For Planning Office Use:
File #:_____

Leicester Planning Board
Site Plan Review & Special Permit Application Form

PERMIT TYPE: ☐ Special Permit ☑ Site Plan Review

CONTACT INFORMATION

Owner Information					
Name:	Kevin Bergin, Chairman, Cherry Valley and Rochdale Water District				
Signature:					
Address:	PO Box 138 Rochdale, MA 01542				
Phone:	(508) 892-9616	**Fax:**	(508) 892-4371	**Email:**	

Applicant Information					
Name:	Brendan Gove, Manager, ZPT Energy Solutions, LLC				
Signature:					
Address:	309 East County Road Rutland, MA 01543				
Phone:	(774) 696-8729	**Fax:**		**Email:**	

Primary Contact Person *(The person that will be contacted by Planning Board staff during the application process.)*					
Name:	Andy G. Glines, Civil Engineer, Fuss & O'Neill, Inc.				
Address:	317 Iron Horse Way, Suite 204 Providence, RI 02908				
Phone:	(401) 861-3070	**Fax:**		**Email:**	smartin@fando.com

PROJECT INFORMATION

Project Address:	148 Henshaw Street	**Zoning District:**	SA
Assessors Map & Parcel #	24 A2 0	**Deed Reference (Book & Page):**	3646, 555
Applicable Zoning Bylaw Section(s):	5.14		
Proposed Land Use:	1.0 MW PV Array		
Existing Land Use:	Wooded		
Size of Proposed Structure(s):			

FUSS & O'NEILL

March 23, 2016

Mrs. Michelle Buck, AICP
Town of Leicester Planning Department
3 Washburn Square
Leicester, MA 01524

Re: Site Plan Review
Cherry Valley 1.0MW PV Array
148 Henshaw Street
Town Assessor's Map 24, Lot A2 0
Leicester, Massachusetts

Dear Mrs. Buck:

Fuss & O'Neill has prepared the enclosed Site Plan Review Application on behalf of ZPT Energy Solutions, LLC for the construction of a 1.0 MW photovoltaic array at the above-referenced site. The attached application and supporting documents were prepared in accordance with the Town's Site Plan Review Rules and Regulations, and Zoning By-Laws.

The project site is approximately 8.0 acres and is located on the western side of Henshaw Street. The site is part of a 149-acre property owned by Cherry Valley and Rochdale Water District that includes Henshaw Pond. Currently, the site is wooded and has a dirt road from Henshaw Street along the northern site boundary. The entire site is sloped to the north and drains to Henshaw Pond.

An intermittent stream on the site conveys stormwater from a portion of the site towards the north across the dirt access road. The wetland resource boundaries were delineated by National Resource Services and were field surveyed by National Land Surveyors-Developers. The wetland delineation methods are identified in the Report of Findings, 148 Henshaw Street, dated March 7, 2011.

Work associated with the proposed facility includes installing the PV panels, electrical infrastructure, perimeter fencing, landscaping, and the necessary land clearing and grubbing for construction and operation of the array. Construction activities are proposed within the 100-foot buffer zone, but no work will occur within the 25-foot buffer zone (No Disturb Zone). The existing dirt road will also be improved with gravel, but will not require widening or significant grading. Site grading is proposed only as required to accommodate turnaround area and to construct a culvert to convey the existing intermittent stream under the gravel access road.

Soil erosion and sediment control practices will be implemented to prevent impact to wetland resources and abutters. The controls will be installed prior to the commencement of work and any disturbed areas will be stabilized prior to the removal of the controls. Controls include silt fence

317 Iron Horse Way
Suite 204
Providence, RI
02908
t 401.861.3070
800.286.2469
f 401.861.3076

www.fando.com

Connecticut
Massachusetts
Rhode Island
South Carolina

FUSS & O'NEILL

and straw bales at the site's downgradient limits of disturbance, dust prevention, street sweeping, stockpile management, and construction waste management.

No impervious surfaces beyond concrete pads or the bituminous concrete pavement Site entrance are proposed. No stormwater management practices are proposed under this project. The proposed project addresses the Standards of the Massachusetts Stormwater Management Handbook, as outlined in the Stormwater Management Report attached.

Please feel free to contact me at (800) 286-2469 x.4540 or via e-mail at AGlines@fando.com if you have any questions or require additional information regarding the proposed project.

Sincerely,

Andy G. Glines
Civil Engineer

Attachments:
Site Plan Review Application Form
Fees
Decommissioning Estimate
Line Diagrams
Product Data Sheets
Proof of Liability Insurance
Perspective
Site Plans
Stormwater Management Report
Stormwater Pollution Prevention Plan

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pro-tech energy solutions llc

215 EXECUTIVE DRIVE
MOORESTOWN, NJ 08057
T 856.437.6220 F 856.437.6501

JPMORGAN CHASE BANK, NA
55-233/212

6398

6398 3/21/2016

PAY TO THE ORDER OF Town of Leicester $ 4,200.00

Four thousand two hundred dollars DOLLARS

PROTECTED AGAINST FRAUD

Town of Leicester
3 Washburn Square
Leicester, MA 01524

MEMO Cherry Valley Application Fees Review Fees

⑈006398⑈ ⑆021202337⑆ 839087491⑈

Details on Back

Intuit® *CheckLock*™ Secure Check

PRO-TECH ENERGY SOLUTIONS LLC 6398

Vendor	Vendor Name	Check Date	Check Number
TOWNO015	Town of Leicester	3/21/2016	6398

Invoice Number	Invoice Date	Reference	Invoice Amount	Discount Amount	Payment Amount
Project Review Fee	3/21/2016		4,200.00		4,200.00
		Check Total	4,200.00		4,200.00

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T 856.437.6220 F 856.437.6501

JPMORGAN CHASE BANK, NA
55-233/212

6401

6401 3/21/2016

PAY TO THE ORDER OF Town of Leicester $ 3,150.00

Three thousand one hundred fifty dollars DOLLARS

PROTECTED AGAINST FRAUD

Town of Leicester
3 Washburn Square
Leicester, MA 01524

MEMO Cherry Valley Review Fees

⑈006401⑈ ⑆021202337⑆ 839087491⑈

PRO-TECH ENERGY SOLUTIONS LLC 6401

Vendor	Vendor Name	Check Date	Check Number
TOWNO015	Town of Leicester	3/21/2016	6401

Invoice Number	Invoice Date	Reference	Invoice Amount	Discount Amount	Payment Amount
Site Plan Review Fee	3/21/2016		3,150.00		3,150.00
		Check Total	3,150.00		3,150.00

