

76 North Meadowbrook Drive Alpine, UT 84004 office (201) 874-3483 swyssling@wysslingconsulting.com

April 24, 2023 Revised June 9, 2023

Lumio Solar 12600 Challenger Parkway, Suite 200 Orlando, FL 32826

Scott Wyssling, PE

Digitally signed by Scott Wyssling, PE

NI: C=US, S-LUTA, L=Alpine, O=Wyssling Consulting, OU=Engineering,
CNI='Scott Wyssling, PE', E=swyssling@wysslingconsulting.com
Reason: I am the author of this document
Location: your signing location here
Date: 2023.06.09 14:34:55-06:000

Re: Engineering Services Johnson Residence 615 Southwest Oleander Place, Lake City FL 15.600 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

- Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
- Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

B. Description of Structure:

Roof Framing: 2x6 dimensional lumber at 24" on center.

Roof Material: Metal Roofing 14.04 degrees Attic Access: Accessible Permanent

C. Loading Criteria Used

- Dead Load
 - Existing Roofing and framing = 7 psf
 - New Solar Panels and Racking = 3 psf
 - TOTAL = 10 PSF
- Live Load = 20 psf (reducible) 0 psf at locations of solar panels
- Ground Snow Load = 0 psf
- Wind Load based on ASCE 7-16
 - Ultimate Wind Speed = 130 mph (based on Risk Category II)
 - Exposure Category B

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the FBC 2020 7th Edition, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing framing will support the additional panel loading without damage, if installed correctly.

D. Solar Panel Anchorage

- 1. The solar panels shall be mounted in accordance with the most recent S-5! Installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
- 2. System will be attached to the metal roofing material utilizing the patented S-5! Connection. Installation of the connections shall be in accordance with the manufacturer's recommendations.
- 3. Considering the wind speed, roof slopes, size and spacing of framing members, and condition of the roof, the panel supports shall be placed no greater than 48" on center.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the *FBC 2020 7th Edition*, current industry standards and practice, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

164 E. Nys

Scott E. Wyssling, PE Florida License No. 8 1538 Florida COA No. RY34912 THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES

No. 8155

No. 8155

Wyssling Consulting, PLLC 76 N Meadowbrook Drive Alpine UT 84004

Florida License & R734912

Date Signed 6/9/2023





SCOPE OF WORK:

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 615 SOUTHWEST OLEANDER PLACE, LAKE CITY, FL 32025.

SYSTEM DC RATING: 15.60 KWDC SYSTEM AC RATING: 11.33 KWAC

GENERAL NOTES:

- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- THE EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE INSTALLED ONLY BY QUALIFIED PEOPLE. A QUALIFIED PERSON IS ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED. (NEC 690.4(C), NEC 2017).
- NEW CONDUIT ROUTING SHOWN IS ESSENTIALLY SCHEMATIC.
 CONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS
 AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
- ARRAY WIRING SHOULD NOT BE READILY ACCESSIBLE EXCEPT TO QUALIFIED PERSONNEL.
- ▶ THE AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.

	SHEET INDEX						
CS-0	COVER SHEET & BOM						
E-1 STRING LAYOUT & SIGNAGE							
E-2	ELECTRICAL DIAGRAM & CALCS.						
E-3+	EQUIPMENT SPECIFICATIONS						

GOVERNING CODES
2017 NEC
2018 NFPA / 2020 FFPC
2020 FBC
2018 IRC
AUTHORITY HAVING JURISDICTION (AHJ): COUNTY OF MARION

UTILITY COMPANY: FPL		
		BILL OF MATERIALS
FOLIPMENT	OTV	DESCRIPTION

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	39	Q CELLS Q.PEAK DUO BLK ML-G10+ 400
MICROINVERTER	39	ENPHASE IQ8PLUS-72-2-US
JUNCTION BOX	1	JUNCTION BOX, NEMA 3R, UL LISTED
COMBINER BOX	1	ENPHASE IQ COMBINER 4/4C W/ IQ ENVOY (X-IQ-AM1-240-4)
AC DISCONNECT	1	60A FUSED AC DISCONNECT, 240V, NEMA 3R, UL LISTED



