Building Codes: 2017 NEC, 2018 IFC, 2018 IRC, 2018 IBC and AHJ Amendments

CAMPBELL, MICHAEL PV SYSTEM 141 BREEZEWOOD DRIVE . LILLINGTON, NC, 27546 APN: 01053604 0028 17

JURISDICTION: HARNETT COUNTY (NC)

GENERAL INFORMATION

SYSTEM SIZE: 12.000 kW-DC-STC

10.000 kW-AC

ROOF PITCHED: 43 DEGREES

INVERTER: (1) SOLAREDGE SE10000H-US W/ S440 OPTIMIZERS

MODULES: (30) HY-DH108P8-400B

STRINGS: (2) x 15 MODULE SERIES STRINGS

ELECTRICAL SERVICE RATING: 200A

PV SYSTEM OVERCURRENT RATING: 60A

PV SYSTEM DISCONNECT SWITCH: EATON DG222URB (60A / 2P)

ROOF TYPE: COMP SHINGLE
ROOF FRAMING: ENGINEERED TRUSS
RACKING/RAILING: K2 SYSTEMS / K2RAIL

ATTACHMENT METHOD: SPLICE FOOT

ROOF ATTACHMENT: M5 x 60 S.S SELF DRILLING WOOD SCREWS

TABLE OF CONTENTS

REQUIRED INFORMATION	SHEET NAME	SHEET NUMBER
SITE INFORMATION	COVER PAGE	PV 1
MODULE AND EQUIPMENT LAYOUT	SITE PLAN	PV 2
LOCATION & QUANTITY OF PACKING & STANDOFFS	PV LAYOUT	PV 3
RACKING LOAD & UPLIFT CALCULATIONS	PV LAYOUT	PV 3
ROOF ATTACHMENT DETAILS	DETAILS	PV 4
ELECTRICAL 1 LINE DIAGRAM	ONE LINE	PV 5
ELECTRICAL 3 LINE DIAGRAM	THREE LINE	PV 6
OCP & WIRE SIZING CALCULATIONS	1 & 3 LINE	PV 5 & 6
ARRAY & INVERTER ELECTRICAL SPECIFICATIONS	1 & 3 LINE	PV 5 & 6
EQUIPMENT SPECIFICATIONS	1 & 3 LINE	PV 5 & 6
LABEL NOTES	LABELS	PV 7
PV EQUIPMENT LABELING DETAIL	LABELS	PV 7
DIRECTORY LABEL	PLACARD	PV 8
JOB SAFETY PLAN	SAFETY PLAN	PV 9
PV EQUIPMENT SPECIFICATIONS	EQUIPMENT SPEC.	PV 10 - 16
DATA SHEETS & ADDITIONAL INFORMATION	SUPPLEMENTAL MATERIAL	

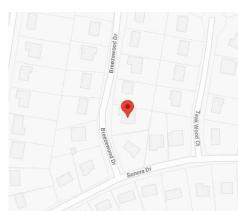




SCALE: NTS









Wyssling Consulting, PLLC 76 N Meadowbrook Drive Alpine UT 84004 North Carolina COA # P-2308 Signed 4/17/2023

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NOTES

EQUIPMENT LOCATION

- 1. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
- 2. WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC690.31(A),(C) AND NEC TABLES 310.15(B)(2)(A) AND 310.15(B)(3)(C).
- 3. JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
- 4. ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.
- ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
- ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

WIRING & CONDUIT NOTES

- ALL CONDUITS AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE.
 CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.
- 2. CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.
- DC WIRING LIMITED TO MODULE FOOTPRINT. MICRO INVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY WITH SUITABLE WIRING CLIPS.
- 4. AC CONDUCTORS COLORED OR MARKED AS FOLLOWS: PHASE A OR L1- BLACK, PHASE B OR L-2 RED, OR OTHER CONVENTION IF THREE PHASE, PHASE C OR L3-BLUE, YELLOW, ORANGE, OR OTHER CONVENTION NEUTRAL- WHITE OR GREY IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH THE HIGHER VOLTAGE TO BE MARKED ORANGE NEC 110.15.

GENERAL NOTES

- 1. MODULES ARE LISTED UNDER UL 1703 AND CONFORM TO THE STANDARDS.
- 2. INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS.
- 3. DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL
 ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION
 MIGHT VARY
- 4. WORKING CLEARANCES AROUND THE NEW PV ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26.
- ALL GROUND WIRING CONNECTED TO THE MAIN SERVICE GROUNDING IN MAIN SERVICE PANEL/SERVICE COMPONENT.
- 6. ALL CONDUCTORS SHALL BE 600V, 75° C STANDARD COPPER UNLESS OTHERWISE NOTED.
- WHEN REQUIRED, A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- 8. THE SYSTEM WILL NOT BE INTERCONNECTED BY THE CONTRACTOR UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND/OR THE UTILITY.
- ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREES, WIRES OR SIGNS.
- 10. PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING.



CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877 (30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

