DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND
BUILDING PERMIT

This is to certify that

ARMSTRONG ALLEN EDGAR & ELISSA MYERS
CONGER JTS/Revision Energy LLC

Located at

103 SPRUCE ST

PERMIT ID: 2013-00509 **ISSUE DATE:** 04/09/2013 **CBL:** 062 C031001

has permission to **Install 6 solar electric panels; electric permit separate.**

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise clsoed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
THERE IS A PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 (ONLY)
or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

REQUIRED INSPECTIONS:

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Issue Date:	CBL:
2013-00509		062 C031001

Location of Construction:	Owner Name:	Owner Address:	Phone:
103 SPRUCE ST	ARMSTRONG ALLEN EDGAR & ELISSA MYERS CONGER ITS	105 SPRUCE ST PORTLAND , ME 04102	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Revision Energy LLC	142 Presumpscot street Portland ME 04101	(207) 323-1805
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Alterations - Dwellings	R6
Past Use:	**Proposed Use:**	**Permit Fee:** / **Cost of Work:**	**CEO District:**
Single Family	Single Family	$90.00 / $7,000.00	3

FIRE DEPT: ☐ Approved ☐ Denied ☐ N/A

Signature:

INSPECTION: Use Group: Type:

Signature:

Proposed Project Description:
Install 6 solar electric panels; electric permit separate.

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
bjs	03/15/2013

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☐ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date:	Date:	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Date Applied For:	CBL:
2013-00509	03/15/2013	062 C031001

Location of Construction:	Owner Name:	Owner Address:	Phone:
103 SPRUCE ST	ARMSTRONG ALLEN EDGAR &	105 SPRUCE ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Revision Energy LLC	142 Presumpscot street Portland	(207) 323-1805
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Alterations - Dwellings	

Proposed Use:	Proposed Project Description:
Single Family	Install 6 solar electric panels; electric permit separate.

Dept: Historic **Status:** Approved w/Conditions **Reviewer:** Deb Andrews **Approval Date:** 04/01/2013

Note: **Ok to Issue:** ☑

1) Panels originally proposed for front roof plane not approved--only those proposed for dormer roof.

•The edges of the panels will be finished in a dark, recessive color to match the roofing material. (If painted in the field, the metal should be primed to ensure that the paint adheres.)

•Any necessary conduit for the panels shall not be visible from Spruce Street.

•If additional panels are proposed for the rear roof plane, the applicant will submit the proposed plans to Historic Preservation staff for confirmation that they will not be visible from the street.

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 03/18/2013

Note: **Ok to Issue:** ☑

Dept: Building **Status:** Approved w/Conditions **Reviewer:** Tammy Munson **Approval Date:** 04/09/2013

Note: **Ok to Issue:** ☑

1) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
2) Equipment shall be installed in compliance with the manufacturer's specifications and the UL listing.

General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 103 Spruce Street		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot	Number of Stories
Tax Assessor's Chart, Block & Lot Chart# Block# Lot#	Applicant: (must be owner, lessee or buyer) Name ReVision Energy Address 142 Presumpscot St City, State & Zip Portland, ME 04103	Telephone: 221-6342 7000
Lessee/DBA RECEIVED MAR 15 2013 Dept. of Building Inspections City of Portland Maine	Owner: (if different from applicant) Name Allen Armstrong Address 105 Spruce Street City, State & Zip Portland, ME 04101	Cost of Work: ~~$3,614~~ C of O Fee: $____ Historic Review: $____ Planning Amin.: $____ Total Fee: $ 90 —

Current legal use (i.e. single family) single family Number of Residential Units ____

If vacant, what was the previous use? ____

Proposed Specific use: ____

Is property part of a subdivision? ____ If yes, please name ____

Project description: INSTALLING SIX solar electric panels to connect to grid

Contractor's name: ReVision Energy Email: jene@revisionenergy.com

Address: applicant

City, State & Zip ____ Telephone: ____

Who should we contact when the permit is ready: Jeri Hatch Telephone: 221-6342

Mailing address: ____

Please submit all of the information outlined on the applicable checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

and I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: J Hatch Date: 3/15/2013