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ATLANTIC KEY ENERGY LLC

12600 CHALLENGER PARKWAY SUITE 200 ORLANDO, FL 32826 1 (407) 988-0273



MARIANNE JOHNSON RESIDENCE PROJECT # P-0074754 5 SOUTHWEST OLEANDER PLACE LAKE CITY, FL 32025

SIGNATURE WITH SEAL

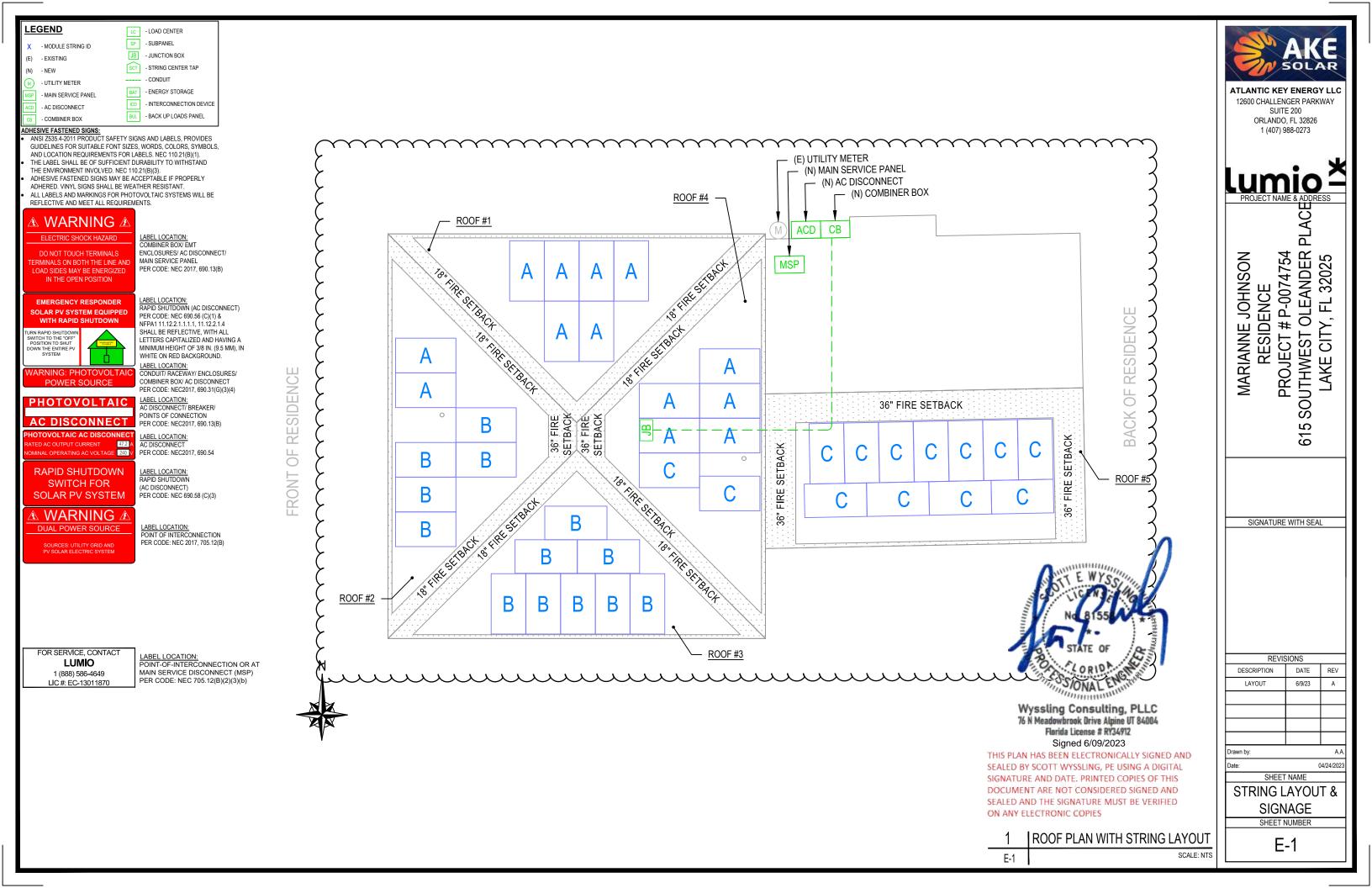
REVISIONS
DESCRIPTION DATE REV
LAYOUT 6/9/23 A

