

220096

OCALA ELECTRIC UTILITY
OCALA, FLORIDA

FIRST REVISED SHEET NO. 19.0
CANCELS ORIGINAL SHEET NO. 19.0

**APPLICATION FOR INTERCONNECTION OF
CUSTOMER-OWNED RENEWABLE
GENERATION SYSTEMS**

TIER 1 - Ten (10) kW or Less
TIER 2 - Greater than 10 kW and Less than 100 kW
TIER 3 - Greater than 100 kW and Less than (2) MW

**EXECUTED
CONTRACT -
Application for
Interconnection of
Customer-Owned
Renewable
Generation**

Note: These customer-owned renewable generation system size limits may be subject to a cumulative enrollment limit on net-metering customers located in the area served by the City of Ocala Electric Utility. Please refer to the Ocala Electric Utility Net-Metering Rate Schedule.

Ocala Electric Utility customers who install customer-owned renewable generation systems (RGS) and desire to interconnect those facilities with the Ocala Electric Utility system are required to complete this application. When the completed application and fees are returned to Ocala Electric Utility, the process of completing the appropriate Tier 1, Tier 2 or Tier 3 Interconnection Agreement can begin. This application and copies of the Interconnection Agreements may be obtained at Ocala Electric Utility, located at 201 SE 3rd Street, Ocala, Florida 34471, or may be requested by email from OEU@ocalafl.org.

1. Customer Information

Name: DAVID J TUZO
Mailing Address: 351 SW 80TH ST
City: Ocala State: FL Zip Code: 34476
Phone Number: (352) 484-6502 Alternate Phone Number: _____
Email Address: david2zo1@centurylink.net Fax Number: _____
Ocala Electric Utility Customer Account Number: 543563-158027

2. RGS Facility Information

Facility Location: 351 SW 80TH ST, Ocala, Florida 34476
Ocala Electric Utility Customer Account Number: 543563-158027
RGS Manufacturer: Enphase Energy
Manufacturer's Address: _____
Reference or Model Number: _____
Serial Number: IQ7-60-2-US

(Continued on Sheet No.19.1)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continue from Sheet No. 19.0)

FIRST REVISED SHEET NO. 19.1
CANCELS ORIGINAL SHEET NO. 19.1

3. Facility Rating Information

Gross Power Rating: ^{26.95 kWdc}
18.48 kWac ("Gross power rating" means the total manufacturer's AC nameplate generating capacity of an on-site customer-owned renewable generation system that will be interconnected to and operate in parallel with Ocala Electric Utility's distribution facilities. For inverter-based systems, the AC nameplate generating capacity shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.)

Fuel or Energy Source: Solar

Anticipated In- Service Date: 02/01/2022

4. Application Fee

The application fee is based on the Gross Power Rating and must be submitted with this application. The non-refundable application fee is \$375 for Tier 2 and \$750 for Tier 3 installations. There is no application fee for Tier 1 installations.

5. Interconnection Study Fee

For Tier 3 installations, a deposit in the amount of the estimated costs of the study (to be determined at time of application) must be paid along with this application in addition to the application fee referenced in Article 4 above. This deposit will be applied toward the cost of an interconnection study. The customer will be responsible for the actual costs of the study. Should the actual cost of the study be less than the deposit, the difference will be refunded to the customer. Customer agrees to comply with all interconnection requirements identified in the interconnection study report.

6. Required Documentation

Prior to completion of the Interconnection Agreement, the following information must be provided to the Ocala Electric Utility by the customer.

- A. Documentation demonstrating that the installation complies with (or most current version at time of inspection approval):
1. IEEE 1547 (2018) Standard for Interconnecting Distributed Resources with Electric Power Systems.
 2. IEEE 1547.1 (2005) Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems.
 3. UL 1741 (2010) Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources.

(Continued on Sheet No. 19.2)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 19.1)


FIRST REVISED SHEET NO. 19.2
CANCELS ORIGINAL SHEET NO. 19.2

B. Documentation that the customer-owned renewable generation has been inspected and approved by local code officials prior to its operation in parallel with the Ocala Electric Utility system to ensure compliance with applicable local codes. OEU will also require proof of commission testing by a qualified 3rd party testing company (not affiliated in any way with the manufacturer, vendor or installation contractor), for compliance with all required and applicable codes, standards, and interconnection study requirements, prior to setting of OEU metering equipment.

C. Proof of insurance in the amount of:
Tier 1 - \$100,000.00
Tier 2 - \$1,000,000.00
Tier 3 - \$2,000,000.00

Customer

By: DAVID J TUZO Date: 7/12/2021
(Print Name)


(Signature)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA

FIRST REVISED SHEET NO. 20.0
CANCELS ORIGINAL SHEET NO. 20.0

Tri-Party Net-Metering Power Purchase Agreement

This Tri-Party Net-Metering Power Purchase Agreement (this "Agreement") is entered into this 12 day of July, 2021, by and between the Florida Municipal Power Agency, a governmental joint action agency created and existing under the laws of the State of Florida (hereinafter "FMPA"), the City of Ocala doing business as Ocala Electric Utility, a body politic (hereinafter "OEU"), and DAVID J TUZO, a retail electric customer of OEU (hereinafter "Customer").

Section 1. Recitals

1.01. OEU and Customer have executed OEU's Standard Interconnection Agreement for a Customer-Owned Renewable Generation System (RGS) pursuant to which OEU has agreed to permit interconnection of Customer's renewable generation to OEU's electric system at Customer's presently-metered location, and Customer has agreed to deliver excess electric energy generated by Customer's Renewable Generation System to OEU's electric distribution system;

1.02. The City of Ocala and FMPA have entered into the All-Requirements Power Supply Contract, dated as of May 1, 1986, (hereinafter the "ARP Contract") pursuant to which the City of Ocala has agreed to purchase and receive, and FMPA has agreed to sell and supply OEU with all energy and capacity necessary to operate the OEU electric system, which limits OEU's ability to directly purchase excess energy from customer-owned renewable generation.

1.03. In order to promote the development of small customer-owned renewable generation by permitting OEU to allow its customers to interconnect with OEU's electric system and to allow OEU's electric customers to offset their electric consumption with customer-owned renewable generation, FMPA, in accordance with the terms and conditions of this agreement, has agreed to purchase excess customer-owned generation from OEU's electric customers interconnected to OEU's electric system.

NOW THEREFORE, for and in consideration of the mutual covenants and agreements set forth herein, the Parties covenant and agree as follows:

Section 2. Interconnection

2.01. Customer shall not begin parallel operations with the OEU electric distribution system until Customer has executed OEU's electric Standard Interconnection Agreement for Small Customer-Owned Renewable Generation and is in compliance with all terms and conditions

OEU requires that the customer install and operate the RGS in accordance with all applicable safety codes and standards. OEU shall establish and enforce terms and conditions of operation and disconnection of all interconnected customer-owned renewable generation as it relates to the effect of the RGS on OEU's electric distribution system.

(Continued on Sheet No. 20.1)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 20.0)

FIRST REVISED SHEET NO. 20.1
CANCELS ORIGINAL SHEET NO. 20.1

Section 3. Metering

3.01 In accordance with the OEU's Standard Interconnection Agreement for Customer-Owned Renewable Generation, OEU shall install metering equipment at the point of delivery capable of recording two separate kWh meter readings: (1) the flow of electricity from OEU to the Customer (Delivered), and (2) the flow of excess electricity from the Customer to OEU. OEU shall take meter readings on the same cycle as the otherwise applicable rate schedule.

Section 4. Purchase of Excess Customer-Owned Renewable Generation

4.01. Customer-owned renewable generation shall be first used for Customer's own load and shall offset Customer's demand for OEU's electricity. All electric power and energy delivered by OEU to Customer shall be received and paid for by Customer to OEU (Received) pursuant to the terms, conditions and rates of the OEU otherwise applicable rate schedule.

4.02. Excess customer-owned renewable generation shall be delivered to the OEU Electric distribution system. For purposes of this Agreement, the term "excess customer-owned renewable generation" means any kWh of electrical energy produced by the customer-owned renewable generation system that is not consumed by Customer and is delivered to the OEU electric distribution system. FMPA agrees to purchase and receive, and Customer agrees to sell and deliver, all excess customer-owned renewable generation at the energy rate established by FMPA, which shall be calculated in accordance with Schedule A. Excess customer-owned renewable generation shall be purchased in the form of a credit on Customer's monthly energy consumption bill from OEU.

4.03. In the event that a given monthly credit for excess customer-owned renewable generation exceeds the total billed amount for Customer's consumption in any corresponding month, then the excess credit shall be applied to the subsequent month's bill. Excess energy credits produced pursuant to the preceding sentence shall accumulate and be used to offset Customer's energy consumption bill for a period of not more than twelve (12) months. At the end of each calendar year, any unused excess energy credits shall be paid by OEU to the Customer in accordance with the OEU Electric Net-Metering Service Rate Schedule.

(Continued on Sheet No. 20.2)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 20.1)

FIRST REVISED SHEET NO. 20.2
CANCELS ORIGINAL SHEET NO. 20.2

4.04. FMPA and OEU shall not be required to purchase or receive excess customer-owned renewable generation, and may require Customer to interrupt or reduce production of customer-owned renewable generation, (a) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any OEU equipment or part of OEU's system; or (b) if either FMPA or OEU determine, in their sole judgment, that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with any applicable electric code or standard.

4.05. Customer acknowledges that its provision of electricity to OEU hereunder is on a first-offered, first-accepted basis and subject to diminution and/or rejection in the event the total amount of electricity delivered to OEU pursuant to the Net-Metering Service Rate Schedule (as filed with the Florida Public Service Commission), from all participating OEU customers, exceeds two and one-half percent (2.5%) of the aggregate customer peak demand on the OEU electric system.

Section 5. Renewable Energy Credits

5.01. Customer shall offer FMPA a first right of refusal before selling or granting to any third party the right to the Green Attributes associated with its customer-owned renewable generation that is interconnected to OEU electric distribution system. The term "Green Attributes" shall include any and all credits, certificates, benefits, environmental attributes, emissions reductions, offsets, and allowances, however entitled, attributable to the generation of electricity from the customer-owned-renewable generation and its displacement of conventional energy generation.

5.02. Any additional meter(s) installed to measure total renewable electricity generated by the Customer for the purposes of measuring Green Attributes, including and renewable energy certificates (or similarly titled credits for renewable energy generated), shall be installed at the expense of the Customer, unless determined otherwise during negotiations for the sale of the Customer's credits to FMPA.

Section 6. Term and Termination

6.01. This Agreement shall become effective upon execution by all Parties, and shall remain in effect thereafter on a month-to-month basis until terminated by any Party upon thirty (30) days written notice to all other Parties.

6.02. This Agreement shall terminate immediately and without notice upon: (a) termination of the electric distribution service by OEU or (b) failure by Customer to comply with any of the terms and conditions of this Agreement or OEU's Standard Interconnection Agreement for Customer-Owned Renewable Generation.

(Continued on Sheet No. 20.3)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

Ocala Electric Utility
Ocala, Florida
(Continued from Sheet No. 20.2)

FIRST REVISED SHEET NO. 20.3
CANCELS ORIGINAL SHEET NO. 20.3

Section 7. Miscellaneous Provisions

7.01. Assignment. It is understood and agreed that no party may transfer, sell, mortgage, pledge, hypothecate, convey, designate, or otherwise assign this Agreement, or any interest herein or any rights or obligations hereunder, in whole or in part, either voluntarily or by operation of law, (including, without limitation, by merger, consolidation, or otherwise), without the express written consent of the other parties (and any such attempt shall be void), which consent shall not be unreasonably withheld. Subject to the foregoing, this Agreement shall inure to the benefit of and be binding upon the parties and their respective successors and permitted assigns.

7.02. Amendment. It is understood and agreed that FMPA and OEU reserve the right, on no less than an annual basis, to change any of the terms and conditions, including pricing, in this Agreement on sixty (60) days advance written notice. FMPA and OEU may make such changes on an immediate basis in the event any applicable law, rule, regulation or court order requires them. In such event, FMPA and OEU will give Customer as much notice as reasonably possible under the circumstances.

7.03. Indemnification. To the fullest extent permitted by laws and regulations, and in return for adequate, separate consideration, Customer shall defend, indemnify, and hold harmless FMPA and OEU, their officers, directors, agents, guests, invitees, and employees from and against all claims, damages, losses to persons or property, whether direct, indirect, or consequential (including but not limited to fees and charges of attorneys, and other professionals and court and arbitration costs) arising out of, resulting from, occasioned by, or otherwise caused by the operation or misoperation of the customer-owned renewable generation, or the acts or omissions of any other person or organization directly or indirectly employed by the Customer to install, furnish, repair, replace or maintain the customer-owned renewable generation system, or anyone for whose acts any of them may be liable.

7.04. Governing Law. The validity and interpretation of this Agreement and the rights and obligations of the parties shall be governed and construed in accordance with the laws of the State of Florida without regard for any conflicts of law provisions that might cause the law of other jurisdictions to apply. All controversies, claims, or disputes arising out of or related to this Agreement or any agreement, instrument, or document contemplated hereby, shall be brought exclusively in the County or Circuit Court for Marion County, Florida, or the United States District Court sitting in Marion County, Florida, as appropriate.

(Continued on Sheet No. 20.4)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 20.3)

FIRST REVISED SHEET NO. 20.4
CANCELS ORIGINAL SHEET NO. 20.4

7.05. Enforcement of Agreement. In the event that either party is required to enforce this Agreement by court proceedings or otherwise, the prevailing party shall be entitled to recover all fees and costs incurred, including reasonable attorney's fees and costs for trial, alternative dispute resolution, and/or appellate proceedings.

7.06. Severability. To the extent any provision of this Agreement is prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

7.07. Third Party Beneficiaries and Sovereign Immunity. This Agreement is solely for the benefit of FMPA, OEU, and Customer and no right nor shall any cause of action accrue upon or by reason, to or for the benefit of any third party not a formal party to this Agreement. Nothing in this Agreement, expressed or implied, is intended or shall be construed to confer upon any person or corporation other than FMPA, OEU, or Customer, any right, remedy, or claim under or by reason of this Agreement or any of the provisions or conditions of this Agreement; and, all provisions, representations, covenants, and conditions contained in this Agreement shall inure to the sole benefit of and be binding upon FMPA, OEU, and Customer and their respective representatives, successors, and assigns. Further, no term or condition contained in this Agreement shall be construed in any way as a waiver by either FMPA or OEU of the sovereign immunity applicable to either or both of them as established by Florida Statutes, 768.28.

(Continued on Sheet No. 20.5)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

Ocala Electric Utility
Ocala, Florida
(Continued from Sheet No. 20.4)

FIRST REVISED SHEET NO. 20.5
CANCELS ORIGINAL SHEET NO. 20.5

IN WITNESS WHEREOF, Customer and OEU have executed this Agreement the day and year first above written.

City of Ocala Electric Utility

By: Bill Kauffman

Title: ACM / CFO

Date: 02 / 11 / 2022

Florida Municipal Power Agency

By: [Signature]

Title: Bus Dev & Sys Ops Director

Date: 02 / 11 / 2022

Customer

By: DAVID J TUZO

Date: 7/12/2021

(Print Name)

[Signature]

(Signature) 5488

Customer's City of Ocala Electric Utility Account Number: 543563-158027

Approved as to form and legality:

Robert W. Batsel, Jr.

