



SCOPE OF WORK:
TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM AT THE OWNER RESIDENCE LOCATED AT 332 NORTHWEST SCOTT GLEN, LAKE CITY, FL 32055.

SYSTEM DC RATING: 5.60 KWDC
SYSTEM AC RATING: 4.07 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 COLUMBIA	
UTILITY COMPANY: FPL	

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	14	Q CELLS Q.PEAK DUO BLK ML-G10+ 400
MICROINVERTER	14	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 NON-FUSED AC DISCONNECT, 240V, NEMA 3R, UL LISTED



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2023.04.24
16:17:26 -04'00'



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



PROJECT NAME & ADDRESS

MARY STANCIL
RESIDENCE
PROJECT # P-0075037
332 NORTHWEST SCOTT GLEN
LAKE CITY, FL 32055

SIGNATURE WITH SEAL

REVISIONS		
DESCRIPTION	DATE	REV

Drawn by: C.M.
Date: 4/24/2023

SHEET NAME	
COVER SHEET & BOM	
SHEET NUMBER	
CS-0	

LEGEND

X

- MODULE STRING ID

(E)

- EXISTING

(N)

- NEW

M

- UTILITY METER

MSP

- MAIN SERVICE PANEL

ACD

- AC DISCONNECT

CB

- COMBINER BOX

LC

- LOAD CENTER

SP

- SUBPANEL

JB

- JUNCTION BOX

SCT

- STRING CENTER TAP

- CONDUIT

BAT

- ENERGY STORAGE

ICD

- INTERCONNECTION DEVICE

BUL

- BACK UP LOADS PANEL

ADHESIVE FASTENED SIGNS:

- ANSI Z535.4-2011 PRODUCT SAFETY SIGNS AND LABELS, PROVIDES GUIDELINES FOR SUITABLE FONT SIZES, WORDS, COLORS, SYMBOLS, AND LOCATION REQUIREMENTS FOR LABELS. NEC 110.21(B)(1).
- THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. NEC 110.21(B)(3).
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT.
- ALL LABELS AND MARKINGS FOR PHOTOVOLTAIC SYSTEMS WILL BE REFLECTIVE AND MEET ALL REQUIREMENTS.

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

LABEL LOCATION:
COMBINER BOX/ EMT
ENCLOSURES/ AC DISCONNECT/
MAIN SERVICE PANEL
PER CODE: NEC 2017, 690.13(B)

EMERGENCY RESPONDER

SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE "OFF"
POSITION TO SHUT
DOWN THE ENTIRE PV
SYSTEM



LABEL LOCATION:
RAPID SHUTDOWN (AC DISCONNECT)
PER CODE: NEC 690.56 (C)(1) &
NFPA1 11.12.2.1.1.1.1, 11.12.2.1.4
SHALL BE REFLECTIVE, WITH ALL
LETTERS CAPITALIZED AND HAVING A
MINIMUM HEIGHT OF 3/8 IN. (9.5 MM), IN
WHITE ON RED BACKGROUND.

WARNING: PHOTOVOLTAIC
POWER SOURCE

LABEL LOCATION:
CONDUIT/ RACEWAY/ ENCLOSURES/
COMBINER BOX/ AC DISCONNECT
PER CODE: NEC2017, 690.31(G)(3)(4)

PHOTOVOLTAIC
AC DISCONNECT

LABEL LOCATION:
AC DISCONNECT/ BREAKER/
POINTS OF CONNECTION
PER CODE: NEC2017, 690.13(B)

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT 16.9 A

NOMINAL OPERATING AC VOLTAGE 240 V

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC2017, 690.54

RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM

LABEL LOCATION:
RAPID SHUTDOWN
(AC DISCONNECT)
PER CODE: NEC 690.58 (C)(3)

