

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

**JIMENEZ, LUIS PV SYSTEM**  
**415 HIGHGROVE DRIVE .**  
**SPRING LAKE, NC, 28390**  
**APN: 01050401 0177 06**  
**JURISDICTION: HARNETT COUNTY (NC)**  
**GENERAL INFORMATION**

SYSTEM SIZE: 14.400 kW-DC-STC  
 11.400 kW-AC  
 ROOF PITCHED: 45 DEGREES  
 INVERTER: (1) SOLAREEDGE SE11400H-US W/ S440 OPTIMIZERS  
 MODULES: (36) HY-DH108P8-400B  
 STRINGS: (1) x 15, (1) x 10, (1) x 11 MODULE SERIES STRINGS  
 ELECTRICAL SERVICE RATING: 200A (DERATE TO 175A)  
 PV SYSTEM OVERCURRENT RATING: 60A  
 PV SYSTEM DISCONNECT SWITCH: EATON DG222URB (60A / 2P)  
 ROOF TYPE: COMP SHINGLE  
 ROOF FRAMING: ENGINEERED TRUSS  
 RACKING/RAILING: UNIRAC / UNIRAC-NXT

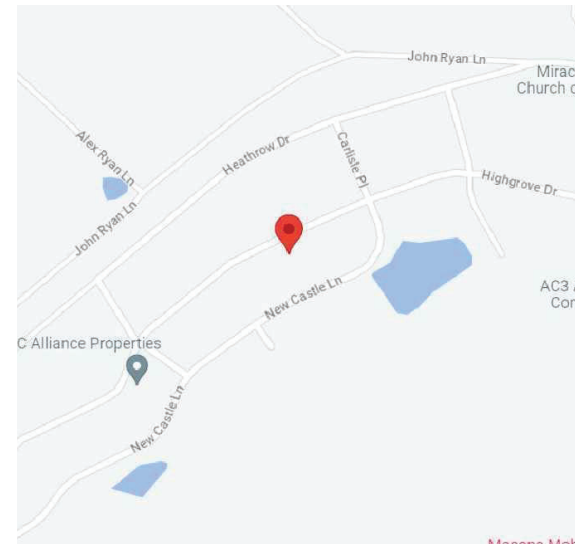
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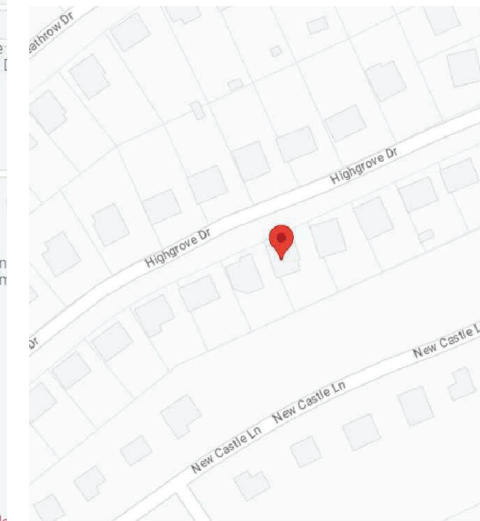
**VICINITY MAP**

SCALE: NTS



**AERIAL MAP**

SCALE: NTS



ENGINEER SEAL ARE FOR STRUCTURAL ITEMS ONLY



**NOTES**

**EQUIPMENT LOCATION**

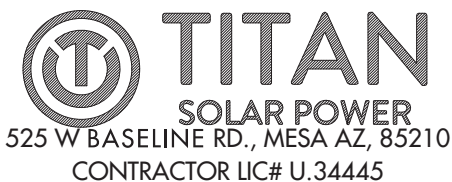
- ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
- WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31(A),(C) AND NEC TABLES 310.15(B)(2)(A) AND 310.15(B)(3)(C).
- JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
- 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.
- 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.
- 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**

- MODULES ARE LISTED UNDER UL 1703 AND CONFORM TO THE STANDARDS.
- INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS.
- DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION MIGHT VARY.
- 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.
- 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.
- 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.
- PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING.



JIMENEZ, LUIS RESIDENCE  
 415 HIGHGROVE DRIVE , SPRING LAKE, NC, 28390  
 LAT:35.238534, LON:-78.975111  
 TSP159468

(36) HY-DH108P8-400B  
 (1) SOLAREEDGE SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
 REV:A  
 DRAWN BY: HM

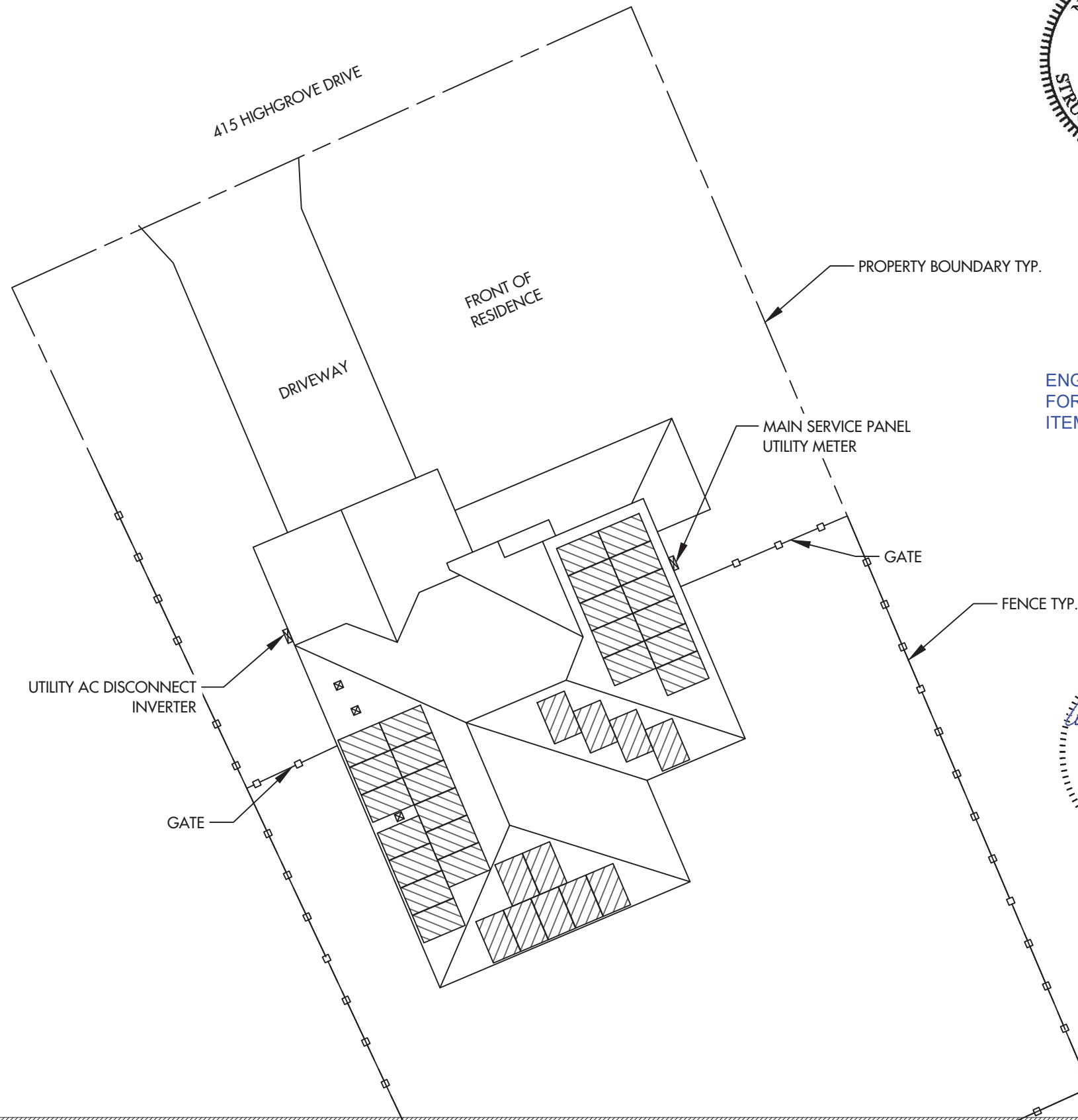
SEAL:

COVER PAGE  
**PV 1**

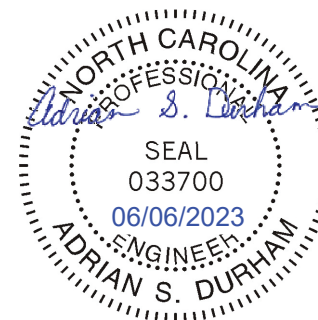


**PROJECT NOTES**

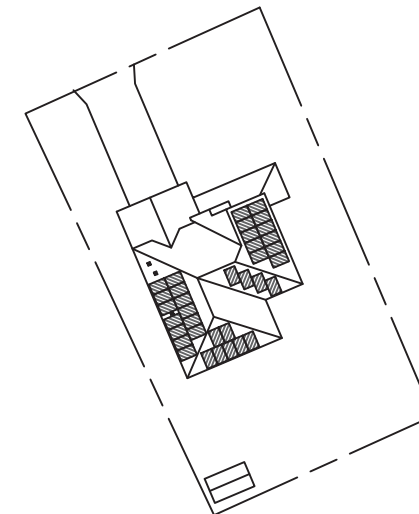
1. UTILITY SHALL HAVE 24HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC COMPONENTS LOCATED AT SES EQUIPMENT
2. NO LOCKED GATES, DOGS, ETC SHALL IMPEDE ACCESS TO SES EQUIPMENT
3. WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH SOUTH RIVER ELECTRIC MEMBERSHIP CORPORATION AND NEC REQUIREMENTS.
- 4.



ENGINEER SEAL ARE FOR STRUCTURAL ITEMS ONLY



PROPERTY EXTENTS  
SCALE: 1/64" = 1'-0"



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

JIMENEZ, LUIS RESIDENCE  
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TSP159468

(36) HY-DH108P8-400B  
(1) SOLAREEDGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

SCALE: 1/16" = 1'-0"  
DATE: 6/1/2023  
REV: A  
DRAWN BY: HM

SEAL:

SITE PLAN  
**PV 2**



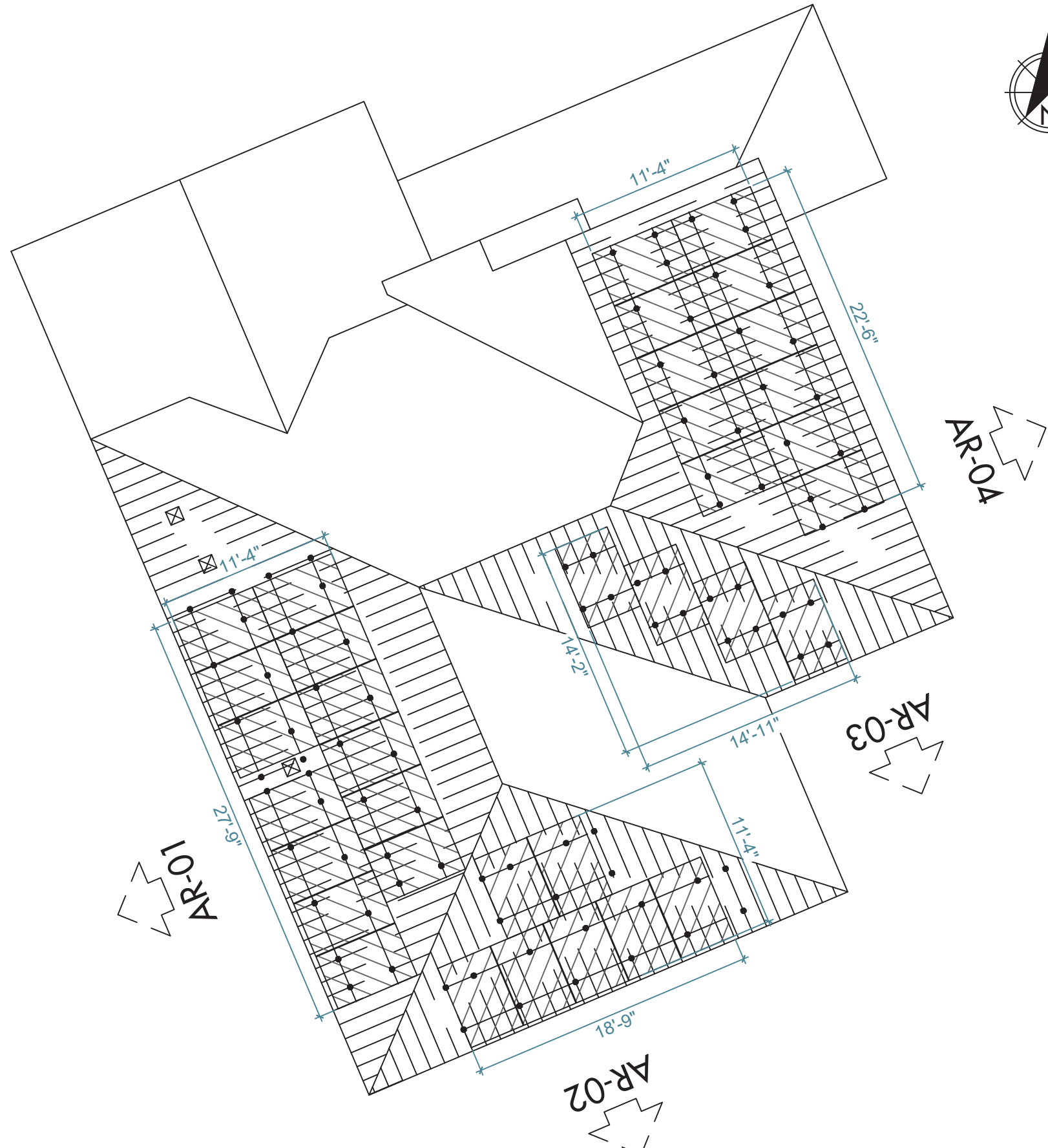
**ARRAY INFORMATION**

**AR-01**  
 QUANTITY: 14  
 MOUNTING TYPE: FLUSH  
 ARRAY TILT: 45°  
 AZIMUTH: 247°  
 ATTACHMENT SPACING: 4'  
 ROOF TYPE: COMP SHINGLE

