



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

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

OFFICE USE ONLY

APPLICATION #: OSP-0582

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: ESL Power Systems, Inc.

Manufacturer's Technical Representative: Earl Hesson

Mailing Address: 2800 Palisades Drive, Corona, CA 92878

Telephone: (951) 739-7000

Email: ehesson@eslpwr.com

Product Information

Product Name: Emergency and Standby Power Systems

Product Type: Manual Transfer Switches

Product Model Number: Various (See Attachment)

General Description: Manual Transfer Switch Electrical Cabinets. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into production units.

Mounting Description: Rigid Floor Mounted, Rigid Flush Wall Mounted (See Attachment), Rigid Floor Mounted, Rigid Flush Wall Mounted (See Attachment)

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Parkway #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

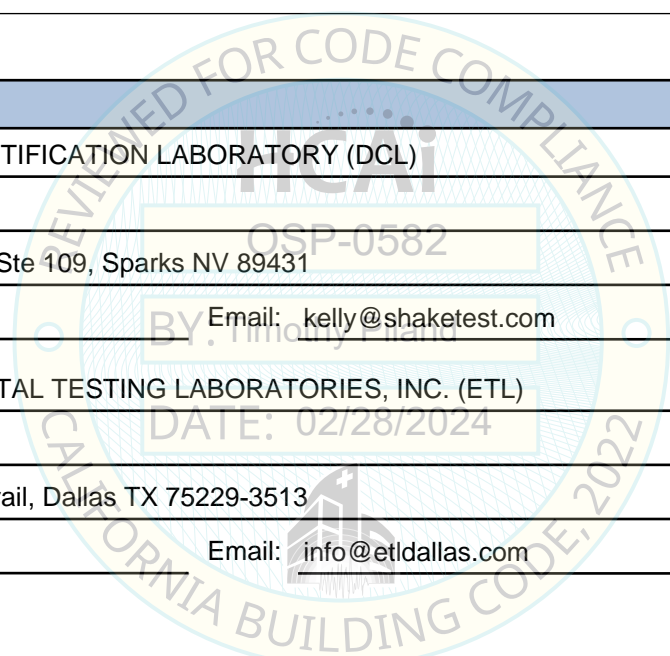
Certification Method

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

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)
Contact Person: Brady Richard
Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513
Telephone: (972) 247-9657 Email: info@etldallas.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.5

SDS (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

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

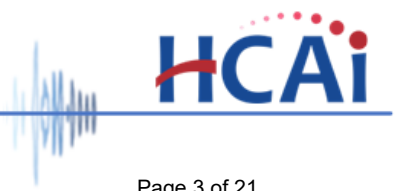
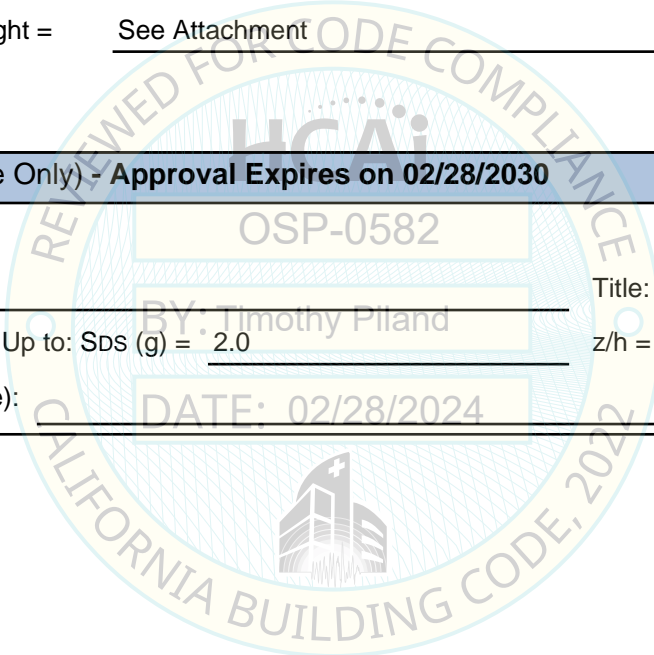
HCAI Approval (For Office Use Only) - Approval Expires on 02/28/2030

Date: 2/28/2024

Name: Timothy Piland Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = 2.0 z/h = 1

Condition of Approval (if applicable): DATE: 02/28/2024



Special Seismic Certification

Table 1 - Certified Components



DCL Project Number: 10167-2301
 Manufacturer: ESL Power Inc.
 Test Levels: SDS = 2.00g, z/h=1.0

