

Medium-voltage electrical distribution products  
Commercial and industrial

COOPER POWER  
SERIES

Transform, protect and connect



**EATON**

*Powering Business Worldwide*



## Solutions for a rapidly evolving world

Eaton serves a diverse and increasingly complex market with its Cooper Power™ series medium-voltage product portfolio. As well-established markets evolve and new markets emerge, we continue to innovate and adapt to the requirements of an increasingly digital and connected world. Eaton's medium-voltage equipment solutions, whether installed as a single piece of equipment or as part of an integrated solution with sophisticated controls and communication capabilities, are designed for long life and superior reliability. Eaton offers a broad range of engineering expertise—from overcurrent and overvoltage protection, relaying, communications, system analysis and other specialties—making it possible to solve even the most challenging of requirements.

## Market experience to enhance project success

- Custom-designed solutions
- Site evaluation
- Integration with utility systems
- Startup and commissioning
- Retrofit solutions
- Troubleshooting

## Solutions to improve

- Reliability
- Efficiency
- System performance
- Safety
- Sustainability

## Unmatched expertise

- Broad knowledge and expertise of medium-voltage systems
- Customized engineered-to-order capabilities
- Responsive and knowledgeable technical support
- Application and design support
- Power systems studies and analysis

## Express Ship program

Whether a natural disaster or an unexpected equipment failure, sometimes equipment is needed quickly to keep operations up and running. Eaton's Express Ship program provides fast delivery on an assortment of Cooper Power series equipment and accessories. Eaton is able to offer this program on pre-engineered designs that utilize readily available materials to minimize lead times. See the Express Ship section on **pages 24 and 25** for information on which products are available through the Express Ship program.

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# Liquid-filled transformers

Gain improved safety, reliability and efficiency with liquid-filled transformers



## Pad-mounted transformers

Eaton's Cooper Power series three-phase pad-mounted transformers are compact power centers for commercial, industrial or utility applications. With proper design selection, they can be located near or inside buildings for greater flexibility and savings.

All Eaton's Cooper Power series pad-mount transformers are manufactured and produced to meet exacting customer specifications and are designed to meet or exceed all applicable ANSI, NEMA®, IEEE® standards, and NEC® and CEA specifications. Many configurations and accessories are available to meet a wide range of application demands. Available from 45 to 12,000 kVA tamper-resistant designs. Eaton can provide UL® Classified/FM Approved units.



## Substation transformers

Eaton's Cooper Power series substation transformers for commercial and industrial applications convert distribution voltages to utilization voltages and can be designed and configured to meet almost any application requirements. The transformers are available in primary or secondary open substation with cover-mounted bushings fed from overhead lines or primary or secondary unit substation with enclosed sidewall-mounted bushings for easy connections to primary or secondary switchgear.

Substation transformers can be used in outdoor or indoor (when filled with Envirotemp™ FR3™ fluid) settings with optional full fluid containment pan. They are available from 500 to 12,000 kVA with temperature rise of 65 °C, 55/65 °C, 55/75 °C or 65/75 °C to meet a wide range of applications. Eaton can provide UL Classified/FM Approved units.



## Envirotran Indoor Power Center

Eaton's Cooper Power series Indoor Power Center™ (IPC) transformers, with full fluid containment pan included, run quieter and cooler, offer improved safety, reliability and efficiency, and have a lower upfront cost and lower total ownership cost (TOC) than dry-type transformers. IPC transformers are designed and approved for indoor, roof-mounted or seismic applications and are suitable for a wide range of commercial and industrial environments.

Flexibility in design, combined with the highest quality manufacturing processes, equipment and testing procedures, enable Eaton to provide an IPC transformer optimized to individualized requirements. Filled with Envirotemp FR3 fluid, IPC transformers can be used almost anywhere dry-type transformers are specified.



## Smart transformers (S-VFI)

Eaton's Cooper Power series Smart Vacuum Fault Interrupting (S-VFI) transformers are available in three-phase pad-mounted and substation configurations, combining a robust distribution transformer with Eaton's proven Smart VFI technology. This combination provides both voltage transformation and integrated and factory programmed primary overcurrent protection, utilizing an under-oil vacuum fault interrupter (VFI) with a microprocessor-based protection relay.

With built-in metering, SCADA functionality and highly flexible automation capabilities in a single integrated package, the S-VFI transformer can help reduce downtime, boost overall reliability and provide diagnostic capability for asset management.



### Envirotemp FR3 fluid

Envirotemp FR3 fluid-filled transformers from Eaton make it easier to select and specify the right transformers for indoor and outdoor applications. Transformers filled with high-performance Envirotemp FR3 fluid increase reliability, improve fire safety, extend insulation life and increase overload capacity.

Eaton's Cooper Power series FM Approved, code-listed transformers are the industry's first "Listed and Labeled" liquid-filled transformers. They provide state-of-the-art fire protection while making it easy to conform and verify compliance with the National Electrical Code®. Transformers filled with Envirotemp FR3 fluid provide maximum application flexibility for both power and distribution transformers. FR3 fluid is an environmentally friendly alternative to other insulating mediums.



### Arc-reduction transformers (AR-VFI)

Eaton's Cooper Power series Arc-Reduction VFI (AR-VFI) transformer is a comprehensive transformer arc flash protection system. The AR-VFI transformer incorporates the functionality of a primary interrupter, distribution transformer, secondary main breaker and complete protection control system into a single factory-ready arc flash protection solution.

