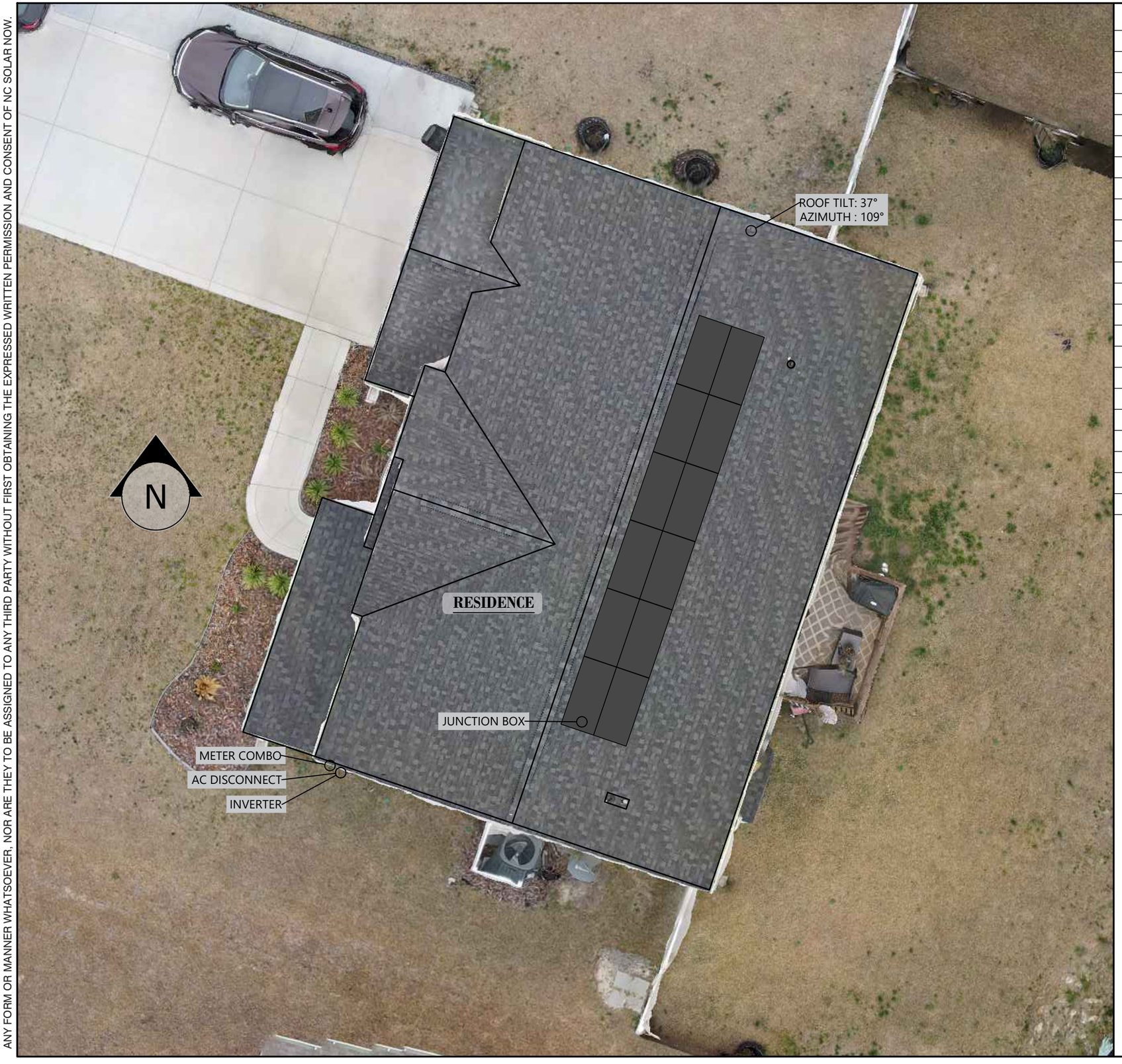


PV MATERIAL SUMMARY: DISTRIBUTOR

SOLADECK 0799-5B	1
P340	12
SE3800H-US000BNU4	1
SE-ZBGW-B-S1-NA	1
TESLA ECOSYSTEM	
QCELL 340W	12
SKIRT 1752MM	6
SKIRT - 2085MM	2
OUTSIDE CORNER	2
INSIDE CORNER	0
"GRIP"	10
DOUBLE KEY ZEP	4
MOUNTING BLOCK	30
LAG	30
LEVELING FOOT	30
FLASHING INSERT	30
INTERLOCK	18
END CAP - LEFT	1
END CAP - RIGHT	1
GROUND ZEP	2
DC WIRE CLIP	30
HOME RUN CLIP	10
CAULK	5

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
