

PROJECT DESCRIPTION

SYSTEM CAPACITY: 9.60 KW DC / 6.96 KW AC

PV PANELS: (24) Q.PEAK DUO BLK ML-G10+ 400 BY QCELL

COMBINER: (1) IQ COMBINER 4C BY ENPHASE

INVERTER: (24) IQ8+ BY ENPHASE

RACKING SYSTEM: CROSS RAIL 80 BY K2 SYSTEMS

PROJECT INFORMATION

PROJECT LATITUDE	30.09257	MIN AMBIENT TEMP	-5 ° C
PROJECT LONGITUDE	-82.63192	MAX AMBIENT TEMP	35 ° C
AHJ	COLOMBIA COUNTY	WIND EXPOSURE	C
		DESIGN WIND SPEED	120 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
S-3	RACKING PLAN
D-1	PV MODULES DATA SHEET
D-2	SMART MONITORING DATA SHEET
D-3	INVERTER DATA SHEET
D-4	SYSTEM CONTROLLER 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.

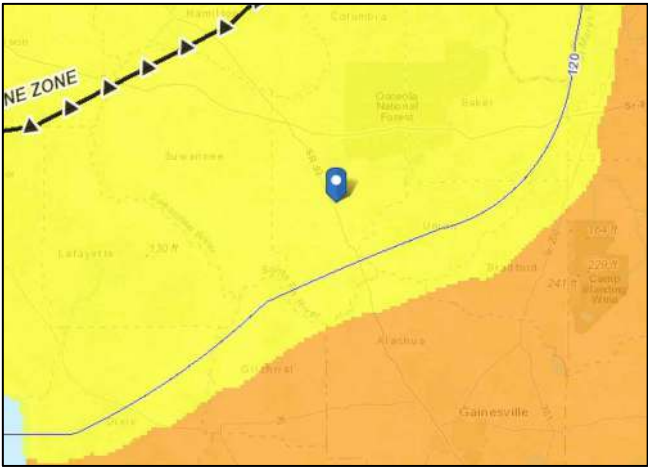
CONTRACTOR SHALL ENSURE ALL ROOF PENETRATIONS TO BE INSTALLED AND SEALED PER 2020 FLORIDA BUILDING CODE 7TH EDITION OR LOCAL GOVERNING CODE.

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.



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



3 IRRADIANCE MAP
N.T.S.

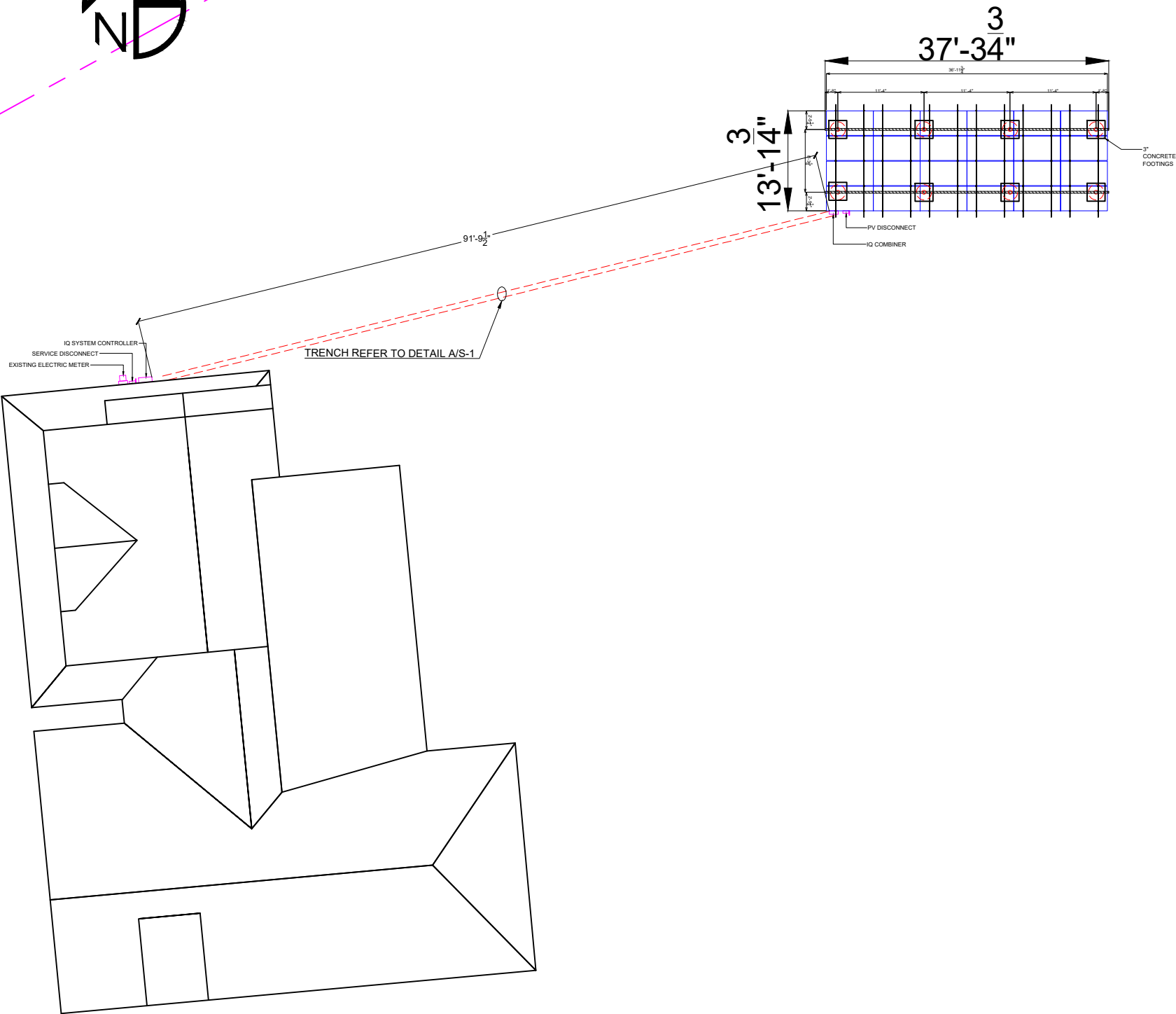


4 3D RENDERING
N.T.S.

