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May 15, 2023  
Revised August 19, 2023

Titan Solar Power  
210 North Sunway Drive  
Gilbert, AZ 85233

Scott  
Wyssling, PE

Digitally signed by Scott Wyssling, PE  
DN: cn=Dr. Scott E. Wyssling, o=Wyssling Consulting, ou=Engineering, cn=Scott Wyssling, email=swyssling@wysslingconsulting.com  
Reason: I am the author of this document  
Location: your signing location here  
Date: 2023.08.19 07:16:32-0600  
Full PDF Editor Version: 11.1.0

Re: Engineering Services  
Tucker Residence  
111 4<sup>th</sup> Street, Erwin NC  
10.000 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

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. 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:** 2x6 dimensional lumber at 24" on center.  
**Roof Material:** Composite Asphalt Shingles  
**Roof Slope:** 31 degrees  
**Attic Access:** Accessible  
**Foundation:** 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** = 10 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 NCRS (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.*

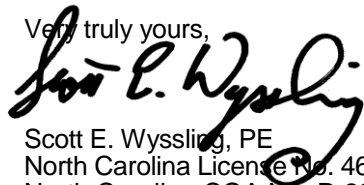
**D. Solar Panel Anchorage**

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.

Very truly yours,



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

THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES



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

Signed 08-19-23

**Project Information:**

08/17/2023

TSP157581 Adrian Tucker

Senior Manager - Design  
manish@wattmonk.com

111 4th Street Erwin NC 28339

**Comments:**

- We have revised layout as per the image attached. 20 modules in roof 1 and 5 modules in roof 2.



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**No Further Changes.**

**SCOPE OF WORK**

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 111 4TH ST, ERWIN, NC 28339, USA. THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT. THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES.

**EQUIPMENT SUMMARY**

25 Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN) MODULES
1 SOLAREEDGE ENERGY HUB SE7600H-US INVERTER
25 SOLAREEDGE 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.
- 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.
- CONTRACTOR SHALL OBTAIN BUILDING 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 IS 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  
 2020 NORTH CAROLINA ELECTRICAL CODE

AHJ NAME : ERWIN TOWN

**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

<b>SYSTEM RATING</b>
10.000 kWDC
7.600 kWAC

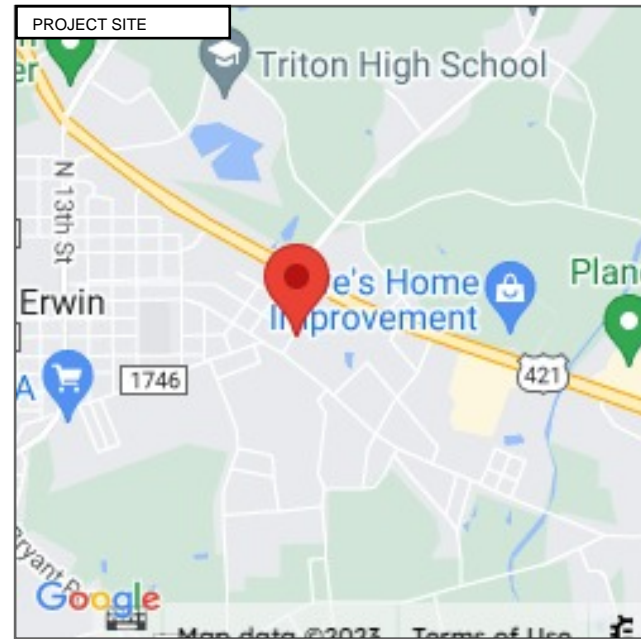
PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL 1703 STANDARD.

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-PV17	EQUIPMENT SPECIFICATIONS



HOUSE PHOTO

SCALE: NTS



VICINITY MAP

SCALE: NTS



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 76 N Meadowbrook Drive Alpine UT 84004  
 North Carolina COA # P-2308  
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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		
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREEDGE ENERGY HUB SE7600H-US		
DC SYSTEM SIZE: 10.000 kWDC		
AC SYSTEM SIZE: 7.600 kWAC		
METER: 332 293 277		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

PROJECT NAME & ADDRESS

ADRIAN TUCKER  
 RESIDENCE  
 111 4TH ST, ERWIN, NC 28339, USA  
 EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
 PHONE NO. (919) 324-2368

DATE: 8/17/2023

SHEET NAME  
**COVER PAGE**

SHEET SIZE  
**ANSI B  
 11" X 17"**

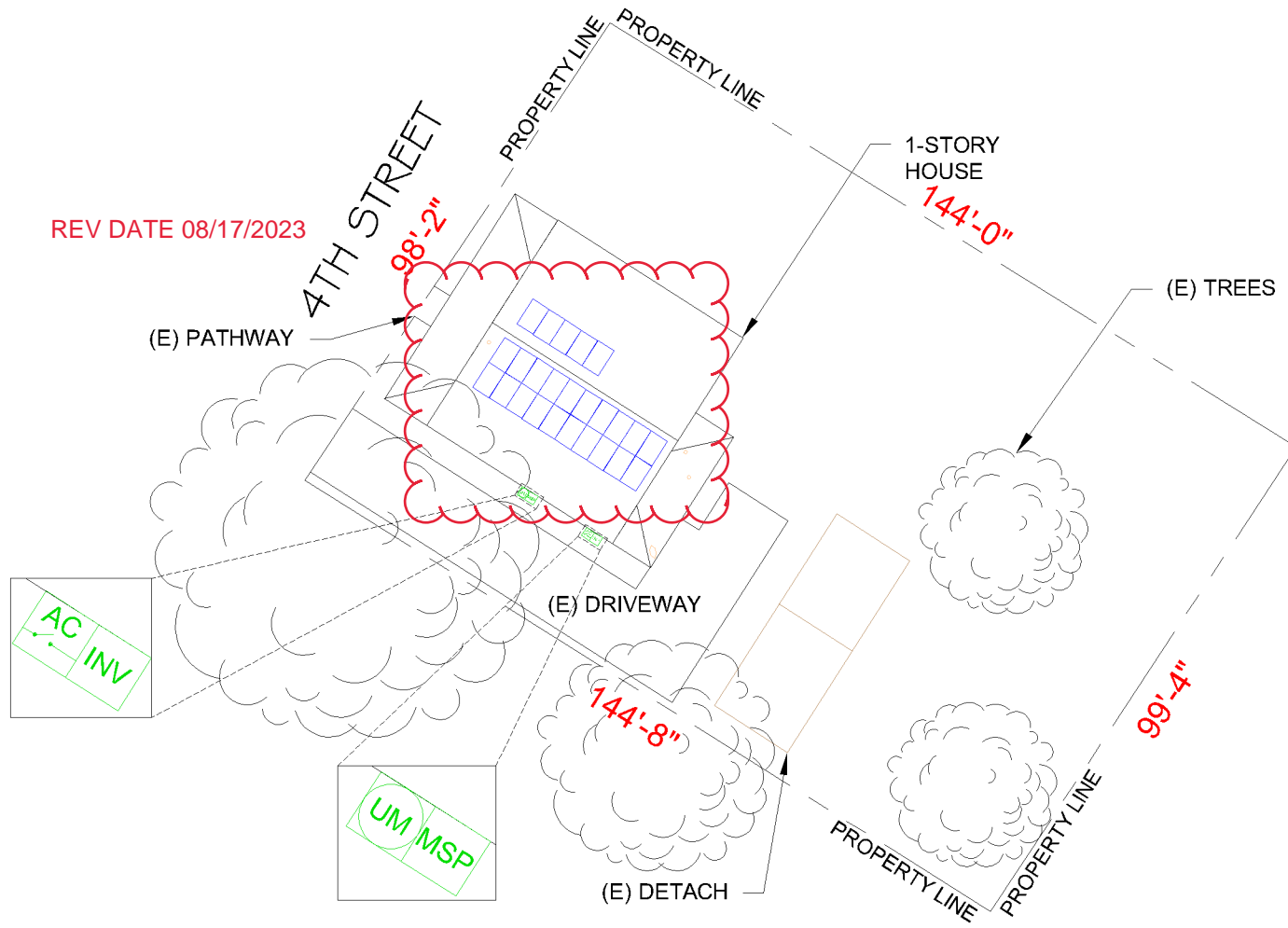
SHEET NUMBER  
**PV-1**

**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]

**LEGEND**

- 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 SOLAREEDGE ENERGY HUB SE7600H-US INVERTER
- Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN) MODULES
- K2 CROSSRAIL 44-X
- TRENCH



REV DATE 08/17/2023



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SHEET NAME  
**SITE PLAN**

SHEET SIZE  
**ANSI B  
 11" X 17"**

SHEET NUMBER  
**PV-2**



SCALE: 1/32" = 1'-0"

METER NO#: 332 293 277

DESIGN SPECIFICATION	
RISK CATEGORY:	II
CONSTRUCTION:	SFD
ZONING:	RESIDENTIAL
SNOW LOAD (ASCE 7-10):	10 PSF
EXPOSURE CATEGORY:	C
WIND SPEED (ASCE7-10):	119 MPH

