PAUL ODOM - 13.430kW DC, 10.000kW AC

SHEET CATALOG

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PL-02	DIRECTORY PLACARD
PL-03	SAFETY PLANS-1
PL-04	SAFETY PLANS-2
SS	SPEC SHEET(S)

SCOPE OF WORK

GENERAL SYSTEM INFORMATION:
SYSTEM SIZE:
13430W DC, 10000W AC
MODULES:
(34)HANWHA Q CELLS Q.PEAK DUO L-G5.2 395W
INVERTER:
(1)SOLAREDGE TECHNOLOGIES
SE10000H-US(240V)
OPTIMIZER:
(34)SOLAREDGE P401 POWER OPTIMIZER

GENERAL NOTES

1.MODULES ARE LISTED UNDER UL 61730 AND CONFORM TO THE STANDARDS.
2.INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS.
3.DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION MIGHT VARY.
4.WORKING CLEARANCES AROUND THE NEW PV ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26.
5.ALL GROUND WIRING CONNECTED TO THE MAIN SERVICE GROUNDING IN MAIN SERVICE PANEL/ SERVICE EQUIPMENT.
6.ALL CONDUCTORS SHALL BE 600V, 75°C STANDARD COPPER UNLESS OTHERWISE NOTED.
7.WHEN REQUIRED, A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
8.THE SYSTEM WILL NOT BE INTERCONNECTED BY THE CONTRACTOR UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND/OR THE UTILITY.
9.ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREES, WIRES OR SIGNS.
10.PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING

SITE PLAN LAYOUT

NOTE: NO GATE AND FENCE

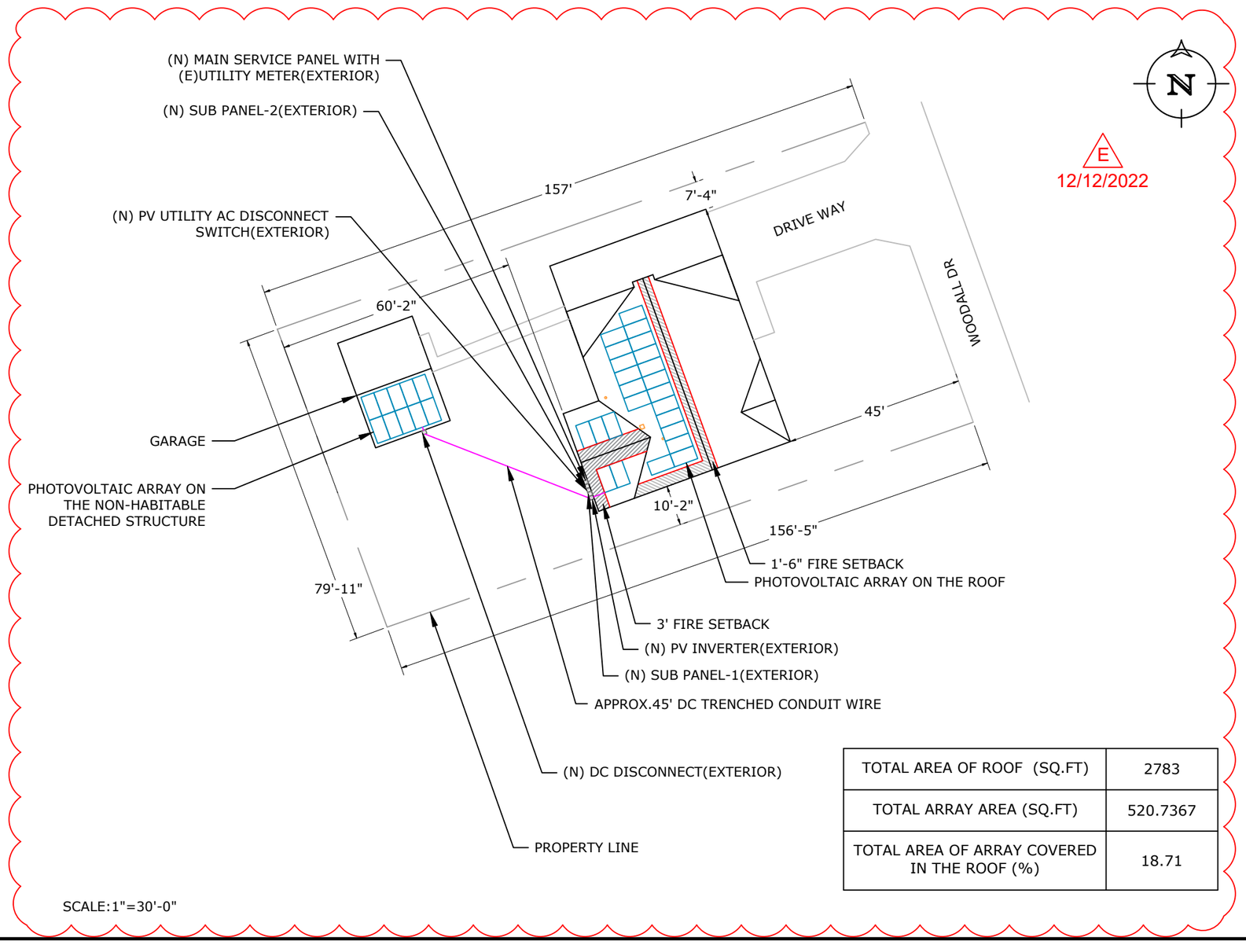
NOTE: PV SYSTEM TO BE INSTALLED ON DETACHED NON-HABITABLE STRUCTURE.

APPLICABLE CODES

- NORTH CAROLINA ELECTRIC CODE:NCEC 2017
- NORTH CAROLINA FIRE CODE:NCFC 2018
- NORTH CAROLINA BUILDING CODE:NCBC 2018
- NORTH CAROLINA RESIDENTIAL CODE: NCRC 2018

ENGINEERING SCOPE OF WORK

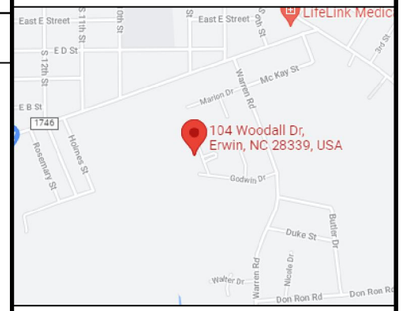
1. ILLUMINE INDUSTRIES INC. HAS ONLY PROVIDED DRAFTING SERVICES FOR THE PERMIT DRAWINGS. NO ACTUAL ENGINEERING WORK, ENGINEERING REVIEW OR ENGINEERING. APPROVAL HAS BEEN CONDUCTED BY ILLUMINE INDUSTRIES INC UNLESS NOTED OTHERWISE.
2. WHEN A PROFESSIONAL ENGINEER APPROVES AND SEALS THE DESIGN FOR COMPONENTS OF THEIR RESPECTIVE DISCIPLINE (STRUCTURAL/ELECTRICAL) SHOWN ON THESE PERMIT. DRAWINGS, HE/SHE:
a. TAKES FULL DIRECT CONTROL OF THE ENGINEERED DESIGN.
b. IS GIVEN ACCESS TO PERSONALLY SUPERVISE AND RECTIFY ANY ASPECT OF THE ENGINEERED DESIGN.
c. HAS FULLY ACCEPTED RESPONSIBILITY FOR THE ENGINEERED DESIGN.



