

# Low and Medium Voltage Industrial Soft Starters

Minimise costs, starting requirements and wear and tear on equipment

MOTOR CONTROL AND DRIVES



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With 50 years of electrical and engineering industry excellence and over 45 locations across Australia and New Zealand, at NHP it is our local people and footprint that helps us understand your specific project needs, no matter how big or small.

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When it comes to finding a local partner with a global network for your next project, choosing NHP will unlock a world of expertise, knowledge and experience across electrical and automation products, systems and solutions.

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**THE POWER OF LOCAL**

In your local community, city and industry, we understand your specific project needs.



**THE POWER OF CHOICE**

Choice in product, technology, service, and support enabling you to customise and push boundaries.



**THE POWER OF GLOBAL PARTNERS**

With a global network of suppliers, we bring the world's best products and knowledge to your doorstep.

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# Low Voltage Soft Starters

## Simple selection guide

The Allen-Bradley range of soft starters are designed to help minimise cost by reducing overall system power requirements and wear and tear on equipment. Our soft starters can be easily integrated into your motor control solution to offer higher productivity and shorter downtimes. They are an ideal alternative to a drive where a more cost-effective, simple solution is required for fixed speed applications.



Features	SMC-3	SMC-Flex	SMC-50	
			Continuous Operation	with Internal Bypass
	200...690 V AC 1...480 A	200...690 V AC 1...1250 A	200...690 V AC 90...520 A	200...690 V AC 108...480 A
Soft Start	✓	✓	✓	✓
Linear Acceleration / Deceleration	-	✓	✓	✓
Torque Control	-	-	✓	✓
Kickstart	✓	✓	✓	✓
Pump Control	-	Optional	✓	✓
Current Limit	✓	✓	✓	✓
Dual Ramp Start	-	✓	✓	✓
Full Voltage	-	✓	✓	✓
Soft Stop	✓	✓	✓	✓
Preset Slow Speed	-	✓ <sup>1)</sup>	✓ <sup>2)</sup>	✓ <sup>2)</sup>
Dual Slow Speed Commands	-	-	✓	✓
SMB™ Smart Motor Braking	-	Optional	✓	✓
Accu-Stop™	-	Optional	✓ <sup>3)</sup>	✓ <sup>3)</sup>
Slow Speed with Braking	-	Optional	✓	✓
Integrated Bypass Contactor	✓	✓	- <sup>4)</sup>	✓
Integrated Motor Overload Protection	✓	✓	✓	✓
Network Communications	-	Optional	Optional	Optional
Metering	-	✓	✓	✓
Real Time Clock	-	-	✓	✓
Diagnostic Faults and Alarms	-	✓	✓	✓
Automatic Tuning of Motor Parameters	-	-	✓	✓
Digital I/O Expansion Module	-	-	Optional	Optional
Analogue I/O Expansion Module	-	-	Optional	Optional
Ground Fault/CT/PTC Module	-	-	Optional	Optional
DeviceLogix™	-	-	✓	✓
Applications	Normal duty	Normal, Heavy and Severe duty	Normal, Heavy and Severe duty	Normal, Heavy and Severe duty
Product Selection	Page 6	Page 9	Refer NHP	Page 12

<sup>1)</sup> Limited slow speed capability

<sup>2)</sup> Advanced slow speed capability

<sup>3)</sup> Accu-Stop is not included as a parameter/function for the SMC-50. However, the Accu-Stop function can be accomplished with the Stop Option and Slow Speed with Braking functions

<sup>4)</sup> You can add an external bypass contactor as an option

## Low Voltage Soft Starters

### Typical application duty ratings

#### Product Selection

Soft starter ratings are strongly influenced by the starting time and starting current characteristics of the driven machine. The following table, when used in conjunction with the ratings tables provided, ensures accurate soft starter selection.

Note: the below table is intended as a guide only. Individual machine and motor characteristics will determine the actual start current and start time requirements. For technical assistance with soft starter selection, consult NHP.

Application	Duty	Application	Duty
Agitator	Heavy	Fan – High pressure	Severe
Atomiser	Heavy	Grinder	Normal
Bottle washer	Normal	Hydraulic power pack	Normal
Centrifuge	Severe	Mill	Severe
Chipper	Severe	Mill – Ball	Severe
Compressor – Recip (Loaded)	Severe	Mill – Hammer	Severe
Compressor – Recip (Unloaded)	Heavy	Mill – Roller	Severe
Compressor – Screw (Loaded)	Heavy	Mixer	Severe
Compressor – Screw (Unloaded)	Normal	Palletiser	Severe
Conveyor – Belt	Severe	Planer	Normal
Conveyor – Roller	Normal	Press	Normal
Conveyor – Screw	Heavy	Pump – Bore	Normal
Crusher – Cone	Normal	Pump – Centrifugal	Normal
Crusher – Jaw	Severe	Pump – Positive displacement	Heavy
Crusher – Rotary	Normal	Pump – Slurry	Severe
Crusher – Vertical impact	Normal	Re-pulper	Severe
Debarker	Normal	Rotary table	Heavy
Dryer	Severe	Sander	Heavy
Dust collector	Normal	Saw – Bandsaw	Severe
Edger	Normal	Saw – Circular	Normal
Fan – Axial (Damped)	Normal	Separator	Severe
Fan – Axial (Un-damped)	Severe	Shredder	Severe
Fan – Centrifugal (Damped)	Normal	Slicer	Normal
Fan – Centrifugal (Un-damped)	Severe	Tumbler	Heavy

#### Duty Category Definition

Normal duty rating - 350% FLC, 10 second start

Heavy duty rating - 400% FLC, 20 second start

Severe duty rating - 450% FLC, 30 second start



## SMC-3 Soft Starters

Compact design provides true three-phase control, increased intelligence and unmatched performance. Motor and system diagnostics and an electronic overload with adjustable trip class reduce downtime and protect valuable assets.

