

Vertex N

N-type i-TOPCon bifacial dual glass
Monocrystalline module

PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W

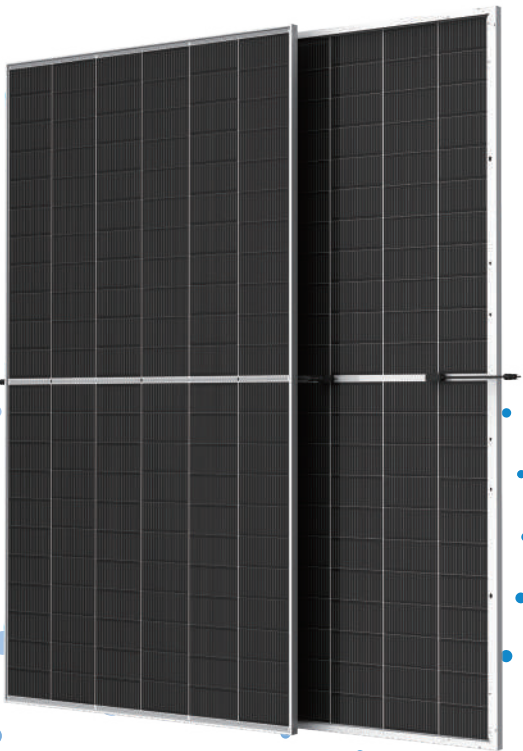
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

23.2%

MAXIMUM EFFICIENCY



High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE



High power up to 720W

- Up to 23.2% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

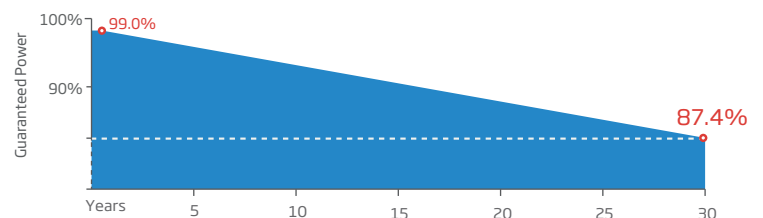
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



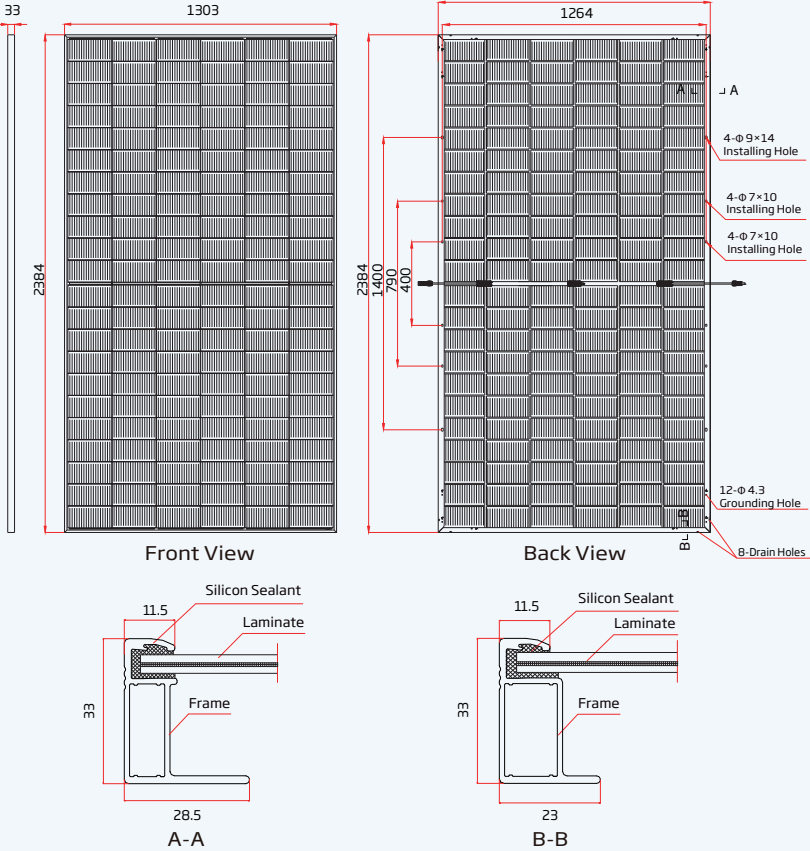
Comprehensive Products and System Certificates