Robert W. Batsel, Jr.
Assistant City Attorney

(Continued on Sheet No. 20.6)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

Ocala Electric Utility
Ocala, Florida

FIRST REVISED SHEET NO. 22.0
CANCELS ORIGINAL SHEET NO. 22.0

Tier 2
Standard Interconnection Agreement
Customer-Owned Renewable Generation System

This **Agreement** is made and entered into this 12 day of July, 2021, by and between DAVID J TUZO, (hereinafter called "**Customer**"), located at 351 SW 80TH ST in Ocala, Florida, and the City of Ocala doing business as Ocala Electric Utility (hereafter called "**OEU**"), a body politic. Customer and OEU shall collectively be called the "**Parties**". The physical location/premise where the interconnection is taking place: 351 SW 80TH ST, Ocala, Florida 34476.

WITNESSETH

Whereas, a Tier 2 Renewable Generation System (RGS) is an electric generating system that uses one or of more of the following fuels or energy sources: hydrogen, biomass, solar energy, geothermal energy, wind energy, ocean energy, waste heat, or hydroelectric power as defined in Section 377.803, Florida Statutes, rated at more than 10 kilowatts (10 kW) but not greater than 100 kilowatts (100 kW) alternating current (AC) power output and is primarily intended to offset part or all of the customer's current electric requirements; and

Whereas, OEU operates an electric system serving parts of the City of Ocala and Marion County; and

Whereas, Customer has made a written Application to OEU, a copy being attached hereto, to interconnect its RGS with OEU's electrical supply grid at the location identified above; and

Whereas, the City of Ocala and the Florida Municipal Power Agency (hereinafter called "FMPA") have entered into the All-Requirements Power Supply Contract pursuant to which OEU has agreed to purchase and receive, and FMPA has agreed to sell and supply OEU with all energy and capacity necessary to operate OEU's electric system, which limits OEU's ability to directly purchase excess energy from customer-owned renewable generation; and

Whereas, in order to promote the development of small customer-owned renewable generation by permitting OEU to allow its customers to interconnect with OEU's electric system and to allow OEU customers to offset their electric consumption with customer-owned renewable generation, FMPA, in accordance with the terms and conditions of this agreement, has agreed to purchase excess customer-owned generation from OEU customers interconnected to OEU's electric system; and

Whereas, OEU desires to provide interconnection of a RGS under conditions which will insure the safety of OEU customers and employees, reliability and integrity of its distribution system;

(Continued on Sheet No. 22.1)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.0)

FIRST REVISED SHEET NO. 22.1
CANCELS ORIGINAL SHEET NO. 22.1

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements herein set forth, the parties hereto covenant and agree as follows:

1. The Customer shall be required to enter into a Tri-Party Net-Metering Purchase Power Agreement with FMPA and OEU.
2. "Gross power rating" (GPR) means the total manufacturer's AC nameplate generating capacity of an on-site customer-owned renewable generation system that will be interconnected to and operate in parallel with OEU distribution facilities. For inverter-based systems, the GPR shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.
3. This agreement is strictly limited to cover a Tier 2 RGS as defined above. It is the Customer's responsibility to notify OEU of any change to the GPR of the RGS by submitting a new application for interconnection specifying the modifications at least 30 days prior to making the modifications. In no case should modifications to the RGS be made such that the GPR increases above the 100 kilowatts (100 kW) limit.
4. The RGS GPR must not exceed 90 percent (90%) of the Customer's OEU calculated distribution service rating at the Customer's location (including shared electric facilities). If the GPR does exceed the 90 percent (90%) limit, the Customer shall be responsible to pay the cost of upgrades to the distribution facilities required to accommodate the GPR capacity and ensure the 90 percent (90%) threshold is not breached. OEU will not allow a RGS GPR greater than required to offset the customer's annual kWh energy consumption (based on customer's historical consumption data or by means of estimated usage of similar type of service as determined by OEU).
5. The Customer shall be required to pay a non-refundable application fee of \$375 for the review and processing of the application.
6. The Customer shall fully comply with OEU's Rules and Regulations and Electric Service Specifications as those documents may be amended or revised by OEU from time to time.
7. The Customer certifies that its installation, its operation and its maintenance shall be in compliance with the following standards (or most current version at time of inspection approval):
 - a. IEEE-1547 (2018) Standard for Interconnecting Distributed Resources with Electric Power System;
 - b. IEEE-1547.1 (2005) Standard Conformance Test Procedures for Equipment Interconnection Distributed Resources with Electric Power Systems;
 - c. UL-1741 (2010) Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed *Energy Resources*.

(Continued on Sheet No. 22.2)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

Ocala Electric Utility
Ocala, Florida
(Continued from Sheet No. 22.1)

FIRST REVISED SHEET NO. 22.2
CANCELS ORIGINAL SHEET NO. 22.2

- d. The National Electric Code, state and/or local building codes, mechanical codes and/or electrical codes;
- e. The manufacturer's installation, operation and maintenance instructions.

8. The Customer is not precluded from contracting for the lease, operation or maintenance of the RGS with a third party. Such lease may not provide terms or conditions that provide for any payments under the agreement to any way indicate or reflect the purchase of energy produced by the RGS. Customer shall not enter into any lease agreement that results in the retail purchase of electricity; or the retail sale of electricity from the customer-owned renewable generation. Notwithstanding this restriction, in the event that Customer is determined to have engaged in the retail purchase of electricity from a party other than OEU, then Customer shall be in breach of this Agreement and may be subject to the jurisdiction of the Florida Public Service Commission and to fines/penalties.

9. The Customer shall provide a copy of the manufacturer's installation, operation and maintenance instructions to OEU. If the RGS is leased to the Customer by a third party, or if the operation or maintenance of the RGS is to be performed by a third party, the lease and/or maintenance agreements and any pertinent documents related to these agreements shall be provided to OEU.

10. Prior to commencing parallel operation with OEU's electric system, Customer shall have the RGS inspected and approved by the appropriate code authorities having jurisdiction. Customer shall provide a copy of this inspection and approval to OEU.

11. The Customer agrees to permit OEU, if it should so choose, to inspect the RGS and its component equipment and the documents necessary to ensure compliance with this Agreement both before and after the RGS goes into service and to witness the initial testing of the RGS equipment and protective apparatus. OEU will provide Customer with as much notice as reasonably possible, either in writing, email, facsimile or by phone as to when OEU may conduct inspections and or document review. Upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, Customer agrees to provide OEU access to the Customer's premises for any purpose in connection with the performance of the obligations required by this Agreement or, if necessary, to meet OEU's legal obligation to provide service to its customers. At least ten (10) business days prior to initially placing the customer-owned renewable generation system in service, Customer shall provide written notification to OEU advising OEU of the date and time at which Customer intends to place the system in service, and OEU shall have the right to have personnel present on the in-service date in order to ensure compliance with the requirements of this Agreement.

(Continued on Sheet No. 22.3)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.2)

FIRST REVISED SHEET NO. 22.3
CANCELS ORIGINAL SHEET NO. 22.3

12. The Customer's RGS must have an appropriately sized grid-tie inverter system that includes applicable protective systems. Customer certifies that the RGS equipment includes a utility-interactive inverter or interconnection system equipment that ceases to interconnect with the OEU system upon a loss of OEU power. The inverter shall be considered certified for interconnected operation if it has been submitted by a manufacturer to a nationally recognized testing laboratory (NRTL) to comply with UL 1741. The NRTL shall be approved by the Occupational Safety & Health Administration (OSHA).

13. If Customer adds another RGS which (i) utilizes the same utility-interactive inverter for both systems; or (ii) utilizes a separate utility-interactive inverter for each system, then Customer shall provide OEU with sixty (60) days advance written notice of the addition.

14. The Customer shall not energize the OEU system when OEU's system is deenergized. The Customer shall cease to energize the OEU system during a faulted condition on the OEU system and/or upon any notice from OEU that the deenergizing of Customer's RGS equipment is necessary. The Customer shall cease to energize the OEU system prior to automatic or non-automatic reclosing of OEU's protective devices. There shall be no intentional islanding, as described in IEEE 1547, between the Customer's and OEU's systems.

15. The Customer is responsible for the protection of its generation equipment, inverters, protection devices, and other system components from damage from the normal and abnormal operations that occur on OEU's electric system in delivering and restoring system power. Customer agrees that any damage to any of its property, including, without limitation, all components and related accessories of its RGS system, due to the normal or abnormal operation of OEU's electric system, is at Customer's sole risk and expense. Customer is also responsible for ensuring that the customer-owned renewable generation equipment is inspected, maintained, and tested regularly in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely.

16. The Customer must install, at their expense, a manual disconnect switch of the visible load break type to provide a separation point between the AC power output of the customer-owned renewable generation system and any Customer wiring connected to OEU's electric system such that back feed from the customer-owned renewable generation system to OEU's electric system cannot occur when the switch is in the open position. The manual disconnect switch shall be mounted separate from the meter socket on an exterior surface adjacent to the meter. The switch shall be readily accessible to OEU and capable of being locked in the open position with an OEU padlock. When locked and tagged in the open position by OEU, this switch will be under the control of OEU.

(Continued on Sheet No. 22.4)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.3)

FIRST REVISED SHEET NO. 22.4
CANCELS ORIGINAL SHEET NO. 22.4

17. Subject to an approved inspection, including installation of acceptable disconnect switch, this Agreement shall be executed by OEU within thirty (30) calendar days of receipt of a completed application. Customer must execute this Agreement and return it to OEU at least thirty (30) calendar days prior to beginning parallel operations with OEU's electric system, subject to the requirements of Sections 18 and 19, below, and within one (1) year after OEU executes this Agreement.

18. Once OEU has received Customer's written documentation that the requirements of this Agreement have been met, all agreements and documentation have been received and the correct operation of the manual switch has been demonstrated to an OEU representative, OEU will, within fifteen (15) business days, send written notice that parallel operation of the RGS may commence.

19. OEU requires the Customer to maintain general liability insurance for personal injury and property damage in the amount of not less than one million dollars (\$1,000,000.00).

20. OEU will furnish, install, own and maintain metering equipment capable of measuring the flow of kilowatt-hours (kWh) of energy. The Customer's service associated with the RGS will be metered to measure the energy delivered by OEU to Customer, and also measure the energy delivered by Customer to OEU. Customer agrees to provide safe and reasonable access to the premises for installation, maintenance and reading of the metering and related equipment. The Customer shall not be responsible for the cost of the installation and maintenance of the metering equipment necessary to measure the energy delivered by the Customer to OEU.

21. The Customer shall be solely responsible for all legal and financial obligations arising from the design, construction, installation, operation, maintenance and ownership of the RGS.

22. The Customer must obtain all permits, inspections and approvals required by applicable jurisdictions with respect to the generating system and must use a licensed, bonded and insured contractor to design and install the generating system. The Customer agrees to provide OEU with a copy of the local building code official inspection and certification of installation. The certification shall reflect that the local code official has inspected and certified that the installation was permitted, has been approved, and has met all electrical and mechanical qualifications.

23. In no event shall any statement, representation, or lack thereof, either express or implied, by OEU, relieve the Customer of exclusive responsibility for the Customer's system. Specifically, any OUS inspection of the RGS shall not be construed as confirming or endorsing the system design or its operating or maintenance procedures or as a warranty or guarantee as to the safety, reliability, or durability of the RGS. OEU's inspection, acceptance, or its failure to inspect shall not be deemed an endorsement of any RGS equipment or procedure. Further, as set forth in Sections 15 and 26 of this Agreement, Customer shall remain solely responsible for any and all losses, claims, damages and/or expenses related in any way to the operation or misoperation of its RGS equipment.

(Continued on Sheet No. 22.5)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.4)

FIRST REVISED SHEET NO. 22.5
CANCELS ORIGINAL SHEET NO. 22.5

24. Notwithstanding any other provision of this Interconnection Agreement, OEU, at its sole and absolute discretion, may isolate the Customer's system from the distribution grid by whatever means necessary, without prior notice to the Customer. To the extent practical, however, prior notice shall be given. The system will be reconnected as soon as practical once the conditions causing the disconnection cease to exist. OEU shall have no obligation to compensate the Customer for any loss of energy during any and all periods when Customer's RGS is operating at reduced capacity or is disconnected from OEU's electrical distribution system pursuant to this Interconnection Agreement. Typical conditions which may require the disconnection of the Customer's system include, but are not limited to, the following:

- a. OEU utility system emergencies, forced outages, uncontrollable forces or compliance with prudent electric utility practice.
- b. When necessary to investigate, inspect, construct, install, maintain, repair, replace or remove any OEU equipment, any part of OEU's electrical distribution system or Customer's generating system.
- c. Hazardous conditions existing on OEU's utility system due to the operation of the Customer's generation or protective equipment as determined by OEU.
- d. Adverse electrical effects (such as power quality problems) on the electrical equipment of OEU's other electric consumers caused by the Customer's generation as determined by OEU.
- e. When Customer is in breach of any of its obligations under this Interconnection Agreement or any other applicable policies and procedures of OEU.
- f. When the Customer fails to make any payments due to OEU by the due date thereof.

25. Upon termination of services pursuant to this Agreement, OEU shall open and padlock the manual disconnect switch and remove any additional metering equipment related to this Agreement. At the Customer's expense, within thirty (30) working days following the termination, the Customer shall permanently isolate the RGS and any associated equipment from OEU's electric supply system, notify OEU that the isolation is complete, and coordinate with OEU for return of OEU's lock.

26. To the fullest extent permitted by law, and in return for adequate, separate consideration, Customer shall indemnify, defend and hold harmless OEU, any and all of their members of its governing bodies, and its officers, agents, and employees for, from and against any and all claims, demands, suits, costs of defense, attorneys' fees, witness fees of any type, losses, damages, expenses, and liabilities, whether direct, indirect or consequential, related to, arising from, or in any way connected with:

- a. Customer's design, construction, installation, inspection, maintenance, testing or operation of Customer's generating system or equipment used in connection with this Interconnection Agreement, irrespective of any fault on the part of OEU.

(Continued on Sheet No. 22.6)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.5)

FIRST REVISED SHEET NO. 22.6
CANCELS ORIGINAL SHEET NO. 22.6

- b. The interconnection of Customer's generating system with, and delivery of energy from the generating system to, OEU's electrical distribution system, irrespective of any fault on the part of OEU.
- c. The performance or nonperformance of Customer's obligations under this Interconnection Agreement or the obligations of any and all of the members of Customer's governing bodies and its officers, contractors (and any subcontractor or material supplier thereof), agents and employees.

Customer's obligations under this Section shall survive the termination of this Interconnection Agreement.

27. Customer shall not have the right to assign its benefits or obligations under this Agreement without OEU's prior written consent and such consent shall not be unreasonably withheld. If there is a change in ownership of the RGS, Customer shall provide written notice to OEU at least thirty (30) days prior to the change in ownership. The new owner will be required to assume, in writing, the Customer's rights and duties under this Agreement, or execute a new Standard Interconnection Agreement. The new owner shall not be permitted to net meter or begin parallel operations until the new owner assumes this Agreement or executes a new Agreement.