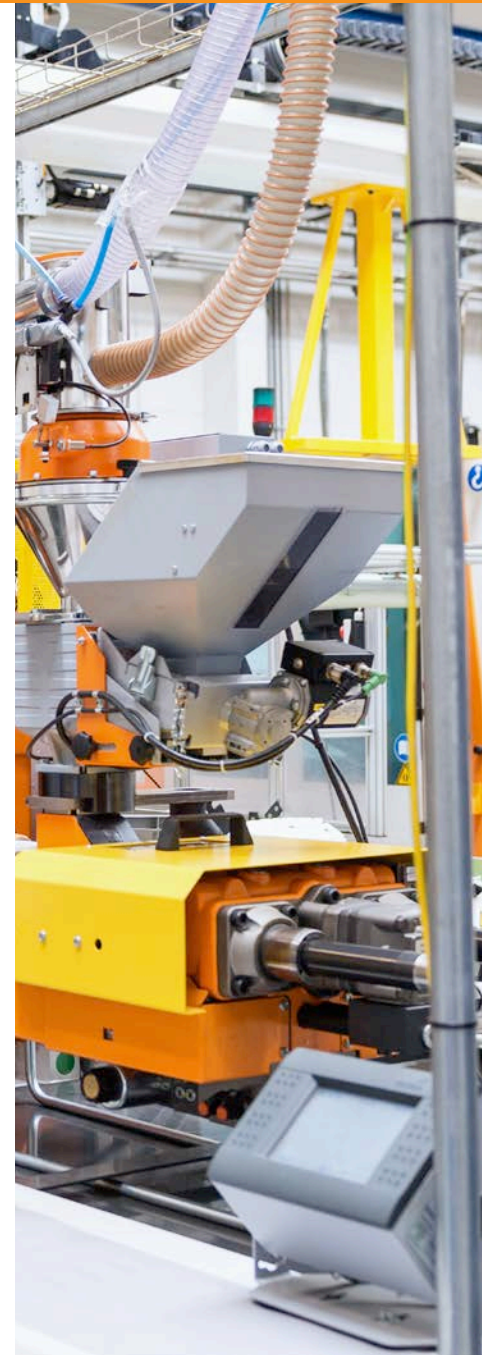
Utilizing Eaton's proven VFI technology, paired with a state-of-the-art protection system and optimized component placement, secondary arc faults are sensed and cleared in 3-4 cycles, maximizing electrical safety and system reliability. Design flexibility allows AR-VFI transformers to be applied from 150 to 12,500 kVA up to 35 kV while providing unparalleled arc flash protection.



### Single-phase transformers

Eaton offers a complete line of Cooper Power series single-phase overhead and pad-mounted distribution transformers, ranging from 5 to 167 kVA. Single-phase transformers are available in a variety of ratings as both conventional and protected.

All single-phase transformers meet or exceed the requirements of applicable IEEE and NEMA standards. Completely self-protected transformers have direct-connected primary arresters and either MagneX™ interrupters or secondary circuit breakers paired with internal primary voltage fuses. These overcurrent devices eliminate the need for separately mounted overcurrent protection and reduce installation costs.



# Specialty transformers

Decades of experience and proven performance—  
the perfect fit for your application



## Data centers

Data centers are the backbone of modern business; and whatever its size or capacity, reliable operation requires solutions that drive efficiency and scale easily. Eaton offers innovative, mission-critical transformer solutions that provide higher system availability with lower capital and operating costs for flexible, scalable solutions geared to the specific needs of a business.

With enhanced transient resistance, fire protection and hardened transformer design, Eaton's Cooper Power series Hardened Data Center (HDC) transformer provides an unparalleled combination of reliability, efficiency, safety, performance and value. HDC transformers can be utilized in both indoor and outdoor applications, providing protective relaying, integral VFI protection, advanced monitoring and data center automation.



## Solar and energy storage

Eaton's Cooper Power series Envirotran™ solar and energy storage transformers are designed for solar photovoltaic and energy storage medium-voltage applications. The tamper-resistant design has externally coordinated low-voltage bushings for direct connection to a switchboard or collector. The internal core/coil assembly is specifically designed for the cyclical and bi-directional loading seen in solar and energy storage applications.

Paired with optional motor-operated internal vacuum switching and local relay control, the solar and energy storage transformer can automate the system to reconnect safely with staggered energization after an islanding event. Available in ratings of 45 through 12,000 kVA, these pad-mounted transformers are filled with sustainable Envirotemp FR3 dielectric fluid, which also provides enhanced fire protection.



## Government and military

Eaton provides products and solutions to state and federal government facilities. From transformers built per government specification to engineering services that keep the facility up and running, Eaton can help to build a power system that delivers reliable, high-quality power for mission-critical applications.

Eaton liquid-filled transformers can be produced to meet a large variety of government applications such as military bases, embassies or data centers. When paired with protection control relays and metering equipment, Eaton transformers integrate upstream vacuum protection into the design, saving space and cost.



## Utility

Utilities face many challenges when upgrading the aging grid, including space constraints, automating utilization and protecting personnel. Available in 10–167 kVA ratings, the VFI single-phase pad-mounted transformer combines voltage transformation, underground residential distribution loop protection and sectionalizing in a compact, money-saving package. This design delivers reduced spread of outages and shorter fault locating time—ultimately increasing efficiency and reliability.

Completely Self-Protected (CSP) single-phase pole-mounted and pad-mounted transformers are designed for exceptional performance and comprehensive safety. With Envirotemp FR3 fluid, utilities can operate beyond full-rated load to at least 109%, with a smaller, lighter footprint.



### Mining and minerals

For all aspects of a mining operation, space constraints are an obstacle. Eaton transformers designed specifically for the mining industry are built to handle the robust conditions of the mine while meeting space constraints.

Eaton's Critical Load Transformer (CLT) is built with a hardened design and increased dielectric insulation for longer life and enhanced safety. For the most robust transformer applications, the CLT is designed to enhance operational efficiency and safety.



### Oil and gas

From exploration and recovery to filtration and refining, Eaton delivers solutions to help the oil and gas industry de-risk by design. Eaton's Cooper Power series transformers meet location requirements such as Class 1 Division 2, FM Approved and UL Classified.

Eaton transformers ensure both compliance and maximum facility safety and are built with the features needed for hazardous locations—such as intrinsically safe contacts for devices, NEMA 7 explosion-proof control cabinets, integral overcurrent protection, fluid containment and high fire-point insulation systems.



### Eaton makes difficult retrofits easy

Whatever the retrofit need, Eaton has the engineering expertise to help find a solution.

With a vast number of dimensional options and advanced protection technologies that can shrink overall electrical system size, Eaton transformers can assist in managing these obstacles. Solution example: Eaton's Cooper Power series Triplex IPC offers an energy-efficient, low-noise solution. The IPC utilizes three single-phase transformers filled with Envirotemp FR3 dielectric fluid in a ganged assembly to provide a modular three-phase assembly that can fit through tight corridors and into existing or space-constrained electrical rooms.

With the Triplex IPC design, customers can move equipment through tight doorways or onto freight elevators, while the lower total weight and modularity make the Triplex IPC an ideal replacement for an existing, aged dry-type or liquid-filled transformer located in a small indoor electrical room.