WARNING

DUAL POWER SOURCE

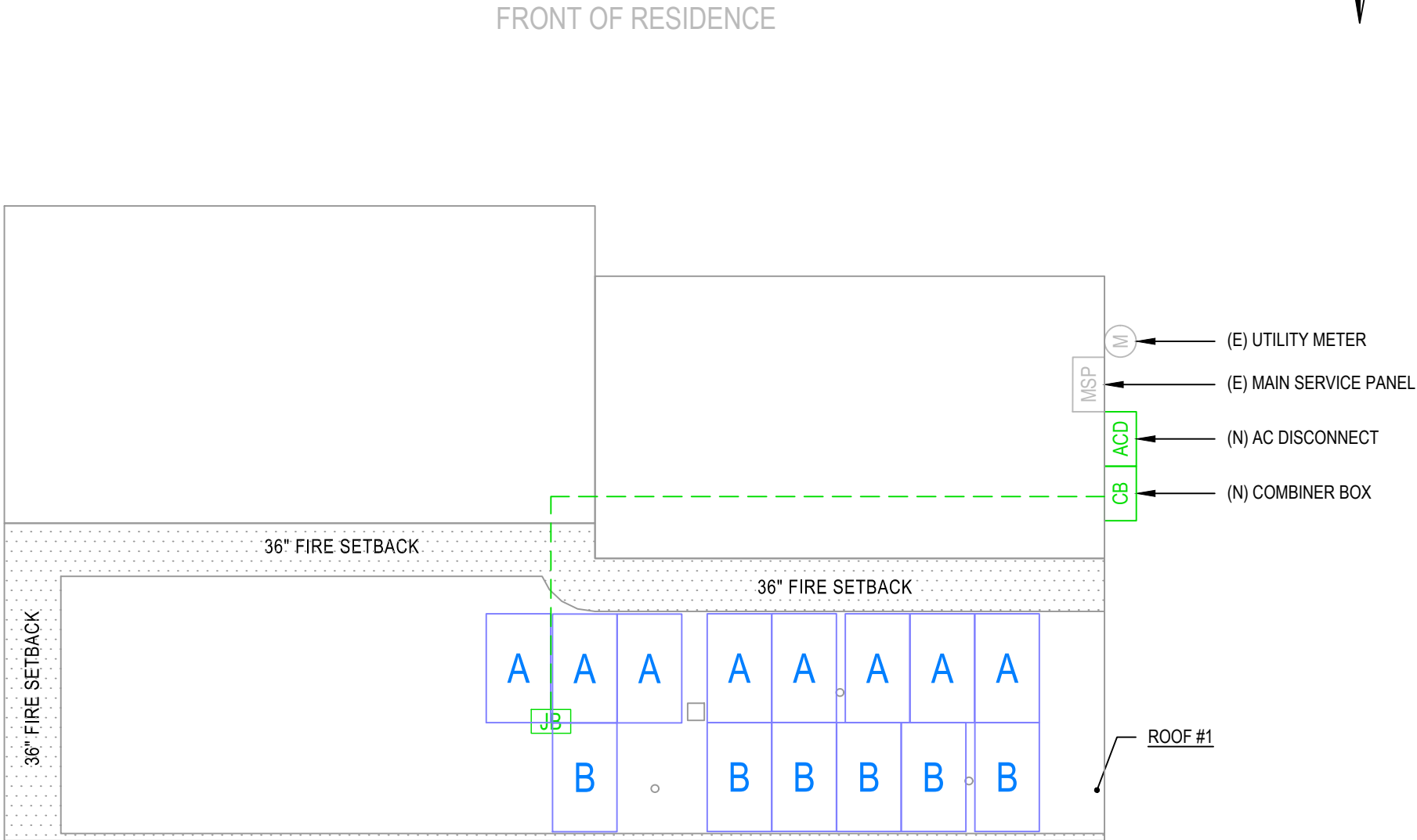
SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:
POINT OF INTERCONNECTION
PER CODE: NEC 2017, 705.12(B)

! WARNING !

POWER SOURCE OUTPUT CONNECTION.
DO NOT RELOCATE THIS
OVERCURRENT DEVICE.

LABEL LOCATION:
POINT-OF-INTERCONNECTION OR AT
MAIN SERVICE DISCONNECT (MSP)
PER CODE: NEC 705.12(B)(2)(3)(b)

