



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0768

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Automated Building Control Solutions

Manufacturer's Technical Representative: Frank Honesto

Mailing Address: 1533 Berger Drive, San Jose, CA 95112

Telephone: (408) 813-7013

Email: fhonesto@automatedbldgs.com

Product Information

Product Name: Industrial Control Panels

Product Type: HVAC Control Panels

Product Model Number: BMS Panels

General Description: Surface mounted building management temperature control panel in a stainless steel enclosure consisting of controllers, transformers, power supplies, relays and networking connectivity parts.

Mounting Description: Rigidly mounted to Rigid or Isolated Walls

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

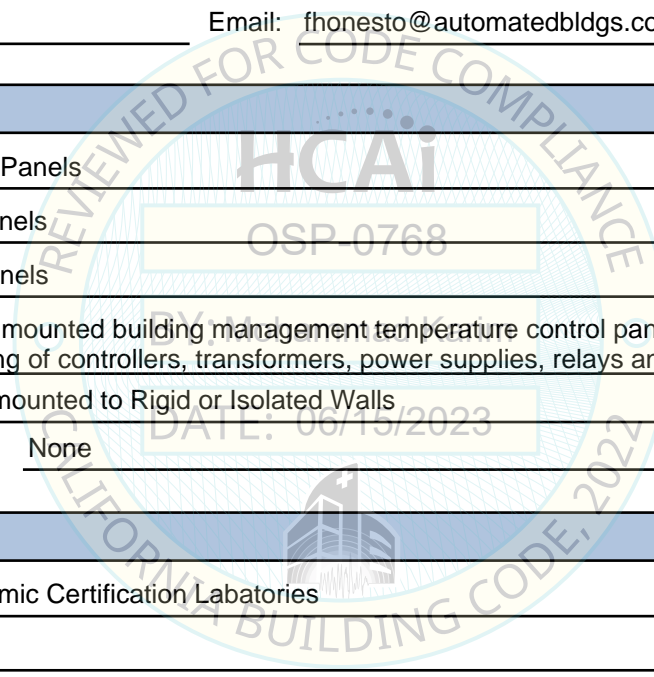
Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Street Suite 109, Sparks, NV 89431

Telephone: (775) 358-5085

Email: Kelly@shaketest.com

Title: Business Manager





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

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

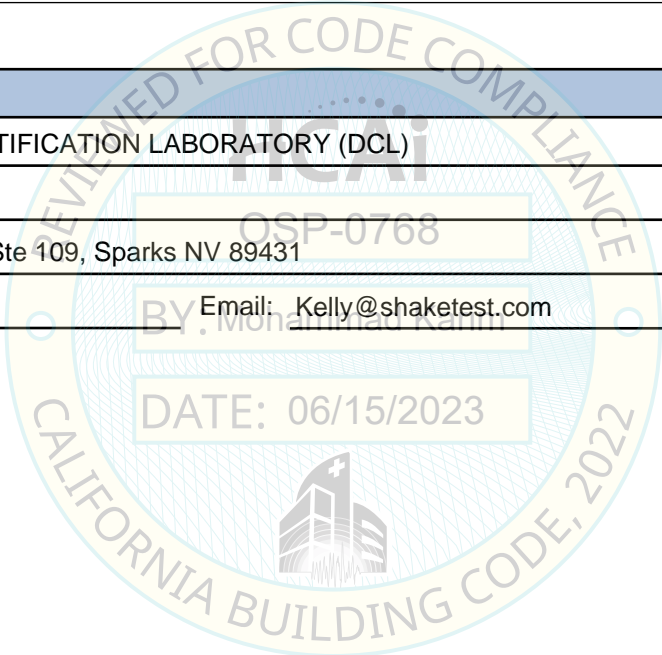
Company Name: THE VMC GROUP
Name: Kenneth Tarlow California License Number: S2851
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

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: Kelly Laplace
Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431
Telephone: (775) 358-5085 Email: Kelly@shaketest.com





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.5 (Rigid Wall); 4.5 (Isolated Wall)

SDS (Design spectral response acceleration at short period, g) = 2.08

a_p (Amplification factor) = 1 (Rigid Wall); 2.5 (Isolated Wall)

