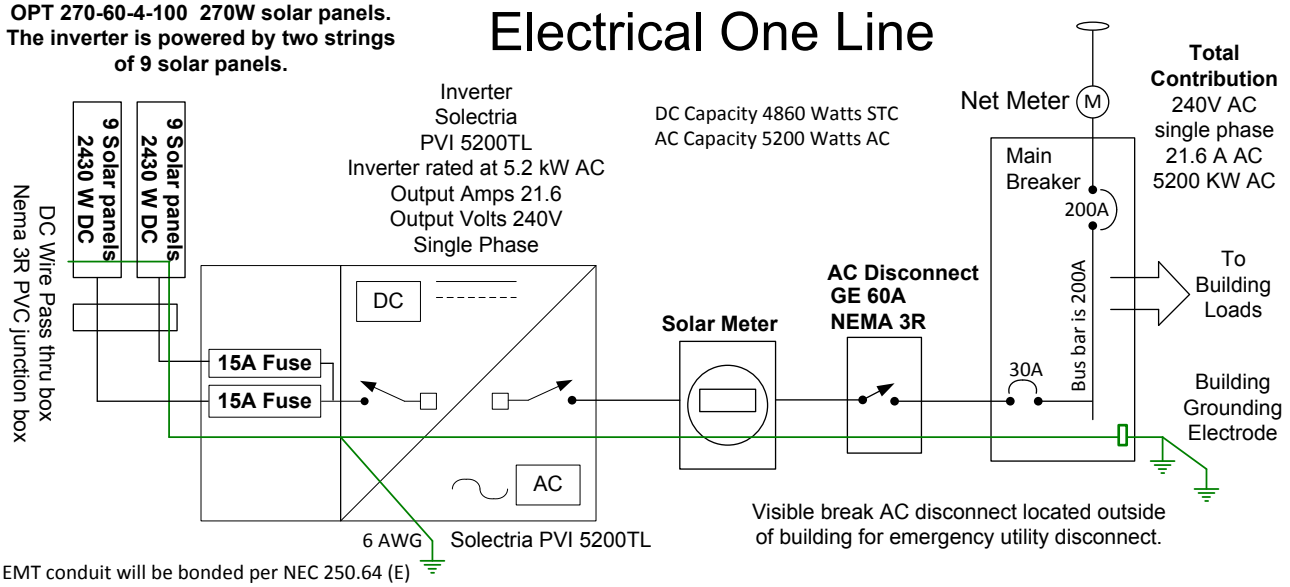
Sample Solar PV Electrical One Line

Design includes a total of 18 Suniva OPT 270-60-4-100 270W solar panels. The inverter is powered by two strings of 9 solar panels.



All EMT conduit will be bonded per NEC 250.64 (E)

Point of Interconnection Sticker 690.54	
AC Operating Volts	**240 V**
Max Operating Current	**21.6 A**

AC Wire Type
THWN-2 6 AWG 90°wire
¾ inch EMT Conduit

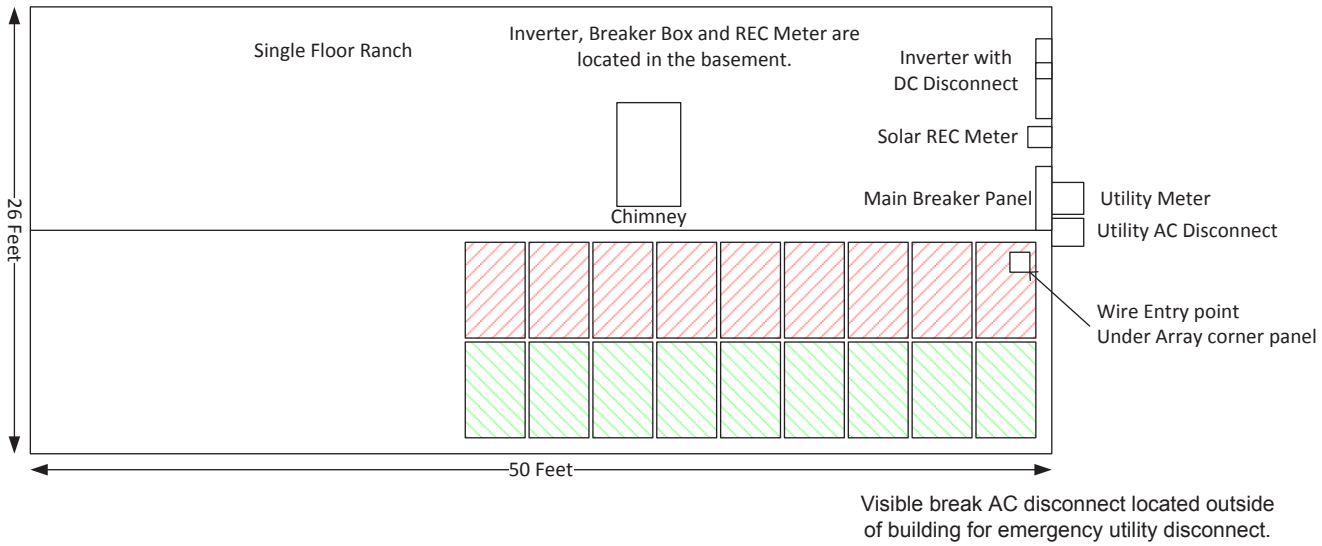
DC Wire Types
PV Wire – 10 AWG 90° C on roof
In conduit THWN-2 10 AWG 90°wire
Rails grounded with bare 8 AWG
Grounding Electrode Conductor 6 AWG bare or green
¾ inch EMT Conduit

