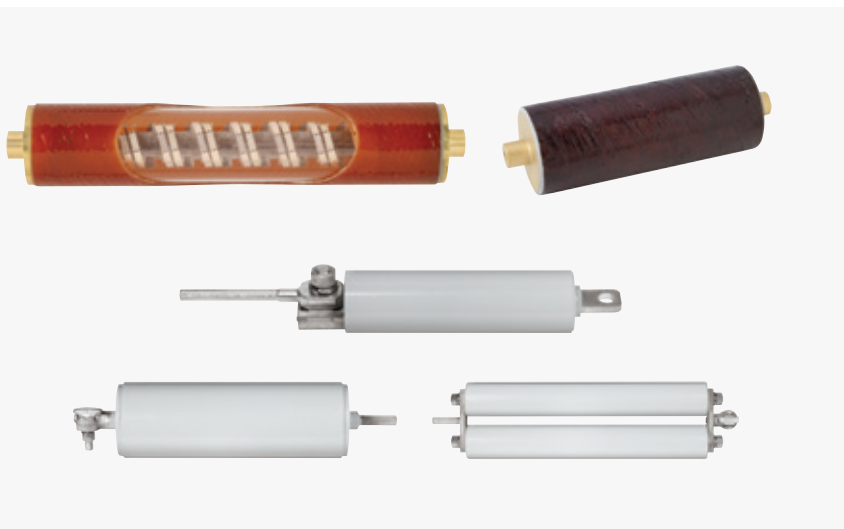


CASE STUDY

Top reasons to use backup current-limiting fuses



Industry: Electric utility
 Challenge: Enhancing distribution equipment protection, as well as system safety and power quality
 Product: Hi-Tech® OS or EXT backup current-limiting fuses

Abstract:

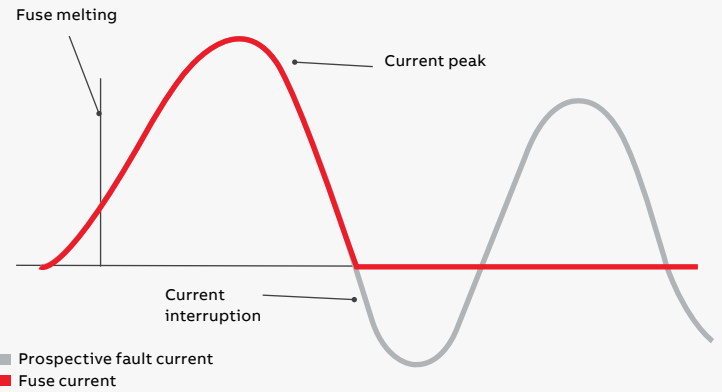
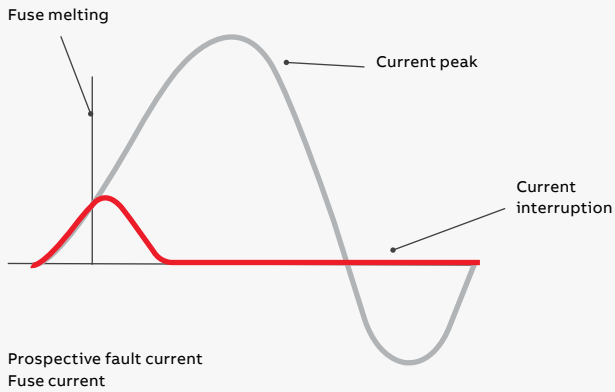
Utilities typically use expulsion fuses or breakers to protect distribution transformers. These low-current protection devices are essential, but by themselves are not enough to provide complete protection.

Solution:

By using a backup current-limiting fuse applied in series with a properly sized low current protective device (such as an expulsion fuse), utilities can better protect distribution equipment and realize other significant benefits, such as:

1. Minimizing the risk of eventful or catastrophic failure of distribution equipment — Neither expulsion fuses nor breakers limit the energy let-through during a fault and they sometimes take several cycles to interrupt. In addition, expulsion fuses and breakers do not limit the peak current during a fault. Current-limiting fuses limit the energy and peak current let-through during a fault. The diagram on the following page shows how current-limiting fuses improve protection.

2. Interrupting high fault currents (up to 50,000 amps RMS symmetrical) and removing faulted equipment in areas where the available fault current level exceeds the interrupting capability of other protective devices — Bayonet-style fuses commonly used in padmount transformers are limited to maximum interrupt ratings between 1,000 and 3,500 amps, while current-limiting fuses drastically increase the interrupting capability to isolate faulted equipment.
3. Improving system safety by addressing potential fire safety hazards, or safety issues associated with populated areas where expulsion gases are not acceptable — The noiseless operation of a current-limiting fuse also alleviates concerns for the loud noise (“bang”) during fuse operation.
4. Improving power quality by supporting the system voltage and reducing the “blink” time during faults.



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