



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-0186

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Post Glover Resistors, Inc

Manufacturer's Technical Representative: Jonathan Nash

Mailing Address: 1369 Cox Ave., Erlanger, KY 41018

Telephone: (859) 372-8919 Email: jonathan.nash@postglover.com

Product Information

Product Name: PulserPlus.net HRG Units and SmartPulse High Resistance Grounding Units

Product Model Number(s): See attached

Product Category: Power Isolation and Correction Systems

Product Sub-Category: Grounding Systems

General Description: Floor mounted grounding units with NEMA 3R enclosures constructed of mill galvanized carbon steel (PL48DF3E00-HPS, MCU-PV48DF1E00-ULTES0310-UUT03) and stainless steel (PL48YF3A00-HPS, MCU-PV60DF3A00-UNRES0515-UUT04).

Mounting Description: Base Mounted Rigid

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Rachel Wolfe

Mailing Address: 1315 Greg Street, Sparks, NV 89431

Telephone: (775) 358-5085 Email: rachel.wolfe@shaketest.com

Title: Seismic Test Engineer



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
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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

Company Name: QUALTECH/CURTISS WRIGHT/TRENTEC

Contact Person: Kevin Crowder

Mailing Address: 4600 East Tech Drive, Cincinnati OH 45245

Telephone: (513) 528-7900 Email: kcrowder@curtisswright.com



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Seismic Parameters

Certified Response Spectral Acceleration Factors: ( $F_p/W_p$ )

Horizontal (A Flx-H),  $g =$  3.20 (A Rig-H),  $g =$  2.15

Vertical (A Flx-V),  $g =$  1.33 and 1.67 (A Rig-V),  $g =$  0.53 and 0.67

SDS (Design spectral response acceleration at short period,  $g$ ) = 2.0 at  $z/h=1.0$  and  $z/h=0$ ; 2.0 at  $z/h=1.0$  and 2.5 at  $z/h=0$

$H_f$  (Force amplification height factor) = 3.5 at  $z/h=1$ ; 1 at  $z/h=0$

$R_u$  (Structure ductility reduction factor) = 1.3 at  $z/h=1$ ; 1 at  $z/h=0$

$I_p$  (Importance factor) = 1.5

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

HCAI Approval (For Office Use Only) - Approval Expires on 09/26/2031

Date: 9/26/2025

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Condition of Approval (if applicable): \_\_\_\_\_

BY: Mohammad Karim

DATE: 09/26/2025

## Special Seismic Certification

**Table 1 - Certified Components - PulserPlus.net High Resistance Grounding Units**



**DCL Project Number:** 94797-2401

**Manufacturer:** Post Glover Resistors, Inc.

**Product Line:** PulserPlus.net High Resistance Grounding Units

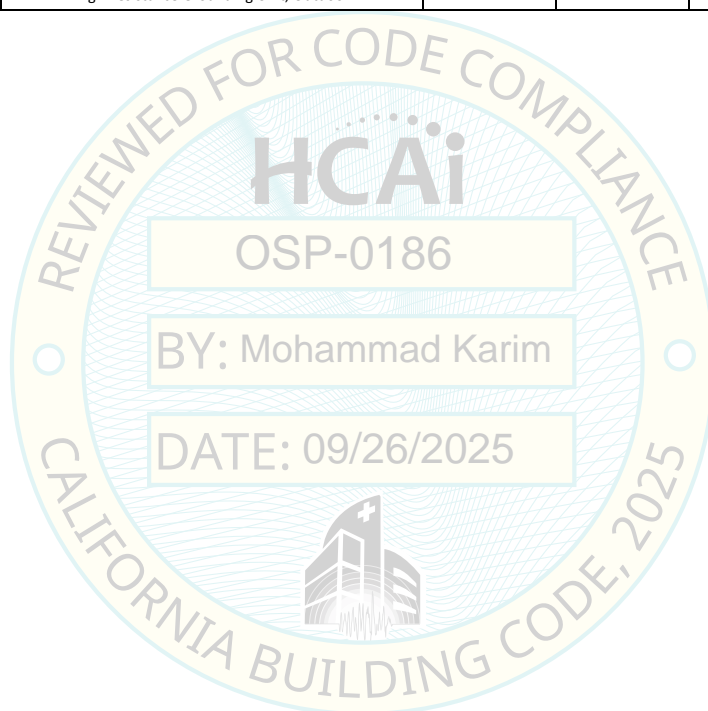
**Certified Product Construction:** NEMA 3R, IP23 Galvannealed Carbon Steel Enclosure or Stainless Steel Enclosure

**Mounting Description:** Rigid Base Mounted

**Certified Seismic Levels:** Sds= 2.0 g at z/h= 1.0 and z/h= 0.0

**Factors for Force Amplification and Structure Ductility Reduction:**  $H_f = 3.5$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$  and  $R_d = 1.3$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$

