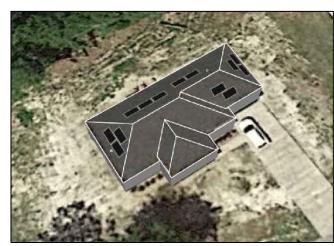


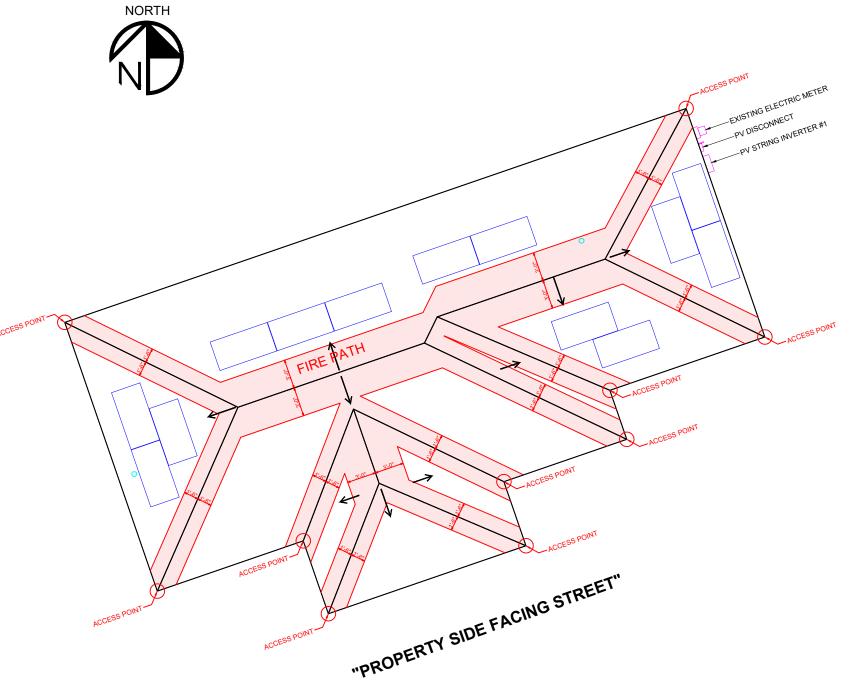
LOCATION MAP / WIND ZONES



IRRADIANCE MAP



3D RENDERING



ROOF PLAN VIEW / BOS LOCATION

DOCUMENT CONTROL DATE CAD Q ENGINEER CONTACT INFORMATION ENGINEERING STAMP CONTRACTOR CONTACT INFORMATION 12-27-2021 BW JO **ENGIPARTNERS LLC** Digitally sign REV DESCRIPTION DATE CAD Q C.A. 32661 by Rafael A 255 GIRALDA AVE Gonzalez Soto CORAL GABLES, FL 33134 Date: OR (01) 2022.01.17 DESIGN@ENGIPARTNERS.COM 05:14:37 -05'00 833 - 888 - 3644 #FC13008093

TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001

SANDY FIROOZ PROJECT ADDRESS: 161 NORTHWEST SPARR LANE LAKE CITY FL 32055 PARCEL NUMBER: 22-2S-16-01716-002

PROJECT ID: TSP110728

ASCE 7-16 EQUATION 30.6-1. ALL NOTES IN FIGURES ASCE 7-16 30.4-1 AND 30.4-2(A,B AND /67C) HAVE BEEN INCORPORATED. MEAN ROOF HEIGHT MUST BE LESS THAN 60 FEET.

COVER SHEET

C-1 ENG RAFAEL A GONZALEZ SOTO PE 1 OF 9

12-27-2021

OPTIMIZERS: (13) P505 BY SOLAREDGE INVERTER: (1) SE3800H-US BY SOLAREDGE

RACKING SYSTEM: CROSS RAIL SYSTEM 44-X

BY K2 SYSTEMS

395W BY Q CELL

PROJECT INFORMATION

PROJECT DESCRIPTION

SYSTEM CAPACITY: 5.1 KW DC / 3.8 KW AC

PV PANELS: (13) Q.PEAK DUO BLK ML-G10+

PROJECT LATITUDE	30.296604	MIN AMBIENT TEMP	-7 ° C
PROJECT LONGITUDE	-82.708187	MAX AMBIENT TEMP	37 ° C
	COLUMBIA CITY	WIND EXPOSURE	С
AHJ	COLUMBIA CITY	DESIGN WIND SPEED	117 MPH

DRAWINGS INDEX

C-1	COVER SHEET
C-2	SAFETY PLANS
E-1	ONE LINE RISER DIAGRAM
E-2	SAFETY LABELS
S-1	STRUCTURAL PLAN
S-2	RACKING PLAN
D-1	PV MODULES DATA SHEET
D-2	SMART MONITORING DATA SHEET
D-3	INVERTER DATA SHEET

GENERAL NOTES

PER FL. STATUTE 377.705 (REVISED 7/1/2017), I RAFAEL A. GONZALEZ SOTO, P.E. 83104 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE.

APPLICABLE CODES: 2020 FLORIDA BUILDING CODE 7TH EDITION, ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, FFPC 7TH EDITION, NFPA 2018, NFPA 70 AND NEC 2017.

CONTRACTOR SHALL ENSURE ALL ROOF PENETRATIONS TO BE INSTALLED AND SEALED PER 2020 FLORIDA BUILDING CODE 7TH EDITION OR LOCAL GOVERNING CODE.

ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) 2017, LOCAL STATE CODES, AND OTHER APPLICABLE LOCAL CODES. MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS IN THE BUILDING. CONNECTORS TO BE TORQUED PER DEVICE LISTING, OR MANUFACTURERS RECOMMENDATIONS. NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED FOR PROPER GROUNDING.

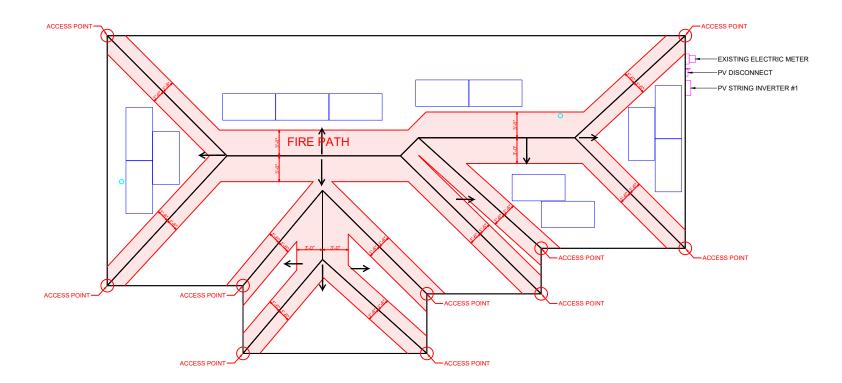
REQUIRED SAFETY SIGNS AND LABELS SHALL BE PERMANENTLY ATTACHED BY ADHESIVE, OR OTHER MECHANICAL MEANS, LABELS SHALL COMPLY WITH ARTICLE 690 VI OF THE NEC 2017 OR OTHER APPLICABLE STATE AND LOCAL CODES. SEE LABELS AND MARKING PAGE FOR MORE INFORMATION.