This is not a permit; you may not commence ANY work until the permit is issued

Professional design, installation and service of renewable energy systems

March 15, 2013

City of Portland
389 Congress Street
Portland, ME 04101

RE: ReVision Energy Solar Installation at 105 Spruce Street

Dear Code Enforcement,

ReVision Energy has been contracted to design and install a solar electric system at the above address in Portland. This letter is to confirm that all work will be performed by licensed and qualified installers, expert in the field and in compliance with both manufacturer's recommendations and all applicable local and state codes and standards. This also confirms that the roof structure can handle the weight of the panel load, in addition to snow load. The weight of the panels does not change the structural integrity of the building.

ReVision Energy employs licensed engineers, plumbers, and electricians and carries the solar industries highest certifications (NABCEP) in both solar thermal and photovoltaic installation. We're committed to high quality, code compliant work and look forward to working together with the city and the CEO to ensure that all your requirements and needs are met and that our customer ends up with a system that is beautiful, functional and safe.

Electrical and grounding:
All electrical work to be performed by a licensed ME electrician and will conform to NEC 2011 revision as well as NABCEP standards. Specifically, wiring and grounding of the photovoltaic system will be governed by manufacturer's recommendations and article 690. All installed metal components are grounded via the grounding electrode conductor.

If you have any questions or concerns, we'd like to address them as quickly and completely as possible. Please don't hesitate to call or e mail anytime.

Respectfully,

Fortunat Mueller, P.E.
Co-owner
ReVision Energy
(207) 752-6358
fortunat@revisionenergy.com

ARRAY ORIENTATION:
150° (True)

ARRAY PITCH:
18° angle

Photovoltaic array to be mounted on upper low pitch dormer, making the array virtually invisible from street below.

Project Summary

System	Performance	Cost	Incentives	Net Cost
1.6kw photovoltaic array with US made modules and Solectria string inverter	• Produce roughly 1,759 kWhrs of clean, renewable energy annually. • Offset roughly 2,287 lbs. of CO2 emissions annually.	$8,614 Installed	-($2,584) 30% Federal Tax Credit -($859) Rebate from Efficiency Maine	$5,171

Economic & Environmental Return on Investment

The system we are proposing is guaranteed to pay for itself by harvesting abundant solar energy to replace finite, polluting and increasingly costly fossil fuels. Once you get 100% of your initial investment returned through government financial incentives and energy savings, the system will continue to deliver a revenue stream for decades to come. Plus, the system will eliminate thousands of pounds of CO2 emissions each year, delivering a powerful environmental benefit.

ReVision Energy's mission is to eliminate over-reliance on fossil fuels and the associated emissions. We are succeeding in this mission by installing solar energy systems that are as robust and reliable as traditional mechanical systems. To ensure maximum performance and longevity in a harsh climate, each system is designed by our in-house engineers (Brown, Dartmouth, MIT, UNH) and installed by our experienced team of certified solar professionals. Please join us in the mission to create a clean energy future--we promise to deliver the peace of mind that comes from knowing you have made one of the best investments of your life.

Major System Components

Based on a professional evaluation of your available roofspace, site configuration, and energy demand, ReVision Energy proposes a roof-mounted photovoltaic array of 1.56 kilowatts (nominal).

The system features these major components:

