

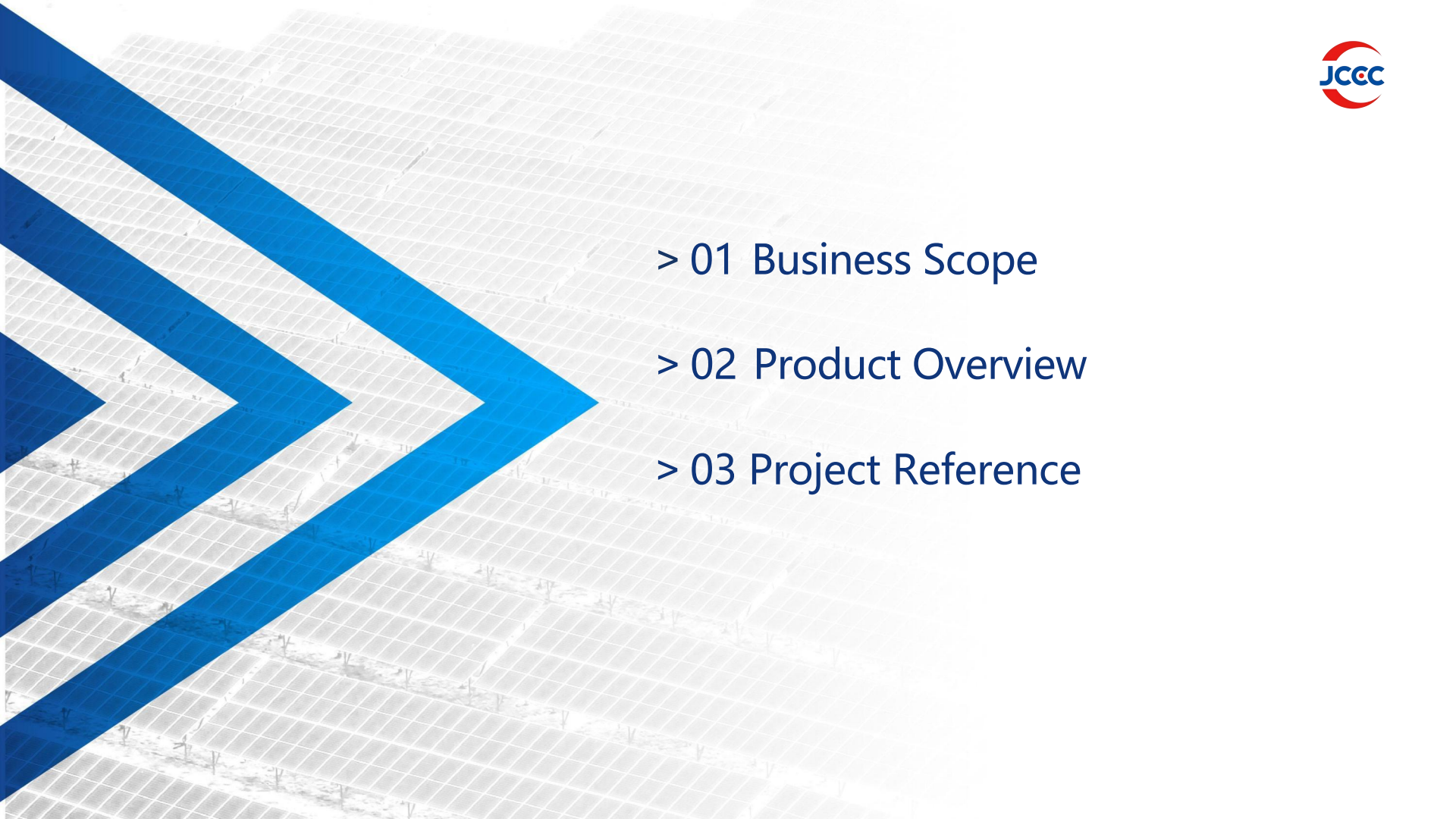
JCEC GREEN RENEABLE ENERGY

NEW ENERGY INDUSTRY Presentation

Looking Forward Service For You

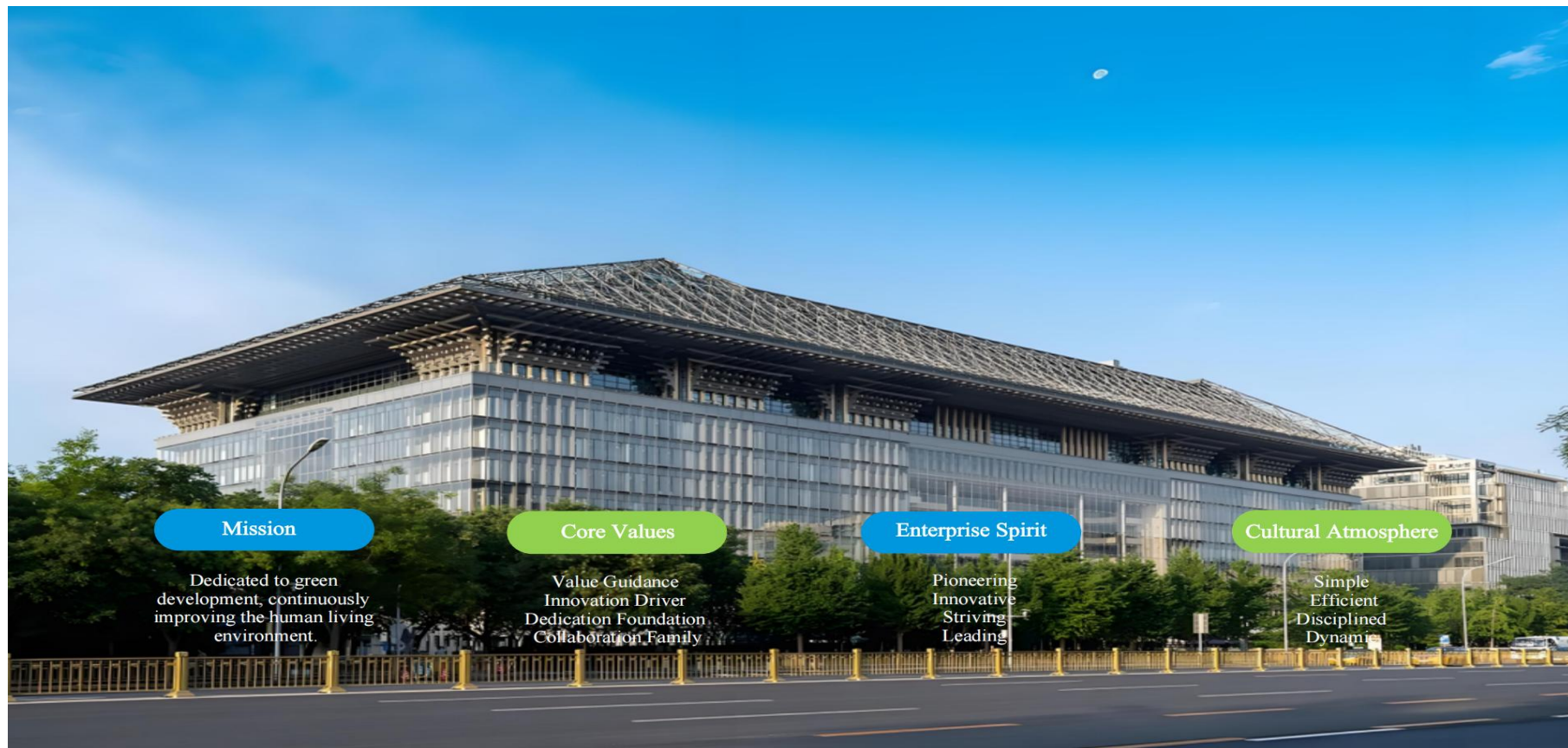
JCEC



- 
- The background of the slide features a large, stylized blue arrow pointing towards the right, overlaid on a light gray grid pattern. The arrow is composed of several parallel lines, creating a sense of depth and movement.
- > 01 Business Scope
 - > 02 Product Overview
 - > 03 Project Reference

01 Business Scope





Mission

Dedicated to green development, continuously improving the human living environment.

Core Values

Value Guidance
Innovation Driver
Dedication Foundation
Collaboration Family

Enterprise Spirit

Pioneering
Innovative
Striving
Leading

Cultural Atmosphere

Simple
Efficient
Disciplined
Dynamic





