



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO. OSP – 0144-10
--

Check whether application is: NEW RENEWAL

1.0 American Power Conversion John Collins
Manufacturer *Manufacturer's Technical Representative*

132 Fairgrounds Road, West Kingston, RI 02892
Mailing Address

401-789-5735 ext. 2935 John.Collins@apcc.com
Telephone *E-mail Address*

2.0 Symmetra PX 100kW Uninterrupted Power Supply (UPS)
Product Name *Product Type*

SY10K100F – SY100K100F
Product Model No. (List all unique product identification numbers and/or serial numbers)

General Description: Rigid Floor mounted Symmetra PX 100kW UPS units in NEMA-1 enclosure consist of power modules, power distribution units (with or without transformers), battery frames, and feed frames. All section types have one available size. InfraStruXure RPP (Remote Power Panel) units are included as optional equipment.

3.0 American Power Conversion John Collins
Applicant Company Name *Contact Person*

132 Fairgrounds Road, West Kingston, RI 02892
Mailing Address

401-789-5735 ext. 2935 John.Collins@apcc.com
Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant 1/13/2011
Signature of Applicant *Date*

Director 3-Phase UPS Product Management American Power Conversion
Title *Company Name*



Registered Design Professional Preparing the Report

4.0 University of Alabama - Birmingham
 Company Name

Lee Gholamreza Moradi C41383
 Contact Name California License Number

4824 Sulphur Springs Rd, Hoover, AL 35226
 Mailing Address

205-975-2718 moradi@uab.edu
 Telephone E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0 Forell-Elsesser Engineers, Inc.
 Company Name

Marco Scanu, SE S4454
 Contact Name California License Number

160 Pine St., 6th Flr., San Francisco, CA 94111
 Mailing Address

415-837-0700 m.scanu@forell.com
 Telephone E-mail Address

Anchorage Pre-Approval

6.0 Anchorage is pre-approved under OPA-
 (Separate application for anchorage pre-approval is required)

Anchorage is not Pre-approved

Certification Method

7.0 Testing in accordance with: ICC-ES AC-156 Other (Please Specify):

Analysis

Experience data

Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0 Wyle Laboratories Rod Thornberry
 Company Name Contact Name

7800 Hwy 20, Huntsville, AL 35806
 Mailing Address

(256) 837-4411
 Telephone E-mail:

2/7



Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 1.06g

S_{DS} (Spectral response acceleration at short period) = 1.41g

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component fundamental period(s) = See attachment, "Resonant Frequency Summary"

Building period limits (if any) = N/A

Overall dimensions and weight (or range thereof) = See attachment, "Product Range Summary"

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

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

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient) = 1.0

Ω_o (System overstrength factor) = 1.0

C_d (Deflection amplification factor) = 1.0

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

10.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report
- Drawings
- Manufacturer's Catalog
- Calculations
- Other (Please Specify): SE Acceptance Letter, Product Range Summary, CAN2-1708A.5 & AC156 Requirements Checklist

11.0 OSHPD Approval (For Office Use Only)

Chris Tokas

Signature & Date

1/13/11

December 31, 2016

Chris Tokas, SHFR

Name & Title

Approval Expiration Date

S_{DS} (g) = **1.41**

z/h = **1.0**

Special Seismic Certification Valid Up to

Condition of Approval (if any):

3/7

OSP APPLICATION
 APC - Symmetra PX 100kW UPS
 Test & Resonant Frequency Summaries

