

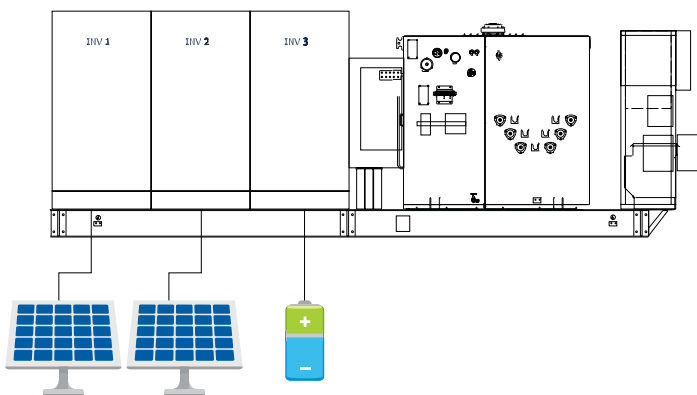
# Solar Ware Ninja™

**TMEiC**  
We drive industry

## Multiple Configurations for Maximum Flexibility

TMEiC's Solar Ware Ninja is the latest evolution of the highly successful Solar Ware family of inverters, joining over 14GW of TMEiC's globally installed photovoltaic inverters. Continuing the legacy of high efficiency, cutting-edge features, and unmatched reliability, the new Ninja modular inverter system is the culmination of input from utilities, developers, and technicians.

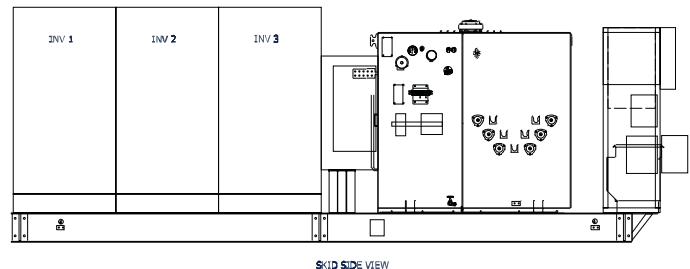
The Ninja is a global product, performing the duties of both generation and energy storage. The modular system introduces multiple layers of flexibility to allow designers an almost unlimited number of options for every project. The advanced controls system is packed with features to meet not only today's smart inverter requirements, but also new requirements as they are introduced. Like the award-winning Samurai series of inverters, the Ninja utilizes the same highly reliable IGBT based power conversion system.



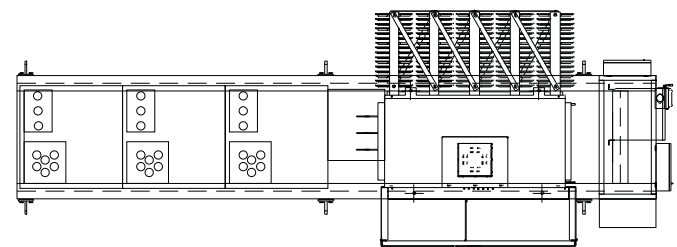
### Customizable Block

Up to 6 Ninja units on the same skid. Able to combine PV and ESS inverters in the same lineup. A skid controller will manage output of the Ninja power station.

- Fully Modular design means:
  - Completely independent inverters for increased availability
  - Individual MPPT for greater energy yield
  - Latest generation of Smart Inverter controls platform
  - Multiple output options with various MPPT ranges
- DC Zone monitoring is standard
- UL or IEC certified global design
- PV or Energy Storage (bi-directional)
- Outdoor rated enclosure



SKID SIDE VIEW



PLAN VIEW PRELIMINARY CONCEPT

### TMEiC is Bankable

- Stable, with multi billion \$USD revenue
- Diversified, with decades of power electronics experience in a variety of heavy industries, including metals, oil & gas, mining, and container cranes industries
- Manufacturing in the US and several other locations

### TMEiC is Reliable

- Over 14GW of PV and ESS inverters globally
- Own exclusive use of Mitsubishi Electric's 3 level NPS technology
- Industry leading fleet availability

### TMEiC is Support

- Award winning service
- 24/7 US based hot line
- Over 30 years PV inverter manufacturing and R&D experience
- Comprehensive customer training programs
- Authorized Service Provider program available

