Power delivery for industrial facilities

New construction, expansions, services and modernization
For more than a century...

GE has designed, built, installed and serviced the electrical distribution equipment that keeps industrial operations powered and productive.

Today, our products reach from the substation to the power panel, including transformers, low and medium voltage switchgear and motor control, bus duct and power backup. They meet the needs of manufacturers, processors and utilities of every kind, and they include the largest installed base of power circuit breakers in North America.

You’ll find innovation at every stage in our history, and dependability at every step. Expect more advances, even greater reliability and a constantly rising level of service as time goes by.

<table>
<thead>
<tr>
<th>1882</th>
<th>1886</th>
<th>1894</th>
<th>1915</th>
<th>1918</th>
<th>1929</th>
<th>1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>First arc blast arrester</td>
<td>First commercially practical U.S. transformer</td>
<td>First high voltage, oil immersed switch/circuit breaker</td>
<td>First full voltage magnetic starter</td>
<td>First metal-clad switchgear introduced for outdoor switching stations</td>
<td>First major application of electronic control</td>
<td>First variable speed AC motor control</td>
</tr>
</tbody>
</table>
Why customers choose GE

A history of product quality and reliability
Over 100 years of experience have produced long-term customer relationships based on the quality of our products and service.

Improved employee arc flash protection
Our latest technology improves arc flash protection to provide a better working environment for your employees.

Full service project management expertise
Our experienced teams manage your projects during installation, service and modernization to make sure commitments are met and plant uptime is maximized.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>First variable speed DC drives using magnetics</td>
</tr>
<tr>
<td>1968</td>
<td>First 3-phase block style overload starters</td>
</tr>
<tr>
<td>1969</td>
<td>First adjustable speed AC drive with solid state inverter technology</td>
</tr>
<tr>
<td>1995</td>
<td>First open power management system - PMCS</td>
</tr>
<tr>
<td>1998</td>
<td>WavePro breaker and AKD-10 switchgear introduced</td>
</tr>
<tr>
<td>1999</td>
<td>First Internet energy monitor - energe 2001</td>
</tr>
<tr>
<td>2005</td>
<td>Entellisys low-voltage switchgear introduced</td>
</tr>
<tr>
<td>2008</td>
<td>EntelliGuard G power circuit breakers and trip units – selectivity and arc flash performance in one trip unit</td>
</tr>
</tbody>
</table>
Power delivery for new and expanding industrial facilities

Medium Voltage Switchgear
Reaching from 4.76kV to 38kV and including leading-edge arc resistant technology across the line, GE delivers medium voltage switchgear solutions for every application, everywhere.

Low Voltage Switchgear
The new AKD-20, the latest in GE’s line of conventional low voltage switchgear, features the advanced capabilities of the innovative new EntelliGuard® G low voltage power circuit breaker. GE also offers Entellysis™ 4.0, with state-of-the-art protection, monitoring and control that make it the intelligent choice for reliable low voltage power distribution.

Medium Voltage Motor Control
Limitamp® delivers flexibility in high-interrupting capacity motor control for 2400-4800 volts applications. It can also be used to feed transformers and other power-utilization circuits.

Transformers
From substations to core and coil components and all manner of specialty types in between, GE supplies the transformers that make power distribution work.

Medium Voltage Load Interrupter Switch
BreakMaster™ provides dependable, economical load switching and protection for medium voltage applications from 2.4kV to 15kV in 600A and 1200A load interrupt ratings. Now available with integrated automatic transfer switch.

Low Voltage Motor Control
With 600-2500A sections, Evolution Series E9000™ offers simplicity of design that leads to easier operation and maintenance, added protection for personnel and property, and efficient use of space. Includes options for AC Drives to provide superior and energy-efficient control of motors.

Uninterruptible Power Supplies
Digital Energy™ SG Series features Redundant Parallel Architecture (RPA™) to increase reliability, best-in-class 94% efficiency, event logging and superior battery management.

Busway
Faster and easier to install than wire and conduit – and lighter than competitive busway – Spectra Series® Busway lowers installed cost and delivers flexibility for future changes.
**Power Control Rooms**
Custom engineered, designed and built electrical rooms are shipped to a job site complete, tested, UL classified and ready to install.

**AC Drives**
With AF-6 Series Drives, built-in features reduce the need for add-ons, lowering your total cost. Set-up can take under 5 minutes, and the hot pluggable keypad lets you copy parameters to another drive almost instantly.