RACKING ROOF MOUNT SYSTEM SHALL BE INSTALLED FOLLOWING MANUFACTURERS INSTRUCTION SPEC'S, INCLUDING ALL GROUNDING WEEB CLIPS, GROUND LUGS, AND RAIL SPLICE KITS FOR ELECTRICAL

MECAWIND TOOL IS BASED ON THE C&C WIND LOADS FOR ENCLOSED

BUILDINGS, DESIGN WIND PRESSURES ARE CALCULATED USING





"PROPERTY SIDE FACING STREET"



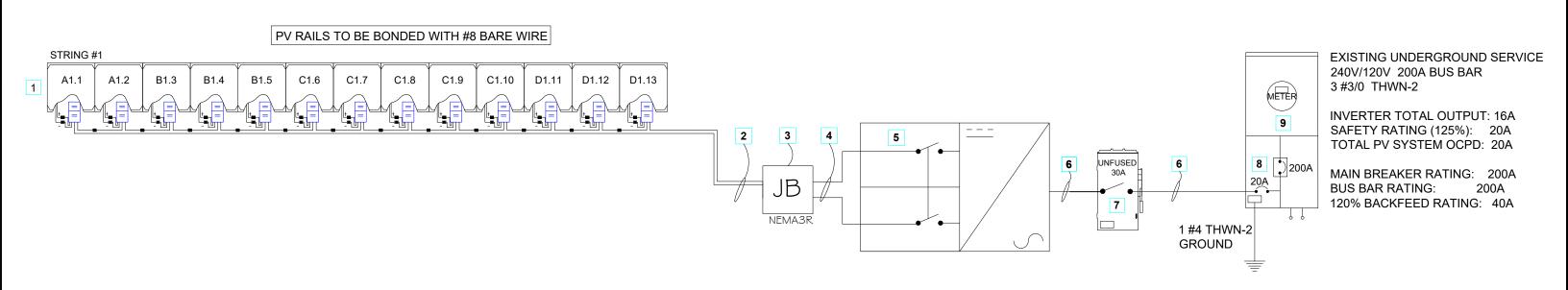
1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME 2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST URGENT CAR FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK

NAME: ADDRESS: PHONE NUMBER:

LOCATION OF NEAREST URGENT CARE FACILITY

	DOCUMENT CONTROL DATE CAD	QC ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	CONTRACTOR LOGO		SHEET NAME:			
ISSUED FOR PERMIT	12-27-2021 BW	ENGIPARTNERS LLC		TITAN SOLAR POWER FL		SANDY FIROOZ	PROJECT ID: ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE TSP110728 C-2			
REV DESCRIPTION	DATE CAD	QC	Digitally signed	12221 N US HIGHWAY 301		PROJECT ADDRESS:				
		C.A. 32661 255 GIRALDA AVE	by Rafael A	12221 N US HIGHWAT 301		161 NORTHWEST SPARR LANE				
		CORAL GABLES, FL 33134	Gonzalez Soto	THONOTASASSA, FL 33592		LAKE CITY FL 32055			SHEET TITLE:	0.0
		DESIGN@ENGIPARTNERS.COM	етатери Date:	(942) 092 0004	SOLAR POWER				C-2	
		DESIGN@ENGIPARTNERS.COM	05:14:50 -05'00'	(813) 982 -9001		PARCEL NUMBER:	1 135110720	DATE:	SHEETS:	0.05.0
		833 - 888 - 3644	30390amadway 03.11.30 03.00	#EC13008093		22-2S-16-01716-002		12-27-2021		2 OF 9

	WI	RE SIZES, QUANTITY &	TYPE	RACEWAY	RACEWAY SIZE, TYPE, LOCATION & INFO.			WIRE AMPACITY CALCULATIONS						ADDITIONAL INFORMATION			ON
	CONDUCTOR	NEUTRAL	GROUND	RACEWAY	RACEWAY	RACEWAY HEIGHT	OUTPUT	125% OF	MIN	WIF	WIRE DE-RATED CALCULATION						CONDUIT
WIRE TAG	QTY. SIZE & TYPE	QTY. SIZE & TYPE	QTY. SIZE & TYPE	SIZE & TYPE	LOCATION	ABOVE ROOF	CURRENT		OCPD	7		# OF COND.	FINAL AMPACITY	DIST.	VOLTAGE		FILL %
DO (DEEODE ID)	(4) #40 A)A(O D)()A(IDE	N1/A	(4) #0 ANNO DADE CODDED			==										0.440/	0.40/
DC (BEFORE JB)	(4) #10 AWG PV WIRE	N/A	(1) #8 AWG BARE COPPER	NOT APPLICABLE	UNDER ARRAY	1/2" TO 3-1/2"	15A	18.8A	20A		40A X 0.76 X	1 = 30.	4 A	10 FT.	350V	0.11%	6.4%
DC (AFTER JB)	(4) #10 AWG THWN-2	N/A	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	15A	18.8A	20A		40A X 0.76 X	(0.8 = 24.	3 A	20 FT.	350V	0.21%	8.1%
AC (INVERTER TO METER)	(2) #10 AWG THWN-2	(1)#10AWG THWN-2	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	EXTERIOR WALL	"N/A"	16A	20.0A	20A		40A X 0.76 X	1 = 30.	4 A	5 FT.	240V	0.1%	7.7%



1 ONE LINE RISER DIAGRAM N.T.S.

LEGEND:

(13) Q.PEAK DUO BLK ML-G10+395W BY Q CELL REFER TO D-1 SHEET	2 #10 PV WIRE PER STRING 1 #8 BARE WIRE GROUND 3/4" EMT CONDUIT	3	NEMA3R JUNCTION BOX
2 #10 THWN-2 PER STRING 1 #8 THWN-2 GROUND 3/4" EMT CONDUIT	5 SE3800H-US BY SOLAREDGE REFER TO D-3 SHEET	6	2 #10 L1,L2 THWN-2 1 #8 THWN-2 GROUND 1 #10 THWN-2 NEUTRAL 3/4" EMT CONDUIT
7 PV SYSTEM DISCONNECT - 30A RATED	8 PV INTERCONNECTION POINT - PV BREAKER	9	UTILITY ELECTRICAL SERVICE

