

LINE CARD

# Food and Beverage segment

## Electrification solutions

ABB understands the challenges our customers are facing in the food and beverage processing industry today. We're focused on providing electrical solutions that address the critical issues in every area of your operation, so you can focus on plant sustainability, cost, quality, flexibility, safety and regulatory challenges across the production cycle.

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### Electrical power supply

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#### Product/offering

##### ABB Ability™ digital switchgear



#### Benefits and features

ABB's low- and medium-voltage digital switchgear solutions incorporate intelligent components to enable safe, flexible and smart electrical networks that deliver power reliably and efficiently. These ABB Ability™ solutions are built on ABB's well-established switchgear families and solid experience of pioneering the digitalization of power distribution networks. With digital switchgear customers gain even further increased robustness, maximized power availability and reduced operational expenditure. Changes in switchgear functionality can be done quickly and easily by updating software instead of hardware modification. Digital switchgear gives you access to real-time data from across your operations, preparing you for Industry 4.0 and opens up new possibilities for process and asset monitoring on premise with ABB Ability™ Condition Monitoring, and advanced cloud analytics with ABB Ability™ Asset Health.

##### Primary air-insulated switchgear



Medium-voltage switchgear form the backbone of electrical distribution, to feed sub-distribution and larger MV consumers in Food and Beverage applications. ABB's UniGear is the market-leading product range: the most versatile and supported by numerous ABB units close to the site. Robust, well-proven design with over a hundred thousand units currently in service. UniGear protects both the electrical grid and the operators from potential effects of electrical failures. UniGear product family is available in single-level, double-level and double-busbar solutions.

##### Secondary air-insulated switchgear



UniSec switchgear is based on a highly flexible, modular concept with fewer parts and standardized solutions that can be readily configured to meet the specific needs of each application. This approach reduces training and maintenance requirements, ensures fast installation and facilitates future expansion to meet changing needs. UniSec offers highest level of safety with different solutions in terms of internal arc classification and safety interlocks.

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**Primary gas-insulated switchgear**

ZX product family GIS provides ultimate protection for MV electrical distribution. All “live” parts are completely protected from external influences like humidity, dust and vermin. Provides safest operating conditions over extended lifetime while minimizing maintenance. Saving space - particularly at higher voltage levels, and easy plug-and-play installation.

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**Secondary gas-insulated switchgear**

SafeRing and SafePlus provide complete, flexible and compact switchgear solutions. The completely sealed systems with a stainless steel tank, which contains all live parts and switching functions, ensure a high level of reliability, personnel safety and a virtually maintenance-free system. For fast delivery, SafeRing is available with pre-defined configurations for, e.g., transformer and switching stations, or as consumer switchgear with connection to the DSO (Distribution System Operator) network. SafePlus offers flexible customized switchgear to cover all distribution needs, including advanced grid automation (smart RMUs).

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**Low-voltage switchgear  
Power, main and sub distribution**

The MNS platform of low-voltage switchgear as per IEC 61439-1/-2 for power distribution, main and sub-distribution application offers unrivalled flexibility with its compact design and options for fixed, plug-in and withdrawable breakers and modules and top or bottom power cable and bus duct connections. MNS is fully arc-proof as per the applicable standard IEC 61641 criteria 1 to 7 and even exceed this due to additional arc tests for higher safety, setting the standard for operator and equipment safety. The product offers wide-ranging protection and control functions; flexibility during design stage; the best plant information through enhanced measurement functions and application of industry standard Ethernet and serial communications for control and monitoring system integration.

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**Low-voltage motor control center**

The MNS platform of low-voltage switchgear as per IEC 61439-1/-2 for central and decentral motor control center application offers unrivalled flexibility with its space saving design and options for fixed, plug-in and withdrawable breakers and modules and top or bottom power cable and bus duct connections. MNS is fully arc-proof as per the applicable standard IEC 61641 criteria 1 to 7 and even exceed this due to additional arc tests for higher safety, setting the standard for operator and equipment safety. The product offers wide-ranging protection and control functions; flexibility during design stage; the best plant information through integrated condition monitoring solution and application of industry standard Ethernet and serial communications for control and monitoring system integration.

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**Main Distribution Boards  
System pro power**

System pro E power is ABB’s solution for low-voltage main and sub distribution in fixed assembly design for light process industry application. As with ABB’s low- and medium-voltage switchgear platforms, System pro E power meets plant requirements depending on the type of installation, required degree of protection, and the electrical and mechanical specification. ABB provides complete solutions for main electric power distribution in infrastructure and industries in accordance with the regulatory framework. In addition, like with ABB switchgears, System pro E power guarantees full compatibility with all other ABB products.

