AERIAL VIEW

GENERAL NOTES

1. THIS PROJECT INVOLVES THE INSTALLATION OF A GRID-INTERACTIVE PV SYSTEM. PV MODULES WILL BE MOUNTED USING A PRE-ENGINEERED MOUNTING SYSTEM. THE MODULES WILL BE ELECTRICALLY CONNECTED TO THE LOCAL UTILITY USING MEANS AND METHODS CONSISTENT WITH THE RULES ENFORCED BY THE LOCAL UTILITY AND AUTHORITY HAVING JURISDICTION.
2. THIS DOCUMENT HAS BEEN PREPARED TO DESCRIBE THE DESIGN OF A PROPOSED PV SYSTEM WITH ENOUGH DETAIL TO DEMONSTRATE COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS. THE DOCUMENT SHALL NOT BE RELIED UPON AS A SUBSTITUTE FOR FOLLOWING MANUFACTURER INSTALLATION INSTRUCTIONS. THE SYSTEM SHALL COMPLY WITH ALL MANUFACTURER INSTALLATION INSTRUCTIONS, AS WELL AS ALL APPLICABLE CODES. NOTHING IN THIS DOCUMENT SHALL BE INTERPRETED IN A WAY THAT OVERRIDES THEM. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL DETAILS IN THIS DOCUMENT.
3. THIS DOCUMENT IS BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY VARY AND REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
4. THE DIMENSIONS AND MEASUREMENTS SHOWN IN THIS DOCUMENT ARE BASED ON AERIAL IMAGERY AND OTHER AVAILABLE INFORMATION, AND ARE TO BE TREATED AS APPROXIMATED TO SHOW A GENERAL IDEA OF EQUIPMENT LOCATION AND PROPERTY SIZE.
5. ANY CHANGES TO THIS DESIGN AT THE TIME OF INSTALLATION DUE TO FIELD CONDITIONS MUST BE REPORTED TO THE DESIGNER AND AHJ.

SCOPE OF WORK

INSTALLATION OF ROOF-MOUNTED UTILITY INTERACTIVE PV SYSTEM

2.43 KW DC & 1.74 KW AC PV SOLAR ARRAY

PV MODULES - 6 QCELLS Q.PEAK DUO BLK ML-G10+ 405
INVERTER(S) - 6 ENPHASE IQ8PLUS-72-2-US

ROOF TYPE - ASPHALT SHINGLES
RACKING - PEGASUS SOLAR PEGASUS RAIL
ATTACHMENT - PEGASUS SOLAR COMP MOUNT

APPLICABLE CODES & STANDARDS

GOVERNING CODES

1. ALL WORK SHALL COMPLY WITH:
   - 1.1. 2017 NATIONAL ELECTRICAL CODE
   - 1.2. 2018 NORTH CAROLINA BUILDING CODE
   - 1.3. 2018 INTERNATIONAL FIRE CODE
   - 1.4. 2018 NORTH CAROLINA RESIDENTIAL CODE
   - 1.5. 2018 NORTH CAROLINA EXISTING BUILDING CODE
   - 1.6. AND ALL OTHER STATE AND LOCAL AMENDMENTS TO BUILDING AND ELECTRICAL CODES

STRUCTURAL CRITERIA

1. WIND EXPOSURE CATEGORY: C
2. WIND SPEED: 119.0 MPH
3. GROUND SNOW LOAD: 10.0 PSF

ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION
2. ALL RACEWAYS ON ROOFTOPS SHALL BE PLACED MORE THAN 7/8" ABOVE THE ROOFTOP. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600V AND 90°C WET ENVIRONMENT
3. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS
6. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS, AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS
7. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUCTORS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY
8. ARRAY GROUNDING TO BE INSTALLED PER RACKING MANUFACTURER'S INSTRUCTION
9. ARRAY RACKING TO BE BONDED WITH CONTINUOUS COPPER E.G.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG
10. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE.
11. SURGE PROTECTION REQUIRED PER NEC 230.67

POLY ENERGY
174 CORLEY MILL RD,
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8554976527

