SCOPE OF WORK:

GENERAL NOTES:

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 81 KNOLL WAY, SANFORD, NC 27332 THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.

THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND

CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL

CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS

PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.

AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE

CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE

ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE

DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE

RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY

THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND

NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE

CONTRACTOR SHALL OBTAIN BULDING PERMIT. NO WORK TO START UNLESS BUILDING

ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE

IT IS ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL

THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE

PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING.

ALL EXPOSED PLUMBING, HVAC, ELECTRICAL DUCTWORK, PIPING AND CONDUITS ARE TO

WITH THE REQUIREMENTS OF THE NC BUILDING CODE, THE DEPARTMENT OF

THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH

OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY

ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR

THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES

REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.

INSTALLATION OF ANY EQUIPMENT AT SITE.

THEM WITHOUT ADDITIONAL COMPENSATION.

COMPLETION OF THE WORK WITH APPROVED MATERIALS.

ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES

LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE.

THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS,

CONTRACTORS SHALL OBTAIN FIRE CERTIF. UPON COMPLETION OF WORK.

CONTRACTOR AT NO ADDITIONAL COST.

BE PAINTED BY GENERAL CONTRACTOR.

ELECTRICAL NOTES:

PERMIT IS PROPERLY DISPLAYED.

EQUIPMENT SUMMARY	SYSTEM RAT
23 MISSION SOLAR MSE410HT0B MODULES	9.430 KWD0
23 SOLAREDGE S500B POWER OPTIMIZERS	7.600 KWAC
01 SOLAREDGE SE7600H-US INVERTER	

SYSTEM RATING
9.430 KWDC
7.600 KWAC

GOVERNING CODES
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 NORTH CAROLINA STATE BUILDING CODE
2017 NATIONAL ELECTRICAL CODE
AUTHORITY HAVING JURISDICTION (AHJ): HARNETT COUNTY

SHEET INDEX		
PV-0	COVER PAGE	
PV-1	SITE PLAN	
PV-2	ROOF PLAN & MODULES	
PV-3	ATTACHMENT DETAIL	
PV-4	ELECTRICAL LINE DIAGRAM & CALCS.	
PV-5	ELECTRICAL PHOTOS	
PV-6	SPECIFICATIONS & CALCS.	
PV-7	LABLE & PLACARDS	
PV-8+	EQUIPMENT SPECIFICATIONS	

CAROLINA CONNECTIONS 422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON,

NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.
(23) MISSION SOLAR MSE410HT

(01) SOLAREDGE SE7600H-US DC SYSTEM SIZE: 9.430 KWDC

AC SYSTEM SIZE: 7.600 KWAC DATE

DESCRIPTION 04/18/202 04/29/2025 REVISION

Signature with Seal

PROJECT NAME & ADDRESS

RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332

Stever1001@gmail.

Email:

DATE: 04/29/2025

COVER PAGE

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER PV-0

WIRING AND CONDUIT NOTES:

- ALL CONDUIT SIZES AND TYPES, SHALL BE LISTED FOR ITS PURPOSE AND APPROVED FOR THE SITE APPLICATIONS.
- ALL PV CABLES AND HOME RUN WIRES BE #10AWG *USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR. OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED.
- ALL CONDUCTORS AND OCPD SIZES AND TYPES SPECIFIED ACCORDING TO [NEC 690.8 (A)(1) & (B)(1)], [NEC 240] [NEC 690.7] FOR MULTIPLE CONDUCTORS.
- ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO [NEC TABLE 310.15 (B)(2)(C)] BLACK ONLY**
- EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES.
- PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 600V PER NEC 2008 OR 1000V PER
- 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS.
- ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION.
- **VOLTAGE DROP LIMITED TO 2%**
- AC CONDUCTORS >4AWG COLOR CODED OR MARKED: PHASE A OR L1- BLACK, PHASE B OR L2- RED, PHASE C OR L3- BLUE, NEUTRAL- WHITE/GRAY.



ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.

CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.

- ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V 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
- WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED. THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING (UFO) FASTENER TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE (UFO) FASTENER MANUFACTURE'S INSTRUCTION.