	DOCUMENT CONTROL	DATE CAD QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	CONTRACTOR LOGO	CUSTOMER:	SHEET NAME:		
ISSUE	FOR PERMIT	12-27-2021 BW JG	ENGIPARTNERS LLC		TITAN SOLAR POWER FL		SANDY FIROOZ		NE LINE RISER	
REV	REV DESCRIPTION I		i l	Digitally signed	12221 N US HIGHWAY 301	~	PROJECT ADDRESS:	j Oi	NE LINE MISEN	DIAGNAM
			C.A. 32661 255 GIRALDA AVE	by Rafael A	12221 N 03 HIGHWAT 301		161 NORTHWEST SPARR LANE			
			CORAL GABLES, FL 33134	Gonzalez Soto	THONOTASASSA, FL 33592		LAKE CITY FL 32055	PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:
			1	Date:	(2.12) 222	SOLAR POWER		TOD440700	ENG. RAFAEL A. GONZALEZ SOTO, PE	L -1
			DESIGN@ENGIPARTNERS.COM	2022.01.17 05:14:59 -05'00'	(813) 982 -9001		PARCEL NUMBER:	TSP110728	DATE:	SHEETS:
			833 - 888 - 3644	03.14.39 -03 00	#EC13008093		22-2S-16-01716-002		12-27-2021	3 OF 9

WARNING

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED

IN THE OPEN POSITION

ELECTRICAL SHOCK HAZARD

LABEL LOCATION: AC DISCONNECT. POINT OF INTERCONNECTION

PER CODE: NEC 690.13 (B)

WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

LABEL LOCATION: AC DISCONNECT, MAIN PANEL PER CODE: NEC 110.27 (C) OSHA 1910.145(f)(7)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

PHOTOVOLTAIC

SHUTDOWN

EMERGENCY RESPONDER THIS SOLAR PV SYSTEM IS

EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN

THE ENTIRE PV SYSTEM.

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



LABEL LOCATION: AC DISCONNECT, MAIN PANEL PER CODE: NEC 690.56(C)(3)

SYSTEM EQUIPPED WITH RAPID SYSTEM

LABEL LOCATION: AC DISCONNECT

LABEL LOCATION:

AC DISCONNECT, MAIN PANEL

PER CODE: FFPC 7TH EDITION: 11.12.2.1.1.1.1

POINT OF INTERCONNECTION PER CODE: NEC 690.56(C)

WARNING: PHOTOVOLTAIC

LABEL LOCATION:

INVERTER #1

240 V NOMINAL OPERATING AC VOLTAGE 60 HZ NOMINAL OPERATING AC FREQUENCY 3.8 KW MAXIMUM AC POWER 16 A MAXIMUM AC CURRENT MAX OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION N/A

MAXIMUM VOLTAGE

CONVERTER

(IF INSTALLED)

MAXIMUM CIRCUIT CURRENT

MAX RATED OUTPUT CURRENT OF

RATED AC OUTPUT CURRENT:

NOMINAL OPERATING AC VOLTAGE:

THE CHARGE CONTROLLER OR DC-TO-DC

PHOTOVOLTAIC AC DISCONNECT

MAIN PHOTOVOLTAIC

SYSTEM DISCONNECT

LABEL LOCATION: **INVERTER** PER CODE: NEC 690.52

LABEL LOCATION:

LABEL LOCATION:

AC DISCONNECT

PER CODE: NEC 690.54

LABEL LOCATION:

AC DISCONNECT

PER CODE: NEC 690.13 (B)

PER CODE: NEC 690.53

INVERTER

480 VDC

10.5 A

15 A

16 A

240V

WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: POINT OF INTERCONNECTION PER CODE: NEC 705.12 (B)(3)

△NWARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE LABEL LOCATION: POINT OF INTERCONNECTION PER CODE: NEC 705.12(B)(2)(3)(b)

ACAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

UNDER LOAD

LABEL LOCATION: MAIN SERVICE PANEL PER CODE: NEC 690.45(B)(5)

DO NOT DISCONNECT

POINT OF INTERCONNECTION PER CODE: NEC 690.33(E)(2) & NEC 690.15 (C)

LABEL LOCATION:

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION: POINT OF INTERCONNECTION PER CODE: NEC 690.15, NEC 690.13(B)

