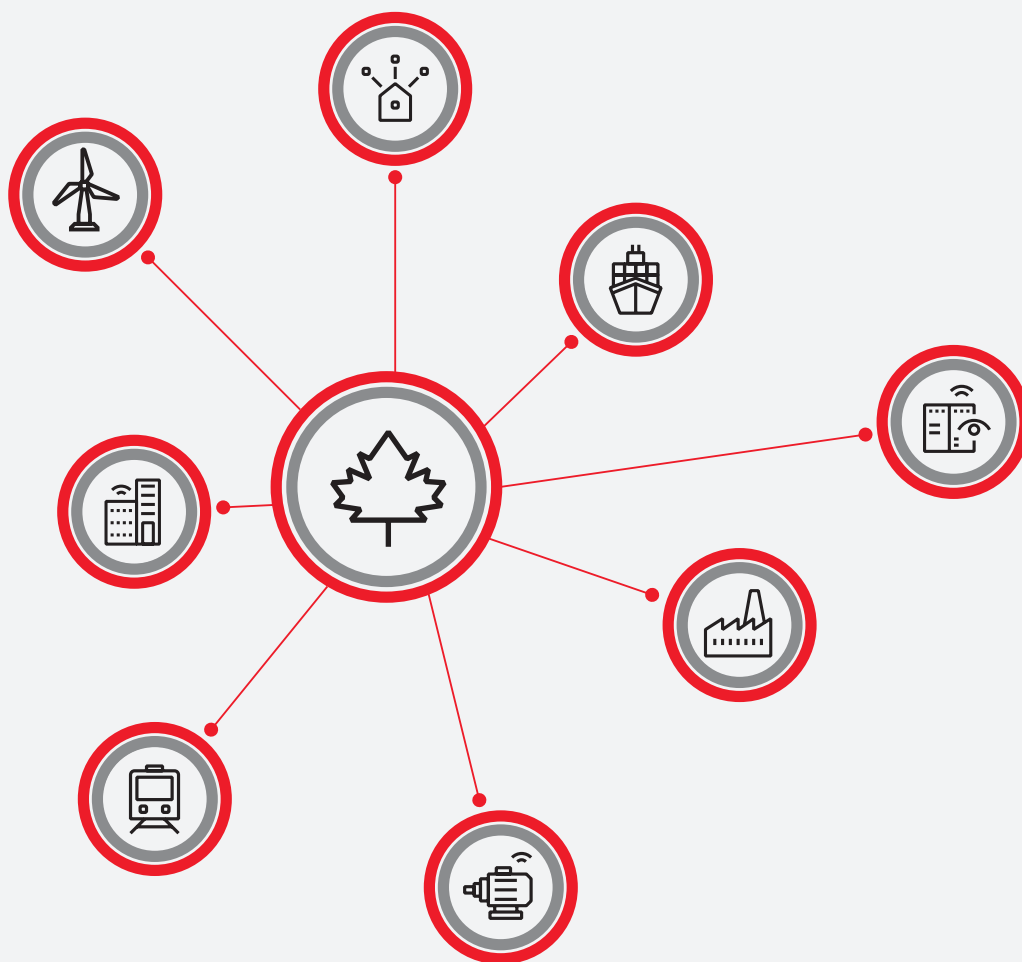


ELECTRIFICATION CANADA

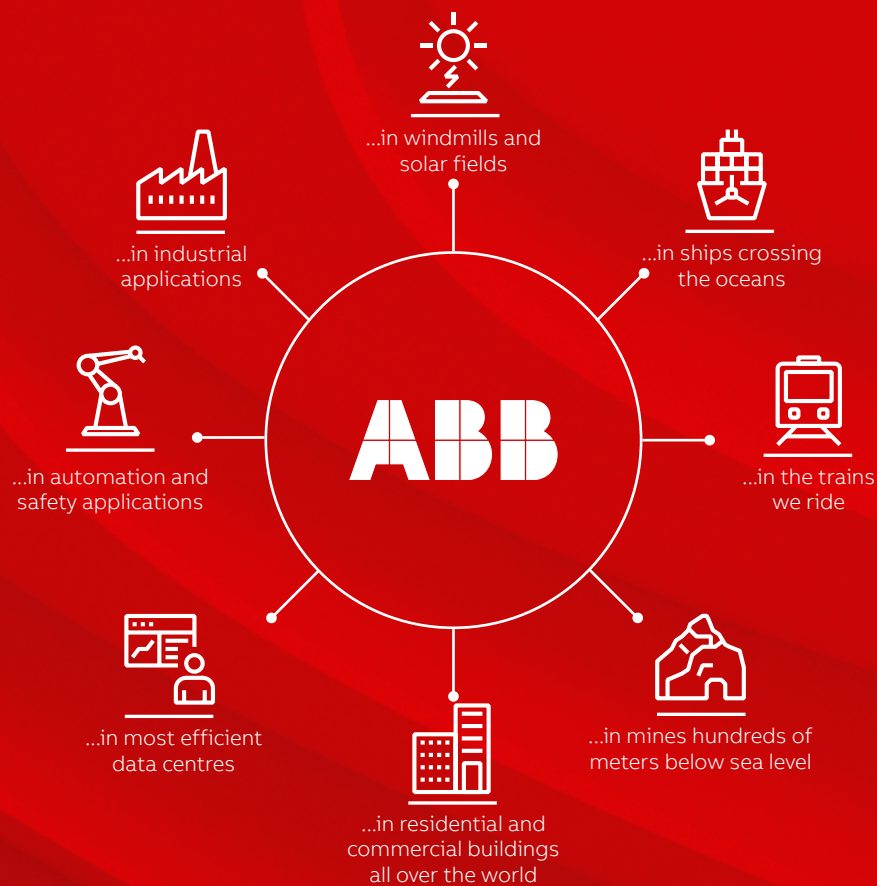
# Electrical Distribution, Control and Power Solutions

Innovative solutions when and where you need them.



- ABB Ability™
- Smart Power
- Smart Buildings
- Distribution Solutions

## Electrical solutions are all around us...



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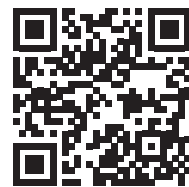
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ABB in Canada for Canada  
visit our new dedicated web page at  
[new.abb.com/ca/CountOnUs](http://new.abb.com/ca/CountOnUs)





# ABB Electrical Distribution, Control and Power Solutions

ABB, a powerful source for control solutions, offers the broadest range of low voltage products. With nationwide sales offices, ABB provides immediate service and personalized support.

All of our sales engineers and technical support personnel are ready to help you to select the best solution for your requirements.

At ABB, we continue to improve our offering by having an outstanding research and development program. As a result, innovative new and improved products. Moreover, ABB products meet the highest quality standards worldwide, including UL, CSA, VDE, IEC, EN, and many other approvals.

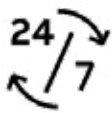
All ABB manufacturing sites have received ISO 9001 approval. Our mission is to be a leader in supplying high quality products and services that consistently meet the needs and requirements of our customers.

**Our broad product lines include high quality, safe and reliable solutions for:**

- Control products
- Switches
- Circuit breakers
- Electronic products and relays
- Machine safety
- Low voltage power quality systems
- Electrical distribution equipment



Services and training



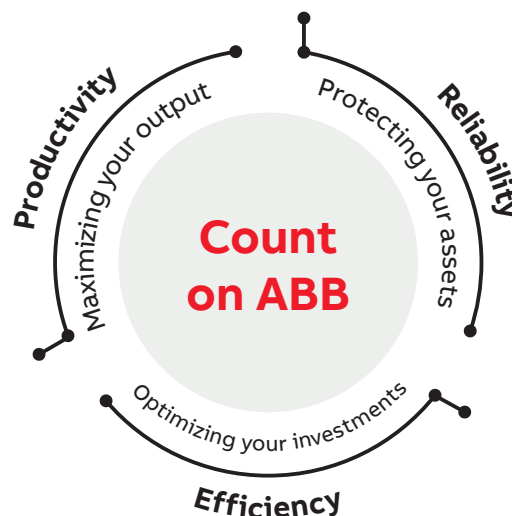
Continuous operation



Easy to install



Speed up your projects



Reliable in extreme conditions



Optimum interface



Global availability



Safety and protection



Space saving



Energy efficiency



Optimized logistics



Affordable range

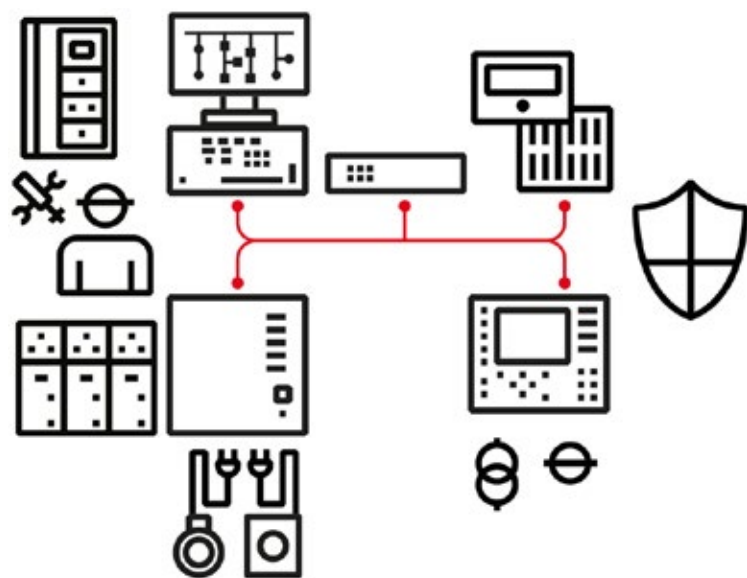
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**01**

**Solutions**



# Digital Solutions



Link for more info

## Solutions overview

ABB's versatile and high performance medium voltage products facilitate creation of unique customer solutions towards smarter power distribution in industries, sensitive infrastructure and utilities. These type of solutions are enabled through distributed functions across multiple interconnected digital-enabled products and in doing so, their individual features are fully exploited to derive maximum benefit. Besides, new installations, these solutions also offer the possibilities to introduce latest substation, digital-edge technologies into existing installations.

## Key Solutions

- Bus transfers solutions
- MV Substation data management
- cPMS load-shedding solution
- cPMS Power generation control
- cPMS Islanding, ensuring a rapid isolation of customer power network after a grid disturbance.
- ZEE600 Energy Management System and SCADA solutions

## Benefits

- High expertise, competence and commitment in understanding and solving customer challenges
- Safeguarding customer investment by avoiding expensive and dedicated high-end equipment
- Providing high returns to customer's substation protection and control infrastructure

## Markets & applications

- Utilities
- Industrial applications



# ABB Ability™



—  
ABB Ability™ website

ABB Ability™ solutions combine ABB's deep domain expertise with connectivity and software innovation to empower real-time, data-driven decisions for safer, smarter operations that maximize resource efficiency and contribute to a low-carbon future. Our large portfolio of digital solutions help organizations automate, optimize and future-proof their business to achieve new heights of performance and drive sustainable progress.

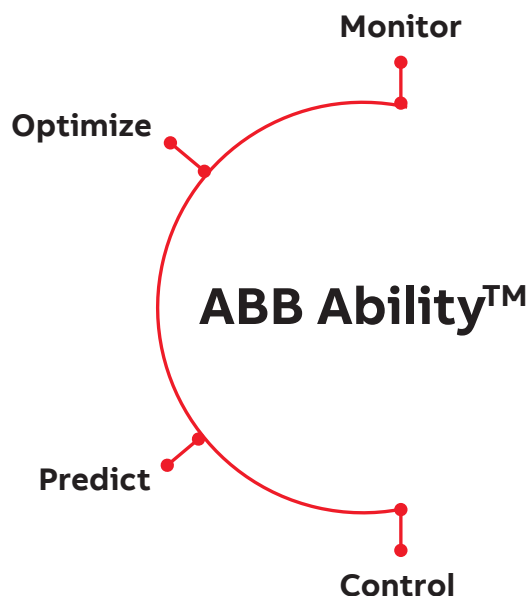
As a subset of the wider ABB Ability™ cloud platform, Energy and Asset Manager (EAM) is a modular, state-of-the-art, Software as a Service (SaaS) solution that integrates energy and asset management in a single intuitive dashboard. With real-time visibility into energy use, electrical power quality and health of LV/MV electrical distribution system equipment, the solution helps organizations with multiple small or medium-sized sites like factories, commercial buildings and data centers optimize power consumption and minimize downtime. The energy and asset management modules can be purchased separately or together, depending on your needs. Monitoring can also be segmented down to individual pieces of equipment and/or sub-systems such as an elevator, a single HVAC system, or a production line.

The Energy Manager side of EAM comprises widgets specifically aligned to ISO50001 energy management guidelines. The Asset Manager functions in EAM include predictive maintenance for asset health optimization. Together, they contribute to direct and indirect cost savings that accumulate over the operating life of the equipment.

## Fast facts:

- Powerful platform with vast possibilities
- Fast and simple implementation
- Good for greenfield and brownfield applications
- No coding or programming needed
- Strong data security
- Safe to install and operate
- Little to no disruption on existing site equipment
- Move from Capex to Opex

ABB Ability™ is not merely a digital connectivity platform but also a technology enabler that opens up opportunities to improve safety, efficiency and cumulative cost savings through energy conservation and asset availability.





**End users**

Save up to 30% on operational costs

**Facility / plant managers**

Take action in 1 minute, anywhere...anytime

**Consultants**

Increase the value of your projects by 15%

**Panel Builders**

Connect the panel to the cloud in 10 minutes

# Wireless Gateways ARG600



Link for more info



## Product overview

The Wireless Gateway ARG600 provides wireless monitoring and control of field devices via cellular network from a central site or control center. The devices offer industrial quality connectivity for TCP/IP based protocols. Wireless Gateway ARG600 exhibits integrated communication capability and seamless integration to SCADA systems.

## Features

- Always-on TCP/IP routing and serial over TCP/IP based two-way communication
- Arctic Patrol - connectivity supervision of the communication system
- Secure communication maintained with VPN and Firewall
- OpenVPN client and server – enables directly connecting one to five Arctic 600 series devices to a single Arctic 600 series device
- Mobile operator independent static IP addressing with Arctic M2M Gateway ARM600

## Benefits

- Industrial grade TCP/IP router: Several serial and TCP/IP based field devices can be integrated into a central supervisory and control system (SCADA)
- Ideal for retrofitting – allows the user to extend the life cycle of existing serial-based substation devices
- Remote access to field devices means less site visits for operations and maintenance
- Optimizing the cost of communication by using public cellular networks
- Possibility to upgrade from existing legacy private radio system to a high bandwidth cellular network-based solution. This allows you to fully maximize usage of the existing application. For example, video surveillance traffic can now be integrated into the same system.

## Markets & applications

- Utilities
- Industrial applications





# eHouse

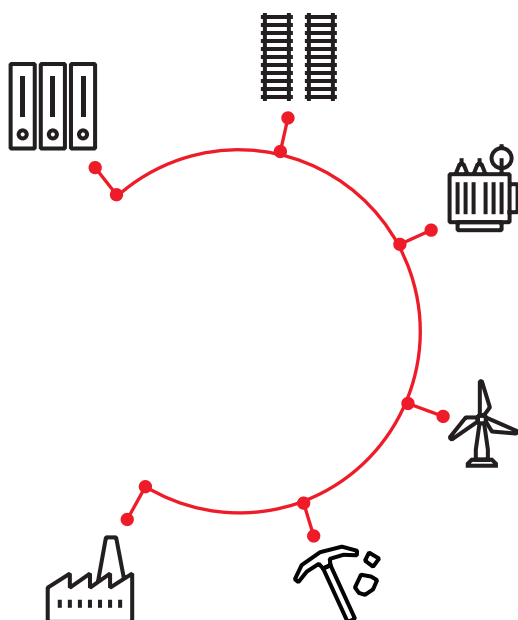


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Link for more info

## Product overview

ABB eHouses are prefabricated transportable substations, designed to house medium voltage and low voltage switchgear, critical power equipment and automation cabinets.

An eHouse solution is a cost effective, risk reduced alternative to conventional concrete block and brick construction. Each eHouse module is custom engineered to meet application requirements with respect to equipment layout, site footprint limitations and logistics considerations.



eHouse fabrication and equipment installation occurs in an ABB controlled facility and is delivered as a functional, fully tested module. The delivery model of a prefabricated pre-tested solution provides a reduction in site installation and commissioning work while introducing schedule predictability and an overall reduced energization period.

The broad eHouse portfolio includes modularized multi-building solutions; productized eHouse designs such as our EcoFlex portfolio; and larger single piece designs for specific project applications. Typically site-mounted on elevated piers or directly above subsurface cable pits, eHouses can also be designed as trailer-mounted solutions.

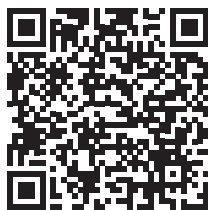
## Features and benefits

- Fully integrated system
- Reduced site work required, for a higher level of safety and security
- Fully optimized, engineered, assembled and tested for rapid deployment
- Mitigated client risk with ABB taking responsibility for equipment selections
- Reduced complexity
- Single point of contact to execute the project package
- Simplified commercial agreement
- Shorter startup and commissioning time
- Harmonized payment terms and warranty period

## Markets & applications

ABB eHouse solutions are ideally suited for any project where there is a benefit to reduce on-site work, especially for more challenging project situations, where minimized installation time is desired, when qualified personnel and materials are not always readily available, or at locations facing challenging environmental conditions. Such flexibility makes an ABB eHouse ideal for applications in segments including data centers, rail, energy storage, renewables, power generation, oil and gas, mining and processing industries.

# Skid Solutions



Link for more info

## Product overview

Prefabricated unit substation with power distribution components such as medium voltage, transformer, low voltage, UPS integrated on the frame for outdoor or indoor installation.

## Benefits

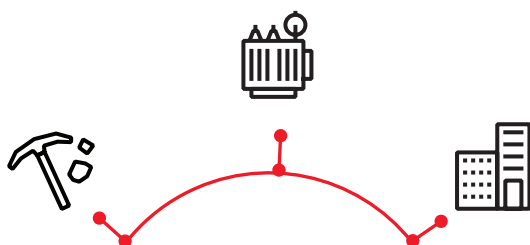
- **Reduced design time** with pre-engineered, modular designs
- **Reduced risk** as ABB coordinates design interface of all elements in the package to form a single product solution
- **Simplified, quick 'plug and play' installation** with units that are pre-designed, assembled and pre-tested — simply drop into place and connect cables
- **Increased safety** from type testing of all electrical equipment contained within the skid substation

## Features

- Compact, robust design that is **easily transportable**
- Pre-engineered products **reduce risk and time** to quote and supply
- No exposed live parts provide **safety to operator and personnel**

## Markets & applications

- Mining
- Utilities
- DtC and critical power (UPS skids)
- Commercial





# ABB Cylon® CB Line



Link for more info

ABB Cylon® CB Line series of BACnet® field controllers, CBXi Series, CBX Series, CBT Series, and CBV Series are designed to work as part of the ABB Cylon dual-platform offering and can be used as field level BACnet IP and BACnet MS/TP controllers for ASPECT® and INTEGRA™ building management solutions.

