

TRANSFORMERLESS CENTRAL INVERTERS WITH A SINGLE POWER BLOCK

1170TL B450 / 1400TL B540 / 1500TL B578 /
1560TL B600 / 1600TL B615 / 1640TL B630

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.

Integrated DC and AC connections

The input and output connections are integrated into the same cabinet, facilitating connection, maintenance and repair work.

Maximum protection

These three phase inverters are equipped with a motorized DC switch to decouple the PV generator from the inverter. Optionally, these inverters can be supplied with an AC circuit breaker with door control, in addition to fuses, grounding kit and input current monitoring.

Maximum efficiency values

Through the use of innovative electro-nic 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.

A complete range of equipment for all types of projects

Versions available:

- Indoor inverters with integrated DCAC cabinet.
- Outdoor inverters with integrated DCAC cabinet.
- Symmetrical indoor inverters, with the connection cabinet on the opposite side, to make it possible to install two inverters facing each other, with a common power supply point.

Enhanced functionality

This new INGECON® SUN PowerMax range features a revamped, improved enclosure which, together with its innovative air cooling system, makes it possible to increase the ambient operating temperature to deliver its rated power up to 50 °C.



1130TL B450 / 1350TL B540 / 1450TL B578 / 1500TL B600 / 1545TL B615 / 1580TL B630

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 PowerMax 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.

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 PowerMax 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 arrestors, type 2 (type 1 also available).
- Motorized DC switch to automatically disconnect the inverter from the PV array.
- Low-voltage ride-through capability.
- Hardware protection via firmware.
- IP66 protection class for the electronics.

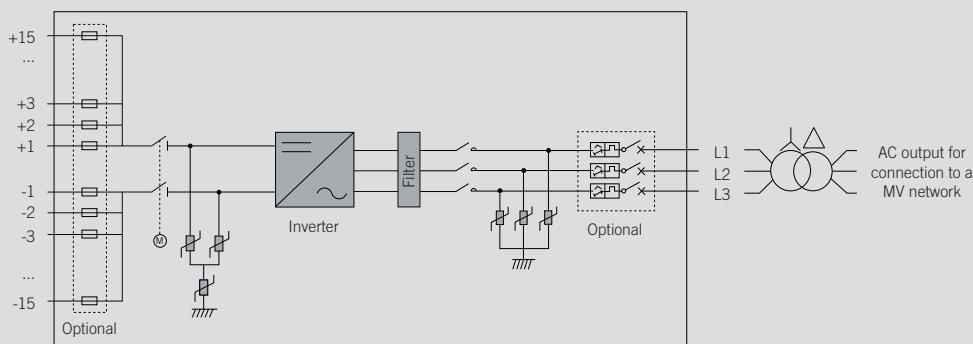
OPTIONAL ACCESSORIES

- AC circuit breaker with remote tripping.
- Motorization kit for the AC circuit breaker.
- Insulation failure AC.
- Grounding kit.
- Heating kit, for operating at an ambient temperature of down to -30 °C.
- DC fuses.
- Monitoring of the DC currents.
- Wattmeter on the AC side.
- PID prevention kit (PID: Potential Induced Degradation).
- Nighttime reactive power injection.

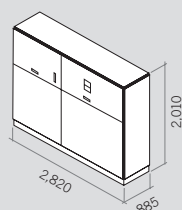
ADVANTAGES OF THE MONOBLOCK VERSION

- 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.
- IP66 protection class for the electronics.

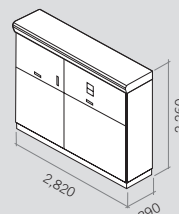
PowerMax B Series



Size and weight (mm)



Indoor inverter
1,650 kg.

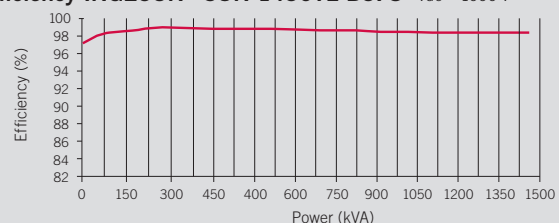


Outdoor inverter
1,710 kg.

