

76 North Meadowbrook Drive Alpine, UT 84004 office (201) 874-3483 swyssling@wysslingconsulting.com

April 10, 2023 Revised June 1, 2023

Titan Solar Power 210 North Sunway Drive Gilbert, AZ 85233

Scott

Digitally signed by Scott Wysaling, PE

Dit Challs, Schulb, Labpine, Chriyslaning Consulin

Christopher Schulb, Labpine, Chriyslaning Consulin

Christopher Schulb Christopher Schulb

Wysssling, PE

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Facility Telescher Versice: 11.1.0

Re: Engineering Services Lewis Residence 185 Sherwood Hills Court, Cameron NC 6.000 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

#### A. Site Assessment Information

- Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
- Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

#### B. Description of Structure:

Roof Framing: Assumed 2x6 dimensional lumber at 24" on center.

Roof Material: Composite Asphalt Shingles

Roof Slope: 26 degrees Inaccessible Permanent

#### C. Loading Criteria Used

- Dead Load
  - Existing Roofing and framing = 7 psf
  - New Solar Panels and Racking = 3 psf
  - TOTAL = 10 PSF
- Live Load = 20 psf (reducible) 0 psf at locations of solar panels
- Ground Snow Load = 15 psf
- Wind Load based on ASCE 7-10
  - Ultimate Wind Speed = 119 mph (based on Risk Category II)
  - Exposure Category C

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2018 NCRC (2015 IRC), including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.

#### D. Solar Panel Anchorage

- 1. The solar panels shall be mounted in accordance with the most recent K2 installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
- 2. The maximum allowable withdrawal force for a M5 x 60mm lag screw is 158 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on two (2) screws with a minimum penetration depth of 1.25", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using two (2) M5 x 60mm lag screw with a minimum of 1.25" embedment will be adequate and will include a sufficient factor of safety.
- 3. Considering the roof slopes, the size, spacing, condition of roof, the panel supports shall be placed no greater than 48" o/c.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2018 NCRC (2015 IRC), current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

544 L. √4

Scott E. Wyssling, PE North Carolina License 1. 46546 North Carolina COA No. P-2308

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Signed 06-01-23



## **Project Information:**

TSP153990 LaPrei T Lewis

185 Sherwood Hills Ct Cameron NC 28326 Senior Manager - Design manish@wattmonk.com

#### Comments:

• We have revised the module layout as per the installed layout.

No Further Changes.



Wyssling Consulting, PLLC 76 N Meadowbrook Drive Alpine UT 84004 North Carolina COA # P-2308 Signed 6/01/2023

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#### **SCOPE OF WORK**

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA.
THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT.

EQUIPMENT SUMMARY

15 HYPERION SOLAR HY-DH108P8 (400W) MODULES

THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES.

1 SOLAREDGE SE5000H-US [240V] INVERTER

15 SOLAREDGE POWER OPTIMIZER S440

#### **GENERAL NOTES**

- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR INSTALLATION OF ANY EQUIPMENT AT SITE.
- CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE ARCHITECT.
- CONTRACTOR SHALL OBTAIN BULDING PERMIT. NO WORK TO START UNLESS BUILDING PERMIT IS PROPERLY DISPLAYED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL BUILDING CODE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES.
- IT 1S ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING. THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH.
- THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS, CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.
- CONTRACTORS SHALL OBTAIN FIRE CERTIF. UPON COMPLETION OF WORK.

#### ELECTRICAL NOTES

- ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
- WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURERS INSTRUCTION.
- MODULE SUPPORT RAIL SHALL BE BONDED TO THE MODULE

#### **GOVERNING CODES**

2018 NORTH CAROLINA FIRE CODE
2018 NORTH CAROLINA BUILDING CODE
2018 NORTH CAROLINA RESIDENTIAL CODE
2018 NORTH CAROLINA ENERGY CONSERVATION CODE
2018 NORTH CAROLINA EXISTING BUILDING CODE
2018 NORTH CAROLINA SWIMMING POOL AND SPA CODE
2017 NORTH CAROLINA ELECTRICAL CODE

AHJ NAME: HARNETT COUNTY

#### WIRING AND CONDUIT NOTES

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



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SYSTEM RATING
6.000 kWDC
5.000 kWAC

PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL 1703 STANDARD.

SHEET INDEX		
PV1	COVER PAGE	
PV2	SITE PLAN	
PV3	ROOF PLAN	
PV4	STRING LAYOUT & BOM	
PV5-PV6	ATTACHMENT DETAILS	
PV7-PV8	ELECTRICAL LINE & CALCS.	
PV9	SPECIFICATIONS & NOTES	
PV10-PV11	SIGNAGE	
PV12	JOB SAFETY PLAN	
PV13-PV19	EQUIPMENT SPECIFICATIONS	
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HOUSE PHOTO

SCALE: NTS



VICINITY MAP SCALE: NTS



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR
HY-DH108P8 (400W)

(1) SOLAREDGE
SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS			
DESCRIPTION	DATE	REV	
REVISION	05/23/2023	Α	
REVISION	06/01/2023	В	

PROJECT NAME & ADDRESS

RESIDENCE
85 SHERWOOD HILLS CT, CAMERON, NC 28326,
USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

LAPREI T LEWIS

DATE: 6/1/2023

SHEET NAME

COVER PAGE

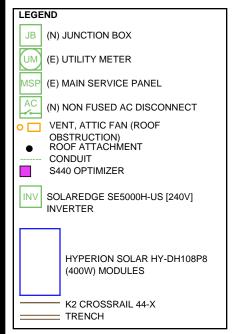
SHEET SIZE

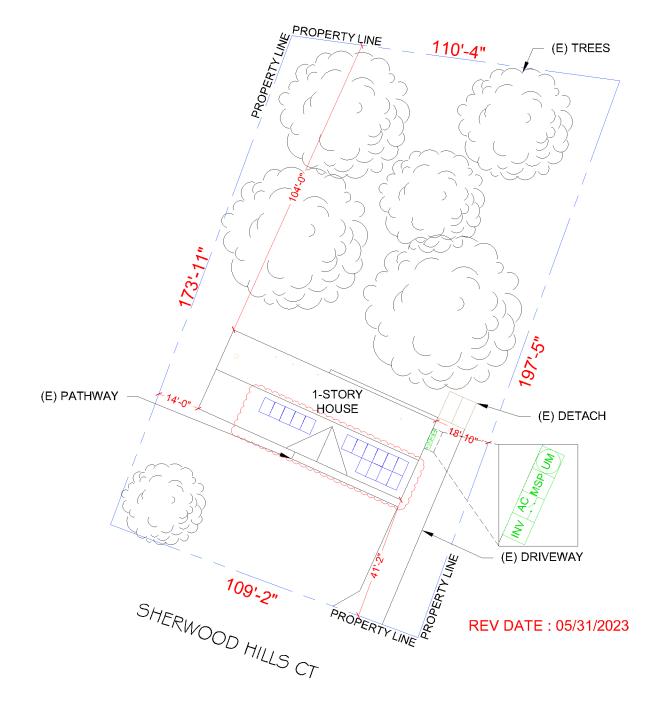
ANSI B 11" X 17"

SHEET NUMBER

#### SITE NOTES

- A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS AN UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
- THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION [NEC 110.26]







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TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

> (1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS			
DESCRIPTION	DATE	REV	
REVISION	05/23/2023	Α	
REVISION	06/01/2023	В	

