

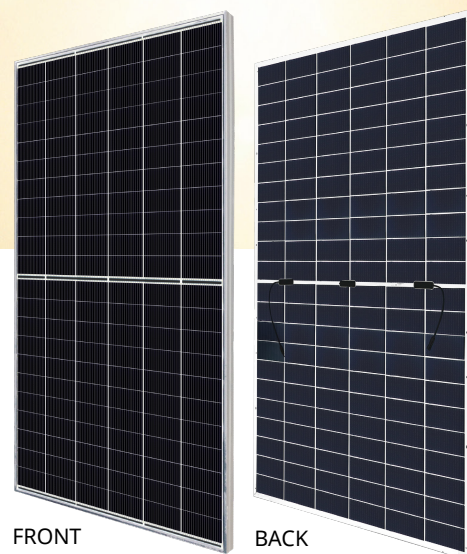


TOPBiHiKu7

N-type Bifacial TOPCon Technology

685 W ~ 715 W

CS7N-685 | 690 | 695 | 700 | 705 | 710 | 715TB-AG



MORE POWER



Module power up to 715 W
Module efficiency up to 23.0 %



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



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



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



Lower LCOE & system cost

MORE RELIABLE



Minimizes micro-crack impacts



Heavy snow load up to 5400 Pa,
wind load up to 2400 Pa*



**Enhanced Product Warranty on Materials
and Workmanship***



Linear Power Performance Warranty*

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

*According to the applicable Canadian Solar Limited Warranty Statement.

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



* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

CSI Solar Co., Ltd. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 22 years, it has successfully delivered over 110 GW of premium-quality solar modules across the world.

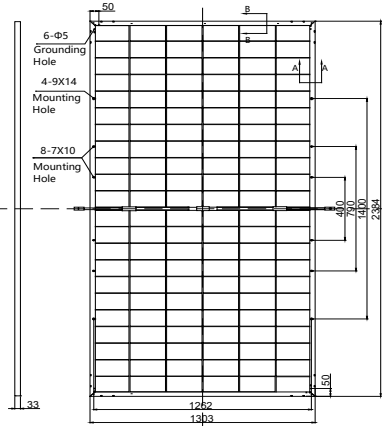
* For detailed information, please refer to the Installation Manual.

CSI Solar Co., Ltd.

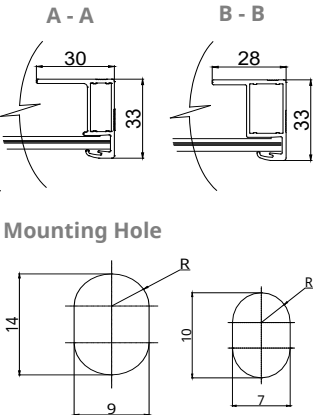
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

ENGINEERING DRAWING (mm)

