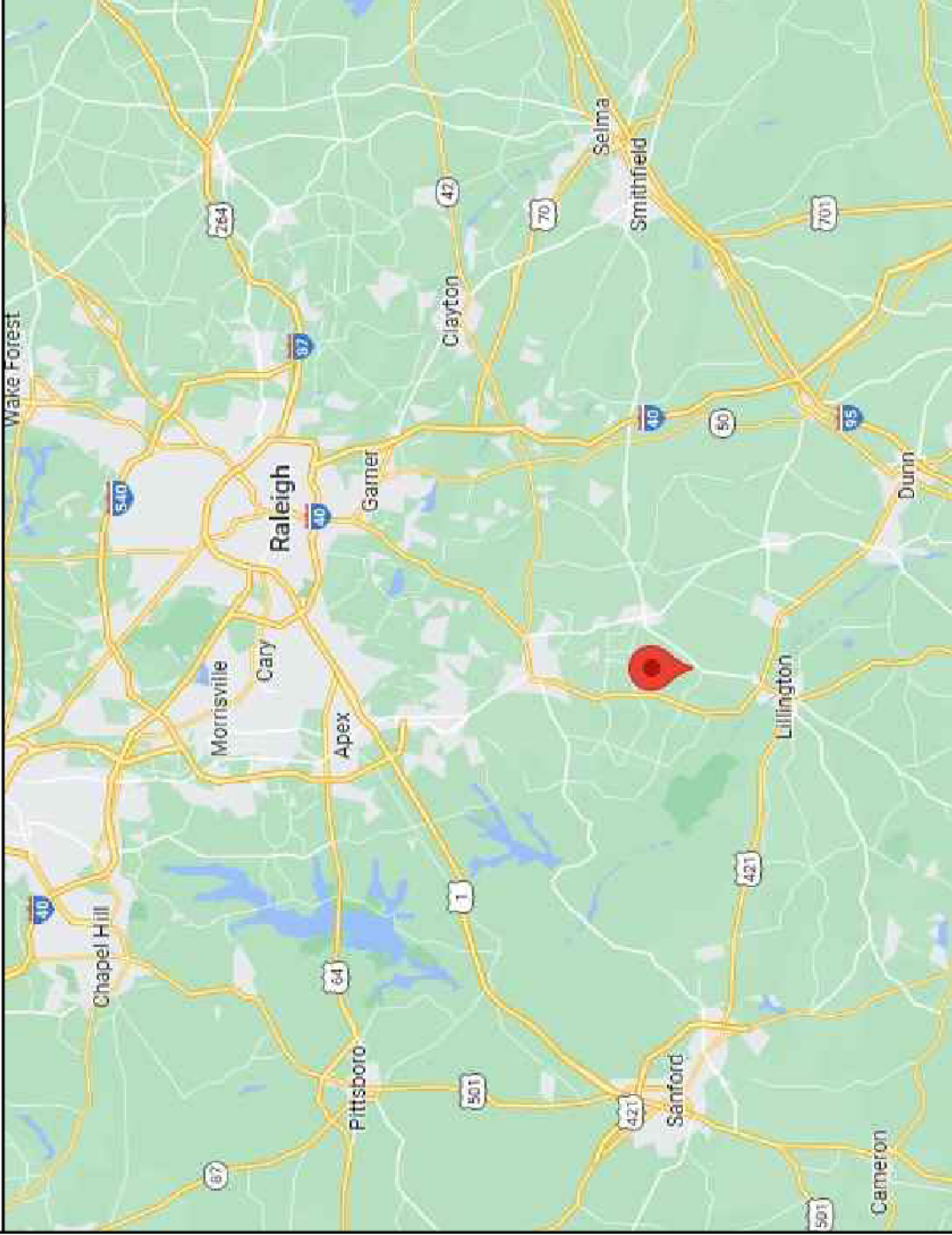


VICINITY MAP



PROPERTY MAP



ENGINEER:



MODEL ENERGY
 300 FAYETTEVILLE ST.
 #11430
 RALEIGH, NC 27602
 919-274-9905
 MODELENERGY.COM
 P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
 12,400 kW DC INPUT
 10,000 kW AC EXPORT

Jimmy Barcia
 234 Chedworth Dr,
 Angier, NC 27501

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CLIENT:

READY SOLAR

ISSUED FOR: DATE:

CONSTRUCTION 2/23/2023

REVISION 03/28/2023

PROJECT INFORMATION

PV1.1

SCOPE OF WORK

- (31) URECO FBM400MFG-BB
- (31) SOLAREDDGE S440
- (1) SEI0000H-USNBBL
- (1) LG CHEM RESUI0H PRIME
- ROOF MOUNT: IRONRIDGE FLASHFOOT 2
- MOUNTING RAILS: IRONRIDGE XR10

INTERCONNECTIONS TYPE

SUPPLY SIDE TAP

LEGEND

- DISCONNECT SWITCH
- FUSE
- CIRCUIT BREAKER
- EQUIP. GROUND

SITE CONDITION

- ASCE 7-10 WIND SPEED - 117 MPH
- EXPOSURE CATEGORY - B
- RISK CATEGORY - II
- SNOW LOAD - 15 LBS/SQFT

CODE REFERENCES

- 2017 NATIONAL ELECTRIC CODE
- 2018 NORTH CAROLINA FIRE CODE
- 2018 NORTH CAROLINA BUILDING CODE
- 2018 NORTH CAROLINA RESIDENTIAL CODE

SHEET INDEX

- PV1.1 PROJECT INFORMATION
- PV2.1 SITE INFORMATION
- PV3.1 STRUCTURAL INFORMATION
- PV4.1 - 4.2 ELECTRICAL INFORMATION
- PV5.1 - 5.7 LABELS, DETAILS & SPECS

UTILITY COMPANY

DUKE ENERGY

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.

