

Modular Control System

# Smart industrial control



**Allen-Bradley**

by ROCKWELL AUTOMATION

# Allen-Bradley® Modular Control System

Simple. Easy. Tested.

Does applying industrial control seem harder that it should be?

The Modular Control System is specifically designed to make your job easier. With many intelligent components, options and connectors we deliver a tailored industrial solution to meet your needs today and into the future.

Whether across the street or across the globe, when you combine Modular Control System components you get a solution tested to a higher standard, in every valid combination, certified and supported around the world.

- **Designed as a system**  
System is designed and tested to work together with relevant components for your unique applications
- **Standards and certifications**  
Tested and certified to global standards to meet your application requirements
- **Selection**  
One place to find motor starting, resistive and isolation solutions in sizes from 5...2650 Amps
- **Worldwide sales and support**  
Sold and serviced in over 100 countries around the globe
- **Legendary Allen-Bradley quality**  
The byword at every phase of design, testing and production



## MOTOR PROTECTION CIRCUIT BREAKER & MOTOR CIRCUIT PROTECTORS

Bulletin 140MP and 140MT/UT products provide basic or full-function motor protection circuit breaker and motor circuit protector functionality, as well as molded case circuit breaker options.

## CONNECTORS

Because it is a system, connectors let you mount circuit breakers to contactors, saving wiring and creating an integrated motor starter.

## CONTACTORS

Ready to make a switch? Our NEMA, IEC and miniature contactors are flexible, modular and easy to select and apply, with many coordinating accessories.

## MOTOR PROTECTION RELAYS

Allen-Bradley offers a broad range of motor protection devices. From simple, single purpose protection to smart overload technologies that feature comprehensive diagnostics and Logix integration.

# Designed to work together

Pick your combination to suit your needs

## Two-component motor starter solutions

With overload protection built into motor protection circuit breakers, you can save cost and space in your panel.



## Three-component starters

With a separate overload relay, you can tailor the level of motor protection you want.



## Assembled starters

Modular Component System products are available as individual components, or as open or enclosed assemblies which can save you time and labor.



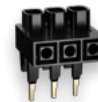
Contactors can be applied for isolation, bypass and resistive load control. Energy-saving coils reduce heat and cost.

A 140MT/MP can be applied as manual motor controller in group motor installations or as a motor disconnect. 140MT tap conductor ratings allow smaller conductors in group motor installation, saving you money.



140MT are rated as Type E self-protected combination motor controller or Type F combination controller with 100-C and 100-E contactors, eliminating the requirement of separate branch circuit protection devices.

Extensive and fully integrated line of accessories provide flexible, modular control.



# Motor protection circuit breakers and motor circuit protectors

## Extended ratings, high performance


Rockwell Automation offers two tiers of motor protection circuit breakers and motor circuit protectors.

The Bulletin 140MP line of motor protection circuit breakers offer the most commonly used features, cost-effectively. Bulletin 140MP provide magnetic short circuit and thermal overload protection up to 32 A.

Bulletin 140MT products offer enhanced ratings that enable assembled starters to be applied without additional branch circuit protection. Tap conductor protection ratings can save you money by allowing the use of smaller wires in group motor installations. Bulletin 140MT products are available as motor circuit protectors for three-component starters and motor protection circuit breakers for two- component starters.

Special versions of 140MT meet specific application requirements. Examples include the 140MT-D9V for application at the output of a variable-frequency drive (VFD) in multi-motor applications and the 140MT-D9T, suitable for protection of high efficiency motors with high inrush.

All Bulletin 140 products are available with connectors to enable direct wiring to Bulletin 100-K/C/E contactors.



Providing both short-circuit and overload protection for individual motor loads, our motor protection circuit breakers are available for a **wide range of motor sizes and installation types.**

# Product range

## Motor protection circuit breakers and protectors

Motor circuit protectors provide branch-circuit and short-circuit magnetic protection and are combined with a separate overload relay. Motor protection circuit breakers have built-in motor overload protection, so an additional overload relay is not required.



