

SMS OFF-GRID SOLAR INVERTER

Document No.	SATTE-DS-SMS-001	Revision	2.0
Issue Date	September 2026	Language	English



Compact wall-mounted pure sine wave off-grid inverter/charger with integrated 40 A MPPT solar controller. Designed for 12 V and 24 V residential and small commercial solar systems in high-temperature, high-dust environments.

1–1.5
KW RATED POWER

40 A
MPPT CONTROLLER

98 %
PEAK EFFICIENCY

10 ms
TRANSFER TIME

TYPICAL APPLICATIONS

- **Residential backup** — lighting, TV, fans, laptops and small refrigeration during outages.
- **Telecom base stations** — continuous supply for remote low-power communications equipment.
- **Small business** — shops, kiosks, salons and small offices requiring reliable off-grid power.
- **Rural electrification** — standalone household and community systems where no grid exists.
- **Emergency systems** — clinics, schools and community centres needing critical-load backup.

KEY FEATURES

- Pure sine wave output — safe for motors, medical devices and sensitive electronics.
- Built-in 40 A MPPT solar charge controller.
- PV input voltage range 20–150 VDC (SMS-1000-12); 30–150 VDC (SMS-1500-24).
- Built-in anti-dust kit for harsh, dusty environments.
- Smart battery charge profile to extend battery service life.
- Compatible with sealed lead-acid, AGM, gel and lithium (LiFePO4) batteries.

TECHNICAL SPECIFICATION

PARAMETER	SMS-1000-12		SMS-1500-24
GENERAL			
Rated Power	1000 W / 1000 VA		1500 W / 1500 VA
Battery System Voltage	12 VDC		24 VDC
AC INPUT			
Nominal Input Voltage	230 VAC		
Selectable Input Range — Computer Loads	170 – 280 VAC		
Selectable Input Range — Appliance Loads	90 – 280 VAC		
Input Frequency Range	50 Hz / 60 Hz (auto sensing)		
AC OUTPUT			
Output Voltage Regulation	230 VAC ± 5 %		
Output Waveform	Pure sine wave		
Output Frequency	50 Hz / 60 Hz		
Surge Power (20 ms)	2000 VA		3000 VA
Peak Efficiency — PV to Inverter	98 %		
Peak Efficiency — Battery to Inverter	94 %		
Transfer Time	10 ms		
BATTERY & CHARGER			
Nominal Battery Voltage	12 VDC		24 VDC
Float Charge Voltage	13.5 VDC		27.0 VDC
Overcharge Protection	16.0 VDC		32.0 VDC
Maximum AC Charging Current	40 A		
SOLAR CHARGER (MPPT)			
Solar Charger Type	MPPT		
Maximum PV Array Power	600 W		1200 W
MPPT Operating Voltage Range	20 – 150 VDC		30 – 150 VDC
Maximum PV Open-Circuit Voltage (V _{oc})	150 VDC		
Maximum Solar Charging Current	40 A		
Maximum Solar + AC Charging Current	80 A		
MECHANICAL			
Dimensions (H × W × D)	290 × 240 × 91 mm		
Carton Dimensions (H × W × D)	340 × 295 × 145 mm		
Net Weight	3.5 kg		3.6 kg
Gross Weight	4.0 kg		4.2 kg
Mounting	Wall-mounted		
BATTERY BANK CONFIGURATION — BATTERIES ONLY, NOT SOLAR PANELS ¹			
Battery Modules in Series	Not permitted — parallel connection only		
Compatible SATTE Lithium Battery	SH-UIB-P12100 / P12150 / P12200 (12.8 V)		S200Ah, 24 V 200 Ah (4.8 kWh)
Max. Battery Modules in Parallel	2		1
Recommended Battery Bank Capacity	1.3 – 2.6 kWh		4.8 – 7.2 kWh
DISPLAY & MONITORING			
Display	LCD with status and fault indication		
Remote Monitoring (Wi-Fi / app)	Not available on this model. Specify SATTE SML or SNM-ECO where app monitoring is required.		
ENVIRONMENT & COMPLIANCE			
Operating Temperature	–10 °C to +50 °C		
Relative Humidity	5 % to 95 %, non-condensing		
Cooling	Forced air		
Compliance / Safety Mark	CE		

BATTERY COMPATIBILITY

ITEM	DETAIL
SATTE batteries	SH-UIB-P12100 / P12150 / P12200 (12.8 V) · S200Ah (24 V, 200 Ah)
Battery types supported	LiFePO4 (lithium); sealed lead-acid, AGM and gel
Compatible third-party brands	Pylontech · Dyness · Hubble · Freedom Won · Felicity · Revov · PYTES · BSLBATT · Shoto · GSL · Greenrich · UZ Energy · Weco · Narada · Deye/Sunsynk · Growatt · GoodWe · Victron · SofarSolar · LuxPower · Solis · SMA · SRNE · Outback · AlphaESS
Not supported	BYD, all families — high-voltage models cannot connect; 48 V models are not on BYD's approved inverter list
Solar modules / generators / grid	Any brand, within the voltage, current and frequency limits in this datasheet
Verification required	Bench-test each battery model before sale — see document SATTE-TG-COMPAT-001

Note 1 — Battery bank. Lithium modules with an integral BMS must never be wired in series. The 12 V models take the SATTE SH-UIB-P 12.8 V lithium range (100 Ah, 150 Ah or 200 Ah), or a lead-acid, AGM or gel bank. Maximum module count is the largest bank this inverter's own solar array can fully recharge in a single day.

Model selection. The 12 V model suits daily energy use up to roughly 2.5 kWh; the 24 V model up to roughly 5 kWh. Where continuous load exceeds 1.5 kW or the PV array exceeds 1.2 kW, specify the SATTE SML or SINV series instead.

PV array sizing. Maximum PV array power is the electrical limit of the MPPT input. Charging power is additionally limited by the 40 A charge current: approximately 560 W at 12 V and 1120 W at 24 V. Array capacity above these figures improves early-morning and cloudy-weather yield but does not increase peak charge rate.

String voltage. Total array open-circuit voltage must not exceed 150 VDC at the lowest expected ambient temperature, including the temperature coefficient of the modules.

Battery settings. Float and overcharge values shown are the factory lead-acid profile. When lithium (LiFePO4) batteries are used, charge parameters must be set to match the battery manufacturer's specification and the battery BMS.