PHOTOVOLTAIC ROOF MOUNT SYSTEM

18 MODULES-ROOF MOUNTED - 7.290 kW DC, 5.700 kW AC 3059 OLD STAGE RD N, COATS, NC 27521

PROJECT DATA **PROJECT** 3059 OLD STAGE RD N. ADDRESS: **COATS, NC 27521** JOSE GONZALEZ OWNER: **DESIGNER: ESR** SCOPE: 7.290 kW DC ROOF MOUNT SOLAR PV SYSTEM WITH 18 JA SOLAR: JAM54S31-405/MR 405W PV MODULES WITH 18 SOLAREDGE: S440 POWER OPTIMIZERS AND 01 SOLAREDGE: SE5700H-US (240V/5700W) **INVERTER 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 LABFLS

PV-9+ **EQUIPMENT SPECIFICATIONS**

SIGNATURE

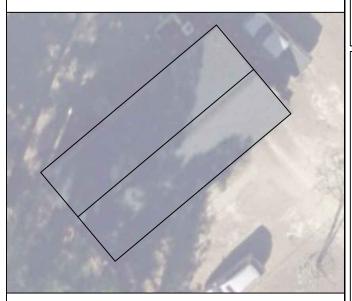
GENERAL NOTES

- 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.
- 10. 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.
- 12. INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
- 13. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- 14. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND
- 15. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- 16. SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- 17. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- 18. 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)]
- 19. ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- 20. 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
- 22. 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

TOP TIER SOLAR SOLUTIONS

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

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/01/2025	



PROJECT NAME & ADDRESS

04/09/2025

3059 OLD STAGE RD COATS, NC 27521 JOSE GONZALE RESIDENCE

> DRAWN BY **ESR**

SHEET NAME

COVER SHEET

SHEET SIZE **ANSI B**

11" X 17"

SHEET NUMBER

PROJECT DESCRIPTION:

18 X JA SOLAR: JAM54S31-405/MR 405W MONO MODULES ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES

DC SYSTEM SIZE: 7.290 kW DC AC SYSTEM SIZE: 5.700 kW AC

EQUIPMENT SUMMARY

18 JA SOLAR: JAM54S31-405/MR 405W MONO MODULES

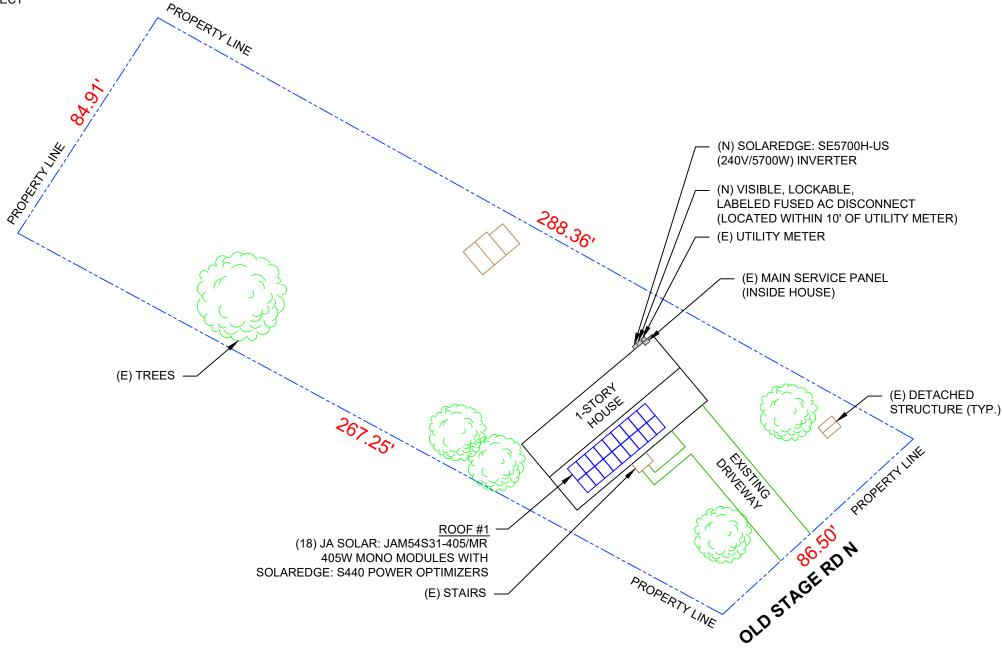
18 SOLAREDGE: S440 POWER OPTIMIZERS

01 SOLAREDGE: SE5700H-US (240V/5700W) INVERTER

ROOF ARRAY AREA #1:- 378.18 SQ FT.

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

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REVISIONS		
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INITIAL DESIGN	04/01/2025	



04/09/2025

PROJECT NAME & ADDRESS

3059 OLD STAGE RD N, COATS, NC 27521 JOSE GONZALE RESIDENCE

> DRAWN BY **ESR**

SHEET NAME

SITE PLAN

SHEET SIZE **ANSIB**

11" X 17"

SHEET NUMBER

PV-2

SITE PLAN

SCALE: 1/32" = 1'-0" PV-2

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 18 MODULES

MODULE TYPE = JA SOLAR: JAM54S31-405/MR 405W MONO MODULES

MODULE WEIGHT = 47.39 LBS / 21.5 kg.

MODULE DIMENSIONS = 67.79" x 44.65" = 21.01 SF



	ROOF DESCRIPTION				
ROOF TYPE			ASPHALT	SHINGLE	
ROOF LAYER			1 LA	YER	
ROOF	# OF MODULES	ROOF PITCH	AZIMUTH	RAFTER SIZE	RAFTER SPACING
#1	18	23°	140°	2"X6"	16"

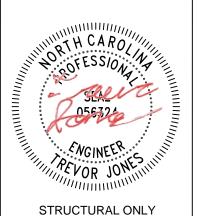
ARRAY AREA & ROOF AREA CALC'S			
TOTAL PV ARRAY AREA (SQ. FT.)	TOTAL ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)	
378.18	1629.15	23	



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04/09/2025

JOSE GONZALEZ RESIDENCE

44.65"

JA SOLAR:

JAM54S31-405/MR 405W MODULES

67

3059 OLD STAGE RD N, COATS, NC 27521

DRAWN BY

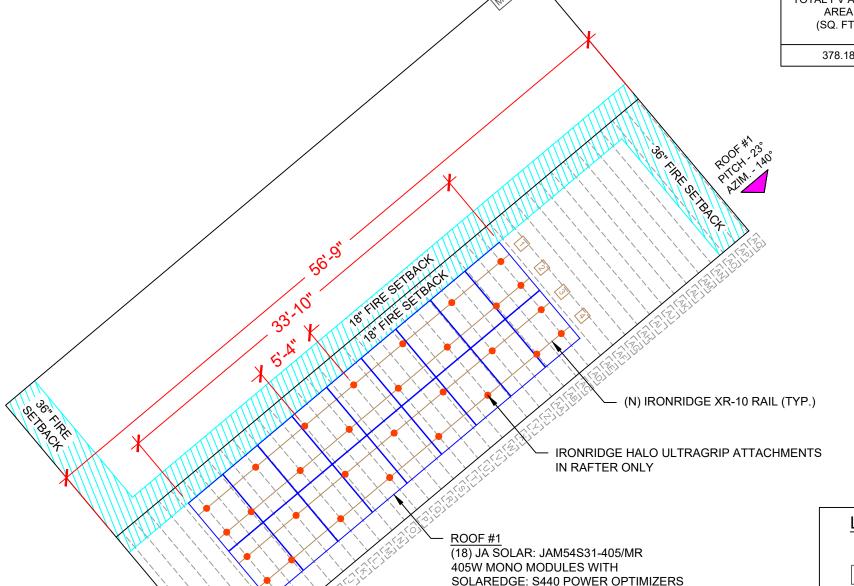
ROOF PLAN & MODULES

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-3



(E) MAIN SERVICE PANEL

(INSIDE HOUSE)

LEGEND

JB - JUNCTION BOX

- INVERTER

.CD - AC DISCONNECT

UM - UTILITY METER

MSP - MAIN SERVICE PANEL

JB - SUB PANEL

- VENT, ATTIC FAN (ROOF OBSTRUCTION)

ROOF ATTACHMENT

— — - RAFTER ----- - CONDUIT

ROOF PLAN & MODULES

PV-3

SCALE: 1/8" = 1'-0"

DC SYSTEM SIZE: 7.290 kW DC AC SYSTEM SIZE: 5.700 kW AC

(18) JA SOLAR: JAM54S31-405/MR 405W MONO MODULES WITH (18) SOLAREDGE: S440 POWER OPTIMIZERS

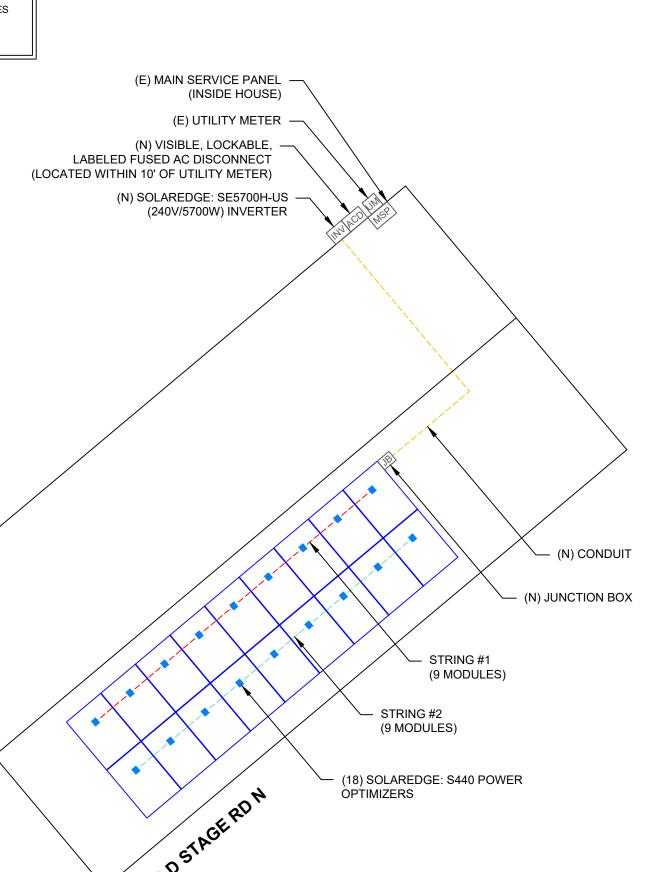
LOCATED UNDER EACH PANEL AND

01 SOLAREDGE: SE5700H-US (240V/5700W) INVERTER

STRING LEGENDS

----- STRING #1 ---- STRING #2





BILL OF MATERIALS	
EQUIPMENT DESCRIPTION	QTY
SOLAR PV MODULES: JA SOLAR: JAM54S31-405/MR 405W MODULE	18
OPTIMIZERS: SOLAREDGE: S440 POWER OPTIMIZERS	18
INVERTER: SOLAREDGE: SE5700H-US (240V/5700W) INVERTER	01
JUNCTION BOX: JUNCTION BOX UL 1741, NEMA 3R CSA C22.2 NO.290	1
AC DISCONNECT: FUSED AC DISCONNECT, 60A FUSED, (2) 30A 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)	32
END FASTENING OBJECT (END CLAMP, 30-40MM), MILL (UFO-END-01-A1)	8
GROUNDING LUG (XR-LUG-03-A1)	2
IRONRIDGE HALO ULTRAGRIP ATTACHMENTS (QM-HUG-01-M1)	30
RD STRUCTURAL SCREW,3.0L (HW-RD1430-01-M1)	60
T-BOLT BONDING HARDWARE (BHW-TB-02-A1) (PRODUCT CODE 590-0116)	30
OPTIMIZER BONDING HARDWARE T-BOLT (BHW-MI-01-A1) (PRODUCT CODE 270-0152)	18

LEGEND

JB - JUNCTION BOX

INV - INVERTER

- AC DISCONNECT

- UTILITY METER

MSP - MAIN SERVICE PANEL

SUB - SUB PANEL

- VENT, ATTIC FAN (ROOF OBSTRUCTION)

ROOF ATTACHMENT

---- - RAFTER ----- - CONDUIT

TOP TIER

TOP TIER SOLAR SOLUTIONS

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JOSE GONZALEZ
RESIDENCE
3059 OLD STAGE RD N,
COATS, NC 27521

DRAWN BY

SHEET NAME

ELECTRICAL PLAN

SHEET SIZE

ANSI B 11" X 17"

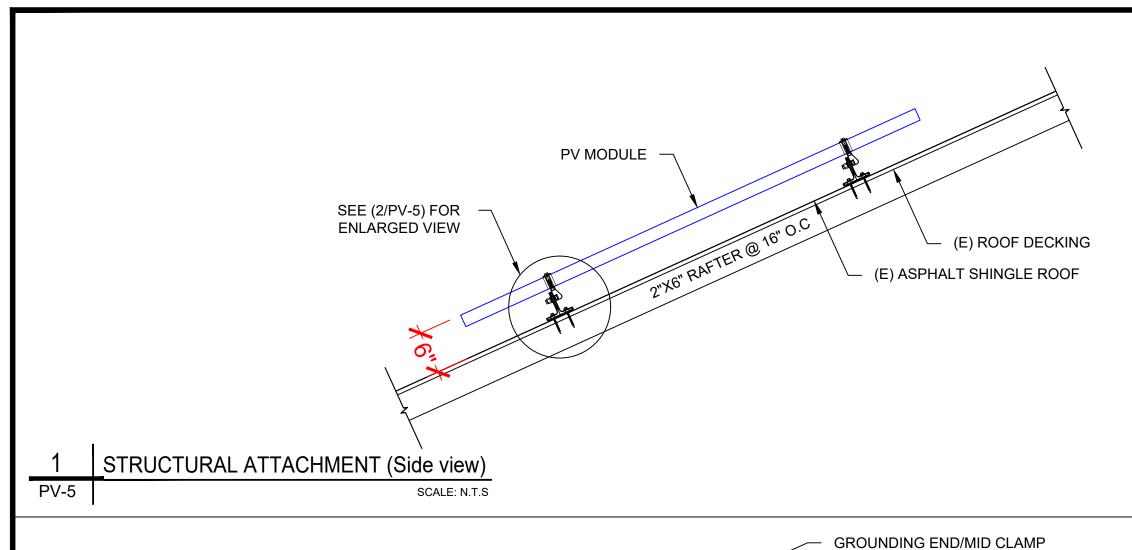
SHEET NUMBER

PV-4

ELECTRICAL PLAN

PV-4

SCALE: 1/8" = 1'-0"