Model	Model Line	Amperage	Max. Dimensions (in)			Max. Weight (lb.)	Mounting Configuration	Description	Unit
			Width	Depth	Height				
8302	Rotary Connect	100A-200A	34.0	14.7	45.0	150	Rigid Wall Mount		Extrapolated ¹
8304		200A-400A	42.5	15.5	53.0	400			Extrapolated ¹
8312		400A-1200A	46.0	16.5	55.0	610		1200A ² Tested	Extrapolated ¹
4820	OutTap	70A-200A	34.0	14.7	45.0	150			Extrapolated ¹
4840		200A-400A	42.5	15.5	53.0	425			Extrapolated ¹
4880		400A-800A	46.0	16.5	55.0	610			Extrapolated ¹
4620	TempTap	70A-200A	34.0	14.7	45.0	150			Extrapolated ¹
4640		200A-400A	42.5	15.5	53.0	425			Extrapolated ¹
4680		400A-800A	46.0	16.5	55.0	610			Extrapolated ¹
3020	StormSwitch	70A-200A	24.0	13.4	30.0	150			Extrapolated ¹
3020-06V-OSH		200A	24.0	13.4	30.0	307.0	200A Tested	UUT-01	
3040		70A-400A	34.0	14.7	45.0	450		Interpolated	
3060		300A-600A	42.5	15.5	53.0	525		Interpolated	
3080		100A-800A	46.0	16.5	55.0	610		Interpolated	
3141	TripleSwitch	70A-400A	35.4	21.8	44.8	320	200A Tested	UUT-06	
3181-07V-OSH		800A	46.0	16.5	55.0	535.5	800A Tested	UUT-02	
3181		100A-800A	47.9	24.1	59.8	610	800A Tested	UUT-05	
3012	StormSwitch	100A-1200A	62.0	25.0	88.0	1250		Extrapolated	
3012-04G-OSH		1200A	62.0	25.0	88.0	1198	1200A	UUT-03	
3022		240A-2000A	62.0	25.0	88.0	1600		Interpolated	
3024		240A-2400A	96.0	26.3	89.2	2550		Interpolated	
3028		240A-2800A	96.0	26.3	89.2	2550		Interpolated	
3032		240A-3000A	96.0	26.3	89.2	2550		Interpolated	
3112	TripleSwitch	240A-1200A	104.0	24.0	89.2	3137		Interpolated	
3116		240A-1600A	104.0	24.0	89.2	3137		Interpolated	
3122		240A-2000A	112.0	26.5	89.2	3137		Interpolated	
3124		240A-2000A	132.0	26.5	89.2	3137		Interpolated	
3128		240A-2800A	132.0	26.5	89.2	3137		Interpolated	
3132		240A-3000A	132.0	26.5	89.2	3137		Interpolated	
3132-01-CVS-OSH		3000A	132.0	26.5	89.2	3137	3000A Tested	UUT-04	

Notes:
 1. Subcomponents in extrapolated units are represented in tested units.
 2. A 1200A rotary switch was tested in UUT-05.

Special Seismic Certification

Table 2 - Certified Subcomponents, Rigid Wall Mounted



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Max Dimensions (in.)			NEMA Rating	Material	Unit
			Width	Depth	Height			
Enclosures	ESL	1011-02	24.0	9.0	30.0	3R	Cold Rolled Steel	UUT-01
		1030-005	25.5	12.0	30.0			Interpolated
		1011-10	34.0	10.3	45.0			Interpolated
		1050-23	34.0	10.3	46.5			Interpolated
		1030-002	35.4	21.8	44.8			UUT-06
		1011-32	42.5	12.0	55.0			Interpolated
		1011-45B	46.0	12.0	55.0			UUT-02
		1030-004	47.9	24.1	59.8			UUT-05
Subcomponent	Manufacturer	Model Number (3-Pole / 4-Pole)	Amperage Rating	Description	Material	Max Weight (lb.)	Unit	
Circuit Breaker	Schneider Electric	LGL36250/LGL46250	250A	3-Pole	Plastic	14	UUT-01	
		LGL36400/LGL46400	400A	N/A		14	Interpolated	
		LGL36600/LGL46600	600A	4-Pole		14	UUT-01	
		PGL36025/PGL46025	250A	3-Pole		32	UUT-02	
		PGL36040/PGL46040	400A	N/A		32	Interpolated	
		PGL36060/PGL46060	600A	N/A		32	Interpolated	
		PGL36080/PGL46080	800A	N/A		32	Interpolated	
		PJL36025/PJL46025	250A	N/A		32	Interpolated	
		PJL36040/PJL46040	400A	N/A		32	Interpolated	
		PJL36060/PJL46060	600A	N/A		32	Interpolated	
		PJL36080/PJL46080	800A	4-Pole		32	UUT-02	
Subcomponent	Manufacturer	Model Line ²	Model Number	Amperage Rating	Description	Material	Max Weight (lb.)	Unit
Circuit Breaker	Square-D ¹	H-Frame	HXL36XXXXXX	70-200A	3 pole	Plastic	5	Extrapolated
		J-Frame	JGL36200	200A	3 pole		5	UUT-06
		J-Frame	JXL36XXXXXX	70-250A	3 pole		5	Interpolated
		L-Frame	LXL36XXXXXX	70-400A	3 pole		14	Interpolated
		L-Frame	LXL46XXXXXX	70-400A	4 pole		14	Interpolated
		M-Frame	MXL36XXXXXX	300-800A	3 pole		29	Interpolated
		M-Frame	MXL46XXXXXX	300-800A	4 pole		29	Interpolated
		M-Frame	MGL36800	800A	3 Pole		29	UUT-05

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Notes:

- Square-D H-Frame through P-Frame model lines are similar in configuration.
- All variations in a model line are identical in construction and configuration.

