



NX HORIZON TRACKER

GENERAL AND MECHANICAL	
Tracking type	Horizontal single-axis, independent row.
String voltage	1,500 V <sub>oc</sub> or 1,000 V <sub>oc</sub>
Typical row size	78-90 modules, depending on module string length.
Drive type	Non-backdriving, high accuracy slow gear.
Motor type	24 V brushless DC motor
Array height	Rotation axis elevation 1.3 to 1.8 m / 4'3" to 5'10"
Ground coverage ratio (GCR)	Configurable. Typical range 28-50%.
Modules supported	Mounting options available for virtually all utility-scale crystalline modules, First Solar Series 6 and First Solar Series 4.
Bifacial features	High-rise mounting rails, bearing + driveline gaps and round torque tube.
Tracking range of motion	Options for ±60° or ±50°
Operating temperature range	SELF POWERED: -30°C to 55°C (-22°F to 131°F) AC POWERED: -40°C to 55°C (-40°F to 131°F)
Module configuration	1 in portrait, 3 x 1,500 V or 4 x 1,000 V strings per standard tracker. Partial length trackers available.
Module attachment	Self-grounding, electric tool-actuated fasteners.
Materials	Galvanized steel
Allowable wind speed	Configurable up to 225 kph (140 mph) 3-second gust
Wind protection	Intelligent wind stowing with symmetric dampers for maximum array stability in all wind conditions
Foundations	Standard W6 section foundation posts

ELECTRONICS AND CONTROLS	
Solar tracking method	Astronomical algorithm with backtracking. TrueCapture™ upgrades available for terrain adaptive backtracking and diffuse tracking mode
Control electronics	NX tracker controller with inbuilt inclinometer and backup battery
Communications	Zigbee wireless communications to all tracker rows and weather stations via network control units (NCUs)
Nighttime stow	Yes
Power supply	SELF POWERED: NX provided 30 or 60W Smart Panel AC POWERED: Customer-provided 120-240 V <sub>ac</sub> circuit

INSTALLATION, OPERATIONS AND SERVICE	
PE stamped structural calculations and drawings	Included
Onsite training and system commissioning	Included
Installation requirements	Simple assembly using swaged fasteners and bolted connections. No field cutting, drilling or welding.
Monitoring	NX Data Hub™ centralized data aggregation and monitoring
Module cleaning compatibility	Compatible with NX qualified cleaning systems
Warranty	10-year structural, 5-year drive and control components.
Codes and standards	UL 3703 / UL 2703 / IEC 62817

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**COMUNE DI OZIERI**

OGGETTO  
**REALIZZAZIONE DI IMPIANTO FOTOVOLTAICO A TERRA 22,96 MW - TIPO A INSEGUIMENTO MONOASSIALE**

COMMITTENTE  
SUN INVESTMENT

**PROGETTO DEFINITIVO**

ELABORATO  
**DETTAGLI COSTRUTTIVI - STRUTTURA FOTOVOLTAICA**

NUMERO ELABORATO  
**AU 09**

SCALA: VARIE  
DATA: MARZO 2022

3	Terza emissione				
2	Seconda emissione				
1	Prima emissione	Arch. Chiara Martis	Arch. Valentina Madeddu	Ing. S. Floris	
REV.	DATA	DESCRIZIONE	REDATTO	CONTROLLATO	APPROVATO

CODICE COMMESSA	NOME FILE	FASE PROGETTUALE	CATEGORIA	REV.
		PRE	IMPIANTI	00

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PROGETTISTA - TIMBRO E FIRMA

ORDINE INGEGNERI  
PROVINCIA DI CAGLIARI  
N. 5777  
Dott. Ing. STEFANO FLORIS

PROGETTISTA - TIMBRO E FIRMA

**BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE**

PRODUCT: TSM-DEG21C.20  
POWER RANGE: 640-665W

**665W** MAXIMUM POWER OUTPUT    **0~+5W** POSITIVE POWER TOLERANCE    **21.4%** MAXIMUM EFFICIENCY

**High customer value**

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- Lowest guaranteed first year and annual degradation;
- Designed for compatibility with existing mainstream system components