ZERO-POINT CONSTRUCTION SERVICES
309 East County Road
Rutland, MA 01543
P: 508-210-6367
E: pforte@zpeenergy.com

ZP-101 Cherry Valley

	System Size =	**MW AC**	1		
Mwac Photovoltaic Solar Electricity Generation Facility	Total Site=	AC	5.7		
	Development Footprint=	AC	3.5		
	Remaining Site Area=	AC	2.2		

DECOMISSIONING BID TABULATION	**Unit**	**Estimated Quantity**	**Labor Cost**	**Material Recycle Value/(Cost)**	**Net Cost**	**Notes**
CONTRACTOR FEES						
Mobilization	LS	1	$5,000.00		$5,000.00	
Supervision/Management	LS	1	$5,000.00		$5,000.00	
Silt Fence	LF	1700	$2.50		$4,250.00	
Rock Entrance	EA	1	$3,000.00		$3,000.00	
Permitting Fees	LS	1	$7,500.00		$7,500.00	
Subtotal Contractor Fees					$24,750.00	
SITEWORK REMOVALS						
Interior Site Gravel access drive & interconnection access drive	SF	8500	$0.50		$4,250.00	
Restoration seeding from site activities	AC	3.5	$3,000.00		$10,500.00	
Fence removal & recycling	LF	1580	$1.50		$2,370.00	
Residual site waste and cleanup	LS	1	$3,833.33		$3,833.33	
Subtotal Sitework Removal					$70,453.33	
RACKING REMOVAL						
Remove and recycle racking system	LF	7500	$0.45	$14,293.18	-$10,918.18	
Subtotal racking removal					-$10,918.18	
SOLAR MODULE REMOVAL						
Remove Trina TSM-PD14 module	EA	4500	$4.00		$18,000.00	
Subtotal solar module removal					$18,000.00	

AC & DC WIRING REMOVAL					
DC/AC direct burial wire removal	LF	1333	$6.00	$16,566.23	-$8,568.23
Interconnection pole removal	LS	7	$400.00		$2,800.00
AC overhead wire removal	LF	440	$0.66		$290.40
Central inverter removal	EA	1	$4,000.00		$4,000.00
Subtotal AC & DC wiring removal					-$1,477.83
Central communications pad removal					
Remove and dismantle central equipment pad and transformer	LS	1	$9,600.00		$9,600.00
Subtotal central communications pad removal					$9,600.00
DECOMISSIONING SUBTOTAL					$110,407.33
CONTRACTOR PROFIT-Markup 10% of overall contractor costs (excludes recycling value)					$11,040.73
TOTAL DECOMISSIONING					$121,448.06

ZERO-POINT
CONSTRUCTION SERVICES

309 East County Road
Rutland, MA 01543
P: 508-210-6367
E: pforte@zpeenergy.com

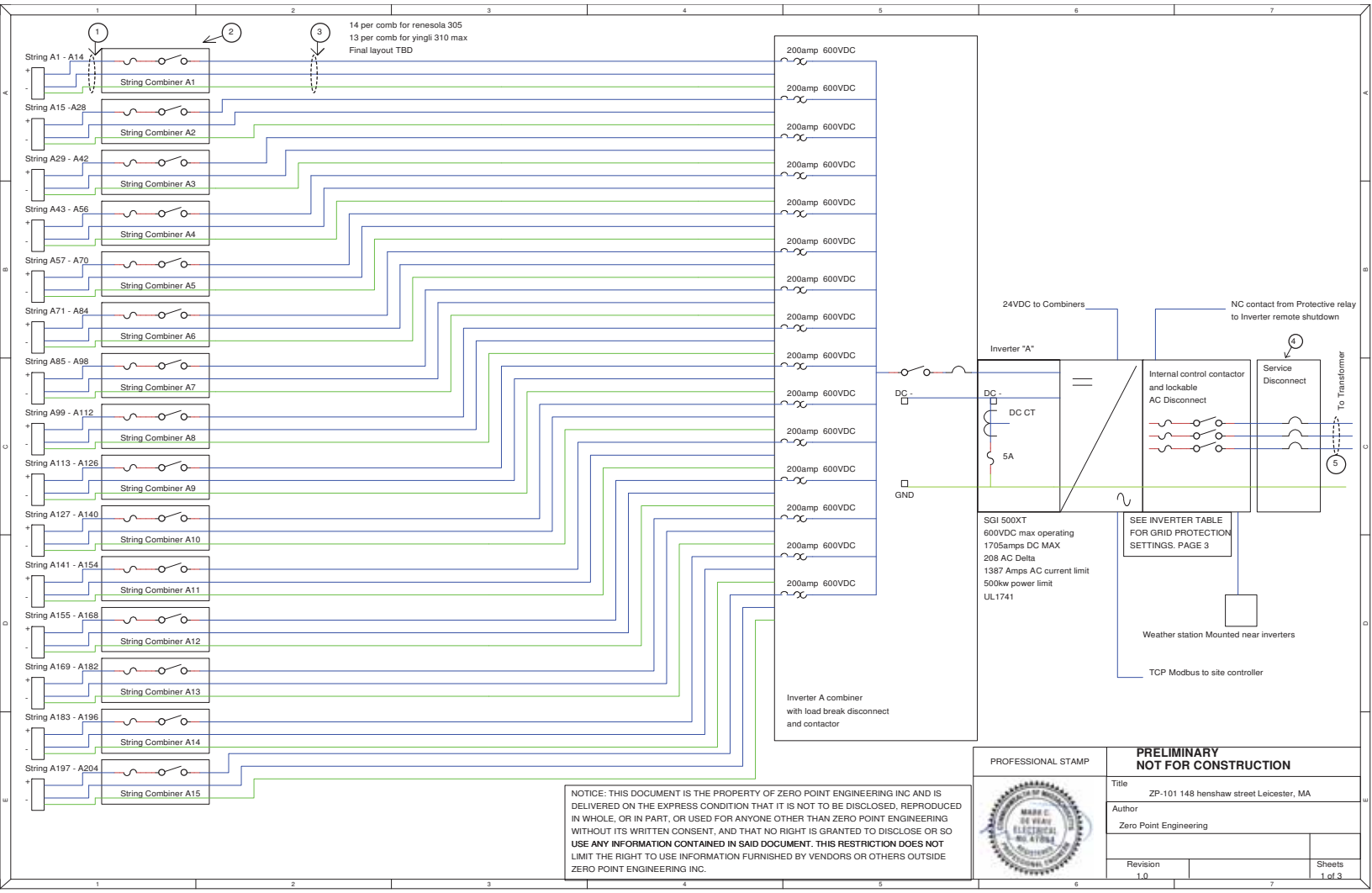
ZP-101 Cherry Valley
Mwac Photovoltaic Solar Electricity Generation Facility

