

590~610 + W
Minimum Power Output
24.8%
Minimum Efficiency
0~+5W
Power Tolerance



Up to 30% Additional Power Gain when compared with conventional P-type module.



Better Output In Low Irradiance - Higher power output even under low-light environments like on cloudy or foggy days



Better Temperature Coefficient-Higher power generation under higher ambient temperature conditions



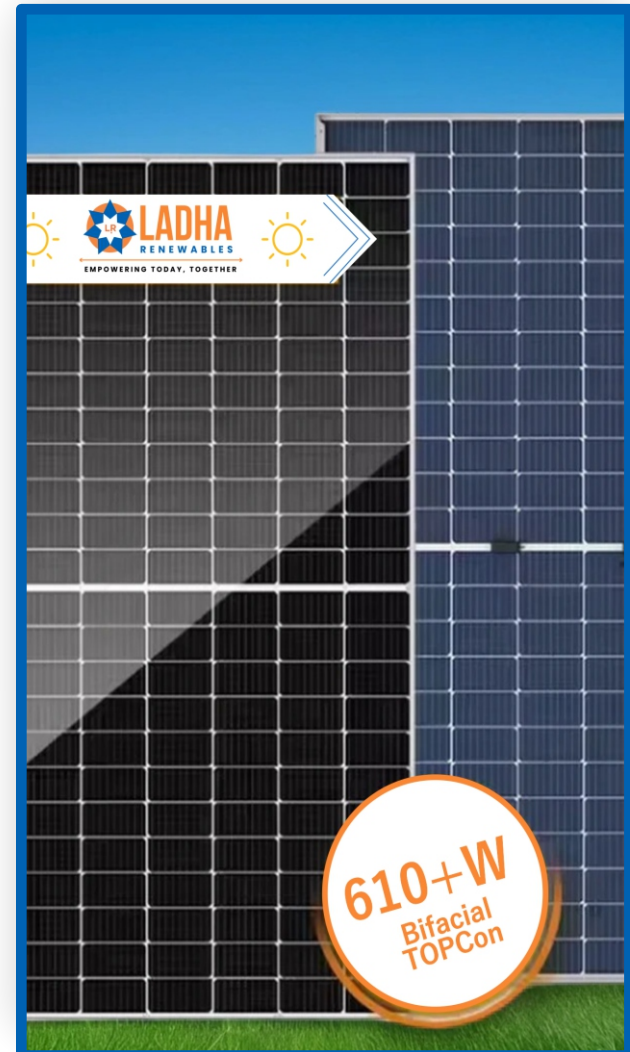
Totally protected from dust and rain, even during heavy rains



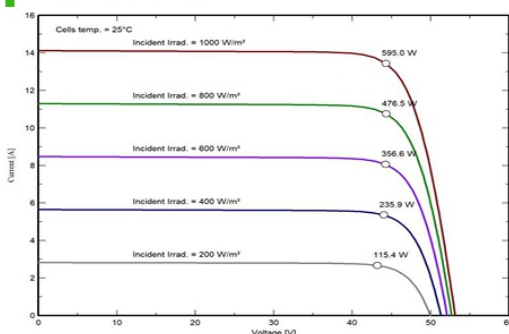
Bifacial panels increasing 10-30% power output with efficiency upto 28.68%



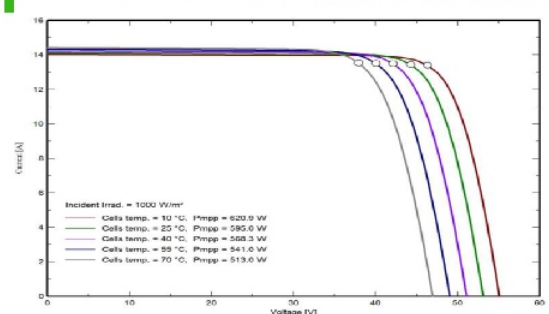
16 Bus-Bars : More pathways to carry electricity, making the panel more efficient and reliable.



I-V VARIATION WITH IRRADIANCE



I-V VARIATION WITH TEMPERATURE



The Graphs are for reference purpose only. Please consult Waaree technical team for further clarifications.

