



PV LETTERS

June 17, 2025

Subject: James Bradley Solar Panel Installation
308 W E St Erwin, NC 28339

Contractor Name: Top Tier Solar Solutions
Contractor Address: 1530 Center Park Dr #2911, Charlotte, NC

To Whom It May Concern,

This letter is submitted on behalf of my client, EnergyScape Renewables.

I am a North Carolina registered Professional Engineer. A field inspection of the installation has been performed by a person under my direct supervisory control. I hereby affirm the following:

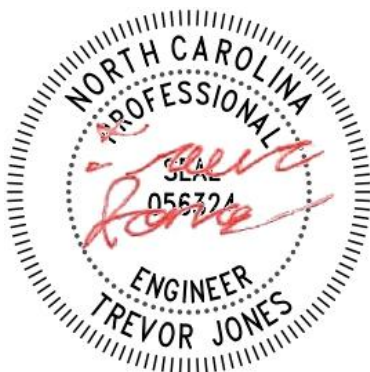
1. The PV equipment's structural installation has been designed and inspected,
2. The equipment will not create a negative impact on the building's structural design, including any additional loads imposed (dead, snow, wind), and
3. The installation is in compliance with the North Carolina Residential Code.

Limitations and Disclaimers

Electrical design is excluded from this analysis. Structural design and analysis of the adequacy of solar panels, racks, mounts, rails, and other components is performed by each component's respective manufacturer. This letter and the opinions expressed herein are rendered solely for the benefit of the permitting authority (city or county building department) and my client's office and may not be utilized or relied on by any other party.

Sincerely,

Trevor Jones, P.E.



June 17, 2025



PV LETTERS

Top Tier Solar Solutions

Contractor Address: 1530 Center Park Dr #2911, Charlotte, NC
28217

April 29, 2025

Subject: Proposed Solar Panel Installation
James Bradley Residence, 308 W E St, Erwin, NC
DC System Size: 12.975 kW
PV Letters Job #004-19920

To Whom it May Concern,

We have reviewed information, provided by our client, related to the proposed solar panel installation at the above-referenced address. The purpose of the review was to determine if the existing roof is structurally adequate for the proposed installation. Based on our review and analysis of the given information, and in accordance with governing building codes, I certify that the capacity of the structural roof framing that directly supports the additional gravity loading due to the solar panel supports and modules had been reviewed and determined to meet or exceed the requirements in accordance with the Design Criteria.

Design Parameter Summary

Governing Building Code: 2018 North Carolina Residential Code
Risk Category: II
Wind Exposure: C
Design Wind Speed: 120 mph
Ground Snow Load: 15 psf

Roof Information

Roof Structure: 2x4 Manufactured Trusses @ 24" O.C. (assumed)
Roofing Material: Corrugated Metal
Roof Slope: 27 degrees

Roof Connection Details

S-5! ProteaBracket to existing metal roof, at 45" O.C. max
Stagger attachments to avoid overloading any individual truss top chord.

Engineering Analysis

The proposed installation - including weight of panels, racking, mounts, and inverters where applicable - will be approximately 3 psf. In the areas where panels are installed, roof live loads will not be present. The reduction of roof live load is adequate to fully or partially compensate for the addition of the panel installation. Because the member forces in the area of the solar panels are not increased by more than 5%, and so per provisions in the adopted building codes, the structure need not be altered for gravity loading.

The proposed installation will be 6" max. above the roof surface (flush mounted) and parallel to the roof surface. Therefore, any increase in wind loading on the building structure from the solar panel installation is expected to be negligible. Wind is the governing lateral load case. Because the increase in lateral loading is not increased by more than 10%, per provisions in the adopted building codes, the structure need not be altered for lateral loading.

Wind uplift on the panels has been calculated in accordance with the relevant provisions of ASCE 7-10. This loading has been used to verify the adequacy of the connection specified above. Connection locations should be in accordance with design drawings.

IronRidge XR10 rails will support the modules and will fasten to the roof structure with S-5! ProteaBracket along the rail.

Conclusion

The roof structure need not be altered for either gravity loading (including snow) or lateral loading (including wind). Therefore, the existing structure is permitted to remain unaltered. Connections to the roof must be made per the "Roof Connection Details" section above. Copies of all relevant calculations are enclosed.

Limitations and Disclaimers

The opinion expressed in this letter is made in reliance on the following assumptions: the existing structure is in good condition; the existing structure is free from defects in design or workmanship; and the existing structure was code-compliant at the time of its design and construction. These assumptions have not been independently verified, and we have relied on representations made by our client with respect to the foregoing. The undersigned has not inspected the structure for defects, although we have reviewed the information provided by our client, including pictures where applicable.

Electrical design is excluded from this analysis. Waterproofing is the sole responsibility of the installer and is also excluded from this analysis. Solar panels must be installed per manufacturer specifications. Structural design and analysis of the adequacy of solar panels, racks, mounts, and other components is performed by each component's respective manufacturer; the undersigned makes no statement of opinion regarding such components. This letter and the opinions expressed herein are rendered solely for the benefit of the permitting authority (city or county building department) and your office, and may not be utilized or relied on by any other party.

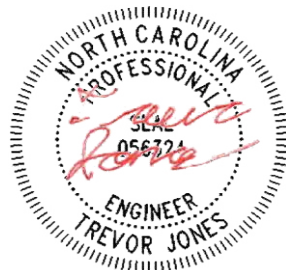
If you have any questions or concerns, please contact us at (208)-994-1680, or by email at Projects@pvletters.com.

Sincerely,



Trevor A. Jones, P.E.

4/29/2025





PV LETTERS

Standard Loading Comparison

This calculation justifies the additional solar load by comparing existing to proposed gravity loads in the location of the solar panels.

	<u>Without Solar</u>	<u>With Solar</u>	
Dead Load			
Corrugated Metal	3	3	psf
1/4" Plywood	1	1	psf
Framing	4	4	psf
Insulation	1	1	psf
1/2" Gypsum Ceiling	2	2	psf
M,E, & Misc	1.5	1.5	psf
Solar Panel	0	3	psf
Total Dead Load	12.5	15.5	psf
Snow Load			
Ground Snow Load, P_g	15		psf
Exposure Factor, C_e	1.00		
Thermal Factor, C_t	1.1		
Importance Factor, I_s	1		
Flat Roof Snow Load	12		ASCE 7 Eqn. 7.3-1 or jurisdiction min.
Slope	27		degrees
Unobstructed Slippery Surface?	Yes	Yes	
Slope Factor, C_s	0.72	0.72	
Sloped Roof Snow Load	8.3	8.3	psf
Live Load			
Roof Live Load	20	0	psf
Load Combination			
D + L _r	32.5	15.5	psf
D + S	20.8	23.8	psf
Max. Load	32.5	23.8	psf
% of original		73.17%	

Result:

Because the total forces are decreased, per the relevant code provisions stated in the body of the letter, the existing roof structure is permitted to remain unaltered.



PV LETTERS

Bracket Connection Calculation (per ASCE 7-10)

This calculation justifies the connection of the solar panels to existing roof members, by showing the connection capacity is equal to or greater than the uplift force demands.

Connection Demand

Spacing perpendicular to rail, in	34
Roof Angle, degrees	27
Roof Layout	Gable
Wind Speed, mph	120
Exposure Coefficient, K_z	0.85
Topographic Factor, K_{zt}	1.00
Directionality Factor, K_d	0.85
Elevation Factor, K_e	1.00
Velocity Pressure q_z , psf	26.5
Prying Coefficient	1

Zones:

	<u>1</u>	<u>2</u>	<u>3</u>
Spacing parallel to rail, in	45	45	45
GC_p (max)	0.90	2.20	2.60
Exposed Panels? ($\gamma_E = 1.5$)	No	No	No
Effective Wind Area on each con., ft ²	10.6	10.6	10.6
Pressure Equalization Factor, γ_a	0.79	0.79	0.79
Uplift Force, psf	18.8	46.1	54.4
Max. Uplift Force / Connection (0.6 WL), lbs	119.8	292.8	346.0
Solar Dead Load (0.6 DL). Lbs	19.1	19.1	19.1
Max. Uplift Force (0.6 WL - 0.6 DL), lbs	100.7	273.7	326.9

Connection Capacity

Connection Type	S-5! ProteaBracket
Ultimate Capacity, lbs	817
Factor of Safety	2.00
Total Capacity, lbs	408.5

Compare ASD Factored Demand to Capacity

Demand, lbs	326.9
Capacity, lbs	408.5

Result

Capacity exceeds demands. Therefore, connection passes.

PHOTOVOLTAIC ROOF MOUNT SYSTEM

(E) 15 + (N) 20 MODULES-ROOF MOUNTED - 12.975 kW DC, 9.400 kW AC

308 W E ST, ERWIN, NC 28339

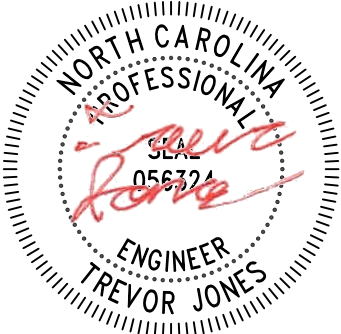


TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	



STRUCTURAL ONLY
04/29/2025

PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME

COVER SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-1

PROJECT DATA

PROJECT ADDRESS: 308 W E ST,
ERWIN, NC 28339

OWNER: JAMES BRADLEY

DESIGNER: ESR

SCOPE: (N) 8.100 kW DC ROOF MOUNT
SOLAR PV SYSTEM WITH
(N) 20 JA SOLAR: JAM54S31-405/MR 405W
PV MODULES WITH
(N) 20 ENPHASE IQ8PLUS-72-2-US 290W
MICRO INVERTERS EQUIPPED WITH
RAPID SHUTDOWN

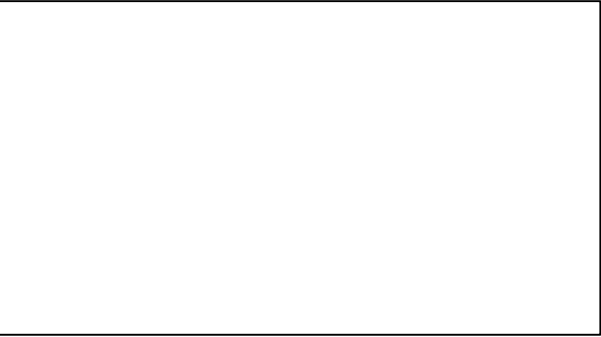
EXISTING: (E) 4.875 kW DC ROOF MOUNT
SOLAR PV SYSTEM WITH
(E) 15 TRINA SOLAR: TSM-325DD06M.05(II)
325W PV MODULES WITH
(E) 15 ENPHASE IQ7-60-2-US 240W MICRO
INVERTERS EQUIPPED WITH RAPID
SHUTDOWN

AUTHORITIES HAVING JURISDICTION:
BUILDING: HARNETT COUNTY
ZONING: HARNETT COUNTY
UTILITY: DUKE ENERGY PROGRESS

SHEET INDEX

PV-1 COVER SHEET
PV-2 SITE PLAN
PV-3 ROOF PLAN & MODULES
PV-4 ELECTRICAL PLAN
PV-5 STRUCTURAL DETAIL
PV-6 ELECTRICAL LINE DIAGRAM
PV-7 WIRING CALCULATIONS
PV-8 LABELS
PV-9+ EQUIPMENT SPECIFICATIONS

SIGNATURE



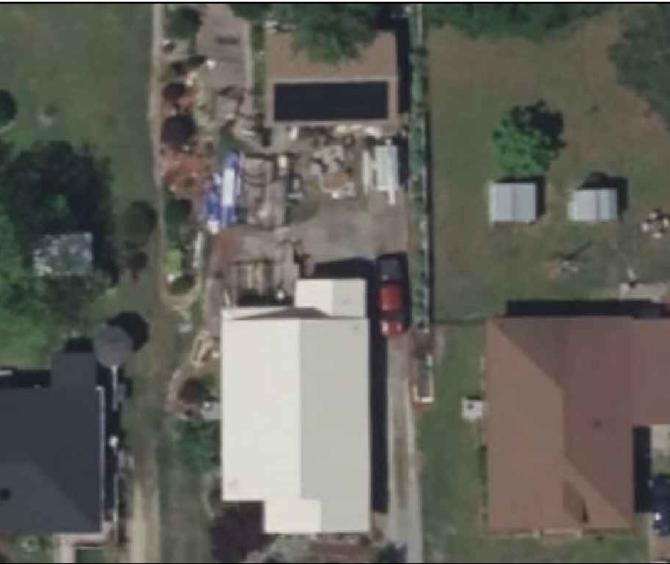
GENERAL NOTES

- ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
- THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2017.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
- ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
- WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
- HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS.
- ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
- ALL SINAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SINAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
- INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
- THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
- ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
- ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

VICINITY MAP



HOUSE PHOTO



CODE REFERENCES

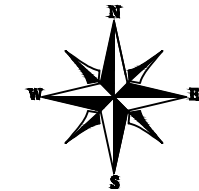
2018 NORTH CAROLINA BUILDING CODE
2018 NORTH CAROLINA RESIDENTIAL CODE
2018 NORTH CAROLINA FIRE CODE
2017 NATIONAL ELECTRICAL CODE

PROJECT DESCRIPTION:

(N) 20 X JA SOLAR: JAM54S31-405/MR 405W MONO MODULES
(E) 15 X TRINA SOLAR: TSM-325DD06M.05(II) 325W MONO MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
DC SYSTEM SIZE: (N) 20 x 405W + (E) 15 X 405W = 9.720 kW DC
AC SYSTEM SIZE: (N) 20 x 290W + (E) 15 X 240W = 9.400 kW AC

EQUIPMENT SUMMARY
(N) 20 JA SOLAR: JAM54S31-405/MR 405W MONO MODULES
(N) 20 IQ8PLUS-72-2-US 290W MICRO INVERTERS EQUIPPED
WITH RAPID SHUTDOWN
(E) 15 TRINA SOLAR: TSM-325DD06M.05(II) 325W MONO MODULES
(E) 15 ENPHASE IQ7-60-2-US 240W MICRO INVERTERS EQUIPPED
WITH RAPID SHUTDOWN

(N) ROOF ARRAY AREA #1:- 420.20 SQ FT.



(E) ENPHASE COMBINER BOX
(E) VISIBLE, LOCKABLE,
LABELED NON-FUSED AC DISCONNECT (TYP.)

(N) ENPHASE COMBINER BOX
(N) VISIBLE, LOCKABLE,
LABELED FUSED AC DISCONNECT
(LOCATED WITHIN 10' OF UTILITY METER)
(E) UTILITY METER
(E) MAIN SERVICE PANEL
(OUTSIDE)
(E) SUBPANEL
(INSIDE HOUSE)

(E) TREE

(E) 1-STORY NON-HABITABLE
DETACHED STRUCTURE

(E) (15) TRINA SOLAR: TSM-325DD06M.05(II) 325W
MONO MODULES WITH
(E) (15) ENPHASE IQ7-60-2-US 240W
MICRO INVERTERS EQUIPPED WITH RAPID SHUTDOWN

(E) FENCE

ROOF #1
(N) (20) JA SOLAR: JAM54S31-405/MR
405W MONO MODULES WITH ENPHASE
IQ8PLUS-72-2-US 290W MICRO INVERTERS
EQUIPPED WITH RAPID SHUTDOWN

1-STORY
HOUSE

EXISTING
DRIVEWAY

WEST

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT
LOCATED WITHIN 10' OF UTILITY METER

DESIGN SPECIFICATION
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: REFER STRUCTURAL LETTER
WIND EXPOSURE: REFER STRUCTURAL LETTER
WIND SPEED: REFER STRUCTURAL LETTER



TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
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REVISIONS		
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PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE
308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME

SITE PLAN

SHEET SIZE

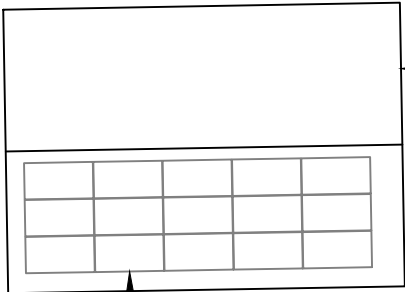
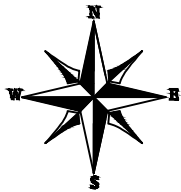
ANSI B
11" X 17"

SHEET NUMBER

PV-2

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 20 MODULES
MODULE TYPE = JA SOLAR: JAM54S31-405/MR 405W MONO MODULES
MODULE WEIGHT = 47.39 LBS / 21.5KG.
MODULE DIMENSIONS = 67.79" x 44.65" = 21.01 SF



(E) NON-HABITABLE
DETACHED STRUCTURE

(E) (15) TRINA SOLAR: TSM-325DD06M.05(II) 325W
MONO MODULES WITH
(E) (15) ENPHASE IQ7-60-2-US 240W
MICRO INVERTERS EQUIPPED WITH RAPID SHUTDOWN