SUMMARY OF REVISIONS

DATE	REVISION

UTIL - DUKE ENERGY
AHJ - ERWIN (CITY)
OCCUPANCY - II
CONSTRUCTION - SFR
ZONING - RESIDENTIAL

SHEET INDEXSHEET INDEX

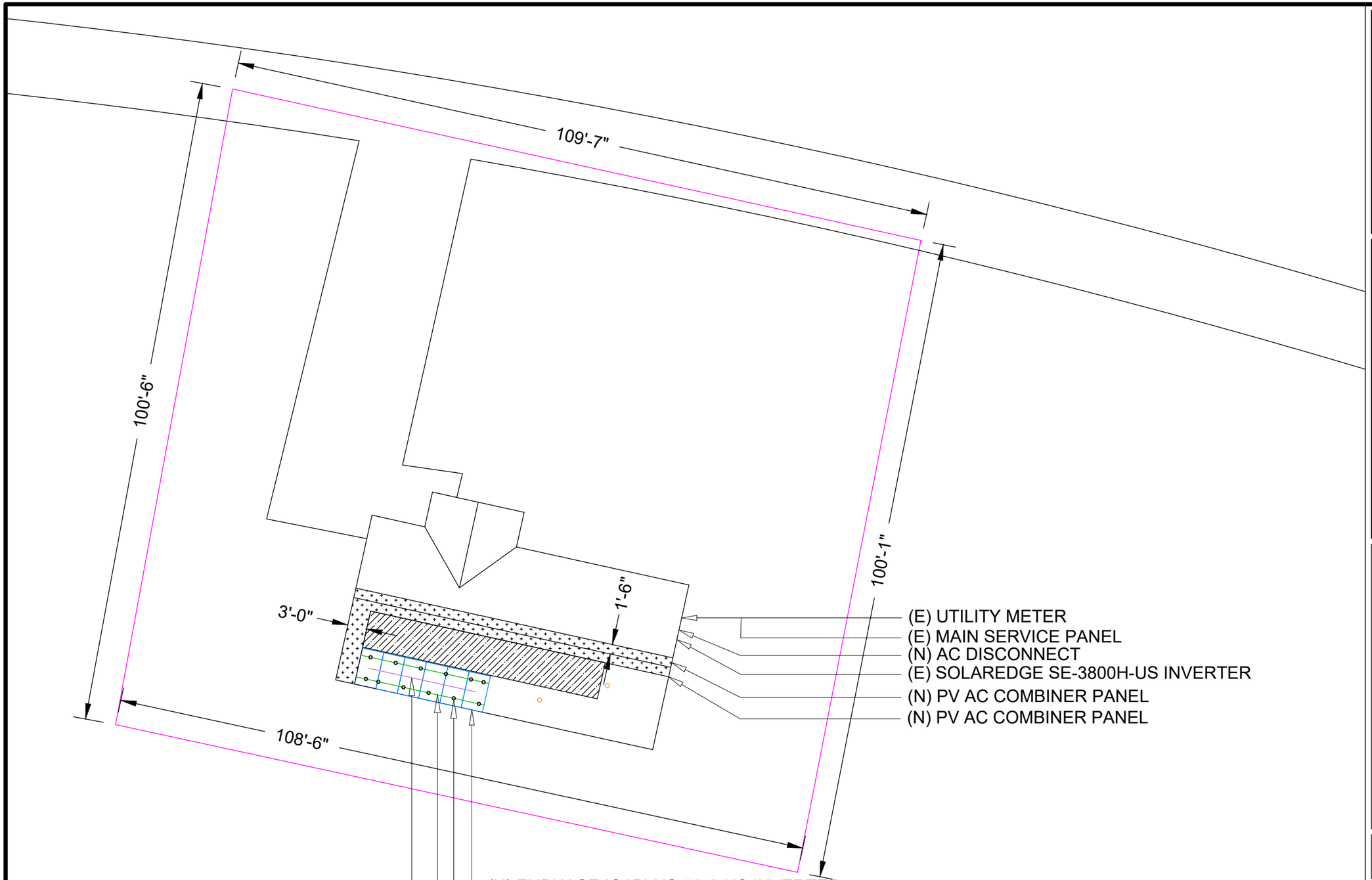
SCALE	DATE
NTS	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
COVER PAGE	PV-1



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NORTH CAROLINA PROFESSIONAL SEAL 46780 ENGINEER ROBERT SMYTHE

04/16/2024

Seal applies exclusively to structural items and excludes all else, including civil and survey information.

