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Inverter Type: (1) SolarEdge SE7600H-US  
PV Panel: (26) TSM-DE06X.05(II) 365W  
Racking: Iron Ridge XR-10  
Total Wattage: 9,490W DC  
Roof Type: Composition Shingle  
Wind Load: 21 to 27 Deg  
Fastener Type: Use 5/16" Dia 4.75" Lags

**Sheet Index**

S-1 Cover Sheet / Site Plan  
S-2 Detail  
E-1 One - Line  
E-2 Electrical Code  
S-1A Mounting Plan










**General Notes:**

-SolarEdge SE7600H-US Inverter located near utility meter  
-SolarEdge S440 Optimizers are located on roof behind each module.  
-First responder access maintained and from adjacent roof.  
-Wire run from array to connection is 60 feet.



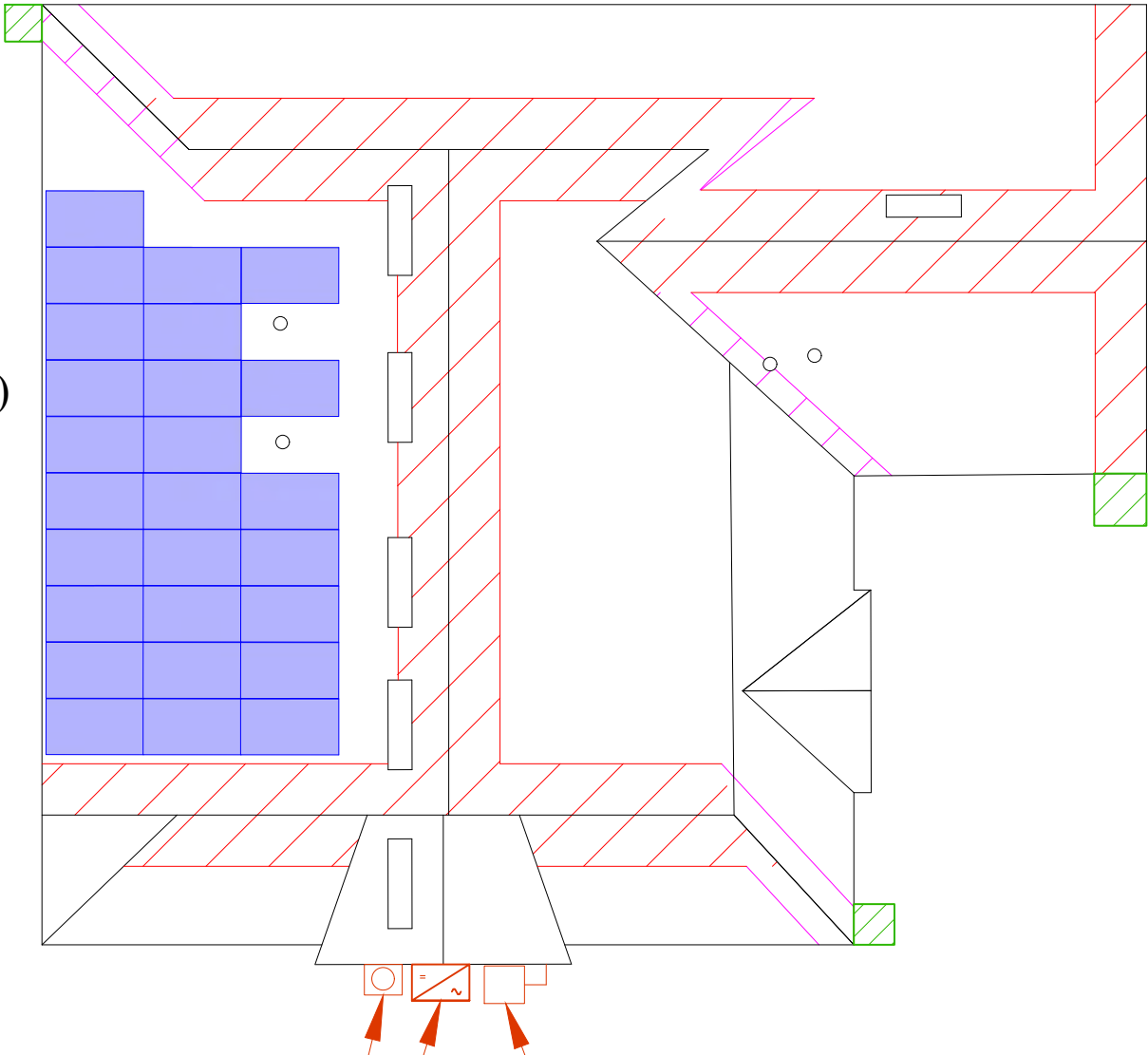
605 W Lumsden Rd,  
Brandon, FL 33511  
855-577-7999

**Legend**

 **3'**  
 **1'-6"**  
 **Ground Access**  
 **Chimney**  
 **Utility Meter**  
 **Satellite**  
 **PV Disconnect**  
 **Vent Pipe**  
 **SolarEdge Inverter**

Meets the requirements of the following- (2020 FL Residential Code & FBC, 7th Edition (2020 International Residential Code) - 2nd Printing modified by the FL Building Standards, 2020 Florida Building Energy Conservation Code 7th edition, County of Columbia Code, 2017 National Electric Code.)

