Altech Corp.®

Your Source for Automation & Control Components

APP NOTE

LSF/RT Disconnects Meet the Newest A2L Flammability Requirements for HVAC Systems

Legacy refrigerants, including hydrofluorocarbons (HFCs), have long been mainstays in HVAC systems but they are known to trap heat in the environment, resulting in high global warming potential (GWP) values. Additionally, their long lifetimes in the atmosphere further harm the climate. To address these problems, federal and global regulations such as the Environmental Protection Agency's American Innovation and Manufacturing (AIM) Act and the Kigali Amendment to the Montreal Protocol were established to phase out HFC refrigerants. For example, the AIM Act's goal is to reduce the production and consumption of HFCs by 95 percent by 2036.

To take the place of HFCs, a new, more environmentally friendly class of refrigerants, classified as A2L in the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) Standard 34, has emerged and is characterized by their lower GWP. While less toxic than HFC and other refrigerants, A2Ls are more flammable than their predecessors. That makes flame prevention a critical requirement for components like disconnects, which are typically used in HVAC equipment. Accordingly, manufacturers must certify and design their components to comply with various regulations to prevent unwanted ignitions.

Important A2L Regulations for Disconnects

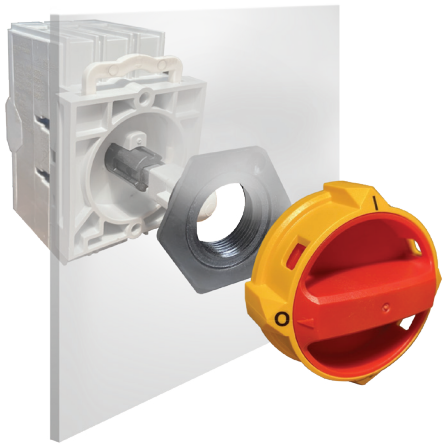
The most important regulation for HVAC systems is the UL 60335-2-40 North American safety standard. Based on IEC 60335-2-40, UL 60335-2-40 establishes stringent rules for appliances that use A2L refrigerants to address the refrigerants' "mild flammability." Components must pass UL electric shock, fire and mechanical testing before they are installed into an A2L system.

UL 60947-4-1 — which pertains to disconnects, contactors and starters — has been updated to specify requirements for components used in systems with A2L refrigerants, particularly their industrial control features. Typically, component manufacturers turn to certification specialists to ensure they meet these important standards for A2L applications.

Dual-Rated Disconnects Meet Stringent HVAC Requirements

One such example of disconnect switches that meets the stringent requirements of HVAC systems using A2L refrigerants is the LSF/RT family from Altech. These dual-rated AC/DC switches are designed to accommodate a wide range of mounting needs, while their 600V AC and 60V DC ratings allow panel builders and OEMs of HVAC equipment to minimize the number of parts they need and streamline the supply chain. The LSF models are appropriate for extended handle applications, and the RT door-mount models come with rear-facing terminals for easy installation.

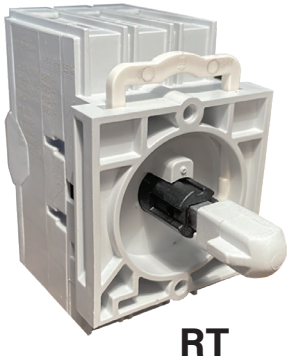
To prevent ignition, these UL 60947-4-1-certified switches feature a special spring-loaded design that prevents DC current from arcing and burning up the contacts after multiple uses. Altech LSF/RT disconnects have been tested and certified by a well-respected testing and certification specialist, indicating they comply with the latest UL/IEC standards for components used in A2L refrigerant environments, including UL 60947-4-1. That's why a well-known builder recently chose our LSF/RT disconnects for a substantial A2L-based HVAC project. In fact, we have a long history of providing high-quality switch and disconnect components with heating and air conditioning installations in large-scale HVAC applications such as hotel rooms.



In addition to meeting critical A2L certifications, Altech LSF/RT disconnects also feature:

- Availability in 16, 30 and 40 A versions.
- Durable shock and chemical resistant plastic bodies.
- Silver contacts and rivets for exceptional conductivity and long life.
- Ideal for space-constrained installations.
- Wide operating temperature range.

LSF



RT

Well-Suited for Climate Control

The LSF/RT disconnect family's key UL certifications for A2L applications — backed by rigorous testing and Altech's established expertise in the HVAC sector — make these devices particularly attractive in climate control systems where fire safety, reliability and space-savings are critical requirements.