THIS IS A 3-PAGE FORM - ALL INFORMATION IS REQUIRED FOR PROJECT REVIEW

HISTORIC DISTRICT COMMISSION
PROJECT REVIEW REQUEST

City of Detroit - Planning & Development Department
2 Woodward Avenue, Suite 808
Detroit, Michigan 48226

DATE: 6/28/21

PROPERTY INFORMATION

ADDRESS(ES): 3290 Sherbourne Rd AKA:

PARCEL ID: 020004914 HISTORIC DISTRICT: Sherwood Forset

SCOPE OF WORK: (Check ALL that apply)
- ☐ Windows/ Doors
- ☐ Walls/ Siding
- ☐ Painting
- ☐ Roof/Gutters/ Chimney
- ☐ Porch/Deck/ Balcony
- ☐ Addition
- ☐ Demolition
- ☐ Signage
- ☐ New Building
- ☐ Major Alteration *(3+ scope items)*
- ☐ Site Improvements *(landscape, trees, fences, patios, etc.)*

BRIEF PROJECT DESCRIPTION: Roof Mounted Solar Array
Roof Mounted Solar Array

APPLICANT IDENTIFICATION

- ☐ Property Owner/ Homeowner
- ☑ Contractor
- ☐ Tenant or Business Occupant
- ☐ Architect/Engineer/ Consultant

NAME: Mark Hagerty COMPANY NAME: Michigan Solar Solutions

ADDRESS: 11780 NW Monroe Rd CITY: Riverdale STATE: MI ZIP: 48877

PHONE: 2489233456 ext 3 MOBILE: EMAIL:

PROJECT REVIEW REQUEST CHECKLIST

Please attach the following documentation to your request:

PLEASE KEEP FILE SIZE OF ENTIRE SUBMISSION UNDER 30MB

- ☑ **Completed Building Permit Application** (highlighted portions only)
- ☐ **ePLANS Permit Number** (only applicable if you've already applied for permits through ePLANS)
- ☑ **Photographs** of ALL sides of existing building or site
- ☑ **Detailed photographs** of location of proposed work (photographs to show existing condition(s), design, color, & material)
- ☐ **Description of existing conditions** (including materials and design)
- ☑ **Description of project** (if replacing any existing material(s), include an explanation as to why replacement--rather than repair--of existing and/or construction of new is required)
- ☑ **Detailed scope of work** (formatted as bulleted list)
- ☐ **Brochure/cut sheets** for proposed replacement material(s) and/or product(s), as applicable

NOTE:
Based on the scope of work, additional documentation may be required.
See www.detroitmi.gov/hdc for scope-specific requirements.

Upon receipt of this documentation, staff will review and inform you of the next steps toward obtaining your building permit from the Buildings, Safety Engineering and Environmental Department (BSEtED) to perform the work.

SUBMIT COMPLETED REQUESTS TO: HDC@DETROITMI.GOV

P2 - BUILDING PERMIT APPLICATION

Date: 6/28/21

PROPERTY INFORMATION

Address: 3290 Sherbourne Rd Floor: _____ Suite#: ____ Stories: _____

AKA: _____ Lot(s): _____ Subdivision: _____

Parcel ID#(s): _____ Total Acres: _____ Lot Width: _____ Lot Depth: _____

Current Legal Use of Property: _____ Proposed Use: _____

Are there any existing buildings or structures on this parcel? ■ Yes ☐ No

PROJECT INFORMATION

Permit Type: ☐ New ■ Alteration ☐ Addition ☐ Demolition ☐ Correct Violations

☐ Foundation Only ☐ Change of Use ☐ Temporary Use ☐ Other: _____

☐ Revision to Original Permit #: _____ (Original permit has been issued and is active)

Description of Work (Describe in detail proposed work and use of property, attach work list)

Roof Mounted Solar Array

☐ MBC use change ☐ No MBC use change

Included Improvements (Check all applicable; these trade areas require separate permit applications)

☐ HVAC/Mechanical ☐ Electrical ☐ Plumbing ☐ Fire Sprinkler System ☐ Fire Alarm

Structure Type

☐ New Building ☐ Existing Structure ☐ Tenant Space ☐ Garage/Accessory Building

☐ Other: _____ Size of Structure to be Demolished (LxWxH) _____ cubic ft.