#11430

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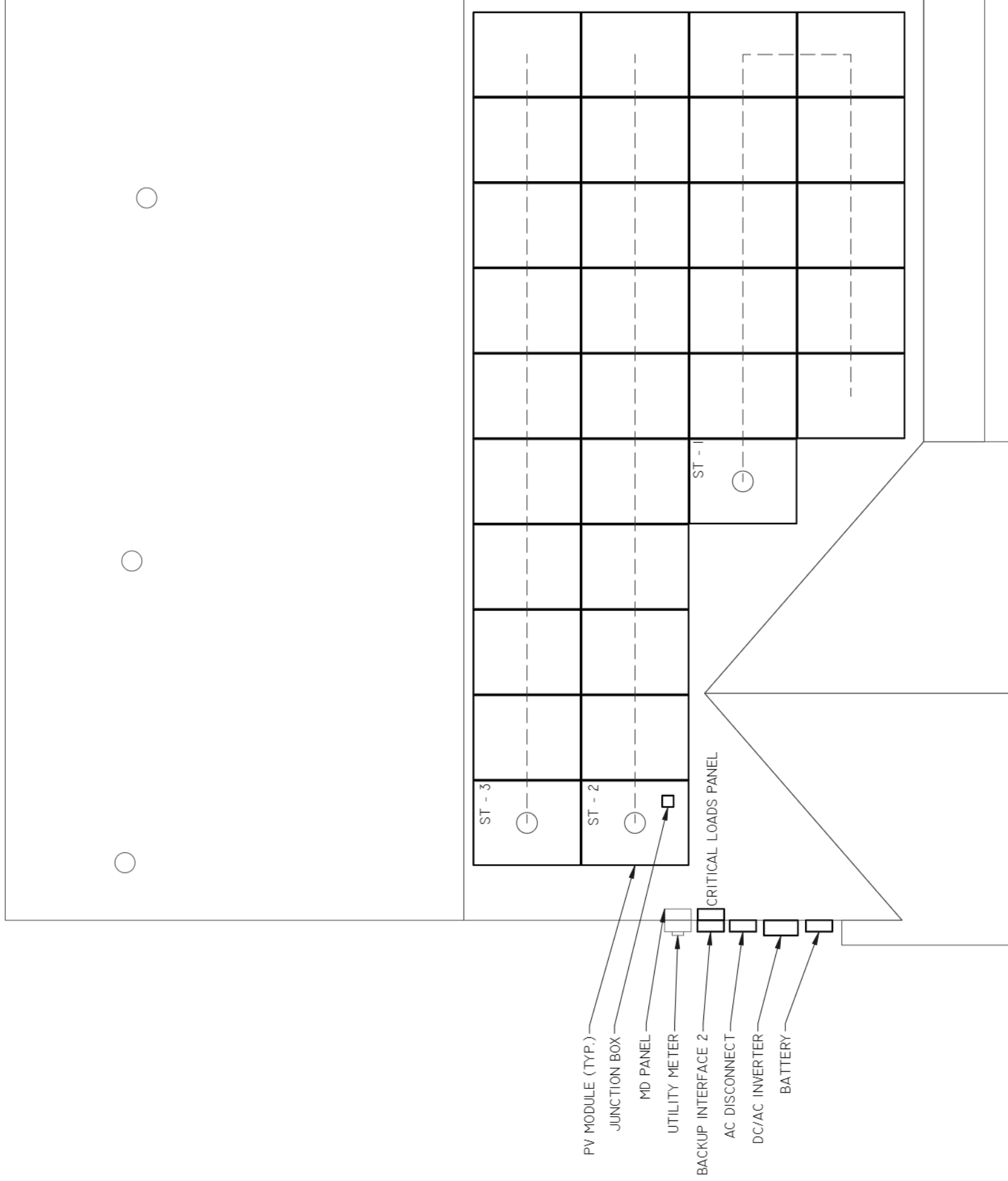
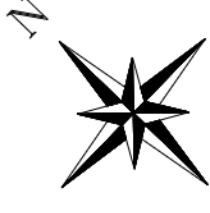
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REVISION 03/28/2023

SITE INFORMATION

PV2.1




1 SITE PLAN
SCALE: 3/16" = 1' - 0"

NOTE: PROVIDE ADDITIONAL JUNCTION BOXED AS REQUIRED TO COMBINE MODULES ON DIFFERENT ARRAYS INTO A SINGLE STRING

ENGINEER:

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

SIGNED: 
 NAME: ANDREW W. KING, PE
 TITLE: PROFESSIONAL ENGINEER

ARRAY SUMMARY	
# MODULES	31
# ROOF MOUNTS	49
RAIL LENGTH	238 FT.
ARRAY AREA	651 SQFT.
ARRAY WEIGHT	1781 LBS.
AZIMUTH @ SN	138°
TILT ANGLE	34°

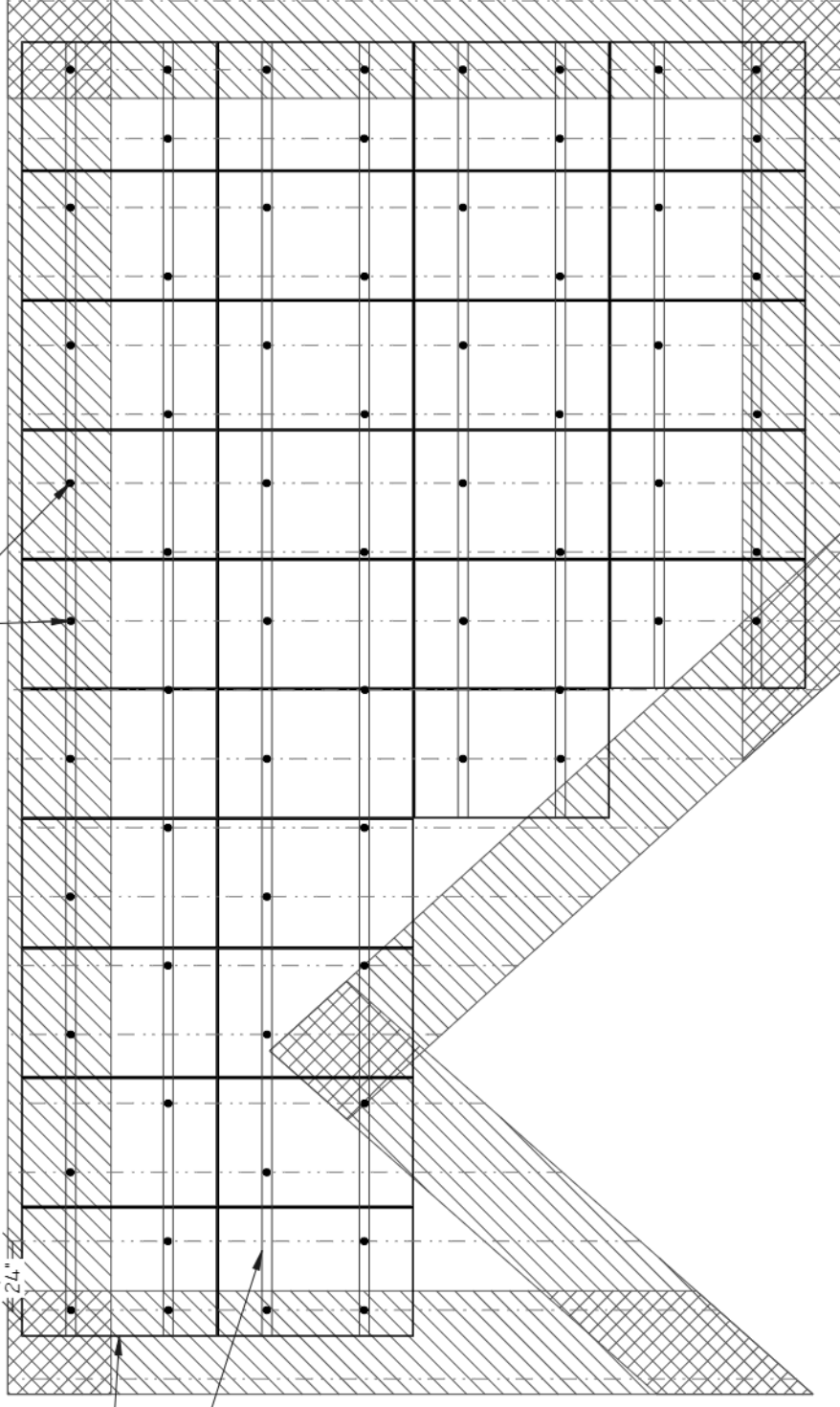
MOUNTING RAILS	
MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINIUM
WEIGHT	1.25 LBS./SQFT
SPACING	34"

ROOF ZONES:	
ALL ZONES	MAX. RAIL OVERHANG = 16"
☐ ZONE 1	MAX. FASTENER SPAN ZONE 1 = 48"
▨ ZONE 2	MAX. FASTENER SPAN ZONE 2 = 48"
▩ ZONE 3	MAX. FASTENER SPAN ZONE 3 = 24"