MODULE TYPE, DIMENSIONS & WEIGHT	
NUMBER OF MODULES:	25 MODULES
MODULE TYPE:	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
MODULE WEIGHT:	48.5 LBS
MODULE DIMENSIONS:	74" X 41.1" = 21.12 SF
UNIT WEIGHT OF AREA:	2.3 PSF

ROOF DESCRIPTION				
ROOF	ROOF TILT	RAFTER SIZE	RAFTER SPACING	ROOF MATERIAL
#1	31°	2" x 6"	24" o.c.	COMP SHINGLE
#2	31°	2" x 6"	24" o.c.	COMP SHINGLE

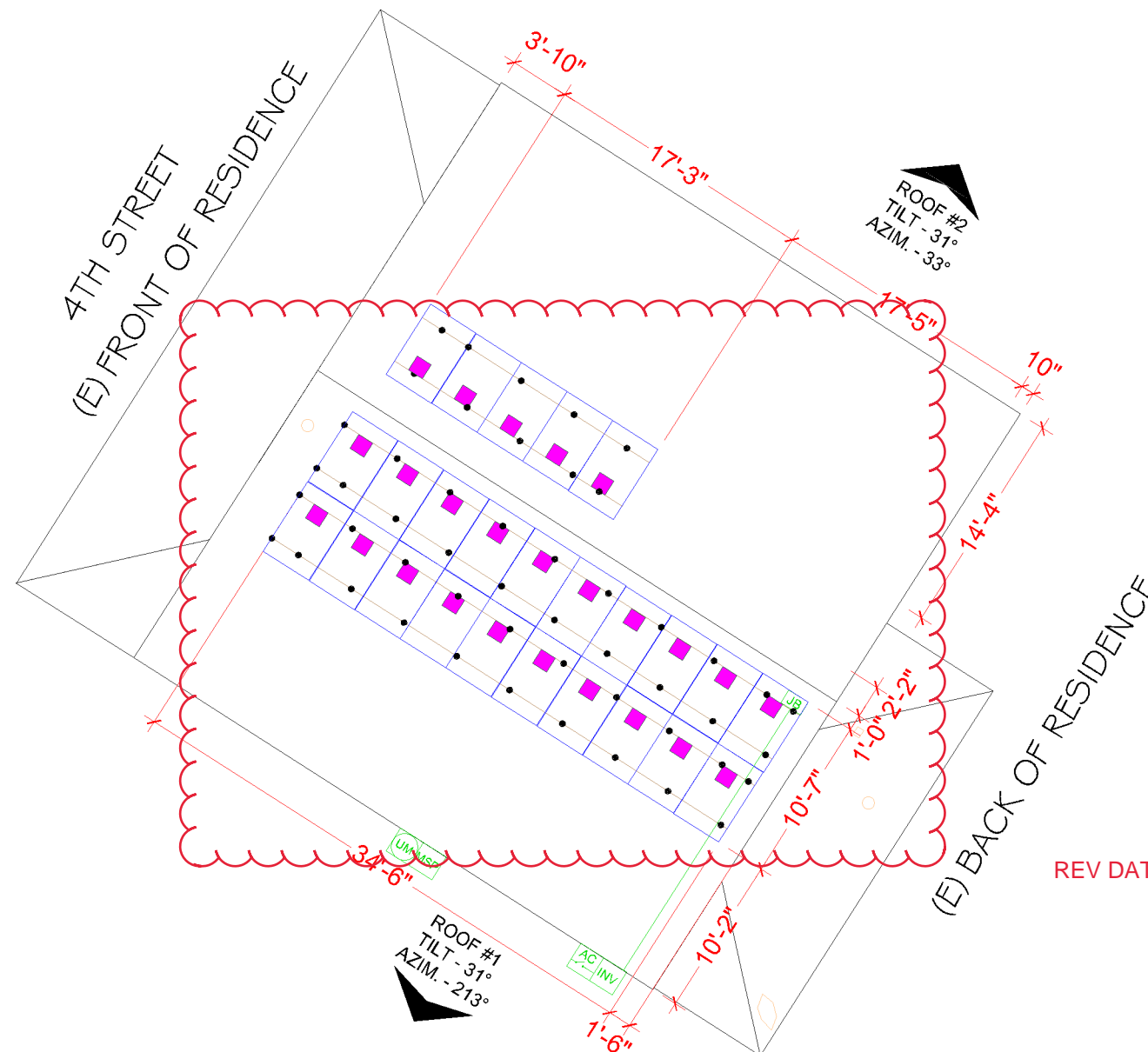
ARRAY AREA & ROOF AREA CALC'S		
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)
#1	20	422.42
#2	5	105.61
(TOTAL ARRAY AREA/TOTAL ROOF AREA) X 100%		
= (528.03/2324) X 100% = 22.73%		

**LEGEND**

- 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 SOLAREEDGE ENERGY HUB SE7600H-US INVERTER
- Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN) MODULES
- K2 CROSSRAIL 44-X
- TRENCH

PANEL HEIGHT OFF ROOF	8"
-----------------------	----

DEAD LOAD CALCULATION			
EQUIPMENT'S DESCRIPTIONS	QTY	LBS/UNIT	TOTAL WEIGHT
MODULES	25	48.5	1212.5
MID CLAMP	44	0.3	13.2
END CLAMP	12	0.31	3.72
K2 CROSSRAIL 44-X	13	10	130.00
SPLICE BAR	10	0.65	6.5
SPLICE FOOT X	50	0.9	45.00
K2 SOLAR SEAL BUTYL PAD	50	0.42	21.00
M5 X 60 LAG SCREWS	100	0.08	8.00
T BOLT AND HEX NUT SET	50	0.05	2.50
TOTAL WEIGHT OF THE SYSTEM (LBS)			1442.42
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			528.03
WEIGHT PER SQ. FT. (LBS)			2.74
WEIGHT PER PENETRATION (LBS)			5.77



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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	
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)	
(1) SOLAREEDGE ENERGY HUB SE7600H-US	
DC SYSTEM SIZE: 10.000 kWDC	
AC SYSTEM SIZE: 7.600 kWAC	
METER: 332 293 277	

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PROJECT NAME & ADDRESS

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 111 4TH ST, ERWIN, NC 28339, USA  
 EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
 PHONE NO. (919) 324-2368

DATE: 8/17/2023
SHEET NAME <b>ROOF PLAN</b>
SHEET SIZE <b>ANSI B 11" X 17"</b>
SHEET NUMBER <b>PV-3</b>

SCALE: 3/32" = 1'-0"