ROOF DESCRIPTION						
ROOF TYPE				ASPHALT SHINGLE		
ROOF	# OF MODULES	ROOF PITCH	AZIMUTH	TRUSS SIZE	TRUSS SPACING	SEAM SPACING
#1	20	27°	89°	2"X4"	24"	9"

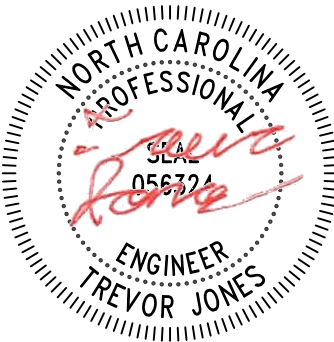
ARRAY AREA & ROOF AREA CALC'S (MAIN HOUSE)		
TOTAL PV ARRAY AREA (SQ. FT.)	TOTAL ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
420.20	1768.24	24



TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
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JAMES BRADLEY
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308 W E ST,
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DRAWN BY

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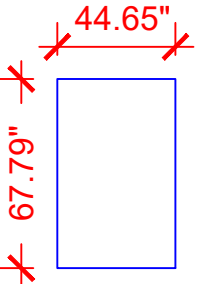
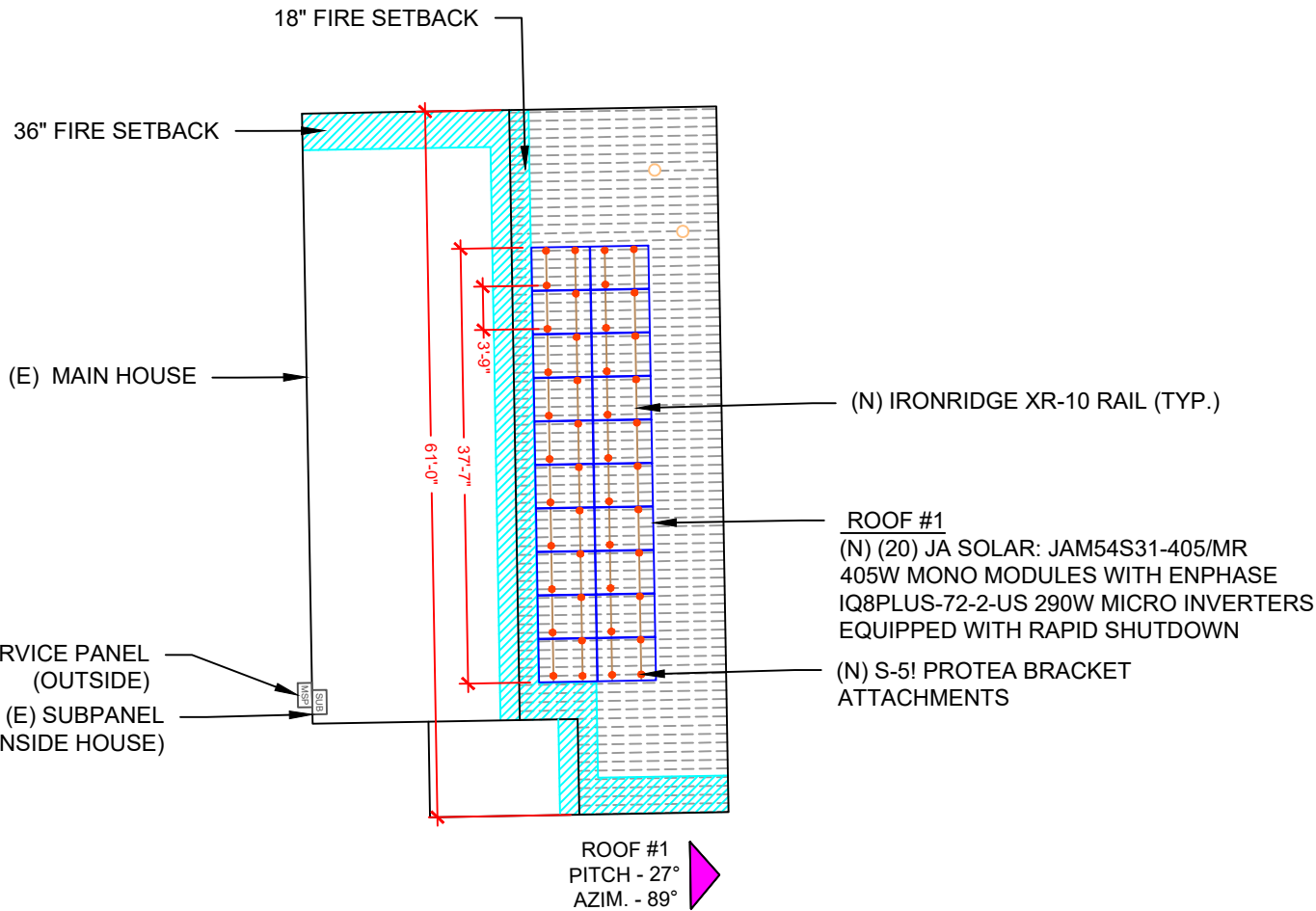
ROOF PLAN &
MODULES

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-3



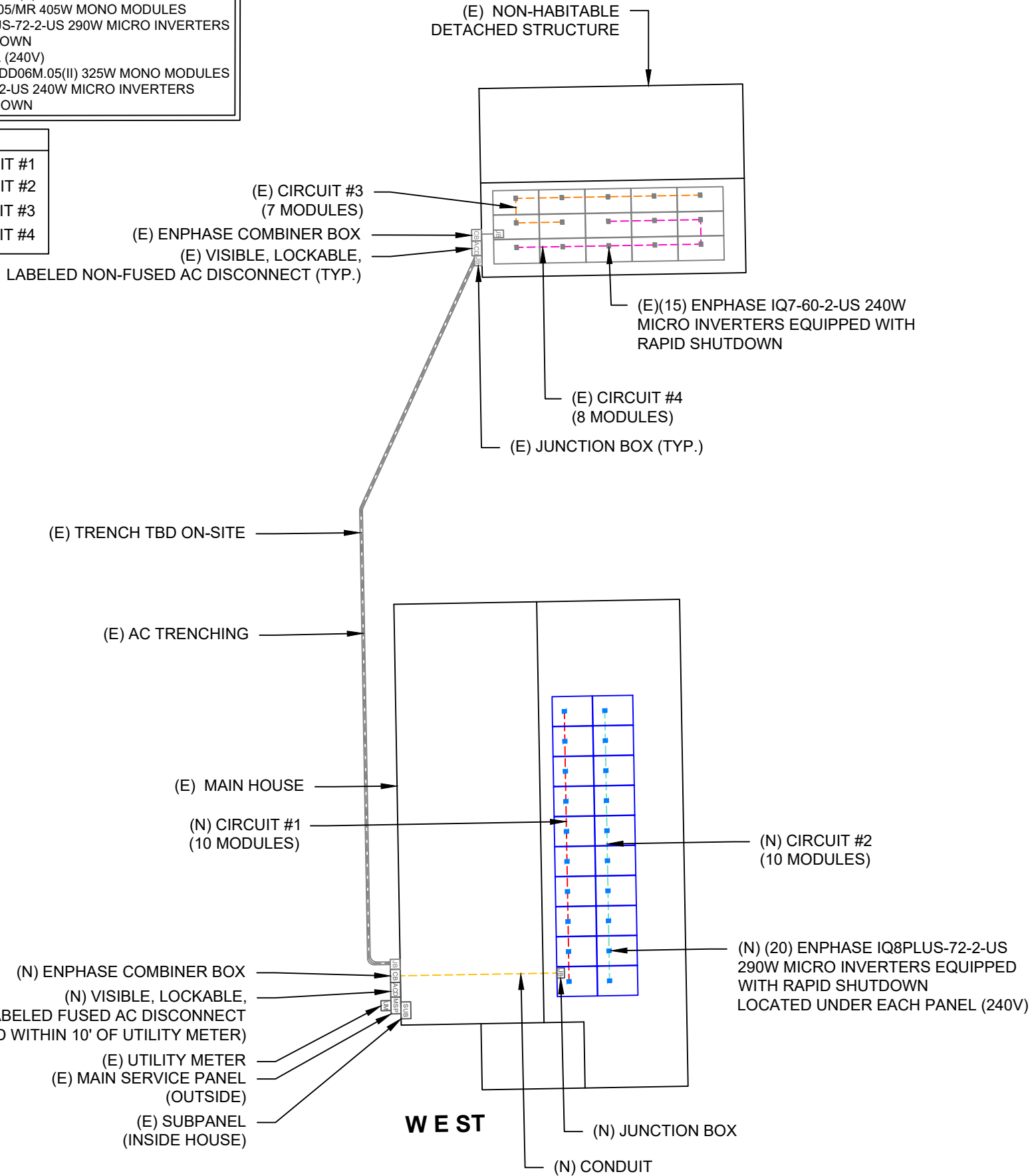
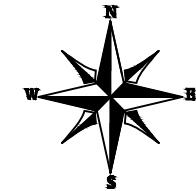
JA SOLAR:
JAM54S31-405/MR
405W MODULES

LEGEND

- JB - JUNCTION BOX
- CB - COMBINER BOX
- ACD - AC DISCONNECT
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- SUB - SUBPANEL
- - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- - ROOF ATTACHMENT
- - - TRUSS
- - - CONDUIT

DC SYSTEM SIZE: (N) 20 x 405W + (E) 15X 325W = 14.475 kW DC
AC SYSTEM SIZE: (N) 20 x 290W + (E) 15 X 240W= 9.400 kW AC
(N) (20) JA SOLAR: JAM54S31-405/MR 405W MONO MODULES
WITH (N) (20) ENPHASE IQ8PLUS-72-2-US 290W MICRO INVERTERS
EQUIPPED WITH RAPID SHUTDOWN
LOCATED UNDER EACH PANEL (240V)
(E) (15) TRINA SOLAR: TSM-325DD06M.05(II) 325W MONO MODULES
WITH (E) (15) ENPHASE IQ7-60-2-US 240W MICRO INVERTERS
EQUIPPED WITH RAPID SHUTDOWN

CIRCUIT LEGENDS	
	(N) CIRCUIT #1
	(N) CIRCUIT #2
	(E) CIRCUIT #3
	(E) CIRCUIT #4



BILL OF MATERIALS	
EQUIPMENT DESCRIPTION	QTY
SOLAR PV MODULES: JA SOLAR: JAM54S31-405/MR 405W MODULE	20
MICRO INVERTERS: ENPHASE IQ8PLUS-72-2-US 290W MICRO INVERTERS EQUIPPED WITH RAPID SHUTDOWN	20
JUNCTION BOX: 6"X6"X4" UL LISTED, STEEL WATER TIGHT NEMA TYPE 3R, UL LISTED	1
COMBINER BOX: ENPHASE IQ COMBINER X-IQ-AM1-240-4/4C 120/240VAC, 1ϕ, 3W 125A RATED BUS BAR, NEMA 3R SOLAR LOADS ONLY UL 1741 COMPLIANT	1
20A BREAKER	2
AC DISCONNECT: FUSED AC DISCONNECT, 60A FUSED, (2) 50A FUSES 240V NEMA 3R, UL LISTED	1
IRONRIDGE XR10 RAIL (RAIL 168" (14 FEET) CLEAR) (XR-10-168A)	12
BONDED SPLICE, XR10 (XR10-BOSS-01-M1)	8
UNIVERSAL MODULE CLAMP, CLEAR (UFO-CL-01-A1)	36
END FASTENING OBJECT (END CLAMP, 30-40MM), MILL (UFO-END-01-A1)	8
GROUNDING LUG (XR-LUG-03-A1)	2
S-5! PROTEA BRACKET ATTACHMENTS	48
T-BOLT BONDING HARDWARE (BHW-TB-02-A1) (PRODUCT CODE 590-0116)	48
MICRO INVERTER BONDING HARDWARE T-BOLT (BHW-MI-01-A1) (PRODUCT CODE 270-0152)	20

LEGEND

	- JUNCTION BOX
	- COMBINER BOX
	- AC DISCONNECT
	- UTILITY METER
	- MAIN SERVICE PANEL
	- SUBPANEL
	- VENT, ATTIC FAN (ROOF OBSTRUCTION)
	- ROOF ATTACHMENT
	- TRUSS
	- CONDUIT



TOP TIER SOLAR SOLUTIONS

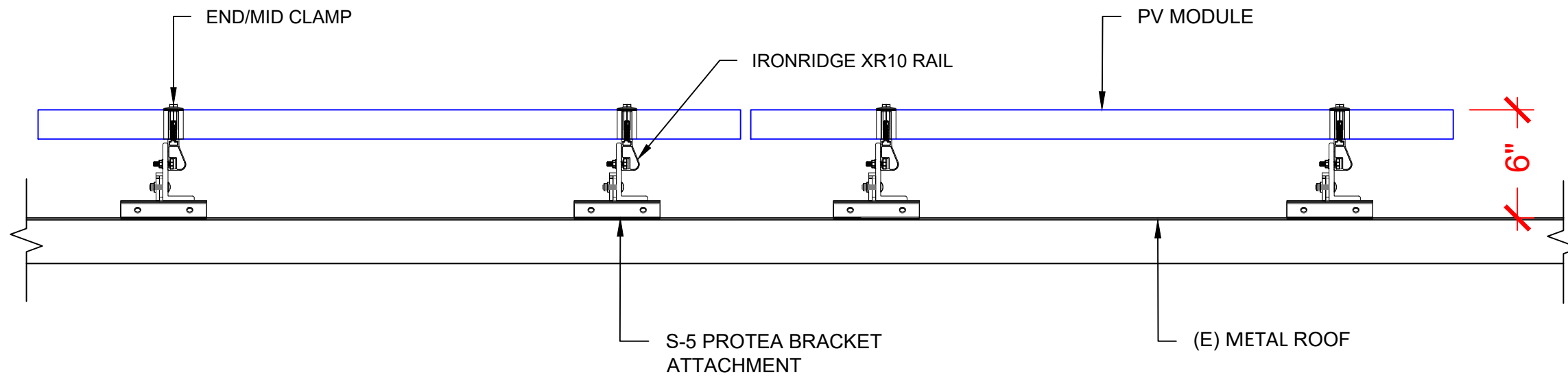
1530 CENTER PARK DR #2911,
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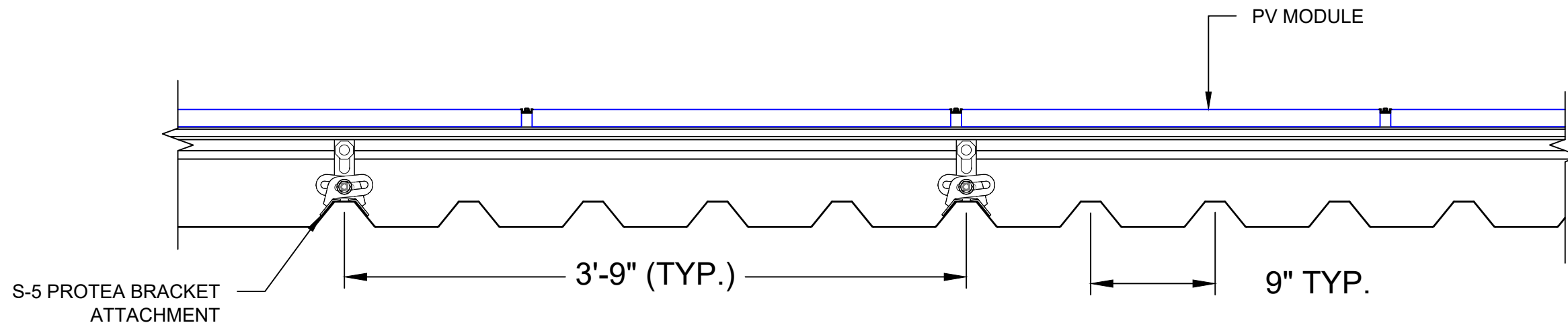


PROJECT NAME & ADDRESS	
JAMES BRADLEY RESIDENCE	308 W E ST, ERWIN, NC 28339

DRAWN BY ESR
SHEET NAME ELECTRICAL PLAN
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-4



1 ATTACHMENT DETAIL (side view)
PV-5 SCALE: N.T.S.

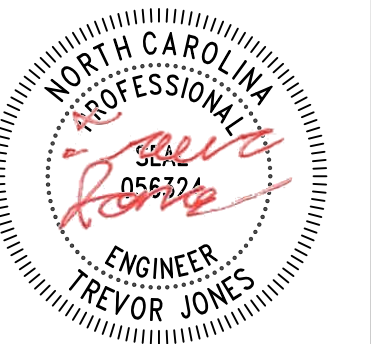


2 ATTACHMENT DETAIL (front view)
PV-5 SCALE: N.T.S.



TOP TIER SOLAR SOLUTIONS
1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
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REVISIONS		
DESCRIPTION	DATE	REV
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STRUCTURAL ONLY
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PROJECT NAME & ADDRESS

JAMES BRADLEY
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308 W E ST,
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DRAWN BY
ESR

