INGECON SUN STORAGE 1Play

3 / 6 - 3TL / 6TL

SINGLE-PHASE BATTERY INVERTER WITH TRANSFORMER

The INGECON® SUN STORAGE 1Play battery inverter is a single-phase, two-way unit that can either be used in off-grid systems or connected to the general supply network.

Battery management
The INGECON® SUN STORAGE 1Play inverters feature cutting-edge technology to control the charging and discharging of the storage system in order to maximise the battery service life. The battery temperature could be controlled at all times, ensuring correct battery operation and durability. The inverter incorporates a pre-charge system to avoid battery inrush currents.

Back-up genset
The INGECON® SUN STORAGE 1Play permits the connection of a back-up genset, should this be necessary. Furthermore, the inverter can be started-up using this generator, in order to charge the batteries when these are completely discharged.

PV input
INGECON® SUN STORAGE 1Play inverters incorporate a PV input. Thanks to this input, the PV array can be connected directly to the inverter.

Energy Management System
Optionally, the inverter can integrate an energy management system (EMS Board or EMS Manager). The EMS Board can be integrated inside the inverter. It enables some more advanced features, like peak shaving. Additionally, the EMS Manager offers load control possibilities.

3 year warranty, extendible up to 25 years

PROTECTIONS

- Galvanic isolation between the DC and AC sides.
- AC overvoltages.
- Insulation faults.
- Output shortcircuits and overloads.

OPTIONAL ACCESSORIES

- Inverter communication via RS-485 and Ethernet.
- DC switch for the PV field.
- AC power supply system.
- INGECON® SUN EMS Board.
- INGECON® SUN EMS Manager.
- USB port for Wi-Fi communication (in combination with EMS Board).

MAIN FEATURES

- PV input.
- CAN communication for smart batteries.
- Configurable potential-free inputs.
- Configurable potential-free outputs, some for the connection and disconnection of the back-up genset.
- DC pre-charge system.
- Battery temperature measurement circuit built-in. PT100 (3-wire) needed.

www.ingeteam.com
solar.energy@ingeteam.com

Ingeteam

3 / 6 - 3TL / 6TL

Operating modes:

- **Stand-alone mode**
  The INGECON® SUN STORAGE 1Play inverter generates a stand-alone AC grid and acts as a grid manager, guaranteeing the correct balance between generation, consumption and the storage system. To do so, it controls the energy flow between the grid and the batteries, based on the status at any given time.

  The INGECON® SUN STORAGE 1Play inverter makes it possible to integrate a solar energy source into the grid, as it integrates a photovoltaic input. An advanced control system, requiring no communications, manages the power generated by the PV inverters, based on consumption data and the battery charge status. The back-up power source (a genset or the public grid) only connects when the battery state of charge is below a certain programmable threshold.

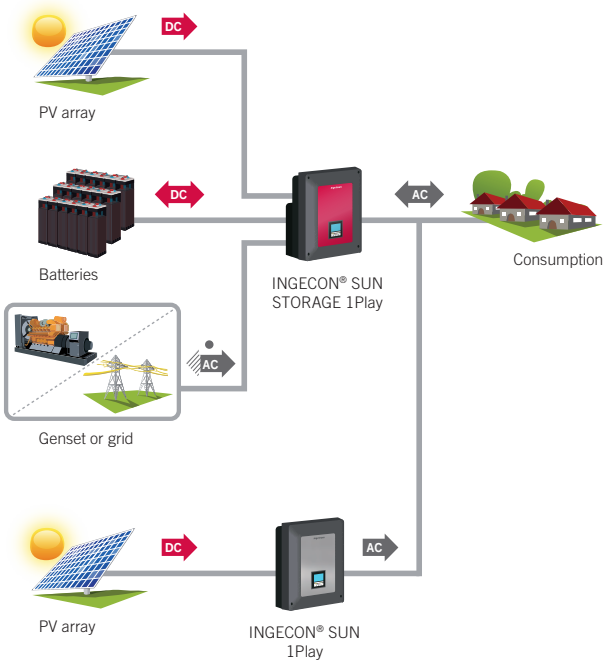
- **Back-up mode**
  This operating mode has been designed for grid-connected systems, where grid outages are long and frequent, meaning that a back-up power source is required. The INGECON® SUN STORAGE 1Play inverter operates through a connection to the AC grid. In order to guarantee a power source, the inverter maintains the batteries charged. During a grid outage, the battery inverter generates the AC network and the energy stored in the batteries is used to power the loads. If any renewable energy sources are connected to the grid and the energy generated is greater than the one demanded, then the surplus could be injected into the grid.