SCALE:1"=30'-0"

TOTAL AREA OF ROOF (SQ.FT)	2783
TOTAL ARRAY AREA (SQ.FT)	520.7367
TOTAL AREA OF ARRAY COVERED IN THE ROOF (%)	18.71

VICINITY MAP



TITAN SOLAR POWER

ADDRESS: 525W, BASELINE RD
MESA AZ,85210
LICENSE#: GC:84439 EC:U.34445

CUSTOMER INFORMATION

NAME: PAUL ODOM

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35.320226, -78.667743
APN: 060-597-020-218

AHJ:NC-TOWN OF ERWIN

UTILITY:DUKE ENERGY

PRN NUMBER:TPS-40595

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Because quality matters

COVER PAGE

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	T-01

INSTALLATION NOTES

1.STRUCTURAL ROOF MEMBER LOCATIONS ARE ESTIMATED AND SHOULD BE LOCATED AND VERIFIED BY THE CONTRACTOR WHEN LAG BOLT PENETRATION OR MECHANICAL ATTACHMENT TO THE STRUCTURE IS REQUIRED.
2.ROOFTOP PENETRATIONS FOR SOLAR RACKING WILL BE COMPLETED AND SEALED WITH APPROVED SEALANT PER CODE BY A LICENSED CONTRACTOR.
3.LAGS MUST HAVE A MINIMUM 2.5" THREAD EMBEDMENT INTO THE STRUCTURAL MEMBER.
4.ALL PV RACKING ATTACHMENTS SHALL BE STAGGERED BY ROW BETWEEN THE ROOF FRAMING MEMBERS AS NECESSARY.
5.ROOF MOUNTED STANDARD RAIL REQUIRES ONE THERMAL EXPANSION GAP FOR EVERY RUN OF RAIL GREATER THAN 40'.
6.ALL CONDUCTORS AND CONDUITS ON THE ROOF SHALL BE MINIMUM 7/8" ABOVE THE ROOF SURFACE (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).
7.THE PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.

ROOF ACCESS PATHWAYS AND SETBACKS:

1204.2.1 SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3BUILDINGS.SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3 BUILDINGS SHALL COMPLY WITH SECTIONS 1204.2.1.1 THROUGH 1204.2.1.3.

EXCEPTIONS:

1.THESE REQUIREMENTS SHALL NOT APPLY TO STRUCTURES DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE INTERNATIONAL RESIDENTIAL CODE.
2.THESE REQUIREMENTS SHALL NOT APPLY TO ROOFS WITH SLOPES OF 2 UNITS VERTICAL IN 12 UNITS HORIZONTAL OR LESS.

1204.2.1.1 PATHWAYS TO RIDGE. NOT FEWER THAN TWO 36-INCH-WIDE (914 MM) PATHWAYS ON SEPARATE ROOF PLANES,FROM LOWEST ROOF EDGE TO RIDGE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, NOT FEWER THAN ONE 36-INCH-WIDE (914 MM) PATHWAY FROM LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE OR STRADDLING THE SAME AND ADJACENT ROOF PLANES

1204.2.1.2 SETBACKS AT RIDGE.FOR PHOTOVOLTAIC ARRAYS OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA,
A SETBACK OF NOT LESS THAN 18 INCHES (457 MM)WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE. FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.

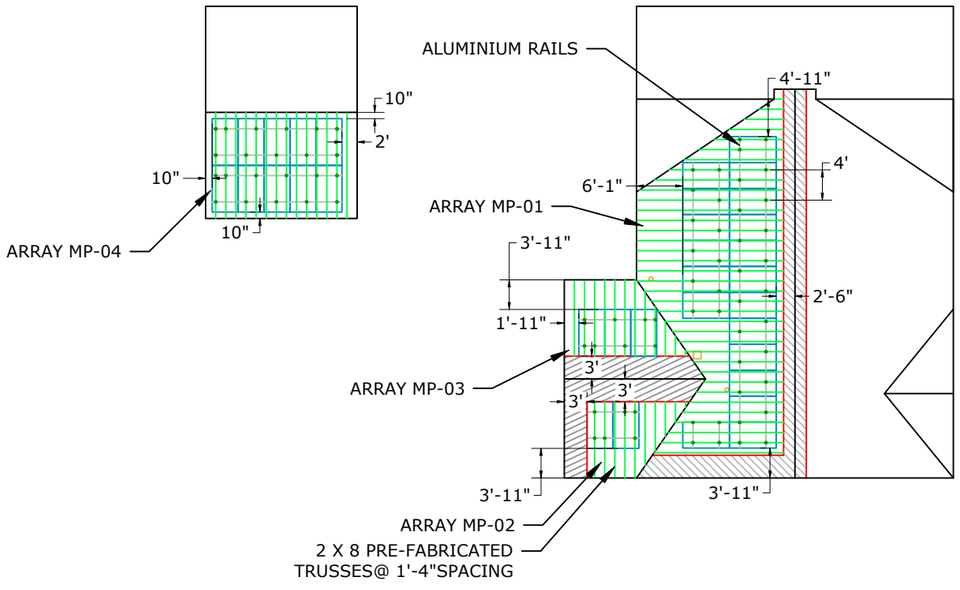
1204.2.2 EMERGENCY ESCAPE AND RESCUE OPENINGS. PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A PATHWAY OF NOT LESS THAN 36 INCHES (914 MM) WIDE SHALL BE PROVIDED TO THE EMERGENCY ESCAPE AND RESCUE OPENING

1204.2.1.3 ALTERNATIVE SETBACKS AT RIDGE. WHERE AN AUTOMATIC SPRINKLER SYSTEM IS INSTALLED WITHIN THE DWELLING IN ACCORDANCE WITH SECTION 903.3.1.3, SETBACKS AT THE RIDGE SHALL CONFORM TO ONE OF THE FOLLOWING:
1.FOR PHOTOVOLTAIC ARRAYS OCCUPYING 66 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 18 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.
2.FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 66 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (914 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE

SITE INFORMATION - WIND SPEED: 146 MPH AND SNOW LOAD: 10 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	FRAME SIZE	FRAME SPACING	MAX RAIL SPAN	OVER HANG
MP-01	258°	47°	19	412.2	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 8	1'-4"	4'-0"	1'-6"
MP-02	168°	30°	2	43.4	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 8	1'-4"	4'-0"	1'-6"
MP-03	348°	30°	3	65.1	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 8	1'-4"	4'-0"	1'-6"
MP-04	168°	24°	10	217.0	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 8	1'-4"	4'-0"	1'-6"

NOTE:PENETRATIONS ARE STAGGERED



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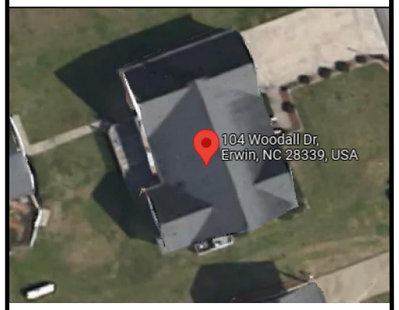
SCALE:1"=20'-0"

