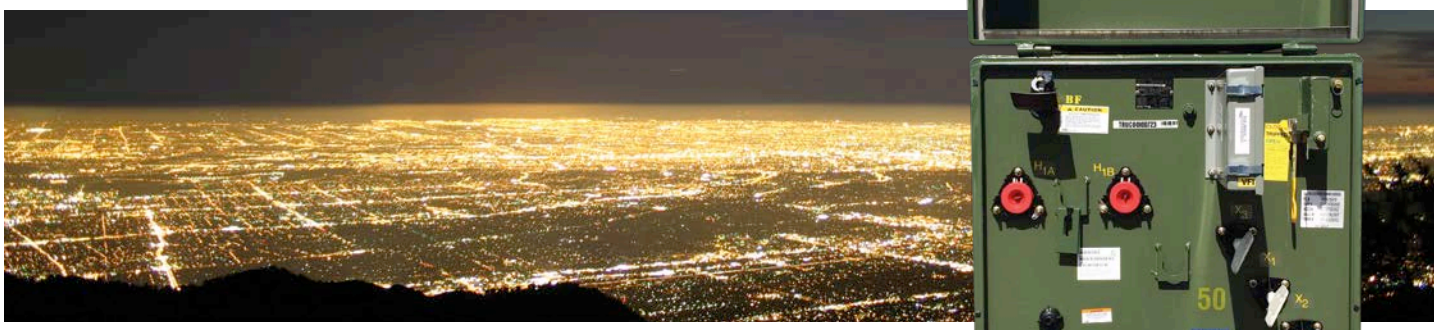
Single-phase VFI
pad-mounted transformer

COOPER POWER
SERIES

Voltage transformation and sectionalizing in a compact, money-saving package

EATON
Powering Business Worldwide

Comprehensive system protection in a two-in-one design



Eaton's Cooper Power™ series single-phase vacuum fault interrupter pad-mounted transformer delivers comprehensive system protection, enabling utilities to dramatically reduce the duration and scope of customer outages.

Eaton's single-phase vacuum fault interrupter (VFI) pad-mounted transformer makes it faster and easier to restore customer power outages. Delivering both voltage transformation and sectionalizing in a single space-saving, cost-effective package, the VFI transformer is the optimal solution for underground residential systems—both new designs and when upgrading existing configurations.

The solution combines a conventional distribution transformer with VFI switchgear to provide a wide range of comprehensive benefits:

- Delivers superior system protection via the sectionalizing capabilities of the VFI
- Reduces outage duration and affected area by up to 50% over traditional single-phase transformer installations
- Condenses installation requirements by over 30% compared to separate single-phase transformer and switchgear installation
- Slashes costs and complexity of installation
- Helps improve SAIDI and SAIFI metrics
- Utilizes industry-standard protection schemes to deliver unparalleled transformer overcurrent and fault protection
- Provides ease of use with resettable breaker operation, programmability and coordination with upstream and downstream protection devices
- Offers safety and security with deadfront construction, coupled with aesthetically pleasing, low-profile design

Decrease the duration and scope of outages

Your customers depend on you to supply reliable electric power, and while it is impossible for utilities to eliminate fault-related outages completely, Eaton's single-phase VFI pad-mounted transformer is designed to help you quickly identify and remedy them. Capable of isolating faults up to 50% faster than conventional fused equipment, the Eaton single-phase VFI pad-mounted transformer not only reduces the duration of an outage, but can also cut the number of affected customers in half. By limiting the customers impacted by downtime—and more rapidly restoring electricity to those affected—utilities can dramatically enhance customer satisfaction.

Don't leave your customers in the dark

When a power outage strikes a standard underground residential distribution configuration, it has the potential to plunge large portions of a subdivision into darkness, as illustrated in **Figure 1**. Without the VFI transformer, if a cable fault occurs between transformers 5 and 6, it will knock out power to all customers on transformers 1 through 8. However, with the Eaton single-phase VFI pad-mounted transformer in place, power will not be lost to customers on units 1 through 4,as shown in **Figure 2**, reducing outage area by up to 50% over traditional single-phase transformer installations.

Typical URD loop—cable fault

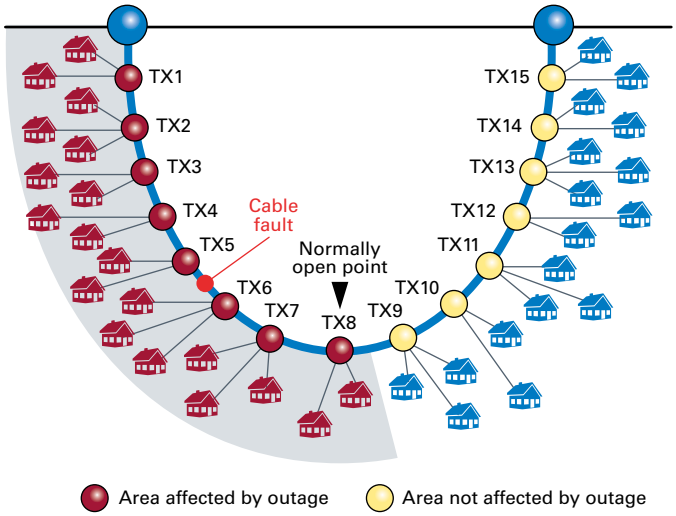


Figure 1. Typical URD loop protection

VFI enhanced—cable fault

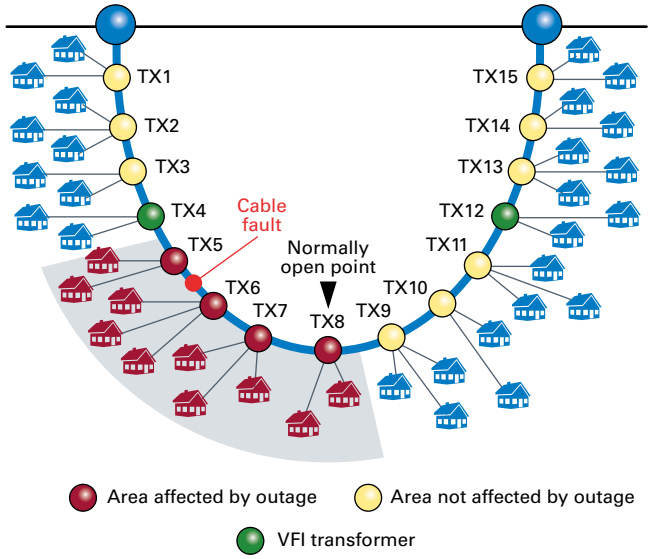


Figure 2. VFI-modified protection

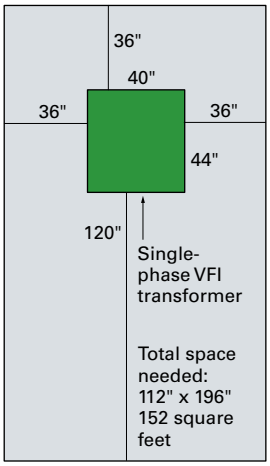
More protection in less space

Only Eaton offers a solution combining a transformer and sectionalizer in less space. With the distribution transformer and vacuum fault interrupter combined in a single enclosure, utilities gain unparalleled reliability for their underground systems in the smallest possible footprint. Even more, Eaton's single-phase VFI pad-mounted transformer facilitates faster installation at a lower overall cost.

Reduce space requirements

Current practices often mandate that pad-mounted switchgear (approximate footprint of 30x34 inches) be installed in close proximity to a single-phase transformer (approximate footprint of 24x33 inches). When clearance and access space are also factored in, the requirement for these two devices encompasses up to 226 square feet. Conversely, as referenced in **Figure 3**, because Eaton's single-phase VFI pad-mounted transformer combines the two components into a single, compact unit, the amount of space required drops to just 152 square feet.

VFI transformer



Single-phase transformer and switchgear

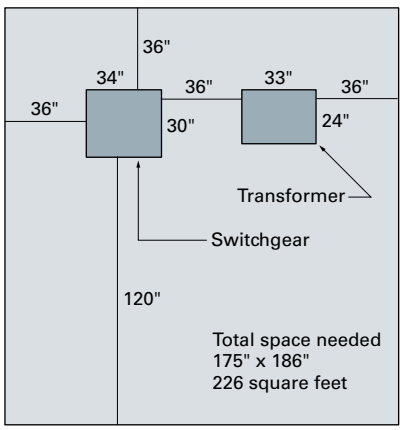


Figure 3. Space comparison of a typical setup vs. a VFI transformer

Save on installation time

Because the Eaton single-phase VFI pad-mounted transformer integrates both the transformer and switchgear into a single piece of equipment, there are fewer individual devices to install, wires to pull and connections to establish. This not only translates to valuable time saved on the installation process, but also can reduce the number of utility personnel needed to complete the job.

