APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0365

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Hubbell Dual-Lite

Manufacturer's Technical Representative: John Lane

Mailing Address: 701 Millennium Blvd. Greenville, SC 29607

Telephone: (864) 678-1276 Email: John.lane@dual-lite.com

Product Information

Product Name: LSN Central Lighting Inverter with Sola Hevi-Duty External Transformer

Product Type: Central Lighting Inverter with External Transformer

Product Model Number: See Attachment
(List all unique product identification numbers and/or part numbers)

General Description: Emergency power backup system (automatic transfer) for lighting applications constructed with light gauge carbon steel NEMA1 enclosure with internal components as outlined in attachments.

Mounting Description: Floor mounted and combined floor / wall mounted

REVIEWED FOR OSHPD COMPLIANCE
OSHPD
OSP-0365
BY: Mohammad Aliaari
DATE: 06/08/2020
CALIFORNIA BUILDING CODE, 2019

Applicant Information

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

Contact Person: Travis Soppe, SE

Mailing Address: 1199 Shoreline Drive, Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 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, 2016.

Signature of Applicant: Travis Soppe Date: 06/03/2019

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

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

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

Name: Travis Soppe, SE California License Number: S6115

Mailing Address: 1199 Shoreline Drive, Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 Ext. 115 Email: tsoppe@wegai.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):

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Testing Laboratory

Company Name: Clark Dynamic Test Laboratory

Contact Name: Devon Lohr

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

Telephone: 412-387-1026 Email: dlohr@clarktesting.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.13 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) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0 and 1.0

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, 2015: ☐ Yes ☒ No

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List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Certified System Matrix, UUT Summary Sheets, Subcomponent Certification Letter

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: M. Aliaari Date: June 08, 2020

Print Name: Mohammad Aliaari Title: SSE

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

Condition of Approval (if applicable):

TABLE 1

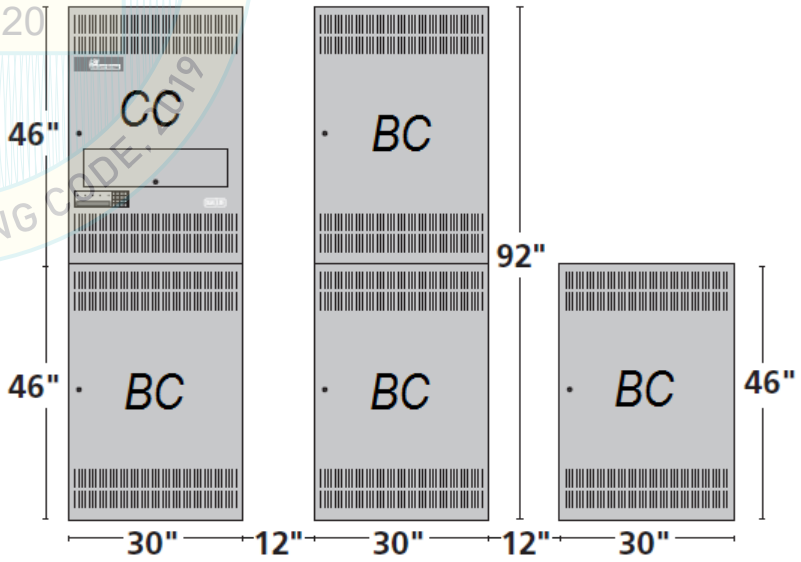
HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

	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		
15 Minute Runtime	D-120-01-S-120-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 seperated 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 votage 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)

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TABLE 1		HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX										WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING
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		
30 Minute Runtime	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
60 Minute Runtime	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 votage 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.

REVIEWED FOR CODE COMPLIANCE OSHPD OSP-0365 BY Mohammad Aliaari DATE 06/08/2020 CALIFORNIA BUILDING CODE 2019

TABLE 1

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

	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		
90 Minute Runtime	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-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-277-17-S-120-y-S	17.5	120 - 347	36 / 3	1110	692	72.0"	18.63"	92.0"	4021	UUT-2 & 3
120 Minute Runtime	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-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-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

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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 votage 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.

