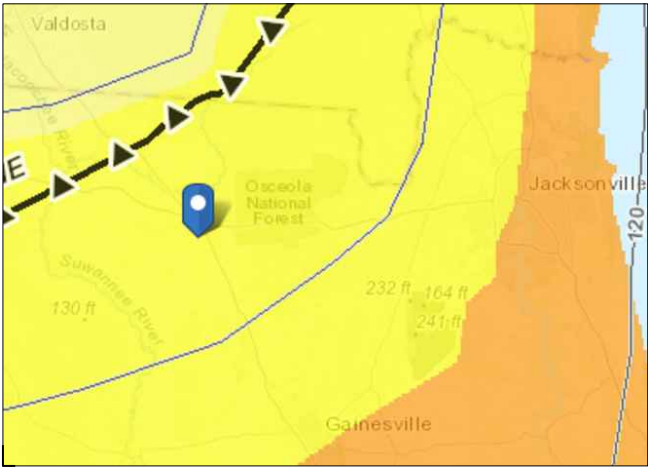
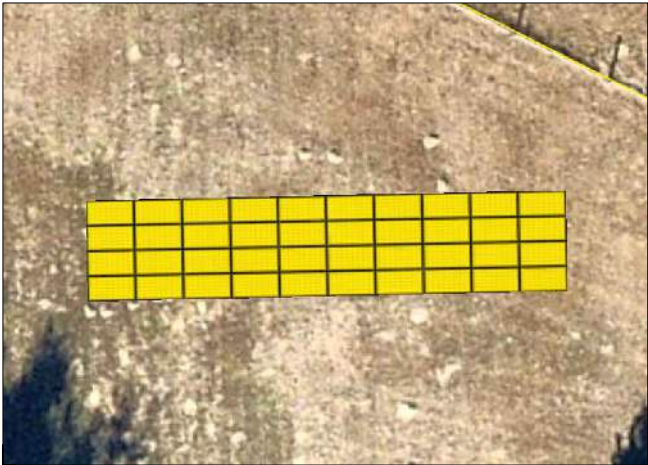
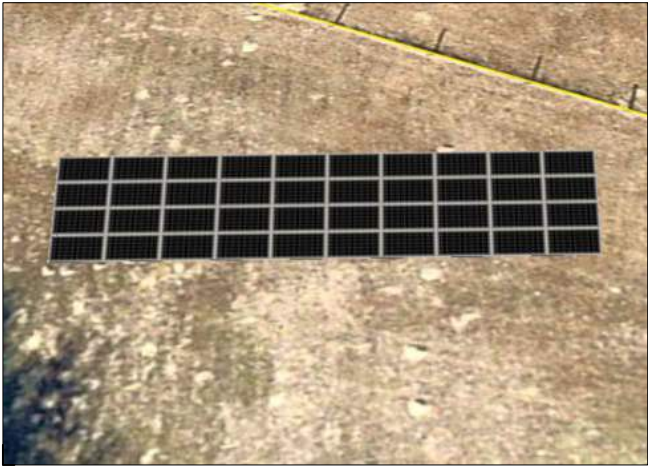




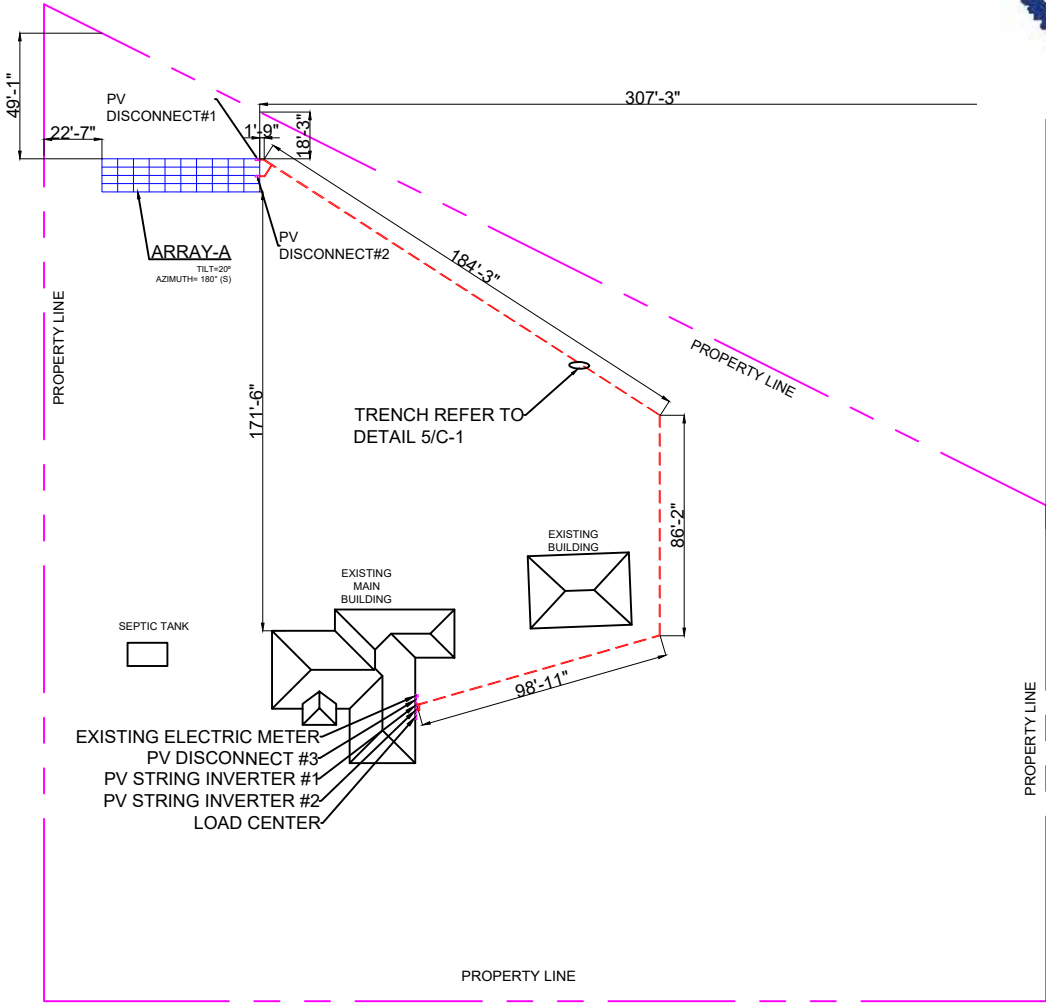
2 LOCATION MAP / WIND ZONES
N.T.S.