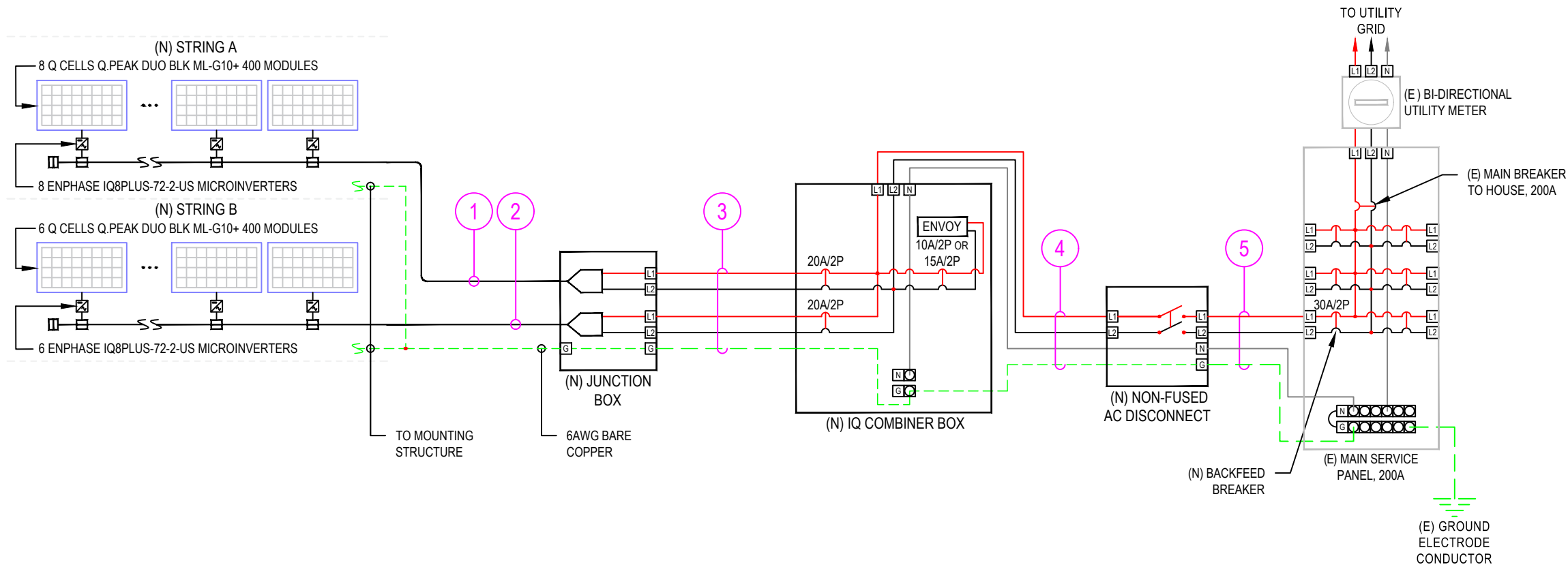


BACK OF RESIDENCE



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ID	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	MIN. CONDUCTOR SIZE (AWG)		MIN. DIA CONDUIT SIZE (IN.)	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD (A)	MIN. EGC SIZE (AWG)		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT (A)	MAX. CURRENT (A)	BASE AMP. (A)	DERATED AMP. (A)	TERM. AMP. RATING (A)	LENGTH (FT)	VOLTAGE DROP (%)
1	STRING A	JUNCTION BOX	12	Q CABLE	N/A	1	2	N/A	6	BARE COPPER	0.76	55°C	N/A	9.68	12.10	30	N/A	N/A	29.00	0.46
2	STRING B	JUNCTION BOX	12	Q CABLE	N/A	1	2	N/A	6	BARE COPPER	0.76	55°C	N/A	7.26	9.08	30	N/A	N/A	26.00	0.31
3	JUNCTION BOX	COMBINER BOX	10	THWN-2 COPPER	0.75 LTNM	2	4	20	10	THWN-2 COPPER	0.76	55°C	0.8	9.68	12.10	40	24.3	35	51.00	0.51
4	COMBINER BOX	AC DISCONNECT	10	THWN-2 COPPER	0.75 LTNM	1	3	N/A	10	THWN-2 COPPER	0.96	34°C	1	16.94	21.18	40	38.4	35	5.00	0.09
5	AC DISCONNECT	MSP	10	THWN-2 COPPER	0.75 LTNM	1	3	30	10	THWN-2 COPPER	0.96	34°C	1	16.94	21.18	40	38.4	35	5.00	0.09



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NOTE:		LEGEND	
1. LTNM OR EQUIVALENT TYPE CONDUIT		(E) - EXISTING	(N) - NEW
DESIGN TEMPERATURE SPECIFICATIONS			
RECORD LOW TEMP		-5°C	
AMBIENT TEMP. (HIGH TEMP. 2%)		34°C	
CONDUIT HEIGHT		1.0"	
CONDUCTOR TEMP. RATE (ROOF)		55°C	

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REVISIONS		
DESCRIPTION	DATE	REV

Drawn by: C.M.
Date: 4/24/2023

SHEET NAME
ELECTRICAL LINE
DIAGRAM & CALCS.