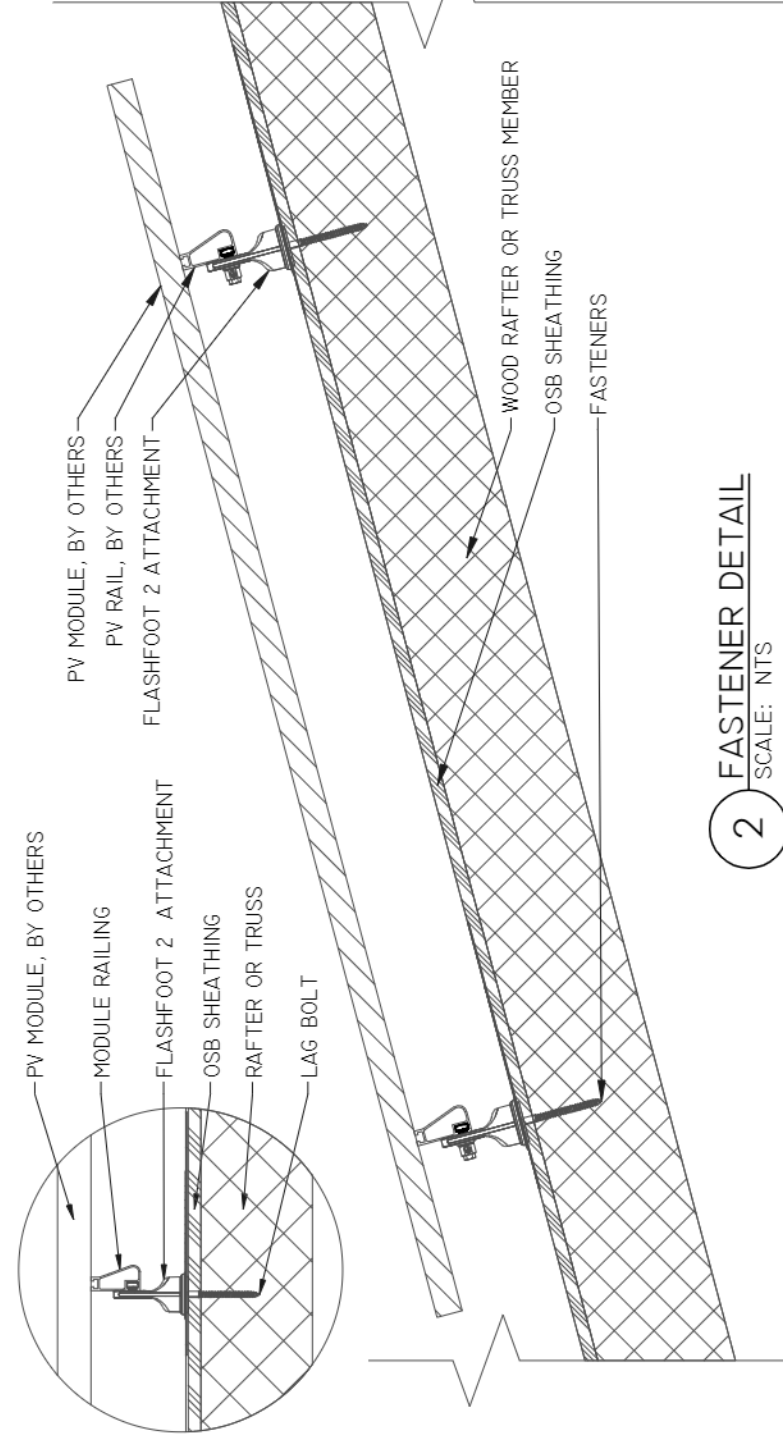
PV MODULES	
MAKE	URECO
MODEL	FBM4.00MFG-BB
WIDTH	44.6"
LENGTH	67.8"
THICKNESS	1.4"
WEIGHT	4.8 LBS

ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	IRONRIDGE
MODEL	FLASHFOOT2
MATERIAL	ALUMINIUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16" X 4"
GENERAL WEIGHT	1 LBS
FASTENERS PER MOUNT	1 PER MOUNT
MAX. PULL-OUT FORCE	800 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	400 LBS.

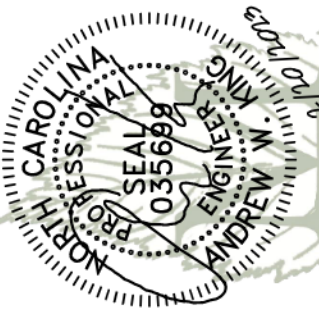
- LAG BOLT EMBEDDED WITH 2.5" OF THREAD IN WOOD RAFTER OR TRUSSES MEMBER



1 ROOF PLANAR VIEW
 SCALE: 3/16" = 1'-0"



2 FASTENER DETAIL
 SCALE: NTS



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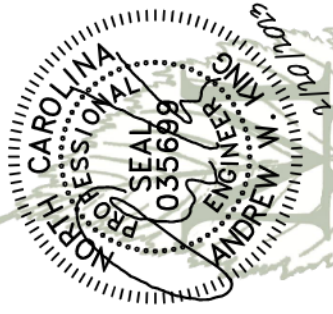
CLIENT:
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STRUCTURAL INFORMATION

PV3.1

ENGINEER:



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ELECTRICAL
 INFORMATION

PV4.1

CONDUCTOR SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	LOCATION	
C1	2	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	BARE WIRE	-	-	-	FREE AIR	1
C2	6	10 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	3/4"	FMC/EMT/MC	EXT/INT	2,4
C3	2	10 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	1/2"	NOTE 5	EXTERIOR	2,4,5
C4	3	6 AWG	COPPER	THWN	1	8 AWG	COPPER	THWN	1	3/4"	NOTE 5	EXTERIOR	2,4,5
C5	3	3 AWG	COPPER	THWN	1	6 AWG	COPPER	THWN	1	1/4"	NOTE 5	EXT/INT	2,4,5
C6	3	3 AWG	COPPER	THWN	-	-	-	-	1	1/4"	NOTE 5	EXT/INT	2,4,5,6
XC	-	-	-	-	-	-	-	-	-	-	-	-	3

NOTES:

- MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
- CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
- EXISTING CONDUCTORS, FIELD VERIFY
- EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
- PVC, EMT, ROMEX, LFMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE WITH ARTICLES 330, 334, 348, 350, 352, 356, & 358 OF THE 2017 NEC
- SERVICE CONDUCTORS SHALL NOT TRAVEL MORE THAN 5' INSIDE OF THE BUILDING AND MORE THAN 10' IN TOTAL.

JUNCTION BOX

MAKE	SOLADECK
MODEL	0799-5B
PRO. RATING	NEMA 3R
VOLT. RATING	1000 VOLTS
AMP RATING (DC)	180 AMPS
UL LISTING	UL 50

NOTES:

- PROVIDE ADDITIONAL JUNCTION BOXED AS REQUIRED TO COMBINE MODULES ON DIFFERENT ARRAYS INTO A SINGLE STRING

AC DISCONNECT

MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	100 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

NOTES:

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES

MD PANEL (EXISTING)

MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	200 AMPS

DC/AC INVERTER

MAKE	SOLAREDGE
MODEL	SE10000H-US
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	15500 WATTS
MAX. VOLT.	480 VOLTS
NOM. VOLT.	400 VOLTS
MAX. CURRENT	27 AMPS
MAX. SCC	4.5 AMPS
STRINGS INPUTS	3 STRINGS
AC OUTPUT:	
RATED POWER	10000 WATTS
MAX. POWER	10000 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	4.2 AMPS
GFP (Y/N)	YES
RPP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	AUTOMATIC
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 4X

NOTES:

