



Product Certificate Number	20455-1-CER
Applicant	Ingeteam Power Technology S.A. - Energy Avenida Ciudad De La Innovación, 13. 31621. Sarriguren. Navarra. SPAIN
Series/	INGECON SUN Power B Series 1500 Vdc INGECON SUN Power B Series INGECON SUN STORAGE Power B Series INGECON SUN STORAGE Power B Series 1500 Vdc
Model/	See page 2
Type of generating unit	Photovoltaic Inverter
Technical Data	See pages 3, 4, 5 and 6
Network connection rule	Egyptian Wind Farm Grid Connection Code. March 2014.

Having assessed the test report number: B28-15-AJ-16 performed by Tecnalia Research and Innovation and 11251-1-TR-E2 performed by CERE based on the requirements of the EN ISO/IEC 17025:2005

The above-mentioned generating unit complies with the requirements of the: **Egyptian Wind Farm Grid Connection Code.** March 2014.

This certification is according the CERE internal process PET-CERE-09 Rev 17 based on the requirements of the EN ISO/IEC 17065:2012. For this certification process the conformity assessment activities were based on:

- Testing of production samples selected by CERE.
- Audit of quality system according ISO 9001 with certificate number: 0. 04. 12231 issued by a certification body accredited according EN ISO/IEC 17021.
- Inspection of the manufacturing process.

This certificate cancels and supersedes the certificate 11251-22-E5-CER issued on May 30, 2019

Madrid, November 03, 2019. This certificate is valid until November 03, 2022.

