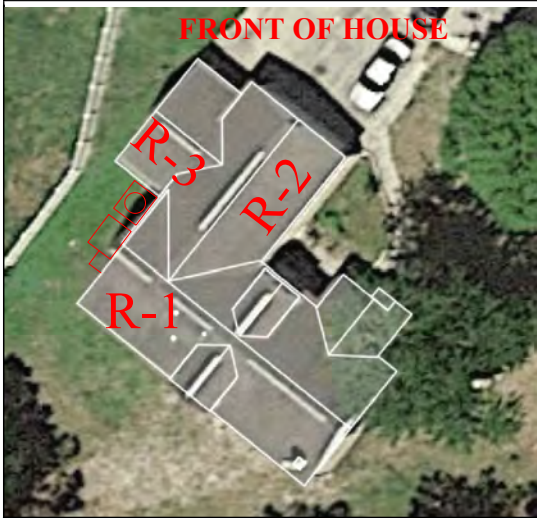




FRONT OF HOUSE

Inverter Type: (1) SolarEdge SE10000H-US
PV Panel: (39) TSM-365-DE06X.05(II)
Racking: Iron Ridge XR-10
Total Wattage: 14,235W DC
Roof Type: Composition Shingle
Wind Load: 21 to 27 Deg
Fastener Type: Use 5/16" Dia 4" 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 SE10000H-US Inverter located near utility meter
- SolarEdge S500 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.



9942 Currie Davis Dr
Suite B
Tampa FL 33619

Legend



First responder access



Ground Access



Chimney



Utility Meter



Satellite



PV Disconnect



Vent Pipe



SolarEdge Inverter

Meets All Editions of Florida Fire Prevention Code 2020 7th Edition
Meets all requirements of 2018 Editions of NFPA-1 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

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.)

FRONT OF HOUSE

R-3
Modules (3)
Pitch: 27°
Azimuth: 218°

-SE10000H-US
Inverter

Utility Meter

-COGEN Disconnect
Located adjacent to
Utility meter

R-2
Modules (13)
Pitch: 27°
Azimuth: 128°

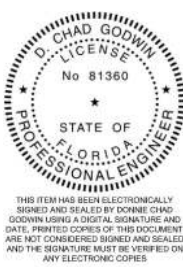
R-1
Modules (23)
Pitch: 27°
Azimuth: 218°



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
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Date: 6/12/2023

Drawn by: GKS

Revised by:

Rev #: 00

Rev Date:

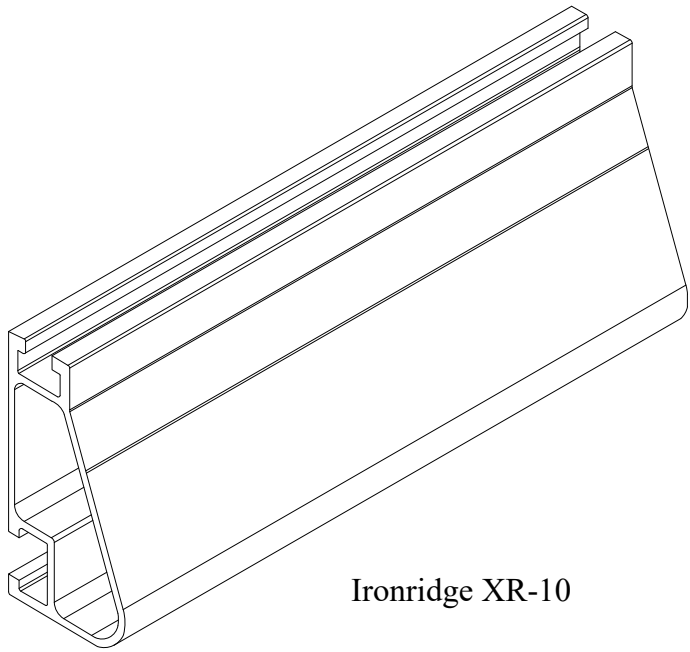
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Compass for Aerial

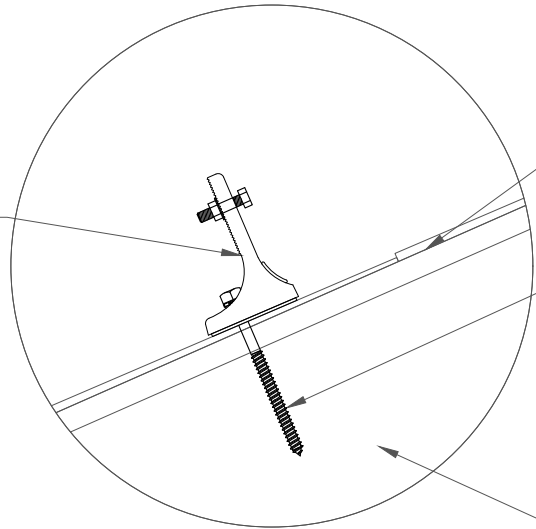
Customer Info:

TONY OWENS
928 SW GATOR CT
LAKE CITY, FL
32025



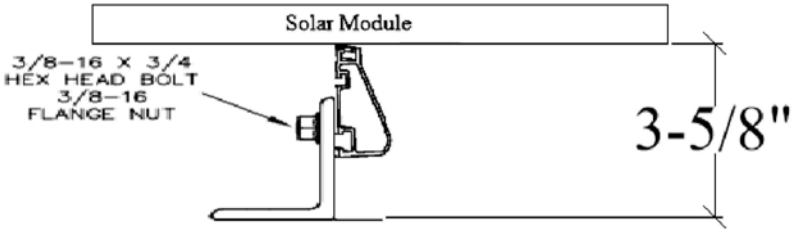
Ironridge XR-10

UNIRAC FLASHLOC ATTACHMENT



- (E) SINGLE LAYER OF COMP SHINGLE
- MIN. 5/16" x 4" LAG BOLT W/ SS EPDM BONDED WASHER INTO STRUCTURAL MEMBER
- (E) STRUCTURAL MEMBER

Unirac Flashloc



R1-R3						
Roof Type:	Composition Shingle					
Roof Pitch & Overhang:	6/12; 12" Overhang					
Mount Type:	Unirac Flashloc					
Fastener:	5/16" x 4" SS Lag bolts into Roof Rafters					
Structure:	2"x4" Wood Trusses @ 24" O.C.					
Sealing/Flashing:	All penetrations are sealed and flashed					
Extra Notes:						

-Roof Height 15'
-Per 2020 FBC, the Roof Mounted PV System will be subject to the following design criteria: Design Wind Speed(Vult) - 120mph 3 sec gust, Exposure Category - C
-Designed as per ASCE7-16

Inverter Type: (1) SolarEdge SE10000H-US
PV Panel: (39) TSM-365-DE06X.05(II)
Racking: Iron Ridge XR-10
Total Wattage: 14,235W DC
Roof Type: Composition Shingle
Wind Load: 21 to 27 Deg
Fastener Type: Use 5/16" Dia 4" Lags

Customer Info:

TONY OWENS
928 SW GATOR CT
LAKE CITY, FL
32025

Install will be done to Manufacturer Spec

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8378 Foxtail Loop
Pensacola, FL 32526
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Chad@godwineng.com

Donnie C Godwin

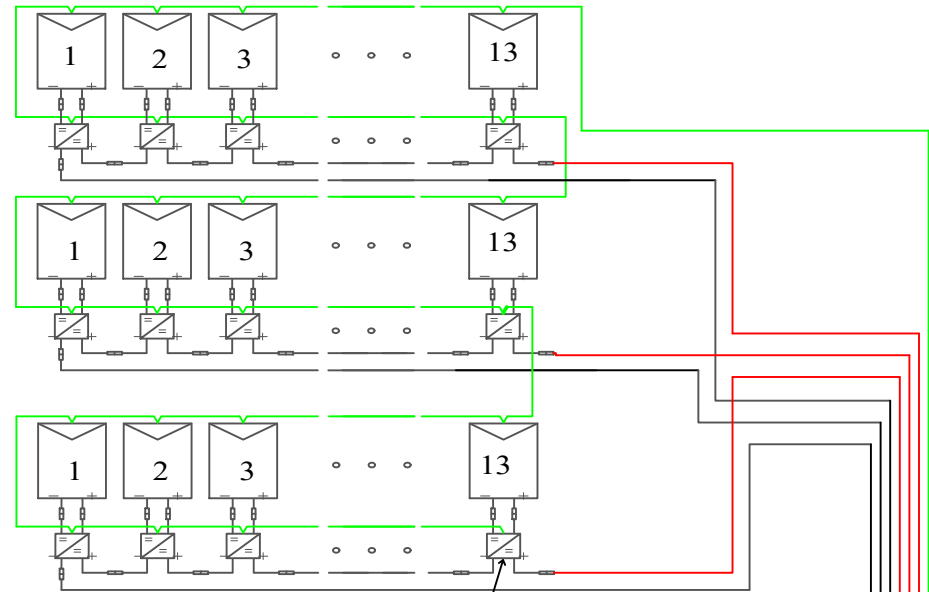
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THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DONNIE CHAD GODWIN USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

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Tampa FL 33619

Date:	6/12/2023
Drawn by:	GKS
Revised by:	.
Rev #:	00
Rev Date:	.
Page:	11"X17" S-2



Power Optimizer

(6) #10 AWG Wire
(1) #8 EGC
In 3/4" Metal Conduit

**PHOTOVOLTAIC SYSTEM
! AC DISCONNECT !**
RATED AC OUTPUT CURRENT: 42A
NOMINAL OPERATING VOLTAGE: 240VAC

Equipment list

PV:
(39) TSM-365-DE06X.05(II)

(39) SolarEdge Power Optimizer S500
(3) strings of (13)

Inverter:
(1) SolarEdge SE10000H-US
SolarEdge AC/DC Safety Switch

AC Disconnect:
60A Disconnect

All wiring to meet the 2017 NEC and
2018 Energy Code

DIRECT CURRENT
PHOTOVOLTAIC
POWER SOURCE
MAXIMUM VOLTAGE
480 VDC
MAXIMUM CIRCUIT CURRENT
27AMPS
MAXIMUM RATED
DC TO DC CONVERTER OUTPUT
15 AMPS

Apply to DC
disconnect/inverter

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

Apply to each J box, combiner
box, disconnect, and device where
energized, ungrounded circuits
maybe exposed during service.