# Voltage regulators and controls

Building a strong infrastructure begins with advanced apparatus and integrated communications



## Step-voltage regulators

Eaton's Cooper Power series regulators feature the proprietary Quik-Drive™ tap changer, unique in the industry. These tap changers provide for the fastest response to power quality demands. Add this technology to the innovative Eaton CL-7 single- or multi-phase voltage regulator control to create a high-performance, user-friendly regulator package of unmatched functionality.



## EVER-Tap vacuum interrupting voltage regulator

Eaton's Cooper Power series EVER-Tap™ vacuum interrupting voltage regulator is the result of a collaboration between two industry leaders: Eaton and Reinhausen Manufacturing. Eaton's experience with regulators and controls combined with Reinhausen's industry-proven VACUTAP RMV-II tap changer results in a superior voltage regulating solution for your substation.

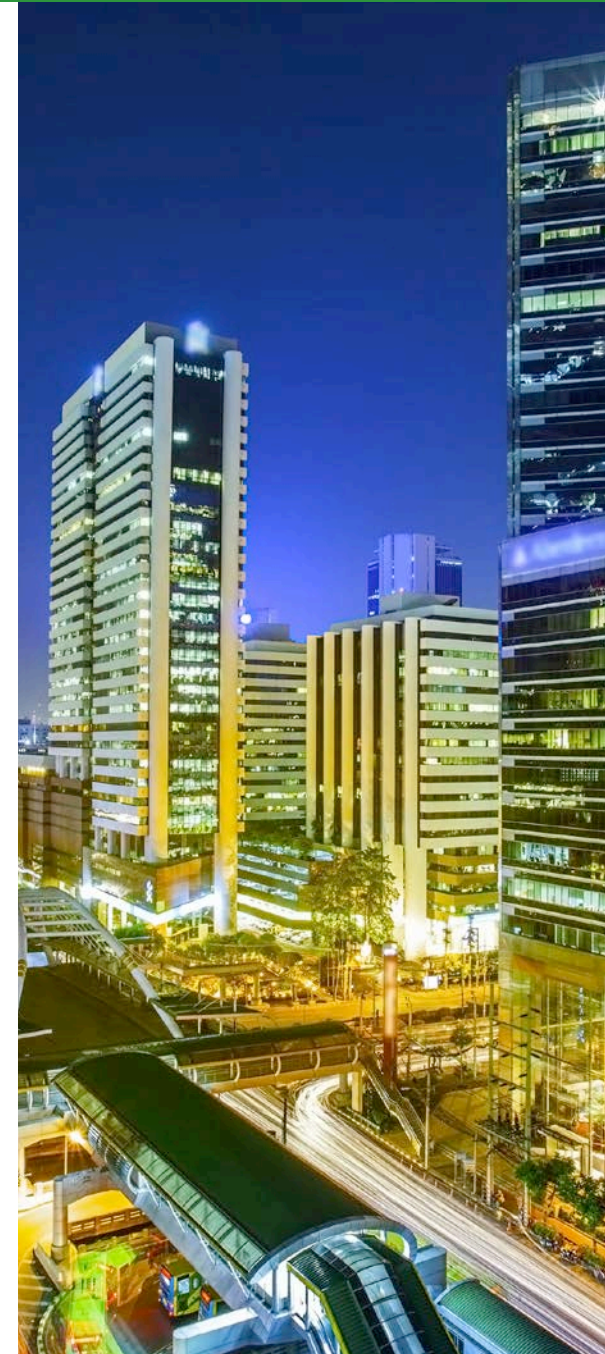
The EVER-Tap regulator provides an industry-leading service life with as many as a million operations before maintenance is required. Single-phase regulation and bypassing without need for an outage are just two of the advantages over traditional load tap changing equipment.



## CL-7 voltage regulator controls

The single- and multi-phase CL-7 voltage regulator controls are designed with the smart grid and SCADA in mind. This control is the leader in easy-to-use functionality and innovative features. The already powerful CL-7 control is backed up by a creative team of engineers continually developing control solutions to meet the needs of modern power systems.

The flexible CL-7 control is equipped with a full suite of power quality enhancing options. These options can be used in many operational strategies such as self-healing grids, complex co-generation scenarios or Volt/Var management schemes. The modular control offers unique options like three-phase metering, discrete I/O, auxiliary analog inputs, DC radio power supply and battery backup.





#### Single-phase pad-mounted regulators

Eaton's Cooper Power series pad-mounted single-phase voltage regulators provide improved safety, reliability and power quality in existing and new underground systems. These regulators reduce installation costs, require less real estate and have a smaller and less obtrusive physical profile. Pad-mounted voltage regulators provide the same functionality of traditional round-tank pole-mounted and substation voltage regulators, with the convenience of pad-mounting. These units are outdoor, oil-immersed, step-type voltage regulators that provide  $\pm 10\%$  regulation in 32 steps of approximately 5/8% each.



#### Multi-phase pad-mounted regulators

Eaton's Cooper Power series multi-phase pad-mounted regulators provide all the benefits of single-phase regulation in a three-phase package. This voltage regulator package exceeds the capabilities of the gang-operated voltage regulation used by on-load tap changers. The multi-phase units contain two or three single-phase voltage regulators in a single tank that can be configured for wye or delta system applications. These designs, paired with the CL-7 multi-phase control, offer unprecedented command of three-phase applications to ensure a highly balanced three-phase load. With three-wire uni-grounded (delta) systems, this device also improves the balance between the legs of the connection.



#### Voltage Regulator Support Group

Immediate solutions for customer application questions are available from our experts on the Regulator Support Team. Our expert team is dedicated to providing answers to your technical questions.

P: 866-975-7347

P: 262-896-2591 (International)

E: [RES-VRSupport@Eaton.com](mailto:RES-VRSupport@Eaton.com)

#### Contact hours:

Standard hours  
8:00 a.m. to 5:00 p.m.  
Central Standard Time

#### Looking for training?

Several training options are available to keep your team safe and efficient.

For more information, visit [Eaton.com/regulatortraining](http://Eaton.com/regulatortraining).

# Power capacitors and controls

Improve power factor, power flow capability, voltage support—and reduce losses



## Power capacitor units

Eaton's Cooper Power series medium-voltage, single-phase, all-film, unfused power capacitors feature extended-foil elements, solderless connections and laser-cut aluminum foil in a high-stacking factor design. Designed, manufactured and tested to meet or exceed the requirements of applicable ANSI/IEEE/IEC standards, these capacitors are a simple, economical and reliable source of reactive power on electric power systems.

