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
- 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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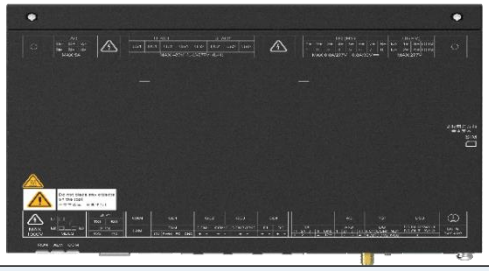

	Communications ports
WAN	WAN x 1, 10/100/1000 Mbit/s
LAN	LAN x 1, 10/100/1000 Mbit/s
GE	GE x 4, 10 / 100 / 1000 Mbps*
MBUS	Maximum AC voltage: 1000 V (±10%); maximum communication distance: 500 m
Optical fiber	SFP x 2, 1000 Mbit/s, 1310 nm wavelength, 10 km transmission distance using single-mode optical 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 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 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	3 channels; 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; 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.*