

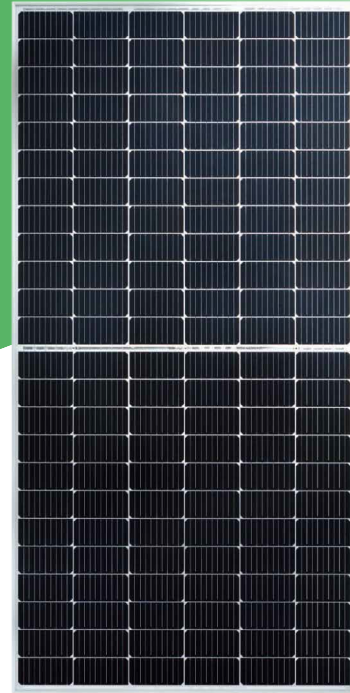


# EN166M-144-440/445/450/455/460W







## High Efficiency PERC 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
- 
**Enhanced Mechanical Load**  
 Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa)
- 
**IP68 junction box**  
 High waterproof level
- 
**PID Resistance**  
 Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.
- 
**Lower temperature coefficients**  
 Enhance power generation
- 
**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

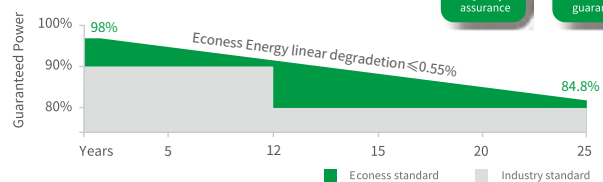


### QUALITY WARRANTY

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

#### Monocrystalline Solar Module



## ELECTRICAL PARAMETERS

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

Maximum Power(Pmax/W)	440	445	450	455	460
Operating Voltage (Vmpp/V)	43.19	43.44	43.69	43.94	44.19
Operating Current(Imp/A)	10.20	10.26	10.32	10.37	10.43
Open-Circuit Voltage (Voc/V)	48.70	48.98	49.26	49.54	49.82
Short-Circuit Current(Isc/A)	11.21	11.27	11.33	11.39	11.45
Module Efficiency $\eta_m$ (%)	20.24	20.47	20.70	20.93	21.16

### Performance at NMOT

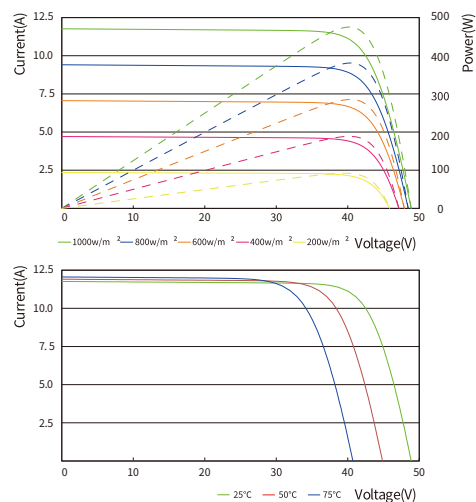
Maximum Power(Pmax/W)	329	335	337	342	346
Operating Voltage (Vmpp/V)	39.88	40.07	40.27	40.48	40.69
Operating Current(Imp/A)	8.27	8.33	8.39	8.45	8.51
Open-Circuit Voltage (Voc/V)	48.17	48.42	48.64	48.86	49.08
Short-Circuit Current(Isc/A)	8.78	8.84	8.90	8.96	9.02

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5    NMOT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s

## MECHANICAL SPECIFICATION

Cell Arrangement	144 [2 x (12 x 6)]
Weight	23.5 kg (51.81 lb)
Module Dimensions	2094 x 1038 x 35mm (82.44 x 40.87 x 1.38inch)
Cable Length	300 mm (11.81 inch) or Customized Length
Cable Cross Section Size	4 mm <sup>2</sup> (0.006 sq.in)
Front Glass	3.2 mm High Transmission, Tempered Glass
No. of Bypass Diodes	3
Packing Configuration (1)	31pcs/Pallet, 682pcs/40hq
Packing Configuration (2)	31pcs+4pcs/Pallet, 726pcs/40hq
Frame	Anodized Aluminium Alloy
Junction Box	IP68

## I-V CURVE



## 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
Conductivity at Ground	≤ 0.1Ω
Safety Class	II
Resistance	≥ 100MΩ
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

## TECHNICAL DRAWINGS (mm)

