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Project Name: Avondale
Offer no.: SSAQ1113

17/09/2024

Your PV system from Solar Sun & Air

Address of Installation

10 Pratt Mews
London
NW1 0AD



Project Description:
PV System

Project Overview

PV System

3D, Grid-connected PV System

Climate Data	London, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
PV Generator Output	4.79 kWp
PV Generator Surface	21.5 m ²
Number of PV Modules	11
Number of Inverters	1

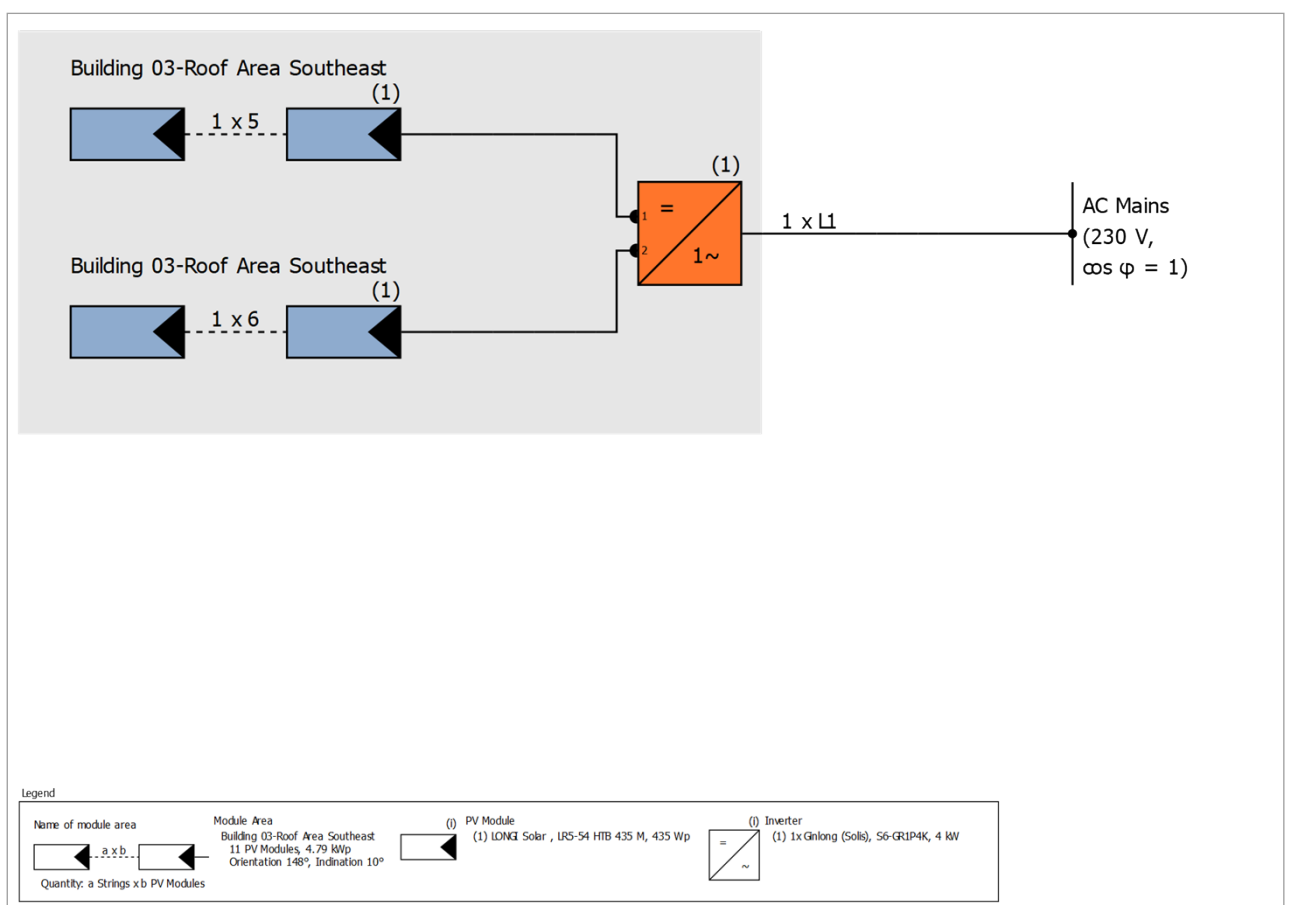


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	4.79 kWp
Spec. Annual Yield	937.14 kWh/kWp
Performance Ratio (PR)	90.44 %
Yield Reduction due to Shading	3.7 %
Grid Export	4,497 kWh/Year
Grid Export in the first year (incl. module degradation)	4,497 kWh/Year
Standby Consumption (Inverter)	13 kWh/Year
CO ₂ Emissions avoided	2,108 kg / year

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.