AERIAL VIEW



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UTILITY:DUKE ENERGY

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Because quality matters

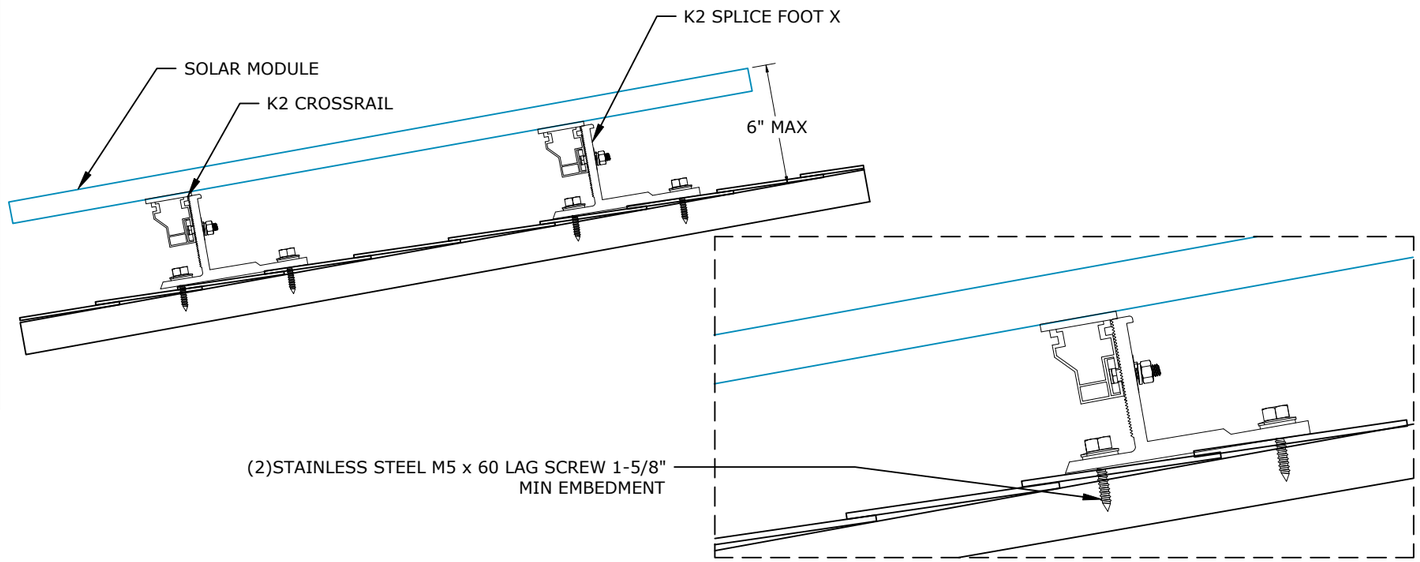
MOUNTING DETAIL

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	S-01

DEAD LOAD CALCULATIONS

BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	34	51.8	1761.20
MID-CLAMP	54	0.300	16.20
END-CLAMP	28	0.310	8.68
RAIL LENGTH	229	0.560	128.24
SPLICE BAR	10	0.650	6.50
K2 SPLICE FOOT X	75	1.45	108.75
TOTAL WEIGHT OF THE SYSTEM (LBS)			2029.57
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			737.71
WEIGHT PER SQ. FT.(LBS)			2.75
WEIGHT PER PENETRATION (LBS)			27.06

ATTACHMENT DETAIL-K2 SPLICE FOOT X



SCALE:NTS

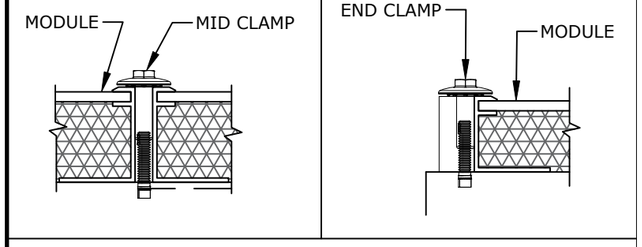
MODULES DATA

HANWHA Q CELLS Q.PEAK DUO L-G5.2 395W	
MODULE DIMS	79.3"x39.4"x1.38"
LAG SCREWS	(2)M5 x 60 ":1-5/8"MIN EMBEDMENT

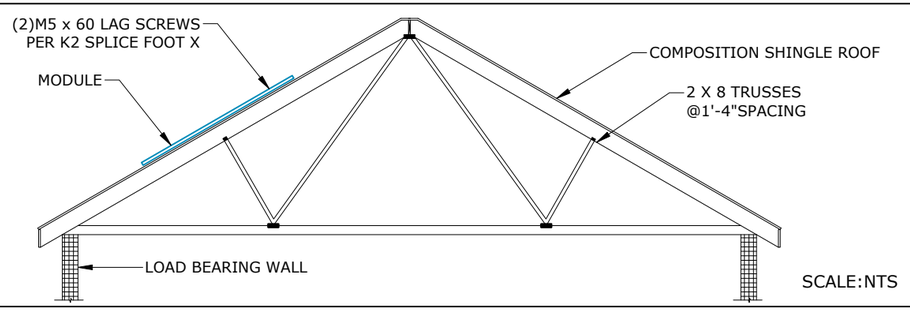
UPLIFT CALCULATIONS

UPLIFT	22131.3	LBS
PULL OUT STRENGTH	46125	LBS
POINT LOADING	23	LBS

MID-CLAMP AND END-CLAMP ANATOMY



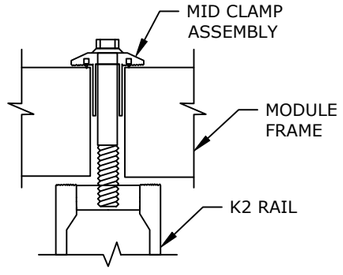
ROOF FRAMING DETAILS



SCALE:NTS

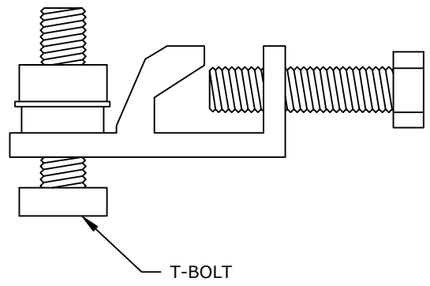
GROUNDING DETAILS

MODULE TO MODULE & MODULE TO RAIL

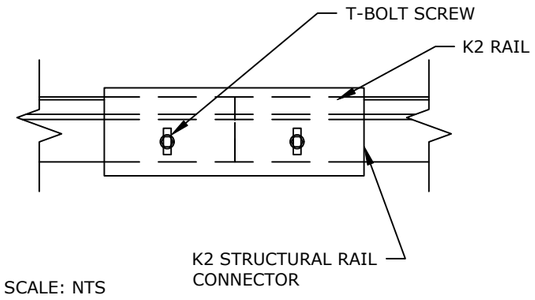


GROUNDING MID-CLAMP
SCALE: NTS

GROUNDING LUG



RAIL TO RAIL



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STRUCTURAL DETAIL

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	S-02

SINGLE LINE DIAGRAM: DC SYSTEM SIZE - 13430W, AC SYSTEM SIZE - 10000W

INVERTER-1 SPECIFICATIONS	
MODEL	SOLAREDGE TECHNOLOGIES SE10000H-US(240V)
POWER RATING	10000W
MAX OUTPUT CURRENT	42A
CEC WEIGHTED EFFICIENCY	99%
MAX INPUT CURRENT	27A
MAX DC VOLTAGE	480V

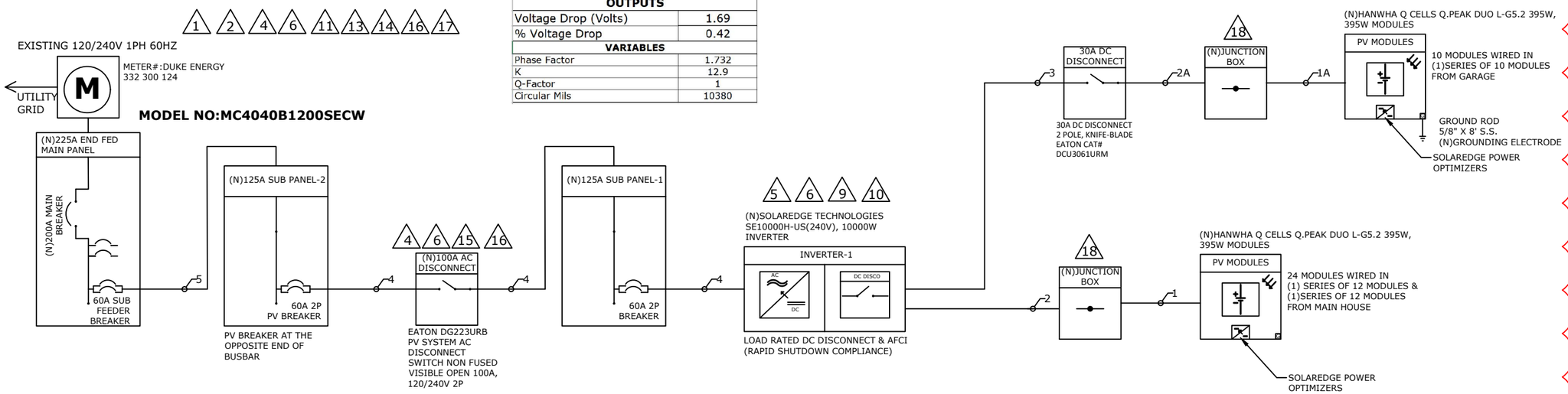
MODULE SPECIFICATION	
MODEL	HANWHA Q CELLS Q.PEAK DUO L-G5.2 395W
MODULE POWER @ STC	395W
OPEN CIRCUIT VOLTAGE:**Voc**	48.74V
MAX POWER VOLTAGE:**Vmp**	40.71V
SHORT CIRCUIT CURRENT:**Isc**	10.19A
MAX POWER CURRENT:**Imp**	9.70A