TABLE 1

HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

	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		
180 Minute Runtime	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-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
240 Minute Runtime	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-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
300 Minute Runtime	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-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-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 votage 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.

REVIEWED FOR CODE COMPLIANCE OSHPD OSP-0365 BY Mohammad Aliaari DATE 06/08/2020 CALIFORNIA BUILDING CODE 2019

TABLE 2	HUBBELL - DUAL-LITE LSN INVERTER CERTIFIED COMPONENTS TABLE							
System Component	**Hubbel Part Number**	**Dimensions (in)**			**Weight (lb)**	**Mounting**	**UUT**
		Width	**Depth**	**Height**			
External Transformers							
SOLA HEVI-DUTY External Output Voltage Conversion Transfomer	230915 (S12H15S)	16.3	16.3	27.8	200	floor	UUT-4[1]

[1] Variations to the testsed unit are limited to software and color/branding. The unit was tested as a single unit with no variations.

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SEISMIC CERTIFICATION LIMITS								
System Component	**Code**	**S_{DS} (g)**	**z / h**	**I_P**	**a_P**	**R_P**	**Ω_0**	**F_P / W_P**
External Output Voltage Conversion Transfomer	CBC 2016	2.0	1.0	1.50	1.0	2.5	2.0	1.44
		2.5	0					1.13
Inverter and Battery Cabinet	CBC 2016	2.0	1.0	1.50	1.0	2.5	2.0	1.44
		2.5	0					1.13

TABLE 3	HUBBELL DUAL-LITE LSN INVERTER CERTIFIED SUBCOMPONENT MATRIX						
Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Input EMI/RFI Filter							
0390394	Filter Concepts Inc.	EMI Filter 30A 480V	4.5	2.8	6.5	2.5	extrapolated
0390389	Filter Concepts Inc.	EMI Filter 40A/PH LE Series	5.0	4.1	1.8	2.1	UUT-1
0390395	Filter Concepts Inc.	EMI Filter 60A 480V	4.3	7.8	2.3	5.2	interpolated
0390390	Filter Concepts Inc.	EMI Filter 75A/PH LE Series	7.8	4.3	2.3	5.5	interpolated
0390396	Filter Concepts Inc.	EMI Filter 100A 480V	8.9	7.3	3.0	10.1	UUT-2
0390388	Filter Concepts Inc.	EMI Filter 100A/PH LE Series	5.5	8.9	3.0	10.8	extrapolated
Internal Main / Output Voltage Conversion Transformers							
0230858	Transformer Technology	3.7KVA 120/120	9.0	7.3	7.5	70.0	UUT-1
0230902	Transformer Technology	277/120 3.7KVA	9.0	5.0	7.5	30.0	UUT-1
0230903	Transformer Technology	277/120 5.5KVA	9.0	5.8	7.5	42.5	interpolated
0230906	Transformer Technology	208-240/120-240 3.7	9.0	6.0	7.5	47.5	interpolated
0230945	Transformer Technology	277/120-240 3.7KVA	9.0	7.5	5.8	55.0	interpolated
0230969	Transformer Technology	208/120-277V 3.7KVA	9.0	7.5	6.0	60.0	interpolated
0230894	Transformer Technology	3.7KVA 208/208	9.0	7.3	7.5	70.0	interpolated
0230895	Transformer Technology	3.7KVA 240/240	9.0	7.3	7.5	70.0	interpolated
0230862	Transformer Technology	3.7KVA 347/347	9.0	7.3	7.5	70.0	interpolated
0230861	Transformer Technology	3.7KVA 277/277	9.0	8.0	7.5	75.0	interpolated
0230939	Transformer Technology	347/120V 5.5KVA	9.0	7.5	5.8	75.0	interpolated
0230954	Transformer Technology	277/120-240V 6.6KVA	9.0	7.5	7.5	75.0	interpolated
0230907	Transformer Technology	208-240/120-240 6.6	9.0	8.0	7.5	85.0	interpolated
0230904	Transformer Technology	277/120 10KVA	9.0	8.0	7.5	85.0	interpolated
0230916	Transformer Technology	208/120-208V 6.6KVA	9.0	7.5	8.0	94.0	interpolated
0230937	Transformer Technology	208/208V 3.7KVA	9.0	7.5	6.0	125.0	interpolated
0230984	Transformer Technology	277/120 17.5KVA	12.0	10.0	8.0	125.0	UUT-2
0230923	Transformer Technology	347/120 15KVA	12.0	8.0	10.0	130.0	interpolated
0230863	Transformer Technology	6.6KVA 120/120	12.0	8.0	10.0	135.0	interpolated
0230896	Transformer Technology	6.6KVA 208/208	12.0	8.0	10.0	135.0	interpolated
0230897	Transformer Technology	6.6KVA 240/240	12.0	8.0	10.0	135.0	interpolated
0230866	Transformer Technology	6.6KVA 277/277	12.0	8.0	10.0	135.0	interpolated
0230867	Transformer Technology	6.6KVA 347/347	12.0"	8.0"	10.0"	135.0	interpolated