NORTH



"PROPERTY SIDE FACING STREET"



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

DOCUMENT CONTROL		DATE	CAD	QC
ISSUED FOR PERMIT		08-31-2022	AV	DM
REV	DESCRIPTION	DATE	CAD	QC

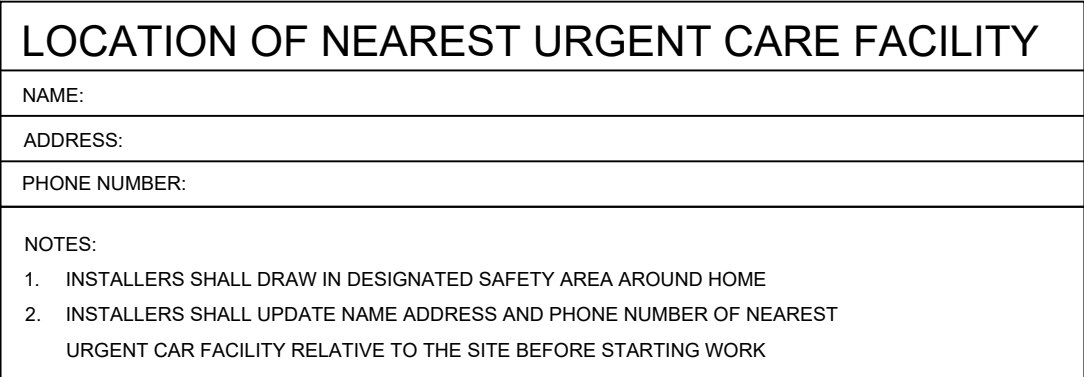
ENGINEER CONTACT INFORMATION	ENGINEERING STAMP
ENGIPARTNERS LLC C.A. 32661 1825 PONCE DE LEON BLVD #114 CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644	

CONTRACTOR CONTACT INFORMATION
TITAN SOLAR POWER FL 901 ARMSTRONG BLVD, KISSIMEE, FL 34741 (813) 982 -9001 #EC13009924

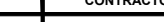
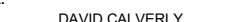
CONTRACTOR LOGO

CUSTOMER: DAVID CALVERLY
PROJECT ADDRESS: 403 SW OAK WAY LAKE CITY FL 32025
PARCEL NUMBER: 32-4S-17-09116-124

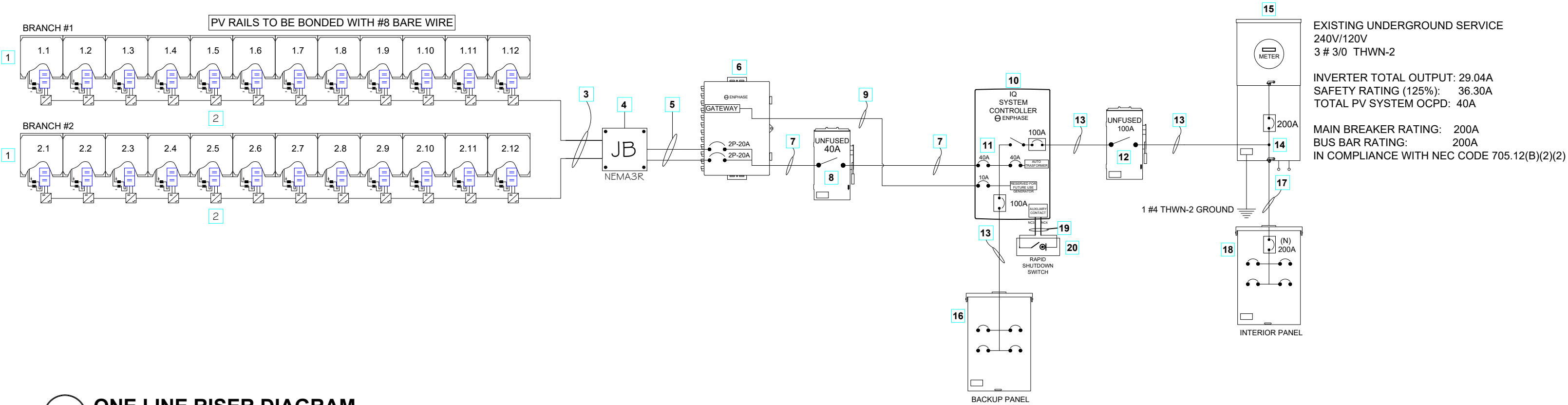
SHEET NAME: COVER SHEET		
PROJECT ID: TSP140412	ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE DATE: 08-30-22	SHEET TITLE: C-1



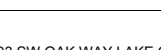
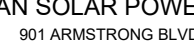
1 SAFETY PLAN
N.T.S.

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:					
ISSUED FOR PERMIT				08-31-2022	AV	DM	ENGPARTNERS LLC C.A. 32661 1825 PONCE DE LEON BLVD #114 CORAL GABLES, FL 33134 DESIGN@ENGPARTNERS.COM 833 - 888 - 3644				 Rafael A Gonzalez Soto 2022.09.12 08:26:41 -04'00'		TITAN SOLAR POWER FL 901 ARMSTRONG BLVD, KISSIMMEE, FL 34741 (813) 982 -9001 #EC13009924		 TITAN SOLAR POWER		DAVID CALVERLY		SAFETY PLAN					
REV	DESCRIPTION			DATE	CAD	QC											PROJECT ADDRESS:						PROJECT ID:	
																	403 SW OAK WAY LAKE CITY FL 32025		TSP140412		ENG. RAFAEL A. GONZALEZ SOTO, PE			
																	PARCEL NUMBER:		DATE:		C-2			
							32-4S-17-09116-124		08-30-22															