- Compact footprint
- Easy and secure setup
- Integrated bypass
- Five start/stop modes

### Integral Bypass

The bypass automatically closes when the motor reaches its nominal speed, minimising heat generation.

- Reduced enclosure size
- Reduced total cost

### Hold to Test/Push to Reset Button

Used to quickly test for fault conditions or reset the unit.

- Reduces downtime
- Assists during setup

### LED Display

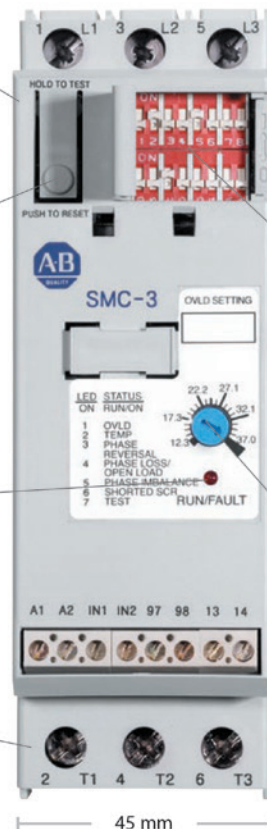
Status information provided including RUN, Fault type and OFF.

- Instant status display
- Assists during troubleshooting

### Ultra-Compact Size

1 to 37 A units are only 45 mm wide.

- Reduced panel space
- Higher-density installations



### Build a Modular Control System (MCS)

- With widths of 45, 72, or 200 mm, the SMCs fit perfectly within the MCS product line
- The MCS system allows you to build more starters in less panel space, providing enhanced performance in a minimal area

### Easy and Secure Setup

DIP switches allow setting of the START/STOP profile, built-in overload, connection type, trip class and auxiliary contact characteristics.

- Process optimisation
- Setup efficiency

### Simplified Motor FLA Setup

Rotary switch allows quick and easy setup of motor FLA.

- Setup efficiency
- Protects motor assets

## Product Selection

### SMC-3 Soft Starters

#### 3 wire motor connection, 200 to 480V AC Three-Phase Supply

Normal duty 3.5x FLC, 15 sec	Dimensions (mm)			Catalogue. No. <sup>1)</sup>	
	W	H	D	100...240V AC control	24V AC/DC control
3 A	45	139.7	112	<b>150-C3NBD</b>	<b>150-C3NBR</b>
9 A	45	139.7	112	<b>150-C9NBD</b>	<b>150-C9NBR</b>
16 A	45	139.7	112	<b>150-C16NBD</b>	<b>150-C16NBR</b>
19 A <sup>2)</sup>	45	139.7	112	<b>150-C19NBD</b>	<b>150-C19NBR</b>
25 A	45	139.7	112	<b>150-C25NBD</b>	<b>150-C25NBR</b>
30 A	45	139.7	112	<b>150-C30NBD</b>	<b>150-C30NBR</b>
37 A <sup>2)</sup>	45	139.7	112	<b>150-C37NBD</b>	<b>150-C37NBR</b>
43 A	72	206	132	<b>150-C43NBD</b>	<b>150-C43NBR</b>
60 A	72	206	132	<b>150-C60NBD</b>	<b>150-C60NBR</b>
85 A	72	206	132	<b>150-C85NBD</b>	<b>150-C85NBR</b>
108 A	196.4	443.7	205.2	<b>150-C108NBD</b>	<b>150-C108NBR</b>
135 A	196.4	443.7	205.2	<b>150-C135NBD</b>	<b>150-C135NBR</b>

For larger SMC-3 models, 600V AC supply or ratings for 6 wire motor connection, consult NHP

<sup>1)</sup> Current ratings at 40°C ambient. Models 150-C3 to 150-C37 rated at 6 starts/hour. Models 150-C43 to 150-C135 rated at 10 starts/hour

<sup>2)</sup> When used with optional fan Cat. No. 150-CF64

## SMC-3 Accessories

### Auxiliary Contact Blocks

Description	N/O	N/C	Connection Diagram				Catalogue No.
Side mount with sequence terminal designations 1- and 2-pole	1	0					<b>150-CA10</b>
	2	0					<b>150-CA20</b>
Quick and easy mounting without tools One block per device only	0	1					<b>150-CA01</b>
	1	1					<b>150-CA11</b>

