



# Application for Interconnection and Net Metering – Level 1

Use this Application only for: 1.) a generating facility that is inverter based and certified by a nationally recognized testing laboratory to meet the requirements of UL 1741, 2.) less than or equal to 30 kW generation capacity and 3.) connecting to Kentucky Power distribution system.

Submit this Application to: Terry Hemsworth  
American Electric Power  
1 Riverside Plaza  
Columbus, Ohio 43215-2373  
614-716-4020 Office / 614-716-1605 Fax  
[themsworth@aep.com](mailto:themsworth@aep.com)

### Applicant

Name: US Army Corps of Engineers  
Mailing Address: 502 8th Street  
City: Huntington State: WV Zip: 25701  
Phone: (304) 399-5146 Phone: ( ) \_\_\_\_\_  
E-mail address: [REDACTED]

### Service Location

Street Address: 708 Yatesville Dam RD  
City: Louisa State: Kentucky Zip: 41230  
Electric Service Account Number: [REDACTED] (Maint. Compound)

### Alternate Contacts

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating facilities:

Name	Company
<u>Matt PartyMiller</u>	<u>Solar Energy Solutions</u>
_____	_____
_____	_____

**KENTUCKY  
PUBLIC SERVICE COMMISSION**

Telephone/Email  
**JEFF R. DEROUEN**  
**EXECUTIVE DIRECTOR**  
[REDACTED]

(859) 312-7456  
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PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

**Equipment Qualifications**

Energy Source: (X) Solar ( ) Wind ( ) Hydro ( ) Biogas ( ) Biomass

Inverter Manufacturer: SMA America Model: Sunny Boy 10000TL-US 240V

Inverter Power Rating: 10 KW AC (x2) Voltage Rating: 240V AC

Power Rating of Energy Source (i.e., solar panels, wind turbine): 21 KW DC

Battery Storage: ( ) Yes (X) No If Yes, Battery Power Rating: \_\_\_\_\_

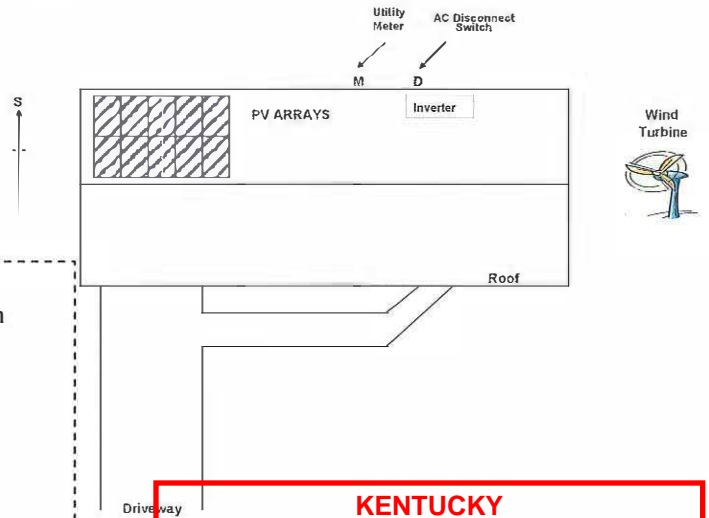
*Attach documentation showing that inverter is certified by a nationally recognizes testing laboratory to meet the requirements of UL 1741.*

*Attach site drawing or sketch showing locations of Kentucky Power meter, energy source, accessible disconnect switch and inverter.*

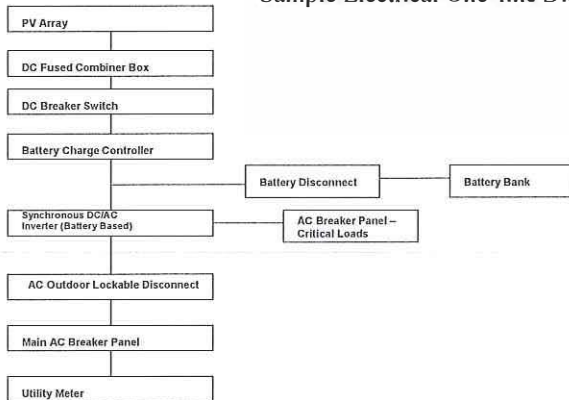
*Attach single line drawing showing all electrical equipment from the metering location to the energy source including: switches, fuses, breakers, panels, transformers, inverters, energy source, wire size, equipment ratings, and transformer connections.*