R-1  
# Modules (26)  
Pitch: 25°  
Azimuth: 269°



Utility Meter

-SE7600H-US  
Inverter

-COGEN Disconnect  
Located adjacent to  
Utility meter

System meets the requirements of NFPA 70th Edition, Chapter 11.12

Install will be done to Manufacturer Spec

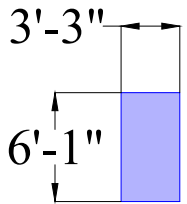
Meets All Editions of Florida Fire Prevention Code 2020 7th Edition  
Meets all requirements of NFPA-1 7th Edition and NFPA-101

 **3' Access Pathway**

Represents all Fire Clearance  
including Alternative methods  
1st Responder Access  
minimum of 36" unobstructed as per  
Section R324 of the 2020 IRC

**Customer Info:**

Kenneth Carner  
306 SW Woodleaf CT  
Lake City, FL  
32024



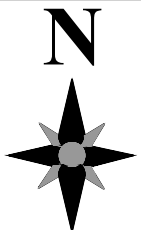
Layout Subject to Change Based on Site Conditions

Godwin Engineering and  
Design, LLC  
8378 Foxtail Loop  
Pensacola, FL 32526  
D. Chad Godwin, PE  
Chad@godwineng.com

Donnie C  
Godwin  
2022.08.1  
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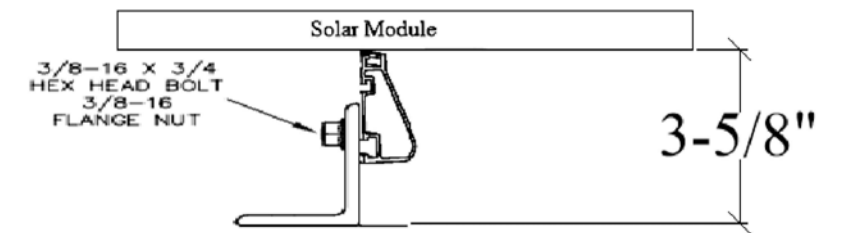
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**Drawn by:** KR  
**Revised by:** .  
**Rev #:** 00  
**Rev Date:** .  
**Page:** 11"x17" S-1



Compass for Aerial




Ironridge XR-10



General Notes:

- L Feet are secured to roof rafters.
- @ 72" O.C. in Zone 1, @ 72" O.C in Zone 2e, @ 72" O.C. in Zone 2n,
- @ 72" O.C. in Zone 2r, @ 72" O.C in Zone 3e, & @ 48" O.C. in Zone 3r
- using 5/16" x 4.75" stainless steel Lag bolts.
- Subject roof has One layer.
- All penetrations are sealed and flashed.

Install will be done to Manufacturer Spec

| Roof Section   | Pitch | Roof Rafter and Spacing | Overhang  | Notes: | <div><p>605 W Lumsden Rd,<br/>Brandon, FL 33511<br/>855-577-7999</p></div> |             |             |  |
|--|-------|-------------------------|---|--------|---|-------------|-------------|--|
| R1   | 6/12  | 2"x4" @ 24 O.C.         | 12"   | Truss  |   |             |             |  |
| <div><div><div>-Roof Height 20'</div><div>-Per 2020 FBC, the Roof Mounted PV System will be subject to the following design criteria:<br/>Design Wind Speed(Vult) - 120mph 3 sec gust,<br/>Exposure Category - B<br/>-Designed as per ASCE7-16</div></div><div><div>Inverter Type: (1) SolarEdge SE7600H-US<br/>PV Panel: (26) TSM-DE06X.05(II) 365W<br/>Racking: Iron Ridge XR-10<br/>Total Wattage: 9,490W DC<br/>Roof Type: Composition Shingle<br/>Wind Load: 21 to 27 Deg<br/>Fastener Type: Use 5/16" Dia 4.75" Lags</div></div></div> |       |                         | <div><div>Customer Info:</div><div><div>Kenneth Carner<br/>306 SW Woodleaf CT<br/>Lake City, FL<br/>32024</div></div></div> |        |   |             |             |  |
|  |       |                         |   |        |   | Date:       | 8/12/2022   |  |
|  |       |                         |   |        |   | Drawn by:   | KR          |  |
|  |       |                         |   |        |   | Revised by: | .           |  |
|  |       |                         |   |        |   | Rev #:      | 00          |  |
|  |       |                         |   |        |   | Rev Date:   | .           |  |
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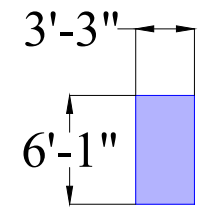
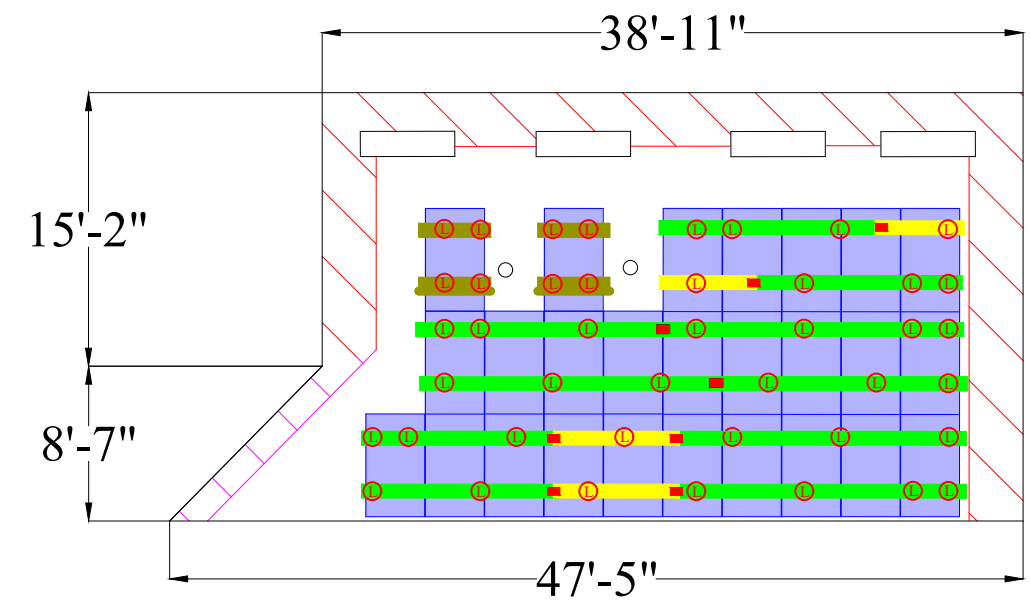




- Iron Ridge XR-10 Rail
- 14'

14
- 7'
- 4'
- 8 

Splice Bar
- 43 Iron Ridge FF2
- 62 Iron Ridge UFO's
- 20 Iron Ridge Sleeves/End Caps
- 1 Roof Top Combiner
- 5 Iron Ridge Ground Lugs
- 26 TSM-DE06X.05(II) 365W
- 1 SolarEdge SE7600H-US
- 1 60A Fused Disconnect
- 2 40A Fuses
- 26 S440 Optimizer





