

HOMEOWNER: KELLY NELSON

ADDRESS: 9306 HOT SPRINGS ROAD
CORONA, CA 92883

PHOTOVOLTAIC SOLAR PROJECT INFORMATION:

SYSTEM SIZE: 2.370 kW (DC), 1.740 kW (AC)

MODULES: (6) CANADIAN SOLAR CS3N-395MS
PEAK POWER = 395 W
MAX OPERATING CURRENT = 10.68 A
MAX OPERATING VOLTAGE = 37.0 V
OPEN CIRCUIT VOLTAGE = 44.3 V
SHORT CIRCUIT CURRENT = 11.44 A
MAX SERIES FUSE RATING = 20 A
TEMP. COEFF. OF Voc = -0.26%/°C
DIMENSIONS = 76.4" X 41.3" X 1.4"
WEIGHT = 51.6 LBS

ARRAY: INSTALLED WEIGHT = 3.0 PSF
ROOF COVERAGE = 135 SF,
ARRAYS COVER 7% OF TOTAL ROOF AREA

MOUNTING HARDWARE: IRONRIDGE XR10 LIGHT RAIL
IRONRIDGE ALL-TILE HOOK ATTACHMENTS
5/16" STAINLESS STEEL LAG BOLTS @
64" OC OR LESS WITH A MINIMUM OF
2 1/2" PENETRATION INTO ROOF RAFTERS

EXISTING ROOF INFO: 1 STORY, SPANISH TILE
2 X 8 RAFTERS @ 16" OC

INVERTER/DC DISCONNECT: (6) ENPHASE IQ8PLUS-72-2-US
MICROINVERTERS
MAX DC INPUT VOLTAGE = 60 V
START-UP VOLTAGE = 30 V
OPERATING VOLTAGE RANGE = 25 V - 58 V
MAX INPUT SHORT CIRCUIT CURRENT = 15.0 A
RATED AC POWER = 290 W
AC VOLTAGE = 240 V
MAX AC OUTPUT CURRENT = 1.21 A
MAX AC OVERCURRENT PROTECTION = 20.0 A
MAX NUMBER OF INVERTERS PER CIRCUIT = 13
NEMA TYPE 6 ENCLOSURE
DIMENSIONS = 8.3" X 6.9" X 1.2"
WEIGHT = 2.4 LBS



VICINITY MAP
NTS

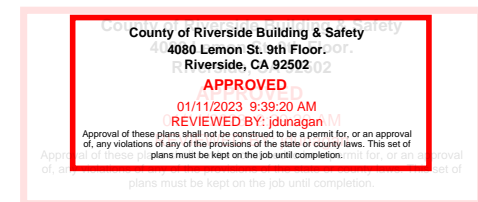
SHEET INDEX:

- SHEET 1 PROJECT INFO, VICINITY MAP, NOTES, SCOPE OF WORK
- SHEET 2 SITE/ROOF PLAN
- SHEET 3 ELECTRIC LINE DRAWING, GROUNDING DETAIL, ELEVATION DETAIL
- SHEET 4 CALCULATIONS, SIGNS
- ATTACHED MODULE, INVERTER, MOUNTING HARDWARE SPEC SHEETS

GENERAL NOTES:

1. THIS SYSTEM COMPLIES WITH THE 2022 CRC, 2022 CBC, 2022 CFC, AND THE 2022 CEC.
2. THE SYSTEM WILL NOT BE TURNED-ON UNTIL THE SERVING UTILITY COMPANY HAS BEEN NOTIFIED.
3. THE INSTALLED SOLAR SYSTEM HAS A DISTRIBUTED WEIGHT LESS THAN 4 PSF.
4. THE CONCENTRATED LOAD FOR EACH VERTICAL SUPPORT IS LESS THAN 40 LBS.
5. ALL PV EQUIPMENT IS LISTED BY A RECOGNIZED TESTING LAB. INVERTERS ARE UL 1741 COMPLIANT.
6. THE BACKFED BREAKER WILL BE LOCATED AT THE OPPOSITE END OF THE BUS FROM THE MAIN BREAKER.
7. CONDUCTORS ARE 90° C RATED COPPER WIRE.
8. ANY CONDUCTORS EXPOSED TO SUNLIGHT ARE LISTED AS SUNLIGHT RESISTANT.
9. IF DC CONDUCTORS ARE RUN INSIDE THE BUILDING, THEY WILL BE CONTAINED IN A METAL RACEWAY.
10. ANY CONDUCTORS BETWEEN SEPARATE ARRAYS ON THE ROOF WILL BE PROTECTED IN CONDUIT.
11. THE EQUIPMENT GROUNDING CONDUCTOR ON THE ROOF WILL BE PROTECTED FROM PHYSICAL DAMAGE. IT WILL BE TUCKED NEATLY UNDER THE MODULES AND RAILS AND SECURED IN PLACE.
12. THE MODULES WILL BE ATTACHED TO THE EQUIPMENT GROUNDING CONDUCTOR IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
13. ALL EXTERIOR CONDUIT, FITTINGS AND BOXES ARE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS.
14. CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH CEC 110.26.
15. SOLAR MODULES WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.
16. IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE SYSTEM, A GROUNDING ELECTRODE SYSTEM WILL BE INSTALLED PER CEC 250.50. THE ELECTRICAL SERVICE WILL BE BONDED TO THE WATER AND GAS PIPING PER SECTION 250.104 OF THE CEC.
17. A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH CAL-OSHA REGULATIONS.