LABEL LOCATION: ADJACENT TO MAIN DISCONNECT

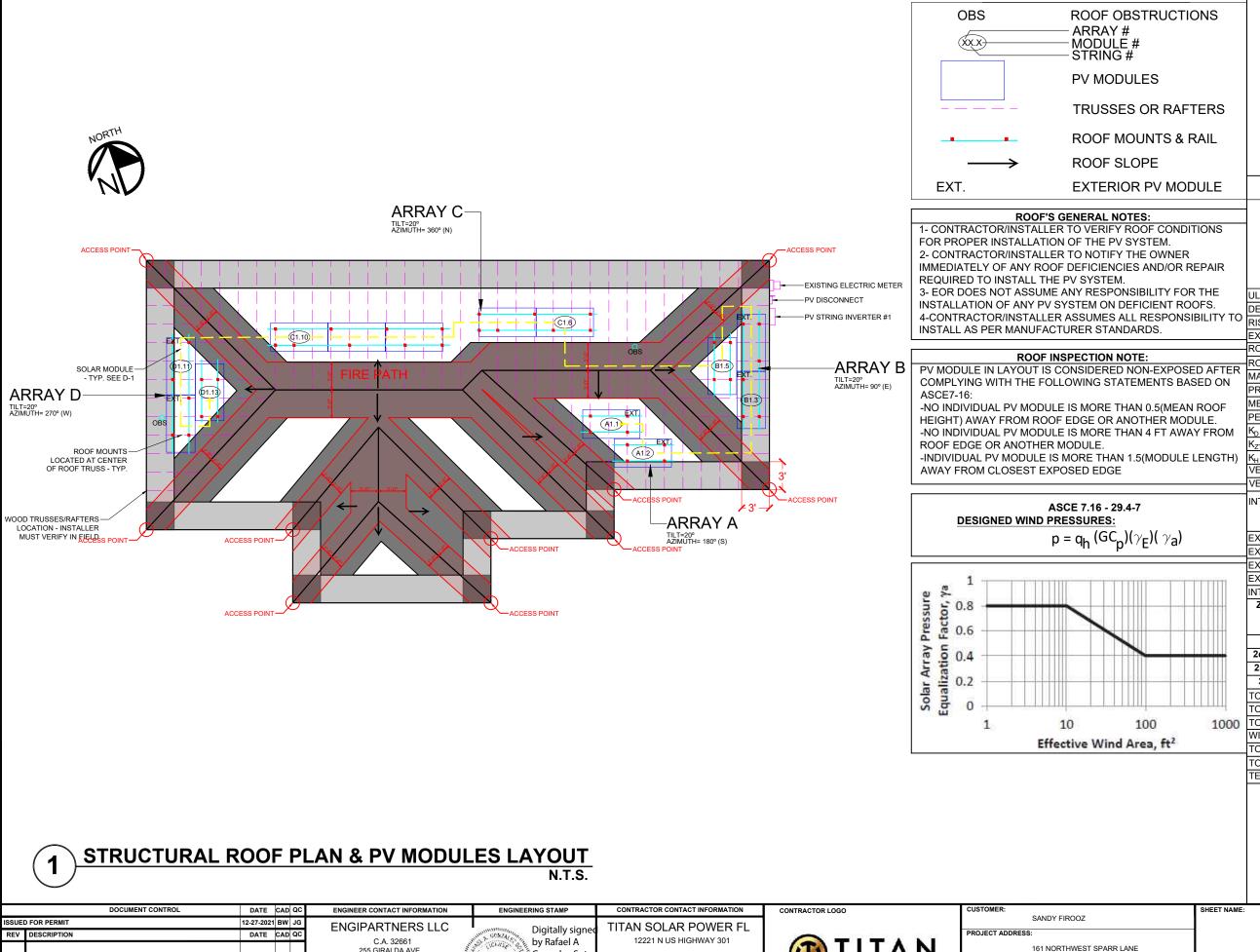


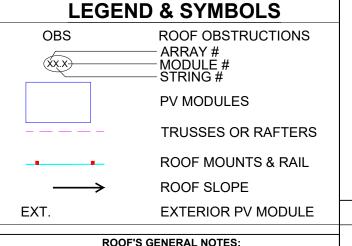
POWER SOURCE

MAIN SERVICES DISCONNECT. DC CONDUIT PER CODE: NEC 690.31 (G) (3)

PV SAFETY LABELS DATA

	DOCUMENT CONTROL DATE CAD QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	CONTRACTOR LOGO	CUSTOMER:	SHEET NAME:		
ISSUE	FOR PERMIT 12-27-2021 BW JG	ENGIPARTNERS LLC	Digitally signe	TITAN SOLAR POWER FL		SANDY FIROOZ		SAFETY LAE	BELS
REV	DESCRIPTION DATE CAD QC		by Rafael A	12221 N US HIGHWAY 301	<u> </u>	PROJECT ADDRESS:		SAFETTLAD	DELO
		C.A. 32661	Gonzalez Soto		TITAN	161 NORTHWEST SPARR LANE			
		CORAL GABLES, FL 33134	" Jufal Bough oto" Date.	THONOTASASSA, FL 33592		LAKE CITY FL 32055		ENGINEER OF RECORD:	SHEET TITLE:
		DESIGN@ENGIPARTNERS.COM	2022.01.17	(813) 982 -9001	SOLAR POWER		TSP110728	ENG. RAFAEL A. GONZALEZ SOTO, PE	E-2
		DESIGNWENGIFARTNERS.COM	05:15:06 -05'0			PARCEL NUMBER:	135 110720		SHEETS:
		833 - 888 - 3644	05.15.00 05 0	#EC13008093		22-28-16-01716-002		12-27-2021	4 OF 9





ROOF'S GENERAL NOTES:

1- CONTRACTOR/INSTALLER TO VERIFY ROOF CONDITIONS FOR PROPER INSTALLATION OF THE PV SYSTEM. 2- CONTRACTOR/INSTALLER TO NOTIFY THE OWNER IMMEDIATELY OF ANY ROOF DEFICIENCIES AND/OR REPAIR REQUIRED TO INSTALL THE PV SYSTEM. 3- EOR DOES NOT ASSUME ANY RESPONSIBILITY FOR THE INSTALLATION OF ANY PV SYSTEM ON DEFICIENT ROOFS.

ROOF INSPECTION NOTE:

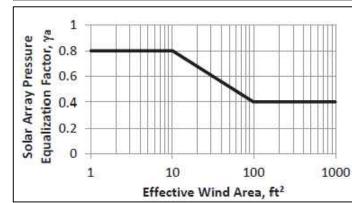
PV MODULE IN LAYOUT IS CONSIDERED NON-EXPOSED AFTER COMPLYING WITH THE FOLLOWING STATEMENTS BASED ON ASCE7-16:

-NO INDIVIDUAL PV MODULE IS MORE THAN 0.5(MEAN ROOF HEIGHT) AWAY FROM ROOF EDGE OR ANOTHER MODULE. -NO INDÍVIDUAL PV MODULE IS MORE THAN 4 FT AWAY FROM ROOF EDGE OR ANOTHER MODULE.

-INDIVIDUAL PV MODULE IS MORE THAN 1.5(MODULE LENGTH) AWAY FROM CLOSEST EXPOSED EDGE

ASCE 7.16 - 29.4-7 **DESIGNED WIND PRESSURES:**

 $p = q_h (GC_p)(\gamma_E)(\gamma_a)$



SOLAR MODULE

UL 1703 CERTIFIED MAX. DESIGN LOAD: 83.54 psf APPLIED WIND LOAD: 34.12 psf NOTES: -INSTALL MID CLAMPS BETWEEN Q.PEAK DUO MODULES AND ENDS CLAMPS AT THE BLK ML-G10+ END OF EACH ROW OF MODULES. 395W -ALUMINUM RAILS SHOULD ALWAYS BE SUPPORTED BY MORE THAN ONE FOOTING ON BOTH SIDES OF THE

WEIGHTED AVERAGE

WORST CASE MODULE:

ZONE 1: 21% **ZONE 2e:** 64% **ZONE 2r:** 15%

25.49(0.21) + 36.41(0.64) + 36.41(0.15) = 34.12psf

ULTIMATE WIND SPEED

ESIGN WIND SPEED			117	mph
ISK CATEGORY				II
XPOSURE CATEGORY				С
OOF SLOPE (°)				26
OOF TYPE			Н	IPPED
ATERIAL ROOF TYPE		ASP	HALT	SHINGLES
RESSURE ZONE:				1&2
EAN ROOF HEIGHT:				13.73
ERIMETER WIDTH:				3.0
)				0.85
ZT				1.00
1				0.850
ELOCITY PRESSURE (q)	$= 0.60*0.00256* K_H K_{ZT} K_D V^2$	2		
ELOCITY PRESSURE (AS	D)			15.17
		ADD/	VEOL	IALIZATION

VELOCITY PRESSURE (AS	D)			15.17	
INTERIOR EDGE FACTOR:	EXTERIOR EDGE	ARR FAC		JALIZATIO	N
γ_{E} = 1.0	FACTOR: γ_{E} = 1.5		γ _a =	0.8	
EXTERNAL PRESSURE CO		0.7	-1.4		
EXTERNAL PRESSURE CO	EFFICIENT Z2e		0.7	-2.0	
EXTERNAL PRESSURE CO		0.7	-2.0		
EXTERNAL PRESSURE CO	EFFICIENT Z3		0.7	-2.0	

