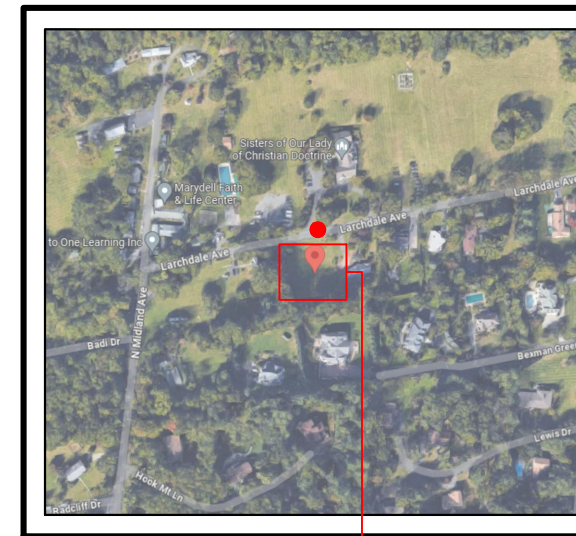


INSTALLATION OF NEW ROOF MOUNTED PV SOLAR SYSTEM

113 LARCHDALE AVENUE NYACK, NY 10960

LARCHDALE AVENUE ●



VICINITY MAP
SCALE: NTS

SITE



Issued / Revisions

NO.	DESCRIPTION	DATE
P1	ISSUED TO TOWNSHIP FOR PERMIT	1/23/2024

Project Title:
JACOBSON, JASON- (ADD ON)
TRINITY ACCT #: 2023-11-969040

Project Address:
**113 LARCHDALE AVENUE
NYACK, NY 10960
41.117226,-73.917921**

Drawing Title:
PROPOSED PV SOLAR SYSTEM

Drawing Information
DRAWING DATE: 1/23/2024
DRAWN BY: KTD
REVISED BY:

System Information:
DC SYSTEM SIZE: 3.24kW
AC SYSTEM SIZE: 3kW
MODULE COUNT: 8
MODULES USED: HANWHA 405
MODULE SPEC #: Q.PEAK DUO BLK ML-G10+ 405
UTILITY COMPANY: ORANGE ROCKLAND
UTILITY ACCT #: 997000140009
UTILITY METER #: 701288409
DEAL TYPE: SUNNOVA

Rev. No.	Sheet
P1	PV - 1



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GENERAL NOTES

1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THE DRAWING PACKAGE AND INFORMATION RECEIVED FROM TRINITY.
2. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTION CONTAINED IN THE COMPLETE MANUAL.
3. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL DRAWINGS, COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION. THE INSTALLATION CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSE BEARING SYSTEM COMPONENTS.
4. ONCE THE PHOTOVOLTAIC MODULES ARE MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE ON SITE.
5. FOR SAFETY, IT IS RECOMMENDED THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED IN FIRST AID AND CPR.
6. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRICAL CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN.
7. ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE "UL" LISTED. ALL EQUIPMENT WILL BE NEMA 3R OUTDOOR RATED UNLESS INDOORS.

GENERAL NOTES CONTINUED

8. THE DC VOLTAGE FROM THE PANELS IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THE PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT.
9. ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 690 & 705.
10. PRIOR TO THE INSTALLATION OF THIS PHOTOVOLTAIC SYSTEM, THE INSTALLATION CONTRACTOR SHALL ATTEND A PRE-INSTALLTION MEETING FOR THE REVIEW OF THE INSTALLATION PROCEDURES, SCHEDULES, SAFETY AND COORDINATION.
11. PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
12. FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTERS REFER TO THE ISOLATION PROCEDURES IN THE OPERATION MANUAL.
13. THE LOCATION OF PROPOSED ELECTRIC AND TELEPHONE UTILITIES ARE SUBJECT TO FINAL APPROVAL OF THE APPROPRIATE UTILITY COMPANIES AND OWNERS.
14. ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH:
 - A) CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS AND REQUIREMENTS

GENERAL NOTES CONTINUED

14. B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
15. THIS SET OF PLANS HAVE BEEN PREPARED FOR THE PURPOSE OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. ONCE APPROVED, THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL SYSTEM COMPONENTS AS DESCRIBED IN THE DRAWING PACKAGE.
16. ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES.

ABBREVIATIONS

AMP AMPERE
AC ALTERNATING CURRENT
AL ALUMINUM
AF AMP. FRAME
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AWG AMERICAN WIRE GAUGE
C CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS SPECIFIED)
CB COMBINER BOX
CKT CIRCUIT
CT CURRENT TRANSFORMER
CU COPPER
DC DIRECT CURRENT
DISC DISCONNECT SWITCH
DWG DRAWING
EC ELECTRICAL SYSTEM INSTALLER
EMT ELECTRICAL METALLIC TUBING
FS FUSIBLE SWITCH
FU FUSE
GND GROUND
GFI GROUND FAULT INTERRUPTER
HZ FREQUENCY (CYCLES PER SECOND)

ABBREVIATIONS CONTINUED

JB JUNCTION BOX
KCMIL THOUSAND CIRCULAR MILS
KVA KILO-VOLT AMPERE
KW KILO-WATT
KWH KILO-WATT HOUR
L LINE
MCB MAIN CIRCUIT BREAKER
MDP MAIN DISTRIBUTION PANEL
MLO MAIN LUG ONLY
MTD MOUNTED
MTG MOUNTING
N NEUTRAL
NEC NATIONAL ELECTRICAL CODE
NIC NOT IN CONTRACT
NO # NUMBER
NTS NOT TO SCALE
OCP OVER CURRENT PROTECTION
P POLE
PB PULL BOX
PH ∅ PHASE
PVC POLY-VINYL CHLORIDE CONDUIT
PWR POWER
QTY QUANTITY
RGS RIGID GALVANIZED STEEL
SN SOLID NEUTRAL
JSWBD SWITCHBOARD
TYP TYPICAL
U.O.I. UNLESS OTHERWISE INDICATED
WP WEATHERPROOF
XFMR TRANSFORMER
+72 MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR GRADE

