INGECON SUN

Power B Series
1,500 Vdc

Up to 1800 kVA at 1500 V

TRANSFORMERLESS CENTRAL INVERTERS WITH A SINGLE POWER BLOCK

Maximum power density
These PV central inverters feature more power per cubic foot. Thanks to the use of high-quality components, this inverter series performs at the highest possible level.

Latest generation electronics
The B Series inverters integrate an innovative control unit that runs faster and performs a more efficient and sophisticated inverter control, as it uses a last-generation digital signal processor. Furthermore, the hardware of the control unit allows some more accurate measurements and very reliable protections.

These inverters feature a low voltage ride-through capability and also a lower power consumption thanks to a more efficient power supply electronic board.

Improved AC connection
The output connection has been designed in order to facilitate a direct close-coupled connection with the MV transformer.

Maximum protection
These three phase inverters are equipped with a motorized DC switch to decouple the PV generator from the inverter. Moreover, they are also supplied with a motorized AC circuit breaker. Optionally, they can be supplied with DC fuses, smart grounding kit and input current monitoring.

Maximum efficiency values
Through the use of innovative electronic conversion topologies, efficiency values of up to 98.9% can be achieved. Thanks to a sophisticated control algorithm, this equipment can guarantee maximum efficiency depending on the PV power available.

Enhanced functionality
This new INGECON® SUN Power range features a revamped, improved enclosure which, together with its innovative air cooling system, makes it possible to increase the ambient operating temperature.

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Ingeteam

Up to 1800 kVA at 1500 V

Long-lasting design
The inverters have been designed to guarantee a long life expectancy, as demonstrated by the stress tests they are subjected to. Standard 5 year warranty, extendable for up to 25 years.

Grid support
The INGECON® SUN Power B Series has been designed to comply with the grid connection requirements in different countries, contributing to the quality and stability of the electric system. These inverters therefore feature a low voltage ride-through capability, and can deliver reactive power and control the active power delivered to the grid. Moreover, they can operate in weak power grids with a low short-circuit ratio (SCR).

Ease of maintenance
All the elements can be removed or replaced directly from the inverter's front side, thanks to its new design.

Easy to operate
The INGECON® SUN Power inverters feature an LCD screen for the simple and convenient monitoring of the inverter status and a range of internal variables.

The display also includes a number of LEDs to show the inverter operating status with warning lights to indicate any incidents. All this helps to simplify and facilitate maintenance tasks.

Monitoring and communication
Ethernet communications supplied as standard. The following applications are included at no extra cost: INGECON® SUN Manager, INGECON® SUN Monitor and its Smartphone version Web Monitor, available on the App Store. These applications are used for monitoring and recording the inverter's internal operating variables through the Internet (alarms, real time production, etc.), in addition to the historical production data.

Two communication ports available (one for monitoring and one for plant controlling), allowing fast and simultaneous plant control.

PROTECTIONS

- DC Reverse polarity.
- Short-circuits and overloads at the output.
- Anti-islanding with automatic disconnection.
- Insulation failure DC.
- Up to 15 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.
- Low-voltage ride-through capability.
- Hardware protection via firmware.
- Additional protection for the power electronics, as it is air-cooled by a closed loop.

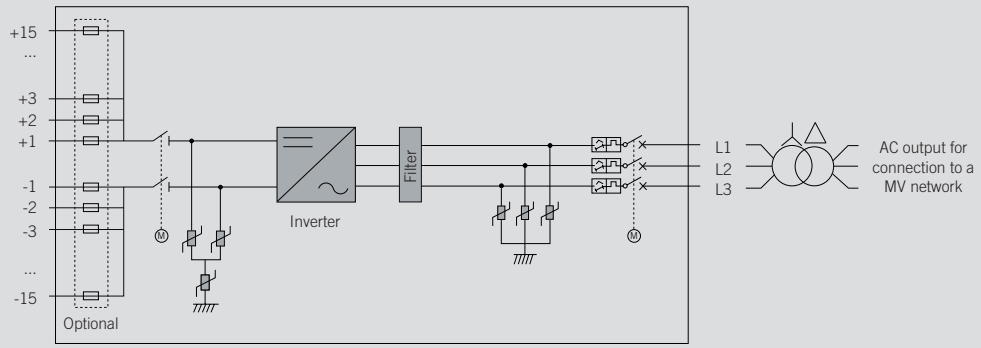
OPTIONAL ACCESSORIES

- Auxiliary services feeder.
- Grounding kit.
- Heating kit, for operating at an ambient temperature of down to -30 ºC.
- Lightning induced DC surge arresters, type I+II.
- DC fuses.
- Monitoring of the DC currents.
- Sand trap kit.
- Wattmeter on the AC side.
- PID prevention kit (PID: Potential Induced Degradation).
- Nighttime reactive power injection.
- Integrated DC combiner box.

