# PHOTOVOLTAIC ROOF MOUNT SYSTEM

12 MODULES-ROOF MOUNTED - 4.860 kW DC, 5.700 kW AC

300 W C ST, ERWIN, NC 28339

## PROJECT DATA

**PROJECT** 300 W C ST.

ADDRESS: **ERWIN, NC 28339** 

KATIE HALL OWNER:

**DESIGNER: ESR** 

SCOPE: 4.860 kW DC ROOF MOUNT

SOLAR PV SYSTEM WITH

12 JA SOLAR: JAM54S31-405/MR 405W

PV MODULES WITH

12 SOLAREDGE: S440 POWER OPTIMIZERS AND

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

01 10 kWh SOLAREDGE ENERGY BANK

**AUTHORITIES HAVING JURISDICTION:** 

**BUILDING: HARNETT COUNTY** ZONING: HARNETT COUNTY

UTILITY: DUKE ENERGY PROGRESS

## SHEET INDEX

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PV-2 SITE PLAN

**ROOF PLAN & MODULES** PV-3 PV-4 **ELECTRICAL PLAN** 

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PV-8

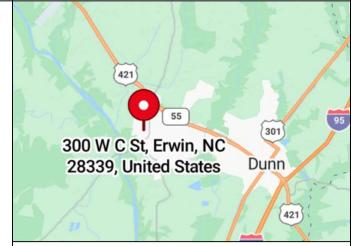
PV-9+ **EQUIPMENT SPECIFICATIONS** 

## **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**

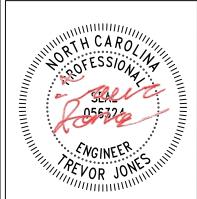
2018 NORTH CAROLINA BUILDING CODE 2018 NORTH CAROLINA RESIDENTIAL CODE 2018 NORTH CAROLINA FIRE CODE 2017 NATIONAL ELECTRICAL CODE





7901 ALLEN BLACK RD, MINT HILL NC 28227, UNITED STATES

REVISIONS						
DESCRIPTION	DATE	REV				
INITIAL DESIGN	02/25/2025					
REVISION	07/21/2025	Α				



STRUCTURAL ONLY 07/21/2025

PROJECT NAME & ADDRESS

ST, 28339 KATIE HALL RESIDENCE 300 W C S ERWIN, NC 2

> DRAWN BY **ESR**

SHEET NAME

**COVER SHEET** 

SHEET SIZE **ANSI B** 

11" X 17"

SHEET NUMBER

## PROJECT DESCRIPTION:

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

DC SYSTEM SIZE: 4.860 kW DC AC SYSTEM SIZE: 5.700 kW AC

**EQUIPMENT SUMMARY** 

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

12 SOLAREDGE: S440 POWER OPTIMIZERS

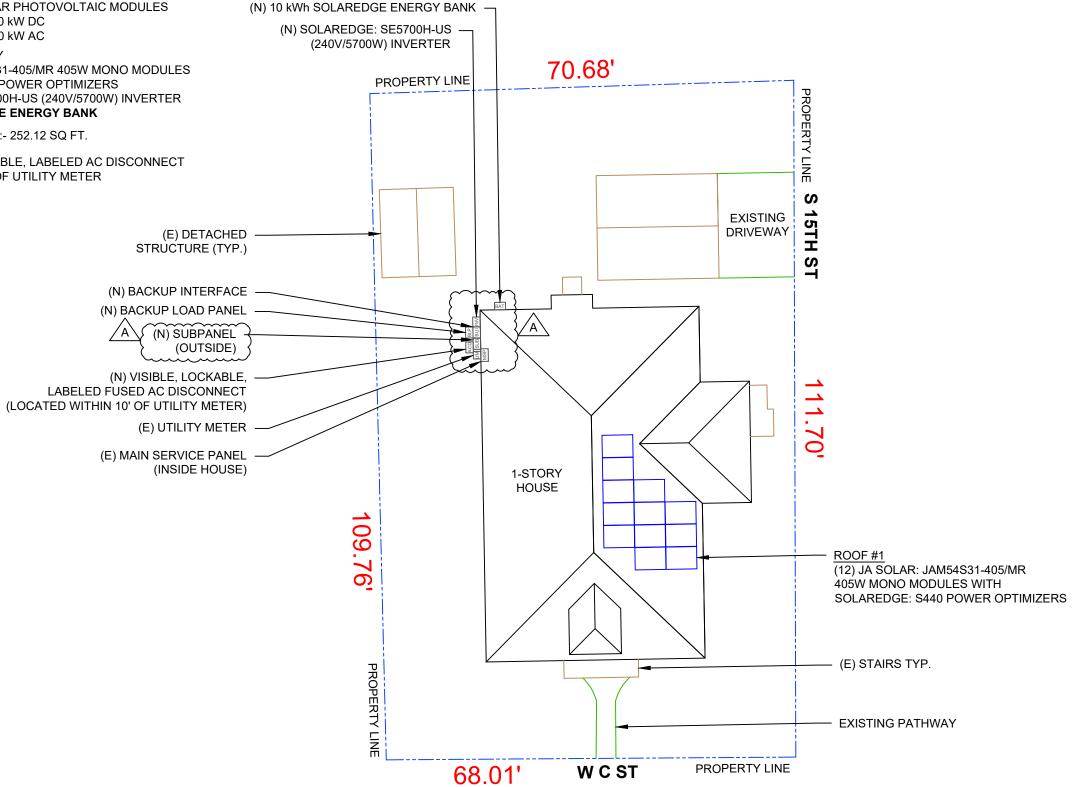
01 SOLAREDGE: SE5700H-US (240V/5700W) INVERTER

01 10 kWh SOLAREDGE ENERGY BANK

ROOF ARRAY AREA #1:- 252.12 SQ FT.

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT

LOCATED WITHIN 10' OF UTILITY METER

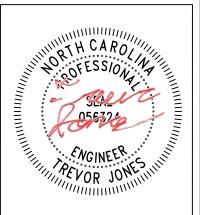


**DESIGN SPECIFICATION** OCCUPANCY: II CONSTRUCTION: SINGLE-FAMILY ZONING: RESIDENTIAL GROUND SNOW LOAD: REFER STRUCTURAL LETTER WIND EXPOSURE: REFER STRUCTURAL LETTER WIND SPEED: REFER STRUCTURAL LETTER



