

VacuFuse™ Self-Resetting Interrupter



Eliminate nuisance outages and
unnecessary truck-roll costs.

Fault-testing technology saves trips to the
most difficult-to-access areas of the grid.

S&C VacuFuse™ Self-Resetting Interrupter

Eliminate nuisance outages

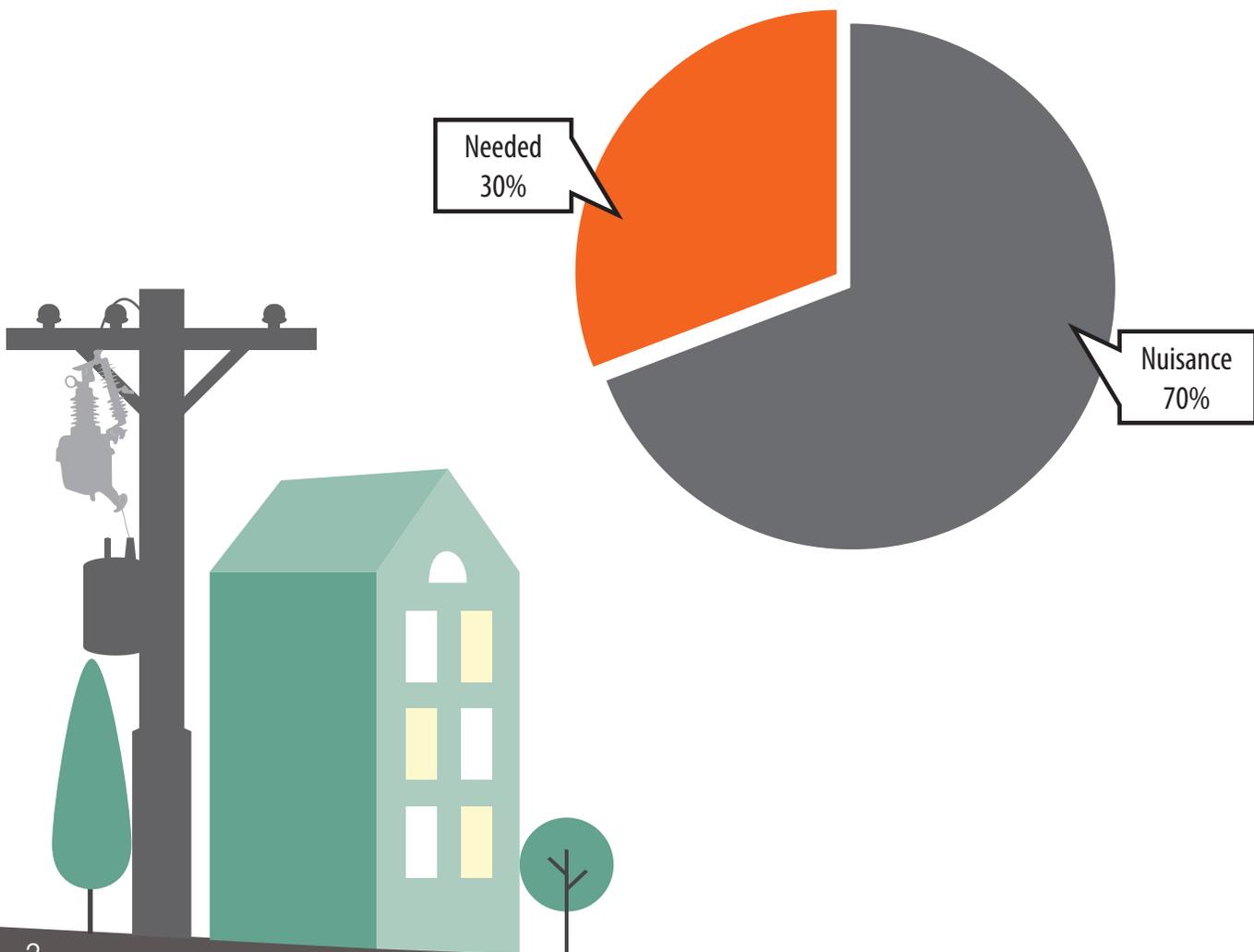
Every utility can relate to sending crews out to replace blown fuses above overhead distribution transformers without being able to find the cause of the fault. In fact, industry sources reveal that 70% of overhead distribution transformer fuse operations are classified as nuisance outages, where no other repair work is needed.

