



## HISTORIC PRESERVATION COMMISSION

Marc Elrich  
*County Executive*

Sandra I. Heiler  
*Chairman*

Date: November 24, 2020

### MEMORANDUM

TO: Mitra Pedoeem  
Department of Permitting Services

FROM: Michael Kyne  
Historic Preservation Section  
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #931798: Solar panel installation

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The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** at the November 18, 2020 HPC meeting.

The HPC staff has reviewed and stamped the attached construction drawings.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Andrew and Alicia Prevost  
Address: 10914 Montrose Avenue, Garrett Park

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete the applicant will contact Michael Kyne at 301.563.3403 or [michael.kyne@montgomeryplanning.org](mailto:michael.kyne@montgomeryplanning.org) to schedule a follow-up site visit.



ABBREVIATIONS	ELECTRICAL NOTES	JURISDICTION NOTES
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A AMPERE AC ALTERNATING CURRENT BLDG BUILDING CONC CONCRETE DC DIRECT CURRENT EGC EQUIPMENT GROUNDING CONDUCTOR (E) EXISTING EMT ELECTRICAL METALLIC TUBING FSB FIRE SET-BACK GALV GALVANIZED GEC GROUNDING ELECTRODE CONDUCTOR GND GROUND HDG HOT DIPPED GALVANIZED I CURRENT Imp CURRENT AT MAX POWER Isc SHORT CIRCUIT CURRENT kVA KILOVOLT AMPERE kW KILOWATT LBW LOAD BEARING WALL MIN MINIMUM (N) NEW NEUT NEUTRAL NTS NOT TO SCALE OC ON CENTER PL PROPERTY LINE POI POINT OF INTERCONNECTION PV PHOTOVOLTAIC SCH SCHEDULE S STAINLESS STEEL STC STANDARD TESTING CONDITIONS TYP TYPICAL UPS UNINTERRUPTIBLE POWER SUPPLY V VOLT Vmp VOLTAGE AT MAX POWER Voc VOLTAGE AT OPEN CIRCUIT W WATT 3R NEMA 3R, RAIN TIGHT

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.  
 2. A NATIONALLY - RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.  
 3. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17.  
 4. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRED BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.  
 5. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).  
 6. DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER ART. 690.31(E).  
 7. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.  
 8. MODULE FRAMES SHALL BE GROUNDED AT THE UL - LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE.  
 9. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS.

STRUCTURAL DESIGN FOR THE SUPPORTING STRUCTURE OF THE HOUSE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2018 - STRUCTURAL DESIGN FOR THE RACK SYSTEM AND MOUNTING HARDWARE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2018.

**REVIEWED**  
 By Michael Kyne at 12:18 pm, Nov 24, 2020

APPROVED  
 Montgomery County  
 Historic Preservation Commission  


LICENSE	GENERAL NOTES
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#11805 MASTER ELECTRICIAN  
 Nicholas Meyers

MODULE GROUNDING METHOD: ZEP SOLAR

AHJ: Garrett Park Town

UTILITY: PEPCO (MD)

1. ALL WORK SHALL COMPLY WITH THE 2018 IBC AND 2018 IRC. 2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE.

VICINITY MAP



INDEX

Sheet 1	COVER SHEET
Sheet 2	SITE PLAN
Sheet 3	STRUCTURAL VIEWS
Sheet 4	UPLIFT CALCULATIONS
Sheet 5	THREE LINE DIAGRAM
Cutsheets Attached	

REV	BY	DATE	COMMENTS
REV A	NAME	DATE	COMMENTS
*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*

CONFIDENTIAL - THE INFORMATION HEREIN CONTAINED SHALL NOT BE USED FOR THE BENEFIT OF ANYONE EXCEPT TESLA INC., NOR SHALL IT BE DISCLOSED IN WHOLE OR IN PART TO OTHERS OUTSIDE THE RECIPIENT'S ORGANIZATION, EXCEPT IN CONNECTION WITH THE SALE AND USE OF THE RESPECTIVE TESLA EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF TESLA INC.

JOB NUMBER: JB-20810734 00

MOUNTING SYSTEM:  
 ZS Comp V4 w Flashing-Insert

MODULES:  
 (36) Hanwha Q-CELLS # Q.Peak DUO BLK-G6+ 340

INVERTER:  
 SolarEdge Technologies Ltd. # SE11400H-US [240V]