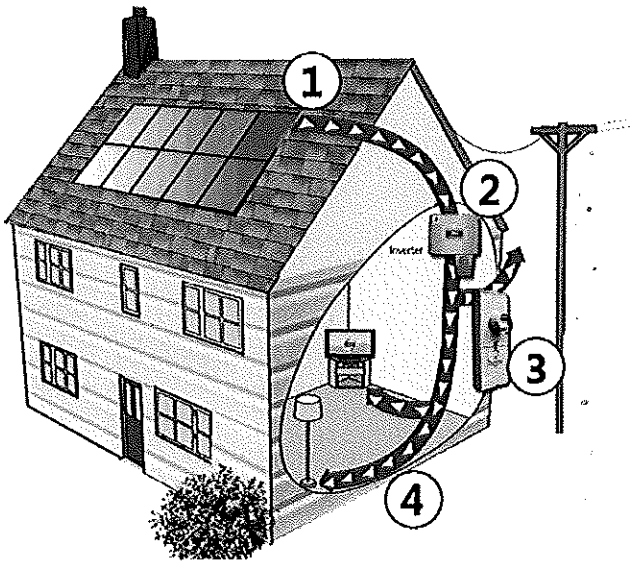
- (55) Feet of Iron Ridge extruded aluminum solar mounting rail with hardware
- (1) Solectria PVI1800 Grid Tied Inverter (www.solren.com)
- (1) Flashed Metallic Junction Box
- (6) American-Made Suniva 260 watt monosilicon photovoltaic panels; Optimus Series: 260-60-4-100 or equivalent (http://www.suniva.com)

System Operation

Whenever sun shines on the solar electric panels, they will generate direct current (DC) electricity. That DC electricity is transmitted to an inverter, which then converts it into AC electricity which can be used in your home. Any electric loads (TV, dryer, electronics, etc.) operating while the sun is shining will use available solar electricity. Any excess will flow out to the grid and you will receive a credit for the production.

Whenever the sun is not out, you will continue to purchase grid electricity as you do now. The local utility company will record electricity you feed into the grid. If at the end of the month your generation is greater than your consumption, you will earn a credit on your next bill. You can bank your surplus from month to month for up to a year.

System Diagram



1. Solar array harvests sunshine.

2. Solar Inverter converts DC power from solar panels to AC power for building.

3. Utility measures solar kWh's exported to the grid during sunny periods (credit), and measures the kWh's purchased from the grid at night or during cloudy periods. This is called net-metering.

4. On-site electricity demand is provided locally from solar production, or can be offset by credits previously banked with the utility.