Jilin Chaoming Engineering Equipment Co.,Ltd(JCEC)

Chinese Development Power Group(CDPG)

Supply New Energy Technology & Production to international Customer

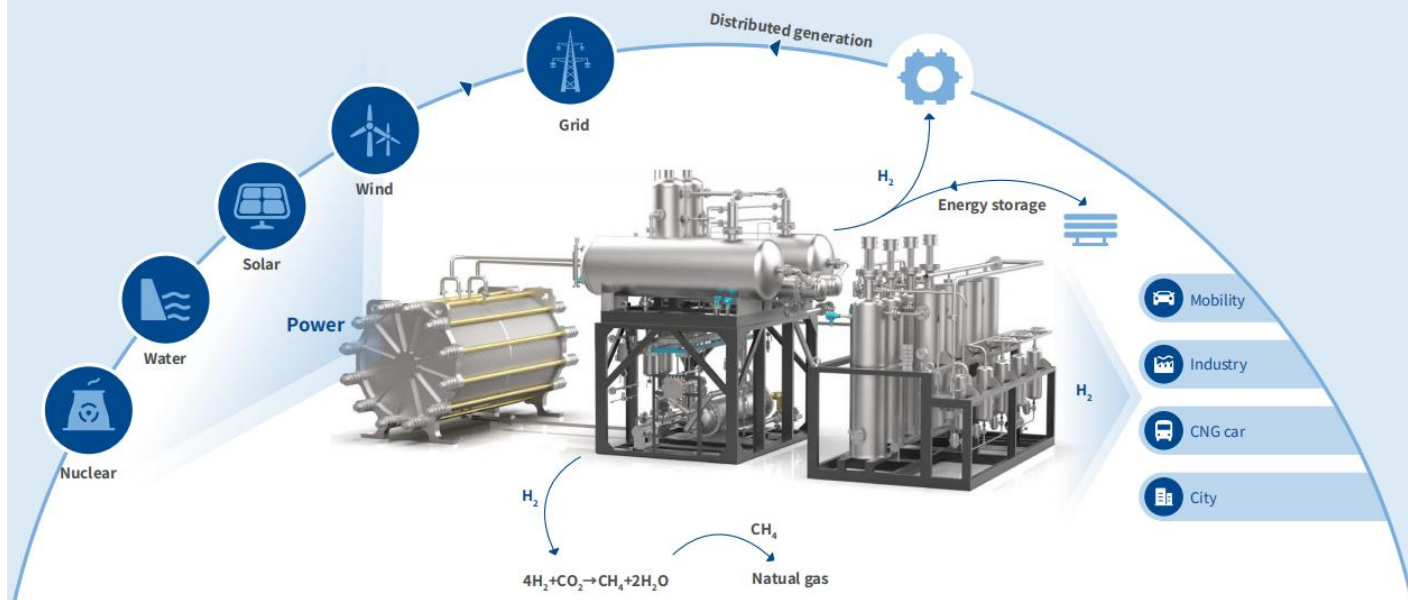




Supply Chain:

- > Fully integrated, closed, silicon-based solar product manufacturing chain for the US/EU market.
- > From mining of quartz to production of solar cells and modules.
 - Quartz
 - Metallurgical grade silicon
 - Polysilicon
 - Ingot
 - Wafer
 - Solar cell
 - Solar module

H2-ENERGY: POWER-TO-GAS (P2G)



02 Product Overview

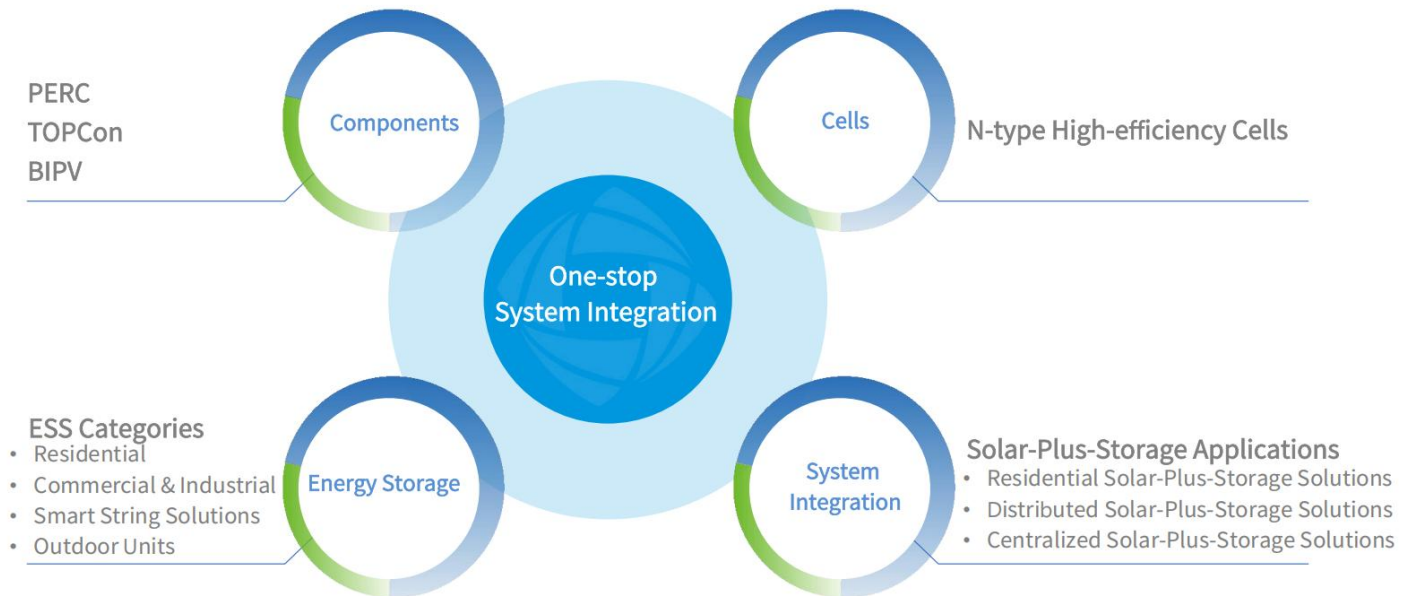
- > N-type High-efficiency Cells
- > Energy Storage Products
- > PV Inverter
- > Storage Solutions



Product Overview



Integrated energy system integration, with operations covering product R&D, design, production, sales, and service.



