ~ 550                                                |                 |
| Operating Voltage Range (V)<br>(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) <sup>*2</sup>          |                | 5.0                                                      | 8.0             |
| Max. Output Power (System)(kW) <sup>*2</sup>         |                | 5.0                                                      | 8.0             |
| Peak.Output Power (System)(kW) <sup>*2</sup>         |                | 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)<br>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.