

# Electrical Connections

For regulatory authorities in the electrical inspection community.

## UL Recognized Component Marks: What code authorities need to know *by Jeff Fecteau*

As a basis for approval, code authorities look for UL Listing Marks to verify that products have been investigated for installation in the field in accordance with model codes.

During inspections of electrical installations, code authorities may see a variety of certification marks, including the UL Listing Mark and UL Recognized Component Mark. To properly approve the installation, it is important for code authorities to understand the meaning of each of these marks as well as the important differences between them.

The UL Listing Mark is the most common certification mark seen and accepted by code authorities. Products bearing the UL Listing Mark are usually either complete appliances, or equipment and materials that are intended for installation in accordance with model codes such as the National Electrical Code® (NEC®). These products have been investigated using applicable construction and performance requirements, and when installed in accordance with the manufacturer's installation instructions, should provide a safe, code-compliant installation. The UL Guide Information for each product category typically identifies the applicable installation code.

Comparing UL Listing and Component Recognition is like comparing a car and an engine. A car is a finished product, and an engine is a necessary component. However, not every engine is compatible with every car. The same is true for UL Recognized Components, which will not be compatible with all end-product equipment applications. UL's Listing evaluation of an end product includes an investigation of the construction and performance of all installed components.

In addition to certifying products for field installation in accordance with model codes, UL investigates components that are used by manufacturers to build UL Listed end products. In this way, UL can determine in advance safety features and ratings for components. End-product manufacturers can opt to use components that have already been subjected to limited testing to avoid repeat testing for the end-product certification. Plastic materials, definite purpose contactors, board mounted relays and motors are all examples of components investigated by UL and bearing the UL Recognized Component Mark.

Because components are only intended for installation in end products whose safety is evaluated by UL separately, they may be incomplete in construction or restricted in performance capabilities. This factor precludes their safe installation by electricians or contractors in the field. UL Recognized



Components have been evaluated by UL for factory installation within equipment where the component's limitations of use are known and investigated by UL. Finally, UL Recognized Components have conditions of acceptability that describe how components can be used within end products. Using a component outside the conditions of acceptability triggers additional evaluation of a component's safety.

An example of a UL Recognized Component that a code authority may see in the field is a definite purpose contactor. It is not until a Recognized Component is installed within an end product that UL can verify compliance with the conditions of acceptability. Examples of conditions of acceptability for a contactor may include:

- Component is not intended to be cycled by the operation of an automatic reset overload

(continued)



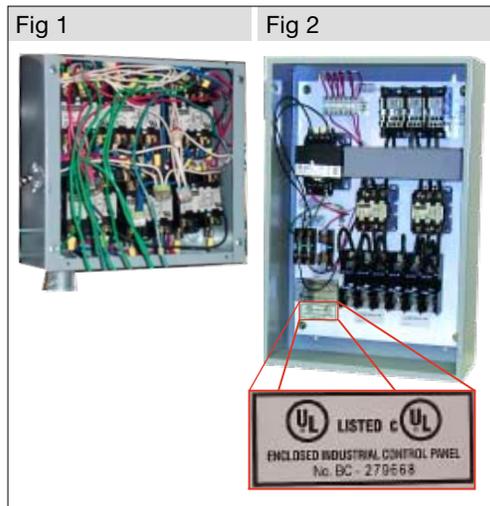
## UL Recognized Component Marks (continued)

- Terminals are to be factory wired only
- Suitability of the connections, including spacing between factory connectors, must be determined once installed within an end product
- Short circuit capability may need to be evaluated in the end-use application
- Spacing from exposed live metal parts to the enclosure must be evaluated in an end product

If a Recognized Component is installed in the field, the only way for UL to verify compliance with a component's conditions of acceptability is to conduct a UL Field Evaluation on the end product where the component is installed.

A common use of UL Recognized Components is within industrial control panels. Article 409 of the NEC covers industrial control panels intended for general use at less than 600 volts and defines them as an assembly of two or more components, consisting of power circuit components, control circuit components or a combination of both. UL Lists industrial control panels to UL 508A, the Standard for Safety of Industrial Control Panels. UL Guide Information can be located in the 2009 UL White Book under the product category Industrial Control Panels (NITW) on page 227 or online at [www.ul.com/database](http://www.ul.com/database).

The industrial control panel shown in Fig. 1 was field assembled using UL Recognized



## New combined UL Mark for the United States, Canada and Europe

Products in compliance with UL's Listing and Follow-Up Service for the United States and Canada, as well as UL's service and factory inspection requirements for Europe may now bear a new combined UL Mark as shown below:



Products bearing this new combined UL Mark will continue to be subjected to the same certification testing and evaluation required for the United States and Canada, with additional considerations to determine

compliance with requirements for the European marketplace.

The combined UL Mark for the United States, Canada and Europe generally includes the following elements:

- UL in a circle with "C," "US" and "EU" identifiers at the locations shown
- Word "LISTED"
- Product identifier
- Control or issue number

Products bearing a UL-EU Mark alone have been investigated only for compliance to European requirements and may not be suitable for use in the United States or Canada without further investigation.

Components. These components are not intended for field installation, and have not been evaluated by UL as part of a Listing investigation of the panel. As such, this panel would not be considered a UL Listed industrial control panel.

In contrast, the industrial control panel shown in Fig. 2 has been evaluated as a complete product. It is UL Listed and may also contain UL Recognized Components installed in accordance with the UL Listing requirements.

For electrical equipment, always look for the UL Listing Mark, which is your assurance that samples of the end product, including all factory-installed components, have been evaluated by UL and found to comply with UL's Listing requirements.

What should code authorities do when they encounter a UL Recognized Component installed in the field? First, understand that the component has not been investigated for field installation, but rather only for installation in the factory in a complete product investigated by UL. Second, remember that Recognized Components may be used in Listed equipment and products, and to look for the

complete UL Listing Mark to determine if a product has been investigated for an intended application. Finally, a product bearing only a UL Recognized Component Mark should be treated the same as an unlisted product.

For additional information on UL's various certification marks, please see [www.ul.com/marks/](http://www.ul.com/marks/) or contact Jeff Fecteau at +1.952.838.5453 or [Jeffrey.Fecteau@us.ul.com](mailto:Jeffrey.Fecteau@us.ul.com).

### UL Listing Marks are composed of four elements:

1. UL in a circle
2. Word "LISTED"
3. Product identifier
4. Control or issue number

