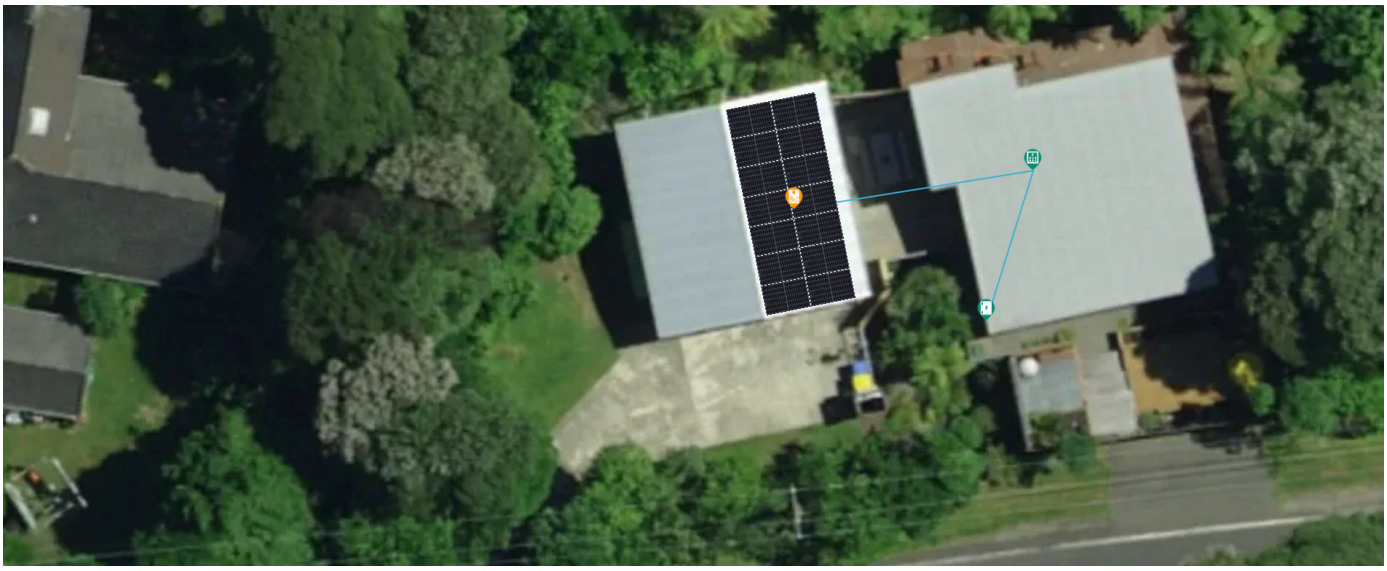
YOUR SOLAR QUOTE NO.

Please call Sale Northstar on 0273233212 to discuss this quote.

6.16 kW	6 kW	14
Solar panel power	Total power rating	Number of Panels



Address:

Thanks for choosing Northstar Technical Services to provide you with a solar quote. Our aim is to present the best solution to help maximise your energy independence with clean energy and help you save on bills.