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SHEET NAME

SITE PLAN

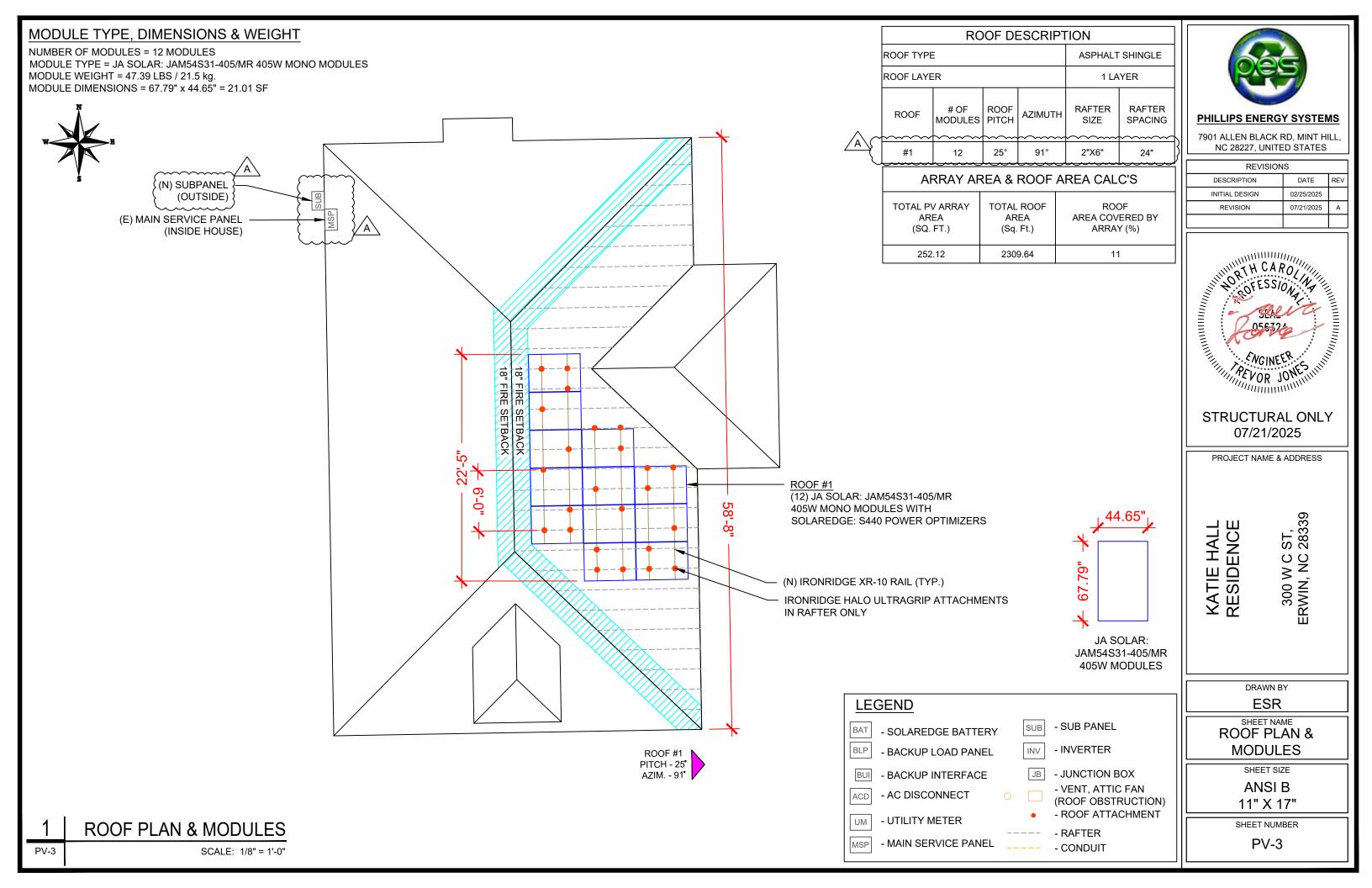
SHEET SIZE **ANSIB** 

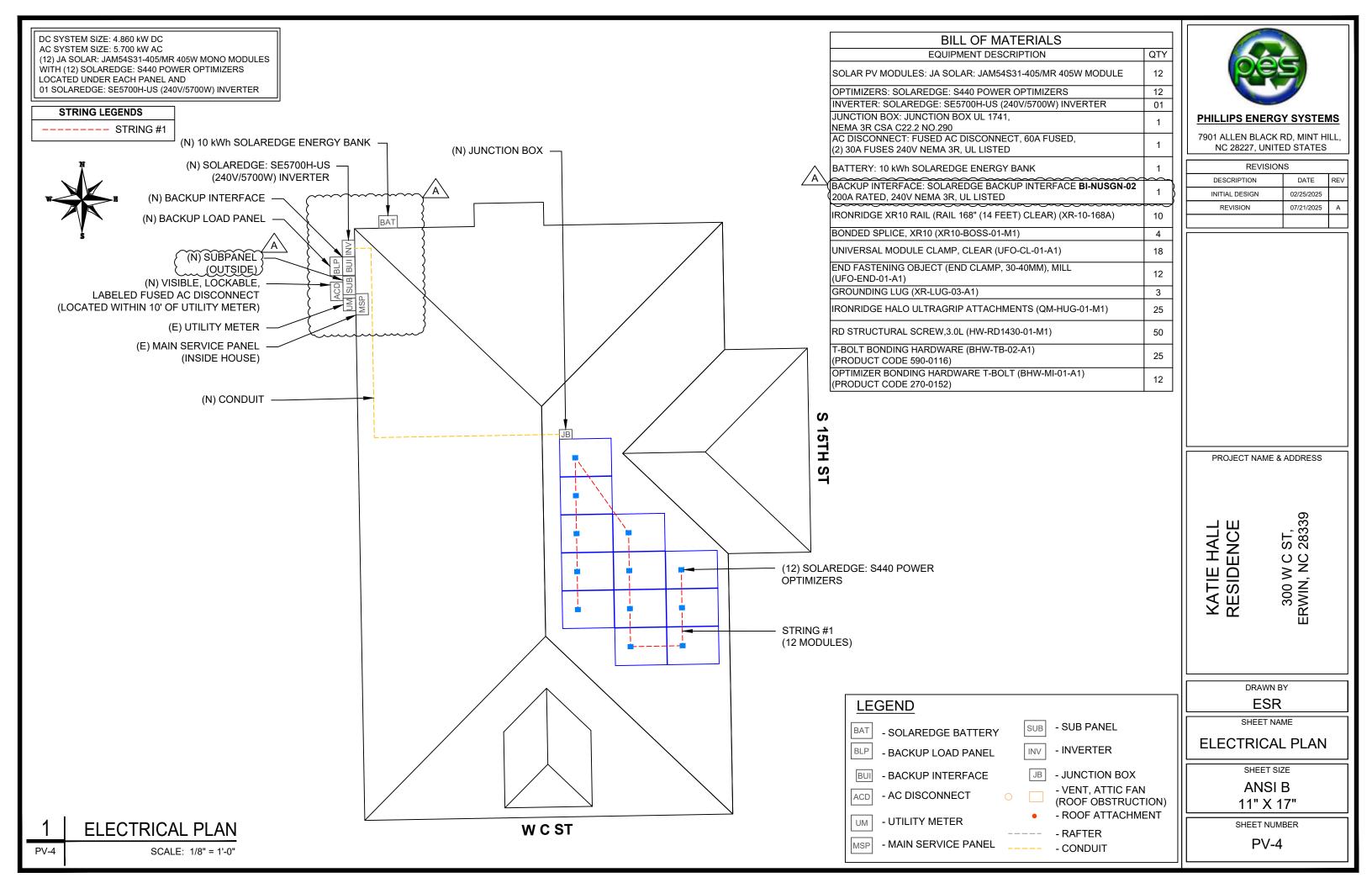
11" X 17"

