

SIN-W SINGLE-PHASE OFF-GRID HYBRID INVERTER (IP54)

Document No.	SATTE-DS-SINW-002	Revision	1.0
Issue Date	September 2026	Language	English



Weather-protected single-phase hybrid inverter/charger in 6.5 kW and 12 kW at 48 V, with grid feed-in, generator input, parallel operation and an IP54 enclosure for exposed and dusty installations.

6.5–12
KW RATED POWER

IP54
DUST & SPLASH PROOF

9
UNITS IN PARALLEL

160 A
MAX CHARGE CURRENT

TYPICAL APPLICATIONS

- **Whole-home solar** with battery backup and grid self-consumption.
- **Small commercial** — offices, retail, clinics and hospitality.
- **Outdoor and semi-exposed installations** — IP54 rated.
- **Generator hybrid sites** — cuts diesel consumption.
- **Scalable systems** — up to nine units in parallel.
- **Agricultural** — irrigation, cold storage and workshops.

KEY FEATURES

- **IP54 enclosure** — dust protected and splash resistant.
- CT supplied as standard; unlimited standalone load on a single unit.
- Grid feed-in with anti-reflux control.
- Up to 9 units in parallel (6.5 kW) or 6 units (12 kW).
- Dual AC output on the 12 kW model.
- Built-in MPPT solar charger up to 160 A; dual PV input on the 12 kW.
- Operates with or without a battery; generator input supported.
- RS485, CAN and USB; optional Wi-Fi or 4G monitoring.

PROTECTION RATING: IP54 — DUST PROTECTED AND SPLASH RESISTANT. Protected against dust ingress and water splashing from any direction, so this series can be mounted in garages, verandas, plant rooms, workshops and other exposed or dusty positions. It is electrically identical to the SATTE SINW LV series of the same rating; the enclosure is the difference.

TECHNICAL SPECIFICATION

PARAMETER	SIN-W-6.5KW-48V	SIN-W-12KW-48V
GENERAL		
Rated Output Power	6.5 kW	12.0 kW
Output Power, Battery Mode	6.5 kW	10.5 kW
Battery Nominal Voltage	48 VDC	
Parallel Operation	Up to 9 units	Up to 6 units
Grid Feed-in	Yes	
Dual AC Output	—	Yes
PV INPUT		
Maximum PV Input Power	9.0 kW	1 MPPT: 9 kW; 2 MPPT: 7.5 + 7.5 kW
Maximum PV Input Current	27 A	1 MPPT: 27 A; 2 MPPT: 22.5 + 22.5 A
PV Short-Circuit Current	33 A	
Open-Circuit Voltage	500 VDC	
Start-up Voltage	80 VDC	
MPPT Voltage Range	60 – 450 VDC	
AC INPUT		
Rated Input Voltage	208 / 220 / 230 / 240 VAC; L+N+PE	
Voltage Range	90 – 280 ±3 V (normal) / 170 – 280 ±3 V (UPS)	
Frequency	50 / 60 Hz	
Maximum Bypass Input Current	40 A	70 A
AC OUTPUT		
Output Voltage / Frequency	208 / 220 / 230 / 240 VAC 50 / 60 Hz ±0.1 %	
Output Waveform	Pure sine wave	
Overload Capacity	60 s @ 102 – 120 % load; 10 s @ 120 – 200 % load	
Battery Mode Maximum Efficiency	93 % @ 48 VDC	94 % @ 48 VDC
Transfer Time	< 10 ms	
BATTERY & CHARGER		
Maximum AC Charge Current	120 A	160 A
Maximum PV Charge Current	120 A	160 A
Maximum Charge Current (PV + AC)	120 A	160 A
Maximum Discharge Current	160 A	220 A
Operating Voltage Range	43.2 – 58.4 VDC	
Minimum Battery Discharge Rating ²	144 A	266 A
MECHANICAL & ENVIRONMENT		
Ingress Protection ¹	IP54 — dust protected and splash resistant	
Operating Temperature	–10 °C to +55 °C	
Dimensions (W × H × D)	410 × 331 × 135 mm	495 × 425 × 132 mm
Net / Gross Weight	8.3 / 9.5 kg	14.2 / 15.7 kg

GENERAL DATA	
Display	LCD
Communication	RS485 / CAN / USB
Remote Monitoring	Yes — Wi-Fi or 4G module (optional), app and web portal
Relative Humidity	5 % to 95 %, non-condensing
Maximum Operating Altitude	4000 m (derating above 2000 m)

SATTE

SIN-W SERIES — CONTINUED

BATTERY COMPATIBILITY

ITEM	DETAIL
Battery types supported	LiFePO4 (lithium) with BMS communication; sealed lead-acid, AGM and gel
SATTE batteries	S100Ah (48 V, 100 Ah) · S280Ah (48 V, 280 Ah)
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. Also not compatible with the SATTE SHVA high-voltage range (307 – 845 VDC) — this is a low-voltage inverter.
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 — IP54 versus IP21.

The SINW series is electrically identical to the SATTE SIN-D series of the same rating. The only difference is the enclosure: SIN-W is IP54 (dust protected, splash resistant), SIN-D is IP21 (indoor only). Specify SIN-W wherever the unit will sit in a garage, veranda, plant room, workshop or any dusty or humid position.

Note 2 — Minimum battery discharge rating.

Rated output divided by nominal battery voltage at 94 % efficiency. The bank must be rated for at least this continuous current or rated output cannot be delivered.

Battery bank.

Lithium modules with an integral BMS must never be wired in series; parallel connection only, with identical modules of the same capacity and batch.

Grid connection.

Feed-in requires prior approval from the local distribution network operator and compliance with the national grid code. Configure for zero-export where export is not permitted.