Construction involves changes to the floor plan? ☐ Yes ☐ No

(e.g. interior demolition or construction to new walls)

Use Group: _____ Type of Construction (per current MI Bldg Code Table 601) _____

Estimated Cost of Construction $ _____ (By Contractor) $ _____ (By Department)

Structure Use

☐ Residential-Number of Units: _____ ☐ Office-Gross Floor Area _____ ☐ Industrial-Gross Floor Area _____

☐ Commercial-Gross Floor Area: _____ ☐ Institutional-Gross Floor Area _____ ☐ Other-Gross Floor Area _____

Proposed No. of Employees: _____ List materials to be stored in the building: _____

PLOT PLAN SHALL BE submitted on separate sheets and shall show all easements and measurements (must be correct and in detail). SHOW ALL streets abutting lot, indicate front of lot, show all buildings, existing and proposed distances to lot lines. (Building Permit Application Continues on Next Page)

For Building Department Use Only

Intake By: _____ Date: _____ Fees Due: _____ DngBld? ☐ No

Permit Description:

Permit #:

Current Legal Land Use: _____ Proposed Use: _____

Permit#: _____ Date Permit Issued: _____ Permit Cost: $ _____

Zoning District: _____ Zoning Grant(s): _____

Lots Combined? ☐ Yes ☐ No (attach zoning clearance)

Revised Cost (revised permit applications only) Old $ _____ New $ _____

Structural: _____ Date: _____ Notes: _____

Zoning: _____ Date: _____ Notes: _____

Other: _____ Date: _____ Notes: _____

IDENTIFICATION (All Fields Required)

Property Owner/Homeowner ☐ Property Owner/Homeowner is Permit Applicant

Name: Jeremy Wagner-Kaiser Company Name: _____

Address: 3290 Sherbourne RD City: Detroit State: MI Zip: 48221

Phone: 7343581093 Mobile: _____

Driver's License #: _____ Email: kalium@gmail.com

Contractor ■ Contractor is Permit Applicant

Representative Name: Mark Hagerty Company Name: Michigan Solar Solutions

Address: 11780 NW Monroe Rd City: Riverdale State: MI Zip: 48877

Phone: 2489233456 ext 3 Mobile: _____ Email: mkiehl@michigansolarsolutions.com

City of Detroit License #: _____

TENANT OR BUSINESS OCCUPANT ☐ Tenant is Permit Applicant

Name: _____ Phone: _____ Email: _____

ARCHITECT/ENGINEER/CONSULTANT ☐ Architect/Engineer/Consultant is Permit Applicant

Name: _____ State Registration#: _____ Expiration Date: _____

Address: _____ City: _____ State: ____ Zip: _____

Phone: _____ Mobile: _____ Email: _____

HOMEOWNER AFFIDAVIT (Only required for residential permits obtained by homeowner.)

I hereby certify that I am the legal owner and occupant of the subject property and the work described on this permit application shall be completed by me. I am familiar with the applicable codes and requirements of the City of Detroit and take full responsibility for all code compliance, fees and inspections related to the installation/work herein described. I shall neither hire nor sub-contract to any other person, firm or corporation any portion of the work covered by this building permit.

Print Name: _____ (Homeowner) Signature: _____ Date: _____

Subscribed and sworn to before me this _____ day of _____ 20 ____ A.D. _____ County, Michigan

Signature: _____ (Notary Public) My Commission Expires: _____

PERMIT APPLICANT SIGNATURE

I hereby certify that the information on this application is true and correct. I have reviewed all deed restrictions that may apply to this construction and am aware of my responsibility thereunder. I certify that the proposed work is authorized by the owner of the record and I have been authorized to make this application as the property owner(s) authorized agent. Further I agree to conform to all applicable laws and ordinances of jurisdiction. **I am aware that a permit will expire when no inspections are requested and conducted within 180 days of the date of issuance or the date of the previous inspection and that expired permits cannot be**

Print Name: Mark Hagerty (Permit Applicant) Signature: Mark Hagerty Date: 6/28/21

Driver's License #: _____ Expiration: _____

Subscribed and sworn to before me this _____ day of _____ 20 ____ A.D. _____ County, Michigan

Signature: _____ (Notary Public) My Commission Expires: _____

Section 23a of the state construction code act of 1972, 1972PA230, MCL 125.1523A, prohibits a person from conspiring to circumvent the licensing requirements of this state relating to persons who are to perform work on a residential building or a residential structure. Visitors of Section 23a are subject to civil fines.

This application can also be completed online. Visit detroitmi.gov/bseed/elaps for more information.

Submit Photos **- PDF or JPEG files:**

1 .Provide current, color photographs showing each full side of the building or site – provide complete shots, as best as possible

Please see the attached photos to see all four sides of the home and the two sides of the garage (these are the two planes we propose to install panels and are not visible from the ROW)

Labeled: WagerFront; WagnerEastPanels; WagnerBackPanels; WagnerWestPanels; WagnerGaragePanels; WagnerGaragePanels2

2. Provide detailed photographs at each location(s) of proposed exterior work. Photographs are to show existing condition(s), design, color and material. Provide photos showing where any panels and accessory equipment will be installed

Please see the attached photos for location of proposed equipment.

WagnerWestPanels: Shows proposed roof plane 1, installing 15 panels

WagnerEastPanels: Shows proposed roof plane 2, installing 8 panels; roof plane 3, installing 3 panels; and roof plane 4, installing 2 panels

WagnerBackPanels: Shows proposed roof plane 5, installing 4 panels

WagnerGaragePanels2: Shows proposed roof plane 6, installing 2 panels

WagnerGaragePanels: Shows proposed roof plane 7, installing 2 panels

WagnerMeterLocation2: This is where the AC disconnect and the Enphase combiner box will be installed. The disconnect is required to be within 5ft of the electric meter.

