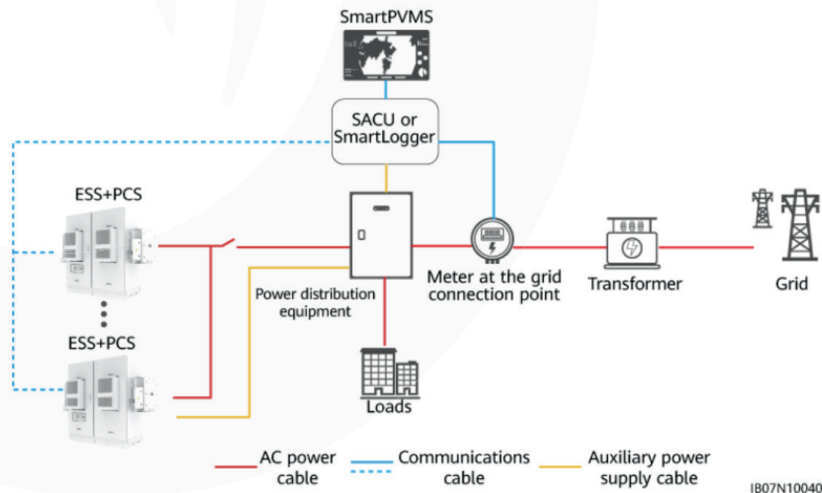


ESS-ONLY SYSTEM (ON-GRID)

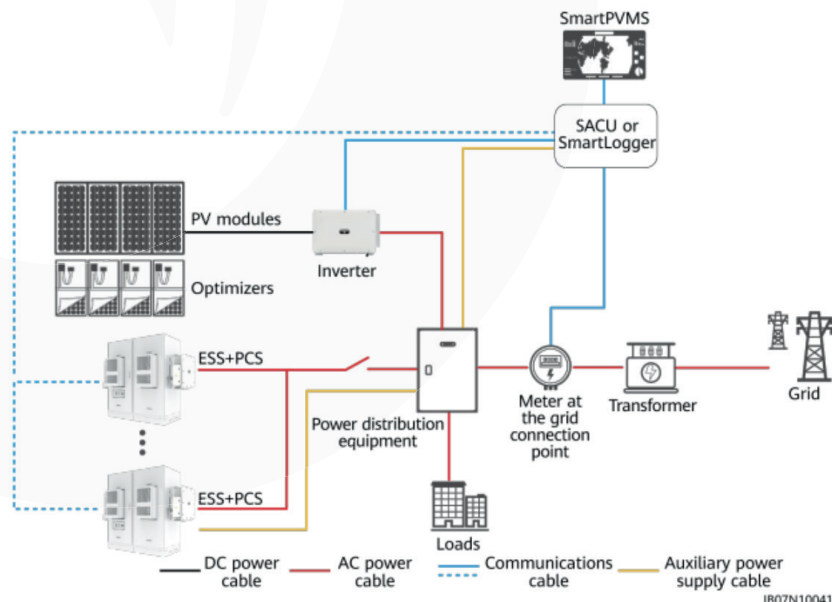


Component	Model	Q
Smart String Energy Storage System (ESS)	LUNA2000-126/161/200 KWH-2H1 LUNA2000-97 KWH-1H1	≤20
Smart Power Control System (PCS)	LUNA2000-100KTL-M1	≤20
SmartLogger3000/SACU		1
SmartModule / Network Switch	SmartModule1000A01	Depend on Design
Smart Power Meter	DTSU666-HW YDS60-80	1

This system operates in the following modes:

- TOU (Time-of-Use) or "Fixed-power charge and discharge" mode (**supported without a meter**).
- Peak Shaving mode (**requires a meter**).