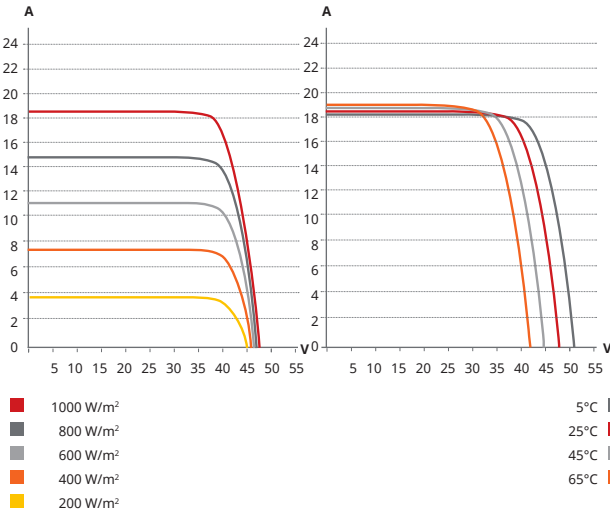
Rear View



Frame Cross Section



CS7N-695TB-AG / I-V CURVES



ELECTRICAL DATA | STC*

		Nominal Max. Power (Pmax)	Opt. Operating Voltage (Vmp)	Opt. Operating Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)	Module Efficiency
CS7N-685TB-AG		685 W	39.4 V	17.39 A	47.3 V	18.34 A	22.1%
	Bifacial Gain**	5%	719 W	39.4 V	18.26 A	19.26 A	23.1%
		10%	754 W	39.4 V	19.13 A	20.17 A	24.3%
		20%	822 W	39.4 V	20.87 A	22.01 A	26.5%
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	19.31 A	23.3%
		10%	759 W	39.6 V	19.17 A	20.23 A	24.4%
		20%	828 W	39.6 V	20.92 A	22.07 A	26.7%
CS7N-695TB-AG		695 W	39.8 V	17.47 A	47.7 V	18.44 A	22.4%
	Bifacial Gain**	5%	730 W	39.8 V	18.34 A	19.36 A	23.5%
		10%	765 W	39.8 V	19.22 A	20.28 A	24.6%
		20%	834 W	39.8 V	20.96 A	22.13 A	26.8%
CS7N-700TB-AG		700 W	40.0 V	17.51 A	47.9 V	18.49 A	22.5%
	Bifacial Gain**	5%	735 W	40.0 V	18.39 A	19.41 A	23.7%
		10%	770 W	40.0 V	19.26 A	20.34 A	24.8%
		20%	840 W	40.0 V	21.01 A	22.19 A	27.0%
CS7N-705TB-AG		705 W	40.2 V	17.55 A	48.1 V	18.54 A	22.7%
	Bifacial Gain**	5%	740 W	40.2 V	18.43 A	19.47 A	23.8%
		10%	776 W	40.2 V	19.31 A	20.39 A	25.0%
		20%	846 W	40.2 V	21.06 A	22.25 A	27.2%
CS7N-710TB-AG		710 W	40.4 V	17.59 A	48.3 V	18.59 A	22.9%
	Bifacial Gain**	5%	746 W	40.4 V	18.47 A	19.52 A	24.0%
		10%	781 W	40.4 V	19.35 A	20.45 A	25.1%
		20%	852 W	40.4 V	21.11 A	22.31 A	27.4%
CS7N-715TB-AG		715 W	40.6 V	17.63 A	48.5 V	18.64 A	23.0%
	Bifacial Gain**	5%	751 W	40.6 V	18.51 A	19.57 A	24.2%
		10%	787 W	40.6 V	19.39 A	20.50 A	25.3%
		20%	858 W	40.6 V	21.16 A	22.37 A	27.6%

* 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

Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1500 V (IEC/UL) or 1000 V (IEC/UL)
Module Fire Performance	TYPE 29 (UL 61730) or CLASS C (IEC61730)
Max. Series Fuse Rating	35 A
Application Classification	Class A
Power Tolerance	0 ~ + 10 W
Power Bifaciality*	80 %

* Power Bifaciality = $P_{max_{rear}} / P_{max_{front}}$, both $P_{max_{rear}}$ 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.

ELECTRICAL DATA | NMOT*

	Nominal Max. Power (Pmax)	Opt. Operating Voltage (Vmp)	Opt. Operating Current (Imp)	Open Circuit Voltage (Voc)	Short Circuit Current (Isc)
CS7N-685TB-AG	518 W	37.2 V	13.91 A	44.8 V	14.79 A
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

* 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 mm² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	410 mm (16.1 in) (+) / 250 mm (9.8 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.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.29 % / °C
Temperature Coefficient (Voc)	-0.25 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	41 $\pm$ 3°C

PARTNER SECTION



SOL-X

Utility Scale Single Axis Tracker

TRUE TERRAIN-FOLLOWING Single Axis Tracker.
The best-in-class single-axis tracker is supported by Polar Racking,
an industry leader in solar mounting solutions since 2009.

