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What is Busbar Power Distribution System and How can it Help Me?



ENCLOSURES

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What is a Busbar Power Distribution System?

A busbar power distribution system is a set of pre-engineered solid copper conductors that may be interlocked together to create various system configurations and lengths, providing a standardized solution for connecting and mounting electrical components inside the panel.

A typical busbar system consists of the following components:

- Copper busbar that can be flat or shaped;
- Busbar supports providing excellent mechanical and electrical bracing of the system;
- Simple touch-safe cover system for contact hazard protection;
- Connection components bringing power to and from the busbar (adaptors, clamps or bolt-on);
- Component adaptors for holding DIN-mountable controls (starters, contactors, breakers, etc.);
- Component adaptors for panel mounted devices like molded case circuit breakers;
- Fuse base adaptors;
- Flexible busbar for connecting parallel bus or components with tight bending radii.

Busbar systems are common throughout the world and are rapidly gaining acceptance in North America due to their flexibility, safety, and ability to reduce overall design and integration costs. In addition, globalization has led many designers to move toward design techniques, electrical components and integration methods that are readily accepted worldwide—making busbar systems more attractive than before.

Benefits of Busbar by Rittal

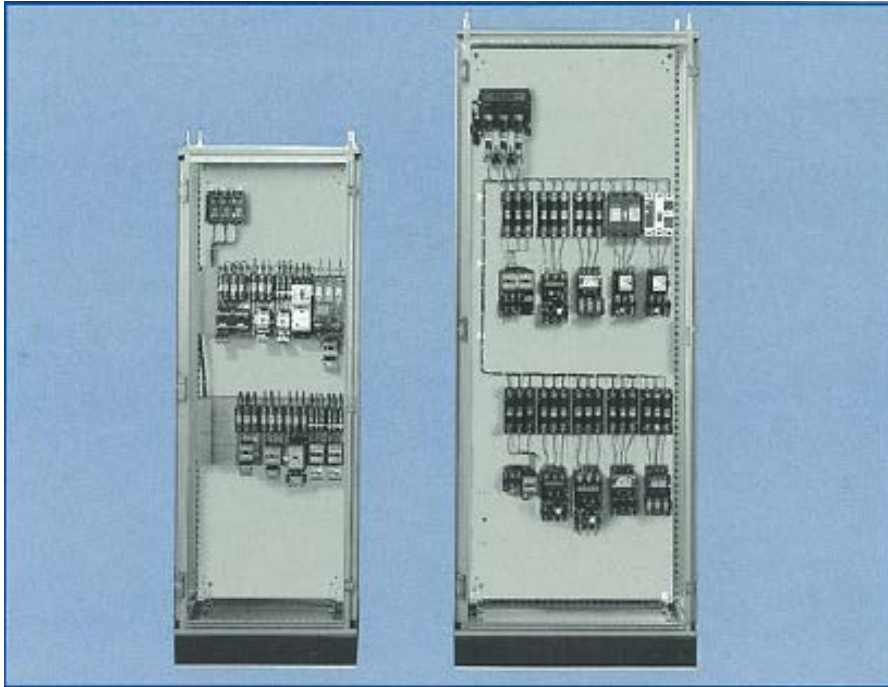
Busbar power distribution systems from Rittal provide innovative features that conventional enclosure wiring methods lack. They also provide significant benefits to designers, system integrators and end-users of industrial control panels.

A busbar system takes the place of two major items found within a typical control panel—the power distribution block and line-side wiring. As a result, designers are able to provide more efficient layouts, simplified bills of materials, and less complex solutions that can potentially reduce the overall enclosure size or consolidate controls that were previously housed in multiple enclosures. In addition, smaller overall control packages offer an attractive system selling point. Information like short-circuit current rating and rated operating current for specific ambient temperatures is provided for every busbar system from Rittal. This data is available from beginning of the design process, reducing the engineering time and effort needed to get final approval.

Traditional wiring techniques usually connect the main disconnect device to a power distribution block with large parallel cables, this distribution block then individually feeds each component on the panel. This process not only consumes a significant amount of panel space, it requires a great deal of time and labor dedicated to measuring, cutting, labeling, stripping and routing of the cable/wire. A busbar system solution from Rittal with quick and easy mountable adaptors drastically reduces the time it takes to fully integrate a control panel, especially when distributing power to larger, panel-mounted components such as drives. Busbar systems are a superior solution for the end-user due to their inherent safety, ease of organization, and enhanced flexibility. This leads to simple system expansion, trouble-shooting and maintenance.

Rittal's busbar power distribution systems are designed and certified according to all major international standards such as CE, UL, CSA and GL. This provides global companies the ability to deploy their standard solutions abroad without worrying about certifications.

An example of busbar system and wired system is shown below:



Summary of benefits:

1. Less space required
2. Enhanced short-circuit resistance
3. Less calculation work required to certify short-circuit resistance
4. Less contact points (less errors)
5. Less assembly work required
6. Reduced heat loss
7. Well organized design allows for easier troubleshooting
8. Large cable outlets can be connected more easily
9. A broad range of accessories for almost every application
10. Reduced assembly time for punching/deburring/thread tapping
11. Less work required for retrofitting units
12. Type tested system components

Conclusion

Busbar systems provide a highly organized, efficient way to distribute power that can reduce the overall costs associated with the design and integration of control panels. These systems are widely accepted throughout the world and comply with a number of international certifications— simplifying the process of deployment into various worldwide markets and creating a competitive advantage in the global marketplace. No matter where they are used in the world, busbar systems are safe, flexible and easily adaptable to changing specifications and requirements.

To determine if a busbar system is a viable option for a specific application, a detailed cost-benefit analysis can often be quickly completed with application engineering assistance from a reputable busbar system manufacturer. In addition to finding an appropriate power distribution solution for the application, the resulting analysis might also reveal other ways to make the design, integration or operation of the control panel more efficient.

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