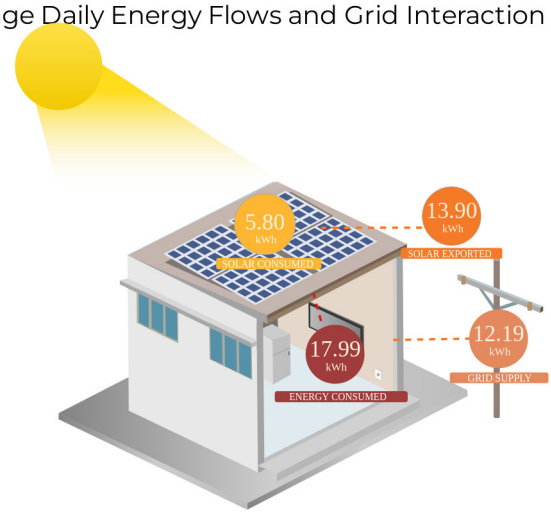
Estimated payback time

8 yrs 6 mths
To recoup your investment

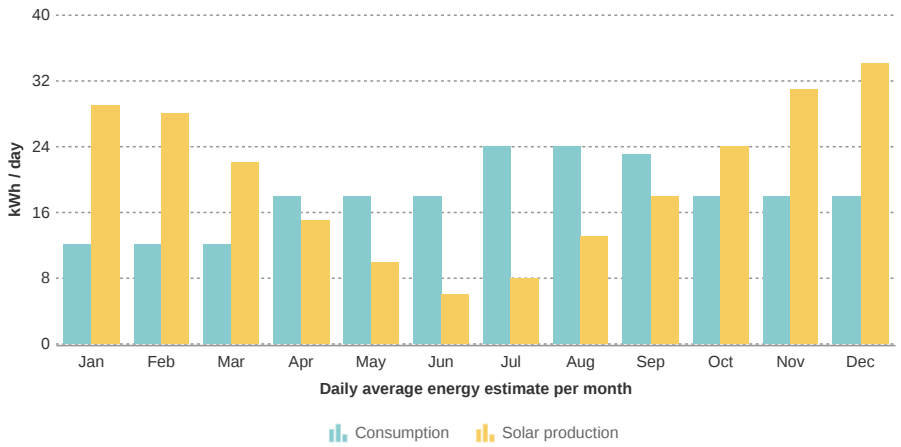
Bill Savings

$1,206
First year savings estimate

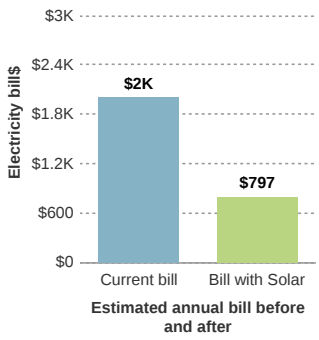
Average Daily Energy Flows and Grid Interaction



Solar Production and Consumption



Estimated Savings



Energy consumed per day	Solar production	Solar export credit
18 kWh/day	19.7 kWh/day	$642 p.a.

25 YEAR
Panel Warranty

10 YEAR
Inverter Warranty

5 YEAR
Installation Warranty

Emission Reduction

0.9
tonnes CO_2 per year

4.8
less fossil fuel cars driven for one year

361
equiv. trees grown for 10 years

System Specs

Orientation	Tilt angle	Solar array power	Number of panels
E1 – 78°	15°	6.2	14

Electricity Charges	Daily supply charges: $0.60; Energy charges: $0.23/kWh; Export credit: $0.11 /kWh;
Key Assumptions	Electricity tariff escalation rate: 4.8% p.a., Panel avg. shade derating 4.0%, Panel efficiency loss in year 2: 1.00%; Degradation loss in subsequent years: 0.40%; System lifecycle years 25 yrs; Solar export limit: 5kW;

About Northstar Technical Services

At Northstar Technical Services Ltd, we're all about making sure our clients get exactly what they need. As your go-to company for electrical and renewable energy solutions, we aim to think ahead and provide outstanding service quickly and efficiently. Here's what makes us different:

- Top-notch workmanship
- Down-to-earth professionalism
- Genuine honesty and integrity
- Customised systems designed just for you

We're the Installers, bringing over 10 years of hands-on experience in the solar industry, with more than 1,000 installs under our belt. We're passionate about helping you tap into the power of the sun!

Services we offer:

Solar Grid-Tied PV for both residential and commercial needs.

Battery Solutions with custom backup circuits to keep you covered:

- Retrofit your existing solar system.
- Upgrades to enhance performance.

Off-Grid Solutions for complete independence:

- Full systems tailored to your needs.
- Swap out old batteries for the latest tech.

EV Charging Solutions to keep you on the move:

- Perfect for both your home and business.

General Electrical Services including:

- Upgrading your lights to energy-efficient LEDs.
- Switchboard upgrades to ensure safety and efficiency.
- Wiring for new builds and re-wires, whether full or partial.
- Secure your property with CCTV and alarms.