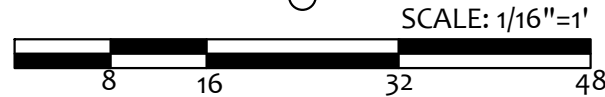
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	<p>AC CONSTRUCTION 385 HALBERTA CIRCLE CALIMESA, CA 92320 PH: 909.809.9221</p>	<p>SCOPE OF WORK: INSTALL (6) CANADIAN SOLAR CS3N-395MS SOLAR ELECTRIC MODULES AND (6) ENPHASE IQ8PLUS-72-2-US MICROINVERTERS ON THE EXISTING 1ST STORY TILE ROOF. INSTALL ASSOCIATED MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, CONDUCTORS AND GROUNDING. INSTALL (1) AC COMBINER, (1) AC DISCONNECT, AND INSTALL OCPD IN MAIN SERVICE PANEL.</p>	<p><i>Austin Michael Carry</i> AUSTIN MICHAEL CARRY B - 1065361 DATE: 12/30/22</p>	<p>PLANS PREPARED BY: JENNIFER KEMME PH: 909.748.1300</p> <p>SHEET 1 OF 4</p>
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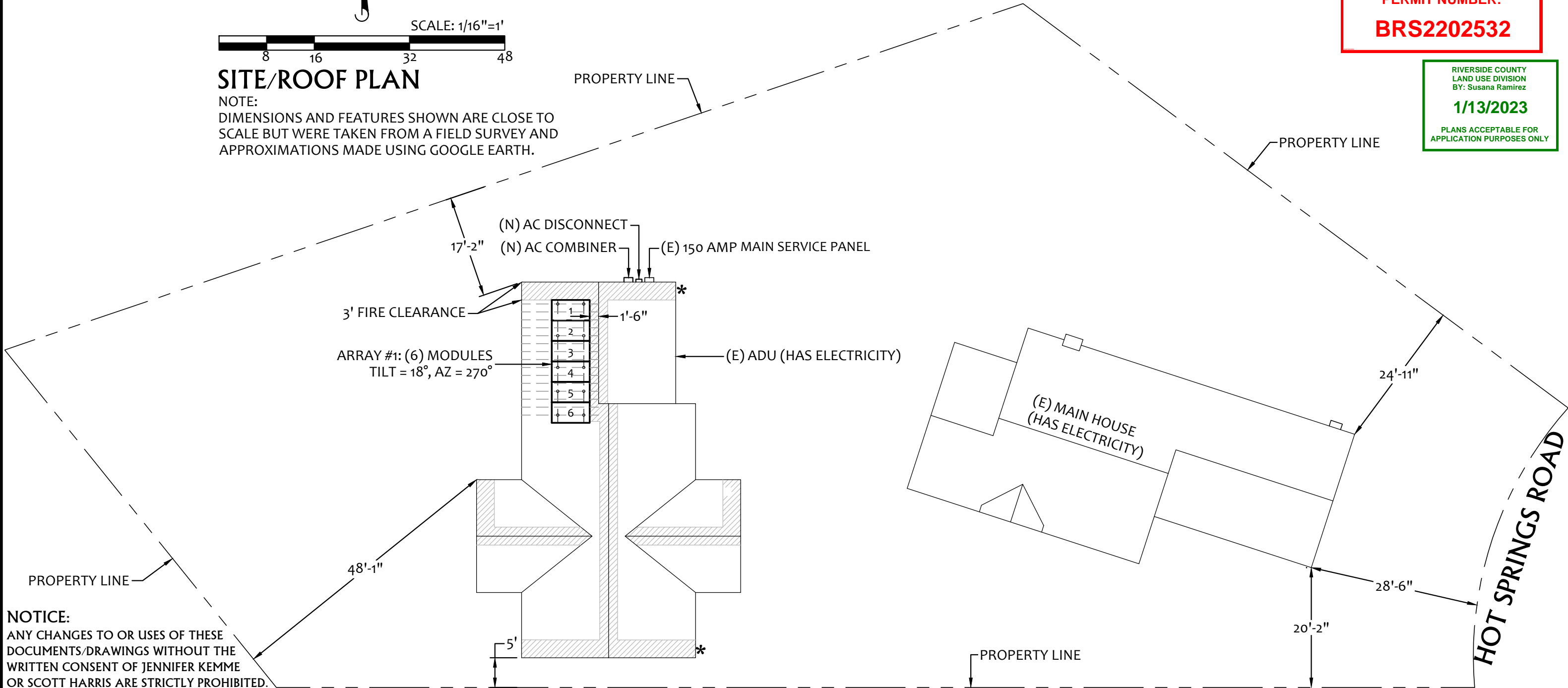


SITE/ROOF PLAN

NOTE:
DIMENSIONS AND FEATURES SHOWN ARE CLOSE TO SCALE BUT WERE TAKEN FROM A FIELD SURVEY AND APPROXIMATIONS MADE USING GOOGLE EARTH.

* ROOF ACCESS POINTS ARE AT THE STRUCTURALLY STRONG PART OF THE BUILDING AND DO NOT REQUIRE LADDERING OVER OPENINGS.