OPTIMIZER CHARACTERISTICS	
MODEL	**P401**
MIN INPUT VOLTAGE	8 VDC
MAX INPUT VOLTAGE	60 VDC
MAX INPUT CURRENT	11.75 ADC
MAX OUTPUT CURRENT	15 ADC

SYSTEM CHARACTERISTICS	
DESCRIPTION	INVERTER
DC SYSTEM SIZE	13430 W
INVERTER STRING VOLTAGE:**Vmp**	400V
MAX INVERTER SYSTEM VOLTAGE: **Voc**	480V
MAX SHORT CIRCUIT CURRENT	15A
OPERATING CURRENT	11.85A

DC VOLTAGE DROP CALCULATIONS	
Select Material	Cu
Select Wire Size	10
Select Conduit Type	PVC
Select Voltage & Phase	400
Enter Distance to Load (ft)	45
Enter Load (Amps)	18.75
OUTPUTS	
Voltage Drop (Volts)	1.69
% Voltage Drop	0.42
VARIABLES	
Phase Factor	1.732
K	12.9
Q-Factor	1
Circular Mils	10380

MAIN PANEL UPGRADE:REPLACE EXISTING MAIN SERVICE PANEL WITH NEW 225/200A MAIN PANEL



CONDUIT SCHEDULE				
TAG ID	CONDUIT SIZE	CONDUCTOR	NEUTRAL	GROUND
1	NONE	(4) 10AWG PV WIRE	NONE	(1) 6AWG BARE COPPER
1A	NONE	(2) 10AWG PV WIRE	NONE	(1) 6AWG BARE COPPER
2	3/4"EMT	(4) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
2A	3/4"EMT	(2) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
3	1-1/4" SCH 40 PVC (BELOW GROUND) 3/4" SCH 80 PVC (ABOVE GROUND)	(2) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
4	3/4"EMT	(2) 6AWG THHN/THWN-2	(1) 6AWG THHN/THWN-2	(1) 10AWG THHN/THWN-2
5	1"EMT	(2) 4AWG THHN/THWN-2	(1) 4AWG THHN/THWN-2	(1) 6AWG THHN/THWN-2

NOTE:
SUB PANEL RATING:125A, SUB FEEDER BREAKER RATING:60A
120% RULE: (125AX1.2)-60A=90A =>ALLOWABLE BACKFEED IS 90A

OCPD CALCULATIONS:
INVERTER OVERCURRENT PROTECTION= INVERTER O/P I X CONTINUOUS LOAD(1.25)
=42x1.25= 52.5A=>PV BREAKER = 60A
ALLOWABLE BACKFEED 90A =>60A PV BREAKER
THE DESIGNED INTERCONNECTION MEETS THE 705.12(B)(2) REQUIREMENTS.

E
12/12/2022

ELECTRICAL NOTES

1. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 310.10(D).
2. CONDUCTORS EXOPSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.10(C).
3. MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2%.
4. ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
5. BREAKER/FUSE SIZES PER NEC 240.
6. AC EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC 250.122.
7. AMBIENT TEMPERATURE CORRECTION FACTOR IS BASED ON NEC 690.31(A).
8. AMBIENT TEMPERATURE ADJUSTMENT FACTOR IS BASED ON NEC 310.15(B)(2).
9. MAX SYSTEM VOLTAGE CORRRECTION IS PER NEC 690.7.
10. CONDUCTORS ARE SIZED PER NEC TABLE 310.15(B)(16).

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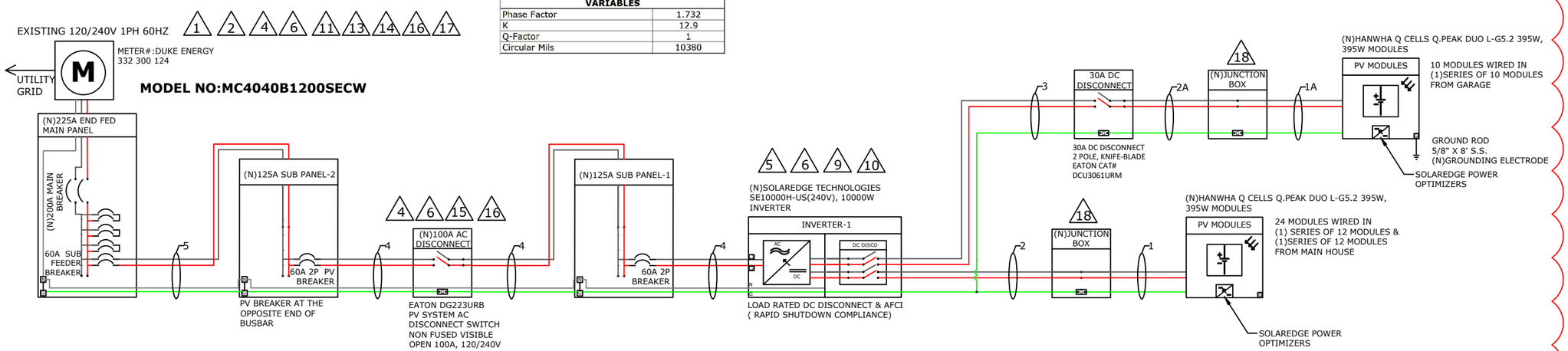

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NOTE:
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THE DESIGNED INTERCONNECTION MEETS THE 705.12(B)(2) REQUIREMENTS.

E
12/12/2022

ELECTRICAL NOTES

1. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 310.10(D).
2. CONDUCTORS EXOPSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.10(C).
3. MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2%.
4. ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
5. BREAKER/FUSE SIZES PER NEC 240.
6. AC EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC 250.122.
7. AMBIENT TEMPERATURE CORRECTION FACTOR IS BASED ON NEC 690.31(A).
8. AMBIENT TEMPERATURE ADJUSTMENT FACTOR IS BASED ON NEC 310.15(B)(2).
9. MAX SYSTEM VOLTAGE CORRRECTION IS PER NEC 690.7.
10. CONDUCTORS ARE SIZED PER NEC TABLE 310.15(B)(16).