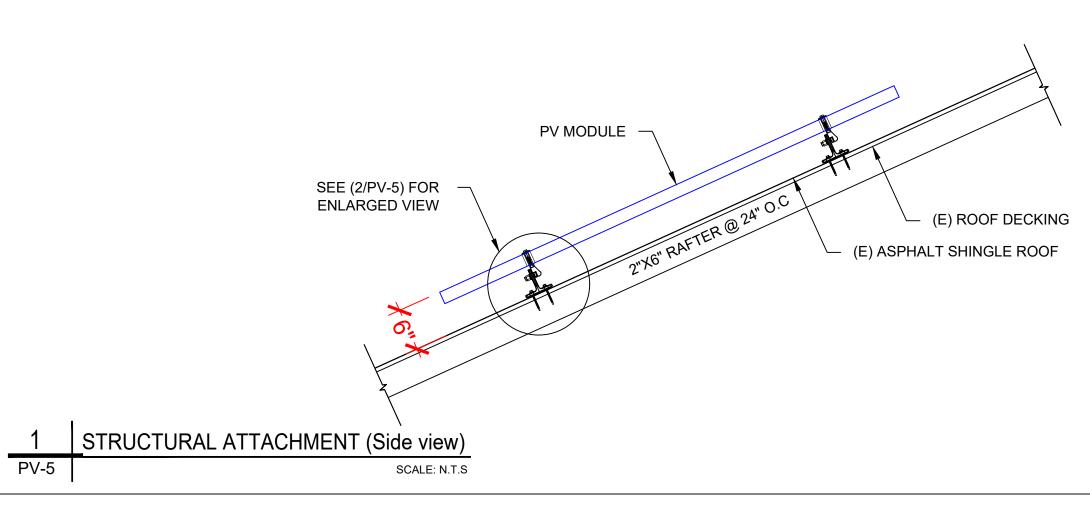
SHEET NUMBER

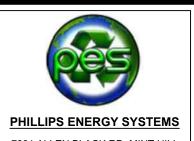
PV-2

SITE PLAN SCALE: 1/16" = 1'-0" PV-2









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ESR

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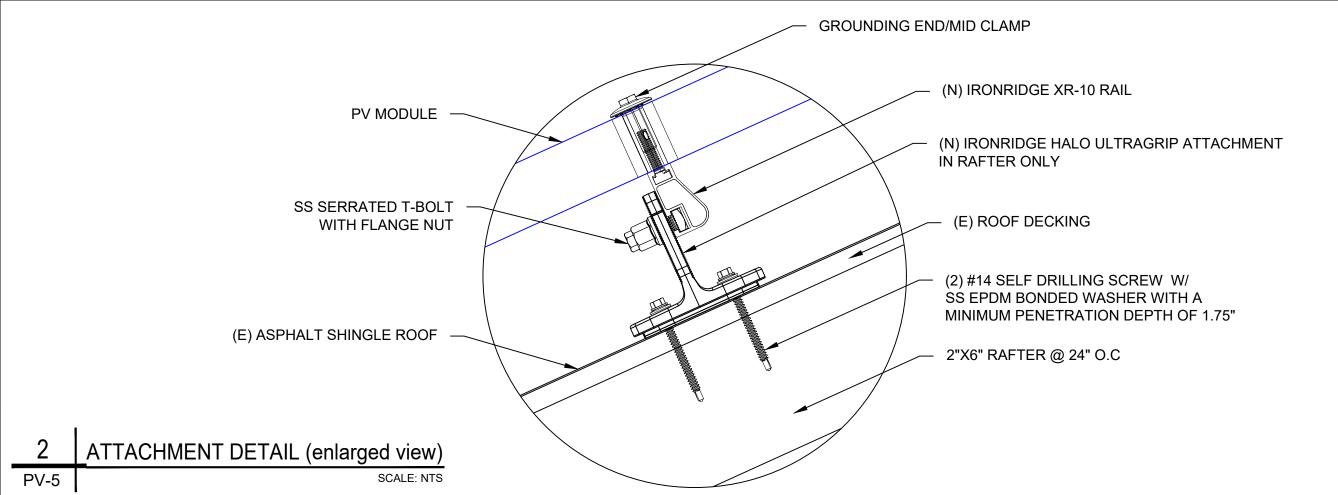
STRUCTURAL DETAIL

SHEET SIZE

ANSI B

11" X 17"

SHEET NUMBER



DC SYSTEM SIZE: 4.860 kW DC AC SYSTEM SIZE: 5.700 kW AC 12) JA SOLAR: JAM54S31-405/MR 405W MONO MODULES WITH (12) SOLAREDGE: S440 POWER OPTIMIZERS LOCATED UNDER EACH PANEL (240V) AND (01) SOLAREDGE: SE5700H-US (240V/5700W) INVERTER (01) STRING OF 12 MODULES ARE CONNECTED IN SERIES NOTE: CONDUIT TO BE UL LISTED FOR WET LOCATIONS AND UV PROTECTED