APC - Symmetra PX 100kW UPS Test Summary					
	Width	Depth	Height	Tested Weight	Dynamic Test
Symmetra PX 100kW (min. loading)					
UPS w/ 1 x 10kW power module	23.6 in	42.1 in	79.2 in	770 lbs	Test 57930r10 - UUT1
Battery frame (4) C69 batteries	23.6 in	42.1 in	79.2 in	900 lbs	
PDU 208V	23.6 in	42.1 in	79.2 in	974 lbs	
Symmetra PX 100kW (max. loading)					
UPS w/ 10 x 10kW power module	23.6 in	42.1 in	79.2 in	1,313 lbs	Test 57930r10 - UUT2 ¹
Battery frame (28) C69 batteries (4) G20 batteries (4) E85 batteries	23.6 in	42.1 in	79.2 in	2,779 lbs	
PDU w/ 480V/208V transformer	23.6 in	42.1 in	79.2 in	1,954 lbs	
Bottom feed frame	11.8 in	42.1 in	79.2 in	330 lbs	
InfraStruXure RPP (min. loading)					
RPP 208V (1) PDM module (1) Netshelter	11.8 in	42.1 in	79.2 in	330 lbs	Test 57930r10 - UUT3a ²
InfraStruXure RPP (max. loading)					
RPP w/ 480V/415V transformer (24) PDM modules (1) Netshelter	11.8 in	42.1 in	79.2 in	1,210 lbs	Test 57930r10 - UUT3b ²
Notes					
<ol style="list-style-type: none"> 1. Bottom feed frame is not an active nor energized component 2. RPP units were tested in a 47.2"-wide multi-section sample and are not intended to be installed alone. 					

OSP APPLICATION
 APC - Symmetra PX 100kW UPS
 Test & Resonant Frequency Summaries

APC - Symmetra PS 100kW UPS Resonant Frequency Summary						
	<u>UUT1</u> UPS, min. config.		<u>UUT2</u> UPS, max. config.		<u>UUT3a & 3b</u> RPP add-on, min. & max.	
Direction	Frequency	Period	Frequency	Period	Frequency	Period
Front-Back	13.0 Hz	0.08 sec	6.5 Hz	0.15 sec	9.6 Hz	0.08 sec
Side-Side	6.8 Hz	0.15 sec	4.5 Hz	0.22 sec	3.8 Hz	0.26 sec
Vertical	15.0 Hz	0.07 sec	19.0 Hz	0.05 sec	31.0 Hz	0.03 sec

FORELL/ELSESSER ENGINEERS, INC.
 Structural Engineers
 160 Pine Street, 6th Floor
 San Francisco, CA 94111

5/7



UUT 1



UUT 2

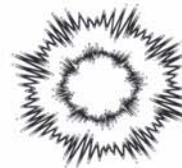


UUT 3

OSP APPLICATION
 APC - Symmetra PX 100kW UPS
 Product Range Summary

APC - Symmetra PX 100kW UPS Product Range Summary					
	Max. Width	Max. Depth	Max. Height	Max. Weight	Notes
Symmetra PX 100kW					
UPS	23.6 in	42.1 in	79.2 in	1,313 lbs	1
Battery Frame	23.6 in	42.1 in	79.2 in	2,779 lbs	1, 2
Power Distribution Unit	23.6 in	42.1 in	79.2 in	1,954 lbs	1, 3
Bottom Feed Frame	11.8 in	42.1 in	79.2 in	330 lbs	1, 4
InfraStruXure Remote Power Panel	11.8 in	42.1 in	79.2 in	1,210 lbs	1, 3
Notes					
1. Max. dimensions are given for NEMA 1 enclosures 2. Tested with C69, G20, & E85 batteries 3. Tested with and without 480V/208V transformer 4. Empty enclosure; not active equipment					

**Inspection Certificate
 Seismic Certification Label
 California Building Code**



OSHPD Special Seismic Certification Preapproval: OSP-00XX-10
 Product Name: Symmetra PX 100kW
 Product Type: Uninterrupted Power Supply
 Anchorage Pre- Approved: No, rigid ~~wall~~ floor mounted
 Seismic Performance Characteristics: Test S_{DS} (g) = 1.41 z/h= 1.0
 Manufacturer's Identification Number: _____ Sect ___ of ___



APC Symmetra PX 100kW

FORELL/ELSESSER ENGINEERS, INC.
 Structural Engineers
 160 Pine Street, 6th Floor
 San Francisco, CA 94111

7/7