SHEET NUMBER
E-2

ARRAY DESCRIPTION						
ROOF	# OF MODULES	AZIMUTH	TILT	TRUSS SIZE	TRUSS SPACING	ROOF MATERIAL
#1	14	180	4/12 (18.43°)	2X4	24"O.C.	METAL

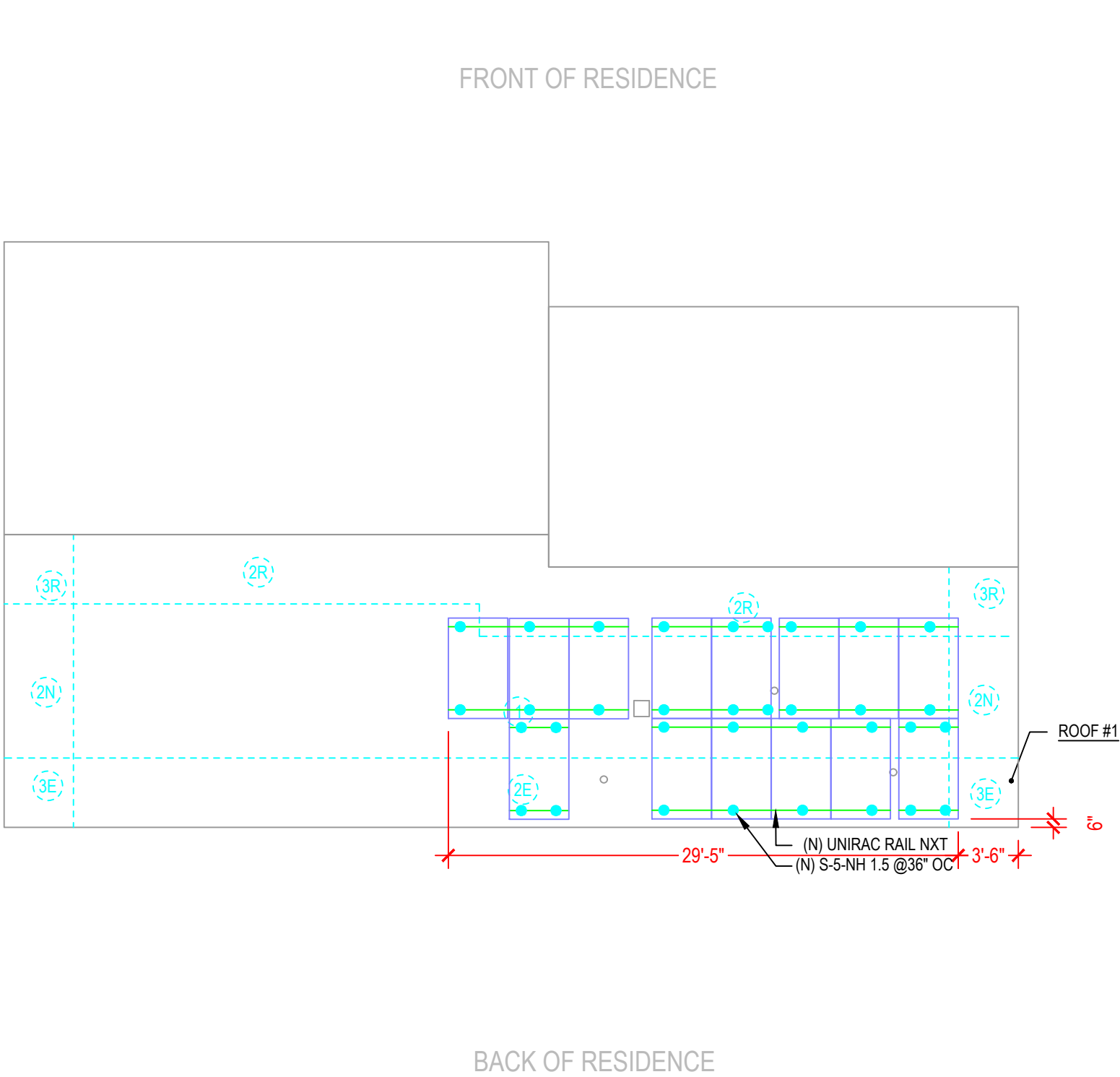
DESIGN SPECIFICATION	
RISK CATEGORY	II
CONSTRUCTION	SFD
ZONING	RESIDENTIAL
SNOW LOAD (ASCE 7-16)	0 PSF
EXPOSURE CATEGORY	B
WIND SPEED (ASCE 7-16)	120 MPH