## Product overview

ABB Cylon® CB Line delivers a holistic smart building offering of smart energy management, heating, ventilation, and air conditioning control systems, based on the ABB Cylon® BACnet solutions

## Features

- Freely programmable controller for various applications
- BACnet/IP (CBXi) and BACnet MS/TP (CBX, CBXi, CBT, CBV) Controllers
- Modbus TCP (CBXi) and Modbus RTU (CBX, CBXi, CBT, CBV) Controllers

- Uniputs™ - universal in- and outputs, digital and analogue
- Extendable IO's with FLX modules (modular hardware)
- With and without manual operation
- Wide range of sensors (Humidity, Temperature, etc)

## Benefits

- Monitor and control in real time
- Assured safety
- Centralized supervision
- Protect your investment
- Future proof plant and equipment
- Full control in users' hands
- Improved occupant comfort

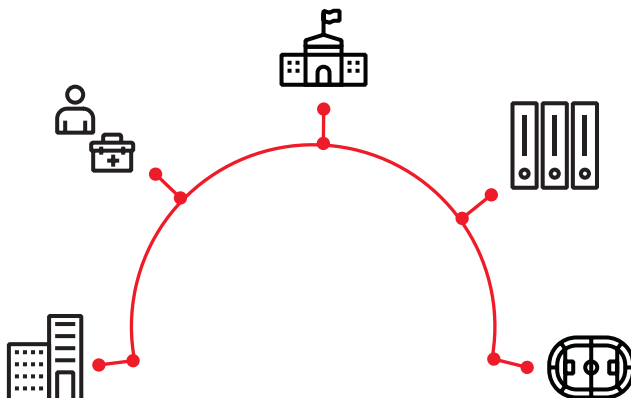
## Applications

Designed for a wide range of applications for the intelligent control of :

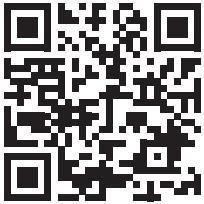
- HVAC Equipment
- Boilers and Chillers
- Cooling Towers
- Pumps
- Variable Frequency Drives
- Rooftop Units
- Air Handling Units
- Constant Volume, Variable Air Volume, Multi-zone
- Metering
- Electrical Systems e.g. Lighting Control

## Markets & applications

- Commercial
- Healthcare
- Institution
- Data centers
- Infrastructure (Airports, Stadiums)



# ABB Electrification Services

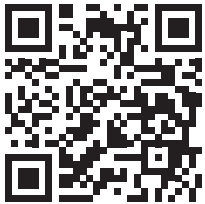
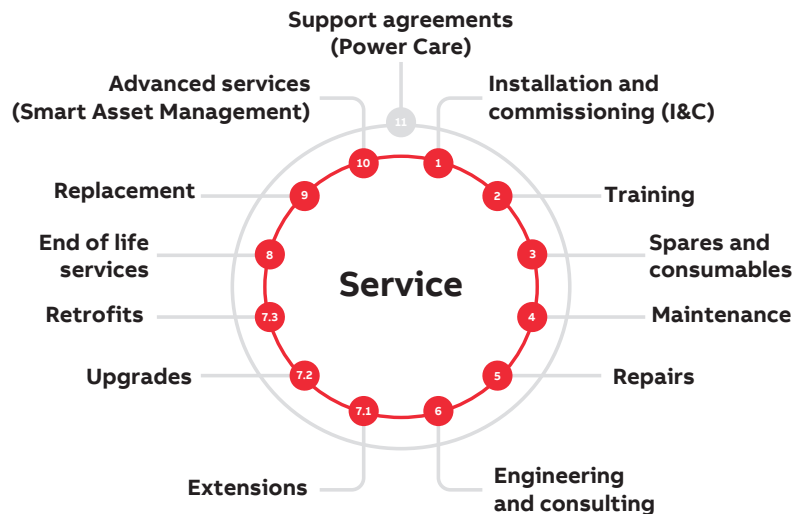


Medium voltage  
service website

ABB's Electrification Distribution Solutions Service team are experts across a wide range of products and service offerings. They have the knowledge and experience to help solve problems and assist in meeting all your service needs, both on and offsite. With over 100 years of experience in the design,

development, manufacturing, and service support of medium and low voltage distribution equipment, we have established a wealth of technical solutions to meet your specific electrical network reliability needs.

## Supporting the entire asset lifecycle



Low voltage  
service website



**ABB offers service solutions for both low and medium voltage networks that:**

- Ensures continuous availability of customer assets and their operational efficiency.
- Safeguard highest reliability of customer assets throughout their lifetime.
- Increase predictability of customer assets behavior to optimize and improve operations.



—  
**Service and aftermarket solutions**  
 Electrification products distribution solutions service



—  
**ABB Services**  
 Phone: 1-800-435-7365

## Customer Needs



### Availability

- Life cycle product Support
- Highest Product reliability and fast service response
- Reduce risk through certified technicians and parts



### Reliability - Safety services

- Be sure to meet all safety regulations
- Exploit the latest technology for higher safety standards
- Increase operator and equipment safety



### Reliability - Life cycle services

- Cost effective life extension optimized investment
- Usage of latest breaker technology
- 1 to 1 replacement



### Predictability

- Increase functionality
- Utilize real time data for fast recovery
- Optimize assets performance through condition analysis

## ABB Solutions

- Installation & Commissioning Training
- Spare parts
- Maintenance
- Repairs
- Warranty



- Testing
- Studies
- Upgrades



- Retrofit
- Replacement breakers
- Match-in-Line/Extension



- Monitoring & diagnostics
- Engineering & consulting
- Assessments
- Service agreements





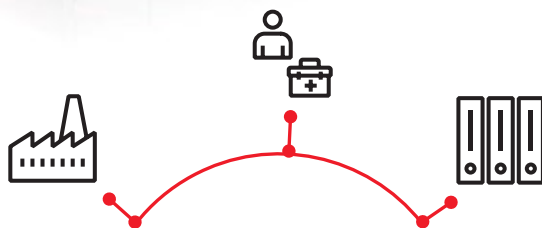
# Medium Voltage Distribution Equipment

# Medium Voltage Metal-Clad Switchgear (ANSI/CSA)

## Product overview

SafeGear and SafeGear HD are arc-resistant switchgear that meets or exceeds the IEEE C37.20.2 standard for metal-clad switchgear and the IEEE C37.20.7 standard for arc-resistant testing guidelines, and has been seismically tested to IBC Region D. SafeGear is also qualified to Ip1.5.

SafeGear, rated up to 50kA, and SafeGear HD, rated for 63kA, not only meet the conventional standards for metal-clad switchgear, but go beyond the metal-clad standards to provide the added protection of arc-resistant construction. The arc-resistant design reduces life-cycle costs through equipment protection, and improves safety for operations and maintenance personnel.



Advance is a non-arc resistant version and share with SafeGear basic construction and functional key features.

## Key benefits

- Arc resistant (accessibility types 2B and 2BC) design reduces life-cycle costs through equipment protection and improves safety for operations and maintenance personnel
- UFES and REA arc flash relay utilizes arc flash mitigation
- SafeGear provides 2.5 square feet of savings
- Modules can be arranged in a variety of one-high and two-high configurations, which allows for fast, efficient delivery of custom switchgear
- Utilization of ADVAC and AMVAC breakers, which have the lowest total cost of ownership due to extremely low maintenance requirements and are the easiest breakers to maintain in the industry
- Ultimately, equipment damage is reduced, equipment reliability is increased, and serious injuries are prevented

## Key features

- SafeGear and Advance Gear, rated up to 50 kA, and SafeGear HD, rated for 63 kA applications
- Galvanized construction, hem bending, bolted frame, modular design, instrument compartment, breaker compartment, PT/CPT/Fuse compartment, bus and cable compartment
- Additional safety features: closed door racking, snuffer contact design – PTs/CPTs
- SafeGear and SafeGear HD utilize the ADVAC spring charge mechanism breaker; the AMVAC magnetically actuated breaker is available for SafeGear
- Available in Digital version

## Markets & applications

- Utilities
- Industrial
- Healthcare
- Datacenter

# Medium Voltage Metal Enclosed Switchgear



## Product overview

BreakMaster\* metal enclosed MV load interrupter switches provide dependable, economical load switching and protection for medium voltage circuit applications from 2.4kV through 15kV in 600 or 1200 ampere load interrupting ratings. Used mainly as a primary or secondary disconnect switch for transformers, the variety of configurations in which BreakMaster is available also make it useful for specific distribution needs. Fault current protection is available using a complete line of current limiting or expulsion fuses.

Seco Breakmaster V solution provides reduced Arc Flash incident energy levels for customers on their existing MV equipment. This new solution includes a fixed-mount SecoVac\* VB2 Plus vacuum circuit breaker (VCB) in the fused compartment of LIS. Operating in three cycles, the fast-acting SecoVac VCB offers a new Arc Flash mitigating solution designed in response to Arc Flash Safety Standards.

## Features

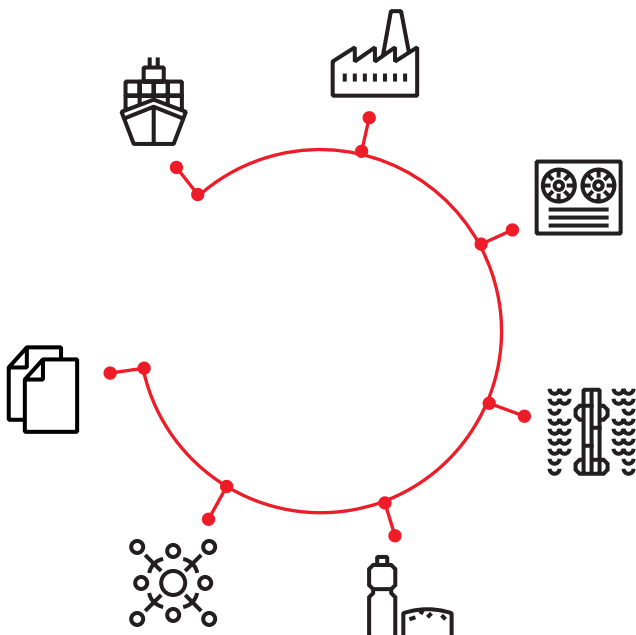
- Configurations: Single, Selector, Duplex, Mains/Ties, Branch, 20" & 35" Wide Incoming Cable
- Voltage class: 5 kV to 15 kV
- Load interrupting ratings : 600A and 1200A
- Horizontal bus ratings : 600A, 1200A and 2000A continuous
- Momentary withstand and fault closing: 40 kA asym. and 61 kA asym.
- Enclosures: Indoor and Outdoor
- Standards: UL, CUL, ANSI, IEEE, NEMA, IEC
- Reduced Arc Flash levels – with Breakmaster-V
- Relay options that provide upstream and/or downstream communications - with Breakmaster-V

## Benefits

- Custom designed with many accessories to meet your switching requirements
- BreakMaster metal enclosed load interrupter switches provide dependable, economical load switching and protection for medium voltage circuit applications from 2.4 kV through 15 kV in 600 or 1200 ampere load interrupting ratings.
- ATS option available.
- Special Paint Options: A variety of paint options to meet your industrial needs

## Markets & applications

- Contractors
- Distributors
- Commercial
- Institutional
- Healthcare
- Data Centres
- Industrial





# Medium Voltage Air-Insulated Switchgear (IEC/CSA)



## Product overview

UniGear ZS1 switchgear is the ABB most popular switchgear for primary distribution up to 27.6 kV, 4 000 A, 50 kA. The switchgear is manufactured worldwide and there are more than 200,000 panels currently installed. UniGear ZS1 is used to distribute electric power in a variety of demanding applications such as on offshore platforms, in container or cruise ships, in mines as well as in utility substations, power plants or chemical plants. Panels are available as a single busbar, double busbar, back-to-back or double level solution.

## Product range

Rated voltage up to 27.6 kV; rated current up to 4 000 A; rated short time current up to 50 kA/3s

## Key benefits

- ABB mainline switchgear for primary distribution up to 27.6 kV, 4 000 A, 50 kA
- Manufactured and supported on six continents
- Approved for use in special applications such as marine, seismic and nuclear
- Variety of demanding applications

## Key features

- Standards: CSA, IEC, GOST, GB/DL
- Design: LSC-2B, PM (Metalclad) Maximum availability due to impressive MTBF figures
- Internal arc class: Front, Lateral and Rear 1 second rating. Extra protection for control compartment open door
- Available with UFES and REA arc flash relay utilizes arc flash mitigation for increased safety and reliability
- Utility metering connection (selected utilities)
- Highly customized versions available
- Switchgear can be back to wall installed
- Available in Digital version



## Markets & applications

- Industrial
- Utilities
- Commercial

# Medium Voltage Gas Insulated Switchgear



## Product overview

ZX family switchgear offers all solutions with combined protection and control devices or pure protection devices. The gas insulation with SF<sub>6</sub> increases operator safety, as all MV parts are fully encapsulated, making contact with live parts impossible.

ZX family switchgear consists of metal-partitioned circuit breaker and busbar gas compartments either for double busbar or single busbar applications. The cables are accessible from the rear. All switching devices can be remote controlled and as an option mechanically interlocked.

It combines future-oriented concepts and technologies, which allows for a high flexibility for measuring systems combined with digital bay control technologies, conventional devices, and plug-in technology at all ends for easy installation.

The extremely long service life of gas-insulated switchgear is optimally achieved by the use of the insulating gas sulphur hexafluoride, an inert gas which not only insulates but also protects all the high voltage components throughout the entire life of the switchgear.

Either signal detection by sensors or instrument transformers together with a direct bus to station automation system or conventionally by wire to the control centre is available. ZX switchgear are factory assembled and tested sealed pressure switchgear as defined by the current IEC standard.

GIS provides a proven solution by incorporating arc-proof cubicles and vacuum circuit breakers in a compact housing, suitable for all requirements.

## Product scope

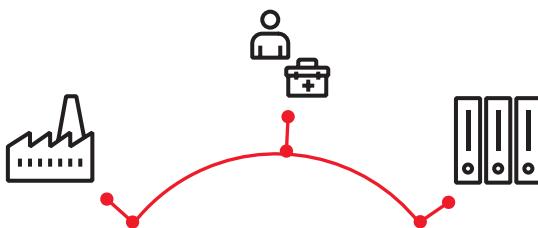
- Rated voltage: ...38 (40.5) kV
- Rated current: ...2500 A
- Rated short-circuit breaking current: ...40 kA
- Rated short-circuit making current: ...100 kA

## Why ABB?

- Maximum operator safety
- Minimum overall costs due to low maintenance requirements
- Maximum availability due to impressive MTBF figures
- First manufacturer of GIS with over 30 years of experience

## Markets & applications

- Utilities
- Industrial
- Healthcare
- Datacenter



# R-MAG – Magnetically Actuated Dead Tank Outdoor Vacuum Circuit Breakers



Link for more info



## Product overview

- 15/27/38 kV
- Up to 200 kV BIL
- Up to 3700A continuous current for 15.5 kV
- Up to 2000A continuous current for 27-38 kV
- Up to 40 kA Interrupting current for 38 kV
- Operating temperature -50 °C to +70 °C
- Rated for 10,000 operations

## Features

- Magnetic actuator rated for 100,000 operations for 15-27 kV and 50,000 for 38 kV
- ABB-best in class vacuum interrupters
- Only one moving part

## Benefits

- Full 5-year warranty
- Easy integration and flexible solution for any type of relays and control
- Vacuum interrupters can perform 30,000 full load operations
- Shorter inspection times and up to 10 years maintenance intervals
- Plug and play design of electronic control board for rapid replacement
- Safety of magnetic actuation, by reducing moving part to one
- Reliability and consistency in operations due to simple and robust design
- Future-proof design for smart networks of today and tomorrow

## Markets & applications

- Utilities
- Municipal
- Industrial
- Wind/Solar
- Distributors
- Contractors
- Consultants



# OVB-VBF – Spring Actuated Live Tank Outdoor Vacuum Circuit Breakers



Link for more info



## Product overview

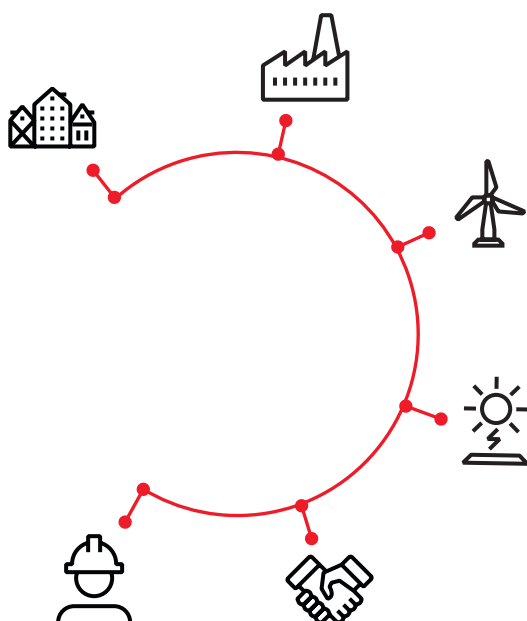
- Up to 40.5 kV
- Up to 195 kV BIL
- Up to 2500A continuous current
- Up to 31.5 kA Interrupting current
- Operating temperature -40 °C to +45 °C
- Rated for 10,000 operations

## Features

- C2 class back-to-back capacitor switching
- Simple and robust spring mechanism
- ABB best-in-class vacuum interrupters
- Silicon encapsulated vacuum interrupters
- Sealed for life poles

## Benefits

- Capacitor current switching back-to-back up to 750A
- Easy installation and integration
- Vacuum interrupters can perform 30,000 full load operations
- Sealed for life poles
- Future-proof design for smart networks of today and tomorrow



## Markets & applications

- Utilities
- Municipal
- Industrial
- Wind/Solar
- Distributors
- Contractors
- Consultants

# GridShield 3P/3SP – Vacuum Reclosers



Link for more info



## Product overview

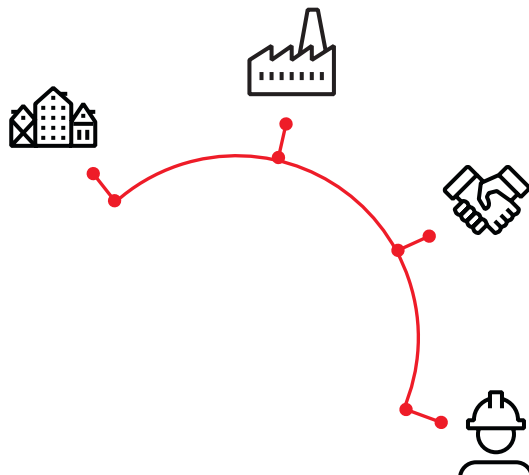
- 15/27/38 kV
- Up to 170 kV BIL
- Up to 1200A continuous current
- Up to 16 kA Interrupting Current
- Current measurement accuracy  $\pm 1$  percent
- 10,000 operations

## Features

- MTTF 10,000 years
- Rigorous environmental testing at KIPTS
- ABB-best in class vacuum interrupters
- Highest creepage distance on the market
- HCEP material – best in class for outdoor use
- Single and three-phase tripping capability
- Multiple recloser controller compatibility

## Benefits

- Unparalleled reliability
- Sensors maintain accuracy and stability throughout environmental and humidity fluctuations
- Vacuum interrupters can perform 30,000 mechanical operations
- Compatible with ABB, SEL, GE, Beckwith recloser controllers
- Easy installation with various mounting options
- Maintenance-free high voltage compartment
- Future-proof design for smart networks of today and tomorrow



## Markets & applications

- Utilities
- Municipal
- Industrial
- Distributors
- Contractors
- Consultants

# Eagle – Single Phase Vacuum Reclosers



Link for more info



## Product overview

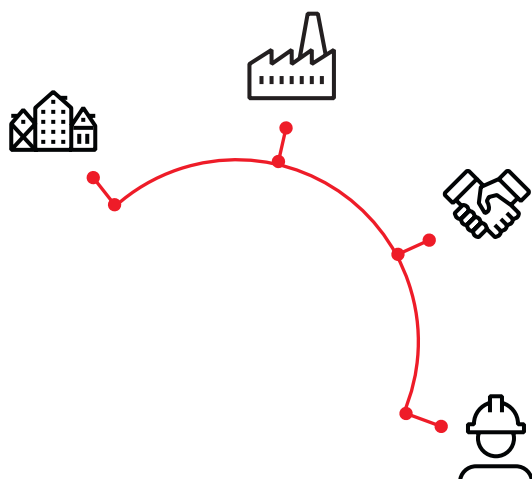
- 15/27 kV
- 125 kV BIL
- 200A continuous current
- 8 kA Interrupting Current
- 3 reclosing shots
- Rated for 10,000 operations

## Features

- Self-Powered
- No Battery – No Maintenance
- Interruption in Vacuum
- “No Arcing” Design
- Integrated Electronics
- Encrypted Wireless Communication
- Double Insulator Mounting
- Platform Independent User Interface

## Benefits

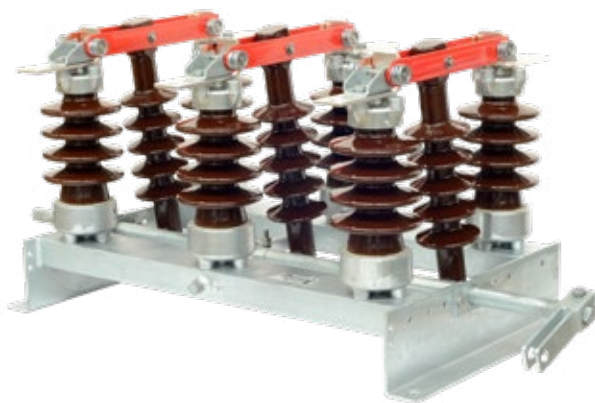
- Superior overhead distribution lateral protection
- Easy installation with flexible mounting options
- No arcing during installation, closing, or opening
- Battery-free design
- Hassle-free and secure wireless design
- Easily programmable



## Markets & applications

- Utilities
- Municipal
- Industrial
- Distributors
- Contractors
- Consultants

# ON III/I – Outdoor Disconnectors



Link for more info

## Product overview

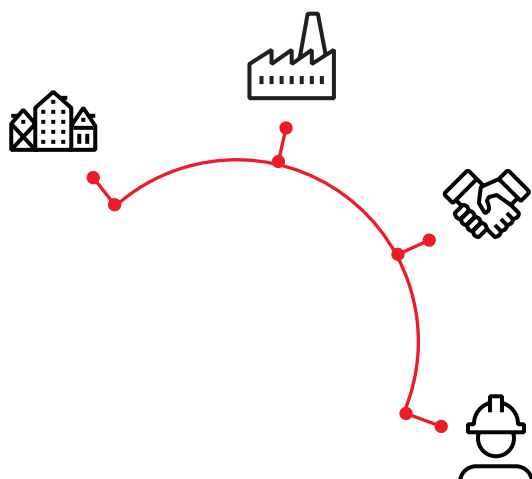
- Up to 36 kV
- Up to 195 kV BIL
- Up to 2000A continuous current
- Rated for 1,000 operations

## Features

- Single or three-phase operation
- Manual or motorized operation
- Available with grounding switches on both sides
- Vertical-break opening

## Benefits

- Safe and visible isolation gap in open position
- Proven and reliable design
- Installation position: horizontal or vertical
- Easy to install and commission
- Remotely controlled, can work as sectionalizer



## Markets & applications

- Utilities
- Municipal
- Industrial
- Distributors
- Contractors
- Consultants



# WiAutoLink – Electronic Sectionalizers



Link for more info



## Product overview

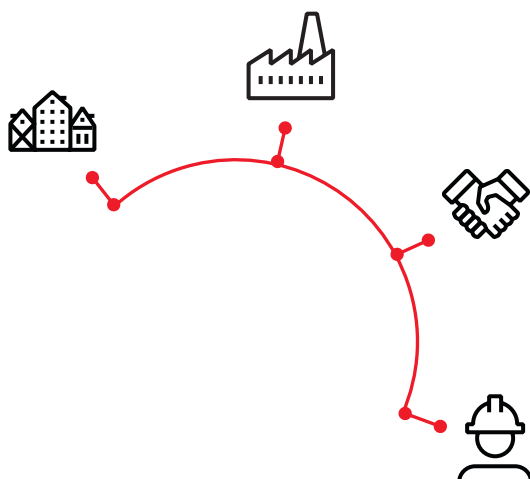
- 15/27/38 kV
- Up to 170 kV BIL
- Up to 200A continuous current
- Actuating current 6 - 215A
- Resettable counter 1- 4 shots

## Features

- Works with upstream recloser
- Can operate as single or three phase unit
- Detects inrush to avoid incorrect trip
- Independent of the time-current curve
- WiFi communication
- Integrated Electronics
- Site resettable and programmable

## Benefits

- Simple solution for distribution networks
- It is not a fuse replacement, as it is an isolation device
- No need to replace the trip device after its operation
- Easy installation with flexible mounting options
- Mounted on cutout base
- Easily programmable



## Markets & applications

- Utilities
- Municipal
- Industrial
- Distributors
- Contractors
- Consultants

## Low Voltage Distribution Equipment

# Low Voltage Switchgear



## Product overview

The ABB LV Switchgear continues the tradition of the previous generation switchgear lines while delivering enhanced arc flash protection. Built to ANSI standards, its protection features include non-vented panels plus insulated and isolated bus, and it integrates our new state-of-the-art breaker-trip unit system. It also features an optimized footprint so that it now fits into a smaller area for the most common configurations.