Model Number	Description	Max. Dimensions [ in. ]			Max. Weight [ lb. ]	Unit
		Depth	Width	Height		
PLXXXF1X00-XXXXYYY-PLMXXX	High Resistance Grounding Unit, Indoor	20.0	20.6	86.0	380.0	Extrapolated
PL48YF3A00-HPS	480VAC Wye Connection High Resistance Grounding Unit, Outdoor	20.0	20.6	86.0	380.0	UUT-02
PLXXXF3X00-XXXXYYY-PLMXXX	High Resistance Grounding Unit, Outdoor	20.0	20.6	86.0	475.0	Interpolated
PL48DFE00-HPS	480VAC Delta Connection High Resistance Grounding Unit, Outdoor	20.0	20.6	86.0	475.0	UUT-01



# Special Seismic Certification

## Nomenclature Chart - PulserPlus.net High Resistance Grounding Units



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: PulserPlus.net High Resistance Grounding Units

Certified Product Construction: NEMA 3R, IP23 Galvannealed Carbon Steel Enclosure or Stainless Steel Enclosure

Mounting Description: Rigid Base Mounted

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

Sample Part Number: PL48YF3E00-HPS0310-PLMXXX

### Model Number Nomenclature

P	L	48	Y	F	3	E	00	-	HPS	0310	-	PLMXXX
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
P	"xxx"	Branding	Placeholder for Manufacturer Marketing Variable	Tested	UUT-01, UUT-02
L	L	Voltage Classification	Low Voltage	N/A	UUT-01, UUT-02
48	24	Voltage Rating	240V	Depopulated version of UUT-01 and UUT-02	Extrapolated
	48		480V	N/A	UUT-02
	60		600V	Added weight to simulate 600V	UUT-01 <sup>1</sup>
Y	Y	Delta or Wye	Wye	N/A	UUT-02
	D		Delta	N/A	UUT-01
F	F	Unit Type	Free Standing	N/A	UUT-01, UUT-02
3	1	Controls Enclosure Type <sup>1</sup>	Indoor	Depopulated	Extrapolated
	3		Nema 3R, Type 3R, IP23 Outdoor	N/A	UUT-01, UUT-02
E	E	Controls Enclosure Material	Galvanneal Steel, ANSI 61	N/A	UUT-01
	D		Galvanneal Steel, ANSI 49	Different Paint	Same as UUT-01
	F		Galvanneal Steel, ANSI 70	Different Paint	Same as UUT-01
	O		Mill Galvanized Steel	No Paint	Same as UUT-01
	P		Galvanneal, Special Paint	Different Paint	Same as UUT-01
	R		Galvanneal Steel, RAL7035	Different Paint	Same as UUT-01
	A		304 Stainless Steel	N/A	UUT-02
	B		316 Stainless Steel	Corrosion-Resistant 304 Stainless Steel	Same as UUT-02
	G		304 Stainless Steel, ANSI 49	Different Paint	Same as UUT-02
	H		304 Stainless Steel, ANSI 61	Different Paint	Same as UUT-02
	I		304 Stainless Steel, ANSI 70	Different Paint	Same as UUT-02
	J		304 Stainless Steel, Special	Different Paint	Same as UUT-02
	K		316 Stainless Steel, ANSI 49	Different Paint	Same as UUT-02
	L		316 Stainless Steel, ANSI 61	Different Paint	Same as UUT-02
	M		316 Stainless Steel, ANSI 70	Different Paint	Same as UUT-02
00	00	Resistor Type	Open	N/A	UUT-01, UUT-02
HPS	A	Options	Australian/IEC Standards	Standard falls within tested parameters	Same as Tested
	H		Heater	N/A	UUT-01, UUT-02
	N		No CPT	Depopulated version of UUT-01, UUT-02	Interpolated
	P		PP.net in PulserPlus Pro Enclosure	N/A	UUT-01, UUT-02
	Q		No Ethernet Card	Depopulated version of UUT-01, UUT-02	Interpolated
	S		Seismic P4 / Seismic Enhanced	N/A	UUT-01, UUT-02
	W		PulserPlus.Net - SIS low-voltage wiring	Bookended by UUT-01 and UUT-02	Interpolated
0310	Blank	Resistor Bank Tap Range	2-10 Amps	N/A	UUT-02
	0107		1-7 Amps	Bookended by UUT-01 and UUT-02	Interpolated
	0310		3-10 Amps	Bookended by UUT-01 and UUT-02	Interpolated
	0110		1-10 Amps	Bookended by UUT-01 and UUT-02	Interpolated
	0510		5-10 Amps	Bookended by UUT-01 and UUT-02	Interpolated
	0512		5-12 Amps	Bookended by UUT-01 and UUT-02	Interpolated
	0812		8-12 Amps	N/A	UUT-01 <sup>1</sup>
PLMXXX	PLMXXX	Optional, Job Specific	Pulser, Low Voltage	Digits for non-standard options (color, branding, software only)	Same as Tested

Note:

- Dummy bank added to simulate weight of 600V 8-12 Amp unit, and is not reflected in the model number for the tested unit.
- An outdoor unit has vent covers, an indoor unit does not have vent covers.