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**Uninterruptible power supply (UPS)**

- 3ph and 1ph online double conversion UPS
  - Decentralized Parallel Architecture (DPA) ensuring high availability, flexibility and easy serviceability
  - Superior short circuit performance (2.7 In)
  - Redundant configuration
  - Input, bypass and battery protection, manual bypass switch
  - Full range of transformer options
  - Integrated back-feed protection
  - Bottom or top cable entry
  - Tropicalization and anti-corrosion protection for electrical boards
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**Industrial UPS - UL**

The Cyberex® PowerBuilt is a true online double-conversion industrial UPS designed to support the continuing demand of the growing regulatory and safety needs of today's industrial complexes. PowerBuilt is designed to UL 1778 safety and IEC 62040-3 performance standards. It can be scaled to meet changing electrical requirements and is adaptable to the most stringent technical specification. Control logic internal to the PowerBuilt UPS is the silent sentry that continuously safeguards the system to ensure uninterrupted operation.

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**PCS100 UPS-I Industrial UPS (150 kVA –3000 kVA)**

The PCS100 UPS-I is a high performance, high efficiency UPS system that ensures protection from power quality events, such as deep sags or short-term outages, enabling continuous power supply to modern industrial processes.

- Robust fail-safe modular industrial design
- Long lifetime energy storage
- Small footprint
- Highest efficiency and availability
- Low maintenance requirements
- Easy serviceability

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**PCS120 MV UPS Medium Voltage UPS (2.25 MVA-50+ MVA)**

ABB's PCS120 MV UPS is the next generation of medium voltage UPS intended for multi megawatt power protection. Based on the revolutionary ZISCarchitecture, the PCS120 MV UPS introduces a flexible solution for higher reliability and higher efficiency in critical powerfacilities.

- Exceeding 98.5% efficiency
- Reduced maintenance
- Paralleling and ring bus capabilities
- Versatile energy storage options

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**PCS100 AVC-40 Active voltage conditioner (150 kVA -3.6 MVA)**

The PCS100 AVC-40 is a high performance power electronic system designed for industrial and large commercial applications. It responds instantly to power quality events, quickly correcting voltage sags and surges, providing clean, continuous power.

- No energy storage
- Very high efficiency
- Continuous online regulation
- Industrial design
- Small footprint

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**PCS100 AVC-20 Active voltage conditioner (250 kVA -3 MVA)**

The PCS100 AVC-20 is a power protection system designed for use in industrial and large commercial operations in environments where an unstable network or utility voltage affects productivity. The system ensures a continual, regulated supply of utility voltage where the electric infrastructure is stressed, unstable or unreliable.

- Full range voltage correction completed in 20 milliseconds
- Modular design providing high reliability and scalability
- Small footprint
- Efficiency of over 98 %
- Low cost of ownership

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**Molded Case**

ABB's moulded case circuit-breakers guarantee extremely high performance while being progressively smaller in size, simple to install and able to provide absolute protection and full connectivity. Tmax XT range consists of seven frame sizes from 160A up to 1600A.



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## Air circuit breakers



ABB SACE Emax 2 is the new benchmark of air circuit-breakers that not only monitors power, but has evolved into a true power manager. It is offered in frame sizes up to 6300 A for application in accordance to IEC 60947 and UL 1066 standards with exclusive integrated functions such as the Ekip power controller, generator protection and network analyzer functions. Emax 2 is the only breaker that protects electrical circuits and also reduces energy consumption based on the user's needs, thereby leading to massive reductions in energy waste. Emax 2 contains the perfect blend of control, connectivity, safety and performance.

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## SSC600



ABB Ability™ smart substation control and protection for electrical systems, SSC600 centralizes all protection and control functionality in a single, IEC 61850 - compliant device on substation level to reduce network complexity and support optimal, lifelong asset management for the digital substation. SSC600 has been designed to support the ABB Ability offerings of digitally enabled solutions, helping industries know more, do more and do it better than before. The modular software allows customization at the initial ordering stage and flexible modification for the lifetime of the digital substation. The advantage of only having to modify one device instead of all bay-level protection and control devices makes upgrading the entire substation system easier than ever.

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## Relion®



The Relion® family of programmable numerical protection relays offers a full range of genuine IEC 61850 products for the protection, control, measurement and supervision of power systems. IEC 61850 supports interoperable and future-proof solutions including peer-to-peer GOOSE communication. Relion® enables the creation of comprehensive protection schemes for feeders, motors, transformers, generators, busbars, capacitor banks etc.

Features supporting high situational awareness and communication availability:

- Graphical display and web browser-based human-machine interface
- Disturbance recorder for in-depth analysis of network disturbances
- Support for additional communication protocols including use of two communication protocols simultaneously
- Communication redundancy including HSR and PRP protocols
- One configuration tool for all Relion® relays
- Complete portfolio of protection functions for feeders, transformers, busbars, Generators & Motors etc.