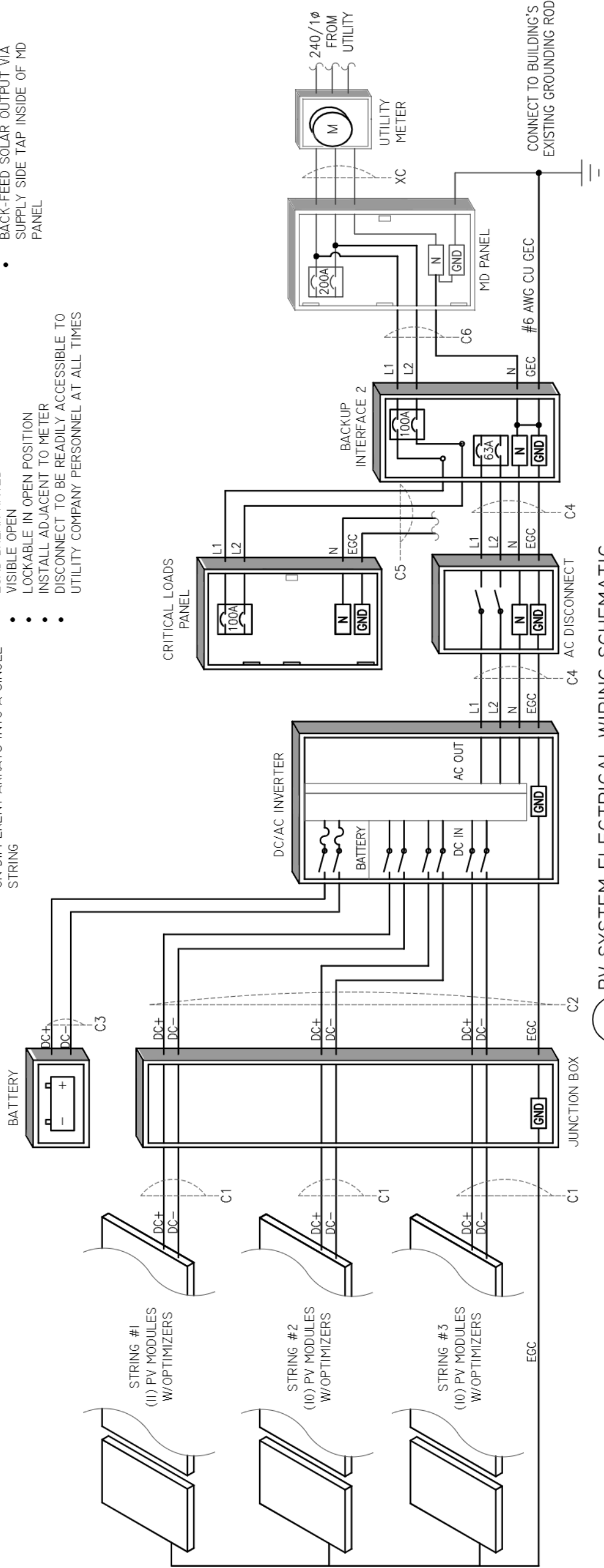
- WITH PRISM TECHNOLOGY.
- USE MODEL SE10000H-USNBBL

PV MODULES

MAKE	URECO
MODEL	FBM4.00MFG-BB
TECHNOLOGY	MONO-CRYST.
NOM. POWER (PNOM)	400 WATTS
NOM. VOLT. (VMP)	31.17 VOLTS
O.C. VOLT. (Voc)	37.20 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (VTC)	-0.27 %/°C
NOM. CURR. (IMP)	12.84 AMPS
S.C. CURR. (ISC)	13.68 AMPS
MAX. SERIES FUSE	30 AMPS

MODULE OPTIMIZER

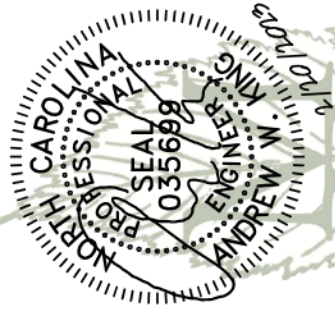
MAKE	SOLAREDGE
MODEL	S440
DC INPUT:	
RATED POWER	440 WATTS
VOLT. RANGE	8-60
MAX. SCC	14.5 AMPS
DC OUTPUT:	
MAX. CURRENT	15 AMPS
MAX. VOLT.	60 VOLTS
MAX. SYSTEM VOLT.	1000 VOLTS
MIN. STRING	8 OPTIMIZERS
MAX. STRING	25 OPTIMIZERS
MAX. POWER	5700 WATTS



1 PV SYSTEM ELECTRICAL WIRING SCHEMATIC

SCALE: NTS

ENGINEER:



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REVISION 03/28/2023

ELECTRICAL
INFORMATION

PV4.2

CRITICAL LOADS PANEL (EXISTING)	
MAKE	N/A
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	100 AMPS

BACKUP INTERFACE 2	
MAKE	SOLAR EDGE
MODEL	BACKUP INTERFACE 2
AC VOLTAGE	240 VOLTS
MAX. AC CURR.	200 AMPS
BACK UP MODE:	
AC VOLTAGE	24.0 VOLTS
INVERTER MAX. AC CURR.	78 AMPS
INVERTER INPUT:	
# INVERTER INPUTS	3
RATED AC POWER	114,000 WATTS
INVERTER MAX. AC CURR.	32 AMPS I
PROTECT. RATING	NEMA 3R
MAIN BREAKER (Y/N)	YES
BREAKER RATING	100 AMPS

NOTES:

- USE MODEL NUMBER BI-EUSGN-02
- (I) PROVIDE 63AMP CIRCUIT BREAKER PN: CB-UPG-63-0I FOR 10KW INVERTER SUPPORT
- BACKFEED SOLAR OUTPUT VIA 63AMP BREAKER
- PROVIDE N/G BONDING JUMPER

BATTERY	
MAKE	LG CHEM
MODEL	RESU10H PRIME
TOTAL ENERGY	10.0 KWH
USEABLE ENERGY	9.6 KWH
VOLTAGE RANGE	350-450 V
CONT. CHARGING CURRENT	14.3 A
CONT. DISCHARGE CURRENT	14.3 A
PEAK DISCHARGE CURRENT 10 SEC.	20 A
MAX PARALLEL # BATTERIES	2

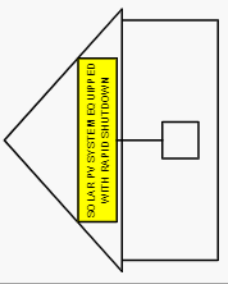
NOTES:

- QUANTITY: (1)

EQUIPMENT LABELS

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



NEC 690.56 (C)(1)(4)
PLACE WITHIN 3FT. OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILING, OR FLOORS.

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

PV SYSTEM DISCONNECT

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING
DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 705.12 (B)(2)(5)(6)
PLACE ADJACENT TO BACK-FED BREAKER

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE
MAXIMUM VOLTAGE 600 VDC
MAX CIR. CURRENT 45 AMPS

NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLT. 240 VAC
MAXIMUM OPERATING AC OUTPUT CURRENT 100 AMPS

NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

CONSTRUCTION NOTES

1. ALL WORK AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS
3. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS
4. THE PHOTOVOLTAIC SYSTEM SHALL NOT EXCEED 600 VOLTS OR 800 AMPS
5. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED
6. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE
7. IN ONE- AND TWO-FAMILY DWELLINGS, LIVE PARTS IN PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OVER 150 VOLTS TO GROUND, SHALL ONLY BE ACCESSIBLE TO QUALIFIED PERSONS WHILE ENERGIZED.
8. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
9. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT
10. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT
11. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED BY THE INSTALLER AT THE DC DISCONNECT MEANS
12. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
13. A PERMANENT PLAQUE OR DIRECTORY SHALL BE PROVIDED DENOTING THE LOCATIONS OF THE SERVICE DISCONNECT MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECT MEANS IF THEY ARE NOT LOCATED AT THE SAME LOCATION.
14. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)



FBM_MFG-BB / 108 cells
390W - 405 W
Mono-Crystalline PV Module


URE Peach module uses URE state-of-the-art cell cutting technology, and advanced module manufacturing experiences.



