GOODWE

EM Series

3-5kW I Single Phase LV Hybrid Inverter

The GoodWe EM Series bi-directional energy storage inverter can be used for on-grid PV systems, with the ability to control the flow of energy intelligently. 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 stored electricity can be released when the loads require it during the night. Additionally, the power grid can also charge the storage devices via the inverter. An all-round intelligent system for maximum energy flexibility.



- Smart battery management function
- 50A charge & discharge capacity
- Export control (Zero export)
- IP65 dustproof and waterproof
- <10ms UPS-level switching
- Fanless design, long lifespan

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Technical Data	GW3048-EM	GW3648-EM	GW5048-EM
Battery Input Data			
Battery Type	Li-Ion	Li-Ion	Li-Ion
Nominal Battery Voltage (V)	48	48	48
Battery Voltage Range (V)	40 ~ 60	40 ~ 60	40 ~ 60
Max. Continuous Charging Current (A)[*1]	50	50	50
Max. Continuous Discharging Current (A)[*1]	50	50	50
Max. Charging Power (W)	2500	2500	2500
Max. Discharging Power (W)	2500	2500	2500
PV String Input Data			
Max. Input Power (W)	3900	4600	6500
Max. Input Voltage (V)[*2]	550	550	550
MPPT Operating Voltage Range (V)	100 ~ 500	100 ~ 500	100 ~ 500
Start-up Voltage (V)	125	125	125
Nominal Input Voltage (V)	360	360	360
Max. Input Current per MPPT (A)	11	11	11
Max. Short Circuit Current per MPPT (A)	13.8	13.8	13.8
Number of MPP Trackers	1	2	2
Number of Strings per MPPT	1	1	1
AC Output Data (On-grid)			
Nominal Apparent Power Output to Utility Grid (VA)	3000	3680	5000
Max. Apparent Power Output to Utility Grid (VA)[*3]	3000	3680	5000
Max. Apparent Power from Utility Grid (VA)	5300	5300	5300
Nominal Output Voltage (V)	230	230	230
Nominal AC Grid Frequency (Hz)	50 / 60	50 / 60	50 / 60
Max. AC Current Output to Utility Grid (A)[*5]	13.6	16.0	22.8
Max. AC Current From Utility Grid (A)	23.6	23.6	23.6
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Max. Total Harmonic Distortion	<3%	<3%	<3%
AC Output Data (Back-up)			
Back-up Nominal Apparent Power (VA)	2300	2300	2300
Max. Output Apparent Power (VA)[*4]	2300 (3500@10sec)	2300 (3500@10sec)	2300 (3500@10sec)
Max. Output Current (A)	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%)
Output THDv (@Linear Load)	<3%	<3%	<3%
Efficiency			
Max. Efficiency	97.6%	97.6%	97.6%
European Efficiency	97.0%	97.0%	97.0%
Max. Battery to AC Efficiency	94.5%	94.5%	94.5%
MPPT Efficiency	99.9%	99.9%	99.9%
Protection			
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (°C)	-25 ~ +60	-25 ~ +60	-25 ~ +60
Relative Humidity	0 ~ 95%	0 ~ 95%	0 ~ 95%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Nature Convection	Nature Convection	Nature Convection
User Interface	LED, APP	LED, APP	LED, APP
Communication with BMS[*4]	RS485, CAN	RS485, CAN	RS485, CAN
Communication with Meter	RS485	RS485	RS485
Communication with Portal	WiFi	WiFi	WiFi
Weight (kg)	16	17	17
Dimension (W × H × D mm)	347 × 432 × 175	347 × 432 × 175	347 × 432 × 175
Noise Emission (dB)	<25	<25	<25
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<13	<13	<13
Ingress Protection Rating	IP65	IP65	IP65
Mounting Method	Wall Bracket	Wall Bracket	Wall Bracket

*1: The actual charge and discharge current also depends on the battery.
*2: Maximum operating dc voltage is 530V.
*3: For VDE-AR-N4105&NRS 097-2-1, GW5048-EM is 4600.
*4: Can be reached only if PV and battery power is enough.
*5: CAN communication is configured by default. If 485 communication is used, please replace the corresponding communication line.
*: Please visit GoodWe website for the latest certificates.

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