

# Explanation to UL/CSA approvals

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Model	File	Vol.	Sec.	Details UL-, CSA-approvals <sup>4)</sup>									
				Type	UG	FW	U [V]	I [A]	TC	OL	SC	Standard(s)	Mark
<b>Group 1</b>													
10plus	E335289	1			B, C	2	300	10				UL1059, CSA C22.2 No. 158	
17plus	E216113	1	4				250 AC 80 DC	25 / 50 Si 1/10				UL 1801, CSA C22.2 No. 225	
18plus	E335289	1	3		B, D, F	2	300 / 30 (Si)	65 / 16 Si 1				UL 1059, CSA C22.2 No. 158	
19-xx	E335289	1	2		B, D	1	300	16				UL1059, CSA C22.2 No. 158	
80-PCB	E335289	1	2		B, D	1	300	16				UL1059, CSA C22.2 No. 158	
80plus	E335289	1			B, C	2	300	16				UL1059, CSA C22.2 No. 158	
81plus	E335289	1	1		B	2	277 AC 50 DC	16 16				UL1059, CSA C22.2 No. 158	
EM12, PM12	E335289	1	4		A <sup>1)</sup> , B, C, E <sup>2)</sup>	2	50	40 / 10				UL1059, CSA C22.2 No. 158	
X8340-S02	E216113	1	1				250 AC 80 DC	25 / 100 Si 6			3.5kA	UL 1801, CSA C22.2 No. 225	
X8340-S04	E216113	1	2				250 AC 80 DC	25 / 100 Si 6			3.5kA	UL 1801, CSA C22.2 No. 225	
X8340-SZ4	E216113	1	3				250 AC 80 DC	25 / 150 Si 6			3.5kA	UL 1801, CSA C22.2 No. 225	
X8345-D	E216113	1	5				277 AC 110 DC	125 / 600 Si 6				UL 1801, CSA C22.2 No. 60950	
HPCFAP	E216113	X2	A5				60 DC	125 / 375				UL 60950-1, CSA C22.2 No. 60950-1	
HPCFAP_R	E216113	X2	A13				60 DC	100 / 300				UL 60950-1, CSA C22.2 No. 60950-1	

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Powerbox 2U	E216113	X2	A4				48 DC	24				UL 60950-1, CSA C22.2 No. 60950-1	
X8345R-S...0617	E216113	X3	A6				72 DC	125 / 750				UL 60950-1, CSA C22.2 No. 60950-1	
X8345R-S...0618	E216113	X3	A8				72 DC	50 / 300				UL 60950-1, CSA C22.2 No. 60950-1	

## Group 2

104, 105, 106	E67320 CSA: 016186	1	1	OC	A, C	0	250 AC 48 DC	0.05-10 0.05-10	2	0	2kA, C1 0.2kA, C1	UL1077, CSA C22.2 No. 235 Supplementary Protector	
127, 129, 157, 2-5000, 2-5200, 2-5700	E67320	1	12	OC	A, C	0	250 AC 120 AC 50 DC 50DC 50 DC	0.05-20 0.05-20 0.05-5 0.05-25 0.05-25	2 2 2 2 2	0 1 0 0 0	2kA, C1a 2kA, C2 2.5kA, U1a 2.5kA, C1 <sup>5)</sup> 2kA, C1 <sup>6)</sup>	UL1077 Supplementary Protector	
127, 129, 157, 2-5000, 2-5200, 2-5700	016186			OC	A, C	0	250 AC 120 AC 50 DC 50 DC	0.05-20 0.05-20 0.05-5 0.05-25	2 2 2 2	0 1 0 0	2kA, C2 2kA, C2 2.5kA, C2 <sup>5)</sup> 2kA, C2 <sup>6)</sup>	CSA C22.2 No. 235 Supplementary Protector	
1110	E67320 CSA: 016186	1	17	OC	B, D	0	250 AC 125 AC 50 DC	0.05-6,5 7-16 0.05-16	1	0	1kA, C1 1kA, U1 1kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	
1115	E67320	1		OC	A, B, C, D	0	250 AC 250AC 32 DC 32 DC	1-2.5 3-16 1-2.5 3-16	2 1 2 1	0 0 0 0	1kA, C1 1kA, C1 0.2kA, C1 0.2kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	
1140	E67320	1	21	OC	B	0	250 AC 50 DC	0.05-16 0.05-16	2	0	2kA, C1 2kA, U1	UL 1077 Supplementary Protector	
1140	016186			OC	B	0	250 AC 50 DC	0.05-16 0.05-16	2	0	1kA, C1 0.2kA, U1	CSA C22.2 No. 235 Supplementary Protector	

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1180	E67320 CSA: 016186	1	32	OC	EA <sup>1)</sup> , D	0	250 AC 72 DC	0.1-10 0.1-10	2	0	2kA, C1 2kA, C1	UL1077, CSA C22.2 No. 235 Supplementary Protector	
1190	E67320	1	44	OC	EA <sup>1)</sup> , B, D	0	250 AC 72 DC	10-20 10-20	2	0	2kA, C3 <sup>6)</sup> 2kA, C3 <sup>6)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
1190	16186			OC	A	0	250 AC 72 DC	10-20 10-20	2	0	2kA, C1 <sup>6)</sup> 2kA, C1 <sup>6)</sup>	CSA C22.2 No. 235 Supplementary Protector	
1410	E67320	1	18	OC	B, D	0	250 AC 60 DC (1410-F) 50 DC	0.63-10 0.63-5 0.63-10	2	0	2kA, C1 0.2kA, U1 0.2kA, C1	UL 1077 Supplementary Protector	
1410	016186			OC	B, D	0	125 AC 48 DC	0,63-8	2	0	2kA, C1 0.2kA, C1	CSA C22.2 No. 235 Supplementary Protector	
1658-G, 1658-E, 1658-F	E67320 CSA: 016186	2	1	OC	A, C	0	240 AC 240 AC 125 AC 125 AC 32 DC 32 DC	5-16 17-30 5-30 5-30 5-30 5-30	1 1 1 1 1 1	1 0 1 1 0 0	1kA, C1 0.5kA, C1 2kA, C1 0.5kA, U3 2kA, C1 0.5kA, U3	UL 1077, UL 1500, CSA C22.2 No. 235 Supplementary Protector	
1658-A	E29255	1	6	OC		0	125 AC 28 DC	5-30 5-30				UL 244A	











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3120 X3120-M X3120-S X3120-N X3120-U	E67320 CSA: 016186	1	13	OC	EA <sup>1)</sup> , B, D	0	250 AC	0.1-20	1	0 <sup>d)</sup>	5kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	
							250 AC	21-30 <sup>b)</sup>	1	0	5kA, C1		
							250 AC	0.1-10 <sup>a)</sup>	1	1	2kA, C1		
							250 AC <sup>1)</sup>	0.1-2	1	1	10xIn, U3		
							250 AC <sup>1)</sup>	2.5-20	1	0	0.15kA, U3		
							250 AC <sup>1)</sup>	2.5-20 <sup>c)</sup>	1	0	0.25kA, U3		
							250 AC <sup>1)</sup>	0.1-16 <sup>a)</sup>	1	1	0.15kA, U3		
							250 AC <sup>1)</sup>	0.1-16 <sup>a)c)</sup>	1	1	0.25kA, U3		
							125 AC	11-16 <sup>a)</sup>	1	1	1kA, C1		
							50 DC	0.1-20	1	0	1kA, C1		
							50 DC <sup>1)</sup>	0.1-2	1	0	10xIn, U3		
							50 DC <sup>1)</sup>	2.5-20	1	0	0.15kA, U3		
							50 DC <sup>1)</sup>	2.5-20 <sup>c)</sup>	1	0	0.25kA, U3		
							50 DC <sup>1)</sup>	0.1-16 <sup>a)</sup>	1	0	0.15kA, U3		
							50 DC <sup>1)</sup>	0.1-16 <sup>a)c)</sup>	1	0	0.25kA, U3		
<sup>a)</sup> with use of magnetic release module X3120-M1 <sup>b)</sup> two single poles paralleled <sup>c)</sup> 2-phase <sup>d)</sup> for I <sub>N</sub> ≤ 16A OL: 1													
3130	E67320 CSA: 016186	1	23	OC	B, D	0	250 AC	0.1-16 <sup>a)</sup>	2	1 <sup>d)</sup>	3.5kA, C1	UL 1077, UL 1500, CSA C22.2 No. 235 Supplementary Protector	
							250 AC	0.1-12 <sup>b)</sup>			5kA, C1		
							50 DC	0.1-16 <sup>c)</sup>			2kA, C1		
							<sup>a)</sup> 1- and 2-pole <sup>b)</sup> 3-pole, 3-phase <sup>c)</sup> 1-, 2-, 3-pole <sup>d)</sup> for CSA: OL:0 for 250VAC 16A and 50VDC 0.1-16A						
X3120, X3130, XR38	E467544	1	1				250 AC	1-20			UL 60320-1, CSA C22.2 No.60320-1		

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3131	E67320	1	37	OC	A, C	0	250 AC 32 DC 32 DC 12 DC	0.1-20	2	0	3kA, U1 2.5kA, U1 2.5kA, C2 2.5kA, U2	UL 1077, UL 1500, CSA C22.2 No. 235 Supplementary Protector	
3140 X3120-M X3120-S X3120-N X3120-U	E67320 CSA: 016186	1	13	OC	EA <sup>1)</sup> , B, D	0	250 AC	0.1-16	1	1	5kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	 
							250 AC	21-30 <sup>b)</sup>	1	0	5kA, C1		
							250 AC	0.1-10 <sup>a)</sup>	1	1	2kA, C1		
							125 AC	11-16 <sup>a)</sup>	1	1	1kA, C1		
							50 DC	0.1-16	1	0	1kA, C1		
a) with magnetic release module X3120-M1 <sup>b)</sup> 2 poles paralleled													
4130	E67320 CSA: 016186	1	30	OC	A	0	240 AC 120 AC 120 AC 50 DC 50 DC	20-80 20-60 80 20-50 60-80	2	0	1kA, C1 3.5kA, C1 2kA, C1 3.5kA, C1 2kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	
2-6400	E67320 CSA: 016186	1	7	OC	A, C	0	250 AC 250 AC 250 AC	0.05-4.5 5-8 8.5-16	2	0	0.2kA, C1 1kA, C1 2kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	 
2-6500	E29255 CSA: 016186	1	5	OC		0	250 AC 28 DC	0.1-15				UL 244A, CSA C22.2 No. 235	 
3300, 3400, 3500, 3600, 201	E67320	1	27	OC	A, C	0	250 AC 80 DC 65 DC	0.05-16 0.05-16 0.05-25	2	0	1kA, U1 1kA, U1 1kA, U1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	
201	CSA: 016186			OC	A, C	0	250 AC 80 DC	0.05-16 0.05-16	2	0	1kA, U1 1kA, U1	CSA C22.2 No. 235 Supplementary Protector	

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2210	E67320 CSA: 016186	1	14	OC	A <sup>a)</sup> , B, C, D	0	277 AC	0.1-16	1	0 <sup>2)</sup> 1 <sup>1)</sup>	5kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	 		
							277 AC	18-32	1	0	2kA, C1				
							277/480 AC	0.1-16	1	0 <sup>2)</sup> 1 <sup>1)</sup>	5kA, C1				
							277/480 AC	18-32	1	0	2kA, C1				
							277 AC	0.1-5	1	1	0.4kA, U3 <sup>1)</sup>				
							277 AC	6-16	1	1	0.8kA, U3 <sup>1)</sup>				
							277 AC	18-32	1	0	0.8kA, U3 <sup>1)</sup>				
							277/480 AC	0.1-5	1	1	0.4kA, U3 <sup>1)</sup>				
							277/480 AC	6-16	1	1	0.5kA, U3 <sup>1)</sup>				
							277/480 AC	18-32	1	0	0.5kA, U3 <sup>1)</sup>				
							65 DC	0.1-25	1	1	2kA, U1a <sup>1)</sup>				
							65 DC	32	1	0	2kA, U1a <sup>1)</sup>				
							65 DC	0.1-32	1	0	2kA, U1 <sup>2)</sup>				
							65 DC	0.1-5	1	1	0.4kA, U3 <sup>1)</sup>				
							65 DC	6-25	1	1	0.8kA, U3 <sup>1)</sup>				
65 DC	32	1	0	0.8kA, U3 <sup>1)</sup>											
2215	E67320 CSA: 016186	1	19	OC	B, D	0	250 AC	0.05	2	0	0.2kA, C1	UL 1077 , CSA C22.2 No. 235 Supplementary Protector	 		
							250 AC	0.1-6.5			1kA, C1				
							250 AC	7-10			2kA, C1				
							75 DC	0.05-12.5			1kA, U1				
							75 DC	20			0.8kA, U1				
2216	E67320 CSA: 016186	1	40	OC	FA	0	277 AC	0.1-10	1	1	1kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	 		
							277 AC	12-16	1	0					
							50 DC	0.1-16 (1-pole)	1	1					
							80 DC	0.1-10 (2-pole)	1	1					
							80 DC	12-16 (2-pole)	1	0					
2216 (+Socket 80plus, 81plus)	E362760	1	1	AC-1	gen. use	1	277 AC	0.1-10				UL 60947-4-1, CSA C22.2 No. 60947-4-1			
				DC-1			50 DC	0.1-16 (1-pole)							
				DC-1			80 DC	0.1-10 (2-pole)							

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4230	E67320	1		OC	A	3	240 AC	1-63	1	1	7.5kA, U1	UL 1077, CSA C22.2 No. 235 Supplementary Protector		
					A		277 AC	1-63	1	0	5kA, U1			
					EA		480 AC Y	1-63 (2-4-pole)	1	1	7.5kA, U1			
					A		60 DC	1-63	1	0	7.5kA, U1			
					A		125 DC	1-63 (2 poles in series)	1	0	7.5kA, U1			
4230	E223877	1			1	120 AC	1-63 (1-pole)			10kA	UL 489, CSA C22.2 No. 5			
						240 AC	1-63 (2, 3-pole)							
						277 AC	1-32 (1-pole)							
						480Y/277 AC	1-32 (2, 3-pole)							
						60 DC	1-63 (1-pole)							
						125 DC	1-63 (2-pole)							

## Group 4

808	E67320	1	22	OC	B, D	0	120 AC 60 DC	0.006-8	2	0	2kA, U1 1kA, U1	UL1077, CSA C22.2 No. 235 Supplementary Protector	
8330	E67320 CSA: 227881	1		OC, SPV	1p: A 2p: EA	0	250 AC	0.02-12	1, 2	1	1kA, U1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	 
							250 AC	12.5-18	1, 2	0	1kA, C1		
							250 AC	0.02-30 (2-pole)	1, 2	1	1kA, U1		
							125 AC	0.02-30	1, 2	0	1kA, U1		
							125/250 AC	0.02-30	1, 2	0	1kA, U1		
							32 DC	0.02-15 (1-pole)	1, 2	0	1kA, U1		
							32 DC	15-25 (1-pole)	1, 2	1	1kA, U1		
							32 DC	0.02-25 (1-pole)	1, 2	0	3kA, C1 <sup>2)</sup>		
							50 DC	0.02-7.5A (1-pole)	1, 2	0	1kA, U1		
							65 DC	0.02-4A (1-pole)	1, 2	1	1kA, U1		
							65 DC	4-25A (1-pole)	1, 2	0	0.2kA, U1		
							65 DC	0.02-15 (2-pole)	1, 2	1	1kA, U1		
							65 DC	12-25 (2-pole)	1, 2	0	1kA, U1		
							65 DC	0.02-25 (2-pole)	1, 2	0	5kA, C1		

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8335	E67320	5	1	OC	A, C	0	80 DC	1-30	0 <sup>a)</sup>	0	3kA, U1a	UL 1077, CSA C22.2 No. 235 Supplementary Protector		
							80 DC	35-50	0 <sup>a)</sup>	0	1.5kA, U1a			
							32 DC	1-50	0 <sup>a)</sup>	0	5kA, U3 <sup>b)</sup>			
							65 DC	1-50	0 <sup>a)</sup>	0	3kA, U1a <sup>b)</sup>			
							125 AC	1-30	0 <sup>a)</sup>	1	3kA, U1a <sup>b)</sup>			
							125 AC	30-35	0 <sup>a)</sup>	1	1kA, U1a			
							250 AC	1-30	0 <sup>a)</sup>	0	3kA, U1a <sup>b)</sup>			
							250 AC	30-50	0 <sup>a)</sup>	0	1kA, U1a			
							250 AC	1-30	0 <sup>a)</sup>	0	5kA, C1a			
							125/250 AC	1-30 (2-pole)	0 <sup>a)</sup>	1	3kA, U1a <sup>b)</sup>			
							125/250 AC	30-35 (2-pole)	0 <sup>a)</sup>	1	2kA, U3			
							125/250 AC	35-50 (2-pole)	0 <sup>a)</sup>	0	2kA, U3			
							250 AC	1-30 (3-pole)	0 <sup>a)</sup>	0	5kA, U1a			
							250 AC	30-50 (3-pole)	0 <sup>a)</sup>	0	1kA, U3			
									<sup>a)</sup> TC: 2 for characteristic F1, F2	<sup>b)</sup> additionally UL1500				
8335	E217526	3	1				80 DC	1-50 (1, 2-pole)			1.5kA	UL489A		
8340-F, 8340-T, 8340-G	E67320 CSA: 016186	1	15	OC	B, D	0	F, T: 250 AC F, T: 250 AC F, T, G: 80 DC F, T, G: 80 DC G: 250 AC G: 80 DC F, G, T: 80 DC	0.02-30 (1-pole) 0.02-30 (2, 3-pole) 0.02-50 (1, 2-pole) <sup>1)</sup> 0.02-40 (1, 2-pole) <sup>2)</sup> 0.02-30 0.02-30 60-100 (2 poles <sup>1)</sup> paralleled)	1,2 <sup>3)</sup>	0	3.5kA, U1 5kA, U1 3.5kA, U1 3.5kA, U1 3.5kA, U1 2kA, U2 <sup>1)</sup> 3.5kA, U1	UL 1077, CSA C22.2 No. 235 Supplementary Protector	  	
8340-T, 8340-G	E217526	1	1				80 DC	0.05-30 (1, 2-pole)			2kA	UL489A		



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8345 X8345-S X8345-R X8345-F	E67320	1	35	OC	A, C	0	80DC 80 DC 125 DC 277/480 AC 480 AC 277 AC	0.02-125 0.02-50 0.02-100 0.02-70 0.02-70 0.02-50	0 <sup>a)</sup> 0 <sup>a)</sup> 0 <sup>a)</sup> 0 <sup>a)</sup> 0 <sup>a)</sup> 0 <sup>a)</sup>	0 1 0 0 0 1	10kA; U2 10kA, U2 3kA, U3 5kA, C1 5kA, C1 5kA, C1	UL 1077, CSA C22.2 No. 235 Supplementary Protector			
<sup>a)</sup> TC: 2 for characteristics E1,E2,E5,E6,F1,F2,G1,G2,H1,H2,H5,H6,M0,R1,R2,R5,R6,X1,X2															
8345 X8345-S	E223877	1	1				240 AC 120/240 AC 120 AC 80 DC	0.05-20 0.05-80 0.05-80 0.05-125			5kA 5kA 5kA 10kA	UL489, CSA C22.2 No. 5			

## Group 5

412	E67320 CSA: 016186	1	26	OC	B, D	0	28 DC	0.1-35	2	0	6kA, U2 <sup>1)</sup> 6kA, U1 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
413	E67320 CSA: 016186	1	25	OC	B, D	0	28 DC	30-90	2	0	6kA, U1, 2kA, U2 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
446	E67320 CSA: 016186	1	29	OC	A	0	28 DC	30-400	1 <sup>1)</sup> 2 <sup>2)</sup>	0	10kA, U3 <sup>1)</sup> 10kA, U2 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
447	E67320 CSA: 016186	1	29	OC	A	0	28 DC	80-400	1 <sup>1)</sup> 2 <sup>2)</sup>	0	10kA, U3 <sup>1)</sup> 10kA, U2 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
449	E67320 CSA: 016186	1	29	OC	A	0	28 DC	100-350	1 <sup>1)</sup> 2 <sup>2)</sup>	0	10kA, U3 <sup>1)</sup> 10kA, U2 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
452	E67320 CSA: 016186	1	28	OC	A, C	0	28 DC 72 DC	50-125 50-125	2	0	6kA, U2 0.9kA, U2	UL1077, CSA C22.2 No. 235 Supplementary Protector	
482	E67320 CSA: 016186	1	31	OC	A, C	0	72 DC	0.1-50	2	0	5kA, U1a <sup>1)</sup> 5kA, U1 <sup>2)</sup>	UL1077, CSA C22.2 No. 235 Supplementary Protector	
483	E67320 CSA: 016186	1	24	OC	B, D	0	250 AC 75 DC	1-25 1-35	2	0	1kA, C1 3.5kA, C1	UL1077, CSA C22.2 No. 235 Supplementary Protector	
4120	E217526	1	36	OC	A, C	0	50 DC	0.5-25	2	0	6kA, U1	UL1077, CSA C22.2 No. 235 Supplementary Protector	

# Explanation to UL/CSA approvals












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Model	File	Vol.	Sec.	Details UL-, CSA-approvals <sup>4)</sup>									
				Type	UG	FW	U [V]	I [A]	TC	OL	SC	Standard(s)	Mark
520	E67320	1	33	OC	A, C	0	277 AC	7-125	2	0	5kA, U1	UL1077, CSA C22.2 No. 235 Supplementary Protector	
<b>Group 6</b>													
ESS20, SESS20	E67320	1	34	OC	A, C	0	28 DC	0.5-10	0	0	5kA, U2	UL 1077 Supplementary Protector	
ESS22	E67320	1	41	OC	EA, EC	0	30 DC	0.5-10	2	0	0.3kA, U3 5kA, C3	UL1077, CSA C22.2 No. 235 Supplementary Protector	
ESS30 ESS31	E67320	1	42	OC	EA, EC	0	30 DC	0.5-10 0.5-12	0	1	0.3kA, U3, 2kA, C3	UL1077, CSA C22.2 No. 235 Supplementary Protector	
ESS30 ESS31	E306740	1	4				24 DC 24 DC	0.5-10 0.5-12				UL 2367, UL 1310 (max. 3.6A)	
ESS31	E362760	1	2			1	30 DC	0.5-12				UL 60947-4-1, CSA C22.2 No.60947-4-1	
ESX10, ESX10-T, ESX10-S	E306740	1	1				12 DC 24, 48 DC	0.5-10 0.5-16				UL 2367	
SPR10 ESX10-T	E306740	1	1				12, 24 DC 24 DC	20-25 20-25				UL 2367	
ESX10, ESX10-T	E320024	1	1				12, 24 DC	0.5-16				UL 121201 Cl. I, Div. 2, haz. loc.	
ESX10, ESX10-T, ESX10-S	E322549	1	1				12 DC 24, 48 DC	0.5-10 0.5-16				UL 508, CSA C22.2 No. 14	
SPR10 ESX10-T	E322549	1	1				12, 24 DC 24 DC	20-25 20-25				UL 508, CSA C22.2 No. 14	
ESX10-T	E322549	2	2			1	12 DC 24, 48 DC	0.5-10 0.5-16				UL 508, CSA C22.2 No. 14	
SPR10, ESX10-T	E322549	2	2			1	12, 24 DC 24 DC	20-25 20-25				UL 508, CSA C22.2 No. 14	
ESX10, ESX10-T	016186						24 DC	0.5-12				CSA C22.2 No. 213 Cl. I, Div. 2, haz. loc.	

# Explanation to UL/CSA approvals

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Model	File	Vol.	Sec.	Details UL-, CSA-approvals <sup>4)</sup>									
				Type	UG	FW	U [V]	I [A]	TC	OL	SC	Standard(s)	Mark
REF16	E306740	1	2				24 DC	0.05 - 10				UL 2367	
REF16 (+socket 80plus, 81plus)	E322549	2	1			1	24 DC	0.05 - 10				UL 508, CSA C22.2 No. 14	
REF16 (+socket 80plus, 81plus)	165971						24 DC	0.5-10				CSA C22.2 No. 213 Cl. I, Div. 2, haz. loc.	
REX12, REX12D, CPC12	E306740	1	3				24 DC	1-10				UL 2367, UL 1310 (max. 4A)	
REX12, REX12D CPC12	E492388	1	1			1	24 DC	1-10				UL 508, CSA C22.2 No. 14, CSA C22.2 No. 107.1	
REX12, REX12D,	E320024	1	2				24 DC	1-10				UL 121201 Cl. I, Div. 2, haz. loc.	
ESX60D, CPC20	E306740	1	5				24 DC	1-10				UL 2367	
ESX60D, CPC20 (+socket 18plus)	E492388	1	2			1	24 DC	1-10				UL 508, CSA C22.2 No. 14	
REX22, REX22D, CPC12	E306740	1	6				24 DC	1-20				UL 2367, UL 1310 (max. 3,6A)	
REX22, REX22D, CPC12	E492388	1	3				24 DC	1-20				UL 508, CSA C22.2 No. 14, CSA C22.2 No. 107.1	
REX22, REX22D, CPC12	E320024	1	3				24 DC	1-20				UL 121201 Cl. I, Div. 2, haz. loc.	

<sup>1)</sup> applicable for UL approval only

<sup>2)</sup> applicable for CSA approval only

<sup>3)</sup> TC2 for trip curves F1, F2, F4, F5, G1, G2, G4, G5, M0 and combinations thereof; all other trip curves: TC1

<sup>5)</sup> with series fuse rated 200% of protector's rating, minimum 15A

<sup>6)</sup> with series fuse rated 300% of protector's rating, minimum 15A

# Explanation to UL/CSA approvals

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## 4) Coding to UL 1077 and CSA C 22.2 No. 235 for Supplementary Protectors

Type	OC	overcurrent type
	OV	overvoltage type
	UV	undervoltage type
	SPOC	shunt protector, overcurrent type
	SPV	shunt protector, voltage type
UG (use group)	A	general industrial
	B	household kitchen appliances
	C	household appliances
	D	commercial appliances
	E <sup>a),b)</sup>	pollution degree 3, overvoltage category 2
	F <sup>a)</sup>	pollution degree 3, overvoltage category 4
FW (terminals)	0	suitable for factory wiring
	1	Line terminals investigated for field wiring
	2	Load terminals investigated for field wiring
	3	Line-and-load terminals investigated for field wiring
TC (tripping current)	0	tripping current is less than 125% of $I_N$ (amp rating)
	1	tripping current is between 125 and 135% of $I_N$ (amp rating)
	2	tripping current is more than 135% of $I_N$ (amp rating)
	3	tripping current and time is standardized at 135 and 200% $I_N$ (amp rating)
OL (overload rating)	0	tested at 1.5 times amp rating for general use
	1	tested at 6 times ac rating or 10 times dc rating for motor starting applications
SC (short-circuit rating)	C	a short-circuit test was conducted with series overcurrent protection
	U	a short-circuit test was conducted without series overcurrent protection
	1	a recalibration test and dielectric strength test were not conducted
	1a	the supplementary protector was permanently open after the short-circuit test; a dielectric strength test and a voltage withstand test were conducted
	2	a recalibration test and dielectric strength test were conducted testing
	3	a recalibration test, dielectric strength test, and voltage withstand test were conducted

<sup>a)</sup> alternative assessment of creepage and clearance distances to UL840, is used together with coding A to D

<sup>b)</sup> alternative assessment of creepage and clearance distances to CSA C22.2 No. 0.2, is used together with coding A to D