28. This Agreement supersedes all previous agreements and representations either written or verbal heretofore made between OEU and Customer with respect to matters herein contained. This Agreement, when duly executed, constitutes the only Agreement between parties hereto relative to the matters herein described. This Agreement shall continue in effect from year to year until either party gives sixty (60) days notice of its intent to terminate this Agreement.

29. This Agreement shall be governed by and construed and enforced in accordance with the laws, rules and regulations of the State of Florida and OEU's tariff as it may be modified, changed, or amended from time to time, including any amendments modification or changes to OEU's Net-Metering Service Rate Schedule, the schedule applicable to this Agreement. The Customer and OEU agree that any action, suit, or proceeding arising out of or relating to this Interconnection Agreement shall be initiated and prosecuted in the state court of competent jurisdiction located in Marion County, Florida, and OEU and the Customer irrevocably submit to the jurisdiction and venue of such court. To the fullest extent permitted by law, each Party hereby irrevocably waives any and all rights to a trial by jury and covenants and agrees that it will not request a trial by jury with respect to any legal proceeding arising out of or relating to this Interconnection Agreement.

None of the provisions of this Interconnection Agreement shall be considered waived by either Party except when such waiver is given in writing. No waiver by either Party of any one or more defaults in the performance of the provisions of this Interconnection Agreement shall operate or be construed as a waiver of any other existing or future default or defaults. If any one or more of the provisions of this Interconnection Agreement or the applicability of any provision to a

(Continued on Sheet No. 22.7)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.6)

FIRST REVISED SHEET NO. 22.7
CANCELS ORIGINAL SHEET NO. 22.7

specific situation is held invalid or unenforceable, the provision shall be modified to the minimum extent necessary to make it or its application valid and enforceable, and the validity and enforceability of all other provisions of this Interconnection and all other applications of such provisions shall not be affected by any such invalidity or unenforceability. This Interconnection Agreement does not govern the terms and conditions for the delivery of power and energy to non-generating retail customers of OEU's electrical distribution system.

30. This Agreement incorporates by reference the terms of the tariff filed with the Florida Public Service Commission by OEU, including OEU's Net-Metering Service Rate Schedule, and associated technical terms and abbreviations, general rules and regulations and standard electric service requirements (as may be applicable) are incorporated by reference, as amended from time to time. To the extent of any conflict between this Agreement and such tariff, the tariff shall control.

31. OEU and Customer recognize that the Florida Statutes and/or the Florida Public Service Commission Rules, including those directly addressing the subject of this Agreement, may be amended from time to time. In the event that such statutes and/or rules are amended that affect the terms and conditions of this Agreement, OEU and Customer agree to supersede and replace this Agreement with a new Interconnection Agreement which complies with the amended statutes/rules.

32. Customer acknowledges that its provision of electricity to OEU hereunder is on a first-offered first-accepted basis and subject to diminution and/or rejection in the event the total amount of electricity delivered to OEU pursuant to the OEU's Net-Metering Service Rate Schedule (as filed with the Florida Public Service Commission), from all participating OEU customers, exceeds 2.5 percent (%) of the aggregate customer peak demand on OEU's electric system.

33. This Agreement is solely for the benefit of OEU and Customer and no right nor any cause of action shall accrue upon or by reason, to or for the benefit of any third party not a formal party to this Agreement. Nothing in this Agreement, expressed or implied, is intended or shall be construed to confer upon any person or corporation other than OEU or Customer, any right, remedy, or claim under or by reason of this Agreement or any of the provisions or conditions of this Agreement; and, all provisions, representations, covenants, and conditions contained in this Agreement shall inure to the sole benefit of and be binding upon OEU and Customer and their respective representatives, successors, and assigns. Further, no term or condition contained in this Agreement shall be construed in any way as a waiver by OEU of the sovereign immunity applicable to OEU as established by Florida Statutes, 768.28.

(Continued on Sheet No. 22.8)

Issued by: Michael Poucher, P.E.
Electric Utility Director

Effective: October 1, 2019

OCALA ELECTRIC UTILITY
OCALA, FLORIDA
(Continued from Sheet No. 22.7)

FIRST REVISED SHEET NO. 22.8
CANCELS ORIGINAL SHEET NO. 22.8

IN WITNESS WHEREOF, Customer and OEU have executed this Agreement the day and year first above written.

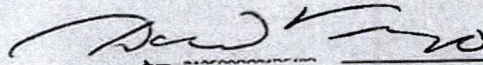
OUS:

Customer:

By: Bill Kauffman

By: DAVID J TUZO

Title: ACM : CFO


(Signature)

Date: 02 / 11 / 2022

Date: 7/12/2021

City of Ocala Electric Utility Account Number:
543563-158027

Approved as to form and legality:

Robert W. Batsel, Jr.

Robert W. Batsel, Jr.
Assistant City Attorney

Effective: October 1, 2019

Issued by: Michael Poucher, P.E.
Electric Utility Director

sfi Southern Fidelity Insurance Company
P.O. Box 18029
Tallahassee, FL 32317-6029

HOMEOWNERS DECLARATION

POLICY NUMBER	POLICY PERIOD	
	From	To
SHO 2041021 04 00	08/14/2021	08/14/2022

For Customer Service and Claims Call 1-866-874-7342 or visit www.southernfidelityins.com
Renewal Declaration Effective: 08/14/2021 Date Issued: 06/30/2021

RENEWAL DECLARATION

INSURED:

DAVID TUZO
351 SW 80TH ST
OCALA FL 34476

Telephone: 352-424-6502

AGENT: 0000025

DREW DITTY AGENCY INC
DREW DITTY
1721 SE 16TH AVE STE 102
OCALA FL 34471
Telephone: 352-732-5932

The residence premises covered by this policy is located at the above insured address unless otherwise stated below.
351 SW 80TH ST Ocala FL 34476

IF PAYMENT IS NOT RECEIVED ON OR BEFORE THE POLICY RENEWAL EFFECTIVE DATE,
THIS POLICY WILL NOT BE IN FORCE.

Coverage is provided where premium and limit of liability is shown.

Flood coverage is not provided by SOUTHERN FIDELITY and is not a part of this policy.

SECTION I COVERAGE

- A. DWELLING
- B. OTHER STRUCTURES
- C. PERSONAL PROPERTY
- D. LOSS OF USE

LIMIT OF LIABILITY

\$250,000.00
\$25,000.00
\$120,000.00
\$51,220.00

PREMIUMS

\$2,736.00
INCLUDED
INCLUDED
INCLUDED

SECTION II COVERAGE

- E. PERSONAL LIABILITY
- F. MEDICAL PAYMENTS

\$300,000.00
\$5,000.00

\$30.00
INCLUDED

OPTIONAL COVERAGES

Replacement Cost Contents

INCLUDED

LIMITED FUNGUS/ROT BACTERIA

\$10,000/\$20,000

INCLUDED

WATER DAMAGE EXCLUSION

LIMITED WATER DAMAGE COVERAGE

PREFERRED CONTRACTOR DISCOUNT

\$10,000.00

INCLUDED
INCLUDED
-\$119.00

TOTAL POLICY PREMIUM INCLUDING ASSESSMENTS AND ALL SURCHARGES: SEE REVERSE SIDE

\$2,736.00

PREMIUM CHANGE DUE TO RATE CHANGE

\$132.00

PREMIUM CHANGE DUE TO COVERAGE CHANGE

-\$41.00

PLEASE CONTACT YOUR AGENT IF THERE ARE ANY QUESTIONS PERTAINING TO YOUR POLICY.

POLICY AND ENDORSEMENTS

HO-0490 (01/00)

HO-0490 (04/91)

QIRB11655 (02/10)

QIRB11655 (02/10)

SFH FL LWD(06/21)

*SFH FL LWD(06/21)

SFHFLGCC (04/09)

SFHFLGCC (04/09)

See Form Schedule

COUNTERSIGNED DATE 06/30/2021

BY

Kristen Moad

MORTGAGE INTERESTS

MORTGAGE CORPORATION

See Form Schedule

INSURED'S COPY

EVEREST

III

O

<



Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

9,592 kWh/Year*

System output may range from 9,173 to 9,850 kWh per year near this location

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	5.16	784	97
February	5.43	731	90
March	6.01	893	110
April	6.37	898	111
May	6.19	887	109
June	5.49	762	94
July	5.38	770	95
August	5.59	796	98
September	5.30	745	92
October	5.84	858	106
November	5.32	754	93
December	4.63	714	88
Annual	5.56	9,592	\$ 1,183

Location and Station Identification

Requested Location	351 SW 80TH ST, Ocala, Florida 34476
Weather Data Source	Lat, Lon: 29.09, -82.14 1.1 mi
Latitude	29.09° N
Longitude	82.14° W

PV System Specifications (Residential)

DC System Size	8.4 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	30°
Array Azimuth	184°
System Losses	34.45%
Inverter Efficiency	97%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.123 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	13.0%
-----------------	-------



RESULTS

4,548 kWh/Year*

System output may range from 4,350 to 4,671 kWh per year near this location

Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.20	284	35
February	3.86	306	38
March	4.80	419	52
April	5.85	482	59
May	6.08	507	63
June	5.49	445	55
July	5.14	428	53
August	5.00	417	51
September	4.39	362	45
October	4.22	363	45
November	3.43	284	35
December	2.82	252	31
Annual	4.52	4,549	\$ 562

Location and Station Identification

Requested Location	351 SW 80TH ST, Ocala, Florida 34476
Weather Data Source	Lat, Lon: 29.09, -82.14 1.1 mi
Latitude	29.09° N
Longitude	82.14° W

PV System Specifications (Residential)

DC System Size	4.9 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	30°
Array Azimuth	274°
System Losses	34.45%
Inverter Efficiency	97%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.123 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	10.6%
-----------------	-------



Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a fixed (open rack) PV system at this location.

RESULTS

3,942 kWh/Year*

System output may range from 3,770 to 4,048 kWh per year near this location

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.52	246	30
February	4.17	259	32
March	5.20	356	44
April	6.10	395	49
May	6.63	435	54
June	6.14	390	48
July	6.04	396	49
August	5.76	376	46
September	4.85	314	39
October	4.63	314	39
November	3.76	245	30
December	3.08	217	27
Annual	4.99	3,943	\$ 487

Location and Station Identification

Requested Location	351 SW 80TH ST, Ocala, Florida 34476
Weather Data Source	Lat, Lon: 29.09, -82.14 1.1 mi
Latitude	29.09° N
Longitude	82.14° W

PV System Specifications (Residential)

DC System Size	3.5 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	23°
Array Azimuth	95°
System Losses	28.25%
Inverter Efficiency	97%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.123 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	12.9%
-----------------	-------



Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEY'S FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a fixed (open rack) PV system at this location.

RESULTS

3,309 kWh/Year*

System output may range from 3,164 to 3,398 kWh per year near this location

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	3.27	204	25
February	3.96	221	27
March	4.94	304	37
April	6.03	350	43
May	6.30	371	46
June	5.72	327	40
July	5.38	316	39
August	5.22	306	38
September	4.55	264	33
October	4.31	261	32
November	3.49	204	25
December	2.88	180	22
Annual	4.67	3,308	\$ 407

Location and Station Identification

Requested Location	351 SW 80TH ST, Ocala, Florida 34476
Weather Data Source	Lat, Lon: 29.09, -82.14 1.1 mi
Latitude	29.09° N
Longitude	82.14° W

PV System Specifications (Residential)

DC System Size	3.15 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	23°
Array Azimuth	275°
System Losses	28.25%
Inverter Efficiency	97%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.123 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	12.0%
-----------------	-------



RESULTS

5,772 kWh/Year*

System output may range from 5,520 to 5,928 kWh per year near this location

Cautions: Photovoltaic system performance predictions calculated by PVWatts[®] include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts[®] inputs. For example, PV modules with better performance are not differentiated within PVWatts[®] from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts[®] Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	1.30	165	20
February	2.22	268	33
March	3.55	494	61
April	5.07	684	84
May	6.05	833	103
June	5.79	772	95
July	5.49	756	93
August	4.82	659	81
September	3.61	481	59
October	2.55	335	41
November	1.54	187	23
December	1.06	138	17
Annual	3.59	5,772	\$ 710

Location and Station Identification

Requested Location	351 SW 80TH ST, Ocala, Florida 34476
Weather Data Source	Lat, Lon: 29.09, -82.14 1.1 mi
Latitude	29.09° N
Longitude	82.14° W

PV System Specifications (Residential)

DC System Size	7 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	30°
Array Azimuth	4°
System Losses	25.59%
Inverter Efficiency	97%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.123 \$/kWh
---------------------------------	--------------

Performance Metrics

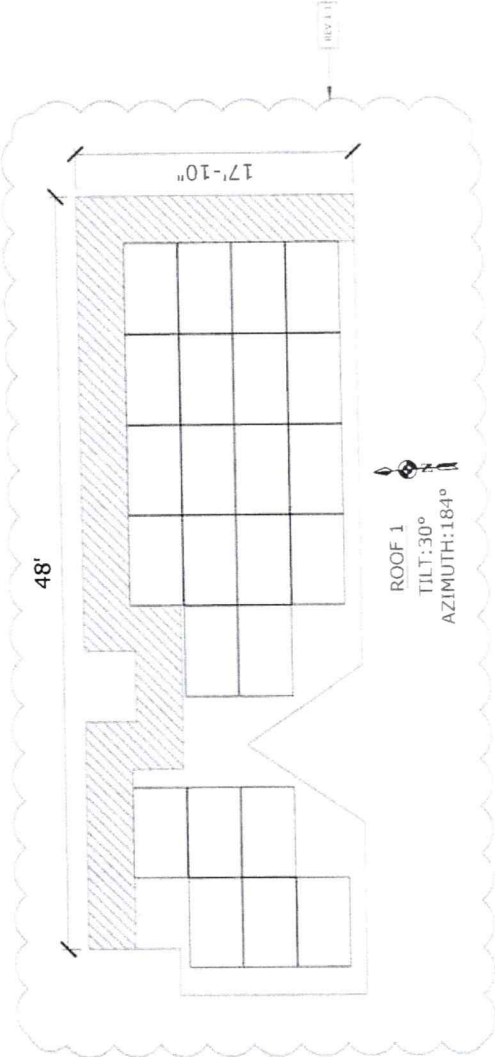
Capacity Factor	9.4%
-----------------	------

WIND EXPOSURE B
CATEGORY 145mph
WIND SPEED 0 lb/sqft
SNOW LOAD

TABLE OF CONTENTS

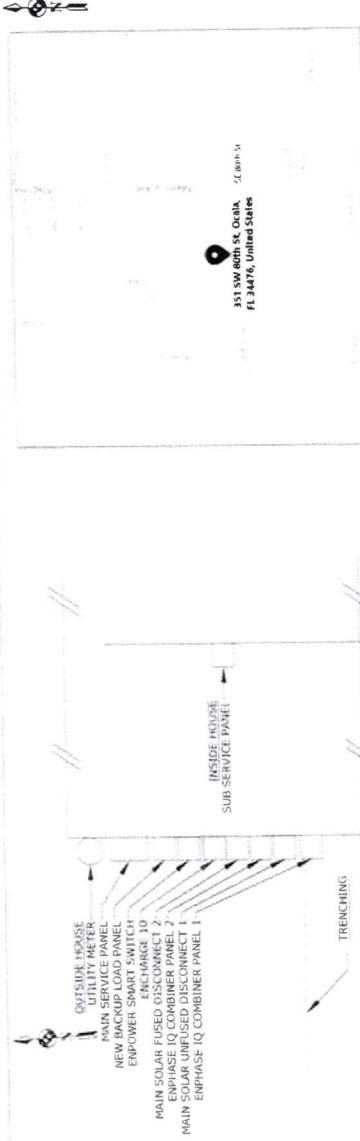
NO.	TITLE
PV - 1.0, 1.1	ARRAY LAYOUT
PV - 2.0, 2.1	RACKING LAYOUT
PV - 3.0	STRUCTURAL
PV - 4.0	ELECTRICAL LINE DIAGRAM
PV - 4.1	ELECTRICAL CALCULATION
PV - 5.0	LABELS
ATTACHMENT	DATASHEETS

REFERENCE CODES: FBC 2020, NEC-2017
BUILDING USAGE = R - RESIDENTIAL
CONSTRUCTION = 5-B UNPROTECTED



NOTE
1) THE EXISTING ROOF STRUCTURE HAS BEEN EVALUATED FOR THE PROPOSED NEW SOLAR LOAD AND DETERMINED TO BE OF SUFFICIENT CAPACITY TO INSTALL THE PROPOSED SOLAR ARRAY AS FOLLOWS:
A) SHINGLE ROOF - MECHANICALLY FASTENED PV SYSTEM NOT TO EXCEED WEIGHT OF 4.0 LBS./SQ.FT.

