

GCL- NT12R/48GDF



450-470W

**Bifacial Dual Glass
Monocrystalline Module**

470W

Maximum Power Output

23.52%

Maximum Module Efficiency

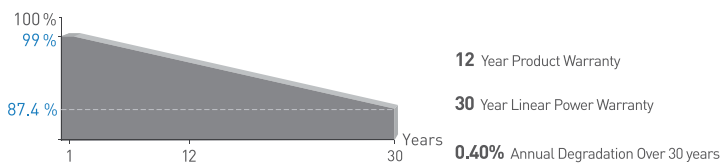
0~+5W

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



Highly transparent self-cleaning glass brings additional yield and easy maintenance



Ideal choice for residential rooftop



N type technology: The N-type module has better reliability and lower LID/LETID



Sand blowing test, salt mist test and ammonia test passed to endure harsh environments



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



Special cutting and soldering technology leads to low hotspot risk

Additional Insurance Backed by Swiss RE

* Please refer to GCL for details



Electrical Specification (STC*)

Maximum Power	Pmax[W]	450	455	460	465	470
Maximum Power Voltage	Vmp[V]	29.71	29.94	30.15	30.36	30.56
Maximum Power Current	Imp[A]	15.15	15.20	15.26	15.32	15.38
Open Circuit Voltage	Voc[V]	35.05	35.30	35.51	35.72	35.92
Short Circuit Current	Isc[A]	15.95	16.00	16.06	16.13	16.20
Module Efficiency	(%)	22.52	22.77	23.02	23.27	23.52

* Irradiance 1000W/m², Cell Temperature 25°C, Air Mass 1.5

Electrical Specification (NOCT*)

Maximum Power	Pmax [W]	338.8	342.5	346.2	350.1	353.6
Maximum Power Voltage	Vmp [V]	27.68	27.89	28.08	28.28	28.47
Maximum Power Current	Imp [A]	12.24	12.28	12.33	12.38	12.42
Open Circuit Voltage	Voc[V]	33.05	33.28	33.47	33.67	33.87
Short Circuit Current	Isc [A]	12.88	12.92	12.97	13.03	13.08

* Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

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

Maximum Power	Pmax [W]	486.1	491.6	496.9	502.2	507.6
Maximum Power Voltage	Vmp [V]	29.71	29.94	30.15	30.36	30.56
Maximum Power Current	Imp [A]	16.36	16.42	16.48	16.54	16.61
Open Circuit Voltage	Voc[V]	35.05	35.30	35.51	35.72	35.92
Short Circuit Current	Isc [A]	17.23	17.28	17.35	17.42	17.49

Mechanical Data

Number of Cells	96Cells (6×16)
Dimensions of Module L*W*H (mm)	1762×1134×30mm (69.37×44.65×1.18 inches)
Weight (kg)	25.4kg
Front Side Glass	2.0mm (0.08 inches), High transparency solar glass
Back Side Glass	2.0mm (0.08 inches), Heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68 Rated
Cable	4.0mm ² , Portrait: +300/-200mm length can be customized
Number of diodes	3
Wind/ Snow Load	2400Pa/ 5400Pa*
Connector	MC Compatible
Bifaciality	80±5%

* For more details please check the installation manual of GCLSI

Temperature Ratings

Nominal Operating Cell Temperature (NOCT)	45±2°C
Temperature Coefficient of Isc	+0.045%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of P _{MAX}	-0.29%/°C

Maximum Ratings

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

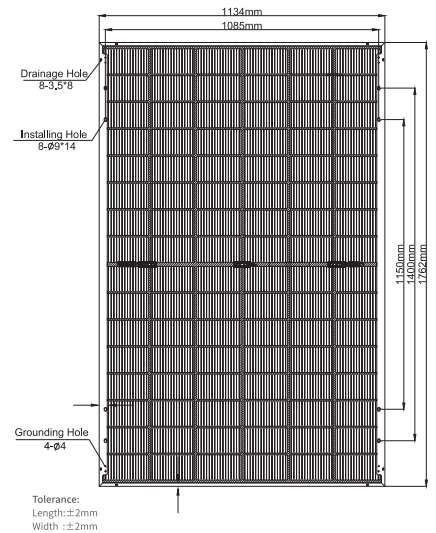
Optional

Connector: Original MC4

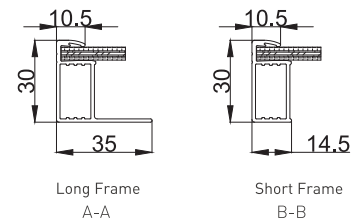
Packaging Configuration

Module per box	36 pieces
Module per 40' container	936 pieces

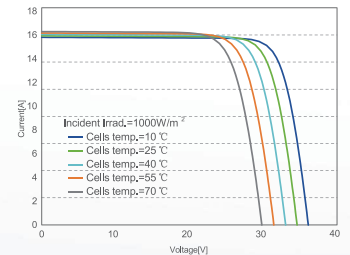
Module Dimension



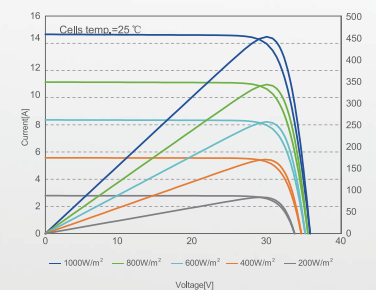
Back View



I-V Curve at Different Temperature (450W)



I-V/P-V Curve at Different Irradiation (450W)



CAUTION: READ INSTALLATION MANUAL BEFORE USING THE PRODUCT

Contact Us for More Information

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