Miguel Martínez Lavín
Certification Manager

<p><u>INGECON SUN Power B Series</u> INGECON SUN 720TL B260 INGECON SUN 748TL B270 INGECON SUN 830TL B300 INGECON SUN 860TL B310 INGECON SUN 890TL B320 INGECON SUN 915TL B330 INGECON SUN 940TL B340 INGECON SUN 970TL B350 INGECON SUN 1000TL B360 INGECON SUN 1025TL B370 INGECON SUN 1050TL B380 INGECON SUN 1070TL B385 INGECON SUN 1080TL B390 INGECON SUN 1110TL B400 INGECON SUN 1140TL B410 INGECON SUN 1165TL B420 INGECON SUN 1190TL B430 INGECON SUN 1220TL B440 INGECON SUN 1250TL B450 INGECON SUN 1250TL B450 INGECON SUN 1275TL B460 INGECON SUN 1303TL B470 INGECON SUN XXXXTL BYYY (*)</p>	<p><u>INGECON SUN STORAGE Power B Series</u> INGECON SUN STORAGE 720TL B260 INGECON SUN STORAGE 748TL B270 INGECON SUN STORAGE 830TL B300 INGECON SUN STORAGE 860TL B310 INGECON SUN STORAGE 890TL B320 INGECON SUN STORAGE 915TL B330 INGECON SUN STORAGE 940TL B340 INGECON SUN STORAGE 970TL B350 INGECON SUN STORAGE 1000TL B360 INGECON SUN STORAGE 1025TL B370 INGECON SUN STORAGE 1050TL B380 INGECON SUN STORAGE 1070TL B385 INGECON SUN STORAGE 1080TL B390 INGECON SUN STORAGE 1110TL B400 INGECON SUN STORAGE 1140TL B410 INGECON SUN STORAGE 1165TL B420 INGECON SUN STORAGE 1190TL B430 INGECON SUN STORAGE 1220TL B440 INGECON SUN STORAGE 1250TL B450 INGECON SUN STORAGE 1275TL B460 INGECON SUN STORAGE 1303TL B470 INGECON SUN STORAGE XXXXTL BYYY (**)</p>
<p><u>INGECON SUN Power B Series 1500 Vdc</u> INGECON SUN 1170TL B450 INGECON SUN 1195TL B460 INGECON SUN 1220TL B470 INGECON SUN 1247TL B480 INGECON SUN 1273TL B490 INGECON SUN 1300TL B500 INGECON SUN 1325TL B510 INGECON SUN 1350TL B520 INGECON SUN 1376TL B530 INGECON SUN 1400TL B540 INGECON SUN 1430TL B550 INGECON SUN 1455TL B560 INGECON SUN 1480TL B570 INGECON SUN 1500TL B578 INGECON SUN 1532TL B590 INGECON SUN 1560TL B600 INGECON SUN 1580TL B630 INGECON SUN 1600TL B615 INGECON SUN 1640TL B630 INGECON SUN 1665TL B640 INGECON SUN 1690TL B650 INGECON SUN 1715TL B660 INGECON SUN 1740TL B670 INGECON SUN 1767TL B680 INGECON SUN 1800TL B690 INGECON SUN 1820TL B700 INGECON SUN XXXXTL BYYY (***)</p>	<p><u>INGECON SUN STORAGE Power B Series 1500 Vdc</u> INGECON SUN STORAGE 1170TL B450 INGECON SUN STORAGE 1195TL B460 INGECON SUN STORAGE 1220TL B470 INGECON SUN STORAGE 1247TL B480 INGECON SUN STORAGE 1273TL B490 INGECON SUN STORAGE 1300TL B500 INGECON SUN STORAGE 1325TL B510 INGECON SUN STORAGE 1350TL B520 INGECON SUN STORAGE 1376TL B530 INGECON SUN STORAGE 1400TL B540 INGECON SUN STORAGE 1430TL B550 INGECON SUN STORAGE 1455TL B560 INGECON SUN STORAGE 1480TL B570 INGECON SUN STORAGE 1500TL B578 INGECON SUN STORAGE 1532TL B590 INGECON SUN STORAGE 1560TL B600 INGECON SUN STORAGE 1600TL B615 INGECON SUN STORAGE 1640TL B630 INGECON SUN STORAGE 1665TL B640 INGECON SUN STORAGE 1690TL B650 INGECON SUN STORAGE 1715TL B660 INGECON SUN STORAGE 1740TL B670 INGECON SUN STORAGE 1767TL B680 INGECON SUN STORAGE 1800TL B690 INGECON SUN STORAGE 1820TL B700 INGECON SUN STORAGE XXXXTL BYYY (***)</p>
<p>(*) This reference indicates the equipment between 220 V and 470 V of AC voltage (YYY) and between 610 kW and 1303 kW of AC power at 35°C (XXXX). (**) This reference indicates the equipment between 220 V and 470 V of AC voltage (YYY) and between 610 kW and 1303 kW of AC power at 35°C (XXXX). (***) This reference indicates the equipment between 333 V and 700 V of AC voltage (YYY) and between 865 kW and 1820 kW of AC power at 30°C (XXXX).</p>	

INGECON SUN Power B Series 1500 Vdc

PV inverters with AC voltage ranging from 333 V to 700 V	
Input (DC)	
Recommended PV array power range	Pdc.min=1,1*Pac (50°C) Pac.max= 1,3*Pac (30 °C)
Voltage MPP min	$V_{mpp.min} = \frac{1,732 \sqrt{\frac{2}{3} V^2 + (0,04 * I_{max})^2}}{0,985}$
Voltage MPP max	1300 V
Maximum Voltage	1500 V
Maximum Current	1850 A
Output (AC)	
Power @30°C/@50°C	Pac = ($\sqrt{3}$) * Vac * Iac
Current @30°C/@50°C	1500 A/1350 A
Rated Voltage	Vac = 333 V ... 700 V
Frequency	50/60 Hz
Software version	ABK1000_B

INGECON SUN STORAGE Power B series 1500 Vdc

PV inverters with AC voltage ranging from 333 V to 700 V	
Input (DC)	
Min battery Voltage	$V_{mpp.min} = \frac{1,732 \sqrt{\frac{2}{3} (1,1V)^2 + (0,04 * I_{max})^2}}{0,985}$
Max. Battery voltage	1300 V
Maximum Current	1850 A
Output (AC)	
Power @30°C/@50°C	Pac = ($\sqrt{3}$) * Vac * Iac
Current @30°C/@50°C	1500 A/1350 A
Rated Voltage	Vac = 333 V ... 700 V
Frequency	50/60 Hz
Software version	ABK1000_B