Set-up of the System

Overview

System Data

Type of System	3D, Grid-connected PV System
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Climate Data

Location	London, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
Resolution of the data	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Module Areas

1. Module Area - Building 03-Roof Area Southeast

Horizon Line, 3D Design

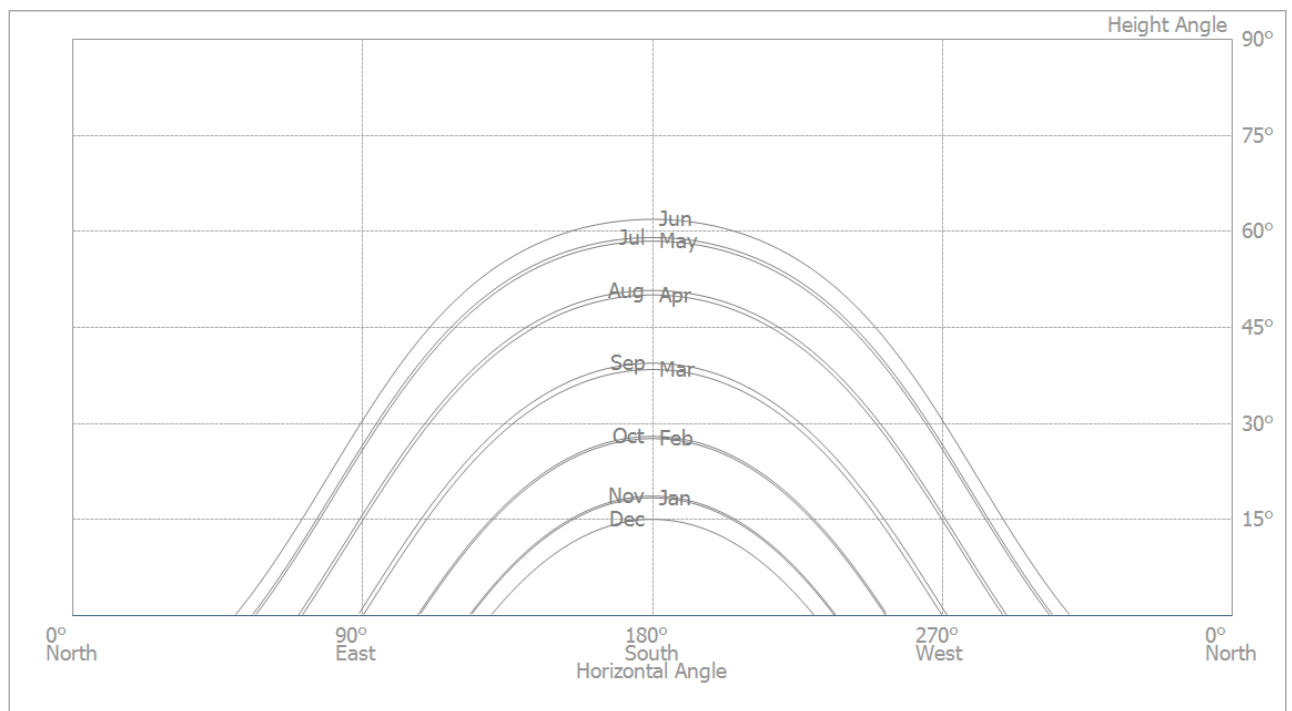


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Area	Building 03-Roof Area Southeast
Inverter 1	
Model	S6-GR1P4K (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	119.6 %
Configuration	MPP 1: 1 x 5
	MPP 2: 1 x 6

AC Mains

AC Mains

Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

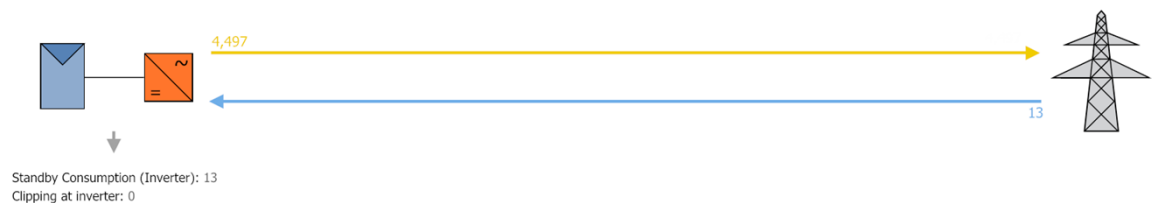
Results Total System

PV System

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Energy Flow Graph

Project: Avondale



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Data Sheets

PV Module Data Sheet

PV Module: LR5-54 HTB 435 M (v3)