3 IRRADIANCE MAP
N.T.S.



4 3D RENDERING
N.T.S.



"PROPERTY SIDE FACING STREET"

1 SITE/ROOF PLAN VIEW / BOS LOCATION
N.T.S.

PROJECT DESCRIPTION

SYSTEM CAPACITY: 16.0 KW DC / 12.0 KW AC

PV PANELS: (40) Q.PEAK DUO BLK ML-G10+ 400W BY QCELLS

OPTIMIZERS: (40) P370 BY SOLAREDGE

INVERTER: (2) SE 6000H-US BY SOLAREDGE

RACKING SYSTEM: CROSS RAIL 80 BY K2 SYSTEMS

PROJECT INFORMATION

PROJECT LATITUDE	30.204097	MIN AMBIENT TEMP	1 ° C
PROJECT LONGITUDE	-82.730394	MAX AMBIENT TEMP	35 ° C
AHJ	COLUMBIA COUNTY	WIND EXPOSURE	C
		DESIGN WIND SPEED	108 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.

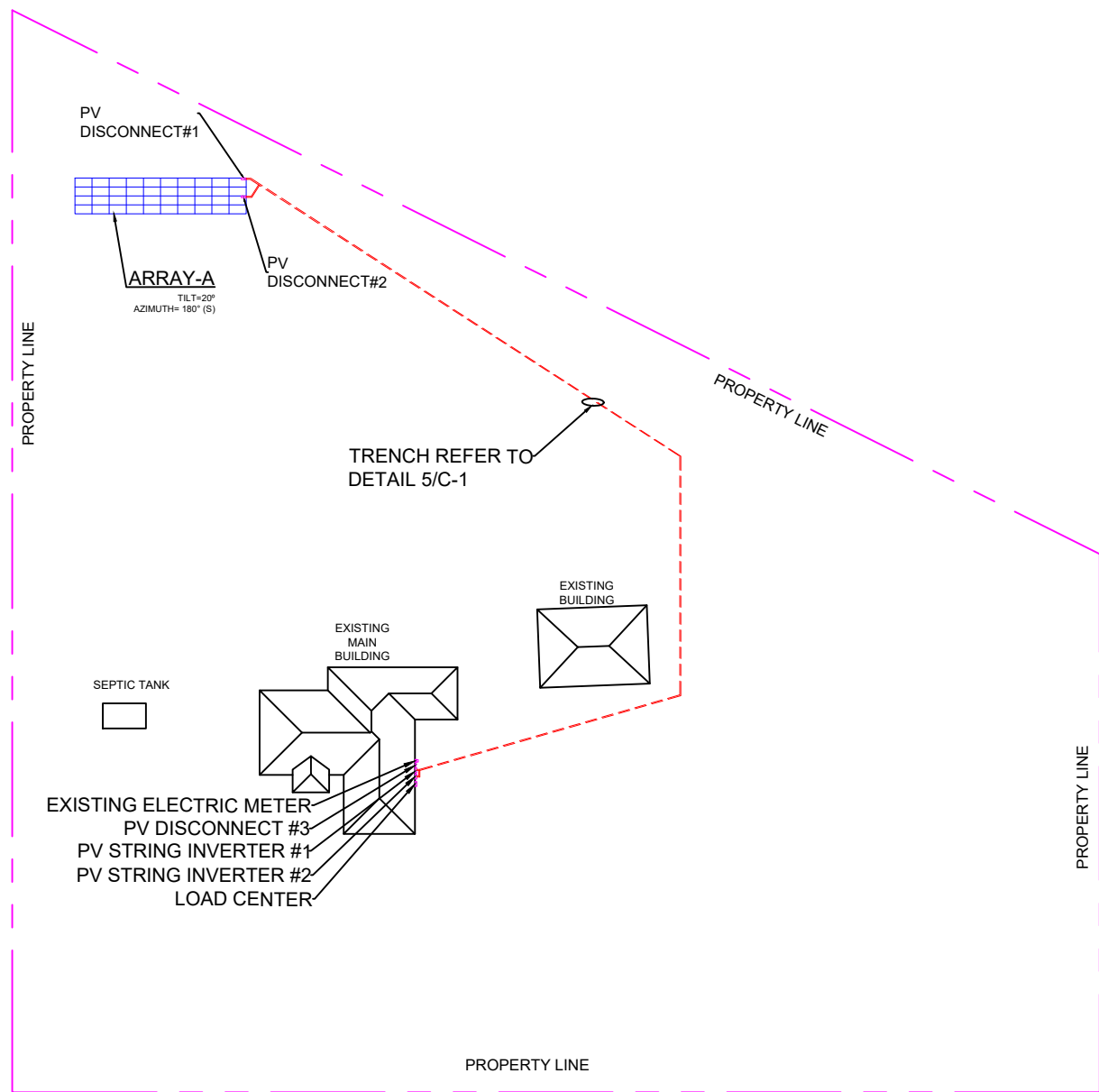
ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) 2017, LOCAL STATE CODES, AND OTHER APPLICABLE LOCAL CODES. MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS IN THE BUILDING. 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 WEBB CLIPS, GROUND LUGS, AND RAIL SPLICE KITS FOR ELECTRICAL CONTINUITY.

MECAWIND TOOL IS BASED ON THE C&C WIND LOADS FOR ENCLOSED BUILDINGS. DESIGN WIND PRESSURES ARE CALCULATED USING 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.