TITAN SOLAR POWER
ADDRESS: 525W, BASELINE RD
MESA AZ,85210
LICENSE#: GC:84439 EC:U.34445

CUSTOMER INFORMATION

NAME: PAUL ODOM

ADDRESS:104 WOODALL DR, ERWIN, NC 28339

35.320226, -78.667743
APN: 060-597-020-218

AHJ:NC-TOWN OF ERWIN

UTILITY:DUKE ENERGY

PRN NUMBER:TPS-40595

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Because quality matters

THREE LINE DIAGRAM

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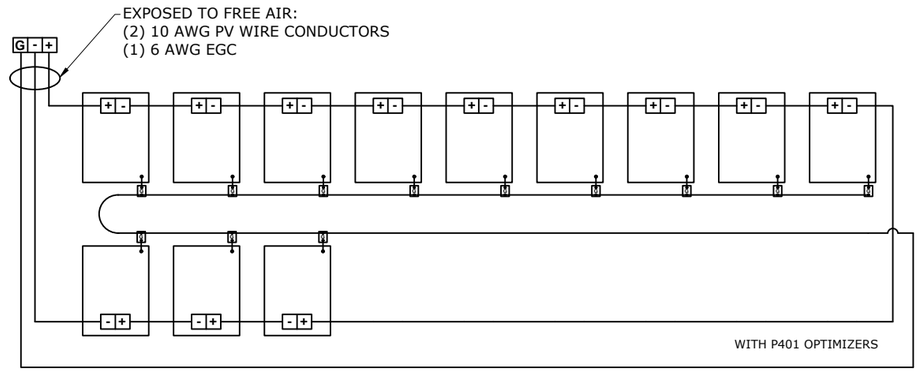
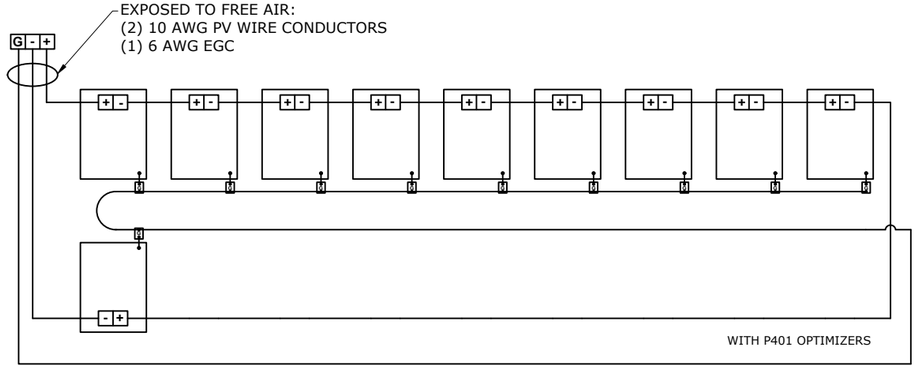
STRING WIRING DIAGRAM

2 STRINGS OF 12 MODULES
ON MAIN HOUSE



1 STRING OF 10 MODULES
ON GARAGE



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ELECTRICAL CALCULATION

DC WIRE SIZING CALCULATIONS BASED ON THE FOLLOWING EQUATIONS>>

- REQUIRED CONDUCTOR AMPACITY: 125% X Isc(A) X #OF PARALLEL STRINGS = MAX CURRENT PER 690.8(A)(1) X 125% = MAX CURRENT PER 690.8(B)(1)
- CORRECTED AMPACITY CALCULATIIONS: AMAPCITY X TEMPERATURE DERATE FACTOR X COUDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY PER 690.8(B)(2)
- DERATE CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(A)(1) < DERATED CONDUCTOR AMPACITY

AC WIRE SIZING CALCULATIONS BASED ON THE FOLLOWING EQUATIONS>>

- REQUIRED CONDUCTOR AMPACITY: INVERTER OUTPUT CURRENT X #OF INVERTERS = MAX CURRENT PER 690.8(A)(3) X 125% = MAX CURRENT PER 690.8(B)(1)
- CORRECTED AMPACITY CALCULATIONS: AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY PER 690.8(B)(2)
- DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(A)(3) < DERATED CONDUCTOR AMPACITY

DC WIRE CALCULATIONS:- MATERIAL:COPPER & TEMPERATURE RATING:90°C

TAG ID	REQUIRED CONDUCTOR AMPACITY											CORRECTED AMPACITY CALCULATION							DERATED CONDUCTOR AMPACITY CHECK			
1,1A	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A
2,2A	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A
3	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A

AC WIRE CALCULATIONS:- MATERIAL:COPPER & TEMPERATURE RATING:90°C

TAG ID	REQUIRED CONDUCTOR AMPACITY									CORRECTED AMPACITY CALCULATION							DERATED CONDUCTOR AMPACITY CHECK			
4	42	X	1	=	42	X	1.25	=	52.50A	75	X	0.87	X	1	=	82.65A	52.50A	<	82.65A
5	42	X	1	=	42	X	1.25	=	52.50A	95	X	0.87	X	1	=	82.65A	52.50A	<	82.65A

TITAN SOLAR POWER

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UTILITY:DUKE ENERGY

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STRING WIRING DIAGRAM & ELECTRICAL CALCULATION

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WARNING PLACARDS

1

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION
BACKFED BREAKER [PER CODE: NEC 705.12(4)]

2

⚠ WARNING

INVERTER OUTPUT CONNECTION:
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION: BACKFED BREAKER
[PER CODE: 2017 NEC 705.12(B)(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

LABEL LOCATION: (IF APPLICABLE) SUPPLY SIDE TAP LOAD PANEL
[PER CODE: UTILITY]

4

PHOTOVOLTAIC AC DISCONNECT

RATED AC OPERATING CURRENT 42.00 A
AC NOMINAL OPERATING VOLTAGE 240 VAC

LABEL LOCATION: MAIN SERVICE DISCONNECT,
AC DISCONNECT(S) & SERVICE PANEL
[PER CODE: NEC 690.13(B)]

5

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION: INVERTER
[PER CODE: NEC 690.56(C)(3)]

6

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

LABEL LOCATION: MAIN SERVICE DISCONNECT
AC DISCONNECT,SERVICE PANEL,
AC COMBINER & INVERTER(S)
[PER CODE: NEC 690.13(B)]

7

PHOTOVOLTAIC

SYSTEM METER

LABEL LOCATION: DEDICATED KWH METER
[PER CODE: NEC 690.4(B) UTILITY]

8

⚠ WARNING

PHOTOVOLTAIC SYSTEM
COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION: AC COMBINER PANEL
[PER CODE: NEC 690.13(B)]

9

MAXIMUM VOLTAGE: 480 VDC
MAXIMUM CIRCUIT CURRENT: 45 A
MAX. RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC-CONVERTER (IF INSTALLED) 15 A

LABEL LOCATION: INVERTER
[PER CODE: NEC 690.53]

10

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

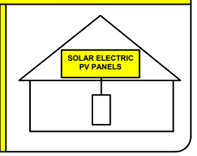
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION
DC DISCONNECT INVERTER, COMBINER BOX
[PER CODE: 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



LABEL LOCATION: MAIN SERVICE DISCONNECT
[PER CODE:NEC 690.56(C)(1)(a)]

13

⚠ CAUTION

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC

LABEL LOCATION :MAIN SERVICE DISCONNECT
AC DISCONNECT,SERVICE PANEL,
REVENUE METER & AC COMBINER
[PER CODE: NEC705.12(B)(3)]

14

⚠ WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS OVER-CURRENT DEVICE

LABEL LOCATION :(IF APPLICABLE) SERVICE PANEL
[PER CODE: NEC 705.12(D)(7)]

15

PHOTOVOLTAIC SYSTEM
UTLITY DISCONNECT SWITCH

LABEL LOCATION :AC DISCONNECT
[PER CODE:NEC 690.56(C)(3)]

16

⚠ WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION
AC DISCONNECT COMBINER BOX SERVICE METER
[PER CODE: NEC 690.5(C)]

17

PV SOLAR BREAKER

DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION
MAIN SERVICE DISCONNECT & SERVICE PANEL
[PER CODE:NEC 705.12(B)(2)(3)(b)]

18

WARNING PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION
DC CONDUIT NO MORE THAN 10FT
[PER CODE: NEC 690.31(G)(3)]

