# PHOTOVOLTAIC GROUND MOUNT SYSTEM

35 MODULES - SYSTEM SIZE STC (13.650 kW DC / 10.150 kW AC)

1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA (35.2960167, -78.8078452)

## SYSTEM SUMMARY STC (13.650 kW DC / 10.150 kWAC)

STC DC: (35) 390W = 13.650 kW

STC AC: (35) 290W = 10.150 kW

- (35) JINKO SOLAR JKM390M-72HBL-V (390W) MODULES
- (35) ENPHASE IQ8PLUS-72-2-US (240V) MICROINVERTERS

- 2x BRANCHES OF 12 CONNECTED IN PARALLEL
- 1x BRANCH OF 11 CONNECTED IN PARALLEL

## GOVERNING CODES

- 2018 NORTH CAROLINA STATE BUILDING CODE: FIRE PREVENTION CODE
- 2018 NORTH CAROLINA STATE BUILDING CODE
- 2018 NORTH CAROLINA STATE BUILDING CODE: RESIDENTIAL CODE
- 2017 NFPA 70 - NATIONAL ELECTRICAL CODE

## GENERAL NOTES

1) ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE WITH UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
2) THIS SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND UTILITY IS OBTAINED.
3) ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT SHALL BE WEATHERPROOF AND SHALL BE LISTED BY 'UL' FOR THE TYPE OF APPLICATION AND 'UL' LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT.
4) WIRING METHOD SHALL BE EMT ABOVE GROUND MOUNTED IN CONCEALED SPACES (UNLESS APPROVED OTHERWISE) AND SCHEDULE-40 PVC FOR BELOW GROUND INSTALLATIONS UNLESS NOTED OTHERWISE.
5) AN OSHA APPROVED LADDER PROVIDING ACCESS TO ALL PORTIONS OF THE ARRAY SHALL BE SECURED IN PRIOR TO REQUESTING INSPECTION.
6) IT IS THE CONTRACTORS RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE CONDUCTOR IF NECESSARY.

## SAFETY PLAN NOTES

- INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME.
- INSTALLERS SHALL UPDATE NAME, ADDRESS AND PHONE NUMBER OF NEAREST URGENT CARE FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK.

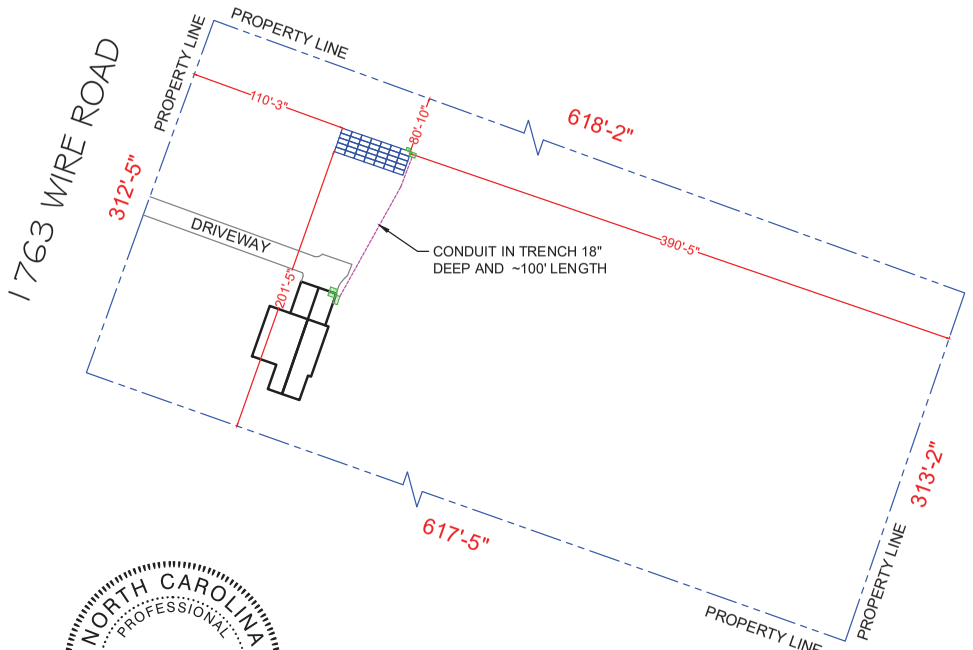
## LOCATION OF NEAREST URGENT CARE FACILITY

(FOR INSTALLER USE ONLY)

- NAME:
- ADDRESS:
- PHONE NUMBER:

## LEGEND

| | | | |
|---|---|---|---|
| | PV MODULE | | DIMENSIONS |
| | | | PROPERTY LINE |
| | | | TRENCH |
| | | | TRUSS |
| MSP | MAIN SERVICE PANEL (EXISTING, 200A) | AC | AC DISCONNECT UNFUSED (N/A) |
| UM | UTILITY METER (EXISTING) | ACF | AC DISCONNECT FUSED (NEW) |
| PM | PRODUCTION METER (N/A) | JB | JUNCTION BOX (NEW) |
| BAT | BATTERY (N/A) | AT | AUTO TRANSFORMER (N/A) |
| INV | (0) INVERTER (N/A) | SUB | SUBPANEL (N/A) |
| CB | LOAD CENTER (COMBINER PANEL) (NEW) | DCD | DC DISCONNECT (N/A) |
| SM | SOLAREDGE METER (N/A) | DCC | DC COMBINER (N/A) |
| BLP | BACKUP LOAD PANEL (N/A) | EE | EXISTING EQUIPMENT |




NORTH CAROLINA PROFESSIONAL SEAL 048371 ENGINEER VINCENT MWUMVANEZA

Signed: 1/31/2023

## SITE PLAN & SAFETY PLAN

SCALE: 1"= 80"

## SHEET INDEX

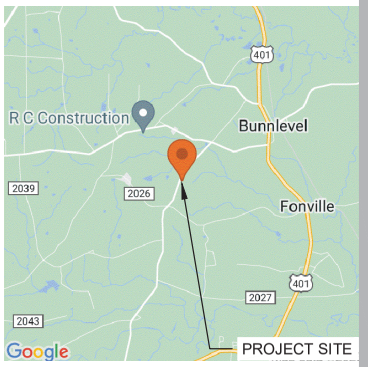


AHJ: HARNETT COUNTY

UTILITY: DUKE ENERGY CAROLINAS, LLC


## HOUSE PHOTO

SCALE: NTS




## VICINITY MAP

SCALE: NTS


TOP TIER SOLAR SOLUTIONS

CONTRACTOR

NAME: TOP TIER SOLAR SOLUTIONS

ADDRESS: 1530 CENTER PARK DR, CHARLOTTE, NC, 28217

PHONE: 855-997-1213

LICENSE #: SC - CLG.123883

ELC LICENCE #: NC - 87345

EMAIL#: bdunford@toptiersolarsolutions.com


REVISIONS

| DESCRIPTION | DATE | REV |
|---|---|---|
| | | |
| | | |
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| | | |
| | | |

