

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

**Solar PV Central Inverter up to 5.4 MVA**

**Greater power density**

This solar PV inverter achieves a market-leading power density as it provides up to 5,378 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.

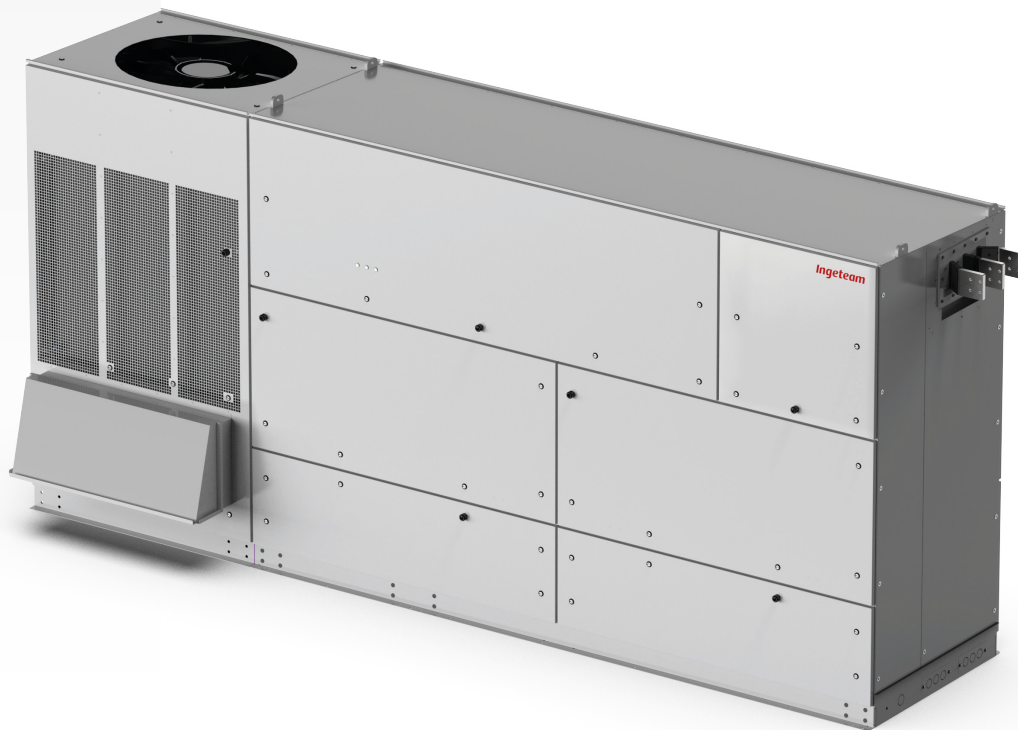
**Liquid Cooling System (LCS)**

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.



Specifications included in this datasheet could change without notice. Please contact Ingeteam's sales department in case of any queries.

INGECON SUN\_3Power\_U\_CSeries\_5380\_EN\_Rev\_A3

**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 32 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.

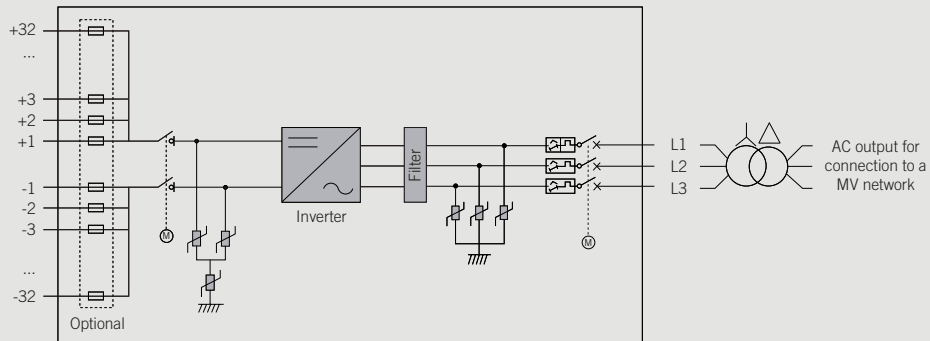
OPTIONAL ACCESSORIES

- 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.

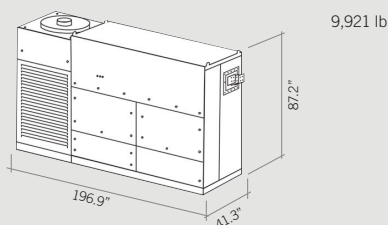
LIQUID COOLING SYSTEM

- 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 5380TL U**



**Size and weight**



INGECON® SUN 5380TL U							
	C600	C615	C630	C645	C660	C675	C690
<b>Input (DC)</b>							
Recommended PV array power range <sup>(1)</sup>	4,715 - 6,080 kWp	4,832 - 6,231 kWp	4,950 - 6,383 kWp	5,068 - 6,535 kWp	5,186 - 6,687 kWp	5,304 - 6,839 kWp	5,422 - 6,991 kWp
Voltage Range MPP <sup>(2)</sup>	869 - 1,300 V	889 - 1,300 V	910 - 1,300 V	930 - 1,300 V	951 - 1,300 V	972 - 1,300 V	992 - 1,300 V
Maximum voltage <sup>(3)</sup>	1,500 V						
Maximum current	5,625 A						
N° PV inputs	Up to 32						
Fuse dimensions	Up to 630 A / 1,500 V / UL PV / 100 kA (L/R 5mS) (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 32 pairs of DC fuses (optional) / Reverse polarity / Insulation failure monitoring / Anti-islanding protection						
<b>Output (AC)</b>							
Power @98.6 °F	4,677 kVA	4,793 kVA	4,910 kVA	5,027 kVA	5,144 kVA	5,261 kVA	5,378 kVA
Power @104 °F	4,572 kVA	4,686 kVA	4,801 kVA	4,915 kVA	5,029 kVA	5,144 kVA	5,258 kVA
Power @122 °F	4,032 kVA	4,133 kVA	4,234 kVA	4,335 kVA	4,435 kVA	4,536 kVA	4,637 kVA
Current @98.6 °F	4,500 A						
Current @104 °F	4,400 A						
Current @122 °F	3,880 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	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 -22 °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, 60 Hz)						
Air flow range	0 - 78 ft³/s (0 - 7,800 m³/h)						
Average air flow	42 ft³/s (4,200 m³/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-SB, FCC Part 15, IEEE C37.90.1, IEEE C37.90.2, CSA22.2 No107						
Grid connection standards	IEC 62116, UL1741-SB, IEEE2800, 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> Vmpp.min is for rated conditions (Vac=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.

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