# Solar Ware Ninja™

		PV-PCS			
Type		PVU-L0800GR	PVU-L0840GR	PVU-L0880GR	PVU-L0920GR
Output side (AC)	Rated Power@25°C	800kW	840kW	880kW	920kW
	Rated Power@50°C	730kW	765kW	800kW	840kW
	Rated Voltage	600V +10%, -12%	630V +10%, -12%	660V +10%, -12%	690V +10%, -12%
	Rated Frequency	50Hz / 60Hz (+0.5Hz, -0.7Hz)			
	Rated Power Factor	>0.99			
	Reactive Capability	+/- 421 kVAR	+/- 442 kVAR	+/- 464 kVAR	+/- 485 kVAR
	Rated Current	702 Arms @50 °C			
	Maximum Current	770 Arms @25 °C			
	Maximum Efficiency	98.9% *Tentative			
	CEC Efficiency	98.5% *Tentative			
Input side (DC)	Maximum Voltage	1500 Vdc			
	MPPT Operation Range	875-1300VDC	915-1300VDC	960-1300VDC	1005-1300VDC
Environ. Conditions	Ingress Protection Ratings	IP54 / NEMA3R			
	Installation	Outdoor			
	Ambient Temperature Range	-25° to 50°C			
	Maximum Altitude	>2000 m power derating (Max. 4000m)			
Protective Functions	Input (DC) Side	DC Protection: Fuses Ground Fault, DC Reverse Current, Over Voltage, Over Current			
	Grid (AC) Side	AC Protection: MCCB and Fuse Anti-islanding, Over/Under Voltage, Over/Under Frequency, Over Current			
	Grid Assistance	Reactive/Active Power Control, Power Factor Control, Fault Ride Through (optional)			
Harmonic Distortion of AC Current		≤ 3% THD (at rated power)			
Communication		Modbus/TCP			
Fault Analysis		Fault Event Log, Waveform Acquisition via memory card			
Compliance		UL1741, UL1745A / IEEE1547 / NEC2017 / IEC62109-1,2 / IEC61000-6-2,4 / IEC61727, IEC62116 / IEC61400, BDEW / IEC61683 / IEC60068 *Tentative			
Cooling Method		Forced Air Cooling			
Number of Inputs		Standard 6 inputs for PV (maximum 8 per inverter)			
Standard Control Power Supply		Control Power Supply from Inverter output and Capacitor backup circuit (3 sec. compensation)			
Weight		<1000kgs *Tentative			
Dimensions (H x W x D)		1100 X 1100 X 1900 mm (L x W x H)			
Floor Space		1875.5 sq. in. (1.21 m <sup>2</sup> )			
Color		Cabinet: Sand White #Dic583			

[WWW.TMEIC.COM](http://WWW.TMEIC.COM)





nexttracker™

**NX Horizon™**





NX Horizon™ is the world's most chosen solar tracker system for utility-scale power plants, deployed and contracted on over 75 gigawatts of solar power plants globally as of March 2023. NX Horizon's unrivaled combination of integrated hardware and software has become the gold standard for the utility-scale solar industry, thanks to its robust design, ease of installation, field-proven weather durability, and LCOE-optimized performance.