ROOF INFORMATION			
ROOF SECTION	PANEL COUNT	ROOF TILT	AZIMUTH
1	6	26	191

ARRAY AZIMUTH(S):	191°
ARRAY TILT(S):	26°
ARRAY AREA:	126.84 SQ. FT.
ROOF AREA:	1405 SQ. FT.
ARRAY COVERAGE:	9.03%

- EXISTING SYSTEM

- FIRE SETBACK

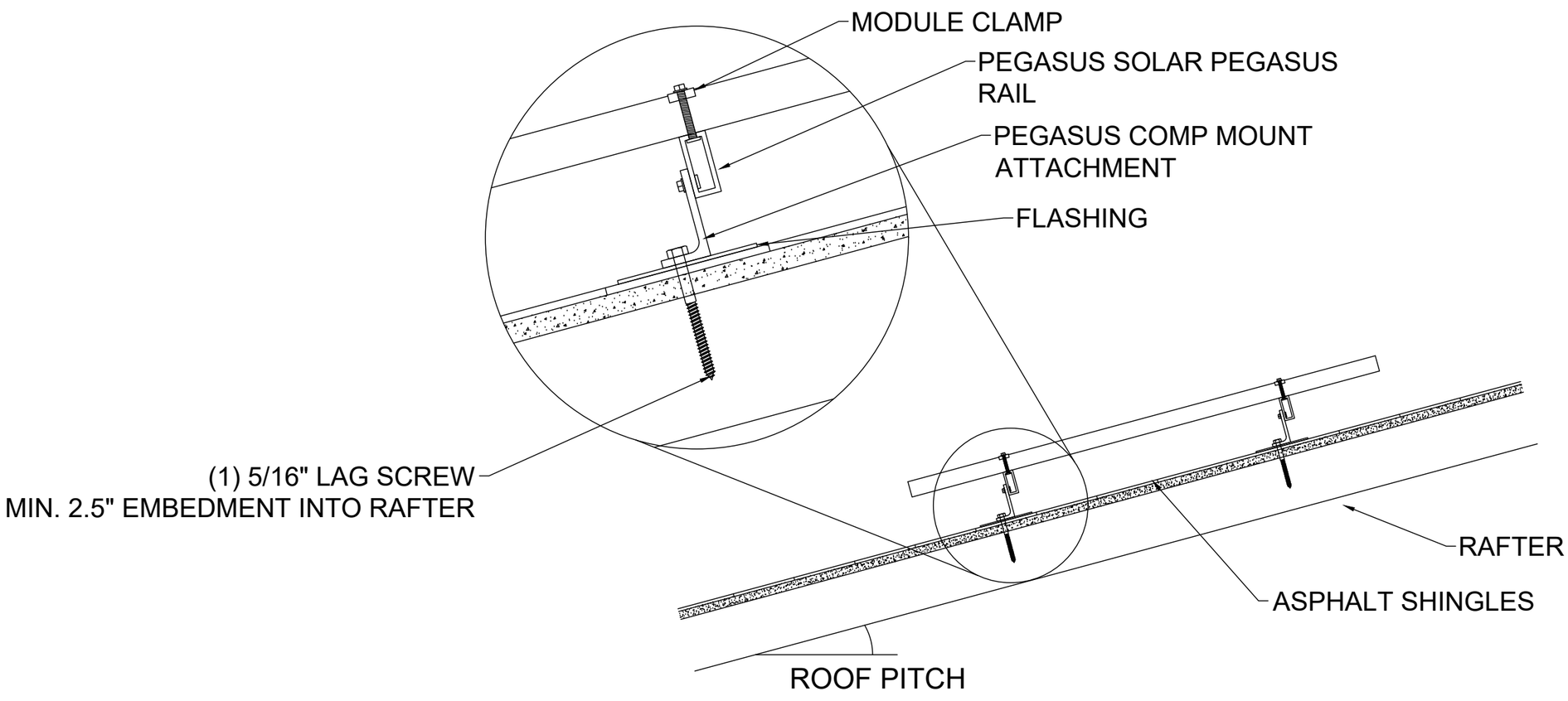
SCALE	DATE
17/256" = 1'	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
SITE PLAN	PV-2



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NORTH CAROLINA PROFESSIONAL SEAL 46780 ENGINEER ROBERT SMYTHE

04/16/2024

Seal applies exclusively to structural items and excludes all else, including civil and survey information.

RACKING & STRUCTURAL INFORMATION

RACKING - PEGASUS SOLAR PEGASUS RAIL
ATTACHMENT - PEGASUS SOLAR COMP MOUNT
ROOF TYPE - ASPHALT SHINGLES
RAFTER SIZE - 2X4
RAFTER SPACING - 24.0

SCALE	DATE
NTS	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
ATTACHMENT DETAILS	PV-3