Manufacturer	LONGI Solar
Available	Yes

Electrical Data

Cell Type	Si monocrystalline
Half-cell module	Yes
Cell Count	108
Number of Bypass Diodes	3
Loss voltage per bypass diode	1 V
Integrated power optimizer	No
Only Transformer Inverters suitable	No

I/V Characteristics at STC

MPP Voltage	33.36 V
MPP Current	13.05 A
Open Circuit Voltage	39.63 V
Short-Circuit Current	14.08 A
Increase open circuit voltage before stabilisation	0 %
Nominal output	435 W
Fill Factor	78.02 %
Efficiency	22.29 %

I/V Part Load Characteristics

Values source	Manufacturer/user-created
Irradiance	200 W/m ²
Voltage in MPP at Part Load	32.686 V
Current in MPP at Part Load	2.704 A
Open Circuit Voltage (Part Load)	37.458 V
Short Circuit Current at Part Load	2.816 A

Additional Parameters

Temperature Coefficient of Voc	-91.1 mV/K
Temperature Coefficient of Isc	7.04 mA/K
Temperature Coefficient of Pmpp	-0.29 %/K
Incident Angle Modifier (IAM)	100 %
Maximum System Voltage	1500 V

Mechanical Data

Width	1134 mm
Height	1722 mm
Depth	30 mm
Frame Width	11 mm
Weight	20.8 kg

Inverter Data Sheet

Inverter: S6-GR1P4K (v2)

Manufacturer	Ginlong (Solis)
Available	Yes
Electrical data - DC	
DC nominal output	4 kW
Max. DC Power	8.8 kW
Nom. DC Voltage	330 V
Max. Input Voltage	600 V
Max. Input Current	28 A
Max. short circuit current	44 A
Number of DC Inlets	2
Electrical data - AC	
AC Power Rating	4 kW
Max. AC Power	4.4 kVA
Nom. AC Voltage	230 V
Number of Phases	1
With Transformer	No
Electrical data - other	
Change in Efficiency when Input Voltage deviates from Rated Voltage	0.2 %/100V
Min. Feed-in Power	30 W
Standby Consumption	10 W
Night Consumption	1 W
MPP Tracker	
Output Range < 20% of Power Rating	99.5 %
Output Range > 20% of Power Rating	99.9 %
Count of MPP Trackers	2
MPP Tracker 1-2	
Max. Input Current	14 A
Max. short circuit current	22 A
Max. Input Power	4.4 kW
Min. MPP Voltage	90 V
Max. MPP Voltage	520 V