Special Seismic Certification

Table 2 - Certified Subcomponents, Rigid Wall Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g, z/h=1.0$

Subcomponent	Manufacturer	Model Line ³	Model Number	Amperage Rating	Description	Material	Max Weight (lb.)	Unit
Circuit Breaker	ABB ¹	XT4	XT4XXXXXXXXXXXXXX	70-200A	3 pole	Plastic	6	Extrapolated
		XT4	XT4XXXXXXXXXXXXXX	70-200A	4 pole		6	Extrapolated
		XT4	XT4NU4250BFF000XXX	200A	4 Pole		6	UUT-06
		XT5	XT5XXXXXXXXXXXXXX	200-400A	3 pole		11	Interpolated
		XT5	XT5XXXXXXXXXXXXXX	200-400A	4 pole		14	Interpolated
		XT6	XT6XXXXXXXXXXXXXX	400-800A	3 pole		24	Interpolated
		XT6	XT6NQ3800EFF000XXX	800A	3 pole		24	UUT-05
Rotary Switch	Socomec ²	B4-Frame	4150 3012	100A	3-pole	Plastic	13	UUT-06
		B4-Frame	4150 3022	200A	3-pole		14	Interpolated
		B4-Frame	4150 4022	200A	4 pole		14	Interpolated
		B4-Frame	4150 4012	100A	4 pole		15	Interpolated
		B5-Frame	4150 3042	400A	3-pole		23	Interpolated
		B5-Frame	4150 3026	260A	3-pole		24	Interpolated
		B5-Frame	4150 4026	260A	4 pole		27	Interpolated
		B5-Frame	4150 4042	400A	4 pole		27	Interpolated
		B6-Frame	4150 3060	600A	3-pole		79	Interpolated
		B7-Frame	4150 3080	800A	3-pole		85	Interpolated
		B6-Frame	4150 4060	600A	4 pole		88	Interpolated
		B7-Frame	4150 4080	800A	4 pole		104	Interpolated
		B7-Frame	4150 4120	1200A	4 pole		104	Interpolated
		B7-Frame	4150 3120	1200A	3-pole		126	UUT-05

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Notes:

1. ABB XT4 through XT6 model lines are similar in configuration.
2. Socomec B4-Frame through B7-Frame model lines are similar in configuration.
3. All variations in a model line are identical in construction and configuration.

Special Seismic Certification

Table 2 - Certified Subcomponents, Rigid Wall Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Phase Monitor	Diversified	SLA-120-ALE	130V	Plastic	<1	UUT-01
		SLA-120-ALER			<1	Interpolated
		SLA-230-ALE	270V		<1	Interpolated
		SLA-230-ALER			<1	Interpolated
		SLA-380-ALE	400V		<1	Interpolated
		SLA-380-ALER			<1	Interpolated
		SLA-440-ALE	480V		<1	Interpolated
		SLA-440-ALER			<1	Interpolated
		SLA-575-ALE	625V		<1	UUT-02
		SLU-100-ASA	500V		<1	UUT-02
	SLU-100-ASD	<1			UUT-02	
	Schneider Electric	RM17UBE15	65-260 VAC/DC		<1	UUT-01
RMNF22TB30		120-480VAC	<1	UUT-02, UUT-05		
Fan	Multicomp	MC32926	115V	Cold Rolled Steel	<1	UUT-02, UUT-05
		MC19695	240V		<1	UUT-02
		MC19694	115V		<1	Interpolated
		MC25028	240V		<1	UUT-02
Interlock	ESL	P Frame	N/A	Stainless Steel	5	UUT-01
		R Frame	N/A		45	UUT-02
Transformers	MICRON	B075MBT713RK	75VA	Cold Rolled Steel	4	UUT-01
		B075WZ13RK	N/A		4	UUT-02
Auxiliary Switch / Alarm Switch	Schneider Electric	S29450	N/A	Plastic	<1	UUT-01
		S29452	N/A		<1	UUT-02
Fuse Holder	Ferraz/Mersen	30321R	N/A	Plastic	<1	UUT-01
		USM1	N/A		<1	UUT-02
		USCC1	N/A		<1	UUT-02

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Special Seismic Certification