- **Self-consumption mode**
  This operating mode is conceived for grid-connected systems with renewable energy sources, in order to minimise grid consumption. If the energy generated is greater than the one demanded, any surplus energy could charge the batteries or, if they are fully charged, the energy could be injected into the grid.If the loads demand more energy than the one produced by the renewable sources, then the batteries would cover this demand, increasing the self-consumption ratio.

- **Grid support**
  In this operating mode the inverter operates under the instructions of an external controller (EMS). Thus, in combination with the EMS Board or the EMS Manager and an external wattmeter, the inverter is able to adapt the output power to a required value. In this way, different options are available: ramp rate control, self-consumption or constant power output in a PV plant. Furthermore, this operating mode makes it possible to implement peak-shaving strategies to reduce the electricity bill by decreasing the contracted power.

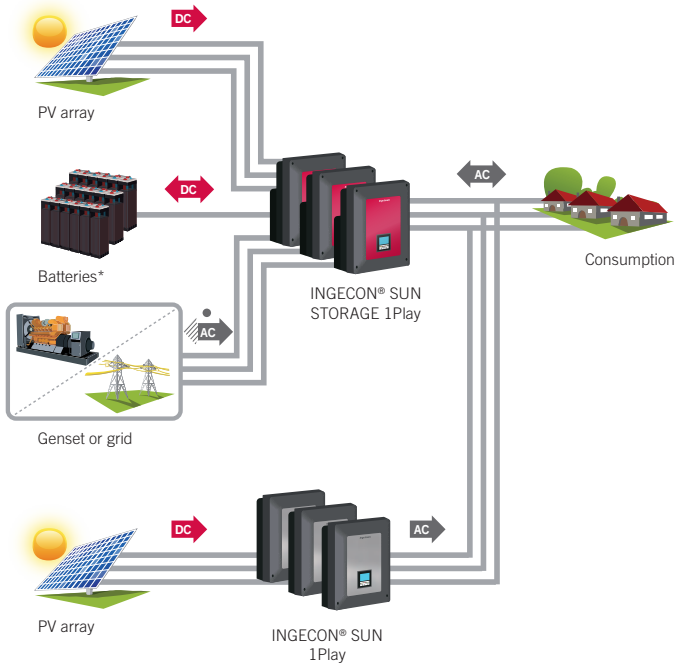
CONNECTION SCHEMA

Single-phase



● *Bidirectional only when grid is connected.*

Three-phase



** It must be a single battery bank.*

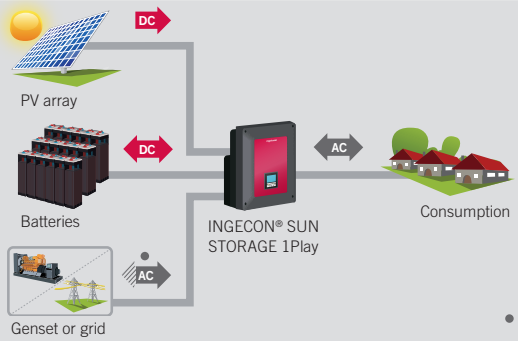
● *Bidirectional only when grid is connected.*