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## COM600



Web server functionality providing access to substation processes, operations and relays via a web browser (web HMI)

Substation Automation function and its features enabled by default

- Process visualization based on web HMI
- Alarms and events
- IEC 61850-based integration to ABB or third party relays
- Remote relay parameter setting using SPA protocol or IEC 61850
- Relay disturbance record upload
- Operational and user security

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## ZEE600 - Zenon Energy Edition



The Zenon Energy Edition is a very well accepted SCADA for industries and utilities, which is feature-rich and offers versatility in visualization, data communication and control. It integrates ABB's Electrification products and applications to deliver the next generation on-premise digitalization systems for low-voltage, medium-voltage and high-voltage substations, including Power Management applications like Loop Control, Load shedding and many more.

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## R-MAG® Dead Tank Breaker



The ABB R-MAG® up to 38kV and 40kA combines the unique benefits of vacuum interrupter technology with a state of the art magnetic actuator with limited moving parts. This field-proven design leads to higher operational safety, reliability and availability, eliminating maintenance activities on springs or motors in the operating mechanism. The dead tank design allows housing of several ring core current transformers for protection and/or measurement purposes and an optional on-board protection relay for full solution flexibility in any industrial substation.

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**OVV-VBF Live Tank Breakers**

ABB live tank circuit breakers up to 40.5kV 2500A and 31.5kA are designed to bring together the superiority of vacuum interruption inside “sealed for life” poles, with the reliability of a long-life spring mechanism inside a weather-proof cabinet. Product robustness ensures high performance in stressful environments, while the simple design minimizes the number of spare parts and makes maintenance quick and easy. Several structure options are available to improve flexibility and reduce installation time.

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**VD4**

The VD4 vacuum circuit breaker is excellent suitable for switching short-circuit currents, overhead lines, cables under load and no load, transformers and generators, motors, ripple control systems and capacitors – even in parallel. The spring operated mechanism ensures operation even without auxiliary voltage. It maximizes your productivity thanks to three times higher mechanical endurance and up to 20 more compactness.

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**VD4/R**

VD4/R are used in secondary MV distribution and in small transformer substations. They are available in fixed version with right-hand side operation mechanism. Circuit breakers with rated voltages up to 24kV can be fitted with current sensors and REJ603 self-supplied overcurrent release and can be used in unmanned substations without auxiliary power supply.

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**UFES**

The Ultra-Fast Earthing Switch UFES provides innovative arc-fault protection, offering highest possible level of safety for personnel and equipment, granting the maintenance of secure power supply and the reduction of production outages. Active arc-fault extinction in less than 4ms increases operator safety.

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**FC-Protector®**

Fault current limiter FC-Protector® is a standardized and compact solution, it allows fast and easy integration into new and existing low and medium voltage systems. The fault current interruption before the first current peak is reached, minimizes the risk of potential damage.

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**eHouse**

Metal-enclosed buildings providing greater safety, easier installation, maintenance and engineering, and on site testing – all contributing to cost reductions.

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**Skid-mounted substations**

A prefabricated, economic option with easy access to equipment that normally includes LV and MV equipment, along with a transformer. Skid-mounted substations enable a huge reduction of installation time, wiring and testing activities on site.

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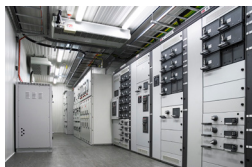
## Compact Secondary Substation



Compact Secondary Substations (CSS) are prefabricated substations, which include a low voltage switchboard, a transformer and medium voltage switchgear. A CSS is internally arc tested for higher safety according IEC 62271-202, the dedicated standard to CSS. The ABB CSS portfolio is covered with different enclosure materials, including steel and glass fiber reinforced polyester (GRP), an innovative material that provides the advantages of both steel and concrete enclosures. The CSS can be suited for harsh and demanding environmental conditions by choosing the suitable enclosure material.

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## Product packaging



Product packaging is the coordinated delivery of a multiple-element product package, including basic interface engineering between products, under a single commercial agreement. It offers risk mitigation, reduced client resources, and simplified project management and commercial agreement.

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**PV-10/12.5**  
**TRIO-20/27.6**  
**TRIO-TM-50/60**  
**PVS-50/60**  
**PVS-100/120**

High performance, robust enclosures, easy installation, innovative features to lower the system's levelized cost of energy and improve return on investment on commercial solar installations, wall-mountable, horizontal as option for 50/60 kW models.

Suggested applications:  
Decentralized photovoltaic system for both commercial and utility applications, configuration for rooftop and ground-mounted installations.