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ROOF'S GENERAL NOTES

- CONTRACTOR/INSTALLER TO VERIFY ROOF CONDITIONS FOR PROPER INSTALLATION OF THE PV SYSTEM.
- CONTRACTOR/INSTALLER TO NOTIFY THE OWNER IMMEDIATELY OF ANY ROOF DEFICIENCIES AND/OR REPAIR REQUIRED TO INSTALL THE PV SYSTEM.
- EOR DOES NOT ASSUME ANY RESPONSIBILITY FOR THE INSTALLATION OF ANY PV SYSTEM ON DEFICIENT ROOFS.
- CONTRACTOR/INSTALLER ASSUMES ALL RESPONSIBILITY TO INSTALL AS PER MANUFACTURER STANDARDS.



LEGEND	
(E)	- EXISTING
(N)	- NEW

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REVISIONS		
DESCRIPTION	DATE	REV

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Date: 4/24/2023

SHEET NAME	
ROOF PLAN AND MODULES	
SHEET NUMBER	
S-0	

The right way to attach almost anything to metal roofs!

S-5![®]

The Right Way![®]

S-5-NH 1.5 Clamp

The NH 1.5 is part of the "N" line of clamps developed for nail strip profiles. Designed specifically for 1-1/2" nail strip profiles with a wider horizontal dimension - ($> 0.475"$ and $\leq 0.800"$), the S-5-NH 1.5 is an ideal mounting solution for VicWest Prestige, NewTech FF150 and similarly-dimensioned profiles.

The NH 1.5 features an innovative "hinge" insert to allow for a superior fit on new and wider nail strip profiles, as well as older ones. The insert is designed with a toe that engages the female portion of the panel and forms to the shape of the seam to prevent damage, while offering optimal holding strength. Choose the NH 1.5 for heavy, load-critical applications such as snow retention.

S-5-NH 1.5 Mini Clamp

The S-5-NH 1.5 Mini offers the same benefits as its standard counterpart but is smaller with one setscrew, rather than two. Choose the Mini to attach various rooftop accessories, such as solar arrays, satellite dishes, lightning protection systems, antennas, rooftop lighting, conduit, condensate lines and other lighter load applications.*

*S-5! Mini clamps are not compatible with, and should not be used with S-5! SnowRail™/SnowFence™ or ColorGuard™ snow retention systems.

FEATURES AND BENEFITS

- Angled T-30 Torx setscrews for ease of installation
- Fits nail strip profiles w/ base of rib dimension $\leq 0.800"$
- Hinge forms to shape of seam, preventing damage at the point of attachment
- Reversible hinge for wide & medium-width profiles
- Staked hinge insert to facilitate installation

For nail strip profiles with 1" seam height, see "S-5-N". See also the "S-5-N 1.5" for nail (flange metal) roof profiles with a seam base dimension $\leq .50"$ (12.7 mm).

888-825-3432 | www.S-5.com |  S-5-NH 1.5 and S-5-NH 1.5 Mini

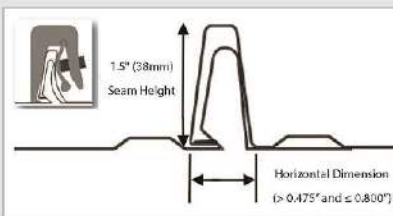
S-5![®]

The Right Way![®]

The new and improved S-5-NH 1.5 features an innovative reversible hinged insert that ensures a superior fit for new and wider nail strip profiles.

The S-5-NH 1.5 and S-5-NH 1.5 Mini clamps are each supplied with 300 series stainless steel hardware, pictured on the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. The S-5-NH 1.5 is a structural aluminum attachment clamp, compatible with most common metal roofing materials (excluding copper). Please visit www.S-5.com for more information including CAD details, metallurgical compatibilities and specifications.