(12) JA SOLAR: JAM54S31-405/MR

STRING #1

SOLAREDGE POWER OPTIMIZERS S440 RATED DC INPUT POWER - 440WATTS MAXIMUM INPUT VOLTAGE - 60 VDC

MAXIMUM SHORT CIRCUIT CURRENT - 14.5 ADC MAXIMUM OUTPUT CURRENT - 15 ADC STRING LIMITATIONS - 8 TO 25 OPTIMIZERS,

PV-6

5700 WATTS STC PER STRING MAXIMUM

**ELECTRICAL LINE DIAGRAM** 

SCALE: NTS

### 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],
- 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.

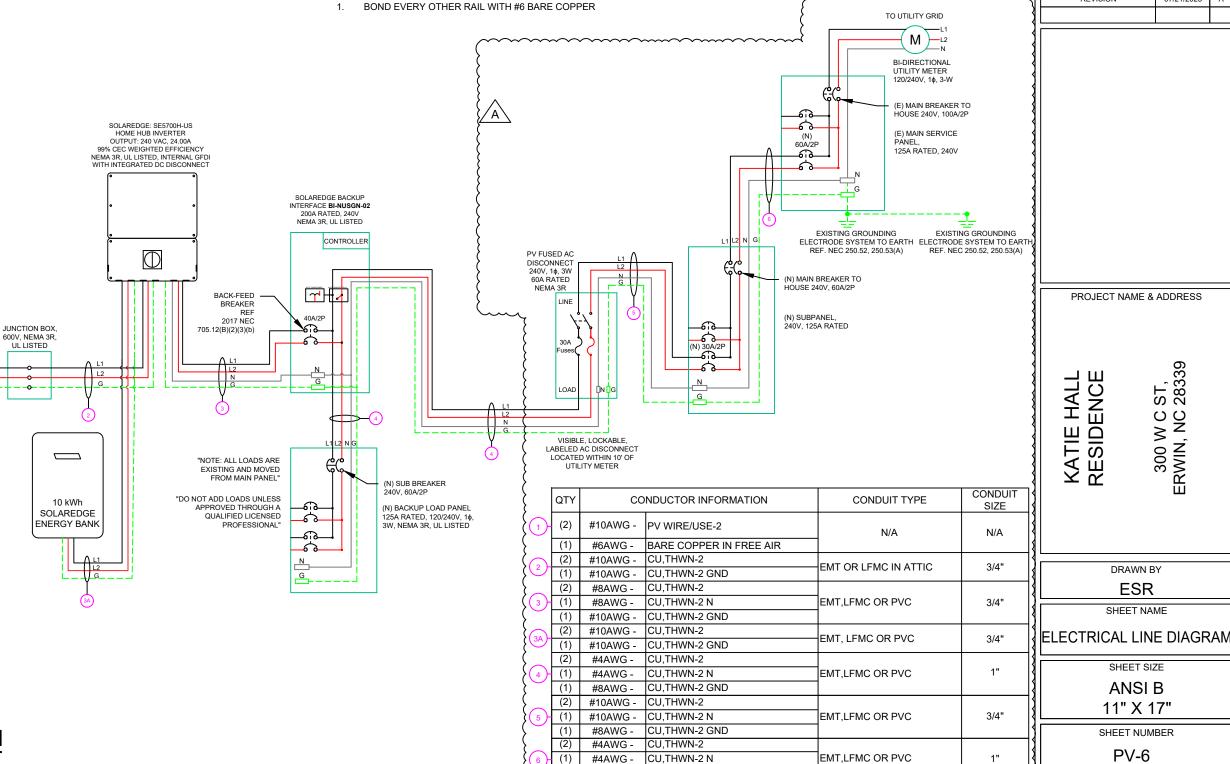
### **DISCONNECT NOTES:**

UL LISTED

- 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.



(1)

#8AWG -

CU,THWN-2 GND



### **PHILLIPS ENERGY SYSTEMS**

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**PROJECT NAME & ADDRESS** 

DRAWN BY

**ESR** 

SHEET NAME

SHEET SIZE

**ANSI B** 

11" X 17"

SHEET NUMBER

PV-6

**KATIE HALL** RESIDENC ST, 28339

300 W C S ERWIN, NC S

SOLAR 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 SPECS						
AMBIENT TEMP (HIGH TEMP 2%)	38°					
RECORD LOW TEMPERATURE	-8°					
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

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PHILLIPS ENERGY SYSTEMS

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DC	FEED	ER CA	LCULAT	IONS

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	FOR AMBIENT	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
JUNCTION BOX	INVERTER	380	15.00	18.75	20	CU #10 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	20	1.24	0.196	3/4" EMT	11.87617
SOLAREDGE BANK	INVERTER	380	13.16	16.45	20	CU #10 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.043	3/4" EMT	11.87617

String 1 Voltage Drop 0.245

{										AC FEEDER	CALCULATI	ons										
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	FOR AMBIENT	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 (%)
INVERTER	BACKUP INTERFACE	240	24	30	40	CU #8 AWG	CU #10 AWG	CU #8 AWG	50	PASS	38	2	55	0.91	1	50.05	PASS	5	0.778	0.078	3/4" EMT	24.5591
BACKUP INTERFACE	BACKUP LOAD PANEL	240	60	60	60	CU #4 AWG	CU #8 AWG	CU #4 AWG	85	PASS	38	2	95	0.91	1	86.45	PASS	5	0.308	0.077	1" EMT	32.8472
BACKUP INTERFACE	AC DISCONNECT	240	24	30	30	CU #4 AWG	CU #8 AWG	CU #4 AWG	85	PASS	38	2	95	0.91	1	86.45	PASS	5	0.308	0.031	1" EMT	32.8472
AC DISCONNECT	SUBPANEL	240	24	30	30	CU #10 AWG	CU #8 AWG	CU #10 AWG	35	PASS	38	2	40	0.91	1	36.4	PASS	5	1.24	0.124	3/4" EMT	18.7430
SUBPANEL	MAIN SERVICE PANEL	240	60	60	60	CU #4 AWG	CU #8 AWG	CU #4 AWG	85	PASS	38	2	95	0.91	1	86.45	PASS	5	0.308	0.077	1" EMT	32.8472
(																		CUMULATIVE VO	DITAGE DROP	0.078	1	₹

PROJECT NAME & ADDRESS

KATIE HALL RESIDENCE

ST, 28339 300 W C S ERWIN, NC 2

## **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.
- 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.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
- WHERE SIZES OF JUNCTION BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
- MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN
- 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.

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

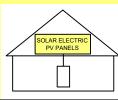
## 

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL- 5:
LABEL LOCATION:
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	480 V
MAXIMUM CIRCUIT CURRENT	30.50 A
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



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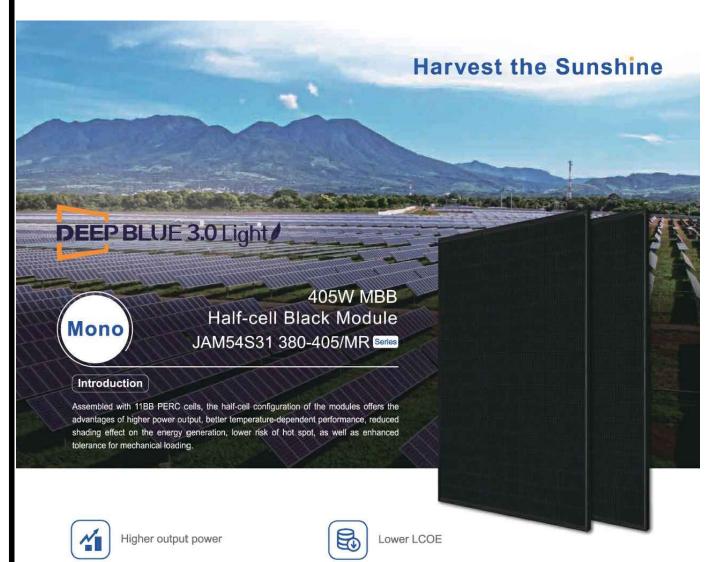
LABELS

SHEET SIZE

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11" X 17"

