

# ELITE SERIES

## N-TYPE

BiN-02-615 to BiN-02-650

Framed Dual Glass Bifacial module

**WAAREE**<sup>®</sup>

One with the Sun



Highest reliability & enhanced crack tolerance MBB module



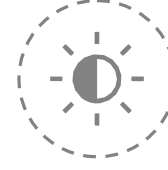
Sustain heavy snow & wind loads (5400 Pa & 2400 Pa)



Best in class thermal coefficients



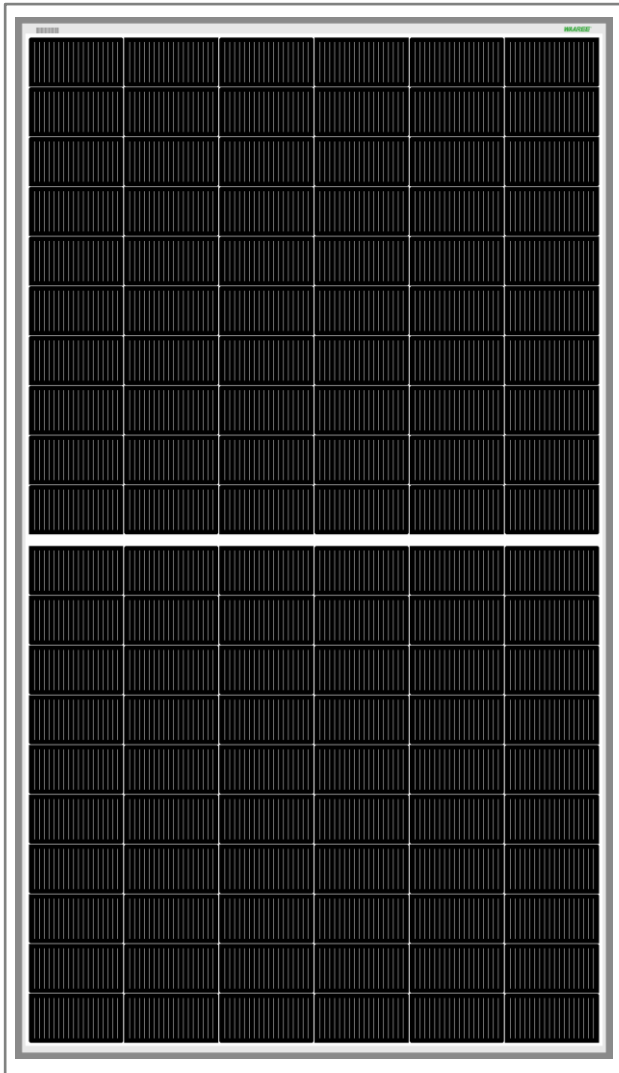
Highest commercial gains, lower LCOE



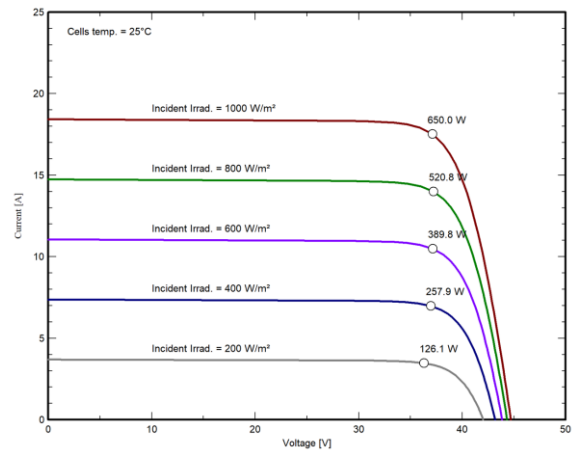
Better weak light performance



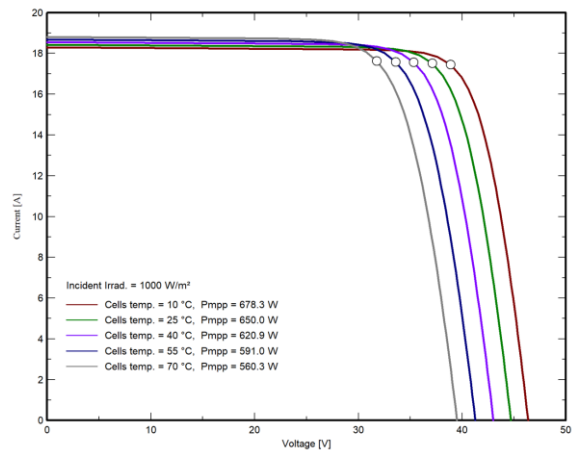
Excellent PID resistance



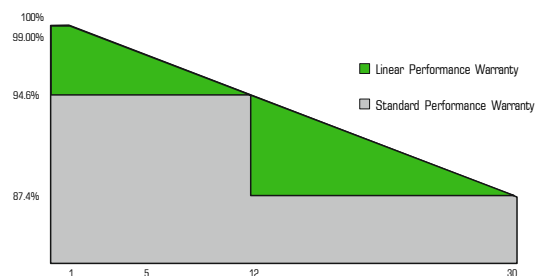
### I-V VARIATION WITH IRRADIANCE



### I-V VARIATION WITH TEMPERATURE



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



IEC 61215, IEC 61730  
UL 61730-1, UL 61730-2

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018  
Independent assessment of factories by BLACK & VEATCH