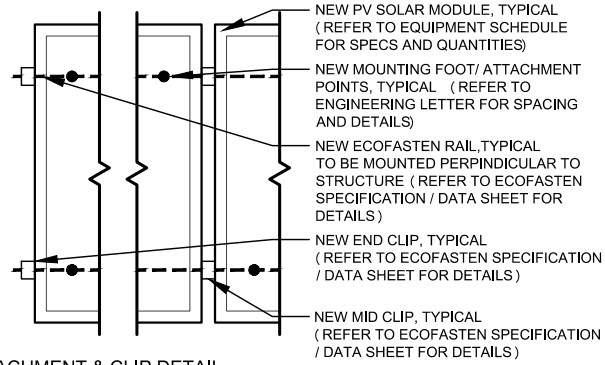
SHEET INDEX

- PV-1 COVER SHEET W/ SITE INFO & NOTES
PV-2 ROOF PLAN W/ MODULE LOCATIONS
PV-3 ELECTRICAL 3 LINE DIAGRAM
AP APPENDIX

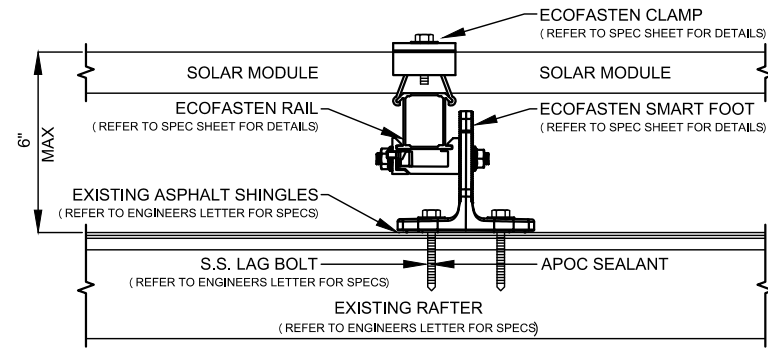
GENERAL NOTES

IF ISSUED DRAWING IS MARKED WITH A REVISION CHARACTER OTHER THAN "A", PLEASE BE ADVISED THAT FINAL EQUIPMENT AND/OR SYSTEM CHARACTERISTICS ARE SUBJECT TO CHANGE DUE TO AVAILABILITY OF EQUIPMENT.

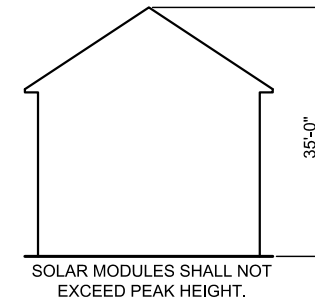
NOTES : *REFER TO MODULE SPECS FOR MODULE DIMENSIONS
 *DEPICTED MODULES MAY BE PORTRAIT OR LANDSCAPE



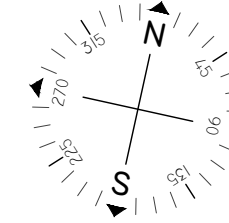
ATTACHMENT & CLIP DETAIL
 SCALE: NOT TO SCALE



PV MODULE ATTACHMENT ON ASPHALT SHINGLE ROOF
 SCALE: NOT TO SCALE



HEIGHT FROM GROUND LEVEL TO PEAK OF ROOF
 SCALE: NOT TO SCALE



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 41.117226,-73.917921

Drawing Title:
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Drawing Information
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 DRAWN BY: KTD
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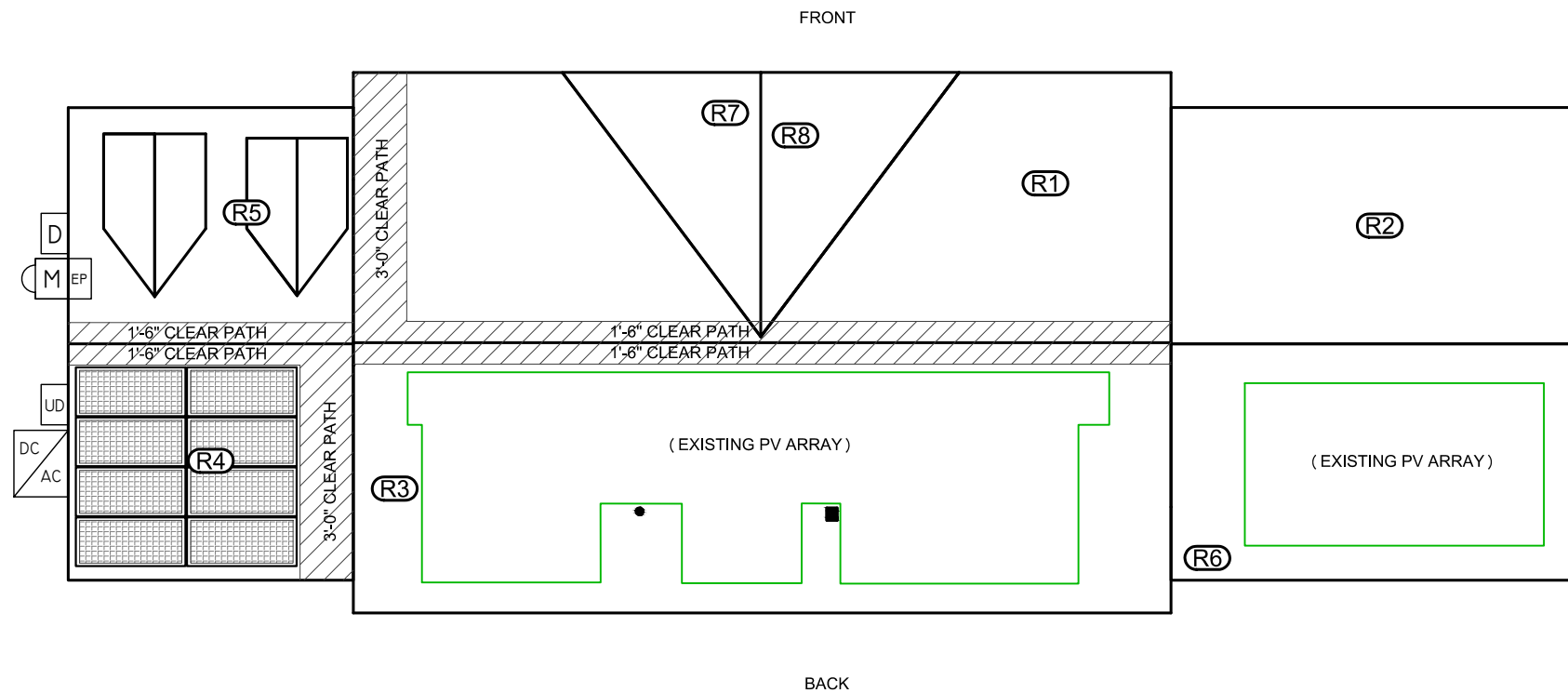
System Information:
 DC SYSTEM SIZE: 3.24kW
 AC SYSTEM SIZE: 3kW
 MODULE COUNT: 8
 MODULES USED: HANWHA 405
 MODULE SPEC #: Q.PEAK DUO BLK ML-G10+ 405
 UTILITY COMPANY: ORANGE ROCKLAND
 UTILITY ACCT #: 997000140009
 UTILITY METER #: 701288409
 DEAL TYPE: SUNNOVA