Key Features

 **Positive power tolerance**
+0 ~ +5 watt

 **Withstand heavy loading**
front load 5400 Pa & rear load 2400 Pa

 **Excellent low light performance**
3.5% relative eff. Reduction at low (200W/m²)

 **100% EL inline inspection**
Better module reliability

 **Design for 1000 VDC**
Reduce the system BOS effectively



Electrical Data

Model - STC	FBM390MFG-BB	FBM395MFG-BB	FBM400MFG-BB	FBM405MFG-BB
Maximum Rating Power (Pmax)	390	395	400	405
Module Efficiency	19.98	20.23	20.49	20.75
Open Circuit Voltage (Voc)	36.84	37.03	37.20	37.36
Maximum Power Voltage	30.82	31.00	31.17	31.36
Short Circuit Current (Isc)	13.50	13.59	13.68	13.78
Maximum Power Current	12.66	12.75	12.84	12.92

*Standard Test Condition (STC): Cell Temperature 25 °C, Irradiance 1000 W/m², AM 1.5
*Values without tolerance are typical numbers. Measurement tolerance: ± 3%

Mechanical Data

Item	Specification
Dimensions	1723 mm (L) ¹ x 1133 mm (W) ¹ x 35 mm (D) ² / 67.83" (L) ¹ x 44.61" (W) ¹ x 1.38" (D) ²
Weight	21.7 kg / 47.84 lbs
Solar Cell	12x9 pieces monocrystalline solar cells series strings
Front Glass	White toughened safety glass, 3.2mm thickness
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Frame	Black anodized aluminum profile
Junction Box	IP≥ 68, 3 diodes
Cable & Connector	Potrait : 500 mm (cable length can be customized), 1 x 4 mm ² compatible with MC4
Package Configuration	31 pcs Per Pallet, 806 pcs per 40' HQ container

1 : With assembly tolerance of ± 2 mm (± 0.08")
2 : With assembly tolerance of ± 0.8 mm (± 0.03")

Operating Conditions

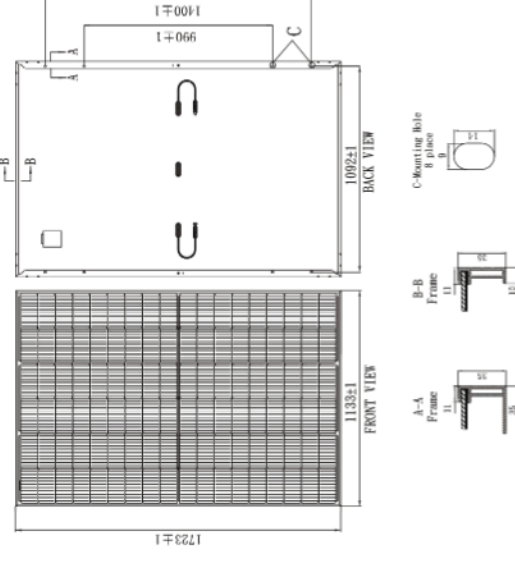
Item	Specification
Mechanical Load	5400 Pa
Maximum System Voltage	1000V
Series Fuse Rating	30 A
Operating Temperature	-40 to 85 °C

Temperature Characteristics

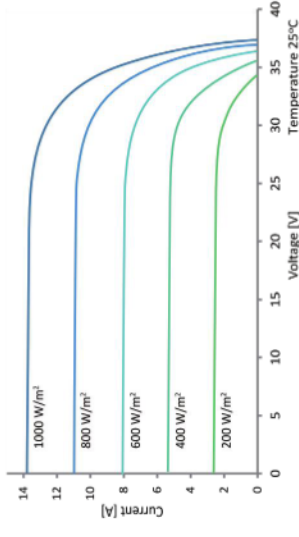
Item	Specification
Nominal Module Operating Temperature	45°C ± 2°C
Temperature Coefficient of Isc	0.048 % / °C
Temperature Coefficient of Voc	-0.27 % / °C
Temperature Coefficient of Pmax	-0.32 % / °C

*Nominal module operating temperature (NMOT): Air mass AM 1.5, Irradiance 800W/m², temperature 20°C, windspeed 1 m/s.
*Reduction in efficiency from 1000W/m² to 200W/m² at 25°C: 3.5 ± 2%.

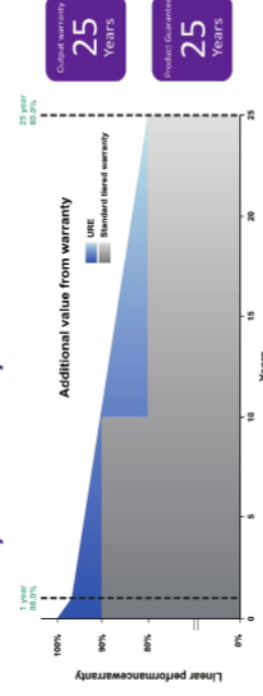
Engineering Drawing (mm)



Dependence on Irradiance



Reliability with Warranty



ENGINEER:



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CONSTRUCTION 2/23/2023

REVISION 03/28/2023

LABELS,
DETAILS & SPECS

PV5.1

For more information, please visit us at www.urecorp.com

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Power Optimizer For Residential Installations

S440, S500



POWER OPTIMIZER

Enabling 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 cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

solaredge.com



Power Optimizer For Residential Installations S440, S500

	S440	S500	UNIT
Rated Input DC Power ⁽¹⁾	440	500	W
Absolute Maximum Input Voltage (Voc)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short-Circuit Current (Isc) of Connected PV Module	14.5	15	Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		

OUTPUT DURING OPERATION

Maximum Output Current	15	Adc
Maximum Output Voltage	60	Vdc

OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)

Safety Output Voltage per Power Optimizer	1	Vdc
---	---	-----

STANDARD COMPLIANCE

EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011
Safety	IEC62109-1 (Class II safety), UL1741
Material	UL94 V-0, UV Resistant
RoHS	Yes
Fire Safety	VDE-AR-E 2100-712:2013-05

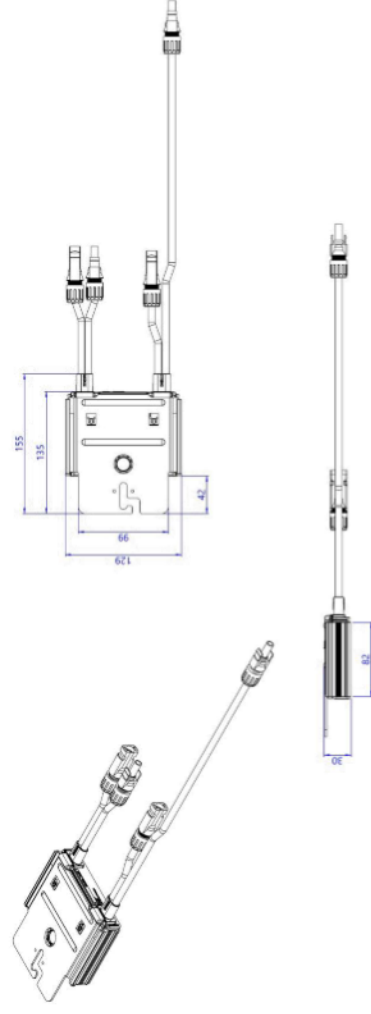
INSTALLATION SPECIFICATIONS

Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	129 x 155 x 30	mm
Weight (including cables)	655 / 1.5	gr / lb
Input Connector	MC4 ⁽²⁾	
Input Wire Length	0.1	m
Output Connector	MC4	
Output Wire Length	(+)2.3, (-) 0.10	m
Operating Temperature Range ⁽³⁾	-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 other connector types please contact SolarEdge.
 (3) For ambient temperature above +70°C / +158°F power derating is applied. Refer to Power Optimizers Temperature Derating Technical Note for more details.