Eaton's power capacitor design has been field-proven in a variety of applications. Product expertise is leveraged to make a standard design capable of being tailored for custom needs such as indoor and outdoor applications, pole-mounted, open air, metal enclosed and mobile power capacitor bank solutions and specialized needs.



## Open-air power capacitor banks

Eaton's comprehensive line of open-air power bank solutions are available in externally fused, fuseless or internally fused designs. Each design is custom configured in a variety of parallel/series combinations to meet a full range of application needs based on kvar requirements, system voltage, protection strategy and system solutions. Open-air banks provide economical and reliable methods for reducing losses and improving power quality.

Eaton's open-air power capacitor banks utilize a range of frame structures and bus configurations that can be scaled and configured to meet application needs. Modular assemblies can optimize the system footprint, reduce installation time and labor, and allow for banks to be reconfigured, extended or relocated over time.



## Edison capacitor switches

Eaton's Cooper Power series single-phase Edison capacitor switch increases overall system reliability and reduces lineman time in the field. The robust operational and bushing designs and unique terminal ring provide dependability and ease of use. The switch's consistent operating speed makes it ideal for zero voltage closing (ZVC) applications, reducing the transients generated during capacitor energization.

ZVC-controlled switches can eliminate the need for current-limiting reactors and pre-insertion resistors/inductors, ensuring that critical loads are minimally affected by energization transients. The Edison family includes 15 kV and 25 kV class switches that are available for system applications up to 38 kV.



## Metal-enclosed power capacitor banks

Eaton's metal-enclosed capacitor bank portfolio provides a compact and environmentally friendly design that can be tailored to meet application needs. Power capacitor bank usage reduces system losses and CO<sub>2</sub> emissions, and improves power quality, efficiency, safety and reliability.

Metal-enclosed banks are less intrusive and offer a profile reduction over open-air banks. This totally enclosed solution eliminates the need for external fencing and external vertical and horizontal clearance requirements. Eaton's metal-enclosed power capacitor banks allow for quick power connection that can be an easily relocatable asset that can be installed for short-term projects and redeployed as needed.



#### Power capacitor recycling program

Eaton expands its sustainability focus to include end-of-life management for produced equipment with its power capacitor recycling program. This comprehensive program includes on-site material pickup for all capacitors, regardless of age, original manufacturer or current condition.

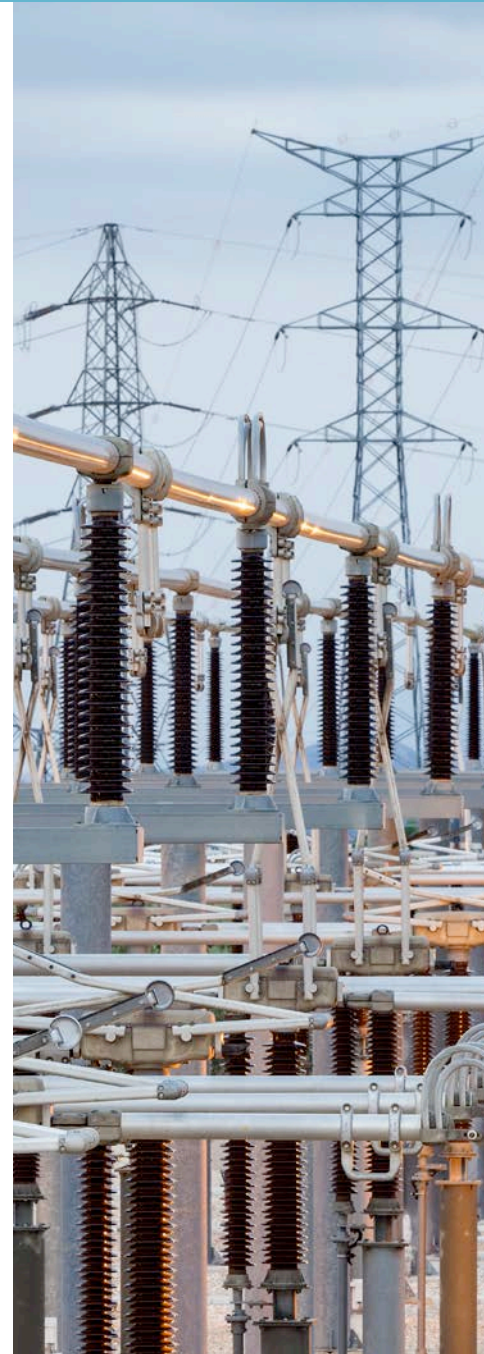
Customers can also bundle and save if recycling and replacement equipment are purchased at the same time. Request additional information at time of quoting.



#### CBC-8000 capacitor bank control

Eaton's Cooper Power series CBC-8000 capacitor bank control and two-way communications maximize distribution system energy efficiency and power quality. This state-of-the-art integrated Volt/Var intelligent control is built to easily adapt to emerging power system changes.

Available as a single, stand-alone field device or an entire automation solution, the CBC-8000 capacitor bank control easily integrates with radios and radio networks. The control is designed with a full suite of deployment options and strategies using site metrics. Voltage, vars, current, temperature and time control configurations enhance efficiency and power quality.



#### Eaton power factor correction services

Take advantage of discounted service rates and the extended warranty period offered with Eaton's power factor correction services and equipment program—covering the project from conception to completion.

The program includes a site study by Eaton's Electrical Engineering Services & Systems (EESS) team. The EESS team provides study recommendations to select power capacitor equipment for improved performance. The EESS team follows the project through with startup and commissioning services.

For additional information, please visit [Eaton.com/pse](https://www.eaton.com/pse).

# Modular integrated transportable substations

Electrical equipment integrated into an easily transportable, modular, turnkey solution



**Eaton's modular integrated transportable substation (MITS) can be readily transported to your project site and set in place with one crane lift, meaning quick, safe and easy installation, saving time and labor.**

**Modular designs can be standardized and easily designed to accommodate future modifications. Units can be used for permanent substations or temporary solutions.**

## **Built to your specific needs**

Eaton's turnkey solution provides design, product, installation and support for an MITS that is specific to your needs, up to 46 kV.

## **Confident installation**

MITS units come factory assembled, wired and tested to minimize on-site labor costs, quality issues and deployment time. Units include on-board protection, control and automation devices.

## **Small footprint**

MITS units are engineered to use as little space as possible, while completely meeting project requirements. The entire solution fits on a platform or trailer, for easy transport and deployment.

## **Reliable**

Utilizing shield-grounded medium-voltage cable, the MITS is less susceptible to environmental and wildlife damage than equivalent air-insulated systems.

# Medium-voltage compact switchgear

Eaton.com/MVPowerDistribution

Eaton's VisoVac switchgear utilizes advanced circuit breaker technology to provide high fault current interrupting capability in a compact design



**VisoVac™ switchgear solutions utilize Eaton's proven circuit breaker technology with stored energy mechanism and vacuum interruption for maximum safety and lower maintenance. Available with visible isolation and visible grounding capability, the compact design includes vacuum fault interruption, isolation position and grounding position internally interlocked to facilitate a safe sequence of operations.**

#### Seamless remote operation

The circuit breakers are equipped with a spring charge motor that allows for seamless remote operation without the need for external motor operators. Additionally, a local spring charge handle is provided for dead-start operation.

#### Proven breaker technology

VisoVac switchgear is available up to 34.5 kV and leverages proven Eaton breaker technology, making it an ideal option when looking for an economical solution for advanced or simple switchgear needs.

#### Applications

VisoVac switchgear is ideal for medium-voltage applications with robust interrupting requirements (up to 40 kA). Interlocked visual isolation and grounding positions are provided for maximum safety. Customized protection and control schemes are provided.

#### Modular designs

VisoVac switchgear is available with up to nine vertical sections in a single shipping split, fully tested and assembled to reduce installation time and commissioning. VisoVac compact switchgear is available for indoor and outdoor applications with various cable entry options to meet site-specific requirements.

# Underground distribution switchgear

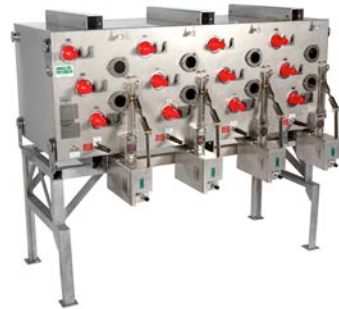
Underground distribution switchgear helps to provide maximum continuity of electric service to customers



## ISG-SD pad-mount switchgear

Eaton's ISG-SD solid-dielectric switchgear is designed to be compact and contains no fluid or SF6 gas insulation. By replicating the shape, footprint, bushing patterns and phasing of oil-filled and SF6-filled switchgear, replacement is relatively seamless. ISG-SD switchgear features a visible open isolation point that can be de-energized and isolated by a single handle in one operation.

ISG-SD switchgear provides thousands of virtually maintenance-free load-break operations. Tanks and enclosures are made of welded 304 stainless steel and are sealed to protect from harsh underground environments, including saltwater, flooding, humidity, insects and wildlife. The single-sided gear configuration saves space as it requires clearance on one side only. ISG-SD pad-mount switchgear is available with a variety of overcurrent protection and communications solutions.



## ISG-SD vault-mount/wall-mount switchgear

Eaton's ISG-SD solid-dielectric vault-mount and wall-mount solutions are designed for easy retrofitting to deliver significant savings in both project time and costs. These two-way through six-way switch tank variations include a switch and vacuum fault interrupter, as well as 600 A or 200 A terminations.

ISG-SD switchgear stands and adjustable legs are constructed of structural stainless steel for durability and longevity. Octagonal submersible designs can also be turned on their sides to save space and function as a vault-style unit.



## VFI switchgear

Eaton's Cooper Power series vacuum fault interrupter (VFI) underground distribution switchgear provides an environmentally sound, safe and reliable approach to medium-voltage switching and protection. VFI switchgear offers superior overcurrent protection through the use of vacuum interrupters.

The resettable VFI allows immediate service restoration, eliminating the expense and downtime associated with stocking and replacing fuses. Safety options include visible break and ground and external operating handles.

Idea™ or SEL relays provide advanced tap and loop protection with integrated sensing and control power, metering, SCADA functionality and automation capabilities.



## PST switchgear

Eaton's Cooper Power series pad-mounted source transfer (PST) switchgear with iST control is a compact, self-contained system ideal for critical medium-voltage applications, including healthcare facilities and data centers, that require highly dependable power for continuous operation.

PST switchgear provides automatic transfer between preferred and alternate sources in as little as six cycles, as well as fault protection for critical loads to reduce outages during the time it would otherwise take to return to normal power. iST controls are available in a variety of source transfer and restoration configurations, as well as overcurrent protection, metering and SCADA capabilities.



#### Under-oil and vacuum switchgear

Eaton offers a comprehensive line of Cooper Power series manual pad-mounted switchgear for economical underground protection and switching for 15 kV, 25 kV and 35 kV systems.

RVAC vacuum switchgear is designed for applications such as industrial parks and shopping malls where frequent 600 A main-line switching and fuse protection are frequently required. RVAC switchgear incorporates vacuum switching for reliable repetitive switching duty. Available in single- or three-phase units, switchgear features a deadfront construction for optimal safety.

MOST pad-mounted switchgear is an oil switch with a deadfront sealed design and a low-profile appearance that provides a wide selection of fuses. Available in four switch designs, MOST switchgear provides quick, reliable operation, ideal for commercial and industrial applications.



#### Automation control relays

Eaton's Cooper Power series switchgear is available with a comprehensive control offering, making it ideal for commercial and industrial applications. For automatic source transfer applications, iST controls provide critical load fault protection and transfer operations between preferred and alternate sources in as little as six cycles.

Idea relays allow for communication protocol configuration as well as custom metering and measurement quantities, custom sequence of events records, and control and protection logic creation.

Schweitzer Engineering Laboratories (SEL) relays offer protection and automation capabilities to radial and looped distribution circuits, including phase and ground overcurrent, directional overcurrent, reverse power, over/undervoltage and over/underfrequency.



#### VisoVac pad-mount switchgear

VisoVac switchgear uses Eaton's proven circuit breaker technology with a stored energy mechanism and vacuum interruption that provides the highest interrupting ratings in the industry. Units include visible isolation and grounding for an all-in-one solution.

VisoVac switchgear is perfect for applications requiring robust interruption, visible isolation and grounding positions, protection and control, such as remote operation and auto-transfer schemes. VisoVac switchgear does not require oil or SF6 gas, for reduced maintenance and environmental impacts.

# Reclosers and controls

Industry-leading overhead distribution equipment, supported by a long history of innovation



## NOVA NX-T recloser

For applications benefiting from both single- and three-phase operation, Eaton's Cooper Power series NOVA™ NX-T recloser utilizes proven solid epoxy and vacuum interrupter technologies with a robust and reliable actuator design. Site-ready options reduce installation time and cost while the easy-to-use twist-lock cable connector ensures connection integrity and protection from the elements. The NOVA NX-T recloser's integrated source- and load-side voltage sensors simplify cabling and aesthetics and deliver high sensing accuracy across the full rated temperature range. Large, highly reflective open/close indicators are visible from any angle, even during inclement weather.