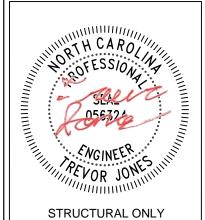




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04/09/2025

3059 OLD STAGE RD N, COATS, NC 27521 JOSE GONZALEZ RESIDENCE

> DRAWN BY **ESR**

SHEET NAME

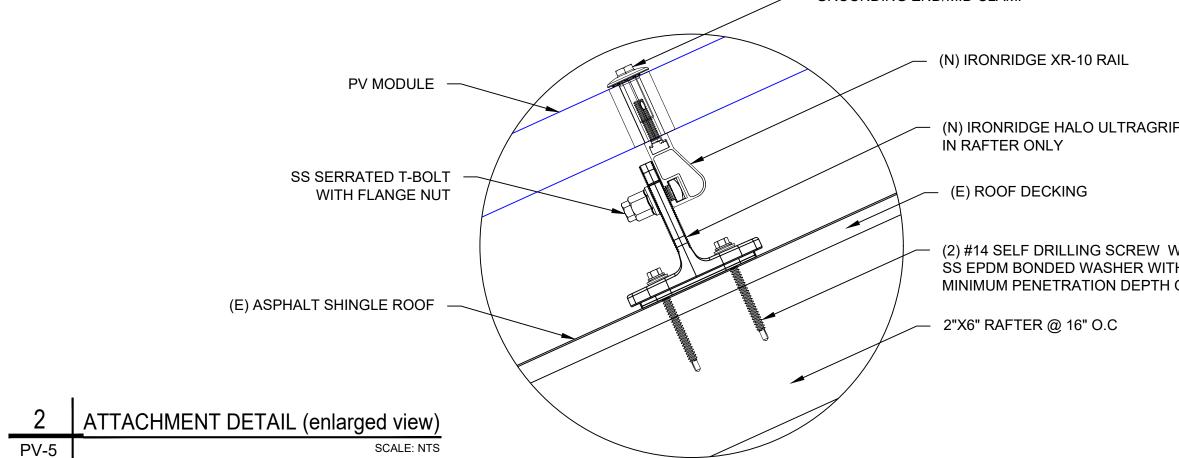
STRUCTURAL DETAIL

SHEET SIZE **ANSI B**

11" X 17"

SHEET NUMBER PV-5

(N) IRONRIDGE HALO ULTRAGRIP ATTACHMENT IN RAFTER ONLY (E) ROOF DECKING (2) #14 SELF DRILLING SCREW W/ SS EPDM BONDED WASHER WITH A MINIMUM PENETRATION DEPTH OF 1.75" 2"X6" RAFTER @ 16" O.C



DC SYSTEM SIZE: 7.290 kW DC AC SYSTEM SIZE: 5.700 kW AC

(18) JA SOLAR: JAM54S31-405/MR 405W MONO MODULES WITH (18) SOLAREDGE: S440 POWER OPTIMIZERS LOCATED UNDER EACH PANEL (240V) AND (01) SOLAREDGE: SE5700H-US (240V/5700W) INVERTER (02) STRINGS OF 09 MODULES ARE CONNECTED IN SERIES

BACKFEED BREAKER CALCULATION (120% RULE):

(MAIN BUS X 1.2 - MAIN BREAKER) >= (PV BREAKER) (200A X 1.2 - 200A) >= (30A) (40A) >= (30A) HENCE OK

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
- 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

SOLAREDGE: SE5700H-US HOME HUB INVERTER TO UTILITY GRID OUTPUT: 240 VAC, 24.00A (18) JA SOLAR: JAM54S31-405/MR 99% CEC WEIGHTED EFFICIENCY 405W MODULES NEMA 3R, UL LISTED, INTERNAL GFDI М —L2 WITH INTEGRATED DC DISCONNECT **BI-DIRECTIONAL** STRING #1 UTILITY METER 0 0 0 120/240V, 1¢, 3-W PV FUSED AC DISCONNECT 240V, 1¢, 3W 60A RATED NEMA 3R (E) MAIN BREAKER TO LINE HOUSE 240V, 200A/2P (E) MAIN SERVICE PÁNEL, SQUARE D-QO 200A RATED, 240V 30A STRING #2 30A/2P BACK-FEED INTERCONNECTION AT JUNCTION BOX, MAIN SERVICE PANEL 600V. NEMA 3R. PER ART. 705.12 **UL LISTED** LOAD ÜN ÜG BACK-FEED BREAKER L2 2017 NEC 705.12(B)(2)(3)(b) L1 G L2 L2 G GEC -0-VISIBLE, LOCKABLE, LABELED AC DISCONNECT LOCATED WITHIN 10' OF SOLAREDGE POWER OPTIMIZERS S440 RATED -DC INPUT POWER - 440WATTS UTILITY METER **EXISTING GROUNDING** MAXIMUM INPUT VOLTAGE - 60 VDC **ELECTRODE SYSTEM TO EARTH** MPPT RANGE - 8 TO 60 VDC REF. NEC 250.52, 250.53(A) MAXIMUM SHORT CIRCUIT CURRENT - 14.5 ADC

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

				,	
	QTY	СО	NDUCTOR INFORMATION	CONDUIT TYPE	CONDUIT SIZE
1	(4)	#10AWG -	PV WIRE/USE-2	N/A	N/A
	(1)	#6AWG -	BARE COPPER IN FREE AIR		
\sim	(4)	#10AWG -	CU,THWN-2	EMT OR LFMC IN ATTIC	3/4"
2)-	(1)	#10AWG -	CU,THWN-2 GND	EMITOR LFMC IN ATTIC	3/4
_	(2)	#10AWG -	CU,THWN-2		
3)-	(1)	#10AWG -	CU,THWN-2 N	EMT,LFMC OR PVC	3/4"
	(1)	#10AWG -	CU,THWN-2 GND		
	(2)	#10AWG -	CU,THWN-2		
4)-	(1)	#10AWG -	CU,THWN-2 N	EMT, LFMC OR PVC	3/4"
)	(1)	#10AWG -	CU,THWN-2 GND	1	