Plans satisfy zones FBC-1510.7.1  
Install will be done to Manufacturer Spec

- Zone 1: Max cantilever is 24" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=72"\*( $\frac{1}{3}$ )=24"
- Zone 2e: Max cantilever is 24" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=72"\*( $\frac{1}{3}$ )=24"
- Zone 2n: Max cantilever is 24" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=72"\*( $\frac{1}{3}$ )=24"
- Zone 2r: Max cantilever is 24" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=72"\*( $\frac{1}{3}$ )=24"
- Zone 3e: Max cantilever is 24" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=72"\*( $\frac{1}{3}$ )=24"
- Zone 3r: Max cantilever is 16" as per manufacturer spec.  
Max Cantilever = Max Span \* ( $\frac{1}{3}$ )=48"\*( $\frac{1}{3}$ )=16"

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|   |  |
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| Revised by: .   |   |
| Rev #: 00   |   |
| Rev Date: .   |   |
| Page: 11"x17" S-1A  |   |



THE

# Residential Module

MULTI-BUSBAR MONO PERC MODULE



**132-Cell**  
MONOCRYSTALLINE MODULE

**355-380W**  
POWER OUTPUT RANGE

**20.6%**  
MAXIMUM EFFICIENCY

**0~+5W**  
POSITIVE POWER TOLERANCE

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

## Comprehensive Products and System Certificates

UL 61730  
IEC 61215 / IEC 61730 / IEC 61701 / IEC 62716  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
OHSAS 18001: Occupation Health and Safety Management System



**Trina solar**

### PRODUCTS

TSM-DE06X.05(II)

### POWER RANGE

355-380W



## High power and High Efficiency

- Up to 380W front power and 20.6% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Reduce BOS cost with higher power bin and 1500V system voltage



## Outstanding visual appearance

- Designed with aesthetics in mind
- Excellent cell color control
- Thinner wires that appear all black at a distance



## High reliability

- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load

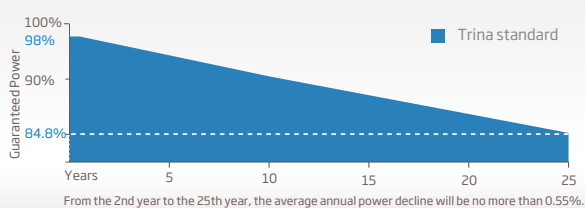


## Certified to withstand the most challenging environmental conditions

- Excellent IAM and low light performance validated
- Lower temp co-efficient (-0.34%) and NOCT bring more energy leading to lower LCOE
- Better anti-shading performance and lower operating temperature

## PERFORMANCE WARRANTY

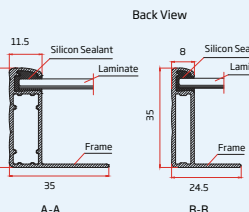
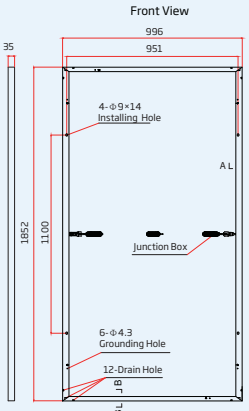
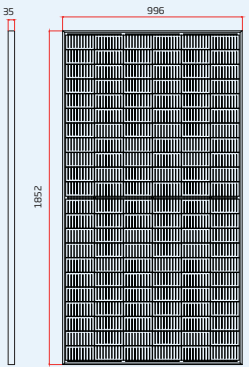
25 Year Product Warranty · 25 Year Power Warranty



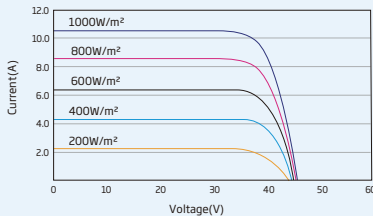
# Residential Module

MULTI-BUSBAR MONO PERC MODULE

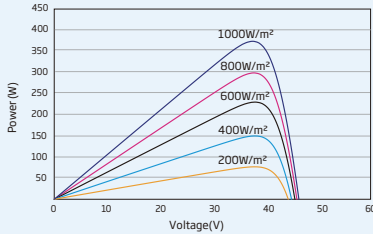
### DIMENSIONS OF PV MODULE(mm)



### I-V CURVES OF PV MODULE(370W)



### P-V CURVES OF PV MODULE(370W)



### ELECTRICAL DATA (STC)

| Peak Power Watts-P <sub>MAX</sub> (Wp)*     | 355    | 360   | 365   | 370   | 375   | 380   |
|---|--------|-------|-------|-------|-------|-------|
| Power Output Tolerance-P <sub>MAX</sub> (W) | 0 ~ +5 |       |       |       |       |       |
| Maximum Power Voltage-V <sub>MPP</sub> (V)  | 36.8   | 37.0  | 37.2  | 37.4  | 37.6  | 37.8  |
| Maximum Power Current-I <sub>MPP</sub> (A)  | 9.66   | 9.74  | 9.82  | 9.90  | 9.98  | 10.07 |
| Open Circuit Voltage-V <sub>OC</sub> (V)    | 44.6   | 44.8  | 45.0  | 45.2  | 45.3  | 45.5  |
| Short Circuit Current-I <sub>SC</sub> (A)   | 10.24  | 10.30 | 10.35 | 10.40 | 10.45 | 10.51 |
| Module Efficiency η <sub>m</sub> (%)        | 19.2   | 19.5  | 19.8  | 20.1  | 20.3  | 20.6  |

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.  
\*Measurement tolerance: ±3%.

