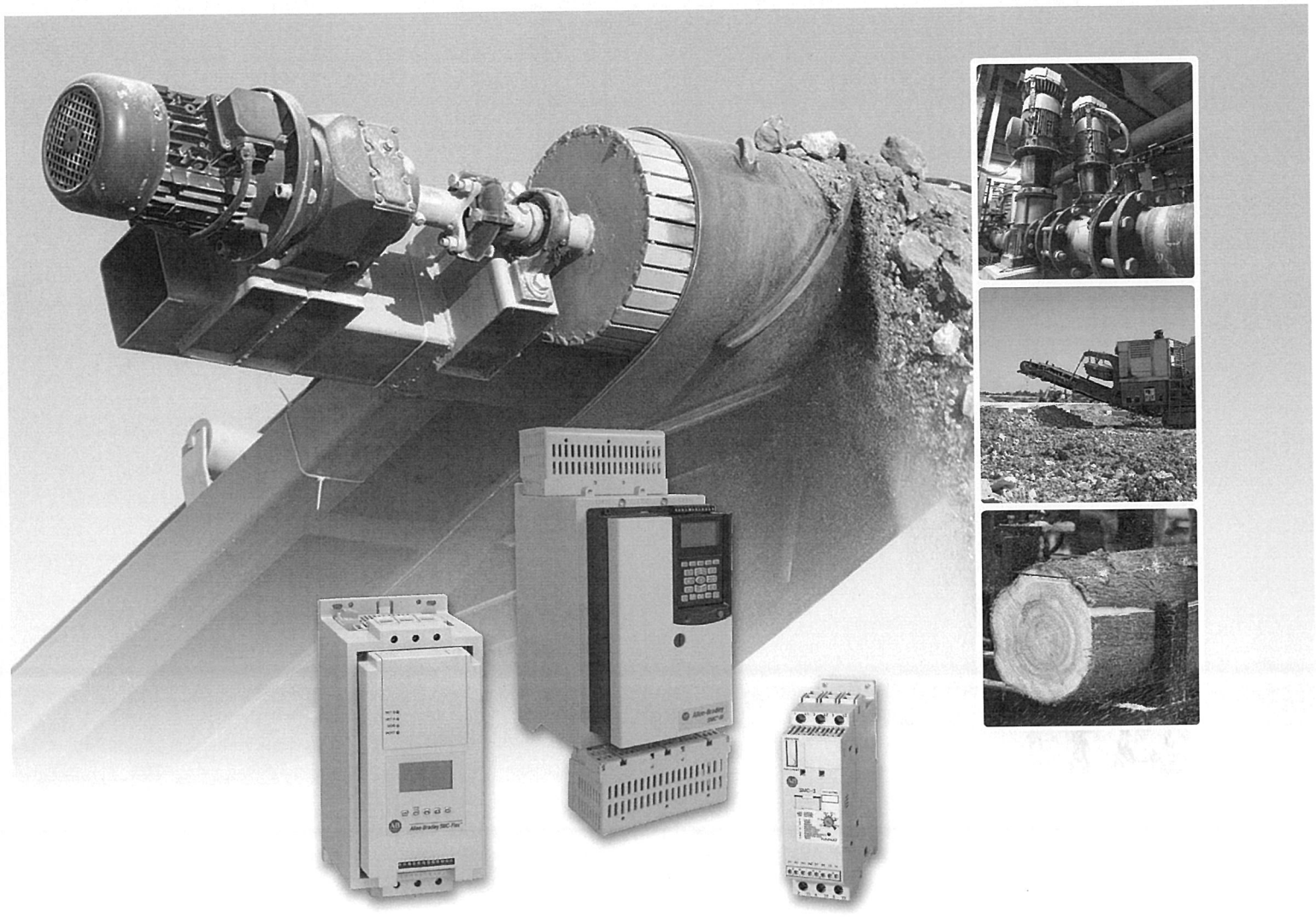
Smart Motor Controllers – SMC™-3, SMC™ Flex and SMC™-50 Soft Starters Family

Allen-Bradley

Size for Size, the Best Value in the Industry



LISTEN. THINK. SOLVE.

Allen-Bradley • Rockwell Software

Rockwell Automation

Allen-Bradley® **Smart Motor Controllers**

Ideal for a wide range of applications

• Compact • Modular • Scalable

Rockwell Automation

Across-the-Line Starters

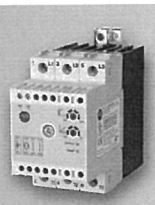
- *Simplest starting solution*
- *Full torque applied to motor*
- *Mechanical wear/finite mechanical life*

Electro-Mechanical

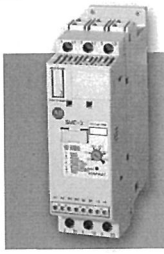
Soft Starters

Reap the benefits of high productivity on your plant floor with the SMC family of soft starters. Our soft starters are designed for flexibility and scalability with integrated features and functionality to help reduce your energy costs and maximize your investments.