TOP TIER
SOLAR SOLUTIONS

TOP TIER SOLAR SOLUTIONS

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

REVISIONS		
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INITIAL DESIGN	04/01/2025	

PROJECT NAME & ADDRESS

JOSE GONZALEZ RESIDENCE

3059 OLD STAGE RD COATS, NC 27521

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DRAWN BY

SHEET NAME

ELECTRICAL LINE DIAGRAM

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER PV-6

1 ELECTRICAL LINE DIAGRAM

MAXIMUM OUTPUT CURRENT - 15 ADC STRING LIMITATIONS - 8 TO 25 OPTIMIZERS, 5700 WATTS STC PER STRING MAXIMUM

PV-6

SCALE: NTS

SOLAR I	MODULE SPECIFICATIONS
MANUFACTURER / MODEL #	JA SOLAR: JAM54S31-405/MR 405W 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)

INVERTER SPECIFICATIONS		
MANUFACTURER / MODEL # SOLAREDGE: SE5700H-US (240V/5700W) INVERTER		
NOMINAL AC POWER	5.700 kW	
NOMINAL OUTPUT VOLTAGE	240 VAC	
NOMINAL OUTPUT CURRENT	24.00A	

AMBIENT TEMPERATURE SPEC	<u>S</u>
AMBIENT TEMP (HIGH TEMP 2%)	38°
RECORD LOW TEMPERATURE	-9°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.275%/°C

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

	DC FEEDER CALCULATIONS																				
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCT ORS IN RACEWAY	90°C		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 FILL (%)
STRING 1	JUNCTION BOX	380	15.00	18.75	20	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.049	N/A	#N/A
STRING 2	JUNCTION BOX	380	15.00	18.75	20	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.049	N/A	#N/A
JUNCTION BOX	INVERTER	380	15.00	18.75	20	CU #10 AWG	CU #10 AWG	35	PASS	38	4	40	0.91	0.8	29.12	PASS	20	1.24	0.196	3/4" EMT	19.79362
																	String 1	Voltage Drop	0.245]	

	AC FEEDER 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)	FOR CONDUCTORS	AMPACITY		FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT	CONDUIT FILL (%)
INVERTER	AC DISCONNECT	240	24	30	30	CU #10 AWG	CU #10 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.124	3/4" EMT	15.8349
AC DISCONNECT	POI	240	24	30	30	CU #10 AWG	CU #10 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.124	3/4" EMT	15.8349

CUMULATIVE VOLTAGE DROP 0.248

0.245

String 2 Voltage Drop

ELECTRICAL NOTES

- 1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- 2. ALL CONDUCTORS SHALL BE RATED UPTO 600V FOR RESIDENTIAL AND 1000V FOR COMMERCIAL 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.



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JOSE GONZALEZ RESIDENCE

DRAWN BY
ESR

SHEET NAME

WIRING CALCULATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PHOTOVOLTAIC POWER SOURCE

EVERY 10' ON CONDUIT & ENCLOSURES

LABEL- 1: LABEL LOCATION: DC/EMT CONDUIT RACEWAY SOLADECK / JUNCTION BOX CODE REF: NEC 690.31 (D)(2)

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

LABEL - 2: LABEL LOCATION: AC DISCONNECT CODE REF: NEC 690.13(B)

⚠ WARNING

DUAL POWER SUPPLY

SOURCE: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL- 3: <u>LABEL LOCATION:</u> MAIN SERVICE PANEL CODE REF: NEC 705.12(C) & NEC 690.59

SOLAR PV BREAKER:

BREAKER IS BACKFED DO NOT RELOCATE

LABEL-4:
LABEL LOCATION:
MAIN SERVICE PANEL
CODE REF: NEC 705.12(C) & NEC 690.59

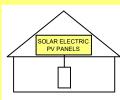
△ WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL- 5: <u>LABEL LOCATION:</u> MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED) SUBPANEL (ONLY IF SOLAR IS BACK-FED) CODE REF: NEC 705.12(B)(3)(2)

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



LABEL - 6: LABEL LOCATION: AC DISCONNECT

CODE REF: [NEC 690.56(C)(1)(A)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL- 7:

<u>LABEL LOCATION:</u>
AC DISCONNECT

MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)

CODE REF: NEC 690.56(C)(2)

DC DISCONNECT

LABEL - 8: LABEL LOCATION: INVERTER CODE REF: NEC 690.13(B)

AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE NOMINAL OPERATING AC VOLATGE 240 V

LABEL- 9: LABEL LOCATION: AC DISCONNECT

CODE REF: NEC 690.54

RATED AC OUTPUT CURRENT

MAXIMUM VOLTAGE

MAXIMUM CIRCUIT CURRENT

MAXIMUM RATED OUTPUT
CURRENT OF THE CHARGE
CONTROLLER OR DC-TO-DC
CONVERTER (IF INSTALLED)

LABEL- 10:
<u>LABEL LOCATION:</u>
ON THE RIGHT SIDE OF THE INVERTER (PRE-EXISTING ON THE INVERTER)
CODE REF: NEC 690.53

24.00 A



TOP TIER SOLAR SOLUTIONS

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

REVISIONS							
DESCRIPTION	DATE	REV					
INITIAL DESIGN	04/01/2025						

PROJECT NAME & ADDRESS

ź

3059 OLD STAGE RD COATS, NC 27521

JOSE GONZALEZ RESIDENCE

DRAWN BY

SHEET NAME

LABELS

SHEET SIZE

ANSI B

11" X 17"

SHEET NUMBER





Less shading and lower resistive loss



Better mechanical loading tolerance

Superior Warranty

- 25-year product warranty · 25-year linear power output warranty
- New linear power warranty Standard module linear power warranty

Comprehensive Certificates

- 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
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules -Guidelines for increased confidence in PV module design qualification and type approval



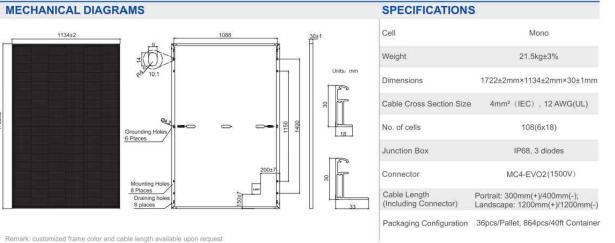






JA SOLAR

JAM54S31 380-405/MR Series



ELECTRICAL PARAMETERS A	TSTC					
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 $Isc(\alpha_Isc)$			+0.045%°C			
Temperature Coefficient of Voc(β_Voc)			-0.275%/°C			
Temperature Coefficient of Pmax(y_Pmp)			-0.350%/°C			

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.