### ELECTRICAL DATA (NOCT)

| Maximum Power-P <sub>MAX</sub> (Wp)        | 268  | 272  | 276  | 279  | 283  | 287  |
|--|------|------|------|------|------|------|
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 34.4 | 34.7 | 34.9 | 35.1 | 35.3 | 35.6 |
| Maximum Power Current-I <sub>MPP</sub> (A) | 7.80 | 7.85 | 7.90 | 7.96 | 8.01 | 8.06 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 42.0 | 42.2 | 42.4 | 42.6 | 42.6 | 42.8 |
| Short Circuit Current-I <sub>SC</sub> (A)  | 8.25 | 8.30 | 8.34 | 8.38 | 8.42 | 8.47 |

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

### MECHANICAL DATA

|                      |   |
|----------------------|---|
| Solar Cells          | Monocrystalline   |
| Cell Orientation     | 132 cells   |
| Module Dimensions    | 1852 × 996 × 35 mm (72.91 × 39.21 × 1.38 inches)  |
| Weight               | 19.7 kg (43.4 lb)   |
| Glass                | 3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass  |
| Encapsulant Material | EVA / POE   |
| Backsheet            | Black-White   |
| Frame                | 35 mm ( inches) Anodized Aluminium Alloy  |
| J-Box                | IP 68 rated   |
| Cables               | Photovoltaic Technology Cable 4.0mm² (0.006 inches²),<br>Portrait: N 280mm/P 280mm(11.02/11.02inches)<br>Landscape: N 1400 mm /P 1400 mm (55.12/55.12 inches) |
| Connector            | MC4 EVO2  |
| Fire Type            | Type 1  |

### TEMPERATURE RATINGS

|   |             |
|---|-------------|
| NOCT(Nominal Operating Cell Temperature)    | 43°C (±2°C) |
| Temperature Coefficient of P <sub>MAX</sub> | - 0.34%/°C  |
| Temperature Coefficient of V <sub>OC</sub>  | - 0.25%/°C  |
| Temperature Coefficient of I <sub>SC</sub>  | 0.04%/°C    |

### WARRANTY

25 year Product Workmanship Warranty

25 year Linear Power Warranty

(Please refer to product warranty for details)

### MAXIMUM RATINGS

|                         |               |
|-------------------------|---------------|
| Operational Temperature | -40~+85°C     |
| Maximum System Voltage  | 1500V DC (UL) |
| Max Series Fuse Rating  | 20A           |

### PACKAGING CONFIGURATION

|  |
|--|
| Modules per box: 31 pieces                           |
| Modules per 40' container: 744 pieces                |
| Pallet dimensions (L x W x H): 1880 x 1125 x 1173 mm |
| Pallet weight: 658.6kg (1,452lb)                     |

**Trina solar**

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
© 2020 Trina Solar Limited. All rights reserved. Specifications included in this datasheet are subject to change without notice.  
Version number: TSM\_DE06X.05(II)\_NA\_2021\_A  
www.trinasolar.com

# Single Phase Inverter with HD-Wave Technology

for North America

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



INVERTERS

## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

[solaredge.com](http://solaredge.com)

**solar**edge

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

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

| SE3000H-US   SE3800H-US   SE5000H-US   SE6000H-US   SE7600H-US   SE10000H-US   SE11400H-US |   |                            |             |                            |                                       |       |                              |            |
|--|---|----------------------------|-------------|----------------------------|---------------------------------------|-------|------------------------------|------------|
| 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)                                      | ✓   | ✓                          | ✓           | ✓                          | ✓                                     | ✓     | ✓                            | Vac        |
| AC Output Voltage Min.-Nom.-Max.<br>(183 - 208 - 229)                                      | -   | ✓                          | -           | ✓                          | -                                     | -     | ✓                            | Vac        |
| 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          |
| GFDI Threshold   | 1   |                            |             |                            |                                       |       |                              | A          |
| Utility Monitoring, Islanding<br>Protection, Country Configurable<br>Thresholds            | Yes   |                            |             |                            |                                       |       |                              |            |
| INPUT  |   |                            |             |                            |                                       |       |                              |            |
| Maximum DC Power @240V   | 4650  | 5900                       | 7750        | 9300                       | 11800                                 | 15500 | 17650                        | W          |
| Maximum DC Power @208V   | -   | 5100                       | -           | 7750                       | -                                     | -     | 15500                        | W          |
| Transformer-less, Ungrounded   | Yes   |                            |             |                            |                                       |       |                              |            |
| Maximum Input Voltage  | 480   |                            |             |                            |                                       |       |                              | Vdc        |
| Nominal DC Input Voltage   | 380   |                            |             |                            | 400                                   |       |                              | Vdc        |
| Maximum Input Current @240V <sup>(2)</sup>   | 8.5   | 10.5                       | 13.5        | 16.5                       | 20                                    | 27    | 30.5                         | Adc        |
| Maximum Input Current @208V <sup>(2)</sup>   | -   | 9                          | -           | 13.5                       | -                                     | -     | 27                           | Adc        |
| Max. Input Short Circuit Current   | 45  |                            |             |                            |                                       |       |                              | Adc        |
| Reverse-Polarity Protection  | Yes   |                            |             |                            |                                       |       |                              |            |
| Ground-Fault Isolation Detection   | 600k $\Omega$ Sensitivity   |                            |             |                            |                                       |       |                              |            |
| Maximum Inverter Efficiency  | 99  | 99.2                       |             |                            |                                       |       |                              | %          |
| CEC Weighted Efficiency  | 99  |                            |             |                            |                                       |       | 99 @ 240V<br>98.5 @ 208V     | %          |
| Nighttime Power Consumption  | < 2.5   |                            |             |                            |                                       |       |                              | W          |
| ADDITIONAL FEATURES  |   |                            |             |                            |                                       |       |                              |            |
| Supported Communication Interfaces   | RS485, Ethernet, ZigBee (optional), Cellular (optional)                       |                            |             |                            |                                       |       |                              |            |
| Revenue Grade Data, ANSI C12.20  | Optional <sup>(3)</sup>   |                            |             |                            |                                       |       |                              |            |
| Rapid Shutdown - NEC 2014 and<br>2017 690.12   | Automatic Rapid Shutdown upon AC Grid Disconnect                              |                            |             |                            |                                       |       |                              |            |
| STANDARD COMPLIANCE  |   |                            |             |                            |                                       |       |                              |            |
| Safety   | UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07 |                            |             |                            |                                       |       |                              |            |
| Grid Connection Standards  | IEEE1547, Rule 21, Rule 14 (HI)   |                            |             |                            |                                       |       |                              |            |
| Emissions  | FCC Part 15 Class B   |                            |             |                            |                                       |       |                              |            |
| INSTALLATION SPECIFICATIONS  |   |                            |             |                            |                                       |       |                              |            |
| AC Output Conduit Size / AWG<br>Range  | 3/4" minimum / 14-6 AWG   |                            |             |                            | 3/4" minimum /14-4 AWG                |       |                              |            |
| DC Input Conduit Size / # of Strings /<br>AWG Range  | 3/4" minimum / 1-2 strings / 14-6 AWG   |                            |             |                            | 3/4" minimum / 1-3 strings / 14-6 AWG |       |                              |            |
| Dimensions with Safety Switch<br>(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 /<br>mm |
| Weight with Safety Switch  | 22 / 10   |                            | 25.1 / 11.4 |                            | 26.2 / 11.9                           |       | 38.8 / 17.6                  | lb / kg    |
| Noise  | < 25  |                            |             |                            | <50                                   |       |                              | dBA        |
| Cooling  | Natural Convection  |                            |             |                            |                                       |       |                              |            |
| Operating Temperature Range  | -40 to +140 / -25 to +60 <sup>(4)</sup> (-40°F / -40°C option) <sup>(5)</sup> |                            |             |                            |                                       |       |                              | *F / °C    |
| Protection Rating  | NEMA 4X (Inverter with Safety Switch)   |                            |             |                            |                                       |       |                              |            |

