THIS EDGE INTENTIONALLY LEFT BLANK FOR BINDING - PAPER SIZE 34" X 22" - THIS EDGE INTENTIONALLY LEFT BLANK FOR BINDING - PAPER SIZE 34" X 22" - THIS EDGE INTENTIONALLY LEFT BLANK FOR BINDING

HELIENE

156HC M10 NTYP SL Bifacial Module

156 Half-Cut Monocrystalline 615W – 645W

23.08%

Utilizes the latest M10 size super high efficiency N-type Silicon Solar Cells. Half cut design further reduces cell to module (CTM) losses.

Stability & Looks

3.2mm fully tempered frontside glass for superior hail resistance. Enhanced frame design to withstand higher wind, snow, and other mechanical stresses. Framed Glass–Backsheet aesthetic is ideal for high visibility

High Energy Yield

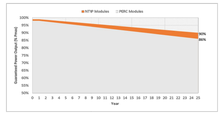
Highest efficiency, Excellent Bifaciality & Low temperature coefficient of N-type silicon solar cells enable High Energy yield

High Reliability

N-type silicon solar cells result in low LID, reducing annual degradation and guaranteeing more power throughout the lifetime.

No Compromise Guarantee

15 Year Product Warranty
25 Year Linear Performance Guarantee



Highly efficient N-type Silicon Solar Cells

Low LCOE enabled by High Power Output & Low BOS Cost

1% First year degradation & 0.4% Annual Power degradation

World-class Quality

- Heliene's fully automated manufacturing facilities with state-of-the-art robotics and computer aided inspection systems ensure the highest level of product quality and consistency
- All manufacturing locations are compliant with international quality standards and are ISO 9001 certified
- Heliene modules have received Top Performer rankings in several categories from PV Evolution Labs (PV EL) independent quality evaluations

Bankable Reputation

- Established in 2010, Heliene is recognized as highly bankable Tier 1 manufacturer of solar modules and has been approved for use by the U.S. Department of Defense, U.S. Army Corps of Engineers and from numerous top tier utility scale project debt providers
- By investing heavily in research and development, Heliene has been able to stay on the cutting edge of advances in module technology and manufacturing efficiency

Local Sales, Service, and Support

- With sales offices across the U.S. and Canada, Heliene prides itself on unsurpassed customer support for our clients. Heliene has become the brand of choice for many of the leading residential installers, developers and Independent Power Producers due to our innovative technology, product customization capability and just in time fast-mile logistics support
- Local sales and customer support means answered phone calls and immediate answers to your technical and logistics questions. We understand your project schedules often change with little warning and endeavor to work with you to solve your project management challenges

www.heliene.com

SOLECTRIA® XGI 1500-250 SERIES

PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

FEATURES

- NEW and MORE POWERFUL!
  - XGI 1500-250/250-600
  - XGI 1500-225-600 (Selectable: 225kW/225kVA or 225kW/250kVA)
  - XGI 1500-200/200-480
  - XGI 1500-175-480 (Selectable: 175kW/175kVA or 175kW/200kVA)
- Industry-leading maximum DC/AC Ratio of 2.0
- Accepts two input PV Output Circuits, with no overcurrent protection required
- Made in the USA with global components
- Buy American Act (BAA) compliant
- 99.0% peak efficiency
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SB
- Robust, dependable and built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified
- Tested compatible with the TESLA PowerPack Microgrid System

OPTIONS

- PV Source Circuit Combiners
- Web-based monitoring
- Extended warranty

MADE IN THE USA

Yaskawa Solectria Solar is pleased to introduce its most powerful XGI 1500 inverters, with the XGI 1500-250 models at 600 Vac, and the XGI 1500-200 models for 480 Vac service.

The XGI 1500-250 and XGI 1500-200 feature SiC technology, high power and high efficiency that places them at the top end of the utility-scale string inverters in the market.