SHEET NUMBER PV-8



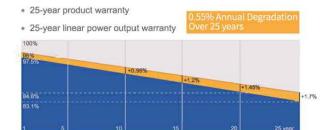


Less shading and lower resistive loss



Better mechanical loading tolerance

### Superior 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











## JAM54S31 380-405/MR Series

## MECHANICAL DIAGRAMS **SPECIFICATIONS** Mono 21.5kg±3% 1722±2mm×1134±2mm×30±1mr Cable Cross Section Size 4mm² (IEC) , 12 AWG(UL) 108(6x18) No. of cells MC4-EVO2(1500V) Cable Length Portrait: 300mm(+)/400mm(-); (Including Connector) Landscape: 1200mm(+)/1200mm(-Packaging Configuration 36pcs/Pallet, 864pcs/40ft Container

Remark: customized frame color and cable length available upon request

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 1000	W/m², cell temperatu	re 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**

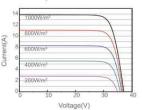
LLLO INIOAL I AILAI	WILL I LIVO	AI NOO					
TYPE	JAM54S31 -380/MR	JAM54S31 -385/MR	JAM54S31 -390/MR	JAM54S31 -395/MR	JAM54S31 -400/MR	JAM54S31 -405/MR	
Rated Max Power(Pmax) [W]	286	290	294	298	302	306	
Open Circuit Voltage(Voc) [V]	34.36	34.49	34.62	34.75	34.88	35.12	
Max Power Voltage(Vmp) [V]	28.51	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, AM1.5	G

PERATING COND	ITIONS
aximum System Voltage	1000V/1500

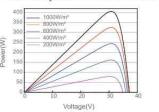
Maximum System Voltage	1000V/1500V DC
Operating Temperature	-40 €~+85 €
Maximum Series Fuse Rating	25A
Maximum Static Load, Front* Maximum Static Load, Back*	5400Pa(112lb/ft²) 2400Pa(50lb/ft²)
NOCT	45±2 C
Safety Class	Class II
Fire Performance	UL Type 1

### CHARACTERISTICS

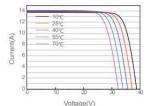
Current-Voltage Curve JAM54S31-405/MR



Power-Voltage Curve JAM54S31-405/MR



Current-Voltage Curve JAM54S31-405/MR



Premium Cells, Premium Modules

Version No.: Global\_EN\_20231130A

7901 ALLEN BLACK RD, MINT HILL, NC 28227, UNITED STATES

REVISIONS									
DESCRIPTION	DATE	REV							
INITIAL DESIGN	02/25/2025								
REVISION	07/21/2025	Α							

PROJECT NAME & ADDRESS

ST, 28339 KATIE HALL RESIDENCE 300 W C S ERWIN, NC 2

> DRAWN BY **ESR**

SHEET NAME **EQUIPMENT SPECIFICATION** 

> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER PV-9



## **Residential Power Optimizer** For North America

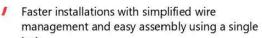
S440 / S500B / S650B



## 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

- Faster installations with simplified wire
- utilization
- / Compatible with bifacial PV modules
- Meets NEC requirements for arc fault protection



- Flexible system design for maximum space
- (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

# / Residential Power Optimizer

## For North America

S440 / S500B / S650B

	S440	S500B	S650B	
INPUT			1	
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	1:	5	Adc
Maximum Input Short Circuit Current <sup>(4)</sup>	"	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	ERTER)	
Maximum Output Current		15		Adc
Maximum Output Voltage	60	8	0	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				
Photovoltaic Rapid Shutdown System	CSA C22.2#330, NEC 2014 – 2023			
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 Saf	ety); UL 1741	
Material		UL 94 V-0, UV Resistant		
RoHS		Yes		
Fire Safety		VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS	7			151
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	5.07 x 6.49 x 1.77	mm/
Weight	720 / 1.6	790 /	1.74	gr / lt
Input Connector		MC4		
Input Wire Length		0.1 / 0.32		m/f
Output Connector		MC4		
Output Wire Length	(+)	2.3, (-) 0.10 / (+) 7.54, (-) 0.3	32	m/f
Operating Temperature Range <sup>(5)</sup>		-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 S440-1GM4MRMP, the Rated Input DC Power is 650W, and the Maximum Input Current is 15A.
- (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 <sup>(6)</sup>		SolarEdge Home Wave/Hub Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	
linimum String Length (Power S440		8	10	18	
Optimizers)	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 <sup>(8)</sup>			
Maximum Allowed Connected Power per String <sup>(5)(5)</sup>	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 Length	ns 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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PROJECT NAME & ADDRESS

ST, 28339

300 W C S ERWIN, NC 2

KATIE HALL 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 lightweight, with reduced commissioning time
- 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 and 690.12
- Advanced reliability with automotive-grade
- Embedded revenue grade production data, ANSI C12.20 Class 0.5
- IP65-rated, for indoor and outdoor installations



## / SolarEdge Home Hub Inverter Single Phase, for North America

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

Model Number <sup>(1)(2)</sup>	SE3800H-US	SE5700H-US	SE7600H-US	SE10000H-US	SE11400H-US	Unit	
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)		. 5	9.3 - 60 - 60.5 <sup>(3)</sup>			Hz	
Maximum Continuous Output Current	16	24	32	42	48	А	
GFDI Threshold	1					Α	
Total Harmonic Distortion (THD)			< 3			%	
Power Factor		1, adji	ustable -0.85 to 0.85				
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			Va	
AC L-N Output Voltage Range in Stand-alone Operation			105 – 132			Va	
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			A	
THD			< 5			%	
OUTPUT – SOLAREDGE HOME EV CHARGER AC							
Rated AC Power			9600			W	
AC Output Voltage Range			211 – 264			Va	
On-Grid AC Frequency Range (min - nom - max)		1	59.3 - 60 - 60.5			Hz	
Maximum Continuous Output Current @240V (grid, PV and battery)			40			Aa	
INPUT – DC (PV AND BATTERY)							
Transformer-less, Ungrounded			Yes				
Max Input Voltage			480			Vd	
Nom DC Input Voltage			380			Vd	
Reverse-Polarity Protection			Yes				
Ground-Fault Isolation Detection		6	i00kΩ 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	Ad	
Maximum Input Current <sup>(7)</sup> @ 208V	17.5	27	-	-	53	Ad	
Maximum Input Short Circuit Current			45	1		Ad	
Maximum Inverter Efficiency			99.2			%	
CEC Weighted Efficiency	98.	.5		99	99 @ 240V 98.5 @ 208V	%	
2-pole Disconnection		Yes					

- (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-USMNFxxx5 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 <u>SolarEdge Inverters, Power Control Options Application Note</u>.
- (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 <u>LRA for NAM Application Note</u>.
- (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.