**AR-02**  
 QUANTITY: 7  
 MOUNTING TYPE: FLUSH  
 ARRAY TILT: 45°  
 AZIMUTH: 157°  
 ATTACHMENT SPACING: 4'  
 ROOF TYPE: COMP SHINGLE

**AR-03**  
 QUANTITY: 4  
 MOUNTING TYPE: FLUSH  
 ARRAY TILT: 45°  
 AZIMUTH: 157°  
 ATTACHMENT SPACING: 4'  
 ROOF TYPE: COMP SHINGLE

**AR-04**  
 QUANTITY: 11  
 MOUNTING TYPE: FLUSH  
 ARRAY TILT: 45°  
 AZIMUTH: 67°  
 ATTACHMENT SPACING: 4'  
 ROOF TYPE: COMP SHINGLE

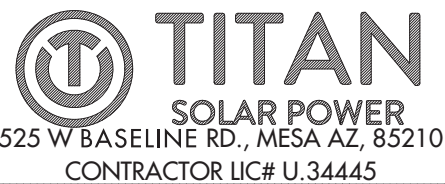


**NOTES**

- ROOF VENTS, SKYLIGHTS, WILL NOT BE COVERED UPON PV INSTALLATION
- TOTAL ROOF AREA = 2729.8 SQ-FT
- TOTAL ARRAY AREA = 756.82 SQ-FT
- ARRAY COVERAGE = 27.72%



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(36) HY-DH108P8-400B  
 (1) SOLAREGE SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

SCALE: 31/256" = 1'-0"  
 DATE: 6/1/2023  
 REV:A  
 DRAWN BY: HM

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: UNIRAC / UNIRAC-NXT  
 ROOF FASTENING: (2) #12-14 SCREW, HWH, SS, SELF-DR  
 W/ #12 EPDM WASHER

ROOF & FRAMING INFORMATION

MATERIAL: COMP SHINGLE  
 RAFTER/TRUSS SIZE: 2" x 6"  
 RAFTER/TRUSS SPACING: 1'

ARRAY 01: 14 MODULES

UPLIFT = 8829.54 LBS.  
POINT LOAD = 22.61 LBS. PER MOUNTING POINT  
PULLOUT STRENGTH = 17325.00 LBS.  
DISTRIBUTED LOAD = 2.54 PSF  
MODULE & RACKING WEIGHT = 746.20 LBS

ARRAY 04: 11 MODULES

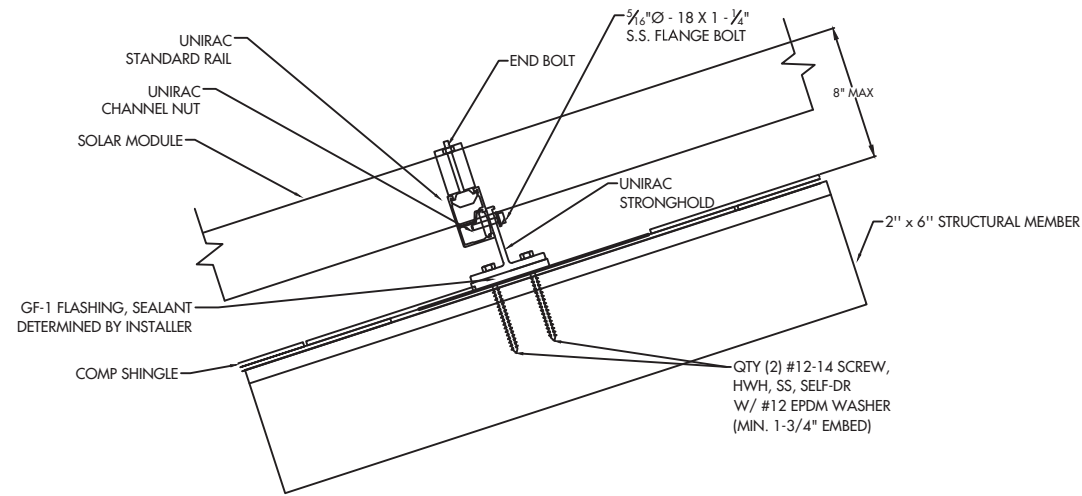
UPLIFT = 6937.49 LBS.  
POINT LOAD = 22.55 LBS. PER MOUNTING POINT  
PULLOUT STRENGTH = 13650.00 LBS.  
DISTRIBUTED LOAD = 2.54 PSF  
MODULE & RACKING WEIGHT = 586.30 LBS

ARRAY 02: 7 MODULES

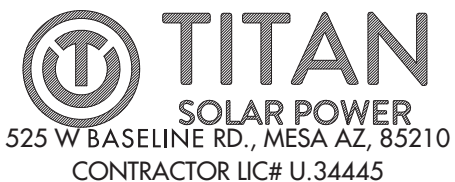
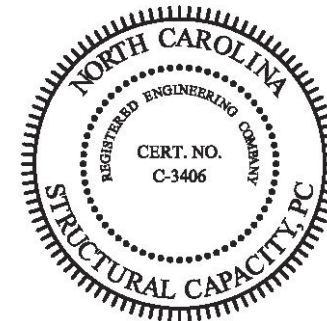
UPLIFT = 4414.77 LBS.  
POINT LOAD = 18.66 LBS. PER MOUNTING POINT  
PULLOUT STRENGTH = 10500.00 LBS.  
DISTRIBUTED LOAD = 2.54 PSF  
MODULE & RACKING WEIGHT = 373.10 LBS

ARRAY 03: 4 MODULES

UPLIFT = 2522.73 LBS.  
POINT LOAD = 13.33 LBS. PER MOUNTING POINT  
PULLOUT STRENGTH = 8400.00 LBS.  
DISTRIBUTED LOAD = 2.54 PSF  
MODULE & RACKING WEIGHT = 213.20 LBS



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(36) HY-DH108P8-400B  
 (1) SOLAREdge SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
 REV:A  
 DRAWN BY: HM