SHEET NAME
STRUCTURAL DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

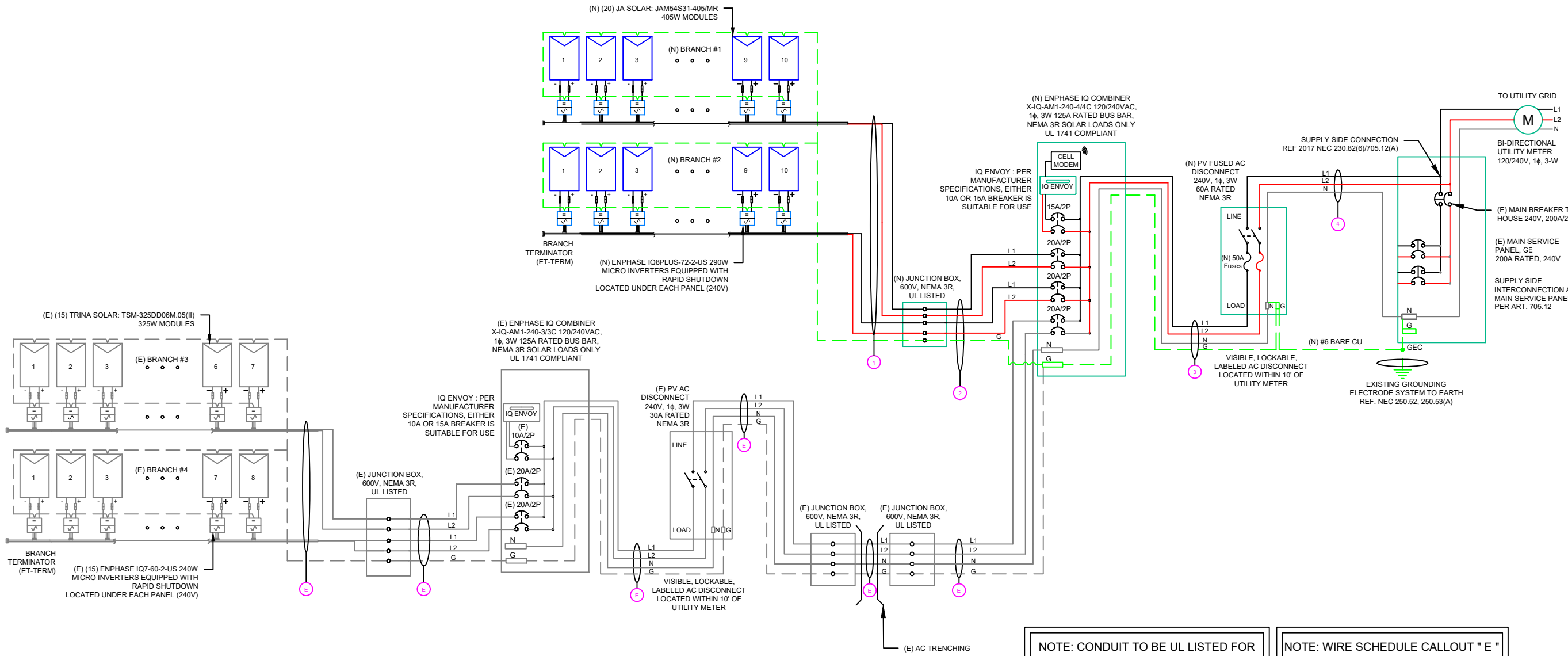
DC SYSTEM SIZE: (N) 20 x 405W + (E) 15 X 325W = 12.975 kW DC
AC SYSTEM SIZE: (N) 20 x 290W + (E) 18 X 290W= 9.400 kW AC
(N) (20) JA SOLAR: JAM54S31-405/MR 405W MONO MODULES
WITH (N) (20) ENPHASE IQ8PLUS-72-2-US 290W MICRO INVERTERS
EQUIPPED WITH RAPID SHUTDOWN
LOCATED UNDER EACH PANEL (240V)
(E) (15) TRINA SOLAR: TSM-325DD06M.05(II) 325W MONO MODULES WITH
(E) (15) ENPHASE IQ7-60-2-US 240W MICRO INVERTERS EQUIPPED WITH
RAPID SHUTDOWN LOCATED UNDER EACH PANEL (240V)
(02) BRANCH CIRCUITS OF 10 MODULES ARE CONNECTED IN PARALLEL

- INTERCONNECTION NOTES:**
1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.59].
 2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95].
 3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
 4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

- DISCONNECT NOTES:**
1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
 2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
 3. DISCONNECT MEANS AND THEIR LOCATION SHALL BE IN ACCORDANCE WITH [NEC 225.31] AND [NEC 225.32].

- GROUNDING & GENERAL NOTES:**
1. PV GROUNDING ELECTRODE SYSTEM NEEDS TO BE INSTALLED IN ACCORDANCE WITH [NEC 690.43]
 2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
 3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
 4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
 5. JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOX DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
 6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
 7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.

- RACKING NOTE:**
1. BOND EVERY OTHER RAIL WITH #6 BARE COPPER



NOTE: CONDUIT TO BE UL LISTED FOR WET LOCATIONS AND UV PROTECTED

NOTE: WIRE SCHEDULE CALLOUT " E " ARE EXISTING SYSTEM

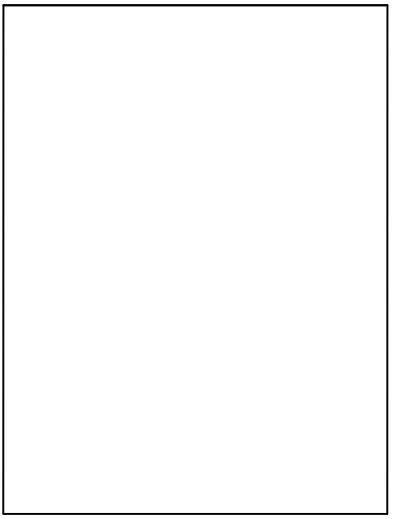
QTY	CONDUCTOR INFORMATION		CONDUIT TYPE	CONDUIT SIZE
1 (4)	#12AWG -	ENPHASE ENGAGE CABLE (L1 & L2 NO NEUTRAL)	N/A	N/A
(1)	#6AWG -	BARE COPPER IN FREE AIR		
1 (4)	#10AWG -	CU, THWN-2	EMT OR LFMC	3/4"
(1)	#10AWG -	CU, THWN-2 GND		
2 (2)	#6AWG -	CU, THWN-2	EMT, LFMC OR PVC	3/4"
(1)	#6AWG -	CU, THWN-2 N		
(1)	#6AWG -	CU, THWN-2 GND	EMT, LFMC OR PVC	3/4"
2 (2)	#6AWG -	CU, THWN-2		
(1)	#6AWG -	CU, THWN-2 N		

TOP TIER
SOLAR SOLUTIONS

TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	



PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY ESR
SHEET NAME ELECTRICAL LINE DIAGRAM
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-6

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ8PLUS-72-2-US 290W MICRO INVERTERS EQUIPPED WITH RAPID SHUTDOWN
MIN/MAX DC VOLT RATING	30V MIN/ 58V MAX
MAX INPUT POWER	235W-440W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.21A
MAX MODULES PER CIRCUIT	13 (SINGLE PHASE)
MAX OUTPUT POWER	290 VA

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	JA SOLAR: JAM54S31-405/MR 405 W MODULE
VMP	31.21V
IMP	12.98A
VOC	37.23V
ISC	13.87A
TEMP. COEFF. VOC	-0.275%/°C
MODULE DIMENSION	67.79"L x 44.65"W x 1.18"D (In Inch)

AMBIENT TEMPERATURE SPECS	
AMBIENT TEMP (HIGH TEMP 2%)	38°
RECORD LOW TEMP	-9°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.275%/°C

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AC CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
CIRCUIT 1	JUNCTION BOX	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	38	2	30	0.91	1	27.3	PASS			0.46	N/A	#N/A
CIRCUIT 2	JUNCTION BOX	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	38	2	30	0.91	1	27.3	PASS			0.46	N/A	#N/A
JUNCTION BOX	COMBINER BOX	240	12.1	15.125	20	N/A	CU #10 AWG	CU #10 AWG	35	PASS	38	4	40	0.91	0.8	29.12	PASS	20	1.24	0.250	3/4" EMT	19.79362
COMBINER BOX	AC DISCONNECT	240	39.2	49	50	CU #6 AWG	CU #6 AWG	CU #6 AWG	65	PASS	38	2	75	0.91	1	68.25	PASS	5	0.491	0.080	3/4" EMT	38.04878
AC DISCONNECT	POI	240	39.2	49	50	CU #6 AWG	N/A	CU #6 AWG	65	PASS	38	2	75	0.91	1	68.25	PASS	5	0.491	0.080	3/4" EMT	28.53659

Circuit 1 Voltage Drop																			0.870		
Circuit 2 Voltage Drop																			0.870		

ELECTRICAL NOTES

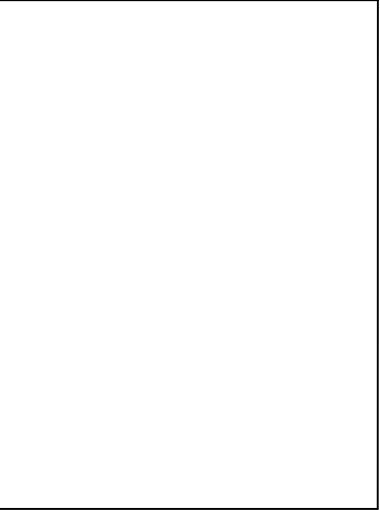
1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
3. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF JUNCTION BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.



TOP TIER SOLAR SOLUTIONS

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PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME

WIRING CALCULATIONS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-7

⚠

WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL- 1:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.13(B)

⚠

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL- 2:
LABEL LOCATION:
UTILITY METER
MAIN SERVICE PANEL
SUBPANEL
CODE REF: NEC 705.12(C) & NEC 690.59

⚠

WARNING

TURN OFF PHOTOVOLTAIC AC
DISCONNECT PRIOR TO
WORKING INSIDE PANEL

LABEL- 3:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
COMBINER
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

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

SOLAR ELECTRIC
PV PANELS

LABEL- 4:
LABEL LOCATION:
AC DISCONNECT
CODE REF: [NEC 690.56(C)(1)(A)]

RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

LABEL- 5:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.56(C)(2)

PHOTOVOLTAIC

AC DISCONNECT

LABEL- 6:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.13(B)

PHOTOVOLTAIC
AC DISCONNECT

NOMINAL OPERATING AC VOLATGE240 V

RATED AC OUTPUT CURRENT39.20 A

LABEL- 7:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
AC DISCONNECT
CODE REF: NEC 690.54

MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

LABEL- 8:
LABEL LOCATION:
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)
CODE REF: NEC 690.13(B)

TOP TIER

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308 W E ST,
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DRAWN BY

ESR

SHEET NAME

LABELS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-8



Harvest the Sunshine

DEEP BLUE 3.0 Light

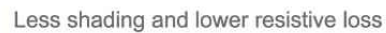
Mono

**405W MBB
Half-cell Black Module**

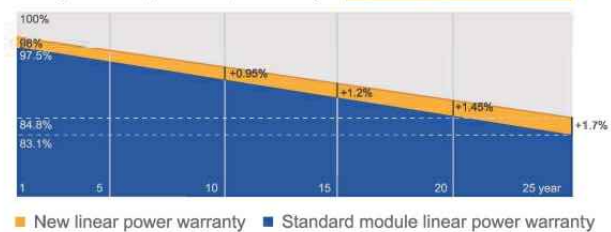
JAM54S31 380-405/MR Series

Introduction

Assembled with 11BB PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.



- 25-year product warranty
- 25-year linear power output warranty



- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval

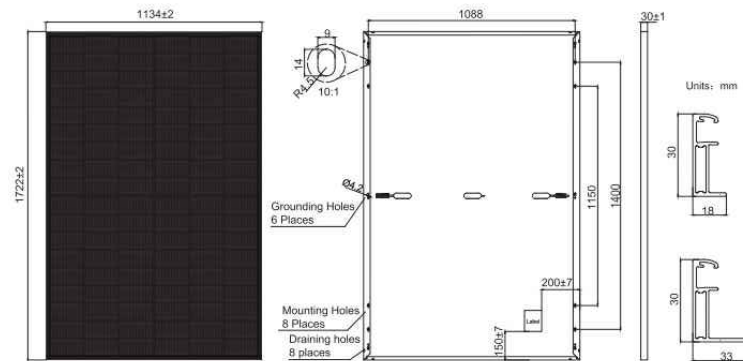


www.jasolar.com

Specifications subject to technical changes and tests.
JA Solar reserves the right of final interpretation.

JAM54S31 380-405/MR 

SPECIFICATIONS



Remark: customized frame color and cable length available upon request

Cell	Mono
Weight	21.5kg±3%
Dimensions	1722±2mm×1134±2mm×30±1mm
Cable Cross Section Size	4mm ² (IEC) , 12 AWG(UL)
No. of cells	108(6x18)
Junction Box	IP68, 3 diodes
Connector	MC4-EVO2(1500V)
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-); Landscape: 1200mm(+)/1200mm(-)
Packaging Configuration	36pcs/Pallet, 864pcs/40ft Container

TYPE	JAM54S31 -380/MR	JAM54S31 -385/MR	JAM54S31 -390/MR	JAM54S31 -395/MR	JAM54S31 -400/MR	JAM54S31 -405/MR
Rated Maximum Power(Pmax) [W]	380	385	390	395	400	405
Open Circuit Voltage(Voc) [V]	36.58	36.71	36.85	36.98	37.07	37.23
Maximum Power Voltage(Vmp) [V]	30.28	30.46	30.64	30.84	31.01	31.21
Short Circuit Current(Isc) [A]	13.44	13.52	13.61	13.70	13.79	13.87
Maximum Power Current(Imp) [A]	12.55	12.64	12.73	12.81	12.90	12.98
Module Efficiency [%]	19.5	19.7	20.0	20.2	20.5	20.7
Power Tolerance	±2%					
Temperature Coefficient of Isc(α_Isc)	+0.045%/°C					
Temperature Coefficient of Voc(β_Voc)	-0.275%/°C					
Temperature Coefficient of Pmax(γ_Pmp)	-0.350%/°C					
STC	Irradiance 1000W/m², cell temperature 25°C, AM1.5G					

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

OPERATING CONDITIONS

TYPE	JAM54S1 -380/MR	JAM54S31 -385/MR	JAM54S31 -390/MR	JAM54S31 -395/MR	JAM54S31 -400/MR	JAM54S31 -405/MR	Maximum System Voltage	1000V/1500V DC
Rated Max Power(Pmax) [W]	286	290	294	298	302	306	Operating Temperature	-40℃~+85℃
Open Circuit Voltage(Voc) [V]	34.36	34.49	34.62	34.75	34.88	35.12	Maximum Series Fuse Rating	25A
Max Power Voltage(Vmp) [V]	28.51	28.68	28.87	29.08	29.26	29.47	Maximum Static Load Front* Maximum Static Load.Back*	5400Pa(112lb/ft²) 2400Pa(50lb/ft²)
Short Circuit Current(Isc) [A]	10.75	10.82	10.89	10.96	11.03	11.10	NOCT	45±2℃
Max Power Current(Imp) [A]	10.03	10.11	10.18	10.25	10.32	10.38	Safety Class	Class II
NOCT	Irradiance 800W/m², ambient temperature 20℃, wind speed 1m/s, AM1.5G						Fire Performance	UL Type 1

Figure 10 displays three typical characteristics of the JAM54S31-405/MR device:

- Current-Voltage Curve (I-V):** The graph shows Current (A) on the y-axis (0 to 14) versus Voltage (V) on the x-axis (0 to 40). Multiple curves are plotted for different power densities: 1000 W/m², 800 W/m², 600 W/m², 400 W/m², and 200 W/m². The current increases with voltage and then saturates or drops sharply at higher voltages, depending on the power density.
- Power-Voltage Curve (P-V):** The graph shows Power (W) on the y-axis (0 to 400) versus Voltage (V) on the x-axis (0 to 40). Multiple curves are plotted for the same power densities as the I-V curve. The power increases with voltage, reaches a peak, and then drops sharply at higher voltages.
- Current-Voltage Curve (I-V):** The graph shows Current (A) on the y-axis (0 to 14) versus Voltage (V) on the x-axis (0 to 40). Multiple curves are plotted for different temperatures: -10°C, 25°C, 40°C, 55°C, and 70°C. The current increases with voltage and then drops sharply at higher voltages, with the performance generally degrading as temperature increases.

Premium Cells, Premium Modules

Version No. : Global_EN_20231130A

TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
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PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-9



AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

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Applicant: Shanghai JA Solar Technology Co., Ltd. **Manufacturer:** JA SOLAR VIET NAM COMPANY LIMITED.