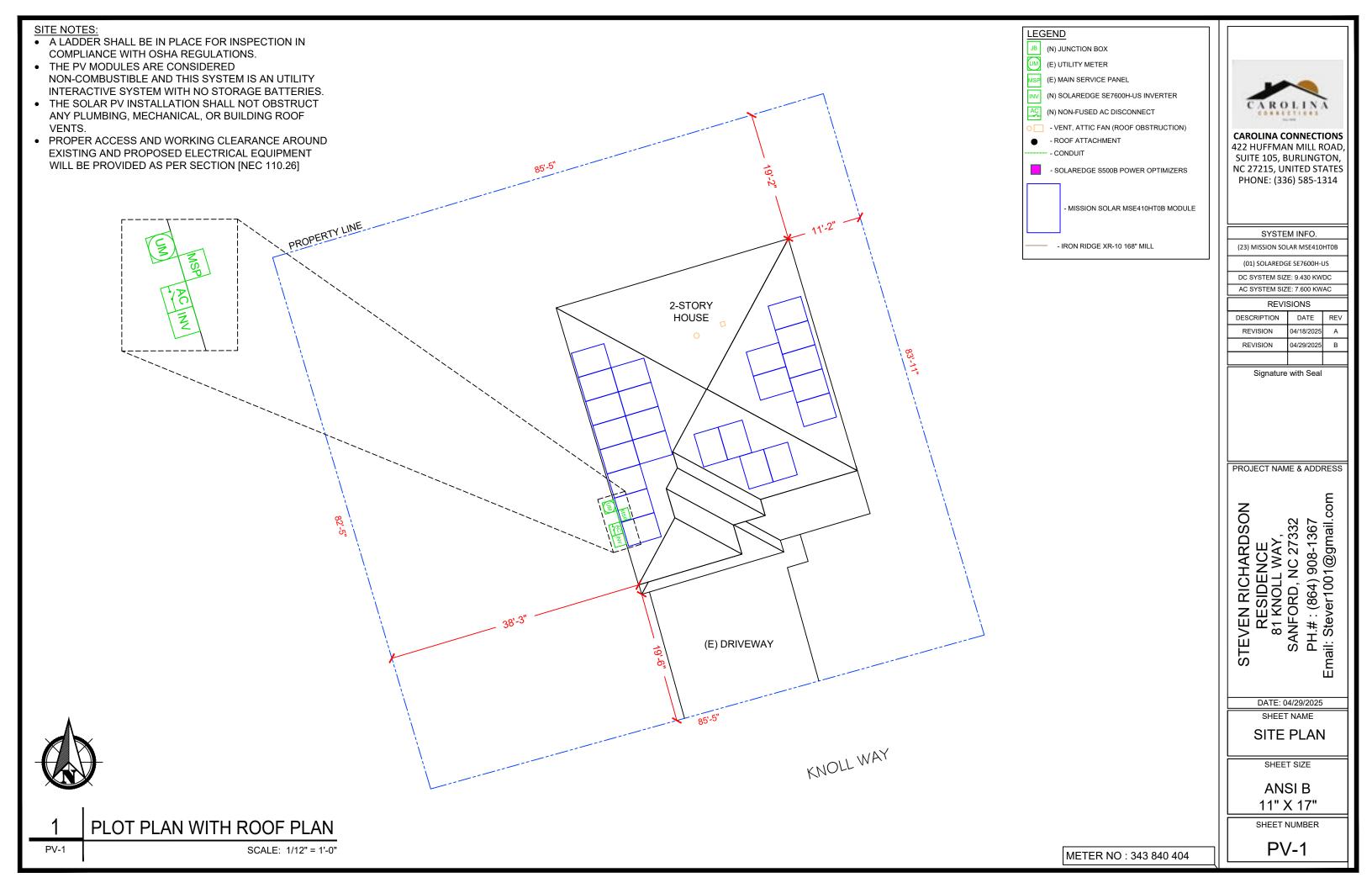
PROJECT SITE

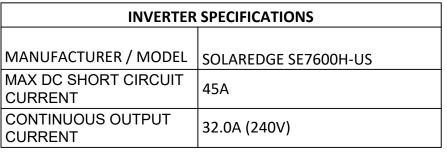
PROJECT SITE Barbecue

VICINITY MAP

HOUSE PHOTO

SCALE: NTS





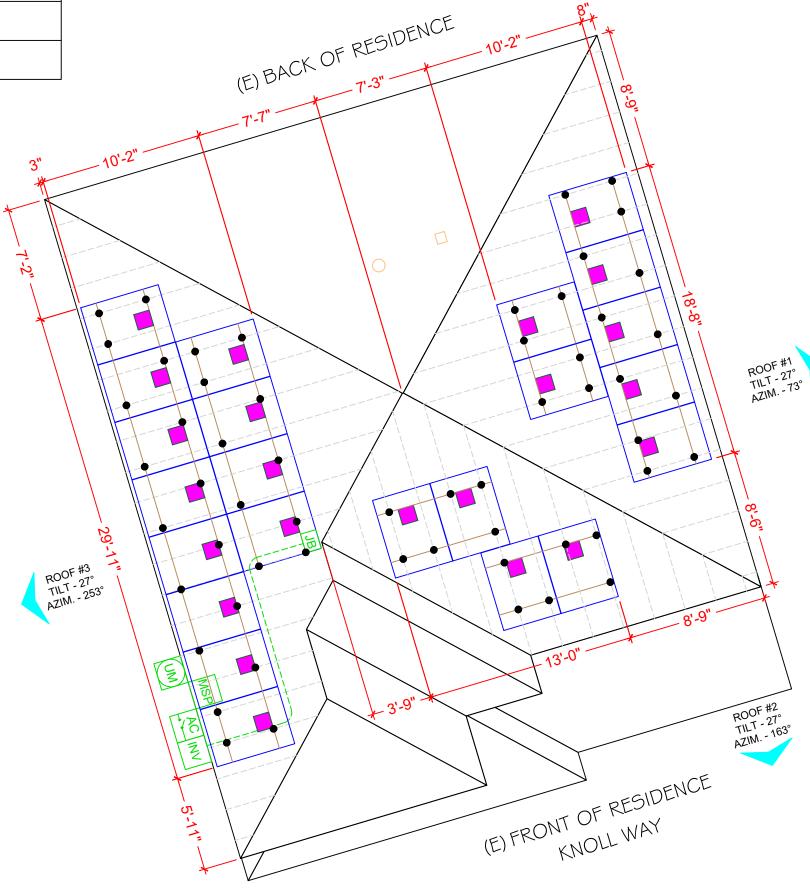
MODULE TYPE, DIMENSIONS & WEIGHT		
NUMBER OF MODULES:	23 MODULES	
MODULE TYPE:	MISSION SOLAR MSE410HT0B	
MODULE WEIGHT:	42.0 LBS/19.1 KG	
MODULE DIMENSIONS:	67.83" x 44.68" = 21.04SF	
UNIT WEIGHT OF ARRAY:	2.00 PSF	