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

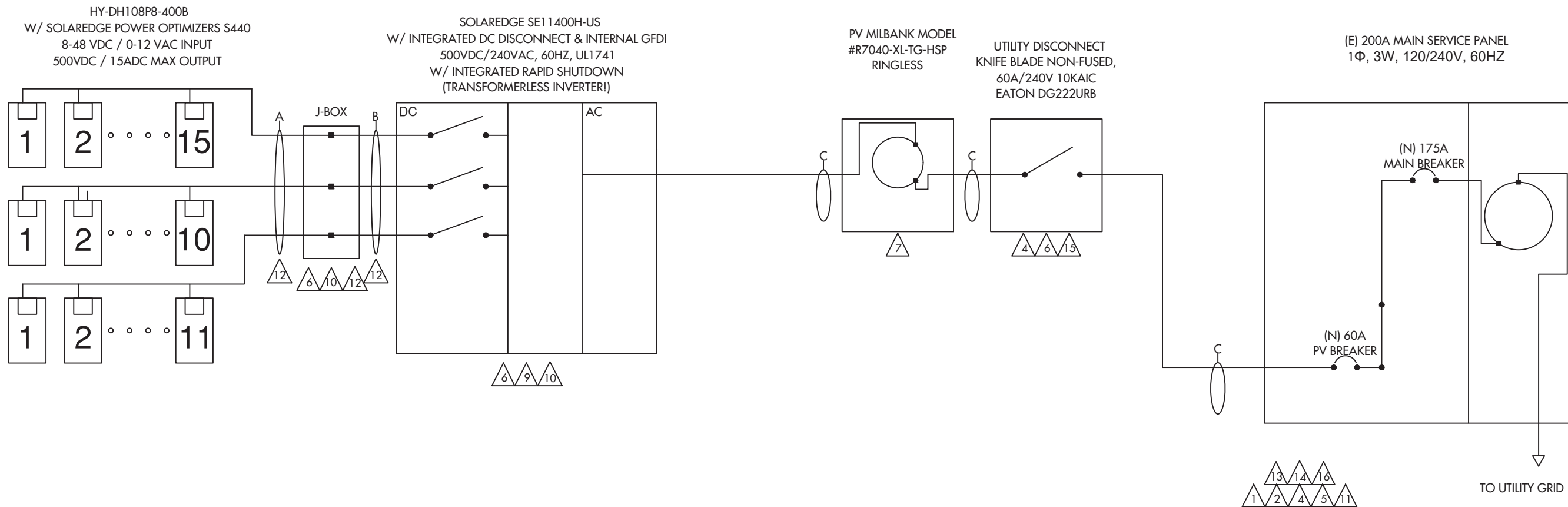
**WIRE SCHEDULE**

A - (6) #10 AWG-CU PV WIRE (HR)  
 (1) #10 AWG-CU BARE COPPER WIRE (GND)  
 1 1/4" PVC TRENCHED TO 18" MINDEPTH  
 B - (6) #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

**MAIN SERVICE PANEL**

BUS RATING = 200A  
 MAX. CURRENT RATING = 240A (200A X 1.2)  
 SOLAR BACKFEED = 59A  
 MAIN BREAKER = 175A  
 TOTAL = 234A



**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 = 27.84A (40A X 0.87 X 0.80)  
 ROOFTOP CONDUIT

**AC WIRING**  
 CONDUIT FILL FACTOR = 1 (3) CONDUCTORS  
 MAX. INVERTER CURRENT = 47.5A (PER INVERTER SPECS)  
 MIN. INVERTER OCP = 59.375A (47.5A X 1.25)  
 INVERTER OCP = 60A  
 #6 - AWG CU AMPACITY = 65.25A (75A X 1 X 0.87)



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(36) HY-DH108P8-400B  
 (1) SOLAREEDGE SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
 REV:A  
 DRAWN BY: HM

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

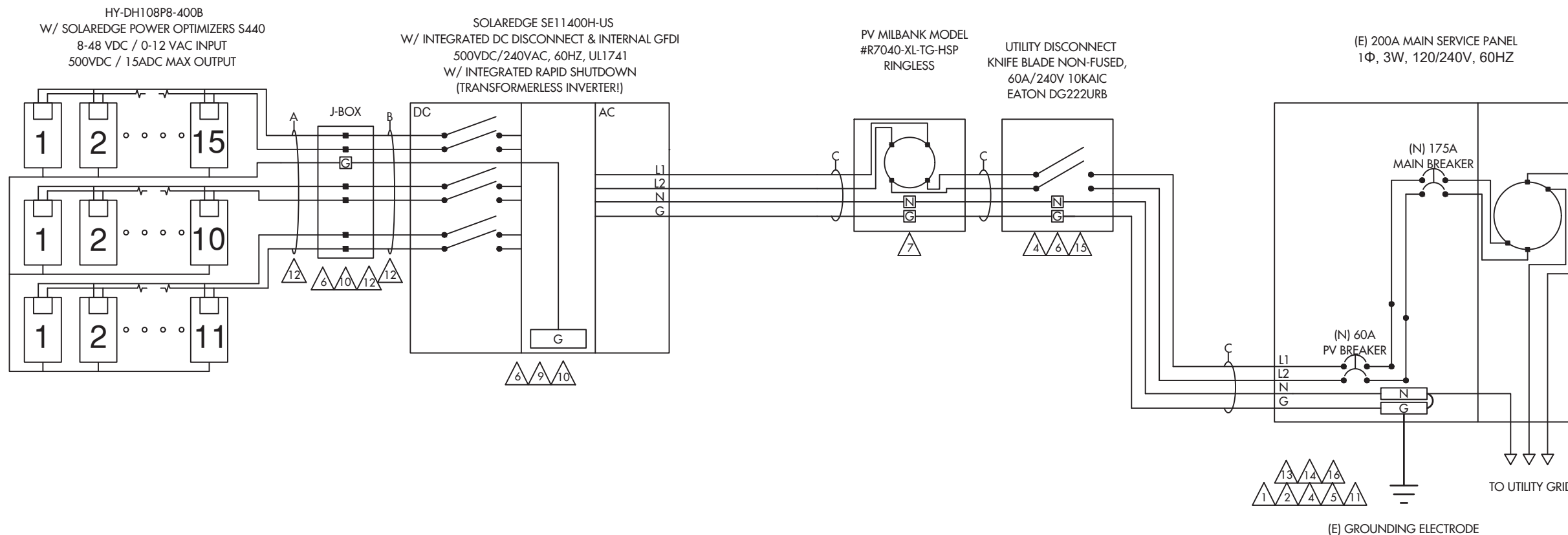
**WIRE SCHEDULE**

A - (6) #10 AWG-CU PV WIRE (HR)  
 (1) #10 AWG-CU BARE COPPER WIRE (GND)  
 1 1/4" PVC TRENCHED TO 18" MINDEPTH  
 B - (6) #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

**MAIN SERVICE PANEL**

BUS RATING = 200A  
 MAX. CURRENT RATING = 240A (200A X 1.2)  
 SOLAR BACKFEED = 59A  
 MAIN BREAKER = 175A  
 TOTAL = 234A

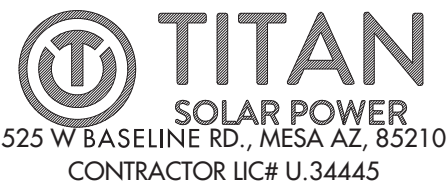


**WIRE SIZE CALCULATIONS**

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 = 27.84A (40A X 0.87 X 0.80)  
 ROOFTOP CONDUIT

**AC WIRING**  
 CONDUIT FILL FACTOR = 1 (3) CONDUCTORS  
 MAX. INVERTER CURRENT = 47.5A (PER INVERTER SPECS)  
 MIN. INVERTER OCP = 59.375A (47.5A X 1.25)  
 INVERTER OCP = 60A  
 #6 - AWG CU AMPACITY = 65.25A (75A X 1 X 0.87)



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 (1) SOLAREEDGE SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
 REV:A  
 DRAWN BY: HM

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 SOURCE 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: 47.5A  
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)

**THIS MAIN BREAKER HAS BEEN  
DERATED TO 175A  
DO NOT INSTALL A LARGER BREAKER**  
LOCATION: MAIN SERVICE PANEL  
ONLY WHEN MAIN BREAKER  
IS DERATED



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(36) HY-DH108P8-400B  
(1) SOLAREEDGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