Address: No. 118, Lane 3111, West Huancheng Road, Fengxian District, 201401 Shanghai **Address:** Lot G, Quang Chau industrial park, Quang Chau Ward, Viet Yen Town, Bac Giang Province, 236110

Country: P. R. China **Country:** Vietnam

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services Shanghai Limited

Control Number: 5020189 **Authorized by:** for L. Matthew Snyder, Certification Manager



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Terrestrial Photovoltaic (PV) Modules - Design Qualification And Type Approval - Part 1: Test Requirements [UL 61215-1:2017 Ed.1]

Terrestrial Photovoltaic (PV) Modules - Design Qualification And Type Approval - Part 1-1: Special Requirements For Testing Of Crystalline Silicon Photovoltaic (PV) Modules [UL 61215-1-1:2017 Ed.1]

Terrestrial Photovoltaic (PV) Modules - Design Qualification And Type Approval - Part 2: Test Procedures [UL 61215-2:2017 Ed.1]

Standard(s): Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements For Construction [UL 61730-1:2017 Ed.1]

Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements For Testing [UL 61730-2:2017 Ed.1]

Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [CSA C22.2#61730-1:2019 Ed.2]

Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [CSA C22.2#61730-2:2019 Ed.2]



AUTHORIZATION TO MARK

Product:	Crystalline Silicon Photovoltaic modules
Brand Name:	JA SOLAR 晶澳
Models:	JAM72S03-385/PR, JAP72S03-340/SC, JAM72S10- followed by 395, 400, 405, 410 or 415 followed by /MB, JAM60S10- followed by 330, 335, 340 or 345 followed by /MB, JAM72S10- followed by 395, 400, 405, 410 or 415 followed by /MR, JAM66S10- followed by 365, 365, 370, 375 or 380 followed by /MR, JAM60S10- followed by 330, 335, 340 or 345 followed by /MR, JAM72S09- followed by 370, 375, 380, 385, 390, 395 or 400 followed by /PR, JAM60S09- followed by 310, 315, 320 or 325 followed by /PR, JAM72S09- followed by 375, 380 or 385 followed by /BP, JAM60S09- followed by 315 or 320 followed by /BP, JAM72S10- followed by 385, 390, 395 or 400 followed by /BP, JAM60S10- followed by 320, 325 or 330 followed by /BP, JAM72S10- followed by 380, 385, 390, 395, 400 or 405 followed by /PR, JAM60S10- followed by 320, 325, 330 or 335 followed by /PR, JAM72S12- followed by 365, 370, 375, 380 or 385 followed by /PR, JAM60S12- followed by 305, 310, 315 or 320 followed by /PR, 1JAM78S10- followed by 435, 440, 445, 450 or 455 followed by /MR, 1JAM6(K)-72-335/4BB/1500V, JAM60S17- followed by 320, 325, or 330 followed by /MR, JAM72S20- followed by 430, 435, 440, 445, 450, 455, 460, 465 or 470 followed by /MR, JAM60S20- followed by 355, 360, 365, 370, 375, 380, 385 or 390 followed by /MR, JAM72S30- followed by 530, 535, 540, 545, 550 or 555 followed by /MR, JAM66S30- followed by 490, 495 or 500 followed by /MR, JAM68S11- followed by 355, 360 or 365 followed by /PR, JAM68S11- followed by 345, 350, 355, 360 or 365 followed by /PR(B), JAM76S11- followed by 395, 400, 405, 410 or 415 followed by /PR(B), JAM76S11- followed by 395, 400, 405, 410 or 415 followed by /PR(B)/1000V, JAM78S30-followed by 575, 580, 585, 590, 595, 600, 605 or 610 followed by /GR, JAM72S30-followed by 535, 540, 545, 550, 555 or 560 followed by /GR, JAM66S30-followed by 490, 495, 500 or 505 followed by /GR, JAM60S30-followed by 445, 450, 455 or 460 followed by /GR, JAM54S30-followed by 400, 405, 410, 415 or 420 followed by /GR, JAM78S31-followed by 570, 575, 580, 585 or 590 followed by /GR, JAM72S31-followed by 530, 535 or 540 followed by /GR, JAM66S31-followed by 485, 490 or 495 followed by /GR, JAM60S31-followed by 440, 445 or 450 followed by /GR, JAM54S31-followed by 395, 400 , 405, 410 or 415 followed by /GR, JAM60S31-followed by 430, 435, 440, 445 or 450 followed by /GR/1000V, JAM54S31-followed by 390, 395, 400, 405, 410 or 415 followed by /GR/1000V, JAM54S30-followed by 400, 405, 410, 415, 420 or 425 followed by /MR, JAM72S31-followed by 510, 515, 520, 525, 530, 535, 540 or 545 followed by /MR, JAM54S31-followed by 385, 390, 395, 400 or 405 followed by /MR, JAM54S30-followed by 400, 405, 410, 415, 420 or 425 followed by /MR/1000V, JAM72S31-followed by 510, 515, 520, 525, 530,535, 540 or 545 followed by /MR/1000V, JAM54S31-followed by 385, 390, 395, 400 or 405 followed by /MR/1000V, JAM72S17-followed by 390, 395, 400 or 405 followed by /MR, JAM72S17-followed by 390, 395, 400 or 405 followed by /MR/1000V, JAM78S30- followed by 580, 585, 590, 595, 600 or 605 followed by /MR,JAM72S30-followed by 555, 560, 565, 570, 575, 580 followed by /LR, JAM54S30-followed by 415, 420, 425, 430, 435 followed by /LR, JAM54S31-followed by 415, 420 followed by /LR, JAM54S30-followed by 385, 390, 395, 400, 405, 410 followed by /MB, JAM54S31-followed by 385, 390, 395, 400, 405 followed by /MB, JAM54S30-followed by 410, 415, 420, 425 followed by /LB, JAM54S31-followed by 410, 415 followed by /LB , JAM72S30-followed by 535, 540, 545, 550 followed by /MB, JAM72S31-followed by 525, 530, 535, 540 followed by /MB.



TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	



PROJECT NAME & ADDRESS	
JAMES BRADLEY RESIDENCE	308 W E ST, ERWIN, NC 28339

DRAWN BY ESR

SHEET NAME EQUIPMENT SPECIFICATION
--

SHEET SIZE ANSI B 11" X 17"

SHEET NUMBER PV-10



DATA SHEET



IQ8 and IQ8+ 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

* Only when installed with IQ System Controller 2, meets UL 1741.

** IQ8 and IQ8Plus supports split phase, 240V installations only.

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-80-2-US	IQ8PLUS-72-2-US
Commonly used module pairings ¹	W	235 – 350	235 – 440
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell, 66-cell/132 half-cell and 72-cell/144 half-cell
MPPT voltage range	V	27 – 37	29 – 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 ² [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)		IQ8-80-2-US	IQ8PLUS-72-2-US
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range ³	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
AC short circuit fault current over 3 cycles	Arms	2	
Max units per 20 A (L-L) branch circuit ⁴		16	13
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
CEC weighted efficiency	%	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	
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) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility>
(2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-DS-0002-01-EN-US-2022-03-17

TOP TIER
SOLAR SOLUTIONS

TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS

DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	

PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME

EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-11

Enphase IQ Combiner 4/4C

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



To learn more about Enphase offerings, visit enphase.com



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

Enphase IQ Combiner 4/4C

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
Envoy breaker	10A or 15A rating GE/Siemens/Eaton 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). Note that an Enphase Mobile Connect 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

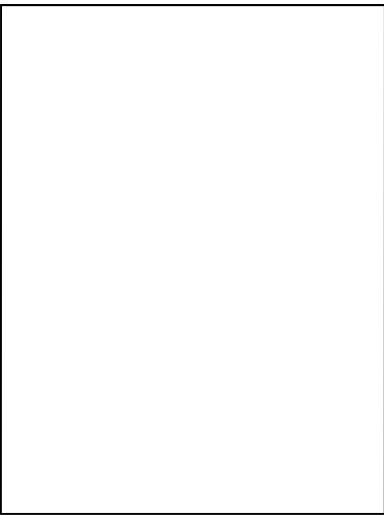
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TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	



PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-12



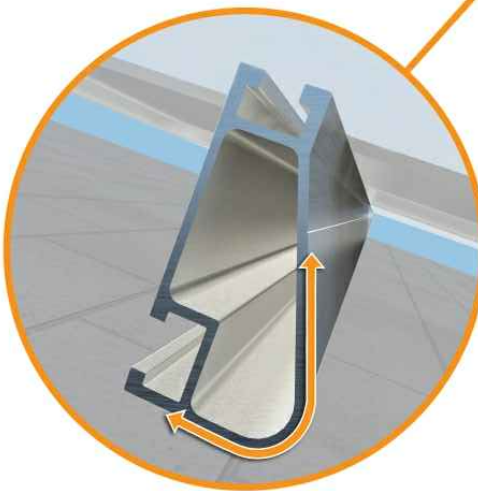
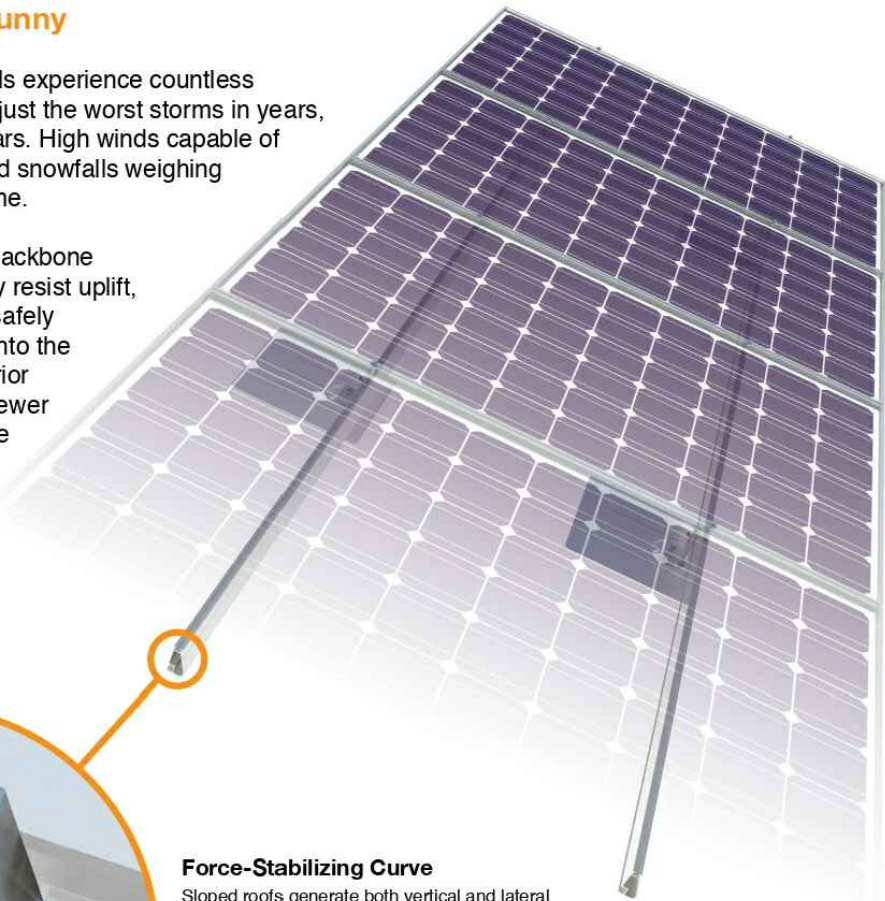
Tech Brief

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 6000-series 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 spans up to 6 feet, while remaining light and economical.

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

XR100

XR100 is a residential and commercial mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' 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 up to 12 feet for commercial applications.

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

Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

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

*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.



TOP TIER SOLAR SOLUTIONS

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PROJECT NAME & ADDRESS

JAMES BRADLEY
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SHEET NAME

EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-13





UFO® Family of Components

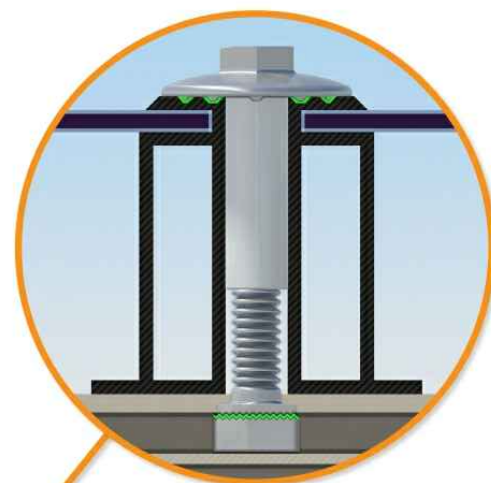
Tech Brief

Simplified Grounding for Every Application

The UFO® family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge® XR Rails®. All system types that feature the UFO® family—Flush Mount®, Tilt Mount® and Ground Mount®—are fully listed to the UL 2703 standard.

UFO® hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.

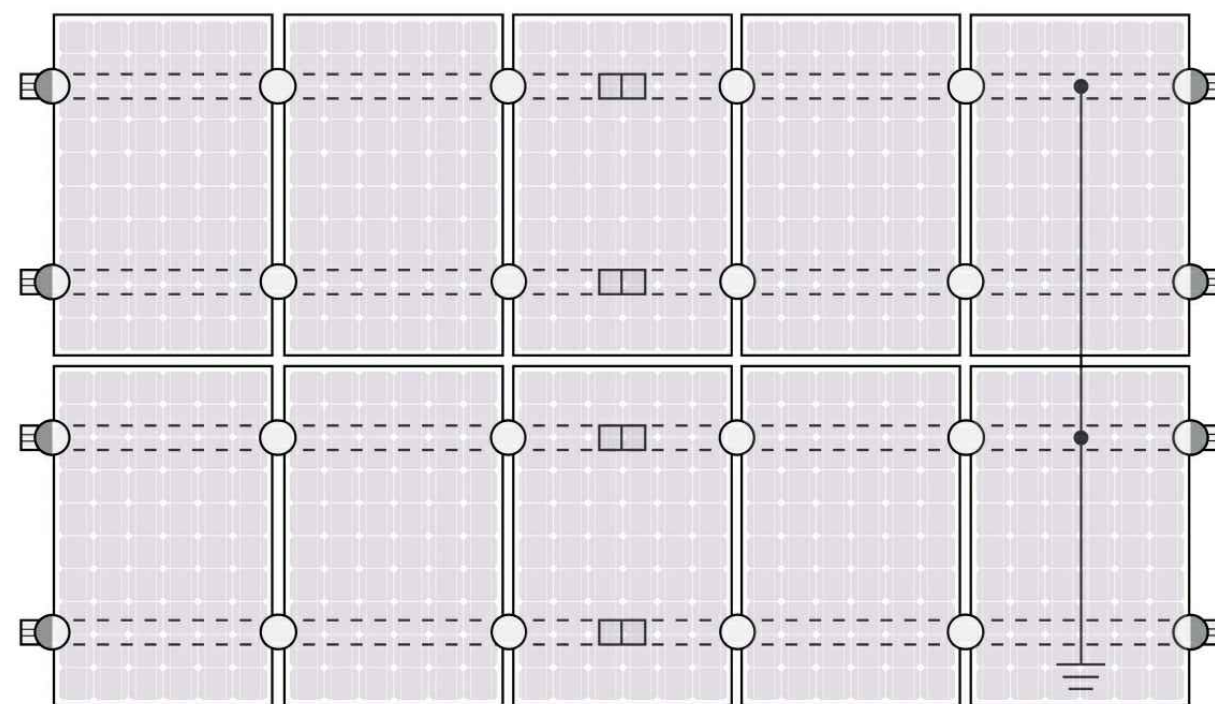
Only for installation and use with IronRidge products in accord with written instructions. See [IronRidge.com/UFO](https://www.ironridge.com/UFO)



Universal Fastening Object (UFO®)

The UFO® securely bonds solar modules to XR Rails®. It comes assembled and lubricated, and can fit a wide range of module heights.

System Diagram



○ UFO ◐ Stopper Sleeve ● Grounding Lug □ BOSS™ Splice — Ground Wire

⚠ Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

UL Certification

The IronRidge® Flush Mount®, Tilt Mount®, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to [IronRidge.com/UFO](https://www.ironridge.com/UFO)

Cross-System Compatibility

Feature	Flush Mount	Tilt Mount	Ground Mount
XR Rails®	✓	✓	XR100 & XR1000
UFO®/Stopper	✓	✓	✓
BOSS® Splice	✓	✓	N/A
Grounding Lugs	1 per Row	1 per Row	1 per Array
Microinverters & Power Optimizers	Compatible with most MLPE manufacturers. Refer to system installation manual.		
Fire Rating	Class A	Class A	N/A
Modules	Tested or Evaluated with over 400 Framed Modules. Refer to installation manuals for a detailed list.		



Stopper Sleeve

The Stopper Sleeve snaps onto the UFO®, converting it into a bonded end clamp.



BOSS® Splice

Bonded Structural Splice connects rails with built-in bonding teeth. No tools or hardware needed.



Grounding Lug

A single Grounding Lug connects an entire row of PV modules to the grounding conductor.



Bonded Attachments

The bonding bolt attaches and bonds the L-foot® to the rail. It is installed with the same socket as the rest of the system.

TOP TIER
SOLAR SOLUTIONS

TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
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PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME

EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-14

The right way to attach almost anything to metal roofs!