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
ISSUED FOR PERMIT				DATE	CAD	QC		ENGINEER CONTACT INFORMATION				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
REV				DESCRIPTION	DATE	CAD	QC	ENGINEER CONTACT INFORMATION				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				PROJECT ADDRESS:				PROJECT ID:			
								ENGIPARTNERS LLC				TITAN SOLAR POWER FL								871 N W HORIZON ST				TSP101159			
								C.A. 32661				12221 N US HIGHWAY 301								LAKE CITY, FL 32055				ENGINEER OF RECORD:			
								255 GIRALDA AVE				THONOTASASSA, FL 33592												DATE:			
								CORAL GABLES, FL 33134				(813) 982 -9001												11-30-2021			
								DESIGN@ENGIPARTNERS.COM				#EC13008093												SHEET TITLE:			
								833 - 888 - 3644																C-1			
																								SHEETS:			
																								1 OF 9			



"PROPERTY SIDE FACING STREET"

1

SAFETY PLAN

N.T.S.

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:

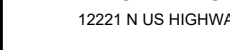
ADDRESS:

PHONE NUMBER:

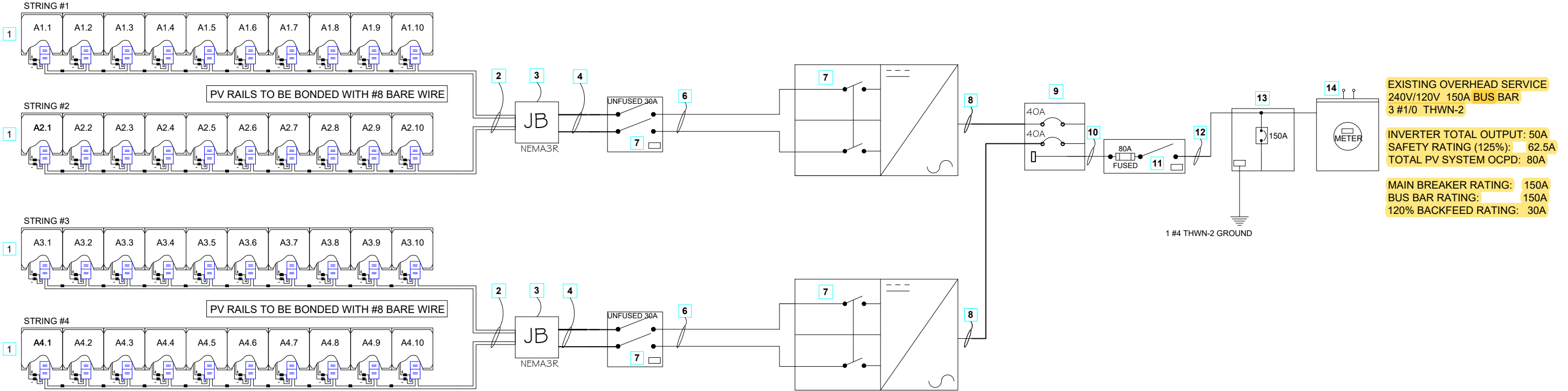
NOTES:

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

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER: CATHY PELLEY				SHEET NAME: SAFETY PLAN											
ISSUED FOR PERMIT				12-01-21	AC	DM	ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644				 Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 16:59:05 -04'00'				TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093								PROJECT ADDRESS: 871 N W HORIZON ST LAKE CITY, FL 32055															
REV	DESCRIPTION			DATE	CAD	QC																	PARCEL NUMBER: 29-3S-16-02390-025				PROJECT ID: TSP101159				ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE				SHEET TITLE: C-2			
																															DATE: 11-30-2021				SHEETS: 2 OF 9			

	WIRE SIZES, QUANTITY & TYPE			RACEWAY SIZE, TYPE, LOCATION & INFO.			WIRE AMPACITY CALCULATIONS					ADDITIONAL INFORMATION					
WIRE TAG	CONDUCTOR QTY. SIZE & TYPE	NEUTRAL QTY. SIZE & TYPE	GROUND QTY. SIZE & TYPE	RACEWAY SIZE & TYPE	RACEWAY LOCATION	RACEWAY HEIGHT ABOVE ROOF	OUTPUT CURRENT	125% OF OUTPUT CURRRENT	MIN OCPD	WIRE DE-RATED CALCULATION				DIST.	VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %
										WIRE RATING	AMBIENT TEMP	# OF COND.	FINAL AMPACITY				
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) #8 AWG THWN-2	N/A	(1) #6 AWG THWN-2	1 1/2" PV 80 CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	15A	18.8A	20A	55A X 0.76 X 0.8 = 44.0 A				372 FT.	350V	0.21%	8.1%
AC (INVERTER TO METER)	(2) #4 AWG THWN-2	(1)#4 AWG THWN-2	(1) #6 AWG THWN-2	3/4" EMT CONDUIT	EXTERIOR WALL	"N/A"	50A	62.5A	80A	95A X 0.76 X 1 = 72.2 A				5 FT.	240V	0.1%	7.7%



EXISTING OVERHEAD SERVICE
240V/120V 150A BUS BAR
3 #1/0 THWN-2

INVERTER TOTAL OUTPUT: 50A
SAFETY RATING (125%): 62.5A
TOTAL PV SYSTEM OCPD: 80A

MAIN BREAKER RATING: 150A
BUS BAR RATING: 150A
120% BACKFEED RATING: 30A

1 ONE LINE RISER DIAGRAM

N.T.S.

