TECHNICAL ARTICLE

Control panel, motor control, selection made easy

Selecting devices matched to your motor to help ensure safe, reliable operation has never been easier. The just released ABB Motor Starting and Protection Selector mines relevant catalogs and resources to provide a bill of materials for the circuit.

—
Berea Janzen
Product Marketing Manager - Contactors

ABB Electrification Business

Motors make industry go. You will find them in every corner of your operations. They run your conveyors, pumps, fans, cranes, mixers, compressors, and more. Although most industrial electric motors are relatively simple devices, installing a new or replacement motor isn't a simple plug-and-play activity. That's because, in addition to the motor itself, several additional electrical-control devices are required to power, protect, and control it. This could include contactors, variable frequency drives (VFDs), switches, breakers, and other devices.

Whether you are a facilities operator, panel or machine builder, distributor, or electrician, it's essential to select devices matched to your motor to help ensure safe, reliable operation. But correctly sizing the protective devices can be difficult and tedious, in part due to the many different available device types.

You could choose to install a drive, softstarter, contactor, or enclosed starter to turn your motor on and off. You also need to find the correct fused switch or circuit breaker for short-circuit protection. Then you need to find the correct overload relay for that size motor. All of these products need to be sized one at a time – all based on the same motor specifications - hp, voltage, etc.

The process is painstaking. Buyers must pull up the technical catalogs and manuals for each product and find the page with the product that matches their motor specs. They must then repeat the process for every other product.

But a recently released tool, the ABB Motor Starting and Protection Selector, greatly simplifies the process of selecting the right devices to use in combination with any motor. This comprehensive search spans across both discrete and complete (enclosed) solutions, as well as different types of starters.

In the past, identifying the electrical devices for the new motor circuit required referencing multiple resources, including catalogs, hardware manuals, configurators, and coordination tables. The buyer needed to include a number of factors in their search for each device, including motor horsepower, voltage, current, short circuit current rating, and other parameters.

With the ABB Motor Starting and Protection Selector, the buyer simply has to enter the motor specifications from the plate or datasheet to find to find the recommended electrical products for their power

circuit. The information is already loaded for ABB Baldor® motors (one of the best selling motors in the US), so all that is needed in that case is the catalog number. The calculator is connected to all of the necessary resources needed to identify the motor-circuit devices for any given motor and provide a bill of materials of UL-listed combinations. Next to each device is a link to the catalog, web page, where-to-buy page, and the product configurator.

For motors used in standard applications and operating environments, the results returned by the calculator should be consistent with a manual search. Of course, there's an incredible range of conditions that could affect the choice of devices. The calculator includes a number of prompts and warnings for typical exceptions to a standard motor installation. Still, for unusual applications or harsh/unique environments, it's best to use traditional selection tools and possibly talk to an expert to help ensure a safe, reliable motor-control system.

Putting the tools to work

Whether you are a manufacturing engineer, maintenance-team member, or panel builder, and whether you have only a basic working knowledge of motor circuits or have deep expertise, you need various resources and tools to make good product selections. The Motor Starting and Protection Selector is a great starting point for any motor-installation project.

And beyond all of these self-help resources, you can always reach out to an ABB expert for guidance in selecting motor-control devices that will help ensure safe and reliable operation.

Additional Resources

The ABB Motor Starting and Protection Selector is all you need to select the needed devices for typical motor installations. However, engineers and maintenance people with higher levels of motor expertise may want to dig deeper. For them, there are additional, more complete, and highly detailed references.

Short Circuit Current Ratings for Combination Motor Controller Components: A UL website with short-circuit current ratings for most major OEMs' products in combination.
https://www.ul.com/resources/short-circuit-current-ratings-combination-motor-controller-components

SCCR Slide Rule: A simplified way to apply the information found on the UL website (see above). Enter your address to receive the slide rule in the mail.
https://lvpinfo.com/418

"Choose the right combination motor controller (CMC) type for your next panel": A concise InControl article describing the basic CMC types.
https://electricalengineeringresource.com/choose-the-right-combination-motor-controller-type-for-your-next-panel/

ABB CAD Download Center: A library of 2D drawings and 3D CAD models useful to panel designers.
https://abb-control-products.partcommunity.com/3d-cad-models/low-voltage-products-systems-abb-low-voltage-systems?info=abb_ww%2Flow_voltage&cwid=9645)

Electrical Distribution Tools and Calculators: An ABB website with resources to help with protection systems and fault current information, including Short Circuit and Full-Load Current calculator.
https://electrification.us.abb.com/tools-and-calculators

Publication library: A searchable library of ABB documents on a broad array of topics.
https://electrification.us.abb.com/publibrary

EPiC App Download: A link to a no-cost mobile app for installers, maintenance technicians, and panel builders, with features to help with product configuration, installation, commissioning, and other activities.
https://new.abb.com/low-voltage/launches/epic

ABB Inc.
305 Gregson Drive
Cary, NC 27511
United States

electrification.us.abb.com

Customer Service:
888-862-3290
abbinsidesalessupport@us.abb.com
Monday - Friday, 7am - 5:30pm, Central Time

Tech Support:
888-437-3765
Monday - Friday, 7am - 5pm, Central Time