

(2)

Stamford CT 06901
(City) (State) (Zip code)

9. Latitude: 41 03 35.76 Longitude: 73 32 32.39

10. The name and telephone number of the facility's operator, if different from the owner: Same

Soltage, LLC 201 432 1786
(Name) (Telephone number)

11. The ISO-New England asset identification number, if applicable: NON 33012 or N/A:

12. The GIS facility code, if applicable: 33,012 or N/A:

13. A description of the facility, including fuel type, gross nameplate generation capacity, the initial commercial operation date, and the date it began operation, if different.

14. If Class I certification is sought for a generation facility that uses biomass, the applicant shall submit:

- (a) quarterly average NOx emission rates over the past rolling year,
- (b) the most recent average particulate matter emission rates as required by the New Hampshire Department of Environmental Services (NHDES),
- (c) a description of the pollution control equipment or proposed practices for compliance with such requirements,
- (d) proof that a copy of the completed application has been filed with the NHDES, and
- (e) conduct a stack test to verify compliance with the emission standard for particulate matter no later than 12 months prior to the end of the subject calendar quarter except as provided for in RSA 362-F:12, II.
- (f) N/A: Class I certification is NOT being sought for a generation facility that uses biomass.

15. If Class I certification is sought for the incremental new production of electricity by a generation facility that uses biomass, methane or hydroelectric technologies to produce energy, the applicant shall:

- (a) demonstrate that it has made capital investments after January 1, 2006 with the successful purpose of improving the efficiency or increasing the output of renewable energy from the facility, and
- (b) supply the historical generation baseline as defined in RSA 362-F:2, X.
- (c) N/A: Class I certification is NOT being sought for the incremental new production of electricity by a generation facility that uses biomass, methane or hydroelectric technologies.

16. If Class I certification is sought for repowered Class III or Class IV sources, the applicant shall:

- (a) demonstrate that it has made new capital investments for the purpose of restoring unusable generation capacity or adding to the existing capacity, in light of the NHDES environmental

permitting requirements or otherwise, and

- (b) provide documentation that eighty percent of its tax basis in the resulting plant and equipment of the eligible generation capacity, including the NHDES permitting requirements for new plants, but exclusive of any tax basis in real property and intangible assets, is derived from the new capital investments.
 - (c) N/A: Class I certification is NOT being sought for repowered Class III or Class IV sources.
17. If Class I certification is sought for formerly nonrenewable energy electric generation facilities, the applicant shall:
- (a) demonstrate that it has made new capital investments for the purpose of repowering with eligible biomass technologies or methane gas and complies with the certification requirements of Puc 2505.04, if using biomass fuels, and
 - (b) provide documentation that eighty percent of its tax basis in the resulting generation unit, including NHDES permitting requirements for new plants, but exclusive of any tax basis in real property and intangible assets, is derived from the new capital investments.
 - (c) N/A: Class I certification is NOT being sought for formerly nonrenewable energy electric generation facilities.
18. If Class IV certification is sought for an existing small hydroelectric facility, the applicant shall submit proof that:
- (a) it has installed upstream and downstream diadromous fish passages that have been required and approved under the terms of its license or exemption from the Federal Energy Regulatory Commission, and
 - (b) when required, has documented applicable state water quality certification pursuant to section 401 of the Clean Water Act for hydroelectric projects.
 - (c) N/A: Class I certification is NOT being sought for existing small hydroelectric facilities.
19. If the source is located in a control area adjacent to the New England control area, the applicant shall submit proof that the energy is delivered within the New England control area and such delivery is verified using the documentation required in Puc 2504.01(a)(2) a. to e.
20. All other necessary regulatory approvals, including any reviews, approvals or permits required by the NHDES or the environmental protection agency in the facility's state.
21. Proof that the applicant either has an approved interconnection study on file with the commission, is a party to a currently effective interconnection agreement, or is otherwise not required to undertake an interconnection study.
22. A description of how the generation facility is connected to the regional power pool of the local electric distribution utility.
23. A statement as to whether the facility has been certified under another non-federal jurisdiction's renewable portfolio standard and proof thereof.
24. A statement as to whether the facility's output has been verified by ISO-New England.

- 25. A description of how the facility's output is reported to the GIS if not verified by ISO-New England.
- 26. An affidavit by the owner attesting to the accuracy of the contents of the application.
- 27. Such other information as the applicant wishes to provide to assist in classification of the generating facility.

28. This application and all future correspondence should be sent to:

Ms. Debra A. Howland
Executive Director and Secretary
State of New Hampshire
Public Utilities Commission
21 S. Fruit St, Suite 10
Concord, NH 03301-2429

29. Preparer's information:

Name: David Feldman

Title: Financial Associate, Soltage LLC

Address: (1) 66 York Street

(2) 5th Floor

(3) _____

Jersey City

(City)

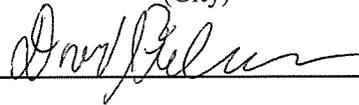
NJ

(State)

07302

(Zip code)

30. Preparer's signature:



Additional Answers to Application Questions

13) The 148.8 DC (STC) fixed array mono-crystalline photovoltaic solar system produces 141,131 kWh per year (per PVWatts), 14% of the building's energy. The panels are mounted using a non-penetrating ballast system. The initial commercial operating date for the facility was August 16, 2010.

19) N/A. Generation source within control area.

20) See "City of Stamford: Certificate of Occupancy"

21) See Connecticut Light & Power approved Interconnection Agreement

22) See Appendix A

23) The site is currently not registered with under another non-federal jurisdiction's renewable portfolio standard.

24) See Appendix A

25) See Appendix A

STANDARD FAST TRACK AND STUDY PROCESS GENERATOR INTERCONNECTION AGREEMENT

This Interconnection Agreement (this "**Agreement**"), dated as of July 9, 2010 (the "**Effective Date**"), is entered into by and between The Connecticut Light and Power Company, a specially chartered Connecticut company with a principal place of business at 107 Selden St, Berlin, CT, 06037 (the "**Electric Distribution Company**" or "**EDC**"), Soltage-SLL137 Stamford, LLC, a New Jersey limited liability company with a principal place of business at, 66 York St 5th Floor, Jersey City, NJ 07302 (the "**Operator**") and St Lukes Community Services, Inc., with its principal place of business at 141 Franklin Street, Stamford, Connecticut 06901 (the "Customer"). The EDC, the Operator and the Customer are collectively referred to herein as the "**Parties**" and individually as a "**Party**." Any capitalized term used but not defined in this Agreement shall have the meaning ascribed to such term in the Guidelines for Generator Interconnection attached hereto as Appendix A, as may be amended from time to time (the "**Guidelines**").

1. Basic Understandings.

1.1. The Operator owns and/or operates or plans to construct a Generating Facility at 141 Franklin Street, Stamford, CT 06901, Account 51717372023, as depicted in Appendix H (the "**Facility**"). A description of the Facility as studied, and incorporating any design changes approved in accordance with Section 1.4, is attached hereto as Appendix B (the "**Facility Description**").

1.2. The subject matter of this Agreement pertains to the Interconnection of the Facility to the EPS. This Agreement does not relate to any other obligation of the Operator or the Customer unrelated to the Interconnection of the Facility. Apart from this Agreement, (a) the Operator is responsible for all arrangements to effect any deliveries of electric energy from the Facility in accordance with the appropriate retail or FERC-jurisdictional tariffs and (b) the Operator or the Customer is responsible for arranging for its purchase of retail power (such as back-up or stand-by power).

1.3. This Agreement does not cover sales of power, capacity, energy or market products generated from the Facility. If the Operator intends to sell energy or ancillary services from the Facility to a party other than the Customer or the Customer's successor or assign, it must provide written notice to the EDC of such intention at least sixty (60) days prior to the effectuation of such sale. Furthermore, the EDC may require the Operator and the Customer to enter into a new Interconnection agreement prior to such sale which may or may not require approval from FERC.

1.4. Any changes to the design of the Facility as it is described and specified in the application submitted by the Operator to the EDC with respect to such Facility (the "**Application**") must be approved by the EDC in writing prior to the implementation of such design changes. Only design changes approved in accordance with this Section 1.4 shall be implemented.

1.5. The Operator may not operate the Facility in parallel with the EPS until: (a) the conditions for initial parallel operation of the Facility set forth in Appendix C have been met; (b) commissioning and testing of the Facility has been completed in accordance with the Guidelines and to the satisfaction of the EDC; (c) the Operator has paid the EDC all funds due pursuant to paragraphs 5.3.1 and 5.3.2 of this Agreement; and (d) the EDC has provided formal written authorization in accordance with the Guidelines stating that operation of the Facility in parallel with the EPS is authorized by the EDC (the "**Authorization Date**"). Such written authorization

will not be effective unless accompanied by a description of the Facility that incorporates all design changes to the Facility since the Application was submitted to the EDC (and not specified therein), including all design changes made during construction.

1.6. The Operator shall obtain each consent, approval, authorization, order or acceptance from FERC necessary for the Operator or any entity that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with the Operator (each, an "**Affiliate**") to sell any power, capacity, energy or market products from the Facility into the wholesale power market (collectively, "**Wholesale Sales**") prior to making any such sales. If the Operator intends to make Wholesale Sales, then the Operator shall provide written notice to the EDC at least sixty (60) days prior to making any Wholesale Sales. The Operator shall indemnify, defend and hold harmless the EDC, its trustees, directors, officers, employees, agents and affiliates from any costs, damages, fines or penalties, including reasonable attorneys' fees, directly resulting from Operator's or its Affiliate's non-compliance with any provision of this Section 1.6; provided, however, that the indemnification obligation shall be subject to the limitation of liability set forth in Section 14.

1.7. All Parties expressly agree and acknowledge, for purposes of this Interconnection Agreement, that Customer does not and will not own, manage or operate the Facility and undertakes no duty attendant to ownership, management or operation of the Facility.

In the event the Operator fails to manage or operate the Facility in accordance with this Agreement or permanently abandons the Facility, this Agreement may be terminated pursuant to Section 4.

2. Entire Agreement.

2.1. This Agreement, including any attachments or appendices, is entered into pursuant to the Guidelines.

2.2. This Agreement, the Guidelines, and the relevant EDC Tariffs, Terms and Conditions represent the entire understanding between the Parties as to the subject matter of this Agreement.

2.3. Each Party hereby represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement, the Tariffs, Terms and Conditions, or the Guidelines.

2.4. In the event of a conflict between this Agreement, the Guidelines and/or the Tariffs, Terms and Conditions, the Tariffs, shall take first precedent, followed by the Terms and Conditions, followed by the Guidelines, and lastly this Agreement.

3. Term.

3.1. This Agreement is effective as of the Effective Date. The Agreement shall continue in full force and effect until terminated pursuant to Section 4.

4. Termination.

4.1. This Agreement may be terminated under the following conditions:

4.1.1. The Parties may mutually terminate this Agreement at any time upon the execution of an agreement to terminate this Agreement.

4.1.2. The Operator or the Customer may terminate this Agreement at any time by providing sixty (60) days written notice to all other Parties.

4.1.3. Each Party may terminate this Agreement immediately upon the occurrence of an Event of Default (as such term is defined in Section 20.1) by one of the other Parties, subject to the notice requirement set forth in Section 20.2(c).

4.1.4. The EDC may terminate this Agreement if the Operator: (a) operates the Facility in parallel with the EPS prior to the Authorization Date; (b) fails within six months of testing to receive authorization from the EDC to operate in parallel with the EPS; (c) does not construct the Facility in accordance with the Facility Description; (d) modifies the Facility without the written approval of the EDC; (e) fails to energize the Facility within twelve months of the Authorization Date; or (f) permanently abandons the Facility. For the purposes of this Agreement, the Operator's failure to operate the Facility for any consecutive twelve month period after the Authorization Date shall be deemed a permanent abandonment.

4.1.5. The EDC may terminate this Agreement if the Operator fails to correct an Emergency Condition (as such term is defined in Section 7.1.1) or a Non-Emergency Adverse Operating Effect (as such term is defined in Section 7.1.4) within ninety (90) days from the date on which the EDC disconnected the Facility due to such event.

4.2. Survival of Obligations. The termination of this Agreement shall not relieve any Party of its liabilities and obligations, owed or continuing at the time of termination

4.3. Related Agreements. Any agreement attached to and incorporated into this Agreement shall terminate concurrently with this Agreement unless the Parties have agreed otherwise in writing.

5. General Payment Terms.

5.1. Interconnection Costs. The Operator is responsible for paying all costs associated with Interconnection of the Facility, including (a) testing costs, (b) costs associated with installing, testing and maintaining the communications infrastructure necessary to provide protection and/or monitoring of the Generating Facility (collectively, the "*Communications Costs*"), (c) construction, modification or upgrade costs necessary to accommodate the Interconnection (collectively, the "*Construction Costs*"), and (d) any ongoing maintenance costs and other charges deemed necessary by the EDC to maintain the Interconnection (all such costs described in this sentence, the "*Interconnection Costs*"). The EDC shall notify the Operator in the event the Construction Costs exceed 110% of the estimate of such costs provided by the EDC to the Operator in the Construction Agreement (as such term is defined below), facility study report or other written understanding of the Parties.

5.2. Initial Cost Estimate. Attached hereto as Appendix D is a good-faith estimate of the initial Interconnection Costs (the "*Initial Cost Estimate*").

5.3. Billing and Payment Procedures for Initial Interconnection Costs.

5.3.1. The Operator shall pay the EDC the amount set forth in the Initial Cost Estimate (the "*Initial Payment*") within thirty (30) days of the Effective Date.