Rev. No. **P1** Sheet **PV - 2**



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ARRAY SCHEDULE



- ROOF 1
 MODULES: 0
 PITCH: 37°
 ORIENTATION: 348°
- ROOF 2
 MODULES: 0
 PITCH: 37°
 ORIENTATION: 348°
- ROOF 3
 MODULES: 0
 PITCH: 37°
 ORIENTATION: 168°
- ROOF 4
 MODULES: 8
 PITCH: 37°
 ORIENTATION: 168°
- ROOF 5
 MODULES: 0
 PITCH: 37°
 ORIENTATION: 348°
- ROOF 6
 MODULES: 0
 PITCH: 37°
 ORIENTATION: 168°
- ROOF 7
 MODULES: 0
 PITCH: 45°
 ORIENTATION: 258°
- ROOF 8
 MODULES: 0
 PITCH: 45°
 ORIENTATION: 78°

NOTES:

- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ARRAY BONDING TO COMPLY WITH MANUFACTURER SPECIFICATION.
- ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
- AN AC DISCONNECT SHALL BE GROUPED WITH INVERTER (S) NEC 690.13 (E) .
- ALL OUTDOOR EQUIPMENT SHALL BE RAIN TIGHT WITH MINIMUM NEMA 3R RATING.
- ROOFTOP SOLAR INSTALLATION ONLY PV ARRAY SHALL NOT EXTEND BEYOND THE EXISTING ROOF EDGE.
- EQUIPMENT COLORED GREEN IS EXISTING PRIOR TO PROPOSED INSTALLATION.

SYMBOL LEGEND

(R1)	INDICATES ROOF DESIGNATION . REFER TO ARRAY SCHEDULE FOR MORE INFORMATION	(UD)	INDICATES NEW UNFUSED PV DISCONNECT TO BE INSTALLED OUTSIDE (UTILITY ACCESSIBLE)	(SP)	INDICATES NEW PV ONLY SUBPANEL TO BE INSTALLED
(M)	INDICATES EXISTING METER LOCATION	(P)	INDICATES NEW PV SOLAR MODULE. RED MODULES INDICATE PANELS THAT USE MICRO INVERTERS. REFER TO EQUIPMENT SCHEDULE FOR SPECS.	(DC)	INDICATES NEW DC DISCONNECT
(EP)	INDICATES EXISTING ELECTRICAL PANEL LOCATION: IN BASEMENT	(P)	INDICATES NEW PRODUCTION METER TO BE INSTALLED OUTSIDE.	(SD)	INDICATES EXISTING SERVICE DISCONNECT
(D)	INDICATES NEW 0 TO BE INSTALLED OUTSIDE (UTILITY ACCESSIBLE)	(DC/AC)	INDICATES NEW INVERTER TO BE INSTALLED OUTSIDE. REFER TO EQUIPMENT SCHEDULE FOR SPECS	(TS)	INDICATES EXISTING TRANSFER SWITCH

PLUMBING SCHEDULE

OTHER OBSTRUCTIONS

EQUIPMENT SCHEDULE

QTY	SPEC #
8	HANWHA 405 (Q.PEAK DUO BLK ML-G10+ 405)
1	SE3000H-US000BEi4

ARRAY CIRCUIT WIRING NOTES
1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND EXECUTING INSTALLATION IN ACCORDANCE WITH NEC 2017

2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP = -16°C

3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP = 33°C

4.) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES)

5.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(A) THROUGH (D)

6.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER **NEC 690.41 (A)(4)**

7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH:
 POSITIVE CONDUCTORS = RED
 NEGATIVE CONDUCTORS = BLACK
NEC 210.5(C)(2)

8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN ≤ 20 CURRENT CARRYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN ≤ 9 CURRENT CARRYING CONDUCTORS.

9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED

10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS

11.) OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION **NEC 705.31**

12.) WHERE TWO SOURCES FEED A BUSSBAR, ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY **NEC 705.12(B)(2)(3)(b)**

13.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS

14.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS
 REQUIRED CONDUCTOR AMPACITY PER STRING
[NEC 690.8(B)(1)]: $(15.00 * 1.25)1 = 18.75A$

AWG #10, DERATED AMPACITY
 AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96
 RACEWAY DERATING = 2 CCC: 1.00
 $(40 * .96)1.00 = 38.40A$