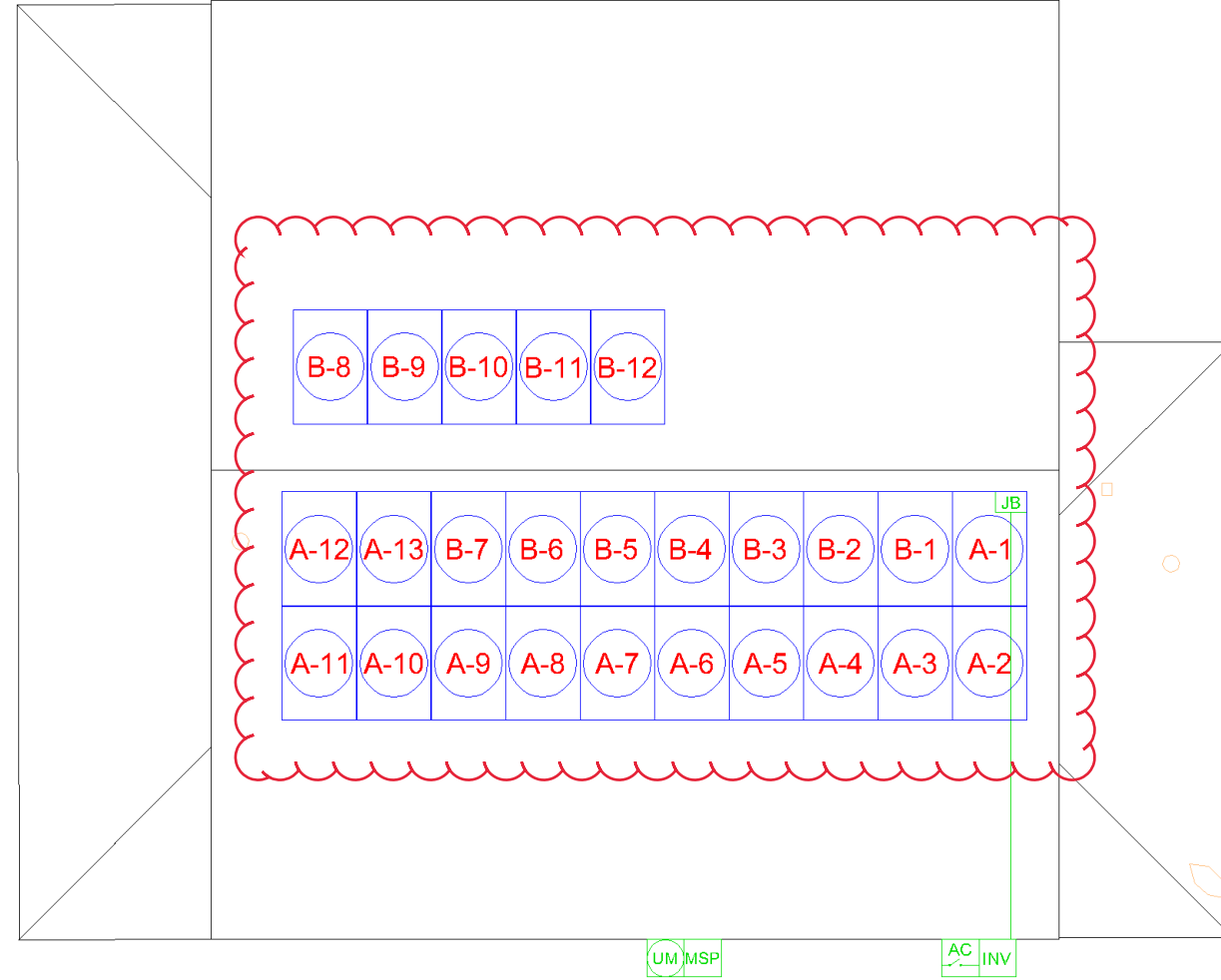
METER NO#: 332 293 277

**BILL OF MATERIALS**

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	25	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
INVERTER	1	SOLAREEDGE ENERGY HUB SE7600H-US
OPTIMIZER	25	SOLAREEDGE POWER OPTIMIZER S440
JUNCTION BOX	1	JB-1.XL, JUNCTION BOX, NEMA 3R, UL LISTED
NON FUSED AC DISCONNECT	1	SIEMENS GNF222R PV SYSTEM AC DISCONNECT SWITCH NON FUSED VISIBLE OPEN 60A, 120/240V 2P NEMA 3R
ATTACHMENT	49	SPLICE FOOT X
ATTACHMENT	49	K2 SOLAR SEAL BUTYL PAD
ATTACHMENT	98	M5 X 60 LAG SCREWS
ATTACHMENT	49	T BOLT AND HEX NUT SET
RAILS	13	K2 CROSSRAIL 44-X
BONDED SPLICE	10	SPLICE KIT
MID CLAMP	44	MID CLAMPS
END CLAMP	12	END CLAMPS
GROUNDING LUG	3	GROUNDING LUG

GOLIGHTLY ST

4TH STREET  
(E) FRONT OF RESIDENCE



(E) BACK OF RESIDENCE

REV DATE 08/17/2023



TITAN SOLAR POWER  
160 N MCQUEEN RD,  
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(TITAN)

(1) SOLAREEDGE  
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DC SYSTEM SIZE: 10.000 kWDC

AC SYSTEM SIZE: 7.600 kWAC

METER: 332 293 277

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DATE: 8/17/2023

SHEET NAME

STRING LAYOUT  
& BOM

SHEET SIZE

ANSI B  
11" X 17"

SHEET NUMBER

PV-4



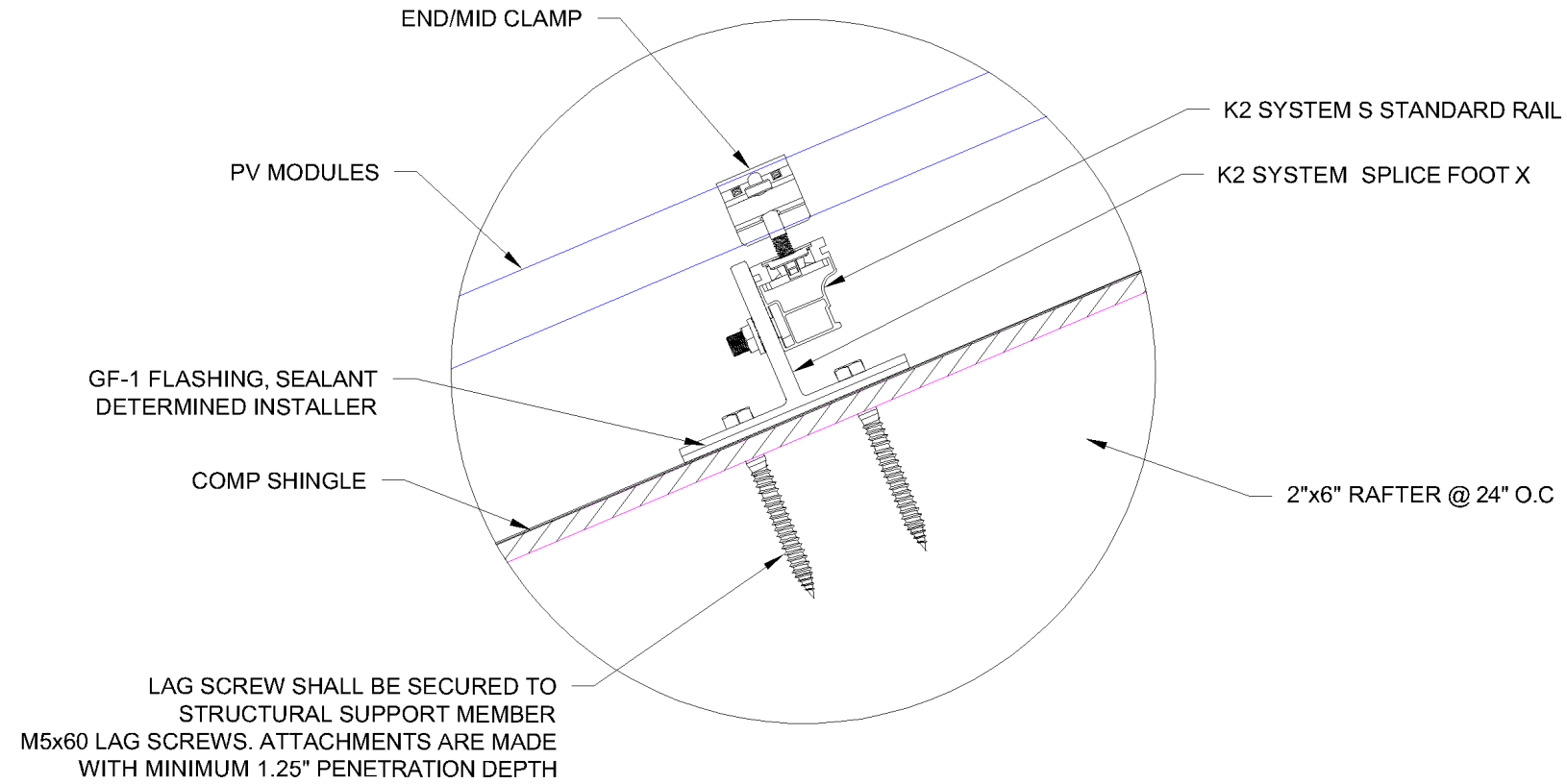
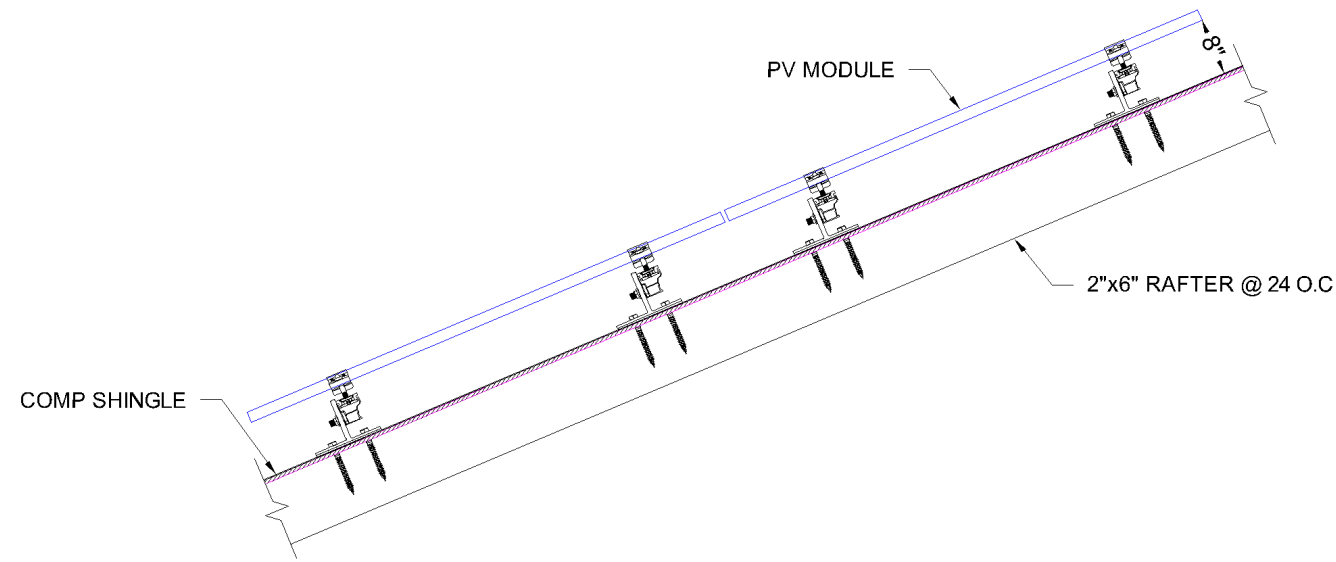
SCALE: 3/32" = 1'-0"



- MODULE STRINGING



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(25) Q CELLS  
 Q.PEAK DUO BLK ML-G10+ 400  
 (TITAN)

(1) SOLAREEDGE  
 ENERGY HUB SE7600H-US

DC SYSTEM SIZE: 10.000 kWDC

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DATE: 8/17/2023

SHEET NAME  
**ATTACHMENT  
 DETAILS**

SHEET SIZE  
**ANSI B  
 11" X 17"**

SHEET NUMBER  
**PV-5**





TITAN SOLAR POWER  
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PH# : (808) 371-5338  
Electrical LIC# : U.33714

SYSTEM INFO

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Q.PEAK DUO BLK ML-G10+ 400  
(TITAN)

(1) SOLAREGE  
ENERGY HUB SE7600H-US

DC SYSTEM SIZE: 10.000 kWDC

AC SYSTEM SIZE: 7.600 kWAC

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DATE: 8/17/2023

SHEET NAME  
ATTACHMENT  
DETAILS

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-6

NOTE:  
PROPRIETARY GEOMETRIES  
HAVE BEEN REMOVED.  
GENERAL LENGTH, WIDTH,  
AND HEIGHT GEOMETRIES  
WERE NOT ALTERED.