LEGEND:

1	(40) Q.PEAK DUO BLK ML-G10+400W BY QCELLS REFER TO D-1 SHEET	2	2 #10 PV WIRE PER STRING 1 #8 BARE WIRE GROUND 3/4" EMT CONDUIT	3	NEMA3R JUNCTION BOX
4	4 #8 THWN-2 1 #8 THWN-2 GROUND 3/4" EMT CONDUIT	5	PV SYSTEM DISCONNECT #1 & #2	6	2 #8 L1,L2 THWN-2 PER STRING 1 #8 THWN-2 GROUND 1 #8 THWN-2 NEUTRAL 1 1/4" PVC SCH-80 CONDUIT
7	SE6000H-US BY SOLAREEDGE REFER TO D-3 SHEET	8	2 #8 L1,L2 THWN-2 1 #8 THWN-2 NEUTRAL 1 #8 THWN-2 GROUND 3/4 " EMT CONDUIT	9	AC LOAD CENTER RATED 125A
10	2 #4 L1,L2 THWN-2 1 #4 THWN-2 NEUTRAL 1 #8 THWN-2 GROUND 3/4 " EMT CONDUIT	11	PV SYSTEM DISCONNECT #3	12	2 #4 L1,L2 THWN-2 1 #4 THWN-2 NEUTRAL 3/4" EMT CONDUIT
13	PV INTERCONNECTION POINT -LINE SIDE	14	UTILITY ELECTRICAL SERVICE	15	NOT USED

DOCUMENT CONTROL				DATE		CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:			
ISSUED FOR PERMIT				12-01-21		AC	DM	ENGIPARTNERS LLC				Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 16:59:14 -04'00'		TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093				CATHY PELLEY		ONE LINE RISER DIAGRAM			
REV				DATE		CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644								PROJECT ADDRESS: 871 N W HORIZON ST LAKE CITY, FL 32055		PROJECT ID: TSP101159		ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE DATE: 11-30-2021		SHEET TITLE: E-1	
																PARCEL NUMBER: 29-3S-16-02390-025						SHEETS: 3 OF 9	



WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

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



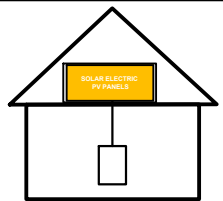
WARNING

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

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



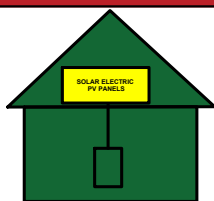
LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 690.56(C)(3)

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SYSTEM SHUTDOWN

LABEL LOCATION:
AC DISCONNECT
POINT OF INTERCONNECTION
PER CODE: NEC 690.56(C)

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.



LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: FFPC 7TH EDITION: 11.12.2.1.1.1.1

INVERTER #1 & #2

NOMINAL OPERATING AC VOLTAGE

240 V

NOMINAL OPERATING AC FREQUENCY

60 HZ

MAXIMUM AC POWER

6.0 KW

MAXIMUM AC CURRENT

25 A

MAX OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION

N/A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.52

MAXIMUM VOLTAGE

480 VDC

MAXIMUM CIRCUIT CURRENT

16.5 A

MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

15 A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.53

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:

25 A

NOMINAL OPERATING AC VOLTAGE:

240V

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.54

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.13 (B)

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
MAIN SERVICES DISCONNECT, DC CONDUIT
PER CODE: NEC 690.31 (G) (3)



WARNING

DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

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



WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF
INTERCONNECTION
PER CODE: NEC
705.12(B)(2)(3)(b)



CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS SUPPLY SIDE

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

DO NOT DISCONNECT UNDER LOAD

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

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

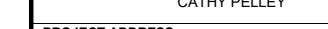
LABEL LOCATION: POINT OF INTERCONNECTION
PER CODE: NEC 690.15, NEC 690.13(B)