- ***Simple starting and stopping***
- ***Limited control at various speeds***
- ***Reduced torque and current starting***
- ***Simple to adjust and set up***

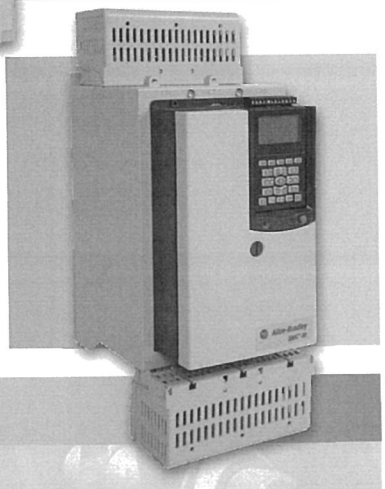


STC
Basic



SMC-3
Compact

SMC Flex
Modular



Electro-Mechanical

Starting Solutions

Scan this QR code with your smartphone to go to the SMC family page

http://www.rockwellautomation.com/go/lvstarter

Solid-State

Provides a cost-effective basic torque-limiting solution for low horsepower single and three-phase squirrel cage induction motors. Models are available to work with single-phase motors, as well as one or two control phase versions for three-phase motors.

- Simple commissioning with only two adjustments:
  - Initial Torque Setting (10....80%)
  - Duration of Ramp (0.5…5sec)
- Reliable proven technology with solid state power poles

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

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 installation and maintenance
- Built-in LCD and keypad
- Integrated bypass
- Nine Start/Stop modes and up to three slow-speed modes
- Full metering and diagnostics

SMC-50 *Scalable*

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

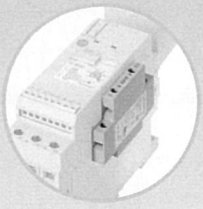
- Application scalability
  - Normal and Heavy-duty ratings
  - Expandable I/O and sensor capability
  - Network integration capabilities
- Switch, LCD or PC software setup
- Available with solid-state only or combination solid-state/internal bypass power structures
- 17 Start/Stop modes and three slow-speed modes

Solid-State

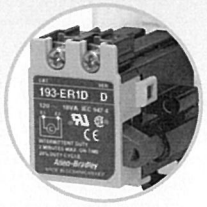
Variable Frequency Drives

- *Continuous control at any speed*
- *Full torque at any speed*
- *More complex*

Accessories

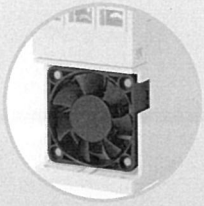


Flexible and Configurable Auxiliary Contacts



Remote Reset Solenoid

Optional MOV Protective Modules



Snap-on Fan Module

SMC-3

Compact, true three-phase control in a cost-effective package with overload protection, integral bypass, and motor and system diagnostics.

Integral Bypass

The bypass automatically closes when the motor reaches its nominal speed, minimizing 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

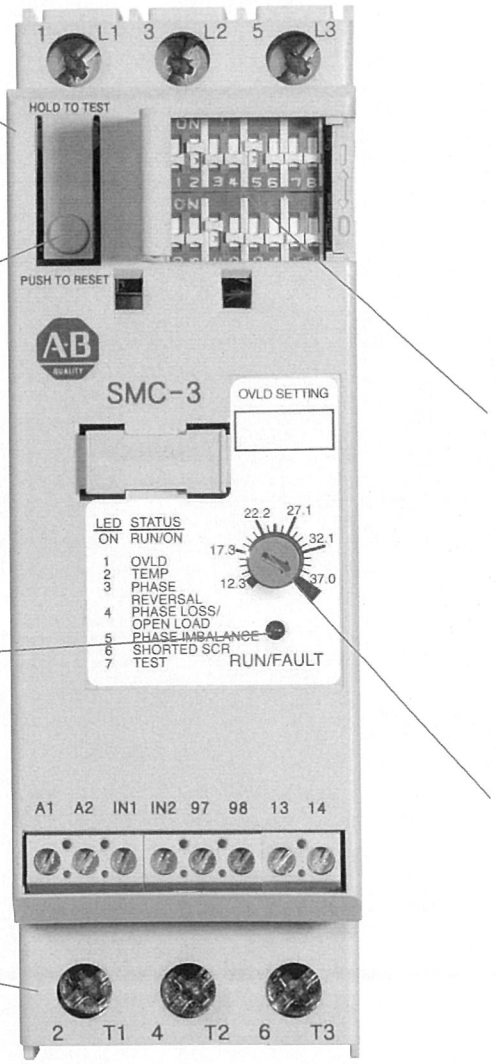
Status information provided including RUN, Fault type and OFF.