ON-GRID SYSTEM WITH HUAWEI (M3/V3/V5/V5+/V6 ONLY) INVERTERS



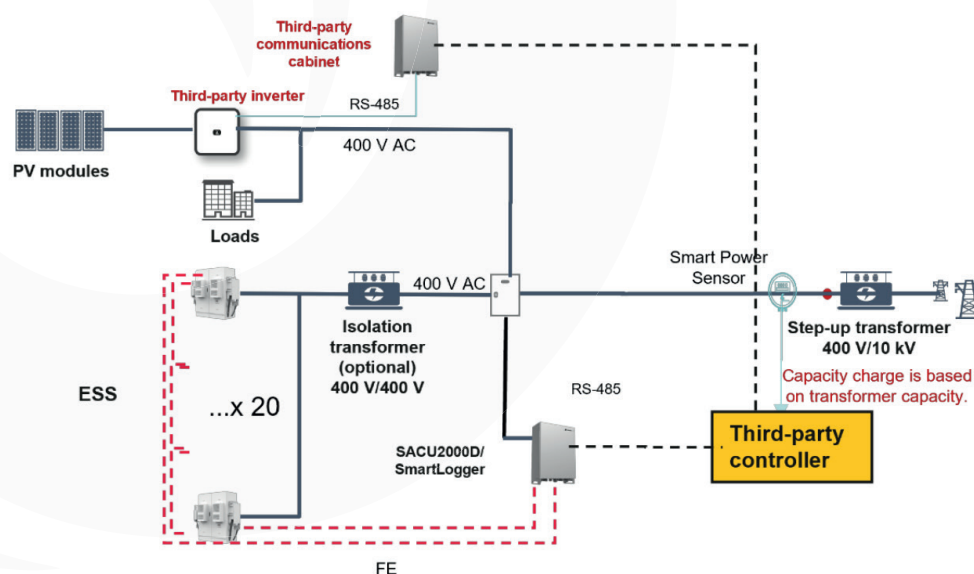
Component	Model	Q
Smart String Energy Storage System (ESS)	LUNA2000-126/161/200 KWH-2H1 LUNA2000-97 KWH-1H1	≤20
Smart Power Control System (PCS)	LUNA2000-100KTL-M1	≤20
Smart PV Inverter	SUN2000-30-40KTL-M3 SUN2000-50KTL-M3 SUN2000-50/60KTL-M0 SUN2000-100KTL-M1 SUN2000-100/115KTL-M2 SUN2000-150K-MG0 SUN5000-150K-MG0	≤30
Smart Optimizer ⁽¹⁾	SUN2000-450W-P2 SUN2000-600W-P MERC-1300W-P MERC-1100W-P	Depend on Design
SmartLogger3000/SACU		1
SmartModule / Network Switch	SmartModule1000A01	Depend on Design
Smart Power Meter	DTSU666-HW -YDS60-80	1

(1) SUN2000-30/36/40KTL-M3 supports **SUN2000-450W-P2** and **SUN2000-600W-P**, SUN2000-50KTL-M3 supports **MERC-1300W-P** or **MERC-1100W-P**, and **MERC-1300W-P** or **MERC-1100W-P** is mandatory for SUN5000-150K-MG0.

This system supports the following working modes:

- Maximum PV self-consumption (requires a meter).
- TOU or “Fixed-power charge and discharge” (supported without a meter).
- Peak Shaving (requires a meter).

ON-GRID SYSTEM WITH THIRD-PARTY INVERTERS



Component	Model	Q
Smart String Energy Storage System (ESS)	LUNA2000-126/161/200 KWH-2H1 LUNA2000-97 KWH-1H1	≤20
Smart Power Control System (PCS)	LUNA2000-100KTL-M1	≤20
Third-Party Inverter	-	
SmartLogger3000/SACU		1
SmartModule / Network Switch	SmartModule1000A01	Depend on Design
Smart Power Meter	DTSU666-HW YDS60-80	1
Third-Party Controller		1

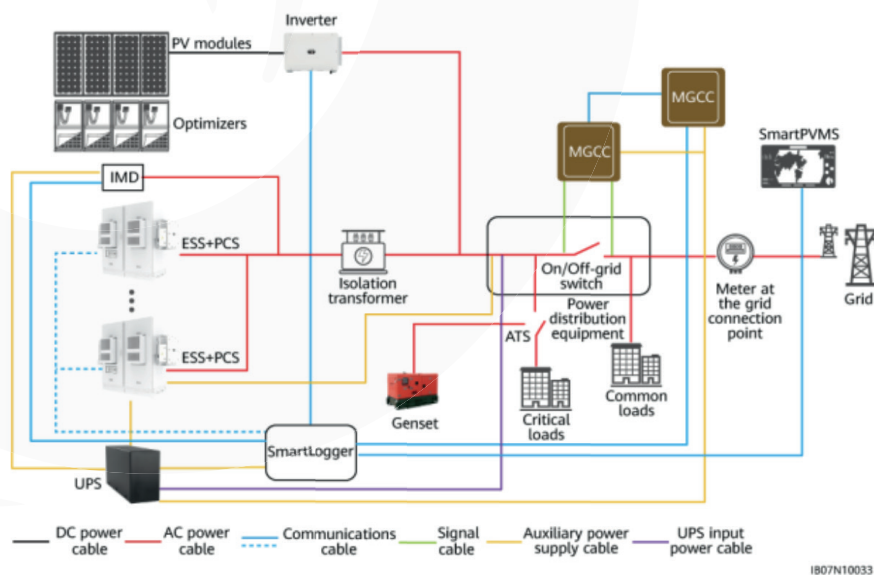
This system supports the following working modes:

- Maximum PV self-consumption (**Third-Party Controller is mandatory + Power meter**).
- TOU or “Fixed-power charge and discharge”
- Peak Shaving (**Third-Party Controller is mandatory + Power meter**).

In on-grid scenarios, upgrading Huawei C&I Smart PCS software to the latest allows Huawei C&I ESS to connect in parallel with a third-party inverter in low-voltage coupling mode without an isolation transformer. **However, this setup may cause circulating current and resonance, leading to ESS derating or faults; if these risks exist, add magnetic rings or an isolation transformer.**

To avoid switching overvoltage caused by the anti-islanding protection function of a third-party inverter, the auxiliary power for the C&I ESS must be sourced from an independent mains supply and transformer rather than the inverter output, ensuring it is drawn from either the independent mains or a power distribution cabinet on the low-voltage side.

ON/OFF-GRID SYSTEM WITH HUAWEI (M3/V3/V5/V5+/V6 ONLY) INVERTERS



Component	Model	Q
Smart String Energy Storage System (ESS)	LUNA2000-126/161/200 KWH-2H1 LUNA2000-97 KWH-1H1	≤20
Smart Power Control System (PCS)	LUNA2000-100KTL-M1	≤20
Smart PV Inverter ⁽¹⁾	SUN2000-30-40KTL-M3 SUN2000-50KTL-M3 SUN2000-50/60KTL-M0 SUN2000-100KTL-M1 SUN2000-100/115KTL-M2 SUN2000-150K-MG0 SUN5000-150K-MG0	≤30
Smart Optimizer ⁽²⁾	SUN2000-450W-P2 SUN2000-600W-P MERC-1300W-P MERC-1100W-P	Depend on Design
SmartLogger3000/SACU		1
SmartModule / Network Switch	SmartModule1000A01	Depend on Design
Smart Power Meter	DTSU666-HW YDS60-80	1
Power distribution equipment (including the on/ off-grid switch)	Supporting remote signal feedback	1
Microgrid central controller (MGCC) ⁽³⁾		
Isolation transformer ⁽⁴⁾	400/400 V, Dyn11, 1.1 times long-term operation, 50 Hz/60 Hz	1
Insulation monitoring device (IMD)	DOLD RN5897.12/011, used with the coupler DOLD RP5898/61	1

UPS ⁽⁵⁾		1
Genset	Three-phase	1
Automatic transfer switch (ATS)	Dual power switching device	1

- (1) The Huawei ESS is exclusively compatible with Huawei inverters in off-grid systems.
- (2) SUN2000-30/36/40KTL-M3 supports SUN2000-450W-P2 and SUN2000-600W-P, SUN2000-50KTL-M3 supports MERC-1300W-P or MERC-1100W-P, and MERC-1300W-P or MERC-1100W-P is mandatory for SUN5000-150K-MG0.
- (3) The microgrid central controller is mandatory in this system.
- (4) The isolation transformer is mandatory in this system, as it is required for operation during off-grid mode.
- (5) A 1–3 kVA online UPS (220 V) with a power backup duration of at least 1 hour is recommended to be connected to the available side of the on/off-grid switch, whether on-grid or off-grid, to ensure a reliable power supply. The UPS supplies power to the monitoring system, including the SACU, MGCC, and internal monitoring system of the ESS, to ensure power supply continuity for the monitoring system during system fault ride-through and transient power outages.

This system supports the following working modes:

- Maximum PV self-consumption (**Meter is mandatory**).
- TOU or “Fixed-power charge and discharge”
- Peak Shaving (**Meter is mandatory**).

In this configuration, the ESS is AC-coupled with the PV system via an isolation transformer, **which is always required in off-grid mode**. The microgrid system can connect to or disconnect from the power grid using an on/off-grid switch. In off-grid mode, the ESS serves as the primary power source to sustain the power grid while also working alongside the PV system to supply power to critical loads.