





**Bulletin 150 — SMC™ Flex Smart Motor Controller**

The SMC Flex controller provides microprocessor controlled starting for standard 3-phase squirrel-cage induction or Wye-Delta (6-lead) motors. Seven standard modes of operation are available within a single controller.

- 1...1250 A Range
- Seven Standard Start Modes
- Options Include Pump Control and Braking Control

**Features**

- Built in SCR Bypass/Run Contactor
- Built in Electronic Motor Overload Protection
- CT on each Phase
- Metering
- DPI Communication
- LCD Display
- Keypad Programming
- Four Programmable Auxiliary Contacts

The SMC Flex controller is available for motors rated 1...1250 A; 200...480V AC, 200...600V AC, or 230...690V AC, 50/60 Hz. In addition to motors, the SMC Flex controller can be used to control resistive loads.

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This catalog is based on the **minimum** information needed to select an SMC soft starter for applications with low starting torque requirements. For product selection involving loads with high starting torque requirements (large fan, rock crusher, chipper, etc.), use of the free tools available from the Rockwell Automation Website is recommended:

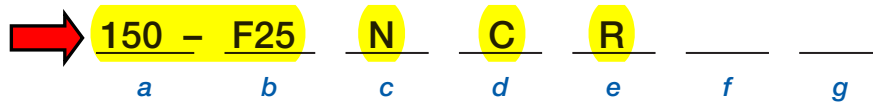
[http://www.ab.com/industrialcontrols/products/solid-state\\_motor\\_control/software/](http://www.ab.com/industrialcontrols/products/solid-state_motor_control/software/)

**Standards Compliance**

- UL 508
- CSA C22.2 No.14
- EN/IEC 60947-1
- EN/IEC 60947-4-2

**Certifications**

- cULus Listed (Open Type) (File No. E96956, Guides NMFT, NMFT7)
- CSA Certified (File No. LR 1234)
- CE Marked
- CCC Certified



Bulletin Number		Enclosure Type		Control Voltage	
Code	Description	Code	Description	Code	Description
150	Solid-State Controller	F	NEMA Type 4/12 (IP65) (Non-Combination Only)	R	24V AC/DC (5...480 A units) (Open Only)
150B	Enclosed Solid-State Controller with Isolation Contactor	J	NEMA Type 12 (IP54)	E	110/120V AC (625...1250 A units)
		N	Open	A	230/240V AC (625...1250 A units)

Controller Ratings		Input Line Voltage		Options (Select Only One)	
Code	Description	Code	Description	Code	Description
F5	5 A, 3 Hp @ 460V AC	B	200...460V AC, 3-phase, 50 and 60 Hz	Blank	Standard
F25	25 A, 15 Hp @ 460V AC	C	200...575V AC, 3-phase, 50 and 60 Hz	B	Pump Control
F43	43 A, 30 Hp @ 460V AC	Z	230...690V AC, 3-phase, 50 and 60 Hz (Open Only, 108 A and above)	D	Braking Control
F60	60 A, 40 Hp @ 460V AC	<b>Non-Combination Enclosed Only</b>		<b>Options (Non-Combination only) (see page 19 for a full listing)</b>	
F85	85 A, 60 Hp @ 460V AC	H	200...208V AC, 3-phase, 50 and 60 Hz	8L	Line-Mounted Protective Module (enclosed only)
F108	108 A, 75 Hp @ 460V AC	A	230V AC, 3-phase, 50 and 60 Hz	8M	Load-Mounted Protective Module (enclosed only)
F135	135 A, 100 Hp @ 460V AC	B	400...460V AC, 3-phase, 50 and 60 Hz	8B	Line- and Load-Mounted Protective Modules (enclosed only)
F201	201 A, 150 Hp @ 460V AC	C	500...575V AC, 3-phase, 50 and 60 Hz	Load-side MOVs are not available with Pump and Braking options, or on delta-connected motors. MOVs can be field installed for open type units.	
F251	251 A, 200 Hp @ 460V AC				
F317	317 A, 250 Hp @ 460V AC				
F361	361 A, 300 Hp @ 460V AC				
F480	480 A, 400 Hp @ 460V AC				
F625	625 A, 500 Hp @ 460V AC				
F780	780 A, 600 Hp @ 460V AC				
F970	970 A, 800 Hp @ 460V AC				
F1250	1250 A, 1000 Hp @ 460V AC				

Bulletin 150  
**SMC™ Flex Smart Motor Controllers**  
 Product Selection

**Open Type and Non-Combination Enclosed (IP65, Type 4/12) Controllers — For use with Line-Connected Motors, Continued**

Enclosures other than those listed are available; consult your local Rockwell Automation sales office or Allen-Bradley distributor.