SIGNATURE & SEAL

HOMEOWNER INFO

MAYRENE HERTZLER

1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06

EMAIL: -

PHONE: -

SHEET NAME

COVER PAGE

SHEET SIZE

ANSI B

11" X 17"

SHEET NUMBER

PV-1

## MODULE AREA & WEIGHT CALCULATIONS

PANEL TYPES (COUNT, AREA, WEIGHT):
- (35x) JINKO SOLAR JKM390M-72HBL-V (390W) (79.1" x 39.5", 49.6 LB)

MICRO-INVERTER TYPES (COUNT, WEIGHT):
- (35x) ENPHASE IQ8PLUS-72-2-US (240V) (2.38 LB)

MOUNTING SYSTEM WEIGHT/MODULE: 1.5 LB

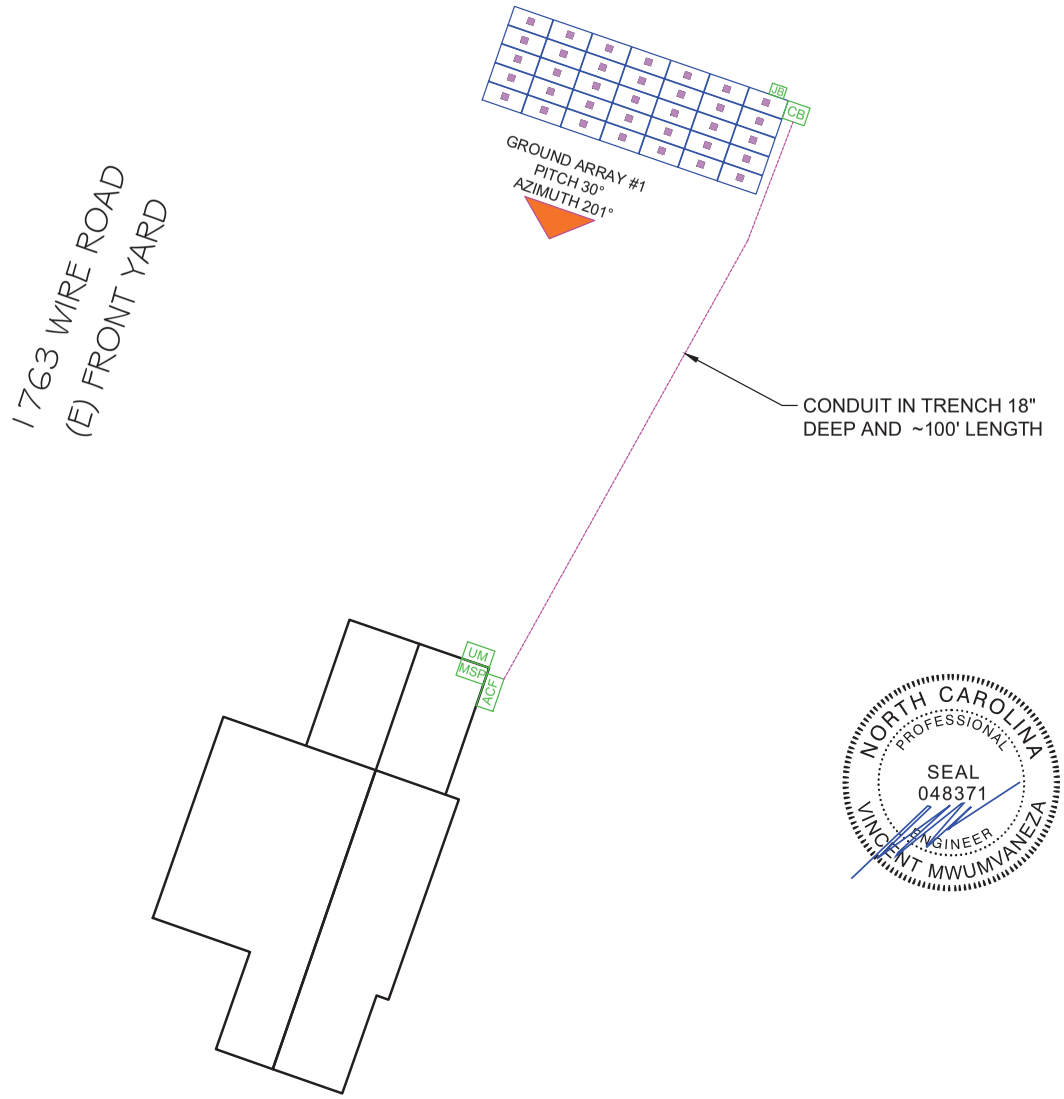
TOTAL ARRAY AREA: (35) 79.1" x 39.5" = 758 SF
TOTAL ARRAY WEIGHT: (35) 49.6 + (35) 2.4 + (35) 1.5 = 1872 LB

| BILL OF MATERIALS | | |
|---|---|---|
| SOLAR PV MODULES | 11 | JINKO SOLAR JKM390M-72HBL-V (390W) |
| MICRO INVERTERS | 11 | ENPHASE IQ8PLUS-72-2-US (240V) |
| JUNCTION BOX (AC) | 01 | JUNCTION BOX 600V, NEMA 3R UL LISTED |
| LOAD CENTER (AC) | 01 | IQ COMBINER PANEL 4/4C |
| AC DISCONNECT | 01 | DH362NRK 60A FUSED (AC DISCONNECT 1PH 240VAC) |
| XR-1000-204A | 14 | XR1000, RAIL 204" (17 FEET) CLEAR |
| UFO-CL-01-A1 | 84 | UNIVERSAL MODULE CLAMP, CLEAR |
| UFO-STP-40MM-M1 | 28 | STOPPER SLEEVE, 40MM, MILL |
| XR-LUG-03-A1 | 1 | GROUNDING LUG, LOW PROFILE |
| 70-0300-SGA | 12 | SGA TOP CAP AT 3" |
| GM-BRC-003 | 28 | GROUND MOUNT BONDED RAIL CONNECTOR - 3" |

| GROUND MOUNT DESCRIPTION | | | |
|---|---|---|---|
| ARRAY | GROUND ARRAY TILT | MODULE COUNT | AZIMUTH |
| #1 | 30° | 35° | 201° |

