

OFFICIAL DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

41391-261-52

SMC-FLEX POWER POLE

Selected official SMC-Flex pages follow. Confirm the complete controller rating and series before applying the instructions.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Rockwell Automation SMC Flex User Manual, publication 150-UM008J-EN-P, April 2025.

About This Publication

This user manual provides you with the information that is required to program and operate your SMC™ Flex soft starter.

The SMC Flex controller is modular so that it can help simplify installation and commissioning. A built-in LCD display, keypad, and flexible communications provide optimized configuration, advanced performance, diagnostics, and protection. Three-phase control, electronic overload, and integrated bypass along with removable control module, power modules, and fan assembly are combined in a cost-effective package for your demanding applications.

The user manual assumes that the installer is a qualified person with previous experience and basic understanding of electrical terminology, configuration procedures, required equipment, and safety precautions.

For safety of maintenance personnel and others who might be exposed to electrical hazards associated with maintenance activities, follow all local safety-related work practices (such as NFPA 70E, Part II in the United States). Maintenance personnel must be trained in the safety practices, procedures, and requirements that pertain to their respective job assignments.

Terminology

Throughout this publication, we also refer to the SMC Flex soft starter as the SMC Flex controller. These terms are interchangeable.

View Parameters

Parameter definitions are listed in Excel® spreadsheets in KnowledgeBase. The spreadsheets let you filter and sort parameters, and add your own setting values and notes. Table 1 summarizes the information that is in the spreadsheet.



This manual links to SMC Flex Soft Starter Parameters, publication [150-RD001](#); download the spreadsheet now for offline access.

Table 1 - SMC Flex Parameter Categories

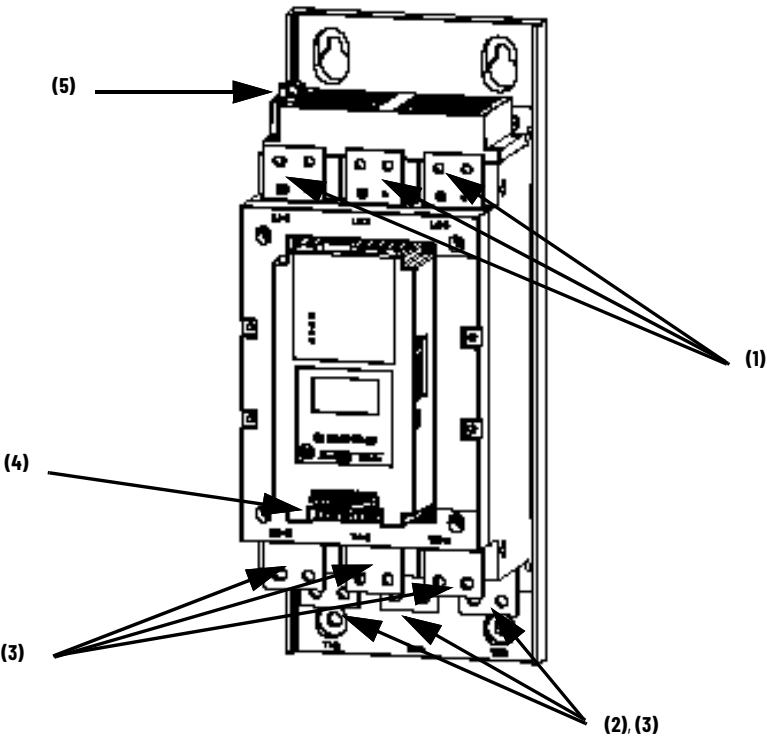
Parameter Group	Description
Full Parameter List	Full list of all SMC Flex Controller Parameters
Logic Mask Requirements	Lists the Logic Mask Codes and Binary equivalents
Parameter Special Behavior	Describes codes that can appear under specific conditions and parameter configurations

