



## Verification of circuit isolation is easier and safer by design

The technology beckons—get “dis”-connected with visible break technology and Vacuum Fault Interrupter (VFI) combination packages from Eaton. This accessory is specially designed for visual verification of circuit isolation in transformers having VFI protection.

Building on the market success and proven technology of Eaton's Cooper Power series Vacuum Fault Interrupter (VFI), the visible break accessory offers smart solutions to verify the isolation of internal transformer circuitry. The visual break technology is a step forward in safety.

### System challenge

Nearly every maintenance procedure requires verification of a visible disconnect and grounding in the electrical circuit before working on a piece of medium voltage equipment. In comparison, maintenance on air-insulated, metal-enclosed switchgear can be a time consuming and costly process.

### The Eaton solution

With the Visible Break assembly from Eaton, operators can easily verify an electrical disconnect through the viewing window. The assembly includes:

- Large viewing window for quick verification of circuit isolation

- Rotary handle for operating the isolating contacts
- Interlocking mechanism to sequence safe switching operations
- Containment of all energized components within the transformer tank

### Safety benefits and much more

- Reduced down-time
- Disconnect status verification
- Safer load-break/load-make operation
- Convenient tool that simplifies operating procedures
- Eliminates need to break cable terminations

### Specification

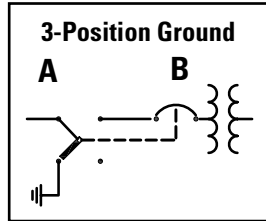
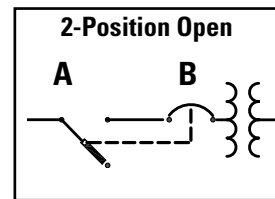
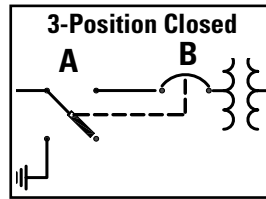
“Transformer shall be an Eaton Envirotemp™ FR3™ fluid-filled transformer designed in accordance with the requirements of IEEE Std™ C57.12.00 standard. The over-current protection shall be provided with a Vacuum Fault Interrupter (VFI) with visible

break and viewing window integral to the transformer tank.

The VFI interrupter shall have a minimum interrupting rating of 16 kA RMS symmetrical @15 kV or 12.5 kA RMS symmetrical @ 25/35 kV with resettable fault protection. Visible break shall include a viewing window integral to the transformer tank wall and large, easily viewed contacts for verifying circuit isolation. Visible Break contacts shall be mechanically interlocked with the VFI and shall provide closed, open, and also (optional) grounded position if desired.”

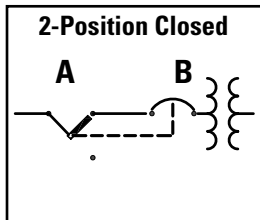
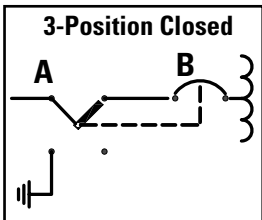


Powering Business Worldwide



**A. Interlocked Visible Break Switch**

**B. Vacuum Fault Interrupter**



**Benefits**

- Save thousands of dollars on installation costs
  - Limits the number of in-field connection points
  - Reduced installation footprint
- Improved safety creates a better work environment
- Simplified workplace safety and operating procedures
- Reduced periodic maintenance expense

\* As the Envirotemp™ FR3™ fluid temperature approaches -10 °C, visibility thru the window will diminish. If this occurs, it may be necessary to warm the transformer by energizing until clarity returns.

**Value-added package**

Combining the Visible Break with VFI protection provides superior over-current and fault protection with isolation verification and grounding of the primary feed, if grounding is desired.

Features of the VFI units include:

- Resettable interrupter mechanism for faster service restoration
- Eliminates stocking and replacement of conventional fuses
- True three-phase protection
- Tri-Phase electronic control for easy time-curve coordination
- Distribution automation capabilities with SCADA
- Vacuum interrupters with axial-magnetic field contacts

Eaton also offers microprocessor based iDEA relays as an optional feature to enhance control functionality.

**Product scope**

- Single- and three-phase pad-mounted and substation transformers
- Applications from 0.5 to 12 MVA
- Voltage class: through 35 kV (150 kV BIL)
- Envirotemp™ FR3™ Fluid (Indoor / Outdoor\*)
- Continuous current: 600 A maximum
- Used with VFIs having interrupting ratings of:
  - 16 kA RMS @ 15 kV Class
  - 12.5 kA RMS @ 25/35 kV Class
- Typical applications:
  - Data centers
  - Mining
  - Steel mills
  - Pulp & paper industries
  - Indoor power centers
  - Petrochemical facilities
  - Food processing

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