

GCL-

NT10/78GDF



630-650 W

**Bifacial Dual Glass
Monocrystalline Module**

650W

Maximum Power Output

23.3%

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



High conversion efficiency due to top quality wafers and advanced cell technology



Ideal choice for large scale ground installation

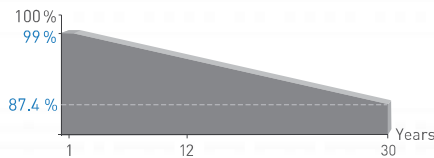


N type technology: The N-type module has better reliability and lower LID/LETID



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

Linear Performance Warranty



12 Year Product Warranty

30 Year Linear Power Warranty

0.40% Annual Degradation Over 30 years



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

* Please refer to GCL standard warranty for details

Additional Insurance Backed by Swiss RE

* Please refer to GCL for details



Electrical Specification (STC*)

Maximum Power	P _{max} (W)	630	635	640	645	650
Maximum Power Voltage	V _{mp} (V)	48.28	48.48	48.68	48.87	49.06
Maximum Power Current	I _{mp} (A)	13.05	13.10	13.15	13.20	13.25
Open Circuit Voltage	V _{oc} (V)	56.85	57.00	57.15	57.30	57.45
Short Circuit Current	I _{sc} (A)	13.80	13.85	13.90	13.95	14.00
Module Efficiency	(%)	22.5	22.7	22.9	23.1	23.3

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

Electrical Specification (NOCT*)

Maximum Power	P _{max} (W)	472.9	476.5	480.1	483.7	487.4
Maximum Power Voltage	V _{mp} (V)	44.91	45.08	45.25	45.42	45.59
Maximum Power Current	I _{mp} (A)	10.53	10.57	10.61	10.65	10.69
Open Circuit Voltage	V _{oc} (V)	53.49	53.62	53.75	53.88	54.01
Short Circuit Current	I _{sc} (A)	11.14	11.18	11.22	11.26	11.30

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

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

Maximum Power	P _{max} (W)	680.3	686.0	691.3	696.9	702.0
Maximum Power Voltage	V _{mp} (V)	48.28	48.48	48.68	48.87	49.06
Maximum Power Current	I _{mp} (A)	14.09	14.15	14.20	14.26	14.31
Open Circuit Voltage	V _{oc} (V)	56.85	57.00	57.15	57.30	57.45
Short Circuit Current	I _{sc} (A)	14.90	14.96	15.01	15.07	15.12

Mechanical Data

Number of Cells	156 Cells (6×26)
Dimensions of Module L*W*H (mm)	2465×1134×30mm [97.05×44.65×1.18 inches]
Weight (kg)	34.1kg
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
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 I _{sc}	+0.045%/°C
Temperature Coefficient of V _{oc}	-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	30A

Optional

Connector: Original MC4

Packaging Configuration

Module per box	36 pieces
Module per 40' container	576 pieces

Contact Us for More Information

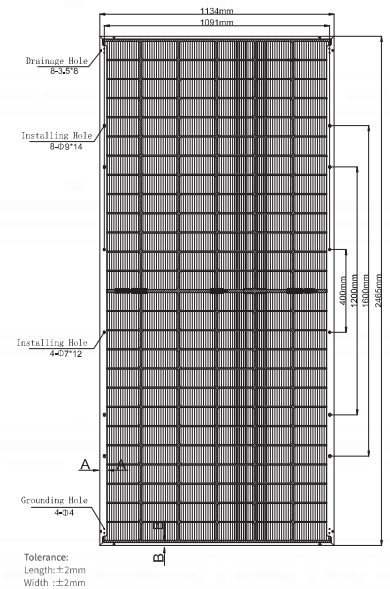
website: www.gclsi.com email: gclsisales@gclsi.com



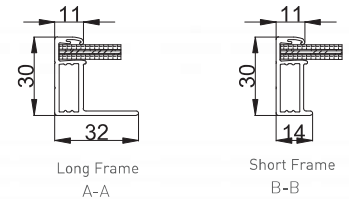
Bringing Green Power To Life

GCL/XXJC/2-MKT-188-H0

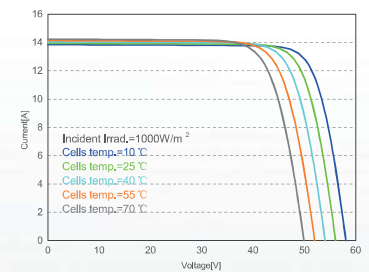
Module Dimension



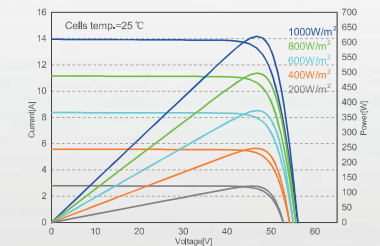
Back View



I-V Curve at Different Temperature (640W)



I-V/P-V Curve at Different Irradiation (640W)



CAUTION: READ INSTALLATION MANUAL BEFORE USING THE PRODUCT