Lateral protection—even at the edge of the grid

The VacuFuse Self-Resetting Interrupter solves both these unnecessary sustained outages and subsequent maintenance expenses, bringing fault-testing technology closer to the edge of the grid than had previously been possible.

This depth of lateral protection not only optimizes system performance, but crews' time as well by eliminating the opportunity cost from sending teams to work on unnecessary or nuisance repairs. Instead, crews can focus on the proactive, grid-modernization projects that advance system performance and ready it for the future.

Overhead Distribution Transformer Fuse Operations



How it Works

VacuFuse Self-Resetting Interrupters solve the nuisance outages that occur on overhead distribution transformers. As a single-phase self-resetting interrupter intended for use on 5-kV, 15-kV or 25-kV distribution systems, it replaces fuses in these locations. When the self-resetting interrupter detects a fault, its vacuum interrupter will open to interrupt the fault current.

If the fault is temporary, the self-resetting interrupter will restore power. See Figure 1. This saves temporary faults from becoming permanent outages—and the maintenance costs otherwise associated with refusing and restoration.

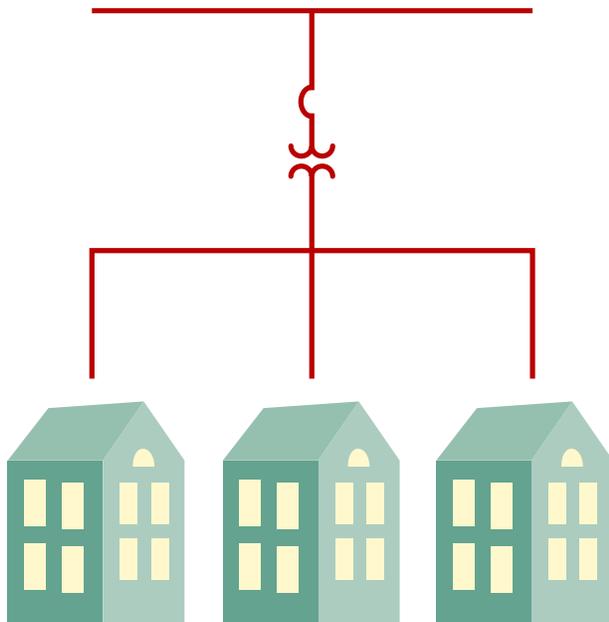


Figure 1. A VacuFuse Self-Resetting Interrupter responds to a temporary fault.

If the fault is permanent, the self-resetting interrupter will interrupt the fault current, wait a user-designated number of seconds, reclose, and then interrupt the fault current and deenergize the transformer. See Figure 2. (Unlike TripSaver® II Cutout-Mounted Reclosers, VacuFuse Self-Resetting Interrupters do not drop open on permanent outages and will remain in the cutout mounting.) After the fault has been cleared by the line crew, the self-resetting interrupter can be closed using the manual operating lever on the side of the self-resetting interrupter.

This self-resetting interrupter comes factory-configured with a user-designated time-current characteristic (TCC) curve. With the ability to be placed in several manufacturers' approved cutouts, a VacuFuse Self-Resetting Interrupter can easily be placed above 5-kV overhead distribution transformers up to 25 kVA, 15-kV transformers up to 75 kVA, and 25-kV transformers up to 150 kVA when mounted in a 125- or 150-kV BIL cutout mounting.

