MOMENTUM™ MACHINE CONTROL: GET THE MOST FROM YOUR CRITICAL SYSTEMS



Honeywell
Intelligrated®

KEEP PRODUCTS MOVING

DCs need machine control solutions that are easy to use and maintain, preferably with safeguards to identify maintenance risks before they cause unexpected downtime.

SUPERIOR SPEED AND ACCURACY

Momentum Machine Control (MC4) is designed to maximize your throughput without sacrificing accuracy or damaging product. MC4 combines powerful capabilities to provide a high level of modern, web-based, internationalized, modular and connected solutions for conveyor and sortation control. While the needs of any given DC may vary, machine control often can be implemented at lower capital and operational costs than other control solutions, while decreasing the cost of delivery for projects of various sizes and complexities.

DESIGNED FOR FLEXIBILITY AND RELIABILITY

MC4 overcomes the vulnerability of full-system shutdowns of PC-based systems by giving you the option of running distributed controls on an industrially hardened embedded controller with no moving parts. This increases reliability, reduces repair costs, and minimizes upgrade costs by providing a backward-compatible upgrade path. The distributed controls option enables you to have planned or unplanned downtime in an area without affecting the rest of the system. A centralized control option is also available for upgrades of older, centralized sites.

A COMPLETE MACHINE CONTROL SUITE

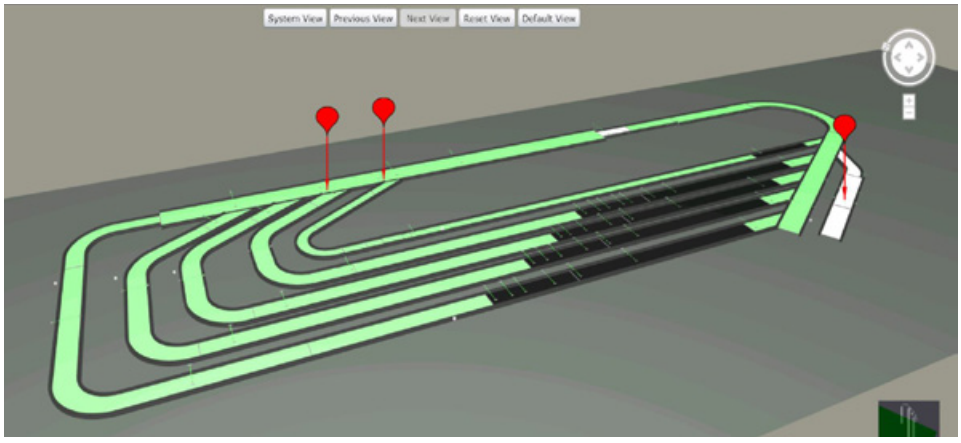
The full MC4 suite of functionality combines the following machine control systems:

- General Conveyor Control
- Sortation
- Merges
- Gap Optimizer
- Diagnostic and Calibration Tools

A NEXT-GENERATION MACHINE CONTROL PLATFORM

MC4 combines the following capabilities to provide a high level of facility control. It can complement Momentum warehouse execution system (WES) software as well as other WES.

- **General Conveyor Control —** This service manages transportation and accumulation conveyors and handles any events or alarms associated with them.
- **Sortation —** Multiple sortation solutions are controlled, enabling them to run at a much higher rate while decreasing the risk of damaging product.
- **Merges —** MC4 can be configured to control a variety of merge systems with a hybrid logic, allowing lane types to be combined for optimal throughput.
- **Gap Optimizer —** The MC4 gapper system measures and adjusts the spacing between cartons, enabling a high-speed merge rate of 400 cartons per minute with gaps as short as 1 inch between cartons. Gapper functionality is also available as a stand-alone feature for any programmable logic controller (PLC), PC or hybrid system.
- **Diagnostic and Calibration Tools —** These allow you to set, clear, and verify calibration values for merges and sorters. You'll also get alerts when chain oil runs low or other maintenance is required.



MC4 — BENEFITS TO YOUR ORGANIZATION

Longer Hardware Lifecycle

While many machine control systems require hardware updates every three to five years, MC4 is designed for a robust service life of eight to 10 years.

- Reduces your total cost of ownership by resulting in fewer upgrades throughout its lifecycle
- Combines the strengths of PLCs, PC-driven solutions and WES
- Superior reliability and stability delivered by QNX platform and standardized control architecture
- Fewer shutdowns for system upgrades and security patches

Expanded Capabilities

MC4 seamlessly blends the features from previous Honeywell Intelligrated control systems, including BOSS® and ICW®. You get the best of both worlds in a single integrated system.

- Embedded architecture for longer system life
- Real-time visibility and capabilities keep you informed of the health of your system
- Advanced reporting, diagnostics and calibration
- Intuitive human-machine interface (HMI) capabilities
- Easy access to purchase parts with OnTimeParts™ synchronization

Enabling Technologies

MC4 delivers up-to-date, modern capabilities while enabling you to get the most from your existing assets.

- Large-system simulation enables testing and optimization of advanced routing and other upgrades before implementation
- Enables Connected Assets functionalities, including:
  - Industrial Internet of Things (IIoT)
  - Remote monitoring and asset data trending
  - Assurance 360 to collaborate with Honeywell Intelligrated experts and performance specialists to increase site performance
- Modular design leverages existing equipment and enables growth flexibility
  - Increase throughput with gap optimization
  - Adaptive merge capabilities with IntelliMerge®
  - System rate enhancements
  - Seamless integration of future capabilities
- Existing asset utilization is possible, including I/O, conveyors, route engine and more
  - Reduce total capital expenditures
  - Decrease install time

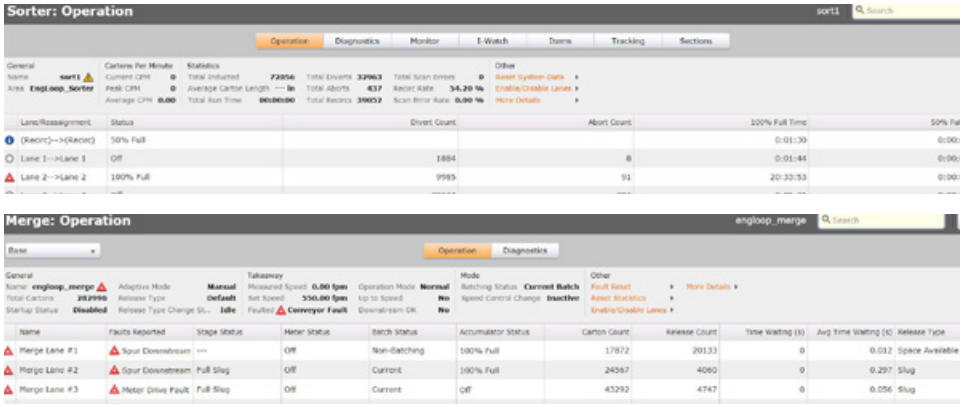
Easy Serviceability

MC4 is designed for easy implementation, upgrades and service without interrupting your normal business operations. You'll also get more of the critical data you need to optimize and troubleshoot your operation.

- 24x7 technical support
- Better visibility for troubleshooting your existing systems
- Expanded diagnostics such as sorter calibration, merge calibration, trace logging and enhanced drive tests
- Non-invasive installation and upgrade processes work within your existing scheduled downtime

MAXIMIZE YOUR UPTIME

Additional reliability is made possible by running MC4 on QNX, rather than Windows. This allows for greater stability while reducing shutdowns for upgrades and security patches. In addition, the control architecture focuses on configuration instead of custom coding. As a result, projects can be implemented faster with a standardized code base that provides users a more traditional plug-and-play experience.



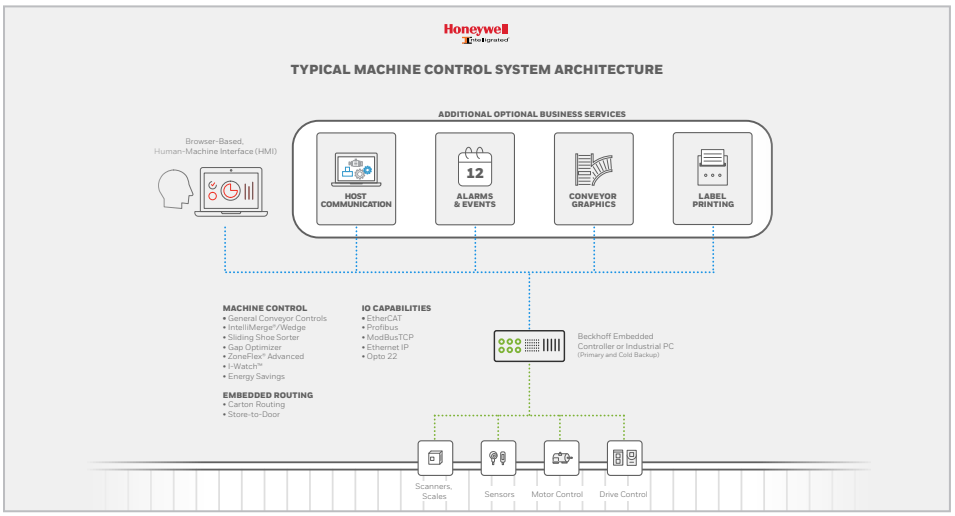
VERSATILE, MODERN CONTROLS AT AN AFFORDABLE COST

By providing a suite of modular control services in a single package, MC4 controls offer a more flexible and up-to-date user experience, plus superior efficiency. In most DC environments, the system can be implemented at a lower total cost than traditional PLC- or PC-based systems.

MC4 can complement Momentum WES software, and also provides an attractive alternative for high-performance conveyor and sortation control to DCs that don't require the more extensive features of a WES solution. Sophisticated emulation and simulation capabilities make it possible to evaluate the efficiency of different configurations prior to implementation, optimizing the system and reducing commissioning time.

HYBRID APPROACH DELIVERS SUPERIOR FACILITY CONTROL

MC4 is a hybrid machine control platform, designed to combine many of the advantages of PLCs, PC-driven solutions and WES.



THE CONNECTED DISTRIBUTION CENTER

The pace of change in modern commerce is putting tremendous pressure on fulfillment operations. To stay competitive and protect profits, companies need solutions that help them achieve maximum throughput, day-to-day flexibility, future-proof scalability and intelligence to make informed decisions.

The Connected Distribution Center helps companies make the digital transformation necessary to increase reliability, improve utilization and maximize productivity through:

- Intelligent, data-driven, high-speed execution
- Automated, adaptable processes for machines and workers
- Optimized utilization with the ability to seamlessly adapt and expand
- Insights and predictive analytics, from sensors to the cloud

THE FUTURE IS WHAT WE MAKE IT

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