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PROJECT NAME & ADDRESS

ST, 28339

300 W C S ERWIN, NC 2

KATIE HALL RESIDENCE

DRAWN BY **ESR** 

SHEET NAME **EQUIPMENT SPECIFICATION** 

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

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<sup>\*</sup>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 <sup>(1)(2)</sup>	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 <sup>(8)</sup>	11,400 @ 240V 3800 @ 208V	11,400 @ 240V 5000 @ 208V	11400	@240V	11,400 @ 240V 10,000 @ 208V	W
Peak Power <sup>(8)</sup>	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 inver	ter's rated stand-alo	ne power		
SMART ENERGY CAPABILITIES						
Consumption Metering			Built-in <sup>(9)</sup>			
Stand-alone & Battery Storage	With Backup I	nterface (purchased se	eparately) for service	up to 200A; up to	3 inverters	
EV Charging		Direct connection to	the SolarEdge Hon	ne EV Charger		
ADDITIONAL FEATURES						
Supported Communication Interfaces	RS485, Ethe	RS485, Ethernet, Cellular <sup>(10)</sup> , Wi-Fi (optional), SolarEdge Home Network (optional)				
Revenue Grade Metering, ANSI C12.20		Built-in <sup>(9)</sup>				
Integrated AC, DC and Communication Connection Unit		Yes				
Inverter Commissioning	With the SetApp	With the SetApp mobile application using built-in Wi-Fi Access Point for local connection				
DC Voltage Rapid Shutdown (PV and Battery)	Yes, 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	SI/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 bloc 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	aximum / 14-4 AWG			
DC Input (PV and Battery) Conduit Size / AWG Range		1" ma	aximum / 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	Natural Convection					
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>(11)</sup>					°F/°(
Protection Rating	NEMA 4X					



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300 W C ST, ERWIN, NC 28339 KATIE HALL RESIDENCE

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SHEET NAME EQUIPMENT **SPECIFICATION** 

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SHEET NUMBER



<sup>(8)</sup> 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.

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



# SolarEdge Home **Backup Interface**

## For North America





## **Backup Interface for Flexible Backup**

- Automatically provides backup power to home loads in the event of grid interruption
- Full flexibility in which loads to back up the entire home or selected loads
- Scalable solution to support higher power and higher capacity
- Built-in Auto Transformer that supports 5kW of Phase Imbalance
- Built-in PCS certified\* Energy Meter readies the Backup Interface to be part of the Busbar Current Management\*\*
- Seamless integration with the SolarEdge Home Hub Inverter to manage and monitor both PV generation and energy storage
- Generator connection support



## / SolarEdge Home Backup Interface For North America

BI-E / BI-N

Applicable to Backup Interface with Part Number	BI-xxxxx-02 / B	I-xxxxx-03	
Model	BI-E	BI-N	Units
INPUT FROM GRID		<u> </u>	
AC Current Input	200		A
AC Output Voltage (Nominal)	240		Vac
AC Output Voltage Range	211 – 26	4	Vac
AC Frequency (Nominal)	60		Hz
AC Frequency Range	59.3 - 60	0.5	Hz
Microgrid Interconnection Device Rated Current	200		A
Service Side AC Main Circuit Breaker Rated Current	200	N/A	A
Service Side AC Main Circuit Breaker Interrupt Current	10,000	N/A	A
Grid Disconnection Switchover Time	<100	CONTRACTOR OF THE CONTRACTOR O	ms
OUTPUT TO MAIN DISTRIBUTION PANEL			
Maximum AC Current Output	200		А
AC L-L Output Voltage (Nominal)	240		Vac
AC L-L Output Voltage Range	211 – 26	4	Vac
AC Frequency (Nominal)	60		Hz
AC Frequency Range	59.3 - 60.5		Hz
Maximum Inverters AC Current Output in Backup Operation	144		A
Imbalance Compensation in Backup Operation	5000		W
AC L-N Output Voltage in Backup (Nominal)	120		V
AC L-N Output Voltage Range in Backup	105 – 13	2	V
AC Frequency Range in Backup	55 – 65	5	Hz
INPUT FROM INVERTER			
Number of Inverter Inputs	Up to 3	3	
Maximum Rated AC Power in On-Grid and Backup Operation	11,400		W
Maximum Continuous Current in On-Grid and Backup Operation	48		A
Factory Installed Inverter Input AC Circuit Breaker	40/63"	1	A
Upgradability	Up to 3 x 40A/	63A <sup>p)</sup> CB	
GENERATOR			
Maximum Rated AC Power	22,500		W
Maximum Continuous Input Current	94		Aac
Dry Contact Switch Voltage Rating	250 / 3	0	Vac / Vd
Dry Contact Switch Current Rating	5		A
2-wire Start Switch	Yes		
ADDITIONAL FEATURES			
Installation Type	Suitable for use as service equipment	For main lug only	
Number of Communication Inputs	2		
Communication	RS485	Ž	
PCS Certified Energy Meter (for Import/Export) in	1% accura		
Manual Control Over Microgrid Interconnection Device	Yes		

(1) Backup Interface with part number BI-xxxxx-03 includes one 63A circuit breaker. Backup Interface with part number BI-xxxxx-02 includes one 40A circuit breaker.



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ST, 28339 300 W C S ERWIN, NC 2

DRAWN BY ESR

SHEET NAME **EQUIPMENT SPECIFICATION** 

> SHEET SIZE ANSI B

11" X 17" SHEET NUMBER

<sup>\*</sup> Only applicable to Backup Interface with part number BI-xxxxx-03. Backup Interface with part number BI-xxxxx-02 includes a built-in Auto Transformer and Energy Meter that is NOT PCS certified.

<sup>\*\*</sup> Only applicable to Backup Interface with part number BI-xxxx-03.

<sup>(2) 63</sup>A circuit breaker supports up to one 11.4kW inverter, and 40A circuit breaker supports up to one 7.6kW inverter. 20A, 30A, and 50A breakers can be used for inverters with lower power ratings (On-Grid and Backup Operation). The circuit breaker kits are available with the following part numbers:

<sup>•</sup> For 40Å, CB-UPG-40-01

(3) Backup Interface with part number BI-xxxx-02 includes an Energy Meter that is NOT PCS certified.