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

TITAN SOLAR POWER

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Because quality matters

WARNING PLACARDS

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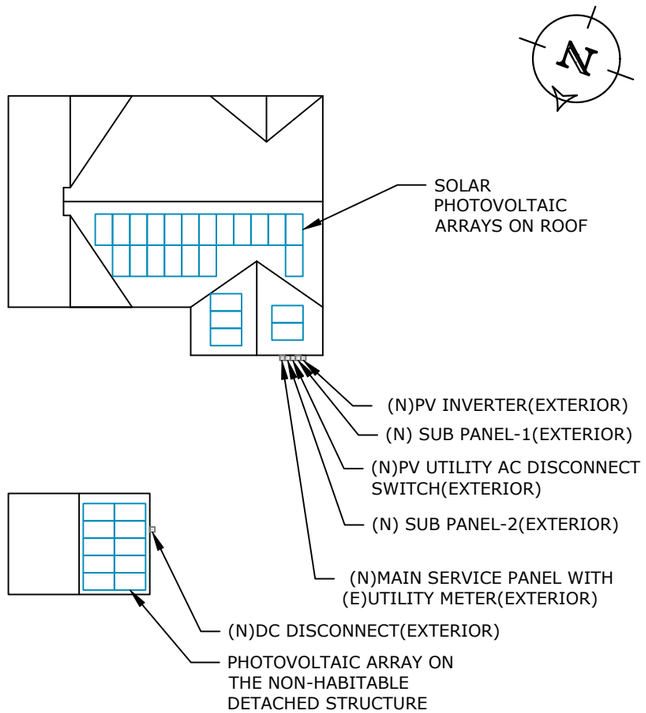
DATE:12/12/2022	PL-01

DIRECTORY PLACARD

CAUTION:MULTIPLE SOURCES OF POWER

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



104 WOODALL DR, ERWIN, NC 28339

LABEL LOCATION
SERVICE PANEL
PER CODE: NEC 705.10
ALL PLACARDS SHALL BE OF WEATHER PROOF CONSTRUCTION, BACKGROUND ON ALL PLACARDS SHALL BE RED WITH WHITE LETTERING U.O.N.
PLACARD SHALL BE MOUNTED DIRECTLY ON THE EXISTING UTILITY ELECTRICAL SERVICE.
FASTENERS APPROVED BY THE LOCAL JURISDICTION

E
12/12/2022

TITAN SOLAR POWER

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DIRECTORY PLACARD

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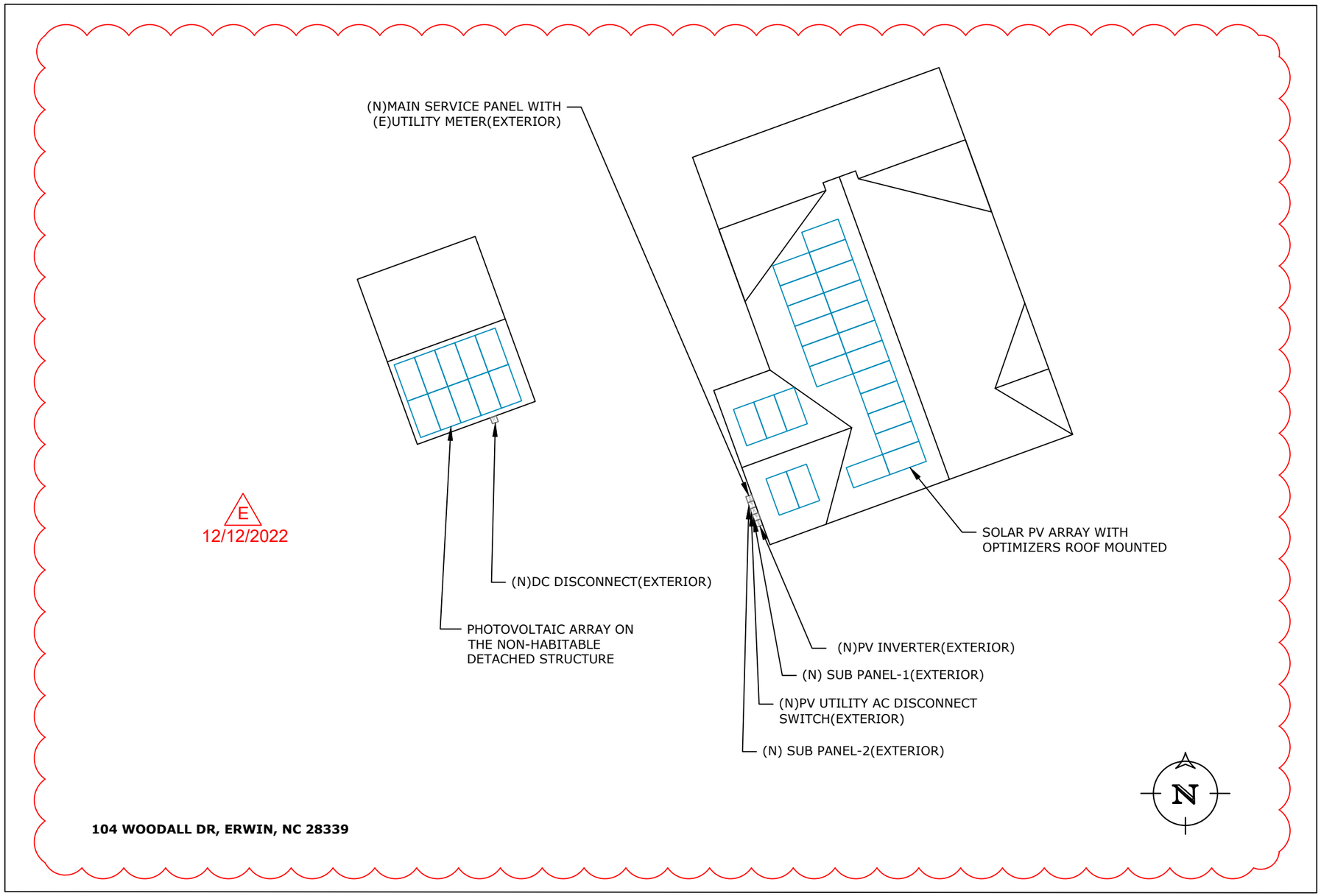
SAFETY PLANS

NOTES:
1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME.
2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST.
3. URGENT CARE FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK.

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:
ADDRESS:
PHONE NUMBER:



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SAFETY PLANS-1

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DATE:12/12/2022	PL-03

SAFETY PLANS

NOTES:
1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME.
2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST.
3. URGENT CARE FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK.

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:
ADDRESS:
PHONE NUMBER:

PERSONS COVERED BY THIS JOB SAFETY PLAN

INJURED AT WORK TODAY?
INITIAL YES OR NO

PRINT NAME	INITIAL	YES	NO

UNDERGROUND DIG REQUIRED?

YES _____ PERMIT #_____

TITAN SOLAR POWER
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PRN NUMBER:TPS-40595

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SAFETY PLANS-2

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DATE:12/12/2022	PL-04

SPEC SHEET

powered by Q.ANTUM DUO

Q.PEAK DUO L-G5.2 380-395

Q.ANTUM SOLAR MODULE

The new high-performance module Q.PEAK DUO L-G5.2 is the ideal solution for commercial and utility applications thanks to a combination of its innovative cell technology Q.ANTUM and cutting edge cell interconnection. This 1500 V IEC/UL solar module with its 6 busbar cell design ensures superior yields with up to 395 Wp while having a very low LCOE.

LOW ELECTRICITY GENERATION COSTS
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.9 %.

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[1], 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 (2400 Pa).

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance warranty[2].

