

# 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

# SmartMGC5000B

## Smart Monitor and Controller



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 ( $\pm 10\%$ ); 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 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. Current-type: 0–20 mA or 4–20 mA; input precision: less than 10 mA Voltage-type: 0–10 V; input precision: less than 1 V
Electricity measurement	
Voltage measurement	6 ports; measurement precision: 0.5% Measurement range: 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–70Hz; measurement precision: $\pm 0.01$ Hz
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; 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

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\* Only GE3 and GE4 ports support ring networking.

# 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 ( $\pm 10\%$ ); 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). The AI mode can be set to DI mode through software. Current-type: 0–20 mA or 4–20 mA; input precision: less than 10 mA Voltage-type: 0–10 V; input precision: less than 1 V
	Electricity measurement
Voltage measurement	Input: 3 channels; measurement precision: 0.5% Measurement range: 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: $\pm 0.01$ Hz
	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; PV+Battery: 30*inverters+20*ESS cabinets <i>*Note: SmartModule is required when access more than 1 ESS cabinet</i>
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