Rockwell Automation is the leading global partner for automation solutions of machines or facilities exported to North America and Canada.

From project start till procurement stage we fully support you on engineering and selection of the right products to get an optimized automation concept and perfect UL508A Industrial Control Panels for your application.

Following standards are applied: UL508A (Industrial Control Panels) and NFPA79 (Industrial Machinery); additional Standards may be considered as NFPA70 (National Electric Code for Installations), NFPA70E (Safety in the Workplace for ArcFlash), and ANSI B11.0 (Safety of Machinery).

The UL508A Trade Show Cabinet includes several common best practice examples for components in the feeder-, branch- and control circuits which have to be used for North American cabinets.

It is engineered and built according to UL508A standards and UL labeled from an certified panel builder; all relevant warning labels are properly stucked, the name plate shows the construction data like 3 x 480 V Y/277 V AC 60 Hz (solidly grounded), FLA (full load amp-rating), the largest motor, SCCR (Short Circuit Current Rating) and NEMA protection rating.

The main feeder interlocks via the door handle and the NFPA79 shaft the enclosure door to prevent opening when it is switched on.

All the internal wiring is according to UL/CSA with approved AWG wires and all conductors are properly marked with item designation and tags from the line to load side.

There are three main sections in the panel, see below details:

Section 1: “UL feeder circuit with 60mm bus-bar-system fulfilling the 1 & 2” UL spacings requested for 251-600 V AC feeder circuits, an UL489 MCCB as main feeder for the bus bars with NFPA79 handle/shaft, mechanical door interlock and further several branch circuits which feed typical motor-, heater- and power transformer circuits”.

All these branch circuits are built on the 141A bus bar system 60 mm with several different 141A modules and show:

- 2-components self-protected combination motor controller type E or F with 140M & 100-C devices
- 3-components starter with 140M MCP, 100-C contactor and 193-E/E1+ electronic overload relay and also with an E300 electronic overload solution
- Motor starter with fuse and SMC-3 Softstarter
- 140M Type E device and PowerFlex 525 drive
- 141A-NFJ Bus bar fuse holder feeding an external feeder
- 1492-FB Fuse holder mounted on 60 mm adapter for heater circuit and
- 140U-D MCCB feeding a power transformer

Section 2: “UL98 fused disconnect switch 194R/ 30A with multi lugs and several branch circuits” which are standard mounted on DIN-Rail and wired.

Also here you will find:

- Group with 2-components self-protected combination motor controller type E or F with 140M & 100-C devices and feeder terminal with 3-ph. common links
- Single 2-components self-protected combination motor controller type E or F with 140M & 100-C with 1&2 spacing adapter
- Group with 1492-FB fuse holder with feeder terminal lug and 3-ph. bus bars and
- 2-pole 1489-M MCB which protects a 120 VAC circuit coming from an external power transformer.
**Section 3:** “Several control circuits in class 1, class 2 and Low Voltage Limited Energy”

Here you will see:

- 1606/480W 3-ph. power supply (primary UL fused) and secondary with LVLE (low-voltage limiting energy circuits), where you are allowed also to supply non UL/UR products <30V AC/DC/100W like sensors etc.
- 1606/NEC Class 2 power supply
- Micro 820 controller with optional analog input and digital input card
- Some 700-HL interface relays
- 1492-REC DIN-Rail receptacle 15A with GFCI
- Several terminal blocks

The electrical wiring diagrams are drawn in E-Plan/P8 according to the North American symbols in vertical execution. This is different to the US because here the horizontal execution is used.

It would be also allowed to draw in IEC symbology but with correlation table NFPA79 nomenclature (Annex E).

Before you start such a project, it is always meaningful to clarify as much as possible with your customer, e.g. subjects like:

- Do the customer wish an AHJ (Authority Having Jurisdiction) acceptance protocol?
- Which power supply and grounding is requested e.g. 3 x 480V Y/277V 60 Hz solidly grounded or high resistance grounding or delta grounding?
- SCCR/Short Circuit Current Rating (e.g. 35 or 65 KA/3 x 480V AC)
- Main power cable feeds from top or bottom site and Cu or Al with AWG dimension and cables/pole
- Enclosure Protection and material (e.g. Nema 12, painted steel, color standard)
- Does the end customer have specifications for LOTO, wirings (colors and markings), ArcFlash, Service Motor Disconnects, product wishes like on main feeder or Nema push buttons 30,5 mm etc.?

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Rockwell Automation supports you with all necessary information on our websites:

**Main web page:**
http://ab.rockwellautomation.com/

**Detailed information on North American Standards:**

**SCCR Tool on Short Circuit Current Rating engineering please use:**
www.rockwellautomation.com/global/support/global-sccr.page?


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**www.rockwellautomation.com**