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## Arc Guard TVOC-2



The Arc Guard System™ increases safety to personnel and equipment and minimizes downtime after an arc accident has happened. The easy-to-read interface makes reading status information quick and easy. A simple start-up menu quickens installation and setup. SIL-2 approval ensure maximum reliability.

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## Surge protection devices



The OVR range is designed to protect electrical systems and equipment against transitory surges and impulses caused by lightning and operations on the electrical grid.

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## Process area

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### Product/offering

### Benefits and features

### Control and Automation Boards

ABB's range of metal structures for automation have been enhanced thanks to the experience gained from working on the most industrialized and technologically advanced world markets. The metal structures conform to the IEC 62208, the IEC 60439-1 and to the new IEC 61439-1-2 standards. Their performances are the market benchmark: high IP degrees of protection and IK resistance to mechanical impact, which permits installation in most industrial environments. The range includes enclosures in steel sheet powder coated and enclosures in stainless steel AISI 304, allowing for indoor and outdoor installations.



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**SRX enclosures for automation and distribution**

SRX automation enclosures have been particularly designed for applications with high standards in terms of hygiene and corrosion resistance. The range consists of monobloc stainless steel enclosures for constructing small and medium-sized electric switchboards, in particular for control, command or distribution. The AISI 304 stainless steel allows the cabinets to be installed either indoors or outdoors by mounting to the wall or floor. They are available either with blind door and mounting plate, or with glass door. A wide range of accessories and DIN rail components makes sure to customize the SRX enclosures for specific automation requirements.

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**Metallic flexible conduit systems**

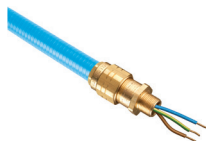
- NSF and UL approved cable glands specifically designed for food and beverage applications
- Our liquidtight antimicrobial conduit system is NSF certified suitable for food zone non-contact areas. The system reduces bacteria levels by up to 86% in the first 15 minutes and by 99% in just two hours of contact with its surface.
- IP66-69 rated
- FDA, EC and FSA compliant DuPont Hytrel® thermoplastic jacket

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**Nylon flexible conduit systems**

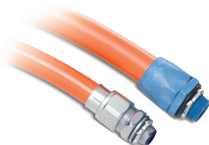
- IP69 rating according to EN 60529
- UL recognition according to UL1696
- NSF169 and NSF14159-1 certification
- High resistance to cleaning agents and chemicals
- Time savings, thanks to easy cleaning
- Efficient, space-saving assembly

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**Explosion proof conduits & fittings**

- Full range of nylon and metallic cable protection systems for hazardous environments
- Cable glands
- ATEX, IECex, UL/CSA approved
- Ongoing R&D program for innovative and high performance products

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**Liquidtight fittings**

Type A liquidtight flexible non-metallic conduit with non-metallic or stainless steel fittings

- Ideal for continuous flexing or vibration applications
- Creates a liquid-, dust- and oil-tight seal
- Suitable for operating temperatures from -20° to 60° C

Other fittings available

- Type B non-metallic
- Type C stainless steel or aluminum
- ATX high-/low-temperature
  - Wire-mesh strain-relief cord and conduit grips
  - XD expansion/Deflection coupling

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**STAR TECK® XP explosion-proof fittings**

Form a strong mechanical grip and water and/or oil-resistant termination

- Provide grounding continuity of cable armor
- Patented powergrip grounding ring for easy installation
- Designed to accommodate a broad range of cables
- Built-in sealing device provides a 3600 seal when enclosure surface is rough or uneven
- NEMA 4, 4X (stainless steel), 6P ratings

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**STAR TECK EXTREME® DIRECTOR™**

- Fitting adjusts from 90° to 180°
  - Saves on Installation time by up to 50%
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**Stainless steel Form 8 and BlueKote® conduit bodies**

- Marine-grade Type 316 stainless steel construction in rugged Form 8 design in sizes to 2" and LB, T, TB and LU® shapes
- Ferrous Form 7 and Form 8 designs in all popular sizes and shapes with triplelayer, corrosion-resistant BlueKote® finish
- UL Listed and CSA Certified

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**Explosion proof lighting and enclosures**

- Hazardous lighting and emergency lighting: ATEX, IECex approved, LED technology, tubular: anti dust
- IP66, IK 08 weatherproof LED tubular fittings
- Control boxes, cabinets and junction boxes: ATEX, IECex approved

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**Hazlux hazardous location lighting (UL)**

- Explosion-proof fixtures for Class I, II and III hazardous locations
- Enclosed, gasketed and rated NEMA 4X, IP66 and UL1598 for wet and marine locations

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**HazCote® Kynar-coated lighting fixtures**

