# SmartMGC5000B
# Smart Monitor and Controller



## Product Description

The SmartMGC5000B is a highly integrated C&I controller that supports grid connection, seamless on/off-grid switching, and off-grid control scenarios. It supports various microgrid features, such as detection of grid exception, synchronous control, and one-click automatic black start. In addition, it supports optical fiber and GE/FE ring networking, and provides functions such as device access and convergence, protocol conversion, data collection, data storage, centralized monitoring, centralized maintenance, and power control.

## Key Features

- Huawei-developed quad-core CPU, improving computing power by 3 times
- Huawei-developed power operating system, millisecond-level real-time control
- 20ms seamless switching, no impact on loads*
- Closed-loop control for zero feed-in within 2s
  Closed-loop peak shaving and capacity limit control within 5s
- Direct sampling of AC power and synchronous control
- PV+ESS+Charger unified monitor
- Intelligent control of active and reactive power, supporting multiple power control policy overlay
- Multiple southbound IoT ports, such as MBUS, RS485, FE, DI, DO, and AI

** Requires a fast grid-connected switch*

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| | |
|---|---|
| | Communications ports |
| WAN | WAN x 1, 10/100/1000 Mbit/s |
| LAN | LAN x 1, 10/100/1000 Mbit/s |
| GE | GE x 4, 10 / 100 / 1000 Mbps* |
| MBUS | Maximum AC voltage: 1000 V (±10%); maximum communication distance: 500 m |
| Optical fiber | SFP x 2, 1000 Mbit/s, 1310 nm wavelength, 10 km transmission distance using single-mode optical fibers |
| RS485 | COM x 3, maximum communication distance: 1000 m |
| 2G/3G/4G | Supported |
| ELV DI/DO | DI x 4, DO x 2. DI ports can receive passive dry contact signals, and DO ports support a maximum of 12 V signal voltage. |
| Electrical DI (HV)/DO (HV) | DI (HV) x 4, contact voltage range: 100V AC~277 V AC<br>DO (HV) x 8, contact voltage range: 100V AC~277 V AC, 1 fast DO port action time <1ms to support seamless on/off-grid switching |
| AI/DI | AI x 4 (three channels of current-type input + one channel of voltage-type input). The AI mode can be set to DI mode through software.<br>Current-type: 0–20 mA or 4–20 mA; input precision: less than 10 mA<br>Voltage-type: 0–10 V; input precision: less than 1 V |
| | Electricity measurement |
| Voltage measurement | 6 ports; measurement precision: 0.5%<br>Measurement range:<br>L-N: 57.7–277 V (L-L: 100–480 V) (three-phase three-wire or three-phase four-wire) |
| Current measurement | 3 ports; measurement range: 5 A; measurement precision: 0.5% |
| Frequency measurement | measurement range: 40Hz-70H; measurement precision: ±0.01Hz |
| | Software functions |
| Scenario | ESS and PV+ESS in grid-connected; seamless on/off-grid switching; off-grid operation |
| Maximum number of connected devices | Only PV: 80*inverters; Only Battery: 50*ESS cabinets, 10MWh;<br>PV+Battery: 30*inverters+20*ESS cabinets |
| Southbound protocol | Modbus-RTU, Modbus-TCP, and GOOSE |
| Northbound protocol | Modbus-TCP, IEC 60870-5-104, and GOOSE |
| | Display |
| LED | LED x 3 – RUN, ALM, 4G |
| USB | USB 2.0 x 1 |
| App | WLAN connection, used for commissioning |
| | Environment |
| Operating temperature | –40°C to +60°C (–40°F to +140°F) |
| Storage temperature | –40°C to +70°C (–40°F to +158°F) |
| Relative humidity (non-condensing) | 5%–95% |
| Maximum altitude | 5000 m (16,404 ft.) |
| | Electrical specifications |
| AC power supply | Adapter: 100–240 V, 50 Hz/60 Hz |
| DC power supply | 12/24 V |
| Power consumption | Typical: 12.5 W; maximum: 16.5 W |
| | Mechanical specifications |
| Dimensions (W x H x D) | 225 mm x 160 mm x 44 mm (excluding mounting ears and antennas) |
| Weight | 2 kg (4.4 lb.) |
| IP rating | IP20 |
| Installation mode | Wall-mounted, guide rail-mounted, or desk-mounted |