## Special Seismic Certification

### Table 2 - Certified Components - SmartPulse High Resistance Grounding Units



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: SmartPulse High Resistance Grounding Units

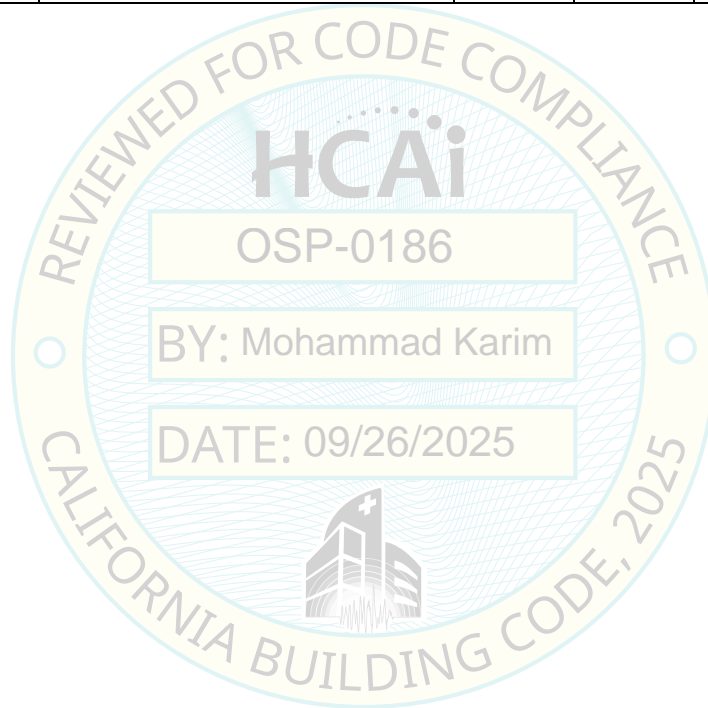
Certified Product Construction: NEMA 1, IP21, IP31 Galvanized Carbon Steel or Stainless Steel Enclosure and NEMA 3R, IP33, IP23 Galvanized Carbon Steel or Stainless Steel Enclosure

Mounting Description: Rigid Base Mounted

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

Factors for Force Amplification and Structure Ductility Reduction:  $H_i = 3.5$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$  and  $R_d = 1.3$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$

Model Number	Description	Max. Dimensions [ in. ]			Max. Weight [ lb. ]	Unit
		Depth	Width	Height		
MXX-XXXXF1X00-UXXEXXXXX-PLMXXX	SmartPulse, Indoor, Free Standing	21.0	19.6	86.8	330.0	Extrapolated
MCU-PV48DF1E00-ULTE50310-UUT03	SmartPulse, cULus, 480VAC, Delta, Free Standing, Type 1, 3-10A, Indoor	21.0	19.6	86.8	330.0	UUT-03
MXX-XXXXF3X00-UXXEXXXXX-PLMXXX	SmartPulse, Outdoor, Free Standing	21.0	20.0	86.8	370.0	Interpolated
MCU-PV60DF3A00-UNRES0515-UUT04	SmartPulse, cULus, 600VAC, Delta, Free Standing, Type 3R, 5-15A, Outdoor	21.0	20.0	86.8	370.0	UUT-04





# Special Seismic Certification

## Nomenclature Chart - SmartPulse High Resistance Grounding Units



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: SmartPulse High Resistance Grounding Units

Certified Product Construction: NEMA 1, IP21, IP31 Galvanized Carbon Steel or Stainless Steel Enclosure and NEMA 3R, IP33, IP23 Galvanized Carbon Steel or Stainless Steel Enclosure