- 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

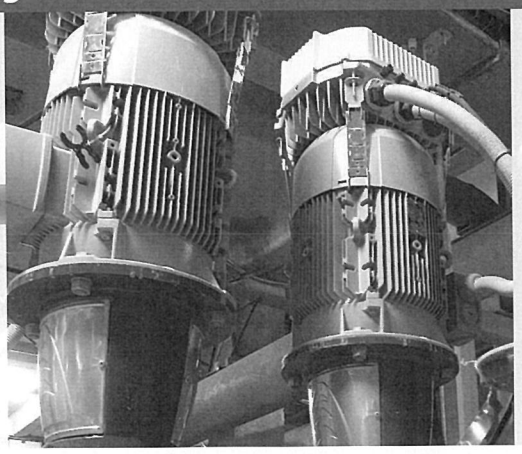


Actual Size (1 to 37 A units)

Application Spotlight

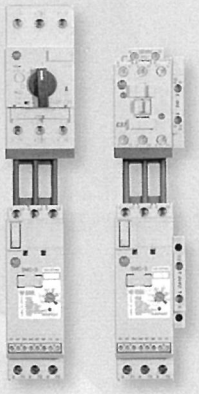
Ideal Applications:

- Conveyors
- Fans
- **Pumps**
- Chillers
- Mixers
- Lifts



Problem:

A remote pump station needs to replace existing full-voltage motor starters to reduce mechanical stress on check valves and pump impellers and to reduce total operating costs.



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 optimization
- Setup efficiency

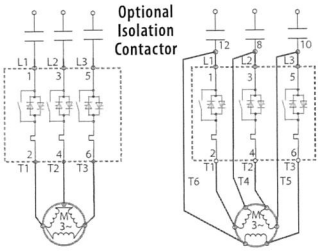
Simplified Motor FLA Setup

Rotary switch allows quick and easy setup of motor FLA.

- Setup efficiency
- Protects motor assets

Current Ranges

Standard squirrel cage or star-delta induction motors



Size	Line-connected Motor Current (Amps)	Delta-connected Motor Current (Amps)
Frame 1	3…37	5…64
Frame 2	43…85	74…147
Frame 3	108…135	187…234
Frame 4	201…251	348…435
Frame 5	317…480	549…831

Voltage Ranges and Operating Modes

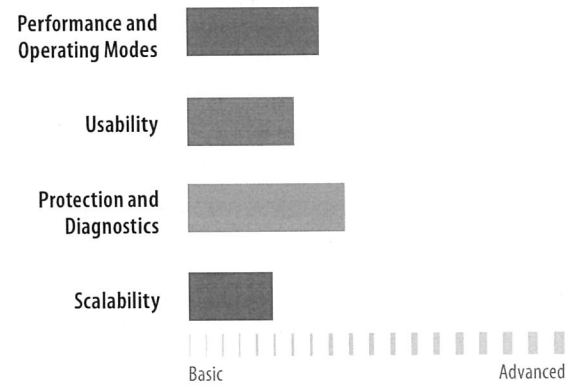
Voltage Range
200…600V AC, 50/60 Hz

Operating Modes
5 Start/Stop Modes

Control Voltage
100…240V AC or 24V AC/DC

Control Options
Standard

Product Selection Attributes



Solution:

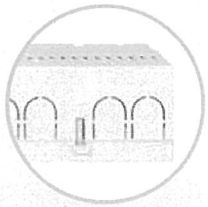
The SMC-3 and its compact design is an ideal alternative.

- Decreased startup torque translates to less shock/stress on mechanical components
- Simple user interface reduces installation time
- Line and motor diagnostics detect single-phase conditions, protecting against motor damage
- Lower peak currents during starting reduces system maintenance, driving operating costs down

Accessories

Protective Modules

Human Interface Modules (HIMs)



Terminal Covers

Communication Modules

SMC Flex

Modular by design for installation and commissioning. Features built-in LCD display and flexible communications providing advanced performance, diagnostics and protection.