## NOVA NX-STS recloser

For applications benefiting from both single- and three-phase operation, Eaton's NOVA NX-STS recloser is the newest addition to the NOVA NX family. This recloser incorporates key features first introduced with the NOVA NX-T repackaged in a compact single tank design. Only a single control cable is required, thus eliminating need for a junction box. Fewer cable connections results in less pole clutter, which provides a simple and quick installation.

Unique to the NOVA NX-STS recloser, additional phase rotations (45, 90, 180 degrees) are available to address challenging conductor layouts between the recloser terminals and overhead power lines.



## NOVA reclosers

Eaton's Cooper Power series NOVA reclosers for three-phase electrical distribution systems through 34.5 kV are designed and ANSI tested as a complete system.

NOVA reclosers ensure reliable lifetime performance by combining cycloaliphatic-epoxy encapsulation, a high-performance vacuum interrupter, a dependable lower power mechanism and Eaton's Cooper Power series control. Configuration options are available for a variety of applications.





#### Form 7 recloser control

Eaton's Cooper Power series Form 7 recloser control represents the next generation in recloser control technology. The Form 7 control is designed to deliver state-of-the-art intelligence, best-in-class integrated security tools and unparalleled scalability to future-proof your investment.

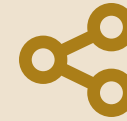
Smarter, faster and more flexible than any predecessor control, the Form 7 control helps utilities enhance reliability and efficiency, reduce operational and maintenance costs, and protect systems against mounting threats—today and well into the future.



#### Pad-mounted NOVA recloser

Eaton's pad-mounted NOVA recloser is an electronically controlled, automatic circuit recloser that features solid-dielectric vacuum interruption that can be used as a recloser or a switch. The mild steel or stainless steel enclosure provides protection from the elements, unauthorized tampering and rodents. The recloser increases safety, reliability and protection.

Pad-mounted NOVA recloser units are controlled by a single Form 6 or Form 7 recloser control or SEL control that can be programmed for multiple operating modes.



#### Eaton's Switchgear Support Group

Immediate solutions for customer application questions are available from our experts in the Switchgear Support Group (SSG). The SSG is dedicated to providing answers to your technical questions.

P: 800-497-5953

P: 414-768-8203 or  
414-768-8208 or  
414-768-8205

E: [PSSM-SSG@Eaton.com](mailto:PSSM-SSG@Eaton.com)

#### SSG contact hours:

Standard hours  
7:00 a.m. to 4:00 p.m.  
Central Standard Time

Emergency support is  
also available 24 hours,  
7 days a week.

# Switching and line construction

## Increased reliability with rugged, long-lasting equipment



### Switches

Eaton's Cooper Power series switches are easy and inexpensive to install and provide reliable, all-weather operation. Eaton offers a complete selection of single-phase Kearney disconnect and bypass switches, available in 7.2 through 34.5 kV in 400 A, 600 A and 900 A ratings.

Eaton's Cooper Power series three-phase M-Force switches have the only reverse loop contacts found on distribution class sidebreak switches. The reverse loop contacts utilize high current magnetic forces for added reliability usually reserved for higher-priced transmission switches.



### Line construction materials

Eaton has a wide variety of Cooper Power series tools and maintenance equipment, including:

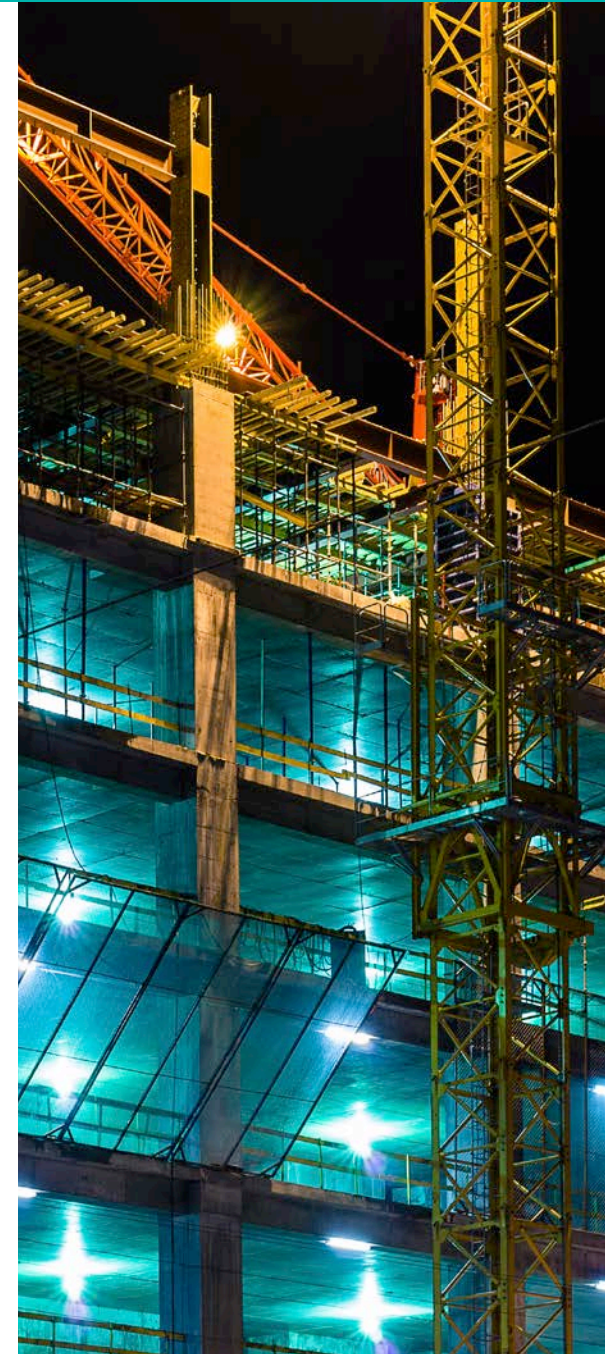
- Kearney compression tools, cutters and accessories
- Kearney taps, terminals, splices and insulated handheld sticks
- Fit-on tools and accessories and care products
- Grounding and jumpering—load pickup, grounding clamps and jumper set assemblies
- Fit-on tools, fuse pullers, support and tension products, cover-up equipment, cutters and accessories
- Pole-line hardware designed to meet all applicable standards



### Faulted circuit indicators

Eaton offers a wide variety of faulted circuit indicators (FCI) ranging from basic circuitry models in the delayed-reset style to the more sophisticated circuitry of the test point reset and electrostatic reset types.

