

SPECIFICATIONS:

		<b>ELECTRICAL SPECIFICATIONS</b>										
		<b>S09</b>	<b>S12</b>	<b>S18</b>	<b>S25</b>	<b>S32</b>	<b>S40</b>	<b>S50</b>	<b>S65</b>	<b>S80</b>	<b>S95</b>	<b>S105</b>
<b>ELECTRICAL GENERAL</b>												
	<b>UNITS</b>											
Rated Operating Frequency	Hz	25 ~ 400										
Impedance per Pole	mΩ	1.90	1.90	1.60	1.60	2.10	1.60	0.85	0.86	0.86	0.76	0.76
<b>POWER DISSIPATION PER POLE</b>												
AC-1	W	1.47	1.47	2.46	3.34	4.60	3.42	6.89	10.40	10.40	14.89	14.89
AC-3	W	0.19	0.34	0.78	1.03	1.31	1.52	2.12	3.63	5.50	6.86	8.37
Rated Coil Frequencies		AC: 50Hz, 60Hz, 50/60Hz and DC										
<b>ELECTRICAL UL/CSA APPLICATIONS</b>												
Rated Operating Voltage, Ue	VAC	600										
General Purpose Current Rating	A	25	25	40	40	60	60	90	110	110	140	140
<b>RATED 1 PHASE OPERATING CURRENT, Ie</b>												
115V	A	9.8	13.8	16	24	34	34	34	56	80	80	100
230V	A	10	12	17	28	28	28	40	40	50	60	88
<b>RATED 1 PHASE OPERATING POWER, Pe</b>												
115V	HP	1/2	3/4	1	2	3	3	3	5	7-1/2	7-1/2	10
230V	HP	1-1/2	2	3	3	5	5	7-1/2	10	15	15	20
<b>RATED 3 PHASE OPERATING CURRENT, Ie</b>												
200V	A	11	11	17.5	25.3	32.2	32.2	48.3	62.1	62.1	78.2	92
230V	A	9.6	9.6	15.2	22	28	42	42	54	68	80	104
460V	A	7.6	11	14	21	27	40	52	65	65	77	96
575V	A	9	11	17	17	27	27	41	52	62	77	77
<b>RATED 3 PHASE OPERATING POWER, Pe</b>												
200V	HP	3	3	5	7-1/2	10	10	15	20	20	25	30
230V	HP	3	3	5	7-1/2	10	15	15	20	25	30	40
460V	HP	5	7-1/2	10	15	20	30	40	50	50	60	75
575V	HP	7-1/2	10	15	15	25	25	40	50	60	75	75
Size		00	—	0	—	1	—	2	—	—	3	—
Standard Short Circuit Current	kA	5	5	5	5	5	5	10	10	10	10	10
Maximum Fuse Size	A	30	30	60	60	60	60	100	125	150	175	200
High Fault Short Circuit Current	kA	100	100	100	100	100	100	100	100	100	100	100
Maximum Fuse Size (Class J)	A	25	25	40	40	50	60	90	100	125	150	175
Electrical Endurance, AC-3 at Maximum Rated 3 Phase Operating Power (@460V)	Ops. (mill.)	1.8	2.0	1.6	1.6	1.5	1.5	1.6	1.8	1.5	1.5	1.0
<b>ELECTRICAL IEC APPLICATIONS</b>												
Rated Insulation Voltage, Ui	V	1000										
Rated Impulse Voltage Withstand, Uimp	kV	6	6	6	6	6	6	8	8	8	8	8
Rated Operating Voltage, Ue	VAC	690										
Rated Thermal Current, Ith for Ambient Temperature < 55° C (131° F)	A	25	25	32	45	60	60	90	110	110	140	140
<b>RATED AC-1 OPERATING CURRENT, Ie</b>												
At 55° C (131° F)	A	25	25	32	45	60	60	90	110	110	140	140
At 70° C (158° F)	A	20	20	25	32	48	48	72	88	88	110	110
<b>RATED AC-3 OPERATING CURRENT, Ie</b>												
220 ~ 240V	A	9	12	18	25	32	40	50	65	80	95	105
380 ~ 400V	A	9	12	18	25	32	40	50	65	80	95	105
415 ~ 440V	A	9	12	18	25	32	40	50	65	80	95	105
500V	A	7.5	10.5	14	19	24	32	38	55	63	79	85
660 ~ 690V	A	7	9	13	15	22	25	34	44	48	60	80
<b>RATED 3 PHASE AC-3 OPERATING POWER, Pe</b>												
220 ~ 240V	kW	2.2	3	4	6.5	9	11	15	18.5	22	25	30
380 ~ 400V	kW	4	5.5	7.5	11	15	18.5	22	30	37	45	55
415 ~ 440V	kW	4	5.5	9	12.5	15	22	30	37	45	55	55
500V	kW	5.5	7.5	10	15	18.5	25	30	40	45	55	65
660 ~ 690V	kW	5.5	7.5	10	15	18.5	30	33	45	45	55	65