SOLECTRIA RENEWABLES

STRING INVERTERS

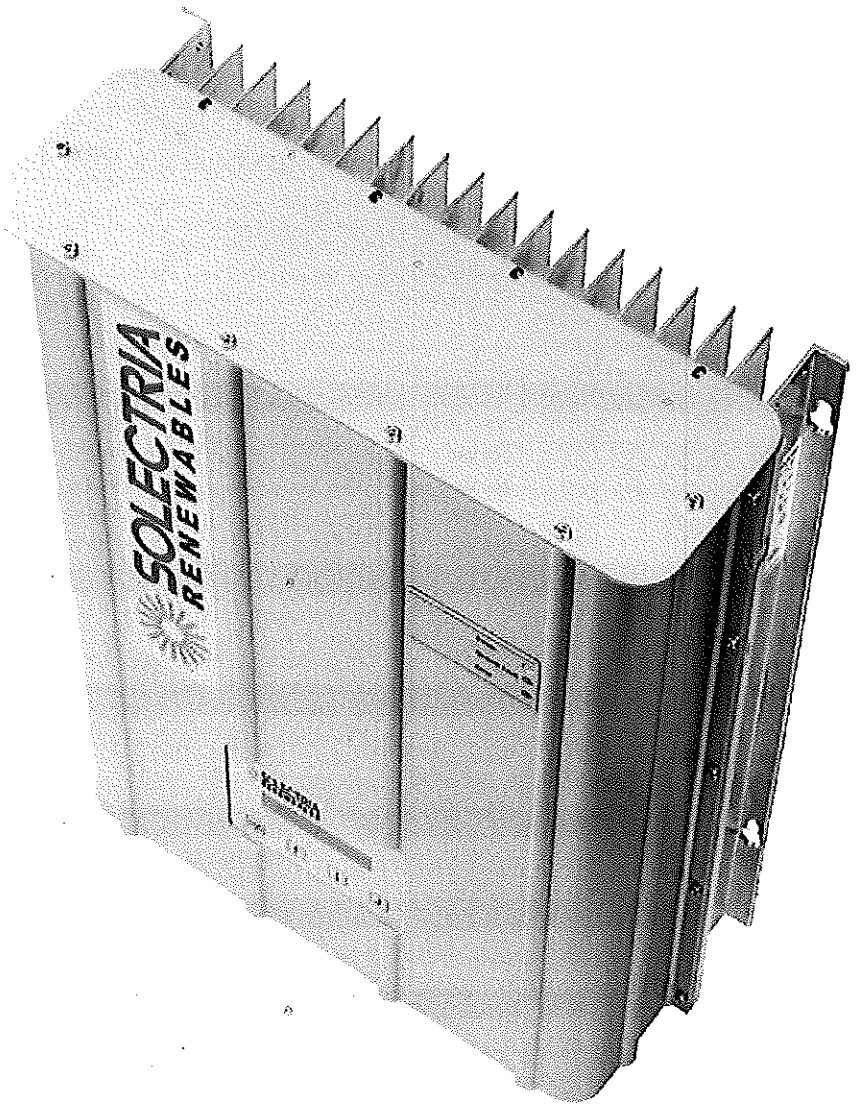
PVI 1800
PVI 2500

FEATURES

- Lightweight
- Tested in harsh weather conditions
- NEMA 4X
- 208 VAC or 240 VAC
- RS232/RS485 communications
- User interactive LCD display

OPTIONS

- Integrated panel assembly
- Web-based monitoring



STRING INVERTERS

The PVI 1800 and PVI 2500 are the smallest single phase inverters in the industry and tested in the harshest weather conditions. This compact, lightweight inverter is easy to handle and install and comes pre-wired with AC and DC connections. The integrated panel assembly option allows for this inverter series to be mounted on an industrial grade aluminum panel, with disconnects and a revenue grade meter.

TÜV

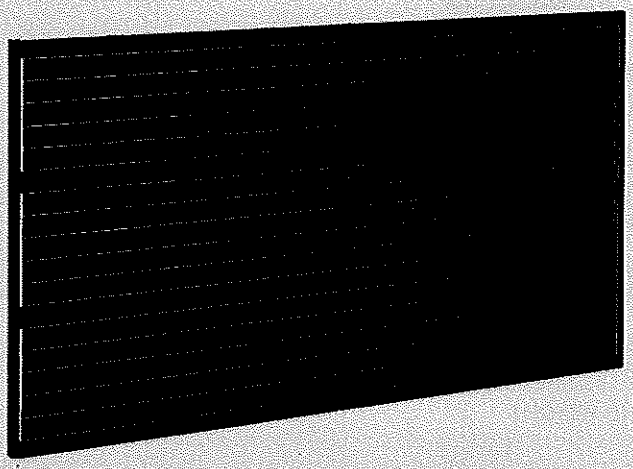
Built for the real world

OPTIMUS SERIES: OPT 60 CELL MODULES

Suniva®
The Brilliance of Solar Made Sensible®

High-quality and high-efficiency
PV yields sensible solar

SUNIVA OPTIMUS® SERIES MONOCRYSTALLINE SOLAR MODULES



OPTXXX-60-4-1B0 (60 CELL MODULE)

The Optimus® modules consist of Suniva's latest technology: ARTisun® Select. These superior monocrystalline cells are designed and manufactured in the U.S.A. using our proprietary low-cost processing techniques. Engineered with our pioneering ion implantation technology, high power-density Optimus modules provide excellent value, performance and reliability.

Certifications:

UL 1703
IEC 61215
IEC 61730- 1/2

CEC

AS5033 Compliant
CEC AUSTRALIA

PVEL PID CERT

Engineering Excellence

- Built exclusively with Suniva's highest-efficiency ARTisun Select cells, providing one of the highest power outputs per square meter at an affordable manufacturing cost
- Suniva's state-of-the art manufacturing facility features the most advanced equipment and technology
- 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.)