## DESIGN CRITERIA

EXPOSURE CATEGORY = C
WIND SPEED = 115 MPH
SNOW LOAD = 10 LBS/FT$^2$




NORTH CAROLINA PROFESSIONAL SEAL 048371 ENGINEER VINCENT MWUMVANEZA

LEGEND

PV MODULE
MICRO-INVERTER
DIMENSIONS
TRENCH

| | | | |
|---|---|---|---|
| MSP | MAIN SERVICE PANEL (EXISTING, 200A) | AC | AC DISCONNECT UNFUSED (N/A) |
| UM | UTILITY METER (EXISTING) | ACF | AC DISCONNECT FUSED (NEW) |
| PM | PRODUCTION METER (N/A) | JB | JUNCTION BOX (NEW) |
| BAT | BATTERY (N/A) | AT | AUTO TRANSFORMER (N/A) |
| INV | (0) INVERTER (N/A) | SUB | SUBPANEL (N/A) |
| LC | LOAD CENTER (COMBINER PANEL) (NEW) | DCD | DC DISCONNECT (N/A) |
| SM | SOLAREDGE METER (N/A) | DCC | DC COMBINER (N/A) |
| BLP | BACKUP LOAD PANEL (N/A) | EE | EXISTING EQUIPMENT |

# GROUND PLAN WITH MODULES

**SCALE:** 1"=20'-0"

N

TOP TIER SOLAR SOLUTIONS


**CONTRACTOR**
NAME: TOP TIER SOLAR SOLUTIONS
ADDRESS: 1530 CENTER PARK DR, CHARLOTTE, NC, 28217
PHONE: 855-997-1213
LICENSE #: SC - CLG.123883
ELC LICENCE #: NC - 87345
EMAIL#: bdunford@toptiersolarsolutions.com


**REVISIONS**

| DESCRIPTION | DATE | REV |
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| | | |

**SIGNATURE & SEAL**

**HOMEOWNER INFO**

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

**SHEET NAME**

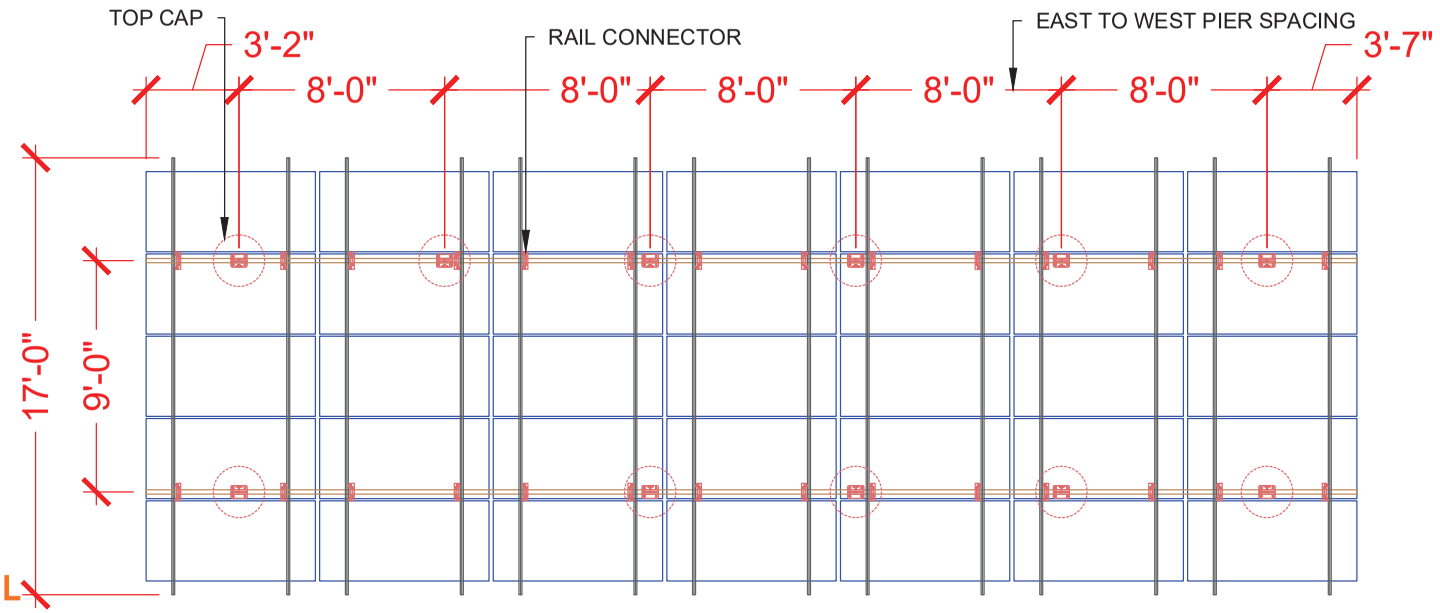
GROUND MOUNT PLAN WITH MODULES

**SHEET SIZE**

ANSI B
11" X 17"

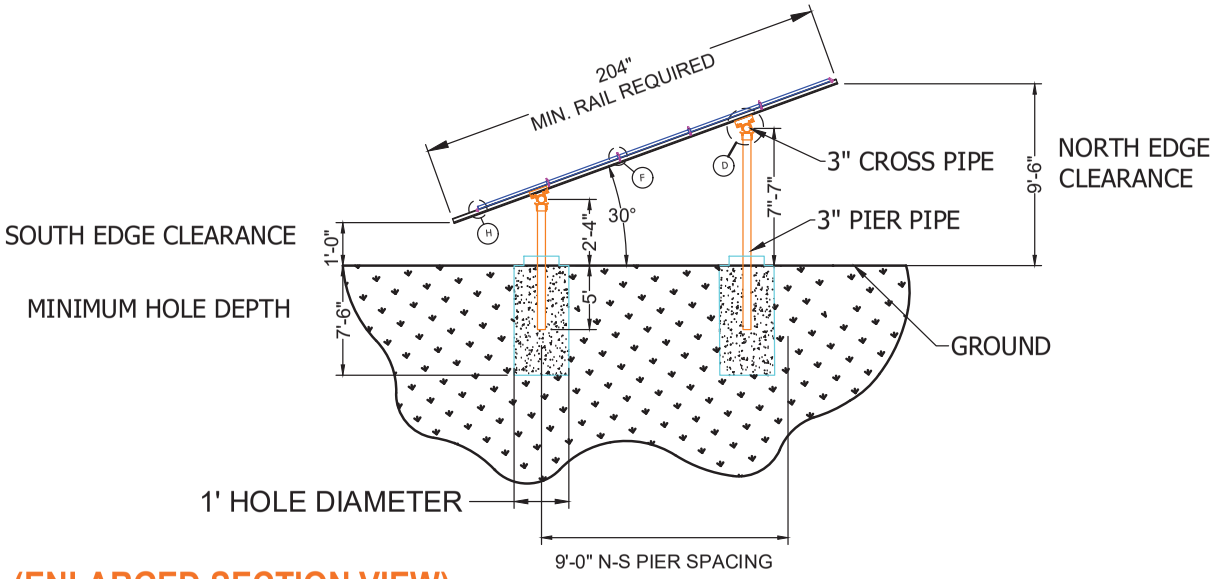
**SHEET NUMBER**

PV-2




## ATTACHMENT DETAIL

**SCALE:** NTS




## ATTACHMENT DETAIL (ENLARGED SECTION VIEW)

**SCALE:** NTS

NORTH CAROLINA PROFESSIONAL SEAL 048371 ENGINEER VINCENT MWUMVANEZA

TOP TIER SOLAR SOLUTIONS

**CONTRACTOR**

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**REVISIONS**

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**SIGNATURE & SEAL**

**HOMEOWNER INFO**

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

**SHEET NAME**

ATTACHMENT DETAIL

**SHEET SIZE**

ANSI B
11" X 17"