Source Sticker NEC 690.53	
Operating Current	**17.4 A**
Operating Voltage	**281 V**
Maximum System Voltage	**412 V**
Short Circuit Current	**28.6 A**

Note: Grounding Electrode Conductor will be 6 AWG bare or green and connect to building grounding electrode.

Installion Company Name	Property Owner Street Address Town, CT
Contact Name **Phone** **860 123-4567**	Drawing Number 101 Revision 1
Installer Address **Town, CT**	Month Day, Year Drawn By Name of Designer

Sample Solar PV
One Line Site Plan



Visible break AC disconnect located outside of building for emergency utility disconnect.

S

Installion **Company Name** **Contact Name** **Phone** **860 123-4567** **Installer Address** **Town, CT**	Property Owner Street Address Town, CT
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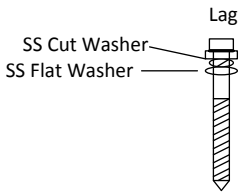
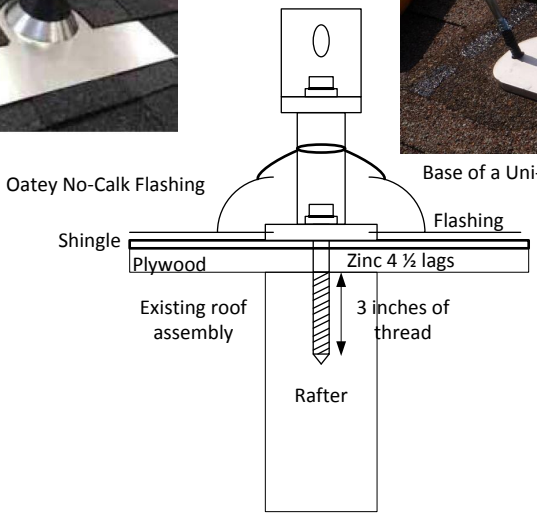
Sample Solar PV Attachment Details

Base of a Uni-rac two piece foot





Racking system is Uni-Rac, Solarmount with standard size rail.

Uni-rac supplies the lag screws and SS hardware necessary to ensure dissimilar metal compliance. Nowhere does the aluminum touch steel directly.

Type of sealant

All penetrations are sealed with an appropriate roofing sealant.

OSI RF-140 Black Magic Roofing & Flashing Sealant or equivalent.

An Oatey No-Calk Flashing will be installed to cover the mounting.

Installion Company Name **Contact Name** **Phone** **860 123-4567** **Installer Address** **Town, CT**	Property Owner Street Address Town, CT
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ENGINEERING EXCELLENCE

- Built exclusively with **Suniva's premium ARTisun Select cells**, providing one of the highest power outputs per square meter at an affordable price
- **Suniva is a U.S. based company** spun out from the Georgia Tech University Center of Excellence in Photovoltaics; one of only two such research centers in the U.S.
- Suniva's state-of-the art manufacturing and module lab facilities feature the most advanced equipment and technology

QUALITY & RELIABILITY

- Suniva Optimus modules are manufactured and warranted to our specifications assuring consistent high performance and high quality.
- Rigorous in-house quality management tests beyond standard UL and IEC standards
- Produced in an ISO 9001: 2008 certified facility
- Performance longevity with advanced polymer backsheet
- Passed the most stringent salt spray tests based on IEC 61701
- Passed enhanced stress tests[1] based on IEC 61215 conducted at Fraunhofer ISE
- Certified PID free by PV Evolution Labs (PVEL)
- PAN files are independently validated

Suniva®
The Brilliance of Solar Made Sensible®

SUNIVA OPTIMUS® SERIES MONOCRYSTALLINE SOLAR MODULES

OPT SERIES: OPT 60 CELL MODULES (SILVER FRAME)

Optimus® modules are known for their superior quality and long-term reliability. These high-powered modules consist of Suniva's premium ARTisun® Select cell technology and are designed and manufactured in the U.S.A. using our pioneering ion implantation technology. Suniva's high power-density Optimus modules provide excellent performance and value.

