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

SPIVEY, STEPHEN PV SYSTEM
131 EDNA JOHN COURT .
DUNN, NC, 28334
APN: 021537 0110 09
JURISDICTION: HARNETT COUNTY (NC)

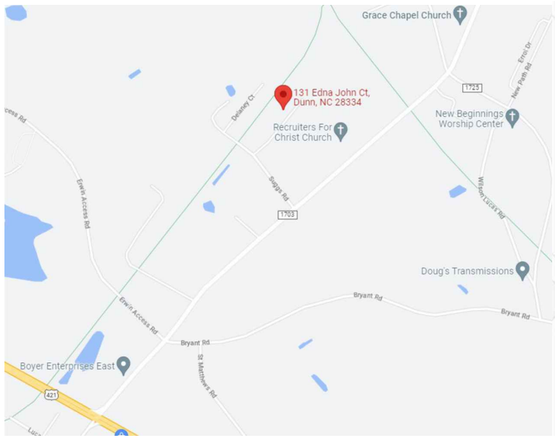
GENERAL INFORMATION

SYSTEM SIZE:	10.400 kW-DC-STC 10.000 kW-AC
ROOF PITCHED:	14 DEGREES
INVERTER:	(1) SOLAREDGE ENERGYHUB SE10000H-US W/ S440 OPTIMIZERS
MODULES:	(26) HY-DH108P8-400B
STRINGS:	(1) x 14 (1) x 12 MODULE SERIES STRINGS
ELECTRICAL SERVICE RATING:	200A
PV SYSTEM OVERCURRENT RATING:	100A
PV SYSTEM DISCONNECT SWITCH:	EATON DG223NRB (100A / 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 LAG SCREWS

TABLE OF CONTENTS

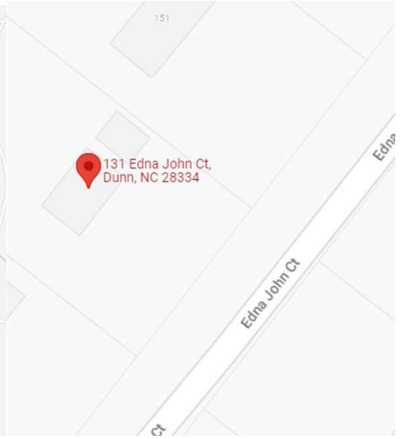
VICINITY MAP

SCALE: NTS



AERIAL MAP

SCALE: NTS



NORTH CAROLINA PROFESSIONAL SEAL 046546 ENGINEER SCOTT E. WYSSLING

Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
North Carolina COA # P-2308

Signed 3/20/2023

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NOTES

EQUIPMENT LOCATION

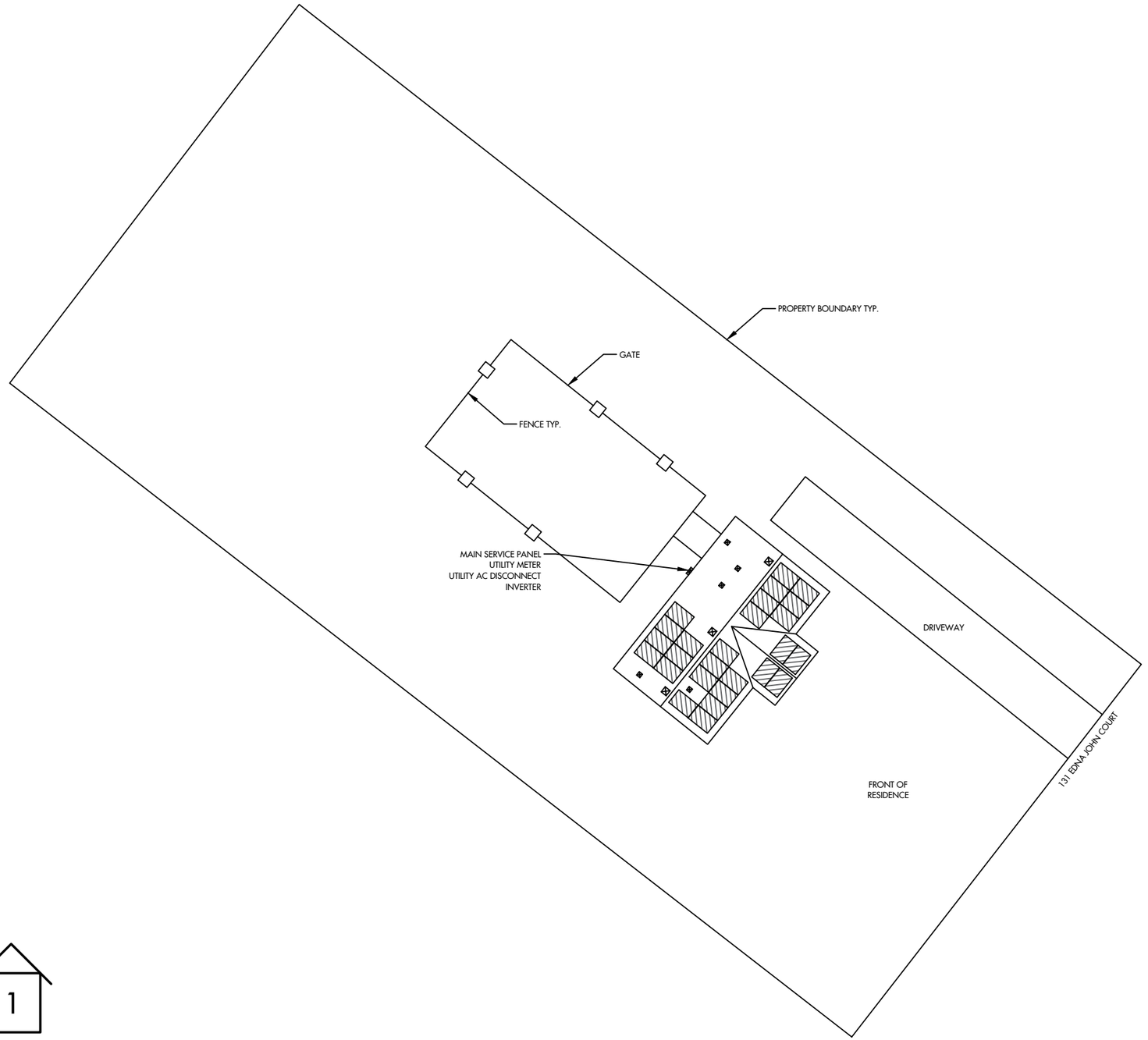
1. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
2. WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC690.31(A),(C) AND NEC TABLES 310.15(B)(2)(A) AND 310.15(B)(3)(C).
3. JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER 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.
5. ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
6. ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

