



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0365-10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Hubbell Dual-Lite

Manufacturer's Technical Representative: Bryce Krulic

Mailing Address: 701 Millennium Blvd. Greenville, SC 29607

Telephone: (864) 678-1227 Email: bryce.krulic@dual-lite.com

Product Information

Product Name: LSN Central Lighting Inverter Product Line and an External Conversion Transformer

Product Type: Central Lighting Inverter and External Conversion Transformer

Product Model Number: See Attachment.

(List all unique product identification numbers and/or part numbers)

General Description: The lighting inverter product line is an emergency power backup system (automatic transfer) for lighting applications constructed with light gauge carbon steel NEMA1 enclosure with internal components as outlined in attachments. The standalone NEMA3R enclosed conversion transformer allows for multiple input/output voltages for applications with the lighting inverters.

Mounting Description: Lighting Inverters are combined floor/wall mount and the external transformer is floor mounted

Applicant Information

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: Travis Soppe PE

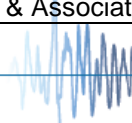
Mailing Address: 250 Bobwhite Ct, Suite 100, Boise, ID 83706

Telephone: (208) 342-5898 Ext.115 Email: tsoppe@wegai.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 10/11/2013

Title: Vice President Company Name: W.E. Gundy & Associates Inc.



osHPD

"Equitable Healthcare Accessibility for California"



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: Harrison Engineering

Name: Nathan Harrison, SE California License Number: S5171

Mailing Address: 1300 N. Ten Mile, Meridian, ID 83642

Telephone: (208) 888-7107 Email: nathan@harrisoneng.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____

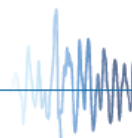
Testing Laboratory

Company Name: Clark Dynamic Test Laboratory

Contact Name: J.R. Antenucci, Test Manager

Mailing Address: 1801 Route 51 South, Jefferson Hills, PA 15025

Telephone: 412-387-1004 Email: jrantenucci@clarktesting.com





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 0.6 for $S_{DS}=2.5$ at $z/h = 0$ and 1.44 for $S_{DS}=2.0$ at $z/h = 1.0$

S_{DS} (Design spectral response acceleration at short period, g) = 2.50 at $z/h = 0$ and 2.00 at $z/h = 1.0$

a_p (In-structure equipment or component amplification factor) = 1.0

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0 for $S_{DS} = 2.5g$ and 1.0 for $S_{DS} = 2.0g$

Equipment or Component Natural Frequencies (Hz) = See Attachments

Overall dimensions and weight (or range thereof) = See Attachments

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2010: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): SE Certification Letter

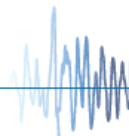
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature: *M. R. Karim* Date: 11/14/13

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable): _____



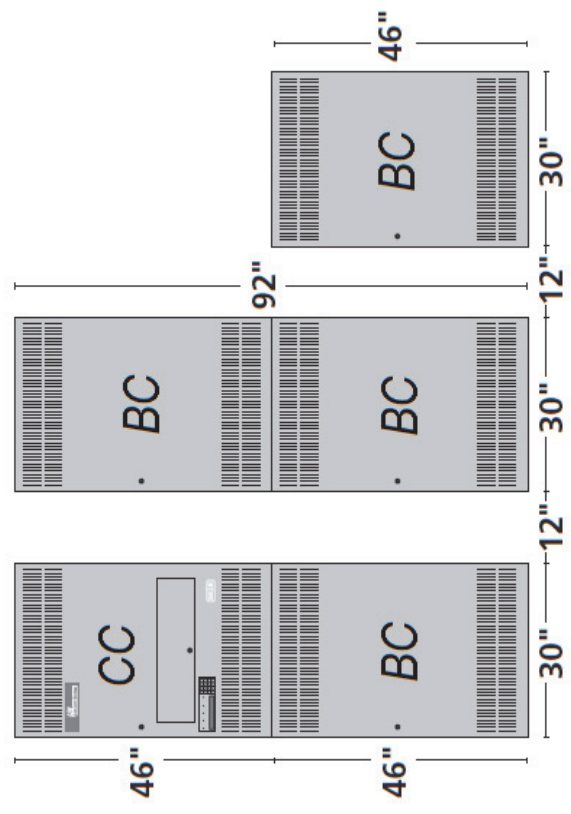
HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX



Main Model Number	Rating (KVA)	In-Out Voltage (VAC)	# Batteries / # BC	Single BC WT (lb)	Control Cabinet WT (lb)	Overall Dimensions*			Combined System Weight (lbs)	UUT
						Width	Depth	Height		
D-xxx-01-S-xxx-y-AR15-S	1.0	120 - 347	8 / 1	418	357	30.0"	18.63"	92.0"	775	UUT-1
D-xxx-02-S-xxx-y-AR15-S	2.0	120 - 347	8 / 1	418	447	30.0"	18.63"	92.0"	865	interpolated
D-xxx-27-S-xxx-y-AR15-S	2.7	120 - 347	8 / 1	418	387	30.0"	18.63"	92.0"	805	interpolated
D-xxx-37-S-xxx-y-AR15-S	3.7	120 - 347	8 / 1	418	353	30.0"	18.63"	92.0"	772	interpolated
D-xxx-48-S-xxx-y-AR15-S	4.8	120 - 347	8 / 1	418	418	30.0"	18.63"	92.0"	837	interpolated
D-xxx-55-S-xxx-y-AR15-S	5.5	120 - 347	8 / 1	418	444	30.0"	18.63"	92.0"	862	interpolated
D-xxx-66-S-xxx-y-AR15-S	6.6	120 - 347	8 / 1	520	489	30.0"	18.63"	92.0"	1009	interpolated
D-xxx-83-S-xxx-y-AR15-S	8.3	120 - 347	12 / 1	528	505	30.0"	18.63"	92.0"	1033	interpolated
D-xxx-10-S-xxx-y-AR15-S	10.0	120 - 347	12 / 1	680	609	30.0"	18.63"	92.0"	1289	interpolated
D-xxx-12-S-xxx-y-AR15-S	12.5	120 - 347	12 / 1	901	481	30.0"	18.63"	92.0"	1382	interpolated
D-xxx-15-S-xxx-y-AR15-S	15.0	120 - 347	12 / 1	901	711	30.0"	18.63"	92.0"	1612	interpolated
D-xxx-17-S-xxx-y-AR15-S	17.5	120 - 347	12 / 1	1009	692	30.0"	18.63"	92.0"	1701	interpolated