We're ready to help you with all your energy and electrical needs, making sure everything works smoothly and efficiently!

Quote Acceptance

Quotation No.

To:
Address:
Date created:
Valid until:
Estimated Installation Date:

From: Northstar Technical Services
unit 5/6 Du Pont Lane, Trentham, Upper Hutt 5018
Business Number:

Item
Design and installation of a 6.16 kW solar system including: • 14 x Jinko JKM440N-54HL4R-BDB-F2-EN AU solar panels rated at a maximum 6.16 kW DC output • 1 x Sigenergy 6.0 SP solar inverter rated at 6 kW AC output • Installed with mounting system and protection devices • Energy monitoring system

Optional Extras	Quantity	Price	Add to Quote	Item total
Standard Annual Maintenance Package	1	$437.00	☐	$0.00
Upgrade to Sunpower P7 Panel	14	$69.00	☐	$0.00

Retail price:	$12,079.16
Your price:	$12,079.16

* Includes GST (Total GST on quote is $1,575.54)

	Due date	Amount
Payment 1 of 2	Quote Approval + 7 days	$6,039.58
Payment 2 of 2	Commission + 7 days	$6,039.58

Quote Acceptance

I agree to the Terms and Conditions of this quote

Accept Online

Name: _____

Signed: _____

Date: _____

ANZ
Account name is NORTHSTAR TECHNICAL SERVICES LTD,
Account number is

Quote Terms and Conditions

Our agreement with you is defined by the Quotation and the Terms and Conditions below and is binding on you. Please read them carefully to ensure that you understand and are prepared to agree to these terms.

Parties

“We”, “Us”, “Company” means NORTHSTAR TECHNICAL SERVICES.

“You” means the person who Agreements with us named in the Quotation.

Definitions

“Agreement” means the contracted agreement including the Quotation and Terms and Conditions formed between You and Us in relation to the Installation;

“Completion” means the Installation of the System at the Property and the demonstration to you or agreed parties of the operational availability of the System in accordance with the Quotation, notwithstanding any minor faults which do not affect the operational availability of the system, which are to be corrected as soon as practicable after completion.

“Deposit” means the sum specified in the Quotation as payable upon acceptance;

“Force Majeure Event” means any event outside our control;

“Installation” is the standard installation of the system components and interconnection;

“Liability” means actions, awards, costs or damages, expenses, loss of income, penalties or any other losses direct or indirect;

“System” means the energy system agreed to be installed by Us at your property as detailed in the Quotation;

1. Consent Of Authorising Party

1.1 By acceptance of this Quotation, you are confirming that you are the owner or a person authorised to act on behalf of the owner and that any co-owners have consented to the Installation.

1.2 The Quotation provided includes details of the pricing, payment terms, along with a site-specific full system design and performance estimate.

2. Pricing

2.1 The pricing set out in this Quotation is providing to the best of our knowledge as a Standard Installation.

2.2 Should further information in the course of installation reveal that it is a Non-Standard Installation, additional fees may be required and you will be notified of any such cost. This may occur due to requirements for electrical switchboard repairs or upgrade, issues with integrity of roof or mounting surfaces, unforeseen access difficulties or other such impediments to a Standard Installation.

2.3 If we notify you in writing that the price is being increased you must reply in writing within 4 weeks stating either you accept the increase or that you wish to cancel the Agreement. If you fail to notify us within 4 weeks that you accept the increase in price, this Agreement will be cancelled.

2.4 In the event that this Agreement is cancelled in accordance with this clause your deposit will be returned to you but cancellation will be without further Liability attaching to either party.

2.5 The deduction of any rebate amount identified on the Quotation is pending the your eligibility and acceptance into the specific scheme.

3. Payment

3.1 Payment of a deposit is required upon acceptance of this Agreement.

3.2 You may cancel this Agreement within 10 business days of signing this Agreement with full refund of this deposit.

3.3 You acknowledge and agree to your obligation for full payment according to the payment terms set out herein.

3.4 You acknowledge that We may be required to obtain goods from interstate or overseas to satisfy the order comprised by this Agreement and as a consequence enter into binding irrevocable undertakings to acquire the goods.