**ELECTRICAL AND COIL CHARACTERISTICS SPECIFICATIONS**

		S09	S12	S18	S25	S32	S40	S50	S65	S80	S95	S105	
<b>ELECTRICAL IEC APPLICATIONS (CONTINUED)</b>													
	<b>UNITS</b>												
<b>RATED AC-4 OPERATING CURRENT, Ie</b> (Achieves maximum of 200,000 operations)													
220 ~ 240V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5	
380 ~ 400V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5	
415 ~ 440V	A	7.5	10.0	15.0	20.8	26.7	33.3	41.7	54.2	66.7	79.2	87.5	
500V	A	6.3	8.8	11.7	15.8	20.0	26.7	31.7	45.8	52.5	65.8	70.8	
660 ~ 690V	A	5.8	7.6	10.8	12.5	18.3	20.8	28.3	36.7	40.0	50.0	66.7	
<b>RATED AC-4 OPERATING POWER, Pe</b> (Achieves maximum of 200,000 operations)													
220 ~ 240V	kW	1.5	2.2	4.0	5.5	5.5	7.5	11.0	15.0	18.5	22.0	22.0	
380 ~ 400V	kW	3.0	4.0	5.5	7.5	11.0	15.0	22.0	22.0	37.0	37.0	45.0	
415 ~ 440V	kW	3.0	4.0	5.5	7.5	11.0	15.0	22.0	22.0	37.0	37.0	45.0	
500V	kW	3.0	4.0	5.5	7.5	11.0	15.0	22.0	22.0	37.0	37.0	45.0	
660 ~ 690V	kW	4.0	5.5	7.5	7.5	15.0	18.5	22.0	30.0	37.0	45.0	55.0	
<b>RATED AC-4 OPERATING CURRENT, Ie</b> (Achieves maximum of 1,000,000 operations)													
220 ~ 240V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8	
380 ~ 400V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8	
415 ~ 440V	A	2.7	3.6	5.5	7.6	9.7	12.1	15.2	19.7	24.2	28.8	31.8	
500V	A	2.3	3.2	4.2	5.8	7.3	9.7	11.5	16.7	19.1	23.9	25.8	
660 ~ 690V	A	2.1	2.7	3.9	4.5	6.7	7.6	10.3	13.3	14.5	18.2	24.2	
<b>RATED AC-4 OPERATING POWER, Pe</b> (Achieves maximum of 1,000,000 operations)													
220 ~ 240V	kW	0.55	0.75	1.1	1.5	2.2	3.0	4.0	4.0	5.5	7.5	7.5	
380 ~ 400V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	11.0	15.0	
415 ~ 440V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	11.0	15.0	
500V	kW	1.1	1.5	2.2	3.0	4.0	5.5	5.5	7.5	11.0	11.0	15.0	
660 ~ 690V	kW	1.5	1.5	3.0	3.0	5.5	5.5	7.5	11.0	11.0	15.0	22.0	
<b>RATED SHORT-TIME CURRENT, Icw</b>													
1 Second	A	455	455	570	630	1010	1265	1580	2530	2530	3300	3300	
5 Seconds	A	205	205	254	280	450	450	710	1130	1130	1485	1485	
10 Seconds	A	144	144	180	200	320	400	500	800	800	1050	1050	
30 Seconds	A	85	85	104	115	185	230	290	460	460	600	600	
1 Minute	A	60	60	74	80	130	165	205	325	325	430	430	
3 Minutes	A	35	35	46	50	90	100	120	185	185	250	250	
Short Circuit Protection with Fuses (gG/gL) Ue ≤ 690V													
Type 1	A	50	50	63	63	100	125	200	200	200	250	250	
Type 2	A	25	35	35	50	63	80	100	125	125	160	200	
<b>MAXIMUM ELECTRICAL SWITCHING RATE</b>													
AC-1	Ops./hr.	1200	1200	1200	1200	1200	1200	1200	1200	1200	600	600	
AC-3	Ops./hr.	1200	1200	1200	1200	1200	1200	1200	1200	1200	600	600	
AC-4	Ops./hr.	360	360	360	360	360	200	200	200	200	200	200	
Electrical Endurance, AC-3 at Maximum Rated 3 Phase Operating Power (@400V)		Ops. (mill.)	1.6	1.8	1.3	1.4	1.3	1.3	1.2	1.4	1.2	1.2	1.0
Making Capacity		A	450	450	450	450	550	550	1000	1000	1000	1280	1280
<b>BREAKING CAPACITY</b>													
Ue ≤ 400V	A	250	250	250	250	450	450	920	920	920	1050	1050	
Ue = 500V	A	250	250	250	250	450	450	920	920	920	1050	1050	
Ue = 690V	A	130	130	130	130	170	205	780	780	780	950	950	
<b>COIL CHARACTERISTICS</b>													
Rated Insulation Voltage, Ui		V	1000										
<b>OPERATING LIMITS</b>													
<b>50HZ, 60HZ, 50/60HZ</b>													
Operating		xUc	0.80 ~ 1.10										
Pick-Up		xUc	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80	0.65 ~ 0.80	0.65 ~ 0.80	0.65 ~ 0.80	0.65 ~ 0.80	0.65 ~ 0.80
Drop-Out		xUc	0.35 ~ 0.55	0.35 ~ 0.55	0.35 ~ 0.55	0.35 ~ 0.55	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60

**MECHANICAL, ENVIRONMENTAL AND CONSTRUCTION SPECIFICATIONS**

		S09	S12	S18	S25	S32	S40	S50	S65	S80	S95	S105
<b>COIL CHARACTERISTICS (CONTINUED)</b>												
	<b>UNITS</b>											
<b>DC</b>												
Operating	xUc	0.80 ~ 1.10										
Pick-Up	xUc	0.45 ~ 0.65	0.45 ~ 0.65	0.45 ~ 0.65	0.45 ~ 0.65	0.45 ~ 0.75	0.45 ~ 0.75	0.70 ~ 0.80	0.70 ~ 0.80	0.70 ~ 0.80	0.70 ~ 0.80	0.70 ~ 0.80
Drop-Out	xUc	0.15 ~ 0.30	0.15 ~ 0.30	0.15 ~ 0.30	0.15 ~ 0.30	0.15 ~ 0.30	0.15 ~ 0.30	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60	0.40 ~ 0.60
<b>COIL CONSUMPTION</b>												
<b>50HZ, 60HZ, 50/60HZ</b>												
Pick-Up	VA	50 ~ 70	50 ~ 70	50 ~ 70	50 ~ 70	70 ~ 90	70 ~ 90	250 ~ 275	250 ~ 275	250 ~ 275	250 ~ 275	250 ~ 275
Hold-In	VA	7 ~ 11	7 ~ 11	7 ~ 11	7 ~ 11	9 ~ 13	9 ~ 13	16 ~ 20	16 ~ 20	16 ~ 20	16 ~ 20	16 ~ 20
<b>DC</b>												
Pick-Up	W	5 ~ 9	5 ~ 9	5 ~ 9	5 ~ 9	7 ~ 10	7 ~ 10	340	340	340	340	340
Hold-In	W	5 ~ 9	5 ~ 9	5 ~ 9	5 ~ 9	7 ~ 10	7 ~ 10	6.5	6.5	6.5	6.5	6.5
<b>OPERATING TIMES</b>												
<b>AC</b>												
Pick-Up	msec.	8 ~ 20	8 ~ 20	8 ~ 20	8 ~ 20	10 ~ 19	10 ~ 19	15 ~ 30	15 ~ 30	15 ~ 30	15 ~ 30	15 ~ 30
Drop-Out	msec.	6 ~ 13	6 ~ 13	6 ~ 13	6 ~ 13	5 ~ 25	5 ~ 25	9 ~ 15	9 ~ 15	9 ~ 15	9 ~ 15	9 ~ 15
<b>DC</b>												
Pick-Up	msec.	35 ~ 45	35 ~ 45	35 ~ 45	35 ~ 45	40 ~ 55	40 ~ 55	50 ~ 60	50 ~ 60	50 ~ 60	50 ~ 60	50 ~ 60
Drop-Out	msec.	7 ~ 12	7 ~ 12	7 ~ 12	7 ~ 12	30 ~ 65	30 ~ 65	55 ~ 60	55 ~ 60	55 ~ 60	55 ~ 60	55 ~ 60
<b>POWER DISSIPATION</b>												
50Hz, 60Hz, 50/60Hz	W	2.6	2.6	2.6	2.6	4.3	4.3	8.0	8.0	8.0	8.0	8.0
<b>POWER FACTOR</b>												
Closed	cos(φ)	0.33	0.33	0.33	0.33	0.28	0.28	0.26	0.26	0.26	0.26	0.26
Open	cos(φ)	0.84	0.84	0.84	0.84	0.73	0.73	0.54	0.54	0.54	0.54	0.54
<b>MECHANICAL</b>												
Mechanical Endurance	Ops. (mill.)	10										
Maximum Mechanical Switching Rate	Ops./hr.	9,000										
<b>ENVIRONMENTAL</b>												
Ambient Operating Temperature	°C / °F	-25 to +55 / -13 to +131										
Ambient Storage Temperature	°C / °F	-55 to +80 / -58 to +176										
Altitude	m / ft.	3,000 / 9,792										
<b>CONSTRUCTION GENERAL</b>												
Pollution Degree		3	3	3	3	3	3	3	3	3	3	3
<b>INGRESS PROTECTION</b>												
Main Terminals		IP20	IP20	IP20	IP20*	IP20*	IP20*	IP20*	IP20*	IP20*	IP20*	IP20*
Coil Terminals		IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Auxiliary Contact Terminals		IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Weight	kg	0.295	0.295	0.295	0.295	0.52	0.54	1.105	1.12	1.13	1.45	1.47
	lbs.	0.65	0.65	0.65	0.65	1.15	1.19	2.44	2.47	2.49	3.20	3.24

\*NOTE: With conductors connected.

**ROHS COMPLIANCE** For RoHS compliance documentation by product, refer to [www.c3controls.com](http://www.c3controls.com).

**CONSTRUCTION CONDUCTOR CROSS-SECTIONS, MAIN TERMINALS**

		S09 - S25		S32 - S40		S50 - S80		S95 - S105	
<b>UNITS</b>									
<b>MAIN TERMINAL CAPACITY</b>									
Solid Stranded and Finely Stranded without End Sleeve	mm <sup>2</sup>	2 x 0.5 ~ 6		2 x 1 ~ 14		2 x 1 ~ 34		2 x 1 ~ 43	
AWG Wire	AWG	2 x 20 ~ 10, 1 x 20 ~ 8*		2 x 18 ~ 6		2 x 16 ~ 2		2 x 16 ~ 1	
Recommended Strip Length	mm	8.5		10		13		15	
	in	5/16		3/8		1/2		9/16	
Tightening Torque	Lb-in.	8.8 ~ 16.9		22.1 ~ 26.6		35.4 ~ 53.1		44.3 ~ 57.5	
	Nm	1.0 ~ 1.9		2.5 ~ 3.0		4.0 ~ 6.0		5.0 ~ 6.5	
Screwdriver		Phillips nr. 2		Phillips nr. 2		Allen 4mm		Allen 4mm	

**AUXILIARY CONTACTS SPECIFICATIONS**

		INTERNAL AUXILIARY CONTACT		CONTACT BLOCKS	
		S09-S25		300-SFA & 300-SSA	
<b>ELECTRICAL GENERAL</b>					
	<b>UNITS</b>				
Minimum Switching Capacity		5mA @ 17V			
Electrical Endurance	Ops. (mill.)	1			
Mechanical Endurance	Ops. (mill.)	15			
Non-Overlap Time	msec.	1.5			
Insulation Resistance	MΩ	>10			
<b>ELECTRICAL UL/CSA APPLICATIONS</b>					
Rated Operating Voltage, Ue	V	600			
<b>PILOT DUTY RATING</b>					
AC		A600			
DC		P600	Q600		
<b>ELECTRICAL IEC APPLICATIONS</b>					
Rated Insulation Voltage, Ui	V	1000			
Rated Operating Voltage, Ue	V	690			
Rated Thermal Current, Ith for Ambient Temperature <55° C	A	20	10		
<b>RATED AC-15 OPERATING CURRENT, Ie</b>					
110 ~ 120V	A	10	6		
220 ~ 240V	A	10	6		
380 ~ 400V	A	6	4		
415 ~ 450V	A	5	3.5		
500V	A	4	2.5		
600 ~ 690V	A	2	1.5		
<b>RATED DC-13 OPERATING CURRENT, Ie</b>					
24V	A	6	6		
48V	A	4	4		
110V	A	2	2		
220V	A	0.7	0.7		
440V	A	0.7	0.3		
<b>MAKING CAPACITY, Im</b>					
AC-15/AC-11 Ue ≤ 400V 50/60Hz	A	250	90		
DC-13/DC-11 Ue ≤ 220V	A	250	90		
<b>BREAKING CAPACITY, Im</b>					
AC-15/AC-11 Ue ≤ 400V 50/60Hz	A	250	60		
DC-13/DC-11 Ue ≤ 220V	A	2	0.95		
Short Circuit Protection with Fuses (gG/gL)	A	10	10		
<b>ROHS COMPLIANCE</b>		For RoHS compliance documentation by product, refer to <a href="http://www.c3controls.com">www.c3controls.com</a> .			

**OPERATING POSITIONS**