WIRE SIZES, QUANTITY & TYPE							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 (AMP)	125% OF OUTPUT CURRENT (AMP)	MIN OCPD (AMP)	WIRE DE-RATED CALCULATION				DIST.	VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %
										WIRE RATING	AMBIENT TEMPERATURE COEFFICIENT	# OF CONDUCTORS COEFFICIENT	DE-RATES AMPACITY				
AC.1 BRANCH 1 (BEFORE JB)	(1) IQ CABLE BY ENPHASE	N/A	(1) #8 AWG BARE COPPER	NOT APPLICABLE	UNDER ARRAY	1/2" TO 3-1/2"	14.52	18.15	20A	30A	0.76	1	22.8A	10 FT.	240V	0.11%	6.4%
AC.1 BRANCH 2 (BEFORE JB)	(1) IQ CABLE BY ENPHASE	N/A	(1) #8 AWG BARE COPPER	NOT APPLICABLE	UNDER ARRAY	1/2" TO 3-1/2"	14.52	18.15	20A	30A	0.76	1	22.8A	10 FT.	240V	0.11%	6.4%
AC.2 BRANCH 1 (FROM JB TO COMBINER BOX)	(2) #10 AWG THWN-2	N/A	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	14.52	18.15	20A	40A	0.76	0.8	24.3A	20 FT.	240V	0.21%	8.1%
AC.2 BRANCH 2 (FROM JB TO COMBINER BOX)	(2) #10 AWG THWN-2	N/A	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	14.52	18.15	20A	40A	0.76	0.8	24.3A	20 FT.	240V	0.21%	8.1%
AC.3(FROM COMBINER BOX TO IQ SYSTEM CONTROLLER)	(2) #4 AWG THWN-2	(1) #4 AWG THWN-2	(1) #8 AWG THWN-2	1 1/4" PVC SCH-80 CONDUIT	EXTERIOR WALL	"N/A"	29.04A	36.30A	40A	85A	1	1	85A	92 FT.	240V	0.1%	7.7%
AC.3(IQ SYSTEM CONTROLLER TO SERVICE)	(2) #3 AWG THWN-2	(1) #3 AWG THWN-2	(1) #6 AWG THWN-2	1" EMT CONDUIT	EXTERIOR WALL	"N/A"	29.04A	36.30A	40A	100A	1	1	100A	5 FT.	240V	0.1%	7.7%



1 ONE LINE RISER DIAGRAM
N.T.S.

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION		ENGINEERING STAMP	CONTRACTOR CONTACT INFORMATION			CUSTOMER:		SHEET NAME: ONE LINE RISER DIAGRAM		
ISSUED FOR PERMIT				08-31-2022	AV	DM	ENGIPARTNERS LLC			TITAN SOLAR POWER FL			DAVID CALVERLY				
REV	DESCRIPTION			DATE	CAD	QC	C.A. 32661 1825 PONCE DE LEON BLVD #114 CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644			901 ARMSTRONG BLVD, KISSIMMEE, FL 34741 (813) 982 -9001 #EC13009924			PROJECT ADDRESS: 403 SW OAK WAY LAKE CITY FL 32025				
													PARCEL NUMBER: 32-4S-17-09116-124				
													PROJECT ID: TSP140412	ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE		SHEET TITLE: E-1	
													DATE: 08-30-22				

**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)

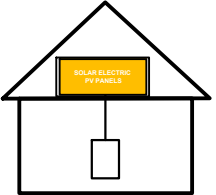
**WARNING**

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.



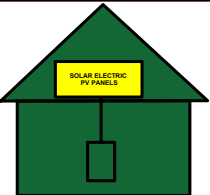
LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 690.56(C)(1)(a)

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

NOMINAL OPERATING AC VOLTAGE

240 V

NOMINAL OPERATING AC FREQUENCY

60 HZ

MAXIMUM AC POWER

6.96 KW

MAXIMUM AC CURRENT

29.04A

MAX OVERCURRENT DEVICE RATING
FOR AC MODULE PROTECTION

20A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.52

MAXIMUM VOLTAGE

60 VDC

MAXIMUM CIRCUIT CURRENT

15.73 A

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

N/A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.53

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:

29.04 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 LOAD 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)

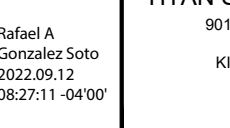
CAUTION: SOLAR ELECTRIC
SYSTEM CONNECTED

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: DAVID CALVERLY				SHEET NAME: SAFETY LABELS											
ISSUED FOR PERMIT				08-31-2022	AV	DM	ENGIPARTNERS LLC C.A. 32661 1825 PONCE DE LEON BLVD #114 CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644				 Rafael A Gonzalez Soto 2022.09.12 08:27:11 -04'00'				TITAN SOLAR POWER FL 901 ARMSTRONG BLVD, KISSIMMEE, FL 34741 (813) 982 -9001 #EC13009924								PROJECT ADDRESS: 403 SW OAK WAY LAKE CITY FL 32025															
REV	DESCRIPTION			DATE	CAD	QC																	PARCEL NUMBER: 32-4S-17-09116-124				PROJECT ID: TSP140412				ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE				SHEET TITLE: E-2			
																															DATE: 08-30-22							

DESIGN WIND PRESSURE
CALCULATIONS FOR SOLAR
MODULES INSTALLED ON GROUND

ARRAY DETAILS			
FBC VERSION	2020	RISK CATEGORY	II
CONFIG	4X6	EXPOSURE CATEGORY	C
MODS / PIERS	3	N-S SPACING	8'-3.25"
PIERS	8	PIPE CANTILEVER	0'-6"
SOUTH PIERS	4 (2'-6")	ULTIMATE WIND SPEED	120 mph
NORTH PIERS	4 (4'-6")	TOTAL PIPE LENGTH	37' - 3/34"
DIAGONAL PIPES	YES	GROUND SNOW LOAD	0 psf
TOTAL RAILS	12		
RAIL CANTILEVER	3'-3"		
RAIL TYPE	XR 1000		