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PHONE NO. (919) 579-0977

LAPREI T LEWIS

DATE: 6/1/2023

SHEET NAME

185

SITE PLAN

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-2



SCALE: 1/32"= 1'-0

METER NO#: 162 809 049

DESIGN SPECIFIC	ATION
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE7-10):	15 PSF
EXPOSURE CATEGORY:	С
WIND SPEED (ASCE7-10):	119 MPH

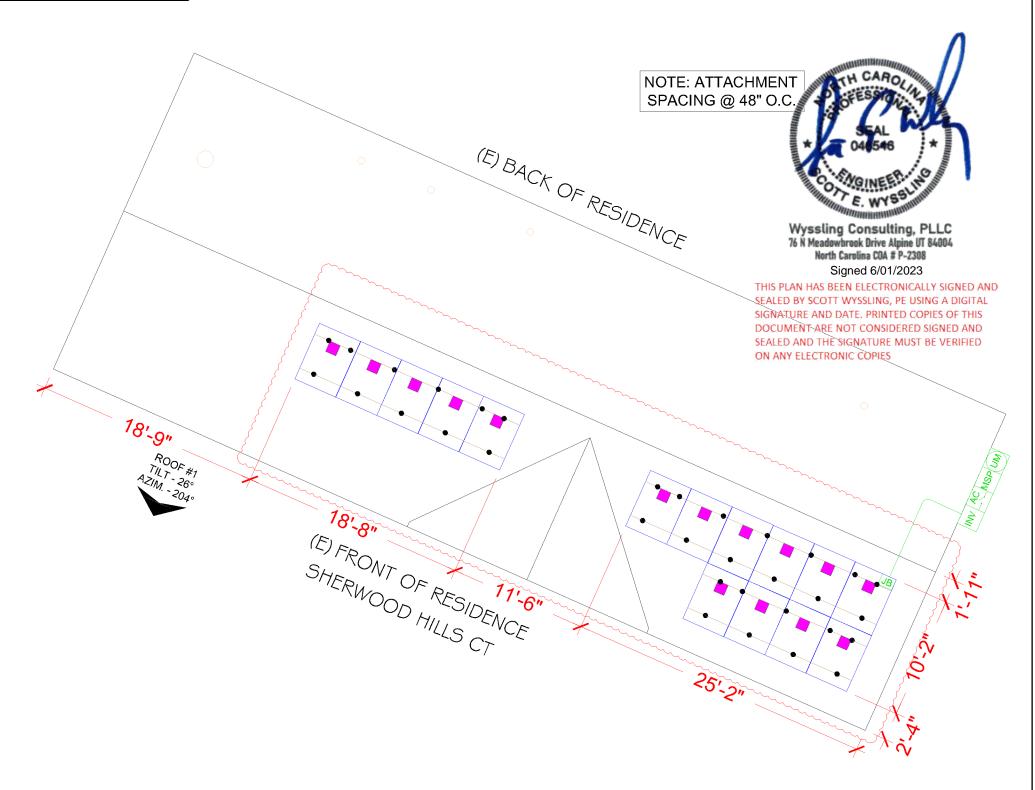
MODULE TYPE, I	DIMENSIONS & WEIGHT
NUMBER OF MODULES:	15 MODULES
MODULE TYPE:	HYPERION SOLAR HY-DH108P8 (400W)
MODULE WEIGHT:	55.5 LBS
MODULE DIMENSIONS:	67.08" X 44.65" = 20.80 SF
UNIT WEIGHT OF AREA:	2.67 PSF

ROOF DESCRIPTION					
ROOF	ROOF TILT	AZIMUTH		RAFTER SPACING	ROOF MATERIAL
#1	26°	204°	2" x 6"	24" o.c.	COMP SHINGLE

ARRAY AREA & ROOF AREA CALC'S			
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	
#1	15	312	
(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%			
= (312/2	= (312/2380) X 100% = 13.11%		

LEGE	ND
JB	(N) JUNCTION BOX
UM	(E) UTILITY METER
MSP	(E) MAIN SERVICE PANEL
AC	(N) NON FUSED AC DISCONNECT
•	VENT, ATTIC FAN (ROOF OBSTRUCTION) ROOF ATTACHMENT CONDUIT S440 OPTIMIZER
INV	SOLAREDGE SE5000H-US [240V] INVERTER
	HYPERION SOLAR HY-DH108P8 (400W) MODULES
	K2 CROSSRAIL 44-X TRENCH

PANEL HEIGHT OFF ROOF	8"			
DEAD LOAD CALCULATION				
EQUIPMENT'S DESCRIPTIONS	QTY	LBS/UNIT	TOTAL WEIGHT	
MODULES	15	55.5	832.5	
MID CLAMP	26	0.3	7.8	
END CLAMP	8	0.31	2.48	
K2 CROSSRAIL 44-X	9	10	90.00	
SPLICE BAR	6	0.65	3.91	
SPLICE FOOT X	33	0.9	29.70	
K2 SOLAR SEAL BUTYL PAD	33	0.42	13.86	
M5 X 60 LAG SCREWS	66	0.08	5.28	
T BOLT AND HEX NUT SET	33	0.05	1.65	
TOTAL WEIGHT OF THE SYSTEM (LBS)			987.18	
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			312	
WEIGHT PER SQ. FT. (LBS)			3.17	
WEIGHT PER PENETRATION (LBS) 5.99			5.99	





REV DATE: 05/31/2023

METER NO#: 162 809 049



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

CVCTEM CIZE: C 000 II

DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	05/23/2023	Α
REVISION	06/01/2023	В

PROJECT NAME & ADDRESS

RESIDENCE 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA EMAIL ID: LEWI\_LOVE2004@YAHOO.COM PHONE NO. (919) 579-0977

LAPREI T LEWIS

DATE: 6/1/2023

SHEET NAME

**ROOF PLAN** 

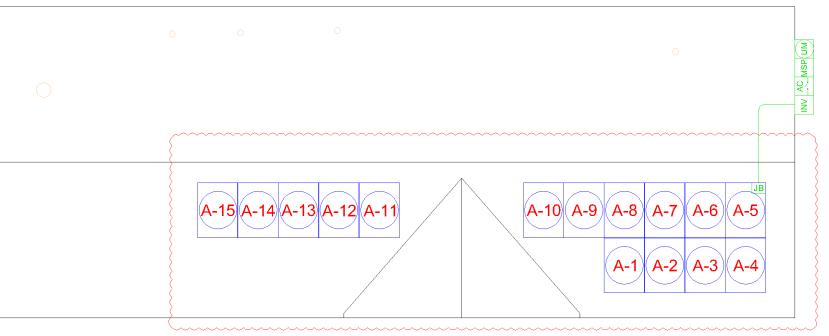
SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