Main Service Panel
200A Main

Supply Side Tap

SolarEdge Inverter
SE10000H-US
w/ Integrated Disconnect

Manual Lockable Disconnect

60A Service Rated
Fused Disconnect
Neutral to Ground Bond
AC Disconnect
60A Fuse

Located Adjacent to Utility Meter

In Compliance with
NEC 705.12(A)

Disconnect is in compliance 230.72
Supply side disconnect adjacent to Msp
Line Side Tap will be done in Main Service Panel Located Inside Garage

Refer to NEC 312.8 for
Conditions on taps in switch
and over current devices
Enclosures.
If the conditions are not
met a tap box will
need to be installed
and revision completed.

Inverter Output Ckt

To Overcurrent Protection Device

AC Max Output Current	42
AC Max Output Current * 125%	52.5
Overcurrent Protection (A)	60
No. of Current Carrying Cond	<4
Conductor Gauge (AWG)	6

		Conduit (in)	L1,L2,N (Awg)	Ground (Awg)	OCPD
After Inverter	B	0.75	6	8	60
To Line Side Tap	C	0.75	6	N/A	60

GEC NOTES

- Ungrounded system per 690.41(A)(4)
- GEC must be installed per 250.64
- GEC must be continuous un-spliced or irreversibly spliced from inverter to existing service ground system or continuous from the arrays to the existing service ground system.
- GEC must be min #8 AWG and installed in conduit
- If GEC is not in conduit, it must be #6 min
- Disconnects will be Visible, lockable, adjacent to and within 10' of utility meter
- All Labels & Markings for photovoltaic system will be reflective and meet all requirements for NFPA 1:11:12

Customer Info:

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LAKE CITY, FL
32025

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Date: 6/12/2023
Drawn by: GKS
Revised by: .
Rev #: 00
Rev Date: .
Page: 11"x17" E-1

Inverter Type:
SolarEdge SE10000H-US
PV Panel:
(39)
TSM-365-DE06X.05(II)
Total Wattage:
14,235W DC

Including the label below

In Case of Emergency Call
ACDC Solar LLC
at 855-577-7999

Meets 11.12.2.1.5

Note:

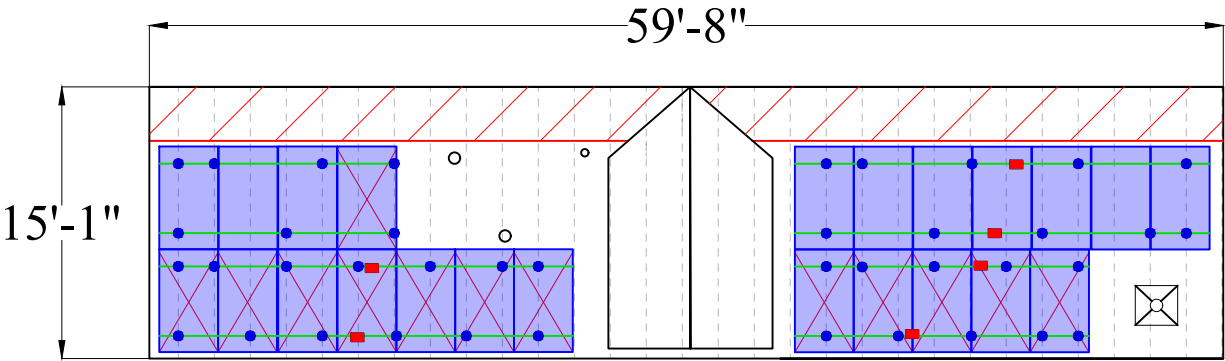
- All wiring to meet the 2017 NEC and Florida electric codes.
- 60A Disconnect
- Type of conduit to be determined on site by contractor.

Install will be done to Manufacturer Spec

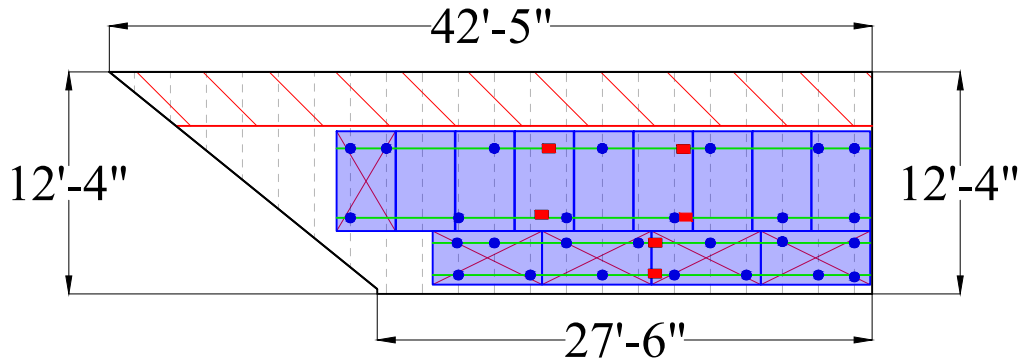
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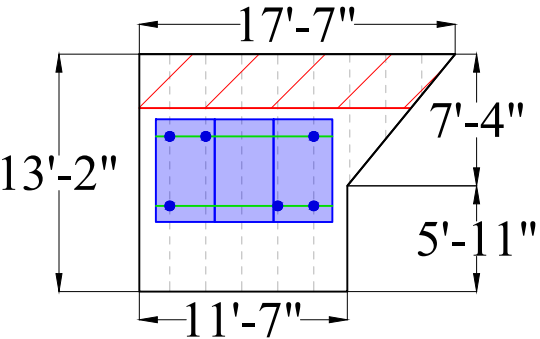
- Iron Ridge XR-10 Rail
- 14' 26
- 12 Splice Bar
- 73 Unirac Flashloc
- 92 Iron Ridge UFO's
- 28 Iron Ridge Sleeves/End Caps
- 3 Roof Top Combiner
- 7 Iron Ridge Ground Lugs
- 39 TSM-365-DE06X.05(II)
- 1 SolarEdge SE10000H-US
- 1 60A Fused Disconnect
- 2 60A Fuses
- 39 S500 Optimizer