- Enclosed, gasketed, sealed fixtures for adverse, wet and marine locations
- Cast aluminum with HazCote® corrosion protection
- Silicone-coated safety-glass globe to restrain glass particles in case of breakage

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**Ty-Fast Ag+ bacteria-resistant cable tie**

- The industry's first cable tie that inhibits microbial growth
- Protects itself against bacteria, mold and fungus
- Made from FDA-approved nylon resin
- Offers reliable Ty-Fast cable tie design for easy cable management

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**SuperClean™**

- The industry's first wall offset spacers that inhibit bacterial growth on the spacer surface
- Made from food-compliant nylon resin
- Cylindrical design with no exposed flat surfaces to prevent the collection and retention of liquids or debris
- Promotes a clean environment - 99.9% effective for bacterial reduction on the spacer surface
- Easy to install with no on-site fabrication required

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**Detectable systems & tools**

- Contains a unique, patent-pending compound detectable by metal detectors and x-ray equipment
- Help achieve the HACCP EU-Directive
- Bright blue colour helps with visual detection in food & drinks
- Available in nylon or polypropylene (chemical resistant)
- Detectable mounting bases also available
- Works with Ty-Rap® Cable Tie Dispensers and Ergonomic Installation Tools

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**Emergency lighting & central battery systems**

ABB offers of a comprehensive portfolio of robust emergency, central battery supply, and monitoring systems. With our optimized lighting optics based on the latest LED technology, we are able to offer lower energy and maintenance costs. (note: Building and safety standards and products vary by country).

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## Cable tray and metal framing



- T&B® cable tray and metal framing products are a cost effective, reliable and adaptable alternative to conduit systems.
- Stainless steel is resistant to dyestuffs, organic chemicals, and inorganic chemicals at elevated temperatures
- Numerous accessories to complete any job

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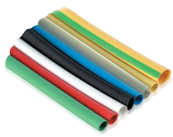
## Wire termination and tools



A full line that includes insulated and non-insulated terminals, splices, wire joints, disconnects, ferrules, heat-shrinkable terminals, splices and disconnects in imperial and true metric sizes. A complete set of tooling is included.

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## Heat shrink solutions



A broad range of heat shrink products with different wall thicknesses (thin, medium, thick), packaging (reels, cut lengths, dispenser boxes, pre-cut bags), shrink ratios (2:1, 3:1, 4:1), different colors, pre-molded parts, with or without glue are offered (dual).

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## Compression cable lugs and tools



UL (AWG) and IEC (Metric) Class A and Class B compression connectors, made of the highest-grade materials offering high conductivity/low resistance, meet or exceed all industry standards. Range includes straight and angled connectors and splices, plus a full range of mechanical, pneumatic, and battery operated compression tools.

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## Optical safety devices



Optical safety devices are used to detect persons or objects entering a dangerous area. ABB offers a full range of light curtains, light grids and light beams. Integrated muting and local reset reduce the complexity, while alignment help, M12 connectors and a wide range of accessories speed up installation. In order to reduce downtime there is easy diagnostics with extensive indication, protection of mutual interference with coding and protection against harsh environment with protective tubes and lens shields.

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## Programmable safety controllers and safety relays



ABB offers safety PLCs, safety controllers and safety relays for different size and complexity of machines. The Pluto Safety PLC is powerful, cost effective and flexible with advanced features such as speed monitoring, analogue inputs, AS-i and arithmetic functions. The Sentry safety relays are easy to install and trouble shoot with features such as powerful outputs, switch for manual/automatic reset and an integrated display.

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## Eden safety sensor



Eden is a non-contact safety sensor with the highest safety level for interlocking doors and hatches. Large mounting tolerances, M12 connectors and integrated reset speed up installation. Eden reduces cost by minimizing the number of cables and enables up to 30 sensors connected in series to reach the highest level of safety. IP69K, temperature tolerances of -40 to +70 degrees C and a minimum of surfaces edges makes it a perfect match for food and beverage applications.

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## Fencing systems



Quick-Guard is a very flexible fencing system consisting of a minimum of different components, such as aluminum profiles, patented assembly parts, net-locks, mesh, solid or noise reduction panels. Thanks to our patented screw-lock system, we can supply all brackets pre-mounted with fixing screws and nuts. No holes need to be drilled in the profiles and all cuts are made straight. Assembly and modification is therefore very easy. Quick-Guard can be supplied to be designed on site (Quick-Guard Express) or designed and cut according to drawing (Quick-Guard standard).

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## Safety switches and locks



ABB has a full range of safety switches and locks used to control the gates and hatches around hazardous machinery, and to monitor the position of a machine. Models are available in stainless steel with high IP rating and hygienic design to minimize the risk of accumulating dirt on the surface.