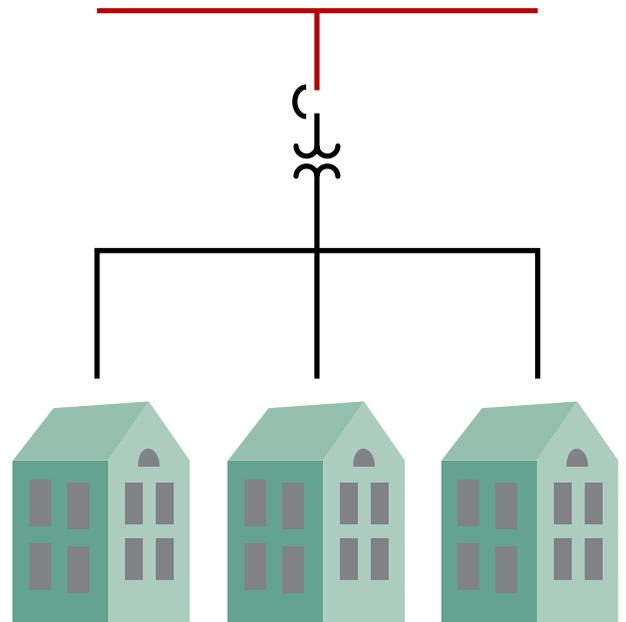
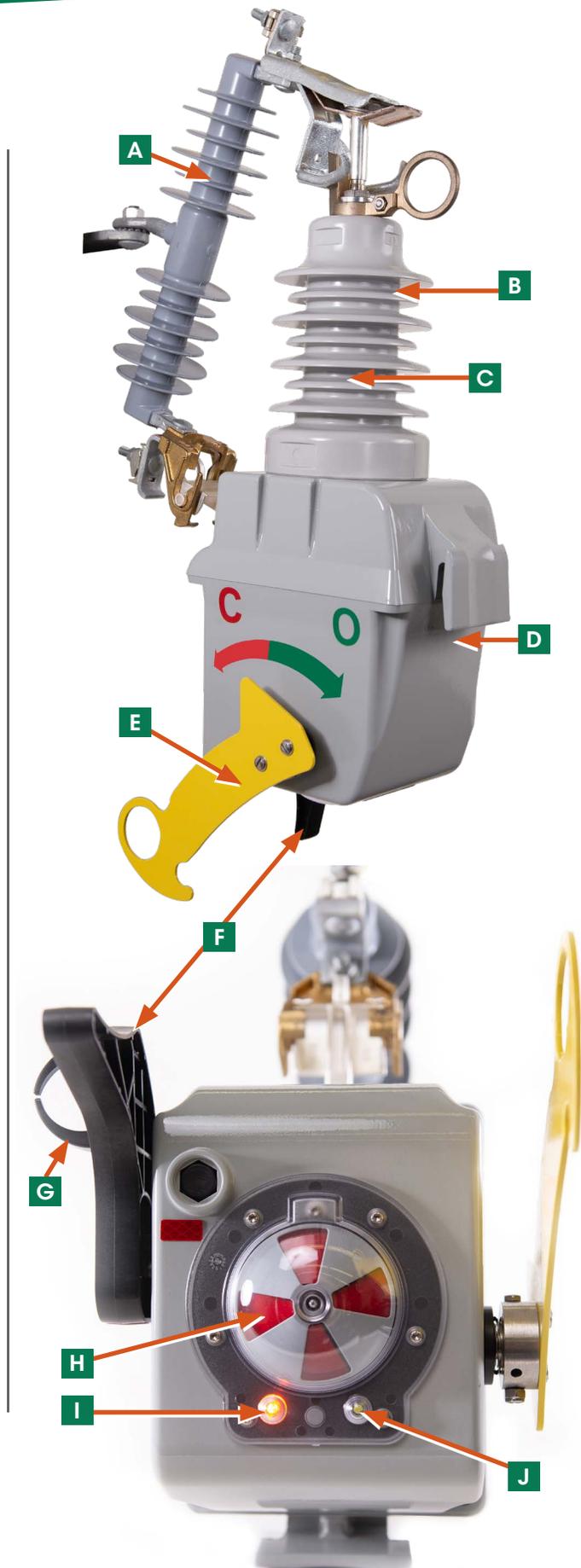


Figure 2. A VacuFuse Self-Resetting Interrupter responds to a permanent fault.