ELECTRICAL PARAMETERS AT NOCT

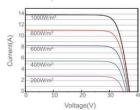
TYPE	JAM54S31 -380/MR	JAM54S31 -385/MR	JAM54S31 -390/MR	JAM54S31 -395/MR	JAM54S31 -400/MR	JAM54S31 -405/MR
Rated Max Power(Pmax) [W]	286	290	294	298	302	306
Open Circuit Voltage(Voc) [V]	34.36	34.49	34.62	34.75	34.88	35.12
Max Power Voltage(Vmp) [V]	28.51	28.68	28.87	29,08	29.26	29.47
Short Circuit Current(Isc) [A]	10.75	10.82	10.89	10.96	11.03	11.10
Max Power Current(Imp) [A]	10.03	10.11	10.18	10.25	10.32	10.38
NOCT	Irradian	ce 800W/m²	ambient tem	perature 20°0	wind speed	1m/s, AM1.5G

OPERATING CONDITIONS

Maximum System Voltage	1000V/1500V DC
Operating Temperature	-40 € ~+85 €
Maximum Series Fuse Rating	25A
Maximum Static Load Front* Maximum Static Load Back*	5400Pa(112lb/ft²) 2400Pa(50lb/ft²)
NOCT	45±2 C
Safety Class	Class II
Fire Performance	UL Type 1

CHARACTERISTICS

Current-Voltage Curve JAM54S31-405/MR



Power-Voltage Curve JAM54S31-405/MR Current-Voltage Curve JAM54S31-405/MR

Premium Cells, Premium Modules

Version No.: Global_EN_20231130A

TOP TIER SOLAR SOLUTIONS

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

REVISION	S	
DESCRIPTION	DATE	REV
INITIAL DESIGN	04/01/2025	

PROJECT NAME & ADDRESS

3059 OLD STAGE RD N, COATS, NC 27521 JOSE GONZALE RESIDENCE

> DRAWN BY **ESR**

SHEET NAME **EQUIPMENT SPECIFICATION**

> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER PV-9

JA SOLAR



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

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

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

No. 118, Lane 3111, West Huancheng

Road, Fengxian District, 201401 Address:

Shanghai

Address:

Lot G, Quang Chau industrial park, Quang Chau Ward, Viet Yen Town, Bac

ATM Issued: 12-Jun-2024

ED 16.3.15 (1-Jul-2022) Mandatory

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



This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Interfek's Client and is provided pursuant to the Certification agreement between Interfek and its Client, Interfek's responsibility and liability are limited to the terms and conditions of the agreement. Interfek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Interfek's Certification mark is restricted to the conditions laid out in the agreement and in this Authorization to Mark. Any further use of the Interfek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Interfek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Intertek Testing Services NA Inc. 545 East Algonquin Road, Arlington Heights, IL 60005 Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

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]

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

> 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
	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,
	JAM/78S30-followed by 575, 580, 585, 590, 595, 600, 605 or 610 followed by /GR,
Models:	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,
	ACIVIT & COUNTIONID WELL DV COOL CITY COTO. COTO CONCOVER DV /IVID.

ATM Issued: 12-Jun-2024 ED 16.3.15 (1-Jul-2022) Mandatory

TOP TIER SOLAR SOLUTIONS

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

REVISIONS							
DESCRIPTION	DATE	REV					
INITIAL DESIGN	04/01/2025						

PROJECT NAME & ADDRESS

Ź 3059 OLD STAGE RD COATS, NC 27521 JOSE GONZALE RESIDENCE

> DRAWN BY **ESR**

SHEET NAME **EQUIPMENT SPECIFICATION**

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

Residential Power Optimizer For North America

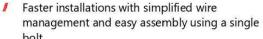
S440 / S500B / S650B



PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- / Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading

- utilization
- / Compatible with bifacial PV modules
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)



- Flexible system design for maximum space



/ Residential Power Optimizer

For North America

S440 / S500B / S650B

	S440	S500B	S650B	
INPUT				
Rated Input DC Power [®]	440(2)	500(3)	650	W
Absolute Maximum Input Voltage (Voc)	60	125	85	Vdc
MPPT Operating Range	8-60	12.5 - 105	12.5 - 85	Vdc
Maximum Input Current (Maximum Isc of Connected PV Module) ⁽²⁾	14.5	15	5	Adc
Maximum Input Short Circuit Current ⁽⁴⁾		18.75		Adc
Maximum Efficiency		99.5		%
Weighted Efficiency		98.6		%
Overvoltage Category		ı		
OUTPUT DURING OPERATION (POWER OPTIMIZER CO	ONNECTED TO OPERATIN	NG SOLAREDGE INVE	RTER)	
Maximum Output Current	15		Adc	
Maximum Output Voltage	60 80		Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISC	ONNECTED FROM SOLA	REDGE INVERTER OF	R INVERTER OFF)	
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc
STANDARD COMPLIANCE	11			
Photovoltaic Rapid Shutdown System	CSA C22.2#330, NEC 2014 - 2023		11	
EMC	FCC Part 15 Class B; IEC 61000-6-2; IEC 61000-6-3			
Safety	CSA C22.2#1	07.1; IEC 62109-1 (Class II Safe	ety); UL 1741	
Material		UL 94 V-0, UV Resistant		
RoHS		Yes		
Fire Safety		VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS				
Maximum Allowed System Voltage		1000		Vdc
Dimensions (W x L x H)	129 x 155 x 30 / 5.07 x 6.10 x 1.18	129 x 165 x 45 / 5.07 x 6.49 x 1.77		mm/
Weight	720./1.6	5 790 / 1.74		gr / li
Input Connector	MC4			
Input Wire Length	0.1/0.32		m/1	
Output Connector	MC4			
Output Wire Length	(+)	2.3, (-) 0.10 / (+) 7.54, (-) 0.3	12	m/1
Operating Temperature Range ⁽⁵⁾	-40 to +85		°C	
Protection Rating		IP68 / NEMA6P		
Relative Humidity		0 - 100		%

(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed (2) For S440 with part number S440 - XGM4MRMP, the Rated Input DC Power is 650W, and the Maximum Input Current is 1SA.

(3) For installations after Aug 1st, 2024, the Rated Input DC Power for S500B is 650W.

(4) The Maximum Input Short Circuit Current is adjusted for worst case conditions of ambient temperature, irradiance, bifacial gain, and so on, in accordance with NEC and CSA.

(5) Power derating is applied for ambient temperatures above +85°C / +185°F for S440, and for ambient temperatures above +75°C / 167°F for S500B and S650B. Refer to the Power Optimizers Temperature.

PV System Design Using a SolarEdge Inverter ⁽⁶⁾		SolarEdge Home Wave/Hub Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power 5440		8	10	18	
Optimizers) S500B, S6	S500B, S650B	6	8	14	
Maximum String Length (Power Optimizers)		25		50 ⁽⁷⁾	
Maximum Usable Power Delivered per String		5700	6000	12,750	W
	Inverters with Rated AC Power ≤ 5700W	Per the inverter's maximum input DC power ⁽⁸⁾			
Maximum Allowed Connected Inverters with Rated AC Power of 6000W		5700	One string: 7200 Two strings or more: 7800	15,000	W
	Inverters with Rated AC Power ≥ 7600W	6800, only when connected to at least two strings			
Parallel Strings of Different Lengt	hs or Orientations		Yes		

(6) It is not allowed to mix S-series and P-series Power Optimizers in new installations in the same string.