## Features

- Up to 600Vac, 800...6000A / up to 100kA
- Indoor, arc resistant Type 2B enclosures
- The optimized footprint uses smaller section sizes when possible. Sections are provided in 22", 30" or 38" widths
- Breaker compartment doors have no ventilation openings, thus protecting operators from hot ionized gases vented by the breaker during circuit interruption
- A superior bus system offers different levels of protection. Insulated and isolated bus makes maintenance procedures touch friendly to reduce the risk of arc flash
- True closed-door drawout construction is standard with all ReliaGear LV equipment. The breaker compartment doors remain stationary and closed while the breaker is racked out from the connect position, through test, to the disconnect position. Doors are secured with rugged 1/4-turn latches

## Benefits

- Low total cost of ownership
- Ease of installation, maintenance, and configuration flexibility.
- Each CB is located in a completely enclosed ventilated compartment with grounded steel barriers to minimize the possibility of fault communication between compartments.
- Optional safety shutters protect operators from accidental contact with live conductors when the breaker is withdrawn.
- The conduit entrance area meets CEC requirements. Extended depth frame options are available in 7" and 14" sizes for applications requiring additional cable space. The section width can also be increased for additional cable space.

## Markets & applications

- Contractors
- Distributors
- Commercial
- Industrial



# Switchboards



## Product overview

**ReliaGear™ SB** switchboards offer a state-of-the-art design that provides the high quality, safety and reliability long associated with ABB's group-mounted switchboards. In addition, Tmax XT and Emax 2 Circuit Breakers meet all NEMA, NEC, IBC Seismic, UL and cUL requirements, plus those for JIS and IEC.

## Features

- Modular component for easy, fast and flexible installation
- Breakers comes withdrawable or stationary options
- Cloud connectivity with built-in metering for real-time energy monitoring
- Bluetooth® technology embedded to set parameters in an arc-free zone
- Flexible operation mode (ATS, Load shedding etc.)
- Design compliance with seismic standard

## Benefits

- Speed up your project
- Link to data analysis in real time
- Enhanced safety
- Improved Arc Flash Mitigation
- Increased functionality
- Expanded grid operational mode



## Markets & applications

- Contractors
- Distributors
- Commercial
- Institutional
- Data Centres
- Small industrial



# Busways



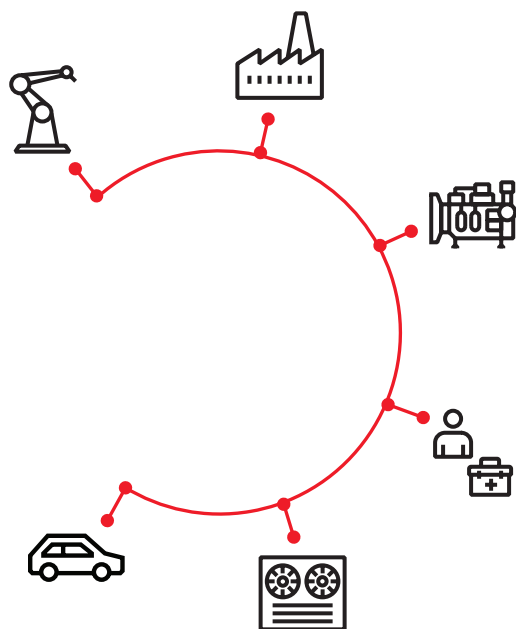
## Product overview

Spectra Series Busway is at least 50 percent lighter than comparable wire and conduit - and lighter than competitors' busway, too. Its simplified design, reduces installation time and may lower your total installation costs by up to 75 percent versus wire and conduit. The compact Spectra Series also allows runs in more places, such as around and between existing structures. Removable isolation joints mean maintenance and modifications are done easily and with minimal downtime, which may lower your operational costs versus wire and conduit as your building needs change. Lighter, smaller, lower cost, easier modifications. The Spectra Busway is available up to 4000A in Aluminum or 5000A Copper.

## Features and Benefits

ABB produced a compact design which has resulted in these improvements over wire and conduit installations:

- 50 percent minimum decrease in size
- Up to 50 percent decrease in weight
- Increased adaptability and versatility
- Higher short circuit ratings
- Improved installation and operational safety
- Fully tested and certified to UL, ANSI, CSA and ASTA standards



## Markets & applications

- Contractors
- Distributors
- Commercial
- Institutional
- Data Centres
- Industrial

# Power Panelboards



## Product overview

ReliaGear neXT Power Panelboards offers plug-in and bolt-on style interiors that offer superior electrical performance, safety and sustainability for use in all ReliaGear Series Power Panelboard applications.

Main or branch devices as well as lugs only, can be installed at the factory or at the construction site providing application flexibility. Selected breakers come with digital trip and adjustable thermal magnetic trip with measurement and communication module for energy monitoring management.

## Features

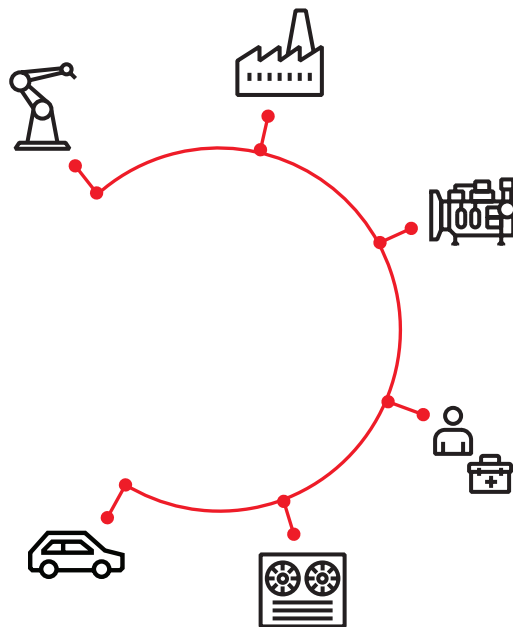
- A field-reversible bus stack for top-bottom feed change without extra parts
- Tmax XT circuit breakers feature plug-in to bus and bolt-on to interior frames
- Cloud connectivity with built-in metering for real-time data analysis
- IP20 finger-safe feature in select models
- Adjustable breaker trip setting in thermal magnetic or electronic trip units
- Design compliance with seismic standard

## Benefits

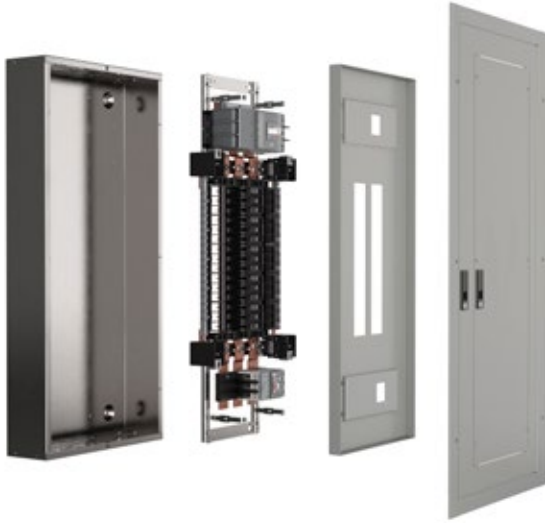
- Safe and fast installation
- Flexible in field modification
- Reliable operation and no thermal cycle re-torque required
- Cloud connectivity for energy monitoring
- Simplified quotation system and breaker ordering

## Markets & applications

- OEMs
- Contractors
- Distributors
- Light and Heavy Commercial
- Institutional
- Healthcare
- Data Centres
- Industrial



# Lighting Panelboards



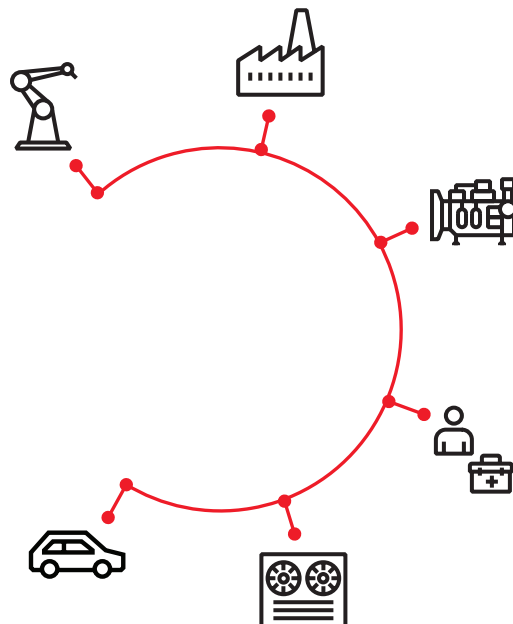
For more info:

(ATTENTION: link is US based, information on this page could miss the CSA data)

## Product overview

The A-Series® II and ReliaGear Lighting panelboards combine the whole family of high-quality circuit breakers into one pre-engineered module panelboard system. The TEY, TQB, TQC and TQL breaker series are the main breakers used in this panel.

All A-Series® II and ReliaGear Lighting panelboards components, boxes, fronts, interiors and circuit breakers have been designed to make it easy for the contractor to specify, order and install.



## Features

- Symmetrical design, no required top or bottom mountings
- Wide, easy-to-install galvanized enclosures with removable endwalls
- Flush or surface mounting
- Standard concealed mounting hardware and hinges
- Interiors that allow “straight-in” wiring
- Split neutral
- Field-installable, cUL Listed, optional 200% neutral for non-linear loads
- Branch-bus direct connection
- Captive hardware on branch breakers
- Short circuit ratings allow up to 35kA @ 600/347V, 100KA @ 480Y/277Vac; 200KA @ 240Vac
- Main bus ratings of 125 to 600 amps copper or aluminum
- Spectra RMS and vertically mounted main circuit breakers available
- Bus-connected SPD for maximum surge protection
- Optional door-in-door or front-hinged-to-box door
- Enclosures available in Type 1, Type 3R/12, Type 4/4X

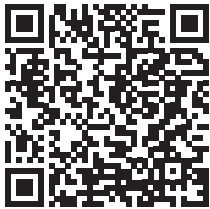
## Benefits

- More room for cable connection
- Quick installation

## Markets & applications

- Light and Heavy Commercial
- Contractors
- Distributors
- Institutional
- Healthcare
- Data Centres
- Industrial
- OEMs

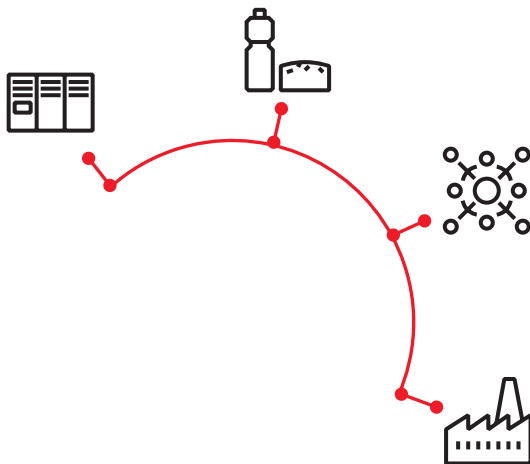
# Safety Switches



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Link for more info

## Product overview

ABB offers a wide variety of general duty switches for residential and light commercial purposes, while our extensive line of heavy duty switches is best suited for commercial and industrial applications. For the toughest industrial environments – like cement foundries, steel mills and processing plants – dust tight and stainless steel switches are available. We also offer a variety of double throw switches for emergency generators.



No matter what the application, we've got you covered with a rugged, reliable and easy-to-install Spec Setter safety switch. When it comes to getting the job done right, you can count on ABB!

## Features

- General duty switch 240V, 2 and 3 poles
- Heavy duty switch 240V & 600V, 2, 3 & 6 poles
- Double Throw
- Fusible and non-fusible
- Nema 1, 3R, 5/12 and 4X, SS316 available
- Highly visible ON/OFF label
- Highly visible, easy to grip red handle and accepts 1 padlock in the OFF position for General duty switch.
- Donut handle ideal for hook stick operation and accepts 3 padlocks in the OFF position for the Heavy Duty switch.
- Direct-drive, quick-make, quick-break mechanism "snaps" contacts open and closed providing positive ON/OFF indication
- Unobstructed gutter
- Self-leveling, three-point mounting system
- Integral cover interlock for GD; Coin-proof, defeatable interlock for HD
- Visible confirmation of plated blade contact positions
- Spring reinforced fuse clips assure reliable contact for cool operation. Suitable for Class H, K, J or R fuses, where applicable

## Benefits

- Safety
- Ease of installation and maintenance

## Markets & applications

- Panel builders
- System integrators
- OEMs
- HVAC
- Critical power (GenSets)
- UPS
- Marine
- Food and beverage



# Enclosed Switches



Link for more info

## Product overview

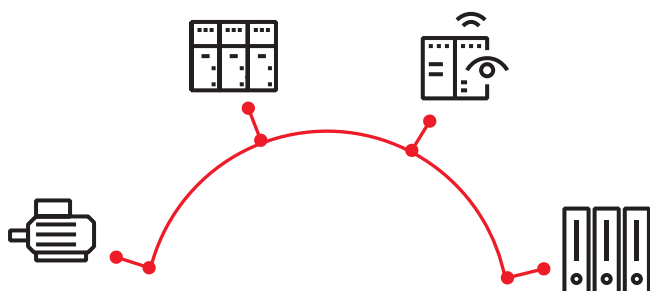
Enclosed disconnect switches from ABB for the North American market offer a fusible and non-fusible solution from 30 to 1200 Amps. Our complete range meets all relevant standards UL98, UL508 and CSA. Available with voltage up to 600Vac.

## Features

- Fusible and non-fusible up to 1200A.
- Single switch available in 3p, 4p, 6p, 8p configuration
- Transfer/combination switch configurations
- Plastic, steel, stainless steel or acid proof steel available
- Dual color handles
- CSA, UL98 and UL508 certified
- 600VAC rated acc. to UL/CSA

## Benefits

- Increase safety
- Reliability
- Easy installation
- Savings in maintenance



## Markets & applications

- Packaging machine
- HVAC
- OEM

# Load Centres - Residential



For more info



## Product overview

The PowerMark Gold CSA Load Centres have been specially designed for the Canadian market and meet residential needs for power distribution and circuit protection. They feature the Q-line residential breakers THQL including the Arc fault and Ground fault Residential breakers.

## Features

- Copper busbar
- Galvanized steel enclosure
- Main lug up to 225A
- Main breaker 22 kA, up to 200A (100, 125, 150 & 200A)
- Quantity of circuits from 4 to 80
- Available at 120/240V single phase & 120/208V three phase
- Adjustable door
- Residential breaker 1" or ½", standard, Ground Fault and Arc Fault, all with Robertson screws
- Backed-out Robertson screws on neutral and ground for faster installation
- And more...

## Benefits

- More room for cable connection
- 180 degrees installation
- Quick installation



## Markets & applications

- Residential
- Light commercial

## Medium Voltage Components

# Medium Voltage ANSI Indoor Vacuum Breakers – ADVAC and AMVAC



## Product overview

The ADVAC and AMVAC series is a complete line of ANSI-rated vacuum circuit breakers with a spring-charged and magnetic actuated mechanisms offering power distribution system customers the advantages of the latest technology with a modular design that is easily maintainable.

## Features

### • ADVAC:

- 5 to 15 kV heavy duty breaker rated at 1200 A to 3000 A continuous current and 25 kA to 63 kA interrupting current
- Safety features include standard built-in mechanical anti-pumping device, KIRK key, padlocking, push-button cover provisions and closed-door racking
- The racking mechanism (truck) is integrated into the breaker and designed to 180 ft2lb torque rating to provide increased reliability and reduced maintenance costs

### • AMVAC:

- Rated at up to 15 kV, 3000 A, 50 kA and 27 kV, 2000 A, 25 kA
- Low-maintenance magnetic actuator mechanism and electronic controller
- Standard five-year warranty
- Fixed and withdrawable versions with front operating mechanism
- Stored energy operating mechanism with mechanical anti-pumping device supplied as standard

## Benefits

### • ADVAC:

- ABB EL spring mechanism used on various ANSI and IEC breakers to provide up to 20,000 mechanical operations in a compact, modular design that is readily accessible and easily maintained to reduce downtime
- Modular Smart Coil assembly used in multiple ABB breakers provides close, open and undervoltage actuation in one simple assembly
- The motor assembly can be replaced by removing a single screw, thereby reducing downtime
- Vacuum interrupters completely embedded in a solid insulation material provide superior protection against dust, dirt and condensation, and are less susceptible to failure due to contamination, tracking or partial

### • AMVAC:

- Simple open and close coils, an electronic controller and capacitors for energy storage
- Requires the least maintenance of all medium voltage vacuum circuit breaker designs on the market today
- High number of operations between breaker servicing
- Increases safety by reducing personnel time in front of switchgear lineups



Links for more info



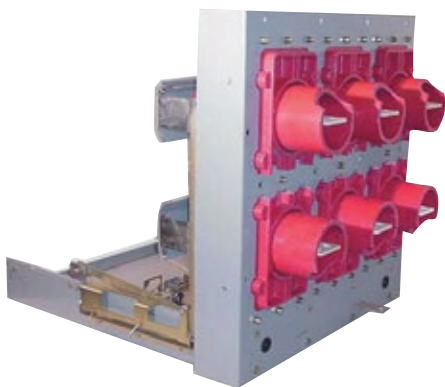
## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Medium Voltage Indoor ANSI L-Frames



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Link for more info



## Product overview

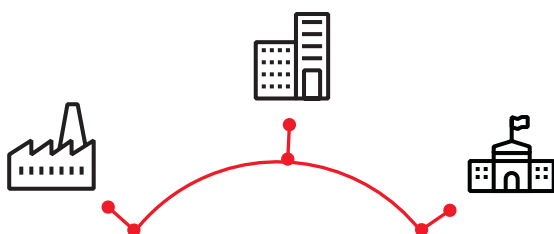
OEM switchgear components are manufactured to meet current medium voltage industry standards. The designs are UL recognized, providing a modular building block approach for installation into new and existing switchgear configurations. They are used with ADVAC, AMVAC, and Vmax/A circuit breakers.

## Features

- Ratings up to:
  - 15 kV, 3000 A, and 63 kA
  - 27 kV, 2000A, and 25 kA

## Benefits

- Complete AutoCAD drawings are available for easy integration
- Compartment kits include the primary assemblies and components required
- Designed to provide efficient interface of the ADVAC, AMVAC or Vmax/A circuit breakers



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional



# Medium Voltage IEC Indoor Vacuum Breakers – VD4 and VM1



## Product overview

Maximize your productivity with reduced downtimes with ABB's flagship product family of VD4 and VM1 circuit breakers for primary and secondary protection, with a global installed base of over 1.5 million units and higher performance than the market standard. Protect your assets with an optimum interface, utilizing the market's widest portfolio of circuit breakers, covering global standards and ratings fitting your specific needs.