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## ELECTRICAL CHARACTERISTICS

Models	Pmax (W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
BiN-02-615	615	466.20	35.94	33.50	17.11	13.79	18.13	14.61	43.44	41.27	21.73
BiN-02-620	620	470.00	36.15	33.69	17.15	13.82	18.17	14.65	43.62	41.44	21.91
BiN-02-625	625	473.80	36.36	33.89	17.19	13.86	18.22	14.69	43.80	41.61	22.08
BiN-02-630	630	477.50	36.56	34.08	17.23	13.89	18.26	14.72	43.98	41.78	22.26
BiN-02-635	635	481.30	36.77	34.27	17.27	13.92	18.30	14.75	44.16	41.95	22.44
BiN-02-640	640	485.10	36.97	34.46	17.31	13.95	18.34	14.78	44.34	42.12	22.61
BiN-02-645	645	488.90	37.18	34.65	17.35	13.98	18.38	14.81	44.52	42.29	22.79
BiN-02-650	650	492.70	37.38	34.84	17.39	14.02	18.42	14.85	44.70	42.47	22.97

\*Standard Test Conditions (STC) - 1000 W/m<sup>2</sup> irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m<sup>2</sup> irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m<sup>2</sup> as per IEC 60904-1. Measuring Uncertainty ± 3%.

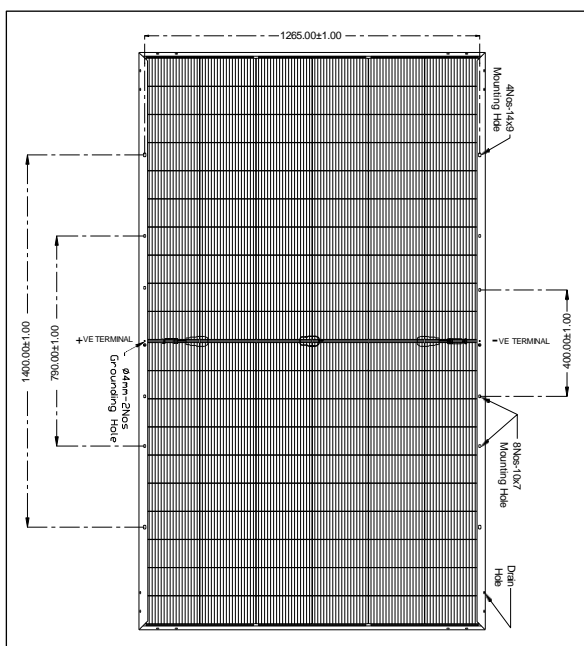
System Voltage	1500 V	Series Fuse Rating	35 A
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## BI-FACIAL OUTPUT - BACKSIDE POWER GAIN\*

		BiN-02-615	BiN-02-620	BiN-02-625	BiN-02-630	BiN-02-635	BiN-02-640	BiN-02-645	BiN-02-650
15%	Power Output (W)	707	713	719	725	730	736	742	748
	Module Efficiency (%)	24.99	25.20	25.39	25.60	25.81	26.00	26.21	26.42
20%	Power Output (W)	738	744	750	756	762	768	774	780
	Module Efficiency (%)	26.08	26.29	26.50	26.71	26.93	27.13	27.35	27.56
25%	Power Output (W)	769	775	781	788	794	800	806	813
	Module Efficiency (%)	27.16	27.39	27.60	27.83	28.05	28.26	28.49	28.71
30%	Power Output (W)	800	806	813	819	826	832	839	845
	Module Efficiency (%)	28.25	28.48	28.70	28.94	29.17	29.39	29.63	29.86

\*The bifacial gains are dependant on the power plant design and location

## DESIGN SPECIFICATIONS



## THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), α (%/°C)	0.046
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.26
Temperature coefficient of Power (Pm), γ (%/°C)	-0.30
NOCT (°C)	43 ± 2
Operating temperature range (°C)	-40 to 85
Bifaciality	80 ± 10

## MECHANICAL CHARACTERISTICS

Length x Width x Thickness (L x W x T)	2172 mm (L) x 1303 mm (W) x 35 mm (T)
Weight	35.5 kgs
Solar Cells per Module (Units) / Arrangement	120 cells / (10x6    10x6)
Solar Cell Type & Size	G12 N-type TOPCon Bifacial
Front Glass (Material / Thickness)	2 mm Low Iron HTAR semi-tempered glass
Back Glass (Material / Thickness)	2 mm Low Iron Printed semi-tempered glass
Encapsulate	PID Free & UV Resistant
Junction Box (Protection degree / Material)	IP68 / Weatherproof PPO
Cable & Connector (Protection degree / Type)	IP68 rated / MC4 compatible
Cable cross - section & Length	4 mm <sup>2</sup> & 500mm
Frame	Anodized Aluminium Alloy

Waaree Energies Ltd. is amongst the top Solar Energy Companies and has the country's largest Solar PV Module manufacturing capacity of 12 GW. In addition, it is committed to provide top notch EPC services, project development, rooftop solutions, solar water pumps and also in an Independent Power Producer. Waaree has its presence in over 350+ locations nationally and 68 countries globally.

**12 Years Product Warranty • 30 Years Power Output Warranty**

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

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