### Protective Modules

	Description	For Use With	Pkg. Qty.	Catalogue No.
	480 V Protective Module	150-C3...37NB (line only)	1	<b>150-C84</b>
		150-C43...85NB (line and/or load)	1	<b>150-C84P</b>
		150-C108...480NB (line and/or load)	1	<b>150-F84L</b>

### Connecting Modules to 140-M Motor Protection Circuit Breakers / 100-C Contactors

	Description	For Use With	Catalogue No.
	Electrical interconnection between SMC-3 and 140-M. Motor protector and SMC-3 must be mounted separately	Connects 140-M-C to 150-C3...25	<b>150-CC25</b>
		Connects 140-M-D to 150-C3...25	<b>150-CD25</b>
		Connects 140-M-F to 150-C3...37	<b>150-CF45</b>
	Electrical interconnection between SMC-3 and 100-C. Contactor and SMC-3 must be mounted separately	Connects 100-C09...23 to 150-C3...19	<b>150-CI23</b>
		Connects 100-C30...37 to 150-C3...37	<b>150-CI37</b>

### Replacement Fan

	Description	For Use With	Catalogue No.
	Field installable fan	150-C3...37	<b>150-CF64</b>
	Field installable replacement fan	150-C43...85	<b>150-CF147</b>
		150-C108...135	<b>41391-801-03</b>

### Terminal Covers

	Description	For Use With	Pkg. Qty.	Catalogue No.
	Line or load terminal covers	150-C108...135	1	<b>150-TC1</b>

### Remote Reset

	Description	Voltage	Cat. No.	Voltage	Catalogue No.
	Remote reset solenoid (top mount). Suits 150-C3...480	24V AC	193-ER1J	24V DC	<b>193-ER1Z24</b>
		110V AC	193-ER1D	48V DC	<b>193-ER1Z48</b>
		240V AC	193-ER1A	110V DC	<b>193-ER1Z01</b>





## SMC-Flex Soft Starters

Modular design features advanced intelligence, performance, and diagnostics, communications flexibility, removable control module, power modules, and fan assembly in a cost-effective package for your demanding production applications.

- Modular for simplified installation and maintenance
- Built-in LCD and keypad or personal computer (PC) software setup
- Integrated bypass
- Nine start/stop modes and three slow-speed modes
- Full metering and diagnostics

### Integral Bypass

The bypass automatically closes when the motor reaches its nominal speed, minimising heat generation.

- Reduced enclosure size
- Reduced total cost

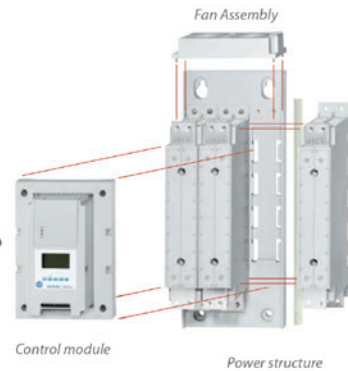
### Feed-through Wiring

### Power Pole

### Communications

Optional communication modules allow the SMC Flex to be connected to multiple networks.

- Common DPI modules reduce inventory
- EtherNet/IP™, DeviceNet™, ControlNet™ and other networks available



### Ease of Maintenance

Product Modularity

- Modular power structure
- Removable control module
- Changeable fan assembly

### Advanced Monitoring and Diagnostics

Built-in current and voltage protection provide enhanced power monitoring and diagnostic capabilities.

- No additional monitoring equipment required
- PTC input
- Ground fault detection

### Simplified Application Setup

Built-in multilingual, backlit LCD display for programming and monitoring.

- Setup efficiency
- Process optimisation

## Product Selection

### SMC-Flex Soft Starters

#### 3 wire motor connection, 200 to 415V AC Three-Phase Supply

Normal duty 3.5x FLC, 15 sec	Heavy duty 4x FLC, 20 sec	Severe duty 4.5x FLC, 30 sec	Dimensions (mm)			Catalogue No. <sup>1)</sup>	
			W	H	D	100...240V AC control	24V AC/DC control <sup>2)</sup>
5A	5A	5A	150.0	321.0	203.0	<b>150-F5NBD</b>	<b>150-F5NBR</b>
25A	25A	25A	150.0	321.0	203.0	<b>150-F25NBD</b>	<b>150-F25NBR</b>
43A	43A	43A	150.0	321.0	203.0	<b>150-F43NBD</b>	<b>150-F43NBR</b>
60A	60A	57A	150.0	321.0	203.0	<b>150-F60NBD</b>	<b>150-F60NBR</b>
85A	81A	67A	150.0	321.0	203.0	<b>150-F85NBD</b>	<b>150-F85NBR</b>
108A	108A	91A	196.4	443.7	212.2	<b>150-F108NBD</b>	<b>150-F108NBR</b>
135A	108A	91A	196.4	443.7	212.2	<b>150-F135NBD</b>	<b>150-F135NBR</b>
201A	201A	177A	225.0	560.0	253.8	<b>150-F201NBD</b>	<b>150-F201NBR</b>
251A	208A	177A	225.0	560.0	253.8	<b>150-F251NBD</b>	<b>150-F251NBR</b>
317A	293A	246A	290.0	600.0	276.5	<b>150-F317NBD</b>	<b>150-F317NBR</b>
361A	293A	246A	290.0	600.0	276.5	<b>150-F361NBD</b>	<b>150-F361NBR</b>
480A	408A	345A	290.0	600.0	276.5	<b>150-F480NBD</b>	<b>150-F480NBR</b>

Normal duty 3.5x FLC, 15 sec	Heavy duty 4x FLC, 20 sec	Severe duty 4.5x FLC, 30 sec	Dimensions (mm)			Catalogue No. <sup>1)</sup>	
			W	H	D	230...240V AC control	110...120V AC control
625A	625A	598A	596.9	1041.1	346.2	<b>150-F625NBA</b>	<b>150-F625NBE</b>
780A	696A	598A	596.9	1041.1	346.2	<b>150-F780NBA</b>	<b>150-F780NBE</b>
970A	816A	696A	596.9	1041.1	346.2	<b>150-F970NBA</b>	<b>150-F970NBE</b>
1250A	988A	789A	596.9	1041.1	346.2	<b>150-F1250NBA</b>	<b>150-F1250NBE</b>

For 690V AC supply or ratings for 6 wire motor connection, consult NHP.

#### Control Options

Option	Description	Field Modification
Pump Control	Provides smooth motor acceleration and deceleration, reducing surges caused by the starting and stopping of centrifugal pumps. Starting time is adjustable from 0...30 seconds, and stopping time is adjustable from 0...120 seconds.	B <sup>3)</sup>
Braking Control	Provides Smart Motor Braking (SMB), Accu-Stop, and slow speed with braking	D <sup>3)</sup>


<sup>1)</sup> Current ratings at 40°C ambient. Normal duty rated at 10 starts/hour, heavy duty rated at 6 starts/hour, severe duty rated at 4 starts/hour

<sup>2)</sup> Separate 120V or 240V single-phase power supply is required for fan operation.

<sup>3)</sup> Add the designated letter to the end of the Cat. No. For example, to add the pump control option: Cat. No. 150-F361NBD becomes 150-F361NBD B.

## SMC-Flex Accessories

### Human Interface Modules (HIMs)

	Description	For Use With	Catalogue No.
	Hand-held HIM <sup>1)</sup>	Enhanced LCD Display, Full Numeric Keypad	<b>20-HIM-A6</b>
	Hand-held HIM <sup>1)</sup>	Standard LCD Display, Full Numeric Keypad	<b>20-HIM-A3</b>
	Door-mounted HIM <sup>2)</sup>	Remote (panel mount) Enhanced Full Numeric Keypad (Version of Cat. No. 20-HIM-A6)	<b>20-HIM-C6S</b>
	Door-mounted HIM <sup>2)</sup>	Remote (panel mount) LCD Display, Full Numeric Keypad (version of Cat. No. 20-HIM-A3)	<b>20-HIM-C3S</b>
	HIM interface cable <sup>3)</sup>	HIM interface cables Cable, 1m	<b>20-HIM-H10</b>
	Extension cables <sup>4)</sup>	Cable Kit (Male-Female), 0.33m	<b>1202-H03</b>
Cable Kit (Male-Female), 1m		<b>1202-H10</b>	
Cable Kit (Male-Female), 3m		<b>1202-H30</b>	
Cable Kit (Male-Female), 9m		<b>1202-H90</b>	


### Communication Modules

	Network	Catalogue No.
	Dual-port Ethernet/IP	<b>20-COMM-ER</b>
	Ethernet/IP	<b>20-COMM-E</b>
	DeviceNet	<b>20-COMM-D</b>

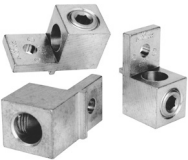
### Connected Components Workbench Software

Description	Catalogue No.
Connected Components Workbench (CCW) software offers device configuration and helps minimise your initial machine development with free software download <sup>5)</sup> .	Available for free download at: <b>www.rockwellautomation.com</b>


### Protective Modules

	Description	For Use With	Pkg. Qty.	Catalogue No.
	480V Protective Module	150-F5...85	1	<b>150-F84</b>
		150-F108...1250	1	<b>150-F84L</b>

### Terminal Lug Kits

	For Use With <sup>6) 7)</sup>	Wire Size	Total No. of SMC-Flex Terminal Lugs		Pkg. Qty.	Catalogue No.
			Per Line Side	Per Load Side		
	150-F108...135	16...120 mm <sup>2</sup>	3	3	3	<b>199-LF1</b>
150-F201...251	16...120 mm <sup>2</sup>	6	6	<b>199-LG1</b>		
150-F317...480	25...240 mm <sup>2</sup>	6	6			

### Terminal Covers

	Description	For Use With <sup>8)</sup>	Pkg. Qty.	Catalogue No.
	Line or load terminal covers	150-F108...135	1	<b>150-TC1</b>
		150-F201...251	1	<b>150-TC2</b>
150-F317...480		1	<b>150-TC3</b>	

<sup>1)</sup> HIM only. Requires a Cat. No. 20-HIM-H10 cable to connect to the SMC-Flex.