Structural steel - structural racking

Racking weight	Project size	total weight			recycle val	total
lbs/per MW DC	mw dc	lbs	tons		per ton	$
102350	1.47	150454.5	75.22725		190	$14,293.18

Wire

gauge	material	length	deliver weight		install wei	recycle value		total
awg/kcmil	element	ft	lb		lb	per ton		$
#12 awg	cu	34666.67	900		810	3360		$1,360.80
#10 awg	cu	200000	9000		8100	3360		$13,608.00
3/4" dia ground rods	cu	26.66667	83.3333333		75	190		$7.13
500 kcmil	al	1833.333	1046.667		942	600		$282.60
350 kcmil	al	2266.667	933.3333		840	600		$252.00
300 kcmil	al	4000	1433.333		1290	600		$387.00
250 kcmil	al	3866.667	1183.333		1065	600		$319.50
#3/0 awg	al	3466.667	700		630	600		$189.00
#4 awg	al	7600	483.3333		435	600		$130.50
#1 awg mv-90	al	366.6667	110		99	600		$29.70
							total	$16,566.23



PROFESSIONAL STAMP

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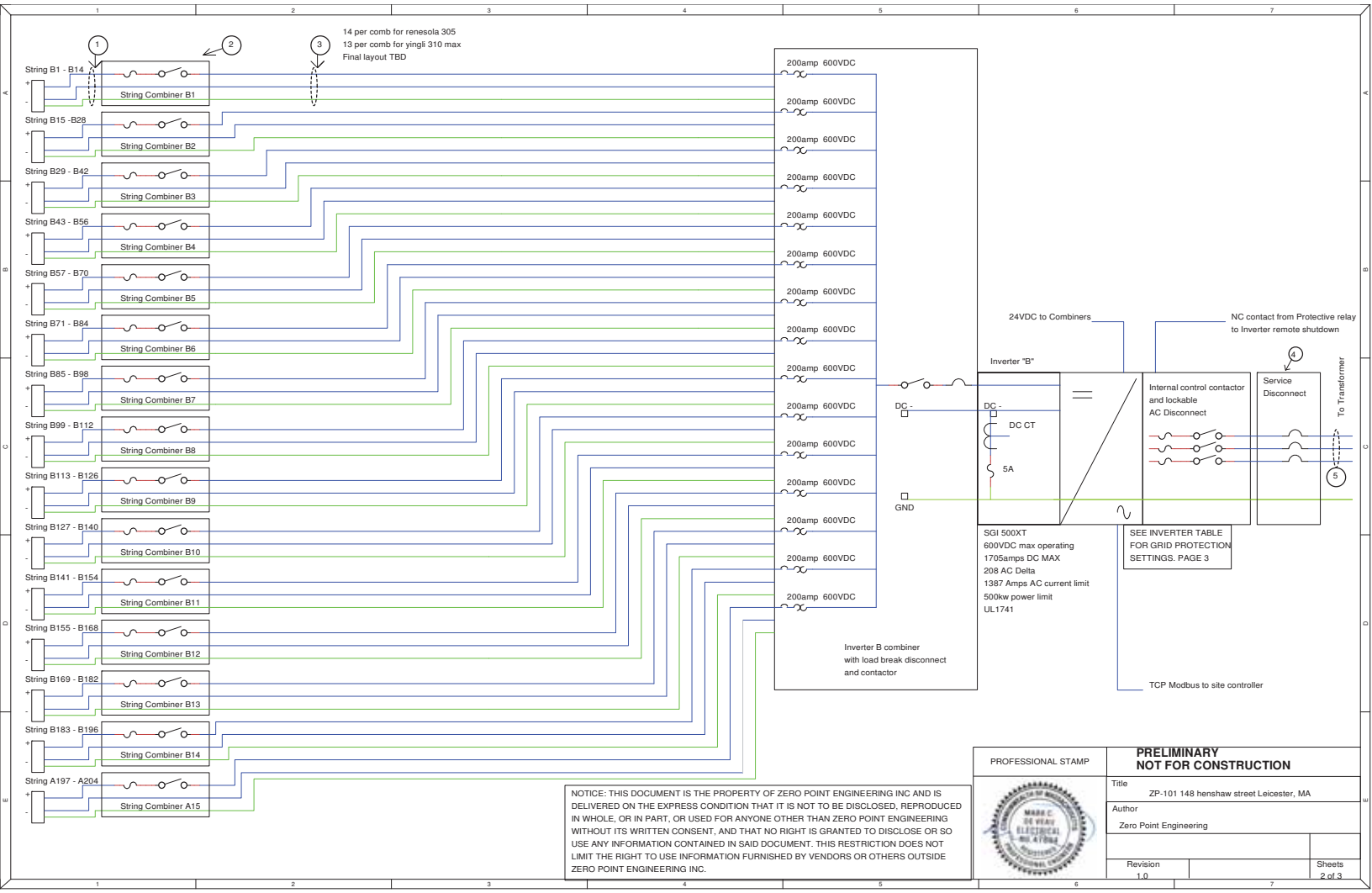
Title
ZP-101 148 henshaw street Leicester, MA

Author
Zero Point Engineering

Revision
1.0

Sheets
1 of 3



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ZP-101 148 henshaw street Leicester, MA

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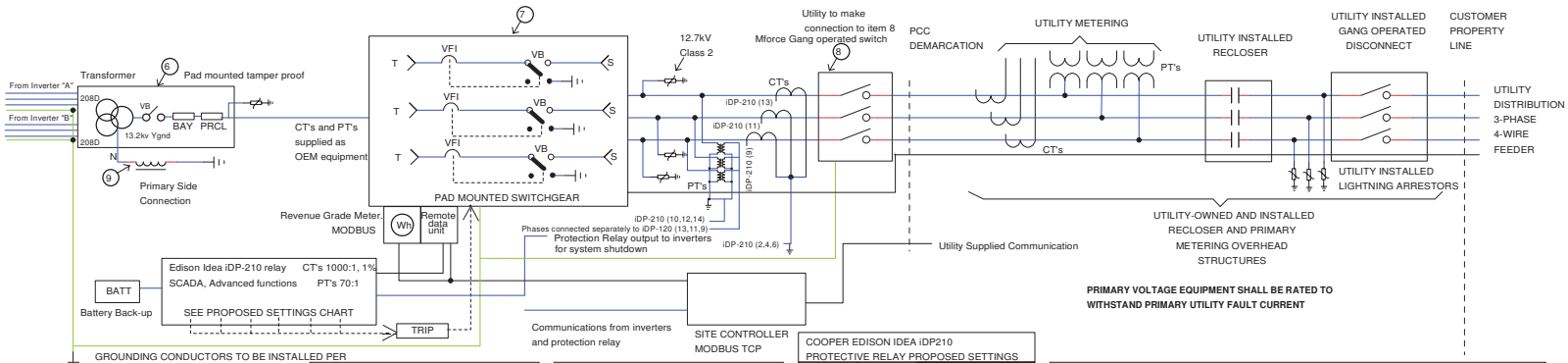