VD4 and VM1 medium voltage circuit breakers use vacuum interrupters embedded in poles. This construction method makes the poles particularly sturdy and protects the interrupter from shocks, dust and condensation. VM1's magnetic drive activates the moving contacts of the interrupters and integrates all the functions of a traditional drive.

## Features

- Vacuum interrupters embedded in poles for protection against humidity, shocks and dust
- **VD4:** Modular spring-operated mechanical actuator ensuring easy operation even without auxiliary supply
  - 30,000 mechanical operations on most ratings
  - Rated at up to up to 46 kV, 4,000 A, 63 kA.
- **VM1:** Medium voltage circuit breakers with magnetic actuator for primary distribution up to 24 kV, 3150 A (4000\*), 50 kA.
  - Magnetic actuator controlled by electronic board and storing capacitors
  - 30,000 mechanical operations on all the ratings

## Benefits

- **VD4:**
  - The most versatile and powerful solution among medium voltage vacuum circuit breakers
  - Ideal for all applications (eg. capacitor bank switching, marine, GOST)
  - More than 1.5 million VD4 medium voltage vacuum circuit breaker installed worldwide
  - Cassettes and module systems available for OEMs and panel builders to create their own solutions
  - Fully interchangeable — both for overall dimension and electrical diagram — with ABB VD4 medium voltage gas circuit breaker
  - Only one common plug-and-play actuator (EL type) from 12 kV to 36 kV with a wide range of accessories, safety locks and interlocks, and with same family feeling of ABB low voltage series EMAX
- **VM1:**
  - Maintenance-free solution, ideal for highly demanding applications
  - Ideal for applications requiring frequent switching
  - Special version available for fast transfer switch application
  - Electronic board performs diagnostics on circuit-breaker conditions
  - Suitable for a wide range of auxiliary supply voltages

## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional



Links for more info



# Medium Voltage IEC Indoor Cassettes and Frames – PowerCube



—  
Link for more info

## Product overview

Medium voltage preassembled units to be used as components for primary distribution air-insulated switchgear, cassettes to modules with complete apparatus and cable access compartments.

## Features

- Rated at up to 36 kV, 4000 A, 50 kA
- Arc proof doors up to 50 kA and pretested and assembled interlocks between apparatus and PowerCube units
- Variety of units available, from circuit breakers to contactors (including contactors with a reduced footprint of 400 mm) or measurement with one or two VT trucks to risers and service truck solutions
- Broad portfolio of cassettes and preassembled modules
- Different types of apparatus can be used in an interchangeable unit independently from panel design

## Benefits

- Flexible portfolio of solutions for panel builders and OEMs to design their own customized panel configurations
- Technical support for design and testing
- Possible to maximize panel builder and OEM value, depending on needs and requirements
- Flexibility in hosting different types of apparatus and quenching techniques to fulfill customer specifications
- Embedded safety features



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Medium Voltage ANSI Indoor Load Break Switches – VersaRupter



Link for more info

## Product overview

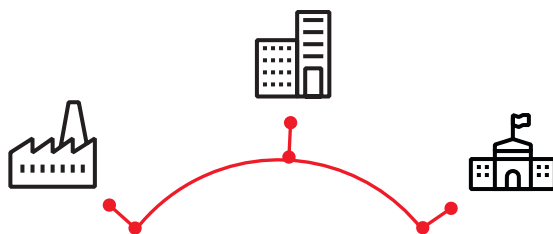
The VersaRupter switch-disconnector uses a puffer and nozzle system to efficiently extinguish the arc of full-load interruptions, voltage up to 38 kV, current up to 1200 A.

## Features

- High number (100 c/o) of breaking operations at rated current value
- Fault-closing rated current asymmetrical up to 61 kA
- Rated short-circuit withstand current up to 40 kA
- Earthing switch with making capacity
- Compact dimensions
- Visible insulating gap

## Benefits

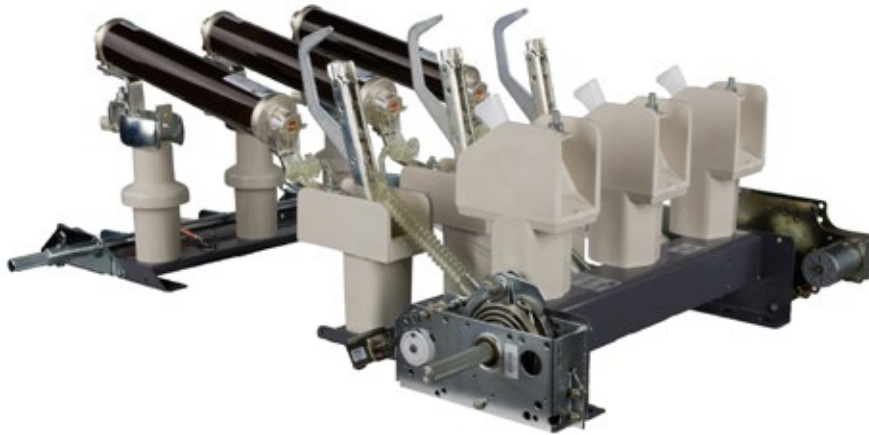
- Efficient solution for transformers protection
- Easy application in wide range of configurations
- Smart grid and network automation ready
- Capability for application with frequent switching requirements
- Full range protection in combination with CEF current limiting fuses
- Safe and reliable solution for short circuit currents interruptions



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Medium Voltage IEC/CSA Indoor Air Insulated Switches – NAL/NALF



—  
Link for more info

## Product overview

The NAL/NALF switches have a compact, modular design and broad functionality. The rated voltages are up to 38.5 kV, rated currents up to 1250 A.

The NAL/NALF switch-disconnectors represent an attractive solution for applications in enclosed switchgear and compact transformer stations. In combination with CEF current limiting fuses, they provide reliable control over the full range of overload currents. Accessories such as shunt trip, auxiliary switches, motor operation and various systems for manual operation can easily be added.

## Features

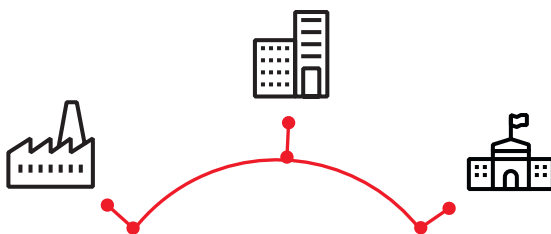
- High number of breaking operations at rated current value
- Compact dimensions for panel and CSS applications
- Rated short-circuit withstand current up to 40 kA
- Earthing switch with making capacity
- Wide range of operating temperatures
- Visible insulating gap
- Available with CSA certification directly from the factory

## Benefits

- Capability for application with frequent switching requirement
- Ability to close at high short circuits currents in cooperation with current limiting fuses
- Full range protection in combination with CEF/ CEF-S current limiting fuses
- Safe and reliable solution for short circuit currents interruptions
- Cost efficient solution for transformers protection
- Smart grid ready

## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional



# Medium Voltage IEC Indoor Contactors



## Features

- Lower chopping current, increasing motors and transformers lifetime and lowering costs
- Common and fast assembly of accessories for both 7,2 kV and 12 kV with no adjustments
- Rated at up to 12 kV, 400 A, 6 kA unfused; 50 kA with SCPD (normal fuses)
- One multi-standard free-standing product for 7,2 kV: suitable for IEC62271-106, UL347 and CSA C22.2 standards
- 7,2 kV and 12 kV free-standing units mechanically interchangeable and with all electrical connections plug and socket with embedded terminal box to save up to 40 percent of wiring time
- Higher dielectric performances above IEC, UL, CSA standard requirements and according to GOST R 52565 2006 (power frequency increased more than to 50 percent compared to standard IEC requirement)
- Operative condition from -30 °C up to 55 °C
- Fully type tested draw-out solution at 7,2 kV for Unigear ZS1, Unisafe and Powercube units
- Self-supplied solution available for draw-out contactor



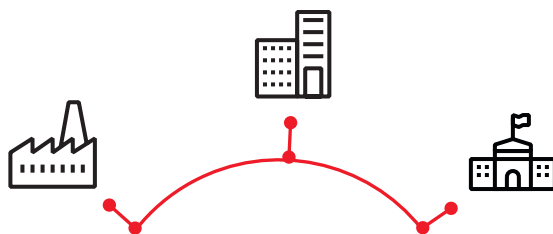
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Link for more info

## Product overview

ConVac vacuum contactors are suitable to switch motors and to control electrical circuits, for a wide variety of applications where high number of operations are required. They are suitable to operate motors, transformers, capacitor banks and fitted with proper fuses, for circuits with fault levels up to 50 kA.

## Benefits

- Fast answer to customer change in specification
- Flexible installation and easy connections
- Easy to customize, reduce up to 80 percent customization time
- Reduced engineering needs
- Optimize panel dimensions and cost
- Operative in extreme conditions



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional



# Medium Voltage IEC Indoor Fuses



Link for more info



## Product overview

Medium voltage IEC current limiting and expulsion fuses suitable for the protection of distribution transformers, voltage transformers, capacitor banks, motor circuits and installations with other switching apparatus.

## Features

- Special design optimized for application type
- Two fuse housing materials are applicable – porcelain and resin-fiberglass
- Application: Indoor and outdoor

## Benefits

- Capable to control full range of overload currents either in combination with switching apparatus or as sole protection
- Economic protection devices for immediate interruption of high short circuit currents that significantly increase isolation lifetime
- High mechanical and thermal resistance thanks to porcelain as housing materials



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Medium Voltage Indoor Instrument Transformers



Link for more info

## Product overview

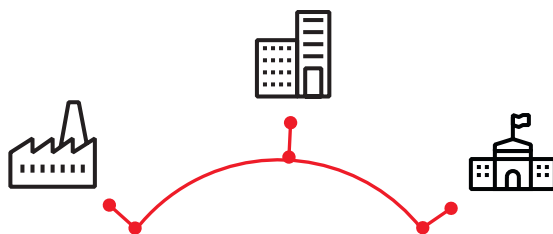
- Bushing current transformers with typical applications in high voltage circuit breakers and power transformers.
- LV thermoplastic rubber current transformers for a variety of applications including secondary revenue metering.
- LV plastic case window-type current transformers offered in a variety of internal window diameters and used in various switchgear applications.
- MV indoor current transformers with typical applications in switchgear and metal-clad enclosures for primary and revenue metering and protection.

## Features

- Designed for service in metal-clad switchgear and used for metering, relaying, or control power.
- Single, double, and tapped secondary designs with two accuracy and thermal rating options.

## Benefits

- Offering a broad selection of instrument transformers ranging from 600 V to 48 kV
- Providing cost savings through innovative technology
- Committed to product quality and customer satisfaction



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Medium Voltage Indoor Sensors



—  
Link for more info

## Product overview

Electronic Instrument Transformers (Sensors) offer an alternative way of making the current and voltage measurements. Sensors based on alternative principles have been introduced as successors to conventional instrument transformers in order to significantly reduce size, increase safety, and to provide greater rating standardization and a wider functionality range. These well-known principles can only be fully utilized in combination with versatile electronic relays.

## Features

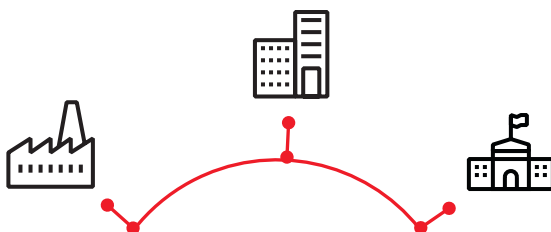
- **Indoor current sensors:** Current measurements with high linearity & wide dynamic range, based on the principle of Rogowski-coil
- **Indoor voltage sensors:** Non-saturable, linear, ferro resonance-free voltage measurement, based on a resistive divider
- **Indoor combined sensors:** Current & voltage measurements and voltage indication integrated in the same compact cast resin part

## Benefits

- Fast and easy design process – sensors are standardized products that cover a wide range of parameters
- Zero engineering required
- Minimized cost during the project life cycle and reduced operating costs
- Flexibility towards varying load flows
- Safety and Reliability:
  - Ferroresonance free
  - Low voltage signals
  - No need to use VT fuses
  - Secondary can be left open or short-circuited
  - Increased safety for personnel during testing and operation

## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional



# DC High Speed Circuit Breakers

## Product overview

Gerapid high speed DC circuit breakers are single-pole circuit breakers designed for use in high energy, high reliability DC power distribution systems. They are suitable for protection of mains and semiconductors (converters/rectifiers) in railway and industrial applications. Feeder circuit breakers and rectifier circuit breakers are available



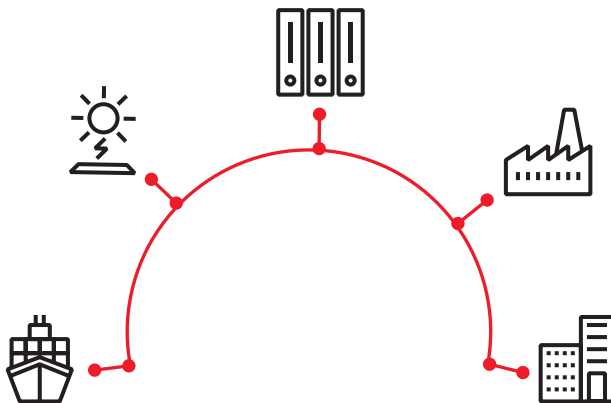
with operating currents up to 8,000ADC and operating voltages up to 3600VDC. They have a very high interruption capacity combined with a current limiting characteristic.

Innovative materials, superior circuit breaking capacity and outstanding dielectric performance ensure service continuity and protection during adverse system events. The technology and quality of these circuit breakers produce high reliability, extended maintenance intervals and uncomplicated serviceability for all fixed installations.

A wide range of fully accessorized rectifier and feeder circuit breakers are available. All comply with IEC 60947-2 and ANSI C37.14.

## Features and Benefits

- Ratings up to 8000A and 3600 Vdc (800 Vdc, ANSI)
- IEC 60947-2, EN50123-2, and ANSI C37.14 Certifications
- Solenoid drive (integral control unit, mechanically latched, no auxiliary power required to keep contacts closed)
- Available electrodynamic release for very high speed switching
- Two Stage contact system extends life of main contacts
- Compact, enclosed construction
- Full range of accessories, including up to 10 auxiliary contacts



## Where to sell

- Traction power (light rail transit, tram, subway, maglev, etc.)
- Industrial plant protection (electrolysis plants, iron and steel mills, etc.)
- Mining
- Chemical, petrochemical
- Power generation
- Research/experimental (e.g., physics, particle accelerator protection)

## Low Voltage Components



# Power Circuit Breakers



## Product overview

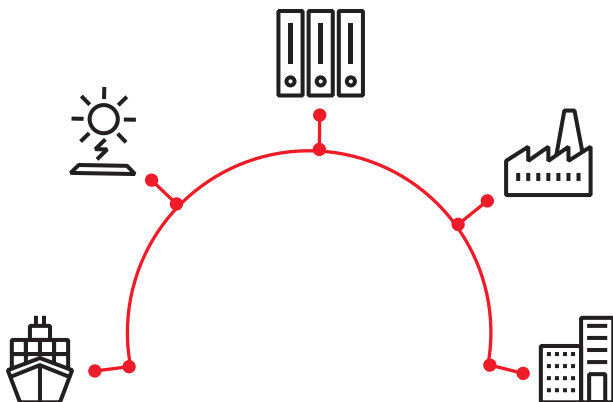
The new SACE Emax 2 power circuit breakers up to 6000A have been designed to increase efficiency in all installations. From industrial and naval applications to traditional and renewable power generation installations, buildings and shopping centres.

## Features

- Amperage available up to 6000A with voltage up to 635Vac
- Interrupting rating up to 100 kA
- Compact dimensions with fixed and withdrawable versions
- Latest of electronic protection units with touch technology
- Rear orientable connection for busbars

## Benefits

- Increase reliability
- Extraordinary efficiency and control
- Easier integration into automation systems



## Markets & applications

- Marine
- Solar
- Data Centres
- Industrial
- Utilities
- Commercial

# Insulated Case Circuit Breakers



## Product overview

The Power Break II Insulated Case Circuit Breaker has been created and designed in 1965 to be a reliable, flexible and easy-to-use circuit protection for several types of applications. They are certified by UL and CSA and are rated from 200A to 4000A. Offer in two levels of interrupting capacity – “standard break” and “Hi-Break” - it can support up to 200KAIC @ 240V without fuses or current limiters.

## Features

- Compact, lightweight design
- 36-point pre-wired, dedicated secondary terminal block standard
- Optional mechanical counter
- Padlock device standard
- Easy-to-reach ON/OFF buttons
- Choice of Entelliguard TU™ trip units- field upgradeable, UL Listed, CSA Certified, IEC 947-Certified
- Sealable door provides added security
- Drop-in shunt trip, undervoltage release and bell alarm (with and without manual lockout) modules
- Flush-mounted pump handle

## Others

- Two-stage, stored energy mechanism provides charge-after-close capability
- Stationary and drawout versions (stationary shown)
- Manually and electrically operated versions in same envelope
- Modular, field-installable motor operator and remote-close solenoid with independent voltages available

## Benefits

- More room for cable connection
- 180 degrees installation
- Quick installation

## Markets & applications

- OEMs
- Contractors
- Distributors
- Light and Heavy Commercial



# Molded Case Circuit - Breakers



Link for more info

## Product overview

The new SACE Tmax XT are made to respond successfully to the most challenging plant engineering requirements. A complete offering up to 1200A ac/dc for distribution, motor protection and switches enable the fulfillment of all requirements will be available in 2019.

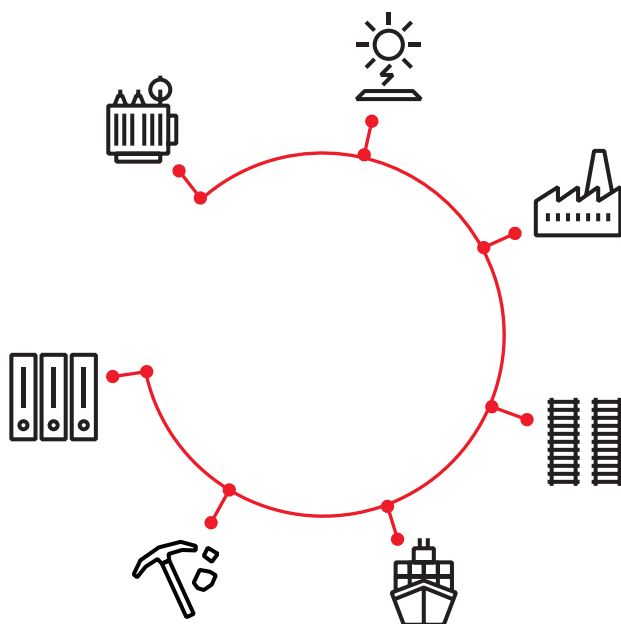
A new interchangeable range of both thermomagnetic and electronic protection units plus a large number of dedicated accessories allow for extreme flexibility.

The Tmax XT range is available with the following features:

- A complete range from 125A up to 1200A (Q3-2019)
- Extreme performance and protection features
- Designed to maximize the ease-of-use, integration and connectivity
- Built to deliver safety, reliability and quality
- Value through the entire customer journey
- On-line upgradability and functions customization through ABB Ability Marketplace™

## Main factory

- Italy



## Markets & applications

- Panel builders
- System integrators
- OEMs
- Renewable energy
- Critical power
- Railway
- Marine
- Mining
- Data Centres

# Miniature Circuit Breakers



Link for more info

## Product overview

The miniature circuit breaker SU 200 M is ABB's solution for UL 489 branch circuit protection up to 480Y/277Vac and 96Vdc.

This circuit breaker is an all-round device for AC and DC applications for universal use in North American and global markets due to its approvals acc. to the international standards UL, CSA and IEC. Moreover, SU 200 M is fully compatible with System pro M compact® UL 489 accessories.

## Features

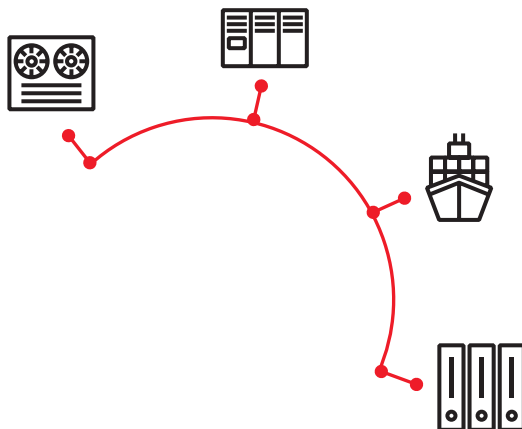
- Rated breaking capacity 10kA acc. UL489 / CSA 22.2 No. 5
- Certified up to 40A at 480Y / 277 V AC acc. to UL 489 / CSA 22.2 No.5
- 40°C reference temperature acc. to UL and CSA
- Clear contact position indication in red / green ("real CPI")
- AC and DC ratings
- Easy identification of the product
- Worldwide certified (including IEC and CCC certifications)
- Marine approvals
- Made in Germany

## Benefits

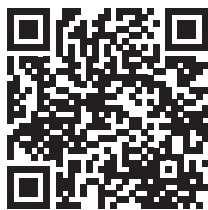
- Less inventory to manage
- Larger scope of amperage available
- Better visual inspection of the product
- Fully compatible with existing accessories
- Outstanding mechanical and electrical characteristics
- More than 120 years of reliability.