(7) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.

(8) Refer to the <u>Single String Design Guidelines</u> application note for details.
(9) For the 208V grid, the maximum is permitted only when the difference in connected power between strings is 1,000W or less. (10) For the 240V or 277/480V grids, the maximum is permitted only when the difference in connected power between strings 2,000W or less.

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TOP TIER SOLAR SOLUTIONS

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

REVISIONS				
DESCRIPTION	DATE	REV		
INITIAL DESIGN	04/01/2025			

PROJECT NAME & ADDRESS

3059 OLD STAGE RD N, COATS, NC 27521 JOSE GONZALE RESIDENCE

> DRAWN BY **ESR**

SHEET NAME **EQUIPMENT SPECIFICATION**

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

SolarEdge Home Hub Inverter

Single Phase, for North America For Inverters Assembled in the USA

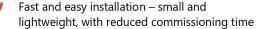
SE3800H-US / SE5700H-US / SE7600H-US / SE10000H-US / SE11400H-US



Single phase inverter for storage and backup applications

- The ultimate home energy manager in charge of PV production, battery storage, backup operation during a power outage*, EV Charging, and smart energy devices
- Record-breaking 99% weighted efficiency with up to 300% DC oversizing
- Supports LRA can provide the required energy for HVAC systems starting during backup operation
- Integrates seamlessly with the complete SolarEdge Home Smart Energy Ecosystem, through SolarEdge Home Network
- Module-level monitoring and visibility of battery status, PV production, and selfconsumption data

- Fast and easy installation small and
- A scalable solution that supports future homeowner needs through easy connection to a growing ecosystem of products
- Advanced safety features with integrated arc fault protection and rapid shutdown for 690.11
- Advanced reliability with automotive-grade
- Embedded revenue grade production data, ANSI C12.20 Class 0.5
- IP65-rated, for indoor and outdoor installations



- and 690.12



/ SolarEdge Home Hub Inverter Single Phase, for North America

SE3800H-US / SE5700H-US / SE7600H-US / SE10000H-US / SE11400H-US

Model Number ⁽¹⁾⁽²⁾	SE3800H-US	SE5700H-US	SE7600H-US	SE10000H-US	SE11400H-US	Units
OUTPUT – AC ON GRID						
Rated AC Power	3800 @ 240V 3300 @ 208V	5760 @ 240V 5000 @ 208V	7600	10000	11,400 @ 240V 10,000 @ 208V	W
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5760 @ 240V 5000 @ 208V	7600	10000	11,400 @ 240V 10,000 @ 208V	W
AC Output Voltage (Nominal)	208 / 240				Vac	
AC Output Voltage (Range)			183 – 264			Vac
AC Frequency Range (min - nom - max)		59	$9.3 - 60 - 60.5^{(3)}$			Hz
Maximum Continuous Output Current	16	24	32	42	48	А
GFDI Threshold	1					A
Total Harmonic Distortion (THD)			< 3			%
Power Factor		1, adju	ustable -0.85 to 0.85	to		
Utility Monitoring, Islanding Protection, Country Configurable Thresholds			Yes			
Charge Battery from AC (if allowed)			Yes			
Typical Nighttime Power Consumption	< 2.5					W
OUTPUT – AC STAND-ALONE (BACKUP)(4)(5)						
Rated AC Power in Stand-alone Operation			11,400 ⁽⁶⁾			W
Maximum Stand-alone Capacity			11,400			W
AC L-L Output Voltage Range in Stand-alone Operation	211 – 264					Vac
AC L-N Output Voltage Range in Stand-alone Operation	105 – 132					Vac
AC Frequency Range in Stand-alone (min - nom - max)	55 - 60 - 65					Hz
Maximum Continuous Output Current in Stand-alone Operation			48			А
GFDI			1			А
THD			< 5			%
OUTPUT – SOLAREDGE HOME EV CHARGER AC						
Rated AC Power			9600			W
AC Output Voltage Range			211 – 264			Vac
On-Grid AC Frequency Range (min - nom - max)		5	9.3 - 60 - 60.5			Hz
Maximum Continuous Output Current @240V (grid, PV and battery)			40			Aac
INPUT – DC (PV AND BATTERY)						
Transformer-less, Ungrounded			Yes			
Max Input Voltage			480			Vdc
Nom DC Input Voltage			380			Vdc
Reverse-Polarity Protection	Yes					
Ground-Fault Isolation Detection	600kΩ Sensitivity					
INPUT – DC (PV)						
Maximum DC Power @ 240V	11,400	11,520	15,200	20,000	22,800	W
Maximum DC Power @ 208V	6600	10,000	-	-	20,000	W
Maximum Input Current ⁽⁷⁾ @ 240V	20	30.5	40	53	60	Adc
Maximum Input Current ⁽⁷⁾ @ 208V	17.5	27	-	-	53	Adc
Maximum Input Short Circuit Current		1	45	'		Adc
Maximum Inverter Efficiency			99.2			%
CEC Weighted Efficiency	98.	5	ē	99	99 @ 240V 98.5 @ 208V	%
2-pole Disconnection			Yes		, 50.5 & 2007	

(1) These specifications apply to inverters with part numbers SExxxxH-USMNUxxx5 and SExxxxH-USMNExxx5 and connection unit model number DCD-1PH-US-PxH-F-x.

(2) Inverters with part number SExxxxH-USMNFxxxS are intended for upgrade installations only, as part of the "Re-Energize" program. Use on non-upgrade installations will revoke the product warranty.

(3) For other regional settings please refer to the SolarEdge Inverters, Power Control Options Application Note.
(4) Not designed for non-grid connected applications and requires AC for commissioning. Stand-alone (backup) functionality is only supported for the 240V grid.

(5) For LRA (Locked Rotor Amperage) values please refer to the LRA for NAM Application Note.

(6) For models SE7600H-US and below, the rated AC stand-alone power is configurable between 7600W or 11,400W from CPU version 4.20.xx.