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

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

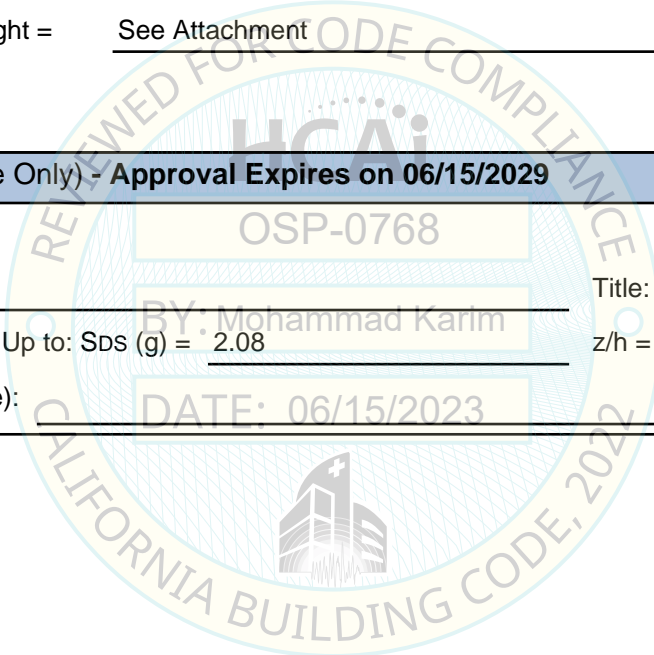
HCAI Approval (For Office Use Only) - Approval Expires on 06/15/2029

Date: 6/15/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.08 z/h = 1

Condition of Approval (if applicable): DATE: 06/15/2023



Special Seismic Certification

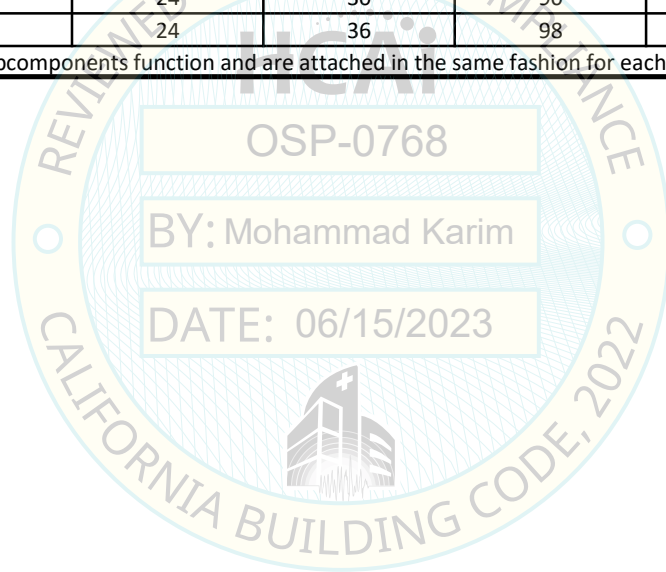
Table 1 - Certified Components



DCL Project Number: 64100-2301
Mounting Configuration: Rigid and Isolated Wall Mount
Test Levels: SDS=2.08g, z/h=1
Manufacturer: Automated Building Control Solutions
Product Line: BMS Panels

Unit Model Number ¹	Max. Dimensions [in.]			Max. Weight [lb.]	Material	UUT
	Depth	Width	Height			
BMS-EF-CP	9	24	24	64	Stainless Steel	UUT-03a,b
BMS-XXXXX-CP	10	24	30	90	Stainless Steel	Interpolated
BMS-AMU-CP	9	24	36	98	Stainless Steel	UUT-01a,b, UUT-02a,b

1. XXXXX depends on the programming of the panels. The subcomponents function and are attached in the same fashion for each model. Reference the nomenclature chart.



Special Seismic Certification

Table 2 - Nomenclature Chart

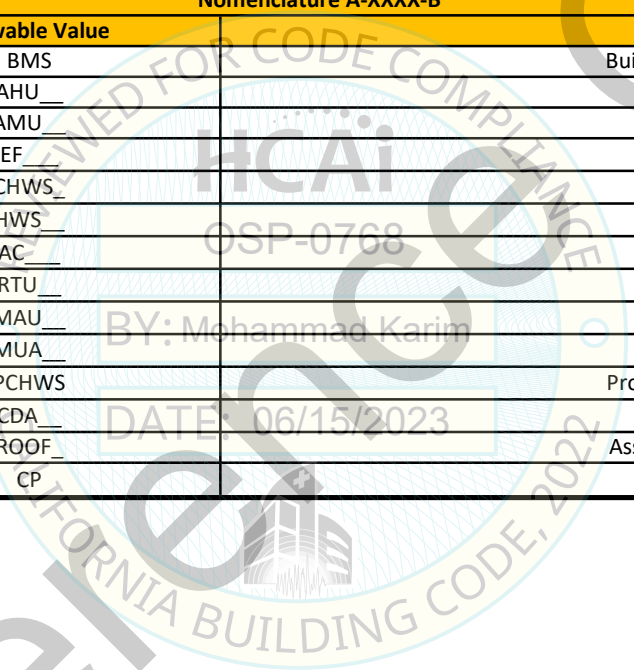


DCL Project Number: 64100-2301
 Mounting Configuration: Rigid and Isolated Wall Mount
 Test Levels: SDS=2.08g, z/h=1
 Manufacturer: Automated Building Control Solutions
 Product Line: BMS Panels