CUSTOMER:  
 Andrew Prevost  
 10914 Montrose Ave  
 Garrett Park, MD 20896

3015121082

DESCRIPTION:  
 12.24 KW PV ARRAY

PAGE NAME:  
 COVER SHEET

DESIGN:  
 Lemuel Ballestamon

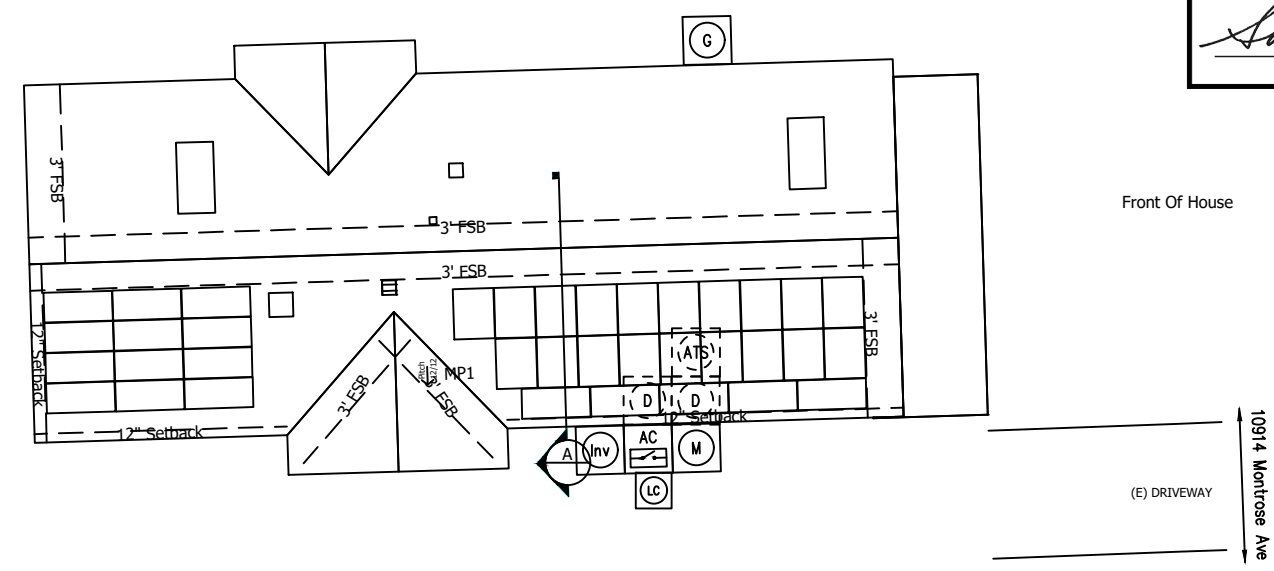
SHEET: 1 REV: DATE: d 8/20/2020



MP1 PITCH: 43 ARRAY PITCH: 43  
 AZIMUTH: 178 ARRAY AZIMUTH: 178  
 MATERIAL: Comp Shingle STORY: 2 Stories

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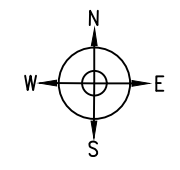
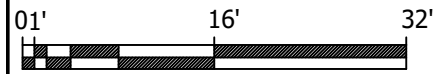


**LEGEND**

- (E) UTILITY METER & WARNING LABEL
- INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
- AUTOMATIC RELAY
- DC DISCONNECT & WARNING LABELS
- AC DISCONNECT & WARNING LABELS
- DC JUNCTION/COMBINER BOX & LABELS
- ENERGY STORAGE SYSTEM FOR STAND ALONE OPERATION
- DISTRIBUTION PANEL & LABELS
- LOAD CENTER & WARNING LABELS
- DEDICATED PV SYSTEM METER
- RAPID SHUTDOWN
- STANDOFF LOCATIONS
- CONDUIT RUN ON EXTERIOR
- CONDUIT RUN ON INTERIOR
- GATE/FENCE
- HEAT PRODUCING VENTS ARE RED
- INTERIOR EQUIPMENT IS DASHED
- GENERATOR
- AUTOMATIC TRANSFER SWITCH AND LOAD CENTER

**SITE PLAN**

Scale: 1/16" = 1'



TOTAL ARRAY AREA: 708.17 SQ.FT  
 TOTAL ACTIVE MP AREA: 987.56 SQ.FT 35%  
 TOTAL ROOF AREA: 2819.07 SQ.FT 25%

TOTAL ARRAY AREA (SF): 708  
 TOTAL ROOF AREA (SF): 2819  
 TOTAL ARRAY AREA IS ≈ 25.12 PERCENT OF TOTAL ROOF AREA

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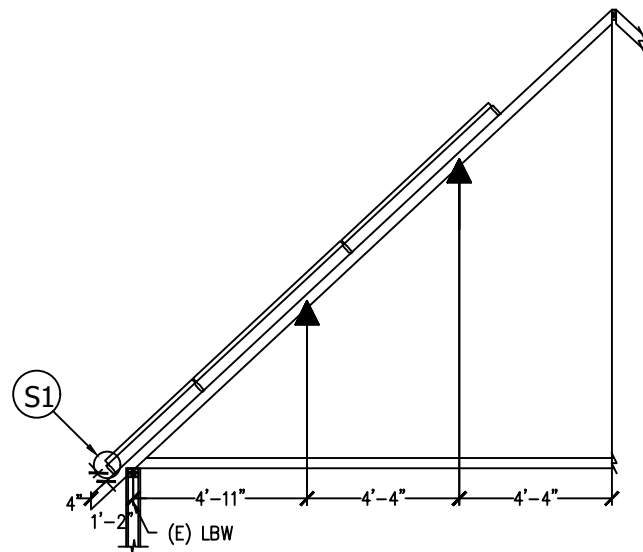
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 MODULES: (36) Hanwha Q-CELLS # Q.Peak DUO BLK-G6+ 340  
 INVERTER: SolarEdge Technologies Ltd. # SE11400H-US [240V]

CUSTOMER: Andrew Prevost  
 10914 Montrose Ave  
 Garrett Park, MD 20896  
 3015121082