S-5![®]

The Right Way!

ProteaBracket[™]

ProteaBracket[™] is the most versatile standing seam metal roof attachment solution on the market, fitting most trapezoidal sheet profiles with and without intermediate insulation. It features an adjustable attachment base and multiple solar module attachment options (illustrated on back) to accommodate varying widths and heights. There are no messy sealants to apply and no chance for leaks; the ProteaBracket comes with factory-applied, adhesive rubber sealant to ensure quick installation and a weather-proof fit.

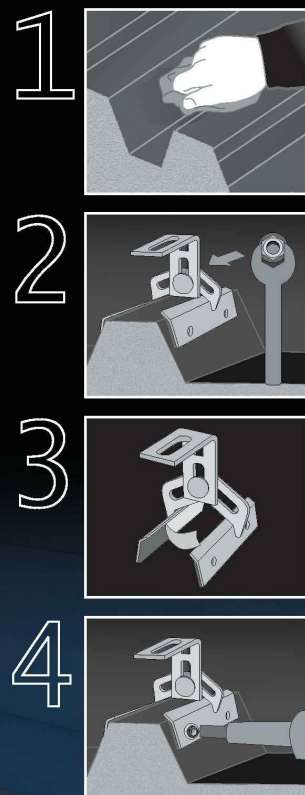
Installation is simple! The ProteaBracket is mounted directly onto the crown of the panel, straddling the profile. No surface preparation is necessary; simply wipe away excess oil and debris, align, and apply. Secure ProteaBracket through its pre-punched holes, using the hardened drill point S-5![®] screws.

ProteaBracket is the perfect match for our S-5-PV Kit and spares you the hassle of cold-bridging! For a solar attachment solution that is both economical and easy to use, choose ProteaBracket.*

*When ProteaBracket is used in conjunction with the S-5-PV Kit, an additional nut is required during installation.



S-5![®] ProteaBracket[™] is a versatile bracket that adjusts easily to most trapezoidal roof profiles.



ProteaBracket[™]

888-825-3432 | www.S-5.com

S-5![®]

The Right Way!

ProteaBracket[™] is the perfect solar attachment solution for most trapezoidal exposed-fastened metal roof profiles! No messy sealants to apply. The factory-applied adhesive rubber sealant weather-proofs and makes installation easy!

Each ProteaBracket[™] comes with a factory-applied, adhesive rubber sealant on the base. A structural A2 stainless steel bimetal attachment bracket, ProteaBracket is compatible with most common metal roofing materials. All four pre-punched holes must be used to achieve tested strength. Mounting hardware is furnished with the ProteaBracket. For design assistance, ask your distributor, or visit www.S-5.com for the independent lab test data that can be used for load-critical designs and applications. Also, please visit our website for more information including metallurgical compatibilities and specifications. S-5![®] holding strength is unmatched in the industry.

Multiple Attachment Options:

Side Rail Option



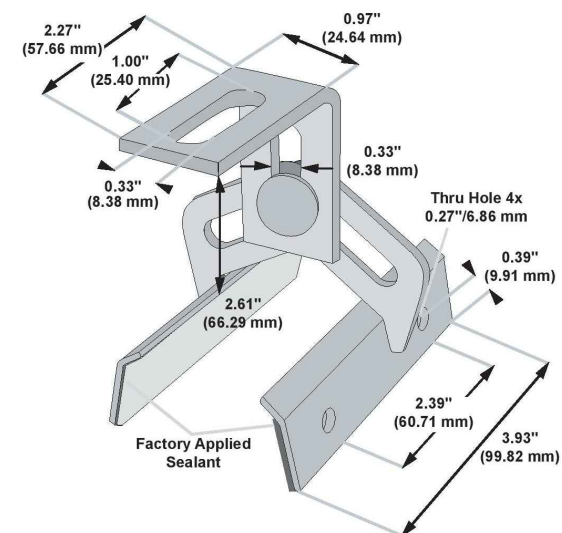
Top Rail Option



S-5-PV Kit Option

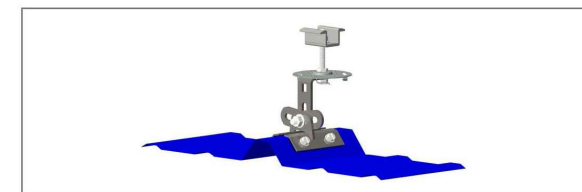


ProteaBracket[™]



Please note: All measurements are rounded to the second decimal place.

Example Applications



S-5-PV Kit demonstrated with a ProteaBracket on a trapezoidal profile.

Example Profile



S-5![®] Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, bolt torque, patents, and trademarks, visit the S-5! website at www.S-5.com.

Copyright 2013, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 112513.

Distributed by

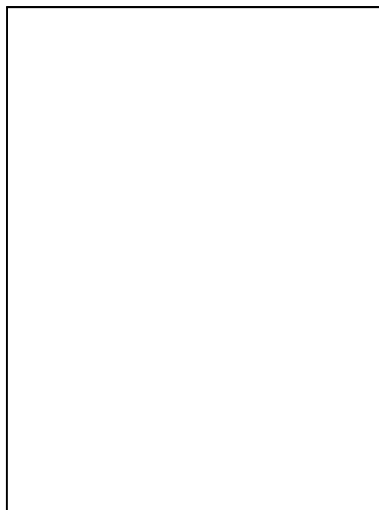
TOP TIER

SOLAR SOLUTIONS

TOP TIER SOLAR SOLUTIONS

1530 CENTER PARK DR #2911,
CHARLOTTE, NC 28217,
UNITED STATES

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/22/2025	



PROJECT NAME & ADDRESS

JAMES BRADLEY
RESIDENCE

308 W E ST,
ERWIN, NC 28339

DRAWN BY

ESR

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-15











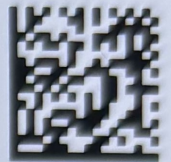


Do Not Remove

18834759-3B



Intertek
4004590



Solaredge Technologies Ltd.
Solaredge Technologies GmbH/
Werner-Eckert-Straße 6/81829 Munich/Germany

DCM-GMEE

CAUTION

HOT SURFACES-TO REDUCE THE RISK OF BURNS-DO NOT TOUCH. RISK OF ELECTRIC SHOCK-WHEN THE PHOTOVOLTAIC ARRAY IS EXPOSED TO LIGHT, IT SUPPLIES A DC VOLTAGE TO EQUIPMENT. COVER PV MODULE WITH OPAQUE MATERIAL BEFORE CONNECTING OR DISCONNECTING THIS OPTIMIZER. DURING FAULT, ZERO CURRENT IS SOURCED INTO DC ARRAY BY CONVERTER.

SolarEdge Technologies Ltd.
Power Optimizer

Solaredge Technologies GmbH/
Werner-Eckert-Straße 6/81829
Munich/Germany

WARNING ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED.

AVERTISSEMENT

RISQUE DE CHOC ELECTRIQUE: QUAND LE CHAMP PHOTOVOTAIQUE EST EXPOSE A LA LUMIERE, UNE TENSION CC EST FOURNIE A CET EQUIPEMENT. SURFACES CHAUDES: NE PAS TOUCHER, AFIN DE REDUIRE LES RISQUES DE BRULURES LE COURANT DE RETOUR INJECTE PAR LE CONVERTISSEUR EN CAS DE DEFAILLANCE DANS LE MODULE PV EST TOUJOURS NUL.













Do Not Remove

SolarEdge Technology Ltd

WARNING: NEVER DISCONNECT THE CABLES FROM THE CHARGE CONTROLLER WHILE THE SYSTEM IS OPERATING. DISCONNECTING THE CABLES WHILE THE SYSTEM IS OPERATING MAY CAUSE A SHORT CIRCUIT, FIRE, OR ELECTRIC SHOCK. ALWAYS USE THE CORRECT WIRING DIAGRAM AND FOLLOW THE INSTALLATION INSTRUCTIONS. NEVER TOUCH THE CABLES OR THE CHARGE CONTROLLER WHEN THE SYSTEM IS OPERATING. ALWAYS USE THE CORRECT WIRING DIAGRAM AND FOLLOW THE INSTALLATION INSTRUCTIONS. NEVER TOUCH THE CABLES OR THE CHARGE CONTROLLER WHEN THE SYSTEM IS OPERATING. ALWAYS USE THE CORRECT WIRING DIAGRAM AND FOLLOW THE INSTALLATION INSTRUCTIONS.

AVERTISSEMENT: NE JAMAIS DÉCONNECTER LES CÂBLES DU CONTRÔLEUR DE CHARGE TANT QUE LE SYSTÈME EST EN FONCTIONNEMENT. DÉCONNECTER LES CÂBLES TANT QUE LE SYSTÈME EST EN FONCTIONNEMENT PEUT CAUSER UN COURT-CIRCUIT, UN INCENDIE OU DES ÉLECTROCUTIONS. TOUJOURS UTILISER LE SCHÉMA DE CÂBLAGE CORRECT ET SUIVRE LES INSTRUCTIONS D'INSTALLATION. NE JAMAIS TOUCHER LES CÂBLES OU LE CONTRÔLEUR DE CHARGE TANT QUE LE SYSTÈME EST EN FONCTIONNEMENT. TOUJOURS UTILISER LE SCHÉMA DE CÂBLAGE CORRECT ET SUIVRE LES INSTRUCTIONS D'INSTALLATION. NE JAMAIS TOUCHER LES CÂBLES OU LE CONTRÔLEUR DE CHARGE TANT QUE LE SYSTÈME EST EN FONCTIONNEMENT. TOUJOURS UTILISER LE SCHÉMA DE CÂBLAGE CORRECT ET SUIVRE LES INSTRUCTIONS D'INSTALLATION.





CAUTION

DO NOT OPEN THE COVER OF THE JUNCTION BOX UNTIL THE SYSTEM HAS BEEN DE-ENERGIZED. FAILURE TO FOLLOW THIS WARNING MAY RESULT IN ELECTRICAL SHOCK OR FIRE.

WARNING

DO NOT OPEN THE COVER OF THE JUNCTION BOX UNTIL THE SYSTEM HAS BEEN DE-ENERGIZED. FAILURE TO FOLLOW THIS WARNING MAY RESULT IN ELECTRICAL SHOCK OR FIRE.

AVERTISSEMENT

NE PAS OUVRIR LE COUVERCLE DE LA BOÎTE À RAYONNEMENT JUSQU'À CE QUE LE SYSTÈME AIT ÉTÉ DÉ-ÉNERGÉ. LE NON-RESPECT DE CETTE AVERTISSEMENT PEUT CAUSER UN CHOC ÉLECTRIQUE OU UN INCENDIE.



Model: [illegible]
Serial: [illegible]

Manufacturer: [illegible]

Country of Origin: [illegible]

Warranty: [illegible]

Installation: [illegible]

Service: [illegible]

Support: [illegible]

Training: [illegible]

Documentation: [illegible]

Parts: [illegible]

Tools: [illegible]

Accessories: [illegible]

Options: [illegible]

Upgrades: [illegible]

Revisions: [illegible]

Changes: [illegible]

Corrections: [illegible]

Improvements: [illegible]

Enhancements: [illegible]

Modifications: [illegible]

Adjustments: [illegible]

Calibrations: [illegible]

Tests: [illegible]

Inspections: [illegible]

Measurements: [illegible]

Calculations: [illegible]

Drawings: [illegible]

Specifications: [illegible]

Standards: [illegible]

Codes: [illegible]

Regulations: [illegible]

Requirements: [illegible]

Conditions: [illegible]

Restrictions: [illegible]

Limitations: [illegible]

Exclusions: [illegible]

Reservations: [illegible]

Interdictions: [illegible]

Prohibitions: [illegible]

Proscriptions: [illegible]

Prohibitions: [illegible]

Prohibitions: [illegible]





CAUTION

NOTE: BEWARE OF HOT SURFACES. THE SURFACE OF THE PANELS MAY BECOME HOT DURING OPERATION. DO NOT TOUCH THE SURFACE OF THE PANELS. TO AVOID BURNING, ALWAYS USE PROPER HANDLING TECHNIQUES. TO AVOID ELECTRICAL SHOCK, ALWAYS DISCONNECT THE SYSTEM BEFORE WORKING ON THE PANELS.

WARNING

ATTENTION: ÉVITE LES SURFACES CHAUDES. LES SURFACES DES PANNEAUX PEUVENT DEVENIR CHAUDES PENDANT LE FONCTIONNEMENT. NE PAS TOUCHER LES SURFACES DES PANNEAUX. POUR ÉVITER LES BRÛLURES, UTILISER TOUJOURS DES TECHNIQUES DE MANÈGE APPROPRIÉES. POUR ÉVITER LES CHOCS ÉLECTRIQUES, DÉBRANCHER TOUJOURS LE SYSTÈME AVANT DE TRAVAILLER SUR LES PANNEAUX.

AVERTISSEMENT

ATTENTION: ÉVITE LES SURFACES CHAUDES. LES SURFACES DES PANNEAUX PEUVENT DEVENIR CHAUDES PENDANT LE FONCTIONNEMENT. NE PAS TOUCHER LES SURFACES DES PANNEAUX. POUR ÉVITER LES BRÛLURES, UTILISER TOUJOURS DES TECHNIQUES DE MANÈGE APPROPRIÉES. POUR ÉVITER LES CHOCS ÉLECTRIQUES, DÉBRANCHER TOUJOURS LE SYSTÈME AVANT DE TRAVAILLER SUR LES PANNEAUX.



Do Not Remove



CAUTION

DO NOT TOUCH THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM. TOUCHING THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM MAY CAUSE DAMAGE TO THE MONITOR OR THE ARM.

WARNING

DO NOT TOUCH THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM. TOUCHING THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM MAY CAUSE DAMAGE TO THE MONITOR OR THE ARM.

NOTICE

DO NOT TOUCH THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM. TOUCHING THE SURFACE OF THE MONITOR OR THE SURFACE OF THE ARM MAY CAUSE DAMAGE TO THE MONITOR OR THE ARM.



Do Not Open
WARNING
Do not touch the internal components of the power optimizer. The power optimizer is a high-voltage device and touching the internal components can result in electric shock or fire. The power optimizer is a high-voltage device and touching the internal components can result in electric shock or fire. The power optimizer is a high-voltage device and touching the internal components can result in electric shock or fire.

CAUTION
DO NOT TOUCH THE INTERNAL COMPONENTS OF THE POWER OPTIMIZER. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE.

WARNING
DO NOT TOUCH THE INTERNAL COMPONENTS OF THE POWER OPTIMIZER. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE. THE POWER OPTIMIZER IS A HIGH-VOLTAGE DEVICE AND TOUCHING THE INTERNAL COMPONENTS CAN RESULT IN ELECTRIC SHOCK OR FIRE.

AVERTISSEMENT
NE PAS TOUCHER LES COMPOSANTS INTERNES DE L'OPTIMISATEUR DE PUISSANCE. L'OPTIMISATEUR DE PUISSANCE EST UN DISPOSITIF À HAUTE TENSION ET TOUCHER SES COMPOSANTS INTERNES PEUT CAUSER UN CHOC ÉLECTRIQUE OU UN INCENDIE. L'OPTIMISATEUR DE PUISSANCE EST UN DISPOSITIF À HAUTE TENSION ET TOUCHER SES COMPOSANTS INTERNES PEUT CAUSER UN CHOC ÉLECTRIQUE OU UN INCENDIE. L'OPTIMISATEUR DE PUISSANCE EST UN DISPOSITIF À HAUTE TENSION ET TOUCHER SES COMPOSANTS INTERNES PEUT CAUSER UN CHOC ÉLECTRIQUE OU UN INCENDIE.



CAUTION

HOT SURFACES TO REDUCE THE RISK OF BURNS TO INDICATE THE PHOTOVOLTAIC MODULES. WHEN THE EQUIPMENT IS OPERATING, THE SURFACES MAY BE HOT ENOUGH TO CAUSE BURNS. COVER THE MODULES TO PREVENT BURNS DURING FAULTY ZERO CURRENT ISOLATION.

WARNING

ELECTRIC SHOCK HAZARD. THE PC CONDUCTORS OF THE PHOTOVOLTAIC SYSTEM ARE UNGROUNDING AND MAY BE ENERGIZED.

AVERTISSEMENT

RISQUE DE CHOC ÉLECTRIQUE. LES CONDUCTEURS DU PHOTOVOLTAÏQUE SONT NON MISE À LA TERRE ET PEUVENT ÊTRE ENERGIZÉS. NE PAS TOUCHER LES CONDUCTEURS DE L'ÉQUIPEMENT. NE PAS TOUCHER LES CONDUCTEURS DE L'ÉQUIPEMENT. NE PAS TOUCHER LES CONDUCTEURS DE L'ÉQUIPEMENT. NE PAS TOUCHER LES CONDUCTEURS DE L'ÉQUIPEMENT.



Solar Energy
Power Systems
Germany



CAUTION

NOTICE: DO NOT TOUCH THE
INTERNAL ELECTRICAL COMPONENTS
OF THIS DEVICE. TOUCHING THE
INTERNAL ELECTRICAL COMPONENTS
MAY CAUSE ELECTRICAL SHOCK OR
FIRE. CONTACT THE MANUFACTURER
FOR MORE INFORMATION.