ROOF ARRAY



COMPONENT LOCATION



SITE MAP (N.T.S)

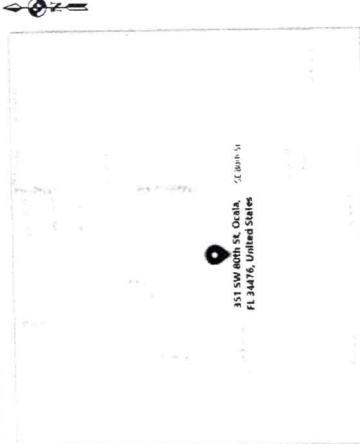
PROPOSED SYSTEM SPECIFICATIONS:
SYSTEM SIZE: DC SIZE: 36.95 KWP
AC SIZE: 19.25 KW (@250VA MAX. CONTINUOUS POWER)
MODULE USED: LONGI LR4-60HPB-350M PANEL: QTY (77)
24 PANELS ON ROOF 1 AT 30° PITCH, 184° AZIMUTH (TRUE)
14 PANELS ON ROOF 2 AT 23° PITCH, 274° AZIMUTH (TRUE)
10 PANELS ON ROOF 3 AT 23° PITCH, 275° AZIMUTH (TRUE)
20 PANELS ON ROOF 5 AT 30° PITCH, 275° AZIMUTH (TRUE)

**BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES,
2 CIRCUITS OF 10 MODULES,
1 CIRCUIT OF 7 MODULES,
1 ENPHASE IQ7 MICRO-INVERTER (77)
INVERTER USED : ENPHASE IQ7 MICRO-INVERTER (77)
BATTERY: ENCHARGE 10 (12)
ENPHASE ENPOWER SMART-SWITCH (1)
RACKING: ECOFASTEN ROCK-SWITCH
FLASHING: COMPOSITION SHINGLE FLASHING**

ELECTRICAL SPECIFICATIONS:
SERVICE PANEL DETAILS: MSP-06 200A BUS BAR RATING WITH 200A MCB
INTERCONNECTION METHOD: MICRO GRID PV SYSTEM
LINE SIDE TIE BREAKER IN MSP-06 MICRO GRID PV SYSTEM
BACK SIDE TIE BREAKER IN MSP-06 MICRO GRID PV SYSTEM
PV OCPD SIZE: 60A AC DISCONNECT WITH 60A FUSE/MICRO GRID PV SYSTEM
NOTE: THE PROPOSED ARRAY LAYOUTS & SPECIFICATIONS ARE DESIGNED TO FIT THE EXISTING SITE CONDITIONS. SYSTEM SIZE, EQUIPMENT MANUFACTURER, CAPACITY AND LAYOUT MAY CHANGE AT THE TIME OF INSTALLATION SUBJECT TO SITE CONDITIONS OR PRODUCT AVAILABILITY.

ROOF SPECIFICATIONS:
ROOF TYPE: ASPHALT SHINGLE
ROOF CONDITION: FAIR
RE ROOFING: REQUIRED
RAFTERS: 4"x8" @ 24" O.C. - ROOF 1,2&5
2"x8" @ 24" O.C. - ROOF 3,4
SHEDDING:
1"x4" WOODEN PLANK WITH ASPHALT SHINGLES ROOF 1,2&5
12" PLYWOOD WITH ASPHALT SHINGLES ROOF 3,4

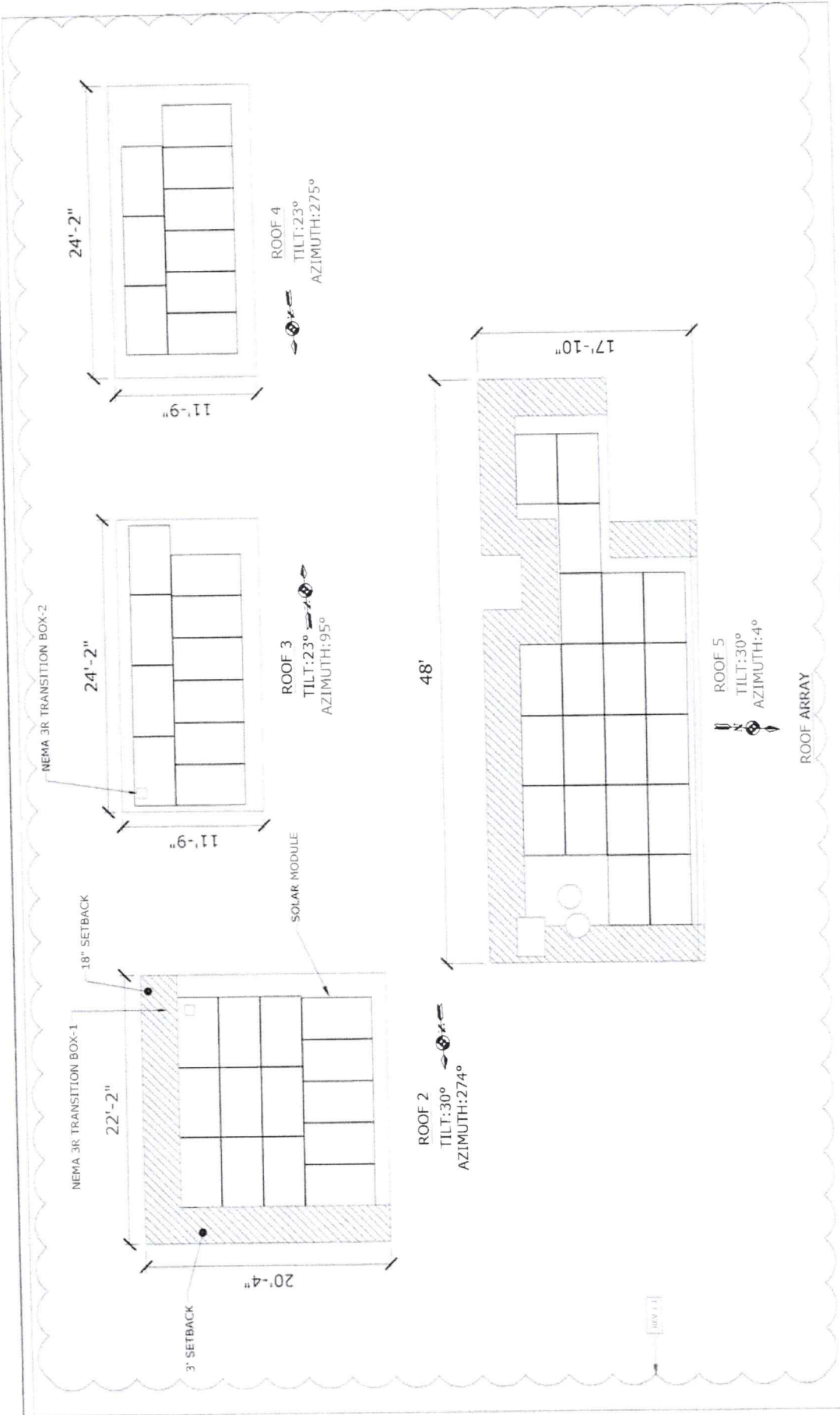
VICINITY MAP



REV	DESCRIPTION	DATE
1.0	ISSUED FOR PERMIT	11/14/2023
1.1	REVISED PER COMMENTS	11/14/2023

REVISIONS	DATE	BY	APP'D
1.0	11/14/2023	David J Tuzo	
1.1	11/14/2023	David J Tuzo	

PV-1.0



1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252		2253		2254		2255		2256		2257		2258		2259		2260		2261		2262		2263		2264		2265		2266		2267		2268		2269		2270		2271		2272		2273		2274		2275		2276		2277		2278		2279		2280		2281		2282		2283		2284		2285		2286		2287		2288		2289		2290		2291		2292		2293		2294		2295		2296		2297		2298		2299		2300		2301		2302		2303		2304		2305		2306		2307		2308		2309		2310		2311		2312		2313		2314		2315		2316		2317		2318		2319		2320		2321		2322		2323		2324		2325		2326		2327		2328		2329		2330		2331		2332		2333		2334		2335		2336		2337		2338		2339		2340		2341		2342		2343		2344		2345		2346		2347		2348		2349		2350		2351		2352		2353		2354		2355		2356		2357		2358		2359		2360		2361		2362		2363		2364		2365		2366		2367		2368		2369		2370		2371		2372		2373		2374		2375		2376		2377		2378		2379		2380		2381		2382		2383		2384		2385		2386		2387		2388		2389		2390		2391		2392		2393		2394		2395		2396		2397		2398		2399		2400		2401		2402		2403		2404		2405		2406		2407		2408		2409		2410		2411		2412		2413		2414		2415		2416		2417		2418		2419		2420		2421		2422		2423		2424		2425		2426		2427		2428		2429		2430		2431		2432		2433		2434		2435		2436		2437		2438		2439		2440		2441		2442		2443		2444		2445		2446		2447		2448		2449		2450		2451		2452		2453		2454		2455		2456		2457		2458		2459		2460		2461		2462		2463		2464		2465		2466		2467		2468		2469		2470		2471		2472		2473		2474		2475		2476		2477		2478		2479		2480		2481		2482		2483		2484		2485		2486		2487		2488		2489		2490		2491		2492		2493		2494		2495		2496		2497		2498		2499		2500		2501		2502		2503		2504		2505		2506		2507		2508		2509		2510		2511		2512		2513		2514		2515		2516		2517		2518		2519		2520		2521		2522		2523		2524		2525		2526		2527		2528		2529		2530		2531		2532		2533		2534		2535		2536		2537		2538		2539		2540		2541		2542		2543		2544		2545		2546		2547		2548		2549		2550		2551		2552		2553		2554		2555		2556		2557		2558		2559		2560		2561		2562		2563		2564		2565		2566		2567		2568		2569		2570		2571		2572		2573		2574		2575		2576		2577		2578		2579		2580		2581		2582		2583		2584		2585		2586		2587		2588		2589		2590		2591		2592		2593		2594		2595		2596		2597		2598		2599		2600		2601		2602		2603		2604		2605		2606		2607		2608		2609		2610		2611		2612		2613		2614		2615		2616		2617		2618		2619		2620		2621		2622		2623		2624		2625		2626		2627		2628		2629		2630		2631		2632		2633		2634		2635		2636		2637		2638		2639		2640		2641		2642		2643		2644		2645		2646		2647		2648		2649		2650		2651		2652		2653		2654		2655		2656		2657		2658		2659		2660		2661		2662		2663		2664		2665		2666		2667		2668		2669		2670		2671		2672		2673		2674		2675		2676		2677		2678		2679		2680		2681		2682		2683		2684		2685		2686		2687		2688		2689		2690		2691		2692		2693		26	

ROOF SPECIFICATIONS:
ROOF TYPE: ASPHALT SHINGLE
ROOF CONDITION: FAIR
RE ROOFING: REQUIRED
RAFTERS: 4"x8" @ 24" O.C.-ROOF
 2"x4" @ 24" O.C.-ROOF
SHEATHING:
 1"x4" WOODEN PLANK WITH AS
 1" 3" PLYWOOD WITH ASPHALT S

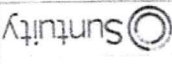
ELECTRICAL SPECIFICATIONS:
SERVICE PANEL DETAIL: MSP OF 2004 BUS BAR RATING WITH 200A MCB
INTERCONNECT METHOD: 100% TIGHTENING TORQUE
WIRE SIZE: 1" IN MPM-MICRO GRID PV SYSTEM
BACK FEEDER IN MPM-MICRO GRID PV SYSTEM
WIRE SIZE: 1/2" IN MPM-MICRO GRID PV SYSTEM
PV OC PD SIZE: 60A AC DISCONNECT WITH 60A BREAKER (NO GRID PV SYSTEM)
40A BACK FEED BREAKER (NO GRID PV SYSTEM)
NOTE: THE PROPOSED ARRAY LAYOUTS & SPECIFICATIONS ARE

BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES,
2 CIRCUITS OF 10 MODULES,
1 CIRCUIT OF 9 MODULES

INVERTER USED: ENPHASE IQ7 MICRO-INVERTER (77)
BATTERY: ENCHARGE 10 (2)
ENPHASE ENPOWERSMARTSWITCH (1)
RACKING: ECOFASTEN ROCK-IT

