



**Allen-Bradley**

by ROCKWELL AUTOMATION

# M100 ELECTRONIC MOTOR STARTER

A smart, connected motor starting  
solution for industrial applications



**Rockwell  
Automation**

▶ BEGIN

# M100 Electronic Motor Starter – innovation simplified

Inspired by our customers' need for innovative, flexible and powerful motor starting capabilities, the M100 Electronic Motor Starter is an advanced electronic solution designed to enhance the reliability and efficiency of your motor-driven systems. Engineered for industrial excellence, the M100 helps achieve smooth startups, precise speed control, and robust overload protection. With new motor starter solutions, you can enhance operational efficiency and equipment lifespan while optimizing energy consumption and panel space.



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Safety is a standard across industries

## Prioritize safety in motor operations

Functional safety is paramount in every application. A Safety Integrity Level (SIL) represents a comparative rank of risk reduction offered by a safety function. SIL ratings are linked to both the frequency and severity of potential hazards and outline the capabilities required of a component to help ensure and maintain safety across your applications.

The M100 adheres to functional safety standards up to 61508 SIL 3 PL-e, providing a robust safety framework. This standard of design helps to ensure the motor starter's reliability in critical applications, enhancing overall safety.



Simplification and safety, from OEM to End User

## Improve footprint within your panel

Panel space is a valuable resource. Customers often hesitate to invest in new products because of the time and complexity to reconfigure panels, often sacrificing precious space. The M100 overcomes these challenges and restrictions by delivering Direct-on-Line (DOL), safety, and reversing capabilities all within the same form factor. Take advantage of more functionality in your panels while occupying less space than traditional configurations!



# 78%

reduction in panel space

# 56%

reduction in wiring

Next generation performance

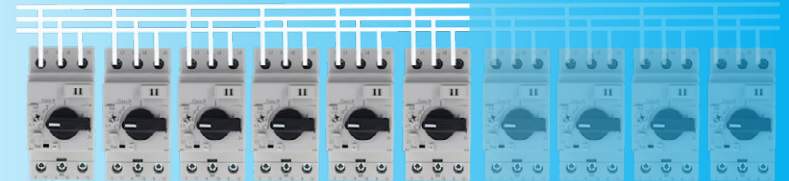
# A smart choice for modern automation systems

The M100 Electronic Motor Starter is a highly efficient and compact solution designed to streamline motor control functionality. With the capabilities of a contactor and an overload relay in a single unit, you can optimize panel space without compromising performance. Can it be that simple?

Incorporating the M100 into existing systems is a breeze with removeable terminal blocks. These terminal blocks, available in both screw and push-in types, allow for easy M100 installation and less complex wiring.

## Additional features of this full-voltage PCB-based motor starter include:

- Point-on-Wave (POW) technology
- Zero-stacking
- Wide amperage range
- Built-in overload, phase loss and weld detection



Enhance system efficiency

## Point-on-Wave technology

Consistent timing in motor control applications is critical. Point-on-Wave switching technology enables precise control of electrical loads by triggering the switching action at a specific point in the voltage waveform. This results in reduced electrical stress on components, minimized inrush currents, and decreased electromagnetic interference. With this technology, the M100 enables you to enhance the longevity and reliability of your electrical devices, improve energy efficiency, and build safer systems.

### Rockwell has been granted 40+ patents for Point-on-Wave and related technologies

**With Point-on-Wave technology, the M100 allows you to maintain:**

**Energy efficiency:** By reducing switching losses and improving power quality, POW technology contributes to overall energy efficiency in industrial applications.

**Reliability and durability:** Controlled switching helps in minimizing stress on components, extending their operational lifespan, and reducing maintenance requirements.

**Flexibility:** It allows for flexibility in design and operation, accommodating various loaded conditions and adapting to dynamic industrial environments.

## Advantages of Point-on-Wave



**More thermally efficient** than products that contain solid state switching component.



Point-on-Wave relay control **enables enhanced diagnostics** such as weld detection.



Achieves **longer life** without solid state components when compared to competitive device.



**Large range of starting currents** (Full starting performance when compared to competitors).



Unique in the marketplace with **40+ patents**.



Zero-stacking with no derating

## Thermal performance

Zero-stacking with motor starters is a significant design technique that allows multiple motor starters to be mounted side by side without requiring additional spacing for heat dissipation.

Using the M100 with this panel-building strategy allows for compact layouts while maintaining the components' full operational capacity, effectively maximizing space efficiency in panels without compromising performance.

The M100 is capable of zero-stacking with no derating up to 55 Celsius making it a reliable component in space-constrained environments where uninterrupted operation and precise monitoring are critical.

**Additionally, zero-stacking with the M100 allows for enhanced:**

**Continuous monitoring:** It allows for continuous monitoring of critical points in the production process. This continuous coverage ensures that no object or condition goes undetected, thereby maintaining quality and safety standards.

**Flexibility and scalability:** Industrial processes often require flexibility and scalability. Zero-stacking allows for easy adjustment and expansion of networks without significant redesign or reconfiguration, making it adaptable to changing production needs.

**Cost efficiency:** While it involves deploying multiple components, zero-stacking can be more cost-effective compared to other methods of redundancy or reliability enhancement.

### The M100 promises

- ✓ Fewer components
- ✓ Simplified wiring
- ✓ More panel space
- ✓ Less complexity

# Wide amperage range for your application

Design your control panel to meet tough safety requirements while reducing component and engineering complexity and leveraging the power of Point-on-Wave Switching technology, overload, phase loss and weld detection.

Up to 9A



22.5MM WIDTH

Up to 23A



45MM WIDTH



# M100 catalogs

## 9A M100

Screw Terminals  
24VDC Control

Catalog	PN	Description	RANGE	OPERATIONS	REVERSING	TERMINAL TYPE
M109N-C09-S	PN-671675	Standard Non-Reversing Starter 0.75 to 9A, Screw Terminal	0.75 TO 9A	Standard	Non-Reversing	Screw Terminal
M105N-C09-S	PN-671677	Standard Reversing Starter 0.75 to 9A Screw Terminal	0.75 TO 9A	Standard	Reversing	Screw Terminal
M109S-C09-S	PN-671679	Standard Non-Reversing Starter 0.75 to 9A, Screw Terminal	0.75 TO 9A	Safety	Non-Reversing	Screw Terminal
M105S-C09-S	PN-671681	Standard Reversing Starter 0.75 to 9A, Screw Terminal	0.75 TO 9A	Safety	Reversing	Screw Terminal

## 23A M100

Screw Terminals  
24VDC Control

Catalog	PN	Description	RANGE	OPERATIONS	REVERSING	TERMINAL TYPE
M109N-C23-S	PN-671676	Standard Non-Reversing Starter 4.6A to 23A Screw Terminal	4.6 to 23A	Standard	Non-Reversing	Screw Terminal
M105N-C23-S	PN-671678	Standard Reversing Starter 4.6A to 23A Screw Terminal	4.6 to 23A	Standard	Reversing	Screw Terminal
M109S-C23-S	PN-671680	Safety Non-Reversing Starter 4.6A to 23A Screw Terminal	4.6 to 23A	Safety	Non-Reversing	Screw Terminal
M105S-C23-S	PN-671682	Safety Reversing Starter 4.6A to 23A Screw Terminal	4.6 to 23A	Safety	Reversing	Screw Terminal

## 9A M100

PUSH-IN TERMINALS  
24VDC CONTROL

Catalog	PN	Description	RANGE	OPERATIONS	REVERSING	TERMINAL TYPE
M109N-C09-P	PN-671683	Standard Non-Reversing Starter 0.75 to 9A, Push In Terminal	0.75 to 9A	Standard	Non-Reversing	Push-In Terminal
M105N-C09-P	PN-671685	Standard Reversing Starter 0.75 to 9A Push In Terminal	0.75 to 9A	Standard	Reversing	Push-In Terminal
M109S-C09-P	PN-671687	Safety Non-Reversing Starter 0.75 to 9A Push In Terminal	0.75 to 9A	Safety	Non-Reversing	Push-In Terminal
M105S-C09-P	PN-671689	Safety Reversing Starter 0.75 to 9A Push In Terminal	0.75 to 9A	Safety	Reversing	Push-In Terminal

## 23A M100

PUSH-IN TERMINALS  
24VDC CONTROL

Catalog	PN	Description	RANGE	OPERATIONS	REVERSING	TERMINAL TYPE
M109N-C23-P	PN-671684	Standard Non-Reversing Starter 4.6A to 23APush In Terminal	4.6 to 23A	Standard	Non-Reversing	Push-In Terminal
M105N-C23-P	PN-671686	Standard Reversing Starter 4.6A to 23A Push In Terminal	4.6 to 23A	Standard	Reversing	Push-In Terminal
M109S-C23-P	PN-671688	Safety Non-Reversing Starter 4.6A to 23A Push In Terminal	4.6 to 23A	Safety	Non-Reversing	Push-In Terminal
M105S-C23-P	PN-671690	Safety Reversing Starter 4.6A to 23A Push In Terminal	4.6 to 23A	Safety	Reversing	Push-In Terminal

Standard M100

Safety M100

# M100 Terminal Block Kits

\*All M100 units include a terminal block kit. These SKUs are offered as replacements and are not required.

## 9A M100

Screw Terminals

Catalog	PN	Description	TERMINAL TYPE
M109N-C09-S-TB	PN-714972	Screw Terminal Block Kit for M100 (Included with M109N-C09-S)	Screw Terminal
M105N-C09-S-TB	PN-714974	Screw Terminal Block Kit for M100 (Included with M105N-C09-S)	Screw Terminal
M109S-C09-S-TB	PN-714976	Screw Terminal Block Kit for M100 (Included with M109S-C09-S)	Screw Terminal
M105S-C09-S-TB	PN-714978	Screw Terminal Block Kit for M100 (Included with M105S-C09-S)	Screw Terminal

## 23A M100

Screw Terminals

Catalog	PN	Description	TERMINAL TYPE
M109N-C23-N-TB	PN-714973	Screw Terminal Block Kit for M100 (Included with M109N-C23-S)	Screw Terminal
M105N-C23-N-TB	PN-714975	Screw Terminal Block Kit for M100 (Included with M105N-C23-S)	Screw Terminal
M109S-C23-S-TB	PN-714977	Screw Terminal Block Kit for M100 (Included with M109S-C23-S)	Screw Terminal
M105S-C23-S-TB	PN-714979	Screw Terminal Block Kit for M100 (Included with M105S-C23-S)	Screw Terminal

## 9A M100

PUSH-IN TERMINALS

Catalog	PN	Description	TERMINAL TYPE
M109N-C09-P-TB	PN-714980	Push-In Terminal Block Kit for M100 (Included with M109N-C09-P)	Push-In Terminal
M105N-C09-P-TB	PN-714982	Push-In Terminal Block Kit for M100 (Included with M105N-C09-P)	Push-In Terminal
M109S-C09-P-TB	PN-714984	Push-In Terminal Block Kit for M100 (Included with M109S-C09-P)	Push-In Terminal
M105S-C09-P-TB	PN-714986	Push-In Terminal Block Kit for M100 (Included with M105S-C09-P)	Push-In Terminal

## 23A M100

PUSH-IN TERMINALS

Catalog	PN	Description	TERMINAL TYPE
M109N-C23-P-TB	PN-714981	Push-In Terminal Block Kit for M100 (Included with M109N-C23-P)	Push-In Terminal
M105N-C23-P-TB	PN-714983	Push-In Terminal Block Kit for M100 (Included with M105N-C23-P)	Push-In Terminal
M109S-C23-P-TB	PN-714985	Push-In Terminal Block Kit for M100 (Included with M109S-C23-P)	Push-In Terminal
M105S-C23-P-TB	PN-714987	Push-In Terminal Block Kit for M100 (Included with M105S-C23-P)	Push-In Terminal

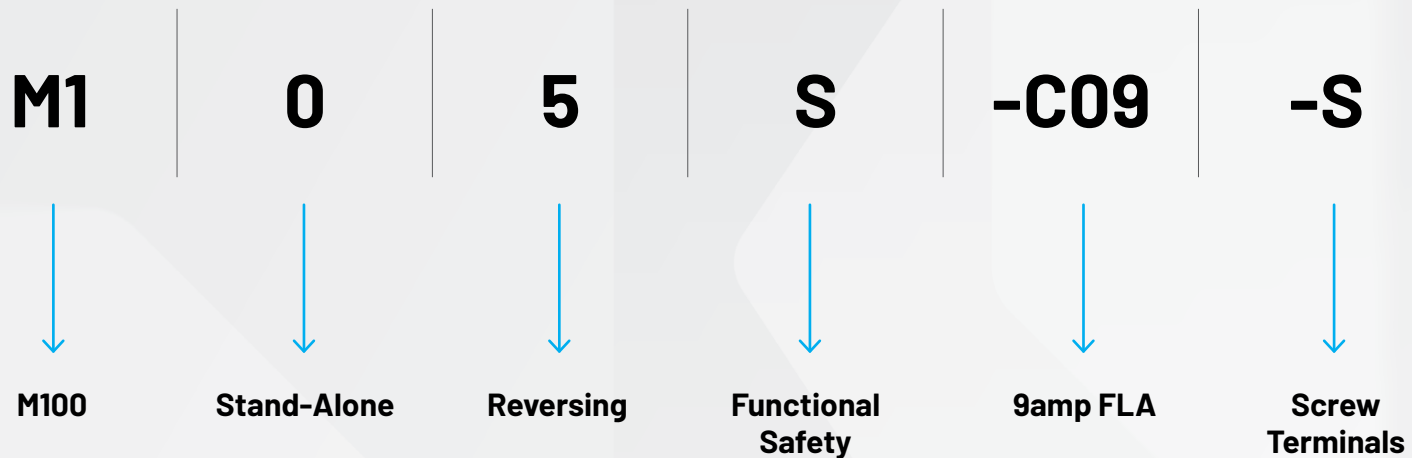
Standard Kit

Kit Includes Safety Terminal

# Catalog breakdown

M100	Network	Reversing	Safety	Max FLA	TERMINAL TYPE
M1	0 Stand-Alone	5 Reversing 9 Non-Reversing	S Functional Safety N Standard Non-Safety	-C09 9 amp -C23 23 amp	-S Screw -P Push-in

## Example: M105S-C09-S







# Redefining motor control

Embrace the future of industrial motor control with the M100 Electronic Motor Starter. Ensure your operations are efficient, reliable, and safe.

Contact us today to learn more about how the M100 can benefit your specific industrial needs.

[Learn more about our portfolio of branch motor control and protection solutions](#)

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[rockwellautomation.com](https://rockwellautomation.com)

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