PRIMARY VOLTAGE EQUIPMENT SHALL BE RATED TO WITHSTAND PRIMARY UTILITY FAULT CURRENT

INVERTER INFORMATION	
Manufacturer	Solectria
Model Number	SGI 500XT
Operating Voltage	330 - 600
Mpp Voltage Range	300 - 600
Max Continuous Power	500kW
Max VOC	600
Max Operating Input Current	1,705
AC Nominal Voltage	208 L-L
Operatin AC Voltage Range	+10% -12%
Max Rated Output Current	1,387 amps
Total Harmonic Distortion	< 3%
Power Factor	> 99%
CEC Efficiency	98%
Grid Protection	UL 1741
Strrings Per Inverter	189
Combiner Inputs	15
Combiner Fuses	400amps
Max Strings Per Fuse	24
PROTECTION SETTINGS	
Reconnect Low Frequency	59.95hz
Reconnect High Frequency	60.05hz
over frequency	65hz
under frequency	55hz
over current	110%
voltage imbalance	10%
over voltage instantaneous	140%
over voltage fast	120%
over voltage slow	110%
under voltage instantaneous	10%
under voltage fast	50%
under voltage slow	85%
gnd fault current trip	5 amps

PV STRING INFORMATION	
Number of Module In Series	11
STC Power per String	3,300.00 W
STC VOC at -20C	559.3
Vmpp at 39C	344.9
Impp STC	8.20
Isc STC	8.69

PV MODULE AND ARRAY INFORMATION	
Module Manufacturer	Renesola
Module Model Number	JC300M-24
Max Power	300W
VOC at -20C	50.85
Vmpp	36.6
Impp	8.20
Isc	8.69
Max Series Fuse	20 amp
Total Array DC STC	1346.4 kWp

COOPER EDISON IDEA iDP210 PROTECTIVE RELAY PROPOSED SETTINGS		
27-1	0.5pu	0.1 SEC
27-2	0.85pu	1.9 SEC
51N	0.75A	0.9 SEC
51-phase	1.5pu	2.2 SEC U.S. TCC U4
59-1	1.1pu	0.6 SEC
59-2	1.2pu	0.1 SEC
81U-1	57	0.1 SEC
81U-2	58.5	1.6 SEC
81O	60.5	0.1SEC
51C	50	2.0 SEC U.S. TCC U4
59N	100V	1.9 SEC

SERVICE DISCONNECTS	
Manufacturer	EATON
Main Device	CUTLER-HAMMER TYPE "CRD" 100% RATED VISA TYPE BRKR
Frame	1600A 3P #CRD316T32SW MOFM (VISA)
Trip Unit	DIGITRIP RMS310 LSI
Fuse Provision	NONE
Rating Plug	1600A
Main Bus Rating	1600 amp, 240 volts, 60 hz
Grounding	Remote Upstream
SWBD CCT RATING	50 KA SYM
BUS Bracing	50 KA SYM
Ground Fault Protection	NONE
Suitable for Service Use	YES
Enclosure Type	3R (NONWALK-IN)
Certifications	UL / CSA

NUMBERED DRAWING ITEMS

1. 10awg with MC4 connectors per string from panels to string combiner. Type "USE-2" 90C outdoor rated. Max length 1000ft. Minimum length 10ft
2. Field combiner. 16 input, 15 amp fuses Solectria ARCCOM 24. UL1741 rated Input wire range 14 to 6 awg. NEMA 4. Output wire range (2) 1awg - 600kcmil Max current 192amps. Load break rated lockable disconnect. Integrated arc fault detection and shutdown.
3. Home runs based on 152amp max current. 300kcmil per pole, based on 3 conduit buried electrical duct bank per MEC 2014 figure B.310.15 (B)(2)(2) detail 2. Type UF 90C in under ground plastic conduit, SCH 80 PVC, 28% fill including ground conductor. 1200ft max length
4. See Service Disconnects Table
5. Cables from inverter to transformer LV. 6 x 700kcmil per phase. 90C 600vac.
6. Distribution type pad-mounted transformer. Tamper proof. Designed for Step-up operation. 1000kva, 3-winding, LHL, 5 leg core. KNAN cooling class. 60C rise. ANSI C57.12.34 and C57.12.28. NEMA TR-1 sound level LV BIL 30KV. MV BIL 95KV. UL listed. Guages, sample port and visible load break disconnect accessible without opening termination cabinet. Minimum impedance H-X and H-Y 3.5% at 500kva. Target impedance 4%. Efficiency >99% CEC weighted. Dead-Front Loop fed. Fault current limited to 20kA by PRCL "Zero Forcing" Fuse in transformer. Has fully rated Insulated neutral bushing and 15ohm neutral reactor ESB 756 C 5.5.3.1
7. 15 kV 3 Phase Vacuum Fault Interrupter (VFI) Pad-Mounted Switchgear. Cooper Model 5 - 2 Way Part Number KP00610L01S09M. Single sided dead-front. Front-mounted front-operated switch, trip-free operation. Housing protective relay and all associated PT's, CT's, communication and power supply transformers. Visible break window on all tap ways.
8. Cooper K-SEC 926 gang operated M-force disconnect switch. 15kv distribution class with ice shields. Max Voltage 17kv BIL 110kv CONTINUOUS CURRENT 600A LOAD BREAK, 50@600A, 10@900A MOMENTARY 40 kA Asy. rms 3 SECOND, 25 kA Sym. rms FAULT CLOSE (ASYM) 1 @ 20 kA, 3 @ 15 kA
9. 15 Ohm Neutral reactor PQI Global Services / RMCLARK assoc. Voltage Class 15kV BIL 95kV Continuous Current 10amps Bracing 2000amps for 2 seconds Aluminum Windings Max rise 150C NEMA 3R enclosure Bottom feed Pad Mounted

NEUTRAL REACTOR IS A PLACE HOLDER. NATIONAL GRID WILL DETERMINE IF THIS **IS A REQUIREMENT AND WILL SPECIFY** THE REQUIRED PARAMETERS.