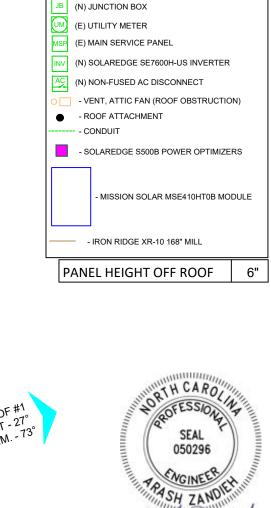
	ROOF DESCRIPTION				
ROOF	ROOF TILT	AZIMUTH	TRUSS SIZE	TRUSS SPACING	ROOF MATERIAL
#1	27°	73°	2" X 4"		COMP. SHINGLE
#2	27°	163°	2" X 4"	24" O.C.	COMP. SHINGLE
#3	27°	253°	2" X 4"	24" O.C.	COMP. SHINGLE

ARRAY AREA & ROOF AREA CALC'S		
ROOF	# OF MODULES	ARRAY AREA
KOOF	# OF MODULES	(Sq. Ft.)
#1	7	132.41
#2	4 75.52	
#3	12	227.18
(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%		

(435.10/1575.61) X 100% = 27.61%

DESIGN SPECIFICATION		
RISK CATEGORY:	II	
CONSTRUCTION:	SFD	
ZONING:	RESIDENTIAL	
SNOW LOAD (ASCE 7-10):	10 PSF	
EXPOSURE CATEGORY:	В	
WIND SPEED (ASCE 7-10):	116 MPH	





EXP. 12/31/2025 Stamped on 5/2/2025

LEGEND



CAROLINA CONNECTIONS

422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT08

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

DESCRIPTION DATE 04/18/2025 REVISION 04/29/2025

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON

RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367 Email: Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME

ROOF PLAN & MODULES

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-2

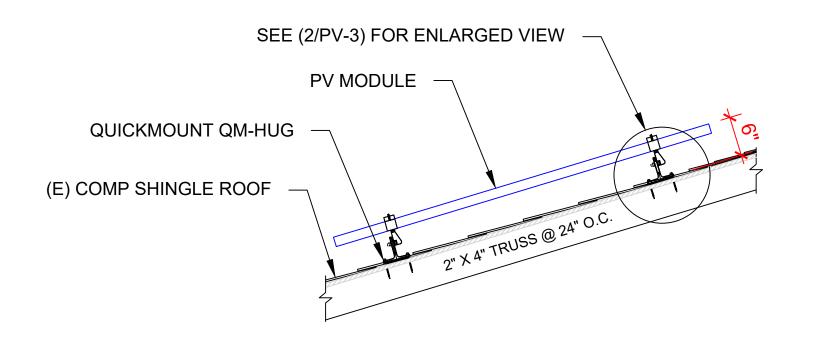


ROOF PLAN & MODULES

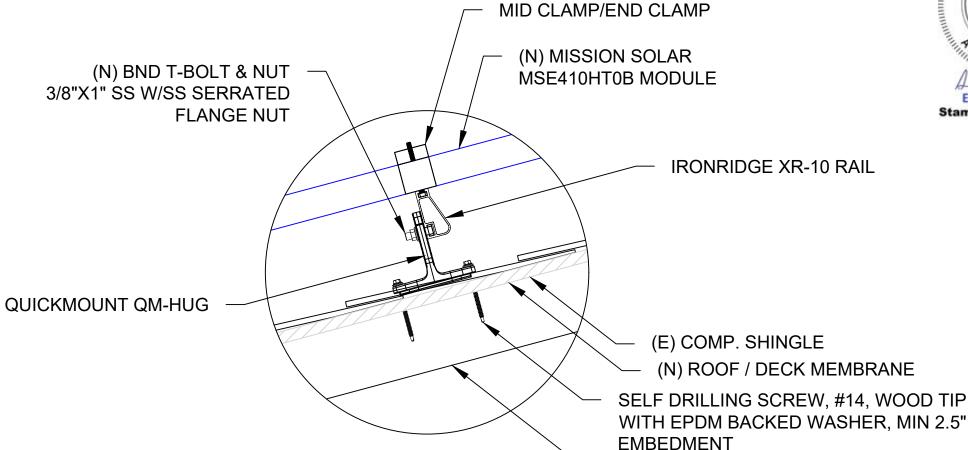
PV-2

SCALE: 1/6" = 1'-0"

METER NO: 343 840 404



1 ATTACHMENT DETAILS
PV-3



SEAL 050296

SEAL 050296

EXP. 12/31/2025

Stamped on 5/2/2025

(E) 2" X 4" TRUSS @ 24" O.C.

CAROLINA

CAROLINA CONNECTIONS
422 HUFFMAN MILL ROAD,
SUITE 105, BURLINGTON,
NC 27215, UNITED STATES
PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC
AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

 DESCRIPTION
 DATE
 REV

 REVISION
 04/18/2025
 A

 REVISION
 04/29/2025
 B

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON
RESIDENCE
81 KNOLL WAY,
SANFORD, NC 27332
PH.#: (864) 908-1367
nail: Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME

ATTACHMENT DETAIL

SHEET SIZE

ANSI B 11" X 17"