Rated Voltage [V AC]	Motor Current [A]‡	Max. kW, 50 Hz	Max. Hp, 60 Hz	Control Power	Open Type — Line-Connected Motors ★	IP65 (Type 4/12) Enclosed Non-Combination Controllers ♦♦
					Cat. No.	Cat. No.
	1...5	2.2	3	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F5NCD 150-F5NCR	150-F5FCD —
	5...25	15	20	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F25NCD 150-F25NCR	150-F25FCD —
	8.6...43	22	40	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F43NCD 150-F43NCR	150-F43FCD —
	12...60	37	50	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F60NCD 150-F60NCR	150-F60FCD —
	17...85	55	75	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F85NCD 150-F85NCR	150-F85FCD —
	27...108	75	100	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F108NCD 150-F108NCR	150-F108FCD —
	34...135	90	125	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F135NCD 150-F135NCR	150-F135FCD —
	67...201	132	200	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F201NCD 150-F201NCR	150-F201FCD —
	84...251	160	250	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F251NCD 150-F251NCR	150-F251FCD —
	106...317	200	300	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F317NCD 150-F317NCR	150-F317FCD —
	120...361	250	350	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F361NCD 150-F361NCR	150-F361FCD —
	160...480	315	500	100...240V AC, 50/60 Hz 24V AC/DCΔ	150-F480NCD 150-F480NCR	150-F480FCD —
	208...625	450	600	110/120V AC, 50/60 Hz 230/240V AC, 50/60 Hz	150-F625NCE 150-F625NCA	150-F625JCE 150-F625JCA
	260...780	560	800	110/120V AC, 50/60 Hz 230/240V AC, 50/60 Hz	150-F780NCE 150-F780NCA	150-F780JCE 150-F780JCA
	323...970	710	1000	110/120V AC, 50/60 Hz 230/240V AC, 50/60 Hz	150-F970NCE 150-F970NCA	— —
	416...1250	900	1300	110/120V AC, 50/60 Hz 230/240V AC, 50/60 Hz	150-F1250NCE 150-F1250NCA	— —



500/575



Rated Voltage [V AC]	Motor Current [A]‡	Max. kW, 50 Hz	Max. Hp, 60 Hz	Control Power	Open Type — Line-Connected Motors ★
					Cat. No.
690/Y§	27...108	90	100	100...240V AC, 50/60 Hz	150-F108N2D
	34...135	132	175	100...240V AC, 50/60 Hz	150-F135N2D
	67...201	160	200	100...240V AC, 50/60 Hz	150-F201N2D
	84...251	200	250	100...240V AC, 50/60 Hz	150-F251N2D
	106...317	315	400	100...240V AC, 50/60 Hz	150-F317N2D
	120...361	355	450	100...240V AC, 50/60 Hz	150-F361N2D
	160...480	450	600	100...240V AC, 50/60 Hz	150-F480N2D
	208...625	630	800	110/120V AC, 50/60 Hz	150-F625NZE
				230/240V AC, 50/60 Hz	150-F625NZA
	260...780	800	1000	110/120V AC, 50/60 Hz	150-F780NZE
				230/240V AC, 50/60 Hz	150-F780NZA
	323...970	1000	1300	110/120V AC, 50/60 Hz	150-F970NZE
				230/240V AC, 50/60 Hz	150-F970NZA
	416...1250	1200	1600	110/120V AC, 50/60 Hz	150-F1250NZE
				230/240V AC, 50/60 Hz	150-F1250NZA

★ Controllers rated 108 A and greater are not equipped with line and load terminal lugs. See page 20 for terminal lug kits.

‡ Motor FLA rating should fall within specified current range for unit to operate properly. Special consideration should be given when using a motor with a potentially high starting current (greater than ten times motor FLA) with the SMC Flex in the "Full Voltage" starting mode. Contact Rockwell Automation technical support for further guidance.

♦ These controllers require a separate 100...240V, 50/60 Hz single-phase control source. To add a control circuit transformer to the enclosure, add the appropriate option code to the catalog string.

Δ Separate 120V or 240V single-phase power supply is required for fan operation.

♦ Line and load termination are provided as standard.

§ To be used only in a Y-type system.

▲ Available in IP54 (Type 12) enclosure only.