| Date: | 04/24/2023 | SHEET NAME |

COVER SHEET &

SHEET NUMBER

CS-0

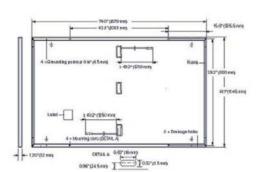


	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	N	MIN. CONDUCTOR SIZE (AWG)	MIN. DIA CONDUIT SIZE (IN.)	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD (A)		MIN. EGC SIZE (AWG)		P. CORR. CTOR	CONDUIT FILL FACTOR	CONT. CURRENT (A)	MAX. CURRENT (A)	BASE AMP. (A)	DERATED AMP. (A)	TERM. AMP. RATING (A)	LENGTH (FT)	VOLTAGE DROP (%)	SW AKE
1	STRING A	JUNCTION BOX	12	Q CABLE	N/A	1	2	N/A	6	BARE COPPER	0.76	55°C	N/A	15.73	19.66	30	N/A	N/A	72.00	0.76	SOLAR
2	STRING B	JUNCTION BOX	12	Q CABLE	N/A	1	2	N/A	6	BARE COPPER	0.76	55°C	N/A	15.73	19.66	30	N/A	N/A	78.00	0.82	ATLANTIC KEY ENERGY LLC
3	STRING C	JUNCTION BOX	12	Q CABLE	N/A	1	2	N/A	6	BARE COPPER	0.76	55°C	N/A	15.73	19.66	30	N/A	N/A	68.00	0.72	12600 CHALLENGER PARKWAY SUITE 200
4	JUNCTION BOX	COMBINER BOX	10	THWN-2 COPPER	0.75 LTNM	3	6	20	10	THWN-2 COPPER	0.76	55°C	0.8	15.73	19.66	40	24.3	35	47.00	0.77	ORLANDO, FL 32826 1 (407) 988-0273
5	COMBINER BOX	AC DISCONNECT	6	THWN-2 COPPER	0.75 LTNM	1	3	60	10	THWN-2 COPPER	0.96	34°C	1	47.19	58.99	75	72.0	65	5.00	0.10	1 (101) 000 0210
6	AC DISCONNECT	MSP	6	THWN-2 COPPER	0.75 LTNM	1	3	N/A	-	-	0.96	34°C	1	47.19	58.99	75	72.0	65	5.00	0.10	
		13 Q CELLS Q.PEA 13 ENPHASE IQ8P 13 Q CELLS Q.PEA 13 Q CELLS Q.PEA	SS-PLUS-72-2 (N) SAK DUO B (N) SAK DUO B	ETRING A BLK ML-G10+ 400 MODULE LUS MICROINVERTERS ETRING B BLK ML-G10+ 400 MODULE BLK ML-G10+ 400 MODULE BLK ML-G10+ 400 MODULE BLK ML-G10+ 400 MODULE	SS TO M	OUNTING ICTURE	M		4	20A/2P 20A/2P 20A/2P (N) IQ COME	10A/2P 15A/2I	OR P DX	NSULATION PIERC	(2) 60 A FUSES II I		(N) MAIN : PANEL 6AWG BARE COPPER	(E) BI-DIRECUTILITY ME UTILITY ME 2 N (E) BI-DIRECUTILITY ME (E) GROUND CONDUCTION (E) GROUND CONDUCTION NOTE: 1. LTNM OR	Wyssi No House, 200 Wyssi No Nobe This Plan has SEALED BY SCO SIGNATURE AND DOCUMENT AR SPALED AND THE ORRANY ELECTR EQUIVALENT TYPE ESIGN TEMPERATURE MP (HIGH TEMP. 2%)	dowbrook Drive lorida License # Signed 6/09/ BEEN ELECTRO TT WYSSLING, D DATE. PRINT E NOT CONSID BE SIGNATURE RONIC COPIES PE CONDUIT ()	/2023 DNICALLY SIGNE PE USING A DIG TED COPIES OF T DERED SIGNED A MUST BE VERIF LEGEND (E) - EXISTING (N) - NEW	MARIANNE JOHNSON RESIDENCE RESIDENCE BESIDENCE BESI
				E-2		SCALE: N	_						NSULATION PIERO SIDE CONNECTION		MILL RE OSED FOR	LINE/LOAD	CONDUCTOR TE	MP. RATE (ROOF)		55°C	L-Z