5.3.2. Within thirty (30) days following the date on which the Facility is first connected to the EPS (the "*Initial Interconnection*"), the EDC shall provide the Operator with a final accounting report detailing any Underpayment (as such term is defined below) or Overpayment (as such term is defined below) made by the Operator with respect to the Initial Payment. To the extent that the actual Interconnection Costs accrued up to the date of the Initial Interconnection exceed the Initial Payment (an "*Underpayment*"), the EDC shall invoice the Operator for an amount equal to the Underpayment and the Operator shall pay such amount to the EDC within thirty (30) days of such invoice. To the extent that the Initial Payment exceeds the actual Interconnection Costs accrued up to the date of the Initial Interconnection (an "*Overpayment*"), the EDC shall refund to the Operator an amount equal to the Overpayment within thirty (30) days of the provision of such final accounting report.

5.4. Billing and Payment Procedures for Ongoing Interconnection Costs. All Interconnection Costs incurred following the Initial Interconnection shall hereinafter be referred to as the "*Ongoing Costs*," and shall include maintenance, testing and Communications Costs, as well as any Construction Costs not included in either (a) the Construction Agreement by and between the Operator and the Company, dated as of [N/A], a copy of which is attached hereto as Appendix E (the "*Construction Agreement*"), or (b) the Initial Cost Estimate. The EDC shall invoice the Operator for all Ongoing Costs as such costs are incurred, and the Operator shall pay each such invoice within thirty (30) days of receipt, or as otherwise agreed to by the Operator and the EDC.

5.5. Milestones. The Operator, the Customer and the EDC shall agree on milestones for which each is responsible and list them in Appendix F of this Agreement. The Operator and the EDC's obligations under this provision may be extended by written agreement. If either the Operator or

the EDC anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event (as such term is defined in Section 18.1), it shall immediately notify the other of the reason(s) for not meeting the milestone and (a) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (b) requesting appropriate amendments to Appendix F. If either the Operator or the EDC is affected by the failure to meet a milestone, it shall not unreasonably withhold agreement to such an amendment unless (i) it will suffer significant uncompensated economic or operational harm from the delay, (ii) attainment of the same milestone has previously been delayed, or (iii) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the proponent of the amendment.

5.6. **Distribution Upgrades.** The EDC shall design, procure, construct, install, and own the upgrades described in Appendix G of this Agreement (the "*Upgrades*"). If the EDC and the Operator agree in writing, the Operator may construct Upgrades that are located on land owned by the Customer. The actual cost of the Upgrades, including overheads, shall be directly assigned to the Operator. The Operator shall be responsible for its share of all reasonable expenses, associated with operating, maintaining, repairing, and replacing such Upgrades, except to the extent that a retail tariff of, or an agreement with, the EDC provides otherwise.

5.7. **Taxes.** The Parties shall comply with all applicable federal and state tax laws.

6. **Operating Requirements.**

6.1. **General Operating Requirements.** The Operator shall construct, interconnect, operate, and maintain the Facility and all accompanying and necessary facilities in accordance with (a) all applicable laws and requirements, Good Utility Practice, the Guidelines, Tariffs, and the Terms and Conditions; (b) applicable specifications that meet or exceed those provided by the National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriter's Laboratory and ISO-NE operating requirements¹ in effect at the time of construction and other applicable national and state codes and standards. Following the initial Interconnection of the Facility, the Operator shall comply with all special operating requirements set forth in Appendix C. In the event that the EDC believes that the cause of any problem to the EPS originates from the Facility, the EDC has the right to install monitoring equipment at a mutually agreed upon location to determine the exact cause of the problem. The cost of such monitoring equipment shall be borne by the EDC, unless such problem or problems are demonstrated to be caused by the Facility in which case the costs of the monitoring equipment shall be borne by the Operator, or if the test was performed at the request of the Operator or the Customer in which case the costs of the monitoring equipment shall be borne by the requesting Party. If the operation of the Facility interferes with the EDC's or its customers' operations (including that of the Customer), the Operator must immediately take corrective action to stop such interference and shall not operate the Facility until such time as such interference is stopped. If the Operator fails to take immediate corrective action pursuant to the preceding sentence, then the EDC may disconnect the Facility as set forth in the Guidelines.

6.2. **No Adverse Effects; Non-interference.**

6.2.1. The EDC shall notify the Operator and the Customer if the EDC has evidence that the operation of the Facility could cause disruption or deterioration of service to other customers served from the EPS or if operation of the Facility could cause damage to the EPS or other affected systems. (For example, deterioration of service could be caused by, among other things, harmonic injection in excess of IEEE STD 519, as well as voltage fluctuations caused by large step changes in loading at the Facility.) The Operator shall cease operation of the Facility until such time as the Facility can operate without causing disruption or deterioration of service to other customers served from the EPS or causing damage to the EPS or other affected systems. Each Party shall promptly notify the other Party in writing of any condition or occurrence relating to such Party's equipment or facilities which, in such Party's reasonable judgment, could adversely affect the operation of the other Party's equipment or facilities.

6.2.2. The EDC shall operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Operator shall protect itself from normal disturbances propagating through the EPS in accordance with Good Utility Practice. Examples of such disturbances include single-phasing events, voltage sags from remote faults on the EPS, and outages on the EPS. The Customer shall protect itself from normal disturbances propagating through the EPS in accordance with applicable law and tariff requirements.

6.3. **Safe Operations and Maintenance.**

6.3.1. **General.** The Operator shall operate, maintain, repair, and inspect, and shall be fully responsible for, the Facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on such Party's respective side of the Point of Interconnection. The EDC and the Operator shall each provide equipment on its respective side of the Point of Interconnection that adequately protects the EPS, personnel, and other persons from damage and injury.

6.3.2. **Ongoing Maintenance; Testing of the Facility.** The Parties hereby acknowledge and agree that maintenance testing of the Facility's protective relaying is imperative for safe, reliable operation of the Facility. The test cycle for such protective relaying shall not be less frequent than once every sixty (60) calendar months or the manufacturer's recommended test cycle, whichever is more frequent. The Operator shall provide copies of these test records to the EDC within thirty (30) days of the completion of such maintenance testing. The EDC may disconnect the Facility from the EPS if the Operator fails to adhere to this Section 6.3.2. The Operator is responsible for all ongoing maintenance reporting, compliance and costs associated with the Facility.

6.4. **Access.**

6.4.1. **Emergency Contact Information.** Each Party shall provide to the other Parties and shall update as necessary a telephone number that can be used at all times to allow the other Parties to report an emergency.

6.4.2. EDC Right to Access EDC-Owned Facilities and Equipment. The Operator and the Customer shall allow the EDC access to the EDC's equipment and the EDC's facilities located on the Facility's premises (the "*EDC Property*"). To the extent that the Operator or the Customer does not own all or part of the real property on which the EDC is required to locate EDC Property in order to serve the Facility, the Operator and the Customer shall procure and provide to the EDC all necessary rights, including easements, for access to the EDC Property.

6.4.3. Isolation Device. The EDC shall have access to the Isolation Device of the Facility at all times. Operator is responsible for obtaining any and all property rights, including easements, which will permit the EDC access to such Isolation Device.

6.4.4. Right to Review Information. The EDC shall have the right to review and obtain copies of the Operator's operations and maintenance records, logs, or other information such as unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to the Facility or its Interconnection with the EPS. The EDC shall treat such information as confidential and shall use such information solely for the purposes of determining compliance with the operating requirements set forth in this Section 6.

7. Disconnection.

7.1 Temporary Disconnection.

7.1.1. Emergency Conditions. The EDC may immediately and temporarily disconnect the Facility from the EPS without prior notification in cases where, in the reasonable judgment of the EDC, the continued connection of the Facility is imminently likely to (a) endanger persons or damage property or (b) cause an adverse effect on the integrity or security of, or damage to, the EPS or to other electric power systems to which the EPS is directly connected (each, an "*Emergency Condition*"). Upon becoming aware of an Emergency Condition, the Operator is solely responsible to (i) immediately suspend operation of the Facility and (ii) promptly provide written notice to the EDC of such Emergency Condition and suspension (an "*Emergency Condition Notice*"). The Emergency Condition Notice shall describe (A) such Emergency Condition, (B) the extent of any damage or deficiency, (C) the expected effect on the operation of each Party's facilities and operations, (D) the anticipated duration of such Emergency Condition and (E) the necessary corrective action. After temporary disconnection or suspension pursuant to this Section 7.1.1, the Facility may not be reconnected or resume operation until the EDC and Operator are both satisfied that the cause of such Emergency Condition has been corrected. If the Operator fails to correct the Emergency Condition within ninety (90) days from the time that the EDC has temporarily disconnected the Facility due to such an event, the EDC may elect to terminate this Agreement in accordance with Section 4.1.5 and/or permanently disconnect the Facility in accordance with Section 7.2.2. or Operator except to the degree otherwise (x) required by the terms of this Agreement or (y) required by applicable law, regulation, or tariffs.

7.1.2. Routine Maintenance, Construction and Repair. The EDC shall have the right to disconnect the Facility from the EPS when necessary for routine maintenance, construction and repairs to the EPS. The EDC shall provide the Operator and the Customer with a minimum of seven (7) days prior written notice of such disconnection,

consistent with the EDC's planned outage notification protocols. If the Operator requests disconnection by the EDC at the Point of Common Interconnection, the Operator will provide a minimum of seven (7) days prior written notice to the EDC. The EDC shall make reasonable efforts to work with Operator and the Customer to schedule a mutually convenient time or times to temporarily disconnect the Facility pursuant to this Section 7.1.2.

7.1.3. Forced Outages. During any forced outage, the EDC shall have the right to temporarily disconnect the Facility from the EPS in order to effect immediate repairs to the EPS. The EDC shall use reasonable efforts to provide the Operator and the Customer with prior notice of such temporarily disconnection; provided, however, the EDC may temporarily disconnect the Facility from the EPS without such notice pursuant to this Section 7.1.2 in the event circumstances do not permit such prior notice to the Operator or the Customer.

7.1.4. Non-Emergency Adverse Operating Effects. The EDC may temporarily disconnect the Facility if it is having a non-emergency adverse operating effect on the EPS or on other customers (a "*Non-Emergency Adverse Operating Effect*") and the Operator fails to correct such Non-Emergency Adverse Operating Effect within forty-five (45) days of the EDC's written notice to the Operator requesting correction of such Non-Emergency Adverse Operating Effect. If the Operator fails to correct a Non-Emergency Adverse Operating Effect within ninety (90) days from the time that the EDC has temporarily disconnected the Facility due to such an event, the EDC may elect to terminate this Agreement in accordance with Section 4.1.5 and/or permanently disconnect the Facility in accordance with Section 7.2.2.

7.1.5. Modification of the Facility. The EDC has the right to immediately suspend Interconnection service and temporarily disconnect the Facility in the event any material modification to the Facility or the Operator's Interconnection facilities has been implemented without prior written authorization from the EDC.

7.1.6. Re-connection. Any temporary disconnection pursuant this Section 7.1 shall continue only for so long as is reasonably necessary. The Operator, the EDC and the Customer shall cooperate with each other to restore the Facility and the EPS, respectively, to their normal operating states as soon as reasonably practicable following the correction of the event that led to the temporary disconnection.

7.2 Permanent Disconnection.

7.2.1 The Operator may permanently disconnect the Facility at any time upon thirty (30) days prior written notice to the EDC and the Customer.

7.2.2 The EDC may permanently disconnect the Facility upon termination of this Agreement in accordance with Section 4.

7.2.3 The EDC may permanently disconnect the Facility in the event the Operator is unable to correct an Emergency Condition or a Non-Emergency Adverse Operating Effect in accordance with Section 7.1.1 or Section 7.1.4, respectively.

8. Metering.

8.1. Metering of the output from the Facility shall be conducted pursuant to the terms of the Guidelines.

9. Assignments.

9.1 Except as provided herein, neither the Operator nor the Customer shall voluntarily assign its rights or obligations, in whole or in part, under this Agreement without the EDC's prior written consent, which consent shall not be unreasonably withheld or delayed. Any assignment the Operator or the Customer purports to make without the EDC's prior written consent shall not be valid. Notwithstanding the foregoing, the EDC's consent shall not be required for any assignment (i) made by the Operator or the Customer to an Affiliate with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the Operator or the Customer under this Agreement; provided that the Operator promptly notifies the EDC of any such assignment, or (ii) made by the Operator in connection with financing the Facility. In all events, neither the Operator nor the Customer shall be relieved of its obligations under this Agreement unless, and until, the permitted assignee assumes in writing all obligations of this Agreement and notifies the EDC of such assumption.

10. Confidentiality.

10.1 The EDC shall maintain the confidentiality of information provided from the Operator or the Customer to the EDC if such information is clearly marked and labeled "Confidential" (the "Confidential Information") or which, under the circumstances of disclosure, should reasonably be considered as confidential or proprietary. Confidential Information shall not include information that (a) is or hereafter becomes part of the public domain other than through a breach of this Agreement, (b) previously was in the possession of the EDC as demonstrated by written records, or (c) the EDC is required to disclose pursuant to a valid order of a court or other governmental body or any political subdivision thereof; provided, however, that to the extent that it may lawfully do so, the EDC shall first have given notice to the Operator or the Customer (as the case may be) and given the Operator or the Customer (as the case may be) a reasonable opportunity to interpose an objection or obtain a protective order requiring that the Confidential Information and/or documents so disclosed be used only for the purpose for which the order was issued; provided further that if such Confidential Information is requested or required by the DPUC, the EDC shall seek protective treatment of such Confidential Information.

11. Insurance Requirements.

11.1 General Liability. In connection with the Operator's and the Customer's performance of its duties and obligations under this Agreement, the Operator and the Customer shall maintain, during the term of this Agreement, general liability insurance with a combined single limit of not less than:

11.1.1 Three hundred thousand dollars (\$300,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Facility is less than or equal to an aggregate of 100 kW;

11.1.2 One million dollars (\$1,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Facility is greater than 100 kW and less than or equal to an aggregate of 1MW;

11.1.3 Two million dollars (\$2,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Facility is greater than 1MW and less than or equal to an aggregate of 5MW; or

11.1.4 Five million dollars (\$5,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Facility is greater than 5MW and less than or equal to an aggregate of 20MW.