	1170TL B450	1400TL B540	1500TL B578
Input (DC)			
Recommended PV array power range ⁽¹⁾	1,072 - 1,469 kWp	1,286 - 1,763 kWp	1,377 - 1,887 kWp
Voltage Range MPP ⁽²⁾	660 - 1,300 V	786 - 1,300 V	840 - 1,300 V
Maximum voltage ⁽³⁾	1,500 V		
Maximum current	2,000 A		
N° inputs with fuse holders	6 up to 15		
Fuse dimensions	63 A / 1,500 V to 400 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 320 A for positive and negative poles		
Input protections			
Overvoltage protections	Type 2 surge arresters (type 1 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 @25 °C / @50 °C ⁽⁴⁾	1,169 kVA / 975 kVA	1,403 kVA / 1,169 kVA	1,502 kVA / 1,251 kVA
Current @25 °C / @50 °C	1,500 A / 1,250 A		
Rated voltage	450 V IT System	540 V IT System	578 V IT System
Frequency	50 / 60 Hz		
Power Factor ⁽⁵⁾	1		
Power Factor adjustable	Yes. S _{max} =1,169 kVA	Yes. S _{max} =1,403 kVA	Yes. S _{max} =1,502 kVA
THD (Total Harmonic Distortion) ⁽⁶⁾	<3%		
Output protections			
Overvoltage protections	Type 2 surge arresters (type 1 optional)		
AC breaker	Optional AC circuit breaker with door control, remote trip or motorized		
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	2,500 VA		
Stand-by or night consumption ⁽⁷⁾	60 W		
Average energy consumption per day	18 kWh		
General Information			
Ambient temperature	-20 °C to +55 °C		
Relative humidity (non-condensing)	0 - 100%		
Protection class	IP50 (Indoor) / IP56 (Outdoor)		
Maximum altitude ⁽⁸⁾	2,000 m		
Cooling system	Air forced with temperature control (230 V phase + neutral power supply)		
Air flow	6,200 m ³ /h		
Acoustic emission	< 77 dB (A) at 1 m		
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⁾ V_{mpp,min} is for rated conditions (V_{ac}=1 p.u. and Power Factor=1) ⁽³⁾ Consider the voltage increase of the 'Voc' at low temperatures ⁽⁴⁾ For each °C of increase between 25 °C and 50 °C, the output power will be reduced at the rate of 0.66%. Over 50 °C, the output power will be reduced at the rate of 1.8% / °C ⁽⁵⁾ For P_{out}>25% of the rated power ⁽⁶⁾ For P_{out}>25% of the rated power and voltage in accordance with IEC 61000-3-4 ⁽⁷⁾ Consumption from PV field when there is PV power available ⁽⁸⁾ Over 1,000 m temperature for rated power is reduced at the rate of 4.5 °C for each 1,000 m. For installations beyond the maximum altitude, please contact Ingeteam's solar sales department.

Efficiency INGECON® SUN 1450TL B578 V_{dc} = 1000 V



	1560TL B600	1600TL B615	1640TL B630
Input (DC)			
Recommended PV array power range ⁽¹⁾	1,429 - 1,959 kWp	1,465 - 2,008 kWp	1,500 - 2,057 kWp
Voltage Range MPP ⁽²⁾	870 - 1,300 V	889 - 1,300 V	915 - 1,300 V
Maximum voltage ⁽³⁾	1,500 V		
Maximum current	2,000 A		
N° inputs with fuse holders	6 up to 15		
Fuse dimensions	63 A / 1,500 V to 400 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 250 A for positive and negative poles		
Input protections			
Overvoltage protections	Type 2 surge arresters (type 1 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 @25 °C / @50 °C ⁽⁴⁾	1,559 kVA / 1,299 kVA	1,598 kVA / 1,332 kVA	1,637 kVA / 1,364 kVA
Current @25 °C / @50 °C	1,500 A / 1,250 A		
Rated voltage	600 V IT System	615 V IT System	630 V IT System
Frequency	50 / 60 Hz		
Power Factor ⁽⁵⁾	1		
Power Factor adjustable	Yes. S _{max} =1,559 kVA	Yes. S _{max} =1,598 kVA	Yes. S _{max} =1,637 kVA
THD (Total Harmonic Distortion) ⁽⁶⁾	<3%		
Output protections			
Overvoltage protections	Type 2 surge arresters (type 1 optional)		
AC breaker	Optional AC circuit breaker with door control, remote trip or motorized		
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	2,500 VA		
Stand-by or night consumption ⁽⁷⁾	60 W		
Average energy consumption per day	18 kWh		
General Information			
Operating temperature	-20 °C to +55 °C		
Relative humidity (non-condensing)	0 - 100%		
Protection class	IP50 (Indoor) / IP56 (Outdoor)		
Maximum altitude ⁽⁸⁾	2,000 m		
Cooling system	Air forced with temperature control (230 V phase + neutral power supply)		
Air flow	6,200 m ³ /h		
Acoustic emission	< 77 dB (A) at 1 m		
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		
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Efficiency INGECON® SUN 1580TL B630 V_{dc} = 1000 V

