



Freedom Forever  
Planset Revision Letter

9/13/2023  
REV #2

Attn. Columbia County (FL):

The changes outlined in Revision Details have been applied to the plans corresponding to the following customer:

PEG HICKEY ADD-ON  
327 NW CARR CT , LAKE CITY, FL 32055

**Revision Details:**

Adjusted tie in to line side tap in automatic transfer switch

All corresponding changes are notated on the plans by revision clouds.

Thank you for your time in reviewing these plans. Please reach out if you have any additional questions or concerns.

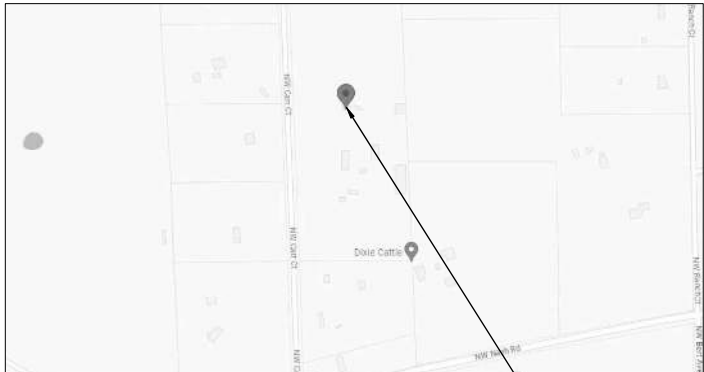
Construction Engineering  
Freedom Forever  
[engineering@freedomforever.com](mailto:engineering@freedomforever.com)

# ROOF MOUNT PHOTOVOLTAIC SYSTEM

## CODES:

THIS PROJECT COMPLIES WITH THE FOLLOWING:  
2020 7TH EDITION FLORIDA BUILDING CODE: BUILDING  
2020 7TH EDITION FLORIDA BUILDING CODE: RESIDENTIAL  
2020 7TH EDITION FLORIDA BUILDING CODE: MECHANICAL  
2020 7TH EDITION FLORIDA BUILDING CODE: PLUMBING  
2020 7TH EDITION FLORIDA BUILDING CODE: FUEL GAS  
2020 7TH EDITION FLORIDA BUILDING CODE: ENERGY CONSERVATION  
2020 7TH EDITION FLORIDA BUILDING CODE: EXISTING BUILDING  
2020 7TH EDITION FLORIDA BUILDING CODE: ACCESSIBILITY  
2020 7TH EDITION FLORIDA FIRE PREVENTION CODE  
2017 NATIONAL ELECTRIC CODE  
AS ADOPTED BY COLUMBIA COUNTY (FL)

## VICINITY MAP:



SITE LOCATION

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|          |                                   |
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|          |                                   |

## CONSTRUCTION NOTES:

CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

ALL SOLAR ENERGY SYSTEM EQUIPMENT SHALL BE SCREENED TO THE MAXIMUM EXTENT POSSIBLE AND SHALL BE PAINTED A COLOR SIMILAR TO THE SURFACE UPON WHICH THEY ARE MOUNTED.

MODULES SHALL BE TESTED , LISTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 2703. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER SECTION R314 AND 315 TO BE VERIFIED AND INSPECTED BY INSPECTOR IN THE FIELD.

DIG ALERT (811) TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY PRIOR TO ANY EXCAVATION TAKING PLACE

PHOTOVOLTAIC SYSTEM GROUND WILL BE TIED INTO EXISTING GROUND AT MAIN SERVICE FROM DC DISCONNECT/INVERTER AS PER 2017 NEC SEC 250.166(A).

SOLAR PHOTOVOLTAIC SYSTEM EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF ART. 690 OF THE 2017 NEC

THE MAIN SERVICE PANEL WILL BE EQUIPPED WITH A GROUND ROD OR UFER

UTILITY COMPANY WILL BE NOTIFIED PRIOR TO ACTIVATION OF THE SOLAR PV SYSTEM

SOLAREEDGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS

INSTALL CREW TO VERIFY ROOF STRUCTURE PRIOR TO COMMENCING WORK. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNT.

THIS SYSTEM DESIGNED WITH:  
WIND SPEED: 120  
WIND EXPOSURE: C



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Digitally signed  
by David  
Hoehman  
Date:  
2023.09.14  
12:14:32 -04'00'

CLIENT:  
PEG HICKEY ADD-ON  
327 NW CARR CT. LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
UTILITY: FPL - FLORIDA POWER & LIGHT  
METER: ACD8733  
PHONE: (386) 867-0620  
EMAIL: BIGDOGMOM1@GMAIL.COM  
FINANCE: OTHER

SYSTEM:  
SYSTEM SIZE (DC): 47 X 360 = 17,860 KW  
SYSTEM SIZE (AC): 13,800 KW @ 240V  
MODULES: 47 X JINKO SOLAR:  
JKM380M-6RL3-B  
OPTIMIZERS: 47 X SOLAREEDGE S440  
INVERTER 1: SOLAREEDGE SE10000HJUSRGM [SI1]  
INVERTER 2: SOLAREEDGE SE3800HJUSRGM [SI1]

| REVISIONS |            |           |
|-----------|------------|-----------|
| NO.       | REVISED BY | DATE      |
| 1         | A.M.       | 8/21/2023 |
| 2         | T.L.       | 9/13/2023 |
| -         | -          | -         |

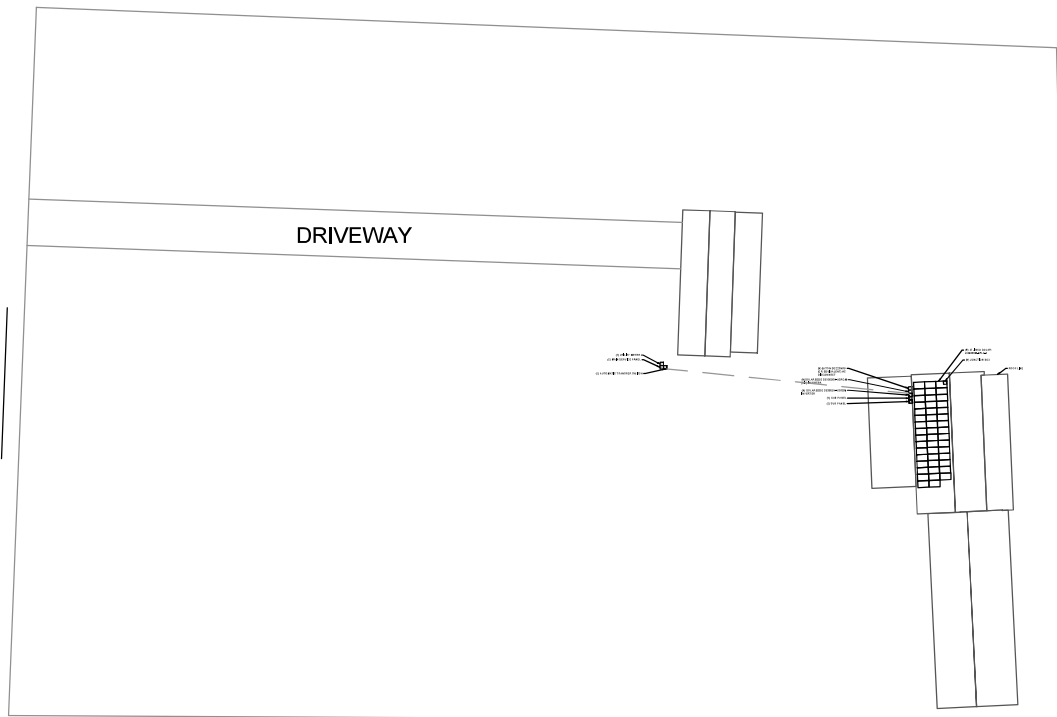
FREEDOM FOREVER LLC  
2619 CONSULATE DR SUITE 800, ORLANDO, FL 32819  
Tel: (800) 385-1075  
GREG ALBRIGHT  
  
CONTRACTOR LICENSE:  
CERTIFIED ELECTRICAL CONTRACTOR  
EC13008056

| SITE LOCATION |           |              |        |
|---------------|-----------|--------------|--------|
| JOB NO:       | DATE:     | DESIGNED BY: | SHEET: |
| 350453        | 9/13/2023 | T.L.         | PV-1   |

# LEGEND:

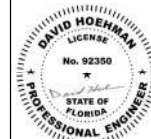
-  CHIMNEY
-  PIPE VENT
-  MODULES
-  CONDUIT
-  SETBACK
-  AC DISCONNECT
-  JUNCTION BOX
-  SUBPANEL
-  ISOLATED LOAD PANEL
-  MAIN SERVICE PANEL

NW CARR CT



SITE PLAN  
SCALE: 1/64" = 1'-0"

1



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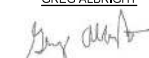
Digitally signed by David Hoehman  
Date: 2023.09.14 12:14:59 -04'00'

ROOF AREA: 9445.04 SQ. FT.

CLIENT:  
PEG HICKEY ADD-ON  
327 NW CARR CT, LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
UTILITY: FPL - FLORIDA POWER & LIGHT  
METER: ACD8733  
PHONE: (386) 867-0620  
EMAIL: BIGDOGMOM1@GMAIL.COM  
FINANCE: OTHER

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SYSTEM SIZE (DC): 47 X 380 = 17,860 KW  
SYSTEM SIZE (AC): 13,800 KW @ 240V  
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JKM380M-6RL3-B  
OPTIMIZERS: 47 X SOLAREDGE S440  
INVERTER 1: SOLAREDGE SE10000H-USRGM (S1)  
INVERTER 2: SOLAREDGE SE3800H-USRGM (S1)

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CONTRACTOR LICENSE:  
CERTIFIED ELECTRICAL CONTRACTOR  
EC13008056

| SITE PLAN |           |              |        |
|-----------|-----------|--------------|--------|
| JOB NO:   | DATE:     | DESIGNED BY: | SHEET: |
| 350453    | 9/13/2023 | T.L.         | PV-2   |

LEGEND:

 CHIMNEY

 PIPE VENT

 MODULES

 CONDUIT

 SETBACK

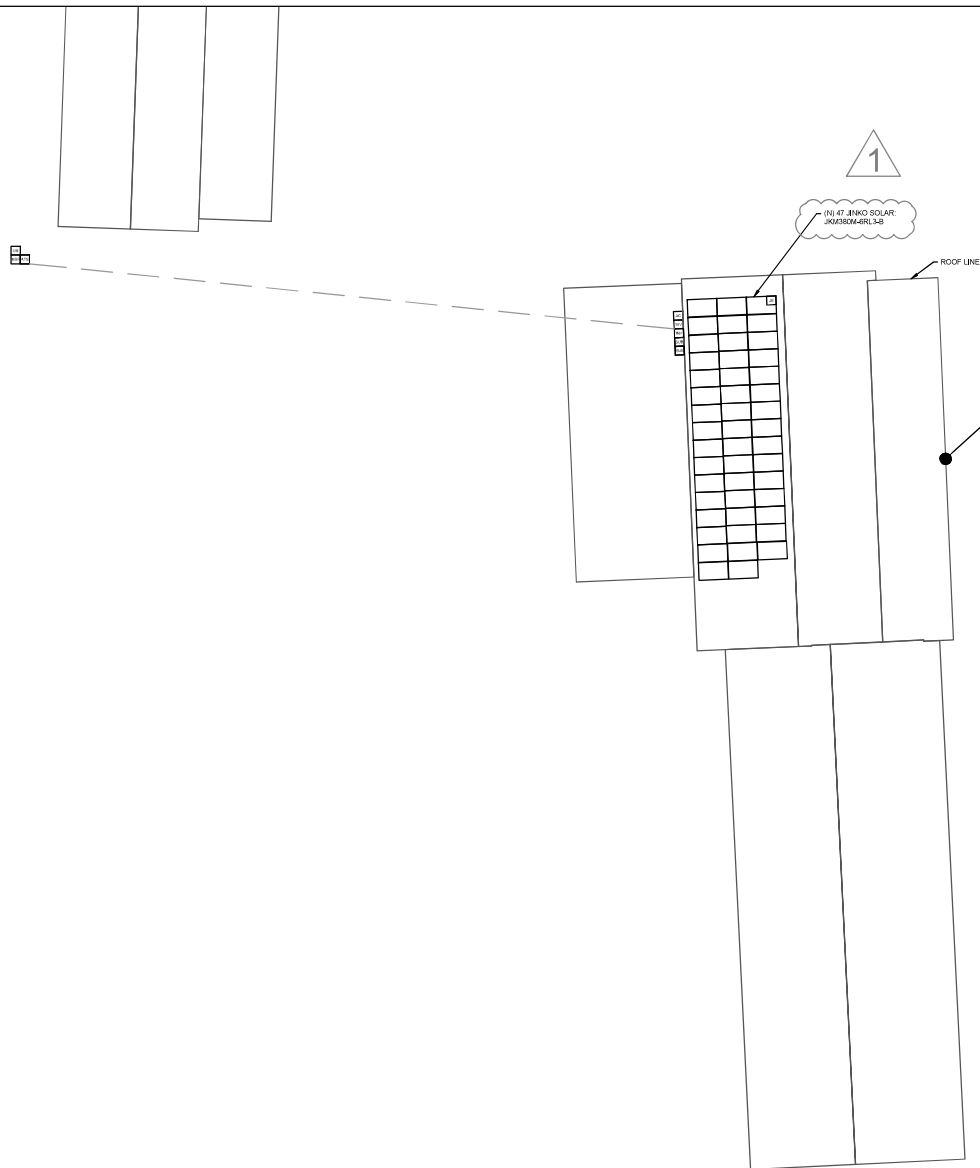
 AC DISCONNECT

 JUNCTION BOX

 SUBPANEL

 ISOLATED LOAD PANEL

 MAIN SERVICE PANEL



TOTAL ROOF AREA: 9445.04 SQ FT  
TOTAL ARRAY AREA: 965.67 SQ FT  
ARRAY COVERAGE: 10.22%  
SYSTEM DISTRIBUTED WEIGHT: 2.31 LBS  
S-5: SOLARFOOT POINT-LOAD: 12.66 LBS



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Roof Area: 9445.04 SQ FT

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| -         | -          | -         |



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Tel: (800) 385-1075

GREG ALBRIGHT



CONTRACTOR LICENSE:  
CERTIFIED ELECTRICAL CONTRACTOR  
EC13008056

| ROOF PLAN WITH MODULES LAYOUT |           |              |        |
|-------------------------------|-----------|--------------|--------|
| JOB NO:                       | DATE:     | DESIGNED BY: | SHEET: |
| 350453                        | 9/13/2023 | T.L.         | PV-2A  |

ROOF PLAN  
SCALE: 1/24" = 1'-0"

1

NOTES:

- EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNTS
- ATTACHED CLAMPS AT 25% FROM THE EDGE AND 50% FROM THE CENTER OF THE MODULES
- JUNCTION BOX IS MOUNTED TO THE RAIL.

ROOF DETAILS:

TOTAL ROOF AREA: 9445.04 SQ FT  
TOTAL ARRAY AREA: 965.67 SQFT  
ARRAY COVERAGE: 10.22%  
SYSTEM DISTRIBUTED WEIGHT: 2.31 LBS  
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| ROOF AREA STATEMENT |                 |            |             |         |               |              |
|---------------------|-----------------|------------|-------------|---------|---------------|--------------|
| ROOF                | MODULE QUANTITY | ROOF PITCH | ARRAY PITCH | AZIMUTH | ROOF AREA     | ARRAY AREA   |
| ROOF 1              | 47              | 21         | 21          | 268     | 1508.93 SQ FT | 965.67 SQ FT |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |
| ----                | ----            | ----       | ----        | ----    | SQ FT         | SQ FT        |

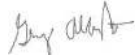
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CONTRACTOR LICENSE:  
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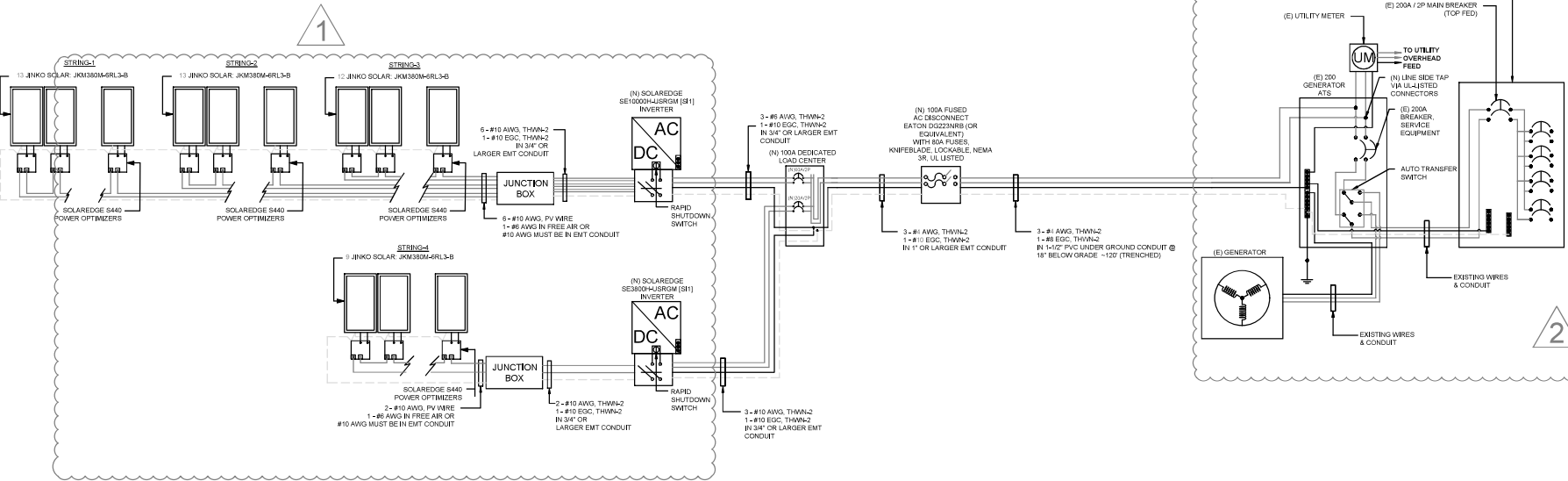
| ROOF DETAILS      |                    |                      |                 |
|-------------------|--------------------|----------------------|-----------------|
| JOB NO:<br>350453 | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-2B |



|                                      |   |      |   |        |                |
|--------------------------------------|---|------|---|--------|----------------|
| BACKFEED FUSE SIZING                 |   |      |   |        |                |
| MAX. CONTINUOUS OUTPUT 58.00A @ 240V |   |      |   |        |                |
| 58.00                                | X | 1.25 | = | 73AMPS | 80A FUSES - OK |



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Hoehman  
Date:  
2023.09.14  
12:15:13 -04'00'



CLIENT:  
PEG HICKEY ADD-ON  
327 NW CARR CT, LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
UTILITY: FPL - FLORIDA POWER & LIGHT  
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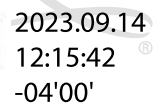
NOTE:  
CONDUIT AND CONDUCTORS SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS

| THREE LINE DIAGRAM |                    |                      |                |
|--------------------|--------------------|----------------------|----------------|
| JOB NO:<br>350453  | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-4 |



CONDUCTOR AMPACITY CALCULATIONS IN ACCORDANCE WITH NEC 690.8.

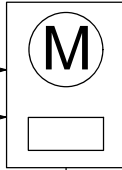
| CONDUCTOR CALCULATIONS |                    |                      |                |
|------------------------|--------------------|----------------------|----------------|
| JOB NO:<br>350453      | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-5 |

[illegible][illegible][illegible]

| EQUIPMENT & SERVICE LIST |                    |                      |                |
|--------------------------|--------------------|----------------------|----------------|
| JOB NO:<br>350453        | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-6 |

**WARNING:**  
POWER SOURCE OUTPUT  
CONNECTION  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE.

705.12(B)(2)(3)(b)

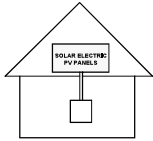


**"WARNING"**  
DUAL POWER SOURCES  
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM  
RATED AC OUTPUT CURRENT - 58.00 AMPS  
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.54

**SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN**

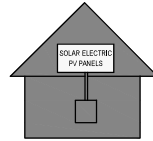
**TURN RAPID  
SHUTDOWN SWITCH TO  
THE "OFF" POSITION TO  
SHUT DOWN PV SYSTEM  
AND REDUCE SHOCK  
HAZARD IN THE ARRAY**



690.56(C)(1)(A)

**EMERGENCY RESPONDER  
THIS SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN**

**TURN RAPID SHUTDOWN  
SWITCH TO THE "OFF"  
POSITION TO SHUT DOWN  
ENTIRE PV SYSTEM**



NFPA 11.12.2.1.1.1.1

**PV SYSTEM AC DISCONNECT  
RATED AC OUTPUT CURRENT - 58.00 AMPS  
AC NORMAL OPERATING VOLTAGE - 240 VOLTS**

690.15, 690.54

AC

**RAPID SHUTDOWN SWITCH FOR  
SOLAR PV SYSTEM**

690.56(C)(3)

**INVERTER**

If you have any questions about your system, please call  
our Customer Support Team at

**888.557.6431**

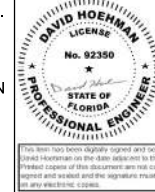
or visit [freedomforever.com/customer-service](http://freedomforever.com/customer-service)



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## NOTES:

1. NEC ARTICLES 690 AND 705 AND IRC SECTION R324 MARKINGS SHOWN HEREON.
2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
  - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
  - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
  - C. ARIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
4. SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS



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by David  
Hoehman  
Date:  
2023.09.14  
12:15:57 -04'00'

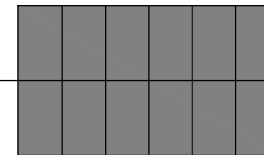
**"WARNING"**  
ELECTRICAL SHOCK HAZARD.  
TERMINALS ON BOTH LINE AND LOAD SIDES  
MAY BE ENERGIZED IN THE OPEN POSITION.

690.13 (B)

**PV SYSTEM DC DISCONNECT  
MAXIMUM VOLTAGE: 480V  
MAXIMUM CIRCUIT CURRENT: 27A  
MAX RATED OUTPUT CURRENT OF  
THE CONTROLLER OR DC-TO-DC  
CONVERTER: 15A**

690.53

**ARRAY**



NEC 690.31(G)(3) & (4)

**"WARNING"**  
PHOTOVOLTAIC POWER SOURCE

EVERY 10' ON CONDUIT AND ENCLOSURES

**CLIENT:**  
PEG HICKEY ADD-ON  
327 NW CARR CT, LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
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METER: ACD8733  
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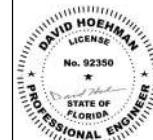
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INVERTER 2: SOLAREEDGE SE3800H-JSRGM [SI]

| NO. | REVISIONS  |  | DATE      |
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| 1   | A.M.       |  | 8/21/2023 |
| 2   | T.L.       |  | 9/13/2023 |
| -   | -          |  | -         |

**freedom**  
FOREVER  
FREEDOM FOREVER LLC  
2619 CONSULATE DR SUITE 800, ORLANDO,  
FL 32819  
Tel: (800) 385-1075  
GREG ALBRIGHT

*Greg Albright*  
CONTRACTOR LICENSE:  
CERTIFIED ELECTRICAL CONTRACTOR  
EC13008056

| LABELS            |                    |                      |                |
|-------------------|--------------------|----------------------|----------------|
| JOB NO:<br>350453 | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-7 |



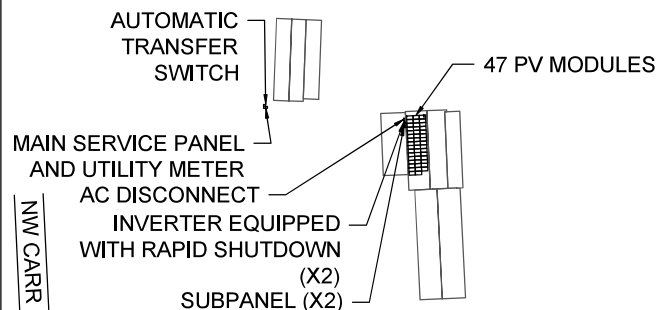
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signed by  
David  
Hoehman  
Date:

2023.09.14  
12:16:11 -04'00'

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# CAUTION:

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



**WARNING**

TURN OFF PHOTOVOLTAIC AC DISCONNECT  
PRIOR TO WORKING INSIDE PANEL

2

CLIENT:  
PEG HICKEY ADD-ON  
327 NW CARR CT, LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
UTILITY: FPL - FLORIDA POWER & LIGHT  
METER: ACD8733  
PHONE: (386) 867-0620  
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SYSTEM SIZE (AC): 13,800 KW @ 240V  
MODULES: 47 X JINKO SOLAR:  
JKM380M-6RL3-B  
OPTIMIZERS: 47 X SOLAREEDGE S440  
INVERTER 1: SOLAREEDGE SE10000H-USRGM  
[SI1]  
INVERTER 2: SOLAREEDGE SE3800H-USRGM  
[SI1]

| NO. | REVISIONS  |  | DATE      |
|-----|------------|--|-----------|
|     | REVISED BY |  |           |
| 1   | A.M.       |  | 8/21/2023 |
| 2   | T.L.       |  | 9/13/2023 |
| -   | -          |  | -         |

FREEDOM FOREVER LLC  
2619 CONSULATE DR SUITE 800, ORLANDO,  
FL 32819  
Tel: (800) 385-1075  
GREG ALBRIGHT  
  
CONTRACTOR LICENSE:  
CERTIFIED ELECTRICAL CONTRACTOR  
EC13008056

| SITE PLACARD      |                    |                      |                 |
|-------------------|--------------------|----------------------|-----------------|
| JOB NO:<br>350453 | DATE:<br>9/13/2023 | DESIGNED BY:<br>T.L. | SHEET:<br>PV-7A |

## NOTES:

1. NEC ARTICLES 690 AND 705 AND IRC SECTION R324 MARKINGS SHOWN HEREON.
2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
  - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
  - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
  - C. AERIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
4. SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS.

1-15

16-30

31-45

46-60

## SOLAREEDGE OPTIMIZER CHART

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4

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11

12

13

14

15

AC  
INV  
INV  
SUB  
SUB

JB



CLIENT:  
PEG HICKEY ADD-ON  
327 NW CARR CT, LAKE CITY, FL 32055  
AHJ: COLUMBIA COUNTY (FL)  
UTILITY: FPL - FLORIDA POWER & LIGHT  
METER: ACD8733  
PHONE: (386) 867-0620  
EMAIL: BIGDOGMOM1@GMAIL.COM  
FINANCE: OTHER

SYSTEM:  
SYSTEM SIZE (DC): 47 X 380 = 17,860 KW  
SYSTEM SIZE (AC): 13,800 KW @ 240V  
MODULES: 47 X JINKO SOLAR:  
JKM380M-6RL3-B  
OPTIMIZERS: 47 X SOLAREEDGE S440  
INVERTER 1: SOLAREEDGE SE10000HJUSRGM  
[SI1]  
INVERTER 2: SOLAREEDGE SE3800HJUSRGM  
[SI1]

| REVISIONS |            |           |
|-----------|------------|-----------|
| NO.       | REVISED BY | DATE      |
| 1         | AJM        | 8/21/2023 |
| 2         | T.L.       | 9/13/2023 |
| -         | -          | -         |



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## OPTIMIZER CHART

| JOB NO: | DATE:     | DESIGNED BY: | SHEET: |
|---------|-----------|--------------|--------|
| 350453  | 9/13/2023 | T.L.         | PV-8   |





FOR INSTALLATION REFERENCE ONLY

SCAN QR CODE TO ACCESS REFERENCE LINK

FREEDOM REFERENCES



INSTALL HOTLINE

PV INSTALLATION REFERENCES



ENPHASE IQ8



SOLAREEDGE HD WAVE



TESLA INVERTER

BATTERY INSTALLATION REFERENCES



TESLA POWERWALL 2



SHIFT/SELF CONSUMPTION



SOLAREEDGE ENERGY BANK



SOLAREEDGE LG RESU (BACKUP)



TESLA POWERWALL+ (BACKUP)



## EAGLE 66TR G4

### 380-400 WATT TILING RIBBON MODULE

Positive power tolerance of 0~+3%

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Top performance in the strictest 3<sup>rd</sup> party labs
- Premium solar factories in USA, Vietnam, and Malaysia

## KEY FEATURES



### TR Technology

Tiling Ribbon eliminates cell gaps to increase module efficiency and power.



### 9BB Half Cell Technology

Uniquely designed 9 busbar half cut solar cells deliver ultra-high power in a small footprint.



### Shade Tolerant

Twin array design allows continued performance even with shading by trees or debris.



### Thick and Tough

Fire Type 1 rated module engineered with a thick frame, 3.2mm front side glass, and thick backsheet for added durability.

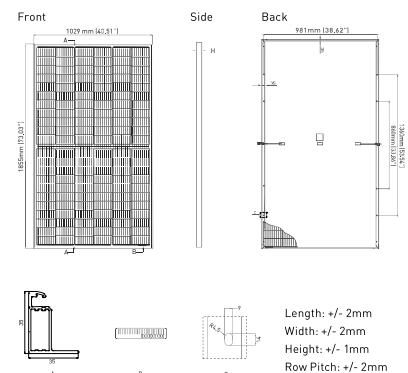


### Leading Warranty

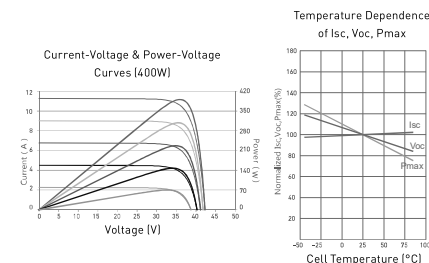
25-year product and 25-year linear power warranty; 98% guaranteed first year, max 0.55% annual loss.



## ENGINEERING DRAWINGS



## ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE



## MECHANICAL CHARACTERISTICS

|                 |                                                                               |
|-----------------|-------------------------------------------------------------------------------|
| No. of Cells    | 132 (2x66)                                                                    |
| Dimensions      | 1855x1029x35mm (73.03x40.51x1.37 in)                                          |
| Weight          | 21.5 kg (47.40 lbs)                                                           |
| Front Glass     | 3.2mm, Anti-Reflection Coating<br>High Transmission, Low Iron, Tempered Glass |
| Frame           | Anodized Aluminum Alloy                                                       |
| Junction Box    | IP67 Rated                                                                    |
| Output Cables   | 12 AWG, 2053mm [80.83in] or Customized Length                                 |
| Connector       | Staubli MC4                                                                   |
| Fire Type       | Type 1                                                                        |
| Pressure Rating | 5400Pa (Snow) & 2400Pa (Wind)                                                 |

## TEMPERATURE CHARACTERISTICS

|                                           |           |
|-------------------------------------------|-----------|
| Temperature Coefficients of Pmax          | -0.35%/°C |
| Temperature Coefficients of Voc           | -0.28%/°C |
| Temperature Coefficients of Isc           | 0.048%/°C |
| Nominal Operating Cell Temperature [NOCT] | 45 ± 2°C  |

## MAXIMUM RATINGS

|                            |             |
|----------------------------|-------------|
| Operating Temperature [°C] | -40°C~+85°C |
| Maximum System Voltage     | 1000VDC     |
| Maximum Series Fuse Rating | 20A         |

## PACKAGING CONFIGURATION

2 pallets = 1 stack; 30pcs/pallets, 60pcs/stack, 720pcs/ 40'HQ Container

- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- IEC61215, IEC61730 certified products
- UL61730 Certification
- ISO45001:2018 Occupational Health & Safety Standards



## ELECTRICAL CHARACTERISTICS

| Module Type                 | JKM380M-6RL3-B |        | JKM385M-6RL3-B |        | JKM390M-6RL3-B |        | JKM395M-6RL3-B |        | JKM400M-6RL3-B |        |
|-----------------------------|----------------|--------|----------------|--------|----------------|--------|----------------|--------|----------------|--------|
|                             | STC            | NOCT   | STC            | NOCT   | STC            | NOCT   | STC            | NOCT   | STC            | NOCT   |
| Maximum Power [Pmax]        | 380Wp          | 283Wp  | 385Wp          | 286Wp  | 390Wp          | 290Wp  | 395Wp          | 294Wp  | 400Wp          | 298Wp  |
| Maximum Power Voltage [Vmp] | 36.90V         | 33.70V | 37.02V         | 33.90V | 37.15V         | 34.02V | 37.27V         | 34.13V | 37.39V         | 34.25V |
| Maximum Power Current [Imp] | 10.30A         | 8.39A  | 10.40A         | 8.45A  | 10.50A         | 8.53A  | 10.60A         | 8.61A  | 10.70A         | 8.69A  |
| Open-circuit Voltage [Voc]  | 44.22V         | 41.74V | 44.34V         | 41.85V | 44.47V         | 41.97V | 44.59V         | 42.09V | 44.71V         | 42.20V |
| Short-circuit Current [Isc] | 11.12A         | 8.98A  | 11.22A         | 9.06A  | 11.32A         | 9.14A  | 11.42A         | 9.22A  | 11.52A         | 9.30A  |
| Module Efficiency STC [%]   | 19.91%         |        | 20.17%         |        | 20.43%         |        | 20.69%         |        | 20.96%         |        |

\*STC: ☀ Irradiance 1000W/m<sup>2</sup>

NOCT: ☀ Irradiance 800W/m<sup>2</sup>

🌡 Cell Temperature 25°C

🌡 Ambient Temperature 20°C

☁ AM = 1.5

☁ AM = 1.5

🌀 Wind Speed 1m/s

\*Power measurement tolerance: +/- 3%

The company reserves the final right for explanation on any of the information presented hereby. JKM380-400M-6RL3-B-A2-US

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# Power Optimizer

## For North America

S440, S500



POWER OPTIMIZER

### PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detected abnormal PV connector behavior, preventing potential safety issues<sup>1</sup>
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

<sup>1</sup> Exposed to availability in 2022

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## / Power Optimizer

### For North America

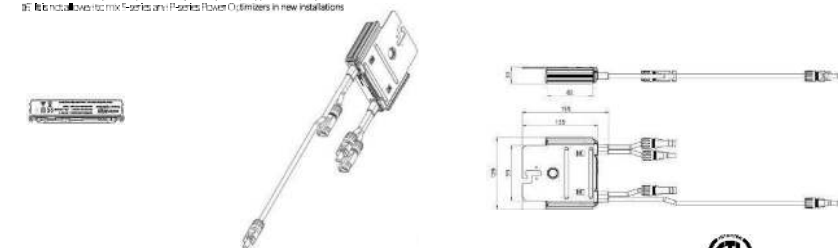
#### S440, S500

|                                                                                           | S440                                            | S500   | Unit             |
|-------------------------------------------------------------------------------------------|-------------------------------------------------|--------|------------------|
| <b>INPUT</b>                                                                              |                                                 |        |                  |
| Rated Input DC Power <sup>1</sup>                                                         | 440                                             | 500    | W                |
| Absolute Maximum Input Voltage (V <sub>in</sub> ) <sup>2</sup>                            | 48                                              | 48     | V <sub>r</sub> r |
| MPPT Operating Range                                                                      | 16-60                                           | 16-60  | V <sub>r</sub> r |
| Maximum Short Circuit Current (I <sub>sc</sub> ) of Connected PV Module                   | 14.5                                            | 15     | A <sub>r</sub> r |
| Maximum Efficiency                                                                        | 99.5                                            | 99.5   | %                |
| Warranty Efficiency                                                                       | 99.5                                            | 99.5   | %                |
| Overload Capacity                                                                         | 11                                              | 11     | %                |
| <b>OUTPUT DURING OPERATION</b>                                                            |                                                 |        |                  |
| Maximum Output Current                                                                    | 15                                              | 15     | A <sub>r</sub> r |
| Maximum Output Voltage                                                                    | 48                                              | 48     | V <sub>r</sub> r |
| <b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b> |                                                 |        |                  |
| Safety Output Voltage (Power Optimizer)                                                   | 1-100V                                          | 1-100V | V <sub>r</sub> r |
| <b>STANDARD COMPLIANCE</b>                                                                |                                                 |        |                  |
| Photovoltaic Rapid Shutdown System                                                        | NEC 2014, 2017 & 2020                           |        |                  |
| EMC                                                                                       | FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3 |        |                  |
| Safety                                                                                    | IEC62109-1 (class II safety), UL1741            |        |                  |
| Material                                                                                  | UL94 V-0, UV Resistant                          |        |                  |
| RoHS                                                                                      | Yes                                             |        |                  |
| Fire Safety                                                                               | VDE-AR-E 2100-712:2013-05                       |        |                  |
| <b>INSTALLATION SPECIFICATIONS</b>                                                        |                                                 |        |                  |
| Maximum Allowed System Voltage                                                            | 1000                                            |        | V <sub>d</sub> c |
| Dimensions (W x L x H)                                                                    | 129 x 153 x 30 / 5.07 x 6.02 x 1.18             |        | mm / in          |
| Weight (including cables)                                                                 | 655 / 1.5                                       |        | g / lb           |
| Input Connector                                                                           | MC4m                                            |        |                  |
| Input Wire Length                                                                         | 0.1 / 0.32                                      |        | m / ft           |
| Output Connector                                                                          | MC4                                             |        |                  |
| Output Wire Length                                                                        | (+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32          |        | m / ft           |
| Operating Temperature Range <sup>3</sup>                                                  | -40 to +85                                      |        | °C               |
| Protection Rating                                                                         | IP68 / Type6B                                   |        |                  |
| Relative Humidity                                                                         | 0 - 100                                         |        | %                |