WIRING & CONDUIT NOTES

1. 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.
3. 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.

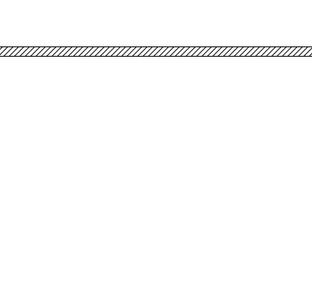
GENERAL NOTES

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.
5. 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.
7. 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.
9. 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.



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 DUKE ENERGY PROGRESS (NC) AND NEC REQUIREMENTS.



Wyssling Consulting, PLLC
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1

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

SPIVEY, STEPHEN RESIDENCE
131 EDNA JOHN COURT , DUNN, NC, 28334
LAT:35.339800, LON:-78.652052
TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

SCALE: 9/256" = 1'-0"
DATE: 2/7/2023
REV: A
DRAWN BY: JS

SEAL:

SITE PLAN
PV 2

ARRAY INFORMATION

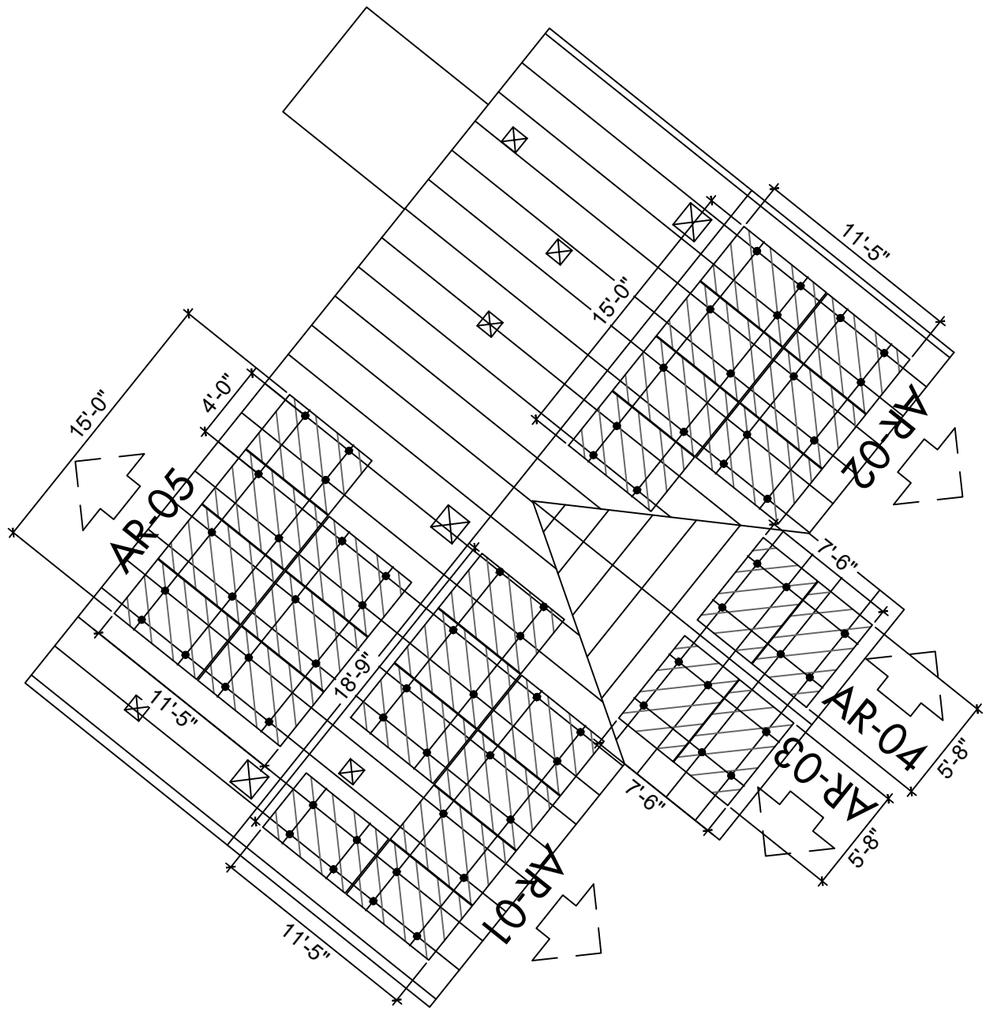
AR-01
QUANTITY: 8
MOUNTING TYPE: FLUSH
ARRAY TILT: 14°
AZIMUTH: 129°
ATTACHMENT SPACING: 4' STAGGERED
ROOF TYPE: COMP SHINGLE