SUBSTRUCTURE		FOUNDATION	
TILT ANGLE	20°	SOIL CLASS	4
PIPE SIZE	1.5"	HOLE DIAMETER	1'-8"
E-W PIER SPACING	11'-4"	TYPE	CONCRETE
DIAGONAL BRACING	YES	MIN HOLE DEPTH	5'-0"
TOTAL FOUNDATIONS	8		
SOUTH CLEARANCE	1'- 11"		
NORTH CLEARANCE	5'- 1"		

REACTION FORCES		
SHEAR	MOMENT	UPLIFT
1416.00 lbs	0 ft-lbs	-1011.704400 lbs

LEGEND & SYMBOLS

	PV MODULES
	MOUNTS & RAIL
	TRENCH PATH
	PIERS
	CONCRETE FOOTING

Q.PEAK DUO
BLK ML-G10+
400W

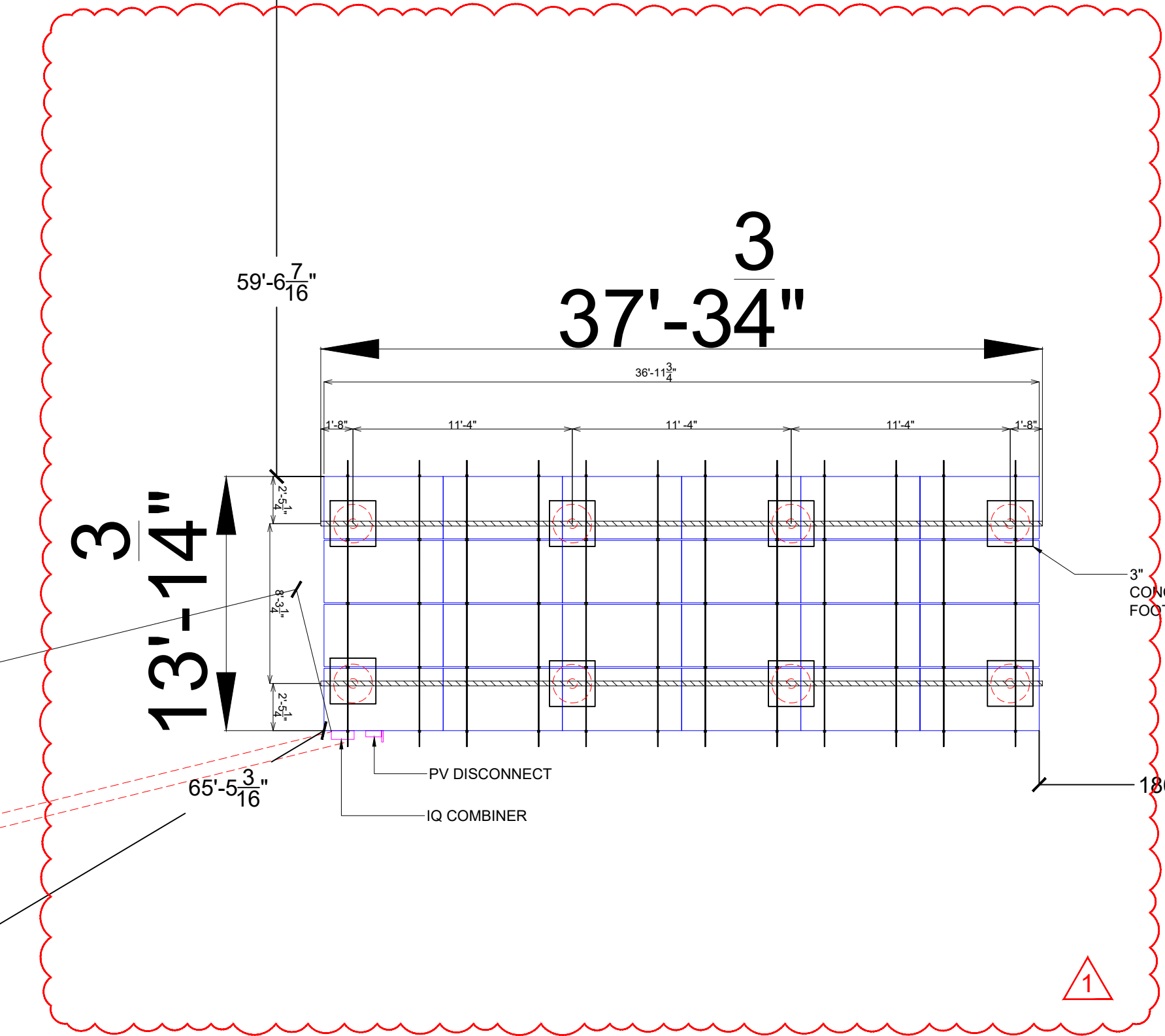
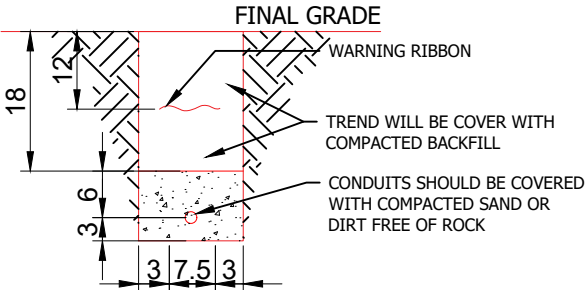
74.0"

41.1"

UL 1703 CERTIFIED
MAX. DESIGN LOAD: 55.0 psf
APPLIED WIND LOAD : -15.96 psf

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.



