Spending Too Much Time and Money on Aging Equipment?

Cost-effective modernization solutions are available from Schneider Electric Services

Make the most of your energy
Facility managers now have another option when contemplating the “repair or replace” dilemma for existing switchgear.

As switchgear reaches the end of its intended useful life, a viable, cost-effective strategy is to modernize the existing equipment with the latest state of the art circuit breakers.

Schneider Electric™ Services offers cost-effective modernization and upgrade solutions that will expand the capabilities of your electrical system with minimal downtime.

Our direct replacement and retrofill solutions utilize the upgraded technology of the Masterpact™ NT/NW insulated case circuit breaker for low voltage systems or the Magnum™ circuit breaker for medium voltage systems. Designs are available for ANY brand.

Some of our switchgear modernization customers include:

- Kimberly Cark
- VA Medical Center
- Public Services of New Mexico
- NSTAR
- Honda Motor Co
- Astra Zeneca
- Ameren
- Miller Coors
- US Steel
- Nestle
- Oak Ridge National Lab
- And many more…

An Economical Alternative to Purchasing New Equipment

The bar chart compares the total installed costs for low voltage switchgear installations. Costs are representative of price differences. Actual cost differences depend on the content and circumstances of each project.
Benefits of Modernizing Existing Switchgear

- **Reduced costs for switchgear upgrades**
  - New circuit breakers are installed in existing switchgear
  - Original footprint is left intact, saving time and money
  - Upgrades can be performed on an incremental basis

- **Less downtime for installation**
  - Downtime is minimized when compared with the demolition and replacement of existing equipment

- **Enhanced equipment reliability**
  - New circuit breakers undergo complete factory testing and are backed by our standard equipment warranty

- **Reduced maintenance and operating costs**
  - New, easy-to-maintain operating mechanism
  - Reduced need for difficult to obtain spare parts

Any brand. Any industry. Any time.
Two different modernization solutions provide the same end result:

**Improved power system reliability and lower life-cycle costs**

**Direct Replacement**

Circuit breakers are designed to fit into the existing cubicle with little-to-no modification to the switchgear cell. Direct replacement solutions reduce downtime since there is minimal (if any) outage on the equipment bus. **Designs are available for any manufacturer’s switchgear.**

- **Low voltage** — A standard Masterpact cradle is installed into an adapter cradle to form one assembly, which is then installed into the switchgear cubicle. (This cradle-in-cradle assembly locks into place and will remain in the switchgear cell after the initial installation). The new Masterpact circuit breaker racks in and out of the adapter cradle. A new door is installed, however cell interlocks, the racking mechanism and the switchgear structure are not modified.

- **Medium voltage** — The Magnum direct replacement circuit breaker will rack into the switchgear line-up and correctly interface with the existing compartment cell. The original racking mechanism, safety interlocks and the primary/secondary disconnects inherent in the original equipment design are maintained and the switchgear structure is not modified.

**Explore our 3D Direct Replacement Models**

To view animated models in 3D from any angle scan QR code or visit [www.sereply.com](http://www.sereply.com) and enter keycode **m295u**.

**Read a customer success story**

A public utility was looking for a cost-effective, efficient, solution to help ensure a safe work environment for its employees. Schneider Electric proposed a solution that addressed these concerns and improved electrical reliability.

Scan the QR code to download the case study or visit [www.sereply.com](http://www.sereply.com) and enter keycode **m313u**.

**When considering whether to replace or upgrade existing switchgear, there are a number of factors to consider:**

- Operating environment
- Availability of spare parts
- Impact of downtime
- Cost of ongoing maintenance
- Need to increase switchgear’s fault or continuous current rating
- Desire to upgrade to current technology

One factor which many people never think about is conduit placement. Installing new switchgear (which is usually smaller than the older/obsolete equipment it is designed to replace) requires that existing conduits above and below the equipment be moved. This time consuming and expensive process is eliminated with either a direct replacement or retrofit solution from Schneider Electric.
Retrofill

The existing switchgear cell and bus are modified to accept the new circuit breaker. This option requires a longer bus outage (compared to the direct replacement option), during which time the internal circuit breaker cell is modified to accept the new circuit breaker. A retrofill solution is often used in lieu of the direct replacement option for larger devices, such as main circuit breakers and tie circuit breakers.

• **Low voltage** — Features a Masterpact cradle and circuit breaker, along with a new racking mechanism and primary and secondary connections in each switchgear cell. Existing cells are modified to accept the new cradle and circuit breaker, including a custom-engineered connection between the cradle and the switchgear line and load side bus. Custom designs are available for any manufacturer’s low voltage switchgear.