NOTES

1. **CONDUCTOR SIZES SHOWN ARE FOR COPPER CONDUCTORS UNLESS NOTED OTHERWISE.**
2. **INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION OF THE NATIONAL ELECTRIC CODE NEC2014 AND MASSACHUSETTS AMENDMENTS**
3. **USE IRREVERSIBLE COMPRESSION CONNECTORS TO BOND GROUND WIRES**
4. **LABEL EQUIPMENT AND CONDUCTORS PER MEC REQUIREMENTS**

PROFESSIONAL STAMP	**PRELIMINARY NOT FOR CONSTRUCTION**
	Title: ZP-101 148 henshaw street Leicester, MA
	Author: Zero Point Engineering
	Revision: 1.0
	Sheets: 3 of 3

THE Utility MODULE

PD14

72 CELL
MULTICRYSTALLINE MODULE

300-315W
POWER OUTPUT RANGE

16.2%
MAXIMUM EFFICIENCY

0~+3%
POWER OUTPUT GUARANTEE

As a leading global manufacturer of next generation photovoltaic products, we believe close cooperation with our partners is critical to success. With local presence around the globe, Trina is able to provide exceptional service to each customer in each market and supplement our innovative, reliable products with the backing of Trina as a strong, bankable partner. We are committed to building strategic, mutually beneficial collaboration with installers, developers, distributors and other partners as the backbone of our shared success in driving Smart Energy Together.

Trina Solar Limited
www.trinasolar.com

Trinasolar
Smart Energy Together

Ideal for large scale installations
- High powerful footprint reduces installation time and BOS costs
- 1000V UL/1000V IEC certified

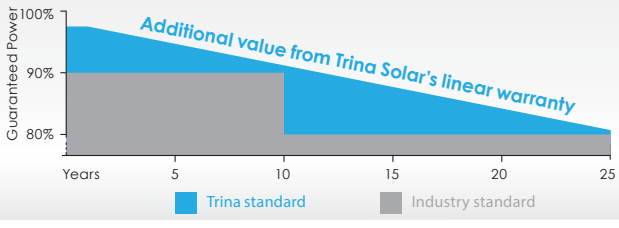
One of the industry's most trusted modules
- Field proven performance

Highly reliable due to stringent quality control
- Over 30 in-house tests (UV, TC, HF, and many more)
- In-house testing goes well beyond certification requirements
- PID resistant

Certified to withstand challenging environmental conditions
- 2400 Pa wind load
- 5400 Pa snow load
- 25 mm hail stones at 82 km/h

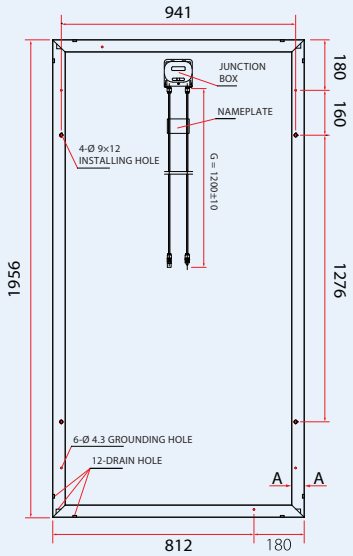
LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty

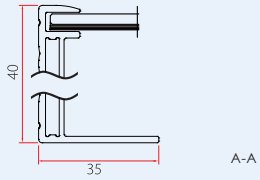


THE Utility MODULE TSM-PD14

DIMENSIONS OF PV MODULE
unit:mm

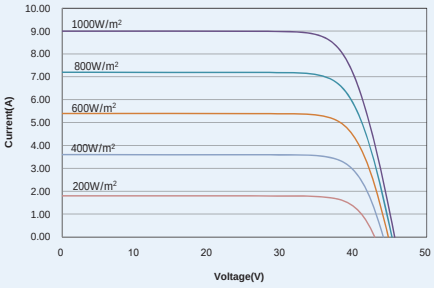


Back View



A-A

I-V CURVES OF PV MODULE(315W)



CERTIFICATION

ELECTRICAL DATA (STC)

Peak Power Watts-P_{MAX} (Wp)	300	305	310	315
Power Output Tolerance-P_{MAX} (%)	0 ~ +3			
Maximum Power Voltage-V_{MPP} (V)	36.2	36.6	37.0	37.1
Maximum Power Current-I_{MPP} (A)	8.28	8.33	8.38	8.51
Open Circuit Voltage-V_{OC} (V)	45.4	45.5	45.5	45.6
Short Circuit Current-I_{SC} (A)	8.77	8.81	8.85	9.00
Module Efficiency η_m (%)	15.5	15.7	16.0	16.2

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.
Typical efficiency reduction of 4.5% at 200 W/m² according to EN 60904-1.

ELECTRICAL DATA (NOCT)

Maximum Power-P_{MAX} (Wp)	223	227	231	235
Maximum Power Voltage-V_{MPP} (V)	33.5	33.8	34.1	34.1
Maximum Power Current-I_{MPP} (A)	6.66	6.72	6.77	6.88
Open Circuit Voltage-V_{OC} (V)	42.1	42.2	42.2	42.3
Short Circuit Current-I_{SC} (A)	7.08	7.11	7.15	7.27

NOCT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA

Solar cells	Multicrystalline 156 × 156 mm (6 inches)
Cell orientation	72 cells (6 × 12)
Module dimensions	1956 × 992 × 40 mm(77× 39.05 × 1.57 inches)
Weight	27.6 kg (60.8lb)
Glass	4.0 mm,High Transmission, AR Coated Tempered Glass
Backsheet	White
Frame	Silver Anodized Aluminium Alloy
J-Box	IP 65 or IP 67 rated
Cables	Photovoltaic Technology cable 4.0mm² (0.006 inches²), 1200mm (47.2 inches)
Connector	MC4 or MC4 Compatible

TEMPERATURE RATINGS

Nominal Operating Cell Temperature (NOCT)	44°C (±2°C)
Temperature Coefficient of P_{MAX}	- 0.41%/°C
Temperature Coefficient of V_{OC}	- 0.32%/°C
Temperature Coefficient of I_{SC}	0.05%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1000VDC (IEC) 1000VDC(UL)
Max Series Fuse Rating	15A

WARRANTY

10 year Product Workmanship Warranty

25 year Linear Power Warranty

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 26 pieces

Modules per 40' container: 572 pieces

TSM_EN_Mar_2015_A

Trinasolar
Smart Energy Together

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

TERRASMART
BETTER SOLUTIONS. SMARTER PRODUCTS.

