



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0843

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: SENS

Manufacturer's Technical Representative: Sam Coleman

Mailing Address: 1840 Industrial Circle, Longmont, CO 80501

Telephone: (303) 678-7500

Email: samc@sens-usa.com

Product Information

Product Name: Supertorque 8ZR

Product Model Number(s): See attached

Product Category: UPS and Batteries

Product Sub-Category: Batteries

General Description: Genset starting systems in rack configuration.

Mounting Description: Base Mounted Rigid -

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Labs

Contact Person: Kelly Laplace

Mailing Address: 113 Main St., Bloomingdale, NJ 07403

Telephone: (775) 358-5085

Email: kelly.laplace@thvmcgroup.com

Title: Vice President of Sales: Test and Measurement Division



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

Company Name: THE VMC GROUP

Name: Kenneth Tarlow

California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214

Email: ken.tarlow@thevmcgroup.com

Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify): _____

Testing Laboratory

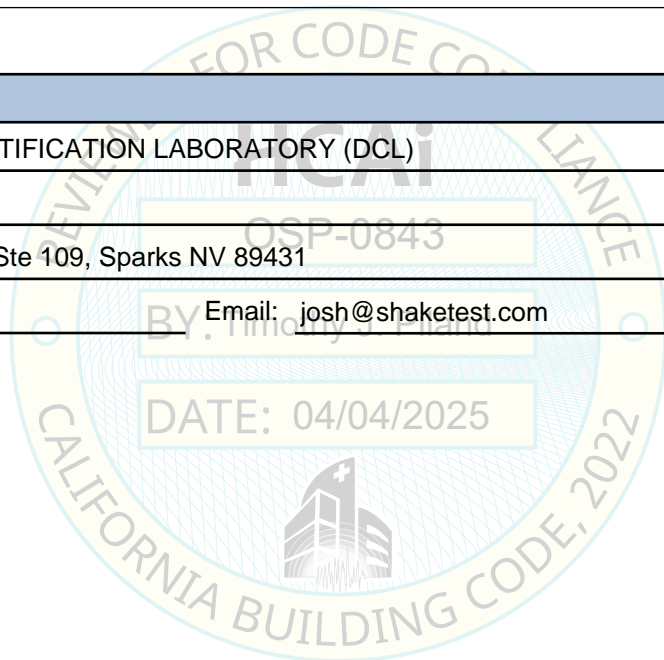
Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Josh Sailer

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085

Email: josh@shaketest.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (Sds 2.0g, z/h=1); 1.13 (Sds 2.5g, z/h=0)

Sds (Design spectral response acceleration at short period, g) = Sds 2.0g, z/h=1; Sds 2.5g, z/h=0

a_p (Amplification factor) = 1

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 04/04/2031

Date: 4/4/2025

Name: Timothy Piland

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: Sds (g) = See Above

z/h = See Above

Condition of Approval (if applicable):

Special Seismic Certification



Table 1 - Certified Components

DCL Project Number: 08826-2401

Manufacturer: SENS

Product Line: Supertorque 8ZR

Mounting: Rigid base mount

Certified Seismic Levels: Sds=2.0g at z/h=1.0; Sds=2.5g at z/h=0.0

Model Number ¹	Description	Dimensions [in.] ²			Weight [lb.]	Unit
		Length	Width	Height		
8R-C1-0A-111-00A-1	1H x 1W LAYOUT	33	14	18	110	UUT-03
8R-A1-0A-111-00A-1	1H x 1W LAYOUT	34	14	18	159	Interpolated
8R-A1-LA-222-C0A-1	2H x 1W LAYOUT	34	14	65	500	Interpolated
8R-A1-LA-2A2-C0A-1	1H x 2W LAYOUT	61	14	47	500	Interpolated
8R-A1-LA-331-00A-1	3H x 1W LAYOUT	33	14	75	520	UUT-01
8R-A1-LA-4B2-C0A-1	2H X 2W LAYOUT	61	14	65	730	UUT-02

Notes:

1. All racks are made of powder coated mild steel tubing and sheet.
2. All dimensions include hardware.



Special Seismic Certification Nomenclature Chart



DCL Project No.: 08826-2401

Manufacturer: SENS

Product Line: Supertorque 8ZR

Mounting Description: Rigid base mount

Sample Part Number: A-B-C-D-E-F-G-I-H-J-K-L

Character	Category	Allowable Value	Description	Unit
A	Product Family	8R	Branding	UUT-01, -02, -03
B	DC Voltage & Capacity	0	No batteries	Extrapolated
		A	24V 80AH	UUT-01, -02
		B	24V 90AH	Same as tested
		C	12V 80AH	UUT-03
		D	12V 90AH	Same as tested
C	Charging Current	1	15A	UUT-01, -02, -03
		2	25A	Same as tested*
D	Termination Panel	0	None	UUT-03
		S	AC/Coms Only	Interpolated
		L	AC/Coms/DC (includes DC disconnects)	UUT-02, -03
E	Control and Communication	A	LCD Display, keypad, (5) form-C relays, USB-C, RS-485 and TCP/IP Modbus (Accessory board)	UUT-01, -02, -03
		B	LCD Display, keypad, (5) form-C relays, USB-C, ethernet and TCP/IP Modbus (Protocol board)	Same as tested
F	Number of 8Z Supertorque Units	0	No 8Zs Units	Interpolated
		1	1 8Z Unit	UUT-03
		2	2 8Z Unit	Extrapolated
		3	3 8Z Unit	UUT-01
		4	4 8Z Unit	UUT-02
G	Rack Layout	1	1H x 1W	UUT-01
		2	2H x 1W	Interpolated
		3	3H x 1W	UUT-01
		A	1H x 2W	Interpolated
		B	2H x 2W	UUT-02
I	Banks (Channels)	0	No panel and no wiring	Extrapolated
		1	1 Bank	UUT-01, -03
		2	2 Bank	UUT-02
		3	3 Bank	Same as UUT-01*
H	DC Isolation	0	No isolation	UUT-01, -03
		A	BCS - Battery Control System	Interpolated
		B	BBS - Best Battery Selector	Interpolated
		C	BCS & BBS	UUT-02
J	Battery Monitoring	0	No battery monitoring	UUT-01, -02, -03
K	Configuration	A	Standard configuration	UUT-01, -02, -03
L	Starter Cables (Positive and Negative) (Optional)	0	No starter cables	Not Part of the Unit
		1	6ft long	Not Part of the Unit
		2	10 ft long	Not Part of the Unit
		3	15ft long	Not Part of the Unit

* Minor wiring differences

Special Seismic Certification



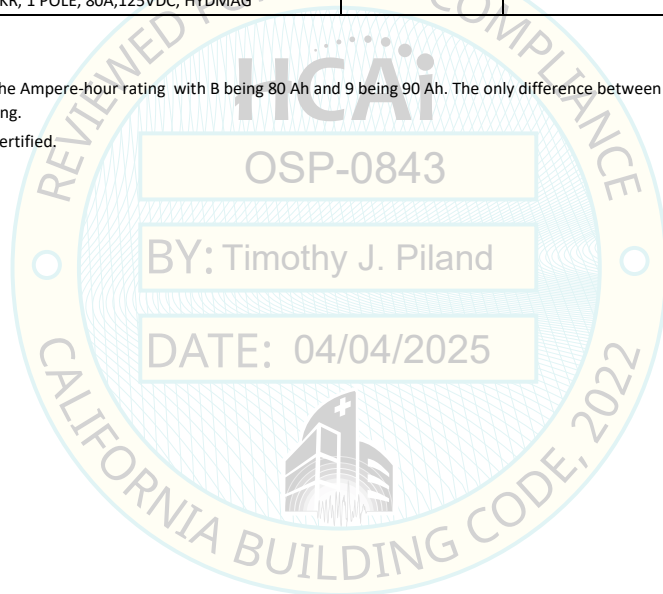
Table 2 - Certified Subcomponents

DCL Project Number: 08826-2401

Batteries					
Model Number ¹	Description	Manufacturer	Material	Weight [lb.]	Unit
8Z-12-9-15-A-1-1-OM	LER or Stationary Applications	Stored Energy Systems	Nickel, Zinc, Plastic, Carbon Steel	50	Extrapolated
8Z-12-B-15-A-1-1-OM				50	UUT-03
8Z-24-9-15-A-1-1-OM				89	Interpolated
8Z-24-B-15-A-1-1-OM				89	UUT-01, UUT-02
Diodes ²					
209706	ASSEMBLY, BLOCKING DIODES, BBS-4800	Stored Energy Systems	Silicon, Aluminum	45	UUT-02
Circuit Boards					
2S7757	PCA, MG2, ACCY, CAN, DISP, 5 RLY, ETH, SYS, S/W	Stored Energy Systems	PCB, Copper	<1	UUT-01, UUT-02
207056	PCA, DIODE ISOLATOR, 80A/120A			1.0	UUT-02
2S5750	PCA, MG2, PWR/CTRL, 12V/24V, 15A, SC TRM, S/W			1.5	UUT-01, UUT-02
204288	PCA, 8Z LED BOARD			<1	UUT-01, UUT-02
Breakers					
702939	BRKR, 1 POLE, 10A,125VDC, HYDMAG	Carling Technologies	Plastic, Copper	<1	UUT-02
702940	BRKR, 1 POLE, 80A,125VDC, HYDMAG			<1	UUT-02

Notes:

1. 9 and B in the model number stand for the Ampere-hour rating with B being 80 Ah and 9 being 90 Ah. The only difference between the two is the internal battery chemistry that generates the additional Ampere-Hour rating.
2. The manufacturing process is ISO 9001 certified.



