

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

**HARRIS, ALEXIS PV SYSTEM**  
**206 LAMM AVENUE .**  
**ERWIN, NC, 28339**  
**APN:**  
**JURISDICTION: HARNETT COUNTY (NC)**  
**GENERAL INFORMATION**

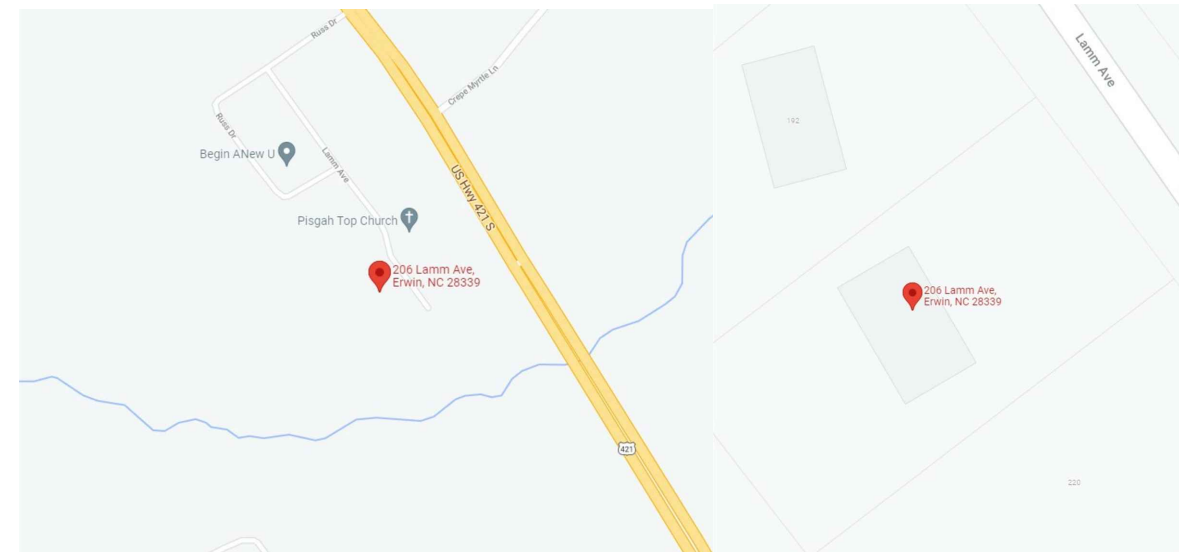
SYSTEM SIZE: 9.085 kW-DC-STC  
 7.600 kW-AC  
 ROOF PITCHED: 25 DEGREES  
 INVERTER: (1) SOLAREEDGE SE7600H-US W/ P401 OPTIMIZERS  
 MODULES: (23) Q PEAK DUO BLK ML G10+ 395W  
 STRINGS: (1) x 14 (1) x 9 MODULE SERIES STRINGS  
 ELECTRICAL SERVICE RATING: 200A  
 PV SYSTEM OVERCURRENT RATING: 40A  
 PV SYSTEM DISCONNECT SWITCH: EATON DG222URB (60A / 2P)  
 ROOF TYPE: COMP SHINGLE  
 ROOF FRAMING: MANUFACTURED/ENGINEERED TRUSS  
 RACKING: K2 SYSTEMS  
 ATTACHMENT METHOD: MIN. 5/16" x 3 1/2 LAG SCREWS EA. STANDOFF

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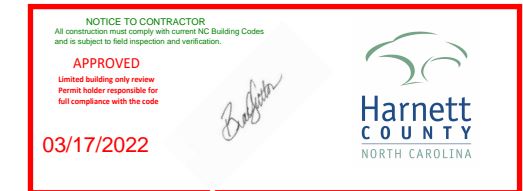
**VICINITY MAP**

SCALE: NTS



**AERIAL MAP**

SCALE: NTS



**NOTES**

**EQUIPMENT LOCATION**

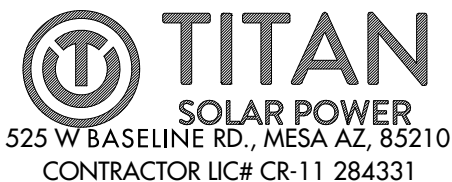
- ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
- WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31(A),(C) AND NEC TABLES 310.15(B)(2)(A) AND 310.15(B)(3)(C).
- JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
- ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.
- ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
- ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

**WIRING & CONDUIT NOTES**

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

**GENERAL NOTES**

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



HARRIS, ALEXIS RESIDENCE  
 206 LAMM AVENUE , ERWIN, NC, 28339  
 LAT:35.375734, LON:-78.713719  
 TSP112544

(23) Q PEAK DUO BLK ML G10+ 395W  
 (1) SOLAREEDGE SE7600H-US  
 9.085 kW DC SYSTEM SIZE  
 7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
 REV:A  
 DRAWN BY: CA

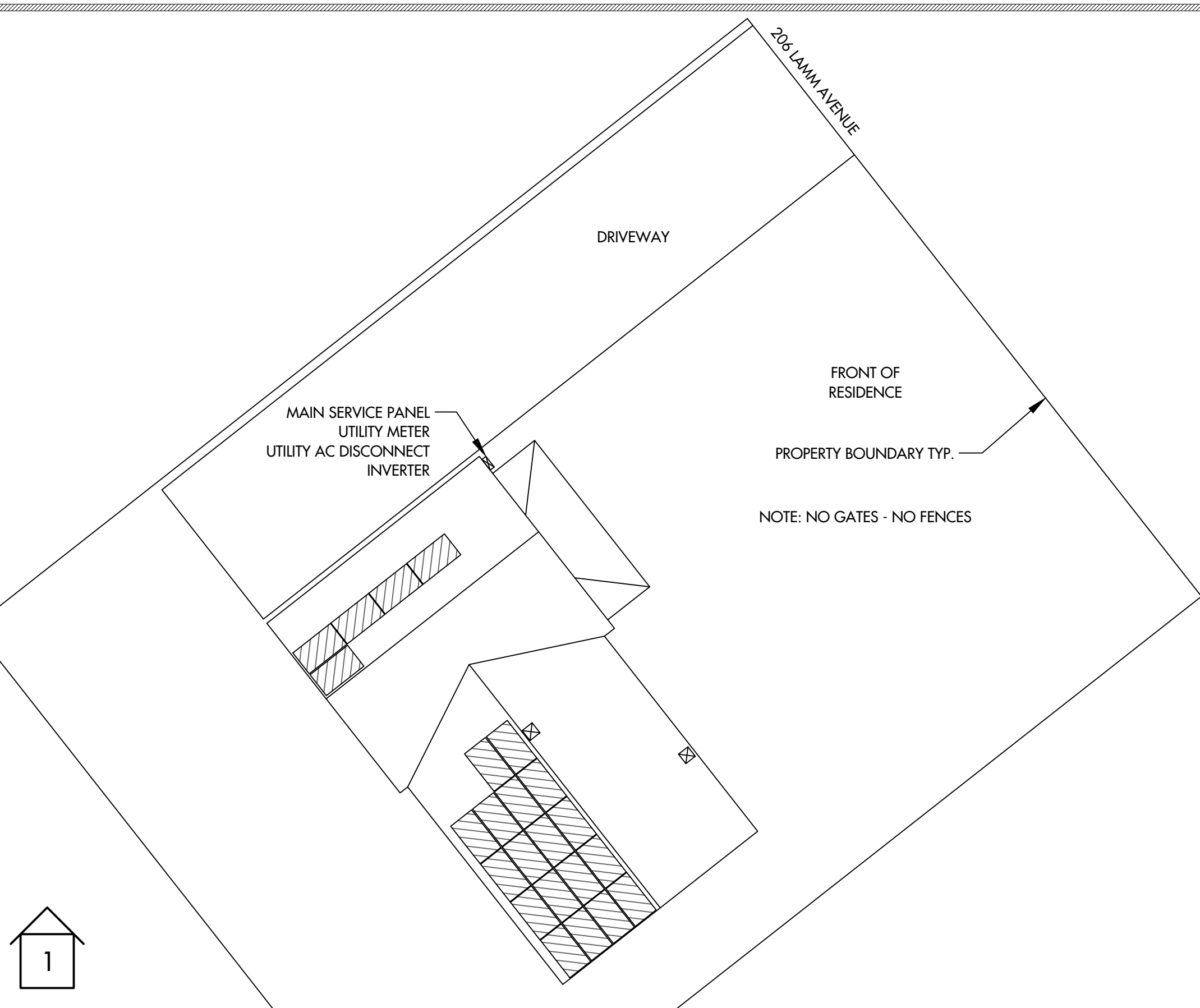
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COVER PAGE  
**PV 1**