	Single Phase HD-Wave	Three Phase	Three Phase 277/480V Grid
Minimum String Length (Power Optimizers)	8	16	18
Maximum String Length (Power Optimizers)	25	50	50
Maximum Nominal Power per String ⁽⁴⁾	5700	11250 ⁽⁵⁾	12750 ⁽⁶⁾
Parallel Strings of Different Lengths or Orientations	Yes		

(4) If the inverters rated AC power \pm maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: <https://www.solaredge.com/sites/default/files/pe-power-optimizer-single-string-design-application-note.pdf>
 (5) For the 250/400V grid it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W
 (6) For the 277/480V grid it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W
 (7) It is not allowed to mix S-series and P-series Power Optimizers in new installations.



ENGINEER:



MODELENERGY
 300 FAYETTEVILLE ST.
 #11430
 RALEIGH, NC 27602
 919-274-9905
 MODELENERGY.COM
 P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
 12.400 kW DC INPUT
 10.000 kW AC EXPORT

Jimmy Barcia
 234 Chedworth Dr,
 Angier, NC 27501

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EQUIPMENT
 SPEC SHEETS

PV5.2



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Single Phase Energy Hub Inverter with Prism Technology

For North America

SE3000H-US / SE3800H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US⁽¹⁾

SE3000H-US	SE3800H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	UNITS
------------	------------	------------	------------	-------------	-------------	-------

OUTPUT - AC ON GRID

Rated AC Power	3000	3800 @ 240V 3300 @ 208V	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	W
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	W
AC Frequency Range (min - nom - max)			59.3 - 60 - 60.5 ⁽²⁾				Hz
Maximum Continuous Output Current @ 240V	12.5	16	25	32	42	47.5	A
Maximum Continuous Output Current @ 208V	-	16	24	-	-	48.5	A
GFDI Threshold			1				A
Total Harmonic Distortion (THD)			<3				%
Power Factor			1, adjustable -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 BACKUP⁽³⁾

Rated AC Power in Backup Operation ⁽⁴⁾	3000	3800 7600*	6000	7600 10300*	10000	10300	W
AC L-L Output Voltage Range in Backup			211 - 264				Vac
AC L-N Output Voltage Range in Backup			105 - 132				Vac
AC Frequency Range in Backup (min - nom - max)			55 - 60 - 65				Hz
Maximum Continuous Output Current in Backup Operation	12.5	16 32*	25	32 43*	42	43	A
GFDI			1				A
THD			<5				%

OUTPUT - SMART EV CHARGER AC

Rated AC Power		9600					W
AC Output Voltage Range		211 - 264					Vac
On-Grid AC Frequency Range (min - nom - max)		59.3 - 60 - 60.5					Hz
Maximum Continuous Output Current @240V (grid, PV and battery)		40					Aac
Transformer-less, Ungrounded		Yes					Vdc
Max Input Voltage		480					Vdc
Norm DC Input Voltage		380					Vdc
Reverse-Polarity Protection		Yes					
Ground-Fault Isolation Detection		600kΩ Sensitivity					

INPUT - DC (PV)

Maximum DC Power @ 240V	6000	7600 15200*	12000	15200 22800*	22800	22800	W
Maximum DC Power @ 208V	-	6600	10000	-	-	20000	W
Maximum Input Current ⁽⁵⁾ @ 240V	8.5	10.5 20*	16.5	20 31*	27	31	Adc
Maximum Input Short-Circuit Current	-	9	13.5	-	-	27	Adc
Maximum Inverter Efficiency	99		99	99.2		99 @ 240V 98.5 @ 208V	%
CEC Weighted Efficiency							%
2-pole Disconnection		Yes					

* Supported with PN SE000H-USM0000 or SE000H-USM0000
 (1) These specifications apply to inverters with part numbers SE000H-USM0000 or SE000H-USM0000 and connection unit model number DCD-IPH-US-P4H-F-X
 (2) For other regional settings, please contact SolarEdge support
 (3) Not designed for standalone applications and requires AC for commissioning. Backup functionality is only supported for 240V grid
 (4) Rated AC power in Backup Operation are valid for installations with multiple inverters. For a single backup inverter operation, rated AC power in Backup is 90% of the value stated
 (5) A higher current source may be used; the inverter will limit its input current to the values stated

Single Phase Energy Hub Inverter with Prism Technology

For North America

SE3000H-US / SE3800H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US⁽¹⁾

SE3000H-US	SE3800H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	UNITS
------------	------------	------------	------------	-------------	-------------	-------

INPUT - DC (BATTERY)

Supported Battery Types	SolarEdge Energy Bank, LG RESU Prime ⁽⁶⁾					
Number of Batteries per Inverter	Up to 3 SolarEdge Energy Bank, up to 2 LG RESU Prime					
Continuous Power ⁽⁷⁾	6000	7600	10000	10000	10000	W
Peak Power ⁽⁸⁾	6000	7600	10000	10000	10000	W
Max Input Current	16	20	26.5	26.5	26.5	Adc
2-pole Disconnection		Yes				

SMART ENERGY CAPABILITIES

Consumption Metering	Built - in ⁽⁹⁾					
Backup & Battery Storage	With Backup Interface (purchased separately) for service up to 200A; Up to 3 inverters					
EV Charging	Direct connection to Smart EV charger					

ADDITIONAL FEATURES

Supported Communication Interfaces	RS485, Ethernet, Cellular ⁽¹⁰⁾ , Wi-Fi (optional), SolarEdge Energy Net (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)	Yes, according to NEC 2014, NEC 2017 and NEC 2020 690.12					

STANDARD COMPLIANCE

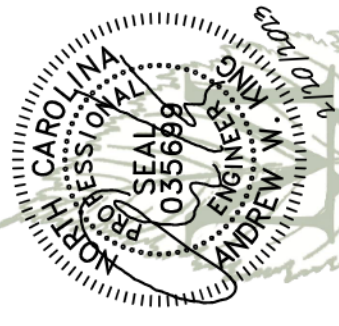
Safety	UL1741, UL1741 SA, UL1741 PCS, UL1699B, UL1998, UL9540, CSA 22.2					
Grid Connection Standards	IEEE1547, Rule 21, Rule 14H					
Emissions	FCC part 15 Class B					

INSTALLATION SPECIFICATIONS

AC Output and EV AC Output Conduit Size / AWG Range	1" maximum / 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)	17.7 x 14.6 x 6.8 / 450 x 370 x 174	17.7 x 14.6 x 6.8 / 450 x 370 x 174	17.7 x 14.6 x 6.8 / 450 x 370 x 174	17.7 x 14.6 x 6.8 / 450 x 370 x 174	17.7 x 14.6 x 6.8 / 450 x 370 x 174	in / mm
Weight with Connection Unit	26 / 11.8	26 / 11.8	41.7 / 18.9	41.7 / 18.9	41.7 / 18.9	lb / kg
Noise	< 25	< 25	< 25	< 25	< 50	dBA
Cooling	Natural Convection					
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽¹⁰⁾					
Protection Rating	NEMA 4					