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

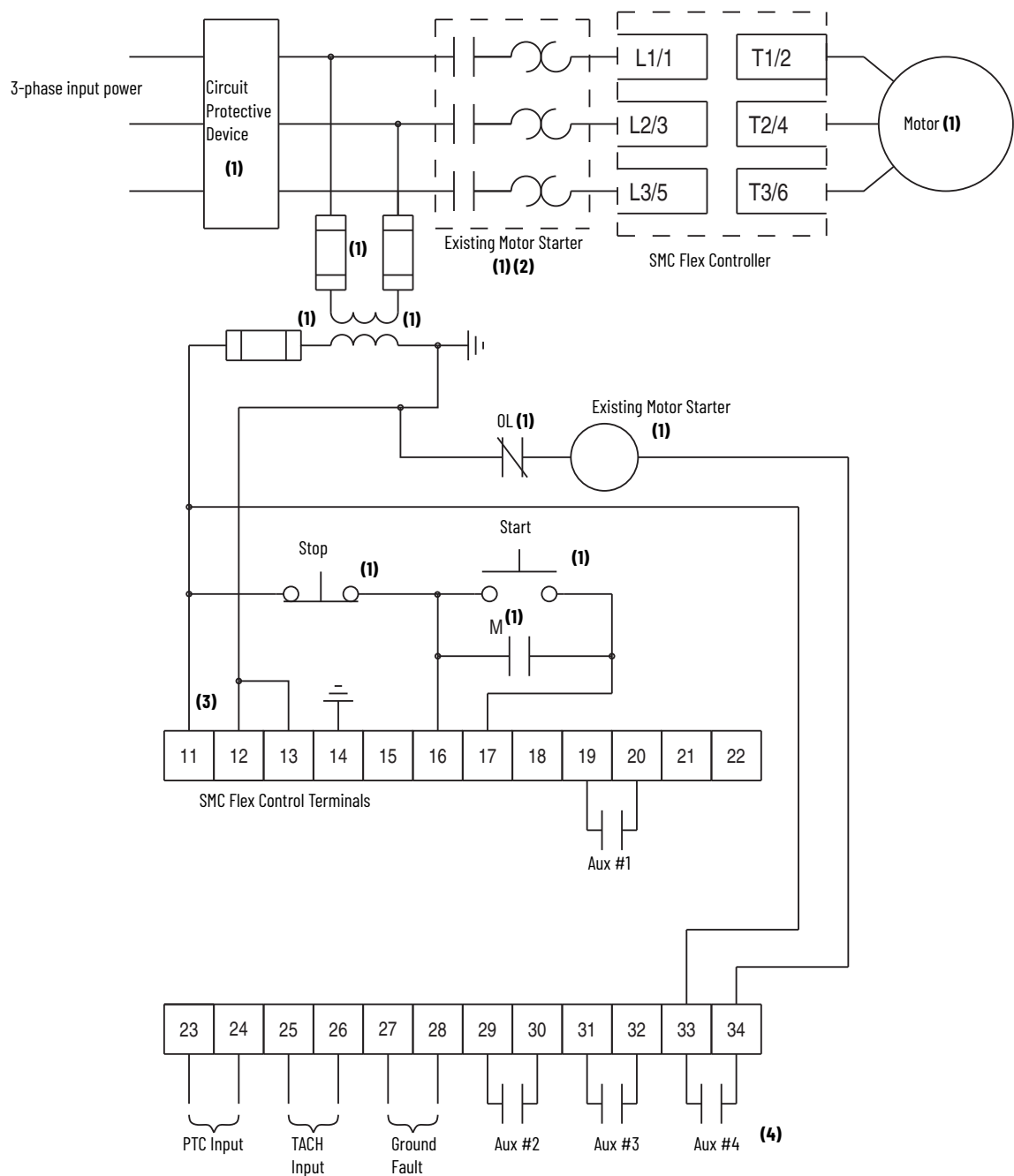
Topic	Page
Parameters spreadsheet renamed to 150-RD001	-
Updated SMC Flex Controller Line Connection Lug Information—5...1250 A Devices	39
Updated Communication Card Selection by Protocol Type	91
Updated Logic Mask (Parameter 87) Requirements	94
Updated Fault Definitions	101
Added Check Line Load guidance	107
Updated Other Renewal Parts information	110

Figure 32 - Wiring Terminal Locations—108...480 A Devices



Note Number	Information
1	Incoming Line Termination
2	Line Motor Connections
3	Delta Motor Connections
4	Control Terminations
5	Fan Terminations

Figure 45 - Typical Wiring Diagram for Retrofit Applications



Note Number	Information
1	Customer supplied
2	Overload protection should be disabled in the SMC Flex controller.
3	See the controller nameplate to verify the rating of the control power input voltage. For units rated 625...1250 A, terminals 11 and 12 are factory pre-wired from terminal block CP1 - terminals 1 and 4.
4	Aux #4 should be set for normal operation

Fault Buffer

The SMC Flex controller stores in memory the five most recent faults. Display the fault buffer by selecting the View Faults Queue and scrolling through the fault buffer parameters. The information is stored as fault codes and fault descriptions.

The five most recent faults are also stored as the values of Fault 1 (Parameter 124) through Fault 5 (Parameter 128). Fault 1 is the current fault and Fault 5 is the oldest fault in memory.

Fault Codes

[Table 42](#) provides a complete cross-reference of the available fault codes and corresponding fault descriptions.