4/16/21

CLIENT INFO

TIFFANY THOMPSON
432 PITTFIELD RUN
CAMERON,NC 28326

PROJECT INFO

DC INPUT:	4.08 kW
AC EXPORT:	3.80 kW
DOI INSPT. METHOD:	OPTION 2

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	118 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

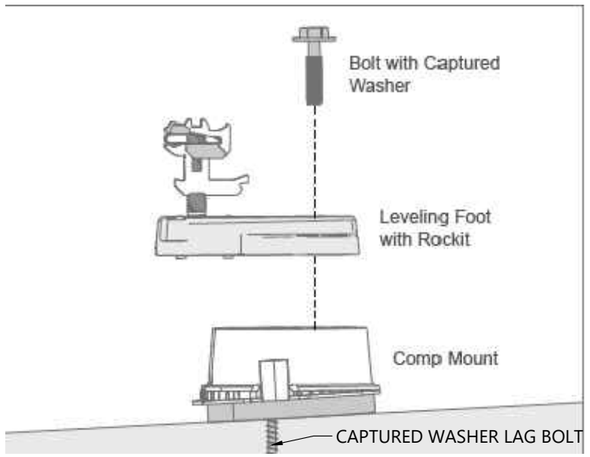
SHEET INDEX

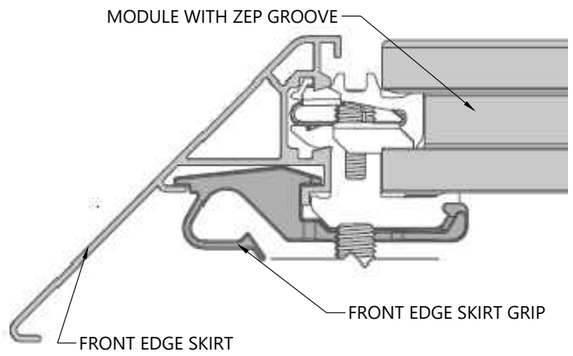
DESIGNER INFO

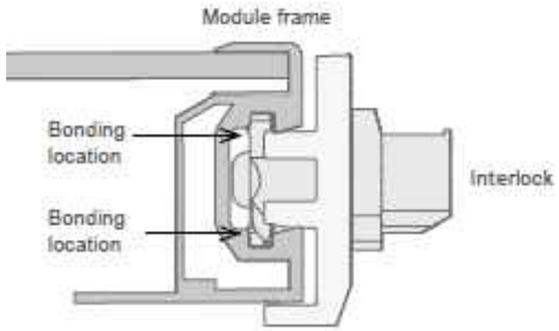
DESIGNER	X
ENGINEER	AWK
DATE	4/5/2021
VERSION	P1