S-5![®] holding strength is unmatched in the industry.



Installation Simplified

The S-5-NH 1.5 is as quick and easy to install as other S-5! clamps. The T-30 Torx setscrews are angled for facilitate tool insertion and improve driver bit withdrawal after screw tightening. The hinged insert is also staked at one end to hold it in place during installation. It is reversible to allow for proper fit on both wide and medium-width profiles. Choose the S-5-NH 1.5 for a non-penetrating solution that protects the roof, while providing excellent holding strength.

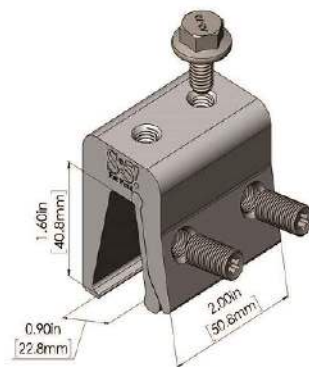


S-5![®] Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22 ga steel, and between 100 and 120 inch pounds for all other metal and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

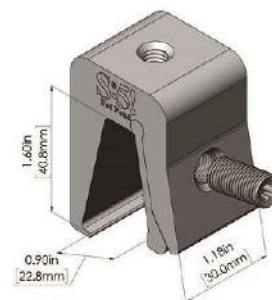
Copyright 2021, MetalRoof Innovations Ltd. S-5! products are patent protected. S-5! is a registered trademark, and copyright. Version 08/2021.

S-5-NH 1.5 Clamp



T-30 Torx setscrews included with the standard S-5-NH 1.5 clamp.

S-5-NH 1.5 Mini Clamp



Distributed by

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE: NXT UMount
DRAWING TYPE: PART DETAIL
DESCRIPTION: RAIL
REVISION DATE: 11/17/2022

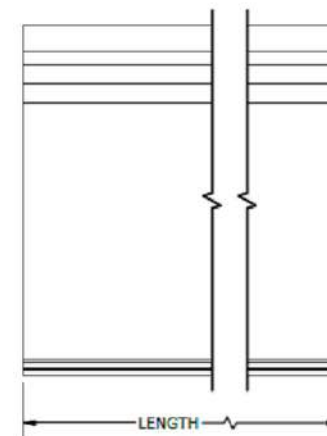
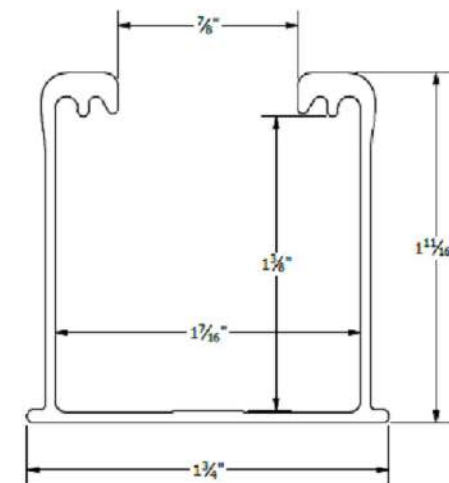
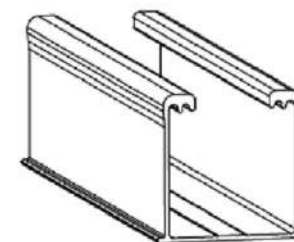
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

NU-P01

SHEET

PART # TABLE		
P/N	DESCRIPTION	LENGTH
084RLM1	NXT UMount RAIL 84" MILL	84"
084RLD1	NXT UMount RAIL 84" DARK	84"
168RLM1	NXT UMount RAIL 168" MILL	168"
168RLD1	NXT UMount RAIL 168" DARK	168"
208RLM1	NXT UMount RAIL 208" MILL	208"
208RLD1	NXT UMount RAIL 208" DARK	208"
246RLM1	NXT UMount RAIL 246" MILL	246"
246RLD1	NXT UMount RAIL 246" DARK	246"
171RLM1	NXT UMount RAIL 171" MILL	171.50"
171RLD1	NXT UMount RAIL 171" DARK	171.50"



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Lumio[®]

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REVISIONS

DESCRIPTION	DATE	REV

Drawn by: C.M.