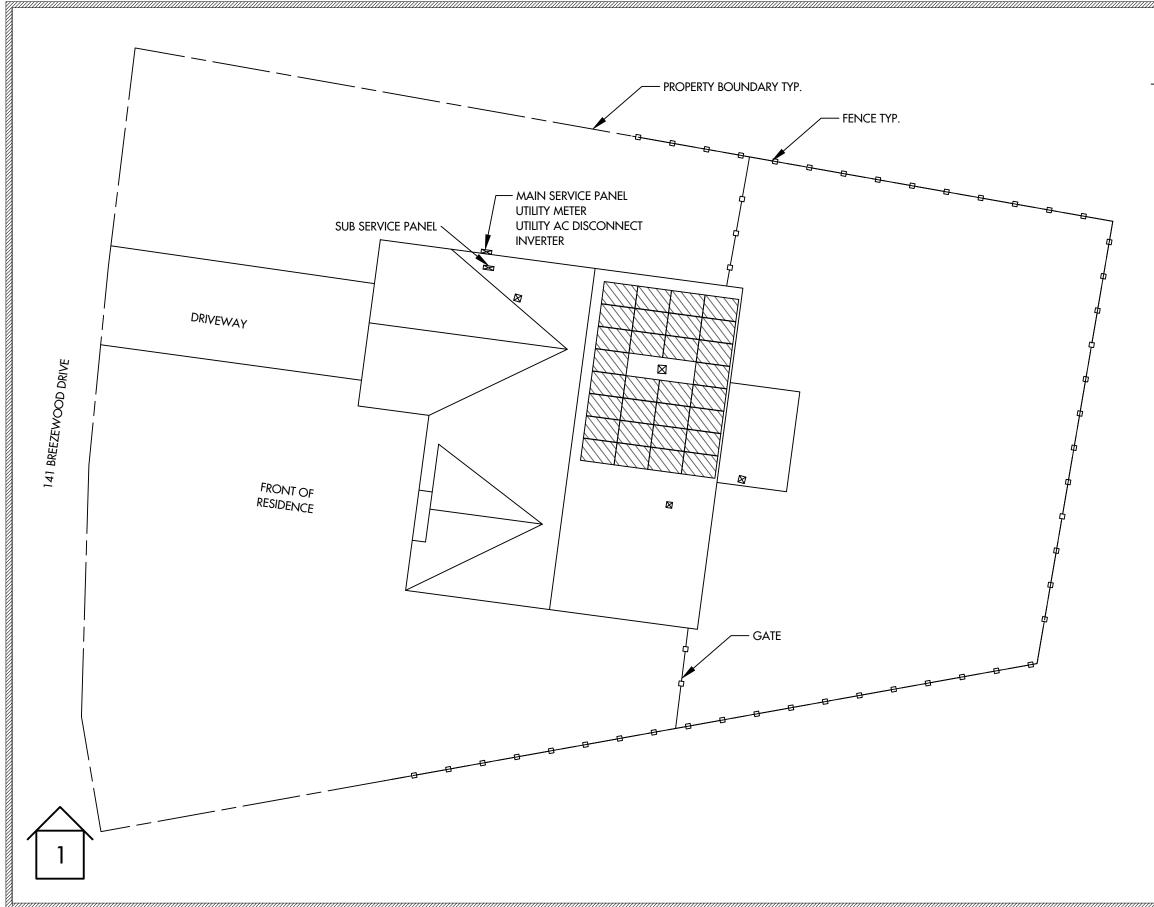
DATE: 4/13/2023

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COVER PAGE

PV 1





PROJECT NOTES

- 1. UTILITY SHALL HAVE 24HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC COMPONENTS LOCATED AT SES EQUIPMENT
- 2. NO LOCKED GATES, DOGS, ETC SHALL IMPEDE ACCESS TO SES EQUIPMENT
- 3. WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH SOUTH RIVER ELECTRIC MEMBERSHIP CORPORATION AND NEC REQUIREMENTS.

4.



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CAMPBELL, MICHAEL RESIDENCE
141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546
LAT:35.301118, LON:-78.973852
TSP156877

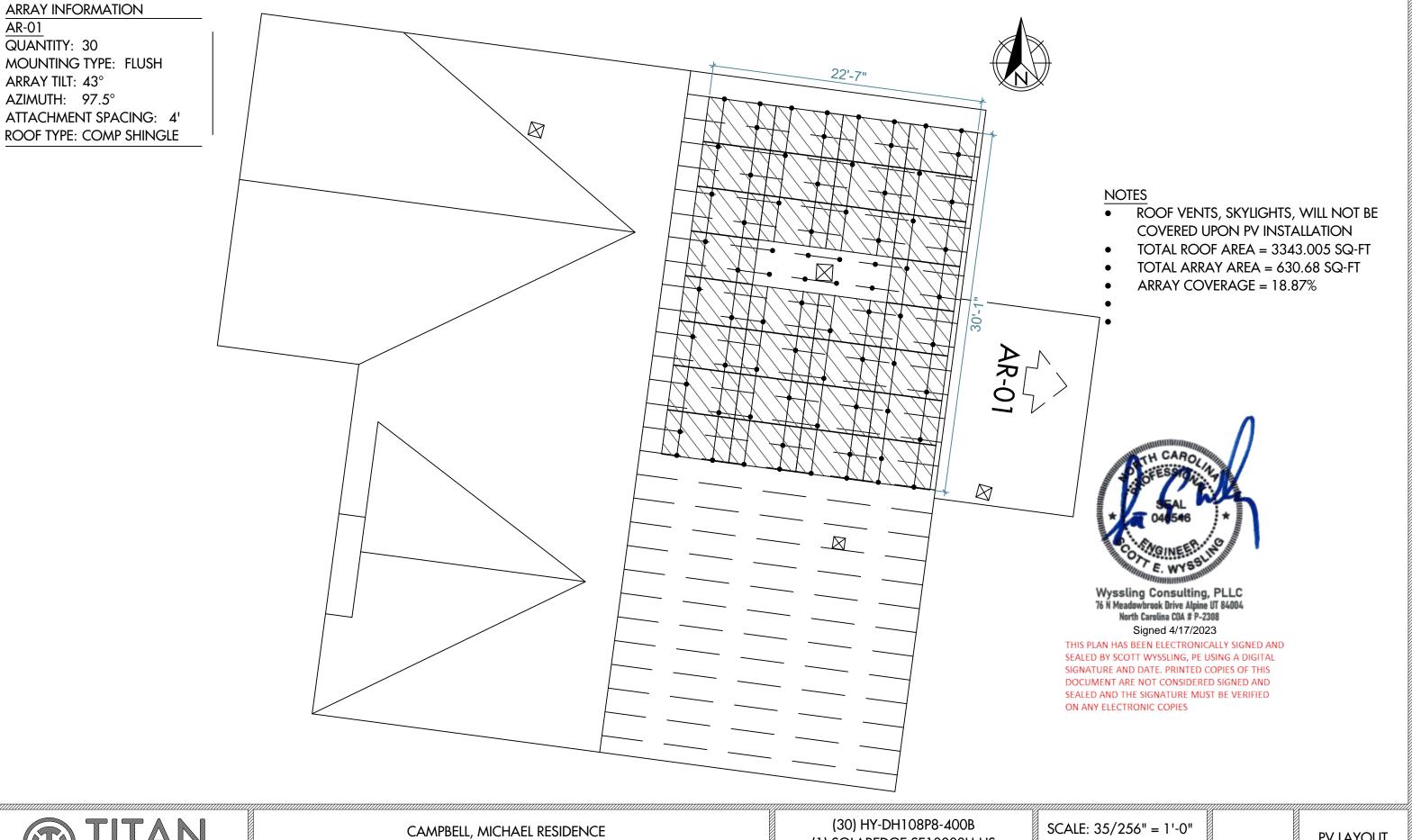
(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE SCALE: 1/16" = 1'-0" DATE: 4/13/2023

