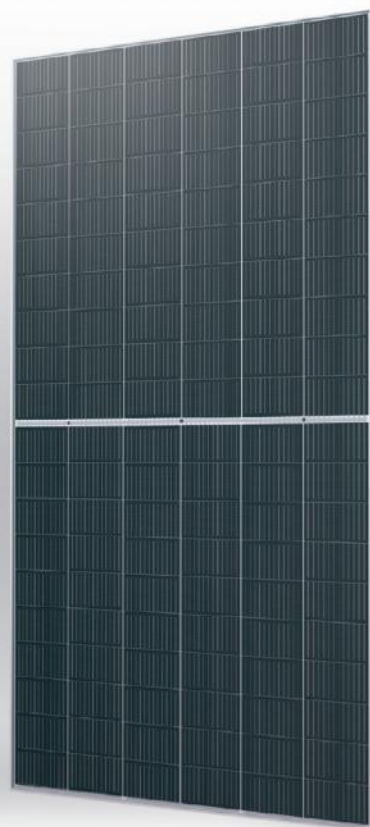


# GCL- M12/60GDF



**590-610 W**

**Bifacial Dual Glass  
Monocrystalline Module**

**610W**

Maximum Power Output

**21.6%**

Maximum Module Efficiency

**0~+5W**

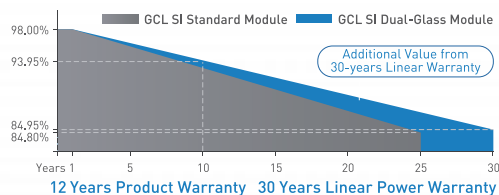
Power Output Guarantee



## GCL Delivers Reliable Performance Over Time

- World-class manufacturer of crystalline silicon photovoltaic modules
- Fully automatic facility and world-class technology
- Rigorous quality control to meet the highest standard: ISO 9001, ISO 14001 and ISO 45001
- Tested for harsh environments (salt mist, ammonia corrosion and sand blowing test: IEC 61701, IEC 62716, DIN EN 60068-2-68)
- Long term reliability tests
- 2x100% EL inspection ensuring defect-free modules

## Linear Performance Warranty



\* Please refer to GCL standard warranty for details



Ideal choice for large scale ground installation



Non-destructive cutting, reduce potential micro crack risk



Additional safety, Fire class A certified



Withstand up to 1500V system voltage effectively reduce BOS cost



Selected encapsulating material and stringent production process control ensure the product is highly PID resistant and snail trails free



Large size silicon wafer module can reduce the cost of PV support bracket, combining manifolds, cable, land and so on, thus thinning the LCOE

Additional Insurance Backed by Swiss RE

\* Please refer to GCL for details



Electrical Specification (STC\*)

Maximum Power	P <sub>max</sub> (W)	590	595	600	605	610
Maximum Power Voltage	V <sub>mp</sub> (V)	34.15	34.35	34.55	34.75	34.95
Maximum Power Current	I <sub>mp</sub> (A)	17.28	17.32	17.37	17.41	17.46
Open Circuit Voltage	V <sub>oc</sub> (V)	41.24	41.44	41.64	41.84	42.04
Short Circuit Current	I <sub>sc</sub> (A)	18.36	18.41	18.46	18.52	18.57
Module Efficiency	(%)	20.8	21.0	21.2	21.4	21.6
Power Output Tolerance	(W)			0~+5		

\* Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass 1.5

Electrical Specification (NMOT\*)

Maximum Power	P <sub>max</sub> (W)	446.4	450.2	454.0	457.7	461.5
Maximum Power Voltage	V <sub>mp</sub> (V)	31.86	32.05	32.23	32.42	32.60
Maximum Power Current	I <sub>mp</sub> (A)	14.01	14.05	14.09	14.12	14.16
Open Circuit Voltage	V <sub>oc</sub> (V)	38.84	39.03	39.22	39.41	39.60
Short Circuit Current	I <sub>sc</sub> (A)	14.80	14.84	14.88	14.93	14.97

\* Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s

Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

Maximum Power	P <sub>max</sub> (W)	631.3	636.7	642.0	647.4	652.7
Maximum Power Voltage	V <sub>mp</sub> (V)	34.15	34.35	34.55	34.75	34.95
Maximum Power Current	I <sub>mp</sub> (A)	18.49	18.54	18.58	18.63	18.68
Open Circuit Voltage	V <sub>oc</sub> (V)	41.24	41.44	41.64	41.84	42.04
Short Circuit Current	I <sub>sc</sub> (A)	19.64	19.70	19.75	19.81	19.87

Irradiance ratio (rear/front) 10%

Mechanical Data

Number of Cells	120 Cells (6×20)
Dimensions of Module L*W*H (mm)	2172×1303×35mm (85.51×51.30×1.38 inches)
Weight (kg)	34.8 kg
Front Side Glass	2.0mm (0.08 inches), Anti-Reflection Coating
Back Side Glass	2.0mm (0.08 inches), Heat Strengthened Glass
Frame	Silver, anodized aluminium alloy
J-Box	IP68 Rated
Cable	4.0mm <sup>2</sup> , Portrait: +400/-200mm length can be customized
Number of diodes	3
Wind/ Snow Load	2400Pa/ 5400Pa*
Connector	MC Compatible
Bifaciality	70±5%

\* For more details please check the installation manual of GCLSI

Temperature Ratings

Nominal Module Operating Temperature(NMOT)	45±2°C
Temperature Coefficient of I <sub>sc</sub>	+0.05%/°C
Temperature Coefficient of V <sub>oc</sub>	-0.28%/°C
Temperature Coefficient of P <sub>MAX</sub>	-0.35%/°C

Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Max Series Fuse Rating	35A

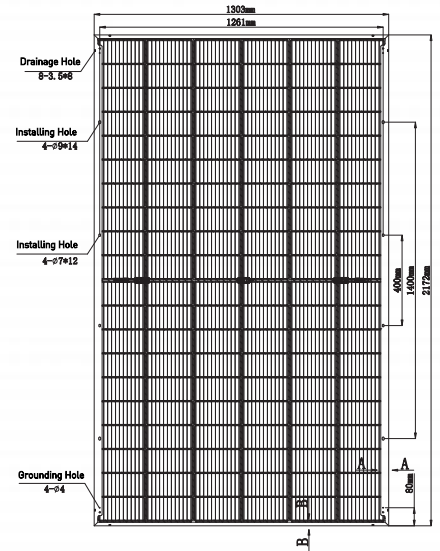
Optional

Connector:  Original MC4

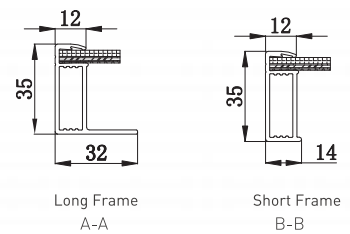
Packaging Configuration

Module per box	31 pieces
Module per 40' container	558 pieces

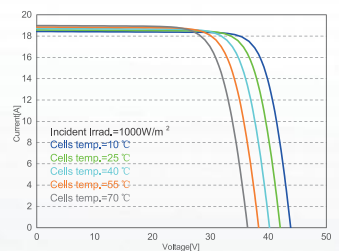
Module Dimension



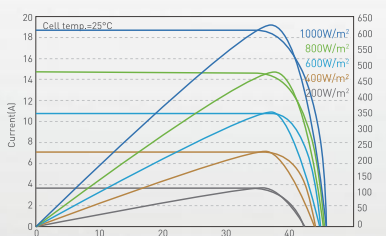
Back View



I-V Curve at Different Temperature (610W)



I-V/P-V Curve at Different Irradiation (610W)



CAUTION: READ INSTALLATION MANUAL BEFORE USING THE PRODUCT

Contact Us for More Information

website: [www.gclsi.com](http://www.gclsi.com) email: [gclsisales@gclsi.com](mailto:gclsisales@gclsi.com)

