

**TRANSFORMERLESS  
PV INVERTER  
WITH AN EXTRA  
THERMAL STABILITY  
AND A GREATER  
POWER DENSITY****Up to 3.8 MVA at 1,500 V****Greater power density**

This solar PV inverter achieves a market-leading power density of 492 kVA/m<sup>3</sup>, as it provides up to 3,825 kVA in just one power stack.

**Latest generation electronics**

The INGECON® SUN 3Power C Series PV inverter features an innovative control unit that performs a more efficient and sophisticated inverter control, as it uses a last-generation digital signal processor.

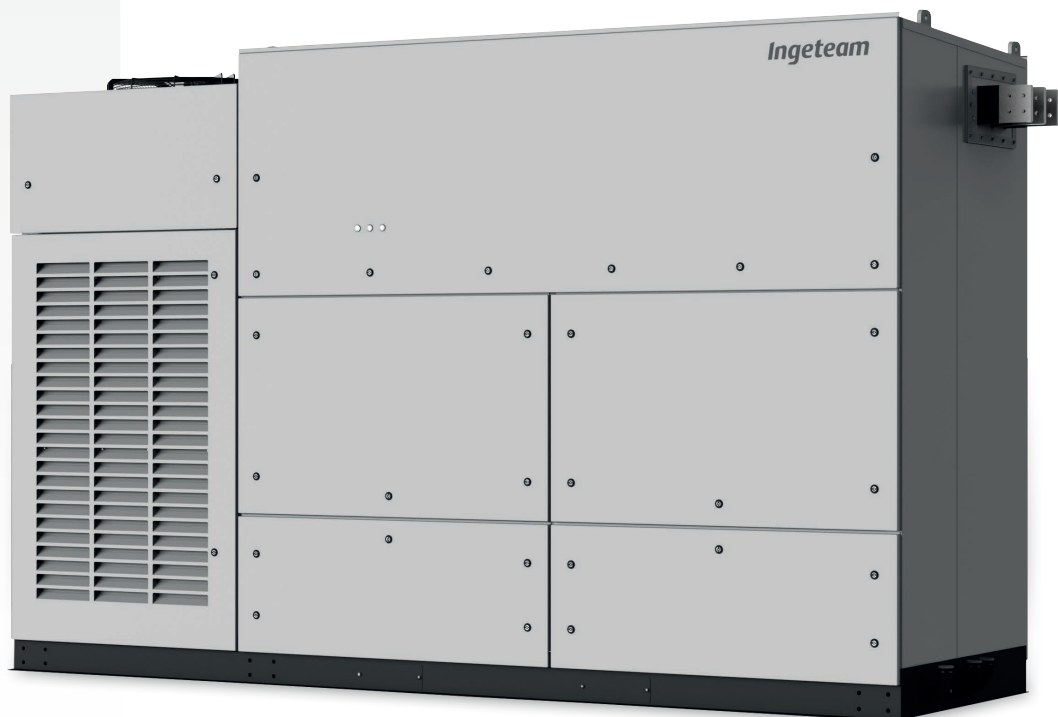
**Liquid Cooling System (LCS)**

Ingeteam has already supplied +52 GW of liquid-cooled wind power converters worldwide. It offers a greater thermal stability and a more optimized component usage. The LCS has been designed to refrigerate the IGBTs, the power phases and the IP65 compartment. It features less moving components, so it consumes a lower amount of power and it requires less maintenance works.

The LCS is a closed circuit supplied totally filled and purged, equipped with fast connectors with an anti-dripping system, so it offers zero risk of particle entrance. It has been designed to avoid siphons in order to easily purge it if necessary. The coolant used is a biodegradable glycol water mixture. There is no need of emptying the LCS in order to replace the phases, nor the sensors.

**IP65 protection**

A secondary liquid cooling system is used to refrigerate the air inside the IP65-protected compartment. A water-air heat exchanger is used for that. This compartment contains the power and control electronics, the DC fuses, the DC and AC protections, the busbars and the power phases.



**Monitoring and communication**

Dual Ethernet to communicate with the SCADA and the PPC (power plant controller). Moreover, it features Wi-Fi communication as access point to connect with the inverter during commissioning and O&M works. Ingeteam's advanced PV plant monitoring system INGECON® SUN Monitor is also available at no extra cost. The Smartphone application of the INGECON® SUN Monitor -available on the App Store and on the Play Store- makes it easier and more comfortable to monitor the PV plant.

**Standard 5 year warranty, extendable for up to 25 years.**

**Advanced grid support**



Low Voltage Ride Through



Fast Frequency Regulation



Reactive Power at Night



Voltage Droop Control



Active Power Reserve Without Batteries



Grid Following & Grid Forming



Black Start Capability



Automatic Voltage Regulation

PROTECTIONS

- DC Reverse polarity.
- Short-circuits and overloads at the output.
- Anti-islanding with automatic disconnection.
- Insulation failure DC.
- Up to 24 pairs of fuse-holders.
- Lightning induced DC and AC surge arresters, type II.
- Motorized DC switch to automatically disconnect the inverter from the PV array.
- Motorized AC circuit breaker.
- Hardware protection via firmware.
- Additional protection for the power stack, liquid cooled, IP65 rated and air cooled by a closed loop.