Notes:

- 1) Systems consist of a stacked Control Cabinet (CC) on top and single Battery Cabinet (BC) on bottom and additional single or stacked BC's as needed for longer run times.
- 2) Each CC-BC stack and additional standalone BC's are separated by 12" for seismic restraints. Therefore the total width for configurations with 1 BC stack = 30", 2-3 BC stacks = 72", 4-5 BC stacks = 114", and 6-7 BC stacks = 156" as listed in the matrix.
- 3) NEMA1 enclosures are constructed of carbon steel.
- 4) All units are combined wall / floor mounted.
- 5) Model numbers shown have "xxx" shown where the system input/output voltage can vary. Additionally all the options within the labeling system "y" above are not listed for clarity. Refer to the referenced ordering guide for a more detailed list of the options provided.



Configurations of Control Cabinet (CC) and Battery Cabinets (BC)

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX



Main Model Number	Rating (KVA)	In-Out Voltage (VAC)	# Batteries / # BC	Single BC WT (lb)	Control Cabinet WT (lb)	Overall Dimensions*			Combined System Weight (lbs)	UUT
						Width	Depth	Height		
D-xxx-01-S-xxx-y-AR30-S	1.0	120 - 347	8 / 1	418	357	30.0"	18.63"	92.0"	775	interpolated
D-xxx-02-S-xxx-y-AR30-S	2.0	120 - 347	8 / 1	418	447	30.0"	18.63"	92.0"	865	interpolated
D-xxx-27-S-xxx-y-AR30-S	2.7	120 - 347	8 / 1	418	387	30.0"	18.63"	92.0"	805	interpolated
D-xxx-37-S-xxx-y-AR30-S	3.7	120 - 347	8 / 1	520	353	30.0"	18.63"	92.0"	873	interpolated
D-xxx-48-S-xxx-y-AR30-S	4.8	120 - 347	8 / 1	520	418	30.0"	18.63"	92.0"	938	interpolated
D-xxx-55-S-xxx-y-AR30-S	5.5	120 - 347	8 / 1	667	444	30.0"	18.63"	92.0"	1111	interpolated
D-xxx-66-S-xxx-y-AR30-S	6.6	120 - 347	8 / 1	667	489	30.0"	18.63"	92.0"	1156	interpolated
D-xxx-83-S-xxx-y-AR30-S	8.3	120 - 347	12 / 1	901	505	30.0"	18.63"	92.0"	1406	interpolated
D-xxx-10-S-xxx-y-AR30-S	10.0	120 - 347	12 / 1	901	609	30.0"	18.63"	92.0"	1509	interpolated
D-xxx-12-S-xxx-y-AR30-S	12.5	120 - 347	12 / 1	1009	481	30.0"	18.63"	92.0"	1490	interpolated
D-xxx-15-S-xxx-y-AR30-S	15.0	120 - 347	24 / 2	680	711	72.0"	18.63"	92.0"	2071	interpolated
D-xxx-17-S-xxx-y-AR30-S	17.5	120 - 347	24 / 2	901	692	72.0"	18.63"	92.0"	2493	interpolated
D-xxx-01-S-xxx-y-AR60-S	1.0	120 - 347	8 / 1	418	357	30.0"	18.63"	92.0"	775	interpolated
D-xxx-02-S-xxx-y-AR60-S	2.0	120 - 347	8 / 1	418	447	30.0"	18.63"	92.0"	865	interpolated
D-xxx-27-S-xxx-y-AR60-S	2.7	120 - 347	8 / 1	520	387	30.0"	18.63"	92.0"	907	interpolated
D-xxx-37-S-xxx-y-AR60-S	3.7	120 - 347	8 / 1	667	353	30.0"	18.63"	92.0"	1020	interpolated
D-xxx-48-S-xxx-y-AR60-S	4.8	120 - 347	8 / 1	739	418	30.0"	18.63"	92.0"	1157	interpolated
D-xxx-55-S-xxx-y-AR60-S	5.5	120 - 347	16 / 2	520	444	72.0"	18.63"	92.0"	1484	interpolated
D-xxx-66-S-xxx-y-AR60-S	6.6	120 - 347	16 / 2	667	489	72.0"	18.63"	92.0"	1823	interpolated
D-xxx-83-S-xxx-y-AR60-S	8.3	120 - 347	24 / 2	680	505	72.0"	18.63"	92.0"	1865	interpolated
D-xxx-10-S-xxx-y-AR60-S	10.0	120 - 347	24 / 2	901	609	72.0"	18.63"	92.0"	2410	interpolated
D-xxx-12-S-xxx-y-AR60-S	12.5	120 - 347	24 / 2	901	481	72.0"	18.63"	92.0"	2283	interpolated
D-xxx-15-S-xxx-y-AR60-S	15.0	120 - 347	24 / 2	1110	711	72.0"	18.63"	92.0"	2931	interpolated
D-xxx-17-S-xxx-y-AR60-S	17.5	120 - 347	36 / 3	901	692	72.0"	18.63"	92.0"	3394	interpolated

Notes:

- 1) & 2) See first page of product line matrix.
- 3) NEMA1 enclosures are constructed of carbon steel.
- 4) All units are combined wall / floor mounted.
- 5) Model numbers shown have "xxx" shown where the system input/output voltage can vary. Additionally all the options within the labeling system "y" above are not listed for clarity. Refer to the referenced ordering guide for a more detailed list of the options provided.