**PROJECT NOTES**

1. UTILITY SHALL HAVE 24HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC COMPONENTS LOCATED AT SES EQUIPMENT
2. NO LOCKED GATES, DOGS, ETC SHALL IMPEDE ACCESS TO SES EQUIPMENT
3. WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH DUKE ENERGY PROGRESS (NC) AND NEC REQUIREMENTS.



**TITAN**  
SOLAR POWER  
525 W BASELINE RD., MESA AZ, 85210  
CONTRACTOR LIC# CR-11 284331

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9.085 kW DC SYSTEM SIZE  
7.600 kW AC SYSTEM SIZE

SCALE: 9/128" = 1'-0"  
DATE: 2/1/2022  
REV: A  
DRAWN BY: CA

SEAL:

SITE PLAN  
**PV 2**

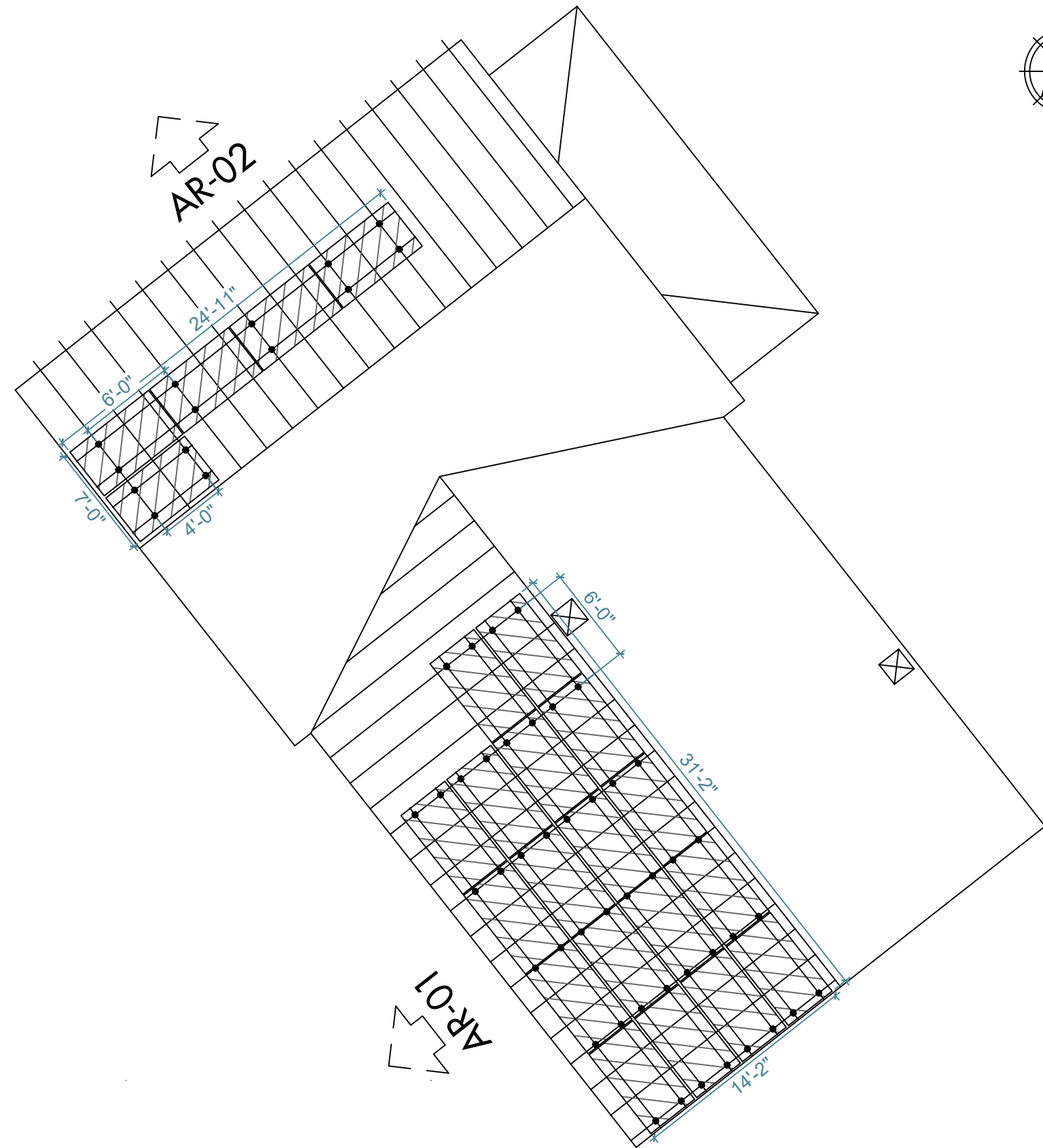
ARRAY INFORMATION

AR-01

QUANTITY: 18  
MOUNTING TYPE: FLUSH  
ARRAY TILT: 25°  
AZIMUTH: 150°  
ATTACHMENT SPACING: 6'  
ROOF TYPE: COMP SHINGLE

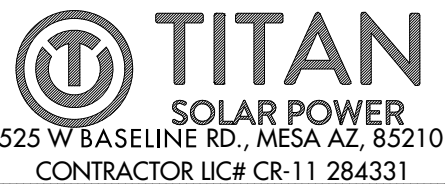
AR-02

QUANTITY: 5  
MOUNTING TYPE: FLUSH  
ARRAY TILT: 25°  
AZIMUTH: 240°  
ATTACHMENT SPACING: 6'  
ROOF TYPE: COMP SHINGLE



NOTES

- ROOF VENTS, SKYLIGHTS, WILL NOT BE COVERED UPON PV INSTALLATION
- TOTAL ROOF AREA = 2180 SQ-FT
- TOTAL ARRAY AREA = 485.78 SQ-FT
- ARRAY COVERAGE = 22.28%



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(23) Q PEAK DUO BLK ML G10+ 395W  
(1) SOLAREEDGE SE7600H-US  
9.085 kW DC SYSTEM SIZE  
7.600 kW AC SYSTEM SIZE

SCALE: 1/8" = 1'-0"  
DATE: 2/1/2022  
REV:A  
DRAWN BY: CA

SEAL:

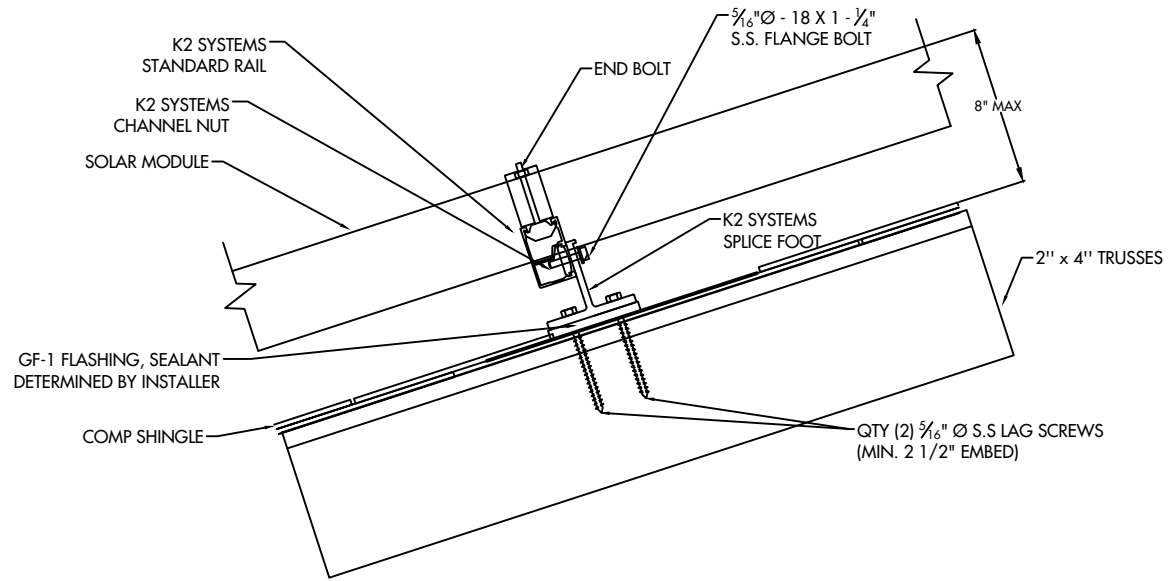
PV LAYOUT  
PV 3

MODULE & RACKING INFORMATION

MODULE: Q PEAK DUO BLK ML G10+ 395W  
MODULE WEIGHT: 48.50 LBS  
MODULE DIMENSIONS: 74"x 41.1" x 1.5"  
RACKING/RAIL: K2 SYSTEMS / K2 SYSTEMS

ROOF & FRAMING INFORMATION

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



ARRAY 01: 18 MODULES

UPLIFT = 11405.25 LBS.

POINT LOAD = 21.27 LBS. PER MOUNTING POINT

PULLOUT STRENGTH = 23100.00 LBS.

DISTRIBUTED LOAD = 2.46 PSF

MODULE & RACKING WEIGHT = 936.00 LBS

ARRAY 02: 5 MODULES

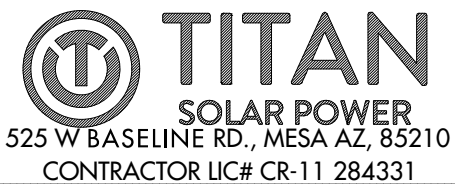
UPLIFT = 3168.13 LBS.

POINT LOAD = 18.57 LBS. PER MOUNTING POINT

PULLOUT STRENGTH = 7350.00 LBS.

DISTRIBUTED LOAD = 2.46 PSF

MODULE & RACKING WEIGHT = 260.00 LBS



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(1) SOLAREEDGE SE7600H-US  
9.085 kW DC SYSTEM SIZE  
7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
REV:A  
DRAWN BY: CA

SEAL:

DETAILS  
PV 4

**PV MODULE**

Q PEAK DUO BLK ML G10+ 395W  
 W = 395 W  
 ISC = 11.10 ADC  
 VOC = 45.27 VDC  
 IMP = 10.71 ADC  
 VMP = 36.88 VDC  
 TVOC = -0.270% / °C

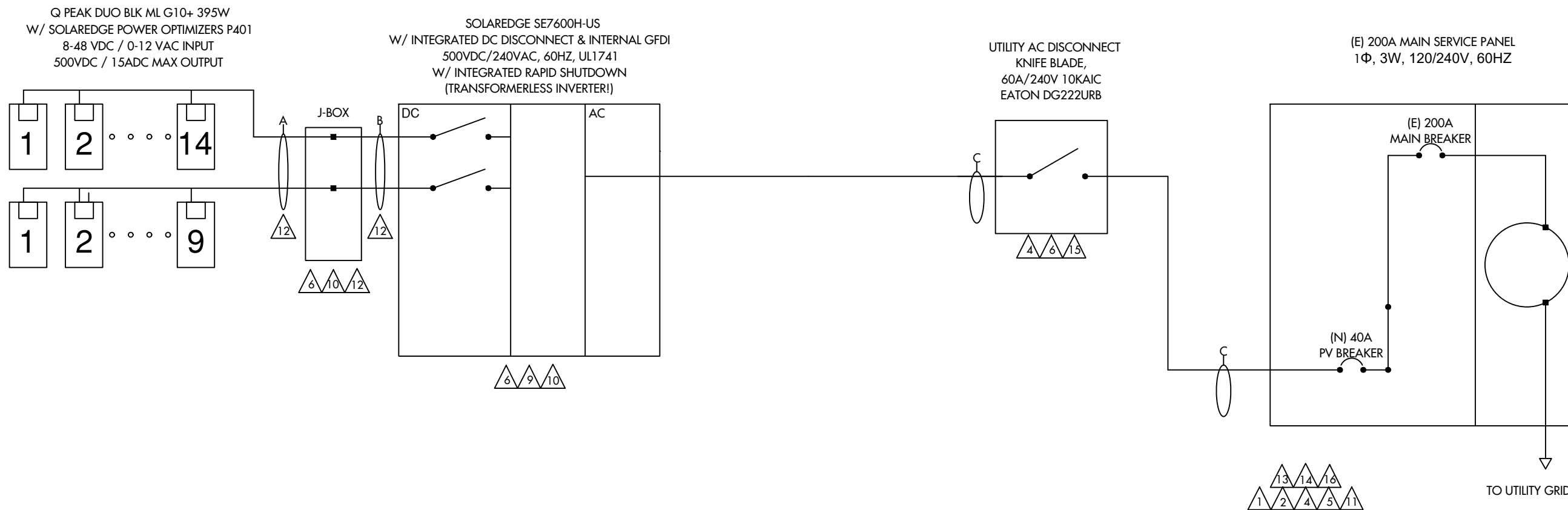
**WIRE SCHEDULE**

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

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

**MAIN SERVICE PANEL**

BUS RATING = 200A  
 MAX. CURRENT RATING = 240A (200 X 1.2)  
 SOLAR BREAKER = 40A  
 MAIN BREAKER = 200A  
 TOTAL = 240A

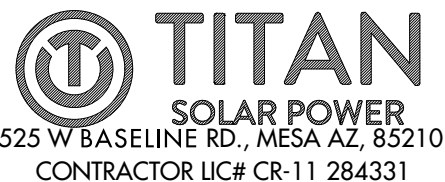


**WIRE SIZE CALCULATIONS**

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

DC WIRING  
 CONDUIT FILL FACTOR = 0.80  
 OPTIMIZER MAX. CURRENT = 18.75A DC (15.00A X 1 X 1.25)  
 #10- AWG CU. AMPACITY = 47.85A (55A X 0.87)  
 FREE AIR  
 #10 - AWG CU. AMPACITY = 27.84A (40A X 0.87 X 0.80)  
 ROOFTOP CONDUIT