Integral Bypass

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

- Reduced enclosure size
- Reduced total cost

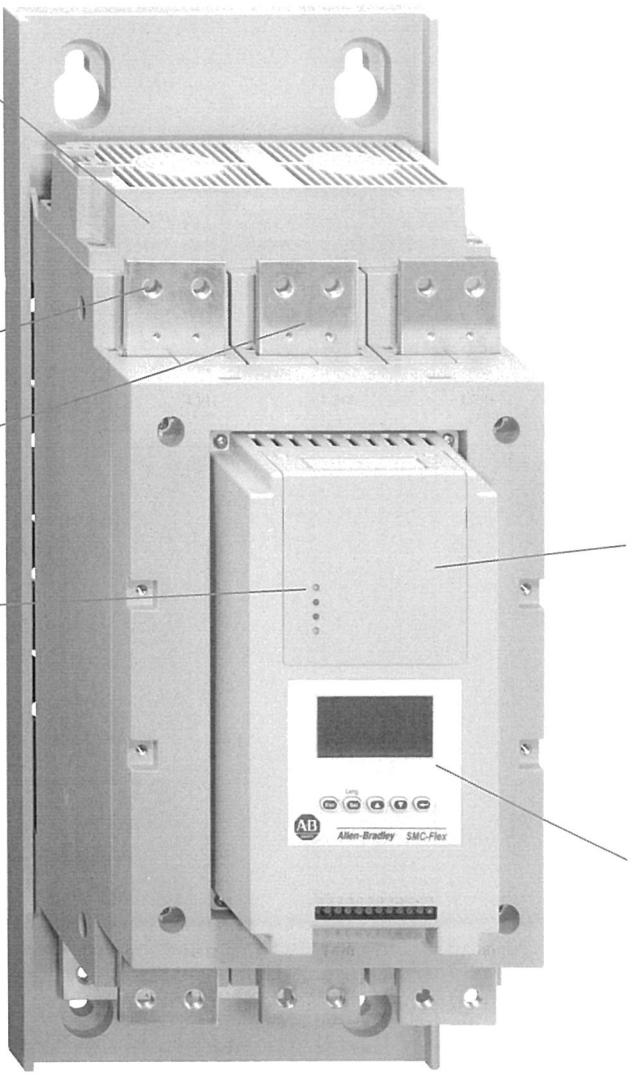
Feed-through Wiring

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



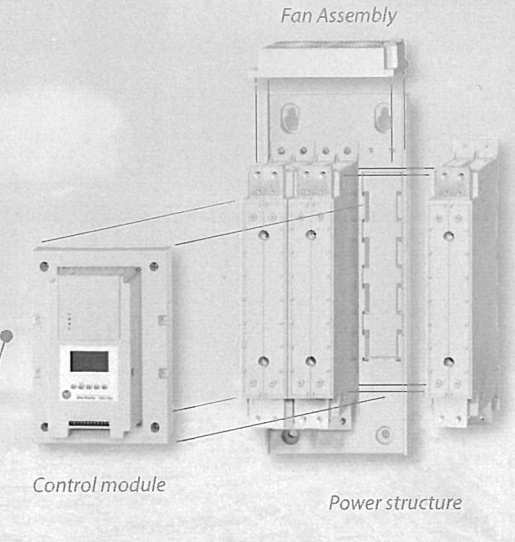
Application Spotlight

Ideal Applications:

- Compressors
- Pumps
- Fans
- Conveyors
- **Bandsaws**
- Chillers
- Centrifuges

Problem:

A lumber mill is updating starting methods for their saws. In addition to space constraints, the main focus is on improving operating efficiencies while staying within the limitations of the current transformer and distribution system.



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

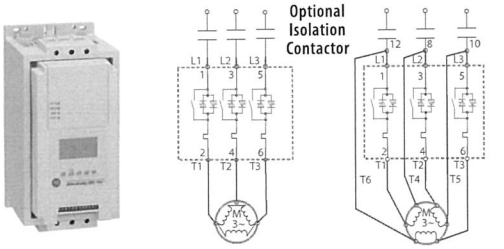
Simplified Application Setup

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

- Setup efficiency
- Process optimization

Current Ranges

Standard squirrel cage or star-delta induction motors



Size	Line-connected Motor Current (Amps)	Delta-connected Motor Current (Amps)
Frame 2	5…85	9…147
Frame 3	108…135	187…234
Frame 4	201…251	348…435
Frame 5	317…480	549…831
Frame 6	625…780	850…900
Frame 7	970…1250	1200…1600

