

Harmonic Filters: UL 508 vs UL 508A



Introduction

UL 508 covers industrial control devices and device accessories for starting, stopping, regulating, controlling, or protecting electric motors. These requirements also cover industrial control devices or systems that store or process information and are provided with output motor control function(s).

UL 508A is a subset of UL 508 and is specifically for industrial control panels. According to UL, the official definition of an industrial control panel is an assembly incorporating two or more power circuit components or related control circuit devices, provided with interconnecting wiring and terminals for connections in the field. In accordance with the National Electrical Code (NEC) and other codes, the electrical ratings and instructions are to be clearly explained on the panel to allow the installer to properly install the panel.

Defining the Application

Both UL 508 and UL 508A are certifications designed to ensure industrial electrical equipment standards are met. Their functionality is similar, but the selection of the Listing Mark will depend on the need and application. UL 508 is the standard for industrial control equipment, whereas UL 508A is for industrial control panels. Harmonic filters are available as both UL 508 and UL 508A as they fall into both categories.

UL 508 can be viewed as a product level specification. UL 508A establishes guidelines for the product as well as conservative design rules for interconnects, fusing and protection used in the product. UL 508 designs can be optimized for cost; UL 508A designs are more flexible but may be more expensive.

Trade-offs

A UL 508 listed harmonic filter can be attractive from a cost standpoint but may not always be the correct answer. The combination of fusing, enclosure, and serviceability can be very important in harmonic filters.

Installations with high background voltage distortion can create an overcurrent situation in the tuning circuit of a passive harmonic filter. A UL 508 device typically provides no fusing to this

	UL 508	UL 508A
SCOPE	Industrial control equipment	Industrial control panels
VOLTAGE	<1,500V	<1,000V
SCCR	Not required for auxiliary devices (harmonic filters)	Depends on design (10kA to 100kA)
FUSING	Not required for auxiliary devices	Fusing for internal circuit protection required
ENCLOSURE	No user access	Hinged door or access panel
SERVICE	No user serviceable parts	User/field service allowed
FLEXIBILITY	Design changes require UL approval	Design changes are allowed within UL file parameters, within 508A standard guidelines

Table 1: Comparison Chart

circuit leaving it vulnerable to overcurrent damage. A UL 508A listed harmonic filter is equipped with fuses by design, protecting the tuning circuit and its capacitors. If a tuning circuit failure occurs, the user can open the access door and replace the fuses and any components needing service. A UL 508 filter has no user serviceable parts so the filter must be removed from service and returned to the factory for repair to maintain UL certification.

The UL 508A Listed product is fully modifiable by the manufacturer when using UL certified components and following the UL 508A design rules. The UL 508 panel can only be offered to the customer with the design presented to UL for testing and certification. This greatly limits the options and features a customer can request outside of the standard design of a UL508 certified product.

Conclusion

TCI offers a wide range of power quality products in both the UL 508 and UL 508A classifications. Specifically, TCI HGP and HGL passive filters are UL 508A certified while the HSD is UL 508 certified.

To help determine which filter is right for your application, please visit transcoil.com or contact a TCI representative at 800-824-8282.