INGECON **SUN STORAGE** 3Play TL Series

STORAGE INVERTER FOR UTILITY SCALE PLANTS

INGECON® SUN STORAGE 350TL

Three-phase bidirectional Power Conversion System (PCS)
The INGECON® SUN STORAGE 350TL is a three-phase bidirectional converter for energy storage systems. Maximum DC voltage (1,500 V) and wide voltage range. Awesome power density, with up to 350 kW. It features an innovative control unit that performs a more efficient and sophisti-cated inverter control.

Highest flexibility and scalability for any battery configuration
The INGECON® SUN STORAGE 350TL can be parallelized in order to adjust the PCS power to different battery configura-tions. This way, it facilitates the design of a wide diversity energy storage systems. Furthermore, it allows augmentation so old and new batteries can be mixed without accelerating the aging of the new ones. The string inverter philosophy permits an easy and immediate replace-ment that does not require qualified technicians.

Long-lasting and rugged design
Aluminium casing, especially conceived for indoor and outdoor applications (IP66). The INGECON® SUN STORAGE 350TL inverters have been designed to guarantee a long life expectancy and to withstand extreme temperaaures.

SPE (Single Pair Ethernet)
The inverter features SPE communication as standard. The SPE offers high-speed IP com-munication without the 100-meter distance limitation of standard Ethernet. Using SPE, the communication with the inverters can be established up to 1,000 meters. Moreover, these inverters enables daisy chain connec-tion. Thus, several inverters can be connect-ed to the same SPE line. The versatility and possibilities offered by the SPE are an impor-tant improvement at the plant's communication network.

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Ingeteam

INGECON® SUN STORAGE 350TL

Maximum performance
Maximum performance In order to achieve the maximum performance the INGECON® SUN STORAGE 350TL Power Conversion Sytem (PCS) is supplied totally equipped with all the electrical protections.

Integrated components

AC quick connectors	✓
DC switch	✓
DC surge arresters, type II	✓
AC surge arresters, type II	✓
DC & AC pre-charge system	✓
Wi-Fi communication	✓
SPE (Single Pair Ethernet) communication	✓

Real power related functionalities
Renewable resources integration:
- Ramp limits.
- Power smoothing / firming / curtailment.
- Time shifting.
- Micro grids.

Grid support / Ancillary services:
- Frequency regulation.
- Synthetic inertia.
- Frequency control / protection.
- Virtual “Synchronous Machine”.

Investment deferral:
- Peak shaving.
- Load shifting / Load following.
- Real power response improvement of conventional power plants.

Power efficiency:
- Time shifting.
- Price arbitrage.
- Real power response improvement of conventional power plants.
- Peak shaving.

Safety and quality:
- Grid code compliance.
- Transmission congestion relief / Power quality-reliability.

Reactive power related functionalities
- Voltage control (Q/V).
- Voltage control / protection.
- Fixed power factor (QPF).
- Fixed reactive power output (Qref).
- Limitation of response of Reactive Power

AC quick connectors

PROTECTIONS

- DC switch.
- Shortcircuits and overloads at the output.
- Anti-islanding with automatic disconnection.
- Insulation faults.
- AC overvoltages with type II surge arresters.
- DC overvoltages with type II surge arresters.

BENEFITS

- Greater power density.
- Flexibility and scalability.
- High availability.
- High efficiency rates.
- Easy maintenance.

	INGECON® SUN STORAGE **350TL**					
	400 V	**480 V**	**600 V**	**615 V**	**630 V**	**645 V**
Input (DC)						
Battery voltage range[1]	622 - 1,500 V	747 - 1,500 V	933 - 1,500 V	957 - 1,500 V	980 - 1,500 V	1,003 - 1,500 V
Maximum voltage	1,500 V					
Maximum current	280 A					
Output (AC)						
Charge/Discharge power	146 kVA	175 kVA	260 kVA	266 kVA	273 kVA	279 kVA
Charge/Discharge current	210 A		250 A			
Ambient temperature for rated power	40ºC					
Voltage range	400 - 800 V					
Rated voltage	3 / PE, 400 V	3 / PE, 480 V	3 / PE, 600 V	3 / PE, 615 V	3 / PE, 630 V	3 / PE, 645 V
Frequency	50 / 60 Hz					
Type of grid	TN / TT / IT		IT			
Power Factor	1					
Power Factor adjustable[2]	Yes, 0-1 (leading / lagging)					
THD (Total Harmonic Distortion)[3]	<3%					
Efficiency						
Maximum efficiency	99.05%					
Euroefficiency	98.60%					
General Information						
Cooling system	Forced ventilation					
Air flow	900 m³/h					
Aux. consumption	20 W					
Operation temperature	-30 ºC to 60 ºC					
Relative humidity (non-condensing)	0 - 100%					
Protection class	IP66 / NEMA 4					
Residual current monitoring unit	Yes					
Maximum operating altitude	4,000 m.a.s.l. (for installations beyond 1,000 m.a.s.l., please contact Ingeteam's Solar Sales Department)					
Connection	AC connection: max. cross section: 120 mm² (one wire) copper / DC connection: up to 2 x 400 mm² aluminium					
DC parallel connection	Yes (please contact Ingeteam´s Solar Sales Department)					
Marking	CE					
EMC and security standards	EN 61000-6-1, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, EN 62109-1, EN 62109-2, EN 50178, IEC 62116, IEC 61683, EN 50530, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-68					
Grid connection standards	IEC 61727, EN 50549-1, EN 50549-2, UNE 206007-1 IN, NTS 2.1 SEPE, NTS 1.1 SENP, CEI 0-21, CEI 0-16, Arrete 9 du Juin, ABNT NBR 16149, ABNT NBR 16150, NDU-015, Portaria 73					