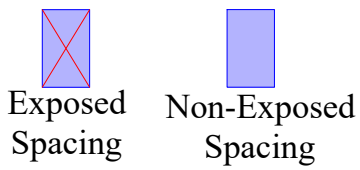
R-1
Modules (23)
Pitch: 27°
Azimuth: 218°



R-2
Modules (13)
Pitch: 27°
Azimuth: 128°



R-3
Modules (3)
Pitch: 27°
Azimuth: 218°



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

Rafter Spans	Zone 1	Zone 2e	Zone 2n	Zone 2r	Zone 3e	Zone 3r
Exposed	48"	48"	24"	24"	24"	24"
Non-Exposed	72"	72"	48"	48"	48"	48"
Max Cantilever	28.8"	28.8"	19.2"	19.2"	19.2"	19.2"

Max Cantilever = Max Span * (2/5)

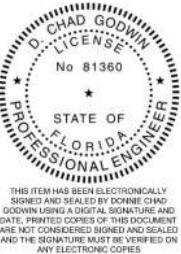
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Date: 6/12/2023
Drawn by: GKS
Revised by: .
Rev #: 00
Rev Date: .
Page: 11"x17" S-1A

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

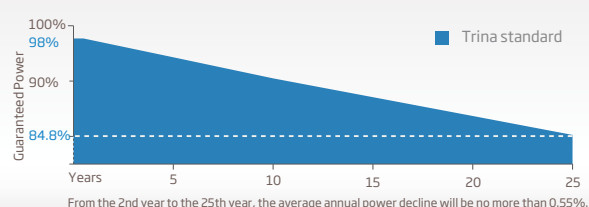


Certified to withstand the most challenging environmental conditions

- 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

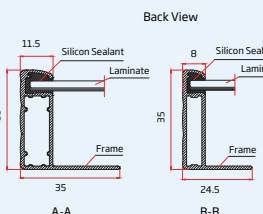
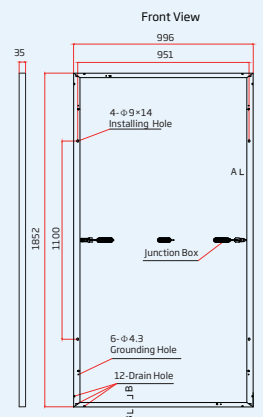
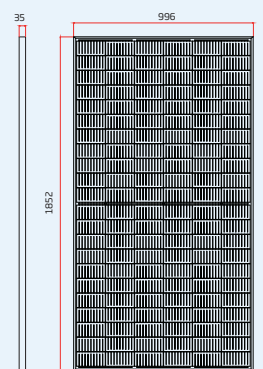
25 Year Product Warranty · 25 Year Power Warranty



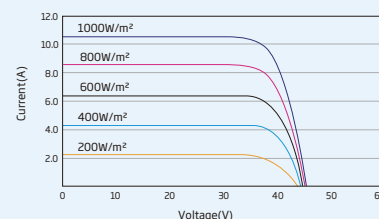
Residential Module

MULTI-BUSBAR MONO PERC MODULE

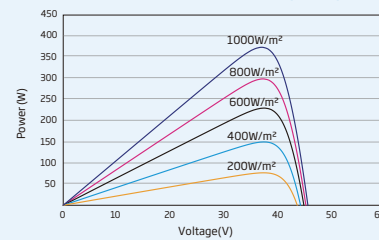
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(370W)



P-V CURVES OF PV MODULE(370W)



ELECTRICAL DATA (STC)

Peak Power Watts-P _{MAX} (Wp)*	355	360	365	370	375	380
Power Output Tolerance-P _{MAX} (W)	0 ~ +5					
Maximum Power Voltage-V _{MPP} (V)	36.8	37.0	37.2	37.4	37.6	37.8
Maximum Power Current-I _{MPP} (A)	9.66	9.74	9.82	9.90	9.98	10.07
Open Circuit Voltage-V _{OC} (V)	44.6	44.8	45.0	45.2	45.3	45.5
Short Circuit Current-I _{SC} (A)	10.24	10.30	10.35	10.40	10.45	10.51
Module Efficiency η _m (%)	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 _{MAX} (Wp)	268	272	276	279	283	287
Maximum Power Voltage-V _{MPP} (V)	34.4	34.7	34.9	35.1	35.3	35.6
Maximum Power Current-I _{MPP} (A)	7.80	7.85	7.90	7.96	8.01	8.06
Open Circuit Voltage-V _{OC} (V)	42.0	42.2	42.4	42.6	42.6	42.8
Short Circuit Current-I _{SC} (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), Portrait: N 280mm/P 280mm(11.02/11.02inches) 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 _{MAX}	-0.34%/°C
Temperature Coefficient of V _{OC}	-0.25%/°C
Temperature Coefficient of I _{SC}	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)

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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Version number: TSM_DE06X.05(II)_NA_2021_A

www.trinasolar.com

Trina solar

Scepter Junction Box

JBX666 | 277005

Junction boxes form an integral part of a circuit protection system and are constructed to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions. JBX boxes are molded of PVC, are entirely non-metallic and provide NEMA Type 1, 2, 3R, 4, 4X, 6, 6P, 12, 13 protection.