<sup>(1)</sup> For other regional settings please contact SolarEdge support

<sup>(2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated

<sup>(3)</sup> Revenue grade inverter P/N: SExxxxH-US000NNC2

<sup>(4)</sup> For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

<sup>(5)</sup> -40 version P/N: SExxxxH-US000NNU4

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**RoHS**

# Power Optimizer For Residential Installations

S440, S500



POWER OPTIMIZER

## Enabling PV power optimization at the module level

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

\* Functionality subject to inverter model and firmware version

[solaredge.com](https://www.solaredge.com)



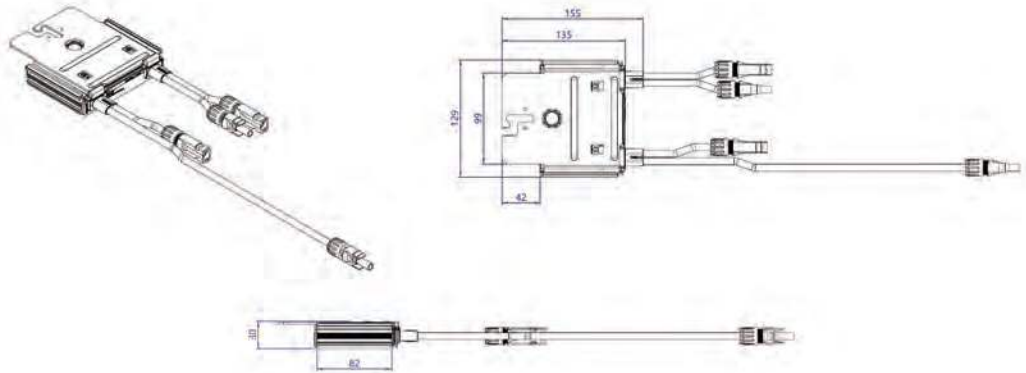
## Power Optimizer For Residential Installations S440, S500

|  | S440   | S500 | UNIT    |
|--|--|------|---------|
|  |  |      |         |
| Rated Input DC Power <sup>(1)</sup>  | 440  | 500  | W       |
| Absolute Maximum Input Voltage (Voc)   | 60   |      | Vdc     |
| MPPT Operating Range   | 8 - 60   |      | Vdc     |
| Maximum Short Circuit Current (Isc) of Connected PV Module                         | 14.5   | 15   | Adc     |
| Maximum Efficiency   | 99.5   |      | %       |
| Weighted Efficiency  | 98.6   |      | %       |
| Overtoltage Category   | II   |      |         |
| OUTPUT DURING OPERATION  |  |      |         |
| Maximum Output Current   | 15   |      | Adc     |
| Maximum Output Voltage   | 60   |      | Vdc     |
| OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF) |  |      |         |
| Safety Output Voltage per Power Optimizer  | 1  |      | Vdc     |
| STANDARD COMPLIANCE  |  |      |         |
| EMC  | FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011 |      |         |
| Safety   | IEC62109-1 (class II safety), UL1741                               |      |         |
| Material   | UL94 V-0, UV Resistant   |      |         |
| RoHS   | Yes  |      |         |
| Fire Safety  | VDE-AR-E 2100-712:2013-05  |      |         |
| INSTALLATION SPECIFICATIONS  |  |      |         |
| Maximum Allowed System Voltage   | 1000   |      | Vdc     |
| Dimensions (W x L x H)   | 129 x 155 x 30   |      | mm      |
| Weight (including cables)  | 655 / 1.5  |      | gr / lb |
| Input Connector  | MC4 <sup>(2)</sup>   |      |         |
| Input Wire Length  | 0.1  |      | m       |
| Output Connector   | MC4  |      |         |
| Output Wire Length   | (+) 2.3, (-) 0.10  |      | m       |
| Operating Temperature Range <sup>(3)</sup>   | -40 to +85   |      | °C      |
| Protection Rating  | IP68 / NEMA6P  |      |         |
| Relative Humidity  | 0 - 100  |      | %       |

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed  
(2) For other connector types please contact SolarEdge  
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

| PV System Design Using a SolarEdge Inverter           |            | Single Phase HD-Wave | Three Phase          | Three Phase for 277/480V Grid |   |
|---|------------|----------------------|----------------------|-------------------------------|---|
| Minimum String Length (Power Optimizers)              | S440, S500 | 8                    | 16                   | 18                            |   |
| Maximum String Length (Power Optimizers)              |            | 25                   | 50                   |                               |   |
| Maximum Nominal Power per String <sup>(4)</sup>       |            | 5700                 | 11250 <sup>(5)</sup> | 12750 <sup>(6)</sup>          | W |
| Parallel Strings of Different Lengths or Orientations |            | Yes                  |                      |                               |   |