INTE	ERNAL		0.18							
ZC	ONES	PRESSURES (PSF)	INTERIOR PRESSURES (PSF) EXTERIOR PRESSURES (PSF)			MAX SPAN (FT)	MAX CANTI- LEVER (IN	1		
1 -23.97 -16.99 -25.49						6 '	24"	_		
2e - 33.07			-24.27	-36.41		6 '	24"			
2r		- 33.07	-24.27	-36.41		4 '	16 "	_		
3		- 33.07	-24.27	-36.41		4 '	16 "	_		
TOTAL ROOF AREA 1961.57 sqft										
TOT	TOTAL MODULES: 13									
TOT	OTAL PHOTOVOLTAIC AREA: 274.69 sqft									

2r		- 33.07 -24.27 -36.4				4 '	16 "					
3		- 33.07	-24.27	-36.41		4 '	16 "					
TOT	TOTAL ROOF AREA 1961.57 sqft											
TOT	TOTAL MODULES: 13											
TOT	AL PHO	OTOVOLTAIC AF	REA:			274.69	sqft					
WIN	ID LOAD) (PSF):				34	.12					
TOT	TOTAL WIND LOAD (LBS): 9,372.42											
TOT	TOTAL ROOF MOUNTS: 44											
TEN	TENSION FORCE PER MOUNT (LBS): 213.01											

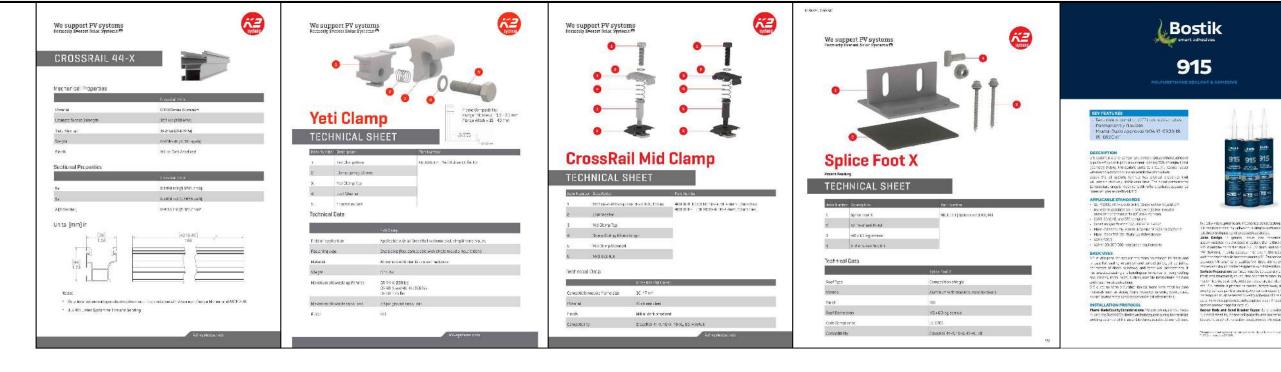
	DOCUMENT CONTROL	DATE	CAD	QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION
ISSUE	O FOR PERMIT	12-27-2021	BW	JG	ENGIPARTNERS LLC	Digitally signed	TITAN SOLAR POWER FL
REV	DESCRIPTION	DATE	CAD	QC	ENGII / II (TILE LEG	Digitally signed	
					C.A. 32661	by Rafael A	12221 N US HIGHWAY 301
					255 GIRALDA AVE	Gonzalez Soto	
					CORAL GABLES, FL 33134	** ** ** ** ** ** ** ** ** ** ** ** **	THONOTASASSA, FL 33592
						Date:	
					DESIGN@ENGIPARTNERS.COM	3% CORT® € 2022.01.17	(813) 982 -9001
						05:15:15 -05'00	
					833 888 3644	100 CO- C1:C1:C0	#EC13008003

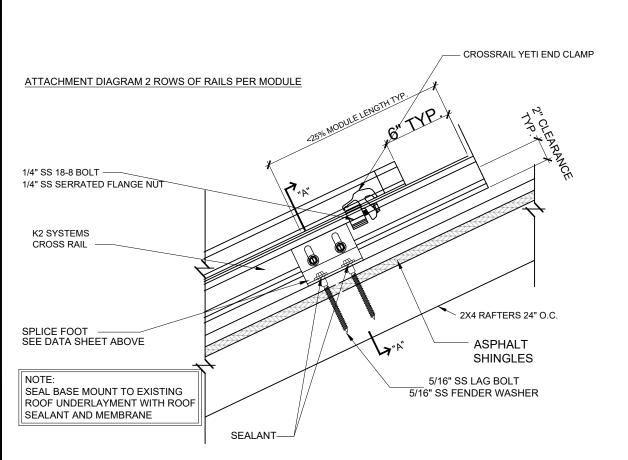


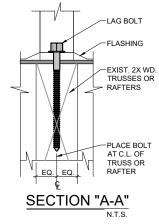
CUSTOMER:	SI
SANDY FIROOZ	
PROJECT ADDRESS:	
161 NORTHWEST SPARR LANE	
LAKE CITY FL 32055	PR
PARCEL NUMBER:	
22-25-16-01716-002	

Y FIROOZ	SHEET NAME:	STRUCTU	RAI PLAN
ORTHWEST SPARR LANE		011100101	
CITY FL 32055	PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:

S-1 ENG. RAFAEL A. GONZALEZ SOTO, PE TSP110728 5 OF 9 12-27-2021







LAG BOLT PULL OUT CALCULATIONS

Spruce, Pine,	266lbs		
SS Lag Bolt 5/16" x 4"	Min. Thread Depth	0'-3"	
Wood Strength x The	ngth		
266 lbs. x 3 in = 798 lbs.			
Allowable Pull Out St	798 lbs.		
Max. Pull Out Strength I	213.01		
Lag Bolt Pull Out Stre	3.75		

K2 SYSTEM 44-X Landscape 60-Cell										
Ground	Exposure	Panel Angle	Wind Speed	120 mph						
Snow Load	Category		Roof Zone	1'	1	2e	2r	2n	3e	3r
0 nef	0 psf C 20 to 2	00 / 07	Array Interior	88	88	88	74	74	74	72
o psi		20 10 27	Array Edge	76	76	76	64	64	64	62

DISTRIBUTED LOAD CALCULATIONS PV MODULES & RACKING WEIGHT = (INDIVIDUAL MODULE WEIGHT + 3.5 LBS) * (MODULE QTY) = (52 LBS) * (13) = 676 LBS PER SQUARE FEET (PSF) ARRAY LOAD = PV MODULES & RACKING WEIGHT / TOTAL ARRAY AREA = 676 LBS / 274 SQFT

 $\frac{\text{HENCE, ROOF WILL CARRY THE ADDITIONAL SOLAR SYSTEM}}{\underline{\text{LOAD}}}$

Notes: (1) Thread must be embedded in the side grain of a Trusses or other structural member integral with the building structure.