APPLICATION / USE

JBX junction boxes are designed and approved for use in indoor/outdoor, industrial, MRO and OEM applications for the accessibility and installation of wire and cable in continuous lengths and to enclose joints and splices. JBX junction boxes can also be used to enclose electrical equipment in non-hazardous locations.

MATERIAL

PVC, Valox, IPEX proprietary gasket

STANDARDS

UL 50/50E, CSA 94.1/94.2,  CSA C22.2 No.85, CSA C22.2 No.40

FLAMABILITY RATING

UL 94V-0

OUTDOOR SUITABILITY

UL 746C

BOX VOLUME

255 cu.in/4184 ml

NEMA

Type 1, 2, 3R, 4, 4X, 6, 6P, 12, 13

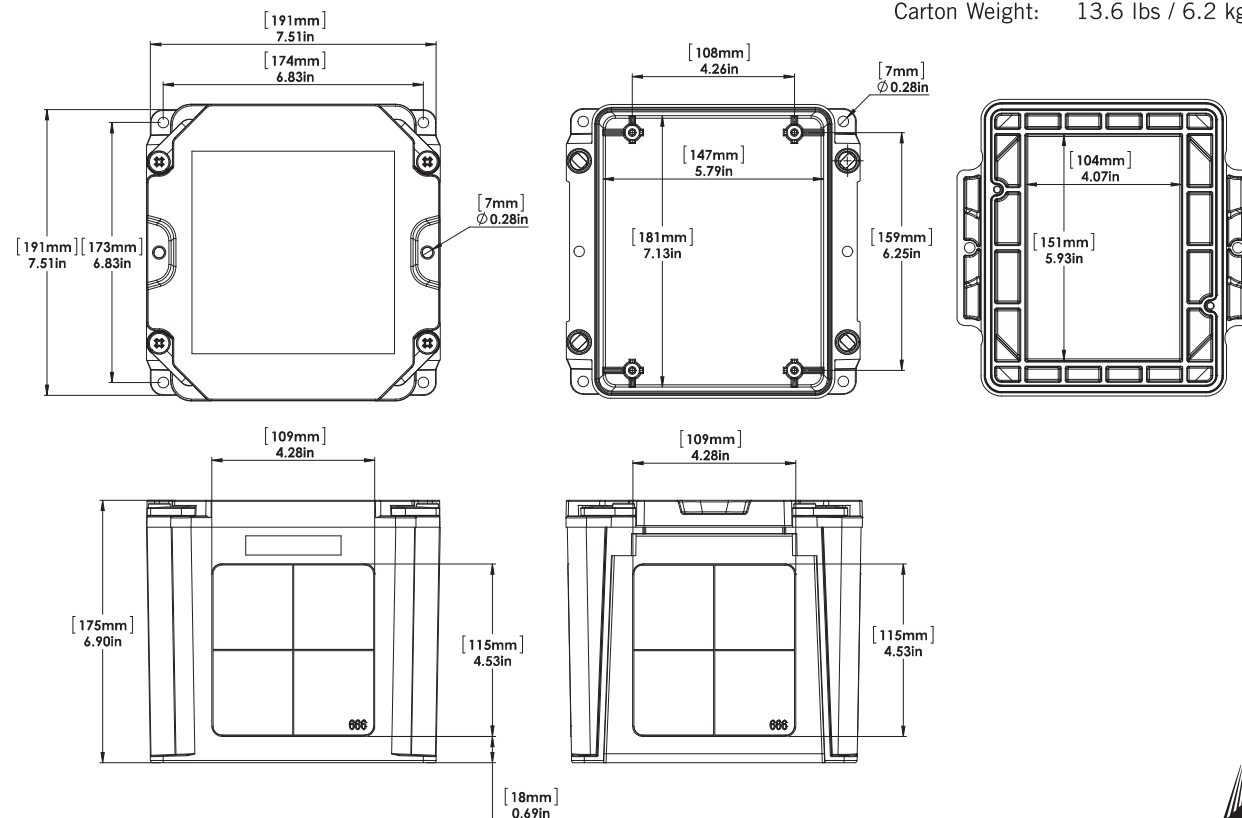
FASTENER TOOL

#2 Phillips screwdriver

PACKAGING

Carton Quantity: 4

Carton Weight: 13.6 lbs / 6.2 kg



Eaton general duty cartridge fuse safety switch

DG222NRB

UPC:782113144221

Dimensions:

- **Height:** 14.37 IN
- **Length:** 7.35 IN
- **Width:** 8.4 IN

Weight: 10 LB

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.