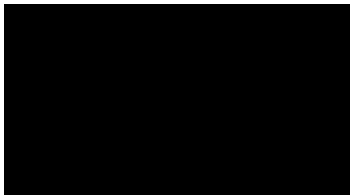
(4) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power Refer to: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>  
(5) For the 230/400V grid: it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W  
(6) For the 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W  
(7) It is not allowed to mix S-series and P-series Power Optimizers in new installations



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CE RoHS





## Automatic Transfer Switches



## PWRview™ Automatic Transfer Switch



200 Amps, Single Phase  
Model: RXEMW200A3



Automatic Transfer Switches

1 of 2

Automatic Transfer Switches

2 of 2



## PWRview Automatic Transfer Switch

### 200 Amps, Single Phase

#### Functions

All timing and sensing functions originate in the generator controller.

|  |   |
|--|---|
| Utility Voltage Drop-out   | <65%  |
| Timer to Generator Start   | 5 Second Factory Set, Adjustable Between 2 - 1,500 Seconds by a Qualified Dealer*             |
| Engine Warmup Delay  | 5 Seconds   |
| Standby Voltage Sensor   | 65% for 5 Seconds   |
| Utility Voltage Pickup   | >80%  |
| Re-transfer Time Delay   | 15 Seconds  |
| Engine Cooldown Timer  | 60 Seconds  |
| Exerciser  | Nexus™: 12 Minutes Weekly<br>Evolution™: 5 to 12 Minutes Adjustable, Weekly/Bi-weekly/Monthly |
| The Transfer Switch can be Operated Manually Without Power Applied |   |

\* When used in conjunction with units utilizing Evolution™ controls

#### Specifications

|                                  |                               |
|----------------------------------|-------------------------------|
| Amps                             | 200                           |
| Voltage                          | 120/240, 1ø                   |
| Load transition type (automatic) | Open transition service rated |
| Enclosure type                   | NEMA Type 3R                  |
| Compliance                       | ETL                           |
| Withstand rating (amps)          | 22,000                        |
| Lug range                        | 250 MCM - #6                  |

### Description

The Generac PWRview Automatic Transfer Switch integrates the PWRview monitor to provide real-time energy consumption data that can help lower a home's electricity bill. Through the convenient mobile app, a homeowner can access their energy usage and alert information while under utility power or generator power. The PWRview energy monitor is a simple to use and low cost tool that helps save money over the life of the generator. The 200 amp, open transition transfer switch is compatible with single-phase generators having either an Evolution™ or Nexus™ Controller.

### Standard Features

Service Rated Generac Automatic Transfer Switches are housed in an aluminum NEMA Type 3R enclosure, with electrostatically applied and baked powder paint. The Heavy Duty Generac Contactor is an ETL recognized device, designed for years of service. The controller at the generator handles all the timing, sensing, exercising functions, and transfer commands. The integrated PWRview monitor provides real-time energy usage data through the PWRview app. All transfer switches are covered by a 5 year limited warranty.

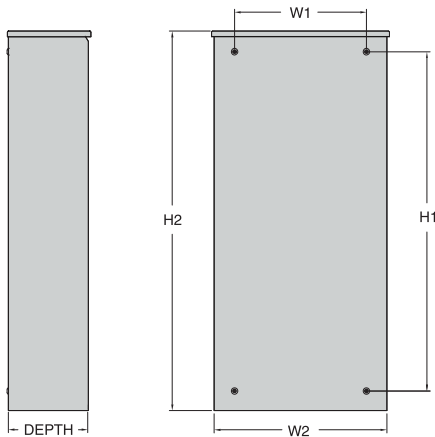
### Load Management Technology

Through the use of the integrated Smart A/C Module (SACM), these switches have the capability to manage up to four individual HVAC (24 VAC controlled) loads with no additional hardware. When used in tandem with external Smart Management Modules (SMM), a total of eight more loads can be managed, providing the most installation efficient power management options available.

#### Dimensions, Weight, and Wire Ranges

| Dimensions and Weight |    |              |
|-----------------------|----|--------------|
| Height (in/cm)        | H1 | 26.8 / 67.95 |
|                       | H2 | 30.1 / 76.43 |
| Width (in/cm)         | W1 | 10.5 / 26.67 |
|                       | W2 | 13.5 / 34.18 |
| Depth (in/cm)         |    | 6.9 / 17.5   |
| Weight (lbs/kg)       |    | 39.0 / 17.7  |

| Wire Ranges   |              |            |
|---------------|--------------|------------|
| Conductor Lug | Neutral Lug  | Ground Lug |
| 250 MCM - #6  | 350 MCM - #6 | 2/0 - #14  |