BILL OF MATERIALS			
EQUIPMENT	QTY	DESCRIPTION	
SOLAR PV MODULE	15	HYPERION SOLAR HY-DH108P8 (400W)	
INVERTER	1	SOLAREDGE SE5000H-US [240V]	
OPTIMIZER	15	SOLAREDGE POWER OPTIMIZER S440	
JUNCTION BOX	1	JB-1.XL, JUNCTION BOX, NEMA 3R, UL LISTED	
NON FUSED AC DISCONNECT	1	EATON DG221URB PV SYSTEM AC DISCONNECT SWITCH NON FUSED VISIBLE OPEN 30A, 120/240V 2P NEMA 3R	
ATTACHMENT	33	SPLICE FOOT X	
ATTACHMENT	33	K2 SOLAR SEAL BUTYL PAD	
ATTACHMENT	66	M5 X 60 LAG SCREWS	
ATTACHMENT	33	T BOLT AND HEX NUT SET	
RAILS	9	K2 CROSSRAIL 44-X	
BONDED SPLICE	6	SPLICE KIT	
MID CLAMP	26	MODULE MID CLAMPS	
END CLAMP	8	MODULE END CLAMPS	
GROUNDING LUG	2	GROUNDING LUG	

(E) BACK OF RESIDENCE



(E) FRONT OF RESIDENCE SHERWOOD HILLS CT

REV DATE: 05/31/2023

LAPREI T LEWIS RESIDENCE 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA EMAIL ID: LEWI\_LOVE2004@YAHOO.COM PHONE NO. (919) 579-0977

TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO (15) HYPERION SOLAR HY-DH108P8 (400W) (1) SOLAREDGE SE5000H-US [240V] DC SYSTEM SIZE: 6.000 kWDC AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS

PROJECT NAME & ADDRESS

DATE 05/23/2023

06/01/2023

DESCRIPTION

REVISION

DATE: 6/1/2023

SHEET NAME

STRING LAYOUT & BOM

SHEET SIZE

ANSI B 11" X 17"

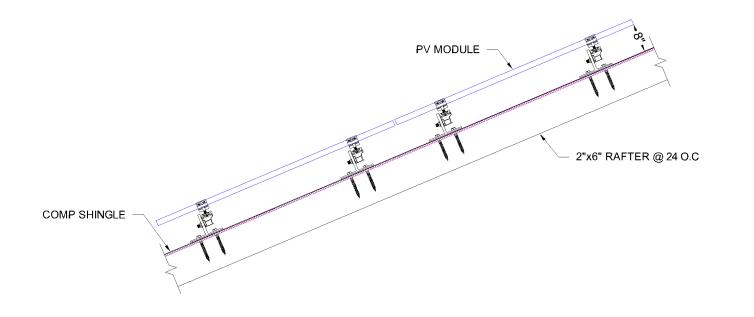
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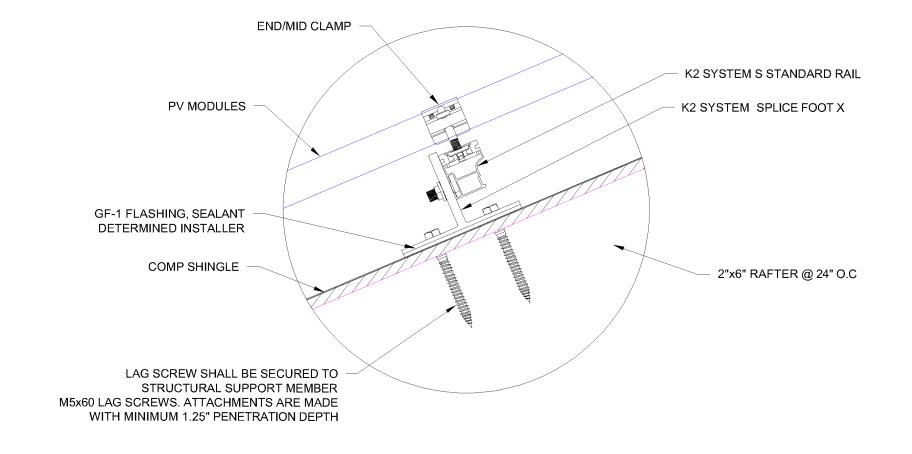
PV-4





SCALE: 1/16"= 1'-0"







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(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

TE REV
/2023 A
/2023 B

PROJECT NAME & ADDRESS

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EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

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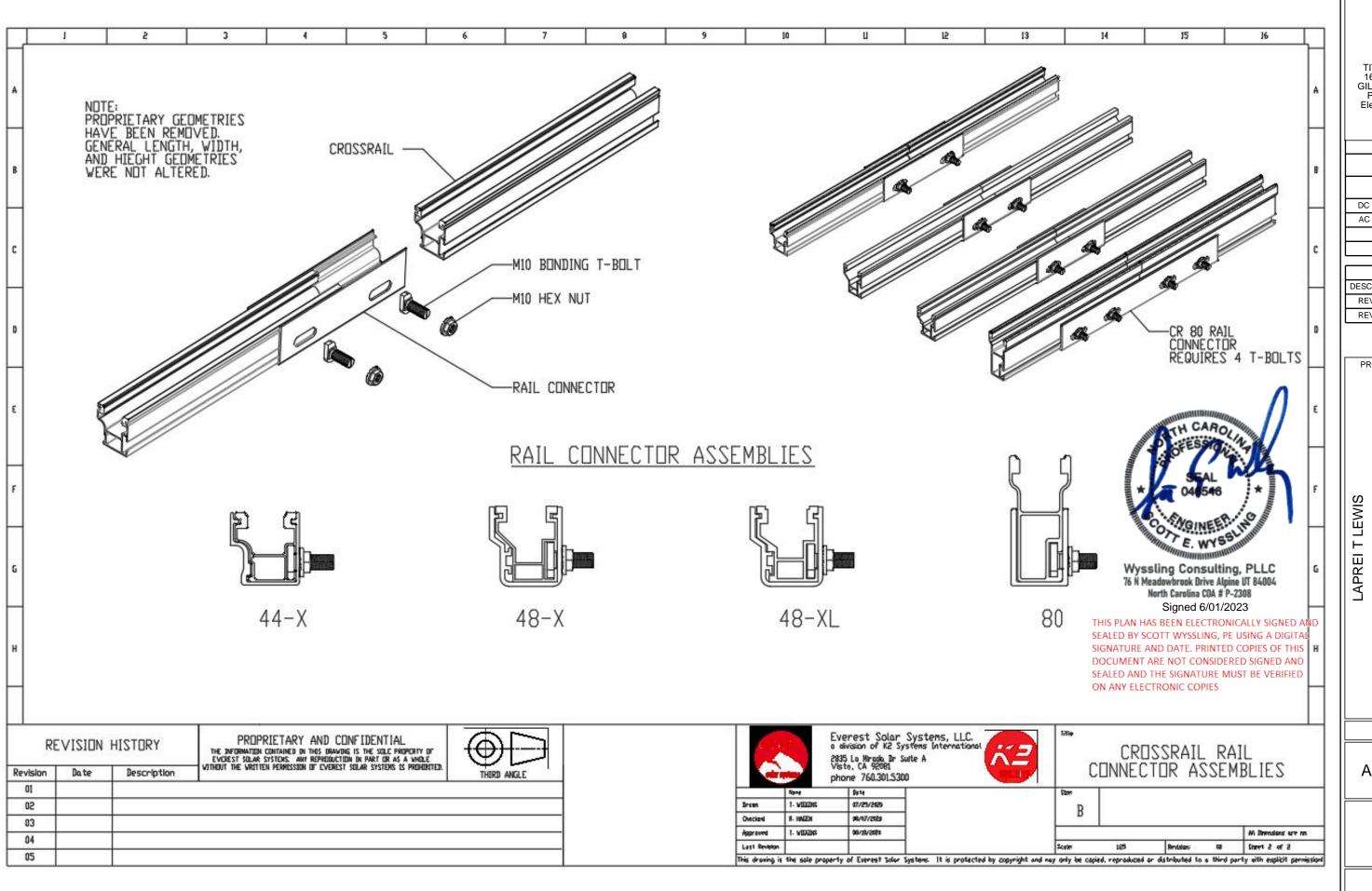
SHEET NAME