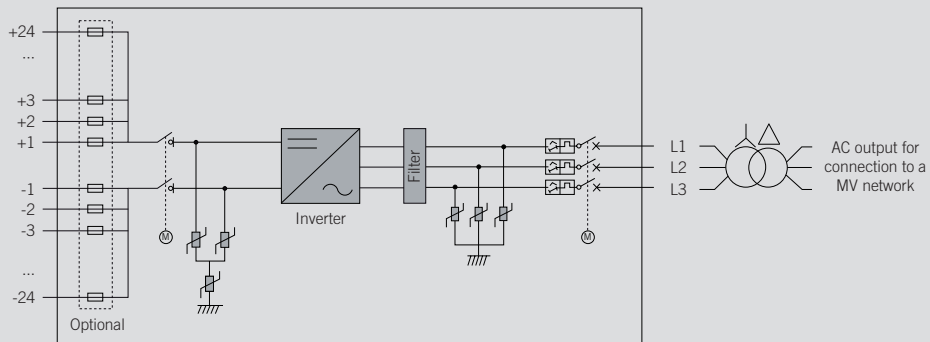
OPTIONAL ACCESSORIES

- Auxiliary services feeder.
- Grounding kit.
- Heating kit, for operating at an ambient temperature of down to -30 °C.
- DC surge arresters type I+II.
- AC surge arresters type I+II.
- DC fuses.
- Monitoring of the currents at the DC input.
- PID prevention kit (PID: Potential Induced Degradation).

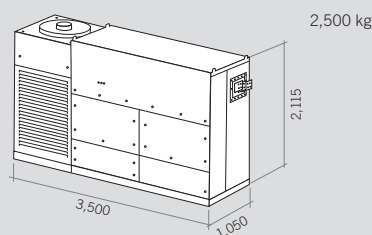
LIQUID COOLING SYSTEM

- LCS to refrigerate the IGBTs.
- More optimized component usage: greater thermal stability.
- Less moving components: lower power consumption and less maintenance works.
- No risk of particle entrance.
- Anti-corrosion protection with stainless steel components.
- LCS is used in many industries. Thus, it is very reliable, as its components are subject to many validation tests.
- Fast connectors with anti-dripping system
- Biodegradable glycol water mixture.
- No need of emptying the LCS in order to replace the phases, nor the sensors.