## Markets & applications

- OEM and panel shops
- Electrical industrial contractors
- Marine industry (vessels)
- Data Centres



# Disconnect Switches



Link for more info

## Product overview

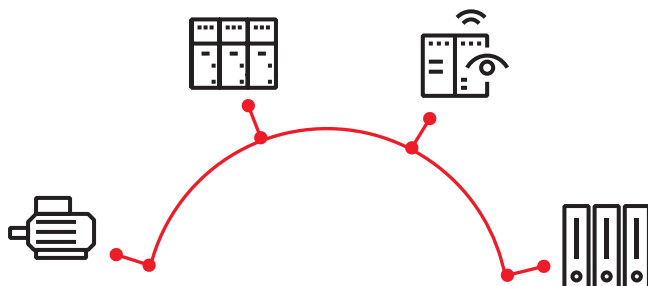
Open type disconnect switches from ABB are offered as fusible, non-fusible and change-over switches. Our complete range meets all relevant standards UL, CSA and IEC.

## Features

- Fusible from 30A up to 1200A, CSA C22.2 No.4/UL98 with high interrupting capacity (200kA)
- Non-fusible from 16A to 2000A, CSA C22.2 No.4 and 14/UL508
- Change-over from 16A to 800A, CSA C22.2 No.4 and 14/UL98 and 508
- Viewing window (160A to 2000A)
- Up to 600Vac and 1000Vdc acc. to CSA/UL
- Double contacts, totally isolated in the OFF position.
- Special 1500Vdc versions available
- Other premium configurations available including:
  - Side/Flange operated
  - Multiple poles (2p, 3p, 4p, 6p)
  - Motor operated (IEC only)

## Benefits

- Compact size
- Modular design
- Easy installation
- Increased safety



## Markets & applications

- Motor control centres
- Distribution switchgears/switchboards
- Drives
- Data Centre panels



# Fuse Holders



Link for more info

## Product overview

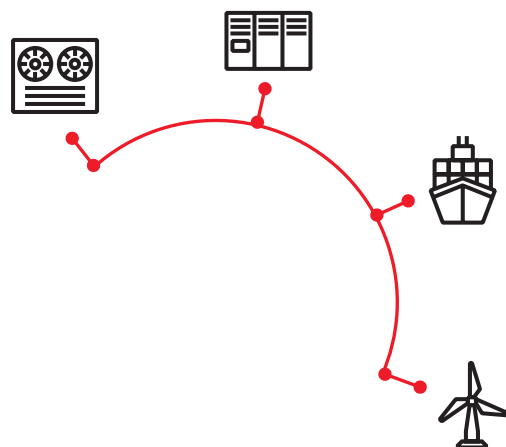
Suitability for disconnection and switching, effective heat dissipation and certified compliance with several international standards are mandatory requirements for the most demanding customers. ABB has dedicated its designer's passion, creativity and competence to the development of the new E90 range of fuse holders.

## Features

- Certified up to 30A with CC and J class fuses
- Certified up to 60A with J class fuses
- 1p, 2p, 3p, 4p with or without neutral available
- Blown fuse indicator LED available as an option on all poles
- Rejection member on CC class fuse holders
- AC and DC ratings up to 600V
- CSA and UL (4248-4 and 4248-8) approvals
- Worldwide certified (including IEC certifications)
- Made in Italy

## Benefits

- Compact design for easy integration
- Highly reliable due its unique design
- Increased safety
- Fast acting device due to its fused component
- Low cost unit



## Markets & applications

- OEM and panel shops
- Electrical industrial contractors
- Marine, utility and renewable energy
- Automation switchboard applications

# Industrial Plugs and Sockets



Link for more info



## Product overview

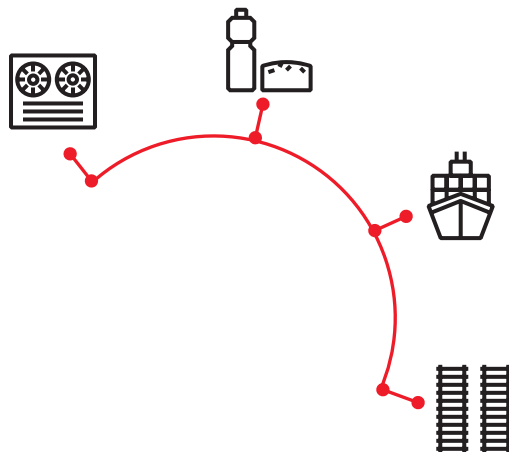
ABB has manufactured industrial plugs and sockets for over 60 years. Long experience of developing and manufacturing plugs and sockets within ABB has resulted in a wide product range of high quality and a robust ergonomic design. Covering products up to 100A and 600VAC, tested and approved according to IEC and UL/CSA standards.

## Features

- Plugs, sockets, inlets, receptacles and mech. interlock
- Up to 600Vac operating voltage
- 3 configurations: 2P3W, 3P4W or 4P5W
- Up to 100A rated
- IP67, IP69 and IP44 rated and certified acc. to UL and CSA
- Robust PBT plastic housing and Valox material
- Double screw connection on poles
- Worldwide certified (including IEC certifications)
- International clock configuration acc. to IEC 60309-2

## Benefits

- Indoor or outdoor installation
- Increased security and reliability
- Large scope of products for all types of applications
- Full compatibility with most of our competitors using the IEC 60309-2 clock standard
- More than 60 years of reliability



## Markets & applications

- Shipyards
- Trainyards
- Airports
- Portable power OEMs
- Movie industry
- Food and beverage
- Data Centre

# Switchboards and Distribution Panelboards



## Product overview

OEM market CSA designed distribution panel interiors can be integrated into their final equipment or to their own branded switchboards and panelboards.

The Tmax Link distribution panel interiors are available with the following ratings:

- Vertical bus bars up to 2000A (1200A for panelboard)
- Short circuit current up to 65kA@600V
- Use the complete range of Tmax MCCBs including the new XT breakers
- Designed to CSA C22.2 No, 244 & No. 29 standards



## Markets & applications

Built for OEMs, the finalized equipment is destined for:

- Industrial
- Commercial
- Niche markets

# Plug-In Distribution Systems



Link for more info

## Product overview

The SMISSLINE TP power distribution bus system provides a versatile and flexible means of distributing power to a wide variety of electrical devices. Ideal for group motor installations and ABB modular DIN rail products.

Individual devices may be turned off and safely removed without turning off power to the whole bus, provided there are properly approved.

## Features

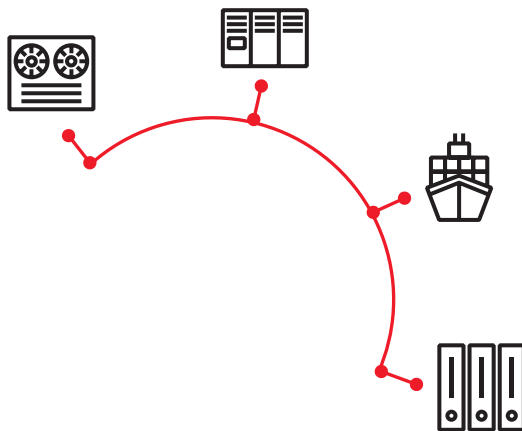
- “Starter kits” available in various busbar lengths
- 125A rated busbars (250A in certification)
- Rated up to 600Vac with 50kA (with main circuit breaker)
- Certified for use in UL508, UL1077 and UL489 applications
- Group motor starting available with dedicated adaptors
- Dedicated 1p circuit breakers (SU400M) clip-on
- Universal adaptors to mount existing line of ST200M and SU200M MCBs
- cULus certified
- Touch-Proof system (IP20)

## Benefits

- Less inventory to manage
- Flexibility and reliability
- Better visual inspection of the product
- No need of PPE to service the equipment under load.
- Easy to use
- Faster installation

## Markets & applications

- OEM and panel shops
- Electrical industrial contractors
- Marine industry (vessels)
- Data Centres



## Control

# Medium Voltage Motor Control Centres



## Product overview

The Limitamp MV motor control centre provides an economical means of centralizing motor starters and related control equipment. It permits motor control starters, feeders, isolator switches, distribution transformers, interlocking relays, programmable control, metering and other miscellaneous devices to be obtained in a single floor-mounted structural assembly fed from a common enclosed main bus.

The Limitamp AR (Arc Resistant) is the solution for applications where an extra margin of protection is essential. It meets the IEEE C37.20.7 standard and provides Type 2B protection for personnel during an arc flash.

## Features

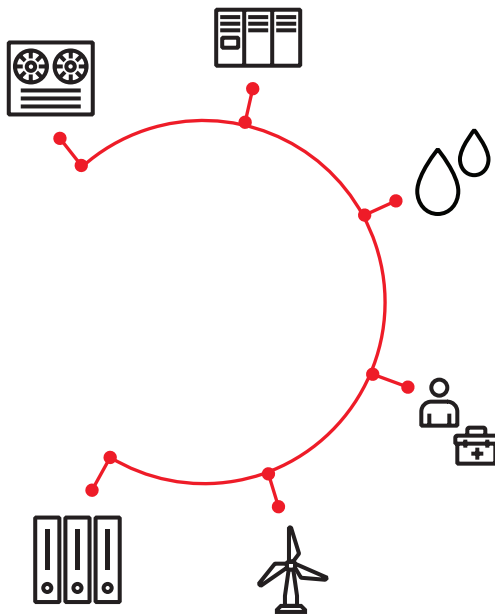
- Main bus: 1200A, 2000A, 3000A
- System voltages: 2400V, 4160V, 4800V, 7200V
- Enclosure types: NEMA 1, 1A, 12
- Drawout and stationary contactors
- Proven, high reliability vacuum contactors (2 million operations)
- Visible blade disconnect switch
- Quick-make / quick-break disconnect switch
- Modular, flexible enclosure construction
- Epoxy insulated bus available
- 1 high and 2 high arrangements
- UL / cUL available on most units
- No rear access required
- Matching line-up with all existing Limitamp installed equipment
- Arc Resistant Type 2B per IEEE C30.20.7 - option

## Benefits

- Dependable performance
- Low maintenance
- Cycle time to support your needs
- Easy coil access and simple contact wear check without contactor removal.
- Light weight, fast and easy change-out
- Full interlocking for optimum safety

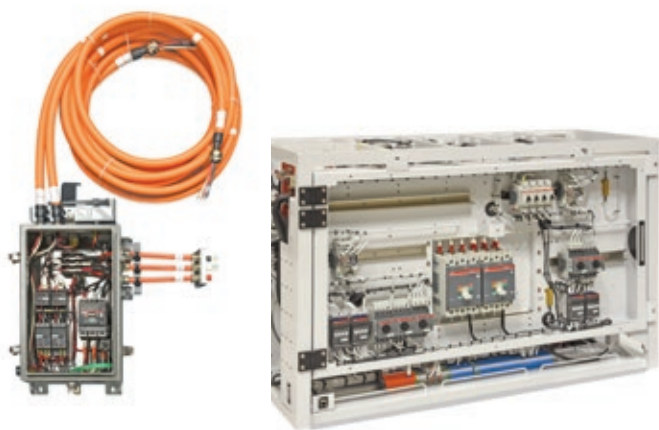
## Markets & applications

- Contractors
- Distributors
- Industrial applications
- Water/Wastewater applications
- Mining





# Custom Control Panels



## Product overview

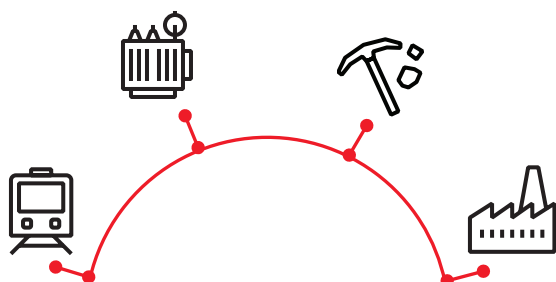
In addition to our full line of standard industrial control starters, we will design and manufacture industrial control panels to your specifications. Our engineering team will work with you during the design process and our production team will manufacture your control panels to the highest quality standards according to your specifications, schedule and budget. You will also get a dedicated project manager who will be your single point of contact.

## Features

- Reduced engineering and order cycle times
- Standardized builds and testing times
- Cost-effective solutions
- Local design and assembly

## Benefits

- Improve safety
- Reduce total cost of ownership
- Lead time reductions
- Increased reliability



## Markets & applications

- Railways
- HVAC
- Mining and metals
- Industrial facilities

# Softstarters



Link for more info



## Product overview

The PSR, PSE and PSTX combine many years of research and product development with extensive knowledge of application specific requirements and needs. It's our latest advancement in motor control and protection and adds new functionality with increased reliability to any motor starting application.

### PSR - The Compact Range:

The two-phase controlled PSR can handle up to 100 starts per hour. Suitable for small motors.

#### Features & Benefits:

- Operational voltage: 208...600 V AC
- Wide rated control supply voltage: 100...240 V AC, 50/60 Hz or 24 V AC/DC
- Rated operational current: 3...105 A
- Soft start/stop with voltage ramp
- Built-in bypass for energy saving and easy installation
- Easy set-up by three potentiometers
- Fieldbus communication with fieldbus plug adapter and the fieldbus plug
- Run and Top of Ramp relays available for monitoring
- Connection kits available for connection to ABB's manual motor starters (MMS)

### PSE - The efficient range:

The two-phase controlled new generation PSE is a true general purpose softstarter. It's a perfect balance between high starting capacity and cost efficiency.

#### Features & Benefits:

- Rated operational current: 18...370 A
- Operational voltage: 208...600 V AC
- Wide rated control supply voltage: 100...250 V AC, 50/60 Hz
- Voltage ramp and torque control for both start and stop
- Current limit, kick-start
- Built-in bypass for energy saving and easy installation
- Coated PCBA protecting from dust, moist and corrosive atmosphere
- Illuminated display that uses symbols to become language neutral
- External keypad rated IP66 (Type 1, 4X,12) as an option
- Built-in modbus-RTU communication for monitoring and control.
- Fieldbus communication
- Analog output for display of motor current
- Electronic overload, underload and locked rotor protection

### PSTX - The advanced range

The three-phased controlled PSTX is our most advanced softstarter with full control and motor protection built-in. PSTX is the most complete alternative for any motor starting application.

#### Features & Benefits:

- Rated operational current: 30 to 1250 A
- Operational voltage: 208 – 690 VAC
- Wide rated control supply voltage: 100 – 250 V, 50/60 Hz (inside-delta: 2160 A)
- Both in-line and inside-delta connection
- Coated circuit boards protecting from dust, moist and corrosive atmosphere
- Detachable keypad rated IP66 (4X outdoor)
- Graphical display with 17 languages for easy setup and operation
- Built-in bypass for energy saving and easy installation
- Built-in Modbus RTU for monitoring and control
- Support for all major communication protocols
- Analog output for measurement of current, voltage, power factor etc.

# Enclosed Magnetic Starters



## Product overview

The enclosed Pro-S starters series offer a variety of models to cover the majority of applications. They're available as across the line, reversing, 2-speed 1 winding, 2-speed 2 winding and single-phase versions. All starters are offered in either a NEMA 1, 4/12 or 4X enclosure and in multiple combination with a fusible disconnect switch, non-fusible disconnect switch or circuit breaker.

## Features

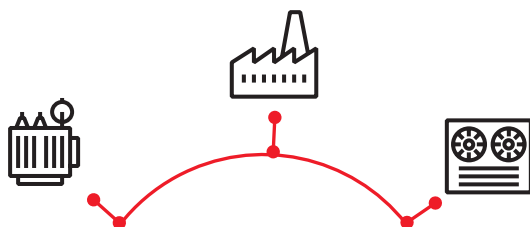
- Integrate the same features as the AF contactors
- Rated operational power up to 125hp 600vac or NEMA size 4
- Modular design for field assembly

## Benefits

- Optimized logistics
- Easy to assemble
- Reliable in all networks
- Secured uptime



Link for more info



## Markets & applications

- Contractors
- HVAC
- Industries
- Machine tool OEM

# Enclosed Starters NEMA



Link for more info

## Product overview

ABB's 300-Line of NEMA rated controls is a complete offering of full voltage non-reversing, reversing, and multi-speed and combination motor starters and contactors. The 300-Line is a proven product for the toughest industrial applications. NEMA Type 1, 3R, 12, 4 and 4X enclosures available.

## Features

- LED Pilot Lights
- 200VA Extra Control Power Transformer
- Quantity 2 Control Relays
- Space Heater
- 12 Point Terminal Board for field wiring
- DIN Rail for field installed components
- Combination of options (for example, Phase Failure Relay & Control Relay)
- Spectra Series Thermal-Mag & Mag-Break Circuit Breakers
- Easy to remove conduit knockouts on type 1 enclosures
- Conduit locators on type 3R, 12, & 4/4X enclosures (no conduit hubs)

## Benefits

- Optimized logistics
- Easy to assemble
- Reliable in all networks
- Secured uptime

## Markets & applications

- OEM's
- Panel builders
- System integrators
- Industries
- Contractors



# Manual Motor Starters



Link for more info



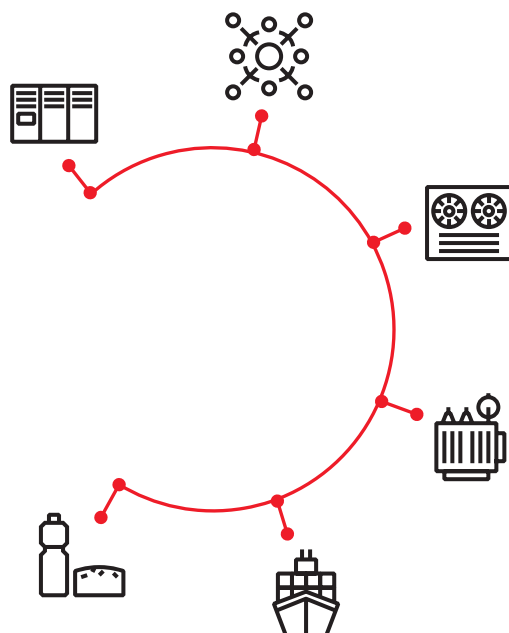
## Product overview

### MS and MO Series

Manual motor starters are electromechanical protection devices for the main circuit up to 80A. They are used mainly to switch motors manually ON/OFF and to provide fuse less protection against short-circuit, overload and phase failures. Starter combinations are setup together with contactors.

### NEMA Series (CR101H, CR101Y, CR1062)

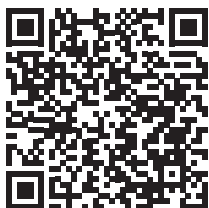
The CR101H and CR101Y manual motor starters provide dependable overload protection for single-phase motors up to one horsepower (115 or 230 Volts), and are the most economical starter choices where undervoltage protection is not required. CR1062 series of manual starters are designed for infrequent starting of single-phase and polyphase motors up to ten horsepower on applications where they can be directly operated.



## Markets & applications

- Panel builders
- System integrators
- OEMs
- HVAC
- Critical power (GenSets)
- UPS
- Marine
- Food and beverage

# Contactors



Link for more info



## Product overview

ABB now offers a complete IEC/NEMA contactor product line up to 2850A.

### AF Series

Featuring AF technology as standard, the latest range of ABB's contactors establish a new industry benchmark. The electronically controlled coil offers multiple benefits over conventional alternatives, and together with ABB's wide product offering an optimal configuration, every time.

### NEMA Series (CR305/CR385)

ABB's NEMA magnetic contactor is designed for use on today's modern equipment. Especially suitable for handling the switching of resistance heating and capacitor circuit loads, their compact size also fits the needs of the panel building industry. In addition, they may be used for controlling ac motors where overload protection is provided separately.

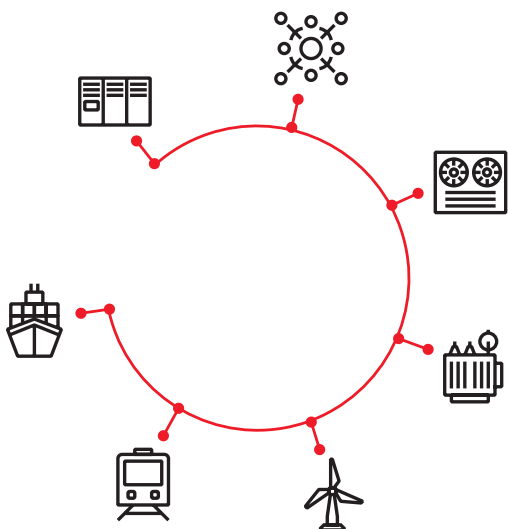
### Lighting Contactors (CR460)

CR460 Series lighting contactors deliver unprecedented versatility in application, simplicity in configuration and performance in operation. Ingenious design, rugged construction and a host of truly useful features make them uniquely appealing to all those who use them.