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX



Main Model Number	Rating (KVA)	In-Out Voltage (VAC)	# Batteries / # BC	Single BC WT (lb)	Control Cabinet WT (lb)	Overall Dimensions*			Combined System Weight (lbs)	UUT
						Width	Depth	Height		
D-xxx-01-S-xxx-y-S	1.0	120 - 347	8 / 1	418	357	30.0"	18.63"	92.0"	775	interpolated
D-xxx-02-S-xxx-y-S	2.0	120 - 347	8 / 1	520	447	30.0"	18.63"	92.0"	967	interpolated
D-xxx-27-S-xxx-y-S	2.7	120 - 347	8 / 1	667	387	30.0"	18.63"	92.0"	1054	interpolated
D-xxx-37-S-xxx-y-S	3.7	120 - 347	8 / 1	806	353	30.0"	18.63"	92.0"	1160	interpolated
D-xxx-48-S-xxx-y-S	4.8	120 - 347	8 / 1	1000	418	30.0"	18.63"	92.0"	1418	interpolated
D-xxx-55-S-xxx-y-S	5.5	120 - 347	16 / 2	667	444	72.0"	18.63"	92.0"	1778	interpolated
D-xxx-66-S-xxx-y-S	6.6	120 - 347	16 / 2	739	489	72.0"	18.63"	92.0"	1967	interpolated
D-xxx-83-S-xxx-y-S	8.3	120 - 347	24 / 2	901	505	72.0"	18.63"	92.0"	2307	interpolated
D-xxx-10-S-xxx-y-S	10.0	120 - 347	24 / 2	1009	609	72.0"	18.63"	92.0"	2626	interpolated
D-xxx-12-S-xxx-y-S	12.5	120 - 347	24 / 2	1110	481	72.0"	18.63"	92.0"	2701	interpolated
D-xxx-15-S-xxx-y-S	15.0	120 - 347	36 / 3	1009	711	72.0"	18.63"	92.0"	3738	interpolated
D-xxx-17-S-xxx-y-S	17.5	120 - 347	36 / 3	1110	692	72.0"	18.63"	92.0"	4021	UUT-2 & 3
D-xxx-01-S-xxx-y-AR120-S	1.0	120 - 347	8 / 1	418	357	30.0"	18.63"	92.0"	775	interpolated
D-xxx-02-S-xxx-y-AR120-S	2.0	120 - 347	8 / 1	667	447	30.0"	18.63"	92.0"	1114	interpolated
D-xxx-27-S-xxx-y-AR120-S	2.7	120 - 347	8 / 1	739	387	30.0"	18.63"	92.0"	1126	interpolated
D-xxx-37-S-xxx-y-AR120-S	3.7	120 - 347	8 / 1	1000	353	30.0"	18.63"	92.0"	1353	interpolated
D-xxx-48-S-xxx-y-AR120-S	4.8	120 - 347	16 / 2	739	418	72.0"	18.63"	92.0"	1897	interpolated
D-xxx-55-S-xxx-y-AR120-S	5.5	120 - 347	16 / 2	739	444	72.0"	18.63"	92.0"	1922	interpolated
D-xxx-66-S-xxx-y-AR120-S	6.6	120 - 347	16 / 2	1000	489	72.0"	18.63"	92.0"	2489	interpolated
D-xxx-83-S-xxx-y-AR120-S	8.3	120 - 347	24 / 2	1009	505	72.0"	18.63"	92.0"	2523	interpolated
D-xxx-10-S-xxx-y-AR120-S	10.0	120 - 347	36 / 3	901	609	72.0"	18.63"	92.0"	3311	interpolated
D-xxx-12-S-xxx-y-AR120-S	12.5	120 - 347	36 / 3	1009	481	72.0"	18.63"	92.0"	3508	interpolated
D-xxx-15-S-xxx-y-AR120-S	15.0	120 - 347	48 / 4	1009	711	114.0"	18.63"	92.0"	4747	interpolated
D-xxx-17-S-xxx-y-AR120-S	17.5	120 - 347	48 / 4	1110	692	114.0"	18.63"	92.0"	5130	interpolated

Notes:

1) See first page of product line matrix.

2) NEMA1 enclosures are constructed of carbon steel.

3) All units are combined wall / floor mounted.

4) Model numbers shown have "xxx" shown where the system input/output voltage can vary. Additionally all the options within the labeling system "y" above are not listed for clarity. Refer to the referenced ordering guide for a more detailed list of the options provided.