REV: A

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SITE PLAN

PV 2





CAMPBELL, MICHAEL RESIDENCE
141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546
LAT:35.301118, LON:-78.973852
TSP156877

(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV:A

DRAWN BY: HM

PV LAYOUT PV 3

MODULE & RACKING INFORMATION

MODULE: HY-DH108P8-400B MODULE WEIGHT: 49.80 LBS

MODULE DIMENSIONS: 67.8"x 44.65" x 1.5"

RACKING/RAIL: K2 SYSTEMS / K2RAIL

ROOF ATTACHMENT: M5 x 60 S.S SELF DRILLING WOOD SCREWS

ARRAY 01: 30 MODULES

UPLIFT = 18920.44 LBS.

POINT LOAD = 21.04 LBS. PER MOUNTING POINT

PULLOUT STRENGTH = 39900.00 LBS.

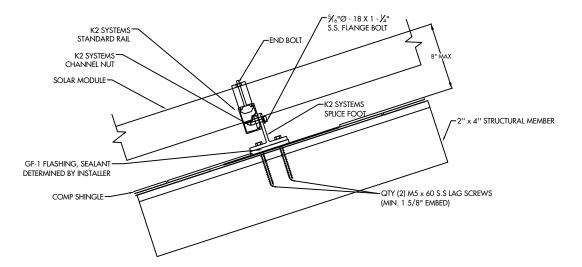
DISTRIBUTED LOAD = 2.54 PSF

MODULE & RACKING WEIGHT = 1599.00 LBS

ROOF & FRAMING INFORMATION

MATERIAL: COMP SHINGLE RAFTER/TRUSS SIZE: 2'' x 4''

RAFTER/TRUSS SPACING: 2'





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CAMPBELL, MICHAEL RESIDENCE
141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546
LAT:35.301118, LON:-78.973852
TSP156877

(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV:A

DRAWN BY: HM

DETAILS

PV 4

PV MODULE

HY-DH108P8-400B

400 W 13.79 ADC VOC 37.07 VDC

IMP 12.90 ADC VMP 31.21 VDC TVOC = -0.304% / °C

WIRE SCHEDULE

- A (4) #10 AWG-CU PV WIRE (HR) (1) #10 AWG-CU BARE COPPER WIRE (GND) IN FREE AIR
- B (4) #10 AWG-CU THWN-2 WIRE (HR) (1) #10 AWG-CU THWN-2 WIRE (GND) 3/4" EMT

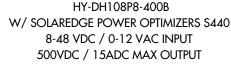
C - (3) #6 AWG-CU THWN-2 WIRE (HR)

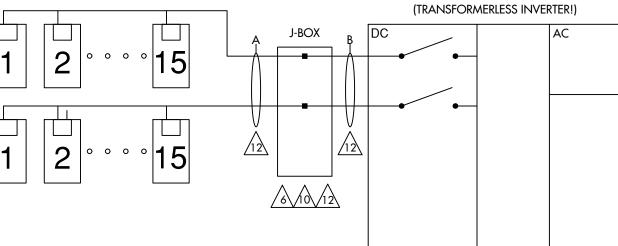
(1) #8 AWG-CU THWN-2 WIRE (GND) 3/4" EMT

NOTE:

SUM OF ALL BREAKERS: NEC (705.12(B)(2)(3)(C)) THE SUM OF THE AMPERE RATING OF ALL OVERCURRENT DEVICES ON PANELBOARDS, BOTH LOAD AND SUPPLY DEVICES, EXCLUDING THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR, SHALL NOT EXCEED THE AMPACITY OF THE BUSBAR. THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUS BAR SHALL NOT EXCEED THE RATING OF THE BUSBAR. PERMANENT WARNING LABELS SHALL BE APPLIED TO DISTRIBUTION EQUIPMENT DISPLAYING THE FOLLOWING OR EQUIVALENT WORDING: WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR

THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLAY WITH 110.21(B)



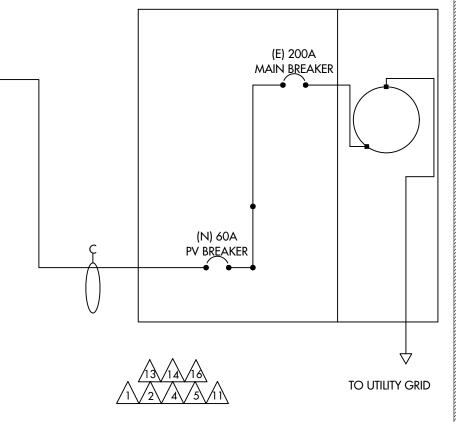


SOLAREDGE SE10000H-US W/ INTEGRATED DC DISCONNECT & INTERNAL GFDI 500VDC/240VAC, 60HZ, UL1741 W/ INTEGRATED RAPID SHUTDOWN

KNIFE BLADE, 60A/240V 10KAIC **EATON DG222URB**

UTILITY AC DISCONNECT

(E) 200A MAIN SERVICE PANEL 1Ф, 3W, 120/240V, 60HZ



WIRE SIZE CALCULATIONS

TEMP CORRECTION FACTOR: 0.87 (43° AMBIENT) ROOFTOP TEMP CORRECTION FACTOR: 1.00 (43° ADJUSTED) (2" ABOVE ROOFTOP / 0° TEMP ADDERS - AS OCCURS) (TEMP DATA TAKEN FROM ASHRAE 2% AVG HIGH TEMP)