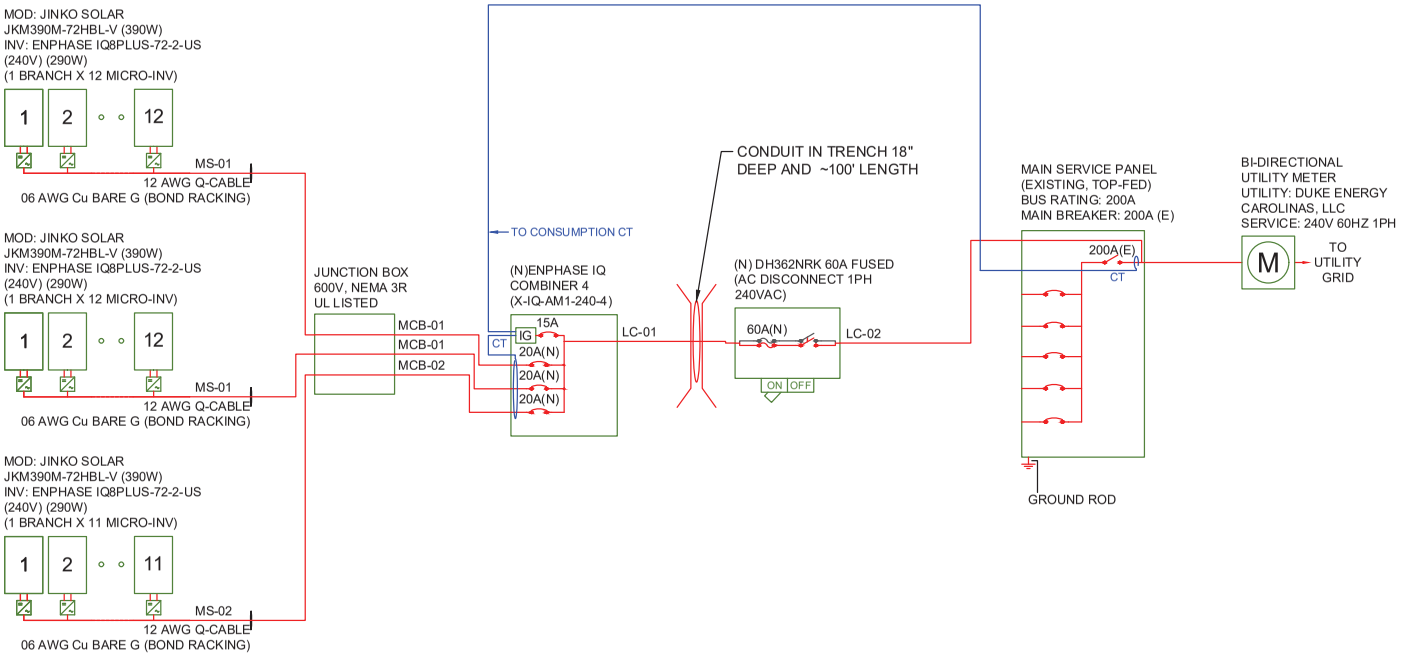
**SHEET NUMBER**

PV-3

## SYSTEM SUMMARY STC (13.650 kW DC / 10.150 kW AC)

STC DC: (35) 390W = 13.650 kW
STC AC: (35) 290W = 10.150 kW

- (35) JINKO SOLAR JKM390M-72HBL-V (390W) MODULES
- (35) ENPHASE IQ8PLUS-72-2-US (240V) MICROINVERTERS
- 2x BRANCHES OF 12 CONNECTED IN PARALLEL
- 1x BRANCH OF 11 CONNECTED IN PARALLEL




| AC wire details | | | | | | | |
|---|---|---|---|---|---|---|---|
| Wire | Min Ampacity | Live | Neutral | Ground | Min EMT | Min PVC | Min RMC |
| MS-01 | 18.15A | 12 AWG (Q-Cable) | - | 06 AWG BARE (NOT IN CONDUIT) | - | - | - |
| MS-02 | 16.64A | 12 AWG (Q-Cable) | - | 06 AWG BARE (NOT IN CONDUIT) | - | - | - |
| MCB-01 | 18.15A | (2) 10 AWG THWN-2 | - | 10 AWG THWN-2 | 1/2 in | 1/2 in | 1/2 in |
| MCB-02 | 16.64A | (2) 10 AWG THWN-2 | - | 10 AWG THWN-2 | 1/2 in | 1/2 in | 1/2 in |
| LC-01 | 52.94A | (2) 06 AWG THWN-2 | 06 AWG THWN-2 | 10 AWG THWN-2 | - | 1 in | - |
| LC-02 | 52.94A | (2) 06 AWG THWN-2 | 06 AWG THWN-2 | 10 AWG THWN-2 | 3/4 in | 3/4 in | 3/4 in |

INTERCONNECTION 120% RULE
(MAIN PANEL)

INTERCONNECTION
120% RULE
NOT APPLICABLE

LINE-SIDE TAP DOES NOT AFFECT
MAIN PANEL

EXTREME CASE MODULE OUTPUT
(JINKO SOLAR JKM390M-72HBL-V (390W))

Isc(25°C) = 10.46A, Tisc = 0.048A/°C
Isc(T) = Isc(25°C) + [Tisc x (T-25°C)]
Isc(-9°C) = 8.83A, Isc(35°C) = 10.94A

Voc(25°C) = 48.60V, Tvoc = -0.290V/°C
Voc(T) = Voc(25°C) + [Tvoc x (T-25°C)]
Voc(-9°C) = 58.46V, Voc(35°C) = 45.70V

## ELECTRICAL NOTES

1) ALL GROUNDING TO COMPLY WITH NEC 690.47.
2) ROOFTOP CONDUIT SHALL BE LOCATED MIN. 7/8" ABOVE ROOF SURFACE.
3) ALL TERMINALS SHALL BE MIN. 75°C RATED.
4) IF ENVOY PRESENT, ENVOY BREAKER DETERMINED AT FACTORY BY MANUFACTURER.
5) IF ENVOY PRESENT, FOR IQ COMBINER USE SINGLE CT ON L1. AT SYSTEM CONTROLLER MAIN USE DOUBLE CT ON L1 AND L2.