CROSSRAIL

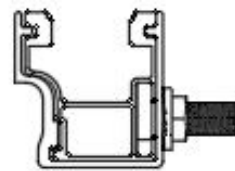
M10 BONDING T-BOLT

M10 HEX NUT

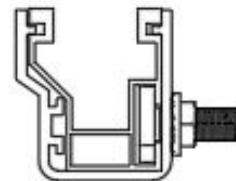
RAIL CONNECTOR

CR 80 RAIL  
CONNECTOR  
REQUIRES 4 T-BOLTS

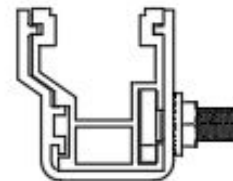
RAIL CONNECTOR ASSEMBLIES



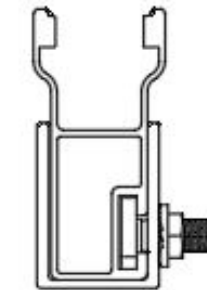
44-X



48-X



48-XL



80



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

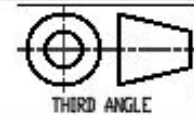
Signed 8/19/2023

THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND  
SEALED BY SCOTT WYSSLING, PE USING A DIGITAL  
SIGNATURE AND DATE. PRINTED COPIES OF THIS  
DOCUMENT ARE NOT CONSIDERED SIGNED AND  
SEALED AND THE SIGNATURE MUST BE VERIFIED  
ON ANY ELECTRONIC COPIES

REVISION HISTORY

Revision	Date	Description
01		
02		
03		
04		
05		

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THIRD ANGLE



Everest Solar Systems, LLC.  
a division of K2 Systems International  
2835 La Mirada Dr Suite A  
Vista, CA 92081  
phone 760.301.5300



Name	Date
Drawn I. VIGGINS	07/29/2023
Checked R. HAGEN	08/07/2023
Approved I. VIGGINS	08/17/2023
Last Revision	

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CROSSRAIL RAIL  
CONNECTOR ASSEMBLIES

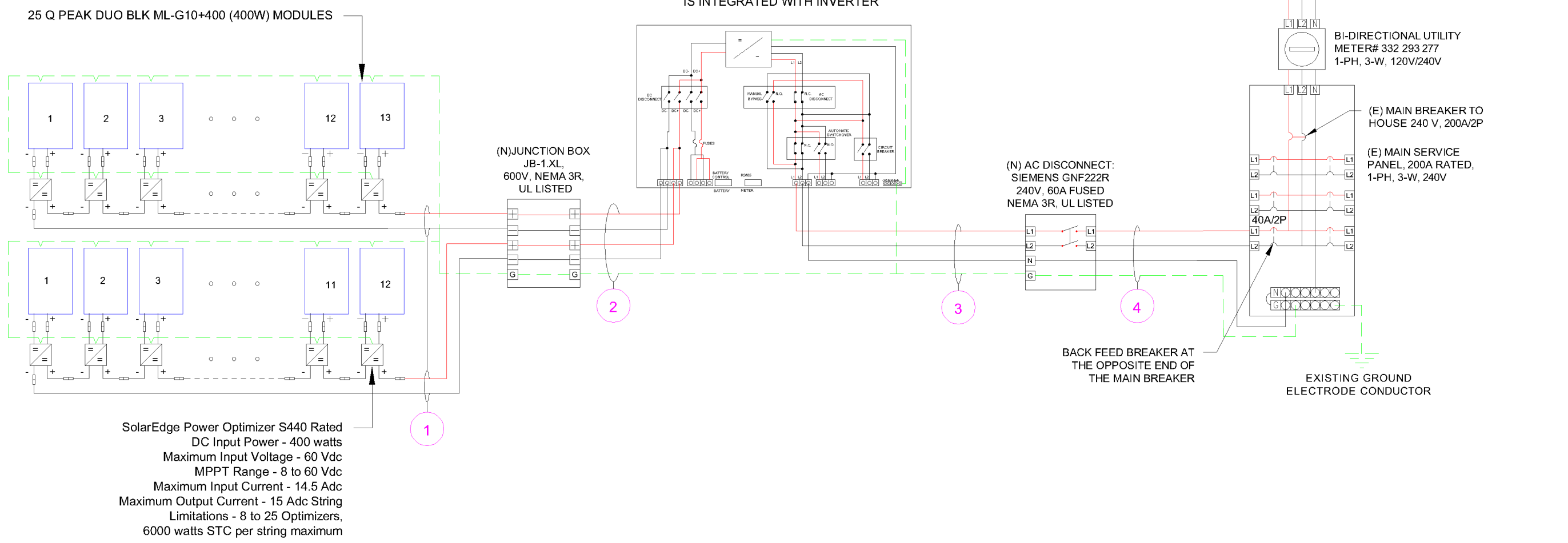
Scale: 1:1	Revision: 00	Sheet 2 of 2
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TITAN SOLAR POWER  
160 N MCQUEEN RD,  
GILBERT, AZ 85233, USA  
PH#: (808) 371-5338  
Electrical LIC#: U.33714

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR			CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
				6 AWG	BARE COPPER	0.71						(57°C)											
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	31.71%	N/A	6 AWG	BARE COPPER	0.71	(57°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	60FT	0.97%
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	0.96	(35°C)	0.8	15.00A	18.75A	40A	30.72A	75°C	30FT	0.48%
3	1	INVERTER	NON FUSED AC DISCONNECT	8 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	29.27%	N/A	8 AWG	THWN-2 COPPER	0.96	(35°C)	1	32.00A	40A	55A	52.80A	75°C	5FT	0.10%
4	1	NON FUSED AC DISCONNECT	MSP	8 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	29.27%	40A	8 AWG	THWN-2 COPPER	0.96	(35°C)	1	32.00A	40A	55A	52.80A	75°C	10FT	0.21%

(N)SOLAREGE ENERGY HUB SE7600H-US  
INVERTER(7600 W)  
OUTPUT: 240 VAC, 32A  
99% CEC WEIGHTED EFFICIENCY  
NEMA 3R, UL LISTED, INTERNAL GFDI  
WITH INTEGRATED DC DISCONNECT  
SOLAREGE RAPID SHUTDOWN KIT  
IS INTEGRATED WITH INVERTER



SolarEdge Power Optimizer S440 Rated  
DC Input Power - 400 watts  
Maximum Input Voltage - 60 Vdc  
MPPT Range - 8 to 60 Vdc  
Maximum Input Current - 14.5 Adc  
Maximum Output Current - 15 Adc String  
Limitations - 8 to 25 Optimizers,  
6000 watts STC per string maximum

SYSTEM RATING
10.000 kWDC
7.600 kWAC

SERVICE INFO	
UTILITY PROVIDER:	DUKE ENERGY PROGRESS
AHJ NAME:	ERWIN TOWN
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	SQUARE D
MAIN SERVICE PANEL:	200 A
MAIN BREAKER RATING:	200 A
SERVICE FEED SOURCE:	OVERHEAD

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 40A = 240A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 332 293 277

SCALE: NTS

SYSTEM INFO
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
(1) SOLAREGE ENERGY HUB SE7600H-US
DC SYSTEM SIZE: 10.000 kWDC
AC SYSTEM SIZE: 7.600 kWAC
METER: 332 293 277