TOTAL ROOF AREA = 2065 SF
TOTAL SOLAR AREA = 135 SF
135 SF/2065 SF = 0.07
ARRAYS COVER 7% OF TOTAL ROOF AREA



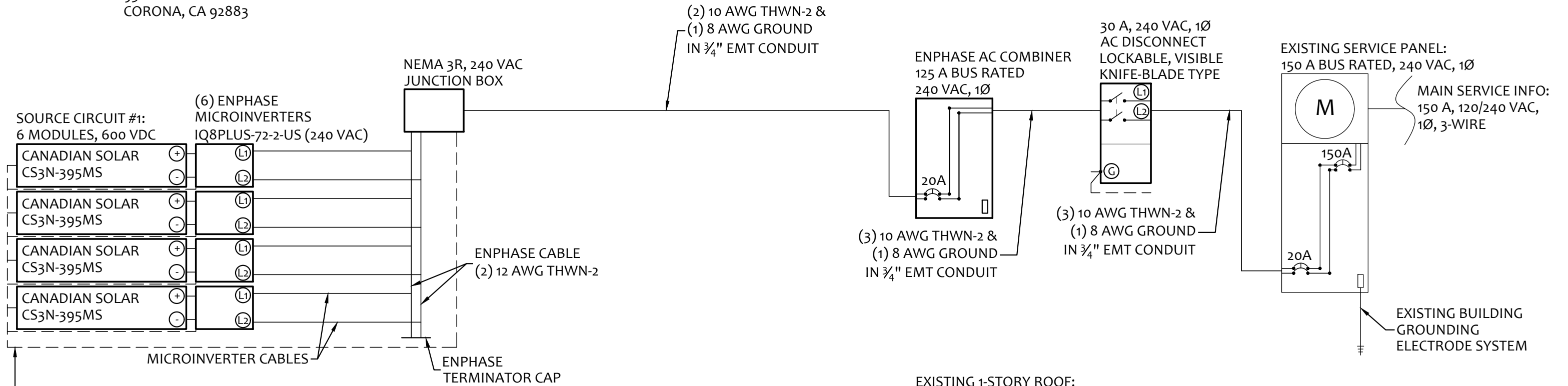
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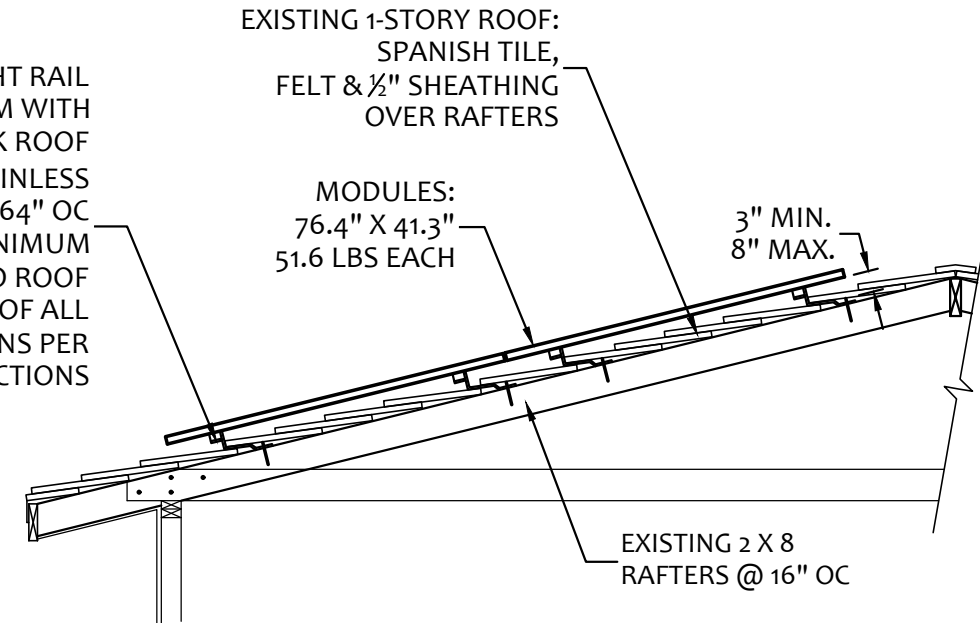
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ELECTRICAL LINE DIAGRAM



USE IRONRIDGE INTEGRATED GROUNDING TO GROUND ALL MODULES, MICROINVERTERS, JUNCTION BOXES AND ANY OTHER METAL PARTS AND #6 AWG SOLID COPPER WHERE NECESSARY

IRONRIDGE XR10 LIGHT RAIL MOUNTING SYSTEM WITH IRONRIDGE ALL-TILE HOOK ROOF ATTACHMENTS (USE 5/16" STAINLESS STEEL LAG BOLTS @ 64" OC OR LESS WITH A MINIMUM EMBEDMENT OF 2 1/2" INTO ROOF RAFTERS), WATERPROOF ALL CONNECTION LOCATIONS PER MANUFACTURER'S INSTRUCTIONS



ELEVATION DETAIL
NTS

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SYSTEM SIGNAGE

ALL SIGNAGE SHALL BE REFLECTIVE, UV RESISTANT PLASTIC, RED IN COLOR WITH WHITE LETTERING, AND ATTACHED WITH WEATHERPROOF ADHESIVE OR OTHER APPROVED METHOD. ALL LETTERS SHALL BE A MINIMUM OF 3/8" HEIGHT AND ALL CAPITALIZED.

ALL CONDUIT, JUNCTION BOXES AND OTHER ENCLOSURES SHALL BE MARKED AT 10' MAX INTERVALS AND AT ALL BENDS, TERMINATIONS, SPLICES OR CONNECTIONS WITH "WARNING: PHOTOVOLTAIC POWER SOURCE".