Voltage Ranges and Operating Modes

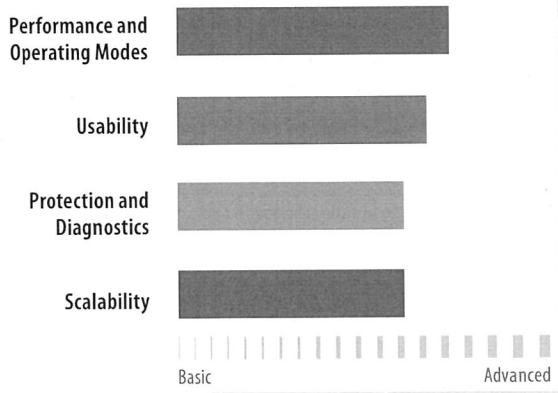
Voltage Range
200…690V AC, 50/60 Hz

Operating Modes
9 Start/Stop Modes
Up to 3 Slow-speed Modes

Control Voltage
100…240V AC (5…480 A) or
24V AC/DC (5…480 A)
110…120V AC (625…1250 A)
230…240V AC (625…1250 A)

Control Options
Standard
Pump Control
Braking Control

Product Selection Attributes

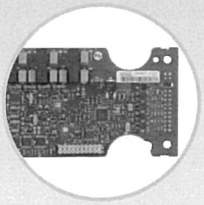


Solution:

The SMC Flex and its modular design is an ideal fit for the existing system.

- Minimizes starting peak current and torque shock to the system
- Smart Motor Braking option stops the motor in 2 minutes versus the coast-down time of 15 minutes
- Slow Speed operation enables inspection of saw blade tracking before the motor is brought to full speed
- Current, Voltage, and Power diagnostics displayed via a door-mounted HIM interface
- Built-in programmable overload protection accommodates characteristics of a high-inertia load
- Diagnostics detect jam, stall, or single phasing and shut off the motor, helping to prevent damage

Accessories



I/O Modules

Protective Modules

Programming and Communication Modules

Bypass and Lug Kits

SMC-50 Internal Bypass or Solid-State

Scalable design for customer flexibility satisfying a wide variety of control needs.

Internal Bypass Power Structure

Combines the power structure of the SMC-Flex with the application flexibility of the SMC-50. The bypass automatically closes when the motor reaches its nominal speed minimizing heat generation.

- Reduced enclosure size
- Reduced total cost

Solid-State Power Structure

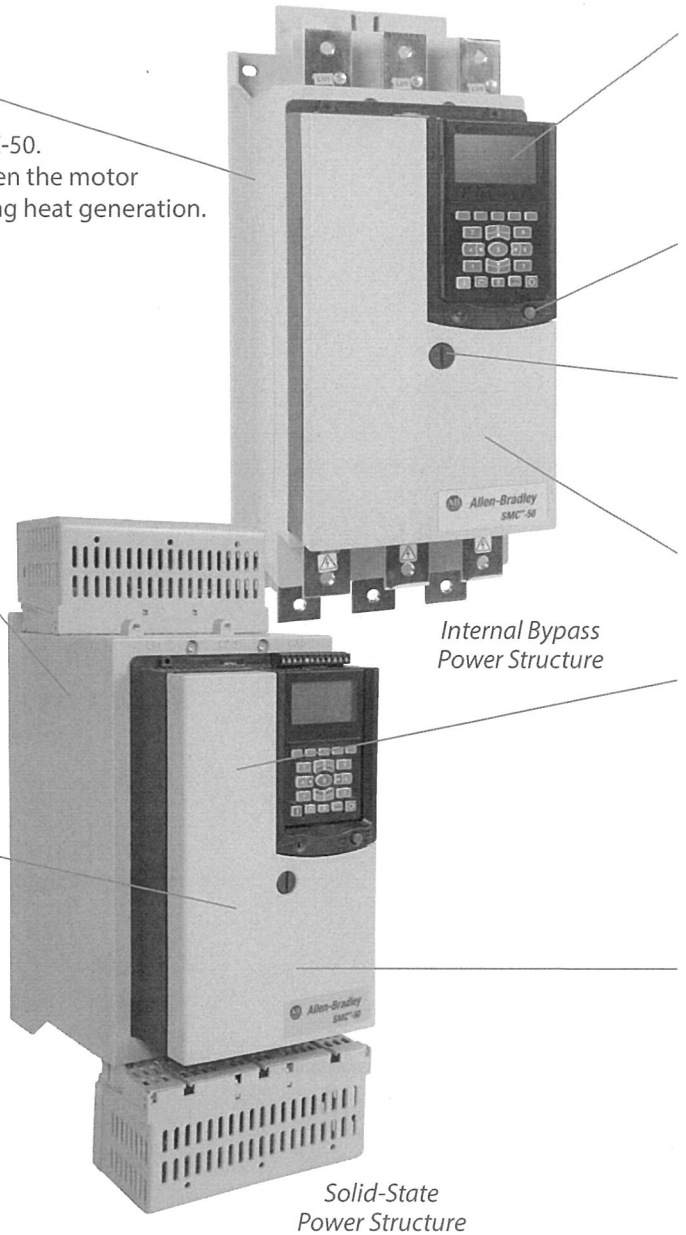
State-of-the-art solid-state SCR power structure.

