

**THREE-PHASE TL  
INVERTERS WITH  
THE MAXIMUM  
EFFICIENCY AT  
THE BEST PRICE**

**10TL / 15TL / 20TL / 28TL / 33TL**

A three-phase inverter family for domestic, industrial and large-scale PV plants.

**Maximum efficiency at the best price**

A single DC-to-AC power conversion stage with an advanced single maximum power point tracking system (MPPT), that makes it possible to harness the maximum energy from the PV array at the most competitive price.

**Plug & Play technology**

Extremely easy to install. The inverter connection is fast and simple. The country-specific configuration and language can be easily selected from the inverter screen.

**Rugged design**

Steel casing, especially designed for indoor and outdoor applications (IP65). Able to withstand extreme temperatures. The INGECON® SUN 3Play TL inverters have been designed to guarantee long life expectancy, as demonstrated by the stress tests they are subjected to.

**Ease of maintenance**

Internal datalogger for up to 3 months data storage. Control either from a remote PC or on-site from the inverter front keypad. Status and alarm LED indicators. LCD screen.

**Easy to operate**

The INGECON® SUN 3Play TL inverters feature a LCD screen for the simple and convenient monitoring of the inverter status and a range of internal variables. The display also includes three LEDs to show the inverter operating status. All this helps to simplify and facilitate maintenance tasks.

**Software included**

Included at no extra cost are the INGECON® SUN Manager, INGECON® SUN Monitor and its smartphone version Web Monitor for monitoring and recording the inverter data over the internet. RS-485 communications are supplied as standard. In addition, users can download the latest version of the firmware from the Ingeteam website: [www.ingeteam.com](http://www.ingeteam.com), and update it using a simple SD memory card.

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



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**Different versions to choose from**

In order to satisfy its clients' needs, Ingeteam has created different versions for the INGECON® SUN 3Play TL family:

- "S": Standard version
- "S+": Advanced Standard version
- "P": Premium version
- "P+": Advanced Premium version

All the versions are supplied with DC and AC surge arresters type 3. The "S" version represents the most basic model of all. It features a single MPPT input with terminal blocks. The Advanced Standard version also integrates a DC switch.

On the other hand, the Premium version includes two options for DC connection: conventional terminal blocks or fused and monitored PV connectors.

Moreover, it also features DC fuses, the input current measuring kit and a DC switch. The Advanced Premium version "P+" is supplied with DC surge arresters, type 2.

MAIN FEATURES

- MPPT system.
- 98.5% maximum efficiency.
- Digital inputs.
- RS-485 communications supplied as standard.
- Inverter firmware updating by the user through a SD memory card.
- Software INGECON® SUN Manager for PV plant access and data registration.
- Software INGECON® SUN Monitor for PV plant monitoring.
- LCD display.
- Easy maintenance.
- Display-configurable potential-free contact, to indicate insulation fault or grid connection.
- Plug & Play technology.
- Suitable for indoor and outdoor installations (IP65).
- High temperature performance.
- Different versions to satisfy every project needs.
- Compact design.
- Language, rated voltage and Country Code configurable by display.

PROTECTIONS

- Reverse polarity.
- Shortcircuits and overloads at the output.
- Anti-islanding with automatic disconnection.
- Insulation faults.
- Input and output overvoltages with type 3 surge arresters.

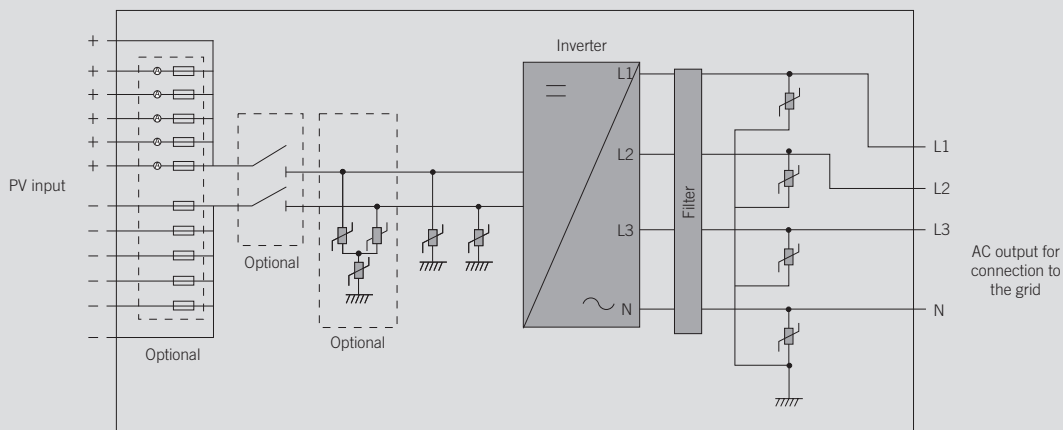
OPTIONAL ACCESORIES

- Inverter communication via Ethernet, GSM / GPRS or Wi-Fi. A second RS-485 communication card is available.
- Self-consumption kit.

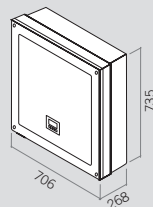
BENEFITS

- The best possible price.
- High efficiency rates.
- Easy maintenance.