	3	6	3TL	6TL
PV Input (DC)				
PV array max. power	7.5 kWp	11.5 kWp	7.5 kWp	11.5 kWp
Voltage range MPP for stand-alone mode	300 - 480 V			
Voltage range MPP for grid-connected modes[1]	330 - 480 V			
Maximum open circuit voltage	550 V			
Maximum current	20 A	30 A	20 A	30 A
Inputs	2			
MPPT	1			
Battery Input (DC)				
Voltage range with PV installation[2]	40 - 300 V			
Voltage range without PV installation[2]	40 - 450 V			
Maximum charge / discharge current	50 A			
Battery type	Lead, Ni-Cd, Li-ion			
Generator / Grid Input (AC)				
Rated voltage	230 V			
Voltage range	172 - 264 V			
Rated frequency	50 / 60 Hz			
Frequency range	40 - 70 Hz			
Charge current range	0 - 13 A	0 - 26 A	0 - 13 A	0 - 26 A
Generator or grid maximum power	11,500 W			
Output (AC)				
Rated power[3]	3 kW	6 kW	3 kW	6 kW
Power (25 °C) 30 min, 2 min, 3 s[4]	3,500 / 3,900 / 5,080 W	6,400 / 6,900 / 7,900 W	3,500 / 3,900 / 5,080 W	6,400 / 6,900 / 7,900 W
Current	13 A	26 A	13 A	26 A
Rated voltage[5]	200 - 240 V			
Rated frequency[5]	50 / 60 Hz			
Efficiency				
Maximum efficiency	95.5%	96%	95.5%	96%
General Information				
Stand-by consumption	<10 W			
Ambient temperature	-20 °C to +65 °C			
Relative humidity (non-condensing)	0-100%			
Protection class	IP65			

Compliance with standards: EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-12, EN 61000-3-11, EN 62109-1, EN 62109-2, IEC62103, EN 50178, FCC Part 15, AS 3100*, RD1699/2011, DIN V VDE V 0126-1-1, EN 50438, CEI 0-21*, VDE-AR-N 4105:2011-08, G59/2, G83/2[6], AS4777.2*, AS4777.3*, IEC 62116, IEC 61727, UNE 206007-1, NRS 097-2-1.

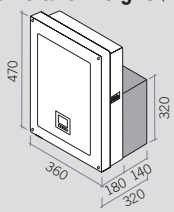
Notes: [1] Grid-connected modes include Back-up, Self-consumption and Grid Support. Minimum voltage DC ($V_{DC,\ min}$) for $V_{grid,max}$ = 1.1 p.u. If $V_{grid,max}$ is higher than this value, the minimum voltage should be corrected as $V_{DC,\ min}$ * $V_{grid,max}$ / 1.1 [2] The inverter's maximum power will be the battery voltage multiplied by the maximum discharge current (50 A) [3] AC power up to 40 °C ambient temperature [4] This power is only available if the battery voltage multiplied by the maximum discharge current reaches these values [5] This parameter is configurable through the display [6] Related only to inverters up to 16 A.

SUN STORAGE 1Play



● *Bidirectional only when grid is connected.*

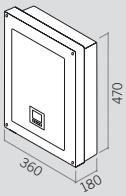
Size and weight (mm)



3
43.3 kg.

6
65 kg.

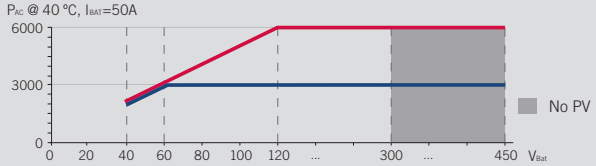
Transformer



3TL
18.3 kg.

6TL
23.3 kg.