**INGECON® SUN 3825TL**



**Size and weight** (mm and kg)



| INGECON® SUN 3825TL                             |   |                       |                       |                       |                       |                       |                       |
|---|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|   | C600  | C615                  | C630                  | C645                  | C660                  | C675                  | C690                  |
| <b>Input (DC)</b>                               |   |                       |                       |                       |                       |                       |                       |
| Recommended PV array power range <sup>(1)</sup> | 3,144 - 4,188 kWp   | 3,222 - 4,293 kWp     | 3,301 - 4,398 kWp     | 3,379 - 4,502 kWp     | 3,458 - 4,607 kWp     | 3,537 - 4,712 kWp     | 3,615 - 4,816 kWp     |
| Voltage Range MPP <sup>(2)</sup>                | 853 - 1,300 V   | 874 - 1,300 V         | 895 - 1,300 V         | 916 - 1,300 V         | 937 - 1,300 V         | 958 - 1,300 V         | 979 - 1,300 V         |
| Maximum voltage <sup>(3)</sup>                  | 1,500 V   |                       |                       |                       |                       |                       |                       |
| Maximum current                                 | 3,965 A   |                       |                       |                       |                       |                       |                       |
| N° inputs with fuse-holders                     | Up to 24  |                       |                       |                       |                       |                       |                       |
| Fuse dimensions                                 | 630 A / 1,500 V to 500 A / 1,500 V fuses (optional)   |                       |                       |                       |                       |                       |                       |
| Type of connection                              | Connection to copper bars   |                       |                       |                       |                       |                       |                       |
| Power blocks                                    | 1   |                       |                       |                       |                       |                       |                       |
| MPPT  | 1   |                       |                       |                       |                       |                       |                       |
| <b>Input protections</b>                        |   |                       |                       |                       |                       |                       |                       |
| Overvoltage protections                         | Type II surge arresters (type I+II optional)  |                       |                       |                       |                       |                       |                       |
| DC switch                                       | Motorized DC load break disconnect  |                       |                       |                       |                       |                       |                       |
| Other protections                               | Up to 24 pairs of DC fuses (optional) / Reverse polarity / Insulation failure monitoring / Anti-islanding protection / Emergency pushbutton   |                       |                       |                       |                       |                       |                       |
| <b>Output (AC)</b>                              |   |                       |                       |                       |                       |                       |                       |
| Power @30 °C / @50 °C                           | 3,326 kVA / 2,858 kVA   | 3,409 kVA / 2,929 kVA | 3,492 kVA / 3,001 kVA | 3,575 kVA / 3,072 kVA | 3,658 kVA / 3,144 kVA | 3,741 kVA / 3,215 kVA | 3,824 kVA / 3,287 kVA |
| Current @30 °C / @50 °C                         | 3,200 A / 2,750 A   |                       |                       |                       |                       |                       |                       |
| Rated voltage <sup>(4)</sup>                    | 600 V IT System   | 615 V IT System       | 630 V IT System       | 645 V IT System       | 660 V IT System       | 675 V IT System       | 690 V IT System       |
| Frequency                                       | 50 / 60 Hz  |                       |                       |                       |                       |                       |                       |
| Power Factor <sup>(5)</sup>                     | 1   |                       |                       |                       |                       |                       |                       |
| Power Factor adjustable                         | Yes, 0 - 1 (leading / lagging)  |                       |                       |                       |                       |                       |                       |
| THD (Total Harmonic Distortion) <sup>(6)</sup>  | <3%   |                       |                       |                       |                       |                       |                       |
| <b>Output protections</b>                       |   |                       |                       |                       |                       |                       |                       |
| Overvoltage protections                         | Type II surge arresters (type I+II optional)  |                       |                       |                       |                       |                       |                       |
| AC breaker                                      | Motorized AC circuit breaker  |                       |                       |                       |                       |                       |                       |
| Anti-islanding protection                       | Yes, with automatic disconnection   |                       |                       |                       |                       |                       |                       |
| Other protections                               | AC short-circuits and overloads   |                       |                       |                       |                       |                       |                       |
| <b>Features</b>                                 |   |                       |                       |                       |                       |                       |                       |
| Operating efficiency                            | 98.9%   |                       |                       |                       |                       |                       |                       |
| CEC   | 98.5%   |                       |                       |                       |                       |                       |                       |
| Max. consumption aux. services                  | 8,500 W   |                       |                       |                       |                       |                       |                       |
| Stand-by or night consumption <sup>(7)</sup>    | < 180 W   |                       |                       |                       |                       |                       |                       |
| Average power consumption per day               | 2,500 W   |                       |                       |                       |                       |                       |                       |
| <b>General Information</b>                      |   |                       |                       |                       |                       |                       |                       |
| Ambient temperature                             | -20 °C to +60 °C  |                       |                       |                       |                       |                       |                       |
| Relative humidity (non-condensing)              | 0-100% (Outdoor)  |                       |                       |                       |                       |                       |                       |
| Protection class                                | IP65  |                       |                       |                       |                       |                       |                       |
| Corrosion protection                            | External corrosion protection   |                       |                       |                       |                       |                       |                       |
| Maximum altitude                                | 4,500 m (for installations beyond 1,000 m, please contact Ingeteam's solar sales department)  |                       |                       |                       |                       |                       |                       |
| Cooling system                                  | Liquid cooling system and forced air cooling system with temperature control (400V 3 phase + neutral power supply, 50/60 Hz)  |                       |                       |                       |                       |                       |                       |
| Air flow range                                  | 0 - 18,000 m³/h   |                       |                       |                       |                       |                       |                       |
| Average air flow                                | 12,000 m³/h   |                       |                       |                       |                       |                       |                       |
| Acoustic emission (100% / 50% load)             | 57 dB(A) at 10m / 49.7 dB(A) at 10m   |                       |                       |                       |                       |                       |                       |
| 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, FCC Part 15, AS3100   |                       |                       |                       |                       |                       |                       |
| Grid connection standards                       | IEC 62116, EN 50530, IEC 61683, EU 631/2016 (EN 50549-2, CEI 0-16, NTS Spain, VDE-AR-N 4120, VDE-AR-N 4110, Arrêté du 9 juin 2020, Terna A68), G99, South African Grid Code, Mexican Grid code, Chilean Grid Code, Ecuadorian Grid Code, Peruvian Grid Code, IEC61727, ABNT NBR 16149, ABNT NBR 16150, IEEE 1547, IEEE1547.1, DEWA (Dubai), Abu Dhabi Grid Code, Jordan Grid Code, Egyptian Grid Code, Saudi Arabia Grid Code, RETIE Colombia, Australian Grid Code |                       |                       |                       |                       |                       |                       |

**Notes:** <sup>(1)</sup> Depending on the type of installation and geographical location. Data for STC conditions <sup>(2)</sup> V<sub>mpp</sub>.min is for rated conditions (V<sub>ac</sub>=1 p.u. and Power Factor=1) and floating systems <sup>(3)</sup> Consider the voltage increase of the 'V<sub>oc</sub>' at low temperatures <sup>(4)</sup> Other AC voltages and powers available upon request <sup>(5)</sup> For P<sub>out</sub>>25% of the rated power <sup>(6)</sup> For P<sub>out</sub>>25% of the rated power and voltage in accordance with IEC 61000-3-4 <sup>(7)</sup> Consumption from PV field when there is PV power available.



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