AC WIRING  
 CONDUIT FILL FACTOR = 1 (3) CONDUCTORS  
 MAX. INVERTER CURRENT = 32A (PER INVERTER SPECS)  
 MIN. INVERTER OCP = 40A (32A X 1.25)  
 INVERTER OCP = 40A  
 #8 - AWG CU AMPACITY = 47.85A (55A X 1 X 0.87)



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 7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
 REV:A  
 DRAWN BY: CA

SEAL:

ONE LINE  
**PV 5**

**PV MODULE**

Q PEAK DUO BLK ML G10+ 395W  
 W = 395 W  
 ISC = 11.10 ADC  
 VOC = 45.27 VDC  
 IMP = 10.71 ADC  
 VMP = 36.88 VDC  
 TVOC = -0.270% / °C

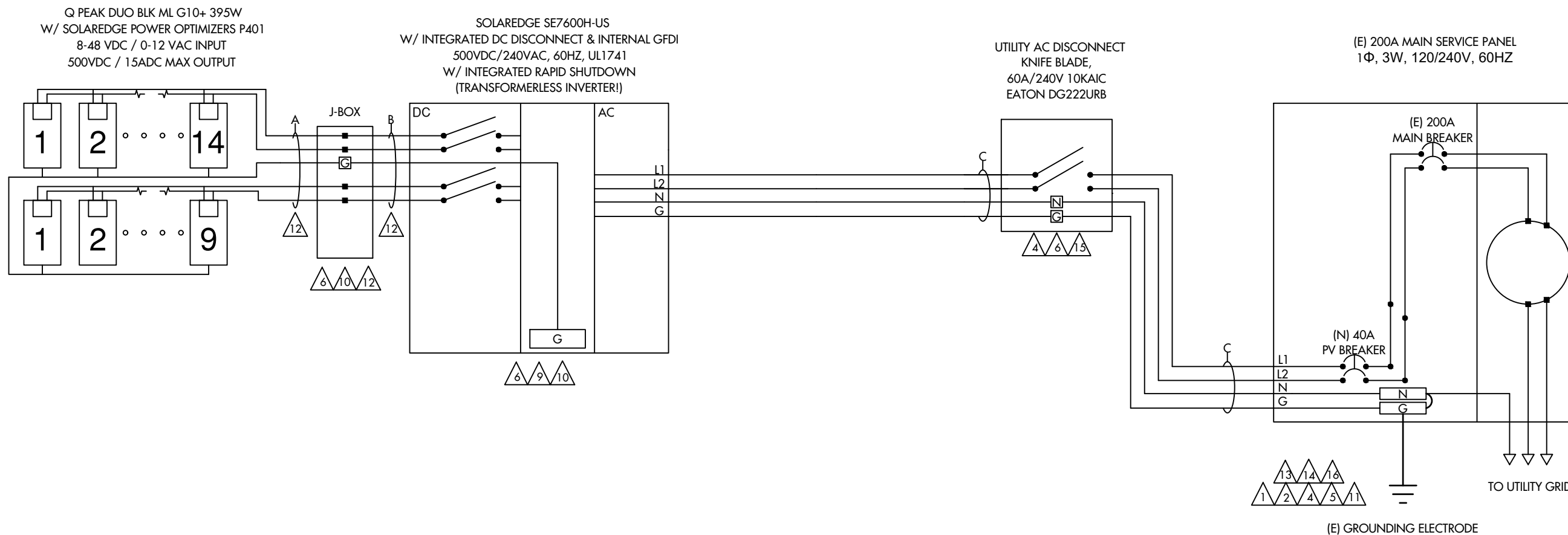
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 (1) #10 AWG-CU BARE COPPER WIRE (GND)  
 IN FREE AIR  
 B - (4) #10 AWG-CU THWN-2 WIRE (HR)  
 (1) #10 AWG-CU THWN-2 WIRE (GND)  
 3/4" EMT

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

**MAIN SERVICE PANEL**

BUS RATING = 200A  
 MAX. CURRENT RATING = 240A (200 X 1.2)  
 SOLAR BREAKER = 40A  
 MAIN BREAKER = 200A  
 TOTAL = 240A



**WIRE SIZE CALCULATIONS**

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

**DC WIRING**  
 CONDUIT FILL FACTOR = 0.80  
 OPTIMIZER MAX. CURRENT = 18.75A DC (15.00A X 1 X 1.25)  
 #10- AWG CU. AMPACITY = 47.85A (55A X 0.87)  
 FREE AIR  
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 ROOFTOP CONDUIT

**AC WIRING**  
 CONDUIT FILL FACTOR = 1 (3) CONDUCTORS  
 MAX. INVERTER CURRENT = 32A (PER INVERTER SPECS)  
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 9.085 kW DC SYSTEM SIZE  
 7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
 REV:A  
 DRAWN BY: CA

SEAL:

THREE LINE  
**PV 6**

1 **CAUTION**  
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED  
LOCATION: BACKFED BREAKER  
CODE REF: NEC 705.12(4)

2 **WARNING**  
INVERTER OUTPUT CONNECTION:  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE  
LOCATION: BACKFED BREAKER  
CODE REF: 2017 NEC 705.12(2)(3)(b)

3 **WARNING**  
A GENERATION SOURCE IS CONNECTED TO THE SUPPLY  
(UTILITY) SIDE OF THE MAIN SERVICE DISCONNECT. FOLLOW  
THE PROPER LOCK-OUT/TAG-OUT PROCEDURES TO ENSURE  
THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH IS  
OPENED PRIOR TO PERFORMING WORK ON THIS DEVICE  
LOCATION: (IF APPLICABLE)  
SUPPLY SIDE TAP  
LOAD PANEL  
CODE REF: UTILITY

4 **PHOTOVOLTAIC AC DISCONNECT**  
RATED AC OPERATING CURRENT: 32A AC  
NOMINAL OPERATING AC VOLTAGE: 240VAC  
LOCATION: MAIN PANEL  
AC DISCONNECT(S)  
CODE REF: NEC 690.54

5 **RAPID SHUTDOWN  
SWITCH FOR  
SOLAR PV SYSTEM**  
LOCATION: MAIN PANEL (EXTERIOR)  
PV BREAKER (INTERIOR)  
CODE REF: NEC 690.56(C)(3)

6 **WARNING**  
ELECTRICAL SHOCK HAZARD  
TERMINALS ON BOTH LINE AND  
LOAD SIDES MAY BE ENERGIZED  
IN THE OPEN POSITION  
LOCATION: COMBINER PANEL  
AC DISCONNECT  
JUNCTION BOX  
INVERTER(S)  
CODE REF: NEC 690.13(B)

7 **PHOTOVOLTAIC  
SYSTEM METER**  
LOCATION: DEDICATED KWH METER  
CODE REF: NEC 690.4(B) UTILITY

8 **WARNING**  
PHOTOVOLTAIC SYSTEM  
COMBINER PANEL  
DO NOT ADD LOADS  
LOCATION: AC COMBINER PANEL  
CODE REF: NEC 690.13(B)

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

10 **WARNING**  
ELECTRICAL SHOCK HAZARD  
TERMINALS ON BOTH LINE AND  
LOAD SIDES MAY BE ENERGIZED  
IN THE OPEN POSITION  
DC VOLTAGE IS ALWAYS PRESENT  
WHEN SOLAR MODULES ARE  
EXPOSED TO SUNLIGHT  
LOCATION: DC DISCONNECT, COMBINE BOX  
CODE REF: NEC 690.13(B)