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## Safety control devices



We offer ergonomic and reliable control devices that enables safe control of machinery. Protective coats are available for use in harsh environments.

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## Emergency Stops



An emergency stop device is used to permit anyone to stop machinery if it breaks down or if someone is in danger. ABB offers different types of traditional mushroom type emergency stops and grab wire emergency switches for various types of mounting. Most models are available with high IP rating for harsh environment.

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## Industrial Plugs and Sockets



Easy to use, tough and supporting critical power, with safety as the highest priority for a wide range of applications. ABB has the full range of plugs and sockets for use in the harshest environments.

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## Miniature Circuit Breakers (MCBs)



Miniature Circuit Breakers protect electrical installations against overloads and short-circuits, guaranteeing reliability and safety of operations. The System pro M compact S200 series are current limiting overcurrent protective devices. They have two different tripping mechanisms, the delayed thermal tripping mechanism for overload protection and the magnetic tripping mechanism for short-circuit protection.

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## Residual Current Devices (RCDs)



Residual current devices protect people from life-threatening indirect contact with electricity. ABB's range of RCDs includes RCCBs, RCBOs, RCD blocks, earth leakage relays (DIN-Rail and front panels). Compliant with IEC/EN 61008 or IEC/EN 61009 they can be installed in all residential, commercial and industrial applications.

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## Surge Protective Devices (SPDs)



ABB's SPDs are available for all kinds of electrical networks (TT,TNC,TNS,IT) and can be installed in all applications, from low-voltage power to data and telecom lines, CCTV PV, WT, LED and self-protected. They are fully equipped with end of life indicator, safety reserve system and auxiliary contacts.

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**Modular DIN-Rail Components (MDRCs)**

The range of modular DIN rail components provide all functions to complete and enhance the functions of an electric switchboard (main and sub distribution) apart line protection and residual current protection: command and signalling devices, automation and control devices, protection devices and relays. All devices can be plugged on a standard DIN-Rail with just one click.

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**Electricity Meters**

Managing electrical supply is a priority. Without measuring usage, it is hard to determine efficiency. Measuring an electrical installation can save effort and money. The addition of energy meters for sub-metering and a current measurement system for branch supervision enables the monitoring of energy usage, from the incoming energy all the way down to the last branch.

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**DRAF**

DRAF is an enclosed direct-on-line starter embedding AF technology. It is used for motor starting up to 7,5 kW and 10 hp and complies with both IEC and UL/CSA standards. Control of stand-alone motors like heat pumps, air conditioning units, small machine tools, irrigation, dairy sheds are typical applications for DRAF. TF42 thermal overload relays for motor protection should be selected separately according to motor's nominal current.

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**Enclosures**

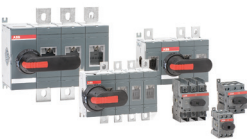
ABB enclosures are ideal for single family houses, multiple dwellings, commercial buildings, infrastructures and industrial applications in compliance with international standards and community norms.

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**Cable Distribution Cabinets and Board**

Kabeldon Cable Distribution Cabinets fit well in most environments. They come in various designs and sizes, and perform well even under very tough conditions. At the same time, they satisfy current requirements for long life with undiminished safety and low operating and maintenance costs.

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**AC Switch Disconnectors**

The OT range of switch disconnectors from 16 to 4000A is suitable for diverse applications such as machinery, power distribution and motor control centers. Thanks to a modular design, OT switches are available in different pole configurations. Mounting is possible in any direction and a wide offering of accessories is available.

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**Transfer Switches**

ABB offers a wide variety of transfer switches from 16 to 3200A, including switches for manual, remote or automatic transfer of loads from one source to another. The switches are designed to be virtually maintenance free across their entire extended lifespan and offer safe and reliable change-over performance.

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**Enclosed Switches**

Our range of enclosed switches is one of the most complete in the market. Whether you need a main disconnect or a safety switch, you can always find a suitable product. Our offering includes enclosed switch disconnectors, switch fuses and safety switches. The enclosures are available in plastic, aluminum, steel sheet, stainless steel sheet and acid-proof material.

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## Cam Switches



OC and OL cam switches are suitable for even the most demanding applications. A versatile selection of handles, mounting options, and accessories make it easy to create the perfect solution. With the online configurators, Camweb and Camweb2, users can design their own cam switch with confidence.

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## Switch Fuses



OS switch fuses range from 20 to 1250A are suitable for different types of fuses: DIN, BS, NFC, J and L. OS switch fuses have a modular design and are available in different pole configurations. ABB offers ready and tested type 2 coordination tables for easy and fast selection of motor control devices.