PV SYSTEM COVER PAGE

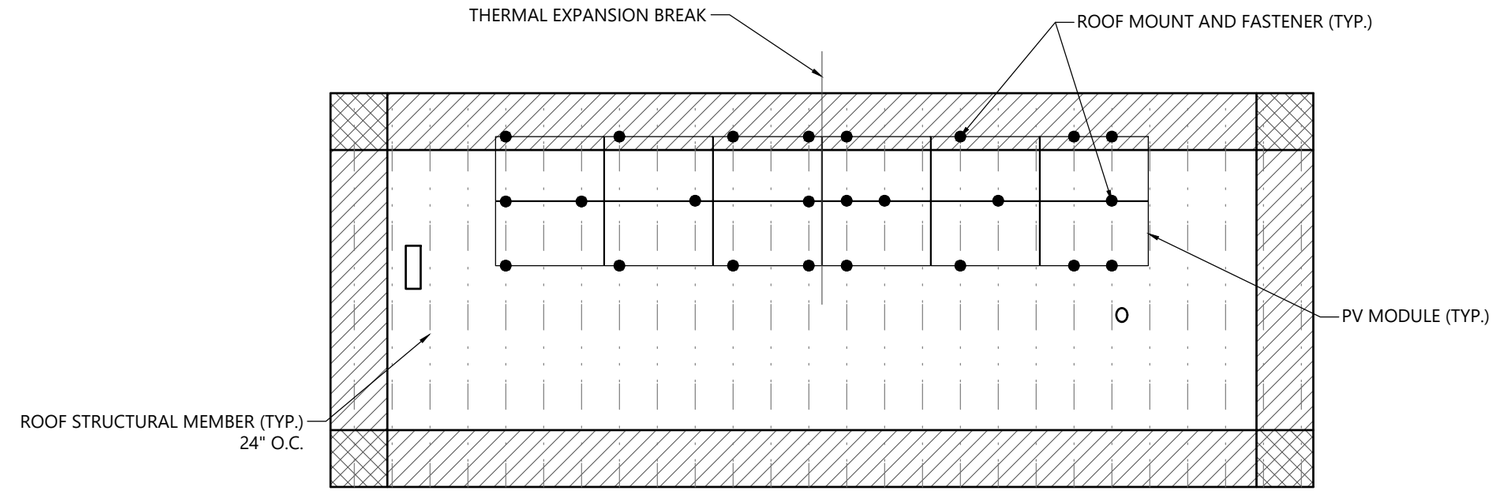
PV-1.1







1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ARRAY LAYOUT
1/8" = 1'-0"

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

NAME: ANDREW W. KING, PE

SIGNED:

PV MODULES

MAKE	HANWHA
MODEL	Q.PEAK DUO BLK-G6+340
WIDTH	40.60 IN
LENGTH	68.50 IN
THICKNESS	32 MM
WEIGHT	43.90 LBS.
ARRAY AREA	232 SQFT.
ARRAY WEIGHT	579 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	9/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MOUNT SPACING	RAIL OVERHANG
72 IN	24 IN

ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD	20 LBS./SQFT.
DEAD LOAD	
ROOFING	3.9 LBS/SQFT.
PV ARRAY	3.0 LBS./SQFT.
TOTAL	6.9 LBS./SQFT.
WIND LOAD:	
UP	-33.0 LBS./SQFT.
DOWN	25.1 LBS./SQFT.
NET FASTENER LOAD:	-358 LBS.

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	TESLA
MODEL	ZS COMP
MATERIAL	STAINLESS
FASTENER:	
MAKE	TESLA
MODEL	CAPTURED WASHER LAG
MATERIAL	SS
SIZE	MFG
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	548.0 LBS.
SAFETY FACTOR	1.15
DESIGN PULL-OUT FORCE	358.0 LBS.

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
4/6/21

CLIENT INFO

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432 PITTFIELD RUN
CAMERON,NC 28326

PROJECT INFO

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AC EXPORT:	3.80 kW
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SITE CONDITIONS

WIND SPEED:	118 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

DESIGNER INFO

DESIGNER	X
ENGINEER	AWK
DATE	4/5/2021
VERSION	P1

PV SYSTEM STRUCTURAL

PV-2.1

CONDUCTOR SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS			GROUNDING CONDUCTORS			CONDUIT/RACEWAY			NOTES
	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	
C1	2	10 AWG	PV WIRE	1	6 AWG	BARE	-	-	FREE AIR	1
C2	2	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXT/INT	2,4
C3	3	12 AWG	THWN	1	12 AWG	THWN	1	3/4"	EXTERIOR	2,4
XC	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR

PV MODULE

MAKE	HANWHA
MODEL	Q.PEAK DUO BLK-G6+340
NOM. POWER (PNOM)	340 WATTS
NOM. VOLT. (VMPP)	33.9 VOLTS
O.C. VOLT (VOC)	40.7 VOLTS
MAX. SYS. VOLT.	1000 VOLTS
NOM. CURR. (IMPP)	10.0 AMPS
S.C. CURR. (ISC)	10.5 AMPS
TEMP. COEF. (PMPP)	-0.36 %/C
TEMP. COEF. (Voc)	-0.27 %/C
MAX SERIES FUSE	20 AMPS
UL LIST. (Y/N)	YES

MODULE OPTIMIZER

MAKE	SOLAREDGE
MODEL	P340
DC INPUT:	
NOM. POWER	340 WATTS
VOLT. RANGE	8 to 48
MAX. CURR.	11.0 AMPS
DC OUTPUT:	
NOM. POWER	340 WATTS
MAX. VOLT.	60 VOLTS
MAX. CURR.	15 AMPS
MIN-MAX STRING	8-25 OPTIMIZERS
UL LIST. (Y/N)	YES

JUNCTION BOX

MAKE	SOLADECK
PROTECT. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

METER COMBO (EXISTING)

MAKE	SQUARE D
MODEL	QC12L200C
ENCL. RATING	NEMA 3R
VOLT. RATING	240
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
MAIN BREAKER RATING	N/A

- BACK-FEED SOLAR OUTPUT VIA 20A BREAKER AT THE OPPOSITE END OF THE BUS BAR FROM EXISTING POWER SOURCE
- EACH BREAKER SERVES AS SERVICE DISCONNECT SWITCH

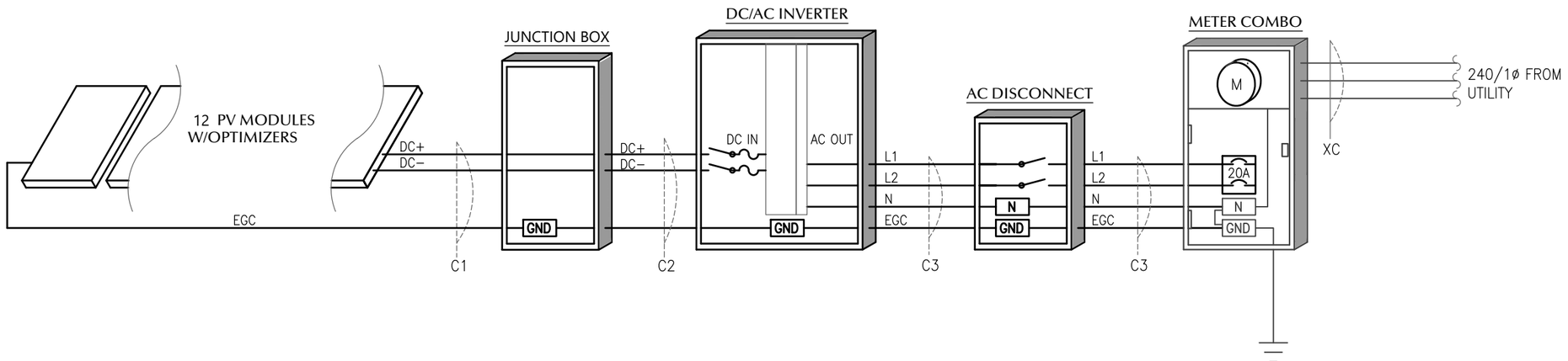
DC / AC INVERTER

MAKE	SOLAREDGE
MODEL	SE3800H-US000BNU4
DC INPUT:	
MAX POWER	5900 WATTS
VOLT. RANGE	380-480
NOM. VOLT.	380 VOLTS
MAX. CURRENT	11 AMPS
STRING INPUTS	2 STRINGS
AC OUTPUT:	
MAX. POWER	3800 WATTS
NOM. POWER	3800 WATTS
NOM. VOLT.	211-240-264
MAX. CURR.	16.00 AMPS
DC DISC. (Y/N)	YES
RAPID SHUTDOWN (Y/N)	YES
PROTECT. RATING	NEMA TYPE 4X
UL LIST. (Y/N)	YES
CONSUMPTION MONITOR	No