Warranties:

- Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

Specifications:

- **Type:** General duty, cartridge fused
- **Amperage Rating:** 60A
- **Enclosure:** NEMA 3R
- **Enclosure Material:** Painted galvanized steel
- **Fuse Class Provision:** Class H fuses
- **Fuse Configuration:** Fusible with neutral
- **Number Of Poles:** Two-pole
- **Number Of Wires:** Three-wire
- **Product Category:** General duty safety switch
- **Voltage Rating:** 240V

Supporting documents:

- [Eaton's Volume 2-Commercial Distribution](#)
- [Eaton Specification Sheet - DG222NRB](#)

Certifications:

- UL Listed

Product compliance: No Data



Single Phase Inverter with HD-Wave Technology for North America

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

12-25 YEAR WARRANTY

INVERTERS

Single Phase Inverter with HD-Wave Technology for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V ²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ka Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

(1) For other regional settings please contact SolarEdge support
(2) A higher current source may be used; the inverter will limit its input current to the values stated

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)

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

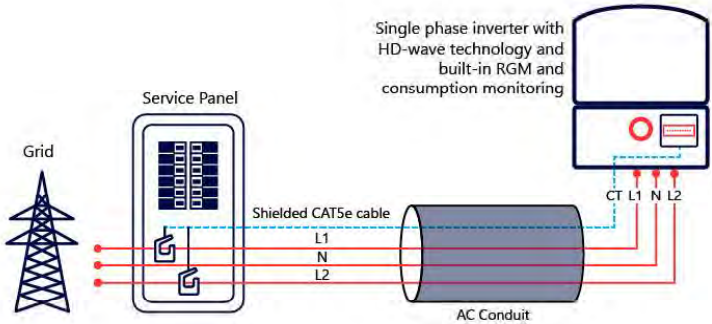
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

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 ⁽³⁾								
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, UL16998, CSA C22.2, Canadian AFCEI 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		dBA	
Cooling	Natural Convection								
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾								°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

(3) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNCh; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNH . 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/ss-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



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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)

solaredge

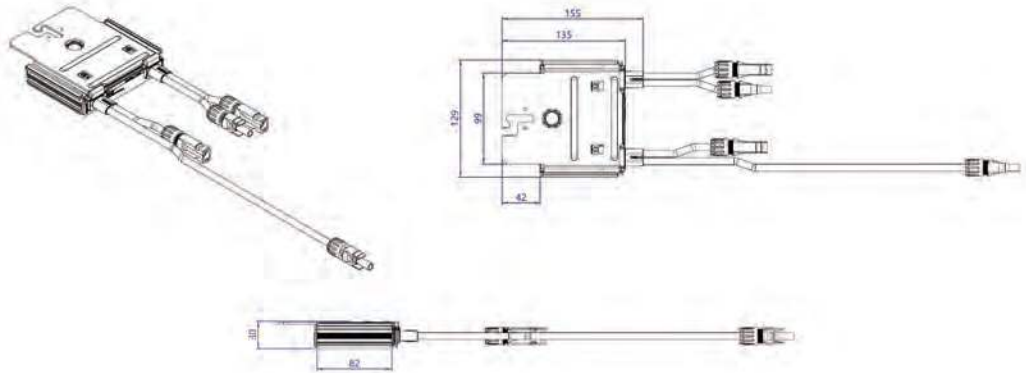
Power Optimizer For Residential Installations S440, S500

	S440	S500	UNIT
Rated Input DC Power ⁽¹⁾	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 ⁽²⁾		
Input Wire Length	0.1		m
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10		m
Operating Temperature Range ⁽³⁾	-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 ⁽⁴⁾		5700	11250 ⁽⁵⁾	12750 ⁽⁶⁾	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

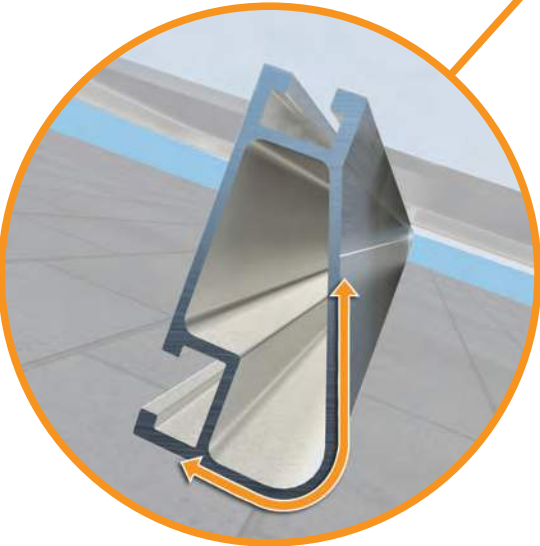
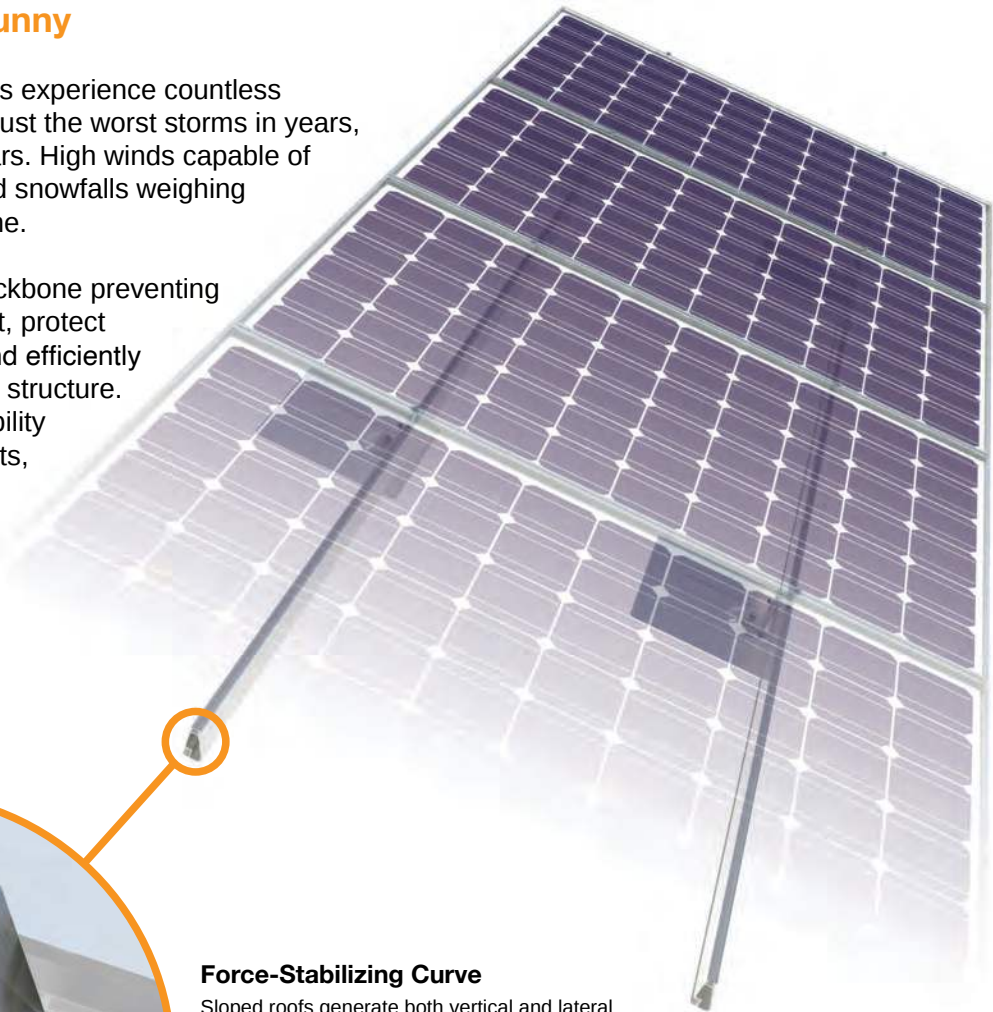