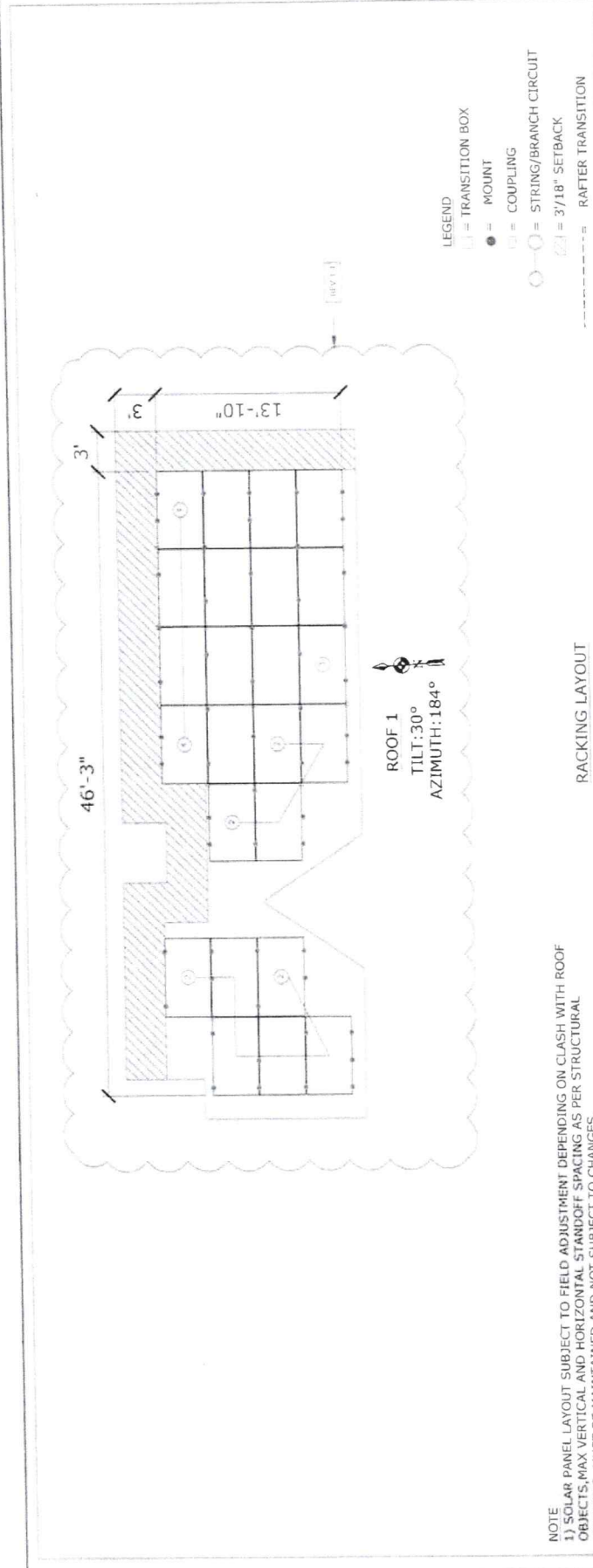
PROPOSED SYSTEM SPECIFICATIONS:
 SYSTEM SIZE: 10C SIZE: 26.95 KWP
 AC SIZE: 19.25 KW (@250VA MAX. CONTINUOUS POWER)
 : 18.48 KW (@240VA MAX. CONTINUOUS POWER)
 MODULE USED: LONGI LR4-60HPB-350M PANEL: QTY (77)
 54 PANELS ON ROOF AT 30° PITCH, 143° AZIMUTH (TRUE)
 54 PANELS ON ROOF AT 30° PITCH, 274° AZIMUTH (TRUE)

PV-1.1



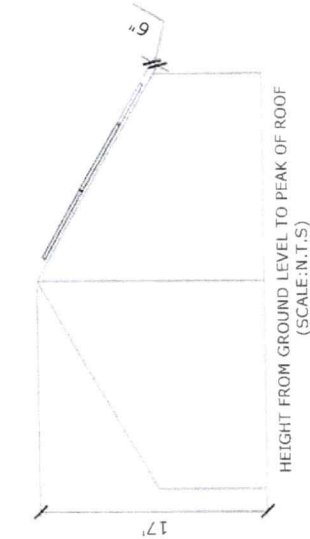
2187 Route 35
Holmdel, NJ 07733
Tel: (732) 979-2400
Fax: (732) 979-2401

David J Tuza
351 SW 80th St, Ocala,
FL 34476, USA
(Lat, Long : 29.107028, -82.139993)



NOTE
1) SOLAR PANEL LAYOUT SUBJECT TO FIELD ADJUSTMENT DEPENDING ON CLASH WITH ROOF OBJECTS, MAX VERTICAL AND HORIZONTAL STANDOFF SPACING AS PER STRUCTURAL ANALYSIS, MUST BE MAINTAINED AND NOT SUBJECT TO CHANGES.

RACKING LAYOUT



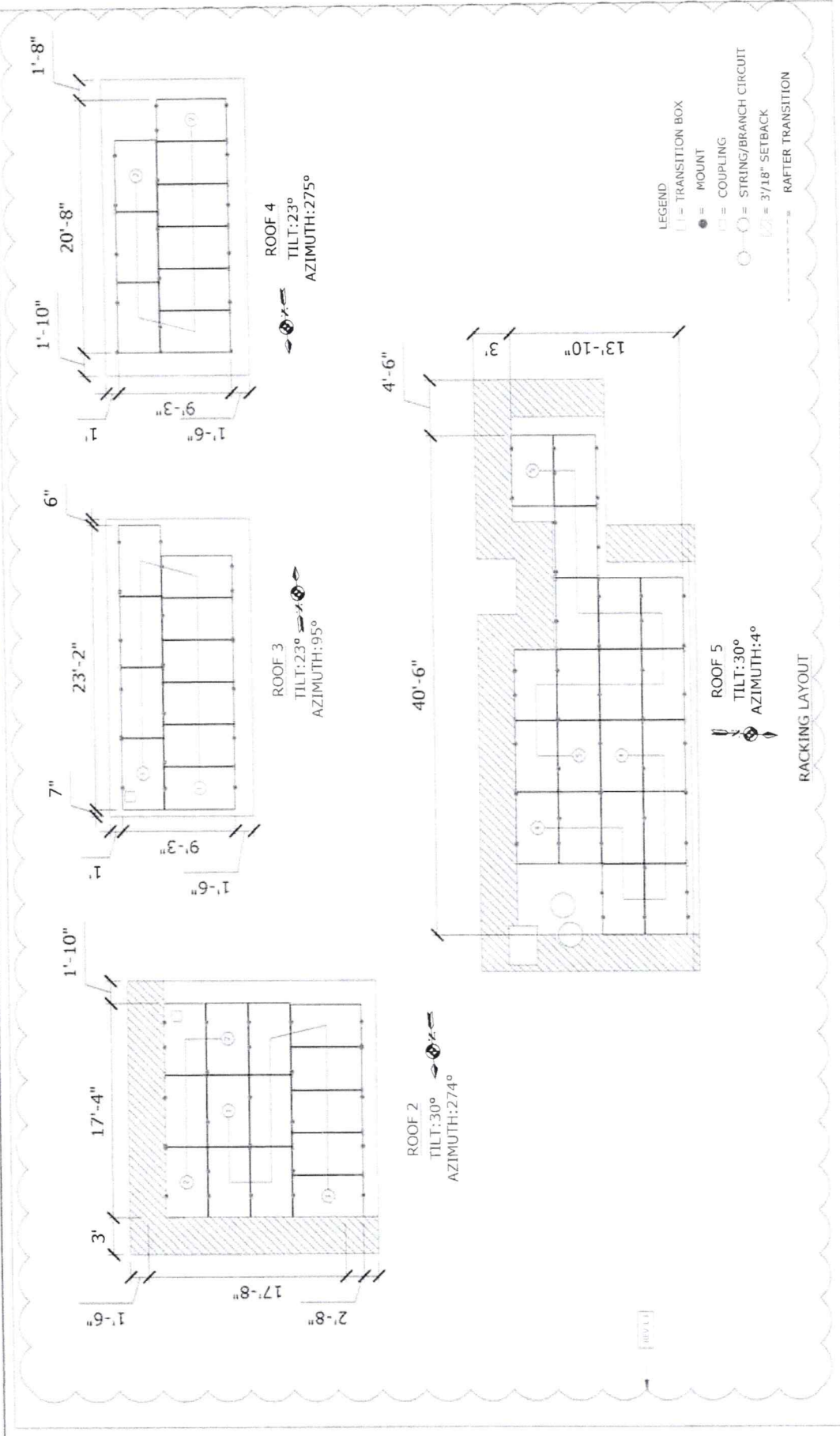
MOUNTING DETAIL

PROPOSED SYSTEM SPECIFICATIONS:		ELECTRICAL SPECIFICATIONS:		ROOF SPECIFICATIONS:	
SYSTEM SIZE: DC SIZE: 26.95 KW AC SIZE: 19.25 KW (60/250V MAX. CONTINUOUS POWER)		BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES, 2 CIRCUITS OF 10 MODULES, 1 CIRCUIT OF 9 MODULES		ROOF TYPE: ASPHALT SHINGLE ROOF CONDITION: FAIR	
MODUL: LONGITUDINAL PANEL, 60% (TRUE) 24 PANELS ON ROOF 1 AT 30° PITCH, 125° AZIMUTH (TRUE) 14 PANELS ON ROOF 2 AT 30° PITCH, 125° AZIMUTH (TRUE) 10 PANELS ON ROOF 3 AT 30° PITCH, 125° AZIMUTH (TRUE) 20 PANELS ON ROOF 4 AT 30° PITCH, 125° AZIMUTH (TRUE)		INVERTER USED: ENPHASE IQ7 MICROINVERTER (77) BATTERY: ENPHASE POWERWALL (11) ENPHASE ENPOWER SMARTSWITCH (11) RACKING: ECOFASTEN ROCK-IT FLASHING: COMPOSITION SHINGLE FLASHING		RAFTER CONDITION: REQUIRED RAFTERS: 4" x 8" @ 24" O.C. ROOF 1,2,3,5 2" x 4" @ 24" O.C. ROOF 3,4	
		PV DC PD SIZE: 60A AC DISCONNECT WITH 60A FUSES/MICRO GRID PV SYSTEM 40A BACKFEED BREAKER/MICRO GRID PV SYSTEM		SHEATHING: 1" x 4" WOODEN PLANK WITH ASPHALT SHINGLES/ROOF 1,2,3,5 12" PLYWOOD WITH ASPHALT SHINGLES/ROOF 3,4	
		LINE SIDE TAP IN ASPHALT MICRO GRID PV SYSTEM BACKFEED BREAKER IN ASPHALT MICRO GRID PV SYSTEM			
		INTERCONNECTION METHOD: SPLIT ENPHASE SYSTEM			
		200A MCB			
		PV DC PD SIZE: 60A AC DISCONNECT WITH 60A FUSES/MICRO GRID PV SYSTEM			
		40A BACKFEED BREAKER/MICRO GRID PV SYSTEM			
		NOTE: THE PROPOSED ARRAY LAYOUTS & SPECIFICATIONS ARE DESIGNED TO FIT THE EXISTING SITE CONDITIONS. SYSTEM SIZE, EQUIPMENT MANUFACTURER, QUANTITY AND LAYOUT MAY CHANGE AT THE TIME OF INSTALLATION SUBJECT TO SITE CONDITIONS OR PRODUCT AVAILABILITY.			

PV-2.0

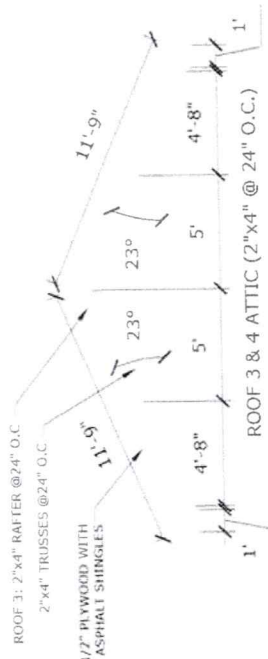
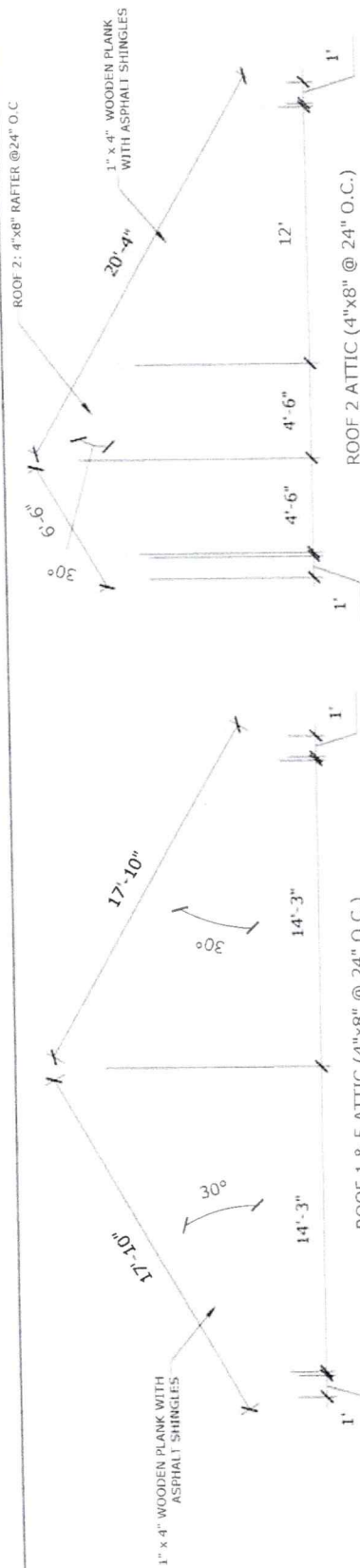
REVISIONS	DATE	BY	CHK	APP	DESCRIPTION

DATE	BY	CHK	APP	DESCRIPTION
07/17/2020	DAVID J TUZO			
07/17/2020	DAVID J TUZO			
07/17/2020	DAVID J TUZO			
07/17/2020	DAVID J TUZO			



PROPOSED SYSTEM SPECIFICATIONS	ELECTRICAL SPECIFICATIONS	ROOF SPECIFICATIONS
SYSTEM SIZE: DC SIZE: 36.95 KW POWER AC SIZE: 19.25 KW @ 240V WAVE POWER	BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES 2 CIRCUITS OF 40 MODULES 1 CIRCUIT OF 9 MODULES INVERTER USED: ENPHASE IQ7 MICRO-INVERTER (77) BATTERY: ENCHARGE 10 (2) ENPHASE ENPOWER SMARTSWITCH (1) RACKING: COMPOSITION SHINGLE FLASHING	ROOF TYPE: ASPHALT SHINGLE ROOF CONDITION: FAIR RE ROOFING: REQUIRED RAFTERS: 2"x8" @ 24" O.C. ROOF 1,2&5 2"x4" @ 24" O.C. ROOF 3,4 SHEATHING: 1"x4" WOODEN PLANK WITH ASPHALT SHINGLES ROOF 1,2&5 1/2" PLYWOOD WITH ASPHALT SHINGLES ROOF 3,4
MODULE USE: LONGI LR4-400P-60M PANEL QTY (77) 24 PANELS ON ROOF 1 AT 30° PITCH, 18° AZIMUTH (TRUE) 14 PANELS ON ROOF 2 AT 30° PITCH, 25° AZIMUTH (TRUE) 10 PANELS ON ROOF 3 AT 31° PITCH, 65° AZIMUTH (TRUE) 09 PANELS ON ROOF 4 AT 31° PITCH, 25° AZIMUTH (TRUE) 20 PANELS ON ROOF 5 AT 30° PITCH, 04° AZIMUTH (TRUE)	NOT: THE PROPOSED ARRAY LAYOUTS & SPECIFICATIONS ARE DESIGNED TO FIT THE EXISTING SITE CONDITIONS. SYSTEM SIZE, EQUIPMENT MANUFACTURER, QUANTITY AND LAYOUT MAY CHANGE AT THE TIME OF INSTALLATION SUBJECT TO SITE CONDITIONS OR PRODUCT AVAILABILITY.	

REVISIONS	DATE	BY	DESCRIPTION
1	07/17/2017	DAVID J. IUZO	INITIAL DESIGN
2	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
3	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
4	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
5	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
6	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
7	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
8	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
9	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
10	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
11	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
12	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
13	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
14	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
15	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
16	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
17	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
18	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
19	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
20	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
21	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
22	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
23	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
24	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
25	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
26	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
27	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
28	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
29	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST
30	07/17/2017	DAVID J. IUZO	REVISED PER CLIENT REQUEST



ATTIC DETAIL

GENERAL NOTES

- SOLAR PANELS SHALL NOT EXCEED ANY PART OF ROOF EDGE OR PEAK.