Output power versus battery voltage



Ingeteam Power Technology, S.A.
Avda. Ciudad de la Innovación, 13
31621 SARRIGUREN (Navarra) - Spain
Tel.: +34 948 288 000 / Fax: +34 948 288 001
e-mail: solar.energy@ingeteam.com

Ingeteam S.r.l.
Via Emilia Ponente, 232
48014 CASTEL BOLOGNESE (RA) - Italy
Tel.: +39 0546 651 490 / Fax: +39 054 665 5391
e-mail: italia.energy@ingeteam.com

Ingeteam SAS
La Naurouze B - 140 rue Carmin
31670 Labège - France
Tel: +33 (0)5 61 25 00 00 / Fax: +33 (0)5 61 25 00 11
e-mail: france@ingeteam.com

Ingeteam INC.
3550 W. Canal St.
MILWAUKEE, WI 53208 - USA
Tel.: +1 (414) 934 4100 / +1 (855) 821 7190 / Fax: +1 (414) 342 0736
e-mail: solar.us@ingeteam.com

Ingeteam, a.s.
Technologická 371/1
70800 OSTRAVA - PUSTKOVEC
Czech Republic
Tel.: +420 59 732 6800 / Fax: +420 59 732 6899
e-mail: czech@ingeteam.com

Ingeteam Shanghai, Co. Ltd.
Shanghai Trade Square, 1105
188 Si Ping Road
200086 SHANGHAI - P.R. China
Tel.. +86 21 65 07 76 36 / Fax: +86 21 65 07 76 38
e-mail: shanghai@ingeteam.com

Ingeteam, S.A. de C.V.
Ave. Revolución, nº 643, Local 9
Colonia Jardín Español - MONTERREY
64820 - NUEVO LEÓN - México
Tel.: +52 81 8311 4858 / Fax: +52 81 8311 4859
e-mail: northamerica@ingeteam.com

Ingeteam Ltda.
Rua Estácio de Sá, 560
Jd. Santa Genebra
13080-010 Campinas/SP - Brazil
Tel.: +55 19 3037 3773
e-mail: brazil@ingeteam.com

Ingeteam Pty Ltd.
Unit 2 Alphen Square South
16th Road, Randjiespark
Midrand 1682 - South Africa
Tel.: +2711 314 3190 / Fax: +2711 314 2420
e-mail: southafrica@ingeteam.com

Ingeteam SpA
Los militares 5890, Torre A, oficina 401
7560742 - Las Condes
Santiago de Chile - Chile
Tel.: +56 2 29574531
e-mail: chile@ingeteam.com

Ingeteam Power Technology India Pvt. Ltd.
2nd Floor, 431
Udyog Vihar, Phase III
122016 Gurgaon (Haryana) - India
Tel.: +91 124 420 6491-5 / Fax: +91 124 420 6493
e-mail: india@ingeteam.com

Ingeteam Sp. z o.o.
Ul. Koszykowa 60/62 m 39
00-673 Warszawa - Poland
Tel.: +48 22 821 9930 / Fax: +48 22 821 9931
e-mail: polska@ingeteam.com

Ingeteam Australia Pty Ltd.
Suite 112, Level 1, Mike Codd Building 232
Innovation Campus, Squires Way
North Wollongong, NSW 2500 - Australia
Tel.: +61 499 988 022
e-mail: australia@ingeteam.com

Ingeteam Panama S.A.
Calle Manuel Espinosa Batista, Ed. Torre Internacional
Business Center, Apto./Local 407 Urb.C45 Bella Vista
Bella Vista - Panama
Tel.: +50 761 329 467

Ingeteam Service S.R.L.
Bucuresti, Sector 2, Bulevardul Dimitrie Pompeiu Nr 5-7
Cladirea Hermes Business Campus 1, Birou 236, Etaj 2
Romania
Tel.: +40 728 993 202

Ingeteam Philippines Inc.
Office 2, Unit 330, Milelong Bldg.
Amorsolo corner Rufin St.
1230 Makati
Gran Manila - Philippines
Tel.: +63 0917 677 6039