

ARUN SERIES

WS-100 to WS-235

WAAREE®
One with the Sun



Superior module efficiency as per international benchmarks



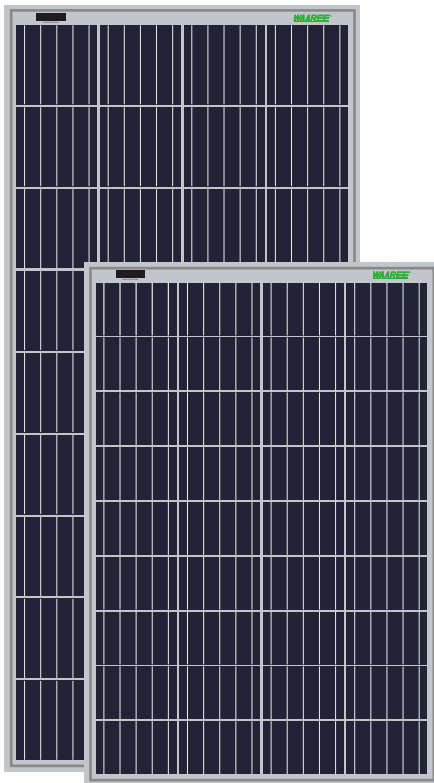
High durability



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), α (%/°C)	0.051
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.2775
Temperature coefficient of Power (Pm), γ (%/°C)	-0.3859
NOCT (°C)	46 $\pm$ 2
Operating temperature range (°C)	-40 to 85

WARRANTY

5 Years Product Warranty*

10 Years Power Output Warranty**

INTERNATIONAL & NATIONAL CERTIFICATIONS

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

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



R-72002020

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ELECTRICAL CHARACTERISTICS																			
Model	WS-100 /12V	WS-100 /24V	WS-105 /12V	WS-110 /12V	WS-110 /24V	WS-115 /12V	WS-120 /12V	WS-125 /12V	WS-125 /24V	WS-130 /12V	WS-130 /24V	WS-135 /12V	WS-140 /12V	WS-140 /24V	WS-145 /12V	WS-150 /12V	WS-150 /24V	WS-155 /24V	WS-160 /24V
Nominal Maximum Power: Pm (W)*	100	100	105	110	110	115	120	125	125	130	130	135	140	140	145	150	155	160	160
Open Circuit Voltage: Voc (V)*	21.97	44	22.02	22.07	44.05	22.12	22.17	22.22	44.10	22.27	44.15	22.32	22.37	44.2	23.42	23.47	44.3	44.35	44.41
Short Circuit Current: Isc (A)*	6.07	3.03	6.36	6.65	3.33	6.93	7.22	7.50	3.78	7.78	3.93	8.06	8.34	4.22	8.62	8.90	4.51	4.66	4.8
Voltage at Maximum Power: Vmp (V)*	17.47	35.60	17.49	17.51	35.70	17.54	17.56	17.59	35.73	17.61	35.75	17.64	18.26	36	18.32	18.39	36.10	36.15	36.20
Current at Maximum Power: Imp (A)*	5.73	2.81	6.01	6.29	3.09	6.56	6.84	7.11	3.50	7.39	3.64	7.66	7.93	3.90	8.20	8.47	4.16	4.29	4.42
600/1000																			
Maximum System Voltage (V)																			
Module Efficiency (%)	14.31	14.31	15.03	15.75	15.75	13.52	14.11	14.70	12.43	15.29	12.93	15.87	13.92	13.92	14.42	14.91	15.41	15.91	15.91
Maximum Series Fuse Rating (A)						12							15	12	15	12	12	12	15
Rated Voltage (V dc)	17.47	35.60	17.49	17.51	35.70	17.54	17.56	17.59	35.73	17.61	35.75	17.64	18.26	35.8	18.32	18.39	36.10	36.15	36.20
Rated Current (A dc)	5.73	2.81	6.01	6.29	3.09	6.56	6.84	7.11	3.50	7.39	3.64	7.66	7.93	3.90	8.20	8.47	4.16	4.29	4.42
MECHANICAL CHARACTERISTICS																			
Model	WS-100 /12V	WS-100 /24V	WS-105 /12V	WS-110 /12V	WS-110 /24V	WS-115 /12V	WS-120 /12V	WS-125 /12V	WS-125 /24V	WS-130 /12V	WS-130 /24V	WS-135 /12V	WS-140 /12V	WS-140 /24V	WS-145 /12V	WS-150 /12V	WS-150 /24V	WS-155 /24V	WS-160 /24V
LengthxWidthxThickness (LxWxT)-mm	1035x 675x35	1035x 675x35	1035x 675x35	1035x 675x35	1035x 675x35	1260x 675x35	1260x 675x35	1260x 675x35	1490x 675x35	1260x 675x35	1490x 675x35	1260x 675x35	1490x 675x35	1490x 675x35	1490x 675x35	1490x 675x35	1490x 675x35	1490x 675x35	1490x 675x35
Mounting holes pitch (V)-mm	545	545	545	545	545	645	645	645	915	645	915	645	915	915	915	915	915	915	915
Mounting holes pitch (X)-mm	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633
Weight (kg)	9	9	9	9	9	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Cells per module (Units)/Arrangement	36/ (9x4)	72/ (18x4)	36/ (9x4)	36/ (9x4)	72/ (18x4)	36/ (9x4)	36/ (9x4)	36/ (9x4)	72/ (18x4)	36/ (9x4)	72/ (18x4)	36/ (9x4)	36/ (9x4)	72/ (18x4)	36/ (9x4)	36/ (9x4)	72/ (18x4)	72/ (18x4)	36/ (9x4)
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/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 ± 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.

ELECTRICAL CHARACTERISTICS															
Model	WS-170 /24V	WS-175 /24V	WS-180 /24V	WS-185 /24V	WS-190 /24V	WS-195 /24V	WS-200 /12V	WS-200 /24V	WS-205 /12V	WS-210 /12V	WS-210 /24V	WS-215	WS-220 /12V	WS-220 /24V	WS-235
Nominal Maximum Power, Pm (W)*	170.00	175.00	180.00	185.00	190.00	195.00	200.00	200.00	205.00	210.00	210.00	215.00	220.00	220.00	235.00
Open Circuit Voltage, Voc (V)*	44.50	44.55	45.05	45.10	45.25	45.30	33.00	22.97	43.50	23.07	43.60	33.30	33.40	43.70	33.70
Short Circuit Current, Isc (A)*	5.09	5.25	5.30	5.42	5.55	5.70	8.08	11.61	6.13	12.14	6.42	8.61	8.78	6.71	9.30
Voltage at Maximum Power, Vmp (V)*	36.30	36.35	37.10	37.30	37.50	37.70	27.00	17.97	35.05	18.02	35.15	27.30	27.40	35.25	27.70
Current at Maximum Power, Imp (A)*	4.68	4.82	4.86	4.97	5.08	5.19	7.41	11.13	5.71	11.66	5.98	7.88	8.03	6.25	8.49
Maximum System Voltage (V)	600/1000														
Module Efficiency (%)	14.61	15.04	15.47	15.90	16.33	16.76	13.56	14.85	13.90	15.60	15.60	14.58	16.34	16.34	15.93
Maximum Series Fuse Rating (A)	15														
Rated Voltage (V dc)	36.30	36.35	37.10	37.30	37.50	37.70	27.00	17.97	35.05	18.02	35.15	27.30	27.40	35.25	27.70
Rated Current (A dc)	4.68	4.82	4.86	4.97	5.08	5.19	7.41	11.13	5.71	11.66	5.98	7.88	8.03	6.25	8.49
MECHANICAL CHARACTERISTICS															
Model	WS-170 /12V	WS-175 /24V	WS-180 /24V	WS-185 /24V	WS-190 /24V	WS-195 /24V	WS-200 /12V	WS-200 /24V	WS-205 /12V	WS-210 /12V	WS-210 /24V	WS-215	WS-220 /12V	WS-220 /24V	WS-235
LengthxWidthxThickness (LxWxT)-mm	1175x 990x35	1175x 990x35	1175x 990x35	1175x 990x35	1175x 990x35	1175x 990x35	1490x 990x35	1360x 990x35	1490x 990x35	1360x 990x35	1360x 990x35	1490x 990x35	1360x 990x35	1360x 990x35	1490x 990x35
Mounting holes pitch (V)-mm	595	595	595	595	595	900	900	900	900	900	900	915	900	900	900
Mounting holes pitch (X)-mm	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950
Weight (kg)	13	13	13	13	13	13	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
Cells per module (Units)/Arrangement	72/ (12x6)	72/ (12x6)	72/ (12x6)	72/ (12x6)	72/ (12x6)	72/ (12x6)	54/ (9x6)	72/ (12x6)	54/ (9x6)	72/ (12x6)	72/ (12x6)	54/ (9x6)	72/ (12x6)	72/ (12x6)	54/ (9x6)
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														
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