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## Fusegear



ABB Fusegear products are designed for an easy, safe and reliable installation and operation in substations, Cable Distribution Cabinets (CDC), distribution boards in Compact Secondary Substations (CSS) and distribution boards in industrial, commercial and residential applications.

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## EasyLine XLP, Fuse Switch Disconnectors



EasyLine range of fuse disconnectors ensures high protection and reliable operation in switchboards. A wide range of cable terminals and snap-on accessories make the installation easy and fast. EasyLine can be fitted into different distribution systems by means of busbar adapters.

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## SlimLine XR, Switch Disconnects or Fuse



The SlimLine XR meets increasing demands in the industry for safe and reliable energy distribution. Thanks to the unique contact design and compact size, the installation is safe, fast and easy. For remote operation and monitoring, SlimLine XR is available with an integrated motor, electronic fuse monitor (EFM) or the new integrated energy monitoring device ITS2.

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## Electronic compact starter



Electronic compact starters are innovative hybrid starters. Direct-on-line, reversed starting, motor overload protection and emergency stop are all fully integrated. ABB's HF range combines 30 million electrical switching cycles and a wide array of functions in a compact housing only 22.5 mm wide. The HF9-ROL-24VDC includes direct-on-line and reversed starting as well as motor overload protection up to 3kW/400 V AC in just one device. For emergency stop applications ABB's safety range HF9-ROLE-24 V DC adds SIL 3, PL e and ATEX certification on top.

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## Installation Contactors



ESB installation contactors offer a complete portfolio (from 16 to 100 A) and are mainly used for switching and controlling lighting, heating, ventilation, motors and pumps. They are suitable for use in several different conditions and environments, designed to match ABB modular DIN-Rail components and can be easily integrated in dedicated panels. EN contactors also have a built-in toggle switch for automatic and manual application. Tool-free auxiliary contact blocks are available for the complete range.

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## Measuring and monitoring relays

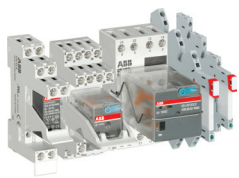


ABB offers all the important measuring and monitoring relays required for a wide range of applications, all electrical key parameters of single- and three-phase networks can be monitored. Further products offer reliable temperature measurement and help to protect motors and other equipment. Liquid level monitors ensure accuracy in filling and draining applications. Reliable protection of assets and preventing unplanned downtime is ensured by choosing from this large range of high quality multi-function or single-function products.

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### Interface Relays and Optocouplers



ABB's interface relays and optocouplers ensure a reliable voltage conversion between process peripherals and higher level control systems. For all sorts 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. Suitable for extreme environments, ABB's interface relays offers a range of different coil voltages and plug-in functional modules.

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### Electronic Timers



The electronic timers of the CT range have been used in applications worldwide and have proven their excellent functionality in daily use, even under the toughest conditions. Three ranges of electronic timers provide timing functions for all applications. ABB ensures all low voltage timing control needs are met with our wide variety of product options—from economic to highly sophisticated, providing maximum value.

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### Primary Switch Mode Power Supplies



The CP range offers the latest technology in a compact construction of power supplies. Modern power supply units are a vital component in most areas of energy management and automation technology. ABB pays the utmost attention to the resulting requirements. Innovation is the key to a substantial enlargement of our power supply product program.

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### Manual Motor Starters



Manual motor starters, are electromechanical protection devices for the main circuit. They are mainly used to switch motors ON/OFF manually and to provide fuseless protection against short-circuit, overload and phase failures. Fuseless protection saves costs, space and ensures a quick reaction under short-circuit condition by switching the motor off within milliseconds. Starter combinations are setup together with contactors and are available with screw or Push-in Spring terminals.

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### Circuit breaker for transformer protection



Circuit breakers for transformer protection are specially designed for fuse-less protection on the primary side of control transformers against overloads and short-circuits. It also allows the transformer to connect and disconnect manually from the mains. At start-up, transformers generate very high peak currents (inrush currents) so regular protection is often not enough. Where transformer must be appropriately protected, ABB's new MS132-T is the ideal solution.

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### 3-Pole Contactors and Overload Relays for Motor Starting and Power Switching



ABB 3-pole contactors offer an exhaustive selection of products for simple and extreme applications. AF contactor technology revolutionizes how we use contactors and enables functionality in all parts of the world and in a variety of network conditions. Furthermore, the mini-contactor range offers compact dimensions and specific connection possibilities. You can choose terminals between screw, push-in spring and ring tongue through our ranges. So whatever your need of a contactor might be, ABB will have a variant meeting just that.