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2018

Q CELLS YIELD SECURITY
- ANTI PID TECHNOLOGY (APT)
- HOT-SPOT PROTECT (HSP)
- TRACEABLE QUALITY (TRA.Q™)
- ANTI LID TECHNOLOGY (ALT)

pv magazine award 2017 top innovation

Photon Q CELLS Best polycrystalline solar module 2014 Q.PRO-G2 235 174 modules tested

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (–1500 V, 168 h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

Rooftop arrays on commercial/industrial buildings

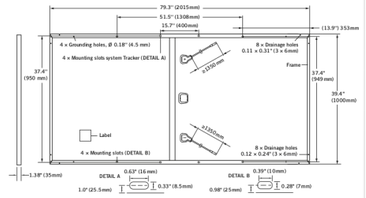
Ground-mounted solar power plants

Engineered in **Germany**

Q CELLS

MECHANICAL SPECIFICATION

Format	79.3 in × 39.4 in × 1.38 in (including frame) (2015 mm × 1000 mm × 35 mm)
Weight	51.8 lbs (23.5 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodized aluminum
Cell	6 × 24 monocrystalline Q.ANTUM solar half-cells
Junction box	2.76-3.35 in × 1.97-2.76 in × 0.51-0.83 in (70-85 mm × 50-70 mm × 13-21 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥53.1 in (1350 mm), (–) ≥53.1 in (1350 mm)
Connector	Multi-Contact MC4-EVO2, JMTHY PV-JM601A, IP68 or Renhe 05-6, IP67

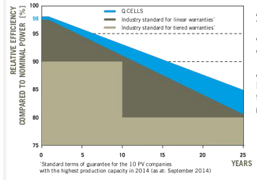


ELECTRICAL CHARACTERISTICS

POWER CLASS				380	385	390	395
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)							
Minimum	Power at MPP[1]	P_{MPP}	[W]	380	385	390	395
	Short Circuit Current[1]	I_{SC}	[A]	10.05	10.10	10.14	10.19
	Open Circuit Voltage[1]	V_{OC}	[V]	47.95	48.21	48.48	48.74
	Current at MPP	I_{MPP}	[A]	9.57	9.61	9.66	9.70
	Voltage at MPP	V_{MPP}	[V]	39.71	40.05	40.38	40.71
	Efficiency[1]	η	[%]	≥18.9	≥19.1	≥19.4	≥19.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]							
Minimum	Power at MPP	P_{MPP}	[W]	283.9	287.6	291.3	295.1
	Short Circuit Current	I_{SC}	[A]	8.10	8.14	8.17	8.21
	Open Circuit Voltage	V_{OC}	[V]	45.12	45.37	45.62	45.87
	Current at MPP	I_{MPP}	[A]	7.53	7.57	7.60	7.64
	Voltage at MPP	V_{MPP}	[V]	37.69	38.01	38.33	38.64

[1] Measurement tolerances P_{MPP} ±3 %; I_{SC}; V_{OC} ±5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5G according to IEC 60904-3 · [2] 800 W/m², NMOT, spectrum AM 1.5G

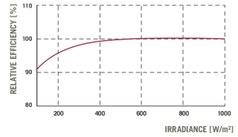
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year.
Thereafter max. 0.54 % degradation per year.
At least 93.1 % of nominal power up to 10 years.
At least 85 % 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 organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	–0.28
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.37	Normal Operating Module Temperature	NMOT	[°F]	109 ±5.4 (43 ±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500 (IEC) / 1500 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating	C (IEC) / TYPE 1 (UL)
Max. Design Load, Push / Pull (UL)[2]	[lbs/ft²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted module temperature on continuous duty	–40 °F up to +185 °F (–40 °C up to +85 °C)
Max. Test Load, Push / Pull (UL)[2]	[lbs/ft²]	113 (5400 Pa) / 50 (2400 Pa)	[2] see installation manual	

QUALIFICATIONS AND CERTIFICATES

UL 1703; CE-compliant;
IEC 61215:2016, IEC 61730:2016 application class A

DVE CE CSA Certified UL 1703 (254141)

PACKAGING INFORMATION

Number of Modules per Pallet	29
Number of Pallets per 53' Trailer	26
Number of Pallets per 40' High Cube Container	22
Pallet Dimensions (L × W × H)	81.9 in × 45.3 in × 46.7 in (2080 mm × 1150 mm × 1185 mm)
Pallet Weight	1635 lbs (742 kg)

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.
300 Spectrum Center Drive, Suite 1250, Irvine, CA 92618, USA I TEL +1 949 748 59 96 I EMAIL inquiry@us.q-cells.com I WEB www.q-cells.us

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MODULE SPEC SHEET

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	SS-01

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

solaredge

Single Phase Inverter with HD-Wave Technology for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]							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							
INPUT								
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				400			Vdc
Maximum Input Current @240V[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

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

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35.320226, -78.667743
APN: 060-597-020-218

AHJ:NC-TOWN OF ERWIN

UTILITY:DUKE ENERGY

PRN NUMBER:TPS-40595

ILLUMINE i
Because quality matters

INVERTER SPEC SHEET

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	SS-02

Single Phase Inverter with HD-Wave Technology for North America

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

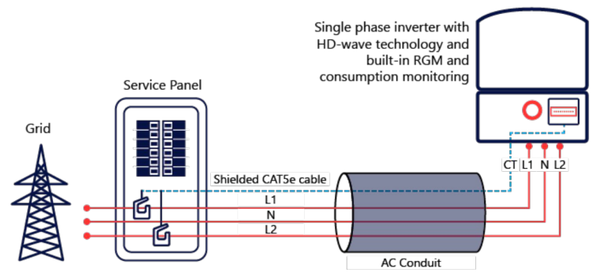
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional[3]							
Consumption metering								
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
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 (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 (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		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25				< 50			dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4 . For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

[4] Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

How to Enable Consumption Monitoring

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



RoHS

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SPEC SHEET

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

POWER OPTIMIZER

25 YEAR WARRANTY

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

solaredge

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power(1)	370	400		485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125(2)	83(2)	Vdc
MPPT Operating Range	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	II					
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)						
Maximum Output Current	15					Adc
Maximum Output Voltage	60			85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)						
Safety Output Voltage per Power Optimizer	1 ± 0.1					Vdc
STANDARD COMPLIANCE						
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020			NEC 2014, 2017 & 2020	NEC 2014, 2017 & 2020	
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class II safety), UL1741					
Material	UL94 V-0 , UV Resistant					
RoHS	Yes					
INSTALLATION SPECIFICATIONS						
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 153 x 33.5 / 5.1 x 6 x 1.3	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	655 / 1.4	750 / 1.7	655 / 1.4	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4(3)			Single or dual MC4(3)(4)	MC4(3)	
Input Wire Length	0.16 / 0.52, 0.9 / 2.95(4)	0.16 / 0.52	0.16 / 0.52, 0.9 / 2.95(4)	0.16 / 0.52	0.16 / 0.52	m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range(5)	-40 to +85 / -40 to +185					°C / °F
Protection Rating	IP68 / NEMA6P					
Relative Humidity	0 - 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 de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter(6)(7)		Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P370, P400, P401	8		10	18	
	P485, P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50	
Maximum Nominal Power per String		5700(8) (6000 with SE7600-US - SE11400-US)	5250(8)	6000(9)	12750(10)	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
(7) It is not allowed to mix P485/P505 with P370/P400/P401 in one string
(8) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(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 15,000W per string when the maximum power difference between each string is 2,000W

Intertek RoHS

TITAN SOLAR POWER

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OPTIMIZER SPEC SHEET

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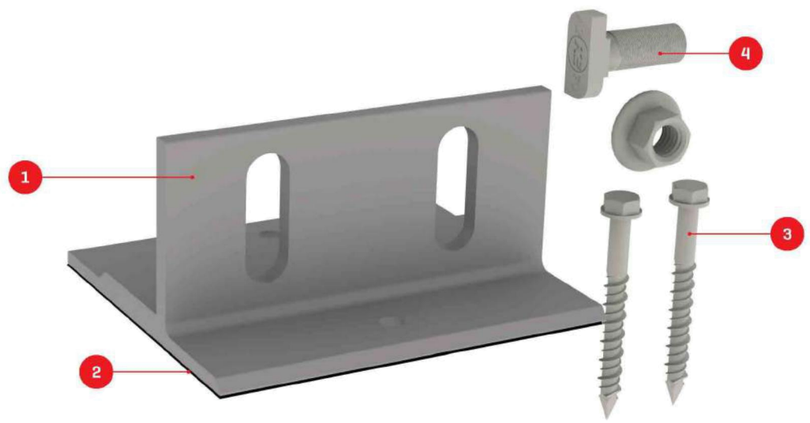
SPEC SHEET

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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MOUNT SPEC SHEET