• **Medium voltage** — This solution upgrades switchgear by installing a new medium voltage circuit breaker and cell into an existing line-up. Necessary modifications – including an all-new racking mechanism, primary and secondary disconnects and customized connections – are made to the existing cell. Available designs include:
  » Air-magnetic to vacuum or SF$_6$
  » Air-blast to vacuum or SF$_6$
  » OCB switchgear to vacuum or SF$_6$ switchgear
  » Convert stationary circuit breaker to draw-out, or obsolete air circuit breaker to vacuum or SF$_6$

Less downtime for installation

Downtime is minimized when compared with the demolition and replacement of existing equipment.

New cubicle doors

Both the direct replacement and retrofill solutions feature new cubicle doors to match the existing equipment and new circuit breaker face.
Your Source for Circuit Breaker Excellence:
Masterpact NT/NW Low Voltage Circuit Breakers

Providing the latest in circuit breaker technology, Masterpact NT/NW circuit breakers feature high ampere interrupting (AIR) and short-time current ratings, Modbus™ communication protocol and field-installable devices, including sensor plugs and accessories.

In addition, Masterpact NT/NW circuit breakers meet the requirements of UL489, UL1066, ANSI, IEC 60947-2 and CE Mark standards.

Under normal operating conditions, Masterpact circuit breakers do not require maintenance. Completely modular in design, all replaceable parts can be installed with hand tools and require no critical adjustments.

Additional features include:
- Draw-out circuit breakers with three racking positions and status indicator on cradle
- Draw-out or fixed mount, 3- or 4-pole construction
- Integral ground-fault protection for equipment
- Protective relaying functions
- Zone-selective interlocking (ZSI), which can reduce damage in the event of a detected fault

MicroLogic Trip Units

For “smarter breakers”, a complete line of Micrologic™ trip units are available for use with Masterpact circuit breakers. These trip units provide advanced functionality, such as a communications interface, power metering and monitoring capabilities, which allow for integration and coordination of your electrical system. Functions include load protection, power measurement, power monitoring and maintenance monitoring.

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Masterpact NT/NW Direct Replacement Designs
Scan the QR code to view available designs, or visit www.serply.com and enter keycode m221u.

Legacy Circuit Breaker Upgrades
Upgrade your Masterpact MP/MC/M, Square D™ Type SE and Square D™ Type DS circuit breakers with the next generation of low voltage circuit breakers, the Masterpact NT/NW.
Scan the QR code to view a video to learn more, or visit www.serply.com and enter keycode b648u.
Magnum direct replacement circuit breakers are a family of products that upgrade existing medium voltage switchgear to current switching technologies.

Built with new components and tested to ANSI standards, Magnum circuit breakers interface with the existing circuit breaker compartment components and maintain safety interlocks present in the original equipment design. To further simplify the modernization process, Magnum designs are available for any brand of medium voltage switchgear.

Features

• Available in 5 kV – 15 kV; upgraded MVA ratings available
• Low maintenance vacuum and SF₆ arc interruption technology
• Meets the requirements of ANSI/IEEE C37.59 standards
• High dielectric strength, moisture resistant primary insulation
• Nuclear certification available
• No arc by-product ventilated into the compartment
• Reduced power consumption of the control components
• Optional capabilities
  » Increased arc fault current interruption capacity
  » Arc flash reduction
  » Relay upgrade, improved accuracy and repeatability and shorter interrupting time
  » Power monitoring and communication
  » Ground and test devices available
  » Remote racking solutions available

The operating mechanism on Magnum medium voltage circuit breakers is simple to inspect and maintain.

Medium Voltage Direct Replacement Designs
Scan the QR code to view available designs, or visit www.sereply.com and enter keycode m221u.
Why Choose Schneider Electric Field Services?

As part of Schneider Electric, the global specialist in energy management, you can count on Schneider Electric Field Services to help manage the life cycle of your equipment.

We will be there to support you now and in the years to come, from start-up and commissioning, to training, to preventive maintenance and testing, to upgrade and modernization solutions.

With a nationwide team of professional engineers and qualified field service representatives, we are committed to providing you with innovative solutions, best-in-class customer service, advanced technical support, and exceptional quality in everything we do!

- Our professional engineers are strategically located throughout the U.S. and collectively registered in every state
- Our field service representatives are qualified, as defined by OSHA and NFPA 70E®
- Our culture of safety helps mitigate your risks
  - Our North American Operating Division is one of an elite group of companies to simultaneously hold the Robert W. Campbell Award (2009) and the Green Cross Award (2011).
  - The National Safety Council has recognized Schneider Electric with over 50 “Operational Excellence” safety awards in each of the past three years.
  - Schneider Electric holds third-party audited OHSAS 18001 certification for its Safety Management System and ISO 14001 certification for its Environmental Management System.

Any brand. Any industry. Any time.

Find out more about how we can address your specific needs:

888-778-2733
Visit www.SEreply.com and enter keycode p358v.

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