N-Type Technology Advantages



Higher Bifaciality

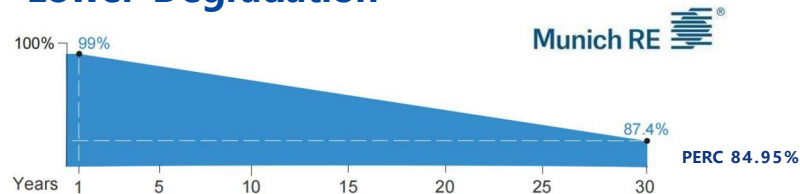
N-Type: **80%±10%**

P-Type: 70%±10%

More energy yield from rear side



Lower Degradation



First year degradation: N Type **1%** VS PERC 2%

Annual degradation: N-type **0.4%** VS PERC 0.45%
>2.45% power warranted.

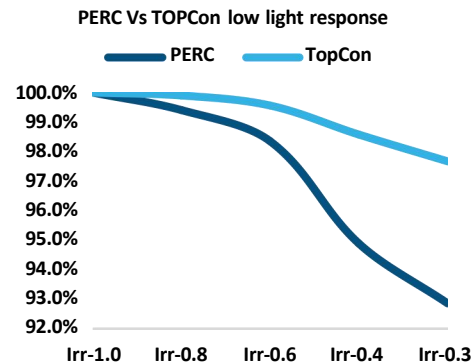


Better Temperature Coefficient

Product	Temp. Coefficient %/°C	600W module, power loss under 65 °C	Power loss %
PERC	-0.35	84W	14%
N-Type	-0.29	69.6W	11.6%



Better Low Light Performance



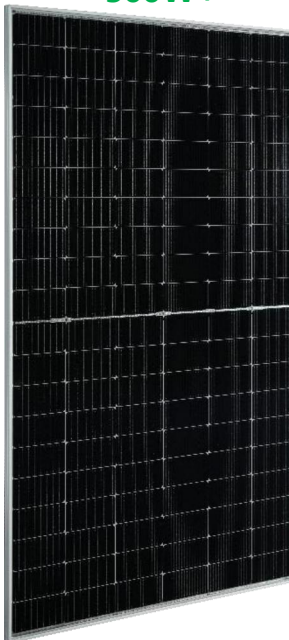
New Ultra-High Power N-Type Rectangular Modules

440W+



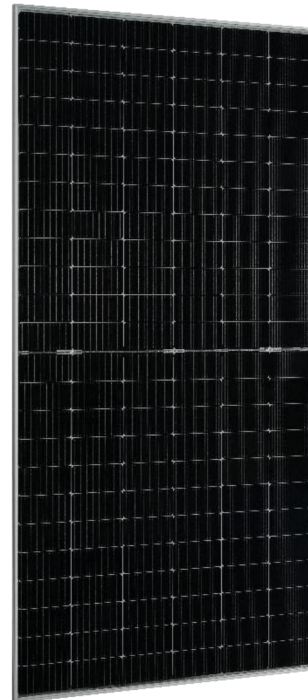
DH108N12B
1762x1134x30mm

500W+



DH120N9
1994x1134x30mm

600W+



DH144N9
2382x1134x30mm



Residential Rooftop Choices of N-Type Modules



HY-DH108N8B
410-430W

Module size: 1722x1134x30mm

Container: 36 pcs/Pallet, 936 pcs/40' HC

HY-DH108N12B
425-445W

Module size: 1762x1134x30mm

Container: 36 pcs/Pallet, 936 pcs/40, HC

➤➤ All Black Appearance

Aesthetic design

➤➤ Dual Glass Options:

2.0 + 2.0 weight: 26kg

1.6 + 1.6 weight: 22kg

Easy installation

➤➤ Warranty Options:

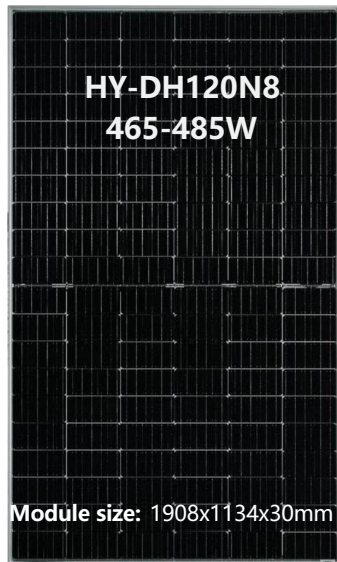
15 years warranty for materials and workmanship

25 years also available for European Market on residential projects less than 300kw

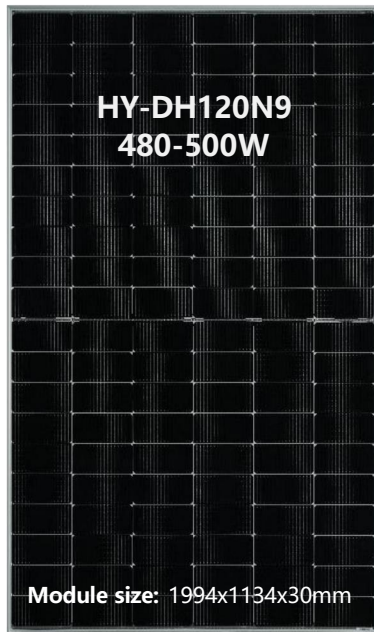
30 years warranty for extra linear power output