Nomenclature A-XXXX-B

Nomenclature Variable	Allowable Value	Description
A	BMS	Building Management System
XXXXX	AHU_	Air Handling Unit
	AMU_	Air Handling Unit
	EF_	Exhaust Fan
	CHWS_	Chilled Water System
	HWS_	Hot Water System
	AC_	Air Conditioning Unit
	RTU_	Rooftop Unit
	MAU_	Make Up Air Unit
	MUA_	Make Up Air Unit
	PCHWS	Process Chilled Water System
	CDA_	Compressed Dry Air
ROOF_	Assorted Rooftop Equipment	
B	CP	Control Panel

Refer



Special Seismic Certification

Table 3 - Certified Subcomponents - Enclosures



DCL Project Number: 64100-2301

Part Number	Manufacturer	Dimensions [in]			NEMA Rating	Material	Weight [lb]	Unit
		Depth	Width	Height				
CSD20166SS	Hoffman	6.0	16.0	20.0	4X	Stainless Steel 304	23	Extrapolated
CSD20168SS	Hoffman	8.0	16.0	20.0	4X	Stainless Steel 304	25	Extrapolated
CSD20206SS	Hoffman	6.0	20.0	20.0	4X	Stainless Steel 304	27	Extrapolated
CSD201610SS	Hoffman	10.0	16.0	20.0	4X	Stainless Steel 304	28	Extrapolated
CSD20208SS	Hoffman	8.0	20.0	20.0	4X	Stainless Steel 304	29	Extrapolated
CSD24206SS	Hoffman	6.0	20.0	24.0	4X	Stainless Steel 304	30	Extrapolated
CSD202010SS	Hoffman	10.0	20.0	20.0	4X	Stainless Steel 304	33	Extrapolated
CSD24208SS	Hoffman	8.0	20.0	24.0	4X	Stainless Steel 304	34	Extrapolated
CSD242010SS	Hoffman	10.0	20.0	24.0	4X	Stainless Steel 304	36	Extrapolated
CSD242410SS	Hoffman	10.0	24.0	24.0	4X	Stainless Steel 304	44	Extrapolated
CSD24248SS	Hoffman	9.0	24.0	24.0	4X	Stainless Steel 304	47	UUT-03a,b
CSD30248SS	Hoffman	8.0	24.0	30.0	4X	Stainless Steel 304	49	Interpolated
CSD302410SS	Hoffman	10.0	24.0	30.0	4X	Stainless Steel 304	53	Interpolated
CSD36248SS	Hoffman	9.0	24.0	36.0	4X	Stainless Steel 304	56	UUT-01a,b, UUT-02a,b

Table 4 - Certified Subcomponents - Backplates

DCL Project Number: 64100-2301

Backplate					
Part Number	Manufacturer	Description	Material	Weight [lb]	Unit
CP2016	Hoffman	20x16 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	7	Extrapolated
CP2020	Hoffman	20x20 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	10	Extrapolated
CP2420	Hoffman	24x20 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	13	Extrapolated
CP2424	Hoffman	24x24 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	15	UUT-03a,b
CP3024	Hoffman	30x24 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	19	Interpolated
CP3624	Hoffman	36x24 Backplate for CSD Enclosure	12 Gauge Painted Carbon Steel	24	UUT-01a,b, UUT-02a,b