Lower equipment costs

In addition to reductions in space requirements and installation time, the Eaton single-phase VFI pad-mounted transformer yields impressive savings to your bottom line. Compared to the cost of purchasing the two components separately, Eaton's packaged solution rings in at up to 10% less.

Gain superior performance

The exceptional performance capabilities of the Eaton single-phase VFI pad-mounted transformer can help utilities improve SAIDI and SAIFI ratings.

- Reduce the number of customers impacted by an outage by up to 50%
- Cut time required to locate a fault by up to 50%
- Achieve ultimate reliability and flexibility through an extensive range of programmable controls and settings

Get looped into superior protection

Product capabilities

- Enhanced sectionalizing capability
- Overcurrent protection in high-voltage loops, taps or open points
- Resettable inline fault protection to 25 kV
- Resettable breaker mechanism for faster service restoration
- Tri-phase electronic breaker control with 100+ minimum trip settings
- Wide assortment of time-current curves
- Interrupting rating far exceeds standard riser pole fuse ratings, enabling better fault clearing coordination and minimizing outage area

Product scope

- Single-phase pad-mounted transformer with VFI breaker
- 10–167 kVA, deadfront
- Maximum 25 kV, 125 kV BIL and below
- VFI rating: 200 A continuous; 12,000 A rms interrupting rating (single-phase) with tri-phase control
- Meets ANSI/NEMA® and CSA®/CEA standards
- Low-profile sealed construction
- Two-position loadbreak switch
- Bay-O-Net expulsion fuse with drip guard
- Under-oil backup ELSP current-limiting fuse increases interrupting rating to 50,000 A rms
- Under-oil primary arrester
- Under-oil secondary arrester

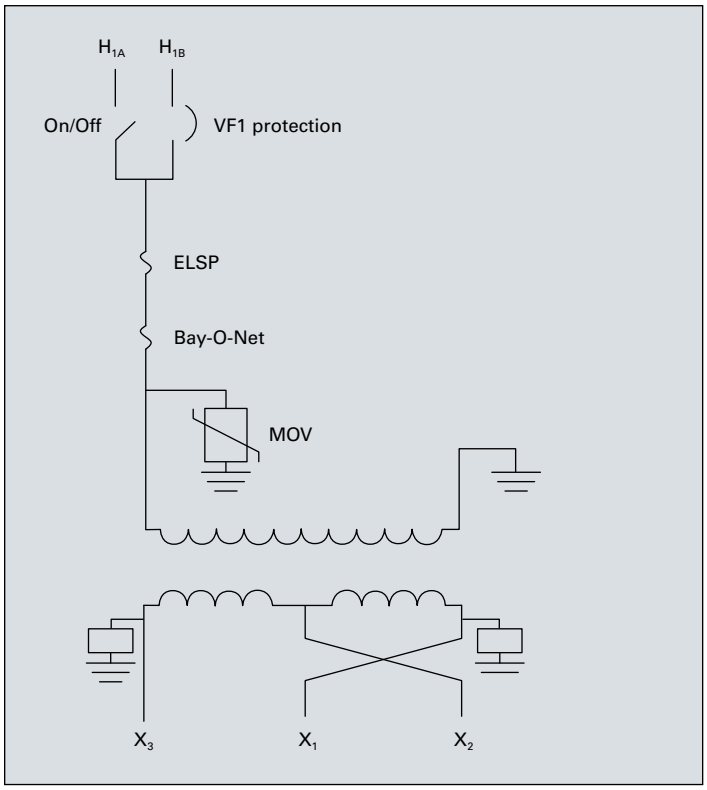


Figure 4. Single-phase VFI transformer with loop protection

One solution, multiple applications

An ideal choice for residential applications where space is limited or inline fault or radial tap protection is difficult, the Eaton single-phase VFI pad-mounted transformer can be easily coordinated with upline and downline protective devices as system changes occur. Deployment options include:

- To tap off a main underground feeder
- In place of a three-way junction cable
- To sectionalize points on a long or densely loaded feeder
- In high potential cable failure areas
- As a tie point between two systems

For Eaton's Cooper Power series product information, visit

Eaton.com/cooperpowerseries

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