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX



Main Model Number	Rating (KVA)	In-Out Voltage (VAC)	# Batteries / # BC	Single BC WT (lb)	Control Cabinet WT (lb)	Overall Dimensions*			Combined System Weight (lbs)	UUT
						Width	Depth	Height		
D-xxx-01-S-xxx-y-AR180-S	1.0	120 - 347	8 / 1	520	357	30.0"	18.63"	92.0"	877	interpolated
D-xxx-02-S-xxx-y-AR180-S	2.0	120 - 347	8 / 1	739	447	30.0"	18.63"	92.0"	1186	interpolated
D-xxx-27-S-xxx-y-AR180-S	2.7	120 - 347	8 / 1	1000	387	30.0"	18.63"	92.0"	1387	interpolated
D-xxx-37-S-xxx-y-AR180-S	3.7	120 - 347	16 / 2	739	353	72.0"	18.63"	92.0"	1832	interpolated
D-xxx-48-S-xxx-y-AR180-S	4.8	120 - 347	16 / 2	1000	418	72.0"	18.63"	92.0"	2418	interpolated
D-xxx-55-S-xxx-y-AR180-S	5.5	120 - 347	16 / 2	1000	444	72.0"	18.63"	92.0"	2444	interpolated
D-xxx-66-S-xxx-y-AR180-S	6.6	120 - 347	24 / 3	1000	489	72.0"	18.63"	92.0"	3489	interpolated
D-xxx-83-S-xxx-y-AR180-S	8.3	120 - 347	36 / 3	1009	505	72.0"	18.63"	92.0"	3531	interpolated
D-xxx-10-S-xxx-y-AR180-S	10.0	120 - 347	36 / 3	1110	609	72.0"	18.63"	92.0"	3937	interpolated
D-xxx-12-S-xxx-y-AR180-S	12.5	120 - 347	48 / 4	1009	481	114.0"	18.63"	92.0"	4517	interpolated
D-xxx-15-S-xxx-y-AR180-S	15.0	120 - 347	60 / 5	1009	711	114.0"	18.63"	92.0"	5755	interpolated
D-xxx-17-S-xxx-y-AR180-S	17.5	120 - 347	72 / 6	1009	692	114.0"	18.63"	92.0"	6745	interpolated
D-xxx-01-S-xxx-y-AR240-S	1.0	120 - 347	8 / 1	667	357	30.0"	18.63"	92.0"	1024	interpolated
D-xxx-02-S-xxx-y-AR240-S	2.0	120 - 347	8 / 1	1000	447	30.0"	18.63"	92.0"	1447	interpolated
D-xxx-27-S-xxx-y-AR240-S	2.7	120 - 347	16 / 2	739	387	72.0"	18.63"	92.0"	1865	interpolated
D-xxx-37-S-xxx-y-AR240-S	3.7	120 - 347	16 / 2	1000	353	72.0"	18.63"	92.0"	2353	interpolated
D-xxx-48-S-xxx-y-AR240-S	4.8	120 - 347	16 / 2	1000	418	72.0"	18.63"	92.0"	2418	interpolated
D-xxx-55-S-xxx-y-AR240-S	5.5	120 - 347	24 / 3	1000	444	72.0"	18.63"	92.0"	3444	interpolated
D-xxx-66-S-xxx-y-AR240-S	6.6	120 - 347	24 / 3	1000	489	72.0"	18.63"	92.0"	3489	interpolated
D-xxx-83-S-xxx-y-AR240-S	8.3	120 - 347	48 / 4	1009	505	114.0"	18.63"	92.0"	4540	interpolated
D-xxx-10-S-xxx-y-AR240-S	10.0	120 - 347	48 / 4	1110	609	114.0"	18.63"	92.0"	5047	interpolated
D-xxx-12-S-xxx-y-AR240-S	12.5	120 - 347	60 / 5	1110	481	114.0"	18.63"	92.0"	6029	interpolated
D-xxx-15-S-xxx-y-AR240-S	15.0	120 - 347	72 / 6	1110	711	156.0"	18.63"	92.0"	7369	interpolated
D-xxx-17-S-xxx-y-AR240-S	17.5	120 - 347	84 / 7	1110	692	156.0"	18.63"	92.0"	8459	interpolated

Notes:

- 1) See first page of product line matrix.
- 2) NEMA1 enclosures are constructed of carbon steel.
- 3) All units are combined wall / floor mounted.
- 4) Model numbers shown have "xxx" shown where the system input/output voltage can vary. Additionally all the options within the labeling system "y" above are not listed for clarity. Refer to the referenced ordering guide for a more detailed list of the options provided.

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX



Main Model Number	Rating (KVA)	In-Out Voltage (VAC)	# Batteries / # BC	Single BC WT (lb)	Control Cabinet WT (lb)	Overall Dimensions*			Combined System Weight (lbs)	UUT
						Width	Depth	Height		
D-xxx-01-S-xxx-y-AR300-S	1.0	120 - 347	8 / 1	667	357	30.0"	18.63"	92.0"	1024	interpolated
D-xxx-02-S-xxx-y-AR300-S	2.0	120 - 347	16 / 2	667	447	30.0"	18.63"	92.0"	1781	interpolated
D-xxx-27-S-xxx-y-AR300-S	2.7	120 - 347	16 / 2	806	387	72.0"	18.63"	92.0"	1999	interpolated
D-xxx-37-S-xxx-y-AR300-S	3.7	120 - 347	16 / 2	1000	353	72.0"	18.63"	92.0"	2353	interpolated
D-xxx-48-S-xxx-y-AR300-S	4.8	120 - 347	24 / 3	1000	418	72.0"	18.63"	92.0"	3418	interpolated
D-xxx-55-S-xxx-y-AR300-S	5.5	120 - 347	32 / 4	806	444	72.0"	18.63"	92.0"	3669	interpolated
D-xxx-66-S-xxx-y-AR300-S	6.6	120 - 347	32 / 4	1000	489	72.0"	18.63"	92.0"	4489	interpolated
D-xxx-83-S-xxx-y-AR300-S	8.3	120 - 347	48 / 4	1110	505	114.0"	18.63"	92.0"	4943	interpolated
D-xxx-10-S-xxx-y-AR300-S	10.0	120 - 347	60 / 5	1110	609	114.0"	18.63"	92.0"	6157	interpolated
D-xxx-12-S-xxx-y-AR300-S	12.5	120 - 347	72 / 6	1110	481	114.0"	18.63"	92.0"	7139	interpolated

Notes:

- 1) & 2) See first page of product line matrix.
- 3) NEMA1 enclosures are constructed of carbon steel.
- 4) All units are combined wall / floor mounted.
- 5) Model numbers shown have "xxx" shown where the system input/output voltage can vary. Additionally all the options within the labeling system "y" above are not listed for clarity. Refer to the referenced ordering guide for a more detailed list of the options provided.