DESCRIPTION: 12.24 KW PV ARRAY  
 PAGE NAME: SITE PLAN

DESIGN: Lemuel Ballestamon  
 SHEET: 2 REV: DATE: d 8/20/2020



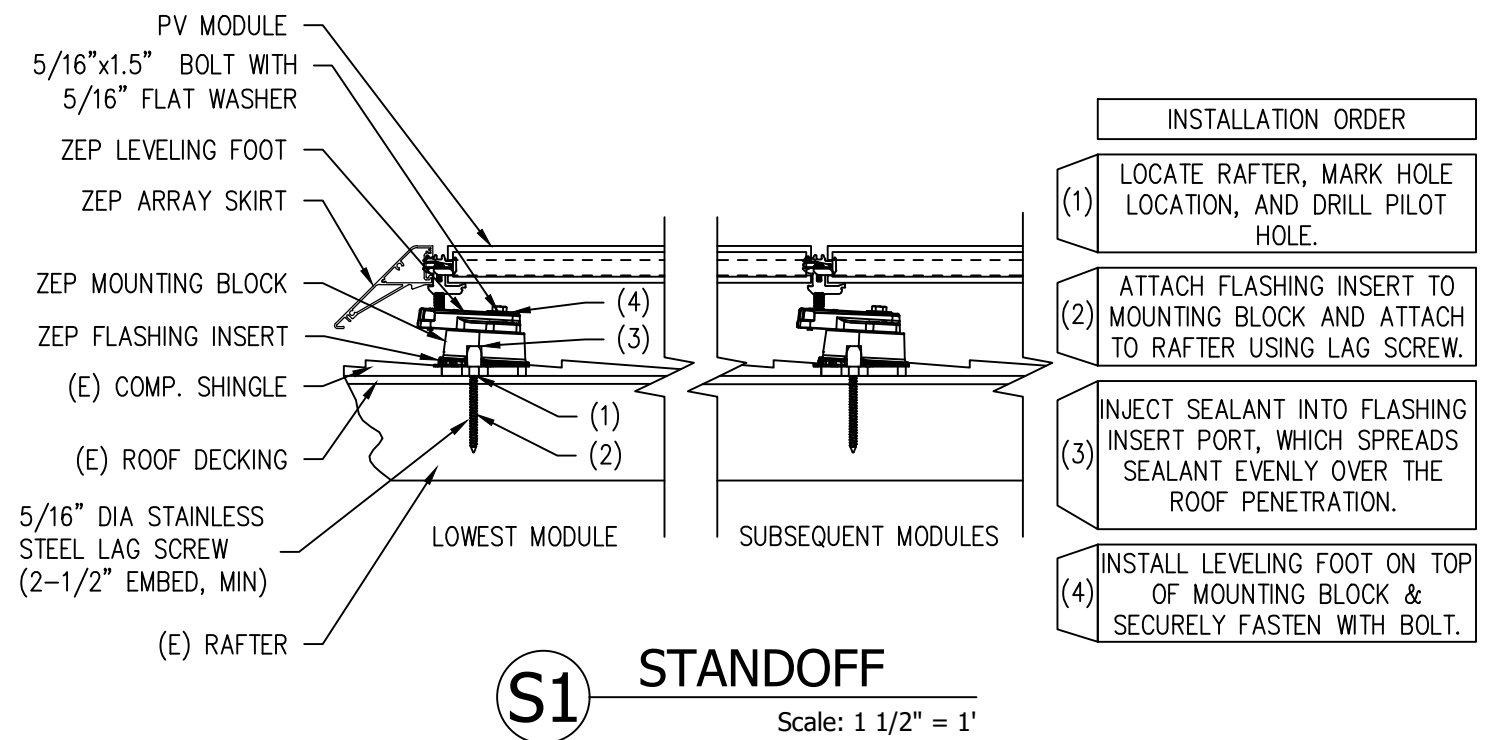


**A** SIDE VIEW OF MP1 NTS

MP1	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"	40"	0"	STAGGERED
PORTRAIT	48"	20"	68"	0"	
RAFTER	2x4 @ 24" OC		ROOF AZI 178	PITCH 43	STORIES: 2
C.J.	2x4 @ 24" OC		ARRAY AZI 178	PITCH 43	
Comp Shingle					
X AND Y ARE ALWAYS RELATIVE TO THE STRUCTURE FRAMING THAT SUPPORTS THE PV. X IS ACROSS RAFTERS AND Y IS ALONG RAFTERS.					

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**S1** STANDOFF  
Scale: 1 1/2" = 1'

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3015121082

DESCRIPTION: 12.24 KW PV ARRAY  
PAGE NAME: STRUCTURAL VIEWS

DESIGN: Lemuel Ballestamon  
SHEET: 3 REV: DATE: 8/20/2020



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Jobsite Specific Design Criteria			
Design Code		ASCE_7_16	
Importance Factor	I	1	
Ultimate Wind Speed	V-Ult	115	Fig. 1609A
Exposure Category		C	Section 26.7
Ground Snow Load	pg	30	Table 7-1

MP Specific Design Information							
MP Name	MP1						
Roofing	Comp Shingle						
Standoff	ZS Comp V4 w Flashing-Insert						
Pitch	43						
SL/RLL: PV	9.4 psf						
SL/RLL: Non-PV	17.2 psf						

Standoff Spacing and Layout							
MP Name	MP1						
Landscape X-Spacing	72"						
Landscape X-Cantilever	24"						
Landscape Y-Spacing	41"						
Landscape Y-Cantilever	-						
Portrait X-Spacing	48"						
Portrait X-Cantilever	20"						
Portrait Y-Spacing	69"						
Portrait Y-Cantilever	-						
Layout	Staggered						

X and Y are maximums that are always relative to the structure framing that supports the PV. X is across rafters and Y is along rafters.

