



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
Norminal 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

Norminal 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
Norminal 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)	
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

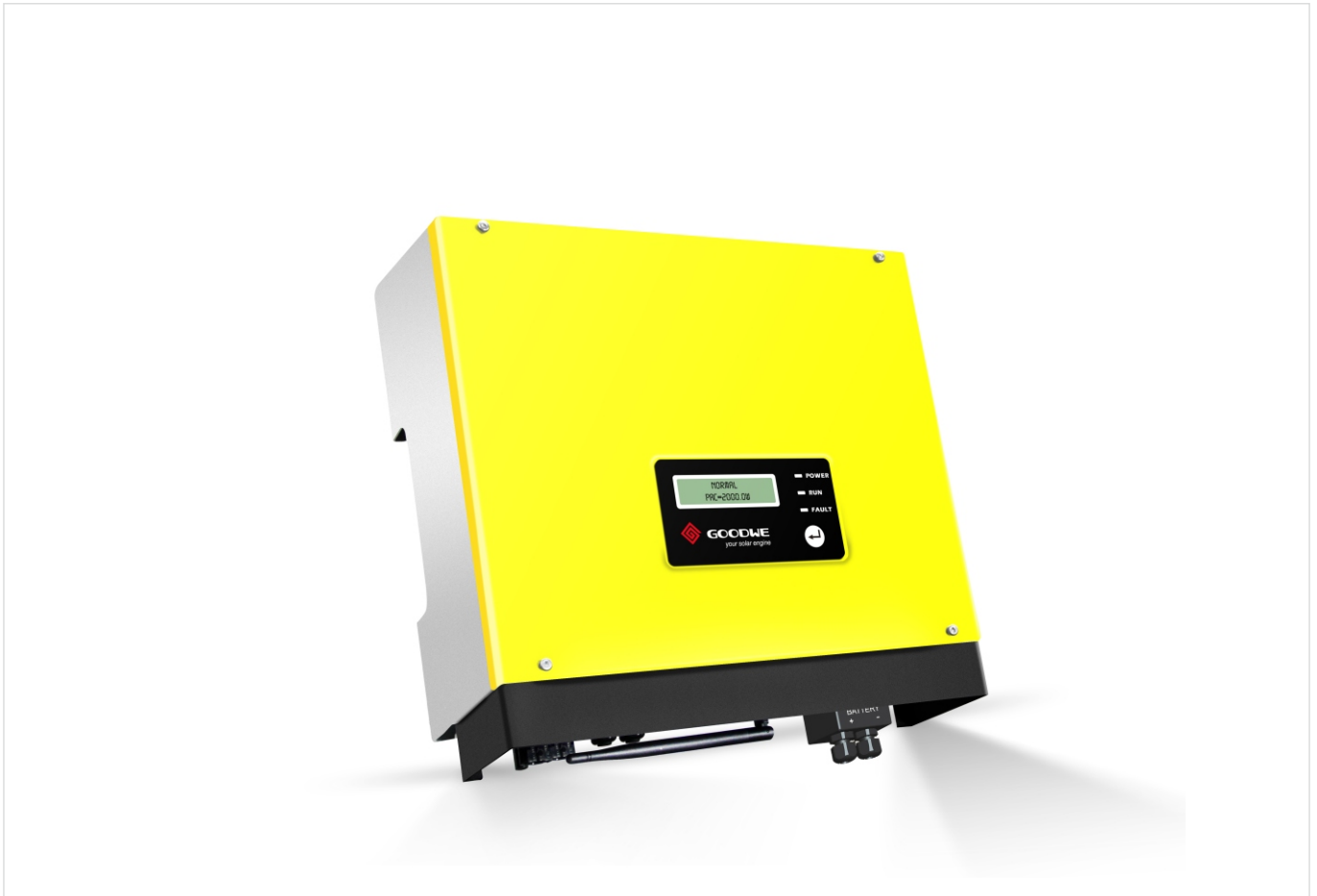
Grid regulation	VDE-AR-N4105, VDE 0126-1-1, G83/2, G59/3, AS4777.2/3	
Safety	IEC62109-1&-2, AS3100, IEC62040-1	
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN61000-3-11, EN61000-3-12	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN61000-3-2, EN61000-3-3

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

BP Series

Retrofit Inverter Unit for Battery Storage



The GoodWe BP series DC energy-storage system is compatible with most single-phase on-grid inverters. Ordinary PV stations can be upgraded to PV energy storage systems with the addition of a BP energy storage unit. During daytime, the PV system generates electricity which can be firstly provided to the loads. Then the excess energy will charge the battery via the BP energy storage system. During the night, battery discharges via BP energy storage system, then electricity will be provided to the loads via PV inverter. The BP energy storage system improves self consumption ratio greatly.