AC DISCONNECT

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	30 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES



1 ELECTRICAL SCHEMATIC
NTS

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
4/16/21

CLIENT INFO

TIFFANY THOMPSON
432 PITTFIELD RUN
CAMERON,NC 28326

PROJECT INFO

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AC EXPORT:	3.80 kW
DOI INSPT. METHOD:	OPTION 2

CODE REFERENCES

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ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	118 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

DESIGNER INFO

DESIGNER	X
ENGINEER	AWK
DATE	4/5/2021
VERSION	P1

PV SYSTEM ELECTRICAL

PV-3.1

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

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

⚠WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 705.12 (B)(2)(3)(b)
PLACE ADJACENT TO BACK-FED BREAKER

⚠WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

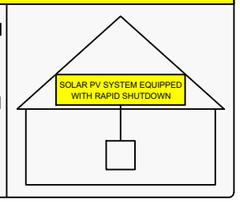
NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

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



NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

PV SYSTEM DISCONNECT

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLTAGE 240 V
MAXIMUM OPERATING AC OUTPUT CURRENT 16.0 A

NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

DIRECT CURRENT
PHOTOVOLTAIC POWER SOURCE
MAXIMUM VOLTAGE 600 VDC
MAX CIRCUIT CURRENT 15.0 AMPS

NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

LABEL NOTES

1. LABELS SHOWN ARE HALF THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
4. LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS MAY NOT BE NECESSARY.

DC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
6. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC). ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
7. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

AC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC) . ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC), OR ROMEX.
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

CONSTRUCTION NOTES

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/LUGS SHALL BE 75° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)
21. A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
    I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
    II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
    III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
    IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE

NC SOLAR NOW

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
4/6/21

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RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

