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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**Topsky Energy (HK) Limited  
CSUN 144 half cell 410w  
CSUN410-144M**

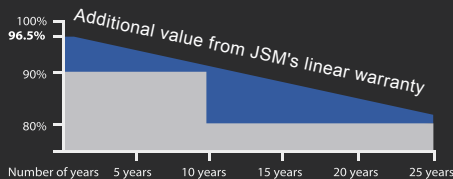
Also available on the web at  
[EnergyPal.com/topsky-energy-hk-limited-solar-panels/csun410-144m](http://EnergyPal.com/topsky-energy-hk-limited-solar-panels/csun410-144m)

# Mars Series Half cell Modules

The power output shall not be less than 96.5% of the minimum power output stated in the product data sheet in the first year of the product's life cycle. The loss of power output shall not exceed 0.7% per year thereafter, ending with 80.18% in the 25th year.

■ CSUN      ■ Standard warranty

CSUN's NEW linear performance warranty



# CSUN 410-144M

High efficiency PERC tech for esthetic applications

Module Fire Performance: Type 1 (UL 1703)

Fire Resistance Rating: Class C (IEC 61730)

CSUN410-144M

CSUN405-144M

CSUN400-144M

CSUN395-144M

CSUN390-144M

## 20.4 %

Module efficiency

## 410 W

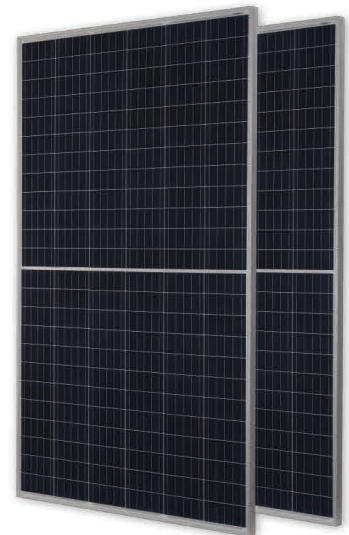
Highest power output

## 10 Year

Material & workmanship warranty

## 25 Year

Linear power output warranty



Industry leading conversion efficiency



Certificated to withstand wind (2400 Pa) and snow load (5400 Pa)



Positive tolerance offer



Excellent performance under weak light condition



Passed salt mist & ammonia corrosion, blowing sand and hail testing



Good temperature coefficient enables better output in hot climates

**Munich RE**

Munich Re providing Reinsurance



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

## Electrical Characteristics at Standard Test Conditions (STC)

Module Type	CSUN410-144M	CSUN405-144M	CSUN400-144M	CSUN395-144M	CSUN390-144M
Maximum Power - P <sub>mpp</sub> (W)	410	405	400	395	390
Positive Power Tolerance	0 ~ 3%	0 ~ 3%	0 ~ 3%	0 ~ 3%	0 ~ 3%
Open Circuit Voltage - Voc (V)	50.12	49.81	49.50	49.21	48.91
Short Circuit Current - I <sub>sc</sub> (A)	10.37	10.32	10.26	10.21	10.16
Maximum Power Voltage - V <sub>mpp</sub> (V)	41.76	41.46	41.17	40.85	40.55
Maximum Power Current - I <sub>mpp</sub> (A)	9.82	9.77	9.72	9.67	9.62
Module Efficiency	20.4%	20.2%	19.9%	19.7%	19.4%

Electrical data relates to standard test conditions (STC) : irradiance 1000W/m<sup>2</sup> ; AM 1.5 ; cell temperature 25°C measuring uncertainty of power is within ±3%. Certified in accordance with IEC61215, IEC61730-1/2 and UL 1703.

## Electrical Characteristics at Nominal Operating Cell Temperature (NOCT)

Module Type	CSUN410-144M	CSUN405-144M	CSUN400-144M	CSUN395-144M	CSUN390-144M
Maximum Power - P <sub>mpp</sub> (W)	303	300	296	292	289
Maximum Power Voltage - V <sub>mpp</sub> (V)	38.28	38.03	37.76	37.52	37.29
Maximum Power Current - I <sub>mpp</sub> (A)	7.93	7.88	7.84	7.79	7.74
Open Circuit Voltage - Voc (V)	46.06	45.81	45.56	45.30	45.04
Short Circuit Current - I <sub>sc</sub> (A)	8.38	8.33	8.28	8.23	8.18

Electrical data relates to nominal operating cell temperature (NOCT): irradiance 800 W/m<sup>2</sup>; wind speed 1 m/s ; cell temperature 45°C ambient temperature 20°C measuring uncertainty of power is within ±3%

## Temperature Characteristics

Voltage Temperature Coefficient	-0.30%/K
Current Temperature Coefficient	+0.066%/K
Power Temperature Coefficient	-0.36%/K

## Maximum Ratings

Maximum System Voltage (V)	1000 / 1500
Series Fuse Rating (A)	20
Reverse Current Overload (A)	30

## Mechanical Characteristics

Dimensions	2015×996×40 mm – frame thickness upon request
Weight	22.7kg
Frame	Anodized aluminum profile – black frame upon request
Front Glass	Toughened low iron glass,3.2 mm
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Back Sheet	Composite film – black back sheet upon request
Cells	6×24 monocrystalline solar semi-cells ( 158.75 X 158.75 PERC )
Junction Box	Rated current ≥ 12A, IP ≥ 65, TUV & UL
Cable	1 × 4 mm <sup>2</sup>
Connector	MC 4/ compatible with MC 4

## Packaging

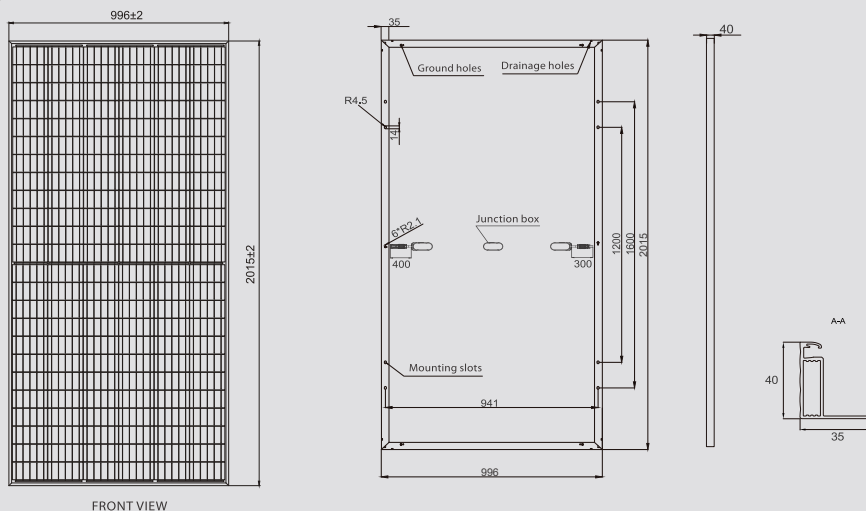
Container 20'	260 pcs.
Container 40'	572 pcs.
Container 40'HC	616 pcs.

## System Design

Temp. Range	-40°F to +185°F (-40°C to +85°C)
Hail	Max. diameter of 0.98" (25mm) with impact speed of 51.2mph (23m/s)
Max. Capacity	Wind 2400Pa, snow 5400Pa – 7200Pa upon request
Application Class	A
Safety Class	II

## Dimensions

Note: mm (inch)



## IV-Curves