(7) A higher current source may be used. The inverter will limit its input current to the values stated

TOP TIER SOLAR SOLUTIONS

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

REVISIONS				
DESCRIPTION	DATE	REV		
INITIAL DESIGN	04/01/2025			

PROJECT NAME & ADDRESS

JOSE GONZALE RESIDENCE

C∈ comu

DRAWN BY **ESR**

3059 OLD STAGE RD COATS, NC 27521

SHEET NAME **EQUIPMENT SPECIFICATION**

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

^{*}Requires additional hardware and firmware version upgrade

/ SolarEdge Home Hub Inverter

Single Phase, for North America
SE3800H-US / SE5700H-US / SE7600H-US / SE10000H-US / SE11400H-US

Model Number ⁽¹⁾⁽²⁾	SE3800H-US	SE5700H-US	SE7600H-US	SE10000H-US	SE11400H-US	Units
OUTPUT – DC (BATTERY)						
Supported Battery Types		SolarEdge Ho	me Battery, LG RES	U Prime		
Number of Batteries per Inverter		Up to 3 SolarEdge Ho	ome Battery, up to 2	LG RESU Prime		
Continuous Power ⁽⁸⁾	11,400 @ 240V 3800 @ 208V	11,400 @ 240V 5000 @ 208V	11400	@240V	11,400 @ 240V 10,000 @ 208V	W
Peak Power ⁽⁸⁾	11,400 @ 240V 3800 @ 208V	11,400 @ 240V 5000 @ 208V	11400	@240V	11,400 @ 240V 10,000 @ 208V	W
Maximum Input Current		30				Adc
2-pole Disconnection		Up to the invert	ter's rated stand-alc	ne power		
SMART ENERGY CAPABILITIES						
Consumption Metering			Built-in ⁽⁹⁾			
Stand-alone & Battery Storage	With Backup I	nterface (purchased se	eparately) for service	e up to 200A; up to	3 inverters	
EV Charging	Direct connection to the SolarEdge Home EV Charger					
ADDITIONAL FEATURES						
Supported Communication Interfaces	RS485, Ethernet, Cellular ⁽¹⁰⁾ , Wi-Fi (optional), SolarEdge Home Network (optional)				optional)	
Revenue Grade Metering, ANSI C12.20	Built-in ⁽⁹⁾					
Integrated AC, DC and Communication Connection Unit	Yes					
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi Access Point for local connection					
DC Voltage Rapid Shutdown (PV and Battery)		Υ	es, NEC 690.12			
STANDARD COMPLIANCE						
Safety	UL 1741, UL 1741SA, U	JL 1741SB, UL 1699B, C	SA 22.2#107.1, C22,	.2#330, C22.3#9, AN	NSI/CAN/UL 9540	
Grid Connection Standards		IEEE1547 and I	EEE-1547.1, Rule 21,	Rule 14H		
Emissions		FC	C Part 15 Class B			
INSTALLATION SPECIFICATIONS						
AC Terminals		.1, L2, N terminal bloci L2 terminal blocks, PE				
DC Terminals	4 x termi	nal block pairs for PV	input; 1 x terminal b	lock pair for battery	input	
AC Output and EV AC Output Conduit Size / AWG Range		1'' ma	ximum / 14-4 AWG			
DC Input (PV and Battery) Conduit Size / AWG Range	1" maximum / 14-6 AWG					
Dimensions with Connection Unit (H x W x D)	21.06 x 14.6 x 8.2 / 535 x 370 x 208				in/m	
Weight with Connection Unit	44.9 / 20.3			lb/k		
Noise			< 50			dBA
Cooling		Na	atural Convection			
Operating Temperature Range		-40 to	+140 / -40 to +60 ⁽¹¹)		°F / °C
Protection Rating			NEMA 4X			



TOP TIER SOLAR SOLUTIONS

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

REVISIONS				
DESCRIPTION	DATE	REV		
INITIAL DESIGN	04/01/2025			

PROJECT NAME & ADDRESS

3059 OLD STAGE RD N, COATS, NC 27521 JOSE GONZALEZ RESIDENCE

> DRAWN BY **ESR**

SHEET NAME **EQUIPMENT**

SPECIFICATION SHEET SIZE

ANSI B

11" X 17"

SHEET NUMBER PV-13

⁽⁸⁾ Discharge power is limited up to the inverter's rated AC power for on-grid and stand-alone applications, as well as up to the installed batteries' rating.

(9) For consumption metering current transformers should be ordered separately: SECT-SPL-225A-T-20 or SEACT1250-400NA-20. Revenue grade metering is only for production metering.

(10) Information concerning the data plan terms & conditions is available in SolarEdge Communication Plan Terms and Conditions.

⁽¹¹⁾ Full power up to at least 50°C / 122°F; for power derating information refer to the Temperature Derating Technical Note for North America.

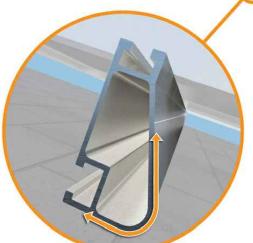


XR Rail® Family

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.

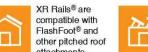
XR Rails® are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount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

Corrosion-Resistant Materials



Compatible with Flat & Pitched Roofs



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

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.

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

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JOSE GONZALE RESIDENCE

3059 OLD STAGE RD COATS, NC 27521

DRAWN BY **ESR**

SHEET NAME **EQUIPMENT SPECIFICATION**

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



UFO® Family of Components

Universal Fastening Object (UFO®)

can fit a wide range of module heights.

The UFO® securely bonds solar modules to XR Rails®. It comes assembled and lubricated, and

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



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

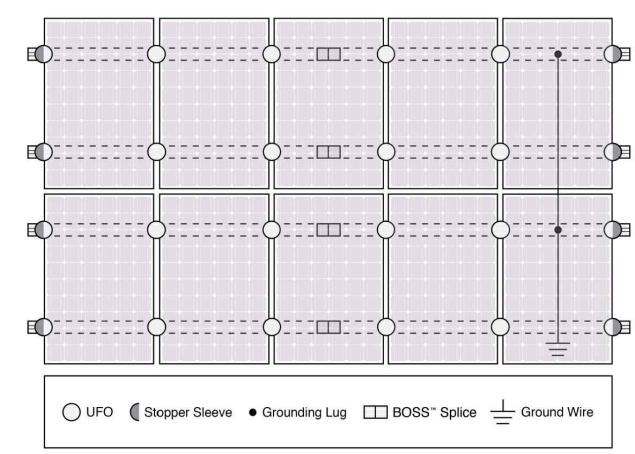


Grounding Lug A single Grounding Lug connects an entire row of PV modules to the grounding conductor.

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 Diagram



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

	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		with most MLPE m system installation	
Fire Rating	Class A	Class A	N/A
Modules		ated with over 400 llation manuals for	Framed Modules a detailed list.

