

# ARUN SERIES

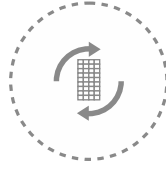
WS-40 to WS-90

# WAAREE®

One with the Sun



Superior module efficiency as per international benchmarks



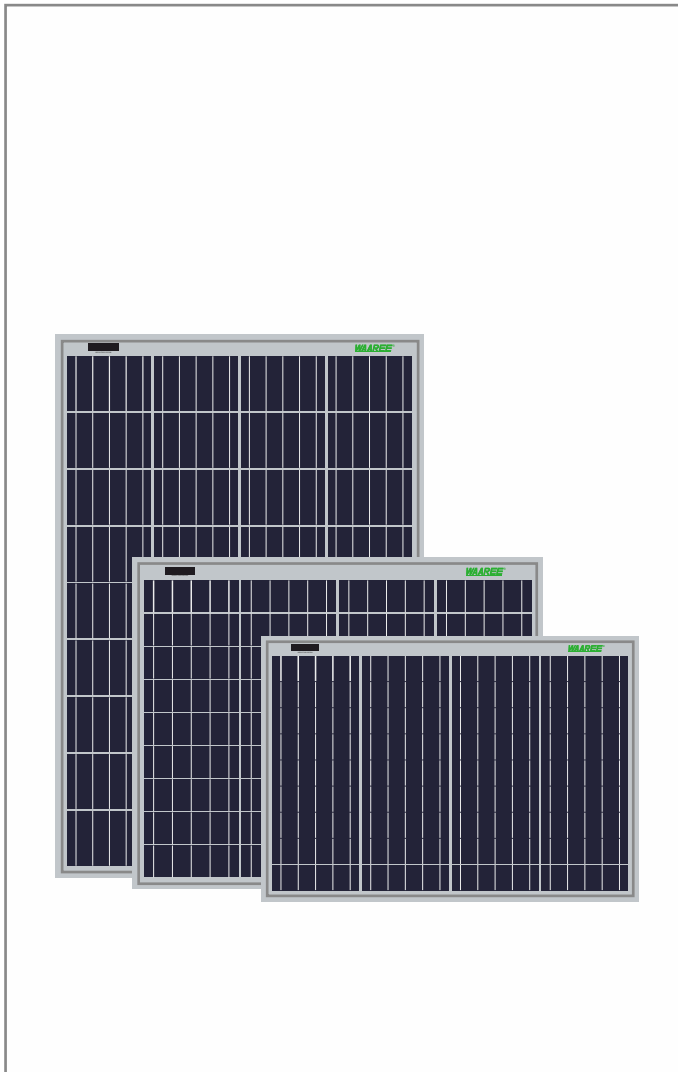
High durability



salt mist resistant



Excellent performance in low light



## APPLICATIONS

- Ideal for On/Off-Grid applications
- Rural Electrification
- Off-grid solar system
- Mobile solar system
- Solar street light & lantern applications

## THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), $\alpha$ (%/°C)	0.0051
Temperature coefficient of Voltage (Voc), $\beta$ (%/°C)	-0.2775
Temperature coefficient of Power (Pm), $\gamma$ (%/°C)	-0.3859
NOCT (°C)	46 ± 2
Operating temperature range (°C)	-40 to 85

## WARRANTY

- 5 Years Product Warranty\*
- 10 Years Power Output Warranty\*\*

## INTERNATIONAL & NATIONAL CERTIFICATIONS

ISO 14286 | IS/IEC 61730-1&2 | IEC 61701 | IEC 62804 | UL1703

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018



R-72002020

[www.waaree.com](http://www.waaree.com)

ELECTRICAL CHARACTERISTICS																			
Model	WS-40/ 12V	WS-45/ 12V	WS-50/ 12V	WS-50/ 24V	WS-55/ 12V	WS-60/ 12V	WS-60/ 24V	WS-65/ 12V	WS-70/ 12V	WS-74/ 12V	WS-74/ 24V	WS-75/ 12V	WS-75/ 24V	WS-80/ 12V	WS-80/ 24V	WS-85/ 12V	WS-90/ 12V	WS-90/ 24V	WS-95/ 12V
Nominal Maximum Power, Pm (W)*	40	45	50	50	55	60	60	65	70	74	74	75	75	80	80	85	90	90	95
Open Circuit Voltage, Voc (V)*	21.37	21.42	21.47	43.60	21.52	43.70	43.70	21.62	21.67	21.71	43.80	21.72	43.85	21.77	43.90	21.82	21.87	43.95	21.92
Short Circuit Current, Isc (A)*	2.50	2.80	3.11	1.53	3.41	1.83	1.83	4.01	4.31	4.54	2.25	4.60	2.28	4.90	2.43	5.19	5.49	2.73	5.78
Voltage at Maximum Power, Vmp (V)*	17.18	17.19	17.21	35.15	17.24	17.26	17.26	17.29	17.31	17.33	35.35	17.34	35.4	17.36	35.45	17.39	17.41	35.5	17.44
Current at Maximum Power, Imp (A)*	2.33	2.62	2.91	1.42	3.2	3.48	3.48	1.71	4.05	4.28	2.10	4.33	2.12	4.61	2.26	4.89	5.17	2.54	5.45
600 V / 1000 V																			
Maximum System Voltage (V)	12.22	10.58	11.76	11.76	12.93	14.11	14.11	15.29	12.49	12.18	12.18	12.35	12.35	13.17	13.17	13.99	14.49	14.49	15.30
Module Efficiency (%)	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Maximum Series Fuse Rating (A)	17.18	17.19	17.21	35.15	17.24	17.26	17.26	17.29	17.31	17.33	35.35	17.34	35.4	17.36	35.45	17.39	17.41	35.5	17.44
Rated Voltage (V dc)	2.33	2.62	2.91	1.42	3.2	3.48	3.48	1.71	4.05	4.28	2.10	4.33	2.12	4.61	2.26	4.89	5.17	2.54	5.45
Rated Current (A dc)																			
MECHANICAL CHARACTERISTICS																			
Model	WS-40/ 12V	WS-45/ 12V	WS-50/ 12V	WS-50/ 24V	WS-55/ 12V	WS-60/ 12V	WS-60/ 24V	WS-65/ 12V	WS-70/ 12V	WS-74/ 12V	WS-74/ 24V	WS-75/ 12V	WS-75/ 24V	WS-80/ 12V	WS-80/ 24V	WS-85/ 12V	WS-90/ 12V	WS-90/ 24V	WS-95/ 12V
LengthxWidthxThickness (LxWxT)-mm	485x 675x35	630x 675x35	630x 675x35	630x 675x35	630x 675x35	630x 675x35	630x 675x35	630x 675x35	830x 675x35	900x 675x35	900x 675x35	900x 675x35	900x 675x35	900x 675x35	900x 675x35	900x 675x35	920x 675x35	920x 675x35	920x 675x35
Mounting holes pitch (V)-mm	245	310	310	310	310	310	310	310	410	450	450	450	450	450	450	450	450	450	450
Mounting holes pitch (X)-mm	633																		
Weight (kg)	4	5	5	5.50	5.15	5	5.50	5	7	8	8	8	8	8	8	8	8	8	8
Cells per module (Units)/Arrangement	For 12V - 36 cells, For 24V - 72 cells																		
Cell Type	Polycrystalline																		
Front Cover (Material/Thickness)	Tempered & Low Iron Glass, 3.2 / 4.0 mm																		
Encapsulate	Ethylene Vinyl Acetate																		
Frame	Anodized Aluminium Alloy																		
Junction Box (Protection degree/ Material)	IP65 rated/ Weatherproof PPO enclosure with bypass diodes																		
Connector	Optional																		
Cable	Optional																		
Fire Safety Class	C																		
Application Class	A																		
Safety Class	II																		

\*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%.

\*If you need specific product certificates, and if module installations are to deviate from our guidance specified in our installation manual, please contact your local Waaree sales and technical representatives.

- 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.