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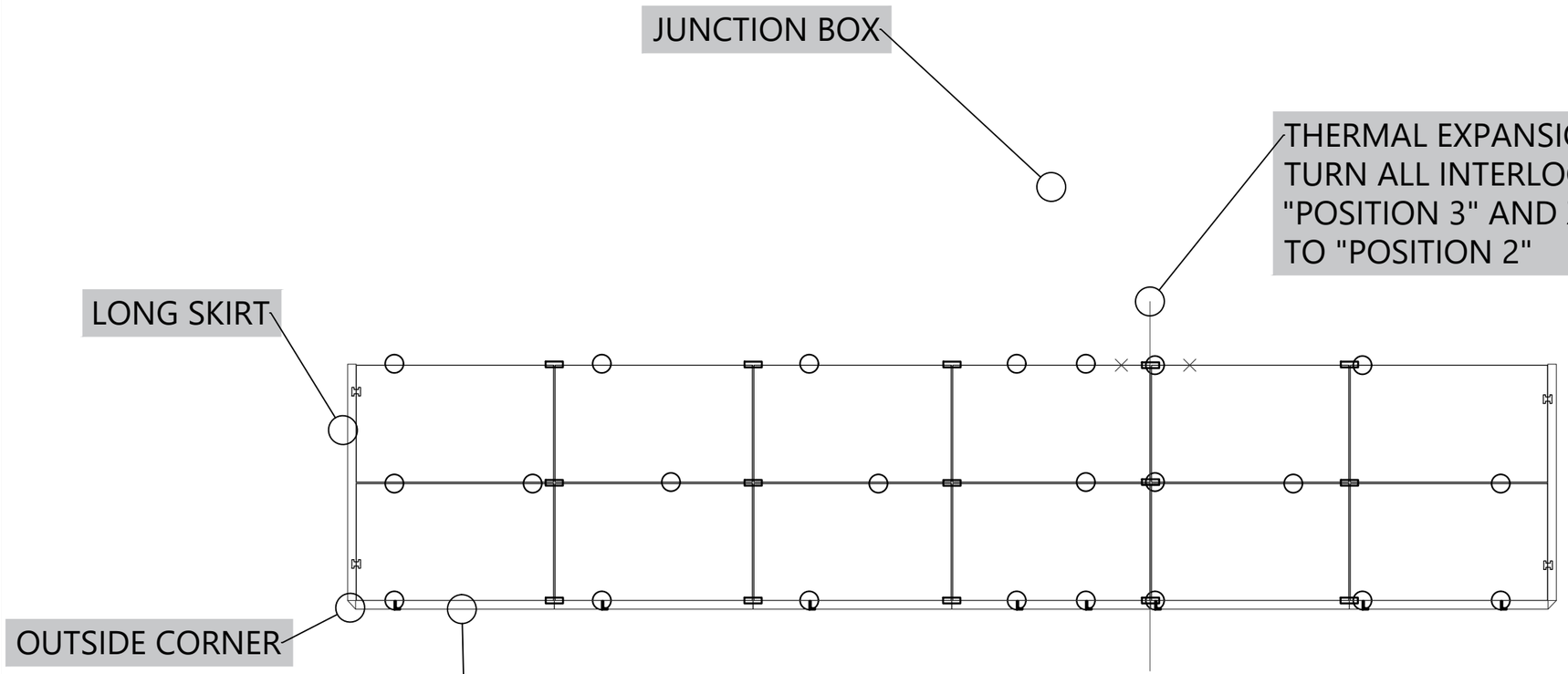
PV SYSTEM EQUIPMENT LABELS

PV-4.1



1 ARRAY LAYOUT DETAIL
NOT TO SCALE

FOOT/ROCKIT CLAMP
SKIRT GRIP
INTERLOCK
DOUBLE ZEP
GROUND ZEP

NC SOLAR NOW

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PV SYSTEM INSTALL GUIDE

PV-5.1

powered by Q.ANTUM DUO

Q.PEAK DUO BLK-G6+

330-345

ENDURING HIGH PERFORMANCE

VDE 11/2016 Quality Tested – high reliability, low degradation, optimized durability, continous line monitoring – www.VDEinfo.com ID. 40032587

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2019

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

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5 %.

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 and 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 (4000 Pa).

A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

[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:

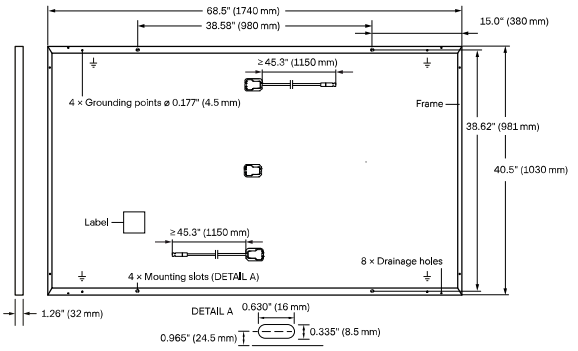
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm)
Weight	43.9 lbs (19.9 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 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53-101 × 32-60 × 15-18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥45.3 in (1150 mm), (–) ≥45.3 in (1150 mm)
Connector	Stäubli MC4, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-6, Tongling TL-Cable01S, JMTHY JM601; IP68 or Friends PV2e; IP67

