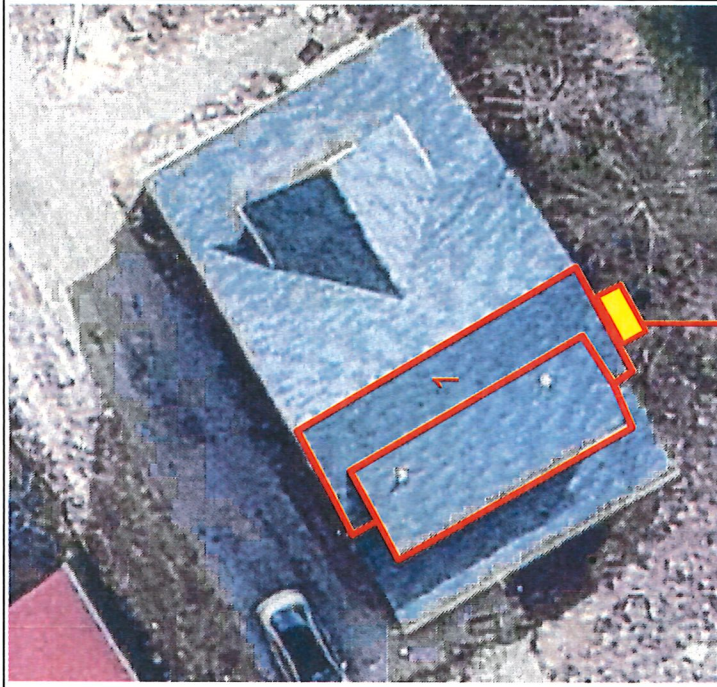
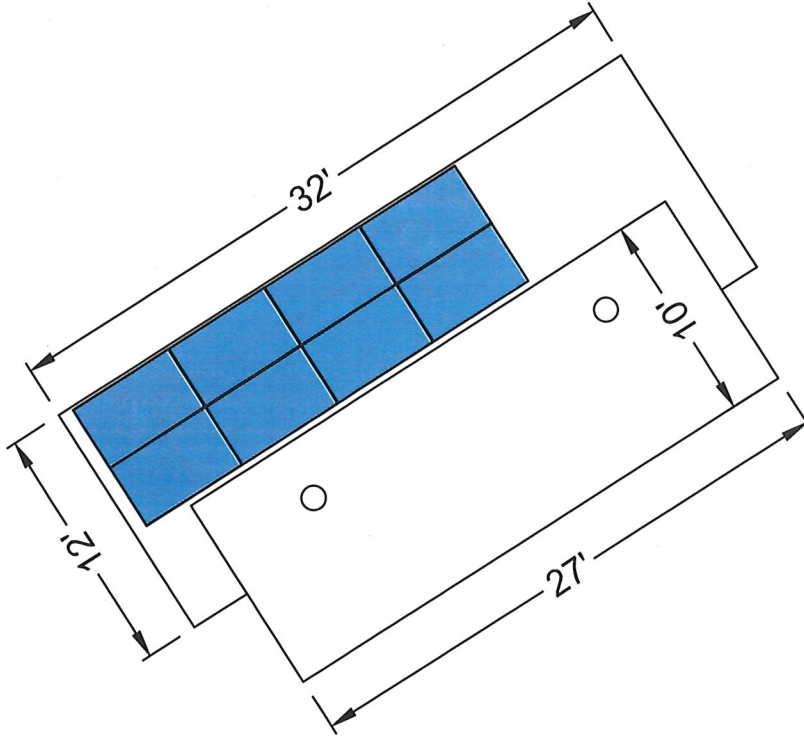




Roof 1: South West
8 modules



Utility meter &
AC Disconnect

Canadian Solar
CS6K - 290MS



65.0 x 39.1 in



Al Butler
Certificate No. 031310-32

System Details:

- Residential 2.32kW grid tied (photovoltaic) system
- This system has been designed in accordance with all current and applicable NEC, OBC, and RCO codes
- Height of the Array: 3-4in above the roof, parallel to the roof
- Weight of the Array: Less than 4lbs/ft²
- Total Area of Array: 5.41ft x 3.25ft x 8 = 141sq ft.
- No fencing or trenching is required for this project

