

EN166M-144D-435/440/445/450/455W

Bifacial Dual Glass Monocrystalline Solar Module 144 Half-Cell Series

ABOUT ECONESS ENERGY

Established in 2009, Econess Energy is engaged in PV power station development and PV module production. With current annual production capacity of 5GW modules, Econess Energy now distributes its PV products all over the world, such as Germany, Spain, Italy, France, India, Japan etc. As a strong, bankable partner, we are committed to building strategic, mutually beneficial collaboration with installers and developers.



KEY FEATURES

-  **Multi Busbar Technology**
Better light trapping and current collection to improve module power output and reliability
-  **Bifacial power generation**
Bifacial cell technology, 5% to 25% more yield depends on different conditions
-  **Lower temperature coefficients**
Enhance power generation
-  **Enhanced Mechanical Load**
Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa)
-  **IP68 junction box**
High waterproof level
-  **High customer value**
Lower BOS cost and LCOE

SYSTEM & PRODUCT CERTIFICATES

- IEC 61215 / IEC 61730
- IEC 61701 / IEC 62804
- ISO 9001 : 2015 Quality Management System
- ISO 14001 : 2015 Environment Mangement System
- ISO 45001 : 2018 Occupational Health and Safety Management System



QUALITY WARRANTY

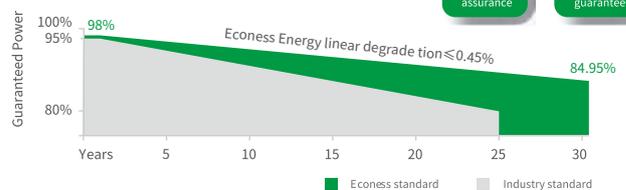
Econess Energy guarantees that defects will not appear in materials and workmanship defined by IEC61215 or IEC61730 under normal installation, use and maintenance as specified in Econess Energy's installation manual for 12 years from the warranty starting date.

PERFORMANCE WARRANTY

Bifacial Dual Glass Monocrystalline Solar Module

12 years
Quality assurance

30 years
Power output guarantee



ELECTRICAL PARAMETERS

Performance at STC (Power Tolerance 0 - +3%)

Maximum Power(Pmax/W)	435	440	445	450	455
Operating Voltage (Vmpp/V)	42.94	43.19	43.44	43.69	43.94
Operating Current(Imp/A)	10.14	10.20	10.26	10.32	10.37
Open-Circuit Voltage (Voc/V)	48.42	48.70	48.98	49.26	49.54
Short-Circuit Current(Isc/A)	11.15	11.21	11.27	11.33	11.39
Module Efficiency ηm (%)	19.40	19.63	19.85	20.07	20.30

Performance at NMOT

Maximum Power(Pmax/W)	326	329	335	337	342
Operating Voltage (Vmpp/V)	39.67	39.88	40.07	40.27	40.48
Operating Current(Imp/A)	8.23	8.27	8.33	8.39	8.45
Open-Circuit Voltage (Voc/V)	47.95	48.17	48.42	48.64	48.86
Short-Circuit Current(Isc/A)	8.71	8.78	8.84	8.90	8.96

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5 NMOT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Electrical characteristics with different rear side power gain (reference to 455W front)

Pmax gain(%)	5%	10%	15%	20%	25%
Maximum Power (Pmax/W)	478	501	523	546	569
Maximum Power Voltage (Vmpp/V)	43.94	43.94	43.94	43.94	43.94
Maximum Power Current (Imp/A)	10.89	11.41	11.93	12.44	12.96

MECHANICAL SPECIFICATION

Cell Arrangement	144 [2 x (12 x 6)]
Weight	28.5 kg (62.83lb)
Module Dimensions	2131x1052x30 mm (83.90x41.42 x 1.18 inch)
Cable	300 mm (11.81 inch) · 4 mm ² (0.006 sq.in)
Front Glass	2.0 mm High Transmission, Tempered Glass
Packing Configuration (1)	36pcs/Pallet, 792pcs/40hq
Packing Configuration (2)	36pcs+4pcs/Pallet, 836pcs/40hq
Frame	Anodized Aluminium Alloy
Junction Box	IP68

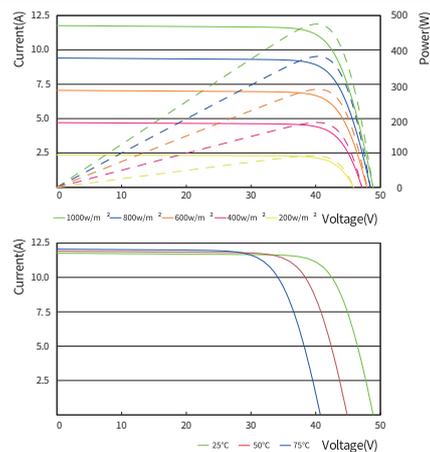
OPERATING CONDITIONS

Maximum System Voltage	1000V (IEC) DC / 1500V (IEC) DC
Operating Temp	-40°C ~ +85°C
Maximum Series Fuse	20 A
Static Loading	5400 Pa
Connector	MC4 Compatible

TEMPERATURE COEFFICIENT

Temperature Coefficient(Pmax)	-0.39%/°C
Temperature Coefficient(Voc)	-0.30%/°C
Temperature Coefficient(Isc)	+0.05%/°C
NMOT	45 ± 2°C

I-V CURVE



TECHNICAL DRAWINGS (mm)