Q.PEAK DUO BLK ML-G10+ SERIES

■ Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 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 anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2,09-3,98 in × 1,26-2,36 in × 0,59-0,71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Staubii MC4; IP68



■ Electrical Characteristics

P	OWER CLASS			385	390	395	400	405
М	NIMUM PERFORMANCE AT STANDARD	TEST CONDITIONS, ST	C! (POWER TOLERA)	NCE+5W/-OW)				
	Power at MPP ¹	Phop	[W]	385	390	395	400	405
	Short Circuit Current ¹	Isc	(A)	11.04	11.07	11.10	11.14	11.17
5	Open Circuit Voltage ¹	Voc	[V]	45.19	45.23	45.27	45.3	45.34
Ì	Current at MPP	l _{spp}	[A]	10,59	10,65	10.71	10.77	10,83
2	Voltage at MPP	V _{MP}	[V]	36,36	36.62	36.88	37.13	37.39
	Pfficiency ¹	n	1961	>19.6	>19.9	> 201	>20.4	>206

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NIMOT²

Power at MPP	Page	[W]	288.8	292.6	296.3	300.1	303.8
Short Circuit Current	Isc	[A]	8,90	8.92	8.95	8.97	9.00
Open Circuit Voltage	Voc	(V)	42.62	42.65	42.69	42.72	42.76
Current at MPP	l _{bip p}	(A)	8.35	8.41	8.46	8.51	8.57
Voltage at MPP	V _{see}	[V]	34,59	34.81	35,03	35.25	35.46

"Measurement tolerances P₁₉₀₉ ±3%; I_{sc}: V₀₀±5% at STC: 1000 W/m², 25±2°C, AM 1.5 according to IEC 60904.3 • ²800 W/m², NMOT, spectrum AM 1.5

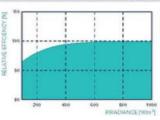
Qcells PERFORMANCE WARRANTY

At least 56 % of nominal power during first year. Thereafter max 0.5% degradation per year. At least 98.5% of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warrantes in accordance with the warranty terms of the Quells sales organisation of your respective

"Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irrectange conditions in comparison to STC conditions [25°C 1000W/m²].

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I _{sc}	а	[%/K]	+0.04	Temperature Coefficient of V _{oc}	β	[%/K]	-0.27
Temperature Coefficient of P _{sep}	Y	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[*F]	109±5.4

■ Properties for System Design

Maximum System Voltage	Vers	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull ²		[lbs/ff²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature	-40°F up to +185°F
Max. Test Load, Push / Pull®		[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)	on Continuous Duty	(~40°C up to +85°C)

* See Installation Manual

■ Qualifications and Certificates

UL 61730, CE-compliant, Quality Controlled PV - TOV Rheinland, IEC 61215/2016, IEC 61730/2016, U.S. Patent No. 9,893,215 (solar cells).