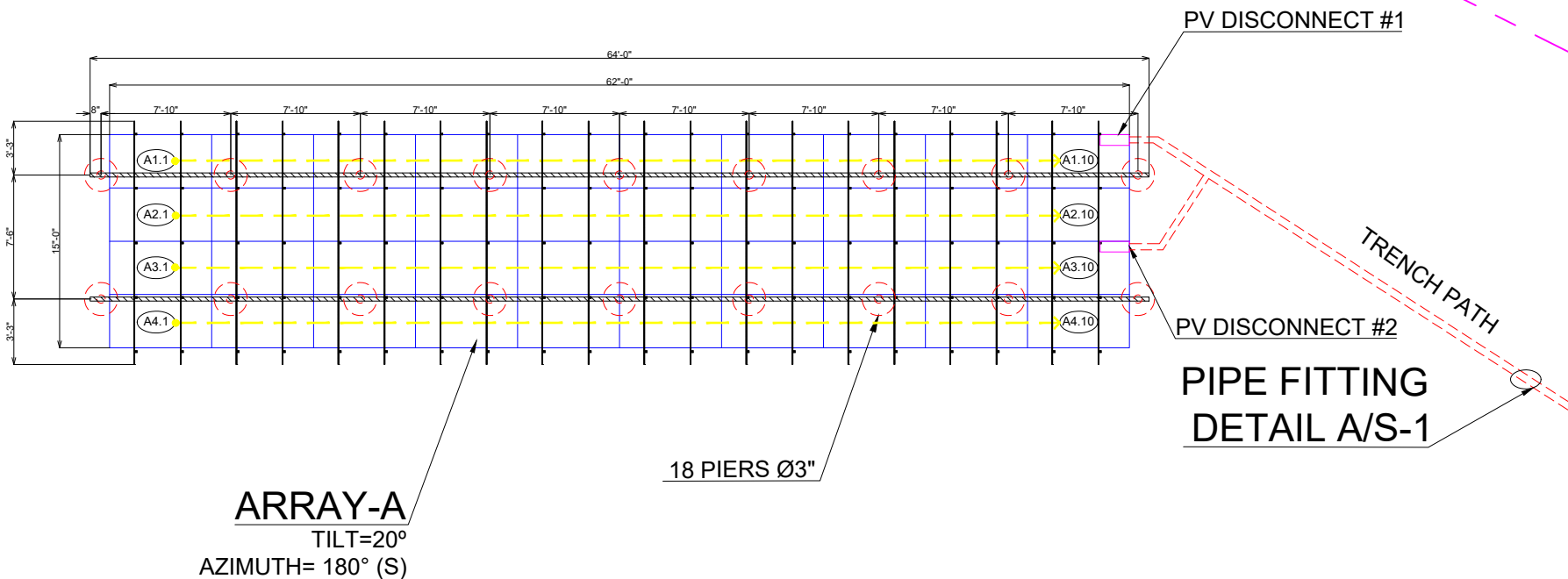
LABEL LOCATION: ADJACENT TO MAIN DISCONNECT



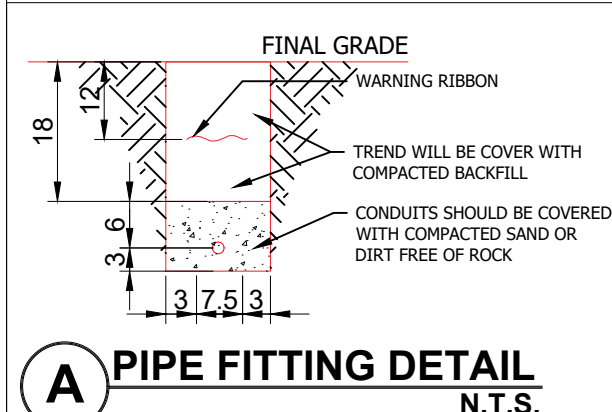
TITAN
SOLAR POWER
FLORIDA
901 ARMSTRONG BLVD, KISSIMMEE, FL 34741
1-855-SAY-SOLAR

1 PV SAFETY LABELS DATA N.T.S.

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION		ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:			
ISSUED FOR PERMIT				12-01-21	AC	DM	ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644		 Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 16:59:23 -04'00'		TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093				CATHY PELLEY PROJECT ADDRESS: 871 N W HORIZON ST LAKE CITY, FL 32055 PARCEL NUMBER: 29-3S-16-02390-025		SAFETY LABELS			
REV	DESCRIPTION			DATE	CAD	QC														
													PROJECT ID: TSP101159		ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE DATE: 11-30-2021		SHEET TITLE: E-2 SHEETS: 4 OF 9			



1 STRUCTURAL PLAN & PV MODULES LAYOUT
N.T.S.



A PIPE FITTING DETAIL
N.T.S.

DESIGN WIND PRESSURE CALCULATIONS FOR SOLAR MODULES INSTALLED ON GROUND			
ARRAY DETAILS			
FBC VERSION	2020	RISK CATEGORY	I
CONFIG	4x10	EXPOSURE CATEGORY	C
MODS / PIERS	2	N-S SPACING	7'- 6"
PIERS	18	PIPE CANTILEVER	0'- 8"
SOUTH PIERS	9 (2'-6")	ULTIMATE WIND SPEED	110mph
NORTH PIERS	9 (4'-6")	TOTAL PIPE LENGTH	65'-10"
DIAGONAL PIPES	YES	GROUND SNOW LOAD	0 psf
TOTAL RAILS	280		
RAIL CANTILEVER	3'-3"		
RAIL TYPE	CROSS RAIL 80		
SUBSTRUCTURE		FOUNDATION	
TILT ANGLE	20°	SOIL CLASS	4
PIPE SIZE	1.5"	HOLE DIAMETER	1'-8"
E-W PIER SPACING	7'- 10"	TYPE	CONCRETE
DIAGONAL BRACING	YES	MIN HOLE DEPTH	5'-0"
TOTAL FOUNDATIONS	18		
SOUTH CLEARANCE	1'- 11"		
NORTH CLEARANCE	5'- 1"		
REACTION FORCES			
SHEAR	2,133 lbs	MOMENT	0 ft-lbs
		UPLIFT	-2,167 lbs

LEGEND & SYMBOLS	
OBS	ROOF OBSTRUCTIONS
XX.X	ARRAY # MODULE # STRING #
	PV MODULES
	ROOF MOUNTS & RAIL

UL 1703 CERTIFIED MAX. DESIGN LOAD: 83.54 psf APPLIED WIND LOAD : 46.15 psf	
Q.PEAK DUO BLK ML-G10+ 400W	73.97"
41.14"	
NOTES: -INSTALL MID CLAMPS BETWEEN MODULES AND ENDS CLAMPS AT THE END OF EACH ROW OF MODULES. -ALUMINUM RAILS SHOULD ALWAYS BE SUPPORTED BY MORE THAN ONE FOOTING ON BOTH SIDES OF THE SPLICE.	
2 SOLAR MODULE N.T.S.	

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION			
ISSUED FOR PERMIT	DATE	CAD	QC	ENGINEER	DATE	CAD	QC
REV	DESCRIPTION	DATE	CAD	QC			

ENGIPARTNERS LLC
C.A. 32661
255 GIRALDA AVE
CORAL GABLES, FL 33134
DESIGN@ENGIPARTNERS.COM
833 - 888 - 3644

ENGINEERING STAMP
Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 16:59:32 -04'00'

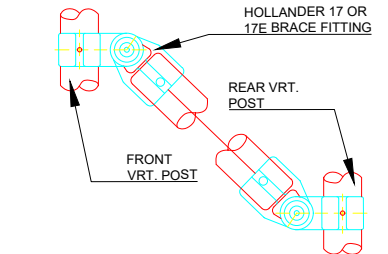
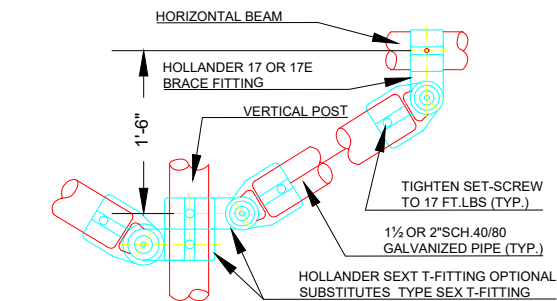
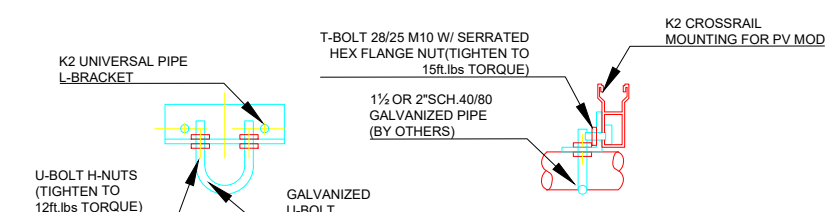
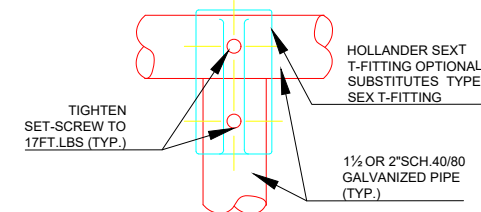
CONTRACTOR CONTACT INFORMATION
TITAN SOLAR POWER FL
12221 N US HIGHWAY 301
THONOTASASSA, FL 33592
(813) 982 -9001
#EC13008093