Special Seismic Certification



Table 3 - Tested Units

DCL Project Number: 08826-2401

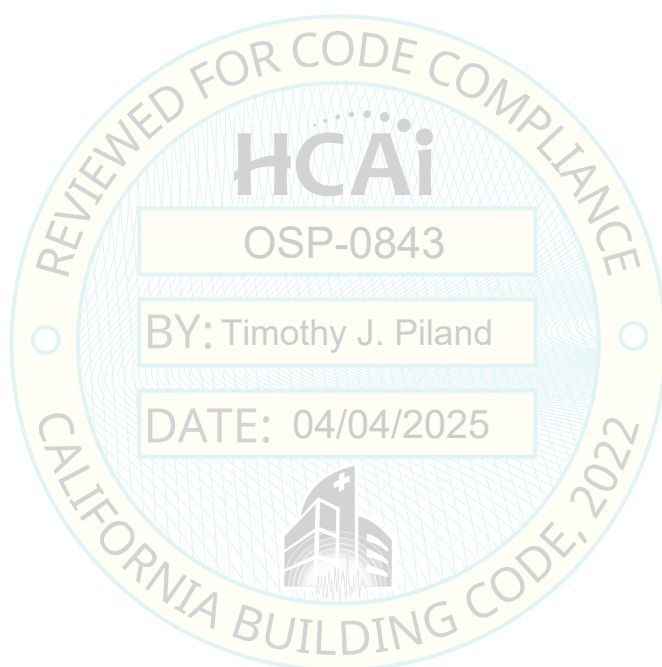
Manufacturer: SENS

Product Line: Supertorque 8ZR

Mounting: Rigid base mount

Certified Seismic Levels: Sds=2.0g at z/h=1.0; Sds=2.5g at z/h=0.0

Model Number	Description	Dimensions [in.]			Weight [lb.]	Unit
		Length	Width	Height		
8R-C1-0A-111-00A-1	1H x 1W LAYOUT	33	14	18	110	UUT-03
8R-A1-LA-331-00A-2	3H X 1W LAYOUT	33	14	75	520	UUT-01
8R-A1-LA-4B2-C0A-3	2H X 2W LAYOUT	61	14	65	730	UUT-02



UNIT UNDER TEST (UUT) Summary Sheet



UUT-03

Test Report Number: 08826-2401

Manufacturer: SENS

Product Line: Supertorque 8ZR

Model Number: 8R-C1-0A-111-00A-1

Mounting: Rigid Base Mount

Product Construction Summary: Powder coated mild steel and sheet.

Options / Component Summary: Battery.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Tested unit	Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
		Depth	Length	Height	Front-Back	Side-Side	Vertical
UUT-03	111.0	13.5	32.5	17.5	33.3<	33.3<	33.3<

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT-03 was rigidly mounted to the shake table interface plate using (4) ½" Grade 8 bolts and flat washers. The bolts were spaced 10 5/8" apart in x-direction measured on-center and 31 5/8" apart in y-direction measured on-center.



Overall View of UUT-03

UNIT UNDER TEST (UUT) Summary Sheet



UUT-01

Test Report Number: 08826-2401

Manufacturer: SENS

Product Line: Supertorque 8ZR

Model Number: 8R-A1-LA-331-00A-2

Mounting: Rigid Base Mount

Product Construction Summary: Powder coated mild steel and sheet.

Options / Component Summary: Batteries, circuit boards.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Tested unit	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Operating Weight (lb)	Depth	Length	Height	Front-Back	Side-Side	Vertical
UUT-01	520.0	13.5	32.5	75.0	12.5	14.8	33.3<

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT-01 was rigidly mounted to the shake table interface plate using (4) ½" Grade 8 bolts and flat washers. The bolts were spaced 10 5/8" apart in x-direction measured on-center and 31 5/8" apart in y-direction measured on-center.



Overall View of UUT-01

UNIT UNDER TEST (UUT) Summary Sheet



UUT-02

Test Report Number: 08826-2401

Manufacturer: SENS

Product Line: Supertorque 8ZR

Model Number: 8R-A1-LA-4B2-COA-3

Mounting: Rigid Base Mount

Product Construction Summary: Powder coated mild steel and sheet.

Options / Component Summary: Batteries, diodes, circuit boards, breakers.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

UUT Properties

Tested unit	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Operating Weight (lb)	Depth	Length	Height	Front-Back	Side-Side	Vertical
UUT-02	730.0	13.5	61.0	64.8	10.8	12.8	33.3<

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT-02 was rigidly mounted to the shake table interface plate using (6) ½" Grade 8 bolts and flat washers. The bolts were spaced 10 5/8" apart in x-direction measured on-center and 31 5/8" and 27 ½" apart in y-direction measured on-center.



Overall View of UUT-02