WIRE LEGEND

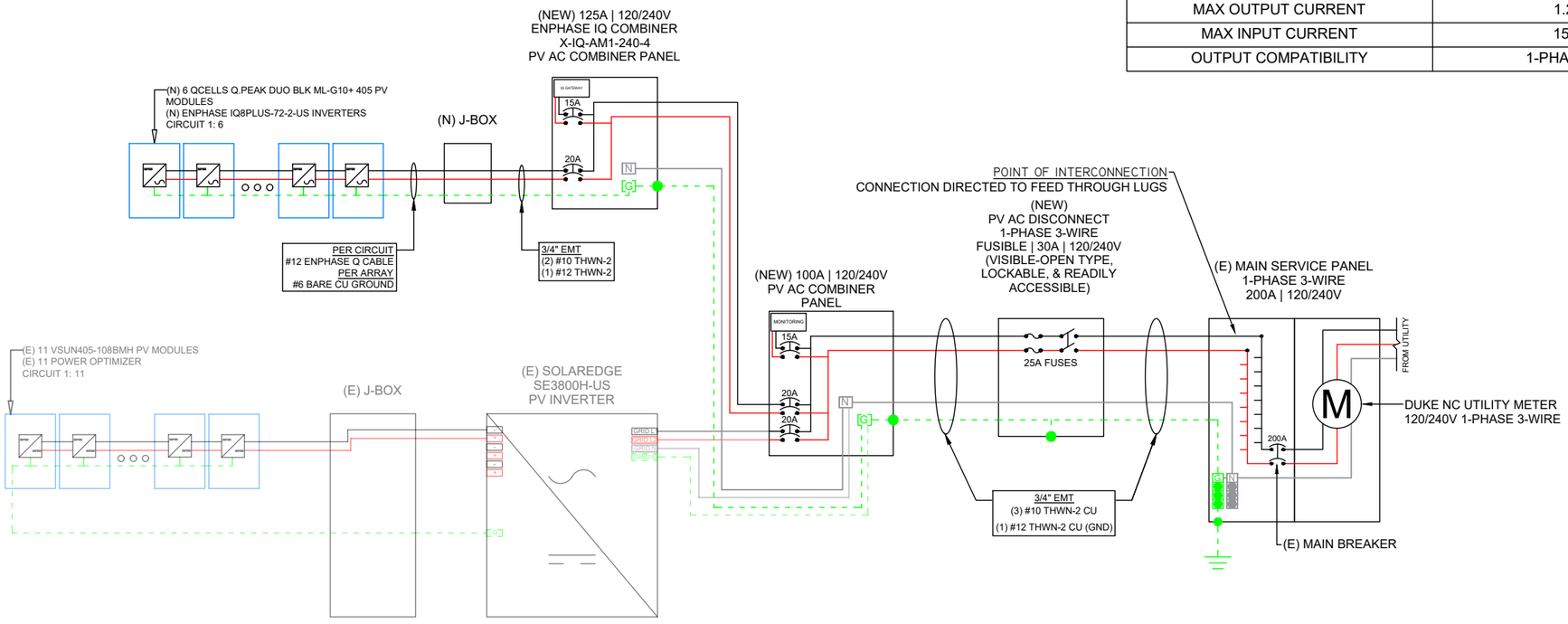
- PV ARRAY -VE CONDUCTOR AND L1
- PV ARRAY +VE CONDUCTOR AND L2
- NEUTRAL CONDUCTOR
- EGC & GEC

SYSTEM RATING
2.43 DC KW
1.74 AC KW

BILL OF MATERIALS	
QTY	EQUIPMENT
6	QCELLS Q.PEAK DUO BLK ML-G10+ 405 MODULES
6	ENPHASE IQ8PLUS-72-2-US INVERTER(S)
1	30A NON-FUSED AC DISCONNECT
1	AC COMBINER BOX, 240V, NEMA 3R
1	JUNCTION BOX
----	PEGASUS SOLAR PEGASUS RAIL (7' RAIL)
----	SPLICE KIT(S)
----	PEGASUS SOLAR COMP MOUNT ATTACHMENT POINTS
----	END CLAMPS
10	MID CLAMPS
----	GROUNDING LUG

MODULE SPECIFICATIONS	
MANUFACTURER/MODEL	QCELLS Q.PEAK DUO BLK ML-G10+ 405
VMP	37.39 V
IMP	10.83 A
VOC	45.34 V
ISC	11.17 A
TEMP. COEFF. VOC	-0.27 C
PTC RATING	----
MODULE DIMENSIONS	1879.0 L x 1045.0 W x 32.0 H (MM)
MODULE WEIGHT	22.0

INVERTER SPECIFICATIONS	
MANUFACTURER/MODEL	ENPHASE IQ8PLUS-72-2-US
MAX INPUT DC POWER	----
MAX OUTPUT AC POWER	290 WAC
NOMINAL OUTPUT VOLTAGE	240.0 VAC
MAX INPUT VOLTAGE	58.0 VDC
MAX OUTPUT CURRENT	1.21 AAC
MAX INPUT CURRENT	15.0 ADC
OUTPUT COMPATIBILITY	1-PHASE 3-WIRE