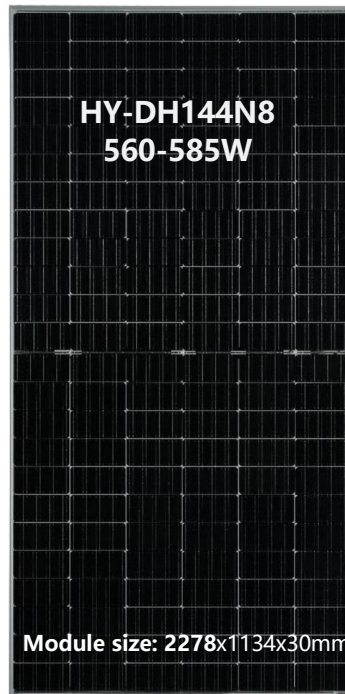
C&I Rooftop Choices of N-Type Modules



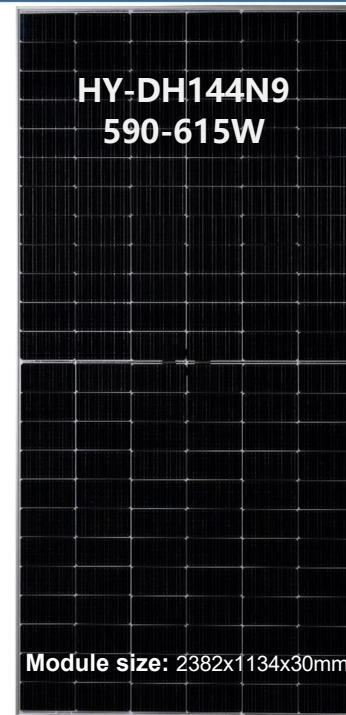
Container: 36 pcs/Pallet, 864 pcs/40, HC



Container: 36 pcs/Pallet, 864 pcs/40, HC



Container: 36 pcs/Pallet, 720 pcs/40, HC



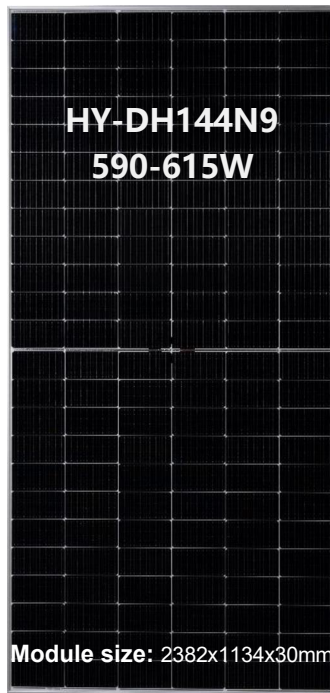
Container: 36 pcs/Pallet, 720 pcs/40, HC



Utility and Tracker System Choices of N-Type Modules



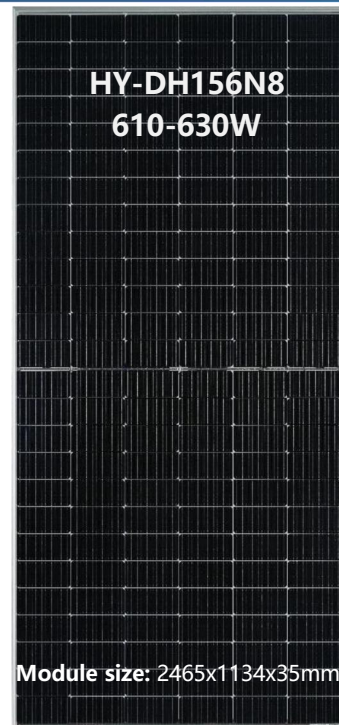
Container: 36 pcs/Pallet, 720 pcs/40, HC



Container: 36 pcs/Pallet, 720 pcs/40, HC



Ariel Green



Container: 36 pcs/Pallet, 576 pcs/40, HC



N-Type HJT Module, 66-Cell



Ready Soon



Container: 31 pcs/Pallet, 558 pcs/40, HC

➤➤ **Application:** Utility projects, tracker system

➤➤ **High Conversion Efficiency**

Module efficiency up to **23.2%** based on HJT technology

➤➤ **High Power Output**

720W+ power output at mass production, generate significantly higher value for customers

➤➤ **Lower LCOE, reduced BOS cost**

Higher reliability, contributes to greater long term investment return

➤➤ **Significantly Lower Degradation:**

Annual degradation is less than **0.38%**



N-Type Module Technology Roadmap



Cell tech. & size (in mm):

(N-type: 182x183.75)

(N-type: 182x210)

(N-type: 182x183.75)

(N-type: 182x210)

(HJT: 210x210)

Module size(in mm):