Written info / Narrative for Commission – **PDF or Word file:**

1. **Description of existing conditions** (including existing materials and design of roof where panels will be installed)

Asphalt Shingles with a 14/12 pitch (50 degrees)

2. **Description of project** (including an explanation as to why panels need to be installed as proposed)

We propose to install 39 solar panels to the existing roof of the home. The amount of solar panels was chosen due to the size of the roof planes as well as the electrical needs of the home. Facing the panels in a southern direction will allow production to be the greatest for the home. East and West facing panels also provide valuable production. It is not of benefit to face the

panels to the North as they will not produce enough solar energy to be useful. The home sits in such a way that in order to install solar panels they will be visible from the street. Every effort is made to seamlessly have the installation blend into the roof. The panels do not extend past the roof structure (top/bottom/or sides) and will sit about 6 inches above the roof itself. Please see the diagrams provided for more clarity.

3. **Detailed scope of proposed work for approval (**formatted as bulleted list of all items that will be installed on the exterior of the home) including, but not limited to:

   - the location, quantity and size of panels to be installed

   39 Jinko 370w panels to be installed on the roof of the home. Each panel is 78.23x39.05x1.57 inch These panels are black with black frames.(See attached data sheet for more information)

   - the location, number and size of any and all additional equipment, including but not limited to, utilty meters, ac disconnect, power inverters, batteries, solar decks, attic fans, new conduits

   39 micro inverters Enphase IQ7Plus to be installed under each panel. These will not be seen. (See attached data sheet for more information)

   Enphase IQ combiner 3 to be installed near the existing electrical meter, located on the back of the house. (See attached data sheet for more information)

   AC disconnect to be installed within 5 ft of the electrical meter, located on the back of the house.

   Ironridge XR100Rails and Ironridge flashfoot2 -- mounting system used to mount solar panels to the roof. Rails are black (See attached data sheets for more information)

Product Specs - **PDF or JPEG files:**

Provide a brochure / cut sheets for proposed replacement material(s) and/or product(s) listed above in scope of work

Please see the attached data sheets on all equipment that will be used.

Dimensioned Plan / Rendering - **PDF or JPEG files:**

- Detailed, Dimensioned plan showing full scope of installation – including proposed locations for all accessory items required listed in scope of work

See the attached Plot Plan showing the location of all panels and equipment.

See additional Plot Plan showing roof measurements and the size of the array

- If panels are visible mentioned previously that you will have to submit a demonstration showing the impact that the solar panels will have from the right of way. Most applicants submit a renderings from a pedestrian view.

Please see the attached photos that shows the panels that are visible from the ROW:

WagnerEastPanels and WagnerWestPanels

Please see attached photos that shows what the proposed panels will look on a roof similar to Mr. Wagners.

Example1; Example2; Example3

There is no way to draw panels onto a picture and give a proper rendering of what they will look like. I have submitted a plot plan showing the layout of all array's on the roof along with a plot plan showing the measurements of all roof plans along with the size of each array. I have attached pictures showing all roof planes and labeled them with how many panels will be placed there along with a picture showing where the additional will be installed near the meter on the back of the home. In addition I have included three extra pictures of other projects we have installed showing how a black on black panel looks on a black shingled roof so that you can get an idea how these panels will look on the roof of Mr. Wagner's home.

ROOF ACCESS POINT

ROOF ACCESS POINT SHALL NOT BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.

NOTE:
VISIBLE, LABELED, LOCKABLE DISCONNECT
LOCATED 5' FROM UTILITY METER

EQUIPMENT SUMMARY

39	JINKO SOLAR JKM370M-72-V (370W) MODULES
39	ENPHASE IQ7A-72-2-US,240V
05	ENPHASE ENCHARGE 3-1P-NA BATTERY
01	ENPHASE ENPOWER SMART SWITCH

SYSTEM SIZE: 14.43 kW DC STC
SYSTEM SIZE: 13.61 kW AC

Roof #1 A (the big array)
Measures 515"x 220"
The array is 38'6" x 9'9" covering 297.3sqft

Roof #1 B (single panel)
Measures 124"x 108"
The array is 6'5"x 3'3" covering 21.4sqft