TerraFarm Data Sheet

TerraFarm Ground Mount - Landscape

Application:	Commercial to Utility Scale
Grounding:	ETL listed, Electrically bonded system, verified Wiley
Panel Orientation:	Landscape
Array Configurations:	Up to 7 panels high and up to 12 panels long
Tilt Angle:	5 – 45 degrees
Lower Panel Clearance:	Up to 48 inches, standard
Loading Conditions:	Up to 160 mph wind speed, 80 psf snow load, Exposure C
Warranty:	20-year limited warranty
Engineering:	Professional Engineer Stamped Drawings Available in 50 States
	Custom Engineered to Exceed Applicable ASCE, IBC, and UL Standards.
Material:	Galvanized steel (G90 or Better)
East-West Slope:	20% maximum
North-South Slope:	60% maximum, limited by installation equipment
Max Fuse Rating:	30 Amp Fuse Rating

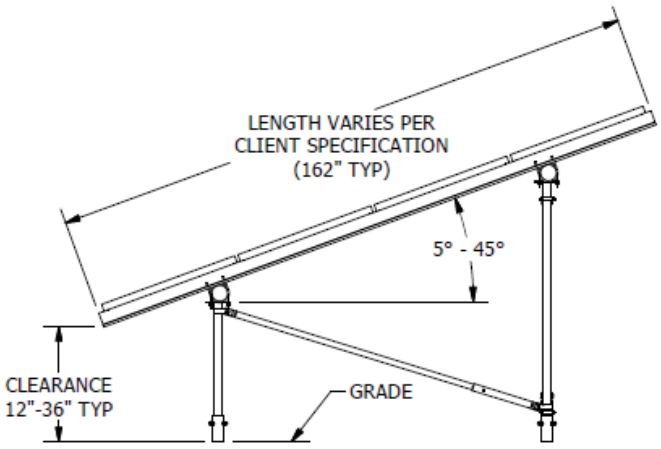
ETL CLASSIFIED
ETL LISTED US
Intertek

Max Capacity of PV modules:

12 High x 12 Wide (144 Panels):	Listed Frameless (Thin Film) PV Module (21”-26” x 47”-51”)
7 High x 10 Wide (70 Panels):	54 Cell Listed Aluminum Framed PV Module (37”-41” x 56”-60”)
7 High x 9 Wide (63 Panels):	60 Cell Listed Aluminum Framed Module (37”-41” x 63”-67”)
7 High x 8 Wide (56 Panels):	72 Cell Listed Aluminum Framed Module (37”-41” x 75”x79”)

PH:239.362.0211 F: 239.362.0586
Visit us online at **www.terrasmart.com**

TERRASMART
BETTER SOLUTIONS. SMARTER PRODUCTS.



SIDE ELEVATION
(TYPICAL INSTALLATION)

Benefits

Minimal hardware to assemble

No in-field drilling, cutting, or welding

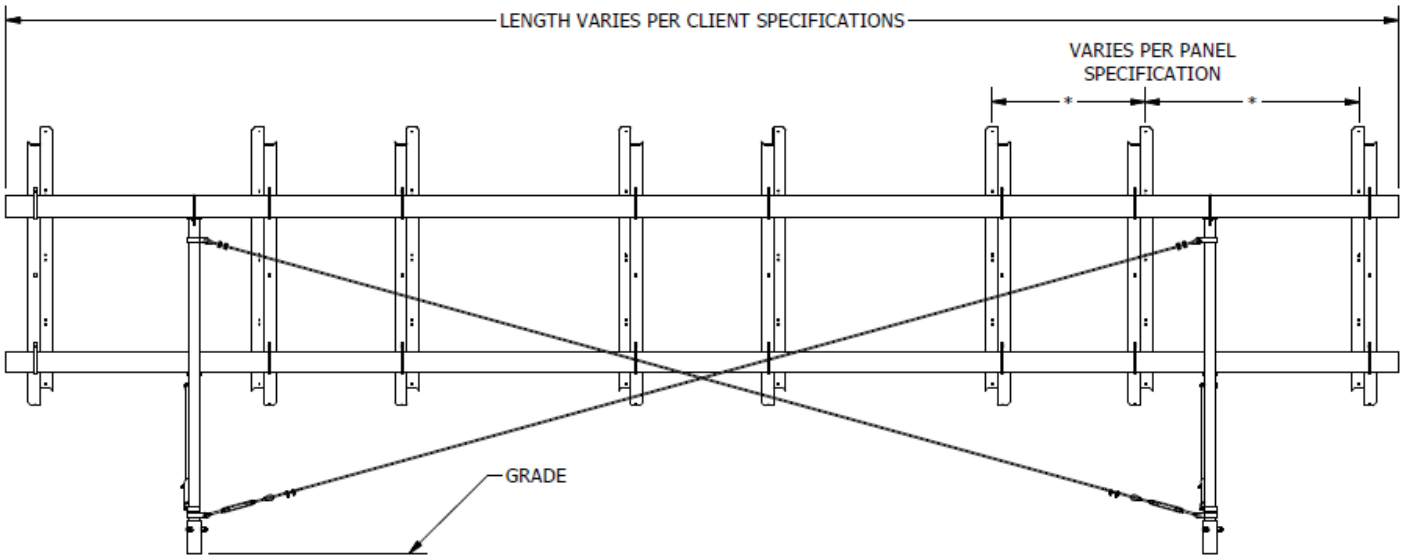
Significantly reduces installed labor costs

Integrated foundation solution

Turn-key installation service available, Foundation to Panels

Pre-assembly options available

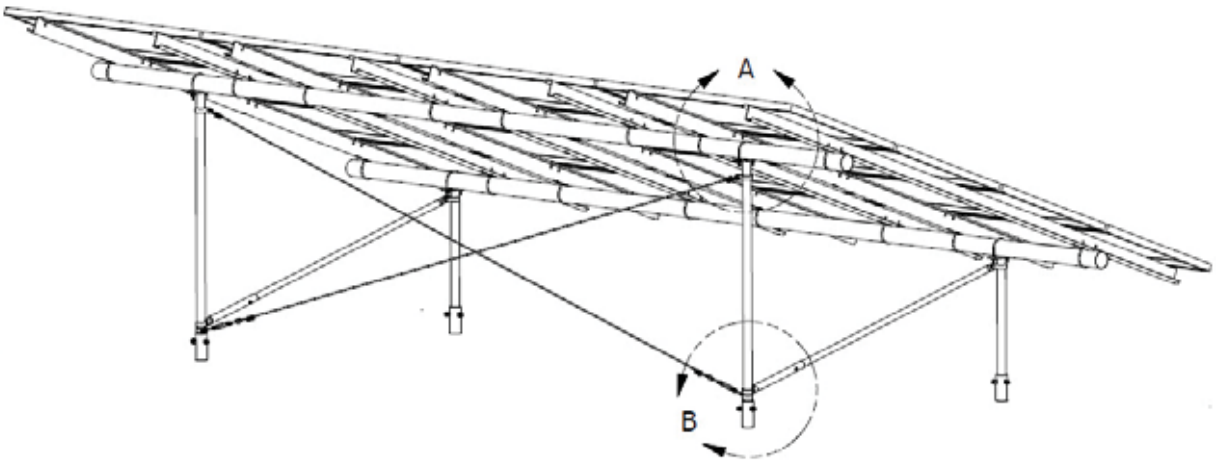
Maximum adjustability for following grade