Table 2 - Certified Subcomponents, Rigid Wall Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g, z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Fuse	Ferraz/Mersen	ATM 1	1A	Copper	<1	UUT-02
		ATM 1-1/2	1.5A		<1	Interpolated
		ATM 2	2A		<1	Interpolated
		ATM 3	3A		<1	Interpolated
		ATM 5	5A		<1	Interpolated
		ATM 10	10A		<1	UUT-01
		ATMR 1	1A		<1	UUT-02
		ATMR 1-1/2	1.5A		<1	Interpolated
		ATMR 2	2A		<1	Interpolated
		ATMR 3	3A		<1	Interpolated
		ATMR 5	5A		<1	Interpolated
		ATMR 10	10A		<1	UUT-02
		ATQ 1	1A		<1	UUT-02
		ATQ 1-1/2	1.5A		<1	Interpolated
		ATQ 2	2A		<1	Interpolated
		ATQ 3	3A		<1	Interpolated
		ATQ 5	5A		<1	Interpolated
		ATQ 10	10A		<1	UUT-02
		ATQR 1	1A		<1	UUT-02
		ATQR 1-1/2	1.5A		<1	Interpolated
		ATQR 2	2A		<1	Interpolated
		ATQR 3	3A		<1	Interpolated
ATQR 5	5A	<1	Interpolated			
ATQR 10	10A	<1	UUT-02			
Terminal Block	Phoenix	UT 4-MTD	N/A	Platic	<1	UUT-02
		UK 5 N	N/A		<1	UUT-02
End Bracket	Phoenix	CLIPFIX35	N/A	Platic	<1	UUT-02
		E/NS 35 N	N/A		<1	UUT-02

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Special Seismic Certification

Table 2 - Certified Subcomponents, Rigid Wall Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
End Cover	Phoenix	D-UT 2.5/4 TWIN	N/A	Platic	<1	UUT-02
		D-UK 4/10	N/A		<1	UUT-02
Filter	McMaster Carr	21205K28	N/A	Fabric	<1	UUT-02
Din Rail	McMaster Carr	12 01 73 0	N/A	Cold Rolled Steel	<1	UUT-02
		08 01 73 3	N/A		<1	UUT-02
	IBOC	Omega 3	N/A	Cold Rolled Steel	<1	UUT-02
Power Supply	TRC ELECTRONICS	WDR-120-24	N/A	Stainless Steel	1	UUT-05
Thermostat	PFAN	FLZ520	Thermostat	Plastic	<1	UUT-05, UUT-06
Dehumidistat	Honeywell	H46C1166	Dehumidistat	Plastic	<1	UUT-05, UUT-06
Heating Element	Vulcan	OS1208-150A	150W	Stainless Steel	<1	UUT-05, UUT-06
		OS1212-250A	250W		<1	UUT-05, UUT-06
	Zoro	G1523067	150W	Stainless Steel	<1	UUT-05, UUT-06
		G1991141	250W		<1	UUT-05, UUT-06
Single Pole Receptacles	Leviton	16R21	Male	Rubber/Copper	<1	UUT-01
		16R22	Female		<1	UUT-01
		16R23	Male		<1	UUT-02
		16R24	Female		<1	UUT-02
	Hubbell	HBLMR	Male	Rubber/Copper	<1	UUT-01
		HBLFR	Female		<1	UUT-01
		HBLMRS	Male		<1	UUT-02
		HBLFRS	Female		<1	UUT-02

Special Seismic Certification

Table 3 - Certified Subcomponents, Rigid Base Mounted



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Max Dimensions (in.)			NEMA Rating	Material	Unit
			Width	Depth	Height			
Enclosures	ESL	SE-1	62.0	25.0	88.0	3R	Cold Rolled Steel	UUT-03
		SE-2	96.0	26.3	89.2			Interpolated
		SE-3	104.0	24.0	89.2			Interpolated
		SE-4	112.0	26.5	89.2			Interpolated
		SE-5	132.0	26.5	89.2			UUT-04
Subcomponent	Manufacturer	Model Number (3-Pole / 4-Pole)	Amperage Rating	Description	Material	Max Weight (lb.)	Unit	
Circuit Breaker	Schneider Electric	PGL36025/PGL36025	250A	3-Pole	Plastic	32	UUT-03	
		PGL36040/PGL46040	400A	N/A		32	Interpolated	
		PGL36060/PGL46060	600A	N/A		32	Interpolated	
		PGL36080/PGL46080	800A	N/A		32	Interpolated	
		PGL36100/PGL46100	1000A	N/A		32	Interpolated	
		PGL36120/PGL46120	1200A	N/A		32	Interpolated	
		PJL36025/PJL46025	250A	N/A		32	Interpolated	
		PJL36040/PJL46040	400A	N/A		32	Interpolated	
		PJL36060/PJL46060	600A	N/A		32	Interpolated	
		PJL36080/PJL46080	800A	N/A		32	Interpolated	
		PJL36100/PJL46100	1000A	N/A		32	Interpolated	
		PJL36120/PJL46120	1200A	4-Pole		32	UUT-03	
		RGL36060/RGL46060	600A	3-Pole		52	UUT-04	
		RGL36080/RGL46080	800A	N/A		52	Interpolated	
		RGL36100/RGL46100	1000A	N/A		52	Interpolated	
		RGL36120/RGL46120	1200A	N/A		52	Interpolated	
		RGL36160/RGL46160	1600A	N/A		52	Interpolated	
		RGL36200/RGL46200	2000A	N/A		52	Interpolated	
		RGL36250/RGL46250	2500A	N/A		52	Interpolated	
		RGL36300/RGL46300	3000A	N/A		52	Interpolated	
		RJL36060/RJL46060	600A	N/A		52	Interpolated	
		RJL36080/RJL46080	800A	N/A		52	Interpolated	
		RJL36100/RJL46100	1000A	N/A		52	Interpolated	
		RJL36120/RJL46120	1200A	N/A		52	Interpolated	
		RJL36160/RJL46160	1600A	N/A		52	Interpolated	
		RJL36200/RJL46200	2000A	N/A		52	Interpolated	
RJL36250/RJL46250	2500A	N/A	52	Interpolated				
RJL36300/RJL46300	3000A	4-Pole	52	UUT-04				