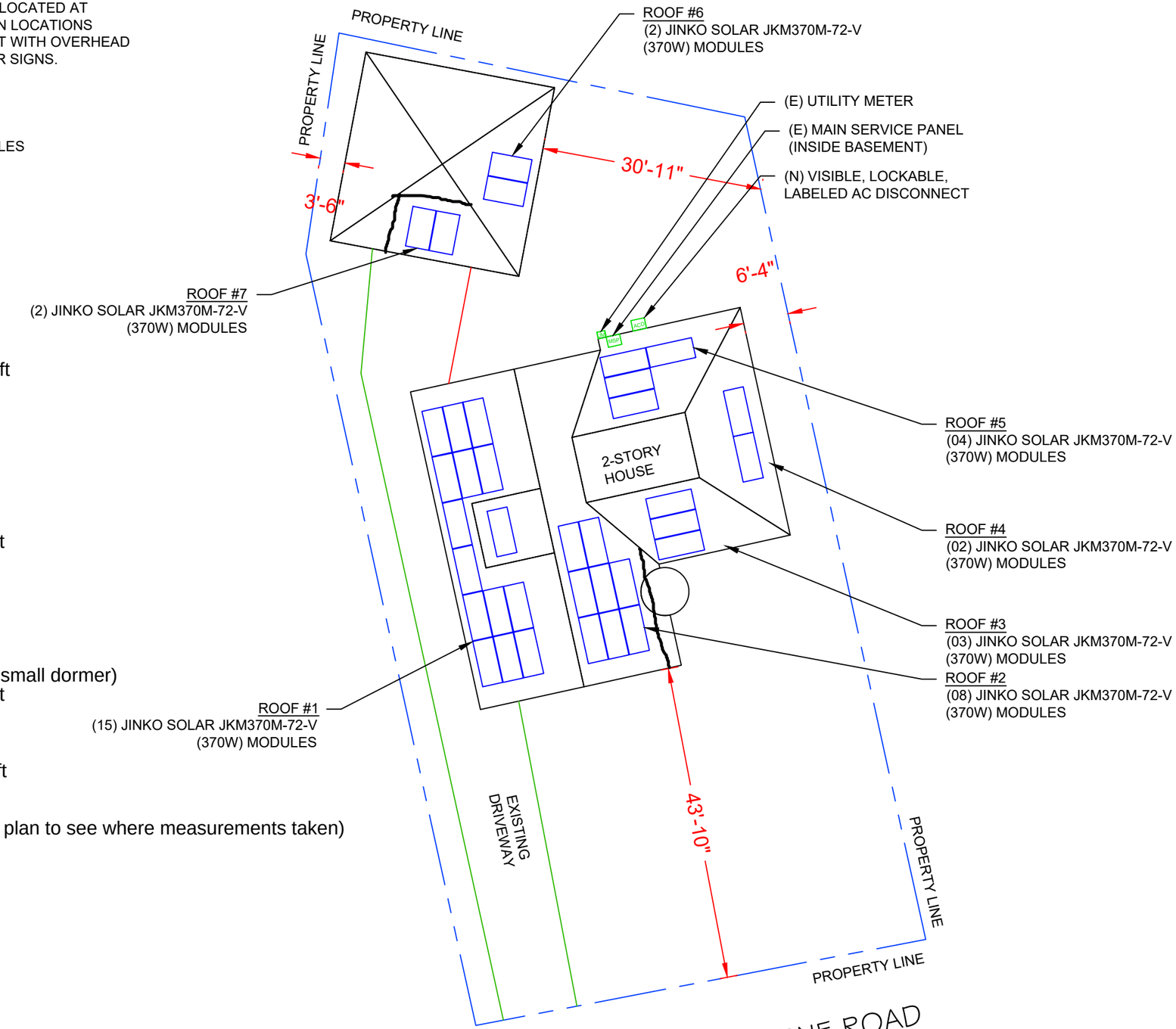
Roof #2
Measures 245"x 515"
The lower part of the roof is 205"
The array is 19'3"x 9'9" covering 169.9sqft

Roof #3
Measures 120"x 70"
The array is 9'9"x 6'5" covering 64.7sqft

Roof #4
Measures 220"x 50" (to the bottom of the small dormer)
The array is 12'10"x 3'3" covering 42.4sqft

Roof #5
Measures 175"x 70"
The array is 12'10" x 9'9' covering 85.5sqft

Roof #6 and Roof #7
Measure 122"x116" (see the lines on roof plan to see where measurements taken)
The array is 6'6"x 6'5" covering 43.1sqft



1 PLOT PLAN WITH ROOF PLAN
PV-1 SCALE: 1/16" = 1'-0"

MSS MichiganSolarSolutions
Michigan Solar Solutions
50202 Dennis Court,
Wixom, MI 48393

REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

CUSTOMER INFORMATION

JEREMY WAGNER KAISER
3290 SHERBOURNE ROAD,
DETROIT, MI 48221

SHEET NAME
PLOT PLAN WITH ROOF PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1


1

2


Roof Plane 2
8 Panels with
4.5 being visible
from ROS
Roof Plane 3
3 panels
Roof Plane 4
2 Panels