$38.40A \geq 18.75A$, THEREFORE WIRE SIZE IS VALID

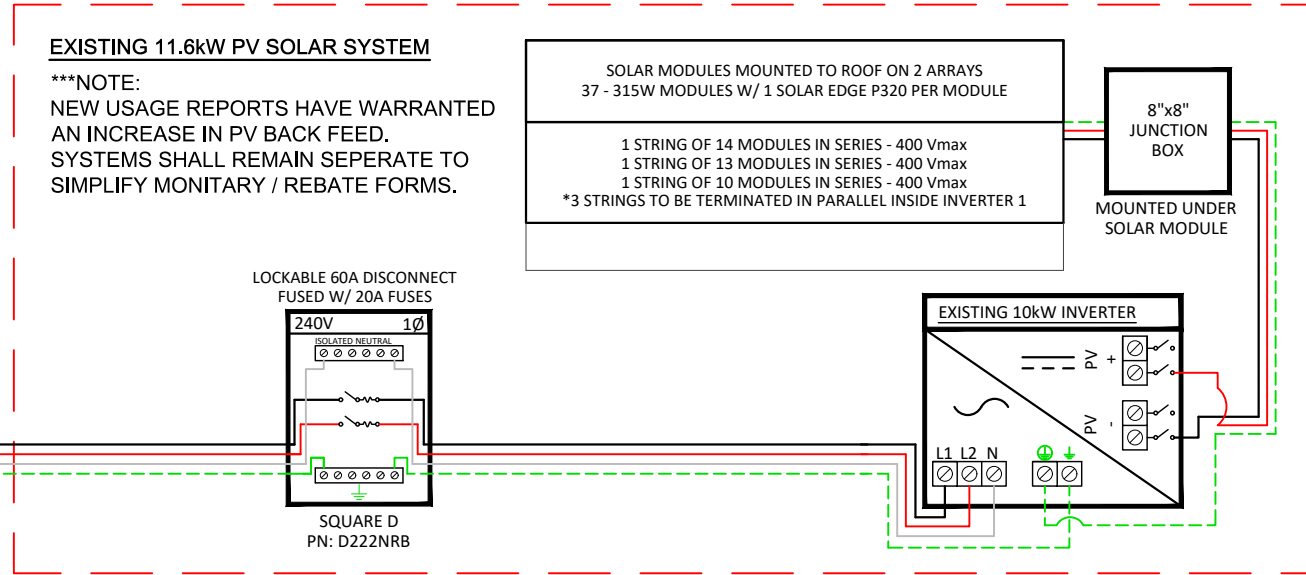
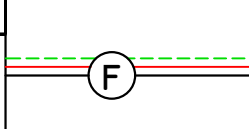
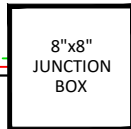
TOTAL AC REQUIRED CONDUCTOR AMPACITY
 $12.50A * 1.25 = 15.63A$

AWG #10, DERATED AMPACITY
 AMBIENT TEMP: 30°C, TEMP DERATING: 1.0
 RACEWAY DERATING ≤ 3 CCC: N/A
 $40A * 1.0 = 40A$

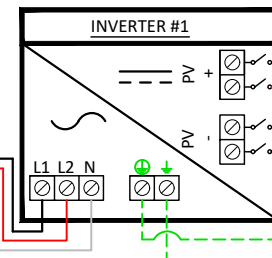
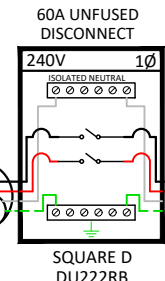
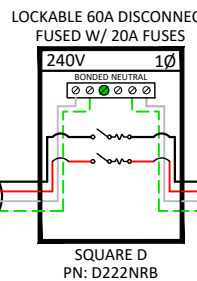
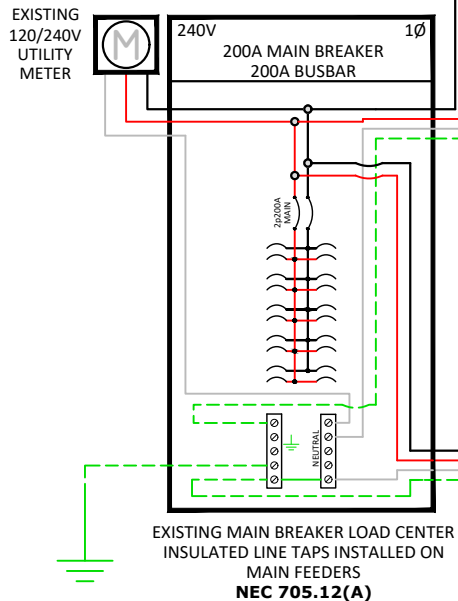
$40A \geq 15.63A$, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION
 TOTAL INVERTER CURRENT: 12.50A
 $12.50A * 1.25 = 15.63A$
 --> 20A OVERCURRENT PROTECTION IS VALID

SOLAR MODULES MOUNTED TO ROOF ON 1 ARRAY 8 - 405W MODULES W/ 1 SOLAR EDGE S440 PER MODULE 15 ADC MAX PER STRING
1 STRING OF 8 MODULES IN SERIES - 380 Vmax *TERMINATED INSIDE INVERTER 1



NOTE:
 INTERNAL REVENUE GRADE MONITORING CONTAINED WITHIN SOLAR EDGE INVERTER SOLAR EDGE PN. RWND-3D-240-MB



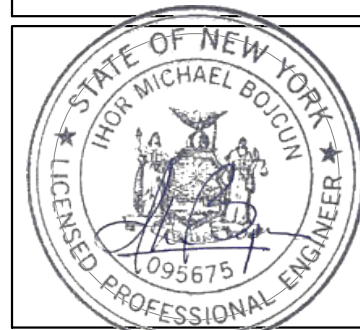
NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

A	#6 THWN-2 TO GEC
B	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
C	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND
D	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND
E	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
F	#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY
G	3/4" CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2

INVERTER #1 - SE3000H-US000BEi4			
DC		AC	
Imp	8.5	Pout	3000
Vmp	380	Imax	12.5
Voc	480	OCPDmin	15.63
Isc	15	Vnom	240

PV MODULE SPECIFICATIONS	
HANWHA 405 (Q.PEAK DUO BLK ML-G10+ 405)	
Imp	10.83
Vmp	37.39
Voc	45.34
Isc	11.17

Engineer / License Holder:



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 UTILITY ACCT #: 997000140009
 UTILITY METER #: 701288409
 DEAL TYPE: SUNNOVA

Rev. No. **P1** Sheet **PV - 3**



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MATERIAL LIST

(FOR INTERNAL USE ONLY)



2211 Allenwood Road
Wall, New Jersey 07719
877-786-7283
www.Trinity-Solar.com

JOB NAME: JACOBSON, JASON- (ADD ON)

