

SINV OFF-GRID SOLAR INVERTER

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



High-capacity 48 V pure sine wave off-grid inverter/charger with integrated high-voltage MPPT solar controller. Three power classes from 3.6 kW to 6.2 kW for residential, agricultural and small commercial off-grid systems.

3.6–6.2
KW RATED POWER

100 A
MAX MPPT CURRENT

450 V
MAX PV INPUT

48 V
BATTERY PLATFORM

TYPICAL APPLICATIONS

- **Residential power backup** — whole-home supply during outages, including refrigeration and pumps.
- **Off-grid homes and lodges** — standalone systems in rural and remote locations.
- **Small business** — shops, workshops and offices in areas with frequent load shedding.
- **Agricultural use** — irrigation systems, borehole and surface water pumps, farm equipment.
- **Institutions** — schools, colleges, clinics and community centres.
- **Emergency and relief** — field hospitals, shelters and disaster-response operations.

KEY FEATURES

- Pure sine wave output — clean, stable power for laptops, medical devices and appliances.
- 48 V battery platform across the whole range for lower DC current and reduced cable losses.
- Built-in MPPT solar charge controller: 60 A, 80 A or 100 A according to model.
- MPPT operating window 120–450 VDC, suited to long high-voltage strings.
- Peak PV-to-inverter efficiency of 98 % or better.
- Anti-dust kit fitted as standard for dusty and industrial environments.
- Smart battery charge design to extend battery service life.
- Can operate without a battery connected where PV alone is sufficient.
- Compatible with lead-acid, AGM, gel and lithium (LiFePO4) batteries; wall-mounted with LCD display.

TECHNICAL SPECIFICATION

PARAMETER	SINV-3.6KW	SINV-4.2KW	SINV-6.2KW
GENERAL			
Rated Output Power	3600 W	4200 W	6200 W
Battery System Voltage	48 VDC		
AC OUTPUT			
Nominal Output Voltage	220 VAC ± 5 %		
Output Frequency	50 Hz / 60 Hz (auto sensing)		
Output Waveform	Pure sine wave		
Peak Efficiency — PV to Inverter	≥ 98 %		
SOLAR CHARGER (MPPT)			
Solar Charger Type	MPPT, single tracker		
Maximum PV Array Power	3600 W	4200 W	6200 W
MPPT Operating Voltage Range	120 – 450 VDC		
Maximum Solar Charging Current	60 A	80 A	100 A
Maximum Solar Charging Power (48 V) ¹	≈ 2.9 kW	≈ 3.9 kW	≈ 4.9 kW
MECHANICAL			
Dimensions (H × W × D)	450 × 350 × 200 mm	500 × 400 × 220 mm	550 × 450 × 250 mm
Net Weight	10 kg	12 kg	15 kg
Mounting	Wall-mounted		
Cooling	Forced air, anti-dust filtered		
ENVIRONMENT			
Operating Temperature	–10 °C to +50 °C		
Relative Humidity	5 % to 95 %, non-condensing		
Maximum Operating Altitude ²	2000 m without derating		
AC INPUT & CHARGER			
Nominal AC Input Voltage	230 VAC		
Acceptable AC Input Range	90 – 280 VAC / 170 – 280 VAC (selectable)		
BATTERY BANK CONFIGURATION — BATTERIES ONLY, NOT SOLAR PANELS ²			
Battery Modules in Series	Not permitted — parallel connection only		
Min. Battery Modules — S100Ah, 48 V 100 Ah (4.8 kWh)	2	2	3
Min. Battery Modules — S280Ah, 48 V 280 Ah (14.3 kWh)	1		
Max. Battery Modules in Parallel	2	3	4
Recommended Battery Bank Capacity	10 – 14 kWh	10 – 15 kWh	15 – 21 kWh
DISPLAY & MONITORING			
Display	LCD with status and fault indication		
Remote Monitoring (Wi-Fi / app)	Not available on this model. Specify SATTE SNM-ECO, MAX or TURBO where app monitoring is required.		

MODEL SELECTION GUIDE

SELECTION CRITERION	SINV-3.6KW	SINV-4.2KW	SINV-6.2KW
Typical household size	2–3 bedroom	3–4 bedroom	4+ bedroom / small commercial
Recommended PV array	2.5 – 3.6 kWp	3.0 – 4.2 kWp	4.5 – 6.2 kWp
Recommended battery bank (48 V)	5 – 10 kWh	10 – 15 kWh	15 – 20 kWh
Minimum battery discharge rating	75 A	90 A	130 A
Largest single motor load (soft start)	1.1 kW	1.5 kW	2.2 kW

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SINV SERIES — CONTINUED

BATTERY COMPATIBILITY

ITEM	DETAIL
Battery types supported	LiFePO4 (lithium) with BMS communication; sealed lead-acid, AGM and gel
Compatible battery 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
Basis of compatibility	Any LiFePO4 battery offering a Pylontech, Deye/Sunsynk, Growatt, GoodWe, Victron, SofarSolar, LuxPower, Solis, SMA, SRNE, Voltronic, Outback or AlphaESS BMS protocol mode. Pylontech CAN is the most widely emulated.
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 — Solar charging power.

Calculated as the maximum solar charging current at a nominal 48 V battery voltage. This is the ceiling on power delivered into the battery; the array may be sized above this figure to improve early-morning, late-afternoon and overcast yield.

Note 2 — Battery bank.

Minimum module count is set by the discharge current needed to deliver rated output. Maximum is the largest bank the inverter's own solar array can fully recharge in a single day. Lithium modules with an integral BMS must never be wired in series.

Model designation.

This revision corrects a model/specification mismatch present in earlier issues of this datasheet, in which the 3.6 kW and 6.2 kW designations were transposed. Rated output power, MPPT charging current, enclosure size and weight now increase consistently across the range. Please withdraw all earlier revisions from circulation.

String design and battery settings.

Array open-circuit voltage must not exceed 450 VDC at the lowest expected ambient temperature, and strings must stay above the 120 VDC tracking threshold at maximum cell temperature. With lithium (LiFePO4) batteries, charge parameters must be set to match the battery manufacturer's specification and BMS.

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Specifications are subject to change without notice. | SATTE-DS-SINV-001 Rev 2.0