AC
Disconnect
with in 5ft of
the Electric
meter
Enphase
combiner
box


Roof Plane 6
2 Solar Panels
Not Visible


Roof Plane 7
15 Panels, one iwll be
on the doormer


Roof Plane 5
4 Solar Panels
Not visible from
ROW


1
Roof Plane 7
2 Solar Panels
Not Visible

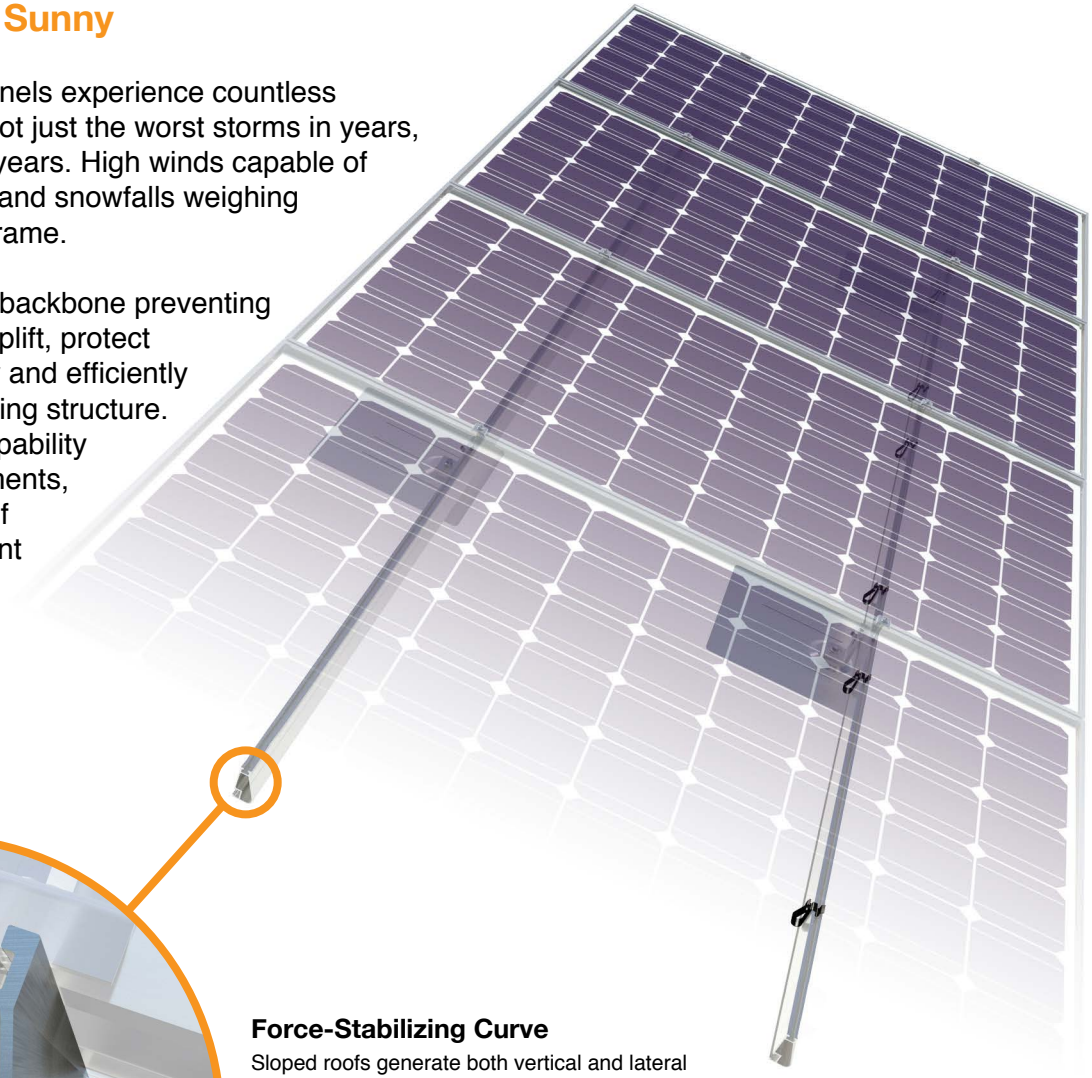
IRONRIDGE

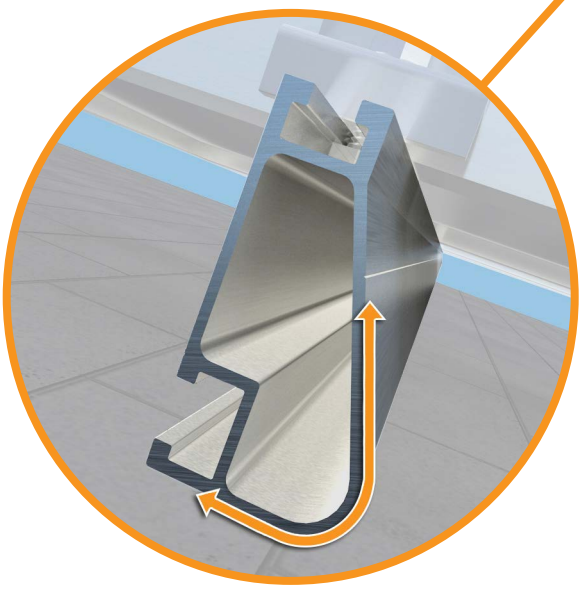
XR Rail Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.





Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

XR10

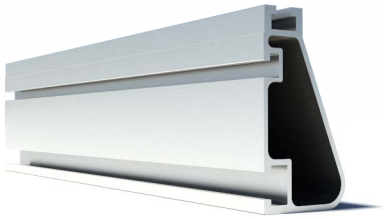
XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available

XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

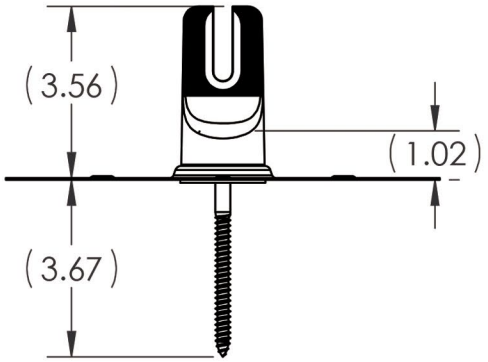
XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

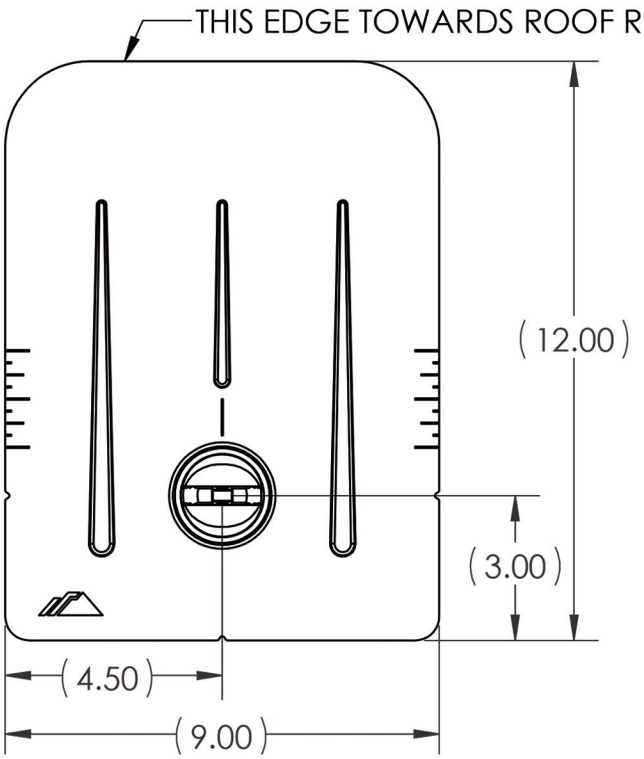
- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

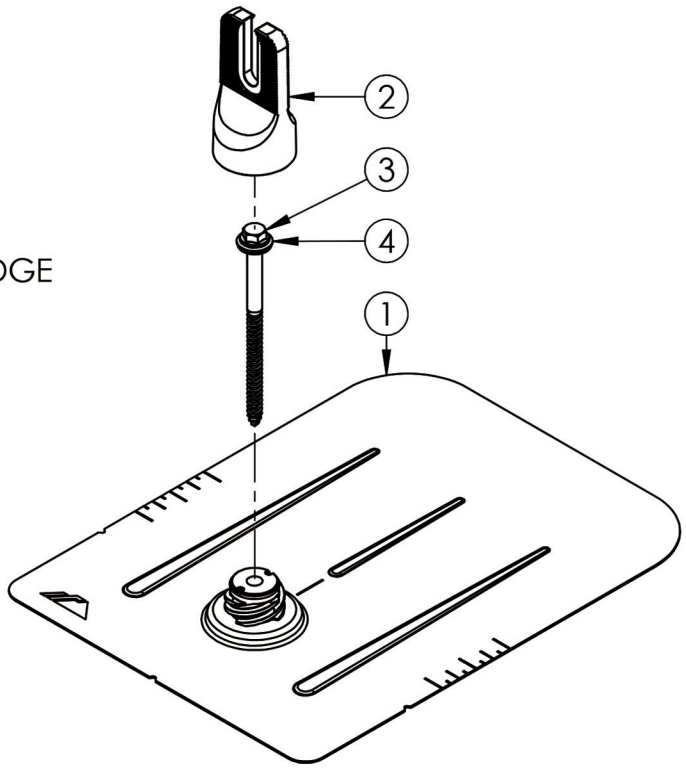
Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						