ATTACHMENT DETAILS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER





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(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

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DATE: 6/1/2023

185

SHEET NAME

**ATTACHMENT DETAILS** 

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION		CONDUCTOR	2	CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OCPD	E(	GC	TEMP. FAC	CORR. TOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	29FT	0.22%
2	1	JUNCTION BOX	INVERTER	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	2	4	21.76%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	0.8	15.00A	18.75A	40A	29.12A	75°C	60FT	0.47%
3	1	INVERTER	NON FUSED AC DISCONNECT	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%
4	1	NON FUSED AC DISCONNECT	MSP	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	30A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%



160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO (15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

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DESCRIPTION	DATE	REV						
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REVISION	06/01/2023	В						

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DATE: 6/1/2023

SHEET NAME

185

SYSTEM RATING

CENTRAL ELECTRIC MEMBERSHIP CORPORATION

HARNETT COUNTY

UNDERGROUND

240V

200 A

200 A

**EAST** 

SQUARE D

6.000 kWDC 5.000 kWAC

**SERVICE INFO** 

UTILITY PROVIDER:

MAIN SERVICE VOLTAGE:

MAIN PANEL BRAND:

MAIN SERVICE PANEL:

MAIN BREAKER RATING:

MAIN SERVICE LOCATION:

SERVICE FEED SOURCE:

AHJ NAME:

**ELECTRICAL** 

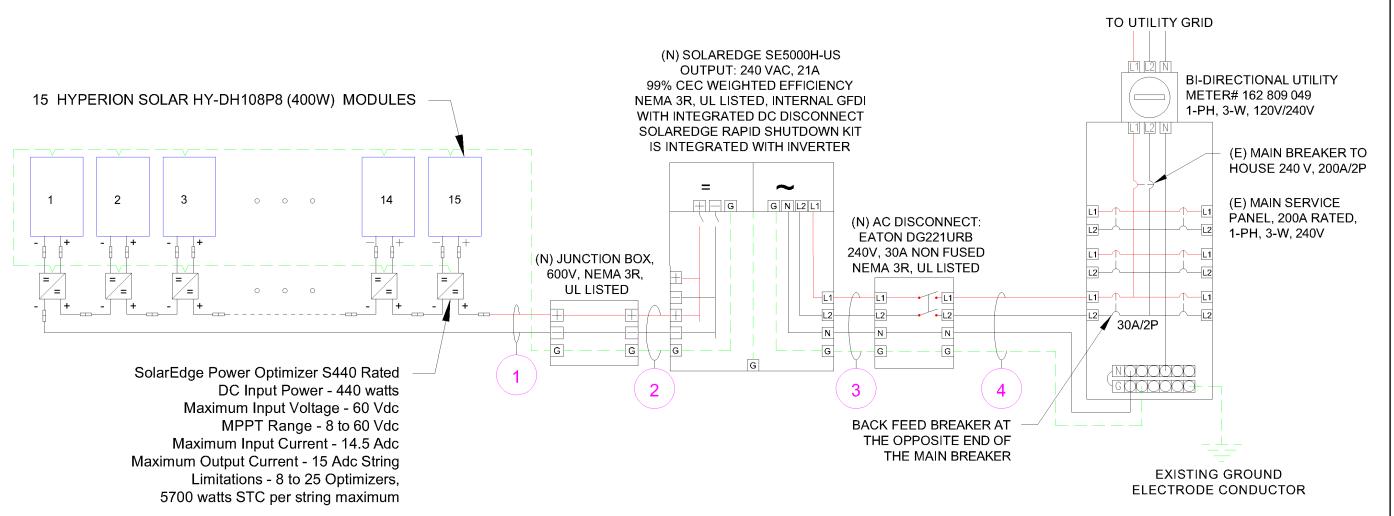
LINE & CALCS.

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-7



METER NO#: 162 809 049

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

200A + 30A = 230A

**BUSS RATING X 120%**  $200A \times 120\% = 240A$ 

UTILITY FEED + SOLAR BACKFEED

SCALE: NTS

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION		CONDUCTOR	R	CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OCPD	EG	GC	TEMP. FAC	CORR. TOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE COPPER	0.71	(58°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	29FT	0.22%
2	1	JUNCTION BOX	INVERTER	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	2	4	21.76%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	0.8	15.00A	18.75A	40A	29.12A	75°C	60FT	0.47%
3	1	INVERTER	NON FUSED AC DISCONNECT	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	N/A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%
4	1	NON FUSED AC DISCONNECT	MSP	10 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	18.01%	30A	8 AWG	THWN-2 COPPER	0.91	(36°C)	1	21.00A	26.25A	40A	36.40A	75°C	5FT	0.11%



160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO (15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS								
DESCRIPTION	DATE	REV						
REVISION	05/23/2023	Α						
REVISION	06/01/2023	В						

PROJECT NAME & ADDRESS

RESIDENCE 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA ID: LEWI\_LOVE2004@YAHOO.COM PHONE NO. (919) 579-0977 LAPREI T LEWIS

DATE: 6/1/2023

SYSTEM RATING 6.000 kWDC 5.000 kWAC

CENTRAL ELECTRIC MEMBERSHIP

HARNETT COUNTY

CORPORATION

UNDERGROUND

240V

200 A

200 A

**EAST** 

SQUARE D

**SERVICE INFO** 

UTILITY PROVIDER:

MAIN SERVICE VOLTAGE:

MAIN PANEL BRAND:

MAIN SERVICE PANEL:

MAIN BREAKER RATING:

MAIN SERVICE LOCATION:

SERVICE FEED SOURCE:

AHJ NAME:

SHEET NAME

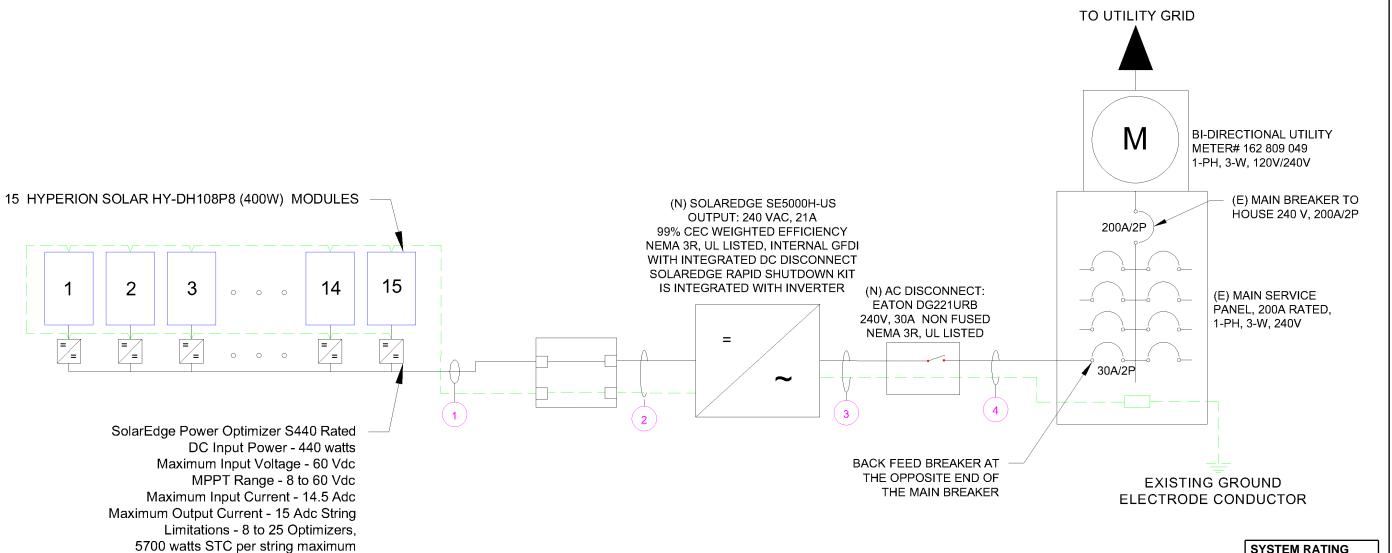
**ELECTRICAL** LINE & CALCS.

