

# ES Series

## Single Phase Hybrid Inverter (LV Battery)



| Technical Data  |   | GW3648D-ES   | GW5048D-ES         |
|---|---|--|--------------------|
| <b>Battery Input Data</b>                                     | Battery Type                                  | 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               |
| 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%  |                    |
| <b>Protection</b>   | European Efficiency                           | 97.0%  |                    |
|   | 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                             |  |                    |

\*<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.

\*: Please visit GoodWe website for the latest certificates.