Features

- Contains the latest ARTisun Select cell technology - over 19%
- Black frame with black backsheet - ideal for residential market
- Marine grade aluminum frame with hard anodized coating
- Industry leading linear warranty (10 year warranty on workmanship and materials; 25 year linear performance warranty delivering 80% power at STC)
- Buy America compliant upon request
- Qualifies for U.S. EXIM financing
- System and design services available

Quality & Reliability

Suniva Optimus modules are manufactured and warranted to our specifications assuring consistent high performance and quality worldwide.

- Rigorous quality management
- Performance longevity with advanced polymer backsheet
- Produced in an ISO 9001: 2008 certified facility
- Passed the most stringent salt spray test (Severity 6) based on IEC 61701
- Passed enhanced stress tests[1] based on IEC 61215 conducted at Fraunhofer ISE[2]
- Certified PID free[2]
- Ask about our validated PAN files

OUR PRODUCTS:

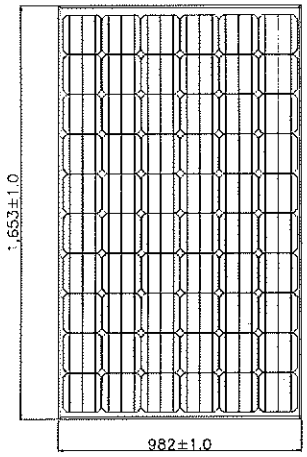
Monocrystalline Modules
OPTIMUS SERIES 60 cell
OPTIMUS SERIES 72 cell

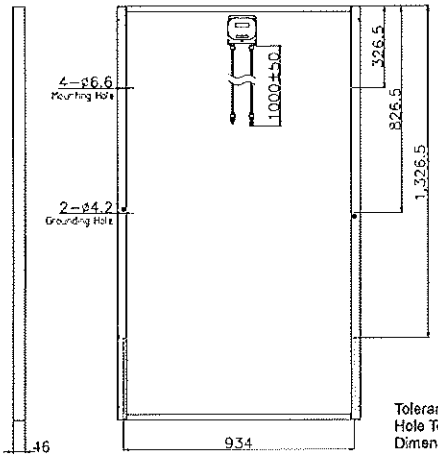
Monocrystalline Cells
19%+ efficiency

Multicrystalline Modules
MV SERIES 60 cell
MV SERIES 72 cell

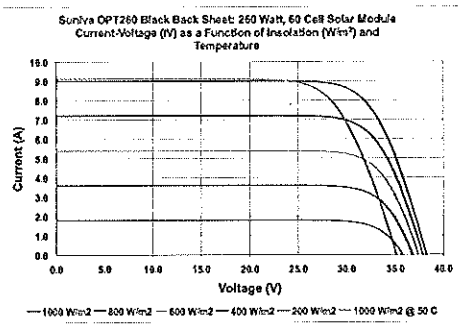
Balance of Systems Solutions (BOSS)
Racking, Inverters, Batteries, Energy Storage Appliances and EV Chargers

OPTIMUS SERIES: OPT 60 CELL MODULES





Tolerances ± 1 mm
Hole Tolerances Vary
Dimensions in mm



ELECTRICAL DATA (NOMINAL)

The rated power may only vary by +/- 2.5Wp and all other electrical parameters by ± 5%

Power Classification	Pmax (W)	250	255	260
Module Efficiency	%	15.40	15.71	16.02
Model Number	OPT	250-60-4-1B0	255-60-4-1B0	260-60-4-1B0
Voltage at Max. Power Point	Vmp (V)	30.00	30.20	30.50
Current at Max. Power Point	Imp (A)	8.34	8.45	8.52
Open Circuit Voltage	Voc (V)	37.80	38.1	38.30
Short Circuit Current	Isc (A)	8.90	8.96	9.01

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

DIMENSIONS AND WEIGHT

Cells / Module	60 (6x10)
Module Dimensions	1653 x 982 mm (65.08 x 38.66 in.)
Module Thickness (Depth)	46 mm (1.81 in.)
Approximate Weight	18.69 kg (41.22 lbs.)