<sup>1</sup> Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Values with up to +5% power tolerance are allowed.  
<sup>2</sup> For other connecting types please contact SolarEdge.  
<sup>3</sup> For ambient temperature above +25°C / +77°F, power derating is applied. Refer to Power Optimizers Temperature Derating Technical Note for more details.

| PV System Design Using a SolarEdge Inverter                                                                                                      | Single Phase HD-Wave | Three Phase for 208V grid           | Three Phase for 277/480V grid                 |         |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------|-----------------------------------------------|---------|
| Minimum String Length (Power Optimizers)                                                                                                         | S440, S500           | 8                                   | 14                                            | 18      |
| Maximum String Length (Power Optimizers)                                                                                                         |                      | 25                                  | 50                                            | 50      |
| Maximum Nominal Power per String                                                                                                                 |                      | 5700 (6000 with SE7600-US-SE1400-U) | 6000                                          | 12750   |
| Maximum Allowed Connected Power per String <sup>1</sup> (Permitted only when the difference in connected power between strings is 1000W or less) |                      | Refer to Footnote 5                 | One String 7200W<br>Two strings or more 7800W | 15,000W |
| Parallel Strings of Different Lengths or Orientations                                                                                            |                      | Y                                   |                                               |         |

<sup>1</sup> A string with more than 40 optimizers has not met NEC rapid shutdown requirements, safety package will meet over the PIV requirement.  
<sup>2</sup> If the inverter has a power limit, the maximum power per string will be limited to the inverter power limit.  
<sup>3</sup> Please refer to the inverter manual for more details.  
<sup>4</sup> Refer to the inverter manual for more details.



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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

## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

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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<br>3300 @ 208V | 5000       | 6000 @ 240V<br>5000 @ 208V | 7600       | 10000       | 11400 @ 240V<br>10000 @ 208V | VA |    |
| Maximum AC Power Output                                                      | 3000                            | 3800 @ 240V<br>3300 @ 208V | 5000       | 6000 @ 240V<br>5000 @ 208V | 7600       | 10000       | 11400 @ 240V<br>10000 @ 208V | VA |    |
| AC Output Voltage Min.-Nom.-Max.<br>(211 - 240 - 264)                        | ✓                               | ✓                          | ✓          | ✓                          | ✓          | ✓           | ✓                            | Va |    |
| AC Output Voltage Min.-Nom.-Max.<br>(183 - 208 - 229)                        | -                               | ✓                          | -          | ✓                          | -          | -           | ✓                            | Va |    |
| AC Frequency (Nominal)                                                       | 59.3 - 60 - 60.5 <sup>(1)</sup> |                            |            |                            |            |             |                              |    | Hz |
| Maximum Continuous Output<br>Current @240V                                   | 12.5                            | 16                         | 21         | 25                         | 32         | 42          | 47.5                         | A  |    |
| Maximum Continuous Output<br>Current @208V                                   | -                               | 16                         | -          | 24                         | -          | -           | 48.5                         | A  |    |
| Power Factor                                                                 | 1, Adjustable - 0.85 to 0.85    |                            |            |                            |            |             |                              |    |    |
| GFDI Threshold                                                               | 1                               |                            |            |                            |            |             |                              |    | A  |
| Utility Monitoring, Islanding Protection,<br>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                             |                            |            |                            |            |             |                              |    | Vd |
| Nominal DC Input Voltage                                                     | 380                             |                            |            |                            | 400        |             |                              |    | Vd |
| Maximum Input Current @240V <sup>(2)</sup>                                   | 8.5                             | 10.5                       | 13.5       | 16.5                       | 20         | 27          | 30.5                         | Ad |    |
| Maximum Input Current @208V <sup>(2)</sup>                                   | -                               | 9                          | -          | 13.5                       | -          | -           | 27                           | Ad |    |
| Max. Input Short Circuit Current                                             | 45                              |                            |            |                            |            |             |                              |    | Ad |
| Reverse-Polarity Protection                                                  | Yes                             |                            |            |                            |            |             |                              |    |    |
| Ground-Fault Isolation Detection                                             | 600k $\Omega$ Sensitivity       |                            |            |                            |            |             |                              |    |    |
| Maximum Inverter Efficiency                                                  | 99                              | 99.2                       |            |                            |            |             |                              | %  |    |
| CEC Weighted Efficiency                                                      | 99                              |                            |            |                            |            |             | 99 @ 240V<br>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

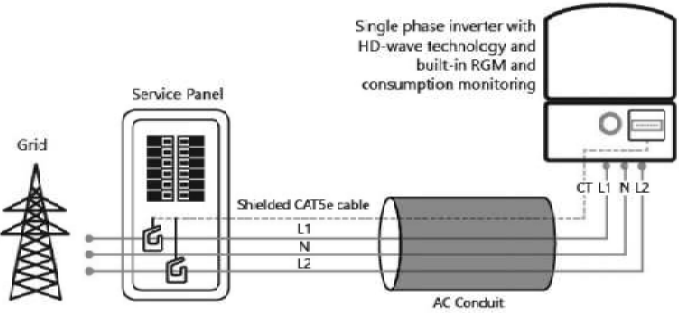
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/  
SE7600H-US / SE10000H-US / SE11400H-US

| 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 Metering, ANSI C12.20                      | Optional <sup>3)</sup>                                                                    |             |            |             |                                     |             |             |         |
| Consumption metering                                     |                                                                                           |             |            |             |                                     |             |             |         |
| Inverter Commissioning                                   | With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection |             |            |             |                                     |             |             |         |
| Rapid Shutdown – NEC 2014, NEC 2017 and NEC 2020, 690.12 | Automatic Rapid Shutdown upon AC Grid Disconnect                                          |             |            |             |                                     |             |             |         |
| STANDARD COMPLIANCE                                      |                                                                                           |             |            |             |                                     |             |             |         |
| Safety                                                   | UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to TLL M-07                |             |            |             |                                     |             |             |         |
| Grid Connection Standards                                | IEEE1547, Rule 21, Rule 14 (H)                                                            |             |            |             |                                     |             |             |         |
| 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                                |             |             | dB(A)   |
| Cooling                                                  | Natural Convection                                                                        |             |            |             |                                     |             |             |         |
| Operating Temperature Range                              | -40 to +140 / -40 to +60 <sup>4)</sup>                                                    |             |            |             |                                     |             |             |         |
| Protection Rating                                        | NEMA 4X (Inverter with Safety Switch)                                                     |             |            |             |                                     |             |             |         |

(3) Inverter with Revenue Grade Meter P/N: SExxxxH-US0008NCA; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US0008NR. For consumption metering, current transformers should be ordered separately. SEACT0750-200NA-20 or SEACT0750-400NA-20, 20 units per box.  
(4) Full power up to at least 50°C / 122°F; for power derating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

### How to Enable Consumption Monitoring

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



## Product specifications

# Eaton DG223NRB

Catalog Number: DG223NRB

Eaton General duty cartridge fuse safety switch, 100 A, NEMA 3R, Painted galvanized steel, Class H fuses, Fusible with neutral, Two-pole, Three-wire, Category: general duty safety switch, 240 V

### General specifications

|                                                                                                                                                                                            |                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Product Name                                                                                                                                                                               | Catalog Number                                                                                                                   |
| Eaton general duty cartridge fuse safety switch                                                                                                                                            | DG223NRB                                                                                                                         |
|                                                                                                                                                                                            | UPC                                                                                                                              |
|                                                                                                                                                                                            | 782113144252                                                                                                                     |
| Product Length/Depth                                                                                                                                                                       | Product Height                                                                                                                   |
| 7.38 in                                                                                                                                                                                    | 19.25 in                                                                                                                         |
| Product Width                                                                                                                                                                              | Product Weight                                                                                                                   |
| 9.13 in                                                                                                                                                                                    | 14 lb                                                                                                                            |
| Warranty                                                                                                                                                                                   | Certifications                                                                                                                   |
| Eaton Selling Policy 25-000, one (1) year UL Listed from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first. | UL Listed                                                                                                                        |
|                                                                                                                                                                                            | Catalog Notes                                                                                                                    |
|                                                                                                                                                                                            | Maximum hp ratings apply only when dual element fuses are used. 3-Phase hp rating shown is a grounded B phase rating, UL listed. |



### Physical Attributes

Enclosure  
NEMA 3R

Enclosure material  
Painted galvanized steel

Fuse configuration  
Fusible with neutral

Number Of Poles  
Two-pole

Number of wires  
3

Type  
General duty, cartridge fused

### Performance Ratings

Amperage Rating  
100A

Fuse class provision  
Class H fuses

Voltage rating  
240V

### Miscellaneous

Product Category  
General duty safety switch

### Resources

Catalogs  
Eaton's Volume 2—Commercial Distribution

Multimedia  
Double Up on Safety  
Switching Devices Flex Center

Specifications and datasheets  
Eaton Specification Sheet - DG223NRB



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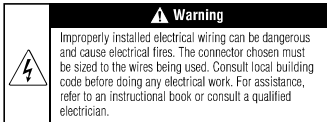


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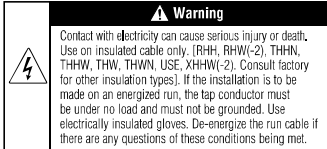
## INSULATION-PIERCING TAP CONNECTORS CONECTORES DE DERIVACIÓN QUE PERFORAN EL AISLAMIENTO

### 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.

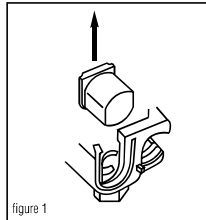


figure 1

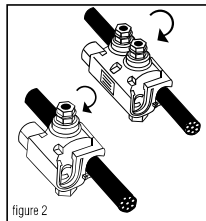


figure 2

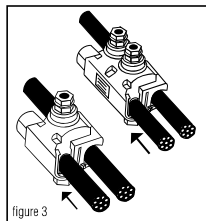


figure 3

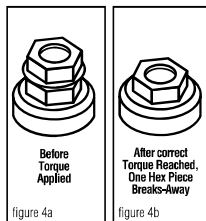


figure 4a

figure 4b

### 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 desdese 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.**
- Continué 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, apriételos 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, SOLO 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 SOLO 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](http://www.P65Warnings.ca.gov).



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2/9/23

Subject: **The Buchanan B-TAP® splice/tap connectors meet the 2020 NEC article 230.46 requirement for “line side applications”**

The Buchanan B-TAP® brand of insulation piercing connectors which correspond to part numbers beginning with “BTC” meet the requirements of article 230.46 of the 2020 NEC. These products have already been tested to the newer requirements. The installation instructions are in the process of being updated to show the required notation: “suitable for use on the line side of the service equipment”. This change will take a few weeks to get into our production.