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### 4-Pole Contactors for Power Switching



ABB's AF 4-pole contactor range is a complement to the family of 3-pole AF contactors and motor protection equipment. Unmatched performance in a variety of applications and environments has made the AF contactors well appreciated by customers throughout the world. You can also benefit from the compactness of the 4-pole mini contactors available with 3 connection types.

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### 3-pole contactors for safety applications



AFS contactors, as part of the comprehensive AF contactor range, is designed for safety applications. It comes with fixed front auxiliary contact blocks, making them ideal for monitoring and controlling circuits. Mechanically linked and mirror contacts help make your system safer.

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**Limit Switches**

Our limit switches product range combines different types of actuators, casings and contacts to covers most applications as they are IP67 designed to operate in the most difficult environments. They will secure installation and uptime.

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**Motor Controllers**

The intelligent ABB Motor Controllers (Universal Motor Controller, UMC) for motor protection, motor control, fieldbus and Ethernet communication and fault diagnosis. Due to the benefits it provides, the UMC is used worldwide in many segments and in projects with several thousand motor controllers.

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**Soft Starters**

ABB's soft starters increase a motor's lifetime by protecting it from electrical stresses. They do so by letting optimize starting currents that with conventional starting methods put lots of stress on the motor. With many built-in motor protection features, the motor is safe in its hands. ABB's soft starters are also installation-friendly and can cut the assembly and startup time by being easy to use and easy to learn. With everything that is needed in one unit, from bypass contactor to overload protection, a single soft starter makes for a compact and complete starting solution. Furthermore, with many application specific features, ABB's soft starters can ultimately help increase productivity. Torque control, pump cleaning and many more features let to do more than simply softstarting.

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**Pilot devices**

Our products are engineered for total reliability. Their innovative design simplify the entire process, from selection to installation.

- Modular range for flexible solutions with high electrical ratings
- Compact range with all-in-on design reducing installation time and cost.

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**Service**

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**Product/offering**

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**Benefits and features**

**Condition Monitoring devices:  
My Site Care/My Remote Care  
"part of ABB Ability offering"**

MySiteCare collects field data of your circuit breaker and switchgear and in turn directly provides local diagnostic information. The unit can also send the collected data to MyRemoteCare.

- Assists in predicting failures within your assets before they occur preventing costly downtime and repairs
- Allows for optimized maintenance strategy and spendings
- Retrieving data. Wait a few seconds and try to cut or copy again



MyRemoteCare is an online remote monitoring system enabling a condition-based maintenance approach for your electrification assets.

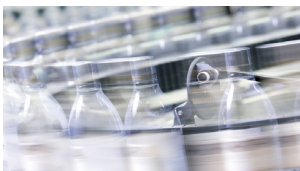
- Predicts failures within your assets before they occur preventing costly downtime and repairs
- Allows for optimized maintenance strategy and spendings
- Helps extend the life time of your assets and maximize your investment

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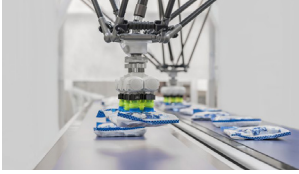
**Assessment: My Site Condition**

MySiteCondition is a solution for asset condition and risk assessment of your low and medium voltage switchgear and transformers regardless of age or manufacturer.

- Condition status, objective up-to-date overview of the substation and the condition of each single component
- Risk reduction, knowledge about the risk reduction opportunities as well as recommended mitigation actions
- Budget allocation, operational budget only used where asset reliability or safety might be endangered in the future.



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**On site services: installation and commissioning**

Ensure lower risk, faster start-up and optimum performance for your electrification system, from first operation through the entire life cycle of the devices.

- Cold commissioning to verify operation of the protection and control
- Hot commissioning and energization of the equipment
- Supervision during the plant start up

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**Upgrades: Retrofit of circuit breakers and relays + UFES**

Conversion, roll-in replacement, hard-bus retrofill and cradle-in cradle solutions can all be offered for both ABB and non-ABB circuit breakers and relays.

- Modernize switchgear with the latest retrofit technology to improve safety and performance
- Minimize transformation and loss of production time
- Reduce investment costs by avoiding design, station cabling and civil works
- Removal of oil filled circuit breakers
- Evolve the system to use digital protection

**UFES Solutions**

Arc flash mitigation solution for low and medium voltage equipment using UFES.

- Increased operator safety
- Greatly increased system and process availability by avoidance of heavy damages inside the switchgear, the equipment and in the direct
- Reduction of downtimes and repair costs

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Please note: This is ABB's global offering and some products might not be available in your country. Refer to [abb.com](http://abb.com) for your location.



# ABB Connect

## Your Digital Assistant

Connect to your electrification solutions with your digital assistant, access the latest news and create your own digital workspace.

Available for use on iOS, Android and Windows 10.

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