

Information Sheet # 02

Your Reliable Guide for Power Solutions

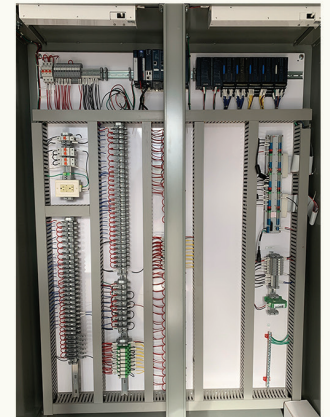
INDUSTRIAL CONTROL PANELS Introduction & Importance of UL Approval

1.0 Introduction:

One of the many areas of LEI expertise is the supply and maintenance of Industrial Control Panels. Understanding the correct Industrial Control Panel to apply to any given application, the applicable codes, and areas of maintenance required are important in ensuring reliable efficient operation and minimal downtime. LEI, as a UL certified supplier and service outlet for Industrial Controls Panels, offer to users all the required levels of resources and expertise.

This information sheet introduces Industrial Control Panels, discusses the components within them, the importance of working with a supplier that offers UL certified and using UL approved assemblies.

Typical Industrial Control Panels for Industrial Applications



Related UL Standards for Industrial Controls	UL Code #	Description of Controls the Code is Applicable to:
<p>Though UL 508A is the most direct standard for control panel designs, it's often listed and researched alongside other related UL standards for industrial controls. Some of the most common ones include:</p>	218	Fire Pump Controllers
	294	Access Control System Units
	845	Motor Control Centers
	864	Control Units and Fire Alarm System Accessories
	891	Standard Switch Boards
	916	Energy Management Equipment
	924	Power Equipment and Emergency Lighting
	1037	Anti-theft Alarms and Devices
	1640	Portable Power-Distribution Equipment

To fulfill our commitment to be the leading supplier, the Layco Electric Innovations team ensures they are always up-to-date with the current industry standards as well as industry trends. As a service, our **Information Sheets** are circulated on a regular basis to existing and potential power customers to maintain their awareness of changes and developments in standards, codes and technology within the power and motor control industry.

2.0 Definition of an Industrial Control Panel:

As defined by the NEC section 409.2 an Industrial Control Panel (ICP) is an assembly of two or more power circuit components, control circuit components, or any combination of power and control components.

ICPs are also covered by the UL product category NITW. UL NITW defines ICPs as factory-wired assemblies of industrial control equipment, such ICPs assemblies can include motor controllers, switches, relays and other auxiliary devices. The ICP may also include disconnecting functions and motor branch-circuit protective devices. However, be aware this UL category does not include coverage of any externally connected loads, it is specific to the ICP.

3.0 Application of ICPs:

UL product category NITW intention is to cover the application of ICPs in general-use industrial applications, examples of which include control of heaters, lighting, motors and/or pump loads or a combination of these loads, these applications are also defined as in ordinary locations in accordance with NEC.

ICPs may also be applied to control other specific types of equipment including but not limited to cranes, various industrial machinery, refrigeration equipment and fountains. Applicable UL codes can vary the category of application an ICP is applied to.

4.0 UL Product Category NITW for ICPs:

UL NITW defines three product categories for the application of ICPs.

1. Enclosed Industrial Control Panel
2. Open Industrial Control Panel
3. Industrial Control Panel Enclosure

4.1 Enclosed ICP: An enclosed ICP is comprised of the enclosure, all components located within the enclosure, and all components mounted to the walls or cover of the enclosure.

4.2 Open ICP: An open ICP is comprised includes internal wiring, field wiring terminals and sub panel mounted components without being enclosed. The intention is the open IPC is supplied as part of an installation.

4.2 ICP Enclosure: Industrial control panel enclosures are checked by the Authority Having Jurisdiction (AHJ) to verify that the enclosure complies with the construction requirements contained within UL 508A, the UL Standard for Safety for Industrial Control Panels.

5.0 The Advantage of Using an UL Approved ICP Supplier:

5.1 UL Covers a Wide Range of Applications: LEI offers their customers, UL certified general use, industrial machinery, elevator control, service equipment, air conditioning and refrigeration equipment, fountain control, irrigation equipment, crane and flame control, and marine use panels and bid on jobs that specify UL certified ICPs.

5.2 Cover all requirements: The UL ICP Program covers proper component usage, enclosure environmental ratings, wiring and motor protection, safety markings, and conformance with the National Electrical Code (NEC) and Canadian Electrical Code (CEC).

5.3 Greater efficiency: Minimizes red-tagged panels at the job site, along with the resulting delays and extra cost.

5.4 Widespread acceptance: Widespread acceptance of the UL by regulatory authorities in every jurisdiction in the U.S. and Canada.

5.5 Extensive Source of Components: UL and CSA International have a formal component acceptance agreement that permits the acceptance of specific components for use in end products, including ICPs. This agreement gives LEI more flexibility when sourcing components because covered CSA certified components can now be used in UL certified panels in addition to UL certified components already permitted under the scope of the ICP program.

5.6 Trained Experienced Work Force: UL certified products require more experienced and better trained technicians to meet code.

6.0 Typical Components Within an IPC:

6.1 Enclosure: Including a door or lift-off cover, with rails or screw slots for mounting.

6.2 Controller: A contactor, starter, or variable frequency drive mounted on a backplate attached to the enclosure.

6.3 Reset Controller: A button for the overload relay of a starter that needs to be accessible from the outside of the enclosure. This button is mounted so that when pushed, its plunger reaches to the overload relay reset button.

6.4 Cover Control: There is an area for mounting START, STOP, or other control buttons, selector switched, and indicator lights.

6.5 Handle Mechanisms: For combination starters, handle mechanisms for the disconnect are included for opening or closing to the protective device without opening the enclosure.



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