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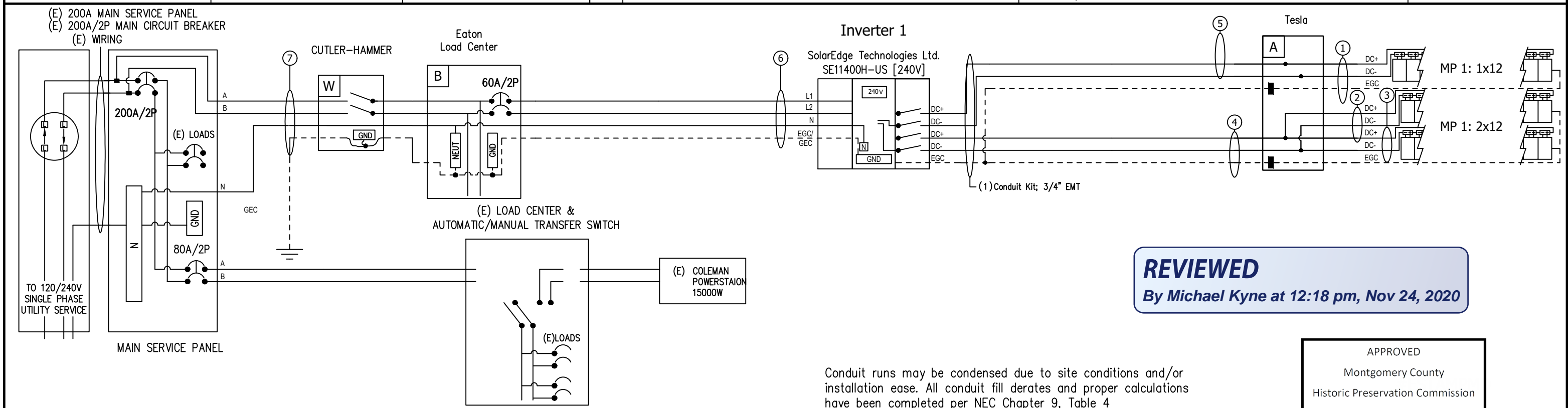
DESCRIPTION:  
 12.24 KW PV ARRAY  
 .  
 PAGE NAME:  
 UPLIFT CALCULATIONS

DESIGN:  
 Lemuel Ballestamon  
 SHEET: 4 REV: DATE:  
 d 8/20/2020





GROUND SPECS	MAIN PANEL SPECS	GENERAL NOTES	INVERTER SPECS	MODULE SPECS	LICENSE
BOND (N) #6 GEC TO (N) GROUND ROD AT PANEL WITH IRREVERSIBLE CRIMP	Panel Number: NoLabel Meter Number: 109014443 Underground Service Entrance	Inv 1: DC Ungrounded Tie-In: Supply Side Connection	INV 1 - (1) SolarEdge Technologies Ltd. # SE11400H-US [240V] Inverter; 11400W, 240/208V, 99%; SetApp HD Wave w/ZB,RGM,AFCI INV 2 INV 3	(36) Hanwha Q-CELLS # Q.Peak DUO BLK-G6+ 340 PV Module; 340W, 318 PTC, 40MM, Black Fr, MC4, ZEP, 1000V  Voc: 40.66 Vpmax: 33.94 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	#11805 MASTER ELECTRICIAN Nicholaus Meyers



Conduit runs may be condensed due to site conditions and/or installation ease. All conduit fill derates and proper calculations have been completed per NEC Chapter 9, Table 4

"Wires are all Copper or Aluminum equivalent."