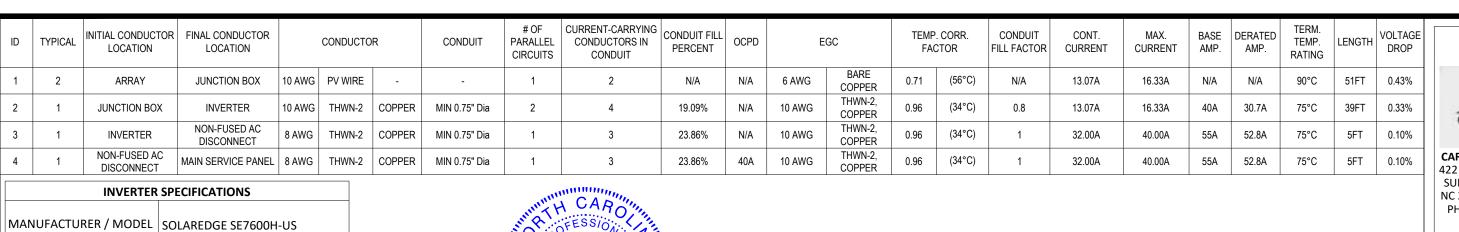
SHEET NUMBER

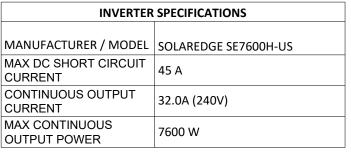
PV-3

ENLARGED VIEW OF ATTACHMENT

PV-3

SCALE: NTS







STAMPED 05/02/2025 (N) SOLAREDGE SE7600H-US OUTPUT: 240 VAC, 32.0A 99% CEC WEIGHTED EFFICIENCY NEMA 3R, UL LISTED, INTERNAL GFDI WITH INTEGRATED DC DISCONNECT SOLAREDGE RAPID SHUTDOWN KIT IS INTEGRATED WITH INVERTER

JUNCTION BOX 40A/2P 600V, NEMA 3R, TO UTILITY UL LISTED GRID AC DISCONNECT: 240V, 60A NON-FUSED BI-DIRECTIONAL UTILITY NEMA 3R, UL LISTED METER# 343 840 404 200A/2P 1-PH, 3-W, 120V/240V (E) MAIN BREAKER TO HOUSE 240 V, 200A/2P **EXISTING GROUND**

SolarEdge Power Optimizer S500D Rated DC Input Power - 500 watts Maximum Input Voltage - 125Vdc MPPT Range - 12.5 to 105Vdc Maximum Input Current - 15 Adc Maximum Output Current - 15 Adc String Limitations - 8 to 25 Optimizers, 6800 watts STC per string maximum

23 MISSION SOLAR MSE410HT0B MODULES

SERVICE INFO		
UTILITY PROVIDER:	DUKE ENERGY	
AHJ NAME:	HARNETT COUNTY	
MAIN PANEL BRAND:	EATON	
MAIN SERVICE PANEL:	200A	
MAIN PANEL LOCATION:	SOUTH-WEST	
SERVICE FEED SOURCE:	UNDERGROUND	

MANUFACTURER / MODEL	MISSION SOLAR MSE410HT0B
VMP	31.38 V
IMP	13.07 A
VOC	37.41 V
ISC	13.90 A
TEMP. COEFF. VOC	-0.254 %/C
MODULE DIMENSION	67.83" (L) x 44.68" (W)
PANEL WATTAGE	410W

ELECTRODE CONDUCTOR

SOLAR MODULE SPECIFICATIONS

(E) MAIN SERVICE

1-PH, 3-W, 240V

PANEL, 200A RATED,



CAROLINA CONNECTIONS 422 HUFFMAN MILL ROAD,

SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0F (01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC

AC SYSTEM SIZE: 7.600 KWAC

REVISIONS DESCRIPTION DATE REV REVISION 04/18/2025 REVISION 04/29/2025

Signature with Seal

PROJECT NAME & ADDRESS

Email: Stever1001@gmail.com STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332

DATE: 04/29/2025

SHEET NAME

ELECTRICAL LINE & CALCS.

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-4

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)

UTILITY FEED + SOLAR BACKFEED 200A + 40A = 240A

> **BUS RATING X 120%** 200A x 120% = 240A

ELECTRICAL LINE DIAGRAM SCALE: NTS PV-4

BACK FEED BREAKER AT

THE OPPOSITE END OF

THE MAIN BREAKER





CAROLINA CONNECTIONS

422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC
AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

 DESCRIPTION
 DATE
 REV

 REVISION
 04/18/2025
 A

 REVISION
 04/29/2025
 B

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367 Email: Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME

ELECTRICAL PHOTOS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

SOLAR MODULE SPECIFICATIONS		
MANUFACTURER / MODEL	MISSION SOLAR MSE410HT0B	
VMP	31.38 V	
IMP	13.07 A	
VOC	37.41 V	
ISC	13.90 A	
TEMP. COEFF. VOC	-0.254 %/C	
MODULE DIMENSION	67.83" (L) x 44.68" (W)	
PANEL WATTAGE	410W	

INVERTER	SPECIFICATIONS
MANUFACTURER / MODEL	SOLAREDGE SE7600H-US
MAX DC SHORT CIRCUIT CURRENT	45 A
CONTINUOUS OUTPUT CURRENT	32.0A (240V)

AMBIENT TEMPERATURE SPECS	3
RECORD LOW TEMP	-13°C
AMBIENT TEMP (HIGH TEMP 2%)	34°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	56°C
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.254 %/C

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20





CAROLINA CONNECTIONS
422 HUFFMAN MILL ROAD,

SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.
(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC

AC SYSTEM SIZE: 7.600 KWAC

 REVISIONS

 DESCRIPTION
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PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367 Email: Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME
SPECIFICATIONS
& CALC.