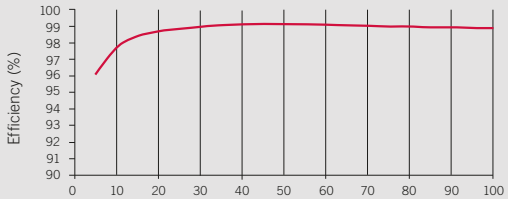
Notes:

[1] Minimum voltage DC (VDC, min) for Vgrid,max = 1.1 p.u. and Power Factor = 1. If Vgrid,max is higher than this value, the minimum voltage should be corrected as VDC, min * Vgrid,max / 1.1. For other DC voltage ranges, please contact Ingeteam's BESS sales department.

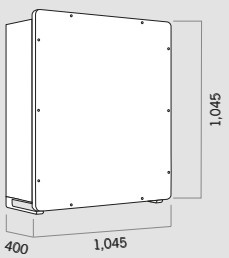
[2] Extended adjustment range for nominal working points.

[3] For rated AC power and voltage in accordance with IEC 61000-3-4.

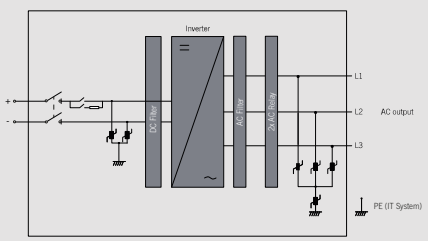
Efficiency INGECON® SUN STORAGE 350TL



Size and weight (mm)



350TL
105 kg.



	INGECON® SUN STORAGE **350TL**						
	660 V	**675 V**	**690 V**	**710 V**	**730 V**	**750 V**	**800 V**
Input (DC)							
Battery voltage range[1]	1,027 - 1,500 V	1,050 - 1,500 V	1,073 - 1,500 V	1,104 - 1,500 V	1,136 - 1,500 V	1,167 - 1,500 V	1,245 - 1,500 V
Maximum voltage	1,500 V						
Maximum current	280 A						
Output (AC)							
Charge/Discharge power	286 kVA	292 kVA	299 kVA	307 kVA	316 kVA	325 kVA	346 kVA
Charge/Discharge current	250 A						
Ambient temperature for rated power	40ºC						
Voltage range	400 - 800 V						
Rated voltage	3 / PE, 660 V	3 / PE, 675 V	3 / PE, 690 V	3 / PE, 710 V	3 / PE, 730 V	3 / PE, 750 V	3 / PE, 800 V
Frequency	50 / 60 Hz						
Type of grid	IT						
Power Factor	1						
Power Factor adjustable[2]	Yes, 0-1 (leading / lagging)						
THD (Total Harmonic Distortion)[3]	<3%						
Efficiency							
Maximum efficiency	99.05%						
Euroefficiency	98.60%						
General Information							
Cooling system	Forced ventilation						
Air flow	900 m³/h						
Aux. consumption	20 W						
Operation temperature	-30 °C to 60 °C						
Relative humidity (non-condensing)	0 - 100%						
Protection class	IP66 / NEMA 4						
Residual current monitoring unit	Yes						
Maximum operating altitude	4,000 m (for installations beyond 1,000 m, please contact Ingeteam's Solar Sales Department)						
Connection	AC connection: max. cross section: 120 mm² (one wire) copper / DC connection: up to 2 x 400 mm² aluminium						
DC parallel connection	Yes (please contact Ingeteam´s Solar Sales Department)						
Marking	CE						
EMC and security standards	EN 61000-6-1, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, EN 62109-1, EN 62109-2, EN 50178, IEC 62116, IEC 61683, EN 50530, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-68						
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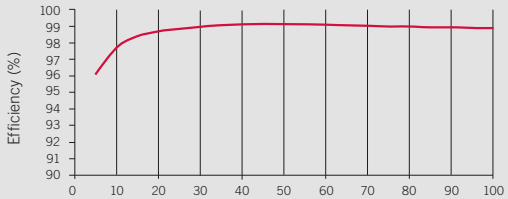
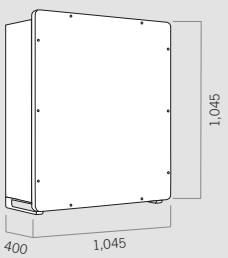


Size and weight (mm)



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