INGECON **SUN STORAGE** 3Play *TL M Series*



10TL M

THREE-PHASE HYBRID INVERTER WITH TWO PV MPPTs

THE BEST SOLUTION FOR RESIDENTIAL OR COMMERCIAL SOLAR+STORAGE SYSTEMS

The INGECON® SUN STORAGE 3Play TL M hybrid inverter makes it possible to combine photovoltaic generation and energy storage with no need for any additional PV inverters.

Two MPPT system

This inverter features with two maximum power point tracking (MPPT) system, that allows it to draw the maximum power from the PV array, including roof-mounted installations with different orientations or with partial shading.

Unbalance mode

This inverter can produce unbalance power for each phase L1, L2 and L3 to support unbalance consumptions. The self-consuption ratio is high optimized.

EMS Inside

The inverter is equipped as standard with an energy management system (EMS). The EMS permits more advanced functionalities, such as self-consumption or peak-shaving. Thanks to the built-in EMS, the installation can be monitored at all times via a PC or mobile phone with the free INGECON® SUN Monitor application, available at Play Store and App Store.

Start-up and monitoring

Fast and easy start-up and display of data and graphics through the integrated user interface. Furthermore, users can easily upgrade the inverter firmware from the application, through a PC, tablet or mobile.

5 year warranty, extendible up to 10 years.

Ingeteam

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The best solution for residential or commercial solar+storage systems

OPERATING MODES:

Self-consumption mode

This operating mode is directed at grid connection systems with renewable energy sources, in order to minimise grid consumption. If the energy generated is greater than demand, then any surplus energy could either be used to charge the batteries or to be injected into the grid. In addition, it features a back-up and a peak shaving functionality. Also, the user can programme the charge / discharge times of the batteries.

Stand-alone mode

The INGECON® SUN STORAGE 3Play TL M inverter generates a stand-alone AC grid and acts as a grid manager, guaranteeing the correct balance between PV generation, consumption and the storage system. It is equipped with a relay for the neutral-to-earth connection of the system loads in order to create a TT stand-alone network. Moreover, the inverter permits the connection of an auxiliary generator, which can be started-up through a potential-free output for charging the batteries.

Protections

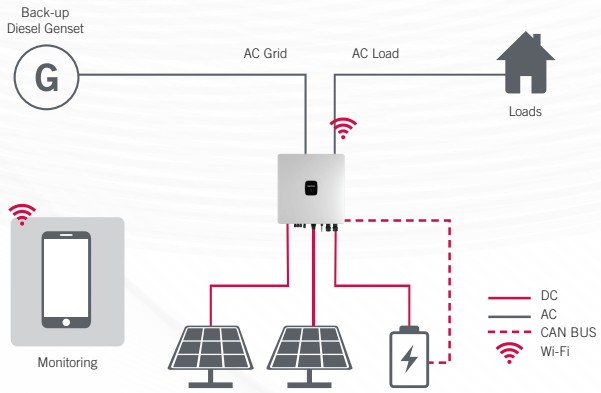
- AC overvoltages.
- Insulation faults.
- Short-circuits and overloads at the output.
- DC breaker for the PV array.
- Anti-islanding with automatic disconnection.
- Surge Arrester: DC Type II SPD, AC Type III.
- AFCI with automatic disconnection.
- PV input reverse polarity protection.
- Battery input reverse polarity protection.

Features

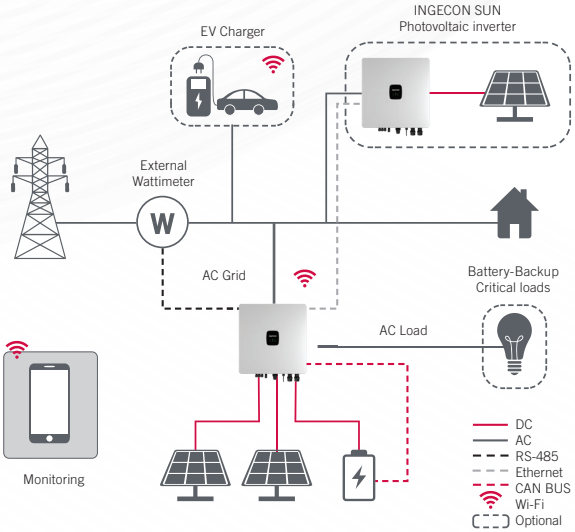
- Two MPPT system.
- RS-485 and Ethernet communication for the wattmeter.
- Wi-Fi and Ethernet communication.
- CAN Bus 2.0 communication for the BMS (Battery Management System).
- 2 configurable digital inputs.
- 2 configurable potential free outputs.
- Pre-charging system at the battery input.
- Relay for the neutral to earth connection for critical loads in type TT / TN-S / TN-C-S installations.
- Rapid start-up and view of the installation thanks to the INGECON® SUN Monitor user interface.
- Possibility of operating just from the PV array and of adding the storage system at a later date.
- Suitable for indoor and outdoor installations (IP65).
- Back-up functionality available for self-consumption installations.
- Peak shaving functionality.
- Configuration of the battery charge / discharge times.
- Modbus TCP / Wi-Fi communication with EV chargers.
- DRM0 included (for the Australian market).
- Support unbalance consumption up to 150% of single-phase power:

Inverter power	Max. single-phase unbalanced output
10 kW	5 kW

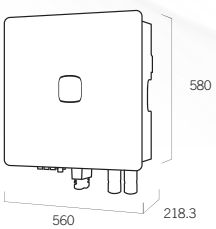
Stand-alone diagram



Self-consumption diagram



Size and weight (mm)



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BATTERY INPUT (DC)	
Voltage range[1]	120 - 600 V
Nominal battery voltage	250 - 600 V
Maximum charge / discharge current	50 / 50 A
Maximum charge / discharge power	15,000 / 11,300 W
Maximum voltage	600 V
Type of battery[2]	Ion-lithium (LG, BYD, Pylontech...)
Communication with ion-lithium batteries	CAN Bus 2.0
Battery connection way	Dedicated DC connector
PV INPUT (DC)	
PV array maximum power	15,000 W
MPPT Voltage range	160 - 950 V
Maximum input voltage[3]	950 V
Maximum current per MPPT[4] (input 1 / input 2 / input 3)	20 / 30 A
Maximum short circuit current per MPPT (input 1 / input 2 / input 3)	30 / 40 A
Number of MPP trackers	2
Inputs with photovoltaic connectors	3 (1 / 2)
Full power MPPT voltage	370-800 V
PV connection way	MC4 / H4
GRID INPUT (AC)	
Rated voltage	380 / 400 / 415 V, 3 W+N+PE
Voltage range	260 - 518 V (Adjustable)
Nominal Frequency	50 / 60 Hz
Network type	TT / TN-C / TN-C-S / TN-S
Rated power	10 kW
Max. Temperature for rated power	45ºC
% of rate power @ 50ºC	80 %
Nominal current	3*15.2A
Power Factor	>0.99 Rated power (Adjustable 0.8 LG-0.8 LD)
Adjustable Power Factor	YES
THD	<5%
AC connector type	OT Terminal
CRITICAL LOAD OUTPUT (AC)	
Rated voltage	380 / 400 / 415 V, 3N~+PE
Nominal Frequency	50 / 60 Hz
Rated power	10 kW
Nominal current	3*15.2A
THDV	<3% (R Load), 8% (RCD Load)
AC connector type	OT Terminal
Overload capacity	>1.1*Pn ~ <1.2*Pn (5min) >1.2*Pn ~ <1.5*Pn (10s) >1.5*Pn (200ms)
FEATURES	
Back-up function response time	12 ms
Max. Efficiency (PV to grid)	≥ 97.71 %
European Efficiency (PV to grid)	≥ 96.67 %
Max. Charge Efficiency (PV to battery)	≥ 98.4 %
Max. Discharge Efficiency (Battery to grid)	≥ 97 %
Max. Charge Efficiency (Grid to battery)	≥ 96.7 %

Notes

[1] The maximum power supplied by the battery will be the battery voltage multiplied by the maximum discharge current.
[2] Consult the Ingeteam website for a list of compatible batteries.
[3] The maximum voltage that the equipment can withstand without damage is 1000V. The DC input voltage range for grid connection is the MPPT range. Consider the increase in voltage of the "Voc" panels at low temperatures.
[4] The maximum current for each photovoltaic connector is the same as that of its MPPT input.

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GENERAL INFORMATION

Anti-corrosion	C4H protection class
Refrigeration system	Natural ventilation
Stand-by consumption	<20 W
Consumption at night	<10 W
Ambient temperature	-25 ºC to 60 ºC
Relative humidity (non condensing)	0 - 100 %
Protection class	IP65
Marking	CE
Acoustic emissions	<30 dB
Max. altitude - Max. altitude without derating	4,000 m - 2,000 m
EMC and security standards	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN 61000-3-12, EN 62109-1, EN 62109-2, IEC62103, EN 50178, FCC Part 15, AS3100
Grid connection standards	IEC 61727; IEC 62116; EN 50549-1; UNE 217002; UNE 217001; NTS SEPE 2.1 typeA; CEI 0-21 V1 November 2022 (Including Allegato A+ Allegato B+, Allegato BBis); VDE-AR-N 4105:2018.

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