11 **SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN**  
TURN RAPID SHUTDOWN  
SWITCH TO THE "OFF"  
POSITION TO SHUT DOWN  
PV SYSTEM AND REDUCE  
SHOCK HAZARD IN THE  
ARRAY.  
LOCATION: MAIN SERVICE (OUTSIDE COVER)  
CODE REF: NEC 690.12  
NEC 690.56(C)(1)(a)  
YELLOW STICKER

12 **WARNING PHOTOVOLTAIC POWER SOURCE**  
LOCATION: DC CONDUIT  
JUNCTION BOX  
NO MORE THAN 10FT  
CODE REF: NEC 690.31(G)(3)  
NEC 690.31(G)(4)  
REFLECTIVE AND WEATHER RESISTANT

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

13 **CAUTION**  
DUAL POWER SOURCE  
SECOND SOURCE IS  
PHOTOVOLTAIC  
LOCATION: SERVICE METER  
MAIN PANEL  
CODE REF: UTILITY

14 **WARNING**  
INVERTER OUTPUT CONNECTION  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE  
LOCATION: (IF APPLICABLE)  
SERVICE PANEL  
CODE REF: NEC 705.12(7)

15 **PHOTOVOLTAIC SYSTEM  
UTILITY DISCONNECT SYSTEM**  
LOCATION: AC DISCONNECT  
CODE REF: UTILITY

16 **PV SOLAR BREAKER**  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE  
LOCATION: MAIN PANEL (EXTERIOR)  
PV BREAKER (INTERIOR)  
CODE REF: NEC 705.12(B)(2)(3)(B)



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7.600 kW AC SYSTEM SIZE

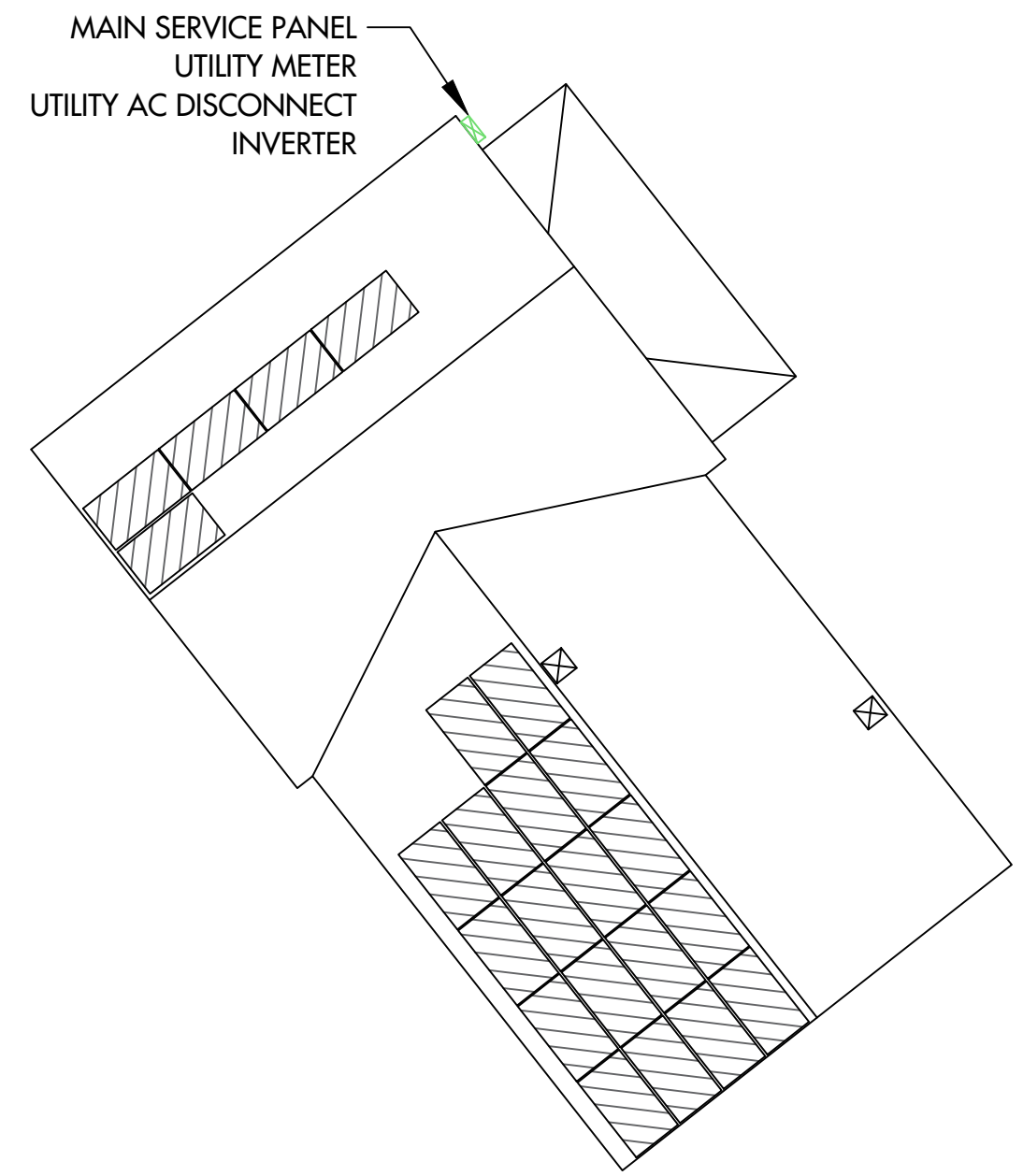
DATE: 2/1/2022  
REV: A  
DRAWN BY: CA

SEAL:

LABELS  
PV 7

# CAUTION

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



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

 **TITAN**  
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CONTRACTOR LIC# CR-11 284331

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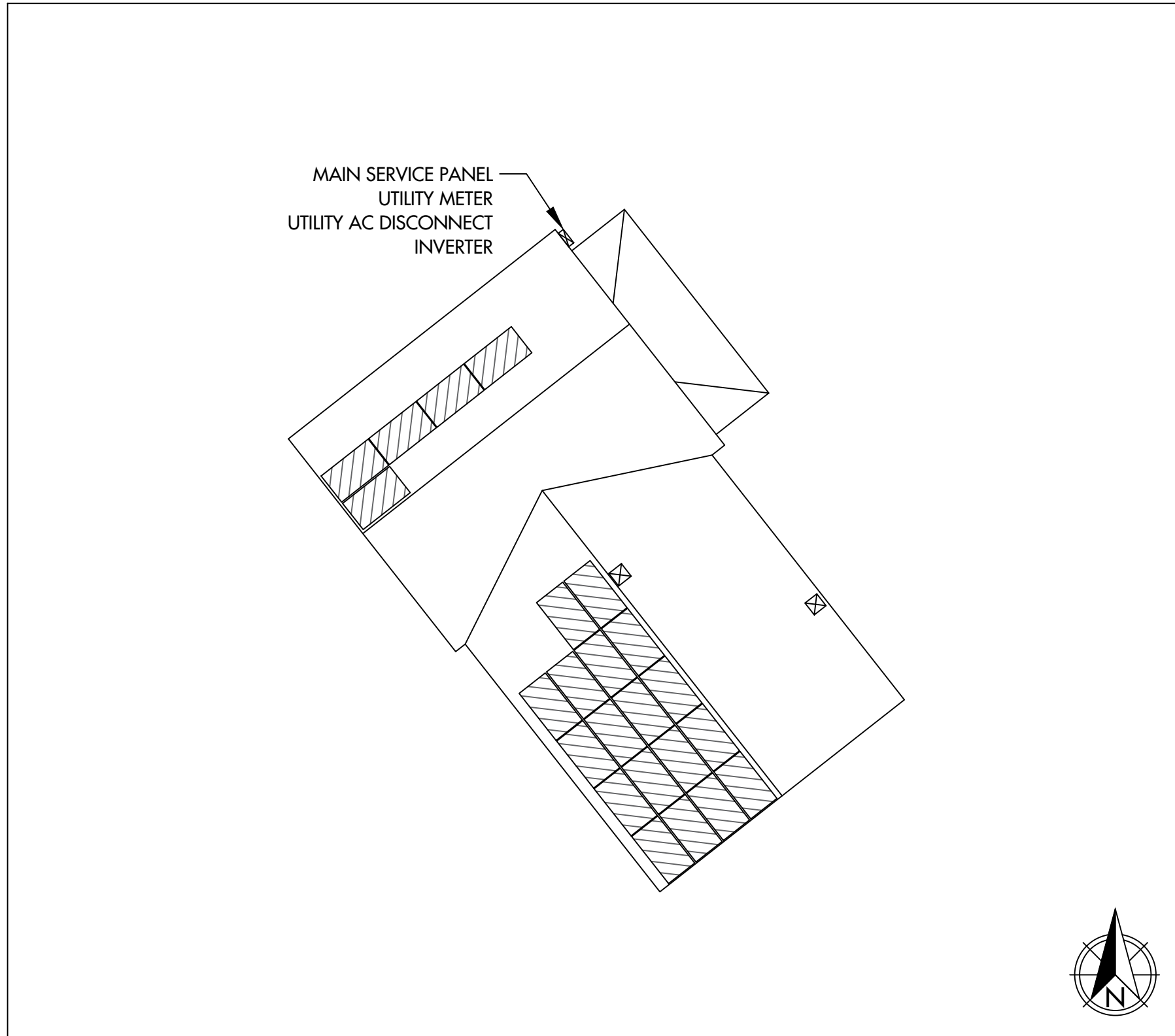
DATE: 2/1/2022  
REV: A  
DRAWN BY: CA