Mounting Description: Rigid Base Mounted

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

Sample Part Number: MCU-PV48YF3E00-ULHEB0310-PXMYYY

### Model Number Nomenclature

M	CU	-	PV	48	Y	F	3	E	00	-	U	L	H	E	B	0310	-	PXMYYY
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
M	M	Seismic	Seismic	Tested	UUT-03, UUT-04
CU	Blank	Seismic	OSP Certified	Tested	UUT-03, UUT-04
	xx	Other	Other Regulatory Compliance <sup>1</sup>	Same design as tested units	Same as tested
PV	"xx"	Branding	Placeholder for Manufacturer Marketing Variable	Tested	UUT-03, UUT-04
48	24	Voltage	240V	Depopulated version of UUT-03 and UUT-04	Extrapolated
	27		277V	Depopulated version of UUT-03 and UUT-04	Extrapolated
	48		480V	N/A	UUT-03
	60		600V	N/A	UUT-04
Y	Y	Delta / Wye	Wye	Depopulated version of UUT-03 and UUT-04	Extrapolated
	D		Delta	N/A	UUT-03, UUT-04
F	F	Enclosure Style	Free Standing	N/A	UUT-03, UUT-04
3	A	Controls Enclosure Type <sup>2</sup>	IP21	Same design as UUT-03	Same as UUT-03
	B		IP31	Same design as UUT-03	Same as UUT-03
	1		Nema 1, Indoor	N/A	UUT-03
	C		IP33	Same design as UUT-04	Same as UUT-04
	E		IP23	Same design as UUT-04	Same as UUT-04
	3		Nema 3R, Outdoor	N/A	UUT-04
E	D	Controls Enclosure Material	Galvanneal Steel, ANSI 49	Different Paint	Same as UUT-03
	E		Galvanneal Steel, ANSI 61	N/A	UUT-03
	F		Galvanneal Steel, ANSI 70	Different Paint	Same as UUT-03
	R		Galvanneal Steel, RAL7035	Different Paint	Same as UUT-03
	P		Galvanneal, Special Paint	Different Paint	Same as UUT-03
	A		304 Stainless Steel	N/A	UUT-04
	G		304 Stainless Steel, ANSI 49	Different Paint	Same as UUT-03
	H		304 Stainless Steel, ANSI 61	Different Paint	Same as UUT-03
	I		304 Stainless Steel, ANSI 70	Different Paint	Same as UUT-03
	J		304 Stainless Steel, Special	Different Paint	Same as UUT-03
	B		316 Stainless Steel	Corrosion-Resistant 304 Stainless Steel	Same as UUT-04
	K		316 Stainless Steel, ANSI 49	Different Paint	Same as UUT-03
	L		316 Stainless Steel, ANSI 61	Different Paint	Same as UUT-03
	M		316 Stainless Steel, ANSI 70	Different Paint	Same as UUT-03
	N		316 Stainless Steel, Special Paint	Different Paint	Same as UUT-04
00	00	Resistor Type	Open	N/A	UUT-03, UUT-04

Continued on next page

Note:

- Other regulatory compliance certifications outside of OSHPDs are not certified under this OSP.
- An outdoor unit has vent covers, an indoor unit does not have vent covers.

# Special Seismic Certification

## Nomenclature Chart - SmartPulse High Resistance Grounding Units (continued)



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: SmartPulse High Resistance Grounding Units

Certified Product Construction: NEMA 1, IP21, IP31 Galvanized Carbon Steel or Stainless Steel Enclosure and NEMA 3R, IP33, IP23 Galvanized Carbon Steel or Stainless Steel Enclosure

Mounting Description: Rigid Base Mount

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

Sample Part Number: MCU-PV48YF3E00-ULHEB0310-PXMYYY

### Model Number Nomenclature

M	CU	-	PV	48	Y	F	3	E	00	-	U	L	H	E	B	0310	-	PXMYYY
---	----	---	----	----	---	---	---	---	----	---	---	---	---	---	---	------	---	--------

Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
U	U	Unit Quantity	Single	N/A	UUT-03, UUT-04
L	0	Control Power Transformer	None	Depopulated version of UUT-03 and UUT-04	Extrapolated
	A		208V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	B		230V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	D		380V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	F		400V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	G		415V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	J		440V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	K		460V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	L		480V / 500V / 525V	N/A	UUT-03
	M		550V	Same as UUT-03. CPT Jumper location for voltage	Extrapolated
	N		575V / 600V	N/A	UUT-04
H	H	Heater	Heater w/ Thermostat	Depopulated version of UUT-04	Extrapolated
	P		Heater w/ Hygrometer	Depopulated version of UUT-03	Extrapolated
	R		Heater w/ Thermostat with Ammeter	N/A	UUT-04
	W		Heater w/ Hygrometer with Ammeter	Bookended by UUT-03 and UUT-04	Interpolated
	Q		Heater w/ Thermostat with Lamp	Bookended by UUT-03 and UUT-04	Interpolated
	T		Heater w/ Hygrometer with Lamp	N/A	UUT-03
E	E	Ethernet Switch	Ethernet Switch	N/A	UUT-03, UUT-04
B	S	Switch or Bus	Switch	N/A	UUT-03, UUT-04
	B		Bus <sup>1</sup>	N/A	UUT-03
0310	0310	Bank Range (amps)	3A-10 Amps	N/A	UUT-03
	0515		5A-15 Amps	N/A	UUT-04
PXMYYY	PXMYYY	Optional, Job Specific	Pulser, Low Voltage	Digits for non-standard options (color, branding, software only)	Same as Tested <sup>2</sup>

Note:

- The bus option was tested on UUT-03 unwired.
- UUT03 and UUT04 are the PXMYYY for the tested units.