**Bulletin  
140MP-A**



**Bulletin  
140MT-C**



**Bulletin  
140MT-D**



**Bulletin  
140M-F**

| Frame size  | Bulletin 140MP-A | Bulletin 140MT-C | Bulletin 140MT-D | Bulletin 140M-F |
|---|------------------|------------------|------------------|-----------------|
| Max. current $I_e$  | 32 A             | 32 A             | 40 A             | 45 A            |
| Current rating  | 0.1...32 A       | 0.1...32 A       | 0.4...40 A       | 6.3...45 A      |
| Short-circuit protection                                    | ●                | ●                | ●                | ●               |
| Standard magnetic trip                                      | ●                | ●                | 140MT-D9E        | 140MT-F8E       |
| High magnetic trip  |                  |                  | 140MT-D9T        | 140MT-F8T       |
| Magnetic-only trip (motor circuit protection [MCP])         |                  |                  | 140MT-D9N        | 140MT-F8N       |
| Overload protection   | ●                | ●                | ●                | ●               |
| Trip class  | 10 A             | 10               | 10               | 10              |
| Phase loss sensitivity                                      | ●                | ●                | ●                | ●               |
| Variable-frequency drive (VFD) downstream compatible        |                  |                  | 140MT-D9V...     | ●               |
| Tap conductor protection                                    |                  | ●                | ●                | ●               |
| Manual self-protected combination motor controller (Type E) |                  | ●                | ●                | ●               |
| UL 60947-4-1, CSA C22.2, No. 60947-4-1 <sup>(1)</sup>       | ●                | ●                | ●                | ●               |
| IEC/EN 60947-2, IEC/EN 60947-4-1                            | ●                | ●                | ●                | ●               |
| CE  | ●                | ●                | ●                | ●               |
| ATEX  |                  | ●                | ● <sup>(2)</sup> |                 |
| IECEX   |                  | ●                | ● <sup>(2)</sup> |                 |
| EAC   | ●                | ●                | ●                | ●               |
| CCC   | ●                | ●                | ●                | ●               |
| KC  | ●                |                  |                  |                 |
| CB Scheme   | ●                | ●                | ●                | ●               |

<sup>(1)</sup> Consult publication [140-TD006](#) for additional information | <sup>(2)</sup> Does not apply to Cat. No. 140MT-D9N...devices.

# Contactors

## Flexible, modular and easy to apply

Rockwell Automation provides a complete line of NEMA and IEC rated contactors, from NEMA sizes 00 through 8 or IEC sizes from 5 to 2650 Amps – all featuring the advantages of our legendary quality, unparalleled support network, extensive selection and design tools and wide-range of accessories.

Contactors are available as stand-alone products, or can be combined with compatible circuit breakers and overload relays to provide two- or three-component starting systems. A full range of accessories helps solve common, and not so common, problems. Many options can be obtained as pre-configured open or enclosed starters with easy to wire color coded connections.



Our NEMA and IEC contactors are **easy to select and apply** with a wide range of accessories that **provide flexible and modular solutions**

# Product range

## Global contactors

Rated to IEC standards, our Bulletin 100 contactors are an internationally accepted solution for industrial control applications.



**Bulletin  
100-K**

**Bulletin  
100-C**

**Bulletin  
100-E**

**Miniature**

**Component**

**Architecture**

Breadth of line

5...12 A

9...97 A

9...2650 A

Minimize power supply requirements: Inrush VA reduced by up to 68% and sealed VA by over 75% versus standard, non-electronic coils



Simplified selection with electronic wide-range AC/DC coils



Safety versions available



Same dimensions for AC and DC



12 and 24 V DC



Integrated surge suppressor

Optional

DC coils

AC and DC coils

Reversible coil terminations (line or load side)



No disassembly required

Mechanical interlock eliminates space between contactors for reversing contactors



Optional integrated PLC interface without interposing relays

> 100 Amps

Provides front and side mounting of auxiliary contacts



Optional front mount auxiliary with coil terminals makes it easy to wire three component starters



Optional electronic or pneumatic timing modules (9...97 A)



Compatible with electronic overload relays



Compatible with bimetallic overload relays



# Product range

## NEMA rated contactors

When your application calls for contactors rated to NEMA standards, Rockwell Automation offers two distinct options: the traditional Bulletin 500 for the longest life in the most demanding applications, and the cost-effective, space-saving Bulletin 300 contactors.