- Ideal for harsh environments
- Higher operations per hour
- Scalable thermal ratings
- Higher SCCR ratings

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 & optimization
- Application flexibility (simple to complex)



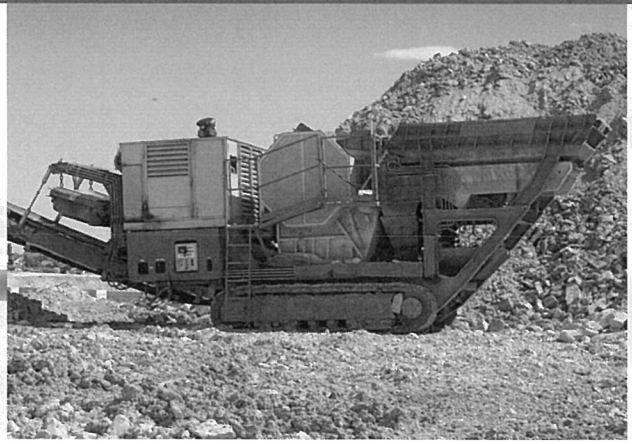
Internal Bypass Power Structure

Solid-State Power Structure

Application Spotlight

Ideal Applications:

- Pumps
- Compressors
- Fans
- Conveyors
- Bandsaws
- Mills
- **Crushers**
- Grinders
- Shredders
- Centrifuges



Problem:

A rock quarry is looking for a soft starter solution to replace the existing starters on their large motors due to power system limitations and to increase operating efficiencies while maximizing uptime.

Simplified, Scalable Application Setup

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

- Setup efficiency
- Process optimization

Hold to Test/Push to Reset Button

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

- Reduces downtime
- Assist during setup

LED Display

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

- Instant status display
- Assists during troubleshooting

Common Control Module

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

- Reduced inventory
- Increased efficiency

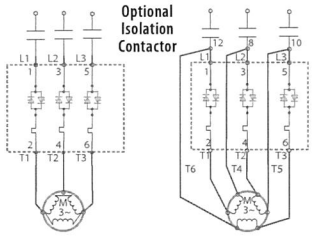
Communications

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

Current Ranges

Standard squirrel cage or star-delta induction motors



Power Structure Type	Size	Line-connected Motor Current (Amps)	Delta-connected Motor Current (Amps)
Internal Bypass	Frame 3	108...135	187...234
	Frame 4	201...251	348...435
	Frame 5	317...480	549...831
	Frame B	90...180	155...311
Solid-State	Frame C	210...320	363...554
	Frame D	361...520	625...900

Voltage Ranges and Operating Modes

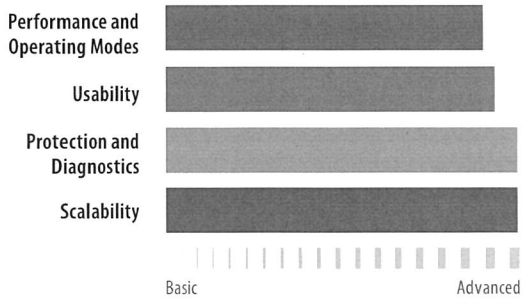
Voltage Range
200...690V AC, 50/60 Hz

Operating Modes
17 Start/Stop Modes (including linear acceleration, linear deceleration and torque control)
4 Special Operating Modes Including Energy Saver mode

Control Voltage
100...240V AC or 24V DC

Control Options
Standard (all features/functions in one module)

Product Selection Attributes



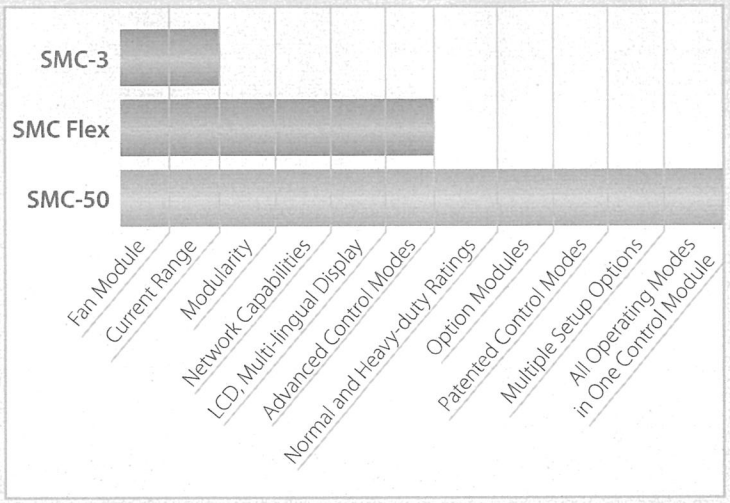
Solution:

The SMC-50 provides a scalable solution addressing power company requirements and distribution limitations.