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

PROJECT NAME & ADDRESS

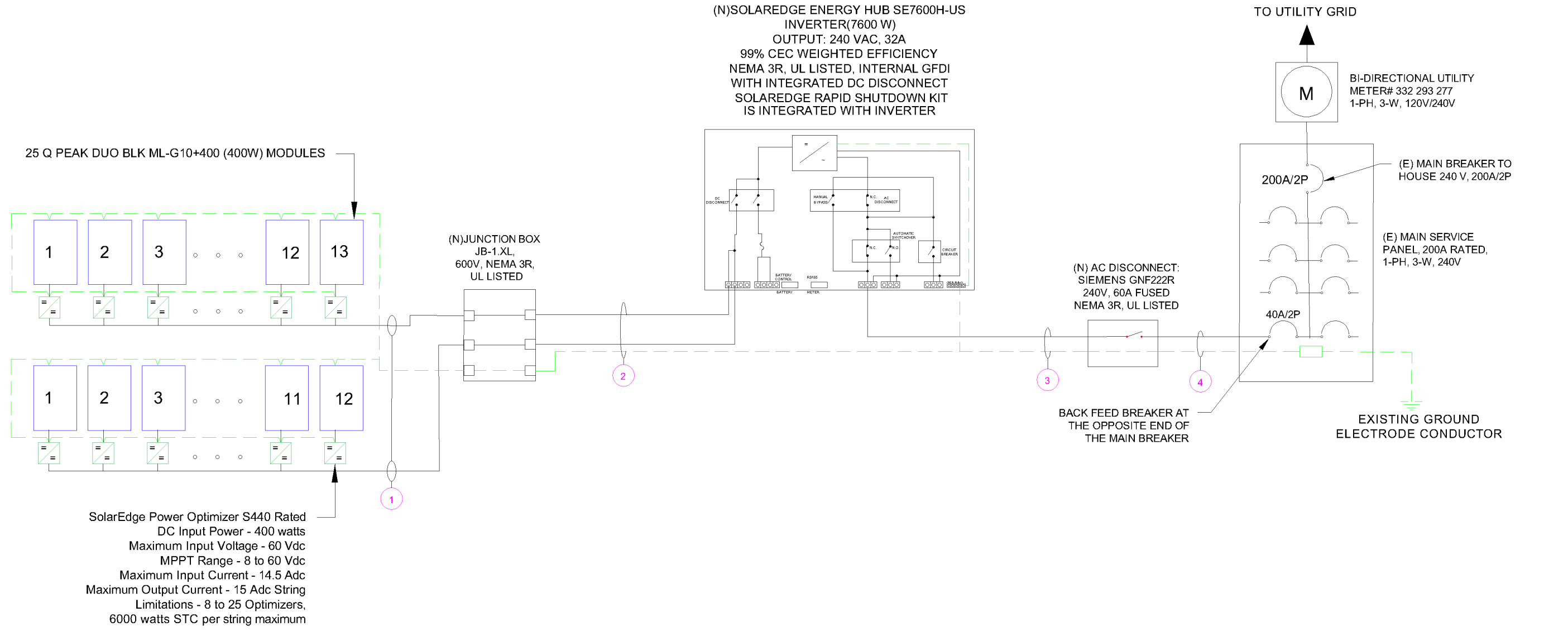
ADRIAN TUCKER  
RESIDENCE  
111 4TH ST, ERWIN, NC 28339, USA  
EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
PHONE NO. (919) 324-2368

DATE: 8/17/2023
SHEET NAME <b>ELECTRICAL LINE &amp; CALCS.</b>
SHEET SIZE <b>ANSI B 11" X 17"</b>
SHEET NUMBER <b>PV-7</b>



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

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR			CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CIRCUIT	CONDUIT FILL PERCENT	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	LENGTH	VOTAGE DROP
				6 AWG	BARE COPPER	0.71						(57°C)											
1	2	ARRAY	JUNCTION BOX	10 AWG	PV WIRE	COPPER	OPEN AIR	1	2	31.71%	N/A	6 AWG	BARE COPPER	0.71	(57°C)	N/A	15.00A	18.75A	N/A	N/A	75°C	60FT	0.97%
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	0.96	(35°C)	0.8	15.00A	18.75A	40A	30.72A	75°C	30FT	0.48%
3	1	INVERTER	NON FUSED AC DISCONNECT	8 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	29.27%	N/A	8 AWG	THWN-2 COPPER	0.96	(35°C)	1	32.00A	40A	55A	52.80A	75°C	5FT	0.10%
4	1	NON FUSED AC DISCONNECT	MSP	8 AWG	THWN 2	COPPER	MIN 0.75" DIA EMT	1	3	29.27%	40A	8 AWG	THWN-2 COPPER	0.96	(35°C)	1	32.00A	40A	55A	52.80A	75°C	10FT	0.21%



SYSTEM INFO		
(25) Q CELLS	Q.PEAK DUO BLK ML-G10+ 400 (TITAN)	
(1) SOLAREGE	ENERGY HUB SE7600H-US	
DC SYSTEM SIZE:	10.000 kWDC	
AC SYSTEM SIZE:	7.600 kWAC	
METER: 332 293 277		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

PROJECT NAME & ADDRESS

ADRIAN TUCKER  
RESIDENCE  
111 4TH ST, ERWIN, NC 28339, USA  
EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
PHONE NO. (919) 324-2368

SYSTEM RATING	
10.000 kWDC	
7.600 kWAC	

SERVICE INFO	
UTILITY PROVIDER:	DUKE ENERGY PROGRESS
AHJ NAME:	ERWIN TOWN
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	SQUARE D
MAIN SERVICE PANEL:	200 A
MAIN BREAKER RATING:	200 A
SERVICE FEED SOURCE:	OVERHEAD

INTERCONNECTION 120% RULE - NEC 705.12(B)(2)(3)(b)
UTILITY FEED + SOLAR BACKFEED 200A + 40A = 240A
BUSS RATING X 120% 200A x 120% = 240A

METER NO#: 332 293 277

SCALE: NTS

DATE: 8/17/2023
SHEET NAME <b>ELECTRICAL LINE &amp; CALCS.</b>
SHEET SIZE <b>ANSI B 11" X 17"</b>
SHEET NUMBER <b>PV-8</b>

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
VMP	37.13 V
IMP	10.77 A
VOC	45.3 V
ISC	11.14 A
TEMP. COEFF. VOC	-0.27%/K
PTC RATING	376.55 W
MODULE DIMENSION	74"(L) x 41.1"(W)
PANEL WATTAGE	400 W

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	SOLAREEDGE ENERGY HUB SE7600H-US
NOMINAL AC POWER	7600 W
NOMINAL OUTPUT VOLTAGE	264 VAC
NOMINAL OUTPUT CURRENT	32 A

POWER OPTIMIZER (SOLAREEDGE 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%)	35°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	57°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
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)
(1) SOLAREEDGE ENERGY HUB SE7600H-US
DC SYSTEM SIZE: 10.000 kWDC
AC SYSTEM SIZE: 7.600 kWAC
METER: 332 293 277

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

PROJECT NAME & ADDRESS

ADRIAN TUCKER  
RESIDENCE  
111 4TH ST, ERWIN, NC 28339, USA  
EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
PHONE NO. (919) 324-2368

DATE: 8/17/2023

SHEET NAME  
**SPECIFICATIONS  
& NOTES**

SHEET SIZE  
**ANSI B  
11" X 17"**

SHEET NUMBER  
**PV-9**

1

**! WARNING**

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

LABEL LOCATION:  
POINT OF INTERCONNECTION, MAIN SERVICE DISCONNECT, AC DISCONNECT, AC COMBINER, INVERTER  
PER CODE: NEC 690.13(B)

2

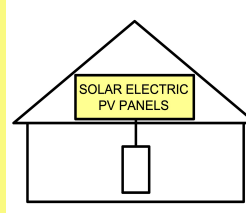
**CAUTION : SOLAR ELECTRIC SYSTEM CONNECTED**

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

3

**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: 2020 NEC 690.56(C)

4

**SERVICE DISCONNECT**

**SECTIONNEUR PRINCIPALE**

**SERVICIO DE DESCONEXION**

LABEL LOCATION:  
AC DISCONNECT  
PER CODE: NEC 230.66

5

**PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH**

LABEL LOCATION:  
AC DISCONNECT  
PER CODE: NEC 690.56(C)(2)

6

MAXIMUM VOLTAGE: 480 VDC  
MAXIMUM CIRCUIT CURRENT: 20 ADC  
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC-CONVERTER(IF INSTALLED): 30 ADC

LABEL LOCATION:  
DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE  
PER CODE: NFPA 70, NEC 690.53

7

**PHOTOVOLTAIC AC DISCONNECT**

RATED AC OUTPUT CURRENT: 32 AMPS  
NOMINAL OPERATING AC VOLTAGE: 240 VOLTS

LABEL LOCATION:  
INTERACTIVE SYSTEM POINT OF INTERCONNECTION  
PER CODE: NFPA 70, NEC 690.54

8

**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: NEC 705.12(B)(3)(2)

9

**WARNING:**

**PHOTOVOLTAIC POWER SOURCE**

LABEL LOCATION:  
CONDUIT  
PER CODE: NEC 690.31(D)(2)

10

**CAUTION : SOLAR CIRCUIT**

LABEL LOCATION:  
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

11

**! WARNING !**

**DUAL POWER SUPPLY**

**SOURCES: UTILITY AND PV POWER SOURCE ELECTRIC SYSTEM**

LABEL LOCATION:  
POINT OF INTERCONNECTION  
PER CODE: NEC 705.12(C)



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

SYSTEM INFO	
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)	
(1) SOLAREEDGE ENERGY HUB SE7600H-US	
DC SYSTEM SIZE: 10.000 kWDC	
AC SYSTEM SIZE: 7.600 kWAC	
METER: 332 293 277	