11.2 Insurer Requirements and Endorsements. All insurance required pursuant to this Section 11 shall be carried by insurers qualified to underwrite insurance in Connecticut with an A.M. Best rating of A- or better. In addition, all insurance shall: (a) include the EDC and the Customer as an additional insured; (b) contain a severability of interest clause or cross-liability clause unless the Operator is a residential customer; (c) provide that the EDC shall not be liable to the insurance carrier with respect to the payment of premium for such insurance; and (d) provide for written notice to the EDC thirty (30) days prior to cancellation, termination, or material change of such insurance.

11.3 Evidence of Insurance.

11.3.1 Evidence of the insurance required pursuant to this Section 11 shall state that the coverage provided is primary, and is not excess of or contributing with any insurance or self-insurance maintained by the EDC.

11.3.2 The Operator and the Customer are responsible for providing the EDC with evidence of insurance on an annual basis as set forth in the Guidelines.

11.3.3 Prior to the EDC commencing any work on system modifications, the Operator shall have its insurer provide to the EDC certificates of insurance evidencing the insurance coverage required pursuant to this Section 11. Such certificates shall clearly indicate whether such insurance policy is written on a "claims-made" basis.

11.3.4 The EDC may, at its discretion, require the Operator and the Customer to maintain tail coverage with respect to any policy written on a "claims-made" basis for a period of three years after expiration or termination of such policy.

11.3.5 All insurance certificates, statements of self insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the appropriate EDC Facilitator.

12. Performance Assurance.

12.1 If the EDC reasonably expects that any Interconnection Costs necessary to accommodate the Facility will be in excess of fifty thousand dollars (\$50,000) in the aggregate in any calendar year, the EDC may require that the Operator provide to the EDC a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to the EDC at least twenty (20)

Business Days prior to the commencement of the related work. Such security for payment shall be in an amount sufficient to cover such Interconnection Costs. In addition:

12.1.1. Any guarantee provided by the Operator pursuant to this Section 12 shall be made by an entity that meets the creditworthiness requirements of the EDC, and contain terms and conditions that guarantee payment of any amount that may be due from the Operator, up to an agreed-to maximum amount; and

12.1.2. Any letter of credit or surety bond provided by the Operator pursuant to this Section 12.1.2 shall be issued by a financial institution or insurer reasonably acceptable to the EDC and must specify an expiration date reasonably acceptable to the EDC.

13. Indemnification

13.1 Indemnification of the EDC and the Customer by the Operator. Subject to the limitation of liability set forth in Section 14, the Operator shall indemnify, defend and hold harmless the EDC, the Customer and their trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any liability, damage, loss, claim, demand, complaint, suit, proceeding, action, audit, investigation, obligation, cost, judgment, adjudication, arbitration decision, penalty (including fees and fines), or expense including court costs and attorneys' fees (collectively, "Losses") for personal injury (including death) or property damage to unaffiliated third parties relating to, arising from or connected to any failure the Operator's to perform its obligations under this Agreement.

13.2 Indemnification of the Operator and the Customer by the EDC. Subject to the limitation of liability set forth in Section 14, the EDC agrees to indemnify, defend and hold harmless the Operator, the Customer and their respective trustees, directors, officers, employees and agents (including Affiliates, contractors and their employees), from and against any and all Losses for personal injury (including death) or property damage to unaffiliated third parties relating to, arising from or connected to any failure by the EDC to perform its obligations under this Agreement.

13.3 Indemnification of the EDC and Operator by the Customer. Subject to the limitation of liability set forth in Section 14, the Customer shall indemnify, defend and hold harmless the EDC, the Operator and their trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any and all Losses for personal injury (including death) or property damage to unaffiliated third parties relating to, arising from or connected to the Customer's failure to perform its obligations under this Agreement.

13.4 Survival of Indemnification. The indemnification obligations of the EDC, the Operator and the Customer set forth in this Section shall continue in full force and effect regardless of whether this Agreement has expired or been terminated, defaulted or cancelled and shall not be limited in any way by any limitation on insurance.

14. Limitation of Liability.

14.1 Except with respect to a Party's fraud or willful misconduct, and except with respect to damages sought by a third party in connection with a third party claim: (a) no Party shall be liable to the other Parties, for any damages other than direct damages; and (b) each Party agrees that it is

not entitled to recover and agrees to waive any claim with respect to, and will not seek, consequential, punitive or any other special damages as to any matter under, relating to, arising from or connected to this Agreement.

15. Amendments and Modifications.

15.1 No amendment or modification of this Agreement shall be binding unless in writing and duly executed by each Party.

16. Permits and Approvals.

16.1 The Operator is responsible for obtaining all environmental and other permits required by governmental authorities for the construction and operation of the Facility (each, a "**Required Permit**"). The EDC assumes no responsibility for obtaining any Required Permit, advising the Operator with respect to Required Permits, or assuring that all Required Permits have been obtained by the Operator. Upon written request of the EDC, the Operator shall promptly provide to the EDC a copy of any Required Permit.

17. Environmental Releases.

17.1 Each Party shall immediately notify the other Parties, first orally and then in writing, of any of the following events related to the Facility upon becoming aware of such event: (a) the release of any hazardous substances; (b) any asbestos or lead abatement activities; or (c) any type of remediation activities. The Party having the responsibility for reporting such an event to appropriate governmental authorities shall promptly furnish to the other Parties copies of any publicly available reports filed with such authorities.

18. Force Majeure.

18.1 For purposes of this Agreement, "**Force Majeure Event**" means any event or circumstance that (a) is beyond the reasonable control of the affected Party and (b) the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts. Force Majeure Events include the following events or circumstances, but only to the extent they satisfy the foregoing requirements: (i) acts of war or terrorism, public disorder, insurrection, or rebellion; (ii) floods, hurricanes, earthquakes, lighting, storms, and other natural calamities; (iii) explosions or fire; (iv) strikes, work stoppages, or labor disputes; (v) embargoes; and (vi) sabotage. In no event shall the lack of funds or the inability to obtain funds constitute a Force Majeure Event.

18.2 Notwithstanding any other provision of this Agreement, a Party shall not be considered to be in Default with respect to any obligation hereunder, if prevented from fulfilling its obligation by a Force Majeure Event. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Parties in writing, and will keep the other Parties informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party shall specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected Party is taking to mitigate the effects of the event on its performance. The affected Party may suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of commercially reasonable efforts. The affected Party shall use commercially reasonable efforts to resume its performance as soon as possible. Without limiting this section, the Operator and the Customer shall immediately notify the EDC verbally if

the failure to fulfill the Operator's obligations under this Agreement may impact the safety or reliability of the EPS.

19. Notices.

19.1 All notices, demands and other communications to be given or delivered under or by reason of the provisions of this Agreement shall be in writing and shall be deemed to have been given: (a) immediately when personally delivered; (b) when received by first class mail, return receipt requested; (c) one day after being sent for overnight delivery by Federal Express or other overnight delivery service; or (d) when receipt is acknowledged, either electronically or otherwise, if sent by facsimile, telecopy or other electronic transmission device. Notices, demands and communications to the other Parties shall, unless another address is specified by such Parties in writing, be sent to the addresses indicated below:

If to the EDC:

The Connecticut Light and Power Company
107 Selden Street, Berlin, CT 06037
Attention: Supervisor, Distributed Resources
Phone: 866-324-2437
Fax: 860-665-6272

If to the Operator:

Soltage-SLL 137 Stamford, LLC
66 York St. 5th Floor Jersey City, NJ 07302
Attention: Stephen Goodbody
Phone (201)-432-1786,
Fax (201)-432-1010

With a copy to:

Soltage-SLL 137 Stamford, LLC
66 York St., 5th Floor, Jersey City, NJ 07302
Attention: Stephen Goodbody
Fax: (201) 432-1786

If to the Customer:

St. Luke's Community Service, Inc
141 Franklin Street, Stamford, CT 06901
Attention: Bob Rimmer,
Phone: (203)-388-0113

19.2 Each Party may designate operating representatives to conduct daily communications between the Parties, which may be necessary or convenient for the administration of this Agreement. The names, addresses, and phone numbers of each Party's representatives shall be provided in writing by such Party to the other Parties.

20. Default and Remedies.

20.1 Defaults. Each of the following shall constitute an "*Event of Default*,"

20.1.1. A Party fails to pay any bill or invoice for charges incurred pursuant to this Agreement or any other amount due from such Party to the other Parties as and when due, any such failure shall continue for a period of thirty (30) days after written notice of nonpayment from the affected Party to the defaulting Party; provided, however, if such Party disputes such bill, invoice or other amount due in good faith, then such failure to pay shall not constitute an Event of Default and the Parties shall resolve such dispute in accordance with Section 21;

20.1.2. A Party (a) fails to comply with any other provision of this Agreement or breaches any representation or warranty in any material respect and (b) fails to cure or remedy such failure or breach within sixty (60) days after notice and written demand by any other Party to cure the same or such longer period reasonably required to cure the same (not to exceed an additional ninety (90) days unless otherwise mutually agreed upon, provided that the failing or breaching Party diligently continues to cure until such failure or breach is fully cured). This provision pertains only to cure periods not specifically addressed elsewhere in this Agreement;

20.1.3. The Facility or any part of the Interconnection is modified without the prior written approval of the EDC; or

20.1.4. A Party fails to perform any obligation hereunder in accordance with (a) applicable laws and regulations, (b) the ISO-NE operating documents, procedures, and reliability standards to the extent applicable to that Party, and (c) as to Facility, EDC and Operator, Good Utility Practice.

20.2 Remedies. Upon the occurrence of an Event of Default, the non-defaulting Party may, at its option, in addition to any remedies available under any other provision herein, do any, or any combination, as appropriate, of the following: (a) continue to perform and enforce this Agreement; (b) recover damages from the defaulting Party except as limited by this Agreement; (c) by written notice to the defaulting Party terminate this Agreement; or (d) pursue any other remedies it may have under this Agreement or under applicable law or in equity.

21. Dispute Resolution Procedures.

21.1 Each Party shall agree to attempt to resolve all disputes promptly, equitably and in good faith. If the Parties are unable to informally resolve any dispute, the Parties shall follow the dispute resolution process set forth in the Guidelines.

22. Subcontractors.

22.1 Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that the hiring Party shall require such subcontractor to comply with all applicable terms and conditions of this Agreement in providing such subcontracting services and the hiring Party shall remain primarily liable to the other Parties for the performance of such subcontractor.

22.2 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Parties for the acts or omissions of any subcontractor hired by the hiring Party to perform its obligations

under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

22.3 The obligations under this Section 22 will not be limited in any way by any limitation of subcontractor's insurance.

23. Miscellaneous.

23.1 Governing Law. This Agreement and the legal relations between the Parties will be governed by and construed in accordance with the laws of the State of Connecticut applicable to contracts made and performed in such State and without regard to conflicts of law doctrines.

23.2 Non-waiver. No failure on the part of any Party to exercise or delay in exercising any right hereunder shall be deemed a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any further or other exercise of such or any other right.

23.3 No Third Party Beneficiaries. This Agreement is made solely for the benefit of the Parties. Nothing in the Agreement shall be construed to create any rights in or duty to, or standard of care with respect to, or any liability to, any person not a party to or otherwise bound by this Agreement.

23.4 Severability. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be adjusted rather than voided, if possible, to achieve the intent of the Parties. If no such adjustment is possible, such provision shall be fully severable and severed, and all other provisions of this Agreement will be deemed valid and enforceable to the extent possible.

23.5 No Partnership. Nothing in this Agreement shall constitute or be construed to be or create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Parties.

23.6 Headings. All headings in this Agreement are included solely for convenient reference, are not intended to be full and accurate descriptions of the contents of this Agreement, will not be deemed a part of this Agreement, and will not affect the meaning or interpretation of this Agreement.

23.7 Changes in State Regulations or Law. Upon thirty (30) days prior written notice, EDC or Operator may terminate this Agreement if there are any changes in DPUC regulations or Connecticut law that affects the EDC's ability to perform its obligations under this Agreement.

23.8 General Rules of Construction. For all purposes of this Agreement: (a) all terms defined herein or in the Guidelines shall have the meanings assigned to them herein or in the Guidelines, as the case may be, and shall include the plural as well as the singular; (b) all references in this Agreement to designated "Sections" and other subdivisions are to the designated Sections and other subdivisions of the body of this Agreement; (c) pronouns of either gender or neuter will include, as appropriate, the other pronoun forms; (d) the words "herein," "hereof" and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular Section or other subdivision; (e) "or" is not exclusive; (f) "including" and "includes" will be deemed to be followed by "but not limited to" and "but is not limited to," respectively; (g) any definition of or reference to any law, agreement, instrument or other document herein will be

construed as referring to such law, agreement, instrument or other document as from time to time amended, supplemented or otherwise modified; (h) any definition of or reference to any law or statute will be construed as referring also to any rules and regulations promulgated thereunder; and (i) as used herein, "days" shall mean "calendar days."

23.9 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all counterparts so executed shall constitute one agreement binding on all of the Parties hereto, notwithstanding that all of the Parties are not signatories to the same counterpart. Facsimile counterparts may be delivered by any Party, with the intention that they shall have the same effect as an original counterpart hereof.

23.10 Signatures. Each Party hereby signifies its agreement to all of the terms of this Agreement by its signatures hereto. Each Party represents that it has carefully reviewed this Agreement individually and with counsel and that it has knowingly and willingly executed this Agreement.

IN WITNESS HEREOF, the Parties have caused this INTERCONNECTION AGREEMENT to be executed on the day and year first written above.