### Mini Contactors (B & M Range)

Mini contactors are ideally suited for applications where reliability is a must and space is at a premium. The dimensions, technical features and the variety of the assortment provide customers a high flexibility in a wide range of applications. Its small sizes and safe connections allow for compact panel design even in extreme conditions.

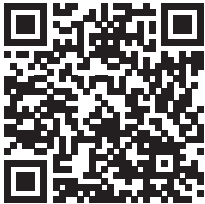


## Markets & applications

- Panel builders
- System integrators
- OEMs
- HVAC
- Renewable energy
- Critical power (GenSets)
- UPS
- Railway
- Marine
- Food and beverage
- Industrial/ Commercial markets



# Motor Management System



Link for more info



## Product overview

The UMC100.3 is a flexible, modular and expandable motor management system for constant-speed, low-voltage range motors. Its most important tasks include motor protection, preventing production down time.

## Features

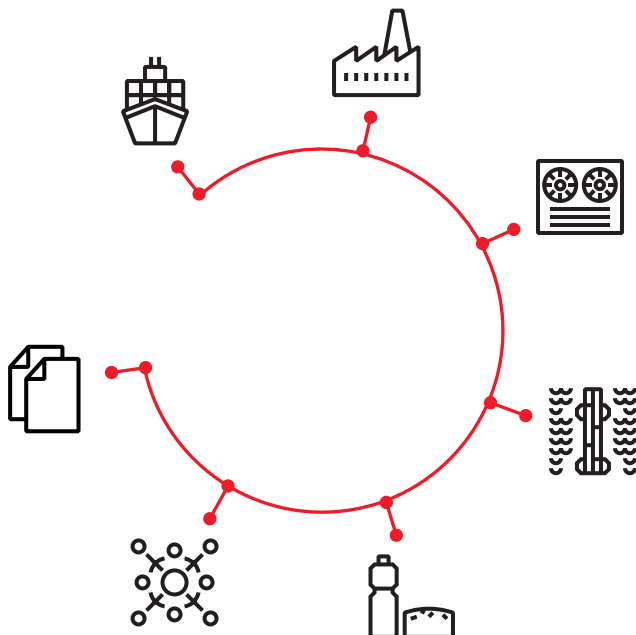
- Motor protection functions: over-/underload, over-/ undercurrent, over-/undervoltage, locked rotor, phase failure/ imbalance/sequence, earth fault detection integrated or with external sensor CEM11, hot motor protection with thermistor or temperature measurement
- Motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode, softstarter mode
- Programmable application specific logic with function blocks
- Service and diagnostic data: operating hours, number of motor starts and overload trips, energy, standstill and operation hour supervision, motor status, faults and warnings, fault history (16 events), motor current, phase voltages, thermal load, power factor, active power, apparent power, energy, total harmonic distortion (THD)
- Integrated I/Os: 6 digital inputs, 1 PTC input, 4 digital outputs
- Ethernet/IP™, Modbus TCP, Modbus RTU, Profinet and Profibus. Communication available

## Benefits

- High plant availability

## Markets & applications

- Panel builders
- System integrators
- OEMs
- Renewable energy
- HVAC
- Food and beverage
- Critical power
- UPS
- Marine



# Overload Relays



Link for more info



## Product overview

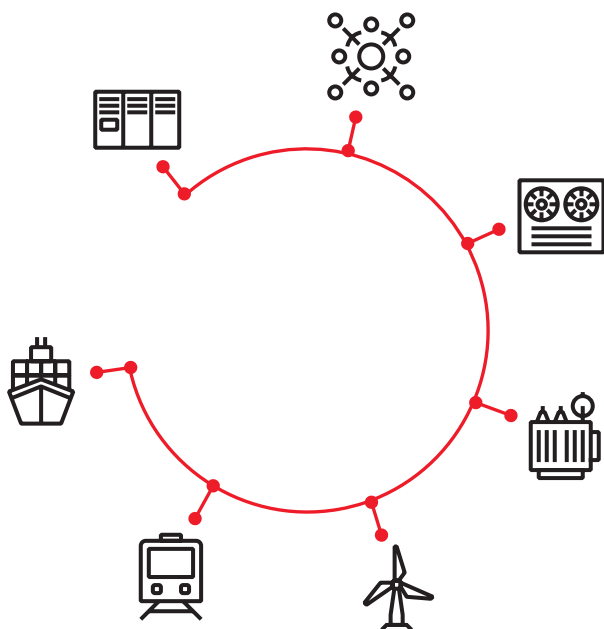
Electronic and thermal overload relays for the AF, B and M range offer reliable and precise protection for motors in the event of overload or phase failure. The electronic overload relay can make up a compact starting solution together with contactors.

## Features

- Electronic overload relay with selectable trip class (10E, 20E, 30E)
- Adjustable current setting ranges
- Overload protection with phase loss sensitivity
- Operating temperature up to +70°C and self-compensated
- Automatic or manual reset, sealable
- Stop and test function

## Benefits

- Reliable protection for motors
- Easy to create starters
- Optimized match to ABB contactors
- Reduced logistic costs and improved designed by three trip classes in one device
- Single mounting kit and wire for remote reset



## Markets & applications

- Panel builders
- System integrators
- OEMs
- HVAC
- Renewable energy

# Electronic Timers



Link for more info

## Product overview

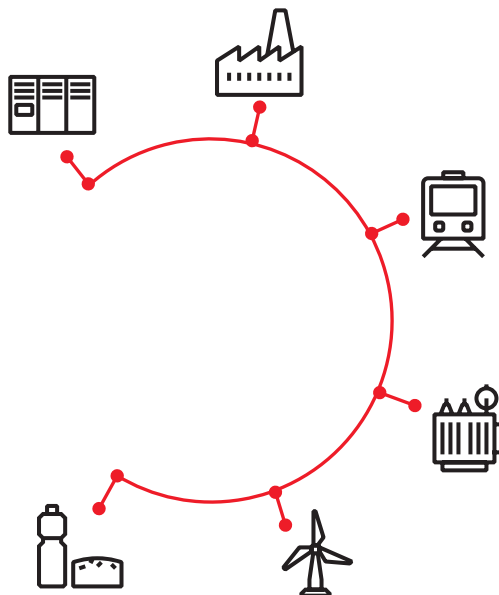
The highly sophisticated CT-S range is our most modern and universal range of electronic timers. It includes 24 single-function devices and 16 multifunction timers with up to 11 functions offering the highest flexibility in operation. The devices feature 7 or 10 time ranges which are adjustable from 0.05 seconds to 300 hours.

## Features

- Worldwide approvals
- Two connection technologies are available
- Remote potentiometer connection
- Complete tool free mounting and demounting on the DIN rail
- 2 c/o contacts
- Integrated marker label

## Benefits

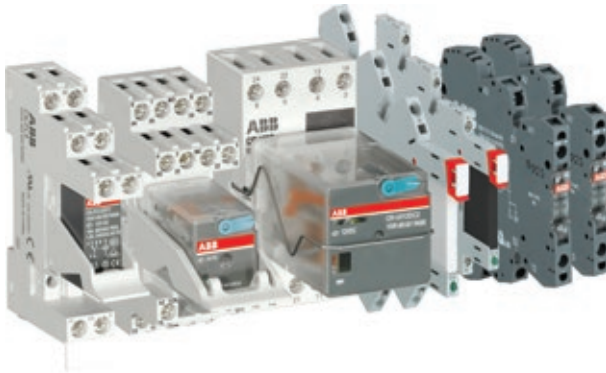
- Push-in spring connection withstands highest vibrations
- Save time with ease of adjustment
- Wide range of timers to meet your specific needs
- Save time on wiring with the double-chamber terminals
- Worldwide availability



## Markets & applications

- Panel builders
- System integrators
- OEMs
- Renewable energy
- Railway
- Food and beverage

# Interface Relays and Optocouplers



Link for more info

## Product overview

Interface relays and optocouplers ensure a reliable voltage conversion between process peripherals and higher-level control systems. For all types of machinery, our relays ensure reliable signal switching and provide electrical isolation for your sensitive electronics such as PLCs. The wide variety of pluggable interface relays with standard or logic sockets can be used for switching AC or DC loads.

## Features

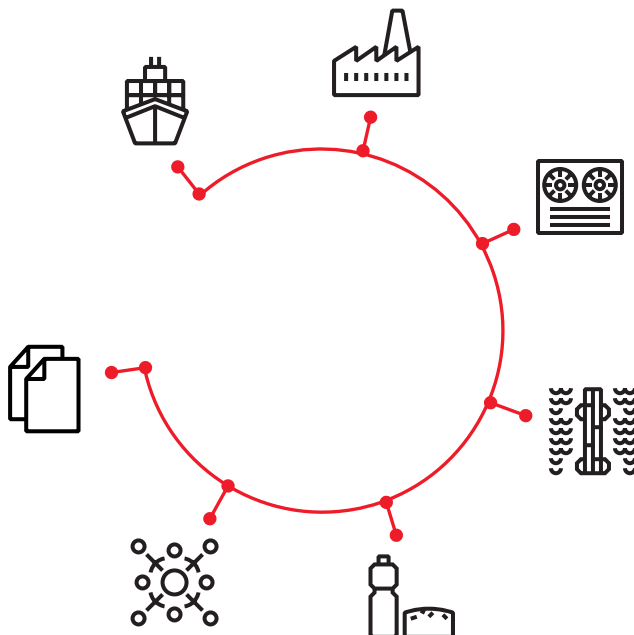
- Coil voltages from 5 V DC up to 230 V AC
- Up to 16 A contact ratings
- Up to 4 output contacts
- Pluggable function modules such as RC elements available
- Integrated test button for manual operation
- Gold plated contacts available for lowest contact resistivity
- Environmentally friendly thanks to cadmium- and lead-free material selection and production (e.g. for ROHS requirements)

## Benefits

- Safe and reliable voltage conversion
- Highest contact ratings
- Pluggable function modules for highest application requirements

## Markets & applications

- Panel builders
- System integrators
- OEMs
- Renewable energy
- HVAC
- Food and beverage
- Critical power
- UPS
- Marine



# Limit Switches



## Product overview

Limit switches are electro-mechanical devices. The contacts are mechanically linked to an actuator. By combining different types of actuators, casings and contacts, our limit switches are perfectly suited for a large variety of applications and environments.

## Features

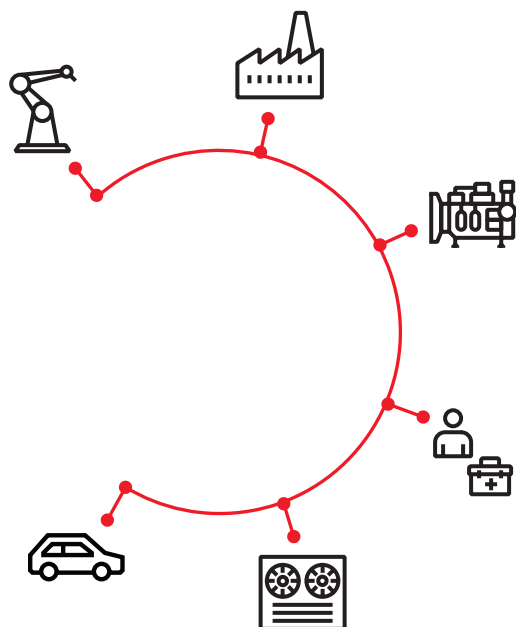
- Plastic or metal casing, NEMA 1
- Able to switch strong current up to 10 A
- Mechanical durability up to 10 million operations

## Benefits

- Reliable operations
- Visible operations
- Each application gets the right limit switch



Link for more info



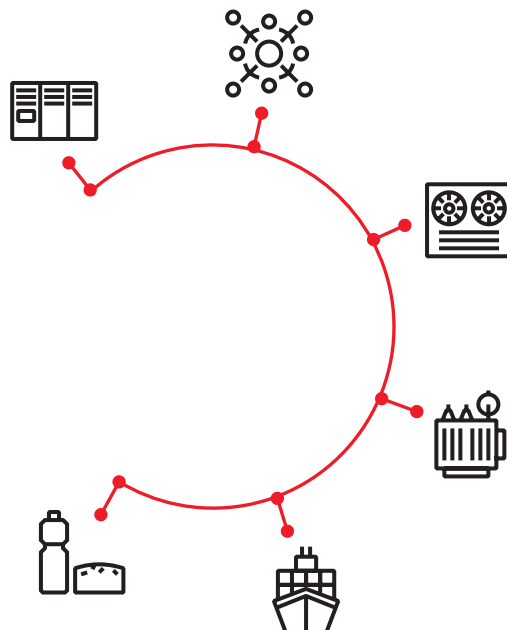
## Markets & applications

- Cranes
- Ramps
- Elevators, escalators
- Parking barriers
- Automatic doors
- Machine tools
- Manufacturing lines

# Pilot Devices



Link for more info



## Product overview

### Modular Plastic Range

ABB pilot devices are engineered for total reliability. Our products are tested to extremes and proven in the toughest environments. Their innovative design simplify the entire process, from selection to installation. Enclosures, signal towers and signal beacons complete the portfolio.

### NEMA Pilot Devices 30mm (CR104P)

Especially adapted to machine-tool service or any application where oil or coolant is present. The convenient one-hole mounting makes this line suitable for general-purpose use in equipment of all kinds where panel mounting is possible. This line is ideal for applications where oil-tightness, water-tightness and long life are essential.

### P9M Modular metal range 22mm

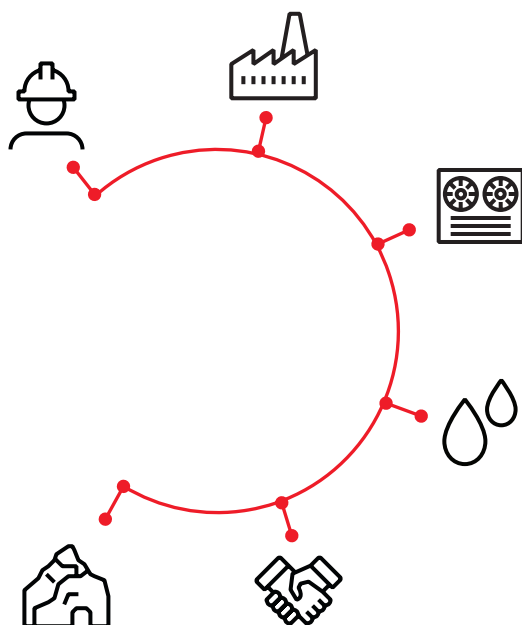
P9M is a metal modular range, to the pilot device portfolio of ABB which is addressing requirements in selected markets. ABB's modular metal range combines ultimate reliability with the total flexibility of a modular range. For mining, construction and heavy industry applications, find the right solution here.

## Markets & applications

- Panel builders
- System integrators
- OEMs
- HVAC
- Critical power (GenSets)
- UPS
- Marine
- Food and beverage



# Test Switches



## Product overview

Test switches are designed and manufactured to allow quick and easy multi-circuit testing of switchboard relays, meters and instruments by any conventional system.

## Features

- Clear covers that allow for easier visual check on switch status
- Colored switch handles to simply identify circuits
- Rear extended switches for easier, faster access to wiring points
- 14-pole and 19" wide rack mounted test switches (FT-14 and FT-19R) to save space and installation time
- Patented 3D white lettering on the front, and 3D white numbering on the rear of the test switch which allows for easier identification of poles
- Comprehensive family of test plugs including SafePlug™- individual current test plug with open CT protection.
- Online configurator to create and easily order your own, customized switch - [spine.abb.com/ftswitch](http://spine.abb.com/ftswitch)
- FT-1 and FT-14 meet Ingress Protection IP41 for protection against dripping water from the front with shallow clear and black covers installed. FT-1 and FT-14 meet Ingress Protection IP2X for finger safety at the product rear
- FT-1 and FT-14 are RoHS compliant

## Benefits

- Possible to test components and circuits without disconnecting existing wiring
- Standard screw type terminals (optionally stud and nut)
- Secure testing with good isolation between the terminals

## Markets & applications

- Contractors
- Distributors
- Utilities
- Water/wastewater
- Data Centres
- Industrial
- Mining

# Power Supplies



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Link for more info

## Product overview

The CP-C.1 power supplies are ABB's high-performance and most advanced range. With excellent efficiency, high reliability and innovative functionality, it is prepared for the most demanding industrial applications. These power supplies have a 50 percent integrated power reserve and operate at a high efficiency up to 94 percent. They are equipped with overheat protection and active power factor correction.

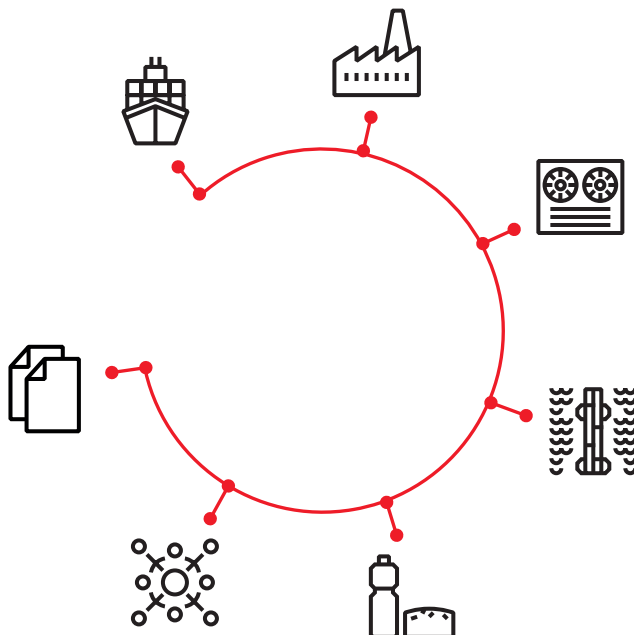
Combined with a broad AC and DC input range and extensive worldwide approvals, the CP-C.1 power supplies are the preferred choice for professional DC applications. Giving the power to control.

## Features

- 24 V DC output voltage
- Power reserve delivers up to 150 percent at  $T_a \leq 40^\circ\text{C}$
- Output voltage adjustable from 22.5 to 28.5 V via front-face rotary potentiometer
- 100-240V AC, 90-300V DC input voltage range
- High efficiency up to 94 percent
- Low power dissipation and low heating
- Free convection cooling (no forced cooling)
- -25 to +70 °C ambient temperature range during operation
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- DC OK - signaling output relay, power reserve signaling output transistor

## Benefits

- Power reserve and switching of high peak currents keep your application running
- High efficiency of up to 94 percent leads to less energy consumption thus saving money and space while avoiding development of heat
- Reliable in harsh environments due to application under extreme temperatures conditions



## Markets & applications

- Panel builders
- System integrators
- OEM's
- Renewable energy
- HVAC
- Food and beverage
- Critical power
- UPS
- Marine

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**07**

## **Power Protection & Monitoring**

# Protection and Control Relays



## Product overview

The Relion® product family offers a full range of native IEC 61850 products for the protection, control, measurement and supervision of power systems.

## Features

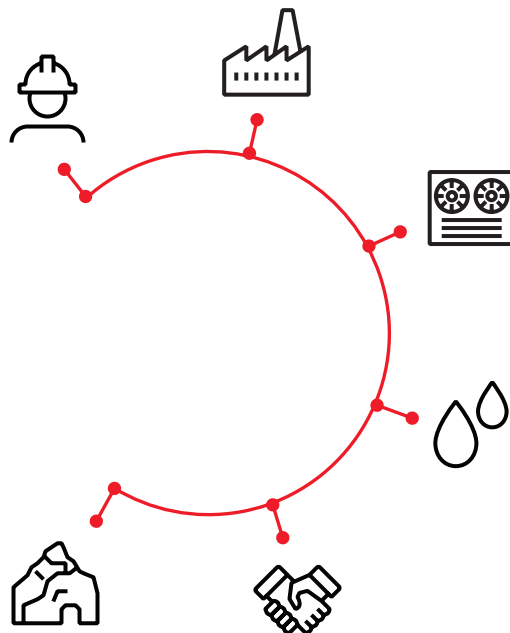
- Self-checking facility
- Low burden relays improve accuracy
- Fast fiber optical communication with standard LAN
- Adaptive relaying schemes
- Permit storage of historical data
- Time stamping
- HSR and PRP-1 with fiber-optic redundant Ethernet
- IEC 61850-9-2 LE and IEEE 1588 V2 with fiber-optic redundant Ethernet
- Report summary via WHMI and other enhancements

## Benefits

- Provide continuity of power to consumers
- Protection of network assets
- Protection against life-threatening electrical incidents

## Markets & applications

- Contractors
- Distributors
- Utilities
- Water/Wastewater
- Data Centres
- Industrial
- Mining



# Smart Substation Control and Protection

## Centralized protection and control for distribution substations



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Link for more info

### Product overview

SSC600 represents a new approach to protection and control in distribution networks – centralizing all protection and control functionality in one single device on substation level. It is our promise for the future, IEC 61850-compliant and ready to change with the evolving grid, to support optimal asset management for the entire lifetime of the digital substation.