ADDRESS: 113 Larchdale Avenue
Nyack, NY 10960
41.117226,-73.917921

22.736 ESTIMATED PERSONNEL HOURS

0.95 DAYS

0.71 DAYS

0.47 DAYS

• 8 HANWHA 405's (3.24KW)

(CREW OF 3)

(CREW OF 4)

(CREW OF 6)

• 1 ARRAY

• 35' PEAK TO GROUND

• 0 PORTRAIT & 8 LANDSCAPED

• 1 INVERTERS INSTALLED OUTSIDE

• NO TRENCH

	<u>ESTIMATED</u>	<u>SENT TO JOB</u>	<u>USED</u>
<input type="checkbox"/> HANWHA 405 (Q.PEAK DUO BLK ML-G10+ 405)	8	—	—
<input type="checkbox"/> S440 SE OPTIMIZERS	8	—	—
<input type="checkbox"/> SE3000H-US000BEi4	1	—	—
<input type="checkbox"/> 60A OUTDOOR FUSED DISCONNECT W/ (2) 20A FUSES	1	—	—
<input type="checkbox"/> SOLADECK BOX(ES) & HAYCO CONNECTOR(S)	1	—	—
<input type="checkbox"/> PV LEAD WIRE	50'	—	—
<input type="checkbox"/> INSULATED BUG BITES (TAPS)	2	—	—
<input type="checkbox"/> ECOFASTEN 2012025 CF STD RAIL MLL AL 171.5	8	—	—
<input type="checkbox"/> ECOFASTEN 2012013 CF RAIL SPLICE	0	—	—
<input type="checkbox"/> ECOFASTEN 2099017 CF END CLAMP 32MM BLK	16	—	—
<input type="checkbox"/> ECOFASTEN 2099022 CF MID CLAMP SHORT BLK	8	—	—
<input type="checkbox"/> ECOFASTEN 4011011 MODULE JUMPER	3	—	—
<input type="checkbox"/> GROUNDING LUG	1	—	—
<input type="checkbox"/> ECOFASTEN 2012028 CF SMART MNT W/CLKR AL MLL	36	—	—
<input type="checkbox"/> ECOFASTEN 3016018 SCREW #14X3 W/BW	72	—	—
<input type="checkbox"/> ECOFASTEN 2012019 CF MLPE MOUNT	8	—	—
<input type="checkbox"/> ECOFASTEN 2012020 CF WIRE MGMT CLIP	8	—	—
<input type="checkbox"/> ECOFASTEN 2012024 CF END CAP	16	—	—



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APPENDIX

CONTENTS
LABELS, STICKERS, AND PLACARDS
EQUIPMENT DATA SHEETS

- NOTES:**
 1.) COMPLIES WITH NEC 2017
 2.) REFER TO SHEET PV-3 FOR SITE SPECIFIC VALUES REQUIRED BY NEC 690
 3.) STICKERS, LABELS, AND PLACKARDS SHALL BE OF SUFFICIENT DURRABILITY TO WITHSTAND THE ENVIROMENT INVOLVED

To be located on all DC junction boxes and every 10' on DC conduit

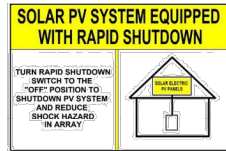
WARNING: PHOTOVOLTAIC POWER SOURCE
 NEC 690.31(G)



DC Junction Box



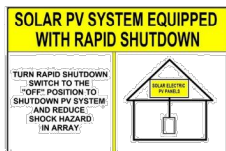
Soladeck



NEC 690.56(C)(1)(A)



Service Disconnect



NEC 690.56(C)(1)(A)



If System is Backfed Breaker
 NEC 705.12(B)(2)

PHOTOVOLTAIC AC DISCONNECT
 NEC 690.54



Main Service Panel



Utility



Utility Meter Socket



NEC 690.13(B)



Solar Meter Socket



690.56(C)(3)



NEC 690.13(B)



NEC 690.54



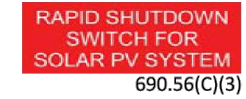
Photovoltaic AC Disconnect



NEC 690.54



Load Center (To Combine Inverters)



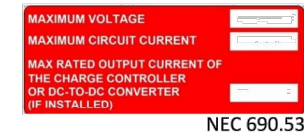
690.56(C)(3)



NEC 690.13(B)



NEC 690.4(B)



NEC 690.53



Inverter(s)



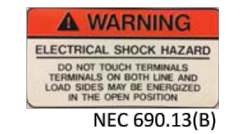
NEC 690.4(B)



NEC 690.53



DC Disconnect



NEC 690.13(B)



Enphase Envoy Box



Q.PEAK DUO BLK ML-G10+ SERIES



385-410 Wp | 132 Cells
20.9% Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+



6 busbar cell technology

12 busbar cell technology



Breaking the 20% efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty¹.



Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology² and Hot-Spot Protect.



Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

¹ See data sheet on rear for further information.

² APT test conditions according to IEC/TS 62804-t2015, method A (-1500 V, 96h)

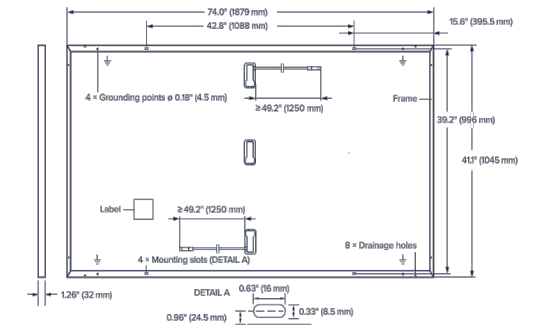
The ideal solution for:



Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

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

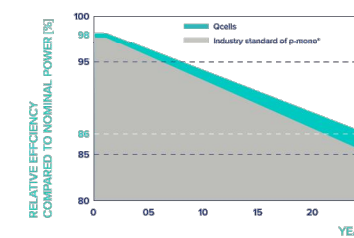


Electrical Characteristics

POWER CLASS		385	390	395	400	405	410	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W/-0 W)								
Minimum	Power at MPP ¹	P _{MPP} [W]	385	390	395	400	405	410
	Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency ¹	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6	≥ 20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²								
Minimum	Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25	35.46	35.68

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 - 2800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

