

MELTRIC Switch-Rated Plugs and Receptacles Solve Safety & Maintenance Issues on Overhead Busway Systems

MELTRIC's Switch-Rated plugs and receptacles combine the safety and functionality of a disconnect switch with the convenience of a plug and receptacle. They are designed to allow users to safely make and break connections under full load and provide significant protection in overload and short circuit conditions. Safety features ensure that users are protected from exposure to live parts and potential arc flash at all times during the operation of product.



ISSUES **TYPICAL BUSWAY SYSTEM**

Cumbersome procedures and equipment required for NFPA 70E/CSA Z462 compliance

1 PPE required for voltage testing

2 Manlift required to verify switch deenergization via voltage testing

Optional machine mounted redundant disconnect switch.

Portable equipment may require an electrician to safely connect or disconnect

Typical hardwired production machinery may be difficult to deenergize

BUSWAY SYSTEM WITH SWITCH-RATED PLUGS AND RECEPTACLES

Simplified NFPA 70E/CSA Z462 compliance, minimal PPE required

1 Plug-in Switch

2 Busbar

Disconnected plug provides visual verification of deenergization

Portable equipment can be safely connected and disconnected by technicians

Production machinery can be deenergized and serviced by technicians

1 Drawing an arc during plug removal is an inherent hazard with traditional pin & sleeve and twist type devices.

2 After operating the disconnect switch using a 'hook stick,' a worker still needs to verify deenergization. Exposure to live parts is possible, so cumbersome PPE is typically required.

1 MELTRIC Switch-Rated devices are safe to make and break under full load. When separated, a safety shutter prevents worker exposure to live parts and arc flash.

2 MELTRIC plugs and receptacles provide visual verification of deenergization. The plug can be easily locked out and tagged out.

CASE STUDY

Improving Safety and Efficiency of connections to an Existing Busway System – Edison Welding Institute

Facility Description

Edison Welding Institute's (EWI) 40,000 sq. ft. high-bay laboratory provides the space to set up individual work stations for a large number of projects simultaneously. Three 1,600 amp bus bars provide 480 volt power throughout the laboratory, with more than 100 separate power drops for welding power supplies. Andy Joseph, EWI's Manager for Welding and Testing Labs, says, "We have nearly every one of the recognized welding processes commonly used today, and they all require electricity. The equipment for all these different procedures takes space, but we're not using them all at the same time, so we need to be able to change them out."

Problem

At EWI, the need to continually move welding equipment between more than 100 different work stations made it difficult to quickly and safely disconnect electrical power each time. Joseph explains, **"With the disconnects overhead, we would have had to suit up with PPE (personal protective equipment) because there was no way to verify that the power was disconnected without someone going up in a manlift."**

Solution

EWI first considered installing disconnect switches at ground level for each location. This still would have required pin-and-sleeve plugs to connect the equipment, and the switch boxes would have taken up valuable space. Joseph notes, "With 120 of the old connectors, we would have had to buy 120 disconnect boxes that would have required extra wiring."

Instead, Joseph selected MELTRIC Switch-Rated plugs and receptacles, which combine the functions of a disconnect switch with plug and play connectivity. **Now with MELTRIC devices installed at more than 100 locations in the lab, disconnecting power is a simple and safe operation.** Pressing a push button off-switch on the Switch-Rated receptacle breaks the circuit and ejects the plug to its rest position. Then the plug can be withdrawn from the receptacle in complete safety, since the circuit is already dead. When the plug and receptacle are separated, deenergization can be visually verified, and a safety shutter on the receptacle prevents access to live contacts. "Having the disconnect switch right in the plug eliminates the need for an arc flash hazard assessment or suiting up," notes Joseph.

MELTRIC Switch-Rated devices provide greater flexibility in EWI's operations. **"Probably the biggest benefit for us has come from efficiency improvements,"** Joseph points out. "We have a limited amount of space and are continually changing out equipment for different projects. When we start or finish a project, we can pull out one setup and bring in another quickly and safely." Approximately half of the laboratories are set up for systems welding, with the other half divided between arc welding and laser welding. Joseph explains, "We may have to move one technology into another area, and the Switch-Rated plugs make that very simple."



Switch-Rated welding receptacles (background) are connected to overhead busway system via cord drops.



Switch-Rated plug and receptacle (background) enables technician to safely deenergize and relocate welding equipment.



Switch-Rated plugs and receptacles eliminate the need for auxiliary disconnect switches at the ground level, saving space and connection time.

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