### Features

- IEC 61850-compliant communication and interoperability between substation automation devices
- Centralized protection and control in one single device for up to 20 feeder, motor and transformer bays
- Comprehensive Web HMI (human-machine interface) including station-wide HMI functionalities
- Disturbance recordings for the entire substation
- IEC 61850-3-certified with inbuilt redundancy and self-supervision
- Extensive digital services throughout the substation's entire lifecycle

### Benefits

- Centralized protection and control in one single device for reduced network complexity
- Easy and efficient process management with station-wide process visibility
- Extensive application coverage with one device for flexibility and optimal cost-effectiveness
- Fully modular software for maximum flexibility throughout the substation's entire life cycle
- Fast, easy and cost-effective substation system upgrade with centralized protection and control solution for changing network protection requirements
- Designed to support the increasing digitalization of substations



### Markets & applications

- Utilities
- Industrial applications

# Fault Current Limiters



## Product overview

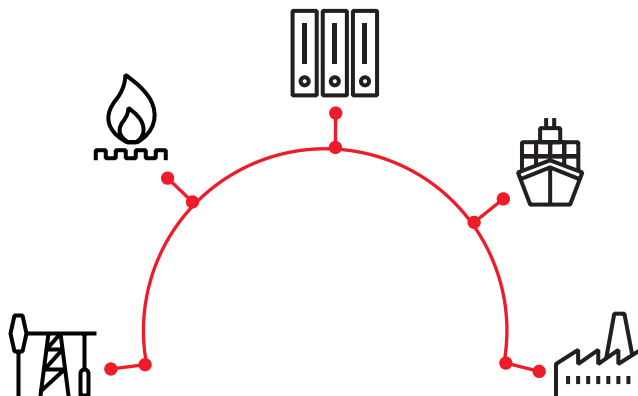
This individual fault current limiter solution meets the highest requirements for all critical and complex applications resolving all short-circuit challenges in existing and newly installed networks.

## Features

- Individual solution – available as loose components and fully type tested switchgear covering low and medium voltage ratings up to 40.5 kV, 5000 A and 210 kA rms breaking capability
- Selective fault current limitation in complex systems with several interconnected Is-limiters
- Proven technology available for marine applications, offshore and moving vessels verified by relevant certificates
- Very high adjustability and flexibility to adapt to later system changes.

## Benefits

- Immediate fault current interruption before the first current peak is reached based on continuously monitoring of the instantaneous current and the rate of the current rise ( $di/dt$ )
- Optimized protection concept by extended tripping criteria providing highest stability with regard to unnecessary tripping
- Project related detailed engineering according to project specification
- Selective tripping in predefined areas of the network minimizing operational impacts on the remaining unaffected network
- Realization of highly sophisticated applications through our well experienced engineering team



## Markets & applications

- Utilities
- Oil & Gas
- Data Centers
- Marine
- Industrials



# Arc Fault Detection Systems



Link for more info

A fast and selective arc fault mitigation for air-insulated low voltage and medium voltage switchgear is a natural constituent of modern switchgear panels and a safety and security investment for older switchgear panels to protect human lives and prevent or reduce material damage.

## Product overview

The function of the REA arc fault protection system is based on detecting the intense light of an arc flash alone or on a detection of arc flash light and

simultaneous phase or neutral overcurrent. On detection of an arc fault, the REA arc fault protection system delivers trip commands in less than 2.5 ms to all circuit breakers that feed the fault zone. Furthermore, the operation indicators of the REA arc fault protection system guide the maintenance staff to quickly localize the fault zone.

## Features

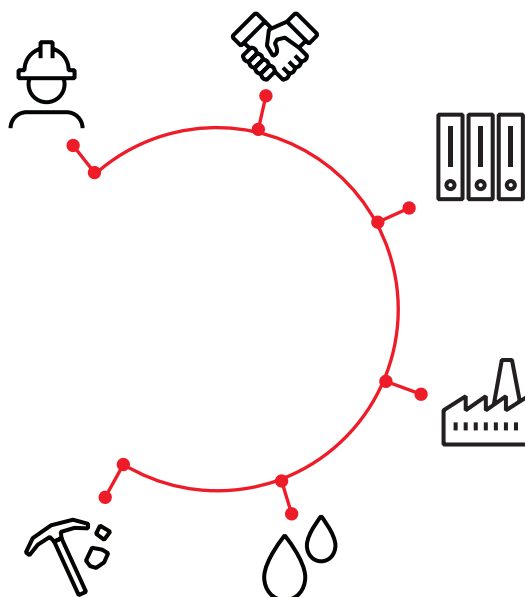
- Enables redundant, instantaneous and fail-safe arc fault protection
- Arc flash detection (AFD) based on fiber-optic light sensors
- Integrated fast overcurrent detection to secure nuisance-free trip decision
- Fiber-optic sensors can be used as supervised fiber loops or radial fibers, also lens type sensors available

## Benefits

- Minimizes material damage, increases operating personnel safety and allows smooth power restoration

## Markets & applications

- Contractors
- Distributors
- Utilities
- Data centers
- Industrial applications
- Water/ Wastewater
- Mining



# Arc Flash Detectors



Link for more info



## Product overview

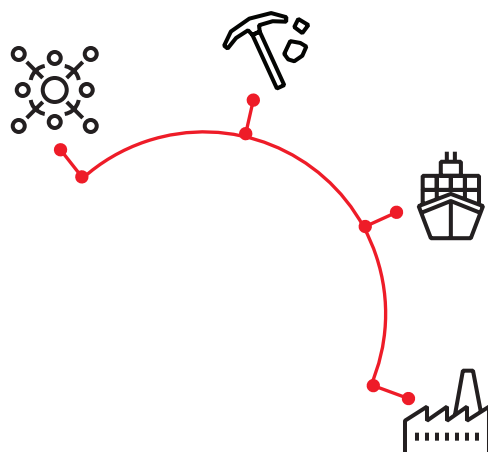
For the past 35 years, ABB is the leader in arc guard technology. Experience from the highly appreciated TVOC is built into the new TVOC-2, a product for protection of people and property when having an electric arc.

## Features

- Certified according to functional safety (SIL2) standard
- Pre-calibrated optical sensors
- Expandable up to 30 optical sensors
- Easy configuration
- Din-rail or wall-mounted
- Modbus RTU ready
- cULus certified current sensing

## Benefits

- Reliability
- Flexibility
- Simplicity
- Increase safety



## Markets & applications

- System integrator
- Mining
- Marine
- Industrial facilities

# Ultra-Fast Earthing Switches



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Link for more info

## Product overview

The Ultra-Fast Earthing Switch UFES is a safe and effective combination of specific arc detection relays and an associated arc quenching device consisting of the so-called primary switching elements (PSE). In case of an internal arc fault the arc detection relay trips the UFES PSE, which initiate a three-phase earthing to break the arc voltage immediately. The extremely short switching time of the PSE, less than 1.5 ms, in conjunction with the rapid and reliable detection of the fault, ensures that an occurring arc flash is extinguished in less than 4 ms after its detection.

## Features

- Arc flash extinction in less than 4 ms, 20 times faster compared to standard arc protection
- Arc detection by means of optical sensors and current measurement
- Available for switchgear ratings up to 40.5 kV and 100 kA

- Easy integration into new and existing low- and medium-voltage systems
- Combinable with different arc detection devices, including REA, TVOC-2, Relion or non-ABB devices
- Available as individual components and fully type-tested switchgear solutions

## Benefits

- Greatly increased operator safety due to ultra-fast arc mitigation
- Minimized damage of electrical equipment and environment
- 98 percent reduction of downtime and repair costs
- 20 times faster than standard arc fault protection - reduces pressure level allowing active arc fault protection concepts, e.g. where gas ducts are not applicable
- Possible reduction of personal protective equipment (PPE) category according to NFPA 70E
- 0 percent toxic gases release due to effective reduction of arc duration



## Markets & applications

- OEMs
- Industrial
- Commercial
- Institutional

# Surge Protection Devices



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Link for more info

## Product overview

ABB Surge protective devices are designed to protect against transient surge conditions. Large single surge events, such as lightning and load switching, can reach hundreds of volts and can cause immediate or intermittent equipment failure. Joslyn SPDs are designed to protect against those events.

## Features

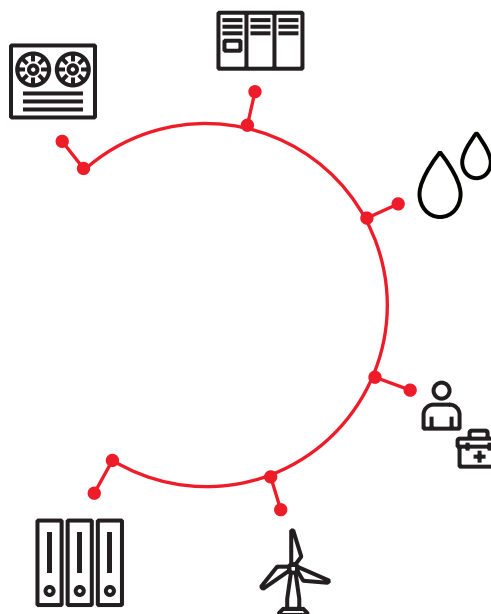
- Type 1, 2 3 and 4 SPDs available up to 400kA protection level per phase
- Up to 600Vac operating voltage
- UL1449 3rd edition and CSA approved
- NEMA 4 enclosed device
- EMI filter, surge counters, dry relay contacts and audible alarm options
- 5 years warranty
- Worldwide certified (including IEC certifications)
- Made in USA

## Benefits

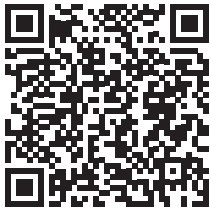
- Indoor or outdoor installation
- Increased security and reliability of the distribution network
- Large scope of products available for all types of applications
- Reduced downtime due to transient failures replacement of unprotected units
- More than 60 years of reliability

## Markets & applications

- OEM and panel shops
- Electrical industrial/commercial and residential contractors
- Wastewater, healthcare, renewable energy and transportation applications
- Data Centres applications



# Residual Current Devices



Link for more info

## Product overview

A ground fault equipment protector is a device intended to provide protection of equipment against damaging line-to-ground currents by disconnecting all ungrounded conductors of the faulted circuit. By adding a ground fault equipment protector (GFEP) to the system, ground faults are detected immediately, preventing serious damage.

## Features

- Type A and AC units for AC currents or AC currents with DC components
- Up to 480Y/277Vac operating voltage
- 1P+N or 3P+N configurations
- Available with overcurrent protection (DS951 series)
- Installation in applications up to 100A
- Up to 500mA detection level (10mA the lowest)
- Left or right positioned toggle
- Worldwide certified (including IEC certifications)

## Benefits

- Elimination of hazardous ground current leakage
- Increased equipment protection
- Reliable internal CT for accurate measurements
- Reduced downtime due to replacement of unprotected units



## Markets & applications

- Trainyards
- Airports
- Portable power OEMs
- Motion picture industry

# Circuit Monitoring Systems



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Link for more info

## Product overview

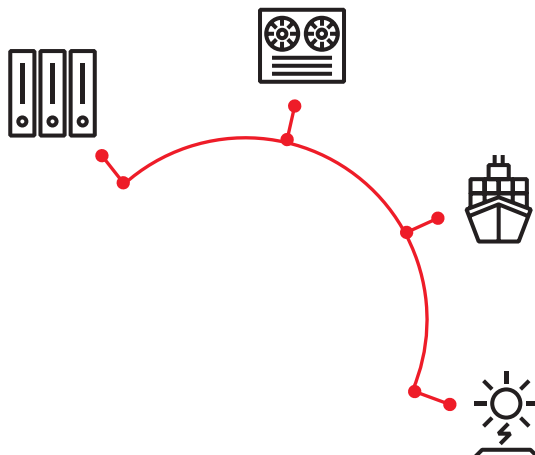
Using CMS-700 it is possible to measure and calculate electrical parameters from both the mains and the branches, in order to provide the most comprehensive set of information on the system. A maximum of 3x32 sensors can be connected to the CMS-700, allowing to simultaneously obtain AC and DC current as well as active energy from up to 96 branches. At the mains side, the control unit allows to access the complete set of measurement data.

## Features

- Current sensing up to 160A in both AC and DC using Hall effect sensors (open core sensors)
- Direct MCB or cable mount (using cable tie) of the sensors
- Main control unit allowing connection up to 96 sensors
- Integrated web user interface
- Modbus / Ethernet communication ready
- Up to 277Vac on branch measurements
- Compact size and DinRail mounted
- cULus listed
- Worldwide certified

## Benefits

- Clear visibility of energy consumption at branch level
- Easy retrofitting and upgrades
- Maximum reliability and security thanks to encryption
- Simplified installation and commissioning
- One sensor for all types of currents



## Markets & applications

- Data Centres
- OEMs
- Electrical industrial/commercial contractors
- Marine and solar industries



# Monitoring Relays



Link for more info

## Product overview

Monitoring relays guarantee reliable operation of an installation by responding quickly to occurring failures. The status is immediately forwarded to the control unit. This way, dangerous situations are detected as they are coming up and faults can be measured and treated with corresponding short response times.

## Features

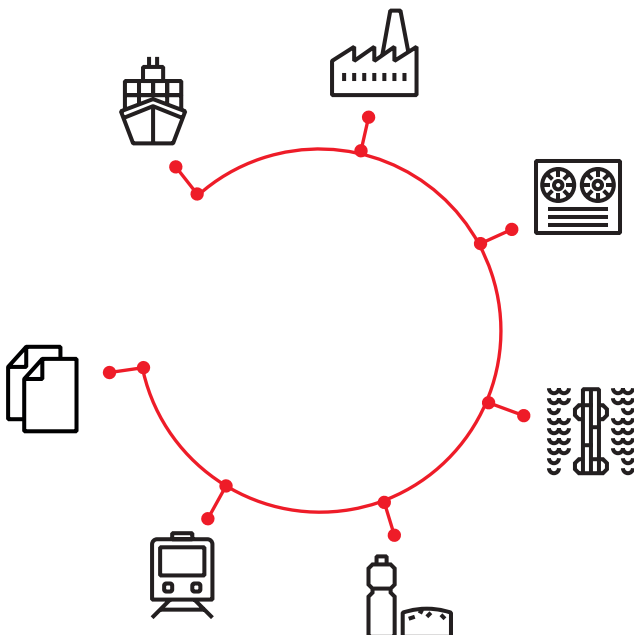
- Single-phase current and voltage
- Three-phase voltage
- Insulation
- Grid feeding
- Liquid level
- Thermistor
- Temperature

## Benefits

- Process control and protection
- Push-in spring connection withstands highest vibrations
- Save time with ease of adjustment
- Wide range of monitors to meet your specific needs
- Save time on wiring with the double-chamber terminals
- Worldwide availability

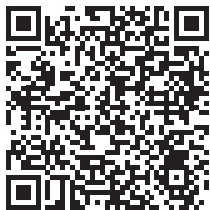
## Markets & applications

- Panel builders
- System integrators
- OEM's
- Renewable energy
- Railway
- Food and beverage
- UPS
- Marine



## Critical Power

# Active Voltage Conditioners PCS100 AVC-40



Link for more info

## Product overview

Industries in developed countries, with modern power networks, are not immune to voltage problems. Although utilities endeavor to supply reliable, high-quality power, voltage sags and surges will continue to be a fact of life.

The PCS100 AVC-40 is an active voltage conditioner. It is a high-performance power electronic system designed for industrial and large commercial applications. It responds instantly to power quality events, providing continuous regulation of voltage. With high power capacity, the PCS100 AVC-40 is the perfect solution for industrial loads using significant power as well as large commercial buildings where continuity of service is paramount. The PCS100 AVC-40 is designed to target voltage sag events while also providing protection against swells. Sag events are the major cause of lost production.

## Features

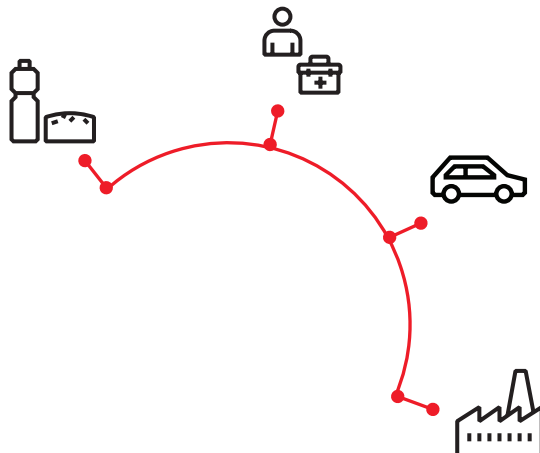
- No energy storage used
- Very high efficiency of >98 percent
- Designed for demanding process loads
- Internal bypass

## Benefits

- Reduce the cost of voltage sag events
- Improve the plant operation
- Faster return on investment
- Reduce damage to the process equipment

## Markets & applications

- Food and Beverage (bottling, packaging, dairy process)
- Pharmaceutical (batch process, climate control)
- Automotive (welding, coating, painting)
- Continuous manufacturing processes



# Medium Voltage UPS PCS120 MV UPS



## Product overview

The space and electrical power needed to run a large critical power facility have increased over the past decade. Facilities are now faced with the need for energy efficient and reliable power as it is essential to have clean, continuous power to avoid any major losses standard grid supply and converts it to the desired frequency and voltage using static technology meaning there are no large moving masses using an efficient proven platform.

PCS120 MV UPS is the next generation of medium voltage UPS intended for multi megawatt power protection. Based on the ZISC architecture, the PCS120 MV UPS introduces a flexible solution for higher reliability and efficiency in critical power installations.

The transition from low voltage (LV) to medium voltage (MV) level is a natural progression of power protection for large critical power installations. The approach offers two main benefits. It increases reliability and reduces costs of the critical power facility build and operation.

## Features

- Class leading efficiency of 98 percent
- High fault clearing capability
- Broad voltage range
- Paralleling up to 22.5MVA in a single MV UPS system

## Benefits

- Highley available continuous clean power
- Centralized power protection system
- Optimized operating costs

## Markets & applications

- Datacenters
- Semiconductor FABs
- Continuous process industrial facilities



Link for more info



# Three Phase Uninterruptible Power Supplies (UPS)

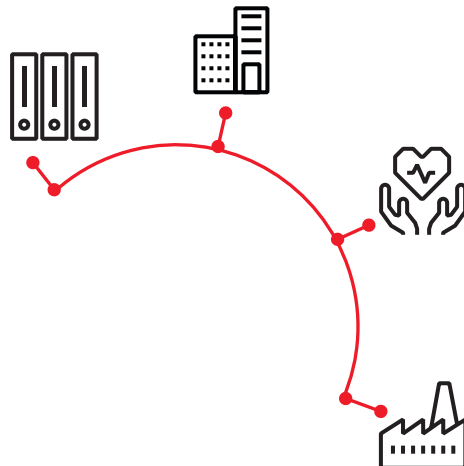
## ABB TLE: Transformerless Technology & Best-in-Class Efficiency



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Link for more info

### Product overview

The TLE Series UPS brings the latest power conversion technology to the marketplace, using a three-level inverter design and a multimode architecture that makes real-time decisions between premium protection and premium efficiency mode. The TLE Series UPS was developed using Six Sigma (DFSS) methodology to ensure that the product meets customer requirements for reliability and quality.



ABB's TLE Series UPS is one of the most energy efficient double-conversion UPS in the industry and provides world-class energy efficiency across the operating load range. The TLE Series delivers efficiency up to 96.5 percent in double conversion mode and 99 percent in eBoost operating mode. This system efficiency substantially reduces operating and cooling costs thus providing a reduced cost of ownership and improved power usage effectiveness (PUE) compared to conventional UPS. ABB's UPS performance is optimized at 50-75 percent load operation, as this is the most common operating range.

### Features & Benefits

#### ABB Technology at Its Best

- Highly reliable and efficient tri-level conversion.
- Automatic or manual multimode generation.

#### "Best of Both Worlds" Operating Efficiency

- Up to 99 percent premium efficiency mode (filtered eBoost).
- Up to 97 percent premium protection mode (double conversion).

#### Electrical Environment Optimization

- Unity (1.0) Output Power Factor.
- High (0.99) Input Power Factor.
- Less than 5 percent Input Current Harmonic Distortion.

#### Physical Environment Optimization

- Small footprint.
- Front access only design for maintenance.
- "Cable saver" design to allow +/- 25 percent differential of cable lengths between the output parallel modules.

#### Markets & applications

- IT / Server Rooms
- Data Centers
- Building Infrastructure
- Healthcare and Medical
- Light industries

# Three Phase Uninterruptible Power Supplies (UPS)

## MegaFlex: The best and most reliable high-power density UPS



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Link for more info

### Product overview

The on-line double conversion MegaFlex provides the best power protection for critical infrastructure from 1200 kW to 1600 kW. This monolithic UPS is specifically designed for critical high-density computing environment across private and public enterprise, as well as data centers collocation, hosting clouds and telecommunication centers.