KEY PRODUCT BENEFITS



Flexibility & Adaptability

- Adaptable table lengths results in increased coverage of the site, increased system capacity, and more design



Superior True Terrain-Following

- Modular design accommodates slopes up to 30%



Pre-Assembly/Assembly Efficiencies

- Light-weight components require no heavy or specialized equipment to handle
- Fewest components out of all trackers on the market
- Fewer electrical components are required due to long rows of up to 180 modules
- Reduced labor through simple design that allows pre-assembly



**SOL-X T-Assembly
Ready to Ship!**



Advanced Tracking Algorithm

- 3D Backtracking
- Hail Protection Strategy
- Overcast strategy
- iStow



Simple Design, High Impact

- Higher density, longer rows, and minimal gaps
- Independent rows reduces O&M cost
- Compatible with all foundation types: Driven Posts or I-Beams, Groundscrews, Helicals, and Ballasted
- No dampeners required, eliminating a high risk failure point
- Less steel required because of reduced module loads and no torsional dynamic forces
- Easy to install driveshaft design



Bankability

- Bankability report is complete by third part and available upon request



Quality and Lifetime Value

- Every component has been tested in rigorous automotive testing standard
- Certified to UL 2703 and UL 3703 standards



Suitable for Agrivoltaics



GENERAL AND MECHANICAL

ROW LENGTH	Up to 180 individual 72-cell modules driven per controller/motor
TABLE LENGTH	6-24 modules per independent table connected by a driveshaft
DRIVE UNIT	Rugged design for 30-year field life in harsh environmental climates
TERRAIN FOLLOWING	Accommodates slopes up to 30% Up to +/- 10% grade within every table, limited to 8% grade change between tables
WIND SPEED DESIGN	Wind speed fully configurable, up to 150 mph (240 kmh), 3-second gust per ASCE7-10
ROTATIONAL RANGE (EAST / WEST)	60 degrees - 60 degrees
GROUND COVERAGE RATIO	Fully configurable by customer, typically between 0.20-0.65
DC CAPACITY	Up to 90kWp per tracker row
CODES AND STANDARDS	ETL certified, UL 3703, UL 2703 & ULC ORD 1703 (mechanical, electrical)
SENSORS	Wind Sensor and Snow sensor to protect the tracker
SYSTEM VOLTAGE	Compatible with 1,000V and 1,500V module circuits
MODULE ATTACHMENT	UL-listed top clamps and direct bolts, compatible with all module types
BIFACIAL FEATURES	High-rise module mounting rails
MATERIALS	Galvanized steel G90-G245
FOUNDATIONS	• Driven Piles • Ground Screws • Helical Piles • Ballast Options
POSTS PER TABLE AND MODULE	Up to 3 posts per table Up to 3 posts per 24 modules
WARRANTY	20 years for structural components • 10 years for drive unit • 5 years for motor and controller • Additional coverage available

ELECTRICAL AND CONTROLS

SYSTEM	Compatible with 1,000V and 1,500V module circuits
CONTROLLER	Self-powered with battery backup AC-powered 115V-240V
OPERATING TEMPERATURE	AC power: -40°C to +70°C (-40°F to +158°F) Self power: -30 C to +50 C (-22 F to +122 F)
TRACKING METHOD	Time and location-based algorithm with backtracking
REMOTE COMMUNICATION	Secure monitoring and control tracker array in real-time via an encrypted cloud portal and compatible with SCADA solution available
MOTOR TYPE	24V DC motor
COMMUNICATION	Zigbee wireless communications to all tracker rows and weather stations through network control unit
ADVANCED ALGORITHM	Severe Weather Protection System, 3D Backtracking, Overcast, iStow and Agrivoltaics stow strategies

SERVICES

INSTALLATION	Available upon request
GEOTECHNICAL AND FOUNDATION DESIGN	PE and P. Eng stamped Available upon request
DESIGN AND ENGINEERING	Complimentary site layouts Sealed and stamped structural engineering drawings (Canada, USA, and Caribbean)
CONSTRUCTION SUPPORT	Complimentary on-site installation training and commissioning

This document does not create any express warranty by Polar Racking or about its products or services. Polar Racking's sole warranty is contained in the written product manual for each product. The end-user documentation shipped with Polar Racking's products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of Polar Racking's product for each use. Subject to change without notice. Last updated in September 2024.