Yaskawa Solectria Solar designs all XGI 1500 utility-scale string inverters for high reliability and builds them with the highest quality components -- selected, tested and proven to last beyond their warranty. The XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety.

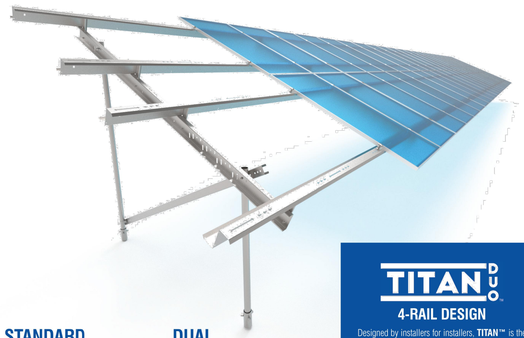
The XGI 1500 inverters provide ideal solutions for ground-mounted utility-scale PV systems, with models available for service connections at 600 Vac and 480 Vac. Designed and engineered in Lawrence, MA, the SOLECTRIA XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. The XGI 1500 inverters are Made in the USA with global components, and are compliant with the Buy American Act.

YASKAWA SOLECTRIA SOLAR

Yaskawa Solectria Solar 1-978-683-9700 | Email: sales@solectria.com | solectria.com
Document No. FL_XGI1500-04 | 10/04/2023 | © 2021 Yaskawa America, Inc.

APA SOLAR RACKING

APASOLAR.COM
WHERE INNOVATION MEETS ACCURATE FIT



STANDARD SPECIFICATIONS

Engineering: ASCE 7-10/7-16/CPP Wind Tunnel Tested
Grounding: Fully Integrated UL2703
Foundation: Dual Ground Screw
Tilt Angles: 5°-35° Tilt Options
Racking Coating: Galvanized; G90
Foundation Coating: HDG
Wind Loading: Up to 165mph
Snow Loading: Up to 100psf
Mounting Orientation: 2-High in Portrait
Warranty: 25 Years

DUAL GROUND SCREWS

TITAN Duo is designed to tackle the most challenging sites. It's dual ground screw foundation is the ideal solution for sites with glacial till, cobble, hardpan, or solid bedrock. The heavy walled tube and welded connections allow for massive amounts of torque and pressure to be applied, helping the screw advance into the toughest soils.

TITAN DUO

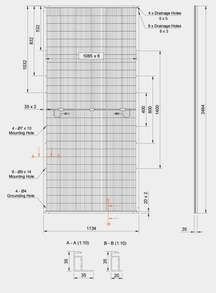
4-RAIL DESIGN

Designed by installers for installers. **TITAN™** is the most advanced hardware in the industry. TITAN's innovative features allow for flexibility in the field while streamlining the install process. With the lowest part count per MW and integrated grounding and cable trays, TITAN is installers preferred choice. The 4-rail design is an excellent solution for areas with high snow loads and large format modules. TITAN Duo comes standard with dual 3" diameter ground screws to manage rocky soil conditions.

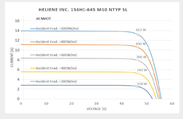
In business since 2008, APA offers a versatile line of racking and foundation solutions for projects in even the most challenging environments. With projects nationwide, APA is a trusted racking partner.

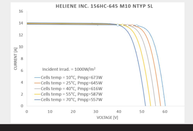
20-345 COUNTY ROAD X \\ P.O. BOX 224 \\ RIDGEVILLE CORNERS, OH 43555
419.267.5280 // SALES@APASOLAR.COM

Dimensions for 156HC M10 NTYP SL Bifacial Series Modules



I-V Curves for 156HC M10 NTYP SL Bifacial Series Modules





Electrical Data (STC)