DC WIRING

CONDUIT FILL FACTOR 0.80

/6\/9\/10\

OPTIMIZER MAX. CURRENT = 18.75A DC (15.00A X 1 X 1.25)

#10- AWG CU. AMPACITY = 47.85A (55A X 0.87)

FREE AIR

#10 - AWG CU. AMPACITY = 27.84A (40A X 0.87 X 0.80)

ROOFTOP CONDUIT

AC WIRING

CONDUIT FILL FACTOR MAX. INVERTER CURRENT

1 (3) CONDUCTORS 42A (PER INVERTER SPECS)

MIN. INVERTER OCP 52.5A (42A X 1.25)

INVERTER OCP

#6 - AWG CU AMPACITY 65.25A (75A X 1 X 0.87)



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(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV:A

DRAWN BY: HM

ONE LINE

PV 5

PV MODULE

HY-DH108P8-400B

400 W 13.79 ADC VOC 37.07 VDC

IMP 12.90 ADC VMP 31.21 VDC TVOC = -0.304% / °C

WIRE SCHEDULE

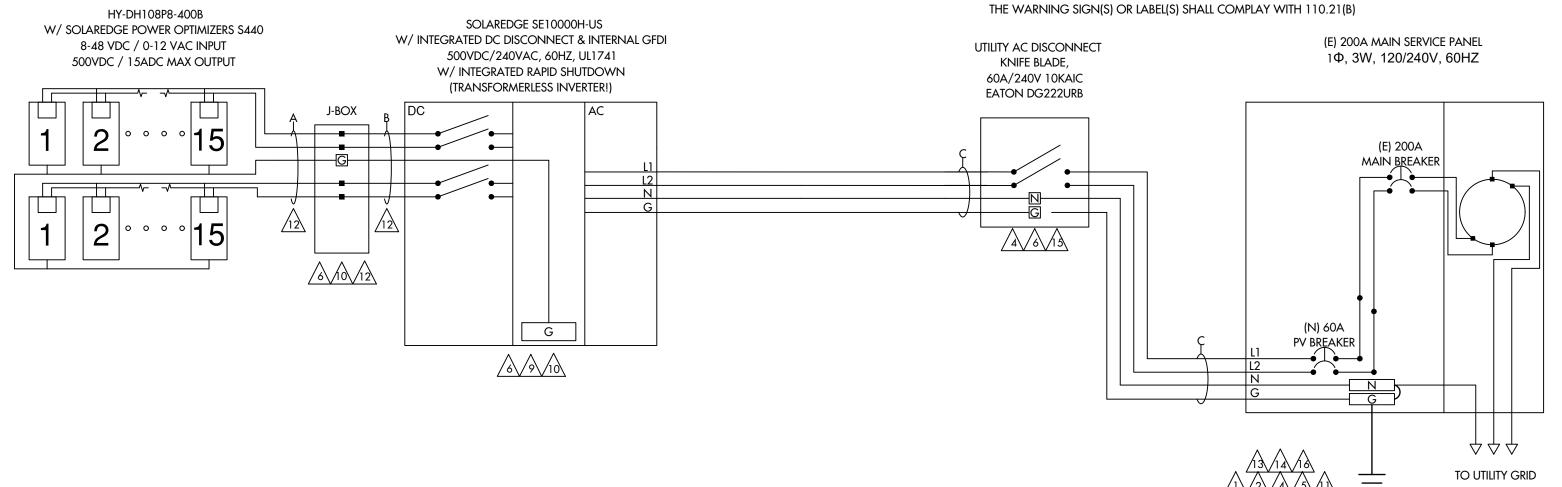
- A (4) #10 AWG-CU PV WIRE (HR) (1) #10 AWG-CU BARE COPPER WIRE (GND) IN FREE AIR
- B (4) #10 AWG-CU THWN-2 WIRE (HR) (1) #10 AWG-CU THWN-2 WIRE (GND) 3/4" EMT

C - (3) #6 AWG-CU THWN-2 WIRE (HR)

(1) #8 AWG-CU THWN-2 WIRE (GND) 3/4" EMT

NOTE:

SUM OF ALL BREAKERS: NEC (705.12(B)(2)(3)(C)) THE SUM OF THE AMPERE RATING OF ALL OVERCURRENT DEVICES ON PANELBOARDS, BOTH LOAD AND SUPPLY DEVICES, EXCLUDING THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR, SHALL NOT EXCEED THE AMPACITY OF THE BUSBAR. THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUS BAR SHALL NOT EXCEED THE RATING OF THE BUSBAR, PERMANENT WARNING LABELS SHALL BE APPLIED TO DISTRIBUTION EQUIPMENT DISPLAYING THE FOLLOWING OR EQUIVALENT WORDING: WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR



WIRE SIZE CALCULATIONS

TEMP CORRECTION FACTOR: 0.87 (43° AMBIENT) ROOFTOP TEMP CORRECTION FACTOR: 1.00 (43° ADJUSTED) (2" ABOVE ROOFTOP / 0° TEMP ADDERS - AS OCCURS) (TEMP DATA TAKEN FROM ASHRAE 2% AVG HIGH TEMP)

DC WIRING

CONDUIT FILL FACTOR 0.80

OPTIMIZER MAX. CURRENT = 18.75A DC (15.00A X 1 X 1.25) #10- AWG CU. AMPACITY = 47.85A (55A X 0.87)

FREE AIR

#10 - AWG CU. AMPACITY = **ROOFTOP CONDUIT**

27.84A (40A X 0.87 X 0.80)

AC WIRING

CONDUIT FILL FACTOR MAX. INVERTER CURRENT

1 (3) CONDUCTORS 42A (PER INVERTER SPECS)

MIN. INVERTER OCP 52.5A (42A X 1.25)

INVERTER OCP

#6 - AWG CU AMPACITY 65.25A (75A X 1 X 0.87)



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(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV:A

DRAWN BY: HM

THREE LINE

PV 6

SEAL:

(E) GROUNDING ELECTRODE





LOCATION: BACKFED BREAKER CODE REF: NEC 705.12(4)



WARNING

DO NOT RELOCATE THIS

OVERCURRENT DEVICE

LOCATION: BACKFED BREAKER CODE REF: 2017 NEC 705.12(2)(3)(b)



WARNING

A GENERATION SCOURCE IS CONNECTED TO THE SUPPLY HE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH LOCATION: (IF APPLICABLE) SUPPLY SIDE TAP

AC DISCONNECT(S)

CODE REF: UTILITY

LOCATION: MAIN PANEL

CODE REF: NEC 690.54



PHOTOVOLTAIC AC DISCONNECT

ATED AC OPERATING CURRENT

42A AC 240VAC

NOMINAL OPERATING AC VOLTAGE:

RAPID SHUTDOWN **SWITCH FOR SOLAR PV SYSTEM**

LOCATION: MAIN PANEL (EXTERIOR)

CODE REF: NEC 690.56(C)(3)



5

WARNING

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

LOCATION: COMBINER PANEL AC DISCONNECT JUNCTION BOX

CODE REF: NEC 690.13(B)



PHOTOVOLTAIC

SYSTEM METER

LOCATION: DEDICATED KWH METER

CODE REF: NEC 690.4(B) UTILITY



/10\

MARNING

MAXIMUM VOLTAGE

MAXIMUM CIRCUIT CURRENT

MAX. RATED OUTPUT CURRENT OF

THE CHARGE CONTROLLER OR DC-

TO-DC- CONVERTER (IF INSTALLED)

M WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON BOTH LINE AND

LOAD SIDES MAY BE ENERGIZED

IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE

EXPOSED TO SUNLIGHT

TURN RAPID SHUTDOWN

POSITION TO SHUT DOWN

PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.

SOLAR PV SYSTEM EQUIPPED

WITH RAPID SHUTDOWN

PHOTOVOLTAIC SYSTEM **COMBINER PANEL**

DO NOT ADD LOADS

PHOTOVOLTAIC SYSTEM DC DISCONNECT

LOCATION: AC COMBINER PANEL

LOCATION: DC DISCONNECT

CODE REF: UTILITY

LOCATION: DC DISCONNECT, COMBINE BOX

CODE REF: NEC 690.13(B)

CODE REF: NEC 690.13(B)



A CAUTION

DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC

LOCATION: SERVICE METER



WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS **OVERCURRENT DEVICE**

LOCATION: (IF APPLICABLE) SERVICE PANEL

CODE REF: NEC 705.12(7)



PHOTOVOLTAIC SYSTEM **UTILITY DISCONNECT SYSTEM**

LOCATION: AC DISCONNECT CODE REF: UTILITY



18

PV SOLAR BREAKER

DO NOT RELOCATE THIS **OVERCURRENT DEVICE**

LOCATION: MAIN PANEL: (EXTERIOR) PV BREAKER: (INTERIOR)

CODE REF: NEC 705.12(B)(2)(3)(B)

WARNING PHOTOVOLTAIC POWER SOURCE

LOCATION: DC CONDUIT JUNCTION BOX NO MORE THAN 10FT CODE REF: NEC 690.31(G)(3) NEC 690 31/G)(4) REFLECTIVE AND WEATHER RESISTANT

LOCATION: MAIN SERVICE (OUTSIDE COVER)

NEC 690.56(C)(1)(a

CODE REF: NEC 690.12

YELLOW STICKER

LABEL REQUIRES CAPITALIZED LETTERS WITH A MINIMUM HEIGHT OF 3/8 INCH, WHITE LETTERS ON RED BACKGROUND LABELS SHALL BE PLACED ON INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS.



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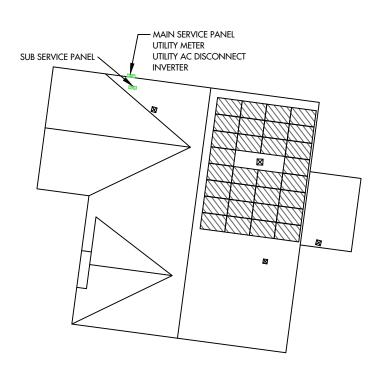
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LABELS

PV 7

CAUTION

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



DIRECTORY PLAQUE IN ACCORDANCE WITH NEC690.56(A)(B), 705.10



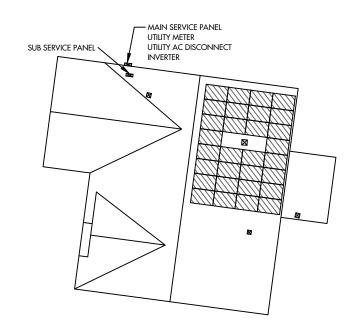


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DATE: 4/13/2023 REV: A DRAWN BY: HM PLACARD

PV 8

JOB SAFETY PLAN



LOCATION OF NEAREST URGENT CARE FACILITY

NAME:

ADDRESS:

PHONE NUMBER:

NOTES:

- INSTALLER SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME
- INSTALLER SHALL UPDATE NAME, ADDRESS, AND PHONE NUMBER OF NEAREST URGENT CARE FACILITY RELATIVE TO THE JOB SITE BEFORE STARTING WORK.