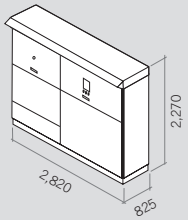
ADVANTAGES OF THE B SERIES

- Higher power density.
- Latest generation electronics.
- More efficient electronic protection.
- Night time supply to communicate with the inverter at night.
- Enhanced performance.
- Easier maintenance thanks to its new design and enclosure.
- Lightweight spares.
- It allows to ground the PV array.
- Components easily replaceable.

Power B Series

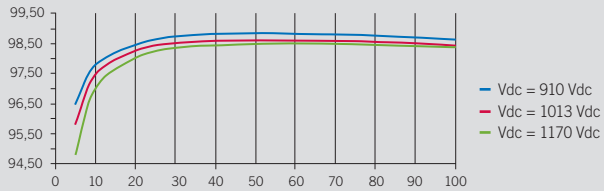


Size and weight (mm)



1,710 kg.

Efficiency INGECON® SUN 1640TL B630



	1170TL B450	1400TL B540	1500TL B578	1560TL B600	1600TL B615
Input (DC)					
Recommended PV array power range[1]	1,157 - 1520 kWp	1,389 - 1,824 kWp	1,487 - 1,952 kWp	1,543 - 2,027 kWp	1,582 - 2,077 kWp
Voltage Range MPP[2]	655 - 1,300 V	783 - 1,300 V	837 - 1,300 V	868 - 1,300 V	889 - 1,300 V
Maximum voltage[3]	1,500 V				
Maximum current	1,850 A				
Nº inputs with fuse holders	6 up to 15 (up to 12 with the combiner box)				
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				
Max. current at each input	From 40 A to 350 A for positive and negative poles				
Input protections					
Overvoltage protections	Type II surge arresters (type I+II optional)				
DC switch	Motorized DC load break disconnect				
Other protections	Up to 15 pairs of DC fuses (optional) / Insulation failure monitoring / Anti-islanding protection / Emergency pushbutton				
Output (AC)					
Power IP54 @30 °C / @50 °C	1,169 kVA / 1,052 kVA	1,403 kVA / 1,263 kVA	1,502 kVA / 1,352 kVA	1,559 kVA / 1,403 kVA	1,598 kVA / 1,438 kVA
Current IP54 @30 °C / @50 °C	1,500 A / 1,350 A				
Power IP56 @27 °C / @50 °C[4]	1,169 kVA / 1,035 kVA	1,403 kVA / 1,242 kVA	1,502 kVA / 1,330 kVA	1,559 kVA / 1,380 kVA	1,598 kVA / 1,415 kVA
Current IP56 @ 27°C / @ 50°C[4]	1,500 A / 1,328 A				
Rated voltage[5]	450 V IT System	540 V IT System	578 V IT System	600 V IT System	615 V IT System
Frequency	50 / 60 Hz				
Power Factor[6]	1				
Power Factor adjustable	Yes, 0-1 (leading / lagging)				
THD (Total Harmonic Distortion)[7]	<3%				
Output protections					
Overvoltage protections	Type II surge arresters				
AC breaker	Motorized AC circuit breaker				
Anti-islanding protection	Yes, with automatic disconnection				
Other protections	AC short circuits and overloads				
Features					
Maximum efficiency	98.9%				
Euroefficiency	98.5%				
Max. consumption aux. services	4,700 W (25 A)				
Stand-by or night consumption[8]	90 W				
Average power consumption per day	2,000 W				
General Information					
Ambient temperature	-20 °C to +57 °C				
Relative humidity (non-condensing)	0 - 100%				
Protection class	IP54 (IP56 with the sand trap kit)				
Maximum altitude	4,500 m (for installations beyond 1,000 m, please contact Ingeteam's solar sales department)				
Cooling system	Air forced with temperature control (230 V phase + neutral power supply)				
Air flow range	0 - 7,800 m^3/h				
Average air flow	4,200 m^3/h				
Acoustic emission (100% / 50% load)	<66 dB(A) at 10m / <54.5 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, IEC62103, EN 50178, FCC Part 15, AS3100				
Grid connection standards	IEC 62116, Arrêté 23-04-2008, CEI 0-16 Ed. III, Terna A68, G59/2, BDEW-Mittelspannungsrichtlinie:2011, P.O.12.3, South African Grid code (ver 2.6), Chilean Grid Code, Ecuadorian Grid Code, Peruan Grid code, Thailand PEA requirements, IEC61727, UNE 206007-1, ABNT NBR 16149, ABNT NBR 16150, IEEE 1547, IEEE1547.1, GGC&CGC China, DEWA (Dubai) Grid code, Jordan Grid Code				

Notes: [1] Depending on the type of installation and geographical location. Data for STC conditions [2] Vmpp.min is for rated conditions (Vac=1 p.u. and Power Factor=1) [3] Consider the voltage increase of the 'Voc' at low temperatures [4] With the sand trap kit [5] Other AC voltages and powers available upon request [6] For P_{out}>25% of the rated power [7] For P_{out}>25% of the rated power and voltage in accordance with IEC 61000-3-4 [8] Consumption from PV field when there is PV power available.

	1640TL B630	1665TL B640	1690TL B650	1740TL B670	1800TL B690
Input (DC)					
Recommended PV array power range[1]	1,620 - 2,128 kWp	1,646 - 2,162 kWp	1,672 - 2,196 kWp	1,723 - 2,263 kWp	1,775 - 2,330 kWp
Voltage Range MPP[2]	910 - 1,300 V	922 - 1,300 V	937 - 1,300 V	965 - 1,300 V	994 - 1,300 V
Maximum voltage[3]	1,500 V				
Maximum current	1,850 A				
N° inputs with fuse holders	6 up to 15 (up to 12 with the combiner box)				
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				
Max. current at each input	From 40 A to 350 A for positive and negative poles				
Input protections					
Overvoltage protections	Type II surge arresters (type I+II optional)				
DC switch	Motorized DC load break disconnect				
Other protections	Up to 15 pairs of DC fuses (optional) / Insulation failure monitoring / Anti-islanding protection / Emergency pushbutton				
Output (AC)					
Power IP54 @30 °C / @50 °C	1,637 kVA / 1,473 kVA	1,663 kVA / 1,496.5 kVA	1,689 kVA / 1,520 kVA	1,741 kVA / 1,567 kVA	1,793 kVA / 1,613 kVA
Current IP54 @30 °C / @50 °C	1,500 A / 1,350 A				
Power IP56 @27 °C / @50 °C[4]	1,637 kVA / 1,449 kVA	1,663 kVA / 1,472 kVA	1,689 kVA / 1,495 kVA	1,741 kVA / 1,541 kVA	1,793 kVA / 1,587 kVA
Current IP56 @27 °C / @50 °C[4]	1,500 A / 1,328 A				
Rated voltage[5]	630 V IT System	640 V IT System	650 V IT System	670 V IT System	690 V IT System
Frequency	50 / 60 Hz				
Power Factor[6]	1				
Power Factor adjustable	Yes, 0-1 (leading / lagging)				
THD (Total Harmonic Distortion)[7]	<3%				
Output protections					
Overvoltage protections	Type II surge arresters				
AC breaker	Motorized AC circuit breaker				
Anti-islanding protection	Yes, with automatic disconnection				
Other protections	AC short circuits and overloads				
Features					
Maximum efficiency	98.9%				
Euroefficiency	98.5%				
Max. consumption aux. services	4,700 W (25 A)				
Stand-by or night consumption[8]	90 W				
Average power consumption per day	2,000 W				
General Information					
Operating temperature	-20 °C to +57 °C				
Relative humidity (non-condensing)	0 - 100%				
Protection class	IP54 (IP56 with the sand trap kit)				
Maximum altitude	4,500 m (for installations beyond 1,000 m, please contact Ingeteam's solar sales department)				
Cooling system	Air forced with temperature control (230 V phase + neutral power supply)				
Air flow range	0 - 7,800 m^3/h				
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