# ELECTRICAL SINGLE LINE DIAGRAM

**SCALE:** NTS


TOP TIER SOLAR SOLUTIONS

CONTRACTOR
NAME: TOP TIER SOLAR SOLUTIONS
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PHONE: 855-997-1213
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REVISIONS

| DESCRIPTION | DATE | REV |
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SIGNATURE & SEAL

HOMEOWNER INFO

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

SHEET NAME
SINGLE LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

## SYSTEM SUMMARY STC (13.650 kW DC / 10.150 kW AC)

STC DC: (35) 390W = 13.650 kW
STC AC: (35) 290W = 10.150 kW

- (35) JINKO SOLAR JKM390M-72HBL-V (390W) MODULES
- (35) ENPHASE IQ8PLUS-72-2-US (240V) MICROINVERTERS

- 2x BRANCHES OF 12 CONNECTED IN PARALLEL
- 1x BRANCH OF 11 CONNECTED IN PARALLEL

AC wire details

| WireID | #Modules | Nominal Voltage | Backfeed *1.25 /cond. set | Min OCPD | Total Power | Conductor sets | ccConductors /conduit | Expected max temp | Adjusted ampacity (ampacity x temp derate x conduit fill derate) | Conductor & neutral size | EGC size (Cu) | Conductor metal | Max length | V drop | Min EMT size | Min PVC size | Min RMC size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MS-01 | 12 | 240 V | 18.15 A | 20 A | 3.5 kW | 1 | 2 | 35 | 25 x 0.94 x - = 23.50 A | 12 AWG (Q-Cable) | 06 AWG BARE (NOT IN CONDUIT) | Cu | 50 ft | 1.05 % | - | - | - |
| MS-02 | 11 | 240 V | 16.64 A | 20 A | 3.2 kW | 1 | 2 | 35 | 25 x 0.94 x - = 23.50 A | 12 AWG (Q-Cable) | 06 AWG BARE (NOT IN CONDUIT) | Cu | 50 ft | 0.97 % | - | - | - |
| MCB-01 | 12 | 240 V | 18.15 A | 20 A | 3.5 kW | 1 | 2 | 35 | 35 x 0.94 x 1.00 = 32.90 A | 10 AWG THWN-2 | 10 AWG THWN-2 | Cu | 50 ft | 0.63 % | 1/2 in | 1/2 in | 1/2 in |
| MCB-02 | 11 | 240 V | 16.64 A | 20 A | 3.2 kW | 1 | 2 | 35 | 35 x 0.94 x 1.00 = 32.90 A | 10 AWG THWN-2 | 10 AWG THWN-2 | Cu | 50 ft | 0.58 % | 1/2 in | 1/2 in | 1/2 in |
| LC-01 | 35 | 240 V | 52.94 A | 60 A | 10.2 kW | 1 | 2 | 35 | 65 x 0.94 x 1.00 = 61.10 A | 06 AWG THWN-2 | 10 AWG THWN-2 | Cu | 100 ft | 0.15 % | - | 1 in | - |
| LC-02 | 35 | 240 V | 52.94 A | 60 A | 10.2 kW | 1 | 2 | 35 | 65 x 0.94 x 1.00 = 61.10 A | 06 AWG THWN-2 | 10 AWG THWN-2 | Cu | 10 ft | 0.15 % | 3/4 in | 3/4 in | 3/4 in |

INTERCONNECTION 120% RULE (MAIN PANEL)

INTERCONNECTION 120% RULE NOT APPLICABLE

LINE-SIDE TAP DOES NOT AFFECT MAIN PANEL

EXTREME CASE MODULE OUTPUT (JINKO SOLAR JKM390M-72HBL-V (390W))

Isc(25°C) = 10.46A, Tisc = 0.048A/°C
Isc(T) = Isc(25°C) + [Tisc x (T-25°C)]
Isc(-9°C) = 8.83A, Isc(35°C) = 10.94A

Voc(25°C) = 48.60V, Tvoc = -0.290V/°C
Voc(T) = Voc(25°C) + [Tvoc x (T-25°C)]
Voc(-9°C) = 58.46V, Voc(35°C) = 45.70V

## ELECTRICAL NOTES

1) ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2) 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. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6) WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C.VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10) PV EQUIPMENT SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NEC 690.
11) EXACT LOCATION OF AUXILIARY GROUNDING TO BE DETERMINED AT TIME OF INSTALL.
12) EXISTING WIRES MUST BE REPLACED IF SMALLER THAN LISTED MINIMUM SIZES PER NEC 310.15(B)(16).
13) IF ENVOY PRESENT, ENVOY BREAKER DETERMINED AT FACTORY BY MANUFACTURER.
14) IF ENVOY PRESENT, FOR IQ COMBINER USE SINGLE CT ON L1. AT SYSTEM CONTROLLER MAIN USE DOUBLE CT ON L1 AND L2.

TOP TIER SOLAR SOLUTIONS


**CONTRACTOR**

NAME: TOP TIER SOLAR SOLUTIONS
ADDRESS: 1530 CENTER PARK DR, CHARLOTTE, NC, 28217
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**REVISIONS**

| DESCRIPTION | DATE | REV |
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**SIGNATURE & SEAL**

**HOMEOWNER INFO**

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

**SHEET NAME**

WIRING CALCULATION

**SHEET SIZE**

ANSI B
11" X 17"

**SHEET NUMBER**

PV-5

**⚠WARNING**

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION: INVERTERS, AC DISCONNECTS, AC COMBINER BOXES
CODE REF: NEC 2017 - 690.13(B)

**RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

LABEL LOCATION: UTILITY SERVICE ENTRANCE (MSP OR AC DISCONNECT IF LINE SIDE TAP), AND WHEREVER REQUIRED BY AHJ (INVERTERS, DC DISCONNECTS, OTHER)
CODE REF: NEC 2017 - 690.56(C)(2)

**PV SYSTEM DISCONNECT**

MAXIMUM AC OPERATING CURRENT: 42.35 AMPS
NOMINAL OPERATING AC VOLTAGE: 240.0 VAC

LABEL LOCATION: INTERCONNECTION Placard (MSP BACKFEED BREAKER OR TAP BOX IF LINE SIDE TAP), AC DISCONNECTS
CODE REF: NEC 2017 - 690.54

**PHOTOVOLTAIC**

**AC DISCONNECT**

LABEL LOCATION: INTERCONNECTION Placard (MSP BACKFEED BREAKER OR TAP BOX IF LINE SIDE TAP), AC DISCONNECTS
CODE REF: NEC 2017 - 690.13(B)

**MAIN PHOTOVOLTAIC SYSTEM DISCONNECT**

LABEL LOCATION: AC DISCONNECTS FOR UTILITY ACCESS
CODE REF: NEC 2017 - 690.13(B)

**⚠WARNING**

POWER SOURCE OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

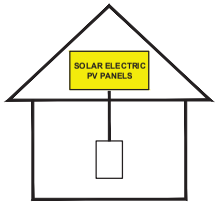
LABEL LOCATION: FIRST BACKFEED BREAKER (MSP/SUBPANEL) IF NO LINE SIDE TAP
CODE REF: NEC 2017 - 705.12(B)(3)(2), CEC 2019 - 705.12(B)(2)(3)(b), CEC 2019 - 705.12(B)(3)