# Special Seismic Certification

## Table 3 - Certified Subcomponents - PulserPlus.net High Resistance Grounding Units



DCL Project Number: 94797-2401

Product Line: PulserPlus.net High Resistance Grounding Units

Subcomponent Type	Model Number	Manufacturer	Description	Material	Weight [ lb. ]	Unit
Enclosures	PLENF3E-S	Post Glover	NEMA 3R/IP23	Carbon Steel	288	UUT-01
	PLENF3B-S		NEMA 3R/IP23	316 Stainless Steel <sup>1</sup>	290	Interpolated
	PLENF3A-S		NEMA 3R/IP23	304 Stainless Steel	290	UUT-02
Terminal Blocks	310	Kulka	600V, 10 pole, 30 Amps	Plastic	<1	UUT-01, UUT-02
	FKC2,5/15-ST	Phoenix Contact	300V, 15 point, 12 Amps	Plastic	<1	UUT-01, UUT-02
	280-901	Wago	Terminal Block, 20 Amps, Wago, 2-Conductor	Plastic	<1	UUT-01, UUT-02
Transformers	TB-81213	Acme	250VA, 240-480V	Iron	9	UUT-01, UUT-02
	TB-81217		1kVA, 240-480V		25	UUT-01
Fuses and Fuse Holders	30322R	Faraz Shawmut	600V, 2 pole, 30 Amps	Glass Fiber Polycarbonate	<1	UUT-01, UUT-02
	30323R		600V, 3 pole, 30 Amps		<1	UUT-01, UUT-02
	ATQR1-1/4		600V, 1.25 Amps	Copper	<1	UUT-01, UUT-02
	ATQR12		600V, 12 Amps		<1	UUT-01, UUT-02
	ATQR3-1/2		600V, 3.5 Amps		<1	UUT-01, UUT-02
	ATQR6		600V, 6 Amps		<1	UUT-01, UUT-02
	PL112603	Acme	600V, 1 pole, 30 Amps	Copper	<1	UUT-01, UUT-02
	PL112702		600V, 2 pole, 30 Amps		<1	UUT-01, UUT-02
Alarm	MC-09-201-Q	Floyd Bell	Audio Alarm Piezo Buzzer. 95dB(A), 120V, IP68	Epoxy	<1	UUT-01, UUT-02
Other	PDNA230	C3Controls	Neutral Pole Module	Glass Fiber Polyamide	<1	UUT-01, UUT-02
	PDS2-330-SPHBN11		Disconnect Switch		<1	UUT-01, UUT-02
	PEM-AV	Cartessa	Electronics Module	Copper, Polyimide	<1	UUT-01, UUT-02
	SW012	Hoffman	Temperature Control Switch	Plastic	<1	UUT-01, UUT-02
	MDR-20-24	Mean-Well	Power Supply	Plastic	<1	UUT-01, UUT-02
	F 16-250-3V	NSI Industries	Insulator	Plastic	<1	UUT-01, UUT-02
	TA1S8-C	Panduit	Tie Anchor Mounts	Nylon	<1	UUT-01, UUT-02
	REL006	Tyco	Relay, 120V coil, 480V contacts	Silver cadmium oxide	<1	UUT-01, UUT-02
	V100-17-ET2	Unitronics	Ethernet Card	Fiberglass	<1	UUT-01, UUT-02
	V130-T4-TR6-PG1		HMI/PLC Controller	Plastic	<1	UUT-01, UUT-02
	769-107-021-000	Wago	X-COM plug	Plastic	<1	UUT-01, UUT-02
	769-413		X-COM strain relief plate		<1	UUT-01, UUT-02
	769-607		X-COM receptacle		<1	UUT-01, UUT-02
	788-507		Relay, 120V		<1	UUT-01, UUT-02
	PLHTR48-S	Post Glover	Heater, 480V, 160W, Enclosed	Carbon Steel	3	UUT-01, UUT-02

Note:

1. 304 Stainless Steel and 316 have the same yield strength.

