

## FAQ

# THE VALUE OF DUAL RATED AC/DC DISCONNECT SWITCHES

**Q: Why is it necessary for me to have a disconnect switch installed in my application?**

**A:** The main function of a safety disconnect switch is to protect personnel from harm and equipment from damage. Disconnect switches are used to guarantee that a specific electrical circuit is de-energized in the case of an emergency failure, service requirement, or maintenance operation. Disconnect switches have become critical components for electrical distribution systems whether for plantwide use or isolated areas so that technicians can provide repair and maintenance of one machine while the rest of the facility operates normally. In addition, the National Electric Code mandates that disconnect switches are used in all industrial and manufacturing facilities.

**Q: What does a DC motor disconnect switch do?**

**A:** An AC disconnect switch is designed to separate the inverter from the electrical grid, while a DC disconnect switch is designed to separate the equipment from the DC source. Until recently, users had to purchase each of these separately, but companies have created innovative products, like the dual rated disconnect switch that combines both functions for ease of use. The switches must be installed in such a way that incoming power can be quickly shut off whenever an emergency occurs.

**Q: How is it possible that these disconnect switches have evolved to this point?**

**A:** A number of factors pull together whenever there is an advancement. Innovation, of course, is an ongoing thing, but other aspects can push technology forward more quickly. For example, as markets change, the availability of materials changes, and the needs of manufacturing change, design teams adjust to meet those situations. At that point, engineers are tasked with not only coming up with new devices to meet present challenges, but to project into the future as well. Only companies with a history in the market have the insights needed to provide this type of innovation.

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**Q: Could you further discuss some of the technologies used inside these disconnect switches?**

**A:** High-grade plastics are used to make the switch bodies, which are designed to handle most harsh environments on the factory floor. The tough bodies also operate within a wide temperature range and provide users with a shock resistant and chemical resistant product. Contact quality inside the device was also something the design team focused on. Silver plated contacts and rivets were used throughout the device in order to assure long life and better conductivity.

**Q: With the dual rated disconnect switch, do I need additional panel or control room space?**

**A:** Not at all. Technology advancements have added to an engineering team's ability to design products with greater capabilities while maintaining the same form factor. In fact, with smaller areas of real estate being available in such applications as robotics and lab equipment, disconnect switches are often mounted close to the device. This meant that size was a critical factor in the design.

**Q: What specific products are on the market now that meet these challenges?**

**A:** At this time, Altech has recently introduced the LSF series of disconnect switches that are the only DC switches available in a compact frame size that is dual rated for AC and DC. Due to the needs of the industry, these switches have been made available for mounting in multiple ways, including with an integrated base and DIN-rail mounting, and a separate RT version with integrated door mounting and side panel mounting.

**Q: Could you supply some technical details concerning these disconnect switches?**

**A:** Basically, the RT devices are provided with rear facing terminals to make them easy to install. For electrical box installations, there are two mounting versions that are dependent strictly on user requirements.

The first option is an extended handle application where the shaft sticks out beyond the electrical box for easy access and interlocks with an external handle so that the box cannot be opened until power is turned off (see Figure 1). Frame size it only 36mm (W) x 71mm (H) x 46mm (D), without integrated switching knob and panel mount tabs.