## Pioneering independent-row technology

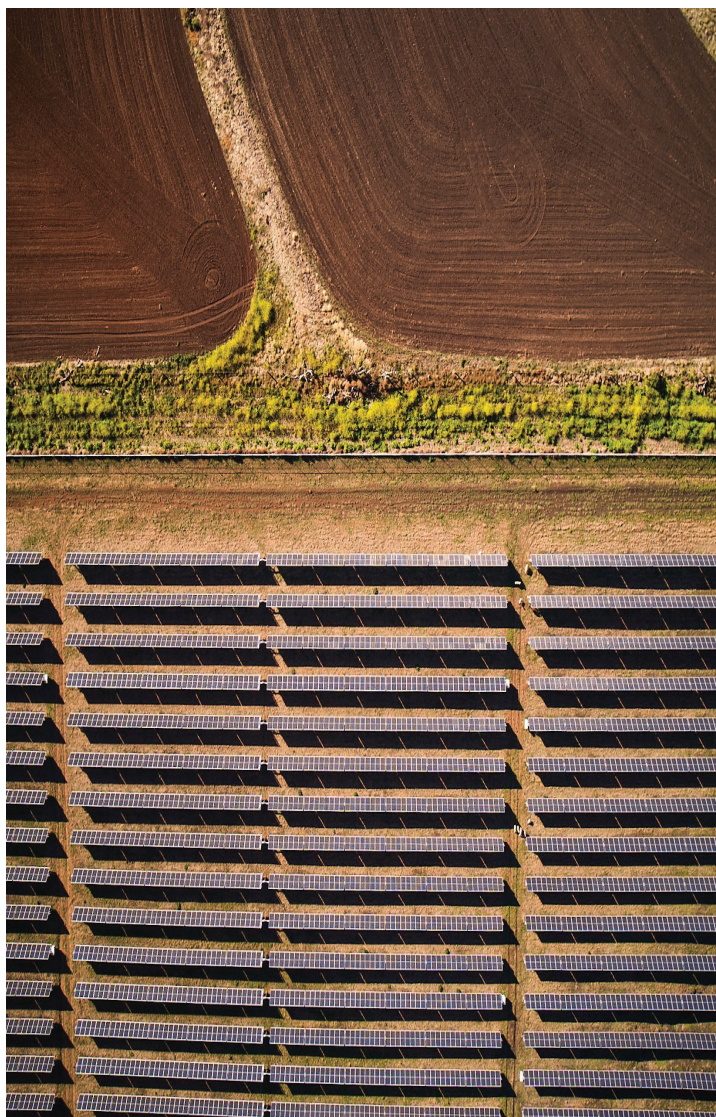
NX Horizon's patented independent row, self-powered tracking system provides reliable performance across the widest possible range of site conditions. Simple, robust hardware, including self-aligning module rails and vibration-proof fasteners, enables rapid installation and long life without maintenance. Mechanically balanced rows minimize tracking power

requirements and pair with a time-proven, rugged drive & control system for maximum durability and uptime. NX Horizon's decentralized architecture with intelligent communications supports maximum layout adaptability, flexible construction and commissioning sequencing, advanced tracker functionality, and over-the-air updates.



## Proven resilience

NX Horizon is designed to withstand extreme weather events, proven season after season across hundreds of systems around the world. Through Nextracker's in-house project-engineering services, NX Horizon is configured and optimized to suit the unique combination of severe weather hazards and climate for each project site. Based on the industry's most comprehensive wind analysis and field testing, NX Horizon is hardened against wind-related failures by robust structural design, an optimized damping system, and advanced stowing functionality. Furthermore, the combination of balanced, independent self-powered rows with integrated UPS, 60° stowing angle, and available smart software enables rapid hail-stow protection to maximize panel survivability, even in the event of a grid outage. NX Horizon is inherently tolerant of flooding with drive and control components 4-5' above grade and available flood stowing functions to protect panels.



## Features and Benefits

**7 years** in a row

Global Market Share Leader

**75** GW

Delivered on 6 Continents

**Best-in Class**

Software Ecosystem and  
Global Services

**Up to 6%** more energy

Using TrueCapture™  
Smart Control System

## Optimized for the lowest LCOE

Compared with conventional tracking systems, NX Horizon delivers Levelized Cost of Energy (LCOE) reductions of up to 7% by maximizing energy generation and solving for the lowest possible project CAPEX and OPEX. With pre-assembled components, no drive linkages, no AC wiring, self-aligning rails, and available XTR terrain following upgrades, NX Horizon is fundamentally faster to install, requiring less construction labor, less grading, and less total project capital cost. Projects using NX Horizon enjoy open-row access for maximum vegetation management and panel cleaning efficiency. Compared with linked row systems, NX Horizon cuts mowing costs by up to 55% and cleaning costs by up to 73%, reducing total project operations costs.

Lastly, but crucially for project returns, NX Horizon boosts project energy generation and revenue with its unique bifacial-optimized design as standard, and available IE-validated, 38GW proven TrueCapture Smart Control System with diffuse mode and row to row optimization functions.

