

**TRANSFORMERLESS  
PV INVERTER WITH  
AN EXTRA THERMAL  
STABILITY AND A  
GREATER POWER  
DENSITY**

## Up to 3.8 MVA at 1500 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 U 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.

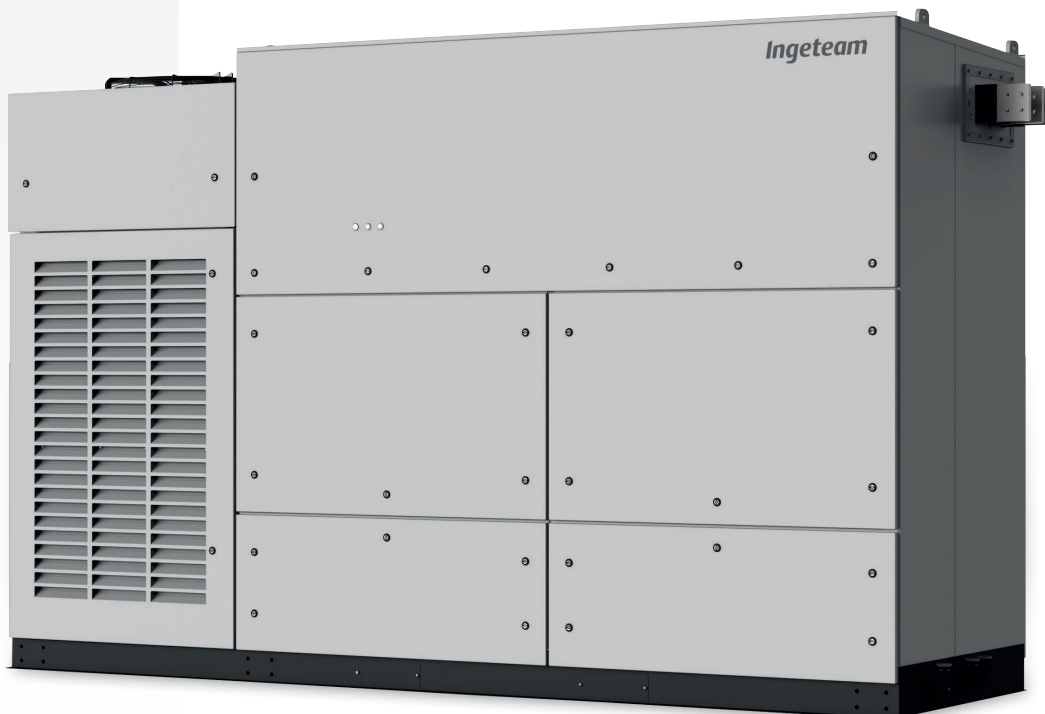
### Liquid Cooling System (LCS)

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 / NEMA 3 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 / NEMA 3 protection

A secondary liquid cooling system is used to refrigerate the air inside the NEMA 3-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.

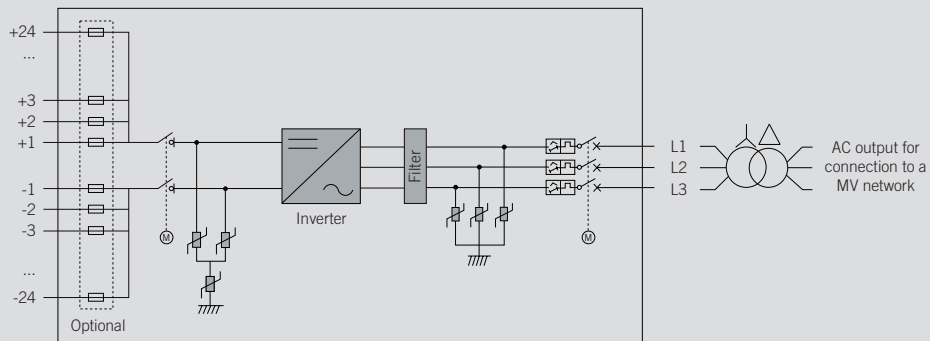
**OPTIONAL ACCESSORIES**

- 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).
- Integrated DC combiner box.

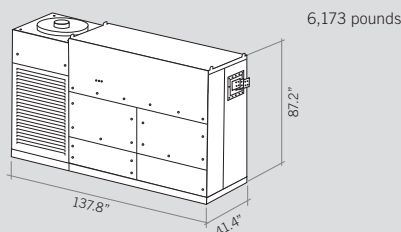
**LIQUID COOLING SYSTEM**

- 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 U**



**Size and weight (inches and pounds)**



INGECON® SUN 3825TL U							
	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>	857 - 1,300 V	877 - 1,300 V	898 - 1,300 V	919 - 1,300 V	940 - 1,300 V	960 - 1,300 V	981 - 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	63 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						
<b>Output (AC)</b>							
Power @95 °F / 122 °F	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 @95 °F / 122 °F	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	7,600 W						
Stand-by or night consumption <sup>(7)</sup>	185 W						
Average power consumption per day	2,500 W						
<b>General Information</b>							
Ambient temperature	From -4 °F to +140 °F						
Relative humidity (non-condensing)	0-100% (Outdoor)						
Protection class	NEMA 3 <sup>(8)</sup>						
Corrosion protection	External corrosion protection						
Maximum altitude	14,770 ft (for installations beyond 3,300 ft, 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 - 78 ft <sup>3</sup> /s (0 - 7,800 m <sup>3</sup> /h)						
Average air flow	42 ft <sup>3</sup> /s (4,200 m <sup>3</sup> /h per power block)						
Acoustic emission (100% / 50% load)	57 dB(A) at 33 ft / 49.7 dB(A) at 33 ft						
Marking	CE, SGS						
EMC and security standards	UL1741, FCC Part 15, IEEE C37.90.1, IEEE C37.90.2, CSA22.2 No107						
Grid connection standards	IEC 62116, UL1741, IEEE1547, IEEE1547.1, NEC CODE, Electric Rule 21: 2015, CSA22.2 No107						

**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 'Voc' 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 <sup>(8)</sup> Except for the LC filter and the air-water heat exchanger, that are NEMA 3R.

# Ingeteam

**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 59 747 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.**  
Leibnitz Ext 13 Int 1102, Colonia Anzures  
11590 - Miguel Hidalgo  
Ciudad de México - Mexico  
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.**  
iAccelerate Centre, Building 239  
Innovation Campus, Squires Way  
North Wollongong, NSW 2500 - Australia  
Tel.: +61 429 111 190  
e-mail: australia@ingeteam.com

**Ingeteam Panama S.A.**  
Av. 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 St. corner Rufino St.  
1230 Makati  
Gran Manila - Philippines  
Tel.: +63 0917 677 6039

**Ingeteam Power Technology, S.A.**  
Level 1, Al Bateen Tower C6 Bainunah  
ADIB Building, Street 34  
PO BOX 30010 - Abu Dhabi  
United Arab Emirates  
Tel.: +971 50 125 8244

**Ingeteam Vietnam Ltd.**  
Spaces - 28A Tran Hung Dao Street  
Phan Chu Trinh Ward  
Hoan Kiem District  
Ha Noi City - Vietnam  
Tel.: +84 24 71014057  
e-mail: vietnam@ingeteam.com

**Ingeteam Uruguay, S.A.**  
Avenida 18 de Julio, 1474, Piso 12  
11200, Montevideo, Uruguay  
Tel.: +598 934 92064