Underwriters Laboratories Inc.®

Can Power Strips be Daisy Chained or Plugged Directly into a Wall Receptacle?

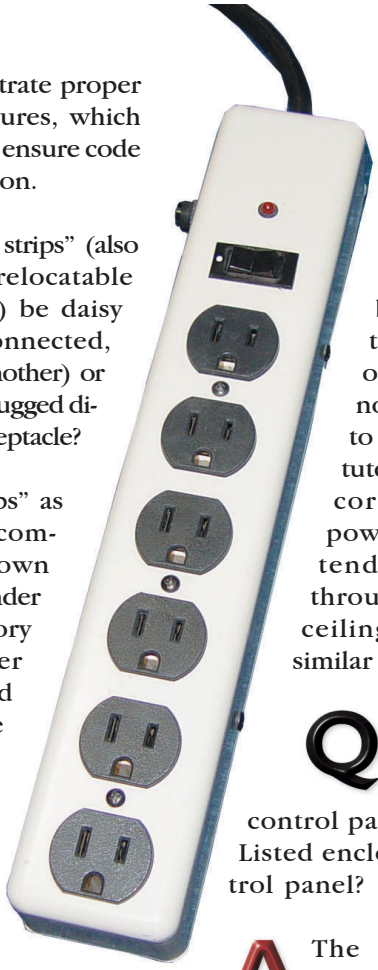
Q Does UL List a GTO cable that does not need to be installed in a raceway?

A GTO cable is Listed by UL under the product category, Gas Tube Sign and Ignition Cable (ZJQX). Listing information for GTO cable can be found on the UL Online Certification Directory at www.ul.com/database, or on page 119 of the 2001 print edition of the *General Information for Electrical Equipment Directory* (White Book). There currently are no stand-alone GTO cables that are UL Listed under ZJQX that do not need to be installed in a raceway.

However, UL currently Lists Neon Cable Assemblies that incorporate a GTO cable provided with a special integral copper braid that is bonded to and terminates in special metal fittings that allow connections between knockouts in sign bodies and transformers or other enclosures. The cable between the two enclosures is not required to be installed in a raceway. These assemblies have been evaluated to provide mechanical protection to the integral GTO cable equivalent to Listed Liquid Tight Flexible Metallic Conduit. In addition, the outer sheath of the cable has been evaluated for outdoor wet locations. These cable assemblies are Listed under the category Sign Accessories (UYMR), located on page 97 of the 2001 edition of the *General Information for Electrical Equipment Directory* (White Book).

These cable assemblies are provided with detailed installation instructions that illustrate proper installation procedures, which must be followed to ensure code compliant installation.

Q Can "power strips" (also known as relocatable power taps) be daisy chained (series connected, plugged one into another) or do they have to be plugged directly into a wall receptacle?



A "Power strips" as they are commonly known are Listed by UL under the product category Relocatable Power Taps (XBYS), located on page 112 of the 2001 *General Information for Electrical Equipment Directory* (the White Book). Thus, if the relocatable power taps are provided with transient voltage surge suppression (TVSS) they may also be Listed as Transient Voltage Surge Suppressors (XUHT), located on page 115 in the 2001 White Book.

The General Guide Information for Relocatable Power Taps (XBYS) describes the scope of intended use and installation criteria for these products. Relocatable power taps are intended to be directly connected to a permanently installed branch circuit receptacle. Relocatable power taps are not intended to be series connected (daisy chained) to other relocatable power taps or to extension cords.

Relocatable power taps are not intended for use at construction sites and similar locations. Relocatable power taps are not intended to be permanently secured to building structures, tables, work benches or similar structures, nor are they intended to be used as a substitute for fixed wiring. The cords of relocatable power taps are not intended to be routed through walls, windows, ceilings, floors or other similar openings.

Q What is the difference between a Listed industrial control panel enclosure and a Listed enclosed industrial control panel?

A The industrial control panel enclosure Listing Mark only covers the enclosure, and not the components inside. The overall unit panel should not be considered UL Listed.

An enclosed industrial control panel Listing Mark covers both the enclosure and the equipment installed within the enclosure. In this particular case, the overall unit is UL Listed.

Both products are covered under the main category Industrial Control Equipment (NIMX), located on page 54 in the 2001 White Book and specifically under Industrial Control Panels (NITW) located on page 56 of the White Book.

Q Some service equipment provides instructions for lashing of incoming conductors, others do not. When is lashing required?

A Lashing is a common practice for some types of equipment with long lengths of unsupported line side cables (between the conductor entry into the enclosure and the conductor terminations, such as in switchboards and switchgear). During a short circuit, the high in rush current creates strong opposing electromagnetic forces between the cable, causing *cable whip*. This action can cause the line conductor(s) to pull out of their respective connections, potentially allowing live parts to become grounded, etc.

One method to support the cable is *cable lashing* also known as bracing which is described in the Standard for Dead-Front Switchboards, UL 891. When bracing is necessary, a marking indicating the type of bracing is required to be located adjacent to the incoming terminals.

The marking shall state the following: "Wrap line cables together and, if provided, tape cables together with nominal 3/8 inch nylon rope or rope having a minimum tensile strength of 2000 pounds, at 6 inches and 12 inches from the line terminals with five wraps and, every additional 6 inches with five wraps or every 1 inch with one wrap," a drawing illustrating this method is generally provided in the unit.

Lashing is required when the equipment is marked with specific instructions to "lash" the incoming conductors. When there is no instruction to "lash" the conductors, lashing is not required.

The special UL meetings for government inspectors provide us an excellent opportunity to ask questions of UL engineers and to clarify UL requirements. The "UL Question Corner" answers questions of general interest that are sent in from authorized governmental inspectors and we believe will have interest for many inspectors.

Please send us questions you may have that are of general interest, and we will have UL engineers answer them in a future issue. If space does not permit answering all questions received, we'll see that you get an answer by letter. Send your questions to:

UL Question Corner - IAEI News
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