3.5 The deposit is forfeited if this Agreement is terminated due to a default on your part.

3.6 If You fail to pay any amount that is due and payable under this Agreement, We will be entitled to interest on the unpaid amount (both before and after judgment) at the rate applicable to judgment debts together with any costs associated with the collection thereof including, without limitation, any legal costs.

3.7 The Total Price as stated in the Quotation was based on information supplied by you. If either party ascertains that the Information was materially inaccurate to such an extent that additional costs would exceed 5% of the Total Price, then this Agreement may be deemed invalid and result in a revision of the Total Price. Should a revised Agreement be reached, either party may terminate this Agreement by giving 5 days written notice to the other party.

4. Authority To Install

4.1 You are responsible for any required local government planning, building, or heritage approvals. The Company accepts no liability for any breach of local planning regulation.

5. Connection Application

5.1 This Agreement may be subject to an approval process with your Electricity Network Provider. You agree to provide any information and approval to enable the Company to make such application on your behalf. In the event that no approval can be obtained to connect to the electricity grid (for a grid-connected system) you have the right to terminate this agreement.

6. Access

6.1 You agree to provide sufficient and appropriate access to Us (and our employees, agents, or Agreementors) as maybe required to effect the Installation.

6.2 You agree to ensure that the Property is kept clear and allow access to enable work to be carried out at all reasonable times including at weekends and on public holidays and to permit, without charge, access to an electricity supply on site.

7. Installation

7.1 We will deliver the System detailed in the Quotation subject to any variations as may be required, for which you will be asked to sign off prior to installation.

7.2 We undertake to ensure that the System is installed in a good and tradesman like manner, by persons who are duly trained, licensed and registered for the work to be performed. We also undertake to ensure components are installed in accordance with any prevailing legislative or regulatory requirements and to the appropriate Australian Standards.

7.3 The estimated date for the Installation will be given upon acceptance of this quote. This date is subject to approvals, delivery of components, weather, and other logistical considerations and is not a condition of this Agreement. However we will use reasonable efforts to work to this timeframe and negotiate any scheduling changes as may be required.

7.4 Following completion of the Installation, you will be asked to sign an acknowledgement that the Installation has been completed and that you have been told how the System operates and informed of the shutdown procedure.

7.5 You are advised to contact your electricity retailer pre-installation to confirm what tariffs may apply and post-installation, to confirm that the agreed tariff rates have been applied.

8. Our Right to Terminate

8.1 The Company may terminate this Agreement if:
You fail to comply with the terms of this Agreement
If you cease to own the Property prior to complete installation

9. Your Right to Terminate

9.1 You may terminate this Agreement and be entitled to a full refund upon request in any of the following circumstances:

- In the event that no approval can be obtained from the Distributor to connect to the electricity grid prior to installation (for a grid-connected system)
- If you receive the system design and performance estimate outside of any cooling off period and you do not consent to the design.
- If there are additional charges beyond the quoted price and you do not agree to the charges (E.g. if switchboard upgrades are required)
- If the final system design is significantly different to that which was quoted and was not signed off by you.
- If the expected installation timeframe in not honoured, for reasons reasonably within the control of the Company, and you do not agree to a revised timeframe.

10. Defective Products

10.1 In the unlikely event that the System does not conform to the Quotation, please let us know as soon as possible after completion of the Installation. If the issue cannot be resolved by telephone, we will arrange for a representative to attend your Property to determine any problem with the System on a date agreed between You and Us. If our representative determines that the System is faulty, we will arrange for the System to be repaired or replaced, on a date agreed between you and us, at no additional cost to you.

11. Guarantees

11.1 You will, upon completion of the Installation, be provided with a warranty from the Company to cover products, workmanship, operation and performance of the whole PV system for 5 years from the date the installation confirmation is signed by you.