**Automatic Transfer Switches**
A wide range of GE ATS equipment – open, delayed and closed transition, pre-engineered or to your specifications – allows you to choose the option that best suits your industrial operation.

**TVSS**
Tranquell® transient voltage surge suppressors protect equipment from the spikes, surges and interruptions common in raw utility power. Independent testing has proven Tranquell for ratings up to 200kA surges.

**Power Management**
GE’s Power Management Control System helps you reduce downtime with basic to complex modules for monitoring, power quality, cost allocation, and control and automation.

**Industrial Components**
In addition to the products shown here, count on GE for all the electrical components you need for your new industrial facility. From capacitors and arresters to relays to motor starters and more, you’ll find efficiency, performance and reliability.

**Installation, Start-up and Commissioning**
With more than 2000 field engineers and technicians in 80 offices nationwide, GE delivers more than products. We deliver installation, start-up and commissioning services applying standardized methods and procedures. And we’ll add 12 months to the standard warranty when we provide these services. Expert training is also available.
Services and spare parts for industrial facilities

Spare parts

For a full range of circuit breaker and switchgear spare parts, we have partnered with Parts Super Center to meet your needs. PSC can be contacted by calling 1-800-341-1010 or by visiting their web site at www.partssupercenter.com.

Contractual agreements

Contractual agreements offer benefits that go beyond a simple purchase. Beyond the outage support and engineering services available on a time-spent basis, a contract brings you an Outage Excellence program led by an on-site Contract Performance Manager (CPM) who integrates parts, services and repairs on a real-time basis. You also enjoy the predictable cash flows that come with a stated cost. Ranging from basic to comprehensive, such agreements may include:

Maintenance Management Program
- Pre-determined pricing
- Contract Performance Manager (optional)
- Pre-negotiated escalation rate

Contractual Service Agreement
- Maintenance interval risk
- Parts life risk
- Extended performance guarantees
- Contract Performance Manager
- Unscheduled maintenance
- Pre-negotiated escalation rate

Operation & Maintenance Solution
- Fixed price, including major maintenance
- Cost plus, with fixed price major maintenance on turbines
- Cost plus, with transactional maintenance
- Management oversight services
- Maintenance services including CMMS start-up
- Mobilization, staffing, training, start-up and commissioning services
Power system studies

To improve maintenance and employee efficiency, GE offers industrial customers a variety of power system studies that improve maintenance effectiveness and employee efficiency. They include:

- Short circuit study
- Coordination study
- Load flow
- Harmonic study
- Transient, motor impact & stability

The benefits are clear and substantial. These studies identify reasons for power outages or failures. They boost availability and enhance protection of personnel. They determine the impact and ratings of new equipment added to existing systems. And they ensure that the power system is operating at the most cost-effective, stable and efficient manner possible.

Arc flash hazard analysis

An arc flash hazard analysis by GE will calculate NFPA-based level of Personal Protective Equipment (PPE) required in a given environment and communicate PPE and approach distance to exposed energized equipment through a warning label system.

Electrical training programs

World-class training programs with an emphasis on consistency, quality and a practical experience are a sound investment in your people and equipment. Among the topics GE courses cover are Electrical Safety and NFPA 70E, Lockout / Tagout, and Fundamentals of NFPA 70E. Training is available at GE Energy Learning Centers, your facility and on-line.
Options for modernizing existing industrial facilities

Aging industrial plants encounter two problems. First, the reliability of their equipment decreases. Second, when they expand and modernize, their equipment no longer meets the required applications.

GE offers custom designed upgrades and retrofits to improve power system reliability and to bring performance into line with emerging and future facility needs.

Your plant’s requirements in such areas as aging equipment, reliability and protection, new communication standards, and maintenance budget will determine the best solution for you.

In some cases, full replacement of existing equipment may be the best long-term choice in terms of both performance and economics. In these situations, GE can supply the full range of equipment as summarized earlier in this publication.

In other cases, replacement of key components will be the best choice. GE also has solutions that can address the ongoing reliability, protection and communication needs of your plant’s operation.
Circuit Breakers

Conversion Kits with RELT
Reliability and protection are the key functions of any trip unit. The new EntelliGuard TU trip unit raises the standard for both with the flexibility to address many different power distribution and protection needs. Reduced Energy Let-through (RELT) provides improved arc flash hazard mitigation during maintenance.

Relays
The array of GE relays provide complete and accurate protection for industrial motors and their associated mechanical systems.

Power Management Control Systems (PMCS)
GE's Power Management Control System provides system-wide information to help you reduce downtime with basic to complex modules for monitoring, power quality, cost allocation, and control and automation.

