

# ES Series

## Single Phase Hybrid Inverter (LV Battery)



Technical Data		GW3648D-ES	GW5048D-ES
<b>Battery Input Data</b>	Battery Type* <sup>1</sup>	Li-Ion	
	Nominal Battery Voltage (V)	48	
	Max. Charging Voltage (V)	≤60 (Configurable)	
	Max. Charging Current (A)* <sup>1</sup>	75	100
	Max. Discharging Current (A)* <sup>1</sup>	75	100
	Battery Capacity (Ah)* <sup>2</sup>	50~2000	
	Charging Strategy for Li-Ion Battery	Self-adaption to BMS	
<b>PV String Input Data</b>	Max. DC Input Power (W)	4600	6500
	Max. DC Input Voltage (V)	580	
	MPPT Range (V)	125~550	
	Start-up Voltage (V)	125	
	Min. Feed-in Voltage (V)* <sup>3</sup>	150	
	MPPT Range for Full Load (V)	170~500	215~500
	Nominal DC Input Voltage (V)	360	
	Max. Input Current (A)	11/11	
	Max. Short Current (A)	13.8/13.8	
	No. of MPP Trackers	2	
	No. of Strings per MPP Tracker	1	
<b>AC Output Data (On-grid)</b>	Nominal Apparent Power Output to Utility Grid (VA)	3680	4600
	Max. Apparent Power Output to Utility Grid (VA)* <sup>4</sup>	3680	5100
	Max. Apparent Power from Utility Grid (VA)	7360	9200
	Nominal Output Voltage (V)	230	
	Nominal Output Frequency (Hz)	50/60	
	Max. AC Current Output to Utility Grid (A)	16	24.5* <sup>6</sup>
	Max. AC Current from Utility Grid (A)	32	40
	Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	
<b>AC Output Data (Back-up)</b>	Output THDi (@Nominal Output)	<3%	
	Max. Output Apparent Power (VA)	3680	4600
	Peak Output Apparent Power (VA)* <sup>6</sup>	5520, 10sec	6900, 10sec
	Max. Output Current (A)	16	20
	Nominal Output Voltage (V)	230 (±2%)	
	Nominal Output Frequency (Hz)	50/60 (±0.2%)	
<b>Efficiency</b>	Output THDv (@Linear Load)	<3%	
	Max. Efficiency	97.6%	
	Max. Battery to Load Efficiency	94.0%	
	European Efficiency	97.0%	
<b>Protection</b>	Anti-Islanding Protection	Integrated	
	PV String Input Reverse Polarity Protection	Integrated	
	Insulation Resistor Detection	Integrated	
	Residual Current Monitoring Unit	Integrated	
	Output Over Current Protection	Integrated	
	Output Short Protection	Integrated	
	Output Over Voltage Protection	Integrated	
<b>General Data</b>	Operating Temperature Range (°C)	-25~60	
	Relative Humidity	0~95%	
	Operating Altitude (m)	≤4000	
	Cooling	Natural Convection	
	Noise (dB)	<25	
	User Interface	LED & APP	
	Communication with BMS* <sup>7</sup>	RS485; CAN	
	Communication with Meter	RS485	
	Communication with Portal	Wi-Fi	
	Weight (kg)	28	30
	Size (Width*Height*Depth mm)	516*440*184	
	Mounting	Wall Bracket	
	Protection Degree	IP65	
	Standby Self-Consumption (W)	<13	
Topology	Battery Isolation		
<b>Certifications &amp; Standards*<sup>8</sup></b>	Grid Regulation	VDE-AR-N 4105, VDE 0126-1-1, EN 50549-1, G98, G100, CEI 0-21, AS/NZS4777.2, NRS 097-2-1;	VDE-AR-N 4105, VDE 0126-1-1, EN 50549-1, G99, G100, CEI 0-21, AS/NZS4777.2, NRS 097-2-1;
	Safety Regulation	IEC/EN62109-1&-2, IEC62040-1	
	EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN61000-4-16, EN61000-4-18, EN61000-4-29	

\*<sup>1</sup>: The actual charge and discharge current also depends on the battery.

\*<sup>2</sup>: Under off-grid mode, then battery capacity should be more than 100Ah.

\*<sup>3</sup>: When there is no battery connected, inverter starts feeding in only if string voltage is higher than 200V.

\*<sup>4</sup>: 4600 for VDE 0126-1-1 & VDE-AR-N4105, 4950 for AS4777.2(GW5048D-ES), 4050 for CEI 0-21 (GW3648D-ES).

\*<sup>5</sup>: 21.7A for AS4777.2.

\*<sup>6</sup>: Can be reached only if PV and battery power are enough.

\*<sup>7</sup>: CAN communication is configured by default. If 485 communication is used, please replace the corresponding communication line.

\*<sup>8</sup>: Not all certifications & standards listed, check the official website for details.