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Inverter Control Board							
0981107	Carlton	PCB Assembly, Inverter Control & Meter	9.50	0.75	7.25	2.00	UUT-1 / UUT-2
Input EMI/RFI Filter							
0390394	Filter Concepts Inc. (p/n 2147)	EMI Filter 30A 480V	4.50	2.75	6.50	2.45	extrapolated
0390389	Filter Concepts Inc. (p/n LE40)	EMI Filter 40A/PH LE Series	5.00	4.10	1.75	2.10	UUT-1
0390395	Filter Concepts Inc. (p/n 2148)	EMI Filter 60A 480V	4.25	7.75	2.25	5.17	interpolated
0390390	Filter Concepts Inc. (p/n LE75LF)	EMI Filter 75A/PH LE Series	7.75	4.25	2.25	5.50	interpolated
0390396	Filter Concepts Inc. (p/n 2149)	EMI Filter 100A 480V	8.87	7.25	3.00	10.06	UUT-2
0390388	Filter Concepts Inc. (p/n LE100LF)	EMI Filter 100A/PH LE Series	5.50	8.90	3.00	10.80	extrapolated
User Interface Display Panel - UID Panel							
93024853	Dual-Lite	Inverter UID Display	11.50	5.50	3.25	5.00	UUT-1 / UUT-2
IGBT Drive Assembly							
0981108	Carlton	PCB Assembly, Inverter IGBT Driver	2.25	2.00	6.00	0.25	UUT-1 / UUT-2
MAZE Board							
0981111	Carlton	PCB Assembly, Inverter MAZE 96VDC	5.00	2.00	9.00	1.00	UUT-1 / UUT-2
Remote Status Panel - RSP Option PCBA							
0981166	Carlton	PCB Assembly, Inverter RTS OPT	5.50	5.00	2.00	na	UUT-1 / UUT-2
Internal By-Pass Switch - IBS Option							
0991062	Salzer	IBS Switch, S606-SE1587	3.50	3.50	5.50	2.00	UUT-1 / UUT-2
Switching Power Supply Board							
0990066	PowDec Tech	Inverter Power Supply, 5V/+15V/-15V out	3.00	2.00	5.00	1.50	UUT-1 / UUT-2

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
AC and DC Input Circuit Breakers (AC Input Switch S2 and DC Input Switch S3)							
0440222	Cutler Hammer	30A 120VAC 1 P	3.75	2.37	1.00	0.320	UUT-1
0440224	Cutler Hammer	40A 120VAC 1 P	3.75	2.37	1.00	0.320	interpolated
0440233	Cutler Hammer	50A 120VAC 1P	3.75	2.37	1.00	0.320	interpolated
0440229	Cutler Hammer	60A 120VAC 1 P	3.75	2.37	1.00	0.320	interpolated
0440270	Cutler Hammer	70A 120VAC 1 P	3.75	2.37	1.00	0.320	interpolated
0440228	Cutler Hammer	100A 120VAC 1P	3.75	2.37	1.00	0.320	interpolated
0440226	Cutler Hammer	20A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440230	Cutler Hammer	30A 120/240V 2 P	3.75	2.37	2.00	0.650	interpolated
0440231	Cutler Hammer	40A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440227	Cutler Hammer	50A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440234	Cutler Hammer	60A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440238	Cutler Hammer	80A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440241	Cutler Hammer	100A 120/240VAC 2P	3.75	2.37	2.00	0.650	interpolated
0440223	Cutler Hammer	30A 277VAC 1 P	2.00	2.81	4.00	0.580	UUT-1
0440232	Cutler Hammer	50A 277VAC 1 P	2.00	2.81	4.00	0.660	interpolated
0440236	Cutler Hammer	70A 277VAC 1P	2.00	2.81	4.00	0.580	interpolated
0440240	Cutler Hammer	90A 277VAC 1P	2.00	2.81	4.00	0.580	interpolated
0440242	Cutler Hammer	100A 277VAC 1P	2.00	2.81	4.00	0.580	UUT-2
0440258	Cutler Hammer	80A 480Y/277VAC 2P	4.00	2.81	4.00	1.320	interpolated
0440259	Cutler Hammer	90A 480Y/277VAC 2P	4.00	2.81	4.00	1.320	interpolated
0440260	Cutler Hammer	100A 480Y/277VAC 2P	4.00	2.81	4.00	1.320	interpolated
0440239	Cutler Hammer	80A 277VAC 1P	2.00	2.81	4.00	0.660	interpolated
0440244	Cutler Hammer	150A 600DC	2.75	3.40	6.00	2.89	interpolated
0440307	Cutler Hammer	175A 240VAC 2P	4.00	2.81	4.00	2.83	UUT-2

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Optional AC Output Circuit Breakers							
0440245	Cutler Hammer	15A 277VAC 1P	0.70	2.80	3.15	3.7 oz	UUT-1
0440300	Cutler Hammer	15A 240VAC 2P	1.40	2.80	3.15	7.2 oz	interpolated
0440246	Cutler Hammer	20A 277VAC TC	0.70	2.80	3.15	3.7 oz	interpolated
0440301	Cutler Hammer	20A 240VAC 2P	1.40	2.80	3.15	7.2 oz	interpolated
0440247	Cutler Hammer	25A 277VAC 1P	0.70	2.80	3.15	3.7 oz	interpolated
0440302	Cutler Hammer	25A 240VAC 2P	1.40	2.80	3.15	7.2 oz	interpolated
0440248	Cutler Hammer	30A 277VAC	0.70	2.80	3.15	3.7 oz	interpolated
0440261	Cutler Hammer	30A 240VAC 2P	1.40	2.80	3.15	7.2 oz	interpolated
0440297	Cutler Hammer	35A 277VAC 1P	0.70	2.80	3.15	3.7 oz	interpolated
0440303	Cutler Hammer	35A 240VAC 2P	1.40	2.80	3.15	7.2 oz	interpolated
0440298	Cutler Hammer	40A 277VAC 1P	0.70	2.80	3.15	3.7 oz	UUT-2
0440262	Cutler Hammer	40A 240VAC 2P	1.40	2.80	3.15	7.2 oz	extrapolated
0440249	Cutler Hammer	50A 277VAC 1P	0.70	2.80	3.15	3.7 oz	extrapolated
0440304	Cutler Hammer	50A 240VAC 2P	1.40	2.80	3.15	7.2 oz	extrapolated
0440250	Cutler Hammer	60A 277V 1P	0.70	2.80	3.15	3.7 oz	extrapolated
0440305	Cutler Hammer	60A 240VAC 2P	1.40	2.80	3.15	7.2 oz	extrapolated
0440251	Cutler Hammer	Breaker SD Alarm Switch	0.35	2.58	3.15	0.100	UUT-1 / UUT-2