11.2 The company commits to undertake any warranty repairs within a reasonable timeframe and endeavours to attend to assess any fault within 7 days of notification.

11.3 The solar modules are additionally supplied with a manufacturer's product warranty and peak power warranty. The warranty terms will be supplied to you a the time of purchase. The Company may, at its discretion offer one of the following remedies in the event of a successful claim against the module performance warranty; 1) to replace the defective module/s 2) refund the percentage of the cost of the module to the customer representing the percentage of the power output less than 80% of the nameplate power rating. The company endeavours to but is not bound by its commitment to rectify any fault within 14 days of notification.

11.4 The repair, replacement or part refund of the system or any component therein does not cause the beginning of new warranty terms.

11.5 This warranty is transferable only when the product remains installed in its original location as noted in the Quotation. You do not need permission from the Company to transfer this warranty but the Company does need to be informed of such transference.

11.6 The company accepts no liability for any loss of revenue from any energy export tariff or other financial mechanism during the period the system is inoperative due to fault or system failure.

11.7 Your rights under consumer law are maintained and this retailers warranty exists in addition to consumer protections under Australian Consumer Law.

12. Liability

12.1 Our liability for breach of any express or implied condition or warranty is limited, to the extent permitted by law, to the repair or replacement of the relevant System or component.

12.2 We make no representations or warranties to you in connection with any System or their installation, except for those warranties set out in this Agreement and those warranties which cannot be excluded from this Agreement.

12.3 To the maximum extent permitted by law, we have no liability to you for breach of this Agreement other than as set out in the preceding paragraph and, in particular, we have no liability to pay any damages or compensation for breach of the Agreement.

13. Events Outside Our Control

13.1 We will not be Liable or responsible for any failure to perform, or delay in performance of, any of our obligations under these terms and conditions that is caused by a Force Majeure Event.

13.2 Our obligations under these terms and conditions are suspended for the period that the Force Majeure Event continues, and we will have an extension of time to perform these obligations for the duration of that period. We will take reasonable steps to find a solution by which our obligations under these terms and conditions can be performed despite the Force Majeure Event.

14. Complaints Procedure

While we always aim to provide you with excellent customer service, if you haven't received the service you expected, you have the right to make a complaint.

A complaint means an expression of dissatisfaction made to us in relation to our products or the complaints handling process itself, where you expect a resolution. Contacting us to request technical support or to report a service issue is not necessarily a complaint. Where it's not clear to us, we'll ask you to confirm that you wish to make a complaint.

During the course of your complaint, we will treat you with fairness and courtesy and will provide a fair and reasonable outcome to all parties involved. Our complaints process is designed to encourage the fast and efficient resolution of your issue at the first point of contact.

14.1 Warranty performance or any other grievance can only be settled by sending an email or letter outlining the cause of the claim to the Company.

14.2 All complaints will be recorded and the Company will confirm its receipt of such notice, in writing, including a reference for all subsequent communication. Contact us if you have not received a receipt within 7 days.

14.3 The Company will provide feedback on the outcome of complaints within 21 days of receipt of the notice. If required, the Company will keep you informed of the need for additional time and complete our investigation within 45 days from the receipt of a complaint.

14.4 If our Customer Service team is not able to resolve your complaint in the first instance, your complaint will be escalated to a supervisor or team manager for further assistance. If at any stage of the process, you're not happy with the progress or proposed resolution of a complaint or you want to know more about your options to pursue a complaint further, we will advise you of your option to reasonably request to have your complaint escalated to a supervisor of Customer Relations or your options for external dispute resolution.

14.5 Please lodge any complaint in writing or via email to provide us with an accurate record and address your complaint to Customer Service Compliance Officer at:

Email to:

admin@northstarndt.nz

14.6 External Complaints: If you are not satisfied with our handling of your concerns, you can contact the fair trading or consumer affairs department.

15. Your Personal Information

15.1 We will request personal information from you for the purposes of fulfilling this Agreement. Such information may be required for connection applications and applications for Renewable Energy Certificates.