**3Play TL P+ version (33 kW)**



**Size and weight (mm)**



**10TL / 15TL / 20TL**  
46.8 kg.

**28TL / 33TL**  
51.5 kg.

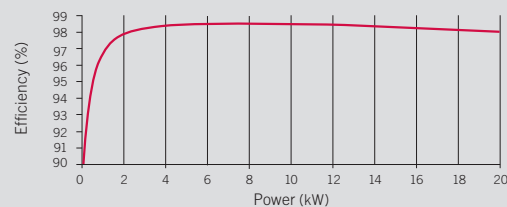
	10TL	15TL	20TL	28TL	33TL
<b>Input (DC)</b>					
Recommended PV array power range <sup>(1)</sup>	10.3 - 13.4 kW	15.5 - 20.1 kW	20.6 - 26.8 kW	28.9 - 37.5 kW	34 - 45 kW
Voltage range MPP <sup>(2)</sup>	560 - 820 V				
Min. voltage for P <sub>nom</sub> at rated V <sub>ac</sub>	560 V				
Maximum voltage <sup>(3)</sup>	1,000 V				
Maximum current <sup>(4)</sup>	19 A	28 A	37 A	52 A	61 A
Inputs with terminal blocks	1				
Inputs with PV connectors <sup>(5)</sup>	5	5	5	8	8
MPPT	1				
<b>Output (AC)</b>					
Rated power	10 kW	15 kW	20 kW	28 kW	33 kW
Max. temperature at rated power <sup>(6)</sup>	55 °C	55 °C	55 °C	51 °C	51 °C
Maximum current	15 A	22 A	29 A	41 A	48 A
Rated voltage	400 V				
Voltage range	187 - 528 V	187 - 528 V	187 - 528 V	304 - 528 V	304 - 528 V
Frequency	50 / 60 Hz				
Power Factor	1				
Power Factor adjustable <sup>(7)</sup>	Yes. S <sub>max</sub> =10 kVA; Q <sub>max</sub> =10 kVAR	Yes. S <sub>max</sub> =15 kVA; Q <sub>max</sub> =15 kVAR	Yes. S <sub>max</sub> =20 kVA; Q <sub>max</sub> =20 kVAR	Yes. S <sub>max</sub> =28 kVA; Q <sub>max</sub> =20 kVAR	Yes. S <sub>max</sub> =33 kVA; Q <sub>max</sub> =20 kVAR
THD	<3%				
<b>Efficiency</b>					
Maximum efficiency	98.5%				
Euroefficiency	98.3%	98.4%	98.3%	98.3%	98.3%
<b>General Information</b>					
Refrigeration system	Forced ventilation				
Air flow	200 m <sup>3</sup> /h	200 m <sup>3</sup> /h	200 m <sup>3</sup> /h	400 m <sup>3</sup> /h	400 m <sup>3</sup> /h
Stand-by consumption <sup>(8)</sup>	10 W				
Consumption at night	1 W				
Ambient temperature	-25 °C to 65 °C				
Relative humidity (non-condensing)	0 - 100%				
Protection class	IP65				
Marking	CE				
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	RD1699/2011, DIN V VDE V 0126-1-1, EN 50438, CEI 0-16 Ed. III, CEI 0-21, VDE-AR-N 4105:2011-08, G59/2, G83/2 <sup>(9)</sup> , P.O.12.3, AS4777.2, AS4777.3, IEC 62116, IEC 61727, UNE 206007-1, ABNT NBR 16149, ABNT NBR 16150, South African Grid code, Chilean Grid Code, Romanian Grid Code, Ecuadorian Grid Code, Peruvian Grid code, IEEE 929, Thailand MEA & PEA requirements, DEWA (Dubai) Grid Code, Jordan Grid Code				
<b>Versions available</b>					
<b>Standard version</b>	S		✓	✓	✓
	S+		✓	✓	✓
<b>Premium version</b>	P	✓	✓	✓	✓
	P+		✓	✓	✓

	Standard version		Premium version	
	S	S+	P	P+
Terminal blocks	✓	✓	✓ <sup>(*)</sup>	✓ <sup>(*)</sup>
PV connectors			✓	✓
DC switch		✓	✓	✓
DC surge arresters, type 2				✓
DC and AC surge arresters, type 3	✓	✓	✓	✓
DC fuses			✓	✓
Current measuring kit			✓	✓

(\*) Terminal blocks not available for the Premium versions of the INGECON® SUN 28TL and 33TL inverters.

**Notes:** <sup>(1)</sup> Depending on the type of installation and geographical location <sup>(2)</sup> V<sub>mpp,min</sub> = 560 V when V<sub>ac</sub> = 400 V. Otherwise: V<sub>mpp,min</sub> = 1.4 x V<sub>ac</sub> <sup>(3)</sup> Must not be exceeded under any circumstances. Consider the voltage increase of the 'Voc' at low temperatures <sup>(4)</sup> The maximum current per PV connector is 11 A for Premium versions <sup>(5)</sup> Branch plugs and sockets available to connect two cables to each input <sup>(6)</sup> For each °C of increase, the output power will be reduced at the rate of 1.8% <sup>(7)</sup> Q=0 outside the voltage range MPP <sup>(8)</sup> Consumption from PV field <sup>(9)</sup> Related only to inverters up to 16 A.

**Efficiency INGECON® SUN 20TL** V<sub>dc</sub> = 600 V





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