**Expected Start-up Date:** January 1, 2015

Sample Site Diagram



Sample Electrical One-line Diagram



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PURSUANT TO 805 KAR 2-016 SECTION 9 (1)

**TERMS AND CONDITIONS:**

1. Kentucky Power Company (Company) shall provide customer net metering services, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the customer requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the customer's expense.
2. Customer shall install, operate, and maintain, at customer's sole cost and expense, any control, protective, or other equipment on the customer's system required by the Company's technical interconnection requirements based on IEEE 1547, the NEC, accredited testing laboratories such as Underwriters Laboratories, and the manufacturer's suggested practices for safe, efficient, and reliable operation of the generating facility in parallel with Company's electric system. Customer shall bear full responsibility for the installation, maintenance, and safe operation of the generating facility. Upon reasonable request from the Company, customer shall demonstrate generating facility compliance.
3. The generating facility shall comply with, and the customer shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by the Institute of Electrical and Electronics Engineers (IEEE) and accredited testing laboratories such as Underwriters Laboratories (UL); (b) the National Electrical Code (NEC) as may be revised from time to time; (c) Company's rules, regulations, and Company's Terms and Conditions of Service as contained in Company's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, customer shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation.
4. Any changes or additions to the Company's system required to accommodate the generating facility shall be considered excess facilities. Customer shall agree to pay Company for actual costs incurred for all such excess facilities prior to construction.
5. Customer shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics, or otherwise interfere with the operation of Company's electric system. At all times when the generating facility is being operated in parallel with Company's electric system, customer shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Company to any of its other customers or to any electric system interconnected with Company's electric system. Customer shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Company's ability to meet its primary responsibility of furnishing reasonably adequate service to its customers.
6. Customer shall be responsible for protecting, at customer's sole cost and expense, the generating facility from any condition or disturbance on Company's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that the Company shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of the Company.
7. After initial installation, Company shall have the right to inspect and/or witness commissioning tests, as specified in the Level 1 or Level 2 Application and approval process. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to customer, Company shall have the right to access the generating facility to perform reasonable on-site inspections to verify that the installation, maintenance and operation of the generating facility comply with the requirements of this tariff.

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8. For Level 1 generating facilities, where required by the Company, an eligible customer shall furnish and install on customer's side of the point of common coupling a safety disconnect switch which shall be capable of fully disconnecting the customer's energy generating equipment from Company's electric service under the full rated conditions of the customer's generating facility. The external disconnect switch (EDS) shall be located adjacent to Company's meters or the location of the EDS shall be noted by placing a sticker on the meter, and shall be of the visible break type in a metal enclosure which can be secured by a padlock. If the EDS is not located directly adjacent to the meter, the customer shall be responsible for ensuring the location of the EDS is properly and legibly identified for so long as the generating facility is operational. The disconnect switch shall be accessible to Company personnel at all times. The Company may waive the requirement for an EDS for a generating facility at its sole discretion, and on a case-by-case basis, upon review of the generating facility operating parameters and if permitted under the Company's safety and operating protocols.

The Company shall establish a training protocol for line workers on the location and use of the EDS, and shall require that the EDS be used when appropriate, and that the switch be turned back on once the disconnection is no longer necessary.

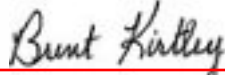
9. Company shall have the right and authority at Company's sole discretion to isolate the generating facility or require the customer to discontinue operation of the generating facility if Company believes that: (a) continued interconnection and parallel operation of the generating facility with Company's electric system creates or contributes (or may create or contribute) to a system emergency on either Company's or customer's electric system; (b) the generating facility is not in compliance with the requirements of this tariff, and the noncompliance adversely affects the safety, reliability or power quality of Company's electric system; or (c) the generating facility interferes with the operation of Company's electric system. In non-emergency situations, Company shall give customer notice of noncompliance including a description of the specific noncompliance condition and allow customer a reasonable time to cure the noncompliance prior to isolating the generating facilities. In emergency situations, when the Company is unable to immediately isolate or cause the customer to isolate only the generating facility, the Company may isolate the Customer's entire facility.