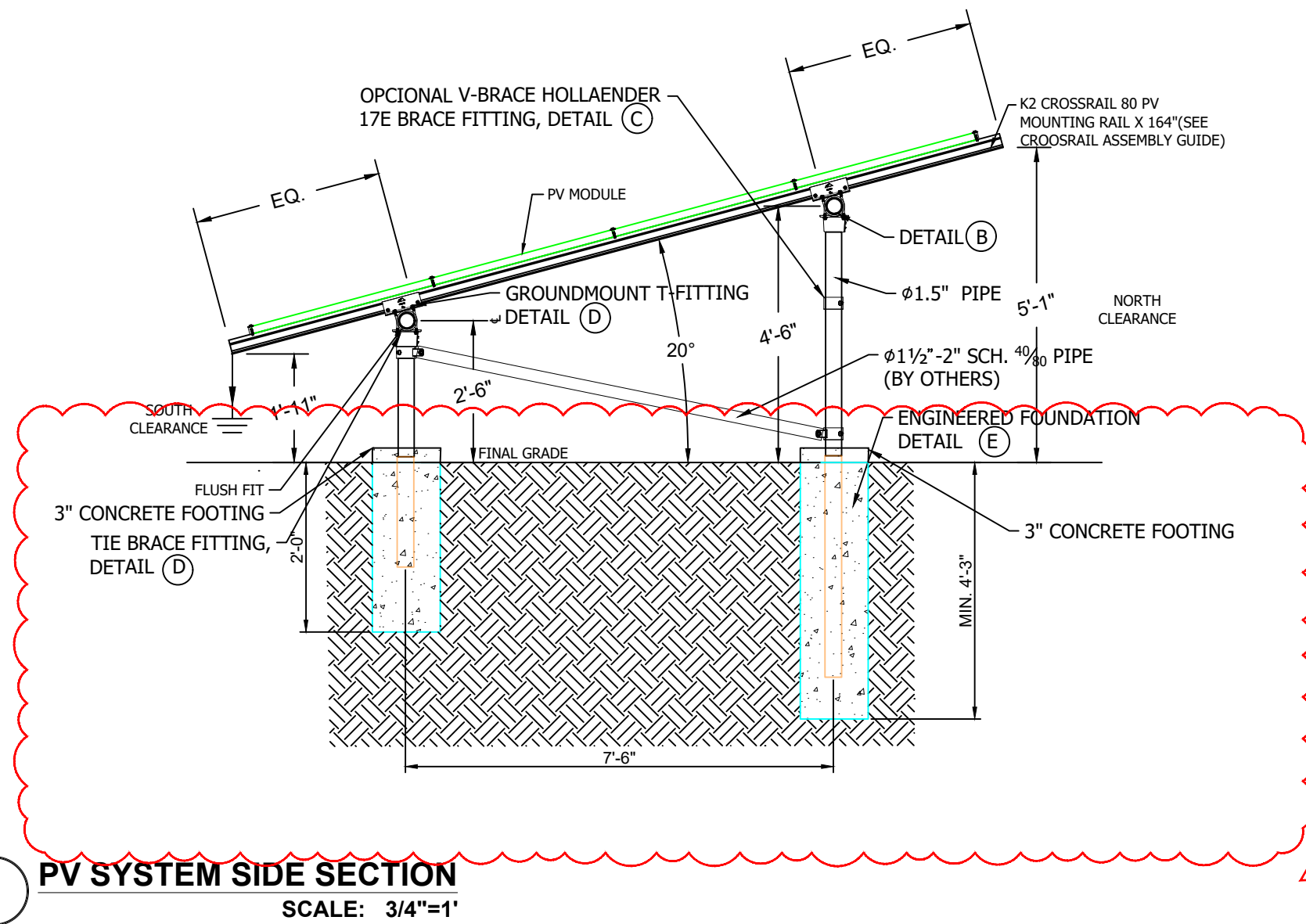
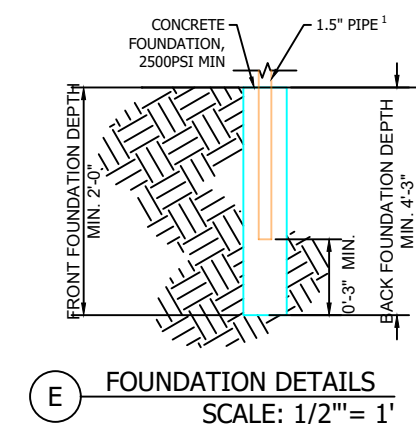
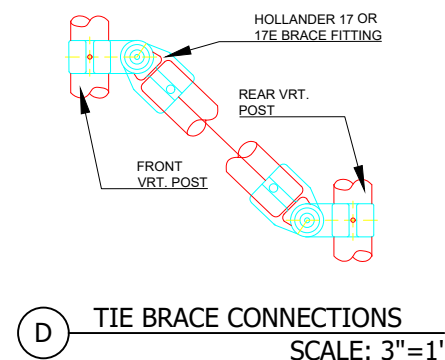
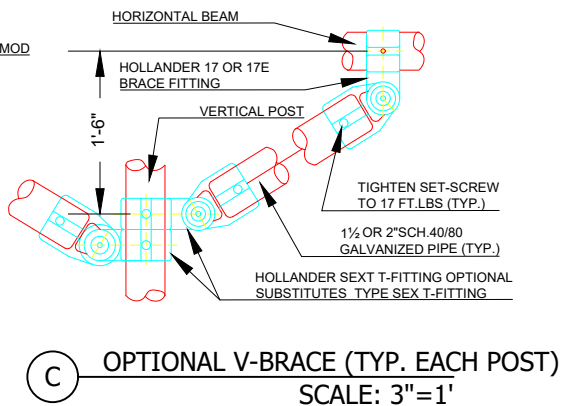
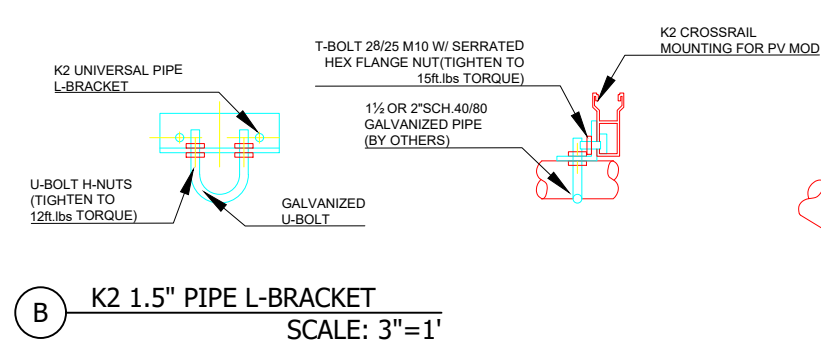
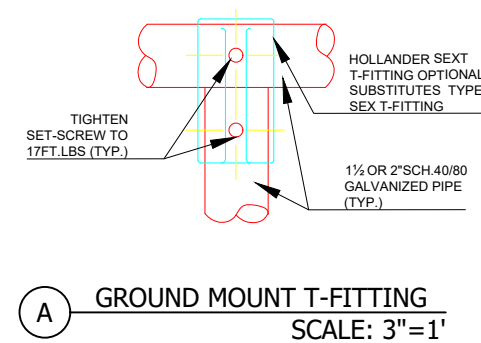
2 SOLAR MODULE
N.T.S.