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Voc\* = MAX VOC AT MIN TEMP

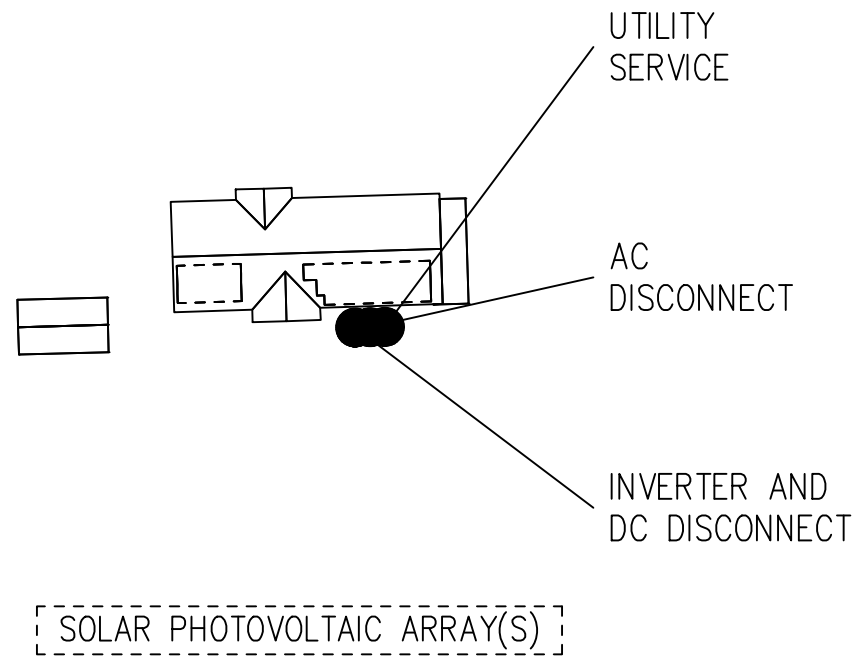
<b>POI</b> (1) Ground Rod 5/8" x 8", Copper (2) ILSCO # IPC 4/0-#6 Insulation Piercing Connector; Main 4/0-4, Tap 6-14	<b>B</b> (1) EATON # BR24L125FP Load Center; 125A, 120/240V, NEMA 1, Main Lug, 1 ø, 2 Spaces, 4 Circuits (1) CUTLER-HAMMER # BR260 Breaker; 60A/2P, 2 Spaces	<b>AC</b>	<b>A</b> (1) Tesla # 4J; 4 STRING JUNCTION BOX UNFUSED, GROUNDED, Black - Diag DIN Rail <b>PV</b> (36) SOLAREGE # P400-5NM4M2M PowerBox Optimizer; 400W, ZEP	<b>DC</b>
<b>SSC</b> SUPPLY SIDE CONNECTION. DISCONNECTING MEANS SHALL BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED PER NEC.	<b>W</b> (1) CUTLER-HAMMER # DG222URB Disconnect; 60A, 240Vac, Non-Fusible, NEMA 3R (1) CUTLER-HAMMER # DG100NB Ground/Neutral Kit; 60-100A, General Duty (DG)			
<b>7</b> (1) AWG #6, THWN-2, Black (1) AWG #6, THWN-2, Red (1) AWG #6, THWN-2, White NEUTRAL Vmp = 240 VAC Imp=47.5 AAC (1) AWG #6, Solid Bare Copper GEC (1) Conduit Kit; 3/4" EMT	<b>6</b> (1) AWG #6, THWN-2, Black (1) AWG #6, THWN-2, Red (1) AWG #10, THWN-2, White NEUTRAL Vmp = 240 VAC Imp=47.5 AAC (1) AWG #8, THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT		<b>4</b> (1) AWG #8, THWN-2, Black Voc* = 480 VDC Isc = 30 ADC (1) AWG #8, THWN-2, Red Vmp = 400 VDC Imp=20.14 ADC (1) AWG #10, THIN/THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT <b>5</b> (1) AWG #10, THWN-2, Black Voc* = 480 VDC Isc = 15 ADC (1) AWG #10, THWN-2, Red Vmp = 400 VDC Imp=10.07 ADC (1) AWG #10, THIN/THWN-2, Green EGC (1) Conduit Kit; 3/4" EMT	<b>1</b> (2) AWG #10, PV Wire, 600V, Black Voc* = 480 VDC Isc = 15 ADC (1) AWG #10, Solid Bare Copper EGC Vmp = 400 VDC Imp=10.07 ADC <b>2</b> (2) AWG #10, PV Wire, 600V, Black Voc* = 480 VDC Isc = 15 ADC (1) AWG #10, Solid Bare Copper EGC Vmp = 400 VDC Imp=10.07 ADC <b>3</b> (2) AWG #10, PV Wire, 600V, Black Voc* = 480 VDC Isc = 15 ADC (1) AWG #10, Solid Bare Copper EGC Vmp = 400 VDC Imp=10.07 ADC

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	MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert	3015121082	PAGE NAME: THREE LINE DIAGRAM	SHEET: 5 REV: DATE: d 8/20/2020	

# CAUTION

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

- Address: 10914 Montrose Ave



**PHOTOVOLTAIC BACK-FED CIRCUIT BREAKER IN MAIN ELECTRICAL PANEL IS AN A/C DISCONNECT PER NEC 690.17**

OPERATING VOLTAGE = 240V

JB-20810734-00

**REVIEWED**

By Michael Kyne at 12:18 pm, Nov 24, 2020

APPROVED  
Montgomery County  
Historic Preservation Commission  
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3015121082

DESCRIPTION:  
12.24 KW PV ARRAY

PAGE NAME:  
SITE PLAN PLACARD

DESIGN:  
Lemuel Ballestamon

SHEET: 6 REV: DATE:  
d 8/20/2020

**TESLA**

WARNING: PHOTOVOLTAIC POWER SOURCE

Label Location:  
(C)(CB)(JB)  
Per Code:  
NEC 690.31.G.3

PHOTOVOLTAIC DC  
DISCONNECT

Label Location:  
(DC) (INV)  
Per Code:  
NEC 690.13.B

WARNING

ELECTRIC SHOCK HAZARD  
DO NOT TOUCH TERMINALS  
TERMINALS ON BOTH LINE AND  
LOAD SIDES MAY BE ENERGIZED  
IN THE OPEN POSITION

Label Location:  
(AC)(POI)  
Per Code:  
NEC 690.13.B

WARNING

ELECTRIC SHOCK HAZARD  
THE DC CONDUCTORS OF THIS  
PHOTOVOLTAIC SYSTEM ARE  
UNGROUNDING AND  
MAY BE ENERGIZED

Label Location:  
(DC) (INV)

MAXIMUM POWER-  
POINT CURRENT (Imp)  A  
MAXIMUM POWER-  
POINT VOLTAGE (Vmp)  V  
MAXIMUM SYSTEM  
VOLTAGE (Voc)  V  
SHORT-CIRCUIT  
CURRENT (Isc)  A

Label Location:  
(DC) (INV)  
Per Code:  
NEC 690.53

PHOTOVOLTAIC SYSTEM  
EQUIPPED WITH RAPID  
SHUTDOWN

Label Location:  
(INV)  
Per Code:  
NEC 690.56.C.3

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WARNING

ELECTRIC SHOCK HAZARD  
IF A GROUND FAULT IS INDICATED  
NORMALLY GROUNDED  
CONDUCTORS MAY BE  
UNGROUNDING AND ENERGIZED