GENERAL AND MECHANICAL	
Architecture	Horizontal single-axis, independent row, independently balanced
Configuration	1x module in portrait
Tracking range of motion	Options for $\pm 60^\circ$ or $\pm 50^\circ$
Row Size	Configurable per module type, string length and site layout
Array Height	Rotation axis elevation, 1.3 to 1.8 m / 4'3" to 5'10"
Drive type	High accuracy slew gear
Modules supported	All utility-scale crystalline and thin-film modules
Bifacial optimization	High-rise mounting rails, bearing & driveline gaps, round torque tube
Structural connections	Engineered fastening system, vibration-proof
Materials	Galvanized steel; other coatings available
Foundations	Complete range of foundation solutions available
Slope	Up to 15% N-S and 15% E-W
Ground coverage ratio (GCR)	No specific limit Typical range 25-45%
Operating temperature range	SELF POWERED: $-30^\circ\text{C}$ to $55^\circ\text{C}$ ( $-22^\circ\text{F}$ to $131^\circ\text{F}$ ) AC POWERED: $-40^\circ\text{C}$ to $55^\circ\text{C}$ ( $-40^\circ\text{F}$ to $131^\circ\text{F}$ )
Wind speed	Configurable up to 240 kph (150 mph) 10m, 3-second gust
Wind protection	Intelligent wind stowing with symmetric damping system

ELECTRONICS AND CONTROLS	
Solar tracking method	Astronomical algorithm with backtracking standard. TrueCapture™ upgrades available for enhanced energy yield
Tracker controller	Self-Powered Controller (SPC) with integrated inclinometer and UPS
Motor	Brushless DC
Power supply	SELF POWERED: Standalone smart solar power AC POWERED: Customer-provided 120-277 VAC circuit
Communications	Network control units (NCUs) at inverter pads/skids, self-powered weather stations, centralized data hub, encrypted Zigbee wireless mesh communications
Defensive stowing functions	Wind, hail, hurricane, snow, flood, loss of grid power
Operator interface	NX Navigator advanced HMI available, with SCADA integration

SERVICE, WARRANTY, AND STANDARDS	
Tracker engineering & PE stamped design package	Standard
Foundation engineering & PE stamped design package	Available
Onsite construction support & commissioning service	Available
Warranty	10-year structural, 5-year drive and controls standard; extended warranty available
Certifications	UL 2703, UL 3703, IEC 62817, CSA
Codes and standards	UL 3703 / UL 2703 / IEC 62817 / CSA





# Q.PEAK DUO XL-G11.3 / BFG 570-585

BIFACIAL DOUBLE GLASS MODULE  
WITH EXCELLENT RELIABILITY  
AND ADDITIONAL YIELD



#### BIFACIAL ENERGY YIELD GAIN OF UP TO 20 %

Bifacial Q.ANTUM solar cells make efficient use of light shining on the module rear-side for radically improved LCOE.



#### LOW ELECTRICITY GENERATION COSTS

Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.5%.



#### INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



#### ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.



#### FRAME FOR VERSATILE MOUNTING OPTIONS

High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).



#### A RELIABLE INVESTMENT

Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty<sup>2</sup>.

<sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015 method B (-1500 V, 168h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)

<sup>2</sup> See data sheet on rear for further information

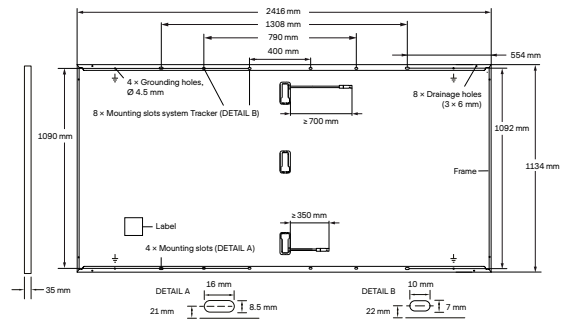
#### THE IDEAL SOLUTION FOR:



Ground-mounted  
solar power plants

## MECHANICAL SPECIFICATION

Format	2416 mm × 1134 mm × 35 mm (including frame)
Weight	34.4 kg
Front Cover	2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	2 mm semi-tempered glass
Frame	Anodised aluminium
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm <sup>2</sup> Solar cable; (+) ≥ 700 mm, (-) ≥ 350 mm
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4; IP68