**Special Seismic Certification**  
**Table 4 - Certified Subcomponents - SmartPulse High Resistance Grounding Units**



DCL Project Number: 94797-2401

Product Line: SmartPulse High Resistance Grounding Units

Subcomponent Type	Model Number	Manufacturer	Description	Material	Weight [ lb. ]	Unit
Enclosures	U-PLNF1P-FR	Post Glover	NEMA 1/IP21/IP31	Galvanneal	202	UUT-03
	U-PLNF3P-FR		NEMA 3R/IP23/IP33		218	Interpolated
	U-PLNF1B-FR		NEMA 1/IP21/IP31	316 Stainless Steel	205	Interpolated
	U-PLNF3B-FR		NEMA 3R/IP23/IP33		221	Interpolated
	U-PLNF1A-FR		NEMA 1/IP21/IP31	304 Stainless Steel	205	Interpolated
	U-PLNF3A-FR		NEMA 3R/IP23/IP33		221	UUT-04
Seismically Braced Feet	KIT-U-PLNFFTP-S	Post Glover	Feet	Galvanneal	15	UUT-03
	KIT-U-PLNFFTB-S		Feet	316 Stainless Steel	15	Interpolated
	KIT-U-PLNFFTA-S		Feet	304 Stainless Steel	15	UUT-04
Resistor Banks, Wire Wound	CU-NGD27CM-1V10D00	Post Glover	480 Voltage, 3-10 Amps	Galvanneal	38	UUT-03
	CU-NGD34CM-1V10D00		600 Voltage, 3-10 Amps		43	Interpolated
	CU-NGD27CM-1V10D00-MODAQ		480 Voltage, 5-15 Amps		45	Interpolated
	CU-NGD34CM-1V10D00-MODAQ		600 Voltage, 5-15 Amps		52	Interpolated
	CU-NGD27CM-1V1BD00		480 Voltage, 3-10 Amps	316 Stainless Steel	38	Interpolated
	CU-NGD34CM-1V1BD00		600 Voltage, 3-10 Amps		43	Interpolated
	CU-NGD27CM-1V1BD00-MODAQ		480 Voltage, 5-15 Amps		45	Interpolated
	CU-NGD34CM-1V1BD00-MODAQ		600 Voltage, 5-15 Amps		52	Interpolated
	CU-NGD27CM-1V1AD00		480 Voltage, 3-10 Amps	304 Stainless Steel	38	Interpolated
	CU-NGD34CM-1V1AD00		600 Voltage, 3-10 Amps		43	Interpolated
	CU-NGD27CM-1V1AD00-MODAQ		480 Voltage, 5-15 Amps		45	Interpolated
	CU-NGD34CM-1V1AD00-MODAQ		600 Voltage, 5-15 Amps		52	UUT-04
Zigzag Transformers	ATT600205	SPEC- MAG	480 / 600 Voltage, 10 Amps	Iron	36	UUT-03
	ATT600305		480 / 600 Voltage, 15 Amps		51	UUT-04
Switches	7GN32RT704U	Lovato Electric	Switch, 3-10	Plastic	<1	UUT-03
	7GN32RT595U		Switch, 5-15		<1	UUT-04

# Special Seismic Certification

## Table 5 - Certified Subcomponents - SmartPulse High Resistance Grounding Units

(continued)

DCL Project Number: 94797-2401



Product Line: SmartPulse High Resistance Grounding Units

Subcomponent Type	Model Number	Manufacturer	Description	Material	Weight [ lb. ]	Unit
Control Panel Components	BCM603-1PQ	Bussmann	Fuse Holder	Plastic	<1	UUT-03, UUT-04
	BCM603-3PQ		Fuse Holder		<1	UUT-03, UUT-04
	PDS2-340-SMPRY	c3controls	Disconnect Switch	Plastic	<1	UUT-03
	EASY-E4-UC-12RC1	Eaton	Smart Relay	Plastic	<1	UUT-03, UUT-04
	SW009	Lovato Electric	Disconnect Switch	Plastic	<1	UUT-04
	ATQR6	Mersen	Fuse, 600V, 6 Amps	Fiberglass	<1	UUT-03, UUT-04
	ATQR1-4/10		Fuse, 600V, 1.4 Amps		<1	UUT-04
	ATQR4/10		Fuse, 600V, 0.4 Amps		<1	UUT-04
	ATQR3-1/2		Fuse, 600V, 3.5 Amps		<1	UUT-03
	ATQR1-1/4		Fuse, 600V, 1.25 Amps		<1	UUT-03
	ATQR2		Fuse, 600V, 2 Amps		<1	UUT-03, UUT-04
	ATQR1-4/10		Fuse, 600V, 1.4 Amps		<1	UUT-03
	3213742	Phoenix Contact	Terminal Block	Nylon	<1	UUT-03, UUT-04
	3209510		Terminal Block		<1	UUT-03, UUT-04
	3213739		Terminal Block		<1	UUT-03, UUT-04
	3212138		Terminal Block		<1	UUT-03
	3209536		Terminal Block		<1	UUT-03, UUT-04
	3113771		Terminal Block		<1	UUT-03, UUT-04
	3208155	Stego	Terminal Block	Plastic	<1	UUT-03, UUT-04
	2902992		Power supply		<1	UUT-03
	2909576		Power supply		<1	UUT-04
	2900299		Terminal Block Relay		<1	UUT-03
	KTO-111	Wago	Thermostat	Plastic	<1	UUT-04
	ETF-012-DC		Hygrotherm		<1	UUT-03
	289-175	Wago	Communication Module	Plastic	<1	UUT-03
	857-304		Terminal Block Relay		<1	UUT-04
	DIN-RAIL	Wesco	Rail	Zinc-Plated Steel	<1	UUT-03, UUT-04
	ZL-RTB-RJ45	ZIPLink	Communication Module	Plastic	<1	UUT-04
	LNx-500A	Antaira Technologies	Ethernet Switch	Carbon Steel	1	UUT-03, UUT-04
	U-PLHTRA	Post Glover	Heater	304 Stainless Steel	3	UUT-04
	U-PLHTRB		Heater	316 Stainless Steel	3	UUT-03
	EN-LDEM		LDEM	Galvanneal	3	UUT-03, UUT-04
	USTE-100-2X115	Block	600V, 100VA	Iron	5	UUT-04
	U-PLBP	Post Glover	Back Panel	Galvanneal	6	UUT-03, UUT-04
	USTE-250-2X115	Block	600V, 250VA	Iron	8	UUT-03
Power Distribution Block	PDBFS220	Bussmann	175A, Finger-Safe, 1:4, 1-Pole	Plastic	<1	UUT-03, UUT-04