AR-02
QUANTITY: 7
MOUNTING TYPE: FLUSH
ARRAY TILT: 14°
AZIMUTH: 129°
ATTACHMENT SPACING: 4' STAGGERED
ROOF TYPE: COMP SHINGLE

AR-03
QUANTITY: 2
MOUNTING TYPE: FLUSH
ARRAY TILT: 22°
AZIMUTH: 219°
ATTACHMENT SPACING: 4' STAGGERED
ROOF TYPE: COMP SHINGLE

AR-04
QUANTITY: 2
MOUNTING TYPE: FLUSH
ARRAY TILT: 22°
AZIMUTH: 39°
ATTACHMENT SPACING: 4' STAGGERED
ROOF TYPE: COMP SHINGLE

AR-05
QUANTITY: 7
MOUNTING TYPE: FLUSH
ARRAY TILT: 14°
AZIMUTH: 309°
ATTACHMENT SPACING: 4' STAGGERED
ROOF TYPE: COMP SHINGLE



NOTES
- ROOF VENTS, SKYLIGHTS, WILL NOT BE COVERED UPON PV INSTALLATION
- TOTAL ROOF AREA = 1467 SQ-FT
- TOTAL ARRAY AREA = 546.59 SQ-FT
- ARRAY COVERAGE = 37.26%
-
-

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TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

SCALE: 1/8" = 1'-0"
DATE: 2/7/2023
REV:A
DRAWN BY: JS

SEAL:

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 LAG SCREWS

ROOF & FRAMING INFORMATION
MATERIAL: COMP SHINGLE
RAFTER/TRUSS SIZE: 2'' x 2''
RAFTER/TRUSS SPACING: 2'

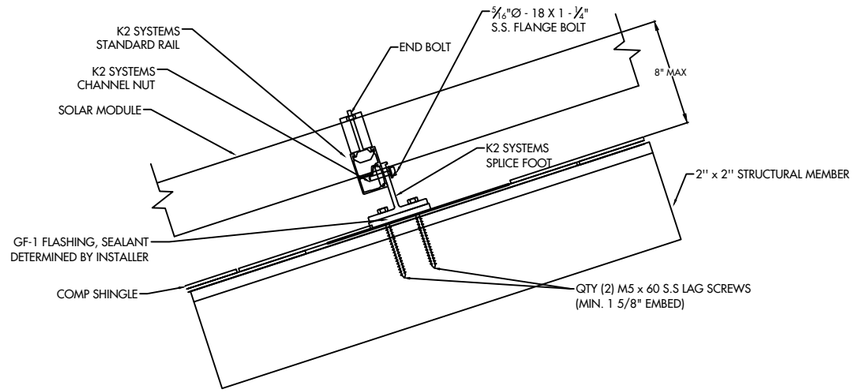
ARRAY 01: 8 MODULES
UPLIFT = 5045.45 LBS.
POINT LOAD = 19.38 LBS. PER MOUNTING POINT
PULLOUT STRENGTH = 6930.00 LBS.
DISTRIBUTED LOAD = 2.54 PSF
MODULE & RACKING WEIGHT = 426.40 LBS

ARRAY 04: 2 MODULES
UPLIFT = 1261.36 LBS.
POINT LOAD = 17.77 LBS. PER MOUNTING POINT
PULLOUT STRENGTH = 1890.00 LBS.
DISTRIBUTED LOAD = 2.54 PSF
MODULE & RACKING WEIGHT = 106.60 LBS

ARRAY 02: 7 MODULES
UPLIFT = 4414.77 LBS.
POINT LOAD = 20.73 LBS. PER MOUNTING POINT
PULLOUT STRENGTH = 5670.00 LBS.
DISTRIBUTED LOAD = 2.54 PSF
MODULE & RACKING WEIGHT = 373.10 LBS

ARRAY 05: 7 MODULES
UPLIFT = 4414.77 LBS.
POINT LOAD = 20.73 LBS. PER MOUNTING POINT
PULLOUT STRENGTH = 5670.00 LBS.
DISTRIBUTED LOAD = 2.54 PSF
MODULE & RACKING WEIGHT = 373.10 LBS

ARRAY 03: 2 MODULES
UPLIFT = 1261.36 LBS.
POINT LOAD = 17.77 LBS. PER MOUNTING POINT
PULLOUT STRENGTH = 1890.00 LBS.
DISTRIBUTED LOAD = 2.54 PSF
MODULE & RACKING WEIGHT = 106.60 LBS



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SPIVEY, STEPHEN RESIDENCE
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LAT:35.339800, LON:-78.652052
TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

DATE: 2/7/2023
REV:A
DRAWN BY: JS

SEAL:

DETAILS
PV 4

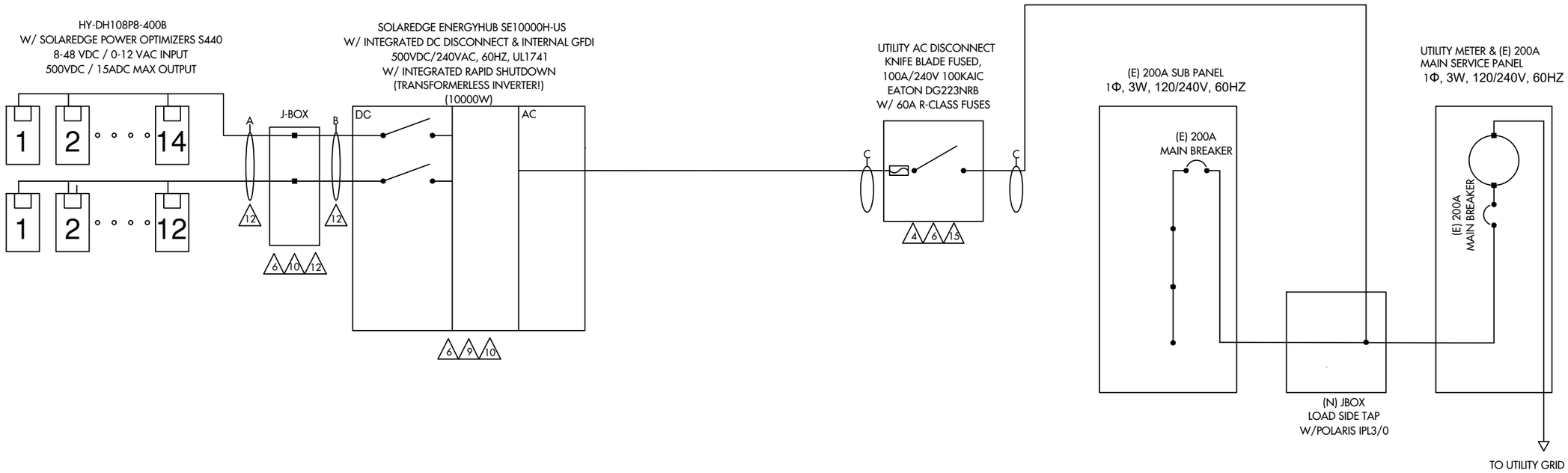
PV MODULE

HY-DH108P8-400B

W	=	400 W
ISC	=	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



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 FREE AIR	=	47.85A (55A X 0.87)
#10 - AWG CU. AMPACITY ROOFTOP CONDUIT	=	27.84A (40A X 0.87 X 0.80)

AC WIRING

CONDUIT FILL FACTOR	=	1 (3) CONDUCTORS
MAX. INVERTER CURRENT	=	42A (PER INVERTER SPECS)
MIN. INVERTER OCP	=	52.5A (42A X 1.25)
INVERTER OCP	=	60A
#6 - AWG CU AMPACITY	=	65.25A (75A X 1 X 0.87)

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TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

DATE: 2/7/2023
REV:A
DRAWN BY: JS

SEAL:

ONE LINE
PV 5

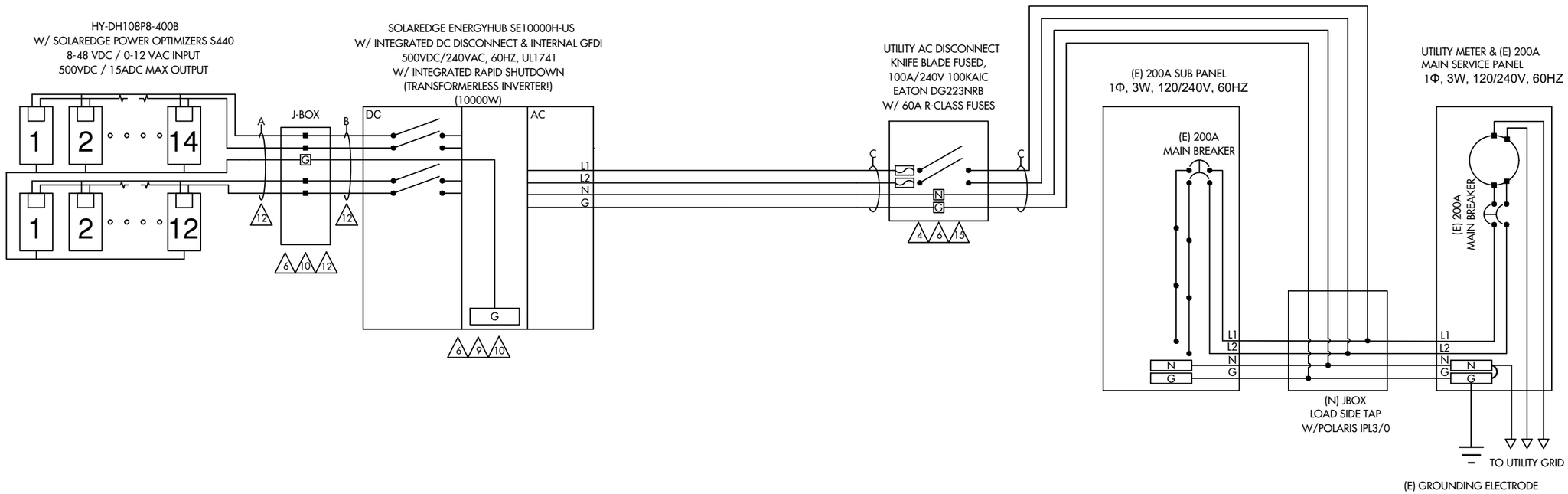
PV MODULE

HY-DH108P8-400B

W	=	400 W
ISC	=	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



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 FREE AIR	=	47.85A (55A X 0.87)
#10 - AWG CU. AMPACITY ROOFTOP CONDUIT	=	27.84A (40A X 0.87 X 0.80)