A TRENCH DETAIL
N.T.S.

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

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
ISSUED FOR PERMIT				DATE	CAD	QC		ENGIPARTNERS LLC				TITAN SOLAR POWER FL								DAVID CALVERLY				STRUCTURAL PLAN			
REV DESCRIPTION				DATE	CAD	QC		C.A. 32661				901 ARMSTRONG BLVD,								PROJECT ADDRESS:				PROJECT ID:			
ADDED CONCRETE FOOTER, REVISED ARRAY DETAILS				09-09-2022	NL			1825 PONCE DE LEON BLVD #114				KISSIMMEE, FL 34741								403 SW OAK WAY LAKE CITY				ENGINEER OF RECORD:			
								CORAL GABLES, FL 33134				(813) 982 -9001								FL 32025				ENG. RAFAEL A. GONZALEZ SOTO, PE			
								DESIGN@ENGIPARTNERS.COM				#EC13009924								PARCEL NUMBER:				DATE:			
								833 - 888 - 3644												32-4S-17-091116-124				TSP140412			
																								SHEET TITLE:			
																								S-1			

	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 Finish: 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



DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
ISSUED FOR PERMIT				ENGINEPARTNERS LLC				TITAN SOLAR POWER FL								DAVID CALVERLY				RACKING PLAN			
REV DESCRIPTION				C.A. 32661				901 ARMSTRONG BLVD,								PROJECT ADDRESS:				PROJECT ID:			
ADDED CONCRETE FOOTER, REVISED ARRAY DETAILS				1825 PONCE DE LEON BLVD #114				KISSIMMEE, FL 34741								403 SW OAK WAY LAKE CITY				ENGINEER OF RECORD:			
				CORAL GABLES, FL 33134				(813) 982 -9001								FL 32025				ENG. RAFAEL A. GONZALEZ SOTO, PE			
				DESIGN@ENGINEPARTNERS.COM				#EC13009924								PARCEL NUMBER:				DATE:			
				833 - 888 - 3644												32-4S-17-09116-124				08-30-22			
																				SHEET TITLE:			
																				S-2			



Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



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 behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti-LID Technology, Anti PID Technology¹, Hot-Spot Protect and Tracable Quality Tra.Q™.



EXTREME WEATHER RATING

High-tech aluminum 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 warranty².

¹ APT test conditions according to IEC/TS 62504-1:2015, method A1:1500 V, 96h
² See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

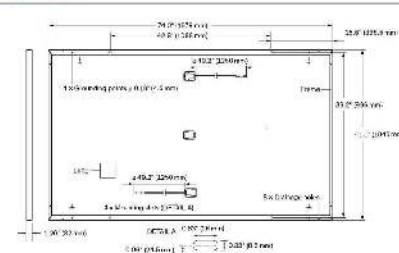


Engineered in Germany



MECHANICAL SPECIFICATION

Format	74.0 in x 41.1 in x 1.26 in (including frame) (1878 mm x 1045 mm x 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 27 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09 x 3.96 in x 2.26 x 2.36 in x 0.65 x 0.71 in (53 x 101 mm x 32 x 60 mm x 16 x 18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable, (+) > 48.2 in (1250 mm), (-) > 48.2 in (1250 mm)
Connector	Silabul MC4, IP68



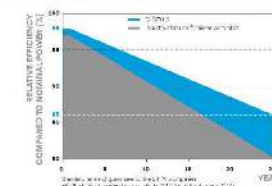
ELECTRICAL CHARACTERISTICS

POWER CLASS		385	390	395	400	405	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)							
Minimum	Power at MPP ²	P _{MPP} [W]	385	390	395	400	405
	Short Circuit Current ³	I _{sc} [A]	11.04	11.07	11.10	11.14	11.17
	Open Circuit Voltage ³	V _{oc} [V]	46.13	46.23	46.27	46.30	46.34
	Current at MPP	I _{MPP} [A]	10.69	10.76	10.71	10.77	10.83
	Voltage at MPP	V _{MPP} [V]	36.33	36.32	36.68	37.19	37.33
	Efficiency ⁴	η [%]	≥19.5	≥19.9	≥20.1	≥20.4	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ⁵							
Minimum	Power at MPP	P _{MPP} [W]	280.0	282.6	286.3	300.1	303.9
	Short Circuit Current	I _{sc} [A]	8.93	8.92	8.96	8.97	9.00
	Open Circuit Voltage	V _{oc} [V]	42.62	42.65	42.68	42.72	42.76
	Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57
	Voltage at MPP	V _{MPP} [V]	34.64	34.81	35.03	35.25	35.48

¹ Measured at conditions E_{ir} = 1000 W/m², V_{oc} + 5% at 57°C, 1000 W/m², 25 ± 2°C, AM1.5 according to IEC 60904-3, > 1000 W/m², NMOT, standard AM1.5

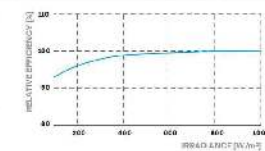
Q CELLS PERFORMANCE WARRANTY

PERFORMANCE AT LOW IRRADIANCE



At least 98% of nominal power during 1st year. The module max. 0.55% degradation per year. At least 92.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data with measurement tolerances. Full warranties in accordance with the warranty terms of the Q.CELLS as an organization 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]		108 ± 5.4 (42 ± 9.7°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys} [V]	1000 (IEC) / 1000 (UL)	PV module classification	C class II
Maximum Series Fuse Rating [A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ¹ [kg/m ²]	75 (5600 Pa) / 75 (5600 Pa)	Permitted Module Temperature: on Continuous Duty	-40°C to +135°C (-40°C up to +85°C)
Max. Test Load, Push / Pull ¹ [kg/m ²]	113 (8400 Pa) / 84 (6300 Pa)		

¹ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

PACKAGING INFORMATION

UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B
UL 61730 Class II, Class B



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.