<sup>2)</sup> IP66 for indoor use only. Includes a Cat. No. 1202-C30 interface cable (3 metres) for connection to SMC-Flex.

<sup>3)</sup> Required only when HIM is used as handheld or remote (male-male cable). <sup>4)</sup> Required in addition to Cat. No. 20-HIM-H10 for distances up to a total maximum of 10 metres.

<sup>5)</sup> Compatible with Windows 7 / 2000 / XP / Vista / Windows 10 operating systems. <sup>6)</sup> 150-F5...85 devices have box lugs as standard. No additional lugs are required. <sup>7)</sup> When a multi-conductor lug is required, see the SMC-Flex user manual for recommended lugs. <sup>8)</sup> 150-F5...85 devices have terminal guards as standard. No additional terminal guards required.



## SMC-50 Soft Starters

Designed for customer flexibility – advanced monitoring, protection and superior communications capabilities help increase efficiency and reduce downtime.

- Application scalability
  - Expandable I/O and sensor capability
  - Network integration capabilities
- LCD or personal computer (PC) software setup
- Integrated bypass or solid-state power structures available
- External bypass optional
- Seventeen start/stop modes and three slow-speed modes
- DeviceLogix PLC logic functionality in-built

### Choice of Power Platform

Choose a power platform to suit your application.

- Internal bypass
- Solid-state (continuous operation)

### LED Display

Multi-colored LED provides both diagnostics and controller status information.

- Instant status display
- Assists during troubleshooting

### Hardware Expansion Ports

Three hardware expansion ports accept optional digital and analog I/O expansion modules as well as a protection module (PTC, Ground Fault, Current Feedback).

- Process scalability and optimisation
- Application flexibility (simple to complex)

### Simplified, Scalable Application Setup

Optional Parameter Configuration Module, Human Interface Module or PC-based software for programming and monitoring simplifies setup.

- Setup efficiency
- Process optimisation

### Hold to Test/Push to Reset Button

Used to quickly test for fault conditions or reset the unit.

- Reduces downtime
- Assist during setup

### Communications

Optional communication modules allow the SMC-50 to be connected to multiple networks.

- Common DPI modules reduce inventory
- EtherNet/IP, DeviceNet, ControlNet and other networks available

### Common Control Module

All features/functions are included in standard control module including linear acceleration/deceleration, torque control, Pump control and Smart Motor Braking (SMB).

- Reduced inventory
- Increased efficiency

## Product Selection

### SMC-50 Soft Starters (with Internal Bypass)

#### 3 wire motor connection, 200 to 415V AC Three-Phase Supply

Normal duty	Heavy duty	Severe duty	Dimensions (mm)			Catalogue No. <sup>1)</sup>	
			W	H	D	100...240V AC control	24V DC control <sup>2)</sup>
108A	108A	91A	196.6	443.7	217.3	<b>150-S108NBD</b>	<b>150-S108NBR</b>
135A	108A	91A	196.6	443.7	217.3	<b>150-S135NBD</b>	<b>150-S135NBR</b>
201A	201A	177A	225	560	277.4	<b>150-S201NBD</b>	<b>150-S201NBR</b>
251A	208A	177A	225	560	277.4	<b>150-S251NBD</b>	<b>150-S251NBR</b>
317A	293A	246A	290	600	310.1	<b>150-S317NBD</b>	<b>150-S317NBR</b>
361A	293A	246A	290	600	310.1	<b>150-S361NBD</b>	<b>150-S361NBR</b>
480A	408A	345A	290	600	310.1	<b>150-S480NBD</b>	<b>150-S480NBR</b>


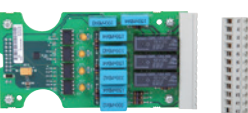
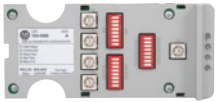
For 690V AC supply, ratings for 6 wire motor connection or continuously rated models, consult NHP.

<sup>1)</sup> SMC-50 soft starters come standard with no HIM (blank plate).


<sup>2)</sup> Current ratings at 40°C ambient. Normal duty rated at 10 starts/hour, heavy duty rated at 6 starts/hour, severe duty rated at 4 starts/hour

## SMC-50 Accessories

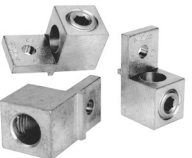
### Option Modules

	Description	Max. no. of Option Modules of this type per SMC-50	Catalogue No.
	PTC, ground fault and current feedback	1	150-SM2
	Analogue I/O: 2 inputs, 2 outputs	3	150-SM3
	Digital I/O: 4x 100...240V AC inputs, 3 relay outputs	3	150-SM4
	Parameter configuration (DIP switch and rotary dial)	1	150-SM6


### Protective Modules

	Description	For Use With	Pkg. Qty.	Catalogue No.
	480V Protective Module	150-S108...480	1	150-F84L

### Terminal Lug Kits


	For Use With	Wire Size	Total No. of SMC-50 Terminal Lugs		Pkg. Qty.	Catalogue No.
			Per Line Side	Per Load Side		
	150-S108...135	16...120 mm <sup>2</sup>	3	3	3	199-LF1
	150-S201...251	16...120 mm <sup>2</sup>	6	6	3	199-LF1
	150-S317...480	25...240 mm <sup>2</sup>	6	6	3	199-LG1