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-8



INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b) UTILITY FEED + SOLAR BACKFEED 200A + 30A = 230A

BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 162 809 049

SCALE: NTS

SOLAR MODULE SPECIFICATIONS							
MANUFACTURER / MODEL	HYPERION SOLAR HY-DH108P8 (400W)						
VMP	31.01 V						
IMP	12.9 A						
VOC	37.07 V						
ISC	13.79 A						
TEMP. COEFF. VOC	-0.27%/K						
PTC RATING	302.5 W						
MODULE DIMENSION	67.08"(L) x 44.65"(W)						
PANEL WATTAGE	400 W						

IN	VERTER SPECIFICATIONS
MANUFACTURER / MODEL	SOLAREDGE SE5000H-US [240V]
NOMINAL AC POWER	5000 W
NOMINAL OUTPUT VOLTAGE	240 VAC
NOMINAL OUTPUT CURRENT	21 A

POWER OPTIMIZER (SOLAREDGE S440)				
MAXIMUM INPUT POWER	440 W			
MAXIMUM INPUT VOLTAGE	60 VDC			
MAXIMUM INPUT ISC	14.5 ADC			
MAXIMUM OUTPUT CURRENT	15 ADC			
WEIGHTED EFFICIENCY	98.6%			

AMBIENT TEMPERATURE SPECS						
RECORD LOW TEMP	-10°C					
AMBIENT TEMP (HIGH TEMP 2%)	36°C					
CONDUIT HEIGHT	7/8"					
ROOF TOP TEMP	90°C					
CONDUCTOR TEMPERATURE RATE	58°C					
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.27%/K					

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



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR
HY-DH108P8 (400W)

(1) SOLAREDGE
SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS									
DESCRIPTION	DATE	REV							
REVISION	05/23/2023	Α							
REVISION	06/01/2023	В							

PROJECT NAME & ADDRESS

RESIDENCE
185 SHERWOOD HILLS CT, CAMERON, NC 28326,
USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

# SPECIFICATIONS & NOTES

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

21 AMPS

240 VOLTS

#### LABEL LOCATION:

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

NOMINAL OPERATING AC VOLTAGE

## **RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

INVERTER AT OR WITHIN 3' OF THE DC COMBINER SWITCH PER CODE: NEC 690.56(C)(3)

#### **ELECTRIC SHOCK HAZARD**

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

POINT OF INTERCONNECTION, MAIN SERVICE DISCONNECT, AC DISCONNECT, AC COMBINER,

PER CODE: NEC 690.13(B)

#### WARNING

INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

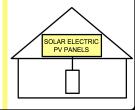
#### LABEL LOCATION:

PLACE THIS LABEL AT P.O.C. TO SERVICE DISTRIBUTION EQUIPMENT (I.E. MAIN PANEL (AND SUBPANEL IF APPLICABLE)

PER CODE: NEC705.12(D)(2)(b)

#### **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



#### LABEL LOCATION:

MAIN SERVICE DISCONNECT IF MSD IS OUTSIDE PLACE IT THERE / IF MSD IS INSIDE PLACE ON THE AC DISCONNECT

PER CODE: NEC 690.56(C)(1)(a)

6

## **CAUTION: SOLAR CIRCUIT**

MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES PER CODE: IFC 606.11.1.4

7

#### SERVICE DISCONNECT

#### **SECTIONNEUR PRINCIPALE**

#### **SERVICIO DE DESCONEXION**

LABEL LOCATION: AC DISCONNECT 2017 NEC 230.66

8

**AXIMUM VOLTAGE** MAXIMUM CIRCUIT CURRENT MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC-CONVERTER(IF 30 AD0

#### LABEL LOCATION:

DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE PER CODE: 2017 NFPA 70. NEC 690.53

9

#### **PHOTOVOLTAIC**

#### **AC DISCONNECT**

#### LABEL LOCATION:

AC DISCONNECT/BREAKER/POINTS OF CONNECTION PER CODE: NEC2017, 690.13(B)

10

### ELECTRIC SHOCK HAZARD THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED

AND MAY BE ENERGIZED

#### LABEL LOCATION:

PLACE THIS LABEL AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE ENERGIZED, UNGROUNDED BE EXPOSED DURING SERVICE: PER CODE: NEC 690.35 (F)

11

#### **CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED**

POINT OF INTERCONNECTION & INVERTER PER CODE: NEC 690.15 & 690.13(B)

### **WARNING - Electric Shock Hazard** No user serviceable parts inside

Contact authorized service provider for assistance

#### LABEL LOCATION:

INVERTER & JUNCTION BOXES (ROOF) PER CODE: NEC 690.13 (G)(3) & 690.13 (G)(4)

13

#### **WARNING: PHOTOVOLTAIC POWER SOURCE**

LABEL LOCATION:

CONDUIT

PER CODE: 2017 NEC 690.31(G)(3)

## **CAUTION**

**DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC** 

#### LABEL LOCATION:

MAIN SERVICE DISCONNECT/ AC DISCONNECT/ MAIN SERVICE PANEL/ REVENUE METER/ AC

PER CODE: NEC 705.12(B)(3)

PER CODE: NEC 690.56(C)(3)

#### PHOTOVOLTAIC SYSTEM **UTILITY DISCONNECT SWITCH**

LABEL LOCATION: AC DISCONNECT

#### **ADHESIVE FASTENED SIGNS**

- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
- WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNING AND MARKINGS SHOULD COMPLY WITH ANSI 2535.4 [NEC 110.21(B) FIELD MARKING].
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER **RESISTANT [IFC 605.11.1.3]**



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC# : U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS				
DESCRIPTION	DATE	REV		
REVISION	05/23/2023	Α		
REVISION	06/01/2023	В		