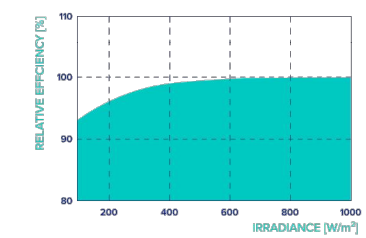


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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

^{*} Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

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]	-0.34	Nominal 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)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull ³	[lbs/ft ²]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push/Pull ³	[lbs/ft ²]	113 (5400 Pa)/84 (4000 Pa)		

³ See Installation Manual

Qualifications and Certificates

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



Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation 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: hq-inquiry@qcells.com | WEB: www.qcells.com



SolarEdge Home Wave Inverter For North America

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



INVERTERS

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 SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014-2023 per articles 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)

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SolarEdge Home Wave Inverter

For North America

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

Applicable to inverters with part number	SEXXXXH-XXXXBXX4					SE11400H-XXXXBXX5	Units
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
OUTPUT							
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	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	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	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380						Vdc
Maximum Input Current @240V ⁽²⁾	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	600k Sensitivity						
Maximum Inverter Efficiency	99.2						%
CEC Weighted Efficiency	99					99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5						W

ADDITIONAL FEATURES	
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), wireless SolarEdge Home Network (optional) ⁽³⁾ , Wi-Fi (optional), Cellular (optional)
Revenue Grade Metering, ANSI C12.20	Optional ⁽⁴⁾
Consumption Metering	
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection
Rapid Shutdown - NEC 2014-2023 per articles 690.11 and 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect

STANDARD COMPLIANCE	
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (H), CSA C22.3 No. 9
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 (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174	21.06 x 14.6 x 7.3 / 535 x 370 x 185	21.06 x 14.6 x 8.2 / 535 x 370 x 208 ⁽⁵⁾
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9
Noise	< 25		< 50
Cooling	Natural Convection		
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁶⁾		
Protection Rating	NEMA 4X (inverter with Safety Switch)		

(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.
 (3) For more information, refer to the [SolarEdge Home Network](#) datasheet
 (4) Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BE4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.
 (5) SE11400H-USxxxxBXX5 is the updated PN, though SE11400H-USxxxxBXX4 will still be available. All specifications are similar for both models, EXCLUDING the weight and dimensions (HxWxD). The weight and dimensions of SE11400H-USxxxxBXX4 are 17.6 [kg] and 21.06-14.6-7.3 / 535-370-185 [in/mm], accordingly.
 (6) Full power up to at least 50°C / 122°F; for power derating information refer to the [Temperature Derating Technical Note for North America](#).
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Power Optimizer For Residential Installations

S440 / S500 / S500B



POWER OPTIMIZER

Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Faster installations with simplified cable management and easy assembly using a single bolt
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Superior efficiency (99.5%)
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

solaredge.com



Power Optimizer For Residential Installations S440 / S500 / S500B

	S440	S500	S500B	UNIT
INPUT				
Rated Input DC Power ⁽¹⁾	440		500	W
Absolute Maximum Input Voltage (Voc)		60	125	Vdc
MPPT Operating Range		8 – 60	12.5 – 105	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		15	Adc
Maximum Efficiency		99.5		%
Weighted Efficiency		98.6		%
Overvoltage Category		II		
OUTPUT DURING OPERATION				
Maximum Output Current		15		Adc
Maximum Output Voltage		60	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)				
Safety Output Voltage per Power Optimizer		1 ± 0.1		Vdc
STANDARD COMPLIANCE⁽²⁾				
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011			
Safety	IEC62109-1 (class II safety), UL1741			
Material	UL94 V-0, UV Resistant			
RoHS	Yes			
Fire Safety	VDE-AR-E 2100-712:2018-12			
INSTALLATION SPECIFICATIONS				
Maximum Allowed System Voltage		1000		Vdc
Dimensions (W x L x H)		129 x 155 x 30	129 x 155 x 45	mm
Weight (including cables)		655		gr
Input Connector		MC4 ⁽³⁾		
Input Wire Length		0.1		m
Output Connector		MC4		
Output Wire Length		(+) 2.3, (-) 0.10		m
Operating Temperature Range ⁽⁴⁾		-40 to +85		°C
Protection Rating		IP68		
Relative Humidity		0 – 100		%

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.

(2) For details about CE compliance, see [Declaration of Conformity – CE](#).

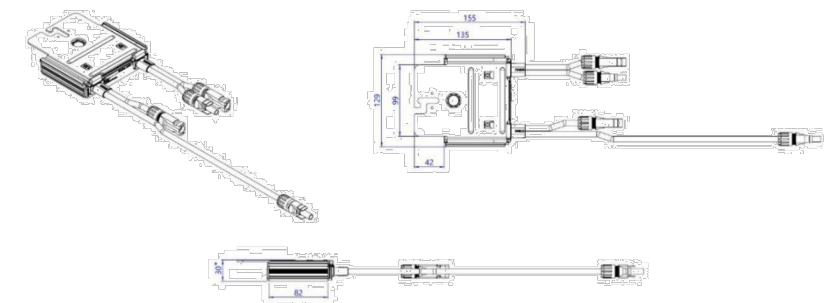
(3) For other connector types please contact SolarEdge.

(4) For ambient temperatures above +70°C power de-rating is applied. Refer to [Power Optimizers Temperature De-Rating Technical Note](#) for details.

PV System Design Using a SolarEdge Inverter ⁽⁵⁾	SolarEdge Home Wave Inverter Single Phase	SolarEdge Home Short String Inverter Three Phase	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500 S500B	8	9	16	18
Maximum String Length (Power Optimizers)		25	20	50	
Maximum Continuous Power per String		5700	5625	11250	12750
Maximum Allowed Connected Power per String (Permitted only when the power difference between strings is less than 2,000W)		See ⁽⁶⁾	See ⁽⁶⁾	13500	15000
Parallel Strings of Different Lengths or Orientations				Yes	

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations.

(6) If the inverter's 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 [Application Note: Single String Design Guidelines](#).