- (2) Lag Bolts must be located in the middle third of the structural member.
 (3) These values are not valid for wet services.
- (4) This table does not include shear capacities. If necessary, contact a local engineer to specify lag bolt size with regard to shear forces.

 (5) Install lag bolts with head ad washer flush to surface (no gap). Do nor over-torque.
- (6) Withdrawal design values for lag screw connections shall be multiplied by applicable adjustment factors if necessary. See table 10.3.1 in the American Wood Council NDS

ASCE 7-16 Velocity Press az 10 = 0.00256Kz Kzt Kd V2 Where:

Drill 15/64" pilot hole.
 Apply sealant to bottom of Mount.

Lag Screw Installation Guidelines

Determine location for the Mount on roof by drilling

through the center of truss from bottom with 5/32" drill bit.

Mark mounting holes for Mount on underlayme Mounting holes should be centered on the trusses.

5. Place Mount over roof underlayment with holes in roof. Apply sealant to bottom of Mount, apply sealant to lag screws and fasten Mount securely to trusses.

7. Apply additional sealant to top assembly to be sure all

SHEET NAME:

Lag pull-out (withdrawal) capacities (lbs) in typical roof

	STAINLES	ew specifications	
	Specific	5/ ₁₆ " shaft, *	
	gravity	per inch thread	depth
ouglas Fir, Larch	0.50	266	
ouglas Fir, South	0.46	235	- 1
ngelman Spruce, Lodgepole Pine MSR 1650 f & higher)	0.46	235	↓ II
em, Fir, Redwood (close grain)	0.43	212	ہے'ہے
em, Fir (North)	0.46	235	pth
outhern Pine	0.55	307	돌유를
pruce, Pine, Fir	0.42	205	⊢
pruce, Pine, Fir			Ī
E of 2 million psi and higher rades of MSR and MEL)	0.50	266	•
ources: American Wood Council. NDS	2005. Table 11.	2A. 11.3A.	

1 SHINGLE ROOF MOUNT DETAIL & DATA

	DOCUMENT CONTROL	DATE CAD QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	Γ
ISSUE	O FOR PERMIT	12-27-2021 BW JG	ENGIPARTNERS LLC	Distrallerations	TITAN SOLAR POWER FL	ı
REV	DESCRIPTION	DATE CAD QC	C.A. 32661	Digitally signed	12221 N US HIGHWAY 301	ı
			255 GIRALDA AVE CORAL GABLES, FL 33134	Gonzalez Soto		
			DESIGN@ENGIPARTNERS.COM	2022.01.17	(813) 982 -9001	l
			833 - 888 - 3644	05:15:23 -05'00	#EC13008093	ı



CONTRACTOR LOGO

CUSTOMER:	SANDY FIROOZ
	SANDT FIROUZ
PROJECT ADDRESS	S:
	161 NORTHWEST SPARR LANE
	LAKE CITY FL 32055
PARCEL NUMBER:	

22-2S-16-01716-002

RACKING PLAN

OJECT ID: SP110728	ENG. RAFAEL A. GONZALEZ SOTO, PE	SHEET TITLE:	S-2
31 110720	DATE: 12-27-2021	SHEETS:	6 OF 9





boosts module efficiency up to 21.1%.



THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the

independent certification institute TÜV Rheinland.



INNOVATIVE ALL-WEATHER TECHNOLOGY

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



ENDURING HIGH PERFORMANCE

Long-term y'eld security with Ant' LID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

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



A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year l'near performance warranty-.

05:15:32 -05'00

THE IDEAL SOLUTION FOR:





#FC13008093

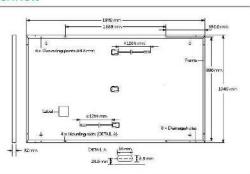
Engineered in Germany

DOCUMENT CONTROL DATE CAD QO ENGINEER CONTACT INFORMATION ENGINEERING STAMP 12-27-2021 BW JG **ENGIPARTNERS LLC** TITAN SOLAR POWER FL Digitally signe REV DESCRIPTION DATE CAD Q by Rafael A 12221 N US HIGHWAY 301 C.A. 32661 255 GIRALDA AVE Gonzalez Soto CORAL GABLES, FL 33134 THONOTASASSA, FL 33592 Date: DESIGN@ENGIPARTNERS.COM 2022.01.17 (813) 982 -9001

833 - 888 - 3644

MECHANICAL SPECIFICATION

Format	1879mm × 1045mm × 32mm (including frame)
Weight	22:0kg
Front Cover	 3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised a luminium
Cell	6 x 22 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass dicdes
Cable	4mm² Solar cable; (+) ≥1250mm, (-) ≥1250mm
Connector	Stäubli MC4; IP68

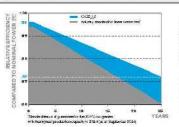


ELECTRICAL CHARACTERISTICS

PO	WER CLASS			385	390	395	400	405	410
MI	IIMUM PERFORMANCE AT STANDA	RD TEST CONDITIO	NS, STC ¹ (P	OWER TOLERA	NCE+5W/-0V	V)			
	Power at MPP ¹	P _{ktP2}	[W]	385	390	395	400	405	410
	Short Circuit Current*	lec	[A]	11.04	11.07	11.10	11.14	11.17	11.20
muu	Open Circuit Voltage ¹	Vac	[V]	45.19	45.23	45,27	45,30	45.34	45,37
Minit	Current at MPP	HIPP	[A]	10.59	10.65	10.71	10.77	10.83	10.89
2	Voltage at MPP	V _{MPP}	[V]	36.36	36,62	35.88	37.13	37.39	37.64
	Efficiency ^a	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	20.9
MI	IIMUM PERFORMANCE AT NORMA	L OPERATING CON	DITIONS, NA	AOT≥					
	Power at MPP	PMPP	[W]	288.8	292.6	296.3	300.1	303.8	307.6
E	Short Circuit Current	I _{SC}	[A]	8.90	8.92	8.95	8.97	9.00	9.03
Minimu	Open Circuit Voltage	Voc	[V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	l _{MPP}	[A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V _{MPP}	[V]	34,59	34.81	35,03	35,25	35,46	35.68