### Terminal Covers

	Description	For Use With	Pkg. Qty.	Catalogue No.
	Line or load terminal covers	150-S108...135	1	150-TC1
		150-S201...251	1	150-TC2
		150-S317...480	1	150-TC3

## SMC-50 Accessories

### Human Interface Modules (HIMs)

	Description		Catalogue No.
	Starter-mounted HIM	Enhanced LCD Display, Full Numeric Keypad	
Door-mounted HIM <sup>1)</sup>	Remote (panel mount) LCD Display, Full Numeric Keypad (version of Cat. No. 20-HIM-A6)		<b>20-HIM-C6S</b>
HIM interface cables <sup>2)</sup>	HIM Interface Cable, 1m		<b>20-HIM-H10</b>
	Cable Kit (Male-Female), 0.33m		<b>1202-H03</b>
Extension cables <sup>3)</sup>	Cable Kit (Male-Female), 1m		<b>1202-H10</b>
	Cable Kit (Male-Female), 3m		<b>1202-H30</b>
	Cable Kit (Male-Female), 9m		<b>1202-H90</b>

### Communication Modules

	Network	Catalogue No.
	Dual-port EtherNet/IP	<b>20-COMM-ER</b>
EtherNet/IP	<b>20-COMM-E</b>	
DeviceNet	<b>20-COMM-D</b>	

### Connected Components Workbench Software

Description	Catalogue No.
Connected Components Workbench (CCW) software offers device configuration and helps minimise your initial machine development with free software download <sup>4)</sup> .	Available for free download at: <b><a href="http://www.rockwellautomation.com">www.rockwellautomation.com</a></b>

### Upgrade Kits <sup>5)</sup>

Description	Kit Contents	For Use With	Control Voltage <sup>6)</sup>	Catalogue No.
Frame 3 SMC-Flex to SMC-50 controllers with bypass upgrade kit	1x 150-SCMD control module	150-F108	100...240V AC	<b>150-S108UPGD</b>
	1x 150-SM4 digital I/O module	150-F135		<b>150-S135UPGD</b>
	1x 20-HIM-A6 LCD HIM		24V DC <sup>7)</sup>	<b>150-S108UPGR</b>
	1x 150-SCMR control module	150-F108		<b>150-S135UPGR</b>
Frame 4 SMC-Flex to SMC-50 controllers with bypass upgrade kit	1x 150-SCMD control module	150-F201	100...240V AC	<b>150-S201UPGBD</b>
	1x 150-SM4 digital I/O module	150-F251		<b>150-S251UPGBD</b>
	1x 20-HIM-A6 LCD HIM		24V DC <sup>7)</sup>	<b>150-S201UPGBR</b>
	1x Plastic mounting / transition cover	150-F251		<b>150-S251UPGBR</b>

<sup>1)</sup> IP66 for indoor use only. Includes a Cat. No. 1202-C30 interface cable (3 metres) for connection to SMC-50. <sup>2)</sup> Required only when HIM is used as handheld or remote (male-male cable).

<sup>3)</sup> Required in addition to Cat. No. 20-HIM-H10 for distances up to a total maximum of 10 metres. <sup>4)</sup> Compatible with Windows 7 / 2000 / XP / Vista / Windows 10 operating systems.

<sup>5)</sup> For existing SMC-Flex installations, these kits allow you to upgrade from SMC-Flex to SMC-50 with internal bypass. Kits contain SMC-50 control module, programming device, optional I/O card (if needed) and plastic mounting/transition cover (if needed). <sup>6)</sup> The SMC-50 control module provides 2x 24V DC control inputs. If you need additional inputs, you must use 100...240V AC inputs (requires 150-SM4 option module) <sup>7)</sup> 24V DC control voltage only. Not compatible with 24V AC control voltage.

## Medium Voltage Soft Starters

The medium voltage soft starters from Rockwell Automation apply reduced voltage to a medium voltage AC motor to allow soft starting and stopping, limit the inrush current, and reduce the effects of water hammer in pumping systems.



### Centerline 1500

The medium voltage SMC-Flex controllers furnish, as standard, a full range of starting and stopping methods for a variety of applications. Its unique control options offer enhanced motor starting and stopping capabilities to satisfy your most demanding applications up to 6.6kV. OEM kits also available.

- Standard features of SMC-Flex controller (see page 9)
- Optional Pump Control module (eliminates water hammer)
- Premier integration with Logix Designer Implementation

### OneGear

The OneGear medium voltage SMC-Flex controller provides the integrated features and functionality you need to conserve power and minimise manufacturing risks—while reaping the most productivity from your environment.

Rated for applications from 10 to 15kV, this flexible smart motor controller offers a full range of starting and stopping methods, including an interactive pump control mode designed to reduce fluid surges in pumping systems. To help protect your valuable rotating assets, choose from fused vacuum contactors or vacuum circuit breakers.