FEATURES

PRODUCTS OF THE USA

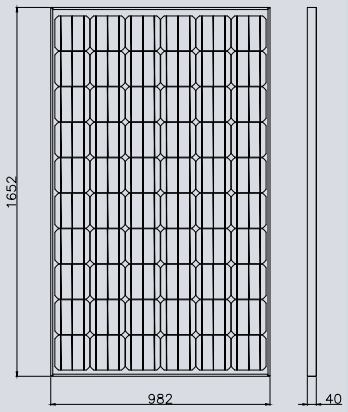
- Contains premium ARTisun Select cell technology - over 19%
- Extensive materials testing and certifications safeguard reliability
- Positive only tolerance ensures predictable output
- Marine grade aluminum frame with hard anodized coating
- Buy America-compliant upon request
- Qualifies for U.S. EXIM financing
- System and design services available
- Industry leading linear warranty: 10 year warranty on workmanship and materials; 25 year linear performance warranty delivering 80% power at STC

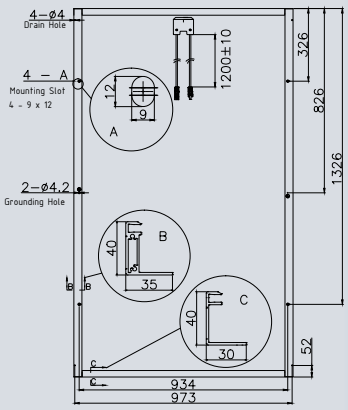
CERTIFICATIONS

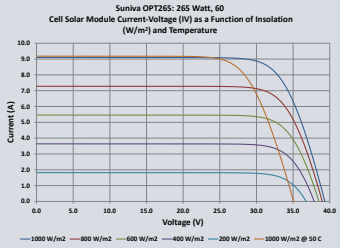
PVEL ADVANCING SOLAR

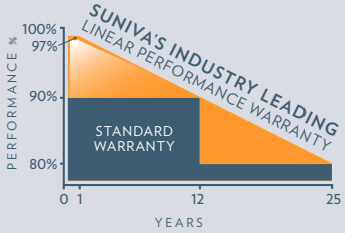
AS5033 Compliant

suniva.com









PLEASE RECYCLE

JANUARY 17, 2014 (REV. 19) [SAMD_0010]

OPTIMUS SERIES: OPT 60 CELL MODULES

ELECTRICAL DATA (NOMINAL)

The rated power may only vary by -0/+3% and all other electrical parameters by ± 5%

Model Number	OPT 260-60-4-100	OPT 265-60-4-100	OPT 270-60-4-100
Power Classification (Pmax)	260 W	265 W	270 W
Module Efficiency (%)	16.02%	16.33%	16.60%
Voltage at Max. Power Point (Vmp)	30.20 V	30.70 V	31.20 V
Current at Max. Power Point (Imp)	8.60 A	8.64 A	8.68 A
Open Circuit Voltage (Voc)	38.10 V	38.30 V	38.50 V
Short Circuit Current (Isc)	9.08 A	9.12 A	9.15 A

The electrical data apply to standard test conditions (STC): Irradiance of 1000 W/m² with AM 1.5 spectra at 25°C.

CHARACTERISTIC DATA

Type of Solar Cell	High-efficiency ARTisun Select cells of 156 x 156 mm (6 in.)
Frame	Silver anodized aluminum alloy
Glass	Tempered (low-iron), anti-reflective coating
Junction Box	NEMA IP67 rated; 3 internal bypass diodes
Cable & Connectors	12 AWG (4 mm²) PV Wire cable with multiple connector options available; cable length 1200 mm

MECHANICALS

Cells / Module	60 (6 x 10)
Module Dimensions	1652 x 982 mm (65.04 x 38.66 in.)
Module Thickness (Depth)	40 mm (1.57 in.)
Approximate Weight	17.9 +/- 0.25 kg. (39.5 +/- 0.5 lb.)