Construction

- A Birdproof-design insulator**—Composite-polymer silicone or porcelain materials avoid wildlife issues.
- B Cypoxy™ Insulator**—The Cypoxy Insulator houses the vacuum interrupter.
- C Vacuum interrupter**—Located in the upper Cypoxy Insulator, it quietly contains and interrupts the fault without exhaust or sparking.
- D Hand grip**—This sturdy grip allows for easy handling and installation.
- E OPEN/CLOSE lever**—This lever allows for manual opening and closing of the vacuum interrupter and is accompanied by directional open/close markers. NOTE: Because the VacuFuse Self-Resetting Interrupter will automatically trip if the operator closes into a fault, the lever only indicates the last manual operation, not the **Open** or **Closed** state of the vacuum interrupter.
- F MODE-SELECTOR lever**—This allows the VacuFuse Self-Resetting Interrupter to be placed in automatic **Reclosing** or **Non-Reclosing** mode. **Non-Reclosing** mode will trip on an instantaneous curve.
- G Tag-clip feature**—This provides a convenient location for crews to tag the VacuFuse Self-Resetting Interrupter, visually communicating intentional nonstandard conditions and zoned work areas. Tags can also be easily applied to the OPEN/CLOSE lever and the pull ring.
- H Position indicator**—This indicates the position of vacuum interrupter, with red flag signaling closed, and green flag signaling open. NOTE: Refer only to the **Position** indicator, not the OPEN/CLOSE lever, for vacuum interrupter status.
- I Non-Reclosing indicator**—When powered, this amber LED will flash in 2-second intervals when the self-resetting interrupter is in **Non-Reclosing** mode. It will turn off when in **Normal** mode.
- J System-healthy indicator**—When powered, this white LED will flash in 30-second intervals to indicate the self-resetting interrupter's healthy state. It will turn off when in **Non-Reclosing** mode and when de-energized.



VacuFuse Self-Resetting Interrupters come ready to install, streamlining the commissioning process and lessening the amount of training for line crews. Utilities can choose from any of the following fuse-link TCC curves: K, KS, T. See Table 1. Only one curve can be chosen per self-resetting interrupter, and the settings are permanently configured at the factory.

Table 1. Available Fuse Link Curves

K Speed Curves	KS Speed Curves	T Speed Curves
1K, 2K, 3K, 5K, 6K, 8K, 10K	1KS, 2KS, 3KS, 5KS, 7KS, 10KS	1T, 2T, 3T, 5T, 6T, 8T, 10T

Ratings

Table 2. Complete Overhead—Pole-Top Style Cutout-Mounted Transformer Protection—for a new installation. Includes VacuFuse Self-Resetting Interrupter, cutout mounting (less mounting bracket), and connectors.

50/60-Hz Ratings						With Porcelain Insulator		With Polymer Insulator	
kV				Amperes, RMS		Leakage Distance to Ground Minimum, Inches (mm)	Base Catalog Number	Leakage Distance to Ground Minimum, Inches (mm)	Base Catalog Number
System Class ^①	Nom.	Max	BIL	Cont.	Interr., Sym.				
25	25	29	125	20	6 300	17 (432)	401232	19 (483)	401232-P

① Applicable on 5-kV, 15-kV, and 25-kV systems when mounted in an S&C 125- or 150-kV BIL cutout mounting.

Table 3. VacuFuse Self-Resetting Interrupter—for retrofitting in an existing-production (“-R10” or “-R11”) S&C Type XS Fuse Cutout Mounting or other approved mounting.

Type XS Fuse Cutout Mounting	50/60-Hz Ratings						
Basic S&C Catalog Number	kV				Amperes, RMS		
	System Class ^①	Nom.	Max	BIL	Cont.	Interr., Sym.	Base Catalog Number
89812, 89022, 89032, 89072, 89802, 89042, 89052, 89092, 89222, 89223, 99022, 99042	25	25	29	125	20	6 300	402232

① Applicable on 5-kV, 15-kV, and 25-kV systems when mounted in a 125- or 150-kV BIL cutout mounting, or approved non-S&C equivalent cutout mounting.



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