SYSTEM: 8 x Canadian Solar CS6K- 290MS @ 290W - 2.32 kW • AZIMUTH: 239° • PITCH: 36°

Customer Signature

Bob Dyer (Expansion)
136 Franklin Street
Hudson, OH 44236
PH: (330) 819-3977

PV Layout
2.32 kW Solar PV System
Project: 470 - BD(Expansion)



Reinforcing Clean Energy
yellowLite

1925 St Clair Ave NE
Cleveland, OH 44114
Phone: (330) 333-4384
www.yellowlite.com

Module Specifications

Model: Canadian Solar CS6K-290MS
Nominal Max. Power(P_{max}): 290W
Opt. Operating Voltage (V_{mp}): 32.1V
Opt. Operating Current (I_{mp}): 9.05A
Open Circuit Voltage (V_{oc}): 39.3V
Short Circuit Current (I_{sc}): 9.67A
Circuit Voltage (V_{oc}): 39.7Vdc
Module Efficiency: 17.72%
Operating Temperature: -40°C ~ +85°C
Max. System voltage: 1000V (IEC) or 1000V (UL)
Max. Series Fuse Rating: 15A
Number of cells: 60, Mono-Crystalline.
Dimensions (L/W/H in): 65/39.1/1.57
Listing: UL 1703 Type 1 or Class C (IEC 61730)

Inverter Specifications

Model: Chilicon Power CP-250E
Recommended Input power (STC): 190 - 345W
Max. Input DC Voltage: 60Vdc
MPPT voltage Range: 22 - 38.5Vdc
Operating Range: 18 - 38.5Vdc
Min./Max. start voltage: 22 - 47Vdc
Max. DC Input short circuit current: 21A
Max. DC Input Current: 12A
Ground Fault Protection: Transformer isolated 2000Vrms input/output/chassis
Max. Continuous Output Power: 250W(285W extended range)
Max. Continuous Output Current: 1.04A(1.19A extended range)
Nominal Output Voltage/Range: 240/211-264Vac
Extended Output Voltage Range: 153/173/192-208Vac
Nominal Frequency/ Range: 60/59.3-60Hz
Extended Frequency Range: 54.22 - 66.75Hz
Power Factor: -0.8 to 0.8 programmable
Max. units per 20A branch circuit: 15(13 when extended 285W)
Max. output fault current & duration: 1.6A peak for >10% of any cycle
Max. Output overcurrent protection: 6.3A
Peak inverter Efficiency: 96.6%
Dimension(W/H/D in): 12/8/1.8
Weight: 1.55kg (3.4lbs)
Capability: 60/72 cell PV modules