TEMPERATURE COEFFICIENTS

Voltage	ß, Voc (%/°C)	-0.335
Current	α, Isc (%/°C)	+0.047
Power	γ, Pmax (%/°C)	-0.420
NOCT Avg	(+/- 2 °C)	46.0

LIMITS

Max. System Voltage	1000 VDC for IEC, 1000 VDC for UL
Max Series Fuse Rating	15 Amps
Operating Module Temperature	-40°C to +85°C (-40°F to +185°F)
Storm Resistance/Static Load	Tested to IEC 61215 for loads of 5400 Pa (113 psf); hail and wind resistant

Suniva® reserves the right to change the data at any time. View manual at suniva.com.
¹UV 90 kWh, TC 400, DH 2000.

Please read installation manual before installing or working with module.

Product	Modules per pallet	Pallets per Container	Total Modules
OPT - 60 cell (silver and black)	25	28	700

HEADQUARTERS
5765 Peachtree Industrial Blvd.,
Norcross, Georgia 30092 USA
Tel: +1 404 477 2700
www.suniva.com

Suniva®
The Brilliance of Solar Made Sensible®

TRANSFORMERLESS
STRING INVERTERS

PVI **3800TL**
PVI **5200TL**
PVI **6600TL**
PVI **7600TL**

FEATURES

- 600 VDC
- Highest industry peak and CEC efficiencies
- Lightweight, compact design - smallest in the industry
- Quick and easy installation
- Wide operating voltage range
- DC disconnect

OPTIONS

- Web-based monitoring
- Revenue grade monitoring
- DC arc-fault detection and interrupt

SOLECTRIA RENEWABLES

TRANSFORMERLESS STRING INVERTERS

Solectria Renewables' PVI 3800TL, 5200TL, 6600TL and 7600TL are compact, transformerless, single-phase inverters with the highest peak and CEC efficiencies in the industry. These inverters come standard with an integrated DC disconnect, optional DC arc-fault detection and interrupt, 1 or 2 MPP tracker(s), and a user-interactive LCD and keypad. Its small and lightweight design make for quick and easy installation and maintenance. These inverters include an enhanced DSP control, comprehensive protection functions, and advanced thermal design enabling highest reliability and uptime. They also come with a standard 10 year warranty with options for 15 and 20 years.

Built for the real world

COMING SOON

SPECIFICATIONS		PVI 3800TL	PVI 5200TL	PVI 6600TL	PVI 7600TL
DC Input					
Absolute Maximum Open Circuit Voltage			600 VDC		
Operating Voltage Range			120-550 VDC		
MPPT Input Voltage Range			200-500 VDC		
MPP Trackers		1	2		
Maximum Operating Input Current		20 A	15 A per MPP tracker	18 A per MPP tracker	20 A per MPP tracker
AC Output					
Nominal Output Voltage			208 or 240 VAC, 1-Ph		
AC Voltage Range			-12%/+10%		
Continuous Output Power	208 VAC	3300 W	5200 W	6600 W	6600 W
	240 VAC	3800 W	5200 W	6600 W	7600 W
Continuous Output Current	208 VAC	15.8 A	25 A	31.7 A	31.7 A
	240 VAC	15.8 A	21.6 A	27.5 A	31.7 A
Maximum Backfeed Current			0 A		
Nominal Output Frequency			60 Hz		
Output Frequency Range			59.3-60.5 Hz		
Power Factor			Unity, > 0.99		
Total Harmonic Distortion (THD)			< 3%		
Efficiency					
Peak Efficiency			98%		
CEC Efficiency			97.5%		
Tare Loss			<1 W		
Temperature					
Ambient Temperature Range (full power)			-13°F to +122°F (-25°C to +50°C)		
Storage Temperature Range			-40°F to +185°F (-40°C to +85°C)		
Relative Humidity (non-condensing)			0-100%		
Data Monitoring					
Optional SolrenView Web-based Monitoring			External		
Optional Revenue Grade Monitoring			External		
External Communication Interface			RS485		
Testing & Certifications					
Safety Listings & Certifications			UL 1741/IEEE 1547, UL1699B, CSA C22.2#107.1, FCC part 15 A&B		
Testing Agency		ETL	CSA		
Warranty					
Standard			10 year		
Optional			15, 20; extended service agreement		
Enclosure					
DC Disconnect			Standard, fully-integrated		
Dimensions (H x W x D)		17.5 x 15.8 x 8.5 in. (445 x 401 x 216 mm)	26.8 x 15.8 x 8.5 in. (680 x 401 x 216 mm)		
Weight		43 lbs (19.5 kg)	65 lbs (29.5 kg)		
Enclosure Rating			Type 4		
Enclosure Finish			Aluminum		

SOLECTRIA RENEWABLES www.solectria.com | inverters@solectria.com | 978.683.9700