



TYPE TEST APPROVAL

No:230254-TTA

Licence Holder	INGETEAM POWER TECHNOLOGY, SA Avda. Ciudad de a Innovación, 13, E-31621 Sarriguren, Navarra, Spain
Applicant	INGETEAM POWER TECHNOLOGY, SA Avda. Ciudad de a Innovación, 13, E-31621 Sarriguren, Navarra, Spain
Product	Three-Phase Solar Inverter (tested model)/ Three-phase battery inverter
Trademark/ Series/ Model	INGECON / INGECON SUN 3 PLAY/ INGECON SUN 100TL (tested model) INGECON SUN 160TL INGECON SUN STORAGE 100TL INGECON SUN STORAGE 100TL HV INGECON SUN STORAGE 140TL HV
Serial Number	380120284913 (20475-8-TR 20475-3-TR) 380117240001 (11505-6-TR)
Firmware Version	up to version ABS1004_K (Three-Phase Solar Inverter) up to version ABS1008_I (Three-phase battery inverter)
Standard	EN 50549-1:2019 Requirements for generating plants to be connected in parallel with distribution networks – Part 1: Connection to a LV distribution network – Generating plants up to and including Type B EN 50549-2: 2019 Requirements for generating plants to be connected in parallel with distribution networks – Part 2: Connection to a MV distribution network – Generating plants up to and including Type B.

The above-mentioned generating unit complies the requirement of:

EN 50549-1:2019 Requirements for generating plants to be connected in parallel with distribution networks – Part 1: Connection to a LV distribution network – Generating plants up to and including Type B

EN 50549-2: 2019 Requirements for generating plants to be connected in parallel with distribution networks – Part 2: Connection to a MV distribution network – Generating plants up to and including Type B.



Having assessed the test results in the test report 20475-8-TR and 20475-3-TR and 11505-6-TR performed by CERE, issued on 12/11/2021, 20/10/2021 and 26/09/2017 respectively.

There is no verification of the manufacturing process.

Place, Date: Madrid, 22/03/2023

Alberto Martín
(Technical Director)



Technical data

INGECON SUN 100TL						
Input (DC)						
Recommended PV array power range	56 - 80.2 kWp	91.1 - 130.5 kWp	96.2 - 137.8 kWp	101.2 - 145 kWp	106.3 - 152.3 kWp	111.3 - 159.5 kWp
Voltage range MPP (1)	513 - 850 V	513 - 850 V	541.5 - 850 V	570 - 850 V	598.5 - 850 V	627 - 850 V
Maximum voltaje (2)	1,100 V					
Maximum current (3)	185 A					
Output (AC)						
Rated power at rated Vac	55.3 kW	90 kW	95 kW	100 kW	105 kW	110 kW
Maximum current	145 A					
Rated voltage	220 V	360 V	380 V	400 V	420 V	440 V
Rated frequency	50 Hz					
Adjustable power factor	0 – 1 (leading / lagging)					

- (1) $V_{mpp,min}$ is for rated conditions ($V_{ac}=1$ p.u. and Power Factor=1). $V_{mpp,min}$ Efficiency INGECON® SUN 100TL $V_{dc} = 570$ V will depend on the grid voltage (V_{ac}), according to this relation: $V_{mpp,min}=1.425 \cdot V_{ac}$ "
- (2) The inverter does not start operating until $V_{dc} < 1,000$ V. If the DC fuses for the negative pole have been installed, then the maximum DC voltage is 1,000 V
- (3) The maximum current per PV connector is 15 A for the PRO version (4) For each °C of increase, the output power will be reduced at the rate of 2.3%.

INGECON SUN 160TL						
Input (DC)						
Recommended PV array power range	95 - 136 kWp	113 - 162.5 kWp	141 - 203 kWp	148 - 213 kWp	153.5 - 220 kWp	162 - 233.5 kWp
Voltage range MPP (1)	576 - 1.250 V	692 - 1.250 V	864 - 1.250 V	908 - 1.250 V	936 - 1.250 V	994 - 1.250 V
Maximum voltage (2)	1.500 V					
Maximum current (3)	168 A					
Output (AC)						
Rated power at 25 °C / 40 °C / 50 °C	92.8 kW / 85.9 kW / 83.8 kW	111.4 kW / 103.1 kW / 100.6 kW	139.3 kW / 128.9 kW / 125.8 kW	146.2 kW / 135.3 kW / 132 kW	150.9 kW / 139.6 kW / 136.2 kW	160.1 kW / 148.2 kW / 144.6 kW
Maximum current at 25 °C / 40 °C / 50 °C	134 A / 124 A / 121 A					
Rated voltage	400 V	480 V	600 V	630 V	650 V	690 V
Rated frequency	50 Hz					
Adjustable power factor	0 – 1 (leading / lagging)					

(1) $V_{mpp,min}$ is for rated conditions ($V_{ac}=1$ p.u. and Power Factor=1). $V_{mpp,min}$ will depend on the grid voltage (V_{ac}), according to this relation: $V_{mpp,min}=1.44 \cdot V_{ac}$

(2) The inverter does not start operating until $V_{dc} < 1,450$ V

(3) The maximum current per PV connector is 20 A for the PRO version

INGECON SUN STORAGE 100TL	
Input (DC)	
Voltage range (1)	627 - 850 V
Maximum Voltage (2)	1100 V
Maximum power charge/discharge	60 kW / 100 kW
Maximum current charge/discharge	96 A / 159 A
Output (AC)	
Maximum active power charge/discharge	60 kW / 100 kW
Maximum power	If $S_{\max}=100$ kVA $Q_{\max}=60$ kVAR
Maximum current charge/discharge	87 A / 145 A
Nominal voltage	400 V
Frequency	50 Hz

(1) Minimum voltage of the batteries 627V ($V_{redmax} = 1,085$ and $\cos(\Phi) = 1$). If $V_{gridmax}$ is different from that value, then the minimum battery voltage must be calculated as $V_{batmin} = \text{Voltage range (Min.)} * V_{gridmax} / 1.085$.