CONTRACTOR LOGO

CUSTOMER:	CATHY PELLEY
PROJECT ADDRESS:	871 N W HORIZON ST LAKE CITY, FL 32055
PARCEL NUMBER:	29-3S-16-02390-025

SHEET NAME:			STRUCTURAL PLAN
PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:	
TSP101159	ENG. RAFAEL A. GONZALEZ SOTO, PE	S-1	
	DATE:	SHEETS:	
	11-30-2021	5 OF 9	

	CrossRail 80 Material: aluminum Finish: mill
	CrossRail Mid Clamp UL2703+ Set 30-47 mm, 48-50 mm Material: stainless steel Finish: silver, dark
	CrossRail End Clamp Set 30-50mm Material: stainless steel Finninsh: silver, dark
	Hollaender No. 70 External Coupling Material: aluminum
	Aluminum Hollaender 5EXT Extended Barrel Tee OR Hollaender 5EX Material: aluminum
	Aluminum Hollaender 17 Adj. Elbow Material: aluminum
	Aluminum End Clamp Set Material: stainless steel Finish: silver, black Hardware: stainless steel
	Optional: End Cap for CR80 Material: glass fiber reinforced polamide
	Optional: External Omega Cable Clip Material: polyamide, black
	Optional: HEY Clip SunRunner Cable Clip SS, S6404 Material: stainless steel
NON UL LISTED COMPONENTS	
	K2 Pipe L Bracket Kit Material: stainless steel, galvanized steel
	JF3 MiniRail Screw w/ EPDM 6x32 Material: stainless steel
	1/2 in Serrated Flange Nut and T-Bolt 28/15 M10 Material: stainless steel

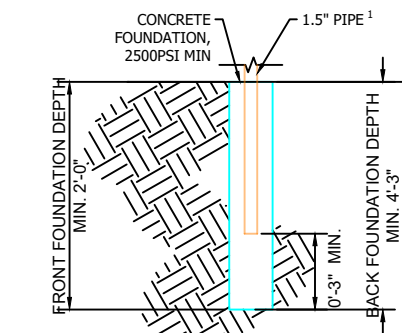


A GROUND MOUNT T-FITTING
SCALE: 3"=1'

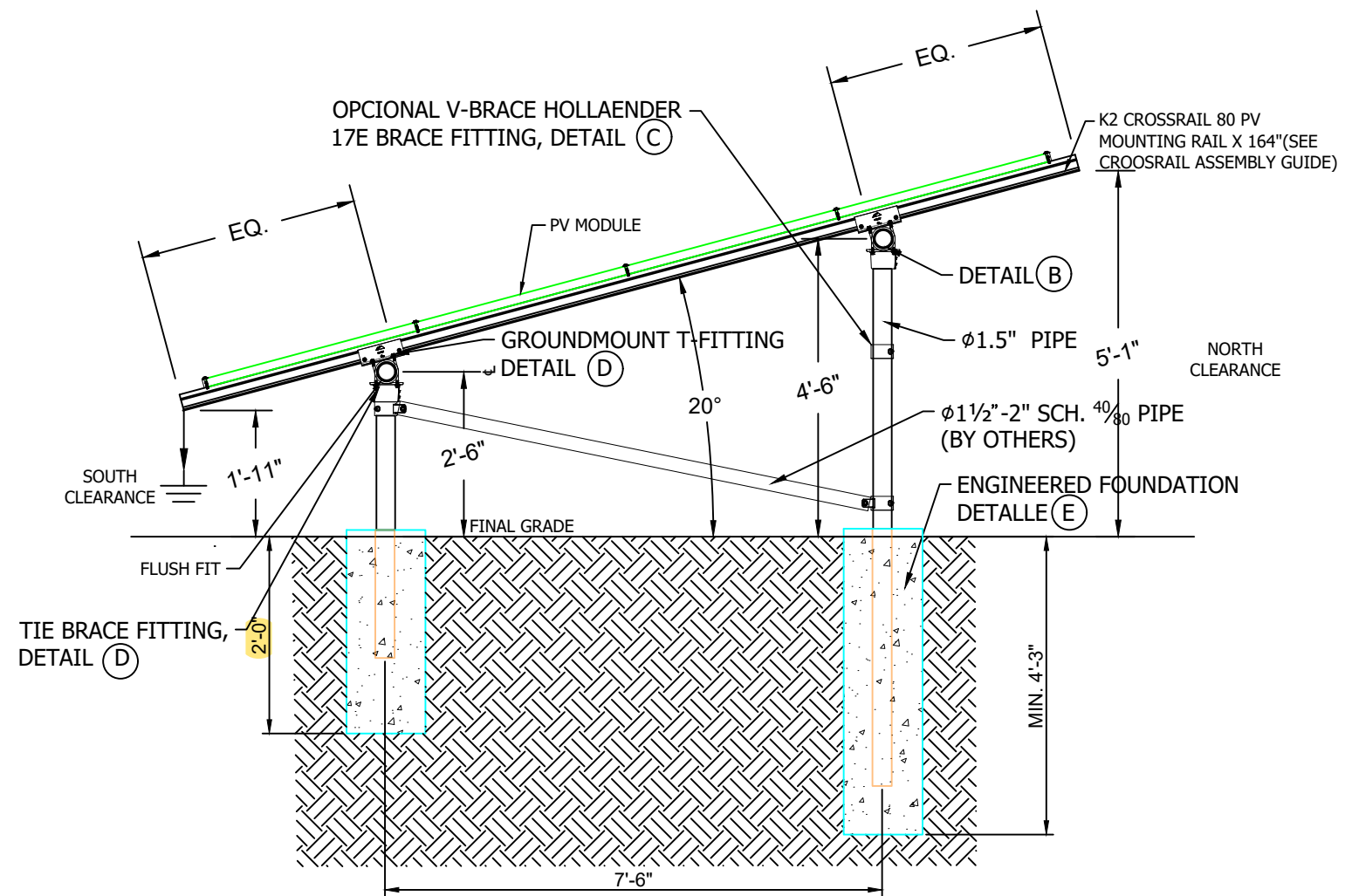
B K2 1.5" PIPE L-BRACKET
SCALE: 3"=1'