15.2 We may be required to disclose this information to Government authorities, REC agents, and Agreementors.

15.3 By accepting this agreement, you consent to the Company collecting, using and disclosing this information as set out in this agreement.

16. System Documentation and Measure of Performance

16.1 Upon Installation completion and commissioning of the System we will provide System Documentation including all relevant information on the System, components and its maintenance.

16.2 The Company commits to advise the owner, upon commissioning fo the system, how to measure energy output either through demonstration, written instruction, or through a monitoring solution where included with the system.

17. SEANZ Approved Member & Master electricians

17.1 The Company is a member of the SEANZ Approved Member & Master electricians Program and must comply with this Code of Conduct.

17.2 Pursuant to this Code, any requirement to provide a document or information in writing can be met in electronic form, or to provide a signature can be met in electronic or verbal form.

Performance / Financial Disclaimer

This document contains an estimate of potential energy yields and simulated savings benefits. This performance estimate is provided by an independent source (SolarPlus provided by Solaris Pty Ltd) but Solaris does not accept any liability if these estimates are not met.

Please note that this assessment:

- Is of a general nature, and may contain ‘typical’ values in order to provide a reasonable simulation
- Is based on information provided by you and subject to our best interpretation of that information
- Is based on weather averages and on optimal performance of the system we recommend for you and therefore subject to variability in as as-built environment
- Can not reflect variability in actual energy use which may have a significant impact on savings potential
- Can in no way be considered financial advice and does not substitute professional financial advice in terms of an investment decision



Sigen Hybrid Inverter

3.0 – 12.0 kW Single Phase

- Battery ready, future proof
- DC/AC ratio up to 2
- Up to 4 MPP. trackers
- IP66 protection rating

Sigen Hybrid Inverter 3.0-12.0 kW Single Phase [1]

Sigen Hybrid	3.0 SP	3.6 SP	4.0 SP	4.6 SP	5.0 SP	6.0 SP	8.0 SP	10.0 SP	12.0 SP	Units
DC Input										
Max. PV power	6000	7360	8000	9200	10000	12000	16000	20000	24000	W
Max. DC input voltage	600									V
Nominal DC input voltage	350									V
Start-up voltage	100									V
MPPT voltage range	50 ~ 550									V
Number of MPP. trackers	2						3	4	4	
Number of PV strings per MPPT	1									
Max. input current per MPPT	16									A
Max. short-circuit current per MPPT	20									A
AC Output (on-grid)										
Nominal output power	3000	3680	4000	4600	5000	6000	8000	10000	12000	W
Max. output apparent power	3300	3680	4400	5000	5500	6600	8800	11000	12000	VA
Nominal output current	13.6	16.0	18.2	20.9	22.7	27.3	36.4	45.5	54.6	A
Max. output current	15.0	16.0	20.0	22.7	25.0	30.0	40.0	50.0	54.6	A
Nominal output voltage	220 / 230 / 240						220 / 230			V
Nominal grid frequency	50 / 60									Hz
Power factor	0.8 leading ~ 0.8 lagging									
Total current harmonic distortion	THDi < 2%									
Efficiency										
Max. efficiency	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	97.6%	97.6%	97.6%	
European efficiency	97.0%	97.1%	97.2%	97.3%	97.4%	97.4%	97.0%	97.0%	97.0%	
Additional Features										
Compatible battery module	SigenStor BAT 5.0 / 8.0									
Number of modules per controller	1 ~ 6									pcs
Battery module voltage range	300 ~ 600									V
Peak output power (10 seconds)	4500	5520	6000	6900	7500	9000	12000	15000	15000	W
Nominal output voltage	220 / 230 / 240						220 / 230			V
Protection										
Safety protection feature	DC reverse polarity protection, Insulation monitoring, Residual current monitoring, Arc fault circuit interrupter [2], AC overcurrent/overvoltage/short-circuit protection. Type II DC/AC surge protection, Anti-islanding protection									
General Data										
Dimensions (W / H / D)	700 / 300 / 268						700 / 300 / 283			mm
Weight	18						36			kg
Storage temperature range	-40 ~ 70									°C
Operating temperature range	-30 ~ 60									°C
Relative humidity range	0% ~ 95%									
Max. operating altitude	4000									m
Cooling	Natural convection						Smart air cooling			
Ingress protection rating	IP66									
Installation method	Wall-mounted									
Communication	WLAN / Fast Ethernet / RS485 / Sigen CommMod (4G/3G/2G)									
Standard Compliance										
Standard [3]	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 62477, IEC/EN 61000-6-1, IEC/EN 61000-6-2									