In addition, the marking “SR” will be added to the product. That addition is in process and will take a few months to complete.

This notice will provide confirmation to the inspectors that B-TAP® products meet the requirements of the 2020 and 2023 NEC article 230.46 “Spliced and Tapped Conductors”.

Sushil Keswani

A handwritten signature in black ink, appearing to read "Sushil Keswani", written over a light blue horizontal line.

Director of Engineering  
IDEAL Industries, Inc.,

*Note: We are enhancing our systems and you may notice duplicate entries/missing/outdated data. During this interim period, please contact our Customer Service at <https://www.ull.com/about/locations>.*

## F523A

[View model for additional information](#)

**Insulated butt splice crimp type connectors.** Model(s): BVS1, BVS2, BVS5

**Insulated flange spade type crimp connectors, Models: SV5-3.7, SV15-4, SV15-6**

**Insulated flange spade type crimp connectors, Model(s):** ESNYD1-3,Z, ESNYD1-4, ESNYD1-5, ESNYD2-3,Z, ESNYD2-4, ESNYD2-5, ESNYD5-3,Z, ESNYD5-4, ESNYD5-5

**Insulated hook type crimp connectors, Model(s):** HN1D1-3,7, HN1D1-4, HN1D1-5, HN1D2-3,7, HN1D2-4, HN1D2-5, HN1D5-3,7, HN1D5-4, HN1D5-5, HW1-3,7, HW1-4, HW1-5, HW2-4, HW2-5, HW5-3,7, HW5-4, HW5-5

**Insulated locking spade crimp connectors, Model(s):** LSNYD1-3-7, LSNYD2-3-7, LSNYD5-3-7, LSNYD5-4, LSNYD5-5, LSNYD11-4, LSNYD11-5, LSNYD12-4, LSNYD12-5

**Insulated multiple stud ring type crimp connectors.** Model/s: MSBND1-3753, MSBND2-3753, MSBND5-3753

**Insulated parallel connectors.** Models: PVT1, PVT14, PVT2, PVT22, PVT5, PVT8

**Insulated pin type connectors.** Model(s): PTNYD1-12, PTNYD2-12, PTNYD5-13

Insulated ring type crimp connectors, Model(s): BNYB14-11, BNYB22-11, BNYD1-10, BNYD1-3,2, BNYD1-5, BNYD1-6, BNYD1-8, BNYD2-10, BNYD2-2, BNYD2-3,2, BNYD2-6, BNYD2-8, BNYD5-10, BNYD5-12, BNYD5-3,2, BNYD5-3,7, BNYD5-5, BNYD5-6, BNYD5-8, BNYD1-3,7, BNYD1-4, BNYD1-2,3,7, BNYD1-2,4, BNYD1-5,3,7, BNYD1-5,4, BNYD2-3,7, BNYC51-3,7, BNYC51-4, BNYD52-4, BNYD52-5, BNYD52-6, RV1-3,2, RV1-5, RV1-6, RV2-3,2, RV5-10, RV5-3,7, RV5-5, RV5-6, RV5-8, RV1-4, RV1-2,4, RV1-5,4, RV1-3,7, RV1-2,3,7, RV1-3,2

**Insulated spade type crimp connectors, Model(s):** SNYD1-3.2, SNYD5-3.7, SNYD5-5, SNYD11-3.7, SNYD11-4, SNYD12-3.7, SNYD12-4, SNYD12-5, SNYD15-4, SNYD111-3.7, SNYD121-3.7, SNYD11-4, SNYD12-4, SNYD51-5, SNYD52-5, SVM1-3.7, SVM1-5, SVM2-3.7, SVM2-5, SVM11-4, SVM12-4, SVM1-3.2, SVM2-3.2, SVM2-3.7, SVM5-5, SVM11-3.7, SVM11-4, SVM12-3.7, SVM12-5, SVM1-5, SVM11-4, SVM12-4, SVM51-5, SVM52-5, SVM55-4, SVM12-3.7, SVM11-4, SVM2-5, SVM5-4, SVM11-3.7, SVM12-3.7, SVM11-4, SVM2-5, SVM51-5, SVM52-5, SVM55-4.

**Insulated splice connectors.** Model(s): PB1-, PB2-, PB5-

**Insulating caps or covers, for use on manufacturer's splice caps, for 2006-S, 2008-S connectors. Model(s): 2007**

**Insulating caps or covers, for use on manufacturer's splice caps, for 2011-S connector, Model's: 2014**

## Feedback

Listed pressure cable connectors, Model(s): BHT1, BHT2, BHT5, BN1, BN2, BN5, BNT1-16, BNT14, BNT2-16, BNT22, BNT5-20, BNT8, BNYE1, BNYE2, BNYE5, BNYT1, BNYT2, BNYT5, BV1, BV2, BV5, BVT14, BVT22, BVT8

**Listed pressure ring terminal connectors.** Model(s): RNYB14-8, RNYB8-11, RNYBL22-5, RNYBL22-6

**Listed splicing wire connectors.** Model(s): L12, L13, L15

**Non-insulated flange spade crimp connectors, Model(s):** [FSN1-3,Z](#), [FSN1-4](#), [FSN1-5](#), [FSN2-3,Z](#), [FSN2-4](#), [FSN2-5](#), [FSN5-3,Z](#), [FSN5-4](#), [FSN5-5](#), [FSN81-3,Z](#), [FSN81-4](#), [FSN81-5](#), [FSN82-3,Z](#), [FSN82-4](#), [FSN82-5](#), [FSN85-3,Z](#), [FSN85-4](#), [FSN85-5](#), [FSN1-1-3,Z](#), [FSN2-1-5](#)

**Non-insulated hook crimp connectors.** Model(s): HN1-4, HN1-5, HN2-3.7, HN2-4, HN2-5, HN5-3.7, HN5-4, HN5-5

Non-insulated locking type crimp connectors, Model(s): LSN-1-3.7, LSN-2-3.7, LSN-5-3.7, LSN-5-4, LSN-5-5, LSN-5-6, LSN-1-4, LSN-1-5, LSN-2-5

**Non-insulated multiple stud ring type crimp connectors.** Model(s): MSRN81-3753

**Non-insulated parallel crimp connectors.** Model(s): PNT 1, PNT 14, PNT 2, PNT 22, PNT 5, PNT 8, PNT1, PNT2, PNT5

**Non-insulated pin type crimp connectors.** Models: PTN1-12, PTN2-12, PTN5-13

**Non-insulated ring type crimp connector, Model(s):** RNB1-10, RNB1-3,2, RNB14-11, RNB14-12, RNB14-16, RNB1-6, RNB1-8, RNB2-10, RNB2-2, RNB2-6, RNB5-12, RNB8-12, RNB1-4

[illegible]

**Non-insulated spade type crimp connectors, Model(s):** [SN1-3.2](#) [SN2-3.2](#) [SN5-3.7](#) [SN5-5](#) [SNB1-3.2](#) [SNB5-3.7](#) [SNB5-5](#) [SNB11-3.7](#) [SNB11-4](#) [SNB12-4](#) [SNB12-5](#) [SNB15-4](#) [SNB15-6](#) [SNBL11-3.7](#) [SNBL12-3.7](#) [SNBM1-4](#) [SNBS1-5](#) [SNBS5-4](#) [SNL1-3.7](#) [SNL1-4](#) [SNL2-3.7](#) [SNL2-4](#) [SNL2-5](#) [SNL11-3.7](#) [SNL12-3.7](#) [SNM1-4](#) [SNM2-4](#) [SNM1-5](#) [SNM2-5](#) [SNS5-4](#)

Pressure cable connectors, Model(s): KB-1000, KB-240, KB-350, KB-440, KB-500, KB-800, KS-1000, KS-240, KS-350, KS-440, KS-500, KS-800

**Pressure terminal connectors, Model(s):** FSVY1-3,7 FSVY1-4, FSVY1-5, FSVY2-3,7 FSVY2-4, FSVY2-5, FSVY3-3,7 FSVY3-4, FSVY3-5, K-5655, K-5656, LSV1-3,7 LSV1-3,7 LSV1-4, LSV1-5, LSV1-5 LSV1-6, LSV1-2,4, LSV1-4, LSV1-5, LSV1-5, LSV1-3,7 LSV1-3,7 LSV1-3,7 LSV1-3,7 LSV1-5, LSV1-5 LSV1-4, LSV1-1-4, LSV1-1-5, LSV1-2,4, LSV1-4, MSBRN-37-373, MSBRV1-3753, MSRV2-3753, MSRV3-3753, PTVY1-12, PTVY2-12, PTVY5-13, RVY1-10, RVY1-5, RVY1-6, RVY1-8, RVY2-10, RVY2-2, RVY2-3,2, RVY2-6, RVY2-8, RVY5-10, RVY5-12, RVY5-3,2, RVY5-3,2, RVY5-5, RVY5-6, RVY5-8, RVY5-8, RVY1-3,7, RVY1-1-4, RVY1-2,3,7, RVY1-2,4, RVY1-2,4, RVY1-2,5, RVY1-5-3,7, RVY1-5-4, RVY2-3,7, RVY1-3,7, RVY1-4, RVY2-3,7, RVY2-3,7, RVY2-4, RVY2-5, RVY5-4, SNBY2-3,2, TUK16-6, TUK25-10

**Pressure Terminal Connectors, Model(s):** [RNYB14-10](#), [RNYB14-12](#), [RNYB14-5](#), [RNYB22-12](#), [RNYB22-8](#), [RNYB8-10](#), [RNYB8-12](#), [RNYB8-8](#), [RNYBM8-5](#), [RNYBS14-6](#)

**Slicing wire connectors, Model(s):** OK-2 (Pkg. cat. No. 84), OK-3 (Pkg. cat. No. 85), OK-4 (Pkg. cat. No. 86), OK-5 (Pkg. cat. No. 87), OK-6W (Pkg. cat. No. 88), OK-8 (Pkg. cat. No. 90), OK-8W (N/A)

