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Outlet Strips for Patient-Care Areas

In cases where the number of wall sockets available to access electrical power is inadequate, a power strip may be used to provide additional receptacles. Most power strips consist of a housing containing a strip of electrical outlets. The receptacles are connected to an electrical cord with a plug designed to be inserted into a wall outlet. A typical wall outlet in the U.S.A. is wired to provide a single-phase, 120 V, AC signal and includes three contacts: a live or hot contact, a neutral contact, and a ground or earth contact. Power strips are also known as plug boards, power boards, power bars, distribution boards, gang plugs, PDUs and multiboxes. Underwriters Laboratories Inc. (UL) refers to a power strip as a "re-locatable power tap" (RPT).

Although RPTs have been in use for many years, there is some controversy regarding their use in hospitals, dental and doctors' offices, and other healthcare facilities. Many such facilities employ a large number of patient monitoring devices, imaging equipment, medication dispensers and other devices that must be provided with electrical power. Consequently, some medical facilities use RPTs to provide the extra electrical outlets needed for these numerous devices.

Like many electrical devices, RPTs are subject to compliance with the National Electric Code (NEC). Additionally, end users (such as hospitals) and manufacturers may specify that RPTs be certified by recognized agencies and testing laboratories such as UL. Historically, UL has published guidelines indicating that RPTs bearing UL certification are not intended for use in patient-care areas per Article 517 of the NEC, even when the RPTs include components that meet so-called hospital-grade standards.

This situation presents many healthcare facilities with an unsatisfactory choice: either use a non-certified RPT or install additional fixed outlets (e.g. wall outlets). Installing more fixed outlets is often impractical because it involves cutting open walls, floors, and ceilings, and running additional wiring from electrical service panels to the desired location. All this could require the shutting down of the healthcare facility. Further, installing extra wall outlets is often less desirable than using an RPT. When devices are connected to wall outlets, each individual power cord must be strung or laid out from the device to the wall. When multiple devices are connected in this fashion, multiple cords present multiple tripping and obstruction hazards in a healthcare area. In contrast, RPTs allow multiple cords to be connected to a single location.

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It is highly desirable, therefore, to have a hospital-grade RPT that meets both the requirements of widely adopted electrical codes such as Article 517 of the NEC, and the requirements of certification agencies such as UL Standard 60601-1.

An RPT is designed to connect several pieces of electrical equipment to a single branch circuit outlet via a single power cord with an attachment plug. The grounding pin of the RPT attachment plug is generally the route through which potentially hazardous leakage current is grounded. Shock hazards can be caused by electrical faults, including loss of ground or ground fault. Under UL and NEC standards, RPTs must meet strict requirements regarding electrical shock hazard reduction.



Tripp Lite has developed a solution to the inherent safety concerns related to the use of RPTs in patient care areas. Tripp Lite's PS-415-HGULTRA Remote Power Tap meets the requirements of both NFPA 99, Article 517 of the NEC and the requirements of UL 60601-1. This new RPT continuously monitors the line, neutral, and ground for fault conditions, and will not pass power if a fault condition exists. (Such faults may occur locally or be caused by workers in other parts of the facility.) If a fault condition is detected while the unit is in use, it shuts down immediately and will not function until the fault is corrected. Whatever the cause of the fault, once it is detected the PS-415-HGULTRA becomes inoperable.

The PS-415-HGULTRA is the only RPT that currently meets these NEC and UL standards, and is the only RPT that is a listed product, meaning that it can be used on its own. It is also the only RPT that can be used within the "6-foot radius" of a patient. Because of its unique features, the PS-415-HGULTRA has been awarded U.S. Patent # 7,375,939.

A new standard that has been developed by UL is UL1363A, which applies to RPTs designed to be permanently mounted on mobile devices such as carts, dollies, etc. RPTs that meet this requirement may not be placed on the floor for use as additional room outlets. The new standard is designed to allow for RPTs that can be built into medical equipment.

More information about RPTs for healthcare applications may be found at: www.tripplite.com/EN/lp/hospital-medical

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