Special Seismic Certification

Table 5 - Certified Subcomponents - Controllers



DCL Project Number: 64100-2301

Controllers

Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
ECY-PS24	Distech Controls	24VAC/VDC Power Supply Module For the ECLYPSE	FR/ABS	<1	UUT-01a,b, UUT-02a,b, UUT-03a,b
CDIY-RS485-00	Distech Controls	2 RS-485 Port Communication Module	FR/ABS	<1	Interpolated
CDIY-8DOR-00	Distech Controls	8 Point Output Module	FR/ABS	<1	Interpolated
CDIY-8DORHOA-00	Distech Controls	8 Point Output with HOA IO Module	FR/ABS	<1	Interpolated
CDIY-16DI-00	Distech Controls	16 Point Input Module	FR/ABS	<1	Interpolated
CDIY-4UI4UO-00	Distech Controls	4 UI & 4 DO Module	FR/ABS	<1	Interpolated
CDIY-4UI4UOHOA-00	Distech Controls	4 UI & 4 DO with HOA IO Module	FR/ABS	<1	Interpolated
CDIY-6UO-00	Distech Controls	6 Point I/O Module	FR/ABS	<1	Interpolated
CDIY-6UOHOA-00	Distech Controls	6 Point HOA IO Module	FR/ABS	<1	Interpolated
CDIY-8UI6DOT-00	Distech Controls	8 UI & 6 DO Module	FR/ABS	<1	Interpolated
CDIY-8UI6UO-00	Distech Controls	8 UI & 6 DO Module	FR/ABS	<1	Interpolated
ECY-8UI	Distech Controls	8 UI Module - BACnet IP	FR/ABS	<1	UUT-01a,b, UUT-02a,b
ECY-8UI6UO-HOA	Distech Controls	8 UI & 6 DO with HOA IO Module	FR/ABS	<1	UUT-01a,b, UUT-02a,b
ECY-8UI6DOT-HOA	Distech Controls	8 UI & 6 DO with HOA IO Module	FR/ABS	<1	UUT-01a,b, UUT-02a,b, UUT-03a,b
CDIY-S1028-00	Distech Controls	Programmable Controller - 28 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1028ENVY-00	Distech Controls	Programmable Controller - 28 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1028ENVY-MS-00	Distech Controls	Programmable Controller - 28 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1028-MS-00	Distech Controls	Programmable Controller - 28 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1048-00	Distech Controls	Programmable Controller - 48 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1048ENVY-00	Distech Controls	Programmable Controller - 48 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1048ENVY-MS-00	Distech Controls	Programmable Controller - 48 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1048-MS-00	Distech Controls	Programmable Controller - 48 I/O Points	FR/ABS	<1	Interpolated
CDIY-S1000ENVY-00	Distech Controls	Programmable Controller - 320 I/O Points	FR/ABS	<1	Interpolated
ECY-S1000	Distech Controls	Programmable Controller - BACnet IP	FR/ABS	<1	UUT-01a,b, UUT-02a,b, UUT-03a,b

Special Seismic Certification

Table 6 - Certified Subcomponents - Electrical Components



DCL Project Number: 64100-2301

Switches					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
PDK	Kele	Panel Disconnect Switch Assembly	Galvanized Steel Box with a Stainless Steel Plate	2	UUT-01a,b, UUT-02a,b, UUT-03a,b
Outlets					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
PRK	Kele	Panel Receptacle Assembly	Galvanized Steel	2	UUT-01a,b, UUT-02a,b, UUT-03a,b
Power Supply					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
PAN-PWRSP	Functional Devices	96 VA Panel Power Supply	Carbon Steel	5	UUT-01a,b, UUT-02a,b, UUT-03a,b
Transformers					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
TR50VA009	Functional Devices	120-24 Class 2 Transformer	Laminated Carbon Steel	3	UUT-03a,b
TR100VA004	Functional Devices	120-24 Class 2 Transformer	Laminated Carbon Steel	5	UUT-01a,b, UUT-02a,b
Relays					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
RH2B-ULAC24V	IDEC	DPDT, 10A, 24 VAC Relay	Plastic Exterior	<1	UUT-01a,b, UUT-02a,b
SH2B-05	IDEC	Relay Base	Plastic	2	UUT-01a,b, UUT-02a,b
Pressure Transducers					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
PX3ULX05	Veris Industries	Dry Diff. Pressure 0-10 in. WC	ABS Plastic	<1	UUT-01a,b, UUT-02a,b
Terminal Blocks					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
1492-J4	Allen Bradley	Terminal Block, 4mm	Plastic	<1	UUT-01a,b, UUT-02a,b, UUT-03a,b
Wire Ducts					
Part Number	Manufacturer	Description	Material	Weight [lb.]	UUT
T1-1530G	Iboco Corporation	Wire Duct, 1-1/2"W	Plastic	2	UUT-01a,b, UUT-02a,b, UUT-03a,b

Special Seismic Certification

Table 7 - Tested Units



DCL Project Number: 64100-2301
 Mounting Configuration: Rigid and Isolated Wall Mount
 Test Levels: SDS=2.08g, z/h=1
 Manufacturer: Automated Building Control Solutions
 Product Line: BMS Panels