**Splicing wire connectors, Model(s):** 12 13 14 14-6 15 199 199S 200 202 206-5 208-5 2011-5 22-10 22-12 29 299 299S 30 300 32 33 34 340-36 37 38 39 399 400 400A-42 50 61509S-66 70 800 AS-10 AS-2 AS-20 AS-35 AS-40 AS-45 AS-48 AS-50 AS-56 B1 B2 B4 BT BT-10-10 BT-10-14 BT-20-14 BT-25C-4 BT-35C-1 AS-2 BT-40-10 BT-40C-2 BT-40C-6 BT-500-10 BT-500-14 BT-500-14 BT-500-4 BT-10-10 BT-20-14 BT-25C-4 BT-35C-10 BT-40C-10 BT-40C-2 BT-40C-6 BT-500-10 BT-500-14 BT-500-4 BV1 BV1 BV2 BV2 BV5 BV5 C3 C4 C5 K14 K1000 K2 K20 K25 K3 K30 K35 K4 K500 K6 K750 K8 K510 R1 S140 S2 S20 S250 S3 S340 S350 S4 S500 S6 TR01 TR02 W1 W2 W4 W11 W12 W13 W14 W16 W17 W18 W19 W20 W21 W22 W23 W24 W25 W26 W27 W28 W29 W30 W31 W32 W33 W34 W35 W36 W37 W38 W39 W40 W41 W42 W43 W44 W45 W46 W47 W48 W49 W50 W51 W52 W53 W54 W55 W56 W57 W58 W59 W60 W61 W62 W63 W64 W65 W66 W67 W68 W69 W70 W71 W72 W73 W74 W75 W76 W77 W78 W79 W80 W81 W82 W83 W84 W85 W86 W87 W88 W89 W90 W91 W92 W93 W94 W95 W96 W97 W98 W99 W100 W101 W102 W103 W104 W105 W106 W107 W108 W109 W110 W111 W112 W113 W114 W115 W116 W117 W118 W119 W120 W121 W122 W123 W124 W125 W126 W127 W128 W129 W130 W131 W132 W133 W134 W135 W136 W137 W138 W139 W140 W141 W142 W143 W144 W145 W146 W147 W148 W149 W150 W151 W152 W153 W154 W155 W156 W157 W158 W159 W160 W161 W162 W163 W164 W165 W166 W167 W168 W169 W170 W171 W172 W173 W174 W175 W176 W177 W178 W179 W180 W181 W182 W183 W184 W185 W186 W187 W188 W189 W190 W191 W192 W193 W194 W195 W196 W197 W198 W199 W200 W201 W202 W203 W204 W205 W206 W207 W208 W209 W210 W211 W212 W213 W214 W215 W216 W217 W218 W219 W220 W221 W222 W223 W224 W225 W226 W227 W228 W229 W230 W231 W232 W233 W234 W235 W236 W237 W238 W239 W240 W241 W242 W243 W244 W245 W246 W247 W248 W249 W250 W251 W252 W253 W254 W255 W256 W257 W258 W259 W260 W261 W262 W263 W264 W265 W266 W267 W268 W269 W270 W271 W272 W273 W274 W275 W276 W277 W278 W279 W280 W281 W282 W283 W284 W285 W286 W287 W288 W289 W290 W291 W292 W293 W294 W295 W296 W297 W298 W299 W300 W301 W302 W303 W304 W305 W306 W307 W308 W309 W310 W311 W312 W313 W314 W315 W316 W317 W318 W319 W320 W321 W322 W323 W324 W325 W326 W327 W328 W329 W330 W331 W332 W333 W334 W335 W336 W337 W338 W339 W340 W341 W342 W343 W344 W345 W346 W347 W348 W349 W350 W351 W352 W353 W354 W355 W356 W357 W358 W359 W360 W361 W362 W363 W364 W365 W366 W367 W368 W369 W370 W371 W372 W373 W374 W375 W376 W377 W378 W379 W380 W381 W382 W383 W384 W385 W386 W387 W388 W389 W390 W391 W392 W393 W394 W395 W396 W397 W398 W399 W400 W401 W402 W403 W404 W405 W406 W407 W408 W409 W410 W411 W412 W413 W414 W415 W416 W417 W418 W419 W420 W421 W422 W423 W424 W425 W426 W427 W428 W429 W430 W431 W432 W433 W434 W435 W436 W437 W438 W439 W440 W441 W442 W443 W444 W445 W446 W447 W448 W449 W450 W451 W452 W453 W454 W455 W456 W457 W458 W459 W460 W461 W462 W463 W464 W465 W466 W467 W468 W469 W470 W471 W472 W473 W474 W475 W476 W477 W478 W479 W480 W481 W482 W483 W484 W485 W486 W487 W488 W489 W490 W491 W492 W493 W494 W495 W496 W497 W498 W499 W500 W501 W502 W503 W504 W505 W506 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**Splicing Wire Connectors, Model(s):** BNT1, BNT2

**Splicing Wire Connectors, Model(s): 46-404, 46-405**

**Splicing wire connectors,** Model(s): [H-1566](#), [H-1567](#), [H-1570](#), [H-1571](#), [H-1572](#), [H-1591](#), [H-1592](#), [H-1594](#)

**Terminal connectors,** Model(s): [10](#), [11](#), [22](#), [250](#), [300](#), [341](#), [342](#), [410](#), [with insulating cap No. 415](#), [411 with insulating cap No. 417](#), [412 with insulating cap No. 417](#), [451](#), [452](#), [454](#), [48](#), [49](#), [49 Black](#), [53-B](#), [59B](#), [600](#), [71B#](#), [72B#](#), [73B#](#), [73B+](#), [74B](#), [76B](#), [76B+](#), [78B+](#), [82](#), [K-5504](#), [LSN12-4](#), [M-3](#), [PV3-750](#), [PV3-750](#), [PV3-750](#), [PV4-750](#), [PV4-750](#), [PV4-750](#), [RNB12-4](#), [RNB514-6](#), [RNB538-6](#), [RNB538-6](#), [RNB538-6](#), [RNB22-10](#), [RNB58-6](#), [RV2-6](#), [RVL2-5](#), [SV5-5](#), [WT1](#), [WT2](#), [WT3](#), [WT4](#), [WT41](#), [WT51](#), [WT52](#), [WT53](#), [WT54](#), [WT6](#)

**Terminal Connectors,** Model(s): [RNB22-11](#)

**Wire Connectors,** Model(s): [65](#), [653](#)

**Wire Connectors and Soldering Lugs,** Model(s): [L22](#), [L23](#), [L25](#), [PS10](#), [PS12](#), [PS2](#), [PS3](#), [PS4](#), [PS4S](#), [PS5](#), [PS6](#), [PS8](#)

# - The equipment (71B, 72B and 73B) were also evaluated to the requirements of UL 2043 and are suitable for use in air handling spaces.

\* - May be followed by suffix B, J, T or X.

NOTE - All models may be provided with or without prefix "V" or suffix "MP" or "V" and prefix "BP". All models may be followed by suffixes BT, UB or UF with or without a two or four digit number; with or without suffixes B, LP, NP, PF, PH, SP and/or T. Die Series terminals may be followed by Suffixes UL, UT, UF, US, or UB, with or without a two to four digit number; with or without Suffix T or B, followed by Suffixes SP, LP, NP, PF, or and/or NM, by PH or BE, with or without Suffixes NT, BS, and /or G.

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# S-5!®

## The Right Way!

### NEW PRODUCT SolarFoot™

Introducing the new SolarFoot™ for exposed fastener metal roofing with the strength, testing, quality, and time-proven integrity you expect from S-5!. The SolarFoot provides an ideal mounting platform to attach the L-Foot (not included) of a rail-mounted PV system to the roof. This solution is The Right Way to secure rail-mounted solar systems to exposed fastener metal such as AG-Panel or R-Panel.

#### SolarFoot Features:

Manufactured in the U.S.A. from certified raw material

Fabricated in our own ISO 9001:2015 certified factory

All aluminum and stainless components

25yr limited warranty

Compatible with all commercial L-Foot products on the market

Factory applied 40-year isobutylene/isoprene crosslink polymer sealant for reliable weathertightness

Sealant reservoir to prevent over-compression of sealant

Load-to-failure tested Normal to Seam by a nationally accredited laboratory on numerous metal roof materials and substrates

Four points of attachment into structure or deck with tested holding strength for engineered applications

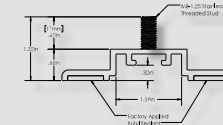
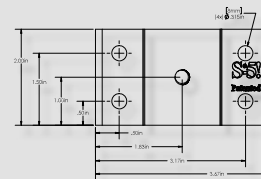
Integrated M8-1.25x17mm stud and M8-1.25 stainless steel hex flange nut included

S-5!®  
The Right Way!



## SolarFoot™ Mounting for Exposed Fastener Roofing

The SolarFoot is a simple, cost-effective pedestal for L-Foot (not included) attachment of rail-mounted solar PV. The unique design is compatible with all rail producer L-Foot components. The new SolarFoot assembly ensures a durable weathertight solution for the life of the roof. Special factory applied butyl co-polymeric sealant contained in a reservoir is The Right Way, allowing a water-tested seal. Stainless integrated stud and hex flange lock-nut secure the L-Foot into position. A low center of gravity reduces the moment arm commonly associated with L-Foot attachments. Direct attachment of the SolarFoot to the structural member or deck provides unparalleled holding strength.



*\*Fasteners sold separately. Fastener type varies with substrate. Contact S-5! on how to purchase fasteners and obtain our test results. L-Foot also sold separately.*

#### Fastener Selection

**Metal to Metal:**  
1/4-14 Self Drilling Screw  
1-1/2" to 2-1/2"

**Metal to Wood:**  
1/4-14 Type 17 AB Milled Point  
1-1/2" to 2-1/2"

To source fasteners for your projects, contact S-5!

When other brands claim to be "just as good as S-5!", tell them to PROVE IT.

#### SolarFoot Advantages:

Exposed fastener mounting platform for solar arrays attached via L-Foot and Rails

Weatherproof attachment to exposed fastener roofing

Butyl sealant reservoir provides long-term waterproof seal

M8-1.25x17mm stud with M8 hex flange nut for attachment of all popular L-Foot/rail combinations

Tool: 13 mm Hex Socket or 1/2" Hex Socket

Tool Required: Electric screw gun with hex drive socket for self-tapping screws.

Low Center of Gravity reduces moment arm commonly associated with L-Foot/Rail solar mounting scenarios

Attaches directly to structure or deck for optimal holding strength

S-5! Recommended substrate-specific (e.g. steel purlin, wood 2x4, OSB, etc.) fasteners provide excellent waterproofing and pull-out strength

Fastener through-hole locations comply with NDS (National Design Specification) for Wood Construction

**S-5!® Warning! Please use this product responsibly!**

The independent lab test data found at [www.S-5.com](http://www.S-5.com) can be used for load-critical designs and applications.

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, fastener torque, patents, and trademarks, visit the S-5! website at [www.S-5.com](http://www.S-5.com). Copyright 2017, Metal Roof Innovations, Ltd. S-5! products are patent protected.

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**Distributed by:**

The right way to attach almost anything to metal roofs!

888-825-3432 | [www.S-5.com](http://www.S-5.com) |

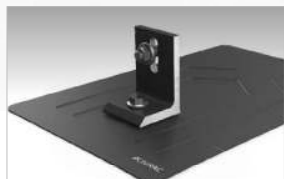
# SOLARMOUNT



**SOLARMOUNT** is the professionals' choice for residential PV mounting applications. Every aspect of the system is designed for an easier, faster installation experience. **SOLARMOUNT** is a complete solution with revolutionary universal clamps, **FLASHKIT PRO**, full system UL 2703 certification and 25-year warranty. Not only is **SOLARMOUNT** easy to install, but best-in-class aesthetics make it the most attractive on any block!



New & Improved:  
**THE PROFESSIONALS' CHOICE**  
With Superior Aesthetics



**NOW FEATURING FLASHKIT PRO**  
The Complete Roof Attachment Solution  
FEATURING **SHED & SEAL** TECHNOLOGY



**NOW WITH UNIVERSAL MIDCLAMPS**  
Accommodates 30mm-51mm module frames  
One tool, one-person installs are here!



**REVOLUTIONARY NEW ENDCLAMPS**  
Concealed design and included End Caps

## THE PROFESSIONALS' CHOICE FOR RESIDENTIAL RACKING

**BEST INSTALLATION EXPERIENCE • CURB APPEAL • COMPLETE SOLUTION • UNIRAC SUPPORT**

FOR QUESTIONS OR CUSTOMER SERVICE VISIT [UNIRAC.COM](http://UNIRAC.COM) OR CALL (505) 248-2702

# SOLARMOUNT



## BETTER DESIGNS

### TRUST THE INDUSTRY'S BEST DESIGN TOOL

Start the design process for every project in our U-Builder on-line design tool. It's a great way to save time and money.

## BETTER SYSTEMS

### ONE SYSTEM - MANY APPLICATIONS

Quickly set modules flush to the roof on steep pitched roofs. Orient a large variety of modules in Portrait or Landscape. Tilt the system up on flat or low slow roofs. Components available in mill, clear, and dark finishes to optimize your design financials and aesthetics.

## BETTER RESULTS

### MAXIMIZE PROFITABILITY ON EVERY JOB

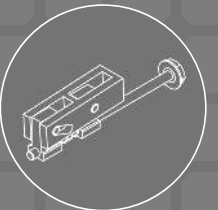
Trust Unirac to help you minimize both system and labor costs from the time the job is quoted to the time your teams get off the roof. Faster installs. Less Waste. More Profits.

## BETTER SUPPORT

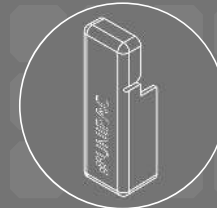
### WORK WITH THE INDUSTRIES MOST EXPERIENCED TEAM

Professional support for professional installers and designers. You have access to our technical support and training groups. Whatever your support needs, we've got you covered. Visit [Unirac.com/solarmount](http://Unirac.com/solarmount) for more information.