PRINT NAME	INITIAL	YES	NO



SOLAR POWER
525 W BASELINE RD., MESA AZ, 85210
CONTRACTOR LIC# U.34445

CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877 (30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV: A

DRAWN BY: HM

SAFETY PLAN

PV 9

Single Phase Inverter with HD-Wave Technology

for North America

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



Optimized installation with HD-Wave technology

- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 690.11 and 690.12
- Specifically designed to work with power optimizers
 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,

solaredge.com



INVERTERS

/ Single Phase Inverter with HD-Wave Technology for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER		SEXXXXH-XXXXXBXX4						
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage MinNomMax. (211 - 240 - 264)	·	✓	✓	✓	1	✓	✓	Va
AC Output Voltage MinNomMax. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Va
AC Frequency (Nominal)		59.3 - 60 - 60.5 ⁽¹⁾						Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	А
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	А
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	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded				Yes				
Maximum Input Voltage				480				Vd
Nominal DC Input Voltage		3	380			400		Vo
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Ac
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Ac
Max. Input Short Circuit Current				45				Ac
Reverse-Polarity Protection		Yes						
Ground-Fault Isolation Detection		600ko Sensitivity						
Maximum Inverter Efficiency	99			9	19.2			9
CEC Weighted Efficiency		99 99 @ 240V 98.5 @ 208V						9
Nighttime Power Consumption				< 2.5				V

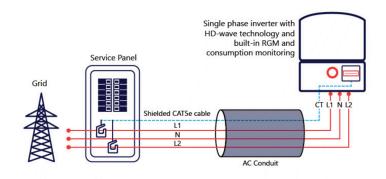
/ Single Phase Inverter with HD-Wave Technology for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces			RS485, Ethernet	ZigBee (optional), C	ellular (optional)			
Revenue Grade Metering, ANSI C12.20				0-110				
Consumption metering		Optional ⁽⁰⁾						
Inverter Commissioning		With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12		Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE								
Safety		UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards			IEEE	1547, Rule 21, Rule 14	(HI)			
Emissions				FCC Part 15 Class B				
INSTALLATION SPECIFICAT	IONS							
AC Output Conduit Size / AWG Range	100	1'	Maximum / 14-6 A	VG		1" Maximum /	/14-4 AWG	
DC Input Conduit Size / # of Strings / AWG Range		1" Maximum / 1-2 strings / 14-6 AWG 1" Maximum / 1-3 strings / 14-6 AW				rings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)		17.7 x	14.6 x 6.8 / 450 x 37	0 x 174		21.3 x 14.6 x 7.3 / 5	540 x 370 x 185	in / mr
Weight with Safety Switch	22	/ 10	25.1 / 11.4	26.2	/ 11.9	38.8 /	17.6	lb / kg
Noise		<	25			<50		dBA
Cooling				Natural Convection				
Operating Temperature Range			-40	to +140 / -40 to +6	iO ⁽⁴⁾			*F/*
Protection Rating		NEMA 4X (Inverter with Safety Switch)						

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



RoHS



CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE, LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877

(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023 REV: A

DRAWN BY: HM

EQUIPMENT SPECIFICATIONS PV 10



Intertek 3933 US Route 11 Cortland, NY 13045 Telephone: 607-753-7311 www.intertek.com

Subject: ETL Evaluation of SolarEdge Products to Rapid Shutdown Requirements

To, whom it may concern

This letter represents the testing results of the below listed products to the requirements contained in the following standards:

The evaluation was done on the PV Rapid Shutdown System (PVRSS), and covers installations consisting of optimizers and inverters with part numbers listed below.

The testing done has verified that controlled conductors are limited to:

- Not more than 30 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation outside the array.
- Not more than 80 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation inside the array.

The rapid shutdown initiation is performed by either disconnecting the AC feed to the inverter, or – if the inverter DC Safety switch is readily accessible – by turning off the DC Safety switch.

Applicable products:

(1) Power optimizers:

PB followed by 001 to 350; followed by -AOB or -TFI.
OP followed by 001 to 500; followed by -LV, -MV, -IV or -EV.
P followed by 001 to 1100.
SP followed by 001 to 350.

When optimizers are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use optimizers with parallel inputs. Also meeting NEC 2020 rapid shutdown requirement.

(2) 1 -PH Inverters

 $SE3000A-US\ /\ SE3800A-US\ /\ SE5000A-US\ /\ SE6000A-US\ /\ SE7600A-US\ /\ SE10000A-US\ /\ SE11400A-US\ /\ SE3000H-US\ /\ SE$

Inverter part number may be followed by a suffix.

(3) 3 -PH Inverters



Intertek 3933 US Route 11 Cortland, NY 13045 Telephone: 607-753-7311

SE9KUS / SE10KUS / SE14.4KUS/ SE16.7kUS / SE17.3kUS / SE20KUS/ SE24KUS / SE30KUS / SE33.3KUS / SE40KUS / SE40KUS / SE50KUS / SE50KUS / SE66.6KUS / SE80KUS / SE85KUS / SE100KUS / SE120KUS; when the following label is labeled on the side of the inverter:

Please note, this Letter Report does not represent authorization for the use of any Intertek certification marks.

Brand Name(s) SolarEdge

Relevant Standard(s) UL 1741, UL 1741 CRD for rapid shutdown

National Electric Code, 2020, Section 690.12 requirement for

rapid shutdown

Verification Issuing Office 3933 US Route 11, Cortland, NY 13045

NRTL Disclaimer, Different for each NRTL — Example: "This Verification is for the exclusive use of NRTL's Client and is provided pursuant to the agreement between NRTL and its Client. NRTL's responsibility and liability are limited to the terms and conditions of the agreement. NRTL assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to copy or distribute this Verification. Any use of the NRTL name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by NRTL. The observations and test results referenced from this Verification are relevant only to the sample tested. This Verification by itself does not imply that the material, product, or service is or has ever been under an NRTL certification program."

Signature:

Name: Mukund Rana Position: Staff Engineer Date:5/17/2021



Intertek 3933 US Route 11 Cortland, NY 13045 Telephone: 607-753-7311 www.intertek.com

Date	Engineer / Reviewer	Description			
5/17/2021 G104683664CRT	Dishant Patel	Added New 3-PH Inverter model SE50KUS, SE80KUS, SE85KUS and SE120KUS.			
	Mukund Rana	Updated Power optimizers from "P followed by 00: to 960" to "P followed by 001 to 1100"			
		Updated NEC standard from "National Electric Code, 2017, Section 690.12 requirement for rapid shutdown" To "National Electric Code, 2020, Section 690.12 requirement for rapid shutdown"			



CAMPBELL, MICHAEL RESIDENCE
141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546
LAT:35.301118, LON:-78.973852
TSP156877

(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

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EQUIPMENT
SPECIFICATIONS
PV 11

