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Automotive manufacturers build automation efficiency with the Sysmac platform and Sysmac Studio IDE

Manufacturers at every scale are using automation hardware to increase productivity, improve quality, maximize safety and reduce costs. But it is automation software that often determines whether these investments are going to deliver significant value.

"You cannot create substantial competitive advantage without good software," says Bryan Monty, automotive strategic account manager for Omron Automation Americas. "To truly optimize processes, companies need software that allows them to make automation simpler, more flexible and adaptable."

Sysmac platform enables companies to automate without added complexity

Omron recently consulted with several automotive manufacturers that were considering automation solutions. The companies varied in size, market focus and specific project goals, but each one was looking for an affordable and easy-to-implement automation strategy.

Omron's Sysmac integrated automation platform is a tool to meet these objectives. The Sysmac platform includes powerful machine automation controllers (MACs), intuitive human machine interfaces (HMIs), and fast networking via EtherCAT or Ethernet/IP. These complementary technologies support a range of advanced functions, including motion, safety, vision and robotics.

"For customers that want to standardize automation, the Sysmac platform is the way to go," Monty says. "They

can eliminate multiple products and applications and integrate automation, control, testing and data collection. The Sysmac platform makes deployment, training and support much easier."

EtherCAT networks are particularly easy to set up since Sysmac allows the integrator to calculate speed and reaction times in advance. In addition to tools for supervisory control and data acquisition (SCADA), the platform also supports SQL as part of the NJ series of MACs.

Sysmac includes a wide range of third-party automation products, multiple databases and remote-access systems; meets industry audit and verification requirements; and includes tools for adhering to FDA 21 CFR Part 11, EU Annex 11, and Good Automated Manufacturing Practice (GAMP) guidelines.

All this flexibility makes Sysmac very easy to deploy into new or existing plants.

Sysmac Studio delivers control through a single connection

The centerpiece of the Sysmac platform is its Sysmac Studio integrated development environment (IDE). Sysmac Studio provides a library of PLCopen function blocks and an intuitive graphical interface for configuring, monitoring and programming individual machines or entire manufacturing cells. To update an existing environment, an operator typically only has to drag and drop function block objects into a plant's programmable logic monitor (PLC) and associate them with specific mechanical devices.

▪ Business Need
In today's highly competitive global automotive manufacturing environment, small improvements in manufacturing processes can yield large competitive advantages. The high cost of capital and the need to capture an ever increasing amount of data has lead to automation strategies that are often fragmented and complex.

▪ Unique Challenges
Manufacturers are increasing deployment of sensing technologies, employing intelligent motion solutions and starting to discover the potential of "big data." Given the cost, resources and time investment, transitioning to a new automation platform can be an overwhelming process, especially for global manufacturers in search of global solutions.

▪ Customer Benefits
The Sysmac Studio Integrated Development Environment (IDE) provides a single interface for configuration, programming, simulation and commissioning, all with a common variable database. This environment allows machine creators direct access to all elements of their system, eliminating all traditional data synchronization bottlenecks between control disciplines during development supported by a global service, support and training network. This IDE also boasts unique features such as built-in 3D Simulation and Vision Sensor setup options, critical in cutting programming and debug time.

The Sysmac Studio IDE also reduces project time by allowing operators to test, debug, and simulate programs even before production hardware is in place. The software supports access through workstations, browsers, and mobile devices. Operators on the plant floor can also use an Omron NA series HMI to write and insert structured text directly into ladder programs.

"These customers were sometimes supporting multiple programming and middleware packages," Monty says. "Having more software added licensing and support costs and made their operations harder to manage and integrate."

By migrating to the Sysmac platform and standardizing on Sysmac Studio, they were able to eliminate applications and middleware and use a single IEC 61131-3 compliant software suite to improve efficiency across multiple lines and locations. Moreover, advanced functions such as name confirmation, serial ID matching, administrator access rights, controller write protections, and 32-digit passwords allowed them to improve security by preventing unauthorized connections to any system.

Omron training and support for one or a hundred locations

These customers relied on Omron to accelerate their transition to Sysmac. Training engagements included hands-on classes, both for individuals using industrial automation equipment for the first time and for experienced technicians who needed to master advanced functions. Specific educational requirements were addressed at Omron training facilities and through onsite programs.

"Our training organization knows how to localize training and documentation and create real proficiency in less time," Monty says. "We also host free eLearning courses that help users to continue building knowledge over time."

Omron also provides ongoing service support through a global network of automation centers, technical offices, and authorized distributors. This extensive footprint means customers have ready access to machine commissioning and other services.
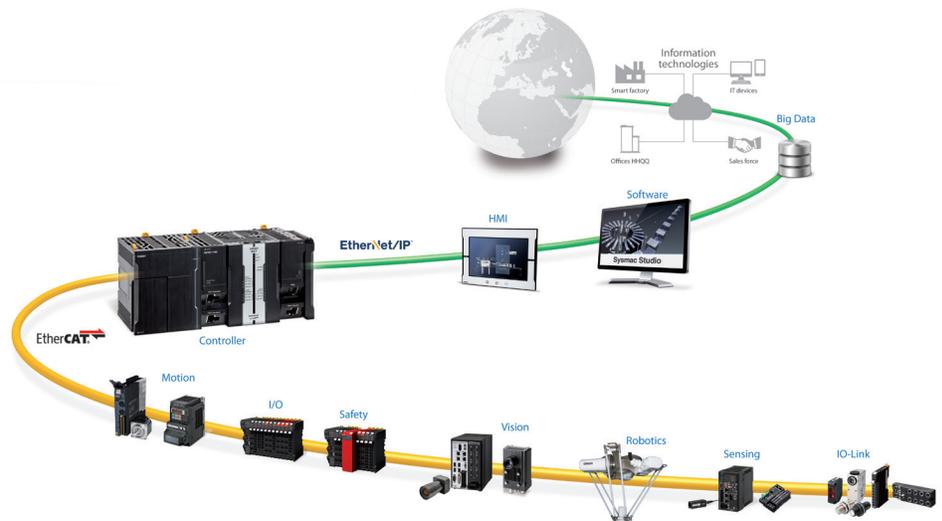
If a part is required, local distributors usually can fulfill orders from their local inventory. Ordering items is simple since part numbers are the same for all regions.

"Automotive manufacturing customers have to maximize automation efficiency to compete," Monty says. "Omron's global footprint means we are always close by to help them meet that objective."

Omron Automation is a global automation partner that creates, manufactures and services fully integrated automation solutions. We provide controls, vision, safety, motion and robotics for the automotive, semiconductor, food/beverage, packaging, pharmaceutical and infrastructure industries.

For over 80 years, Omron has helped industrial businesses maximize potential by solving problems creatively. Currently headed by President Yoshihito Yamada, our company is 36,000 employees strong—providing products and services in more than 110 countries worldwide.

Learn more at: omron247.com

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