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Special Seismic Certification

Table 3 - Certified Subcomponents, Rigid Base Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Phase Monitor	Diversified	SLA-120-ALE	130V	Plastic	<1	UUT-03
		SLA-120-ALER			<1	Interpolated
		SLA-230-ALE	270V		<1	Interpolated
		SLA-230-ALER			<1	Interpolated
		SLA-380-ALE	400V		<1	Interpolated
		SLA-380-ALER			<1	Interpolated
		SLA-440-ALE	480V		<1	Interpolated
		SLA-440-ALER			<1	Interpolated
		SLA-575-ALE	625V		<1	UUT-03
		SLU-100-ASA	500V		<1	UUT-04
	SLU-100-ASD		<1		UUT-04	
		Schneider Electric	RM17UBE15		65-260 VAC/DC	<1
	RMNF22TB30		120-480VAC	<1	UUT-04	
Fan	Multicomp	MC32926	115V	Cold Rolled Steel	<1	UUT-03
		MC19695	240V		<1	UUT-03
		MC19694	115V		<1	Interpolated
		MC25028	240V		<1	UUT-04
		ADDA	AK1781HB	115V	Cold Rolled Steel	5
Interlock	ESL	P Frame	N/A	Stainless Steel	5	UUT-03
		R Frame	N/A		45	UUT-04
Transformers	MICRON	B075MBT713RK	75VA	Cold Rolled Steel	4	UUT-04
		B075WZ13RK	N/A		4	Interpolated
		B1K5BTZ13JKF	1.5kVA		5	UUT-04
		ACME	TB83212	100VA	Cold Rolled Steel	4
Auxiliary Switch / Alarm Switch	Schneider Electric	S29450	N/A	Plastic	<1	UUT-03
		S29452	N/A		<1	UUT-04

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Special Seismic Certification

Table 3 - Certified Subcomponents, Rigid Base Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Fuse Holder	Ferraz/Mersen	30321R	N/A	Plastic	<1	UUT-03
		USM1	N/A		<1	UUT-03
		USCC1	N/A		<1	UUT-04
Fuse	Ferraz/Mersen	ATM 1	1A	Copper	<1	UUT-03
		ATM 1-1/2	1.5A		<1	Interpolated
		ATM 2	2A		<1	Interpolated
		ATM 3	3A		<1	Interpolated
		ATM 5	5A		<1	Interpolated
		ATM 10	10A		<1	UUT-01, UUT-04
		ATMR 1	1A		<1	UUT-04
		ATMR 1-1/2	1.5A		<1	Interpolated
		ATMR 2	2A		<1	Interpolated
		ATMR 3	3A		<1	Interpolated
		ATMR 5	5A		<1	Interpolated
		ATMR 10	10A		<1	UUT-04
		ATQ 1	1A		<1	UUT-04
		ATQ 1-1/2	1.5A		<1	Interpolated
		ATQ 2	2A		<1	Interpolated
		ATQ 3	3A		<1	Interpolated
		ATQ 5	5A		<1	Interpolated
		ATQ 10	10A		<1	UUT-04
		ATQR 1	1A		<1	UUT-03
		ATQR 1-1/2	1.5A		<1	Interpolated
		ATQR 2	2A		<1	Interpolated
		ATQR 3	3A		<1	Interpolated
		ATQR 5	5A		<1	Interpolated
ATQR 10	10A	<1	UUT-04			