THE EDC

By: William J. Quinlan
Name: William J. Quinlan
Title: VP Customer Solutions
Duly Authorized

BCB
7/13/2010

THE OPERATOR

Soltage-SLL137 Stamford, LLC

By: Vanessa Stewart
Name: Vanessa Stewart
Title: COO + Manager of Managing Member, Soltage LLC
Duly Authorized

THE CUSTOMER

By: Robert S. Rimmer
Name: ROBERT S. RIMMER
Title: COO
Duly Authorized

St. Lukes_3Way_IA_07_09_10_rev. 0

Appendix A

Guidelines for Generator Interconnection

St. Lukes_3Way_IA_07_09_10_rev. 0

St. Lukes_3Way_IA_07_09_10_rev. 0

Appendix B

Description of the Facility as studied, and incorporating any approved design changes

This is a photovoltaic installation, 135 kW with no energy storage device consisting of one (1) 135 kW Satcon Powergate PVS-135 inverter.

St. Lukes_3Way_IA_07_09_10_rev. 0

Appendix C

Conditions for Parallel Operation of Generating Facility, Special Operating Requirements

None Required.

Appendix D

Initial Cost Estimate

Witness Test: \$500.00

Appendix E
Construction Agreement

None required

Appendix F
Milestones

In-Service Date: Not available

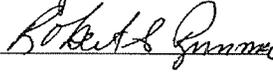
Critical milestones and responsibility as agreed to by the Parties:

Milestone	Responsible Party
Sign three copies of the CL&P Interconnection Agreement	St. Lukes Community Services
Submit payment for Witness Test	Soltage-SLL137-Stamford, LLC
Provide proof of municipal approval	Soltage-SLL137-Stamford, LLC
Witness Test	CL&P

Agreed to by:

For the Operator:  Date 7/9/2010

For the EDC:  Date 7/13/2010

For the Customer:  Date 7/12/2010

Appendix G

EDC's Description of its Upgrades and Best Estimate of Upgrade Costs

None required.

Appendix H

One line diagram depicting the Generating Facility, Interconnection, Metering Equipment and Upgrades





**Connecticut
Light & Power**

The Northeast Utilities System

Distributed Resources Department

The Connecticut Light & Power Company
P.O. Box 1409
Hartford, CT 06143-1409
www.cl-p.com

Contingent Approval

July 9, 2010

Attention: Bob Rimmer

RE: St. Luke's Community Services
Address 141 Franklin Street, Stamford, CT 06901
Equipment: 135 kW PV installation with one (1) Satcon PVS -135 Inverter

Dear: Mr. Rimmer

The Connecticut Light & Power Company (CL&P) has completed the review of the application for the above mentioned inverter-based project and has the following comments:

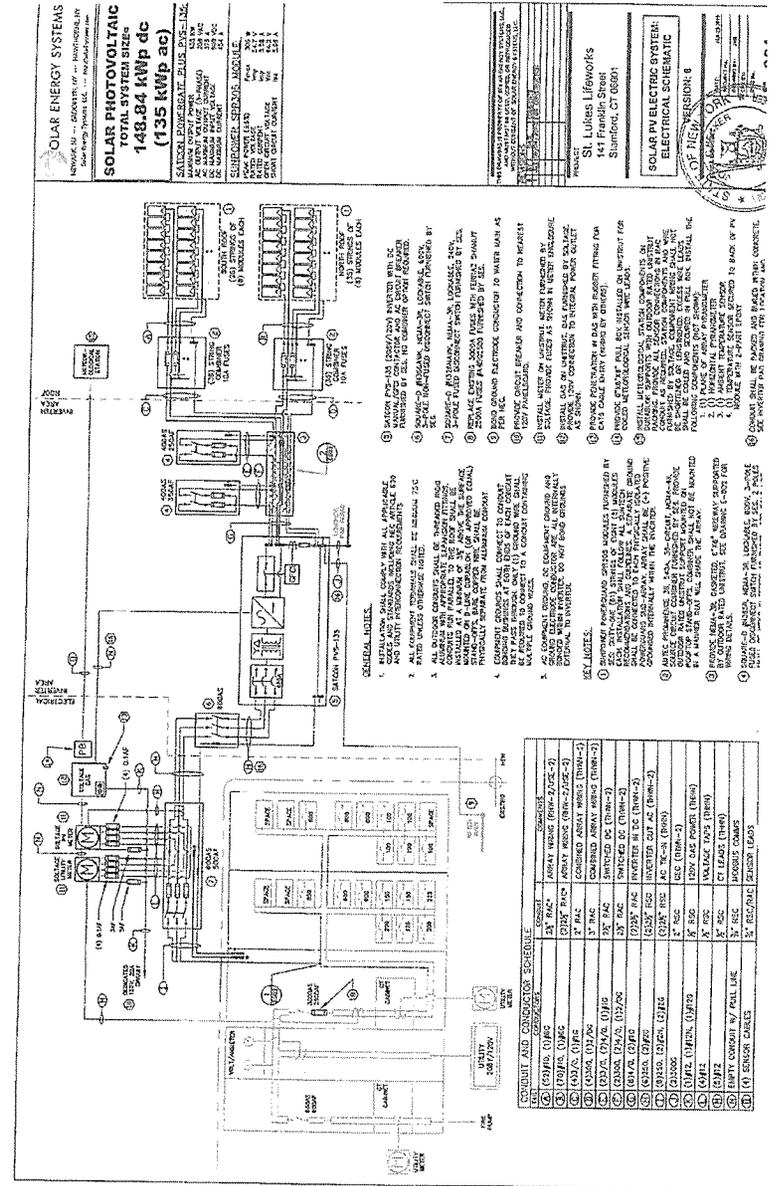
1. The proposed inverter meets CL&P requirements because it is UL1741 listed and has been tested to and meet IEEE C62.41-1991 Surge Withstand Tests.
2. The customer is approved as a Net Metering Customer measuring Delivered/Received kWh's separately.
3. Please have the customer fill and sign three copies of the Interconnection Agreements and return to me at the address below.
4. Please provide documentation, which indicates that the electrical inspector has approved the installation (Certificate of Completion).
5. Once you have met items 3-4 above, a Distributed Resources Administrator will call you to schedule a witness test. Allow ten (10) business days for the test. Please provide a \$500 upfront payment for the witness test.
6. Please provide a person knowledgeable with the inverter in order to download the settings (which are adjustable) and demonstrate to the CL&P test person at the witness test date that the settings are as published in the "Installation & Operation User" manual.

Should you have any questions or concerns please feel free to call me.

Sincerely

Winston Brown
Engineer
Distributed Resources
107 Selden Street, Berlin, CT 06037
Tel: 860-665-3717
E-mail: brownwd@nu.com

c.c. Chris Patak, Solar Energy Systems



SOLAR ENERGY SYSTEMS
 100 W. Main St., Middletown, CT 06457
 860.336.8800
 www.solarenergy.com

**SOLAR PHOTOVOLTAIC
 SYSTEM SIZE:
 148.84 kWp dc
 (135 kWp ac)**

PERMITTED BY: [BLANK]
 PERMIT NO.: [BLANK]
 PERMIT DATE: [BLANK]
 PERMIT EXPIRES: [BLANK]

INVERTER:
 MAKE: [BLANK] MODEL: [BLANK]
 MAKE: [BLANK] MODEL: [BLANK]
 MAKE: [BLANK] MODEL: [BLANK]

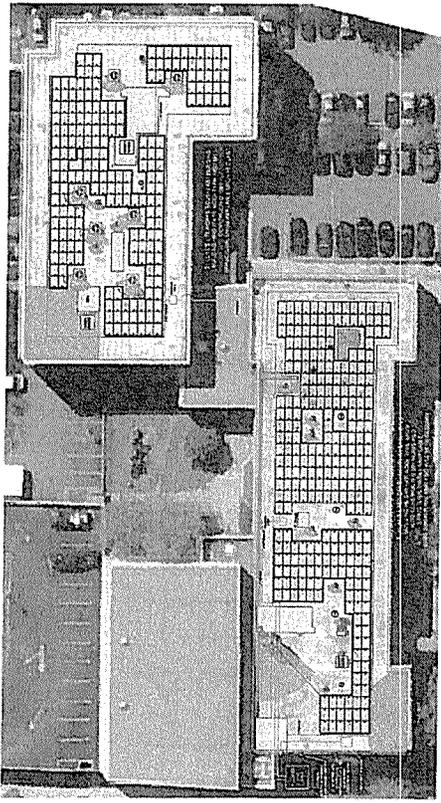
NOTES: ROOF MOUNTED PV ARRAY
 1. ALL PV PANELS TO BE MOUNTED ON A 20'x20' RAIL SYSTEM.
 2. ALL PV PANELS TO BE MOUNTED ON A 20'x20' RAIL SYSTEM.
 3. ALL PV PANELS TO BE MOUNTED ON A 20'x20' RAIL SYSTEM.
 4. ALL PV PANELS TO BE MOUNTED ON A 20'x20' RAIL SYSTEM.
 5. ALL PV PANELS TO BE MOUNTED ON A 20'x20' RAIL SYSTEM.

PERMITTED BY: [BLANK]
 PERMIT NO.: [BLANK]
 PERMIT DATE: [BLANK]
 PERMIT EXPIRES: [BLANK]

PROJECT:
St. Luke's Lifeworks
 41 Franklin Street
 Springfield, CT 01101

**SOLAR PV ELECTRIC SYSTEM:
 PV ARRAY PLAN**

VERSION: 6
 DATE: [BLANK]
 DRAWN BY: [BLANK]
 CHECKED BY: [BLANK]
 PROJECT NO.: [BLANK]
 SHEET NO.: [BLANK]
 TOTAL SHEETS: [BLANK]
PV-01



1 PV ARRAY PLAN
 (on 11 x 17 Paper)



**Connecticut
Light & Power**

The Northeast Utilities System

Distributed Resources Department

The Connecticut Light & Power Company
P.O. Box 1409
Hartford, CT 06143-1409
www.cl-p.com

August 17, 2010

Attention: Rob Rimmer

St Luke's Community Services
141 Franklin Street
Stamford, CT 06901

Regarding: Authorization to energize the 135 kW PV installation with one (1) Satcon PVS-135 inverter, for the St. Luke's Community Services, located on 141 Franklin Street, Stamford, CT 06901

Approval to Interconnect Date: August 16, 2010

Dear Mr. Rimmer:

This letter is an authorization for interconnection of the above stated project to the CL&P system in accordance with the Interconnection Agreement. As stated in the Interconnection Agreement (enclosed) and the "Generator Interconnection Guidelines", the following items must be provided the CL&P Distributed Resources Group on a regular basis:

1. Annually: Provide a certificate of insurance as described in the enclosed interconnection agreement prior to the insurance expiration date.
Please send it to the following address by that date:

CL&P Distributed Resources
P.O. Box 1409
Hartford, CT 06143-1409

2. Every 60 months: Customer is responsible for the periodic maintenance of the relays, interrupting devices, control schemes, and batteries that involve the protection of the EDC's system. The test cycle for protective relaying must occur every 60 calendar months or manufacturer's recommendation, whichever is less. Customer must provide copies of these test records to the EDC by August 2015.

Yours truly,

Winston D. Brown
Winston D. Brown
Distributed Resources
Tel: 860-665-3717
E-mail: brownwd@nu.com

cc: Chris Patak, Solar Energy Systems

Issued On: August 03, 2010

Chief Building Official
ROBERT D. DEMARCO
Robert D. Demarco



Unless sooner suspended or revoked.

This certificate is granted in conformity with the Statues and Ordinances relating thereto and Expires

INSTALL SOLAR ELECTRIC SYSTEM ON 2 ROOFS
FINAL INSPECTION: 8/3/2010

OWNER: ST LUKE'S COMMUNITY SERVICE INC AKA FRANKLIN COMMONS COPR

IS HEREBY GRANTED A PERMANENT CERTIFICATE OF OCCUPANCY

Located at 141 FRANKLIN STREET, STAMFORD, CT

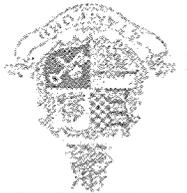
This is to certify that the COMMERCIAL BUILDING

Building Permit: BP-2010-0255

Building Electrical Mechanical Permits

CITY OF STAMFORD, CONNECTICUT

OP-2010-0993



Issued On: August 03, 2010

Chief Building Official
ROBERT D. DEMARCO
Robert D. Demarco



Unless sooner suspended or revoked.

This certificate is granted in conformity with the Statues and Ordinances relating thereto and Expires

INSTALL SOLAR ELECTRIC SYSTEM ON 2 ROOFS
FINAL INSPECTION: 8/3/2010

OWNER: ST LUKE'S COMMUNITY SERVICE INC AKA FRANKLIN COMMONS COPR

IS HEREBY GRANTED A PERMANENT CERTIFICATE OF OCCUPANCY

Located at 141 FRANKLIN STREET, STAMFORD, CT

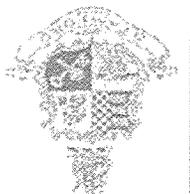
This is to certify that the COMMERCIAL BUILDING

Building Permit: BP-2010-0255

Building Electrical Mechanical Permits

CITY OF STAMFORD, CONNECTICUT

OP-2010-0993



Affidavit of Accuracy

The information contained in this Application or any part thereof, including its Exhibits, Schedules, and other documents and instruments delivered or to be delivered to the State of New Hampshire Public Utilities Commission, are true, accurate, and complete. This Application includes all information necessary to ensure that the statements therein do not in whole or in part mislead the State of New Hampshire Public Utilities Commission as to any material fact.

I certify:

- That the statements made in this Application, including all attachments, forms, and exhibits, are true and correct to the best of my knowledge.
- That the Applicant has not been convicted of bribery or attempting to bribe a public official or employee of the state, has not been disqualified for contract awards by any agency of the state, and is not in default under any contract with an agency of the state.