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

▲ WARNING

ELECTRIC SHOCK HAZARD

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

LABEL LOCATION:

MAIN SERVICE PANEL/AC DISCONNECT/AC COMBINER (PER CODE: NEC 2017 690.13(B))

2

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:

EVERY 10' AND ON CONDUIT BODIES WHEN EXPOSED (PER CODE: NEC2017 690.31(G)(3)(4))

3

PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT 32.00 AMPS NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL LOCATION

MAIN SERVICE PANEL/AC DISCONNECT NEC2017, 690.53

4

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION: INVERTER

AT OR WITHIN 3' OF THE AC/DC COMBINER SWITCH PER CODE: NEC 690.58(C)(3)

5



DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONNECT/AC
COMBINER/REVENUE METER
2017 NEC 705.12(B)(3)

ADHESIVE FASTENED SIGNS:

- ANSI Z535.4-2011 PRODUCT SAFETY SIGNS AND LABELS, PROVIDES GUIDELINES FOR SUITABLE FONT SIZES, WORDS COLORS, SYMBOLS, AND LOCATION REQUIREMENTS FOR LABELS. NEC 110.21(B)(1).
- THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. NEC 110.21(B)(3).
- $\bullet \ \, \text{ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT. }$

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



MAIN SERVICE PANEL
IF MSD IS OUTSIDE PLACE IT THERE / IF
MSD IS INSIDE PLACE ON THE AC DISCONNECT
PER CODE: NEC 690.56(C)(1)

7

6

PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH

LABEL LOCATION: AC DISCONNECT 2017 NEC 690.56(C)(3)

8

PV SOLAR BREAKER

DO NOT RELOCATE THIS OVERCURRENT DEVICE

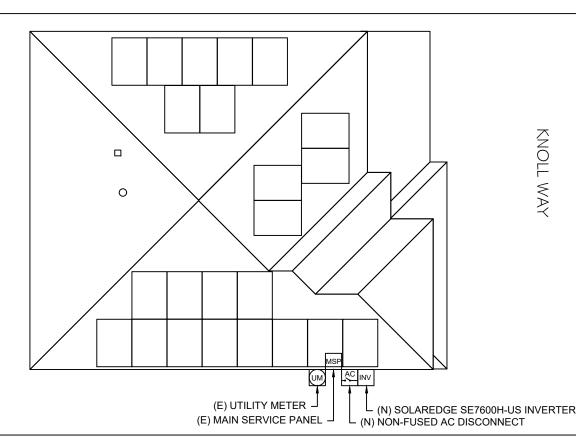
LABEL LOCATION: MAIN SERVICE PANEL 2017 NEC 705.12(B)(2)(3)(B)





CAUTION

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



SERVICE DISCONNECT

SECTIONNEUR PRINCIPALE

SERVICIO DE DESCONEXION

AC DISCONNECT 2017 NEC 230.66

9

CAROLINA

CAROLINA CONNECTIONS
422 HUFFMAN MILL ROAD,

SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0E

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC

AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

 DESCRIPTION
 DATE
 REV

 REVISION
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 A

 REVISION
 04/29/2025
 B

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367

Email: Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME SIGNAGE

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

MSE PERC 108HC





Class leading power output -0 to +3%



FRAME-TO-FRAME WARRANTY Degradation guaranteed not to exceed 2% in year 1 and 0.055% annually

from years 2 to 25 with 84.8% capacity guaranteed in year 25. For more information, visit www.missionsolar.com/warranty

CERTIFICATIONS





or concerns about certification of our products in your area, . Mission Solar Energy.

True American Quality True American Brand

Mission Solar Energy is headquartered in San Antonio, Texas where we manufacture our modules. We produce American, high-quality solar modules ensuring the highest-in-class power output and best-in-class reliability. This product is tailored for residential and commercial applications. Every Mission Solar Energy solar module is certified and surpasses industry standard regulations, providing excellent performance over the long term.

Demand the best. Demand Mission Solar Energy.

Certified Reliability



- Tested to UL 61730 & IEC Standards
- PID resistant
 - Resistance to salt mist corrosion

Advanced Technology



- M10 half-cut cell with 10 busbars
- Passivated Emitter Rear Contact
- Engineered for residential and commercial applications



Extreme Weather Resilience

- Up to 5,400 Pa snow and wind load
- In-house hail tests exceeded 35 mm at 23 m/s



BAA Compliant for Government Projects

- Buy American Act
- American Recovery & Reinvestment Act





www.missionsolar.com | info@missionsolar.com

Mission Solar Energy reserves the right to make specification changes without notice.

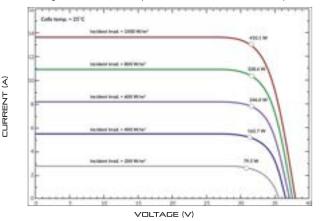
Class Leading 400-410W

[UNITS: MM/III] 35.0 1.4 Ø7.0-949.0 1093.0 43.0 FRONT VIEW SIDE VIEW REAR VIEW

BASIC DIMENSIONS

CURRENT-VOLTAGE CURVE MSE410HT08: 410W, 108 HALF-CUT CELL SOLAR MODULE

Current-voltage characteristics with dependence on irradiance and module temperature



CERTIFICATIO	NS AND TESTS
iec	61215, 61730, 61701
UL	61730



Mission Solar Energy

8303 S. New Braunfels Ave., San Antonio, Texas 78235 www.missionsolar.com | info@missionsolar.com

MSE PERC 108HC

PRODUCT TYPE	MSE	COSHT	OB (P	man)	
Power Output	Proc	VV _p	400	400	410
Module Efficiency		%	20.5	20.7	21.0
Tolerance		%	0/+3	0/+3	0/+3
Short Circuit Current	fe;	A	13.75	13.82	13.90
Open Circuit Voltage	Vie	٧	37.09	37.27	37.41
Rated Current	line	A	12.92	13.00	13.07
Rated Voltage	Vne	v	30.96	31.16	31.38
Fuse Rating		A	25A	25A	25A
System Voltage		v	1.000	1.000	1.000

TEMPERATURE COEFF	ILIEN 15
Normal Operating Cell Temperature (NOCT)	45.52°C (±3.7%)
Temperature Coefficient of Pmax	-0.343%/°C
Temperature Coefficient of Voc	-0.254%/°C
Temperature Coefficient of Isc	-0.257%/°C

OPERATIN	C CONDITIONS
Maximum System Voltage	1.000Vdc
Operating Temperature Range	-40°F to 185°F (-40°C to +85°C)
Maximum Series Fuse Rating	25A
Fire Safety Classification	Type 1*
Front & Back Load (UL Standard)	Up to 5,400 Pa front and 5,400 Pa back load. Tested to UL 61730
Hail Safety Impact Velocity	25mm at 23 m/s

*Mission Solar Energy uses quality sourced materials that result in a Type 1 fire rating. Please note, the 'Fire Class' Rating is designated for the fully-installed PV system, which includes, but is not limited to, the module, the type of mounting used, pitch and roof composition.