Label Location:  
(DC) (INV)  
Per Code:  
690.41.B

WARNING

INVERTER OUTPUT  
CONNECTION  
DO NOT RELOCATE  
THIS OVERCURRENT  
DEVICE

Label Location:  
(POI)  
Per Code:  
NEC 705.12.B.2.3.b

CAUTION

PHOTOVOLTAIC SYSTEM  
CIRCUIT IS BACKFED

Label Location:  
(D) (POI)  
Per Code:  
NEC 690.64.B.4

WARNING

ELECTRICAL SHOCK HAZARD  
DO NOT TOUCH TERMINALS  
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) (CB)  
Per Code:  
CEC 690.13.B

CAUTION

DUAL POWER SOURCE  
SECOND SOURCE IS  
PHOTOVOLTAIC SYSTEM

Label Location:  
(POI)  
Per Code:  
NEC 705.12.B.3

PHOTOVOLTAIC AC  
DISCONNECT

Label Location:  
(AC) (POI)  
Per Code:  
NEC 690.13.B

PHOTOVOLTAIC POINT OF  
INTERCONNECTION  
WARNING: ELECTRIC SHOCK  
HAZARD. DO NOT TOUCH  
TERMINALS. TERMINALS ON  
BOTH THE LINE AND LOAD SIDE  
MAY BE ENERGIZED IN THE OPEN  
POSITION. FOR SERVICE  
DE-ENERGIZE BOTH SOURCE  
AND MAIN BREAKER.  
PV POWER SOURCE

Label Location:  
(POI)  
Per Code:  
CEC 690.13.B

MAXIMUM AC  
OPERATING CURRENT  A  
MAXIMUM AC  
OPERATING VOLTAGE  V

Label Location:  
(AC) (POI)  
Per Code:  
NEC 690.54

MAXIMUM AC  
OPERATING CURRENT  A  
MAXIMUM AC  
OPERATING VOLTAGE  V

(AC): AC Disconnect  
(C): Conduit  
(CB): Combiner Box  
(D): Distribution Panel  
(DC): DC Disconnect  
(IC): Interior Run Conduit  
(INV): Inverter With Integrated DC Disconnect  
(LC): Load Center  
(M): Utility Meter  
(POI): Point of Interconnection



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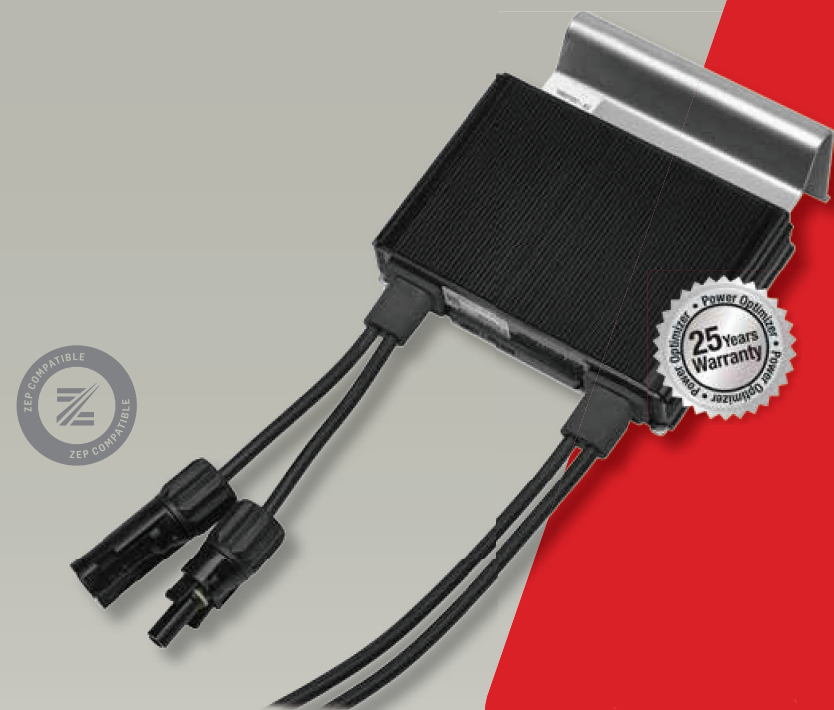


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Montgomery County  
Historic Preservation Commission

*Michael Kyne*

# SolarEdge Power Optimizer - Zep Compatible™

Module Add-On For North America P300-ZEP, P400-ZEP



POWER OPTIMIZER

### Compatible with Zep Groove framed modules

- Certified Zep Compatible™ bracket
- Attaches to module frame without screws - reduces on-roof labor and mounting costs
- Power optimizer equipment grounded through the bracket
- 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
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety

USA - CANADA - GERMANY - ITALY - FRANCE - JAPAN - CHINA - AUSTRALIA - THE NETHERLANDS - UK - ISRAEL - TURKEY - HUNGARY - BELGIUM - ROMANIA - BULGARIA [www.solaredge.us](http://www.solaredge.us)



