

Sales Engineering Technical Paper Series

Understanding Underwriters Laboratories, Inc. (UL) Designations

One glance at a household lamp or toaster will no doubt reveal a UL symbol printed somewhere on the product. Many products show a UL mark, and most people understand that the symbol has something to do with safety, however, most people don't know what the product is UL Marked for, or how it was tested. For that matter, "What or who is UL?" Understanding the meaning and significance of the different UL Markings is the first step in being able to specify or purchase the correct product for a specific application.

UL or Underwriters Laboratories, Inc., is a not-for-profit organization that was founded in 1894, to maintain laboratories for the purpose of testing and examining materials, devices, and systems. UL tests are used to prevent hazards to life and property due to faulty products. UL defines and publishes standards, classifications and specifications for materials, devices, products, equipment, constructions, methods, and systems that affect such hazards. There are many different kinds of UL product markings, each with their own meaning and significance. Most can be divided into three basic designations: UL Listed, UL Classified, and UL Recognized.

UL Listed

UL uses a system to determine that a manufacturer has demonstrated the ability to produce a product that complies with UL's requirements with respect to reasonably foreseeable risks associated with the product.



Listed Mark – Employs UL's registered name or symbol generally in combination with the product name, a control number, and the word "Listed."

To become Listed, a product is tested to specific UL requirements. These requirements are based primarily on UL's published Standards for Safety. The only way to determine if a product has been UL Listed is to look for the UL Mark on the product itself. In a few instances, the UL Mark may be present only on the product packaging.

FYI: A number of B-Line electrical enclosures are tested to meet UL's standard requirements as stated in UL 50 "Enclosures for Electrical Equipment". This standard covers a

material thickness that must be used, environmental conditions that the enclosures must withstand, and finishes that must be used, among other things. The standards UL has created are for a specific product under a specific use. Upon successful product testing, our electrical enclosures will receive a UL listing and the UL symbol may be affixed to the product.

UL Classified

Products carrying the UL Classified mark have been evaluated for specific properties, a limited range of hazards, or suitability for use under limited or special conditions. Typically, products Classified by UL fall into the general categories of building materials and industrial equipment. Examples of types of equipment Classified by UL include immersion suits, fire doors, protective gear for fire fighters and industrial trucks.




Classified Mark – Employs UL's name and a statement to indicate the extent of UL's evaluation of the product, such as "Classified by Underwriters Laboratories Inc. with respect to (nature of hazard) only." Similar statements relate to a product's performance under a rating system, or evaluation with respect to a statutory code or other standard. This mark may appear in various forms as authorized by UL. One example for the Classification marking may include the symbol UL in a circle in conjunction with the word "Classified" as shown above.

To become UL Classified, a product must be tested for a specific purpose as mentioned above. Testing may be based on an individual section of a standing UL testing specification or may be referenced to an external code such as the National Electrical Code (NEC).


FYI: The main purpose of a cable tray or runway is to support cables. However, the NEC allows metallic cable tray to be used as an equipment ground conductor. For metallic cable tray or yellow zinc dichromate (YZN) runway to be used as equipment ground conductors, a third party (UL in this case) must test the cable tray and runway for their ability to conduct a current. For Classification, a defined cross section is required to carry a defined current. After successful product testing, B-Line's cable tray and YZN runway would receive a UL Classification as "suitable for use as an equipment ground conductor only". This UL Classification would then be printed on a label and affixed to the product.

UL Recognized

UL Recognized marks are rarely seen because they are specifically used on component parts that are part of a larger product or system. These components may have restrictions on their performance or may be incomplete in construction. The Component Recognition marking is found on a wide range of products, including some switches, power supplies, printed wiring boards, certain kinds of industrial control equipment and thousands of other products.


 **Recognized Mark** – Consists of the manufacturer's identification and catalog number, model number, or other product designation as specified for the particular product. Except in very rare cases, the use of the UL name in any form on the product is prohibited, but the Recognized Component Mark may be used as a supplementary identification.

To receive recognition, a subcomponent product manufactured for use in an assembly is tested. Because a subcomponent is UL Recognized doesn't make a complete assembly UL Recognized. The complete assembly must be tested by UL for Listing, Classification, or Recognition. For example, a company wants to have a machine control module that consists of an electrical enclosure and electrical components such as resistors, capacitors, etc. UL Listed to ensure that it will be safe during operation. The electrical enclosure is already UL Listed as to how it is constructed, and the electrical components are UL Recognized to ensure that they each perform properly. These two facts separately give us no indication that the complete assembly of these multiple components inside of the electrical enclosure will be safe. The complete assembly can be tested to a specified standard that encompasses the safety concerns of the company. If the complete assembly passes the tests prescribed in the specified standard, then and only then, may the entire assembly be UL Listed. An appropriate label would then be affixed to the completed product signifying this.

 *B-Line's PTC fan heaters are sold to many original equipment manufacturers (OEM's). These fans are used to prevent failure of electronic components caused by condensation, corrosion, or low temperatures. This component may be used in one of our UL Listed electrical enclosures, however, as stated above, this doesn't mean that the complete system is UL Recognized, Listed, or Classified. Testing of the completed assembly would have to be conducted to a specified standard.*

Originally, UL's core capacity was to test electrical products to prevent shock or fire hazards. However, in recent years UL has branched out to encompass almost any testing that an end user chooses to pay for. In this capacity, UL is simply performing the function of a third party tester.

It is important to note that any company can petition UL to test and list one of their products for any specification, even though the specification that the product is being tested against may be meaningless for a particular application. Companies seeking to obtain a marketing advantage over a competitor will sometimes use this approach.

 *Specifying that a product must be UL Listed is useless unless you know that UL has a standard that is meaningful for your application. Electrical products are usually tested for shock or fire hazards. Some pipe hangers are tested for weight capacity and corrosion protection. Additional products are simply not UL tested, because no standard or code exists to test them against. For this reason specifying a "generic" UL requirement for all products is somewhat irresponsible. To ensure a quality product in the absence of UL testing, most manufacturers are willing to supply a copy of internal test reports to cover the requirements of a particular application.*

The majority of UL testing does ensure safe products, however, understanding the difference and the significance of the various UL designations can ensure the correct product is being purchased. It can also ensure that specifying that a product must be UL Listed and then finding out that UL Listing of the product has no bearing on your application does not waste valuable time.

Note: Additional information on UL designations can be found on the Underwriters Laboratories website at www.ul.com.