Table 42 - Fault Code Cross-reference

Fault	Code	Fault	Code
Line Loss A	1	Stall	25
Line Loss B	2	Phase Reversal	26
Line Loss C	3	Coms Loss P2	27
Shorted SCR A	4	Coms Loss P3	28
Shorted SCR B	5	Coms Loss P5	29
Shorted SCR C	6	Network P2	30
Open Gate A	7	Network P3	31
Open Gate B	8	Network P5	32
Open Gate C	9	Ground Fault	33
PTC Pwr Pole	10	Excess Starts	34
SCR Overtemp	11	Power Loss A	35
Motor PTC	12	Power Loss B	36
Open Bypass A	13	Power Loss C	37
Open Bypass B	14	Hall ID	38
Open Bypass C	15	NVS Error	39
No Load A	16	No Load	40
No Load B	17	Line Loss A	41 ⁽¹⁾
No Load C	18	Line Loss B	42 ⁽¹⁾
Line Unbalance	19	Line Loss C	43 ⁽¹⁾
Overvoltage	20	V24 Loss	45
Undervoltage	21	V Control Loss	46
Overload	22	Input 1	48
Underload	23	Input 2	49
Jam	24	System Faults	128...209

(1) See [Table 43](#) for definition.

Renewal Parts

This appendix provides a list of renewal part catalog numbers for the SMC Flex™ controller.

Table 50 - Control Modules

Description		Controller Rating	Part No. ⁽¹⁾		
			For units rated 200...600V AC		For units rated 690V AC
			100...240V AC	24V AC/DC	100...240V AC
Control Modules	Standard	All	41391-454-01-S1FX	41391-454-02-S2FX	41391-454-05-S1FZ
	Pump	All	41391-454-01-B1FX	41391-454-02-B2FX	41391-454-05-B1FZ
	Braking	5...85 A	41391-454-01-D1AX	41391-454-02-D2AX	—
		108...251 A	41391-454-01-D1BX	41391-454-02-D2BX	41391-454-05-D1BZ
		317...480 A	41391-454-01-D1CX	41391-454-02-D2CX	41391-454-05-D1CZ
		625...780 A	41391-454-01-D1DX	—	41391-454-05-D1DZ
		970...1250 A	41391-454-01-D1EX	—	41391-454-05-D1EZ

(1) One piece provided per part number.

Table 51 - Power Poles

Description	Controller Rating	Series	Part No. ⁽¹⁾		
			Line Voltage		
			200...480V	200...600V	230...690V
Power Pole Cat. No. includes: • SCRs • Bypass contactor • Base housing and plate	5 A	B	150-FPP5B ⁽²⁾	150-FPP5C ⁽²⁾	—
	25 A	B	150-FPP25B ⁽²⁾	150-FPP25C ⁽²⁾	—
	43 A	B	150-FPP43B ⁽²⁾	150-FPP43C ⁽²⁾	—
	60 A	B	150-FPP60B ⁽²⁾	150-FPP60C ⁽²⁾	—
	85 A	B	150-FPP85B ⁽²⁾	150-FPP85C ⁽²⁾	—
	108 A	B	150-FPP108B ⁽²⁾	150-FPP108C ⁽²⁾	150-FPP108Z ⁽²⁾
	135 A	B	150-FPP135B ⁽²⁾	150-FPP135C ⁽²⁾	150-FPP135Z ⁽²⁾
Power Pole Cat. No. includes: • SCRs • Bypass contactor	201 A	B	150-FPP201B ⁽³⁾	150-FPP201C ⁽³⁾	150-FPP201Z ⁽³⁾
	251 A	B	150-FPP251B ⁽³⁾	150-FPP251C ⁽³⁾	150-FPP251Z ⁽³⁾
	317 A	B	150-FPP317B ⁽³⁾	150-FPP317C ⁽³⁾	150-FPP317Z ⁽³⁾
	361 A	B	150-FPP361B ⁽³⁾	150-FPP361C ⁽³⁾	150-FPP361Z ⁽³⁾
	480 A	B	150-FPP480B ⁽³⁾	150-FPP480C ⁽³⁾	150-FPP480Z ⁽³⁾
Power Pole Cat. No. includes: • SCRs	625 A	B	150-FPP625B ⁽³⁾	150-FPP625C ⁽³⁾	150-FPP625Z ⁽³⁾
	780 A	B	150-FPP780B ⁽³⁾	150-FPP780C ⁽³⁾	150-FPP780Z ⁽³⁾
	970 A	B	150-FPP970B ⁽³⁾	150-FPP970C ⁽³⁾	150-FPP970Z ⁽³⁾
	1250 A	B	150-FPP1250B ⁽³⁾	150-FPP1250C ⁽³⁾	150-FPP1250Z ⁽³⁾

(1) One piece provided per part number.

(2) Three-phase power pole structure provided.

(3) One-phase power pole provided.

