

Omron solution reduces wiring, enables hassle-free setup by customer

A success story

Integrating safety control into manufacturing operations can be a major challenge. Many manufacturers find themselves calling upon the safety equipment provider or other outside help to perform the actual integration. Situations in which customers can set up the complete system of their own accord are rare, but Omron strives to make this a common experience.

We're proud to share our latest success story in which our NX-SL5 CIP Safety Controller helped a customer optimize a manufacturing cell without needing our assistance to integrate it into his application.

The need

A customer at a multinational oil field service company was tasked with connecting a Fanuc robot to safety control within a cell containing five large mills. Placed on rails, the robot was moving piping between different steps in the process and then placing it at a laser marking station near the exit. The piping was a component

of the guns used in FRAC charges for oil and gas drilling.

Wire reduction was extremely important, as this particular application could have required more than a hundred extra wires. Fortunately, the customer found a wire-reducing solution in Omron's technologies.

The technology

Since the customer had been using Omron's NX-series safety controllers for a long time, he purchased an NX-SL5 CIP Safety Controller along with an NX102-1020 Machine Automation Controller after Omron's visit to his facility for laser marker training last July.

Secure data collection is a crucial step in improving productivity and developing better processes. The NX1 can securely transfer valuable data to any OPC UA client or traceability information to a SQL database without hampering machine control performance.

Adding CIP Safety to the NX safety controller line helps customers who need to upgrade their equipment safety but want

Business Need

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Unique Solution

The customer bought an NX-SL5 CIP Safety Controller and an NX102-1020 Machine Automation Controller. Omron's emphasis on ease of use allowed him to get the devices up and running by himself.

Customer Benefits

The customer successfully integrated SQL, OPC, CIP, EtherCAT and laser marking functionality without difficulty. The resulting arrangement eliminated over 100 wires from the application.



to leave their existing Ethernet/IP control architecture in place. It's also designed for manufacturers who need to run high-speed synchronous motion applications while enabling machine-to-machine safety messaging. The new NX safety controller makes it possible to communicate with industrial robots as well as other safety devices via Ethernet/IP CIP Safety connectivity and EtherCAT FSoE (Functional Safety over EtherCAT) simultaneously.

Omron's NX-SL5 series safety controllers support the popular CIP Safety networking protocol and are designed to be as easy as possible to use. They boast a wide array of application-simplifying and time-saving features such as Automatic Programming, Safety Data Logging and Online Functional Test. Most importantly, they are simple to integrate into manufacturing applications.

The Outcome

Thanks to the NX-SL5's user-focused design, the customer was able to get the device up and running very quickly on his own, successfully integrating SQL, OPC, CIP, EtherCAT and laser marking functionality without encountering a single stumbling block. The resulting arrangement

eliminated over 100 wires from the application.

According to the customer, this safety controller was the first one he had used with EtherCAT, and his experience was very positive. He likes EtherCAT, and he found that connecting to the industrial third-party robot using an EtherNet connection made it possible to eliminate plenty of hardware and cut costs by eliminating excess cabinets and wiring. He appreciates the controller's sleek, compact build and its intuitive drag-and-drop interface.

In particular, the customer finds it handy that Sysmac Studio lets him visualize and verify his design before he actually connects any hardware – or even purchases it. Essentially, the platform provides a “try it before you buy it” service that allows users to get started on designing applications and see how they might work before they have the physical hardware pieces in front of them.

The customer is looking at upgrading another standalone mill that currently uses old Delta Tau technology alongside an Omron NJ5 CNC, and he wants to use OPC + SQL for everything moving forward.

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.

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