



For us, Eaton has developed a solution with a special value addition. Many of the features were only conceived through the joint development project and now enable us to retain the technological edge on the market.

*Heiko Schulte-Südhoff
CEO at Schuko*

Intelligent Disposal

Location:

Bad Laer, Germany

Segment:

Machine building

Problem:

Optimizing the controller functions and simplifying the operation of briquetting presses

Solution:

XV-102 HMI/PLC, easy821 control relay, PKZ motor-protective circuit-breaker, DIL contactors, RMQ Titan control circuit devices, enclosures from the CS series

Results:

The intelligent automation solution from Eaton simplified the installation, operation and maintenance of the machines, and offers both powerful and cost-efficient controller functions

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Background

The disposal of waste is playing an important role in industry, both on account of the costs and the environmental aspects involved. Particularly in the wood processing industry, production processes accumulate large quantities of wood chips, for which the volume can be considerably reduced through compression. Wood chips shaped in briquettes allow users to then store and transport them in the smallest of spaces.

The Schuko group of companies, based in Bad Laer, specializes in the field of environmentally-friendly waste disposal. Schuko has been producing extractor and filter systems as used in the wood, paper and plastics processing industries for over 45 years. The company's Compacto series of presses are a particularly efficient briquetting

solution. As a technological pioneer, Schuko wanted to make the press machines more intelligent and more flexible. The machine builder therefore asked for the support of Eaton with the development of an optimized automation solution.

Challenges

The briquetting presses of the Compacto series are hydraulically driven and can be fed with material manually, via a bagging or filter system or a cargo floor. Due to the wide range of application fields and the different press materials, Schuko wanted to expand the control functions of its Compacto briquetting presses. The aim was to make the machines more user-friendly and flexible in terms of their adaptability. This called for an intelligent automation concept tailored to Schuko's needs.

Solution

The selected concept consists of the easy control relay in combination with the XV HMI/PLC. PKZ motor-protective circuit-breakers, DIL contactors and CS enclosures from Eaton are also part of the solution. The innovative XV-102 touch screen PLC, with display and PLC functionality, which can be programmed with the CoDeSys standard, forms the heart of the system and supports the operator extensively from commissioning to maintenance.

Press machines are therefore equipped with a variable controller hardware with a single universal software program that can be loaded easily onto the XV-102 via memory card. A Schuko employee configures the machine via the touch screen with the data required for the specific application and selects



Powering Business Worldwide



In the switch cabinet, the easy821 control relay, PKZ motor protective-circuit-breakers and DIL contactors ensure safe, reliable operation.



Eaton's XV-102 simplifies servicing - the machine displays the required maintenance and the contact data of the responsible technician.



the machine type and the material to be compressed. Schuko uses Eaton's intuitive Galileo design tool for the visualization and offers three different operator levels with different function sets – each one password protected – for the machine manufacturer, the trading partners and the end user.

The easy821 control relay takes over the control of time-critical signals (in the hundredth of a second range), such as for the hydraulic cylinders of the briquetting presses, and thus ensures optimum operation. The communication between easy821 and XV-102 is implemented via easyNet, a CAN-based network for easy control relays. A green bar on the XV display also

indicates any faults in the communication between the two devices. An additional I/O module is used for connecting the easy821 control relay to analog sensors for the hydraulic pressures.

The operational hours counter is used by the machine to determine when mechanical wear parts, hydraulic oil or electronic components have to be changed, and also automatically requests the necessary maintenance work. A practical service: In the event of a fault, a stored maintenance schedule shows the operator immediately the correct technical support contact including the telephone number.

Since all the functions of the machine can be represented in the HMI/PLC, individual display and operator devices that previously had to be integrated and wired in the control cabinet became unnecessary. Schuko thus benefited from the fact that the installation in the control cabinet housing, as well as material, installation and stock-keeping costs could be kept to a minimum.

Results

The new controller concept also made it possible to integrate an electronic level monitoring of the hydraulic oil, which offered a safety shutdown in the event of an oil leak.

"The Eaton concept has given us a cost-efficient two-stage solution," sums up CEO Heiko Schulte Südhoff. "The short programming steps are implemented in the easy821, parameter functions such as recipe management are handled by the XV-102. With just a single operator unit and only one single program type required, we can efficiently control all machine types and press materials."

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