Plans and parts list

Circuit Diagram

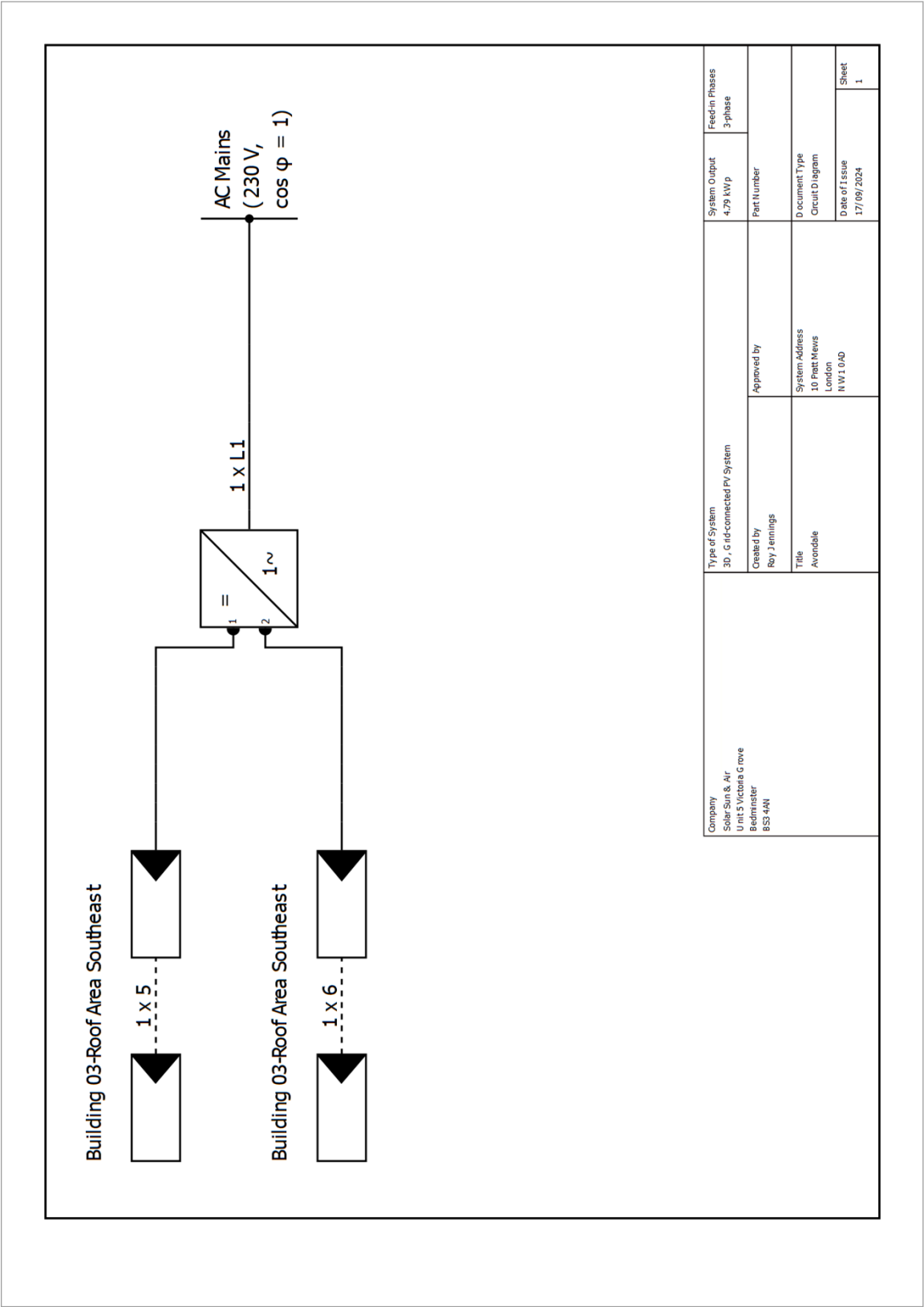


Figure: Circuit Diagram

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		LONGI Solar	LR5-54 HTB 435 M	11	Piece
2	Inverter		Ginlong (Solis)	S6-GR1P4K	1	Piece

Tiger Neo N-type 54HL4R-B 420-440 Watt ALL-BLACK MODULE

N-Type

Positive power tolerance of 0~+3%

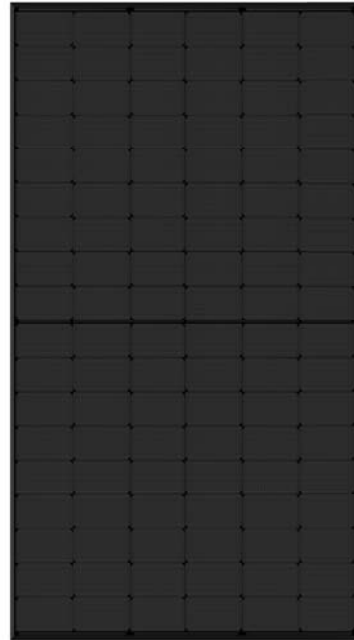
IEC61215(2016), IEC61730(2016)

ISO9001:2015: Quality Management System

ISO14001:2015: Environment Management System

ISO45001:2018

Occupational health and safety management systems



Key Features



SMBB Technology

Better light trapping and current collection to improve module power output and reliability.



Hot 2.0 Technology

The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.



PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.



Enhanced Mechanical Load

Certified to withstand: wind load (4000 Pascal) and snow load (6000 Pascal).



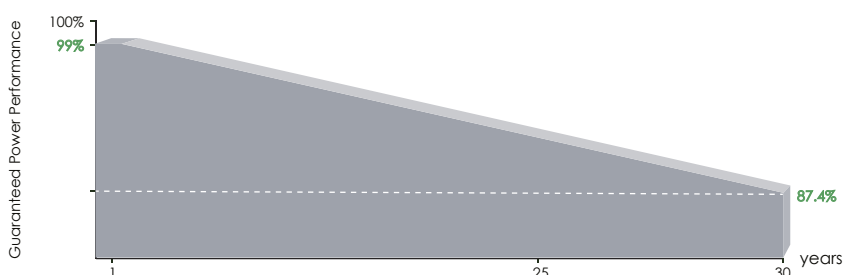
Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance.