TO BE INSTALLED AT ALL SERVICEABLE PANELS OR BOXES AND AT ALL DISCONNECTS:

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE
AND LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

TO BE INSTALLED ON THE FRONT OF THE AC DISCONNECT:

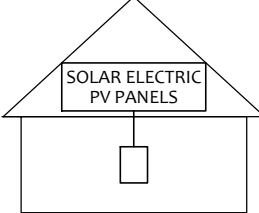
RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

RATED AC OUTPUT CURRENT = 9.08 A
NOMINAL OPERATING AC VOLTAGE = 240 V

TO BE INSTALLED AT THE BACKFED BREAKER SERVING THE PV SOLAR SYSTEM:

WARNING
POWER SOURCE OUTPUT CONNECTION -
DO NOT RELOCATE THIS OVERCURRENT DEVICE

TO BE INSTALLED ON THE FRONT OF THE MAIN SERVICE DISCONNECT:
"SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN" SHALL BE BLACK LETTERING ON YELLOW BACKGROUND. THE REMAINDER OF THE SIGN SHALL BE BLACK LETTERING ON WHITE BACKGROUND.

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN	
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY	

SYSTEM CALCULATIONS:

MODULE OPERATING CURRENT = 10.68 A
INVERTER MAX INPUT CURRENT = 15.00 A
10.68 A < 15.00 A, OK

MODULE OPERATING VOLTAGE = 37.00 V
INVERTER INPUT OPERATING VOLTAGE RANGE = 25 V - 58 V
25 V < 37.00 V < 58 V, OK

MODULE Voc = 44.30 V
VOLTAGE CORRECTION FACTOR = 1.14
44.30 V (1.14) = 50.50 V
INVERTER MAX INPUT VOLTAGE = 60 V
50.50 V < 60 V, OK

MODULE Isc = 11.44 A
11.44 A (1.25)(1.25) = 17.88 A [Isc]

NUMBER OF MICROINVERTERS IN CIRCUIT #1 = 6
INVERTER MAX OUTPUT CURRENT = 1.21 A
(6) (1.21 A) (1.25) = 9.08 A [I], USE 20 A BREAKER

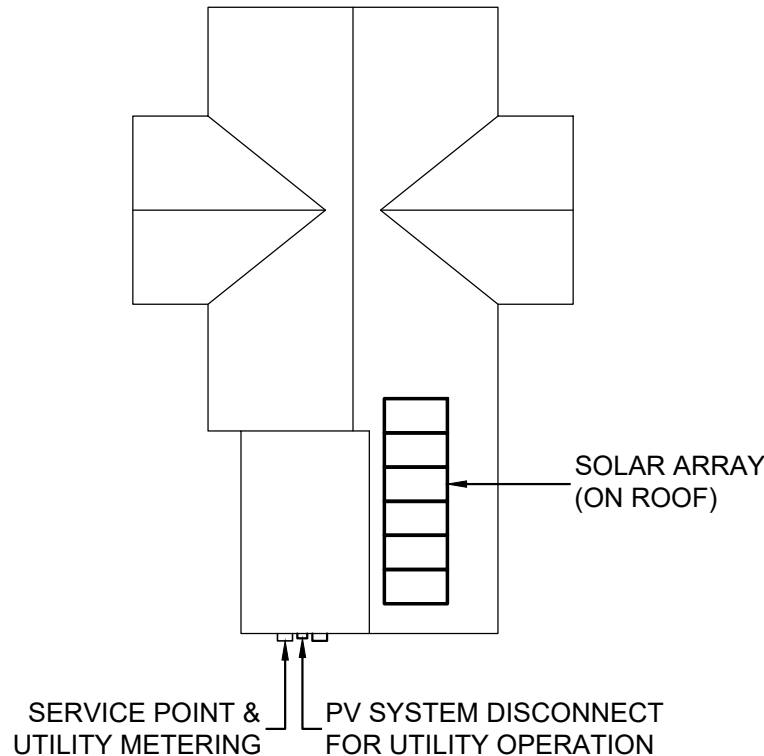
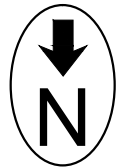
MAIN SERVICE PANEL BUS RATING = 150 A
MAIN SERVICE PANEL MAIN OCPD = 150 A
150 A + 20 A SOLAR OCPD = 170 A
150 A BUS (1.2) = 180 A
170 A < 180 A, OK

WIRE CALCULATIONS:

FROM THE MICROINVERTERS TO THE AC COMBINER:
AMBIENT TEMPERATURE = 39°C
TEMPERATURE ADDER FOR CONDUIT NOT OFFSET FROM ROOF = 33°C
ADJUSTMENT FACTOR PER TABLE 310.15(B)(2)(a) FOR 90°C INSULATED CONDUCTOR AT 39°C + 33°C = 72°C = 0.50
I = 9.08 A
9.08 A / 0.50 = 18.16 A
SELECT WIRE SIZE WITH AMPACITY GREATER THAN 18.16 A,
USE 10 AWG THWN-2 COPPER WIRE WITH AN AMPACITY OF 40 A
SELECT CONDUIT FOR (2) 10 AWG THWN-2 & (1) 8 AWG GROUND = 3/4" EMT CONDUIT

FROM THE AC COMBINER TO THE MAIN SERVICE PANEL:
ADJUSTMENT FACTOR PER TABLE 310.15(B)(2)(a) FOR 90°C INSULATED CONDUCTOR AT 39°C = 0.91
I = 9.08 A
9.08 A / 0.91 = 9.98 A
SELECT WIRE SIZE WITH AMPACITY GREATER THAN 9.98 A,
USE 10 AWG THWN-2 COPPER WIRE WITH AN AMPACITY OF 40 A
SELECT CONDUIT FOR (3) 10 AWG THWN-2 & (1) 8 AWG GROUND = 3/4" EMT CONDUIT

CAUTION:
POWER TO THIS BUILDING IS ALSO
SUPPLIED FROM THE FOLLOWING SOURCES
WITH DISCONNECTS AS SHOWN.