AC WIRING

CONDUIT FILL FACTOR	=	1 (3) CONDUCTORS
MAX. INVERTER CURRENT	=	42A (PER INVERTER SPECS)
MIN. INVERTER OCP	=	52.5A (42A X 1.25)
INVERTER OCP	=	60A
#6 - AWG CU AMPACITY	=	65.25A (75A X 1 X 0.87)

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(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

DATE: 2/7/2023
REV:A
DRAWN BY: JS

SEAL:

THREE LINE
PV 6

1

⚠ CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

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

2

⚠ WARNING
INVERTER OUTPUT CONNECTION:
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

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

3

WARNING
A GENERATION SCOURCE IS CONNECTED TO THE SUPPLY (UTILITY) SIDE OF THE MAIN SERVICE DISCONNECT. FOLLOW THE PROPER LOCK-OUT/TAG-OUT PROCEDURES TO ENSURE THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH IS OPENED PRIOR TO PERFORMING WORK ON THIS DEVICE

LOCATION: (IF APPLICABLE)
SUPPLY SIDE TAP
LOAD PANEL
CODE REF: UTILITY

4

PHOTOVOLTAIC AC DISCONNECT
RATED AC OPERATING CURRENT: 42A AC
NOMINAL OPERATING AC VOLTAGE: 240VAC

LOCATION: MAIN PANEL
AC DISCONNECT(S)
CODE REF: NEC 690.54

5

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LOCATION: MAIN PANEL (EXTERIOR)
PV BREAKER (INTERIOR)
CODE REF: NEC 690.56(C)(3)

6

⚠ 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
INVERTER(S)
CODE REF: NEC 690.13(B)

7

PHOTOVOLTAIC
SYSTEM METER

LOCATION: DEDICATED KWH METER
CODE REF: NEC 690.4(B) UTILITY

8

⚠ WARNING
PHOTOVOLTAIC SYSTEM
COMBINER PANEL
DO NOT ADD LOADS

LOCATION: AC COMBINER PANEL
CODE REF: NEC 690.13(B)

9

PHOTOVOLTAIC SYSTEM DC DISCONNECT
MAXIMUM VOLTAGE: 480VDC
MAXIMUM CIRCUIT CURRENT: 15.0ADC
MAX. RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC- CONVERTER (IF INSTALLED) 15.0ADC

LOCATION: DC DISCONNECT
INVERTER
CODE REF: UTILITY

10

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

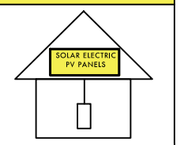
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LOCATION: DC DISCONNECT, COMBINE BOX
CODE REF: NEC 690.13(B)

11

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.



LOCATION: MAIN SERVICE (OUTSIDE COVER)
CODE REF: NEC 690.12
NEC 690.56(C)(1)(a)
YELLOW STICKER

12

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

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.

13

⚠ CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC

LOCATION: SERVICE METER
MAIN PANEL

14

⚠ WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LOCATION: (IF APPLICABLE)
SERVICE PANEL
CODE REF: NEC 705.12(7)

15

PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SYSTEM

LOCATION: AC DISCONNECT
CODE REF: UTILITY

16

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)

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TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

DATE: 2/7/2023
REV: A
DRAWN BY: JS

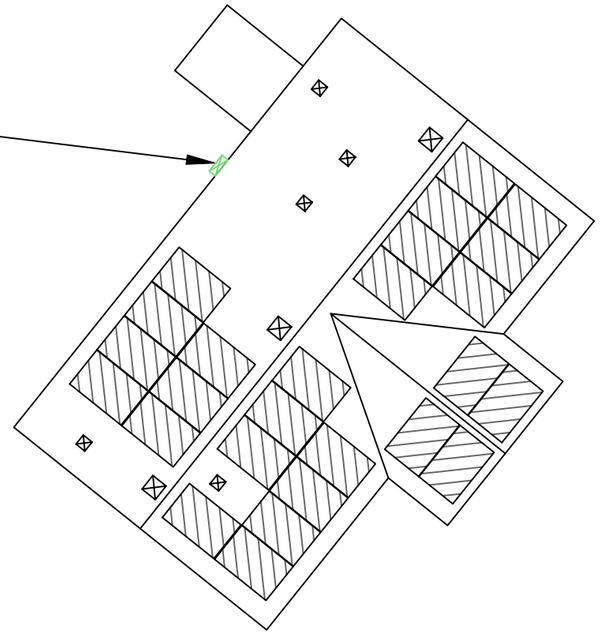
SEAL:

LABELS
PV 7

CAUTION

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

MAIN SERVICE PANEL
UTILITY METER
UTILITY AC DISCONNECT
INVERTER



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

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(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