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Main Transformers							
0230858	Transformer Technology, Inc.	3.7KVA 120/120	9.00	7.25	7.50	70.00	UUT-1
0230894	Transformer Technology, Inc.	3.7KVA 208/208	9.00	7.25	7.50	70.00	interpolated
0230895	Transformer Technology, Inc.	3.7KVA 240/240	9.00	7.25	7.50	70.00	interpolated
0230861	Transformer Technology, Inc.	3.7KVA 277/277	9.00	8.00	7.50	75.00	interpolated
0230862	Transformer Technology, Inc.	3.7KVA 347/347	9.00	7.25	7.50	70.00	interpolated
0230863	Transformer Technology, Inc.	6.6KVA 120/120	12.00	8.00	10.00	135.00	interpolated
0230896	Transformer Technology, Inc.	6.6KVA 208/208	12.00	8.00	10.00	135.00	interpolated
0230897	Transformer Technology, Inc.	6.6KVA 240/240	12.00	8.00	10.00	135.00	interpolated
0230866	Transformer Technology, Inc.	6.6KVA 277/277	12.00	8.00	10.00	135.00	interpolated
0230867	Transformer Technology, Inc.	6.6KVA 347/347	12.0"	8.0"	10.0"	135.00	interpolated
0230898	Transformer Technology, Inc.	10KVA 208/208	15.00	9.00	12.50	178.00	interpolated
0230899	Transformer Technology, Inc.	10KVA 240/240	15.00	9.00	12.50	178.00	interpolated
0230870	Transformer Technology, Inc.	10KVA 277/277	15.00	9.00	12.50	178.00	interpolated
0230871	Transformer Technology, Inc.	10KVA 347/347	15.00	9.50	12.50	175.00	interpolated
0230900	Transformer Technology, Inc.	15KVA 208/208	15.00	10.00	12.50	230.00	interpolated
0230901	Transformer Technology, Inc.	15KVA 240/240	15.00	10.00	12.50	230.00	interpolated
0230874	Transformer Technology, Inc.	15KVA 277/277	15.00	9.50	12.50	230.00	interpolated
0230875	Transformer Technology, Inc.	15KVA 347/347	15.00	10.00	12.50	230.00	interpolated
0230876	Transformer Technology, Inc.	17.5KVA 277/277	15.00	10.38	12.50	250.00	UUT-2

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
AC Input/Output Monitor Transformer (T4, T5)							
0230884	Transformer Technology, Inc.	150VA MULTI	3.13	3.75	3.75	4.00	UUT-2
120V Isolation Transformer (T2)							
0230886	Transformer Technology, Inc.	300VA 120/120	3.13	3.75	3.75	4.00	UUT-1 / UUT-2
Output Voltage Conversion Transformer - Internal							
0230902	Transformer Technology, Inc.	277/120 3.7KVA	9.00	5.00	7.50	30.00	UUT-1
0230906	Transformer Technology, Inc.	208-240/120-240 3.7	9.00	6.00	7.50	47.50	interpolated
0230969	Transformer Technology, Inc.	208/120-277V 3.7KVA	9.00	7.50	6.00	60.00	interpolated
0230945	Transformer Technology, Inc.	277/120-240 3.7KVA	9.00	7.50	5.75	55.00	interpolated
0230937	Transformer Technology, Inc.	208/208V 3.7KVA	9.00	7.50	6.00	125.00	interpolated
0230903	Transformer Technology, Inc.	277/120 5.5KVA	9.00	5.75	7.50	42.50	interpolated
0230939	Transformer Technology, Inc.	347/120V 5.5KVA	9.00	7.50	5.75	75.00	interpolated
0230954	Transformer Technology, Inc.	277/120-240V 6.6KVA	9.00	7.50	7.50	75.00	interpolated
0230907	Transformer Technology, Inc.	208-240/120-240 6.6	9.00	8.00	7.50	85.00	interpolated
0230916	Transformer Technology, Inc.	208/120-208V 6.6KVA	9.00	7.50	8.00	94.00	interpolated
0230904	Transformer Technology, Inc.	277/120 10KVA	9.00	8.00	7.50	85.00	interpolated
0230908	Transformer Technology, Inc.	208-240/120-240 10K	12.00	8.00	10.00	135.00	interpolated
0230923	Transformer Technology, Inc.	347/120 15KVA	12.00	8.00	10.00	130.00	interpolated
0230905	Transformer Technology, Inc.	277/120 15KVA	12.00	8.00	10.00	135.00	interpolated
0230984	Transformer Technology, Inc.	277/120 17.5KVA	12.00	10.00	8.00	125.00	UUT-2

**HUBBELL DUAL-LITE LSN INVERTER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Type "S" Batteries							
93012367	C&D Technologies	12V 35AH	5.19	7.76	6.80	27.30	UUT-1
93012368	C&D Technologies	12V 54AH	5.48	9.00	8.07	40.00	interpolated
93012369	C&D Technologies	12V 78AH	6.83	10.27	8.01	58.40	interpolated
93012370	C&D Technologies	12V 94AH	6.83	12.04	8.06	67.40	interpolated
93012371	C&D Technologies	12V 100AH	6.80	13.42	8.52	75.80	UUT-2 / UUT-3
93012372	C&D Technologies	12V 139AH	6.80	13.57	10.93	100.00	extrapolated



D Series

Single-Phase Central Lighting Inverters

Catalog Number	
Comments	Type

FEATURES

Application

Designed for indoor installation in commercial or industrial applications.

Operation

When normal utility-supplied power is present, the LSN model central lighting inverter provides load-side line conditioning with "brownout" protection, and charges the system batteries when required. When utility-supplied power is interrupted, or the voltage varies from predetermined limits, the system will automatically and instantaneously transfer to emergency mode without interruption to connected loads. DC battery-derived emergency power is inverted to AC power and supplied in a pure sine wave output form for 90 minutes (standard run time). A low voltage battery disconnect circuit prevents "deep discharge" damage to the batteries during prolonged power outages. When normal power is restored the system will automatically restart, providing power to connected loads and recharging the batteries. The charging circuit will bring the batteries to full recharge within UL time standards.