**Bulletin  
300**

**Bulletin  
500**

|   | Standard  | Energy saving     | Traditional                          |
|---|---|-------------------|--------------------------------------|
| Breadth of line   | NEMA sizes 0...3                                  | NEMA sizes 00...8 | NEMA sizes 00...5                    |
| Space saving  | Up to 25% smaller footprint than traditional NEMA |                   |                                      |
| Energy saving, wide-range coils   |   | ●                 |                                      |
| Safety versions available   |   | ●                 |                                      |
| Finger safe   | ●   | ●                 |                                      |
| Optional integrated PLC interface without interposing relays                      |   | NEMA sizes 4...8  |                                      |
| DIN rail mountable  | ●   | Through size 3    |                                      |
| Integrated surge suppression  |   | ●                 |                                      |
| Meets global standards  | ●   | ●                 |                                      |
| Mechanical interlock eliminates space between contactors for reversing contactors |   | ●                 |                                      |
| Can be inspected and serviced without removing contactor from panel               |   |                   | ●                                    |
| Top-wired option for power connection convenience                                 |   |                   | ●                                    |
| Field repairable  |   |                   | ●                                    |
| Optional power pole adders for application flexibility                            |   |                   | Can be configured with up to 5 poles |
| Lifetime coil warranty  |   |                   | ●                                    |
| Compatible with electronic overload relays  | ●   |                   | ●                                    |
| Compatible with eutectic overload relays  |   |                   | ●                                    |



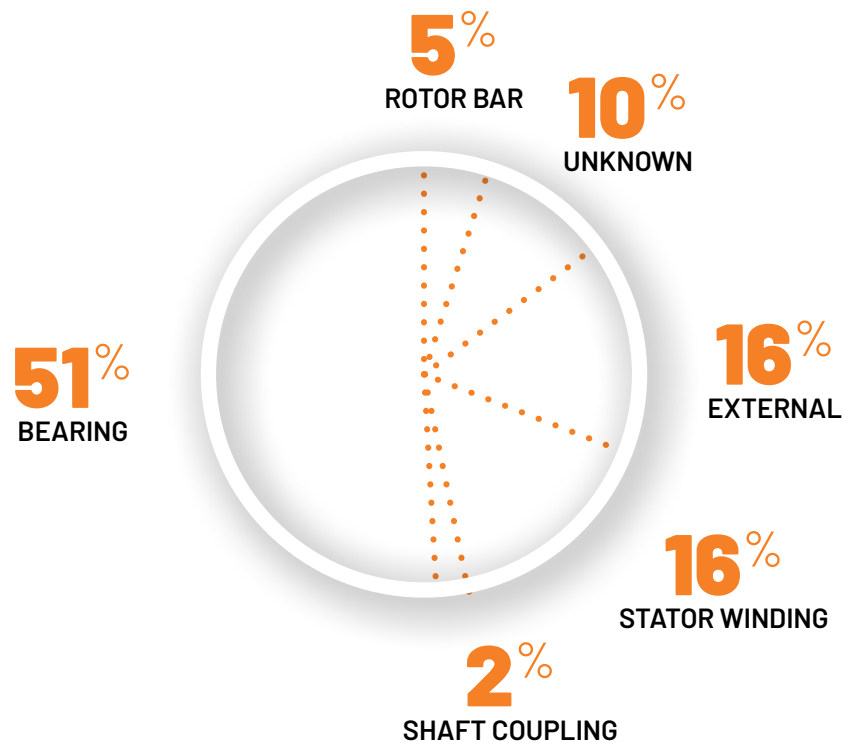
# Motor overload relays

## Smart devices for smarter machines

The Allen-Bradley line of motor protection devices encompasses a range from simple, single purpose protection to the newer overload technologies featuring diagnostics and Logix integration.