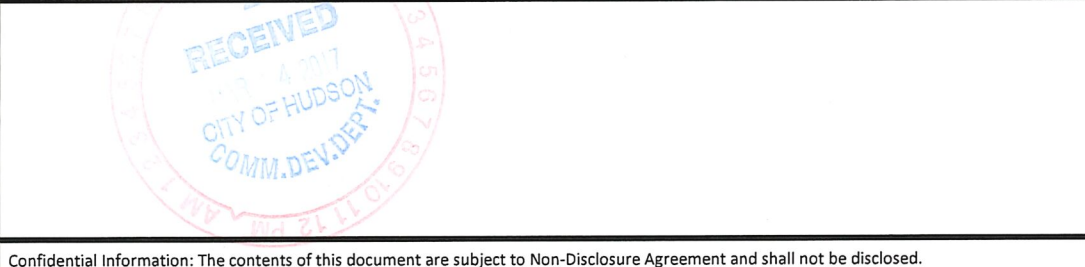
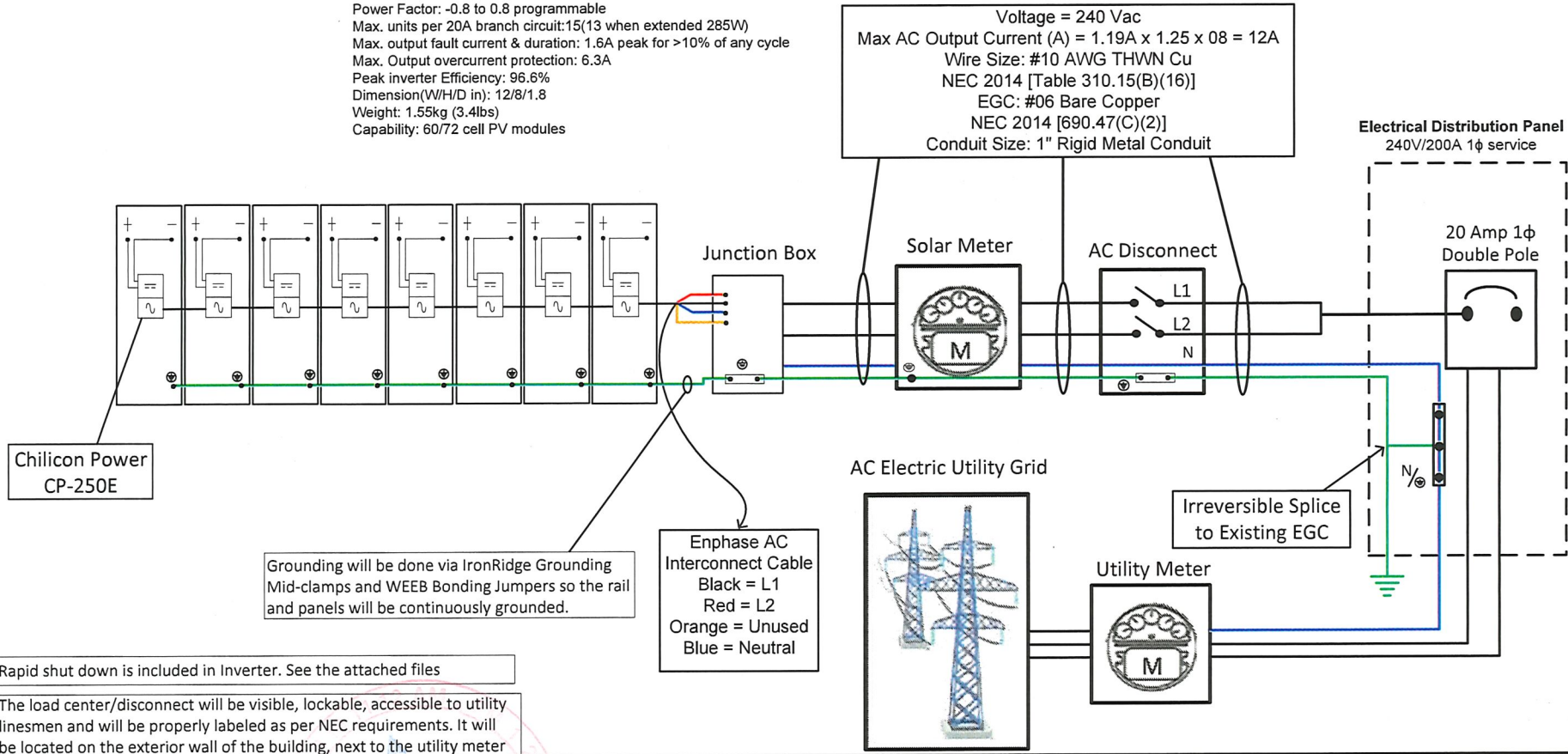
System Specifications:

System Type: Grid-connected
Mounting Method: Roof top
Power rating of system: 2.320kW
Number of panels: 08
Number of inverters: 08

AC Disconnect

Ampere Rating: 30A

All wires will be encased in RIGID METAL CONDUIT, both inside and outside the home.



Bob Dyer
136 Franklin Street
Hudson, OH 44236

Line Diagram
2.320kW Solar Photovoltaic
Project: 470 - BD(Expansion)



Confidential Information: The contents of this document are subject to Non-Disclosure Agreement and shall not be disclosed.