Date: 4/24/2023

SHEET NAME

EQUIPMENT
SPECIFICATIONS

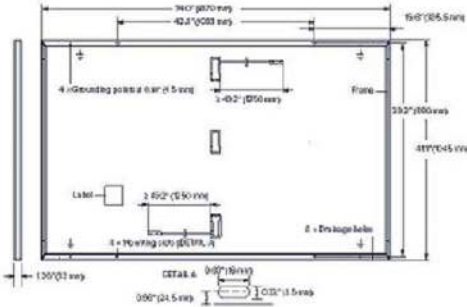
SHEET NUMBER

S-1

Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

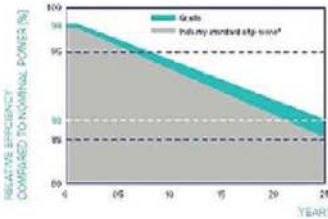
Format	74.0 in x 41.1 in x 1.26 in (including frame) (1879 mm x 1045 mm x 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminium
Cell	6 x 22 monocrystalline QANTUM solar half cells
Junction box	2.09-3.98 in x 1.26-2.36 in x 0.59-0.71 in (53-101 mm x 32-60 mm x 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable: (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68



Electrical Characteristics

POWER CLASS		385	390	395	400	405	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0W)							
Minimum	Power at MPP ¹	P _{MPP} [W]	385	390	395	400	405
	Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17
	Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.3	45.34
	Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83
	Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13	37.39
	Efficiency ¹	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²							
Minimum	Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1	303.8
	Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00
	Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	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]	34.59	34.81	35.03	35.25	35.46
	¹ Measurement tolerances P _{MPP} ± 3%; I _{SC} , V _{OC} ± 5 % at STC; 1000 W/m ² , 25 ± 2°C, AM1.5 according to IEC 60904-3 • ² 800W/m ² , NMOT, spectrum AM 1.5						

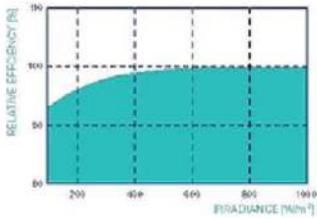
Qcells PERFORMANCE WARRANTY



At least 86% of nominal power during first year. Thereafter max 0.5% 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 within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



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 [°F]	109 ± 5.4 (43 ± 3°C)

Properties for System Design

Maximum System Voltage	V _{sys} [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./ft²]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40°F up to +185°F (-40°C up to +85°C)
Max. Test Load, Push/Pull ³	[lbs./ft²]	113 (5400 Pa)/84 (4000 Pa)		

² See Installation Manual

Qualifications and Certificates

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215/2016, IEC 61730/2016, U.S. Patent No. 9,869,215 (solar cells)



Qcells pursues minimizing paper output in consideration of the global environment.

Notes: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product. HANSHA Q CELLS Americas Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL: +1 949 748 62 96 | EMAIL: info-enquiry@qcells.com | WEB: www.qcells.com



Specifications subject to technical changes © Qcells QP5UL-DUO-BLK-ML-G10+ series, 385-405, 2022-03, Rev02, Jnt.

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US ¹
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	60-cell/120 half-cell, 66-cell/132 half-cell and 72-cell/144 half-cell				
MPPT voltage range	V	27 – 37	29 – 45	33 – 45	36 – 45	38 – 45	38 – 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 ³ [module I _{sc}]	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)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US ¹
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/range ⁴	V			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			60			
Extended frequency range	Hz			50 – 68			
AC short circuit fault current over 3 cycles	A _{rms}			2			4.4
Max units per 20 A (L-L) branch circuit ⁵		16	13	11	11	10	9
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	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	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					
Pollution degree		PD3					
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure					
Environ. category / UV exposure rating		NEMA Type 6 / outdoor					
COMPLIANCE							
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, IECES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01					
		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) 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 10.6A (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.

IQ8SE-DS-0001-01-EN-US-2022-03-17



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



PROJECT NAME & ADDRESS

MARY STANCIL
RESIDENCE
PROJECT # P-0075037
332 NORTHWEST SCOTT GLEN
LAKE CITY, FL 32055

SIGNATURE WITH SEAL

REVISIONS

DESCRIPTION	DATE	REV

Drawn by: C.M.

Date: 4/24/2023

SHEET NAME

EQUIPMENT
SPECIFICATIONS

SHEET NUMBER

E-3



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SPECIFICATIONS

SHEET NUMBER

E-4

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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