PROJECT NAME & ADDRESS

CAMERON, NC 28326

USA LEWI\_LOVE2004@YAHOO. 579-0977

ID: LEWI\_LOVE2004 PHONE NO. (919) 5 SHERWOOD HILLS CT, 85

LAPREI T LEWIS

RESIDENCE

DATE: 6/1/2023

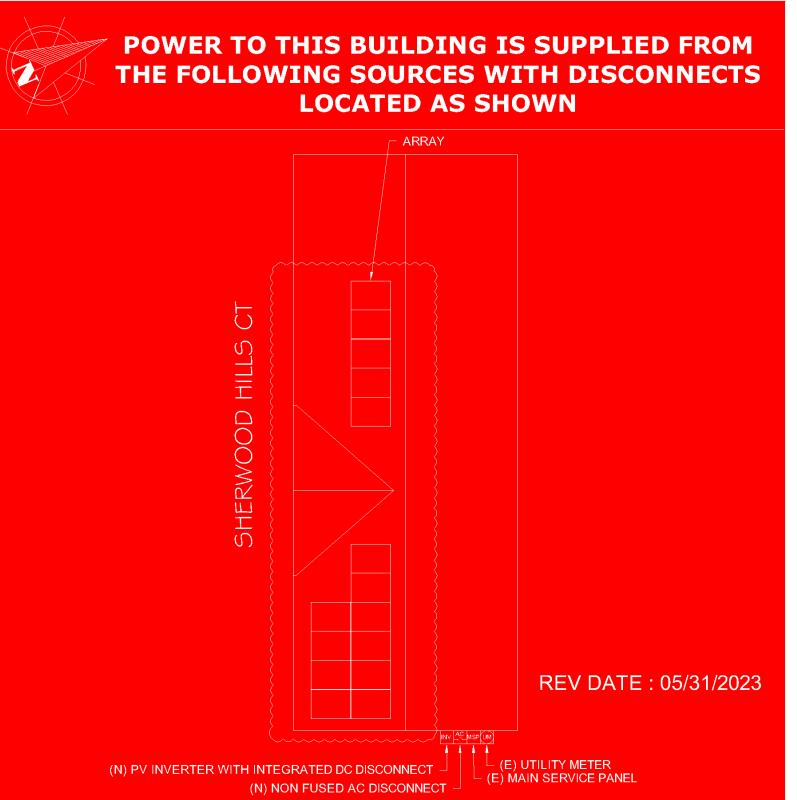
SHEET NAME

**SIGNAGE** 

SHEET SIZE

**ANSI B** 11" X 17'

SHEET NUMBER





EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED (PER CODE: NEC 705.10)



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS					
DESCRIPTION	DATE	REV			
REVISION	05/23/2023	Α			
REVISION	06/01/2023	В			

PROJECT NAME & ADDRESS

LAPREI T LEWIS
RESIDENCE
185 SHERWOOD HILLS CT, CAMERON, NC 28326
USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

SIGNAGE

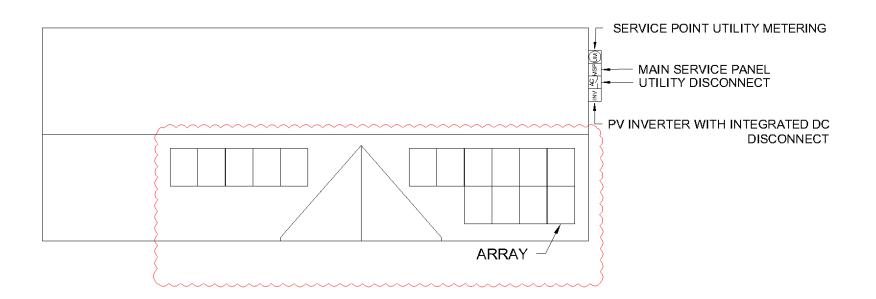
SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

## **JOB SAFETY PLAN**





REV DATE: 05/31/2023

#### LOCATION OF NEAREST URGENT CARE FACILITY

- NAME:
- ADDRESS:
- PHONE NUMBER:

#### **NOTES**

- INSTALLER SHALL DRAW IN DESIGNED 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.



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO
(15) HYPERION SOLAR
HY-DH108P8 (400W)
(1) SOLAREDGE
SE5000H-US [240V]

SÈ5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS			
ESCRIPTION	DATE	REV	
REVISION	05/23/2023	Α	
REVISION	06/01/2023	В	

PROJECT NAME & ADDRESS

LAPREI T LEWIS
RESIDENCE
SHERWOOD HILLS CT, CAMERON, NC 28326,
USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

185

JOB SAFETY PLAN

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-12

PERSON COVERED BY THIS JOB SAFETY PLAN INJURED AT WORK TODAY ? INITIAL YES OR NO

PRINT NAME	INITIAL	YES	NO





#### 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

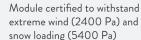
#### **EXCELLENT WEAK LIGHT PERFORMANCE**



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



#### **EXTENDED MECHANICAL PERFORMANCE**



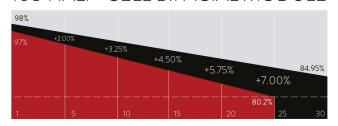


#### **OUALITY GUARANTEE**

High module quality ensures long-term reliability

### HY-DH108P8

#### 108 HALF-CELL BIFACIAL MODULE



■ Conventional Module

■ Hyperion Performance



warranty for materials and workmanship



warranty for extra









12/22

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

## **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

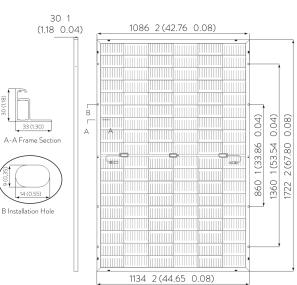
#### Operating Parameters

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)



Backside Max. Loading	2400Pa (50lb/ft²)			1134 2 (4	4.65
Bifaciality	70% 10%				
Fire Resistance	IEC Class A, UL Type 29				
Electrical Characteristics - STC	Irradiance 1000 W/m², am	nbient temperature 25 °	C, AM1.5.		
Maximum Power at STC (Pmax/W)	410	405	400	395	
Power Tolerance (W)			0 ~ +5		
Optimum Operating Voltage (Vmp	V) 31.45	31.21	31.01	30.84	

///dxiiiidiii r owel at 51C (riiidx/ vv)						
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, an	nbient 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	

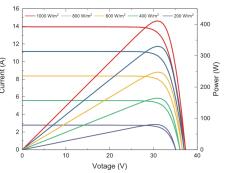
#### Rearside Power Gain (Reference to 410W Front)

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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TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH# : (808) 371-5338 Electrical LIC# : U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS				
DESCRIPTION	DATE	REV		
REVISION	05/23/2023	Α		
REVISION	06/01/2023	В		

PROJECT NAME & ADDRESS

CAMERON, NC 28326, COM USA ID: LEWI\_LOVE2004@YAHOO. PHONE NO. (919) 579-0977 LAPREI T LEWIS RESIDENCE SHERWOOD HILLS CT,

DATE: 6/1/2023

SHEET NAME

85

**EQUIPMENT SPECIFICATIONS** 

SHEET SIZE

**ANSI B** 11" X 17"

SHEET NUMBER

# SolarEdge Home Wave Inverter For North America

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





## Optimized installation with HD-Wave technology

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

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



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

Applicable to inverters with part number	s with part SEXXXXH-XXXXXBXX4 SE11400H- XXXXXBXX5				SE11400H- XXXXXBXX5		
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	Units
OUTPUT		<u>'</u>					
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage MinNomMax. (211 - 240 - 264)	✓	<b>✓</b>	✓	<b>✓</b>	✓	✓	Vac
AC Output Voltage MinNomMax. (183 - 208 - 229)	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)			59.3 - 60	- 60.5 <sup>(1)</sup>			Hz
Maximum Continuous Output Current @240V	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				Α
Utility Monitoring, Islanding Protection, Country Configurable Thresholds			Ye	S			
INPUT							
Maximum DC Power @240V	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded			Ye	S			
Maximum Input Voltage			48	0			Vdc
Nominal DC Input Voltage			38	0			Vdc
Maximum Input Current @240V <sup>(2)</sup>	10.5	13.5	16.5	20	27	30.5	Add
Maximum Input Current @208V <sup>(2)</sup>	9	-	13.5	-	-	27	Add
Max. Input Short Circuit Current			45				Add
Reverse-Polarity Protection			Ye	S			
Ground-Fault Isolation Detection			600k Ser	nsitivity			
Maximum Inverter Efficiency	<u> </u>		99.	2	·		%
CEC Weighted Efficiency	99 @ 240V 98.5 @ 208V			%			
Nighttime Power Consumption	< 2.5			W			

<sup>(1)</sup> For other regional settings please contact SolarEdge support.