**CAUTION: MULTIPLE POWER SOURCES**

LABEL LOCATION: N/A
CODE REF: NEC 2017 - 690.56(B), NEC 2017 - 705.10

**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: INTERCONNECTION POINT (MSP OR AC DISCONNECT IF LINE SIDE TAP)
CODE REF: NEC 2017 - 690.56(C)

**⚠ WARNING ⚠**

SOLAR SYSTEM CONNECTED AND ENERGISED

LABEL LOCATION: UTILITY METER
CODE REF: NEC 2017 - 690.13(B)

**⚠ WARNING**

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

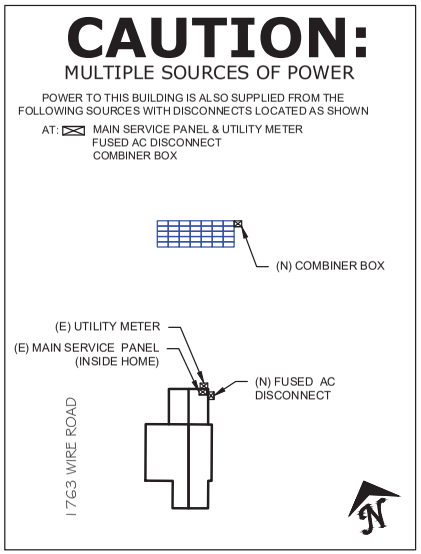
LABEL LOCATION: MSP
CODE REF: NEC 2017 - 110.27(C)

**CAUTION:**

MULTIPLE SOURCES OF POWER

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN

AT: ☒ MAIN SERVICE PANEL & UTILITY METER
FUSED AC DISCONNECT
COMBINER BOX




LABEL LOCATION: MSP
CODE REF: NEC 2017 - 705.10, NEC 2017 - 710.10

## NOTES AND SPECIFICATIONS

1) SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF NEC 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
2) SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
3) LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
4) LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
5) SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4 - 2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
6) DO NOT COVER EXISTING MANUFACTURER LABELS.

TOP TIER SOLAR SOLUTIONS


CONTRACTOR
NAME: TOP TIER SOLAR SOLUTIONS
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PHONE: 855-997-1213
LICENSE #: SC - CLG.123883
ELC LICENCE #: NC - 87345
EMAIL#: bdunford@toptiersolarsolutions.com


REVISIONS

| DESCRIPTION | DATE | REV |
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SIGNATURE & SEAL

HOMEOWNER INFO

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL, NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

SHEET NAME

PLACARDS

SHEET SIZE

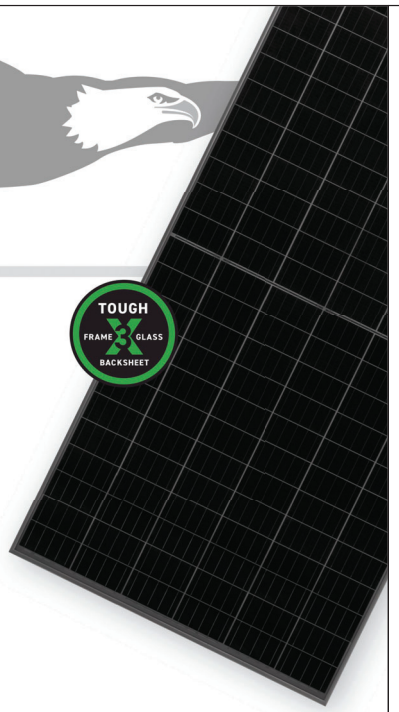
ANSI B
11" X 17"

SHEET NUMBER

PV-6

EAGLE
MODULES

# THE MOST DEPENDABLE SOLAR PRODUCT




## EAGLE G2 BLACK

### 380-400 WATT • MONO PERC HALF-CELL MODULE

Positive power tolerance of 0~+3%

*PRELIMINARY VERSION

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Top performance in the strictest 3rd party labs
- Automated manufacturing utilizing artificial intelligence
- Vertically integrated, tight controls on quality
- Premium solar module factory in Jacksonville, Florida

## KEY FEATURES

**Superior Aesthetics**
Black backsheet and black frame create ideal look for residential applications.

**Diamond Half-Cell Technology**
World-record breaking efficient mono PERC half-cells deliver high power in a small footprint.

**Thick and Tough**
Fire Type 1 rated module engineered with a thick frame, 3.2mm front side glass, and thick backsheet for added durability.

**Shade Tolerant**
Twin array design allows continued performance even with shading by trees or debris.

**Protected Against All Environments**
Certified to withstand humidity, heat, rain, marine environments, wind, hailstorms, and packed snow.

**Warranty**
12-year product and 25-year linear power warranty.

- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- IEC61215, IEC61730 certification pending
- ISO 45001 2018 Occupational Health & Safety Standards
- UL1703/61730 certification pending

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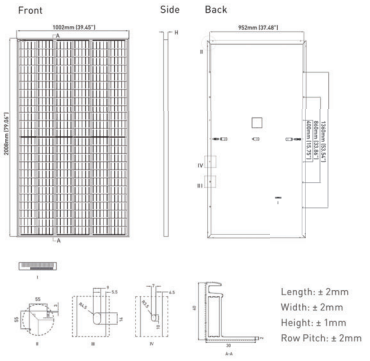
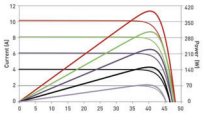
## ENGINEERING DRAWINGS



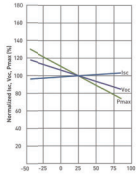

Length: ± 2mm
Width: ± 2mm
Height: ± 1mm
Row Pitch: ± 2mm

## ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE

Current-Voltage & Power-Voltage Curves (400W)




Temperature Dependence of Isc, Voc, Pmax




## MECHANICAL CHARACTERISTICS

| | |
|---|---|
| Cells | Mono PERC Diamond Cell (158.75 x 158.75mm) |
| No. of Half Cells | 144 (6 x 24) |
| Dimensions | 2008 x1002 x 40mm (79.06 x 39.45 x 1.57in) |
| Weight | 22.5kg (49.6lbs) |
| Front Glass | 3.2mm, Anti-Reflection Coating<br>High Transmission, Low Iron, Tempered Glass |
| Frame | Anodized Aluminum Alloy |
| Junction Box | IP68 Rated |
| Output Cables | 12 AWG, 1400mm (55.12in) |
| Connector | Staubli MC4 Series |
| Fire Type | Type 1 |
| Pressure Rating | 5400Pa (Snow) & 2400Pa (Wind) |
| Hailstone Test | 50mm Hailstones at 35m/s |

## TEMPERATURE CHARACTERISTICS

| | |
|---|---|
| Temperature Coefficients of Pmax | -0.35%/°C |
| Temperature Coefficients of Voc | -0.29%/°C |
| Temperature Coefficients of Isc | 0.048%/°C |
| Nominal Operating Cell Temperature (NOCT) | 45±2°C |

## MAXIMUM RATINGS

| | |
|---|---|
| Operating Temperature (°C) | -40°C~+85°C |
| Maximum System Voltage | 1500VDC (UL and IEC) |
| Maximum Series Fuse Rating | 20A |

## PACKAGING CONFIGURATION

(Two pallets = One stack)

27pcs/pallet, 54pcs/stack, 594pcs/40'HQ Container

## WARRANTY

12-year product and 25-year linear power warranty

1st year degradation not to exceed 2.5%, each subsequent year not to exceed 0.6%, minimum power at year 25 is 83.1% or greater.