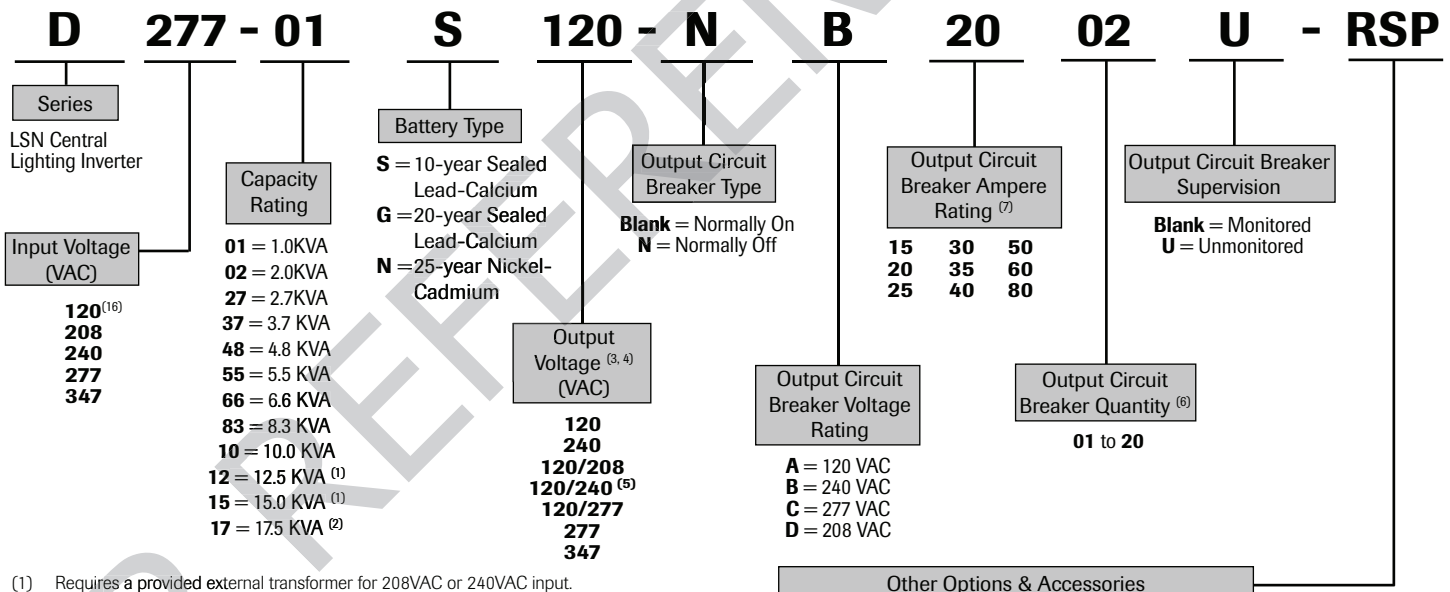
Construction

The LSN cabinet is constructed of steel, finished with a light gray paint and features locking cabinetry and password-protected user interface for security. Louvers at front and top of cabinet allow venting.

LSN LIFE SAFETY NETWORK



ORDERING GUIDE



- Requires a provided external transformer for 208VAC or 240VAC input.
- 277 and 347VAC input only.
- Other voltages available. Consult factory.
- External transformer may be provided.
- Loading may not exceed 50% of the system's total rating on any 120VAC leg.
- Normally On circuit breakers: a maximum of 14 monitored, single pole positions or 20 unmonitored, single pole positions may be specified. Normally Off circuit breakers: a maximum of 8 single pole positions (monitored or unmonitored) may be specified.
- Normally Off circuit breakers: a maximum rating of 20 amps.
- The EPO option requires the SMT option.
- Specify runtime in minutes when ordering. Example: AR120.
- Available with 1.0, 2.0, 2.7, 3.7, 5.5, and 6.6KVA Series with S batteries only.
- Available on 1.0 KVA - 4.8KVA Series.
- Available on 5.5 KVA - 17.5KVA Series. Not available with 120V input on 6.6KVA and above. Not available with 208V input on 12.5 KVA and above. Not available with 240V input on 15.0 KVA and above.
- Supplied in a wall mounted, NEMA 1 type enclosure. Cannot be used in systems with more than one single-pole output circuit breaker, on systems with different input and output voltages.
- See System Configuration for 90-Minute Run Time.
- Type S Battery only; See system configuration for 90-minute run time.
- Not available on 8.3KVA - 17.5KVA Series.

- Other Options & Accessories**
- | | |
|---|---|
| Options | Accessories |
| EML = Email Device | MBB = External Maintenance Bypass Switch ⁽¹³⁾ (Make Before Break) |
| RSP = Remote Status Panel | BBM = External Maintenance Bypass Switch ⁽¹³⁾ (Break Before Make) |
| SMT = System Monitoring Terminal | DSFK = Seismic Kit ⁽¹⁴⁾ |
| EPO = Emergency Power Off Terminal ⁽⁸⁾ | |
| AR = Alternate Runtime ⁽⁹⁾ | |
| SBC = Short Battery Cabinet ⁽¹⁰⁾ | |
| IBS = Internal Maintenance Bypass Switch (Make Before Break) | |
| C10 = 10 Amp Charger Upgrade ⁽¹¹⁾ | |
| C20 = 20 Amp Charger Upgrade ⁽¹²⁾ | |
| CL60 = Cabinet Locks | |
| S = Seismic Qualified ⁽¹⁵⁾ | |