- Advanced linear starting technology yields consistent starting performance and limits peak current and torque shock
- Advanced control and monitoring maximizes uptime with reduced need for system maintenance
- Solid State power structure with optional external bypass provides operating redundancy
- Optional communications allow monitoring and control over the existing EtherNet/IP backbone
- Advanced diagnostics and condition monitoring support customizable protection
- The Energy Saver mode helps reduce total power consumption during periods of light production

Product Selection Attributes

Scalability



Usability

SMC-3

- Easy Setup
- LED Display
- Built-in Test/Reset Button

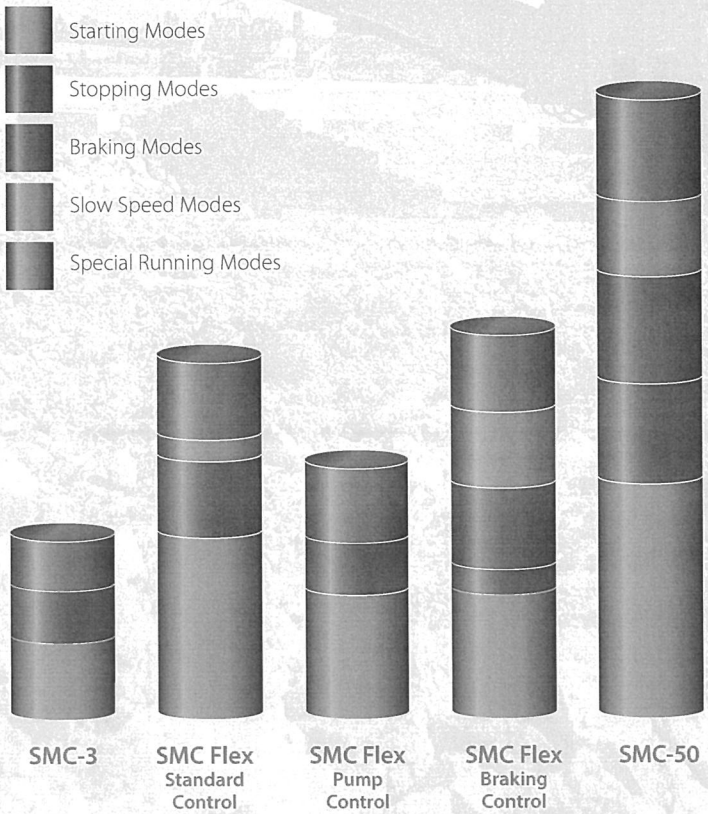
SMC Flex

- Built-in LCD, Multi-lingual Display
- Advanced Performance and Diagnostics
- Network Capabilities
- Modularity

SMC-50

- Setup Wizards
- Auto Connection and Fan Control
- Motor Auto Tuning
- Removable Terminal Blocks
- Multiple Programming Methods
- Network Capabilities

Performance and Operating Modes



Protection and Diagnostics

	SMC-3	SMC Flex	SMC-50
Motor Overload	✔	✔	✔
Temperature Protection	✔	✔	✔
Current Protection	✔	✔	✔
Voltage Protection		✔	✔
Power Protection			✔
Frequency Protection			✔
Preventive Maintenance			✔
Real-time Clock			✔
Snapshot Data Capture			✔
Start Performance Tracking			✔

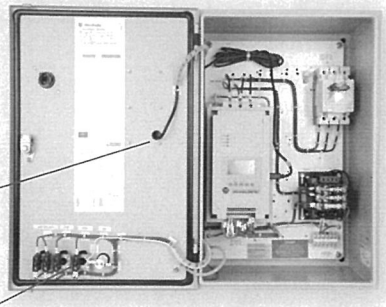
Enclosed Soft Starting Solutions

With the available options, functionality, and application capabilities, Allen-Bradley Enclosed SMCs are virtually unmatched in the industry.

Enclosed SMC Family

Enclosed SMCs encompass all the starting, stopping, protection and diagnostics benefits of our open soft starters, in a customizable, pre-engineered solution.