Renewal Parts Cross Reference

This appendix provides a cross reference from the originally ordered Cat. No., the label on the internal control module, and the orderable Cat. No. of the replacement part.

Table 53 - Control Modules

Controller Type	Controller Rating	Line Voltage	Control Input Voltage	Orderable Renewal Part No.	Control Module Cat. No. on the Label ⁽¹⁾
Standard	All	200...600V	100...240V	41391-454-01-S1FX	150-FS1FX
			24V AC/DC	41391-454-02-S2FX	150-FS2FX
		690V	110/120V	41391-454-05-S1FZ	150-FS1FZ
			230/240V		
Pump	All	200...600V	100...240V	41391-454-01-B1FX	150-FB1FX
			24V AC/DC	41391-454-02-B2FX	150-FB2FX
		690V	110/120V	41391-454-05-B1FZ	150-FB1FZ
			230/240V		
Braking	5...85 A	200...600V	100...240V	41391-454-01-D1AX	150-FD1AX
			24V AC/DC	41391-454-02-D2AX	150-FD2AX
	108...251 A	200...600V	100...240V	41391-454-01-D1BX	150-FD1BX
			24V AC/DC	41391-454-02-D2BX	150-FD2BX
		690V	110/120V	41391-454-05-D1BZ	150-FD1BZ
			230/240V		
	317...480 A	200...600V	100...240V	41391-454-01-D1CX	150-FD1CX
			24V AC/DC	41391-454-02-D2CX	150-FD2CX
		690V	110/120V	41391-454-05-D1CZ	150-FD1CZ
			230/240V		
	625...780 A	200...600V	110/120V	41391-454-01-D1DX	150-FD1DX
			230/240V		
		690V	110/120V	41391-454-05-D1DZ	150-FD1DZ
			230/240V		
	970...1250 A	200...600V	110/120V	41391-454-01-D1EX	150-FD1EX
			230/240V		
		690V	110/120V	41391-454-05-D1EZ	150-FD1EZ
			230/240V		

(1) These are not orderable catalog numbers. They appear on the product label of the orderable part. If you need to order a control module see [Appendix A](#).

Table 54 - Standard Control Power Poles

Control Voltage	Line Voltage	Rated Current [A]	Originally Ordered Allen-Bradley Cat. No.	Series	Internal Control Module Label ⁽¹⁾	Orderable Power Pole Cat. No.
100...240V	200...480V AC	5	150-F5NBD	B	150-FS1FX	150-FPP5B
		25	150-F25NBD	B	150-FS1FX	150-FPP25B
		43	150-F43NBD	B	150-FS1FX	150-FPP43B
		60	150-F60NBD	B	150-FS1FX	150-FPP60B
		85	150-F85NBD	B	150-FS1FX	150-FPP85B
		108	150-F108NBD	B	150-FS1FX	150-FPP108B
		135	150-F135NBD	B	150-FS1FX	150-FPP135B
	200...600V AC	5	150-F5NCD	B	150-FS1FX	150-FPP5C
		25	150-F25NCD	B	150-FS1FX	150-FPP25C
		43	150-F43NCD	B	150-FS1FX	150-FPP43C
		60	150-F60NCD	B	150-FS1FX	150-FPP60C
		85	150-F85NCD	B	150-FS1FX	150-FPP85C
		108	150-F108NCD	B	150-FS1FX	150-FPP108C
		135	150-F135NCD	B	150-FS1FX	150-FPP135C
	230...690V AC	108	150-F108NZD	B	150-FS1FZ	150-FPP108Z
		135	150-F135NZD	B	150-FS1FZ	150-FPP135Z
24V AC/DC	200...480V AC	5	150-F5NBR	B	150-FS2FX	150-FPP5B
		25	150-F25NBR	B	150-FS2FX	150-FPP25B
		43	150-F43NBR	B	150-FS2FX	150-FPP43B
		60	150-F60NBR	B	150-FS2FX	150-FPP60B
		85	150-F85NBR	B	150-FS2FX	150-FPP85B
		108	150-F108NBR	B	150-FS2FX	150-FPP108B
		135	150-F135NBR	B	150-FS2FX	150-FPP135B
	200...600V AC	5	150-F5NCR	B	150-FS2FX	150-FPP5C
		25	150-F25NCR	B	150-FS2FX	150-FPP25C
		43	150-F43NCR	B	150-FS2FX	150-FPP43C
		60	150-F60NCR	B	150-FS2FX	150-FPP60C
		85	150-F85NCR	B	150-FS2FX	150-FPP85C
		108	150-F108NCR	B	150-FS2FX	150-FPP108C
		135	150-F135NCR	B	150-FS2FX	150-FPP135C

(1) These are not orderable catalog numbers. They appear on the product label of the orderable part. If you need to order a control module see [Appendix A](#).