120% RULE
(BUS BAR RATING x 120%) - (MAIN BREAKER RATING) = MAX PV OCPD
(200 X 120%) - (200) = 40.0

RACEWAY LOCATION	TYPE	CURRENT CARRYING CONDUCTOR QUANTITY	LOCATION	WIRE SIZE (AWG)	WIRE TYPE	STARTING AMPACITY	AMBIENT TEMPERATURE	TEMPERATURE CORRECTION	CONDUCTOR COUNT CORRECTION	ADJUSTED CONDUCTOR AMPACITY	CURRENT APPLIED TO CONDUCTORS	OCPD
MICRO-INVERTER TO AC COMBINER	AC	2	EMT	#10	PV WIRE	35	35	0.94	1.0	32.9	7.26	10
AC COMBINER TO AC DISCONNECT	AC	3	EMT	#10	PV WIRE	35	35	0.94	1	32.9	7.26	10
AC DISCONNECT TO POINT OF CONNECTION	AC	3	EMT	#10	PV WIRE	35	35	0.94	1	32.9	7.26	10

BUSBAR RATING (A)	MAIN BREAKER RATING (A)	ALLOWABLE AMPACTIY OF BUSBAR (A)	ALLOWABLE BACKFEED BREAKER RATING
200	200	240	40

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8554976527

SCALE: NTS

DATE: 4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME: LINE DIAGRAM

SHEET NUMBER: PV-4

NEC 690.13(B) & 690.54
LOCATED AT PV SYSTEM DISCONNECT

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT: 7.26 AAC
NOMINAL OPERATING AC VOLTAGE: 240 VAC

NEC 690.13(B) & 706.15(C)
LOCATED AT PV SYSTEM DISCONNECT

WARNING

ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD
SIDES MAY BE
ENERGIZED IN THE OPEN POSITION

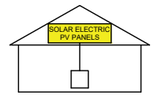
NEC 690.56(C)(2)
LOCATED AT PV SYSTEM DISCONNECT

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56(C)
LOCATED AT UTILITY METER

SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

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

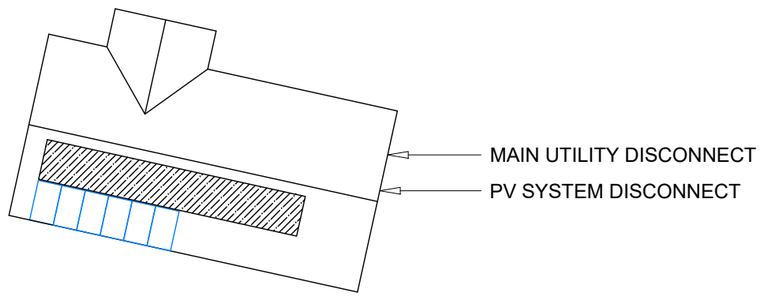


NEC 705.12(B)(3)(2)
LOCATED AT POINT OF INTERCONNECTION

WARNING: POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

NEC 690.56(A) & (B), 706.21(A)
LOCATED AT UTILITY METER

CAUTION: MULTIPLE SOURCES OF POWER



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LABEL NOTES
ALL CAUTION, WARNING, OR DANGER SIGNS OR LABELS SHALL:

1. COMPLY WITH ANSI Z535.4-2011 STANDARDS.
2. BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHODS AND SHALL NOT BE HANDWRITTEN.
3. SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
4. UNLESS OTHERS SPECIFIED, MINIMUM TEXT HEIGHT TO BE 1/8" (3MM).

SCALE	DATE
NTS	4.16.2024

PROJECT INFO
MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
ELECTRICAL LABELS	PV-5

Q.PEAK DUO BLK ML-G10+ SERIES

385 - 410 Wp | 132 Cells
20.9 % Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+

6 busbar cell technology

12 busbar cell technology

Breaking the 20 % efficiency barrier

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

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2] and Hot-Spot Protect.

Extreme weather rating

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

Innovative all-weather technology

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

The most thorough testing programme in the industry

Qcells 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.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC/TS 62804-1:2015, method A (−1500 V, 96 h)

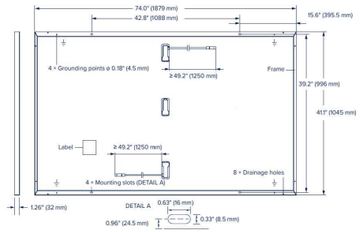
The ideal solution for:

Rooftop arrays on residential buildings

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	Stäubli MC4; IP68

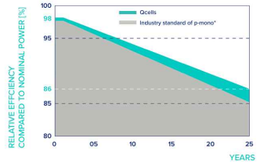


Electrical Characteristics

POWER CLASS			385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)								
Minimum	Power at MPP[1]	P_{MPP} [W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC} [A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage[1]	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]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency[1]	η [%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
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	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

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

Qcells PERFORMANCE WARRANTY

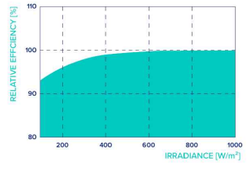


At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

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

*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 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[3]		[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)		

[3] 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. 9,893,215 (solar cells),

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

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA I TEL +1 949 748 59 96 I EMAIL hqc-inquiry@qcells.com I WEB www.qcells.com

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EQUIPMENT SPECIFICATION NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE CERTIFIED ACCORDING TO AHJ AND NATIONAL REQUIREMENTS BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL).
2. FOR DOCUMENTATION SHOWING NRTL CERTIFICATION, SEE MANUFACTURER WEBSITE.
3. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTION.