# / SolarEdge Home Backup Interface For North America BI-E/BI-N

Applicable to Backup Interface with Part Number	BI-xxxxx-02	/BI-xxxxx-03	
Model	BI-E	BI-N	Units
STANDARD COMPLIANCE		<del>"</del>	-
C-E	UL1741; CSA	A 22.2 NO. 107	
Safety	UL869A	N/A	
Emissions	FCC Par	t 15 Class B	
INSTALLATION SPECIFICATIONS			
Supported Inverters	StorEdge Single Phase Inverter; SolarEdge Home Hub Inverter		
AC from Grid Conduit Size / AWG Range	2" conduit ,	/ 4 – 4/0 AWG	
AC to Loads Conduit Size / AWG Range	2" conduit / 4 - 4/0 AWG		
AC Inverter Conduit Size / AWG Range	1" conduit / 14 – 4 AWG		
AC Generator Input Conduit Size / AWG Range	1" conduit / 8 – 3 AWG		
Communication Conduit Size / AWG Range	3/4" conduit	/ 24 – 10 AWG	
Weight	73	1 / 33	lb/kg
Cooling	Fan (user	replaceable)	
Noise	< 50		dBA
Operating Temperature Range	(-) 40 to (+) 122 / (-) 40 to (+) 50		
Protection Rating	NEMA 3R; IP44		
Dimensions (H x W x D)	20.59 x 13.88 x 8.62	2 / 523.5 x 352.5 x 219	in / mm



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**ESR** 

SHEET NAME
EQUIPMENT **SPECIFICATION** 

> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER

# SolarEdge Energy Bank 10kWh Battery

For North America



## Optimized for SolarEdge Energy Hub Inverters(1)

- Maximized system performance, gaining more energy to store and use for on-grid and backup power applications
- Integrates with the complete SolarEdge residential offering, providing a single point of contact for warranty, support, training, and simplified logistics & operations
- DC coupled battery featuring superior overall system efficiency, from PV to battery to grid
- Scalable solution for increased power and capacity with multiple SolarEdge inverters and batteries
- \* Backup application are subject to local regulation and may require additional components and firmware upgrade

- Solar, storage, EV charging, and smart devices all monitored and managed by a single app to optimize solar production, consumption and backup\* power
- Wireless communication to the inverter, reducing wiring, labor and installation faults
- / Simple plug and play installation, with automatic SetApp-based configuration
- Includes multiple safety features for battery protection



## / SolarEdge Energy Bank 10kWh Battery

For North America

	BAT-10K1P <sup>(2)</sup>	
BATTERY SPECIFICATION		
Usable Energy (100% depth of discharge)	9700	Wh
Continuous Output Power	5000	W
Peak Output Power (for 10 seconds)	7500	W
Peak Roundtrip Efficiency	>94.5	%
Warranty <sup>m</sup>	10	Years
Voltage Range	350-450	Vdc
Communication Interfaces	Wireless*	
Batteries per Inverter	Up to 3 <sup>(4)</sup>	
STANDARD COMPLIANCE		2
Safety	UL1642, UL1973, UL9540, UN38.3	
Emissions	FCC Part 15 Class B	
MECHANICAL SPECIFICATIONS		
Dimensions (W x H x D)	31.1 x 46.4 x 9.84 / 790 x 1179 x 250	in / mn
Weight	267 / 121	lb/kg
Mounting <sup>(5)</sup>	Floor or wall mount <sup>®</sup>	
Operating Temperature <sup>(7)</sup>	+14 to +122 / -10 to +50	°F/°C
Storage Temperature (more than 3 months)	+14 to +86 / -10 to +30	°F/°C
Storage Temperature (less than 3 months)	-22 to + 140 / -30 to +60	°F/°C
Altitude	6562 / 2000	ft/m
Enclosure Protection	IP55 / NEMA 3R - indoor and outdoor (water and dust protection)	
Cooling	Natural convection	
Noise (at 1m distance)	<25	dBA

<sup>\*</sup> The SolarEdge Energy Bank is designed for use with SolarEdge Energy Net for wireless communication. The inverter might require a matching SolarEdge Energy Net Plug-in (more details below), Using RS485 could reduce the usable energy to 9500Wh.

(f) Please refer to the SolarEdge Energy Bank battery connections and configuration application note for compatible inverters

Accessory	PN
Floor stand	IAC-RBAT-FLRSTD-01
Branch connectors set (includes a pair of DC + and DC - connectors) Required for installations with multiple SolarEdge Energy Bank batteries with a single inverter	IAC-RBAT-USYCBL-01
Handles	IAC-RBAT-HANDLE-01
SolarEdge Energy Net Plug-in	ENET-HBNP-01
Battery inverter extension cable 2m long (MC4 to terminal block)	IAC-RBAT-10M420-01



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REVISIONS				
DESCRIPTION	DATE	REV		
INITIAL DESIGN	02/25/2025			
REVISION	07/21/2025	Α		

PROJECT NAME & ADDRESS

ST, 28339

300 W C S ERWIN, NC 2

KATIE HALL RESIDENCE

DRAWN BY **ESR** 

SHEET NAME **EQUIPMENT SPECIFICATION** 

> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER PV-15

<sup>(2)</sup> These specifications apply to part number BAT-10KIPSOB-01

<sup>(3)</sup> For warrarty details please refer to the SolarEdge Energy Bank battery Limited Warranty.

(4) Installations with multiple SolarEdge Energy Bank batteries connected to a single inverter require a pair of branch connectors (DC + and DC -) per battery excluding the last battery. Support for 3 batteries is pending supporting inverter firmware. The branch connectors should be purchased separately.

(5) Installation and mounting requires handles that should be purchased separately. Please refer to the Accessories' PN table below.

<sup>(6)</sup> The floor stand is purchased separately. One floor stand is required per SolarEdge Energy Bank battery. Please refer to the Accessories' PN table below

<sup>(7)</sup> Please note that operating the SolarEdge Energy Bank at extreme temperatures for extended durations of time may void the Energy Bank's warranty coverage. Please see the Energy Bank Limited Product Warranty for additional details.



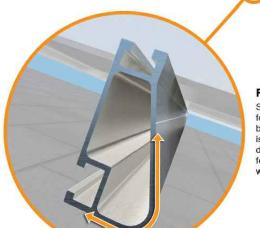
## XR Rail® Family

## 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.

## XR Rail<sup>®</sup> 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 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)	41	5' 4"	6'	8'	10'	12'
	90						
Nama	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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> SHEET SIZE ANSI B

11" X 17"

SHEET NUMBER PV-16





compatible with FlashFoot® and other pitched roof

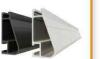
Compatible with Flat & Pitched Roofs



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.





## UFO® Family of Components

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.

## 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

## BOSS® Splice Bonded Structural Splice

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

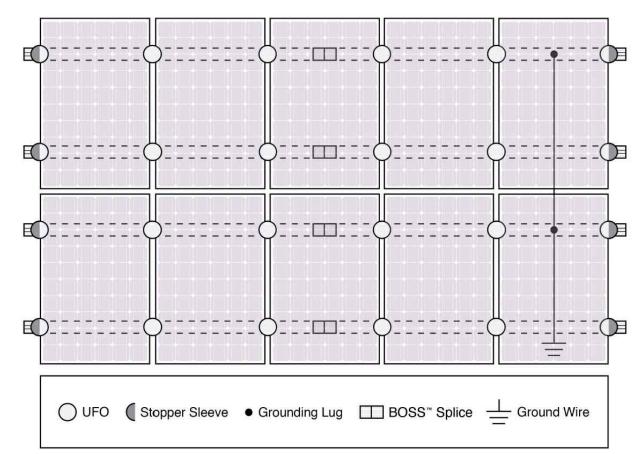


### **Grounding Lug** A single Grounding Lug connects an entire row of PV modules to the grounding conductor.

**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	~	<b>~</b>	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		ated with over 400 llation manuals fo	Framed Modules r a detailed list.