Peak Rated Power*	P_{max} (W)	645	640	635	630	625	620	615
Maximum Power Voltage	V_{mp} (V)	49.01	48.77	48.59	48.40	48.22	48.00	47.75
Maximum Power Current	I_{mp} (A)	13.16	13.12	13.07	13.01	12.96	12.92	12.88
Open Circuit Voltage*	V_{oc} (V)	57.85	57.69	57.54	57.38	57.23	57.08	56.92
Short Circuit Current**	I_{sc} (A)	13.86	13.83	13.79	13.75	13.71	13.67	13.64
Module Efficiency	Eff (%)	23.08	22.90	22.73	22.55	22.37	22.19	22.01
Maximum Series Fuse Rating	MF (A)	30	30	30	30	30	30	30
Power Sorting Range		[- (0/+3%)]						
Bifaciality Factor***		80 ± 5%						

STC - Standard Test Conditions: Irradiation 1000 W/m² - Air mass AM 1.5 - Cell temperature 25 °C;
*W_{mp} _ Production Tolerance ± 3%, V_{oc} Production Tolerance ± 3%, W_{mp} Production Tolerance ± 4%,
***Bifaciality Factor= $Pmpp_{rear}$/$Pmpp_{front}$ where $Pmpp_{rear}$ and $Pmpp_{front}$ are tested at STC

Electrical Data (NMOT)

Maximum Power	P_{max} (W)	490	486	482	478	475	471	467
Maximum Power Voltage	V_{mp} (V)	46.92	46.70	46.53	46.34	46.17	45.96	45.72
Maximum Power Current	I_{mp} (A)	10.44	10.41	10.36	10.32	10.28	10.24	10.21
Open Circuit Voltage	V_{oc} (V)	55.39	55.24	55.09	54.95	54.80	54.65	54.50
Short Circuit Current	I_{sc} (A)	11.18	11.15	11.11	11.08	11.05	11.02	11.00

NMOT - Nominal Module Operating Temperature:
Irradiance at 800W/m², Ambient Temperature 20°C, Wind speed 1m/s

Mechanical Data

Solar Cells	156 · Half Cut, M10x, N-type Cells
Module Construction	Framed Glass–Backsheet
Backsheet	Transparent Backsheet (White Pattern Optional)
Dimensions (L x W x D)	2464 x 1134 x 35 mm (97.01 x 44.65 x 1.38 inch)
Weight	31 kg (68.34 lbs)
Frame	Double Webbed 15-Micron Anodized Aluminum Alloy
Glass	3.2mm Fully Tempered, High-Transmission, PV Solar Glass with Anti Reflective Coating
Junction Box	IP-68 rated with 3 bypass diodes
Output Cables	4mm²(12 AWG), 1.6-meter Symmetrical Cables
Connectors	Multi-Contact/ Stäubli MC4

Certifications

UL Certification	UL61215, UL61730, CSA C22.2 No. 61730

Temperature Ratings

Nominal Module Operating Temperature (NMOT)	+42°C (±2°C)
Temperature Coefficient of P_{max}	-0.30%/°C
Temperature Coefficient of V_{oc}	-0.25%/°C
Temperature Coefficient of I_{sc}	0.045%/°C

Maximum Ratings

Operational Temperature	-40°C to +85°C
Max System Voltage	1500V
Mech. Load Test (Front)	113 psf / 5400Pa
Mech. Load Test (Back)	50 psf / 2400 Pa
Fire Type	Type 1

Warranty

15 Year Product Warranty
25 Year Linear Power Guarantee

Packaging Configuration

Modules per Pallet 40' Container:	31 pieces
Modules per 40' Container:	496 pieces
Modules per Pallet 53' Trailer:	28 pieces
Modules per 53' Trailer:	588 pieces

HSPE_156HC_M10_NTYP_SL_Bifacial_Rev.02N.pdf
Aug 20th, 2025

The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the ongoing innovation and product enhancements. Heliene Inc. reserves the right to make necessary adjustment to the information described herein at any time with a prior notice to customer. PV modules should be handled and installed only by qualified people. Please carefully read safety and installation instructions available for download from Heliene website before using Heliene PV modules. For warranty details, please refer to Product Warranty Document, also available for download from Heliene website.