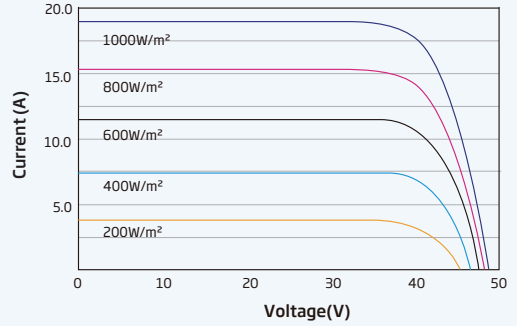
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
ISO14067: Product Carbon Footprint Limited Assurance

Trinasolar

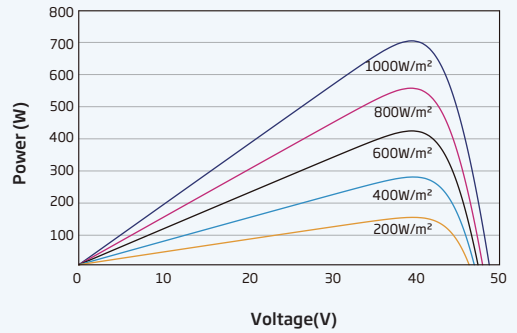
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(705 W)



P-V CURVES OF PV MODULE(705 W)



MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 inches)
Weight	38.3 kg (84.4 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)

Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 Plus / TS4*

*Please refer to regional datasheet for specified connector.

ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts -P _{MAX} (Wp)*	695	531	700	534	705	540	710	543	715	547	720	551
Power Tolerance-P _{MAX} (W)	0 ~ +5											
Maximum Power Voltage-V _{MPP} (V)	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5	41.1	38.7	41.3	38.8
Maximum Power Current-I _{MPP} (A)	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12	17.40	14.14	17.44	14.19
Open Circuit Voltage-V _{OC} (V)	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5	49.2	46.7	49.4	46.9
Short Circuit Current-I _{SC} (A)	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83	18.44	14.86	18.49	14.90
Module Efficiency η _m (%)	22.4		22.5		22.7		22.9		23.0		23.2	

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Total Equivalent power -P _{MAX} (Wp)	730	765	735	770	740	776	746	781	751	787	756	792
Maximum Power Voltage-V _{MPP} (V)	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9	41.1	41.1	41.3	41.3
Maximum Power Current-I _{MPP} (A)	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10	18.27	19.14	18.31	19.18
Open Circuit Voltage-V _{OC} (V)	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0	49.2	49.2	49.4	49.4
Short Circuit Current-I _{SC} (A)	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24	19.36	20.28	19.41	20.34

Power Bifaciality: 80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P _{MAX}	-0.29%/°C
Temperature Coefficient of V _{OC}	-0.24%/°C
Temperature Coefficient of I _{SC}	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40 ~ +85° C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	35A

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.40% Annual Power Attenuation
(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 33 pieces
Modules per 40' container: 594 pieces

Single Phase Hybrid Inverter

SUN-7/7.6/8/10K-SG05LP1-EU-SM2



Colorful touch LCD, IP65 protection degree



AC couple to retrofit existing solar system



Max. 16 pcs parallel for on-grid and off-grid operation; Support multiple batteries parallel