WARNING

ATTENTION: NE PAS TOUCHER
LES COMPOSANTS ÉLECTRIQUES
INTERIEURS DE CETTE BOÎTE.
TOUCHER LES COMPOSANTS
ÉLECTRIQUES INTERIEURS PEUT
CAUSER UN CHOC ÉLECTRIQUE
OU UN INCENDIE. CONTACTER LE
FABRICANT POUR PLUS D'INFORMATIONS.

AVERTISSEMENT

ATTENTION: NE PAS TOUCHER
LES COMPOSANTS ÉLECTRIQUES
INTERIEURS DE CETTE BOÎTE.
TOUCHER LES COMPOSANTS
ÉLECTRIQUES INTERIEURS PEUT
CAUSER UN CHOC ÉLECTRIQUE
OU UN INCENDIE. CONTACTER LE
FABRICANT POUR PLUS D'INFORMATIONS.









CAUTION

BEFORE SERVICING THIS EQUIPMENT, DISCONNECT THE EQUIPMENT FROM THE ELECTRICAL SYSTEM. THE EQUIPMENT MAY BE ENERGIZED BY THE ELECTRICAL SYSTEM. THE EQUIPMENT MAY BE ENERGIZED BY THE ELECTRICAL SYSTEM. THE EQUIPMENT MAY BE ENERGIZED BY THE ELECTRICAL SYSTEM.

WARNING

BEFORE SERVICING THIS EQUIPMENT, DISCONNECT THE EQUIPMENT FROM THE ELECTRICAL SYSTEM. THE EQUIPMENT MAY BE ENERGIZED BY THE ELECTRICAL SYSTEM. THE EQUIPMENT MAY BE ENERGIZED BY THE ELECTRICAL SYSTEM.

AVERTISSEMENT

AVANT D'ENTREPRENDRE LA RÉPARATION DE CE MATÉRIEL, DÉBRANCER LE MATÉRIEL DU SYSTÈME ÉLECTRIQUE. LE MATÉRIEL PEUT ÊTRE ALIMENTÉ PAR LE SYSTÈME ÉLECTRIQUE. LE MATÉRIEL PEUT ÊTRE ALIMENTÉ PAR LE SYSTÈME ÉLECTRIQUE.



CAUTION
NOT TO BE USED TO HOLD THE
DOOR OPEN. IT IS NOT A
REPLACEMENT FOR A
PROPERLY INSTALLED
GARAGE DOOR OPENER.
DO NOT ATTEMPT TO
REPAIR OR MAINTAIN THE
DOOR OR OPENER
YOURSELF. ALWAYS
CALL A QUALIFIED
TECHNICIAN FOR
REPAIRS.

WARNING
ELECTRIC SHOCK HAZARD. THE
OPENER MUST BE
DISCONNECTED FROM THE
POWER SUPPLY BEFORE
ATTEMPTING TO REPAIR OR
MAINTAIN THE OPENER.
DO NOT TOUCH THE
OPENER'S ELECTRICAL
COMPONENTS.
DO NOT TOUCH THE
OPENER'S ELECTRICAL
COMPONENTS.
DO NOT TOUCH THE
OPENER'S ELECTRICAL
COMPONENTS.

AVERTISSEMENT
DANGER D'ÉLECTRICITÉ. LE
DISPOSITIF DOIT ÊTRE
DÉCONNECTÉ DE L'ALIMENTATION
ÉLECTRIQUE AVANT
D'ESSAYER DE RÉPARER
OU D'ENTREtenir LE
DISPOSITIF. NE PAS
TOUCHER LES
COMPOSANTS ÉLECTRIQUES
DU DISPOSITIF.

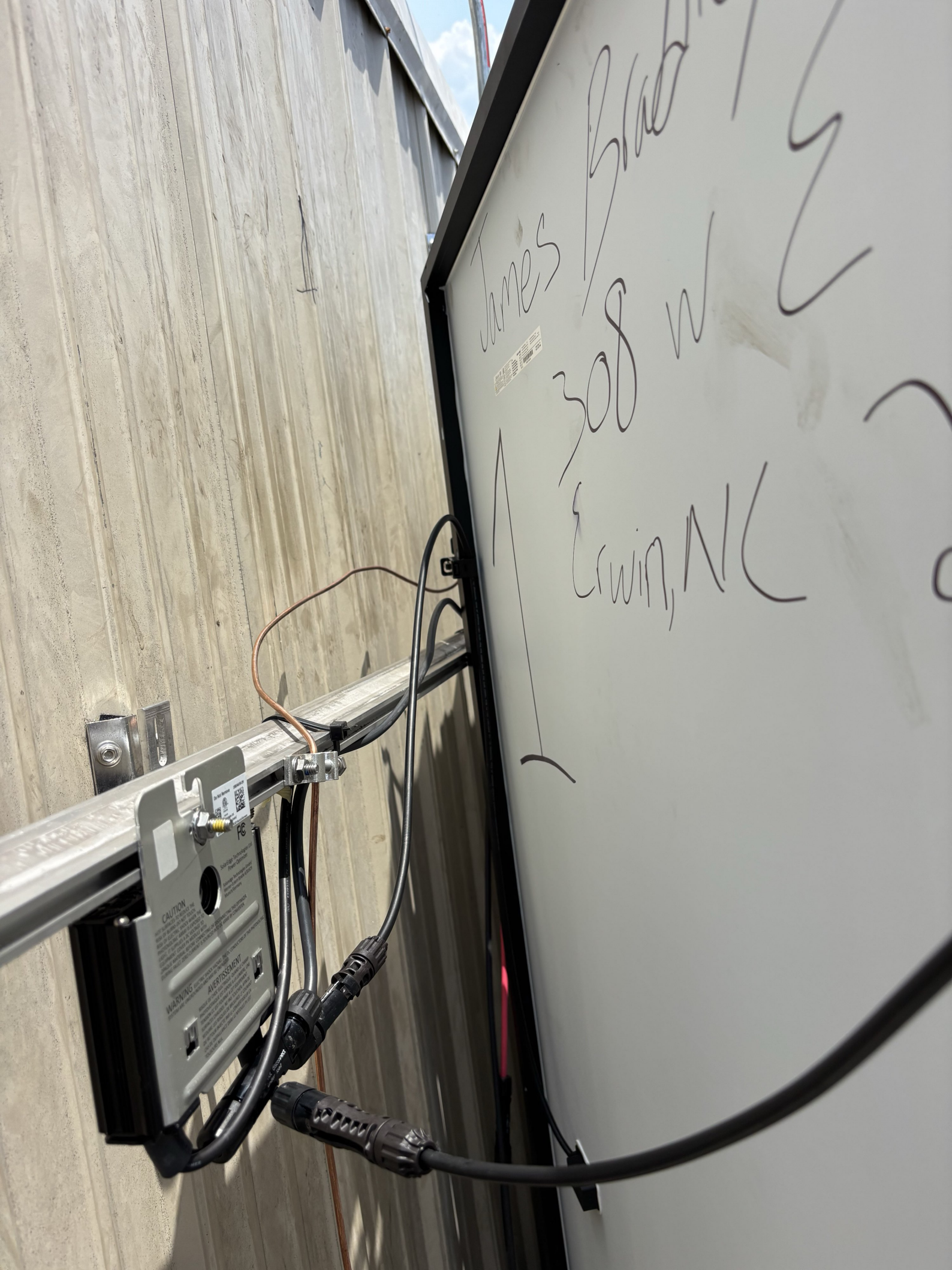
DAVID
1-800-850-8844
www.davidcorp.com

Safe Edge
Patented
Power Assist
Model 1000
1-800-850-8844

DO NOT
REPAIR
YOURSELF





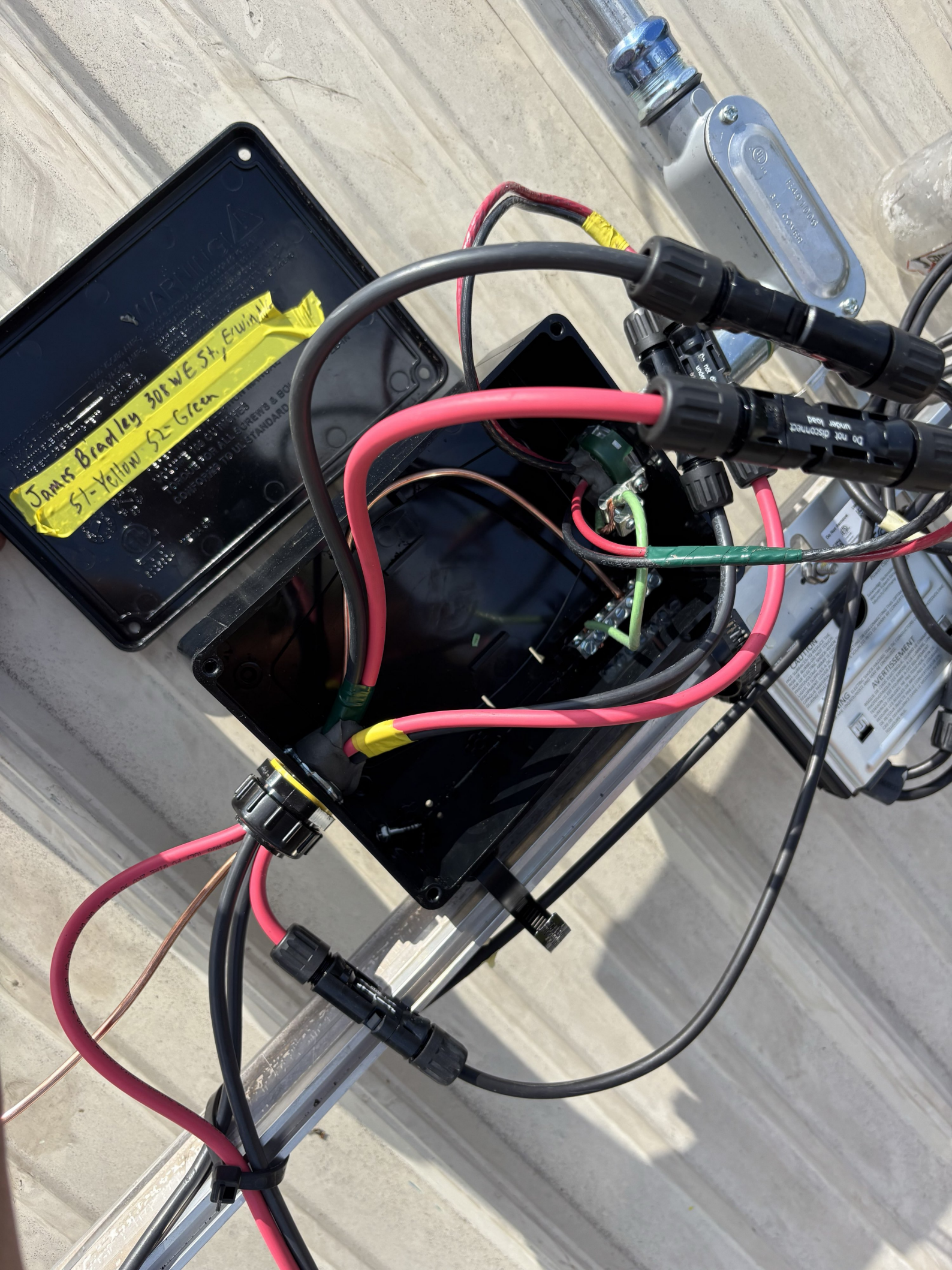


James Blalock
308 W
Erwin, NC

CAUTION

WARNING

AVERTISSEMENT



James Bradley 308 WE St, Ewin...
51-Yellow 52-Green

Do not disconnect
under load

CAUTION
WARNING: Disconnect power before working on this equipment.
AVERTISSEMENT
ATTENTION: Déconnectez l'alimentation avant de travailler sur cet équipement.