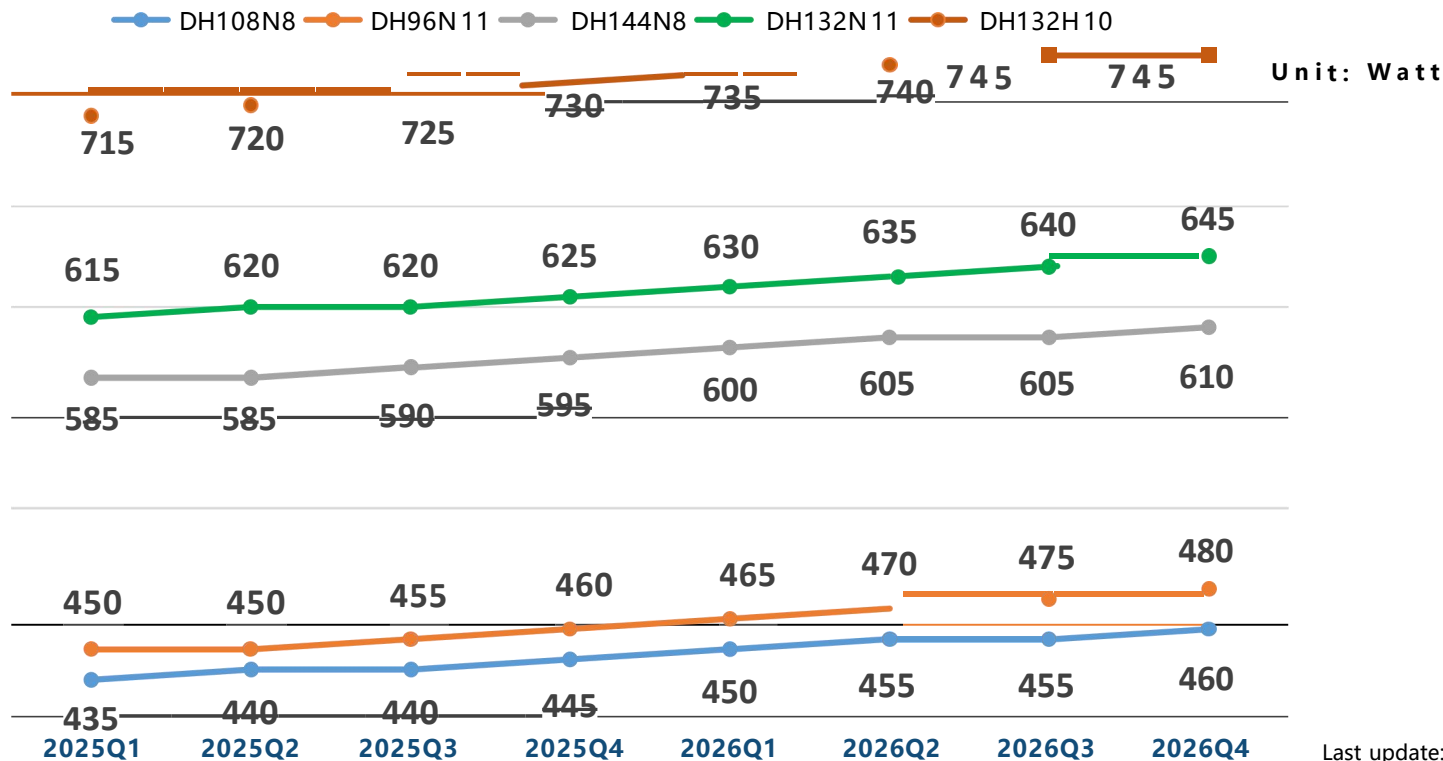
1722*1134

1762*1134

2278*1134

2382*1134

2384*1303



Last update: Dec.2024



Excellent Product Quality and Performance



DH144N8 (N-Type, dual glass, 144-piece half-cut cells) module has been recognized as an **Overall Highest Achiever** in the RETC's 2024 PV Module Index (PVMI) Report.



DH144N8 (N-Type, dual glass, 144-piece half-cut cells) module has passed rigorous Product Qualification Program (PQP) by PVEL and granted **"Top Performer"**.

N-type modules received the prestigious **French Carbon Footprint PPE2 Certification**, granted by Certisolis.

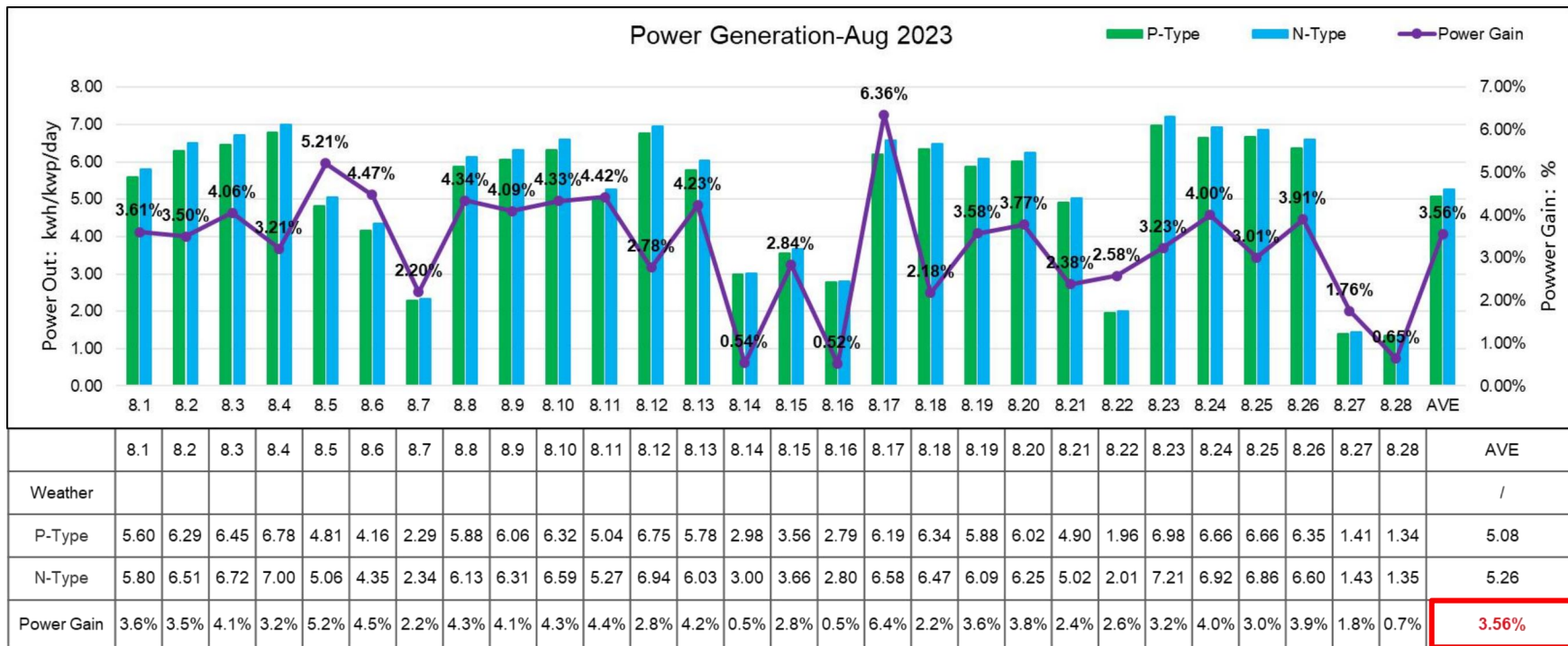


dual glass modules achieved the **Class 1 (the highest level) fire resistance** certification from the Italian CSI laboratory in accordance with the UNI 9177 standard.



Field Test Data: Higher Energy Yield of N-Type Module

The latest N-type field test data run : averagely ~3.5% higher energy yield than perc



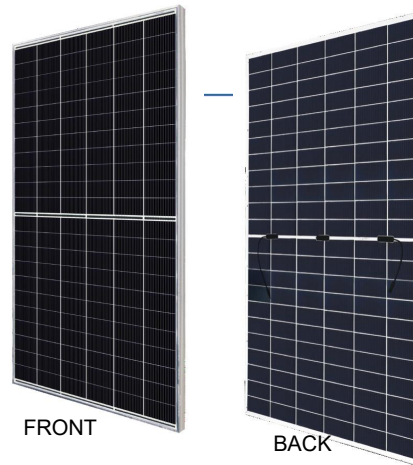
N-type Bifacial TOPCon Technology



N-type Bifacial TOPCon Technology

690 W ~ 720 W

CS7N-690 | 695 | 700 | 705 | 710 | 715 | 720TB-AG



FRONT

BACK

MORE POWER

720 W Module power up to 720 W
Module efficiency up to 23.2 %

EXTRA POWER Up to 85% Power Bifaciality,
more power from the back side

Bar Chart Icon Excellent anti-LeTID & anti-PID performance.
Low power degradation, high energy yield

Thermometer Icon Lower temperature coefficient (Pmax): -0.29%/°C,
increases energy yield in hot climate

Dollar Sign Icon Lower LCOE & system cost

12 Years Enhanced Product Warranty on Materials
and Workmanship*

30 Years Linear Power Performance Warranty*

1st year power degradation no more than 1%
Subsequent annual power degradation no more than 0.4%

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001: 2015 / Quality management system
ISO 14001: 2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety
IEC 62941: 2019 / Photovoltaic module manufacturing quality system

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA / CGC
CEC listed (US California) / FSEC (US Florida)
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
UNI 9177 Reaction to Fire: Class 1 / Take-e-way