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC
METER: 162 809 049

RE\	/ISIONS	
DESCRIPTION	DATE	REV
REVISION	05/23/2023	Α
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PROJECT NAME & ADDRESS

RESIDENCE
SHERWOOD HILLS CT, CAMERON, NC 28326,
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EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

EQUIPMENT SPECIFICATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



<sup>(2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated.

# / SolarEdge Home Wave Inverter

## **For North America**

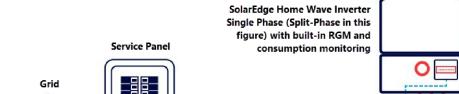
SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

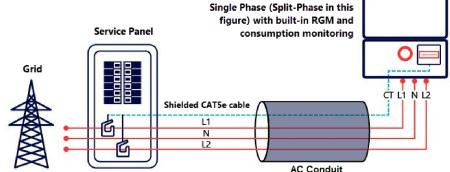
Applicable to inverters with part number		SEXXXXH-XXXXXBXX4 SE11400H- XXXXXBXX5					
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES					'		
Supported Communication Interfaces	F	S485, Ethernet, Zig		less SolarEdge Hom . Cellular (optional)	ne Network (optional)	(3)	
Revenue Grade Metering, ANSI C12.20			Opt	ional <sup>(4)</sup>			
Consumption Metering			<u>'</u>				
Inverter Commissioning	With	the SetApp mobile	application using B	uilt-in Wi-Fi Access	Point for Local Conn	ection	
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12		Auton	natic Rapid Shutdov	vn upon AC Grid Di	sconnect		
STANDARD COMPLIANCE							
Safety	UL174	11, UL1741 SA, UL174	41 SB, UL1699B, CSA	. C22.2, Canadian A	FCI according to T.I.L	M-07	
Grid Connection Standards		IEEE1547-2018, Rule 21, Rule 14 (HI)					
Emissions		FCC Part 15 Class B					
INSTALLATION SPECIFICATIONS							
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 (H x W x D)		17.7 x 14.6 x 6.8 ,	/ 450 x 370 x 174		21.06 x 14.6 x 7.3 / 535 x 370 x 185	21.06 x 14.6 x 8.2 / 535 x 370 x 208 <sup>(5)</sup>	in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 /	′ 11.9	38.8 / 17.6	44.9 / 20.4 <sup>(5)</sup>	lb/kg
Noise		< 25			<50		dBA
Cooling			Natural (	Convection			
Operating Temperature Range			-40 to +140	/ -40 to +60 <sup>(6)</sup>			°F / °C
Protection Rating			NEMA 4X (Inverte	er with Safety Switch	n)		

<sup>(3)</sup> For more information, refer to the SolarEdge Home Network datasheet

(6) Full power up to at least 50°C / 122°F; for power de-rating information refer to the Temperature De-rating Technical Note for North America.

**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.



160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH# : (808) 371-5338 Electrical LIC# : U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REV	/ISIONS	
DESCRIPTION	DATE	REV
REVISION	05/23/2023	Α
REVISION	06/01/2023	В

PROJECT NAME & ADDRESS

LAPREI T LEWIS RESIDENCE SHERWOOD HILLS CT, CAMERON, NC 28326, USA ID: LEWI\_LOVE2004@YAHOO. PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

185

**EQUIPMENT** SPECIFICATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

<sup>(4)</sup> Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BEI4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box.

<sup>(5)</sup> SE11400H-USxxxBxx5 is the updated PN, though SE11400H-USxxxBxx4 will still be available. All specifications are similar for both models, EXCLUDING the weight and dimensions [HxWxD]; The weight and dimensions of SE11400H-USxxxBxx4 are 17.6 [kg] and 21.06-14.6-7.3 / 535-370-185 [in/mm], accordingly

# **Power Optimizer**

S440, S500



## PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- 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
- Detects abnormal PV connector behavior, preventing potential safety issues\*
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules



## / Power Optimizer

S440, S500

	S440	S500	UNIT
INPUT			
Rated Input DC Power <sup>n</sup>	440	500	W
Absolute Maximum Input Voltage (Voc)	60	)	Vdc
MPPT Operating Range	8 -	60	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.	5	Adc
Maximum Efficiency	99	.5	%
Weighted Efficiency	98	.6	%
Overvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	15	5	Adc
Maximum Output Voltage	60	)	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISC	ONNECTED FROM INVERTER OR	INVERTER OFF)	
Safety Output Voltage per Power Optimizer	1	·	Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15 Class B, IEC61000-6-2,	IEC61000-6-3, CISPR11, EN-55011	
Safety	IEC 62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Υe	PS .	
Fire Safety	VDE-AR-E 2100	0-712:2013-05	
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	100	00	Vdc
Dimensions (W x L x H)	129 x 15	3 x 30	mm
Weight (including cables)	655 ,	/ 1.5	gr / It
Input Connector	MC	4121	
Input Wire Length	0.	1	m
Output Connector	MC	.4	
Output Wire Length	(+) 2.3, (-) 0.10		m
Operating Temperature Range <sup>µ1</sup>	-40 to +85		°C
Protection Rating	IP68/N	EMA6P	
Relative Humidity	0 - 1	100	%

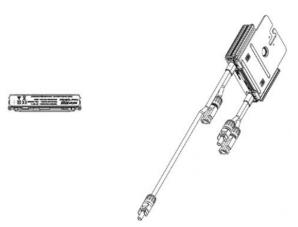
(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power	rer. Modules with up to +5% power tolerance are allowed
(7) For other consists the confidence of the following state of the confidence of th	

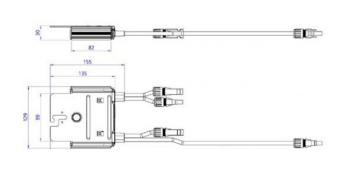
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Usin Inverter	g a SolarEdge	Single Phase HD-Wave	Single Phase	Three Phase	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	S440, S500	8		16	18	
Maximum String Length (Power	Optimizers)	25		5	0	
Maximum Nominal Power per S	tring <sup>a</sup>	5700	5250	11250 <sup>151</sup>	12750 <sup>m</sup>	W

<sup>(4)</sup> If the inverters rated AC power s maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power

Parallel Strings of Different Lengths or Orientations





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**CE RoHS** 



160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH# : (808) 371-5338 Electrical LIC# : U.33714

SYSTEM INFO (15) HYPERION SOLAR HY-DH108P8 (400W) (1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