Technology based on ABB redundant parallel architecture (RPA) allows parallel arrangements, eliminating any “single point of failure” with true redundancy. RPA reduces operating footprint and provide a scalable approach that increase system reliability. It also eliminates the need for external paralleling equipment or centralized bypass and master control.

The ABB MegaFlex delivers up to 97 percent efficiency in double conversion mode and 99 percent in eBoost operation mode. The system efficiency substantially reduces the cost of ownership and provide more effective power usage than conventional UPS.



### Features & Benefits

#### Flexible approach

- Capacity from 1200 kW to 1600 kW, using core power blocks of 400 kW.
- Redundant parallel architecture with distributed static bypass.
- Multimode ready offering: N+1, 2N, 2N+1, N+N, 3N/2 and a redundant catcher design.

#### Reliable operation

- RPA technology eliminates “single point of failure” in parallel systems.
- Ease of operation and remote real time monitoring.

#### Simple Installation and serviceability

- Front and top service access.
- Modular subassembly for ease of service and low MTTR.
- Consumable parts design life up to 15 years.

#### Ultimate space savings

- Market leading power density.
- Up to 40 percent footprint savings inside high density computing rooms.

#### Optimize energy efficiency

- Minimized energy losses, heat dissipation and electrical costs in double conversion, up to 97 percent.
- High energy efficiency operation in eBoost mode, up to 99 percent.

#### World class innovation

- Proven technology from world-leading R&D experts.
- Power conversion technology for high-power density.
- eBoost (VFD) mode for premium efficiency.

#### Markets & applications

- Data centers
- High power density applications



# Single Phase Uninterruptible Power Supplies (UPS)

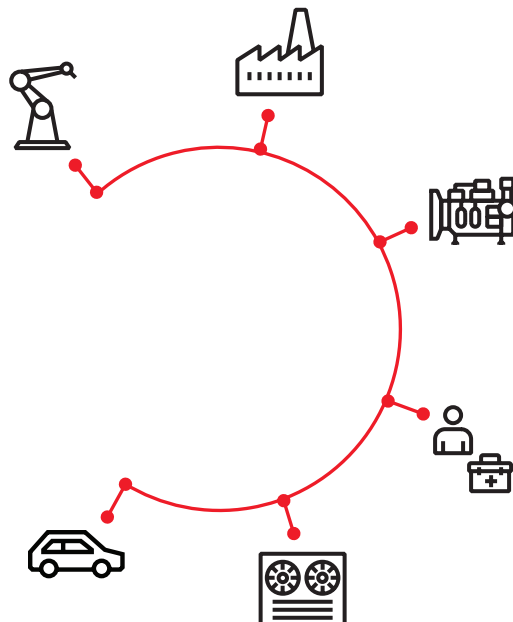
## PowerValue 11RT G2 1-3 kVA UL: The single-phase UPS for critical applications



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Link for more info

### Product overview

ABB's PowerValue11RT G2 is a double-conversion online UPS that guarantees clean, reliable power for your critical single-phase applications. As well as maintaining power to your servers, point-of-sale terminals, workstation clusters, routers, switches, hubs and sensitive electronic equipment, the PowerValue11RT G2 also conditions incoming power to eliminate spikes, swells, sags, noise and harmonics.



The PowerValue11RT G2 can be used as a standalone UPS device or installed into a standard 19" rack configuration, with connectivity options available for each. All units can be fitted with up to six battery modules to extend runtime.

### Features & Benefits

#### High reliability

- Reliable double conversion topology protects load from all input disturbances.
- Batteries can be added or replaced easily.
- Reduced recovery time from discharge.

#### Low cost of ownership

- Unity or close to unity power factor (kW = kVA).
- Scalable runtime.
- High operating efficiency, regardless of loading.
- Reduced installation and upgrading costs.
- Compact design.

#### Flexible design

- Configurable in tower or rackmount format.
- A rotatable display.
- UPS can be connected with up to six external battery modules (EBMs) for extended runtime.
- Full set of accessories and connectivity options.

#### Efficient service concept

- Easy set-up and maintenance (plug-and-play).
- User-friendly display.
- Hot-swap user-replaceable internal batteries.

#### Markets & applications

- Small IT room
- Building Infrastructure
- Contractor
- Distributor
- Commercial

# Static Frequency Converters PCS100 SFC



## Product overview

Around the world there are many different power systems, while different voltages can easily be rectified, changing frequency typically from 50 Hz to 60 Hz or vice versa is much more difficult. The PCS100 Static Frequency Converter is the ideal solution for addressing that exact issue, it takes the standard grid supply and converts it to the desired frequency and voltage using static technology meaning there are no large moving masses using an efficient proven platform.

## Features

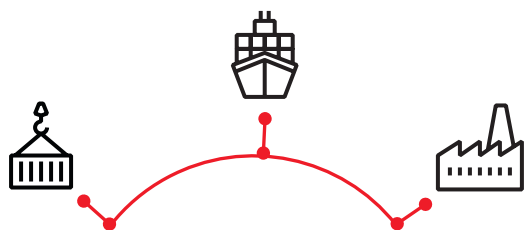
- Modular design, self-contained independent rectifier and inverter modules
- High reliability and availability
- Precise output frequency generation
- Paralleling and synchronizing with other power sources

## Benefits

- Continuous and stable supply
- Minimized total cost of ownership



Link for more info



## Markets & applications

- Shipyards
- Ports
- Ships
- Industry

# Three Phase modular Uninterruptible Power Supplies (UPS)

## ConceptPower DPA: True modular UPS system for critical applications



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Link for more info

### Product overview

Conceptpower DPA is a high-power, modular UPS system designed for today's critical high-density computing environments. The UPS is built using true online double conversion technology and delivers high-quality power. When combined with complete network integration software and communication connectivity, the Conceptpower DPA provides a comprehensive, easy-to-integrate power protection for data centers and network environments.

DPA is based on ABB's unique and proven Decentralized Parallel Architecture DPA™. DPA means that each UPS module contains all the

hardware and software required for full system operation. They share no common components. Each UPS module has its own independent static bypass, rectifier, inverter, logic control, control panel and battery charger. Even the batteries can be configured separately for each module if required.

With all the critical components duplicated and distributed between individual units, potential single points of failure are eliminated. System uptime is further maximized by the true safe-swap modularity of the modules (easy replacement during system operation) which allows the simple addition or removal of modules without the need to bypass the UPS.

### Features & Benefits

#### Lower cost of ownership

- Lowest cost of ownership of any UPS system by offering energy efficiency, scalable flexibility and ergonomic design to enable easy serviceability.

#### Simplify installation and service

- Easy set-up and maintenance involve lower operating and maintenance costs, adding modules in a simple plug-and-play procedure.

#### Optimize energy efficiency

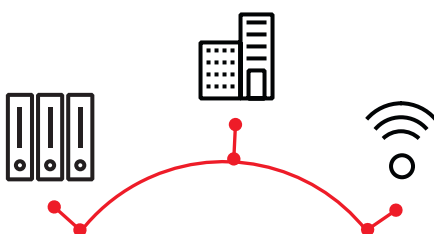
- Class-leading energy efficiency significantly reduces system running costs and site air-conditioning costs.

#### Advanced scalable architecture

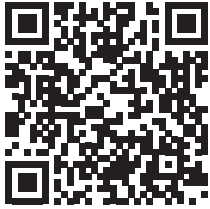
- Vertical and horizontal scalability. Independent modules or frames can be added to achieving a total power capacity.

#### Markets & applications

- Data centers
- IT / Server Room / Edge
- Building Infrastructure
- Telecommunications



# Automatic Transfer Switches - Zenith ZTG series



Link for more info



## Product overview

Zenith and ABB have over 150 years of combined experience in power switching technologies. Now under ABB, Zenith is bringing you the next generation of automatic transfer switch technology designed to increase system reliability and provide the easiest possible user experience.

Powered by TruONE™ technology, Zenith ZTG series automatic transfer switches incorporate switch and controller in one seamless, self-contained unit, reducing the number of wires and connections. This design saves room in the enclosure and minimizes the potential for connection failures. In addition, the design incorporates modular components to reduce downtime and service costs.

Finally – what matters most – you can count on Zenith for continuous power flow and installation longevity. This new generation of ZTG series ATS owes its robustness to its innovative contactor design, developed from years of careful engineering and countless hours in testing.

## Easy to Install and Commission

The new Zenith series weighs up to 30 percent less than comparable ATS models but has up to 25 percent more wire-bending space, making it especially easy for contractors to install.

Once sources are connected, an innovative auto-configure function via the HMI sets electrical system parameters in seconds. Because of breakthrough ABB technology, no additional control wiring or troubleshooting is required on-site. And any programming changes can be done from the HMI with a few keystrokes, making commissioning quick and painless. You can even configure Zenith ZTG on site before installation – using a laptop with Ekip Connect software, even without any external power supply.

## Continuous Operation

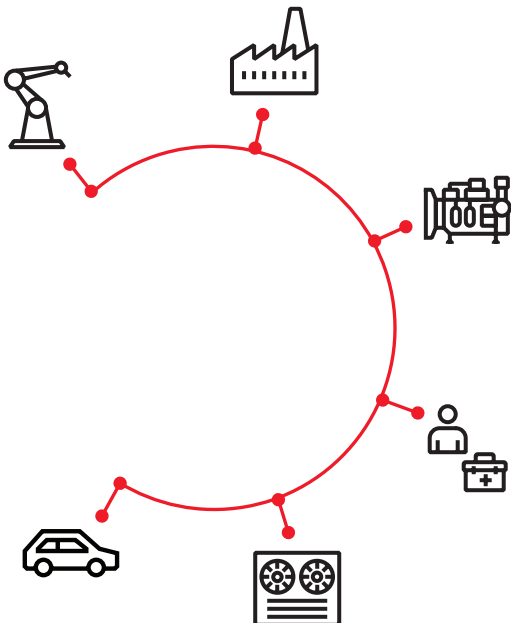
Zenith ATS solutions are tested to last up to 6,000 cycles. Based on 10 transfers per month, that's 50 years of reliable operation! If things ever do go wrong, all critical modules are customer-replaceable to simplify service and significantly reduce downtime and service costs.

## Advanced Data and Connectivity

The Zenith now features cloud-based connectivity through the ABB Ability Electrical Distribution Control System (EDCS). ABB Ability simplifies implementation and use of Zenith transfer switches in coordination with other ABB devices, ensuring one common user interface and one common software environment. Market-leading modular communication with seven protocols ensures easy installation and connectivity now and far into the future.

## Markets & applications

- OEMs
- Contractors
- Distributors
- Commercial
- Institutional
- Healthcare
- Data Centres
- Industrial



## Power Quality

# Harmonic Filters (PQF)

## Active



—  
Link for more info



### Product overview

ABB PQF active harmonic filters offer a strong solution to clean up polluted electrical networks. An increasing number of electrical devices in recent years tend to incorporate some form of electronic switching, which typically involves rectifying, chopping and inverting the waveform in order to achieve a specific output and it is this manipulation of waveforms which creates harmonics. Such devices are called non-linear and include LED & CFL lighting, UPS, computers, battery chargers and most significantly, variable frequency drives (VFD). ABB PQF filters cancel out harmonics on the network in real-time by sending out equal waveforms in phase-opposition.

### Features

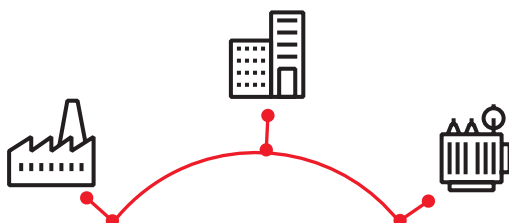
- Robust design & build for demanding applications
- Simple to select, setup and operate
- Easy to combine with ABB capacitor banks
- Harmonics mitigation up to the 50th order
- Load balancing on 3 and 4 wire networks
- Reactive power compensation
- Ethernet & Modbus with data acquisition software

### Benefits

- Helps increase operating life of equipment
- Helps avoid unexpected downtime
- Improves overall efficiency on the network
- Reduced maintenance and replacement costs
- Compliance to utility guidelines, if any, on harmonics

### Markets & applications

- Towers and buildings
- Railways
- Factory environments
- Airport infrastructure
- Mining and metals
- Pulp & paper





# Power Factor Improvement Solutions



Low-voltage capacitors CLMD



Low-voltage capacitors QCap



Low-voltage contactor switched capacitor banks



Power factor controller RVT



Low-voltage Thyristor switched capacitor banks (Dynacomp)



## Product overview

ABB low voltage power factor improvement solutions improve utilization efficiency. Our offering includes rectangular box type capacitors, cylindrical capacitors and various types of capacitor banks, all of these suitable for various voltages from 208V to 660V. Most of the offering is assembled locally in Canada, with full pre-sales and after-sales support and service.

## Features

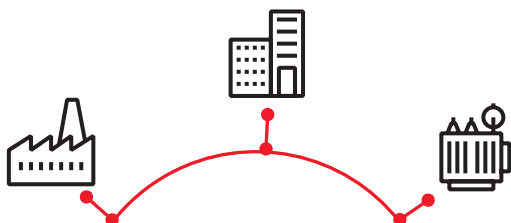
- Dry type = lowest possibility of burn outs = maximum safety
- Internally protected = each element carries fuse protection
- Metallized film = best dielectric properties in dry type design
- Self-healing = failures are contained and localized instantly
- Modular design = longer operating life of capacitor
- Rugged design = safe and reliable operation at all times
- 100% ABB design & build = best quality control
- Global presence = local support anywhere in the world

## Benefits

- Helps reduce utility bills
- Opens up capacity on existing networks
- Helps stabilize system voltage
- Quantified return on investment
- Improves utilization efficiency

## Markets & applications

- Industrial facilities
- Commercial buildings
- Warehouses, malls, etc.
- HVAC applications
- Local and plant level



## Machine Safety

# Safety Light Curtains



Link for more info



## Product overview

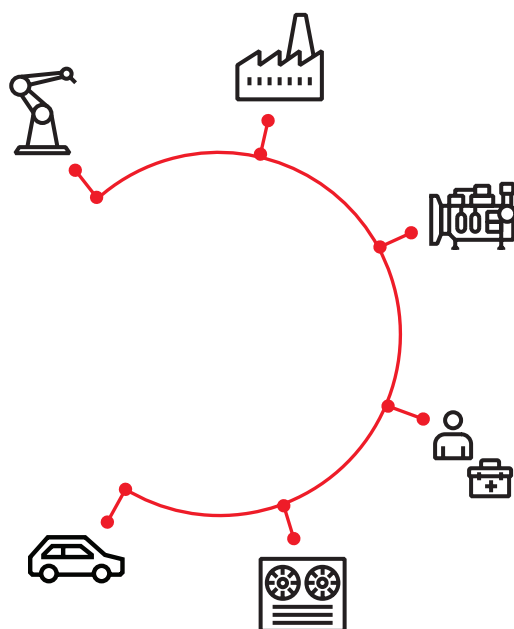
Orion light curtains are a production friendly safety component that do not physically impact the locations of the machine operator. Light curtain protection is also a good safety component for use when goods are to be passed in and out of a risk area.

## Features

- Blanking
- Coding
- Muting
- External device monitoring
- Local reset
- No dead zone

## Benefits

- Cost effective
- Easy diagnostics with extensive indication
- Reduce complexity and downtime
- Speed up installation



## Markets & applications

- Robotic cells
- Material handling
- Packaging
- Welding
- Assembly
- Roll formers
- Tube benders
- Presses
- Pharmaceutical
- OEMs
- Automotive and automotive tier supplier

# Safety Relays



Link for more info



## Product overview

The Sentry safety relays are powerful and easy to use safety relays used when safety devices need to be monitored according to the requirements of functional safety standards, up to PL e/SIL3.

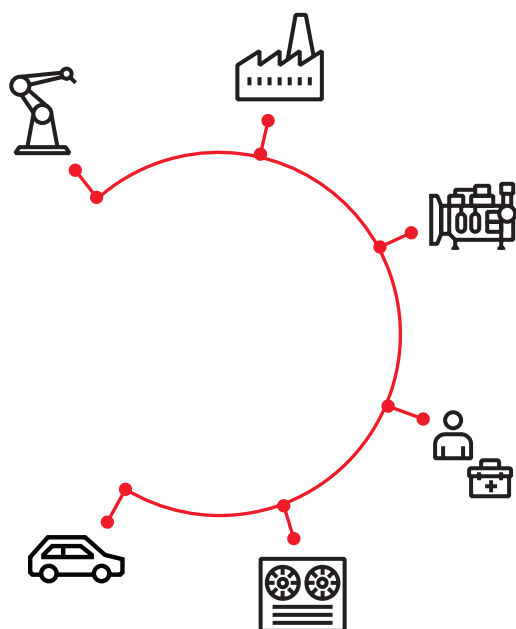
The Sentry series contains basic models for simple applications and easy output expansion, single function models, universal models and timer models.

## Features

- 22.5 mm wide
- Powerful outputs, up to 6A
- Configurable models with display
- Advanced timer functions with high accuracy
- Multi-reset
- Universal models
- Multi-voltage models
- Detachable terminal blocks
- Switch for reset selection

## Benefits

- High level of safety
- Easy to use
- Reduced stock levels and warehouse space
- Increased productivity



## Markets & applications

- Robotic cells
- Material handling
- Packaging
- Welding
- Assembly
- Roll formers
- Tube benders
- Presses
- Pharmaceutical
- OEMs
- Automotive and automotive tier suppliers
- Pre-reset
- Inching

# Safety Sensors



Link for more info



## Product overview

Eden OSSD is a non-contact sensor output signal switching device usually used with optical safety devices. The safety device itself can detect a short-circuit between the outputs. Seen as two +24 VDC from the safety control module. Possible to reach PL e with up to 30 sensors connected in cascade. It has long detecting distance and operates at the highest safety level (cat.4). The OSSD signal is not a dynamic signal (unlike the other Eden). It can be connected to any safety relay or safety PLC and still reach the highest safety level. It manages harsh environments e.g. high-pressure wash-down, high and low temperatures. The sensor is rated at -40C to +70C (has been tested up to +100°C and down to -70°C).

## Features

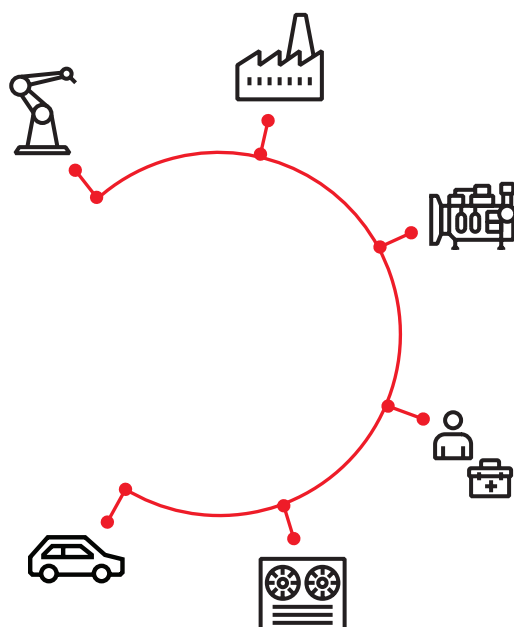
- Non-contact detection, 0-15 mm
- Up to 30 devices in series with PL e
- OSSD Output Signal Switching Device
- Unique coded version meets high level coding standards
- Local reset function
- IP69K protection class

## Benefits

- High level of safety
- Reduce installation time
- Increase productivity

## Markets & applications

- Robotic cells
- Material handling
- Packaging
- Welding
- Assembly
- Roll formers
- Tube benders
- Presses
- Pharmaceutical
- OEMs
- Automotive and automotive tier supplier



# Signal Towers and Beacons



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Link for more info



## Product overview

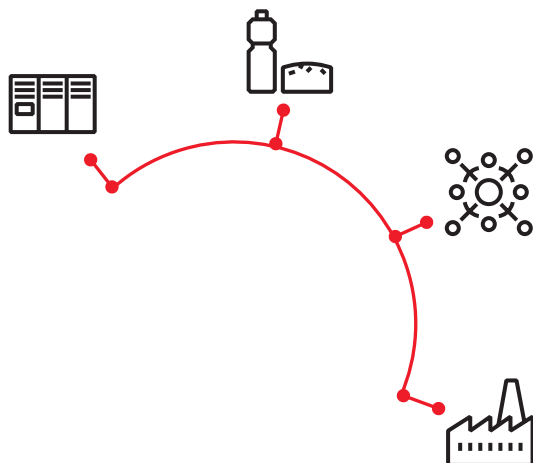
Signal towers K70 and signal beacons KSB offer customers a wide range of signal elements in all voltages and a solution for every signaling field.

## Features

- Blinking light
- Flashing light
- Audible
- LED elements for long lifetime

## Benefits

- LED elements have longer lifetime, relieving you of maintenance and replacements
- Bayonet fixing quickens mounting of signal elements – add more elements with a simple twist
- Vandal-proof design withstands any external impacts, prolonging lifetime in both indoor and outdoor use
- Many combination possibilities allow you to customize your signaling tower and find just what you need
- Changing bulbs is easy without the need of any tools



## Markets & applications

- Panel builders
- System integrators
- OEMs
- Food and beverage
- Process industries





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