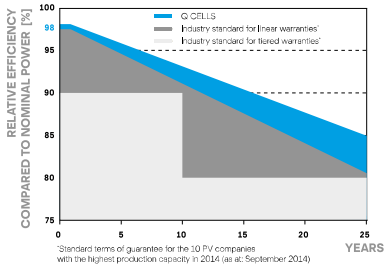


ELECTRICAL CHARACTERISTICS

POWER CLASS				330	335	340	345
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)							
Minimum	Power at MPP[1]	P_{MPP}	[W]	330	335	340	345
	Short Circuit Current[1]	I_{SC}	[A]	10.41	10.47	10.52	10.58
	Open Circuit Voltage[1]	V_{OC}	[V]	40.15	40.41	40.66	40.92
	Current at MPP	I_{MPP}	[A]	9.91	9.97	10.02	10.07
	Voltage at MPP	V_{MPP}	[V]	33.29	33.62	33.94	34.25
	Efficiency[1]	η	[%]	≥18.4	≥18.7	≥19.0	≥19.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]							
Minimum	Power at MPP	P_{MPP}	[W]	247.0	250.7	254.5	258.2
	Short Circuit Current	I_{SC}	[A]	8.39	8.43	8.48	8.52
	Open Circuit Voltage	V_{OC}	[V]	37.86	38.10	38.34	38.59
	Current at MPP	I_{MPP}	[A]	7.80	7.84	7.89	7.93
	Voltage at MPP	V_{MPP}	[V]	31.66	31.97	32.27	32.57

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

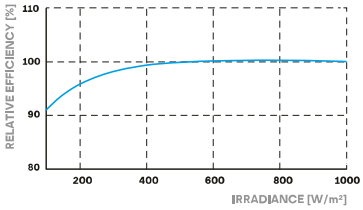
Q CELLS PERFORMANCE WARRANTY



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]	–0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.36	Normal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 1703	C (IEC) / TYPE 2 (UL)
Max. Design Load, Push / Pull[3]	[lbs / ft²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted Module Temperature on Continuous Duty	–40 °F up to +185 °F (–40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs / ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 1703, VDE Quality Tested, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9,893,215 (solar cells)

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	28
Number of Pallets per 40' HC-Container	24
Pallet Dimensions (L × W × H)	71.5 × 45.3 × 48.0 in (1815 × 1150 × 1220 mm)
Pallet Weight	1505 lbs (683 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.
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Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / 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

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/ Power Optimizer
For North America
P320 / P340 / P370 / P400 / P405 / 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)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power[1]	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125[2]	87[2]	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 87	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.5		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
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							
EMC	FCC Part15 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 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	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	Single or dual MC4[3]						
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	-40 - +85 / -40 - +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

PV System Design Using a SolarEdge Inverter[4][5]		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		13 (12 with SE3K)	14	
Maximum String Length (Power Optimizers)		25		25	50[6]	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000[7]	12750[8]	W
Parallel Strings of Different Lengths or Orientations		Yes				

[4] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
[5] It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string
[6] A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
[7] For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W
[8] For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

CE RoHS

INVERTERS

Single Phase Inverter with HD-Wave Technology

for North America

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

12-25 YEAR WARRANTY

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 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
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

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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

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 Data, ANSI C12.20	Optional[3]							
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)							