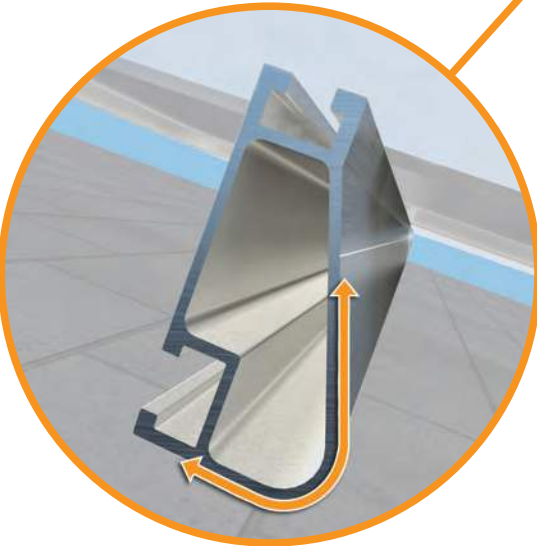
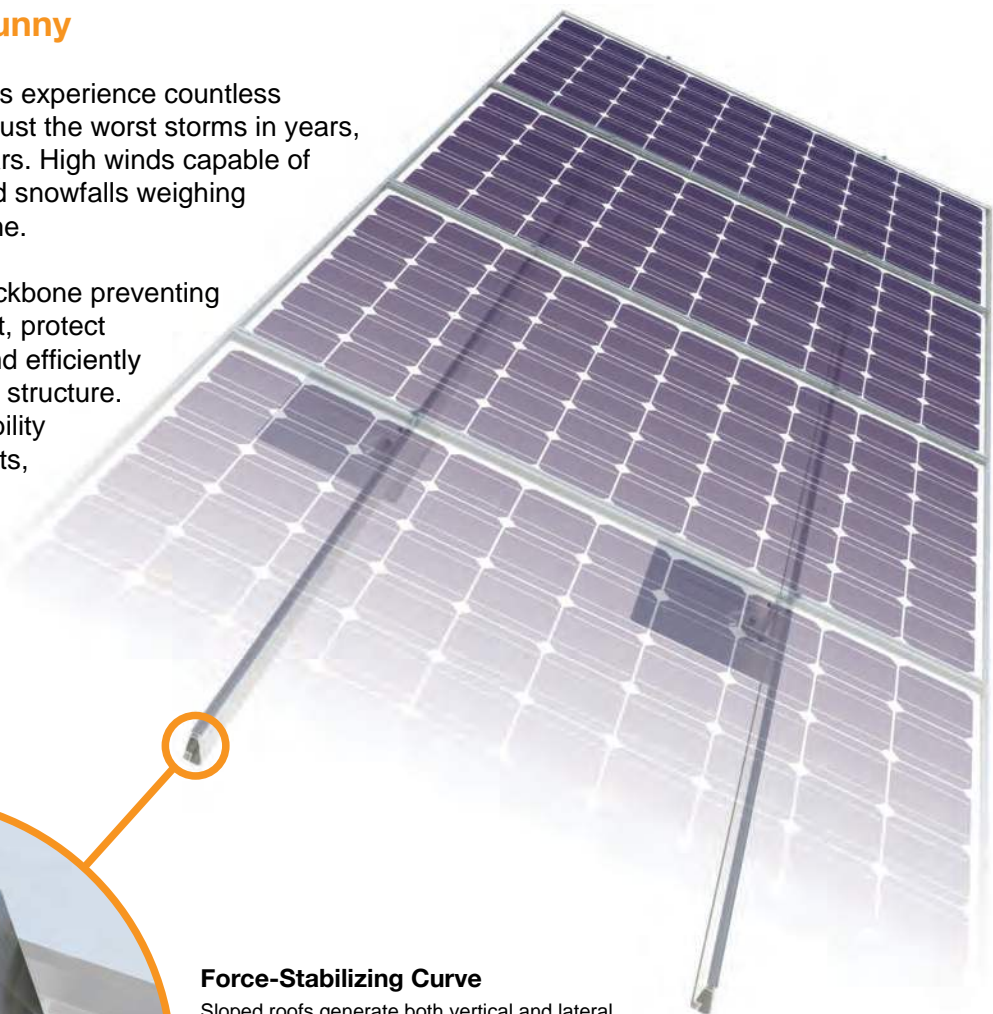


# XR Rail Family

## Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



**Force-Stabilizing Curve**  
Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

### Compatible with Flat & Pitched Roofs

- 

XR Rails are compatible with FlashFoot and other pitched roof attachments.
- 

IronRidge offers a range of tilt leg options for flat roof mounting applications.

### Corrosion-Resistant Materials

All XR Rails are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



## XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.



### XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear & black anodized finish
- Internal splices available



### XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



### XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

## Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.\* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit [IronRidge.com](http://IronRidge.com) for detailed certification letters.

| Load       |            | Rail Span |       |       |    |        |     |
|------------|------------|-----------|-------|-------|----|--------|-----|
| Snow (PSF) | Wind (MPH) | 4'        | 5' 4" | 6'    | 8' | 10'    | 12' |
| None       | 90         | XR10      |       | XR100 |    | XR1000 |     |
|            | 120        |           |       |       |    |        |     |
|            | 140        |           |       |       |    |        |     |
|            | 160        |           |       |       |    |        |     |
| 20         | 90         |           |       |       |    |        |     |
|            | 120        |           |       |       |    |        |     |
|            | 140        |           |       |       |    |        |     |
|            | 160        |           |       |       |    |        |     |
| 30         | 90         |           |       |       |    |        |     |
|            | 160        |           |       |       |    |        |     |
| 40         | 90         |           |       |       |    |        |     |
|            | 160        |           |       |       |    |        |     |
| 80         | 160        |           |       |       |    |        |     |
| 120        | 160        |           |       |       |    |        |     |

\*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.

# GODWIN ENGINEERING AND DESIGN, LLC

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8378 Foxtail Loop, Pensacola, FL 32526 | (850)712-4219 | [chad@godwineng.com](mailto:chad@godwineng.com)

August 15, 2022

To: Columbia County Building Department  
135 NE Hernando Ave  
Lake City, FL 32055

Re: Carner – Residential PV Roof Mount Installation  
306 SW Woodleaf Ct  
Lake City, FL 32024

Plan Reviewer,

This letter is regarding the installation of a new roof mounted Solar PV System on the existing residential structure at the address above. I have reviewed the attachment plan and have determined that the roof mounted PV system is in compliance with the applicable sections of the following Codes as amended and adopted by the jurisdiction:

2020 Florida Building Code 7<sup>th</sup> Edition, FBC  
ASCE 7 Min. Design Loads for Buildings & Other Structures

Per 2020 FBC, the Roof Mounted PV system will be subject to the following design criteria:  
Design Wind Speed( $V_{ult}$ ) - 120mph 3sec gust, Exposure Category – B

The PV System consist of the modules, railing, and connection hardware. The system will add a dead load of approximately 3 psf to the roof.

The existing roof covering is Asphalt Shingle with min. ½" plywood decking and 2" x 4" roof trusses 24" O.C. The roofing, decking, and roof trusses are in good condition. The existing structure will be adequate for supporting the additional PV dead load and wind loads.

The securement method of the PV system is to be flush mounted to the asphalt shingle roof with the Ironridge railing and flashings/attachments. The attachments can be attached up to 72" apart in roof zones 1, 2e, 2n, 2r, 3e, and 48" apart in roof zone 3r. The mounts should be staggered, where possible, to allow distribution of the design loads evenly to the structure. The mounts shall be installed with a min. 5/16" x 4" stainless steel Lag bolts with minimum 2-5/16" thread length.