Hanwha Q CELLS America Inc.
403 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL: (949) 748-59-96 | EMAIL: inquiry@us.q-cells.com | WEB: www.q-cells.us



Product Data Sheet

Crystalline Silicon
Terrestrial
Photovoltaic Modules



Picture of Product



www.VDEinfo.com
ID: 40050642

VDE

VDE Testing and
Certification
Institute

Morianstr. 28
D-63069 Offenbach
Tel. +49 69 8306-0
Fax +49 69 8306-555
www.vde.com

Evaluation of safety and reliability

Low Voltage Directive	2014/35/EU	☒
Electrical Safety	IEC 61730-1:2016, EN IEC 61730-1:2018 + AC:2018, IEC 61730-2:2016, EN IEC 61730-2:2018 + AC:2018	☒
Reliability	IEC 61215-1:2016, EN 61215-1:2016, IEC 61215-1-1:2016, EN 61215-1-1:2016, IEC 61215-2:2016, EN 61215-2:2017+AC:2017+AC:2018	☒
Factory Surveillance	VDE PM 434E:2019-04	☒
Enhanced Reliability and Factory Surveillance	VDE Testing Specification VDE-QT-PV-001:2019-01	☒

Specifications

Manufacturer	Hanwha Q CELLS GmbH Sonnentallee 17-21, 06766 Bitterfeld-Wolfen, Germany
Trademark	Q CELLS
Factory Locations	#30018653, #30023330, #300023399, #30024181, #30025062
Model / Type (Construction I)	Q.PLUS DUO-GY XXX, Q.PLUS DUO BLK-GY XXX, Q.PLUS DUO BFR-GY XXX, Q.PEAK DUO BLK-GY XXX, Q.PEAK DUO BLK-GY.Y XXX, Q.PEAK DUO-GY.Y XXX (XXX replaces the power at STC)

Accessories and technical features

Power at STC	270 – 335 W
Maximum System Voltage	1000 V
Class	II
Application Class	A
Fire Rating	C
Maximum Reverse Current	20 A
Mechanical Load	Qualified for heavy loads of snow and ice (Test load 5400 Pa)

Evaluation of quality characteristics

high reliability	☒ Testing with increased number of testing samples ☒ Testing with enhanced testing time and number of cycles
low degradation	☒ Tightened pass/fail- criteria ☒ Maximum permitted degradation of the power of 5% over the enhanced test sequence
optimized durability	☒ Additionally dynamic mechanical load test ☒ Robustness of terminations test with increased force
continuous line monitoring	☒ Tightened and upgraded requirements within the 100% routine test ☒ Quarterly testing on samples collected from the running lines of each factory

VDE

Tested and evaluated positively

Offenbach, 2019-12-16

081P22_A32
2019-01-12

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:											
ISSUED FOR PERMIT				08-31-2022				AV				DM								DAVID CALVERLY				PV MODULES DATA SHEET											
REV		DESCRIPTION		DATE		CAD		QC		TITAN SOLAR POWER FL		901 ARMSTRONG BLVD, KISSIMMEE, FL 34741		PROJECT ADDRESS:						403 SW OAK WAY LAKE CITY FL 32025															
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																								TSP140412				ENG. RAFAEL A. GONZALEZ SOTO, PE							
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Enphase
IQ Combiner 4/4C
X-IQ-AM1-240-4
X-IQ-AM1-240-4C



To learn more about Enphase offerings, visit enphase.com

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



Enphase IQ Combiner 4/4C

MODEL NUMBER

IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.

ACCESSORIES AND REPLACEMENT PARTS

(not included, order separately)

Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.

ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers

MECHANICAL DATA

Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)

INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)

COMPLIANCE

Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit enphase.com

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DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
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																				PARCEL NUMBER:				ENGINEER OF RECORD:			
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IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry’s first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer’s instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 and IQ8+ Microinverters

INPUT DATA [DC]		108-60-2-US	108PLUS-72-2-US
Commonly used module pairings ¹	W	235 – 350	235 – 440
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell and 72-cell/144 half-cell
MPPT voltage range	V	27 – 37	29 – 45
Operating range	V	25 – 48	25 – 58
Min/max start voltage	V	30 / 48	30 / 58
Max input DC voltage	V	50	60
Max DC current ² [module Isc]	A	15	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA [AC]		108-60-2-US	108PLUS-72-2-US
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range ³	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
Max units per 20 A (L-L) branch circuit ⁴		16	13
Total harmonic distortion		<5%	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.5	97.6
CEC weighted efficiency	%	97	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		MC4	
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Acoustic noise at 1 m		<60 dBA	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01	
Certifications		This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION				ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:			
ISSUED FOR PERMIT				08-31-2022	AV	DM	ENGINEPARTNERS LLC						TITAN SOLAR POWER FL 901 ARMSTRONG BLVD, KISSIMMEE, FL 34741 (813) 982-9001 #EC13009924				DAVID CALVERLY		INVERTER DATA SHEET			
REV				DESCRIPTION	DATE	CAD	QC	PROJECT ADDRESS:														
							403 SW OAK WAY LAKE CITY FL 32025															
							PARCEL NUMBER:															
							DESIGN@ENGINEPARTNERS.COM										PROJECT ID:		ENGINEER OF RECORD:		SHEET TITLE:	
							833 - 888 - 3644										TSP140412		ENG. RAFAEL A. GONZALEZ SOTO, PE		D-3	
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																			08-30-22			

Enphase IQ System Controller 2

The **Enphase IQ System Controller 2** connects the home to grid power, the IQ Battery system, and solar PV. It provides microgrid interconnection device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.