(2) The inverter does not start until $V_{dc} < 1000V$ (3) For each $^{\circ}C$ increase, the output power will decrease by 2.3%.

INGECON SUN STORAGE 100TL HV						
Input (DC)						
Voltage range (Min. / Max) (1)	673 - 1250 V	729 - 1250 V	800 - 1250 V	895 - 1250 V	935 - 1250 V	951 - 1250 V
Maximum voltage (2)	1,500 V					
Maximum power (charge / discharge)	80 kW / 97,5 kW	86,6 kW / 98,8 kW	95 kW / 98,8 kW	98,8 kW / 98,8 kW	98,8 kW / 98,8 kW	98,8 kW / 98,8 kW
Maximum current (charge / discharge)	119 A / 144,7 A	119 A / 135,5 A	119 A / 123,5 A	119 A / 110,4 A	119 A / 105,7 A	119 A / 103,9 A
Output (AC)						
Rated power charge (25°C / 40°C / 50°C)	81 / 75 / 73,6 kW	87,6 / 81,3 / 79,7 kW	96,2 / 89,2 / 87,5 kW	100 / 99,8 / 97,9 kW	100 / 100 / 100 kW	100 / 100 / 100 kW
Rated power discharge (25°C / 40°C / 50°C)	98,6 / 91,3 / 89 kW	100 / 98,8 / 96,4 kW	100 / 100 / 100 kW	100 / 100 / 100 kW	100 / 100 / 100 kW	100 / 100 / 100 kW
Maximum current charge (25°C / 40°C / 50°C)	110 / 102 / 100 A					
Maximum current discharge (25°C / 40°C / 50°C)	134 / 124 / 121 A	125,5 / 124 / 121 A	114,3 / 114,3 / 114,3 A	102,2 / 102,2 / 102,2 A	97,9 / 97,9 / 97,9 A	96,2 / 96,2 / 96,2 A
Rated voltage	425 V	460 V	505 V	565 V	590 V	600 V
Rated frequency	50 Hz					
Adjustable power factor	0 – 1 (leading / lagging)					

(1) The minimum battery voltage has been calculated for $V_{gridmax} = 1.085$ p.u. and $\cos \phi = 1$. If $V_{gridmax}$ is different from that value, then the minimum battery voltage must be calculated as $V_{batmin} = \text{Voltage range (Min.)} \times V_{gridmax} / 1.085$.

(2) The inverter does not start operating until $V_{dc} < 1,450$ V (3) For rated AC power and voltage in accordance with IEC 61000-3-4.

INGECON SUN STORAGE 140TL HV						
Input (DC)						
Voltage range (Min. / Max) (1)	673 - 1250 V	729 - 1250 V	800 - 1250 V	895 - 1250 V	935 - 1250 V	951 - 1250 V
Maximum voltage (2)	1,500 V					
Maximum power (charge / discharge)	80 kW / 97,5 kW	86,6 kW / 98,8 kW	95,1 kW / 115,8 kW	106,4 kW / 129,6 kW	111,1 kW / 135,3 kW	112,9 kW / 137,6 kW
Maximum current (charge / discharge)	119 A / 144,7 A					
Output (AC)						
Rated power charge (25°C / 40°C / 50°C)	81 / 75,1 / 73,6 kW	87,6 / 81,3 / 79,7 kW	96,2 / 89,2 / 87,5 kW	107,6 / 99,8 / 97,9 kW	112,4 / 104,2 / 102,2 kW	114,3 / 106 / 103,9 kW
Rated power discharge (25°C / 40°C / 50°C)	98,6 / 91,3 / 89,1 kW	106,8 / 98,8 / 96,4 kW	117,2 / 108,5 / 105,8 kW	131,1 / 121,3 / 118,4 kW	136,9 / 126,7 / 123,7 kW	139,3 / 128,9 / 125,7 kW
Maximum current charge (25°C / 40°C / 50°C)	110 / 102 / 100 A					
Maximum current discharge (25°C / 40°C / 50°C)	134 / 124 / 121 A					
Rated voltage	425 V	460 V	505 V	565 V	590 V	600 V
Rated frequency	50 Hz					
Adjustable power factor	0 – 1 (leading / lagging)					

(1) The minimum battery voltage has been calculated for $V_{gridmax} = 1.085$ p.u. and $\cos \Phi = 1$. If $V_{gridmax}$ is different from that value, then the minimum battery voltage must be calculated as $V_{batmin} = \text{Voltage range (Min.)} * V_{gridmax} / 1.085$

(2) The inverter does not start operating until $V_{dc} < 1,450$ V (3) For rated AC power and voltage in accordance with IEC 61000-3-4.

RECORD OF CHANGES

Version	Reason of the modifications	Modifications	Date
0	Initial Version	-----	22/03/2023