SCALE	DATE
NTS	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
MFG SPEC. SHEETS	PV-6

ENPHASE

DATA SHEET

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 using advanced 55-nm technology with high-speed digital logic and has superfast 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 IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

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-and-play MC4 connectors.

CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform with various regulations, when installed according to the manufacturer's instructions.

*Meets UL 1741 only when installed with IQ System Controller 2.
**IQ8 and IQ8+ support split-phase, 240 V installations only.

Easy to install

- Lightweight and compact with plug-and-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

- Compliant with the latest advanced grid support**
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meet CA Rule 21 (UL 1741-SA) and IEEE® 1547:2018 (UL 1741-SB 3rd Ed.)

NOTE:

- IQ8 Microinverters cannot be mixed with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Gateway is required to change the default grid profile at the time of installation to meet local Authority Having Jurisdiction (AHJ) requirements.

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	W	235–350	235–440
Module compatibility	–	To meet compatibility, PV modules must be within maximum input DC voltage and maximum module I_{sc} listed below. Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator	
MPPT voltage range	V	27–37	27–45
Operating range	V	16–48	16–58
Minimum/Maximum start voltage	V	22/48	22/58
Maximum input DC voltage	V	50	60
Maximum continuous input DC current	A	10	12
Maximum input DC short-circuit current	A	25	
Maximum module I_{sc}	A	20	
Overvoltage class DC port	–	II	
DC port backfeed current	mA	0	
PV array configuration	–	1 × 1 ungrounded array; no additional DC side protection required; AC side protection requires maximum 20 A per branch circuit.	

OUTPUT DATA (AC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA	245	300
Maximum continuous output power	VA	240	290
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	
Minimum and Maximum grid voltage[2]	V	211-264	
Maximum continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short-circuit fault current over three cycles	Arms	2	
Maximum units per 20 A (L-L) branch circuit[3]	–	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	%	97.7	
CEC weighted efficiency	%	97	
Nighttime power consumption	mW	23	**25**

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 (H × W × D)	212 mm (8.3 in) × 175 mm (6.9 in) × 30.2 mm (1.2 in)
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
Environmental category/UV exposure rating	NEMA Type 6/Outdoor

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE® 1547:2018 (UL 1741-SB 3rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV Systems, for AC and DC conductors, when installed according to the manufacturer's instructions.

(1) No enforced DC/AC ratio.
(2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-12A-DSH-00207-2.0-EN-US-2023-10-13

POLY ENERGY

POLY ENERGY
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LEXINGTON, SC 29072
8554976527

EQUIPMENT SPECIFICATION NOTES

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2. FOR DOCUMENTATION SHOWING NRTL CERTIFICATION, SEE MANUFACTURER WEBSITE.
3. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTION.

SCALE	DATE
NTS	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
MFG SPEC. SHEETS	PV-7

Data Sheet
Enphase Networking

IQ Combiner 4/4C

The **IQ Combiner 4/4C** with IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure. It 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.

X-IQ-AM1-240-4C
X2-IQ-AM1-240-4C (IEEE 1547:2018)

X-IQ-AM1-240-4
X2-IQ-AM1-240-4 (IEEE 1547:2018)

Smart

- Includes IQ Gateway for communication and control
- Includes 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
- Supports Wi-Fi, Ethernet, or cellular connectivity
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Mounts on single stud with centered brackets
- Supports bottom, back and side conduit entry
- Allows up to four 2-pole branch circuits for 240VAC 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
- X2-IQ-AM1-240-4 and X2-IQ-AM1-240-4C comply with IEEE 1547:2018 (UL 1741-SB, 3rd Ed.)