Applicant's legal name: Soltage MGTCO 1, LLC

Signature of certifying
authorized representative of
Project Owner 

Name of authorized
representative: David Feldman

Title: Assistant Director of Finance

Date signed: September 9, 2010



RENEWABLE ENERGY PROVIDER

September 9, 2010

Appendix A

The 135kW (ac) solar photovoltaic (PV) power system located at Saint Lukes Lifeworks, 141 Franklin Street, Stamford CT is interconnected to the local electrical distribution grid using a 'behind the meter' 208V 3 phase interconnection. As such, electricity that is generated by the solar PV system is used by the Saint Lukes Lifeworks facility, effectively reducing the demand on the local electricity distribution grid. During periods when the solar PV system produces more electricity than is needed by the Saint Lukes Lifeworks facility, the excess electricity is delivered back to the distribution grid via the utility company's transformer. The solar PV system electrical layout and interconnection arrangement are detailed in the attached drawings.

There is one solar PV inverter that controls the electrical interconnection between the solar PV system and the local distribution grid. This is a Satcon 135kW inverter. This inverter is designed, manufactured and certified in full accordance with UL 1741. The inverter cutsheet is attached.

The electricity production from the Solar PV system is measured by means of a revenue grade metering system, this incorporating the following primary components:

- One "Shark 100" revenue-grade meter (manufactured by Electro Industries), measuring the electricity output from the inverter.
- A Draker Laboratories "Sentalis 1000" monitoring system, enabling the output of the meter to be accessible remotely via internet connectivity.

Electrical generation data is manually entered into the NEPOOL GIS system via the GIS website. Performance has not been verified by ISO-New England. However, the design and certification of the Shark 100 meters is in full accordance with ANSI C12.20 (0.2% accuracy) and IEC 687 (0.2% accuracy). The Shark 100 meter cutsheet is attached.

Sincerely,
Soltage, LLC
Soltage – PLG 500 Milford, LLC
Soltage – MGTCO 1, LLC
Stephen A Goodbody
Vice President, Engineering

Attached: Electrical single and three line diagrams (1 drawing)
 Satcon 135kW inverter cutsheets (1 cutsheet)
 Electro Industries Shark 100 meter cutsheet (1 cutsheet)

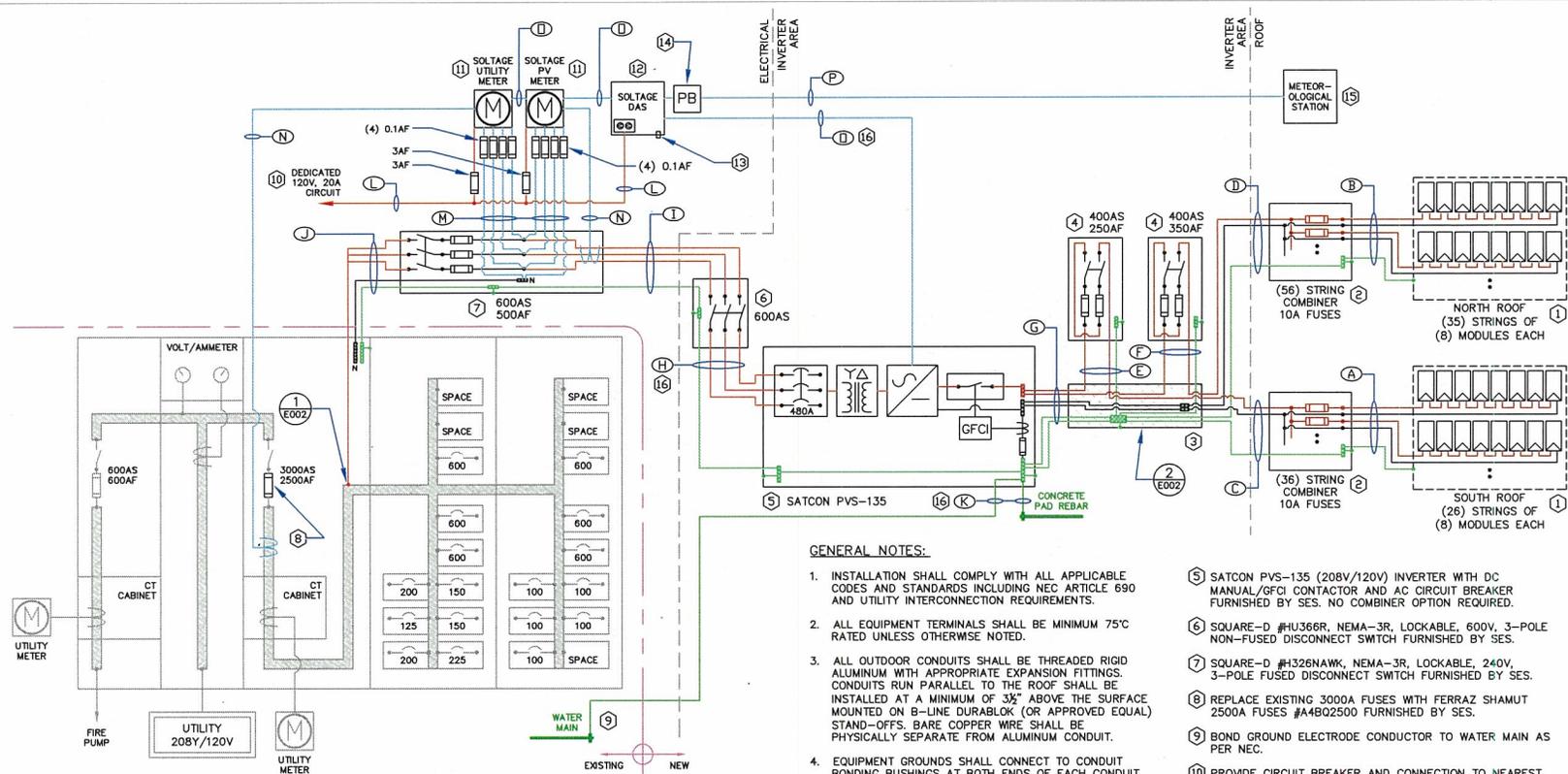
SOLAR PHOTOVOLTAIC
TOTAL SYSTEM SIZE=
148.84 kWp dc
(135 kWp ac)

SATCON POWERGATE PLUS PVS-135:

MAXIMUM OUTPUT POWER	135 KW
AC OUTPUT VOLTAGE (3-PHASE)	208 VAC
AC MAXIMUM OUTPUT CURRENT	375 A
DC MAXIMUM INPUT VOLTAGE	600 VDC
DC MAXIMUM CURRENT	454 A

SUNPOWER SPR305 MODULE:

PEAK POWER (±5%)	Pmax	305 W
RATED VOLTAGE	Vmp	54.7 V
RATED CURRENT	Imp	5.58 A
OPEN CIRCUIT VOLTAGE	Voc	64.2 V
SHORT CIRCUIT CURRENT	Isc	5.96 A



GENERAL NOTES:

- INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING NEC ARTICLE 690 AND UTILITY INTERCONNECTION REQUIREMENTS.
- ALL EQUIPMENT TERMINALS SHALL BE MINIMUM 75°C RATED UNLESS OTHERWISE NOTED.
- ALL OUTDOOR CONDUITS SHALL BE THREADED RIGID ALUMINUM WITH APPROPRIATE EXPANSION FITTINGS. CONDUITS RUN PARALLEL TO THE ROOF SHALL BE INSTALLED AT A MINIMUM OF 3/8" ABOVE THE SURFACE MOUNTED ON B-LINE DURABLOK (OR APPROVED EQUAL) STAND-OFFS. BARE COPPER WIRE SHALL BE PHYSICALLY SEPARATE FROM ALUMINUM CONDUIT.
- EQUIPMENT GROUNDS SHALL CONNECT TO CONDUIT BONDING BUSHINGS AT BOTH ENDS OF EACH CONDUIT THEY PASS THROUGH. ONLY (1) GROUND WIRE SHALL BE REQUIRED TO CONNECT TO A CONDUIT CONTAINING MULTIPLE GROUND WIRES.
- AC EQUIPMENT GROUND, DC EQUIPMENT GROUND AND GROUND ELECTRODE CONDUCTOR ARE ALL INTERNALLY BONDED WITHIN INVERTER. DO NOT BOND GROUNDS EXTERNAL TO INVERTER.
- SATCON PVS-135 (208V/120V) INVERTER WITH DC MANUAL/GFCI CONTACTOR AND AC CIRCUIT BREAKER FURNISHED BY SES. NO COMBINER OPTION REQUIRED.
- SQUARE-D #HU366R, NEMA-3R, LOCKABLE, 600V, 3-POLE NON-FUSED DISCONNECT SWITCH FURNISHED BY SES.
- SQUARE-D #H326NAWK, NEMA-3R, LOCKABLE, 3-POLE FUSED DISCONNECT SWITCH FURNISHED BY SES.
- REPLACE EXISTING 3000A FUSES WITH FERRAZ SHAMUT 2500A FUSES #A4BQ2500 FURNISHED BY SES.
- BOND GROUND ELECTRODE CONDUCTOR TO WATER MAIN AS PER NEC.
- PROVIDE CIRCUIT BREAKER AND CONNECTION TO NEAREST 120V PANELBOARD.
- INSTALL METER ON UNISTRUT. METER FURNISHED BY SOLTAGE. PROVIDE FUSES AS SHOWN IN METER ENCLOSURE.
- INSTALL DAS ON UNISTRUT. DAS FURNISHED BY SOLTAGE. PROVIDE 120V CONNECTION TO INTEGRAL POWER OUTLET AS SHOWN.
- PROVIDE PENETRATION IN DAS WITH RUBBER FITTING FOR CAT5 CABLE ENTRY (WIRING BY OTHERS).
- PROVIDE 6"X6"X6" PULL BOX INSTALLED ON UNISTRUT FOR COILED METEOROLOGICAL SENSOR WIRE LEADS.
- INSTALL METEOROLOGICAL STATION COMPONENTS ON DURABLOK SUPPORTS WITH OUTDOOR RATED UNISTRUT RACKING. PROVIDE ALL SENSOR CONNECTIONS IN RAC CONDUIT AS REQUIRED. STATION COMPONENTS AND WIRE FURNISHED BY SOLTAGE. COMPONENT WIRING SHALL NOT BE SHORTENED OR LENGTHENED. EXCESS WIRE LEADS SHALL BE COILED AND SECURED IN PULL BOX. INSTALL THE FOLLOWING COMPONENTS (NOT SHOWN):
 - (1) PLANE OF ARRAY PYRANOMETER
 - (1) HORIZONTAL PYRANOMETER
 - (1) AMBIENT TEMPERATURE SENSOR
 - (1) TEMPERATURE SENSOR SECURED TO BACK OF PV MODULE WITH 2-PART EPOXY
- CONDUIT SHALL BE RACKED AND BURIED WITHIN CONCRETE. SEE INVERTER PAD DRAWING FOR LOCATION AND SPECIFICATIONS.

KEY NOTES:

- SUNPOWER POWERGUARD SPR305 MODULES FURNISHED BY SES: SIXTY-ONE (61) STRINGS OF EIGHT (8) MODULES EACH. INSTALLATION SHALL FOLLOW ALL SUNTECH RECOMMENDATIONS AND GUIDELINES. A SEPARATE GROUND SHALL BE CONNECTED TO EACH PHYSICALLY ISOLATED POWERGUARD SUB-ARRAY. ARRAY SHALL BE (+) POSITIVE GROUNDING INTERNALLY WITHIN THE INVERTER.
- AMTEC PROMINENCE 36, 540A, 36-CIRCUIT, NEMA-4X, SOURCE CIRCUIT COMBINER FURNISHED BY SES. PROVIDE OUTDOOR RATED UNISTRUT SUPPORT MOUNTED ON ROOFTOP STAND-OFFS. COMBINER SHALL NOT BE MOUNTED IN A MANNER THAT WILL SHADE THE ARRAY.
- PROVIDE NEMA-3R, GASKETED, 10"X10" WIREWAY SUPPORTED BY OUTDOOR RATED UNISTRUT. SEE DRAWING E-002 FOR WIRING DETAILS.
- SQUARE-D #H365R, NEMA-3R, LOCKABLE, 600V, 3-POLE FUSED DISCONNECT SWITCH FURNISHED BY SES. 2-POLES SHALL BE WIRED IN SERIES AS SHOWN. 3RD POLE NOT USED. MOUNT TO OUTDOOR RATED UNISTRUT RACKING.

CONDUIT AND CONDUCTOR SCHEDULE

TAG	CONDUCTORS	CONDUIT	COMMENTS
A	(52)#10, (1)#6G	2 1/2" RAC*	ARRAY WIRING (RHW-2/USE-2)
B	(70)#10, (2)#6G	(2)2 1/2" RAC*	ARRAY WIRING (RHW-2/USE-2)
C	(4)3/0, (1)#1G	2" RAC	COMBINED ARRAY WIRING (THWN-2)
D	(4)300, (1)2/0G	3" RAC	COMBINED ARRAY WIRING (THWN-2)
E	(2)3/0, (2)4/0, (1)#1G	2 1/2" RAC	SWITCHED DC (THWN-2)
F	(2)300, (2)4/0, (1)2/0G	2 1/2" RAC	SWITCHED DC (THWN-2)
G	(8)4/0, (2)#1G	(2)2 1/2" RAC	INVERTER IN DC (THWN-2)
H	(6)250, (2)#2G	(2)2 1/2" PVC	INVERTER OUT AC (THWN-2)
I	(6)250, (2)#2G	(2)2 1/2" RSC	AC TIE-IN (THHN)
J	(6)250, (2)250N, (2)#2G	(2)2 1/2" RSC	AC TIE-IN (THHN)
K	(1)300G	2" PVC/RSC	GEC (THWN-2)
L	(1)#12, (1)#12N, (1)#12G	1/2" RSC	120V DAS POWER (THHN)
M	(4)#12	1/2" RSC	VOLTAGE TAPS (THHN)
N	(3)#12	1/2" RSC	CT LEADS (THHN)
O	EMPTY CONDUIT W/ PULL LINE	3/4" RSC	MODBUS COMMS
P	(4) SENSOR CABLES	3/4" RSC/RAC	SENSOR LEADS

* IF GREATER THAN (44) CONDUCTORS THEN CONDUIT LENGTH SHALL BE LESS THAN 2 FT.