New Cell Technology
with 5 Busbar



NEW 5 BUSBAR CELL TECHNOLOGY

QUINTECH SUPERPOWER CS6K-290 | 295 MS

Canadian Solar's new SuperPower mono modules significantly improve module efficiency and reliability. The new five busbar technology offers superior low light performance in the morning, in the evening and on cloudy days, increasing the energy output of the module and the yield of the solar system.

KEY FEATURES



11% more power than conventional modules



Excellent performance at low irradiance:
97.3 %



Low temperature coefficients improve
energy production



IP67 junction box for long-
term weather endurance



Heavy snow load up to 5400 Pa,
wind load up to 2400 Pa



linear power output warranty



product warranty on materials
and workmanship

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2008 / Quality management system
ISO/TS 16949:2009 / The automotive industry quality management system
ISO 14001:2004 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: TÜV-Rheinland / VDE / CE
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE / Take-e-way



* As there are different certification requirements in different markets, please contact your local Canadian Solar sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

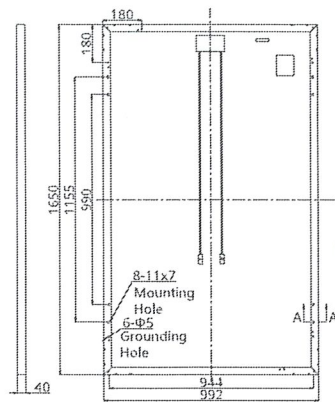
CANADIAN SOLAR INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading manufacturer of solar modules and PV project developer with over 15 GW of premium quality modules deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

CANADIAN SOLAR (USA) INC.

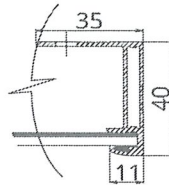
2430 Camino Ramon, Suite 240 San Ramon, CA, USA 94583-4385, www.canadiansolar.com, sales.us@canadiansolar.com

ENGINEERING DRAWING (mm)

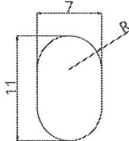
Rear View



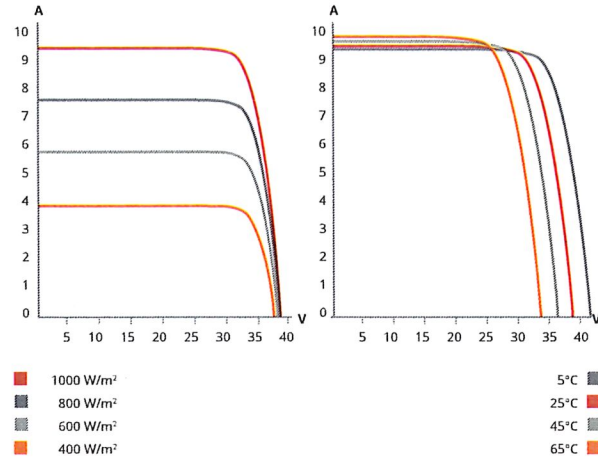
Frame Cross Section A-A



Mounting Hole



CS6K-285MS / I-V CURVES



ELECTRICAL DATA / STC*

CS6K	290MS	295MS
Nominal Max. Power (Pmax)	290 W	295 W
Opt. Operating Voltage (Vmp)	32.1 V	32.3 V
Opt. Operating Current (Imp)	9.05 A	9.14 A
Open Circuit Voltage (Voc)	39.3 V	39.5 V
Short Circuit Current (Isc)	9.67 A	9.75 A
Module Efficiency	17.72 %	18.02 %
Operating Temperature	-40°C ~ +85°C	
Max. System Voltage	1000 V (IEC) or 1000 V (UL)	
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)	
Max. Series Fuse Rating	15 A	
Application Classification	Class A	
Power Tolerance	0 ~ + 5 W	

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA / NOCT*

Electrical Data CS6K	290MS	295MS
Nominal Max. Power (Pmax)	210 W	213 W
Opt. Operating Voltage (Vmp)	29.0 V	29.2 V
Opt. Operating Current (Imp)	7.25 A	7.30 A
Open Circuit Voltage (Voc)	36.2 V	36.4 V
Short Circuit Current (Isc)	7.74 A	7.83 A

* Under Nominal Operating Cell Temperature (NOCT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

PERFORMANCE AT LOW IRRADIANCE

Industry leading performance at low irradiance, average relative efficiency of 97.3 % from an irradiance of 1000 W/m² to 200 W/m² (AM 1.5, 25°C).