- Available as non-combination or with fusible or circuit breaker disconnect
- Broad size offering:
  - SMC-3 up to 480 A
  - SMC Flex up to 1250 A
  - SMC-50 up to 520 A
- Standard options include pilot devices, isolation and bypass contactors, protective modules, HIM and communication modules
- Solutions with specialized options or third-party devices are available through our Modified Standards program
- Quick factory lead times!



Door-mounted, full numeric HIM allows system performance monitoring without entering the panel

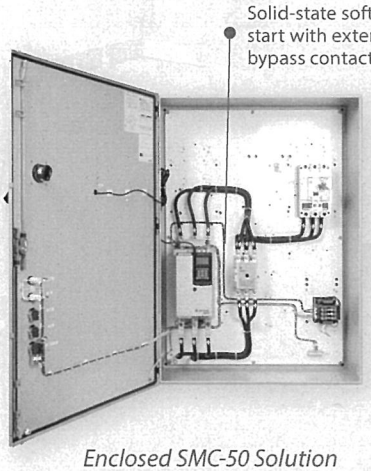
Wide range of factory-installed options

Enclosed SMC Flex Solution

Type 1/12/4 enclosure for indoor or outdoor applications

Built with high-quality, dependable components

Enclosed SMC-3 Solution

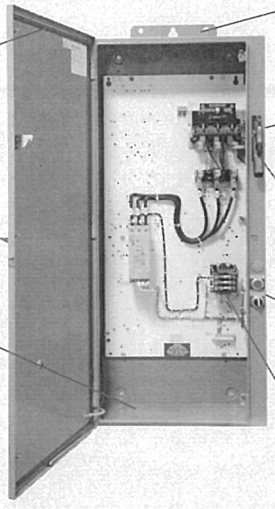


Solid-state soft start with external bypass contactor

Enclosed SMC-50 Solution

Pump Panels

SMC-3 pump panels are a robust solution for pumping applications. Perfect for crop irrigation, oil & gas pumping, golf courses, marina slip power hook-ups and wastewater treatment.



Foam-in-place gasketing ensures a dust- and watertight (Type 3R) enclosure rating

Standard with pole mounting bracket for easy installation

Color-coded disconnect handle clearly identifies ON & OFF position for easy operation

Handle allows up to three padlocks for LOTO

Standard knockouts for easy installation

Robust 30 mm 800T pilot devices

Options critical for pumping applications included as standard for a self-contained, ready-to-start solution

CENTERLINE 2500 MCC

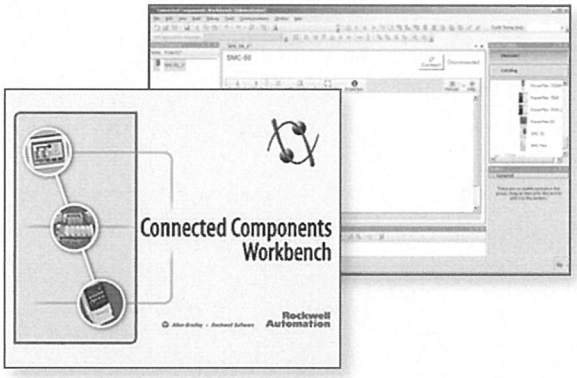
CENTERLINE 2100 MCC

Motor Control Centers

Combination soft starter units are available globally in our CENTERLINE® motor control centers. These units contain a microprocessor-controlled motor controller, control circuit transformer and either a fusible or circuit breaker disconnect.

Wizards

The SMC Wizards assist in product selections for short circuit protection devices, thermal analysis and system analysis for the SMC family.



The Connected Component Workbench™ Software

Connected Components Workbench software offers device configuration and helps minimize your initial machine development with free software download.

Rockwell Automation offers a breadth of quality Allen-Bradley® components to fit your specific needs. In order to assist you with your component selection, we offer a variety of configuration and selection tools.

Local Distributor

Call 1.800.223.3354 to contact your local Distributor today.
http://www.rockwellautomation.com/distributor/

On-Line Product Directory

Our extensive product portfolio is designed to improve your processes through every stage of your manufacturing cycle.
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Product Selection Toolbox

Our powerful range of product selection and system configuration tools assist you in choosing and applying our products.
http://www.rockwellautomation.com/en/e-tools/

Catalogs

Within our catalogs you'll find an extensive selection of essential Allen-Bradley component products.
http://www.ab.com/catalogs/

Rockwell Automation, Inc. (NYSE:ROK), the world's largest company dedicated to industrial automation, makes its customers more productive and the world more sustainable. Throughout the world, our flagship Allen-Bradley® and Rockwell Software® product brands are recognized for innovation and excellence.

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Publication 150-BR144B-EN-P – October 2018
Publication 150-BR144A-EN-P – February 2013