# Special Seismic Certification

## Table 6 - Tested Units



DCL Project Number: 94797-2401

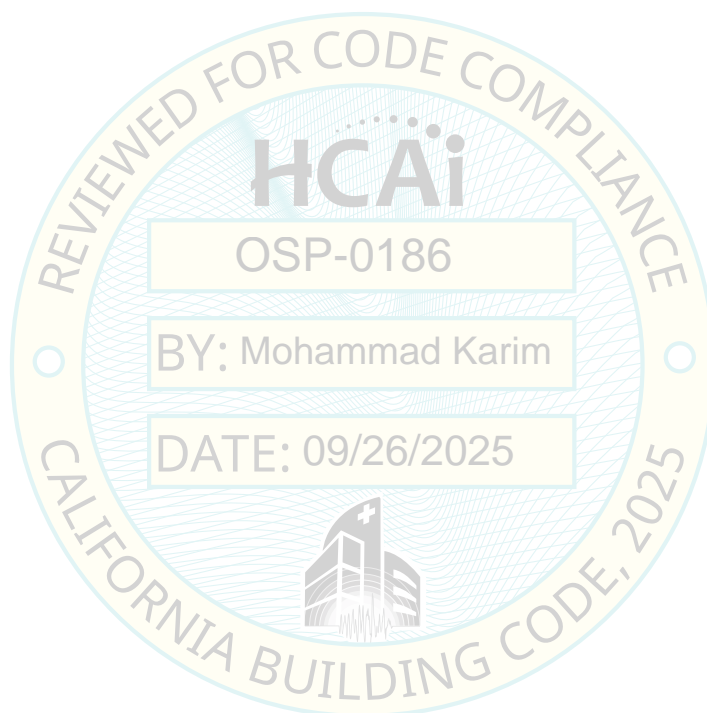
Manufacturer: Post Glover Resistors, Inc.

Product Line: PulserPlus.net / Smartpulse High Resistance Grounding Units

Mounting Description: Rigid Base Mounted

Factors for Force Amplification and Structure Ductility Reduction:  $H_f = 3.5$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$  and  $R_u = 1.3$  at  $z/h=1.0$ ;  $1.0$  at  $z/h=0$

Model Number	Description	Dimensions [ in. ]			Weight [ lb. ]	Seismic Test Levels	Unit
		Length	Width	Height			
PL48DF3E00-HPS	480VAC Delta Connection High Resistance Grounding Unit, Outdoor	20.0	20.6	86.0	475.0	Sds= 2.0 g at z/h= 1; Sds= 2.0 g at z/h=0	UUT-01
PL48YF3A00-HPS	480VAC Wye Connection High Resistance Grounding Unit, Outdoor	20.0	20.6	86.0	380.0		UUT-02
MCU-PV48DF1E00- ULTES0310-UUT03	SmartPulse, cULus, 480VAC, Delta, Free Standing, Type 1, 3-10A, Seismic, Indoor	21.0	19.6	86.8	330.0	Sds= 2.0 g at z/h= 1; Sds= 2.5 g at z/h=0	UUT-03
MCU-PV60DF3A00- UNRES0515-UUT04	SmartPulse, cULus, 600VAC, Delta, Free Standing, Type 3R, 5- 15A, Seismic, Outdoor	21.0	20.0	86.8	370.0		UUT-04



# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-01 (Q0035-01-01-01 in Test Report)

**Curtiss-Wright Nuclear (Formerly Trentec Inc.) Report Name and Number:** ZFA PG HRG SQR Q0035 Rev. 1

**Test Date:** 7/26/10

**Manufacturer:** Post Glover Resistors, Inc.

**Product Line:** High-Resistance Grounding Systems

**Model Number:** PL48DF3E00-HPS

**Product Construction Summary:** NEMA 3R Galvannealed A653 Steel Enclosure, Outdoor

**Options / Subcomponent Summary:** 480V with Delta Connection, 8-18 gauge copper stranded resistor bank wires, enclosures, terminal blocks, transformers, fuses (Main Neutral Fuse), alarms, and other electrical components

