

SIN-D SINGLE-PHASE OFF-GRID HYBRID INVERTER

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Compact single-phase off-grid hybrid inverter/charger with integrated MPPT solar controller, in 1.2 kW and 2 kW at 12 V and 5 kW at 24 V. The 5 kW model adds grid feed-in, generator input and parallel operation.

**1.2–5
KW RATED POWER**

**160 A
MAX MPPT CURRENT**

**IP21
INDOOR ONLY**

**<10 ms
TRANSFER TIME**

TYPICAL APPLICATIONS

- **Small solar home systems** — lighting, TV, refrigeration and phone charging.
- **Backup for essential circuits** through utility outages and load shedding.
- **Off-grid homes and rural electrification** where no grid connection exists.
- **Small business** — shops, kiosks, salons and mobile-money agents.
- **Telecom and CCTV** — remote low-power equipment.
- **Self-consumption with grid feed-in** on the 5 kW model.

KEY FEATURES

- Pure sine wave output; 200 % peak power for 10 s.
- UPS transfer time under 10 ms.
- Built-in MPPT solar charger up to 160 A.
- Lithium and lead-acid compatible, with automatic lithium activation.
- Operates with or without a battery connected.
- RS485, CAN and USB; optional Wi-Fi or 4G monitoring.
- Grid feed-in and generator input on the 5 kW model.
- Up to 9 units in parallel on the 5 kW model.

PROTECTION RATING: IP21 — INDOOR INSTALLATION ONLY. This series is protected against vertically falling drips only. It must be mounted indoors in a dry, ventilated position, away from dust, rain and splashing. **For a garage, veranda, plant room, workshop, shop front or any dusty or humid location, specify the SATTE SIN-W series instead** — electrically identical, rated IP54.

TECHNICAL SPECIFICATION

PARAMETER	SIN-D-1.2KW-12V	SIN-D-2KW-12V	SIN-D-5KW-24V
GENERAL			
Rated Output Power	1.2 kW	2.0 kW	5.0 kW
Output Power, Battery Mode	1.2 kW	2.0 kW	4.0 kW
Battery Nominal Voltage	12 VDC	12 VDC	24 VDC
Parallel Operation	Not available	Not available	Up to 9 units
Grid Feed-in	Not available	Not available	Yes
PV INPUT			
Maximum PV Input Power	0.8 kW	3.0 kW	9.0 kW
Maximum PV Input Current	18 A	18 A	27 A
PV Short-Circuit Current	20 A	22 A	33 A
Open-Circuit Voltage	115 VDC	450 VDC	500 VDC
Start-up Voltage	20 VDC	40 VDC	80 VDC
MPPT Voltage Range	17 – 115 VDC	30 – 400 VDC	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	10 A	17 A	40 A
AC OUTPUT			
Output Voltage	208 / 220 / 230 / 240 VAC		
Output Frequency	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	90 % @ 12 VDC	91 % @ 12 VDC	93 % @ 24 VDC
Transfer Time	< 10 ms		
BATTERY & CHARGER			
Maximum AC Charge Current	50 A	100 A	160 A
Maximum PV Charge Current	50 A	100 A	160 A
Maximum Charge Current (PV + AC)	100 A	100 A	160 A
Maximum Discharge Current	110 A	160 A	190 A
Operating Voltage Range	10.8 – 14.6 VDC	10.8 – 14.6 VDC	21.6 – 29.2 VDC
MECHANICAL & ENVIRONMENT			
Ingress Protection ¹	IP21 — indoor installation only		
Operating Temperature	–10 °C to +55 °C		
Dimensions (W × H × D)	330 × 226 × 110 mm	330 × 260 × 120 mm	410 × 331 × 135 mm
Net / Gross Weight	3.8 / 4.5 kg	4.8 / 5.7 kg	7.8 / 8.9 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-D SERIES — CONTINUED

BATTERY COMPATIBILITY

ITEM	DETAIL
Battery types supported	LiFePO4 (lithium) with BMS communication; sealed lead-acid, AGM and gel
SATTE batteries	SH-UIB-P12100 / P12150 / P12200 (12.8 V) · S200Ah (24 V, 200 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 — Indoor installation. IP21 protects against vertically falling drips only. These models must be installed indoors, in a dry, ventilated position. Where an outdoor or dusty location is unavoidable, specify the SATTE SIN-W series, which is electrically identical but rated IP54.

Series naming. This series carries the same SINV prefix as the existing 48 V SATTE SINV range built on a different platform. The two are unrelated. Always quote the full code including voltage — SINV-5KW-24V, not SINV 5KW — to avoid a mis-shipment.

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.

String voltage. Array open-circuit voltage must not exceed the value shown at the lowest expected ambient temperature, including the module temperature coefficient.

SATTE — Super Reliable Products | SIN-D Series Single-Phase Off-Grid Hybrid Inverter

Specifications are subject to change without notice. | SATTE-DS-SIND-001 Rev 1.0