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REVISIONS

#	BY	DATE	COMMENTS
1	JMS	08/04/2010	FOR CONSTRUCTION
2	JMS	08/23/2010	AS-BUILT

PROJECT
St. Lukes Lifeworks
 141 Franklin Street
 Stamford, CT 06901

SOLAR PV ELECTRIC SYSTEM:
ELECTRICAL SCHEMATIC

VERSION: 6

SEAL & SIGNATURE	DATE:	JAN-22-2010
	PROJECT No.	
	DRAWING BY:	JMS
	CHECK BY:	
	TDWG No.	
	E-001	
	CADD FILE No.	1 of 2

PVS-135 (208 V)

PVS-135 (240 V)

PVS-135 (480 V)

Unparalleled Performance

With their advanced system intelligence, next-generation Edge™ MPPT technology, and industrial-grade engineering, PowerGate® Plus inverters maximize system uptime and power production, even in cloudy conditions.

Power Efficiency

Power Level	Output Power ¹	Efficiency ²
10%	13.5 kW	92.9%
20%	27 kW	95.8%
30%	40.5 kW	96.5%
50%	67.5 kW	96.7%
75%	101.25 kW	96.5%
100%	135 kW	96.2%

¹ 310V minimum ² 480V model

Edge MPPT

Provides rapid and accurate control that boosts PV plant kilowatt yield

Provides a wide range of operation across all photovoltaic cell technologies

Printed Circuit Board Durability

Wide thermal operating range: -40° C (-40° F) to 85° C (185° F)

Conformal coated to withstand extreme humidity and air-pollution levels

Proven Reliability

Rugged and reliable, PowerGate Plus PV inverters are engineered from the ground up to meet the demands of large-scale installations.

Low Maintenance

Modular components make service efficient

Safety

UBC Seismic Zone 4 compliant

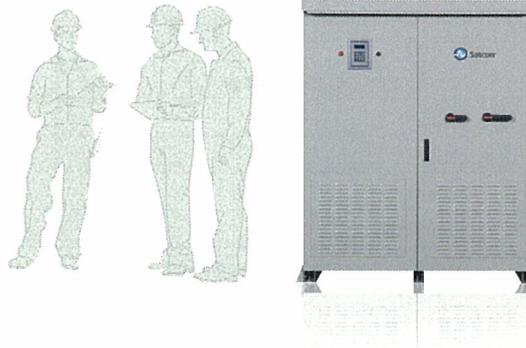
Built-in DC and AC disconnect switches

Integrated DC two-pole disconnect switch isolates the inverter (with the exception of the GFDI circuit) from the photovoltaic power system to allow inspection and maintenance

Built-in isolation transformer

Protective covers over exposed power connections

PV Inverters | PowerGate Plus 135 kW



PowerGate Plus 135 kW Specifications			UL/CSA
Input Parameters			
Maximum Array Input Voltage	600 VDC		•
Input Voltage Range (MPPT; Full Power)	310–600 VDC	208 VAC	•
	320–600 VDC	240 VAC	•
	310–600 VDC	480 VAC	•
Maximum Input Current	454A DC	208 VAC	•
	440A DC	240 VAC	•
	454A DC	480 VAC	•
Output Parameters			
Output Voltage Range (L-L)	183–229 VAC	208 VAC	•
	211–264 VAC	240 VAC	•
	422–528 VAC	480 VAC	•
Nominal Output Voltage	208 VAC		•
	240 VAC		•
	480 VAC		•
Output Frequency Range	59.3–60.5 Hz		•
AC Voltage Range (Standard)	-12%/+10%		•
Nominal Output Frequency	60 Hz		•
Number of Phases	3		•
Maximum Output Current per Phase	375A	208 VAC	•
	325A	240 VAC	•
	163A	480 VAC	•
CEC-Weighted Efficiency	96%		•
Maximum Continuous Output Power	135 kW (135 kVA)		•
Tare Losses	63.12 W	208 VAC	•
	63.7 W	240 VAC	•
	63.37 W	480 VAC	•
Power Factor at Full Load	>0.99		•
Harmonic Distortion	<3% THD		•

• Standard ◦ Optional



Output Options

PowerGate Plus 135 kW

UL/CSA	208 VAC Output
	240 VAC Output
	480 VAC Output

Streamlined Design

With all components encased in a single, space-saving enclosure, PowerGate Plus PV inverters are easy to install, operate, and maintain.

Single Cabinet with Small Footprint

Convenient access to all components
Large in-floor cable glands make access to DC and AC cables easy

Rugged Construction

Engineered for outdoor environments

Output Transformer

Provides galvanic isolation
Matches the output voltage of the PV inverter to the grid

PowerGate Plus 135 kW Specifications

UL/CSA

Temperature

Operating Ambient Temperature Range (Full Power) -20° C to +50° C

Storage Temperature Range -30° C to +70° C

Cooling Forced Air

Noise

Noise Level <65 dB(A)

Combiner

Number of Inputs and Fuse Rating 5 (160A DC)

9 (100A DC)

Inverter Cabinet

Enclosure Rating NEMA 3R

Enclosure Finish (14-Gauge, Powder-Coated G90 Steel) RAL-7032

Cabinet Dimensions (Height x Width x Depth) 80" x 65" x 30.84"

Cabinet Weight 2,684 lbs.

Transformer

Integrated Internal Transformer

Low Tap Voltage¹ 20%

Testing and Certification

UL1741, CSA 107.1-01, IEEE 1547, IEEE C62.41.2, IEEE C62.45, IEEE C37.90.1, IEEE C37.90.2

UBC Zone 4 Seismic Rating

Warranty

Five Years

Extended Warranty (up to 10, 15, or 20 years)

Extended Service Agreement

Intelligent Monitoring

Satcon PV View® Plus

Satcon PV Zone®

Third-Party Compatibility

- Standard
- Optional

¹ The 20% boost tap on the isolation transformer increases the AC voltage output range for applications where the solar array DC operating voltage is at or near the lower end of the DC input range. This boost allows for continued inverter operation at lower DC voltage input levels.

Note: Specifications are subject to change.

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Satcon Corporate
27 Drydock Avenue
Boston, MA 02210
P: +1.617.897.2400
F: +1.617.897.2401
E: sales@satcon.com

Satcon West
2925 Bayview Drive
Fremont, CA 94538
P: +1.510.226.3800
F: +1.510.226.3801
E: sales@satcon.com

Satcon Canada
835 Harrington Court
Burlington, ON L7N 3P3
Canada
P: +1.905.639.4692
F: +1.905.639.0961
E: sales@satcon.com

Satcon Greece
Athanasiou Diakou 2 &
Marathonas Ave
Gerakas 15344
Greece
P: +30.210.6654424
F: +30.210.6654425
E: sales@satcon.com

Satcon Czech Republic
Classic 7 Business Park
Jankovcova 1037/49
170 00 Praha 7
Czech Republic
P: +420.255.729.610
F: +420.255.729.611
E: sales@satcon.com

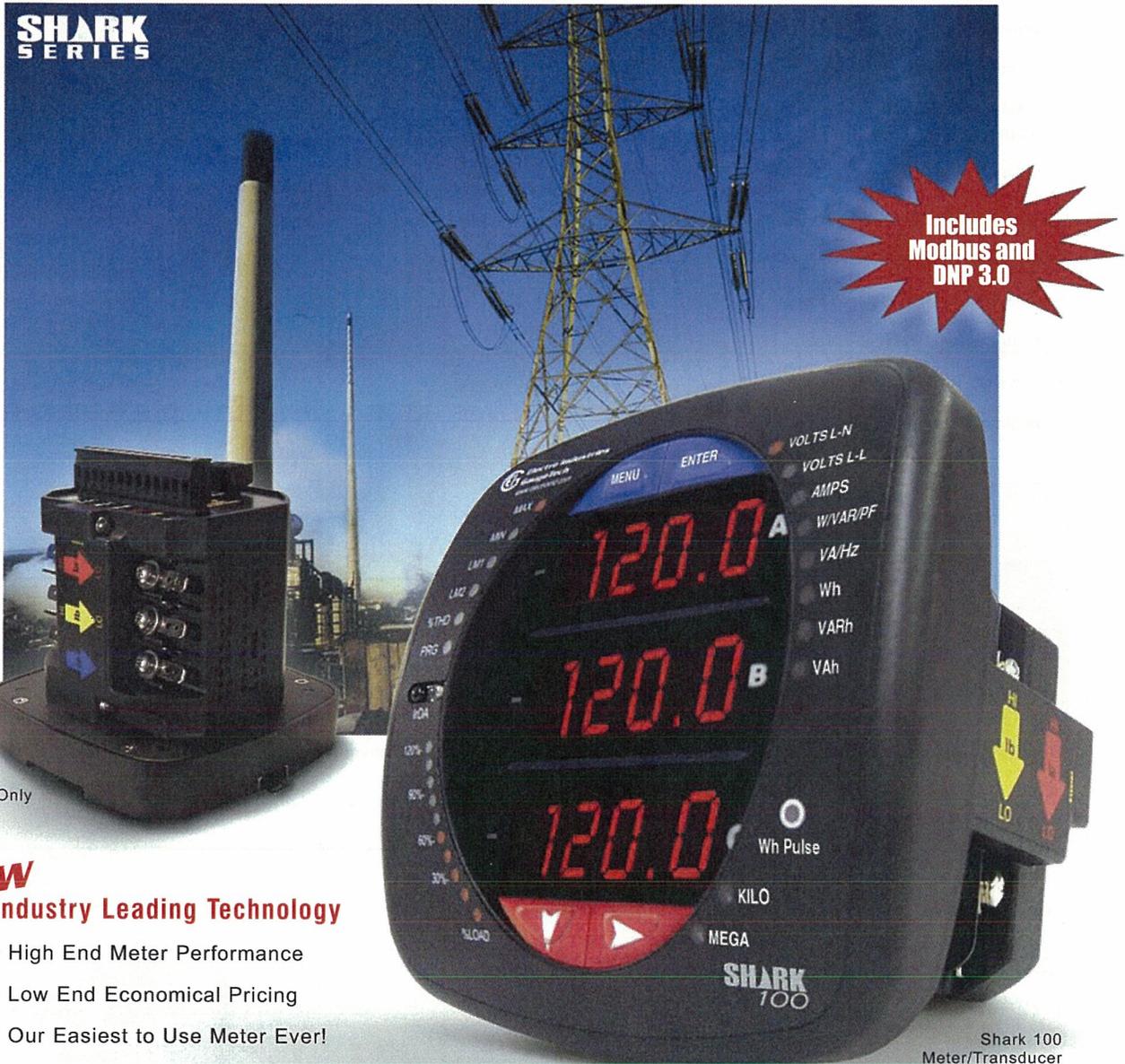
Satcon Shenzhen China
Room 1112, 11/F, International
Chamber of Commerce,
No. 168 FuHua San Road,
FuTian District, Shenzhen, P.R.C.
518048
P: +86.755.6168.2588
F: +86.755.6168.2599
E: sales@satcon.com

Satcon Shanghai China
Room 2308, 23/F, New
HongQiao Center Building,
No. 83 LouGuanShan Road,
Changning District,
Shanghai, P.R.C.
P: +86.139.1811.2818
E: sales@satcon.com

SHARK100

MULTIFUNCTION POWER AND ENERGY METER

Revenue Grade



Shark 100T
Transducer Only

NEW Industry Leading Technology

- High End Meter Performance
- Low End Economical Pricing
- Our Easiest to Use Meter Ever!

Shark 100
Meter/Transducer

A G G R E S S I V E T E C H N O L O G Y

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ELECTRICAL & ELECTRONIC
MEASURING & TEST EQUIP.
22CZ

Feature Summary

- **0.2% Class Revenue Certifiable Energy and Demand Metering**
- **Meets ANSI C12.20 (0.2%) and IEC 687 (0.2%) Accuracy Classes**
- **Multifunction Measurements including Voltage, Current, Power, Frequency, Energy, etc.**
- **Optional KYZ Pulse**
- **Power Quality Measurements (%THD and Alarm Limits)**
- **V-Switch® Technology - Field Upgrade without Removing Installed Meter**
- **3 Line .56" Bright Red LED Display**
- **% of Load Bar for Analog Meter Perception**
- **RS485 Modbus and DNP 3.0 Protocol - 57.6K Baud**
- **IrDA Port for PDA Remote Read**
- **Ultra Compact, Easy to Install**
- **Fits Both ANSI and DIN Cut-Outs**
- **Available in a Transducer Only Version**



AGGRESSIVE TECHNOLOGY



Applications

- **Utility Metering**
- **Commercial Metering**
- **Substations**
- **Industrial Metering**
- **Power Generation**
- **Campus Metering**
- **Submetering**
- **Analog Meter Replacement**

Introduction

Electro Industries introduces one of the industry's highest performance revenue grade panel meters. Based on an all new platform, this low cost meter significantly outperforms other devices many times its price. This unit is perfect for new metering applications and for a simple replacement to existing analog meters.

The Shark excels in metering energy accurately exceeding ANSI C12.20 (0.2%) and IEC 687 (0.2%) energy measurement standards. The unit utilizes high speed DSP technology with high resolution A/D conversion to provide revenue certifiable accuracy for Utility Billing, Substation Metering, Submetering and Critical Metering applications.