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

PROJECT NAME & ADDRESS

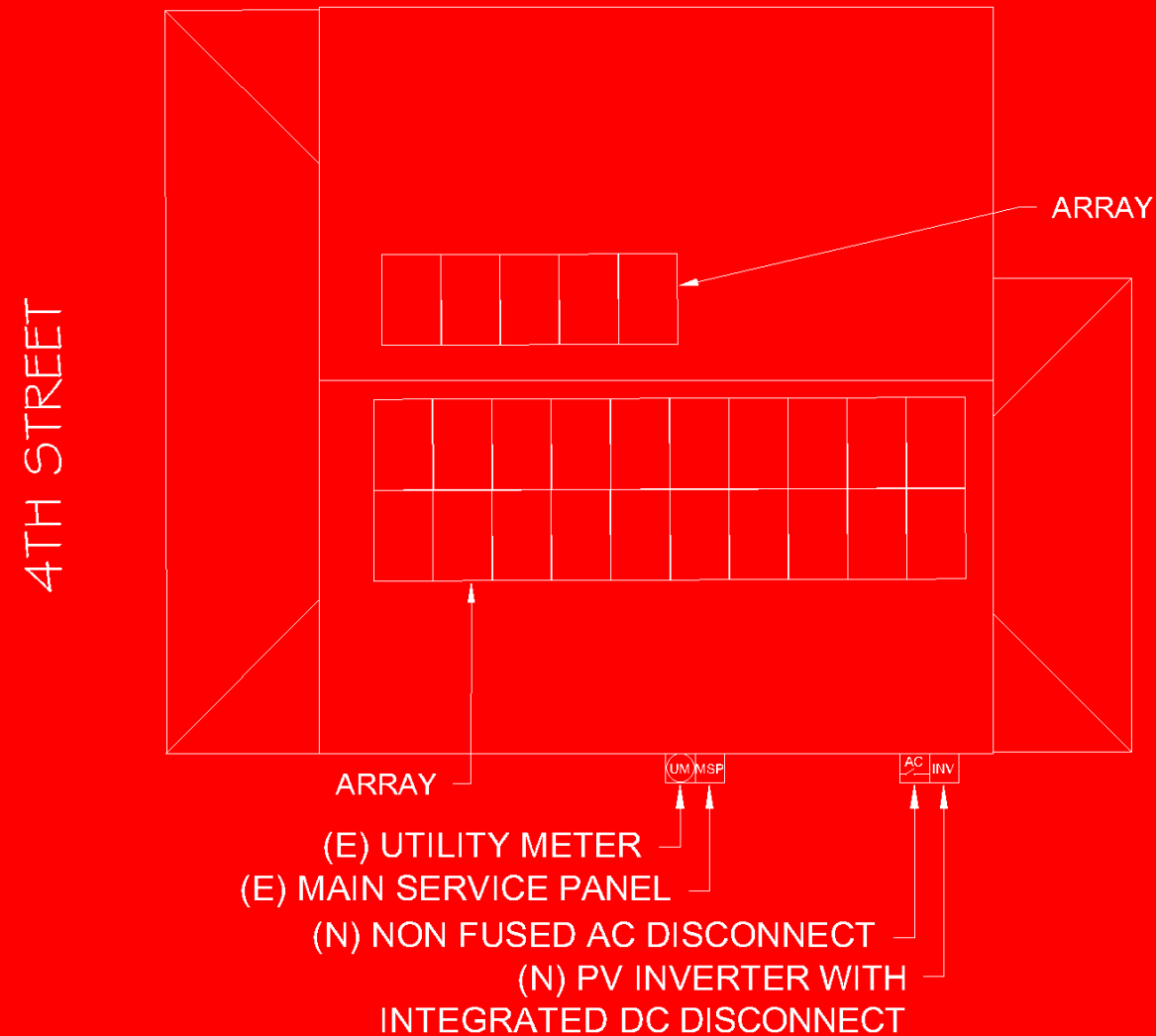
ADRIAN TUCKER  
RESIDENCE  
111 4TH ST, ERWIN, NC 28339, USA  
EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
PHONE NO. (919) 324-2368

DATE: 8/17/2023
SHEET NAME <b>SIGNAGE</b>
SHEET SIZE <b>ANSI B 11" X 17"</b>
SHEET NUMBER <b>PV-10</b>

- 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]



**CAUTION!**  
**POWER TO THIS BUILDING IS SUPPLIED FROM**  
**THE FOLLOWING SOURCES WITH DISCONNECTS**  
**LOCATED AS SHOWN**



**LABEL LOCATION:**  
 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	
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)	
(1) SOLAREEDGE ENERGY HUB SE7600H-US	
DC SYSTEM SIZE: 10.000 kWDC	
AC SYSTEM SIZE: 7.600 kWAC	
METER: 332 293 277	

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 111 4TH ST, ERWIN, NC 28339, USA  
 EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
 PHONE NO. (919) 324-2368

DATE: 8/17/2023

SHEET NAME  
**SIGNAGE**

SHEET SIZE  
**ANSI B  
 11" X 17"**

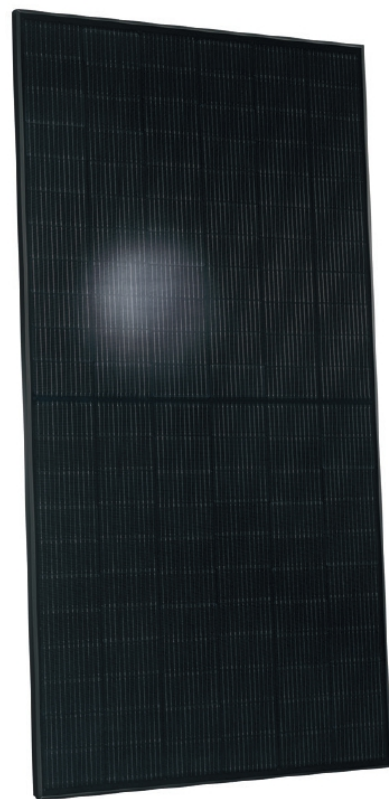
SHEET NUMBER  
**PV-11**





# TITAN

## SOLAR PANEL



**BREAKING THE 20% EFFICIENCY BARRIER**  
Q. ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.

**INDUSTRY'S MOST THOROUGH TESTING**  
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry:  
The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

**ENDURING HIGH PERFORMANCE**  
Long-term yield security with Anti LID Technology, Anti PID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.

**EXTREME WEATHER RATING**  
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

**A RELIABLE INVESTMENT**  
Inclusive 25-year product warranty and 25-year linear performance warranty<sup>2</sup>.

**INNOVATIVE ALL-WEATHER TECHNOLOGY**  
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

<sup>1</sup>APT test conditions according to IEC / TS 62804-1:2015, method A (-1500 V, 96 h)  
<sup>2</sup>See data sheet on rear for further information.



## Q PEAK DUO BLK ML-G10+

### 395-400

ENDURING HIGH PERFORMANCE

THE IDEAL SOLUTION FOR:  
Rooftop arrays on residential buildings



400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA  
TEL: +1 949 748 5996  
EMAIL: sales@q-cells.com

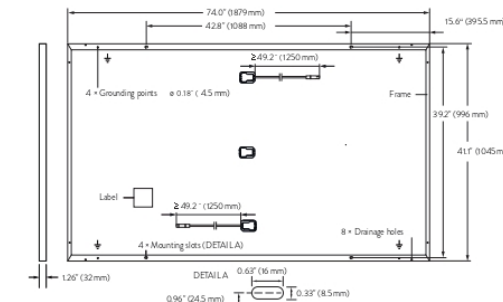


525 W Baseline Rd., Mesa, AZ, 85210  
TEL: 855.SAY.SOLAR  
EMAIL: info@titansolarpower.com

Specifications subject to technical changes © Q CELLS Q. PEAK DUO BLK ML-G10+-395-400-2021-05\_Rev01\_NA

### MECHANICAL SPECIFICATION

FORMAT	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
WEIGHT	48.5 lbs (22.0 kg)
FRONT COVER	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
BACK COVER	Composite film
FRAME	Black anodized aluminum
CELL	6 × 22 monocrystalline Q. ANTUM solar half cells
JUNCTION BOX	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
CABLE	4 mm <sup>2</sup> Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
CONNECTOR	Stäubli MC4; IP68

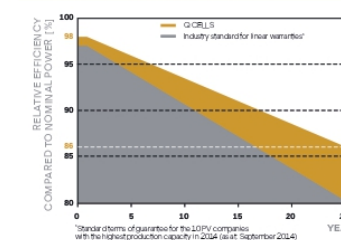


### ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405	
<b>MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC</b> <sup>1</sup> (POWER TOLERANCE +5 W / -0 W)							
MINIMUM	POWER AT MPP	P <sub>MPP</sub> [W]	385	390	395	400	405
	SHORT CIRCUIT CURRENT	I <sub>SC</sub> [A]	11.04	11.07	11.10	11.14	11.17
	OPEN CIRCUIT VOLTAGE	V <sub>OC</sub> [V]	45.19	45.23	45.27	45.30	45.34
	CURRENT AT MPP	I <sub>MPP</sub> [A]	10.59	10.65	10.71	10.77	10.83
	VOLTAGE AT MPP	V <sub>MPP</sub> [V]	36.36	36.62	36.88	37.13	37.39
<b>EFFICIENCY</b>							
	η [%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	
<b>MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT</b> <sup>2</sup>							
MINIMUM	POWER AT MPP	P <sub>MPP</sub> [W]	288.8	292.6	296.3	300.1	303.8
	SHORT CIRCUIT CURRENT	I <sub>SC</sub> [A]	8.90	8.92	8.95	8.97	9.00
	OPEN CIRCUIT VOLTAGE	V <sub>OC</sub> [V]	42.62	42.65	42.69	42.72	42.76
	CURRENT AT MPP	I <sub>MPP</sub> [A]	8.35	8.41	8.46	8.51	8.57
	VOLTAGE AT MPP	V <sub>MPP</sub> [V]	34.59	34.81	35.03	35.25	35.46