## ELECTRICAL CHARACTERISTICS

| Module Type | JKM380M-72HBL-V | | JKM385M-72HBL-V | | JKM390M-72HBL-V | | JKM395M-72HBL-V | | JKM400M-72HBL-V | |
|---|---|---|---|---|---|---|---|---|---|---|
| | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT |
| Maximum Power (Pmax) | 380Wp | 279Wp | 385Wp | 283Wp | 390Wp | 287Wp | 395Wp | 291Wp | 400Wp | 294Wp |
| Maximum Power Voltage (Vmp) | 39.10V | 36.5V | 39.37V | 36.8V | 39.64V | 37.0V | 39.90V | 37.4V | 40.16V | 37.6V |
| Maximum Power Current (Imp) | 9.72A | 7.67A | 9.78A | 7.71A | 9.84A | 7.75A | 9.90A | 7.77A | 9.96A | 7.82A |
| Open-circuit Voltage (Voc) | 48.2V | 45.4V | 48.4V | 45.6V | 48.6V | 45.8V | 48.8V | 46.0V | 49.1V | 46.2V |
| Short-circuit Current (Isc) | 10.30A | 8.32A | 10.38A | 8.38A | 10.46A | 8.45A | 10.54A | 8.51A | 10.61A | 8.57A |
| Module Efficiency STC (%) | 18.89% | | 19.14% | | 19.38% | | 19.63% | | 19.88% | |

*STC: Irradiance 1000W/m² | Cell Temperature 25°C | AM = 1.5
NOCT: Irradiance 800W/m² | Ambient Temperature 20°C | AM = 1.5 | Wind Speed 1m/s

*Power measurement tolerance: ±3%

*PRELIMINARY VERSION*
*The company reserves the final right for explanation on any of the information presented hereby. JKM380-400M-72HBL-V-D1-US*

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ANSI B
11" X 17"

**SHEET NUMBER**

PV-7

ENPHASE

DATA SHEET


# IQ8 Series 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.

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-n-play MC4 connectors.

UL CERTIFIED SAFETY

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



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

* Only when installed with IQ System Controller 2, meets UL 1741. IQ8H-208V operates only in grid-tied mode.
** IQ8 Series Microinverters supports split phase, 240V. IQ8H-208 supports split phase, 208V only.

## 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 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) | | 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 | Arms | | | 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, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01<br><br>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

TOP TIER SOLAR SOLUTIONS

**CONTRACTOR**

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**REVISIONS**

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**SHEET NAME**

EQUIPMENT SPECIFICATION

**SHEET SIZE**

ANSI B
11" X 17"

**SHEET NUMBER**

PV-8

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.)

UL 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<br>X-IQ-AM1-240-4<br>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<br>X-IQ-AM1-240-4C<br>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<br>COMMS-CELLMODEM-M1-06<br>CELLMODEM-M1-06-SP-05<br>CELLMODEM-M1-06-AT-05 | - Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan<br>- 4G based LTE-M1 cellular modem with 5-year Sprint data plan<br>- 4G based LTE-M1 cellular modem with 5-year AT&T data plan |
| Circuit Breakers<br>BRK-10A-2-240V<br>BRK-15A-2-240V<br>BRK-20A-2P-240V<br>BRK-15A-2P-240V-B<br>BRK-20A-2P-240V-B | Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers.<br>Circuit breaker, 2 pole, 10A, Eaton BR210<br>Circuit breaker, 2 pole, 15A, Eaton BR215<br>Circuit breaker, 2 pole, 20A, Eaton BR220<br>Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support<br>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<br>(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<br>• 60A breaker branch input: 4 to 1/0 AWG copper conductors<br>• Main lug combined output: 10 to 2/0 AWG copper conductors<br>• Neutral and ground: 14 to 1/0 copper conductors<br>• 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)<br>IEEE 1547:2018 - UL1741-SB, 3rd Ed. (X2-IQ-AM1-240-4 and X2-IQ-AM1-240-4C)<br>CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003<br>Production metering: ANSI C12.20 accuracy class 0.5 (PV production)<br>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

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ANSI B
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**SHEET NUMBER**
PV-9

Datasheet

IRONRIDGE

# Ground Mount System

## All-Terrain Mounting

The IronRidge Ground Mount System combines our XR100 or XR1000 rails with locally-sourced steel pipes or mechanical tubing, to create a cost-effective structure capable of handling any site or terrain challenge.

Installation is simple with only a few structural components and no drilling, welding, or heavy machinery required. In addition, the system works with a variety of foundation options—including concrete piers, ground screws, helical or driven piles, and above-ground ballast blocks.

**Rugged Construction**
Engineered steel and aluminum components ensure durability.

**PE Certified**
Pre-stamped engineering letters available in most states.

**UL 2703 Listed System**
Meets newest effective UL 2703 standard.

**Design Software**
Online tool generates engineering values and bill of materials.

**Flexible Architecture**
Multiple foundation and array configuration options.

**25-Year Warranty**
Products guaranteed to be free of impairing defects.

Datasheet

360° Product Tour
Visit ironridge.com

## Substructure

**Top Caps**

Connect vertical and cross pipes.

**Bonded Rail Connectors**

Attach and bond Rail Assembly to cross pipes.

**Diagonal Braces**

Optional Brace provides additional support.

**Cross Pipe & Piers**

Steel pipes or mechanical tubing for substructure.

## Rail Assembly

**XR100/XR1000 Rails**

Curved rails increase spanning capabilities.

**UFOs**

Universal Fastening Objects bond modules to rails.

**Stopper Sleeves**

Snap onto the UFO to turn into a bonded end clamp.

**CAMO**

Bond modules to rails while staying completely hidden.

