



GOODWE
your solar engine

ES Series

Bi-directional energy storage



GoodWe ES series bi-directional energy storage inverter is compatible with both on-grid and off-grid PV systems. It can control the flow of energy intelligently. During daytime, the PV plant generates electricity which can be provided to the loads, fed into the grid or charge the battery. The electricity stored can be released when the loads require it during the night. Additionally, the power grid can also charge the storage devices via the inverter.

- Innovative solution for Energy Storage
- Charge controller and inverter integrated
- Intelligent battery management function
- Capable of being grid-interactive or grid-independent
- Compatible with both Lead-acid and Li-Ion battery
- More security & performance for same costs
- Monitoring inverters freely via computers or mobile phones
- Fanless low-noise design
- IP65 dust-proof and water-proof rating
- 45°C full-load output

Technical Data

GW5048D-ES

GW3648D-ES

Solar

| | | |
|-------------------------------|------------------------|------------------------|
| Max. recommended PV Power [W] | 6000 | 4600 |
| Nominal DC Power [W] | 5000 | 4000 |
| Max. DC voltage [V] | 580 | 580 |
| MPPT voltage range [V] | 125~550 | 125~550 |
| Starting voltage [V] | 150 | 150 |
| Max. DC current [A] | 11/11 | 11/11 |
| No. of DC connectors | 2 | 2 |
| No. of MPPTs | 2 (can parallel) | 2 (can parallel) |
| DC connector | AMPHENOL/ MC4/ SUNCLIX | AMPHENOL/ MC4/ SUNCLIX |

Battery

| | | |
|----------------------------------|-----------------------------------|-----------------------------------|
| Battery type | Lead-acid or Li-Ion | Lead-acid or Li-Ion |
| Normal Voltage [V] | 48 | 48 |
| Max Discharge power [W] | 4600 | 3600 |
| MAX Charge power [W] | 2300, programmable | 2300, programmable |
| Battery capacity [Ah] | ≥ 100 (depending requirement) | ≥ 100 (depending requirement) |
| Charging curve | 3-stage adaptive with maintenance | 3-stage adaptive with maintenance |
| Charging voltage [V] | 57 (optional) | 57 (optional) |
| Battery temperature compensation | Included (Li-Ion) | Included (Li-Ion) |
| Battery voltage sense | Integrated | Integrated |
| Current shunt | Integrated | Integrated |

AC Output Data

| | | |
|--------------------------|--|--|
| Normal AC power [W] | 4600 | 3600 |
| Max. AC power [W] | 4600 | 3600 |
| Peak power (Back-up) [W] | 1.5x Pnom, 10sec | 1.5x Pnom, 10sec |
| Max. AC current [A] | 20 | 16 |
| Normal AC output | 50/60Hz; 230Vac | 50/60Hz; 230Vac |
| AC output range | 45~55Hz/55~65Hz; 180~270Vac | 45~55Hz/55~65Hz; 180~270Vac |
| AC output (Back-up) | 230Vac ±2%, 50Hz(60Hz optional) ±0.2%, THDv<3% (linear load) | 230Vac ±2%, 50Hz(60Hz optional) ±0.2%, THDv<3% (linear load) |
| THDi | <1.5% | <1.5% |
| Power factor | 0.8 leading~0.8 lagging | 0.8 leading~0.8 lagging |
| Grid connection | Single phase | Single phase |

Efficiency

| | | |
|----------------------------|--------|--------|
| Max. efficiency | 97.6% | 97.6% |
| Euro efficiency | >97.0% | >97.0% |
| MPPT adaptation efficiency | 99.9% | 99.9% |

Protection

| | | |
|----------------------------------|-----------------------|-----------------------|
| Residual current monitoring unit | Integrated | Integrated |
| Anti-islanding protection | Integrated | Integrated |
| DC switch (PV) | Integrated (optional) | Integrated (optional) |
| AC over current protection | Integrated | Integrated |
| Insulation monitoring | Integrated | Integrated |

Certifications & Standards

| | | |
|-----------------|--|--|
| Grid regulation | VDE-AR-N4105, VDE 0126-1-1, G83/2, G59/3, AS4777.2/3 | |
| Safety | IEC62109-1&-2, AS3100, IEC62040-1 | |
| EMC | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN61000-3-11, EN61000-3-12 | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN61000-3-2, EN61000-3-3 |

General Data

| | | |
|---------------------------|---------------------------|---------------------------|
| Dimensions (WxHxD) | 516*440*184mm | 516*440*184mm |
| Weight [kg] | 30 | 28 |
| Mounting | Wall bracket | Wall bracket |
| Ambient temperature range | -25~60°C (>45°C derating) | -25~60°C (>45°C derating) |
| Relative humidity | 0~95% | 0~95% |
| Max. operating altitude | 4000m(> 3000m derating) | 4000m(> 3000m derating) |
| Protection degree | IP65 | IP65 |
| Topology | Transformerless | Transformerless |
| Standby losses [W] | <8 | <8 |
| Cooling | Natural convection | Natural convection |
| Noise emission [dB] | <25 | <25 |
| Display | LED light & APP | LED light & APP |
| Communication | USB2.0; WiFi | USB2.0; WiFi |
| Standard warranty [years] | 5 | 5 |