<sup>1</sup>Measurement tolerances P<sub>MPP</sub> ±3%; I<sub>SC</sub>; V<sub>OC</sub> ±5% at STC: 1000 W/m<sup>2</sup>, 25 ± 2°C, AM 1.5 according to IEC 60904-3 • • 800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5

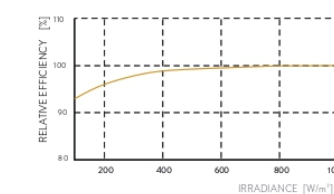
### Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances  
Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

### PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m<sup>2</sup>)

### TEMPERATURE COEFFICIENTS

TEMPERATURE COEFFICIENT OF I <sub>SC</sub>	α [%/K]	+0.04	TEMPERATURE COEFFICIENT OF V <sub>OC</sub>	β [%/K]	-0.27
TEMPERATURE COEFFICIENT OF P <sub>MPP</sub>	γ [%/K]	-0.34	NOMINAL MODULE OPERATING TEMPERATURE	NMOT [°F]	109 ± 5.4 (43 ± 3°C)

### PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V <sub>sys</sub> [V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating [A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull <sup>1</sup> [lbs/ft <sup>2</sup> ]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull <sup>1</sup> [lbs/ft <sup>2</sup> ]	113 (5400 Pa)/84 (4000 Pa)		

<sup>1</sup> See Installation Manual

### QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells), QCPV Certification ongoing.



### PACKAGING INFORMATION

Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules
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Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.



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

SYSTEM INFO		
(25) Q CELLS Q.PEAK DUO BLK ML-G10+ 400 (TITAN)		
(1) SOLAREGE ENERGY HUB SE7600H-US		
DC SYSTEM SIZE: 10.000 kWDC		
AC SYSTEM SIZE: 7.600 kWAC		
METER: 332 293 277		

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	08/15/2023	A
REVISION	08/17/2023	B

### PROJECT NAME & ADDRESS

ADRIAN TUCKER  
RESIDENCE  
111 4TH ST, ERWIN, NC 28339, USA  
EMAIL ID: TUCKERADRIAN79@GMAIL.COM  
PHONE NO. (919) 324-2368

DATE: 8/17/2023

SHEET NAME  
EQUIPMENT SPECIFICATIONS

SHEET SIZE  
ANSI B  
11" X 17"

SHEET NUMBER  
PV-13





# / Single Phase Energy Hub Inverter with Prism Technology

for North America

SE3000H-US / SE3800H-US / SE6000H-US / SE7600H-US<sup>(1)</sup>

	SE3000H-US	SE3800H-US	SE6000H-US	SE7600H-US	UNITS
<b>OUTPUT - AC ON GRID</b>					
Rated AC Power	3000	3800	6000	7600	W
Maximum AC Power Output	3000	3800	6000	7600	W
AC Output Voltage Range	211-264				Vac
AC Frequency Range (min - nom - max)	59.3 - 60 - 60.5 <sup>(2)</sup>				Hz
Maximum Continuous Output Current	12.5	16	25	32	A
GFDI Threshold	1				A
Total Harmonic Distortion (THD)	<3				%
Power Factor	1, adjustable -0.85 to 0.85				
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes				
Charge Battery from AC (if Allowed)	Yes				
Typical Nighttime Power Consumption	<2.5				W
<b>OUTPUT - AC BACKUP<sup>(3)</sup></b>					
Rated AC Power in Backup Operation	2400	3050	4800	6100	W
Peak AC Power (<10 sec) in Backup Operation	2700	3400	5400	6900	W
AC L-L Output Voltage Range in Backup	211-264				Vac
AC L-N Output Voltage Range in Backup	105-132				Vac
AC Frequency Range in Backup (min - nom - max)	55 - 60 - 65				Hz
Maximum Continuous Output Current in Backup Operation	10	12.7	20	25.5	A
Peak AC Current (<10sec) in Backup Operation	11.25	14.2	22.5	30	A
GFDI	1				A
THD	<5				%
<b>OUTPUT - SMART EV CHARGER AC</b>					
Rated AC Power	9,600				W
AC Output Voltage Range	211-264				Vac
AC Frequency Range (min - nom - max)	59.3-60-60.5				Hz
Maximum Continuous Output Current @240V (grid, PV and battery)	40				Aac
<b>INPUT - DC (PV AND BATTERY)</b>					
Transformer-less, Ungrounded	Yes				
Max Input Voltage	480				Vdc
Nom DC Input Voltage	380		400		Vdc
Reverse-Polarity Protection	Yes				
Ground-Fault Isolation Detection	600kΩ Sensitivity				
<b>INPUT - DC (PV)</b>					
Maximum DC Power	6000	7600	12000	15600	W
Maximum Input Current <sup>(4)</sup>	8.5	10.5	16.5	20	Adc
Max. Input Short Circuit Current	45				Adc
Maximum Inverter Efficiency	99.2				%
CEC Weighted Efficiency	99				%
2-pole Disconnection	Yes				
<b>INPUT - DC (BATTERY)</b>					
Supported Battery Types	LG Chem RESU10H				
Number of Batteries per Inverter	1 or 2 <sup>(5)</sup>				
Maximum Battery Capacity per Inverter	19.6				kWh
Continuous Power Per Inverter	5000				W
Peak Power	6900				W
Max Input Current @240V	18				Adc
2-pole Disconnection	Yes				

# / Single Phase Energy Hub Inverter with Prism Technology

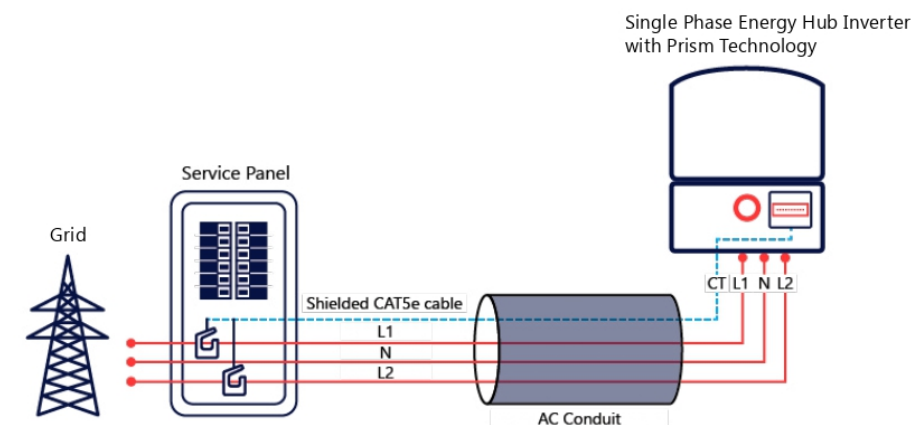
for North America

SE3000H-US / SE3800H-US / SE6000H-US / SE7600H-US<sup>(1)</sup>

<b>SMART ENERGY CAPABILITIES</b>		
Consumption Metering	Built-in <sup>(6)</sup>	
Battery Storage	With Backup Interface for service up to 200A; Up to 3 inverters, 15kW backup power, and 60kWh backup capacity	
EV Charging	Direct connection to Smart EV charger	
<b>ADDITIONAL FEATURES</b>		
Supported Communication Interfaces	RS485, Ethernet, Wi-Fi (optional), Cellular	
Revenue Grade Metering, ANSI C12.20	Built - in <sup>(6)</sup>	
Integrated AC, DC and Communication Connection Unit	Yes	
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi Access Point for local connection	
DC Voltage Rapid Shutdown (PV and Battery)	Yes, according to NEC 2014 and 2017 690.12	
<b>STANDARD COMPLIANCE</b>		
Safety	UL1741, UL1741 SA, UL1699B, UL1998, UL9540, CSA 22.2	
Grid Connection Standards	IEEE1547, Rule 21, Rule 14H	
Emissions	FCC part15 class B	
<b>INSTALLATION SPECIFICATIONS</b>		
AC Output Conduit Size / AWG Range	3/4" maximum / 14-8 AWG	1" maximum / 14-6 AWG
EV AC Output Conduit Size / AWG Range	3/4" maximum / 14-8 AWG	1" maximum / 14-6 AWG
DC Input (PV) Conduit Size / AWG Range	3/4" maximum / 14-8 AWG	1" maximum / 14-6 AWG
DC Input (Battery) Conduit Size / AWG Range	3/4" maximum / 14-8 AWG	1" maximum / 14-6 AWG
Dimensions with Connection Unit (HxWxD)	17.7 X 14.6 X 6.8 / 450 X 370 X 174	
Weight with Connection Unit	26 / 11.8	30.2 / 13.7
Noise	< 25	
Cooling	Natural Convection	
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>(7)</sup>	
Protection Rating	NEMA 4X	

