## ELITE SERIES N TOPCON TECHNOLOGY

**WAAREE**<sup>®</sup> One *with the* Sun

BiN-14-465 to BiN-14-490

Framed Glass Transparent Backsheet Bifacial module



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

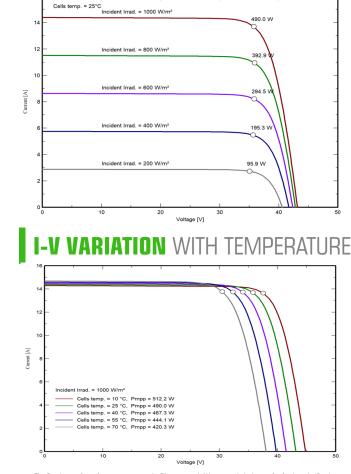
light

performance

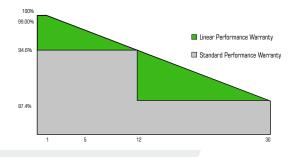
PD RESEIANT

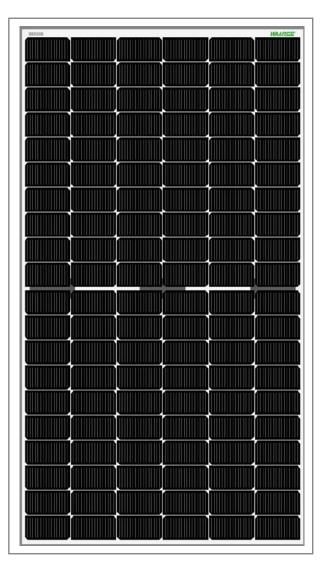
Excellent PID resistance

### I-V VARIATION WITH IRRADIANCE



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

## **ELITE SERIES** N TOPCON TECHNOLOGY



25 A

BiN-14-465 to BiN-14-490

Framed Glass Transparent Backsheet Bifacial module

### **ELECTRICAL** CHARACTERISTICS

Models	Pmax (W)		Vmp (V)		Imp (A)		lsc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	IVIUUUIE EII. (90)
BiN-14-465	465	351.1	35.20	32.98	13.21	10.65	14.02	11.30	42.24	40.13	21.53
BiN-14-470	470	354.9	35.39	33.16	13.28	10.70	14.09	11.36	42.36	40.24	21.76
BiN-14-475	475	358.6	35.58	33.34	13.35	10.76	14.16	11.41	42.54	40.41	21.99
BiN-14-480	480	362.4	35.77	33.51	13.42	10.82	14.23	11.47	42.72	40.58	22.22
BiN-14-485	485	366.2	35.95	33.69	13.49	10.87	14.30	11.53	42.90	40.76	22.45
BiN-14-490	490	370.0	36.11	33.83	13.57	10.94	14.38	11.59	43.14	40.98	22.68

\*Standard Test Conditions (STC) - 1000 W/m2 irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m2 irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m2 as per IEC 60904-1. Measuring Uncertainty  $\pm$  3%.

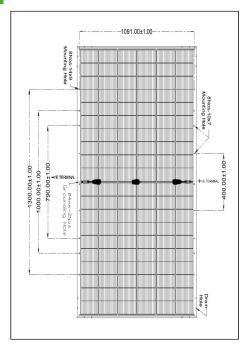
System Voltage

#### -FACIAL OUTPUT - BACKSIDE POWER GAIN\* B

1500 V

		BiN-14-465	BiN-14-470	BiN-14-475	BiN-14-480	BiN-14-485	BiN-14-490
450/	Power Output (W)	535	541	546	552	558	563
15%	Module Efficiency (%)	24.77%	25.05%	25.31%	25.58%	25.84%	26.08%
20%	Power Output (W)	558	564	570	576	582	588
	Module Efficiency (%)	25.85%	26.14%	26.41%	26.69%	26.96%	27.21%
25%	Power Output (W)	581	588	594	600	606	612
	Module Efficiency (%)	26.93%	27.23%	27.51%	27.80%	28.09%	28.35%
30%	Power Output (W)	605	611	618	624	631	637
	Module Efficiency (%)	28.00%	28.31%	28.61%	28.91%	29.21%	29.48%

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



# **THERMAL** CHARACTERISTICS

Series Fuse Rating

Temperature coefficient of Current (lsc), $\alpha$ (%/°C)	0.046
Temperature coefficient of Voltage (Voc), ß (%/°C)	-0.26
Temperature coefficient of Power (Pm), $\gamma$ (%/°C)	-0.31
NOCT (°C)	43 ± 2
Operating temperature range (°C)	-40 to 85

### **MECHANICAL** CHARACTERISTICS

Length x Width x Thickness (L x W x T)	1905 mm (L) x 1134 mm (W) x 32 mm (T)
Weight	23.0 kgs
Solar Cells per Module (Units) / Arrangement	120 cells / (10x6    10x6)
Solar Cell Type & Size	TOPCon N-type Mono Bifacial,91x182mm
Front / Back Glass (Material / Thickness)	3.2 mm Low Iron ARC 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.