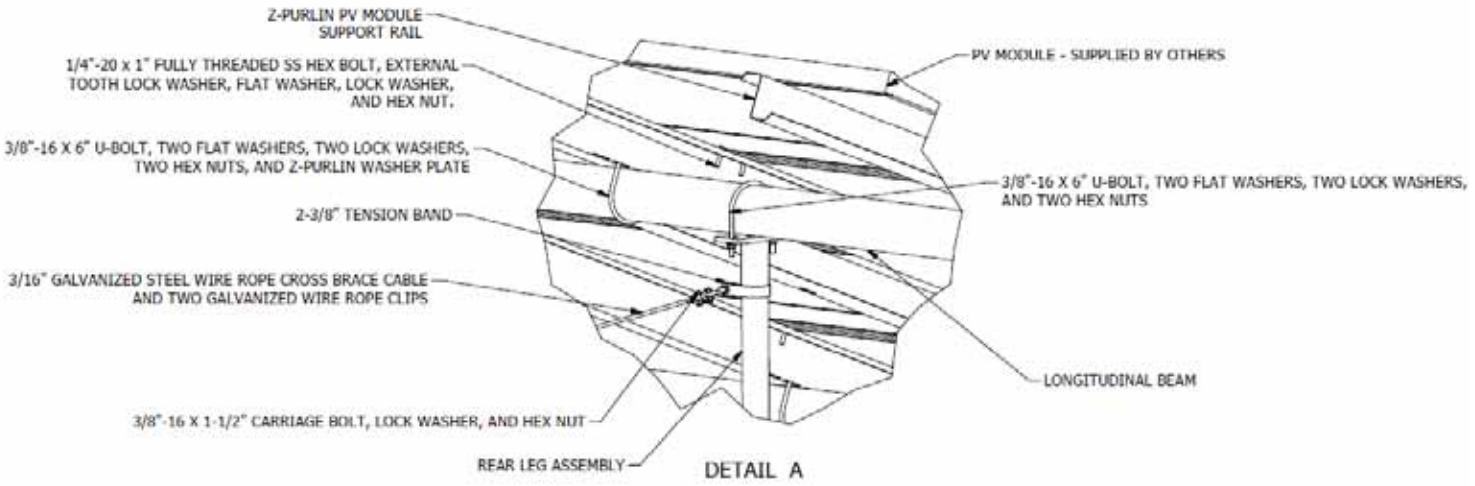


REAR VIEW
(TYPICAL INSTALLATION)

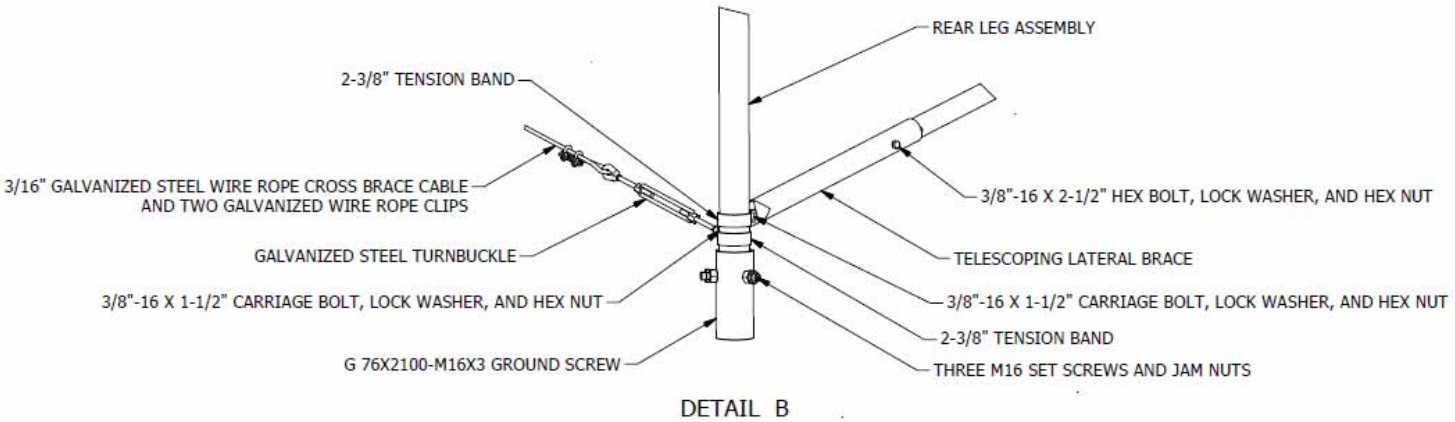
ETL CLASSIFIED
Intertek

PH:239.362.0211 F: 239.362.0586
Visit us online at **www.terrasmart.com**





DETAIL A



DETAIL B

SOLECTRIA
A YASKAWA COMPANY

UTILITY-SCALE INVERTERS

SGI **500XT**

features

- Compliant with NEC 2014 690.11 & 690.12 arc fault and rapid shutdown requirements when coupled with ARCCOM combiner
- 98% CEC efficiency
- Parallel power stages
- Fuse and breaker subcombiner options
- Modbus communications
- User-interactive LCD

options

- Uptime guarantee
- Stainless steel enclosure
- Web-based monitoring
- Built-in cellular connectivity
- AC breaker with shunt trip
- Revenue grade metering
- Air filters

options for utilities

- Real power curtailment
- Reactive power control
- Voltage ride through
- Frequency ride through
- Controlled ramp rates
- DMS tie-in

utility-scale inverters

Solectria's SMARTGRID 500XT is compliant with NEC 2014 690.11 & 690.12 arc fault and rapid shutdown requirements. The SGI 500XT is the most reliable and efficient ulility-scale inverter in its class. Optimized for direct coupling to an external transformer, the SGI 500XT is the best choice for large commercial and utility-scale applications that demand the highest performance and reliability. The SGI 500XT's unique inverter design contains all critical components in a compact and easy to install enclosure ensuring maximum uptime, energy production, and return on investment (ROI) for large PV systems. Standout features include a wide range of DC subcombiner (fuses or breakers), optional AC disconnect or AC breaker, and ample room inside the cabinet for easy wiring and service. The SGI 500XT supports advanced grid management for power plants, including real power curtailment, reactive power control, controlled ramp rates, and voltage and frequency ride through.