Electric motors are the backbone of today's modern industry providing the mechanical energy needed for most manufacturing processes. Push too hard, too often, and there is the potential for costly equipment damage or unforeseen downtime.

## Causes of motor failures



**75% of motor failures can be prevented** by appropriate protection measures

Source – IEEE Petro-Chemical Paper PCIC-94-01.

# Product range

## Overload relays

The Allen-Bradley line of motor protection devices encompasses bimetallic devices to a range of electronic products including newer overload technologies with diagnostics and networking.



**Bulletin 193 T/K  
Bimetallic**

**Bulletin  
193 E100**

**Bulletin  
193 E200**

**Bulletin  
193 E300**

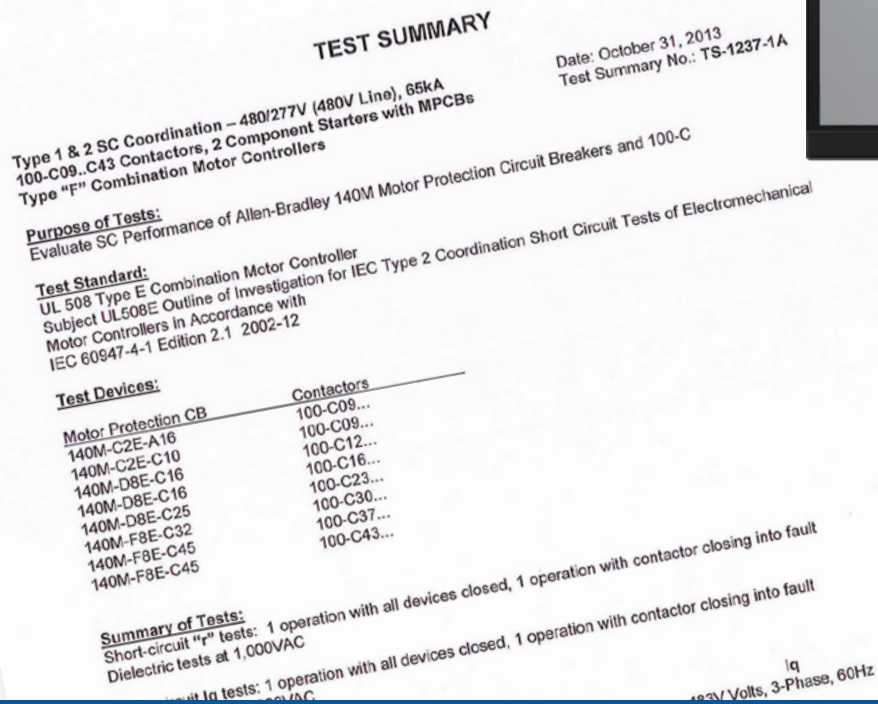
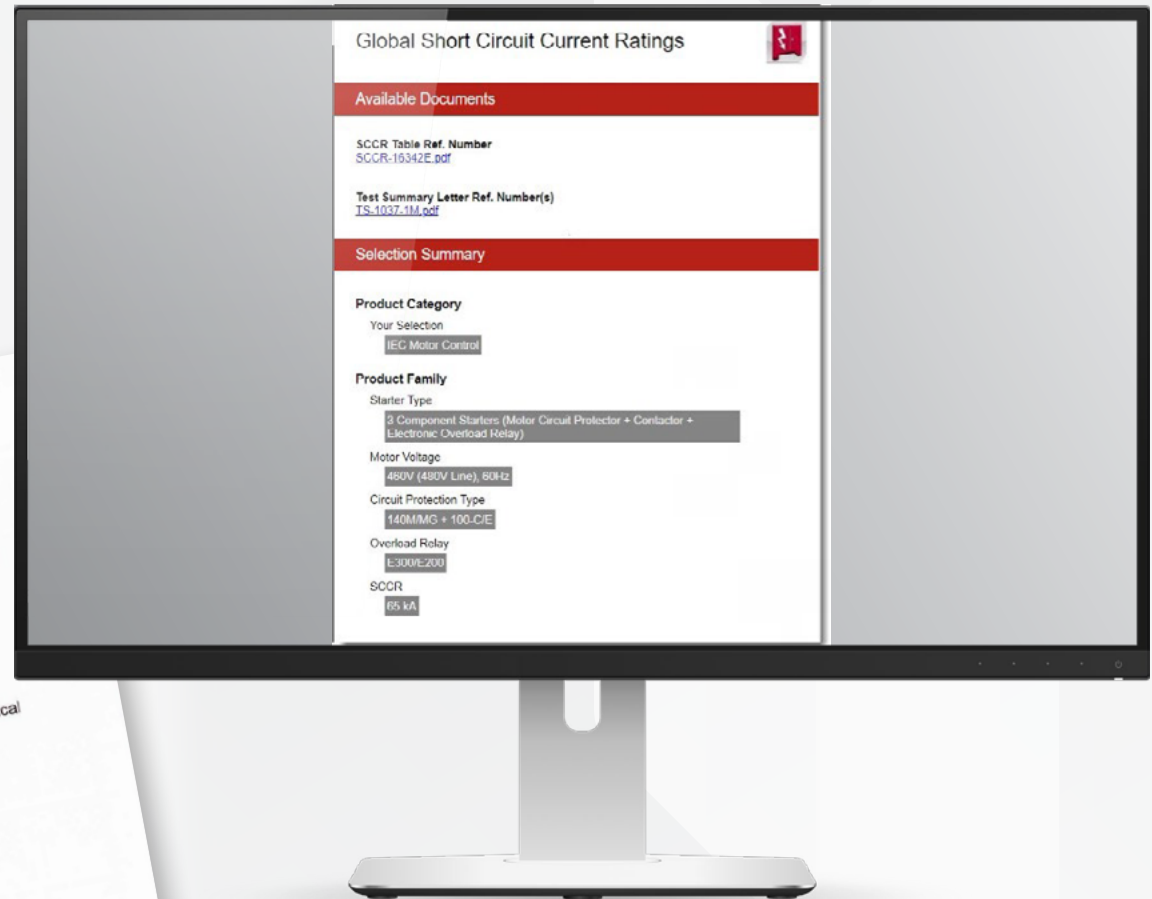
|                                | Bulletin 193 T/K Bimetallic | Bulletin 193 E100 | Bulletin 193 E200 | Bulletin 193 E300 |
|--------------------------------|-----------------------------|-------------------|-------------------|-------------------|
| Overload                       | ●                           | ●                 | ●                 | ●                 |
| Phase loss                     | ●                           | ●                 | ●                 | ●                 |
| Ground fault                   |                             | ●                 | ●                 | ●                 |
| Current imbalance              |                             |                   | ●                 | ●                 |
| Jam                            |                             | ●                 | ●                 | ●                 |
| Over/under voltage             |                             |                   | ●                 | ●                 |
| Voltage imbalance              |                             |                   | ●                 | ●                 |
| Over/under power               |                             |                   | ●                 | ●                 |
| % full load amperes            |                             | ●                 | ●                 | ●                 |
| % thermal capacity utilization |                             | ●                 | ●                 | ●                 |
| Voltage                        |                             |                   | ●                 | ●                 |
| Power                          |                             |                   | ●                 | ●                 |
| Energy                         |                             |                   | ●                 | ●                 |
| DeviceLogix™                   |                             |                   | ●                 | ●                 |
| Logix controller               |                             |                   |                   | ●                 |
| NEMA Version Available         |                             | ●                 | ●                 | ●                 |

# Short circuit current rating tool (SCCR)

As a machine-builder, documenting your SCCR rating is easier than ever

Rockwell Automation offers an exclusive on-line Global Short-Circuit Current Rating tool.

This resource enables users to select the specific combinations of Allen-Bradley components they are applying – circuit breakers, contactors, overload relays – and obtain a test summary letter documenting the compliance of their specific products to IEC and UL standards. This documentation is based on coordinated testing conducted in Rockwell Automation accredited test facilities and witnessed by Underwriters Laboratories.



Access the tool at [rok.auto/sccr](http://rok.auto/sccr)

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