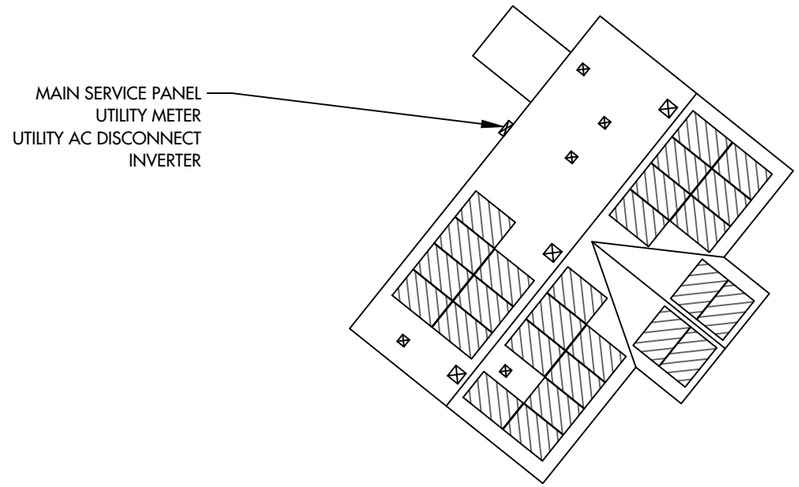
DATE: 2/7/2023
REV: A
DRAWN BY: JS

SEAL:

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

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

SPIVEY, STEPHEN RESIDENCE
131 EDNA JOHN COURT , DUNN, NC, 28334
LAT:35.339800, LON:-78.652052
TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

DATE: 2/7/2023
REV: A
DRAWN BY: JS

SEAL:

SAFETY PLAN
PV 9

Single Phase Energy Hub Inverter with Prism Technology

For North America

SE3000H-US / SE3800H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US[1]

HOME BACKUP

Optimized battery storage with HD-Wave technology

- Record-breaking 99% weighted efficiency with 200% DC oversizing
- Small, lightweight, and easy to install
- Modular design, future ready with optional upgrades to:
  - DC-coupled storage for full or partial home backup
  - Built-in consumption monitoring
  - Direct connection to the SolarEdge smart EV charger
- Multi-inverter, scalable storage solution
  - With enhanced battery power up to 10kW
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020, per article 690.11 and 690.12
- Embedded revenue grade production data, ANSI C12.20 Class 0.5

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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
INPUT - DC (PV AND BATTERY)							
Transformer-less, Ungrounded	Yes						
Max Input Voltage	480						Vdc
Nom DC Input Voltage	380						Vdc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600kΩ Sensitivity						
INPUT - DC (PV)							
Maximum DC Power @ 240V	6000	7600 15200*	12000	15200 22800*	22000	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 Current[5] @ 208V	-	9	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45						Adc
Maximum Inverter Efficiency	99	99.2					%
CEC Weighted Efficiency	99					99 @ 240V 98.5 @ 208V	%
2-pole Disconnection	Yes						

* Supported with PN SExxxxH-USMNxxxxxx or SExxxxH-USMNxxxxxx

(1) These specifications apply to inverters with part numbers SExxxxH-USSMxxxxx or SExxxxH-USSNxxxxxx and connection unit model number DCD-1PH-US-PxH-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				W
Peak Power[7]	6000	7600	10000				W
Max Input Current	16	20	26.5				Adc
2-pole Disconnection	Yes						
SMART ENERGY CAPABILITIES							
Consumption Metering	Built - in[8]						
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[9], Wi-Fi (optional),SolarEdge Energy Net (optional)						
Revenue Grade Metering, ANSI C12.20	Built - in[8]						
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		in / mm
Weight with Connection Unit	26 / 11.8			26 / 11.8 30.2 / 13.7*	30.2 / 13.7		lb / kg
Noise	< 25	< 25 < 50*	< 25	< 50			dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60[10]						°F / °C
Protection Rating	NEMA 4						

(6) The part numbers SExxxxH-USxMxxxxx only support the SolarEdge Energy Bank. The part numbers SExxxxH-USxNxxxxx support both SolarEdge Energy Bank and LG RESU Prime batteries Requires supporting inverter firmware
(7) Discharge power is limited up to the inverter rated AC power for on-grid and backup applications
(8) For consumption metering current transformers should be ordered separately: SECT-SPL-225A-T-20 or SEACT0750-400NA-20 units per box. Revenue grade metering is only for production metering
(9) Information concerning the Data Plan's terms & conditions is available in the following link: https://www.solaredge.com/sites/default/files/se-communication-plan-terms-and-conditions-eng.pdf
(10) 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-derating-note-na.pdf

RoHS

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EQUIPMENT SPECIFICATIONS
PV 10

Backup Interface
for North America

BI-EUSGN-01 / BI-NUSGN-01

STOREDGE®

Backup Interface for Flexible Backup

- Automatically provides backup power to home loads in the event of grid interruption
- Full flexibility in which loads to backup - the entire home or selected loads
- Scalable solution to support higher power & higher capacity(*)
- Built-in Auto Transformer and Energy Meter for easier and faster installation
- Seamless integration with the Energy Hub Inverter with Prism Technology to manage and monitor both PV generation and energy storage
- Generator connection support(*)

(*) Requires supporting inverter firmware

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Backup Interface for North America