INGECON SUN Power B Series 1000 Vdc

PV inverters with AC voltage ranging from 220 V to 470 V	
Input (DC)	
Recommended PV array power range	Pdc.min = 1,1*Pac (50°C) Pdc.max = 1,3*Pac (35°C)
Voltage MPP min.	$V_{mpp.min} = \frac{1,732 \sqrt{\frac{2}{3} V^2 + (0,0311 * I_{max})^2}}{0,985}$
Voltage MPP max.	820 V
Maximum Voltage	1050 V
Maximum Current	2000 A
Output (AC)	
Power 35°C/50°C	Pac = ($\sqrt{3}$) * Vac * Iac
Current 35°C/50°C	1600 A/ 1472 A
Rated Voltage	Vac = 220 V ... 470 V
Frequency	50 Hz/60 Hz
Software version	ABK1000_A

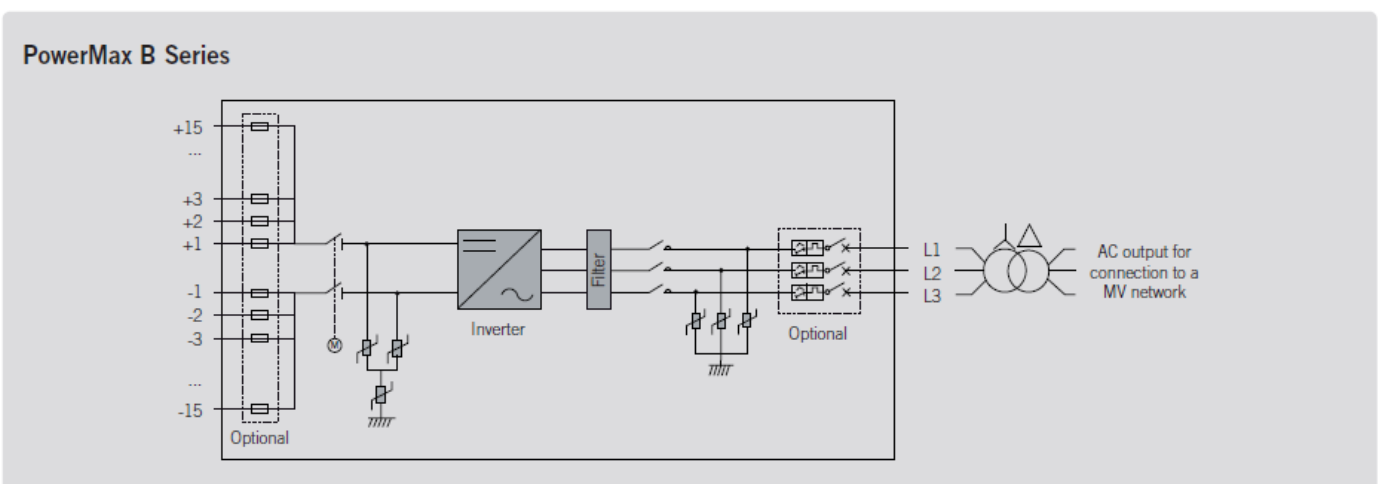
INGECON SUN STORAGE Power B Series 1000 Vdc

PV inverters with AC voltage ranging from 220 V to 470 V	
Input (DC)	
Min. Battery Voltage	$V_{mpp.min} = \frac{1,732 \sqrt{\frac{2}{3} (1,1V)^2 + (0,0311 * I_{max})^2}}{0,985}$
Max. Battery Voltage	820 V
Maximum Current	2000 A
Output (AC)	
Power 35°C/50°C	Pac = ($\sqrt{3}$) * Vac * Iac
Current 35°C/50°C	1600 A/ 1472 A
Rated Voltage	Vac = 220 V ... 470 V
Frequency	50 Hz/60 Hz
Software version	ABK1000_A