LISTED

To learn more about Enphase offerings, visit **enphase.com**
IQ-C-4-4C-DS-0103-EN-US-12-29-2022

ENPHASE

IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 X-IQ-AM1-240-4 X2-IQ-AM1-240-4 (IEEE 1547:2018)	IQ Combiner 4 with 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 and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C X-IQ-AM1-240-4C X2-IQ-AM1-240-4C (IEEE 1547:2018)	IQ Combiner 4C with IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 ± 0.5%) and consumption monitoring (± 2.5%). Includes 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)
Supported microinverters	IQ6, IQ7, and IQ8. (Do not mix IQ6/7 Microinverters with IQ8)
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 - 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
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)
X-IQ-NA-HD-125A	Hold-down kit for Eaton circuit breaker with screws
Consumption monitoring CT (CT-200-SPLIT/CT-200-CLAMP)	A pair of 200A split core current transformers
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240VAC, 60 Hz
Eaton BR series busbar rating	125A
Max. continuous current rating	65A
Max. continuous current rating (input from PV/storage)	64A
Max. fuse/circuit rating (output)	90A
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
IQ Gateway breaker	10A or 15A rating GE/Siemens/Eaton included
Production metering CT	200A solid core pre-installed and wired to IQ Gateway
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 cm x 49.5 cm x 16.8 cm (14.75 in x 19.5 in x 6.63 in). Height is 53.5 cm (21.06 in) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40°C to +46°C (-40°F to 115°F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20A to 50A breaker inputs: 14 to 4 AWG copper conductors • 60A 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	Up to 3,000 meters (9,842 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	IEEE 802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Mobile Connect cellular modem is required for all Enphase Energy System installations.
Ethernet	Optional, IEEE 802.3, Cat5E (or Cat6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ Combiner	CA Rule 21 (UL 1741-SA) IEEE 1547:2018 - UL 1741-SB, 3rd Ed. (X2-IQ-AM1-240-4 and X2-IQ-AM1-240-4C) CAN/CSA C22.2 No. 107.1, Title 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

IQ-C-4-4C-DS-0103-EN-US-12-29-2022

POLY ENERGY
174 CORLEY MILL RD,
LEXINGTON, SC 29072
8554976527

EQUIPMENT SPECIFICATION NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE CERTIFIED ACCORDING TO AHJ AND NATIONAL REQUIREMENTS BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL).
2. FOR DOCUMENTATION SHOWING NRTL CERTIFICATION, SEE MANUFACTURER WEBSITE.
3. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTION.

SCALE	DATE
NTS	4.16.2024

PROJECT INFO

MARIE WHITAKER

105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
MFG SPEC. SHEETS	PV-8

PEGASUS SOLAR™

A BETTER DAY ON THE JOB

COMP MOUNT

WATERTIGHT FOR LIFE

Pegasus Solar's Comp Mount is a cost effective, high-quality option for rail installations on composition shingle roofs. Designed to last decades, the one-piece flashing with elevated cone means there is simply nothing to fail.

25-year Warranty
Manufactured with advanced materials and coatings to outlast the roof itself

Superior Waterproofing
Tested to AC286 without sealant 0.9" elevated water seal

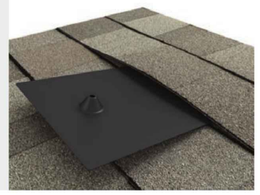
Code Compliant
Fully IBC/CBC Code Compliant
Exceeds ASCE 7-10 Standards

All-In-One Kit Packaging
Flashings, L-feet and SS lags with bonded EPDM washers are included in each 24-pack

COMP MOUNT

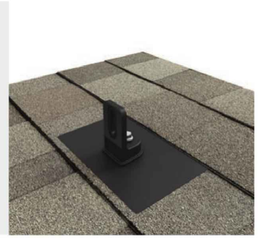
1. Drill pilot hole in center of rafter.

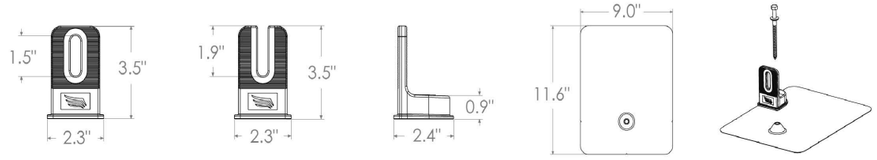
2. Optional: Apply a "U-shape" of sealant to underside of flashing and position under 2nd shingle course, cone over pilot hole.



3. Place L-Foot over cone and install lag with washer through L-Foot.

4. Drive lag to required embedment. Attach rail per rail manufacturer's instructions.





Specifications	Comp Mount Install Kit		
SKU	PSCR-C0	PSCR-U0	SPCR-CH
L-foot Type	Closed Slot	Open Slot	Closed Slot
Kit Contents	L-Foot, Flashing, 5/16" SS Lag w/ EPDM washer	L-Foot, Flashing, 5/16" SS Lag w/ EPDM washer	L-Foot, Flashing, 5/16" SS Lag w/ EPDM washer, M10 Hex Bolt
Finish	Black (L-foot and Flashing)		
Roof Type	Composition Shingle		
Certifications	IBC, ASCE/SEI 7-10, AC286		
Install Application	Railed Systems		
Compatible Rail	All		
Flashing Material	Painted Galvalume Plus		
L-Foot Material	Aluminum		
Kit Quantity	24		
Boxes Per Pallet	72		