(6) The part numbers SE000H-USM0000 only support the SolarEdge Energy Bank. The part numbers SE000H-USM0000 support both SolarEdge Energy Bank and LG RESU Prime batteries
 (7) Requires supporting inverter firmware
 (8) Discharge power is limited up to the inverter rated AC power for on-grid and backup applications
 (9) For consumption metering current transformers should be ordered separately. SECT-SH-225A1-20 or SECT0750-400NA-20 units per box. Revenue grade metering is only for production metering
 (10) Information concerning the Data Panel's terms & conditions is available in the following link: <https://www.solaredge.com/sites/default/files/se-communication-plan-terms-and-conditions-eng.pdf>
 (11) Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-de-rating-note-na.pdf>

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EQUIPMENT
 SPEC SHEETS

PV5.3

RoHS

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/ SolarEdge Home Backup Interface

For North America

BI-EUSGN-02 / BI-NUSGN-02

	BI-EUSGN-02	BI-NUSGN-02
INPUT FROM GRID		
AC Current Input	200	A
AC Output Voltage (Nominal)	240	Vac
AC Output Voltage Range	211 – 264	Vac
AC Frequency (Nominal)	60	Hz
AC Frequency Range	59.3 – 60.5	Hz
Microgrid Interconnection Device Rated Current	200	A
Service Side AC Main Circuit Breaker Rated Current	200	N/A
Service Side AC Main Circuit Breaker Interrupt Current	10000	N/A
Grid Disconnection Switchover Time	<100	ms
OUTPUT TO MAIN DISTRIBUTION PANEL		
Maximum AC Current Output	200	A
AC L-L Output Voltage (Nominal)	240	Vac
AC L-L Output Voltage Range	211 – 264	Vac
AC L-N Output Voltage (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 – 132	V
AC Frequency Range in Backup	55 – 65	Hz
INPUT FROM INVERTER		
Number of Inverter Inputs	Up to 3	#
Maximum Rated AC Power in On-Grid and Backup Operation	11400	W
Maximum Continuous Current in On-Grid and Backup Operation	48	A
Factory Installed Inverter Input AC Circuit Breaker	40	A
Upgradability	Up to 3 x 63A CB ⁽¹⁾	
GENERATOR⁽²⁾		
Maximum Rated AC Power	22500	W
Maximum Continuous Input Current	94	Aac
Dry Contact Switch Voltage Rating	250 / 30	Vac / Vdc
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	
Energy Meter (for Import/Export)	1% accuracy	
Manual Control Over Microgrid Interconnection Device	Yes	

⁽¹⁾ Each 40A CB supports up to one 7.6kW inverter, with each 63A CB supporting one 10kW and one 11.4kW inverter. The CB upgrade kit is available with the following part numbers: for 40A CB, CB-UPG-40-01; for 63A, CB CB-UPG-63-01, 20A, 30A and 50A breakers can be used for inverters with lower power ratings.

⁽²⁾ Requires supporting inverter firmware.

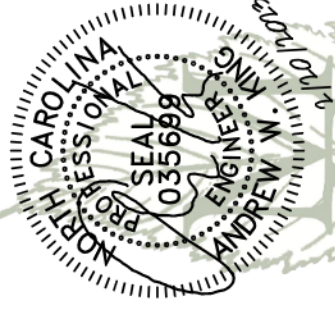
/ SolarEdge Home Backup Interface

For North America

BI-EUSGN-02 / BI-NUSGN-02

	BI-EUSGN-02	BI-NUSGN-02
STANDARD COMPLIANCE		
Safety	UL1741, CSA 22.2 NO. 107	N/A
Emissions	UL869A	FCC part 15 class B
INSTALLATION SPECIFICATIONS		
Supported Inverters	SolarEdge single phase inverter, SolarEdge Home Hub Inverter	
AC From Grid Conduit Size / AWG Range	2" conduit / 0 AWG – 4/0	
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" / 24 – 10 AWG	
Weight	73 / 33	lb / Kg
Cooling	Fan (user replaceable)	
Noise	< 50	
Operating Temperature Range	-40 to +122 / -40 to +50	
Protection Rating	NEMA 3R, IP44	
Dimensions (HxWxD)	20.59 x 13.88 x 8.62 / 823.5 x 352.5 x 219	

ENGINEER:



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 919-274-9905
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 P-1194

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 12.400 kW DC INPUT
 10.000 kW AC EXPORT

Jimmy Barcia
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CONSTRUCTION	2/23/2023
REVISION	03/28/2023