POSITIVE QUALITY™
Continuous Quality Assurance

LINEAR PERFORMANCE WARRANTY

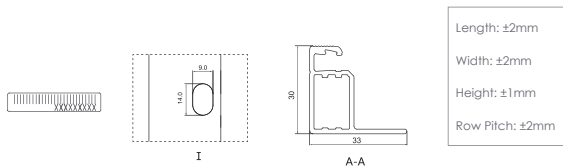
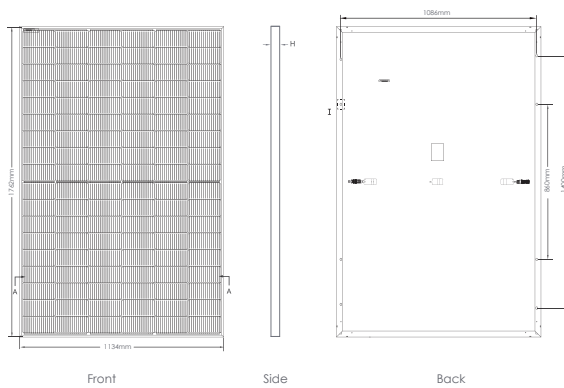


25 Year Product Warranty

30 Year Linear Power Warranty

0.40% Annual Degradation Over 30 years

Engineering Drawings



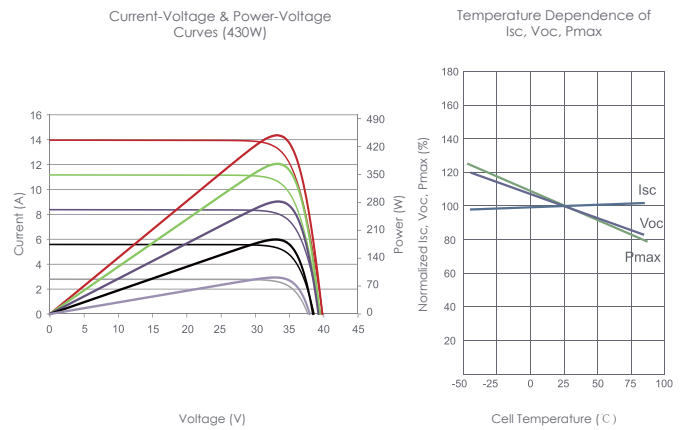
*This tolerance range applies only to the four-angle distance of the module as indicated above.

Packaging Configuration

(Two pallets = One stack)

36pcs/pallets, 72pcs/stack, 936pcs/ 40'HQ Container

Electrical Performance & Temperature Dependence



Mechanical Characteristics

Cell Type	N type Mono-crystalline
No. of cells	108 (6×18)
Dimensions	1762×1134×30mm (69.36×44.65×1.18 inch)
Weight	22 kg (48.50 lbs)
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm ² (+): 400mm, (-): 200mm or Customized Length

SPECIFICATIONS

Module Type	JKM420N-54HL4R-B		JKM425N-54HL4R-B		JKM430N-54HL4R-B		JKM435N-54HL4R-B		JKM440N-54HL4R-B	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	420Wp	316Wp	425Wp	320Wp	430Wp	323Wp	435Wp	327Wp	440Wp	331Wp
Maximum Power Voltage (Vmp)	32.16V	29.95V	32.37V	30.19V	32.58V	30.30V	32.78V	30.50V	32.99V	30.73V
Maximum Power Current (Imp)	13.06A	10.55A	13.13A	10.60A	13.20A	10.66A	13.27V	10.72A	13.34A	10.77A
Open-circuit Voltage (Voc)	38.74V	36.80V	38.95V	37.00V	39.16V	37.20V	39.36V	37.39V	39.57V	37.59V
Short-circuit Current (Isc)	13.51A	10.91A	13.58A	10.96A	13.65A	11.02A	13.72A	11.08A	13.80A	11.14A
Module Efficiency STC (%)	21.02%		21.27%		21.52%		21.77%		22.02%	
Operating Temperature(°C)	-40°C~+85°C									
Maximum system voltage	1000VDC (IEC)									
Maximum series fuse rating	25A									
Power tolerance	0~+3%									
Temperature coefficients of Pmax	-0.29%/°C									
Temperature coefficients of Voc	-0.25%/°C									
Temperature coefficients of Isc	0.045%/°C									
Nominal operating cell temperature (NOCT)	45±2°C									

*STC: Irradiance 1000W/m² Cell Temperature 25°C AM=1.5
NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s