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to on-going innovation, research and product enhancement, Canadian Solar Inc. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

Caution: For professional use only. The installation and handling of PV modules requires professional skills and should only be performed by qualified professionals. Please read the safety and installation instructions before using the modules.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline, 6 inch
Cell Arrangement	60 (6×10)
Dimensions	1650×992×40 mm (65.0×39.1×1.57 in)
Weight	18.2 kg (40.1 lbs)
Front Cover	3.2 mm tempered glass
Frame Material	Anodized aluminium alloy
J-Box	IP67, 3 diodes
Cable	4 mm ² (IEC) or 4 mm ² & 12 AWG 1000 V (UL), 1000 mm (39.4 in)
Connectors	T4 (IEC / UL)
Standard	26 pieces, 520 kg (1146.4 lbs)
Packaging	(quantity & weight per pallet)
Module Pieces per Container	728 pieces (40' HQ)

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.39 % / °C
Temperature Coefficient (Voc)	-0.30 % / °C
Temperature Coefficient (Isc)	0.053 % / °C
Nominal Operating Cell Temperature	45±2 °C

PARTNER SECTION



Chilicon Power Microinverters

CHILICON POWER CP-250E



Maximum Energy Production

Reliability by Design

Enhanced Monitoring

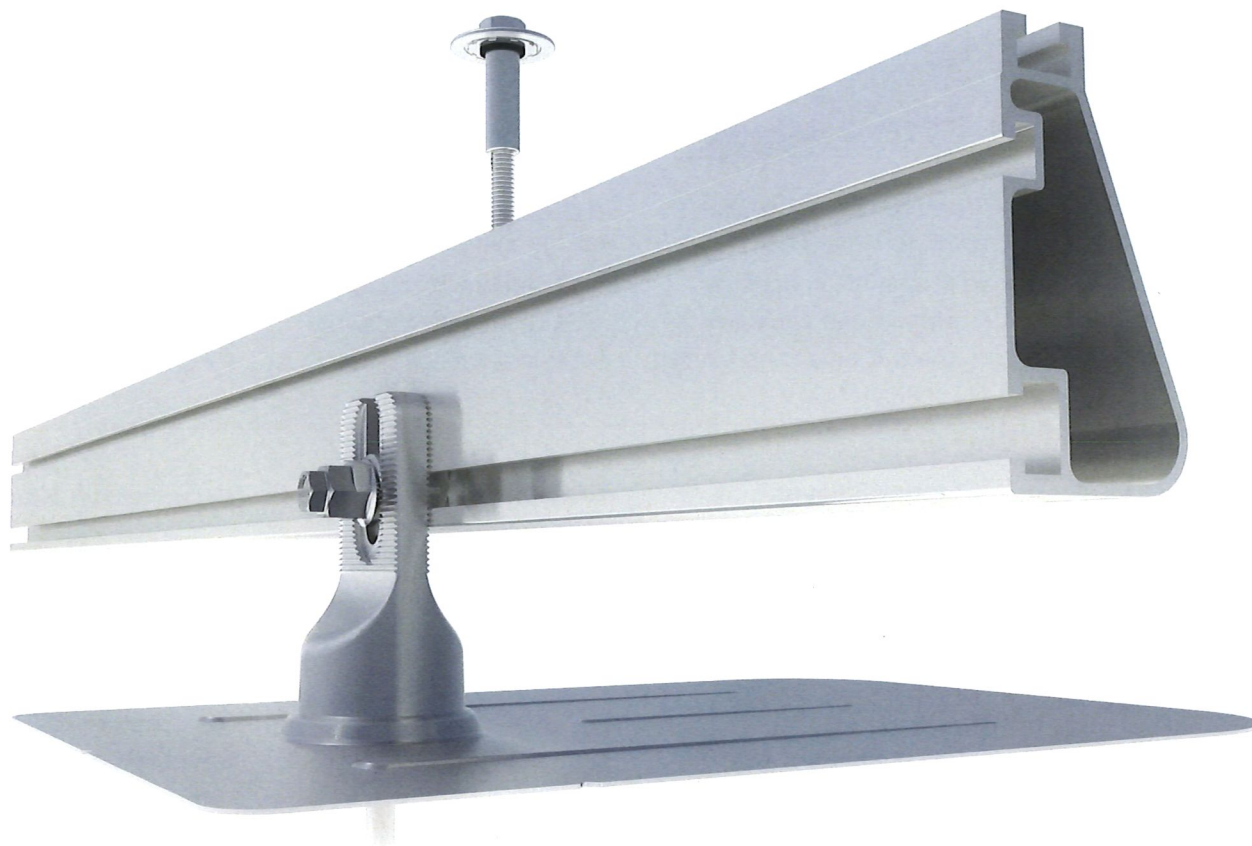
Simplified Installation

Safety





Flush Mount System



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.



Strength Tested

All components evaluated for superior structural performance.



PE Certified

Pre-stamped engineering letters available in most states.



Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.



Design Assistant

Online software makes it simple to create, share, and price projects.



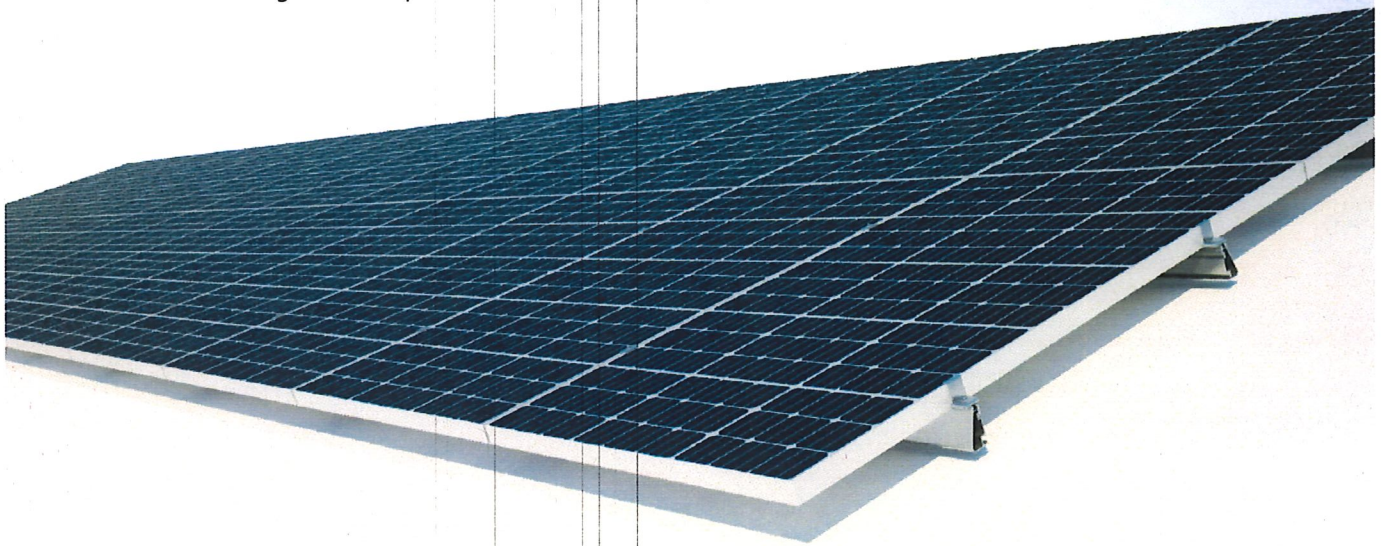
UL 2703 Listed System

Entire system and components meet newest effective UL 2703 standard.