BI-EUSGN-01 / BI-NUSGN-01

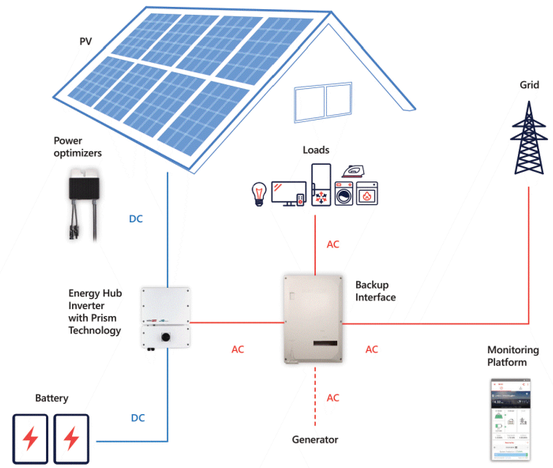
	BI-EUSGN-01	BI-NUSGN-01	
INPUT FROM GRID			
AC Current Input	200		A
AC Output Voltage (Nominal)	240		Vac
AC Output Voltage Range	211 - 264		Vac
AC Frequency (Nominal)	60		Hz
AC Frequency Range	59.3 - 60.5		Hz
Microgrid Interconnection Device Rated Current	200		A
Service Side AC Main Circuit Breaker Rated Current	200	N/A	A
Service Side AC Main Circuit Breaker Interrupt Current	10k	N/A	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 Frequency (Nominal)	60		Hz
AC Frequency Range	59.3 - 60.5		Hz
Maximum Inverters AC Current Output in Backup Operation	78		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	3		#
Rated AC Power	7,600		W
Maximum Continuous Input Current @ 240V	32		A
Rated AC Power in Continuous Backup Operation	6,100		W
Maximum Continuous Input Current in Backup Operation	26		A
Peak AC Power (<10 sec) in Backup Operation	7,000		W
Peak AC Current (<10 sec) in Backup Operation	30		A
Inverter Input AC Circuit Breaker	40		A
Upgradability	Up to 3 X 63A CB(1)		
GENERATOR(2)			
Maximum Rated AC Power	15,000		W
Maximum Continuous Input Current	63		Adc
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
(2) Requires supporting inverter firmware

Backup Interface for North America

BI-EUSGN-01 / BI-NUSGN-01

	BI-EUSGN-01	BI-NUSGN-01	
STANDARD COMPLIANCE			
Safety	UL1741, CSA 22.2 NO. 107		
	UL869A	N/A	
Emissions	FCC part 15 class B		
INSTALLATION SPECIFICATIONS			
Supported Inverters	StorEdge single phase inverter, Single phase Energy Hub inverter with Prism technology		
AC From Grid Conduit Size / AWG Range	2" conduits / #0 - 4/0 AWG		
AC Inverter Conduit Size / AWG Range	1" conduit / 14 - 4 AWG		
AC Generator Input Conduit Size / AWG Range	1" conduit / 8 - 3 AWG		
Communication Conduit Size / AWG Range	3/4" / 24 - 10 AWG		
Weight	73 / 33		lb / Kg
Cooling	Fan (user replaceable)		
Noise	< 50		dBA
Operating Temeprature Range	-40 to +122 / -40 to +50		°F / °C
Protection Rating	NEMA 3R, IP44		
Dimensions (HxWxD)	20.59 x 13.88 x 8.62 / 523.5 x 352.5 x 219		in / mm



CE FC

TITAN SOLAR POWER
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SEAL:

EQUIPMENT SPECIFICATIONS
PV 11

Power Optimizer

For Residential Installations

S440 / S500 / S500B

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

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Power Optimizer

For Residential Installations

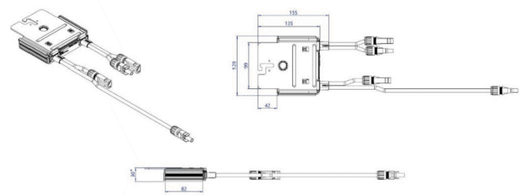
S440 / S500 / S500B

	S440	S500	S500B	UNIT
INPUT				
Rated Input DC Power(1)	440	500		W
Absolute Maximum Input Voltage (Voc)	60		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	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)				
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 155 x 45	mm
Weight (including cables)	655			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	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 Declaration of Conformity – CE
(3) For other connector types please contact SolarEdge.
(4) For ambient temperatures above +70°C power de-rating is applied. Refer to 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 (Power Optimizers)	S440, S500	8	9	16	18	
	S500B	6	8	14		
Maximum String Length (Power 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 Lengths or Orientations		Yes				

(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 maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to Application Note: Single String Design Guidelines.



* 45mm for S500B

CE RoHS

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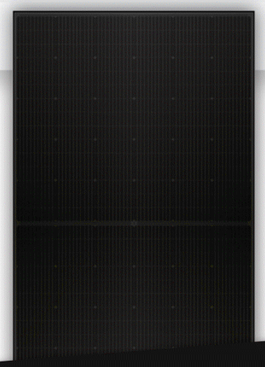
EQUIPMENT SPECIFICATIONS
PV 12

TITAN SOLAR PANEL

MADE IN THAILAND

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



390-410W

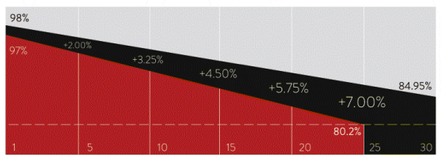
HIGH CONVERSION EFFICIENCY
Module efficiency up to 21.0% through advanced cell technology and manufacturing process

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

HY-DH108P8
108 HALF-CELL BIFACIAL MODULE



■ Conventional Module ■ Hyperion Performance

25 Years warranty for materials and workmanship

30 Years warranty for extra linear power output

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

INFO@HYPERION-USA.COM
7/559 MOO.6, MAPYANGPHON SUBDISTRICT,
PLUAK DAENG DISTRICT, RAYONG PROVINCE,
21140, THAILAND

12/22

BLACK DH108P8

HY-DH108P8-390/410B

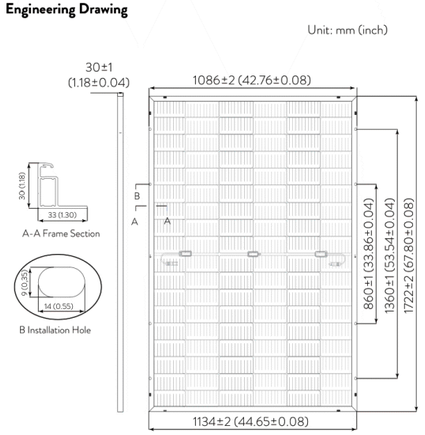
Mechanical Parameters

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

Engineering Drawing



Electrical Characteristics - STC
Irradiance 1000 W/m², ambient temperature 25 °C, AM1.5.