V-Switch, Measurement Upgrade Packs

The Shark 100 is equipped with EIG's exclusive V-Switch® Technology. V-Switch® is a virtual firmware-based switch that allows you to enable meter features through communication, even after installation. Using V-Switches, you can purchase what you require now and field upgrade functionality as needed. This allows you to optimize your metering investment. Begin with a simple indication meter and upgrade it to full functioning energy billing meter with advanced measurement capability. Advanced versions of the Shark 100 (V3 and V4) also include DNP 3.0 communication protocol.

Available V-Switches:

- **V-Switch 1** – Volts and Amps Meter – Default
- **V-Switch 2** – Volts, Amps, kW, kVAR, PF, kVA, Freq.
- **V-Switch 3** – Volts, Amps, kW, kVAR, PF, kVA, Freq, kWh, kVAh, kVARh and DNP 3.0
- **V-Switch 4** – Volts, Amps, kW, kVAR, PF, kVA, Freq, kWh, kVAh, kVARh, %THD Monitoring, Limit Exceeded Alarms and DNP 3.0

Accuracy

Measured Parameters	Accuracy % of Reading	Display Range
Voltage L-N	0.1%	0-9999 Scalable V or kV
Voltage L-L	0.1%	0-9999 V or kV Scalable
Current	0.1%	0-9999 Amps or kAmps
+/- Watts	0.2%	0-9999 Watts, kWatts, MWatts
+/-Wh	0.2%	5 to 8 Digits Programmable
+/-VARs	0.2%	0-9999 VARs, kVARs, MVARs
+/-VARh	0.2%	5 to 8 Digits Programmable
VA	0.2%	0-9999 VA, kVA, MVA
VAh	0.2%	5 to 8 Digits Programmable
PF	0.2%	+/- 0.5 to 1.0
Frequency	0.01 Hz	45 to 65 Hz
%THD	5.0%	0 to 100%
% Load Bar	1-120%	10 Digit Resolution Scalable

Note: Typical results are more accurate. Applies to 3 Element WYE and 2 Element Delta Connections.

Traceable Watt-Hour Test Pulse for Accuracy Verification

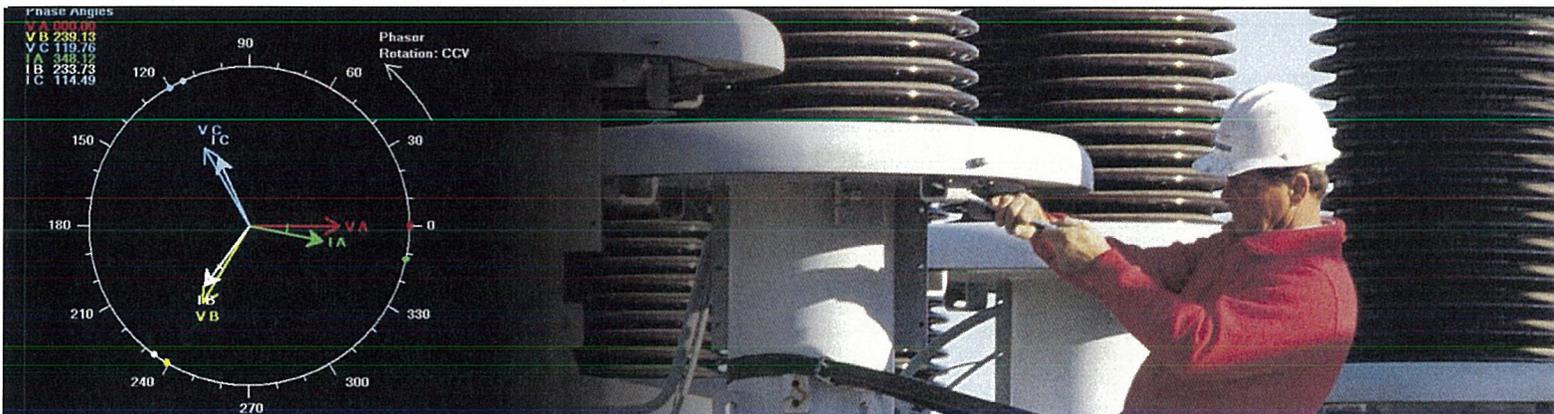
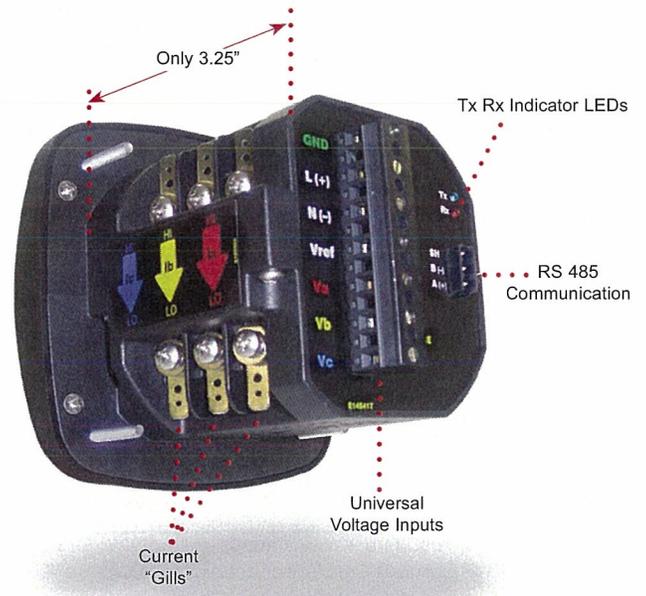
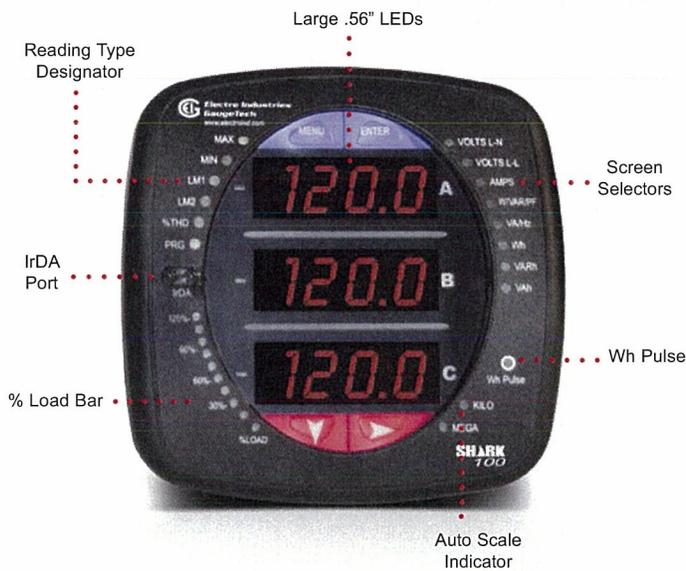
To be certified for revenue metering, power providers and utility companies need to know that the billing energy meter will perform to the stated accuracy. To verify the meter's performance and calibration, power providers use field test standards to ensure that the unit's energy measurements are correct. Since Shark 100 is a traceable revenue meter, it contains a utility grade test pulse allowing power providers to verify and confirm that the meter is performing to its rated accuracy. This is an essential feature required of all billing grade meters.

Measured Values	Real-Time	Avg	Max	Min
Voltage L-N	•		•	•
Voltage L-L	•		•	•
Current Per Phase	•	•	•	•
Watts	•	•	•	•
VAR	•	•	•	•
VA	•	•	•	•
PF	•	•	•	•
+Watt-hr	•			
-Watt-hr	•			
Watt-hr net	•			
+VAR-hr	•			
-VAR-hr	•			
VAR-hr net	•			
VA-hr	•			
Frequency	•		•	•
%THD	•		•	•
Voltage Angles	•			
Current Angles	•			
% of Load Bar	•			

Easy To Use and Install

EIG Engineers designed this meter to be as easy to use and install as possible. From user interface to mechanical construction, many hours were spent to make the Shark straightforward and intuitive so an installer with minimal meter experience and training can succeed with the product. Shark is programmed using a PDA, a PC Computer or through a simple keypad interface. Additionally, using the PC or PDA, a technician or electrician can see a visual phasor diagram of the vectors insuring that CT and Voltage polarities are correct. All inputs are color coordinated and have clear simple-to-understand labeling to avoid cross wiring mistakes by installers. This is very useful in OEM applications in which time of install affects the cost of the product.

- Easy to Use Faceplate Programming
- PC Setup
- PDA Setup using IrDA Port
- Phasor Diagram Showing Wiring Status
- Auto Scroll Feature
- Analog Style % of Load Bar
- Shallow Panel Depth
- Quick Connect Voltage and Com Leads
- Quick Connect Current Pass Through
- Color Coordinated Voltage and Current Inputs



Superior Voltage and Current Inputs

The Shark 100 is ruggedly designed for harsh electrical applications on both high voltage as well as low voltage power systems. This is especially important in Power Generation, Utility Substation and Critical User applications. The structural and electrical design of this meter was developed based on the recommendations and approvals of many of our Utility customers.

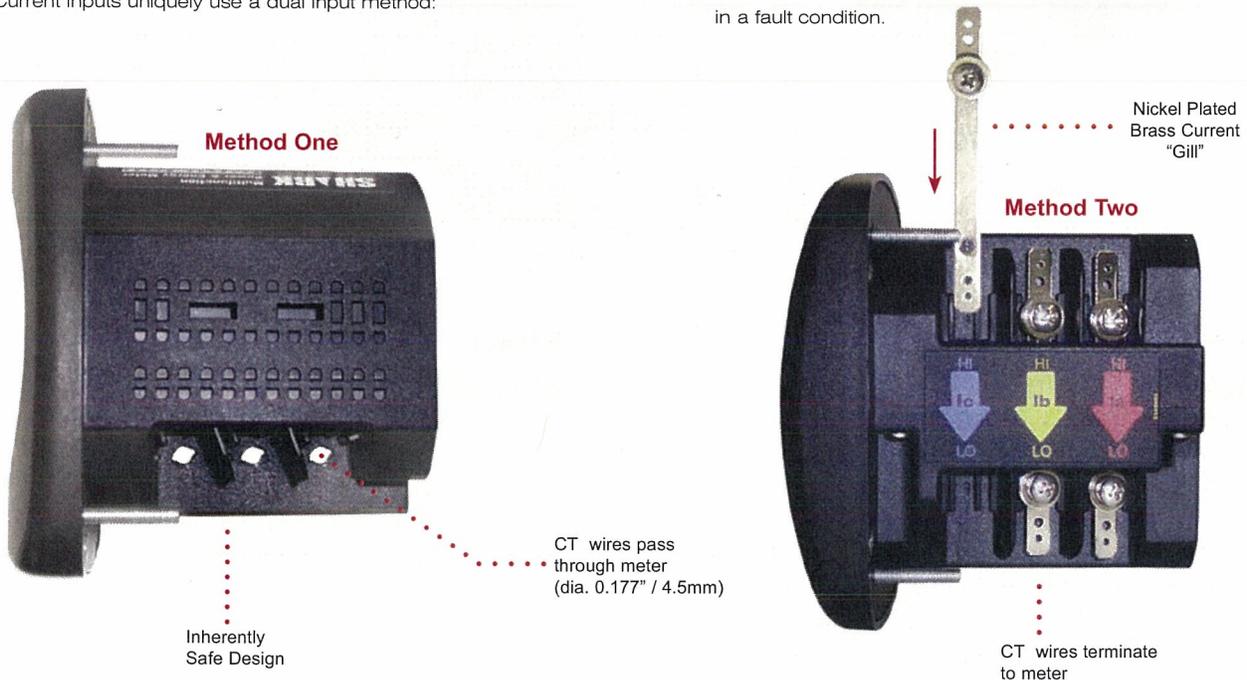
Universal Voltage Inputs

Voltage inputs allow measurement to 416 Volts Line to Neutral and 721 Volts Line to Line. This insures proper meter safety when wiring directly to high voltage systems. One unit will perform to specification on 69 Volt, 120 Volt, 230 Volt, 277 Volt and 347 Volt power systems.

Current Inputs

Current inputs uniquely use a dual input method:

- **Method One** – CT Pass Through. The CT passes directly through the meter without any physical termination on the meter. This insures that the meter cannot be a point of failure on the CT circuit. This is preferable to utility users when sharing relay class CTs. No Burden is added to the secondary CT circuit.
- **Method Two** – Current "Gills." This unit additionally provides ultrarugged termination pass-through bars, allowing the CT leads to be terminated on the meter. This, too, eliminates any possible point of failure at the meter. This method is also a preferred technique for insuring that relay class CT integrity is not compromised. Inferior designs do not provide this advanced protective aspect and utilize terminal blocks to pass CT current through a soldered connection on a printed circuit board. Shark's stud-based design insures that your CTs will not open in a fault condition.



Utility Peak Demand Metering

The Shark 100 provides user-configured Block Window or Rolling Window Demand. This allows you to set up a particular utility demand profile. Block Window Demand is demand used over a fixed user-configured demand period (usually 5, 15 or 30 minutes). Rolling Window Demand is a fixed window demand that moves for a user specified sub-interval period. An example-would be a 15-minute demand

using 3 subintervals, providing a new demand reading every 5 minutes based on the last 15 minutes. Readings for kW, kVAR, kVA and PF are calculated using utility demand structures. All other parameters offer max and min capability over the user-selectable averaging period. Voltage provides an instantaneous max and min reading, displaying the highest surge and lowest sag seen by the meter.

Advanced Communication Capability with IrDA Interface

The Shark 100 provides two independent Communication ports with advanced features.

Back Mounted Port with KYZ Pulse (option 485P)

- RS485 - This port allows RS485 communication using Modbus or DNP3.0 Protocols. Baud rate are from 9600 to 57.6k.
- KYZ Pulse - In addition to the RS485, the meter also includes a KYZ pulse mapped to positive energy. This is a fixed energy pulse. Pulse values are:

K(h) at Test Volts less than 150V=0.0501151926

K(h) at Test Volts more than 150V=0.2004607704

Front Mounted IrDA Communication

Uniquely, the Shark also has an optical IrDA port, allowing the unit to be set up and programmed using a PDA or remote laptop without need for a communication cable. Just point at the meter with an IrDA-equipped PC or PDA and configure it. COPILOT EXT is a Windows CE software package that allows you to simply point at a Shark, configure it and poll readings.