## Resources

**Design Assistant**
Go from rough layout to fully engineered system. For free.
Go to ironridge.com/design

**NABCEP Certified Training**
Earn free continuing education credits, while learning more about our systems.
Go to ironridge.com/training



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SHEET NUMBER
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| Project Details | | | |
|---|---|---|---|
| **Name** | MAYRENE HERTZLER | **Date** | 01/29/2023 |
| **Location** | 1763 Wire Road, Bunnlevel, NC 28323 | **ASCE code** | 7.16 |
| **Total modules** | 35 | **Wind speed** | 110 mph |
| **Module** | Jinko: JKM390-72HBL-V (40mm) | **Snow load** | 10 psf |
| **Dimensions** | Dimensions: 79.06" x 39.45" x 1.57" (2008.0mm x 1002.0mm x 40.0mm) | **Wind exposure** | C |
| **Total watts** | 13,650 kW | **Piers** | 12 |
| | | **Concrete** | 2.62 yd³ |

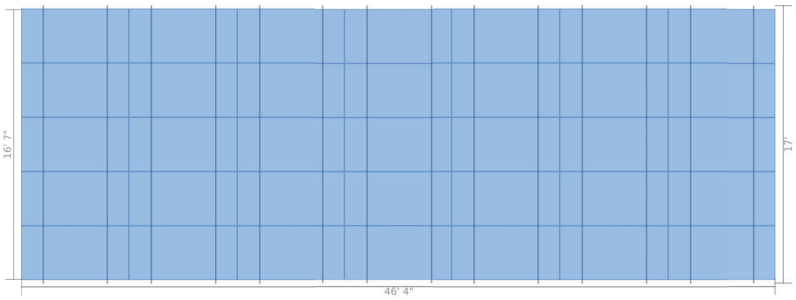
| Substructure & Foundation | | | |
|---|---|---|---|
| **Tilt** | 30° | **South facing grade** | 0° |
| **Pipe/tubing diameter** | 3" | **Soil class** | 4 |
| **Foundation type** | Concrete | **Hole diameter** | 12" |

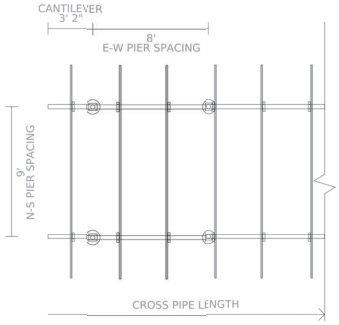


MAYRENE HERTZLER (#1103851)
ground based

IRONRIDGE
28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

| Sub array #1 | | | | | |
|---|---|---|---|---|---|
| **Rows** | 5 | **Columns** | 7 | **# Arrays** | 1 |
| **Area** | 46' 4" (EW) × 16' 9" (NS) | **Rail type** | XR1000 | **Diagonal bracing** | no |
| **E/W spacing** | 8' | **Rail cantilever** | 3' 4" | **Pipe cantilever** | 3' 2" |
| **Piers/array** | 12 | **Total south piers** | 6 (7' 4") | **Total north piers** | 6 (12' 7") |
| **Total cross pipes** | 2 (46' 4") | **Total pipe length** | 212' | | |
| **Shear** | 1,532 lbs | **Moment** | 3,830 ft-lbs | **Uplift** | -1,380 lbs |






TOP TIER SOLAR SOLUTIONS

CONTRACTOR
NAME: TOP TIER SOLAR SOLUTIONS
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PHONE: 855-997-1213
LICENSE #: SC - CLG.123883
ELC LICENCE #: NC - 87345
EMAIL#: bdunford@toptiersolarsolutions.com

REVISIONS

| DESCRIPTION | DATE | REV |
|---|---|---|
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| | | |

SIGNATURE & SEAL

HOMEOWNER INFO

MAYRENE HERTZLER
1763 WIRE ROAD, BUNNLEVEL,
NC 28323, USA

APN: 12-0556- - -0139- -06
EMAIL: -
PHONE: -

SHEET NAME

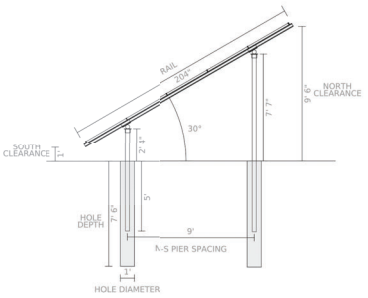
EQUIPMENT SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

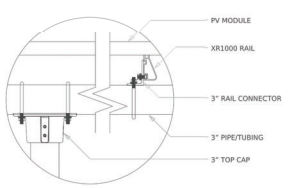
SHEET NUMBER

PV-11

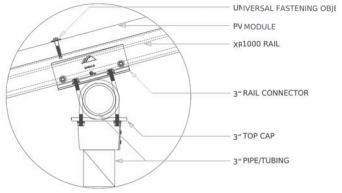



## Pipe Fitting Detail

### XR1000 Rail

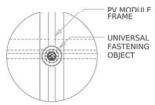



Front View

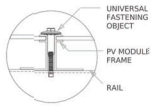



Side View

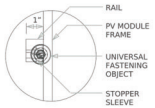
## Clamp Detail



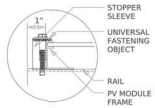

Mid Clamp, Plan




Mid Clamp, Front




End Clamp, Plan




End Clamp, Front



MAYRENE HERTZLER (#1103851)
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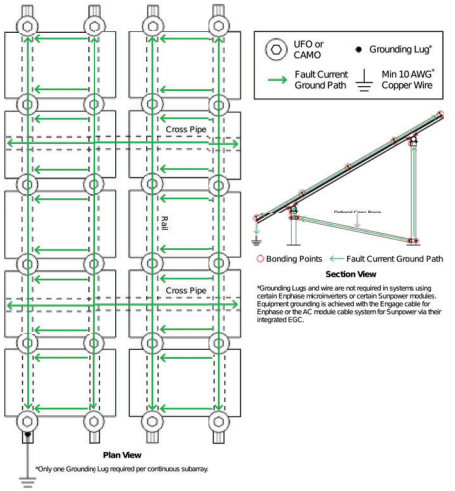
## Grounding Diagram




*Grounding Lugs and wire are not required in systems using certain Enphase microinverters or certain Sunpower modules. Equipment grounding is achieved with the Engage cable for Enphase or the AC module cable system for Sunpower via their integrated EGC.



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**SHEET NAME**

EQUIPMENT SPECIFICATION

**SHEET SIZE**

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**SHEET NUMBER**

PV-12

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IRONRIDGE
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## Bill of Materials

| Part | Spares | Total Qty |
|---|---|---|
| **Rails** | | |
| XR-1000-204A<br>XR1000, Rail 204" (17 Feet) Clear | 0 | 14 |
| **Clamps & Grounding** | | |
| UFO-CL-01-A1<br>Universal Module Clamp, Clear | 0 | 84 |
| UFO-STP-40MM-M1<br>Stopper Sleeve, 40MM, Mill | 0 | 28 |
| XR-LUG-03-A1<br>Grounding Lug, Low Profie | 0 | 1 |
| **Substructure** | | |
| 70-0300-SGA<br>SGA Top Cap at 3" | 0 | 12 |
| GM-BRC-003<br>Ground Mount Bonded Rail Connector - 3" | 0 | 28 |

Last updated by Eugene Munyanziza on 01/28/23 06:29 PM



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