C OPTIONAL V-BRACE (TYP. EACH POST)
SCALE: 3"=1'

D TIE BRACE CONNECTIONS
SCALE: 3"=1'



E FOUNDATION DETAILS
SCALE: 1/2"= 1'



PV SYSTEM SIDE SECTION

SCALE: 3/4"=1'

DOCUMENT CONTROL		DATE	CAD	QC
ISSUED FOR PERMIT		12-01-21	AC	DM
REV	DESCRIPTION	DATE	CAD	QC

ENGINEER CONTACT INFORMATION		ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO	CUSTOMER:		SHEET NAME:			
ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644		 Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 16:59:42 -04'00'	TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093			CATHY PELLEY		RACKING PLAN			
PROJECT ADDRESS: 871 N W HORIZON ST LAKE CITY, FL 32055											
PARCEL NUMBER: 29-3S-16-02390-025						PROJECT ID: TSP101159		ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE		SHEET TITLE: S-2	
								DATE: 11-30-2021		SHEETS: 6 OF 9	

powered by
Q.ANTUM DUO Z

Q.PEAK DUO BLK ML-G10+ 385-410

ENDURING HIGH
PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout 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 yield security with Anti 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 linear performance warranty*.

* See call sheet on rear for further information.

THE IDEAL SOLUTION FOR:



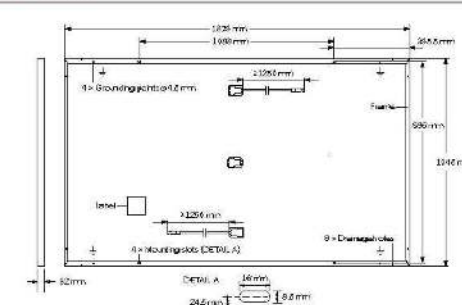
Residential and commercial buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	1979mm × 1045mm × 32mm (including frame)
Weight	22.0kg
Front Cover	3.2mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4mm² Solar cable, (+) ≥ 1250mm, (-) ≥ 1250mm
Connector	Stäubli MC4, IP68



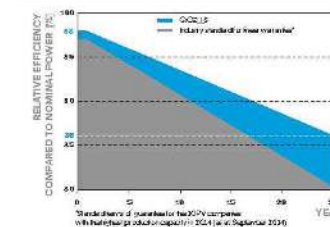
ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE ± 5 W / -0 W)							
Power at MPP ²	P _{MPP} [W]	385	390	395	400	405	410
Short Circuit Current ³	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17	11.20
Open Circuit Voltage ⁴	V _{OC} [V]	45.19	45.23	45.27	45.30	45.34	45.37
Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83	10.89
Voltage at MPP	V _{MPP} [V]	36.86	36.82	36.88	37.13	37.39	37.64
Efficiency ⁵	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6	20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²							
Power at MPP	P _{MPP} [W]	298.8	292.6	296.3	300.1	303.8	307.6
Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00	9.03
Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72	42.76	42.79
Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57	8.62
Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25	35.46	35.68

¹Measurement tolerances P_{MPP} ± 5%; I_{SC} V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3, 800 W/m², NMOT, spectrum AM 1.5

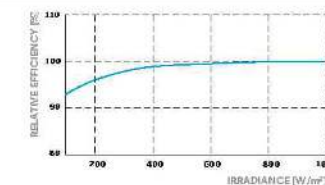
Q CELLS PERFORMANCE WARRANTY

PERFORMANCE AT LOW IRRADIANCE



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

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the 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}	α	[%/K]	+0.04	Temperature Coefficient of V _{OC}	β	[%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°C]	43 ± 3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V _{sys} [V]	1000	PV module classification	Class II
Maximum Reverse Current	I _R [A]	20	Fire Rating based on ANSI/UL 61730	C/TYP 2
Max. Design Load, Push/Pull	[Pa]	3500/2550	Permitted Module Temperature on Continuous Duty	-40°C - +85°C
Max. Test Load, Push/Pull	[Pa]	5400/4000		

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland
IEC 61215:2016, IEC 61730:2016
This data sheet complies with DIN EN 50380.
QCPV Certification ongoing.
Certification holder:
Hanwha Q CELLS GmbH



PACKAGING INFORMATION

Horizontal packaging	1940mm	1100mm	1220mm	751kg	28 pallets	24 pallets, 32 modules
----------------------	--------	--------	--------	-------	------------	------------------------

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

Made in Korea

Hanwha Q CELLS Australia Pty Ltd

Suite 1, Level 1, 15 Blue Street North Sydney, NSW 2060, Australia | TEL +61 (0)2 9016 3033 | FAX +61 (0)2 9016 3032 | EMAIL q-cells-australia@q-cells.com | WEB www.q-cells.com/au

Engineered in Germany

Q CELLS

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10+ 385-410, 2021-09 Rev01_AU