SEAL:

PLACARD  
**PV 8**



# JOB SAFETY PLAN



LOCATION OF NEAREST URGENT CARE FACILITY

NAME:

ADDRESS:

PHONE NUMBER:

NOTES:

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

PRINT NAME	INITIAL	YES	NO

# Single Phase Inverter with HD-Wave Technology

for North America

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

INVERTERS

12-25  
YEAR  
WARRANTY



## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

solaredge.com



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

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXH-XXXXBXX4							
<b>OUTPUT</b>								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60.5 <sup>1)</sup>							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
<b>INPUT</b>								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380							Vdc
Maximum Input Current @240V <sup>2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V <sup>2)</sup>	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ka Sensitivity							
Maximum Inverter Efficiency	99			99.2				%
CEC Weighted Efficiency			99				99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

<sup>1)</sup> For other regional settings please contact SolarEdge support  
<sup>2)</sup> A higher current source may be used, the inverter will limit its input current to the values stated

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

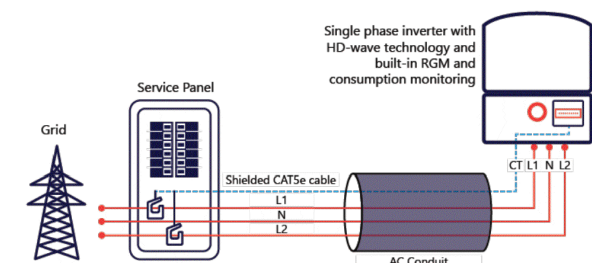
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
<b>ADDITIONAL FEATURES</b>								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional <sup>3)</sup>							
Consumption metering	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection							
Inverter Commissioning	Automatic Rapid Shutdown upon AC Grid Disconnect							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
<b>STANDARD COMPLIANCE</b>								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)							
Emissions	FCC Part 15 Class B							
<b>INSTALLATION SPECIFICATIONS</b>								
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				1" Maximum / 14-4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG				1" Maximum / 1-3 strings / 14-6 AWG			
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185			
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6				
Noise	< 25			< 50	dBA			
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>6)</sup>							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

<sup>3)</sup> Inverter with Revenue Grade Meter P/N: SExxxH-US000BNC4. Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxH-US000BN4. For consumption metering, current transformers should be ordered separately. SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box  
<sup>6)</sup> Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

## How to Enable Consumption Monitoring

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



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**TITAN**  
SOLAR POWER  
525 W BASELINE RD., MESA AZ, 85210  
CONTRACTOR LIC# CR-11 284331

HARRIS, ALEXIS RESIDENCE  
206 LAMM AVENUE, ERWIN, NC, 28339  
LAT:35.375734, LON:-78.713719  
TSP112544

(23) Q PEAK DUO BLK ML G10+ 395W  
(1) SOLAREEDGE SE7600H-US  
9.085 kW DC SYSTEM SIZE  
7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
REV: A  
DRAWN BY: CA

SEAL:

EQUIPMENT  
SPECIFICATIONS  
**PV 10**



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

Subject: ETL Evaluation of SolarEdge Products to Rapid Shutdown Requirements

To, whom it may concern

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

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

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

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

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

**Applicable products:**

- (1) Power optimizers:  
PB followed by 001 to 350; followed by -AOB or -TFI.  
OP followed by 001 to 500; followed by -LV, -MV, -IV or -EV.  
P followed by 001 to 1100.  
SP followed by 001 to 350.  
When optimizers are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use optimizers with parallel inputs. Also meeting NEC 2020 rapid shutdown requirement.
- (2) 1 -PH Inverters  
SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US / SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US when the following label is labeled on the side of the inverter:

Inverter part number may be followed by a suffix.

- (3) 3 -PH Inverters



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

SE9KUS / SE10KUS / SE14.4KUS / SE16.7kUS / SE17.3KUS / SE20KUS / SE24KUS / SE30KUS / SE33.3KUS / SE40KUS / SE43.2KUS / SE50KUS / SE66.6KUS / SE80KUS / SE85KUS / SE100KUS / SE120KUS; when the following label is labeled on the side of the inverter:

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

**Brand Name(s)** SolarEdge  
**Relevant Standard(s)** UL 1741, UL 1741 CRD for rapid shutdown  
**Verification Issuing Office** National Electric Code, 2020, Section 690.12 requirement for rapid shutdown  
3933 US Route 11, Cortland, NY 13045

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

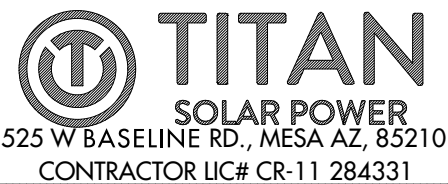
Signature:

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



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

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



HARRIS, ALEXIS RESIDENCE  
206 LAMM AVENUE , ERWIN, NC, 28339  
LAT:35.375734, LON:-78.713719  
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(23) Q PEAK DUO BLK ML G10+ 395W  
(1) SOLAREEDGE SE7600H-US  
9.085 kW DC SYSTEM SIZE  
7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
REV: A  
DRAWN BY: CA

SEAL:

EQUIPMENT SPECIFICATIONS  
**PV 11**

# Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505



POWER OPTIMIZER

## PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



## Power Optimizer For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505

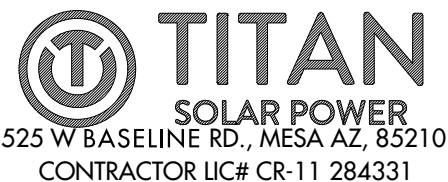
Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high-power 60 and 72 cell modules)	P405 (for high-voltage modules)	P485 (for high-voltage modules)	P505 (for higher current modules)		
<b>INPUT</b>										
Rated Input DC Power <sup>(1)</sup>	320	340	370	400	405	485	505		W	
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	80	60	125 <sup>(2)</sup>		83 <sup>(3)</sup>		Vdc	
MPPT Operating Range	8 - 48	8 - 60	8 - 80	8-60	12.5 - 105		12.5 - 83		Vdc	
Maximum Short-Circuit Current (IsC)		11	10.1	11.75	11		14		Adc	
Maximum Efficiency	99.5								%	
Weighted Efficiency	98.8								%	
Overvoltage Category	I									
<b>OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)</b>										
Maximum Output Current	15								Adc	
Maximum Output Voltage	60				85				Vdc	
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)</b>										
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc	
<b>STANDARD COMPLIANCE</b>										
EMC	FCC Part15 Class 3, IEC61000-5-2, IEC61000-6-3									
Safety	IEC62109-1 (class I safety), U_1741									
Material	UL94 V-0, UV Resistant									
RoHS	Yes									
<b>INSTALLATION SPECIFICATIONS</b>										
Maximum Allowed System Voltage	1000								Vdc	
Compatible Inverters	All SolarEdge Single Phase and Three Phase Inverters									
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3					mm / in
Weight (including cables)	630 / 1.4	750 / 1.7	655 / 1.5	845 / 1.9	1064 / 2.3					gr / lb
Input Connector	MC4 <sup>(3)</sup>				Single or dual MC4 <sup>(3)(4)</sup>		MC4 <sup>(3)</sup>			
Input Wire Length	0.16 / 0.52								m / ft	
Output Wire Type / Connector	Double Insulated / MC4									
Output Wire Length	0.9 / 2.95	1.2 / 3.9								m / ft
Operating Temperature Range <sup>(5)</sup>	-40 ~ +85 / -40 ~ +185								°C / °F	
Protection Rating	IP68 / NEMA6P									
Relative Humidity	C - 100								%	

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.  
 (2) NEC 2017 requires max input voltage be not more than 80V.  
 (3) For other connector types please contact SolarEdge.  
 (4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals.  
 (5) For ambient temperature above +85°C / +185°F power derating is applied. Refer to Power Optimizers Temperature Derating Technical Note for more details.

PV System Design Using a SolarEdge Inverter <sup>(6)(7)</sup>	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401	8	10	18	
	P405, P485, P505	6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 <sup>(8)</sup>	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 <sup>(9)</sup>	12750 <sup>(10)</sup>	W
Parallel Strings of Different Lengths or Orientations	Yes				

(6) For detailed string sizing information refer to: [http://www.solaredge.com/sites/default/files/string\\_sizing\\_na.pdf](http://www.solaredge.com/sites/default/files/string_sizing_na.pdf)  
 (7) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string.  
 (8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.  
 (9) For 208V grid, it is allowed to install up to 7,200W per string when the maximum power difference between each string is 1,000W.  
 (10) For 277/480V grid, it is allowed to install up to 12,000W per string when the maximum power difference between each string is 2,000W.

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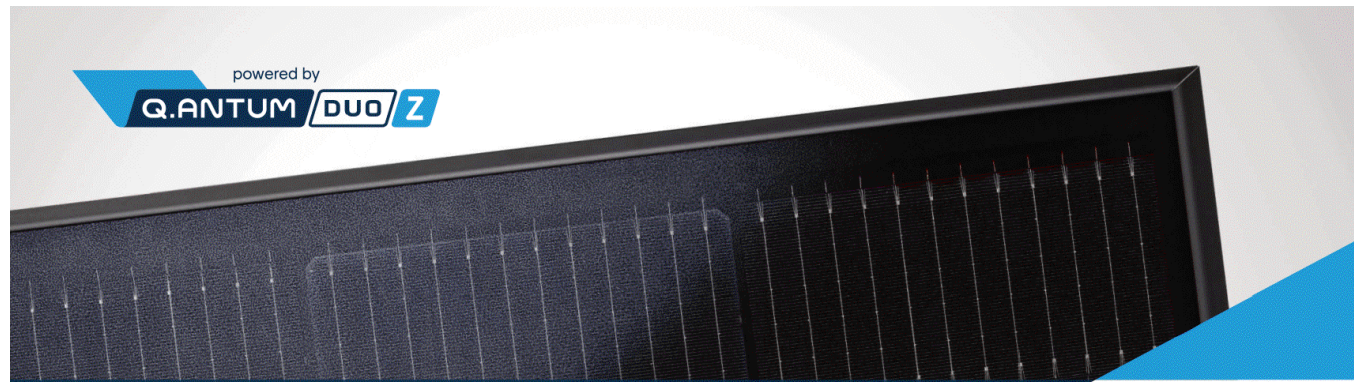
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 9.085 kW DC SYSTEM SIZE  
 7.600 kW AC SYSTEM SIZE

DATE: 2/1/2022  
 REV: A  
 DRAWN BY: CA

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EQUIPMENT SPECIFICATIONS  
**PV 12**

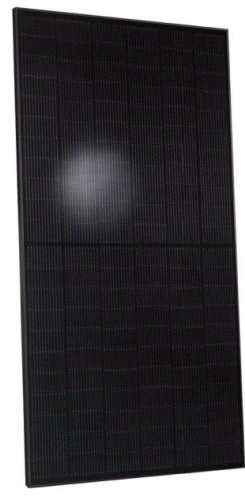


powered by  
**Q.ANTUM DUO Z**

# Q.PEAK DUO BLK ML-G10+

## 385-405

ENDURING HIGH PERFORMANCE



**THE IDEAL SOLUTION FOR:**  
Rooftop arrays on residential buildings



- BREAKING THE 20% EFFICIENCY BARRIER**  
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.
- THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY**  
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.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**  
Optimal yields, whatever the weather with excellent low-light and temperature behavior.
- ENDURING HIGH PERFORMANCE**  
Long-term yield security with Anti LID Technology, Anti PID Technology<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**  
High-tech aluminum alloy frame, certified for high snow (5400Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**  
Inclusive 25-year product warranty and 25-year linear performance warranty<sup>2</sup>.

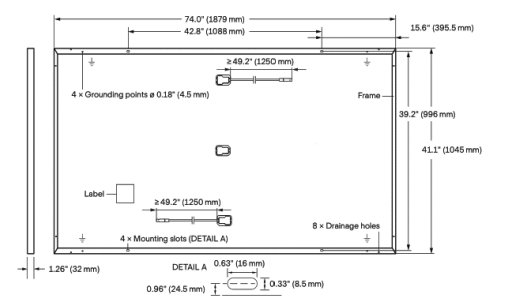
<sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)  
<sup>2</sup> See data sheet on rear for further information.