MECHANICAL DATA			
Solar Cells	P-PERC 182mm x 182mm		
Cell Orientation	108 half-cut cells		
Module Dimension	1723mm x 1135mm x 35mm		
Weight	42 lbs. (19kg)		
Feoret Glass	3,2mm tempered, low-iron, anti-reflective		
Frame	35mm anodized interlocking		
Encapsulant	Ethylene vinyl acetate (EVA)		
Junction Box	Protection class IP68 with 3 bypass-diodes		
Cable	1.2m, Wire 4mm* (12AWG)		
Connector	MC4 Staubli PV-KBT4/6II-UR and PV-KST4/6II-UR		

SHIPPING INFORMATION						
Container Feet	Ship To	Pallets	Panels	410W Bin		
53'	Most States	26	806	330.46 kW		

PALLET [31 PANELS]				
Weight	Height	Width	Length	
1,610 lbs.	51 in	47 in	70 in	
(730 kg)	(129.5 cm)	(119.4 cm)	(119.4 cm)	

www.missionsolar.com | info@missionsolar.com



CAROLINA CONNECTIONS 422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON,

NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US DC SYSTEM SIZE: 9.430 KWDC

AC SYSTEM SIZE: 7.600 KWAC REVISIONS

DESCRIPTION DATE REVISION 04/18/2025 REVISION 04/29/2025

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367

Stever1001@gmail.com

DATE: 04/29/2025

SHEET NAME **EQUIPMENT**

SPECIFICATION

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



Power Optimizer For Residential Installations

S440 / S500 / S500B / S650B



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
- Compatible with bifacial PV modules



Power Optimizer

For Residential Installations

S440 / S500 / S500B / S650B

	S440	S500	S500B	S650B	UNIT
INPUT					
Rated Input DC Power ⁽¹⁾	440		500	650	W
Absolute Maximum Input Voltage (Voc)	61)	125	85	Vdc
MPPT Operating Range	8-	60	12.5 - 105	12.5 - 85	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		15		Adc
Maximum Efficiency		g	9.5		%
Weighted Efficiency		g	98.6		%
Overvoltage Category					
OUTPUT DURING OPERATION					
Maximum Output Current			15		Adc
Maximum Output Voltage	60		80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER	DISCONNECTED	FROM INVERTER	OR INVERTER OFF)	
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc	
STANDARD COMPLIANCE ⁽²⁾					10000
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 2100-712:2018-12				
INSTALLATION SPECIFICATIONS					
Maximum Allowed System Voltage	1000				Vdc
Dimensions (W x L x H)	129 x 155 x 30		129 x 165 x 45		mm
Weight	72	0	79	0	gr
Input Connector	MC4 ⁽³⁾				
Input Wire Length	0.1			m	
Output Connector	MC4				
Output Wire Length	(+) 2.3, (-) 0.10			m	
Operating Temperature Range ⁽⁴⁾		-40	to +85		°C
Protection Rating		l	P68		
Relative Humidity		0 -	- 100		%

(2) For details about CE compliance, see <u>Declaration of Conformity – CE</u>.

(3) For other connector types please contact SolarEdge.

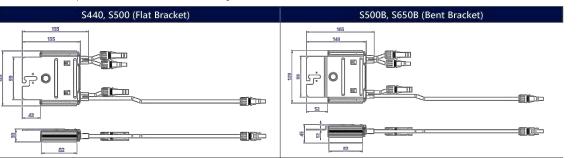
(a) Four defending is applied contact solutions.

(4) Power defending is applied for ambient temperatures above +85°C for S440 and S500, and for ambient temperatures above +75°C for S500B. Refer to the Power Optimizers Temperature De-Rating Technical Note for details.

PV System Design Using a SolarEdge Inverter ⁽⁵⁾		SolarEdge Home Wave Inverter Single Phase	SolarEdge Home Short String Inverter Three Phase	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length	S440, S500	8	9	16	18	
Power Optimizers) S500B, S650B		6	8	14		
Maximum String Length (Power Optimizers)		25	20	50		
Maximum Continuous Power per String		5700	5625	11,250	12,750	W
Maximum Allowed Connected Power per String ⁽⁶⁾ (In multiple string designs, the maximum is permitted only when the difference in connected power between strings is 2,000W or less)		6800 ⁽⁷⁾	See ⁽⁶⁾	13,500	15,000	w
Parallel Strings of Different Lengths or Orientations		Yes				

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations in the same string.
(6) If the inverter's rated AC power s maximum continuous power per string, then the maximum connected power per string will be able to reach up to the inverters maximum input DC power. Refer to the Single String Design Guidelines application note.

(7) For inverters with a rated AC power ≥ 8000W that are connected to at least two strings.