MODEL	MODULE SPECIFICATION
MODEL	LONG 60HP-350M
FORMAT	59.99" x 40.87" x 1.38" (INCLUDING FRAME)
WEIGHT	42.99 LBS
MAXIMUM ROOF SLOPE	1/2:12/12:12
MAX ANCHOR SPACING (35MM/40MM)	48"
MAX ANCHOR SPACING (32MM)	
MAX DOWNFORCE/UP/LIFT RATING	45 PSF
ROCK IT MOUNT LOAD RATING	547 LBS WITH SINGLE 3/16" LAG 3.0
MAXIMUM CANTILEVER IS 1/3	
BRACKET SPACING	

PV MODULE
WEIGHT = 42.99 LBS.
AREA = 69.09"x40.87" NOMINAL (19.61 SQ.FT.)

MODULE = 42.99 LBS. OVER 19.61 SQ.FT. = 2.31#/SQ.FT.

FOOT SPACING IS 48" O.C. ACROSS PANEL WIDTH WITH 2 ROWS PER MODULE

TYPICAL LAYOUT PROVIDES AN AVERAGE OF 1.6 FEET PER MODULE.

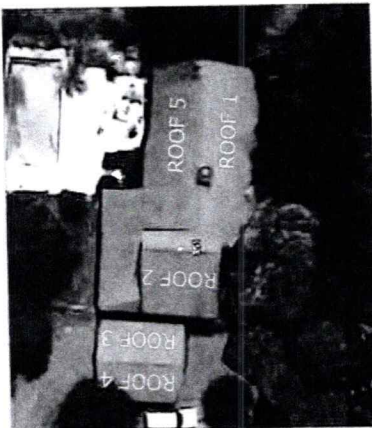
MODULE WEIGHT DISTRIBUTED PER MOUNTING FOOT =

42.99 LBS./1.6 FEET = 26.87 LBS./MTG. FOOT.

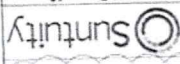
PROPOSED SYSTEM SPECIFICATIONS:	BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES, 2 CIRCUITS OF 10 MODULES, 1 CIRCUIT OF 9 MODULES
SYSTEM SIZE: DC SIZE: 36.95 KWP	
AC SIZE: 18.48 KW (60/240V MAX. CONTINUOUS POWER)	
MODULE USED: LONG 60HP-350M PANEL: QTY (77)	
21 PANELS ON ROOF 1 AT 30° PITCH, 184° AZIMUTH (TRUE)	
14 PANELS ON ROOF 2 AT 30° PITCH, 274° AZIMUTH (TRUE)	
10 PANELS ON ROOF 3 AT 23° PITCH, 895° AZIMUTH (TRUE)	
09 PANELS ON ROOF 4 AT 23° PITCH, 275° AZIMUTH (TRUE)	
30 PANELS ON ROOF 5 AT 30° PITCH, 004° AZIMUTH (TRUE)	
INVERTER USED: ENPHASE IQ7 MICRO-INVERTER (77)	
BATTERY: ENCHARGE 10 (2)	
RACKING: ENPOWER SMARTSWITCH (1)	
FLASHING: COMPOSITION SHINGLE FLASHING	

ELECTRICAL SPECIFICATIONS:
SERVICE PANEL DETAILS: MSP OF 200A BUS BAR RATING WITH 200A MCB
LINE-SIDE TAP IN MISPLUG (GRID PV SYSTEM)
INTERCONNECTION METHOD: DISCONNECT WITH 2 ROWS PER MODULE
BACKFEED BREAKER IN MICRO-GRID PV SYSTEM
PV OCPD SIZE: 60A AC DISCONNECT WITH 60A FUSE/SHOCK-PROOF PV SYSTEM
40A BACKFEED BREAKER IN MICRO-GRID PV SYSTEM
NOTE: THE PROPOSED ARRAY LAYOUTS & SPECIFICATIONS ARE DESIGNED TO FIT THE EXISTING SITE CONDITIONS. SYSTEM SIZE, EQUIPMENT MANUFACTURER, QUANTITY AND LAYOUT MAY CHANGE AT THE TIME OF INSTALLATION SUBJECT TO SITE CONDITIONS OR PRODUCT AVAILABILITY

ROOF SPECIFICATIONS:
ROOF TYPE: ASPHALT SHINGLE
ROOF CONDITION: FAIR
RE ROOFING: REQUIRED
RAFTERS: 2"x4" @ 24" O.C. ROOF 3,4
SHEATHING: 1"x4" WOODEN PLANK WITH ASPHALT SHINGLES (ROOF 1,2&5)
1"2" PLYWOOD WITH ASPHALT SHINGLES (ROOF 3,4)



KEY PLAN



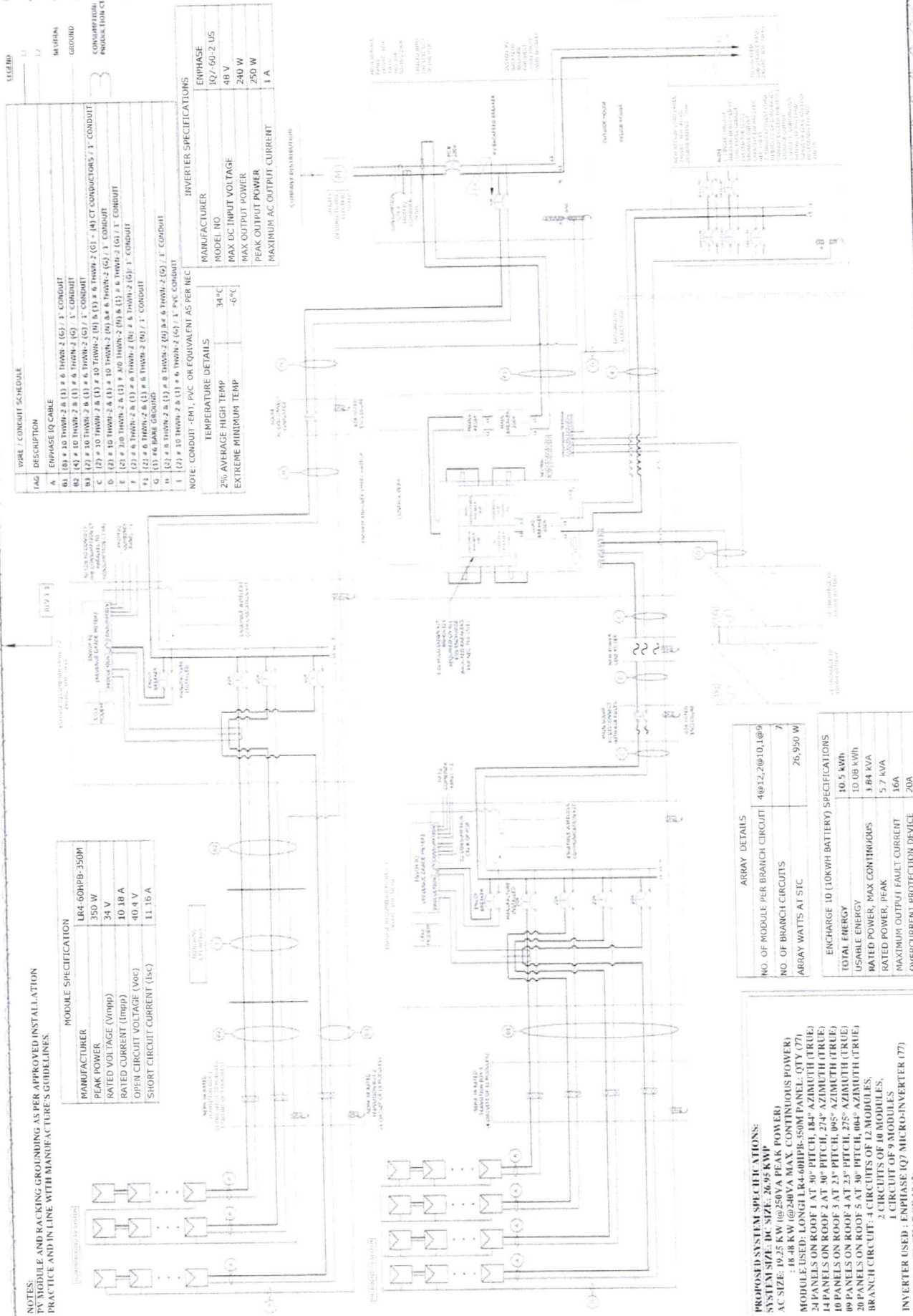
2137 Route 35
Holmdel, NJ 07733
Tel: (732) 979-2400
Fax: (732) 979-2401

David J Tuzo
351 SW 80th St, Ocala,
FL 34476, USA
(Tel: 1, Long: 29 107028, 81, 139993)

DRAWING TITLE
ELECTRICAL LINE
DIAGRAM

DATE: 04/11/2004
DRAWN BY: SLM
CHECKED BY: SLM
DESIGNED BY: SLM

PV-4.0



WIRE / CONDUIT SCHEDULE

TAG	DESCRIPTION
A	ENPHASE IQ7-60-2 US
B1	(4) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
B2	(4) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
B3	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
C	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
D	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
E	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
F	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
G	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
H	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
I	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
J	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
K	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
L	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
M	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
N	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
O	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
P	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
Q	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
R	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
S	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
T	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
U	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
V	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
W	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
X	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
Y	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT
Z	(2) # 10 THWN-2 (1) # 8 THWN-2 (G) / 1" CONDUIT

TEMPERATURE DETAILS

2% AVERAGE HIGH TEMP	34°C
EXTREME MINIMUM TEMP	-6°C

INVERTER SPECIFICATIONS

MANUFACTURER	MODEL NO.
ENPHASE	IQ7-60-2 US
MAX DC INPUT VOLTAGE	48 V
MAX OUTPUT POWER	240 W
PEAK OUTPUT POWER	250 W
MAXIMUM AC OUTPUT CURRENT	1 A

MODULE SPECIFICATION

MANUFACTURER	LR4-60HPB-350M
PEAK POWER	350 W
RATED VOLTAGE (Vmp)	34 V
RATED CURRENT (Imp)	10.18 A
OPEN CIRCUIT VOLTAGE (Voc)	40.4 V
SHORT CIRCUIT CURRENT (Isc)	11.16 A

NOTES:
1. PV MODULE AND RACKING: GROUNDING AS PER APPROVED INSTALLATION PRACTICE AND IN LINE WITH MANUFACTURE'S GUIDELINES.

ARRAY DETAILS

NO. OF MODULE PER BRANCH CIRCUIT	4@12.2@10.1@9.7
NO. OF BRANCH CIRCUITS	7
ARRAY WATTS AT STC	26,950 W

ENPHARGE 10 (10KWH BATTERY) SPECIFICATIONS

TOTAL ENERGY	10.5 kWh
USABLE ENERGY	10.08 kWh
RATED POWER, MAX CONTINUOUS	3.84 kVA
RATED POWER, PEAK	5.7 kVA
MAXIMUM OUTPUT FAULT CURRENT	16A
OVERCURRENT PROTECTION DEVICE	20A

PROPOSED SYSTEM SPECIFICATIONS:
SYSTEM SIZE: DC SIZE: 26.95 KWP
AC SIZE: 19.25 KW (10/250VA MAX. CONTINUOUS POWER)
MODULE USED: LONGI LR4-60HPB-350M PANEL: QTY (77)
24 PANELS ON ROOF 1 AT 30° PITCH, 184° AZIMUTH (TRUE)
14 PANELS ON ROOF 2 AT 30° PITCH, 274° AZIMUTH (TRUE)
10 PANELS ON ROOF 3 AT 23° PITCH, 995° AZIMUTH (TRUE)
20 PANELS ON ROOF 4 AT 23° PITCH, 275° AZIMUTH (TRUE)
20 PANELS ON ROOF 5 AT 30° PITCH, 604° AZIMUTH (TRUE)
BRANCH CIRCUIT: 4 CIRCUITS OF 12 MODULES,
1 CIRCUIT OF 9 MODULES,
1 CIRCUIT OF 9 MODULES
INVERTER USED: ENPHASE IQ7 MICRO-INVERTER (77)
BATTERY: ENPHARGE 10 (2)
ENPHASE ENPOWER SMARTSWITCH (1)

GENERAL ELECTRICAL NOTES:

- EQUIPMENT USED SHALL BE NEW AND "UL" LISTED AND SHALL BE INSTALLED AS PER MANUFACTURERS INSTALLATION MANUAL.
- EQUIPMENT SHALL BE INSTALLED PROVIDING ADEQUATE PHYSICAL WORKING SPACE AROUND THE EQUIPMENT AND SHALL COMPLY WITH NEC.
- COPPER CONDUCTORS SHALL BE USED AND SHALL BE SIZED NOT TO EXCEED THE TEMPERATURE RATING OF THEIR INSULATION OR OF THE EQUIPMENT TO WHICH THEY ARE CONNECTED.
- CONDUCTORS SHALL BE SIZED IN ACCORDANCE TO NEC. CONDUCTORS AMPACITY SHALL BE DE-RATED FOR TEMPERATURE CHANGE, CONDUIT FILL AND VOLTAGE DROP.
- ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A NEMA 3R RATING.
- EXPOSED NON-CURRENT CARRYING METAL PARTS SHALL BE GROUNDED AS PER NEC.
- LOAD / LINE SIDE INTER-CONNECTION SHALL COMPLY WITH NEC.
- ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS.
- ALL SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT PV SYSTEM SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC.
- ALL CURRENT CARRYING CONDUCTORS SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO SUNLIGHT.
- FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP. FLEXIBLE CONDUIT / NM CABLE SHALL BE USED INSIDE THE ATTIC IF REQUIRED.
- CONDUIT TYPE / SIZE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL REQUIREMENTS.
- ALL PORTIONS OF THE PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH NEC ARTICLE 690.
- THE ENPHASE MICROINVERTER MODEL IQ 7 DO NOT REQUIRE GROUNDING ELECTRODE CONDUCTORS (GEC) OR EQUIPMENT GROUNDING CONDUCTORS (EGC). THE MICROINVERTER HAS A CLASS II DOUBLE-INSULATED RATING, WHICH INCLUDES GROUND FAULT PROTECTION (GFP).
- CT CONDUCTORS TO BE INSTALLED AS PER MANUFACTURER'S INSTALLATION GUIDELINES. DO NOT TRIM CT CONDUCTORS

CALCULATIONS:

1. CURRENT CARRYING CONDUCTOR

(A) BEFORE IQ COMBINER PANEL
 AMBIENT TEMPERATURE - 34°C
 TEMPERATURE DERATE FACTOR - 0.96 ...NEC 310.15(B)(2)(a)
 GROUPING FACTOR - 0.8 ...NEC 310.15(B)(3)(a)

CONDUCTOR AMPACITY

= (INV O/P CURRENT) x L25 / A.T.F / G.F ...NEC 690.8(B)
 = $(12 \times 1) \times 1.25 / 0.96 / 0.8$

= 19.53A

SELECTED CONDUCTOR - #10 THWN-2 ...NEC 310.15(B)(16)

(B) AFTER IQ COMBINER PANEL (MICRO GRID)