Maximum Power at STC (Pmax/W)	410	405	400	395	390
Power Tolerance (W)	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
Irradiance 800 W/m², ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

Maximum Power at NMOT (Pmax/W)	310.2	306.4	302.5	298.8	295.0
Optimum Operating Voltage (Vmp/V)	29.82	29.60	29.41	29.25	29.15
Optimum Operating Current (Imp/A)	10.40	10.35	10.29	10.22	10.15
Open Circuit Voltage (Voc/V)	35.39	35.31	35.15	35.07	34.95
Short Circuit Current (Isc/A)	11.25	11.19	11.13	11.05	10.98

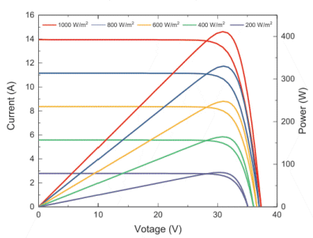
Rearside Power Gain (Reference to 410W Front)

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%

Temperature Characteristics

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

Current-Voltage & Power-Voltage Curve (410W)



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EQUIPMENT SPECIFICATIONS
PV 13

We support PV systems
Formerly Everest Solar Systems

Splice Foot X

Patent Pending

TECHNICAL SHEET

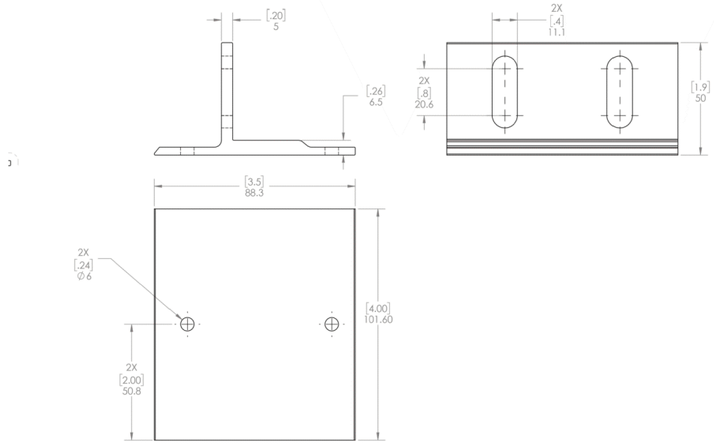
Item Number	Description	Part Number
1	Splice Foot X	4000113 | Splice Foot X Kit, Mill
2	K2 FlexFlash Butyl	
3	M5 x 60 lag screws	
4	T-Bolt & Hex Nut Set	

Technical Data

	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

Units: [in] mm



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

SPIVEY, STEPHEN RESIDENCE
131 EDNA JOHN COURT , DUNN, NC, 28334
LAT:35.339800, LON:-78.652052
TSP152526

(26) HY-DH108P8-400B
(1) SOLAREDGE ENERGYHUB SE10000H-US
10.400 kW DC SYSTEM SIZE
10.000 kW AC SYSTEM SIZE

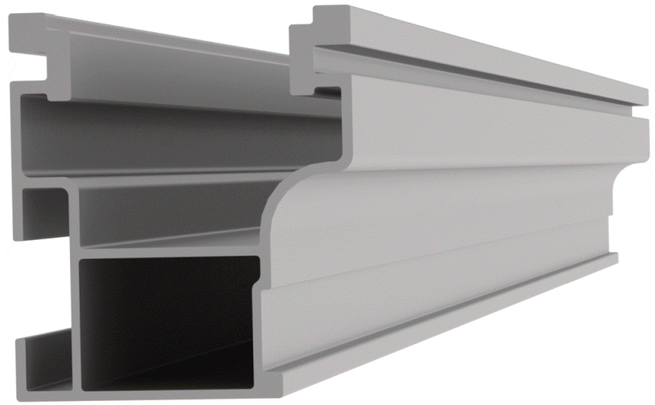
DATE: 2/7/2023
REV: A
DRAWN BY: JS

SEAL:

EQUIPMENT SPECIFICATIONS
PV 14

Mounting systems for solar technology

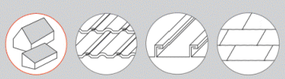
NEW!



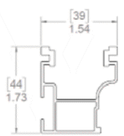
NEW PRODUCT

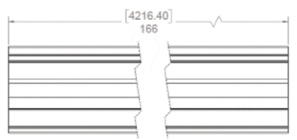
CrossRail 44-X

- 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





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

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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
SE5000H-US	24 @ 208V 21 @ 240V	30	50
SE6000H-US	24 @ 208V 25 @ 240V	30 @ 208V 35 @ 240V	50
SE7600H-US	32	40	50
SE10000H-US	42	60	80
SE11400H-US	48.5 @ 208V 47.5 @ 240V	70 @ 208V 60 @ 240V	80

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EQUIPMENT SPECIFICATIONS
PV 16