

Typical ESS-Only Scenario 1.1: ESS Low-Voltage Grid Connection – SmartMGC5000B

No.	Device	Specifications	Unit	Quantity	Supplier	Remarks
1	C&I GFM ESS	LUNA2000-241-2S1、LUNA2000-215-2S10 LUNA2000-215-2S11、LUNA2000-161-2S11 LUNA2000-107-1S11	pcs	50	Huawei	Different model ESSs can be used together. For details, see the "ESS Working Modes" section.
2	Array controller	SmartMGC5000B	-	1	Huawei	
3	Expansion module	SmartModule	-	1	Huawei	Not configured for 0–20 cabinets; Mandatory for more than 20 cabinets. For details, see the communication networking diagram.
4	Management system	FusionSolar	-	1	Huawei	
5	Three-phase meter	SmartPS-80AI-T0	-	1	Huawei	Require a CT (XXX A/5 A or 1 A) with an accuracy class not lower than 0.5S.
6	AC power cable from the C&I GFM ESS to the low-voltage PDC	ZC-0.6/1 kV-YJV22-4 x 95 mm ² + 1 x 50 mm ² copper cable	m	xx	Separately purchased by the customer	Rated power: 108 kW
7	Auxiliary power supply cable from the low-voltage PDC to the C&I GFM ESS	ZC-0.6/1 kV-YJV22-2 x 6 mm ² copper cable	m	xx	Separately purchased by the customer	Maximum auxiliary power per ESS: 5.5 kVA

Typical ESS-Only Scenario 1.1: ESS Low-Voltage Grid Connection SmartLogger3000

No.	Device	Specifications	Unit	Quantity	Supplier	Remarks
1	Smart String ESS	LUNA2000-241-2S1, LUNA2000-215-2S10, LUNA2000-161-2S11, LUNA2000-107-1S11	-	20	Huawei	
2	SACU	SmartLogger3000 (including the new root certificate)	-	1	Huawei	
3	Expansion module	SmartModule	-	1	Huawei	Mandatory for 2–20 ESSs
4	Management system	FusionSolar	-	1	Huawei	
5	Three-phase meter	SmartPS-80AI-T0	-	1	Huawei	CTs (XXX A/5 A or 1 A) with a minimum precision of 0.5s are required.
6	AC power cable between the Smart String ESS and the DC LV Panel	ZC-0.6/1 kV-YJV22-4 x 95 mm ² + 1 x 50 mm ² copper cable	m	xx	Separately purchased by the customer	Rated power: 108 kW
7	Auxiliary power cable between the DC LV Panel and the Smart String ESS	ZC-0.6/1 kV-YJV22-2 x 6 mm ² copper cable	m	xx	Separately purchased by the customer	Maximum auxiliary power per ESS: 5.5 kVA

Comparison between SmartLogger3000 and SmartMGC5000B

Capability	SmartLogger3000	SmartMGC5000B	Conclusion
On-grid Management	PV+ more than 2*ESS cabinets: 3000A/3000B +SmartModule	PV+ more than 2*ESS cabinets: SmartMGC5000B	SmartMGC5000B have extra 4GE ports and 2 SFP port which can form ring networking to access cabinets
On/off-grid and off-grid management	1. On/off-grid: seamed switch with 3000C 2. Off-grid: supported	1. On/off-grid: seamless switch 2. Off-grid: supported	Support seamless switch
CPU	ST-A7 dual-core	Cortex-A55 quad-core	Computing power enhance 3.5 times
RAM	512MB	2GB	Enhanced 4 times
Electricity measurement	no	Supported, 6 voltage measure channels and 3 current measure channels	Power meter free in on-grid scenario. Save mains controller investment in on/off-grid switch.
Southbound port	3*COM	4*GE+3*COM+1*MBUS + 2*SFP	More ports to connect more devices
High voltage DI/DO	no	4*DI+8*DO	These high voltage DI/DO ports can control switch directly without relay
PV+BESS+Charger unified monitor	Not support	Support monitor PV, BESS and charger in one platform	Support charger management
BESS accessed number	Pure BESS scenario: 20 Cabinets/SmartLogger3000	Pure BESS scenario: 50 Cabinets/SmartMGC5000B	Enhance 2.5 times
Seamless switch between BESS and Genset	no	Will support by end of Dec 2025.	The SmartMGC5000B communicate with DG controller via I/O port and control PV+ESS system to synchronize with DG system.