

3 Things You Need To Know About Disconnects

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Disconnects are commonly used in control panels to isolate circuits for servicing equipment, and are required by code. Disconnects are often located as the first device in a control panel or located upstream of a control panel so power can be isolated from all downstream circuits. They are also used to isolate single circuits such as for an individual motor, or to isolate a grouping of motors. Some disconnects are rated in horsepower and can be used to start and stop a motor. There are many applications for disconnects, but it is important to follow code and properly apply disconnects to avoid misapplication.

1. There are two types, UL 98 and UL 60947-4-1.

UL has two different standard requirements for disconnects. The first is UL 60947-4-1 (formerly known as UL 508). This standard applies to devices used for switching and controlling motor circuits, and includes devices other than disconnects, such as contactors, overload relays, manual motor protectors, and others. The second is UL 98, a standard that applies to disconnects in general. The UL 98 standard has more stringent design requirements, and thus are often larger in size than UL 60947-4-1 disconnects. The UL 98 standard also has more challenging testing requirements for disconnects than UL 60947-4-1.

2. It is not uncommon for disconnects to be misapplied.

UL 98 disconnects can be applied in any part of the control panel circuit. However, UL 60947-4-1 disconnects are limited as to where they can be applied. UL 60947-4-1 disconnects are not permitted to be used in the feeder circuit. Even though UL 60947-4-1 disconnects are generally smaller than UL 98 disconnects, they are sometimes used in locations where a UL 98 disconnect should be used.

3. Locating the branch overcurrent protective device is the key.

Not sure whether to use a UL 98 or 60947-4-1 disconnect? The answer can be determined in two steps:

- First, locate the branch overcurrent protective device. This can be a breaker, fuse, a type E or F combination motor controller, or a motor circuit protector (used in a type D combination). Finding the branch overcurrent protective device is simple. Start at the load and work your way up the power circuit until you reach the first overcurrent protective device. This is the branch overcurrent protective device.
- Next, determine the location of the disconnect relative to the branch overcurrent protective device. If the disconnect in question is above the branch overcurrent protective device, then a UL 98 disconnect must be used (Reference: UL 508A section 30 and NEC 430.109). If it is below the branch overcurrent protective device, then either UL 98 or 60947-4-1 can be used.

For information on Schneider Electric's newest disconnect, TeSys VLS, [CLICK HERE](#).

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