EZ
SOLAR

PHOTOVOLTAIC POWER SOURCE

JB-3

Patents: ezsolarproducts.com/patents

MADE IN
USA









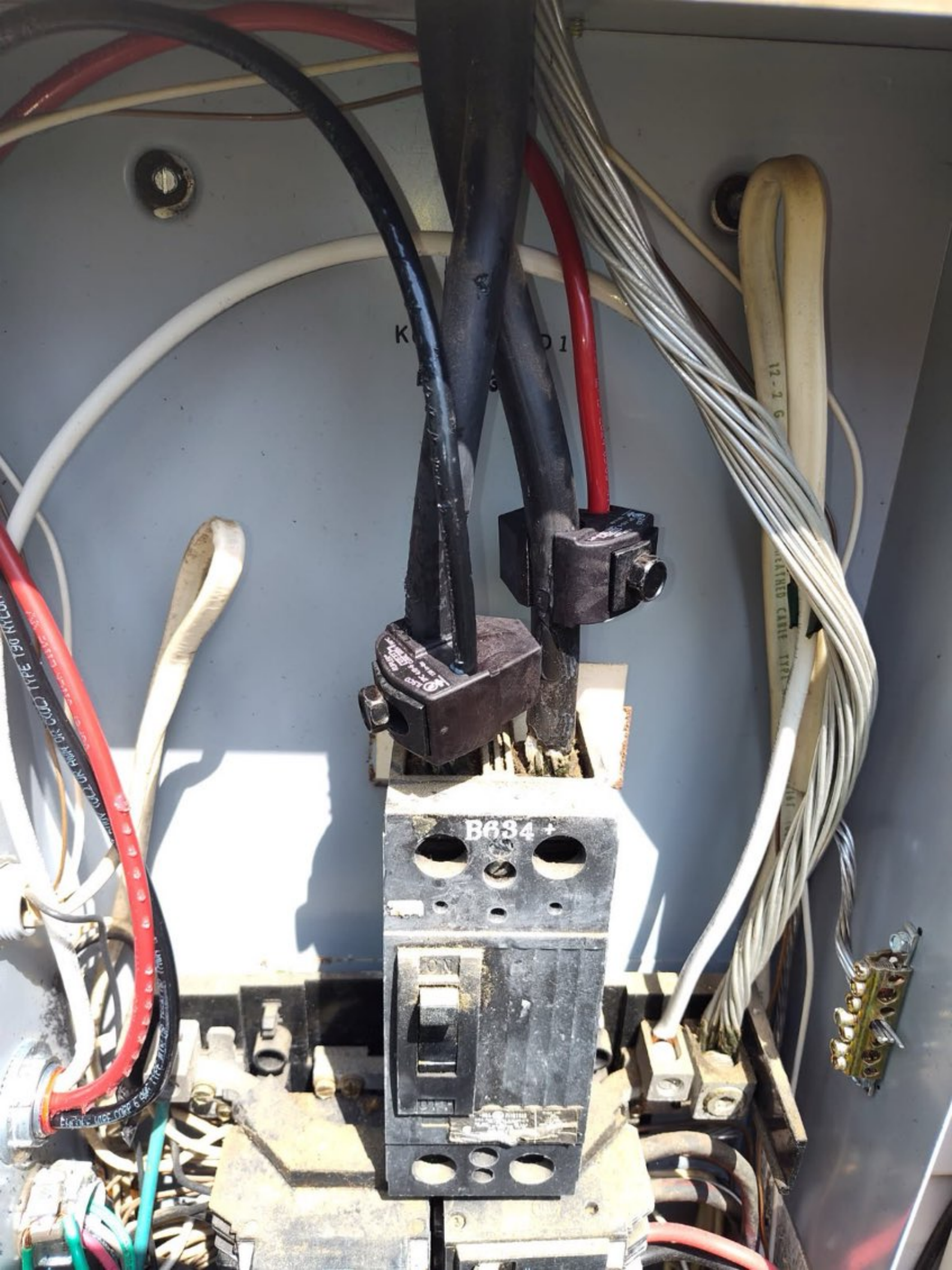


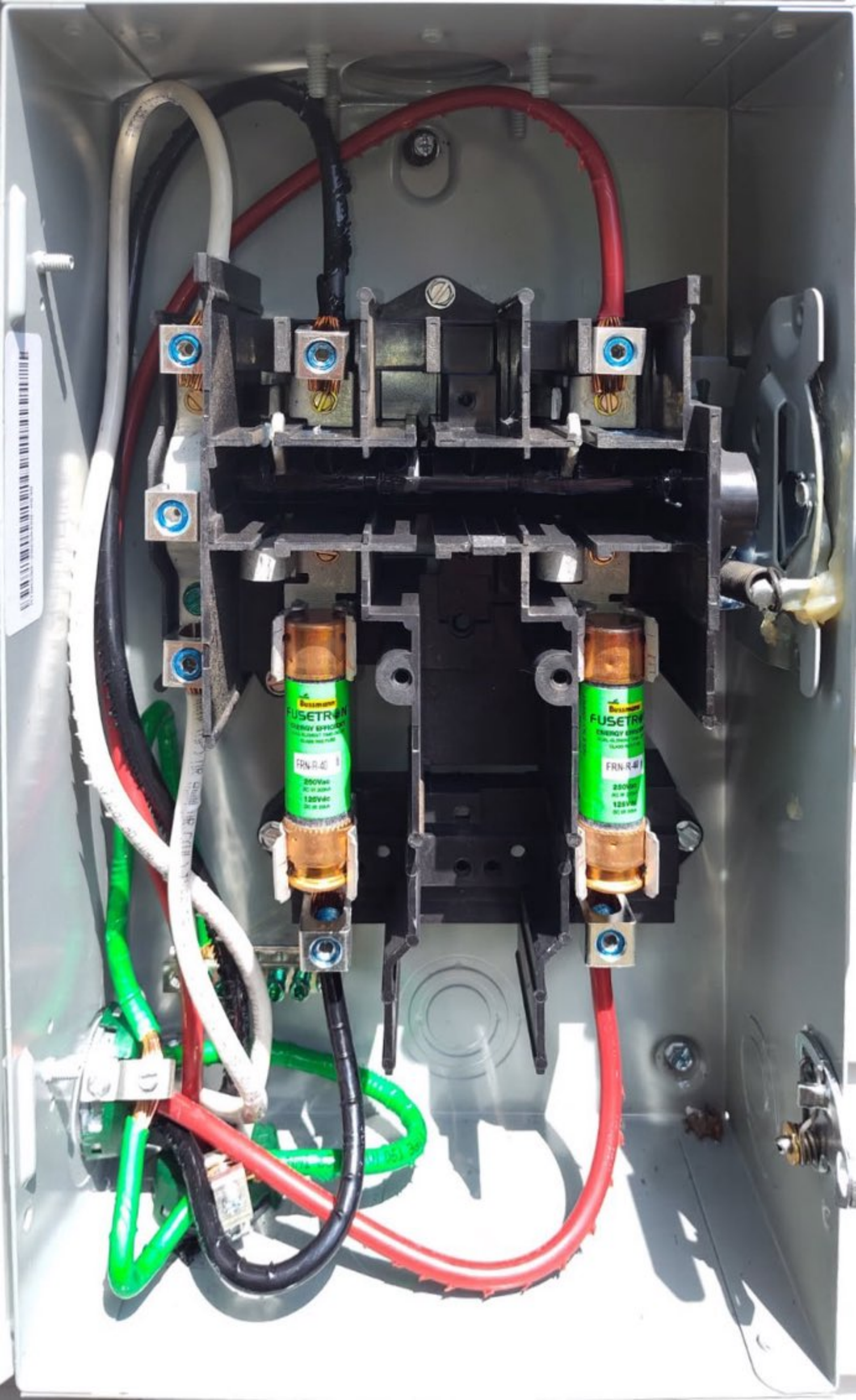


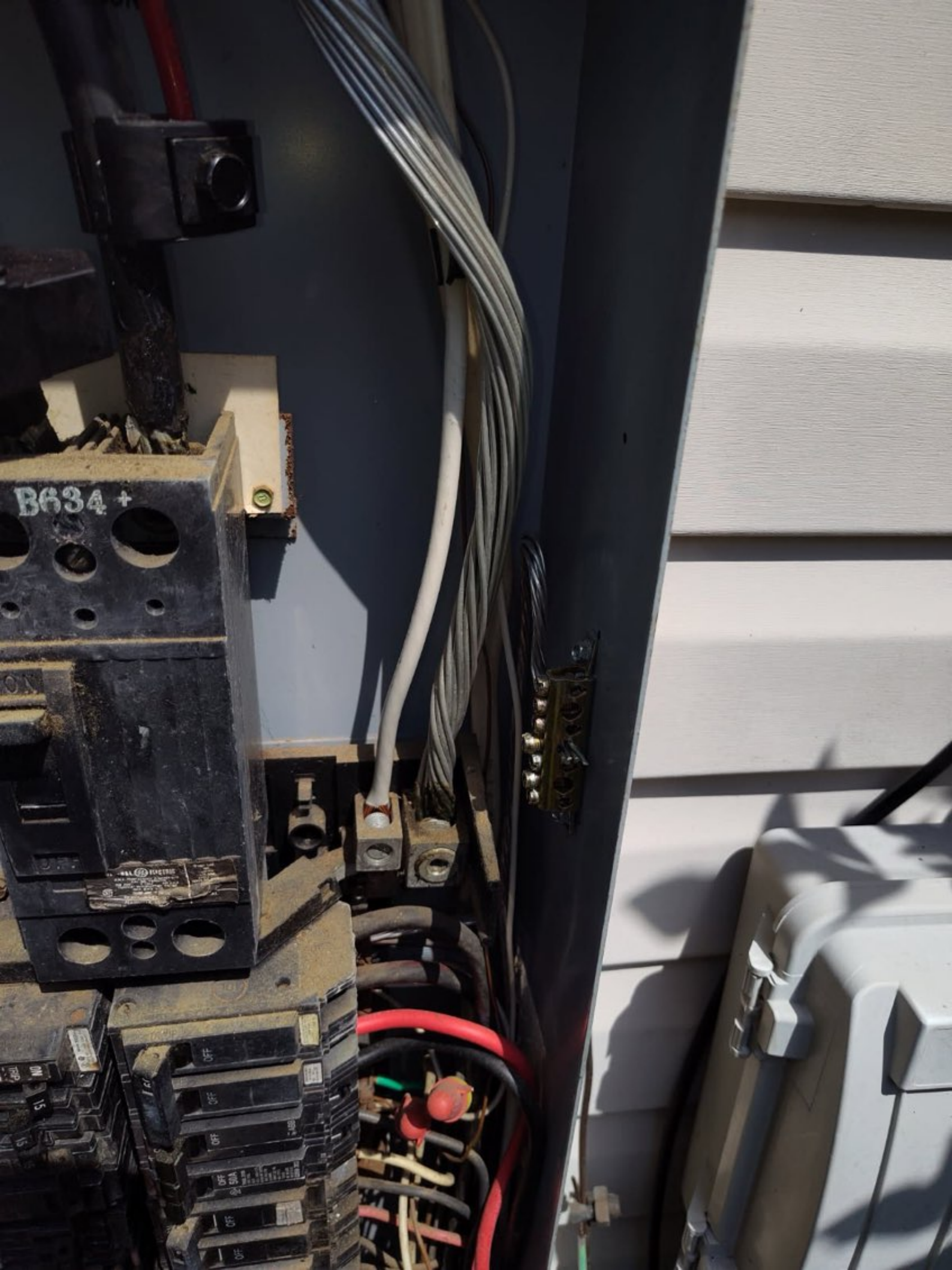


Bussmann
FUSETRON
ENERGY EFFICIENT
DUAL-ELEMENT TIME-DELAY
CLASS RK5 FUSE
FRN-R-40
250Vac
AC IR 20kA
125Vdc
DC IR 20kA

Bussmann
FUSETRON
ENERGY EFFICIENT
DUAL-ELEMENT TIME-DELAY
CLASS RK5 FUSE
FRN-R-40
250Vac
AC IR 20kA
125Vdc
DC IR 20kA







Isolated Photovoltaic Inverter

Operating Voltage Range 270 – 480Vdc
Max Input Current 20Ade
Max Continuous Output Power 7600Wac
Voltage Min – Nom – Max 211 – 240 – 264Vac
Max Continuous Output Current 32Aac
Max Output Fault Current 72Aac
Max Utility Backfeed Current 0Aac
Frequency Min – Nom – Max 59.3 – 60.0 – 60.5Hz
Output Power Factor +/- 0.85 – 1
Max Ambient Temperature 60 C
Enclosure IP65 / NEMA 4X
With integrated ground fault protection per NEC 690.35 (C)
Type 1 Photovoltaic Arc – Fault Circuit – Protection
COMPLIES WITH SUPPLEMENTAL INTERCONNECTION REQUIREMENTS
Wi – Fi Password: c2Q3TbZy
Activation: 8Ndp mlzl 15zt Hvq/ S0xh Vks5 e98=

WiFi MAC:
84:D6:C5:62:C2:63
ZigBee MAC:



Intertek
4004590

PN: SE7600H – US000BEU4
SN: SM2923 – 074143C79 – 3D



General Duty Safety Switch

Interrupteur de sécurité à usage général

Interruptor de seguridad de servicio general

60 A, 240 V~, 60 Hz

Complete ratings inside

Valeurs nominales complètes à l'intérieur

Información completa de capacidades en el interior

Further instructions inside

Autres instructions à l'intérieur

Instrucciones adicionales en el interior

Made in U.S.A. / Fabriqué aux É.-U. / Hecho en E.U.A.



⚠ DANGER

HAZARDOUS VOLTAGE. WILL CAUSE SEVERE INJURY OR DEATH.

- Never operate switch with cover open.
- Turn OFF power ahead of switch before doing any work inside. Replace all parts. Close cover before turning power ON.

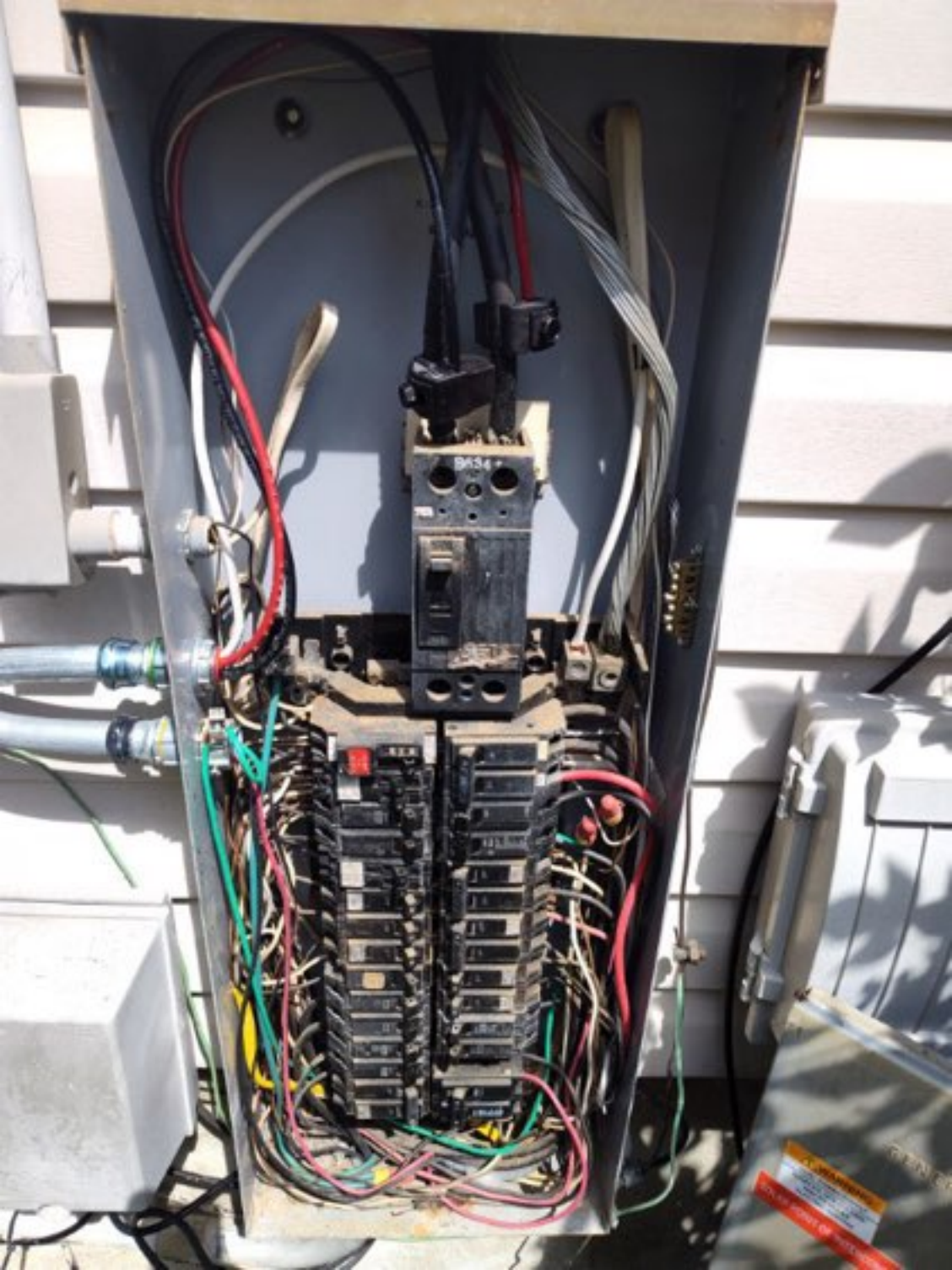
TENSION DANGEREUSE. PEUT CAUSER DES BLESSURES GRAVES OU LA MORT.

- Ne jamais manœuvrer l'interrupteur lorsque le couvercle est ouvert.
- Couper l'alimentation en amont de l'interrupteur avant toute intervention. Remplacer les pièces. Fermer le couvercle avant de remettre sous tension.

⚠ PELIGRO

VOLTAJE PELIGROSO. PUEDE CAUSAR HERIDAS SEVERAS O LA MUERTE.

- Nunca opere el interruptor con la cubierta abierta.
- Desconectar la alimentación del interruptor antes de trabajar dentro del mismo. Reemplazar todas las partes. Cerrar la cubierta antes de energizar el interruptor.



solar edge

DC Safety Switch



AS3014-D34-3

Max DC Voltage	500 V
Max DC Current	20 A
Ambient Temperature	-40°C to +60°C
Enclosure NEMA Rating	Type 3R

PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM

Use No. 16-6AWG, 75°C -90°C copper wires only.

WARNING: Hot Surface

ATTENTION: Surface chaude

DCD-1PH-US-S4H-F

PN:



SM0123-12050EB90-EB

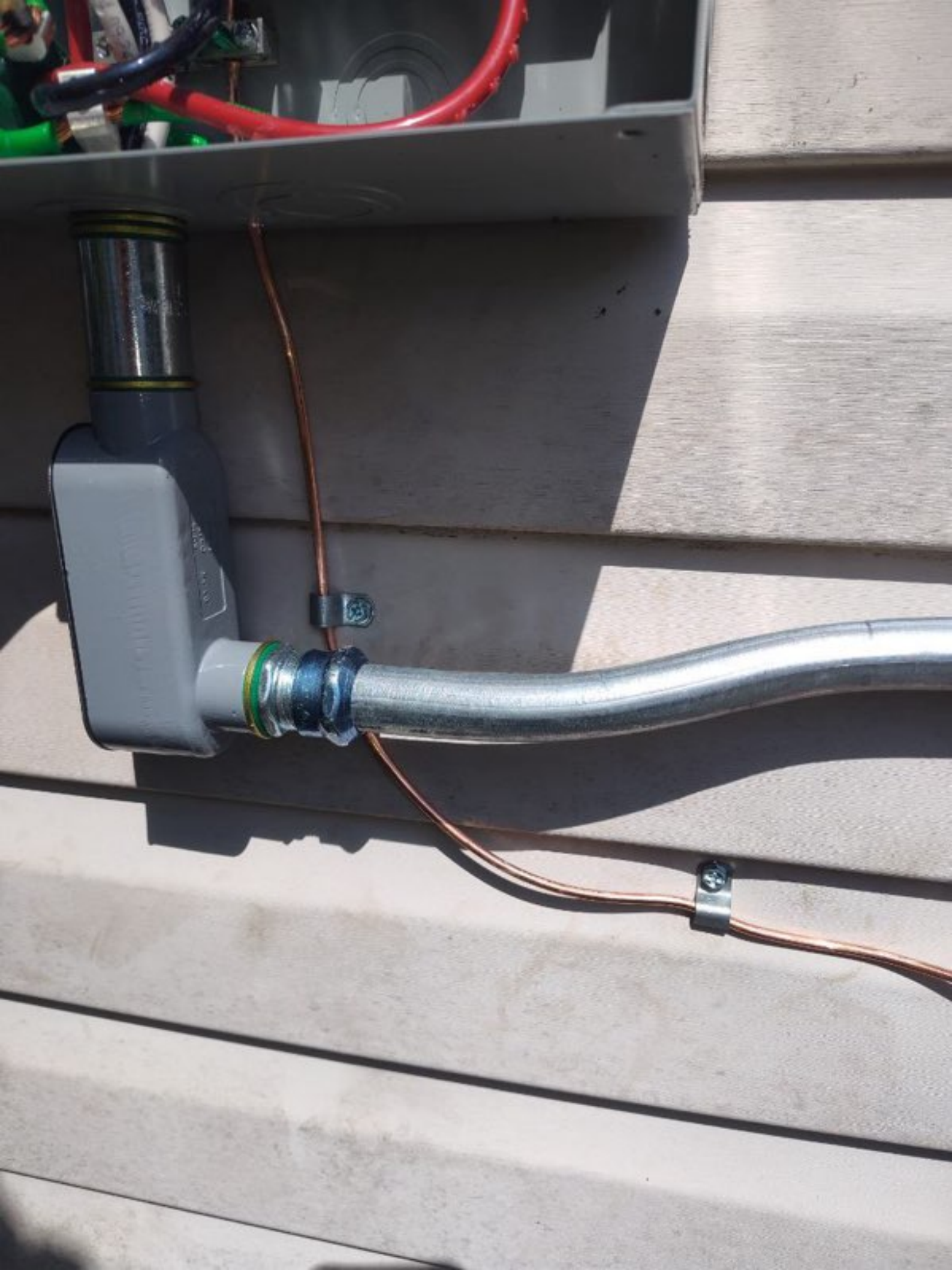
SN:



Made In Mexico



Intertek
4004590



LINE

SNAP-IN
210

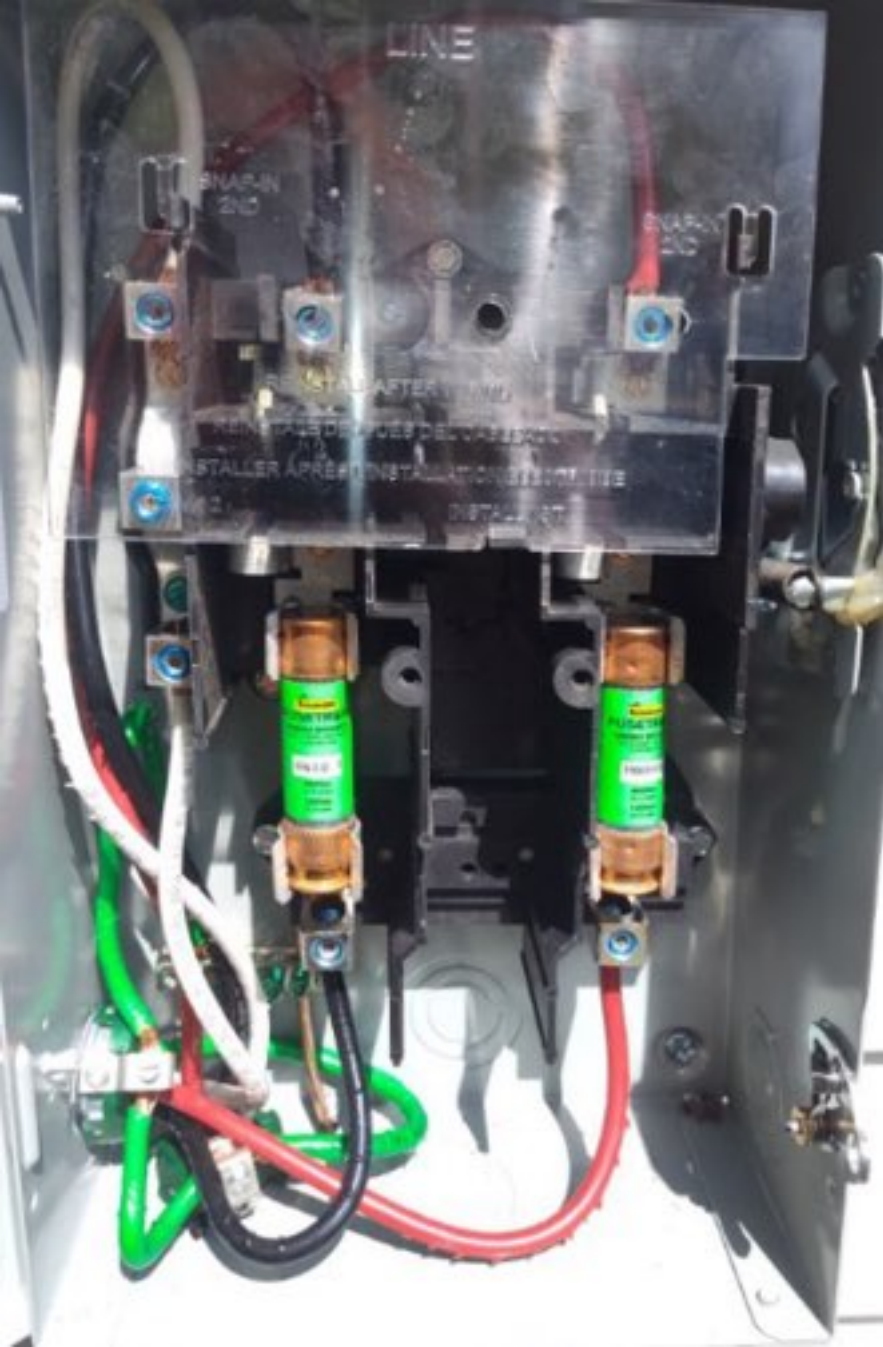
SNAP-IN
210

REINSTALL AFTER 1 MIN.

REINSERTEZ LES DOIGES DEL'ARRETE

INSTALLER APRES INSTALLATION EFFECTIVE

INSTALL SET





PAT. NO. 5330740

Time Warner Cable





EAT•N®

General Duty Safety Switch
Interrupteur de sécurité à usage général
Interruptor de seguridad de servicio general
60 A, 240 V~, 60 Hz

Complete ratings inside
Valeurs nominales complètes à l'intérieur
Información completa de capacidades en el interior

Further instructions inside
Autres instructions à l'intérieur
Instrucciones adicionales en el interior

Made in U.S.A. / Fabriqué aux É.-U. / Hecho en E.U.A.

⚠ DANGER
DANGEROUS VOLTAGE. WILL CAUSE
SEVERE INJURY OR DEATH.
• Never operate with cover off gate.
• Turn OFF cover release or push button during any work
period. Replace all parts. Close cover before leaving.
• Never touch energized parts.
• No person should be in the area when the switch is
being worked on.
• Lockout / Tagout before any work on the switch. Remove
all personnel from the area. Remove the cover. Remove the
energized parts before working on the switch.

⚠ PELIGRO
VOLTAJE PELIGROSO. PUEDE CAUSAR
HERIDAS SEVERAS O LA MUERTE.
• Nunca opere con la cubierta abierta.
• Desconecte el interruptor de liberación o el botón de empuje
durante cualquier período de trabajo. Reemplace todas las
partes. Cierre la cubierta antes de salir.
• Nunca toque partes energizadas.
• No permita que nadie esté en el área cuando se trabaje en
el interruptor.
• Bloquee / Etiquete antes de cualquier trabajo en el interruptor.
Retire a todas las personas del área. Retire la cubierta.
Retire las partes energizadas antes de trabajar en el interruptor.

324338



⚠ WARNING

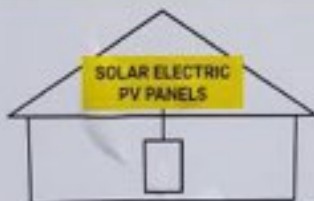
ELECTRIC SHOCK HAZARD

**TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION**

**AC DISCONNECT
PHOTOVOLTAIC SYSTEM
POWER SOURCE**

RATED AC
OUTPUT CURRENT **32** AMPS
NOMINAL OPERATING
AC VOLTAGE **240** VOLTS

**SOLAR PV SYSTEM
EQUIPPED WITH
RAPID SHUTDOWN**

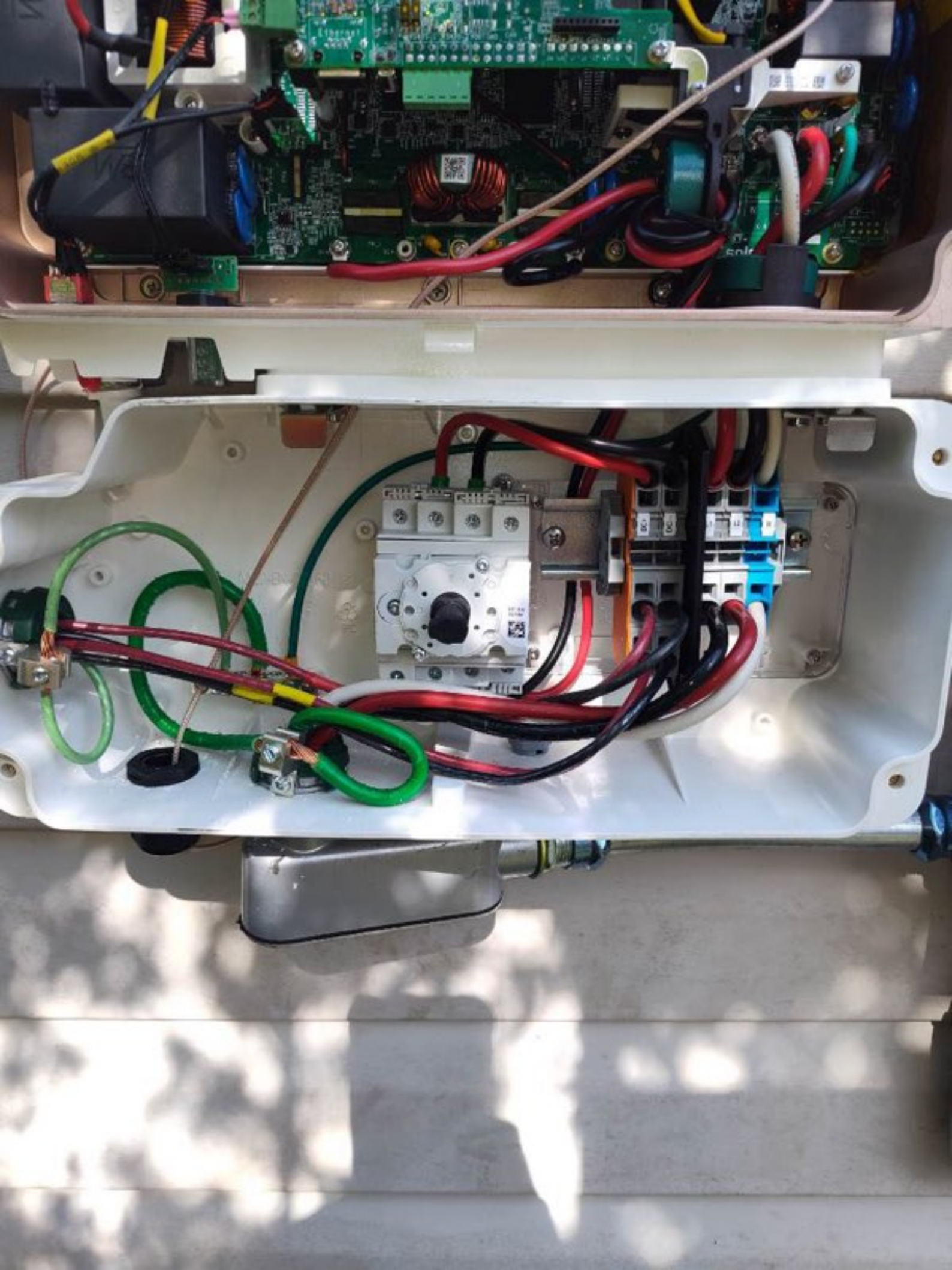


TURN RAPID SHUTDOWN SWITCH TO
THE "OFF" POSITION TO SHUT DOWN
PV SYSTEM AND REDUCE
SHOCK HAZARD IN THE ARRAY

ON
I

OFF
O





GENERAL ELECTRIC

 **WARNING**

DUAL POWER SUPPLY

SOURCES: UTILITY GRID
AND PV SOLAR
ELECTRIC SYSTEM

SOLAR POINT OF INTERCONNECTION



DO NOT REMOVE
BEFORE CONTACTING
ENERGY INFORMATION CENTER
NET METERING

PHOTOVOLTAIC INFORMATION
800-557-5757

100% BLACK 100% WHITE 100% RED 100% BLUE

000 000000

100% BLACK 100% WHITE 100% RED 100% BLUE

CL320 240V 50A TYPE C2036 50TA 1.0Kh

ZZZ BE0441 H71

DUKE ENERGY PROGRESS

328 439 714

CL320

110516

OpenWave

8112_DC NET



WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID
AND PV SOLAR
ELECTRIC SYSTEM

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

MADE IN
B.C.





EATON

General Duty Safety Switch
Interrupteur de sécurité à usage général
Interruptor de seguridad de servicio general

50 A, 240 V~, 60 Hz

Complete ratings inside
Valeurs nominales complètes à l'intérieur
Información completa de capacidades en el interior

Further instructions inside
Autres instructions à l'intérieur
Instrucciones adicionales en el interior

Made in U.S.A. / Fabriqué aux E.-U. / Hecho en E.U.A.



WARNING

ELECTRIC SHOCK HAZARD

**TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION**

**AC DISCONNECT
PHOTOVOLTAIC SYSTEM
POWER SOURCE**

RATED AC
OUTPUT CURRENT **32** AMPS
NOMINAL OPERATING
AC VOLTAGE **240** VOLTS

**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



solar^{edge}

HD wave

ON



DC DISCONNECT

RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM

solar^{edge}

solaredge

DC Safety Switch

Max DC Voltage

Max DC Current

Ambient Temperature

Enclosure NEMA Rating

PHOTOVOLTAIC RAPID SHUTDOWN SYST

Use No. 16-6AWG, 75°C -90°C copper wi

WARNING: Hot Surface

ATTENTION: Surface chaude

DCD-1PH-US-S4H-F

PN:



SM4922-12050D6EC-32

SN:



Made In Mexico



Solar Edge SE7600H - US
Grid Support Utility Interactive
Non-Isolated Photovoltaic Inverter

Operating Voltage Range	270 - 480Vdc
Max Input Current	20Adc
Max Continuous Output Power	7600Wac
Voltage Min - Nom - Max	211 - 240 - 284Vac
Max Continuous Output Current	Vac 32Aac
Max Output Fault Current	72Aac
Max Utility Backfeed Current	0Aac
Frequency Min - Nom - Max	59.3 - 60.0 - 60.5Hz
Output Power Factor	+/- 0.85 - 1
Max Ambient Temperature	60 C
Enclosure	IP65 / NEMA 4X
With integrated ground fault protection per NEC 690.35 (G)	
Type 1 Photovoltaic Arc-Fault Circuit-Protection	

COMPLIES WITH SUPPLEMENTAL INTERCONNECTION REQUIREMENTS

WI - FI Password: Pc92TmCt

Activation: 09AL UmDo vex0 xDkT OrUK DBaV LQM=

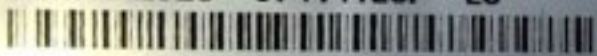
WIFI MAC:
84:D6:C5:61:7E:D7
ZigBee MAC:



Intertek
4004590

PN: SE7600H - US000BEU4

SN: SM2823 - 074141E3F - E5







2
4
6
8
10
12
14
16
18
20

QO Load Center / Centro de carga QO
Rainproof / A prueba de lluvia
Type 3R Enclosure / Gabinete tipo 3R

Main Rating
Capacidad de
interruptor principal A

See main or service disconnect rating if installed.
Handle at mid position shows breaker is TRIPPED.
To reset, move handle to OFF position, then to ON position.
Remove twistouts only when circuits are installed.
Close unused circuit breaker openings with filler plates. Order the following:
QOFP - Closes one pole branch breaker opening
QOM2FP - Closes large main breaker opening
To disconnect all load conductors from the supply conductors, turn OFF
circuit breaker handle(s) marked MAIN, or SERVICE DISCONNECT.
Vea la capacidad de la desconexión principal o de acometida si fue instalada.
La palanca en posición intermedia indica que se ha DISPARADO (TRIPPED)
el interruptor. Para restablecer el interruptor, mueva la palanca a la posición
de ABIERTO (OFF), y luego a la posición de CERRADO (ON).
Retire las placas rellenas únicamente cuando se instalan los circuitos.
Cierre con placas de relleno las aberturas sin usar del interruptor automático.
Ordene lo siguiente:
QOFP - Cierre la abertura de un interruptor automático derivado de un polo.
QOM2FP - Cierre la abertura grande del interruptor automático principal.
Para desconectar todos los conductores de carga de los conductores de
alimentación, ponga las palancas marcadas con DESCONEXIÓN PRINCIPAL
O DE ACOMETIDA EN POSICIÓN DESCONECTADO (OFF).



15		40265-101-01
1	Heat	2
3	Heat	4
5	RANGE	
7		
9	outside	10
11	Building	12

SOLAR PV BREAKER
BREAKER IS BACKFED
DO NOT RELOCATE

HD wave

OFF

ON



DC DISCONNECT

solar edge





WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID
AND PV SOLAR
ELECTRIC SYSTEM



WARNING

POWER SOURCE
OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

CAUTION:

MULTIPLE SOURCES OF POWER
THE PV DISCONNECT IS LOCATED
BESIDE THE SERVICE METER



SOLAR POINT OF INTERCONNECTION



WARNING

**POWER SOURCE
OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE**

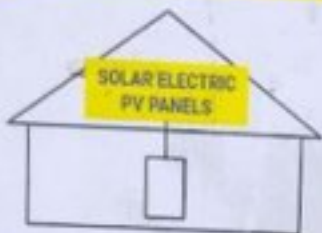


WARNING

**DUAL POWER SUPPLY
SOURCES: UTILITY GRID
AND PV SOLAR
ELECTRIC 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

AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE

RATED AC
OUTPUT CURRENT **32** AMPS
NOMINAL OPERATING
AC VOLTAGE **240** VOLTS

 **WARNING**

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION