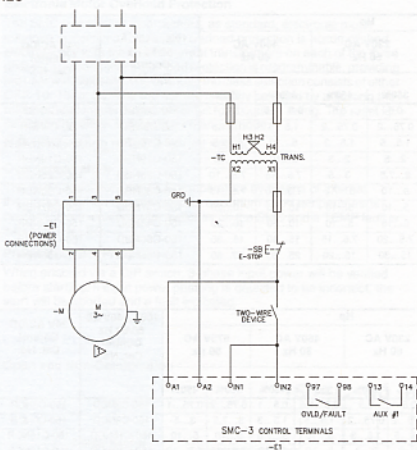
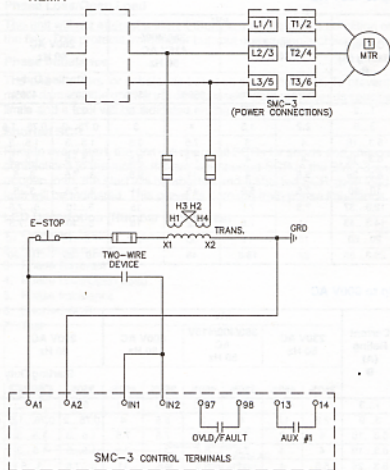


## Two-Wire Configuration

IEC

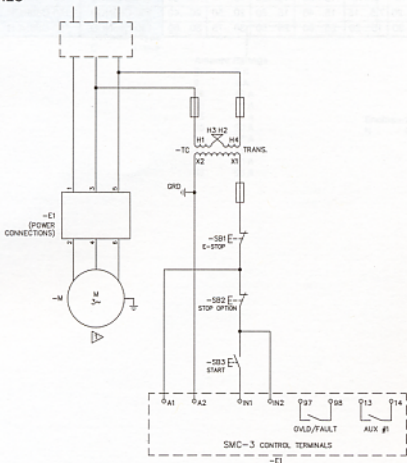


NEMA

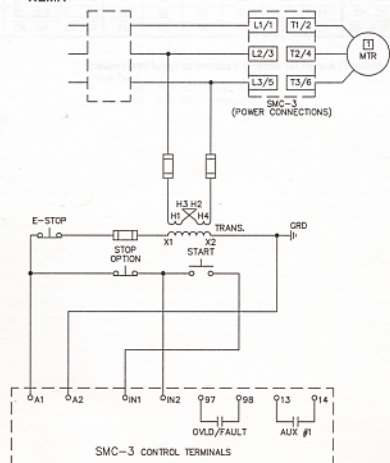


## Three-Wire Configuration

IEC

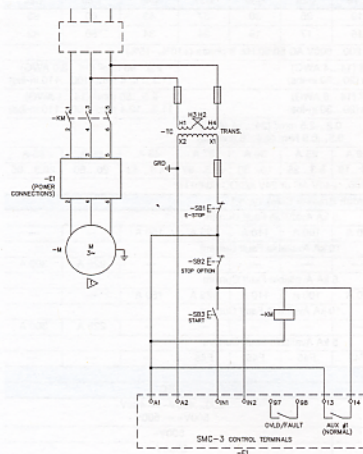


NEMA

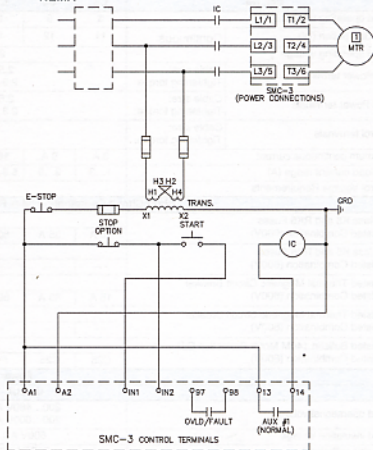


## Isolation Contactor Configuration

IEC



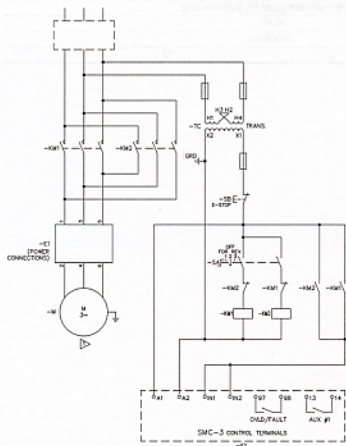
NEMA



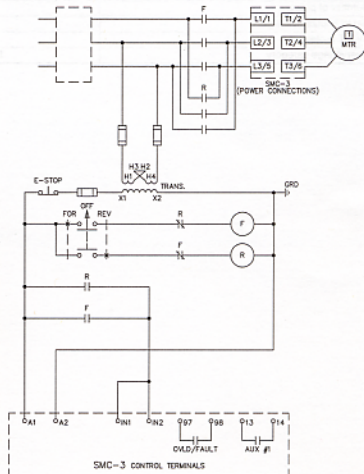
## Reversing Configuration

Note: Minimum Off time equals 1.0 s.

IEC



NEMA



## Specifications

Electrical Ratings Cat. Nos. 150-...													
Cat. No.		C3	C9	C16	C19	C25	C30	C37	C43	C60	C85		
Rated operating current $I_o$ (A)		3	9	16	19	25	30	37	43	60	85		
Heat dissipation (W)		Continuous		11	12	14	15	17	19	24	34	50	82
Rated operating voltage		200...480, 200...600V AC 50/60 Hz, 3-phase (+10%, -15%)											
Line Power terminals		Cable size:		2.5...25 mm <sup>2</sup> (14...4 AWG)					2.5...95 mm <sup>2</sup> (14...3/0 AWG)				
		Tightening torque:		2.3...3.4 N•m (20...30 in-lbs)					11.3...12.4 N•m (100...110 in-lbs)				
Load Power terminals		Cable size:		2.5...16 mm <sup>2</sup> (14...6 AWG)					2.5...50 mm <sup>2</sup> (14...1 AWG)				
		Tightening torque:		2.3...3.4 N•m (20...30 in-lbs)					11.3...12.4 N•m (100...110 in-lbs)				
Control terminals		Cable size:		0.2...2.5 mm <sup>2</sup> (24...14 AWG)									
		Tightening torque:		0.5...0.9 N•m (4.4...8.0 in-lbs)									
Maximum continuous current		3 A	9 A	16 A	19 A	25 A	30 A	37 A	43 A	60 A	85 A		
Overload current range (A)		1...3	3...9	5.3...16	6.3...19	8.3...25	10...30	12.3...37	14.3...43	20...60	28.3...85		
Control Voltage Requirements		100...240V AC or 24V AC/DC 50/60 Hz											
Short Circuit Coordination (Max Fuse or Circuit Breaker Size) Type 1													
UL Class K5 and RK5 Fuses UL Listed Combination (600V)		5 kA Available Fault Current											
		10 A	35 A	60 A	70 A	100 A	110 A	125 A	150 A	—	—		
UL Class K5 and RK5 Fuses UL Listed Combination (600V)		10 kA Available Fault Current											
		—	—	—	—	—	—	—	—	225 A	300 A		
UL Listed Thermal Magnetic Circuit Breaker UL Listed Combination (600V)		5 kA Available Fault Current											
		15 A	35 A	60 A	70 A	100 A	110 A	125 A	150 A	—	—		
UL Listed Thermal Magnetic Circuit Breaker UL Listed Combination (600V)		10 kA Available Fault Current											
		—	—	—	—	—	—	—	—	225 A	300 A		
UL Listed Bulletin 140M Motor Protection C.B. UL Listed Combination (600V)		5 kA Available Fault Current											
		C25	C25	F45	F45	F45	F45	F45	F45	—	—		
Power Circuit													
		UL/cUL					IEC						
Rated operational voltage		200...480V AC 200...600V AC					200...480V — 400V- 500V — 500V-						
Rated insulation voltage		600V AC					500V~						
Dielectric withstand		2200V AC					2500V~						
Repetitive peak		200...480V AC — 1400V 200...600V AC — 1600V					200...480V — 1400V 500V~ — 1600V						
Operating frequency		50/60 Hz					50/60 Hz						
Utilization category		Intermittent duty					AC-53b						
Number of poles		Equipment designed for 3-phase only											
Rated impulse voltage		6 kV											
DV/DT protection		1000V/μs											
Overvoltage category		III					III						

Control Circuit			
		UL/cUL	IEC
Rated operational voltage (+10%, -15%)		100...240V AC, 24V AC/DC	100...240V~, 24V AC/DC
Rated insulation voltage		250V	250V~
Rated impulse voltage		—	4 kV
Dielectric withstand		1500V AC	2000V~
Overvoltage category		—	III ⓐ
Operating frequency		50/60 Hz	50/60 Hz
Input onstate voltage minimum (IN1, IN2)		85V AC, 19.2V DC / 13.5V AC	
Input onstate current (IN1, IN2)		9.6 mA @ 120V AC / 19.6mA @ 240V AC, 7.3 mA @ 24V AC/DC	
Input ofstate voltage maximum (IN1, IN2)		40V AC, 17V DC / 12V AC	
Input ofstate current @ input ofstate voltage (IN1, IN2)		<10 mA, <12 mA	
Control power with fan, during start	3...37 A	215 mA @ 120V AC / 180 mA @ 240V AC, 800 mA @ 24V DC / 660 mA @ 24V AC	
	43...85 A	200 mA @ 120V AC / 100 mA @ 240V AC, 700 mA @ 24V AC/DC	
Control power without fan, during start	3...37 A	205 mA @ 120V AC / 145 mA @ 240V AC, 705 mA @ 24V DC / 580 mA @ 24V AC	
Auxiliary Contacts			
		UL/cUL	IEC
Rated operational voltage		250V AC / 30V DC	250V~ / 30V DC
Rated insulation voltage		250V	250V~
Rated impulse voltage		—	4 kV
Dielectric withstand		1500V AC	2000V~
Overvoltage category		—	III ⓐ
Operating frequency		50/60 Hz	50/60 Hz
Utilization category		D300	AC15
TB-97, -98 (OVLd/Fault)	Type of control circuit	Electromagnetic relay	
	Number of contacts	1	
	Type of contacts	Normally Open (N.O.)	
	Kind of current	AC/DC	
	Rated operational current (max.)	0.6 A @ 120V~ and 0.3 A @ 240V~	
	Conventional thermal current $I_{th}$	1 A	
	Make VA/break VA	432/72	
TB-13, -14 (Normal/Up-to-Speed)	Type of control circuit	Electromagnetic relay	
	Number of contacts	1	
	Type of contacts	Normally Open (N.O.)	
	Kind of current	AC/DC	
	Rated operational current (max.)	0.6 A @ 120V~ and 0.3 A @ 240V~	
	Conventional thermal current $I_{th}$	1 A	
	Make VA/break VA	432/72	
Standard Features			
Start times		2, 5, 10, or 15 s	
Selectable soft start		15%, 25%, 35%, and 65% of locked rotor torque	
Selectable current limit		150%, 250%, 350%, and 450% of full load current	
Selectable soft stop		100%, 200%, or 300% of the start time setting when wired	
Weight — kg (lbs)	1...37 A	0.86 (1.9)	
	43...85 A	2.25 (5)	
Mechanical Design Specifications/Test Requirements			
Resistance to vibration	Operational	1.0 G peak, 0.152 mm (0.006 in.) displacement	
	Non-operational	2.5 G peak, 0.381 mm (0.015 in.) displacement	
Resistance to shock	Operational	15 G	
	Non-operational	30 G	

ⓐ Overvoltage category II, when either control or auxiliary circuit is wired to a SELV or PELV circuit.

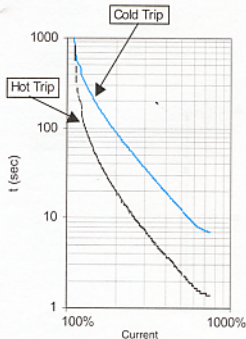
## Specifications, Continued

Environmental			
Operating temperature	0...50°C (32...122°F) (open) 0...40°C (32...104°F) (enclosed)		
Storage temperature	-25...85°C (-13...185°F)		
Altitude	2000 m (6560 ft)		
Humidity	5...95% (non-condensing)		
Pollution degree	2		
Type of Protection	IP2X		
Other			
	UL/cUL	IEC	
EMC emission levels	Conducted radio frequency emissions	—	Class A
	Radiated emissions	—	Class A
EMC immunity levels	Electrostatic discharge	4 kV contact and 8kV air discharge	
	Radio frequency electromagnetic field	—	Per IEC 60947-4-2
	Fast transient	—	Per IEC 60947-4-2
	Surge transient	—	Per IEC 60947-4-2

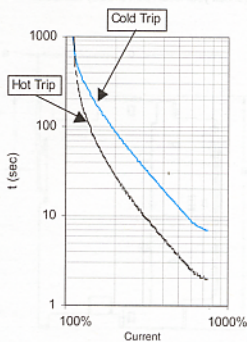


## SMC-3 Overload Relays

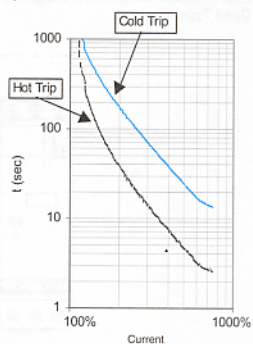
Trip Class 10



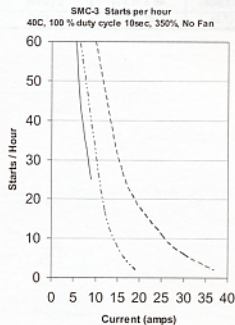
Trip Class 15



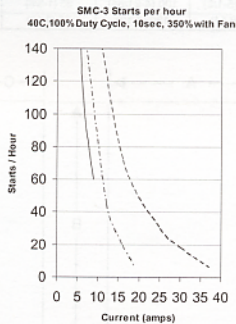
Trip Class 20



## Starts per Hour Curves



— 150-C3.C9  
 - - - 150-C16.C19  
 - · - 150-C25.C30.C37



— 150-C3.C9  
 - - - 150-C16.C19  
 - · - 150-C25.C30.C37