250 kW-600 V, 1500 Vdc String Inverters for North America



CPS SCH250K-T-US-600

The new CPS 250 kW-600 V three-phase string inverters are designed for ground mount applications. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.83% peak and 98.4% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 250 kW-600 V products ship with the Distributed or Centralized Wire Box, each fully integrated and separable with AC and DC disconnect switches. Enhanced DC wire boxes allow DC disconnection under short circuit conditions. The CPS FlexOM Gateway enables communication, controls, and remote product upgrades.

Key Features

- NFPA 70 and NEC compliant
- Touch-safe DC Fuse holders add convenience and safety
- CPS FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- Enhanced DC wire boxes
- Copper- and aluminum-compatible AC connections
- NEMA Type 4X outdoor rated enclosure
- Advanced Smart-Grid features
- kVA headroom yields 250 kW @ 0.95 PF
- 1.7 DC/AC inverter load ratios
- Separable wire box design for fast service
- Distributed or Centralized wire box options



250 kW-600 V Distributed Wire Box



250 kW-600 V Centralized Wire Box

Model Name	CPS SCH250K-T-US-600
DC Input	
Max. PV power	425 kW
Max. DC input voltage	1500 V
Operating DC input voltage range	860-1450 Vdc
Start-up DC input voltage / power	900 V / 250 W
Number of MPP trackers	1
MPPT voltage range for P _{nom} ¹	900-1300 Vdc
Max. PV input current ²	450 A
Number of DC inputs	Distributed Wire Box: 30 PV source circuits, fused Centralized Wire Box: 1 input circuit, 1-2 terminations per pole, non-fused
DC disconnection type	Distributed Wire box: Load-rated DC switches Centralized Wire Box: DC breaker
DC surge protection	Type II MOV
AC Output	
Rated AC output power	250 kW
Max. AC apparent power (selectable ³)	250 kVA / 264 kVA (@ PF >0.95)
Rated output voltage	600 Vac
Output voltage range ⁴	528-660 Vac
Grid connection type ⁵	3Φ / PE / N (neutral optional)
Max. AC output current @ 600 Vac	241 A (@ 250 kVA) / 254 A (@ 264 kVA)
Rated output frequency	60 Hz
Output frequency range ⁴	57-63 Hz
Power factor	>0.99 (±0.8 adjustable)
Current TRD	< 3%
Max. OCPD rating	400 A
AC disconnection type	Load-rated AC switch
AC surge protection	Type II MOV
System	
Topology	Transformerless
Max. efficiency	98.83%
CEC efficiency	98.4%
Standby / night consumption	< 30 W
Environment	
Enclosure protection degree	NEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range	-22°F to 140°F / -30°C to 60°C (derating from 108°F / 42°C)
Non-operating temperature range ⁶	-40°F to 158°F / -40°C to 70°C
Operating humidity	0-95%
Operating altitude	6562 ft / 2000 m (no derating)
Audible noise	< 80 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LED indicators; Bluetooth and app
Inverter monitoring	Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	SunSpec / CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (W × H × D)	Powerhead: 28.46 × 33 × 13.98 in (723 × 840 × 355 mm) Wire Box: 23.11 × 33 × 13.98 in (587 × 840 × 355 mm)
Weight (approximate)	Powerhead: 175 lb (79.5 kg) Wire Box: 106 lb (48 kg)
Mounting / installation angle	Vertical
AC termination	M12 stud type terminal [3Φ] (wire range: 500 kcmil-750 kcmil CU/AL; lugs not supplied) Screw clamp terminal block [N] (#12-1/0 AWG CU/AL)
DC termination	Distributed Wire Box: Screw clamp fuse holder (wire range: #14-#8 AWG CU) Centralized Wire Box: Busbar (<600 kcmil CU/AL [2 terminations per pole]; lugs not supplied)
Fused string inputs	Distributed Wire Boxes: 30 A fuses provided (fuse values up to 35 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC Part 15
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018, CA Rule 21, ISO-NE
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Vol-Watt
Warranty	
Standard	5 years
Extended terms	10, 15, and 20 years

1) See user manual for further information regarding MPPT voltage range when operating at non-unity PF.

2) The sum of parallel-connected PV module short-circuit currents.