IQ8 Series Microinverters

INPUT DATA IDCI		108-60-2-US	108PLUS-72-2-US	108M-72-2-US	1084-72-2-US	108H-240-72-2-US	108H-208-72-2-US
Commonly used module pairings ²	W	235 - 350	235 - 440	260 - 460	295 - 500	320 - 540+	295 - 500+
Module compatibility		60-cell/120 half-cell	6	0-cell/120 half-cell, 6	6-cell/132 half-cell	and 72-cell/144 half-ce	at .
MPPT voltage range	٧	27 - 37	29 - 45	33 - 45	36 - 45	38 - 45	38 - 45
Operating range	V	25-48			25 - 58		
Min/max start voltage	٧	30 / 48			30/58		
Max input DC voltage	٧	50			60		
Max DC current ³ [module lsc]	A			1	5		
Overvoltage class DC port				1	ı		
DC port backfeed current	mA						
PV array configuration		1x1 Ungrounded a	array; No additional DC	side protection requ	ired; AC side protect	ion requires max 20A p	er branch circuit
OUTPUT DATA (AC)		103-60-2-US	103PLUS-72-2-US	108M-72-2-US	108A-72-2-US	100H-240-72-2-US	108H-208-72-2-US
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range4	٧			240 / 211 - 264			208 / 183 - 250
Max continuous output current	A.	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz			6	0		
Extended frequency range	Hz			50	- 68		
AC short circuit fault current over 3 cycles	Arms			2			4.4
Max units per 20 A (L-L) branch circuit	5	16	13	11	.11	10	9
Total harmonic distortion				<5	5%		
Overvoltage class AC port				1	п		
AC port backfeed current	mA			3	0		
Power factor setting				1.	o		
Grid-tied power factor (adjustable)				0.85 leading	- 0.85 lagging		
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	97	97
Night-time power consumption	mW			6	o		
MECHANICAL DATA		i.					
Ambient temperature range				-40°C to +60°C	(-40°F to +140°F)		
Relative humidity range				4% to 100%	(condensing)		
DC Connector type				М	04		
Dimensions (HxWxD)			2	12 mm (8.3°) x 175 mm	(6.9") x 30.2 mm (1.	2")	
Weight				1.08 kg (2.38 lbs)		
Cooling				Natural conve	ction – no fans		
Approved for wet locations				Y	es es		
Pollution degree				Pt	03		
Enclosure			Class II dou	ble-insulated, corros	ion resistant polymer	ic enclosure	
Environ. category / UV exposure rating				NEMA Type	6 / outdoor		
COMPLIANCE							
		CA Rule 21 (UL 1741-5	SA), UL 62109-1, UL174	1/IEEE1547, FCC Part	15 Class B, ICES-00	03 Class B, CAN/CSA-(022.2 NO. 107.I-01
Certifications			18 Rule 64-218 Rapid :			2014, NEC 2017, and NE onductors, when install	
		manufacturer's instr	uctions.				

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility (3) Maximum continuous input DC current is 10.64 (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

PROJECT # P-0074754 SOUTHWEST OLEANDER MARIANNE JOHNSON RESIDENCE SIGNATURE WITH SEAL REVISIONS DESCRIPTION SHEET NAME IQ8SE-DS-0001-01-EN-US-2022-03-17 **EQUIPMENT SPECIFICATIONS** SHEET NUMBER E-3

ATLANTIC KEY ENERGY LLC

12600 CHALLENGER PARKWAY SUITE 200 ORLANDO, FL 32826

1 (407) 988-0273

PLACE

LAKE CITY, FL

615

DATE

6/9/23

REV

04/24/2023

Qcells pursues minimizing paper output in consideration of the global environment

Note: Installation instructions must be followed Confect our technical service for further information on approved installation of this product.

His web G CELLS America Inc. 400 Spectrum Center Drive, Subs 1400, Indee, CA 02618, USAI TEL +1949 748 59 96 I EMAIL Rigo-Inquisy@goulls.com I WEB interceptual score.

<u>Qcells</u>

Enphase IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	Q Combiner 4 with Enphase Q 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 Q Battery system and Q System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	Q Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20+/-0.5%) and consumption monitoring (4/-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 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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12600 CHALLENGER PARKWAY SUITE 200 ORLANDO, FL 32826 1 (407) 988-0273

PLACE MARIANNE JOHNSON RESIDENCE PROJECT # P-0074754 615 SOUTHWEST OLEANDER PI LAKE CITY, FL 32025

SIGNATURE WITH SEAL

REVISIONS DESCRIPTION DATE REV 6/9/23

04/24/2023

⊖ ENPHASE.

SHEET NAME **EQUIPMENT**

SPECIFICATIONS SHEET NUMBER

E-4