NO.	DESCRIPTION
1	ASSY, FLASHING, MILL OR BLACK
2	ASSY, CAP, MILL OR BLACK
3	BOLT LAG 5/16 X 4.75"
4	WASHER, EPDM BACKED

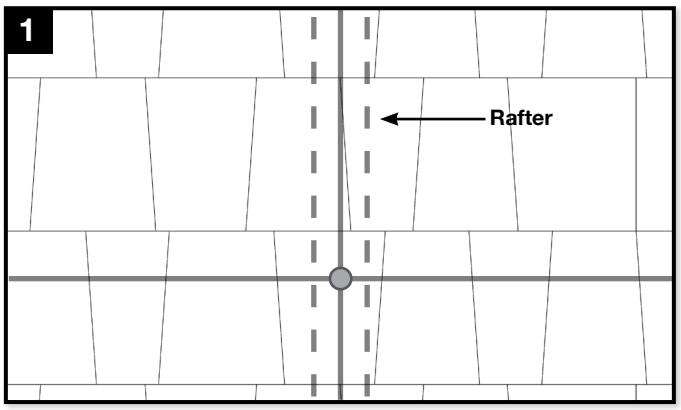
KIT, FLASHFOOT2

SIZE A | DO NOT SCALE DRAWING

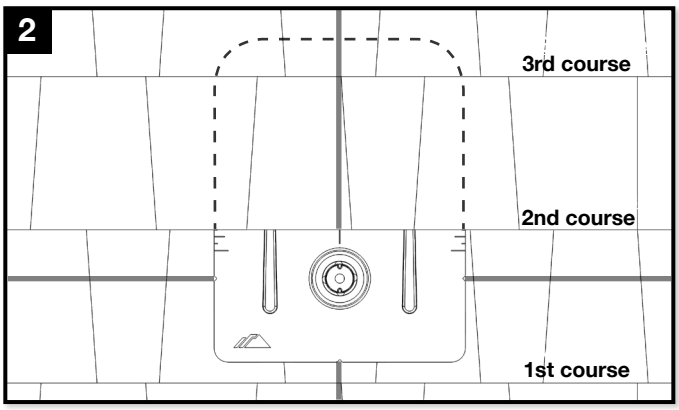
SCALE:1:4 | WEIGHT: 0.88 lbs | SHEET 1 OF 1

Installation

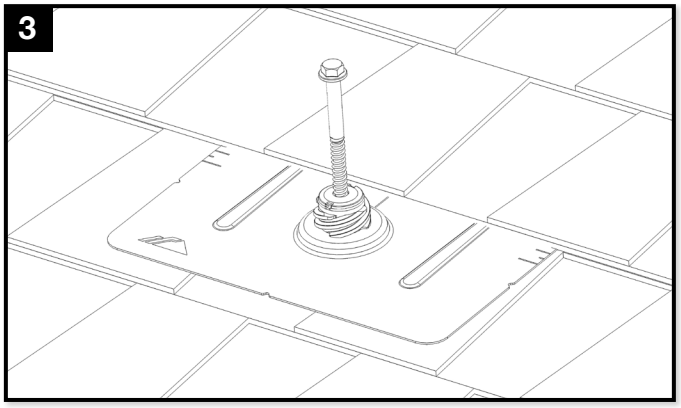
Tools Required: tape measure, chalk line, stud finder, roofing bar, caulking gun, driver with 1/4” bit and 7/16” hex socket.



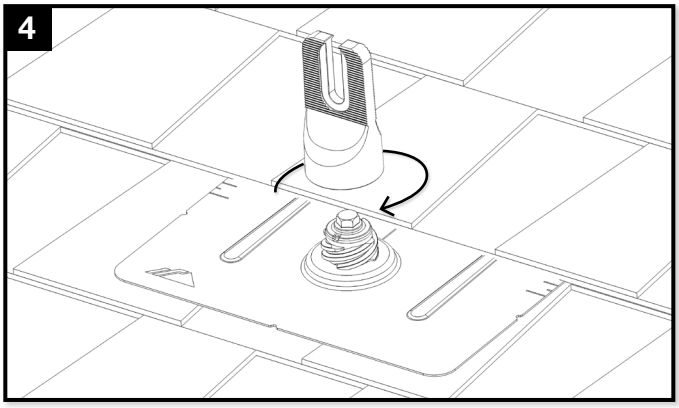
Locate rafters and snap vertical and horizontal lines to mark flashing locations. Drill 1/4” pilot holes, then fill with roofing manufacturer’s approved sealant.



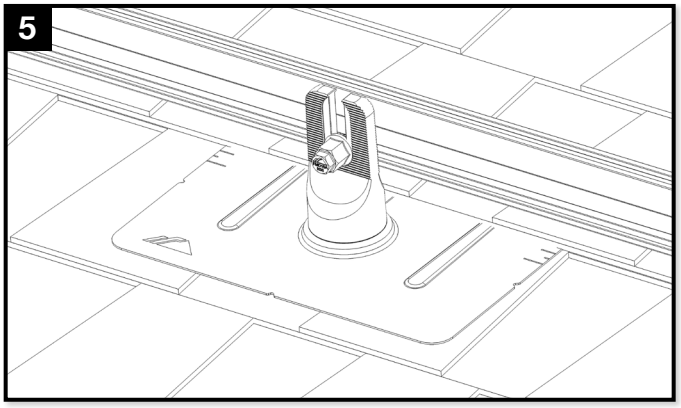
Slide flashing, between 1st and 2nd course, so the top is at least 3/4” above the edge of the 3rd course and the bottom is above the edge of the 1st course.



Line up pilot hole with flashing hole and insert lag bolt with bonded washer through flashing. Tighten lag bolt until fully seated.