HARNESSING THE SUN

LR - TOPCon Bi Facial Module (590 Wp - 610 Wp)



Electrical data- All data measured to STC*

Type	LR-590TBF	LR-595TBF	LR-600TBF	LR-605TBF	LR-610TBF
Nominal output	590 Wp	595 Wp	600 Wp	605 Wp	610 Wp
Nominal voltage Umpp	48.17 V	48.31 V	48.53 V	48.79 V	48.82 V
Nominal current Impp	12.26 A	12.32 A	12.37 A	12.45 A	12.54 A
Short circuit current Isc	14.11 A	14.22 A	14.25 A	14.28 A	14.30 A
Open circuit voltage Uoc	52.72 V	52.88 V	52.98 V	53.05 V	53.21 V
Module conversion efficiency	24.80%	25.00%	25.20%	25.50%	25.70%

Bifacial Output - Backside Power Gain

10% Power output	649 Wp	655 Wp	660 Wp	666Wp	671Wp
Module Efficiency	27.28%	27.50%	27.72%	28.05%	28.27%
20% Power output	708 Wp	714 Wp	720 Wp	726 Wp	732 Wp
Module Efficiency	29.76%	30.00%	30.24%	30.60%	30.84%
30% Power output	767 Wp	774 Wp	780 Wp	787 Wp	793 Wp
Module Efficiency	32.24%	32.50%	32.76%	33.15%	33.41%

Thermal Characteristics

Voltage Voc	-0.300%/°C
Current Isc	0.046%/°C
Output Pmpp	-0.250%/°C
Maximum system voltage	1500 VDC
NOCT(nominal operating cell temperature)*	43°C +/- 2K
Permissible operating temperature	-40°C to 85°C

Packaging

Module pieces per pallet	31
Module pieces per HC-Container	60

1 Year Free After-Sales Service
15 Years Manufacturers Warranty
25 Years Performance Warranty

*The electrical data given here is for reference purpose only.
*Please confirm your exact requirements with the sales representation while placing your order
*Refer installation Manual instructions & Laddha warranty statement for terms and conditions
*Laddha Reserves the right to change the specifications without prior notice.

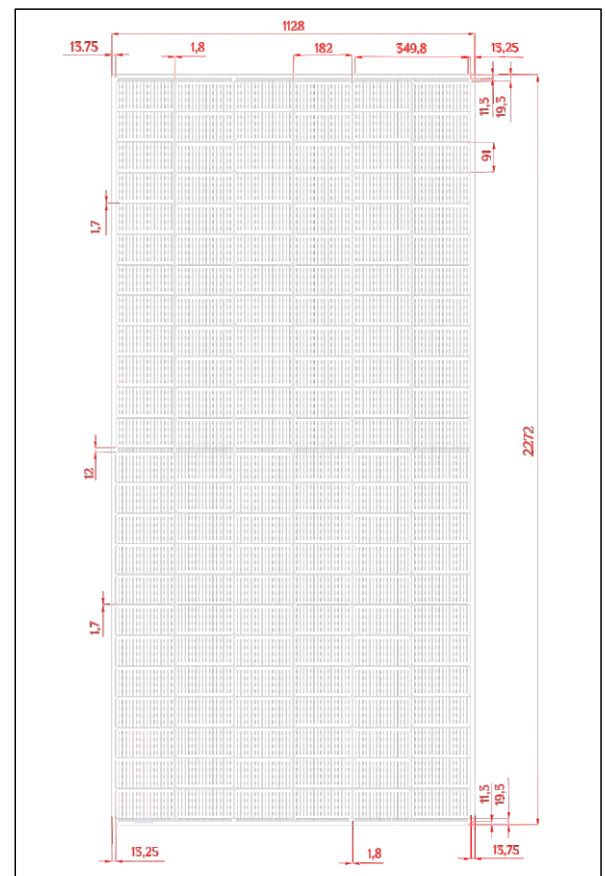


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Mechanical Data

Length	2278mm
Width	1134mm
Height	35mm
Weight	33kg with frame
Frontside	2mm Low Iron AR Coated Heat Strengthened glass
Backside	2mm Low Iron Heat Strengthened glass
Cells	144 N-Type TOPCon Bifacial high efficiency cells
Frame	35mm silver finished aluminium frame
Design Load	3000 Pa / 1600 Pa*
Test Load	5400 Pa / 2400 Pa*
Socket	Protection Class Ip68, 3 bypass diodes
Wire	approx 1.3m , 4mm ²
Plug-in-System	IP68,Jm608

Graphical Representation



Dealer Contact Details: