



## Understanding the rules and regulations for exporting to North America

Adapting machinery and equipment for the North American market is challenging because there are different standards that apply and many questions that need answering. For example, why are internationally tried and tested motor protection switches subject to restrictions? What do terms like feeder and branch circuits mean? Why do local product standards require different clearance and creepage distances? What devices are suitable as branch circuit protective devices? Control cabinet manufacturers and companies such as AZO CONTROLS GmbH rely on Eaton for professional support and project consultation for exporting to North America.

**Location:**

Osterburken, Germany

**Challenge:**

Upgrading control cabinets for plants and machines that have already been successful in Europe for export to the North American markets.

**Solution:**

A partnership arrangement with a specialist company that is familiar with European standards as well as North American requirements and customs and who provides appropriate products as well as training and consultancy services.

**Results:**

The successful and efficient implementation of projects in North America and the expansion of AZO CONTROLS' operations as a result.

*"Thanks to the help from the experts at Eaton, we were able to complete our first project in North America without encountering any issues."*

*Marco Zimmermann, AZO CONTROLS GmbH*

**Background**

AZO CONTROLS has four sites in Germany and is well established internationally as a specialist in automation solutions. It has performed more than 2,000 installations in industrial automation and control technologies and 600 installations in process control worldwide. The company's projects range from the field

level and Manufacturing Execution System solutions to integration with Enterprise Resource Planning (ERP) systems. As a UL-listed control cabinet manufacturer (UL file E316405), AZO CONTROLS is authorized to label cabinets with the UL mark, for example for dosing and mixing units, directly at the place of manufacture. The company is one of a few manufacturers



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in Germany to have received the UL authorization to supply hazardous locations since 2011. Eaton has supported the company in navigating its way through the maze of codes, standards, norms and country-specific customs.

### Challenge

In North America, there are different regulations and approvals for machine building components. To avoid problems during the acceptance process undertaken by the authority having jurisdiction (AHJ), there are a number of factors to consider:

- Different codes and standards apply in North America,
- Only use components that are certified by a Nationally Recognized Testing Laboratory (NRTL) such as UL and/or CSA,
- Choose and combine certified devices correctly in accordance with the applicable codes and standards,
- Take into account North American market conventions and patterns of use.

European machine builders exporting to North America can purchase certified switching and protective devices easily. Most are sold as universally applicable devices suitable for the international market and also for different applications. However, Eaton provides compact circuit breakers as part of its Moeller series that are designed especially for North American customer requirements.

Further information, for example regarding the Short Circuit Current Rating (SCCR), the short-circuit resistance of the control cabinet as a whole, must also be assessed and given. To avoid any problems with American inspectors (AHJ) and the end customers and machine operators not wanting

to accept the devices, a level of familiarity with country-specific and North American customs is essential. Without this knowledge, exporting can prove time-consuming or risky from a financial point of view.

### Solution

It is very difficult for a machine builder to become an expert on all the relevant codes and standards alone. Specific patterns of use can't be studied from a textbook, but instead are learned over many years of experience.

Eaton is an expert in the technological issues that may arise when exporting to North America and it hosts regular seminars that highlight the differences to the IEC guidelines and tackle associated problems. Subject knowledge is not just imparted theoretically; it is explained and discussed. This includes suitable products and combinations as well as relevant real life examples. In addition, Eaton has authored a number of technical essays about this broad and complex subject and these are available for all interested parties.

This includes a white paper that goes into detail on the topic of "Supply circuit disconnecting means with rotary handles in compliance with NFPA 79 and UL 508A." For example, in order to satisfy the requirements of the additional and deliberate action as described in the standards when lifting a door lock switch and when switching on the master switch when the control cabinet is open, Eaton offers a special door-mounted rotary handle with an additional turning handle.

In the North American version of the rotary handle on the master switch, the deliberate action required consists of three steps: turn the additional handle 20 degrees in the direction of "ON,"

press the handle in, and turn it further until it is in the "ON" position. To turn the switch off, simply turn it back into the "OFF" position. The Eaton devices can be locked on the switch as well as on the door-mounted rotary handle.

"These master switches from Eaton are very well conceived," notes industry expert Marco Zimmermann from AZO CONTROLS. "The product is well ahead of its competitors in terms of its construction, quality, ease of use and installation."

### Results

For several years, AZO CONTROLS has benefited from Eaton's well-established product portfolio and extensive consultations and has successfully and efficiently managed a number of export projects in North America.

Marco Zimmermann concludes: "Because of our knowledge in making control cabinets in Europe, we wanted to do the same for the North American market. When looking for a solution, we approached Eaton, our long-standing partner and supplier, who promised us immediate support. Just half a year later, our first switchboard was accepted by UL Germany. We have been able to realize this project as well as all our other projects without problems thanks to our close ties with the specialists at Eaton. In addition to a worldwide availability of products, Eaton also provides 24/7 support and quick responses to questions with immediate confirmations from the US."

AZO CONTROLS has also now established a service location in Memphis, Tennessee.



Marco Zimmermann (right) and Anton Shehadeh (left) from AZO CONTROLS are very happy with Eaton's support in assisting with issues related to exports



Eaton offers master switches with a specially-developed door-mounted rotary handle, which features a "deliberate action" as per NFPA 79 and UL 508A



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