1. Sigen Hybrid Inverter 8.0-12.0 kW Single Phase is only available in specific regions. Please contact Sigenergy or local distributors for details.
2. This is an optional feature only supported in certain models, please contact Sigenergy for more information.
3. For all standards refer to the certificates category on the Sigenergy website.

Disclaimer: The information in this file is provided on an "as is" basis. To the fullest extent permitted by law, Sigenergy Technology Co., Ltd. excludes all representations and warranties relating to this file and its contents or which is or may be provided by any affiliates or any other third party, including in relation to any inaccuracies or omissions in this file.

Jinko Solar Co., Ltd.
www.jinkosolar.com

Tiger Neo

54HL4R-BDB

435-450 Watt

ALL BLACK BIFACIAL MODULE
WITH DUAL GLASS

N-type



HOT 2.0 Technology

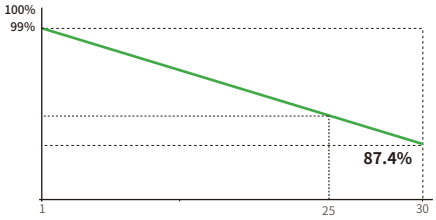
N-type modules with JinkoSolar's HOT 2.0 technology offer better reliability and efficiency.

Dual-Sided Power Generation

Dual-sided power generation gain increases with backside exposure to light, significantly reducing LCOE.

Mechanical Load Enhanced

Certified to withstand:
5400 Pa front side max static test load
2400 Pa rear side max static test load



25 Year	30 Year	1%	0.4%
Product Warranty	Linear Power Warranty	First-year Degradation	Annual Degradation Over 30 Years

- IEC61215 (2021) / IEC61730 (2023)
- ISO9001:2015: Quality Management System
- ISO14001:2015: Environment Management System
- ISO45001:2018: Occupational health and safety management systems

JKM435-450N-54HL4R-BDB-F2-EN AU CEC

54HL4R-BDB 435-450 Watt

Mechanical Characteristics

Cell Type	N- type Mono-crystalline
No. of cells	108 (54×2)
Dimensions	1762×1134×30 mm
Weight	24.5 kg
Front Glass	2.0 mm, Anti-Reflection Coating
Back Glass	2.0 mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Protection Class	Class II
IEC Fire Type	Class C
Connector Type	Jinko material:JK03M; JK03M2; Stäubli:MC4-EVO2;
Output Cables	4.0 mm^2 (+): 400 mm , (-): 200 mm or Customized Length

Packaging Configuration

Pallet Dimentions	1792×1120×1249 mm
Packing Detail (Two pallets = One stack)	36 pcs/pallets, 72 pcs/stack, 936 pcs/ 40'HQ Container

Specifications (STC)

Maximum Power - Pmax [Wp]	435	440	445	450
Maximum Power Voltage - Vmp [V]	33.26	33.44	33.61	33.79
Maximum Power Current - Imp [A]	13.08	13.16	13.24	13.32
Open-circuit Voltage - Voc [V]	39.63	39.83	40.03	40.23
Short-circuit Current - Isc [A]	13.91	13.98	14.05	14.12
Module Efficiency STC [%]	21.77	22.02	22.27	22.52
Power Measurement Tolerance	± 3%			
Power Sorting Tolerance	-5W~+15W			
Temperature Coefficients of Pmax	-0.29 %/°C			
Temperature Coefficients of Voc	-0.25 %/°C			
Temperature Coefficients of Isc	0.045 %/°C			