** Only GE3 and GE4 ports support ring networking.*

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# SmartLogger5000B
# Smart Monitor and Data Logger




## Product Description

The SmartLogger5000B is a highly integrated device dedicated for centralized monitoring and management of PV/PV+ESS systems in C&I scenario. It implements functions such as access and convergence, protocol conversion, data collection, data storage, centralized monitoring, centralized maintenance, and power control for all devices in PV+ESS systems. In addition, multiple industrial communication protocols are supported to interconnect with third-party systems.

## Key Features

- Huawei-developed quad-core CPU, improving computing power by 3.5 times
- Huawei-developed power operating system, millisecond-level real-time control
- Voltage/current/frequency direct sampling
- Closed-loop control for zero feed-in within 2s
  Closed-loop peak shaving and capacity limit control within 5s
- PV+ESS+charger unified monitor
- Multiple southbound IoT ports, such as MBUS, RS485, FE, DI, DO, and AI
- Intelligent control of active and reactive power, supporting multiple power control policy overlay
- APP wizard-based deployment, simplified experience

# SmartLogger5000B
# Smart Monitor and Data Logger



| | |
|---|---|
| | **Communications ports** |
| WAN | WAN x 1, 10/100/1000 Mbit/s |
| LAN | LAN x 1, 10/100/1000 Mbit/s |
| MBUS | Maximum AC voltage: 1000 V (±10%); maximum communication distance: 500 m |
| RS485 | COM x 3; maximum communication distance: 1000 m |
| 2G/3G/4G | Supported |
| DI/DO | DI x 4, DO x 2. DI ports can receive passive dry contact signals, and DO ports support a maximum of 12 V signal voltage. |
| AI/DI | AI x 4 (three channels of current-type input + one channel of voltage-type input).<br>The AI mode can be set to DI mode through software.<br>Current-type: 0–20 mA or 4–20 mA; input precision: less than 10 mA<br>Voltage-type: 0–10 V; input precision: less than 1 V |
| | **Electricity measurement** |
| Voltage measurement | Input: 3 channels; measurement precision: 0.5%<br>Measurement range:<br>L-N: 57.7–277 V (L-L: 100–480 V) (three-phase three-wire or three-phase four-wire) |
| Current measurement | Input: three channels; measurement range: 5A; measurement precision: 0.5% |
| Frequency measurement | measurement range: 40Hz-70Hz; measurement precision: ±0.01Hz |
| | **Software functions** |
| Scenario | Support only PV and PV+ESS management in grid-connected scenario |
| Maximum number of connected devices | Only PV: 80*inverters; only Battery: 50*ESS cabinets, 10MWh;<br>PV+Battery: 30*inverters+20*ESS cabinets<br>**Note: SmartModule is required when access more than 1 ESS cabinet* |
| Southbound protocol | Modbus-RTU, Modbus-TCP, and GOOSE |
| Northbound protocol | Modbus-TCP, IEC 60870-5-104, and GOOSE |
| | **Display** |
| LED | LED x 3 – RUN, ALM, 4G |
| USB | USB 2.0 x 1 |
| App | WLAN connection, used for commissioning |
| | **Environment** |
| Operating temperature | –40°C to +60°C (–40°F to +140°F) |
| Storage temperature | –40°C to +70°C (–40°F to +158°F) |
| Relative humidity (non-condensing) | 5%–95% |
| Maximum altitude | 5000 m (16,404 ft.) |
| | **Electrical specifications** |
| AC power supply | Adapter: 100–240 V AC, 50 Hz/60 Hz |
| DC power supply | 12 V/24 V |
| Power consumption | Typical: 9 W; maximum: 12 W |
| | **Mechanical specifications** |
| Dimensions (W x H x D) | 225 mm x 160 mm x 44 mm (excluding mounting ears and antennas) |
| Weight | 2 kg (4.4 lb.) |
| IP rating | IP20 |
| Installation mode | Wall-mounted, guide rail-mounted, or desk-mounted |