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RoHS

CAROLINA CONNECTIONS 422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON,

NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO. (23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

DESCRIPTION	DATE	REV	
REVISION	04/18/2025	Α	
REVISION	04/29/2025	В	

Signature with Seal

PROJECT NAME & ADDRESS

RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332

DATE: 04/29/2025

SHEET NAME **EQUIPMENT**

SPECIFICATION

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-9

solaredge.com

SolarEdge Home Wave Inverter For North America

SE3000H-US / SE3800H-US / SE5000H-US / SE5700H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014-2023 per articles 690.11 and 690.12

- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)



Rated AC Power Output	3000	3300 @ 208V	5000	5000 @ 208V	5000 @ 208V	7600	VA
Maximum AC Power Output	3000	3800 @ 240V	5000	5760 @ 240V	6000 @ 240V	7600	VA
AC Output Voltage Min. – Nom. – Max.		3300 @ 208V		5000 @ 208V	5000 @ 208V		
(211 – 240 – 264)	✓	*	✓	✓	✓	✓	Vac
AC Output Voltage Min. – Nom. – Max. (183 – 208 – 229)	-	✓	-	✓	✓	-	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ^(f)						
Maximum Continuous Output Current @240V	12.5	16	21	24	25	32	A
Maximum Continuous Output Current @208V	-	16	-	24	24	-	A
Power Factor	1, Adjustable – 0.85 to 0.85						
GFDI Threshold	1						A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
INPUT							
Maximum DC Power @240V	4650	5900	7750	8900	9300	11800	W
Maximum DC Power @208V	-	5100	-	7750	7750	-	W
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380						
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16	16.5	20	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	13.5	-	Adc
Max. Input Short Circuit Current				45			Adc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600k Sensitivity						
Maximum Inverter Efficiency	99 99.2						
CEC Weighted Efficiency	99						
Nighttime Power Consumption				< 2.5			W
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, E	thernet, wireless Solar	Edge Home Net	work (optional)(3), Wi-	-Fi (optional), Cellula	r (optional)	
Revenue Grade Metering, ANSI C12.20	RS485, Ethernet, wireless SolarEdge Home Network (optional) ⁽⁹⁾ , Wi-Fi (optional), Cellular (optional) Optional ⁽⁴⁾						
Consumption Metering	Optional ⁽⁴⁾						
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014-2023 per articles 690.11 and 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety		Conforr	ns to UL 1741, UI	L 1741SA, UL 1741SB, I	JL 1699B		T
	Certified by CSA 22.2#107.1, C22,2#330, C22.3#9, ANSI/CAN/UL 9540						
Grid Connection Standards	IEEE1547 and IEEE-1547.1, Rule 21, Rule 14H						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range			1" Maximu	ım / 14 – 6 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 – 2 strings / 14 – 6 AWG						
Dimensions with Safety Switch (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					in / mm	
Weight with Safety Switch		22 / 10	25.1 / 11.4	27.5 / 12.5	26.2	/ 11.9	lb / kg
Noise			Z 25			< 50	dBA







/ SolarEdge Home Wave Inverter For North America

SE3000H-US / SE3800H-US / SE5000H-US / SE5700H-US / SE6000H-US/ SE7600H-US

Applicable to inverters with part number	SEXXXXH-XXXXXBXX4						
	SE3000H-US	SE3800H-US	SE5000H-US	SE5700H-US	SE6000H-US	SE7600H-US	Units
OUTPUT							
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	5760 @ 240V 5000 @ 208V	6000 @ 240V 5000 @ 208V	7600	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	5760 @ 240V 5000 @ 208V	6000 @ 240V 5000 @ 208V	7600	VA
AC Output Voltage Min. – Nom. – Max. (211 – 240 – 264)	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min. – Nom. – Max. (183 – 208 – 229)	-	✓	-	✓	✓	-	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ^(f)						Hz
Maximum Continuous Output Current @240V	12.5	16	21	24	25	32	А
Maximum Continuous Output Current @208V	-	16	-	24	24	-	Α
Power Factor	1, Adjustable – 0.85 to 0.85						
GFDI Threshold	1						А
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
INPUT							
Maximum DC Power @240V	4650	5900	7750	8900	9300	11800	W
Maximum DC Power @208V	-	5100	-	7750	7750	-	w
Transformer-less, Ungrounded		0.00	1	Yes			
Maximum Input Voltage	480						
Nominal DC Input Voltage	380						
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16	16.5	20	Vdc Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	13.5	-	Adc
Max. Input Short Circuit Current		,		45	15.5		Adc
Reverse-Polarity Protection			· · · · · · · · · · · · · · · · · · ·	Yes			Auc
Ground-Fault Isolation Detection				Sensitivity			
Maximum Inverter Efficiency	99		00000	99.2			%
CEC Weighted Efficiency	33			99			%
Nighttime Power Consumption			· · · · · · · · · · · · · · · · · · ·	2.5			W
ADDITIONAL FEATURES				2.3			
	DC 405 Feb				Fi (+iD C-III-I	(ti)	
Supported Communication Interfaces	R5485, ETF	iernet, wireless Sola		ork (optional) ⁽³⁾ , Wi	-Fi (optional), Cellul	ar (optional)	
Revenue Grade Metering, ANSI C12.20	Optional ⁽⁴⁾						
Consumption Metering	Optional ⁽⁴⁾						
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection					nection	
Rapid Shutdown - NEC 2014-2023 per articles 690.11 and 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	Conforms to UL 1741, UL 1741SA, UL 1741SB, UL 1699B Certified by CSA 22.2#107.1, C22,2#330, C22.3#9, ANSI/CAN/UL 9540						
Grid Connection Standards	IEEE1547 and IEEE-1547.1, Rule 21, Rule 14H						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range			1" Maximum	n / 14 – 6 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 – 2 strings / 14 – 6 AWG						
Dimensions with Safety Switch (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174						in / mm
Weight with Safety Switch	22 / 10 25.1 / 11.4 27.5 / 12.5 26.2 / 11.9				2 / 11.9	lb / kg	
Noise			< 25			< 50	dBA
Cooling	Natural Convection						
Operating Temperature Range			-40 to +140	/ -40 to +60 ⁽⁵⁾			°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

CAROLINA CONNECTIONS 422 HUFFMAN MILL ROAD,

SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT08

(01) SOLAREDGE SE7600H-US DC SYSTEM SIZE: 9.430 KWDC AC SYSTEM SIZE: 7.600 KWAC

Signature with Seal

PROJECT NAME & ADDRESS

RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332

DATE: 04/29/2025

EQUIPMENT

SPECIFICATION

SHEET SIZE

ANSI B

11" X 17"

SHEET NUMBER

Email: Stever1001@gmail.com

DATE 04/18/2025 04/29/2025

DESCRIPTION

REVISION

⁽³⁾ For more information, refer to the SolarEdge Home Network datashee

SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.