**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 after the AC 156 test.

### UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
475.0	20.0	20.6	86.0	14.4	20.8	>33.3

### Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H <sub>r</sub>	R <sub>μ</sub>	I <sub>p</sub>	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.0	1.0	3.5	1.3	1.5	3.20	2.15	N/A	N/A
		2.0	0.0	1.0	1.0		N/A	N/A	1.33	0.53

### Unit Mounting Description:

The unit was rigidly base mounted to the shake table. The unit was mounted directly to the shake table using (4) 5/8" SAE Grade 5 bolts, flat washers, and lock washers. The manufacturer's mounting locations were used. The bolts were spaced 16.9" width-wise and 17.0" length-wise.



UUT-01 overall view

# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-02 (Q0035-02-01-01 in Test Report)

**Curtiss-Wright Nuclear (Formerly Trentec Inc.) Report Name and Number:** ZFA PG HRG SQR Q0035 Rev. 1

**Test Date:** 7/26/10

**Manufacturer:** Post Glover Resistors, Inc.

**Product Line:** High-Resistance Grounding Systems

**Model Number:** PL48YF3A00-HPS

**Product Construction Summary:** NEMA 3R A304 Stainless Steel Enclosure, Outdoor

**Options / Subcomponent Summary:** 480V with Wye Connection, 8-18 gauge copper stranded resistor bank wires, enclosures, terminal blocks, transformers, fuses (Main Neutral Fuse), alarms, and other electrical components

**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 after the AC 156 test.

### UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
380.0	20.0	20.6	86.0	16.0	20.8	29.7

### Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H <sub>r</sub>	R <sub>μ</sub>	I <sub>p</sub>	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.0	1.0	3.5	1.3	1.5	3.20	2.15	N/A	N/A
		2.0	0.0	1.0	1.0		N/A	N/A	1.33	0.53

### Unit Mounting Description:

The unit was rigidly base mounted to the shake table. The unit was mounted directly to the shake table using (4) 5/8" SAE Grade 5 bolts, flat washers, and lock washers. The manufacturer's mounting locations were used. The bolts were spaced 16.9" width-wise and 17.0" length-wise.



UUT-02 overall view



# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-03

**DCL Test Report:** 94797-2401a

**Test Date:** 7/28/25 – 7/31/25

**Manufacturer:** Post Glover Resistors, Inc.

**Product Line:** High-Resistance Grounding Systems

**Model Number:** MCU-PV48DF1E00-ULTS0310-UUT03

**Product Construction Summary:** NEMA 1 Galvanneal Cabon Steel Enclosure, Indoor

**Options / Subcomponent Summary:** 480V with Wye Connection, 3-10A resistor bank, enclosure, transformers, fuses and other electrical subcomponents

**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 after the AC 156 test.

### UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
330.0	21.0	19.6	86.8	9.25	6.75	>33.3

### Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H <sub>f</sub>	R <sub>μ</sub>	I <sub>p</sub>	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.00	1.0	3.5	1.3	1.5	3.20	2.15	N/A	N/A
		2.50	0.0	1.0	1.0		N/A	N/A	1.33	0.53

### Unit Mounting Description:

UUT-03 was base mounted to the DCL shake table interface plate using (4) 5/8" Grade 5 bolts and manufacturer-provided flat washers. The 5/8" bolts were spaced 17" apart width-wise and length-wise measured on center.

BY: Mohammad Karim



UUT-03 overall view

# UNIT UNDER TEST (UUT) Summary Sheet



## UUT-04

**DCL Test Report:** 94797-2401a

**Test Date:** 7/28/25 – 7/31/25

**Manufacturer:** Post Glover Resistors, Inc.

**Product Line:** High-Resistance Grounding Systems

**Model Number:** MCU-PV60DF3A00-UNRES0515-UUT04

**Product Construction Summary:** NEMA 3R Stainless Steel Enclosure, Outdoor

**Options / Subcomponent Summary:** 600V with Delta Connection, 5-15A resistor bank, enclosure, transformers, fuses and other electrical components

**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 after the AC 156 test.

### UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
370.0	21.0	20.0	86.8	9.75	6.75	>33.3

### Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H <sub>r</sub>	R <sub>μ</sub>	I <sub>p</sub>	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.00	1.0	3.5	1.3	1.5	3.20	2.15	N/A	N/A
		2.50	0.0	1.0	1.0		N/A	N/A	1.33	0.53

### Unit Mounting Description:

UUT-04 was base mounted to the DCL shake table interface plate using (4) 5/8" Grade 5 bolts and manufacturer-provided flat washers. The 5/8" bolts were spaced 17" apart width-wise and length-wise measured on center.



UUT-04 overall view