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TO BE INSTALLED ON THE OUTSIDE COVER OF THE MAIN SERVICE DISCONNECT:

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AC CONSTRUCTION
385 HALBERTA CIRCLE
CALIMESA, CA 92320
PH: 909.809.9221

SCOPE OF WORK:
INSTALL (6) CANADIAN SOLAR CS3N-395MS SOLAR ELECTRIC MODULES AND (6) ENPHASE IQ8PLUS-72-2-US MICROINVERTERS ON THE EXISTING 1ST STORY TILE ROOF. INSTALL ASSOCIATED MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, CONDUCTORS AND GROUNDING. INSTALL (1) AC COMBINER, (1) AC DISCONNECT, AND INSTALL OCPD IN MAIN SERVICE PANEL.

Austin Michael Carry
AUSTIN MICHAEL CARRY B - 1065361
DATE: 12/30/22

PLANS PREPARED BY:
JENNIFER KEMME
PH: 909.748.1300

**SHEET
4 OF 4**



HiKuBlack Mono PERC

BLACK FRAME ON BLACK BACKSHEET

F23 Frame

380 W ~ 410 W

CS3N-380 | 385 | 390 | 395 | 400 | 405 | 410MS

MORE POWER

- 410 W** Module power up to 410 W
Module efficiency up to 20.2 %
- \$** Lower LCOE & BOS cost
- Bar Chart** Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- +** Better shading tolerance

MORE RELIABLE

- Shield** Minimizes micro-crack impacts
- ***** Heavy snow load up to 8100 Pa, enhanced wind load up to 6000 Pa*

25 Years Industry Leading Product Warranty on Materials and Workmanship*

25 Years Linear Power Performance Warranty*

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.55%

*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on residential rooftops in certain regions.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001: 2015 / Quality management system
ISO 14001: 2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE
FSEC (US Florida) / UL 61730 / IEC 61701 / IEC 62716



* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

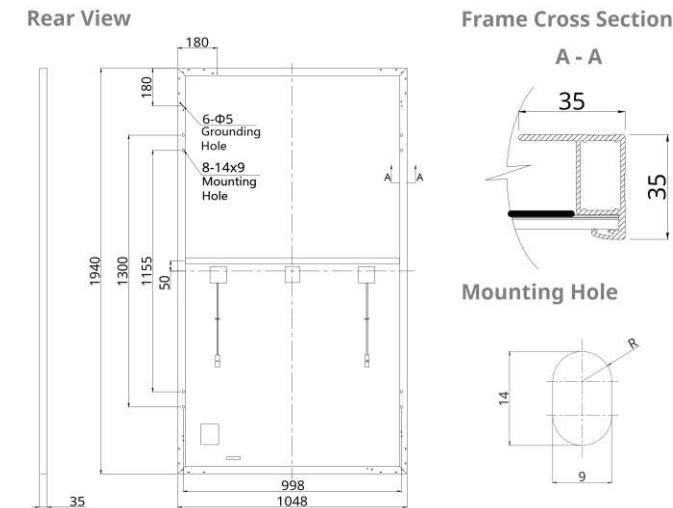
CSI SOLAR (USA) CO., LTD. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 20 years, it has successfully delivered over 63 GW of premium-quality solar modules across the world.

* For detailed information, please refer to Installation Manual.

CSI SOLAR (USA) CO., LTD.

1350 Treat Blvd. Suite 500, Walnut Creek, CA 94598, USA | www.csisolar.com/na | service.ca@csisolar.com

ENGINEERING DRAWING (mm)



ELECTRICAL DATA | STC*

CS3N	380MS	385MS	390MS	395MS	400MS	405MS	410MS
Nominal Max. Power (Pmax)	380 W	385 W	390 W	395 W	400 W	405 W	410 W
Opt. Operating Voltage (Vmp)	36.4 V	36.6 V	36.8 V	37.0 V	37.2 V	37.4 V	37.6 V
Opt. Operating Current (Imp)	10.44 A	10.52 A	10.60 A	10.68 A	10.76 A	10.83 A	10.92 A
Open Circuit Voltage (Voc)	43.7 V	43.9 V	44.1 V	44.3 V	44.5 V	44.7 V	44.9 V
Short Circuit Current (Isc)	11.26 A	11.32 A	11.38 A	11.44 A	11.50 A	11.56 A	11.62 A
Module Efficiency	18.7%	18.9%	19.2%	19.4%	19.7%	19.9%	20.2%
Operating Temperature	-40°C ~ +85°C						
Max. System Voltage	1000V (UL)						
Module Fire Performance	TYPE 2 (UL 61730 1000V)						
Max. Series Fuse Rating	20 A						
Application Classification	Class A						
Power Tolerance	0 ~ + 10 W						

