

Power Whenever You Need



IP65



Uninterruptible
Power Supply



Remote Upgrade



50A



Export Control



20% More Compact



EM Series

Single-phase Energy Storage Inverter

3.0kW

3.7kW

5.0kW

The GoodWe EM series bi-directional energy storage inverter can be used for both on-grid and off-grid PV systems. During the day, the PV array generates electricity which can be provided either to the loads, fed into the grid or charge the battery, depending on the economics and set-up. 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.

| Technical Data | GW3048-EM | GW3648-EM | GW5048-EM |
|---|---|--------------------------|--------------------------|
| Battery Input Data | | | |
| Battery Type | Li-Ion or Lead-acid*1 | Li-Ion or Lead-acid*1 | Li-Ion or Lead-acid*1 |
| Nominal Battery Voltage (V) | 48 | 48 | 48 |
| Max. Charging Voltage (V) | ≤60 (Configurable) | ≤60 (Configurable) | ≤60 (Configurable) |
| Max. Charging Current (A)*1 | 50 | 50 | 50 |
| Max. Discharging Current (A)*1 | 50 | 50 | 50 |
| Battery Capacity (Ah)*2 | 50~2000 | 50~2000 | 50~2000 |
| Charging Strategy for Li-Ion Battery | Self-adaption to BMS | Self-adaption to BMS | Self-adaption to BMS |
| PV String Input Data | | | |
| Max. DC Input Power (W) | 3900 | 4600 | 6500 |
| Max. DC Input Voltage (V)*3 | 550 | 550 | 550 |
| MPPT Range (V) | 100~500 | 100~500 | 100~500 |
| Start-up Voltage (V)*4 | 150 | 150 | 150 |
| MPPT Range for Full Load (V) | 280~500 | 170~500 | 230~500 |
| Nominal DC Input Voltage (V) | 360 | 360 | 360 |
| Max. Input Current (A) | 11 | 11/11 | 11/11 |
| Max. Short Current (A) | 13.8 | 13.8/13.8 | 13.8/13.8 |
| No. of MPP Trackers | 1 | 2 | 2 |
| No. of Strings per MPP Tracker | 1 | 1 | 1 |
| AC Output Data (On-grid) | | | |
| Nominal Power Output to Utility Grid (W) | 3000 | 3680 | 5000*5 |
| Max. Apparent Power Output to Utility Grid (VA)*6 | 3000 | 3680 | 5000 |
| Max. Apparent Power from Utility Grid (VA) | 5300 | 5300 | 5300 |
| Nominal Output Voltage (V) | 230 | 230 | 230 |
| Nominal Output Frequency (Hz) | 50/60 | 50/60 | 50/60 |
| Max. AC Current Output to Utility Grid (A) | 13.6 | 16 | 22.8*7 |
| Max. AC Current From Utility Grid (A) | 23.6 | 23.6 | 23.6 |
| Output Power Factor | ~1 (Adjustable from 0.8 leading to 0.8 lagging) | | |
| Output THDi (@Nominal Output) | <3% | <3% | <3% |
| AC Output Data (Back-up) | | | |
| Max. Output Apparent Power (VA) | 2300 | 2300 | 2300 |
| Peak Output Apparent Power (VA)*8 | 3500,10sec | 3500,10sec | 3500,10sec |
| Automatic Switch Time (ms) | 10 | 10 | 10 |
| Nominal Output Voltage (V) | 230 (±2%) | 230 (±2%) | 230 (±2%) |
| Nominal Output Frequency (Hz) | 50/60 (±0.2%) | 50/60 (±0.2%) | 50/60 (±0.2%) |
| Max. Output Current (A) | 10 | 10 | 10 |
| Output THDv (@Linear Load) | <3% | <3% | <3% |
| Efficiency | | | |
| Max. Efficiency | 97.6% | 97.6% | 97.6% |
| Max. Battery to Load Efficiency | 94.5% | 94.5% | 94.5% |
| Euro Efficiency | 97.0% | 97.0% | 97.0% |
| Protection | | | |
| Anti-islanding Protection | Integrated | Integrated | Integrated |
| PV String Input Reverse Polarity Protection | Integrated | Integrated | Integrated |
| Insulation Resistor Detection | Integrated | Integrated | Integrated |
| Residual Current Monitoring Unit | Integrated | Integrated | Integrated |
| Output Over Current Protection | Integrated | Integrated | Integrated |
| Output Short Protection | Integrated | Integrated | Integrated |
| Output Over Voltage Protection | Integrated | Integrated | Integrated |
| General Data | | | |
| Operating Temperature Range (°C) | -25~60 | -25~60 | -25~60 |
| Relative Humidity | 0~95% | 0~95% | 0~95% |
| Operating Altitude (m) | ≤4000 | ≤4000 | ≤4000 |
| Cooling | Natural Convection | Natural Convection | Natural Convection |
| Noise (dB) | <25 | <25 | <25 |
| User Interface | LED & APP | LED & APP | LED & APP |
| Communication with BMS*9 | RS485; CAN | RS485; CAN | RS485; CAN |
| Communication with Meter | RS485 | RS485 | RS485 |
| Communication with Portal | Wi-Fi | Wi-Fi | Wi-Fi |
| Weight (kg) | 16 | 17 | 17 |
| Size (Width*Height*Depth mm) | 347*432*175 | 347*432*175 | 347*432*175 |
| Mounting | Wall Bracket | Wall Bracket | Wall Bracket |
| Protection Degree | IP65 | IP65 | IP65 |
| Standby Self Consumption (W) | <13 | <13 | <13 |
| Topology | High Frequency Isolation | High Frequency Isolation | High Frequency Isolation |
| Certifications & Standards | | | |
| Grid Regulation | AS/NZS4777.2:2015, G83/2, G100, CEI 0-21, VDE4105-AR-N, VDE0126-1-1, NRS097-2-1, RD1699, UNE206006, EN50438 | | |
| Safety Regulation | IEC/EN62109-1&2, IEC62040-1 | | |
| EMC | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN 61000-4-16, EN 61000-4-18, EN 61000-4-29 | | |

*1: Lead-acid battery use refers to Approved Battery Options Statement.

The actual charge and discharge current also depends on the battery.

*2: Under off-grid mode, then battery capacity should be more than 100Ah.

*3: Maximum operating dc voltage is 530V.

*4: When there is no battery connected, inverter starts feeding in only if string voltage is higher than 200V.

*5: 4600 for VDE0126-1-1&VDE-AR-N4105 & CEI0-21(GW5048-EM).

*6: For CEI 0-21 GW3048-EM is 3300, GW3648-EM is 4050, GW5048-EM is 5100; for VDE-AR-N4105 GW5048-EM is 4600.

*7: 21.7A for AS4777.2.

*8: Can be reached only if PV and battery power is enough.

*9: The standard configuration is CAN.