- Provides vacuum contactor and circuit breaking switching technology
- Provides compartmentalised construction
- Includes optional arc-resistant cabinet
- Premier integration with Logix Designer Implementation



### Range summary

Voltage	Current Rating (A)	kW	Series	Types available
3.3kV	180A	746	Centerline 1500	OEM Components - Bulletin 1503E Retrofit Controller - Bulletin 1560E Combination Controller, non-reversing - Bulletin 1562E
	360A	1679		
	600A	2984		
6.6kV	200A	1678		
	400A	3357		
	600A	5595		
11kV	160A	2500	OneGear	OEM Components - Bulletin 7761 Retrofit Controller - Bulletin 7760 Complete Controller (Vacuum Contactor) - Bulletin 7762 Complete Controller (Vacuum Circuit Breakers) - Bulletin 7763
	340A	5300		
	580A	9000		



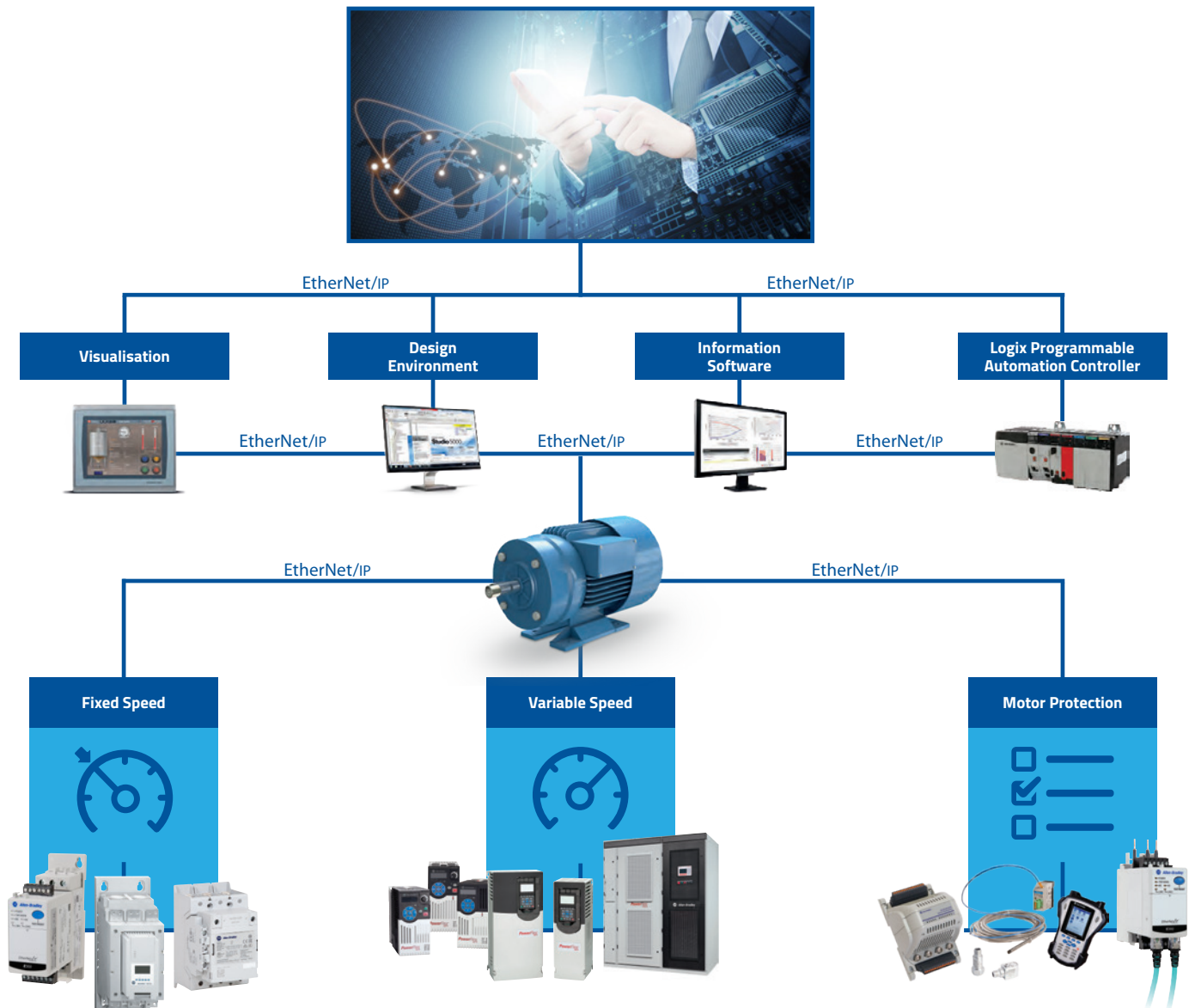
## Smart Motor Control

Allen-Bradley LV and MV soft starters form a part of the complete Smart Motor Control solution available from NHP.