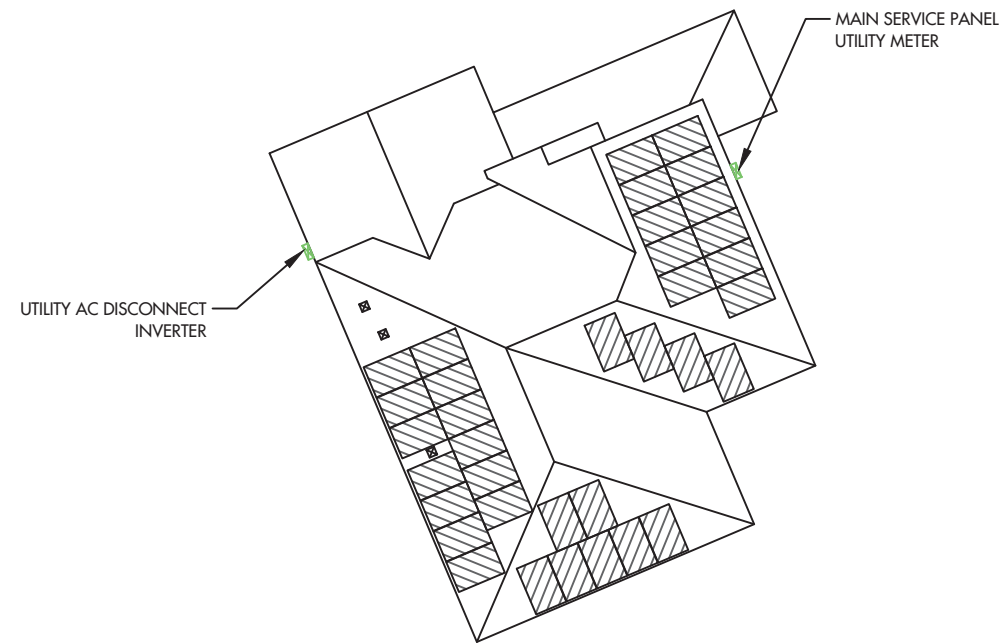
DATE: 6/1/2023  
REV: A  
DRAWN BY: HM

SEAL:

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



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

JIMENEZ, LUIS RESIDENCE  
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TSP159468

(36) HY-DH108P8-400B  
(1) SOLAREEDGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

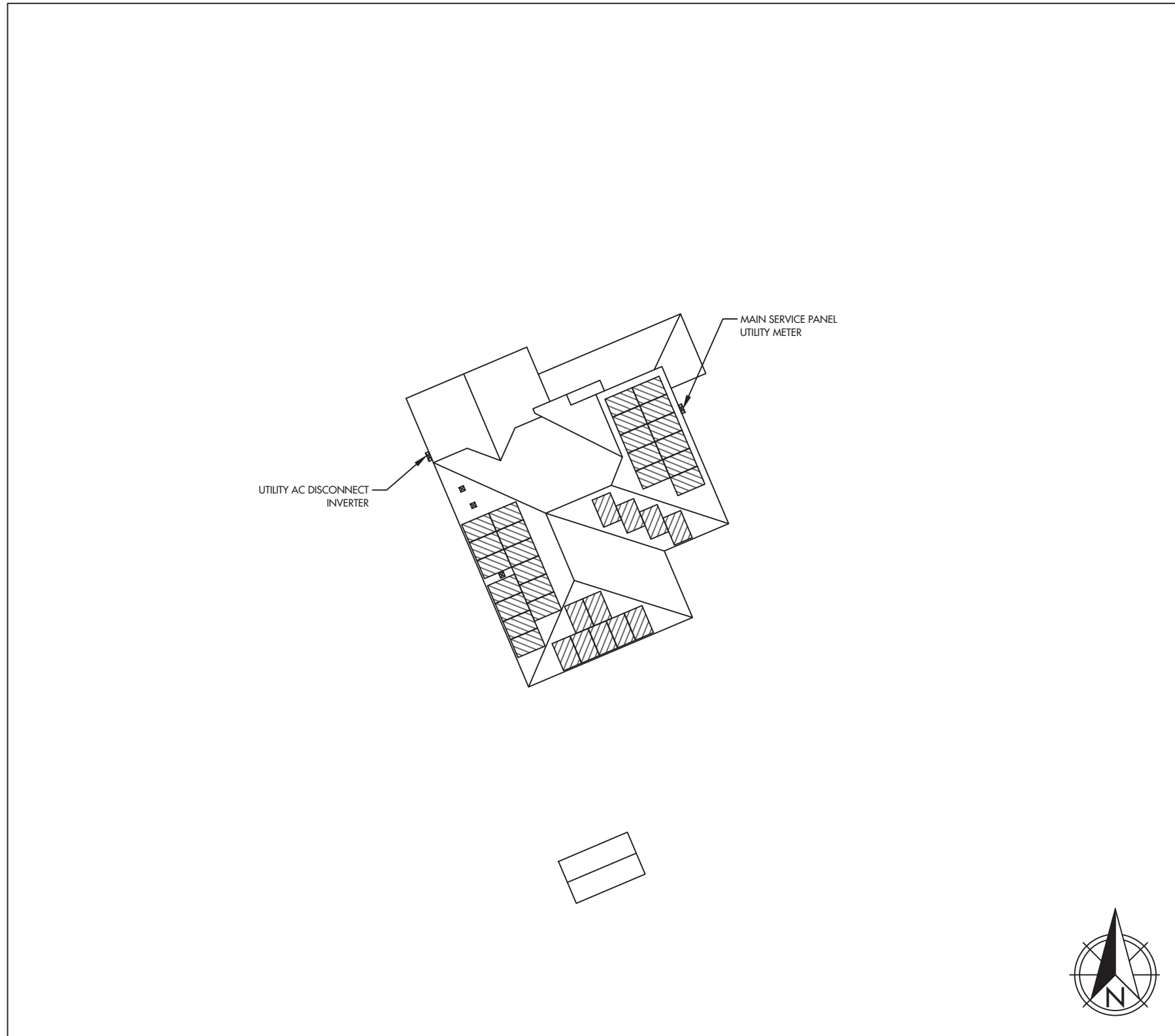
DATE: 6/1/2023  
REV: A  
DRAWN BY: HM

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

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

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

12-25 YEAR WARRANTY



INVERTERS

## 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 the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown per NEC 2014, NEC 2017 and NEC 2020 per article 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)

solaredge.com



## 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-XXXXBXX4							
<b>OUTPUT</b>								
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 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 <sup>(1)</sup>							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
<b>INPUT</b>								
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							Vdc
Nominal DC Input Voltage	380							Vdc
Maximum Input Current @240V <sup>(2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V <sup>(2)</sup>	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ka Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99 @ 240V 98.5 @ 208V							%
Nighttime Power Consumption	< 2.5							W

(1) For other regional settings please contact SolarEdge support  
(2) A higher current source may be used; the inverter will limit its input current to the values stated