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ESR

SHEET NAME **EQUIPMENT SPECIFICATION**

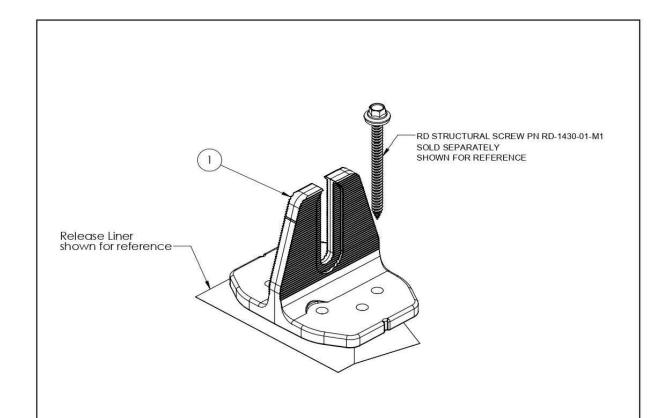
SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



QuickMount® Halo UltraGrip



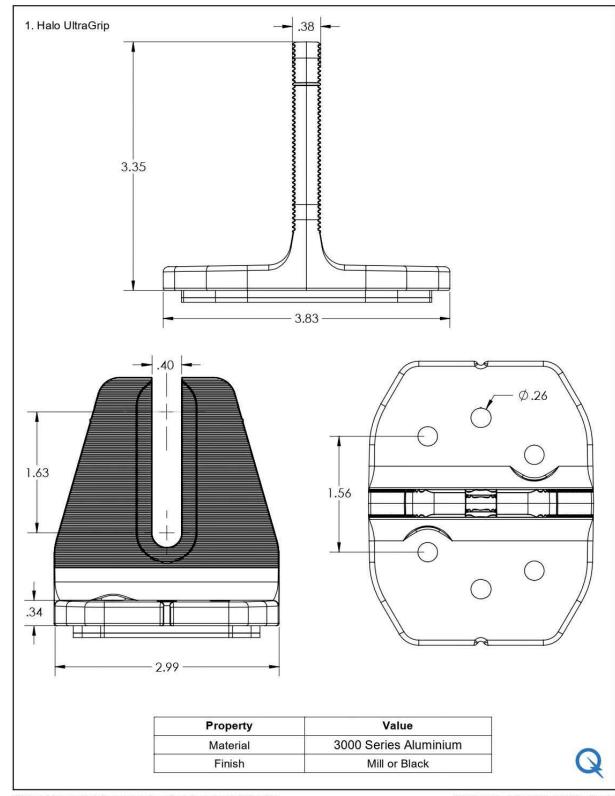
ITEM NO	DESCRIPTION	QTY IN KIT
1	QM Halo UltraGrip(Mill or Black)	1

PART NUMBER	BER DESCRIPTION	
QM-HUG-01-M1	Halo UltraGrip - Mill	
QM-HUG-01-B1	Halo UltraGrip - Black	



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QM-HUG-01-B1 or QM-HUG-01-M1 Cut Sheet Rev 1.0



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QM-HUG-01-B1 or QM-HUG-01-M1 Cut Sheet Rev 1.0

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REVISIONS			
DESCRIPTION	DATE	REV	
INITIAL DESIGN	04/01/2025		

PROJECT NAME & ADDRESS

JOSE GONZALEZ RESIDENCE 3059 OLD STAGE RD N, COATS, NC 27521

DRAWN BY

SHEET NAME EQUIPMENT SPECIFICATION

SHEET SIZE

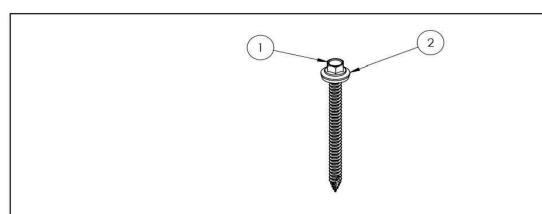
ANSI B 11" X 17"

SHEET NUMBER





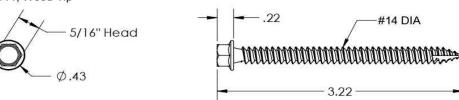
QuickMount® RD Structural Screw



ITEM NO	DESCRIPTION	QTY IN KIT
1	Self Drilling Screw, #14, Wood Tip	1
2	Washer, EPDM Backed	1

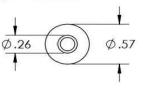
PART NUMBER	DESCRIPTION
RD-1430-01-M1	RD Structural Screw

1. Self Drilling Screw, #14, Wood Tip



Property	Value	
Material	300 Series Stainless Stee	
Finish	Clear	

2. Washer, EPDM Backed





Property Value

Material 300 Series Stainless Steel

Finish Clear

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QM-RD-1430-01-M1 Cut Sheet Rev 1.0



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SHEET NAME EQUIPMENT SPECIFICATION

> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER



PHONE: 385-202-4150 WWW.EZSOLARPRODUCTS.COM



PHONE: 385-202-4150 WWW.EZSOLARPRODUCTS.COM

REV

SHEET 2 OF 3

SIZE

SCALE: 1:2

DWG. NO.

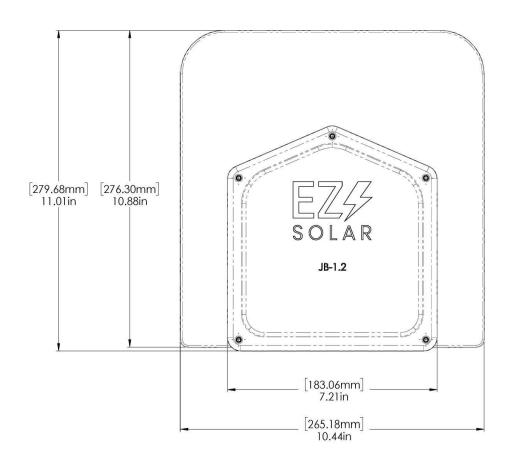
JB-1.2

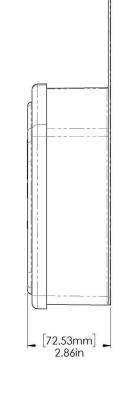
WEIGHT: 1.45 LBS

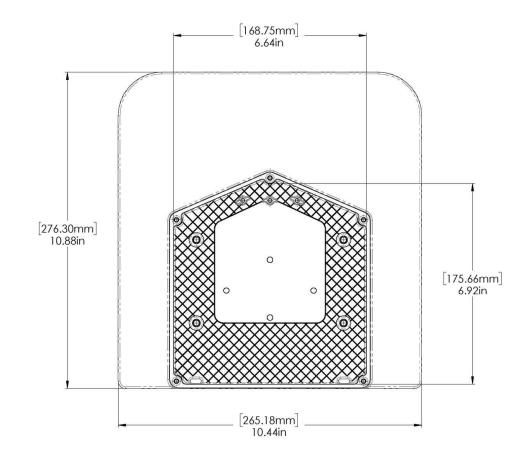
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	JB-1.2 BODY	POLYCARBONATE WITH UV INHIBITORS	1
2	JB-1.2 LID	POLYCARBONATE WITH UV INHIBITORS	1
3	#10 X 1-1/4" PHILLIPS PAN HEAD SCREW		6
4	#8 X 3/4" PHILLIPS PAN HEAD SCREW		6

SIZE	DWG. NO.		REV
В	JB-1.2		
SCALE: 1:2	WEIGHT: 1.45 LBS	SHEE	T 1 0F 3

TORQUE SPECIFICATION:	15-20 LBS
CERTIFICATION:	UL 1741, NEMA 3R CSA C22.2 NO. 290
WEIGHT:	1.45 LBS









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