

Smart VFI switchgear



Expand protection, control and communications capabilities

Easily incorporate Eaton's Cooper Power™ series Smart VFI switchgear with integrated control options into your distribution automation system.

This easy-to-use intelligent switchgear not only saves time and money, but is built to quickly adapt to technological advances you can expect from your distribution automation system.

Reliability demands continue to increase on medium-voltage distribution systems. Critical loads such as data centers, entertainment districts and hospitals need dependable, reliable power delivery. Renewable distributed generation sources need a stable means of connecting to the utility grid with a way to monitor the connection. Automation is a strategy to carry these loads with feed redundancy, remote monitoring and advanced protection capabilities. By integrating Eaton's Cooper Power series VFI underground distribution switchgear with our field-proven automation solutions and drawing on our expertise and breadth of products, we have created Smart VFI solutions for customers with these demanding requirements.

Smart VFI switchgear combines advanced tap and loop protection with metering, SCADA functionality, and highly flexible and powerful automation capabilities in a single integrated package—reducing downtime and boosting overall reliability. The flexibility of the graphical ProView™ software with the Idea Workbench™ application allows the control to adapt to future requirements. Smart VFI switchgear provides the best integrated solution for your distribution automation needs.

- Save time and money with quick fault location and efficient grid restoration
- Easily integrate into your distribution automation system with a single, economical, integrated package

- Customized solutions to fit your needs
- Easy-to-use controls with common look and feel of other Cooper Power series controls
- Green alternative to SF₆ gas when filled with E200™ dielectric fluid
- Support and services groups to assist with all aspects of your project such as protection studies, site commissioning and future upgrades
- Developed, tested and supported from a single source
- Motor-operated interrupters and switches allow opening and closing to occur without entering the high-voltage compartment—significantly reducing arc flash exposure

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Smart VFI underground distribution switchgear saves time and money

- Minimize duration and area of outage with quick fault location and isolation
- Minimize crew time needed to locate faults and reconfigure and restore the grid
- Eliminate time and cost of mandatory SF₆ monitoring and reporting when E200 dielectric fluid is used
- Reduce cost and footprint when compared to metal-clad switchgear—up to 40% savings
- Reduce cost and clutter of external sensing with internal potential and current transformers
- Minimize maintenance with sealed deadfront construction

Easily integrate into your distribution automation system

Eaton's Cooper Power series Edison™ Idea™ relay and control platform paired with ProView software provides easy integration, control and monitoring:

- Enhanced remote communications with SCADA compatibility via DNP3 or Modbus®
- Remote Terminal Unit (RTU) functionality included in Idea control platform—no need for separate RTU
- Graphical communications mapping with Communications Workbench
- Integrated motor control
- Integral current and voltage sensing
- Comprehensive metering functions
- Monitoring information and data can be pulled into control system
 - Assists in evaluating energy consumption and trends in a compact, economical outdoor package
 - Trending information can be recorded by customer-configurable Data Profiler in control or communicated to SCADA system

Customized solutions to fit your needs

Eaton's Cooper Power series Smart VFI switchgear provides the ability to create your customized equipment package for many applications including:

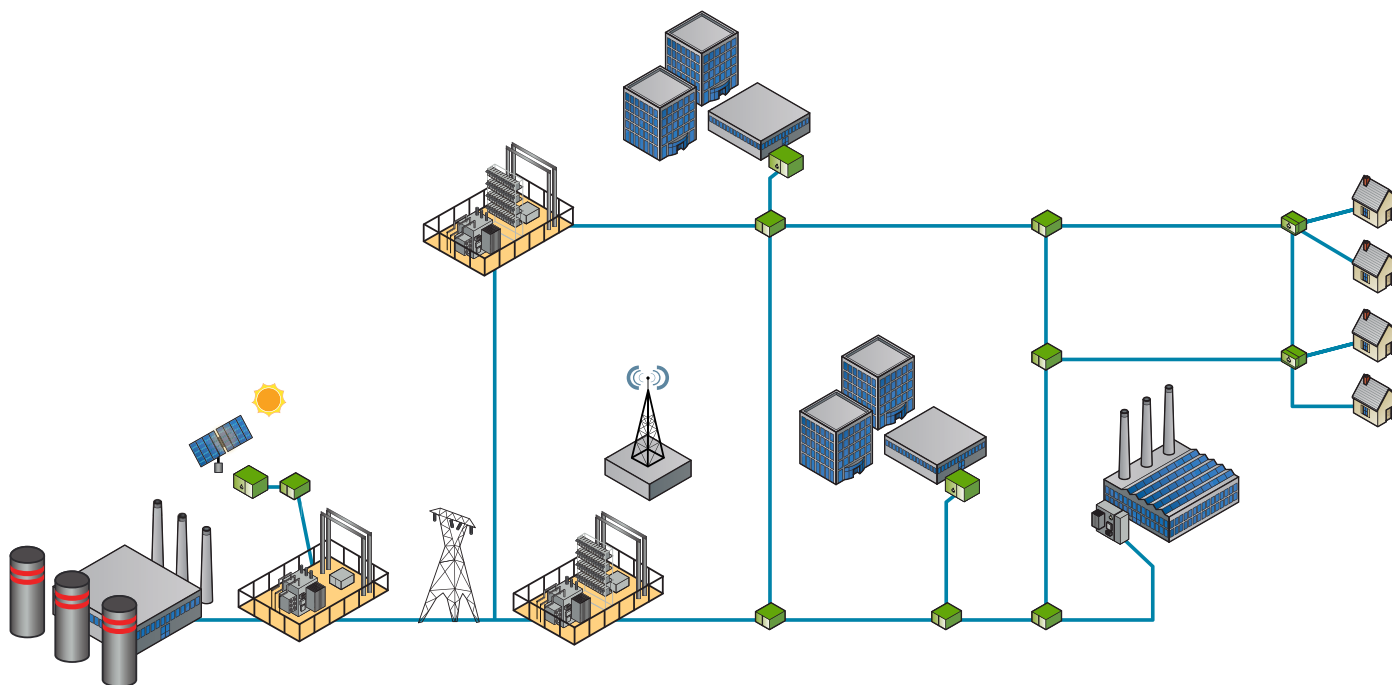
- Distribution automation/SCADA
- Self-healing grid
- High-speed fault isolation on loops
- University, military, institutional and government campuses
- Solar and other distributed generation grid-tie applications
- Data centers, hospitals and high-tech manufacturing
- Entertainment districts
- Feeder automation