SOLECTRIA® XGI 1500-250 SERIES TECHNICAL DATA

SPECIFICATIONS

PRODUCT SPECIFICATION		XGI 1500 INVERTER MODEL			
		XGI 1500 250/250-600	XGI 1500 225-600	XGI 1500 200/200-480	XGI 1500 175-480
DC Input	Absolute Maximum Input Voltage	1500 VDC			
	Maximum Power Voltage Range (MPPT)	860-1250 VDC		750-1250 VDC	
	Operating Voltage Range (MPPT)	860-1450 VDC		750-1450 VDC	
	Number of MPP Trackers	1 MPPT			
	Maximum Operating Input Current	296.7 A	267 A	237.5 A	207.6 A
	Maximum Operating PV Power	255 kW	230 kW	204 kW	179 kW
	Maximum DC/AC Ratio | Max Rated PV Power	2.0 | 500 kW	2.22 | 500 kW	2.5 | 500 kW	2.86 | 500 kW
	Max Rated PV Short-Circuit Current ((Isc x 1.25)	800 A			
AC Output	Nominal Output Voltage	600 VAC, 3-Phase		480 VAC, 3-Phase	
	AC Voltage Range	-12% to +10%			
	Continuous Real Output Power	250 kW	225 kW	200 kW	175 kW
	Continuous Apparent Output Power (kVA)	250	250 225	200	200 175
	Maximum Output Current (A_{RMS})	240.6	XGI 1500-225/225: 216.5 A, 225/250: 240.6	240.6	XGI 1500-175/175: 210.5 175/200: 240.6
	Fault Current Contribution (1 cycle RMS)	390 A	390 A	351 A	312 A 312 A 273 A
	Conductor Compatibility	600 kcmil max, Cu or Alum, 1 or 2 conductors with lugs			
	Nominal Output Frequency	60 Hz			
	Power Factor (Unity default)	+/- 0.80 Adjustable			
	Total Harmonic Distortion (THD) @ Rated Load	< 5%			
	Grid Connection Type	3-Ph + N/GND			
Efficiency	Peak Efficiency	99.0%			
	CEC Average Efficiency	98.5%			
	Tare Loss	<1 W			
Temperature	Ambient Temperature Range	-40°F to 140°F (-40°C to 60°C)			
	De-Rating Temperature	113°F (45°C)	127°F (53°C)	113°F (45°C)	131°F (55°C)
	Storage Temperature Range	-40°F to 167°F (-40°C to 75°C)			
	Relative Humidity (non-condensing)	0 - 95%			
	Operating Altitude	9,840 ft (3 km)			
Communications	Advanced Graphical User Interface	WiFi			
	Communication Interface	Ethernet			
	Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
	Web-Based Monitoring	Optional			
	Firmware Updates	Remote and Local			
Testing & Certifications	Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998, UL 1699b Photovoltaic Arc-Fault Circuit Protection Certified			
	Advanced Grid Support Functionality	Rule 21, UL 1741SB			
	Testing Agency	ETL			
	FCC Compliance	FCC Part 15 (Subpart B, Class A)			
Warranty	Standard and Options	5 Years Standard; Option for 10 Years			
Enclosure	Acoustic Noise Rating	73 dBA @ 1 m ; 67dBA @ 3 m			
	DC Disconnect	Integrated 2-Pole 400 A DC Disconnect			
	Mounting Angle	Vertical only			
	Dimensions	Height: 29.5 in. (750 mm) | Width: 44.3 in. (1125 mm) | Depth: 15.4 in. (390 mm)			
	Weight	290 lbs (131.5 kg)			
	Enclosure Rating and Finish	NEMA 4X, IEC IP66, Type 3R, Polyester Powder-Coated Aluminum			

IT'S PERSONAL

YASKAWA SOLECTRIA SOLAR

Yaskawa Solectria Solar 1-978-683-9700 | Email: sales@solectria.com | solectria.com
Document No. FL_XGI1500-04 | 10/04/2023 | © 2021 Yaskawa America, Inc.

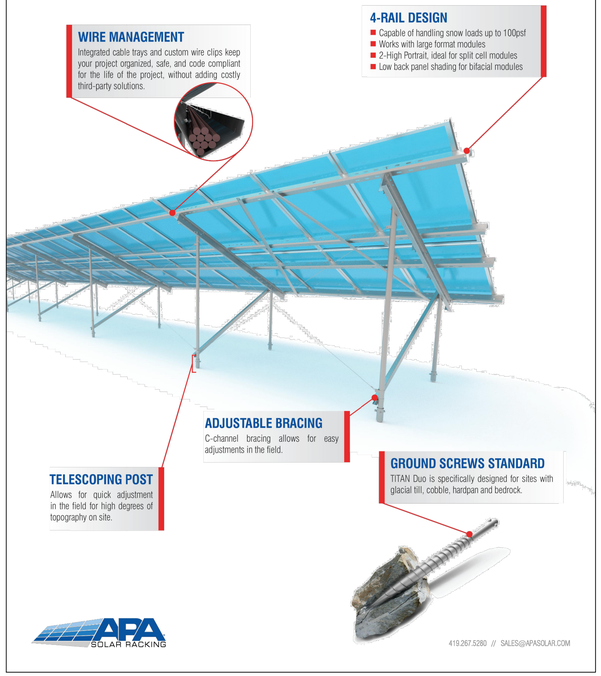
WHY USE TITAN DUO™ 4-RAIL?

WIRE MANAGEMENT

Integrated cable trays and custom wire clips keep your project organized, safe, and code compliant for the life of the project, without adding costly third-party solutions.

4-RAIL DESIGN

- Capable of handling snow loads up to 100psf
- Works with large format modules
- 2-High Portrait, ideal for split cell modules
- Low back panel shading for bifacial modules



ADJUSTABLE BRACING

C-channel bracing allows for easy adjustments in the field.

GROUND SCREWS STANDARD

TITAN Duo is specifically designed for sites with glacial till, cobble, hardpan and bedrock.

TELESCOPING POST

Allows for quick adjustment in the field for high degrees of topography on site.

APA SOLAR RACKING

419.267.5280 // SALES@APASOLAR.COM

DESIGN COORDINATOR

KNOBELSDORFF

25701 370TH STREET
GOODHUE, MN 55027

PROJECT

138883 CEMETERY SUN, LLC

24638 ADAMS RD.
FREDERICK, IL 62639
40.089020°, -90.442132°

ENGINEER

STELLAVISE
SOLAR ENGINEERING

2535 CAMINO DEL RIO S, STE. 235
SAN DIEGO, CA 92108
IL DESIGN FIRM #184.009162

WWW.STELLAVISE.COM (619) 837-5331

SEAL

LICENSED PROFESSIONAL ENGINEER
BRICE CASEBEER
062-070349
02/27/2026
STATE OF ILLINOIS

THIS DRAWING AND ALL INFORMATION HEREIN IS THE PROPERTY OF STELLAVISE INC. ANY REPRODUCTION, MODIFICATION OR USE OF THIS DRAWING FOR OTHER THAN THE INTENDED PROJECT WITHOUT PRIOR WRITTEN AUTHORIZATION FROM STELLAVISE INC. IS STRICTLY FORBIDDEN.

REVISIONS

#	DESCRIPTION	DATE
0	IFC	02/06/2026
1	IFC R1	02/27/2026

ISSUED FOR CONSTRUCTION
FEBRUARY 27, 2026

138883 CEMETERY SUN, LLC
FREDERICK, IL, 62639

SHEET TITLE

EQUIPMENT SPECIFICATIONS

SHEET NO.

E-801