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

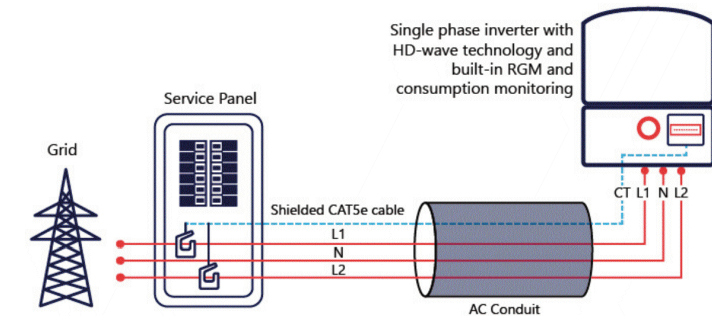
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
<b>ADDITIONAL FEATURES</b>								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional <sup>(3)</sup>							
Consumption metering	Optional <sup>(3)</sup>							
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							
<b>STANDARD COMPLIANCE</b>								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.L.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)							
Emissions	FCC Part 15 Class B							
<b>INSTALLATION SPECIFICATIONS</b>								
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				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 AWG			
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174		25.1 / 11.4		26.2 / 11.9		21.3 x 14.6 x 7.3 / 540 x 370 x 185	
Weight with Safety Switch	22 / 10		25.1 / 11.4		26.2 / 11.9		38.8 / 17.6	
Noise	< 25							dBa
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>(4)</sup>							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

(3) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BN4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box  
(4) 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>

## 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



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RoHS

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

JIMENEZ, LUIS RESIDENCE  
415 HIGHGROVE DRIVE, SPRING LAKE, NC, 28390  
LAT:35.238534, LON:-78.975111  
TSP159468

(36) HY-DH108P8-400B  
(1) SOLAREGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
REV: A  
DRAWN BY: HM

SEAL:

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 / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US when the following label is labeled on the side of the inverter:

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  
www.intertek.com

SE9KUS / SE10KUS / SE14.4KUS / SE16.7kUS / SE17.3KUS / SE20KUS / SE24KUS / SE30KUS / SE33.3KUS / SE40KUS / SE43.2KUS / 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  
**Verification Issuing Office** National Electric Code, 2020, Section 690.12 requirement for rapid shutdown  
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."

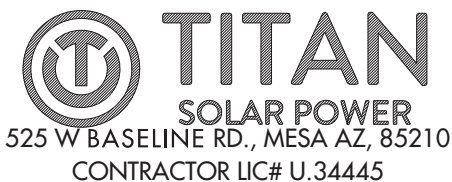
Signature:

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 001 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"



JIMENEZ, LUIS RESIDENCE  
415 HIGHGROVE DRIVE , SPRING LAKE, NC, 28390  
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TSP159468

(36) HY-DH108P8-400B  
(1) SOLAREEDGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
REV: A  
DRAWN BY: HM

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

[solaredge.com](http://solaredge.com)



## / Power Optimizer For Residential Installations S440 / S500 / S500B

	S440	S500	S500B	UNIT
<b>INPUT</b>				
Rated Input DC Power <sup>(1)</sup>	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		
<b>OUTPUT DURING OPERATION</b>				
Maximum Output Current		15		Adc
Maximum Output Voltage	60	80		Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b>				
Safety Output Voltage per Power Optimizer		1 ± 0.1		Vdc
<b>STANDARD COMPLIANCE<sup>(2)</sup></b>				
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			
<b>INSTALLATION SPECIFICATIONS</b>				
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 <sup>(3)</sup>			
Input Wire Length	0.1			m
Output Connector	MC4			
Output Wire Length	(+/-) 2.3, (-) 0.10			m
Operating Temperature Range <sup>(4)</sup>	-40 to +85			°C
Protection Rating	IP68			
Relative Humidity	0 – 100			%

<sup>(1)</sup> 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.

<sup>(2)</sup> For details about CE compliance, see [Declaration of Conformity – CE](#).

<sup>(3)</sup> For other connector types please contact SolarEdge.

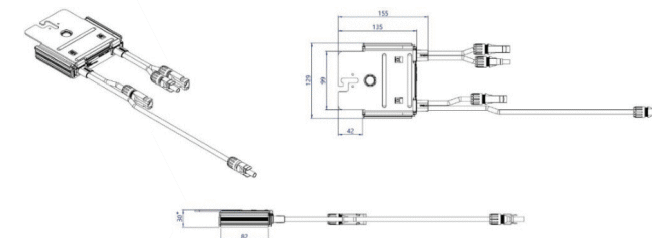
<sup>(4)</sup> For ambient temperatures above +70°C power de-rating is applied. Refer to [Power Optimizers Temperature De-Rating Technical Note](#) for details.

PV System Design Using a SolarEdge Inverter <sup>(5)</sup>	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 S500B: 6	9 8	16 14	18	
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 <sup>(6)</sup>	See <sup>(6)</sup>	13500	15000	W
Parallel Strings of Different Lengths or Orientations	Yes				

<sup>(5)</sup> It is not allowed to mix S-series and P-series Power Optimizers in new installations.

<sup>(6)</sup> If the inverter's rated AC power  $\leq$  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

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CE RoHS

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(36) HY-DH108P8-400B  
(1) SOLAREEDGE SE11400H-US  
14.400 kW DC SYSTEM SIZE  
11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
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SEAL:

EQUIPMENT  
SPECIFICATIONS  
**PV 12**





# 390-410W

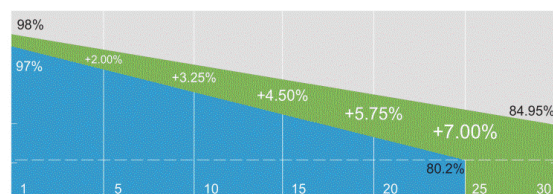
HY-DH108P8  
108 HALF-CELL BIFACIAL MODULE

**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



■ Conventional Module ■ Hyperion Performance

12 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

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HY-DH108P8-EN-V1.4



BLACK DH108P8

## HY-DH108P8-390/410B

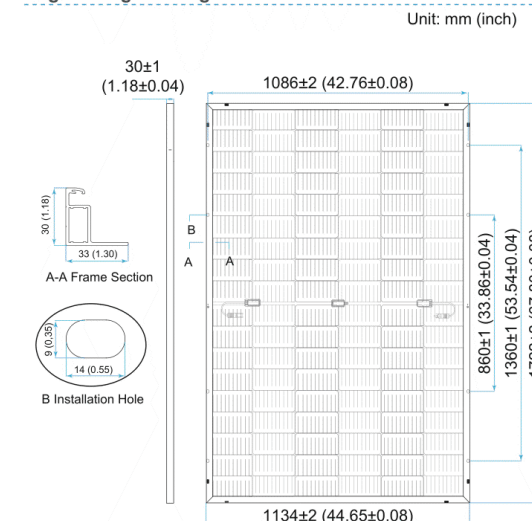
**Mechanical Parameters**

Solar Cell	Mono PERC 182mm
No. of Cells	108 (6 × 18)
Dimensions	1722 × 1134 × 30mm (67.08 × 44.65 × 1.18in.)
Weight	25.2kg (55.5lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4mm <sup>2</sup> (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/ft <sup>2</sup> )
Backside Max. Loading	2400Pa (50lb/ft <sup>2</sup> )
Bifaciality	70%±10%
Fire Resistance	IEC Class A, UL Type 29

**Engineering Drawing**



**Electrical Characteristics - STC** Irradiance 1000 W/m<sup>2</sup>, ambient temperature 25 °C, AM1.5.

Parameter	410	405	400	395	390
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/m<sup>2</sup>, ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