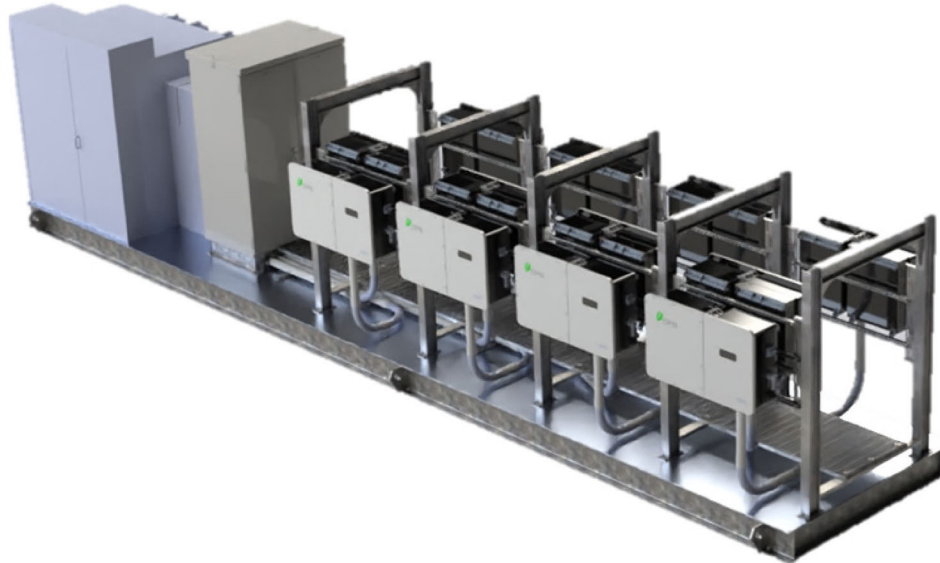
3) Inverter is factory set to 250 kVA by default. Contact CPS to enable the 264 kVA setting.

4) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.

5) Delta configurations must not be corner-grounded.

6) See user manual for further requirements regarding non-operating conditions.

Skidded String MV Station



The CPS skidded string medium voltage station combines the strengths of string inverters with the efficiency of a centralized layout, optimizing energy production and control granularity. This high performance, pre-integrated system is not only designed for reliability, but additionally reduces on-site labor, shortens installation time, and lowers total project costs. The station can support up to twelve (12) CPS 250 kW-600 V inverters on a single steel skid and is compatible with DC combiners and/or trunk-bus cabling for design flexibility.

Key Features

- Offers 2.5 MW and 3 MW options to maximize power density and ease of deployment
- Separable powerhead wire box design to reduce O&M time and improve serviceability
- Fully integrated plug-and-play solution to simplify procurement and installation
- Includes MV transformer and 600 V switchboard
- US-made skid materials and transformer options available

Product	CPS 2.5/3 MW Skidded String MV Station	
DC Input		
Max. DC voltage	1500 V	
MMPT voltage range	860-1450 V	
No. of MPPTs per inverter	1	
Max. PV short-circuit current	450 A per inverter	
DC inputs	10	12
AC Output		
AC output power	2500 kW @ 107.6°F (42°C)	3000 kW @ 107.6°F (42°C)
Max. AC apparent power output (selectable) ¹	2500 kVA / 2640 kVA @ 107.6°F (42°C)	3000 kVA / 3168 kVA @ 107.6°F (42°C)
Rated output frequency	60 Hz	
Output frequency range	57-63 Hz	
Power factor	> 0.99 (±0.8 adjustable)	
Current TRD (inverter)	< 3%	
Max. efficiency (inverter)	98.83%	
CEC efficiency (inverter)	98.4%	
Transformer		
Transformer rated power	2700 kVA	3300 kVA
High voltage	12.47-34.5 kV	
Low voltage	600 V	
Transformer vector	Dy1 (optional: YNyn0, Yd1)	
Transformer cooling methods	KNAN	
General Data		
Max. operating altitude	3280.8 ft / 1000 m (standard)	
Anti-PID	Standard	

1) Each inverter is factory set to 250 kVA by default. Contact CPS to enable the 264 kVA setting.