TEMPERATURE DERATE FACTOR - 0.96

GROUPING FACTOR - 1

CONDUCTOR AMPACITY

= (TOTAL INV O/P CURRENT) x L25 / A.T.F / G.F ...NEC 690.8(B)

= $(12 \times 1) \times 1.25 / 0.96 / 1$

= 62.50A

SELECTED CONDUCTOR - #6 THWN-2 ...NEC 310.15(B)(16)

2.(A) PV OVER CURRENT PROTECTION (MICRO GRID) ...NEC 690.9(B)

= TOTAL INVERTER O/P CURRENT x L25

= $(48 \times 1) \times 1.25 = 60A$

= SELECTED OCPD = 60A ...NEC 240.6

2.(B) PV OVER CURRENT PROTECTION (NON-MICRO GRID) ...NEC 690.9(B)

= TOTAL INVERTER O/P CURRENT x L25

= $(29 \times 1) \times 1.25 = 36.25A$

= SELECTED OCPD = 40A ...NEC 240.6

(B) AFTER IQ COMBINER PANEL (NON-MICRO GRID)

TEMPERATURE DERATE FACTOR - 0.96

GROUPING FACTOR - 1

CONDUCTOR AMPACITY

= (TOTAL INV O/P CURRENT) x L25 / A.T.F / G.F ...NEC 690.8(B)

= $(29 \times 1) \times 1.25 / 0.96 / 1$

= 37.76A

SELECTED CONDUCTOR - #8 THWN-2 ...NEC 310.15(B)(16)

PROPOSED SYSTEM SPECIFICATIONS:

SYSTEM SIZE: DC SIZE: 36.95 KWP
 AC SIZE: 19.25 KW (@250VA MAX. CONTINUOUS POWER)
 : 18.48 KW (@240VA MAX. CONTINUOUS POWER)
 MODULE USED: LONGI LR4-60HP-350M PANEL - QTY (77)
 24 PANELS ON ROOF 1 AT 30° PITCH, 184° AZIMUTH (TRIE)
 14 PANELS ON ROOF 2 AT 30° PITCH, 274° AZIMUTH (TRIE)
 10 PANELS ON ROOF 3 AT 23° PITCH, 095° AZIMUTH (TRIE)
 09 PANELS ON ROOF 4 AT 23° PITCH, 004° AZIMUTH (TRIE)
 20 PANELS ON ROOF 5 AT 30° PITCH, 004° AZIMUTH (TRIE)
 BRANCH CIRCUIT: 4 CIRCUITS OF 13 MODULES,
 2 CIRCUITS OF 10 MODULES,
 1 CIRCUIT OF 9 MODULES

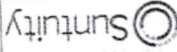
INVERTER USED: ENPHASE IQ7 MICRO-INVERTER (77)

BATTERY: ENCHARGE 10 (2)

ENPHASE ENPOWER SMARTSWITCH (1)

DATE: 03/17/2024
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 DESIGNED BY: [Signature]

PV-4.1



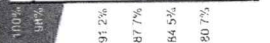
2137 Route 35
 Holmdel, NJ 07733
 Tel: (732) 979-2400
 Fax: (732) 979-2401

David J Tuzo
 351 SW 80th St, Ocala,
 FL 34476, USA
 (Lat, Long: 29.107028, -82.139993)

345~370M

Half-cut Technology

25-year Warranty for Extra Linear Power Output



Complete System and Product Certifications

positive power tolerance ($\sim +5\text{V}$) guaranteed

High module conversion efficiency (up to 20.3%)

0-55% 4/23/2-75

SOLID FILT RESISTANCE (in % of total area) $\times 100$ (mm)

code (C/F)

Reduced resistive loss with lower operating current.

Higher energy yield with lower operating temperature

Reduced hot spot risk with optimized electrical design and lower operating current

LONG

SAFETY AND EFFICACY OF THE 10-VALUED VACCINE

The high-powered smart grid-ready Enphase IQ 7 Micro™ and Enphase IQ 7+ Micro™ dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

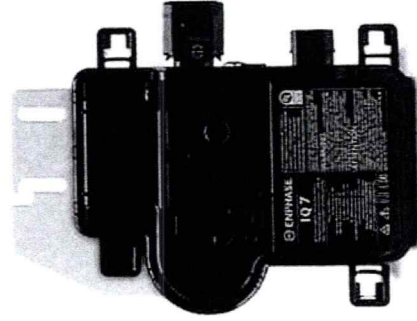
Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules



To learn more about Enphase offerings, visit enphase.com

Enphase Enpower

MODEL NUMBER	
EP200G10T-M240US00	Enphase Enpower smart switch with neutral-forming transformer (NFT), Microgrid Interconnect Device (MID), breakers, and screws. Streamlines grid-independent capabilities of PV and storage installations

ACCESSORIES and REPLACEMENT PARTS

XA-E3 PCB&A ENS	Replace Enpower controller printed circuit board
EP200G NA HD-200A	Eaton type BR circuit breaker hold-down screw kit, BRHDK125
EP200G-HNDL-R1	Enpower installation handle kit (order separately)
Circuit breakers (as needed) ^{2, 3}	
BRK-100A-2P-240V	Not included, must order separately:
BRK-125A-2P-240V	• Main breaker, 2 pole, 100A, 25KAIC, CSR2100
BRK-150A-2P-240V	• Main breaker, 2 pole, 125A, 25KAIC, CSR2125N
BRK-175A-2P-240V	• Main breaker, 2 pole, 150A, 25KAIC, CSR2150N
BRK-200A-2P-240V	• Main breaker, 2 pole, 175A, 25KAIC, CSR2175N
BRK-200A-2P-240V/B	• Main breaker, 2 pole, 200A, 25KAIC, CSR2200N
BRK-30A-2P-240V/B	• Circuit breaker, 2 pole, 20A, 10KAIC, BR220B
BRK-30A-2P-240V	• Circuit breaker, 2 pole, 30A, 10KAIC, BR230B
BRK-40A-2P-240V	• Circuit breaker, 2 pole, 40A, 10KAIC, BR240B
BRK-60A-2P-240V	• Circuit breaker, 2 pole, 60A, 10KAIC, BR260
BRK-80A-2P-240V	• Circuit breaker, 2 pole, 80A, 10KAIC, BR280

ELECTRICAL SPECIFICATIONS

Assembly rating	Continuous operation at 100% of its rating
Nominal voltage / range (L-L)	240 VAC / 100 - 310 VAC
Voltage measurement accuracy	±1% V nominal (±1 2V L-N and ±2.4V L-L)
Auxiliary contact for load control and excess PV control	24V, 1A
Nominal frequency / range	60 Hz / 56 - 63 Hz
Frequency measurement accuracy	10 1 Hz
Maximum continuous current rating	160A
Maximum input overcurrent protection device	200A
Maximum output overcurrent protection device	200A
Maximum overcurrent protection device rating for storage branch circuit ⁴	80A
Maximum overcurrent protection device rating for PV combiner branch circuit ⁴	80A
Neutral Forming Transformer (NFT)	• Breaker rating (pre-installed): 40A between L1 and Neutral, 40A between L2 and Neutral
	• Continuous rated power: 3600VA
	• Maximum continuous unbalance current: 30A @ 120V
	• Peak rated power: 9800VA for 30 seconds
	• Peak unbalanced current: 80A @ 120V for 30 seconds

MECHANICAL DATA

Dimensions (WxHxD)	50cm x 91.6cm x 24.6cm (19.7 in x 36 in x 9.7 in)
Weight	38.5 kg (85 lbs)
Ambient temperature range	-40° C to +50° C (-40° F to 122° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction
Altitude	To 2500 meters (8200 feet)

WIRE SIZES

Connections (All lugs are rated to 90C)	• Main lugs and backup load lugs • CSR breakers • BR breakers (wire provided) • AC combiner lugs, Encharge lugs, and generator lugs • Neutral (large lugs) Large holes (S16-24 UNF) Small holes (10-32 UNF)
Neutral and ground bars	CU/AL 1 AWG - 300 KCMIL CU/AL 2 AWG - 300 KCMIL 6 AWG 14 AWG - 3 AWG CU/AL 6 AWG - 500 KCMIL 14 AWG - 110 AWG 14 AWG - 6 AWG

COMPLIANCE

Compliance	UL 1741, UL 1741 SA, UL 1741 PCB, UL 1998, UL 859A, UL 67, UL 508, UL 60T ² CSA 22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003, A0156
	² Compatible with BRHDK125 Hold-Down Kit to comply with NEC 710.154 for back-fed circuit breakers
	³ The Enpower is rated 22 kAIC.
	⁴ Not included. Installer must provide properly rated breakers per circuit breaker list above.
	⁵ Sections from these standards were used during the safety evaluation and included in the UL 1741 listing

To learn more about Enphase offerings, visit enphase.com



Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US		IQ7PLUS-72-2-US / IQ7PLUS-72-B-US	
	235 W - 350 W +	235 W - 440 W +	235 W - 440 W +	235 W - 440 W +
Commonly used module pairings ¹	60-cell PV modules only	60-cell PV modules only	60-cell PV modules only	60-cell PV modules only
Module compatibility	48 V	48 V	48 V	48 V
Maximum input DC voltage	27 V - 37 V	27 V - 37 V	27 V - 45 V	27 V - 45 V
Peak power tracking voltage	16 V - 48 V	16 V - 48 V	16 V - 60 V	16 V - 60 V
Operating range	22 V / 48 V	22 V / 48 V	22 V / 60 V	22 V / 60 V
Min/Max start voltage	15 A	15 A	15 A	15 A
Max DC short circuit current (module Isc)	II	II	II	II
Overvoltage class DC port	0 A	0 A	0 A	0 A
DC port backfeed current	1 x 1 ungrounded array. No additional DC side protection required.	1 x 1 ungrounded array. No additional DC side protection required.	1 x 1 ungrounded array. No additional DC side protection required.	1 x 1 ungrounded array. No additional DC side protection required.
PV array configuration	AC side protection requires max 20A per branch circuit	AC side protection requires max 20A per branch circuit	AC side protection requires max 20A per branch circuit	AC side protection requires max 20A per branch circuit
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
	250 VA	295 VA	250 VA	295 VA
Peak output power	240 VA	240 VA	240 VA	240 VA
Maximum continuous output power	240 V /	208 V /	240 V /	208 V /
Nominal (L-L) voltage/range ²	211-264 V	183-229 V	211-264 V	183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.0 A (240 V)	1.15 A (208 V)
Nominal frequency	60 Hz	60 Hz	60 Hz	60 Hz
Extended frequency range	47 - 68 Hz	47 - 68 Hz	47 - 68 Hz	47 - 68 Hz
AC short circuit fault current over 3 cycles	5.8 Arms	5.8 Arms	5.8 Arms	5.8 Arms
Maximum units per 20 A (L-L) branch circuit ³	16 (240 VAC)	13 (208 VAC)	16 (240 VAC)	13 (208 VAC)
Overvoltage class AC port	III	III	III	III
AC port backfeed current	0 A	0 A	0 A	0 A
Power factor setting	1.0	1.0	1.0	1.0
Power factor (adjustable)	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging
EFFICIENCY	@240 V		@208 V	
	97.6 %	97.6 %	97.5 %	97.3 %
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA	-40°C to +65°C		-40°C to +65°C	
	4% to 100% (condensing)		4% to 100% (condensing)	
Ambient temperature range	MC4 (or Amphipol H4 UTX with additional Q-DCC-5 adapter)		MC4 (or Amphipol H4 UTX with additional Q-DCC-5 adapter)	
Relative humidity range	Friends PV2 (MC4 interchangeable)		Friends PV2 (MC4 interchangeable)	
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	Adaptors for modules with MC4 or UTX connectors:		Adaptors for modules with MC4 or UTX connectors:	
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	- PV2 to MC4: order ECA-S20-S22		- PV2 to UTX: order ECA-S20-S25	
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)		212 mm x 175 mm x 30.2 mm (without bracket)	
Weight	1.08 Kg (2.38 lbs)		1.08 Kg (2.38 lbs)	
Cooling	Natural convection - No fans		Natural convection - No fans	
Approved for wet locations	Yes		Yes	
Pollution degree	PD3		PD3	
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environmental category / UV exposure rating	NEMA Type 6 / outdoor		NEMA Type 6 / outdoor	
FEATURES	Power Line Communication (PLC)		Power Line Communication (PLC)	
	Enlighten Manager and MyEnlighten monitoring options		Enlighten Manager and MyEnlighten monitoring options	
Monitoring	Both options require installation of an Enphase IQ Envoy		Both options require installation of an Enphase IQ Envoy	
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690		The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690	
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA C22.2 NO. 107.1-01		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	

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>
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

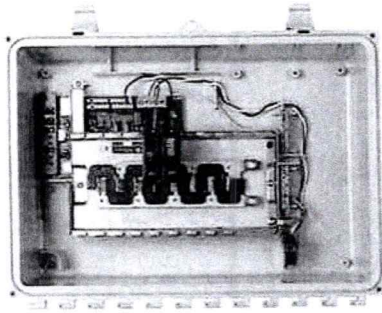
To learn more about Enphase offerings, visit enphase.com

© 2018 Enphase Energy. All rights reserved. All trademarks and/or registered trademarks are the property of Enphase Energy, Inc.
2018-05-24



Enphase IQ Combiner 3 (X-IQ-AM1-240-3)

The Enphase IQ Combiner 3" with Enphase IQ Envoys® consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly



Smart

- Includes IQ Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring

Simple

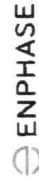
- Reduced size from previous combiner
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year warranty
- UL listed



To learn more about Enphase offerings, visit enphase.com



Enphase IQ Combiner 3

MODEL NUMBER

IQ Combiner 3 X-IQ-AM1-240-3

IQ Combiner 3 with Enphase IQ Envoys® provides circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional consumption metering (+/- 2.5%)

ACCESSORIES and REPLACEMENT PARTS

Enphase Mobile Connect™
CELLMODEM-03 (4G / 12-year data plan)
CELLMODEM-01 (3G / 5-year data plan)
CELLMODEM-M1 (4G based LTE-M / 5-year data plan)

Consumption Monitoring CT

CT-200-SPLIT

Circuit Breakers

BRK-10A-2-240

BRK-15A-2-240

BRK-20A-2P-240

EPLC-01

XA-PLUG-120-3

XA-ENV-PCBA-3

Plug and play industrial grade cellular modem with data plan 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)

Split core current transformers enable whole home consumption metering (+/- 2.5%)

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

Power line carrier (communication bridge pair), quantity 2

Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)

Replacement IQ Envoys printed circuit board (PCB) for Combiner 3

ELECTRICAL SPECIFICATIONS

Rating

Continuous duty

120/240 VAC, 60 Hz

System voltage

125 A

Eaton BR series busbar rating

65 A

Max. continuous current rating (output to grid)

90 A

Max. fuse/circuit rating (output)

Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)

Branch circuits (polar and/or storage)

64 A

Max. continuous current rating (input from PV)

80 A of distributed generation / 90 A with IQ Envoys breaker included

Max. total branch circuit breaker rating (input)

200 A solid core pre-installed and wired to IQ Envoys

Production Metering CT

MECHANICAL DATA

Dimensions (WxHxD)

49.5" x 37.5" x 19.8 cm (19.5" x 14.75" x 6.63") Height H: 21.06" (53.5 cm with mounting brackets)

Weight

75 kg (165 lbs)

Ambient temperature range

-40° C to +48° 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 to grid input: 4 to 10 AWG copper conductors

• Main bus conductor output: 10 to 250 AWG copper conductors

• Neutral and ground: 14 to 100 copper conductors

Always follow local code requirements for suitable for wiring

To 2000 meters (6,560 feet)

Altitude

INTERNET CONNECTION OPTIONS

Integrated Wi-Fi

802.11b/g/n

Ethernet

Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)

Cellular

Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) or CELLMODEM-M1 (4G based LTE-M) (not included)

COMPLIANCE

Compliance, Combiner

UL 1741

CAN/CSA C22.2 No. 1071

47 CFR, Part 15, Class B, ICES 003

Production metering: ANSI C12.20 accuracy class 0.5 (PV production)

UL 60601-1/IEC60601-1

UL 61010-1

Compliance, IQ Envoys

• Consumption monitoring is required for Enphase Storage Systems

To learn more about Enphase offerings, visit enphase.com

ENPHASE



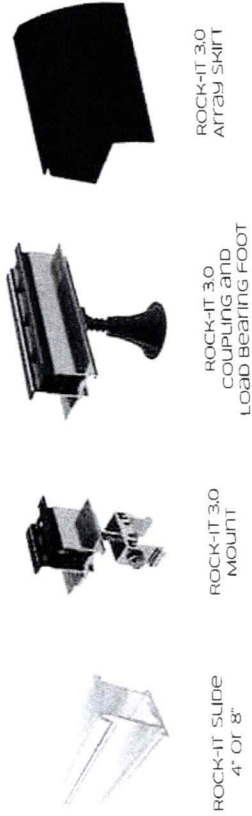
ROCK-IT SYSTEM 3.0

Designed with the installer in mind, EcoFasten Solar specializes in solar roof attachments that are fast and easy to install, straightforward, secure and cost-effective. EcoFasten offers a wide variety of standard products as well as custom solutions, for a one-stop source for all of your rooftop anchoring needs. Products are rigorously tested and approved above and beyond industry standards in-house and by third party agencies. EcoFasten's patented conical sealing system has been in service in the snow guard and solar industries for over two decades.