**High power up to 665W**

- Up to 21.4% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection

**High reliability**

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load

**High energy yield**

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.34%) and operating temperature
- Up to 25% additional power gain from back side depending on albedo

**Trina Solar's Vertex Bifacial Dual Glass Performance Warranty**

**Comprehensive Products and System Certificates**

Trinasolar logo

**DIMENSIONS OF PV MODULE (mm)**

**FRONT VIEW**    **BACK VIEW**

**A-A**    **B-B**

**I-V CURVES OF PV MODULE (645 W)**

**P-V CURVES OF PV MODULE (645 W)**

**I-V CURVES OF PV MODULE (645 W)**

**CRITICAL DATA (STC)**

Max Power Watts - P <sub>max</sub> (Wp)*	640	645	650	655	660	665
Power Tolerance - P <sub>max</sub> (W)	0 ~ +5					
Maximum Power Voltage - V <sub>mp</sub> (V)	37.3	37.5	37.7	37.9	38.1	38.3
Maximum Power Current - I <sub>mp</sub> (A)	17.19	17.23	17.27	17.31	17.35	17.39
Open Circuit Voltage - V <sub>oc</sub> (V)	45.1	45.3	45.5	45.7	45.9	46.1
Short Circuit Current - I <sub>sc</sub> (A)	18.26	18.31	18.35	18.40	18.45	18.50
Module Efficiency - η <sub>m</sub> (%)	20.6	20.8	20.9	21.1	21.2	21.4

**CRITICAL DATA (NOCT)**

Maximum Power - P <sub>max</sub> (Wp)	484	488	492	495	499	504
Maximum Power Voltage - V <sub>mp</sub> (V)	34.7	34.9	35.1	35.2	35.4	35.6
Maximum Power Current - I <sub>mp</sub> (A)	13.94	13.98	14.01	14.05	14.10	14.16
Open Circuit Voltage - V <sub>oc</sub> (V)	42.5	42.7	42.9	43.0	43.2	43.4
Short Circuit Current - I <sub>sc</sub> (A)	14.71	14.75	14.79	14.83	14.87	14.91

\* Irradiance at 1000W/m², Cell Temperature 25°C, Air Mass AM1.5, Maximum Power Tolerance ±0.5%

**MECHANICAL DATA**

Parameter	Value
Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384 x 1303 x 35 mm (93.86 x 51.30 x 1.38 inches)
Weight	38.7 kg (85.3 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, All Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
Frame	35mm (1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²), Portrait: 280/280 mm (11.02/11.02 inches), Length can be customized
Connector	MCA EVQ2 / TS4*

\*Please refer to regional database for specified connector.

**TEMPERATURE RATINGS**

Parameter	Value	MAXIMUM RATINGS	
NOCT (Nominal Operating Cell Temperature)	43°C (12°C)	Operational Temperature	-40 ~ +85°C
Temperature Coefficient of P <sub>max</sub>	-0.34%/°C	Maximum System Voltage	1500V DC (IEC)
Temperature Coefficient of V <sub>oc</sub>	-0.25%/°C	Maximum System Voltage	1500V DC (UL)
Temperature Coefficient of I <sub>sc</sub>	0.04%/°C	Max Series Fuse Rating	35A

**WARRANTY**

Warranty Type	Duration
12 year Product Workmanship Warranty	12 years
30 year Power Warranty	30 years
2% first year degradation	2%
0.45% Annual Power Attenuation	0.45%

\*Please refer to product warranty for details.

**PACKAGING CONFIGURATION**

Configuration	Quantity
Modules per box	31 pieces
Modules per 40' container	558 pieces

SCHEDE TECNICHE - PANNELLO FOTOVOLTAICO

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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