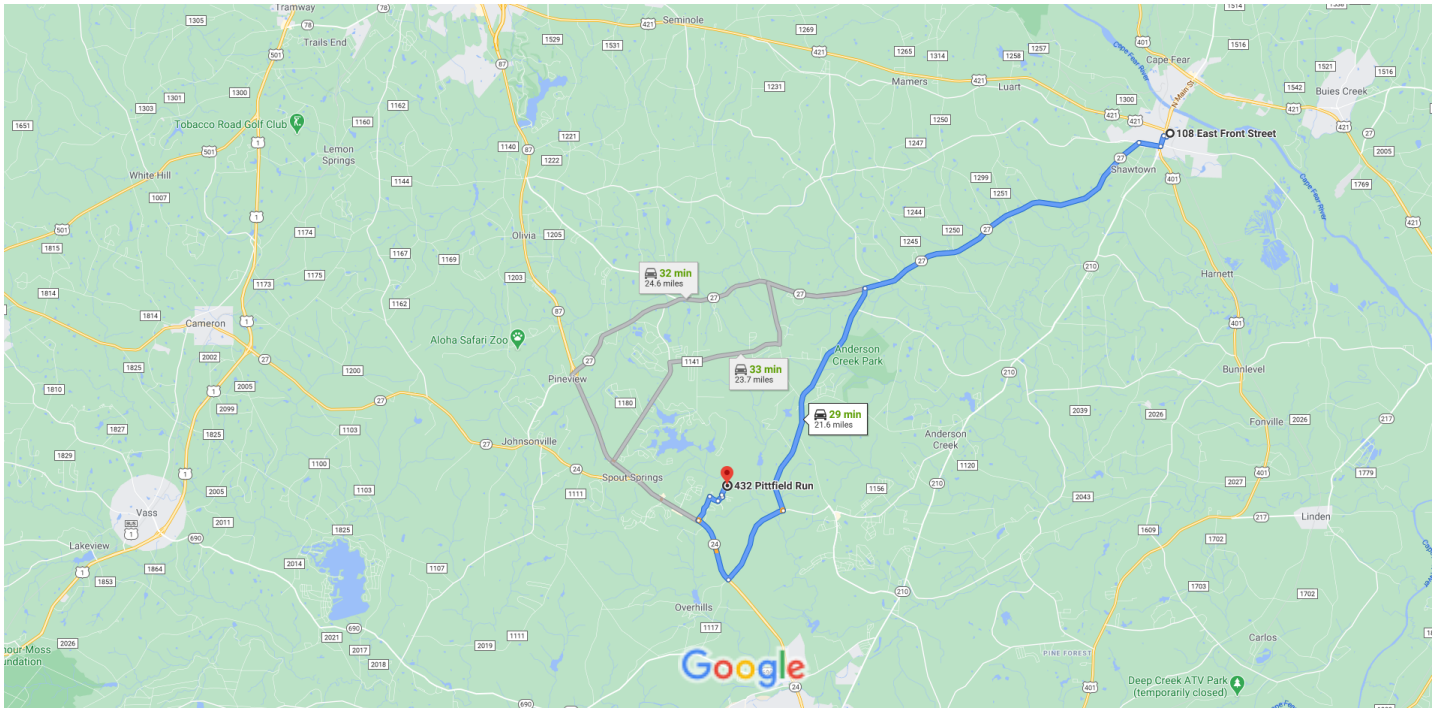
[3] Revenue grade inverter P/N: SExxxxH-US000BNC4
[4] Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

RoHS

Google Maps

108 E Front St, Lillington, NC 27546 to 432 Pittfield Run, Lillington, NC 27546

Drive 21.6 miles, 29 min



Map data ©2021 2 mi

108 E Front St

Lillington, NC 27546

Take S 1st St to S Main St

1 min (0.2 mi)

1. Head west toward S 1st St

295 ft

2. Turn left onto S 1st St

0.1 mi

3. Turn right at the 2nd cross street onto E James St

436 ft

Take NC-27 W and Nursery Rd to Centennial Pkwy/Jeanaire Dr in Anderson Creek

24 min (19.8 mi)

4. Turn left at the 1st cross street onto S Main St

0.3 mi

5. Turn right onto W Old Rd

0.6 mi

6. Turn left onto NC-27 W

8.4 mi

7. Turn left onto Nursery Rd

6.4 mi

8. Turn right to stay on Nursery Rd

2.4 mi

9. Turn right onto NC-24 W/NC-87 N

1.8 mi

Continue on Centennial Pkwy. Drive to Pittfield Run

4 min (1.5 mi)

10. Turn right onto Centennial Pkwy/Jeanaire Dr

Continue to follow Centennial Pkwy

0.7 mi

11. Turn right onto Regimental Dr

0.3 mi

12. Turn left onto Century Dr

0.2 mi

13. Turn left onto Haversack St

299 ft

14. Turn right onto Pittfield Run

Destination will be on the right

0.3 mi

432 Pittfield Run

Lillington, NC 27546

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.