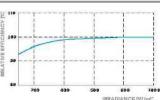
Q CELLS PERFORMANCE WARRANTY

PERFORMANCE A LOWIPP DIANCE



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

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



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I _{sc}	a	[%/K]	+0.04	Temperature Coefficient of V _{cc}	ρ	[%/K]	-0.27
Temperature Coefficient of PMPF	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

PROPERTIES FOR STOTEM DESIGN								
Maximum System Voltage	V _{sys}	[V]	1000	PV module classification	Class II			
Maximum Reverse Current	I _{RC}	[A]	20	Fire Rating based on ANSI/ UL 61730	C/TYPE2			
Max. Design Load, Push / Pull		[Pa]	3600/2660	Permitted Module Temperature	-40°C-+85°C			
Max. Test Load, Push/Pull		[Pa]	5400/4000	on Continuous Duty				

QUALIFICATIONS AND CERTIFICATES

PACKAGING INFORMATION

This data sheet complies with DIN EN 50360. QCPV Certification ongoing. Hamwhia Q CELLS GridH





PARCEL NUMBER:

	The same	T		NO	10-0	40 HC	
lorizontal ackaging	1940mm	1100mm	1220mm	751 kg	28 pallets	24 pallets	32 mod

Note: installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information prapproved installation and use of this product.

Hanwha Q CELLS Australia Ptv Ltd

Suite 1, Level 1, 15 Blue Street, North Sydney, NSW 2060, Australia | TEL +61 (0)2 9016 3032 | FAX +61 (0)2 9016 3032 | FEMAIL qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia@qualis-sustralia

22-2S-16-01716-002

Engineered in Germany



12-27-2021

7 OF 9

SANDY FIROOZ

PV MODULES DATA SHEET PROJECT ADDRESS: 161 NORTHWEST SPARR LANE LAKE CITY FL 32055 D-1 ENG. RAFAEL A. GONZALEZ SOTO, PE

TSP110728

 $^{^{\}rm 3}$ Sec data sheet on rear for further into metion.

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505







PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- / Up to 25% more energy
- Superior efficiency (99.5%)
- / Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- / Flexible system design for maximum space utilization

- / Fast installation with a single bolt
- / Next generation maintenance with modulelevel monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- / Module-level voltage shutdown for installer and firefighter safety

solaredge.com



/ Power Optimizer For North America

		(1800)	P370		NAME OF TAXABLE PARTY.									
Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high- power 60-cell modules)	(for higher- power 60 and 72- cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P405 (for high- voltage modules)	P485 (for high- voltage modules	P505 (for higher current modules)						
NPUT							-							
ated Input DC Power()	320	350	370	400	40	5	485	505	W					
bsolute Maximum Input Voltage Voc. at: lowest temperature)	4	8	60	80	60	12.	5(7)	83(2)	Vdc					
/PPT Operating Range	8 -	8 - 48		8 - 80	8-60	12.5	- 105	12.5 - 83	Vdc					
Aaximum Short Circuit Current sc)	11	11.02	11	10,1	11,75	1	1	14	Adc					
faximum DC Input Current		13.75		12.5	14.65	12.5		17.5	Adc					
laximum Efficiency				99.	5				%					
eighted Efficiency		98.8												
Vervoltage Category				1										
DUTPUT DURING OPER	ATION (POW	ER OPTIMIZ	ER CONNECT	ED TO OPER	RATING SOLA	AREDGE INV	ERTER)							
/aximum Output Current				15	i .				Adc					
Maximum Output Voltage			60			60 85								
							1777-1777		1,000,000					
	DBY (POWER	OPTIMIZER	DISCONNECTI	ED FROM SO	LAREDGE IN	VERTER OR S	SOLAREDGE	INVERTER O	FF)					
OUTPUT DURING STANI Salety Output Voltage per Power	OBY (POWER	OPTIMIZER	DISCONNECTI	ED FROM SO		VERTER OR S	SOLAREDGE	INVERTER O	FF) Vdc					
DUTPUT DURING STANI alety Output Voltage per Power Optimizer		OPTIMIZER	DISCONNECTI			VERTER OR S	SOLAREDGE	INVERTER O						
DUTPUT DURING STANI alely Output Vollage per Power optimizer TANDARD COMPLIANC		OPTIMIZER		1=			SOLAREDGE	INVERTER O						
DUTPUT DURING STANI alety Output Vollage per Power Optimizer STANDARD COMPLIANO MC		OPTIMIZER	FCC Pa	1=	0.1 1000-6-2, IEC61000		SOLAREDGE	INVERTER O						
DUTPUT DURING STANI alely Outpu: Vollage per Power optimizer STANDARD COMPLIANO MC alely		OPTIMIZER	FCC Pa	1 = irt15 Class B, IEC6	0.1 1000-6-2, IFC61000 Il safety), UL1741		SOLAREDGE	INVERTER O						
DUTPUT DURING STANI alety Output Voltage per Power Optimizer STANDARD COMPLIANO MC afety Vaterial		OPTIMIZER	FCC Pa	1 ± irt15 Class B, IEC6 IEC62109-1 (class	0.1 1000-6-2, IEC61000 Il safely), UL1741 V Resistant		SOLAREDGE	INVERTER O						
DUTPUT DURING STANI alety Output Voltage per Power aptimizer TANDARD COMPLIANO MC alety faterial oHS	CE	OPTIMIZER	FCC Pa	1 = irt15 Class B, IEC6 IEC62109-1 (class UL94 V-0, U	0.1 1000-6-2, IEC61000 Il safely), UL1741 V Resistant		SOLAREDGE	INVERTER O						
DUTPUT DURING STANI Safety Output Voltage per Power Optimizer STANDARD COMPLIANO MC Safety Material ROHS NSTALLATION SPECIFIC Maximum Allowed System	CE	OPTIMIZER	FCC Pa	1 = irt15 Class B, IEC6 IEC62109-1 (class UL94 V-0, U	0.1 1000-6-2, IFC6:00X II safety), UL1741 V Resistant s		SOLAREDGE	INVERTER O	-					
DUTPUT DURING STANI Safety Output Voltage per Power Optimizer STANDARD COMPLIANO MC Safety Material ROHS NSTALLATION SPECIFIC Maximum Allowed System Voltage	CE	OPTIMIZER	FCC Pa	1 = rt15 Class B, IEC6 IEC62109-1 (class UL94 V-0, U Ye	0.1 1000-6-2, IFC6:00X II safety), UL1741 V Resistant s	9-6-3	SOLAREDGE	INVERTER O	Vdc					
DUTPUT DURING STANI Salety Output Voltage per Power Optimizer STANDARD COMPLIANC EMC Salety Waterial ROHS NSTALLATION SPECIFIC Waximum Allowed System Collage Compatible inverters Dimensions (W x L x H)	CATIONS	OPTIMIZER (153 × 27.5 / 5.1 ×	FCC Pa	1 = rt15 Class B, IEC6 IEC62109-1 (class UL94 V-0, U Ye 100 dge Single Phase	0.1 1000-6-7, IEC6100X II safety), UL1741 V Resistant S	9-6-3		129 x 152 x 59 / 5.1 x 6.4 x 2.3	Vdd					

- Relative Humidity

Input Connector

Input Wire Length

Output Wire Length

Protection Rating

Output Wire Type / Connector

Operating Temperature Rangel

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

2) NTC 2017 requires max input voltage be not more than 80V

3) For other connector types poase contact SolarEdge

(4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power opt mizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals

3) Tonger inputs where length are available for use. For 0.9m most wire length order P401 soal soc.