## SolarEdge Power Optimizer - Zep Compatible™

Module Add-On For North America P400-ZEP

	P300-ZEP (for 60-cell PV modules)	P400-ZEP (for 72 & 96-cell modules)	
<b>INPUT</b>			
Rated Input DC power <sup>(1)</sup>	300	400	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	80	Vdc
MPPT Operating Range	8 - 48	8-80	Vdc
Maximum Short Circuit Current (Isc)	10	10.1	Adc
Maximum DC Input Current	12.5	12.63	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.8	%
Overtoltage Category		II	
<b>OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING INVERTER)</b>			
Maximum Output Current		15	Adc
Maximum Output Voltage		60	Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b>			
Safety Output Voltage per Power Optimizer		1	Vdc
<b>STANDARD COMPLIANCE</b>			
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3		
Safety	IEC62109-1 (class II safety), UL1741		
RoHS	Yes		
<b>INSTALLATION SPECIFICATIONS</b>			
Maximum Allowed System Voltage	1000		Vdc
Dimensions including mounting bracket (WxLxH)	128 x 196 x 27.5 / 5 x 7.71 x 1.08	128 x 196 x 35 / 5 x 7.71 x 1.37	mm / in
Dimensions excluding mounting bracket (WxLxH)	128 x 152 x 27.5 / 5 x 5.97 x 1.08	128 x 152 x 35 / 5 x 5.97 x 1.37	mm / in
Weight (including cables and mounting bracket)	720 / 1.6	840 / 1.9	kg / lb
Input Connector	MC4 Compatible		
Output Connector	Double Insulated; MC4 Compatible		
Output Wire Length	0.95 / 3.0	1.2 / 3.9	m / ft
Operating Temperature Range	-40 - +85 / -40 - +185		
Protection Rating	IP68 / NEMA 6P		
Relative Humidity	0 - 100		

<sup>(1)</sup> Rated STC power of the module. Module of up to +5% power tolerance allowed.

PV SYSTEM DESIGN USING A SOLAREEDGE INVERTER <sup>(2)</sup>	SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8		10	18	
Maximum String Length (Power Optimizers)	25		25	50	
Maximum Power per String	5700 (6000 with SE7600H-US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes				

<sup>(2)</sup> 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).



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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

12-25  
YEAR  
WARRANTY



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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-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 - 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				400			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	600k $\Omega$ 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

### 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)

**REVIEWED**

By Michael Kyne at 12:18 pm, Nov 24, 2020

APPROVED  
Montgomery County  
Historic Preservation Commission  
*Sandra L. Heiler*

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

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

	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 Data, ANSI C12.20	Optional <sup>(3)</sup>							
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi station for local connection							
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 (H1)							
Emissions	FCC Part 15 Class B							
<b>INSTALLATION SPECIFICATIONS</b>								
AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG			3/4" minimum /14-4 AWG				
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG			3/4" minimum / 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 <sup>(4)</sup>							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

<sup>(3)</sup> Revenue grade inverter P/N: SExxxxH-US000BNC4

<sup>(4)</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>

**REVIEWED**

By Michael Kyne at 12:18 pm, Nov 24, 2020







**REVIEWED**

By Michael Kyne at 12:18 pm, Nov 24, 2020

APPROVED

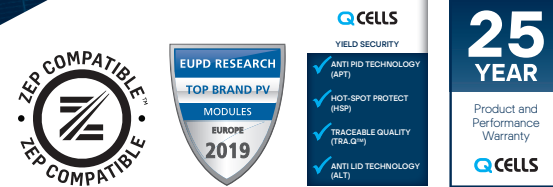
Montgomery County  
Historic Preservation Commission

*Sandra L. Heiler*

# Q.PEAK DUO BLK-G6+ / SC

330-345

ENDURING HIGH PERFORMANCE



### 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<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.



### ZEP COMPATIBLE™ FRAME DESIGN

High-tech black Zep Compatible™ frame, for improved aesthetics, easy installation and increased safety.



### A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty<sup>2</sup>.



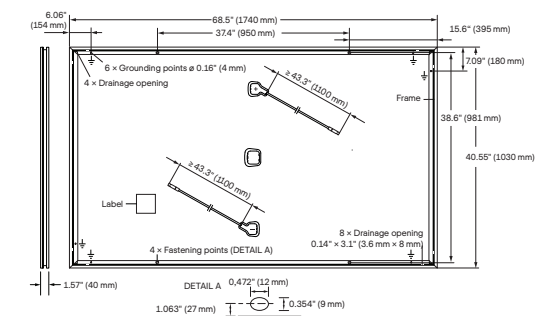
### STATE OF THE ART MODULE TECHNOLOGY

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

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

## MECHANICAL SPECIFICATION

Format	68.5 × 40.6 × 1.57 in (including frame) (1740 × 1030 × 40 mm)
Weight	47.4 lbs (21.5 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 mm <sup>2</sup> Solar cable; (+) ≥ 43.3 in (1100 mm), (-) ≥ 43.3 in (1100 mm)
Connector	Stäubli MC4; IP68

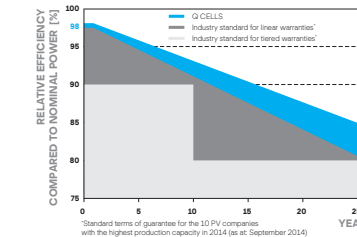


## ELECTRICAL CHARACTERISTICS

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

<sup>1</sup> Measurement tolerances P<sub>MPP</sub> ± 3%; I<sub>SC</sub>; V<sub>OC</sub> ± 5% at STC: 1000 W/m<sup>2</sup>, 25 ± 2 °C, AM 1.5 according to IEC 60904-3: 2000 W/m<sup>2</sup>, NMOT, spectrum AM 1.5

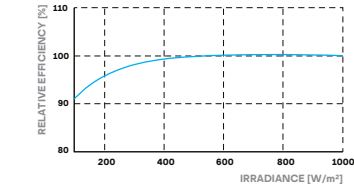
### Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% 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/m<sup>2</sup>)