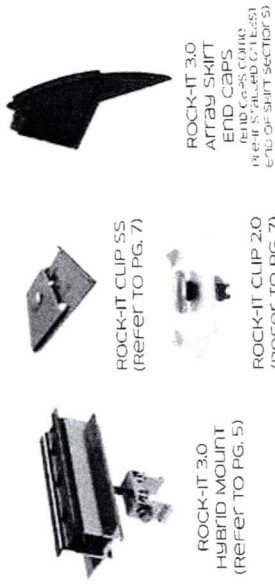
FEATURES

- New and improved design
- Fastest, easiest to level system on the market
- Integrated electrical bonding
- SIMPLE- only 4 components
- North-South adjustability
- Only one tool required (1/2" deep well socket)
- Vertical adjustment of 3'-4"

SYSTEM COMPONENTS* - REQUIRED



SYSTEM COMPONENTS* - OPTIONAL



EcoFasten Solar products are protected by the following U.S. Patents:
8,151,522 8,153,700 8,181,398 8,166,713 8,146,299
8,209,914 8,245,454 8,272,174 8,225,557 9,010,038
9,134,040 9,175,478 9,212,833

www.ecofastensolar.com

info@ecofastensolar.com

877-859-3947

1

SolaDeck

FLASHED PV ROOF-MOUNT COMBINER/ENCLOSURE

Basic Features

- Stamped Seamless Construction
- 18 Gauge Galvanized Steel
- Powder Coated Surfaces
- Flashes into the roof deck
- 3 Roof deck knockouts .5", .75", 1"
- 5 Centering dimples for entry/exit fittings or conduit
- 2 Position Ground lug installed
- Mounting Hardware Included

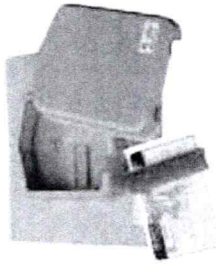


SolaDeck Model SD 0783

SolaDeck UL50 Type 3R Enclosures

Available Models:

- Model SD 0783 - (3" fixed Din Rail)
- Model SD 0786 - (6" slotted Din Rail)



SolaDeck UL 1741 Combiner/Enclosures

Models SD 0783-41 and SD 0786-41 are labeled and ETL listed UL STD 1741 according to the UL STD 1741 for photovoltaic combiner enclosures.
Max Rated - 600VDC, 120AMPS



Model SD 0783-41 3" Fixed Din Rail fastened using Norlock System

**Typical System Configuration

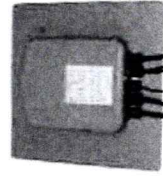
- 4- Din Rail Mounted Fuse Holders 600VDC 30 AMP
- 1- Power Distribution Block 600VDC 175AMP
- 1- Bus Bar with UL lug

Model SD 0786-41 6" Slotted Din Rail fastened using steel studs

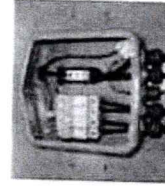
**Typical System Configuration

- 4- Din Rail Mounted Fuse Holders 600VDC 30 AMP
- 4- Din Rail Mounted Terminal Blocks
- Bus Bars with UL lug

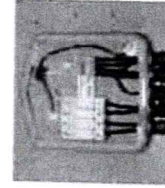
**Fuse holders and terminal blocks added in the field must be UL listed or recognized and meet 600 VDC 30 AMP 110C for fuse holders, 600V 50 AMP 90C for rail mounted terminal blocks and 600 V 175 AMP 90C for Power Distribution Blocks Use Copper Wire Conductors



Cover is trimmed to allow conduit or fittings, base is center dimpled for fitting locations.



Model SD 0783-41, wired with Din Rail mounted fuse holders, bus bar and power distribution block

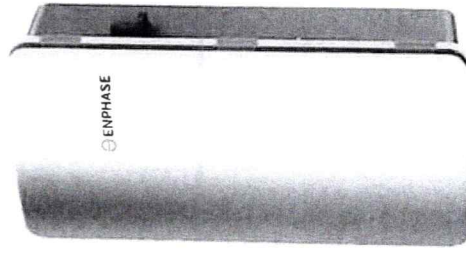


Model SD 0786-41, wired with Din Rail mounted fuse holders, terminal blocks and bus bars.

RSTC Enterprises, Inc • 2219 Heimstead Road • Eau Claire, WI 54703
For product information call 1(866) 367-7782

Enphase Enpower

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



Reliable

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

Smart

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

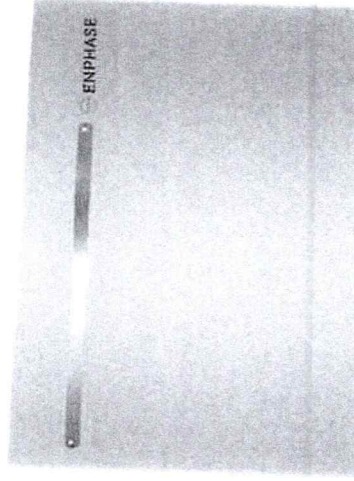
Simple

- Connects to the load or service equipment¹ side of the main load panel
- Centered mounting brackets support single stud mounting
- Supports conduit entry from the bottom, bottom left side, and bottom right side
- Supports whole home and partial home backup and subpanel backup
- Up to 200A main breaker support
- Includes neutral-forming transformer for split phase 120/240V backup operation

¹ Enpower is not suitable for use as service equipment in Canada

Enphase Encharge 10

The Enphase Encharge 10™ all-in-one AC-coupled storage system is **reliable, smart, simple, and safe**. It is comprised of three base Encharge 3™ storage units, has a total usable energy capacity of 10.08 kWh and twelve embedded grid-forming microinverters with 3.84 kW power rating. It provides backup capability and installers can quickly design the right system size to meet the needs of both new and retrofit solar customers.



Reliable

- Proven high reliability IQ Series Microinverters
- Ten-year limited warranty
- Three independent Encharge storage base units
- Twelve embedded IQ 8X-BAT Microinverters
- Passive cooling (no moving parts/fans)

Smart

- Grid-forming capability for backup operation
- Remote software and firmware upgrade
- Mobile app-based monitoring and control
- Support for self consumption
- Utility time of use (TOU) optimization

Simple

- Fully integrated AC battery system
- Quick and easy plug-and-play installation
- Interconnects with standard household AC wiring

Safe

- Cells safety tested
- Lithium iron phosphate (LFP) chemistry for maximum safety and longevity

Enphase Encharge 10

MODEL NUMBER ENCHARGE-10-1P-NA		Encharge 10 battery storage system with integrated Enphase Microinverters and battery management unit (BMU). Includes: - Three Encharge 3.36 kWh base units (B03-A01-US00-1-3) - One Encharge 10 cover kit with cover, wall mounting bracket, watertight conduit hubs, and interconnect kit for wiring between batteries (B10-C-1050-0)
ACCESSORIES ENCHARGE-HNDL-R1	One set of Encharge base unit installation handles	
OUTPUT (AC)	@ 240 VAC ¹	
Rated (continuous) output power	3.84 kVA	
Peak output power	5.7 kVA (10 seconds)	
Nominal voltage / range	240 / 211 – 264 VAC	
Nominal frequency / range	60 / 57 – 61 Hz	
Rated output current	16 A	
Peak output current	24.6A (10 seconds)	
Power factor (adjustable)	0.85 leading ... 0.85 lagging	
Maximum units per 20 A branch circuit	1 unit (single phase)	
Interconnection	Single-phase	
Maximum AC short circuit fault current over 3 cycles	69.6 Arms	
Round trip efficiency ²	89%	
BATTERY		
Total capacity	10.5 kWh	
Usable capacity	10.08 kWh	
Round trip efficiency	96%	
Nominal DC voltage	67.2 V	
Maximum DC voltage	73.5 V	
Ambient operating temperature range	-15° C to 55° C (5° F to 131° F) non-condensing	
Optimum operating temperature range	0° C to 30° C (32° F to 86° F)	
Chemistry	Lithium iron phosphate (LFP)	
MECHANICAL DATA		
Dimensions (WxHxD)	1070 mm x 664 mm x 319 mm (42.13 in x 26.14 in x 12.56 in)	
Weight	Three individual 44.2 kg (97.4 lbs) base units plus 21.1 kg (48.7 lbs) cover and mounting bracket, total 154.7 kg (341 lbs)	
Enclosure	Outdoor – NEMA type 3R	
IQ 8X-BAT microinverter enclosure	NEMA type 6	
Cooling	Natural convection – No fans	
Altitude	Up to 2500 meters (8200 feet)	
Mounting	Wall mount	
FEATURES AND COMPLIANCE		
Compatibility	Compatible with grid-tied PV systems. Compatible with Enphase M215/M250 and IQ Series Micros, Enphase Envoy, and Enphase IQ Envoy for backup operation	
Communication	Wireless 2.4 GHz	
Services	Backup, self-consumption, TOU, Demand Charge, NEM Integrity	
Monitoring	Enlighten Manager and MyEnlighten monitoring options; API integration	
Compliance	UL 9540, UN 38.3, UL 9540A, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell Module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2, UL 1741SA, CAN/CSA C22.2 No. 1071-16, and IEEE 1547	
LIMITED WARRANTY		
Limited Warranty ³	>70% capacity, up to 10 years or 4000 cycles	
1. Supported in backup/off grid operations 2. AC to Battery to AC at 50% power rating 3. Where both capacity and performance apply.		

To learn more about Enphase offerings, visit enphase.com

© 2021 Enphase Energy. All rights reserved. Enphase, the Enphase logo, Encharge 10, and other trademarks or service names are the trademarks of Enphase Energy, Inc. Data subject to change. 2021.03.01



ENPHASE



Powering Business Worldwide

pe.eaton.com

Eaton general duty cartridge fuse safety switch

DG222NRB

UPC:78211314221

Dimensions:

- Height: 14.38 IN
- Length: 14.8 IN
- Width: 9.7 IN

Weight: 10 LB

Notes: Maximum hp ratings apply only when dual element fuses are used. 3-Phase hp rating shown is a grounded B phase rating, UL listed.

Warranties:

- Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

Specifications:

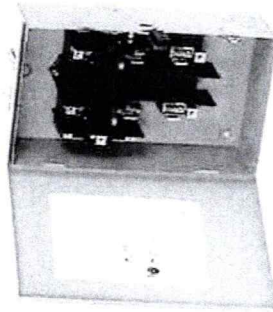
- Type: General duty, cartridge fused
- Amperage Rating: 60A
- Enclosure: NEMA 3R
- Enclosure Material: Painted galvanized steel
- Fuse Class Provision: Class H fuses
- Fuse Configuration: Fusible with neutral
- Number Of Poles: Two-pole
- Number Of Wires: Three-wire
- Product Category: General duty safety switch
- Voltage Rating: 240V

Supporting documents:

- Eatons Volume 2-Commercial Distribution
- Eaton Specification Sheet - DG222NRB

Certifications:

- UL Listed



Product compliance: No Data

© 2016 Eaton. All rights reserved.

TITLE	FOR SIGNATURES - Application for Interconnection of.....
FILE NAME	17284.original
DOCUMENT ID	fe8d0181fa494e990c23fe11b68df0b17b800999
AUDIT TRAIL DATE FORMAT	MM / DD / YYYY
STATUS	● Signed

Document History



SENT

02 / 11 / 2022

09:00:19 UTC-5

Sent for signature to Robert W. Batsel, Jr.
(rbatsel@lawyersocala.com), William Kauffman
(wkauffman@ocalafl.org) and Florida Municipal Power Agency
(chris.gowder@fmpa.com) from biverson@ocalafl.org
IP: 216.255.240.104



VIEWED

02 / 11 / 2022

09:56:20 UTC-5

Viewed by Robert W. Batsel, Jr. (rbatsel@lawyersocala.com)
IP: 216.255.247.55



SIGNED

02 / 11 / 2022

09:56:56 UTC-5

Signed by Robert W. Batsel, Jr. (rbatsel@lawyersocala.com)
IP: 216.255.247.55



VIEWED

02 / 11 / 2022

10:01:24 UTC-5

Viewed by William Kauffman (wkauffman@ocalafl.org)
IP: 68.204.130.36



SIGNED

02 / 11 / 2022

10:02:11 UTC-5

Signed by William Kauffman (wkauffman@ocalafl.org)
IP: 68.204.130.36

TITLE	FOR SIGNATURES - Application for Interconnection of.....
FILE NAME	17284.original
DOCUMENT ID	fe8d0181fa494e990c23fe11b68df0b17b800999
AUDIT TRAIL DATE FORMAT	MM / DD / YYYY
STATUS	• Signed

Document History



02 / 11 / 2022
10:11:14 UTC-5

Viewed by Florida Municipal Power Agency
(chris.gowder@fmpa.com)
IP: 38.77.131.2



02 / 11 / 2022
10:11:39 UTC-5

Signed by Florida Municipal Power Agency
(chris.gowder@fmpa.com)
IP: 38.77.131.2



02 / 11 / 2022
10:11:39 UTC-5

The document has been completed.