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

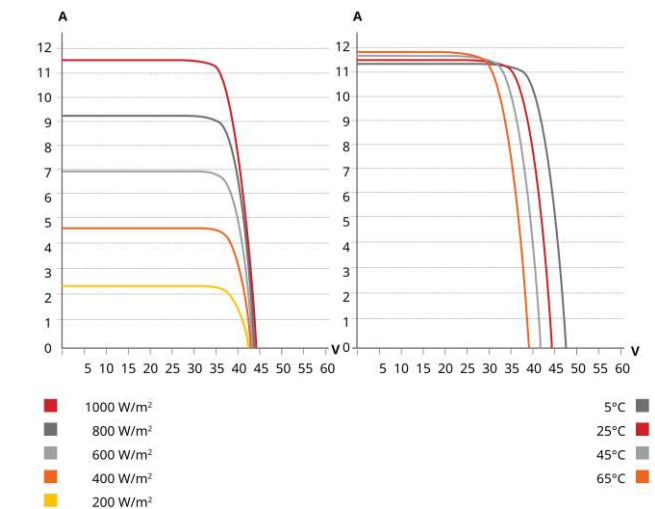
ELECTRICAL DATA | NMOT*

CS3N	380MS	385MS	390MS	395MS	400MS	405MS	410MS
Nominal Max. Power (Pmax)	284 W	288 W	291 W	295 W	299 W	303 W	306 W
Opt. Operating Voltage (Vmp)	34.0 V	34.2 V	34.4 V	34.6 V	34.7 V	34.9 V	35.1 V
Opt. Operating Current (Imp)	8.35 A	8.42 A	8.48 A	8.54 A	8.60 A	8.66 A	8.73 A
Open Circuit Voltage (Voc)	41.2 V	41.4 V	41.6 V	41.8 V	41.9 V	42.1 V	42.3 V
Short Circuit Current (Isc)	9.08 A	9.13 A	9.18 A	9.23 A	9.28 A	9.33 A	9.37 A

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

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CS3N-400MS / I-V CURVES



MECHANICAL DATA

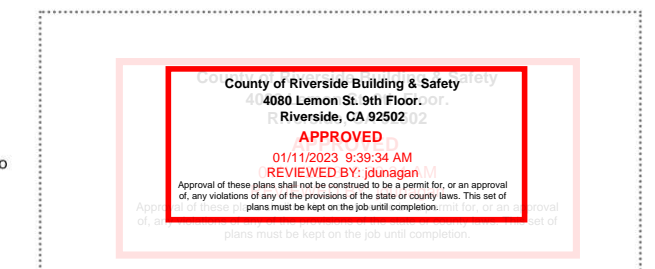
Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	132 [2 X (11 X 6)]
Dimensions	1940 X 1048 X 35 mm (76.4 X 41.3 X 1.38 in)
Weight	23.4 kg (51.6 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	12 AWG (UL)
Cable Length (Including Connector)	Portrait: 400 mm (15.7 in) (+) / 280 mm (11.0 in) (-) (supply additional cable jumper: 2 lines/pallet); landscape: 1250 mm (49.2 in)*
Connector	T4 or MC4 series
Per Pallet	30 pieces
Per Container (40' HQ)	720 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.34 % / °C
Temperature Coefficient (Voc)	-0.26 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION





DATA SHEET



IQ8 Series Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US ¹
Commonly used module pairings ²	W	235 – 350	235 – 440	260 – 460	295 – 500	320 – 540+	295 – 500+
Module compatibility		60-cell/120 half-cell		60-cell/120 half-cell and 72-cell/144 half-cell			
MPPT voltage range	V	27 – 37	29 – 45	33 – 45	36 – 45	38 – 45	38 – 45
Operating range	V	25 – 48		25 – 58			
Min/max start voltage	V	30 / 48		30 / 58			
Max input DC voltage	V	50		60			
Max DC current ³ [module Isc]	A			15			
Overvoltage class DC port				II			
DC port backfeed current	mA			0			
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit					
OUTPUT DATA (AC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range ⁴	V			240 / 211 – 264		208 / 183 – 250	
Max continuous output current	A	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz	60					
Extended frequency range	Hz	50 – 68					
Max units per 20 A (L-L) branch circuit ⁵		16	13	11	11	10	9
Total harmonic distortion		<5%					
Overvoltage class AC port		III					
AC port backfeed current	mA	30					
Power factor setting		1.0					
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging					
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	97	97
Night-time power consumption	mW	60					
MECHANICAL DATA							
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)					
Relative humidity range		4% to 100% (condensing)					
DC Connector type		MC4					
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")					
Weight		1.08 kg (2.38 lbs)					
Cooling		Natural convection – no fans					
Approved for wet locations		Yes					
Acoustic noise at 1 m		<60 dBA					
Pollution degree		PD3					
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure					
Environ. category / UV exposure rating		NEMA Type 6 / outdoor					
COMPLIANCE							
Certifications		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. 1071-01					
		This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.					



(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
 X-IQ-AM1-240-4C



The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters 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 Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

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

Reliable

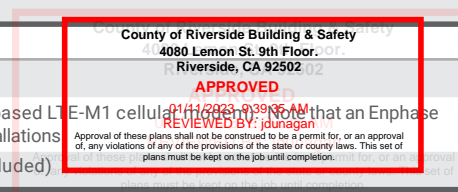
- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



To learn more about Enphase offerings, visit enphase.com



MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem 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.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.
ACCESSORIES AND REPLACEMENT PARTS (not included, order separately)	
Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	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 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 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. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" 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
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem is required for all Ensemble installations)
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ 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) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1