CHARACTERISTIC DATA

Type of Solar Cell	High-efficiency Suniva® ARTisun® Select monocrystalline cells of 156 x 156 mm (6 in.)
Frame	Black anodized aluminum alloy
Glass	Tempered (low-iron); anti-reflective coating
Junction Box[3]	NEMA IP65 rated; 3 internal bypass diodes
Cable & Connectors	4 mm² cable with Tyco SolarLok connectors; cable length approximately 1000 mm
Hardware (Available Upon Request)	Grounding screws: (2) #10-32 x 12.7 mm (#10-32 x 0.5 in.) Stainless steel flat washers: (4) 5 x 10 x 1 mm (0.2 in. ID x 0.39 in. OD x 0.03 in.)

TEMPERATURE COEFFICIENTS

Voltage	ß, Voc (%/°C)	-0.335
Current	α, Isc (%/°C)	+0.047
Power	γ, Pmax (%/°C)	-0.450
NOCT Avg	(+/- 2 °C)	46.0

LIMITS

Max. System Voltage	1000 VDC for IEC (600 VDC for UL)
Operating Module Temperature	-40°C to +85°C
Storm Resistance/Static Load[1]	Tested to IEC 61215 for loads up to 5400 Pa; hail and wind resistant

Suniva® reserves the right to change the data at any time. View manual at suniva.com.
[1]UV 90 kWh, TC 400, DH 2000. [2]Tests were conducted on module type OPT 60 silver frame. [3]Tyco or MC4 - see sales representative.

Headquarters
5765 Peachtree Industrial Blvd.,
Norcross, Georgia 30092 USA
Tel: +1 404 477 2700

www.suniva.com

Please recycle.

Suniva®
The Brilliance of Solar Made Sensible®

08 09 12

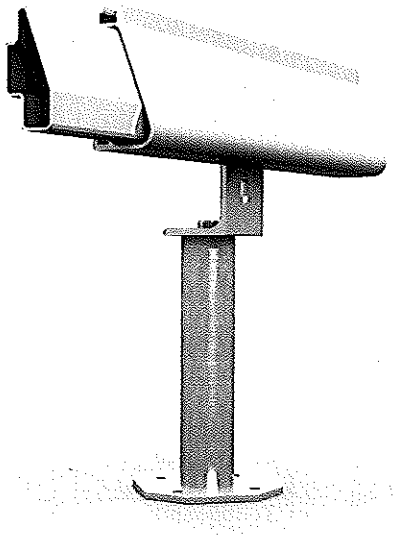
SPECIFICATIONS		PVI 1800	PVI 2500
DC Input			
Absolute Maximum Input Voltage		400 VDC	
MPPT Input Voltage Range		125-350 VDC	
Maximum Operating Input Current		11 A	15 A
AC Output			
Nominal Output Voltage		208 or 240 VAC, 1-Ph	
AC Voltage Range (Standard)		-12%/+10%	
Continuous Output Power	208/240 VAC	1.8 kW	2.5 kW
Continuous Output Current	208 VAC	8.7 A	12 A
	240 VAC	7.5 A	10.4 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)		<4%	
Efficiency			
Peak Efficiency	208/240 VAC	94.5%	94.5%
CEC Efficiency	208 VAC	92.5%	92.0%
	240 VAC	92.5%	93.0%
Tare Loss	208 VAC	0.26 W	0.10 W
	240 VAC	0.14 W	0.32 W
Temperature			
Ambient Temperature Range (full power)		-13°F to +131°F (-25°C to +55°C)	
Storage Temperature Range		-13°F to +131°F (-25°C to +55°C)	
Relative Humidity (non-condensing)		5-95%	
Monitoring Options			
Web-based Monitoring (Inverter Direct)		SolrenView	
Revenue Grade Monitoring		External	
Third Party Compatibility		Standard via RS232/RS485	
Testing & Certifications			
Safety Listings & Certifications		UL 1741/IEEE 1547, IEEE 62.41.2 C1 & C3, FCC part 15 A & B	
Testing Agency		TÜV	
Warranty			
Standard		5 year	
Optional		10 year	
Enclosure			
Transformer		Standard, fully-integrated (internal)	
AC/DC Disconnects		Optional with integrated panel	
Dimensions (H x W x D)		18.5 in. x 13.1 in. x 5.6 in. (470 mm x 333 mm x 143 mm)	23.6 in. x 13.1 in. x 5.6 in. (600 mm x 333 mm x 143 mm)
Weight		34.1 lbs (15.5 kg)	36.3 lbs (16.5 kg)
Enclosure Rating		NEMA 4X	
Enclosure Finish		Anodized aluminum	