Engineered in Germany



### MECHANICAL SPECIFICATION

Format	74.0in x 41.1in x 1.26in (including frame) (1879mm x 1045mm x 32mm)
Weight	48.5lbs (22.0kg)
Front Cover	0.13in (3.2mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98in x 1.26-2.36in x 0.59-0.71in (53-101mm x 32-60mm x 15-18mm), IP67, with bypass diodes
Cable	4mm <sup>2</sup> Solar cable; (+) ≥ 49.2in (1250mm), (-) ≥ 49.2in (1250mm)
Connector	Stäubli MC4; IP68

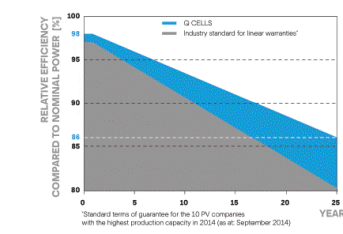


### ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> (POWER TOLERANCE +5W / -0W)						
Power at MPP <sup>1</sup>	P <sub>MPP</sub> [W]	385	390	395	400	405
Short Circuit Current <sup>1</sup>	I <sub>SC</sub> [A]	11.04	11.07	11.10	11.14	11.17
Open Circuit Voltage <sup>1</sup>	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
Efficiency <sup>1</sup>	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT <sup>2</sup>						
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

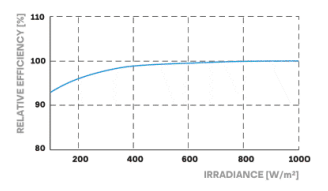
<sup>1</sup> Measurement tolerances P<sub>MPP</sub> ± 3%; I<sub>SC</sub>; V<sub>OC</sub> ± 5% at STC: 1000W/m<sup>2</sup>, 25 ± 2°C, AM 1.5 according to IEC 60904-3 • 800W/m<sup>2</sup>, NMOT, spectrum AM 1.5

### Q CELLS PERFORMANCE WARRANTY PERFORMANCE AT LOW IRRADIANCE



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.



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

TEMPERATURE COEFFICIENTS		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>3</sup>	[lbs/ft <sup>2</sup> ]	75 (3600Pa) / 55 (2660Pa)	Permitted Module Temperature on Continuous Duty	-40°F up to +185°F (-40°C up to +85°C)
Max. Test Load, Push / Pull <sup>3</sup>	[lbs/ft <sup>2</sup> ]	113 (5400Pa) / 84 (4000Pa)		

<sup>3</sup> See Installation Manual

### QUALIFICATIONS AND CERTIFICATES



### PACKAGING INFORMATION

Horizontal packaging	76.4in 1940mm	43.3in 1100mm	48.0in 1220mm	1656lbs 751kg	24 pallets	24 pallets	32 modules
----------------------	------------------	------------------	------------------	------------------	---------------	---------------	---------------

**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.

Hanwha Q CELLS America Inc.  
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10+, 385-405, 2021-05, Rev01\_NA

**TITAN**  
SOLAR POWER  
525 W BASELINE RD., MESA AZ, 85210  
CONTRACTOR LIC# CR-11 284331

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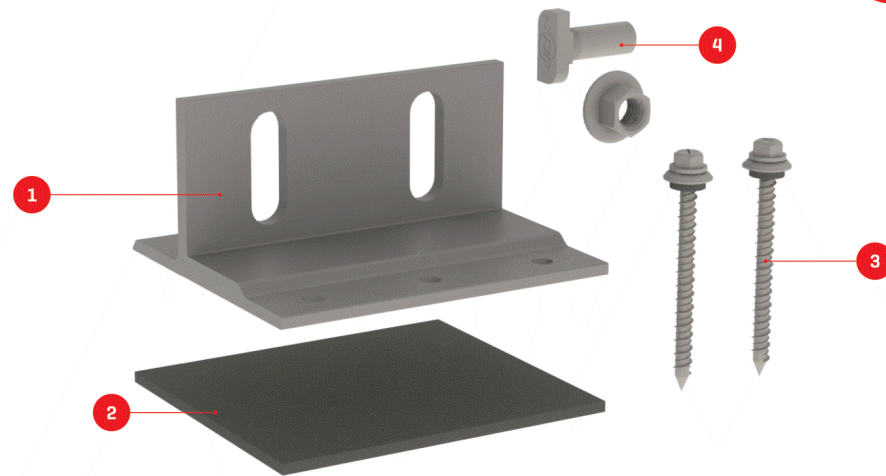
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DATE: 2/1/2022  
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EQUIPMENT SPECIFICATIONS  
**PV 13**

We support PV systems  
Formerly Everest Solar Systems



# Splice Foot X

Patent Pending

## TECHNICAL SHEET

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

### Technical Data

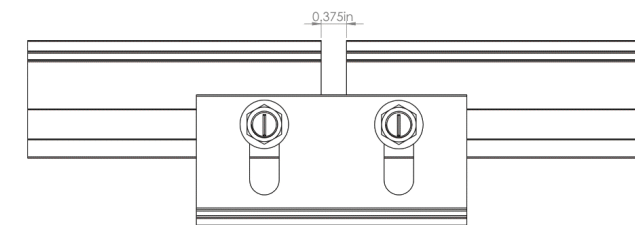
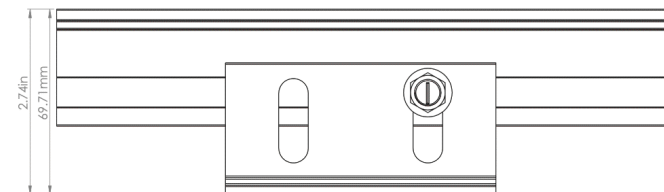
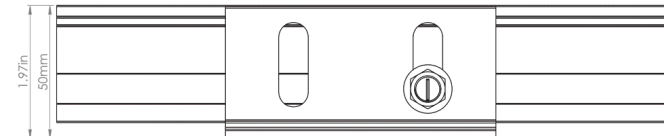
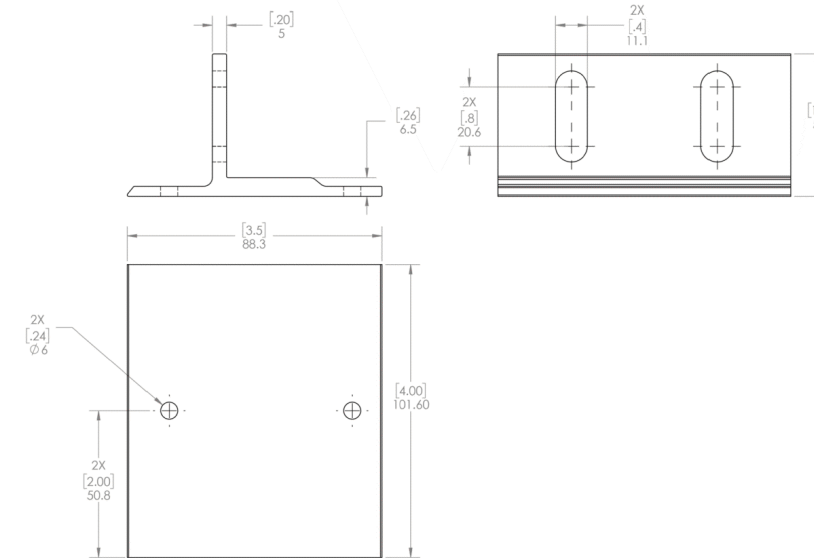
Splice Foot X	
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mill
Roof Connection	M5 x 60 lag screws
Code Compliance	UL 2703
Compatibility	CrossRail 44-X, 48-X, 48-XL, 80

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Units: [in] mm

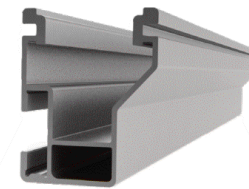


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# CROSSRAIL 48-X



## Mechanical Properties

CrossRail 48-X	
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi [260 MPa]
Yield Strength	34.8 ksi [240 MPa]
Weight	0.56 lbs/ft [0.833 kg/m]
Finish	Mill or Dark Anodized

## Sectional Properties

CrossRail 48-X	
Sx	0.1980 in <sup>3</sup> [3.245 cm <sup>3</sup> ]
Sy	0.1510 in <sup>3</sup> [2.474 cm <sup>3</sup> ]
A [X-Section]	0.4650 in <sup>2</sup> [2.999 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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