10. Customer shall agree that, without the prior written permission from Company, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection and Net Metering" which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components with like components that meet UL 1741 certification requirements for Level 1 facilities and not resulting in increases in generating facility capacity is allowed without approval.

11. With respect to the generation facilities and their interconnection to Company's electric system, Customer (an agency of the Federal Government) is liable for damages or injuries due to its negligence to the extent, and as provided, by the Federal Tort Claims Act.

12. Customer is an agent of the Federal Government which is self-insured.

13. By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Company does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.

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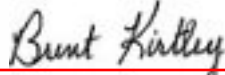
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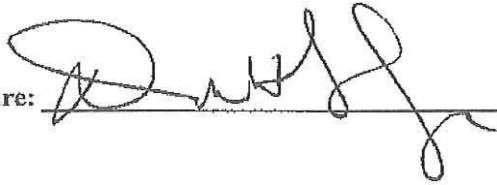
14. Customer's generating facility is transferable to other persons or service locations only after notification to the Company has been made and verification that the installation is in compliance with this tariff. Upon written notification that an approved generating facility is being transferred to another person, customer, or location, the company will verify that the installation is in compliance with this tariff and provide written notification to the Customer(s) within 20 business days. If the installation is no longer in compliance with this tariff, the Company will notify the customer in writing and list what must be done to place the facility in compliance.

15. The Customer shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

### Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties and shall continue in effect until terminated. This Agreement may be terminated as follows: (a) Customer may terminate this Agreement at any time by giving the Company at least sixty (60) days' written notice; (b) Company may terminate upon failure by the Customer to continue ongoing operation of the generating facility; (c) either party may terminate by giving the other party at least thirty (30) days prior written notice that the other party is in default of any of the terms and conditions of the Agreement or the Rules or any rate schedule, tariff, regulation, contract, or policy of the Company, so long as the notice specifies the basis for termination and there is opportunity to cure the default; (d) the Company may terminate by giving the Customer at least thirty (30) days notice in the event that there is a material change in an applicable law, regulation or statute affecting this Agreement or which renders the system out of compliance with the new law or statute. I hereby certify that, to the best of my knowledge, all of the information provided in this Application is true, and I agree to abide by all the Terms and Conditions included in this Application for Interconnection and Net Metering and Company's Net Metering Tariff.

Customer Signature: \_\_\_\_\_



Date: 1-7-2015

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**COMPANY APPROVAL SECTION**

When signed below by a Company representative, Application for Interconnection and Net Metering is approved subject to the provisions contained in this Application and as indicated below.

**Company inspection and witness test: ( X ) Required ( ) Waived**

If Company inspection and witness test is required, Customer shall notify the Company within three (3) business days of completion of the generating facility installation and schedule an inspection and witness test with the Company to occur within ten (10) business days of completion of the generating facility installation or as otherwise agreed to by the Company and the Customer. Unless indicated below, the Customer may not operate the generating facility until such inspection and witness test is successfully completed. Additionally, the Customer may not operate the generating facility until all other terms and conditions in the Application have been met.

Call: Debra Kahn - 606-929-1486 to schedule an inspection and witness test.

**Pre-Inspection operational testing not to exceed two (2) hours: ( X ) Allowed ( ) Not Allowed**

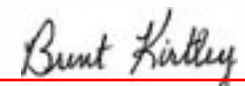
If Company inspection and witness test is waived, operation of the generating facility may begin when installation is complete, and all other terms and conditions in the Application have been met.