Eaton's Cooper Power series S.T.A.R.™ FCI product line offers six basic types of FCIs tailored to be the most reliable for the intended application. Each FCI type varies by reset method and the type of system to which it connects. The S.T.A.R. FCI line also includes several faulted circuit indicators with PATHFINDER™ variable trip technology for one-size-fits-all applications.



## Maximum flexibility and functionality for underground distribution systems



### 200 A connectors

Eaton's Cooper Power series 200 A loadbreak and deadbreak connectors and accessories connect underground cable to transformers, sectionalizing cabinets and junctions. Designed for submersible, fully shielded and insulated plug-in terminations, these connectors are molded using high-quality peroxide-cured EPDM insulation for reliable field performance.

All Cooper Power series 200 A loadbreak connectors meet the electrical, mechanical and dimensional requirements of IEEE Std 386™ and are fully interchangeable with other connectors currently complying with the standard.



### 600/900 A deadbreak connectors

Eaton's Cooper Power series 600/900 A connector systems for deadfront underground installations in 600/900 A main and lateral feeders provide a completely shielded, deadfront, fully submersible cable connection for apparatus—such as transformers, switchgear and large motors. Connectors can also be used to make splices, junctions, taps and deadends for main underground distribution feeders.

All Cooper Power series deadbreak connectors meet the electrical, mechanical and dimensional requirements of IEEE Std 386.



### 600 A Cleer loadbreak connectors

Eaton's Cooper Power series Cleer™ loadbreak connector system reduces outages by providing reliable switching under load while allowing other circuits to remain energized, limiting downtime and service interruptions. Currently, it is the only 600 A rated loadbreak connector system in the industry.

Available in 15 kV, 25 kV and 28 kV ratings, 600 A Cleer loadbreak connectors offer both a visible break and visible ground without having to de-energize, unbolt 600 A terminations or move heavy cables. This system offers an efficient and reliable visible break when used for sectionalizing, splicing or in-line with vacuum switchgear.



### SecTER cabinets

Eaton's Cooper Power series single- and three-phase SecTER™ sectionalizing terminals can be utilized as cable sectionalizing centers or as permanent or temporary transformer pad covers. They can accommodate both traditional and Cleer connectors. Cabinets feature a low-profile design that provides unobtrusive installations for sectionalizing, tapping or terminating underground cable.

# Protective equipment

## Protect equipment, people and the planet



### Distribution-class surge arresters

Eaton's Cooper Power series UltraSIL™ polymer-housed Evolution™ distribution class surge arrester provides proven reliability and field-tested construction.

The Evolution surge arrester eliminates the need for specialty ratings and multiple arrester types for various applications. Whether the goal is enhanced asset protection, reduced equipment failure or improved supply chain management, the Evolution surge arrester delivers.



### Station-class surge arresters

Eaton's Cooper Power series UltraSIL™ polymer-housed, station-class surge arresters improve system reliability with up to 15% increased margin of overvoltage protection. These arresters provide higher cantilever strength, improved energy handling capability, increased creep distance and customization availability to provide superior equipment protection in a lightweight polymer arrester.

Tested for use in the harshest environments, our station-class arresters meet IEEE Std C62.11.



### Underground elbow arresters

Eaton's Cooper Power series metal oxide varistor elbows (MOVE) and parking stand arresters provide shielded deadfront arrester protection for use in pad-mounted transformers, entry cabinets, vaults, switching enclosures and other installations. These arresters are designed for use with 200 A loadbreak interfaces to limit overvoltages to acceptable levels, protect equipment and extend cable life.



### Fusing equipment

Eaton's Cooper Power series overhead distribution fusing products include standard and current-limiting cutouts, a variety of fuse links, backup current-limiting fuses and ELF™ full-range current-limiting dropout fuses. Enclosure-mounted fuses include full-range current-limiting fuses and a variety of fuse mounts.

Eaton has expanded its Cooper Power series overhead fusing options listed as exemptions in the Cal Fire Guide, with the addition of the CMU cutout and boric acid expulsion fuses. CMU fuses, along with ELF dropout fuses, provide flexible overhead fusing solutions that reduce the risk of fire during fuse operation.

For underground systems, Eaton offers a Bay-O-Net fuse in series with an ELSP backup oil-submersible current-limiting fuse or a full-range ELS fuse.

Pad-mounted switchgear protection is available with the ELSG full-range fuse.

# Engineering services

Eaton.com/MVPowerDistribution

A comprehensive portfolio of services for every stage of a power system's lifecycle



Keeping power systems safe, efficient, reliable and up-to-date, Eaton's Electrical Engineering Services & Systems (EESS) team is one of the largest and most experienced industrial service organizations in North America. With more than 1,500 highly trained professionals in 60 engineering service locations throughout the U.S. and Canada, Eaton's EESS team has complete local, national and international capabilities to provide a full range of electrical, civil and mechanical equipment services.

Available services include:

- Power system analysis and arc flash studies
- Equipment modernization
- Turnkey services including embedded engineers
- Microgrid systems and controls
- Pre- and post-crisis response expertise and services
- Preventive maintenance and field support

## Equipment modernization and upgrades

By modernizing your electrical infrastructure, Eaton helps improve the overall operation of your existing electrical distribution system as well as extend the useful life of all equipment. Our experienced team utilizes advanced methods that not only help minimize impact on operations, but also lessen the demands placed on staff and budgets.