Power Optimizer For Residential Installations

S440 / S500 / S500B



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

POWER OPTIMIZER

- 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

/ Power Optimizer

For Residential Installations

S440 / S500 / S500B

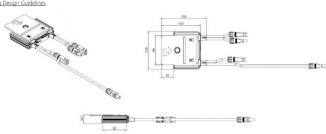
	S440	S500	S500B	UNIT
INPUT				
Rated Input DC Power ⁽¹⁾	440		500	W
Absolute Maximum Input Voltage (Voc)	6)	125	Vdc
MPPT Operating Range	8 –	60	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		15	Adc
Maximum Efficiency		99.5		%
Weighted Efficiency		98.6		%
Overvoltage Category		II		
OUTPUT DURING OPERTION				
Maximum Output Current		15		Adc
Maximum Output Voltage	6)	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER I	DISCONNECTED FROM	I INVERTER OR INVER	TER OFF)	
Safety Output Voltage per Power Optimizer	- V 7	1 ± 0.1	,	Vdc
STANDARD COMPLIANCE(2)				
EMC	FCC Part 15 Class	B, IEC61000-6-2, IEC61000-6-3,	, CISPR11, EN-55011	
Safety	I	EC62109-1 (class II safety), UL17	41	
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 15	55 x 30	129 x 155 x 45	mm
Weight (including cables)		655		gr
Input Connector		MC4 ⁽³⁾		
Input Wire Length	0.1			
Output Connector	MC4			
Output Wire Length	(+) 2.3, (-) 0.10			
Operating Temperature Range ⁽⁴⁾	-40 to +85			
Protection Rating		IP68		
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 details about CE compliance, see <u>Declaration of Conformity CE</u>. (3) For other connector types please contact Solardige.

 (4) For ambient temperatures above +70°C power de-rating is applied. Refer to <u>Power Optimizers Temperature De-Rating Technical Note</u> 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	6	8	14		
Maximum String Length (Por	wer Optimizers)	25	20	50		
Maximum Continuous Power per String		5700	5625	11250	12750	W
Maximum Allowed Connected Power per String (Permitted only when the power difference between strings is less than 2,000W)		See ⁽⁶⁾	See ⁽⁶⁾	13500	15000	W
Parallel Strings of Different L	engths or Orientations		Ye	S		

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations.
(6) If the inverter's rated AC power ≤ maximum nominal power per string, then the markefer to Application Note: Single String Design Guidelines.



(€ RoHS

solaredge.com



CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE, LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877

(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

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EQUIPMENT SPECIFICATIONS







TITAN SOLAR POWER

525 W BASELINE RD MESA, AZ 85210 TEL 855 SAY-SOLAR INFO@TITANSOLARPOWER TITANSOLARPOWER.COM

390-410W

HIGH CONVERSION EFFICIENCY



Module efficiency up to 21.0% through advanced cell technology and manufacturing process

EXCELLENT WEAK LIGHT PERFORMANCE



More power output in weak light condition, such as cloudy days, morning and sunset

EXTENDED MECHANICAL PERFORMANCE



Module certified to withstand extreme wind (2400 Pa) and snow loading (5400 Pa)



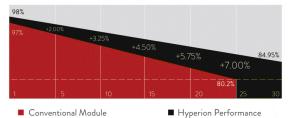
QUALITY GUARANTEE

High module quality ensures long-term reliability

INFO@HYPERION-USA.COM 7/559 MOO.6, MAPYANGPHON SUBDISTRICT,

HY-DH108P8

108 HALF-CELL BIFACIAL MODULE



varranty for materials and workmanship

warranty for extra









IEC61215 / IEC61730 / UL61730 IEC61701 / IEC62716 ISO9001: Quality Management System

12/22

BLACK DH108P8

Mechanical Parameters

Solar Cell	Mono PERC 182mm
No. of Cells	108 (6 × 18)
Dimensions	1722 × 1134 × 30mm (67.08 × 44.65 × 1.18in.)
Weight	25.2kg (55.55lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4mm² (IEC),12 AWG(UL) (-/+)1200mm (47.24in.) or customized
Connector	EVO2 or customized
Front Cover	2.0mm (0.079in.) semi-tempered AR glass
Back Cover	2.0mm (0.079in.) semi-tempered glass
Container	36 pcs/Pallet, 792 pcs/40° HC

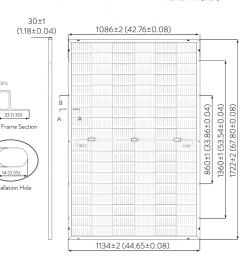
Operating Parameters

Max. System Voltage	DC 1500V (IEC/UL)
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F)
Max. Fuse Rating	30A
Frontside Max. Loading	5400Pa (112lb/ft²)
Backside Max. Loading	2400Pa (50lb/ft²)
Bifaciality	70%±10%
Fire Resistance	IEC Class A, UL Type 29

HY-DH108P8-390/410B

Engineering Drawing

Unit: mm (inch)



Electrical Characteristics - STC	Irradiance 1000 W/m²,	ambient temperature 25 °C	, AM1.5.
Maximum Power at STC (Pmax/W)	410	405	400

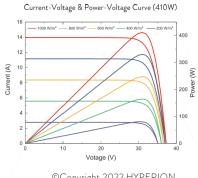
Power Tolerance (W)	0 ~ +5	0 ~ +5			
Optimum Operating Voltage (Vmp/V)	31.45	31.21	31.01	30.84	30.64
Optimum Operating Current (Imp/A)	13.04	12.98	12.90	12.81	12.73
Open Circuit Voltage (Voc/V)	37.32	37.23	37.07	36.98	36.85
Short Circuit Current (Isc/A)	13.95	13.87	13.79	13.70	13.61
Module Efficiency	21.0%	20.7%	20.5%	20.2%	20.0%

Electrical Characteristics - NMOT Maximum Power at NMOT (Pmax/W) Optimum Operating Voltage (Vmp/V) Optimum Operating Current (Imp/A) 35.39 35.31 35.15 Open Circuit Voltage (Voc/V) Short Circuit Current (Isc/A) 11.25 11.19

Rearside Power Gain (Reference to 410W Front)

Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	431.4	472.3	514.8
Optimum Operating Voltage (Vmp/V)	31.57	31.57	31.65
Optimum Operating Current (Imp/A)	13.66	14.96	16.27
Open Circuit Voltage (Voc/V)	37.46	37.46	37.46
Short Circuit Current (Isc/A)	14.57	15.96	17.35
Module Efficiency	22.1%	24.2%	26.4%

•	
Nominal Module Operating Temperature	42 ± 2 °C
Nominal Cell Operating Temperature	45 ± 2 °C
Temperature Coefficient of Pmax	-0.35%/°C
Temperature Coefficient of Voc	-0.27%/°C
Temperature Coefficient of Isc	0.05%/°C



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525 W BASELINE RD., MESA AZ, 85210

CONTRACTOR LIC# U.34445

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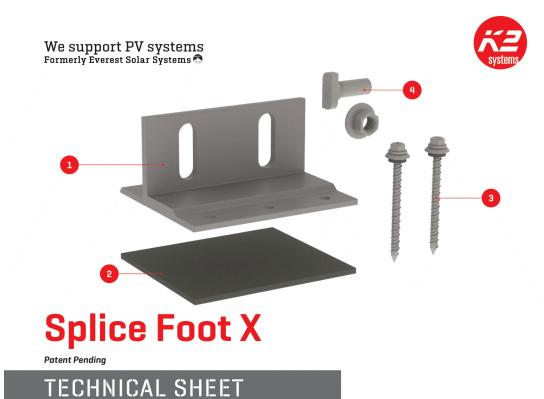
(30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

REV: A

DRAWN BY: HM

EQUIPMENT SPECIFICATIONS



Item Number Description Part Number 1 Splice Foot X 4000113 | Splice Foot X Kit, Mill 2 K2 FlexFlash Butyl 3 M5 x 60 lag screws

Technical Data

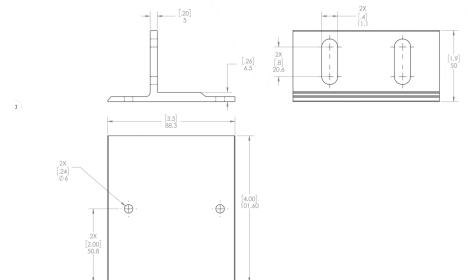
T-Bolt & Hex Nut Set

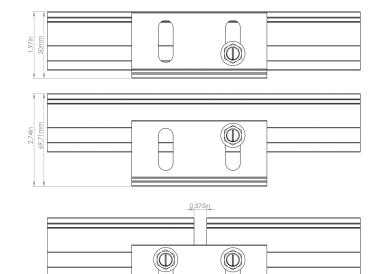
	Splice Foot X
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mill
Roof Connection	M5 x 60 lag screws
Code Compliance	UL 2703
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

We support PV systems
Formerly Everest Solar Systems











CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877 (30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

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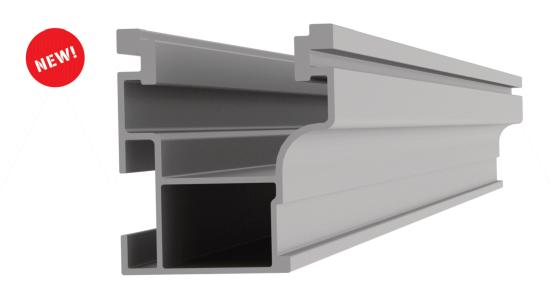
REV: A

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EQUIPMENT SPECIFICATIONS PV 14

Mounting systems for solar technology





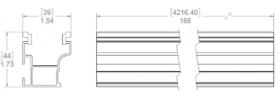
NEW PRODUCT

CrossRail 44-X

- Optimized rail profile
- ▶ One rail for all markets
- ▶ Built-in wire management
- ► Maintains same structural integrity as 48-X
- ▶ Tested up to 200 mph winds
- ▶ Tested up to 100 PSF snow loads



Part Number	Description
4000019	CrossRail 44-X 166'', Mill
4000020	CrossRail 44-X 166'', Dark
4000021	CrossRail 44-X 180", Mill
4000022	CrossRail 44-X 180", Dark
4000051	RailConn Set, CR 44-X, Mill
4000052	RailConn Set, CR 44-X, Dark
4000067	End Cap, Black, CR 44-X



www.everest-solarsystems.com

CrossRail 44-X Product Sheet US01 | 0520 · Subject to change · Product illustrations are exemplary and may differ from the original.



CAMPBELL, MICHAEL RESIDENCE 141 BREEZEWOOD DRIVE , LILLINGTON, NC, 27546 LAT:35.301118, LON:-78.973852 TSP156877 (30) HY-DH108P8-400B (1) SOLAREDGE SE10000H-US 12.000 kW DC SYSTEM SIZE 10.000 kW AC SYSTEM SIZE

DATE: 4/13/2023

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EQUIPMENT SPECIFICATIONS PV 15



Recommended OCPD Size per Grid

Inverter	Maximum Output Current (A)	Minimum Fuse Rating (A)	Maximum Fuse Rating (A)
SE3000H-US	12.5	20	50
SE3800H-US	16	20	50
CEEOOOLL LIC	24 @ 208V	30	F0
SE5000H-US	21 @ 240V		50
SE6000H-US	24 @ 208V		FO
2E0000H-02	25 @ 240V		50
SE7600H-US	32	40	50
SE10000H-US	42	60	80
SE11400H-US	48.5 @ 208V	70 @ 208V	90
	47.5 @ 240V	60 @ 240V	80

SolarEdge Single Phase Inverter with HD-Wave Technology Installation MAN-01-00541-1.1

TSP156877



(30) HY-DH108P8-400B CAMPBELL, MICHAEL RESIDENCE (1) SOLAREDGE SE10000H-US 141 BREEZEWOOD DRIVE, LILLINGTON, NC, 27546 12.000 kW DC SYSTEM SIZE LAT:35.301118, LON:-78.973852 10.000 kW AC SYSTEM SIZE

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EQUIPMENT SPECIFICATIONS PV 16