

WS-100 to WS-235 ARUN SERIES

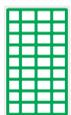


FEATURES

-  Superior Module Efficiency as per International Benchmarks
-  Positive Power Tolerance
-  IP 67 rated MC4 compatible connectors

APPLICATIONS

Telecommunication and Radio Relay Stations | Telemetry systems | Defence and Offshore Devices | Signage and Outdoor Media | Standalone Systems for Homes not connected to Grid | Power packs for Telemetry Stations | Billboard Lighting | Portable Mobile Phone Chargers | Street & Outdoor Lighting | Home & Indoor Lighting | Community Lighting | Solar Lanterns: LED, CFL | Standalone Power Packs | Railway Signaling | Surveillance Camera | Rural Electrification | Backup Power Systems & much more..



500 MW
Module
Manufacturing Capacity

- 5 years Limited Product Warranty**
- 25 years Limited Power Output Warranty**
- ♦ Minimum 90% at the end of 10 years
- ♦ Minimum 80% at the end of 25 years



Over 20 in house tests
(DH: Damp heat test
TC: Thermal cycling test
HF: Humidity freeze test)

INTERNATIONAL & NATIONAL CERTIFICATIONS



ISO 9001:2008 | ISO 14001:2004 | OHSAS 18001:2007
IEC 61215 | IEC 61730-1&2 | IEC 61701 | IEC 62716 | IEC 60068-2-68

Electrical Characteristics*

Model**	WS-170 / 24V	WS-175 / 24V	WS-180 / 24V	WS-185 / 24V	WS-190 / 24V	WS-195 / 24V	WS-200	WS-200 / 12V	WS-200 / 24V	WS-205
Nominal Maximum Power, P _m (W)*	170	175	180	185	190	195	200	200	200	205
Power tolerance	Positive tolerance only									
Open Circuit Voltage, V _{oc} (V)*	44.38	44.40	44.43	44.45	44.48	44.50	33.00	22.97	44.53	33.10
Short Circuit Current, I _{sc} (A)*	5.11	5.26	5.40	5.56	5.71	5.85	8.08	11.64	6.00	8.25
Voltage at Maximum Power, V _{mp} (V)*	35.95	35.98	36	36.03	36.05	36.08	27	17.97	36.1	27.1
Current at Maximum Power, I _{mp} (A)*	4.73	4.87	5	5.14	5.28	5.41	7.41	11.13	5.55	7.57
Maximum System Voltage (V)	1000									
Module Efficiency (%)*	14.61	15.04	12.20	12.54	12.88	13.22	13.56	13.56	13.56	13.90
Maximum Series Fuse Rating (A)	15	15	15	15	15	15	15	15	15	15
Limiting Reverse Current (A)	15	15	15	15	15	15	15	15	15	15

*Under Standard Test Conditions (STC) of 1000 W/m² irradiance, AM 1.5 spectrum and 25°C cell temperature.

Mechanical Characteristics

Model**	WS-170 / 24V	WS-175 / 24V	WS-180 / 24V	WS-185 / 24V	WS-190 / 24V	WS-195 / 24V	WS-200	WS-200 / 12V	WS-200 / 24V	WS-205
Length x Width x Thickness (L x W x T) - mm	1175 x 990 x 35	1175 x 990 x 35	1490 x 990 x 42							
Mounting Holes Pitch (Y) – mm	595.00	595	900	900	900	900	900	900	900	900
Mounting Holes Pitch (X) – mm	950	950	942	942	942	942	942	942	942	942
Weight (kg)	14.45	14.45	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Solar Cells per Module (Units) / Arrangement	72 / (12 x 6)	72 / (12 x 6)	72 / (12 x 6)	72 / (12 x 6)	72 / (12 x 6)	72 / (12 x 6)	54 / (9 x 6)	72 / (12 x 6)	72 / (12 x 6)	54 / (9 x 6)
Solar Cell Type	poly crystalline Silicon									
Front Cover (Material / Thickness)	Tempered & Low Iron Glass / 3.2 mm									
Encapsulate	Ethylene Vinyl Acetate									
Frame Material	Anodized Aluminum Alloy									
Junction Box (Protection degree / Material)	IP65 rated / Weatherproof PPO enclosure with bypass diodes									
Connector	Optional									
Cable	Optional									
Fire safety class	C									
Safety application class	A									
Safety class	II									

** "/ xxV" in Model indicates the voltage rating of applicable battery

Thermal Characteristics

Temperature coefficient of Current (I _{sc}), α (%/°C)	0.0681
Temperature coefficient of Voltage (V _{oc}), β (%/°C)	-0.2941
Temperature coefficient of Power (P _m), γ (%/°C)	-0.3845
NOCT (°C)	46 ± 2
Operating temperature range (°C)	-40 to 85

ABOUT WAAREE

Waaree Energies Ltd. is one of India's most diversified & fastest growing solar energy product and solution company launched in 2007, a part of the consortium of Waaree Group in business since 1989. Waaree is India's premier multi-diverse technology group having its forte in multifarious verticals such as Solar Energy, Industrial Valves, Petroleum Equipment's & Process Control Instrumentation.

Our 500 MW State of the Art Photovoltaic (PV) in Surat, Gujarat manufactures mono & poly crystalline Si PV modules from 3 to 400Wp. Our modules are certified by all major national & international accreditation bodies. Apart from being one of the most successful solar PV module manufacturers in India, Waaree Energies Ltd is on the forefront of developing newer solar products, solutions and services towards enabling our customers to gain the best returns on their investments.

We have won some major awards such as Make in India Award for Excellence - 2015, Energy and Environment Foundation Global Excellence Award - 2013, India SME Excellence Award - 2013, ET NOW Indiamart Leader of Tomorrow Award 2012, Soft Disk Solar Power Companies of the Year Award 2012, and EEPC award for 4 consecutive years. Our group is strengthened by our qualified and experienced team of more than 700 people with 26 sales offices across India and 5 global offices.

WAAREE ENERGIES / BUSINESS VERTICALS



PV MODULES



EPC SERVICES



INDEPENDENT POWER PRODUCERS



PROJECT DEVELOPER



ROOF TOP SOLUTIONS



SOLAR WATER PUMP



SOLAR THERMAL



SOLAR PRODUCTS

** Refer to Waaree's Warranty document for Terms and Conditions.

*The Specifications are for reference purpose only.

Waaree reserves the right to change the specifications without prior notice.

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