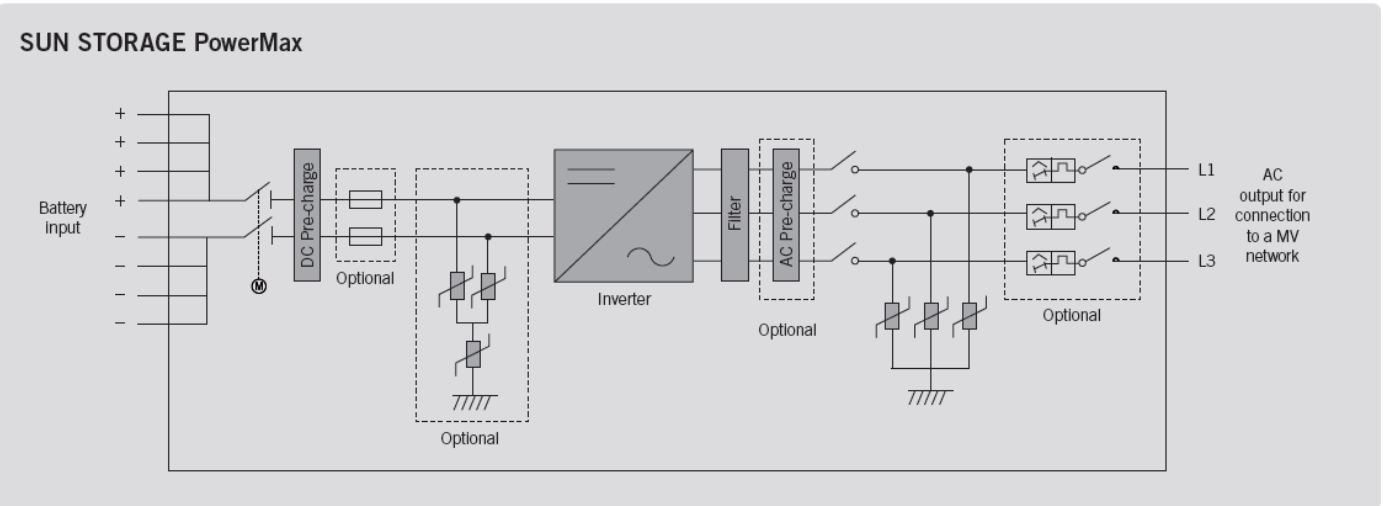
INGECON SUN Power B Series 1000 Vdc: 1250 TL B450

1250 TL B450	
Input (DC)	
Recommended PV array power range	1262-1621 kWp
Voltage MPP min.	653-820 V
Voltage MPP max.	820 V
Maximum Voltage	1050 A
Maximum Current	2000 A
Output (AC)	
Power 35°C/46°C/52°C	1247 kVA / 1208 kVA / 1169 kVA
Current 35°C/46°C/52°C	1600 A / 1550 A / 1500 A
Rated Voltage	450 V IT System
Frequency	50/60 Hz
Software version	ABK1000_B

Electrical Diagram of INGECON SUN Power B Series (1000 Vdc and 1500 Vdc):



Electrical Diagram of INGECON SUN STORAGE Power B Series (1000 Vdc and 1500 Vdc):



Manufacturer:

Ingeteam Power Technology S.A. - Paneles
Pol. Ind. El Juncarillo, Nave 1
31293 Sesma (Navarra) - SPAIN

The sample selected to test was representative of the production.
The sample was selected in manufacture facilities.

May 31, 2016

Sample Report Number:

11251-1-TM

The inspection of manufacturing process was performed in
manufacture facilities:

February 9, 2016

Inspection Report Number:

CERE-C/Ingeteam Paneles