Switchgear and control innovation and expertise

With more than 60 years of history designing and manufacturing switchgear, relays, underground distribution equipment and automation products for the Smarter Grid, Eaton has the experience and expertise to help you automate your underground system.

All Smart VFI switchgear is designed, tested and supported from a single source with unmatched expertise in underground distribution products and distribution reliability solutions.

Typical loop application



Easy-to-use control options

All Eaton's Cooper Power series Edison Idea relays and controls use ProView application software, the same powerful, easy-to-use platform used by the Form 6 recloser control. The Idea Workbench, a revolutionary graphical software programming environment, is a feature of ProView that permits the user to add additional protection and control functionality to any Edison Idea relay or control by means of downloadable custom software modules. This ability provides a continuous upgrade path that not only protects the initial investment in the relay, but also provides a means to increase the control's functionality in response to changing regulatory, power quality and reliability concerns.

Additional features include:

- Easy to set and program with ProView application software and Communications Workbench
- Customizable schemes
- Advance notice of pending cable splice failures with patented Incipient Cable Splice Fault Detector (ICSF)
- Real-time data
- Integration with SCADA systems
- Remote metering and switchgear control
- Simplified local motor operator interface

VFI underground distribution switchgear

VFI underground distribution switchgear provides superior overcurrent protection through the use of proven, reliable Cooper Power series vacuum interrupters. The resettable VFI interrupter allows immediate service restoration, eliminating the added expense and downtime associated with stocking and replacing fuses.

Additional switchgear features include:

- Environmentally preferred
- Biodegradable E200 dielectric fluid
- Operator safety
- High fire-point fluid
- 100% Deadfront construction
- Internal visible-break and ground option
- Switches and interrupters are hotstick operable
- Available side-mount operators allow external operation of switchgear
- Vacuum interruption maintains dielectric integrity by interrupting in the vacuum—not the dielectric medium
- Sealed insulation system protects internal components from contaminants
- Versatile customized designs



Smart VFI control options

Smart VFI switchgear with single-phase or three-phase protection and resettable vacuum fault interrupters is available with multiple control options including:

- iTAP-260 and iTAP-265 relays for dual overcurrent protection, monitoring and automation
- iDP-210 relay is an advanced metering and protection package designed for applications such as feeder protection, reverse power, overcurrent, under/overvoltage and frequency. In addition, the iDP-210 relay facilitates remote operation and monitoring

All options are fully integrated and designed as complete systems with testing and support of the switchgear and control from Eaton, eliminating interface issues.



Protection, remote terminal unit, motor control and metering provide a single integrated solution for your automated system.

The Smart VFI green solution

Biodegradable E200 fluid is a clear, low-viscosity fluid with excellent thermal and dielectric properties across the full temperature range for switchgear. All of this combined with a fire point greater than 300 °C makes E200 fluid ideally suited for switchgear applications.

E200 fluid is the environmentally preferred choice for VFI switchgear:

- Eliminates the need for SF₆ gas and associated regulations
 - Identified as one of the most potent greenhouse gases by the United States Environmental Protection Agency
 - One pound of SF₆ gas has the same global warming impact as 11 tons of CO₂
 - Relatively low emissions of SF₆ gas may have a large and lasting impact
 - Load and fault interruption in SF₆ gas produces toxic byproducts
- Advantages over solid dielectric options
 - Reduce cost and clutter of external sensing
 - Simple, safer operation with integral visible break and ground



Smart VFI solution support

Eaton provides a single point of contact with experts on-call.

- Switchgear Support Group (SSG) is dedicated to providing answers to your technical questions and after-sales support.
 - Phone: 800.497.5953
 - Email: PSSM-SSG@Eaton.com
- Eaton's Electrical Engineering Services & Systems provides a full suite of services including:
 - Startup and commissioning equipment
 - Perform planned maintenance
 - Monitor performance
 - Coordination studies
 - Arc-flash studies
 - Turnkey projects
- For more information or emergency service contact:
 - Phone: 800.498.2678
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