⁽⁵⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to the Temperature Derating technical note for North America.



QuickMount® HUG



The Respect Your Roof Deserves

When integrating with a home, solar attachments must be dependable for the lifetime of the rooftop. Due to recent innovations, many asphalt shingles have bonded courses. A mount that protects without the need to pry shingles can really speed things up.

Halo UltraGrip™ (HUG™) is here to respect the roof. Its Halo is a cast-aluminum barrier that encases the UltraGrip, our industrial-grade, foam-and-mastic seal. This allows HUG to accelerate the installation process and provide the utmost in waterproofing









Rafter & Deck Mounting Options

Mount HUG to the roof rafters, the roof deck, or both with our custom-engineered RD (rafter-or-deck) Structural Screw. The RD Structural Screw anchors HUG to the roof with an EPDM sealing washer, completing the stack of waterproofing barriers. See

Adaptive, Rafter-Friendly Installation







Trusted Strength & Less Hassle



Structural capacities of HUG™ were reviewed in many load directions, with racking rail running cross-slope or up-slope in relation to roof pitch.

For further details, see the HUG certification letters for attaching to rafters and decking.

IronRidge designed the HUG, in combination with the RD Structural Screw to streamline installs, which means the following:

- · No prying shingles
- · No roof nail interference
- · No pilot holes necessary
- No sealant (in most cases)
- No butyl shims needed

Attachment Loading



Structural

The rafter-mounted HUG has been tested and rated to support 1004 (lbs) of uplift and 368 (lbs) of lateral load.

Parts are designed and certified for compliance with the International **Building Code &** ASCE/SEI-7.

Water Seal Ratings

HUG passed both the UL 441 Section 27 "Rain Test" and TAS 100(A)-95 "Wind Driven Rain Test" by Intertek.

UL 2703 System



Systems conform to UL 2703 mechanical and bonding requirements. See Flush Mount Manual for more info.





CAROLINA CONNECTIONS

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SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC AC SYSTEM SIZE: 7.600 KWAC

REVISIONS

DESCRIPTION DATE REVISION 04/18/2025 REVISION 04/29/2025

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367

Email: Stever1001@gmail.com

DATE: 04/29/2025 SHEET NAME

EQUIPMENT SPECIFICATION

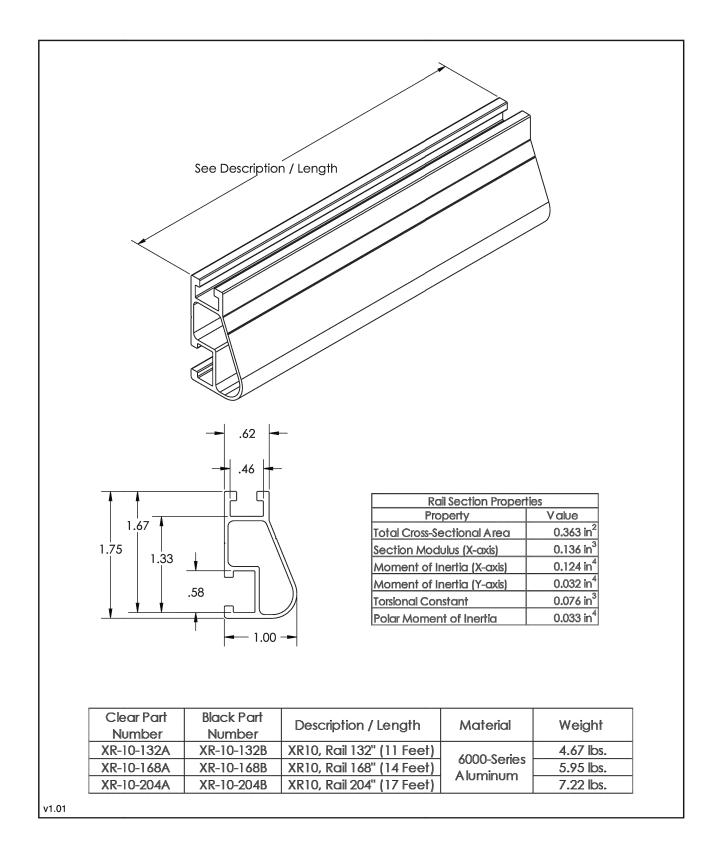
SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



XR10® Rail





CAROLINA CONNECTIONS

422 HUFFMAN MILL ROAD, SUITE 105, BURLINGTON, NC 27215, UNITED STATES PHONE: (336) 585-1314

SYSTEM INFO.

(23) MISSION SOLAR MSE410HT0B

(01) SOLAREDGE SE7600H-US

DC SYSTEM SIZE: 9.430 KWDC
AC SYSTEM SIZE: 7.600 KWAC

 REVISIONS

 DESCRIPTION
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 A

 REVISION
 04/29/2025
 B

Signature with Seal

PROJECT NAME & ADDRESS

STEVEN RICHARDSON RESIDENCE 81 KNOLL WAY, SANFORD, NC 27332 PH.#: (864) 908-1367 Email: Stever1001@gmail.com

DATE: 04/29/2025

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EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER