Success Story:
EFC S.r.l.

Markets Served
Food & Beverage

The advantages of SmartWire-DT are manifold.

Francesco Terrone
owner of Micro Automazione

Bottling the Smart Way

Location:
Cesano Maderno (MB), Italy

Segment:
MOEM

Problem:
Simplify wiring as well as improve diagnostics and signalling of a Triblocco 981 MXS, an automatic machine for washing, filling and closing bottles

Solution:
Easy800 control relay with SmartWire-DT, RMQ Titan control circuit devices, PKZ motor protective circuit breakers, DILM contactors

Results:
The use of SmartWire-DT led to a simplification of the whole electrical design and installation time was reduced by over 30%. Improved diagnostics allow for easier maintenance and modification flexibility has increased.

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Background

From dairy and meat processing through to wine and beer bottling, the food and beverage industry is extremely diverse. Specific challenges vary, but hygiene, health and safety are common concerns. Food and beverage producers are rapidly implementing flexible operational workflows and, at the same time, standardising processes to optimise production levels. Efficient manufacturing procedures are extremely important in this low-margin and volatile industry, heavily dependent on ever changing customer needs.

EFC S.r.l. ("EFC") is a medium-sized company based in Cesano Maderno (MB) in northern Italy that specialises in machinery for industrial bottling applications. With over 30 years of experience, EFC fully understands the needs of the food and beverage industry for fast and reliable equipment that can withstand harsh cleaning chemicals. It produces a wide range of semi-automatic machines like bottle washers, rinsers, blow-moulding and filling machines, as well as automated rinsing, filling, capping, block and Triblock machines for wine, olive oil and general food production. One good example is EFC's new Triblocco 981 MXS which features automatic washing, filling (with 6 to 18 taps) and capping (a single-head capper for corks, screw caps and crown caps) in just one process flow, enabling up to 3,000 bottles to be produced every hour.

Challenges

To meet its customers' needs, EFC decided to adapt the electrical design of the bottling machine in order to ease maintenance and improve diagnostics. A key goal was to reduce the internal wiring in the cabinet and to organise it in a way that allowed for easy subsequent modifications and minimal upkeep. At the same time, the machine builder was looking for improved diagnostics and signalling in order to increase operational safety and reliability. All of this meant that the whole electrical system of the Triblocco 981 MXS had to be simplified and improved without any detrimental effect to its performance. At the same time, the engineers had to consider the special requirements of the heavily regulated food and beverage industry for quick delivery, high reliability and optimal safety.

For the redesign, EFC turned to Micro Automazione for assistance. Micro Automazione, a small system integrator based in Cologno Monzese (MI), Italy, is an expert in the design and implementation of automation lines in many industrial sectors. Having carried out several successful projects using Eaton products already, Francesco

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Terrone, owner of Micro Automazione, proposed a solution based on Eaton's innovative communication system SmartWire-DT.

Solution

EFC chose a comprehensive Eaton automation package that included the Easy800 control relays as well as PKZ motor protective circuit breakers, DILM contactors and RMQ Titan control circuit devices.

The minimalistic wiring was made possible thanks to Eaton's lean solution philosophy comprising lean connectivity, lean automation and lean power. Here, all SmartWire-DT slaves within the Triblocco 981 MXS are connected via one single, continuous flat green cable that supplies all components with power and at the same time enables data communication. Any complex and error-prone point-to-point wiring is obsolete. There is no longer a need for I/O modules as the I/O functionality is integrated into the switchgear. Thus, the effort traditionally required for wiring, testing and commissioning machines can significantly be reduced. This allows for savings in installation time and wiring hardware. The option to add new components by simply connecting them to the SmartWire-DT string via connector modules also allows a high level of flexibility for future alterations.

Each SmartWire-DT module can be addressed individually in the system and is capable of self-diagnosis. LEDs on the front of each component indicate failures or malfunctions. As a result, it is easy for maintenance staff to quickly spot faulty components and replace them. The system is complemented by Eaton's SWD Assist software, which supports users in the planning, engineering and commissioning of a SmartWire-DT network.

Today, the Triblocco 981 MXS is controlled by the Easy806 relay that directly communicates with the circuit breakers, contactors and control circuit devices via SmartWire-DT.

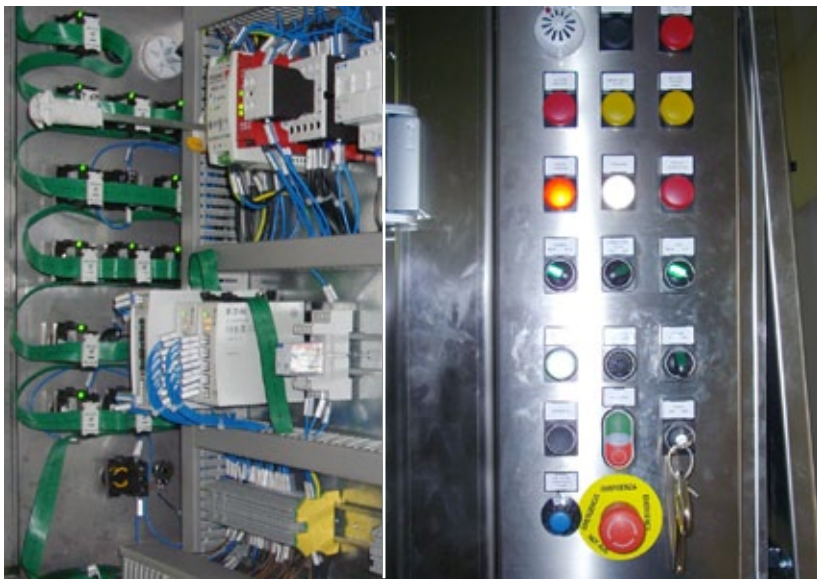
"SmartWire-DT resolves a lot of technical problems in one go. The green cable is the new heart of the Triblocco 981 MXS. Machine builders as well as system integrators can benefit from this powerful solution," says Francesco Terrone. "The advantages of SmartWire-DT are manifold. The cabling, design flexibility, diagnostics and programming are all an improvement on traditional panel wiring and result in a very neat and tidy control cabinet as well as saving a lot of time. Previously, it could take me up to six hours to wire and install a Triblocco 981 MXS, now it takes less than an hour!"

Andrea Martini, sales manager at Eaton in Italy, comments on the project: "EFC is a perfect example of Eaton's ability to meet the needs of both MOEMs and system integrators using its lean solution philosophy. With the combination of SmartWire-DT and Easy800, Eaton can provide improvements for all kinds of MOEM applications, from small up to more complex machines."

Once in operation, the implemented Eaton solution fully met EFC's expectations and, as a result, Micro Automazione has already fitted two more of EFC's bottling machines with SmartWire-DT. EFC is also looking to equip future products with Eaton technology.

Results

"Before knowing Eaton, I used products from different manufacturers: micro-PLCs, push-buttons, motor starters etc., wasting time due to traditional wiring and poor ability to implement changes after installation," explains Francesco Terrone. "SmartWire-DT on the other hand is a very versatile solution. I save a lot of time and I gain flexibility in many ways. The Triblocco 981 MXS is quite complex. Wiring a control panel of such a machine can be very time-consuming. With SmartWire-DT, I save at least 30% in installation time in comparison to traditional wiring solutions. And, as far as I know, it is the only system able to connect all electrical components to one single system for communication and power. I can highly recommend SmartWire-DT to all machine builders who wish to streamline and optimise their processes."



EFC chose a solution including PKZ motor protective circuit breakers, DILM contactors, Easy806 control relay and SmartWire-DT

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