Place Cap onto flashing in desired orientation for E/W or N/S rails and rotate 180 degrees. FlashFoot 2 is now installed and ready for IronRidge XR Rails.



Attach rails to either side of the open slot using bonding hardware. Level rail at desired height, then torque to 250 in-lbs (21 ft-lbs).

Structural Certification
Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7.

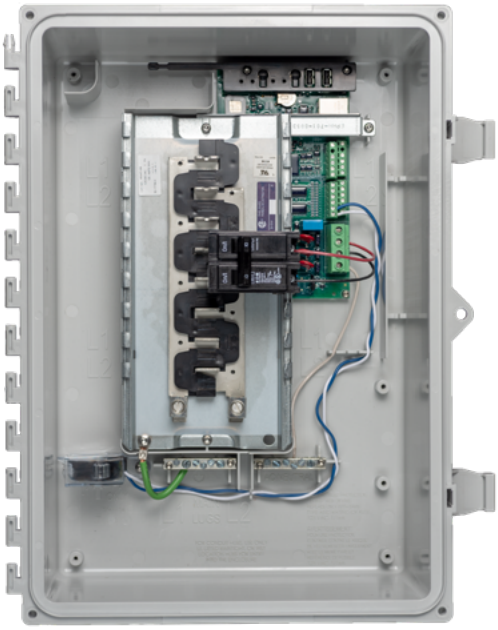
Water Seal Ratings
Water Sealing Tested to UL 441 Section 27 “Rain Test” and TAS 100-95 “Wind Driven Rain Test” by Intertek.
Ratings applicable for composition shingle roofs having slopes between 2:12 and 12:12.

UL 2703
Conforms to UL 2703 Mechanical and Bonding Requirements.
See IronRidge Flush Mount Installation Manual for full ratings.

Enphase IQ Combiner 3

(X-IQ-AM1-240-3)

The **Enphase IQ Combiner 3**™ with Enphase IQ Envoy™ consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.



Smart

- Includes IQ Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring
- Supports Ensemble Communications Kit for communication with Enphase Encharge™ storage and Enphase Enpower™ smart switch

Simple

- Reduced size from previous combiner
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ Combiner 3

MODEL NUMBER	
IQ Combiner 3 X-IQ-AM1-240-3	IQ Combiner 3 with Enphase IQ Envoy™ printed circuit board for integrated revenue grade PV **production** metering (ANSI C12.20 +/- 0.5%) and optional* **consumption** monitoring (+/- 2.5%).
ACCESSORIES and **REPLACEMENT PARTS** (not included, order separately)	
Enphase Mobile Connect™ CELLMODEM-03 (4G/12-year data plan) CELLMODEM-01 (3G/5-year data plan) CELLMODEM-M1 (4G based LTE-M/5-year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.)
Consumption Monitoring* CT CT-200-SPLIT * Consumption monitoring is required for Enphase Storage Systems	Split core current transformers enable whole home **consumption** metering (+/- 2.5%).
Ensemble Communications Kit COMMS-KIT-01	Installed at the IQ Envoy. For communications with Enphase Encharge™ storage and Enphase Enpower™ smart switch. Includes USB cable for connection to IQ Envoy or Enphase IQ Combiner™ and allows wireless communication with Encharge and Enpower.
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replace the default solar shield with this Ensemble Combiner Solar Shield to match the look and feel of the Enphase Enpower™ smart switch and the Enphase Encharge™ storage system
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80 A of distributed generation / 95 A with IQ Envoy breaker included
Envoy breaker	10A or 15A rating GE Q-line/Siemens Type QP /Eaton BR series included
Production Metering CT	200 A solid core pre-installed and wired to IQ Envoy
MECHANICAL DATA	
Dimensions (WxHxD)	49.5 x 37.5 x 16.8 cm (19.5” x 14.75” x 6.63”). Height is 21.06" (53.5 cm with mounting brackets).
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
Cellular	CELLMODEM-M1 4G based LTE-M cellular modem (not included). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production)
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

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Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

CERTIFIED
SAFETY

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Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US	IQ7PLUS-72-2-US
Commonly used module pairings[1]	235 W - 350 W +	235 W - 440 W +
Module compatibility	60-cell PV modules only	60-cell and 72-cell PV modules
Maximum input DC voltage	48 V	60 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V
Operating range	16 V - 48 V	16 V - 60 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V
Max DC short circuit current (module Isc)	15 A	15 A
Overvoltage class DC port	II	II
DC port backfeed current	0 A	0 A
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	

OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	

EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %

MECHANICAL DATA	
Ambient temperature range	-40°C to +65°C
Relative humidity range	4% to 100% (condensing)
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)
Weight	1.08 kg (2.38 lbs)
Cooling	Natural convection - No fans
Approved for wet locations	Yes
Pollution degree	PD3
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure
Environmental category / UV exposure rating	NEMA Type 6 / outdoor

FEATURES	
Communication	Power Line Communication (PLC)
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

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