* 45mm for S500B


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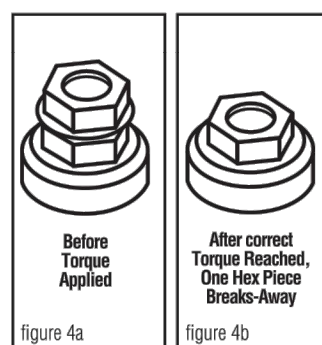
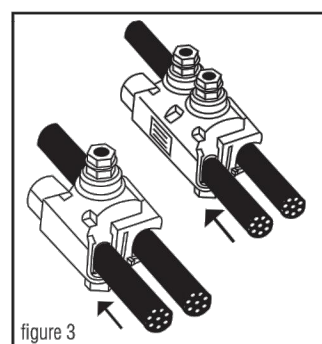
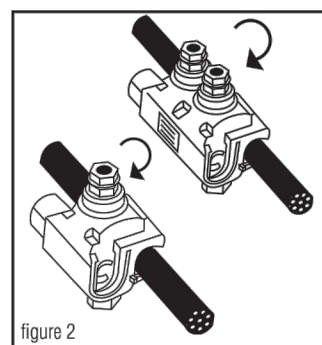
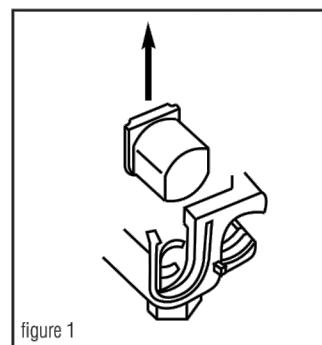
CE RoHS

INSULATION-PIERCING TAP CONNECTORS CONECTORES DE DERIVACIÓN QUE PERFORAN EL AISLAMIENTO

Installation Instructions:

 **Warning**
Improperly installed electrical wiring can be dangerous and cause electrical fires. The connector chosen must be sized to the wires being used. Consult local building code before doing any electrical work. For assistance, refer to an instructional book or consult a qualified electrician.

 **Warning**
Contact with electricity can cause serious injury or death. Use on insulated cable only. [RHH, RHW(-2), THHN, THHW, THW, THWN, USE, XHHW(-2)]. Consult factory for other insulation types. If the installation is to be made on an energized run, the tap conductor must be under no load and must not be grounded. Use electrically insulated gloves. De-energize the run cable if there are any questions of these conditions being met.



- Determine the direction for the tap conductor to exit and discard one end cap. **See figure 1.**
- Position the main (or feeder) side of the connector around the run cable and tighten the bolt finger tight. **See figure 2.** If required, loosen the bolt slightly to allow the connector to open completely. **DISASSEMBLY NOT RECOMMENDED.** The plastic "Turbo" spacer holds the connector open which eases installation and ensures proper connections.
- Cut the end of the tap cable squarely. **DO NOT STRIP CABLE INSULATION.**
- Insert the tap cable into the tap side of the connector until it is seated in the remaining end cap. **See figure 3.**
- Continue tightening the torque regulating bolt with a standard box or socket wrench until the torque regulating piece breaks away. If the connector has two (2) assembly bolts, alternately tighten until the hexagonal torque devices break away. **See figures 4a & 4b.** Note that the plastic "turbo" spacer on the side will also break. To make the installation even easier and to relieve torque from the cables, a second wrench can be used on the hexagonal piece on the bottom of the connector.

DO NOT use gripping type pliers, pipe, open ended or adjustable wrenches as these may damage the hexagonal torque regulating device. A torque wrench is not required.

MAKE SURE ONLY THE TOP HEXAGONAL TORQUE DEVICE OF THE BOLT HEAD IS USED FOR ASSEMBLY. THE SECOND HEX PIECE [CLOSER TO THE BODY OF THE CONNECTOR] IS USED FOR DISASSEMBLY.

Note: The torque regulating bolt ensures the correct torque is applied to the conductors without using a torque wrench. Important information such as run and tap ranges, voltage ratings and material/temperature ratings is marked on the connector.

Instalación Instrucciones:

 **Advertencia**
Los cables eléctricos mal instalados pueden ser peligrosos y provocar incendios. El conector escogido debe ser de un tamaño adecuado para los cables que se utilicen. Consulte los códigos de construcción locales antes de efectuar trabajos eléctricos. Si necesita ayuda, consulte un libro de instrucciones o consulte con un electricista capacitado.

 **Advertencia**
Use sólo en cable aislado. [RHH, RHW(-2), THHN, THHW, THW, THWN, USE, XHHW(-2)]. Consulte con la fábrica para obtener información sobre otros tipos de aislamiento. Si se va a hacer la instalación sobre un cable con corriente el conductor derivado debe estar libre de carga y no debe estar aterado. Use guantes con aislamiento eléctrico. Quite la corriente al cable del cual se hace la derivación si no se pueden cumplir estas condiciones. El contacto con electricidad puede producir lesiones graves o mortales.

- Determine la dirección en la que el conductor derivado saldrá y deseche la tapa terminal sobrante. **Vea la ilustración 1.**
- Coloque el lado principal (o de alimentación) del conector alrededor del cual se hace la derivación y apriete firmemente el dedo del perno. **Vea la ilustración 2.** Si hace falta, afloje el perno ligeramente para permitir que el conector se abra completamente. **NO ES RECOMENDABLE DESARMAR EL CONECTOR.** El espaciador "Turbo" de plástico mantiene al conector abierto, lo cual facilita la instalación y asegura que las conexiones se hagan correctamente.
- Corte el extremo del cable de derivación perpendicularmente a su eje. **NO PELE EL AISLAMIENTO DEL CABLE.**
- Inserte el cable de derivación en el lado de derivación del conector hasta que tope contra la tapa terminal que queda. **Vea la ilustración 3.**
- Continúe apretando este perno que regula la torsión con una llave estándar o de cubo hasta que la pieza que regula la torsión se parta y se separe. Si el conector tiene dos (2) pernos de ensamblaje, apriételes alternativamente hasta que el dispositivo de regulación de torció se parta. **Vea la ilustración 4a y 4b.** Observe que el espaciador "turbo" de plástico en el costado también se fracturará. Para hacer esta instalación aún más fácil y para aliviar la torsión de los cables, se puede usar una segunda llave sobre la pieza hexagonal al fondo del conector.