20-Year Warranty

Twice the protection offered by competitors.



IronRidge Roof Mounts are of the highest quality and the fastest system for installers. Customers appreciate the professional appearance found only with IronRidge XRS and XRL rail profiles.

Key Features

Longest Spans In The Industry Allows Fewest Required Attachment Points

Minimal Attachments Points Reduces Total Installed Costs And Liability

Unique Curved Profile Of The XRS Increases Strength And Enhances Aesthetic Design

Backed By Industry Leading Warranty
10 yr. Limited Product, 3 yr. Finish

PE Certified For Most States

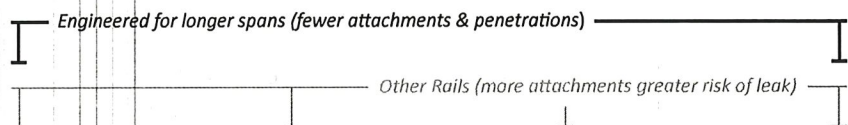
Multiple Attachment Options Supports Tilt Or Flush Mounting, Works With Most Any Brand Of Solar Panel

Versatile Design Can Be Used In Ground Mount, Roof Mount, or Large Array Applications

Best Customer Service And Support

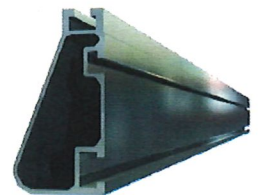
IronRidge Roof Mount System is a reliable, comprehensive, and feature rich photovoltaic mounting solution. Anchored by the XRS (Standard) and XRL (Light) rails, the IronRidge Roof Mounts platform includes all of the components necessary for supporting virtually any commercial or residential roof mount installation, regardless of roof type or pitch.

IronRidge Rails: Less Material, Faster Installation, Minimized Risk of Leaks



XRS Rail (Standard)

- Unique shape and profile allow for spans over 13'
- Cantilever can be 40% of span length
- Attractive structural design, suitable for residential or commercial applications
- 6105-T5 extruded aluminum (anodized)



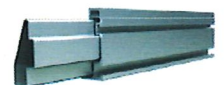
XRL Rail (Lightweight)

- Light, cost effective rail system supports spans up to 8'
- Cantilever can be 40% of span length
- 6105-T5 extruded aluminum (anodized)



Splices (Internal)

- Can be installed at same location as an attachment
- Does not require additional attachments to support the splice



Maximum Span Chart:		XR Standard Rail (XRS)							XR Light Rail (XRL)				
Wind Speed	Snow Loads	0 psf	10 psf	20 psf	30 psf	40 psf	50 psf	60 psf	0 psf	10 psf	20 psf	30 psf	40 psf
90 mph	13.5'	12.5	10.5	10.0	9.0	8.5	7.5	8	7	6	5.5	5	
100 mph	13.5	12.5	10.5	10.0	9.0	8.5	7.5	8	7	6	5.5	5	
110 mph	13	12.5	10.5	10.0	9.0	8.5	7.5	7.6	7	6	5.5	5	
120 mph	12	12	10.5	10.0	9.0	8.5	7.5	7	7	6	5.5	5	
130 mph	11	11	10.5	10.0	9.0	8.5	7.5	6.5	6.5	6	5.5	5	
140 mph	10	10	10	9.5	9.0	8.5	7.5	6	6	6	5.5	5	
150 mph	9.6	9.5	9.5	9.5	8.5	8	7.5	5.5	5.5	5.5	5.5	5	

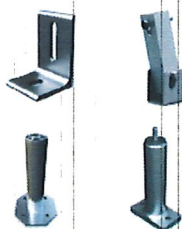
Roof Zone 1, Flush Mount Only
 Slope = 6" / ft.
 Exposure category B
 Module length: 77"

Building mean roof height = 30'
 Clearance between roof and rail: 2"
 End Cant Span: 40% (adj. interior span)
 Middle 1/3 span rail splice not permitted

* For more information visit www.ironridge.com to receive official specifications as well as charts for tilt applications and exposure categories.