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO	CUSTOMER:				SHEET NAME:			
ISSUED FOR PERMIT				12-01-21	AC	DM	ENGINEPARTNERS LLC					TITAN SOLAR POWER FL					CATHY PELLEY				PV MODULES DATA SHEET			
REV				DATE	CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134					12221 N US HIGHWAY 301					PROJECT ADDRESS:							
							DESIGN@ENGINEPARTNERS.COM					THONOTASSA, FL 33592					871 N W HORIZON ST LAKE CITY, FL 32055							
							833 - 888 - 3644					(813) 982 - 9001					PARCEL NUMBER:							
												#EC13008093					29-3S-16-02390-025							
																			PROJECT ID:					
																			TSP101159					
																			ENGINEER OF RECORD:					
																			ENG. RAFAEL A. GONZALEZ SOTO, PE					
																			DATE:					
																			11-30-2021					
																			SHEET TITLE:					
																			D-1					
																			SHEETS:					
																			7 OF 9					

Power Optimizer

For North America

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



POWER OPTIMIZER

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 module-level 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

solaredge

Power Optimizer

For North America

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

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high- power 60-cell modules)	P370 (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)
INPUT								
Rated Input DC Power [®]	320	350	370	400	405		485	505
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	60		125 [®]	83 [®]
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8-60		12.5 - 105	12.5 - 83
Maximum Short Circuit Current (Isc)	11	11.02	11	10.1	11.75		11	14
Maximum DC Input Current	13.75			12.5	14.65		12.5	17.5
Maximum Efficiency					99.5			
Weighted Efficiency					98.8			98.6
Oversoltage Category					II			
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)								
Maximum Output Current					15			
Maximum Output Voltage	60						85	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)								
Safety Output Voltage per Power Optimizer					1 ± 0.1			
STANDARD COMPLIANCE								
EMC					FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3			
Safety					IEC62109-1 (class II safety), UL1741			
Material					UL 94 V-0, UV Resistant			
RoHS					Yes			
INSTALLATION SPECIFICATIONS								
Maximum Allowed System Voltage					1000			
Compatible inverters					All SolarEdge Single Phase and Three Phase Inverters			
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9		129 x 162 x 59 / 5.1 x 6.4 x 2.3
Weight (including cables)	630 / 1.4			750 / 1.7	655 / 1.5	845 / 1.9		1064 / 2.3
Input Connector					MC4 [®]		Single or dual MC4 ^{®/®}	MC4 [®]
Input Wire Length	0.16 / 0.52				0.16 or 0.9 / 0.52 or 2.95 [®]	0.16 / 0.52		
Output Wire Type / Connector					Double Insulated / MC4			
Output Wire Length	0.9 / 2.95					1.2 / 3.9		
Operating Temperature Range [®]					-40 to +85 / -40 to +185		°C / °F	
Protection Rating					IP68 / NEMA6P			
Relative Humidity					0 - 100		%	

(1) Rated power of the module at 57°C will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) NEC 2017 requires max. input voltage be not more than 80V.
(3) For other connector types please contact SolarEdge.
(4) For dual version for parallel connection of two modules use P485-NMDMIRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals.
(5) Longer inputs wire length are available for use. For 0.9m input wire length order P401-x00Lxx.
(6) For ambient temperature above +85°C / +185°F power derating is applied. Refer to Power Optimizers Temperature Derating Technique. Note for more details.

PV System Design Using a SolarEdge Inverter ⁽⁷⁾⁽⁸⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401 P405, P485, P505	8	10	18
Maximum String Length (Power Optimizers)		6	8	14
Maximum String Length (Power Optimizers)		25	25	50 ⁽⁹⁾
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽¹⁰⁾	12750 ⁽¹¹⁾
Parallel Strings of Different Lengths or Orientations	Yes			

(7) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_napdf
(8) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string.
(9) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(10) For 208V grid: it is allowed to install up to 6,000W 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.

© SolarEdge Technologies Ltd. All rights reserved. SOLAREGE, the SolarEdge logo, OPTIMIZED BY SOLAREGE are trademarks or registered trademarks of SolarEdge Technologies, Inc. All other trademarks mentioned herein are trademarks of their respective owners. Date: 08/2021 DS-000044-1.2-NA. Subject to change without notice.



DOCUMENT CONTROL		DATE	CAD	QC	ENGINEER CONTACT INFORMATION		ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:	
ISSUED FOR PERMIT		12-01-21	AC	DM	ENGIPARTNERS LLC				TITAN SOLAR POWER FL				CATHY PELLEY		SMART MONITORING DATA SHEET	
REV		DESCRIPTION	DATE	CAD	QC	22221 N US HIGHWAY 301			PROJECT ADDRESS:							
						THONOTASASSA, FL 33592			871 N W HORIZON ST							
						(813) 982 -9001			LAKE CITY, FL 32055							
						#EC13008093			PARCEL NUMBER:							
						833 - 888 - 3644						29-3S-16-02390-025		PROJECT ID:		
						DESIGN@ENGIPARTNERS.COM								TSP101159		
						2021.12.06								ENGINEER OF RECORD:		
						17:00:03 -04'00'								ENG. RAFAEL A. GONZALEZ SOTO, PE		
														DATE:		
														11-30-2021		
														SHEET TITLE:		
														D-2		
														SHEETS:		
														8 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



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 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)

solaredge.com

solaredge

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-XXXXXX4								
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				600k Ω 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

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME: INVERTER DATA SHEET							
ISSUED FOR PERMIT				12-01-21	AC	DM	ENGIPARTNERS LLC				 Digitally signed by Rafael A Gonzalez Soto Date: 2021.12.06 17:00:14 -04'00'				TITAN SOLAR POWER FL				 TITAN SOLAR POWER				CATHY PELLEY											
REV	DESCRIPTION			DATE	CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134								12221 N US HIGHWAY 301								PROJECT ADDRESS:											
						DESIGN@ENGIPARTNERS.COM				THONOTASASSA, FL 33592					871 N W HORIZON ST LAKE CITY, FL 32055																			
										(813) 982 -9001																								
						833 - 888 - 3644				#EC13008093					PARCEL NUMBER:																			
															29-3S-16-02390-025																			
																			PROJECT ID:				ENGINEER OF RECORD:				SHEET TITLE:							
																			TSP101159				ENG. RAFAEL A. GONZALEZ SOTO, PE				D-3							
																							DATE:				SHEETS:							
																							11-30-2021				9 OF 9							