

Frequently Asked Questions

Understanding UL508A

1. What is the impact of NEC 2005, Article 409?

The intent of Article 409 is to prevent the misapplication of control products and related equipment. This article will provide the minimum requirements to ensure safe installation and inspection of industrial control panels. Article 409 covers industrial control panels that are intended for general use and operate at a voltage of 600V or less. The entire panel and all components inside will be required to meet a defined Short Circuit Current Rating (SCCR) for the application, and the panel will have to be marked with the appropriate SCCR. The marking requirements of UL Standard 508A Industrial Control Panels for SCCR ratings do not take effect until April 2006.

2. What is UL Standard 508A?

UL508A is the UL standard for the construction of Industrial Control Panels. This document gives guidelines to panel builders on various issues including proper component selection, wiring methods and calculation of short circuit current ratings. If a customer follows UL508A's construction requirements and recommendations, they can apply to have their panel listed by UL. Upon successful inspection, the panel would bear the UL label.

3. What is Eaton's commitment to Article 409 and UL508A?

Eaton has created data tables, which will help you determine the SCCR for your industrial panel by providing the ratings for our products.

Eaton is committed to electrical safety and to providing our customers with UL listed & UL Recognized products and solutions. Eaton can add value by discovering mistakes before UL does, and prevent costly re-inspection. Re-inspection in the field can cost several thousand dollars. By purchasing coordinated components from Eaton, panel builders can simplify their SCCR compliance and take advantage of Eaton's higher SCCR ratings for tested combinations.

4. What does a UL Listed Industrial Control Panel label signify?

A UL label signifies that the panel builder has met the requirements of UL508A, and that their panels are subject to inspection by UL field representatives. Not every panel is inspected by UL, but panels are subject to inspection by UL depending upon the quantity of UL Labeled panels made in a give time period. A UL Follow Up Services representative inspects the facility and reviews the panels to the UL508A Procedure for the particular panel shop being inspected. If the panels are found to be in compliance, they are permitted to continue production and apply the UL Label.

5. How does UL relate to the National Electric Code (NEC)?

The NEC is the code accepted by most inspection agencies in the United States for safe installation of electrical equipment. While the UL standard looks at the construction of the OEM panel, the NEC looks at the manner in which this same panel is installed. This code is updated every 3 years, and typically takes 2-3 years before code enforcement begins. For instance, many cities still use the 1999 NEC as a basis for their electrical code.

6. Is there a relationship between UL and the NEC?

Even if a manufacturer follows all of the guidelines implemented by UL at the time of manufacturing, the panel may not meet the requirements of the NEC, which are enforced by local electrical inspectors. For instance, the National Electric Code requires that equipment be labeled with the Short Circuit Current Rating, and that the SCCR of the equipment exceed the available short circuit current at the point of installation. While the NEC requires this, the UL standard for labeling does not take effect until April 2006. *There may be situations, where an inspector will not allow the installation of this panel, even though it carries a valid UL listing.* Many customers have been surprised by these changes, and by helping our customers understand the code, Eaton can help prevent costly errors and frustration.

7. What does a UL listing mark mean?

A UL listed component bears the UL listing mark and has been subject to testing. The UL Listed label is evidence that the manufacturer submitted **complete** product samples for testing, witnessed by UL representatives. These products are subject to testing and evaluation by UL and were found to meet nationally recognized safety standards. Products can also be "UL Recognized", which means that the product was found to be safe in particular instances when reviewed and accepted by UL in the final application. OEMs utilizing UL Recognized components in a control panel must ensure that their application meets additional requirements described in their UL procedure.

8. How do I obtain the SCCR for a panel I am building?

There are three options:

1. Purchase previously tested combinations from a major supplier that can be tabulated in the panel builder's procedure. Eaton is a major component supplier that is committed to providing this information to our customers. Once you have all of the component ratings, either use an outside service or UL508A Supplement SB.
2. Test each panel construction and record the construction in a follow-up procedure. With the numerous possibilities for product combinations within a panel, this option will require a tremendous investment in testing and maintenance. The test has to be witnessed by a UL project engineer.
3. Utilize the method described in UL508A Supplement SB.

9. How do I calculate the Short Circuit Current Rating of a Control Panel based on UL508A Supplement SB?

There are three simple steps to calculating the SCCR Rating of a control panel.

Step 1: Determine the individual short circuit current rating of each individual component in the system. All power circuit components, including disconnect switches, branch circuit protective devices, branch circuit fuse holders, load controllers, motor overload relays, terminal blocks, and bus bars, shall have a short circuit current rating expressed in amperes or kilo amperes and voltage. You can exclude transformers, dry-type capacitors, resistors, varistors and voltmeters.

Step 2: Calculate the available short circuit current when taking into account current limiting components like control power transformers, fuses and circuit breakers.

Step 3: Compare the values obtained in steps one and two to determine the overall short circuit current rating of the panel. The lowest rated SCCR of the device within the control panel must be the one that is marked on the panel.

10. Does Eaton have published ratings for its electrical products?

Yes, a database is in the process of being created. Eaton will publish ratings for starters, contactors, circuit breakers, and drives on www.EatonElectrical.com.

11. Whom can customers contact for more information about SCCR ratings on Eaton's products or with any further questions?

You can email or call the Technical Resource Center at trc@eaton.com or at 800-356-1243 Option 3.