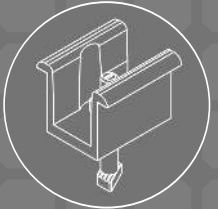
### CONCEALED UNIVERSAL ENDCLAMPS



### END CAPS INCLUDED WITH EVERY ENDCLAMP



### UNIVERSAL SELF STANDING MIDCLAMPS



### U-BUILDER ONLINE DESIGN TOOL SAVES TIME & MONEY

Visit [design.unirac.com](http://design.unirac.com)

**LISTED** **UL2703** BONDING & GROUNDING  
MECHANICAL LOADING  
SYSTEM FIRE CLASSIFICATION

## UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT

|                      |                   |                        |                   |              |                      |
|----------------------|-------------------|------------------------|-------------------|--------------|----------------------|
| UNMATCHED EXPERIENCE | CERTIFIED QUALITY | ENGINEERING EXCELLENCE | BANKABLE WARRANTY | DESIGN TOOLS | PERMIT DOCUMENTATION |
|----------------------|-------------------|------------------------|-------------------|--------------|----------------------|

### TECHNICAL SUPPORT

Unirac's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

### CERTIFIED QUALITY PROVIDER

Unirac is the only PV mounting vendor with ISO certifications for 9001:2008, 14001:2004 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

### BANKABLE WARRANTY

Don't leave your project to chance. Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are providing products of exceptional quality. SOLARMOUNT is covered by a 25 year limited product warranty and a 5 year limited finish warranty.

ENHANCE YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN

FOR QUESTIONS OR CUSTOMER SERVICE VISIT [UNIRAC.COM](http://UNIRAC.COM) OR CALL (505) 248-2702



# Certificate of Compliance

Certificate: 70131735

Master Contract: 266909

Project: 80082031

Date Issued: 2021-06-02

Issued To: **Unirac**  
1411 Broadway NE  
Albuquerque, New Mexico, 87102  
United States

Attention: Klaus Nicolaedis

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*

Issued by: *Michael Hoffnagle*  
Michael Hoffnagle



## PRODUCTS

CLASS - C531302 - POWER SUPPLIES - PHOTOVOLTAICS-PV Racking and clamping systems  
CLASS - C531382 - POWER SUPPLIES - PHOTOVOLTAICS-PV Racking and clamping systems -  
Certified to US Standards

|         |     |                                                                                                                                                         |
|---------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Models: | SM  | - SOLARMOUNT Flush-to-Roof is an extruded aluminum rail PV racking system that is installed parallel to the roof in landscape or portrait orientations. |
|         | ULA | - Unirac Large Array is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules.                           |

Solarmount



Certificate: 70131735  
Project: 80082031

Master Contract: 266909  
Date Issued: 2021-06-02

The system listed is designed to provide bonding/grounding, and mechanical stability for photovoltaic modules. The system is secured to the roof with the L-Foot components through the roofing material to building structure. Modules are secured to the racking system with stainless steel or aluminum mid clamps and Aluminum end clamps. The modules are bonded to the racking system with the stainless-steel bonding mid clamps with piercing points. The system is grounded with 10 AWG copper wire to bonding/grounding lugs. Fire ratings of Class A with Type 1, 2, 3, 10, 19, 22 or 25 for steep slope. Tested at 5" interstitial gap which allows installation at any stand-off height.

The grounding of the system is intended to comply with the latest edition of the National Electrical Code, to include NEC 250 & 690. Local codes compliance is required, in addition to national codes. All grounding/bonding connections are to be torqued in accordance with the Installation Manual and the settings used during the certification testing for the current edition of the project report.

The system may employ optimizers/micro-inverters and used for grounding when installed per installation instructions.

UL 2703 Mechanical Load ratings:

|                                            |       |
|--------------------------------------------|-------|
| Downward Design Load (lb/ft <sup>2</sup> ) | 113.5 |
| Upward Design Load (lb/ft <sup>2</sup> )   | 50.7  |
| Down-Slope Load (lb/ft <sup>2</sup> )      | 16.13 |

Test Loads:

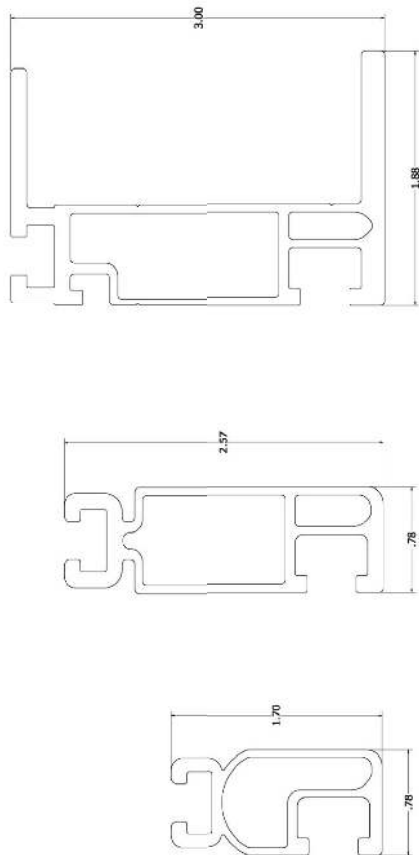
|                                       |        |
|---------------------------------------|--------|
| Downward Load (lb/ft <sup>2</sup> )   | 170.20 |
| Upward Load (lb/ft <sup>2</sup> )     | 76.07  |
| Down-Slope Load (lb/ft <sup>2</sup> ) | 24.2   |

## Unirac Large Array

ULA is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules. ULA aluminum components merge with SM rails and installer-supplied steel pipe. The SM rail system is secured to the horizontal Pipe using the Rail Bracket components. The Rear and Front cap secures the horizontal Pipe to the vertical Pipe. The Front cap is also used to secure the Cross brace. A Slider is attached to the vertical Pipe to secure the Cross brace. The SM rails, caps, slider, rail brackets, and cross braces materials are 6105-T5 aluminum extrusion. Fasteners materials are 304 stainless steel. Horizontal and vertical pipe materials meet the minimum requirements of ASTM A53 for galvanized steel pipe in 2" and 3" diameter.

The mechanical load ratings from the SM test data will be applied to the ULA model.

Fire Testing is not applicable due to being a ground mount system.



| Properties                  | SOLARMOUNT Light | SOLARMOUNT Rail Profile 2 | SOLARMOUNT HD | Units           |
|-----------------------------|------------------|---------------------------|---------------|-----------------|
| BEAM HEIGHT                 | 1.70             | 2.57                      | 3.00          | in              |
| APPROX WEIGHT               | 0.491            | 0.728                     | 1.271         | plf             |
| CROSS SECTION AREA          | 0.409            | 0.625                     | 1.059         | in <sup>2</sup> |
| SECTION MODULUS (X-AXIS)    | 0.15             | 0.363                     | 0.898         | in <sup>3</sup> |
| SECTION MODULUS (Y-AXIS)    | 0.067            | 0.113                     | 0.221         | in <sup>3</sup> |
| MOMENT OF INERTIA (X-AXIS)  | 0.13             | 0.467                     | 1.45          | in <sup>4</sup> |
| MOMENT OF INERTIA (Y-AXIS)  | 0.026            | 0.045                     | 0.267         | in <sup>4</sup> |
| RADIUS OF GYRATION (X-AXIS) | 0.564            | 0.865                     | 1.17          | in              |
| RADIUS OF GYRATION (Y-AXIS) | 0.254            | 0.269                     | 0.502         | in              |

PAGE H3

## Certificate



Certificate no.

US 82160015 01

**License Holder:**  
Unirac Inc.  
1411 Broadway NE  
Albuquerque NM 87102  
USA

**Manufacturing Plant:**  
Unirac Inc.  
1411 Broadway NE  
Albuquerque NM 87102  
USA

Test report no.: USA-31440029 005

Client Reference: Tom Young

Tested to: UL 2703:2015

**Certified Product:** Module Rack Mounting System

**License Fee - Units**

Model Designation: SolarMount (SM)

7

Max System Voltage of PV Module: 1000 VDC  
Max Size of PV Module: 20.8 sq.ft. surface area  
Max Overcurrent Protection Rating of PV Module:  
30 A when using the qualified grounding lugs;  
20 A when using the Enphase micro inverter EGC.

Fire Rating: Class A when installed with  
Type 1, Type 2, Type3, or Type 10 fire rated modules.

(continued)

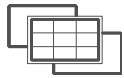
Appendix: 1.1-5

7

Licensed Test mark:



**Date of Issue**  
(day/mo/yr)  
27/07/2016



12-May-2023

Unirac  
1411 Broadway Blvd. NE  
Albuquerque, NM 87101  
Tel: 505 242 6411

Attn.: Engineering Department

Subject: Engineering Certification for the Unirac SOLARMOUNT Flush Rail System to Support Photovoltaic Panels.

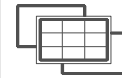
The Unirac SOLARMOUNT Flush-to-Roof is an extruded aluminum rail system that is engineered to hold most framed solar modules to a roof structure and installed parallel to the roof.

We have reviewed the SOLARMOUNT system, a proprietary mounting system constructed from modular parts which are intended for rooftop installation of solar photovoltaic (PV) panels; and have reviewed the U-Builder 2.0 Online tool. This U-Builder 2.0 software includes analysis for the SOLARMOUNT rails (SM LIGHT rail, SM STANDARD rail, and SM HEAVY DUTY rail) with Standard, Universal AF, and Pro Series hardware. All information, data, and analysis are in compliance with the following codes, city ordinances, and typical specifications:

- Codes:**
1. 2014-2020 Florida Building Code.
  2. ASCE/SEI 7-10, 7-16 Minimum Design Loads for Buildings and Other Structures.
  3. International Building Code, 2012- 2018 Edition w/ Provisions from SFAOC PV-2 2017.
  4. International Residential Code, 2012- 2018 Edition w/ Provisions from SFAOC PV-2 2017.
  5. AC408, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES.
  6. Aluminum Design Manual, 2015 & 2020 Edition.

Following are typical specifications to meet the above code requirements:

- Design Criteria:** Ground Snow Load = 0 - 100 (psf)  
Basic Wind Speed = 85 - 190 (mph)  
Roof Mean Height = 0 - 60 (ft)  
Roof Pitch = 0 - 45 (degrees)  
Exposure Category = B, C & D
- Attachment:** **Shingle Roof:**  
I-Foot, Flashkit Pro, Flashloc Comp, Flashloc Duo, Flashkit Pro SR  
**Metal Roof:**  
Standing Seam attachments, PM-9000S, PM Adjust Slotted  
**Tile Roofs:**  
Solar Hooks, Tile Replacement
- Attachment Spacing:** Per U-Builder 2.0 Engineering report.
- Cantilever:** The maximum cantilever length is  $L/3$ , where "L" is the span noted in the U-Builder 2.0 online tool.
- Clearance:** 2" to 10" clear from top of roof to top of PV panel
- Tolerance(s):** 1.0" tolerance for any specified dimension in this report is allowed for installation



**Installation Orientation:** See SOLARMOUNT Rail Flush Installation Guide.  
Landscape - PV Panel long dimension is parallel to ridge/eave line of the roof and the PV panel is mounted on the long side.  
Portrait - PV Panel short dimension is parallel to ridge/eave line of the roof and the PV panel is mounted on the short side.

**Components and Cladding Roof Zones:**

The Components and Cladding Roof Zones shall be determined based on ASCE 7-10 & 7-16 Component and Cladding design.

**Notes:**

1. U-Builder 2.0 Online tool analysis is only for Unirac SM SOLARMOUNT Rail Flush systems and do not include roof capacity check.
2. Risk Category II per ASCE 7-16.
3. Topographic factor,  $K_{zt}$  is 1.0.
4. Array Edge Factor  $V_e = 1.5$
5. Average parapet height is 0.0 ft.
6. Wind speeds are I RFD values.
7. Attachment spacing(s) apply to a seismic design category E or less.

**Design Responsibility:**

The U-Builder 2.0 design software is intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, this U-Builder 2.0 software should be used under the direction of a design professional with sufficient structural engineering knowledge and experience to be able to:

- Evaluate whether the U-Builder 2.0 Software is applicable to the project, and
- Understand and determine the appropriate values for all input parameters of the U-Builder 2.0 software.

This letter certifies that the Unirac SM SOLARMOUNT Rails Flush, when installed according to the U-Builder 2.0 engineering report and the manufacturer specifications are in compliance with the above codes and loading criteria.