Unit Model Number	Max. Dimensions [in.]			Max. Weight [lb.]	Material	UUT
	Depth	Width	Height			
BMS-AMU-CP	9	24	36	98	Stainless Steel	UUT-01a,b, UUT-02a,b
BMS-EF-CP	9	24	24	64	Stainless Steel	UUT-03a,b



UUT-01a,b, UUT-02a,b UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 64100-2301

Test Laboratory: DCL (Report No. 64100-2301, UUT-01a,b, UUT-02a,b)

Manufacturer: Automated Buildings Control Solutions

Product Line: BMS Panels

Model Number: BMS-AMU-CP

Product Construction Summary:

Stainless Steel, Nema 4X

Options / Component Summary:

UUT-01a,b and UUT-02a,b are identical and share the same subcomponents: Stainless Steel 304 Enclosure, 12 Gauge Painted Steel 36x24 Backplate, 24VAC/VDC Power Supply Module For the ECLYPSE, Programmable Controller - BACnet IP, ECY-8UI6UO-HOA Module, ECY-8UI6DOT-HOA ModuleP, 8 UI Module - BACnet IP, Panel Disconnect Switch Assembly, Panel Receptacle Assembly, 96 VA Panel Power Supply, TR100VA004 Transformer, 24 VAC 10A Relay, Relay Base, Dry Diff. Pressure 0-10 in. WC, 4mm Terminal Block, 1-1/2"W Wire Duct

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

UUT Properties

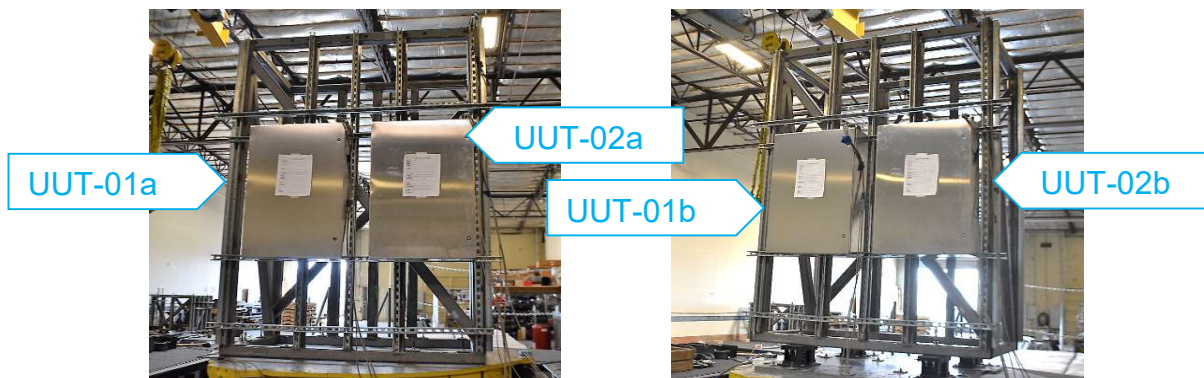
Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
98	9	24	36	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC2022	AC156	2.08	1.0	1.5	3.328	2.496	1.394	0.562

Unit Mounting Description:

UUT-01a,b and UUT-02a,b were wall-mounted to the steel wall frame with (4) 3/8" grade 5 bolts, round washers, 3" x 3" x 1/4" carbon steel plate washers, and channel nuts, one at each of the four mounting locations for each unit.



Overall view of UUT-01a,b, UUT-02a,b

UUT-03a,b UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 64100-2301

Test Laboratory: DCL (Report No. 64100-2301, UUT-03a,b)

Manufacturer: Automated Buildings Control Solutions

Product Line: BMS Panels

Model Number: BMS-EF-CP

Product Construction Summary:

Stainless Steel, Nema 4X

Options / Component Summary:

Stainless Steel 304 Enclosure, 12 Gauge Painted Steel 24x24 Backplate, 24VAC/VDC Power Supply Module For the ECLYPSE, Programmable Controller - BACnet IP, ECY-8UI6DOT-HOA Module, Panel Disconnect Switch Assembly, Panel Receptacle Assembly, 96 VA Panel Power Supply, TR50VA009 Transformer, 4mm Terminal Block, 1-1/2"W Wire Duct

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

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
64	9	24	24	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC2022	AC156	2.08	1.0	1.5	3.328	2.496	1.394	0.562

Unit Mounting Description:

UUT-03a,b was wall mounted to the steel wall frame with (4) 3/8" grade 5 bolts, round washers, 3" x 3" x 1/4" carbon steel plate washers, and channel nuts, one at each of the four mounting locations.



UUT-03a



UUT-03b

Overall view of UUT-03a,b