ISIONS	
DATE	REV
05/23/2023	Α
06/01/2023	В
	DATE 05/23/2023

#### PROJECT NAME & ADDRESS

SHERWOOD HILLS CT, CAMERON, NC 28326 USA ID: LEWI\_LOVE2004@YAHOO.COM PHONE NO. (919) 579-0977

LAPREI T LEWIS

DATE: 6/1/2023

SHEET NAME

185

**EQUIPMENT SPECIFICATIONS** 

SHEET SIZE

**ANSI B** 11" X 17"

SHEET NUMBER

<sup>\*</sup> Functionality subject to inverter model and firmware version

Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(5) For the 230/400V grid: it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W
(6) For the 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

<sup>(7)</sup> It is not allowed to mix S-series and P-series power optimizers in new installations

# We support PV systems Formerly Everest Solar Systems









**Splice Foot X** 

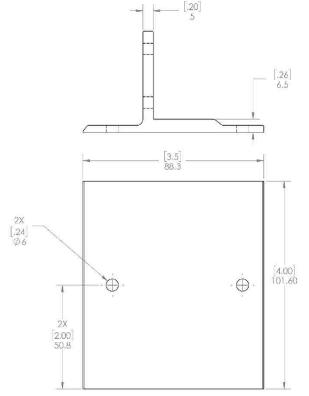
# TECHNICAL SHEET

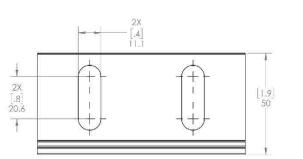
Item Number	Description	Part Number
1	Splice Foot X	4000113   Splice Foot X Kit, Mill
2	K2 Solar Seal Butyl Pad	
3	M5 x 60 lag screws	
4	T-Bolt & Hex Nut Set	

#### Technical Data

	Splice Foot X
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mill
Roof Connection	- 1974
Roof Connection	M5 x 60 lag screws
Code Compliance	UL 2703
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

Units: [in] mm





TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH# : (808) 371-5338 Electrical LIC# : U.33714

SYSTEM INFO
(15) HYPERION SOLAR HY-DH108P8 (400W)
(1) SOLAREDGE SE5000H-US [240V]
DC SYSTEM SIZE: 6.000 kWDC
AC SYSTEM SIZE: 5.000 kWAC

	REVISIONS							
	DESCRIPTION	DATE	REV					
	REVISION	05/23/2023	Α					
	REVISION	06/01/2023	В					

METER: 162 809 049

PROJECT NAME & ADDRESS

LAPREI T LEWIS RESIDENCE 185 SHERWOOD HILLS CT, CAMERON, NC 28326, USA EMAIL ID: LEWI\_LOVE2004@YAHOO.COM PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

EQUIPMENT SPECIFICATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

**PV-17** 

k2-systems.com k2-systems.com

# We support PV systems Formerly Everest Solar Systems



## CROSSRAIL 44-X



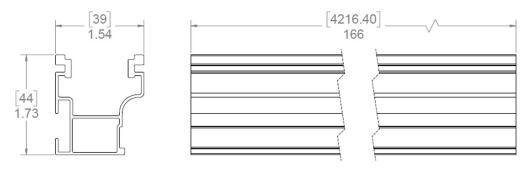
#### Mechanical Properties

	CrossRail 44-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi [260 MPa]
-	·
-	
Yield Strength Weight Finish	34.8 ksi (240 MPa)  0.47 lbs/ft (0.699 kg/m)  Mill or Dark Anodized

#### Sectional Properties

	CrossRail 44-X
Sx	0.1490 in3 (0.3785 cm3)
Sy	0.1450 in3 (0.3683 cm3)
A [X-Section]	0.4050 in2 (1.0287 cm2

## Units: [mm] in



#### Notes:

- > Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- UL2703 Listed System for Fire and Bonding



TITAN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

(1) SOLAREDGE SE5000H-US [240V]

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS						
DESCRIPTION	DATE	REV				
REVISION	05/23/2023	Α				
REVISION	06/01/2023	В				

PROJECT NAME & ADDRESS

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RESIDENCE
185 SHERWOOD HILLS CT, CAMERON, NC 28326,
USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

EQUIPMENT SPECIFICATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER



JB-1.XL Specification Sheet

PV Junction Box for Composition/Asphalt Shingle Roofs

### A. System Specifications and Ratings

Maximum Voltage: 1,000 Volts

Maximum Current: 120 Amps

Allowable Wire: 14 AWG – 6 AWG

Spacing: Please maintain a spacing of at least ½" between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.

Enclosure Rating: Type 3R
 Roof Slope Range: 2.5 – 12:12
 Max Side Wall Fitting Size: 1"

Max Floor Pass-Through Fitting Size: 1"

Ambient Operating Conditions: (-35°C) - (+75°C)

Compliance:

- JB-1.XL: UL1741

- Approved wire connectors: must conform to UL1741

System Marking: Interek Symbol and File #5019942

 Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.

Table 1: Typical Wire Size, Torque Loads and Ratings

	1.6	2 Conductor	Torque					
	1 Conductor		Type	NM	Inch Lbs	Voltage	Current	
ABB ZS6 terminal block	10-24 awg	16-24 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp	
ABB ZS10 terminal block	6-24 awg	12-20 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp	
ABB ZS16 terminal bock	4-24 awg	10-20 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp	
ABB M6/8 terminal block	8-22 awg		Sol/Str	.08-1	8.85	600V	50 amp	
Ideal 452 Red WING-NUT Wire Connector	8-18 awg		Sol/Str			600V		
ldeal 451 Yellow WING-NUT Wire Connector	10-18 awg		Sol/Str			600V		
Ideal, In-Sure Push-In Connector Part #39	10-14 awg		Sol/Str			600V		
WAGO, 221-612	10-14 awg		Sol/Str			600V		
International Hydraulics 2S2/0	10-14 awg		Sol/Str	4	35			
international Hydraulics 232/0	8 awg		Sol/Str	4.5	40			
Brumall 4-5,3	4-6 awg		Sol/Str		45	2000V		
biuiliali 4-5,5	10-14 awg		Sol/Str		35			
Blackburn LL414	4-14 awg		Sol/Str	,				

Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)

Wire size, AWG or		Wires per terminal (pole)						
		1		2	3		4 or More	
kcmil	(mm2)	mm	(inch)	mm (inch)	mm (i	inch)	mm	(inch)
14-10	(2.1-5.3)	Not sp	pecified	( <del>-</del>	-	0.50	,	-
8	(8.4)	38.1	(1-1/2)	-	-			-
6	(13.3)	50.8	(2)	-	2			-



111 AN SOLAR POWER 160 N MCQUEEN RD, GILBERT, AZ 85233, USA PH#: (808) 371-5338 Electrical LIC#: U.33714

SYSTEM INFO

(15) HYPERION SOLAR HY-DH108P8 (400W)

SE5000H-US [240V

DC SYSTEM SIZE: 6.000 kWDC

AC SYSTEM SIZE: 5.000 kWAC

METER: 162 809 049

REVISIONS							
DESCRIPTION	DATE	REV					
REVISION	05/23/2023	Α					
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USA
EMAIL ID: LEWI\_LOVE2004@YAHOO.COM
PHONE NO. (919) 579-0977

DATE: 6/1/2023

SHEET NAME

EQUIPMENT SPECIFICATIONS

SHEET SIZE

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SHEET NUMBER