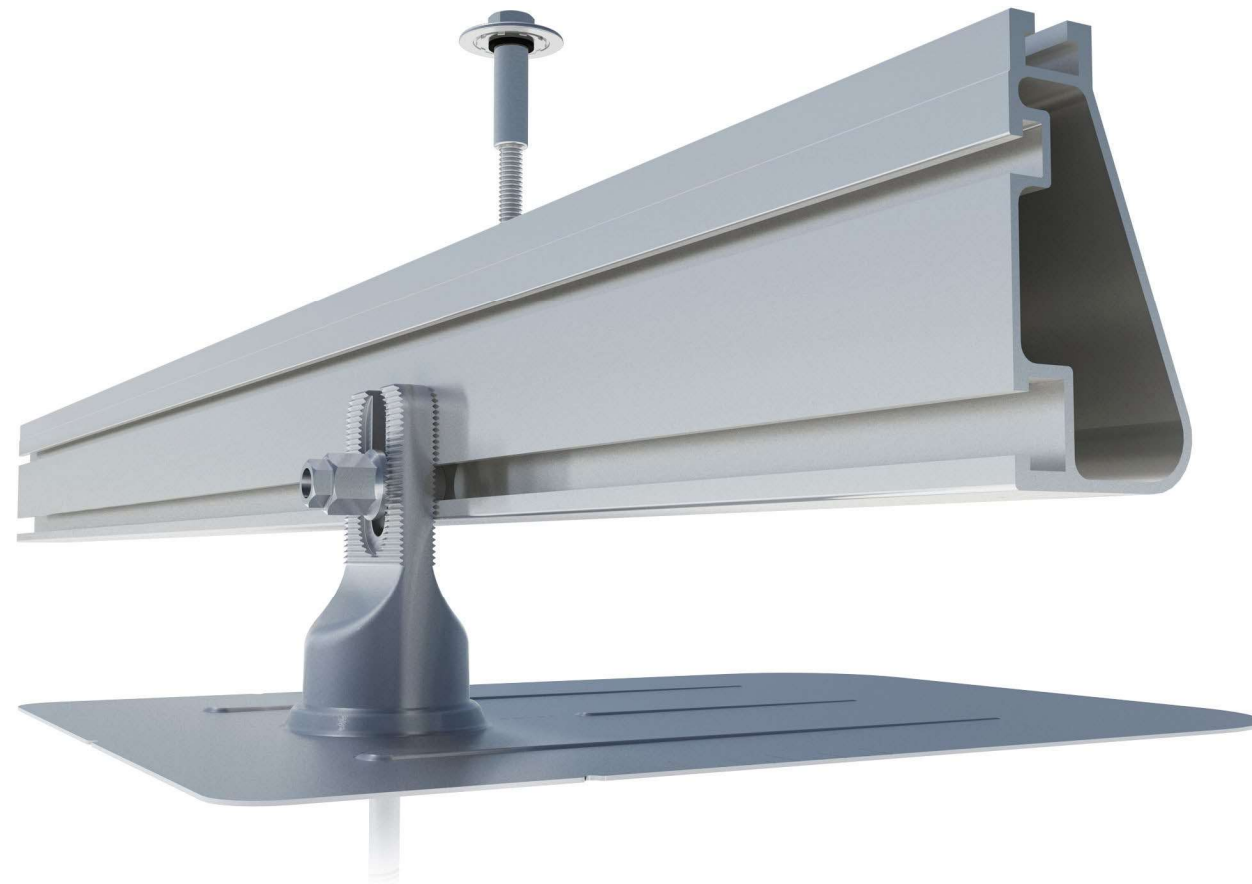
To learn more about Enphase offerings, visit enphase.com

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Flush Mount System




Built for solar's toughest roofs.


IronRidge builds the strongest mounting system for pitched roofs in solar. Our components have been tested to the limit and proven in extreme environments, including Florida's high-velocity hurricane zones.


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 25-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.

25-Year Warranty
 Products guaranteed to be free of impairing defects.

XR Rails

XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear and black finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

BOSS™ Bonded Splices



Bonded Structural Splices connect XR Rails together.

- Integrated bonding
- No tools or hardware
- Self-centering stop tab

Clamps & Grounding

UFO™



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

CAMO™



Bond modules to rails while staying completely hidden.

- Universal end-cam clamp
- Tool-less installation
- Fully assembled

Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

Attachments

FlashFoot2™



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

FlashVue™



Flash and mount conduit, strut, or junction boxes.

- Twist-on Cap eases install
- Wind-driven rain tested
- Secures 3/4" or 1" conduit

Knockout Tile



Replace tiles and ensure superior waterproofing.

- Flat, S, & W tile profiles
- Form-fit compression seal
- Single-lag universal base

All Tile Hook



Mount on tile roofs with a simple, adjustable hook.

Resources



Design Assistant
 Go from rough layout to fully engineered system. For free.
 Go to IronRidge.com/design

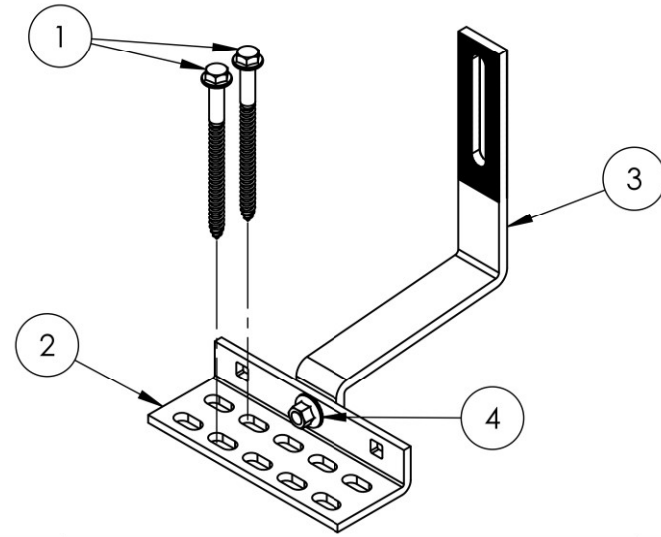


Endorsed by FL Building Commission
 Flush Mount is the first mounting system to receive Florida Product approval for 2017 Florida Building Code compliance.
 Learn More at bit.ly/floridacert

Works on Flat, S & W tiles
 4080 Lemon St. 9th Floor,
 Riverside, CA 92502
 APPROVED
 REVIEWED BY: j.dunagan
 Approval of these plans shall not be construed to be a permit for, or an approval of, any violations of any of the provisions of the state or county laws. This set of plans must be kept on the job until completion.