MORE RELIABLE

Cloud and Rain Icon Tested up to ice ball of 35 mm diameter
according to IEC 61215 standard

Shield Icon Minimizes micro-crack impacts

Three Stars Icon Heavy snow load up to 5400 Pa,
wind load up to 2400 Pa*



N-type Bifacial TOPCon Technology



ELECTRICAL DATA | STC*

		Nominal Max. Power (P _{max})	Opt. Operating Voltage (V _{mp})	Opt. Operating Current (I _{mp})	Open Circuit Voltage (V _{oc})	Short Circuit Current (I _{sc})	Module Efficiency
CS7N-690TB-AG		690 W	39.6 V	17.43 A	47.5 V	18.39 A	22.2%
	Bifacial Gain**						
	5%	725 W	39.6 V	18.30 A	47.5 V	19.31 A	23.3%
	10%	759 W	39.6 V	19.17 A	47.5 V	20.23 A	24.4%
CS7N-695TB-AG		695 W	39.6 V	20.92 A	47.5 V	22.07 A	26.7%
	Bifacial Gain**						
	5%	730 W	39.8 V	18.34 A	47.7 V	19.36 A	23.5%
	10%	765 W	39.8 V	19.22 A	47.7 V	20.28 A	24.6%
CS7N-700TB-AG		700 W	39.8 V	20.96 A	47.7 V	22.13 A	26.8%
	Bifacial Gain**						
	5%	735 W	40.0 V	18.39 A	47.9 V	19.41 A	23.7%
	10%	770 W	40.0 V	19.26 A	47.9 V	20.34 A	24.8%
CS7N-705TB-AG		705 W	40.0 V	21.01 A	47.9 V	22.19 A	27.0%
	Bifacial Gain**						
	5%	740 W	40.2 V	18.43 A	48.1 V	19.47 A	23.8%
	10%	776 W	40.2 V	19.31 A	48.1 V	20.39 A	25.0%
CS7N-710TB-AG		710 W	40.2 V	21.06 A	48.1 V	22.25 A	27.2%
	Bifacial Gain**						
	5%	746 W	40.4 V	18.47 A	48.3 V	19.52 A	24.0%
	10%	781 W	40.4 V	19.35 A	48.3 V	20.45 A	25.1%
CS7N-715TB-AG		715 W	40.4 V	21.11 A	48.3 V	22.31 A	27.4%
	Bifacial Gain**						
	5%	751 W	40.6 V	18.51 A	48.5 V	19.57 A	24.2%
	10%	787 W	40.6 V	19.39 A	48.5 V	20.50 A	25.3%
CS7N-720TB-AG		720 W	40.6 V	21.16 A	48.5 V	22.37 A	27.6%
	Bifacial Gain**						
	5%	756 W	40.8 V	18.55 A	48.7 V	19.62 A	24.3%
	10%	792 W	40.8 V	19.44 A	48.7 V	20.56 A	25.5%
		864 W	40.8 V	21.20 A	48.7 V	22.43 A	27.8%

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

** Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

ELECTRICAL DATA | NMOT*

	Nominal Max. Power (P _{max})	Opt. Operating Voltage (V _{mp})	Opt. Operating Current (I _{mp})	Open Circuit Voltage (V _{oc})	Short Circuit Current (I _{sc})
CS7N-690TB-AG	522 W	37.4 V	13.94 A	45.0 V	14.83 A
CS7N-695TB-AG	526 W	37.6 V	13.97 A	45.2 V	14.87 A
CS7N-700TB-AG	529 W	37.8 V	14.00 A	45.4 V	14.91 A
CS7N-705TB-AG	533 W	38.0 V	14.03 A	45.5 V	14.95 A
CS7N-710TB-AG	537 W	38.2 V	14.06 A	45.7 V	14.99 A
CS7N-715TB-AG	541 W	38.4 V	14.09 A	45.9 V	15.03 A
CS7N-720TB-AG	544 W	38.6 V	14.12 A	46.1 V	15.07 A

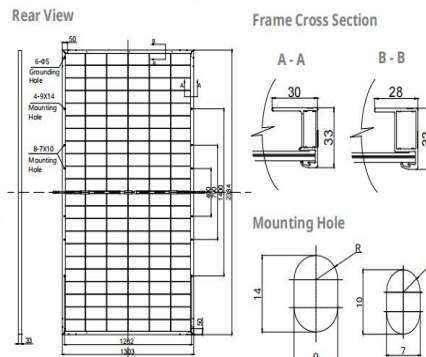
* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	TOPCon cells
Cell Arrangement	132 [2 x (11 x 6)]
Dimensions	2384 x 1303 x 33 mm (93.9 x 51.3 x 1.30 in)
Weight	37.8 kg (83.3 lbs)
Front Glass	2.0 mm heat strengthened glass with anti-reflective coating
Back Glass	2.0 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4.0 mm ² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	360 mm (14.2 in) (+) / 200 mm (7.9 in) (-) or customized length*
Connector	T6 or MC4-EVO2 or MC4-EVO2A
Per Pallet	33 pieces
Per Container (40' HQ)	594 pieces or 495 pieces (only for US & Canada)

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

ENGINEERING DRAWING (mm)



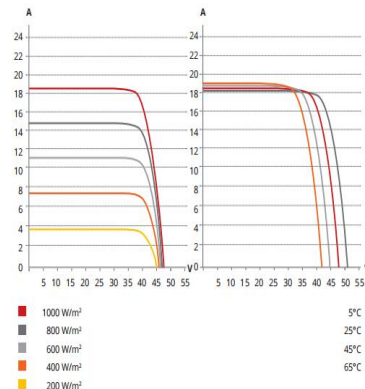
ELECTRICAL DATA

Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1500 V (IEC/UL)
Module Fire Performance	TYPE 29 (UL 61730) or CLASS C (IEC61730)
Max. Series Fuse Rating	35 A
Protection Class	Class II
Power Tolerance	0 ~ +10 W
Power Bifaciality*	80 %

* Power Bifaciality = $\frac{P_{max_{back}}}{P_{max_{front}}}$, both $P_{max_{back}}$ and $P_{max_{front}}$ are tested under STC, Bifaciality Tolerance: $\pm 5\%$