Max. charging/discharging current of 210A



6 time periods for battery charging/discharging



Support storing energy from diesel generator

Deye

Stock Code: 605117.SH

Model	SUN-7K-SG05LP1 -EU-SM2	SUN-7.6K-SG05LP1 -EU-SM2	SUN-8K-SG05LP1 -EU-SM2	SUN-10K-SG05LP1 -EU-SM2
Battery Input Data				
Battery Type	Lead-acid or Lithium-ion			
Battery Voltage Range (V)	40-60			
Max. Charging Current (A)	175	190	190	210
Max. Discharging Current (A)	175	190	190	210
Charging Strategy for Li-ion Battery	Self-adaption to BMS			
Number of Battery Input	1			
PV String Input Data				
Max. PV Access Power (W)	14000	15200	16000	20000
Max. PV Input Power (W)	11200	12160	12800	16000
Max. PV Input Voltage (V)	500			
Start-up Voltage (V)	125			
MPPT Voltage Range (V)	150-425			
Rated PV Input Voltage (V)	370			
Max. Operating PV Input Current (A)	26+26			
Max. Input Short-Circuit Current (A)	34+34			
No. of MPP Trackers/ No. of Strings MPP Tracker	2/2+2			
AC Input/Output Data				
Rated AC Input/Output Active Power (W)	7000	7600	8000	10000
Max. AC Input/Output Apparent Power (VA)	7700	8360	8800	11000
Rated AC Input/Output Current (A)	31.9/30.5	34.6/33.1	36.4/34.8	45.5/43.5
Max. AC Input/Output Current (A)	35/33.5	38/36.4	40/38.3	50/47.9
Max. Continuous AC Passthrough (grid to load) (A)	50			
Peak Power (off-grid) (W)	2 times of rated power, 10s			
Power Factor Adjustment Range	0.8 leading to 0.8 lagging			
Rated Input/Output Voltage/Range (V)	220/230 0.85Un-1.1Un			
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55, 60/55-65			
Grid Connection Form	L+N+PE			
Total Current Harmonic Distortion THDi	<3% (of nominal power)			
DC Injection Current	<0.5% In			
Efficiency				
Max. Efficiency	97.6%			
Euro Efficiency	96.5%			
MPPT Efficiency	>99%			
Equipment Protection				
Integrated	DC Reverse Polarity Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Arc Fault Circuit Interrupter (optional), Anti-islanding Protection, DC Switch, Insulation Impedance Detection, Residual Current Detection			
Surge Protection Level	TYPE II(DC), TYPE II(AC)			
Interface				
Communication Interface	RS485/RS232/CAN			
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN(optional)			
General Data				
Operating Temperature Range (°C)	-40 to +60°C, >45°C Derating			
Permissible Ambient Humidity	0-100%			
Permissible Altitude	2000m			
Noise (dB)	<45			
Ingress Protection(IP) Rating	IP 65			
Inverter Topology	Non-Isolated			
Over Voltage Category	OVC II(DC), OVC III(AC)			
Cabinet Size (WxHxD mm)	366×589.5×237 (Excluding Connectors and Brackets)			
Weight (kg)	26.8			
Type of Cooling	Intelligent Air Cooling			
Warranty	5 Years/10 Years the Warranty Period Depends the Final Installation Site of Inverter, More Info Please Refer to Warranty Policy			
Grid Regulation	IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 217002, OVE-Richtlinie R25, G99, VDE-AR-N 4105			
Safety / EMC Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2			

VERTICAL TYPE LIFEPO4 BATTERIES

Low-Voltage Series Lithium Battery Modules

Product introduction >>

The product adopts stand type design, beautiful shape, and convenient movement; including the mainstream market inverter protocol, directly communicates; adopts a comprehensive and multi-level battery protection strategy and fault isolation measures to ensure the safe operation of the system. Widely used in small commercial and family energy storage.

-  Stand design, safe and stable.
-  Hidden wiring, beautiful design.
-  Standard LCD display screen, to understand battery status in real time, and directly select the inverter communication protocol on the screen.
-  Environmentally friendly and pollution-free materials, no heavy metals, green and environmentally friendly.
-  Standard cycle life over 5,000 times.





Product parameter >>

Model	P48-280H	P48-300H	P51.2-280H	51.2-300H
Nominal volt (V)	48		51.2	
Cell specification (Ah)	280	314	280	314
Nominal capacity (Ah)	280	314	280	314
Working volt range	42~54.75		44.8~58.4	
Recommended charging volt (V)	51.75		55.2	
Recommended discharging cut-off volt (V)	45		48	
Standard charging current (A)	100			
Maximum continuous charging current(A)	150			
Standard discharging current (A)	100			
Maximum discharging current (A)	150			
Proper temperature (°C)	-30 ~ 60 (Recommended 10 ~ 35)			
Allowable humidity range (%RH)	85			
Storage temperature (°C)	-20 ~ 65 (Recommended 10 ~ 35)			
Protection level	IP20			
Cooling method	Natural air cooling			
Maximum size (D*W*H) mm	246*480*990			
Net weight (kg)	138.5	142.5	141	145

Note: The above data is for reference and subject to change without prior notice. Communicate with engineers for special customization requirements.