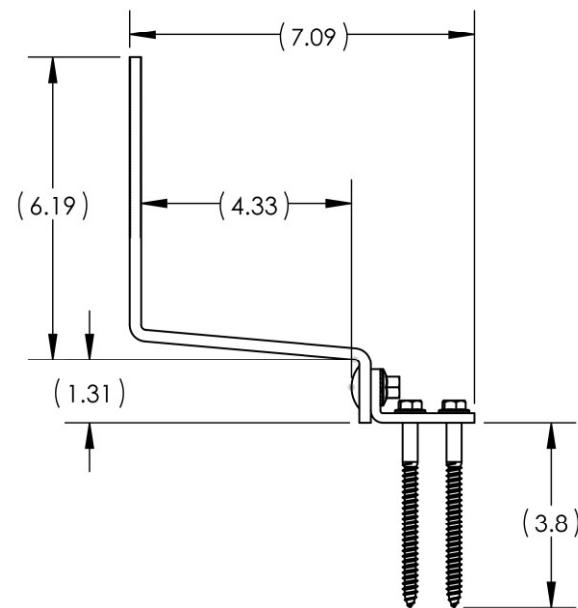


All Tile Hook



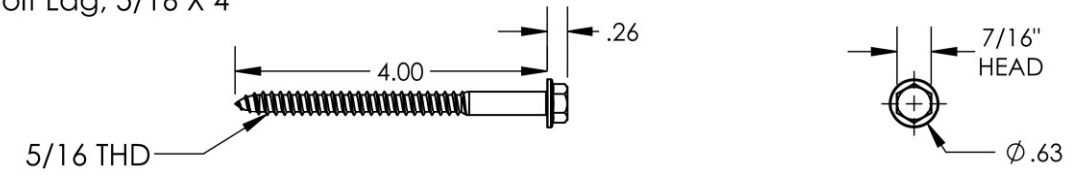
ITEM NO.	DESCRIPTION	QTY IN KIT
1	BOLT, LAG 5/16 X 4"	2
2	ASSY, BASE, CLEAR	1
3	ASSY, ARM, CLEAR	1
4	BOLT, CARRIAGE 5/16 X 1"	1

Part Number	Description
ATH-01-M1	All Tile Hook

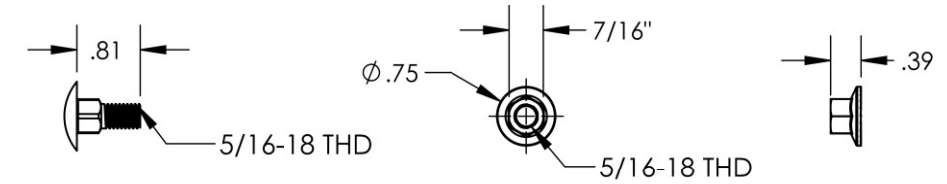


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1) Bolt Lag, 5/16 X 4"

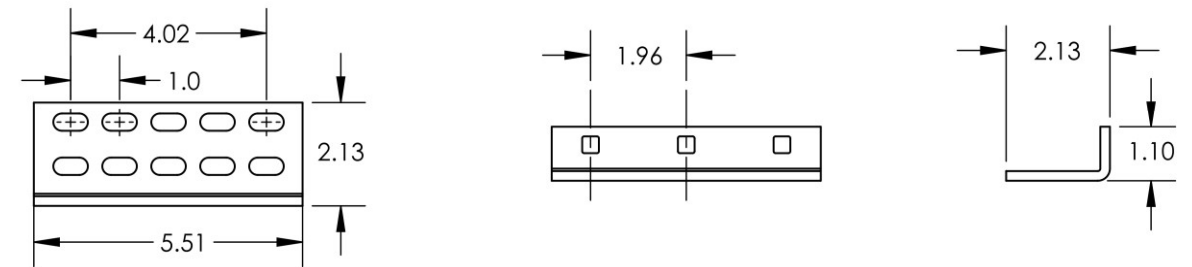


2) Bolt, Carriage 5/16 X 1"

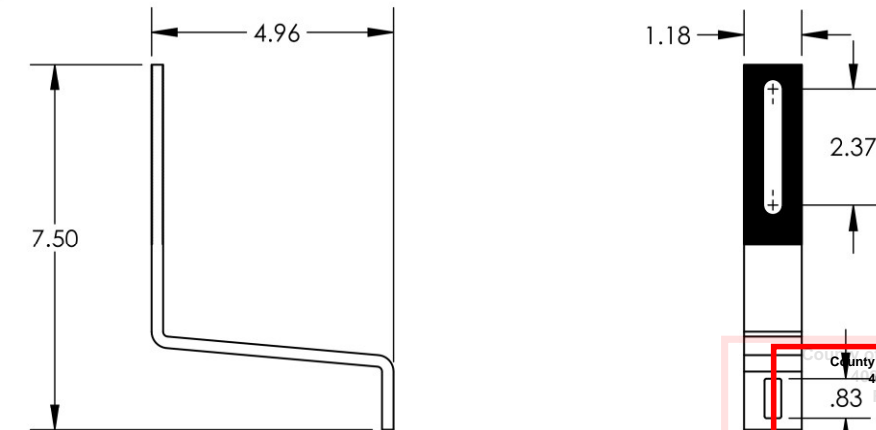


Items	Property	Value
1 & 2	Material	300 Series Stainless Steel
	Finish	Clear

3) Base, Clear



4) Arm, Clear



Items	Property	Value
3 & 4	Material	300 Series Stainless Steel
	Finish	Clear

County of Riverside Building & Safety
 4080 Lemon St. 9th Floor
 Riverside, CA 92502-02
APPROVED
 01/11/2023 9:39:35 AM
 REVIEWED BY: jduagan

v1.0