Low Voltage Motor Control Center Buckets
MCC buckets can be provided as individual parts or as complete units, with fused switches or circuit breakers. Ranging from NEMA size 1 to 4, buckets and associated parts are available to fit 7700-Line, 8000-Line and Spectra Series motor control centers.

Remote Racking Device
Now maintenance personnel can rack low voltage breakers in and out from as far away as 30 feet for greater arc flash protection. GE's electric remote racking device connects easily to WavePro or EntelliGuard breakers in Entellisys, AKD-10 and AKD-20 switchgear.
Real-time information.
Real solid support.

Whether it's on the web or on your own computer, getting product information and technical support from GE is easy and sure.

www.geelectrical.com/industrial
A new customized home page for facility operators provides quick links and tools specific to your needs. It keeps you up to date on our new product launches and allows you to save your home page preferences.

• Search functionality quickly zeroes in on detailed information for specific catalog numbers
• The Publication Library delivers application guides, installation and maintenance instructions, brochures, layouts and dimensions, and time current curves
• A Manufacturer Cross Reference allows you to look up multiple GE equivalent catalog numbers for a variety of competitors' products
• Design and specification resources deliver quick access to information required by electrical engineers
• Links to expanded services include Service Agreements that optimize the performance of your operating systems and equipment across multiple applications and to Emergency Service information for 24/7 help in emergency situations

GE Smart Catalogs™
In these two catalogs are comprehensive data on all the products available from the Electrical Distribution business of GE. Features and benefits, ratings and catalog numbers, dimensions and weights, operational characteristics, list prices and more. They're available:

• as Smart Catalogs™ that let you learn about and download updates as they become available
• on the web and easily navigable via the Publications Library at www.geelectrical.com
• as printed catalogs to keep at your fingertips – the BuyLog® contains complete product specifications and catalog numbers

Whether it's on the web or on your own computer, getting product information and technical support from GE is easy and sure.
What you want. When you want it.

GE knows that industrial facilities often can’t wait – not for products, parts or service. GE helps you get down to business, now!

1-888-GE-RESOLve
1-888-GE RESOLve (888-437-3765) is GE’s 24/7 service number. It’s your connection to fast action on in-warranty service on equipment and components, genuine GE spare parts and GE field service support. Our highly trained and experienced technicians can repair your equipment on-site or in one of our worldwide Service Centers. GE’s global network has more than 60 repair facilities and 5,000 field engineers and technicians at your service. For complete Service Solutions visit www.geelectrical.com/industrial.

www.partssupercenter.com
The Parts Super Center is the source for many GE industrial renewal parts and components. A combination of inventory and technical personnel supports a wide range of products, including motors, power delivery, drives and many others. It’s also available 24/7 at 1-800-341-1010.

1,400 distributor locations
When local contact is the answer, GE’s authorized distributors meet your needs. With more than 500 different firms in over 1,400 locations, there’s a local distributor near you, and specialist distributors address the needs of your target market segment. Find your nearest distributor easily at www.geelectrical.com.
What industry needs, GE delivers

<table>
<thead>
<tr>
<th>What industry needs</th>
<th>What GE delivers</th>
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<tbody>
<tr>
<td><strong>Reliability</strong> – maximized profits through minimized</td>
<td>• Industry-leading technology, e.g., Entellisys low-voltage switchgear with remote</td>
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<tr>
<td>unplanned equipment downtime</td>
<td>operation</td>
</tr>
<tr>
<td></td>
<td>• Inspection, testing, repair and upgrade services</td>
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<td></td>
<td>• 24 x 7 x 365 emergency services and parts</td>
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<tr>
<td><strong>Arc flash protection</strong> – improved employee arc-flash</td>
<td>• Full range of MV arc-resistant switchgear</td>
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<tr>
<td>protection</td>
<td>• Entellisys switchgear provides options like Near-Gear HMI and remote racking</td>
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<td></td>
<td>to keep personnel outside the arc-flash boundary</td>
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<td></td>
<td>• Comprehensive arc-flash hazard analysis</td>
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<tr>
<td><strong>Project management</strong> – full-service support during</td>
<td>• Unsurpassed project management teams</td>
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<tr>
<td>installation and operation</td>
<td>• Installation, start-up and commissioning</td>
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<tr>
<td></td>
<td>• Maintenance and service contracts</td>
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<tr>
<td></td>
<td>• Lifecycle optimization and upgrades</td>
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