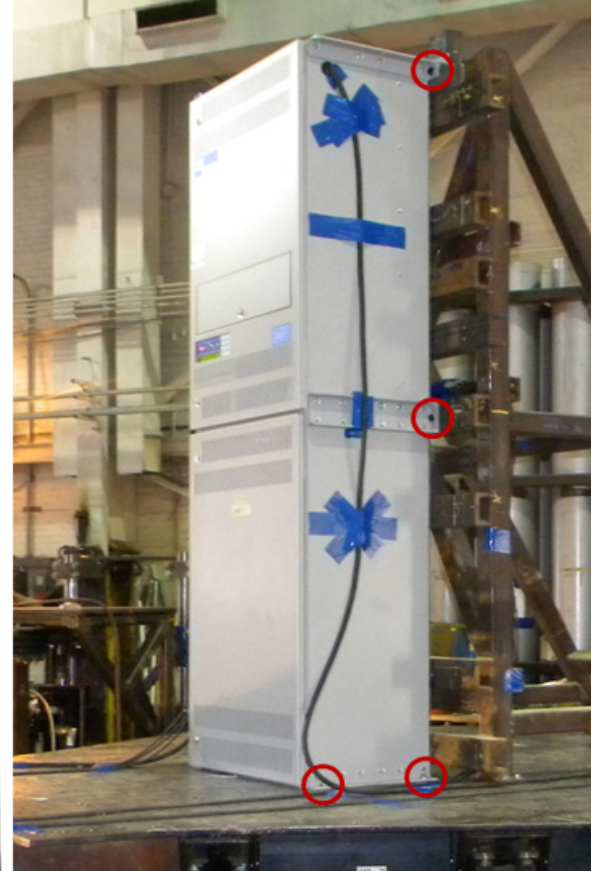


UUT-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter anchor bolts to both the floor/wall.



Manufacturer: Hubbell Dual-Lite

Product Line: LSN Lighting Inverters

Identification Number: D-120-01-S-120-A-15-01-EML-RSP-SMT-IBS-C10-AR15-S

UUT Function: Emergency power source with automatic transferring for lighting applications

UUT Description: 1kVA 15 minute run time LSN Inverter with a NEMA1 steel enclosure.

UUT Component Description: NEMA1 carbon steel enclosure, Carlton Inverter Control Board/IGBT Drive/Maze Board/RSP, Filter Concepts EMI/RFI Filter, Dual-LITE UID Panel, Salzer By-Pass Switch, PowDec Tech Power Supply, Cuttler Hammer Circuit Breakers, Transformer Technology Transformers, and C&D Technologies Type "S" Batteries.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
840	30.0	18.6	92.0	NA	NA	NA

SEISMIC TEST PARAMETERS (TESTED 8-14-2013)

Test Criteria	S _{DS}	z / h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
ICC-ES AC156 2012	2.50	0.0	1.5	2.50	1.00	1.67	0.67
ICC-ES AC156 2012	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The lighting inverter maintained structural integrity and functionality after the ICC-ES AC156 Test

UUT-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter anchor bolts to both the floor/wall.



Manufacturer: Hubbell Dual-Lite

Product Line: LSN Lighting Inverters

Identification Number: D-277-17-S-120-A-80-01-EML-RSP-SMT-IBS-C20-S (control + batt cabinet)

UUT Function: Emergency power source with automatic transferring for lighting applications

UUT Description: 17kVA 90 minute run time LSN Inverter with a NEMA1 steel enclosure.

UUT Component Description: NEMA1 carbon steel enclosure, Carlton Inverter Control Board/IGBT Drive/Maze Board/RSP, Filter Concepts EMI/RFI Filter, Dual-LITE UID Panel, Salzer By-Pass Switch, PowDec Tech Power Supply, Cuttler Hammer Circuit Breakers, Transformer Technology Transformers, and C&D Technologies Type "S" Batteries.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,766	30.0	18.6	92.0	NA	NA	NA

SEISMIC TEST PARAMETERS (TESTED 8-14-2013)

Test Criteria	S _{DS}	z / h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
ICC-ES AC156 2012	2.50	0.0	1.5	2.50	1.00	1.67	0.67
ICC-ES AC156 2012	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The lighting inverter maintained structural integrity and functionality after the ICC-ES AC156 Test.

UUT-3

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter anchor bolts to both the floor/wall.



Manufacturer: Hubbell Dual-Lite

Product Line: LSN Lighting Inverters

Identification Number: D-277-17-S-120-A-80-01-EML-RSP-SMT-IBS-C20-S (batt cabinets)

UUT Function: Emergency power source with automatic transferring for lighting applications

UUT Description: 17kVA 90 minute run time LSN Inverter with a NEMA1 steel enclosure.

UUT Component Description: NEMA1 carbon steel enclosure and C&D Technologies Type "S" Batteries.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,250	30.0	18.6	92.0	NA	NA	NA

SEISMIC TEST PARAMETERS (TESTED 8-14-2013)

Test Criteria	S _{DS}	z / h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
ICC-ES AC156 2012	2.50	0.0	1.5	2.50	1.00	1.67	0.67
ICC-ES AC156 2012	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The lighting inverter maintained structural integrity and functionality after the ICC-ES AC156 Test

**HUBBELL DUAL-LITE
EXTERNAL CONVERSION TRANSFORMER
CERTIFIED PRODUCT MATRIX**



Hubbell ID Number (SOLA ID Number)	Manufacturer	Electrical Ratings	Mounting	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
0230915 (S12H15S)	SOLA HEVI-DUTY	120/208/240/277P 15KVA	Floor	16.25	16.25	27.75	208.00	UUT-4

Notes:
 1) Certification is valid for the single unit identified above as it was tested.
 2) The External Conversion Transformer is manufactured by SOLA HEVI-DUTY and branded as Hubbell Dual-Lite for applications with Hubbell Dual-Lite's LSN Lighting Inverter Certified Product Line.

UUT-4

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor mount with 4 - 5/16" diameter anchor bolts.



Manufacturer: Branded as Hubbell Dual-Lite, manufactured by SOLA HEVI-DUTY

Product Line: Individual unit used with the Hubbell Dual-Lite LSN Certified Product Line

Identification Number: 0230915 (S12H15S)

UUT Function: Conversion Transformer

UUT Description: External Conversion Transformer.

UUT Component Description: NEMA1 carbon steel enclosure with dry type core and coil made of copper windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
208	16.0	16.0	28.0	21.2	30.7	> 33

SEISMIC TEST PARAMETERS (TESTED 8-14-2013)

Test Criteria	S _{DS}	z / h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
ICC-ES AC156 2012	2.50	0.0	1.5	2.50	1.00	1.67	0.67
ICC-ES AC156 2012	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The transformer maintained structural integrity and functionality after the ICC-ES AC156 Test.