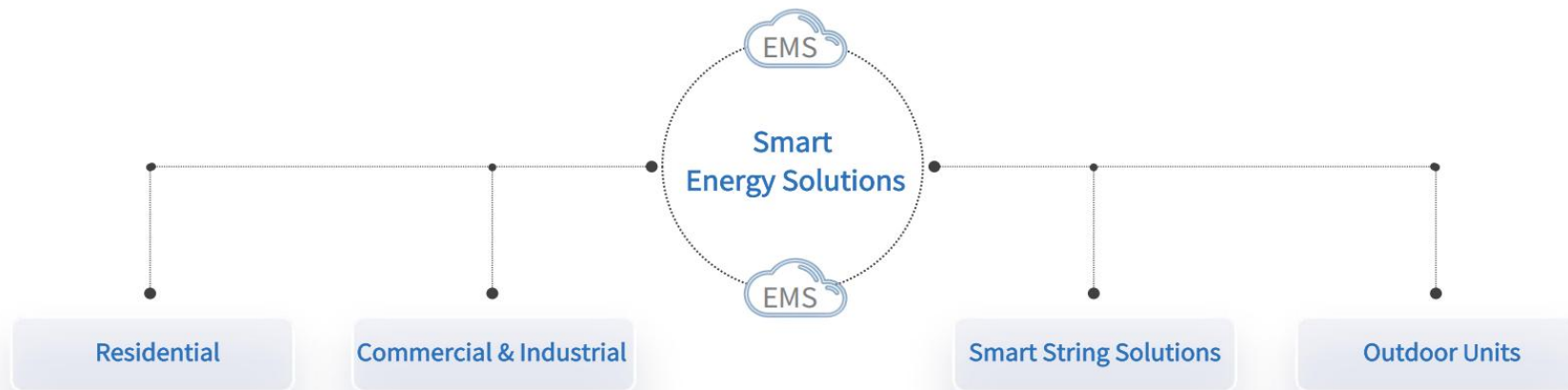
* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CS7N-695TB-AG / I-V CURVES



TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (P _{max})	-0.29 % / °C
Temperature Coefficient (V _{oc})	-0.25 % / °C
Temperature Coefficient (I _{sc})	0.05 % / °C
Nominal Module Operating Temperature	41 ± 3°C



Provide efficient, intelligent, safe and reliable inverter solutions covering all scenarios, maximizing ROI

1+ X Modular Inverter



S5-GC(50-60)K

Three Phase Grid-Tied Inverters

Features:

- 5/6 MPPT, max. efficiency 98.7%
- Nighttime PID recovery function (optional)
- AFCI protection, proactively reduces fire risk
- Intelligent string monitoring, smart I-V curve scan
- 24-hour load consumption monitoring
- IP66, C5 Anti-Corrosion level
- Night SVG function

Models:

S5-GC50K / S5-GC60



DATASHEET

Models	50K	60K
Input DC		
Recommended max. PV power	75 kW	90 kW
Max. input voltage	1100 V	
Rated voltage	600 V	
Start-up voltage	195 V	
MPPT voltage range	180 - 1000 V	
Max. input current	5 × 32 A	6 × 32 A
Max. short circuit current	5 × 40 A	6 × 40 A
MPPT number / Max. input strings number	5 / 10	6 / 12
Output AC		
Rated output power	50 kW	60 kW
Max. apparent output power	55 kVA	66 kVA
Max. output power	55 kW	66 kW
Rated grid voltage	3/N/PE, 220 V / 380 V, 230 V / 400 V	
Rated grid frequency	50 Hz / 60 Hz	
Rated grid output current	76.0 A / 72.2 A	91.2 A / 86.6 A
Max. output current	83.6 A	100.3 A
Power factor	> 0.99 (0.8 leading - 0.8 lagging)	
THDi	< 3%	
DC injection current	< 0.5% In	
Efficiency		
Max. efficiency	98.7%	
EU efficiency	98.3%	

S5-GC(50-60)K

Models	50K	60K
Protection		
DC reverse-polarity protection		Yes
Short circuit protection		Yes
Output over current protection		Yes
Insulation resistance monitoring		Yes
Residual current detection		Yes
Surge protection		DC Type II / AC Type II
Grid monitoring		Yes
Anti-islanding protection		Yes
Temperature protection		Yes
Strings monitoring		Yes
I/V Curve scanning		Yes
Multi peak scan		Yes
Integrated AFCI 2.0		Optional
Integrated PID recovery		Optional ⁽¹⁾
Integrated DC switch		Yes
General Data		
Dimensions (W × H × D)		691 × 578 × 338 mm
Weight		53.7 kg
Topology		Transformerless
Self-consumption (night)		< 1 W
Operating ambient temperature range		- 25 ~ +60°C
Relative humidity		0 - 100%
Ingress protection		IP66
Noise emission (typical)		< 55 dB(A)
Cooling concept		Intelligent fan-cooling
Max. operation altitude		4000 m
Grid connection standard		IEC 61683, IEC 60068, IEC 61727, IEC 62116, EN 50530, IS 16169/IS 16221(BIS)
Safety / EMC standard		IEC 62109-1/-2, IEC 61000-6-1/-2/-3/-4
Features		
DC connection		MC4 connector
AC connection		OT terminal (max. 70 mm ²)
Display		LCD
Communication		RS485, USB, Optional: S3-WIFI-ST, S3-GRPS-ST



S6-GU350K-EHV

Three Phase Grid-Tied Inverters

Efficient

- 12/16 MPPTs, max. efficiency 99.0%
- > 150% DC/AC ratio
- Lower starting voltage, longer power generation time
- Wide MPPT current design, compatible with 182 and 210 series bifacial modules

Smart

- Night SVG function
- Intelligent string monitoring, smart I-V curve scan
- Remote firmware upgrade with simple operation

Safe

- IP66, C5 Anti-Corrosion Level
- Built-in PID recovery for better module performance
- Fuse free design, safe and maintenance free

Economic

- Power line communication (PLC) (optional)
- Integrated tracking bracket power supply interface



Models:

S6-GU350K-EHV-M12

S6-GU350K-EHV-M16



DATASHEET

Models	350K-M12	350K-M16
Input DC		
Max. input voltage	1500 V	
Rated voltage	1080 V	
Start-up voltage	500 V	
MPPT voltage range	480 - 1500 V	
Max. input current	12 × 40 A	16 × 30 A
Max. short circuit current	12 × 60 A	16 × 60 A
MPPT number / Max. input strings number	12 / 24	16 / 32
Output AC		
Rated output power	350 kW	
Max. apparent output power	350 kVA	
Rated grid voltage	3/PE, 800 V	
Grid voltage range	640 - 920 V	
Rated grid frequency	50 Hz / 60 Hz	
Max. output current	252.6 A	
Power factor	> 0.99 (0.8 leading - 0.8 lagging)	
THDi	< 3%	
Efficiency		
Max. efficiency	99.0%	
EU efficiency	98.7%	

S6-GU350K-EHV

Models	350K-M12	350K-M16
Protection		
DC reverse-polarity protection		Yes
Short circuit protection		Yes
Output over current protection		Yes
Surge protection		DC Type II / AC Type II
Grid monitoring		Yes
Anti-islanding protection		Yes
Temperature protection		Yes
Strings monitoring		Yes
I/V Curve scanning		Yes
Night time SVG function		Yes
Integrated PID recovery		Yes
Integrated DC switch		Yes
General Data		
Dimensions (W × H × D)		1175 × 945.5 × 446 mm
Weight	134 kg	143 kg
Topology		Transformerless
Self-consumption (night)		< 3 W
Operating ambient temperature range		-30 ~ +60°C
Relative humidity		0 - 100%
Ingress protection		IP66
Cooling concept		Intelligent fan-cooling
Max. operation altitude		4000 m
Grid connection standard	EN50549, G99, AS4777.2, VDE0126, IEC61727, VDE4110, CEA 2019	
Safety / EMC standard	IEC62109-1/-2, EN61000-6-2/-4	
Features		
DC connection	MC4-EVO2 connector	
AC connection	OT terminal (max. 400 mm²)	
Display	LED indicator & Bluetooth + APP	
Communication	RS485, Optional: PLC	