Benefits include:

- Greater reliability
- Operating cost efficiencies
- Effective use of capital
- Enhanced safety
- Risk mitigation

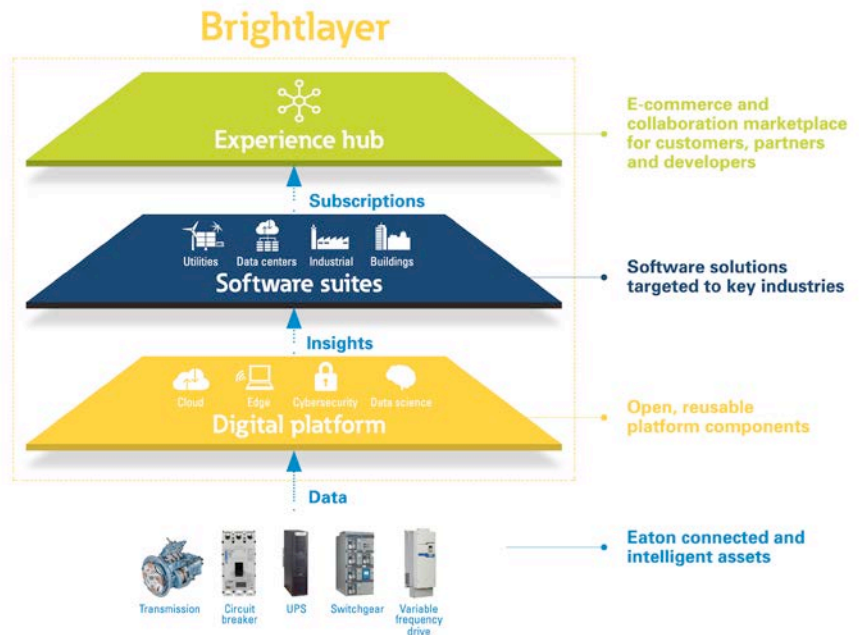
For more information on Eaton's Electrical Engineering Services & Systems, visit [Eaton.com/EESS](https://www.eaton.com/EESS).

# Software and digital solutions



## Leverage data to provide insights that matter to you: Introducing the Brightlayer™ digital solutions platform

Eaton's Brightlayer digital solutions platform lets you access data, insights and digital solutions to best meet your business needs. It all starts with your assets and the data they can provide you. Eaton is focused on helping you capitalize on the data and insights from those assets to drive operational value.



## Brightlayer Industrial suite

Industries continue to battle operational challenges. A shortage of new workers, unplanned downtime costs, inefficient manual data collection and weak performance metrics collectively hamper power optimization.

The Brightlayer Industrial suite includes a full complement of remote monitoring, management and control applications to enable process optimization in industries like oil and gas, mining, metals and minerals. Identify production issues and trigger remedial actions before asset failure. Inform device repair and replacement to reduce unplanned downtime. Identify energy anomalies to reduce utility costs. All in one application.

For more information, visit [Eaton.com/BrightlayerIndustrial](https://Eaton.com/BrightlayerIndustrial).



#### **CYME power engineering software**

CYME power engineering software is designed to assist electrical engineers to perform key simulations necessary for the optimization and maintenance of industrial power networks. From steady-state to transient analysis, CYME software is an indispensable tool for the study of what-if scenarios and for dealing with emerging issues in the industrial sector.

#### **Distribution and substation automation solutions**

Eaton's comprehensive portfolio of smart apparatus—voltage regulators, capacitors, reclosers, switchgear, smart sensors and controls—integrated with enterprise-level software and secure communications, enable our customers to increase productivity, optimize asset efficiency, improve system reliability and reduce costs.

# The right products for any market

	Renewables (solar/ energy storage/wind)	Data centers	Oil and gas	Government/ military	Industrial	Commercial	Express shipping available
<b>Liquid-filled transformers</b>							
Pad-mounted transformers	•	•	•	•	•	•	•
Substation transformers	•	•	•	•	•	•	
Envirotran Indoor Power Center		•			•	•	
Smart VFI transformers (S-VFI)	•	•	•	•	•	•	
Arc-reduction transformers (AR-VFI)	•	•	•	•	•		
Single-phase transformers			•	•	•	•	
<b>Specialty transformers</b>							
	•	•	•	•	•	•	•
<b>Voltage regulators and controls</b>							
Step-voltage regulators			•	•	•	•	
EVER-Tap voltage regulators			•	•	•	•	
CL-7 voltage regulator controls			•	•	•	•	
Single-phase pad-mounted regulators			•	•	•	•	
Multi-phase pad-mounted regulators			•	•	•	•	
<b>Power capacitors and controls</b>							
Capacitor units	•		•	•	•	•	
Open-air capacitor banks	•		•	•	•	•	
Edison capacitor switches	•		•	•	•	•	
Metal-enclosed capacitor banks	•		•	•	•	•	
Power capacitor recycling program	•		•	•	•	•	
CBC-8000 capacitor bank controls	•		•	•	•	•	
<b>Modular integrated transportable substations</b>							
	•	•	•	•	•	•	
<b>Medium-voltage compact switchgear</b>							
	•		•	•	•	•	
<b>Underground distribution switchgear</b>							
ISG-SD pad-mount switchgear	•	•	•	•	•	•	
ISG-SD wall-mount/vault-mount switchgear				•	•	•	
VFI switchgear	•	•	•	•	•	•	•
PST switchgear		•	•	•	•	•	
Under-oil and vacuum switchgear			•	•	•	•	
Automation control relays	•	•	•	•	•	•	
VisoVac pad-mount switchgear		•	•	•	•	•	

	Renewables (solar/ energy storage/wind)	Data centers	Oil and gas	Government/ military	Industrial	Commercial	Express shipping available
<b>Reclosers and controls</b>							
NOVA NX-T recloser	•		•	•	•	•	
NOVA NX-STS recloser	•		•	•	•	•	
NOVA reclosers	•		•	•	•	•	•
Form 7 recloser control	•		•	•	•	•	
Pad-mounted NOVA recloser	•		•	•	•	•	
<b>Switching and line construction</b>							
Switches	•	•	•	•	•	•	•
Line construction materials	•		•	•	•	•	
Fault circuit indicators (FCI)	•	•	•	•	•	•	
<b>Cable accessories</b>							
200 A connectors	•	•	•	•	•	•	
600/900 A deadbreak connectors	•	•	•	•	•	•	
600 A Clear loadbreak connectors	•	•	•	•	•	•	
SecTER cabinets	•	•	•	•	•	•	•
<b>Protective equipment</b>							
Distribution-class surge arresters	•	•	•	•	•	•	
Station-class surge arresters	•	•	•	•	•	•	
Underground elbow arresters	•	•	•	•	•	•	
Fusing equipment	•	•	•	•	•	•	
<b>Engineering services</b>							
•	•	•	•	•	•	•	
<b>Software and digital solutions</b>							
Brightlayer Industrial suite	•	•	•	•	•	•	
CYME power engineering software	•	•	•	•	•	•	
Distribution and substation automation solutions	•	•	•	•	•	•	



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Publication No. BR100007EN / Z26912  
January 2023

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