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SPEC SHEET

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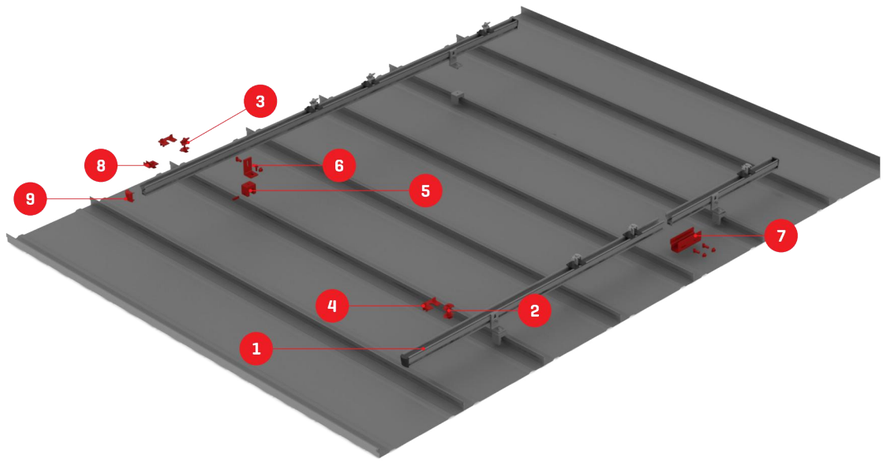

CrossRail Shared Rail System

TECHNICAL SHEET

Item Number	Description	Part Number
1	CrossRail 44-X (shown) all CR profiles applicable	4000019 (166" mill), 4000020 (166" dark) , 4000021 (180" mill), 4000022 (180" dark)
2	CrossRail Mid Clamp	4000601-H (mill), 4000602-H (dark)
3	CrossRail (Standard) End Clamp	4000429 (mill), 4000430 (dark)
4	Add-On (5mm shown)	4000632 (5mm), 4000609 (10mm)
5	Standing Seam PowerClamp (mini shown)	4000016 (mini), 4000017 (standard)
6	L-Foot Slotted Set	4000630 (mill), 4000631 (dark)
7	CrossRail 44-X Rail Connector (shown) CR 48-X, 48-XL Rail Connector available	4000051 (mill), 4000052 (dark)
8	Everest Ground Lug	4000006-H
9	CrossRail 44-X End Cap (shown) CrossRail 48-X, 48-XL and 80 available	4000067

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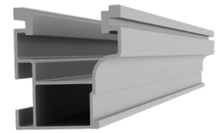
Formerly Everest Solar Systems

CROSSRAIL 44-X



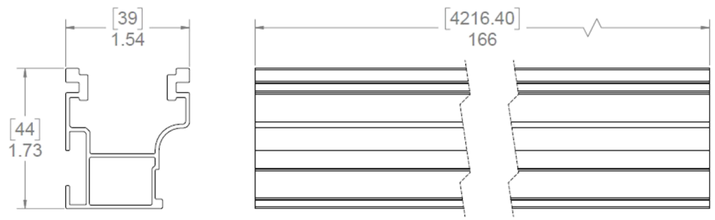
Mechanical Properties

	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 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

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RAIL SPEC SHEET

DRAFTED BY: KRISHNAN A.N. QC'ED BY: RAJ KUMAR K.B.	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:E
DATE:12/12/2022	SS-06

SIEMENS

Rainproof Combination Metering

Catalog Number
MC4040B1200SECW

Enclosure
Type 3R

Panelboard Rating: 200 Amps Max; Bus Rating: 225 Amps Max.
120/240 Volts ~, 1 phase, 3 wire
208Y/120 Volts ~, 1 phase, 3 wire
(Derived from 3 phase – 4 wire system)

Meter Socket Rating: 200 Amps Continuous

Suitable Only For Use As Service Equipment.
For Overhead or Underground Service.
Use 60/75° C Copper or Aluminum Conductor in Terminals A1, B1, A2, B2, N1, and N2.

See breaker markings for wire size and torque requirements.
Branch breakers limited to 3/0 AWG max.

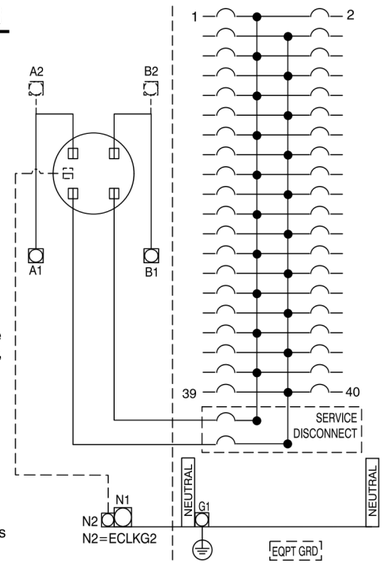
Line terminals A and B have wire connectors installed for underground service entry as shown in the wiring diagram, location A1 and B1. For overhead entry, reposition service bus per enclosed instruction sheet.

Unused neutral branch terminals may be used to terminate equipment grounding wires in the combinations indicated for equipment ground bar terminals.

General Information:
Circuit breaker trip position is indicated by handle position midway between ON and OFF. To reset, move handle to OFF position then turn ON.

For installation by Qualified Person in accordance with all local electrical codes and/or the National Electrical Code.®

Any 80 Amp or above circuit breaker must be installed in the lowest position in the branch panel. All other positions are limited to 70 Amps maximum for the breaker types listed.



Terminal	Wire Size	Torque
A1, B1, A2, B2	250kcmil - #4	250 lb-in
N1	250kcmil - #6	275 lb. in.
N2	#2 - #14	50 lb-in
G1	1/0 - #14	120 lb-in
Branch Breaker Terminals	See Markings on Breaker	
Neutral Bar	#10 - #14 CU #10 - #12 AL #8 #6	20 lb-in 20 lb-in 25 lb-in 35 lb-in
Ground Conductors Only	(2) or (3) #14 AWG	20 lb-in
	(2) #12-#10 AWG	20 lb-in

Accessories:
Filler Plate - ECQF3
5th Jaw Assembly - EMC5J
Flush Rail Kit - FRK1
Meter Socket Jumper - ECJS
Ground Bar - "ECGB" series

Lug Kits:

Catalog #	*Wire Range*	*Torque*
ECLK1-2	2/0 - #2	45 lb in
ECLK2	2/0 - #4	135 lb in
ECLK3	300kcmil - #1	340 lb in

If hub is required, use the catalog numbers listed below :

Trade size (in)	Catalog number
RX Type Hub (top endwall, surface units only)	
1 ¼"	EC38597
1 ½"	EC38598
2"	EC38599
2 ½"	EC38600
HC Type Hub (bottom endwall)	
2"	ECHC200
2 ½"	ECHC250
3"	ECHC300

SHORT CIRCUIT CURRENT RATING (Watthour meter not included in short circuit rating) This panelboard has a short circuit current rating of 22,000 AMPS RMS symmetrical, 120/240 VAC. The correct branch breakers and main/branch breaker series combinations to be used for various short circuit current levels are listed in the tabulation below. Any circuit breaker installed, replaced or added in this panelboard must be manufactured by Siemens and must be of the correct type as indicated in the tabulation below.

Main Breaker	Branch Breaker	Then the maximum short circuit rating in RMS symmetrical amperes, 120/240V~is:
When the main breaker is:	And the branch breakers installed are Type:	
QNRH	MP-T, MP-HT, MP-MT, MP-AT, MP-HAT, MP-GT, MP-HGT, MP-ET, MP-HET, MD-TR, MD-HTR (Murray) QP, QPH, HQP, QAF, QPHF, QE, QEH, QNR, QNRH (Siemens)	22,000

Important: Do not allow petroleum based (hydrocarbon) sprays, chemicals, solvents or any paint to contact interior components. Petroleum based chemicals can cause degradation of electrical insulating materials.

Siemens Industry, Inc. Norcross, Georgia U.S.A. **J2** 40900965 0102 Rev.00

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MPU SPEC SHEET

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