Table Continued on Next Page

Special Seismic Certification

Table 3 - Certified Subcomponents, Rigid Base Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level : $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Terminal Block	Phoenix	UT 4-MTD	N/A	Platic	<1	UUT-04
		UK 5 N	N/A		<1	UUT-04
End Bracket	Phoenix	CLIPFIX35	N/A	Platic	<1	UUT-04
		E/NS 35 N	N/A		<1	UUT-04
End Cover	Phoenix	D-UT 2.5/4 TWIN	N/A	Platic	<1	UUT-04
		D-UK 4/10	N/A		<1	UUT-04
Filter	McMaster Carr	21205K28	N/A	Fabric	<1	UUT-04
Din Rail	McMaster Carr	12 01 73 0	N/A	Cold Rolled Steel	<1	UUT-04
		08 01 73 3	N/A		<1	UUT-04
	IBOC	Omega 3	N/A	Cold Rolled Steel	<1	UUT-04
Switch	Honeywell	1DM1	N/A	Platic	<1	UUT-03
Stand-off Insulator	Glastic / Mar-Bal	2165-1A	N/A	Fiber Glass	<1	UUT-03
		2015-2A	N/A		<1	Interpolated
		2015-3A	N/A		<1	Interpolated
		R4200-A5	N/A		<1	Interpolated
		1872-1C	N/A		<1	Interpolated
		1461-1A	N/A		<1	UUT-04
Power Supply	Phoenix	QUINT-PS/1AC/24DC/3.5	N/A	Stainless Steel	1	UUT-04
Ground Fault Relay	Eaton	D64RPB100	N/A	Plastic	1	UUT-03
Current Transformer	WICC	5SP-1200-00-L48	N/A	Plastic	1	UUT-03
Horn	ESSS	870P-45	N/A	Plastic	<1	UUT-04
Receptacle Back Box	Hubbell	FT302W	N/A	Galvanized Steel	<1	UUT-03
Receptacle	Hubbell	HBL2620SW	N/A	Plastic	<1	UUT-03
Neutral Sensor	Schneider	S33576	N/A	Plastic/Copper	6	UUT-03
		S34036	N/A		15	Interpolated
		S48896	N/A		15	UUT-04

Table Continued on Next Page

Special Seismic Certification

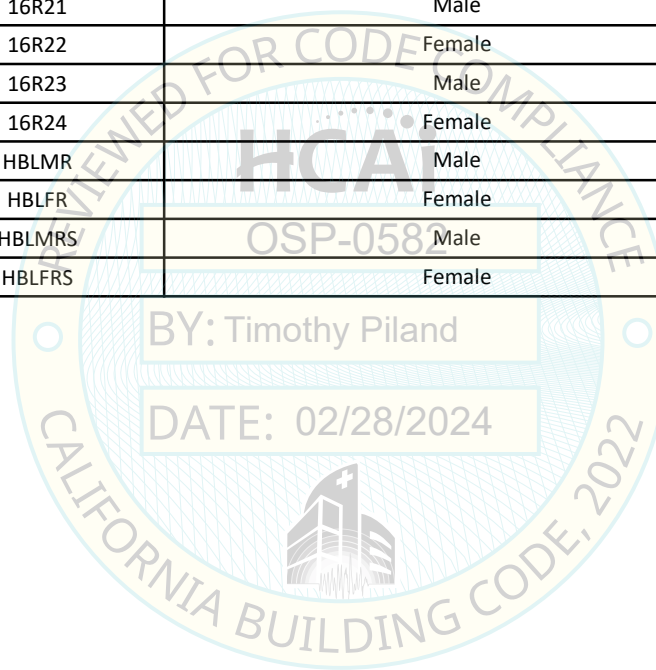
Table 3 - Certified Subcomponents, Rigid Base Mounted (Continued)



DCL Project Number: 10167-2301

Certified seismic level: $S_{DS} = 2.00g$, $z/h=1.0$

Subcomponent	Manufacturer	Model Number	Description	Material	Max Weight (lb.)	Unit
Single Pole Receptacles	Leviton	16R21	Male	Rubber/Copper	<1	UUT-03
		16R22	Female		<1	UUT-03
		16R23	Male		<1	UUT-04
		16R24	Female		<1	UUT-04
	Hubbell	HBLMR	Male	Rubber/Copper	<1	UUT-03
		HBLFR	Female		<1	UUT-03
		HBLMRS	Male		<1	UUT-04
		HBLFRS	Female		<1	UUT-04

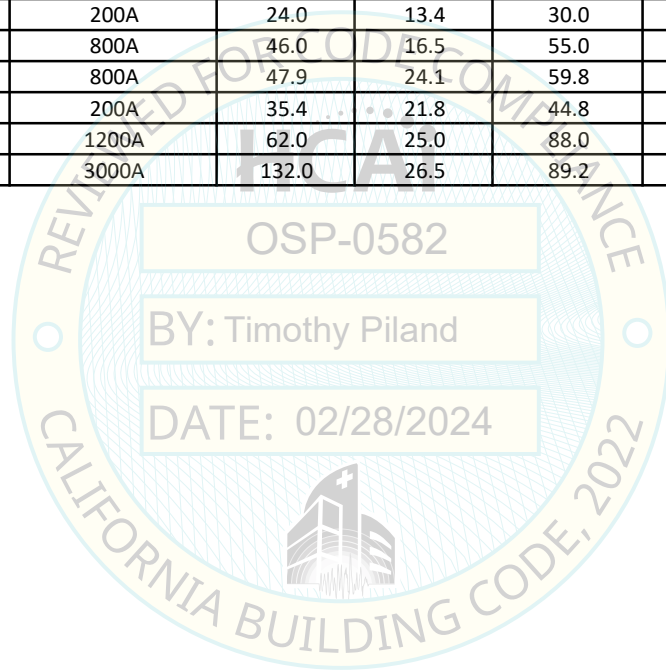


Special Seismic Certification
Table 4 - Tested Units



DCL Project Number: 10167-2301
 Manufacturer: ESL Power Inc.
 Certified seismic level : SDS = 2.00g, z/h=1.0

Model Number	Model Line	Amperage Tested	Max. Dimensions (in)			Weight (lb.)	Mounting Configuration	Unit
			Width	Depth	Height			
3020-06V-OSH	Storm Switch	200A	24.0	13.4	30.0	307.0	Rigid Wall Mount	UUT-01
3181-07V-OSH	TripleSwitch	800A	46.0	16.5	55.0	535.5		UUT-02
3181	TripleSwitch	800A	47.9	24.1	59.8	610.0		UUT-05
3141	TripleSwitch	200A	35.4	21.8	44.8	320.0		UUT-06
3012-04G-OSH	Storm Switch	1200A	62.0	25.0	88.0	1198.0	Rigid Floor Mount	UUT-03
3132-01-CVS-OSH	TripleSwitch	3000A	132.0	26.5	89.2	3137.0		UUT-04



UUT-01 - ETS Test Report 15037



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: StormSwitch

Model Number: 3020-06V-OSH, 200A StormSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: **Circuit Breaker:** Schneider Electric LGL36250 & LGL46600; **Phase Monitor:** Diversified SLA-120-ALE; **Interlock:** ESL P Frame; **Transformer:** Micron B075MBT713RK; **Auxiliary Switch/Alarm Switch:** Schneider Electric S29450; **Fuse holder:** Ferraz/Mersen 30321R; **Fuse:** Ferraz/Mersen ATM 10; **Single Pole Receptacle:** Leviton 16R21 & 16R22, Hubbell HBLMR & HBLFR

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

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
307.0	UUT-01	13.4	24.0	30.0	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)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid wall mounted to the fixture using (4) 1/2" Grade 8 bolts.



UUT-01 Overall View

UUT-02 - ETS Test Report 15037



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: TripleSwitch

Model Number: 3181-07V-OSH, 800A TripleSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: **Circuit Breaker:** Schneider Electric PGL36025 & PJL46080; **Phase Monitor:** Diversified SLA-575-ALE & SLU-100-ASA & SLU-100-ASD; **Fan:** Multicomp MC32926 & MC19695 & MC25028; **Interlock:** ESL R Frame; **Transformer:** Micron B075MBT713RK; **Auxiliary Switch/Alarm Switch:** Schneider Electric S29452; **Fuse holder:** Ferraz/Mersen USM1 & USCC1; **Fuse:** Ferraz/Mersen ATMR1 & ATMR10 & ATQ1 & ATQ10 & ATQR1 & ATQR10; **Terminal Block:** Phoenix UT 4-MTD & UK 5 N; **End Bracket:** Phoenix CLIPFIX35 & E/NS 35 N; **End Cover:** D-UT 2.5/4 TWIN & D-UK 4/10; **Filter:** McMaster Carr 21205K28; **Din Rail:** Phoenix 12 01 73 0 & 08 01 73 3, IBOC Omega 3; **Single Pole Receptacle:** Leviton 16R23 & 16R24, Hubbell HBLMRS & HB

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

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
535.5	UUT-02	16.5	46.0	55.0	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)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid wall mounted to the fixture using (4) 1/2" Grade 8 bolts.



UUT-02 Overall View

UUT-03 - ETS Test Report 15037



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: StormSwitch

Model Number: 3012-04G-OSH, 1200A StormSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: **Circuit Breaker:** Schneider Electric PGL36025& PJL46120; **Phase Monitor:** Diversified SLA-120-ALE & SLA-575-ALE; **Fan:** Multicomp MC32926 & MC19695 & MC25028; **Interlock:** ESL P Frame; **Transformer:** ACME TB83212; **Auxiliary Switch/Alarm Switch:** Schneider Electric S29450; **Fuse holder:** Ferraz/Mersen 30321R & USM1; **Fuse:** Ferraz/Mersen ATM 1 & ATQR 1; **Filter:** McMaster Carr 21205K28; **Switch:** Honeywell 1DM1; **Stand-off Insulator:** Glastic / Mar-Bal 2165-1A; **Ground Fault Relay:** Eaton D64RPB100; **Current Transformer:** WICC 5SP-1200-00-L48; **Receptacle Back Box:** Hubbell FT302W; **Receptacle:** Hubbell HBL2620SW; **Neutral Sensor:** Schneider S33576; **Single Pole Receptacle:** Leviton 16R21 & 16R22, Hubbell HBLMR & HBLFR

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

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,198.0	UUT-03	25.0	62.0	88.0	10.1	8.4	29.6

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	1.33	0.53

Unit Mounting Description:

The unit was rigid base mounted to the fixture using (8) 5/8" Grade 8 bolts.



UUT-03 Overall View

UUT-04 - ETS Test Report 15037



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: TripleSwitch

Model Number: 3132-01-CVS-OSH, 3000A StormSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: **Circuit Breaker:** Schneider Electric RGL36060 & RJL46300; **Phase Monitor:** Diversified SLU-100-ASA & SLU-100-ASD; **Fan:** Multicomp MC25028, ADDA AK1781HB; **Interlock:** ESL R Frame; **Transformer:** Micron B075MBT713RK & B1K5BTZ13JKF; **Shunt Trip:** Schneider Electric S33664; **Under-Voltage Trip:** Schneider Electric S33673; **Auxiliary Switch/Alarm Switch:** Schneider Electric S29452; **Fuse holder:** Ferraz/Mersen USCC1; **Fuse:** Ferraz/Mersen ATM 10 & ATMR1 & ATMR10 & ATQ1 & ATQ10 & ATQR10; **Terminal Block:** Phoenix UT 4-MTD & UK 5 N; **End Bracket:** Phoenix CLIPFIX35 & E/NS 35 N; **End Cover:** D-UT 2.5/4 TWIN & D-UK 4/10; **Filter:** McMaster Carr 21205K28; **Din Rail:** Phoenix 12 01 73 0 & 08 01 73 3, IBOC Omega 3; **Stand-off Insulator:** Glastic / Mar-Bal 1872-1C; **Power Supply:** Phoenix QUINT-PS/1AC/24DC/3.5; **Horn:** ESSS 870P-45; **Neutral Sensor:** Schneider S48896; **Single Pole Receptacle:** Leviton 16R23 & 16R24, Hubbell HBLMRS & HBLFRS

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

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
3,137.0	UUT-04	26.5	132.0	89.2	5.3	8.4	23.5

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	1.33	0.53

Unit Mounting Description:

The unit was rigid base mounted to the fixture using (4) 5/8" Grade 8 bolts and (4) 3/8" Grade 8 bolts.



UUT-04 Overall View

UUT-05 - DCL Test Report 10167-2301



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: TripleSwitch

Model Number: 3181, 800A TripleSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: Enclosure: ESL 1030-004; Circuit Breakers: Square-D MGL36800 800A, ABB XT6NQ3800EFF000XXX 800A; Rotary Switch: Socomec 4150 3120 1200A; Phase Monitor: Schneider Electric RMNF22TB30; Fan: Multicomp MC32926; Power Supply: TRC ELECTRONICS WDR-120-24; Thermostat: PFAN FLZ520; Dehumidistat: Honeywell H46C1166; Heating Element: Vulcan OS1208-150A and OS121-250A; Zoro G1523067 and G1991141

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)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-05	24.1	47.9	59.8	610	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)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

UUT-05 was wall mounted to the DCL wall fixture using (6) ½" Grade 8 bolts, 3" square by ¼" thick carbon steel plate washers, flat washers, and channel nuts. The bolts were spaced 61.5" apart in the z-direction and 21.9" apart in the x-direction on-center.



UUT-05 Overall View

UUT-06 - DCL Test Report 10167-2301



UNIT UNDER TEST (UUT) Summary Sheet

Manufacturer: ESL Power Systems Inc.

Product Line: Manual Transfer Switches

Model Line: TripleSwitch

Model Number: 3141, 200A TripleSwitch

Product Construction Summary: Specific to part number

Options / Component Summary: Enclosure: ESL 1030-002; Circuit Breakers: Square-D JGL36200 200A, ABB XT4NU4250BFF000XXX 200A; Rotary Switch: Socomec 4150 3012 100A; Thermostat: PFAN FLZ520; Dehumidistat: Honeywell H46C1166; Heating Element: Vulcan OS1208-150A and OS121-250A; Zoro G1523067 and G1991141

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)			Operating Weight (lb)	Lowest Natural Frequency (Hz)		
	Length	Width	Height		Front-Back	Side-Side	Vertical
UUT-06	21.8	35.4	44.8	320	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)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

UUT-06 was wall mounted to the DCL wall fixture using (4) ½” Grade 8 bolts, 3” square by ¼” carbon steel plate washers, flat washers, and channel nuts. The bolts were spaced 46.5” apart in the z-direction and 31.1” apart in the x-direction on-center.



UUT-06 Overall View