REVIEWED FOR CODE COMPLIANCE
GRADD
OSP-0365
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ACCEPTABLE FOR USE IN FBC BUILDING CODE 2017

TABLE 3	HUBBELL DUAL-LITE LSN INVERTER CERTIFIED SUBCOMPONENT MATRIX						
Subcomponent ID Number	Manufacturer	Notes	Width (in)	Depth (in)	Height (in)	Weight (lbs)	UUT
Internal Main / Output Voltage Conversion Transformers - Continued							
0230908	Transformer Technology	208-240/120-240 10K	12.0	8.0	10.0	135.0	interpolated
0230905	Transformer Technology	277/120 15KVA	12.0	8.0	10.0	135.0	interpolated
0230871	Transformer Technology	10KVA 347/347	15.0	9.5	12.5	175.0	interpolated
0230898	Transformer Technology	10KVA 208/208	15.0	9.0	12.5	178.0	interpolated
0230899	Transformer Technology	10KVA 240/240	15.0	9.0	12.5	178.0	interpolated
0230870	Transformer Technology	10KVA 277/277	15.0	9.0	12.5	178.0	interpolated
0230900	Transformer Technology	15KVA 208/208	15.0	10.0	12.5	230.0	interpolated
0230901	Transformer Technology	15KVA 240/240	15.0	10.0	12.5	230.0	interpolated
0230874	Transformer Technology	15KVA 277/277	15.0	9.5	12.5	230.0	interpolated
0230875	Transformer Technology	15KVA 347/347	15.0	10.0	12.5	230.0	interpolated
0230876	Transformer Technology	17.5KVA 277/277	15.0	10.4	12.5	250.0	UUT-2
Type "S" Batteries							
93012367	C&D Technologies	12V 35AH	5.2	7.8	6.8	27.3	UUT-1
93012368	C&D Technologies	12V 54AH	5.5	9.0	8.1	40.0	interpolated
93012369	C&D Technologies	12V 78AH	6.8	10.3	8.0	58.4	interpolated
93012370	C&D Technologies	12V 94AH	6.8	12.0	8.1	67.4	interpolated
93012371	C&D Technologies	12V 100AH	6.8	13.4	8.5	75.8	UUT-2/UUT-3

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CALIFORNIA BUILDING CODE, 2019

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

D - - - -

Model

D	LSN Central Lighting Inverter

Input Voltage (VAC) [2]