Additions, Changes, or Clarifications to Application Information: ( X ) None ( ) As specified here:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Approved by:  Date: 3/31/2015

Printed Name: John A Rogness III Title: Director Regulatory Services

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SUNNY BOY 6000TL-US / 7000TL-US / 8000TL-US /  
9000TL-US / 10000TL-US / 11000TL-US



**Innovative**

- First transformerless SMA inverter to be certified in accordance with UL 1741
- First inverter with arc-fault circuit interrupter listed according to UL 1699B

**Economical**

- Maximum efficiency of 98.7%
- Class-leading CEC efficiency of 98.5%
- Superior MPP tracking with OptiTrac™
- Transformerless, with H5 topology

**Reliable**

- OptiCool™ active temperature management

**Convenient**

- Integrated DC disconnect
- SMA Power Balancer for three-phase grid connection

**SUNNY BOY 6000TL-US / 7000TL-US / 8000TL-US /  
9000TL-US / 10000TL-US / 11000TL-US**

Transformerless design, maximum energy production

The Sunny Boy TL-US series is UL listed for North America and features SMA's innovative OptiTrac™ technology, resulting in superior efficiencies of more than 98 percent and unmatched solar power production. The OptiTrac™ technology reduces weight, increases the speed of payback and provides optimum value for any residential or decentralized commercial PV system. The Sunny Boy TL-US series for North America is the ideal choice in transformerless technology.

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PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

Technical data	Sunny Boy 6000TL-US	Sunny Boy 6000TL-US	Sunny Boy 7000TL-US	Sunny Boy 7000TL-US
	208 V	240 V	208 V	240 V
<b>Input (DC)</b>				
Max. recommended PV power (@ module STC)	7500 W	7500 W	8750 W	8750 W
Max. DC power (@ cos φ = 1)	6300 W	6200 W	7300 W	7300 W
Max. input voltage	600 V	600 V	600 V	600 V
MPP voltage range / rated input voltage	300 V - 480 V / 345 V	345 V - 480 V / 379 V	300 V - 480 V / 345 V	345 V - 480 V / 379 V
Min. input voltage / initial input voltage	300 V / 360 V	345 V / 360 V	300 V / 360 V	345 V / 360 V
Max. input current	20.9 A	18.1 A	24.4 A	21.1 A
Max. input current per string	20.9 A	18.1 A	24.4 A	21.1 A
Number of independent MPP inputs	1	1	1	1
Strings per MPP input @ Combiner Box	6	6	6	6
<b>Output (AC)</b>				
Rated power / max. apparent AC power	6000 W / 6000 VA	6000 W / 6000 VA	7000 W / 7000 VA	7000 W / 7000 VA
Nominal AC voltage / nominal AC voltage range	208 V / 183 V - 229 V	240 V / 211 V - 264 V	208 V / 183 V - 229 V	240 V / 211 V - 264 V
AC power frequency / range	60 Hz / 59.3 Hz ... 60.5 Hz	60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz	60.5 Hz
Max. output current	28.8 A	25 A	33.7 A	29.2 A
Power factor at rated power	1	1	1	1
Feed-in phases / connection phases	1 / 2	1 / 2	1 / 2	1 / 2
<b>Efficiency</b>				
CEC efficiency / max. efficiency	98 % / 98.6 %	98.5 % / 98.7 %	98 % / 98.6 %	98.5 % / 98.7 %
<b>Protective devices</b>				
DC reverse polarity protection	●	●	●	●
AC short-circuit current capability	●	●	●	●
Galvanic isolation	-	-	-	-
All-pole-sensitive residual-current monitoring unit	●	●	●	●
Arc-fault circuit interrupter (according to UL 1699B)	●	●	●	●
Protection class	I	I	I	I
Overvoltage category	III	III	III	III
<b>General data</b>				
Dimensions (W / H / D)	470 / 615 / 240 mm {18.4 / 24.1 / 9.5 inch}		470 / 615 / 240 mm {18.4 / 24.1 / 9.5 inch}	
Dimensions of DC Disconnect (W / H / D)	187 / 297 / 190 mm {7.28 / 11.7 / 7.5 inch}		187 / 297 / 190 mm {7.28 / 11.7 / 7.5 inch}	
Weight	35 kg / 78 lb	35 kg / 78 lb	35 kg / 78 lb	35 kg / 78 lb
Weight of DC Disconnect	3.5 kg / 8 lb	3.5 kg / 8 lb	3.5 kg / 8 lb	3.5 kg / 8 lb
Operating temperature range	-40 °C ... +60 °C / -40 °F ... +140 °F		-40 °C ... +60 °C / -40 °F ... +140 °F	
Noise emission (typical)	46 dB(A)	46 dB(A)	46 dB(A)	46 dB(A)
Self-consumption (night)	0.15 W	0.15 W	0.15 W	0.15 W
Topology	Transformerless H5	Transformerless H5	Transformerless H5	Transformerless H5
Cooling concept	OptiCool	OptiCool	OptiCool	OptiCool
Degree of protection	NEMA 3R	NEMA 3R	NEMA 3R	NEMA 3R
Degree of protection of connection area	NEMA 3R	NEMA 3R	NEMA 3R	NEMA 3R
Max. permissible value for relative humidity (non-condensing)	100 %	100 %	100 %	100 %
<b>Features</b>				
DC connection	Screw terminal	Screw terminal	Screw terminal	Screw terminal
AC connection	Screw terminal	Screw terminal	Screw terminal	Screw terminal
Display	Text line	Text line	Text line	Text line
Interface: RS485 / Bluetooth	○ / ○	○ / ○	○ / ○	○ / ○
Warranty: 10 / 15 / 20 years	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○
Certificates and approvals (more available on request)	UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B		UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B	