(6) For ambient temperature above +85°C / +185°F ower de-rating is applied. Refer to Power Optimizer's Temperature De-Rating Technical Note for more details.

MC499

0.16 or 0.9

Double Insulated / MC4

-40 to +85 / -40 to -185

1968 / NEMA69

0 - 100

0.9 / 2.95

0.16 / 0.52

PV System Design Usir SolarEdge Inverter(*)(8)	ng a	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid		
Minimum String Length	P320, P340, P370, P400, P401	8		10	18		
(Power Optimizers)	P405, P485, P505	(8	14		
Maximum String Length (Powe	er Optimizers)	2	5	25	50%		
Maximum Power per String		5700 (6000 with SE7600-US - SE11400- US)	5250	6000 ^(m)	12750 ⁰⁷⁶	W	
Parallel Strings of Dilferent Len	igths or Orientations	Yes					

(7) For detailed string sizing information refer to: http://www.solaredge.com/sites/oefault/files/string_sizing_na.pdf
(8) It is not allowed to mix P/05/IP/85/P505 with P3/09/P3/09/P3/09/P4/01 in one string
(9) A string with more than 30 opt mizers cose not meet NEC rapid shutdown requirements, safety wortage will be above the 30V requirement
(10) For 20% grid: it is allowed to install up to 5,500W per string when the maximum power difference between each string is 1,000W
(11) For 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

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MC40

m/ft

m/ft

"C/"F

0.16 / 0.52

DOCUMENT CONTROL	DATE CAD QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	CONTRACTOR LOGO	CUSTOMER:	SHEET NAME:						
ISSUED FOR PERMIT	12-27-2021 BW JG				CONTRACTOR LOGO	SANDY FIROOZ							
REV DESCRIPTION	DATE CAD QC	ENGIPARTNERS LLC	Digitally signed by	TITAN SOLAR POWER FL	80 - 80 va	PROJECT ADDRESS:	SMART MONITORING DATA SHEE						
		C.A. 32661 255 GIRALDA AVE	Rafael A	12221 N US HIGHWAY 301	TITAN	161 NORTHWEST SPARR LANE							
		CORAL GABLES, FL 33134	Gonzalez Soto	THONOTASASSA, FL 33592		LAKE CITY FL 32055	PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:				
		DESIGN@ENGIPARTNERS.COM	2022.01.17	(813) 982 -9001	SOLAR POWER		TSP110728	ENG. RAFAEL A. GONZALEZ SOTO, PE	D-2				
		BESIGN GENOM / NOTICE CO. SOM	05:15:41	(010) 002 0001		PARCEL NUMBER: 22-2S-16-01716-002	101 110720		SHEETS: 8 OF 9				
		833 - 888 - 3644	-05'00'	#EC13008093		22-23-10-017 10-002		12-27-2021	0 OF 9				

Single Phase Inverter with HD-Wave Technology

for North America

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







- 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 and 2017, 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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NVERTERS

/ 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-U	SE3800H-US	S	E5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
APPLICABLE TO INVERTERS WITH PART NUMBER										
OUTPUT									le-	
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 MinNomMax. (211 - 240 - 264)	~	✓		✓	✓	~	✓	✓	Va	
AC Output Voltage MinNomMax. (183 - 208 - 229)	2	✓		2	7	E		✓	Va	
AC Frequency (Nominal)					59.3 - 60 - 60.5 ⁽¹⁾				Hz	
Maximum Continuous Output Current @240V	12.5	16		21	25	32	42	47.5	А	
Maximum Continuous Output Current @208V	6	16		Ē	24	=	9	48.5	А	
Power Factor		1, Adjustable - 0.85 to 0.85								
GFDI Threshold		1								
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		9	7750	ā	- 121	15500	W	
Transformer-less, Ungrounded					Yes					
Maximum Input Voltage					480				Vo	
Nominal DC Input Voltage		380					400		Vo	
Maximum Input Current @240V ⁽²⁾	8.5	10.5		13.5	16.5	20	27	30.5	Ac	
Maximum Input Current @208V ⁽²⁾	E	9		2	13.5	=	(4)	27	Ac	
Max. Input Short Circuit Current					45				Ac	
Reverse-Polarity Protection										
Ground-Fault Isolation Detection					600k a Sensitivity					
Maximum Inverter Efficiency	99				9	9.2			9	
CEC Weighted Efficiency					99			99 @ 240V 98.5 @ 208V	96	
Nighttime Power Consumption					< 2.5				V	

	DOCUMEN'	CONTROL DATE	CAD QC	ENGINEER CONTACT INFORMATION	ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION	CONTRACTOR LOGO	CUSTOMER:		SHEET NAME:					
ISSUE	ISSUED FOR PERMIT 12-27-2021 BW JG		BW JG	ENGIPARTNERS LLC	D: 11 II .	TITAN SOLAR POWER FL		SANDY FIROOZ		INVERTER DATA			A SHEET		
REV	DESCRIPTION	DATE	CAD QC		Digitally signe	12221 N US HIGHWAY 301		PROJECT ADDRESS:			INVERTER DAT		- '		
				C.A. 32661 255 GIRALDA AVE	by Rafael A				161 NORTHWEST SPARR LANE						
				CORAL GABLES, FL 33134	Gonzalez Soto	THONOTASASSA, FL 33592			LAKE CITY FL 32055	PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:			
				DEGICAL DENCIDA DENEDO COM	Date:	(040) 000, 0004	SOLAR POWER			TCD110700	ENG. RAFAEL A. GONZALEZ SOTO, PE		D-3		
				DESIGN@ENGIPARTNERS.COM	2022.01.17	(813) 982 -9001		PARCEL NUMBER:		TSP110728	DATE:	SHEETS:	0.05.0		
				833 - 888 - 3644	05:16:00 -05'0	#FC13008093			22-28-16-01716-002		12-27-2021		9 OF 9		

[®] For other regional settings please contact SolarEdge support [®] A higher current source may be used; the inverter will limit its input current to the values stated