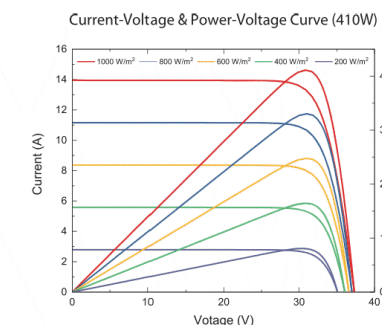
Parameter	310.2	306.4	302.5	298.8	295.0
Maximum Power at NMOT (Pmax/W)	310.2	306.4	302.5	298.8	295.0
Optimum Operating Voltage (Vmp/V)	29.82	29.60	29.41	29.25	29.15
Optimum Operating Current (Imp/A)	10.40	10.35	10.29	10.22	10.15
Open Circuit Voltage (Voc/V)	35.39	35.31	35.15	35.07	34.95
Short Circuit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

**Rearside Power Gain** (Reference to 410W Front)

Parameter	5%	15%	25%
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



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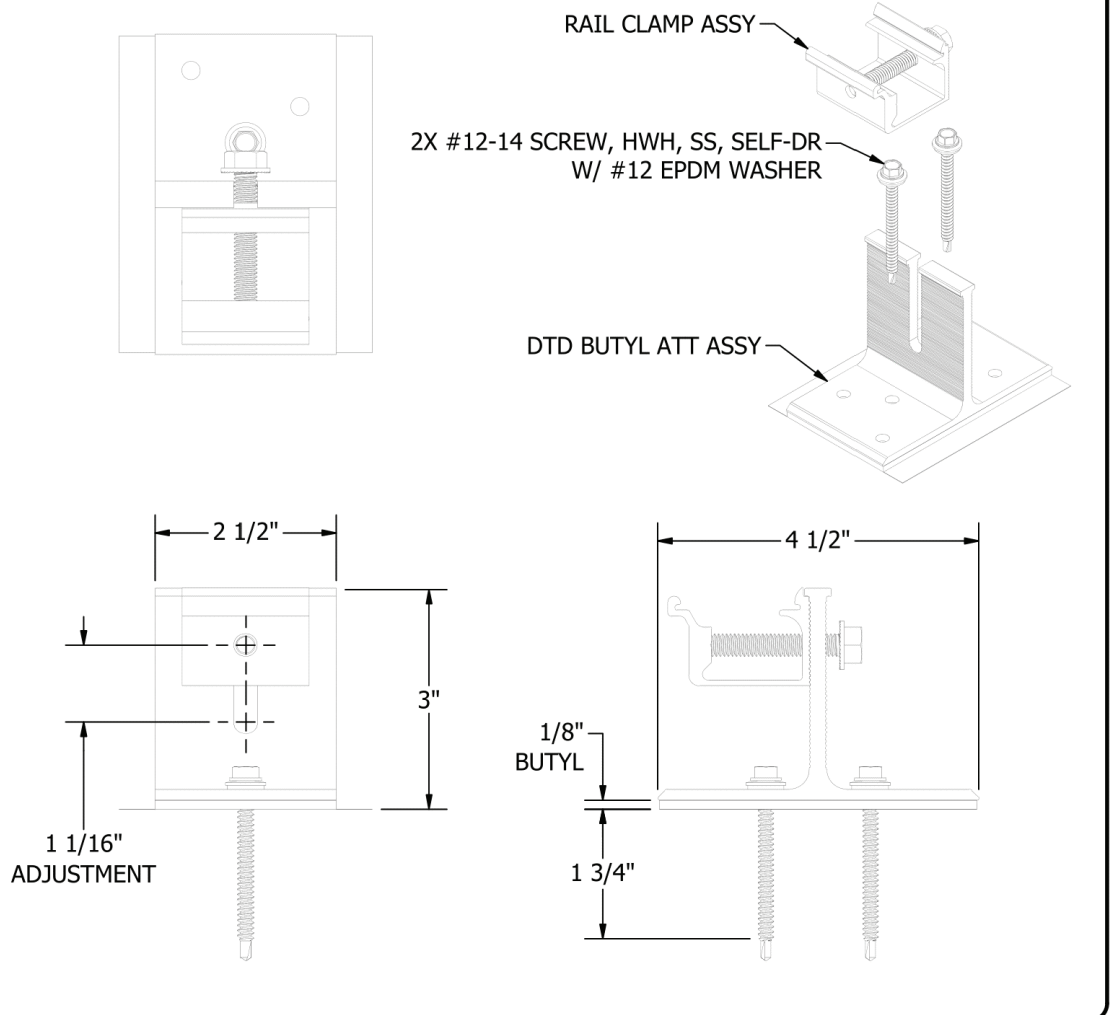
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DRAWN BY: HM

SEAL:

EQUIPMENT  
SPECIFICATIONS  
**PV 13**

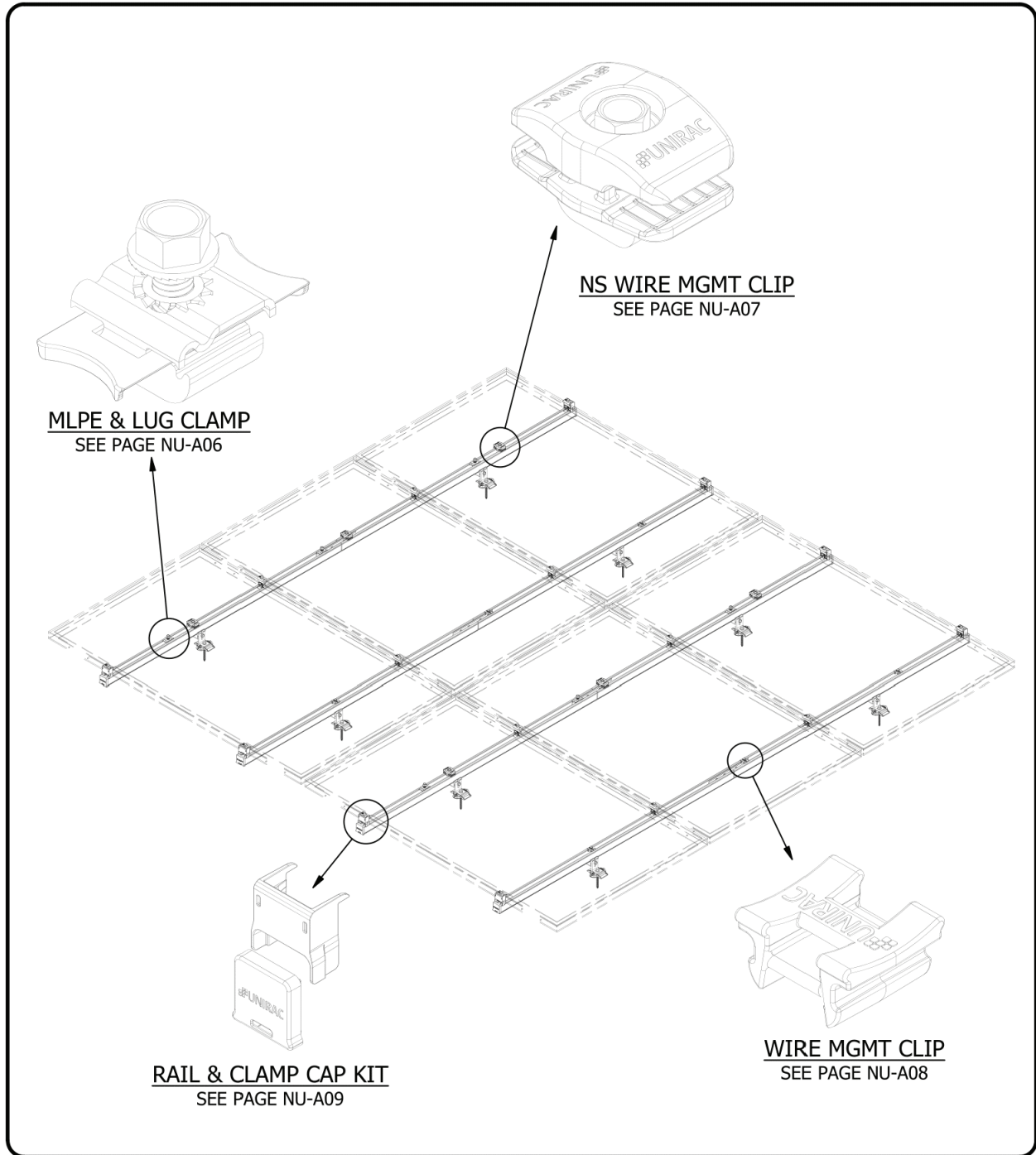


PART # TABLE	
P/N	DESCRIPTION
SBUTYLM1	STRONGHOLD ATT W/BUTYL, MILL
SBUTYLD1	STRONGHOLD ATT W/BUTYL, DARK

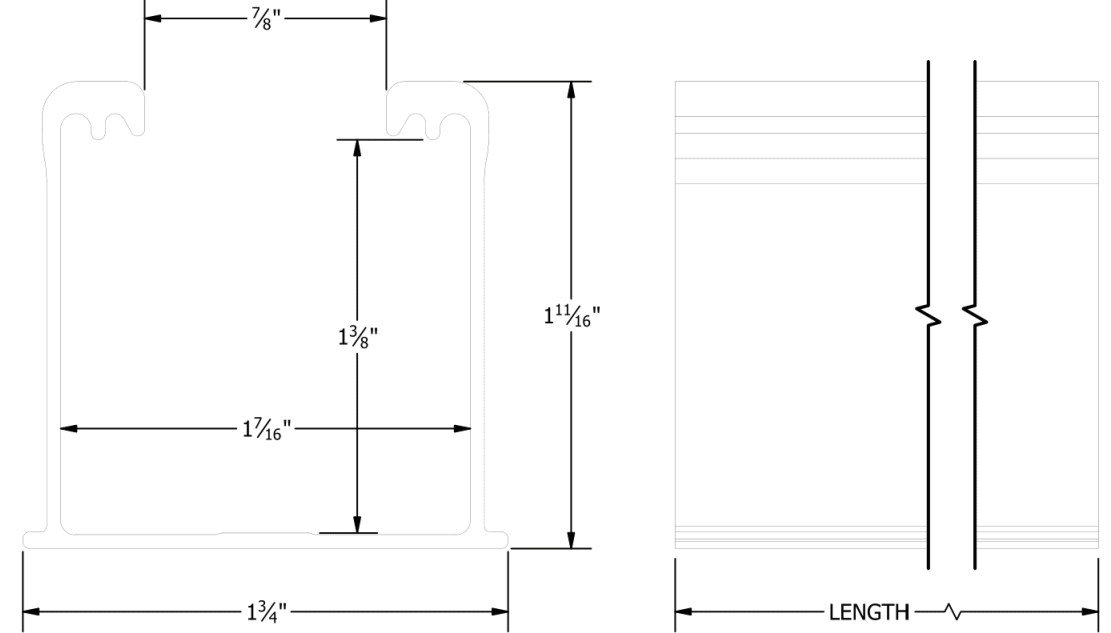
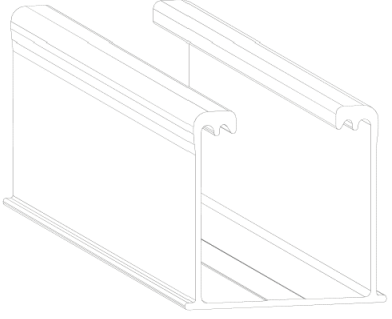


<p>1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM</p>	PRODUCT LINE:	NXT UMOUNT	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	<b>NU-A10</b>  SHEET
	DRAWING TYPE:	PARTS		
	DESCRIPTION:	SH BUTYL ATTACHMENT		
	REVISION DATE:	2/3/2023		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE		





PART # TABLE		
P/N	DESCRIPTION	LENGTH
084RLM1	NXT UMOUNT RAIL 84" MILL	84"
084RLD1	NXT UMOUNT RAIL 84" DARK	84"
168RLM1	NXT UMOUNT RAIL 168" MILL	168"
168RLD1	NXT UMOUNT RAIL 168" DARK	168"
208RLM1	NXT UMOUNT RAIL 208" MILL	208"
208RLD1	NXT UMOUNT RAIL 208" DARK	208"
246RLM1	NXT UMOUNT RAIL 246" MILL	246"
246RLD1	NXT UMOUNT RAIL 246" DARK	246"
171RLM1	NXT UMOUNT RAIL 171" MILL	171.50"
171RLD1	NXT UMOUNT RAIL 171" DARK	171.50"



**UNIRAC**  
 1411 BROADWAY BLVD. NE  
 ALBUQUERQUE, NM 87102 USA  
 PHONE: 505.242.6411  
 WWW.UNIRAC.COM

PRODUCT LINE: NXT UMOUNT  
 DRAWING TYPE: PART & ASSEMBLY  
 DESCRIPTION: MODULE ASSEMBLY  
 REVISION DATE: 11/17/2022

DRAWING NOT TO SCALE  
 ALL DIMENSIONS ARE  
 NOMINAL  
 PRODUCT PROTECTED BY  
 ONE OR MORE US PATENTS  
 LEGAL NOTICE

NU-A02  
 SHEET

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 ALBUQUERQUE, NM 87102 USA  
 PHONE: 505.242.6411  
 WWW.UNIRAC.COM

PRODUCT LINE: NXT UMOUNT  
 DRAWING TYPE: PART DETAIL  
 DESCRIPTION: RAIL  
 REVISION DATE: 11/17/2022

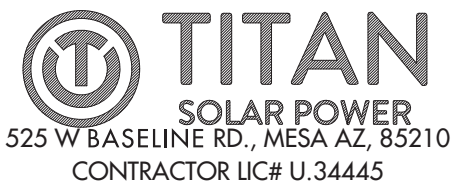
DRAWING NOT TO SCALE  
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NU-P01  
 SHEET

### 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

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



JIMENEZ, LUIS RESIDENCE  
 415 HIGHGROVE DRIVE , SPRING LAKE, NC, 28390  
 LAT:35.238534, LON:-78.975111  
 TSP159468

(36) HY-DH108P8-400B  
 (1) SOLAREEDGE SE11400H-US  
 14.400 kW DC SYSTEM SIZE  
 11.400 kW AC SYSTEM SIZE

DATE: 6/1/2023  
 REV: A  
 DRAWN BY: HM

SEAL:

EQUIPMENT  
 SPECIFICATIONS  
**PV 16**