Consider the benefits of Smart Motor Control:

- Operate and maintain motor performance through intelligent equipment and networks
- Monitor energy consumption to reduce energy bills
- Minimise start-up times and simplified troubleshooting
- Mitigate potential hazards through remote monitoring capabilities
- Reduce unplanned downtime with alarms and advanced diagnostic information
- Increase performance and flexibility through seamless communication and system visibility

### Smart control of the whole system



## Customised Manufactured Solutions

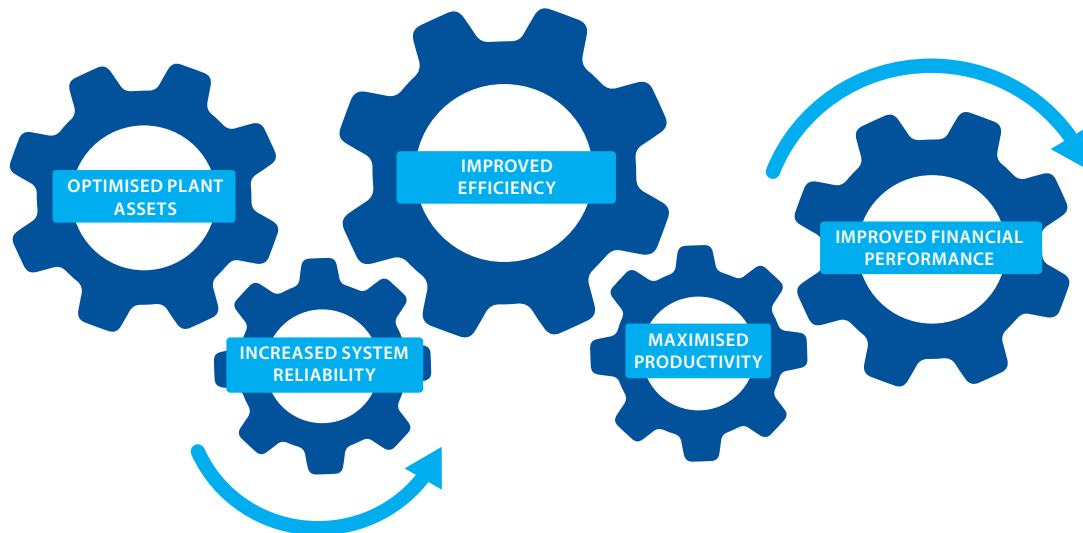
NHP prides themselves on their strength to provide Australian built packaged solutions, tailored to meet exactly our customer requirements without being locked into a prescribed engineered option.

We can build motor starters to your specification (LV and MV)



## NHP Services

To support our range of quality products, NHP offer a wide range of service and training options, including technical support, field service, maintenance contracts, repair services and training. These services are delivered by NHP qualified technicians. By engaging the NHP service team and taking advantage of our service capabilities you will experience:




## NHP Service Commitment


With 50 years of experience in the electrical and engineering industry our specialist teams work collaboratively to design and deliver solutions to maximise the success of your motor starting project.


Our team of service technicians hold tertiary and/or trade qualifications and regularly participate in supply line partner training programs to ensure our services are completed in line with manufacturer specifications. Equipped with comprehensive product knowledge, our technicians are committed to delivering the best practice of electrical services, whilst providing exceptional customer experience.


## NHP Service Capabilities


NHP offers an extensive range of service solutions to suit a wide range of motor starting needs. Whether your need is for installation and commissioning, migration, emergency breakdown or lifecycle services, NHP has a national network of technicians throughout Australia and New Zealand in order to quickly respond to your needs.

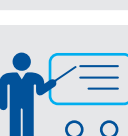
- 

**Preventative Maintenance**  
All products have a finite lifespan. When products do fail, it can lead to costly repairs or production losses. This service makes it possible to predict failure before it occurs, ultimately, extending the lifespan of products. Our service team can discuss your site requirements with you and develop a suitably structured maintenance program to suit your budget and contingency requirements.
- 

**Commissioning and Start-up**  
Our field commissioning and start-up services are available to assess application demands and configure products in accordance with your project requirements. Pre-commissioning and witness tests can be accommodated prior to dispatch.
- 

**Modernisation: Retrofits and Upgrades**  
With retrofit solutions available to facilitate the installation for a range of products and brands, as well as customising solutions to suit specific requirements, NHP can work within your existing switchboard environment to provide a cost effective solution. The NHP retrofit solutions have been designed according to relevant Australian standards and recognised industrial practices, ensuring the controlled removal of products that are obsolete and potentially dangerous.
- 

**Emergency Breakdown Assistance**  
NHP service provides you with 24/7/365 protection, ensuring that your assets continue to work for you. Our service technicians and engineers are on standby and are here to provide you with a rapid assistance if required.
- 

**Site assessments and reliability evaluations**  
Our technicians have the technical knowledge and hands-on experience to evaluate your install base and provide you with a report on the detected factors that impact reliability and life cycle of your equipment. To compliment this evaluation, our technicians are qualified to advise solutions that will best rectify identified problem areas that are reducing your efficiency and increasing your costs.
- 

**Training**  
In addition to our comprehensive range of formal classroom training sessions, NHP Technicians and Engineers can provide private one on one training at your site. Our field service training capability includes equipment operation and maintenance related to your site install base.

## Why Choose NHP

A partnership with NHP will provide you with:

- 

24/7/365  
Emergency Service
- 

NHP Project  
Management
- 

Extensively trained and  
qualified service technicians
- 

National Service  
Network
- 

Extensive local  
stockholding

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