PRODUCT DATA SHEET

IRONRIDGE XR ROOF MOUNT PLATFORM

KEY FEATURES

- Extruded aluminum components are lightweight for easy handling yet strong enough for most roof mount applications
- Choice of XRL (lightweight) and XRS (standard) rails
- Both XRL and XRS rails come with slots for attaching L-feet and top slots for attaching panel clamps
- XRS rails has slot for bottom mounting clamps
- Hidden internal splice bars are aesthetically pleasing
- Internal splices provide superior strength and flexibility with L-feet placement
- Adjustable L-feet have vertical extension slots for easy adjustability of up to 1-3/8"
- Standoffs provide increased airflow and ventilation and enable precise placement of flashings
- Standoffs come in four standard heights: 3", 4", 6", and 7"
- XR platform compatible with popular flashings including QuickMount and Oatey
- Panel clamps for both top and bottom mounting
- Panel clamps for most popular photovoltaic modules
- Mid-clamp design maximizes panel density
- Ground clips eliminate the need for copper wire between modules
- The XR Roof Mount components are covered with an industry-leading 10 year limited product warranty and a 5 year limited finish warranty
- All XR Roof Mount components are PE certified



The IronRidge XR platform is a reliable, comprehensive, and feature rich photovoltaic mounting solution. Anchored by the XRS (Standard) and XRL (Light) rails, the XR platform includes all of the components necessary for supporting virtually any commercial or residential roof mount installation, regardless of surface material or roof grade.

The XRS and XRL rails are manufactured from extruded aluminum to maximize spans while minimizing weight for improved handling. The graceful curves of the XRS rail will please even the most aesthetically demanding customers. Rails can be extended with the IronRidge patent-pending internal splice bars, providing a strong support connection and ultimate flexibility in footing attachment locations. Installers have a variety of options in attaching IronRidge rails to the roof, including adjustable L-feet, aluminum standoffs, and tilt legs for optimizing power. In addition, IronRidge accommodates modules from most major manufacturers. Top-down panel clamps securely grip the outside frame of the module, freeing the installer from the constraints of panel mounting holes. The XRS rail has an additional side slot to enable the option of bottom mounting. Lastly, grounding clips pierce the anodized rails, creating a ground path through the equipment and eliminating the need to run copper wire between every module.

IronRidge provides a complete technical support system that includes step-by-step installation guides, engineering certification documentation, easy-to-read span charts, and on-line configurator software.

See reverse for product specifications and ordering information. Please contact your local distributor for configuration assistance.

IRONRIDGE

707-459-9523
sales@ironridge.com
www.ironridge.com

SPECIFICATIONS

- XRL/XRS Rail – 6105-T5 extruded anodized aluminum
- XRL/XRS Splice Bars – 6105-T5 extruded aluminum
- Standoffs – 6105-T5 extruded aluminum
- L-feet: 6105-T5 extruded aluminum
- Clamps: 5052-H32 aluminum
- Hardware: 18-8 Stainless Steel

