# Innovative Power Solutions Disconnect Switches 



Compact UL 98
Non-Fusible Switches
30-100 Amp Range

- Touch safe
- DIN-rail or back-plate mounted
- Direct or external operation handle
- Double breaking per pole


## (41) (1) $C \in$



UL 508 Non-Fusible Switches
16-100 Amp Range


- Compact and modular
- Direct or external operation
- DIN-rail or base mount
- Suitable as motor disconnect


Multipolar Load Switches
100-250 Amp Range
(41) (1) C $C$

## (4L) (1b) C $C$

UL 508 Enclosed
Non-Fusible Switches
30-60 Amp Range

- 1 removable

> ground terminal

- Ability to add 1 power pole and 1 auxiliary contact
- NEMA/UL type 1, 3R, 12,

4, 4X

- Suitable as motor disconnect

- Ideal for photovoltaic applications
- 600VDC per UL 98 / CSA
- 1000VDC per UL98B
- Up to 1000VDC per UL IEC 60947-3 characteristics


## Introduction

## UL ${ }^{\circledR}$ /CSA ${ }^{\circledR}$ Standards for Disconnect Switches

## UL 98 - Enclosed and Deadfront Switches (CSA C22.2 No. 4)

These requirements cover enclosed or deadfront switches, with or without provision for fuses, at 600 V or less. These products are used as disconnecting means without restrictions; they are heavy-duty products requiring 2 inches ( 50 mm ) minimum of creepage distance between phases, which gives maximum safety for users and installation. The short-circuit withstand of these products goes up to 200kA.

## UL 489 - Molded Case

Switches (CSA C22.22 No. 5)

These requirements cover molded case circuit breakers, molded case switches and fused molded case switches, rated at 600 V or less and 6000A or less.

## NFPA ${ }^{\circledR} 79$ Electrical Standard for Industrial Machinery

The following types of machines are identified as industrial machinery:

- Metalworking machine tools, including machines that cut or form metal
- Plastics machinery
- Wood machinery, including woodworking, laminating and sawmill machines
- Assembly machines
- Material handling machines, including industrial robots and transfer machines
- Inspection and testing machines, including coordinate measuring and in-process gauging machines


## Disconnect Switches

## UL ${ }^{\circledR}$ Standards for Electrical Machinery

## UL 508 - Industrial Control Equipment (CSA C22.2 No. 14)

These requirements cover manual, magnetic and solidstate starters and controllers, overload relays, pushbuttons, selector switches and control lights. These products are smaller, requiring only a creepage distance between phases of 0.50 inch ( 12.7 mm ). Their use as a disconnecting means is limited to local disconnection of motors. These products can be used as a disconnect means only when they have been additionally tested "suitable as motor disconnect." This additional testing ensures that the switch has a proper closing capacity on a short circuit.

UL 508 devices cannot be used as main disconnect of an electrical panel, e.g., at the entrance of control panels. A manual motor controller marked "suitable as motor disconnect" shall be installed only on the load side of the branch circuit protective device [UL 508A 30.3.3 and NEC 430.109 (6)].

## Typical Control Panel

UL 98 or UL 489
Non-fusible disconnect switches
or
Fusible disconnect switches

## UL 508

Non-fusible switches


## Meeting the requirements of UL508A and NFPA79

## The disconnect shall be operable independent of the door position.

The disconnect must be operable, by qualified persons, independent of the door position without the use of accessory tools or devices.
Note: NFPA 79; Paragraph 5.3.3.1 (5).
An operating mechanism for the disconnecting means shall be operable independent of the door position without the use of accessory tools or devices.
Note: UL 508A; Paragraph 66.6.3 c.

## Non-Fusible Disconnect Switches

## Selection Guide

-Which application?

- Which function?
- Which operation handle?
-Which type of breaking?

| Machine Control |  |  | Power Distribution |  |
| :---: | :---: | :---: | :---: | :---: |
| UL 98 Compact NonFusible Disconnect Switches | UL 508 Non-Fusible Disconnect Switches* | UL 508 Non-Fusible Enclosed Disconnect Switches | UL 98 Non-Fusible Disconnect Switches | UL 98B DC Non-Fusible Disconnect Switches |
|  |  |  |  |  |
| $\begin{aligned} & \frac{22013003}{22013006} \\ & \hline \frac{220003010}{} \\ & \hline \end{aligned}$ | $\underline{22003000}, \underline{22003001}$ <br> $\underline{22003002}$, <br> $\underline{22003004}, \underline{22003003}$ <br> $\underline{22003003}$ | $\begin{aligned} & 2214350303 \\ & \frac{2224503}{22245506} \\ & \hline 1 \end{aligned}$ | $\underline{270030111}$, <br> 27003021 <br> 27003041,$\underline{27004011}$ <br> $\underline{27003060}$ | $\frac{270 C 3011}{27 C 011}$ $\frac{27 C 3001}{27 C 021}$ $270 C 4021$ |


| Applications |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Main switchboard |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Distribution panel |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Emergency disconnect |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Local safety disconnect (padlockable) |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Photovoltaic disconnect |  |  |  |  |  | $\checkmark$ |
| Enclosed switches |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Functions |  |  |  |  |  |  |
| 3/4 pole non-fusible disconnect switch |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Characteristics |  |  |  |  |  |  |
| Operation | $\begin{array}{\|l\|} \hline \text { Manual } \\ \text { (rotating) } \end{array}$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Direct operation handle | Front | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| External operation handle | Front | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
|  | Right side | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| Indication of breaking | Positive break indication | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Switch body | Modular | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |

* Note: These part numbers are direct replacements for previous part numbers with a "-UL" suffix. They have identical technical specs, form, fit and function. There is no change in agency approvals, the UL mark, listing, or File numbers E173959 and E201138.


## Assembly of Accessories