- Normal on-grid system equipped with storage function
- Intelligent battery management function
- BMS communication integrated
- Nominal 48V battery, secure and reliable
- Easy access to single-phase on-grid system
- Higher self-consumption ratio
- Up to 10 safety measurements
- Max. Battery Charge efficiency 96%
- Fanless low-noise design
- 45°C full-load output
- IP65 protection class

Technical Data

GW2500-BP

PV input

Max. PV input power [W]	6000
Max. PV input voltage [V]	600
Max. PV input current [A]	25
No. of PV input & output connectors	1/1
PV connector	AMPHENOL/ MC4/ SUNCLIX

Battery

Battery type	Lead-acid or Li-Ion
Norminal voltage [V]	48
Max. discharge/charge current [A]	50/50A
Max. discharge/charge power [W]	2500/2500
Battery capacity	>=50Ah (depending requirement)
Charging curve	3-stage adaptive with maintenance
Over current protection	Integrated

BP output and input data

Rated output voltage while discharging [V]	360
Rated output current while discharging [A]	6.5
PV voltage range while Battery charging [V]	150~480
Max input current while charging [A]	10

Efficiency

Max. battery charge efficiency	96.0%
Max. battery discharge efficiency	96.5%

Certifications & standards

Safety/EMC	CE
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General data

Dimensions (WxHxD)	344*274.5*128mm
Weight [kg]	8
Mounting	Wall bracket
Ambient temperature range	-25~60°C(>45°C derating)
Relative humidity	0~95%
Max. operating altitude	4000m(>3000m derating)
Protection degree	IP65
Topology	High frequency insulation
Standby losses [W]	<8
Cooling	Natural convection
Noise emission [dB]	<25
Display	LCD & LED light
Communication	USB2.0;WiFi;RS485
Standard warranty [years]	5



Battery Modules for Residential and Small Business Storage Systems



With many years' experience in Li-ion battery manufacturing, Pylontech has provided battery modules for residential and small business storage systems. The technology is based on LiFePO₄, and the embedded BMS is compatible with inverters from various manufacturers. Up-to-date international safety standards and rules are met and other features include long lifetime and user-friendly, user-friendly LCD display. In-house R&D covers long value chain: from critical raw materials and cells to pack and BMS, ensuring a state-of-the-art end product.

- High Performance with Cycle 8000(80% DOD)
- Continuous Charge/Discharge Current:100A(2C)
- High Reliability with 2 MCUs
- Bus Hardware Options: RS232/485, CAN
- Multi-Tier ESS (Energy Management System)
- Safety Cert.:TÜV、CE、UN38.3、TLC
- Modular Design
- Optimized Configuration for Installation
- Easy for Maintenance
- One Button Operation
- Hierarchy Management Architecture
- No Memory Effect, Long Lifetime
- Integrated BMS

Technical Data

US 2000A

Nominal	
Nominal Voltage (V)	48
Nominal Capacity (Ah)	50
Physical	
Dimension (mm)	436*370*132
Weight (Kg)	30
Electrical	
Discharge Voltage (V)	45~54
Charge Voltage (V)	52.5 ~ 54
Maximum Discharge Current (A)	50 (1C)
Maximum Charge Current (A)	50 (1C)
Others	
Communication Port	RS232, CAN
Working Life	15 Years(25°C/77 F)
Cycle Life	>6,000 (Temp. 25°C, DoD 95%) EOL 60% >8,000 (Temp. 25°C, DoD 80%) EOL 60%
Working Temperature	0°C~50°C
Safety Certifications	TÜV、CE、UN38.3、TLC