Reliable

- Durable NEMA type 3R enclosure
- Ten-year limited warranty

Smart

- Controls safe connectivity to the grid
- Automatically detects grid outages
- Provides seamless transition to backup

Simple

- Connects to the load or service equipment¹ side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation
- IQ System Controller supports backward compatibility with older generation of PV microinverters (M215, M250 and S series), making it simple for home owners to upgrade their systems
- Easy integration with generator from major manufacturers

1. IQ System Controller 2 is not suitable for use as service equipment in Canada.

To learn more about Enphase offerings, visit enphase.com



Enphase IQ System Controller 2

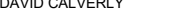
MODEL NUMBER		
EP200G101-M240US01	Enphase IQ System Controller 2 with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and battery installations.	
ACCESSORIES and REPLACEMENT PARTS		
EP200G-NA-XA-E3	Replacement IQ System Controller 2 printed circuit board	
EP200G-NA-HD-200A	Eaton type BR circuit breaker hold-down screw kit, BRHDK125	
CT-200-SPLIT	200 A split core current transformers for Generator metering (+/- 2.5%)	
Circuit breakers (as needed) ^{2,3}	Not included, must order separately:	
• BRK-100A-2P-240V : Main breaker, 2 pole, 100A, 25kAIC, CSR2100	• BRK-20A-2P-240V-B: Circuit breaker, 2 pole, 20A, 10kAIC, BR220B	
• BRK-125A-2P-240V: Main breaker, 2 pole, 125A, 25kAIC, CSR2125N	• BRK-30A-2P-240V: Circuit breaker, 2 pole, 30A, 10kAIC, BR230B	
• BRK-150A-2P-240V: Main breaker, 2 pole, 150A, 25kAIC, CSR2150N	• BRK-40A-2P-240V: Circuit breaker, 2 pole, 40A, 10kAIC, BR240B	
• BRK-175A-2P-240V: Main breaker, 2 pole, 175A, 25kAIC, CSR2175N	• BRK-60A-2P-240V: Circuit breaker, 2 pole, 60A, 10kAIC, BR260	
• BRK-200A-2P-240V: Main breaker, 2 pole, 200A, 25kAIC, CSR2200N	• BRK-80A-2P-240V: Circuit breaker, 2 pole, 80A, 10kAIC, BR280	
EP200G-HNDL-R1	IQ System Controller 2 installation handle kit (order separately)	
EP200G-LITKIT	IQ System Controller 2 literature kit, including labels, feed-through headers, screws, filler plates, and QIG	
BRK-20A40A-2P-240V	2 pole, 20A/40A, 10kAIC, BQC220240	
ELECTRICAL SPECIFICATIONS		
Assembly rating	Continuous operation at 100% of its rating	
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC	
Voltage measurement accuracy	±1% V nominal (±1.2V L-N and ±2.4V L-L)	
Auxiliary contact for load control, excess PV control, and generator two-wire control	24V, 1A	
Nominal frequency / range	60 Hz / 56 - 63 Hz	
Frequency measurement accuracy	±0.1 Hz	
Maximum continuous current rating	160A	
Maximum input overcurrent protection device	200A	
Maximum output overcurrent protection device	200A	
Maximum overcurrent protection device rating for Generator circuit ⁴	80A	
Maximum overcurrent protection device rating for storage branch circuit ⁴ (the storage branch circuit can be replaced with PV)	80A	
Maximum overcurrent protection device rating for IQ8 PV combiner branch circuit ⁴	80A	
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral; 40A between L2 and Neutral • Continuous rated power: 3600VA • Maximum continuous unbalance current: 30A @ 120V • Peak rated power: 8800VA for 30 seconds • Peak unbalanced current: 80A @ 120V for 30 seconds	
MECHANICAL DATA		
Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)	
Weight	39.4 kg (87 lbs)	
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)	
Cooling	Natural convection, plus heat shield	
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction	
Altitude	To 2500 meters (8200 feet)	
WIRE SIZES		
Connections (All lugs are rated to 90C)	• Main lugs and backup load lugs • CSR breaker bottom wiring lugs • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator lugs • Neutral (large lugs)	Cu/Al: 1 AWG – 300 KCMIL Cu/Al: 2 AWG – 300 KCMIL 6 AWG 14 AWG – 2 AWG Cu/Al: 6 AWG - 300 KCMIL
Neutral and ground bars	Large holes (5/16-24 UNF) Small holes (10-32 UNF)	14 AWG – 1/0 AWG 14 AWG – 6 AWG
COMPLIANCE		
Compliance	UL 1741, UL 1741 SA, UL 1741 PCS, UL1998, UL869A ⁵ , UL67 ⁵ , UL508 ⁵ , UL50E ⁵ CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, AC156. IQ System Controller 2 is approved for Use as Service Equipment in the United States ⁵ IFETEL homologation number: RCPENEP22-2078	

2. Compatible with BRHDK125 Hold-Down Kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
3. The IQ System Controller 2 is rated 22 kAIC
4. Not included. Installer must provide properly rated breaker per circuit breaker list above.
5. Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

To learn more about Enphase offerings, visit enphase.com

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DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION		ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION		CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:						
ISSUED FOR PERMIT				08-31-2022	AV	DM	ENGIPARTNERS LLC C.A. 32661 1825 PONCE DE LEON BLVD #114 CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644		 Rafael A Gonzalez Soto 2022.09.12 08:28:36 -04'00'		TITAN SOLAR POWER FL 901 ARMSTRONG BLVD, KISSIMMEE, FL 34741 (813) 982 - 9001 #EC13009924		 TITAN SOLAR POWER		DAVID CALVERLY		SYSTEM CONTROLLER DATA SHEET						
REV				DATE	CAD	QC									PROJECT ADDRESS:								
																403 SW OAK WAY LAKE CITY FL 32025		PROJECT ID:		ENGINEER OF RECORD:		SHEET TITLE: D-4	
																		TSP140412		ENG. RAFAEL A. GONZALEZ SOTO, PE			
																				PARCEL NUMBER:		DATE:	
												32-4S-17-09116-124		08-30-22									