Type designation

SB 6000TLUS-12

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**Sunny Boy 8000TL-US  
208 V**

10000 W  
8400 W  
600 V  
300 V - 480 V / 345 V  
300 V / 360 V  
27.9 A  
27.9 A  
1  
6

**Sunny Boy 8000TL-US  
240 V**

10000 W  
8300 W  
600 V  
345 V - 480 V / 379 V  
345 V / 360 V  
24.1 A  
24.1 A  
1  
6

**Sunny Boy 9000TL-US  
208 V**

11250 W  
9400 W  
600 V  
300 V - 480 V / 345 V  
300 V / 360 V  
31.4 A  
31.4 A  
1  
6

**Sunny Boy 9000TL-US  
240 V**

11250 W  
9300 W  
600 V  
345 V - 480 V / 379 V  
345 V / 360 V  
27.1 A  
27.1 A  
1  
6

8000 W / 8000 VA

208 V / 183 V - 229 V  
60 Hz / 59.3 Hz ... 60.5 Hz  
38.5 A

240 V / 211 V - 264 V  
60 Hz / 59.3 Hz ... 60.5 Hz  
33.4 A

9000 W / 9000 VA

208 V / 183 V - 229 V  
60 Hz / 59.3 Hz ... 60.5 Hz  
43.3 A

240 V / 211 V - 264 V  
60 Hz / 59.3 Hz ... 60.5 Hz  
41.7 A

1  
1 / 2

1  
1 / 2

98 % / 98.6 %

98 % / 98.6 %

98 % / 98.6 %

98 % / 98.7 %

●  
●  
-  
●  
●  
1  
III

●  
●  
-  
●  
●  
1  
III

470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)  
187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)

470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)  
187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)

3.5 kg / 78 lb  
3.5 kg / 8 lb

3.5 kg / 78 lb  
3.5 kg / 8 lb

-40 °C ... +60 °C / -40 °F ... +140 °F

-40 °C ... +60 °C / -40 °F ... +140 °F

46 dB(A)  
0.15 W

46 dB(A)  
0.15 W

Transformerless H5

Transformerless H5

OptiCool  
NEMA 3R  
NEMA 3R  
100 %

OptiCool  
NEMA 3R  
NEMA 3R  
100 %

Screw terminal  
Screw terminal

Screw terminal  
Screw terminal

Text line

Text line

○ / ○  
● / ○ / ○

○ / ○  
● / ○ / ○

UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 16998

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**Technical data**

**Input (DC)**

Max. recommended PV power (@ module STC)  
 Max. DC power (@  $\cos \phi = 1$ )  
 Max. input voltage  
 MPP voltage range / rated input voltage  
 Min. input voltage / initial input voltage  
 Max. input current  
 Max. input current per string  
 Number of independent MPP inputs  
 Strings per MPP input @ Combiner Box

**Output (AC)**

Rated power / max. apparent AC power  
 Nominal AC voltage / nominal AC voltage range  
 AC power frequency / range  
 Max. output current  
 Power factor at rated power  
 Feed-in phases / connection phases