Please see attached documents and contact me should you have any questions.

Sincerely,

D. Chad Godwin, PE 81360  
Exp. 02/28/2023

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| Wind Load Parameters - Inputs   |                          |             |                 | Wind Load Parameters  |                 |                 |  |
|---|--------------------------|-------------|-----------------|---|-----------------|-----------------|--|
| Risk Category   | II                       | Table 1.5-1 |                 | Wind Speed (asd)  | 93              | mph             | FRC R301.2.1.3   |
| Basic Wind Speed (Ult)  | 120                      | mph         | Figure 26.5-1B  | Effective Wind Area   | 19.85           | ft <sup>2</sup> | 26.20  |
| Roof Angle  | 21° to 27°               |             |                 | Wind Directionality   | K <sub>d</sub>  | 0.85            | Table 26.6-1   |
| Roof Type   | Gable                    |             |                 | Topographic factor  | K <sub>zt</sub> | 1.00            | 26.8 or 26.8.2   |
| Exposure Cat. B, C, or D  | 8                        |             | Section 26.7    | Ground Elevation Factor   | K <sub>e</sub>  | 1.00            | Table 26.9-1   |
| Mean Roof Height  | h                        | 20.00       | ft              | Velocity Exposure Coefficient   | K <sub>z</sub>  | 0.70            | Table 26.10-1  |
| Roof attachment   | 5/16" x 4.75" Lag Screw  |             |                 | Array Edge Factor   | γ <sub>e</sub>  | 1.50            | 29.4.4 *Modules are considered Exposed   |
| Rafter/Truss Spacing  | 24                       |             | in O.C.         | Solar Panel Equalization Factor   | γ <sub>s</sub>  | 0.68            | Fig. 29.4-8  |
| No. of Rails  | 2                        |             |                 | Velocity Pressure   | q <sub>h</sub>  | 13.16           | psf q <sub>h</sub> =0.00256 K <sub>z</sub> K <sub>zt</sub> K <sub>e</sub> K <sub>z</sub> V <sup>2</sup>                    |
| No. of Modules - Portrait   | 26                       |             |                 | Added Safety Factor   |                 | 1.2             |  |
| No. of Modules - Landscape  | 0                        |             |                 | Allowable Pullout per mount   |                 | 859.2           | lbs  |
| Module Model Number   | TSM-DE06x.05(II) 355-380 |             |                 | 0.4h or 0.6h  | 8.00            | ft              | Flat - 0.6h, Gable, Hip - 0.4h   |
| bldg. least horizontal dim (typ.)                                       | 360                      |             | in              | 10% of least horizontal dim   | 3.00            | ft              | 10% of least hor. Dim. Or 0.4h, whichever is smaller, but not less than either 4% of Least hor. Or 3ft. (flat roof - 0.6h) |
| Elevation   | <1000                    |             | ft              | Roof Zone Set Back  | a               | 3.00            | ft   |
| Est. # of attachment points   | 43                       |             |                 | h <sub>2</sub>  | 5               | in              | Not > 10in(panel height above roof)  |
| PV Dead Load  |                          |             |                 | 2h <sub>2</sub>   | 10              | in              | *min distance array shall be from the roof edge, Gable Ridge, or hip ridge   |
| Module and Racking Specs  |                          |             |                 |   | 0.25            | in              | min gap between all panels but not > 6.7ft   |
| # of Modules  | 26                       |             |                 | d1  | 1.00            | ft              | Horizontal distance orthogonal to panel edge   |
| Module  | W <sub>mod</sub>         | 43          | lbs             | d2  | 0.25            | ft              | Horizontal distance from edge of one panel to the nearest edge in the next row   |
| Array   | W <sub>mods</sub>        | 1128        | lbs             | 0.5h  | 10.00           | ft              | *modules are considered exposed that are within 1.5lp from roof edge   |
| Micro/optimizer   | W <sub>mic</sub>         | 104         | lbs             | Module load ratings   |                 |                 |  |
| PV Rail   | W <sub>PV rail</sub>     | 18          | lbs             | Ultimate Allowable  |                 |                 |  |
| Total Weight  | W <sub>total</sub>       | 1251        | lbs             | Load Rating - Snow(psf)   |                 |                 |  |
| Total Area  | A <sub>T</sub>           | 516.17      | ft <sup>2</sup> | 113.4 75.6  |                 |                 |  |
| Dead Load   | D <sub>PV</sub>          | 2.42        | psf             | Load Rating - Wind(psf)   |                 |                 |  |
| Weight/attachment   |                          | 29.1        | lbs             | -50.4 -33.6   |                 |                 |  |
| PV Attachment - Results   |                          |             |                 | Notes   |                 |                 |  |
| Roof Zones - Gable 21° to 27°   |                          |             |                 | Eq.1 Point Load = Roof Zone psf * A <sub>eff</sub>  |                 |                 |  |
|   | 1                        | 2e          | 2r              | Eq.2 A <sub>eff</sub> = (Module Length / 2) * Max Span  |                 |                 |  |
| G <sub>Cp</sub> - Uplift  | -1.5                     | -1.5        | -2.1            | Eq.3 *Max span Equation, SF = Allowable pullout / Point Load  |                 |                 |  |
| G <sub>Cp</sub> - Down  | 0.5                      | 0.5         | 0.5             | Eq.4 Max Span = Allowable Pullout / (SF * Roof Zone psf * L/2)  |                 |                 |  |
| p = q <sub>h</sub> (G <sub>Cp</sub> )(γ <sub>d</sub> )(γ <sub>s</sub> ) | -17.7                    | -17.7       | -25.8           | a) The Max span between attachment points must not exceed the rail spans provided by racking manufacture. |                 |                 |  |
| p = q <sub>h</sub> (G <sub>Cp</sub> )(γ <sub>d</sub> )(γ <sub>s</sub> ) | 6.7                      | 6.7         | 6.7             | b) Allowable Module load ratings are determined by SF = 1.5   |                 |                 |  |
| Max Allowable Span  | 6                        | 6           | 6               |   |                 |                 |  |
| Max Cantilever (in)   | 24                       | 24          | 24              |   |                 |                 |  |



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