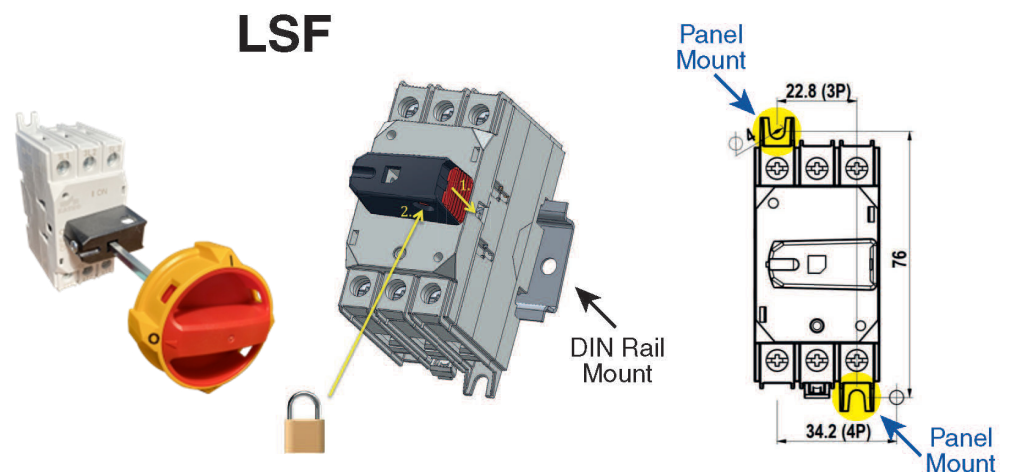


Figure 1: The extended handle application uses a long shaft that sticks out beyond the electrical box for easy access.

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**Q: Could you supply some technical details concerning these disconnect switches? (continued)**

The other option is a panel mount version. This disconnect switch is typically installed in a side panel and requires users to drill a small 22.5mm hole into their panel. The hole is used to accommodate the rear-mounted disconnect switch (see Figure 2). Once installed, a knob is attached to the front of the panel for easy access.

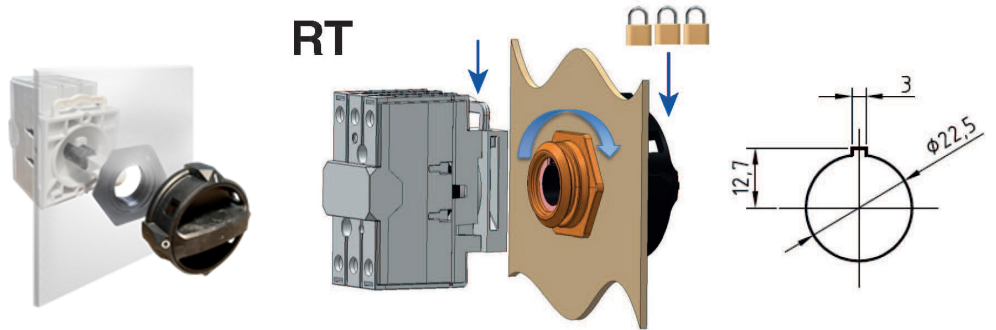


Figure 2: The panel mount option for the LSF series disconnect switch is easy to install.

Both mounting options have only three parts, unlike most other products on the market that have multiple parts and can be complex to install. The entire LSF series of disconnect switches are available for a wide variety of applications. They are available in 16A, 30A, and 40A versions and offer UL 60947-4-1 certification.



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**Q: Are there any other important design features I need to know about?**

**A:** There is another feature that has to do with the switch's make/break operation, which is independent from the operator's turning speed. The actuator arm essentially has nothing to do with changing the switch's state. Internally, the switch is spring loaded so that the DC current cannot arc or burn up the contacts after multiple uses. The switch is turned to a certain point and then snaps into place and cannot be backed off.

**Q: While incorporating new designs and new technologies, does this affect supply chain deliveries?**

**A:** Great question. When thought through properly, design and automation go hand-in-hand with supply chain considerations. New designs, such as the LSF series, go through rigorous analysis to assure that quality is maintained through the entire line of products being manufactured and that an equal amount of attention is paid to the availability of materials and the reduction of the number of component parts—all aimed at maximizing supply chain capabilities while minimizing the challenges.

**NEW**

# Altech®

## Dual AC/DC Rated Motor Disconnect Switch

UL US E185115

- 40 A / 600V AC / 60V DC
- Switch make/break operation is independent from operator's actuation speed
- Silver contacts ensures safe and durable operation
- UL Disconnect Switches 16-40 A
- UL 60947-4-1

### LSF Series

- DIN-Rail and Integrated Base Mounting for extended handle applications
- Loadsafe LSF Series

### RT Series

- Integrated door or side panel mounting
- Rear facing terminals for easy installation
- Loadsafe RT Series

### ACCESSORIES

- Handle
- Shaft
- Auxiliary Contact

**KATKO**  
LoadSafe

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