This certification excludes evaluation of the following components:

- 1) The structure to support the loads imposed on the building by the array; including, but not limited to: strength and deflection of structural framing members, fastening and/or strength of roofing materials, and/or the effects of snow accumulation on the structure.
- 2) The attachment of the SM SOLARMOUNT Rails to the existing structure.
- 3) The capacity of the solar module frame to resist the loads.

This requires additional knowledge of the building and is outside the scope of the certification of this racking system.

Please feel free to call for any questions or clarifications.

Prepared By:  
Engineering Alliance, Inc  
Sugar Land, TX

Saddam  
Ahmad

Digitally signed by  
Saddam Ahmad  
Date: 2023.05.12  
08:33:34 -0500



This item has been electronically signed and sealed by Saddam Ahmad PE using a Digital Signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies

# BARUN CORP

September 14, 2023

RE:

CERTIFICATION LETTER

Project Address:

PEG HICKEY ADD-ON  
327 NW CARR CT  
LAKE CITY, FL 32055

**Design Criteria:**

- Applicable Codes = 2020 FLBC/FLEBC 7th Edition, 2020 FLRC 7th Edition, 2018 IEBC/IBC, ASCE 7-16 and 2018 NDS
- Risk Category = II
- Wind Speed = 120 mph, Exposure Category C, Partially/Fully Enclosed Method
- Ground Snow Load = 0 psf
- Roof 1: 2 x 6 @ 24" OC, Roof DL = 6 psf, Roof LL/SL = 20 psf (Non-PV), Roof LL/SL = 0 psf (PV)

To Whom It May Concern,

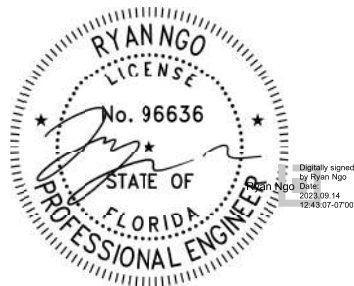
A structural evaluation of loading was conducted for the above address based on the design criteria listed above.

Existing roof structural framing has been reviewed for additional loading due to installation of Solar PV System on the roof. The structural review applies to the sections of roof that is directly supporting the Solar PV System.

Based on this evaluation, I certify that the alteration to the existing structure by installation of the Solar PV System meets the prescriptive compliance requirements of the applicable existing building and/or new building provisions adopted/referenced above.

Additionally, the Solar PV System assembly (including attachment hardware) has been reviewed to be in accordance with the manufacturer's specifications and to meet and/or exceed the requirements set forth by the referenced codes.

Sincerely,



This item has been digitally signed and sealed by Ryan Ngo, PE. on the date and/or time stamp shown using a digital signature. Printed copies of this document are not considered signed and sealed and the signature must be verified by a 3rd Party Certificate Authority on any electronic copy.

This document is the property of Barun Corp and cannot be reproduced without prior consent. It is site specific and shall not be transferred to any other property, property owner, person(s), or entity. This document may include an expression of professional opinion by the engineer of record, which is based on his or her best knowledge, information provided by others, and belief. Other professionals may have different opinions. Barun Corp reserves the right to amend and/or supplement this document in the event additional information be uncovered or made available.

|                                                        |                        |
|--------------------------------------------------------|------------------------|
| <b>BARUN CORP</b>                                      | <b>RESULTS SUMMARY</b> |
| PEG HICKEY ADD-ON, 327 NW CARR CT, LAKE CITY, FL 32055 |                        |

| MOUNTING PLANE STRUCTURAL EVALUATION |            |        |                    |
|--------------------------------------|------------|--------|--------------------|
| MOUNTING PLANE                       | ROOF PITCH | RESULT | GOVERNING ANALYSIS |
| Roof 1                               | 21°        | OK     | IEBC IMPACT CHECK  |
|                                      |            |        |                    |
|                                      |            |        |                    |
|                                      |            |        |                    |
|                                      |            |        |                    |

| STANDOFF HARDWARE EVALUATION FOR WIND UPLIFT |                 |
|----------------------------------------------|-----------------|
| MOUNTING PLANE                               | WIND UPLIFT DCR |
| Roof 1                                       | 77.0%           |
|                                              |                 |
|                                              |                 |
|                                              |                 |
|                                              |                 |

**Limits of Scope of Work and Liability:**

The existing structure has been reviewed based on the assumption that it has been originally designed and constructed per appropriate codes. The structural analysis of the subject property is based on the provided site survey data. The calculations produced for this structure's assessment are only for the roof framing supporting the proposed PV installation referenced in the stamped planset and were made according to generally recognized structural analysis standards and procedures. All PV modules, racking and attachment components shall be designed and installed per manufacturer's approved guidelines and specifications. These plans are not stamped for water leakage or existing damage to the structural component that was not accessed during the site survey. Prior to commencement of work, the PV system installer should verify that the existing roof and connections are in suitable condition and inspect framing noted on the certification letter and inform the Engineer of Record of any discrepancies prior to installation. The installer should also check for any damages such as water damage, cracked framing, etc. and inform the Engineer of Record of existing deficiencies which are unknown and/or were not observable during the time of survey and have not been included in this scope of work. Any change in the scope of the work shall not be accepted unless such change, addition, or deletion is approved in advance and in writing by the Engineer of Record.

|                                                        |                  |
|--------------------------------------------------------|------------------|
| BARUN CORP                                             | LOAD CALCULATION |
|                                                        | Roof 1           |
| PEG HICKEY ADD-ON, 327 NW CARR CT, LAKE CITY, FL 32055 |                  |

| PV PANELS DEAD LOAD (PV-DL) |                         |
|-----------------------------|-------------------------|
| PV Panels Weight            | = 2.50 psf              |
| Hardware Assembly Weight    | = 0.50 psf              |
| <b>Total PV Panels</b>      | <b>PV-DL = 3.00 psf</b> |

| ROOF DEAD LOAD (R-DL)            |                       |            |                        |
|----------------------------------|-----------------------|------------|------------------------|
| Existing Roofing Material Weight | Corrugated Metal Roof | 1 Layer(s) | = 1.50 psf             |
| Underlayment Weight              |                       |            | = 0.50 psf             |
| Plywood/OSB Sheathing Weight     |                       |            | = 1.50 psf             |
| Framing Weight                   | 2 x 6 @ 24 in. O.C.   |            | = 1.15 psf             |
| No Vaulted Ceiling               |                       |            | = 0.00 psf             |
| Miscellaneous                    |                       |            | = 1.50 psf             |
| <b>Total Roof Dead Load</b>      |                       |            | <b>R-DL = 6.10 psf</b> |

| REDUCED ROOF LIVE LOAD (Lr)                      |                          |
|--------------------------------------------------|--------------------------|
| Roof Live Load                                   | Lo = 20.00 psf           |
| Member Tributary Area                            | At < 200 ft <sup>2</sup> |
| Roof 1 Pitch                                     | 21° or 5/12              |
| Tributary Area Reduction Factor                  | R1 = 1.00                |
| Roof Slope Reduction Factor                      | R2 = 0.98                |
| <b>Reduced Roof Live Load, Lr = Lo (R1) (R2)</b> | <b>Lr = 19.50 psf</b>    |

| SNOW LOAD                   |                      |
|-----------------------------|----------------------|
| Ground Snow Load            | pg = 0.00 psf        |
| Effective Roof Slope        | 21°                  |
| Snow Importance Factor      | Is = 1.00            |
| Snow Exposure Factor        | Ce = 1.00            |
| Snow Thermal Factor         | Ct = 1.10            |
| Minimum Flat Roof Snow Load | pf-min = 0.00 psf    |
| <b>Flat Roof Snow Load</b>  | <b>pf = 0.00 psf</b> |

| SLOPED ROOF SNOW LOAD ON ROOF (Non-Slippery Surfaces) |                           |
|-------------------------------------------------------|---------------------------|
| Roof Slope Factor                                     | Cs-roof = 0.82            |
| <b>Sloped Roof Snow Load on Roof</b>                  | <b>ps-roof = 0.00 psf</b> |

| SLOPED ROOF SNOW LOAD ON PV PANELS (Unobstructed Slippery Surfaces) |                         |
|---------------------------------------------------------------------|-------------------------|
| Roof Slope Factor                                                   | Cs-PV = 0.82            |
| <b>Sloped Roof Snow Load on PV Panels</b>                           | <b>ps-PV = 0.00 psf</b> |

|                                                        |                   |  |
|--------------------------------------------------------|-------------------|--|
| BARUN CORP                                             | IEBC IMPACT CHECK |  |
|                                                        | Roof 1            |  |
| PEG HICKEY ADD-ON, 327 NW CARR CT, LAKE CITY, FL 32055 |                   |  |

|                       | EXISTING | WITH PV PANELS |     |
|-----------------------|----------|----------------|-----|
| Roof Dead Load (DL) = | 6.10     | 9.10           | psf |
| Roof Live Load (Lr) = | 19.50    | 0.00           | psf |
| Roof Snow Load (SL) = | 0.00     | 0.00           | psf |

|                        | EXISTING | WITH PV PANELS |     |
|------------------------|----------|----------------|-----|
| (DL + Lr)/Cd =         | 20.48    | 10.11          | psf |
| (DL + SL)/Cd =         | 5.30     | 7.91           | psf |
| Maximum Gravity Load = | 20.48    | 10.11          | psf |

|                     |         |    |
|---------------------|---------|----|
| Load Increase (%) = | -50.63% | OK |
|---------------------|---------|----|

The requirements of section 806.2 of 2018 IEBC are met and the structure is permitted to remain unaltered.

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| BARUN CORP                                             | WIND UPLIFT CALCULATION |
|                                                        | Roof 1                  |
| PEG HICKEY ADD-ON, 327 NW CARR CT, LAKE CITY, FL 32055 |                         |

| SITE INFORMATION        |            |                                              |       |
|-------------------------|------------|----------------------------------------------|-------|
| Ultimate Wind Speed =   | 120.00 mph | Roof Pitch =                                 | 21°   |
| Risk Category =         | II         | Roof Type =                                  | Gable |
| Exposure Category =     | C          | Velocity Pressure Exposure Coefficient, Kz = | 0.85  |
| Mean Roof Height =      | 15.00 ft   | Topographic Factor, Kzt =                    | 1.00  |
| Solar Array Dead Load = | 3.00 psf   | Wind Directionality Factor, Kd =             | 0.85  |
| a =                     | 3.00 ft    | Ground Elevation Factor, Ke =                | 1.00  |

| DESIGN CALCULATIONS                            |                            |                   |                                 |
|------------------------------------------------|----------------------------|-------------------|---------------------------------|
| Wind Velocity Pressure, qh =                   |                            | 26.60 psf         | (0.00256*Kz*Kzt*Kd*Ke*(V^2))    |
| Solar Array Pressure Equalization Factor, ya = |                            | 0.60              |                                 |
| Hardware Type =                                |                            | S-5 PROTEABRACKET |                                 |
| Allowable Load =                               |                            | 300.00 lbs        | Metal Roof Attachment           |
|                                                |                            |                   |                                 |
| Array Edge Factor, yE =                        |                            | 1.50              | Exposed Condition               |
| Max. X - Spacing (Zone 1 & 2e) =               |                            | 2.25 ft           | Effective Wind Area<br>6.75 ft² |
| Max. Y - Spacing (Zone 1 & 2e) =               |                            | 3.00 ft           |                                 |
| Max. X - Spacing (Zone 2n - 3e) =              |                            | 2.25 ft           | Effective Wind Area<br>6.75 ft² |
| Max. Y - Spacing (Zone 2n - 3e) =              |                            | 3.00 ft           |                                 |
| Max. X - Spacing (Zone 3r) =                   |                            | 1.50 ft           | Effective Wind Area<br>4.50 ft² |
| Max. Y - Spacing (Zone 3r) =                   |                            | 3.00 ft           |                                 |
| ROOF ZONE                                      | G <sub>Cp</sub> (-) UPLIFT | UPLIFT PRESSURE   |                                 |
| 1 & 2e                                         | -1.50                      | -19.87 psf        |                                 |
| 2n - 3e                                        | -2.50                      | -34.23 psf        |                                 |
| 3r                                             | -3.52                      | -48.82 psf        |                                 |
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**NOTE:**

- Wind calculation is based on ASCE 7-16, 29.4 - C&C, LC #7: 0.6DL + 0.6WL is used.