- (1) These specifications apply to inverters with part numbers SExxxxH-US3xxxxx or SE7600H-US3Hxxxx and connection unit model number DCD-1PH-US-PxH-F-x
- (2) For other regional settings please contact SolarEdge support
- (3) Not designed for standalone applications and requires AC for commissioning
- (4) A higher current source may be used; the inverter will limit its input current to the values stated
- (5) When connecting two LG Chem RESU batteries, each battery must have a different part number
- (6) For consumption metering current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.
- (7) 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>

## Connecting CTs to the Revenue Grade and Consumption Meter



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**RoHS**



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Electrical LIC# : U.33714

SYSTEM INFO		
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(1) SOLAREEDGE ENERGY HUB SE7600H-US		
DC SYSTEM SIZE: 10.000 kWDC		
AC SYSTEM SIZE: 7.600 kWAC		
METER: 332 293 277		

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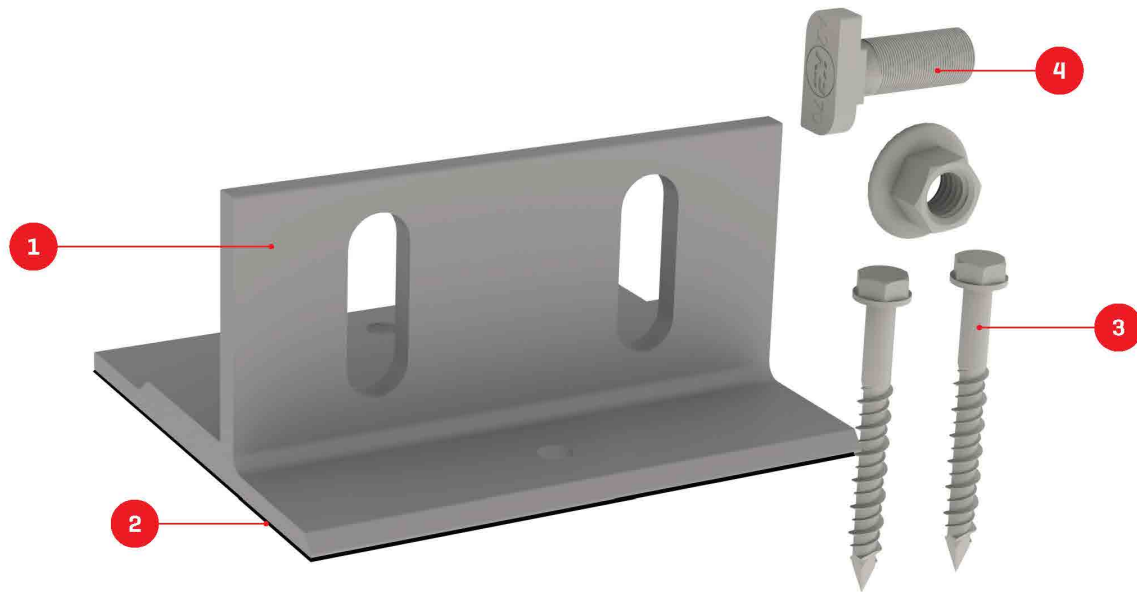
DATE: 8/17/2023

SHEET NAME  
**EQUIPMENT SPECIFICATIONS**

SHEET SIZE  
**ANSI B  
11" X 17"**

SHEET NUMBER  
**PV-14**

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	

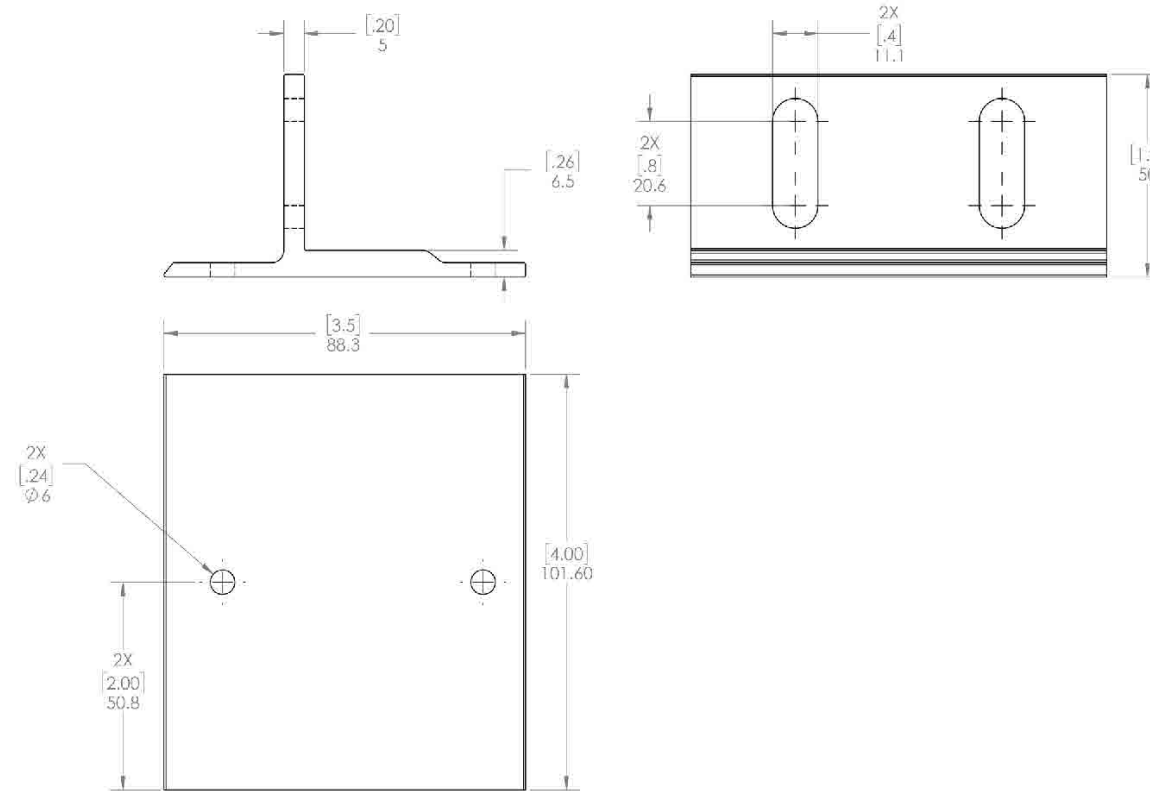
### Technical Data

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

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Units: [in] mm



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(TITAN)

(1) SOLAREGE  
ENERGY HUB SE7600H-US

DC SYSTEM SIZE: 10.000 kWDC

AC SYSTEM SIZE: 7.600 kWAC

METER: 332 293 277

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SPECIFICATIONS

SHEET SIZE

ANSI B  
11" X 17"

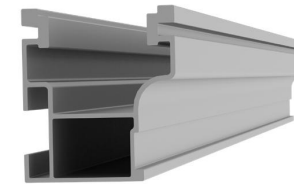
SHEET NUMBER

PV-15

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Formerly Everest Solar Systems



## CROSSRAIL 44-X



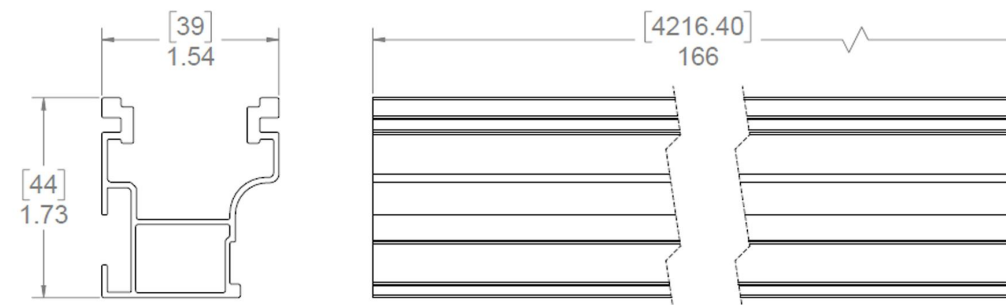
### Mechanical Properties

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

### Sectional Properties

CrossRail 44-X	
Sx	0.1490 in <sup>3</sup> [0.3785 cm <sup>3</sup> ]
Sy	0.1450 in <sup>3</sup> [0.3683 cm <sup>3</sup> ]
A [X-Section]	0.4050 in <sup>2</sup> [1.0287 cm <sup>2</sup> ]

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



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SHEET NAME

**EQUIPMENT  
SPECIFICATIONS**

SHEET SIZE

**ANSI B  
11" X 17"**

SHEET NUMBER

**PV-16**

## 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 Conductor	2 Conductor	Torque				
			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 block	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	
Ideal 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		
	8 awg		Sol/Str	4.5	40		
Brumall 4-5,3	4-6 awg		Sol/Str		45	2000V	
	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 (inch)	mm (inch)
14-10 (2.1-5.3)	Not specified	-	-	-
8 (8.4)	38.1 (1-1/2)	-	-	-
6 (13.3)	50.8 (2)	-	-	-



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SHEET NUMBER

PV-17