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PROJECT NAME & ADDRESS

KATIE HALL RESIDENCE

ST, 28339 300 W C S ERWIN, NC 2

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SHEET NAME **EQUIPMENT SPECIFICATION** 

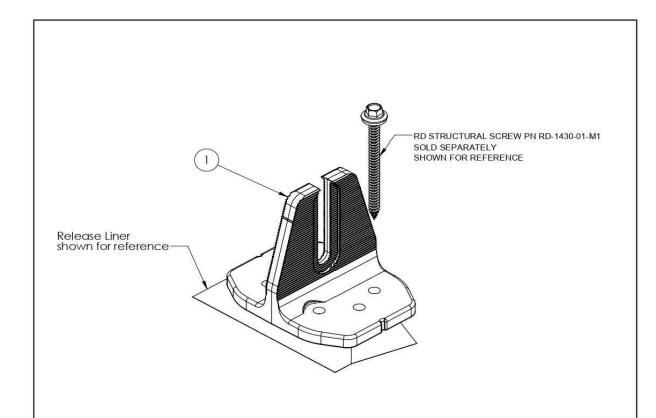
SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



## QuickMount® Halo UltraGrip



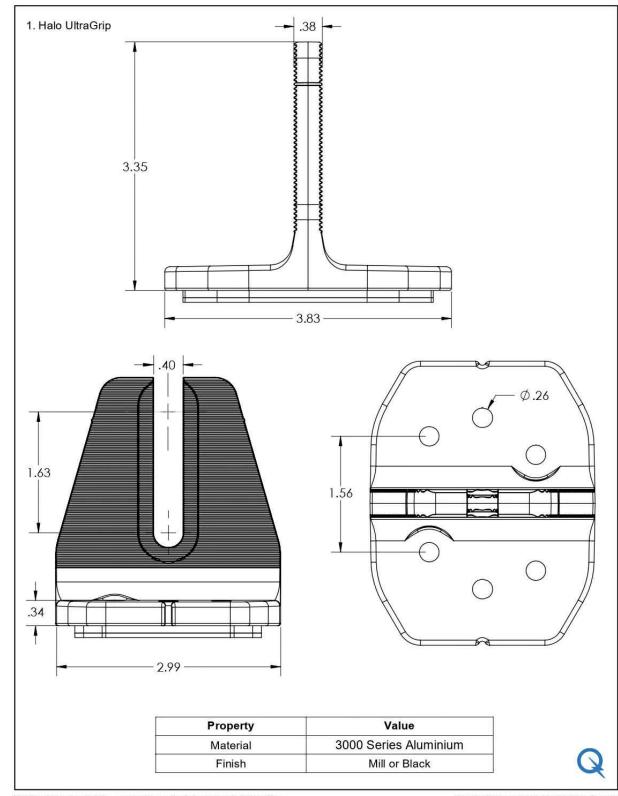
ITEM NO	DESCRIPTION	QTY IN KIT
1	QM Halo UltraGrip(Mill or Black)	1

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



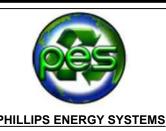
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QM-HUG-01-B1 or QM-HUG-01-M1 Cut Sheet Rev 1.0



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SHEET NAME EQUIPMENT SPECIFICATION

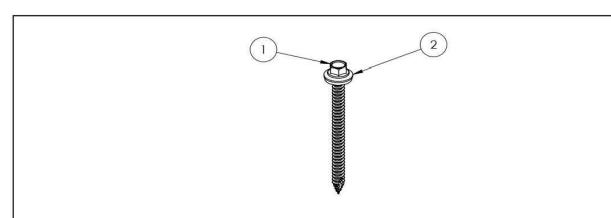
> SHEET SIZE ANSI B

11" X 17"
SHEET NUMBER





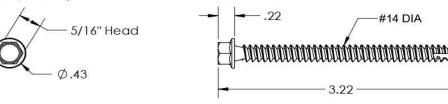
## QuickMount® RD Structural Screw



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

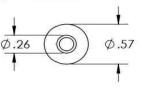
PART NUMBER	DESCRIPTION
RD-1430-01-M1	RD Structural Screw

1. Self Drilling Screw, #14, Wood Tip



Property	Value	
Material	300 Series Stainless Steel	
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



### PHILLIPS ENERGY SYSTEMS

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PROJECT NAME & ADDRESS

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RESIDENCE
300 W C ST,
ERWIN, NC 28339

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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.

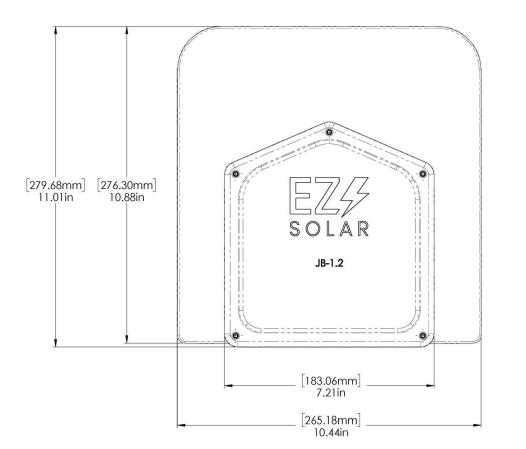
JB-1.2

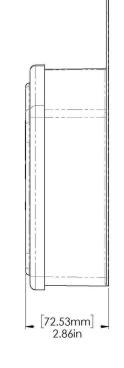
WEIGHT: 1.45 LBS

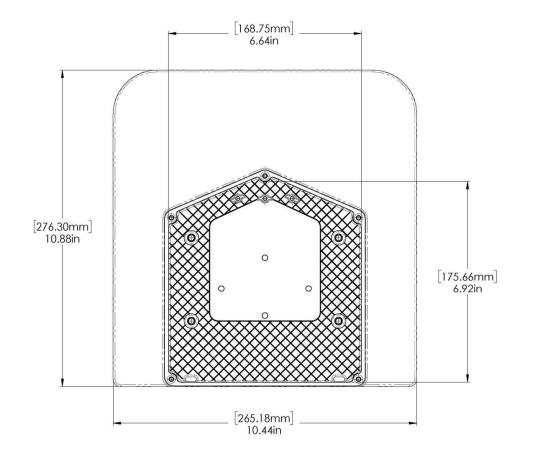
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	JB-1.2 BODY	POLYCARBONATE WITH UV INHIBITORS	1
2	JB-1.2 LID	POLYCARBONATE WITH UV INHIBITORS	1
3	#10 X 1-1/4" PHILLIPS PAN HEAD SCREW		6
4	#8 X 3/4" PHILLIPS PAN HEAD SCREW		6

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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SHEET NUMBER PV-20