Pegasus Solar Inc • 100 West Ohio Avenue, Richmond, CA 94804 • T: 510.730.1343 • **www.pegasussolar.com**

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105 WRENCH ST
ERWIN, NC 28339

SHEET NAME	SHEET NUMBER
MFG SPEC. SHEETS	PV-9

PEGASUS SOLAR™
A Better Day on the Job

RAIL SYSTEM

Instant Bonding

The N-S Bonding Jumper bonds row to row with no tools.

One Clamp Anywhere

The Multi-Clamp works as mid- or end-clamp, and fits standard 30-40mm frames.

Lifetime Wire Management

Open rail channel holds and protects wires. Clamps won't pinch wires after tightening.

Bonding Structural Splice

Connect rails instantly, without tools, interference or limitations.

Next-Level Solar Mounting

A complete system for hassle-free rooftop installation, from watertight mounts to lifetime wire management.

Simplicity

1/2"socket for everything.
One clamp for mid or end.
No tool splicing and bonding.
Easy wire management.

Code Compliant

UL 2703 listed
LTR-AE-001-2012 listed
Class A fire rating for any slope
ASCE 7-16 PE Certified

Premium Aesthetics

The narrowest panel gap available. Optional Hidden End Clamps and End Caps provide a flush look on the edge of the array.

Watertight for Life

Secured on industry-leading Pegasus Mounts, for composite shingle and tile roofs. Backed by a 25-year warranty.

Pegasus Solar Inc | 506 West Ohio Avenue, Richmond, CA 94804 | T: 510.210.3797 | **www.pegasussolar.com**

PEGASUS SOLAR™

RAIL SYSTEM

Pegasus Rail

Available in 14' and 7' lengths for easy layout and shipping.

Open-channel design holds MC4 connectors, PV wire and trunk cables.

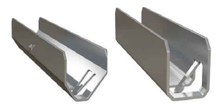
Black and Mill finish

Pegasus Max Rail

Maximum-strength design.

Meets specifications for high snow-load and hurricane zones.

Black and Mill finish



Splice and Max Splice

Installs by hand.

Works over mounts.

Structurally connects and bonds rails automatically; UL2703 listed as reusable.

Dovetail T-bolt

Dovetail shape for extra strength.

Uses ½" socket.

Multi-Clamp

Fits 30-40mm PV frames, as mid- or end-clamp.

Twist-locks into position; doesn't pinch wires in rail.

Bonds modules to rail; UL2703 listed as reusable

Hidden End Clamp

Offers premium edge appearance.

Preinstalled pull-tab grips rail edge, allowing easy, one-hand installation.

Tucks away for reuse.

Ground Lug

Holds 6 or 8 AWG wire.

Mounts on top or side of rail.

Assembled on MLPE Mount.

UL2703 listed as reusable.

N-S Bonding Jumper

Installs by hand, eliminates row-to-row copper wire.

UL2703 listed as reusable only with Pegasus Rail.

MLPE Mount

Secures and bonds most micro-inverters and optimizers to rail.

Connectors and wires easily route underneath after installation.

UL2703 listed as reusable.

Cable Grip

Secures four PV wires or two trunk cables.

Stainless-steel backing provides durable grip.

Eliminates sagging wires.

Wire Clip

Hand operable.

Holds wires in channel.

Won't slip.

End Cap and Max End Cap

Fits flush to PV module and hides raw or angled cuts.

Hidden drain quickly clears water from rail.

Certifications:

- UL 2703, Edition 1
- LTR-AE-001-2012
- ASCE 7-16 PE certified
- Class A fire rating for any slope roof

FREE
PEGASUS SOLAR
Design Tool

Quickly calculate the most efficient layout, spans and materials needed to suit your job. Visit the Pegasus Customer Portal. **pegasussolar.com/portal**

LOAD		SPAN			
SNOW (PSF)	WIND (MPH)	32"	4'	6'	8'
0	120				
	160				
	190				
15	140				
	160				
	190				
30	160				
	190				
45	190				
70	190				
110	190				

PEGASUS RAIL PEGASUS MAX RAIL

For reference only. Spans above are calculated using ASCE 7-16 for a Gable Roof, Exposure Category B, 7-20deg roof angle, 30ft mean roof height with non-exposed modules. For PE certified span tables, visit www.pegasussolar.com/spans.

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PROJECT INFO

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SHEET NAME	SHEET NUMBER
MFG SPEC. SHEETS	PV-10