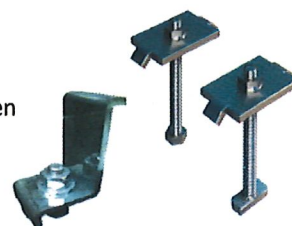
Attachments

- Adjustable L feet (4 pack kits)
- Adjustable tilt leg kits (5° to 45°)
- Aluminum standoffs flush mount (3", 4", 6", 7")
- Steel standoffs - tilt (4", 6")



Clamps

- Panel Sizes 1.22" to 2.33"
- Mid clamps, only 1/4" between panels
- Available in hex or t-bolt
- All hardware stainless steel



End Caps

Protect against collection of debris while providing a finished look for XRS and XRL rails



Wire Clips

Accommodates up to eight 6mm panel wires or an Enphase wire harness



Why IronRidge



Experience - Designing/manufacturing solar mounting products since 1996

Single Source - Roof mounts, ballasted mounts, large arrays, and more; *a solution for your specific application*

Customer Satisfaction - Customer service and technical support to help you succeed

On-line Resources Available:

- Video Tutorials
- Product Configurators
- Product Certifications
- Installation Guides
- Data Sheets
- Reseller Locator



Sales: 800-227-9523
sales@ironridge.com

www.IronRidge.com
 1435 Baechtel Road
 Willits, CA 95490

CP-250E-60-72-208/240-MC4 Microinverter Specifications

INPUT DATA (DC)

Recommended input power (STC)	190 - 345 W
Maximum DC input voltage	60 V
MPPT voltage range	22 - 38.5 V
Operating range	18 - 38.5 V
Min./Max. start voltage	22 - 47 V
Max. DC input short circuit current	21 A
Max. DC input current	12 A
Ground fault protection	Transformer isolated 2000 Vrms input/output/chassis

OUTPUT DATA (AC)

	@ 208 V	@ 240 V
Max. continuous output power	250 W (285 W extended range)	250 W (285 W extended range)
Max. continuous output current	1.20 A (1.37 A when 285 W extended)	1.04 A (1.19 A when 285 W extended)
Nominal output voltage / range	208 / 183 - 229 V	240 / 211 - 264 V
Extended output voltage range	133 / 150 / 166 - 250 V	153 / 173 / 192 - 288 V
Nominal frequency* / range	60.0 / 59.3 - 60.5 Hz	60.0 / 59.3 - 60.5 Hz
Extended frequency range	54.22 - 66.75 Hz	54.22 - 66.75 Hz
Power factor	-0.8 to 0.8 programmable	-0.8 to 0.8 programmable
Maximum units per 20 A branch circuit	13 (11 when 285 W extended)	15 (13 when 285 W extended)
Maximum output fault current & duration	1.6 A peak for > 10% of any cycle	1.6 A peak for > 10% of any cycle
Maximum output overcurrent protection	6.3 A	6.3 A
*50Hz operation; 50.0 / 49.5 - 50.5 Hz	45.2 - 55.7 Hz extended range	Bond Trunk Red to White for 1 Φ system

EFFICIENCY

CEC weighted efficiency	96.09 %
Peak inverter efficiency	96.6 %
Static MPPT efficiency (EN 50530)	99.5 % - 99.8 %
Night time power consumption	40 mW @ 208V, 80 mW @ 240 V

MECHANICAL DATA

Ambient temperature range	-40°C to +65°C
Dimension (W x H x D) including connectors	12" x 8" x 1.8"
Weight	1.55 kg (3.4 lbs)
Enclosure rating	NEMA 6

FEATURES

Communication	Power line (130.2 kHz carrier)
Monitoring	Free monitoring via gateway or online software
Compliance	UL1741, IEEE std 1547, IEEE std C62.41.2, CSA C22.2 NO. 107.1 & CISPR 22 Class B
Compatibility	60/72 cell PV modules with compatible input voltage range specifications above