### TEMPERATURE COEFFICIENTS

Temperature Coefficient of I <sub>SC</sub>	α [%/K]	+0.04	Temperature Coefficient of V <sub>OC</sub>	β [%/K]	-0.27
Temperature Coefficient of P <sub>MPP</sub>	γ [%/K]	-0.36	Normal 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)	Protection 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 (UL) <sup>3</sup>	[lbs / ft <sup>2</sup> ]	50 (2400 Pa) / 50 (2400 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) <sup>3</sup>	[lbs / ft <sup>2</sup> ]	75 (3600 Pa) / 75 (3600 Pa)		

<sup>3</sup> See Installation Manual

### QUALIFICATIONS AND CERTIFICATES

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



**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

### THE IDEAL SOLUTION FOR:

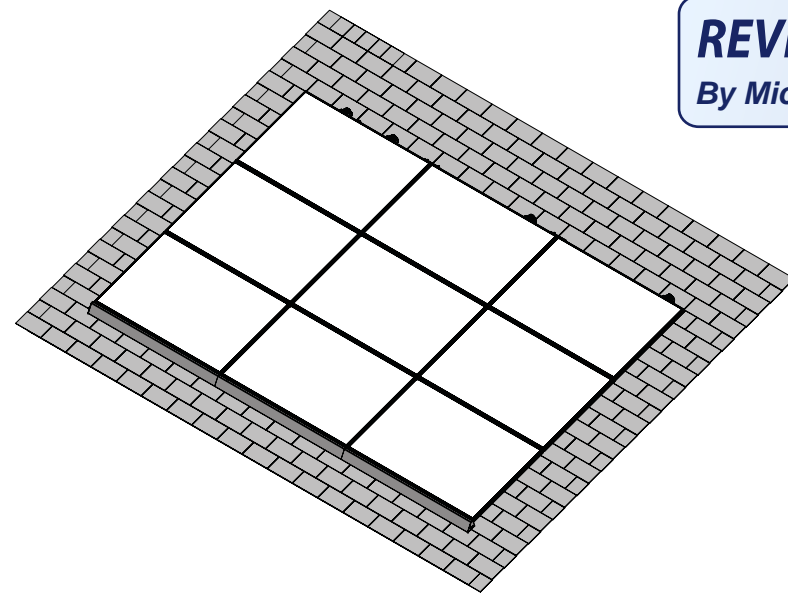


Rooftop arrays on commercial and industrial buildings

Engineered in Germany



**ZS Comp**  
for composition shingle roofs



**REVIEWED**  
By Michael Kyne at 12:18 pm, Nov 24, 2020

APPROVED  
Montgomery County  
Historic Preservation Commission  
*Sandra J. Heiler*



**Description**

- PV mounting solution for composition shingle roofs
- Works with all Zep Compatible Modules
- Auto bonding UL-listed hardware creates structural and electrical bond
- ZS Comp has a UL 1703 Class "A" Fire Rating when installed using modules from any manufacturer certified as "Type 1" or "Type 2"

**Specifications**

- Designed for pitched roofs
- Installs in portrait and landscape orientations
- ZS Comp supports module wind uplift and snow load pressures to 50 psf per UL 2703
- Wind tunnel report to ASCE 7-05 and 7-10 standards
- ZS Comp grounding products are UL listed to UL 2703 and UL 467
- ZS Comp bonding products are UL listed to UL 2703
- Engineered for spans up to 72" and cantilevers up to 24"
- Zep wire management products listed to UL 1565 for wire positioning devices

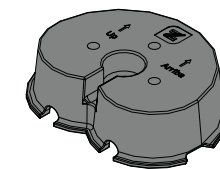
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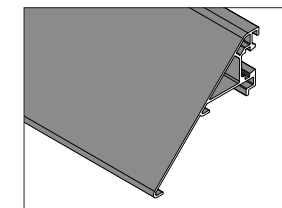
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**Components**



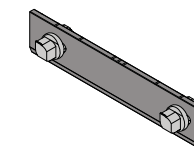
**Mounting Block**

Part No. 850-1633  
Listed to UL 2703



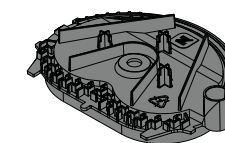
**Array Skirt**

Part No. 850-1608 or 500-0113  
Listed to UL 2703



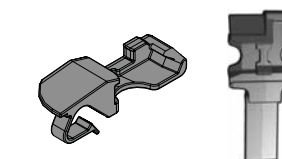
**Interlock**

Part No. 850-1388 or 850-1613  
Listed to UL 2703



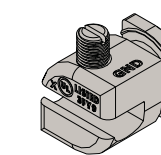
**Flashing Insert**

Part No. 850-1628  
Listed to UL 2703



**Grip**

Part No. 850-1606 or 850-1421  
Listed to UL 2703



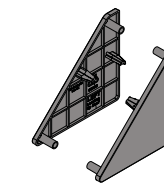
**Ground Zep V2**

Part No. 850-1511  
Listed to UL 467 and UL 2703



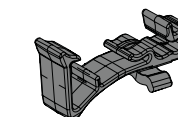
**Captured Washer Lag**

Part No. 850-1631-001  
850-1631-002  
850-1631-003  
850-1631-004



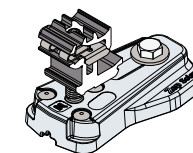
**End Cap**

Part No.  
(L) 850-1586 or 850-1460  
(R) 850-1588 or 850-1467



**DC Wire Clip**

Part No. 850-1509  
Listed to UL 1565



**Leveling Foot**

Part No. 850-1397  
Listed to UL 2703

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