## ELECTRICAL CHARACTERISTICS

POWER CLASS		570		575		580		585		
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> AND BSC <sup>1</sup> (POWER TOLERANCE +5 W / -0 W)										
Minimum	Power at MPP <sup>1</sup>	$P_{MPP}$	[W]	570	BSC* <sup>2</sup>	623.5	BSC* <sup>2</sup>	575	BSC* <sup>2</sup>	629.0
	Short Circuit Current <sup>1</sup>	$I_{SC}$	[A]	13.50	14.77	13.52	14.80	13.55	14.83	13.57
	Open Circuit Voltage <sup>1</sup>	$V_{OC}$	[V]	53.50	53.69	53.53	53.72	53.56	53.75	53.59
	Current at MPP	$I_{MPP}$	[A]	12.83	14.03	12.87	14.09	12.92	14.14	12.97
	Voltage at MPP	$V_{MPP}$	[V]	44.44	44.43	44.66	44.65	44.88	44.87	45.10
	Efficiency <sup>1</sup>	$\eta$	[%]	≥ 20.8	≥ 22.8	≥ 21.0	≥ 23.0	≥ 21.2	≥ 23.2	≥ 21.4

Bifaciality of  $P_{MPP}$  and  $I_{SC}$  70% ± 5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

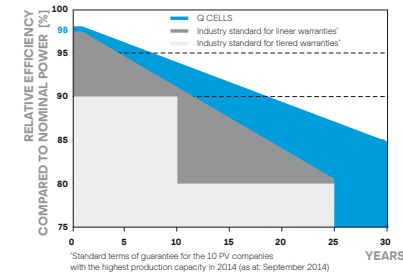
<sup>1</sup> Measurement tolerances  $P_{MPP}$  ± 3%;  $I_{SC}$ ,  $V_{OC}$  ± 5% at STC: 1000 W/m<sup>2</sup>; \*at BSC: 1000 W/m<sup>2</sup> +  $\phi$  × 135 W/m<sup>2</sup>,  $\phi$  = 70% ± 5%, 25 ± 2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT<sup>2</sup>

Minimum	Power at MPP	$P_{MPP}$	[W]	429.1	432.9	436.6	440.4
	Short Circuit Current	$I_{SC}$	[A]	10.87	10.89	10.91	10.93
	Open Circuit Voltage	$V_{OC}$	[V]	50.60	50.63	50.66	50.68
	Current at MPP	$I_{MPP}$	[A]	10.09	10.14	10.18	10.22
	Voltage at MPP	$V_{MPP}$	[V]	42.51	42.71	42.89	43.08

<sup>2</sup> 800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5

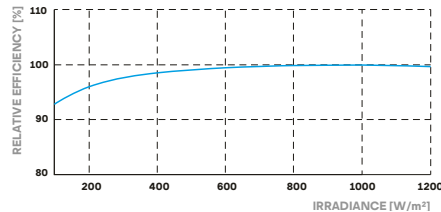
### Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 94% of nominal power up to 10 years. At least 85% of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

### PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m<sup>2</sup>).

### TEMPERATURE COEFFICIENTS

Temperature Coefficient of $I_{SC}$	$\alpha$	[%/K]	+0.04	Temperature Coefficient of $V_{OC}$	$\beta$	[%/K]	-0.27
Temperature Coefficient of $P_{MPP}$	$\gamma$	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°C]	42 ± 3

## PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	$V_{SYS}$	[V]	1500	PV module classification	Class II
Maximum Reverse Current	$I_R$	[A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 29 <sup>3</sup>
Max. Design Load, Push / Pull		[Pa]	3600 / 1600	Permitted Module Temperature on Continuous Duty	-40°C - +85°C
Max. Test Load, Push / Pull		[Pa]	5400 / 2400	<sup>3</sup> New Type is similar to Type 3 but with metallic frame	

## QUALIFICATIONS AND CERTIFICATES

IEC 61215:2016, IEC 61730:2016.  
This data sheet complies with  
DIN EN 50380.



**Note:** Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

### Hanwha Q CELLS GmbH

Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.q-cells.com