XR Rail Family

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 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

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

June 13, 2023

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

Subject: Ownes - Residential PV Roof Mount Installation
928 SW Gator Ct
Lake City, FL 32025

To whom it may concern,

This letter is regarding the proposed installation of a rooftop-mounted Solar PV system on the existing residential structure at the subject address. I have reviewed the attachment plan and have determined that the rooftop-mounted PV system is in compliance with the applicable sections of the following Codes as amended and adopted by the jurisdiction when installed in accordance with the manufacturer's installation instructions:

2020 Florida Building Code 7th Edition, FBC
ASCE 7 Min. Design Loads for Buildings & Other Structures
Design Criteria: Design Wind Speed(Vult) - 120 mph 3sec gust, Exposure Category - C, Risk Category II

The rooftop-mounted photovoltaic panel system has been designed in accordance with FRC R324.4. When roof penetrations are necessary, they shall be flashed and sealed in accordance with the manufacture's installation instructions, R905.17.3. The PV system consist of the modules, railing, and connection hardware. Refer to the specific roof type calculation pages for PV dead loads. The portions of the existing structure covered with solar panels will be adequate for supporting the roof loads per R324.4.1.1.

The securement method of the the PV system is to be mounted parallel to the structure with the site specific railing and attachments according to the designed plans. The site specific wind load calculations for the module and their supports are attached with this document. Fasteners shall be installed to the designated roof member with the proper torque from the manufactures installation instructions.

The design wind pressures for rooftop solar panels located on enclosed or partially enclosed buildings of all heights, with panels parallel to the roof surface with a tolerance of 2° and with a max height above the roof surface, h_2 , not exceeding 10 in. A min gap of 0.25 in shall be provided between all panels with the spacing of gaps between panels not exceeding 6.7 ft. in addition the array shall be located at least $2h_2$ from the roof edge, a gable ridge, or a hip ridge.

It is the contractors responsibility to review all drawings for accuracy and notify the EOR of any discrepanices prior to beginning construction. To the best of my knowledge, the plans and specifications comply with the minimum requirements of the latest Florida Building code.

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

Sincerely,
D. Chad Godwin, PE 81360
Exp. 02/28/2025

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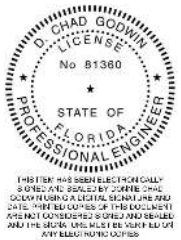