STC: Irradiance 1000W/m^2, Cell Temperature 25°C, AM=1.5

Specifications (BNPI)

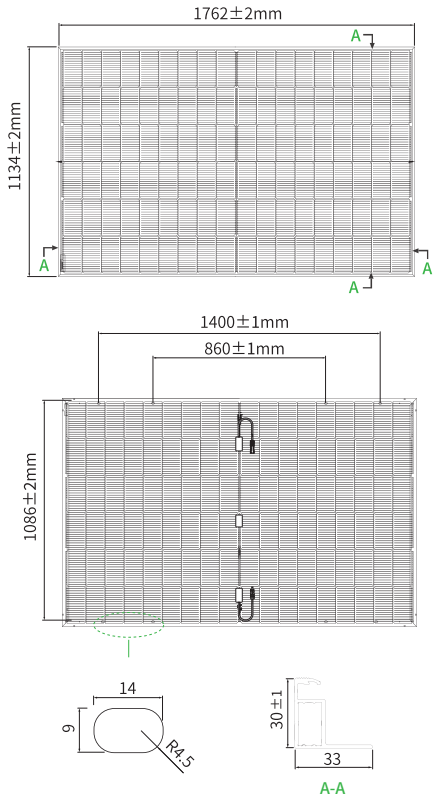
Maximum Power - Pmax [Wp]	480	485	491	496
Maximum Power Voltage - Vmp [V]	33.26	33.41	33.61	33.76
Maximum Power Current - Imp [A]	14.43	14.52	14.60	14.69
Open-circuit Voltage - Voc [V]	39.63	39.83	40.03	40.23
Short-circuit Current - Isc [A]	15.32	15.40	15.48	15.56
Short-circuit Current Bifaciality Coefficient	(80±5) %			
Open-circuit Voltage Bifaciality Coefficient	(98±5) %			
Maximum Power Bifaciality Coefficient	(80±5) %			

BNPI: Irradiance 1000 + φ*135W /m^2, Cell Temperature 25°C, AM=1.5

Application Conditions

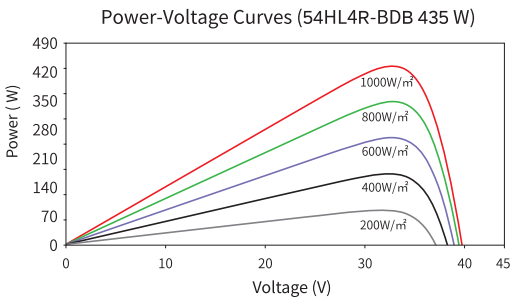
Operating Temperature	-40 °C ~ +85 °C
Maximum System Voltage	1500 VDC (IEC)
Maximum Series Fuse Rating	30 A
Nominal Operating Cell Temperature -NOCT	45±2 °C
Refer. Bifacial Factor	80±5 %

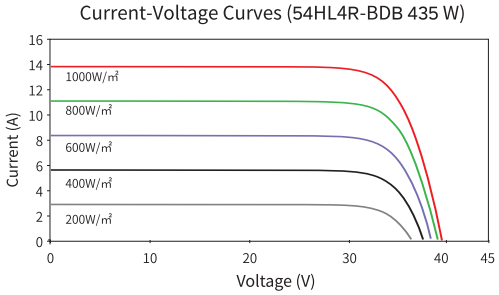
Engineering Drawings



Noted: For specific dimensions and tolerance ranges, please refer to the corresponding detailed module drawings.

Electrical Performance





JinKO Solar
No.1, Lane 1466, Shen Chang Road, Minhang District, Shanghai, China
Tel: +86-21-51808777 Fax: +86-21-51808600 www.jinkosolar.com

Made in China

JKM435-450N-54HL4R-BDB-F2-EN AU CEC

NOTE: Please read the safety and installation manual before using the product. We reserve the right of final interpretation. The specifications in this datasheet are subject to change without notice.