Built for the real world

SPECIFICATIONS	SGI 500XT
DC Input	
Absolute Maximum Input Voltage	600 VDC
Max Power Input Voltage Range (MPPT)*	300-500 VDC
Maximum Operating Input Current	1750 A
Strike Voltage	390 V
AC Output	
Native Output Voltage	208 VAC, 3-Ph
AC Voltage Range	-12%/+10%
Continuous Output Power	500 kW
Continuous Output Current	1387 A
Maximum Backfeed Current	0 A
Nominal Output Frequency	60 Hz
Output Frequency Range	57-60.5 Hz
Power Factor	Adjustable - 0.9 to +0.9, factory set at 1
Total Harmonic Distortion (THD) @ Rated Load	<3%
Efficiency	
Peak Efficiency	98.1%
CEC Efficiency	98.0%
Tare Loss	41 W
Subcombiner Options	
Fuses or Breakers	8 positions, 225-400 A
	16 positions, 110-200 A
Fuses Only	32 positions, 70-100 A
Temperature	
Ambient Temperature Range (full power)	-40°F to +122°F (-40°C to +50°C)
Storage Temperature Range	-40°F to +122°F (-40°C to +50°C)
Relative Humidity (non-condensing)	5-95%
Data Monitoring	
Optional SolrenView Web-based Monitoring	Integrated
Optional Revenue Grade Monitoring (Integrated)	1600 A
Optional SolZone™ Sub-Array Monitoring (DC Current)	8 zones
Optional Cellular Communication	SolrenView AIR
External Communication Interface	RS-485 SunSpec Modbus RTU
Testing & Certifications	
Safety Listings & Certifications	UL 1741/IEEE 1547, CSA C22.2#107.1
Testing Agency	ETL
Warranty	
Standard	5 year
Optional	10, 15, 20 year; extended service agreement; uptime guarantee
Dedicated External Transformer	
Dedicated External Transformer	Required, provided by customer to Solectria's specification
Transformer Type	Self cooled, step up, pad mount
Output Voltage	Typical: 2.4-36.0 kV, 3-Ph
Enclosure	
dBA (Decibel) Rating	58 dBA @ 3m
DC Disconnect (integrated)	Standard
AC Disconnect/Breaker (integrated)	Optional disconnect, breaker or breaker with shunt trip
Dimensions (H x W x D)	82 in. x 109 in. x 41 in. (2083 mm x 2769 mm x 1042 mm)
Shading Set Back	137" (3480 mm) at 30˚ solar elevation
Weight	3410 lbs (1547 kg)
Enclosure Rating	Type 3R
Enclosure Finish	Polyester powder coated steel; Optional 316 stainless steel

*At nominal AC voltage

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/23/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER

Securitas Insurance Partners, LLC
7 Great Valley Parkway
Suite 100
Malvern PA 19355

CONTACT NAME: Michael Knight
PHONE (A/C, No, Ext): (484)324-2794 FAX (A/C, No):
E-MAIL ADDRESS: mknight@securitasins.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Hartford Fire Insurance Company	19682
INSURER B : ACE Property & Casualty Insurance	20699
INSURER C : Rated by Multiple Hartford	00914
INSURER D : Crum & Forster	44520
INSURER E :	
INSURER F :	

INSURED

ProTech Energy Solutions, LLC
215 Executive Drive

Moorestown NJ 08057

COVERAGES **CERTIFICATE NUMBER:** CL155500216 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC OTHER:			44UENQI0006	4/30/2015	4/30/2016	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Employee Benefits - Each	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 1,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS / SCHEDULED AUTOS HIRED AUTOS / NON-OWNED AUTOS			44UENQI0007	4/30/2015	4/30/2016	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) Uninsured motorist combined	$ 1,000,000 $ $ $ $ 1,000,000
B	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			G27833196	4/30/2015	4/30/2016	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000 $
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		44WEQI0005	4/30/2015	4/30/2016	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	Professional Liability & Pollution Liability			PKC100535	7/30/2015	7/30/2016	$5,000,000 Aggregate Limit $5,000,000 Per Occurrence	$25,000 Deduc. $25,000 Deduc.

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of Insurance.

CERTIFICATE HOLDER

Town of Leicester
90 S. Main Street
Leicester, MA 01524-1402

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Michael Knight/MJK

FUSS & O'NEILL

Pro-Tech Solutions, LLC

Leicester, MA

Cherry Valley 1.0 MW PV ARRAY

March 2016

For Planning Office Use:
File #:_____

PROJECT INFORMATION, Continued

Total Lot Area:	149 acres (Site Area = 8.0 acres)
Water Source: (If "public" water, identify applicable water district)	None required for proposed use.
Sewer Source: (If "public" sewer, identify applicable sewer district)	None required for proposed use.

Brief Project Description:
Please include a description on this form (i.e. do not write "see attached").

The proposed Site development will consist of the installation of a 1.0 MW solar array at 148 Henshaw Street. The 8-acre project Site is located west of Henshaw Street, south of Henshaw Pond, in the southeast corner of Assessors Plat 24 Lot 2. Work associated with the proposed facility includes the land clearing, improvements to existing access road, and installation of electrical infrastructure, perimeter fencing, and landscaping.

Application Checklist

Use this checklist to ensure you have provided all required information See Planning Board Site Plan Review & Special Permit Regulations for details.

- [x] 13 copies of plans (3-full-size & 10- 11"x17")
- [x] Full Project Narrative including any waiver requests (13 copies)
- [x] Drainage Analysis/ Stormwater Report, (3 copies)
- [ ] Documentation of Availability of Water & Sewer
- [ ] Certified Abutters List*
- [ ] Traffic Study (3 copies)

* certified abutters lists are required for all Special Permits applications and for Site Plan Review Application for projects involving new construction over 30,000 s.f.

Applications will not be accepted without the applicable Application Fee (please refer to the Planning Board's Fee Regulations).

For Planning Board Use:				
Date of Submittal:				
Public Hearing/Meeting Date(s):				
Date of Planning Board Vote:				
Date Decision Filed with Town Clerk:				