

Medium Voltage Load Interrupter Switch Retrofit

Arc Flash Mitigation
Solutions for Your
Existing Equipment



Improved safety can be easier than you think.

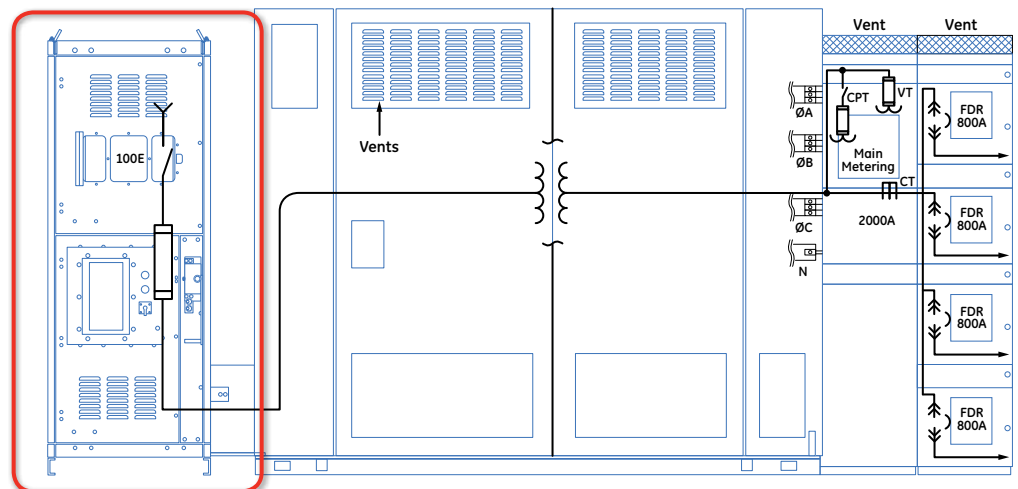
For facilities that are concerned with Arc Flash Safety Standards, the options may seem daunting, and the costs out of reach. The fuses used by load interrupter switches to protect the transformer in an over current situation are no longer adequate. Current Load Interrupter Switches (LIS) may provide poor fault current interrupting times, resulting in high arc-flash incident energy.

GE's Medium Voltage LIS Retrofit solution provides reduced Arc Flash incident energy levels for customers on their existing MV equipment. This new solution retrofits a fixed mounted IEC SecoVac™ VB2 Plus vacuum circuit breaker (VCB) into the fused compartment of LIS. Operating in three cycles, the fast-acting SecoVac VCB is superior to fuses and offers a new Arc Flash mitigating solution designed in response to Arc Flash Safety Standards.

The Medium Voltage LIS Retrofit solution delivers the safety and flexibility for your existing equipment, offering

- Reduced Arc Flash levels from the transformer down to the LV system
- Transformer protection via the latest relay technology (bus and transformer differential protection)
- Added transformer protection via an optional snubber application
- Relay options that provide upstream and/or downstream communications
- Retrofitting into your existing LIS enclosure
- Minimal downtime for installation and commissioning (approx. 8-12 hours)
- The added reliability and quality of an IEC-rated, fast-acting, 3-cycle Vacuum Circuit Breaker with embedded pole technology
- A separate low voltage door to permit access during maintenance, without the need to open the high voltage compartment

A separate low voltage door to permit access for breaker operation without the need to open the high voltage compartment.



With modifications, GE can also provide retrofits to other manufacturer's Load Interrupter Switches.

SecoVac Breaker for Quality Protection

SecoVac series VB2 Plus circuit breaker is a three-phase AC indoor breaker with 17.5kV rated voltage. It is used for control and protection of electrical equipment in industrial and mineral enterprises, power plant and substations. Durable and reliable, the SecoVac VB2 Plus breaker is especially suited for conditions that require frequent operation.

The SecoVac series MV embedded pole vacuum circuit breaker (VCB) uses Automatic Pressure Gelatin (APG) technology to embed the vacuum interrupter and connection terminals within epoxy resin. The embedded pole technology simplifies pole assembly and provides increased assembly accuracy and quality. Embedded pole technology also improves the environmental-resistant capability of the breaker. The primary circuit is completely embedded in epoxy resin, which minimizes the risk of insulation fault caused by operating environment conditions such as dust, humidity, vermin, polluted ambient and high altitudes.

SecoVac VB2 Plus Breaker Features

Breaker Mechanism

All the mechanical parts of the mechanism are integrated into opening and closing modules individually. The closing and opening modules are universal to the entire series of VB2 Plus embedded pole vacuum circuit breakers. This design ensures no mechanical readjustment after the replacement, reducing your operation and maintenance costs.

Differential Relay Options

The MV LIS Retrofit features GE Multilin relays, F35 or 350. If required, customer-specified relays may be included.



Front Panel: well-marked and easy-to-read operating controls and indicators include (1) TRIP button, (2) CLOSE button, (3) OPEN/CLOSE indicator, (4) CHARGE/DISCHARGE indicator, (5) OPERATIONS counter and (6) handle for manually charging the breaker.



GE Multilin 350

Breaker Rating tables

| | | |
|--|---------------------------------------|---------------------------------------|
| Rated Voltage kV | Up to 17.5 | Up to 17.5 |
| Frequency Hz | 50 / 60 | 50 / 60 |
| Rated Current A | 1250 | 2000 |
| Rated Power Frequency Withstand Voltage(1min) kA | 38 | 38 |
| Rated Lightning Impulse Withstand Voltage (Peak Values) kV | 95 | 95 |
| Rated Short Circuit Breaking Current kA | 31.5 | 40 |
| Rated Short Time Withstand Current (3s) kA | 31.5 | 40 |
| Rated Peak Withstand Current, kA | 82 | 100 |
| Rated Peak Making Current | 82 | 100 |
| Operating Sequence, kA | 10,000 operations | 10,000 operations |
| Rated Auxiliary Control Voltage V | 60/110/220/250 Vdc 110/220/250 Vac | 60/110/220/250 Vdc 110/220/250 Vac |
| Opening Time ms | 20 to 50 | 35 to 70 |
| Closing Time ms | 30 to 70 | 40 to 50 |

Standards and Approvals

- American National Standards Institute (ANSI) Applicable sections of:
ANSI/IEEE C37.20.3, C37.20.4, C37.22 - as existing and installed.
- IEC-62271-200 Standard
- National Electrical Code (NEC)

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