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SIGNED AND SEALED BY DONNIE CHAD
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Roof Structure Details				Ownes - Residential Calculations Sheet - R1-R3					
Roof Angle	21° to 27°			The securement method of the PV system is to be mounted parallel to the Asphalt Shingle roof with the IR-10 railing and Flashloc Comp flashings/attachments. The mounts should be staggered, where possible, to allow distribution of the design loads evenly to the structure. The mounts shall be installed with (1) 5/16" x 4" Lag Screw, FL Comp, to Rafter					
Roof Type	Gable								
Roof Covering	Asphalt Shingle								
Mean Roof Height	15 ft								
Rafter Spacing	24 in O.C.								
Rafter/Truss Size	2 x 4								
Wind Load Parameters									
Wind Speed (asd)	93	mph	FRC R301.2.1.3	Basic Wind Speed (Ult)	120	mph			
Effective Wind Area	19.86	ft ²	26.20	Exposure Cat.	C	B,C, or D			
Wind Directionality	K _d	0.85	Table 26.6-1	Elevation	<1000	ft			
Topographic factor	K _{zt}	1.00	26.8 or 26.8.2	bldg. least hori. dim (typ.)	360	in			
Ground Elevation Factor	K _e	1.00	Table 26.9-1	Roof Height	15.00	ft			
Velocity Exposure Coefficient	K _z	0.85	Table 26.10-1	Exposed Module Definition Exposed factor = 1.5 for uplift loads on panels that are exposed and within a distance 1.5(L _p) from the end of a row at an exposed edge of the array. Modules are considered Exposed if d ₁ to the roof edge > 0.5h and one of the following applies: 1. d ₁ to adjacent array > 4ft. 2. d ₂ to the next adjacent mod > 4ft.					
Array Edge Factor	γ _E	1.50	Exposed					29.4.4	
Array Edge Factor	γ _E	1.00	Non-Exp					29.4.4	
Solar Panel Equalization Factor	γ _a	0.68	Fig. 29.4-8						
Velocity Pressure	q _h	15.98	psf					q _h =0.00256 K _z K _{zt} K _e K _d V ²	
Added Safety Factor		1.2							
Allowable Pullout per mount		517.0	lbs						
10% of least horizontal dim	0.4h or 0.6h	6.00	ft	Flat - 0.6h, Gab/Hip - 0.4h					
Roof Zone Set Back	a	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)					
	h ₂	5	in	Not > 10in(panel height above roof)					
	2h ₂	10	in	*min distance array shall be from the roof edge, Gable Ridge, or hip ridge					
		0.25	in	min gap between all panels but not > 6.7ft					
	d1	1.00	ft	Horizontal distance orthogonal to panel edge					
	d2	0.25	ft	Horizontal distance from edge of one panel to the nearest edge in the next row					
	0.5h	7.50	ft						
PV Attachment - Results									
R1-R3 Roof Zones - Gable 21° to 27°									
	1	2e	2r	2n	3e	3r			
GC _p - Uplift	-1.5	-1.5	-2.1	-2.1	-2.1	-2.3			
GC _p - Down	0.5	0.5	0.5	0.5	0.5	0.5			
p = q _h (GC _p)(G _e)(V _a)Up	-21.7	-21.7	-31.5	-31.5	-31.5	-34.8	psf 29.4-7 Exposed		
p = q _h (GC _p)(G _e)(V _a)UP	-16.0	-16.0	-20.1	-20.1	-20.1	-22.3	psf 29.4-7 Non-Exp.		
p = q _h (GC _p)(G _e)(V _a)Down	16.0	16.0	16.0	16.0	16.0	16.0	psf 29.4-7 Exposed		
p = q _h (GC _p)(G _e)(V _a)Down	16.0	16.0	16.0	16.0	16.0	16.0	psf 29.4-7 Non-Exp.		
Point load (Portrait Rails)	-396	-396	-383	-383	-383	-423	lb p * A _{eff} Exposed		
Point load (Portrait Rails)	-291.7	-291.7	-366.3	-366.3	-366.3	-406.0	lb p * A _{eff} Non-Exp.		
Point Load (landscape Rails)	-213.0	-213.0	-309.0	-309.0	-309.0	-341.0	lb p * A _{eff} Exposed		
Point Load (landscape Rails)	-156.9	-156.9	-197.0	-197.0	-197.0	-218.3	lb p * A _{eff} Non-Exp.		
Max Span (Portrait)	72	72	48	48	48	48	in *** Exposed		
Max Span (Portrait)	72	72	72	72	72	72	in *** Non-Exp.		
Max Span (landscape)	72	72	72	72	72	72	in *** Exposed		
Max Span (landscape)	72	72	72	72	72	72	in *** Non-Exp.		
Cantilever (Portrait)	29	29	19	19	19	19	in Span * 40% Exposed		
Cantilever (Portrait)	29	29	29	29	29	29	in Span * 40% Non-Exp.		
Cantilever (landscape)	29	29	29	29	29	29	in Span * 40% Exposed		
Cantilever (landscape)	29	29	29	29	29	29	in Span * 40% Non-Exp.		
*** Spans with Mark through denote allowable Module pressure rating is exceeded.									
PV Dead Load				TSM-DE06x.05(II) 355-380 Module Specifications					
QTY of Modules (35 in Portrait, 4 in Landscape)	39								
Module Area	19.86	ft ²							
Rail, Clamps, Mounts	1	lb/ft							
Total Rail Length	282	ft							
Module	W _{mod}	43	lbs						
Array	W _{mods}	1693	lbs						
Micro/optimizer	W _{mic}	156	lbs						
PV Rail	W _{PV rail}	282	lbs						
Total Weight	W _{total}	2131	lbs						
Total Area	A _T	774.35	ft ²						
Dead Load	D _{PV}	2.75	psf						
Weight/attachment		29.2	lbs						
Fastener Allowable Pullout				A (ft) B (ft) C (in) D (in) E (in) F (in)					
(1) 5/16" x 4" Lag Screw, FL Comp				6.08 3.27 9.84 14.17 0.00 0.00					
				Module load ratings (psf) Ultimate Allowable(Ult /1.5)					
				Load Rating - Snow 113.4 75.6 Portrait					
				Load Rating - Wind -50.4 -33.6 Portrait					
				Load Rating - Snow 113.4 75.6 Landscape					
				Load Rating - Wind -50.4 -33.6 Landscape					



Donnie C
Godwin

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