120
208
240
277
347

Capacity

01	1.0KVA
02	2.0KVA
27	2.7KVA
37	3.7KVA
48	4.8KVA
55	5.5KVA
66	6.6KVA
83	8.3KVA
10	10.0KVA
12	12.5KVA
15	15.0KVA
17	17.5KVA

Battery Type

S	10-year VRLA Lead-Calcium
~~**G**~~	~~20-year VRLA Lead-Calcium~~
~~**N**~~	~~25-year Nickel Cadmium~~

Output Circuit Breaker Type

Blank	Normally On
N	Normally Off

Output Voltage [2, 3, 4] (VAC)

120
120/208
120/240 [5]
120/277
347

Output Circuit Breaker Voltage Rating

A	120VAC
B	240VAC
C	277VAC
D	208VAC

Output Circuit Breaker Ampere Rating [7]

15
20
25
30
35
40
50
60
80

Output Circuit Breaker Quantity [6]

01 to **20**

Output Circuit Breaker Supervision

Blank	Monitored
U	Unmonitored

(1) Requires a provided external transformer for 208VAC or 240VAC input.
(2) Refer to Specifications table for available Input/Output voltage combinations.
(3) Other voltages available. Consult factory.
(4) External transformer may be provided.
(5) Loading may not exceed 50% of the system’s total rating on any 120VAC leg.
(6) 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.
(7) Normally Off circuit breakers: a maximum rating of 20 amps.
(8) Specify runtime in minutes when ordering. Example: AR120.
(9) Available with 1.0, 2.0, 2.7, 3.7, 5.5, and 6.6KVA Series with S batteries only.
(10) Available on 1.0 KVA - 4.8KVA Series.
(11) 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.
(12) Type S Battery in standard height cabinet only; See system configuration for 90-minute run time.
(13) Start-Up is non-cancellable / non-returnable and must be performed by an Authorized Service Center within 6 months of battery shipment to increase the inverter warranty to 2 years. Order a quantity of 1 per system. Systems powered up by others are done so at their own risk.

Other Options & Accessories

Options

EML	Email Device
RSP	Remote Status Panel
SMT	System Monitoring Terminal including Emergency Power Off Terminal
AR	Alternate Runtime [8]
~~**SBC**~~	~~Short Battery Cabinet~~ [9]
IBS	Internal Maintenance Bypass Switch (Make Before Break)
C10	10 Amp Charger Upgrade [10]
C20	20 Amp Charger Upgrade [11]
CL60	Cabinet Locks
S	Seismic Qualified [12]

Accessories

DSFK	Seismic Kit [12]

Service Options

FSL	Factory Start-Up [13]

HUBBELL Lighting

FOR REFERENCE ONLY
REVIEWED FOR CODE COMPLIANCE
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UUT-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter grade 5 anchor bolts to the floor/wall.



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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 transfering for lighting appications

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 Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
840	30.0	18.6	92.0	14.8	15.9	> 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}
CBC 2016 / ICC-ES AC156	2.50	0.0	1.5	2.50	1.00	1.67	0.67
	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter grade 5 anchor bolts to the floor/wall.





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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 transfering for lighting appications

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 Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,766	30.0	18.6	92.0	14.9	16.0	> 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}
CBC 2016 / ICC-ES AC156	2.50	0.0	1.5	2.50	1.00	1.67	0.67
	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor/wall mount with 4 - 1/2" diameter grade 5anchor bolts to the floor/wall.





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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 transfering for lighting appications

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 Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,250	30.0	18.6	92.0	16.5	16.3	> 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}
CBC 2016 / ICC-ES AC156	2.50	0.0	1.5	2.50	1.00	1.67	0.67
	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-4	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor mount with 4 - 5/16" diameter grade 8 anchor bolts.





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Manufacturer: Sola Hevi-Duty

Product Line: Individual Component Used within the LSN Product Line

Identification Number: 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 Fequency (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}
CBC 2016 / ICC-ES AC156	2.50	0.0	1.5	2.50	1.00	1.67	0.67
	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.