NO USE alicates de presión, llaves de turbo, llaves comunes o ajustables ya que éstas pueden dañar el dispositivo hexagonal que regula la torsión. No se requiere una llave de torsión.

ASEGÚRESE QUE SE USE, PARA EL ENSAMBLADO, SÓLO EL DISPOSITIVO SUPERIOR DE REGULACIÓN DE TORSIÓN DE LA CABEZA DEL PERNO. LA SEGUNDA PIEZA HEXAGONAL (LA MÁS CERCANA AL CUERPO DEL CONECTOR) SE USA SÓLO PARA DESARMAR EL CONECTOR.

Nota: El perno regulador de torsión garantiza la aplicación de la torsión correcta a los conductores sin usar una llave de torsión. La información importante de longitud de cable pelado y de toma, las clasificaciones de materiales y temperatura está marcada en el conector.

B-TAP[®] INSULATION PIERCING TAP CONNECTORS TORQUE AND CURRENT RATINGS

(Solid and/or Stranded)

CATALOG#	MAIN	TAP	NOMINAL TORQUE	TAP CURRENT RATING (IN AMPS)*
BTC2/0-14	2/0-4	10-14 ⁺	80 IN. LBS.	40
BTC1/0-10	1/0-8	2-10 ⁺⁺	80 IN. LBS.	130
BTC4/0-10	4/0-3	2-10⁺⁺	125 IN. LBS.	130
BTC4/0-6	4/0-2	1/0-6	160 IN. LBS.	170
BTC4/0-2	4/0-2	4/0-2	160 IN. LBS.	260
BTC250-6	250-4	4/0-6	160 IN. LBS.	260
BTC250-4	250-1	3/0-4	160 IN. LBS.	225
BTC250-2	250-1/0	4/0-2	160 IN. LBS.	260
BTC350-1/0	350-1/0	350-1/0	330 IN. LBS.	350
BTC500-4	500-2/0	4/0-4	330 IN. LBS.	260
BTC500-1/0	500-4/0	350-1/0	330 IN. LBS.	350
BTC500-14	750-3/0	10-14 ⁺⁺⁺	80 IN. LBS.	40
BTC750-250	750-250	500-250	330 IN. LBS.	430

+10-14 Cu SOLID/STRANDED; 10-12 Al SOLID/STRANDED
++2-10 Cu SOLID/STRANDED; 2-10 Al STRANDED
+++2-10 Cu SOLID/STRANDED; 2-8 Al STRANDED
++++10-14 Cu SOLID/STRANDED; 10-12 Al STRANDED

Full line is 600V dual-rated, 194°F(90°C)

* Based on NEC Table 310-16 1996 (Not more than 3 insulated conductors in a raceway at ambient temperature of 30° C) for the largest tap wire size.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

 **ADVERTENCIA:** Cáncer y Daño Reproductivo - www.P65Warnings.ca.gov.

One year limited warranty. See idealind.com for more information.

Garantía limitada de un año. Visite www.idealind.com para obtener detalles de la garantía.

RATINGS

Fire Rating	Class A* and B** System Fire Rating
Max System Voltage	1500 VDC
Max Fuse Rating	40A
Certification	Conforms to UL STD 2703 and SUBJECT 2703A
Warranty	25 Year Material and Workmanship
UL 2703 Markings	Product listing label is located on the End Clamp
Roof Pitch	1/2:12 – 21:12
UL 2703 Allowable Design Load Rating	10 psf downward, 5 psf upward, and 5 psf lateral
Max Module Size	25.6 sqft
Module Orientation	Portrait or Landscape
Multiple use Rated Components (Position Independent)	Mid Clamp, Frame MLPE Mount and MLPE Mount
Conforms to UL SUBJECT 2703A	Smart Foot on Steep Slope Asphalt Shingle Roof

*Class A System fire rating with Steep and Low Slope roofs and Type 1, 2, and 29 PV modules with no skirt required. Class A System fire rating with Steep Slope Roofs and Type 4 and 5 modules with south edge skirt required. Any roof-to-module gap is permitted. This rating is applicable with any roof attachment.
 **Class B System fire rating with Steep Slope roofs and Type 4 and 5 modules, no skirt required. Any roof-to-module gap is permitted. This rating is applicable with any roof attachment.

UL 2703 MARKING EXAMPLE:



5017913
CONFORMS TO UL STD 2703



MARKINGS LOCATED ON END CLAMP

TORQUE SPECIFICATIONS

Component	Torque (in-lb)	Notes
Lag Screw	N/A	Fully Seat. Use visual indicator of the black EPDM ring around the bonded washer for torquing.
Mid-Clamp	144	
End-Clamp	96	
Rail Clicker Leveling Bolt	144	Pre-torqued upon delivery. Applies to Tile Hook and L-Footer/Clicker
Hook Height Bolt	N/A	Lightly clamp hook to flush with top of next tile row
Ground Lug	N/A	Refer to specific ground lug manufacturer's installation manual
MLPE Clip	144	
MLPE Mount	144	

CLICKFIT

CLICKFIT SMART FOOT

Introducing our fast installing Smart Foot! Created for use with our rail-based ClickFit System, the mount easily attaches onto composition shingle roofs. Fabricated from cast aluminum, the ClickFit Smart Foot features our proprietary UltraGrip Technology™. A layer of foam cushioning helps to embed the waterproofing sealant deep into the granules of the shingle and flexibly conforms over the steps found on architectural-style shingles. Simply peel the backing off the release liner from the underside of the UltraGrip pad and place the mount on the shingles. The mount comes packaged with the ClickFit “Clicker”. Screws are sold separately.

Features & Benefits

- Integrated flashing utilizes UltraGrip Technology™ to create a watertight seal
- Multiple opportunities to find the rafter
- Eliminate the need to drill pilot holes
- No sealant required for most installations
- No need to add adhesive shims for shingle leveling
- Built-in alignment guide for fast “Clicker” leveling

ALIGNMENT GUIDE



CLICKFIT SMART FOOT & CLICKER

Required Components:

Part Number:	Description:
2012028	CF SMART MNT W/CLKR AL MLL
3016018	SCREW #14X3 W/BW