**Efficiency**

CEC efficiency / max. efficiency

**Protective devices**

DC reverse polarity protection  
 AC short-circuit current capability  
 Galvanic isolation  
 All-pole-sensitive residual-current monitoring unit  
 Arc-fault circuit interrupter (according to UL 1699B)  
 Protection class  
 Overvoltage category

**General data**

Dimensions (W / H / D)  
 Dimensions of DC Disconnect (W / H / D)  
 Weight  
 Weight of DC Disconnect  
 Operating temperature range  
 Noise emission (typical)  
 Self-consumption (night)  
 Topology  
 Cooling concept  
 Degree of protection  
 Degree of protection of connection orao  
 Max. permissible value for relative humidity (non-condensing)

**Features**

DC connection  
 AC connection  
 Display  
 Interface: RS485 / Bluetooth  
 Warranty: 10 / 15 / 20 years

Certificates and approvals (more available on request)

**Sunny Boy 10000TL-US  
20B V**

**Sunny Boy 10000TL-US  
240 V**

**Sunny Boy 11000TL-US  
240 V**

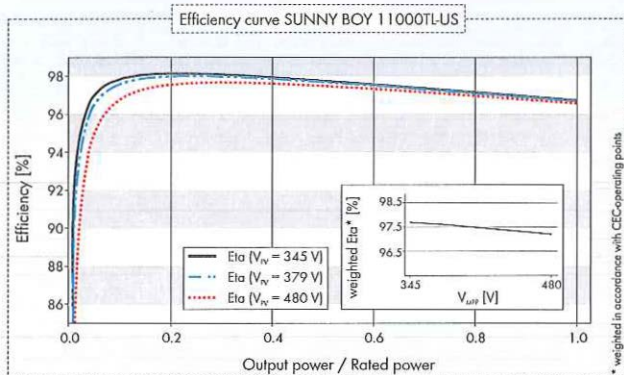
12500 W	12500 W	13750 W
10500 W	10350 W	11500 W
600 V	600 V	600 V
300 V - 480 V / 345 V	345 V - 480 V / 379 V	345 V - 480 V / 379 V
300 V / 360 V	345 V / 360 V	345 V / 360 V
35 A	30.2 A	33.3 A
35 A	30.2 A	33.3 A
1	1	1
6	6	6
10000 W / 10000 VA		
208 V / 183 V - 229 V	240 V / 211 V - 264 V	240 V / 211 V - 264 V
60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz
48.1 A	41.7 A	45.8 A
	1	1
	1 / 2	1 / 2
97.5% / 98.6%	98% / 98.7%	98% / 98.7%
●		●
●		●
-		-
●		●
●		●
I		I
III		III
470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)		
187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)		
35 kg / 78 lb		
3.5 kg / 8 lb		
-40 °C ... +60 °C / -40 °F ... +140 °F		
46 dB(A)		46 dB(A)
0.15 W		0.15 W
Transformerless H5		Transformerless H5
OptiCool		OptiCool
NEMA 3R		NEMA 3R
NEMA 3R		NEMA 3R
100 %		100 %
	Screw terminal	Screw terminal
	Screw terminal	Screw terminal
	Text line	Text line
	○ / ○	○ / ○
	● / ○ / ○	● / ○ / ○

UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B

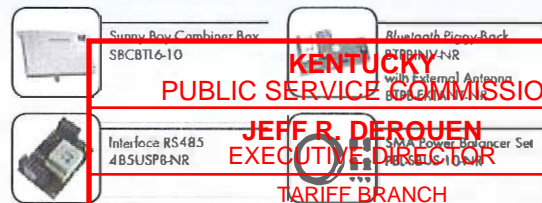
Type designation

SB 10000TLUS-12

SB 11000TLUS-12



**Accessories**



● Standard feature ○ OptiCool  
 Data at nominal conditions

**KENTUCKY**  
**PUBLIC SERVICE COMMISSION**

**JEFF R. DEROUEN**  
**EXECUTIVE DIRECTOR**

**TARIFF BRANCH**

*Brent Kirtley*

**EFFECTIVE**  
**4/29/2015**  
 PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

**SMA America, LLC**

Toll Free +1 888 4 SMA USA  
 www.SMA-America.com

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