Residential Solar-Plus-Storage Solutions

- Easy Installation, Safe and Reliable Rooftop Components
- Smart Home Energy Storage System
- Real-time Generation Monitoring & Data Analytics



C&I Solar-Plus-Storage Solution

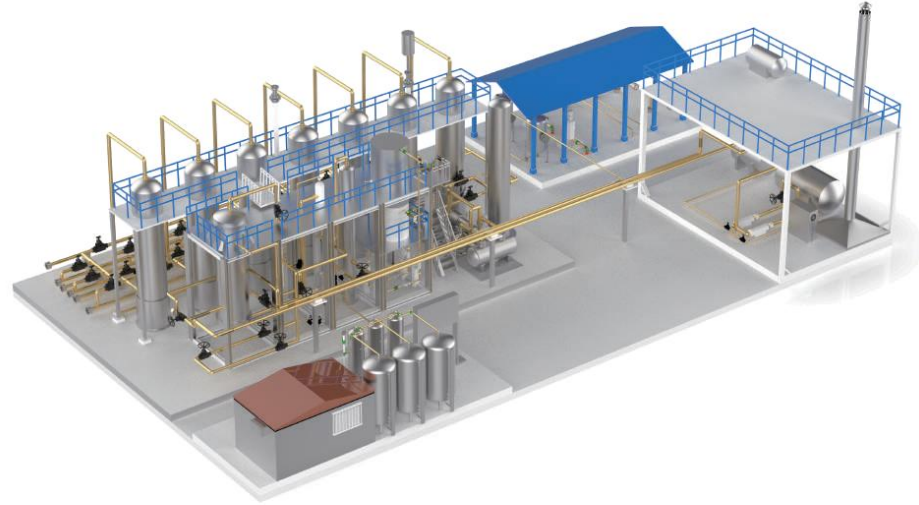
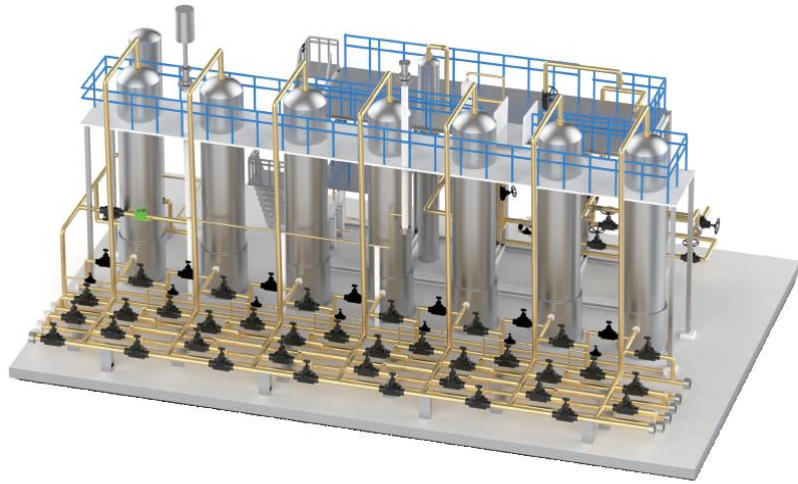
- Modular Design, Scalable on Demand
- Compact Design, Easy Deployment
- Smart Cloud EMS (Energy Management System)



Centralized Solar-Plus-Storage Solutions

- G-BANK Distributed Prefabricated Container
- Hybrid On-and-Off-Grid Operation with Flexible Power Regulation
- Smart Cloud EMS (Energy Management System)





Supply H₂ Production Equipment and Technology support.

Supply New Energy Technology & Production to international Customer



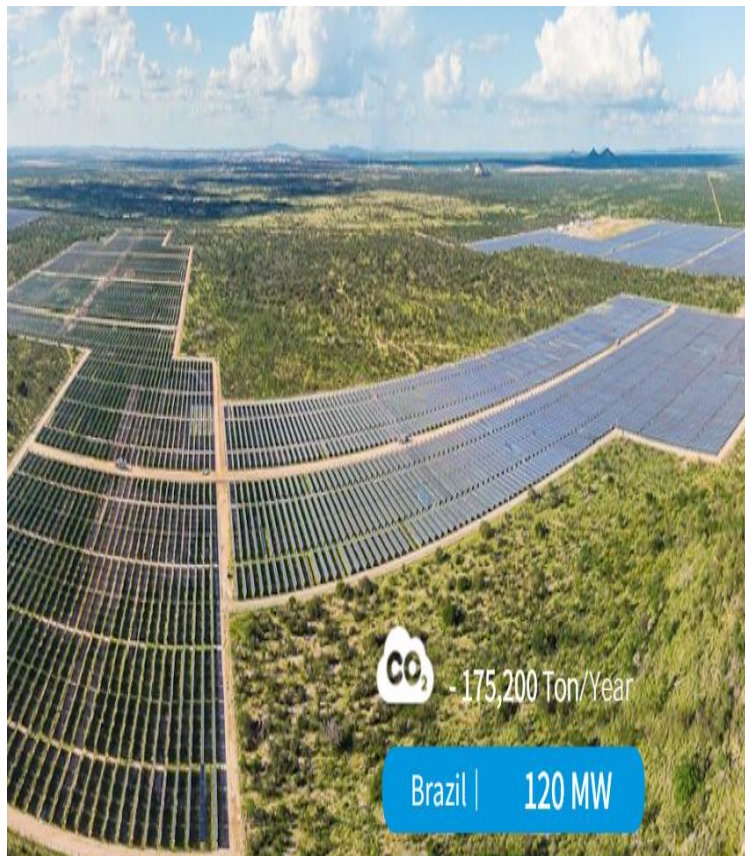
03 Project Reference



Ground-mounted PV Plant



Ground-mounted PV Plant



Agrivoltaic Power Plant



Anhui | 40 MW

Ground-mounted PV Plant

PV + Energy Storage Frequency Regulation Plant



Qinghai | PV 50MW ESS 15MW / 18MWh (LFP)



Ground-mounted PV Plant PV + Energy Storage Power Plant



Gansu | PV 200MW ESS 80MWh





P100MW Ground-Mounted Project Module:DH144P8,



Rooftop Project Module: DH144N8,



Global Partners



HSBC



CONTACT US

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Guanlan Industrial District, Shenzhen,Guangdong

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