EQUIPMENT
 SPEC SHEETS

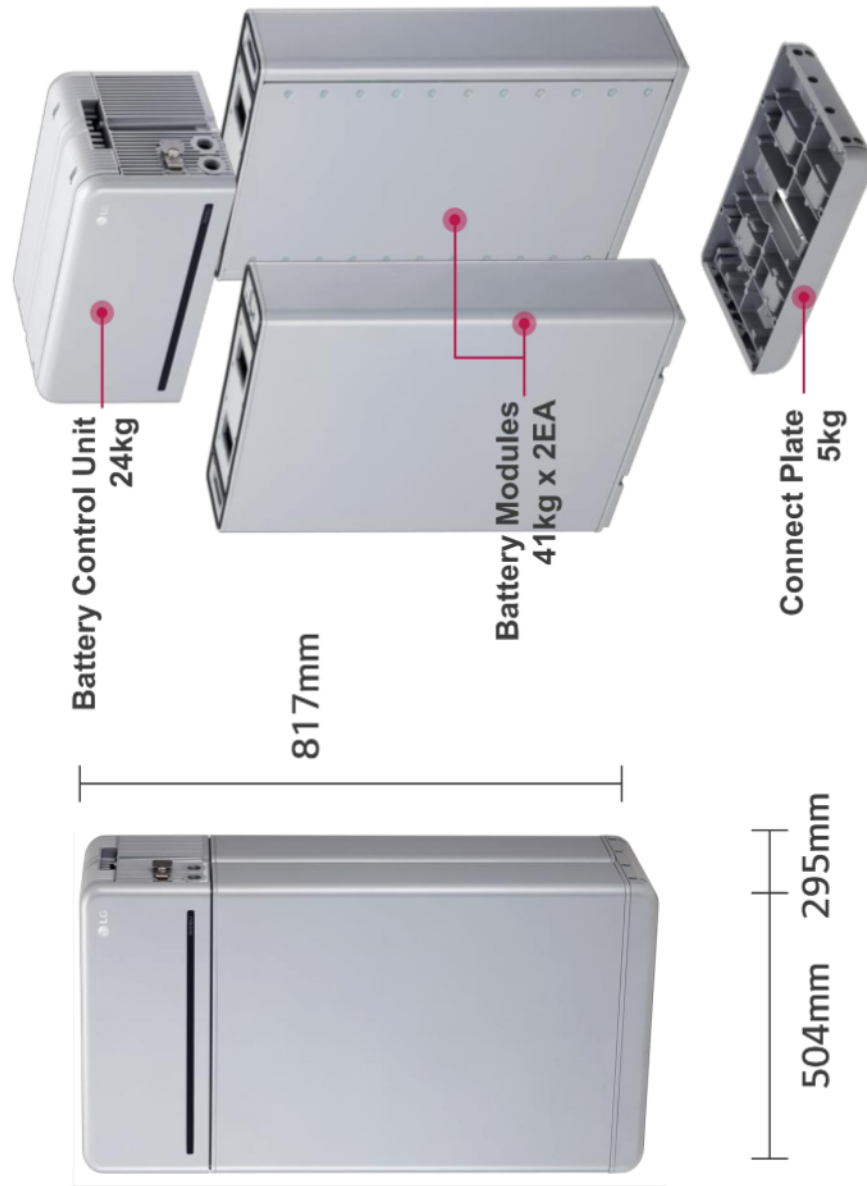
PV5.4

Electrical Characteristics	
Usable Energy ¹⁾	9.6 kWh @77°F (25°C)
Voltage Range	Charge
	Discharge
Max. Charge/Discharge Current	420 ~ 450 V _{DC}
Max. Charge/Discharge Power	350 ~ 410V _{DC}
Peak Power (only discharging) ²⁾	14.3A@350V
Peak Current (only discharging)	5kW
Battery Chemistry	7kW for 10 sec.
Communication Interface	20A for 10 sec.
DC Protection	Lithium Ion
Connection Method	RS485/CAN
User interface	Circuit Breaker, Fuse, DCDC converter (Short Circuit Current : 1.616kA)
Protection Features	Spring Type Connector
Scalability (Total Energy, Max. Charge/Discharge Power)	LEDs for Normal and Fault operation
Operating Conditions	Over Voltage / Over Current / short circuit / Reverse Polarity
	Max. 2 in parallel (19.2 kWh @77°F (25°C), 10kW)
Installation Location	Indoor/Outdoor, Floor standing, Wall-mounted
Operating Temperature	Charge
	Discharge
Operating Temperature (Recommended)	14 ~ 122°F (-10 ~ 50°C)
	-4 ~ 122°F (-20 ~ 50°C)
Storage Temperature (At shipping state)	59 ~ 86°F (15 ~ 30°C)
	-22 to 140°F (-30 to 60°C), acceptable for 7 days in total
Humidity	-4 to 113°F (-20 to 45°C), acceptable for the first 6 months
	-4 to 86°F (-20 to 30°C), acceptable for 7th month~12th month
Altitude	5%~95%
Cooling Strategy	Max. 6,562ft (2,000m)
	Natural Convection
Certification	
Safety	Cell
	Battery Pack
Emissions	UL1642
Hazardous Materials Classification	UL1973 / CE / RCM / IEC 62619
	FCC
Transportation	Class 9
	UN38.3 (UNDOT)
Ingress Rating	IP55

※ Test Conditions - Temperature 77°F (25°C), at the beginning of life
 ※ Usable Energy is measured under specific condition from LGC(0.3CPCV/0.3CP)
 ※ Product specification may change without notice
 1) DOD 100%. DC/DC converter one way efficiency 97.5%. Ambient 77°F (25°C)
 2) Peak Current excludes repeated short duration (less than 10 sec. of current pattern).

RESU10H Prime

Mechanical Characteristics	
Dimensions	Width
	Height
	Depth
Weight	111 kg



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EQUIPMENT SPEC SHEETS

PV5.5

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

Part Number	Description
FF2-01-M1	FLASHFOOT2, MILL
FF2-01-B1	FLASHFOOT2, BLACK

1) Bolt, Lag 5/16 x 4.75

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.20

ENGINEER:



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CONSTRUCTION 2/23/2023

REVISION 03/28/2023

EQUIPMENT
SPEC SHEETS

PV5.6

2) Assy, Flashing

Property	Value
Material	Aluminum
Finish	Mill/Black

3) Assy, Cap

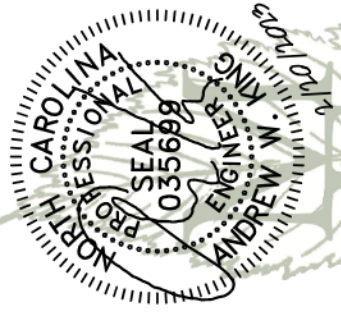
Property	Value
Material	Aluminum
Finish	Mill/Black

4) Washer, EPDM Backed

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.20

ENGINEER:



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EQUIPMENT
 SPEC SHEETS

PV5.7

Cut Sheet

IRONRIDGE

XR10 Bonded Splice

XR-10-SPLC-M1
 XR10 BONDED SPLICE
 (INCL. SELF-TAPPING SCREWS)

XR-10 RAIL

12.0

1

2

1) Splice, XR10, Mill 12" long

2) Screw, Self Drilling

#12-14 TYPE "B" THREAD

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

Property	Value
Material	6000 Series Aluminum
Finish	Mill

v1.10

Cut Sheet

IRONRIDGE

XR10 Rail

See Description / Length

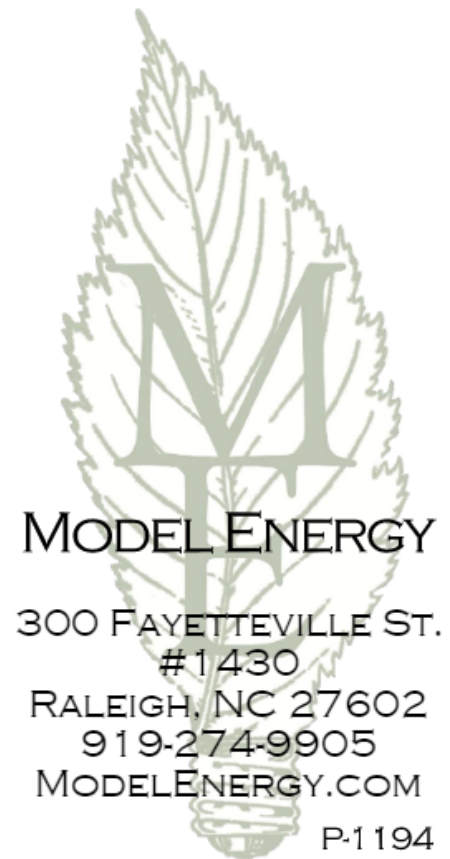
Rail Section Properties	Value
Total Cross-Sectional Area	0.363 in ²
Section Modulus (X-axis)	0.136 in ³
Moment of Inertia (X-axis)	0.124 in ⁴
Moment of Inertia (Y-axis)	0.032 in ⁴
Torsional Constant	0.076 in ³
Polar Moment of Inertia	0.033 in ⁴

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-10-132A	XR-10-132B	XR10, Rail 132" (11 Feet)	6000-Series Aluminum	4.67 lbs.
XR-10-168A	XR-10-168B	XR10, Rail 168" (14 Feet)		5.95 lbs.
XR-10-204A	XR-10-204B	XR10, Rail 204" (17 Feet)		7.22 lbs.

v1.0

READY SOLAR

Customer: Jimmy Barcia
Installer: Ready Solar
Subject: PV System Structural Compliance
Date: 2/23/2023



To whom it may concern:

Model Energy, PLLC has reviewed the installation details of the proposed PV system that is to be installed by Ready Solar at 234 Chedworth Dr, Angier, NC 27501. The conditions of the existing structure have been reviewed and validated by Model Energy, PLLC. The existing roof structure has been designed to support the additional loads of the proposed PV system. In addition, the racking and fastening system shall be capable of securing the system to the structure under design conditions when installed properly and in accordance with the racking and fastening arrangement detailed within the accompanying permit set. The installation design is compliant with current 2018 North Carolina state and national building codes.

Thank you,

Andrew King, PE