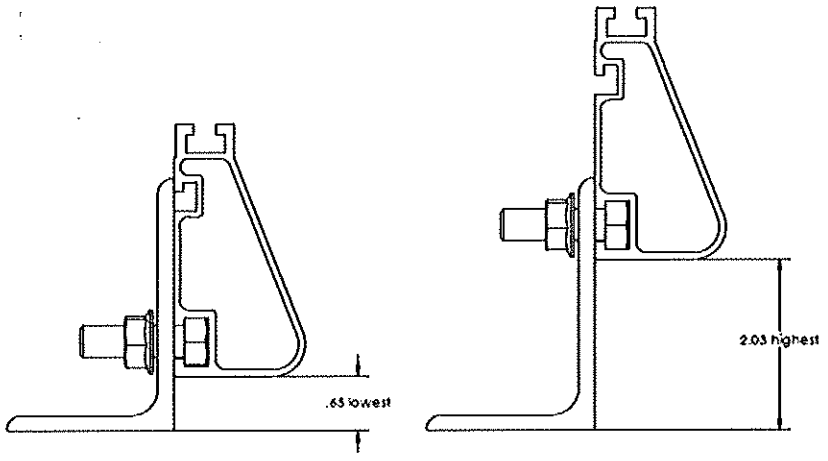
XRS PROPERTIES

- Area = .807136 inches^2
- Centroid relative to output coordinate system origin
  - X = 0.5556
  - Y = 1.4097
  - Z = 120.000
- Moments of Inertia of the area (at the centroid)
  - Lxx = 0.8430
  - Lxy = 0.1117
  - Lxz = 0.0000
  - Lyx = 0.1117
  - Lyy = 0.1822
  - Lyz = 0.0000
  - Lzx = 0.0000
  - Lzy = 0.0000
  - Lzz = 1.0252
- Polar Moment of Inertia
  - At Centroid = 1.0252^4
- Principal Moments of Inertia
  - Ix = 0.1638
  - Iy = 0.8614
- Principal-Part Axes
  - Angle = 99.343 degrees
- Moments of Inertia (output)
  - LXX = 11625.205
  - LXY = 0.5204
  - LXZ = 53.8153
  - LYX = 0.5204
  - LYY = 11623.1909
  - LYZ = 136.5369
  - LZX = 53.8153
  - LZY = 136.5369
  - LZZ = 2.8784

ORDERING INFORMATION

XR Rails		
Part Number	**Description**	**Weight**
51-7000-144a	XRS Standard Rail (1) – 12 feet	11.364 lbs
51-7000-168a	XRS Standard Rail (1) – 14 feet	13.258 lbs
51-7000-192a	XRS Standard Rail (1) – 16 feet	15.152 lbs
51-7000-216a	XRS Standard Rail (1) – 18 feet	17.046 lbs
51-6000-144a	XRL Light Rail (1) – 12 feet	6.288 lbs
51-6000-168a	XRL Light Rail (1) – 14 feet	7.336 lbs
51-6000-192a	XRL Light Rail (1) – 16 feet	8.384 lbs
51-6000-216a	XRL Light Rail (1) – 18 feet	9.432 lbs
29-7000-010	XRS Splice Kit (1)	0.442 lbs
29-7000-000	XRL Splice Kit (1)	0.151 lbs
Panel Clamps		
Part Number	**Description**	**Weight**
29-7000-xxx	End Clamps (4) – depends on panel	.251-.290 lbs
29-7000-10x	Mid Clamps (4) – depends on panel	.213-.251 lbs
29-7000-117	Under Clamps (4)	0.324 lbs
Footing Attachments & Flashings		
Part Number	**Description**	**Weight**
29-7000-017	L-feet Kit (4)	0.872 lbs
51-600x-500	3"-7" Standoffs – Specify L-feet or Tilt leg	.533-.710 lbs
31-1000-001	Oatey Galvanized Flashing 11830 (12)	8.750 lbs
31-1000-000	QuickMount QMSCA12 (12)	13.390 lbs
51-7200-0XX	Tilt Legs (7" – 40")	.0658 lbs/inch
51-7210-000	Tilt Leg Bracket	1.576 lbs
Grounding		
Part Number	**Description**	**Weight**
29-4000-001	WEEB DMC-Clip (100)	0.258 lbs
29-4000-002	WEEB Grounding Lug (100)	12.356 lbs
29-4000-003	WEEB Bonding Jumper (100)	17.614 lbs
29-4000-006	WEEB ACC-PV Wire Clip (100)	0.625 lbs

L-FOOT DIMENSIONS



IRONRIDGE

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