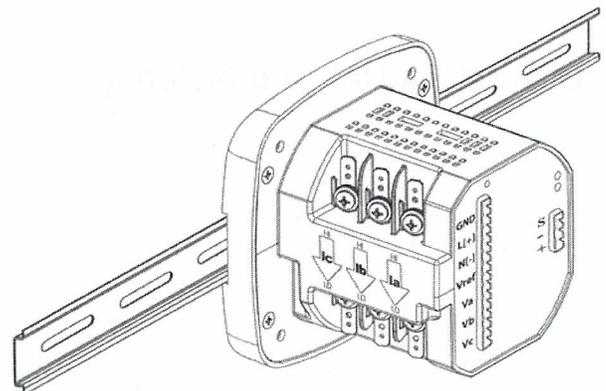
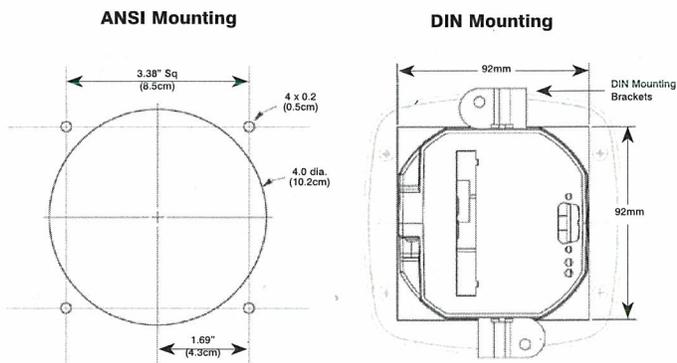
Simultaneous Dual Communication Paths

Shark 100 ANSI and DIN Mounting

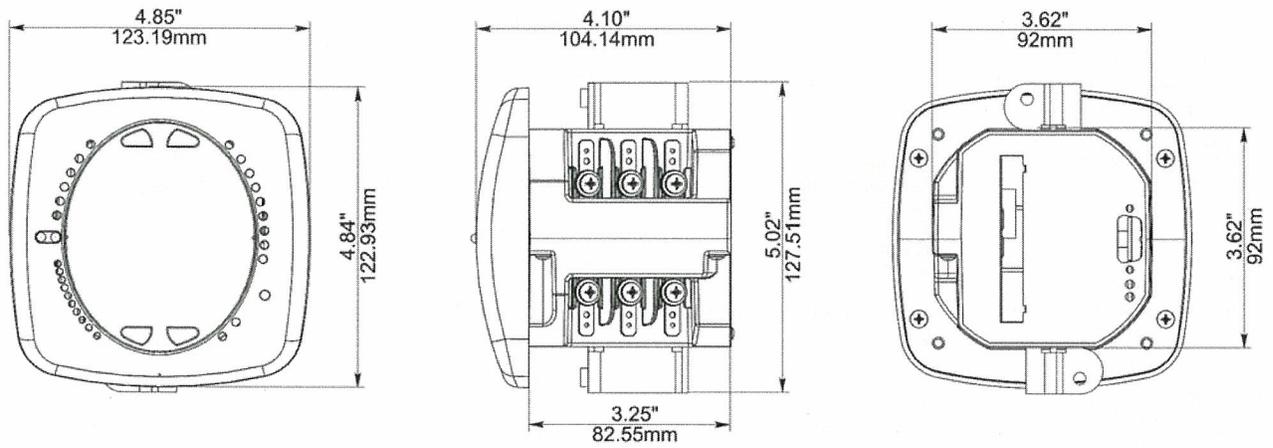
The unit mounts directly in an ANSI C39.1 (4" Round form) or an IEC 92 mm DIN square form. This is perfect for new installations and for existing panels. In new installations, simply use existing DIN or ANSI punches. For existing panels, pull out old analog meters and replace them with the Shark 100. The meter uses standard voltage and current inputs so that CT and PT wiring do not need to be replaced.

Shark 100T ANSI and DIN Mounting

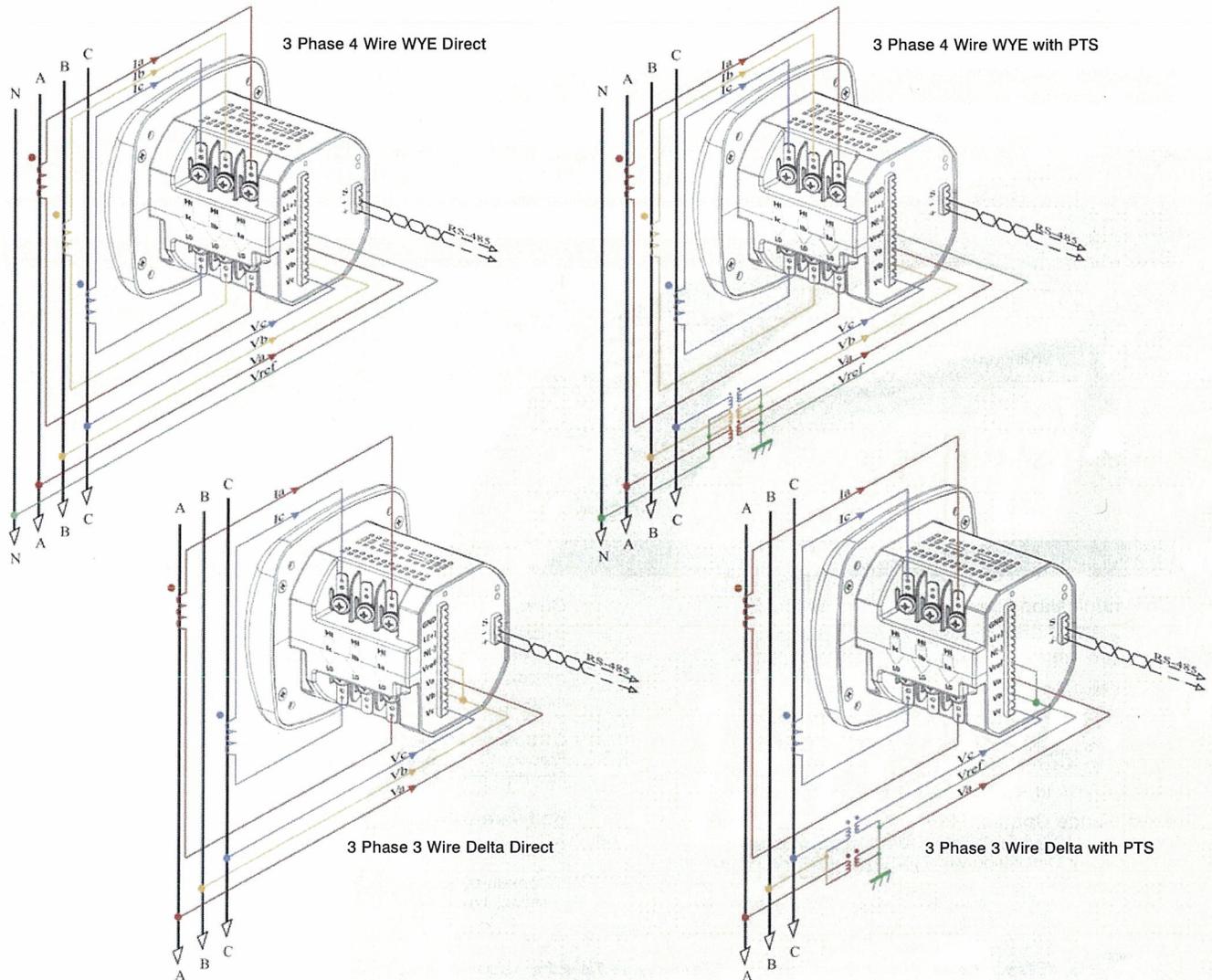
The Shark 100T is a transducer version of the Shark100 which does not include a display. The unit mounts directly to a DIN rail and provides an RS485 Modbus or DNP 3.0 output.



Dimensional Drawings



Wiring Diagrams



Specifications

Voltage Inputs

- 0-416 Volts Line To Neutral, 0-721 Volts Line to Line
- Universal Voltage Input
- Input Withstand Capability – Meets IEEE C37.90.1 (Surge Withstand Capability)
- Programmable Voltage Range to Any PT ratio
- Supports: 3 Element WYE, 2.5 Element WYE, 2 Element Delta, 4 Wire Delta Systems
- Burden: 0.36VA per phase Max at 600V, 0.014VA at 120 Volts
- Input wire gauge max (AWG 12 / 2.5mm²)
- **Note:** Accuracy specs doubled for 2.5 Element connections.

Current Inputs

- Class 10: (0 to 11) A, 5 Amp Nominal
- Class 2: (0 to 2) A, 1A Nominal Secondary
- Fault Current Withstand: 100 Amps for 10 Seconds, 300 Amps for 3 Seconds, 500 Amps for 1 Second.
- Programmable Current to Any CT Ratio

- Burden 0.005VA per phase Max at 11Amps
- 5mA Pickup Current
- Pass through wire gauge dimension: 0.177" / 4.5mm

Isolation

All Inputs and Outputs are galvanically isolated to 2500 Volts AC.

Environmental Rating

Storage: (-40 to +85)^o C

Operating: (-30 to +70)^o C

Humidity: to 95% RH Non-Condensing

Faceplate Rating:

NEMA12
(Water Resistant)
Mounting Gasket Included

Sensing Method

- True RMS
- Sampling at 400+ Samples per Cycle on all channels measured readings simultaneously
- Harmonic %THD (% of Total Harmonic Distortion)

Update Rate

- Watts, VAR and VA-100msec
- All other parameters-1second

Power Supply

Option D2:

- (90 to 265) Volts AC and (100 to 370) Volts DC.
- Universal AC/DC Supply

Option D:

- 24-48VDC +/- 10%

Burden: 10VA max.

Communication Format

- 2 Com Ports (Back and Face Plate)
- RS485 Port (Through Back Plate)
- IrDA (Through Faceplate)
- Com Port Baud Rate: (9600 to 57,600)
- Com Port Address: 0-247
- 8 Bit, No parity
- Modbus RTU, ASCII or DNP 3.0 Protocols

KYZ Pulse

- Type Form A
- On Resistance: 23-35W
- Peak Voltage: 350 VDC
- Continuous Load Current: 120 mA
- Peak Load Current: 350mA (10ms)
- Off Stat Leakage Current @ 350VDC: 1 mA

- Opto-Isolation: 3750V (60Hz, 1min)

Dimensions and Shipping

- Weight: 2 lbs
- Basic Unit: H4.85 x W4.82 x L4.25
- Shark100 - mounts in 92mm DIN and ANSI C39.1 Round Cut-outs
- Shark100T-DIN rail mounted transducer
- Shipping Container Dimensions: 6" cube

Meter Accuracy

- See page 3

Compliance:

- IEC 687 (0.2% Accuracy)
- ANSI C12.20 (0.2% Accuracy)
- ANSI (IEEE) C37.90.1 Surge Withstand
- ANSI C62.41 (Burst)
- IEC1000-4-2 – ESD
- IEC1000-4-3 – Radiated Immunity
- IEC 1000-4-4 – Fast Transient
- IEC 1000-4-5 – Surge Immunity

Ordering Information

To order, please fill out ordering guide:

	Model	Frequency	Current Class	V-Switch Pack	Power Supply	COM (Shark100 Only)	Mounting (Shark100 Only)					
Option Numbers:	-	-	-	-	-	-	-					
Example:	-	-60	-	-10	-	-V2	-	-D2	-	-X	-	-X
Shark100 (Meter/Transducer)	-50 50 Hz System	-10 5 Amp Secondary	-V1 Default V-Switch Volts / Amps	-D2 90-265V AC/DC	-X No Com	-X ANSI Mounting						
Shark100T (Transducer Only)	-60 60 Hz System	-2 1 Amp Secondary	-V2 Above with Power and Freq	-D 24-48V DC	-485P RS485+Pulse (Standard in Shark 100T)	-DIN Mounting Brackets						
			-V3 Above with Energy Counters									
			-V4 Above with Harmonics and Limits									

Additional Accessories

Communication Converters

- **9PINC** – RS232 Cable
- **CAB6490** - USB to IrDA Adapter
- **Unicom 2500** - RS485 to RS232 Converter
- **Unicom 2500-F** – RS485 to RS232 to Fiber Optic Converter
- **Modem Manager, Model #, MM1** – RS485 to RS232 Converter for Modem Communication
- **IrDA232** - IrDA to RS232 Adapter for Remote Read

Compliance Documents

Certificate of Calibration, Part #: CCal – This provides Certificate of Calibration with NIST traceable Test Data.

Current Transformer Kits

- **CT200K** – 200/5 Ratio .94" Window 3 CTs
- **CT400K** – 400/5 Ratio, 1.25" Window, 3 CTs
- **CT800K** – 800/5 Ratio, 2.06" Window, 3 CTs
- **CT2000K** – 2000/5 Ratio, 3.00" Window, 3 CTs

CT Specifications:

Frequency: 50 to 400Hz; Insulation: 600 Volts, 10kV BIL
Flexible Leads: UL 1015 105°C, CSA Approved, 24" Long, #16AWG

Software Option Numbers

COMEXT3 – CommunicatorEXT 3.0 for Windows®

* Consult factory application engineer for additional transformer ratios, types or window sizes.



Electro Industries/GaugeTech 1800 Shames Drive • Westbury,
NY 11590
1-877-EIMETER (1-877-346-3837) • **E-Mail:** sales@electroind.com
Tel: 516-334-0870 • **Web Site:** www.electroind.com • **Fax:** 516-338-4741